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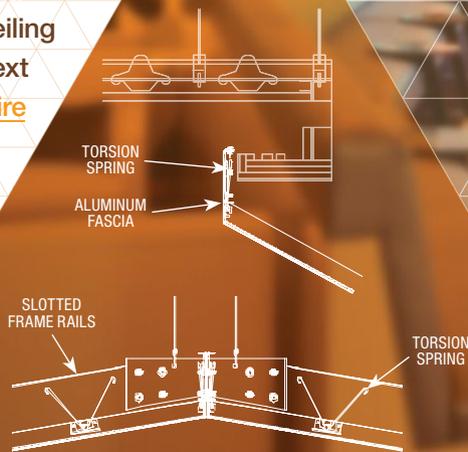
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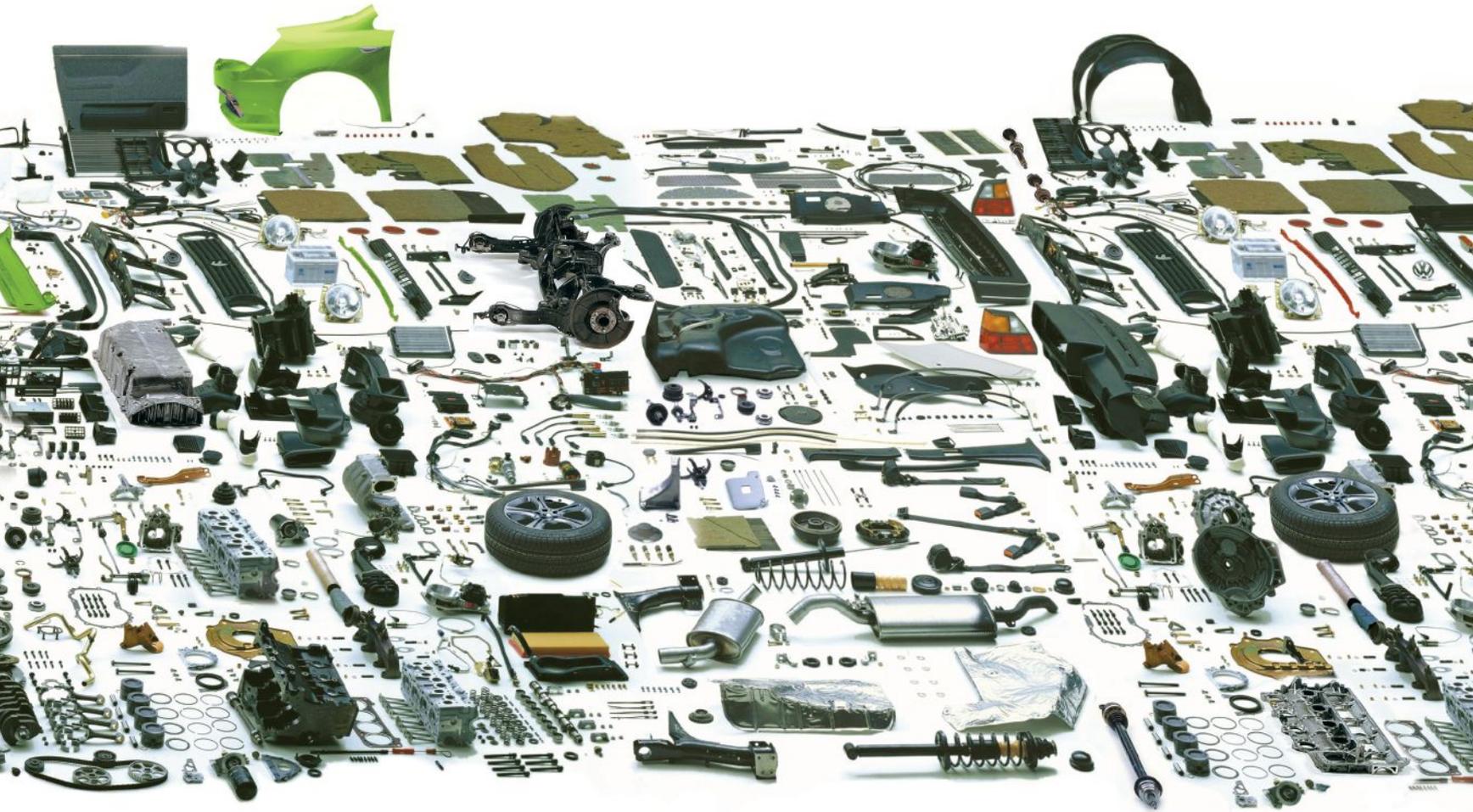
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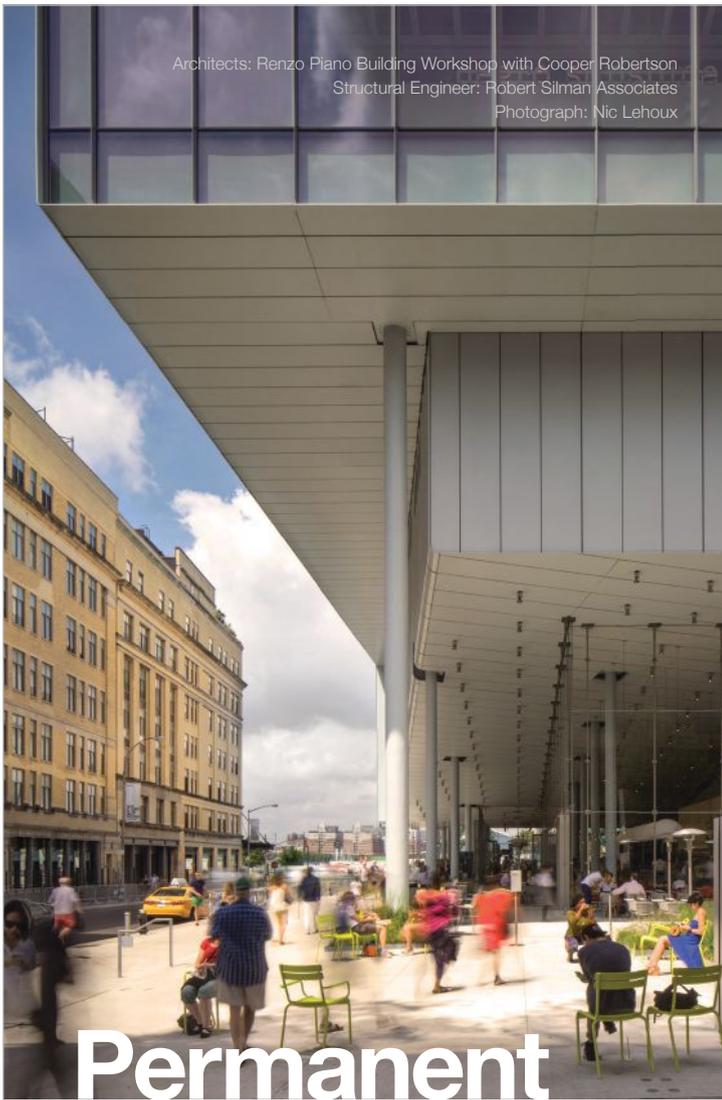
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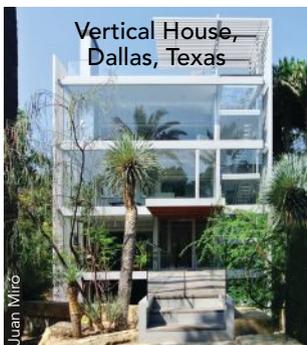
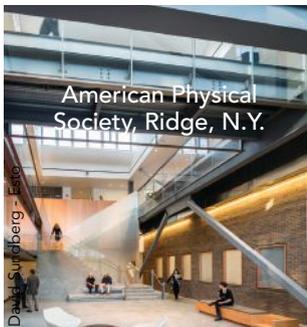
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Deadline for entry—August 26

How to Enter and Win AISC's 2017 IDEAS² Awards Competition

The American Institute of Steel Construction (AISC) offers insight on not only how to enter its Innovative Design in Engineering and Architecture with Structural Steel (IDEAS²) Awards competition, but more importantly, how to *win* the IDEAS² Award—the U.S. steel industry's highest honor bestowed upon building projects for excellence in the design of steel-frame buildings.

Photos in this ad are all AISC 2016 IDEAS² Awards recipients.

- **Enter on time**—Entries are accepted online at www.aisc.org/ideas2 with the deadline for entries Friday, August 26.
- **Give it some thought before submitting your online entry**—Tailor your entry toward the IDEAS² Awards—and keep the steel in mind.
- **Written description**—Be to-the-point, bold and compelling with your 500- to 1,000-word project description.
- **Print quality photography and graphics and drawings are essential to winning**—Provide good construction and professional finished photography, and drawings. Tell the story visually.
- **Abide by the competition's rules and regulations**—Projects submitted for the 2017 IDEAS² Awards must have completion dates between January 1, 2014 and December 31, 2016; projects must be fabricated in and located in the U.S.; a significant portion of the project's framing system must be wide-flange shapes or hollow structural sections (HSS).
- **Focus on how your project speaks to excellence in designing with structural steel**—The criteria for judging the entries is based on the project's utilization of structural steel from both an architectural and structural engineering perspective.
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Curve Appeal

With its innovative conical indentations, the luminous stainless steel and glass curtain wall of **Pei Cobb Freed & Partners' 7 Bryant Park** becomes an extension of the city's green space. From inside, occupants have a bird's-eye view of surrounding park, while outside, passersby appreciate its reflections. Terminating in a floating canopy sheltering a new plaza—the curved motif successfully underscores this private building's public gesture to the neighborhood around it. Read more about it in **Metals in Construction** online.

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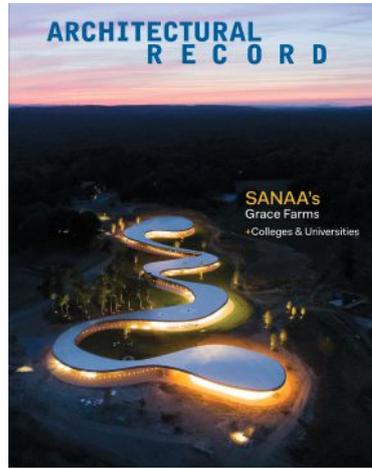
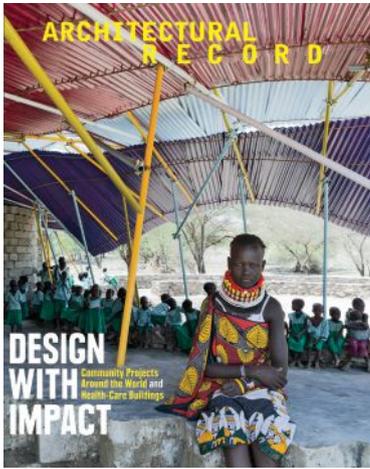
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HIGHLIGHTS

COVERS BY IWAN BAAN

The AIA New York recently awarded the Stephen A. Kliment Oculus Award to RECORD contributing photographer Iwan Baan. View the five covers he shot in the last year and learn more about his work with the magazine. [NEWS]

FEATURED HOUSES

Find photos, credits, and specifications for new residential projects in this monthly online-only feature. [HOUSES]

VIDEOS

Take a virtual tour of the new SFMOMA by Snøhetta via videos from EarthCam and architectural photographer Nic Lehoux. [PROJECTS]

PHOTOGRAPHER IWAN BAAN SHOT FIVE COVERS FOR RECORD IN THE LAST YEAR, INCLUDING THESE FROM JUNE (KONOKONO VACCINATION CENTER BY SELGASCANO) AND NOVEMBER (GRACE FARMS BY SANAA).

ARCHITECTURAL RECORD 125 years

INTERACTIVE TIMELINE

Click your way through the magazine's history on our timeline, which highlights important contributors, editors, articles, and changes to the publication over the years. Have something to add? Tweet it to us with the hashtag #AR125Years.

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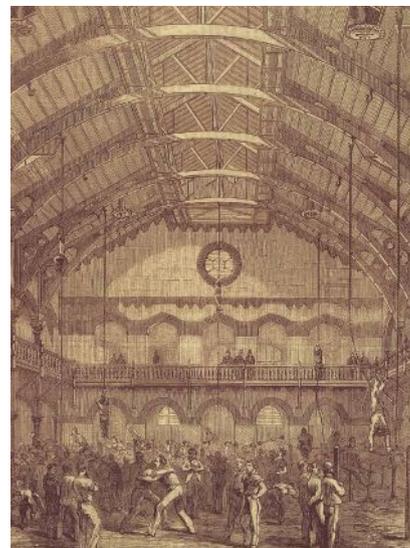
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FROM THE VAULT

See more of Alan Dunn's cartoons published in RECORD.



"YOU AND YOUR INSECURITY!" CARTOON BY ALAN DUNN.



VIEW ARCHIVAL IMAGES OF THE GERMAN GYMNASIUM IN LONDON, ORIGINALLY CONSTRUCTED IN 1864 AND RENOVATED BY CONRAN + PARTNERS.



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Last Call for a Modernist Landmark

Amidst a trend to transform existing structures, some spaces should be revered, not revoked.

THE ARCHITECTS of a number of striking projects featured in this month's RECORD have radically reimagined new spaces within existing structures. A brick university laboratory in Amsterdam has been refitted as a hipster hostelry. An old gymnasium in London—think 19th-century health club—has been transformed into a dramatic high-end restaurant. A 1930s hospital on an island in the Venice lagoon has become a sumptuous luxury hotel (you can't beat the location). These projects are all part of a contemporary trend to adapt everything from bank buildings to factories into dynamic hospitality spaces.

Yet the more distinctive the original architecture, the more challenging that adaptation can be. Take Eero Saarinen's spectacular TWA Flight Center at JFK Airport in New York (1962), a building in search of a purpose ever since it was mothballed in 2001. Now, it appears, work will finally begin to convert the landmark into a hotel, with a renovation and expansion by the firms Beyer Blinder Belle and Lubrana Ciavarra Architects. The concept is to make it the grand entrance, with lounges and bars (there were several originally; to get travelers in the mood for where their awaiting jet would take them, they had names like the Lisbon Lounge and the Paris Café). The new hotel's developer proposes to construct two six-story structures behind Saarinen's birdlike icon, to hold 505 guest rooms and 40,000 square feet of meeting venues.

Assuming the renovation of TWA is undertaken with a light touch, this is good news. The interior space is as astonishing as the exterior but rarely has been accessible since it closed. Last month, the nonprofit Storefront for Art and Architecture—an exhibition space and forum that explores experimental ideas across disciplines—managed to commandeer the terminal for its annual gala. To be there, not on an architectural tour but among hundreds of revelers, was to see the space in a spectacular new light. Saarinen knew about theater—and the human comedy—and what he created for the terminal's interior was a stage set for people on the move. Its curving stairways and bridgelike balcony, its swooping, red-upholstered conversation pit, all of it animated by partygoers and saturated with music, was like being at the opera, the performance and intermission rolled into one. It is a place that deserves to be populated as well as preserved.

While the TWA terminal transformation is hopeful, a more serious change awaits another stunning modern masterpiece. Later this month, the Four Seasons Restaurant, designed by Philip Johnson in Mies van der Rohe's Seagram Building in New York, will host a fundraiser for DOCOMOMO, the organization dedicated to documenting and protecting buildings of the Modern era. That is both deliberate and ironic because, it turns out, the restaurant's spaces are not fully protected, despite being "among the finest International Style interiors in the United States," according to its 1989 landmark designation. While the interiors have remained virtually unchanged since opening in 1959,



the landmark status only applies to fixtures that cannot be moved. After a drawn-out drama—involving a new owner of Seagram, who inflicted a huge rent hike on the Four Seasons—the restaurant's owners are departing for a new location, taking the name and not much else with them. Another restaurant will open in the same Seagram place—but it won't include the original custom furnishings. Everything that's not nailed down—from the tables, chairs, and barstools by Mies and Johnson to the beautifully simple flatware, designed by Garth and Ada Louise Huxtable—will be auctioned next month.

One of many architects mourning the end of the Four Seasons recalled her father's first bringing her there when she was 10 years old; and everyone in the design world who loves the place has his or her own memories. There's still a little time for a last lunch or dinner, or a drink at the elegant four-sided bar, before it closes on July 16. And then, it really will be last call.

Cathleen McGuigan

Cathleen McGuigan, Editor in Chief

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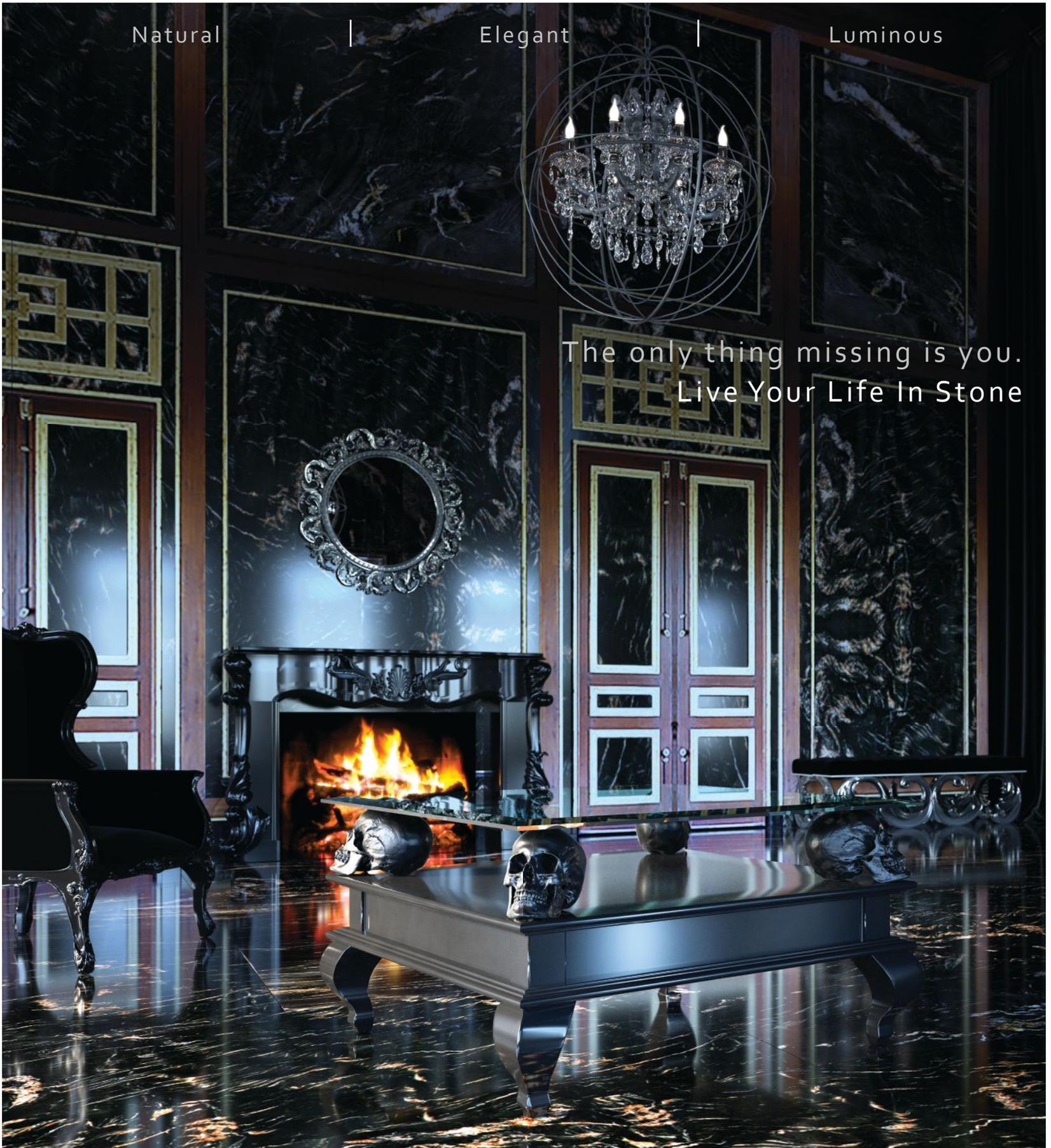
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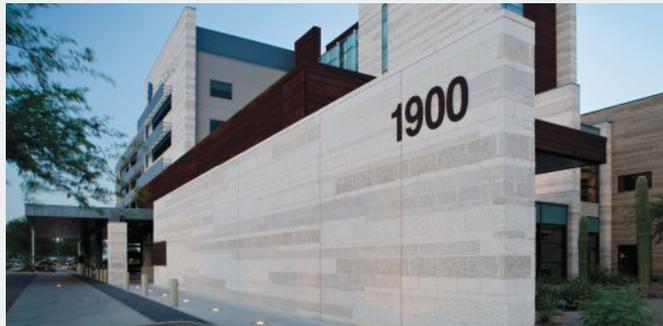


Sustainable Buildings on Demand

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perspective

What is the name of that building by that French guy? It would have been better without all that glass. I think it is an absolutely horrendous building.

—Rafael Viñoly, on Christian de Portzamparc's One57 tower in the New York Post.



Amid Political Turmoil, Rio de Janeiro Stadiums Stand Ready for Olympic Games

BY TOM HENNIGAN

WITH TWIN political and economic crises in Brazil right now, it is hardly the best time to be hosting this summer's Olympic Games.

But in Rio de Janeiro, officials are quietly pleased that their preparations mean this stunningly located beach-side metropolis will be ready on time for the opening ceremony August 5 regardless of the problems—which include the impeachment trial of President Dilma Rousseff—occupying the rest of the country.

At the main AECOM-planned Olympic Park, a somewhat barren concrete expanse deep in the western reaches of the Barra da Tijuca neighborhood, the final touches are being made to the three interlocking indoor “Carioca” arenas a full three months before the Games start. Work is also winding down at the Deodoro site, whose elegant, temple-like Youth Arena, by architects Vigliecca & Associados, is the star of a new complex that will host sports as varied as field hockey and BMX. The existing Maracanã and João Havelange stadiums (which opened in 1950 and 2007, respectively) stand ready for the opening ceremony and athletic events.

It is a stark contrast to the last-minute dash

Work is nearly complete on the AECOM-planned Olympic Park in Rio de Janeiro's Barra da Tijuca neighborhood (right). These arenas will host tennis, cycling, and other sports. Vigliecca & Associados, meanwhile, has designed the Deodoro site for other athletic events, the star of which is its graceful Youth Arena (above).



to have football stadiums ready in time for the start of the 2014 soccer World Cup.

“This is a great success for Brazil. We completed the work on time and within budget, which is not something very common for public works in Brazil,” says Roberto Aimbinder, who as director of projects for the Municipal Olympic Company, is charged with delivering the sporting venues on time. “With the Olympics, we have advanced in how we

execute infrastructure projects here.”

But beyond the Olympic Park fence, Brazil's old ways of delivering large projects continue. The city's already unruly traffic has become a nightmare for drivers as authorities rush to finish bus corridors and a metro line extension—the main legacy of the Games to the city—in time for the arrival of athletes and spectators. Even this incomplete transport project is contested, with critics alleging au-



The Maracanã Stadium (left) will host the 2016 Olympic opening ceremony August 5. It was first built for the 1950 FIFA World Cup and later renovated to accommodate the 2014 World Cup.

thorities manipulated the need to prepare for the Games to undertake an urban redesign that will benefit the city's rich at the expense of the poor.

The main focus of the city's makeover for the Olympics has been the wealthy, fast-growing Barra neighborhood, where most of the new public transport links will converge. Here poor residents of favelas, who were living on rapidly appreciating real estate, have been

removed, while public land has been handed over to private developers in sweetheart deals. "This is clearly a project to keep low-income workers from living in Barra," says geographer Christopher Gaffney, a senior research fellow at the University of Zurich who has studied the impact of large sporting events on host cities. He adds there is no doubt that these people will be expected to continue to work in the area's luxury condos and shopping malls. "The

Olympics is becoming an excuse and vehicle for consolidating an elite vision of the city."

This use of the Games to prioritize upper-class interests is further highlighted by the failure of authorities to clean up Rio's heavily polluted rivers and Guanabara Bay, as they promised in their original bid proposal.

"That would have been of much greater benefit to most of the population, but it was left aside while the focus was placed on installing infrastructure into Barra, which has a Human Development Index the same as Norway," says Juliana Barbassa, author of *Dancing with the Devil in the City of God*, a new book that charts the impact of preparations for the Games on the city. "The major questions are, "What are we getting? At what cost? And, ultimately, who benefits from this?" she says. "And, when you look at Rio, I think you can say that the city that we are going to have after the Olympics is an even more unequal city than the city that we had before." ■

Tim Hennigan, the South America correspondent for the Irish Times, is based in São Paulo.

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National Museum of African American History and Culture Nears Completion

BY JOSEPHINE MINUTILLO

THOUGH THE scaffolding on the National Museum of African American History and Culture's new building on the Mall in Washington, D.C., has been down for some time, allowing the public full view of its three-tiered, crown-shaped exterior of bronze-colored cast-aluminum panels, on May 12, a small group of journalists was given a tour of its nearly complete interiors, where installation of exhibits has commenced. Representatives from the four firms collaborating on its design—jointly known as Freelon Adjaye Bond/Smith GroupJJR—as well as museum leaders and curators were on hand to discuss the project before the final push to complete construction in anticipation of the museum's September 24th opening and ribbon-cutting by President Obama.

The building invites visitors first to descend 60 feet below grade to explore the story of slavery and freedom. The lower in the building you are, the further back in history the exhibit takes you. Large

objects—including an antebellum slave cabin, a Tuskegee airplane, and a 44-seat segregation-era railway car that was dropped into the ramping exhibition hall before its ceiling was in place—anchor the visitor experience. A massive slurry wall, with quotations relating to the founding of

America affixed to its stuccoed frontage, presides over the cavernous space. The entire foundation was redesigned and reengineered after construction had begun due to issues with the high water table on the swampy land, the last parcel available on the Mall.

Above grade, the building rises 60 feet, with light filtering into glass-walled galleries through the facade's decorative screen, the pattern derived from historical ones made by renowned black ironworkers in Savannah and Charleston. These galleries celebrate the African-American contribution to music, theater, film, television, and the visual arts. Bigger artifacts, including a red Cadillac belonging to Chuck Berry and George Clinton's Mothership—a 1,200-pound aluminum stage prop—have been installed but are under wraps for now. Smaller display cases with names of artists such as Prince and Ray Charles are most-

ly unfilled at this point, though images of one controversial inclusion, Bill Cosby, stood out. At the highest level is a terrace-like lookout facing west over the city and toward the Washington Monument (unfortunately, metal panels of the facade's top tier lop off views of the obelisk's pinnacle). "This is a critical moment to reflect," says lead designer David Adjaye. Other main spaces include the Oprah Winfrey Theater, where panels similar to those of the facade, but smaller and silver, clad its interior. "On the facade, they filter light; here, they filter sound," says Freelon Group president Phil Freelon.

Most surprising is the central hall, not for what it includes but for what it is missing. A major part of the original design, a dense forest of thin wood columns, was to be suspended from the ceiling but didn't survive cost-cutting measures. "That was the biggest disappointment," admits Adjaye, who leaves open the possibility for its return.

The building, which Adjaye calls a "once-in-a-lifetime opportunity to design this kind of project on this kind of site," has a handsome presence on the Mall, and is particularly striking in juxtaposition to the classical white buildings surrounding it. But with much of the interior still unfinished, the final impact of its design is yet to be seen. ■

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Developer Signs Deal on New Chicago Neighborhood

BY ANNA FIXSEN

RELATED MIDWEST has signed a deal to develop a vacant 62-acre parcel of land linking Chicago's South Loop and Chinatown neighborhoods, Mayor Rahm Emanuel announced on May 12. The sprawling brownfield site, at Roosevelt Road and Clark Street, is the largest area of open land in downtown Chicago after Grant Park. If completed, the development would dramatically alter the city's southern skyline.

"This will be one of the largest development projects in Chicago's history, and I look forward to working with our private partners to transform this site and create economic opportunities for residents in every part of Chicago," Emanuel said.

This isn't the first attempt to develop the acreage. Under a plan by now-disgraced businessman Antoin "Tony" Rezko, the area would have hosted a shopping mall and 4,600 units of housing, but the site sat empty.

The newly announced multibillion-dollar deal is a joint venture between Related—the

company also behind New York's Hudson Yards development—and a Luxembourg-based company called General Mediterranean Holding, which purchased the property in 2007.

Related Midwest president Curt Bailey told the *Chicago Tribune* that the project will include a mix of residential and commercial buildings and will take about 15 years to finish. Said Bailey in a statement, "The team is excited to work with the city of Chicago to transform this long dormant site into a great neighborhood to live and work . . . creating what is sure to be a catalyst for economic development, job creation, and, ultimately, a great new community for our city."



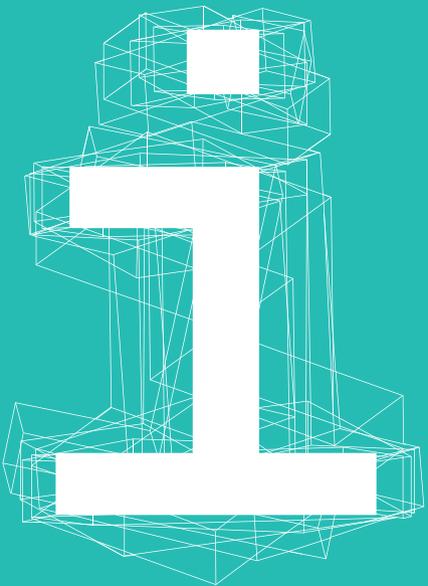
Related Midwest plans to develop a multibillion-dollar mixed-use neighborhood just south of downtown Chicago. The vacant site (the green swath on the left, above), once a rail yard, is not connected to city services.

Bailey cautioned that the development is still in its early stages but that the company will work with the city to establish "an achievable timeline." All proposals will require city council approval. A planning firm has yet to be selected, Related Midwest told **RECORD**. ■

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[NEWSMAKER]

Marlon Blackwell and Meryati Johari Blackwell

BY ANNA FIXSEN

WHEN A project by Arkansas architect Marlon Blackwell was first shown on the cover of this magazine in February 2001, it was part of an issue on the theme “Out There . . .

Architecture Outside the Centers of Fashion.”

In spite of the somewhat supercilious headline, it helped put Blackwell’s highly contextual approach to modern architecture on the map. A decade and a half later, Blackwell couldn’t be more front and center:



last month Marlon

Blackwell Architects won the Cooper Hewitt, Smithsonian Design Museum’s National Design Awards for architecture. The firm will accept the award at a gala on October 20 at the Cooper Hewitt in New York. RECORD spoke to Blackwell and Meryati Johari Blackwell, co-principal (the two are also married), over the phone from their Fayetteville office.

How did you hear the news of your National Design Award?

Marlon I was guest teaching a studio at the University of Texas, Austin, and I got the call right in the middle of my lecture. It was pretty shocking. A friend of mine happened to walk by my studio and I pulled him into the hallway and said, “Hey, man, guess what?”

I have here a 2001 issue of RECORD headed “Out There.” Do you remember it?

Marlon I do. That really set us up. Now it’s come full circle. It is amazing what’s happened since that moment. We were working out of a spare bedroom at the time and we had a tangerine-orange iMac.

Meryati We had finished the Keenan TowerHouse and the Moore HoneyHouse, both seminal projects. We wanted to take something like a carpenter into the realm of architecture.

What were some other key moments for your firm?

Marlon The Blessings Golf Clubhouse in 2005, which gave us the opportunity to scale up. I think the next benchmark was St. Nicholas Church [RECORD, November 2011, page 68]. At \$100 per square foot, we showed we could turn a former welding shed into a worship space that would capture people’s spirit. Scale and proportion doesn’t cost anything.

perspective news

Over the years, why have you opted to stick around in Arkansas?

Marlon Brian Mackay-Lyons, who lives and practices in Nova Scotia, is always like, “I’d rather be a first-rate hick architect than a third-rate New York architect.” We stayed for the opportunity and support from our institution [the Fay Jones School of Architecture at the University of Arkansas].

Meryati [laughing] We might move if someone gives us a 100-story high-rise.

Marlon We very much want to be part of the social aspect of architecture but are continually trying to master the language of our own discipline. The architecture provides the social with value. Some people get it backwards: they get all the social stuff out front and get a mediocre building.

The Cooper Hewitt director said this year’s winners show “remarkable empathy for contemporary social

concerns.” That calls to mind recent prizes to folks like Shigeru Ban and Alejandro Aravena. Do you think social architecture is a trend?

Marlon Yeah—hopefully it’s not out of guilt. You look at Shigeru and Aravena and they are innovating with modest means. We call it “minimum means for a maximum of meaning.” We recently did a wellness center in Quapaw, Oklahoma, for \$90 per square foot. Some of our architect friends joke, “You are making our profession out to be a bunch of MacGyvers.” But if we are going to have design in places you wouldn’t expect, that’s what we’re going to do. **Yes, you are known for your regional and contextual approach to architecture.**

Meryati Marlon doesn’t like the word regional. You wouldn’t classify someone practicing in Boston as “regional mid-Atlantic” or something—why immediately label something because it’s not in a city? Our current work is as modern as could be.

Marlon People say, “You do the vernacular so well.” We don’t do the vernacular—we transgress it. You will be hard-pressed to look at our work and say “Arkansas.” While a lot of inspiration comes from a place-based approach, it also comes from a universal architectural language. If I look at a barn, I also think Corbusier.

What’s next?

Marlon We want to do more campus and school work. We’re doing a Montessori school in Florida. We are also working on the first tri-faith center in the country—Christianity, Judaism, and Islam. We are also working on a combined church and art cinema—you watch *Birdman* on Saturday night, and then you repent the next day. ■



noted

Paulo Mendes da Rocha Wins Venice Biennale Golden Lion

Brazilian architect Paulo Mendes da Rocha was named the recipient of the Golden Lion for Lifetime Achievement for the 15th Venice Architecture Biennale. The Biennale board of directors called him a “nonconformist challenger and simultaneously a passionate realist.”

Modernist Architect Romaldo Giurgola Dies at 95

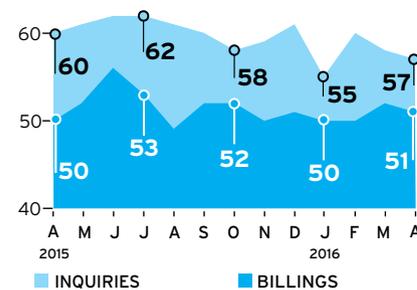
Romaldo Giurgola, modernist architect and founder of New York-based firm Mitchell | Giurgola Architects, passed away at the age of 95 May 16 in his adopted home of Canberra, Australia. He is best known for the Parliament House in that city, completed in 1979. Giurgola was made an Officer of the Order of Australia in 1989 and became a citizen in 2000.

San Francisco to Require Solar Panels on New Buildings

Beginning next year, San Francisco will require all new residential buildings 10 stories or shorter to include solar panels. It will be the first major city in the U.S. to pass such an ordinance. The legislation is intended to push the municipality toward a goal of meeting 100 percent of its electricity needs with renewable energy.

RIBA Study Shows School Design Affects Student Performance

The Royal Institute of British Architects (RIBA) has released a report linking poor design to poor student performance. The study, titled “Better Spaces for Better Learning,” claimed that only 5 percent of the 60,000 UK schools studied were operating efficiently and that well-designed schools could increase staff productivity by 15 percent.



ABI Reflects Steady Growth

The American Institute of Architects (AIA) has reported a steady three-month period of growth in its monthly Architectural Billings Index (ABI). While April’s score of 50.6 was down 1.3 points from the previous month, any score above 50 indicates an increase in billings. The new-projects inquiry index for April, meanwhile, scored 56.9.



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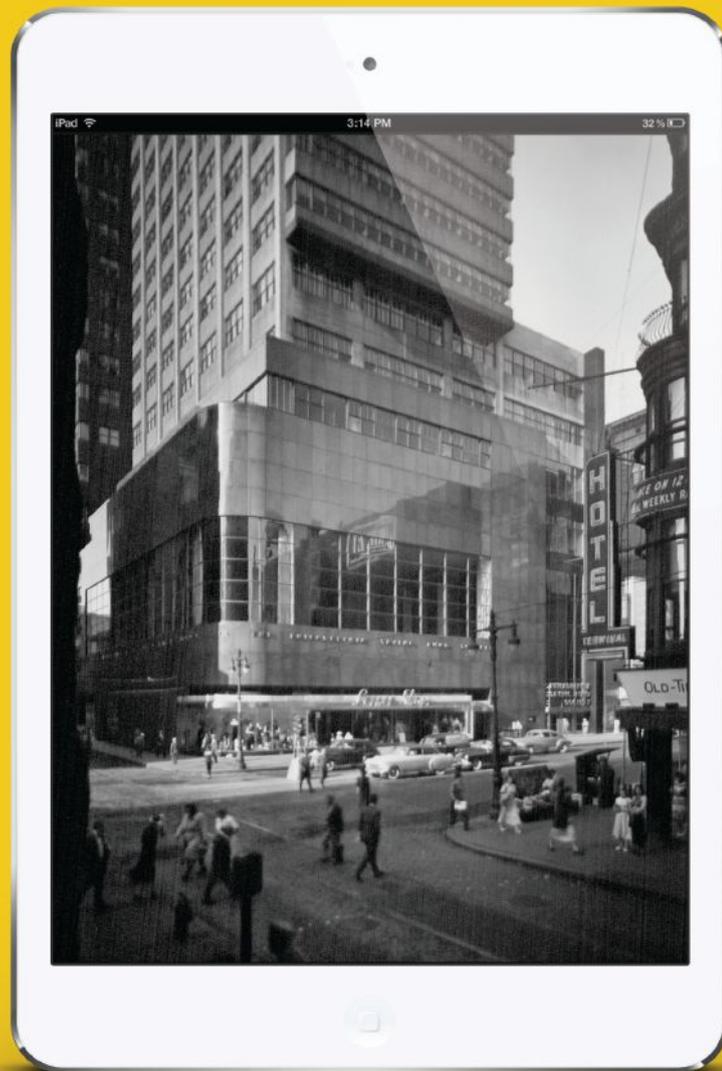
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PATRICK DILLON'S HOUSE IN CENTRAL PANAMA LISTENS TO NATURE AND BRINGS THINGS BACK TO BASICS. BY BETH BROOME



"I AM INTERESTED in the idea of an 'essential architecture' in the tropics," says Panama City-based architect Patrick Dillon, who was born to American parents and raised in the Canal Zone. "And I've always looked at blurring the distinction between inside and out—here, with the climate, we can make do with just a roof, as long as we can deal with mosquitos." His approach comes to life with this elegantly spare house in a remote section of central Panama, where little separates occupants from the symphony of the surrounding forest.

The house in El Copé is owned by Andrew Bovarnick, a Brit who is the United Nations Development Program's lead natural resource economist, and his Panamanian wife, Priscilla Castro, a lawyer, who became friends with Dillon, spending time at his weekend house in nearby San Lorenzo. The previ-



The house embraces its lush surroundings, which abut the Omar Torrijos National Park (top). A large door at the entry pass-through (above) pivots to close off the living area. The tree canopy enters the living space (right) in the form of shadows. Rustic wood furniture here was all made locally.

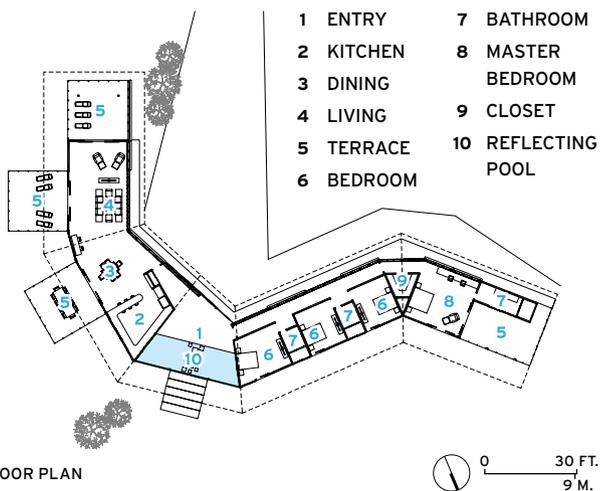


ous owner of this site—which sits along a valley, looking down to a river and out to the mountains—had cut a road and cleared the plot. For years, Dillon and the couple would camp out here, growing increasingly enchanted by its awe-inspiring location. "It was a no-brainer to keep the road and use the flat area as the entry courtyard, wrapping the house around the contours of the hillside," says Dillon (who was also the architect of record for Frank Gehry's Biomuseo, RECORD, October 2014, page 90).

The structure of the 20-foot-wide, 180-foot-long winding house combines steel posts and wide flange beams with timber framing. Walls are made of a combination of tongue-and-groove and fixed-louvered Douglas fir and southern yellow pine. All of the wood (including that for the doors and window frames) was recovered from the hip roofs of midcentury structures at the former U.S. military's Howard Air Force Base near the Pacific entry to the canal. The simple inclined metal roof is typical of

those found across the country.

