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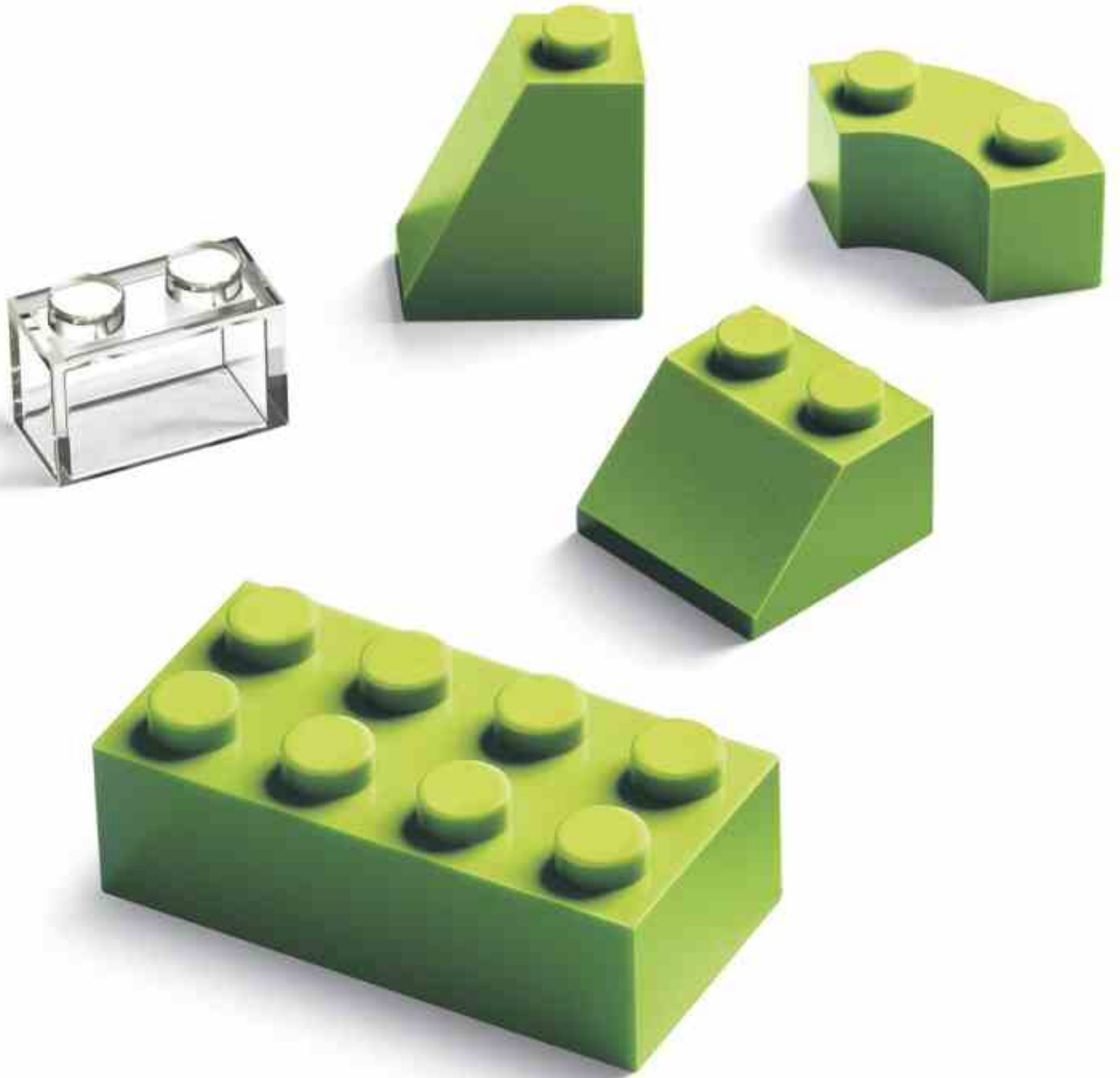
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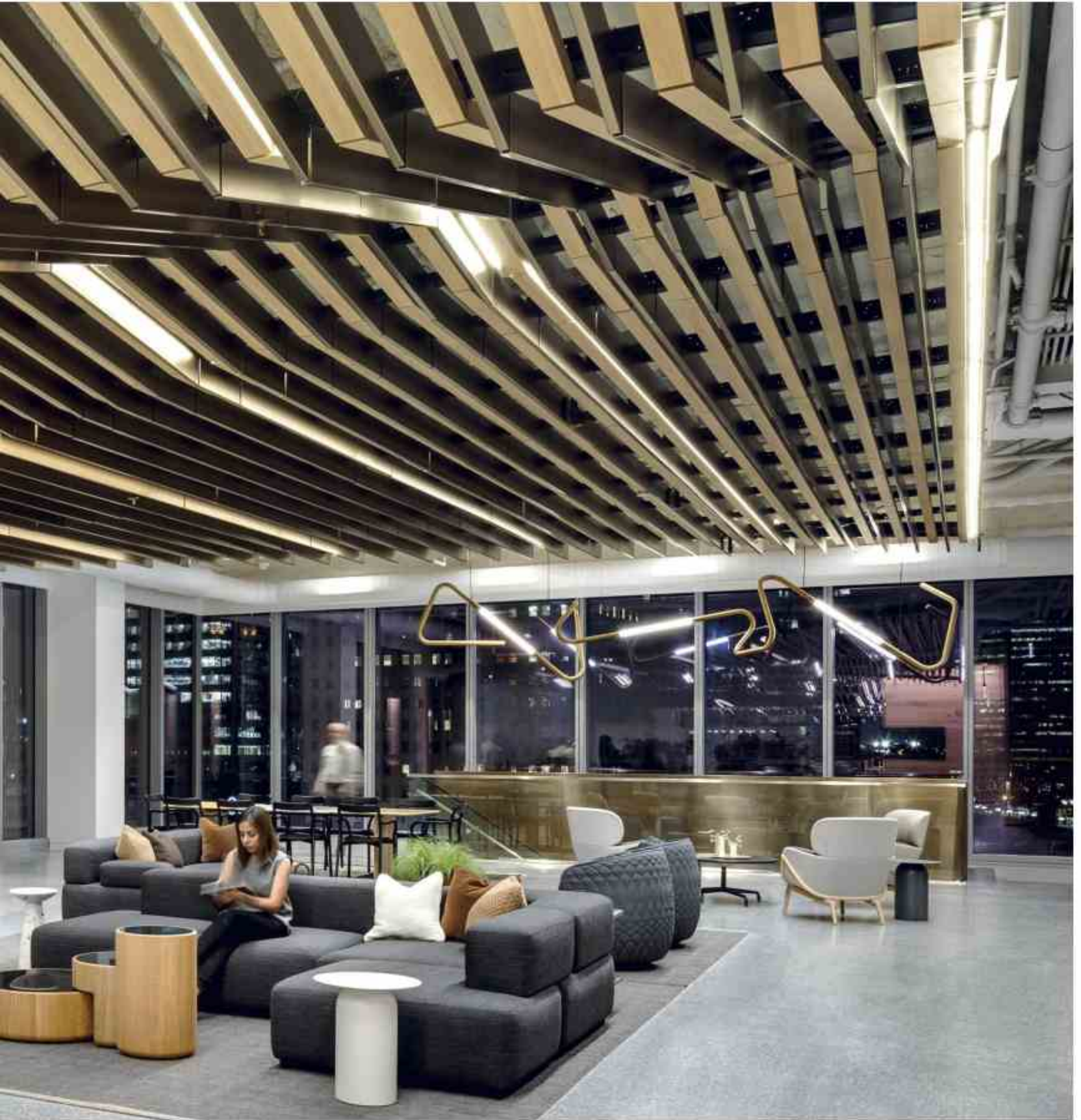
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Architect: Rossetti
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Top Seed

Arthur Ashe Stadium at USTA's Billie Jean King National Tennis Center is one of sport's most beloved venues. But its roofless design meant rain often stopped play. To keep tournaments on schedule, the stadium's original designers, architect **Rossetti** and engineer **WSP Parsons Brinckerhoff**, proposed the tennis world's largest long-span retractable roof. With a 7-minute opening time and a design that keeps sightlines unobstructed, the new lightweight fabric and steel canopy is favored to win over athletes and fans alike. Read more about it in **Metals in Construction** online.

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Shape Up

What if a skyscraper didn't have to look like one? That was the question posed by **Bjarke Ingels Group (BIG)** when the firm was approached to design **Via 57 West** on Manhattan's West Side. By creating a courtyard-centric building whose sail-like facade plunges to street level from a height of forty stories, BIG made a statement, and a challenge for the facade's installers. The resulting double-curved form required more than 1,200 unique panels—and the skill of ornamental metal ironworkers to put them in place. Read more about it in **Metals in Construction** online.

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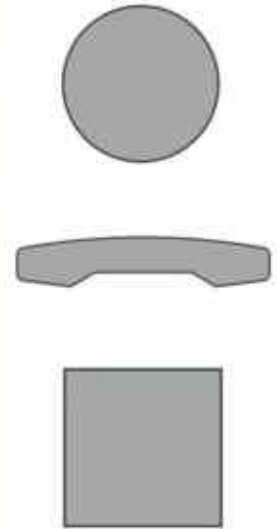


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MID-CENTURY HYGGE

Michele Alfano

It heightens your senses, whether you're soaking in the tub, standing on the fur rug or sitting on the bench with a warm cup of coffee. That's hygge.

Copenhagen Suggesting life on a houseboat, this bathroom brings the city of Copenhagen indoors with its use of natural materials like hewn beams, water-inspired colors and a living moss wall. But the purpose is beyond a nod to nature. In the hygge modern bathroom, the sensorial design elevates the everyday.

To achieve a sense of Nordic coziness, I balanced light-colored materials with the occasional geometric pattern and pop of color. The design flexibility of the DXV Modulus Collection was a natural fit, including its looks. It's a combination of angles and organicism, a perfect match. Finally, I added a hint of luxe with a built-in towel warming drawer and coffee bar—just right for achieving hygge.

For more on Michele's room,
visit us online at dxv.com

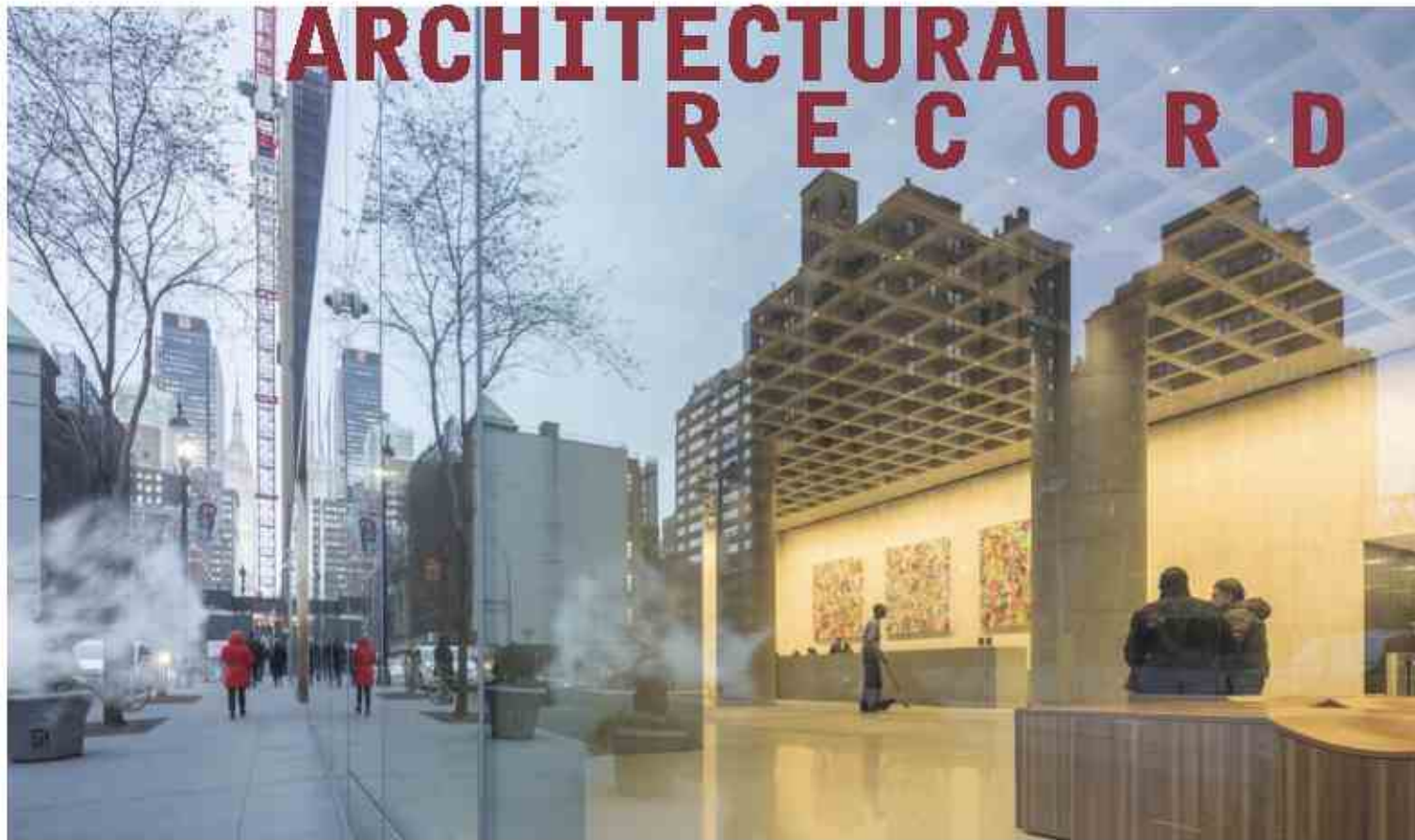
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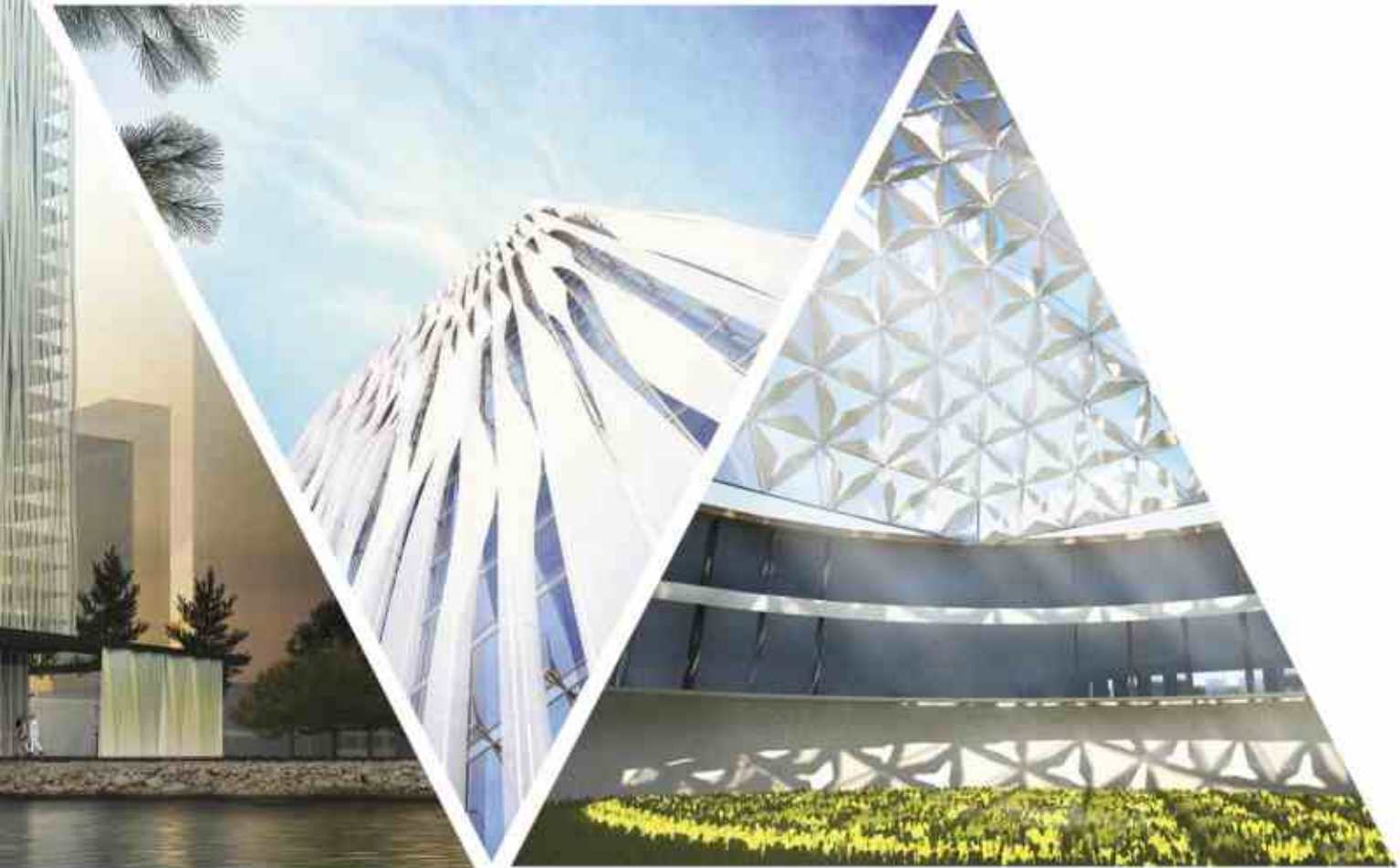
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FRENCH CONNECTION

A month before the official opening of OMA's Fondation d'Entreprise Galeries Lafayette in Paris, Rem Koolhaas was made *Commandeur des Arts et des Lettres* by French Minister of Culture Françoise Nyssen. [NEWS]



GOODFELLOWS

The AIA has elevated 152 architects to its prestigious College of Fellows for achieving a standard of excellence in the profession, including our very own Joann Gonchar. The senior editor, shown here at Record's Innovation Conference last October, has been writing about complex design, sustainability, and technology for 20 years. Also honored is record special international correspondent, Naomi R. Pollock, who writes for the magazine from Tokyo. The 2018 Fellows will be honored at an investiture ceremony at St. Patrick's Cathedral during the AIA Conference in New York in June. [NEWS]



HOOP DREAMS

Deputy editor Suzanne Stephens takes a shot on the basketball court at St. Luke's School in New York while reporting on the expansion designed by ABA Studio for an article in this issue (page 98). Says Stephens, "I'm proud of my basketball prowess." [PROJECTS]



DECLASSIFIED

Features editor Josephine Minutillo and architect Steve Blatz test the facial-recognition software at Spyscape, the recently unveiled spy museum in New York, designed by Adjaye Associates. [NEWS]

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Where is Architecture's #MeToo Movement?

While other industries are roiling with allegations of sexual abuse, the design profession has been strangely quiet.

No more silence. No more waiting. No more tolerance for discrimination, harassment or abuse. —Time's Up

IN LATE JANUARY, I was on a panel of architectural journalists at a conference at the Yale School of Architecture. When it came time for questions from the audience, a woman stood up to ask why we in the media were not covering sexual harassment in architecture. Excellent question. This is, obviously, a very serious and timely topic—yet, surprisingly, few women (or men) have been stepping forward to complain about recent sexual harassment from architects. There are rumors of bad behavior that go back decades, some involving leading figures in the profession (some now dead), but despite all the publicity around harassment in the entertainment and media industries, on Wall Street and in Silicon Valley, attempts to document new cases of predatory or abusive actions in architecture are, so far, proving difficult.

That doesn't mean they're not happening. When the London-based *Architects' Journal* released its annual Women in Architecture survey a few weeks ago, which polled nearly 1,500 professionals in the UK, the results showed that one in seven female respondents reported having experienced sexual harassment in the workplace in the past year.

There's a big difference, however, between filling out an anonymous survey and going through the process of filing a formal complaint with an employer or the U.S. Equal Employment Opportunity Commission (which often means hiring a lawyer). Architecture is a small profession, made up mostly of small firms—and a woman may feel too much risk or exposure in making a complaint, even if retaliation by an employer is clearly against the law. Women in architecture don't yet have safety in numbers: the shocking flood of allegations directed at Harvey Weinstein or Dr. Larry Nassar helped those who were reportedly targets of abuse feel supported by each other and finally listened to in a male-dominated culture that had been looking the other way.

But architecture shouldn't wait for more women to come forward to have its own #MeToo moment. It should start right now. Sexual harassment is just one form of discrimination based on gender—and all such discrimination is against federal law, including failure to pay equally for equal work, or using any employment practices that negatively affect employees based on sex. (See the legal definition of sexual harassment and other types of discrimination on the website of the U.S. Equal Employment Opportunity Commission.)

To begin, it's essential to face up to implicit bias in architectural culture. Just one example: Rosa Sheng, FAIA, founding chair of Equity By Design, cites a 2015 study by Duke University researchers, who presented identical designs of houses to two separate groups. The group that was told the architect was male found the designs more creative than those who were told the architect was female—and both sample groups included women as well as men.

How to change such mindsets? Let's start with architecture schools, where enrollment is now approaching 50 percent women, but the power figures with whom students engage are overwhelmingly male.



More professors, more guest lecturers and more jurors on student crits should be women, with a goal of 50 percent. And sexual-harassment-prevention training should be mandatory in every curriculum.

For the profession, the Beverly Willis Architecture Foundation is proposing that the AIA specifically call out sexual harassment in its Code of Ethics and that anti-harassment training be a compulsory unit of continuing education for architects.

But even if those measures could help reduce incidents of sexual harassment, the distance to achieving true equity is still too far, despite efforts in some firms to promote more women to principals or design leaders. It's time the profession stepped up and took a leaf from Hollywood's Time's Up initiative. That movement, formed in response to #MeToo, has not only created a defense fund to support women of far less privilege—office cleaners, farm and factory workers—in seeking protection from sexual abuse, but it is also pushing major companies in the entertainment industry to reach gender parity in leadership by 2020.

What if the big architecture firms took the lead and agreed to a similar goal? Fill their offices and their highest ranks to a parity of 50 percent, with the most talented women out there (and they are out there) by, say, 2030. And finally bring true pay equity and equal opportunity to women and minorities. Not just because it's the right thing to do—but because the field of architecture in the 21st century will be diminished if it doesn't have a reputation for fairness or reflect the diversity of the people that it serves.

Cathleen McGuigan

Cathleen McGuigan, Editor in Chief

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The Ins and Outs of IMPs

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Architecture and pastry are both very human schools of thought. You are always thinking about what people will like.

— Architect-turned-pastry chef *Jennifer Yee*, on the similarities between designing spaces and designing desserts, *The New York Times*, January 23, 2018

Working in the Amazon

BY KATHARINE LOGAN

THE LATEST ADDITION to Amazon's \$4 billion Seattle headquarters opened to employees this week. The Spheres, three conjoined glass bubbles that have alighted among the downtown office towers, provide the company's employees with their very own cloud forest. Five levels of unorthodox work spaces—from a tree house meeting room, complete with bouncy bridge, to deck chair recliners—climb through a lush green habitat of more than 40,000 plants, including two densely verdant living walls, a 40-foot-high Australian tree fern, and an 18-ton ficus named Rubi.

Driving the design was the desire to create an entirely unique work space, said Seattle-based NBBJ principal Dale Alberda in an interview with *RECORD* at the building's opening, "one that combines a rich natural environment with comfortable human-centric functionality." Drawing on recent studies suggesting that brains light up in nature, the design team sought "to create a hybrid environment that inspires productivity and collaboration," said Alberda.

Creating that hybrid required the team to rethink the office building from first principles. Where business-as-usual would maximize floor area, plants need volume—hence the spheres—although the efficient enclosure of volume isn't the only reason for the building's form. "A sphere is one of the few elementary forms that you see in nature," said John Savo, lead architect in NBBJ's commercial and corporate practice. "The sun, the moon, the human eye—there's a power to that spherical form." With three spheres, added Alberda, the form becomes iconic, which was also a project goal.

Unlike a geodesic dome's, the repeating element of the Spheres' structure is hard to spot unless you know the trick. The module consists of an irregular pentagon defined by the points of five welded arches. The arches form a stick figure that's a bit like Leonardo da Vinci's Vitruvian Man, but with a very long neck. Sixty of these modules form a pentagonal hexecontahedron; that's about as close to a



With their unconventional shape, the Spheres stand out among the surrounding office towers in downtown Seattle. Considered the new heart of Amazon headquarters, the group of three glass-and-steel structures—designed to be verdant, bright, and human-centric work environments—is emblematic of the company's trailblazing business approach.

The new employee work space brings nature inside. There are more than 40,000 plants throughout the interior, including a 40-foot-high fern. Occupants can even choose to meet in a tree house.

perfect sphere as a building of glass and steel can be.

As the pentagonal figures rotate across the surface of the spheres—the largest of which is 130 feet in diameter—they form apparently organic shapes that complement the branching and twining of the vegetation inside. They also achieve a stiffness that the project's structural consultant, Seattle-based Magnusson Klemencic Associates, expects to perform nicely.

Steel components were prefabricated to tolerances of $\frac{1}{32}$ of an inch, and welded together on-site (except for one bolted section, a lid on the east sphere that enabled Rubi to be lowered into place). The Spheres are clad in laminated glass, extra-clear (low-iron) to admit the light that plants need, and coated to mitigate heat gains.

Not all plants thrive at the temperature



and humidity levels office workers prefer, however, so many of the Spheres' more than 400 species have been selected from cloud forests, high-elevation tropical ecosystems that depend on cool, humid conditions. Even so, some accommodations have had to be made. The building operates on a diurnal

cycle, with daytime temperatures averaging around 72 degrees, with 60 percent humidity, and nighttime temperatures around 55 degrees, with 85 percent humidity. When the doors open in the morning, a fog of warm, moist air billows out. Here and there a drop of condensation falls. For visitors arriving at the opening, it felt as if we'd just missed the botanical version of *Night at the Museum*.

The plants are thriving, according to a member of the horticultural team that will provide for their ongoing care. The ficus, for example, has grown 2 feet since it moved in. Now that the building is open to people, time will tell if they too

will flourish in this biophilic new workplace, with its varied and intriguing spaces, and whether Amazon will see benefits in enhanced collaboration, creativity, and employee well-being. "If that plays through," says Alberda, "that will be the building's most significant achievement." ■

PHOTOGRAPHY: © KATHARINE LOGAN

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A Decrepit Memphis Dinosaur Gets a Platinum Makeover

BY DEANE MADSEN

IN 1993, when retailer Sears, Roebuck closed its mail-order catalogue business, it also shuttered distribution plants around the country, including one in Memphis that just sat abandoned. A quarter of a century later, the 1.3 million-square-foot facility has been transformed into the

Crosstown Concourse, an innovative mixed-use property designed by the local firm Looney Ricks Kiss (LRK) in collaboration with the Vancouver office of DIALOG.

The project, completed last year, was the brainchild of artist Christopher Miner and University of Memphis art history professor Todd Richardson. Crosstown Concourse is home to a health center, arts and education groups, a high school, and 265 apartments.

When LRK principals Tony Pellicciotti and Frank Ricks first visited the site, the building was in serious disrepair. Since the closure of the distribution center, no money had been spent on upkeep, but the 1920s building itself was in solid shape. Its all-concrete frame had been designed to support live loads of 250 to 300 pounds per square foot. A 1960s steel-column-supported addition suffered though, in large part due to thieves who undermined the structure in search of copper flashing. Because of its significant mass, the center was too expensive to demolish, but the right redevelopment formula proved elusive until Richardson and Miner stepped up to form Crosstown Arts.

Crosstown Arts has been the driving force behind Crosstown Concourse since around 2007. Steered by Miner and Richardson's vision, the project gathered steam by attracting a diverse set of like-minded organizations. The client group grew to include a local real-estate family, an interior designer, a retired Coast Guard captain turned architect, and a retired architect turned real-estate developer.

One of the challenges of a project on this scale is how to populate it. More importantly, Pellicciotti notes, the team wanted to maintain the surrounding neighborhood without turning their back on its businesses and residents.

Such a large structure couldn't rely on the



A former Sears distribution center, the Memphis Crosstown Concourse (above and right) by LRK with DIALOG, is a community-focused, mixed-use development—the world's largest LEED Platinum historic-rehabilitation project.

typical development model of ground-floor retail with residences above. Instead, the financial strategy dedicated the first six floors to mixed-use programming, with dwellings starting on the seventh floor. The architects devised a scheme that resembles a vertically stacked village, with planned intermingling to renew the existing community. Eight founding tenants—including the Church Health Center and the Memphis branch of the YMCA—spurred the project onward and take up nearly half of the building. Crosstown Concourse also houses programs for institutions like St. Jude Children's Research Hospital and Teach for America.

With that momentum, the Crosstown Concourse team was able to finance the nearly \$200 million project cost through more than 30 sources that were a blend of private equity and bank loans, historic and new market tax credits, and local government funds for streetscape and utility improvement among them. And the project also earned the support of the people who would encounter it daily, through community-building arts workshops.

LRK dealt with the scale of the building in part by creating atria throughout the volume, each with its own character, recycling 54 million pounds of concrete in the process. Residential zones on the upper floors benefit



from daylight internal porches that reference a common Memphis housing-stock feature.

LEED certification was not a project goal at the outset. Retaining the Sears building garnered significant credit toward certification, and incorporating daylighting strategies and recycling concrete put the team well on its way toward achieving not just LEED but LEED Platinum status. Using established best practices and technologies made up the balance, as did the building's size, Pellicciotti cites the significant thermal mass of the building as "an incredible asset in managing energy efficiency," contributing to consumption that is 40 percent below the ASHRAE baseline.

As cities grapple with the respective futures of their industrial pasts, they would do well to look at Crosstown Concourse. For this development, the vision was strong and swayed a diverse group of prospective tenants to get on board. From an environmental standpoint, the transformation of the Sears building into a successful venture like Crosstown Concourse turned a white elephant into green one. ■

Frida Escobedo to Design 2018 Serpentine Pavilion

BY MIRIAM SITZ

THE SERPENTINE GALLERY has announced its selection for the 18th annual Serpentine Pavilion: Mexican architect Frida Escobedo. She will design a temporary structure for the gallery's lawn in London's Kensington Gardens. Born in 1979, Escobedo is the youngest architect yet to receive the commission.

Renderings of Escobedo's pavilion show two rectangular volumes with walls formed by a lattice of British-made cement roof tiles. The underside of a thin roof above the walls will be clad in a mirror surface that, together with a triangular pool cast into the pavilion floor, will allow light to bounce throughout the structure. "We have added the materials of light and shadow, reflection and refraction, turning the building into a timepiece that charts the passage of the day," said the architect.

Escobedo founded her practice in Mexico City in 2006. Urban reactivation is a touchstone



Escobedo's design for the Kensington Gardens site features latticed walls of cement tiles, a small pool, and a mirror on the underside of the roof for a dynamic interplay of light and shadow that shifts throughout the day.

of her work, with projects ranging from housing and community centers to arts venues and hotels. "My design is a meeting of material and historical inspirations inseparable from the city of London itself," she said, "and an idea that has been central to our practice from the beginning—the expression of time in architecture through inventive use of everyday materials and simple forms."

The annual competition, established by the Serpentine Gallery's codirector Julia Peyton-Jones in 2000, began with a tentlike structure designed by Zaha Hadid, and has since showcased work by top architects including Oscar Niemeyer (2003), Frank Gehry (2008), Jean Nouvel (2010), SelgasCano (2015), Bjarke Ingels Group (2016), and, most recently, Francis Kéré. ■

IMAGE: © FRIDA ESCOBEDO, TALLER DE ARQUITECTURA, ATMÓSFERA



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The Tenement Museum Adds New Exhibition Space

BY ALEX KLIMOSKI



MANHATTAN'S TENEMENT Museum offers a trip back in time to when the now ultra-gentrifying Lower East Side was a melting pot of working-class immigrants struggling to make better lives with limited means. Founded in a squalid 1864 tenement building at 97 Orchard Street in 1988, the museum has become a staple for school trips and history buffs, with its apartments painstakingly restored to what they were when occupied in the late 19th and early 20th centuries by poor families from Italy, Germany, and Ireland. A recent expansion by Perkins Eastman into a separate, five-story historic building at 103 Orchard—purchased by the museum in 2007—provides more space for exhibitions and staff.

The project is the last phase of Perkins Eastman's 10-year master plan for the institution. In 2011, the firm added a visitors center and gift shop, classrooms, and support spaces within the first, second, and basement levels of 103 Orchard, at the corner of Delancey Street. But the apartments on the upper levels were still occupied, so work on the expansion couldn't begin, ironically, until the tenants relocated.

