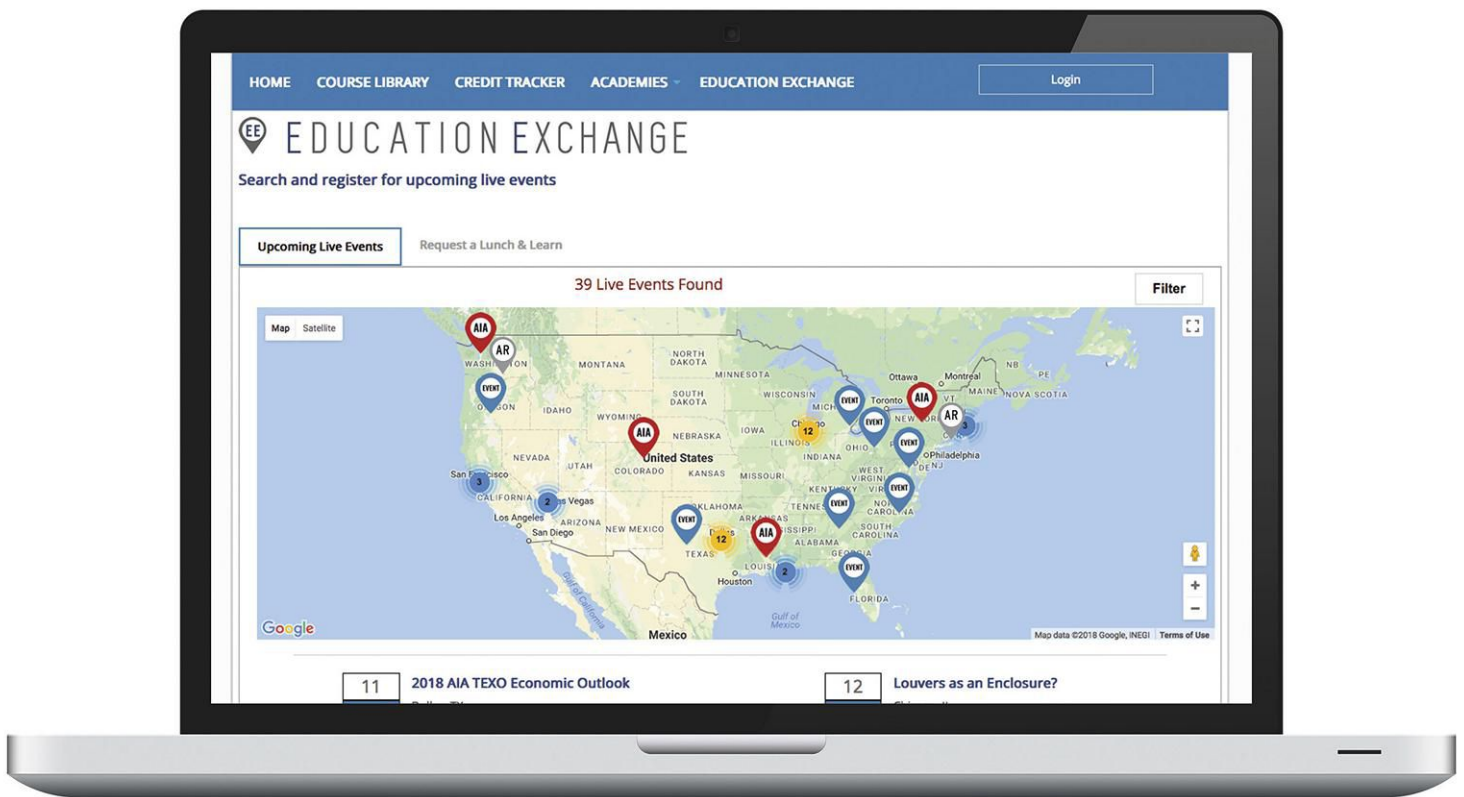


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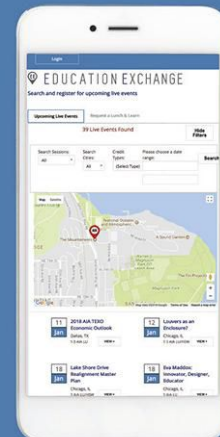


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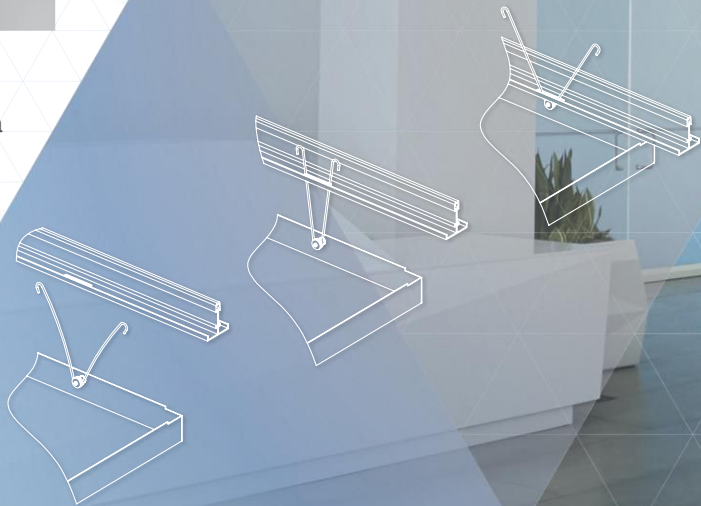
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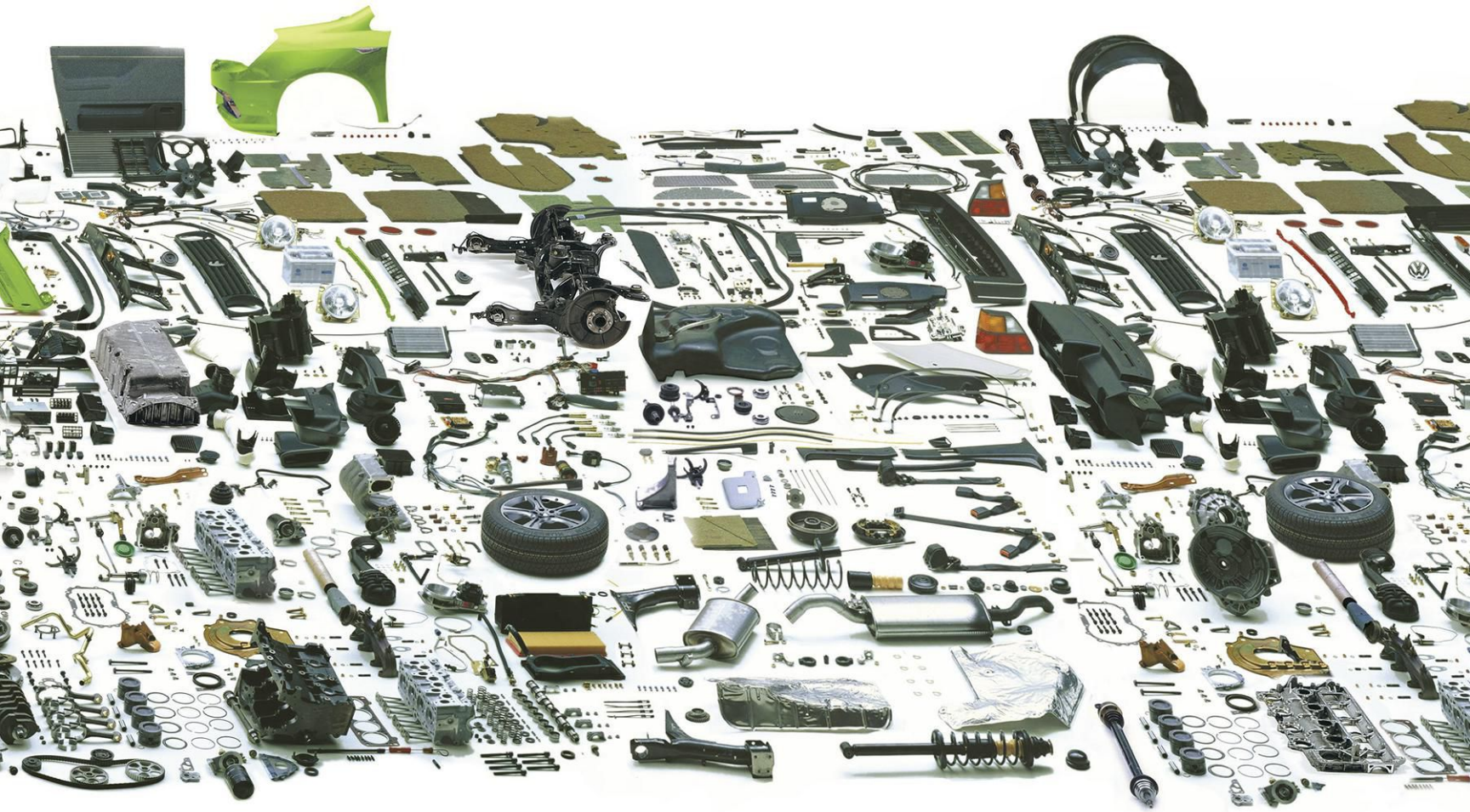
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Architect: Rossetti
Structural Engineer: WSP Parsons Brinckerhoff
Photograph: Rafael Gamo

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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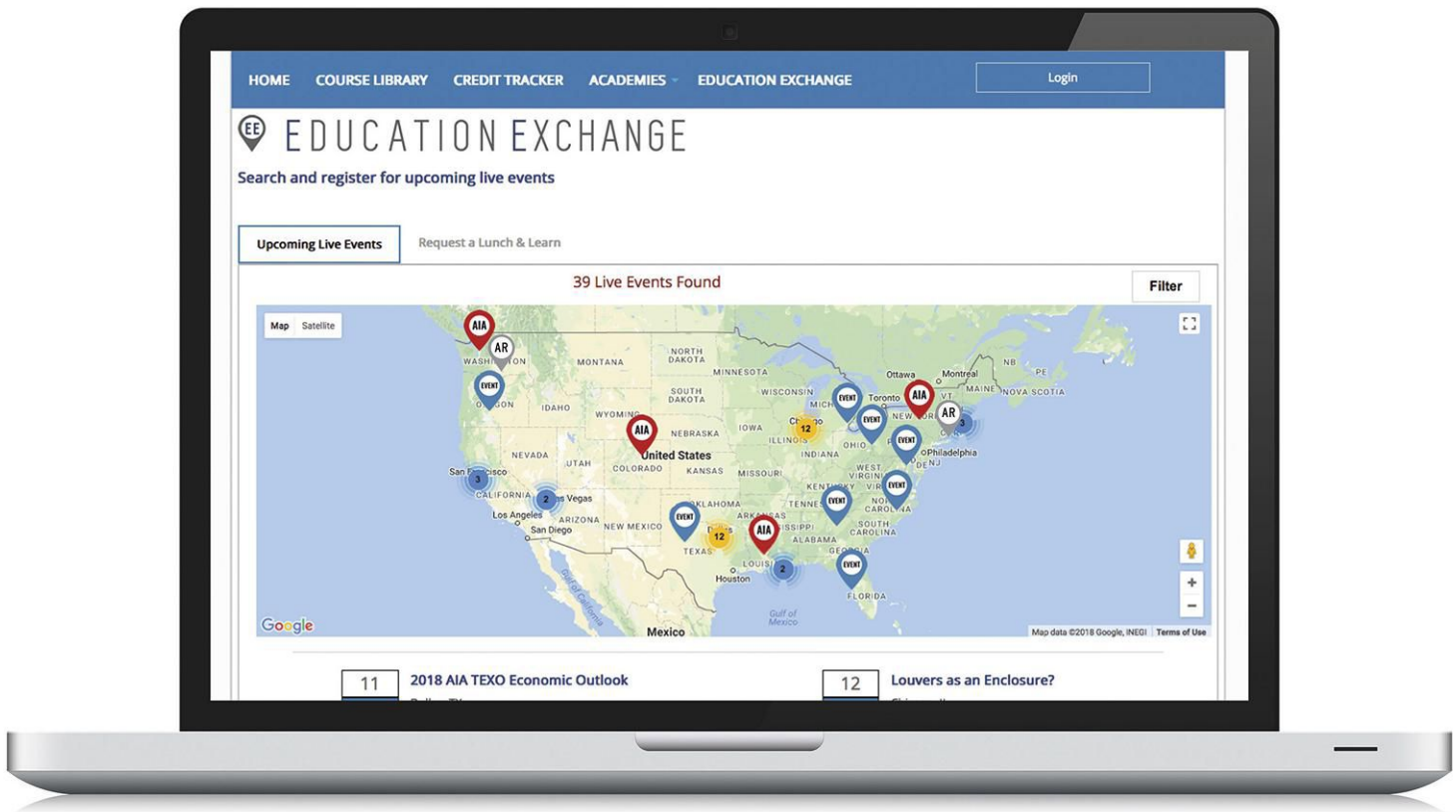
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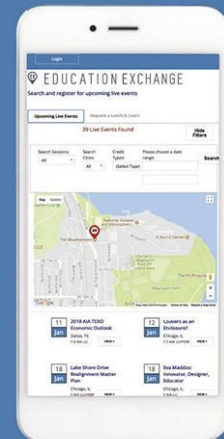


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Architect: Bjarke Ingels Group
Photograph: Enclos



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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COVER: TRIBUNAL DE PARIS, FRANCE, BY RENZO PIANO BUILDING WORKSHOP. PHOTO BY MICHEL DENANCÉ.

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MUSEUM

Designed by Maki and Associates, the Japanese Sword Museum recently opened in Tokyo. Read our exclusive story about it online. [PROJECTS]



INSTALLATION

See updates from the unveiling of this year's Valentine's heart installation in Times Square on February 1. Designed by 2014 Record Design Vanguard firm ArandaLasch and Brazilian designer Marcelo Coelho, *Window to the Heart* is a 12-foot, 3-D printed Fresnel lens—the world's largest. [NEWS]



VIDEO

Mexican architect Tatiana Bilbao discusses social architecture in a new video by PLANE-SITE for a series commissioned by the GAA Foundation and funded by the European Cultural Centre. The short *Time-Space-Existence* films, each featuring a prominent architect discussing his or her design philosophy, are being released incrementally in anticipation of a synonymous exhibition at this year's Venice Architecture Biennale. [NEWS]



COCKTAILS & CONVERSATION

On January 5, AIA New York and the Center for Architecture hosted a discussion between architect Tom Kundig (above, at left) and Record editor in chief Cathleen McGuigan (above, at right) about the course of the Olson Kundig principal's career. Bartender Toby Cecchini (above, right), owner of Long Island Bar in Brooklyn, mixed a custom cocktail called the *Tectonic Shift*, inspired by Kundig's early geophysical proclivities. [INSTAGRAM]

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Living on the Edge

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CIVIS, CIVILIS, CIVITAS. Citizen, civil, city.

This month, we look at buildings whose function is rooted in those closely related Latin words—civic buildings that serve citizens in the city and house the institutions underpinning what we have come to call civilization. Few architects today would conceive a public building along the lines of an ancient Roman monument—all pediments and columns—but contemporary civic buildings remain crucial to the life of the city—and some turn out to be catalysts for reviving urban areas that have been in decline.

A case in point: the new Tribunal de Paris by Renzo Piano Building Workshop that will open in April on the northern edge of the city (page 78). For a thousand years, justice has been dispensed from the Île de la Cité in the heart of Paris, but now the courts are relocating to this expansive facility on a former industrial brownfield, just inside the heavily trafficked Boulevard Périphérique. The tribunal is part of a larger plan to spark redevelopment in the neighborhood near the Porte de Clichy, once planned for an Olympic village in Paris's failed bid for the 2012 Games. Just on the other side of the Périphérique is the suburb of Saint-Denis, one of the city's toughest *banlieues*, with high unemployment and crime rates—and where police engaged in a fierce gun battle with terrorist suspects after the tragic November 2015 attacks in the city. It's a tall order to transform such an area, but already change has begun, and Piano's elegant glass building, with its slender, stepped tower and terraced roof gardens, sets a high bar for civic design.

Similarly, the new U.S. Embassy in London, featured on *RECORD*'s January cover, is a catalyst for a rapidly evolving neighborhood south of the Thames called Nine Elms, with high-end apartment towers and offices popping up all around it. Last month, President Trump called the embassy move a “bad deal,” but that misses the point: the old Eero Saarinen–designed chancery, completed in 1960, would have had to be radically renovated to meet today's space and security needs, an almost impossible—and costly—task, given its tight site on historic Grosvenor Square. The building was sold in 2009 to the Qatari sovereign wealth fund and will be turned into a hotel designed by David Chipperfield Architects. Its sale, and that of other London properties owned by the U.S., completely paid for the new \$1 billion embassy by KieranTimberlake, on four acres of riverfront, surrounded by gardens, a moatlike water feature, and other discreet security elements. The selection of KieranTimberlake's scheme marked a new era of design excellence for State Department buildings.

Meanwhile, an already gentrifying neighborhood in Seattle, on the formerly industrial Lake Union waterfront, faced a different kind of problem: what to do about an existing solid-waste transfer station? Despite objections from residents, the dump was staying put. But the new building that's replaced the transfer station, by Mahlum, turns out to be a friendly neighbor—in its planning, its surprisingly handsome low-lying structure, and in the landscaped buffer created as a recreational amenity for the community (page 108).



The success of such projects not only reflects the imagination and sensitivity of the architects but the wisdom of planners who are designating sites and encouraging private development, taking the long view of how cities evolve. Renzo Piano, known for his work on the fringes of Rome, and now Paris, believes in the future of the urban edge. “Cities have a long metabolism,” he says. “They don't change in one year—they change in 30 years or 50 years. But if we keep moving precious items like halls of justice, or universities, or hospitals to the outskirts, we will change the destiny of the city.”

In closing, I want to pay tribute to another champion of the role of architecture in communities, Mildred Schmertz, FAIA, who died last month at the age of 92. Mildred was the first woman editor in chief of *ARCHITECTURAL RECORD* (1985–90) and before that was a longtime writer and editor here (page 24). Armed with a B.Arch. from Carnegie Mellon and an M.F.A. from Yale, she covered the major architectural figures of her day, from Frank Lloyd Wright and Walter Gropius to Edward Larrabee Barnes and I.M. Pei. Of course, almost all successful architects then were men—and Mildred was a rare woman leader in both journalism and the design world. She began her career before Betty Friedan published *The Feminine Mystique* and lived into the #MeToo moment. She was a wonderful colleague, supporter, and friend. We will miss her.

Cathleen McGuigan

Cathleen McGuigan, Editor in Chief

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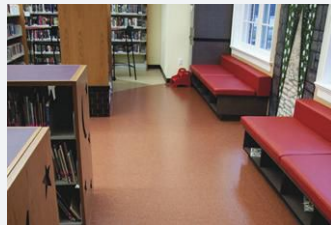


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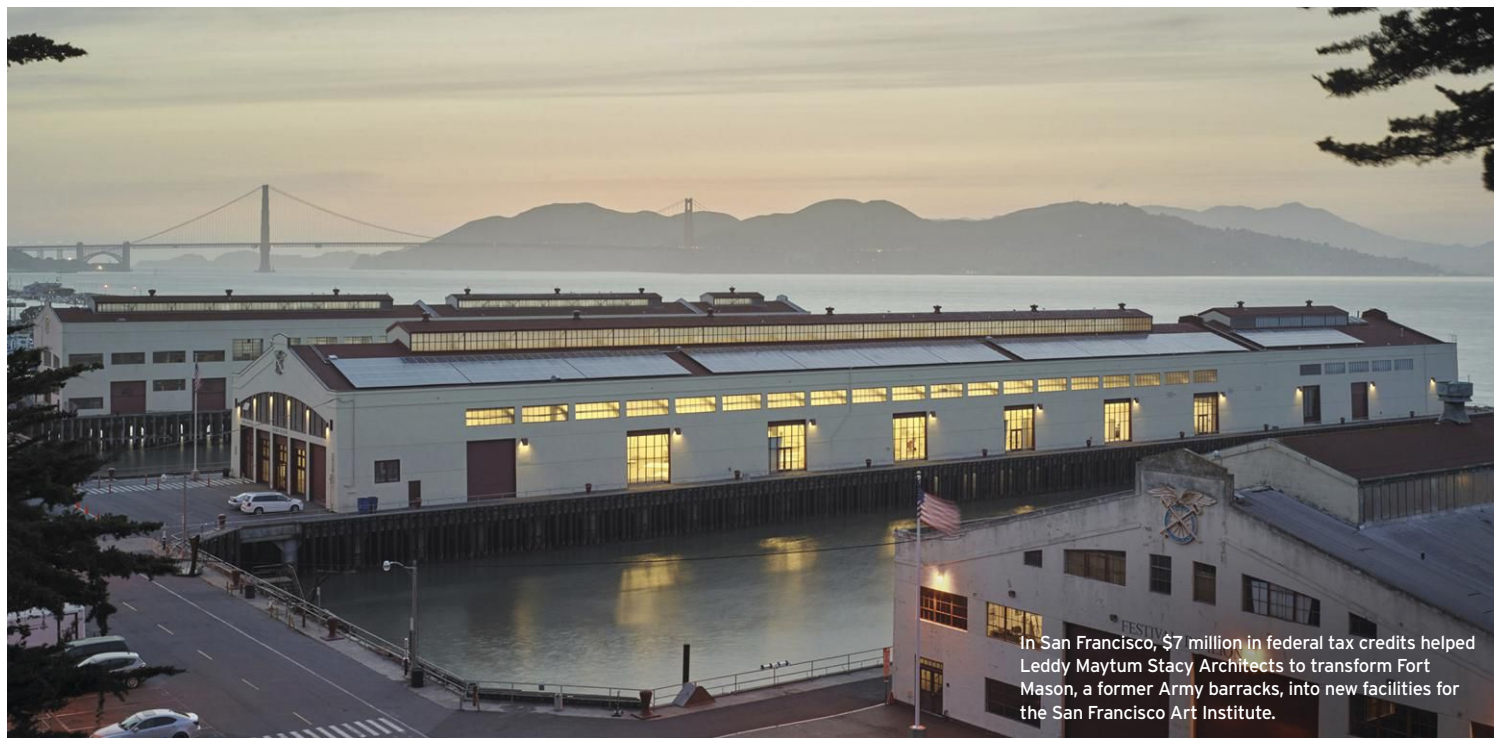
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perspective

I am not a big fan of the Obama Administration having sold perhaps the best located and finest embassy in London for “peanuts,” only to build a new one in an off location for 1.2 billion dollars. Bad deal.

—President **Donald Trump**, tweeting on January 11 about the new U.S. embassy in London, designed by KieranTimberlake.



In San Francisco, \$7 million in federal tax credits helped Leddy Maytum Stacy Architects to transform Fort Mason, a former Army barracks, into new facilities for the San Francisco Art Institute.

Tax Overhaul Leaves Architects Largely Unscathed

BY DEANE MADSEN

LATE LAST FALL, members of the American Institute of Architects (AIA) began receiving updates from the organization's advocacy branch on how proposals for tax reform from the Trump Administration and Republicans in Congress would affect the profession. Within the AIA, advocacy positions had been formulated long before a final bill was released, with the organization matching positions to policy to determine where its lobbying efforts would have the greatest benefit for architects.

In the aftermath of last year's election—in which AIA CEO Robert Ivy quickly endorsed the President-elect on behalf of the entire AIA member body, then just as quickly issued several apologies—the AIA learned how polarized and how vocal its membership was. When strategizing positions related to tax reform, the AIA recognized that its members were as varied in their views as the country's population, representing every shade on the political spectrum. Thus the AIA chose to

focus on three issues that would have ramifications for all architects, regardless of their party affiliation: fair treatment for architects under the new tax laws; protection of the Federal Historic Tax Credit; and the preservation of another tax credit, known as 179D, for efficient building. “The bill at large had the ability to impact all architects in different ways,” says Cindy Schwartz, a senior director for advocacy within the AIA. “We've limited our communications and our work to these specific issues.”