Snaking along the hillside, the form is divided into two parts: to the east are common spaces—enclosed with screening—their narrow width promoting cross ventilation; behind, decks shoot out over the valley. To the west are bedrooms and baths, which have glazed openings and air-conditioning. The entry portico, which separates the wings, leads to a reflecting pool and then to a path down to the river. In its simplicity, the house preserves many of the elements that first excited the clients and architect when they camped here. "It's about the sensorial experience," says Dillon, "where you let yourself go and get into that natural rhythm as the light changes and the breezes come in—it makes you aware of being alive. That is the test of good design—you forget about the architecture and enjoy the moment." ■



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Haute Construction

OMA NY sets an ethereal fashion scene at the Met.

BY LINDA C. LENTZ

SCORES OF paparazzi and fashionistas jammed the entrance of New York's Metropolitan Museum of Art on May 2 to glimpse the celebrities attending the 2016 Costume Institute Gala, a red-carpet fundraiser heralding the opening of the Institute's exhibition *Manus x Machina: Fashion in an Age of Technology*. Yet while some guests were provocatively dressed in sync with the show's theme (Beyoncé wore a skintight latex affair by Givenchy), none had the sheer impact of the exhibit itself, housed in a haunting environment designed by OMA New York in collaboration with Andrew Bolton, the curator in charge of the Costume Institute.

On view through August 14, *Manus x Machina* examines how designers balance traditional handwork with machine- and computer-driven technologies in the creation of haute couture and avant-garde ready-to-wear fashion. The 18,300-square-foot installation, centrally located in the Robert Lehman Wing—a bilevel bump-out on the museum's west side—is stunning in its simplicity, providing a cocoon-like enclosure for the showcasing of Bolton's 170 extraordinary case studies, which date from the late 19th century to the present.

The program requires visitors “to focus on the details and garments themselves,” says OMA New York director Shohei Shigematsu. “In order to do that, we had to create a neutral environment, so that the clothing stands out.”

Led by Shigematsu, the design team devised a scaffolding system, tautly veiled by scrim textile, in the given space—a run of narrow galleries on each of the two floors, octagonal in plan, with a skylit atrium on the upper level. At its heart, they built a rotunda (43 feet in diameter and 52 feet high), topping it with a shielded truss dome that blocks the sun from the existing skylight. Two series of arcades—one surrounding the rotunda, the other below the first—feature displays organized by specific skills



The rotunda displays a neoprene wedding dress by Karl Lagerfeld. Details of the pixelated pattern on the gown's train are projected onto the dome's opaque blackout fabric via 3-D mapping.



A diaphanous scrim reveals the structure throughout the installation, where garments are arranged in niches around the rotunda (above) and along parallel rows on the lower level (right).

of fine dressmaking, such as pleating, embroidery, lacework, and so on.

Dubbed “Ghost Cathedral” by the architects, the ephemeral structure-within-a-structure is revealed or concealed, like a stage set, depending on how it is lit. “So while you’re circulating, you can always see another space,” Shigematsu notes. “It is never claustrophobic.” Nor is it overwhelming. The architects’ sparing use of electronic media is limited to 3-D-mapped projections that magnify exquisite details of dresses in the rotunda and its adjacent niches—most notably a close-up in the dome of a golden pixilated pattern, hand-painted and embroidered, on the train of a Chanel wedding gown by Karl Lagerfeld.

Shigematsu wanted the experience to be unexpected, he says, “to focus on the pristine details and to treat them like art.” ■





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The answer to the May issue's Guess the Architect is **HENRY HOBSON RICHARDSON**, whose Trinity Church in Boston was completed in 1877. Richardson's successful interpretation of the Romanesque vocabulary led to a style known as Richardsonian Romanesque.

By entering, you have a chance to win an iPad mini.

See the complete rules and entry form online at architecturalrecord.com/guessthearchitect.



Kahn Revisited

The Yale Center for British Art reopens after a faithful restoration.

BY JOSEPHINE MINUTILLO

WALKING THROUGH Louis Kahn's Center for British Art—where sunlight streams in from skylights, and concrete, wood, metal, and stone combine in precise yet monumental ways—leaves one yearning for the days when museums, quite honestly, weren't so sterile.

After comprehensive research on the history of the design and construction of Kahn's last museum by London-based Peter Inskip and Stephen Gee, who created a conservation

plan, several phases of work began in 2008, including exterior courtyard renovation (removing years of accretions like awnings and trellises), followed by interior restoration. The center was completely closed for a year and a half; it reopened to the public last month.

"The building is the center's largest and most complex work of art," says director Amy Meyers, who saw the need for its overhaul upon noticing a "looming list of issues," not least of which were its outdated mechanical, electrical, fire protection, and security systems.

"It's difficult to bring new systems to a building that had been so beautifully designed for the systems of the 1970s," explains George Knight. His locally based firm, Knight Architecture, oversaw the restoration project.

Located across the street from Kahn's first major commission, the Yale University Art Gallery (1953), on the school's campus in New Haven, Connecticut, the five-story



The center houses philanthropist Paul Mellon's gift to Yale, an important collection of British art. Counterclockwise from top: the Long Gallery; the stair tower inside the Library Court; a pogo wall within a fourth-floor gallery; opposite, counterclockwise from top: exterior view; entrance court; Library Court, facing north.



center opened in 1977, three years after Kahn's untimely death, which left some of the architect's design intentions unclear.

For instance, the design for, and configuration of, the "pogo" walls—lightweight panels used as independent display screens throughout the galleries—was at last realized, based on drawings that predate Kahn's death. That included changing their edge-trim details and linen covering. The galleries also received new wool carpeting, replacing the synthetic one installed not long ago.

In other cases, work was carried out to bring certain elements to code. Within the iconic cylindrical concrete stairwell, nonconforming step heights were addressed. "It was painstaking work to drill out those travertine steps," recalls Knight. Metal handrails, considered too wide for today's standards, were replaced with new ones sympathetic to the originals.

Furniture designer Don Chadwick's modular gallery chairs are an updated version of the ones used originally. The lecture hall's new seating was reconfigured to improve circulation.

The building looks mostly untouched from the outside, and it was untouched. Though the facade's "pewter" steel panels were found to be impossible to replicate, behind them, the merely 3-inch-thick walls were completely rebuilt from the interior side, improving thermal performance while maintaining the same ultrathin profile. Stains on concrete throughout the interiors were carefully removed.

As for all that daylight, the center conducted tests on a couple of the works of art next to windows or below skylights and found that they had been unharmed. (Note to museums everywhere.) Sunlight was, however, responsible for bleaching the white oak panels of the entrance court, requiring those to be refinished. But, then again, after 40 years, what—and who—couldn't use some sprucing up? ■

He Who Laughs Last: Alan Dunn

A cartoonist for RECORD found fodder in mid-20th-century architectural debates. His insights are still timely.

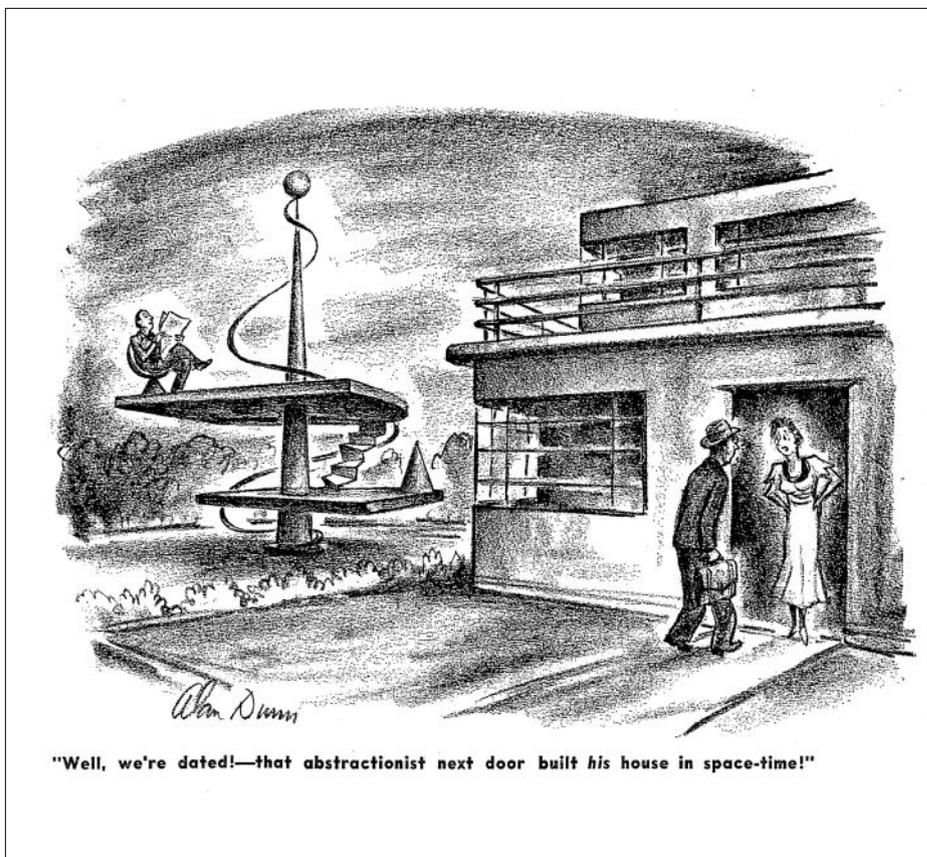
BY SUZANNE STEPHENS

ONE OF the most incisive architectural critics of the 20th century, whose work was regularly published in RECORD, was a cartoonist. No joke. Alan Dunn (1900–74) was best known as a contributor to *The New Yorker*, an association that began in 1926, a year after the magazine was founded. His illustrative commentary for the fledgling publication often focused on the foibles of modern design and the general state of clients' taste and on devil-may-care construction. In 1937, RECORD approached Dunn to submit a drawing for a more circumscribed readership of 12,000 architects and related professionals. (By then, *The New Yorker* had a circulation of 133,000.) As Dunn replied, "I am pleased that my libido towards architecture and construction has come to notice."

Raised in Manhattan, Dunn had no architectural training. After attending Columbia University for a year, he studied painting at the National Academy of Design and the American Academy in Rome. Soon he was drawn to using his art for social commentary, as was his wife, Mary Petty, an illustrator who also presented her own distinctive cartoons in *The New Yorker*.

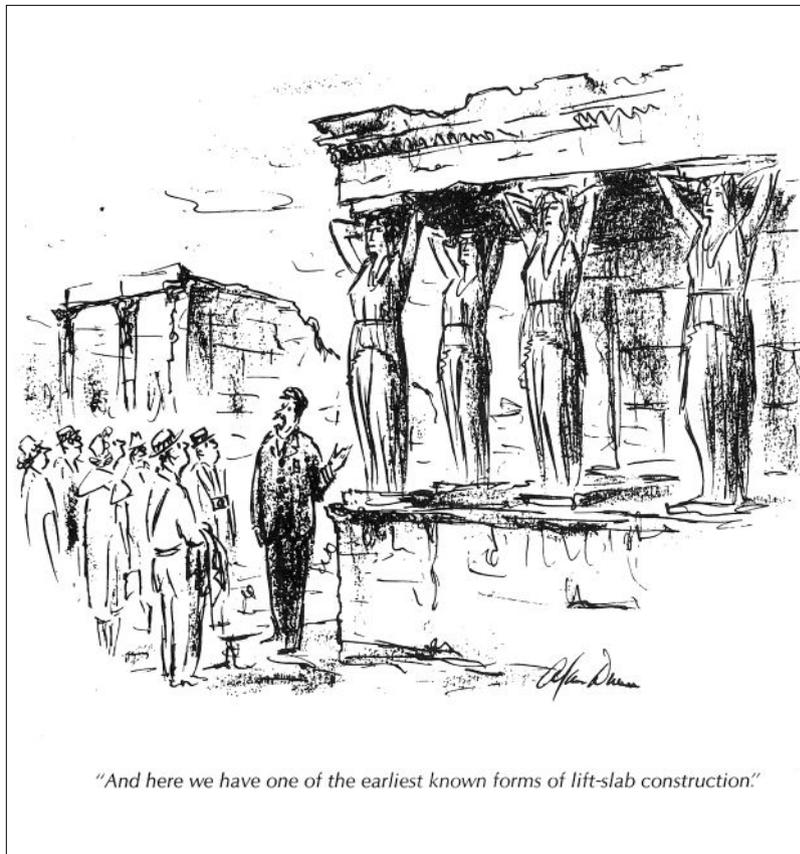
The first of Dunn's drawings that RECORD published (for which he was paid \$25) anticipated Sigfried Giedion's influential book of 1941, based on his Harvard lectures of 1938–39, *Space Time and Architecture*. Dunn's clever interpretation of the scientific concept applied to the design of a house (top) appeared in June 1937.

While *The New Yorker* had the first right of refusal for his ideas, Dunn's contributions to RECORD ultimately won him the national AIA "Architectural Critics' Citation" in 1973. The magazine compiled two books of cartoons by Dunn that had appeared in its pages: one, *The Last Lath* (yes) came out in 1947, and the other, *Architecture Observed*, in 1970. Through the years, Dunn's work demonstrated timeless architectural insights. His musings, however ironic, were upbeat. In 1973, he wrote to RECORD, "Now we live in a glittering pandemonium of anarchic eclecticism. But there is a vibrant life in all that invention in spite of its inconsistencies, and who can help but revel in it?" ■

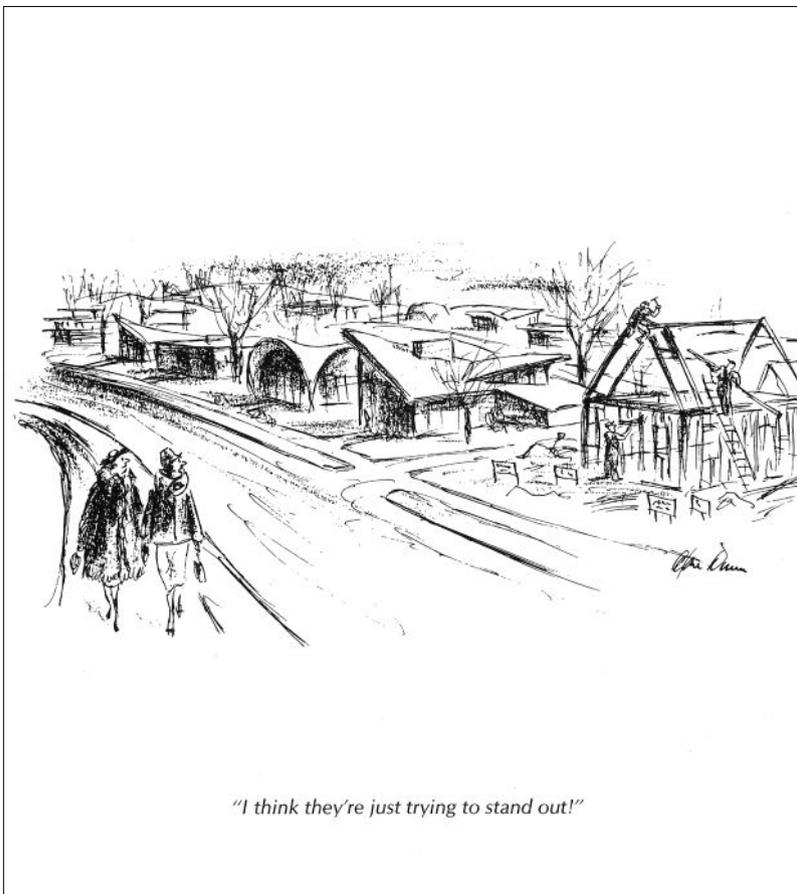




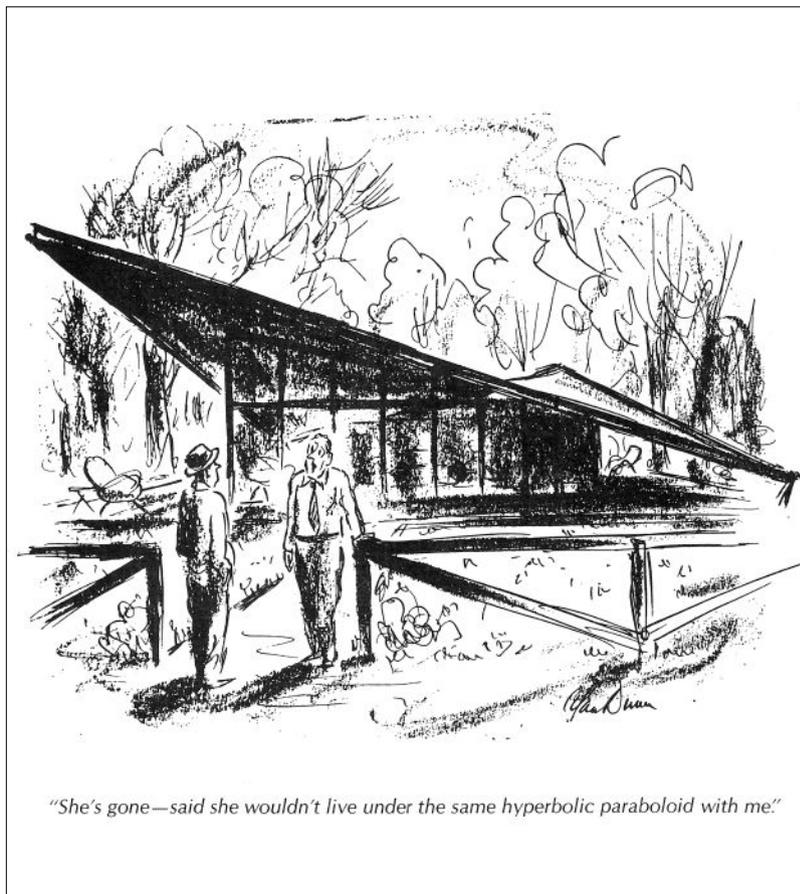
"Just what do you mean by 'stressed skin'?"



"And here we have one of the earliest known forms of lift-slab construction."



"I think they're just trying to stand out!"



"She's gone—said she wouldn't live under the same hyperbolic paraboloid with me!"

Mix Masters

Taller Ken's playful architecture is a delightful mashup of materials and metaphors.

BY DAVID SOKOL

WINNING A competition like New Practices New York—AIA New York's platform for recognizing emerging talent—can propel a young studio's growth, as this year's winners Ines Guzman Mendez and Gregory Kahn Melitonov learned. After their New York- and Guatemala City-based studio Taller Ken was honored, the partners received almost three dozen résumés.

"We had no projects to hire for," Melitonov, 35, says, "and how were we going to compare the experience of someone from Kazakhstan to a Columbia student?" Instead of ignoring the sudden attention of designers looking for jobs, he and Mendez channeled it for good, inviting everyone to Guatemala City for a newly hatched design-build workshop. Nine applicants accepted. The \$1,000 New Practices prize money and Indiegogo donations will fund construction of a local project (to be decided) and stipends.

This team mentality harkens back to Melitonov and Mendez's formative studio experiences at Renzo Piano Building Workshop, where they met while working on the new Whitney Museum of American Art in 2010, just six weeks after Melitonov graduated from Yale's architecture school. RPBW

made a point of recruiting interns from far-flung schools and encouraging these hires to take on responsibility. Mendez, 32, who had joined Piano's office the previous year from Costa Rica's Universidad del Diseño, recalls, "We learned that people coming from all over the world offer fresh ideas and energy."

In 2012, Mendez returned to Guatemala City, and they pursued freelance work individually and in loose collaboration, trying out cheeky studio names like "Juan Solo" and "Robert Dinero." The pair officially launched Taller Ken in both their hometowns in 2013. Today the studio's 10 employees range in age from 24 to 34 and all earn the same salary. "We believe our greatest project is the office itself," Melitonov says of the pluralistic culture.

Office-as-project has deeply informed Taller Ken's built work. In 2013, when it was still a two-person studio, they designed an outdoor café called Saúl Bistro in Guatemala City's Zona 14 neighborhood. The partners draped 1,000 pounds of thread in foliage colors over a steel frame to shade a dining space.

As employee count has increased, so have Taller Ken's points of reference. For example, the Alessa Designs jewelry store inside Guatemala City's Fontabella Mall, completed last year, combines contemporary and vernacular architecture in a mere 915 square feet, with a textile curtain fabricated by a women's collective paired to a display case that pays homage to the postmodernist Hans Hollein. The firm's embrace of diverse perspectives also sheds light on its very name: Taller Ken may be the sum of the Spanish word for "workshop" and the Japanese unit of length as easily as it could refer to Barbie's counterpart.

While Taller Ken pursues projects in New York, such as a newly completed residential renovation in Greenwich Village, Guatemala City's stable economy and receptiveness to entrepreneurial inventions has permitted the studio's work to grow in scale and sophistication. Its most recent outpost of Saúl Bistro, called Madero, exemplifies this direc-



Taller Ken (left) shaded the dining room of Saúl Bistro with shaggy rows of coiled thread (top). For a restaurant on a busy street, the architects incorporated car parts into the building's facade and interior (above). For another Saúl, located in a mall, they inserted house-shaped containers (bottom).

tion. Overlooking the busy Calzada Roosevelt, the restaurant's 49-foot-tall steel structure sprouts a series of car chassis and parts on its exterior. Inside, a composition of exposed plumbing, handmade floor tiles, and rows of palm trees has the feeling of a greenhouse.

Whereas early projects like Alessa include identifiable architectural precedents, it is not clear whether Madero celebrates BEST Products showrooms, Renzo Piano's work with Richard Rogers, regional artisanship, or something else altogether. Melitonov comments that the ambiguity means he and Mendez are doing something right, because otherwise Taller Ken might fall victim to a "Pinterest aesthetic, where you just grab things that you like and smooch them together. We are working very hard to create atmosphere and experience." ■



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Pull by Jonathan Balderrama, architect Cochabamba, Bolivia

80 Is the New 60

Twenty Over Eighty: Conversations on a Lifetime in Architecture and Design, by Aileen Kwun and Bryn Smith. Princeton Architectural Press, May 2016, 224 pages, \$35.

Reviewed by Fred A. Bernstein

IF YOU'RE prominent and reach the age of 80, *The New York Times* may have a writer (possibly this one) prepare your obituary for later use. The idea is that an 80-year-old can't live much longer and, in any case, won't accomplish anything that would require significant rewriting of the obit.

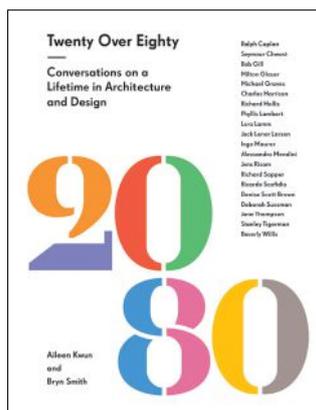
In the case of architects, neither premise is true. One architect whose "advance obit" I wrote more than 10 years ago initially called me the "grim writer" but switched to calling my efforts "the kiss of life" after another productive decade. Indeed, most of the subjects of my advance research are still going strong. There are plenty of exceptions—as the recent death of Zaha Hadid reminded us—but many architects are busy as octogenarians and nonagenarians. And (though no statistics bear this out) that calling may keep them alive longer than members of other professions. So far this year, Harry Cobb hit 90, and his onetime partner I.M. Pei has reached 99.

In their book *Twenty Over Eighty*, magazine editor Aileen Kwun and graphic designer Bryn Smith have wisely bucked the trend of a youth-obsessed culture through stimulating interviews with the elders of the architecture and design worlds. For all their subjects, "work is not a

Work is not a burden but a necessity for these octogenarians and nonagenarians.

burden but a necessity," they write. But that doesn't mean that these golden-agers are unburdened by frustration. One subject, Michael Graves, died last year, but not before lamenting that he had never had a real professional triumph—nothing, he said, like his friend Richard Meier, who "got the Getty Center in Los Angeles."

Stanley Tigerman says, "Ethics loom very large for me—larger than design. I realize this makes me a dinosaur." Tigerman remembers the days when "you couldn't displace another architect before you wrote him a letter saying that this client, who was originally his client, approached you; you ask if he was paid in full, and so on." Now, he complains, architects undercut



other architects. But Tigerman is far from saintly. He calls his mentor Paul Rudolph "a bitch" and says he keeps his distance from the other members of the so-called Chicago Seven because "very few of them are really good architects."

One of the surprises is finding Ricardo Scofidio, who in person barely looks 60, in the book. (He is 81.) In middle age, Scofidio says, he seriously considered leaving the profession. But, after meeting Elizabeth Diller, he realized he "didn't have to practice architecture the way the profession practiced it" but could choose multidisciplinary projects that were "like jumping off a tall building without a parachute." Scofidio was already well into his 60s when their temporary Blur Building (2002) in Switzerland created a sensation.

Disappointingly, the subjects don't talk much about the trials of old age. An exception is Denise Scott Brown, who describes managing husband Robert Venturi's caregivers. "I've become the HR person for this little group," she says (though she does not discuss his infirmities). On a typical day, she adds, "Bob goes off to the office and does nothing, and I stay here and work."

The interviewers ask nearly every one of their 20 subjects (such as graphic designer Milton Glaser, the late product designer Richard Sapper, and planning and design professionals Jane Thompson and Beverly Willis), "What advice would you give your younger self?" Graves said he might have moved his office from New Jersey to Manhattan, to get bigger jobs. Phyllis Lambert says, essentially, follow your passion. But, she adds "You can't just be passionate; you have to be really hard-hearted, too." Scott Brown offers this bit of wisdom: "Architects think of themselves as the captain of the ship, steering. I think you're better off thinking of yourself as a surfer, catching the wave." And with the right wave, she might have added, you could get a very long ride. ■



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mtibaths.com

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Plex Lounge Seating

A rectangular seat serves as the foundation of this modular system, which includes club and armless chairs, sofa elements, an ottoman, and two tables. The seating, which features molded foam backs with steel inserts, may be specified in any Herman Miller upholstery. A choice of legs, casters, and swivel bases provides further customization options.

hermanmiller.com

CIRCLE 103



Be Our Guest

The latest crop of contract textiles, lighting, and furnishings welcomes you with color and texture.

By Julie Taraska



Power Pedestal

This NEMA 3R-rated outdoor charging station comes with up to three gangs to power multiple devices, with prewired options including weather-resistant GFCI and four-port USB outlets. An optional kit allows the 34"-high pedestal unit to accommodate A/V and communications devices. Up to two shelves and a lockable door also may be added.

legrand.us

CIRCLE 101



Wild Thing

Riffing off the Indochine-style wallpapers popular in the 1940s, this nonrepeating wall mural by interior designer Ghislaine Viñas features photorealistic images of tropical plants digitally printed with Greenguard-certified latex inks. Wild Thing is offered in four standard colorways, as well as in custom hues and Type II commercial options. All versions are Class A fire-rated and PVC-free.

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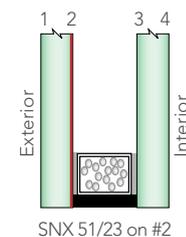
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Traces

Sedimentary rock formations inspired the 10 abstract styles and 12 earthy colorways offered by this line of commercial broadloom carpet. Most options are available in the company's proprietary Definity, precision dye injected (PDI), and computer yarn placement (CYP) constructions. All are 100% recyclable and free of Red List materials.

durkan.com

CIRCLE 105



Plaid

With a 36" repeat, this bold and busy woven-vinyl flooring and wall textile uses a rotation of 14 hues in solid and bicolor yarns; the resulting pattern does not require that the seams be aligned. Plaid comes in three colorways and formats, including 6'-wide rolls, 18"-square tiles, and 6"x 36" planks. LEED-compliant, all versions feature Microban antimicrobial protection and are Green Label Plus-certified.

chilewichcontract.com

CIRCLE 106



Bolon By You

This woven vinyl flooring line allows architects and designers to create their own product, choosing from among six patterns, four warp colors, and 12 weft colors. Suited for dry and heavy commercial use areas, Bolon By You is recyclable and phthalate-free; it may be utilized with underfloor heating and is extremely lightfast. Shown is the Grid pattern with gray warp and lavender gloss weft.

bolon.com

CIRCLE 107



Julius

The first utilization of a new manufacturing process, this chair and sofa feature upholstery sewn directly onto solid ash or oak frames, minimizing the adhesives needed while maximizing the furniture's tailored appearance. The collection, which includes a matching ottoman, is available with Unika Vaev fabric or Elmosoft leather.

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By Julie Taraska



Topography

Designed in collaboration with Austrian architecture and design firm 13&9, this collection features five textured carpet tiles that work alone or together to create landscapes rife with pattern, color, and gradient shifts. Available in square and rectangular sizes, the Red List-free flooring may be constructed from either Mohawk's premium or standard Duracolor nylon fiber.

mohawkgroup.com

CIRCLE 110



Outdoor

Although measuring a dainty 3/4" thick, these porcelain pavers hold their ground, with their combination of quartz, clay, and feldspar rendering them stain-, moss-, and frost-resistant. The 24"-square tiles come in six stone, three wood, and two flagstone patterns; they also are available with rectified or pressed edges.

outdoor.florimusa.com

CIRCLE 111

Satori

Part of the Laminam by Crossville collection, these superthin, large-format porcelain panels are 0.2" thick and available in sizes up to 9.8' by 3.3'. A new production process creates the strength without the bulk, making the slabs suitable for interior floors and vertical applications. Offered in three oxidized looks (brown, shown), they may be installed directly over existing concrete or tile surfaces.

crossvilleinc.com

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Part of Carlisle's Versallia collection, this wide-plank vinyl flooring with a commercial-grade wear layer resists water, stains, and scratches. Each of the six oak-inspired patterns, rendered on 60" x 7 1/4" planks, has its own hue and grain texture to mimic the random patterning of real wood. Made from 25% post-consumer and 20% postindustrial material, the product (including Plymouth, pictured) is LEED compliant.

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IN ITS 19TH YEAR, ARCHITECTURAL RECORD'S annual Good Design is Good Business Awards recognizes exemplary architectural solutions that were instrumental in the growth and success of a range of businesses—from start-ups to not-for-profits to major corporations. This year's diverse projects, from the in-house revitalization of a firm's own design studios to an inner-city minor league ballfield, were singled out for their contributions to attracting and retaining talent, enhancing employee well-being, improving community relations, and, ultimately, boosting the client's bottom line.

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Gensler's New Workplace Gensler Various Locations

WHETHER TAKING an automobile for a spin or attending workshops at the Apple Store, test drives have helped the modern consumer understand innovation. Gensler, too, has applied trial runs to its workplace business. When moving its own staff into a new office, the global design firm treats that space “as a laboratory that demonstrates our principles and our research,” says Andy Cohen, co-CEO of the company with Diane Hoskins.

Gensler has put itself on the front-line of workplace evolution since it began officially researching the subject 15 years ago. After Cohen and Hoskins approve a lease, the local workplace-design team will translate guiding principles and other proprietary knowledge—most notably, metrics from a firm-generated survey tool called the Workplace Performance Index—to that site. Gensler’s most recent offices represent a common vision of open, daylight-infused spaces where square footage once allotted to individual workspaces is now distributed among focused tasks, collaboration, and other activities. They also center on zones that can accommodate all-hands events.

The firm’s various projects are not cut wholly from the same cloth. The Denver studio, which opened last year, is finished in a palette of wood, metal, and raw concrete that evokes the city’s historic mining economy and its outdoorsy culture. Meanwhile, an office inaugurated in Costa Rica at about the same time celebrates the tropical climate with an expansive hammock- and furniture-filled terrace. Cohen says that, in addition to aesthetic decisions, lease pricing can also differentiate the new studios. For example, the Los Angeles and Washington, D.C., offices that opened in 2011 and 2013 respectively both feature a three-story atrium and stadium seating, while such large-

Los Angeles 2011

Moving from Santa Monica to downtown L.A., the firm adapted a former bank into an open, flexible work environment organized around a three-story atrium. Collaborative areas accommodate many work modes, while a rich mix of materials and furnishings demonstrate the power of design.

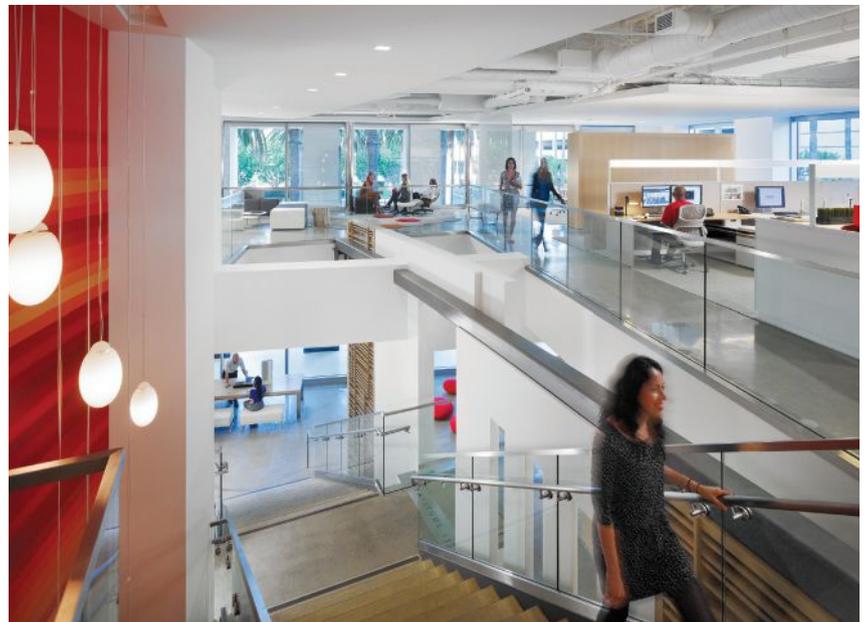


New York 2014 Gensler NY recently leased an additional 25,000-square-foot floor in its current location as an incubator to test new ideas about workplace—a “hackable” space for experimentation. Desks are placed in a benching configuration, so significant collaboration and meeting space was added to provide relief.

scale gestures are constrained in the 2-year-old New York and forthcoming London locations, where real estate is more expensive.

Regional discrepancies aside, the analytics from one effort do inform the next. Cohen explains, “We have a variety of work environments, like stand-up tables and conference rooms, that people can choose to occupy on a given day. What we continue to tweak is the area dedicated to open collaborative space.” Gensler researchers are detailing the acoustical needs of focused work, in particular: “We’re finding that unless you have conference space placed very close to the open environment, people will simply meet in the open environment.” Other areas of continual improvement concern videoconferencing technology and maximizing the community outreach of ground-floor spaces.

Aside from deepening its knowledge of workplace design, “It’s a marketing tool,” Cohen says of Gensler’s real-estate initiative. “In L.A., where I sit, we give three to five tours a day. Our existing clients appreciate that we demonstrate

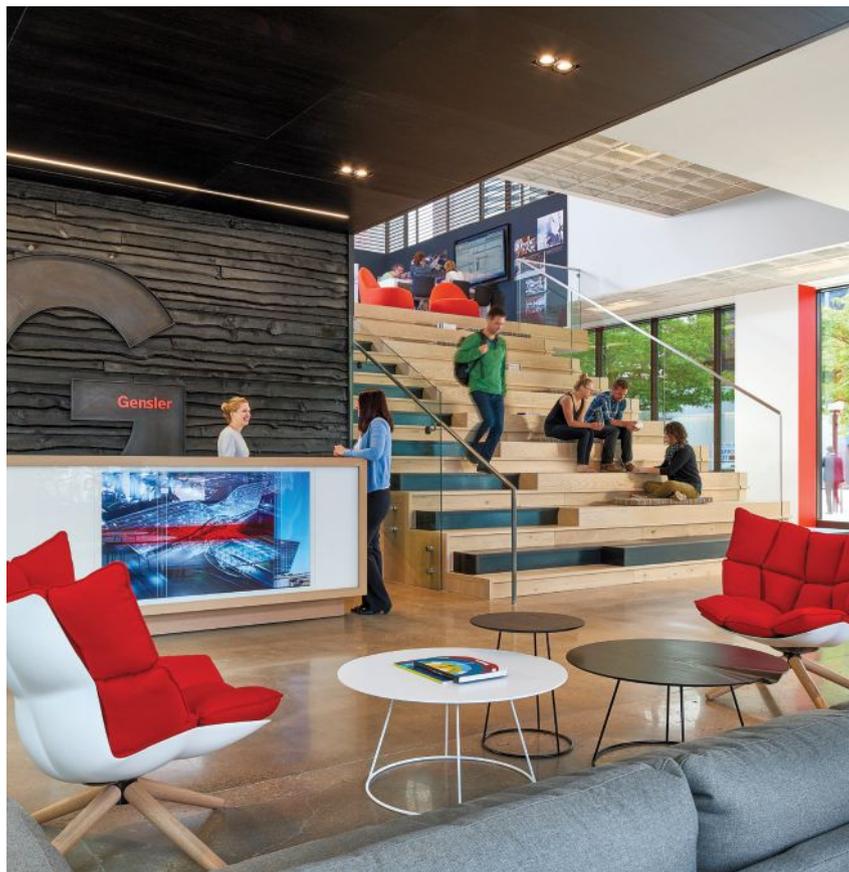
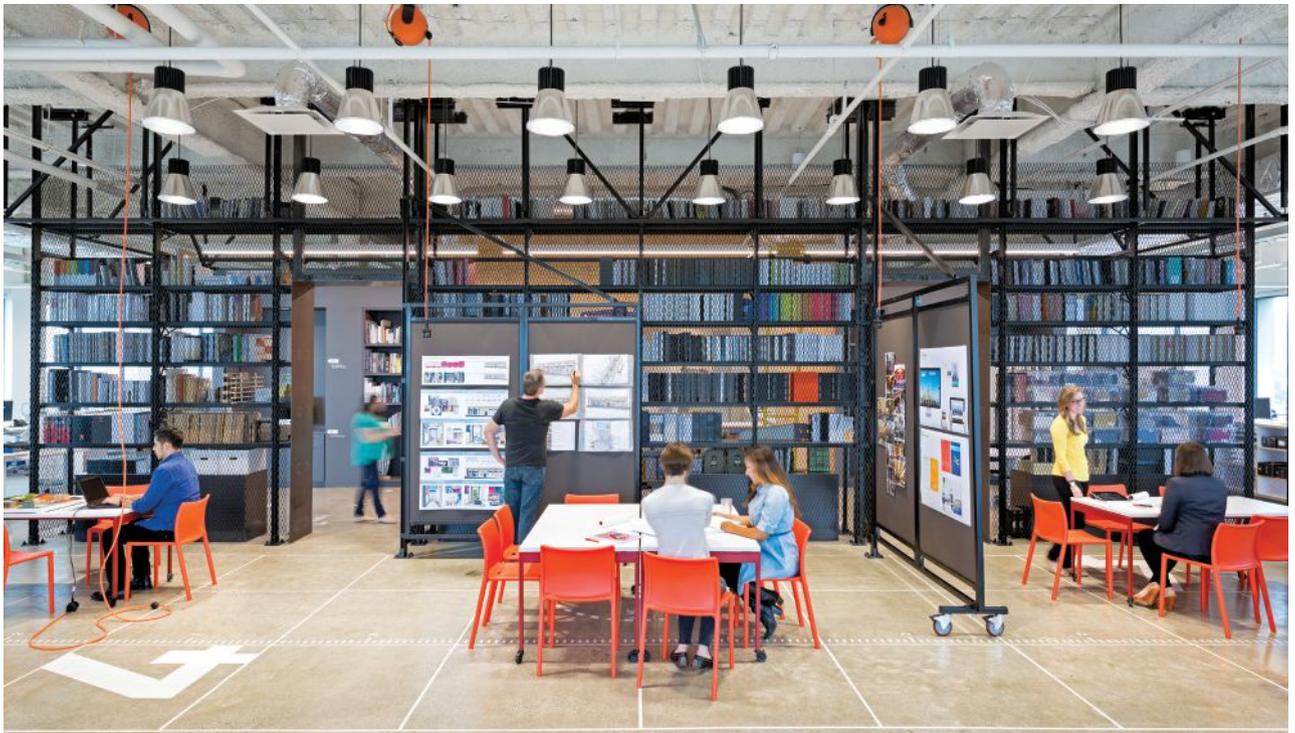


Newport Beach 2013 This office supports a variety of activities—focused tasks, collaboration, learning, and socialization—through settings such as a design innovation lab, resource library, informal meeting spaces, and public gallery/café—all fused by a modern beach house vibe.

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Oakland
2015

Situated atop an office tower, Gensler Oakland affords 360-degree views of downtown Oakland and the San Francisco skyline. Organized into discrete components, the office has sit-stand desks, benching tables, and drop-in stations along the perimeter, with conference and meeting rooms in the core. Glass panels in the main conference room peel open to create a gathering space for social events.