Now, on each of the upper three floors, three dumbbell-shaped railroad apartments, separated by two airshafts, are connected via glazed passageways. The exhibition space, all on the third floor, focuses on the shifting immigrant communities after World War II. Part of it includes a replica of a small Chinatown garment factory. The only restored unit has different rooms recreating living spaces of three families—immigrants from Poland, Puerto Rico, and China—who inhabited the building for different periods post-1944. Unlike the grimmer quarters displayed in 97 Orchard, these spaces are colorfully decorated with ornate wallpaper and patterned linoleum



The new exhibit, *Under One Roof*, includes an apartment unit refashioned as it was when former tenants lived in the building (above). Much of the space was left in its original decaying state, to connect visitors to the experience of the immigrant families who resided there (right).

flooring, and filled with objects illustrative of modern consumerist culture. Still, the accommodations were modest, without amenities we think of as basic, such as private toilets.

The fourth and fifth floors provide open office space for approximately 40 employees. Floor-to-ceiling glazing for private rooms and offices, as well as a skylight on the top level, let in ample natural light.

Gutting the apartments and stabilizing the structure, a process that Perkins Eastman principal Nick Leahy calls "part archaeological dig, part forensics," had its challenges. The architects discovered that a hodgepodge of renovations since the building was erected in the 1860s had altered its structural integrity, introducing quirks such as hidden floors and haphazardly placed beams. Leahy says that demolishing parts of the building was like playing a game of Jenga—the team had to be careful that removing components would not result in the structure's tumbling.

The tightness of the construction site also complicated the work, especially since the visitors center remained open for the duration of the project. Building materials and debris were hoisted up and down from the street,



and large steel beams had to be cut and put back together inside.

Throughout the renovation, the design team kept what they could of the building's decrepit state, leaving decaying layers of plaster, mortar, brick, and paint to connect visitors' experiences to those of tenants past. New finishes were kept to a minimum to make the architectural intervention less noticeable. This presented the unusual challenge of clearly communicating to contractors what to get rid of and what to keep. One of two rotting bathrooms on the third floor, for example, was accidentally demolished. "We had to get them into the museum's mindset," Leahy says.

For Leahy, the project was an exercise in discovering and interpreting clues to the past. "It has caused me to look at things differently. If I see a ghost of a doorway, I wonder, 'Why is it like that, and what was there before?'" he says. "It's really about finding out what's extraordinary in the ordinary." ■

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Jorge Otero-Pailos

BY ERIN HUDSON

SOME MAY REMEMBER architect and artist Jorge Otero-Pailos writing in these pages that "our profession's current commitment to preservation will most likely not last long" (RECORD, February 2012).

Six years later, his outlook seems less pessimistic: Otero-Pailos, who holds a B.Arch. from Cornell and a Ph.D. from MIT, was in January of this year named director of the first U.S.-based doctoral program exclusively focused on historic preservation. Offered at Columbia's Graduate School of Architecture, Planning and Preservation, where Otero-Pailos has taught and directed the master's program in preservation, the Ph.D. program will begin in fall 2018. RECORD spoke with Otero-Pailos by phone about his new role and the future of the field.

**What changed your mind about the profession's commitment to preservation?**

I was imagining that as the economy picked up, architects would lose interest in preservation. But it's stronger now than it was then, partly because something fundamental has changed in America in the interim. If you ask yourself where American culture was debated last year, we can look to existing monuments, like the Robert E. Lee statue in Charlottesville, rather than museums or new buildings. For the new generation, preservation is now one of the defining areas of practice where the future of culture and politics is at stake.

How did the Ph.D. program come about?

We felt a very strong need to educate the

professors as well as practitioners of the future. A lot of organizations (including UNESCO, NGOs, or museums) hire preservationists to conduct research or advance experimental practice. But many schools only hire preservationists with Ph.D.s. There was a real need to have discipline-specific scholarship and training for the next generation of teachers.

What is the general level of expertise of architects practicing preservation in the U.S.?

It's quite limited in areas of research and scholarship. Practitioners often adopt materials and techniques promoted by companies, which haven't been truly tested. There's also very little development of new technologies in America—almost zero. Most of the research that we have is being done by independent practitioners without any institutional support.

What new technologies are springing up?

We are seeing the development of biotechnology, such as using bacteria to clean structures rather than mechanical devices. The other major revolution is in neuroscience;

preservation is so much about people's emotions and memories, and neuroscience is transforming the way we think of the relationship between landmarks and people.

What do you think the future of the field holds?

Much of the architecture constructed after World War II was not built to last more than 50 years. As structures become technologically obsolete, we are faced with a question: do we demolish or do we reuse? We don't have the energy to demolish and reconstruct everything, but we also can't treat all of it as a work of art. We have to make different kinds of choices, and

those require different kinds of theoretical approaches that need to be developed by scholars.

For example, look at what happens to most of the skyscrapers in New York City, especially the ones that have proper curtain walls: their facades are eventually removed and replaced with something that looks more or less like them. With 3-D scanning and printing, and automation or robotics, the whole process of reskinning buildings or doing spot repairs might completely change. We need a new generation of people who can think through these problems—because they're the ones who are going to have to live with the consequences. ■

noted**Deborah Berke Partners to Design New Student Housing at Princeton**

The New York-based firm was selected to design a cluster of new residential buildings as part of a major expansion to accommodate a growing student body. The project will begin with an extensive programming and planning study.

Short-listed Firms Present Ideas for Detroit Riverfront Project

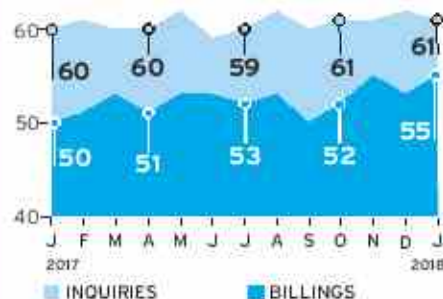
The Detroit Riverfront Conservancy will choose among four firms for the designer to transform the waterfront into a more dynamic public space: Gustafson Guthrie Nichol, Hood Design Studio, James Corner Field Operations, and Michael Van Valkenburgh Associates. The winner of the \$50 million project will be announced this spring.

Cornell Names Professor to Richard Meier Chair of Architecture

The College of Architecture, Art, and Planning has announced Andrea Simitch as the first to hold the newly endowed Richard Meier Chair of the Department of Architecture. Meier, an alumnus of the college, also funded two graduate scholarships and an assistant professor position.

Asif Khan's Pavilion at 2018 Winter Olympics is Super Black

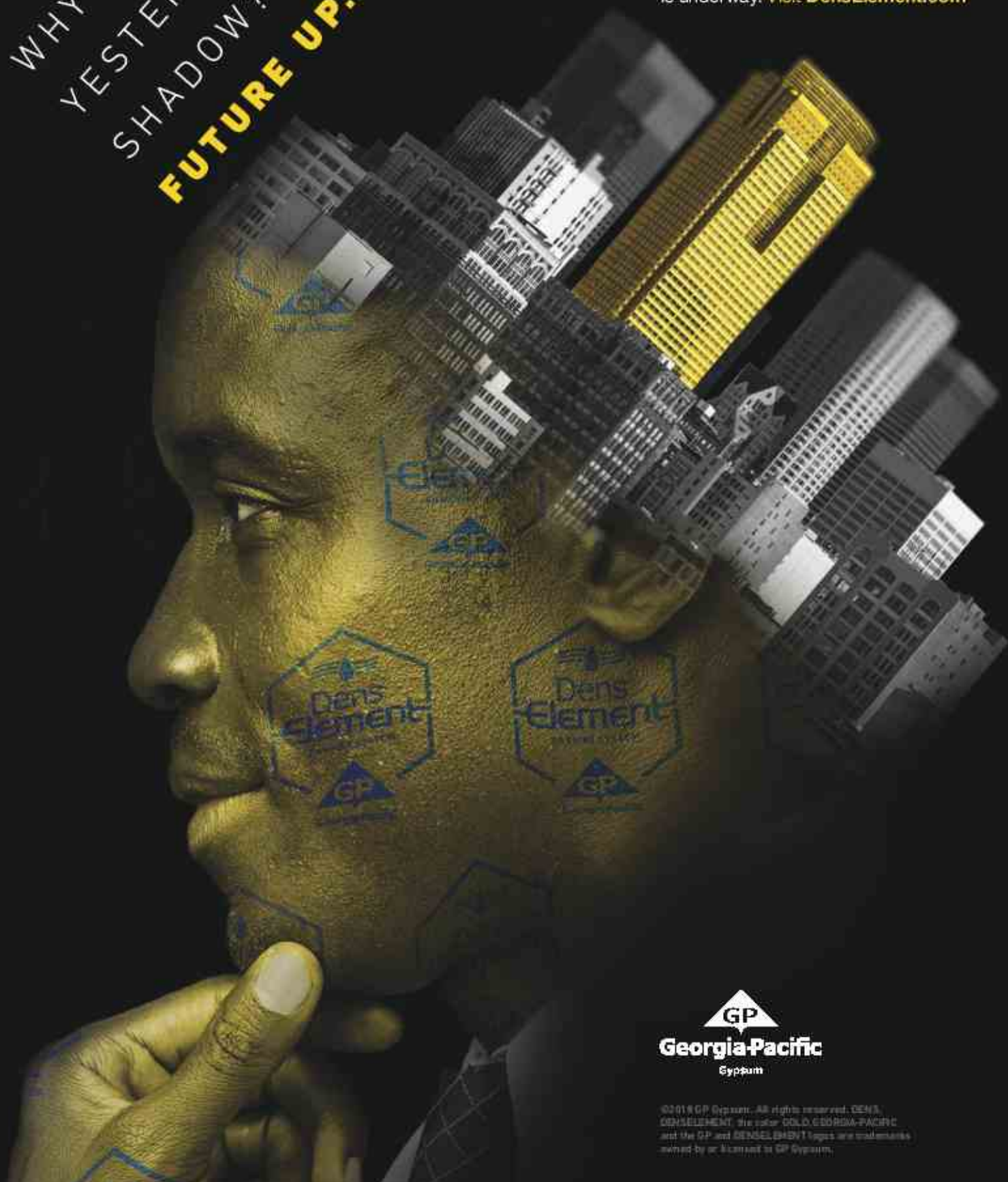
The London-based firm's structure, unveiled at PyeongChang Olympic Park in South Korea, is coated with Vantablack VBx2, a matte material able to absorb 99 percent of daylight, making it the world's blackest building. During the day, thousands of white lights on the facades simulate a night view of stars.

**Firms Kick off Strong in 2018**

The January Architectural Billings Index (ABI) increased from 52.8 in the previous month to 54.7—the highest January score since 2007. (Scores above 50 indicate an increase in billings.) The new projects inquiry index, however, dipped from 62.0 to 61.1, while the new design contracts index rose from 53.4 to 53.9. According to AIA chief economist Kermit Baker, firms remain generally optimistic about the next several months.

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ARCHITECT JOEL SANDERS EMPHASIZES MIDCENTURY MODERN'S LINEARITY.
BY SUZANNE STEPHENS



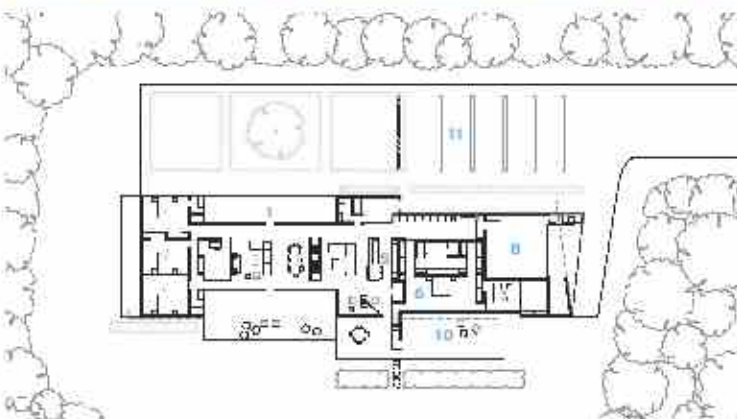
A DESIGN-ORIENTED CLIENT acquiring a Midcentury Modern house often finds that the prospective “renovation” turns into “reconstruction.” The typical one-story open-plan dwellings were built with experimental materials and techniques that may not have worn well. Another drawback is the paltry size of the bathrooms and kitchens, which were planned for extreme efficiency in the postwar era, geared to a household without hired help. Tastes change, and those areas now need to be enlarged and updated.

When a 1957 house by the Modernist architect John Black Lee came on the market in New Canaan, Connecticut, a few years ago, a couple, impressed by the pristine condition of the house and by its expansive 2.8-acre grounds, seized the chance to buy it. They knew of Lee (1924–2016), who had built more than a half-dozen houses in New Canaan. He had a strong affinity to the Harvard Five, a group of Graduate School of Design alumni (Marcel Breuer, Philip Johnson, John Johansen, Landis Gores, and Eliot Noyes), who had settled in the Connecticut town in the 1940s and were responsible for a number of significant residences there. Although Lee had a B.A. from Brown University, he had learned architecture and construction through apprenticeships, including at Noyes’s firm, before starting his own practice in 1954.

The clients, Mark Ullman and Taylor Gibson-Ullman, who bought Lee’s long, low, steel-and-wood house, were lucky that it proved to be solid and sturdy. But it did have small bathrooms and a cramped kitchen—and they desired more space. The architect they hired, Joel Sanders, who is based in New York and teaches at Yale’s School of Architecture in



In renovating and expanding a 1957 modern house designed by John Black Lee in New Canaan, Connecticut, architect Joel Sanders extended the eastern end of the house as a linear bar (top). He opened up the existing living areas (above) by removing shoji screens and installing gray-stained white ash storage cores that are pulled back from the glazed enclosing walls. As a result, elongated aisles along north and south perimeters amplify the flow of the space.



- 1 MAIN ENTRANCE
- 2 LIVING
- 3 DINING
- 4 FAMILY AREA
- 5 KITCHEN
- 6 MASTER BEDROOM
- 7 GYM
- 8 GARAGE
- 9 BEDROOM
- 10 TERRACE
- 11 PARKING COURT

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nearby New Haven, understood the challenge. "The owners wanted to keep the aura of the house," says Sanders. "But the question was, how do you renovate and expand sensitively?"

The original 3,600-square-foot house has a shallow gable roof, unlike the flat roofs typical of the period, and is glazed on both long sides. The architect retained the exterior much as it was, only demolishing a small portion of the east end where the original house joins the addition. Deferring to site conditions, Sanders designed it as an extended 2,600-square-foot linear bar to accommodate the new master bedroom, bath, gym, and garage.

To avoid replicating the original roof shape yet give a 12-foot height to the master suite, Sanders inserted into the bar a simple vertical volume that pushes up above the new flat roof. Clerestory windows around this structure admit daylight, and glass doors on the south open off the bedroom to an outdoor terrace. The architect introduced a new material to the composition—bluestone, of an almost charcoal hue, which forms a wall extending from the terrace perpendicular to the wing. Similarly, bluestone cladding on the addition's front facade further identifies it as an entity separate from the original structure. To unite the new and the old portions of the house, Sanders also "extruded," as he puts it, the original roof line along the entire length of the rectilinear wing, which reads as a white fascia.

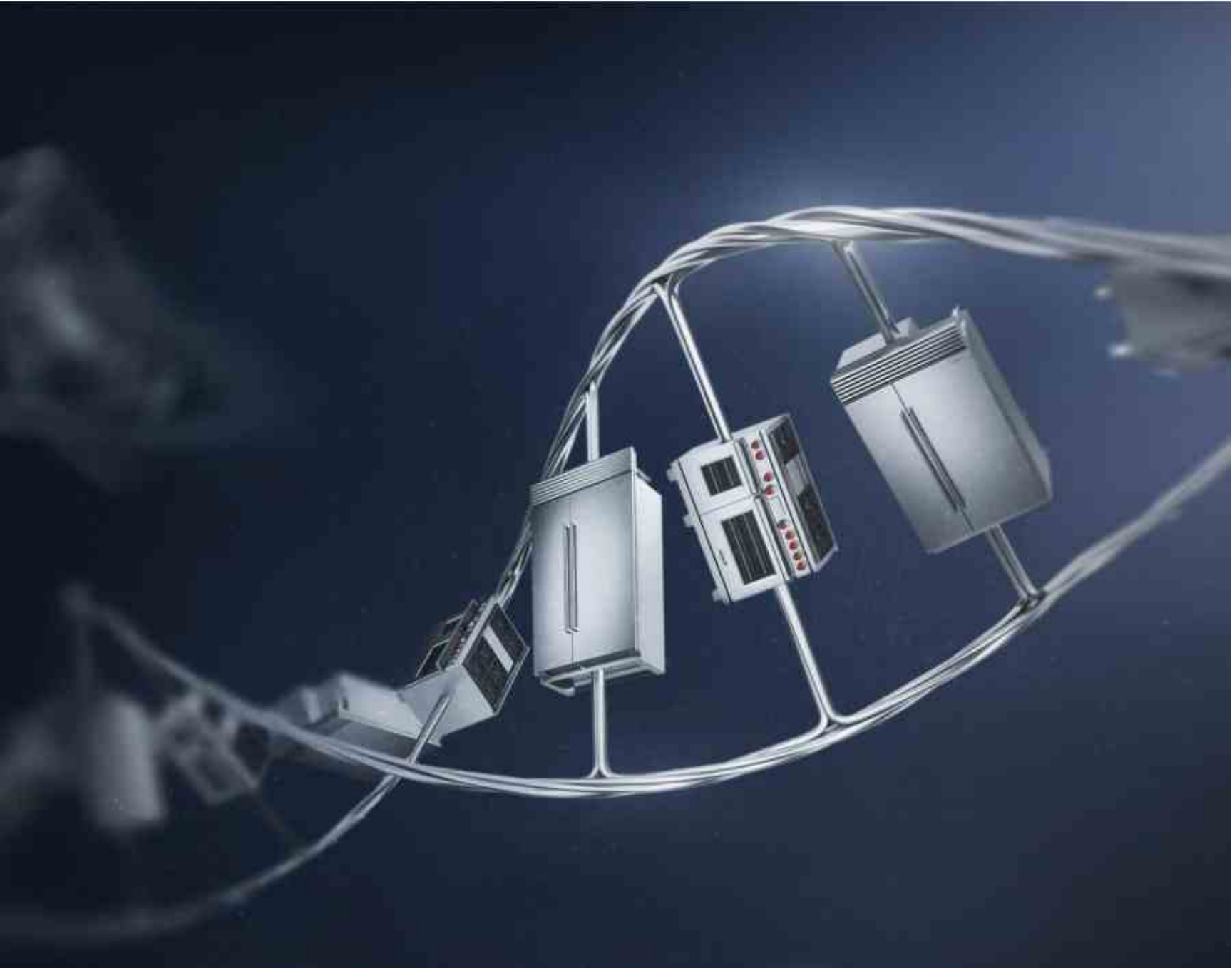
The new stone-clad expansion is what a visitor driving onto the property sees first, but the architect kept the entrance to the original house where it was: it now overlooks a landscaped garden. Inside, he retained the clarity of Lee's central volume while further emphasizing its openness by removing partitions, including shoji screens that had separated the various living areas. Gray-stained white ash clads storage units and the fireplace core; these subdivide the open spaces between the living room and family/kitchen area. On the west end, the existing three-bedroom wing remains. While this area has been kept intact, some adjustments (e.g., glass showers instead of bathtubs) make the two baths seem more spacious. The rooms themselves are designed for flexible uses, since the three sons are in the process of leaving home. Here, as in the rest of the house, the client worked with Ampersand Architecture and Dana Lyon of the Refined Group on the interior furnishings.

The final result is a new expansion that is discrete, yet handsomely complements the original Lee design. By his manipulation of rectilinear planes and use of stone and wood, Sanders has made the living spaces contemporary and comfortable while dramatizing Lee's contribution to Midcentury Modern. ■



The new wing, discreetly clad in Canadian bluestone, is the first thing visitors see approaching the house (top). The existing entrance is separated from the driveway by a fence of Cor-Ten steel slats. With the family room (above), Sanders enlarged the kitchen and created a breakfast space. The master bedroom in the extension (right) has a 12-foot-high ceiling, clerestory windows, and an outdoor terrace defined by a bluestone wall.





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A Resurrection

A deconsecrated Boston church gets a new life as condos.

BY ROBERT CAMPBELL, FAIA

A NEW CONDO COMPLEX in Boston consists of a glassy modern building that appears to be jammed into the remnants of an abandoned church, as if the church is the package, the condos the contents. You're confronted by the embrace, unembarrassed, of two radically different styles and eras of architecture in one building, something more commonly seen today in Europe than in the U.S.

The complex is called Lucas (nobody ever seems to say *the* Lucas). At first, it raises doubts whether this is the kind of aggressive architecture that belongs in a historic neighborhood. But the more you study it, the more sense it makes for this particular site and situation.

Lucas stands in Boston's beloved South End, a neighborhood of 19th-century brick townhouses. The 1874 structure of richly textured granite and puddingstone was the home of the German Trinity Catholic Church until a decade ago, when it was abandoned, taken by the city, and eventually acquired by the developers, New Boston Ventures. To create Lucas, the Boston architects Finegold Alexander gutted the badly deteriorated interior and restored the exterior walls. They thus created a masonry shell, which they refilled with eight stories of condos, four floors of which rise above the old roofline.

The old and new couldn't be more different. The church is a Gothic pile designed by the amazing Patrick Keeley, who migrated from Ireland at age 25 and went on to design, sometimes with collaborators, more than 500 Catholic churches in the eastern U.S. and Canada. The new condos, by contrast, are a contemporary box of bright glass and black steel.

Two strong design moves make Lucas work. The architects create a relationship between the past and present by placing the steel columns so that each new column reads as an upward extension of the church's stone structure. You can easily recognize the load-bearing steel as a modernist version of flying buttresses. Trinity and Lucas are members of one tectonic family, even if they're not members of the same generation.

The second strong move was a decision to completely restore the entire church shell. Failing masonry has been repaired or replaced, and, when needed, new granite window surrounds have been custom cut, with every original opening retained. The church has



At Lucas, eight stories of condos have been inserted into the Gothic shell of the former German Trinity Catholic Church. Four floors of glass-and-steel-enclosed apartments rise above the late 19th-century building's old roofline, with new perimeter columns reading as an upward extension of the church's original stone structure.

been retrofitted for new inhabitants, not discarded.

What couldn't be recreated were the religious motifs, especially the stained-glass windows. With their Christian iconography, they were removed at the behest of the Catholic hierarchy when Trinity was deconsecrated, and replaced with clear glass.

Lucas contains 33 residential condos, with prices ranging up to about \$3.5 million for the upper-floor condos, which run to some 2,750 square feet. In Boston's hot real-estate market, all the units were quickly sold, most of them before construction ended earlier this year.

The design of Lucas was a response to its particular circumstances. The site is at an extreme edge of the South End. Only a block away, Interstate I-90 barrels brutally through the city. The surroundings are largely parking garages and yet-to-be-redeveloped vacant lots. To have any presence here, Lucas needed to be bold. This part of the South End is designated as a "Historic Protection Area," a mild level of landmarking. The Lucas design needed no special permissions, but any proposal to demolish the church would have raised immediate red flags.

Economics, of course, shaped much of the design. The church interior wasn't big enough to contain the number of condos needed for

economic feasibility. More volume had to be added somewhere, but the church already filled its property so tightly that the only way was up.

Interior design at Lucas doesn't amount to much. There's little public space. Wolf in Sheep, a design firm, provided a gloomy palette of neutral grays for the corridors and a range of off-whites for condo interiors, avoiding shapes and colors that might upstage the rich exterior of stone and steel. For units at the upper floors, the best decor is the view out over the city, as framed by the tall, church-scale windows. Another virtue was unanticipated: fitting the condos around the church's many irregularities made for a pleasing variety of floor plans.

Lucas is a building that looks a little weird initially but turns out to be the product of common sense: preserving the shell of the church enriches the city with a memory of its past; preservation puts less pressure on the environment than you'd ever get from a conventional campaign of demolition and reconstruction; and Lucas isn't afraid to look exactly like what it is. This is a confident, legible, individual chunk of architecture. By banging together two eras and two kinds of construction, it subtly celebrates the diversity of the neighborhood and the city. ■

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Fount of Knowledge

Stanley Saitowitz | Natoma Architects turns a Kenyan water tank into a dignified little library.

BY KELLY BEAMON



CONVERTING A disused rainwater collection tank into a children's library could not, under any circumstances, be called an obvious design solution. But that's exactly what one nonprofit asked San Francisco-based Natoma Architects to do, in a small farming community in the Nyeri West region of Kenya, a four-hour drive north of Nairobi.

The Nobility Project, an Austin, Texas-based group that builds critically needed school infrastructure, is known for looking beyond easy answers to meet a community's needs. While undertaking the Nyeri West school renovation some years back, the organization's cofounder, Turk Pipkin, saw the nearby cistern and, noting its unusu-

ally large size, saw the potential of its robust, curved form for housing books. The 70-year-old tank had a diameter of 25 feet inside its thick, plastered brick walls, which rose 9 feet high. It was conveniently situated behind the property's cattle sheds-turned-classrooms. It even had a prominent site on a hillside—with views out to Mount Kenya—and could be seen from the road leading up to the school. And, for locals, who were given the tank (and the rest of the formerly British-owned dairy farm on which it sits) when Kenya declared its independence from the United Kingdom in 1963, it also had sentimental value.

Pipkin was convinced that recreating this agricultural artifact for



PHOTOGRAPHY: COURTESY STANLEY SAITOWITZ | NATOMA ARCHITECTS, EXCEPT AS NOTED

adaptation as a library would be an encouraging reminder of how far the community had come—if he could find an architect capable of making it work. A friend in whom Pipkin had confided had studied architecture with someone who could help. He introduced Pipkin to Natoma principal Stanley Saitowitz, who was born in South Africa, knew the continent's colonial history, and was struck by the potent symbolism of preserving the existing structure. "I grew up in Johannesburg," says the architect. "I understand that water has always been a precious resource in Africa."

The square-on-circle form the architect designed is a nod to Africa's colonial legacy: it merges the rectilinear geometry common to Europe

SPEAKING VOLUMES About 350 students (opposite) now use the library. The new 950-square-foot building (top) sits 40 yards from classrooms. Shelves welded to its framework (above) can eventually hold up to 10,000 books.



A GOOD GRADE On the ground level (left), the framework fits inside the cistern's old wall, supporting the new volume and serving as shelving (bottom, left). The original curved wall (bottom, right) forms reading nooks.


with the rounded forms of traditional African architecture. His choice of building materials underscores the formal combination: corrugated-steel sheeting (a British import) clads the square part of the building, complementing the original indigenous brick structure below. "Growing up in South Africa, I was able to see how, when you go into the countryside, this other architectural language will emerge," Saitowitz says, referring to the familiar sight of buildings composed of both imported and local components. Insisting that the new library should still collect water, the architect topped it with a roof that has an inverted pitch, which feeds a small receptacle behind the structure.

"The entire design essentially arose from dealing with the constraints of the tank," says Saitowitz, who was determined to leave the cistern untouched. As if out of deference to the relic, he avoided cutting through the circular wall to create an entry and, instead, designed a stair leading into the square volume above. "It is an elevating experience to go up to the books and then down a stair to the main gathering space back at grade," he says. On the top level, a wraparound corrugated-steel landing is lined with bookshelves that are built into its perimeter walls. To admit daylight and breezes, Saitowitz used louvered glass behind wire mesh at the room's corners.

From this mezzanine, a steel stair spirals down to the circular room below—the heart of the library, which has a new concrete slab, covered in tile. Here, the steel bookshelves define the space, creating small reading nooks at the edges, while at the same time, supporting the load of the new volume above. Saitowitz's only intervention with the historic walls, beyond applying a fresh coat of plaster, was to install half-moon slivers of bent steel on its surfaces to create child-height reading seats in the nooks. "The kids use them more as desks," he says.

The diminutive library's scrappy elegance is well suited to the spirit of the people who use it. When Nobelity embarked on building the property's new preschool, parents eagerly volunteered to dig the foundation trenches. Later, when a truck loaded with donated books bound for the library became mired in mud just yards from the door, young students resolutely carried the large boxes the rest of the way. "For this community," says Pipkin, "the library says that good things can happen here." ■





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Glass House on the Couch

Philip Johnson's notable work draws psychoanalytic interpretations.

BY ANTHONY VIDLER

THE QUIXOTIC personality of Philip Johnson has fascinated and frustrated critics for over half a century. How to approach the curator who heretically transformed the Modern Movement into a stylistic category by way of the famous exhibition on the International Style and book of 1932; who openly supported fascist movements in the years leading up to World War II; who switched careers by becoming a Harvard-trained architect just before the war; who was a follower of and collaborator with Mies van der Rohe in the 1950s; who then became an adopter of Postmodernism by the late 1970s and who reigned as the premier architecture broker of New York from his seat at the Four Seasons restaurant for nearly half a century?

Is it all a delightful masquerade, a firefly dancing on the surface of life and art for half a century? Is it a series of deeply felt attempts at engaging and transforming the discipline that had, to quote architectural historian Paolo Portoghesi, "too many inhibitions"? Is there a hidden sense of inadequacy that drives a designer to more and more outlandish stylistic experiments? Was it, simply, a lust for power, whether political or architectural? Certainly this is a subject that calls for an analysis beyond the usual categories of art history, architectural criticism, and political commentary.

Johnson's first major completed work, the Glass House in New Canaan, Connecticut (1949), provides an opportunity to go beyond the usual architectural analysis to a psychological one, as Adele Tutter does in *Dream House: An Intimate Portrait of the Philip Johnson Glass House* (2016), ideas on which I am tempted to expand.

As an art historian and architect, Johnson naturally was quick to provide his own art-historical explanation: just a year after the house's completion, he wrote about its precedents in *Architectural Review*, using captioned images. They included a site plan for a farm village and for Mies van der Rohe's Chicago IIT campus of 1939, as well as the "asymmetric sliding rectangles" of Dutch de Stijl, the views of the Acropolis drawn by Auguste Choisy in 1898 (and pointed out by Le Corbusier in *Vers Une Architecture*). With his design, Johnson moved from an original scheme of a brick house with semicircular arches—à la John Soane (which ended up as plastered coves inside his Brick Guest House



Philip Johnson sits in a corner of the Glass House in New Canaan, Connecticut, in 1998. The multiple reflections on the transparent glazed expanses seem to conceal as much as they reveal. The glass walls and other intriguing features of the dwelling inspired psychoanalyst Adele Tutter to go beyond the usual architectural analysis to a psychological one.

of 1952) to a pavilion inspired by Karl-Friedrich Schinkel's Casino in Glienecke Park near Potsdam of around 1830. Only after Johnson had viewed the model of Mies's own glass house for Dr. Edith Farnsworth (1951) in Plano, Illinois, did his house suddenly emerge fully fledged as glass.

Still, the house is a deliberate transformation, rather than imitation, of Mies's aesthetic. It is no longer raised on stilts, as is the Farnsworth, but seated firmly on a farmhouse brick foundation; no longer a horizontal space reaching out to infinity between two floating planes but a closed box, with a roof and corners, approaching the diagram of a solid Schinkel-esque pavilion. And no longer is it an optimistic vision of a horizontal universal space but one rooted in the landscape by the cylinder containing a fireplace and bathroom—a "post-modern" house *avant la lettre*.

There has always been a suspicion that so complex a figure as Johnson demands yet a different kind of analytical approach to this work. Tutter, a psychoanalyst, interprets the house as a form of dream. She admits the risk of seating the architecture on the couch as a substitute for its author, but for her, the house is a repository packed with architectural signs of envy, a sense of inadequacy, deferral, and the burial of memory. Starting from what Johnson called the house and its supporting pavilions—his "diary"—whose construction continued until his death in 2005, Tutter investigates the letters, recorded conversations, and a wealth of archival material, not to mention the rich art-historical and critical record. Out of this exploration, she has constructed a fascinating and often penetrating narrative that allows us to see Johnson's Glass House as a deeply layered expression of his own psyche.