The tax bill, at more than a thousand pages, contains far more complexities than most could begin to understand. In the simplest possible terms, the major change that the AIA pushed for was allowing architects to qualify for an automatic tax deduction. Under an earlier iteration of the new bill, some small businesses—those which are organized as S corporations and pass-through entities, and would therefore be subject to individual

rates—would get an automatic 20 percent tax deduction; the AIA estimates that nearly 40 percent of architecture firms are organized this way. But architects and engineers were specifically listed as being excluded from eligibility for that deduction.

The AIA lobbied to remove architecture and engineering from the list of excluded services, thereby making architects and engineers eligible to receive the 20 percent deduction. The AIA teamed up with the National Society of Professional Engineers, sending a joint letter to members of Congress. “What we highlighted was that it was an issue of fairness for us, the fact that these professions were going to be treated so differently even from others within their own industry, based on the way they'd chosen to incorporate,” says Ian McTiernan, manager of federal relations for the AIA. “Those types of job-creating small businesses should be able to benefit from tax cuts that are going to help all other businesses in the country.”

Elsewhere in the tax bill, legislators in the House had slated for elimination the Historic Tax Credit, which provides incentives in the form of a 20 percent tax reduction in the amount spent on the rehabilitation of certified historic buildings. In the Senate's version, the credit would have been reduced from 20 percent to 10 percent. But following lobbying efforts, the 20 percent credit was maintained, with a modification that the credit be spread over five years. "We worked with [Republican] Congressman Kevin Brady's office from Texas to make known concerns about things in the initial bill," McTiernan says. "We had state [AIA chapter] leaders reaching out, and we were able to get the Senate Finance Committee to make a change which restored the credit almost fully for registered historic buildings, which would have been cut in half."

That the Historic Tax Credit remains in the final bill will have a huge effect on the profession, as the credit gives incentives to developers to upgrade aging structures that would otherwise face the wrecking ball. However, a related incentive, allowing a 10 percent credit for rehabilitation of any pre-1936 buildings, was repealed in the new bill. The AIA downplays that loss, instead focusing on the retention of

the Historic Tax Credit: "Even under previous law, developers would typically pursue a historic designation to earn the 20 percent credit," McTiernan says.

Without those tax credits, some projects simply wouldn't happen, according to Marsha Maytum, FAIA, a principal with Leddy Maytum Stacy Architects in San Francisco as well as the incoming chair of the AIA's Committee on the

"The tax credits were an essential part of preserving that historic landmark."

—Marsha Maytum, FAIA

Environment. "Oftentimes, a landmarked building will have a lot of restrictions on what can and can't be done to it, and if it's not financially viable to rehabilitate it, it will just continue to decay," Maytum says. "The tax credits provide some additional financial support to the organization trying to preserve the landmarked building."

For instance, her firm's recent work on

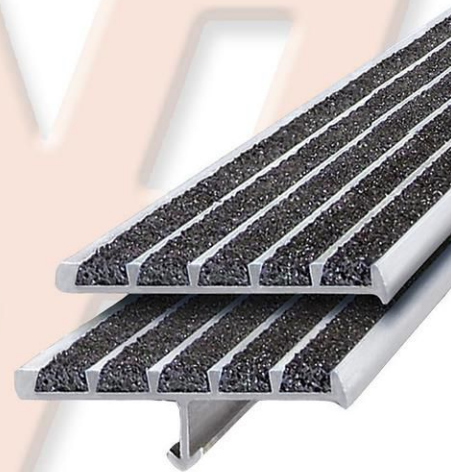
Fort Mason in San Francisco took advantage of \$7 million in federal tax credits to transform a former barracks, which the Army had turned over to the National Park Service (NPS), into facilities for the San Francisco Art Institute. The \$53 million project, which opened last fall, included \$13 million in pier-structure upgrades by the NPS, and \$40 million for renovations and improvements to the 1912 shed, which now houses studios, galleries, and maker spaces for the Art Institute. "The tax credits were an essential part of preserving that historic landmark, seismically upgrading it, integrating sustainable building systems and strategies, and getting a really vibrant arts organization into our community," says Maytum.

The final piece of the AIA's push to influence language in the tax bill, regarding energy efficiency, was less successful: a tax deduction for commercial-building owners who installed energy-efficient systems, known as the 179D deduction, expired in 2016 and was not restored. McTiernan is quick to point out that "energy tax incentives in general were not contemplated under the tax-reform bill." He and the AIA advocacy team remain optimistic: "We're holding out hope that there may be additional avenues to address that." ■



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Obituary: Mildred Schmertz 1925–2018

Record's first female editor in chief actively covered architecture for 60 years.

BY SUZANNE STEPHENS

MILDRED SCHMERTZ, FAIA, died January 9, 2018, at New York-Presbyterian Weill Cornell Medical Center in New York from pneumonia after suffering a fall. She was 92. Schmertz was ARCHITECTURAL RECORD's first female editor in chief—from 1985 to 1990—and the first woman to hold that title at any American professional architectural magazine. She spent 33 years on the staff of RECORD, and during her tenure, the publication won two National Magazine Awards from the American Society of Magazine Editors, in 1972 and 1977. The second of these honors was given for a special issue on human settlements that was supervised and written by Schmertz, a senior editor at the time.

She was inducted as a Fellow of the American Institute of Architects in 1977 and served as a commissioner of New York's Landmarks Preservation Commission from 1988 to 1991. From 1997 to 2010, Schmertz was a contributing writer for *Architectural Digest*, and in recent years published freelance articles for other publications such as *The Architect's Newspaper*.

Schmertz was born on March 29, 1925, in Pittsburgh, the daughter of Mildred Floyd Schmertz and architect Robert Schmertz, who was also a well-known banjo folklorist and songwriter, as well as an architecture professor at Carnegie Mellon, his alma mater. Like her father, Mildred chose to study architecture at Carnegie Mellon, and after getting her B.Arch. in 1947, she worked for an architect, John Schurko, in Pittsburgh. Eight years later, she decided to explore graphic design and entered Yale University, where she earned an M.F.A. in 1957.

Schmertz's graduate thesis proposed a graphic redesign of RECORD: soon after receiving her degree, she joined the art department of the magazine, based in New York. Given her interests and abilities, she soon moved to the editorial staff, reporting and writing a vast number of articles for RECORD. Among many other assignments, she interviewed Walter Gropius and visited Frank Lloyd Wright at Taliesin West, where she photographed the master. She covered the work of other great architects of the day—Le Corbusier, Kenzo Tange, Pier Luigi Nervi, Paul Rudolph, Marcel Breuer, I.M. Pei, Edward Larrabee Barnes, Mies van der Rohe, John Johansen—to name a few.

As senior editor, executive editor, and then



“RECORD would never take a building that is poor or mediocre and boot it around. It sort of seemed crude to have a magazine or a writer attack a building.”

editor in chief, Schmertz covered not only major architectural projects in the U.S. and Europe, but helped expand RECORD's editorial reach globally. She was an early champion of the Aga Khan Award for Architecture, for example, which honors architecture at all scales in Islamic communities around the world. Her award-winning issue on human



Schmertz with His Highness the Aga Khan at the Architectural League in New York in May 2017.

settlements (May 1976) focused on the plight of rural populations migrating in vast numbers to cities in the developing world, with an in-depth case study of Manila, and the sponsorship of an architectural competition to plan a new community for former squatters.

During her time at the magazine, Schmertz also edited and wrote substantial portions of various RECORD books, including *Campus Planning and Design* (1972) *Office Building Design* (1975), and *New Life for Old Buildings* (1982). Most recently, she was a coauthor of *Mitchell/Giurgola Architects* (2008). Schmertz also taught architecture writing—first as a visiting lecturer at Yale (1979), and then in the graduate program for architecture and design criticism at Parsons School of Design (1990).

As a journalist and editor, Schmertz's mission was to present clearly and comprehensively key contemporary architectural works. Negative criticism was not her goal. She explained in an interview for RECORD's 125th anniversary in 2016, “We would simply never do what some other magazines do, or have done, and take a building that is poor or mediocre and boot it around.” As an architect, she was sympathetic to the problems her professional colleagues faced: “It sort of seemed very crude to just attack,” she said.

“Mildred was a tireless advocate for the best architecture of the moment, except for what she deemed a passing fad,” says RECORD's editor in chief Cathleen McGuigan. “She was also, until the very end, great company—a sharp observer of our world, with an even sharper wit.”

Schmertz was active in New York's cultural community, and was the only architect to be among the first 20 women admitted to the Century Association in New York when the theretofore all-male club finally opened its doors to the opposite sex in 1988. Her cohort included Jacqueline Onassis, Beverly Sills, and Toni Morrison.

Schmertz loved biking and cross-country skiing, but architecture remained her dominant passion. “She had a voracious curiosity, whether it was about the design of a city, a building, a magazine issue, or the exquisite design of a piece of equipment in the emergency room,” said architect Deborah Taylor, a longtime friend. “She wanted those around her to appreciate the beauty of a certain product, and the sensibility of its designer.” ■






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NY Governor Reaffirms Commitment to Penn Station Renovation

BY JAKE BITTLE

IN HIS annual State of the State address on January 3, New York Governor Andrew Cuomo reaffirmed his commitment to a large-scale renovation of Manhattan's Pennsylvania Station, the busiest rail hub in North America with 650,000 passengers daily. Calling the current underground facility the "seven levels of catacombs" ("nine circles of hell" would have been more accurate), Cuomo implied the state could use eminent domain to take control of Madison Square Garden (MSG) and other nearby buildings, replacing them with a new terminal that would recapture the glory of McKim, Mead & White's original 1910 masterpiece.

Some changes at Penn Station are already under way: Skidmore, Owings & Merrill is finally carrying out the long-planned renovation of the Beaux-Arts James Farley Post Office, a landmarked building across the street behind the Garden, converting it into a train hall to ease congestion underground. Still, preservation groups, including Rebuild Penn Station,

cheered the governor for what seemed to be an even grander vision.

"I was very pleased with Cuomo's speech," says Rebuild Penn Station chairman Sam Turvey, "because I think he's recognizing that the Farley, while a great addition, doesn't solve the problem of Penn Station. While he didn't say directly that the Garden needs to move, he did say something major needs to happen there."

MSG's lease expires in 2023, at which point the City Council has ordered it to find a new location, and there are already multiple ideas for repurposing the lot. Vishaan Chakrabarti (RECORD, November 2016) of Practice for Architecture and Urbanism, for one, suggests the stadium be stripped down to its skeleton and glazed, becoming a giant atrium. "Commuters now languishing in a fluorescent-lit cave would see natural light and city views," Chakrabarti wrote in a *New York Times* op-ed. Such a renovation would avoid the costs of an entire-



The renovated James Farley Post Office building across from Penn Station will be named for late Senator Daniel Patrick Moynihan, who proposed the idea in the 1990s.

ly new volume while still allowing for the removal of some 200 columns that support the arena, which hinder the expansion of Penn Station's underground concourses.

Turvey says he's "cautiously optimistic" about the possibility of moving MSG, noting that big changes are bound to be contentious. "It's what needs to happen, though," he said. "You're never going to realize the full potential of this region if you continue to funnel people through that hellhole. You can only dress it up so much." ■

IMAGE: © EMPIRE STATE DEVELOPMENT, COURTESY SOM/VOLLEY

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Obama Center Design Evolves

BY JAMES GAUER

ON JANUARY 10TH, the Obama Foundation released new renderings of the Obama Presidential Center (OPC), planned for a site in Jackson Park, an Olmsted and Vaux lakefront legacy of lawns and lagoons on Chicago's South Side. The drawings show subtle but significant revisions to the design by Tod Williams Billie Tsien Architects | Partners (TWBTA) in collaboration with Chicago-based Interactive Design Architects (IDEA). The scheme remains a trio of stone-clad buildings—museum, forum, and library—connected below grade and arranged around a plaza. The low-slung library and forum, largely concealed by regraded topography and lushly planted roof terraces, look mostly unchanged. The design of the plaza has become a bit more complex, with additional courtyards to provide more greenery and shaded outdoor spaces.



The Presidential Center's revised design calls for a taller, narrower tower and more new trees to be planted on the site.

The museum's canted tower has evolved more substantially, partly in response to criticism from local residents and other stakeholders that it was too big. Surprisingly, TWBTA's solution has been to make it taller, increasing its height from 178 to 235 feet, but decreasing its footprint, thereby making its proportions leaner and less squat. *Chicago Tribune* architecture critic Blair Kamin quoted Tsien as saying, "I don't feel embarrassed about it being tall. This isn't a private homage. It's a public recognition of many people's stories."

The other major revision to the tower, in response to complaints that it was too opaque, has been to make it more transparent, not an easy trick with a structure sheathed in stone.

To achieve this goal, the architects have enlarged and added windows, including a 100-foot-tall stretch of glass on the north elevation. They've also recast large sections of the southeast and southwest corners as filigree screens of stone letters. It's not yet clear whether these will be abstractions or quotes from Barack Obama, but the renderings suggest they could transform what had been a brooding monolith into something more sculptural and luminous.

In addition to these design changes, community activists have scored other victories. The Obama Foundation recently awarded a \$300 million contract to the Lakeside Alliance, a collective of five local construction companies, most of them owned by African-Americans. And a much-derided aboveground parking facility on the Midway, an adjacent public park, has been scrapped in favor of an underground garage within OPC's site.

Obama's professed hope that OPC will be "an economic engine for the South Side" has come under fire from a surprising quarter: the University of Chicago, where he once taught. An open letter signed by over 100 professors and other faculty asserts OPC "will not provide the promised development or economic benefits." The letter faults the Jackson Park site, both for privatizing public space and for lacking adjacent open space for additional new development. "It looks to many neighbors that the only new jobs created will be as

staff to the Obama Center."

The carefully scripted rollout of the revised design includes a video in which the former President, after admitting he once wanted to be an architect, explains the symbolism of the museum tower's canted form. Showing an image of four slightly cupped hands, two black and two white, with fingers pointing up and almost touching, he says, "We designed it with this photo in mind—many hands, each one different, coming together as one. So too will each facade of our four-sided tower be a little different from the next. It's our way of showing that it takes many hands to shape a place." Obama's rhetoric, as always, is stirring, but whether it will succeed in winning over this project's numerous critics remains to be seen. ■

Denver Art Museum Begins Renovation of Gio Ponti Building

The \$150 million renovation of Gio Ponti's 1971 building is under way at the Denver Museum of Art. Boston-based firm Machado Silvetti and Denver-based Fentress Architects are leading the project, which is expected to conclude by 2021.

Work Permits Issued to Demolish AT&T Building's Lobby

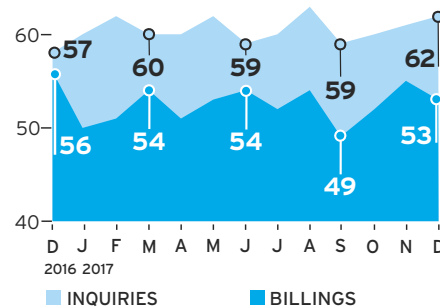
The New York City Department of Buildings has issued work permits to the owner-developer of Philip Johnson and John Burgee's 1984 building at 550 Madison Avenue in Manhattan, which is under consideration for landmarking. The interior spaces, where demolition is beginning, are not being considered for protected status.

Assembly Design Studio Joins CannonDesign

The San Francisco-based practice Assembly Design Studio has joined international design firm CannonDesign, bolstering the latter's presence on the West Coast and strengthening its expertise in workplace design. With past clients including Uber, Pinterest, and Zillow, Assembly will operate under the name Assembly/CannonDesign for a transitional period.

Renzo Piano to Design New David Zwirner Gallery in New York

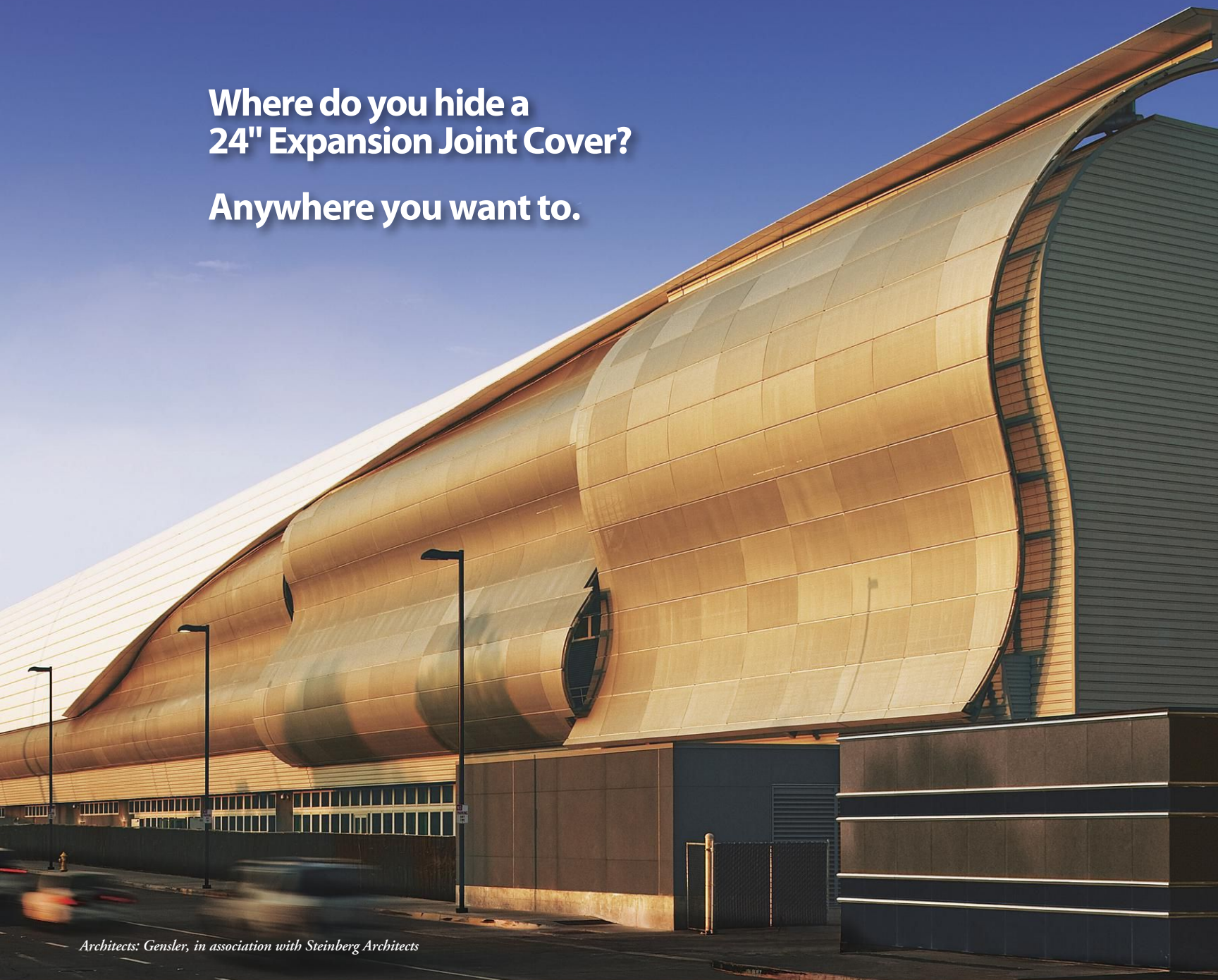
Art dealer David Zwirner has tapped Renzo Piano to design his new multinational headquarters in Manhattan's Chelsea neighborhood. The \$50 million gallery will contain 43,000 square feet of space across three floors.



2017 Proves Strong for Firms

The December Architectural Billings Index dropped to 52.9, down from a score of 55.0 in November, according to the AIA's latest report. While the new projects inquiry index increased slightly from 61.1 to 61.9, the new design contracts index fell from 53.2 to 52.7. Still, "2017 turned out to be a strong year for architecture firms," says AIA chief economist Kermit Baker.

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The Legacy of John Portman

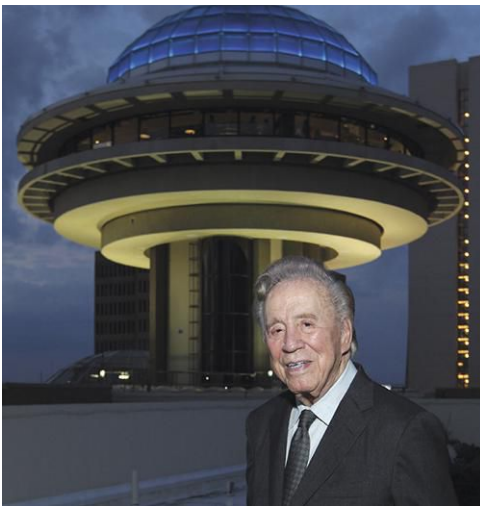
BY PAUL GOLDBERGER

“ARCHITECTURE IS NOT about things, it is about people and life,” John Portman said to the dean of the Graduate School of Design at Harvard, Mohsen Mostafavi, in a wide-ranging interview that starts off the provocative book *Portman’s America & Other Speculations*, published last year by Lars Müller. Portman’s words are not notable in themselves—they are the kind of clichéd line almost every architect has uttered at one time or another. What makes them striking is how passionately Portman believed them, and how much he managed to do in his long career to turn this line from a banal observation into a kind of architectural talisman, a defining byword for what he would build.

Portman, who died on December 29 in Atlanta at the age of 93, was like no other figure in American architecture. For most of his career he was an outsider vis-à-vis the academic architecture establishment. It came to embrace his work only toward the end of his life when, like Morris Lapidus’s, his flamboyant design could be analyzed as a cultural marker rather than feared as a disrupter. But he was every bit as much an outsider to the corporate architecture establishment, to the vast architecture and engineering firms that churn out mediocre office towers, hotels, airports, and shopping malls and make the average person believe that modern architecture has neither heart nor soul. Portman broke the model of the corporate developer’s hiring the corporate architect by being both of those things himself. As a developer, he bought himself the freedom to build what he wanted, which was as far from the architecture of the freeway as it was from the architecture of the salon.

It was an architecture of futuristic fantasy, based on some simple ideas: that people liked big, open interior space, movement, light, color, and texture; that they liked simple geometric forms, which could be twisted and torqued in all kinds of ways; and that they could be induced to spend time in cities if the buildings they found there excited and did not repel them. And so we had Portman’s breakthrough building, the Hyatt Regency in Atlanta (1967), the first modern atrium hotel, which demonstrated better than any building of the 1960s that people were ready to accept architecture as entertainment if architects would give them structural drama with lively, eye-catching details.

Portman’s earnestness, and his curiosity, were relentless. Nothing underscored how different he and his firm were from a large corporate practice as much as his refusal to



John Portman (top) at the Hyatt Regency Atlanta hotel, completed in 1967; and (above) the Hyatt Regency San Francisco, Embarcadero Center, 1974.

turn the Atlanta Hyatt Regency into a simple formula. Others produced bad copies of it, while Portman himself kept trying to vary it, most successfully in San Francisco, where the Embarcadero Hyatt (1973) remains one of his finest buildings. He had devised another variation at the O’Hare Airport in Chicago (1969) and would produce yet another at the Marriott Marquis in New York (1985), where the atrium grew in scale but not, alas, in quality; and at the Atlanta Marriott (1985), where he managed to produce a much bigger atrium that was a triumph of complex, torqued form.