Denver 2015

This ground-level former retail space was selected to strengthen the firm's connection to the community. A stadium staircase maximizes connectivity within the two-level office, and a furnished mezzanine doubles as a collaboration zone. The new space includes a coffee bar, materials studio, private booths, and standing-height, free-address work areas for sharing among employees.

credits

ARCHITECT: Gensler – Andy Cohen, Diane Hoskins, co-CEOs

ENGINEERS: **Los Angeles:** Nabih Youssef (structural); Levine Seegel, Glumac (m/e/p); **Oakland:** Integral Group; **Denver:** Martin/Martin (structural); C3S (electrical); VH Engineering (m/p)

GENERAL CONTRACTORS: **Oakland:** Turner Construction; **Denver:** Provident Construction

CLIENT: Gensler

SIZE: **Los Angeles:** 38,700 square feet; **New York:** 25,000 square feet; **Oakland:** 24,000 square feet; **Denver:** 23,000 square feet; **Costa Rica:** 15,800 square feet

COST: withheld

COMPLETION DATES: **Los Angeles:** 2011; **New York:** 2014; **Newport Beach:** 2013; **Oakland:** January 2015; **Denver:** April 2015; **Washington, D.C.:** 2013; **Costa Rica:** 2015

SOURCES

CURTAIN WALL: **Denver:** Tubelight

GLAZING: **Los Angeles:** Metcoe (skylights); **Denver:** Viracon

WALLS: **Denver:** Klein (glass office fronts); Modernfold (movable glass

walls); **Washington, D.C.:** Transwall, Adotta

FANS: **Costa Rica:** Big Ass Fan

CEILING: **Los Angeles:** USG; **Oakland:** Armstrong; **Washington, D.C.:** Whisper Walls, Barrisol

FURNISHINGS: **Los Angeles:** Vitra, Herman Miller, Knoll; **New York:** Knoll, Humanscale, Blu Dot; **Oakland:** MASH Studios, Knoll, Herman Miller; **Costa Rica:** Kimball, Steelcase, Vitra, Kusch, Coalesse; **Denver:** Watson, Knoll, Bernhardt, Herman Miller, Vitra, Halcon, B&B Italia

CARPET: **New York, Costa Rica:** Interface; **Oakland:** Tandus Centiva; **Denver:** Tandus, Shaw

LIGHTING: **Los Angeles:** The Lighting Quotient; **Oakland:** Fluxwerx, Zumtobel; **Denver:** Fluxwerx, Selux, Flos, Gotham, Focal Point Lights, Finelite, Delta Light, Juno, Zumtobel, Vibia, Prudential Lighting, Lutron; **Costa Rica:** Flos

CONTROLS: **Oakland:** **Washington, D.C.:** Lutron

PAINT: **Oakland:** IdeaPaint; **Denver:** Benjamin Moore

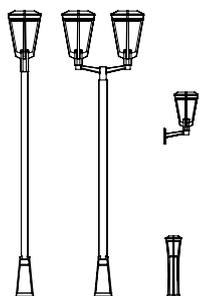
WALLCOVERINGS: **Denver:** Carnegie, Designtex, BuzziSpace, Knoll (textiles)



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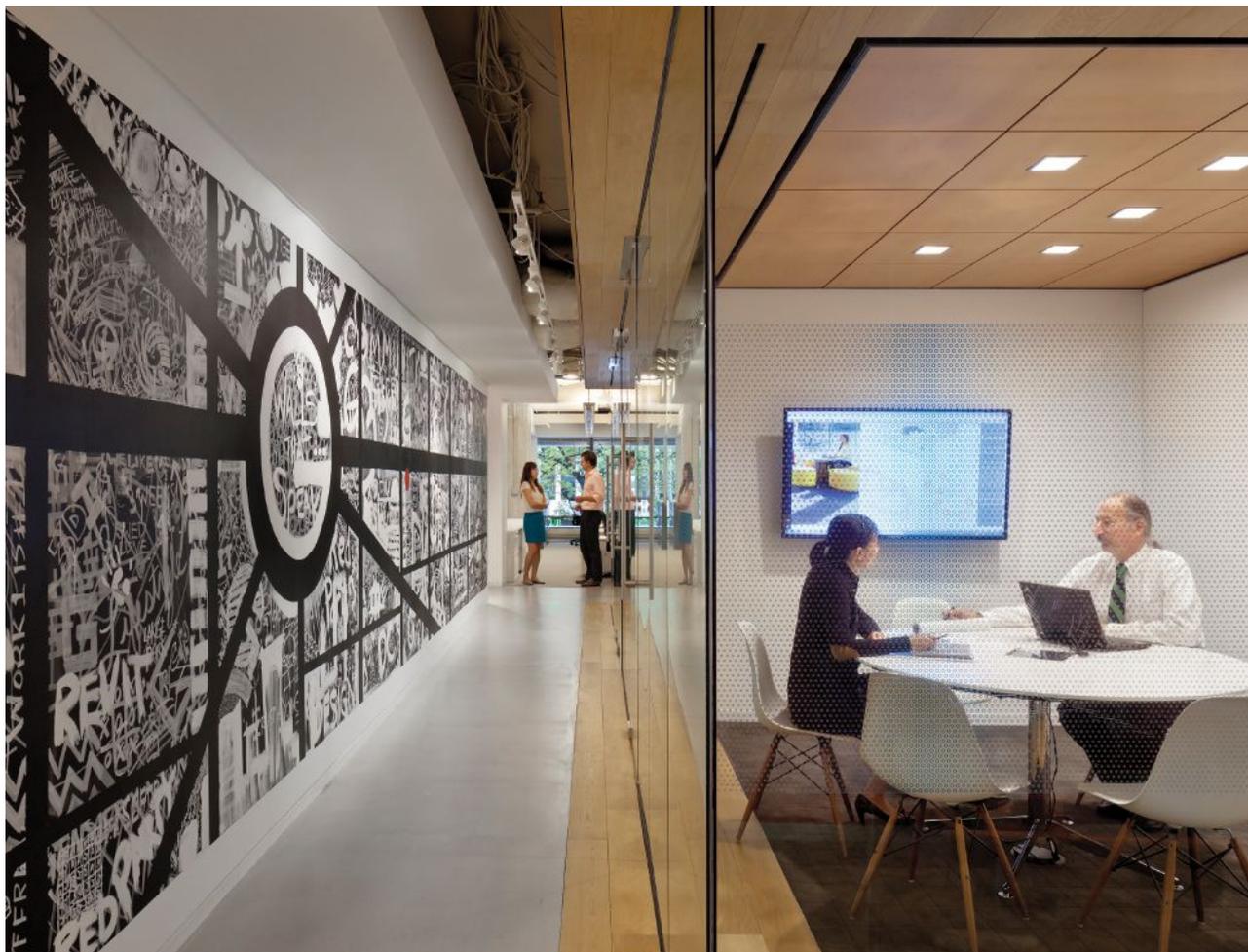
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CIRCLE 174

GOOD DESIGN IS good business

Washington, D.C. 2013

The firm is raising its public profile with the storefront entrance of this ground-floor studio. An increased number of conference rooms, glazed for light and transparency, fosters collaboration.

**San José, Costa Rica 2015**

Gensler's Latin American hub had modest beginnings in rented cubicles. Now this 160-person team occupies a bright and colorful workplace that revolves around a creative core, which houses a fabrication lab and resource library. Three-dimensional artwork and lively graphics reflect the staff's communication style, collaborative culture, and hospitality.

leadership in the workplace, and there's no doubt new clients are coming to our space all the time." The executive says that experiencing a Gensler studio, seeing how it works to foster productivity and employee recruitment, can inspire them.

Cohen also notes that it would be difficult to peg physical environment as the sole impetus for growth, but he does say that the buzz generated by the Los Angeles office contributed to the company's expansion in that market from 280 to more than 600 employees since 2011 and that, more widely, the 16 office moves Gensler undertook between 2010 and 2015 helped double its total employee count to more than 5,000. Another indication of the positive effects of this strategy: last year Gensler was the only architecture firm that earned a spot on Glassdoor's 50 Best Places to Work; as Cohen puts it, "This kind of metric focuses on the well-being of people, and that's what we focus on in our workplace design."

David Sokol

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“**WHO WOULDN’T** want to work on a Bunshaft building?” asks architect Rod Kruse, a principal at BNIM. The rhetorical question is Kruse’s way of explaining why he was so pleased that insurance provider American Enterprise Group (AEG) chose his firm to renovate its headquarters in downtown Des Moines. The 153,000-square-foot office building, completed in 1965 and designed by renowned Skidmore, Owings & Merrill (SOM) partner Gordon Bunshaft, was highly unusual for its time. Built for American Republic Insurance (now an AEG subsidiary), the eight-story edifice has minimal internal structure, being supported almost entirely by its east and west poured-in-place concrete walls that are lifted above the ground plane on giant steel “knuckles.”

This configuration creates a strong, stark form. But the scheme also allowed a 90-foot clear span that, in turn, provided an open, flexible workspace, anticipating current office design trends. And with private offices placed around the core, it gave workers daylight and views through the unobstructed north and south glazed elevations.

Over the years, the owners had made some changes, such as substituting cubicles surrounded by tall partitions for the original open work-area desks, but they had, for the most part, maintained the building’s defining characteristics. However, by the time the structure approached the half-century mark, the interior finishes were badly deteriorated and its mechanical systems were outmoded, making it impossible to maintain comfortable temperatures. The joke among employees was that they could experience all four seasons in one day without ever going outside, says the AEG executive who oversaw the renovation, Medha Johnson, vice president for human resources.

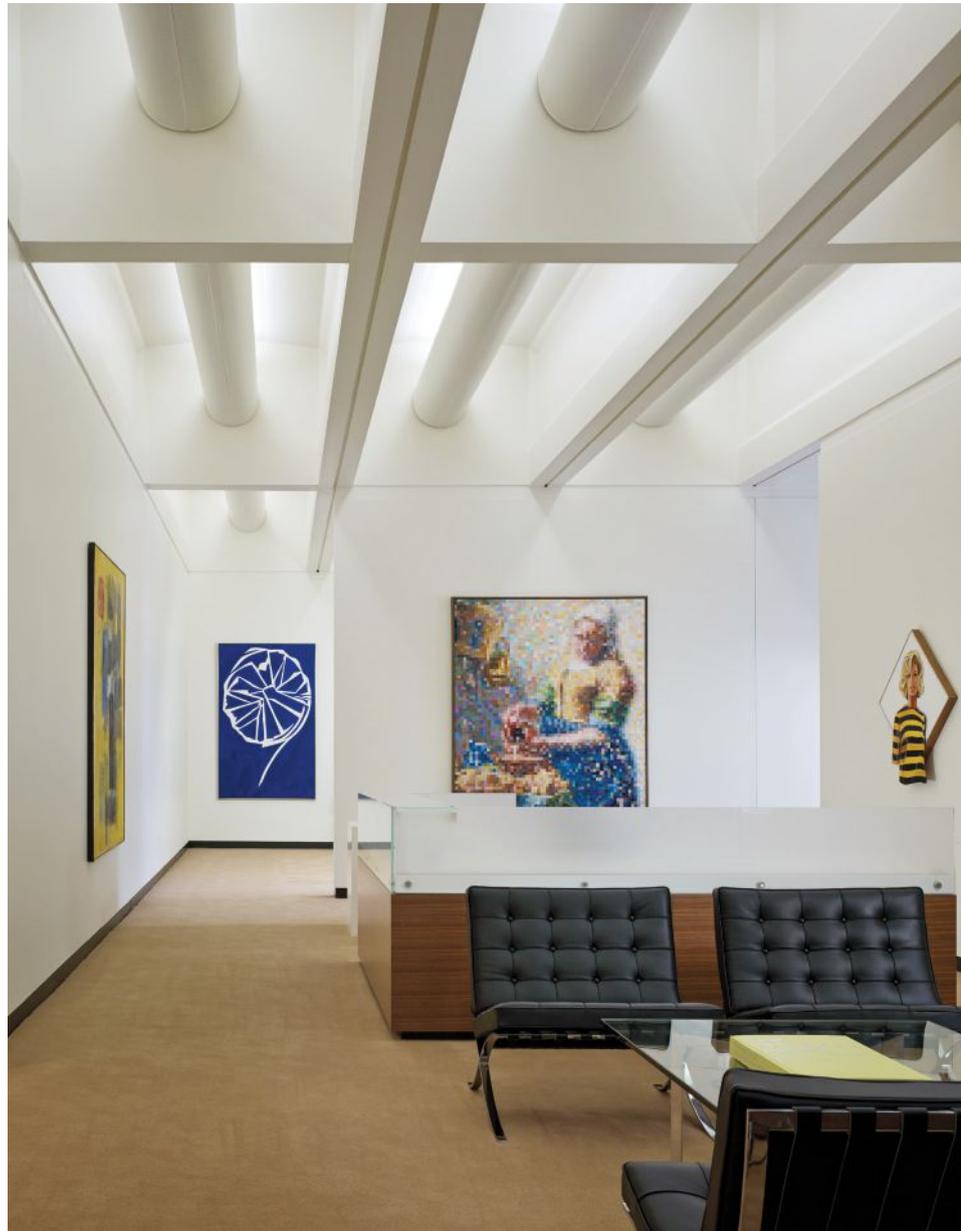
The revitalization project, completed last August, remedied the situation with state-of-the-art systems as well as improvements to the building envelope, including replacing the original single glazing with insulated glazing. The architects designed the new mullions so they appear identical to the originals on the exterior. BNIM estimates that such changes will save the client \$2 million each year in energy and maintenance costs. The building’s new plumbing has already saved AEG a considerable sum, having reduced the water bill from \$22,000 to \$5,000 per month, says Johnson.

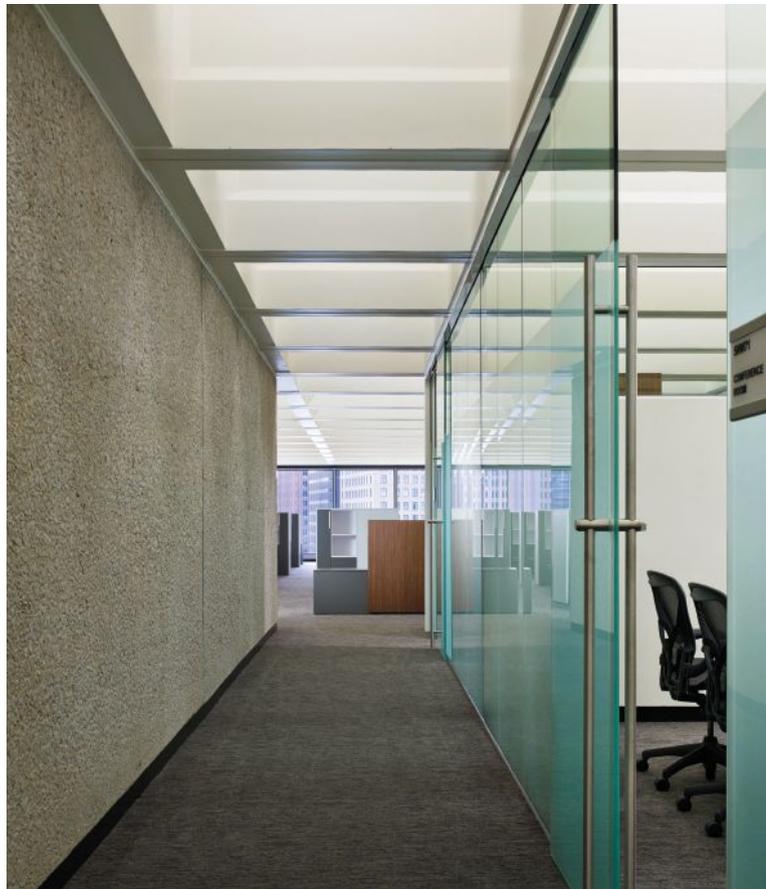
Updating the infrastructure could have compromised such hallmark features as the ceilings of precast concrete Ts. Here SOM had ingeniously integrated ductwork and lighting to make a series of illuminated coffers. The renovation team recreated the effect with LEDs, but also invisibly incorporated sprinklers and cables for data. BNIM’s trick was to reconstruct the cylindrical ducts with a slightly chamfered top, creating a spot to conceal the new equipment.

Replacement of the systems required significant interior demolition. Afterward, contractors meticulously rebuilt walls and applied finishes. The renovation team also restored or replaced many of the original furnishings, which had been selected or custom designed by SOM—but now AEG employees



AEG’s headquarters, shown after the renovation, features poured-in-place walls supported on steel knuckles on the east and west (left), while its north and south (opposite) elevations are glazed. On the interior, BNIM recreated the effect of the original illuminated ceiling coffers. In addition to LEDs, sprinklers and other infrastructure are hidden above the replaced cylindrical ducts (below).





who occupy the open office areas have BNIM-designed ergonomic workstations with sit-stand desks. In keeping with Bunshaft's concept, these have low dividers so as not to impede the daylight and views.

Since the renovation, the building has been listed on the National Register of Historic Places—a testament to how faithful the project team was to the original. This status allowed AEG to take advantage of state and federal preservation funds. The grants, along with other sources, including a local jobs incentive and state economic development tax credits, paid for half the \$30 million construction cost.

Johnson guesses that AEG could have built a new headquarters for \$15 million, “though it would have been obsolete in 10 or 15 years,” she says. Instead, the renovation has given Bunshaft's building another five decades, according to Kruse's estimates. His hope is that BNIM's interventions are nearly imperceptible. If he's done his job right, he says, “most people won't even realize we've been here.” *Joann Gonchar, AIA*

credits

ARCHITECT: BNIM – Rod Kruse, Kevin Nordmeyer, principals; Carey Nagle, associate principal; Paul Kempton, Tina Wehrman, Levi Robb, Kayla Ohrt, Dana Sorensen, Jeff Shaffer, Lana Zoet, Phil Bona, project team

CONSULTANTS: Design Engineers (mechanical and lighting); Charles Saul Engineering (structural); Snyder & Associates (civil); The Weidt Group (energy); Jennifer James Communications, Christensen Development (preservation)

GENERAL CONTRACTOR: Ryan Companies US

CLIENT: American Enterprise Group

SIZE: 153,000 square feet

COST: \$30 million

COMPLETION DATE: August 2015

SOURCES

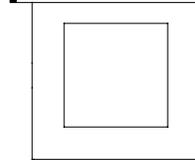
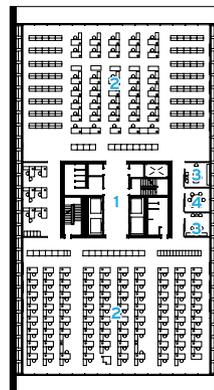
CURTAIN WALL: Architectural Wall Systems

GLAZING: Guardian Glass

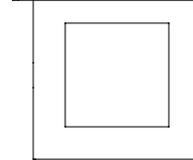
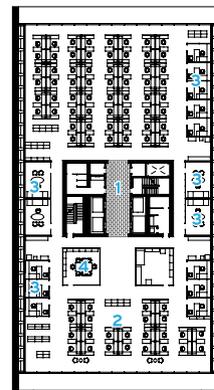
CARPET: Invision

ENERGY MANAGEMENT SYSTEM: Alerton

As part of the renovation, the project team recreated original finishes, including high-gloss plastic-laminate walls on the executive floor (left). On the typical floors (right), private offices are located near the core, as they were in 1965.

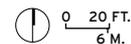


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- 3 PRIVATE OFFICE
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Bridgepoint Active Healthcare

Stantec Architecture
 KPMB Architects | HDR Architecture
 Diamond Schmitt Architects
 Toronto

“NO ONE LIKES going to the hospital,” says architect Bruce Kuwabara of KPMB Architects. That was the central insight that Kuwabara and a team of collaborating architects—including Toronto-based KPMB, Stantec, Diamond Schmitt, and HDR—used in designing a new hospital for the city’s Bridgepoint Active Healthcare. This would be a new typology that would better serve patients’ happiness and well-being.

The 680,000-square-foot campus, commissioned by the University of Toronto–affiliated health network Bridgepoint and the province of Ontario’s Ministry of Health and Long-Term Care, breaks the mold by opening itself to the city and to nature.

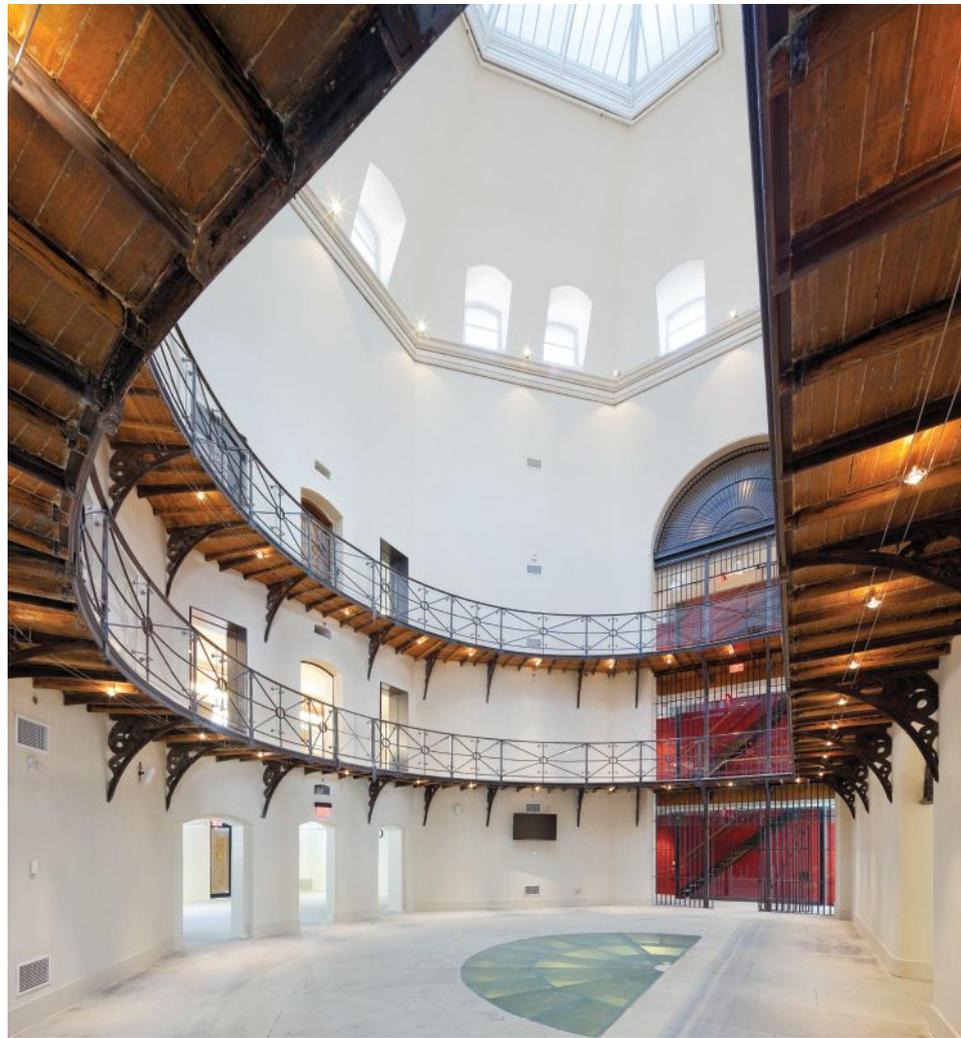
The site borders the 104-acre Riverdale Park just east of Toronto’s core; it is located on a hill with views west over the Don River valley and the downtown skyline. Bridgepoint, a rehabilitation and continuing-care institution, had occupied a 1960s building that was functionally obsolete. Hospital CEO Marian Walsh advocated for its new facility to be “a village of care,” with improved quality of life for patients and stronger links to the community. The project also includes an adaptive reuse of the 19th-century Don Jail, which sits to the east, for administrative and educational purposes.

Michael Moxam, practice leader at Stantec in Toronto, says that the hospital “typically deals with very long stays, up to six months.” In light of that, “the vision is creating a healthcare environment that goes way beyond the building.”

The hospital is a long rectangular block that runs north-south, parallel to the nearby valley. Its facades are primarily clad with dark-gray zinc panels and studded with tall bay windows, one for each patient room. A series of moves and details break down the massing: the largely glazed main floor, a horizontal bar at the central fifth level for mechanicals, and bands of local Algonquin limestone cladding.

KPMB and Stantec, working with a site plan from consultants Urban Strategies, translated the hospital’s ethos of openness into urbanism. “We spent a lot of time thinking about the lower levels being not a hospital, but a community building,” says Kuwabara. “The key was to integrate the building with the landscape, the streets, and community.”

The 404-bed, 10-story building, while massive, succeeds at that goal. Because car and ambulance traffic is relatively limited, access roads are modestly scaled; the hospital reaches out to the surrounding Riverdale neighborhood through a series of plazas and green spaces. A one-story “porch” pushes north from the main building. It contains a therapy pool with glazed walls overlooking the valley and park, and it is capped with a public open-air terrace that includes a labyrinth condu-



The new Bridgepoint Active Healthcare facility sits on manicured grounds adjacent to the historic Don Jail (opposite), which has been adapted as an administrative and educational center for the hospital (top). The building borders the city’s Riverdale Park and overlooks the Don Valley River System and Parkway (right), connecting staff and patients to nature and community.

GOOD DESIGN IS good business



The hospital's daylight therapy pool has broad views of the valley and park (above, left); patient rooms feature generous glazing that allows occupants to see outside even while lying in bed (above); a spacious rooftop garden provides an alfresco alternative for patient visits and impromptu staff meetings (left).



cive to meditation. Above, a fifth-floor balcony and rooftop garden provide outdoor space for patients.

Inside the patient rooms, walls are 40 percent glazed, with horizontal windows that allow patients to see outside even while lying in bed. And each room includes a vertical bay window offering high and lateral views of the sky, valley, and city. "Through a tremendous degree of transparency and porosity, the natural world is always apparent," says Diamond Schmitt principal Gregory Colucci, a design team member. "Patients are never in a place where they don't have a reference to the outside world."

The building evolved through a complex design-build procurement procedure. KPMB, Stantec, and preservation specialists ERA worked with the hospital, provincial government, and community groups to establish the project's goals and a design. Then a consortium led by developers Plenary Group won the contract to design, build, finance, and maintain the facility for 20 years. Diamond Schmitt Architects and the Toronto office of HDR elaborated on the design, oversaw construction, and served as architects of record.

This unwieldy process—which Moxam describes as "an epic relay race"—produced a consensus among the four architecture firms involved in the main building. The Stantec and HDR teams, which have substantial health-care experience, focused on the design of patient care areas, while KPMB and Diamond Schmitt oversaw the site plan, massing, building envelope, and other aspects. KPMB's Kuwabara credits Diamond Schmitt with "substantial alterations and improvements" to the original scheme.

This many-hands approach has translated into clinical and financial payoffs: since moving into the new building in 2013, Bridgepoint has seen its average stay for rehab patients drop by 20 percent, at a cost savings of about \$1,100 per day. The LEED Silver-certified building delivers a 30 percent energy reduction beyond the Model National Energy Code for Buildings and a 32 percent improvement over LEED baseline water use. And the hospital reports a strong qualitative response. In post-occupancy surveys cited by Bridgepoint, a full 100 percent of responding patients said they would recommend the hospital to other patients.

Collaborating again with ERA as well as an additional heritage consultant, Ventin Group, Diamond Schmitt oversaw a sensitive restoration of the Italianate stone structure, designed by local architect William Thomas and opened in 1864, and connected it to the new hospital through a one-story bridge. The symbolism is powerful. The jail, with later additions, held prisoners until 2013; now those later wings have been removed to make way for the hospital's green spaces and plazas. As Moxam says, "It is an environment for healing people, and it has healed the city as well." *Alex Bozikov*

Alex Bozikov is the architecture critic for The Globe and Mail.

credits

ARCHITECT: Stantec Architecture; KPMB Architects; HDR Architecture; Diamond Schmitt Architects

ENGINEERS: Stantec (structural/electrical/sustainable design/energy); The Mitchell Partnership (mechanical)

CONSULTANTS: ERA, Ventin Group (preservation)

GENERAL CONTRACTOR: PCL Constructors Canada

CLIENT: Bridgepoint Health

SIZE: 680,000 square feet

COST: \$622 million

COMPLETION DATE: April 2013

SOURCES

CLADDING: Ledgerrock

FLOORING: Marmoleum; Johnsonite; Franklin Terrazzo

INTERIOR SURFACES: LG; Caesarstone; Wilsonart; Stone Tile

CEILING: Decoustics

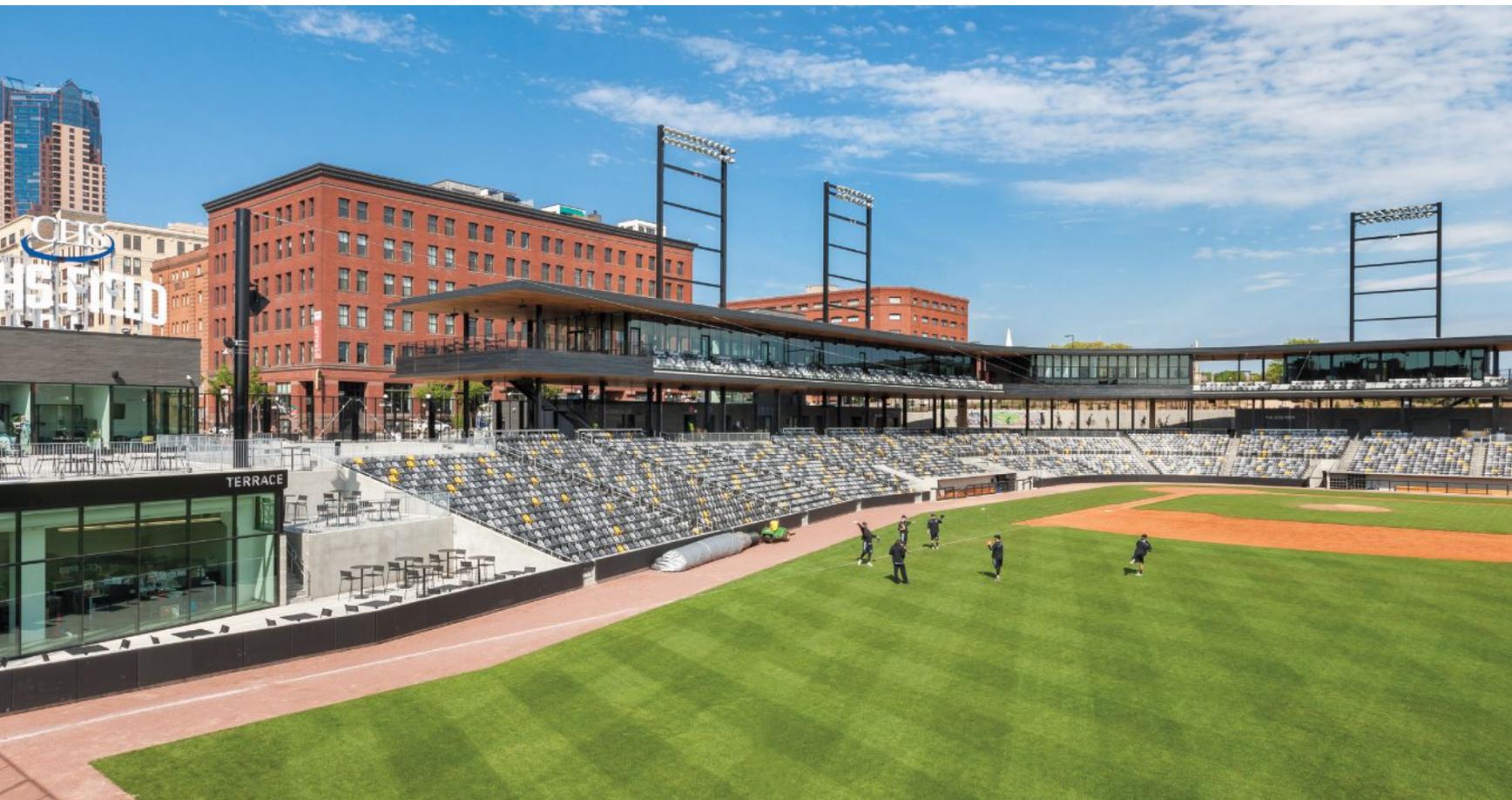


project: Confidential Professional Services Firm
architect: Vocon

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The new ballpark sits below grade at a busy intersection in St. Paul's historic Lowertown District (above). Its light steel structure, enhanced with masonry and western red cedar, echoes the material palette of the surrounding warehouses.

CHS Field Snow Kreilich Architects | Ryan A+E AECOM St. Paul

DOWNTOWN SPORTS stadiums are a mixed bag. While they can attract tourism dollars and spur development, they aren't always good neighbors aesthetically. Many rise abruptly, big and opaque, looking like downed spaceships.

Not so CHS Field, in the Lowertown Historic District of St. Paul. The \$64 million, 7,000-seat ballpark is the new home of the locally beloved minor league team the St. Paul Saints. The porous park, designed by Minneapolis-based Snow Kreilich Architects, with Ryan Architecture + Engineering (A+E) as architect of record and AECOM as the sports architect, has a street-level entrance and concourse, while the field and seats dip down to 17 feet below grade, providing views of the surrounding neighborhood and, to the south, the Mississippi River and its bluffs.

Part owned by the actor Bill Murray, the team is known for its community involvement, sharing its love of baseball with kids, and, not surprisingly, its humor—it celebrated National Hot Dog Day with a parody of former U.S. congressman from New York Anthony Weiner. The Saints' previous home was the 30-year-old Midway Stadium, owned by the city and torn down in 2015. Though many, including the team, were fond of its quirks, it was outdated.

The site of a shuttered Gillette factory in Lowertown was chosen for a replacement ballpark. This was the design team's first challenge. Chemicals from the hair products manufactured there had leached into the ground and created one of the most polluted sites in the Twin Cities. Architect Julie Snow, founding partner of Snow Kreilich, says it went from "brownfield to ballpark. Nobody knew how contaminated it was when we started. That was a big 'hello.'" The architects oversaw the removal of the adulterated soil and, though they razed most of the factory, were able to repurpose 99 percent of the rubble. They saved some of the foundation and then crushed the rest of the building for construction material, the field base, retaining walls, and pier foundations.

Another challenge was addressing concerns from the community that crowds, noise, light pollution, and parking needs would spill over from the park. Snow alone attended 17 community meetings to help assuage fears.

The friendly new ballpark defers—and refers—to the surrounding early 19th-century warehouse structures. From the street, visitors and passersby can see inside through open and glass-enclosed steel-framed concourses that hug the field, their fascia clad in dark masonry and steel. These busy circulation areas, covered with warm cedar ceilings, house the park's concessions, restrooms, club, suites, and press room. The offices are tucked below grade.

The stadium is a source of pride in the community. "Of course there were debated moments, but now that it is all said and done, the ballpark and the neighborhood display a



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CIRCLE 181

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The main entrance flows onto the street and offers passersby views of the playing field and seating bowl (above). The concourse (top) features a western red cedar canopy and creates a comfortable place for fans to congregate and socialize between innings.

harmony that is rare and highly complementary,” says architect Mike Ryan, president of Ryan A+E. “I believe we stretched \$64 million to realize over \$100 million in value, and the results speak for themselves.”

According to the Saints, the new field, which has 1,000 more seats than Midway Stadium, increased the team’s revenue by 100 percent between 2014 and 2015, with 400,000 visitors. Staff, interns, and players now have a streamlined and engaging workplace. The park is also aiming to become one of the greenest ballparks in America by recycling, reusing rainwater, and harvesting electricity from a 100kW solar array. Above all, the CHS Field has become a community asset during off hours, open to the public free of charge, so people can use the concourse as a walking track or take advantage of the new dog park to the north of the field and events lawn to the east.

“It’s a wonderful, historic, relevant place,” says Tom Whaley, executive vice president of the St. Paul Saints. “Integration is what will drive the long-term success of the ballpark—what it means to our fans, the neighborhood, and the team.” Adds Mike Veeck, team co-owner: “On July 3rd, there were 10,000 people in the ballpark and 4,000 out on the street. You couldn’t tell where the ballpark ended and the farmers’ market started. That’s what has created such a sense of community.” *Laura Raskin*

credits

ARCHITECT: Snow Kreilich Architects – Julie Snow, Matthew Kreilich, design principals; Ryan A+E – Mark Ryan, principal in charge; AECOM – Dan Sullivan, project manager

ENGINEERS: Schadegg (mechanical); Ericksen Roed & Associates (structural); Hunt Electric (electrical)

CONSULTANTS: Bob Close Studio (landscape); Henderson Engineers (lighting)

CLIENT: City of St. Paul and the St. Paul Saints

SIZE: 347,000 square feet

COST: \$63 million

COMPLETION DATE: May 2015

SOURCES

METAL: Central Minnesota Fabricating (structural steel); MG McGrath (metal panels)

MASONRY: Amcon Block

GLAZING: Oldcastle BuildingEnvelope, Wasco (skylight); Insulgard (ticket windows)

WOOD: Weekes Forest Products

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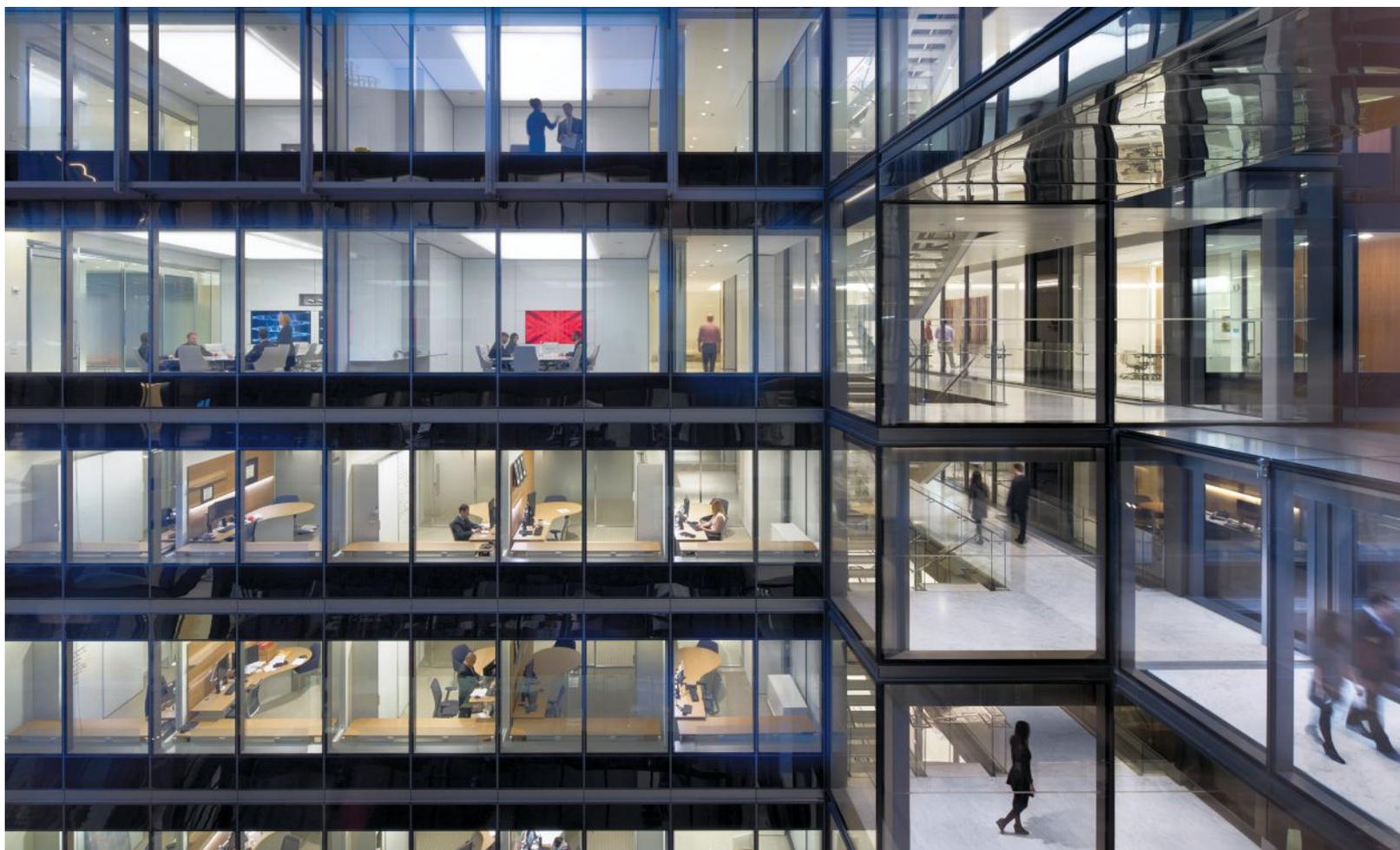


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Covington at CityCenterDC Lehman Smith McLeish Washington, D.C.

SINCE ITS founding in 1919, the powerhouse law firm Covington has produced alumni ranging from Dean Acheson, President Truman's Secretary of State, to former Attorney General Eric Holder, and it has an enviable client list within the Beltway. Yet success has not emboldened Covington lawyers to jockey for status or manifest some of the egotistic stereotypes of white-shoe practices. "A consequence of having a large number of long-term clients is that there's a heavy emphasis on working across the practice and collaborating," says managing partner Tim Hester.

In the 1980s, Hester remembers, such teamwork was obvious inside the law library at Covington's former Pennsylvania Avenue headquarters. "There was energy and a cohesion when everyone went to the same place to access information," he says. But that office lacked transparency and emphasized palatial partner suites over common areas, which exacerbated a feeling of isolation with the emergence of computerized work and research. "Now you never have to get out of your chair," he says of the impact of the Internet.