The result illuminates not only the personality—prone to depression, self-doubt, and self-criticism—but Johnson's intense outward self-confidence and brilliant insight, as well as hitherto hidden or repressed sources for the design of the house. In this vein, Tutter uncovers a possible source for the cylindrical chimney: the Avon Old Farms School in Connecticut, with its round brick water tower (1918–27) designed by a cousin of Johnson's mother, Theodate Pope Riddle. Tutter senses a psychological significance to Johnson's silence about this appropriation as possibly coming from envy on his and his mother's part—and maybe at the same time from feelings of inadequacy Johnson had in following the cousin's architectural career.

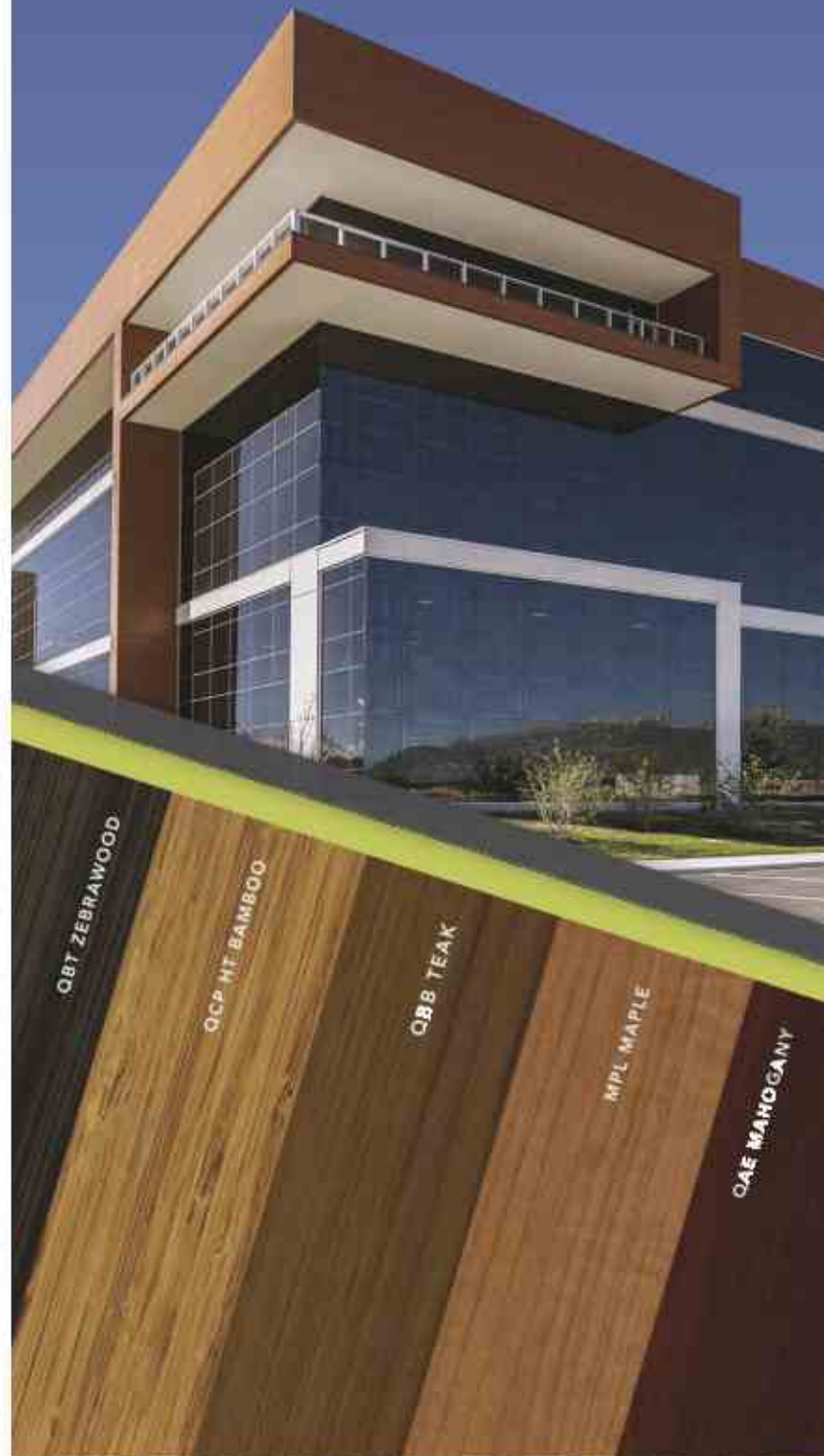
But Tutter asks whether deeper feelings are at work. She points to Johnson's installation of a painting as a clue, perhaps, of Johnson's own anxieties over his 1930s sympathies for Nazism. The painting, attributed to Poussin, the *Burial of Phocion* (1648), is displayed on an easel in the living area as if to connect the house to the picturesque landscape outside. But it depicts a 4th-century-B.C. Athenian statesman convicted of treason for his relations with a foreign dictator. She considers Johnson's passion for Poussin to stem from this choice of Phocion as the subject of the painting.

Here we might go even further than Tutter and follow Freud in his own thoughts during the First World War, specifically in his reflections on the uncanny. In a paper written in 1919, Freud linked the sensation of the uncanny (in German, *unheimlich*—literally “unhomelike”) to, among other things, a kind of fearfulness that emerges with the reappearance of something that suddenly surfaces after long repression. It can be a sharp shock of unwelcome memory.

Freud links this sensation of dread and horror to the idea of the house and its *heimlich* (homey) interior, which through unexpected changes is transformed into an *unheimlich* space. Returning to the Glass House's cylindrical fireplace and bathroom on a platform, we see, as Johnson wrote in a 1950 essay, that they did not derive from Mies but rather from a “burned-out wooden village” he had once seen, “where nothing was left but the foundations and the chimneys of brick.” He did not mention that he had encountered this scene when reporting from the Polish front during the German invasion of 1939—a moment in his former attraction to Hitler's Reich that has famously been exhumed by writers from Franz Schulze to Marc Wortman. In that context, we might see Johnson's house as a Polish farmhouse “purified” by the fire of war of everything but its architectural “essence,” enclosed in a glass box to preserve it intact on a pastoral site in Connecticut, thus apparently exorcising the horror.

The “uncanny,” as Freud emphasizes, however, can also be subtle and less striking—something, as he notes, like the fleeting reflection of oneself in a mirror, a sudden revelation of one's own unwelcome image. In the case of the house of glass, perhaps its uncanniness derives less from its mimicking of the destroyed village than from its dually reflective and transparent surfaces, whose phantasmagoric effects create a montage of interior and exterior, of objects and sky. Johnson seemed to revel in these unhomelike appearances, through which he was at once present and absent in his own dwelling. Some especially revealing photographs include Johnson half hidden by shadows as he sits or stands inside the house, emerging as if from the reflections themselves—half real, half ghost, a “presence” merged with the glass, dissolving himself as a subject within his unsettling, uncanny object. ■

Anthony Vidler's books, *The Architectural Uncanny and Warped Space*, investigate the pervasiveness of psychoanalytic and psychological thought in modern architectural culture.



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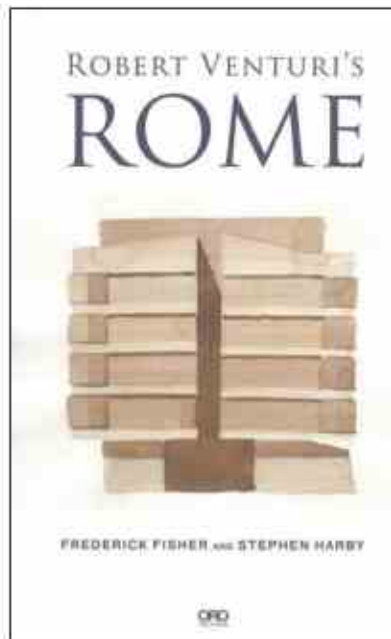
Robert Venturi's Rome, by Frederick Fisher and Stephen Harby. *Oro Editions*, 112 pages, \$24.95.

Reviewed by Martino Stierli

AFTER THE PUBLICATION of Robert Venturi's *Complexity and Contradiction in Architecture* by the Museum of Modern Art in 1966, many of Venturi's peers began to see his treatise as a liberation from the orthodoxies of high modernism. Soon the book was hailed as a source text of the Postmodern critique. The continuing significance and relevance of Venturi's "gentle manifesto" is exemplified not only by the fact that it has remained in print continuously, making it the museum's longest-run publication, but also by the various conferences, exhibitions, and festivities for the 50th anniversary of the publication two years ago.

Frederick Fisher and Stephen Harby's handsome and lavishly illustrated booklet is another celebration of *Complexity and Contradiction's* achievement. For both authors, Venturi's thinking was transformative in their architectural education and decisive for their careers as practicing architects and educators. Their book is predicated on the notion that the work was fundamentally informed by Venturi's two-year tenure as a fellow at the American Academy in Rome in the mid-1950s. Fisher and Harby take the reader on a journey of nearly 30 Roman places that demonstrate Venturi's "revolutionary" ideas. They are not the first to notice: given the attention the architect's intellectual formation has received over the last few years, it is surprising not to find any mention of existing scholarship on this topic in Fisher and Harby's volume.

Half travel guide, with useful background information on some of the buildings addressed by Venturi in 1966, and half commentary on *Complexity's* text, the book seems undecided whether it wants to be a useful cicerone for architectural explorations of the Eternal City or an investigation of Venturi's concepts. As a result, it fulfills neither function satisfactorily.



The methodological dilemma is evident in the structure of the book, which follows that of Venturi's 10 short chapters. Each explores different aspects of what might be considered complex and contradictory in architecture. Within this structure, the authors select short quotations from the original text addressing select examples of Roman architecture from antiquity to modernity, supplemented by detailed descriptions of the particular building as well as historical and other useful background information (such as opening times and accessibility). Fisher and Harby's descriptions are

accompanied by beautiful, impressionistic, and atmospheric watercolors of the spaces and facades; a separate introductory chapter discusses the advantages of the medium to reveal the effects of chiaroscuro for the various buildings under discussion.

Yet the burden of discerning spatial analysis relies almost exclusively on the text, and Fisher and Harby's sometimes lengthy descriptions are not always successful in evoking a strong mental image of a certain architectural feature. Given their exclusive focus on Roman examples, it is

not surprising that the majority are from the Baroque and Roman period (even though the cover is adorned by the facade of Luigi Moretti's stunning Casa del Girasole in Parioli of 1950, admittedly one of the buildings most influential on Venturi's career). Moreover, the authors don't reveal how and why these 30 Roman buildings were chosen while others were left out. The selection appears to be primarily based on personal preference, adding further to the somewhat esoteric character of this book. Despite these misgivings, fans of Venturi and of Rome will find many worthwhile observations in this homage. ■

Martino Stierli is the Philip Johnson Chief Curator of *Architecture and Design*, MoMA, N.Y., and the author of "In the Academy's Garden: Robert Venturi, the Grand Tour and the Revision of Modernism," AA Files 56.

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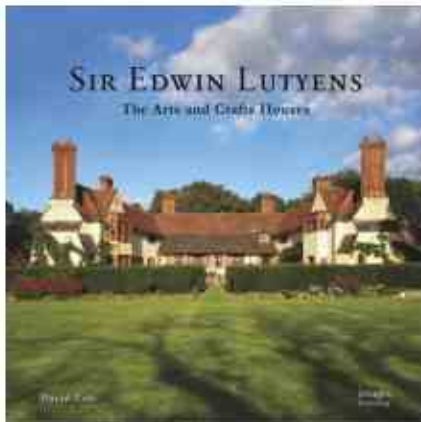
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SIR EDWIN LUTYENS: The Arts and Crafts Houses, by David Cole. Images Publishing Group, 499 pages, \$85.

Reviewed by Mark Alan Hewitt, FAIA

UNDER THE powerful influence of John Ruskin and his disciple William Morris, the Arts and Crafts movement began in England during the 1880s as a response to industrialization. Although the architect Edwin Lutyens (1869–1944) began his career in the midst of the movement, he is not often thought to be a key proponent of its embrace of rustic and vernacular sources for design—his late work in London and New Delhi makes him look like a classical architect. David Cole's new book on some of Lutyens's greatest houses makes a persuasive case to reconsider his Arts and Crafts leanings.



Cole, an Australian architect, has made it his hobby to document virtually every domestic commission attributed to Lutyens; judging by the heft of this massive tome, he has succeeded. Beautifully printed and produced, this monograph is reminiscent of the lavish art folios published during the mid-20th century by English, German, and Italian presses, sparing no expense on the production of color photographs.

And if you thought Lutyens's country houses were well represented in previous publications, you will be pleasantly surprised by Cole's own photographs of 45 works in full color; devotees of Lutyens's work will find all the views, details, and information one could want in a pictorial tribute. There are also photos of rarely seen houses, gardens, and interiors found nowhere else among the many publications on the architect's life and work. Particularly useful is a set of plans of several masterpieces, such as Orchards (Surrey, 1899), Little Thakeham (West Sussex, 1902), Grey Walls (East Lothian, Scotland, 1901), and Goddards (Surrey, 1900). Two French houses, Le Bois des Moutiers (1898) and La Maison des Communes (1909), are presented in detail.

While I have little to quibble with about the production or research, I would prefer less descriptive detail and more interpretation of the houses with relation to scholarship on the Arts and Crafts Movement itself. Lutyens learned a good deal from his more rustically inclined contemporaries, C.R. Ashbee and W.R. Lethaby among them, as he struck out in his early "Surrey vernacular" period of 1890 to 1910. He continued to refine that knowledge using Arts and Crafts motifs in houses for years to come, but in lesser-known works. It seems that while striving for a place among the great classical masters, he was loath to give up a vision of the glowing hearths, half-timbering, and dappled stone walls that epitomize the English ideal of home. The owners of these houses are glad he didn't. ■

Mark Alan Hewitt, FAIA, is an architect, historian, and preservationist who teaches at Rutgers University in New Jersey. His books include *Gustav Stickley's Craftsman Farms: The Quest for an Arts and Crafts Utopia*.

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Maison&Objet

The Paris home décor show evolves with social networking.

BY LAURA RASKIN

"MINIMALISM IS OVER," said Vincent Grégoire, a creative director at the international trend and strategy agency Nelly Rodi, during this winter's home décor show Maison&Objet, which took place January 19–23. Grégoire designed several artistic installations in Hall 7 at the semiannual Paris event, all filled with playful, theatrical elements he plucked from various exhibitors: mirrors, glass cabinets of curiosities, a lounge chair made of stuffed flamingos, and a bookstore/café with tissue paper tropical greenery.

According to Grégoire, social media are disrupting the barriers among hospitality, office, and home, as well as between avocational and professional decorators. Today, everyone is a designer and curator, showcasing "work" or their personal brand on Instagram and Pinterest, framing collections or images of a favorite chair to elicit "likes" and emojis.

Grégoire's forecast was evident across Maison, which also celebrated Copenhagen-



Visitors to January's Maison&Objet encountered color and whimsy at the Paris Nord Villepinte exhibition center (above). Vincent Grégoire, a trend forecaster for Nelly Rodi, created installations in Hall 7 with his picks from the show floor: One (left) features Studio 65's red Lips for Bocca sofa and AP Collection's Swan stuffed-animal chair. Rising Talent Award Winner Marco Lavit Nicora exhibited his modular Atem sofa (below), a show standout.



Pulpo's Heron (right) by Hermann August Weizenegger is a birdlike floor lamp available in powder-coated red, blue, or silver. Patricia Urquiola's Rotazioni wool rug for CC-Tapis (below) plays with circular tube-like motifs in two variations.



Cielo's Narciso Mini (top, center) by Andrea Parisio e Giuseppe Pezzano saves space with a ceramic lavatory on a steel frame, featuring storage below. Nudo (above), by ex.t, can be hung or wall-mounted in a bath or dressing room and comes with a selection of mirrors, trays, and leather pockets. CVL Luminaire's Cercle & Trait pendant fixture (left) balances linear and round metal tubes with a dimmable LED.

based Cecile Manz as Designer of the Year, and Rising Talent Award winners like Marco Lavit Nicora of Atelier Lavit in Paris. The best booths played with form in a lighthearted way, with attention to craft, function, and material honesty. Pulpo, a German online boutique retailer, displayed Heron by Hermann August Weizenegger, a birdlike floor lamp made of two bent hollow-steel tubes.

Italian bath companies Cielo and ex.t exhibited products that spoke to tight urban living. Cielo's Narciso Mini features a ceramic sink, in a range of earthy matte glazes, that sits on a steel frame with drawers below. Nudo, by ex.t, is a lithe modular storage system in brass or black metal, with a kit of parts including mirrors, trays, and leather pockets.

Though minimalist style was scarce, geometric shapes and patterns

were not, as seen at CVL Luminaire, a French lighting manufacturer. Its Cercle & Trait pendant by Paris-based POOL is a balletic composition that balances a straight, LED-edged metal tube in a circle.

This trend toward things circular, square, and triangular recalls the architectonic shapes and vibrant colors of Ettore Sottsass's 1980's Memphis movement. CC-Tapis presents a similarly bold aesthetic with its Signature Collection, a series of abstract, hand-knotted rugs, made in Nepal and designed by Patricia Urquiola, among others.

Throughout the halls, there was a sense that designers were paying attention to their online communities. Whether or not Maison ever invites e-commerce website Etsy to create a booth, as Grégoire suggested it should, remains to be seen, but the scent of ironic fun was in the air at this year's show. ■

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Texture All Around

Unexpected materials enhance the look and even the acoustic performance of these items.

By Kelly Beamon



Printacoustic Collection

These polyester sheers are among the latest privacy solutions from Carnegie, since they allow designers to create a soft wall that can also control noise. When draped at 100% fullness, 118"-wide Printacoustic panels boast an NRC of .55; the NRC is .35 when the sheers are hung flat. The digitally printed design comes in two styles—Printacoustic Moments and Printacoustic Horizon (shown).

Carnegiefabrics.com



Textures Collection

Studioart's Textures Collection of high-quality leather wall tiles lets designers create richly tactile feature walls that can also improve a room's sound quality. Innovative padding techniques serve a dual purpose, enhancing patterns and dampening noise. Tile measurements vary by design. Delta Tesoro oro bombato tiles (above), by designer Elaine Yan Ling Ng, are available in 6" x 10."

Studioart.it

Material Celebration

Wilsonart's new collection of 25 laminates features 11 in designs like wood grain to add an element of craft to walls. These patterns span marquetry, herringbone, and chevrons, and imitate the rich look of crossgrains to help designers avoid the waste and high cost typically associated with sawn wood. wilsonart.com/material-celebration



Rod System

Meltdown Glass Art & Design introduced this stainless-steel rod and cast-glass partition to enable designers to build privacy walls using less glass than is typical. The custom floor-to-ceiling system features the company's tempered kiln-fired glass in a variety of textures and panel sizes, and is available in heights of up to 12'. meltdownglass.com



EchoCloud

Acoustics solutions company Kirei developed its EchoCloud line of suspended panels to absorb sound and reduce reverberation in spaces with high ceilings and exposed fixtures. Made from recycled PET plastic, 3D Cloud (shown above) is one of four styles in the line. They are available in 20 colors and ½", 2½", and 5" thicknesses that vary by shape.

Kireiusa.com



2100 Panelized Linear Wood Ceiling

Manufacturer 9Wood specializes in custom suspended wood ceiling systems such as the one shown (left), which features factory-cut shapes comprising ¾" thick, walnut-veneered tapered slats with a Class A fire-rated, ultra-low emitting formaldehyde substrate.

9wood.com



Woodgrille

This system of ceiling panels by Architectural Surfaces is available in red oak, cherry, maple, and ash, in a variety of slat spacings that diffuse sound. An acoustical blanket made of recycled cotton lines the back for additional noise control.

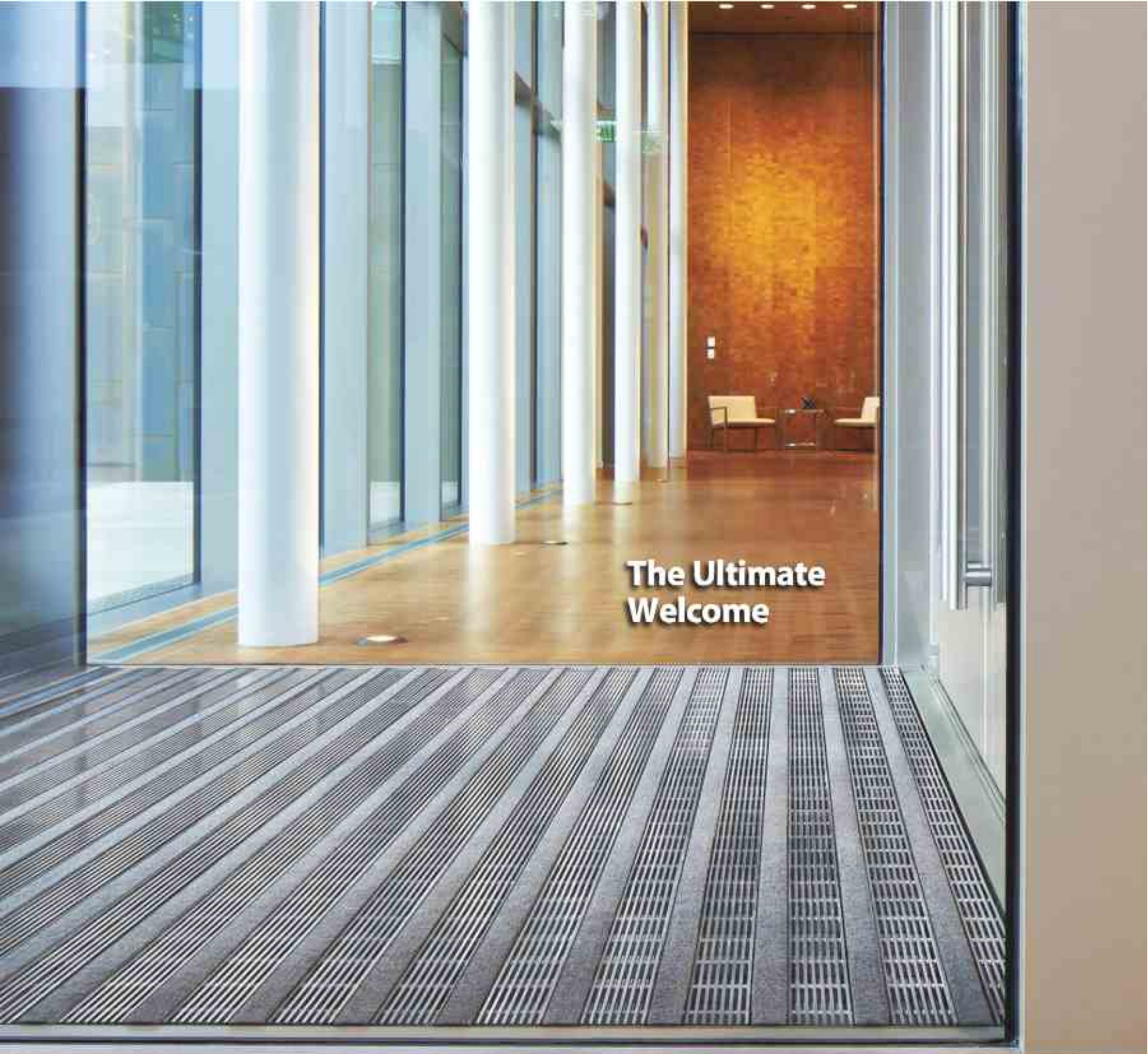
Architecturalsurfaces.net



AuralScapes Magnetic Ceiling Tiles

Using Modulararts' patented magnetic attachment method, these 24" AuralScapes Magnetic Ceiling Tiles mount on a pre-assembled grid. The lightweight composite glass-and-gypsum tiles diffuse and enhance sound. Designers can specify systems with optional pass-through voids to accommodate 6" LED fixtures, vents, and other mechanical fittings.

modulararts.com



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Look Out Below

Porcelain and stone offer easy-to-maintain floors with visual appeal.

By Kelly Beamon



Nextone

This porcelain tile from Italian manufacturer Lea Ceramiche features an antimicrobial technology that's integrated into the material. Available in four colors with a choice of three backgrounds (Mark, Line, and Dot), it can be specified in 24"x-48", 24"-square, and 12"-x-24" sizes.

ceramichelea.it



Manifesto

The look of hand-painted patterning on Ornamenta's Manifesto porcelain tile adds an element of craft to the tile's durable, stain-resistant body. It comes in 24"- and 8"-square formats and five colorways.

ornamenta.com



Corteccia

Part of Antolini's Exclusive Collection, Corteccia is a soft Brazilian quartzite. This natural stone is durable and less porous than marble, but features similarly rich veining. In addition to floors, Corteccia is also recommended for walls and kitchen surfaces.

antolini.com

Java Joint

A matte finish on these porcelain tiles from Crossville helps to enhance their stonelike appearance. Suitable for commercial and residential applications, the American-made Java Joint collection is offered in five neutral colors.

crossville.com



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Fujisan World Heritage Center | Fujinomiya, Japan | Shigeru Ban Architects

Turned on Its Head

An ingenious new museum evokes one of the world's best-known mountain peaks.

BY NAOMI POLLOCK, FAIA

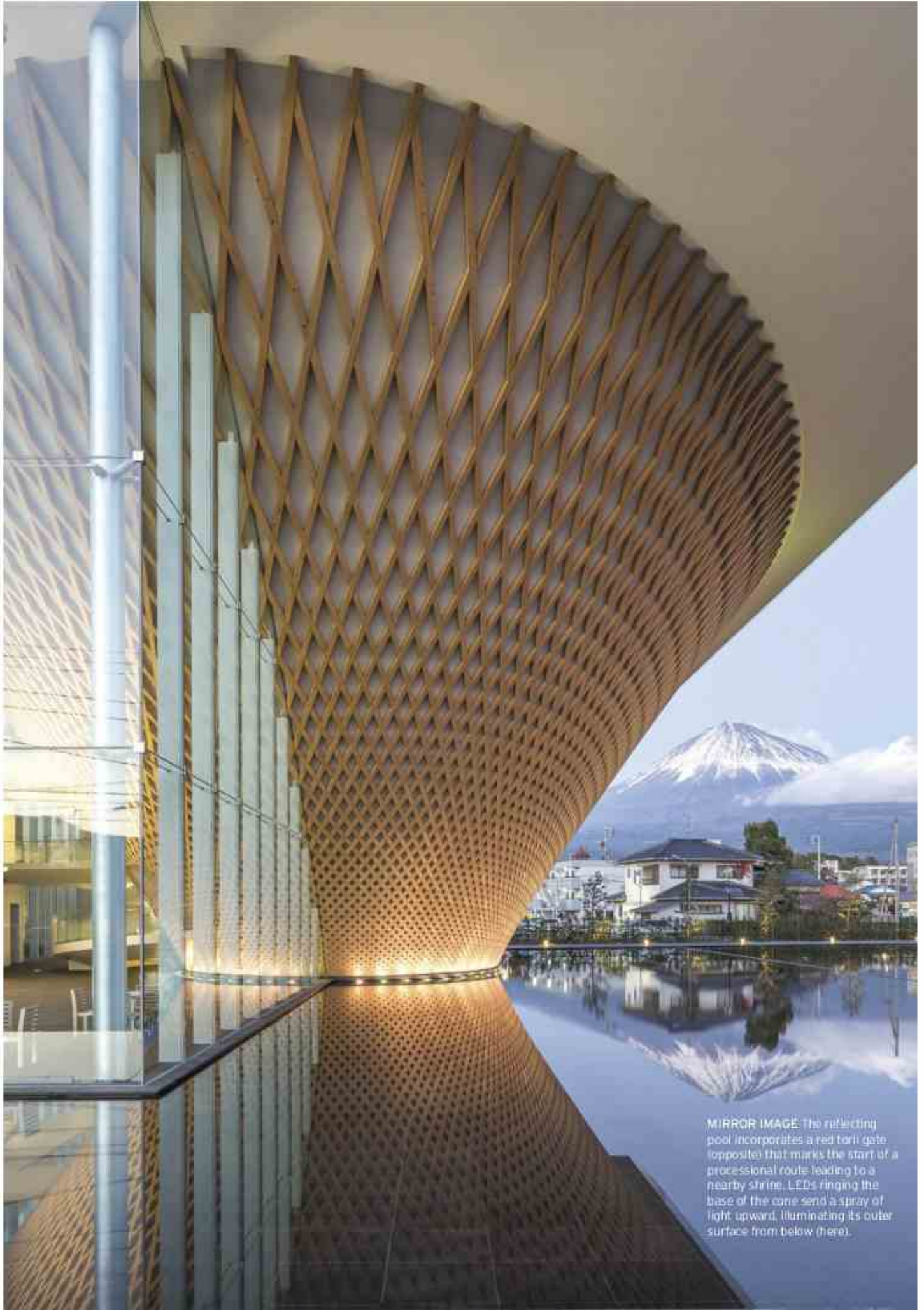
PHOTOGRAPHY BY HIROYUKI HIRAI

Majestic and mythical, Japan's snow-capped Mount Fuji has been an inspiration for artists, a destination for religious pilgrims, an ambition for hikers, and, since 2013, a UNESCO World Heritage Site. Commemorating this honor, the Fujisan World Heritage Center (FWHC) is a museum and resource center that celebrates the mountain itself. Designed by the Tokyo architect and Pritzker Prize winner Shigeru Ban, the building's defining features are a monolithic wood lattice cone and its reflection in an expansive pool in front. While the cone points downward, its mirror image resembles the famous flat-topped peak.

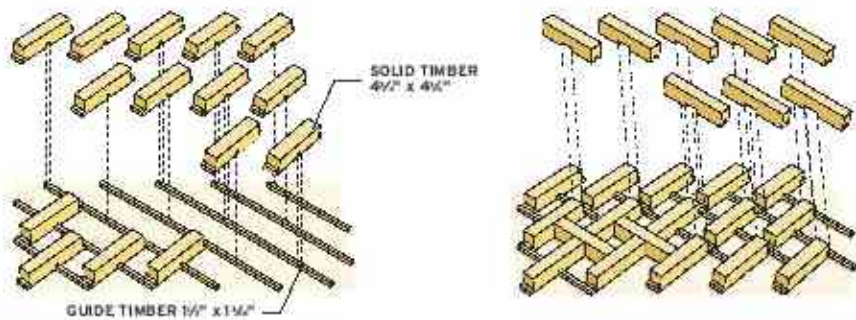
This clever concept surfaced during the center's competition, hosted by Shizuoka Prefecture for a site in Fujinomiya, a town of 131,000 situ-

ated 83 miles southwest of Tokyo. Though Mount Fuji is 11 miles away, the property has an unimpeded view and is adjacent to Fujisan Sengen Shrine, which administers Shinto activities held on the mountainside. "The client wanted to symbolize Mount Fuji, but I had never designed a symbolic building before," says Ban. In his quest for an appropriate form, the architect recalled the rugby camp of his youth located by a lake near the mountain. Ban's memory of the peak and its shimmering reflection were the genesis for the scheme.

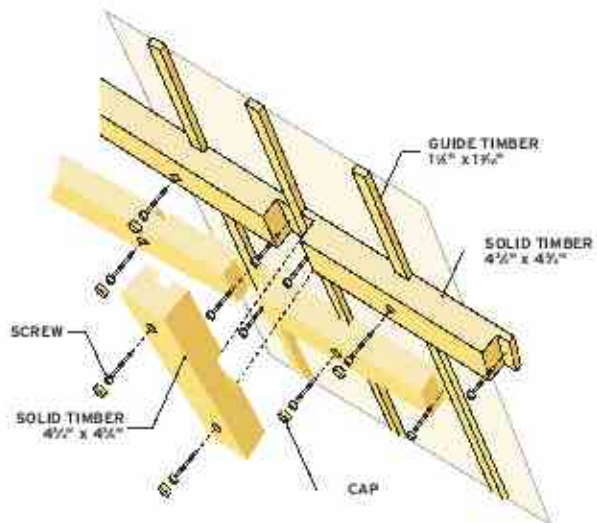
Like Mount Fuji itself, the FWHC's nearly symmetrical glazed facade rises up dramatically from level ground. The glass wall fronts a five-story atrium uniting the cone with two three-story rectangular volumes in back. To reach the main entrance of the \$33 million center, visitors walk around the pool, viewing the cone and its double, before



MIRROR IMAGE. The reflecting pool incorporates a red torii gate (opposite) that marks the start of a processional route leading to a nearby shrine. LEDs ringing the base of the cone send a spray of light upward, illuminating its outer surface from below (here).