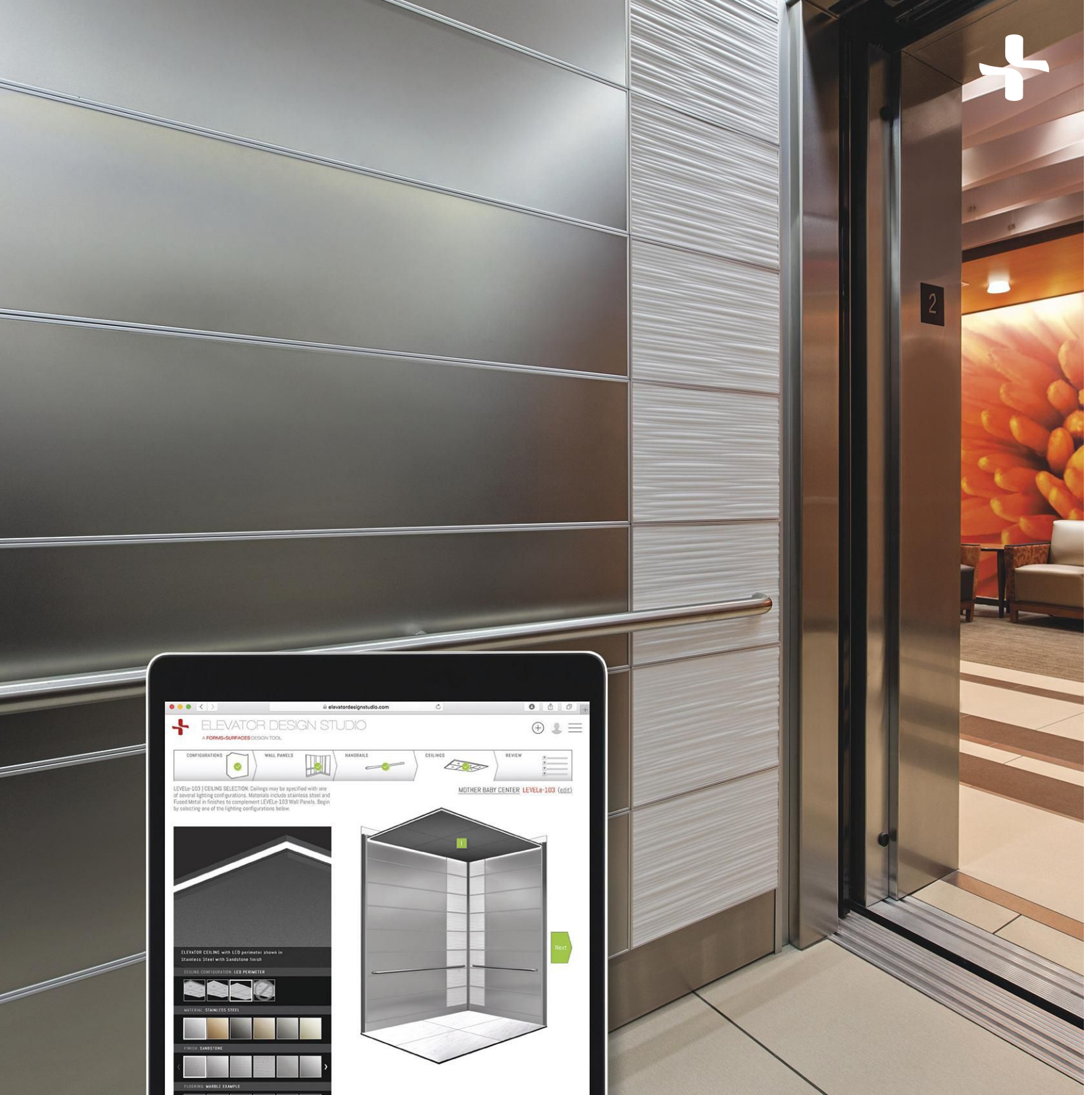
At O’Hare, Portman placed four round glass

cylinders at the corners of a concrete building with an atrium that was based roughly on the original in Atlanta, and as he moved through the 1970s, he became all the more interested in creating compositions of cylinders. Out of this came, first, the tall, slender cylinder of the Westin hotel in Atlanta, at the time of its completion in 1976 the tallest hotel in the world, and then two of his most famous projects, Renaissance Center—now the headquarters of General Motors—in Detroit (1977), and the Westin Bonaventure Hotel in Los Angeles (1976), all three of which revealed, far more than Portman’s earlier work for Hyatt, his Achilles heel as a designer: that once his buildings began to get complicated, the plans were highly confusing, not to say disorienting; and that he had absolutely no interest in the street. Portman genuinely loved cities and wanted to see them flourish, but his notion of urbanism was all interior. He envisioned his buildings as hives of social activity, where the energy was self-generated within, and he was never comfortable with a porosity between his buildings and the city beyond.

In the 1970s, you could almost get away with that, since the general view of cities was that they were messy, dirty, and dangerous. By investing in downtowns and trying to use his architecture to stimulate social life, Portman believed he was supporting the city. Compared to developers who decamped for the suburbs, he was. But he failed to understand the extent to which both ordinary and great urban architecture needs to connect to the street, not turn away from it. The connection to Manhattan’s grid is part of the genius of Rockefeller Center, something Portman didn’t see or care about with his Peachtree Center, a slender skyscraper grouping in Atlanta and its West Coast sibling, the Embarcadero Center in San Francisco.

Portman’s indifference to the street, and his belief that his architecture—big and muscular outside, more playful inside—would ignite urban life by itself was endemic to the 1970s, which is surely why many of his buildings, for all their failings, are enjoying a new popularity. They are part of history, and to 21st-century eyes there is something exotic about them now, a vision of the future simultaneously audacious and quaint. Not for nothing are Portman’s hotels staples of the movies, from Mel Brooks’s *High Anxiety* to John Carpenter’s *Escape from L.A.* Portman was entranced with the power of big, bold space and big, bold form to make life interesting. For a long time, his buildings have done just that. ■

Paul Goldberger is an architecture critic and contributing editor to *Vanity Fair*.



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A HOUSE FOR AN ARTIST IN SICILY TAKES SHAPE FROM TRADITIONAL MATERIALS AND LANDFORMS. BY JOSEPHINE MINUTILLO



IN A PLACE where time has seemingly stood still, Sicilian architect Giuseppe Gurrieri has carved a niche for himself with wholly contemporary projects that retain the rustic charm of his birthplace. His most recent, a vacation house for Tuscany-based artist Erica Cavalli in Scicli, a small mountaintop village near his office in Ragusa, is very much a part of the land, and its traditions.

In designing the partially buried abode, Gurrieri took inspiration from the layered,

stone-walled agricultural terraces that crisscross the surrounding hills. "The client asked for a house that was integrated with nature," Gurrieri recalls. The long front facade is clad in stone veneer; its sliding glass doors and full-length windows open up to a lushly landscaped garden and a swimming pool, as well as a view of the sea. The roof of the 1,600-square-foot enclosed portion of the residence, and the area beyond it, is similarly planted with a rich variety of local flowers, grasses,

The roof extends 7½ feet past the stone-veneer-clad front facade, shading the walkway beneath it (top and above, left). A tree is planted in one sunken courtyard (above).

cacti, and shrubs. Behind that simple, barlike structure, which contains a kitchen, two small bedrooms, and a studio-cum-living room, are two sunken courtyards that help naturally ventilate the interiors, which stay inherently cool in summer and warm in winter.

The nearly 11-foot-high walls of the courtyards, which includes one for outdoor dining,

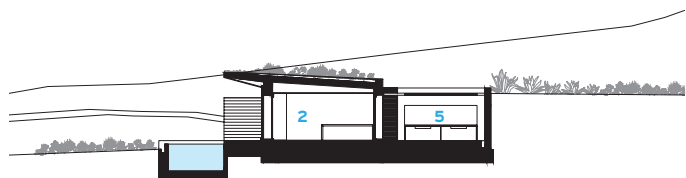
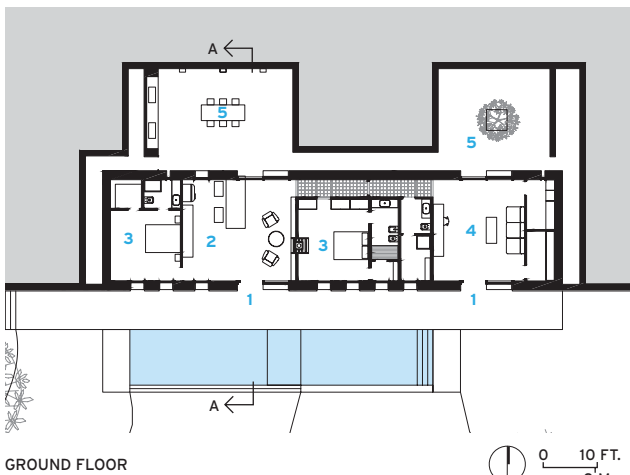


The covered courtyard is ideal for outdoor dining (above). The living room, which also serves as the artist's studio, features minimal furnishings (right).

are composed of a stucco mix made of soil from the site. "We thought, 'the more dirt we used, the more integrated with nature the house would be,'" says the architect.

The spare interiors feature acid-treated concrete floors and muted beige walls, aside from a pop of color in the studio. Furnishings are kept to a minimum.

Despite its link to the land and its customs, the straightforward design was considered unconventional by the local authorities, who held up building approvals—typically granted in a couple of months—for over a year. "Today, what is simple is really more complex," Gurrieri says. That may be so, but, in this case, what is simple is also simply stunning. ■



- 1 ENTRANCE
- 2 KITCHEN
- 3 BEDROOM
- 4 ARTIST STUDIO/LIVING ROOM
- 5 COURTYARD



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THE SPANISH FIRM OHLAB RIFFS ON A COMPANY LOGO TO CREATE A GRAPHIC RETAIL STORE IN DOWNTOWN MIAMI. BY ANA MARTINS

FOR THE first American branch of In-Sight, a popular concept store on Spain's Balearic Islands, the Majorca-based firm Ohlab wanted to create a space in which the retail brand's identity and that of its curated selection of art, design, and fashion products would not only coexist but reinforce each other. Located in Downtown Miami's Brickell City Centre—a mixed-used mall by Arquitectonica—the 1,830-square-foot shop is an imaginative space that invites customers into an immersive experience through architecture rather than special digital effects.

Coprincipals Jaime Oliver and Paloma Hernaiz, known for their straightforward yet surprising buildings and interiors (RECORD, June 2017; October 2016; and September 2013), devised a plan using the company's binocular-shaped logo to craft the spatial volume. They did this by digitally rotating its twin circular forms two dozen times, at $3\frac{3}{4}$ degrees a turn, until reaching a figure eight. The patterns created by each rotation were then laser-cut into 24 curved wooden panels that they installed in a tunnel-like progression from the front of the store to the back, drawing customers inward and creating a variety of multifunction display areas throughout. The cut edges of the resulting circular partitions are faced with white solid surfacing, a material that is both "easy to apply with precision to curved geometry and resilient enough for high traffic," says Oliver.

Ohlab's resourceful design provides a blank canvas for In-Sight's varied merchandise, and responds to the programmatic needs of the client with different types of flexible displays, seating areas, fitting rooms, and storage. Additionally, the ambient lighting system, a series of custom-designed platforms above the curved panels, has integrated swivel spots that illuminate the pristine interiors imperceptibly and easily adapt to the requirements of changing product installations.

Both playful and urbane, the new In-Sight store holds its own among the long-established, upscale retailers at the Brickell City Centre—a factor influencing the potential development of future locations by Ohlab. According to Hernaiz, one of the firm's fundamental concepts was reinforced by the project's successful outcome. "Shopping can no longer be about the simple display of products. It must be a memorable, physical experience where the customer is engaged with the brand and its lifestyle." ■

Netherlands-based freelance editor and journalist Ana Martins writes about architecture and design.



A trompe l'œil graphic on the store's back wall creates an illusion that the tunnel-like space is spinning on into infinity—visually expanding the space and creating an exciting shopping experience for customers.



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OLSON KUNDIG INVITES CHILDREN TO LOSE THEMSELVES IN A SURREAL ROOFTOP ENVIRONMENT IN DAEGU, SOUTH KOREA. BY ERIN HUDSON



Fanciful creatures animate the elevated playspace and serve as engaging climbing structures.

IMAGINATIONS AND CHILDREN run wild through Olson Kundig's fanciful rooftop playground in Daegu, South Korea. This surprising project is the third in a series of roofscapes that the Seattle-based firm has conceived for Shinsegae, one of South Korea's largest retailers. The series began when the client's representatives, after visiting a children's museum designed by Olson Kundig (for the Skirball Cultural Center in Los Angeles, Noah's Ark), wanted to bring a similar concept to their stores. Olson Kundig partner Alan Maskin was immediately intrigued by the opportunity to explore a program that would be a first for the firm, whose diverse repertoire includes a range of building types—from residential to civic to cultural and commercial—as well as product design.

For their latest commission for the retailer, Maskin was essentially given carte blanche to propose a concept for the more than 43,000-square-foot site—the largest so far—atop a department store. The client handed Maskin a single directive: "Design the project around a story or a narrative."





Steel arches covered in bamboo strips enclose a path (above) along with an elevated play area (left) enlivened by fiber-reinforced plastic fungi.



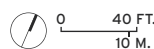
Drawing inspiration from the Aesop fable “The Town Mouse and the Country Mouse,” the architects designed the park, called Zooraji, to be an immersive fantasy world where young visitors, so they can feel like the mice in the tale, enter a surreal environment at skewed scales, animated by live baobab trees, a collection of towering steel-and-bamboo treehouses, and outside composite animals made from recycled elements including wine casks, car parts, and even a canoe. (Maskin took a similar approach to designing the handcrafted animals for the Noah’s Ark project.)

The architectural follies—strategically placed atop structural columns—are embedded within a storybook landscape where shrubs, bushes, and climbing plants, growing from gardens and walls, are part of a choreographed effort to transform the mall’s rooftop into an allegorical habitat.

Though the architect’s hand is evident everywhere, from the whimsical animals to the treehouses to the artificial boulders for climbing, Maskin expects evidence of his team’s interventions to fade—in fact, he’s counting on it. “Plants are supposed to grow over time, so the architecture will disappear,” he says. “Landscape has its own timetable.” ■



NINTH-FLOOR PLAN



- 1 JUNGLE PLAZA
- 2 BAOBAB TREEHOUSES
- 3 SEA LIONS
- 4 ELEVATED BOARDWALK
- 5 LANDSCAPE TOPOGRAPHY
- 6 WATER PLAYGROUND
- 7 WATER ELEPHANT
- 8 INSECT LAND
- 9 REST AREA
- 10 ENTRY PLAZA

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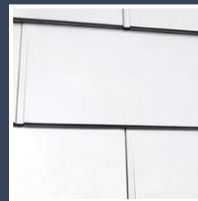
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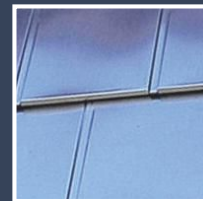
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The architect for the January issue's contest is **MARIO BOTTA**. His middle school (left) in Morbio Inferiore, a town in Ticino, Switzerland, close to the Italian border, was completed in 1977. Botta's rigorous scheme contains classrooms in eight poured-concrete volumetric units topped by light monitors, and dramatized by a playful sculpture of a half-buried giant by Pierino Selmoni.

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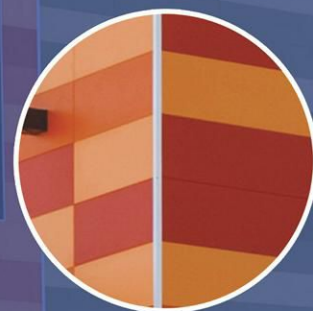


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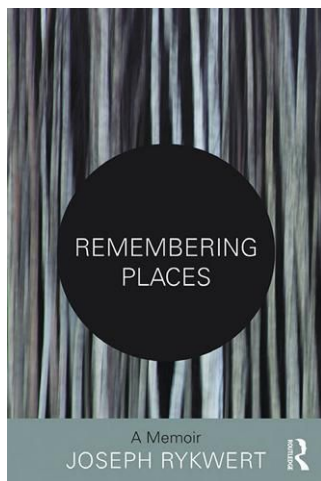


Perfect Recall

Remembering Places: A Memoir by Joseph Rykwert. Routledge, 198 pages, \$39.95.

Reviewed by George Baird

JOSEPH RYKWERT, born in 1926, is the author of *Adam's House in Paradise*, *The First Moderns*, and *The Dancing Column*, books whose methodological originality and archival and anthropological depth won him the Gold Medal of the Royal Institute of British Architects in 2014, a rarity for a nonpractitioner. Rykwert has been known to have a dramatic personal history, but he usually declined to discuss it. With this memoir, he bows to requests and deploys his formidable memory—visual and otherwise—to recount his role in important developments in architectural culture during crucial years of the 20th century. The dramatic story begins in his childhood in the 1930s, within an upper-middle-class Jewish family in Warsaw, and concludes in the late 1960s in London with his first academic appointment and the publication of *The Idea of a Town*. In this text, which first brought him serious professional attention, he robustly reasserted the significance of ritual and myth in ancient city planning.



Rykwert's childhood was evidently happy. But looming over his teenage years was growing anti-Semitism, with a threat that his successful engineer father failed to anticipate. The result was a panicked flight from Warsaw for his entire family in early September 1939—after the German invasion of Poland had already begun. Making use of business connections, Rykwert senior managed to get his immediate family to safety, albeit leaving almost all their possessions behind while rushing through Riga (Latvia), Stockholm, and Amsterdam, to London.

The family's misfortunes did not end with their safe arrival in Britain. Rykwert senior was betrayed by business partners, resulting in economic jeopardy. Worse, he died of a heart attack at the young age of 48. Still, before his death, he secured entry for Joseph to attend Charterhouse, a distinguished British boarding school. There, the young Rykwert was exposed to innovative architectural scholarship in the person of the soon-to-be eminent historian Rudolf Wittkower.

Rykwert began his architectural education at the Bartlett School at University College, London, but subsequently decided that the Architectural Association was a more intellectually appealing cultural milieu. Even more important was his immersion in a worldly intelligentsia, largely at the Student Movement House, where he met Elias Canetti, later to win the Nobel Prize for Literature, as well as the psychoanalyst Franz Elksch. Before he had even concluded his professional education, Rykwert's distinctive intellectual formation blended interests in myth, symbolism, and anthropology.

Upon graduation, he worked in conventionally modern architectural practices in London but, drawn to contemporary Italian architecture for its elan and its provocative responsiveness to history, Rykwert headed south. There, his luck continued as he befriended Vittorio Gregotti, Roberto Colosso—eventually to become the Italian publisher of his books—and Gio Ponti, who made him the London correspondent for his magazine *Domus*, where he launched the

rediscovery of the forgotten Anglo-Irish designer Eileen Gray and mounted an early skeptical critique of Aldo Rossi's ideas.

Rykwert's activities led to an invitation to the newly founded *Hochschule für Gestaltung* in Ulm, Germany. There he met another dissident from the school's hyper-rationalism, Hanno Kesting, who introduced him to phenomenological philosophy. Upon his return to London, he discovered that his Ulm sojourn had made him a desirable prospective academic, resulting in his appointment as Librarian at the Royal College of Art. More or less concurrent with this was the publication—in a Dutch magazine edited by another new friend, Aldo van Eyck—of his *Idea of a Town*.

With that commenced Rykwert's half-century-long publishing career. The nonagenarian has now given us a Holocaust escape thriller and an architectural/intellectual *bildungsroman* in one. It is quite a tale, though it covers only the first four decades of his life. Will there be a volume two? On this point, Rykwert so far remains silent. ■

George Baird is a Canadian architect, educator, and author.



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Power to the Cosmopolites

VANISHING NEW YORK: How a Great City Lost Its Soul, by Jeremiah Moss.
Dey St., 465 pages, \$28.99.

Reviewed by Anna Shapiro

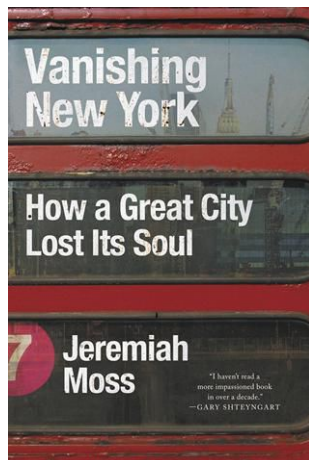
YOU DON'T have to live in New York to find that a cookie-cutter nail salon has replaced a treasured longtime lunch spot, or plate glass storefronts have been papered to conceal suddenly empty interiors. Today, in this city and others as different as San Francisco and London, you walk down a familiar street, and, increasingly, there is nothing familiar. Moss's book will tell you that this affects residents as "root shock," a form of traumatic stress brought on when your world vanishes.

But the author's purpose in broadening his influential blog, "Jeremiah's Vanishing New York," into a book is, on the one hand, to detail key institutions and neighborhoods that have been wiped out, and, on the other, to pinpoint why this has been happening on the obliterating scale and at the accelerated pace of recent decades. Crucially, he combats two myths: one, that the myriad and gargantuan shifts are no more than the norm of a restless city, and, two, that these overhauls are just the result of market forces.

Moss targets as a primary culprit the 1929 Regional Plan Association's prescription for the city—investment in finance, insurance, and real estate (FIRE) and dropping the manufacturing that supports a working class—in making it a place for the wealthy and only the haute of the haute bourgeoisie. Major mechanisms of this astonishingly successful scheme to favor FIRE ventures have been hundreds of millions of dollars in tax breaks (itemized throughout the book) and eminent domain declared to make way for luxury housing, along with the elimination of rent controls for small businesses. Moss refers to this as hypergentrification—not what happens when artists move into a low-rent area but when real-estate interests do. This process causes the diminution of layering and variation that is the essence of a city, physically and culturally, reducing the economic benefits of cross-fertilization between classes and professions, and the inspirations that arise from quirks in the built environment.

Two elements absent from Moss's lamentation are a longer historical view and making the force of national politics part of the account. The New York of 2018 is much like the New York of 1918, when local plutocrats largely captured city control—not to mention national in the giveaways of rail rights and legislation favorable to interstate corporations, then illegal, that they wished to expand. It is not entirely surprising that we would see a reprise of political values that celebrate the rich and say to the poor that their suffering is their own fault.

To end his book, Moss provides a well-thought-out wish list: for the boards that merely register community opinion to have an actual mandate regarding development in their district; controls on the spread of chain businesses; restoration of commercial-rent regulation; protection of legacy businesses through landmarking (San Francisco's doing it); limiting the right of landlords to claim losses on commercial vacancies (as London has); rerouting incentives to create affordable housing without luxury units (L.A. is working on it); a tax on pieds-à-terre (see London); reducing and controlling tourism (Amsterdam, Venice, and Barcelona are on it); tightening eminent domain. Amen. ■



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Set Your Sites

These outdoor furnishings integrate function, performance, and visual interest.

By Kelly Beamon



Beetle Series

Named for its iridescent finish, these molded fiberglass seats are part of MD3 Contract's NaturalForms Collection. Each piece is sanded, painted, and polished by hand for an appearance that blends into outdoor settings. The no-maintenance pieces come in five sizes ranging from 23" x 16" x 15" to the latest and largest, 52" x 33" x 21". Seats can be weighted for added stability.

md3contract.com



Stump Stool

The latest addition to UAP Supply's Standard collection of outdoor furniture is this line of sculptural 19"-high stools designed by Jamie Perrow. Made from granite and bronze, the group provides a solution that weathers well in public areas and high-end commercial settings.

uapcompany.com

FencePost Series

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landscapeforms.com



Elizabeth Teck Sofa

This residential-looking sofa by designer Nathan Yong comes in a durable contract-grade version. For hospitality settings, it can be upholstered in a special silicone-coated fabric attached to a polyester backing. The seat cushion has an inner lining made of mold- and water-resistant cotton with airtight seams.

ligne-roset.com/us/



Tolomeo Outdoor Lantern Hook

FaA commercial-grade outdoor suspension light fixture is the latest addition to the Tolomeo line from Artemide. In addition to its durable aluminum body and high-quality IP65 plastic lens, the 5¾" x 6½" luminaire comes outfitted with a 3000k dimmable LED capped by a diffuser and its own hook.

artemide.net



Meridiano

Patterns of light and shadow are a feature of this outdoor wall sconce from Vibia. When mounted, the 10½"-diameter fixture juts out 2" so that its steel rods create a luminous radial pattern on the wall. Meridiano is available with a matte lacquered finish in khaki and off-white.

vibia.com

Cuff Collection

This range of relaxed seating and tables is built for contract environments. Made from a powder-coated stainless-steel frame covered in high-quality woven plastic, the 45"-tall x 32"-deep high-back cove chair and 20" x 13" teak-topped side table are inspired by the shape of the chunky bracelet. Like the jewelry, all pieces in the range of tables, chairs, and chaises are designed to "accessorize" hospitality settings.

danaoliving.com



The Scoop

This 30"-tall LED-lit bollard is among the latest offerings from WAC Lighting. Sealed against water penetration and engineered to work with 12-, 120-, and 277-volt systems, the aluminum fixture provides 60,000 hours of safety lighting for settings such as commercial walkways, courtyards, pools, and parking lots.

waclandscapelighting.com



TENPLO

Landscape-furniture manufacturer Marshalls partnered with Maynard, a designer of urban wayfinding products, to create TENPLO. The cast-concrete seating system integrates lighting and Bluetooth beacons—hardware that enables retailers to wirelessly message passersby when a company's app is detected on their tablet or smartphone. The system debuted at London's Design Junction; Marshalls will begin taking orders later this year. Sign up at its website to receive an alert when the system is available.