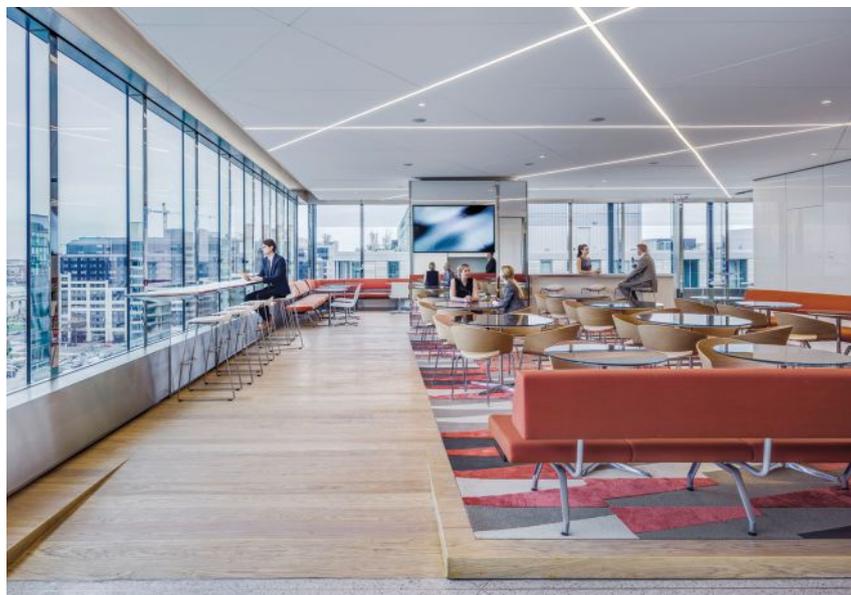
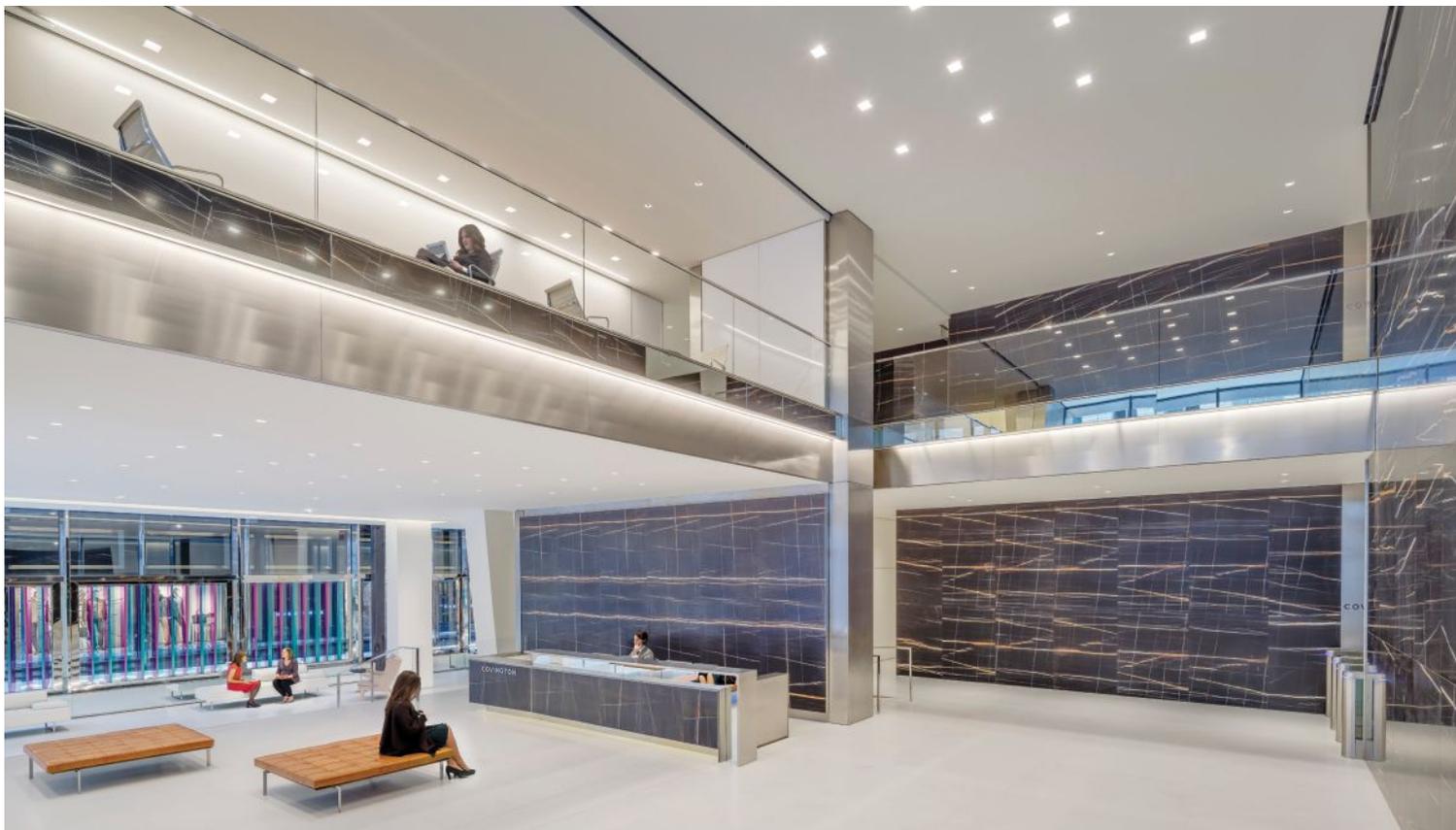
The expiration of Covington's lease on Pennsylvania Avenue allowed Hester and executive director John Waters to

seek a greater sense of community with the design of a new office. The pair partnered with the D.C.-based architecture firm Lehman Smith McLeish (LSM) in the selection of CityCenter as its next long-term home, leasing 450,000 square feet within adjoining office buildings of the Norman Foster-designed mixed-use complex. CityCenter is located in a transitional part of downtown Washington, and the decision to move there illustrates the way Covington "takes very seriously its position of making a place better," says LSM founder Debra Lehman Smith, who crystallized the commitment to neighborhood vitality by commissioning public art by Venezuelan artist Carlos Cruz-Diez for the lobby.

For the upper floors, Covington charged LSM to create an interior for approximately 1,000 staffers that encourages collaboration and injects energy. Lehman Smith partnered closely with Waters to rethink aspects of the firm's processes. Assembling administrative centers around "intake areas" promised more even distribution of support work and less territorial treatment of assistants, for example. Convening IT and other services in a single location was another step toward reflecting the democratic spirit.

LSM responded to the brief most significantly by designing 72 collaboration areas, which are organized primarily around stairs and the bridges connecting the two CityCenter office volumes. "Common spaces really drive the building," Hester says. "You're witnessing people engage in their work, and it's dramatically easier to interact casually." He adds that

Covington occupies 80 percent of two adjoining buildings at CityCenterDC (opposite). The two generously glazed buildings are joined with centralized stair towers and bridges (above), providing a fluidity and transparency—from interior to exterior and building to building—that supports employee connectivity.



the high-quality programming of these spaces—such as Covington’s choice of sustainable, locally sourced food for its casual dining room and bistro—incentivize employees to congregate and spend more time inside the headquarters.

While the traditional prize of law-firm meritocracy, a private office—one for each of Covington’s 185 Washington-based partners—remains anchored to the building perimeter, LSM trimmed the dimensions of each to 180 square feet, enclosed in a glazed partition wall. The 275 associates’ offices each measure 150 square feet; Lehman Smith explains that this

The ground-floor lobby features a site-specific installation by artist Carlos Cruz-Diez that is visible from the street, telegraphing the company’s commitment to the neighborhood (above). This ground-floor reception area is also used as a public conference facility. The company’s new food service program offers sustainable and locally sourced meals that employees can enjoy in the main dining area (left).

modularity is more adaptable to shifting work styles.

These transparent offices make partners and associates more visible to their colleagues, which bolsters a newfound sense of togetherness. Hester says he now relies on spontaneous collisions for both socializing and more professional check-ins, and Lehman Smith says, “I’ve received e-mails from senior partners saying ‘I’ve seen more people in the last week than in the last two years.’” The smaller private work environments also trim Covington’s local real-estate consumption by 7 percent, which will save the firm \$50 million over the lease term. *David Sokol*

credits

ARCHITECT: Lehman Smith McLeish – Debra Lehman Smith, James McLeish, Terese Wilson, partners

ENGINEERS: Thornton Tomasetti (structural); Dewberry (m/e/p)

CONSULTANTS: Lisa Austin (art); Fisher Marantz Stone (lighting); Pentagram (graphics)

CLIENT: Covington & Burling

SIZE: 450,000 square feet

COST: withheld

COMPLETION DATE: December 2014

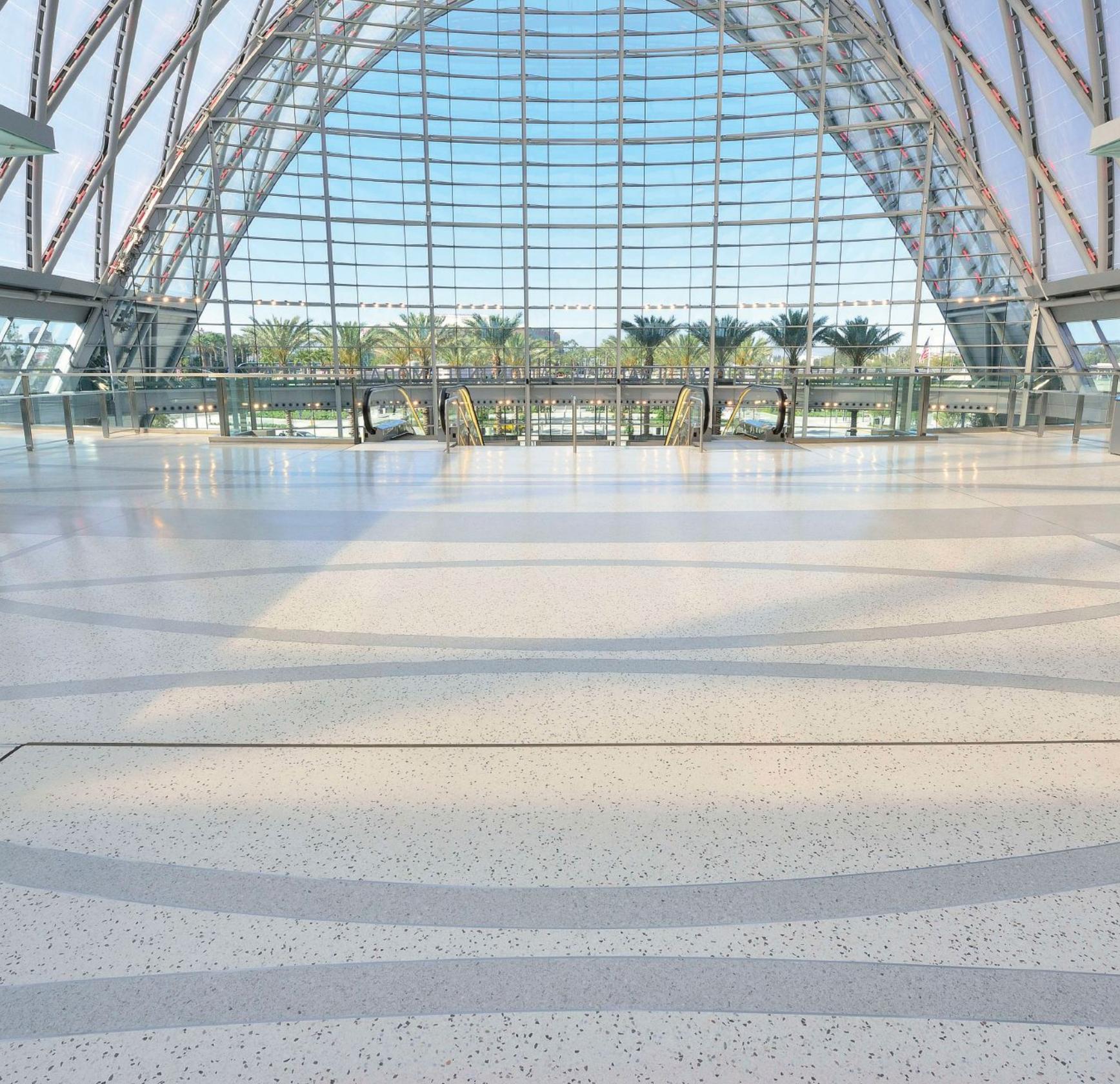
SOURCES

STONE: Campolonghi Italia

CARPET: Bloomburg, Vorwerk, Tandus

LIGHTING: EcoSense, Newmat, GE, Selux, Reggiani

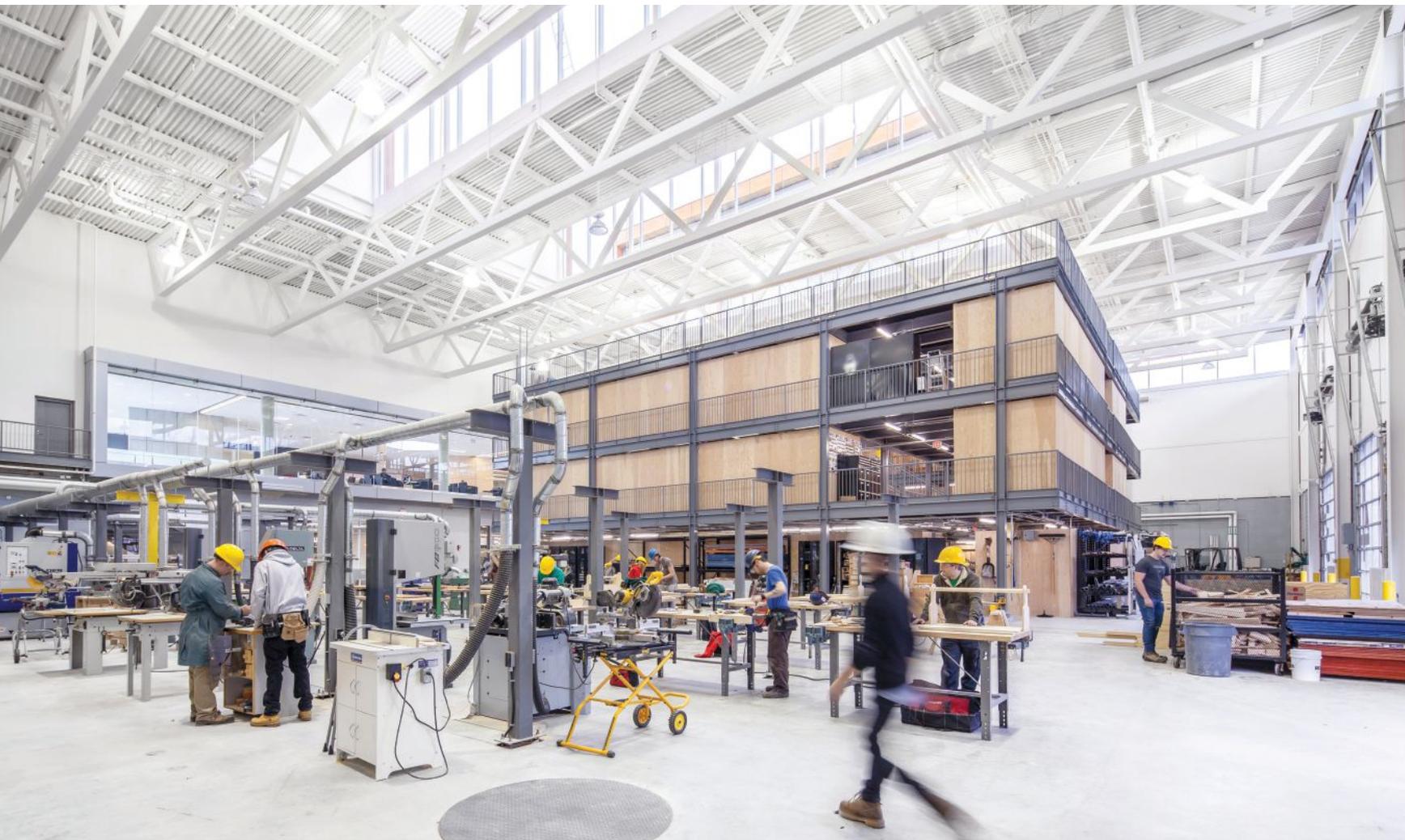
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The technology center's Learning Factory (above) features a four-story teaching cube that provides a flexible framework for electrical and plumbing installations and a realistic simulation of actual site conditions.

Kawartha Trades and Technology Centre Perkins+Will Canada Peterborough, Ontario

IN TODAY'S increasingly competitive job market, some have argued for a return to vocational training. By the end of the last century, these programs were often thought of as an educational dead end, but, given the declining return on investment associated with a standard university education, many schools are now ramping up trade programs. One of these is Fleming College in Peterborough, Ontario. Following a mandate to focus on the development and growth of specialized construction training, the school opened the new 87,000-square-foot Kawartha Trades and Technology Centre (KTTC) in September 2014 at a cost of \$42 million.

Located on the main campus, the new facility replaces an outdated industrial building on a remote satellite site. With a large portfolio of educational, sports, and recreational facilities, Perkins+Will Canada was a natural choice to architecturally redefine a new kind of skilled-trades education. Flooded with daylight and featuring generously scaled, flexible, and open spaces, the KTTC welcomes students who can

explore a range of programs including carpentry, electrical, plumbing, welding, heating, and refrigeration.

The timing of the KTTC project neatly dovetailed with the development of a new master plan of the campus, ensuring a well-considered siting strategy. From a choice of several locations, Perkins+Will selected one next to the student commons, creating a new gateway to the campus in the process. According to design principal Duff Balmer, "Our decision was driven by the sloping topography and woodlot edge; we wanted to integrate building and landscape as best we could, much in the same way that Ron Thom did with the original campus building in the 1970s."

Referencing its industrial lineage, the building's neutrally toned material palette of Cor-Ten steel, concrete, and wood merges seamlessly with its natural and built context. Richly hued cedar sheathes the soffit of the extensive cantilevered roof in the entry plaza. The amply glazed building includes skylights and clerestory windows, bringing abundant light to the interior spaces.

In plan, the building is comprised of two superimposed orthogonal shedlike volumes that nestle into the slope. Academic and administrative functions are located on the upper level, while the lower level accommodates utilitarian workshop spaces. Direct access to loading and staging areas was an important consideration, as was the provision of an



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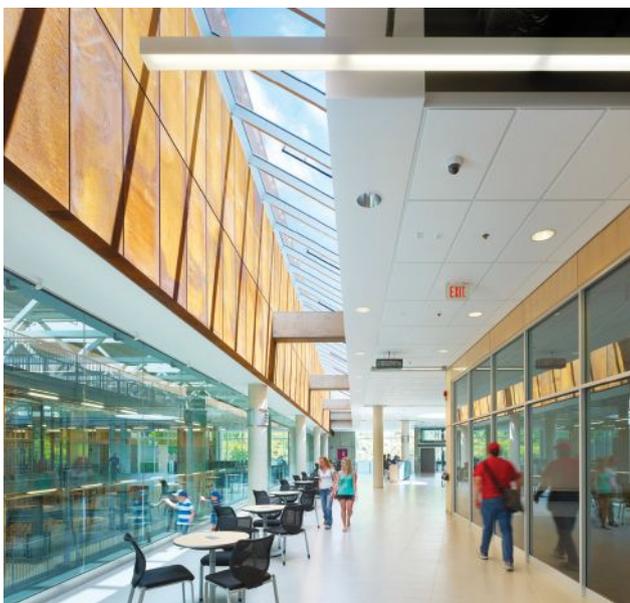
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GOOD DESIGN IS good business



The north entry (above) establishes a gateway accessed by a new parking area, entry plaza, and north-south pedestrian axis link to the campus residences and athletics facility. A large skylit common area (right) provides views to the Learning Factory and encourages cross-pollination among disciplines.



credits

ARCHITECT: Perkins+Will Canada – D’Arcy Arthurs, managing principal; Duff Balmer, design principal; Jan-Willem Gritters, project architect

ENGINEERS: Stephenson Engineering (structural); MCW Consultants (m/e); D.M. Wills Associates (civil)

CONSULTANT: Fleisher Ridout (landscape)

GENERAL CONTRACTOR: Elite Construction

CLIENT: Sir Sandford Fleming College

SIZE: 87,000 square feet

COST: \$42 million

COMPLETION DATE: September 2014

SOURCES

MASONRY: G.A. Masonry

METAL: Pollard; All Metal

CURTAIN WALL: Barrie Metro

ENTRANCES: Assa Abloy

PRECAST CONCRETE: Phoenix Drywall

adjacent courtyard carved into the landscape that extends project space to the outdoors, maximizing the enjoyment of daylight and fresh air.

An enormous warehouse-like “learning factory” contains a four-story “teaching cube” of open platforms, a unique feature that simulates a real-world, multilevel construction site in which various trades work together collaboratively. This interdisciplinary approach enables students to prepare for the complex building sites they may experience after graduation.

The architects have made visibility a priority: views from the common area on the upper level overlook the busy hive of activity in the learning factory, enabling “theoretical and applied teaching to work in tandem,” according to Balmer. And by drawing students from sequestered classrooms to Wi-Fi-enabled common spaces, the design fosters social interaction and the sharing of ideas. In fulfilling the mandate of creating a more immersive teaching environment, the building’s didactic purpose is expressed by the mechanisms and systems that were intentionally left exposed to demonstrate best practices in construction and sustainability. The project is on track for LEED Gold certification.

In its desire to provide alternative pathways to learning, the KTTC has established a strong affiliation between training and employment through partnerships with private industry, which in turn has stimulated job growth in the region. Since the facility’s completion, enrollment has increased by 13 percent—most notably among women. It has “quickly become a tremendous asset for the college and the broader community,” according to Maxine Mann, dean of the School of Trades and Technology. The KTTC even attracts other Fleming College students and visitors, who just enjoy spending time in the building. Ultimately, says Balmer, “the project has caused a perceptual shift with respect to what skilled-trades training looks like.” *Leslie Jen*

A fellow of the Royal Architectural Institute of Canada, Leslie Jen is a consultant, editor, and writer and a former associate editor of Canadian Architect.



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Horizon Media Headquarters Architecture Plus Information New York

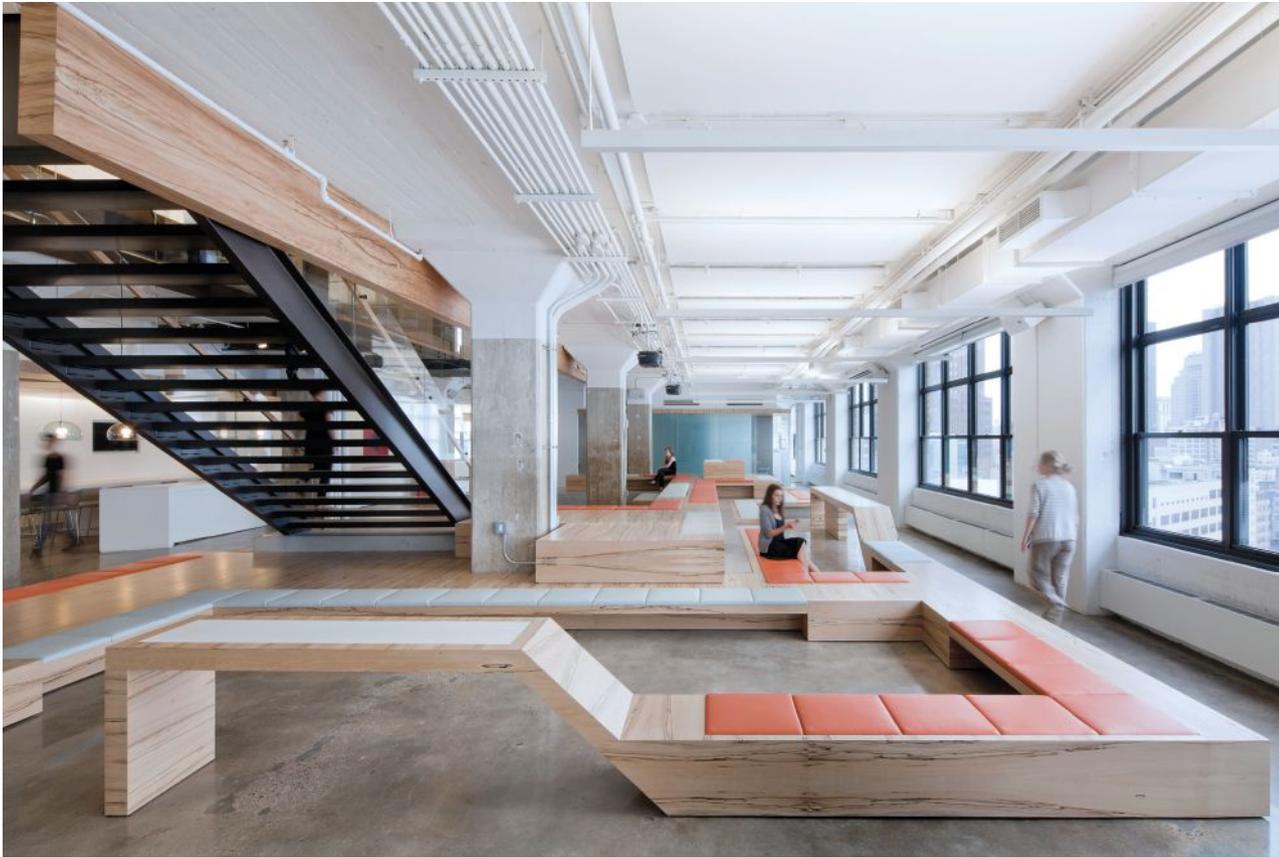
IN SPITE of users' grumbling about noise, distractions, and lack of privacy, the open-plan workplace—in its post-cubicle incarnation, with flexible, casual seating, and ample places to commune and play—continues to gain dominance in office design. Recent studies on productivity, however, advise companies to gear such schemes only to specific business cultures, preferably those of tech or media services firms, and where millennials are in the majority. (Apparently that cohort has a special ability to concentrate anywhere, anytime, and churn out work while playing Ping-Pong.)

Horizon Media fits this profile well: 70 percent of the high-octane media planning and buying agency's staff is under 30. Founded in 1989 in New York, the firm, whose clients include Geico and Burger King, now has over 900 employees.

A few years ago, the privately owned company, which occupied offices in several buildings in Manhattan, decided to concentrate its operations in an old printing plant downtown. With the help of

Architecture Plus Information (A+I), established in 1996 by Brad Zizmor and Dag Folger (who both trained at Columbia University's Graduate School of Architecture, Planning and Preservation), Horizon began to incrementally renovate the 14th to 16th floors of a concrete-frame structure, each about 66,000 square feet.

The first build-out was completed in 2010, with the second phase of expansion in 2012. The third phase, finished in 2015, brought the total occupied space to 195,000 square feet, and now A+I is adding workspace on the 11th and 12th floors. In order to connect the employees across those spaces, A+I first carved out a central interior hall for a large, open steel stair: from the reception area on the 16th floor, you can see to various functions on the two floors below, including the assembling area called "the Dunes," a series of platforms on the 14th floor. Then the architects cut out smaller rectangular openings between the floors to allow even more visual permeability, and added another connecting stair in the northwest end of the triplex.

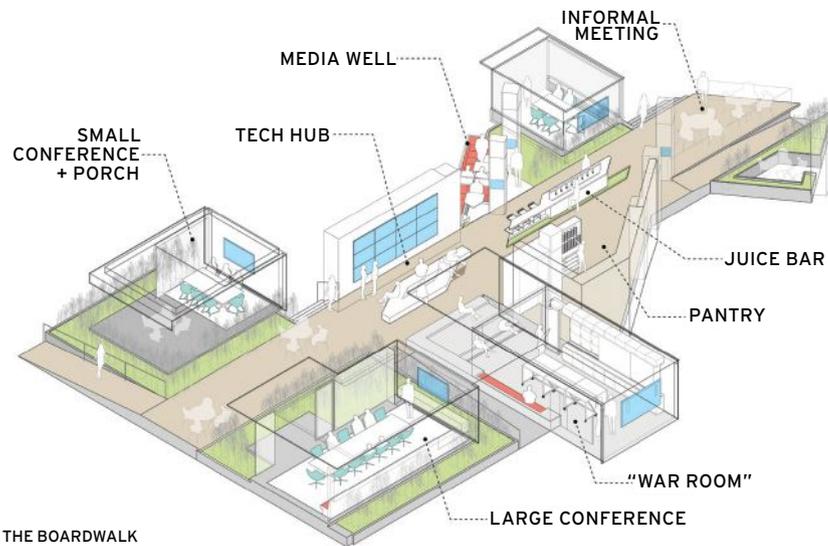
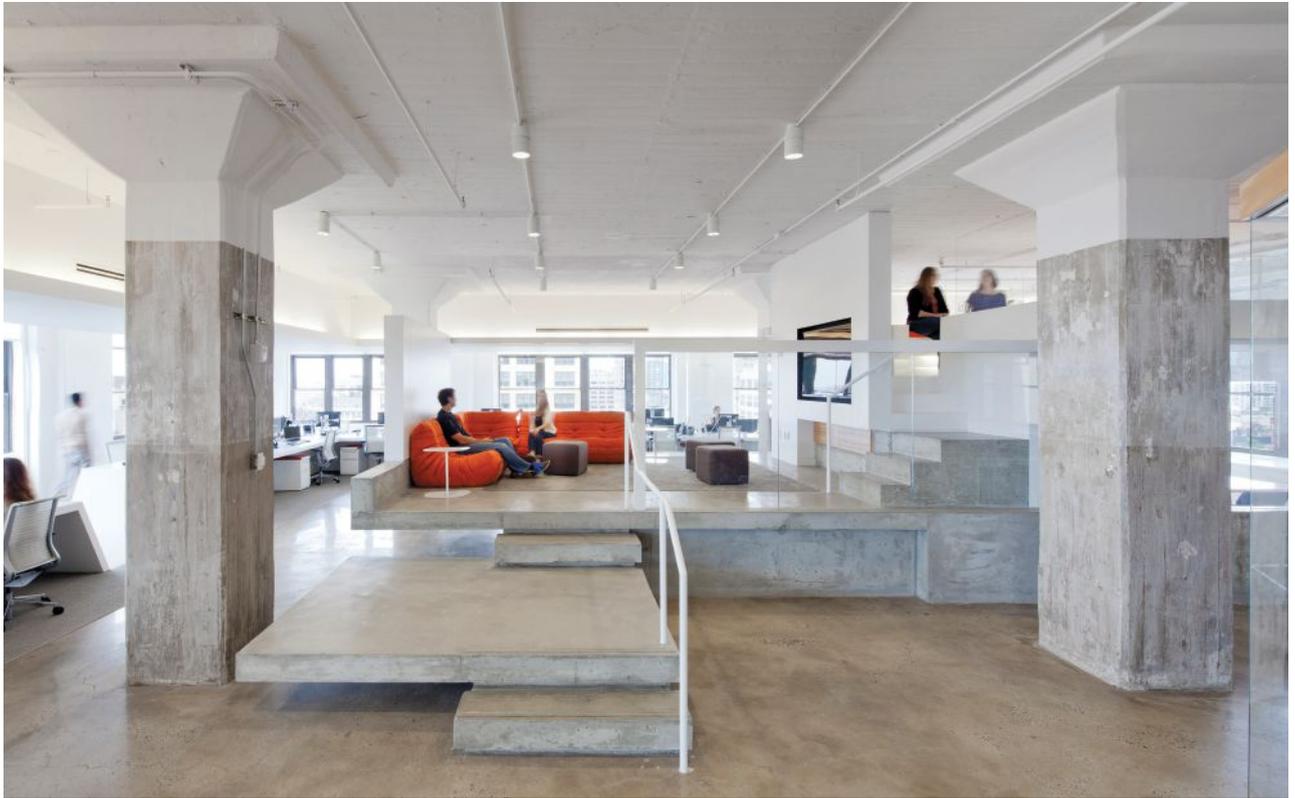


In a former printing plant in New York, A+I left the existing concrete structure exposed and inserted a boardwalk in the middle floor in this triplex occupied by Horizon Media (opposite). A steel stair cuts through a central space (left); seating, edged in spalted maple, encourages spontaneous gatherings. An outdoor terrace is accessed by a platform raised to the height of the window sills (below).



GOOD DESIGN IS good business

New concrete plinths and platforms play off the existing concrete columns to accommodate different kinds of meeting spaces (right). An axonometric drawing (below) indicates how the boardwalk on the middle level of the three floors connects various functions.



THE BOARDWALK

credits

ARCHITECT: Architecture Plus Information – Brad Zizmor, partner in charge; Kate Thatcher, senior associate; Tony Moon, project manager; Lindsay Harkema, Phil Ward, designers; Alan Calixto, interior designer

ENGINEERS: Severud Associates (structural); AMA Consulting Engineers (m/e/p)

CLIENT: Horizon Media

SIZE: 195,000 square feet

COST: withheld

COMPLETION DATE: June 2015

SOURCES

LIMESTONE CLADDING, FLOORS AND WALLS: Stone Source

SLIDING DOORS TO TERRACE: Sunflex
WALL COVERINGS: Empire Metal and Glass; Xorel (strié fabric)

RESILIENT FLOORING: ASI (engineered oak plank)

In the way that the stairs act as a vertical connectors, an engineered-wood boardwalk runs across the middle of the 15th floor as a horizontal link, on and off which glazed conference rooms, seating areas, telephone booths, and vending machines are located. By edging the boardwalk with sea grasses, the architects evoked a sense of the outdoors, echoing the open terrace on the 14th floor, planted with birches, boxwood, and pachysandra.

Taking a cue from the exposed columns, beams, and floors of the existing building, A+I created concrete plinths and platforms for impromptu meetings, which recall Carlo Scarpa's Olivetti showroom in Venice (1958). In addition, spalted maple dramatically defines the geometry of built-in booths, linear seating, and the main conference room's dropped ceiling.

With each expansion, Horizon has been able to test ways that architecture can change as the company's culture evolves. For example, individual workstations are giving way to a denser benching formation that fosters a team approach. The agency says it is finding that the headquarters, admitting expansive views of downtown and ample daylight, helps attract and retain an energetic staff. "We have been growing at 20 percent a year," says Douglas Shangold, director of facilities management and procurement for the company, who also thinks that bringing potential clients to the space for the final pitch has helped seal deals. Not surprisingly, *Advertising Age* put Horizon Media on its top-50 list of best places to work in 2015.

While a game room near the terrace even has beer on tap, A+I is monitoring the ongoing use of these features, so that it can adjust future expansions accordingly. Nevertheless, for this kind of company, the old days of enclosed perimeter offices, with cubicles clustered in the middle devoid of access to space, daylight, and views, are long gone. *Suzanne Stephens*

DESIGNED WITH DISTINCTION.

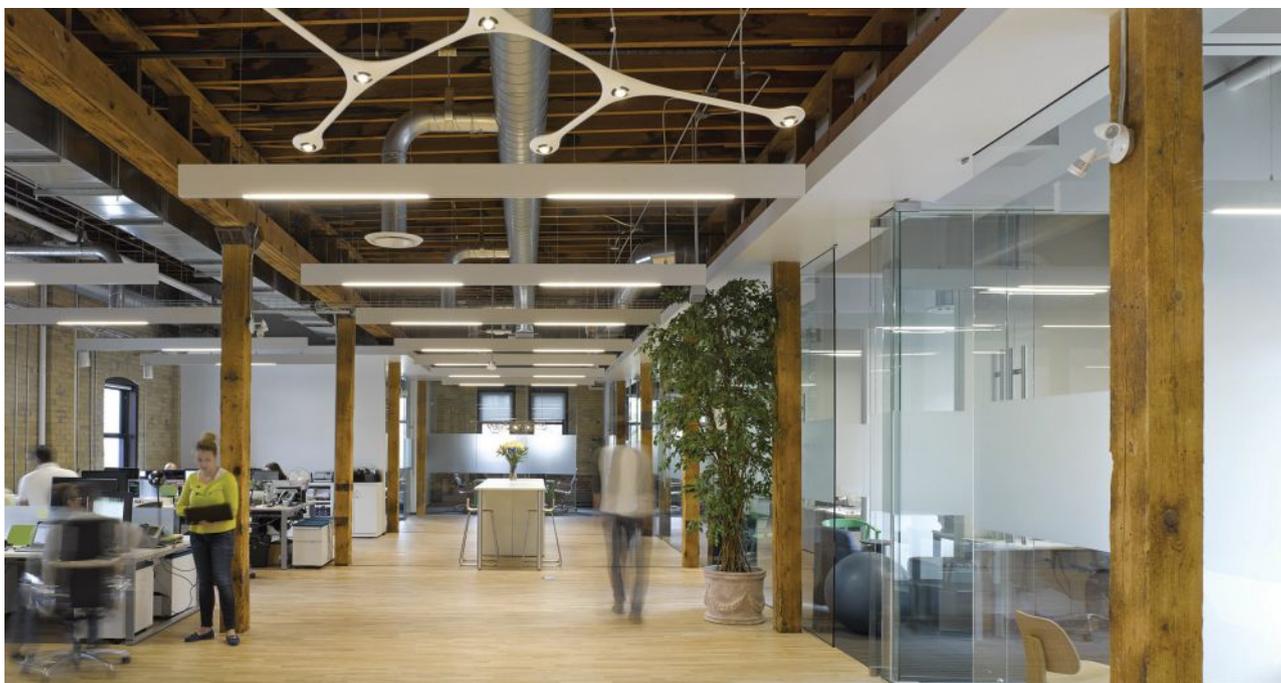


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GOOD DESIGN IS good business



Quadrangle Architects revived a dilapidated 1898 warehouse, adding fresh materials in sync with the existing fabric (below). A glazed circulation addition improves flow in the newly restored commercial building, while renovated interiors speak to its industrial past with exposed timber and brick (left), attracting tenants like Invivo Communications.

60 Atlantic Avenue Quadrangle Architects Toronto

WHEN WORKING with a historic building, developers can add value by expanding it or by enhancing its character, two strategies that are often in conflict. For a structure in a formerly industrial district of Toronto, Quadrangle Architects found a third way, creating a gem of an office building for multiple tenants as a result. The Toronto-based firm renovated a two-story brick-and-beam building for developers Hullmark, and excavated the basement to create a sunken courtyard, making a new daylight ground floor in the process.

Located in Liberty Village, a rapidly redeveloping area on the shoulder of downtown, 60 Atlantic Avenue seemed like an obvious candidate for a teardown. It was built in 1898 as light industrial space, haphazardly expanded into an L-shaped plan, and, while recently used for artists' studios, was left in poor condition. Also, it was only about 25,000 square feet, filling less than half its site. "But Hullmark understood that there is value in a building like this," says Richard Witt, a principal at Quadrangle. "The character of the building provides a quality that's hard to replicate." Retaining the building instead of demolishing it mitigated construction risk and cut at least a year from the approvals process.

To enhance its value, the architects oversaw a comprehensive restoration of the interior, including its heavy timber and steel structure. They cleaned and restored the exterior too, filling in gaps with salvaged buff brick and new, contrasting English gray brick. Today the aboveground floors house tenants including Regus, a co-working space for tech companies, and Invivo, a medical communications firm.

The big move was saved for the crook of the building's L. Here Quadrangle built a small addition—a low glass pavilion and two towers clad in weathering steel. These towers house an elevator, restrooms, and circulation. "We were able to unify these different levels, provide an accessible entrance, and create a new character for this building," says Witt. And the below-grade space, which now borrows north light from the sunken courtyard, will be home to a new restaurant by Oliver & Bonacini in partnership with Big Rock Brewery.



According to Hullmark vice president Aly Damji, the brewery's gross rent is about 40 percent higher than it would be for a standard basement. But the courtyard will also serve the second phase of development on the site: Hullmark and Quadrangle are planning an 80,000-square-foot office building with a mass-timber structure. The new building will borrow its amenity space, its material palette—and some soul—from its freshly renewed neighbor. *Alex Bozickovic*

credits

ARCHITECT: Quadrangle Architects – Richard Witt (project lead), Caroline Robbie (interiors lead), principals

ENGINEERS: Read Jones Christoffersen (structural); Integral Group (m/e)

GENERAL CONTRACTOR: First Gulf

CLIENT: Hullmark Developments

SIZE: 43,000 square feet

COST: withheld

COMPLETION DATE: November 2014

SOURCES

GLAZING: Guardian

CURTAIN WALL: Alumicor

COR-TEN: Agway Metals

HARDWARE: Assa Abloy; Lawrence Hardware

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GRAND TOUR

Like a Houdini stunt, the hospitality venues shown on the following pages are sensational exercises in escape. Yet they are also firmly rooted in their varying contexts. Take Generator Amsterdam, a century-old university building cleverly converted into a colorful hostel, or JW Marriott's luxury resort on the former grounds of a Venetian sanitarium. These projects also document the range of ways we choose to spend our increasingly rare leisure time, whether detoxing in a Bavarian medi-spa, or indulging at a Bavarian-inspired London restaurant—proof that good design is a journey in itself.