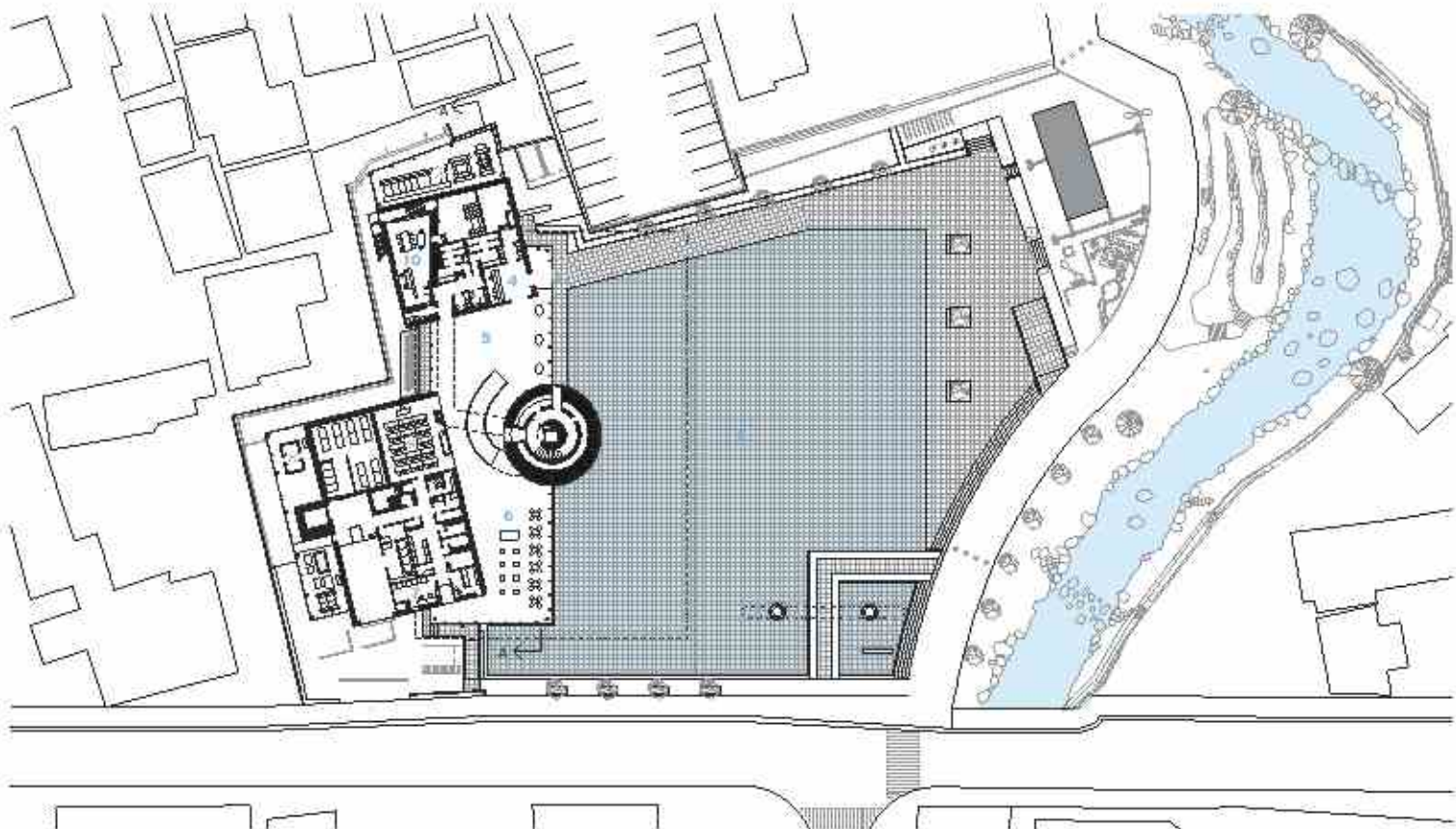


LATTICE JOINERY DETAIL

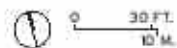


SECTION A - A

- | | |
|------------------------|---------------------|
| 1 ENTRANCE | 7 SECURITY |
| 2 REFLECTING POOL | 8 MECHANICAL ROOM |
| 3 TORII GATE | 9 LECTURE HALL |
| 4 INFORMATION | 10 LIBRARY |
| 5 EXHIBITION | 11 THEATER |
| 6 CAFE AND MUSEUM SHOP | 12 OBSERVATION HALL |
| | 13 TERRACE |



GROUND-FLOOR PLAN



WOVEN WALL: Bridges connect the stair and elevator within the cone's concrete core to the exhibit spaces and other functions housed in the building's rectangular volumes (right). Video displays line the curved walls of the main exhibition hall located inside the cone (below).

going inside. The first floor contains the information desk and a combined café and museum shop, plus the library, lecture hall, and administrative functions. Upstairs, the rectangular boxes hold exhibit spaces and a movie theater. The main exhibition hall occupies the entire cone, a cavernous, semidark space. While the cone's concrete core holds stairs and an elevator, a ramp spirals around its interior perimeter, passing the displays and culminating in the rooftop observation hall that frames a postcard-perfect Mount Fuji view.

"Normally, buildings have no relationship to their exhibits, but I am very proud of how they harmonize here," says Ban. Conceived by the architect during the competition phase, the exhibit program—recreating the climb up Mount Fuji—was inspired by the cone's basic geometry. In turn, the cone's shape was fine-tuned by the installation requirements and the 61-foot building height limit. A 39-foot-diameter circle at grade, the cone morphs into a 131-by-66-foot ellipse at the top, increasing the display space as it widens. Shown on the cone's inner wall, the exhibit features videos depicting six different scenes from the actual ascent. "The technical challenges of projecting onto a curved surface approached by a ramp were really interesting," remarks Edwin Schlossberg, president of ESI Design in New York,





ROOM WITH A VIEW The culmination of the main exhibit sequence, the observation hall crowns the building. Sliding glass doors modeled after shoji screens open the room completely to a terrace and a spectacular view of Mount Fuji. In contrast to the cone's dark interior, the hall is painted pure white.

who was one of the project's three exhibition consultants. Varying in slope, the 633-foot-long ramp evokes the unevenness of the trekker's path but is not uniformly wheelchair-friendly, since accessibility was, surprisingly, not required by the prefecture.

Concealing the cone interior, the lattice consists of 8,000 bars of local cypress linked with lapped joints and rounded on top, creating the illusion that they are woven. Small metal spacers affix the lattice to fiber-reinforced concrete wall panels behind, creating a slight shadow. "[The lattice] would look too flat if we attached it directly to the white wall," explains Ban. Coated with textured white paint to hide their joints, the wall panels are attached to the underlying structural system. Its primary supports are 20 inclined H-shaped steel sections arranged radially around the cone's circular base, complemented by the reinforced concrete core. A more conventional steel frame supports the rest of the building.

Though half of the cone stands inside the atrium, the other abuts the pool, which is just over 1 inch deep. "A thin layer of water reflects more sharply than a deep one," explains a project architect, Wataru Sakaki. Covering more ground than the footprint of the 37,000-square-foot building, the water also provides all of its interior climate control

through a heat-exchange system that circulates spring water supplied indirectly by Mount Fuji, fortifying the connection to the mountain.

While the FWHC is not a huge building, its reflection in the expansive, mirrorlike pool gives it a monumentality worthy of a World Heritage Site. Indeed, it is hard not to be wowed by Ban's achievement here. With one inspired move—turning the "mountain" upside down—he echoes its magnificence. ■

credits

ARCHITECT: Shigeru Ban Architects – Shigeru Ban, Nobutaka Hiraga, Keita Sugai, Yasuyori Yada, Wataru Sakaki, Makoto Tadokoro, project team

CONSULTANTS: Arup (structure, m/e/p); Lighting Planners Associates (lighting); Studio Onsite (landscape); Akeno Facility Resilience (fire); Nagata Acoustics (acoustic); Akane Architectural Consultants (quantity surveyor); Nippon Design Center (graphics)

GENERAL CONTRACTOR: Sato Kogyo/Wakasugi-Gumi Joint Venture

CLIENT: Shizuoka Prefecture

SIZE: 37,000 square feet

COST: \$33 million

COMPLETION DATE: November 2017

SOURCES

ROOF & WATERPROOFING: Tajima Roofing

ALUMINUM WINDOWS: Fuji Sash

ACOUSTIC WALL PANELS: Yoshino Gypsum

GRANITE FLOOR: Hanakuni Giken

RUBBER FLOOR: ABC Trading

ELEVATOR: Fujitec

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On the Waterfront

Three projects—in Seattle, San Francisco, and New York—illustrate how architects are designing new structures or adapting old ones to reinvigorate historic urban coastlines.



PHOTOGRAPHY © LARA SWIMMER

MARKETFRONT, SEATTLE, BY THE MILLER HULL PARTNERSHIP



Seattle's New Outlook

Miller Hull's expansion of the Pike Place Market is a harbinger of big things to come for the city's waterfront.

BY KATHARINE LOGAN



PUBLIC PROPERTY
The glass-fronted top level of the mixed-use project houses new market stalls. Extensive gathering spaces offer stunning views and underscore the complex's civic ambitions.

ON A CLEAR DAY in Seattle—and, yes, there is such a thing—the view from a new 14,000-square-foot plaza to the west of the iconic Pike Place Market is so wide, you have to turn your head to take it all in: the derricks, shipping piers, warehouses, and giant Ferris wheel, bustling Elliott Bay, the islands of Puget Sound, and, in the north-west distance, the white-capped peaks of the Olympic Mountains. Perched on a hill rising steeply from the water, the plaza forms part of the Miller Hull Partnership's mixed-use expansion of the 110-year-old market, a beloved institution that anchors a vibrant historic district. Completed last spring, MarketFront (as the project is called)—developed by a nonprofit, with the city providing the land and a grant covering about half the funding—forms a crucial node in reconnecting the urban core to its revitalizing waterfront.

The renaissance is being driven by James Corner Field Operations and the master plan the firm has developed for the city's central waterfront, a 1¼-mile stretch from Pioneer Square to Belltown. The multiyear plan, now under way, calls for the removal of an elevated six-lane highway, the replacement of the seawall, and the creation or improvement of public spaces, multimodal streets, and new connections between central city neighborhoods and Elliott Bay. MarketFront is among the most significant of these new links. The project's terraced civic spaces are united with a broad switchback promenade that will ultimately ramp down to the waterfront, stitching together part of the highway's decades-long rip in Seattle's urban fabric.

The challenge of the project—"the most daunting assignment I've had in 40-plus years," says David Miller, founding partner at Seattle-based Miller Hull—was to find a formal and material language for the landmark site that would build on the market district's historic character while creating a contemporary solution. Like many waterfront developments, the design for the 210,000-square-foot parcel (a former parking lot where a municipal market building burned down decades ago) evolved in a context of complex demands and intense public scrutiny.

MarketFront's form and expression respond to the steepness of the site, key views and connections, local design guidelines, material cues from the streetscape, technical obstacles (including an active train tunnel running diagonally beneath the site), and



- | | |
|----------------------------|----------------------|
| 1 DAY STALL PAVILION | 5 LOW-INCOME HOUSING |
| 2 RETAIL | 6 PIKE PLACE MARKET |
| 3 EXISTING DESIMONE BRIDGE | 7 OVERLOOK WALK |
| 4 PUBLIC TERRACE | |



RENAISSANCE PLAN MarketFront extends the historic Pike Place Market (at left in photo, above) and, as part of a larger master plan, will help reconnect the city to the waterfront. A passage cutting through the building (left) helps with this aim.

extensive input from some 70—often heated—public meetings. The design addresses these diverse and complicated influences with an aesthetic that is immediately recognizable as Miller Hull's: a rational, structurally expressive building, executed in simple materials, that sets up a mutually reinforcing relationship with its Pacific Northwest setting; the landscape—city, mountains, sea—is more comprehensible because the building is here, and the building only really makes sense in the context of the landscape.

In addition to its public spaces—the viewing plaza, wide seating steps, and multi-path promenade—MarketFront provides two levels of retail space and 40 units of low-income-seniors' housing atop four levels of buried parking. For the commercial and civic components, a concrete-frame structure and board-formed concrete base elements are complemented with a heavy timber structure of glulams made from sustainably harvested lumber; the timbers are joined with steel connectors, and spanned with structural wooden decking. On the water-facing facades, expanses of aluminum-framed glazing are backed with vertical timber stiffeners to resist heavy wind loads.

At the upper level, a pavilion consisting of a lightweight steel frame supporting a wood-soffit canopy is fronted with glazed garage doors that can be raised or lowered to shelter open-air vendor stalls while maintaining views from the original market behind. The pavilion provides a well-proportioned street edge for Western Avenue to the east, and helps to animate the viewing plaza on MarketFront's western, waterfront side.

To the south, the tiered massing of senior housing forms a separate domain, while corrugated-steel cladding, aluminum-mullioned glazing, and tan-colored spandrels that pick up on the hues of the old market provide visual continuity with the rest of the complex.



If there's a missed opportunity in the project, it's the pedestrian bridge that spans Western Avenue between the original market and the new extension. A heritage designation protects the bridge's mid-1980s enclosure designed by James Cutler, so instead of integrating it into MarketFront and highlighting its role as the first link in a magnificent new promenade, Miller Hull was able to do little more than add some doors in the facade facing MarketFront.

Even on a winter weekday morning, when no vendors are using the upper-level pavilion, a few visitors sit along its stepped edge or lean against the galvanized-steel guardrail of the plaza, enjoying the view. Boats beetle across the water. Behind, the city thrums. There's a liveliness to the architecture itself, with its bold structure and tactile materials, and the planks of the platform's wood decking give the expanse a comfortable scale. Suspended within the guardrail's chain link panels, hundreds of small metal disks inscribed with donors' names are flashing and winking in the sun, silently cheering, placeholders for the crowds that will enjoy Seattle's newest civic space for generations to come. ■

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



LAYERS OF MEANING The project's multiple levels house viewing platforms, market stalls, and retail (top and above). New low-income senior housing (in background of photo above) provides another connection to the community.

Tactical Maneuver

An art school carves a new space for itself from the shell of an army warehouse.

BY JOHN KING

PHOTOGRAPHY BY BRUCE DAMONTE

SAN FRANCISCO'S Embarcadero, with its century-old finger piers that jut into the bay, is so integral to the city's present-day identity that few visitors find their way to another historic stretch of waterfront nearby: a former military port now known as the Fort Mason Center for Arts & Culture that couples stunning views with a sense of seclusion.

The military installation was decommissioned in 1972, and the 13-acre enclave within the Golden Gate National Recreation Area is now managed by a nonprofit that has filled the aged buildings with eclectic tenants, ranging from the venerable Greens vegetarian restaurant to the city public library's bookstore. The latest arrival is the San Francisco Art Institute, housed in a newly restored pier structure from 1912 that works surprisingly well as an enclosed college campus.

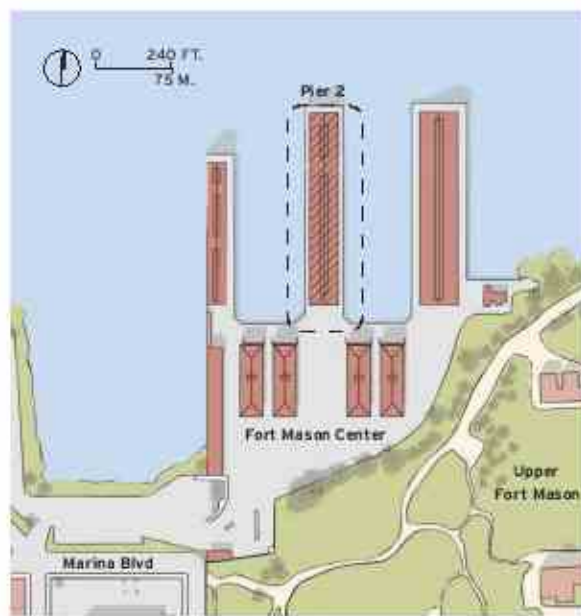
The two-stage, \$50 million restoration of what's known as Pier 2 was completed last fall and fills the onetime army warehouse with such



PHOTOGRAPHY: © NATIONAL PARK SERVICE (TOP, LEFT)



OPERATION RESCUE The old pier structure (opposite, top) was restored and transformed into an expansion for the San Francisco Art Institute.



MAP OF NORTHEAST SAN FRANCISCO (ABOVE, LEFT); DETAIL OF FORT MASON WITH PIER 2 (ABOVE, RIGHT)

elements as 160 studios for graduate students, two small galleries, and a glassed-in student workshop near the entrance. Though the deference to the past is meticulous, the additions bring a contemporary energy to the gaunt shell of concrete and its wood roof held in place by enormous steel trusses.

Leading the design effort was Leddy Maytum Stacy Architects. It was a natural assignment for the firm, which has restored several buildings in San Francisco's Presidio and was the architect for the structural remediation of Pier 2, completed in 2014. That effort went beyond seismic upgrades to include a 255-kilowatt photovoltaic (PV) solar panel array on the roof and radiant heating in the concrete mat that preserved the military-era train tracks inside the shed, while providing insulation from the bay.

While that work was under way, the Center was approached by leaders of the Art Institute, which was founded in 1871 and

numbers Ansel Adams, Clyfford Still, and Annie Liebovitz among its past students and faculty. The institute needed space for its graduate program; Fort Mason is near Russian Hill, where the Institute is housed in a 1926 Spanish Revival landmark, with a brooding Brutalist wing by Paffard Keatinge-Clay that opened in 1969.

"We thought it was a great fit from the beginning—the volume is so amazing," says partner-in-charge Marsha Maytum of the pier building. "But there was a lot of discussion about how to insert individual art studios without compromising the drama of the central space."

The firm's solution was to create a long nave beneath the 52-foot-tall ceiling, with clerestory windows at its peak. This move preserved natural light and a sense of the rhythmic procession of the trusses, while the architects added mezzanines that flank the long space and hold cul de sac-like clusters of individual studios, enclosed by 8-foot-high walls—another effort to keep the internal additions distinct from the original frame.

The mezzanines meet at a landing reached from below by a broad stair, and it's a spot where the project's success at creating intimacy within a statuesque void is particularly clear. The grand stair includes the now-obligatory bleacher-style seating—but Maytum turned the space where the staircase touches down into a nook, with white-oak benches tucked beneath the structural frame.

Another enlivening element is the bridge across the central nave. Not only did Maytum keep it slender and light, a catwalk with open aluminum gratings, but the span is diagonal—a stroke that makes the straightforward volume less static, more dynamic.

These alterations had to pass muster with California's State Historic Preservation Office and the National Park Service, with an extra layer of review since the client wanted to use federal historic-preservation tax credits.

Aesthetically, the pairing of old and new is a success. More important, it's a deft fit for an institution that, in turn, benefits Fort Mason as a whole.

"There's an energy that only art students generate," says Rich Hillis, executive director of the Fort Mason Center. "Everyone benefits from having that population here. You can feel it." ■

John King is the urban-design critic for the San Francisco Chronicle.



CREATIVE SPACES Graduate students' studios, enclosed by 8-foot-tall walls (above), line the length of the building on the ground floor and on new mezzanines that flank the structure (opposite). The architects preserved the 52-foot-tall ceiling and clerestory windows at the roof's peak (top).

A Sea Change

SHoP Architects' new Pier 17 at New York's South Street Seaport was designed to appeal to tourists and the area's growing residential population.

BY PILAR VILADAS





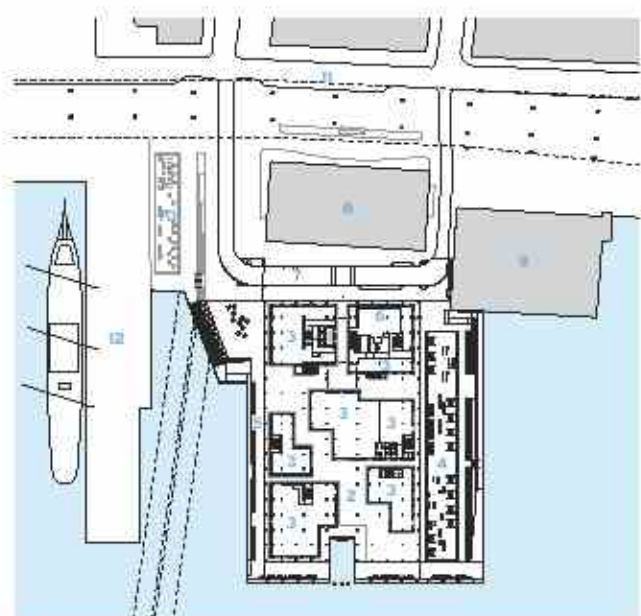
FOR DECADES, New York's South Street Seaport has been attempting a comeback. The historic neighborhood, which (from 1822 to 2005) was home to the Fulton Fish Market, and which boasts sweeping views of the Brooklyn Bridge and East River, has been the focus of numerous development schemes. The one that was built in 1985, Rouse Company's Pier 17 Pavilion, was a "festival marketplace" designed by Benjamin Thompson & Associates, the architects of Rouse's successful 1976 Faneuil Hall Marketplace in Boston. When it opened, to great fanfare, Pier 17 promised a retail and dining magnet that would attract locals as well as tourists—which it did for about five years, before it gradually devolved into an unremarkable indoor mall. Until its 2014 closing and subsequent demolition, the Rouse project had come to symbolize the chronic difficulty of making the neighborhood attractive both to visitors and the increasing numbers of those who have made Lower Manhattan their home.

Now a 21st-century rethink of Pier 17 is nearing completion for a summer opening, under the ownership of the Howard Hughes Corporation as part of its \$785 million Seaport District redevelopment, which will ultimately include seven buildings on several city blocks housing hospitality, retail, entertainment, and cultural venues. The new Pier 17 was designed by SHoP Architects, the New York firm known for the Barclays Center arena in Brooklyn and the supertall residential tower, 111 West 57th Street, under construction in Manhattan. The 212,000-square-foot building will contain shops (including a branch of the Milanese fashion mecca 10 Corso Como), restaurants (by culinary stars like Jean-Georges Vongerichten and David Chang's Momofuku Group), live broadcast studios for ESPN, and a



PHOTOGRAPHY: © TY COLE (OPPOSITE); PAWEŁ GAUL/GETTY IMAGES (RIGHT)

CAPITAL IMPROVEMENT SHoP Architects' Pier 17 building (east facade, left) has a cluster of two-story structures within the concourse on its open ground floor with two glass-clad stories above. The site's previous occupant (above) was designed by Benjamin Thompson & Associates and completed in 1985.



PIER 17 SITE PLAN



- 1 ELEVATOR/
ENTRANCE LOBBY
- 2 EXTERIOR
CONCOURSE
- 3 RETAIL/DINING
- 4 NORTH DECK
- 5 SOUTH DECK
- 6 LOADING DOCK
- 7 ACCESS DRIVE
- 8 TIN BUILDING
- 9 NEW MARKET
BUILDING
- 10 FULTON PLAZA
- 11 SOUTH STREET
- 12 PIER 15

1½-acre roof for dining and public events. (The project's landscape architect is James Corner Field Operations.)

SHoP's design represents a more expansive and inclusive approach than that of its predecessor to the challenge of integrating into the historic area and urban fabric. Gregg Pasquarelli, one of the firm's founders, explains that the Rouse building's design was intended to cut tourists off from the neighborhood surrounding the Seaport, including the fish market, because it was considered dangerous. "Here you were, surrounded by amazing views on three sides, and you had a three-story shopping mall on the waterfront," he says. SHoP's strategy included restoring those views and facilitating pedestrian circulation, creating a much more open new building and restoring the street grid around Pier 17, to reconnect the site to its environs. "If it doesn't have streets," says Pasquarelli, "it doesn't feel like New York."

LOCAL APPEAL: A closeup of the building illustrates the use of corrugated zinc and jatoba, a Brazilian cherrywood, on the lower floors (right). The north facade (opposite) has large, slide-up garage doors and generous public space, including a northward extension of SHoP's East River Waterfront Esplanade.

Pier 17's design is a sophisticated take on the industrial buildings that once filled the area. The top two floors of the four-story structure are clad in a channel-glass curtain wall illuminated with a programmable LED system; the color of the glass is intended to evoke the East River's gray-green. These upper floors serve as a "roof" for the bottom floors, which contain a village-like cluster of six distinct, two-story structures, variously clad in corrugated zinc, diamond-patterned zinc panels, and jatoba, a Brazilian cherrywood—traditional materials for old buildings here that are "used in a modern way," Pasquarelli says. On the building's long (north and south) sides, some bays are open, while others can be closed by 32-by-20-foot slide-up glass doors, in a nod, the architects say, to "classic New York City maritime structures." What they describe as a "village concourse" offers paths and views through the ground floor to the outdoors; an "oculus" skylight tops the atrium above the escalators. Outdoor "porches," as the architects call them, provide numerous places to gather and admire the views of the Brooklyn Bridge and water. These are part of SHoP's extension of the East River Waterfront Esplanade—an ongoing project that runs from the Governors Island ferry terminal to the south, past the firm's Pier 15 project (2011) adjacent to Pier 17, and which will continue to SHoP's soon-to-be-completed Pier 35, about a mile to the north.

SHoP, which has been working on the Pier 17 project (for two successive owners) for well over a decade, expects to complete its next phase for the greater Seaport District by 2020. That will include the restoration and renovation of the 1907 Tin Building just west of Pier 17, which will be home to a 50,000-square-foot Jean-Georges seafood market on its ground floor. Another remnant of the old fish market, the 1939 New Market Building to the north of Pier 17, will be demolished and replaced in the project's third phase. Given Pier 17's outward-looking design, its upscale tenants, and its emphasis on being a good neighbor, it looks likely to be a draw for even jaded Manhattanites—if they can make their way through the throngs of tourists who are sure to show up. ■

Pilar Viladas is a New York-based design and architecture writer.





Photos Courtesy: Case Ups



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RENOVATION, RESTORATION, ADAPTATION

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- 122 Five Manhattan West, New York 

MAGAZZINO ITALIAN ART, COLD SPRING,
NEW YORK, BY MIGUEL OLISMONDO

National Gallery of Ireland | Dublin | Heneghan Peng Architects

Change of Heart

A soaring central atrium is the defining feature of an extensive museum renovation.

BY TOM HENNIGAN

PHOTOGRAPHY BY MARIE-LOUISE HALPENNY

Even regular visitors to Ireland's National Gallery would admit the much-loved Dublin institution—on the corner of an elegant Georgian square and home to the country's preeminent collection of Irish and European art—was a challenging place to navigate. Negotiating the ad hoc assemblage of four distinct wings, constructed between the 19th and 21st centuries, and wending through the building's windowless galleries often left people feeling disoriented.

Tackling this circulation problem was one of the main challenges facing local practice Heneghan Peng, the husband-and-wife team behind the Grand Egyptian Museum and the Palestinian Museum in Ramallah (RECORD, March 2017, page 66). But it also became the genesis for an inventive solution that drove a six-year refurbishment and has redefined the visitor experience. Central to the transformation was turning a gloomy, unused slot-like space between the museum's two oldest wings, the Dargan and the Milltown, into a soaring new, light-filled courtyard where visitors now enter, pause, and orient themselves as they travel through the galleries.

The architects took a delicate approach to the space, leaving in place the original white-glazed bricks cladding the 1903 south-facing Milltown wing to reflect the sunlight that passes through the new glass ceiling, bouncing it into the adjacent 1864 Dargan Wing. This minimalist strategy makes the courtyard a place of respite that does not compete with the Victorian and Edwardian splendor of the two wings that enclose it. The utilitarian bricks are harmoniously complemented by new white terrazzo flooring and benches. Clearer orientation for visitors was in part achieved by reopening two rows of large windows on either side of the courtyard that had been bricked up decades ago to provide more wall space for art. While reestablishing a visual connection between the wings, this move also floods the lower galleries, once again, with daylight. To deliver the universal access now required, the team added an elevator at either end of the new courtyard. The poured-in-place concrete shafts subtly contrast with the Dargan wing's gray, rusticated stone masonry. And the larger of these functional—though sculptural—elements also sits in dialogue with the space's sole artwork, a sinuous, ribbonlike contemporary



BACK TO THE FUTURE A new Wicklow granite ramp leads up to the main entrance of the historic museum; the team buried a mechanical space beneath the front lawn (above). Light bounces off original white-glazed bricks (opposite), illuminating the new minimalist courtyard around which visitors to the Dargan and Milltown wings now orient themselves.

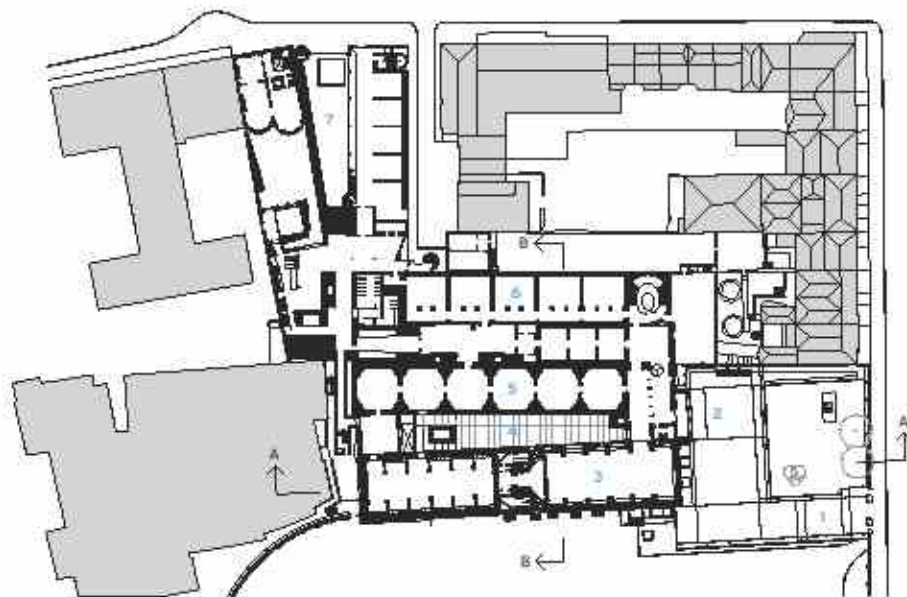


SHINE ON

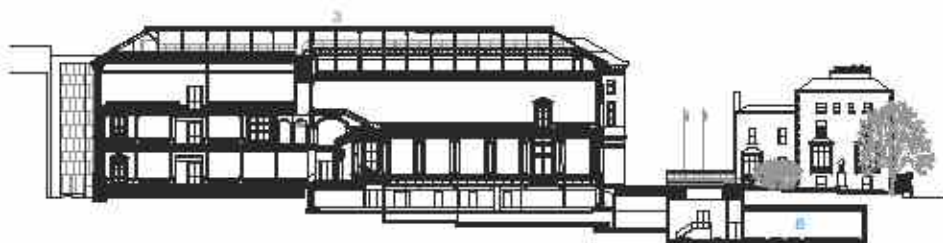
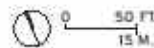
The gallery is part of Dublin's main governmental and museum complex (at right in photo, right). Bricked-over windows have been reopened (opposite), bringing daylight back into the Dargan wing's Shaw Room after an absence of several decades.