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Stonewalled

These materials make natural beauty more accessible.

By Kelly Beamon



Pro-Fit Terrain Ledgestone

The latest product from Cultured Stone by Boral is Pro-Fit Terrain Ledgestone. The new brick veneer contains 58% recycled content and enables designers to create edge, textural effects in less time—for exteriors and interiors. To simplify installation, the line features 4"-high variegated formats comprising pre-configured stacks of rough and smooth pieces, in various lengths and depths, from the manufacturer's Contemporary Collections. Finished units measure 8", 12", and 20" long.

boralamerica.com

Studio Moderne Stone

Walker Zanger has expanded its architectural tiles by Michael Berman, with bold new patterns in its Studio Moderne Stone collection. The marble tiles feature design motifs that reference American Modernism and Art Deco and are available as large as 16" x 9". Ideal for indoor and outdoor applications.

walkerzanger.com



Mirage Veneers

What appears to be a masonry wall is comprised of 4"-high x 18"-long porcelain veneer units by Echelon Masonry, an Oldcastle Architectural manufactured-stone company. Like porcelain tile, Mirage porcelain veneers have a low moisture-absorption rate, which helps them resist mold, staining, and frost while withstanding cleaning with detergents and pressure-washing. Thicknesses range from 0.3" to 0.6".

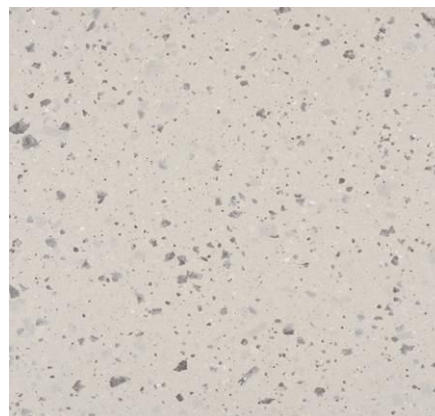
echelonmasonry.com



Natura

Dekton by Cosentino is a budget-friendly and easy-to-install alternative to marble. Manufactured from a blend of the same raw materials used to make glass, quartz, and porcelain, Dekton resists fading, scratches, and stains, unlike natural stone. The marble-like Natura pattern (shown) is the latest offering in the Dekton XGloss Natural Collection. Natura comes in 56" x 126" slabs in three thicknesses.

dekton.com

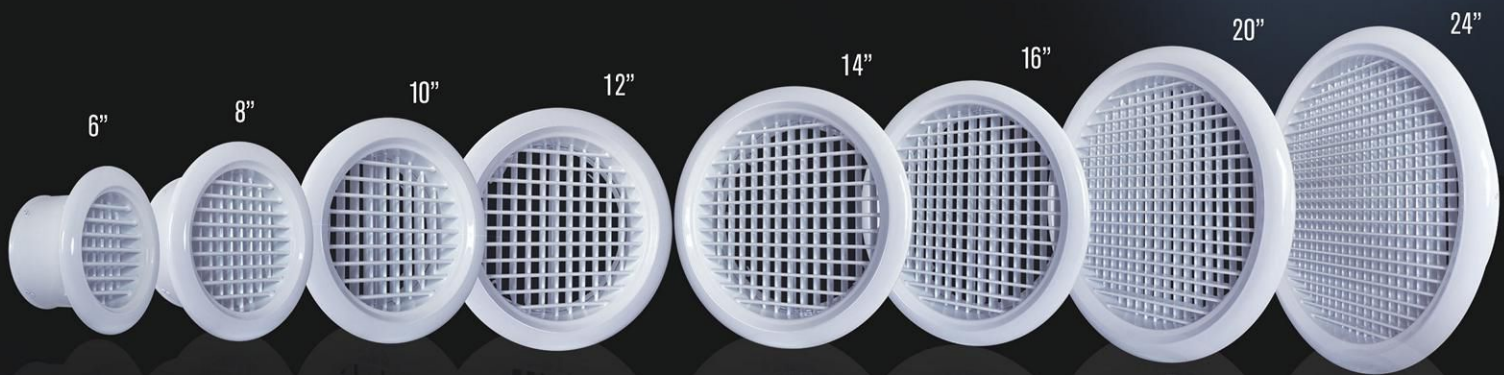


Tonal Paper Terrazzo

This terrazzo look-alike is actually real Formica plastic laminate, part of the company's SurfaceSet 2018 collection. Tonal Paper Terrazzo (shown) incorporates bits of post-production paper from the company's manufacturing processes to mimic the real composite's marble flecks. Formica offers it along with 31 other patterns and colors that imitate other materials such as woodgrain, metal, and stone.

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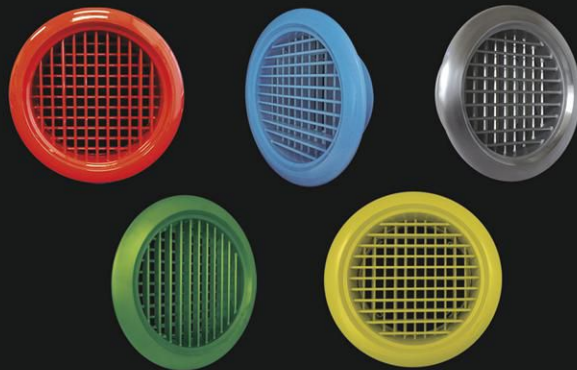
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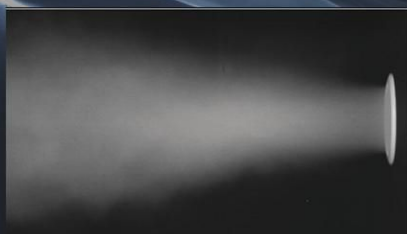


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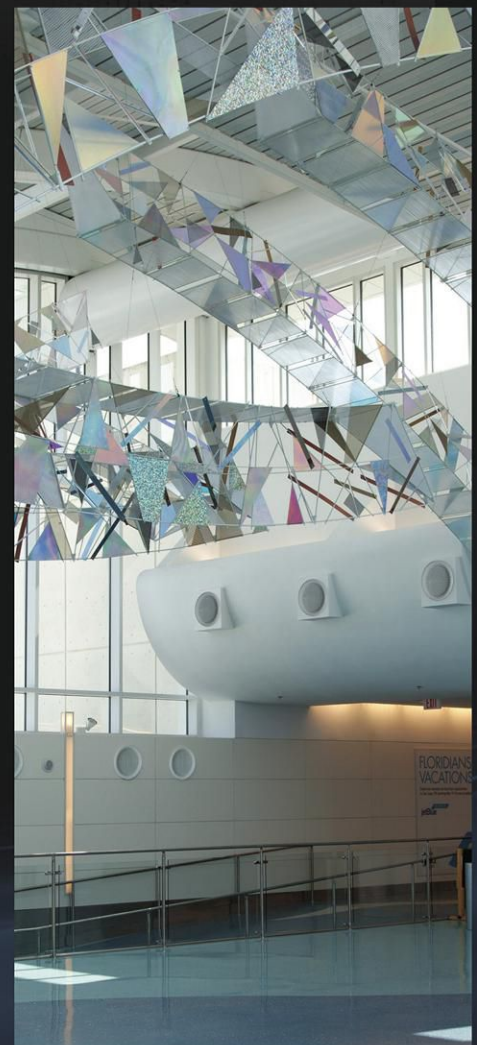
Straight Discharge Pattern



Wide Dispersion Pattern



45 Degree Discharge Pattern





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Culture and Community

The trio of structures on the following pages demonstrate how modestly scaled architecture can have a big impact when it skillfully engages light, music, and memory.



PHOTOGRAPHY: © PAÚL RIVERA

FORO BOCA CONCERT HALL, MEXICO,
BY ROJKIND ARQUITECTOS

Edge of Silence

Daniel Libeskind's holocaust memorial in Canada's capital provides a provocative site of remembrance.

BY ALEX BOZIKOVIC
PHOTOGRAPHY BY DOUBLESAPCE



HOW DO YOU speak of the unspeakable? That is the aesthetic conundrum posed by every memorial to the holocaust. Daniel Libeskind, principal of Studio Libeskind, based in New York, took on this challenge for Canada's National Holocaust Monument, which opened in October 2017 in the capital city of Ottawa. The competition-winning scheme, commemorating victims of the Nazi genocide and recognizing the 40,000 survivors who made it to Canada, owes a debt to Libeskind's seminal Jewish Museum in Berlin, completed in 1999. Each has few right angles, and both are designed to create a sense of unease that is relevant to the history they evoke. This new project—an open-air, poured-concrete pavilion that sits across the street from the Canadian War Museum (2008) by Moriyama & Teshima with Griffiths Rankin Cook—is meant to be a public place of respite and reflection.

Seen from above, the assembly of six outdoor “rooms” reads as a distorted version of the Star of David, which the Nazis forced the Jews to wear to identify themselves. From the streets bounding it, the monument appears as a set of three monoliths, each leaning in a different direction behind a low diagonal wall. As you approach the main entrance, you angle around and arrive at a central plaza, where you find a series of panels explaining the history of the holocaust. The surrounding concrete walls slant alternately inward and outward, providing both a sense of enclosure and a feeling of dissonance. “You don’t need to know the history of memorials to understand that you’re in a space that is transmitting a certain spirit,” Libeskind says. The secluded central plaza, with its acute angles and contemplative character, is quite beautiful, if disquieting.

Art on the walls heightens that sense and provides direct connection to Eastern European sites of the holocaust. The photographer Edward





In designing the open-air holocaust monument (above), Libeskind created a "place for perambulation" that takes advantage of a slope in grade. Visitors enter one side, threading their way into the central plaza, then exit by a long stair (right), which frames a view in the distance of the Peace Tower among the parliament buildings. They then arrive at the slightly higher part of the site (left) on the street again.





An aerial view (above) shows the assembly of triangulated spaces in the shape of a Star of David as if it were drawn in anamorphic perspective. The tallest enclosure (left) contains the “Flame of Remembrance.” On the walls of the tilting concrete slabs surrounding the central plaza (opposite, top and bottom) are artworks hand-painted from photographs of concentration camps taken by artist Edward Burtynsky.

Burtynsky documented a series of places linked to the genocide, and six of these images are subtly hand-painted onto the concrete. They include a rail bed that led to the Treblinka death camp; a fence at Auschwitz; and a prayer room created by Jewish inmates at the Theresienstadt ghetto. Branching off from that major open space are a series of alcoves. The tallest—almost entirely enclosed—houses a “Flame of Remembrance.”

Throughout the \$6.4 million project, the architects specified various finishes of concrete to retain some of the material’s imperfections. “The textures of the surfaces add to the effect,” says Carla Swickerath, the partner in charge of the project, so that “the monument will resonate with people physically as well as intellectually.” Pathways are defined by particularly coarse aggregate; one of these leads to an elongated straight stair taking you up and out of the central plaza to the street. The stair also rises in a manner that frames the view of a landmark in the distance—the Gothic-style Peace Tower that caps the center block of Canada’s parliament buildings. This is no accident. The government wants the holocaust to remain in the memories of Canadians. At the grand opening this past fall, Prime Minister Justin Trudeau cited Canada’s mixed record during World War II, when the country turned away hundreds of Jewish refugees. As Libeskind says, “There’s a certain urgency about what these walls communicate, because we are living in a world that is threatened by totalitarianism, by deprivation of human rights, by xenophobia, racism, and anti-Semitism. It’s not a neutral space. It is a space full of conflict and rejection.” He has forcefully created an architecture that pushes beyond words. ■

Alex Bozickovic is the architecture critic for The Globe and Mail and author of Toronto Architecture: A City Guide.



credits

ARCHITECT: Studio Libeskind – Daniel Libeskind, architect; Carla Swickerath, partner; Toralf Sømmchen, Jason Jimenez, senior associates; Jesse Bernard, architectural designer

LANDSCAPE ARCHITECT: Claude Cormier + Associates

ENGINEERS: Read Jones Christofferson (structural); WSP (m/e, civil)

CONSULTANTS: Lord Cultural Resources (cultural); Edward Burtynsky (photographs for wall paintings)

CLIENT: Government of Canada

SIZE: 34,550 square feet

COST: \$6.4 million

COMPLETION DATE: September 2017





Blockbuster

A striking new concert hall on Mexico's coast transforms a town's profile.



AN ARRESTING STACK of concrete forms, the Foro Boca concert hall in Boca del Río, Mexico, emerges from the riprap of the adjacent breakwater to rise solemnly from its prominent site, where the Jamapa River and the Gulf of Mexico converge. Designed by Mexico City's Rojkind Arquitectos, the building not only cuts a dramatic figure, but, in its role as a community catalyst, it also aims to right the course of the area's checkered history.

Boca del Río and the adjoining historic port of Veracruz have long been commercially significant and, recently, have also become a strategic zone for organized crime. In an effort to foster social cohesion and keep youths away from illegal activities, local authorities have devised numerous innovative initiatives, including starting a philharmonic orchestra with two main objectives: to provide high-quality concerts and offer music programs for children.

As this unusual strategy gained success, the need for a permanent facility became apparent. In 2014, Rojkind Arquitectos won the commission for this federally funded project in an invited competition. Foro Boca was conceived as a key element in a master plan intended to enhance urban and pedestrian life through cultural and commercial development as well as infrastructural improvements, such as remediation of the coastal boulevard, along which the concert hall now sits. Appropriating the language of the jetty's crude concrete blocks, principal Michel Rojkind conceived the building as a cluster of cube-like volumes to break down its 58,000-square-foot mass. Inside, he packed in a 966-seat performance hall surrounded by back-of-house functions, as well as rehearsal rooms and other spaces that can host additional cultural programs.

The monumentality of the exterior carries into the interiors, expressed as soaring voids. Visitors enter the building beneath a cantilevered corner block, which hovers above the new public plaza. Inside, the main lobby is daylit from skylights above and animated by suspended bridges and stairs that crisscross the space and flow to the auditorium's different access points. The team limited the palette to concrete, granite, and wood. "We wanted the material to express its construction logic inside and out," says Rojkind. "Understanding the local Mexican craft, we played with a texture that would capture the light and shadow of the changing skies of Boca del Río," he says of the rhythmic bands of board-formed concrete.

Foro Boca has fast become an urban landmark that spurs activity on its public plazas, where children play and families come to promenade. And everyone can enjoy the concerts that take place behind its walls, as video of the live performances is projected outside, across the building's imposing planes. ■

PHOTOGRAPHY: © PAÚL RIVERA

Visitors enter the building below a massive cantilever.

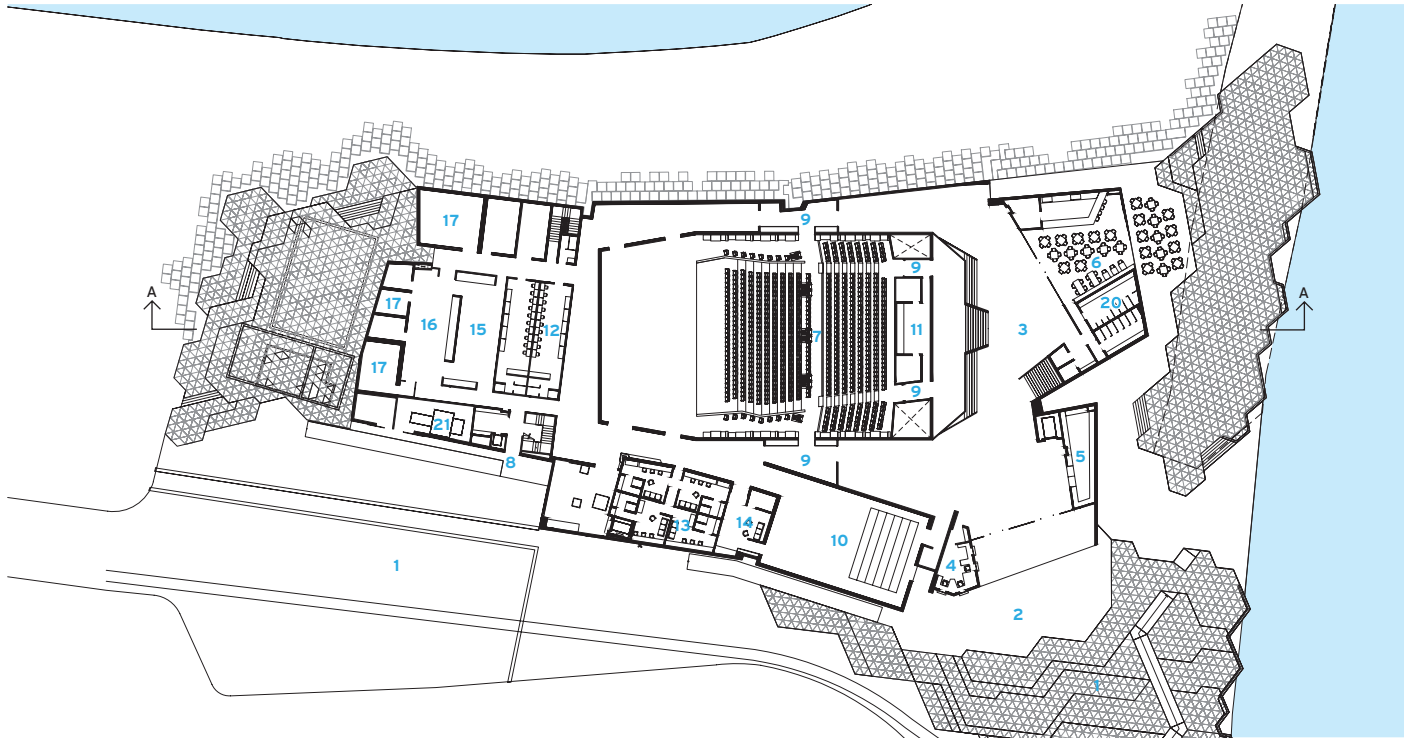




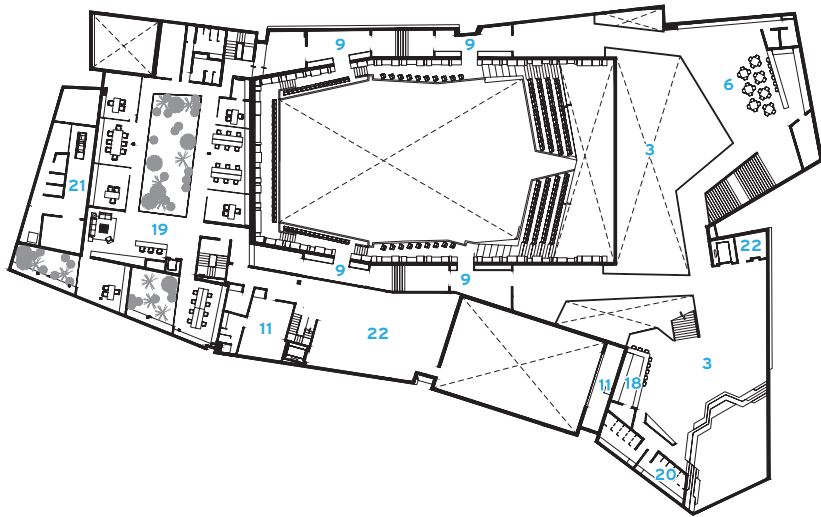
PHOTOGRAPHY: © JAIME NAVARRO (TOP, LEFT AND BOTTOM, RIGHT);
PAUL RIVERA (TOP, RIGHT AND BOTTOM, LEFT)



The building echoes the language of the jetty's concrete blocks (opposite, top and bottom). Performances are projected simultaneously on the hall's facade (above). During intermission, concertgoers take in views from a terrace (left).



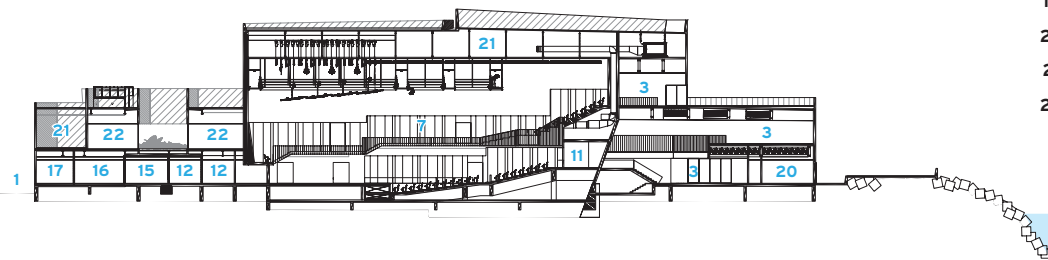
GROUND-FLOOR PLAN



SECOND-FLOOR PLAN

0 30 FT.
10 M.

- 1 PLAZA
- 2 MAIN ENTRY
- 3 LOBBY
- 4 TICKET OFFICE
- 5 CLOAKROOM
- 6 CAFÉ
- 7 CONCERT HALL
- 8 ORCHESTRA ENTRY
- 9 FLOODGATE
- 10 REHEARSAL ROOM
- 11 CONTROLS/TECHNICAL
- 12 DRESSING ROOM
- 13 GUEST DRESSING ROOM
- 14 CONDUCTOR'S DRESSING ROOM
- 15 GREENROOM
- 16 MUSICIANS' ROOM
- 17 REHEARSAL
- 18 BAR
- 19 OFFICE
- 20 RESTROOM
- 21 MECHANICAL
- 22 STORAGE



SECTION A - A



credits

ARCHITECT: Rojkind Arquitectos – Michel Rojkind, principal; Agustín Pereyra, project manager; Arturo Ortíz, Adrián Aguilar, Sandra Carvajal, Fernanda Casar, Salvador Cortéz, Diego Díaz Lezama, Paulina Elizalde, Rubén García, Daniel Gaytán, Paulina Goycoolea, Jorge González R., Alfredo Hernández, Laura Hernández, Pablo Herrera, Julieta Inclán, Carsten Lemme Andrea León, Félix Mendoza, Gerardo Salinas, Julio Serralde, Alfonso Paz, Cynthia Ponce, Víctor Velázquez, Ditter Vergara, Beatriz Zavala, team

CONSULTANTS: EMRSA (structural); Gralte S.C. (m/e/p); Akustics, Auerbach Pollock Friedlander, Seamonk (acoustics); artec3 (lighting)

CLIENT: Boca del Río municipality

SIZE: 58,000 square feet

COST: \$19.2 million

COMPLETION DATE: December 2017



Local guanacaste wood brings a warmth to the dramatic atrium (above); oak has a similar effect in the main concert hall (left).

Timeless Treasure

At Enoura Observatory in Japan, renowned photographer Hiroshi Sugimoto combines artifacts and bold architecture.

BY NAOMI R. POLLOCK, AIA

OVERLOOKING THE SEA and activated by the sun, the Enoura Observatory is an exquisite collection of new buildings, antique architectural fragments, and historic stone artifacts, curated by the world-renowned photographer, and self-styled designer, Hiroshi Sugimoto. Like the artist's signature images of misty seascapes and mysterious movie house interiors, many of these elements evoke another time. But together they anticipate a future when, Sugimoto envisions, the buildings will topple, nature will grow wild, and the site will become a ruin for future generations to discover.