Generator Amsterdam | Amsterdam | IDEA Ontwerp and DesignAgency

DUTCH TREAT

Breathing new life into old buildings, a hospitality brand offers lodging that blends the informality of a hostel with the comforts of a boutique hotel.

BY TRACY METZ

PHOTOGRAPHY BY NIKOLAS KOENIG

The transformation of a century-old brick university facility into a combination hostel and hotel has injected new life into this aging, somber building and has launched it from seclusion into the public domain. The new Generator Amsterdam, on the edge of a park in the up-and-coming eastern part of town, reflects the spread of tourism beyond the historic center—a trend that has been encouraged by the city, which has been greatly restricting hotel permits since the fall of 2013.

The young Generator hospitality chain—run by an American and funded by an English private equity firm—

works with its global partner, Toronto-based DesignAgency, on the adaptive reuse, in cosmopolitan cities, of buildings that it deems to have character. The Amsterdam outpost, which has 566 beds in 168 rooms, opened in March and will be followed this year by venues in Stockholm and Rome. The largest to date, with 916 beds, is in a 1985 office building in Paris (RECORD, May 2015, page 121); the first in the U.S. is scheduled to open next year, in Miami. Diverse as the branches are, they all apply a common formula: give guests what they really need—Wi-Fi, USB ports, fun and lively social spaces—and leave out the fussy or fusty elements, such as closets and table linen.

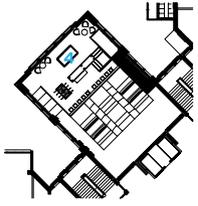




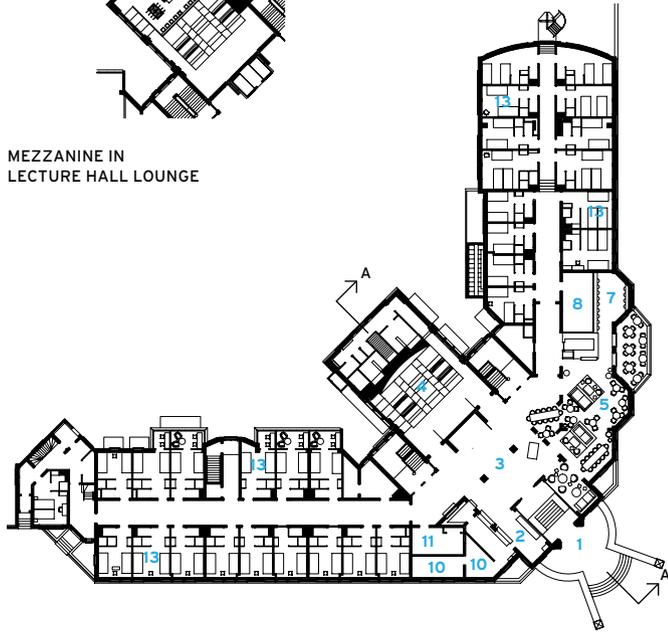
LIGHTEN UP
 The heavy 1917 brick lab building is crowned with two new guest room floors behind a glass curtain wall (opposite). At reception, historical details such as stained glass and terrazzo floors are integrated with the hip new design.



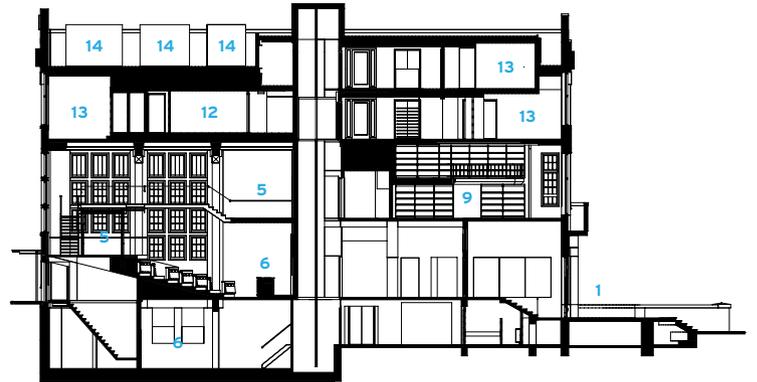
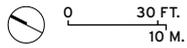
TALK TO ME A former lecture hall has been repurposed as a lounge (above). A local designer used lab flasks and beakers found on-site to create a lighting fixture over the bar (left and above). Dutch artists were invited to decorate the interior with street-art-type work (opposite).



MEZZANINE IN LECTURE HALL LOUNGE



GROUND-FLOOR PLAN



SECTION A - A



- | | | |
|-----------------------|-----------|----------------|
| 1 ENTRANCE | 5 LOUNGE | 10 OFFICE |
| 2 RECEPTION | 6 BAR | 11 LUGGAGE |
| 3 LOBBY | 7 CAFÉ | 12 LAUNDRY |
| 4 LECTURE HALL LOUNGE | 8 KITCHEN | 13 GUEST ROOM |
| | 9 MEETING | 14 MECHANICALS |





ROOM SERVICE This posh hostel, or “poshtel,” offers not only bunk beds for backpackers but also more standard rooms, some with terraces (opposite, top and bottom). It also mixes new elements, such as art painted directly on the walls, with historical details, such as the balustrades (left).

A hip design aesthetic is also an important part of the Generator approach. Clients are by and large young people, but business travelers are increasingly drawn to the fresh no-frills approach—and the prices. This new kind of lodging that mixes a hostel with a hotel—a “poshtel”—offers both bunk beds and regular one-, two-, and four-person rooms. Generator’s venues are increasingly popular for events too, and the company is making more space to accommodate them. “We want to appeal not just to visitors, but also to locals,” says Anwar Mekhayech, principal of DesignAgency.

Generator brought in the Amsterdam-based architecture and engineering firm IDEA Ontwerp (or IDEA Design) for the conversion of this V-shaped 1917 building, erected for the University of Amsterdam’s laboratory for health sciences. In 1983, the lab moved out to the university hospital, and squatters moved in. The design challenge was to adhere to restrictions for this landmarked building and preserve key elements while providing for contemporary use and applying the brand’s particular aesthetic, says Eric Priester of IDEA Ontwerp. This not only entailed maintaining spaces like the library and lecture hall (now a lounge), as well as period details like stained glass and terrazzo floors, but also meant keeping aspects of the original floor plan, such as the wide hallways on the ground floor.

In spite of the landmark restrictions, a number of interventions were possible. In the old lecture hall the team inserted mezzanines at various levels, which provide intimate seating areas. Connected by stairs and a bridge, the mezzanines form a loop around the room, creating private zones while maintaining the graciousness of the original, soaring space. IDEA Ontwerp found new uses for existing elements too. For example, a shaft that formerly housed plumbing and exhaust was widened to hold a glass elevator, with graffiti-like art on the rear wall that you encounter as you zip up and down. The most dramatic change was replacing the top floor—a wood-framed level added in the 1950s—with two new guest room floors. These are enclosed within a diaphanous glass curtain wall that reflects the trees below and the clouds above and extends beyond the roofline, creating the illusion of disappearing into

the sky. Priester says this bold addition gained landmarks commission approval in large part due to its non-historicist approach, as well as its visual lightness and ability to be reversed.

The north side of the hostel faces the Oosterpark, which serendipitously was renovated at the same time. In the basement-level breakfast room, guests now look out to the park through windows that had long been boarded up. Also on this level, old coal furnaces were removed from the boiler room to make space for a bar; under the tiled chute where the coal once came tumbling down now sits a comfy armchair.

Mekhayech says he loves the whimsy that characterizes so much Dutch design. That is why there are five different wallpapers by Studio Job, works by various Dutch artists commissioned through the local Bright Side gallery, and furnishings by Amsterdam designers, like Blom & Blom's lighting fixtures made from recycled lab bottles and beakers. The interior also contains playful references to Holland itself, with metal frames partitioning the café and restaurant that are a reminder of gabled Dutch houses; floor tiles nod to the springtime splash of color in the tulip fields.

With its surprising combination of old and new architecture, bursts of local art and design, and a clever hotel formula that attracts a wide-ranging crowd, Generator has brought a new kind of flair to Amsterdam's flourishing tourism scene. ■



credits

ARCHITECT: IDEA Ontwerp – Pieter Koster, Hans Snoek, Eric Priester

INTERIOR DESIGNER: DesignAgency – Anwar Mekhayech

ENGINEERS: Van Rossum (structural); Michael Nijdam (m/e)

CONSULTANTS: Deltavormgroep (landscape); Build2live (fire protection, acoustics)

CLIENT: Generator Hostels

SIZE: 70,000 square feet

COST: withheld

COMPLETION DATE: March 2016

SOURCES

FINISHES: Studio Job, Flavor Paper

LIGHTING: Flos, Moooi, Blom & Blom

FURNISHINGS: Vitra, Bleu Nature, Miniforms, Piet Hein Eek, Tom Dixon



The German Gymnasium | London | Conran and Partners

WORKING IT

Conran and Partners whip a Victorian-era gymnasium back into shape as a modern mecca of Mittel-European cuisine.

BY ANNA FIXSEN

Believe it or not, more than a century before we could Aerobicise, Tae Bo, or SoulCycle our way to a svelte physique, Victorian England had its own preoccupation with getting buff. In a 1903 letter to the editor of the *Guardian*, Arthur G. Mears bemoaned the state of London's flabby youth, "painfully apparent in the public streets." Physical strength, he wrote, was the element "upon which the future of the nation depends."

Mr. Mears was the secretary of the German Gymnastic Society, an athletic association headquartered in a yellow-brick building adjacent to St. Pancras station. The *Turnhalle* was constructed by German ex-pats in 1865 and—as one of London's first purpose-built gyms—championed vigorous sporting activities like fencing, boxing, and gymnastics. Damage from a zeppelin raid in 1918, toward the end of the First World War, brought an untimely end to the society, and the building became the property of the Great Northern Railway.

Last fall, the sporting club was reincarnated as a glamorous temple to Mittel-European cuisine—a turn of events that would have



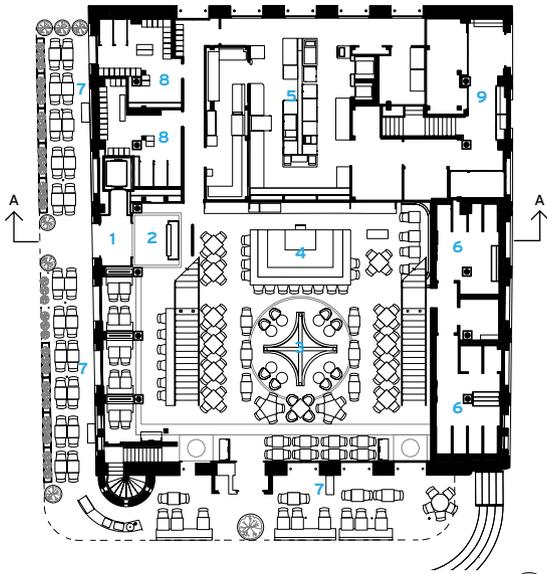
PHYSICAL EDUCATION

When a group of Germans first opened its Gymnastic Society adjacent to St. Pancras rail station in 1865, it was one of London's only gymnasiums (below). The architects opted to restore the heritage-listed building to its original condition, removing a second floor slab to open up the dining room and to reveal the building's stunning timber roof.

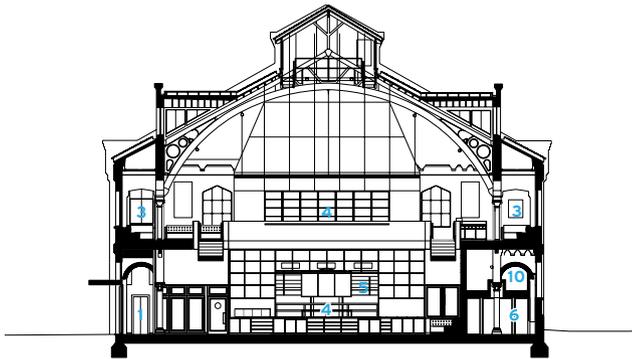
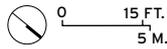


THE GERMAN GYMNASIUM, ST. PANCRAS ROAD, LONDON.—MR. E. GRÜNING, ARCHITECT.





GROUND-FLOOR PLAN



SECTION A - A

- | | | |
|---------------|------------|------------------|
| 1 ENTRANCE | 5 KITCHEN | 8 STAFF RESTROOM |
| 2 RECEPTION | 6 RESTROOM | 9 TRASH ROOM |
| 3 DINING ROOM | 7 TERRACE | 10 BOILER ROOM |
| 4 BAR | | |



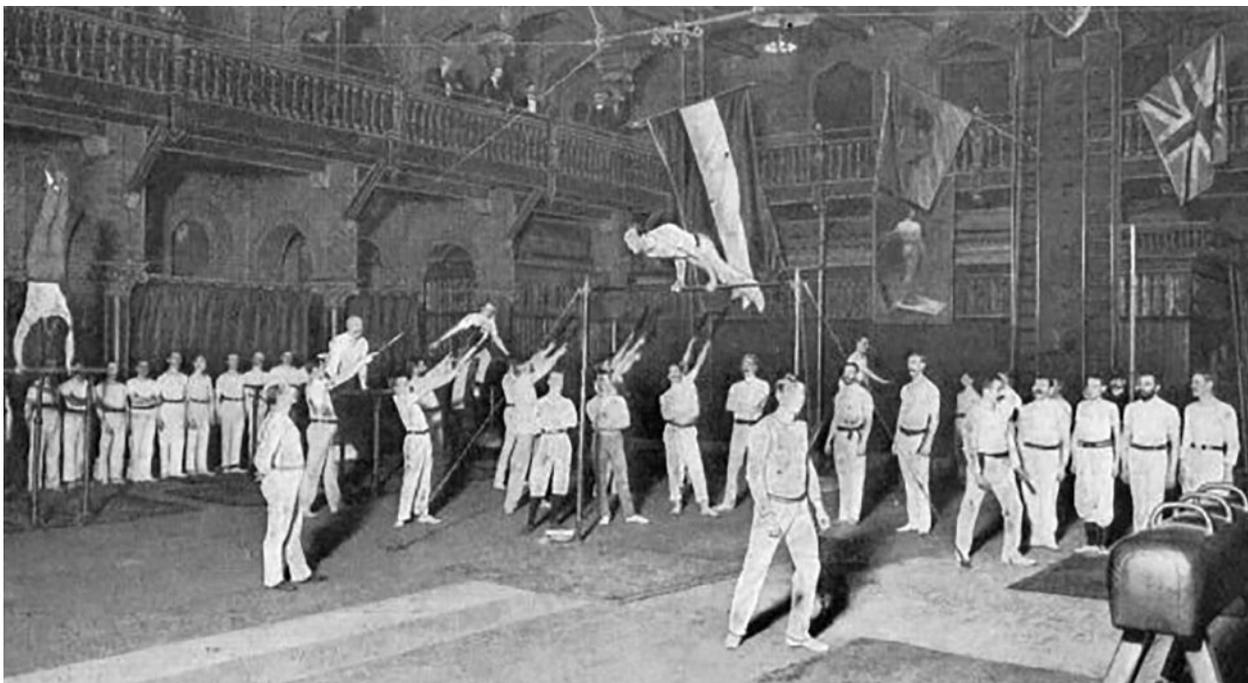
been sure to dismay Mr. Mears. Designed by London-based Conran and Partners, founded by the legendary Terence Conran, and rechristened the German Gymnasium, the restaurant is simultaneously a chic new fixture in this rapidly evolving district and a relic of the neighborhood's past. In developing an approach that would offer a unique dining experience while maintaining the building's spirit, "our starting point was the history of the building," says Tina Norden, lead designer and project director.

Thanks to a 2007 master plan, the neighborhood surrounding the



German Gymnasium—once notorious for crime and prostitution—has experienced an urban renaissance. In addition to the renovation of St. Pancras Station and its Gothic Revival hotel, and the redevelopment of adjacent King’s Cross station (RECORD, June 2012, page 72), the area is now home to parks, restaurants, Central Saint Martins College of Art and Design, and shiny new office towers; Google will soon be moving into an 11-story building by Mossessian Architecture. In 2011, as part of the plan, the developer Argent selected hospitality group D&D London and Conran and Partners to come up with both a design

RAISING THE BAR From a marble-topped counter, customers can get a peek into the kitchen beyond while sipping an elderflower-infused cocktail. Upstairs, booths are inserted behind original Corinthian columns (opposite), where a specially commissioned portrait of the gymnasium’s original architect, Edward Gruning, keeps a watchful eye.



PERFECT 10
Parallel bars, the pommel horse, and rope climbing were popular at the German Gymnastic Society (left). Two dramatic blackened-steel staircases flank the dining room (opposite, top) and lead to an upper level, which has a second bar and more intimate dining areas (opposite, bottom). The large clock was designed by Smith of Derby, which also refurbished St. Pancras Station's historic timepiece.

and an overall dining concept for the heritage-listed gymnasium.

When the architects arrived, the building bore little resemblance to its original self. Throughout the 20th century, it had undergone numerous transformations (it had stints as an office and as an artists residence), the most drastic of which was the infill of original viewing galleries to create a second floor, slicing the vast hall in two. There were also pressing structural concerns: turn-of-the-last-century laminated timber roof trusses (secured with bolts and still embedded with hooks used to support gymnasts' ropes) were causing the masonry walls to buckle.

The base-building architect Allies & Morrison, working closely with Conran and Partners, removed the second floor slab and reintroduced the galleries where Victorian spectators would have once watched boxing matches. They also inserted stainless-steel tension rods to support the splaying walls, retiled the aging roof, and added a pair of blackened-steel staircases leading to the upper level galleries.

For the interiors, project director Norden and her team channeled the building's history. But the architect (herself German) reluctantly admits, "If you open a German restaurant, people immediately think of oompah music and steins." So, instead, they drew inspiration from the grand coffeehouses and brasseries of central Europe in that period—to dazzling effect. The lower level is bordered by the muscular twin staircases and anchored by a marble-topped bar on the southwest side. In addition to providing the room's glowing focal point, the bar is also the gateway to the kitchen; diners can view the chefs at work from across the room. At the center of the dining floor is a cross-shaped banquette made from walnut, brass, and marble, surrounded by café-style tables. Soft eye-level lighting, blush-pink upholstery, and walnut detailing lend warmth to the dramatic open space.

The design team also created numerous subtle references to the gymnasium's athletic past: the grand staircases' wood handrails evoke parallel bars, and bronze mesh screens hint at fencing masks. When viewed from above, the ground level's granite and marble floors take on the lines of a playing court.

Upstairs, the viewing gallery becomes more intimate, with dining spaces tucked into cozy niches. The restaurant can accommodate

more than 400 diners, but you wouldn't know it, given how the architects strategically divided the space by nestling banquettes into the bays behind by the original Corinthian columns and creating snug clusters of seating in open areas.

The team inserted a mezzanine between the ground and second floors to conceal a pastry kitchen, offices, and a boiler room, and stowed mechanicals and a second-floor kitchen behind a mirrored bronze volume above and beyond the bar, which vividly reflects the geometries of the dining room and enables the soaring timber roof to steal the show.

The German Gymnasium, by virtue of its bustling location, is attracting a diverse clientele, from commuters to office workers to university students. On a recent morning, a traveler sipped coffee while engrossed in the day's newspaper while, across the room on a banquette, a group of colleagues huddled around a laptop. The menu reflects the area's newfound tastes with offerings ranging from truffled beef broth to grilled tiger prawns, but Bavarian stick-to-your-ribs classics still abound. And like the restaurant's requisite schnitzel and sauerkraut, the building feels, says Norden, "as if it has always been there." ■

credits

ARCHITECT: Conran and Partners – Tina Norden, project director; Meredith Hull, project architect

BASE BUILDING/ENVELOPE

RESTORATION ARCHITECT: Allies & Morrison

PROJECT MANAGER: PSE Associates

ENGINEERS: Milk Architecture and Design (structural); Lehdig Services Design (m/e/p)

GENERAL CONTRACTOR: 3Interiors

LIGHTING CONSULTANTS: Into Lighting

CLIENT: D&D London

SIZE: 12,900 square feet

COST: withheld

COMPLETION DATE: November 2015

SOURCES

FUMED OAK FLOORING: Havwoods

WALL LAMPS: Flos

LOOSE FURNISHINGS: SCP Contracts

CUSTOM BATHROOM

WALLCOVERINGS: Muzeo





JW Marriott Venice Resort & Spa | Venice
Matteo Thun & Partners

ISLAND LIFE

A former hospital in the Venetian Lagoon transforms into an upscale resort.

BY JOSEPHINE MINUTILLO

Since the Middle Ages in Venice, several of the islands in the Venetian lagoon between the Grand Canal and the Lido leading to the Adriatic Sea were used as refuges for monks seeking solitude or for victims of the plague and other contagious diseases. Now that isolationist approach is being tested—on a luxurious scale—on one such abandoned island of the lagoon, home to the new JW Marriott Venice Resort & Spa, the luxury brand of Marriott International. The hotel chain took a chance on the remote location, a 20-minute boat ride from St. Mark's Square.

The artificial island was built in the 1860s to store fuel and other combustibles but soon became, like the much older neighboring islands, a sanctuary for convalescents. In the 1890s, owing to the island's proximity to the sea, its agreeable climate, and distance from the cramped quarters and pollution of the city, many of the



PHOTOGRAPHY: COURTESY JW MARRIOTT VENICE RESORT (EXCEPT AS NOTED)



SET SAIL

Hotel guests and visitors for the day arrive on the island via a complimentary shuttle from St. Mark's Square (opposite). The hotel's main building originally opened in the early 1930s as a state-of-the-art hospital (above). Its rooftop bar, restaurant, and pool offer views of Venice (left).

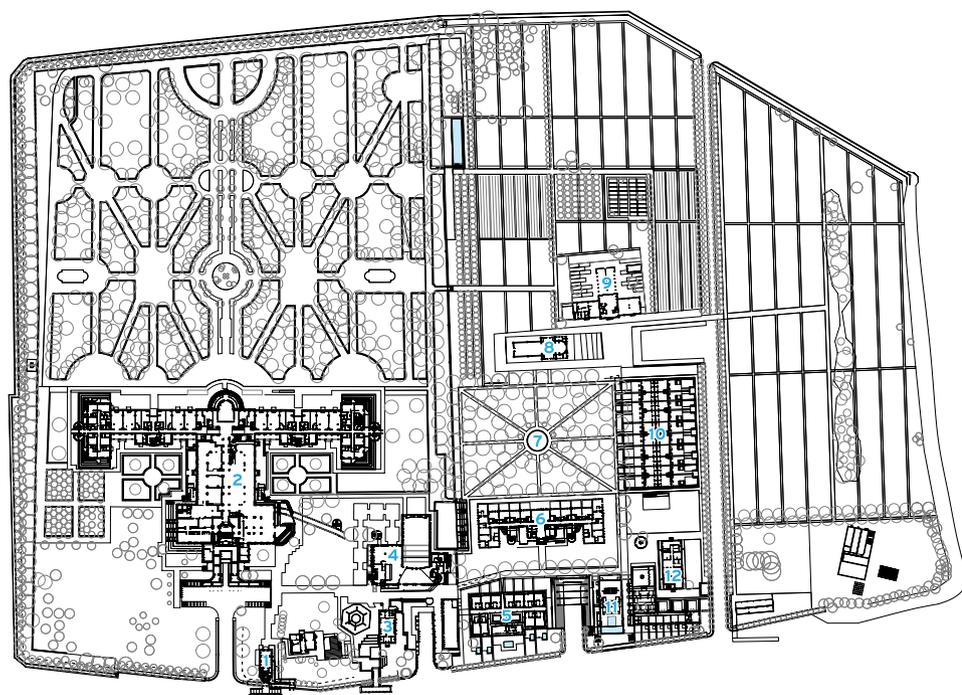
buildings on its 40 acres were converted to hospitals to treat pulmonary ailments. By the 1930s, a large modern medical facility had opened, to much national fanfare.

That sanitarium would continue to treat patients for five decades, but eventually the entire island was vacated, and it sat in ruin, until the start of a restoration in 2000. That project, taken over by the Milan-based firm Matteo Thun & Partners following an invited competition in 2011, transformed the five-story main hospital building and 17 other smaller ones into 266 hotel rooms and suites, three restaurants, several bars, and a spa. "When you arrive on the island from Venice, you come from a totally urban situation, with no green spaces and overrun with tourists," explains Matteo Thun. "We wanted to create a 360-degree alternative with a resort experience."

The architecture of the main building expresses the abstract geometry of prewar Italian Rationalism, where function prevails

over aesthetics. "The top of the building looks like a de Chirico painting," Thun says. "We wanted to follow that Rationalism." Thun and his partner Luca Colombo left the floor plans largely intact, keeping the wide corridors and their large glass doors onto the terraces of the original hospital. The interiors are mainly white, like the exterior stucco, giving the entire building a light, airy feel. Public spaces are outfitted with lighting that Thun—also well known as a product designer—created for a couple of Italian brands. The biggest architectural intervention was on the roof, where an infinity pool was added beside the rooftop bar and restaurant. Bounded by a glass parapet, the heated water of the pool seems to merge with the lagoon, while views of the cupolas of St. Mark's Basilica and its neighboring campanile are visible beyond.

Slightly more upscale suites with a colorful décor were designed for the smaller, older buildings, which, while not historically signifi-

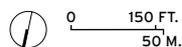


BRICK HOUSE A church building has been converted into an event space (opposite). La Residenza features an internal courtyard (below, left), onto which bedrooms face (below). From inside the two-story La Maisonette, the building's original brick wall is visible just past the new glass facade (opposite, bottom right).

cant, were handled with, so to speak, preservationists' gloves. "The broken brick walls are very similar to what you see throughout Venice, consumed with the patina of salt and wind," says Thun. "We did not want to touch them from the outside or from the inside." For several of these former warehouses, now sporting such names as La Maisonette and La Residenza, the architects employed a "box in a box" approach, inserting a steel structure several feet away from the masonry shell. In the spa building, they added a metal grid—an architectural feature commonly used in Medieval Venice and made popular again by Carlo Scarpa—over parts of the facade to act as both a privacy and sun screen.

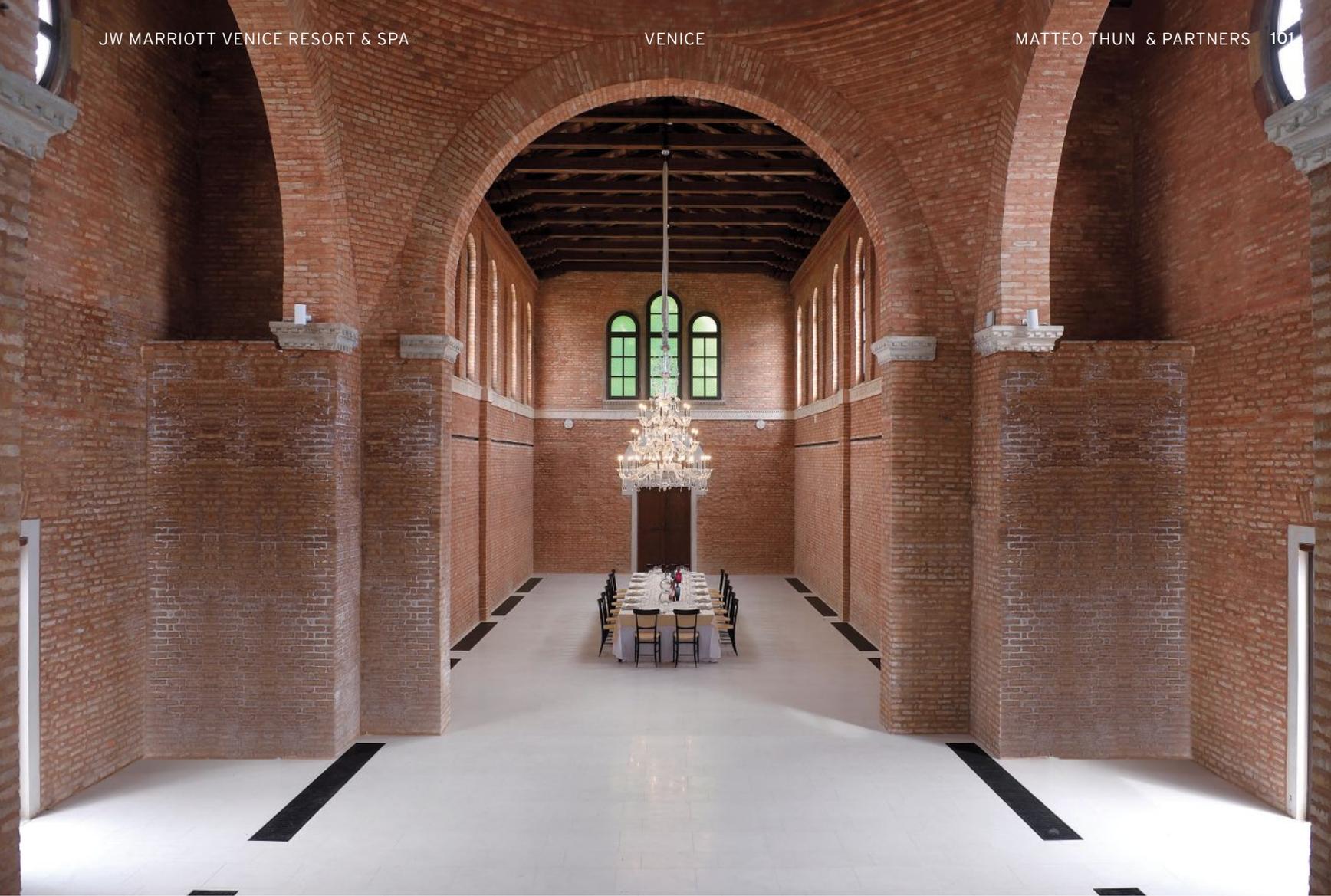
The gardens and landscaping on the island, today commonly referred to as Isola delle Rose (Island of the Roses), are as prominent a feature as the architecture. Stately olive trees that border the many allées are harvested to provide the olive oil used in the informal cooking school and restaurants, including the Michelin-starred Dopolavoro. Meaning "after work," Dopolavoro takes its name from the building in which it is housed, a 1936 structure

SITE PLAN



- | | |
|--------------------------|-------------------------|
| 1 GROUP ACCESS DOCK | 7 OLIVE GROVE |
| 2 MAIN BUILDING | 8 CHURCH EVENT SPACE |
| 3 ADMINISTRATIVE OFFICES | 9 DOPOLAVORO RESTAURANT |
| 4 CONFERENCE CENTER | 10 LA MAISONETTE SUITES |
| 5 LA RESIDENZA SUITES | 11 SPA |
| 6 ULIVETO GUEST ROOMS | 12 FITNESS CENTER |







with hints of a classical vocabulary built for doctors and nurses as a place to eat, drink, and watch movies following their shifts. Newly planted herb and vegetable gardens also contribute to the restaurants' menus.

The architects were frankly skeptical that travelers to Venice would want to stay so far from the action of the city itself, but since opening in the spring of 2015, the seasonal hotel has frequently been at capacity. A more affordable alternative to Cipriani—also removed from the throngs of tourists on an island closer in—it is especially popular with families, as children can safely run about. For adults of today, including this one, the seclusion of the small island, with its cheerful spaces, does not feel imposed but, rather, welcome. ■

credits

ARCHITECT: Matteo Thun & Partners – Matteo Thun, principal; Luca Colombo, partner and project manager

ENGINEERS: Buro Happold, Milan Ingegneria

CLIENT: Aareal Bank; Marriott International (operator)

SIZE: 145,000 square feet

COST: withheld

COMPLETION DATE: June 2015

SOURCES

CARPET: Brintons, Tai Ping

GLAZING: Saint Gobain, Pilkington, AGC

LIGHTING: Artemide, &Tradition, ClassiCon, CTO Lighting, Gubi, Simes, Unopiù, Barovier & Toso

FURNITURE: Gervasoni, Andreu World, Thonet, Mater, Ligne Roset, Riva 1920, Meridiani

LOCKSETS: Onity

LAP OF LUXURY

The spa and its adjacent treatment rooms are located in restored brick warehouse buildings (opposite, top). Metal grids were used in parts of the spa building's facade (opposite, bottom right). The main building's rooftop restaurant fuses Mediterranean and Nordic influences (opposite, bottom left). The pink and white stucco facade of Dopolavoro was completely restored (right). A gabled steel canopy replaces crumbled brick walls at the rear of that building, to create an outdoor dining area (below).



Lanserhof Tegernsee | Marienstein, Germany | Ingenhoven Architects

TAKING THE CURE



An elegantly modern medical spa and resort exudes luxury and calm.

BY JAMES REGINATO AND SUZANNE STEPHENS

The gleaming, rectilinear glass-and-wood Lanserhof Tegernsee, a resortlike spa clinic nestled in the Bavarian countryside, seeks to regenerate the health of its clientele. Its Alpine surroundings and contemplative atmosphere bring to mind Thomas Mann's sanitarium in his novel *The Magic Mountain*—only the patients in the fictive Swiss institution had to contend with tuberculosis. Here, health concerns might include more subtle ailments derived from the stress and indulgences of contemporary life. Germany has long been the wellspring of such restorative resorts, dating as far back as the 2nd century CE, when the Romans happened upon the hot springs that became known as Baden-Baden. Times have changed, but the desire for taking a cure has not.

While Mann's cast of characters were a representative assortment of early 20th-century European cosmopolites, the clientele at Lanserhof Tegernsee comes from all over the world—and is likely to be extremely well-heeled, literally: a famous designer of ultrachic shoes was a recent guest—as well as a top interior decorator from Paris, the head of a major auction house in New York, and the daughter of an English duke. In fact, Lanserhof Tegernsee's architect, Christoph Ingenhoven, has frequented the place, which opened in 2014 as part of a cluster of medical resorts originally formed in Lans, Austria, over 30 years ago. The brief for the Düsseldorf-based firm of Ingenhoven Architects was to provide a state-of-the-art facility in a luxurious (but low-key) hotel, 260,000 square feet, in this pastoral landscape south of Munich. Its 70 bedrooms and suites range from 600 to over 1,000 square feet.

The stay at any Lanserhof inn, however, involves a fair amount of deprivation for its guests in terms of food and drink. Inspired by the teachings of the Austrian physician Dr. Franz Xaver Mayr (1875–1965), the regimen involves therapeutic fasts and special detoxifying diets that promise to rejuvenate the metabolic system and boost wellbeing. And you'll lose weight—although, the architect says, “Eighty percent of the guests do not need to reduce—just change their lifestyle. It's not a



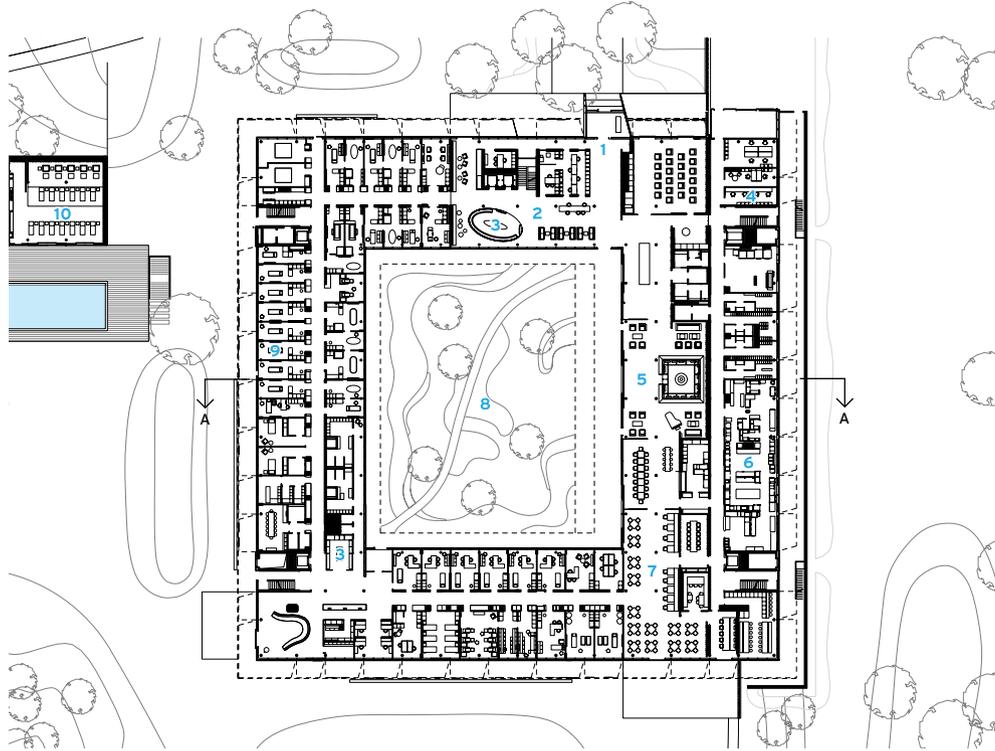
PHOTOGRAPHY: © ALEXANDER HAIDEN (LEFT); H.G. ESCH (RIGHT)

AUSTERITY MEASURES Ingenhoven Architects employed larch wood cladding and screens on the exterior facades of the Lanserhof Tegernsee (left). The screens afford privacy and shade for expansive glazed walls on two stories of guest rooms atop a main level for the public spaces and medical clinic (above).

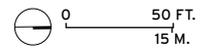
- 1 ENTRANCE
- 2 LOBBY
- 3 SHOP
- 4 ADMINISTRATION
- 5 FIREPLACE LOUNGE
- 6 KITCHEN
- 7 RESTAURANT
- 8 INNER COURTYARD
- 9 MEDICAL TREATMENT WING
- 10 BATHHOUSE AND POOL
- 11 GUEST ROOMS



SECTION A - A



MAIN-FLOOR PLAN



BAR NONE The low-rise square structure sits in a rolling landscape in Bavaria (left). At its center is an inner garden with living walls. In the open-plan fireplace lounge (opposite), spaces are defined by concrete columns and upholstered banquettes.



spa,” he adds, “but more like a clinic, with medical treatments.”

In planning this facility, the owners purchased a golf course with dramatic views of the Alps and placed the new building on a hill. In developing the scheme for the 260-by-260-foot-square three-story structure, which is organized around an inner garden, Ingenhoven was inspired by the area’s monasteries and large farmhouses with courtyards. Moreover, the rough climate and strong winds of the locale encouraged him to think of the inward-turning plan.

The winds and the fact that most guests tend to get cold easily—because of their low-calorie diet—convinced Ingenhoven to design a poured-in-place reinforced-concrete structure that would provide thermal mass. And concrete’s acoustical properties assure peace and quiet. Oak is used for floors and decks, while larch wood clads exterior and interior surfaces. Sliding screens across the private balconies give the

facility a domestic look, enhanced by the planting on the inner walls of the courtyard and on the roof.

Both the client and architect wanted natural materials—minus synthetics, chemicals, or toxins—with a neutral color scheme, as befit a clinical program. Plush upholstery for the seating adds the proper sense of comfort. In turn, the white-on-white palette in the bedrooms and baths imbues them with a sense of purity and serenity without visual distraction. The medical clinic, entered through the courtyard or via a corridor from the hotel, is pristine white throughout, except for what is known as the “Blue Sofa”—an enormous azure-hued seating area where guests meet for their various treatments and consultations. An adjoining bathhouse, reached via an underground passage, offers a zenlike yoga studio, a gym with the latest equipment, and a sauna, as well as indoor and outdoor pools.



Ingenhoven's firm executed the entire design, including the interiors. "It's a *gesamtkunstwerk*," says the architect. A range of sustainable features—geothermal heating and cooling, triple-glazed windows, the living walls on the courtyard's inner facades, and the planted roof that reduces solar loads—accord with Ingenhoven's green reputation.

The day at the medical spa begins by drinking a mixture of Epsom salts. These—along with 25 bitter drops of some sort of potion ingested before every meal—ensure that your cleansing stay is not the normal fun holiday. Naturally, no alcohol, caffeine, or sugar are allowed, but once you make it past the third day, you start to feel healthier. Breakfast, served at 7 a.m. in the dining room, is small: some have tea; others have porridge or gluten-free bread (each bite of which must be chewed 25 times). The morning program includes medical diagnostics with staff doctors.

The rest of the day—if you have the energy, since the minimal diet lowers your metabolism—you may golf, bike, go on a "Nordic walk" (sticks provided; in winter, snowshoes as well), or take fitness or yoga classes. The hikes are invigorating, as well as occasionally tempting when one passes the gemütlich beer hall in the nearby village that beckons with its brew and bratwurst.

To help in the detoxing of one's digestive system, the medical spa gives its guests white hot-water bottles (rather chic, actually) to place over the abdomen for 20 minutes twice daily while reclining on a bed fitted with organic linens. Dinner is over by 6:30 p.m., at which point you may attend a concert or a lecture in the lobby and knock back medicinal teas.