- 1 FORECOURT
- 2 MERRION ENTRANCE
- 3 DARGAN WING
- 4 NEW COURTYARD
- 5 MILLTOWN WING
- 6 BEIT WING
- 7 MILLENNIUM WING
- 8 MECHANICAL SERVICES



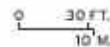
GROUND-FLOOR PLAN

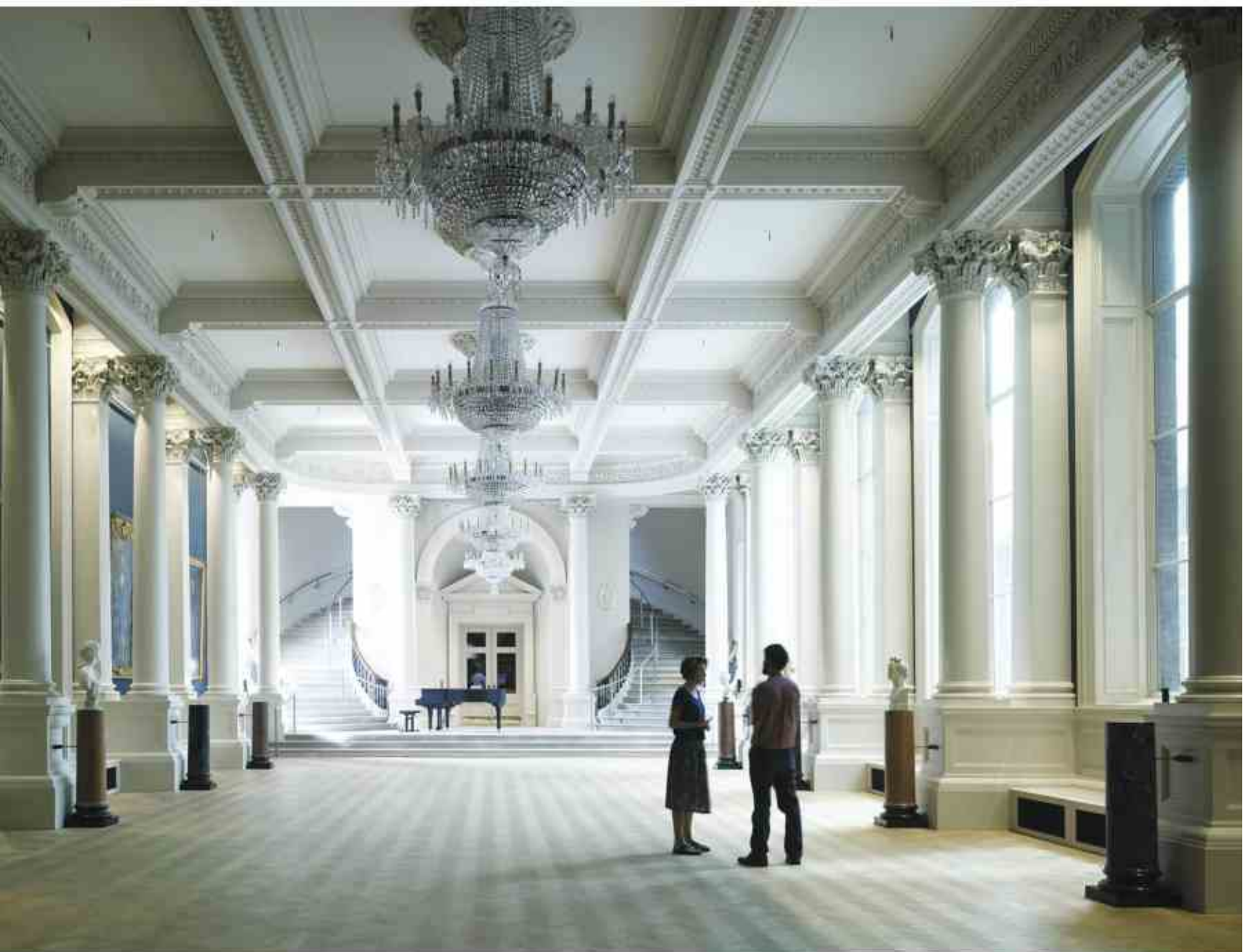


SECTION A - A



SECTION B - B





sculpture in olive ashwood by Irish artist Joseph Walsh.

The courtyard is unquestionably the most striking component of Heneghan Peng's intervention, but the architects' numerous other efforts are, while far more subtle, just as transformational. Despite the 2,600 cubic yards of concrete that has been poured to replace the crumbling floors, the new roofing, updated mechanical systems, and fresh color schemes chosen by curators to rejuvenate the galleries, many patrons are probably unaware of the extensive construction beyond now being able to appreciate the museum's famous Vermeer, *Woman Writing a Letter with her Maid*, or Caravaggio's *The Taking of Christ* in far superior lighting conditions. Achieving this was a challenge. "It is much more difficult to work with the restrictions of the existing buildings than to design a new building, where everything is under your control," says project architect Katarzyna Turza-Rachwal. "But it is also much more exciting. There are discoveries made on-site that you could never have anticipated."

The architects turned to the museum's archive to help them identify and strip away some of the interventions of previous decades, to bring the building back in line with the original design intent. Preserving historic elements when possible was paramount. For example, the Milltown wing's iconic walnut architraves from the Siena workshop of Carlo Cambi have been carefully restored, but in other areas new solutions faithful to the original feel of the building were implemented. For the Dargan's upper-gallery skylights, the team used cathedral glazing that approximates the original, highly transparent cast glass rather than employing the opaque glass common in contemporary galleries. (The units are double glazed, with micro aluminum louvers sandwiched between that deflect damaging light.) For the Milltown's ceiling-light fixtures, the team specified textured glass to maintain light uniformity with the Dargan. Combined with new LED lamping, the museum has become an uplifting, luminous destination.



SOFT TOUCH

The architect's hand in the historic galleries is almost invisible, bringing the rooms up to 21st-century mechanical and lighting standards while maintaining their original spirit.

Of course, another major challenge was to discreetly install the updated fire, temperature, and humidity controls expected of a 21st-century gallery. The team buried a new mechanical space under the garden in front of the original entrance on historic Merrion Square. Ducts run beneath the building, feeding each floor through risers hidden behind the stainless-steel mesh that forms the back wall of the new courtyard. The front lawn has been replanted and is now bordered by a gently sloping ramp, paved with Wicklow granite, sourced from a quarry just south of the city, to provide universal access from the front gate to the entrance portico.

A second phase of the architects' museum renaissance

will include renovating the 1968 Beit Wing. The plan will also create a full-height, indoor public passageway to link the Merrion Square entrance with the rear entrance on Clare Street, which was part of the 2002 Millennium Wing addition. The light touch and innovative use of space the architects have employed for the project's first phase have not only revitalized the most venerable wings to make an institution for the 21st century, but the team's masterful touch has increased enthusiasm for what lies ahead as Heneghan Peng's vision is completed. ■

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



credits

ARCHITECT: Heneghan Peng Architects – Róisín Heneghan, Shih-Fu Peng, directors; Katarzyna Turza-Rachwał, associate director and project architect

CONSERVATION ARCHITECT: Blackwood Associate Architects

CONSULTANTS: BDP (building services); PUNCH Consulting Engineers (structural/civil); Davis Langdon/AECOM (quantity surveyor); FLN Consulting Engineers (fire); T/E/S/S Atelier d'Ingénierie (façades); Bartenbach (concept lighting)

GENERAL CONTRACTOR: John Paul Construction

CLIENT: Irish Office of Public Works

SIZE: 80,700 square feet (new additions and renovated buildings)

CONSTRUCTION COST: \$37.4 million

COMPLETION DATE: June 2017

SOURCES

RAINSCREEN: VMZINC

GREEN ROOF SYSTEM: Alumas: Exterior Building Products

GLASS: Pilkington

DAYLIGHT CONTROL SYSTEM: Siteco

SKYLIGHTS: Octatube

ELEVATORS: KONE

McClintock Building | San Francisco | Pfau Long Architecture

Factory Finish

A former industrial facility maintains its 20th-century roots as it transforms into an open workplace filled with daylight and fresh air.

BY LYDIA LEE

PHOTOGRAPHY BY DAVID WAKELY



SHADES OF GRAY The Art Deco facade of the 1939 building was repainted to highlight the details (above). Around the corner, a new, second entrance (opposite) accommodates multiple tenants.



In San Francisco, the comparatively chilly maritime climate often calls for wearing an extra layer, even in the summer. This goes for buildings too. For the recent renovation of a 78-year-old hybrid commercial and manufacturing facility in the city's Design District, Pfau Long Architecture inserted an operable glass roof above a new warehouse atrium that can be that extra layer when the weather is cool or rainy but be opened on warm, sunny days. This light-filled, permeable space is a transformation of what had been a relatively utilitarian structure, and still honors its industrial nature.

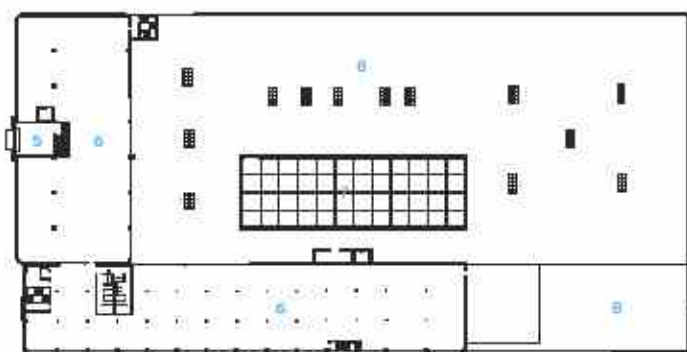
The 100,850-square-foot concrete structure was built in 1939 for a chemical company. It comprised a two-story Art Deco office building facing the main thoroughfare, with a connecting one-story warehouse stretched out behind it. Both sections feature wood-framed roofs. The 1950's addition of a narrow two-story wing along the length of its east side filled out an area once occupied by a rail spur line, so that the building occupied an entire city block.

For the last four decades, the building had been the headquarters and production center for the prom-gown designer Jessica McClintock. In 2014, a team of investors that included developer SKS Partners purchased the property to upgrade it for new business tenants, but not for the usual tech startups. The zoning in this area restricts occupancy to companies that fall under the broad umbrella of production, distribution, and repair (PDR)—a way for the city to support a diversity of businesses, from light manufacturing to design.





- 1 OFFICE ENTRY
- 2 PDR ENTRY
- 3 PDR TENANT
- 4 ATRIUM
- 5 MAIN STAIR
- 6 OFFICE
- 7 NEW SKYLIGHT
- 8 ROOFTOP



Though not on the city's historic register, the Art Deco building remained true to its original form, though its interiors had been dramatically altered by intervening renovations over the years. The warehouse offered a raw canvas, so the architects took their design in two different directions. According to Pfau Long principal Dwight Long, "We were much more careful with the Art Deco facade, in terms of how we painted and lit the architectural features. With the rest, which was largely industrial, we took a more playful approach."



Both firm and client agreed that the vast, dim warehouse, filled with a sea of columns, would be improved by carving out the center. "We've always felt that these big industrial buildings need to be opened up in the middle to bring natural light in," says SKS managing partner Dan Kingsley, noting that the market values this type of intervention. In regard to function, "It's also important for clients to have common spaces where people can meet and socialize," says Long.

The original idea was to create an open-air courtyard. But the architects devised a solution that permits all-weather use of the 5,000-square-foot atrium: the installation of a greenhouse roof from the Netherlands that can be opened on warm days. This device turned out to be useful from a structural-engineering standpoint as well. "Developers don't want open floor plates muddled up with shear walls

OPEN SESAME The center of the atrium functions as a town square (above), with a greenhouse roof that opens for natural ventilation (opposite). The glass roof is a modular system from the Netherlands that was assembled on-site.

and brace frames," says Long. "Opening the center of the building let us do the necessary seismic work without interrupting the interiors." Reinforced by steel channels surrounding the timber beams, the atrium is ringed by glass garage doors interspersed with shear walls clad in horizontal Douglas fir—actually repurposed roof sheathing from the building.

The architects connected the atrium to a side street, creating a second entrance that allows the building to accommodate multiple tenants gracefully—each with its own storefront opening to the daylit internal courtyard. For the current single tenant—a genetics-testing



GOOD BONES
Original wood roof sheathing, removed to create the atrium, now clads this space's walls (above). The two-story office building was opened up to pay homage to the adjacent warehouse, with exposed wood roof decking and both board-formed and existing concrete elements (left and opposite).



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laboratory—the atrium serves as a café and lounge. Framed by cold-rolled steel, the new glazed entrance allows passersby to see into the courtyard. Above the doorway, a neon sign featuring the street number in the same font as the Art Deco entrance enlivens the long side street, as do the existing loading docks, also enclosed by glass garage doors.

To reinvigorate the Art Deco facade, the design team highlighted its details, which had been muted by uniform coloring, by painting them in shades of light gray. Then they replaced a concrete awning that wasn't in the original building with one made of glass and steel.

On the inside of the Art Deco office building, they created a double-height lobby by switching out a closed 1990's stair with an open one made of steel and concrete, revealing an existing skylight. The lobby is now flooded with daylight. Throughout this part of the building, dropped ceilings and drywall have made way for an exposed wood ceiling structure, concrete columns and beams, and board-formed concrete walls.

Even the chemical manufacturer's old sign, painted on what had once been an exterior wall and discovered during construction, was left in place. As in the old warehouse and throughout the project, says Long, "We did our best to reveal and celebrate these details." ■

credits

ARCHITECT: Pfau Long Architecture - Dwight Long, principal; Mallory Shure, Lauren Harrison, design team

ENGINEERS: Murphy Barr Curry (structural); A.G.E. Consulting (m/e/p)

CONSULTANTS: Revolver Design (lighting); Public Design (environmental graphics)

GENERAL CONTRACTOR: Charles Pankow Builders

CLIENT: SKS Partners

SIZE: 100,850 square feet

COST: \$15 million

COMPLETION DATE: July 2017

SOURCES

WINDOWS: Jerry Thompson & Sons (historic restoration)

OPERABLE GREENHOUSE ROOF: Rough Brothers; BOAL Systems

DOORS: PRL Aluminum (metal); C.H.I. Overhead Door (garage)

WOOD FINISHES AND CASE GOODS: Montbleau & Associates

METAL PANELS AND FURNISHINGS: Nor-Cal Metal Fabricators

METAL RAILS: Romak Iron Works

PHOTOVOLTAIC SYSTEM: SunPower; Sollega



St. Luke's School Expansion | New York | ABA Studio

Past Is Prologue

An expansion upward returns to a historicist vocabulary for continuity.

BY SUZANNE STEPHENS

PHOTOGRAPHY BY DURSTON SAYLOR



Often architects, given the opportunity to expand and renovate a building, leave their own signature in the most obvious way—up front. Watch out for the splashy new entrance, a blockbuster lobby, and a grand stair.

But Andrew Bartle of ABA Studio in New York faced a challenge more than an opportunity with his addition to St. Luke's School in New York's Greenwich Village. A few years ago, the private institution came to the architect to expand its K-8 facility, which sits in a complex containing St. Luke in the Fields, a Federal-style brick Episcopal church (1822). In addition to the two-story brick school built in 1955, an attached gymnasium, originally used by the church and dating to 1929, would be part of the renovation. A small, single-story classroom pavilion with a white



curvilinear roof, which Barry Rice Architects appended to one end of the school in 2010, would remain. The L-shaped school itself is pushed into the northwest corner of the block-long site where it occupies its own quiet precinct, with the main entrance facing an interior garden rather than the street. The clients and the architects decided to keep the entrance where it was, discreetly away from the busy city: students enter a gate next to the church and meander through the leafy enclave to get to class.

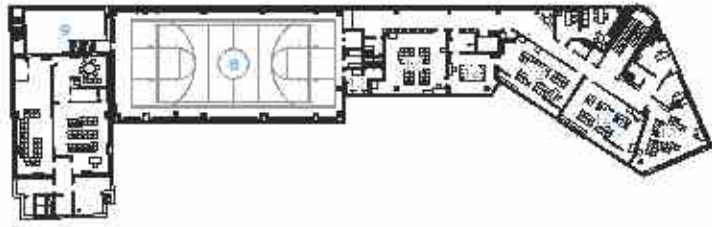
Bartle wanted to double the size of the school to accommodate 270 students without disturbing the tranquility of the setting. (The site is within the Greenwich Village Historic District, which seeks to preserve the low-rise, brick character of the neighborhood.) His solution called for placing a 19,000-square-foot, two-story expansion atop the entire

LIGHTEN UP The architects, ABA Studio, placed the expansion to St. Luke's School (above and opposite) on top of the existing two-story base at the corner of a block in Greenwich Village. To unify the old and new, the firm playfully incorporated Post-modern motifs that bring to mind the work of James Stirling and Michael Graves.

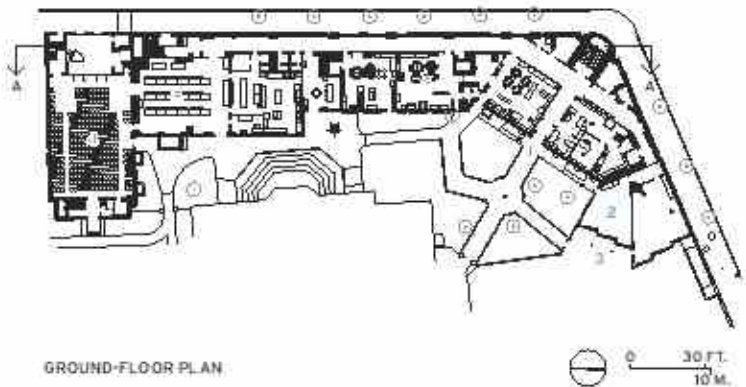
existing structure. Originally designed by Thomas Bell, the fortresslike brick entity has a round drum at the corner that acts as a linchpin for its short and long arms. Though technically the rear of the stolid mass, bound by two intersecting streets, those two "arm" elevations became the main attraction. In combining the two new upper stories with the original as the base, Bartle looked to a historicist vocabulary to provide a sense of order and continuity—and he did so with playfulness and wit. The architectural efforts of the 1980s jauntily haunt his elevations like revered ghosts from the past: Bartle has created a colorful, gridded



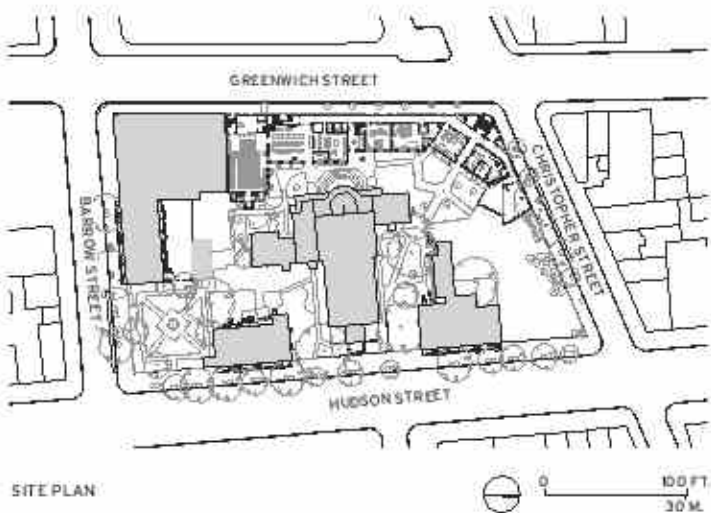
INTERIOR ELEVATION A-A



THIRD-FLOOR PLAN

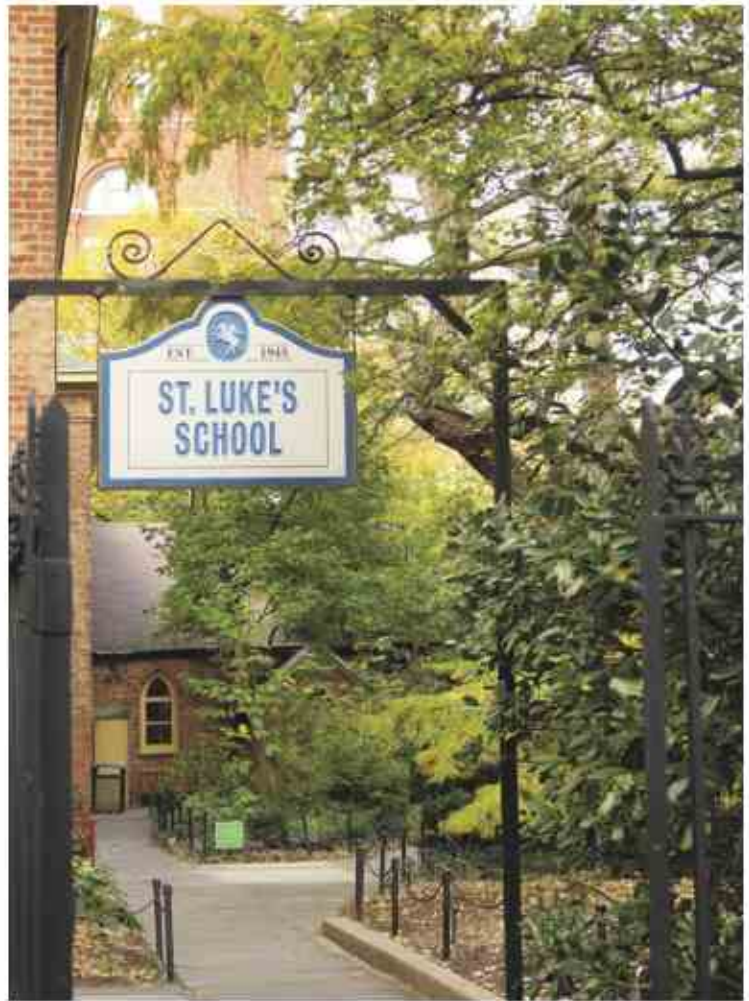


GROUND-FLOOR PLAN



SITE PLAN

- | | | |
|--------------|----------------|-----------------------|
| 1 ENTRANCE | 6 KINDERGARTEN | 11 CLASSROOM CORRIDOR |
| 2 CLASSROOM | 7 OFFICE | 12 EXISTING |
| 3 PLAYGROUND | 8 GYM | |
| 4 AUDITORIUM | 9 TERRACE | |
| 5 DINING | 10 TEACHER | |



pattern of brick and cementitious panels that bring to mind James Stirling's and Michael Wilford's Postmodern Clore Gallery at the Tate in London (1985). "And there is a whiff of Michael Graves in the colors and details," adds Bartle, who studied architecture with Graves at Princeton University in the late 1970s. Since a renewed interest in Postmodernism appears currently on the rise in design exhibitions and architecture schools (where it has long been anathema), this strategy seems timely.

The architect's attention to the surface materials is a case in point: the brickwork changes from a traditional running bond of the original base to a more modern stacked bond, with a gridded alignment of stretchers in the upper portion. He highlights the juncture between the original school and its expansion with a horizontal "zipper" bond: the headers slightly protrude as they alternate with the stretchers. As important is Bartle's introduction of cementitious rainscreen panels in various shades of blood-orange that visually lighten the top two levels. Similarly, the fenestration patterns vary in rhythm like a riff on the 1950s Italian Rationalism of Aldo Rossi and Giorgio Grassi.

Adding the two floors for classrooms and a new gymnasium on top of the existing building proved to be a serious engineering effort. Tunnels for the PATH regional transit system were close by, making it difficult to place foundations to accommodate new construction. With the help of Silman, the structural-engineering firm, the architects decided to use a series of steel trusses, the largest of which is 23 feet high (for the gym) and spans 90 feet, while others are 12 feet high with shorter spans. "The whole building is a truss," says Silman's Justin Den Herder. To keep the loads from being placed on the existing building,



MIXING METAPHORS The actual entrance to the school is through a gate next to St. Luke in the Fields Church (opposite). A small garden leads to the school's existing entrance (right). ABA Studio's expansion fills out the upper stories; on the north end, facing a playground, is a 2010 classroom addition (above) with a white curvilinear roof, designed by Barry Rice Architects.

the team installed eight jumbo columns, 45 feet high, which were threaded through the older structure; they in turn sit on minicaissons extending 85 feet down to bedrock. Here Silman isolated the foundations from the columns to mitigate vibrations of passing underground trains. A public school might have nixed the complex engineering solution for this \$20 million construction project. But St. Luke's understood that expanding on top enabled it to stay within the existing footprint.

Inside, the architect exposed the trusses in the gym, the classrooms, and along the single-loaded corridor, painting them a bright yellow or green. "This is our ornament," says Bartle. The trusses will be filled in with bookshelves and benches. The result is a building that from the outside actually hides its structural ingenuity but acknowledges the historic architectural character of the neighborhood. An homage to the Postmodern movement on the exterior, it is intensely modern on the interior by virtue of the exposed trusses.

This "inside/out dichotomy" provides a clue to the architect's familiarity with the principles of Robert Venturi, laid out in his influential manifesto, *Complexity and Contradiction in Architecture* (1966). Yet the architecturally minded may think another Venturi





phrase is even more apt: "the obligation toward the difficult whole." Venturi maintained that a "difficult unity" could be achieved through bringing multiple and diverse elements together in a continuous entity. St. Luke's collage of fragments achieves an overall order that is fresh and a bit brash. Bartle and his team have shown that you can reexamine the past and glean the best of its lessons to apply to the present. ■



credits

ARCHITECT: ABA Studio – Andrew Bartle, principal in charge; Sean Auyeung, project architect; Karl Jensen, Danielle Eads, Joanne Graney, Kenneth Lake, Erik Orhman, Nicole Reamey, Catherine Pyenson, team

ENGINEERS: Silman (structural); Mueser Rutledge Consulting Engineers (geotech/foundations); Thomas Polise Consulting Engineer (m/e/p/fa/sp); Bohler Engineering (civil)

CONSULTANTS: Horton Lees Brogden Lighting Design (lighting); Lally Acoustical Ceiling (acoustic); Fisher Dachs and Associates (theater); Emphasis Design (graphics)

CLIENT: St. Luke's School

SIZE: 19,000 square feet

CONSTRUCTION COST: \$20 million

COMPLETION DATE: September 2017

SOURCES

MASONRY: Bekten Brick; Glen-Gery Brick

GLASS BLOCK: Eastern Glass Block

RAINSCREEN: Swisspearl

METAL/GLASS CURTAIN WALL: Kawneer

GLASS: Oldcastle BuildingEnvelope

INNER STRENGTH

The upper floors of the school are supported by large interior trusses so the expansion doesn't weigh on the existing 1955 structure. These exposed elements enliven classrooms, hallways, and the gym (opposite). On the garden side (here), ABA Studio converted a former gym to a theater and added a brick loggia in front of existing classrooms, resting on a squat column.



Terasaki Research Institute | Los Angeles | Atelier Hitoshi Abe

Surgical Intervention

An infill building is revamped for an organization focused on organ transplants.

BY DEBORAH SNOONIAN GLENN

PHOTOGRAPHY BY ROLAND HALBE

According to architect Hitoshi Abe, Dr. Paul Terasaki, a scientist and philanthropist, loved three things: his Japanese heritage; the University of California, Los Angeles (UCLA), his alma mater and longtime employer; and his ground-breaking research on human tissue typing, a process critical to the success of organ transplants. The late doctor's three passions come together in Abe's newest project, the Terasaki Research Institute, a serene, inviting facility near UCLA's campus that serves as the public face and headquarters of the namesake scientific organization.

Location is part of its appeal. Abe revamped a 1930s-era masonry infill building on a busy street in L.A.'s Westwood neighborhood to craft the 15,000-square-foot project, nestled within an eclectic but unremarkable stretch of low-rise chain stores and eateries. Its streamlined stucco facade featuring a crisp aluminum canopy offers visual relief from the surrounding hodgepodge of corporate logos and promotional signs—an example of the power of simplicity. "Pedestrians often stop to look through the windows and see what's happening inside," Abe says.

These glimpses reveal a foyer with a small bookstore and a reading room, and beyond them a generous atrium with clusters of seating, a





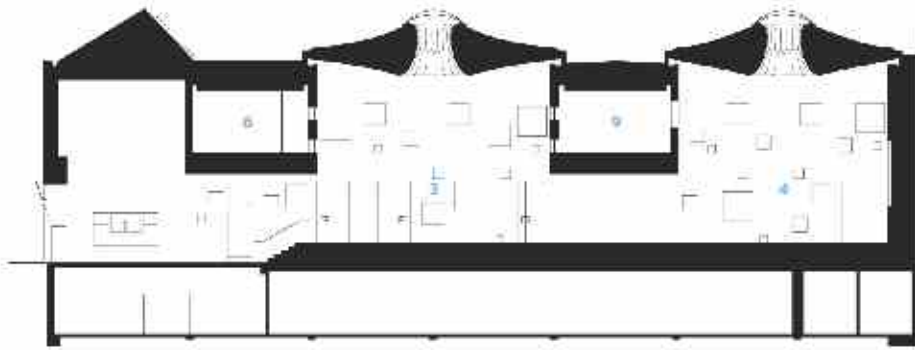
space far brighter and more expansive than suggested by the surrounding context. Not only is this interior a big departure from others in the neighborhood, it doesn't resemble a typical office building or headquarters.

From the outset, Terasaki envisioned a new headquarters that would reflect the institute's emerging role in public outreach to promote organ donation. (Its core scientific research still takes place in a laboratory a few miles away.) He wanted some kind of central space for lectures, public events, and informal gatherings, surrounded by workspaces for administrative and managerial personnel. He gave a sketch of his ideas to Abe soon after tapping him for the commission; the two men had met in 2007, when the Japanese architect was named chair of UCLA's Department of Architecture and Urban Design, a post he held for 10 years. "We agreed that including a large common area would reflect the institute's values of collaboration, innovation, and engaging the community," Abe says. The challenge was fitting an ambitious

LOOKING GLASS A deep glazed opening in a mezzanine bridge (above) frames a view toward the institute's entry foyer. Abe reused the existing reinforced-concrete street-facing facade, streamlining its crown and removing decorative iron, plaster, and tile before applying a new stucco finish (opposite).

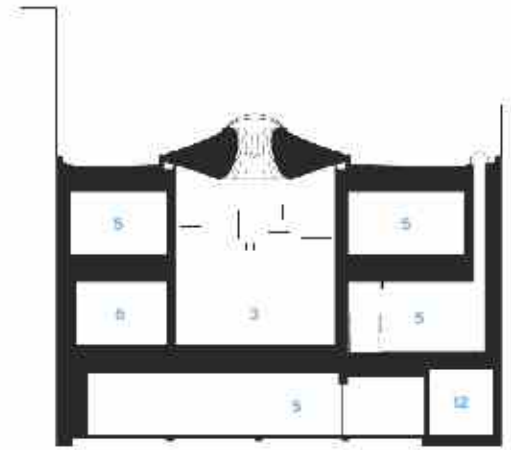
program—multipurpose public space, offices, a few conference rooms, a small laboratory, and support spaces—into a tight, two-story shell, where the only significant exposure to daylight comes from the west-facing street elevation.

Abe used these constraints to maximum benefit. By demolishing the building's unreinforced masonry interior walls and replacing them with a steel-framed structure, he was able to devote roughly half the ground floor's square footage to a wide, two-story atrium, topped with a double membrane of translucent fiberglass and PTFE. A pair of mezzanine-level bridges and two oculi in the roof visually break down this larger ground-floor space into two smaller ones. With their filtered



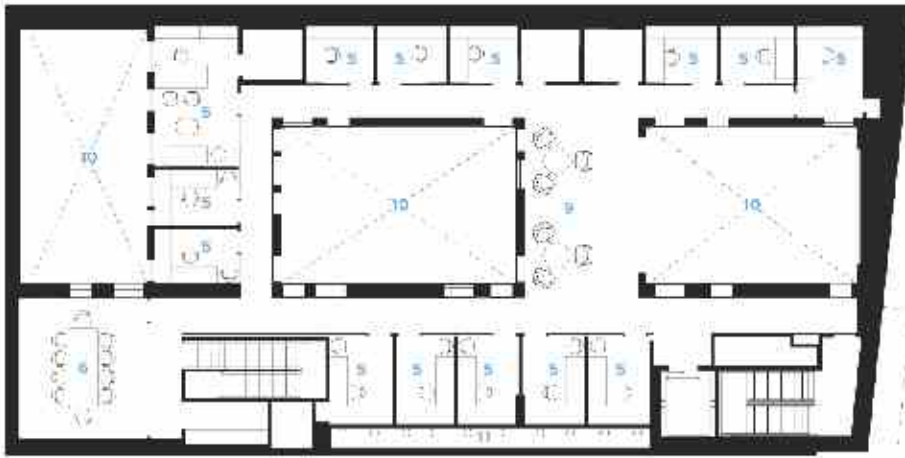
SECTION A - A

0 10 FT.
3 M.



SECTION B - B

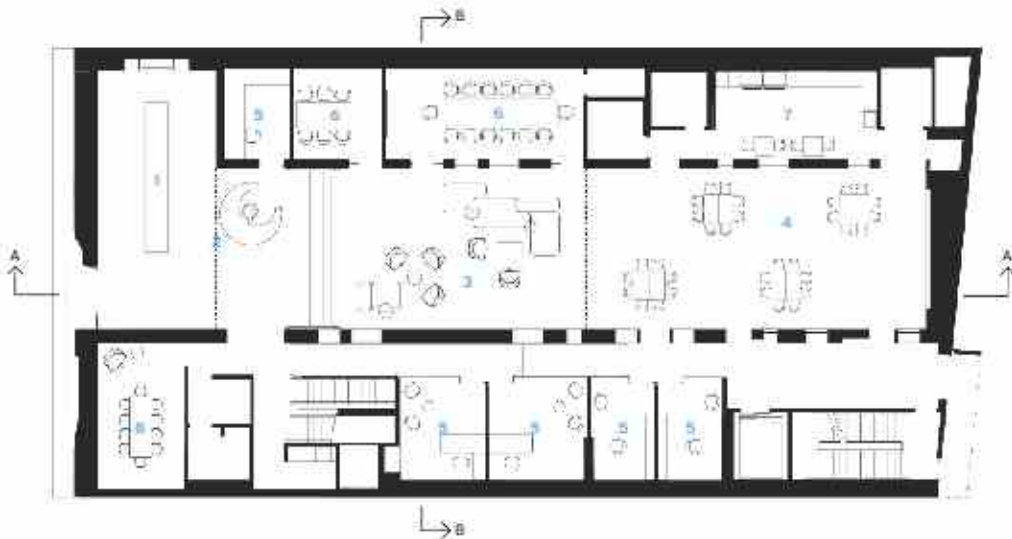
0 10 FT.
3 M.