The Observatory is located in the Enoura District of Odawara City, 55 miles southwest of Tokyo, and is open to the public by reservation. As you arrive at the site, you see a stone-paved drive ascending to the Reception Building and the Summer Solstice Light-Worship 100-Meter Gallery. On one side of the gallery, a stone-studded path leads to the Old Naraya Gate and the Uchoten Tea House. On the other stand two outdoor Noh theaters, the Stone Stage and the Optical Glass Stage, a huge slab of optical-grade glass, resting on wood scaffolding erected by traditional carpenters, plus the Meigetsu Gate. Relics from the past, both gates were given to Sugimoto, who had them moved and rebuilt

on-site. Partially embedded in the earth, the Winter Solstice Light-Worship Tunnel crosses beneath the gallery, forming a giant X. While the gallery aligns perfectly with the sun's first rays on the longest day of the year, the tunnel does the same on its shortest, enabling dawn light to fill each one once a year.

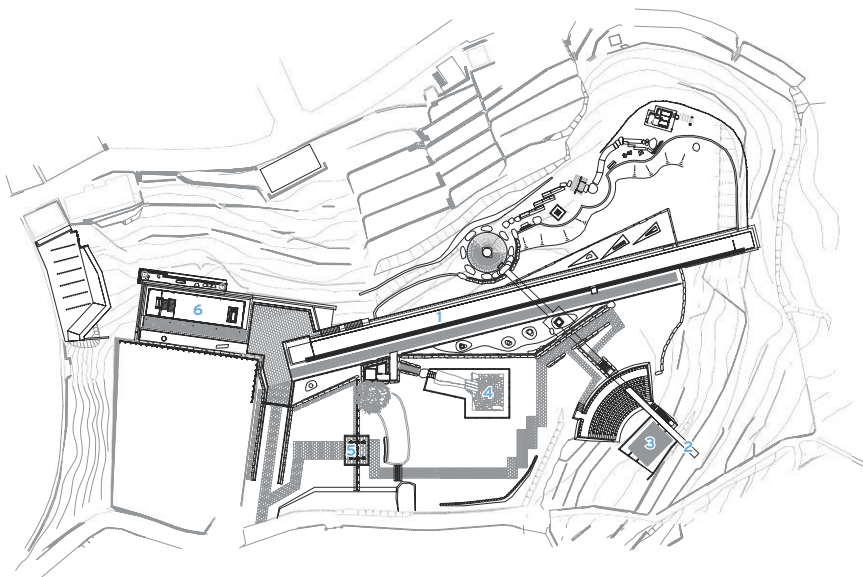
Unsurprisingly, this ambitious project was more than a decade in the making. Sugimoto's notion of illuminating space with the winter-solstice sun dates back to 2006. But the possibility of realizing this idea arose after Sugimoto established the Odawara Art Foundation in 2009. Intent on building a public facility devoted to Japanese arts and architecture, the foundation purchased this property, an 11-acre citrus grove facing Sagami Bay in front and Hakone Mountain in back.

Yet transforming the hilly landscape into the center was no simple feat. For professional know-how, Sugimoto looked to his longtime collaborator, architect Tomoyuki Sakakida, with whom he established the design firm New Material Research Laboratory in 2008. "My job is to turn [Sugimoto's] ideas into buildable architecture," explains Sakakida. To date, the duo have completed several interior projects, including the renovation of a lobby garden at the Japan Society





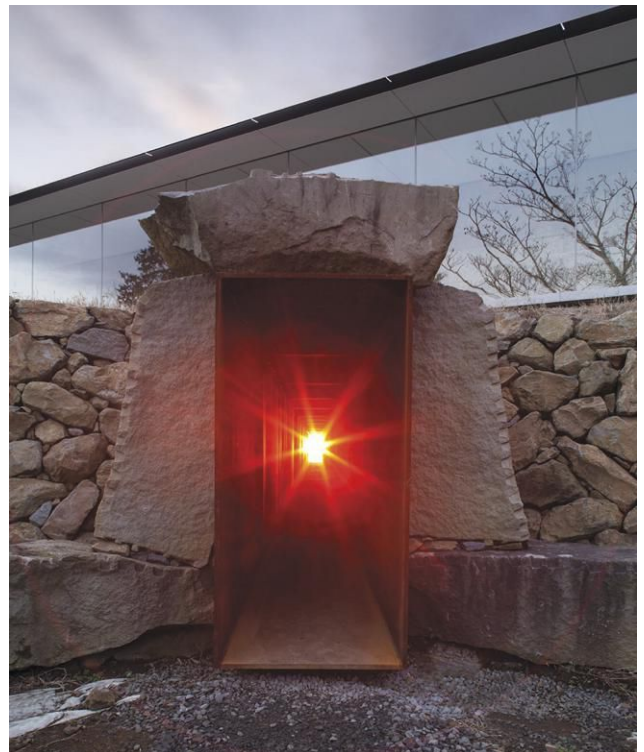
The glass stage, Winter Solstice Tunnel, and Summer Solstice Gallery are perched atop the mountain (opposite). The long, narrow, cantilevering gallery spans 328 feet (this page).



SITE PLAN

0 50 FT.
15 M.

- 1 SUMMER SOLSTICE GALLERY
- 2 WINTER SOLSTICE TUNNEL
- 3 OPTICAL GLASS STAGE
- 4 STONE STAGE
- 5 MEIGETSU GATE
- 6 RECEPTION BUILDING



The antique Meigetsu Gate is adjacent to the Summer Solstice Gallery (opposite, top). Sunlight comes through the Winter Solstice Tunnel (opposite, bottom). Sugimoto stands at the ledge of the gallery (right). The glass stage is mounted on traditional wood supports (bottom).

in New York and the lobby café at the Hirshhorn Museum in Washington, D.C., opening this month.

As their first architectural work, the Enoura Observatory had to incorporate construction conventions and code requirements. But its design process was something else altogether. “It was more like creating a work of art,” says Sakakida, recalling Sugimoto’s on-site, design-build methodology. Using his eye as his guide and his cane as his measure, the photographer carefully positioned and repositioned every component.

For the tunnel, this began with a six-year study of the sun’s course, used to set the structure’s precise location. After that, prefabricated 13-foot-long boxes of weathering steel were welded together on-site, resulting in a 230-foot-long tube of shadowy space open at both ends. Like camera viewfinders, these rectangular apertures frame the scenery in either direction.

By contrast, the gallery is a light-filled exhibition space placed in relation to the horizon, mountain ridge, and summer-solstice sun. Measuring 328 feet (100 meters) both in length and above sea level, the building is encased by glass panels and a volcanic Oya stone wall (the same material Frank Lloyd Wright used for Tokyo’s Imperial Hotel). Concealed by the rock’s speckled surface, a reinforced-concrete structure supports the cantilevered roof. The floor slab, which juts out 39 feet from the sloped ground plane, is buttressed by a massive concrete base resembling a ship’s prow. Also built into the hillside, the two-story Reception Building is entered on the upper level, which contains a single room holding the information desk and a 16-foot-long cedar conference table. For the construction of his tradition-inspired tea-house and the antique gates, Sugimoto enlisted a coterie of skilled artisans.

One area where the photographer had free reign was the layout of the stone elements. An avid collector of rocks, both natural and shaped by the human hand, Sugimoto integrated many into the landscape, including Buddhist relics, ancient column bases, vintage pavers, and a 23-ton slab of Takine stone transported from Fukushima Prefecture. While some were reborn as terraces or walkways, others stand as individual points of interest to be savored. “Every stone has its own story,” commented the artist during a recent talk at the Japan Society.

With their past lives and previous incarnations, the rocks contribute to the otherworldly atmosphere of the Enoura Observatory. But the site’s spirituality is most evident during those fleeting moments when sunlight magically turns the tunnel interior bright red. This is a place to observe and appreciate the sun’s eternal cycle. And therein lies the real power of Sugimoto’s architecture. ■



credits

DESIGNER: Hiroshi Sugimoto

ASSOCIATE ARCHITECTS: Tomoyuki Sakakida
Architect and Associates, New Material Research
Laboratory (preliminary design) – Tomoyuki Sakakida,
Yosai Isozaki, project architects

ENGINEERS: Jun Sato Structural Engineering
(structural); EOSplus (m/e/p); Ataka Bousai Sekkei (fire)

CLIENT: Odawara Art Foundation

SIZE: 10,000 square feet

COST: withheld

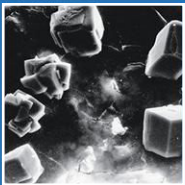
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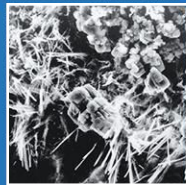
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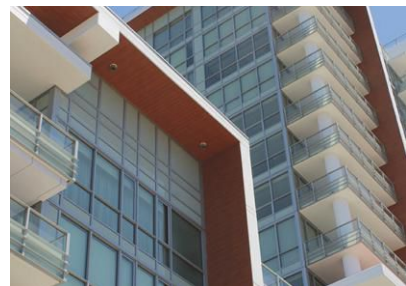
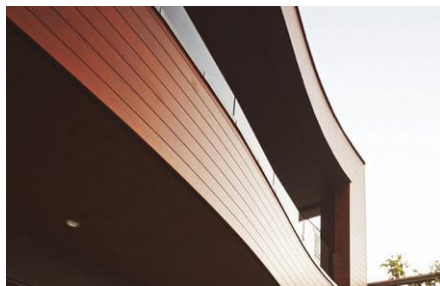
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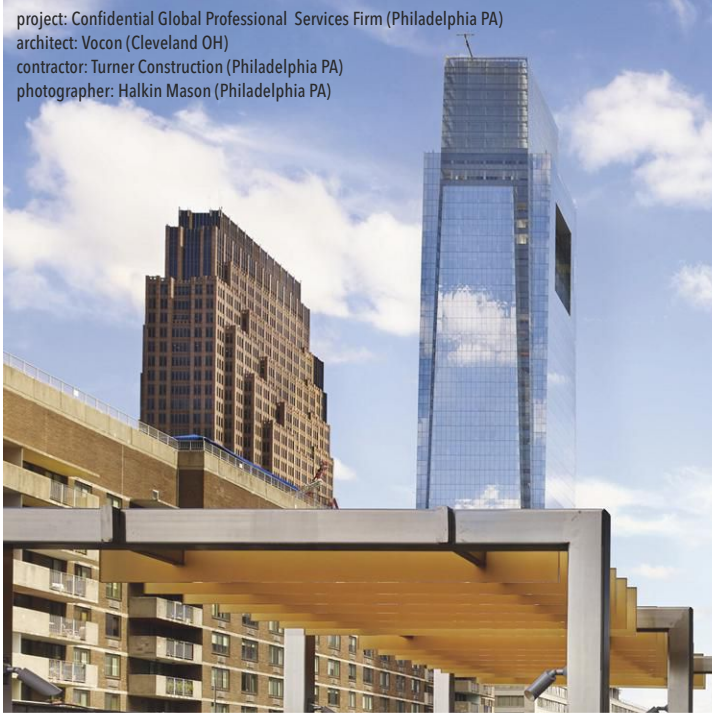
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photographer: Halkin Mason (Philadelphia PA)



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- 90 In Bamboo, Daoming, China
- 96 Rijnstraat 8, the Hague
- 102 Ota Museum & Library, Ota, Japan
- 108 North Transfer Station, Seattle

PHOTOGRAPHY: © NICK GUTTRIGE

RIJNSTRAAT 8 AT THE HAGUE, BY OMA

Tribunal de Paris | Paris | Renzo Piano Building Workshop

Highest Court

Towering on the edge of Paris, a new justice building presides over an urban transformation.

BY CATHLEEN MCGUIGAN



When you think of Paris, you don't think of skyscrapers. If you ride the escalator to the top of Centre Georges Pompidou, the city spreads out around you, a charming jumble of roofs on buildings mostly five or six stories high, as prescribed by Baron Haussmann in the 19th century. Except for the Eiffel Tower, Parisians

have hated protrusions in their skyline.

But that is changing. Height limits set in 1977—after the despised 689-foot Tour Montparnasse was built—were loosened in 2010, to allow for higher-density housing in parts of the city. And now, visible from atop the Pompidou, is the slender profile of a new glass tower far in the distance to the north.

The Tribunal de Paris by Renzo Piano Building Workshop (RPBW) is, at 525 feet, the third-highest structure in Paris (not counting the towers of La Défense, which are just outside the western city limits). The largest courthouse in Europe, with 90 courtrooms, it is significant not only for its scale, but for the hopes pinned on it as an urban catalyst. Perched just inside the Boulevard Périphérique—the heavily trafficked highway that encircles the city—the building, opening in April, is meant to breathe new life into an area that includes rail tracks and industrial brownfields near the Porte de Clichy, as well as the notoriously tough *banlieue*, or suburb, beyond the ring road, Saint-Denis. “It is the most important topic today, the work on the edge of cities to transform the peripheries,” says Renzo Piano. Indeed, the neighborhood has already been changing, with a fairly new park called Martin Luther King serving existing residential blocks farther to the south and more apartment buildings and offices that are springing up; soon a new tramway station and subway stop will open.

While Piano's beautifully detailed courthouse may not look like radical architecture, it is an exceptionally strategic and sensitive response to a brief that required a building to accommodate 8,500 people a day—judges, lawyers, administrators, plaintiffs and defendants, and the public. How could such an immense facility be built without overwhelming a neighborhood in transition?

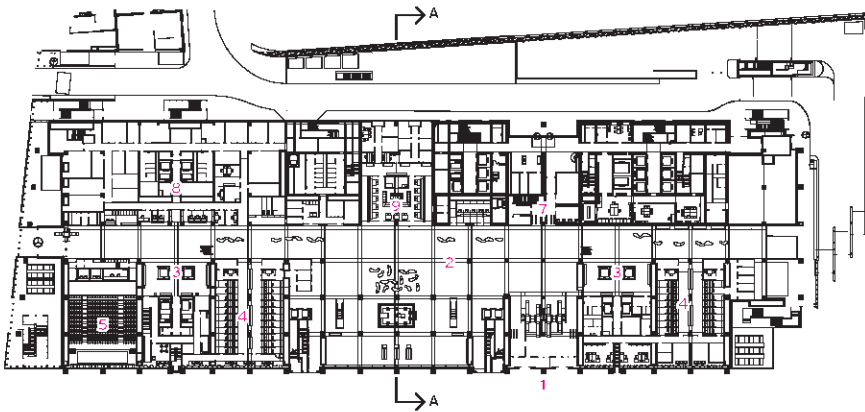
The answer is lightness: luminosity and dematerialization seem to have guided every aspect of the design. At the base of the 1.5 million-square-foot concrete structure is an 88-foot-high podium, L-shaped in plan. Atop its long side are stacked three slender boxes of diminishing size as they rise: the east and west elevations appear stepped; from the south and north, the tower looks very slim. Each box is cantilevered over the one below—they appear to float—and their stepped formation leaves space for three rooftop gardens on the volumes beneath. The building has a double skin—the inner one is glass and metal panels, while the



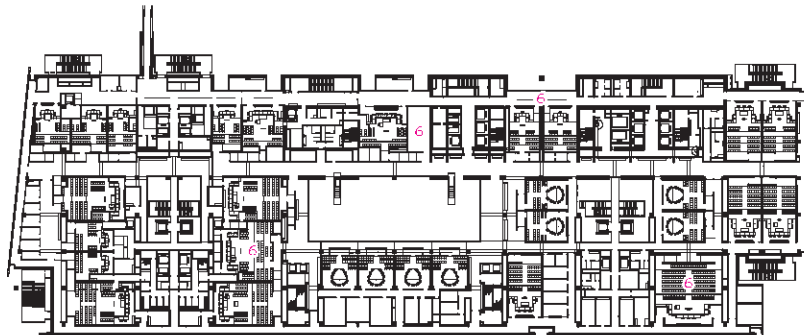
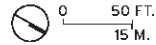
STEP RIGHT UP Animating the facade are rows of photovoltaics—just one of the numerous sustainable strategies in the building.



TERRACE FLOOR PLANS

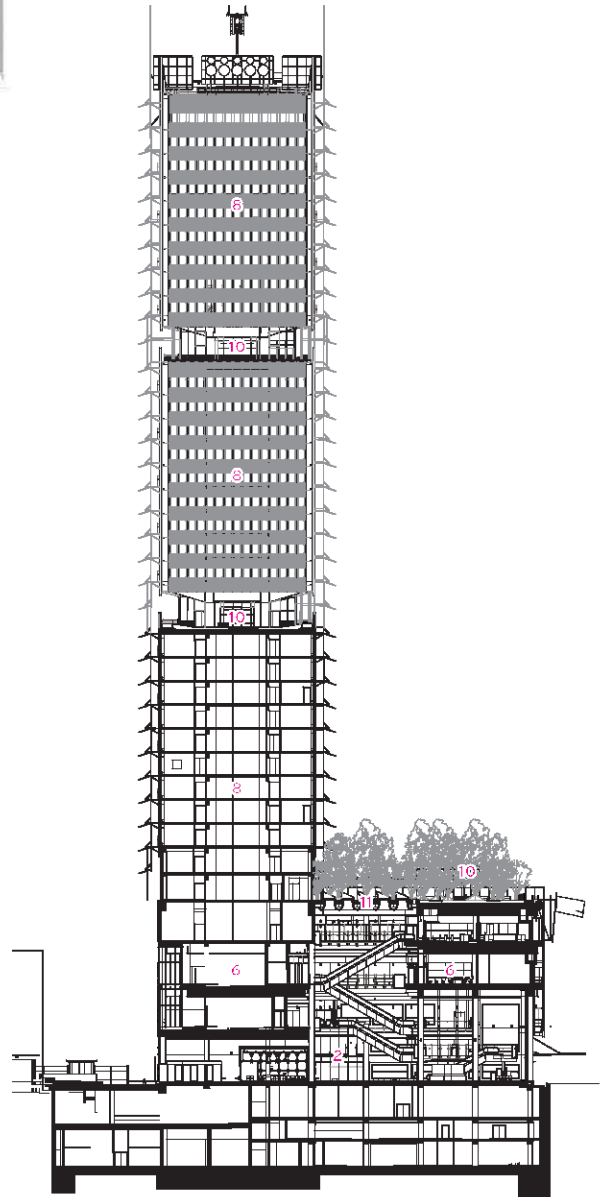


FIRST-FLOOR PLAN

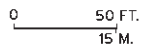


FIFTH-FLOOR PLAN

- 1 MAIN ENTRANCE
- 2 MAIN ATRIUM/SALLE DES PAS PERDUS
- 3 ATRIUM
- 4 WELCOME DESK
- 5 AUDITORIUM
- 6 COURTROOMS
- 7 OFFICE-TOWER ENTRANCE
- 8 OFFICES
- 9 CAFETERIA
- 10 TERRACE
- 11 SKYLIGHTS
- 12 RESTAURANT



SECTION A - A





dazzling outer facade is all glass (a shading system in between is deployed automatically against the sun). On the upper volumes, fine blades of glazing extend beyond the facade, adding to the effect of transparency.

A plaza designed by the Paris firm Moreau Kusunoki leads into a low-ceilinged entrance vestibule for security. Beyond that, the space opens up into a vast atrium that soars to the top of the podium, with sunshine spilling in from light scoops on the roof. Ringed by the floors containing the courtrooms, the big, bright hall is known as the Salle des Pas Perdus—the Room of Lost Steps—where people can get information, talk to lawyers, or pace while awaiting verdicts. “What I hoped it would be is a Palais de Lumière,” says Piano, “a palace of light that celebrates clarity and luminosity, to try to make a place that is not intimidating, that is not creating fear but confidence.”

GARDEN VARIETY The building includes three roof terraces, planted with 500 trees, for use by those who work in the courts. The glazing on the top three volumes of the tower extends beyond the facade.

The material palette inside is a simple trifecta of white finishes, beechwood, and daylight. (“It’s a really stupid idea to make a building like this too chic,” says Piano.) The podium holds all 90 courtrooms, which vary from quite small for family court to those that can hold up to 250 people. In most, natural light enters through clerestories, and wood furnishings contrast with elegantly minimal white custom benches, designed by RPBW.

The three-stepped tower above holds offices for 2,500 judges, magistrates, prosecutors, and clerks, many of whom have worked their entire careers in the historic Palais du Justice on the Île de la Cité, in



BRIGHT LIGHT, BIG SPACE Natural light spills into the Salle des Pas Perdus through circular skylights (opposite), while a smaller atrium (above) and a courtroom (left) also are open to daylight.

the heart of Paris. Conscious of the culture shock they may feel in moving to the city's edge, the architects have designed a number of amenities just for staff. Chief among them are the three rooftop terraces planted with 500 trees. A 730-seat employee restaurant on the eighth floor, its walls a vivid yellow-orange, opens to the largest garden, of 75,000 square feet, with stunning views of the city. Elsewhere are two double-height winter gardens and small balconies onto which to retreat to light up a Gauloise. An exterior shaft for a glass elevator vertically punctuates the eastern elevation and also will give passengers amazing vistas of Paris.

This courthouse—which recently won France's highest architectural honor, the Prix de l'Équerre d'Argent, or Silver Square—is not a monument, insists Piano.

Like Centre Pompidou, which he designed with Richard Rogers when they were both young and little known, more than 40 years ago, here is another public building in Paris that is anti-monumental. "Dignity is important for a civic building," says Piano, "but monumentality is always wrong." The Tribunal is not an edifice of stone and colonnades—nor should it be. In a neighborhood that is, in every sense, on the edge, it projects a presence that is both powerful and luminous. ■

credits

ARCHITECT: Renzo Piano Building Workshop – Bernard Plattner, partner in charge

PLAZA: Moreau Kusunoki

ENGINEERS: SETEC Bâtiment, Berim (m/e/p); SETEC TPI (structural)

GENERAL CONTRACTOR: Bouygues Bâtiment

CLIENT: Etablissement Public du Palais de Justice de Paris + Bouygues Bâtiment

SIZE: 1.5 million square feet

COST: withheld

COMPLETION DATE: 2017

SOURCES

WINDOWS: Schüco

GLASS GLAZING: Saint-Gobain, Guardian

DOORS AND SECURITY DEVICES: Geze Dorma

FURNITURE: Artemide, Vitra, Knoll, Cassina, Silvera, Majencia, Soko, Pedrali-Negostock, Tecno, Krion

LIGHTING: Guzzini, Artemide, Targetti, Bega

ESCALATORS/ELEVATORS: Kone

PHOTOVOLTAIC SYSTEM: ISSOL



Lilavati Lalbhai Library | Ahmedabad, India
RMA Architects

Reaching New Depths

A library brings daylight into the lowest levels of stacks and study areas.

BY JOANN GONCHAR, AIA

PHOTOGRAPHY BY RAJESH VORA

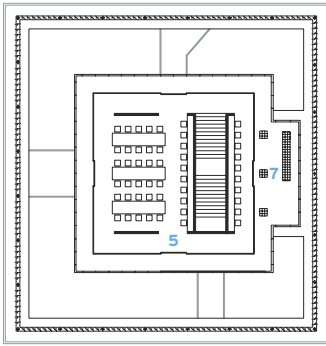
The Centre for Environmental Planning and Technology (CEPT), in Ahmedabad holds a special place in the hearts and minds of the generations of architects who have studied there since the school's beginnings in the early 1960s. Designed by famed Indian architect Balkrishna Doshi, now age 90, who served as the CEPT's first director, the collection of mostly 1970s buildings are highly indebted to Le Corbusier and Louis Kahn—who both left their mark on the western Indian city. The complex is exposed brick and concrete and has an expressed solidity and rigorous structural logic, according to Rahul Mehrotra, a CEPT alum and founder of RMA Architects. His Mumbai- and Boston-based firm was invited to build CEPT's new Lilavati Lalbhai Library, which opened this past October.