Yes, you go to bed hungry, but the atmosphere is very conducive to resting. In the rigorously restrained chasteness of this modern monastery you do feel coddled by the design. You depart feeling lighter—mentally as well as physically—with a resolve to come back. Someday. ■

James Reginato is a writer at large for Vanity Fair.

credits

ARCHITECT: Ingenhoven Architects – Christoph Ingenhoven, principal in charge

STRUCTURAL ENGINEER: Binnewies

CONSULTANTS: DS-Plan (facade); DS-Plan with Ingenhoven Architects (sustainability); HHP Ingenieure für Brandschutz (fire protection); Müller BBM (acoustic); Enzo Enea, T17 Landschaftsarchitekten, Ingenhoven Architects (landscape)

CLIENT: Lanserhof Marienstein

SIZE: 226,000 square feet

COST: withheld

COMPLETION DATE: January 2014

SOURCES

WOOD FACADE: Rubner Holzbau

BALCONY FACADES: Freisinger Holzbau

GLASS: Foidl Bau-und-Kunstglas

ACOUSTICAL CEILINGS: Baierl + Demmelhuber Innenausbau

PAINTS AND STAINS: Hierat
WALLCOVERINGS: Bachhuber Einrichtungen

SOLID SURFACING: Corian

CHAIRS: Vitra, Knoll



SYBARITICALLY SPARTAN Expansive glazing allows views of nature from the luxuriously simple guest rooms (opposite). Wood-decked balconies open off the rooms (above). The heated saltwater pool (left) adjoins a separate bathhouse.

BITE-SIZE DESIGN

Three restaurants and bars on three different continents serve up innovative style—with a side of local flavor.

BY MIRIAM SITZ



SURF SIDE

Tall synthetic-leather stools slide under the hanging marble bar (above). Using the same materials on floors, walls, and the ceiling lends a feeling of being inside a wave, while a white ceramic screen (right) recalls the bubbles and foam of crashing water.



BLUE WAVE COCKTAIL BAR

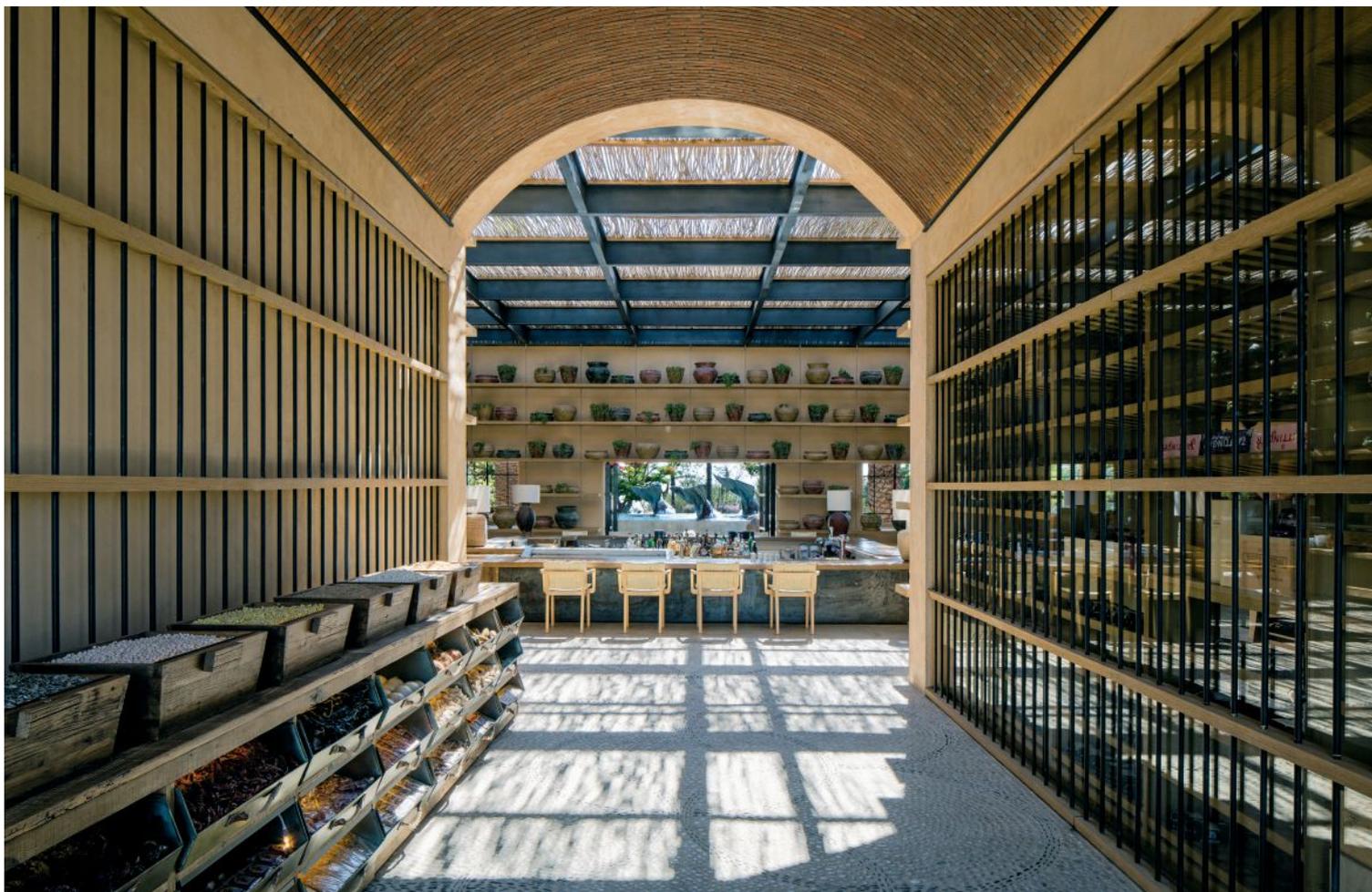
Barcelona | El Equipo Creativo

Clad in tile, mirrors, and glass, this high-end lounge gleams as much as the water it fronts. Local firm El Equipo Creativo designed the 2,000-square-foot lounge for the new members-only OneOcean Club at the Port Vell Marina.

The design studio, which specializes in commercial and hospitality projects, took cues from the city and setting: extensive bespoke tiling in fish-scale patterns recalls the mosaics of Antoni Gaudí, while other reflective surfaces—smoky black mirrors, copper-colored sheet metal, and ceramic—cast light and shadows in all directions like the undulating surface of the Mediterranean. “The interior is conceived as a wave, which creates an embracing tube before breaking,” says designer Natli Canas del Pozo. “It’s a dynamic space filled with reflections and shadows.”

The club’s existing perforated concrete facade (designed by Spanish studio SCOB) filters afternoon sunlight into the west-facing bar area, where suspended rectangular panels—clad in the ceramic tiles and imitation marble in bright white and Danube blue—form the ceiling.

The narrow marble bar—where cocktails like the Zacapa Breakfast, with rum, orange marmalade, and triple sec are served—also hangs from the ceiling and serves as a table. The custom tiles were glazed in seven shades of blue to match the hues of ocean water, from wave to foam, and only a glass partition separates visitors lounging on the outdoor terrace from the real thing.



iSALUD! Low, rustic shelves on one side of the entry corridor (above) hold bins of produce, suggesting traditional Mexican markets. Open to the Pacific Ocean, the cantilevered patio (right) is set slightly lower in elevation than the main dining rooms. Dramatic desert landscaping frames the restaurant's outdoor spaces (bottom).

TORO GASTROBAR

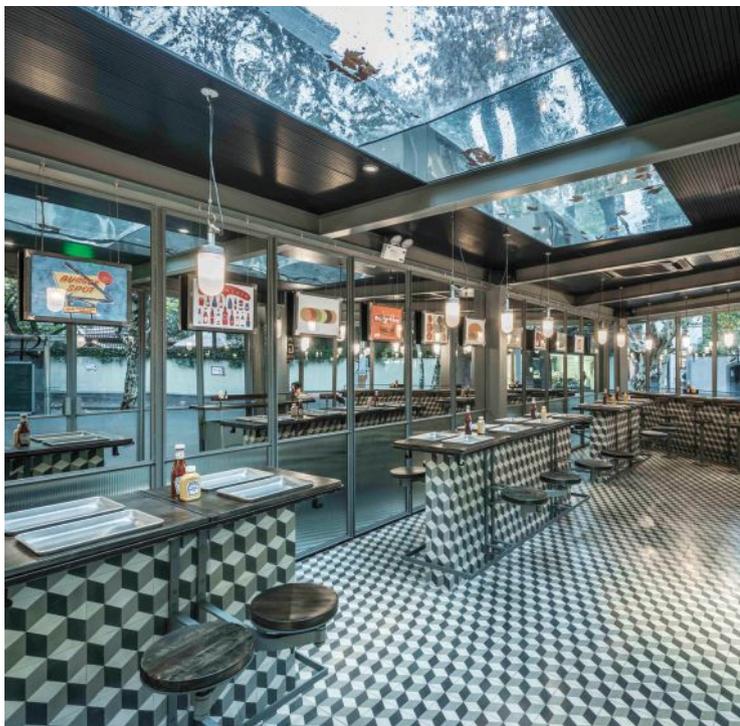
Punta Ballena, Mexico | Studio Arthur Casas

This gut renovation of an existing Spanish Colonial-style structure in a resort town of Baja California reinterprets traditional forms and materials for Toro Gastrobar. An original arched brick corridor forms the main entrance to the 8,000-square-foot Latin American restaurant, and leads to a sunny central courtyard and bar where light filters through a twig pergola. (A retractable sunscreen shades the courtyard and protects it in the rare event of rain in this arid region.)

Suspended from the Cor-Ten beams crisscrossing the ceiling, and lining the walls of this central area, are floating shelves holding large locally crafted ceramic pots, which echo the organic patterns and colors found in the stone mosaic floor. "I tried to use new construction to bring back in some of the Mexican vernacular," says São Paulo- and New York-based Casas, who sourced decorative elements, textiles, and construction materials from local suppliers.

Through broad doorways, the courtyard connects to two conjoined dining rooms—where chairs are upholstered with fabric from Guadalajara—and a spacious porch, where diners can gather, shaded from the sun by a sturdy wooden awning. The firm's most striking addition is a cantilevered patio just off the main dining room, looking out past tall cactus and native plants to the Pacific Ocean.





CHECKMATE With clear glazing on the top and frosted glass at the bottom, floor-to-ceiling window panels can be opened to the street (above). High common tables are fitted with custom steel-and-walnut pivoting stools (left).

RACHEL'S BURGER

Shanghai | Neri&Hu Design and Research

Architects Lyndon Neri and Rossana Hu channeled the classic 1950s American diner for their recent restaurant project in the former French Concession district of Shanghai. Concrete tiles, hand-painted in a dizzying 3-D checkerboard, cover the floors and bases of the communal tables. "The geometric design evokes a certain '50s look," says Neri, "and adds depth and texture to a small site."

Mirrored panels help to visually expand the 1,000-square-foot space, while steel-framed glazing folds, opening the restaurant to the outdoors. "The interior is extremely tight, and the street is one of the nicest in the city," says Hu. "We wanted to allow a sense of transparency, to bring the activities on the street into the interior, permitting both visual and sound interactions." A skylight running the length of the dining space brings even more daylight in. At night, minimalist pendant lamps designed by the Shanghai-based architects glow above the tables.

Despite the nostalgic design details and graphic patterns, Rachel's Burger avoids kitsch; it's a small place with a small menu (just the classics: burgers, plus or minus cheese, and fries). In its new home, the restaurant's motto—"simplicity on a bun"—rings true. ■

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Sweating the Small Stuff

Some molecules don't belong in a building. Product transparency helps architects keep them out.

By Katharine Logan

IF THERE'S one thing architects know, it's materials. Attention to detail? It practically defines the profession. Now, however, as awareness of building materials' environmental and health impacts grows, architects are being asked to consider materials at an even smaller scale: molecular.

In North America, chemicals can be used in consumer products before being tested for toxicity. According to the Natural Resources Defense Council, more than 80,000 chemicals currently used in the United States haven't been adequately tested for their effects on human health. For proven toxins, regulation is premised on the notion of safe levels not to be exceeded. But for children, researchers maintain that no level is safe. Multiple toxins, including heavy metals, bioaccumulative compounds, and endocrine disruptors, are now found in all of us; among the most common sources of exposure are building materials.

Disclosure from manufacturers about building products' ingredients, either directly to a project team or through a transparency program, can help architects select more benign materials, which in turn spurs further improvements. But in the short term, this market disruption, with its swarm of acronyms for unfamiliar substances, can have architects sweating some very small stuff.

To help, *RECORD* has identified three path-finding projects that successfully grappled with materials' evaluation: the Lucile Packard Children's Hospital (LPCH) expansion on the Stanford University Medical Center campus; the Method Manufacturing Facility on Chicago's south side; and the Rose, a mixed-income housing development in Minneapolis. Their architects shared what they know about molecular gatekeeping.

TAKING PRECAUTIONS

The 521,000-square-foot, six-story LPCH expansion, scheduled for completion in 2017 and targeting LEED Gold certification, aims to support health and healing by reinforcing patients' connections to community and the natural environment. In addition to features to insure good indoor air quality and water and energy conservation, the building has several elements intended to bring nature



NATURE'S MEDICINE
The Lucile Packard Children's Hospital, under construction in Palo Alto, California, incorporates natural materials such as the salvaged redwood timbers that clad the lobby elevator tower (above). Patient rooms (left) have furnishings without halogenated flame retardants and non-PVC flooring that does not require a sealant.

inside, including planter boxes outside patient windows, multiuse gardens, and a variety of interactive displays and artwork relating to the eco-regions of California.

In keeping with this project theme, the team prioritized local, natural, and healthy materials. "Natural materials have an innate healthfulness," says Robin Guenther, a principal of Perkins+Will, architects for the hospital, "so we use them wherever they're

appropriate." Salvaged structural timbers from local buildings and site-harvested redwood, for example, appear in the entrance canopy, elevator tower cladding, and trim, introducing biophilic elements.

But more complex materials require screening. Perkins+Will's first step is to consult its in-house-developed "precautionary list"—a publicly available catalogue of substances commonly found in building

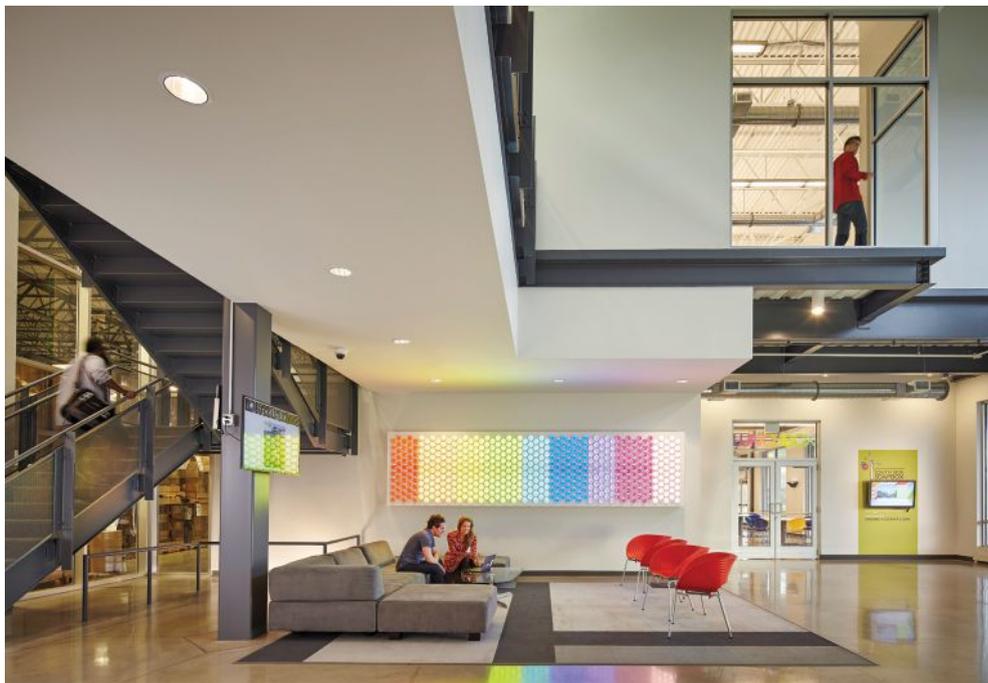


INDUSTRIAL REVOLUTION Architect William McDonough's Method cleaning products factory in Chicago (this page and opposite) has solar panels and wind turbines that satisfy about a third of its energy demands. The facility is constructed of materials vetted according to the C2C protocol, including paint, wall base, and adhesives.

materials that multiple regulatory entities have classified as detrimental to human and environmental health. "The virtue of such a list," says Guenther, "is that it points to low-hanging fruit."

Getting to that fruit took some clambering, though. Six years ago, when the LPCH specifications were being developed, the only way to find out whether a product contained listed chemicals was to ask its manufacturer directly. Some answered, many didn't, some refused to divulge what they considered proprietary information, and many didn't know what had gone into their products lower down on the supply chain.

Now, as a growing number of manufacturers recognize the market advantage of transparency—especially with the disclosure and optimization credits in the latest version of LEED—product declarations are increasingly available. Even so, screening products for health impacts is laborious. Specifying from among products preselected for precautionary-list compliance saves time, says Suzanne Drake, a senior associate at Perkins+Will, "but the biggest hang-up is a lack of options." For high-profile or especially large projects, a manufacturer may consider it worthwhile to reformulate a product, or publish information to comply with LEED credit requirements. Otherwise, the design team can do little but flag the issue for the client and make a materials recommendation based on other priorities.



Often, it's the additives intended to improve appearance or performance, such as color, stain guards, fire retardants, antimicrobials, and sealants that introduce toxins into an otherwise benign base product. On LPCH, the team specified non-PVC (polyvinyl chloride) floorings that require no sealing, no- and low-VOC (volatile organic compound) paints, non-PVC window treatments and wall coverings, and furnishings without halogenated flame retardants. Occasionally the weight of other priorities prevailed over health factors (the selected solid surface countertops, for example, contain precautionary list chemicals). But, says Guenther, "presenting the options

side by side in a graphic and easy-to-digest way allowed our clients to make clear decisions."

Once the right products are in the spec, it might seem that the job of optimizing materials for health is done. Not so, says Guenther: "Getting better products into the spec is only half the battle. You still have to get them installed in the building." Contractors inevitably want to substitute less expensive, easier to obtain, or more familiar options, and by that phase in a project, the client group that originally selected the materials often has disbanded. "If you don't develop a strong culture that cares about these things," says Guenther, "the intention will not be realized."



CLEAN AND GREEN

Method Manufacturing brought a strong culture to its new 150,000-square-foot cleaning-products manufacturing facility in Chicago's Pullman neighborhood—the first LEED Platinum project of its kind. The facility is “a living dedication to clean in as many ways as possible,” says William McDonough, principal of William McDonough + Partners, architects for the project.

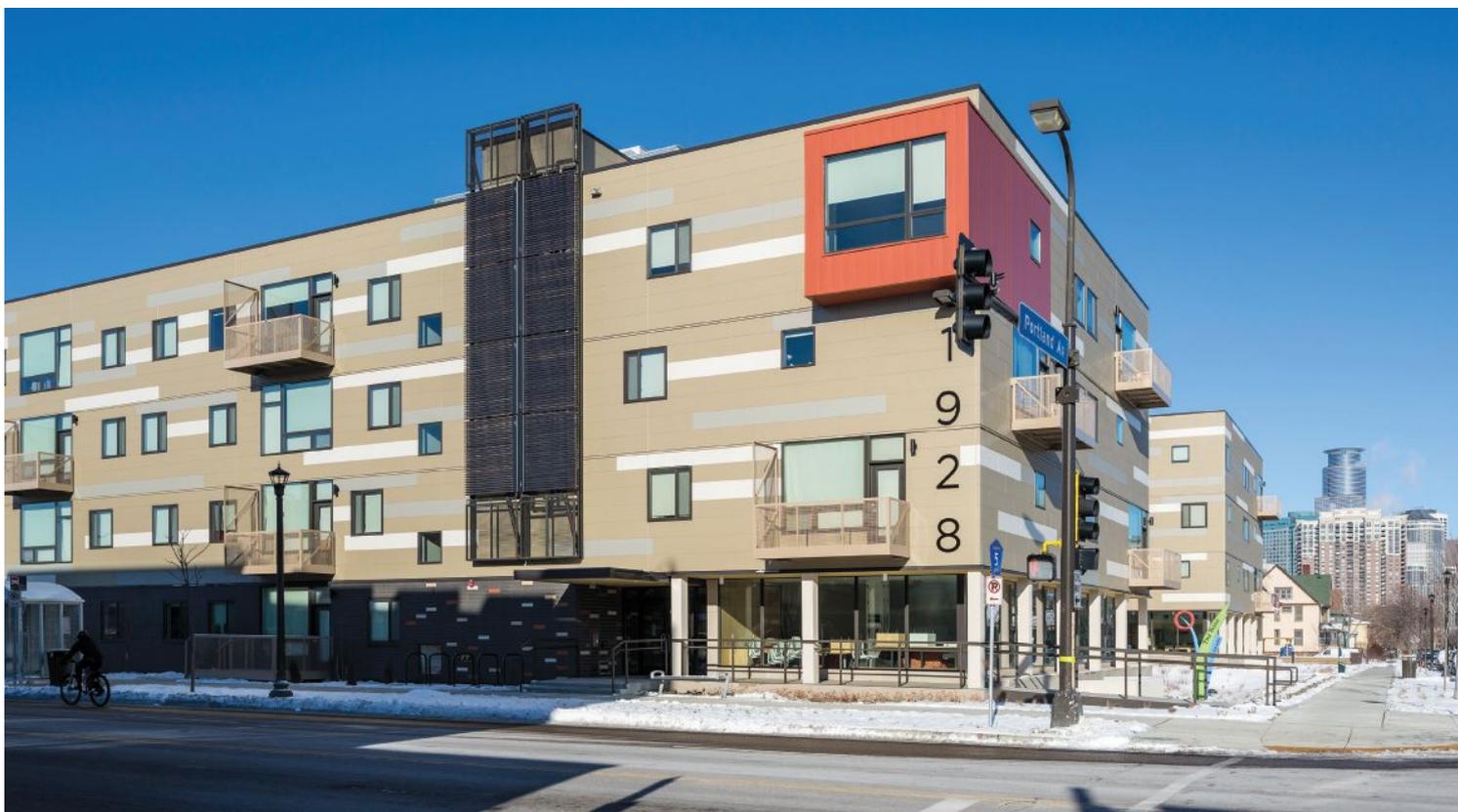
Method's cleaning products are certified by Cradle to Cradle (C2C)—a program developed by McDonough and chemist Michael Braungart and now administered by an independent nonprofit, the Cradle to Cradle

Products Innovation Institute. C2C is based on the ideal that all products can be designed for continuous recovery and reutilization, and provides an assessment across five categories: material health, material reutilization, renewable energy and carbon management, water stewardship, and social fairness; alternatively, a stand-alone material health certificate is also available.

Method understandably wanted its manufacturing facility to be just as ecologically and socially responsible as the products it makes. Completed in 2015, about 80 percent of the factory's 22-acre former brownfield site has been converted to wildlife habitat. It has a

hydroponic greenhouse on the roof where food is grown for the local community. And where you might expect a smokestack, there's a wind turbine and solar panels, producing over a third of the facility's energy.

Although not every product in the building is C2C compliant, the architects identified certified products or products with certification potential wherever appropriate. McDonough's and Braungart's company, MBDC, served as the materials consultant, providing reports based on publicly available data to identify products that met C2C human and ecological health criteria. Products reviewed included countertops, cabinets,



PAVING THE WAY The Rose, a 90-unit mixed-income residential development in Minneapolis, was part of a Living Building Challenge pilot program. The initiative's aim was to generate replicable models for using the stringent certification system on affordable housing.

ceramic and acoustic tiles, flooring, wall base, and adhesives. In addition to identifying options for the project, this process also alerted manufacturers to their products' potential for certification.

Ironically, a product that presented a challenge to the project's goal of using healthy materials was one of the most significant for the building's expression. Method's products are known for their vibrant colors, and, McDonough had used color, both on the interior and exterior, as an important design device. During the early phases of the project, however, no C2C-certified paint was available. But MBDC identified a zero-VOC, zero emissions paint in the process of being certified that would receive its official C2C designation by the time construction neared completion.

For McDonough, Method's commitment to transparency represents a complete reworking of what a factory can be, resulting in a new, clean model for an industrial workplace.

BREATH OF FRESH AIR

Between work and home, Americans spend almost 90 percent of their time indoors, where pollutant levels can run two to five—some-

times as many as 100—times higher than outdoor levels, according to the Centers for Disease Control and Prevention. The problem affects some building types, such as affordable housing, disproportionately. According to architects who work in this sector, such projects often prioritize materials' cost, then maintenance and durability, rarely factoring in occupant health.

“Getting better products into the spec is only half the battle,” says Perkins+Will principal Robin Guenther. “You still have to get them installed in the building.”

The Rose, a 90-unit mixed-income apartment complex developed by Aeon and Hope Community, completed in Minneapolis in 2015, aims to change that. The project was part of pilot program with the goal of generating replicable models for using the stringent green building certification system, the Living Building Challenge (LBC), in affordable housing. The Rose tackled the LBC's materials “red list,” which, much like Perkins+Will's precautionary list, outlines toxins commonly found in the built environment. It also attempted to meet LBC's imperatives for net zero energy and water,

and for social equity—all on an extremely tight budget of \$148 per square foot.

“To reconcile our red list ambitions with the amount of money we had, we needed a strategy to get the most bang for our buck,” says Paul Mellblom, a principal of MSR Design, architects for the project. The team's tactic was to tackle the products building occupants have the most contact with: floor-

ing, cabinets, finishes, countertops, and window treatments, for example, which account for some of the most common exposures to such toxins as VOCs and phthalates. In all, the architects identified 40 materials within the dwelling unit where factoring in health impacts would provide the biggest payoff.

This approach not only transformed the way the architects understood the building, says Rhys MacPherson, a project manager with MSR—it allowed the owners to pitch to potential project backers more effectively: “Where funders might not have been inter-



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ested in wood studs, they were very interested in helping pay for individual finish materials. They could see a clear return on investment.” Among the finishes the completed apartments include are stone countertops, which are naturally free of methacrylate (an asthmagen commonly found in solid surface countertops) and red list-compliant flooring. Compared with a standard spec, the flooring alone kept

five tons of PVC out of the apartments.

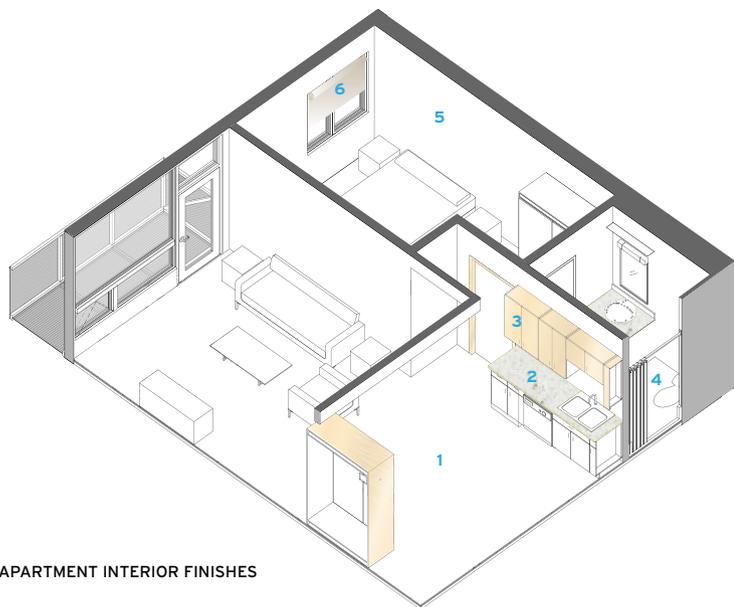
As with LPCH and Method, MSR’s quest for budget-friendly, red list-compliant materials entailed checking declarations on multiple transparency programs. Complicating that effort, says Mellblom, were the programs’ different standards for hazard assessment. To address this problem, the U.S. Green Building Council has convened a harmonization initiative. In addition to the Cradle to Cradle

Products Innovation Institute and the International Living Future Institute (the organization that administers the LBC), participants include Clean Production Action, the Healthy Building Network, and the Health Product Declaration Collaborative.

Indoor air testing at the Rose prior to turning it over to residents confirmed that unit VOC readings were between 20 to 30 micrograms per cubic meter, well below the target level of 500 micrograms. Now a research initiative by the Parsons School of Design and the Healthy Building Network intends to quantify the health hazards the Rose’s materials choices avoided. The study’s goal is to express reduced ill effects in terms of time added to the occupants’ lifespans.

“Improving someone’s health is a very tangible benefit,” says Mellblom. “Once we understand the specifics of how design can do that, we will be able to really step up the effort to make the world better—in a quantifiable way.” ■

Katharine Logan is an architectural designer and a writer focusing on design, sustainability, and well-being.



- 1 BIO-BASED FLOOR TILE
- 2 STONE COUNTERTOP
- 3 CABINETS WITHOUT ADDED FORMALDEHYDE
- 4 PVC-FREE SHEET FLOORING
- 5 ZERO-VOC PAINT
- 6 ROLLING WINDOW SHADE

APARTMENT INTERIOR FINISHES



MATERIAL MATTERS Inside the Rose’s apartments, architects MSR Design focused on the materials that occupants would come in direct contact with. Among their selections were bio-based flooring and plywood core cabinets without added formaldehyde.

Continuing Education



To earn one AIA learning unit (LU), including one hour of health, safety, and welfare (HSW) credit, read “Sweating the Small Stuff,” review the supplemental material at

architecturalrecord.com, and complete the online test. Upon passing the test, you will receive a certificate of completion, and your credit will be automatically reported to the AIA. Additional information regarding credit-reporting and continuing-education requirements can be found online at continuingeducation.bnpmmedia.com.

Learning Objectives

- 1 List some of the potential toxins commonly found in building materials.
- 2 Explain why it is often labor-intensive to find out what building materials contain.
- 3 Describe some of the disclosure tools for materials ingredients that are available to architects and product manufacturers.
- 4 Outline the vetting process used by each of the design teams behind the three projects discussed in “Sweating the Small Stuff.”

AIA/CES Course #K1606A

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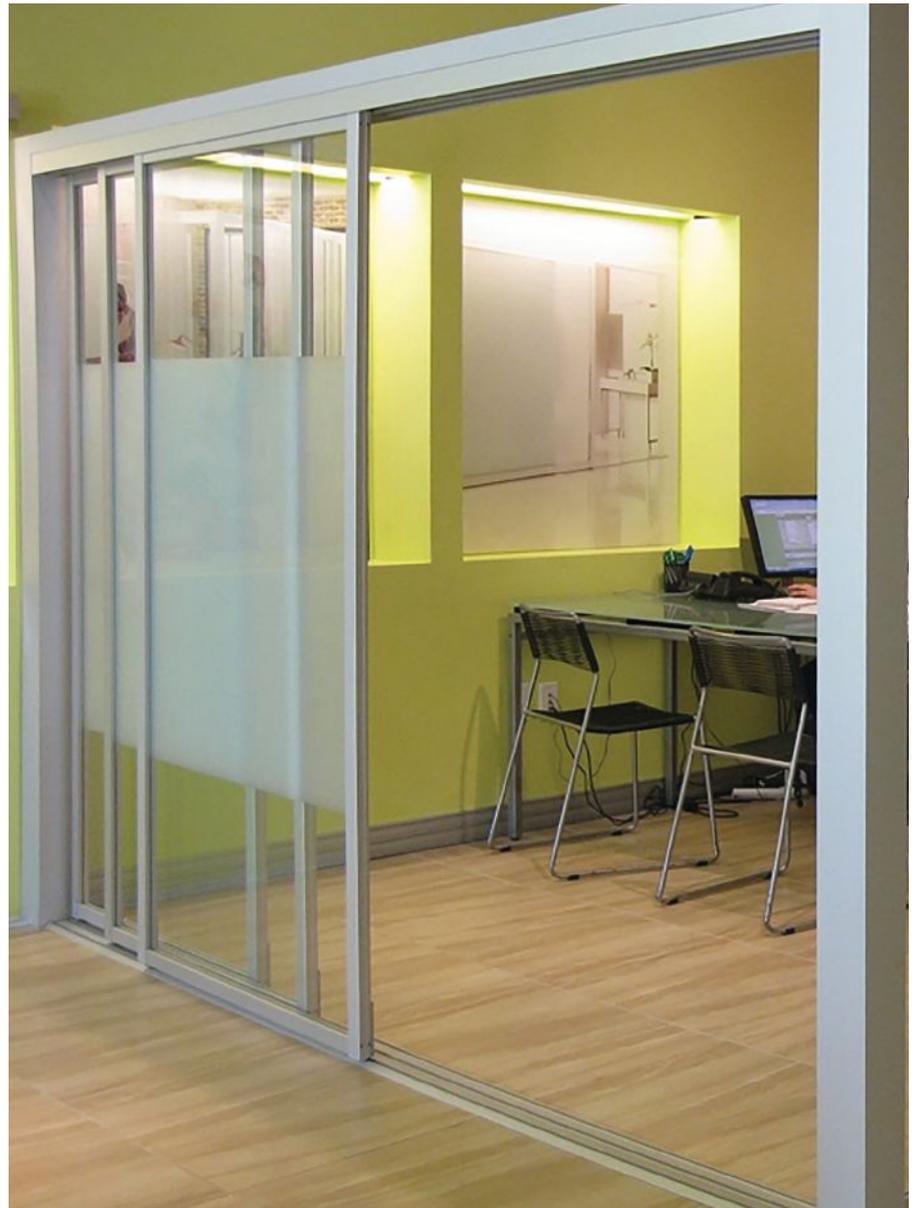
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Photo courtesy of Hawa Group Americas Inc.



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Hospitality and Retail Design Update

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EM IN PM

CREDIT: 1.5 AIA LU/HSW

Photo courtesy of Sprung Instant Structures, Inc.



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Sustainable Buildings on Demand

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BE ST SU

CREDIT: 1 AIA LU/HSW; 1 GBCI CE HOUR

Photo courtesy of Oldcastle Architectural



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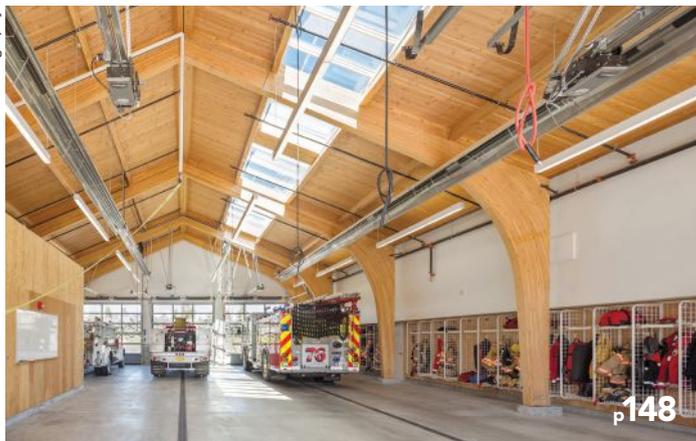
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Building Resilience: Expanding the Concept of Sustainability

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Hospitality settings have a variety of needs to assure that guest comfort and services are achieved and enhanced by the building design.



Hospitality and Retail Design Update

Some of the latest trends appeal to owners, architects, users, and budgets alike

Sponsored by Amerlux, Doug Mockett & Company, Inc., Hawa Group Americas Inc., Inpro, Mitsubishi Electric Cooling & Heating, NanaWall Systems, Pella EFCO Commercial Solutions, and Planters Unlimited

By Peter J. Arsenault, FAIA, NCARB, LEED AP

The rise and fall of the economy ripples across all building sectors but, outside of residential construction, perhaps those most affected are the hospitality and retail sectors. This was evidenced in a negative way with notable downturns during the recent economic recession. However, these sectors have been on a definite rebound for the past few years, and the projections continue to look positive. The well-known reports prepared

by Dodge Data & Analytics predict that the current construction expansion will continue through the coming year as portrayed at the end of 2015 by its chief economist Robert Murray.¹ Dodge predicts that total U.S. construction starts for 2016 will rise 6 percent to \$712 billion. That growth is still very positive even though it follows 9 percent growth in 2014 and an estimated 13 percent in 2015. Hotel construction, however, has continued to hold up

CONTINUING EDUCATION



1.5 AIA LU/HSW

Learning Objectives

After reading this article, you should be able to:

1. Identify selected general trends and factors that influence the design and construction of retail and hospitality buildings or spaces.
2. Assess innovative product and system offerings that can be used to enhance building design, durability, and accessibility, and improve the characteristics of hospitality and retail facilities.
3. Investigate ways to incorporate specific building technologies and green building strategies into retail and hospitality designs.
4. Determine ways to economically address material usage, space enhancements, and lighting, while still producing designs that meet owner and user needs.

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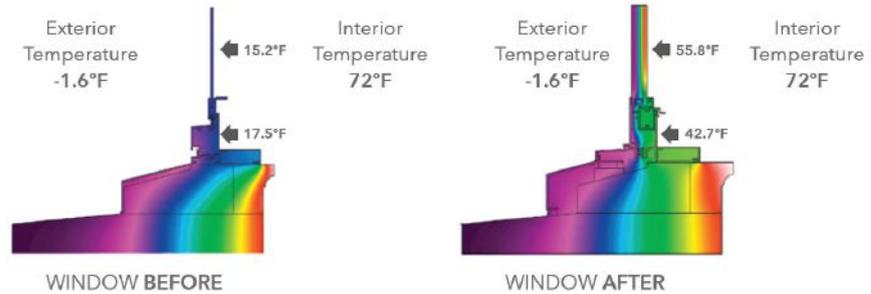
with double-digit progress for the year. The independent business intelligence group known as IBIS World has documented that the hotel construction industry began its recovery in 2012 and corroborates the Dodge data indicating that this sector has grown faster than other non-residential construction and is expected to continue strong into 2016, albeit at a bit slower pace than past years.² In the meantime, AIA Chief Economist Kermit Baker, Hon. AIA, Ph.D., has noted “The office and retail sectors are expected to lead the commercial real estate market in 2016 with near double-digit increases in construction spending expected.”³

All of these reports and predictions bode well for design firms that are engaged in hospitality or retail work. However, to truly capitalize on the opportunity, design firms are working with clients on ways to creatively respond to the changing tastes and needs of customers of hospitality and retail establishments. Toward that end, we will look at eight ways to enhance hospitality and retail building designs, meet owner and user preferences, and stay within project budgets.

WINDOWS AND GUEST COMFORT

Hotel and motel guest rooms are designed to provide a comfortable, quiet environment for sleeping or other activities. Commonly, walls and floors between rooms are addressed for acoustical control and privacy, but exterior walls are important in this regard as well. In particular, windows in guest room walls need to not only allow for desirable light and views, they need to prevent undesirable sound or thermal transmission. The sound-limiting capabilities of windows is particularly important in urban environments, near airports, or other locations that are prone to higher levels of outdoor noise. Similarly, the thermal capabilities of windows are important to prevent drafts and heat loss or gain that can create uncomfortable conditions for guests. Recognizing these needs, window manufacturers have developed the products and the expertise to help architects meet the design requirements of hospitality projects of all types. This includes a wide range of window product options and installation systems, which can be tailored to meet energy efficiency and sound needs as well as owner requirements for return on investment (ROI).

In terms of energy efficiency, many aluminum products are available to provide thermally efficient windows, curtain walls, and storefront systems. Controlling heat energy is addressed in the same manner as controlling sound energy so addressing one or the other will usually mean good results for both. The details of the frames, the thermal breaks included in them, the glazing used, and even



the spacers between the glass panes all play into the overall thermal and acoustic performance. These criteria need to be blended into the overall requirements for durability, unit structural performance, design profiles, coloration, and other factors. Architects can readily pick from a full range of such aluminum products with superior thermal U-factors and architectural-grade structural performance with an ability to manage hot and cold environmental fluctuations without sacrificing structural capabilities.

In certain cases, commercial windows made from a material other than aluminum may be desired. In those cases, frames and sashes made of wood, aluminum-clad wood, fiberglass, or vinyl are all commonly used in different types of hospitality projects. The specific material choice is typically driven by a variety of factors, such as aesthetics, cost, energy efficiency, durability, and low maintenance. For example, aluminum-clad wood double-hung windows have been used in historic buildings that also seek energy efficiency. Such windows can provide a historically correct appearance with a wood jamb, a finely detailed sash profile, and even authentic spoon hardware. Equally important, these windows can readily be equipped with energy-saving insulating glass, which can directly help contribute points in the Energy and Atmosphere category of the LEED green building certification program. In the case of renovation and retrofit situations, such windows can address the installation challenge of a complete tear-out by installing the windows in T-shaped subframes with applied brickmould.

Architects should also be aware that some window manufacturers provide a thermal analysis service to help the design team understand the difference in thermal performance between existing windows and new windows in buildings. By providing some basic information about the site, the building, the window openings, and the goals, different window attributes can be input to show a comparative analysis of the different options. This performance information can be correlated with



Different types and configurations of windows are available to provide thermal and acoustic comfort to guests. Window manufacturers can also provide thermal analysis services on those windows to optimize the design and improve comfort for occupants.

cost information to help identify the relative ROI and other features to help designers and owners make final decisions on how best to proceed.