SECOND-FLOOR PLAN

0 10 FT.
3 M.

- 1 BOOKSTORE
- 2 RECEPTION
- 3 OPEN WORK AREA
- 4 PRESENTATION SPACE
- 5 OFFICE
- 6 MEETING ROOM
- 7 KITCHENETTE
- 8 READING ROOM
- 9 LOUNGE AREA
- 10 OPEN TO BELOW
- 11 LIGHT WELL
- 12 WORKROOM



FIRST-FLOOR PLAN

0 10 FT.
3 M.



STEP IT UP The wide stair from the foyer to the atrium spaces, necessary due to the site's elevation changes, establishes a sense of arrival (above). The variety of openings in the atria walls creates a dynamic pattern and permits glimpses of the areas beyond (right).

daylight and textured plaster walls featuring staggered, square-shaped openings of different sizes, they have the feel of outdoor plazas tucked between buildings—an effect that's intentional. "We wanted to extend the street indoors, so to speak, to provoke interest and engage the community," explains Abe. "And because this building has so few windows, it was important to create an exterior-like experience inside, so employees have some connection to the outdoors."

Abe calls the multitasking roof "a cloud that creates and controls the indoor climate." The plenum space between the two membranes vents hot air that rises through the atrium to the outdoors. Sun streaming through the translucent roof casts patterns of light and shadow that vary with the time of day, season, and weather; at night, an LED lighting system transforms it into a glowing lantern, complete with shifting colors and patterns as the occasion dictates. In an ingenious effect, the mirror finish on the cast-fiberglass oculi reflects the roof lines of nearby buildings to the indoors, furthering the connection between the institute and the public. "When these two huge, shiny assemblies arrived at the site on the back of a trailer, people thought they looked like alien spacecraft," Abe says.

The acoustics of the atrium spaces can accommodate everything from receptions to lectures to musical performances. A grid of high-definition screens on the back wall displays video, images, or text during presentations and events. Cushioned benches and low tables and chairs support small gatherings and create opportunities for chance encounters.

The offices, conference rooms, and support spaces surrounding the atrium on both floors have glass walls and cutouts that permit partial





MEET AND GREET The institute's foyer features a crescent-shaped welcome desk and an area to display books for sale (above). A light well illuminates a stair between the ground floor and mezzanine (above, right). Casual seating encourages quick, informal get-togethers (opposite).

glimpses through the square openings and into the larger space, balancing openness and privacy. All of the workspaces are straightforward and minimalist, and a quiet palette of whites and grays ("so many grays," says Abe) lends calmness to the interior, where even sprinkler heads and mechanical vents are cleverly integrated and concealed.

The building opened in September 2017, and currently about 30 people work there full-time—a mix of institute employees and organ-transplant research partners from UCLA and beyond. It seems fitting that Abe's first finished project in Los Angeles was done for a client and friend whose close ties to both UCLA and Japan mirror his own. Terasaki was a longtime supporter of Abe, who remains director of UCLA's Terasaki Center for Japanese Studies. Though the renowned scientist passed away shortly after the project broke ground, the new headquarters is an homage to his accomplishments and ideals. ■

Deborah Snoonian Glenn, a former senior editor of RECORD and This Old House, lives in Los Angeles, where she writes about architecture.



credits

ARCHITECT: Atelier Hitoshi Abe – Hitoshi Abe, Pierre De Angelis, Cecilia Brock, Cat Pham, project team

ARCHITECT OF RECORD: House & Robertson Architects – Jim House, James Black, Silviya Oiar, Khristeen Decastro, project team

CONSULTANTS: BuroHappold Engineering (structural, m/e/p, lighting); NOUS Engineering (skylight)

GENERAL CONTRACTOR: Taslimi Construction Company

CONSTRUCTION MANAGER: MGAC

CLIENT: Terasaki Research Institute

SIZE: 15,000 square feet

COST: withheld

COMPLETION DATE: August 2017

SOURCES

CANOPY FABRICATOR: Cinnibar
SKYLIGHTS: Machineous Consultants, EIDE Industrie, Bristolite, Arcadia, Solatube
FLOOR TILE: Stone Source
LIGHTING: Prudential, LED Linear, USAI, Axis, Beqa
LIGHTING CONTROLS: Lutron, Lumenpulse
ELEVATORS: Schindler





FLASH FORWARD
The exterior details of the existing 1920s structure were largely intact. Its arched doors (here), now open onto a restaurant and, around the corner, serve as the hotel's main entrance (opposite).

Detroit Foundation Hotel | Michigan
McIntosh Paris Associates

Hot Property!

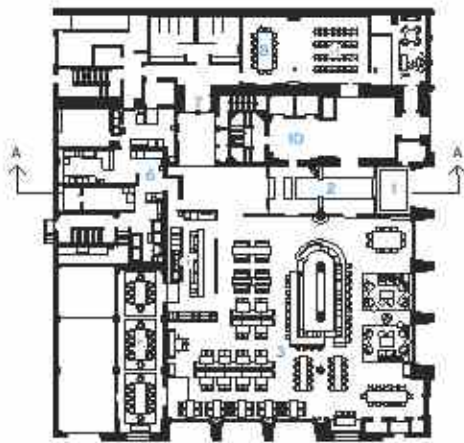
A local firm turns a former fire department headquarters into a popular destination.

BY JENNIFER CONLIN

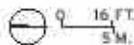
Thanks to a development and construction boom that began in 2011, downtown Detroit is now full of sleek, renovated office buildings. The Detroit Foundation Hotel, however, is a preservation project like no other. To say the 95,000-square-foot hotel, largely located in a 1929 building that once housed the city's fire department headquarters, is "hot" would be an understatement. Since opening last May, it has become a global destination—as evidenced by the number of foreign guests during a recent visit.



PHOTOGRAPHY: © JOE VAUGHN (OPPOSITE PAGE); JASON KEEN (RIGHT)



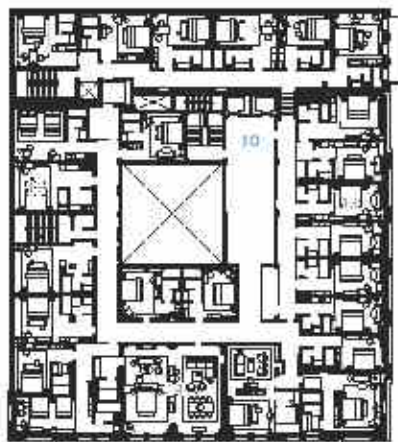
GROUND-FLOOR PLAN



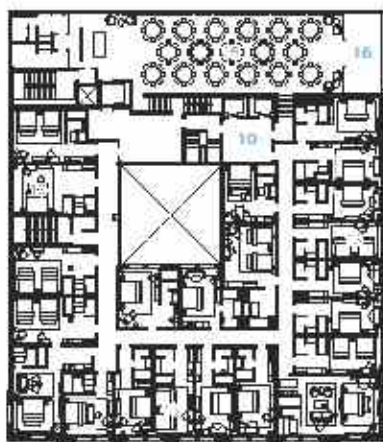
SECOND-FLOOR PLAN



SECTION A - A



THIRD-FLOOR PLAN



FIFTH-FLOOR PLAN

- | | |
|-------------------|-------------------------|
| 1 ENTRANCE | 11 FITNESS ROOM |
| 2 REGISTRATION | 12 OFFICE |
| 3 APPARATUS ROOM | 13 GUEST ROOM |
| 4 OPEN KITCHEN | 14 COMMISSIONER'S SUITE |
| 5 PRIVATE DINING | 15 BANQUET HALL |
| 6 KITCHEN | 16 TERRACE |
| 7 HOSE TOWER | 17 LIGHT WELL |
| 8 MEETING ROOM | |
| 9 PODCAST STUDIO | |
| 10 ELEVATOR LOBBY | |



Designed by local firm McIntosh Poris Associates (MPA), the modern 100-room hotel—with everything from fitness facilities to a podcast studio—emerged from the aging municipal building once filled with clerks' offices and sleeping quarters for firefighters. Many of the neoclassical structure's existing details were intact, though the seven hefty red doors that fire trucks once raced from were removed, repaired, and stripped of layers of paint in order to discover the original color. Terra-cotta relief panels sporting firefighting themes—gryphonlike heads, hydrants, and winged serpents—frame the arched portals. Inside, the Apparatus Room, a vast 1½-story restaurant and bar situated off the ground-floor lobby, still has the original floor-to-ceiling columns and glazed-tile walls, reflecting its previous function as the firehouse equipment room. Historic photos and newspaper articles framed on the walls and set into glass coffee tables help guests to time-travel.

The architects worked on the preservation



HISTORY LESSON A screen of repurposed timber separates the intimate lobby from the vast restaurant/bar/lounge space (top). The original firehouse doors had decades of paint painstakingly stripped to reveal their true color (right). Relief panels with firefighting themes were restored over the arches (above).



and renovation alongside the Aparium Hotel Group, local developer Walter Cohen, and the Simeone Deary Design Group based in Chicago. From the inception, the team's goal was to create a place that would be "about the character and bones of the firehouse and about the city of Detroit," explains MPA principal Michael Poris, who grew up in Detroit.

The hotel's narrative dates back to 2012, when Poris learned that the fire department was moving to a new location and the building would soon be up for sale by the city. The architect contacted Cohen, with whom he had worked previously, and the two settled on proposing a hotel for the site. It was across the street from a conference center, and "we knew a hotel would create more jobs in the city than a retail or residential development," says Poris.

Their bid was selected, and Detroit went bankrupt the following year, requiring Michigan's governor to sign off on the project instead of the mayor. This bureaucratic hiccup caused a yearlong delay.

The landmarked building was in good shape, though years of dirt and soot would take time to clean. It was also too small to accommodate the number of hotel rooms needed to make the project work financially, so the partners bought the building next door, a four-story structure built in the 1880s. Once a popular French restaurant, it too had a historic designation.

With that purchase came another headache, Poris recalls. "We had to join the two buildings—the first made of steel with a red sandstone-and-masonry facade, the second load-bearing brick—and the floors of one building didn't line up with the floors in the other." In the end, they decided to connect the two with half-level staircases and one elevator that makes 14 stops between them.

Historic tax credits were available for both, so preserving and salvaging as much as possible was imperative. Poris brought in Architectural Salvage Warehouse of Detroit to reclaim, inventory, and repurpose interior wood trim from the building as well as from abandoned buildings throughout the city. Still, one of the firm's most challenging hurdles was balancing both commercial and conservation demands. The National Trust took issue with two specific design elements. One was the addition of a modern banquet room on the rooftop of the second building, which would be seen from the street; the other was the destruction of a marble corridor in the 1920s building to make room for guest rooms on the fourth floor. Since the banquet hall was critical to the project's financial success, the developers chose to forgo the tax credit on that building. Poris then preserved the original

marble walls and floors in the disputed corridor of the firehouse.

Collaborating closely with MPA, interior designer Gina Deary hired local creatives like Matt Eaton, the director and curator of the Red Bull House of Art. Eaton introduced the Chicago-based Deary to Detroit artists and makers, resulting in installations such as two by Incite Design in the Apparatus Room: "Smoke Puff," a large pendant made of metal-fabric panels hanging above a banquette, and a constellation of bulbs over the bar, many unlit, to represent the lack of working streetlights in Detroit's most impoverished neighborhoods.

Upstairs, guests can choose from among 55 room layouts and decors, including the wood-paneled Commissioner's Suite, which has a bathroom the size of most of the other guest rooms. The work of a different local artist is highlighted on each of the four guest floors.

Construction costs topped out at \$20.5 million, just over the planned construction budget of \$19 million. According to Poris, collaborating with the owners, builders, designers, and artists epitomized the spirit of working together in Detroit. "I knew if I did that, the result would be better. And that turned out to be true." ■

Jennifer Conlin writes about Detroit's revitalization through the arts, business, and food scene. She is founding editor of creativevoice.buzz, showcasing Detroit and Southeast Michigan arts and culture.

credits

ARCHITECT: McIntosh Poris Associates – Michael Poris, principal; John Skok, associate/project manager; Kelly Raczkowski, Sean Ryan, Blake Hill, designers

INTERIOR DESIGNER: Simeone Deary Design Group

ENGINEERS: Structural Design, Inc. (structural); MA Engineering (m/e/p); Giffels Webster (civil and traffic)

CONSULTANTS: Illuminar (lighting design); Soundscape (acoustical design); Kraemer Design Group (historic preservation); Matt Eaton, Kim Harty, Lisa Spindler, Patrick Ethen (artists); Sorbis (low-voltage design)

GENERAL CONTRACTOR: Sachse Construction

CLIENT: 21st Century Holdings

OWNER: Aparium

SIZE: 95,000 square feet

TOTAL COST: \$28 million

CONSTRUCTION COST: \$20.5 million

COMPLETION DATE: May 2017

SOURCES

WINDOWS: Quaker Windows & Doors (aluminum)

DOORS: BlackBerry Systems (restored firehouse); Curries (metal); VT Industries (wood)

WALLS: Benjamin Moore (paint); Detroit Wallpaper

FLOORING: Bolon (resilient); Durkan (carpet)



ECHOES OF THE PAST. Hovering over a banquette, the *Smoke Puff*, a lighting installation by Alex Porbe of Incite Design in collaboration with textile artist Alexa Ulbrich (above) is a nod to the building's past. Exposed brick offsets a contemporary bar (opposite, top). Bikes are set up in a refurbished marble corridor (opposite, middle) for guests to explore the city. More than half of the 100 hotel rooms (opposite, bottom) have different architectural elements.

Magazzino Italian Art | Cold Spring, New York | Miguel Quismondo

Collector's Item

A makeover and a striking new addition transform a modest warehouse into the Hudson Valley's latest art destination.

BY ALEX KLIMOSKI



Its name may be the Italian word for warehouse, but Magazzino, a privately owned art gallery in the quaint Hudson Valley village of Cold Spring, New York, hardly brings to mind the steely austerity one might associate with the term. Composed of two low-slung rectilinear volumes connected by two fully glazed corridors, its architecture is understated, ethereal. Yet the concept of a warehouse is central to the space's identity—one of the structures, built in 1964, functioned for years as a storage facility for a computer manufacturer and, before that, as a distribution center for dairy products. The name alludes as well to the barren industrial spaces that were the backdrop of *Arte Povera*—the Italian movement of the 1960s and '70s that celebrated unglamorous, everyday materials in defiance of commercialism in the art world—and Magazzino's core content.





SITE PLAN

- | | |
|-------------------|----------------------|
| 1 VEHICLE ENTRY | 5 GALLERY (EXISTING) |
| 2 ENTRY VESTIBULE | 6 GALLERY (NEW) |
| 3 LIBRARY | 7 REFLECTING POOL |
| 4 OFFICE | 8 COURTYARD |

The gallery is the passion project of art collectors Nancy Olnick, an American and self-proclaimed Italophile, and her Sardinian-born husband, Giorgio Spanu. For Olnick, who comes from a prominent New York real-estate family, a love of accruing modern art seems to have been passed on from her patron parents (their collection included works by Alexander Calder, Willem De Kooning, and Agnes Martin). After she met Spanu, the two started to acquire Murano glass, eventually forming a 500-item collection that has been displayed across North America in a traveling exhibit conceived by the late designer Massimo Vignelli, who would later become a cherished friend.

A year-long hiatus in Rome in the early 2000s sparked an interest in the Arte Povera works, which the couple began avidly to collect, although many of the pieces were too large to fit in either of their two residences and had to be placed in storage. Magazzino was born of the desire to display their extensive collection—with works by Luciano Fabro, Michelangelo Pistoletto, and Jannis Kounellis—to the public. The couple paid for the \$12 million project (the initiative does not have

credits

ARCHITECT: MO Architecture – Miguel Quismondo, partner in charge/ construction manager; Jesus Aparicio Alfaro, project architect; Rocio Calzado Lopez, intern

ENGINEERS: Michael Carr (structural); Consulting Engineering Services (m/e/p/f/p)

GENERAL CONTRACTOR: Oispan

CLIENT: Magazzino Italian Art

OWNERS: Nancy Olnick and Giorgio Spanu

SIZE: 25,000 square feet

COST: \$12 million

COMPLETION DATE: June 2017

SOURCES

CUSTOM METAL TRUSSES:

Tino Yanitelli

GLAZING: Reynaers

GLASS ROOF: Kahwall

SKYLIGHTS: Wasco

HVAC: Airfloor

nonprofit status), and it is open to visitors free of charge by appointment. “We feel it’s our duty as collectors to be philanthropic, and Magazzino is our way of giving back and sharing our excitement,” says Olnick. Architect Miguel Quismondo was charged with bringing their vision to fruition.

The Spanish-born Quismondo, who started his career in the United States at Perkins+Will’s Miami office, was introduced to Olnick and Spanu by his friend and mentor, the architect Alberto Campo Baeza, also from Spain. Baeza, who had been commissioned—on Vignelli’s recommendation—to design the couple’s weekend house in Garrison, near Cold Spring, brought Quismondo on board as the project’s New York-based liaison and construction manager.

Since then, Quismondo and the couple have developed a rather unusual working relationship, which he jokingly compares to that of the Medici family and its architects. As Olnick and Spanu’s full-time “design advisor,” he has spent the last 14 years working for them in various capacities, from providing technical and construction support for the installations of site-specific artworks for the pair’s Garrison property to coordinating with contractors for renovations of Olnick’s real-estate holdings in New York City. “We’ve always had confidence in Miguel,” says Spanu. “We were very clear on our goals for Magazzino, and he was very clear on how to interpret them. I had no doubt that he was going to create a masterpiece.”

Quismondo deftly navigated the project’s challenges. He was given a decrepit 11,000-square-foot, L-shaped building located off a primary road, at the low point of a rolling landscape, adjacent to protected wetlands. The steel-and-concrete structure needed to be repaired and refurbished to include a small library and restrooms, and several distinct galleries. Because its footprint was too small and its height too low to accommodate many of the artworks, a bigger volume needed to be built alongside.





LINKED IN The existing building and its new concrete neighbor are connected by two fully glazed corridors: one serves as the entry vestibule (opposite, bottom), the other as a quiet walkway along the reflecting pool (right). The original structure's concrete ceiling and steel joists were kept, linking the renovated gallery space to its industrial past (above).

When the design team removed the building's drop ceiling, they discovered steel joists and a roof of precast-concrete panels. "It's such a simple and logical system—industrial perfection," says Quismondo. "This was a warehouse, and we wanted to show it." To expose these existing elements, rather than obstructing them with the HVAC system, the team tore up the floor slab and installed a radiant heating and cooling system, also used in the new building. Large, square windows were punched out of the walls, and a series of skylights installed to bring daylight into the space. The exterior was refinished in a smooth, white stucco.

For the new structure, which comprises gallery space on the ground level and offices and storage in the basement, Quismondo wanted something different in texture yet still in dialogue with its older neighbor. He designed a 14,000-square-foot rectangular building, its poured-in-place concrete frame exposed to lend a certain rawness. The addition runs parallel to the existing building, closing the L-shape with a glazed passageway to form a central courtyard.

Despite its larger size, the new volume does not dwarf its companion, but, rather, the two come together in a harmony of material and scale. The whole composition is a lesson in expert proportion, one that Quismondo learned from the man he calls his "father figure," Baeza. Crisp sight lines guide circulation around the interior's perimeter, framing the artworks, including the classical figures of Giulio Paolini's





POINT OF VIEW The new gallery building features a high ceiling, custom metal trusses, and an abundance of natural light, thanks to its glass-paneled roof (above). Large windows frame artworks from the outside (left). Breaks in the wall partitions guide a path of circulation and of dramatic sightlines around the entire perimeter.

sculpture *Mimesis* and a slate, metal, and neon igloo by Mario Merz—as well as views out to the landscape and across to different areas of the building.

Inside the new gallery, the extent of its height—less obvious from the outside—is revealed. This effect is enhanced by the even layer of daylight streaming through the milky translucent-glass-paneled ceiling. Entering this space from the older building, you feel a sense of release, of weightlessness; the artworks appear almost to float against the white backdrop. “The architecture and art are in a symbiotic relationship,” says Spanu, “but the art is the protagonist.”

Since opening in June 2017, Magazzino has laid the ground for a robust visitorship, with an average of 250 guests per week. A scenic 45-minute train ride from the city, it’s a welcome addition to the trove of Hudson Valley art destinations that include Storm King Art Center, Dia:Beacon, and Manitoga, the house and studio of modernist industrial designer Russel Wright. It’s still in its early stages, but Olnick and Spanu are determined to extend programming both on-site and off and to add visitor amenities such as a café, plus more galleries to highlight up-and-coming Italian artists. “We’re dedicated to keeping it as vital as we can,” says Olnick. ■

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Bright Shiny Object

A Brutalist building is reinvented as prime office space with a glossy new skin.

BY JOSEPHINE MINUTILLO

Even before it was built, plans for the Westyard Distribution Center in Manhattan were heralded, with a December 18, 1966, *New York Times* headline reading “Project Combats Lure of Suburbs.” The article referred to the 15-story building’s more than 32 acres of rentable space, spanning 220 feet like a bridge over Penn Station’s active rail lines, as “an urban rebuttal to arguments for landscaped suburban warehouses.” Upon completion in 1969, the concrete-clad, ziggurat-like design, by Davis Brody & Associates (now Davis Brody Bond) was generally well received, a rare Brutalist structure to instantly garner praise. At the time, *RECORD* called it “a confident giant standing astride a broad valley.” The magazine pointed out that “a planned 65/35 percent industrial facilities/offices ratio was almost directly reversed, as tenants, taken with the building’s appearance, sought to have more of their offices housed in it” (*RECORD*, May 1970).

In the nearly 50 years since it opened, both the building, also known as 450 West 33rd, and its neighborhood have changed dramatically. During the 1980s, the facade’s pre-cast-concrete infill panels—into which the windows were integrated—were sheathed in brown-colored metal siding, and the remaining concrete painted beige. The once hand-

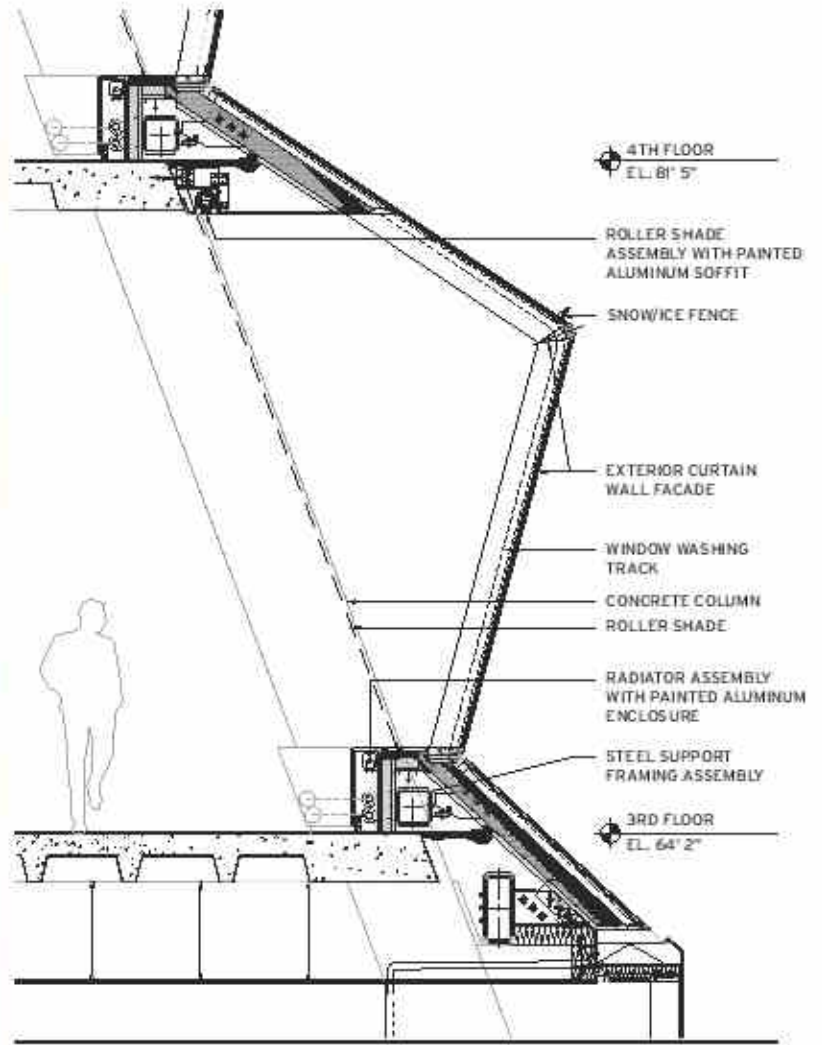
some pile turned into a giant eyesore in what became a bleak part of town. (When the building was planned, then mayor John Lindsay optimistically called West Chelsea the “southern counterpart to Lincoln Center.”)

But the building had an incredible asset—immense floor plates that range from nearly 90,000 to over 120,000 square feet. In recent years, the huge Hudson Yards and Manhattan West developments began to go up immediately surrounding 450 West 33rd, while the elevated rail line just across 10th Avenue was transformed into the High Line park. The former warehouse building, which included floors for light manufacturing, came to be seen as a perfect space to attract higher-paying commercial tenants—as soon as something could be done about its exterior.

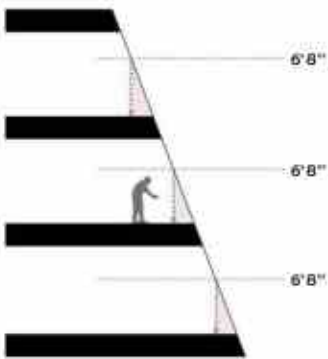
Brookfield, developers of Manhattan West, which comprises 7 million square feet of office, retail, apartments, and a boutique hotel in several buildings, acquired 450 West 33rd, rebranding it as Five Manhattan West. It hired Brooklyn-based REX in 2011 to reimagine the enclosure. “The decision to reclad it entirely in glass was driven by a recognition that the market demands natural light,” explains John Durschinger, senior vice president for global design at Brookfield. Since the floor plates are so large, floor-to-ceiling glass was required to get daylight deep

GLOSS OVER
The reskinned structure (here) represents a dramatic transformation from the original concrete building opposite shown in 1969.

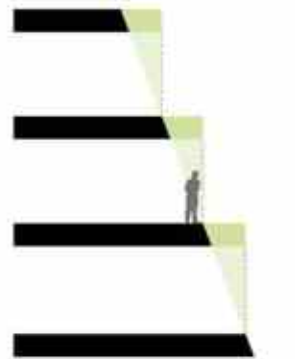




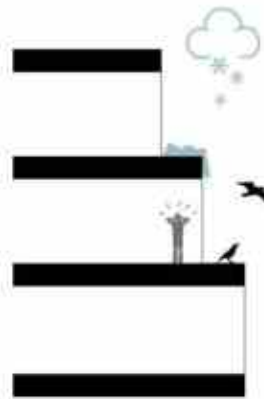
FACADE SECTION DETAIL



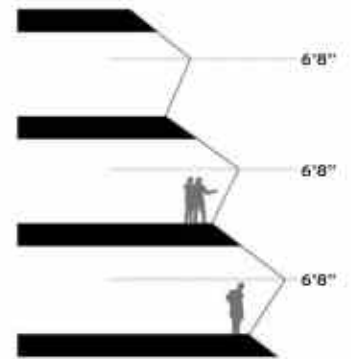
1. EXISTING FACADE
Impossible to use area adjacent to facade



2. VERTICAL FACADE
Increases the gross square footage ...



3. VERTICAL FACADE
but accumulates snow/ice and bird droppings



4. FACETED FACADE
Increases gross square footage... eliminates snow/ice/bird problems and harmonizes building geometry

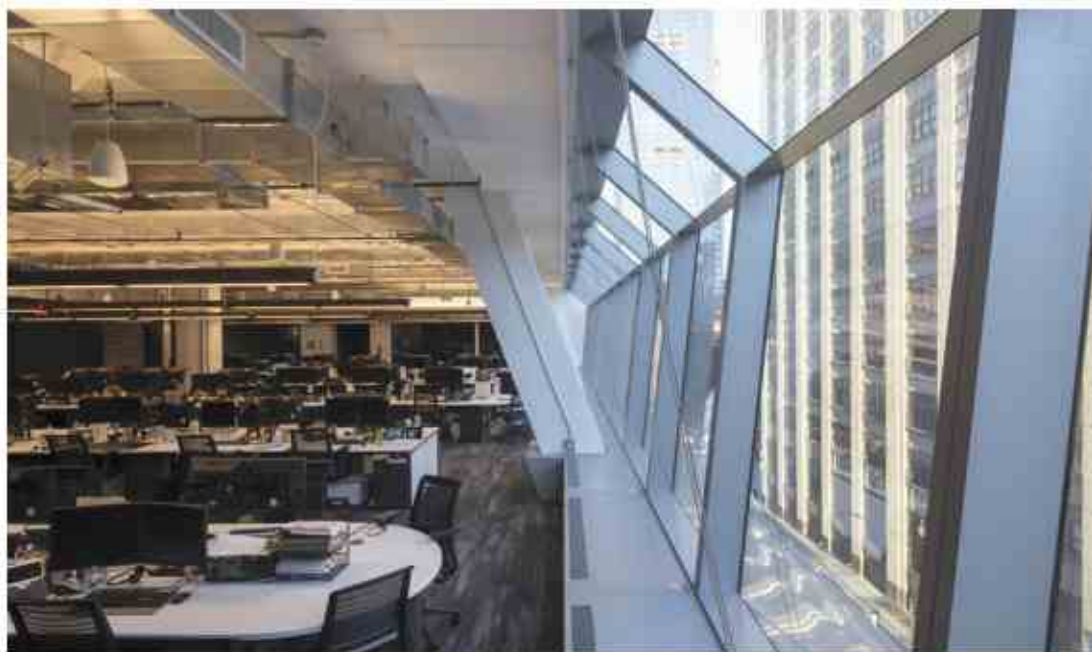
inside. "Creative companies that tend to have open-plan offices really value that."

The building's sloping sides presented several obstacles, from both an aesthetic and practical point of view. Simply allowing the glass to conform to the existing geometry would have made the new building look like a truncated version of the glassy, pyramid-shaped Luxor Hotel in Las Vegas. What is more important, the majority of the perimeter walls were canted at a 20-degree angle. To provide minimum height for accessible paths of travel required by current code—avoiding head-strike conditions—a sizable floor area would be un-leasable. Rather than create a stepped-back facade where snow, ice, and bird droppings could accumulate over the narrow horizontal portions, REX, together with facade consultant Front and executive architect Adamson Associates, pushed the glass panels out in a large horizontal pleat so that the pleat's joint is above head-strike range.

Working on a building completed almost five decades ago meant working with drawings done on vellum and reproduced on blueprints that disintegrate over time. The structure itself also went through all kinds of renovations over the years, including ones that touched the enclosure—but were only partially or incorrectly documented. "On a daily basis, we found things that no one knew existed," says REX principal Joshua Prince-Ramus. In one instance, a building survey along the 10th Avenue side of the structure was inaccurate, so an element of the facade there that was designed to 17 inches in the renovation needed to be reduced to under 4 inches. Of course, such unforeseen conditions are typical with retrofit projects. But REX embraced that reality as part of the design. "Instead of worrying about whether the floor slabs were poured to the proper tolerances or whether they had deflected over time, and instead of trying to create a curtain wall in which we would use slab embeds to hold it up, we decided to avoid that entire possible problem and create our own elements." (Structural engineers at SOM, also part of the design team, advised that the existing structure would be unable to satisfy the deflection criteria.)