Designing the first structure on campus not by Doshi was “intimidating, to say the least,” says Mehrotra, known primarily for his work in his native country, though he has also completed a house in

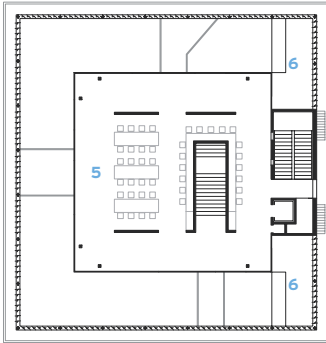




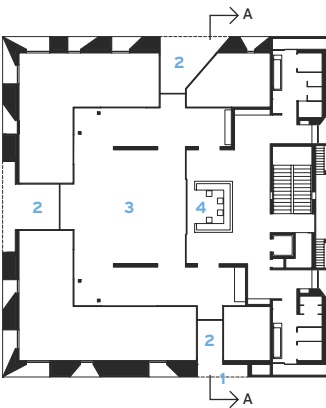
NEW KID ON THE BLOCK RMA's library is the first building on the CEPT campus not designed by Balkrishna Doshi, the school's founder. It defers to the earlier brick-and-concrete buildings but distinguishes itself with a much lighter facade made up primarily of operable wood louvers (above and opposite).



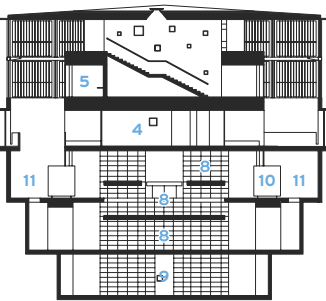
THIRD-FLOOR PLAN



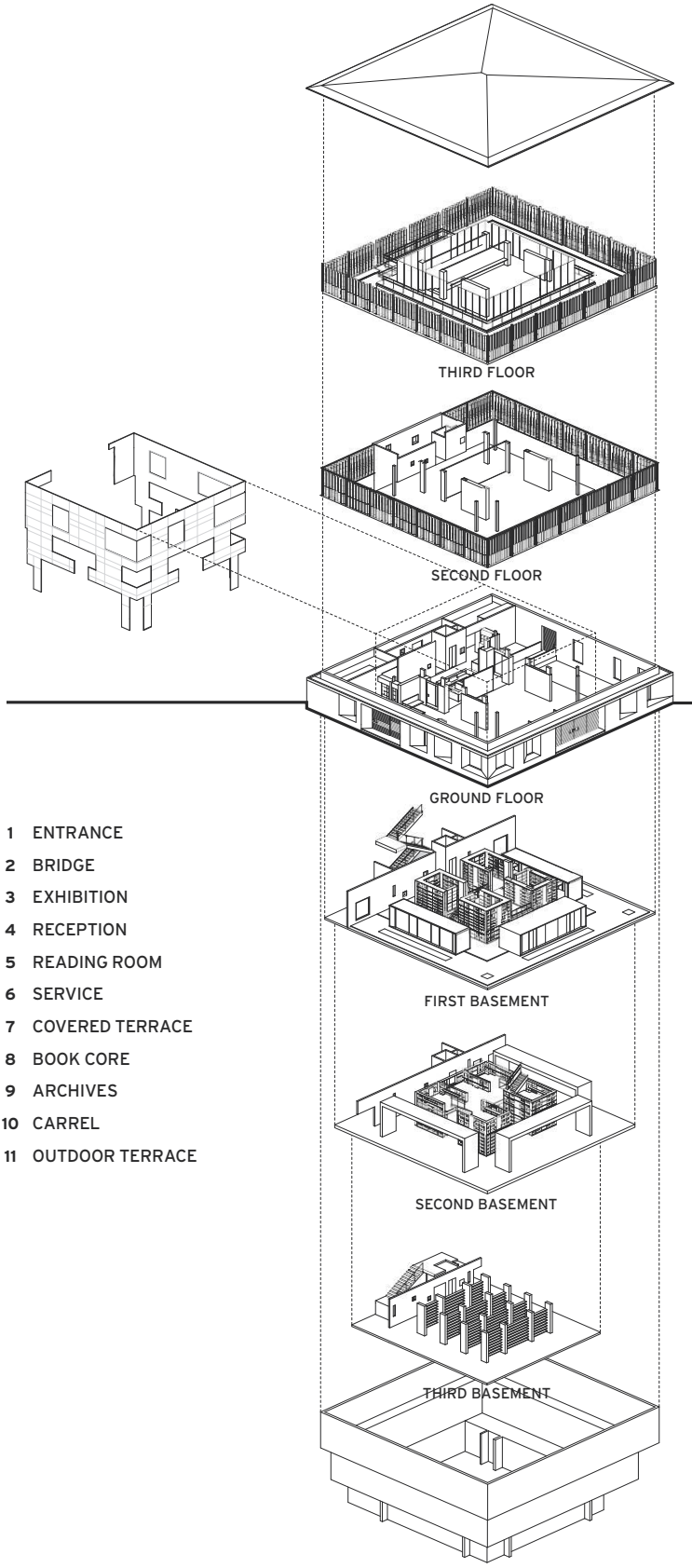
SECOND-FLOOR PLAN



GROUND-FLOOR PLAN 0 16 FT. 5 M.



SECTION A - A



PHOTOGRAPHY: © TINA NANDI (OPPOSITE, RIGHT)



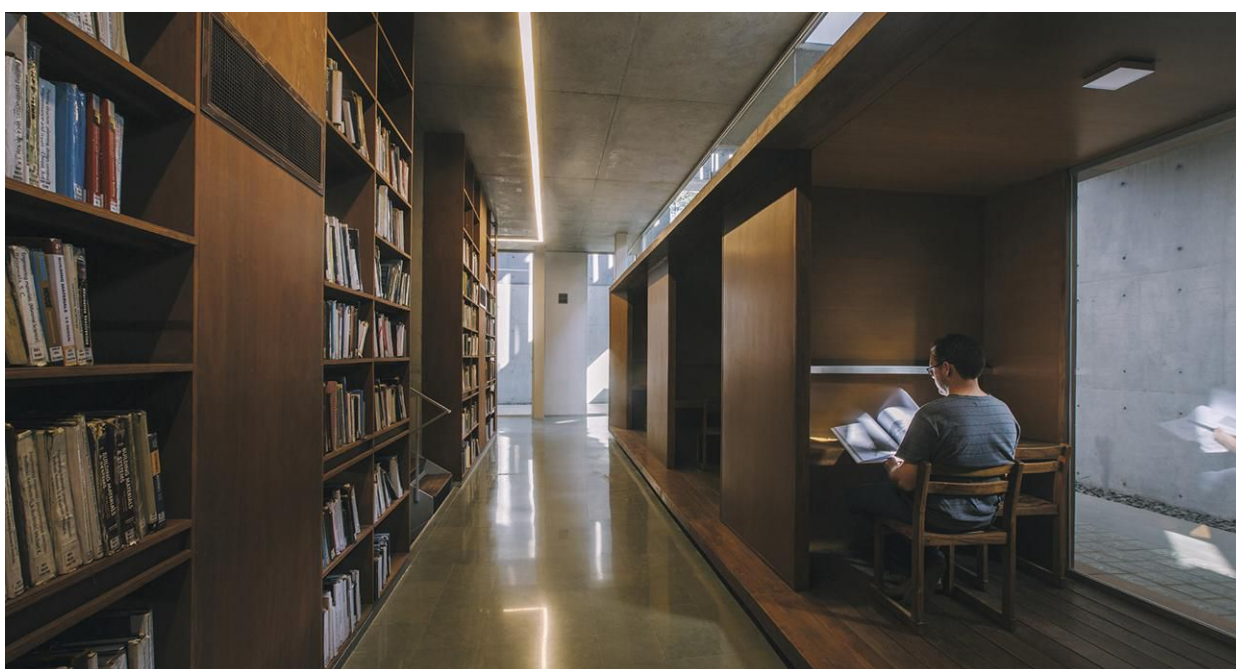
DIG DOWN
 To avoid exceeding the height of the existing campus buildings, the architects submerged three of the library's six stories below grade. Light filters through the adjustable louvers (above), reaching almost to the building's lowest levels.



Pakistan and a lab and office building in Basel for Novartis. Mehrotra confesses that the CEPT commission made him “a bit anxious about getting it as right as possible.” Accordingly, his library scheme pays homage to the Indian Modern master, as well as Ahmedabad’s rich midcentury heritage. But, at the same time, it reinvents the older architectural ideas. Mehrotra made the library no higher than CEPT’s existing buildings—all three stories tall—but in order to fit the required 30,000-square-foot program on the constrained site, he submerged half of the building. A central book core, surrounded by study carrels, with archives at the base, extends

almost 40 feet down into the ground, a strategy that provides a geothermal advantage in the hot climate. The three stories above grade house exhibition spaces and reading rooms. To accommodate this arrangement, the RMA team created something that resembles a building within a building: an inner one with a steel structure and a skin of drywall and glass, and an outer one defined by manually operated shutters, atop a sculptural concrete base.

The shutters serve the same function as the brise soleil on Le Corbusier’s Mill Owners’ Association Building located just a few miles away. But the new library’s outer shell is of a completely different



HIT THE BOOKS
Students, faculty, and visitors enter the lobby (opposite) via a bridge (above) that spans the interstitial space between the library's inner and outer skins. Carrels and other study areas surround and are distributed among the book stacks (left).



character than that of the 1950s structure, as well as a departure from the material palette of the surrounding campus buildings. Instead of static concrete elements, or the solidity of brick, Mehrotra's library has delicate plywood slats that can be adjusted and shifted to mitigate the sun or let the breezes in. The result is a building much like a *kaavad*—a traveling shrine, in which layers of doors are opened, each revealing a different episode in a continuous narrative.

There are plans for the school to use this double skin as a learning tool, studying the details, monitoring its operations, and measuring light levels and temperatures in different seasons and throughout the course of the day. No special documentation process is needed, however, to demonstrate the effectiveness of the finned facades, along with skylights on the roof, which bring daylight deep into the library, reaching almost to its lowest level. The sun, of course, readily illuminates the more transparent above-grade floors, where the building seems to fly into the trees and students can study amid the leaves and the birds.

Some spaces are literally open to the campus, such as an upper-level terrace that occupies the interstitial zone between the outer and inner shells. It offers a sheltered spot for relaxed meetings and socializing. The informality flows out of the building too, with people using its exterior areas in a similarly low-key way—lounging on

the deep, shaded sills of the base, chatting with each other, and eating lunch. It is clear that the students have taken to the library, making it their own. And in this way, the youthful building establishes a new centrifugal core for its storied campus. ■

With reporting by Kaiwan Mehta. Mehta is a Mumbai-based architecture theorist, educator, researcher, and managing editor of DOMUS India.

credits

ARCHITECT: RMA Architects – Rahul Mehrotra, founder and principal; Robert Stephens, Payal Patel, principals; Prashant Saudagar, production associate

CAMPUS ARCHITECT: Aakruti Architects – Dilip Patel, principal

ENGINEERS: N.K. Shah Architects & Structural Consultants (structural); ARKK Consulting (m/e/p)

GENERAL CONTRACTOR: PSP Projects

CLIENT: CEPT University

SIZE: 30,000 square feet

COST: withheld

COMPLETION DATE: October 2017

SOURCES

CLOSERS: Dorma

GLAZING: Saint-Gobain

SUSPENSION GRID: Hunter Douglas

PAINTS AND STAINS: Oikos

ELEVATORS: Infinity Elevators

In Bamboo | Daoming, China | Archi-Union

A Twist on Tradition

A community center in a rural village brings dynamism to the vernacular.

BY ARIC CHEN

PHOTOGRAPHY BY BIAN LIN





About a 90-minute drive outside the Chinese metropolis of Chengdu, in central Sichuan province, Archi-Union's In Bamboo project hunkers down, just off a road in the countryside. Its Möbius-

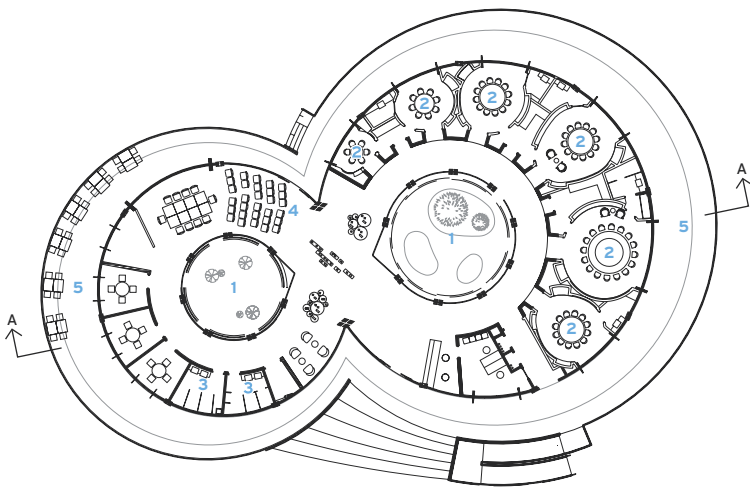
like, figure eight-shaped roof twists and contorts above fields of wheat, rapeseed, and winter vegetables, depending on the season, while its scalloped walls of intricately hand-woven bamboo bulge beneath the building's gray-tiled eaves and are traced around the edges by meandering flagstone paths.

It's an idyllic image. But to hear the project's Shanghai-based designers describe it, In Bamboo demonstrates "Rural Area Prefab Industrialization in the Era of Digital Humanities." And while the efficiency of the Chinese language often seems like a mouthful in English translation, the point here is clear: In Bamboo elegantly makes the case for a symbiotic relationship among rural, industrial, and digital.

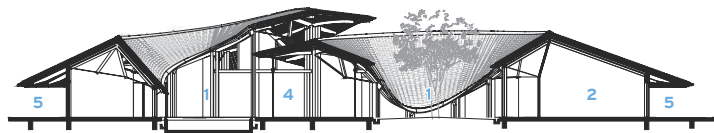
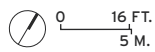
At just under 20,000 square feet, the project also blurs functions, acting adaptively as a community center, restaurant, and exhibition hall for Zhuli (or "in bamboo"), a modest settlement of about 85 families within the town of Daoming. The building sits on the former site of two adjacent courtyard houses that had been largely abandoned, and, taking their footprints as a starting point, Archi-Union digitally generated the structure's Möbius roof, thus "linking two houses as one community center through topological connectivity," says studio founder Philip F. Yuan.

Indeed, under Yuan, Archi-Union has become widely known for its experiments in digital design and fabrication—the parametrically derived facade of its Chi She gallery in Shanghai was assembled by robots, brick by brick—and In Bamboo's fluid forms and natural materials produce what might be described as a kind of computational vernacular. The roof's dynamic, complex curves are clad in gray ceramic tiles of a type that's native to the area, while the woven bamboo-cane panels that wrap the perimeter walls give a nod to the village's main craft specialty. Two courtyards, including one with a pool, emerge from the hollows of the infinity sign-shaped plan, where the roof dramatically plunges as it channels water when it rains. "Whether you can see it or not, tradition informs all my projects," says Yuan.

So does pragmatism. Yuan had to minimize costs and reduce construction time for the government-funded project and, to do

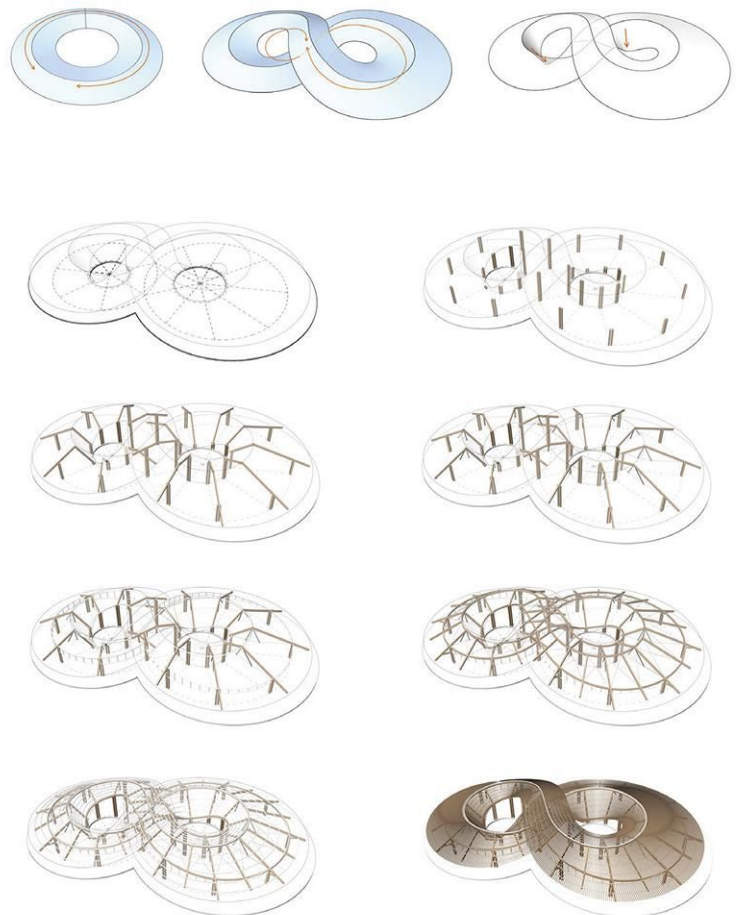


FLOOR PLAN



SECTION A - A

- 1 COURTYARD
- 2 MEETING/DINING
- 3 RESTROOM
- 4 RESTAURANT/FLEXIBLE SPACE
- 5 TERRACE





so, he relied largely on prefabrication. The building's steel and laminated-wood construction system was premade, much of it in Chengdu. (Structural bamboo was not an option because the local variety isn't strong enough. "It's the softer kind that pandas eat," Yuan wryly explains, referring to the area's most famous residents.) Inexpensive studs and chipboard panels help fill out the material palette; the entire project, including landscaping and interiors, took only 52 days to build.

Formally and typologically, In Bamboo is striking enough, but its potential as a model for socially productive rural architecture is head-spinning. China has an estimated 600,000 villages across a vast countryside that, despite remaining home to more than 600 million people, have been depopulated and in decline as people and economic activity have in recent years migrated to the cities. The phenomenon has focused tremendous attention on rural revitalization in China. Fueled by government policies and cash, a wave of new architecture pushing a spectrum of strategies—from the development of agricultural and cultural tourism, to new schools and plain old "beautification" efforts—has cropped up in response.

In Zhuli, In Bamboo deftly negotiates these issues. For starters, with its programmatic flexibility, the use of the building itself is not predetermined. With only a few



ABOVE THE CURVE The figure eight plan is most legible from the air (opposite). The building is sited among fields of wheat, rapeseed, and winter vegetables (top), on grounds that are, in addition, dotted with architectural follies, like this guard pavilion, also designed by Archi-Union (above).



HUB OF ACTIVITY A flagstone path traces around the building's edges (this page). The swooping central space is often used as a restaurant (opposite, top). The roof's gray tiles are local to the region (opposite, bottom).

enclosed rooms—just six, which are used for meetings or dining—the otherwise open, continuous space adapts, as needed, for exhibitions and workshops, often on local crafts, alongside other events. “Until now, there was no place for the community to gather,” Yuan says. That’s when it’s not functioning as a restaurant. Even on that last count, the building remains shrewdly ambiguous; it doesn’t have a kitchen, instead using that of the existing house next door, whose owners have now made it their business.

The flexibility makes sense when one considers that In Bamboo is only the beginning of a larger, still-evolving plan for Daoming, all of it designed by Archi-Union, that includes an eight-villa hotel, children’s summer camp, water-filtration ponds, and a small service center that, alongside public restrooms, will have a package-delivery station that will link the village to China’s burgeoning e-commerce economy. What’s more, Archi-Union has developed a master plan that includes a new village entryway as well as guidelines—covering everything from paving patterns, materials, and fence heights—to steer construction in an enclave that’s now humming with residents rebuilding once-dilapidated homes.

“We’re trying to show the villagers how to use architecture to change their lives,” says Yuan. “We’re creating systems, but they can use them in bottom-up ways.” According to Yuan, the redevelopment efforts are under the direction of a newly formed company jointly owned by the local government and the village.

Yuan calls In Bamboo a prototype. By merging digital design, industrial fabrication, and the vernacular, the project shows how non-Cartesian architecture can spur non-Cartesian thinking in tackling complex redevelopment in parts of China. ■

Aric Chen is Lead Curator for Design and Architecture at M+, the new museum of visual culture under construction in Hong Kong.

credits

ARCHITECT: Archi-Union Architects – Philip F. Yuan, principal; Alex Han, Xiangping Kong, Bing Yang, Tianrui Zhu, project team; Qin hao Wen, Xiaoming Chen, Jingyan Tang, interior design

ENGINEERS: Jing Wang, Lei Li, Chen Liang, Qiang Zhou

CONSULTANTS: Yong Liu, Ying Yu, Qiang Zhou (electromechanical)

SIZE: 19,400 square feet

COST: withheld

COMPLETION DATE: April 2017





Rijnstraat 8 | the Hague | OMA

The Body Politic

Retaining its skeleton, a ministry building is transformed into an open, flexible space.

BY TIM ABRAHAMS

The small nation of The Netherlands has taken on an outsized role in international affairs, as a founding member of the European Union and as headquarters of the International Criminal Court, which is based in The Hague, also the seat of Dutch government. But this growth in bureaucracy could not be accommodated in the medieval structures that housed the small Dutch executive and legislative branches, and a new administration hub grew near the city's central railway station. OMA—which is known for its international work but is based in nearby Rotterdam—has converted a building, completed only in 1992, which was a keystone for this development, paring back a brilliantly conceived but cluttered structure and creating a platform for a more flexible bureaucracy.

Originally home to the Ministry of Housing, Spatial Planning and the Environment (VROM), the building was a 1 million-square-foot hulking affirmation of the expansive ambitions of the new Netherlands. Designed by the Dutch architect Jan Hoogstad, the VROM was built around five monumental prefabricated concrete cores, each 16 stories and 194 feet high—taking cues from the only other nearby building, Herman Hertzberger's Ministry of Social Welfare and Employment (1990), a complex divided into separate cruciform buildings to match the more diminutive urban scale of the historic city. (Tellingly, Hertzberger himself is currently converting that out-of-date complex into housing.)

In the original VROM, circulation wrapped around each of the cores, which also supported a huge concrete girder off which hung the



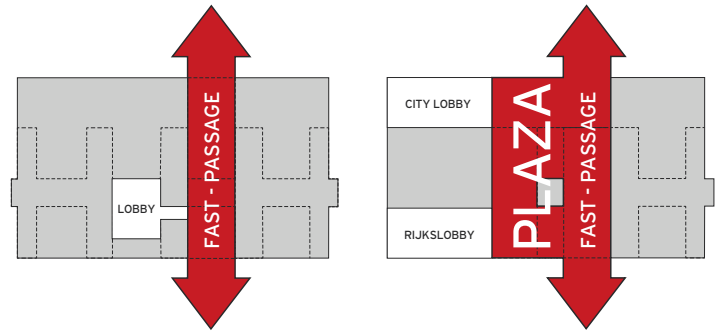
PHOTOGRAPHY: © DELFINO SISTO LEGNANI AND MARCO CAPPELLETTI (OPPOSITE); NICK GUTTRIDGE (ABOVE, RIGHT)

floors down to the fourth story, allowing a tram and a public passageway beneath the northern section of the building. The VROM was both a gateway to The Hague from the railway station and a bridge over one of its main pedestrian and public-transport routes. It was an emphatic civic statement and, with its glazed atria, a declaration of responsibility to the public. Yet the VROM turned out to be almost instantly obsolete. The Dutch public purse began to shrink and the size of government along with it. The building had been designed without much thought for open-plan working—the offices were small and enclosed—and, despite the vast atria on the eastern side of the building, only select offices had views onto them. There were few central meeting points, an important omission if the building was to become more flexible and adapt to hosting different ministries in the future. So, in

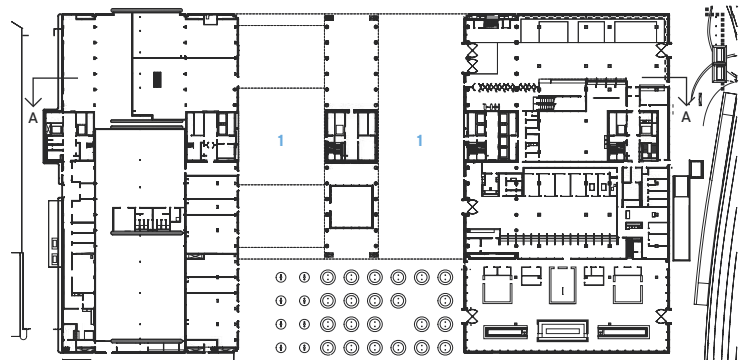
IN THE CLEAR Apart from the vertical concrete cores, the 460-foot-long structure is now fully glazed (opposite). Approximately 6,000 civil servants work in the new ministry building (above).