OPENING GLASS WALLS

Opening glass walls go beyond conventional windows and instead use large, door-sized glass panels that can be readily opened or closed on demand. Like any other type of building fenestration, this system does not carry any structural load from the building, but is reliant on being appropriately attached to the building and operates within a structurally supported opening.

In hospitality settings, opening glass walls provide exceptional opportunities for flexible, multipurpose, economical, and enticing spaces. In hotels, for example, an opening glass

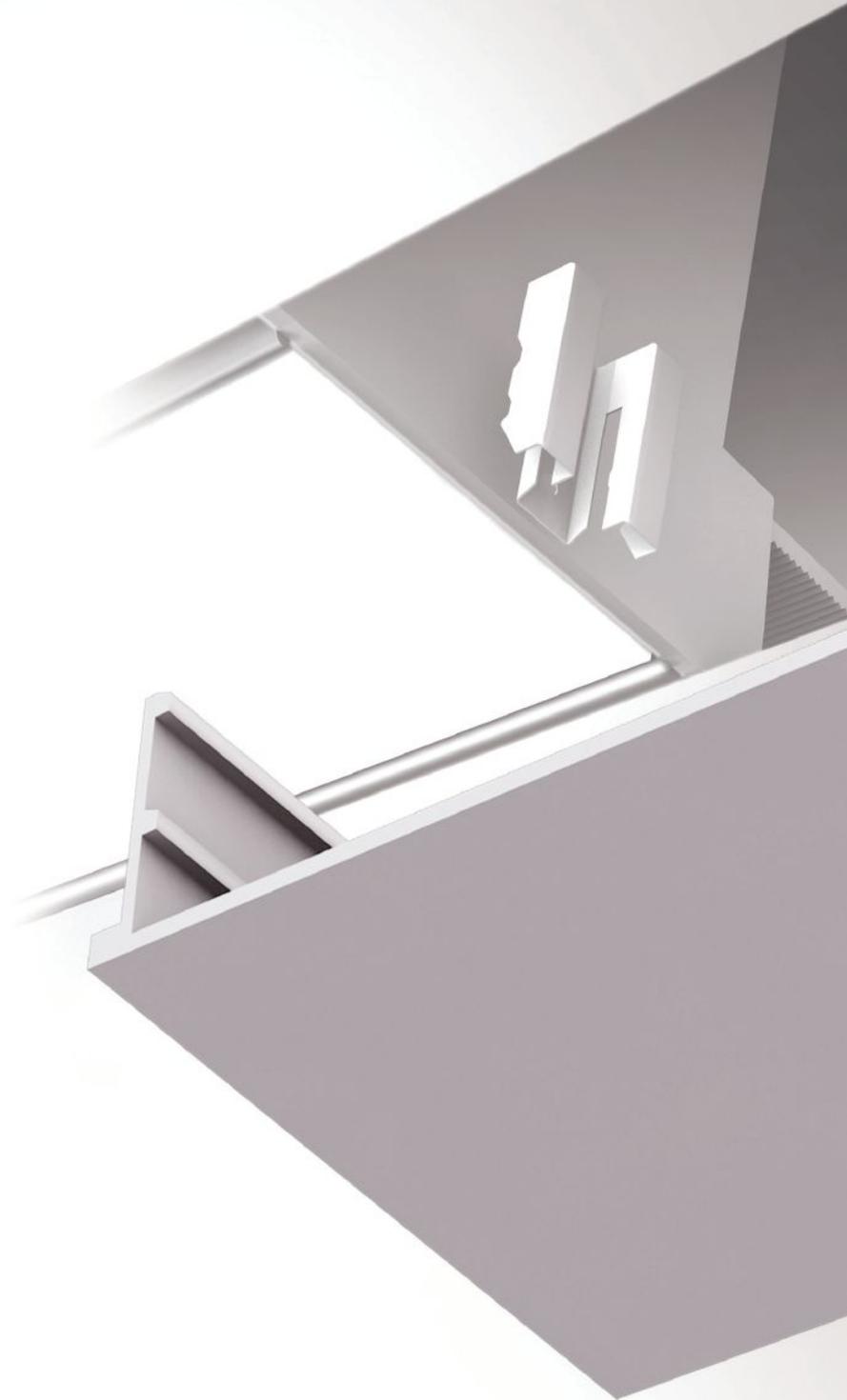
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Opening glass walls can be used in hospitality, retail, or restaurant settings to either open an indoor space up completely to an outdoor area (left) or be closed to seal off the exterior of the building when the weather is not favorable (right).

wall enables the creation of large, inviting entrances in the lobby area, thus eliminating the barrier between the entrance and the lobby and allowing a free flow of customer traffic. They can also be used as interior divisions in hotels and restaurants to allow personnel to quickly and easily incorporate or close retail space, dining areas, bars, and meeting rooms. Such a separation might be appropriate between a time-specific breakfast area and the hotel public space after the food service has concluded. Or it might be a way to quickly create private banquet rooms, meeting rooms, or retail spaces that can still transmit light but significantly reduce sound transmission.

In retail settings, a wide-open entrance similarly eliminates barriers by creating a seamless transition between street or mall and the store, helping to attract customers inside and increasing sales. The wide-open storefront also expands merchandising areas by utilizing street fronts, sidewalks, and mall walkways to display movable racks and bins that can roll easily through the spacious opening. When it is time to close up for the day, the opening glass wall continues to showcase the interior and provides a secure, energy-efficient, transparent facade that seals tight as a dust-control measure after hours. Restaurants are also able to benefit from opening glass walls that can increase seating capacity and boost revenue by opening a restaurant's interior to surrounding outdoor spaces, such as the street, a patio, or balcony. In mixed-use conditions, it is possible to create unique and memorable indoor/outdoor dining atmospheres for shoppers to enhance and extend their shopping experiences.

When opening glass walls are used as part of the building enclosure, the performance of these systems is clearly critical. Comparing manufacturers and specifying opening glass walls that can stand up to the daily rigors of a hospitality or retail building is important. Equally, the opening glass wall needs to show documented capabilities to appropriately withstand the challenges of wind, water, extreme temperatures, forced entry, impact, acoustics, and structural load. This includes attention to details such as multipoint locking entry doors that may be equipped with extra-long, tamper-resistant locking rods between panels to ensure they meet or exceed forced-entry testing for commercial grade door panels. It may also include built-in adjustment and compensation points to ensure continued ease of operation if any building settling occurs.



Sliding hardware systems, whether using full glass or opaque panels, can be used in hospitality and retail settings to define space in guest rooms and create flexible use of spaces in common areas.

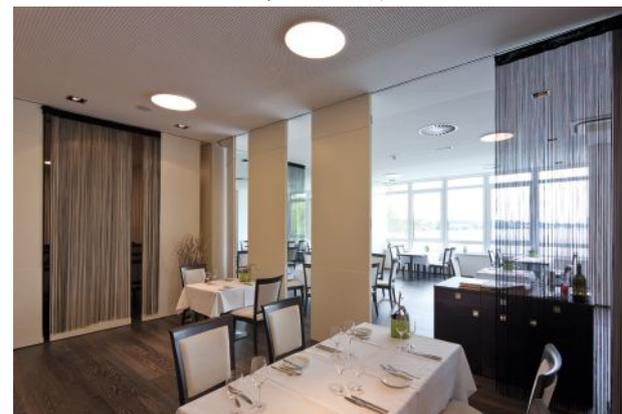


CREATIVE INTERIOR SPACES

Hospitality and retail spaces are often in need of interior spaces that are space efficient, while still meeting differing and variable needs. This is particularly true in individual guest rooms where design criteria need to blend with space efficiency. One way to approach that efficiency is to use interior sliding or folding door hardware instead of swinging doors on such things as closets or bathrooms. Sliding doors do not intrude into the room (unlike pivot/swinging doors when opening), which is a benefit to hotels with rooms that have a smaller footprint where every square foot counts. Further, the materials used on sliding doors can vary such that dramatic finishes or even full glass can help enhance and bolster the overall interior design of a room or suite.

In public areas, sliding doors can not only allow access between spaces, they can create

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appropriately sized, transformative spaces for events, displays, or operations. When closed, sliding or folding multiple door panels produce privacy on demand. This helps control the use of spaces through concealment, while still providing easy access when needed. When the sliding doors are opened by users or facility staff, larger spaces can be easily created. Glass in various forms for the door panels is popular since it can introduce natural or borrowed light. This means that the space being enclosed does not need to be dark simply because the doors are shut. If privacy is needed, then it is entirely possible to use glass that is translucent, tinted, or otherwise treated to achieve the desired effect. And the size of the opening to the space does not need to be a limiting factor since sliding hardware systems are available to accommodate openings ranging from fairly small (5 or 6 feet) to very large (greater than 18 feet).

One of the key differences between different types of sliding door systems is the ease of operation, which usually comes down to precision engineering and very good quality hardware. The sliding hardware systems are usually made out of either steel or aluminum and include rollers, tracks, plates, pulls, and locks. The important part is that it produces smooth and quiet sliding properties with an ease of operation yet is durable enough to provide extended life spans in commercial settings. When it comes to meeting accessibility or ADA requirements, the hardware for sliding door systems usually excel here, too. Most sliding hardware systems require very little force to operate, can be top hung to eliminate any sill or threshold barrier, and have no bottom rail height restrictions since sliding doors move completely out of the way. This aspect of creating a complete opening may also eliminate the need for larger access areas commonly required for swinging doors, such as side clearances and approach aisle width.

There are several common operational options for this type of large-format sliding or folding door system. A standard version provides a straight sliding panel usually adjacent to a fixed panel such that half of the total width can be opened. Symmetric, bi-parting doors/panels will also allow an opening of about half of the total width but places the opening in the middle



Manufactured planters can enhance the outdoor spaces of hospitality and retail buildings, particularly in urban environments. Contemporary, clean solutions in a range of colors, shapes, and sizes are available along with more traditional stone-looking planters, including custom units that can incorporate corporate logos.

instead of the side. This is achieved by placing two bi-parting panels in the middle that slide outward from the center over two similarly sized, fixed panels. Telescopic systems allow multiple panels to be moved and stacked on one or two sides or be recessed into a wall opening such that the whole system seems to disappear. All of these systems work exceptionally well in guest rooms for bathroom doors, closet openings, and room separation. They also provide a lot of flexibility in common areas, such as breakfast rooms, restaurants, bar areas, and meeting rooms.

USING PLANTINGS FOR ENHANCED DESIGN

In natural settings, plants and trees are often recognized as outdoor landmarks as a means

to help define an outdoor space, such as a yard or clearing, or to draw attention to a particular landscape feature. In urban environments, particularly in hospitality and retail settings, the introduction of plants and trees can do the same things to enhance and amplify an architectural design through the use of standard or custom-designed planters. Manufacturers of such planters can be used as a design resource to produce virtually any size or shape planter that can help with wayfinding, form places to gather, or highlight a feature that a designer wants attention drawn to. There is a large library of available styles, colors, materials, and finishes to select a standard product from. Custom fabrications are also possible to help create exciting, eye-catching elements with integrated

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Durability of wall surfaces in both the front-of-house and back-of-house areas often depends on the use of protective products, such as wall and door panels and bumpers—including some that look like wood, stone, or even incorporate artwork.

lighting, designer materials, or even corporate logos. Many planter products are made to order with associated lead times to suit specified design requirements. This can be particularly important when incorporating branding customizable to suit the specifications and criteria of client corporations. There is also an array of standard and custom colors, textures, and styles that can be selected to suit a variety of natural and built environments.

A popular planter choice is one made of fiberglass that lends itself to a contemporary style with rectilinear angles, seamless lines, and clean trim. They are available in any shape or size, making them suitable as a great stand-alone focal point feature. Multiple units can be laid out as a clustered group in modular arrangements to assist with wayfinding, enhance privacy, or define places to congregate. Any of these design uses can be further enhanced by adding lighting to the planters for ambience or safety, toe-kicks or castors for maintenance ease, or even false bottoms to create different visual appearances.



Another option can be found in a more traditional planter with the appearance of stone. Commonly made with glass fiber reinforced concrete (GFRC), these planters are modern in function with a subtle, texturized concrete aesthetic. Their steady and durable presence makes them suitable for high pedestrian and even vehicular traffic areas. Manufacturers of this planter type offer an array of unique shapes and sizes with textures suitable for any hospitality or retail setting.

Regardless of material or other design features, the intent of the planter is to provide something that actually grows and stays alive. Toward that end, planter manufacturers may also offer soil amendments and other planting products to help assure success. For standard rectangular, square, or round planters, it is also possible to specify self-watering reservoirs as an integrated solution to regular watering of the plants. This concealed reservoir sits inside the planter as a flexible, effective, and proven approach to plant irrigation. It is also a sen-

sible, easy-to-maintain alternative to external tank-based self-watering systems, where the tank can become problematic due to dirt and mud migration. Not only do self-watering reservoirs reduce the times that a planter needs to be watered, they also improve plant growth and reduce water usage.

OPERATING FOR DURABILITY AND MAINTENANCE

It is commonly acknowledged that the public areas of a hospitality or retail facility are typically where most of the effort and money are spent in both design and maintenance. The common mindset is that front of house is where the guests, patrons, or diners will spend their time (and money) and evaluate it as part of their overall experience. But, what about the back of the house—places like kitchens, service corridors, employee lounges, administrative offices, loading docks, storage, and the like? There may be some design factors that a general manager or an architect might not always have in mind, but in the interest of smooth facility operations, long-term durability, and ease of maintenance, they really should.

The back-of-house areas are typically where the actual work of the business is conducted. For a restaurant, it's the kitchen; for a hotel, it's the administrative or catering office or laundry; in many retail facilities, it's the storage areas and receiving docks.

Depending on the size of facility and the time of day, these spaces can be the focus of a great deal of activity, some of which may not be kind or forgiving to the building walls, floors, doors, or other surfaces.

Recognizing these demands, building designers must not only consider aesthetics and design appearance when selecting materials and finish products, they must also consider durability and the impact of their selection beyond first costs. It usually falls to the architects to act as the holistic warriors that can champion the appearance and performance of the entire facility—both front of house and back of house. Sometimes improperly executed value engineering is undertaken to reduce first costs, but it can then take its toll six to 12 months after the ribbon cutting. Corners that are cut through the selection of less expensive materials or the outright elimination of key products eventually show up through damage or vandalism. Then the property's general manager or chief engineer has no choice but to find money in the operating budget to install new products to replace broken/torn ones or to fix damage—all of which would likely have been less expensive to install in the first place during the construction or renovation of the facility.



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What type of products are we talking about?

First and foremost is various door and wall protection products, including high-impact decorative wall panels, corner guards, and wall base. Heavy-duty interior protection products, such as wall and floor bumpers, door frame protectors, and expansion joint covers, are appropriately used in corridors and back-of-house applications where carts and other equipment move. It is worth noting that such corridors often include customer restrooms and may act as a passageway from back-of-house areas. It's these transition zones that are often overlooked in design and planning, and end up looking war-torn and battered within months of the grand opening. In this case, a bit of protective forethought will keep this area looking new and undamaged. However, adding protection doesn't mean that design needs to suffer. Woodgrain rigid vinyl sheet, stainless steel, and 3-D trim boards have been used extensively in renovating both elevator cabs and food service areas of hotels, restaurants, and retail facilities. There are also solid surface materials that can provide a clean, durable, high-end look emulating stone but at a fraction of the cost. When used in bathroom settings, these materials also help prevent mold and mildew since they typically don't have the grout lines of other materials. Similar durable products are available that even incorporate wall art.

Durable fabrics are another product type that have become popular for back of house, front of house, and transition spaces. There are usually more places to consider durable fabrics than may first come to mind, such as drapes, nets, bedding fabrics, roller and vertical blinds, awnings, room dividers, upholstery fabrics, and wall coverings. Usually, the first consideration is fire code ratings for flame-retardant properties, which most commercial fabrics can meet. Beyond that basic requirement is the ability of the fabric to hold up over time in terms of the integrity of the fabric itself, its color-fast properties, and ability to withstand repeated cleanings. Of course, these fabrics are part of the indoor environment and may come in contact with people more so than other building products so their safety in terms of health effects on people needs to be documented.

Signage is another important aspect of facility maintenance and operations so choosing a signage system that can hold up to the rigors of commercial use should be considered. One-piece, back-painted photopolymer signs with frosted paint and colored accents have become commonly used in these situations. The use of photopolymer signs delivers two key design benefits. First, it allows virtually any design to be applied to a sign, including logos, artwork, and other unique markings. Secondly, the material has been tested and proven to stand up to heavy usage, abuse, and even vandalism.

TECHNOLOGY FRIENDLY SPACES

It wasn't always this way, but today it is hard to picture going to a store, restaurant, hotel, or motel and not seeing anyone with a cell phone, laptop, tablet, or other electronic device. Architects and other design professionals are typically right there in the mix, often with some of the latest and best products in our hands. But, do we fully acknowledge that experience into the design of hospitality and retail buildings? If so, we are probably making it easier for guests and customers to charge, connect, or efficiently use their devices in a pleasant, convenient manner. If we aren't, then we may be leaving it to maintenance staff or others to incorporate something into a carefully designed space that may or may not be consistent with the design intents. Therefore, incorporating appropriate hardware, connectors, power, and audio visual wiring in a controlled, well-designed manner

up front has become an integral part of hospitality and retail design.

The first step in designing for technology is to identify the specific needs of the people using the facility. Electrical outlets and/or USB ports are needed for charging or operating devices. Similarly, access to wired Internet or other data ports are still preferred and may be necessary in some cases over wireless connections. If the locations of these outlets or ports is limited to walls or floors in a room, they may not prove to be particularly convenient for users to find or connect. Think specifically of hotel guest rooms, business centers, lobbies, and eating spaces that have minimal outlets, thus discouraging device-wielding patrons from going there in favor of places that make it easier. Instead of wall and floor access, the better method is to incorporate outlets and ports into the design of built-in surface tops



Images courtesy of Doug Mockett & Company, Inc.

Integrating electrical outlets and data ports for electronic devices into hospitality and retail spaces is made easier and more elegant through the use of a wide variety of products designed for that purpose.

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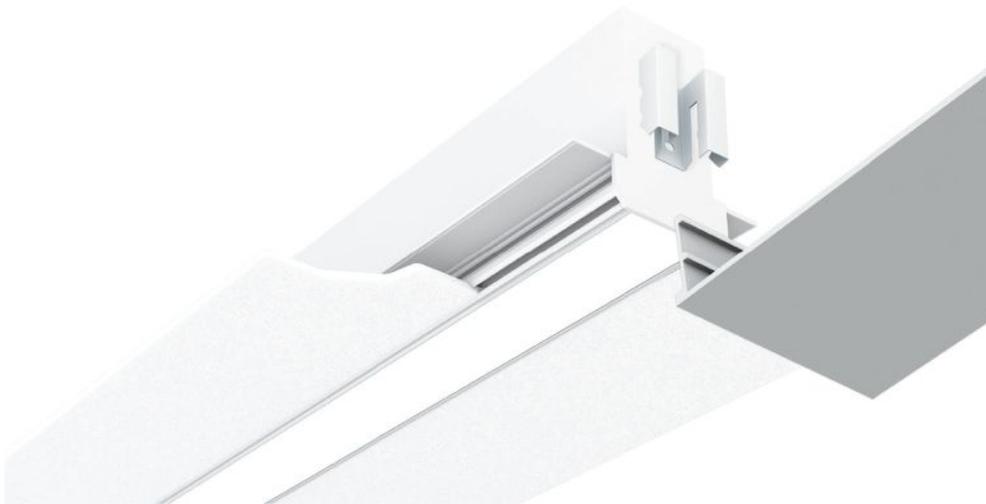


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CIRCLE 148

Images courtesy of Amerlux



Linear lighting systems are popular in many retail and hospitality situations but can run into dimensional problems during installation. The solution can be found in field customizable end brackets, which can be trimmed or cut to suit the design or construction conditions.

and desktops or to include them in furnishings that can be connected to a wall source. Doing that in a manner that is elegant, cost effective, and code compliant usually involves the use of grommets or other hardware that are specifically designed for the purpose of convenient access to power and data.

With the needs defined and the most convenient locations identified, designers can choose from a surprisingly large array of manufactured power and communication grommets and products to incorporate where needed. Single and multiple openings are available in a variety of materials, colors, and finishes to either blend, enhance, or contrast with the surrounding surfaces. They can be shaped round, square, or rectangular, and can allow the outlet or data port to be fully recessed and finished flush with the mounting surface. In some cases, it may be appropriate to use products that pop up for use and hide away when not needed. In others, it may be appropriate to use under-desk or edge-mount items or even freestanding tabletop solutions. In all cases, the wiring to serve them can usually be concealed within the built-in cabinetwork or furniture that they are serving, allowing for an appearance that is much more deliberate and finished rather than utilitarian in nature.

There are also a number of specialty items available that reflect even greater integration and convenience. For example, it is possible to integrate power outlets into small lighting fixtures designed for desktop or tabletop use, thus providing a single point for all electrical needs. Another popular option is the use of a Qi wireless charging station that connects with a compatible smart phone or other device without the need for a charger or plug. This is particularly helpful for people who prefer

to reduce the number of chargers and other miscellaneous items that they need to travel with. The station works by simply placing a Qi-compatible device on the charging mat surface, allowing the device to start charging automatically. Some use a luminous light ring on the cap to indicate that the charging is underway, although it does not light up until successfully connected with the phone. No wires, no mess, and no problem forgetting to bring a USB cable or AC adapter.

In cases where power and data are needed in a flexible environment, such as restaurant or hotel meeting rooms, there are also design options. Running extension cords and data wires has been the easy answer in the past, although not necessarily the safest or most attractive option. Instead, flat products that sit on the floor and connect to nearby wall outlets may prove more appealing. These can serve computers, projectors, and other audio visual devices that need to be located in open areas away from a wall or where other built-in solutions aren't practical. The flat profile makes them safer for walking near, and they can use concealed or embedded wiring to feed both data and electrical outlets.

CUSTOMIZABLE LINEAR LIGHTING

One of the more striking trends in lighting applications, particularly in retail and hospitality settings, is the use of linear lighting systems either for general lighting or to feature and highlight areas along walls, soffits, etc. Sometimes, it is used in thin bands of light that climb up walls, cross ceilings, and continues back down the other side. Other times, it is used as a series of wider parallel lines of light running the depth of a space and providing uniform illumination. The surface of the



light lens could be recessed or flush with the adjacent wall or ceiling surface. Different lens treatments can be used, including housings that help direct light to focus in a strip or flare outward. All of these treatments can enhance the appearance of a space and influence the experience of people using it.

Beyond sleek looks and versatility, the performance and energy efficiency of linear lighting can be controlled. That begins with the selection of the choice of lamp for the linear fixtures to use. Standard fluorescent lamping is an option but so are high efficiency fluorescent and even higher efficiency LED lamps. The width of the fixture can determine the number of lamps and thus contribute to its overall energy consumption and wattage. The details of the fixture will determine the effective light output and the number of lumens emitted. And of course, the total number of fixtures in the space will ultimately drive the overall watts per square foot calculation up or down accordingly. For locations striving to meet an energy code prescribed lighting power density (LPD), the availability of all of these options helps achieve a linear lighting design that is consistent with the design of the space and the lighting levels needed, while still working within LPD limits.

Installing linear light fixtures recessed into a ceiling usually needs careful coordination and design prowess to assure that the layout of the lighting works within the constructed or renovated geometry of a room or space. Designing a fixture layout more precisely than normal construction tolerances allow is usually a recipe for problems in the field. Of course, even if the conditions are realistic and achievable, things do sometimes change and need to be coordinated. Either way, if a situation arises

CIRCLE 4

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where an electrician is ready to install a linear lighting system into a ceiling from wall to wall and there is either too little or too much room, then either a fixture needs to be eliminated or the built construction needs to be modified. Neither one is desirable from the standpoint of controlling the final design, while both suggest additional costs and delays in completion that could have been avoided.

One way to overcome the field installation issues described above is to include an on-site solution into the design. At least one linear lighting manufacturer has introduced an accessory product in the form of a field-customizable end plate that makes linear lighting installations look like they were made to measure, wall to wall. The plate fits into the end of a fixture and matches its width so that it looks like an extension of the linear light fixture. If the dimension of the space as designed or available is not consistent with the normal length of the linear light fixtures, then the end plate can be used the same way that a filler panel is used in cabinetry installations. The 6-inch plate can be cut or trimmed to fill in the difference between the modular sized fixtures and the non-modular size of the space. In the event that the constructed condition varies, the end plate can similarly be used to allow for an adjustment and create a tight fit. By allowing for this minor field adjustment in the construction drawings, there is no longer a reason to hold up a project while things get communicated, responded to, and resolved. And there is less opportunity for extra cost due to a delay claim. The result? Beautifully lit ceilings, with less time lost, more money saved, less aggravation, and a precisely crafted finish.

ENERGY-EFFICIENT COOLING AND HEATING DELIVERS COMFORT

Keeping hospitality guests and retail shoppers comfortable while controlling energy usage is a daily challenge for all who design, construct, or operate these spaces. The traditional way to do that is with a combination of central HVAC units and ductwork that delivers appropriately cooled or heated air to individual spaces. A different approach that is being successfully applied in hotels, restaurants, and stores is a variable refrigerant flow (VRF) zoning system. These systems use a central outdoor unit that supplies conditioned refrigerant to individual, zoned indoor air-handling units that use only the amount of refrigerant required to cool or heat a space. With VRF systems, design and installation tend to be easier and faster,

while fewer materials are needed since there is no need to install ductwork—refrigerant is piped directly to an air-handling unit in a specific space. The compact footprint results in more usable (leasable) space and higher ceiling heights due to reduced plenum space requirements. With a variable speed compressor, refrigerant flow and compressor speed is increased with demand and decreased when demand is lower. This results in lower operating costs with VRF systems versus traditional HVAC systems. While the upfront equipment costs for VRF may be higher than traditional equipment, when the systems are evaluated on a total installed cost basis, the pricing is more comparable.

VRF zoning systems can meet the needs of an entire building and can be customized to meet the particular needs of just about any type of retail or hospitality building. Controls are available that allow for remote management of the systems and can integrate with other building system controls. Although somewhat modular and separated in nature, VRF systems are appropriate for entire buildings, whether new construction or renovation. The individual room or space zoning allows different areas of the building to be kept at different temperatures and gives occupants the ability to control their own comfort. VRF systems are also easily modified as the needs of a building or its occupants change.

From an operations and maintenance standpoint, VRF systems offer a lot of advantages as well. The latest compressor technology is typically used, which is highly efficient and uses only the precise amount of energy required to maintain occupant comfort. Further, they are inherently low-maintenance systems that are easy to service and do not require the entire system to be taken offline to service one zone. Hence, if a particular zone needs attention, it can be isolated and addressed while the rest of the building continues to operate smoothly.

The systems are also quieter than traditional HVAC systems and have been shown to satisfy users, particularly hotel guests. A seasoned traveler, Dennis Hertlein, a partner with the firm of Surber Barber Choate & Hertlein, in Atlanta, Georgia, has openly remarked that “Because of the super quiet VRF system with filtered air and outstanding indoor air quality, I had the best night’s sleep in a hotel I’ve ever had and woke up feeling great.” Given all of these attributes and positive capabilities, they are well worth considering.

Photos courtesy of Mitsubishi Electric Cooling & Heating



Variable refrigerant flow (VRF) zoning systems use centrally cooled or heated refrigerant run to individually zoned spaces based on the demand for space cooling or heating.

CONCLUSION

Hospitality and retail facilities continuously renew and refresh their design and operations to remain appealing to customers. Motivated by better performance, enhanced image, and operational cost savings, many owners look for features to be incorporated into their facilities that are the latest available options. Architects and designers who take advantage of the variety of building products and systems on the market can help meet owners’ business needs, incorporate innovation into their designs, and create buildings that are durable and sustainable in the long run.

➤ Continues at ce.architecturalrecord.com

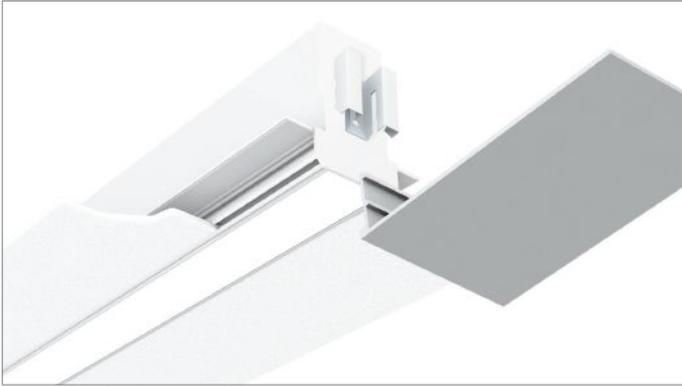
Peter J. Arsenault, FAIA, NCARB, LEED AP, is an architect and green building consultant who has authored more than 120 continuing education and technical publications as part of a nationwide practice. www.linkedin.com/in/pjaarch

PRODUCT REVIEW

Hospitality and Retail Design Update

Amerlux®

Image courtesy of Amerlux®



Standard Plus: The Best Alternative to Made-to-Measure

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www.amerlux.com

Circle 45

Doug Mockett & Company, Inc.

Image courtesy of Doug Mockett & Company, Inc.



Levity Task Light – PCS55

The Levity combines flexible, directed lighting with power and USB charging, plus the ability to be stowed away. Simply pull up on the lid, and it rises automatically to 5 inches to activate two LED lights. Lift up to a maximum height of 21 inches or anywhere in between, and rotate in any direction.

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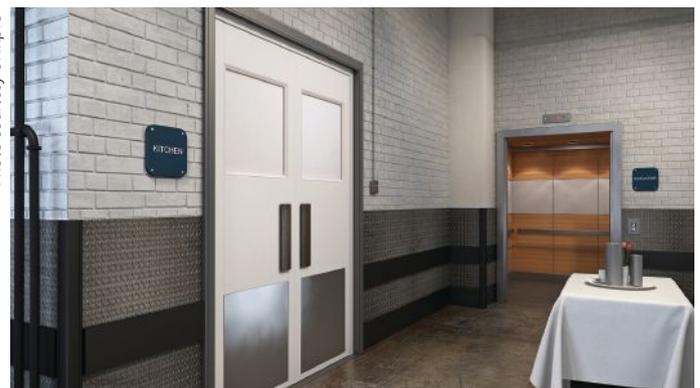
- Enables flexible layouts, curved installations, and directional changes
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PRODUCT REVIEW

Hospitality and Retail Design Update

Mitsubishi Electric Cooling & Heating



CITY MULTI® L-Generation VRF Systems

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MitsubishiPro.com/ready/innovation

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NanaWall Systems



Photo courtesy of NanaWall Systems

NanaWall Opening Glass Walls

NanaWall Systems provides a wide range of opening glass walls for commercial environments that stand up to the daily commercial grind, as well as the challenges of wind, water, extreme temperatures, forced entry, impact, and structural load.

www.nanawall.com/applications/commercial

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pellacommercial.com/monumental-windows

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Planters Unlimited



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Marek Custom Fiberglass Planters

The Marek planter modernizes any environment with its geometric appearance. They are customizable, available with illuminated toe-kicks and castors in more than two dozen colors. They are lightweight, durable, and impervious to insects and made to withstand all seasonal elements. These stylish planters are perfect for any restaurant, backyard, hotel, or office.

www.hooksandlattice.com/custom-marek-planters.html

Circle 52

Photo courtesy of Sprung Instant Structures, Inc.

Sustainable Buildings on Demand

Originally engineered to solve the problems of relocatable or temporary shelter, tensioned membrane structures are now a sustainable choice for permanent, habitable structures, providing fast, energy-efficient, and affordable building solutions

Sponsored by Sprung Instant Structures, Inc. | By Celeste Allen Novak AIA, LEED AP



Illuminated, permanent, and habitable, this structure is an example of a tensioned membrane building at sunrise.

Tensioned membrane buildings provide an opportunity for a new sustainable design approach for any building program that requires column-free and open-span floor plates. New tensioned membrane buildings are sited in deserts as well as snow-covered mountains with segmented grace. These buildings can provide instant, cost-effective alternatives to conventional construction for facilities that range from dormitories, churches, and offices to gymnasiums. Tensioned membrane structures have been around since the 1960s, often used by the military. When oil and gas companies required shelters for both arctic and desert climates that could be easily transported across the world, engineers developed an energy-efficient portable building system.

Their solution has been refined and developed into a new building type—permanent, habitable tensioned membrane structures. These buildings can be erected quickly and cost-effectively, maintaining similar performance and aesthetic values to conventional structures, but with a lower cost basis of 35 to 50 percent. Architects who have worked with these forms can attest to the difference and quality of these durable, affordable, flexible, and energy-efficient buildings.

This course will review the aesthetics and attributes of tensioned membrane buildings and provide information on how they can fit into a sustainable design portfolio in any climate, delivering energy efficiency and durability for clients who need affordable and immediate building solutions with an optional insulation package.

In the introduction to the Whole Building Design Guide, a program of the National Institute of Building Sciences, Richard Rush is quoted as defining an integrated building system by only four systems: structure, envelope, mechanical, and interior. “The envelope has to respond both to natural forces and human values. The natural forces include rain, snow, wind, and sun. Human concerns include safety, security, and task success. The envelope provides protection by enclosure and by balancing internal and external environmental forces. To achieve protection it allows for careful control of penetrations. A symbol of the envelope might be a large bubble that would keep the weather out and the interior climate in.”¹

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CONTINUING EDUCATION

 1 AIA LU/HSW

 1 GBCI CE HOUR

Learning Objectives

After reading this article, you should be able to:

1. Identify and design the components of a permanent, habitable tensioned membrane structure.
2. Review the sustainability engineered into these monolithic structures, including energy efficiency, daylighting, and fire safety.
3. Integrate components such as windows, doors, lobbies, and interior partitions within a self-supporting framed structure, all within a system that is designed for the maximum reduction of construction waste and transportation costs.
4. Discuss the flexibility, cost-effectiveness, and durability of these structures.

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

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GBCI COURSE #0090005820



Sprung Structures engineered high-performance, tensioned membrane structures are designed to provide innovative, cost-effective building solutions for interim and permanent applications. www.sprung.com

With the advent of LEED v4, architects have much to consider in choosing building materials.

All photos courtesy of Oldcastle Architectural

Masonry and LEED v4

Advanced products and systems can facilitate compliance

Sponsored by Echelon™ Masonry

The U.S. Green Building Council has rolled out the latest changes to its widely accepted Leadership in Energy and Environmental Design (LEED) green rating system. The changes, known as LEED v4, have increased the stringency of the requirements to comply with the principles of green design. By their very nature, some products are more conducive than others to compliance with the changes in LEED v4. This course will discuss masonry in terms of its inherent ability to meet and exceed requirements of the new model. Also discussed will be several high-performance masonry systems and how they meet energy targets, reduce noise, and meet aesthetic objectives.

LEED v4 AND BUILDING MATERIALS

In fall 2013, the U.S. Green Building Council formally launched changes to its green rating system. The result is LEED v4. While the

system is currently in the transition stage, in which projects can earn credits under either the previous version, LEED 2009, or LEED v4, after October 31, 2016, all new building projects must register under LEED v4.

It is widely acknowledged that LEED v4 has increased the stringency of requirements across all sectors from water to energy to materials. LEED v4 also goes deeper into getting a real take on exactly what comprises a building project and, to that end, has introduced a new approach for building materials and products. With overarching goals of transparency, responsible sourcing, and rigorous documentation, LEED v4 asks some basics about building materials. What are they composed of, and are hazardous ingredients involved? Where are the materials sourced, and how do they come to the manufacturer? Can the manufacturer

CONTINUING EDUCATION



1 AIA LU/HSW



1 GBCI CE HOUR

Learning Objectives

After reading this article, you should be able to:

1. Discuss the ways in which the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) fosters sustainable building.
2. Identify the principal areas in which LEED v4 differs from previous versions of LEED.
3. Explain how masonry products are already engineered for rapid compliance with new LEED v4 requirements.
4. Articulate the advantages of insulated concrete masonry systems and foam panel systems, as they fulfill green building goals and can earn credits in the Materials and Resources category of LEED v4.

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

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document the life-cycle impacts of its products? The most significant changes in LEED v4, in fact, occurred in the Materials and Resources category, with three entirely new credits focused on product disclosure.

What LEED v4 Means for the Architect

For specifiers of building products in vertical construction projects, Materials and Resources is almost overwhelmingly the primary category in which products can contribute to credits, and the upshot for architects specifying those products is the need for more—and more diligent—product research. Architects will require more information and have more to consider when making product selections. Under LEED v4, the selection of a certain building material does not automatically earn a credit but may contribute, along with a host of other factors, to a specific credit. Those materials with environmental product declarations (EPDs) or health product declarations (HPDs) may be at an advantage as compared to similarly performing products, but it is up to the architect not only to determine the type of product which best suits the project needs, but also which manufacturer has the documentation for which products.

Though recycled content and regionally manufactured materials are handled differently in LEED v4 as compared to LEED 2009, those attributes can still be an important consideration when selecting building products. LEED also encourages the synergy that occurs when one product has multiple benefits or can serve multiple functions.

LEED V4 AND MASONRY

By its very nature, masonry makes for green building. Primary ingredients in masonry products—sand and other aggregates, and water—are plentiful and readily available. Recycled materials, such as post-consumer glass, slag cement, or recycled aggregate, are often used. Products are manufactured at numerous facilities located throughout the United States and Canada, with raw materials often locally sourced.

Masonry products also get high marks in energy efficiency. Materials such as insulation that have a high R-value are usually associated with greater energy efficiency. However, this is not the entire picture as it neglects the benefit of thermal mass, which is a measure of a material's capacity to store heat for future distribution. Because they are high in mass, masonry walls offer excellent thermal performance. Their slow rate of heat transfer keeps interiors warm in winters and cool in summers. When used with complementary products or systems, concrete masonry units (CMUs) are particularly energy efficient. The mass of a masonry building also pays off in preventing easy sound transmission,

reducing noise pollution, and helping to achieve a quiet environment—a feature much sought after in public buildings that accommodate large numbers of people. Using masonry can also lead to savings on insurance and maintenance costs as the material won't burn, dent, rot, rust, or suffer insect infestation.

Many of these attributes may give masonry products an edge over other structural materials not only in sustainable building but also in actually contributing to LEED v4 credits. Many masonry products can contribute to various LEED v4 credits, not only meeting but exceeding requirements. Specific applicability will be discussed below.

LEED Credit: Materials and Resources

As mentioned above, the category of Materials and Resources (MR) is the one to watch for potential credits earned by building materials. The heavily revamped credit class applies life-cycle thinking at the whole-building and product level, with credits earned for maximum material reuse and a design that ultimately has a lower impact on the environment. In LEED 2009, the Materials and Resources category awarded points in credits focused on the attributes of recycled content, regional materials, rapidly

renewable materials, and certified wood, as well as reuse of materials and construction waste management. LEED v4 takes an entirely different approach. The focus of MR in LEED v4 is on product transparency. Six of the 13 possible MR points relate to product ingredient disclosure, including EPDs, supply chain reporting, and material ingredient reporting. Other significant changes in the MR category include the addition of whole-building life-cycle assessment and the elimination of regional materials as a stand-alone credit. The credits that form the MR category in LEED v4 are shown in Table 1. Credits relevant to masonry products are detailed in the following paragraphs.

Building Product Disclosure and Optimization—Environmental Product Declarations (EPD)

This MR credit asks manufacturers to verify a specific product's life-cycle effects, with an EPD representing the best path to credit achievement. Similar to nutrition labels on food products, EPDs document impacts generally from raw material to manufacturer. One point can be earned if at least 20 different permanently installed products that have EPDs are used. Accordingly, a masonry or other product for which the manufacturer has developed an EPD can contribute to credit achievement. Not



Masonry products are already engineered to fulfill the requirements of LEED v4.

TABLE 1

CREDIT	LEED	POINTS	DESCRIPTION
Prereq	Storage and Collection of Recyclables	Req'd	Requires a place for storage and collection of recyclables
Prereq	Construction and Demolition Waste Management Planning	Req'd	Requires implementation of a construction waste management plan
Credit	Building Life-Cycle Impact Reduction	5	Options one–three reward reuse of buildings and materials. Option four covers whole building life-cycle assessment for new construction.
Credit	Building Product Disclosure and Optimization—Environmental Product Declarations	2	Rewards reporting of environmental impacts of building products
Credit	Building Product Disclosure and Optimization—Sourcing of Raw Materials	2	Rewards reporting of raw material sources and type of raw materials (i.e., recycled content)
Credit	Building Product Disclosure and Optimization—Material Ingredients	2	Rewards material ingredient disclosure via chemical screening tools
Credit	Construction and Demolition Waste Management	2	Rewards diversion of wastes from landfill in addition to reduction of total construction waste

SOUTH CAROLINA HIGH SCHOOL OPTS FOR MASONRY VENEER

Faced with a need to manage the area's continued growth, Richland School District Two put together a 10-year master plan that included the construction of this new state-of-the-art educational facility that opened its doors to 1,700 students in 9th–12th grade in the fall of 2012. Masonry veneer was selected to clad the exterior of the 340,000-square-foot facility, as well as wrap a number of interior columns. Architects AAG Associates LLC of Beaufort, South Carolina, chose the product for its look of natural stone without the high cost. In addition, the ability to manufacture the product at a regional facility with a percentage of recycled concrete offered additional LEED consideration. The placement grid provided by the insulated panels has increased overall construction speed and virtually eliminated what lead architect Chris Caudle calls the "oops" factor. "The installation is faster and cleaner than I expected," says Caudle. "The contractor needs to take care in the initial layout of the first few insulation panels, and it almost guides itself from there."