The old facade was stripped down to the columns while the building was still occupied. (A temporary construction wall was erected.) Rather than anchoring brackets into the old concrete, the design team put steel collars around the columns and attached new steel tubes to the collars just above each floor, knowing that facade attachments could be fabricated in the shop and adjusted with tailored precision.

This "spreader bar" system, spanning col-



FOLD UP The new pleated glass facade (opposite) offers office space with abundant daylight (above).

umn to column, is more flexible and reliable than attaching to the edge of the slab, and is sized to carry the dead load and wind load of the facade so the slab does not have to do any work. (Some of the larger pleated assemblies measure almost 17 feet tall and weigh over 2,000 pounds.) The spreader bars also allowed for easier installation of the unitized curtain wall that comprises two hinged panels, connected via a very stiff, continuous steel plate, to create the horizontal fold. "The utilization of the pleated panels as a typical unitized panel was pretty innovative," says Anthony Kantzas, senior associate at Front. "Most of the contractors that were bidding the project didn't want to do it that way."

Because the angle on the canted bottom portion of glass was kept under 15 degrees, the team was able to use standard vision glass there. The double-glazed IGUs include a $\frac{3}{8}$ -inch-thick outer lite with a $\frac{1}{8}$ -inch-thick inner one. (The thicknesses were deliberately varied for better acoustic performance.) The upper panel, because it is considered a skylight by code, uses glass lites of the same thickness, but it is laminated. The pleated geometry improves both energy performance and visual comfort compared to that of a planar facade. Because the original building was intended to accommodate both offices and industrial space, the floors were designed with different ceiling heights. Each of the pleats is therefore slightly different. The upper panels, which feature a selective frit over what would be the spandrel portion on a typical facade, reduce direct solar gain and glare, and self shade the

lower panels. The insulation value of the new glazing assembly is significantly higher than that of the original glass.

Reskinning old buildings in glass is nothing new. Often it involves updating nondescript, even unattractive, masonry buildings. That is the case with a former Verizon equipment tower near the Brooklyn Bridge, generally agreed to be one of the ugliest buildings in Manhattan: its upper floors were recently glazed over for use as offices. But sometimes controversy ensues. Preservationists have decried a recent design by Snohetta to replace the pink granite front facade of Philip Johnson and John Burgee's AT&T tower in New York at the lower levels with a diaphanous glass curtain wall. In a recent commentary (*RECORD*, January 2018), architecture critic Mark Lamster called it "unacceptable." As a counterpoint, architect and writer Robert Kahn, contributing to *architecturalrecord.com*, said, "Those who believe [the building] important do injustice to serious architecture."

So what do we make of transforming buildings that are not landmarks, but whose status as significant or even good architecture is up for debate? Westyard was arguably a good building, but hardly an icon. "It's never appealed to me as a significant piece of architecture," says Theodore Prudon, an architect and adjunct professor of preservation at Columbia Graduate School of Architecture, Planning and Preservation. Prudon worked on the restoration of a similar Brutalist structure, the low-rise Hubert H. Humphrey Building in Washington, D.C., completed in the early 1970s



and one of Marcel Breuer's last designs. He could never have imagined reskinning that building in glass. Instead, it retains its precast-concrete panels, with much of it finished with a thin granite veneer. "That's where the value judgment comes in," says Prudon. "In Breuer's portfolio, it probably wouldn't be the top building, but in my mind, from an architectural point of view, it's far more sophisticated than Westyard in its materiality."

Prudon is also the founding president of DOCOMOMO US, whose mission is to increase public awareness and appreciation of Modern-movement architecture. "Recladding for the purposes of simply recladding for any kind of structure that deserves attention is not some-

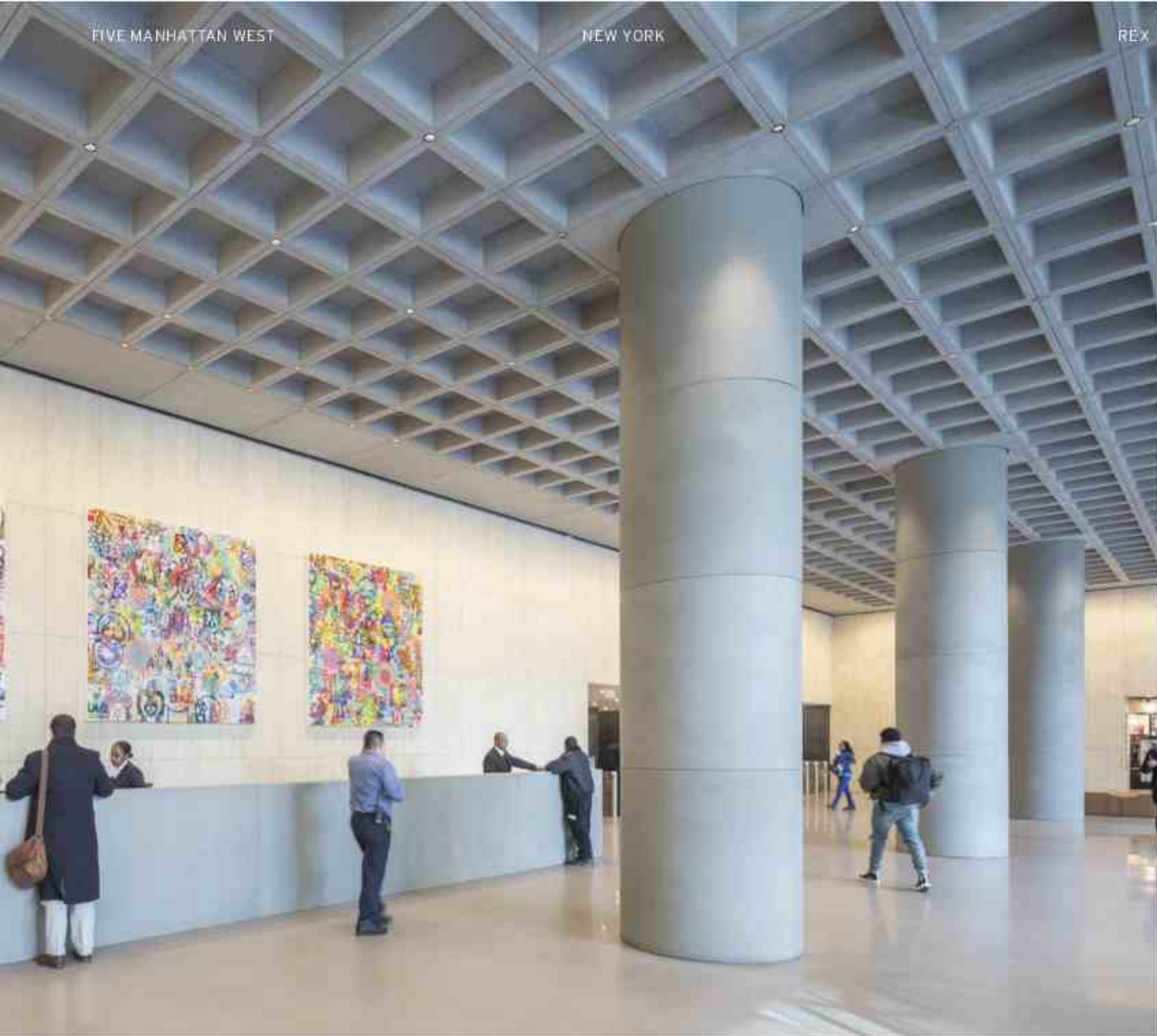
thing we would ever recommend," he explains, "but I'm also a pragmatic realist." Buildings from the 1960s and '70s are in a gray zone. "If they were older, they'd get more respect."

Davis Brody Bond, Westyard's original architect, currently working with REX on the Ronald O. Perelman Performing Arts Center at the World Trade Center site in Lower Manhattan, declined to comment for this article. Ramus points out that REX's design did not overhaul the Brutalist exterior but a later, butchered version of it. Brookfield admits it never considered restoring the original facade.

Since completion of the recladding and interior renovation, which includes a dramatically improved and expanded lobby, rents at

Five Manhattan West have increased threefold, to over \$90 per square foot (by comparison, office space went for \$14.75 in today's dollars when the building opened), attracting such tenants as Amazon, which signed a 15-year, 360,000-square-foot lease last September. J.P. Morgan Chase announced plans to triple its space at the building. It is now full, according to Brookfield, including retail space for a Whole Foods, which plans to open on the second floor at the end of 2019.

According to the 2016 AIA Firm Survey Report, renovation projects are nearly on a par with new construction. As our building stock ages and systems become outdated, a growing share of design activity will consist of modern-



COME INSIDE The sloping ground-floor entrance (opposite, top) leads to a refurbished lobby (above). On the second level, REX opened a portion of the facade to create a breezeway (opposite, bottom).

izing existing buildings. And it's mostly true that rehabbing old buildings—especially giant ones like Westyard, which could not be built at that scale today under current zoning—is more economical and sustainable. “It’s going to become the vast majority of commissions,” says Ramus. “The profession must start looking at the adaptive reuse of existing structures as ‘Capital-A Architecture’ and embrace it with the same excitement, vigor, commitment, enthusiasm, and ingenuity as a new build—because we need to.” ■

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Learning Objectives

1. Indicate the reasons the design team of Five Manhattan West opted to employ a pleated facade.
2. Identify the type of curtain wall system used in the reskinning of Five Manhattan West.
3. Describe the advantages of using a “spreader bar” system for installing the new curtain wall.
4. Debate the pros and cons of reskinning buildings from the Brutalist and Postmodern eras in glass.

AIA/CES Course #K1803A



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The Ins and Outs of IMPs

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EDUCATIONAL ADVERTISEMENT

Located within the San Andreas Fault Line, the Zuckerberg San Francisco General Hospital was designed with a base-isolated foundation that allows it to move freely during an earthquake.

Built to Endure

Specialized products and systems can help architects design buildings that can endure even the toughest disaster

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Tornadoes. Hurricanes. Wildfires. Earthquakes. Almost every region in the country is vulnerable to at least one variety of natural hazard. And when one of these hazards manifests, we rely on our buildings to protect us.

Unfortunately, building designers must increasingly be aware of the risk of man-made disasters as well. These include foreign and domestic terrorist attacks as well as isolated acts of violence, such as mass shootings. These incidents are less predictable than natural disasters, although it's fair to assume that high-occupancy buildings—schools, hospitals, and sports venues, for example—are likelier to be targets of a terrorist attack or mass shooting.

Hazards, whether natural or human-made, can exert extreme forces on buildings, from lateral and vertical movement, swift currents of water, and gusting wind, to extreme heat and high-velocity impacts. Within hazard-prone regions, the risk to individual buildings varies. For example, buildings on higher ground are less vulnerable to flooding than those in the floodplain, while buildings in flat, open areas are more exposed to wind than those in valleys or surrounded by other buildings or a lot of vegetation. Building age, construction, and configuration should also be considered. In general, buildings built to the standards of newer codes are better able to resist hazards than older buildings.

CONTINUING EDUCATION



1.25 AIA LU/HSW

Learning Objectives

After reading this article, you should be able to:

1. Define the different categories of hazards and the particular challenges they pose for buildings.
2. Explain how the components of the building envelope contribute to a building's durability and longevity, as well as its ability to withstand extreme events.
3. Describe how assemblies and products are tested for fire resistance and what a product's fire rating means.
4. Discuss the difference between a resilient building and one that is designed to meet the building code's hazard provisions.
5. List examples of systems and products that can contribute to a building's resilience.

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Some man-made disasters—bomb blasts and shootings, for example—impact buildings and their occupants differently than natural disasters such as hurricanes, and so require different approaches to reducing risk. Other hazards are more difficult to distinguish; for example, a wildfire or structure fire can be either man-made or “natural,” with similar results.

THE WILD CARD

Climate change is adding a layer of unpredictability to our understanding of natural hazards. Marked by record-breaking disasters, 2017 may be an indicator of the “new normal.” In quick succession, Hurricane Harvey inundated the Gulf Coast with rain, flooding Houston, our nation’s fourth most-populous city, followed by Hurricane Irma and Hurricane Maria, which destroyed Puerto Rico’s electricity grid and damaged more than 85 percent of the housing on the island of Dominica. In October, on the other side of the country, wildfires ripped through northern California, killing 42 people and destroying 5 percent of the housing stock in the town of Santa Rosa.

Regions unaccustomed to extreme cold, snow, and ice are experiencing severe winter storms, and regions known for cold winters are suffering heat waves. Coastal areas are enduring more frequent and intense tropical storms, and many parts of the country, not just the West, are witnessing more frequent and intense wildfires. Designers and building owners are tasked with the challenge of anticipating the hazards to which a building may be exposed over its lifetime, and the hazards faced in 30 years may be very different from the hazards faced today.

THE ROLE OF BUILDINGS

We ask a lot of our buildings. Not only must they protect occupants during extreme events, they must withstand everyday stressors and forces, which include wind, rain, moisture, temperature fluctuations, and UV exposure. At the same time, code requirements (and our expectations) for energy performance have become more stringent. And of course, buildings must perform their programmatic functions and maintain their aesthetic integrity.

Building codes are one of the primary tools for ensuring buildings are designed and built so that they protect occupants from hazards. In fact, codes have often evolved in response to lessons learned from specific disasters. Tragic fires sparked requirements for fire-resistant construction, better access to exits, and fire sprinklers in certain categories of buildings, to name but a few examples. In other cases, jurisdictions that had no uniform code have adopted codes following major disasters. For example, the state of Florida had no uniform building code

when Hurricane Andrew hit in 1992. Today, the Florida Building Code includes some of the country’s strictest provisions for mitigating the wind and coastal flooding hazards.

The lessons learned from natural disasters are encoded in the “hazard provisions” of model codes, which state and/or local jurisdictions can choose to adopt. However, it’s important to understand that the primary purpose of building codes is life safety—that is, to protect occupants long enough so that they can safely exit the building in the event of a disaster. Codes are not intended to explicitly protect the buildings themselves or ensure they may continue functioning after a disaster. More recently, performance-based codes and initiatives have been developed that include the goals of preserving the building and its functions along with occupant safety.

In general, current model building codes do not address specific man-made hazards, such as the threat of terrorist attacks or mass shootings. However, the Department of Defense (DoD) has published mandatory guidelines for mitigating the threat of terrorism for certain categories of DoD buildings under the Unified Facilities Criteria (UFC) 4-010-01: Antiterrorism Standards for Buildings, which can be used by the designers of other buildings as well.

Because fire is a deadly threat common to all buildings, it requires special attention. A good portion of the International Building Code (IBC) is dedicated to ensuring occupants are protected in the event of fire. Code provisions focus on building design and construction, with the goal of containing a fire (i.e., preventing it from spreading) while ensuring safe egress for occupants in every building type, from single-family homes to high-rise office buildings. This is the purpose of fire ratings for assemblies and doors—to ensure they can contain a fire for a certain period of time. For example, a 1-hour fire-rated door should be able to withstand a fire for at least 1 hour before failing. We will explore this concept further in a later section.

Photo courtesy of SAFTI FIRST Fire Rated Glazing Solutions



Ensuring buildings can withstand the challenges of an increasingly hostile environment includes protection from wind, rain, and wild fire. Improved building design technologies can include fire- and hurricane-rated curtain walls, as shown here, to provide additional protection from high-velocity wind events.

Now, let’s take a look at the common categories of natural and man-made hazards and typical mitigation strategies for each.

DESIGNING FOR SPECIFIC HAZARDS

When we talk about hazard mitigation, we’re referring to strategies that minimize risk. Each hazard type poses specific challenges to buildings and requires specific mitigation strategies, though these sometimes overlap. Here is a brief overview of the major categories of hazards:

Water Inundation

This occurs any time water penetrates the building envelope, typically during a flood. Flooding occurs on the coast, along rivers, creeks, and other waterways, and in urban environments when stormwater systems are overwhelmed. Mitigation strategies include avoiding sites in the floodplain, elevating structures or critical equipment, dry floodproofing (preventing water from entering a building or portion thereof), and wet floodproofing, which allows water to enter the building but requires materials and finishes that can withstand prolonged contact with water.

Wind

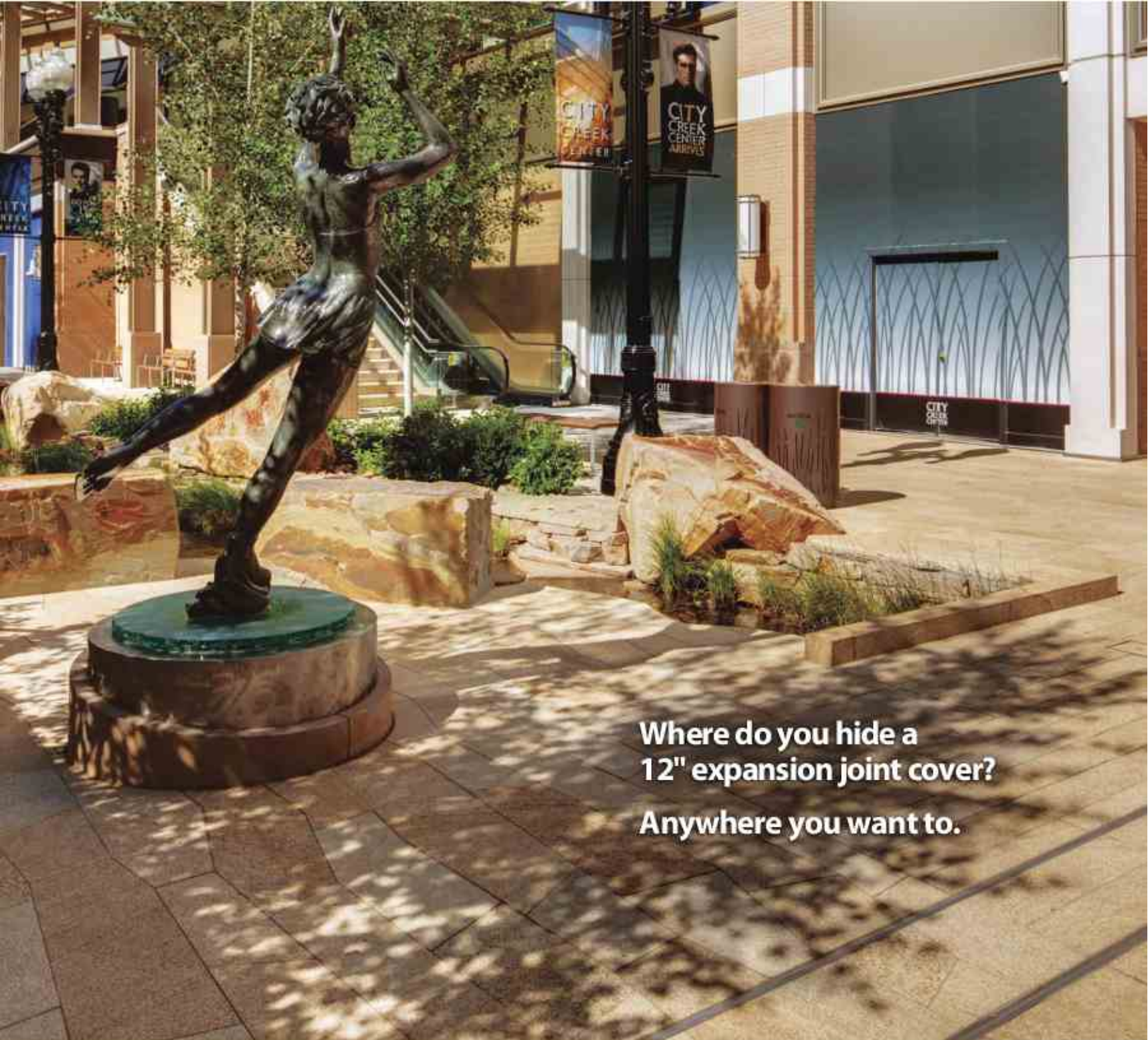
High winds often are associated with storms such as hurricanes, tornadoes, and typhoons, but they can occur independently as well. Typical mitigation strategies include addressing weak points in the buildings so that they can resist the lateral and uplift forces; protecting windows and openings from potential impacts from wind-borne debris and/or specifying impact-resistant glazing and framing systems; strengthening the connections between structural components; and ensuring adequate connecting to the foundation. Safe rooms are also a form of mitigation.

Earth Movement

Though primarily associated with earthquakes, earth movement encompasses a variety of hazards, including landslides, tsunamis, and seiches (mini-tsunamis on inland lakes). Mitigation depends on the level of protection desired but usually involves strengthening the building structure and the connections between structural components, bracing nonstructural components so they do not break loose during an event, and designing expansion joints that allow a building to withstand both lateral and vertical movement.

Fire

Fire is a unique hazard in that it can potentially occur in any building. Fires can start in any type of structure in any location; they can be human-made or “natural.” Much of the building code requirements were developed to protect occupants from fire hazard, and mitigation strategies



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consider the building's design, construction, materials, and more. Structures located in the wildland-urban interface (WUI) represent a special problem. Mitigation strategies in the WUI are more effective when adjacent properties implement them as well. Such strategies include creating a defensible space around the building; specifying noncombustible (or ignition-resistant) materials; protecting eaves and overhangs; and incorporating fire-suppression systems (interior or exterior sprinklers), alarms, and firestop walls.

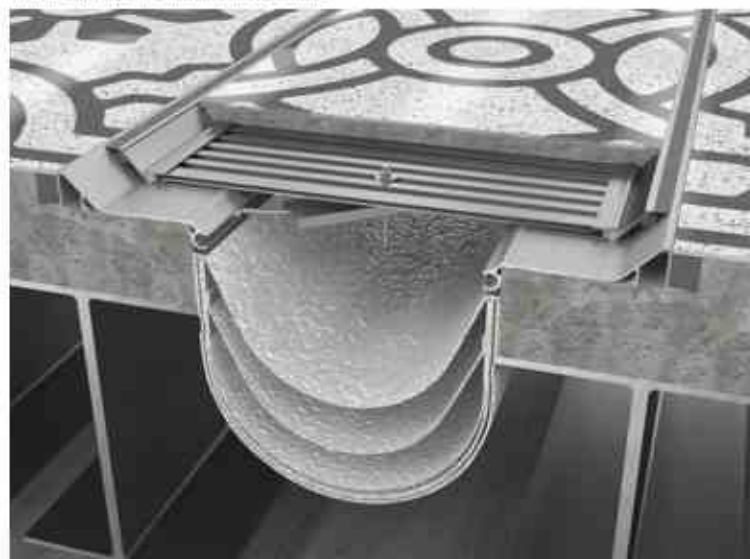
Terrorist Attacks

Some of the weapons commonly used by terrorists include explosive devices, guns, and chemical or biological weapons. Explosions exert tremendous forces on a building, from the initial shock wave to the negative pressures that follow it. The impacts to buildings include structural damage, fire, and injuries caused by flying debris and high-velocity glass fragments. Mitigation strategies include prevention of the attack (through intelligence and early warning systems); delaying the attack with the creation of buffer zones; strengthening the building's structural integrity; and addressing vulnerabilities in the building envelope, including windows and doors.

Secondary Hazards

It's also important to understand that exposure to one hazard can leave a building more vulnerable to another hazard. For example, buildings at or near the bottom of a slope that recently experienced a fire may be exposed to flooding and mudslides should the fire be followed by heavy rains. Earthquakes often destroy gas and water lines, leaving buildings vulnerable to fires.

Image courtesy of Construction Specialties



Seismic expansion joint covers allow for movement while preserving the safety and aesthetics of a finish surface.

THE FIRST LINE OF DEFENSE

For many, if not all of these hazards, the building envelope is the first line of defense. The envelope consists of the structure—roof, foundation, and walls—insulation, weather-resistant barriers, sheathing (if present), and cladding. As our expectations (and code requirements) for buildings have risen, building envelope design has become much more complex. Many components perform multiple functions, and manufacturers must ensure that these goals do not interfere with each other. For example, windows in a hurricane zone must be impact resistant, but depending on the project goals, they must allow or prevent solar gain, as desired, provide daylighting, and contribute to the envelope's energy performance. And they must be correctly flashed and integrated with adjacent components to ensure they are airtight and do not allow moisture intrusion.

Although it is possible to design and build strong, weather-tight, high-performance envelopes, it is also more critical than ever that all of these components work together correctly as a system, else they may create unintended problems such as moisture retention, which can lead to mold and/or rot. In response, many manufacturers are offering "systemized" products and also providing third-party testing validation and technical support for designers and builders to ensure correct installation in the field.

The building industry has responded to this increasing complexity and expectation that products should mitigate one or more specific hazards by developing products that promote durability, safety, and security. (Some of these products also address other design goals, such as energy performance and aesthetics.) Let's look at a few examples:

Expansion Joint Covers

Expansion joints allow for expansion and contraction of the building structure when exposed to heating, cooling, or movement from wind or a seismic event. These joints can also provide a pathway for fires and leave "gaps" in floor coverings and walls that could pose a safety hazard. Consequently, manufacturers have developed expansion joint covers that still allow for the necessary movement but also ensure the building's safety and aesthetic integrity. Some also include firestop material, which helps an assembly maintain its fire-resistant rating.

Mineral Wool Insulation

Insulation is vital to a building's energy performance and acoustical comfort. However, insulation types vary in their performance as part of a fire-rated assembly. Mineral wool and unfaced fiberglass insulation are the only types of insulation that are naturally noncombustible, but mineral fiber has a significantly higher melting point and so can potentially provide for fire containment and help slow the spread of flames.

Fire-Resistive Glass

As discussed earlier, architects expect windows to perform many functions, and in some cases, windows must be able to withstand several types of hazards. Fire-protective glass is used in many fire-rated assemblies; it is designed to compartmentalize smoke and flames but is limited to certain sizes and applications. Fire-resistive glass that meets ASTM E-119 is designed to compartmentalize smoke and flames and also to block radiant heat; it is not limited in size or application. Consequently, fire-resistive glass gives architects more design freedom while ensuring they meet the requirements for fire-rated assemblies in their projects.

Image courtesy of Owens Corning



Mineral wool insulation comes in unfaced batts, loose fill, and rigid panels.






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This 2-hour stairwell includes fire-resistive clear butt-glazed walls.

Disaster-Proof Doors

Architects may be faced with specifying door systems, including the door, frame and hardware, which have been validated by third-party testing to withstand specific hazards, including tornadoes, bomb blasts, or bullet impacts. These door systems may either be required by code or requested by the project owner. Manufacturers offer engineered systems tailored for these specific hazards, including those that can be customized to meet the aesthetic requirements of a project.

LEVELS OF PROTECTION

When designing a building, the architect must understand the desired level of protection. This of course will depend on code requirements but also on the project owner, whose goals may exceed what is required by code.

The level of hazard protection required by code depends on several factors, including the nature of the hazard, the degree of the threat, and the building type. In general, high-occupancy buildings and buildings deemed "critical facilities," such as hospitals and police stations, for example, require higher levels of protection.

The IBC requires that structures be classified by use and occupancy, as defined in Chapter 3, and by type of construction, as defined in Chapter 6. These classifications are used to determine the level of protection against various hazards.

ASCE 7, a standard referenced by the IBC and other codes, defines four building occupancy categories:

I: Buildings and other structures that represent a low hazard to human life in the event of failure, including agricultural, temporary, and minor storage facilities.

II: All other structures that aren't in categories I, III, or IV.

III: Buildings and other structures that represent a substantial hazard to human life in the event of failure. Examples include buildings with an occupant load over 250, and health-care facilities with an occupant load of 50 or more resident patients without surgery or emergency-treatment facilities.

IV: Buildings and other structures designated as essential facilities. Examples include police stations, fire stations, and hospitals.

Buildings with a higher criticality and occupancy usually require more stringent designs. For example, buildings in Occupancy Category IV have more restrictive requirements for fire-rated walls and partitions. A Category III building has a higher "design wind speed" (i.e., must resist higher wind loads) than a Category I building in the same location. Occupancy categories are used in tandem with other information to determine the level of required protection for various hazards. For example, seismic hazard categories are based on both the occupancy category and the proximity to expected seismic activity.

Section 602 of the IBC defines five construction types, each with different levels of fire protection requirements and allowable use of combustible materials. Table 601 lists building elements by category, along with the required level of combustibility and fire resistance. These elements include the structural frame, exterior and interior load-bearing and non-load-bearing walls, and floor and roof elements. The table gives each of these elements a fire-resistance rating ranging between 0 and 3 hours. This rating indicates the minimum amount of time the element must be able to contain a fire while maintaining its structural integrity.

© Clark Nexsen



Custom-engineered blast-resistant doors were installed in a new barracks facility at the United States West Point Military Academy.

Continues at ce.architecturalrecord.com

Andrew A. Hunt is vice president of Confluence Communications and has been a writer and consultant in the green building and building science industry for more than a decade. He has authored over 100 continuing education and technical publications as part of a nationwide practice. www.confluencecc.com

PRODUCT REVIEW

Built to Endure

AMBICO Limited

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Blast-Resistant Arched Transom Frame and Door Assembly

The Davis Barracks at West Point Military Academy required an ornate arched transom frame design that incorporated recessed paneled doors and transom panels. The entire assembly had to comply with Unified Facility Criteria (UFC) 4-010-01 standard for minimum antiterrorism door and frame assemblies. AMBICO's ability to perform blast analysis for unique designs proved essential in the blast performance certification of this assembly.

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Construction Specialties

Image courtesy of Construction Specialties



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CS' SSR/SSRW seismic expansion joint cover is designed to handle everyday thermal movement as well as multidirectional movement that occurs during an earthquake. This virtually invisible floor cover accepts a variety of floor finishes to provide a seamless transition over expansion joints.

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safti.com/product/superlite-ii-xlm-120/

The Ins and Outs of IMPs

Armed with the various design options offered by insulating metal panels, together with some best practices for project coordination and installation, architects will be best equipped to deliver successful IMP wall and roofing projects

Sponsored by Metal Construction Association, IMP Funders Group

Insulated metal panels are an attractive, energy-efficient, and cost-effective way to deliver a turnkey building enclosure with a vapor and water barrier and continuous insulation, as pictured here at Chicago's 1611 West Division apartment complex.



Photo courtesy of Kingspan

Known for its exceptional aesthetics, envelope performance, spanning abilities, and one-step installation, insulated metal panels (IMPs) are a popular choice for today's commercial, institutional, and industrial facilities.

Breaking out beyond its traditional cold-storage applications, architects and building owners are taking advantage of IMPs' growing architectural options, aesthetics, structural integrity, energy efficiency, lightweight, and low maintenance for a wide variety of projects ranging from corporate settings to sports facilities to educational buildings.

"Using IMPs is a frequent practice with many of our projects," reports Cassie Robertson, preconstruction manager, DPR Construction, Phoenix. "If you have a client that's looking for a good-looking facade but not wanting to exert the time, money, and effort on a customized project, IMPs are a great solution to get an insulated facade up rather quickly."

"They are a holistic design solution, which drastically reduces install time in lieu of other materials that require multiple trades and multiple schedules," adds Bruce Beahm, AIA, principal, Populous, Kansas City, Missouri.

CONTINUING EDUCATION



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Learning Objectives

After reading this article, you should be able to:

1. Review the continuous insulating qualities, vapor and water protection, one-stop-shop installation, low maintenance, and aesthetics offered by insulated metal panel (IMP) walls and roofing.
2. Explore valuable best-practice building team insights for designing and installing IMPs.
3. Gather information on the unloading, loading, and storing of panels and dealing with details, including cut backs, end laps, penetrations, and roof curbs.
4. Develop a better understanding of thermal bow and how to best address it.
5. Review successful IMP designs and installations.

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.

AIA COURSE #K1803D

Photo courtesy of RHEINZINK



Clad in zinc panels, IMPs enclose the new 110,000-square-foot Williamson College of Business at Youngstown State University in Youngstown, Ohio.

As a turnkey option, delivering a full vapor and water barrier—along with continuous insulation—IMPs are an easy way to meet growing code requirements, which Robertson says is a major selling point amongst end users.

To deliver this high-performance insulation, foam is injected between two metal sheets where it then undergoes a chemical reaction, causing it to rise and bond to the metal skins, thereby filling the interior cavity. The result is a solid monolithic panel that maintains a consistent thermal value and also resists moisture, insect, and rodent infiltration.

As of recently, IMPs are not only considered the primary exterior finish but are also now being designed in as the primary building envelope that can be clad with various secondary rainscreen materials, relates Dan Hooper, president, Universal Wall Systems, Grand Rapids, Michigan.