November 2012, three firms were invited to compete to renovate the building, and 18 months later—with the design taken to more advanced stages—OMA was announced as the winner.

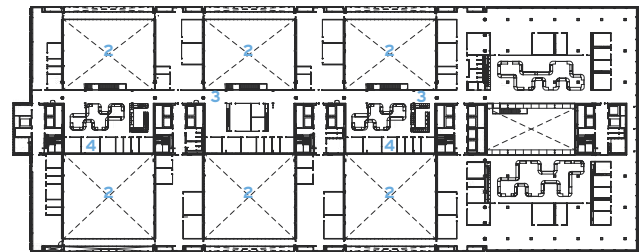
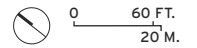
What the architects have done is to reinvent one of the key buildings in the evolution of the Dutch state in a stunning fashion. Undertaken with the full cooperation of Hoogstad, the renovation reveals the noblest intentions of the original. Now named after its address, Rijnstraat 8 is designed to house, for now, the Ministry of Infrastructure and Water Management, the upper ranks of immigration services, and some elements of the Ministry of Foreign Affairs.



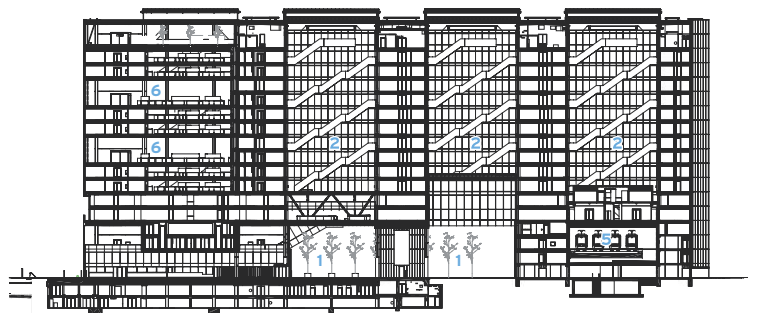
GROUND FLOOR – BEFORE & AFTER



GROUND-FLOOR PLAN



EIGHTH-FLOOR PLAN



SECTION A - A

- | | |
|--------------|----------------|
| 1 PASSAGEWAY | 4 OFFICE |
| 2 ATRIUM | 5 TRAM |
| 3 SPINE | 6 MEETING ROOM |

credits

ARCHITECT: OMA – Ellen van Loon, partner in charge; Bart Nicolaas, Anita Ernodi, Alex de Jong, Kees van Casteren, team

ENGINEER: Arup (structural)

CONSULTANTS: Level Acoustics (acoustics); DGMR (fire safety)

CLIENT: Rijksvastgoedbedrijf, The Hague

SIZE: 932,000 square feet

COST: withheld

COMPLETION DATE: January 2017

SOURCES

GLAZING: Saint-Gobain

SOLAR PANELS: Oranjedak

FREESTANDING FURNITURE: Plan@office

FIXED FURNITURE: Van Assem; Intos

LIGHTING: Etap (LEDs); Breda; Maas & Hagoort

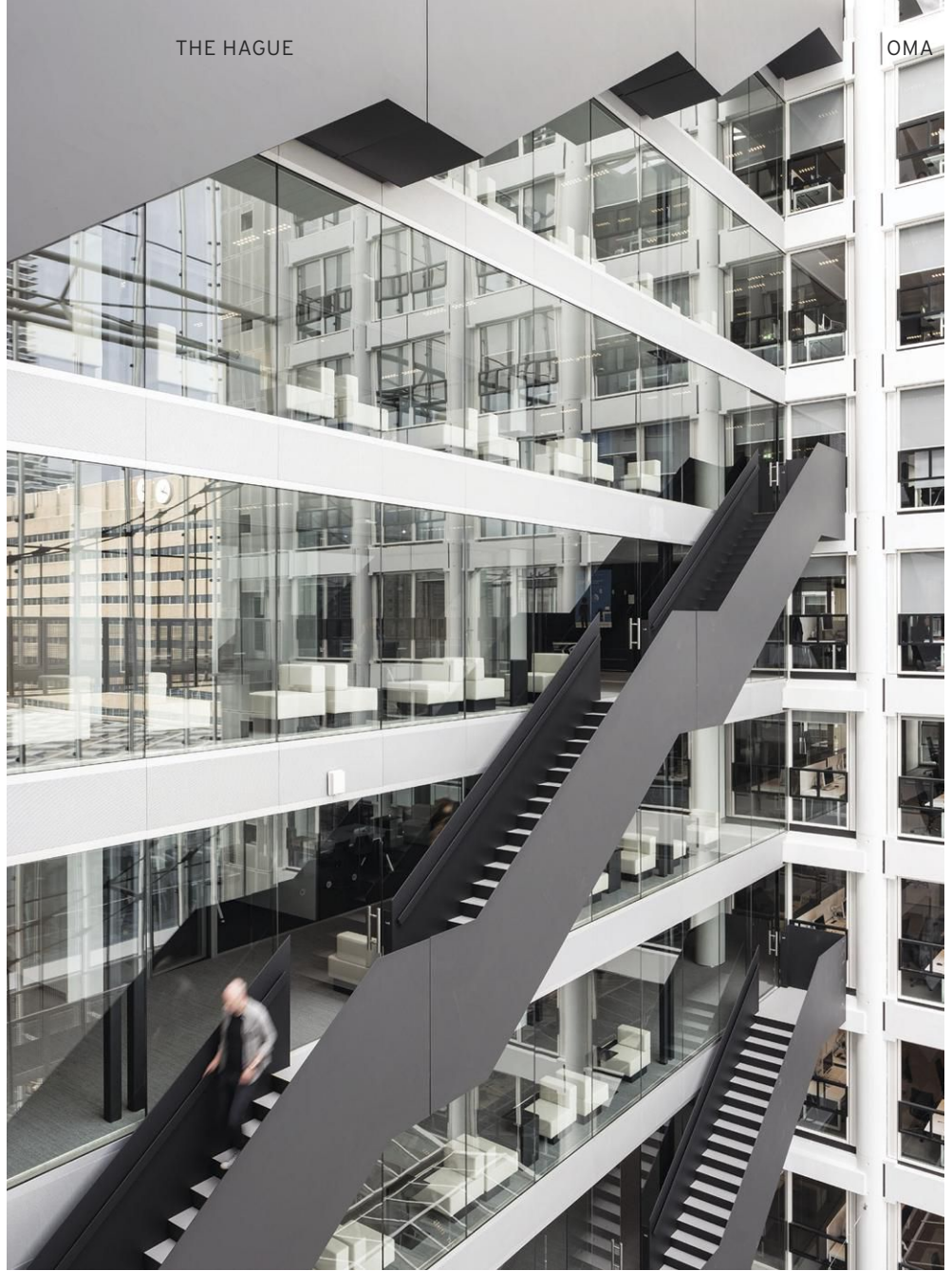
TRANSFORMATION The atria, now glazed on all sides, bring daylight deep into the interiors (opposite). New staircases make a bold graphic statement (right). The building's exterior changed significantly (bottom, left and right).

The floor area has shrunk slightly, but the building has gained a far greater level of flexibility and a real transparency, rather than a metaphorical one.

An appreciation of the programmatic approach we have come to expect from OMA—prioritizing the user experience over the construction of the building—is only partially useful in understanding the ingenuity at work at Rijnstraat 8. Indeed, OMA has lavished the same consideration on a 25-year-old structure as it has on such centuries-old ones as the Prada Foundation in Milan and the Fondaco dei Tedeschi in Venice. Ellen van Loon, the OMA partner in charge, explains how they revealed the engineering of the original building. “The steel structure was covered with fire-rated board, so all this amazing construction was hidden. We took the board off all the structures and painted them instead. The full structure is legible now.”

A new circulation spine was added along the entire eastern side of the building, which runs along the back of the atria. Previously, only the long corridors on this side were open to the exterior, but now, with full glazing on the interior office space, light from the atria reaches deep into the floor plates. Staircases running across the glazed back wall of the atria connect floors, as do elevators at the cores. This extra circulation is suspended from a new steel truss that sits across the top of the cores. It makes a bold, almost graphic mark at the back of the bright, glazed space. By removing two entire floors, new double-height floors have been created for meeting spaces. Further floor space has been surrendered to the passageway underneath the building, which is now double the original size. The southernmost core has been largely replaced with a diffused system of columns, between 15 inches and 2 feet in diameter, creating a more conventional structure, with offices on the perimeter of the building. Here the atrium has been removed, the ground floor extended out into that space, and glazing wrapped around the three facades.

The interiors have been done inexpensively but with verve and wit. Structure and circulation provide most of the moments of visual interest. It is cheering to see the yellow escalators from the OMA-designed Seattle Central Library repeated throughout this building. The marble-like carpet tiles



Before



After



on the ministerial levels are a blast. New structural components have been painted black, giving the building visual depth. An especially enchanting moment has been created on the top floor, where the intersection of old and new structures creates the bones of a roof pavilion: an ideal space for parties and events.

Dutch architects are often at their most engaging when they work at large scale, grappling with how to make it humane. Ironically, unlike the larger nations in Europe, and despite its colonial

past, The Netherlands had never built gargantuan public buildings to administer its empire and thus lacked the infrastructure for the era of bigger government. In revisiting the VROM, OMA has reinvented an important structure in which the ambitions of the Dutch state—to be accountable and effective—are expressed in a profoundly modern way. ■

Tim Abrahams is an architecture critic based in the United Kingdom.



INSIDE JOB The OMA-designed interiors were enriched with found works of art from the archives (opposite, top). Yellow escalators add a pop of color (opposite, bottom left). Nature is brought inside the office (opposite, bottom right). LED lighting is used throughout the entire building (this page).

Ota Museum & Library | Ota, Japan | Akihisa Hirata Architecture Office

Social Climbing

A ramping structure provides a gathering space for a waning downtown.

BY NAOMI R. POLLOCK, AIA

PHOTOGRAPHY BY DAICI ANO



Many people imagine Japan as either dazzlingly active, like Tokyo, or charmingly traditional, like Kyoto. But much of the country is dotted with doughnut cities where once thriving downtowns have been supplanted by suburban shopping malls, and pedestrian traffic is practically nonexistent. Keen to counter this condition in their community, the citizens of Ota, a city of 220,000 located 75 miles northwest of Tokyo, asked their mayor to intervene. The problem wasn't just bringing people back into town—over 10,000 travelers use the central train station daily—it was getting them to stay. The mayor responded by hosting an open competition for

a combined gallery and library next to this transit hub. The building proposed by Tokyo architect Akihisa Hirata (Design Vanguard 2013) turned out to be just the ticket. From afar, its hill-shaped form echoes the ancient *kofun* burial mound off in the distance. But, up close, its cluster of window-walled boxes teems with activity. Part cultural mecca, part information exchange, and part community center, Hirata's building has clearly become Ota's "it" place.

Picking up where the city leaves off, the scheme is urban in character, yet the architect's organic form and white steel frame intentionally contrast sharply with the rows of shuttered shopfronts nearby. Fitting in is rarely a concern when it comes to new construction in Japan,



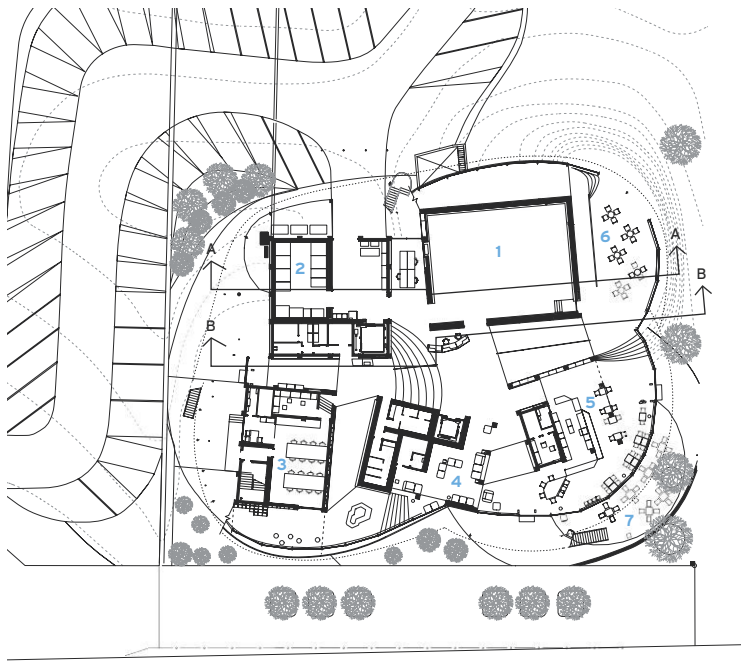
especially in a location needing invigoration. The eccentric structure is entered from multiple directions. It consists of five buildinglike boxes wrapped by glass walls, laced together with ramped paths that connect floor levels. Quoting from the cityscape outside, round traffic mirrors and neon signage help navigate the way.

Instead of putting the two primary functions of reading and exhibition space inside individual cubes or stratifying them horizontally, Hirata mixed their components together—a solution reached after several community workshops initiated by the architect. “This [decision-making process] was much clearer for us than just imagining how we would use the place,” remarks Hirata. At grade, the clover-shaped

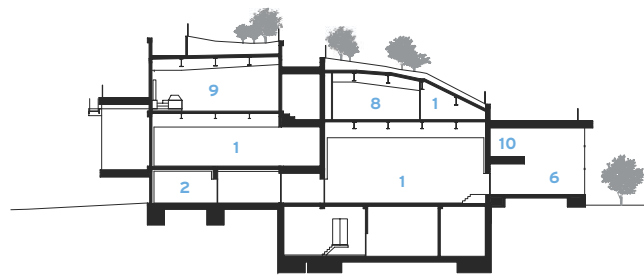
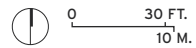
OVER THE HILL Five building-like boxes of varying heights comprise the new structure, which resembles a giant mound. The stark white boxes are topped by terraces and green roofs.

footprint containing the individual boxes holds a café, double-height gallery, magazine and newspaper corner, and administrative areas. The second floor also contains a gallery plus separate spaces for children’s and art books. An audiovisual hall, another gallery, and the library’s reference room occupy the third floor. While terraces loop around parts of the perimeter at each floor, roof gardens top each box.

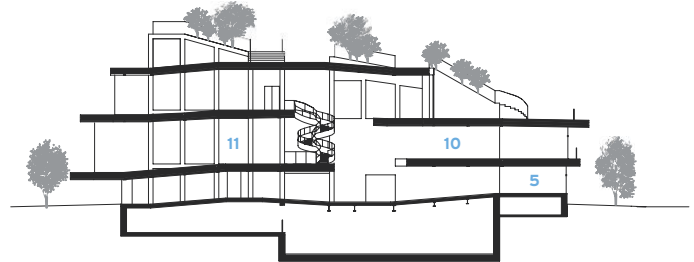
Though divided into three stories, the new development contains upward of 15 different levels. “I didn’t want a clear division between



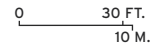
GROUND-FLOOR PLAN



SECTION A - A



SECTION B - B



- | | |
|-----------------|---------------------|
| 1 GALLERY | 7 TERRACE |
| 2 STORAGE | 8 REFERENCE ROOM |
| 3 OFFICE | 9 AUDIOVISUAL HALL |
| 4 BROWSING AREA | 10 ART BOOKS |
| 5 CAFÉ | 11 CHILDREN'S BOOKS |
| 6 EVENT SPACE | 12 READING ROOM |





floors,” explains Hirata. He achieved this by varying the floor heights within the boxes and incorporating, or attaching, flat areas to the sloped circulatory system. In some places, the ramps morph into informal seating and study areas. Elsewhere, they open onto the terraces. From there, the sloped walk ascends to the roof, forming a continuous circulation loop that connects interior to exterior and top to bottom.

Angled on a code-sanctioned 1:12 slope, the interior ramps are accessible everywhere except between the second and third floor, where Hirata swapped in broad steps. Doubling as informal seating, the stairs enliven the path but require wheelchair users to take the elevator in order to reach the top or bottom of the stairs. Located in the middle of the building, elevators can streamline the ascent or descent. But that’s missing the point. This is an architecture that promotes discovery and sparks chance encounters. Instead of simply going up, down, or across, one meanders through this building, pausing to gaze at the distant mountains or glimpse children playing below. In a public building especially, it is unfortunate that this experience is not fully accessible due to the one set of giant stairs.

In contrast to the ramps’ sense of movement, the boxes themselves are inherently static. Each blocky volume is made of concrete, coated with white paint, and reinforced with a hidden steel frame. Spaced 10 feet apart, the frames’ vertical elements support the steel beams be-



EN ROUTE The clover-shaped building, wrapped by a curving path, is adjacent to Ota’s train station (opposite). Ramps inside and outside the building, including in the café (top) and event spaces, provide the main circulation. Visitors ascend an impressive staircase at a main entrance (above).



neath the walkway as it winds its way up and around the building. Doubling as window sashes, slender columns prop up the ramps' outer edges. Because the boxes stand independently, they could be arranged freely—an attribute that the architect exploited fully. Guided by function, they angle this way and that, adding to the building's dynamism. Though there is no explicit front or back, the building steps up from the train station on one side, enticing travelers to stop in for a latte or a glance at the latest headlines. It crests at the top-floor audiovisual hall, fittingly used by both the library and museum.

More *kunsthalle* than bona fide museum, the building features temporary exhibits. Treated like blank canvases, the galleries' white walls and concrete floors can accommodate installations of various sorts, but the library rooms contain a variety of finishes and furnishings that imbue each one with a distinct character. While William Morris wallpaper helps soften the children's reading corner, a custom chandelier is a focal point of the research room. Like the library's upholstered seating elements, the unique, metal-framed light fixture was a collaboration with a local factory that supplies parts to Subaru, the carmaker whose manufacturing division is headquartered in Ota.

Because of its auto industry, the city is neither lacking in revenue nor plagued by a dwindling population. What it does need is revitalization

of its dilapidated downtown. A public works development in the best sense of the word and an example of architecture that prioritizes engagement, the Ota Museum & Library could be the grain of sand that starts the pearl growing in the oyster that is the town's center. ■

credits

ARCHITECT: Akihisa Hirata Architecture Office – Akihisa Hirata, principal; Yuko Tonogi, Ayaka Matsuda, Ayami Takada, Hitomi Namiki, Naoki Nakamata, team
ENGINEER: Arup (structural, environmental)
CONSULTANTS: Izumi Okayasu Lighting Design Office (lighting); Atsushi Hirano/AFFORDANCE (signage, wayfinding); SfG (landscape)

CLIENT: Mayor of the City of Ota

COST: \$18 million

COMPLETION DATE: December 2017

SOURCES

LIGHT FIXTURES: Fuji Heavy Industries; AI-LAB

GLASS: NSG

TEXTILES: Yoko Ando Design

FURNITURE: Minerva

LIGHTWEIGHT SOIL: Ikegami



ACTIVE DESIGN

There are upward of 15 different levels within the ramping structure, offering a dynamic feel that encourages visitors to walk through the building as they would through a city (opposite and above). Library and gallery spaces are spread throughout the building, including this quiet spot for reading (right).



North Transfer Station | Seattle | Mahlum

It's a Dump—No, Really!

Design helps a waste facility get along with the neighbors.

BY KATHARINE LOGAN

PHOTOGRAPHY BY BENJAMIN BENSCHNEIDER





Not many land uses are as unwelcome near an urban residential neighborhood as a dump. Calling it a solid waste transfer station implies a certain seriousness of purpose, even respectability, but there's no getting away from the fact that this is where garbage trucks dump their loads, self-haulers line up to chuck old mattresses and yard waste, and semis growl in to shuttle the stuff away.

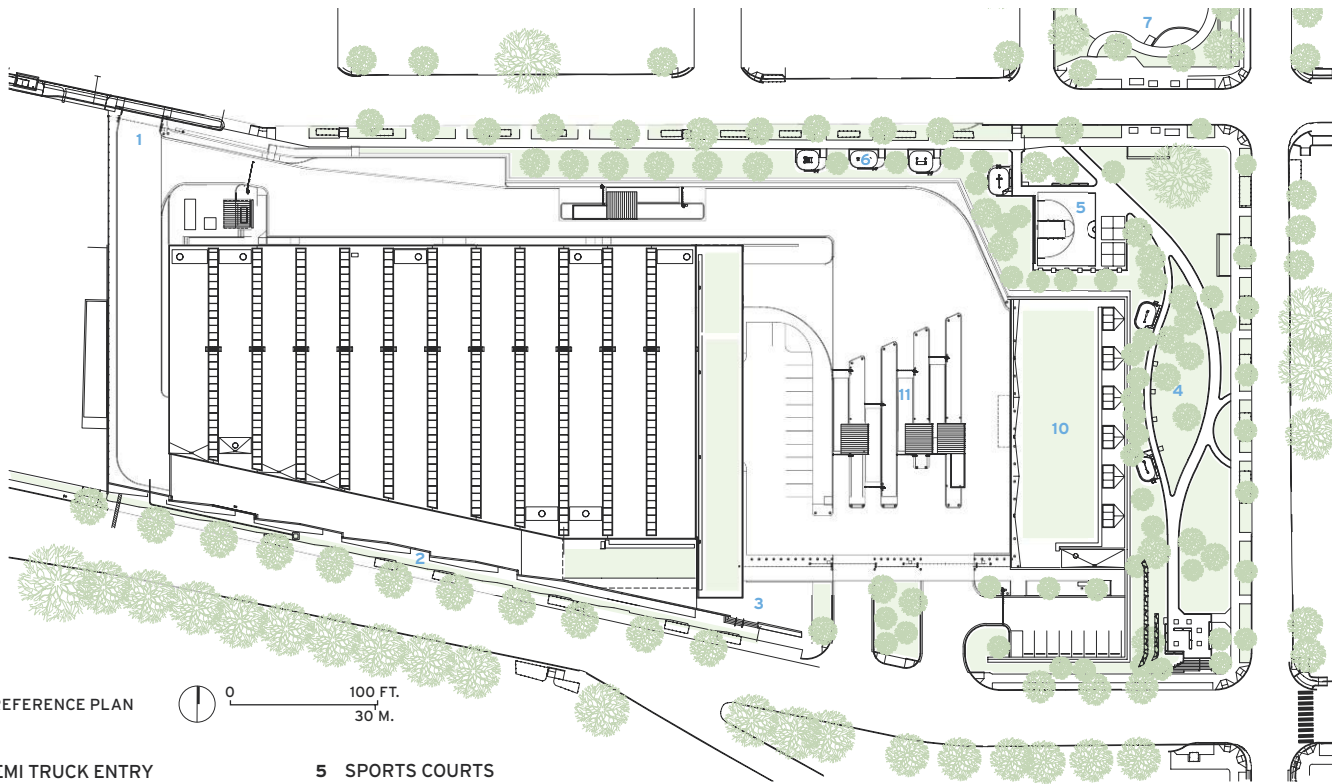
Chances of getting locals to accept a new waste transfer facility in their backyard? Slim to none. Unless, that is, the neighborhood grew up on the edge of an industrial zone where a transfer station already existed, as did Seattle's Wallingford and Fremont sections—two neighborhoods that overlook active Lake Union and its ship canal, with Seattle's skyline beyond, and abut the North Transfer Station (NTS). For Wallingford-Fremont, a new transfer station is an improvement.