Masonry veneer was chosen for its look of natural stone without the high cost.

all EPDs are created equal, however. Product-specific, ISO-rated EPDs will earn full-credit value, while generic industry-wide EPDs will only receive half-credit value.

Building Product Disclosure and Optimization—Sourcing of Materials. Option 2: Leadership Extraction Practices awards one point if at least 25 percent by cost of the total value of permanently installed products on the project meet at least one of the responsible extraction criteria. Responsible extraction criteria include the use of recycled content materials and the use of salvaged materials. It is important to check the recycled content of a product or contact the manufacturing facility, which may have the ability to add recycled content to other CMUs.

Building Product Disclosure and Optimization—Material Ingredients. Option 1: Material Ingredient Reporting awards one point if at least 20 different permanently installed products report chemical inventory of the product to at least 0.1 percent (1,000 ppm). Reporting options include using Chemical Abstracts Service Registry Numbers (CASRN), health product declaration (HPD), or cradle-to-cradle certification. In the masonry industry, manufacturers are in the process of publishing HPDs for their products.

Construction Waste Management. Projects can earn up to two points in this credit for either diversion of waste or minimization of total construction waste on the project. Many masonry products are recyclable. Further, use of these products minimizes construction waste on-site because their modular nature minimizes on-site cutting. Wood structural products may not fare as well here as the sheathing and plywood required in a wood-framed structure can result in waste at the construction site.

LEED Credit: Energy and Atmosphere Optimizing Energy Performance. This credit, worth up to 18 points, awards points for reduction in building energy use as compared with

baseline requirements based on ASHRAE Standard 90.1-2010. All concrete masonry can contribute toward an energy-efficient building shell, especially those that include integration of insulation. The benefits of thermal mass provided by concrete masonry include moderation of indoor temperature swings and delayed heat transfer. Insulated concrete masonry units provide an added advantage in meeting energy-efficiency goals. Systems that use molded insulation inserts can provide up to a 16.2 R-value, and foam panel systems provide a 9.2 R-value. Particularly, masonry systems where the insulation is part of the product may have an advantage over wood framing simply because in the latter, insulation materials must be added, increasing construction time and the potential for error.

LEED Credit: Indoor Environmental Quality

Low-Emitting Materials. This credit, worth up to three points, focuses on volatile organic compound (VOC) emissions. This credit requires that 100 percent of the ceiling and wall materials used meet general emissions evaluation criteria to be considered a compliant category. Stone, glass, concrete, and clay brick are listed as "...inherently non-emitting and comply without any testing if they do not include integral organic-based surface coatings, binders, or sealants." Most masonry products do not include integral organic-based coatings, binders, or sealants. It is important to note that factory-applied coatings must meet the California Department of Public Health Standard Method v1.1-2010 requirements to comply with this credit.

For Healthcare and Schools only, exterior applied products are required to comply with the VOC criteria if this credit is pursued. Masonry products without added coatings used in this application will generally comply with this requirement.



Concrete pavers can help earn credits in LEED v4.

Acoustic Performance. LEED v4 for New Construction now includes a credit for acoustic performance. A credit for acoustic performance was previously only found in the LEED for Schools rating system. This credit includes sound transmission class (STC) requirements for interior walls ranging from 45 to 60 depending on the occupancy of adjacent rooms. An STC of 50 is required between hallways and adjacent rooms. Typical STC values for standard concrete masonry units range from 45 for a lightweight 8-inch unit to more than 60 for a fully grouted 12-inch unit. Some masonry wall systems have an STC of 61 or more, with certain specially designed acoustical masonry units providing sound absorption at all frequencies—even low frequencies that can be hard to control. Acoustics is clearly one area where masonry building products will have an advantage over wood or steel materials.

Other LEED Credits

The LEED Rating System also includes credits for Innovation and Regional Priority. Innovation credits vary from project to project but typically include strategies not covered in LEED, LEED Pilot Credits, or going beyond the

CONCRETE PAVERS AND LEED V4

Architects involved in specifying hardscapes can earn LEED v4 credits in the following Sustainable Sites categories.

Rainwater Management: This credit awards up to three points for managing rainwater runoff using low-impact development or green infrastructure strategies. Recommended strategies include the use of permeable paving. Some products are especially suited to this use, while others may also allow water to permeate depending on the design of the installation.

Heat Island Reduction: This credit awards two points if the combination of the roof and non-roof surfaces meet the specified criteria for solar reflectance. Strategies for the non-roof areas include use of paving materials with a three-year aged solar reflectance (SR) of at least 0.28 or an initial value of 0.33. An open grid pavement system that is at least 50 percent unbound can be used.

LEED requirements. Regional priority credits give added weight of up to four points to credits identified by USGBC's regional councils and chapters. In many areas of the country, Sustainable Sites credits related to rainwater management and heat island effects are identified as regional priority credits. Another area where masonry products may be able to contribute is the LEED Pilot credits for Resilient Design. One point is earned for each credit met in the areas of: assessment and planning for resilience, design for enhanced resilience, and passive survivability and functionality during emergencies.

These credits recognize projects that are planned and designed to function and/or quickly return to normal operation after extreme events or disasters, either natural or manmade. Masonry's advantages here include noncombustibility, impact resistance, and ability to withstand flooding or other water damage without developing mold or other moisture-related problems. Masonry's thermal mass also enhances passive survivability and functionality.

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Fire Station 76: Gresham, Oregon
Architect: Hennebery Architects
Structural Engineer: Nishkian Dean
Structural Engineers

Part of the structural system, the arches in this apparatus bay are designed to resist vertical and lateral loads required for essential facilities under the Oregon Structural Specialty Code. This project won a 2016 WoodWorks Wood Design Award.

Building Resilience: Expanding the Concept of Sustainability

Can traditional and new wood building systems meet evolving design objectives?

Sponsored by reThink Wood

Building resilience is one of those concepts you read about and think, ‘Of course.’ It’s an obvious next step in the evolution of sustainable design, conceived to meet a critical need, just as green building itself can trace its beginning to the oil crisis of the 1970s and the need to reduce energy consumption. Today’s need is to anticipate and prepare for adverse situations—such as earthquakes and hurricanes, the effects of climate change, even deliberate attacks—because there is nothing sustainable about having to rebuild structures before the end of their anticipated service lives and all of the resources that entails.

As the American Institute of Architects (AIA) recently pointed out, “A resilient building in a non-resilient community is not resilient.” In the context of building materials,

a complementary statement is that no building material in and of itself is the answer to resilience. Although materials such as wood have inherent characteristics that positively affect their performance, there are many greater factors that go into the design of a truly resilient structure.

With that in mind, this course will consider traditional wood framing and mass timber systems in the context of resilience, including performance during and after earthquakes, hurricanes, and other disasters, as well as the relevance of wood’s light carbon footprint and low embodied energy. It will describe how building codes and standards such as the National Design Specification® (NDS®) for Wood Construction support resilience now, and consider how wood structure can be utilized to meet evolving resilience objectives.¹

CONTINUING EDUCATION



1 AIA LU/HSW



1 GBCI CE HOUR

Learning Objectives

After reading this article, you should be able to:

1. Discuss why the concept of resilience can be viewed as another step in the evolution of sustainable building design.
2. Identify the strengths of traditional wood framing and mass timber systems in the context of building resilience, including performance during and after earthquakes, hurricanes, and other disasters, as well as the relevance of carbon footprint and embodied energy.
3. Explain how the International Building Code (IBC) and referenced standards such as the National Design Specification® (NDS®) for Wood Construction support building resilience.
4. Describe examples of research related to the development of new building materials and systems that could help communities meet more stringent resilience criteria.

To receive AIA credit, you are required to read the entire article and pass the test. Go to ce.architecturalrecord.com for complete text and to take the test for free. This course may also qualify for one Professional Development Hour (PDH). Most states now accept AIA credits for engineers’ requirements. Check your state licensing board for all laws, rules, and regulations to confirm.

AIA COURSE #K1606B
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Photo credit: Alexander Schreyer, University of Massachusetts



DEFINING RESILIENCE

In 2014, the National Institute of Building Sciences (NIBS), AIA, ASHRAE, American Society of Civil Engineers (ASCE), and other organizations representing some 750,000 professionals issued a joint statement on resilience with a definition drawing from the National Academies.² Describing resilience as “the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events,” the statement read:

“The promotion of resilience will improve the economic competitiveness of the United States. Disasters are expensive to respond to, but much of the destruction can be prevented with cost-effective mitigation features and advanced planning. Our practices must continue to change, and we commit ourselves to the creation of new practices to break the cycle of destruction and rebuilding. Together, our organizations are committed to build a more resilient future.”

Recognizing the importance of “contemporary planning, building materials, and design, construction, and operational techniques,” the group outlined its commitment through steps that include:

INTEGRATED DESIGN BUILDING, UNIVERSITY OF MASSACHUSETTS

Location: Amherst, Massachusetts

Architect: Leers Weinzapfel Associates

Structural Engineer: Equilibrium Consulting Inc.

Despite its location on the East Coast, the University of Massachusetts Integrated Design Building was governed by seismic as opposed to wind loads—and the aspect of the project that best illustrates resilience is its innovative seismic design.

Comprised of an exposed heavy timber structural system and cross laminated timber (CLT) decking and shear walls, the four-story, 87,000-square-foot structure accommodates the rules of capacity design—where certain elements of a structural system are intended to yield, and others are intended to remain elastic. In this case, structural engineer Robert Malczyk, principal at Equilibrium Consulting, explains that all of the elements of the lateral system are oversized except the bottom of the hold down brackets, which are sized to yield at the level of the design earthquake. In a seismic event, the brackets are intended to dissipate energy, without causing further structural damage, with the idea that they can be replaced afterward for faster building recovery.

The wood structure is relevant because of its weight. “The seismic force is proportionate to the weight of the building,” says Malczyk. “If this building were designed in concrete, which was considered, the weight would be six times more than the mass timber design, which means the seismic forces could also be up to six times greater. All of the elements, including foundations, hold downs, and everything else, would have needed to be much stronger. This is part of the reason wood buildings are so popular in high seismic regions.”

- Research related to materials, design techniques, construction procedures, and other methods to improve the standard of practice
- Education through continuous learning
- Advocating for effective land use policies, modern building codes, and smarter investment in the construction and maintenance of buildings and infrastructure
- Response, alongside professional emergency managers, when disasters do occur
- Planning for the future, proactively envisioning and pursuing a more sustainable built environment

Within this context of improvement, it is useful to consider how current design practices align with resilience objectives.

BUILDING CODES AND STANDARDS: A BASE LEVEL FOR RESILIENCE

The International Building Code (IBC) includes countless provisions and guidelines for designing structures to better withstand disasters. It is updated on a three-year cycle and, throughout its history, has continued to evolve to improve building performance. Although building codes accept that some non-structural and structural damage will occur in a major event, they seek to preserve life safety, prevent structural collapse, and ensure the superior performance of critical and essential facilities, such as hospitals and fire stations, relative to other structures.

For wood building design, the code is supported by referenced standards such as the National Design Specification® (NDS®) for Wood Construction, Special Design Provisions for Wind and Seismic (SDPWS), and Wood Frame Construction Manual (WFCM). These standards provide tools for the design of wood buildings to meet structural loadings associated with naturally occurring threats, such as wind and seismic events.

Earthquakes

Seismic design forces are specified in the IBC to allow for proportioning of strength and stiffness of the seismic force-resisting system. Structures with ductile detailing and redundancy, and without structural irregularities, are favored for seismic force resistance. These beneficial characteristics are specifically recognized in seismic design requirements. The IBC establishes the minimum lateral seismic design forces for which buildings must be designed primarily by reference to ASCE 7-10: Minimum Design Loads for Buildings and Other Structures.³ For wood buildings, design guidance is provided in the NDS, SDPWS, and WFCM.

Traditional wood-frame buildings that are properly designed and constructed to comply with code requirements have been shown to

RISK-BASED CODE REQUIREMENTS

From a resilience perspective, an important aspect of the IBC is that it is scaled to reflect risk—which, in this context, describes the combination of event probability and consequence of building failure.

Buildings are classified into risk categories based on use, from Risk Category I for those representing a low hazard to human life in the event of failure (such as storage buildings) to Risk Category IV for structures with greater consequences associated with their failure (such as hospitals). The higher the category, the greater the evaluated risk.

They are further defined based on the likelihood of a specific type of event occurring. Buildings constructed in regions known for hazards such as hurricanes, earthquakes, or floods, for example, are subject to design requirements that make them better able to withstand these events.

For wind and seismic design, statistical modeling based on prior event history is used to anticipate the magnitude of future events, even if they have not yet occurred at that scale.

perform well during seismic events. This is often attributed to the following characteristics:

- **Light weight.** Wood-frame buildings tend to be lightweight, reducing seismic forces, which are proportional to weight.
- **Ductile connections.** Multiple nailed connections in framing members, used in shear walls and diaphragms of wood-frame construction, exhibit ductile behavior (the ability to yield and displace without sudden brittle failure).
- **Redundant load paths.** Wood-frame buildings tend to be comprised of repetitive framing attached with numerous fasteners and connectors, which provide multiple and often redundant load paths for resistance to seismic forces. Further, when wood structural panels such as plywood or oriented strand board (OSB) are properly attached to wood floor, roof, and wall framing, they form diaphragms and shear walls that are exceptional at resisting these forces.
- **Compliance with applicable codes and standards.** Codes and standards governing the design and construction of wood-frame buildings have evolved based on experience from prior earthquakes and related research. Codes also prescribe minimum fastening requirements for the interconnection of repetitive wood-framing members; this is unique to wood-frame construction and beneficial to a building's seismic performance.

There are numerous examples of post-disaster reports—and city disaster plans—noting the ability of wood-frame buildings to perform well in earthquakes. In California, for example, where wood-frame schools are common, an assessment of the damage to school buildings in the 1994 Northridge earthquake was summarized as follows: “Considering the sheer number of schools affected by the earthquake, it is reasonable to conclude that, for the most part, these facilities do very well. Most of the very widespread damage that caused school closure was either non-structural,

or structural but repairable and not life threatening. This type of good performance is generally expected because much of the school construction is of low-rise, wood-frame design, which is very resistant to damage regardless of the date of construction.”⁴

Advancement through Innovation: Seismic Design

As described under Defining Resilience, ongoing research is key to meeting evolving design objectives. This includes post-disaster investigations that lead to recommendations for improved construction techniques. It also includes the development of improved design procedures. In one study, for example, a full-scale wood-frame apartment building was subjected to a series of earthquakes on the world's largest shake table in Miki, Japan.⁵ The test evaluated a performance-based seismic design procedure developed to gain a better understanding of how mid-rise wood-frame buildings respond to major earthquakes. The building was subjected to three earthquakes ranging in seismic intensities corresponding to a 72-year event through a 2,500-year event for Los Angeles, California. According to the report, it “performed excellently with little damage even during the 2,500-year earthquake.”

Research is also key to the development of new building materials and systems that could help communities meet more stringent resilience criteria, such as the mass timber products being used in taller wood buildings.

The impetus for timber high-rises, which already exist in other countries, is largely based on wood's renewability, low embodied energy, and lighter carbon footprint compared to other materials. The fact that wood buildings continue to store carbon while regenerating forests absorb and sequester more carbon is viewed by many as a compelling reason to expand the use of wood.

To determine the safety of taller wood buildings, a great deal of research has

Credit: John W. van de Lindt, Colorado State University

focused on seismic systems. For example, in a study using the same shake table in Japan, researchers tested a seven-story CLT building.⁶ After being subjected to 14 consecutive seismic events, the building suffered only isolated and minimal structural damage. The study is described in the *U.S. CLT Handbook*, which states, “There is a considerable advantage to having a building with the ability to quickly return to operation after a disaster and in the process minimizing the life-cycle impacts associated with its repair. Based on full-scale seismic testing, it appears that CLT structures may offer more disaster resilience than those built with other heavy construction materials.”

Another test evaluated “rocking” mass timber shear walls for use in high seismic regions.⁷ Seismic activity was simulated by cyclic loading that pushed and pulled the top of a 16-by-4-foot CLT panel with an embedded vertical pretensioned rod into a rocking motion. The wall was able to reach 18 inches of displacement while maintaining its ability to self-center back to a vertical position. The result: the series of tests demonstrated the ability of this innovative building system to resist earthquake forces.

Hurricanes

Structural wind-loading requirements are specified in Chapter 16 of the IBC and obtained primarily through reference to ASCE 7-10. The minimum requirements are intended to ensure that every building and structure has sufficient strength to resist these loads without any of its structural elements being stressed beyond material strengths prescribed by the code. The code emphasizes that the loads prescribed in Chapter 16 are minimum loads and, in the vast majority of conditions, the use of these loads in the design process will result in a safe building. However, it also recognizes that a designer may, and sometimes must, use higher loads than those prescribed. The commentary to ASCE 7-10 outlines conditions that may result in higher loads.

One of wood’s characteristics is that it can carry substantially greater maximum loads for short durations than for longer periods of time, as is the case during high wind and seismic events.⁸ As with seismic performance, the fact that wood buildings often have repetitive framing attached with numerous fasteners and connectors also helps to resist forces associated with high winds, as do diaphragms and shear walls made from wood structural panels properly attached to wood wall and roof framing.

According to a report by the Federal Emergency Management Agency (FEMA) on building performance during the 2004 hurricane season, new wood-frame houses built



Subjected to three earthquakes on the world’s largest shake table in Miki, Japan, this full-scale wood-frame apartment building performed excellently with little damage.

in accordance with the 2001 Florida Building Code performed well structurally, including those located in areas that experienced winds of up to 150 miles per hour (3-second gust). For these buildings, load path was accounted for throughout the structure, including the connection of the roof deck to supporting trusses and rafters. Because of this, loss of roof decking on newer homes was rare.⁹

Tornadoes

Because of the low probability that a building will incur a direct hit from a tornado, the extreme winds of tornadoes are not included

in building code requirements for the wind design of buildings other than tornado shelters. However, it is generally agreed that a building properly designed and constructed for higher wind speeds has a good chance of withstanding winds of weaker tornadoes. Statistically, weaker tornadoes—rated by the National Weather Service as between EF-0 and EF-2 on the Fujita Tornado Damage Scale—comprise 95 percent of all tornadoes.

Stronger tornadoes (rated EF-3 to EF-5) require more rigorous design but are much less common. Designing for higher wind speeds can make a significant difference in

Credit: ARUP



In this rocking test of a CLT shear wall, the panel maintained its lateral load-bearing strength under cycling loading to simulate seismic conditions and returned to a vertical position at completion of the test.

terms of withstanding loads from even these tornadoes when the structure is located along the outer reaches of the area influenced by the vortex of such storms.

After a devastating tornado season that cost hundreds of lives and thousands of homes in 2011, the FEMA Mitigation Assessment Team investigation found that newer homes generally performed well under design-level wind loading, but a lack of above-code design left buildings vulnerable to damage.¹⁰ Appendix G of the report, which makes reference to the WFCM and includes similar approaches, lays out prescriptive techniques that can improve building performance during weaker tornadoes. It notes that “Strengthening buildings by maintaining load path continuity and reinforcing connections has proven successful for mitigating hurricane and wind damage, and provides a good model for mitigating tornado wind damage.” Techniques are also

ROCKY MOUNTAIN INSTITUTE (RMI) INNOVATION CENTER

Location: Basalt, Colorado

Architect: ZGF Architects

Structural Engineer: KPFF Consulting Engineers

Designed with a combination of mass timber, structural insulated panels, and dimension lumber, RMI’s new Innovation Center meets a number of resilience objectives.

The project is net zero energy, designed and tested to meet Passive House protocols. Its energy model was run against the new Leadership in Energy and Environmental Design (LEED) pilot credit for Passive Survivability and Functionality During Emergencies for Option 1 (Thermal Resilience), requiring it to maintain livable temperatures during a power outage that lasts seven days during peak summer and winter conditions of a typical year. Thanks to a highly insulated envelope, the project met this criteria for the entire year, including peak periods, without any power. Daylighting strategies also allow the building to operate without electrical lighting for 91 percent of the annual daytime office hours.

The use of CLT structure on the first floor also allowed for dedicated service chases and increased floor-to-floor dimension, with extra space for future systems modification, addition, or expansion. This ‘future proofing’ will allow the building to be at the forefront of technology well into its 100-year design target.

Other features include a lightning protection system to protect the building systems and infrastructure, and siting above the 500-year flood plain event (instead of the more common 100-year event level).



Photo: ©Tim Griffith, courtesy ZGF Architects

provided for developing a complete load path starting from an engineered design for wind resistance—i.e., sheathing to roof framing, roof framing to wall framing, and wall framing to foundation connections.

Highlighting wood’s recognized performance as a structural material, FEMA P-320: Taking Shelter from the Storm: Building a Safe Room for Your Home or Small Business, includes information and design drawings for building wood-frame safe rooms.

Advancement through Innovation: Wind Design

As with seismic performance, post-disaster investigations are essential to improving the performance of buildings during high-wind events, leading to recommendations from bodies such as FEMA and the improvement of building codes.

Testing of building materials, systems, and techniques is another key part of the equation. For example, the ‘Wall of Wind’ (WOW) at Florida International University is capable of simulating a Category 5 hurricane and has contributed greatly to the understanding of hurricane impacts and their mitigation. A

collaboration with the International Hurricane Research Center, it is viewed by the insurance industry as revolutionary to wind engineering in the same way crash testing was to the automotive industry. Similarly, the Insurance Institute for Business & Home Safety research facility includes a wind tunnel able to test full-scale one- and two-story buildings under realistic disaster scenarios in a controlled, repeatable fashion.

Fire Protection and Life Safety

Building codes require all buildings to perform to the same level of safety, regardless of materials, and wood buildings can be designed to meet rigorous standards for performance in a fire situation.

Effective fire protection involves a combination of active and passive features. Active fire safety features include fire detection or suppression systems that provide occupant notification, alarm transmittance, and the ability to suppress fire growth (sprinklers) until the fire service arrives.

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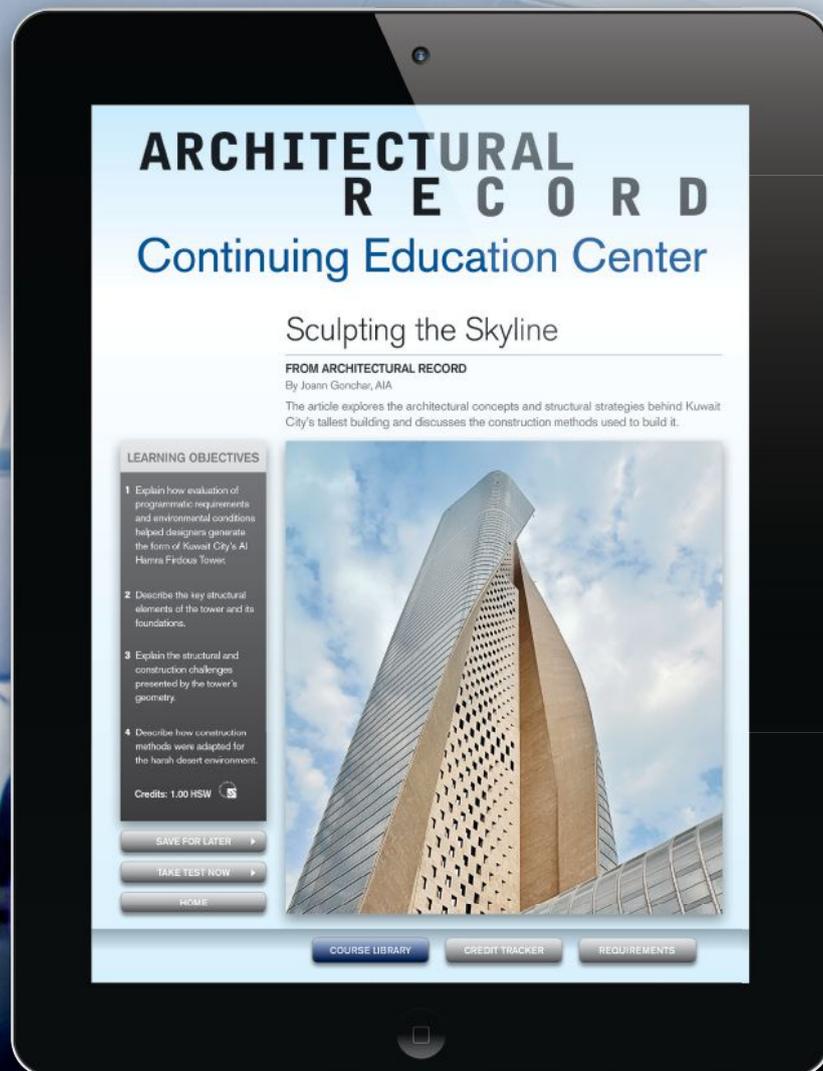


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226	DORMA	84	215	Oldcastle BuildingEnvelope	2, 3			
			12	Ornamental Metal Institute of New York	8			

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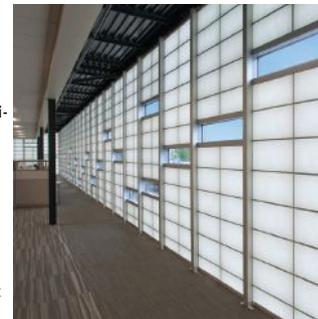
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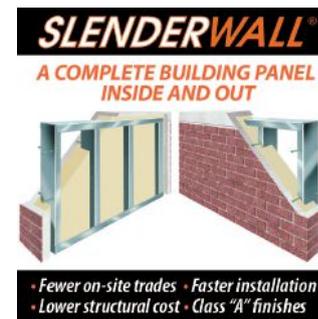
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CIRCLE 5

New and Upcoming Exhibitions

Architects' Drawings

Washington, D.C.

June 3–July 30, 2016

Architects Mark McInturff, FAIA, and Dhiru Thadani cocurate *Architects' Drawings*, an exhibition that celebrates drawings and sketches made by hand rather than digitally created and manipulated. Drawings and prints include the work of Richard Meier, Rob Krier, Rodolfo Machado, Tom Kundig, Rand Elliott, Ray Gindroz, Deborah Berke, Tony Ames, and Andrea Ponsi. At Cross MacKenzie Gallery, in partnership with the National Building Museum. For more information, visit crossmackenzie.com.

Eye for Design

New York City

June 7–October 2, 2016

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

Extraordinary Playscapes

Boston

June 8–September 5, 2016

Curated by Design Museum Boston, *Extraordinary Playscapes* explores contemporary playground design and makes a case for the importance of free play to healthy childhood development, thriving communities, and social equity. The exhibition, at the Boston Society of Architects, includes interactive installations, videos, scale models, and hands-on elements for visitors to explore the art, history, and science behind play. For more information, visit architects.org/bsaspace.

Folly 2016: Sticks

New York City

July 9, 2016

Sticks, a work by this year's annual Folly architecture–competition winners Josh de Sousa and Nancy Hou, of Hou de Sousa, will provide a hub for Socrates Sculpture Park's Education Studio. The architects reuse existing resources, including scrap materials stored on-site, to build *Sticks*—means that reflect the sustainable mission of Socrates Sculpture Park. For more information, visit archleague.org.

Ongoing Exhibitions

Snohetta: People, Process, Projects

Portland, Oregon

Through June 30, 2016

Designed, built, and curated by the designers themselves, *Snohetta: People, Process, Projects* invites visitors to learn about how the firm designs net zero energy buildings that will produce more energy over the course of their lifetime than they use. At the Center for Architecture in Portland, Oregon. For more information, visit snohetta.com.

Iris van Herpen: Transforming Fashion

Dallas

Through August 20, 2017

Dutch designer Iris van Herpen (born 1984) has designed clothing for style icons such as Lady Gaga, Beyoncé, and Björk and shown her collections on runways across the world. This exhibition documents the evolution of her couture through a selection of 45 outfits from 2008 through 2015, and illustrates the many ways the designer seeks inspiration beyond the world of traditional handwork and craftsmanship. At the Dallas Museum of Art. For more information, visit dma.org.



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Roberto Burle Marx: Brazilian Modernist
New York City*Through September 18, 2016*

The Brazilian artist and landscape architect Roberto Burle Marx (1909–94) undertook projects ranging from the mosaic pavements on the seaside avenue of Rio de Janeiro's Copacabana Beach to the multitude of gardens that embellish Brasilia (one of several large-scale projects he executed in collaboration with famed architect 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. Visit thejewishmuseum.org.

Lectures, Conferences, and Symposia**Architectural Record Innovation Conference**

San Francisco

June 8, 2016

Innovative architecture requires expanding the boundaries of the discipline by spurring creativity through design and technology. This

year's conference brings together key figures who have generated a range of imaginative solutions for the built world today and for the future. From architects practicing outside the discipline to principals of large firms and materials experts and graphic designers, the participants represent different approaches to original problem-solving in a rapidly changing world. At the Mission Bay Conference Center. For more information, visit arinnovationconference.com.

Nuts + Bolts

Bowling Green, Ohio

June 15–16, 2016

Nuts + Bolts, a national AIGA Design Education conference for educators, administrators, and students, helps to strip away the mystique of academia and build a solid foundational knowledge of architectural-discipline-specific teaching methods through group discussions, workshops, and lectures. Participants will be encouraged to share their design challenges and achievements with others, uncover educational shortcomings, identify pedagogic responsibilities, and offer pathways to solutions, all for the greater good of design and the global community. At Bowling Green State University. For more information, visit nutsandbolts.aiga.org.

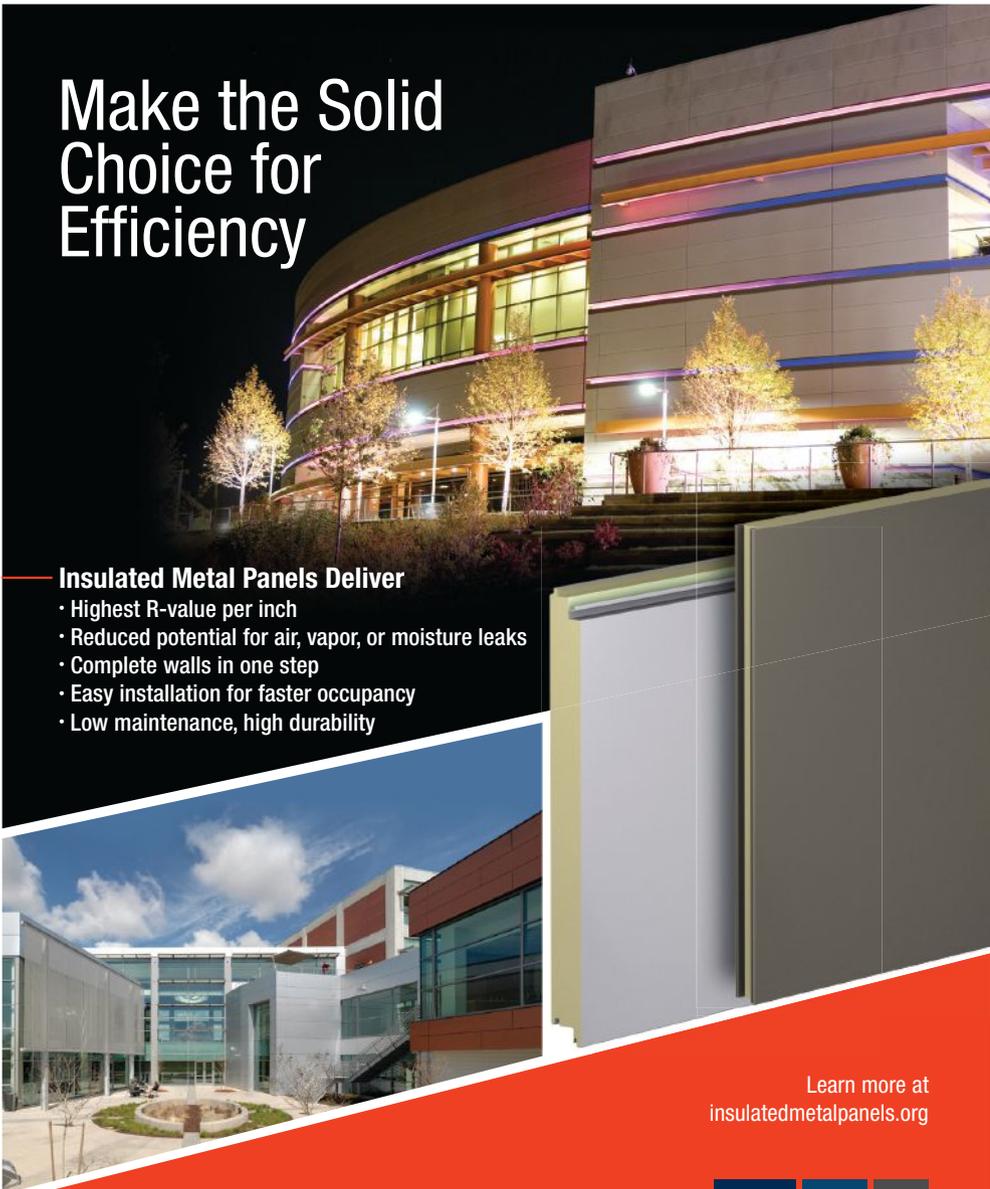
Contests**Young Talent Architecture Award 2016***Entrant-specific deadlines of July 15, 2016, and August 31, 2016*

The Young Talent Architecture Award (YTAA) aims to support the talent of the recently graduated architects, urban planners, and landscape architects who will be responsible for transforming our environment in the future. YTAA emerged from curiosity about, and interest in, the initial stages in these students' development and a desire to support their talent as they enter the professional world. Visit ytaaaward.com.

AIANY COTE Awards 2016*Entry deadline: August 12, 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 true innovation. Visit aianycoteawards.org.

E-mail information two months in advance to recordevents@bnpmedia.com.



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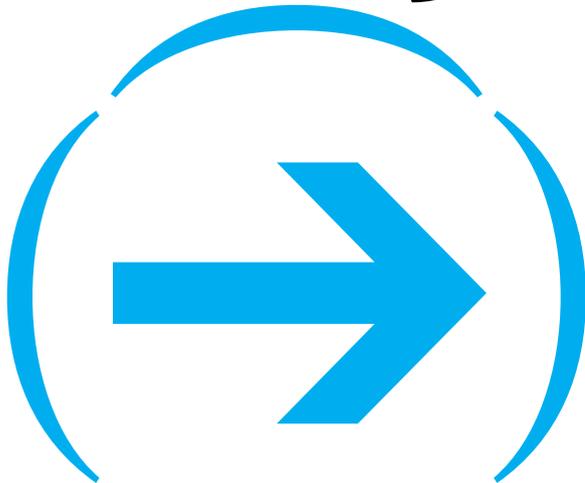
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2016 CALL FOR ENTRIES Design Vanguard



The editors of ARCHITECTURAL RECORD are looking for the best emerging architecture firms from around the world to feature in our **2016 Design Vanguard** issue. Although we do not have an age limit, we try to select architects and designers who have had their own practices for less than 10 years. Winners will be featured in the December 2016 issue.

There is no fee to enter. For full details and to submit your entry, visit: designvanguard.architecturalrecord.com.

Submissions are due September 2, 2016.

2016 CALL FOR ENTRIES Record Products



The editors of ARCHITECTURAL RECORD are currently accepting submissions for the **2016 Record Products** competition.

Manufacturers and designers may submit items introduced in the U.S.

between September 2015 and September 2016. A panel of architects and specifiers will judge the entries on criteria including innovation, functionality, and aesthetics. Winning products will be featured in the December 2016 issue.

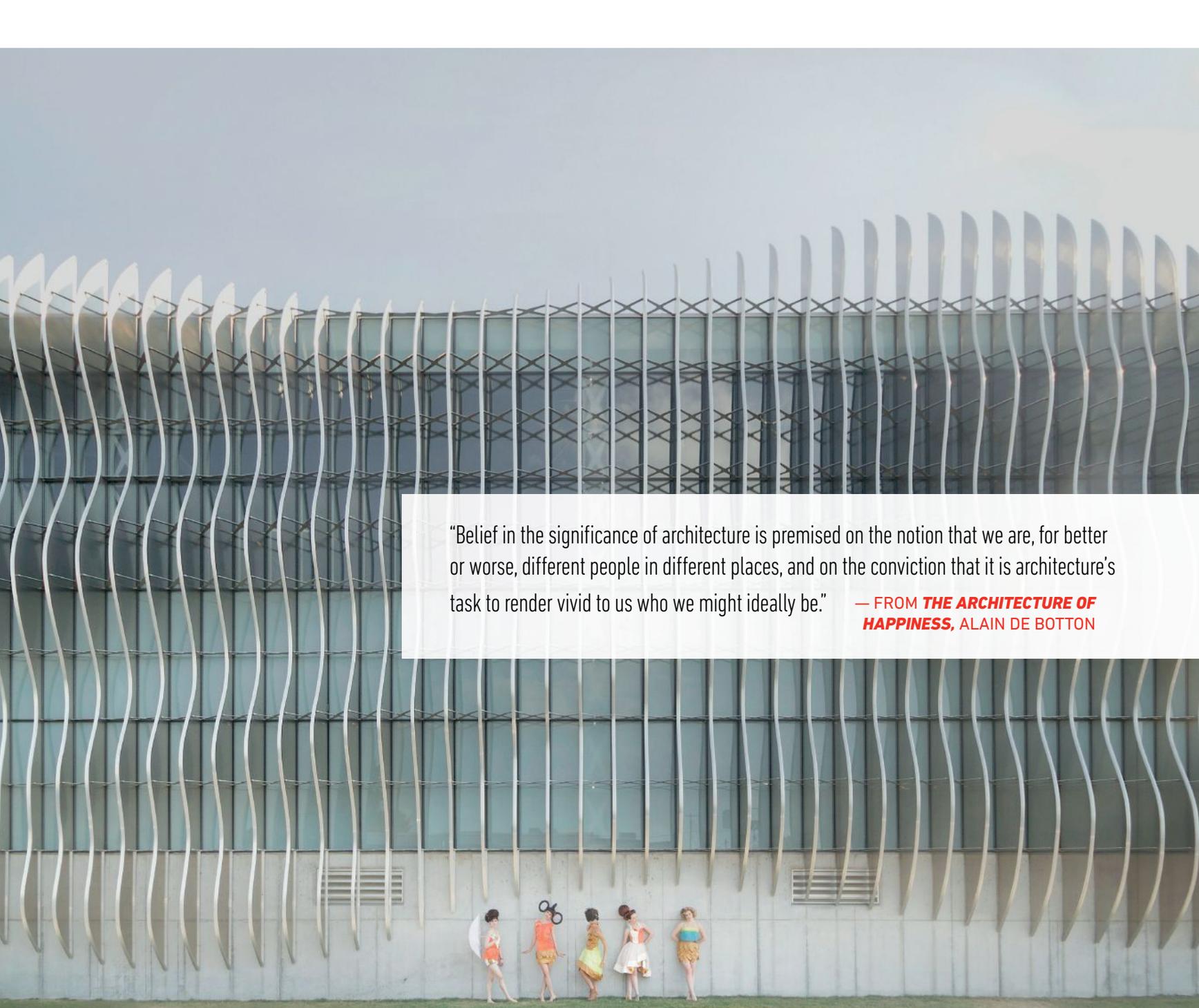
The fee is US\$25 per entry. For full details and to submit your entry, visit: recordproducts.architecturalrecord.com.

Submissions are due September 2, 2016.

PROJECT SALLING TOWER
LOCATION AARHUS, DENMARK
ARCHITECT DORTE MANDRUP ARKITEKTER A/S



ON THE east coast of the Jutland Peninsula, Dorte Mandrup Arkitekter has created a striking landmark for Aarhus, the second-largest Danish city: a sculptural white tower cantilevered over the bay. With two observation decks, which can be accessed by an elevator or wide staircase that doubles as seating, it provides different perspectives on the harbor and city—a major center for trade, shipping, and industrial activity. “The tower’s materials and surfaces give it a maritime feeling,” says project architect Noel Wibrand. Large apertures in the white-painted steel plate recall ship portholes, and at night, LEDs illuminate the structure from within as if it were a lighthouse. One of the viewing platforms juts out over the water in a dramatic, origami-like bend. A beacon when viewed from both land and water, the Salling Tower invites visitors to linger and consider the shallows of the Kattegat sea, between the banks of Denmark and Sweden. *Miriam Sitz*



“Belief in the significance of architecture is premised on the notion that we are, for better or worse, different people in different places, and on the conviction that it is architecture’s task to render vivid to us who we might ideally be.” — FROM **THE ARCHITECTURE OF HAPPINESS**, ALAIN DE BOTTON

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