"This barrier wall provides a quick building enclosure over a simple framing system that can facilitate the schedule of the interior buildout, and ultimately reduce the overall project schedule and cost of the project general conditions," he says.

ARRAY OF DESIGN OPTIONS

Coming a long way from the uniform, boxed designs of the 1960s, today's IMP manufacturers offer a growing palette of design options, including a wide range of flat and profile panels, color, texture, panel width, joint size options, and joint orientations. IMPs can also be curved and formed, and come in a variety of high-performance coatings.

"IMPs have developed from the early ribbed metal-faced panels to now include a variety of smooth and textured metal modular wall panels integrated with reveals, trim, windows, and louvers," reports Phil Kazba, FCSI, CCS, AIA, SpecGuy Specifications Consultants, Mount Dora, Florida.

Expanding upon the various profiled options, designers can choose walls that are ribbed, fluted, or planked. For flat walls, they can be flat, textured, or striated.

Additional design features include joint reveal widths, formed corner panels, end folds and treatments, heavier gauge flat facings, and high-performance coatings. Performance wise, architects can specify various panel insulation values, span lengths, and load/span capabilities.

"From an architectural perspective, the panel sizes, orientation jointing, exposure, cuts, texture, etc. are all commonplace items to consider with metal panel fabrication," explains Robertson.

For IMP roof systems, the latest products come in a nice array of colors, textures, finishes, and sizes. Typical modules are sized at 24 inches, 30 inches, 36 inches, and 42 inches, with thicknesses ranging from 2 inches to 6 inches, and lengths from 8 feet up to 52 feet.

For improved appearance with economy, architects can specify multiple profiles to the metal facing, such as light striations, planking, deep ribbing, or stiffening beads.

Another feature is embossing, which creates surface texture on metal coils. This process flattens wavy coils and eliminates the "mirror" effect of smooth finishes. It is also a useful way to mask minor blemishes such as paint scratches and surface variations. Nondirectional embossing can be applied to create a uniform pattern, whereas directional embossing produces linear lines along the length of the coil.

The most commonly used metal substrate for IMP faces are G90 galvanized steel or aluminum-zinc coated steel, while some custom panels are made from stainless steel or aluminum.

A typical interior finish is a standard polyester 0.8 millimeter—including the primer—in a light-reflective and easy-to-maintain color. United States Department of Agriculture (USDA)-compliant finishes and stainless steel are also available for required applications, such as food processing and storage.

To help architects navigate through the various options, Kevin Haugh, AIA, architect, associate, CRB, Broomfield, Colorado, recommends working with product reps to gain exposure and gather input on the different uses and types of panels offered. "Manufacturers have the experience and product knowledge to steer architects to the right product for the application," he says. "Usually the architectural conceptual design will drive the panel profile. Then, using vendor information, we find a panel that meets the design intent."

"Invite these manufacturers to your office for a discussion around current projects these solutions could apply to and allow them to demonstrate their product lines and show photos of built projects," agrees Beahm. "They can be a valuable guide when selecting the right IMP system for specific projects to ensure the product meets the design intent and is detailed to include proper fit and finish."

Continues at ce.architecturalrecord.com



The new headquarters for Soraa, a leading developer of solid-state lighting products, features a smooth, flat exterior incorporating more than 22,000 square feet of 3-inch, 22/26-gauge architectural wall panels in a blend of white and granite hues.

Photo courtesy of Masti-Span



The Metal Construction Association's Insulated Metal Panel Funders Group comprises leading manufacturers, resellers, and suppliers who are dedicated to growing the use of insulated metal panels (IMPs). www.metalconstruction.org

All images courtesy of Watts Water Technologies



Hospitality facilities come in different types and sizes, but all of them have the need for large quantities of high-quality water for different uses.

Water Safety and Efficiency in Hospitality Buildings

Back-of-house water systems can impact guest satisfaction throughout a facility

Sponsored by Watts Water Technologies | By Peter J. Arsenault, FAIA, NCARB, LEED AP

Hospitality facilities come in a variety of types and styles. At one end of the spectrum are full-service hotels which are noted for providing a very upscale, even luxurious experience for their guests. These properties often have multiple food service options, including banquet facilities and expansive pool areas that offer food and beverage as well as on-site laundry services and a full range of all other amenities and services. At the other end are limited-service facilities that are geared to travelers seeking economy. While these locations may not offer a restaurant as part of the property, they do increasingly offer other basic amenities such as modest fitness rooms, self-serve guest laundry, swimming pools, and small meeting rooms. In between these two ends of hospitality types are a hybrid style known as select service hotels. This type has been the fast-

est growing segment of hospitality construction believed to make up about 80 percent of new hotel openings in recent years. These properties typically have some limited food service capabilities and other selected service and amenity offerings. They tend to keep operating costs in check by offering those services and amenities in moderation.

Regardless of the type of hospitality property, one thing that all of them have in common is that they are all typically very large consumers of water, both heated and not. Guests and patrons of any of these establishments have come to expect the fundamental service of hot and cold water to be abundantly available and controllable just as it is in their own homes, if not more so. Of course with hundreds, even thousands of guest rooms in a single facility all requiring water, often all

CONTINUING EDUCATION



1 AIA LU/HSW

Learning Objectives

After reading this article, you should be able to:

1. Identify the unique and specific water-related demands of hospitality facilities when it comes to guest expectations and operational challenges.
2. Investigate specific safety issues related to water systems in hospitality settings.
3. Assess the solutions available for different parts of a total water supply and drainage system.
4. Describe the lessons learned in some specific hospitality buildings as described in case studies.

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around the same times of day, some design attention is needed to reliably provide that water. In addition, the kitchens, laundries, pools, spas, and even hydronic mechanical systems all need water that is reliable, potable, and free from contaminants. This course will look at some of the most common issues and solutions related to water systems in hospitality settings recognizing that the options are now more advanced and more likely to achieve greater guest satisfaction—if they are designed and specified properly.

WATER DEMAND IN HOSPITALITY FACILITIES

Water demand clearly affects many different locations in a typical hospitality facility. Guestrooms and public restrooms all have toilets that require many gallons per day of cold water plus sinks with the requisite need for both hot and cold water. Showers and bathtubs in guestrooms are large daily users of hot and cold water with the operational challenge of demand time, since most showers are used first thing in the morning as people awake or late at night before guests go to bed. Spas and pools will also typically have showers and restrooms which may or may not have the same time-related hot and cold water demands, but the need is likely predictable at most properties.

Beyond the direct consumption of water by guests, there are plenty of areas that require water for other reasons. Kitchens and laundries use both cold and hot water but require higher temperatures for washing than for bathrooms. That can mean a different method of providing

the higher temperature than may be used for the more typical temperatures. Dining rooms need an abundance of potable drinking water and ice, which needs to be particularly sensitive to the taste of the water. Then there are some utilitarian demands for water such as mechanical equipment, pools, landscaping, heated snow melt, and general cleaning. As a user of hospitality facilities, it is easy to take all of these water uses for granted. As design professionals, we can't afford to do that, but instead need to be attentive to the details of providing appropriate hot and potable water in all of these situations.

Beyond abundance and temperature, water quality is important too. Most hospitality facilities are connected to some type of public water source, which is likely treated and tested at a central water plant. Of course, water quality can vary between locations such that even though it is considered safe drinking water per federal standards, it may contain legally acceptable levels of contaminants or treatment chemicals, such as chlorine, that can affect the color, taste, and odor. Further, as the water passes through the distribution lines of the locality on its way to the building, it may pick up other contaminants such that it doesn't have the same qualities as when it left the water plant.

Due to the sheer volume of water used in hospitality facilities, there are multiple reasons that water quality is important. First, it needs to be clear, odor free, and contaminant free for human consumption, including drinking, making ice, and as an ingredient in many food/cooking recipes. Contaminants of concern are not only physical as in sediment or chemicals,

but they are also biological as in unwanted bacteria that can enter the water. Secondly, the degree of "hardness" of the water needs to be addressed since hard water will introduce scale or minerals into the water that can discolor or damage plumbing fixtures and appliances. For all of these reasons, the plumbing system and components for water in a hospitality setting need to be designed to assure that the quality of the water is addressed, controlled, and monitored. To achieve that, it is often best for design professionals to work together with system suppliers during both design and construction to focus on solutions that incorporate overall best practices, not just focus on plumbing products.

GUEST SAFETY AND WATER

Beyond customer satisfaction and comfort, design professionals and hospitality facility staff share in the responsibility of providing safe environments for their guests. Public safety is a common concern in a variety of situations, but there are some very specific ways that water is a player in hospitality settings. While operations and management are important in this regard, so is the fundamental design of water systems to address a few key areas.

Protection Against Scalding

The point where human skin meets heated water is a common safety concern since it is well known that people start to experience pain when water is at or above 106 degrees Fahrenheit. Scalding and burns can occur when the temperature is above that, with severe burns possible in only a matter of 2–3 seconds at 140 degrees Fahrenheit. It is significant, therefore, that a survey conducted at major hotel chains across the United States has revealed a vast majority of hotel sinks, bath, and shower fixtures deliver water at scalding temperatures. Of the first 100 rooms surveyed, more than 91 percent delivered maximum hot water temperatures for showers in excess of 115 degrees Fahrenheit (46.1 degrees Celsius), while 78 percent provided water in excess of 120 degrees Fahrenheit (48.9 degrees Celsius). Clearly, there is a need to address limits of hot water temperature as well as control.

☞ Continues at ce.architecturalrecord.com

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Abundant, pure drinking water is typically needed for food service and beverage operations in hospitality settings.



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Window Sprinklers as an Alternative to Fire-Rated Glass

Architects now have a choice in how to achieve fire-rated partition designs

Sponsored by TYCO | By Peter J. Arsenault, FAIA, NCARB, LEED AP



Interior glazing and windows are popular in many buildings but may require a fire rating to meet code requirements. Window sprinklers and standard glass provide an alternative to fire-rated glazing.

Photo courtesy of Johnson Controls

The International Building Code (IBC), published by the International Code Council (ICC) and adopted by local authorities having jurisdiction (AHJ), has become the basis for demonstrating code compliance in almost all locations in the United States. One of the most common code requirements that architects need to address in commercial (i.e., nonresidential) buildings of all types is the fire separation requirements between spaces. For opaque partitions made of standard construction materials such as masonry or gypsum wall board over framing, there are many different options that have been tested and shown to be compliant. However, for partitions with significant areas of glass, the common assumption has been that some type of fire-rated glass is required to meet the code mandates of fire ratings (i.e., 1 hour, 1½ hour, 2 hour, etc.). In actuality, there is another option in the form of specific application sprinklers that have been designed and tested to meet fire-rating requirements for glass partitions. Referred to as window sprinklers, this alternative offers design flexibility, lighter-weight materials, and significant cost savings when compared to fire-rated glass.

CONTINUING EDUCATION



1 AIA LU/HSW

Learning Objectives

After reading this article, you should be able to:

1. Identify the characteristics of specific application window sprinklers and their ability to be a design alternative to fire-rated glass assemblies.
2. Investigate the code-compliance process for window sprinklers, including the roles of the manufacturer, independent testing organizations, and design professionals.
3. Assess the specific design criteria that are required in the use of window sprinklers in order to maintain the tested fire rating.
4. Specify window sprinklers in a variety of buildings, and recognize the cost-saving potential in the process.

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WINDOW SPRINKLERS: A DESIGN CHOICE

Let's begin with a clear understanding of what a window sprinkler is and is not. When it comes to fire-protection systems in general, the IBC devotes all of chapter 9 to the topic. In the process, it references other code documents, including the International Fire Code and publications of the National Fire Protection Association (NFPA). Specifically, the IBC refers to standard NFPA 13 regarding automatic sprinkler systems for commercial buildings (Section 903.3.1.1) by stating, "Where the provisions of this code require that a building or portion thereof be equipped throughout with an automatic sprinkler system in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13..." There are a few special circumstances where there are exemptions and variations for residential and manufactured housing, but otherwise NFPA 13 is the basis upon which all automatic sprinkler systems are designed and judged.

While most codes and standards are very specific and sometimes seen as limiting, they usually allow some inherent flexibility for alternative safety solutions. NFPA 13 provides for such alternatives by stating, "Nothing in this standard is intended to restrict new technologies or alternate arrangements, provided the level of safety prescribed by this standard is not lowered..." This simple statement has allowed individuals and manufacturers to recognize the limitations of existing technology and develop unique products and ideas to meet the needs of current building designs and the fire-protection community. The recognition of "new technology" that may not be specifically called out in the standard is what allows manufacturers to develop alternative approaches as long as they can demonstrate equivalent performance characteristics to traditional systems.

In the case of window sprinklers, they are treated under NFPA as a type of "specific application" sprinkler. That means there can be particular conditions or applications where a sprinkler designed for a certain purpose can be manufactured and tested to demonstrate how it meets the fire safety intent of the NFPA 13 standard for a specific application. In this case, the protection of non-fire-rated glass partitions is the specific application being addressed. That makes window sprinklers different from standard ceiling-mounted sprinklers that are designed and operated to protect floor and wall surfaces. Window sprinklers are typically part of an overall automatic sprinkler system design in buildings, but the mechanical design of the manufactured sprinkler head plus the location and spacing of the installed sprinkler heads are different than in the rest of the building.

Photo courtesy of Johnson Controls



Window sprinklers used with glass partitions provide design choices that architects can use to create better building designs.

The need for window sprinklers to protect room or space separations that use large glass areas has come from many architectural and interior design schemes that use such large glass walls for a variety of reasons. In some cases, it is for literal visual transparency or observation of activities. In others, it is to enhance shared daylighting and views for building occupants. For some, it is seen as a way to help encourage collaboration and cooperation among building users while still providing some appropriate separation to control sound or other needs. Regardless of the motivation, if the partition in question where the glass is being used is required to provide any form of a fire separation (i.e., along corridors, between adjacent occupancies, etc.), the default assumption has been that fire-rated glass is needed. In some cases, the area (square inches) of the glass is limited by the code, although the type of fire-rated glass can vary. Wire glass products have been available for some time but carry a particularly institutional appearance that can obscure vision, which may not match the overall design scheme. Clear laminated glass with an intumescent layer is also available but is notably more expensive than conventional glass used for interior and exterior windows. Window sprinklers offer an alternative to either of these glass choices.

It is important to note that the use of window sprinklers needs to be paired with the glass partition design. Compatible glass includes single-glazed (single-pane), double-glazed (double-pane), or insulated glass, where each individual pane is a minimum 3/4 inch (6 millimeters) thick. The glass itself needs to be either heat strengthened, tempered, or stronger. Window sprinklers are also only appropriate for vertical nonoperable window assemblies, and they are not intended for operable windows or glass doors—those components need their own fire rating. Since these compatibility criteria

match most common window designs, it is easy to see why the use of window sprinkler systems has been quite successfully used in a wide range of building types, including health-care settings of all types, higher education settings such as academic and lab buildings, and commercial and corporate facilities. They have even been used successfully in multifamily settings where visual connections to common areas is desired but fire separation is required.

The unique characteristic of window sprinklers that allows them to be incorporated into all these buildings is based on several aspects of their design. First, they use a fast response operating element that quickly dispenses water for protection of the glass wall. Second, they rely on a deflector design that wets the entire window, reaching all corners and providing full coverage. From a design coordination standpoint, the piping that the window sprinkler head is connected to can be based on either a vertical or horizontal installation. The more common vertical sidewall approach mimics other sprinkler installations with a vertical pipe extending down through a ceiling or soffit, leaving only the sprinkler head exposed. In this case, a side deflector is used to achieve the full and fast protection. A horizontal sidewall approach is also available, although less commonly used. In this case, the sprinkler piping extends down below the ceiling or soffit, making a 90-degree elbow bend to run horizontally toward the window. This application uses a different sprinkler head design that is based on it pointing directly at the glass to release water for fire protection when needed.

Continues at ce.architecturalrecord.com

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New and Upcoming Exhibitions

Women House

Washington, D.C.

March 9–May 28, 2018

Conceived as a sequel to the famous 1972 exhibit *Woman House*, by Judy Chicago and Miriam Schapiro, this exhibition examines the relationship between women and the home across myriad contexts, through displays of photography, video, sculpture, painting, and installations created by female artists from the 1960s to the present. Organized by La Monnaie de Paris, the exhibit originally debuted in Paris. At the National Museum of Women in the Arts. More information at nmwa.org.

Public Parks, Private Gardens: Paris to Provence

New York City

March 12–July 29, 2018

This exhibition focuses on a boom in landscape design in the 19th century that transformed France's public spaces and personal gardens. The movement will be illustrated through paintings, photographs, and objects like vases from the Metropolitan Museum of Art's collection. Details at metmuseum.org.

Image Building: How Photography Transforms Architecture

Water Mill, New York

March 18–June 17, 2018

This exhibit, organized by guest curator Therese Lichtenstein, conducts a survey of historical and architectural photographers' work from the 1930s to the present, exploring the relationship between architecture, photography, and the viewer. At the Parrish Art Museum. More at parrishart.org.

Junya Ishigami: Freeing Architecture

Paris

March 30–June 10, 2018

For the first time, Fondation Cartier pour l'art contemporain is staging a solo architecture show featuring the work of acclaimed Japanese architect Junya Ishigami. The exhibit will consist of 20 of the architect's projects, including 40 custom-made models, in addition to films, drawings, and other relevant documents. More at fondationcartier.com.

Arakawa and Madeline Gins: Eternal Gradient

New York City

March 30–June 16, 2018

This exhibition looks at the nearly five-decade collaboration between artist Arakawa and part-

ner Madeline Gins, poet and philosopher, which eventually culminated in architectural designs realized on four sites across Japan and East Hampton, New York. Hand drawings, archival material, manuscripts, slides, and an architectural model are among the objects featured in the display designed by Norman Kelley. At Columbia University's Arthur Ross Architecture Gallery. Visit arch.columbia.edu for more.

Ongoing Exhibitions

Inscriptions: Architecture Before Speech

Boston

Through March 11, 2018

Curators K. Michael Hays and Andrew Holder propose an overarching theory for the field of contemporary architecture in this exhibit that includes 400 images and 26 models from over 70 practices including Farshid Moussavi, Preston Scott Cohen, PARA Project, and T+E+A+M. At the Harvard Graduate School of Design. More at gsd.harvard.edu.

Aldo Rossi: The Architecture and Art of the Analogous City

Princeton, New Jersey

Through March 30, 2018

Curated by Daniel Sherer, the exhibit is the second retrospective of Aldo Rossi in the U.S. since 1979 and presents different phases of his career, both chronologically and thematically, through a variety of media including drawings, archival documents, objects, photographs, and film. At the Princeton School of Architecture. More at soa.princeton.edu.

Found in Translation: Design in California and Mexico, 1915–1985

Los Angeles

Through April 1, 2018

Displaying over 250 objects including drawings, photos, models, and film, the exhibition examines Modern and anti-Modern design movements in California and Mexico, along with their connections to each other. Richard Neutra, Luis Barragán, and Clara Porset are some of the architects and designers whose work is on display at the Los Angeles County Museum of Art exhibit. Visit lacma.org.

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March 7–11, 2018

The new fair showcasing 21st-century furniture and furnishing design will include a light installation by New York designers Chen &

Williams, custom wood furniture and sculpture by Kaspar Hamacher, and tapestries designed by Kustaa Saksi. More information at collectible.design.

The Armory Show

New York City

March 8–11, 2018

The show exhibits more than 200 presentations from galleries, artists, and public programming initiatives, featuring the work of 34 artists, its Focus sector will explore how technology affects the body. A daylong summit for curators will be chaired by Naomi Beckwith, curator along with Gabriel Ritter and Jen Mergel of this year's show. More at thearmoryshow.com.

Collective Design

New York City

March 9–11, 2018

The annual fair focuses on materiality in the work of participating galleries. Selected exhibitions focus on 20th- and 21st-century work, with notable participants' including Nina Johnson, Chesterfield Gallery, Chahan Gallery, and Lost City Arts, among others. More information at collectivedesignfair.com.

NHA Annual Meeting and Humanities Advocacy Day

Washington, D.C.

March 11–13, 2018

The yearly meeting of the National Humanities Alliance includes the presentation of the Yates Award to Congress members and culminates with a day of meetings between lawmakers and NHA members to discuss increasing funding for humanities research, preservation, teaching, and community programs. Details at nhalliance.org.

Documenting Cultural Heritage: Strategies and Spaces for Digital Capture

Columbus, Ohio

March 16, 2018

This one-day conference explores various methodologies for digital imaging as it relates to architecture and public spaces. The program will be led by Chris Strasbaugh, the digital archivist and curator for Ohio State's Knowlton School of Architecture, Landscape Architecture, and City and Regional Planning. More at vrafoundation.com.

Europa 7: Baltic States

London

March 20, 2018

Part of a RIBA speaker series meant to connect UK and European architects and designers, this lecture will include three presentations from practices in Estonia, Latvia, and

Lithuania, respectively, as well as from the curators of the first Baltic Pavilion, jointly produced by the three countries at the 16th International Architecture Exhibition at the Venice Biennale in 2012. More information at architecture.com.

Art Dubai

Dubai

March 21-24, 2018

The theme of the 12th edition of this global fair will focus on how machine learning and automation affects culture, featuring lectures, screenings, and exhibitions showcasing the work of about 50 participants, ranging from artists to historians, architects to museum directors. More information at artdubai.ae.

Competitions

Marstopia

Deadline: March 11, 2018 at 11 a.m. (UK time)

This international competition seeks conceptual proposals for defining the vernacular of the first human colony on Mars. Run by *Eleven* magazine (and agency), designs from interdisciplinary teams of students and/or profession-

als are accepted. Judges include Andrew Aldrin, son of the legendary astronaut Buzz Aldrin, and partner Marc Guberman from Foster + Partners. For more information, see eleven-magazine.com.

Architecture in Perspective 33

Deadline: March 16, 2018

This annual competition, run by the American Society of Architectural Illustrators, honors the best architectural illustrations and accepts submissions in any medium, including drawings, paintings, renderings, and digital imagery. The winner will receive the Hugh Ferriss Memorial Prize, the top honor for architectural illustration. Visit archinperspective.com.

Braun Prize 2018

Deadline: March 20, 2018

The international design competition run by German consumer products company Braun calls for concepts from students or young designers for new products that improve quality of life in any aspect. Proposals can be submitted in 2-D or 3-D formats, and the first prize is \$75,000. More information at braunprize.org.

The International VELUX Award

Registration deadline: April 1, 2018

This biennial international architecture competition, with its perennial theme "Light of Tomorrow," is seeking design proposals for its 2018 edition. Only students are eligible to apply. Submissions should explore how daylight can be used to enhance buildings and the well-being of their occupants. Jurors include Rick Joy and Pritzker Prize-winner RCR Arquitectes. Details at iva.velux.com.

Community Center in Nepal

Registration deadline: May 6, 2018

NGO Rook'n Wood is seeking design proposals for a community center on a site near Kathmandu in Nepal. The program should include workshop spaces, a kitchen, and wash-room facilities. The winner, selected by jurors including Atelier Tekuto, Line Ramstad, and Luigi Rosselli, will work with the NGO to construct the center. More information at arch-sharing.com.

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

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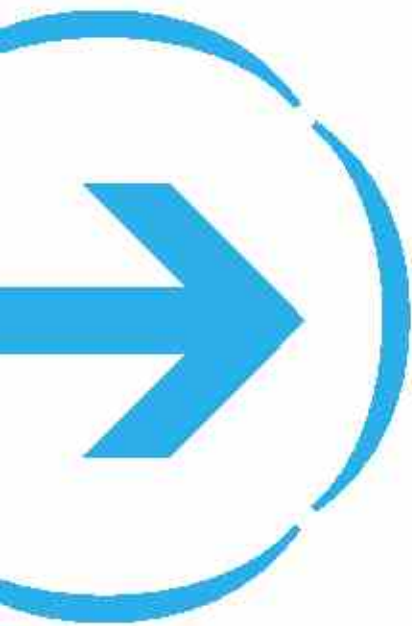
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CALL FOR ENTRIES

Record Interiors

The editors of **ARCHITECTURAL RECORD** are currently inviting submissions for the **2018 RECORD INTERIORS** issue. All architects registered in the United States or abroad, as well as interior designers working in collaboration with architects, are welcome to submit interiors-only projects that have been completed in the last year. The projects may be new construction, renovation, or adaptive reuse; commercial or residential; domestic or international. Special consideration will be given to works that incorporate innovation in design, program, building technology, sustainability, and/or materials. The winning projects will be featured in the September 2018 issue. The fee is US\$75 per entry.



SUBMISSION DEADLINE: MAY 18, 2018

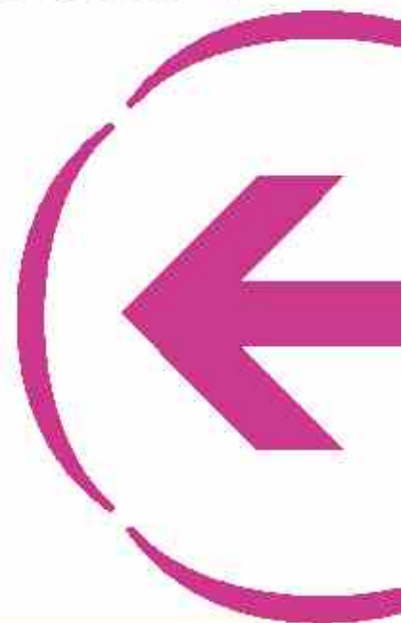
CALL FOR ENTRIES

Record Kitchen & Bath

The editors of **ARCHITECTURAL RECORD** are currently accepting submissions for the **2018 RECORD KITCHEN & BATH** competition. Entry is open to any registered architect, as well as any designer working in collaboration with architects, who has completed an innovative residential and/or commercial kitchen or bath project in the last year. We are looking for projects that feature unexpected materials, address unique client needs, or are designed in a manner that allows these utilitarian spaces to be functional, sustainable, and beautiful. Winning projects will be featured in the September 2018 issue. The fee is US\$75 per entry.



SUBMISSION DEADLINE: MAY 18, 2018



**For full details and to submit your entry, visit:
architecturalrecord.com/call4entries.**

E-mail questions to arcallforentries@bnpmedia.com. Please indicate the contest name as the subject of your e-mail.

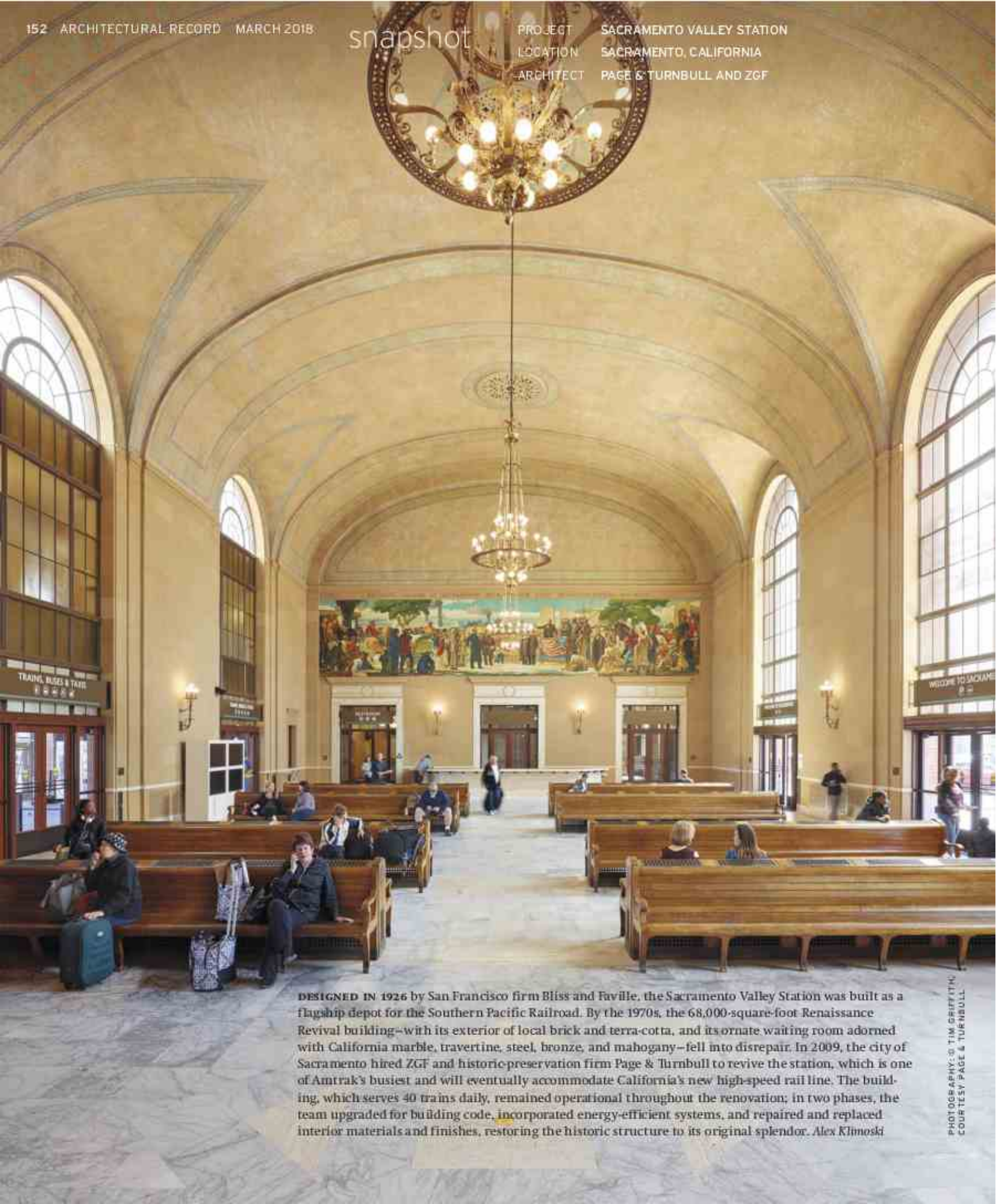
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DESIGNED IN 1926 by San Francisco firm Bliss and Faville, the Sacramento Valley Station was built as a flagship depot for the Southern Pacific Railroad. By the 1970s, the 68,000-square-foot Renaissance Revival building—with its exterior of local brick and terra-cotta, and its ornate waiting room adorned with California marble, travertine, steel, bronze, and mahogany—fell into disrepair. In 2009, the city of Sacramento hired ZGF and historic-preservation firm Page & Turnbull to revive the station, which is one of Amtrak's busiest and will eventually accommodate California's new high-speed rail line. The building, which serves 40 trains daily, remained operational throughout the renovation; in two phases, the team upgraded for building code, incorporated energy-efficient systems, and repaired and replaced interior materials and finishes, restoring the historic structure to its original splendor. Alex Klimoski



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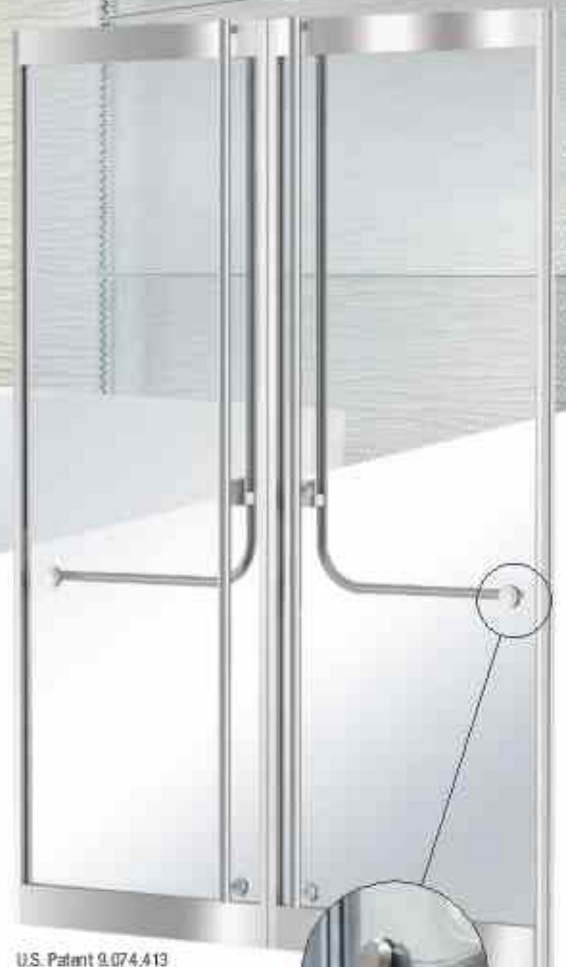
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