Compared to the smaller, late 1960s pit facility it replaces, the new flat-floor NTS operates more safely and efficiently. Conditions of the community's acceptance required the design to provide significant public amenities and to address community priorities, including sustainability, security, and aesthetics. "These constraints actually helped us," says Anne Schopf, a partner at Mahlum, architect for the LEED Gold-certified project. Instead of having to advocate for community-sensitive urban design, "we were able to spend that energy innovating and making a better project."

Bermed into a sloping 5½-acre site between the lake's increasingly recreational waterfront to the south, residential development to the north and east, and a mix of uses to the west, the facility consists of two low-slung buildings on either side of a weigh-scale yard. The main structure comprises a 57,000-square-foot tipping and transfer floor, an administrative block, and a lower level for compacting and collection. The recycling building allows self-haulers to divert materials from the waste stream, a functionality the older facility lacked. The challenge of integrating large-scale infrastructure into a dense but low-rise neighborhood is what attracted Mahlum to the project, and the mediation of the industrial and human scales is its major achievement.



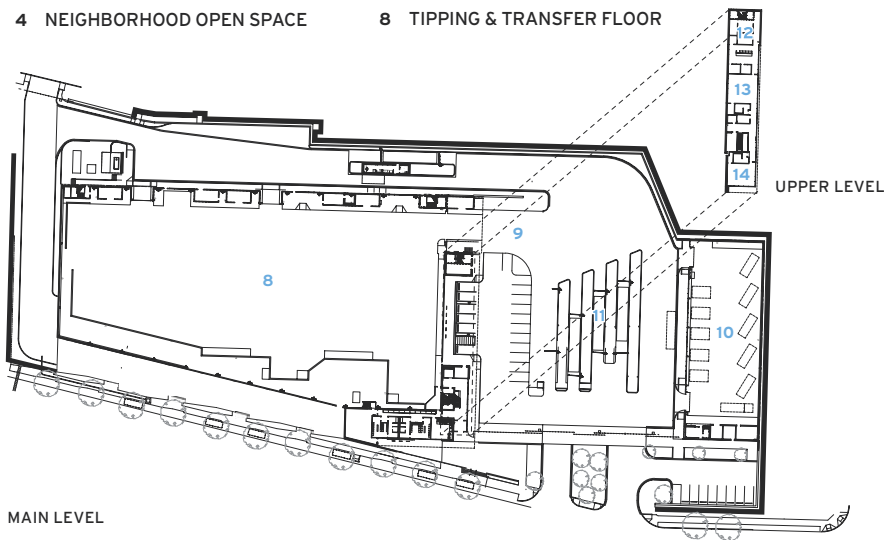
GOOD NEIGHBOR The North Transfer Station sits between Lake Union and Seattle's Fremont-Wallingford neighborhood (above). The south facade provides a human-scale street edge for the industrial-scale volumes behind (left).



SITE REFERENCE PLAN

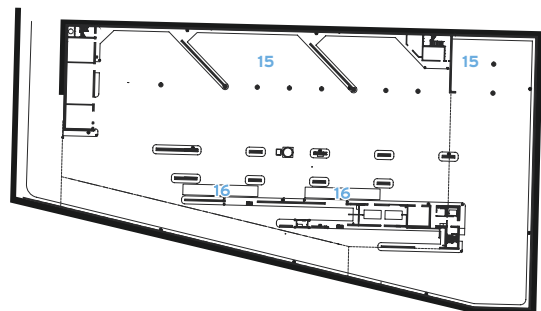


- 1 SEMI TRUCK ENTRY
- 2 PUBLIC VIEWING WINDOW WALL
- 3 PUBLIC ENTRY
- 4 NEIGHBORHOOD OPEN SPACE
- 5 SPORTS COURTS
- 6 FITNESS STATIONS
- 7 COMMUNITY PLAYGROUND
- 8 TIPPING & TRANSFER FLOOR

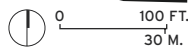


MAIN LEVEL

UPPER LEVEL



LOWER LEVEL



- 9 COMMERCIAL HAULER WHEEL WASHER
- 10 RECYCLING BUILDING
- 11 SCALE HOUSES
- 12 OFFICES
- 13 PUBLIC VIEWING ROOM
- 14 PUBLIC MEETING ROOM
- 15 CONTAINER STORAGE
- 16 REFUSE COLLECTION

Horizontal massing is the first of two key strategies in this success. The massing responds to one of the community’s most stringent constraints: a building height limit of 78 feet above sea level—the same as the existing grade level at the site’s top corner. The limit enables the hillside neighborhood to literally overlook the facility’s presence and enjoy its lake and city views. In support, NTS rooftops are clear of mechanical equipment, and sport photovoltaic arrays and greenery instead.

However, even with the building partially embedded in the site’s 44-foot slope, keeping two levels of industrial-scale program under the limit took some ingenuity. To lower the main building’s already flat roof, its tri-chorded steel trusses rely on an innovative steel specification that allows a clear span of 200 feet using less depth than trusses built of more standard structural tubing. Skylights atop the 6-foot-wide trusses highlight the structure and admit daylight to the tipping and transfer floor below.

The second key tactic the project relies on is a more refined material expression than is typical for the building type. Cladding materials used with dump-defying effect include the administrative block’s expanses of glass, signaling the entrance and overlooking the scale yard. Translucent polycarbonate panels present a serene face to the lakefront and provide daylight to the tipping and transfer floor, while less prominent elevations are clad in precast concrete panels with a Mahlum-designed vertical pattern. Along the south facade, which fronts onto Seattle’s popular Burke-Gillman Trail, a site-cast

**PUBLIC SERVICE**

A glassy administrative block fronts onto the street and overlooks the facility's scale yard. Public art from salvaged rebar represents the site's original terrain (above). A landscape buffer provides recreation facilities for the adjacent community (right).





WASTE MANAGEMENT Skylights above the steel trusses provide illumination. Polycarbonate panels admit additional daylight to the 57,000-square-foot tipping floor (left). For safety and efficiency, traffic flow is configured to provide garbage trucks and self-haulers with separate access (bottom, left).

concrete wall is sectioned, textured, fenestrated, and furnished to generate a human-scale street edge for the monumental volumes behind.

Along the site's north and east edges, a retaining wall of architectural concrete screens the station's workings and provides a textured backdrop to the tree-lined walks and play and exercise areas that meet the adjacent community. On its business side, the retaining wall drops to the transfer station's forecourt, where its height and mass contain much of the noise that would otherwise escape into the neighborhood. Helping that effort, standing-seam black metal cladding angles out from the wall's upper half, reflecting sound back down into the site. Visually, this partial cladding serves to reduce the wall's scale and links to the buildings in the yard.

Operations manager Lee Momon reports that staff members are so pleased with their new workspace that they show up early for the job. Neighborhood parents and child-minders bring their kids to enjoy the new park and to watch the choreography on the tipping floor from an upstairs viewing room. The NTS has proven a hit with school groups too.

During the city's design review process, at least one critic argued that the facility should "look more like a transfer station." As cities continue to grow, however, and infrastructure once relegated to the margins is increasingly accommodated in evolving, mixed-use neighborhoods, Seattle's North Transfer Station provides a valuable example for what this building type can be. With good design, even a dump makes a good neighbor. ■

Katharine Logan is a designer and writer focusing on architecture, sustainability, and well-being.

credits

ARCHITECT: Mahlum – Mark Cork, principal in charge; Anne Schopf, design principal; Pierce McVey, project designer; Duncan Davidson, project manager; Luke Pulliam, project architect

CONSULTANTS: Parametrix, LPD Engineering (civil); Integrated Design Engineers, CDM Smith (structural, hazmat); Greenbusch Group (m/p, acoustics); Triunity Engineering & Management (electrical); HBB Landscape Architecture (landscape); Gordon Environmental (solid waste)

GENERAL CONTRACTOR: Lydig Construction

CLIENT: Seattle Public Utilities

SIZE: 187,000 square feet

CONSTRUCTION COST: \$70 million

PROJECT COST: \$108 million

COMPLETION DATE: November 2016

SOURCES

STEEL FABRICATOR: Fought & Company

EXTERIOR METAL PANELS: AEP Span

GLAZING: CPI Uniquad, PPG, Kalwall

METAL FRAME WINDOWS: Kawneer

GREEN ROOF: Versico, Columbia Green Technologies



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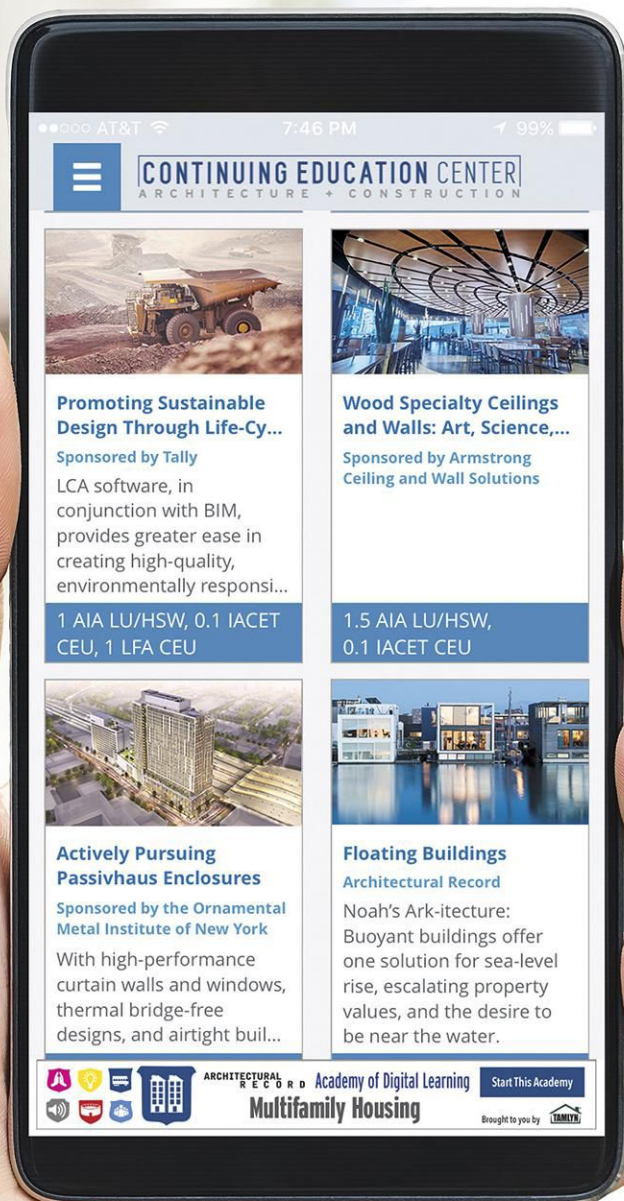
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In the Mix

Architects tap the ancient technique of rammed earth, giving it renewed relevance.

By Michael Cockram

IT WOULD be hard to imagine a more elemental building material than rammed earth. Produced by compressing a sandy earthen mixture into forms, the earliest examples of the technique survive at 7,000-year-old archeological sites in China. The method for making walls, with its layers of rich colors and textures, is being rediscovered by architects who are bringing it into the 21st century with refined mixes and innovative technology.

When architect Lui Yang, principal of the Beijing firm DL-Atelier, conceived the design of the San Bao Peng Art Museum near Jingdezhen, China, he imagined a strongly geometric form that would emerge from the ground in contrast to the surrounding bucolic mountainous landscape. Completed in 2017, the 300-foot-long by 27-foot-wide museum, which focuses on the region's famed porcelain ceramics, is defined by 12-foot-tall rammed-earth walls. Within the compound, the architects arranged courtyards and gallery spaces on multiple levels

and topped the composition with a series of steel-framed, titanium-zinc-clad volumes.

The architect chose a “geological” palette of travertine and slate in addition to the rammed earth. The finishes are durable but are intended to record wear from human contact and weather over time. While the form is distinctly linear, Lui says that he wanted to encourage visitors to flow through the spaces in an organic way so that their progression is a series of options and serendipitous discoveries. There are several possible entry points—one at each end and another by way of a broad opening in a side wall that includes a water feature and travertine stepping-stones.

The base material for the rammed earth—a locally quarried ground stone—is the same fundamental ingredient found in the porcelain of the area. The red-hued materials of stone, clays, and silts for the walls were sourced from a nearby hill. Ten full-scale mock-ups, designed to



LONG AND LOW DL-Atelier conceived the San Bao Peng Art Museum (above and left) near Jingdezhen, China, as a 300-foot-long by 27-foot-wide compound defined by rammed-earth perimeter walls. Galleries are enclosed within titanium-zinc-clad volumes.

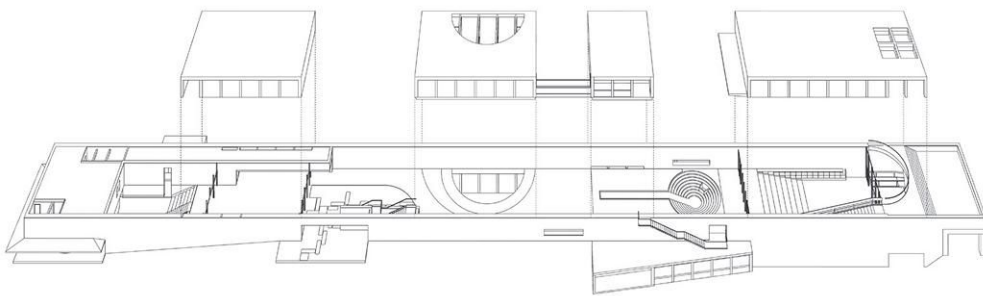
serve as permanent landscape elements, were made to test different combinations of aggregate (crushed stone, gravel, and sand) as well as waterproofing details. Because the local climate is somewhat rainy, the rammed earth includes about 8 percent Portland cement. So-called “stabilized” rammed earth contains about 5 percent to 10 percent cement—about half the amount in a typical concrete mix—which makes it stronger and more weather-resistant.

Although Portland cement improves durability, rammed earth does not hold up well in direct contact with the ground. Therefore, the architects used concrete for the foundation and subterranean levels of the building with a travertine-clad plinth at grade. To support the headers of several large openings that frame views of the landscape, they embedded steel beams within the rammed earth. And to create an elegant finish detail, they topped the walls and sills with stainless-steel cover plates that are in turn capped with travertine.

The walls were built in a process similar to that used for cast-in-place concrete, with grids of rebar for reinforcement. The formwork was set up in a series of lifts and moved vertically with each successive pour. Instead of the more common plywood sheet forms, DL-Atelier chose 8-inch-wide horizontally placed boards to give added texture to the walls’ surface. Soil was placed inside the forms in layers before compaction with pneumatic tampers. The method essentially replicates the way sedimentary rock is made in nature: the intense compression, and ingredients like clay, which act as binders, fuse the elements. The resulting stonelike density distinguishes it from softer earth-based materials such as adobe.

Across the Pacific Ocean near Hollister, California, a 6,500-square-foot, two-story vacation house by San Francisco-based Feldman Architecture relies on a similar strategy of anchoring the building to the site with massive rammed-earth walls. In this case, three concentric, gently curving walls, as tall as 20 feet, correspond to the contours of the hillside where the house sits and form an armature within which the steel-and-wood-framed living spaces are interspersed.

The house, known as Spring Ranch, is LEED Gold and net zero energy, and the rammed earth plays a significant role in its conservation strategy. The uninsulated rammed-earth walls, in combination with the concrete floors, provide abundant thermal mass for passive solar heating and cooling. In the Mediterranean climate of inland California, hot summer days make cooling the dominant thermal issue for the house, says Jonathan Feldman, firm principal. However, the relatively cool nights—with temperatures that drop into the 50s even in July and August—provide ideal conditions to flush the thermal



SAN BAO PENG ART MUSEUM - EXPLODED AXONOMETRIC

mass and store cooling energy for use during the day. In addition to these passive strategies, the house has a 7.6-kilowatt roof-mounted photovoltaic array that satisfies all of its electrical needs. A large solar thermal system supplies domestic hot water and heats the radiant-floor system.

Like concrete, masonry, and stone, rammed earth is a notoriously bad insulator—only about R-2 for an 18-inch-thick wall. But despite Spring Ranch's uninsulated rammed-earth walls, when modeled as a whole building, it

readily surpassed California energy standards due to the structure's ability to store and transfer thermal energy.

However, more strict energy standards implemented since the house was completed five years ago would probably have required that the walls be insulated, according to David Easton, the project's rammed earth consultant. The updated code presents a conundrum for newer projects—how to maintain durability of the rammed earth and the continuity of the finish on the inside and the

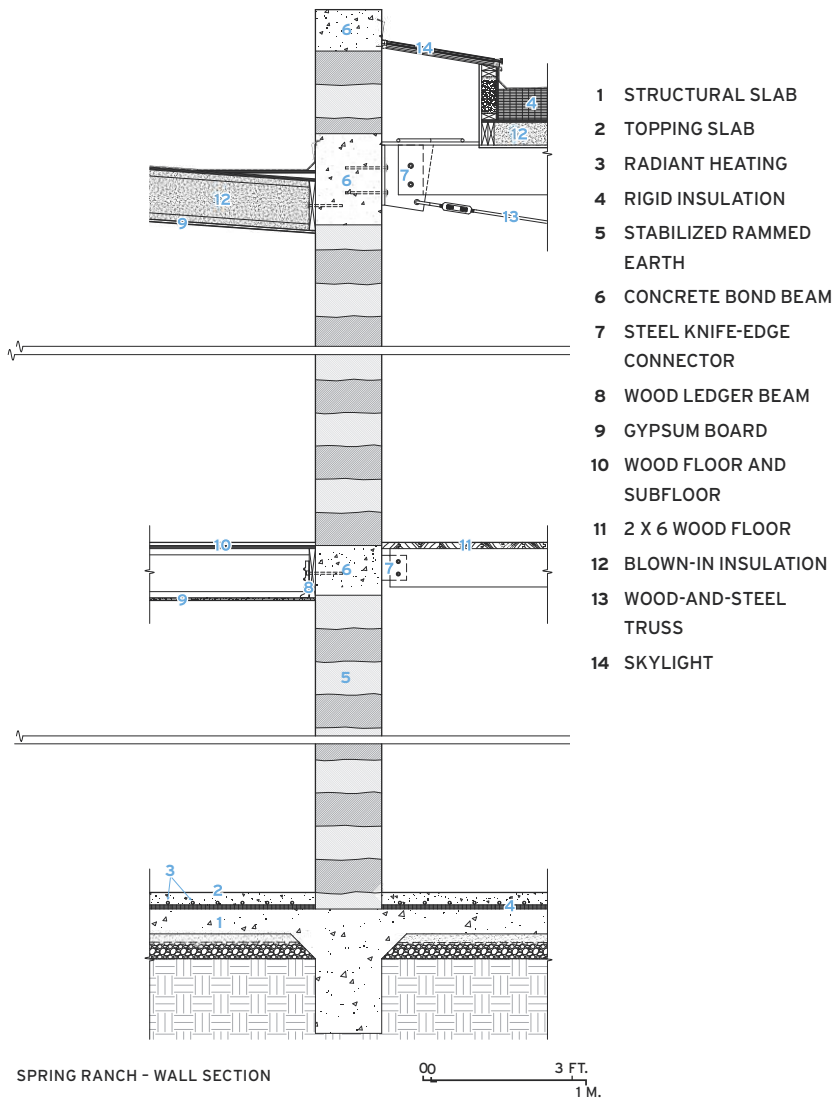
outside. One solution is a double wall into which a layer of rigid insulation is inserted. "Essentially, you end up with two 7-inch rammed-earth walls on either side of 4 inches of rigid insulation, an ice cream sandwich of sorts," says Easton. The detail maintains good thermal mass on the interior. But, in some climates, he explains, it can also interfere with the beneficial transfer of thermal energy through the wall. It also adds complexity to the already labor-intensive construction process and hence increases the cost.

Rammed earth is most sustainable when its raw ingredients are taken from the site or its environs. According to Feldman, some of the earth for the Hollister house's excavation was incorporated into the mix. But to achieve distinct horizontal lines of color, most of the components were obtained from a variety of nearby locations and were quarried at different depths. A small amount of material from Arizona was used to create the walls' deepest-red layers.

This variety of ingredients is not unusual in contemporary rammed-earth buildings, says Easton. "In the old days, it was 30 percent clays and silts and 70 percent sand and gravel."



ABOVE BOARD Instead of plywood sheet forms, the museum's walls were poured within horizontally oriented boards to give added texture to the rammed earth's surface.

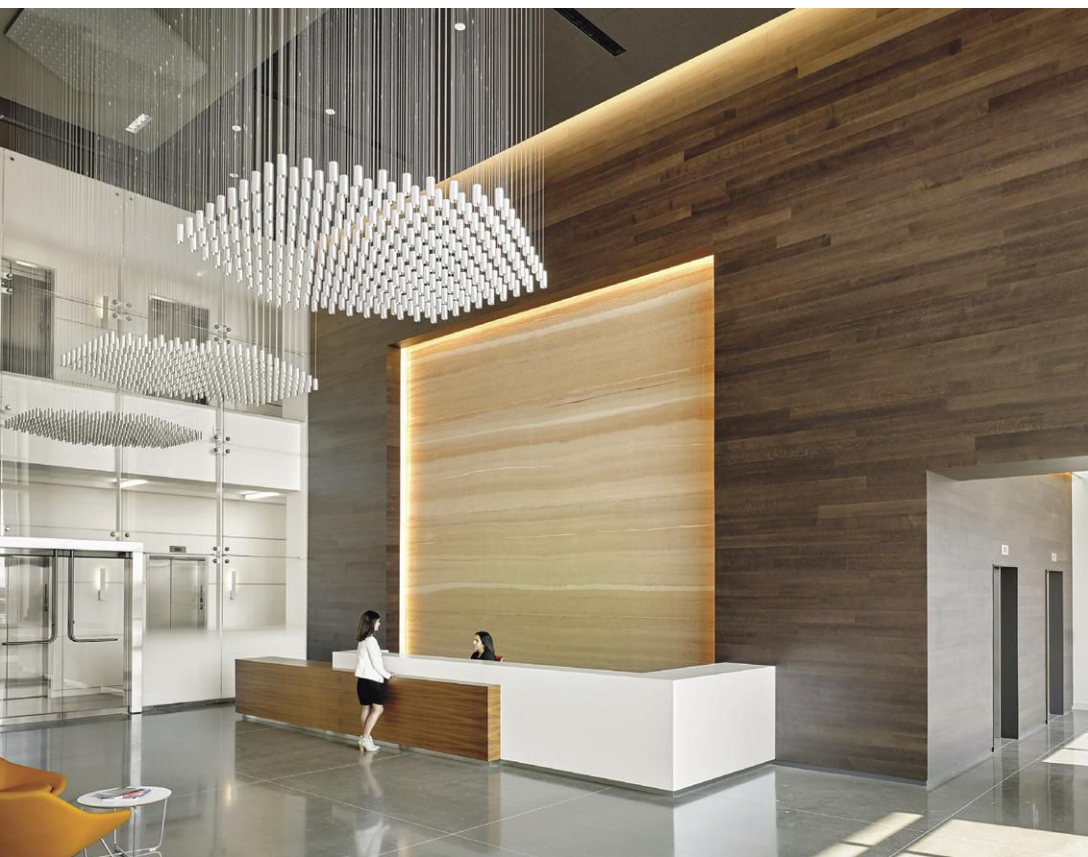


CLIMATE CONTROL Spring Ranch, near Hollister, California, has hefty rammed-earth walls as thick as 24 inches. In conjunction with the concrete floors' radiant heating and cooling, this thermal mass helps maintain comfortable indoor temperatures.

But the mixes have become extremely nuanced and complex, to achieve the level of performance and finish quality architects require now, he says. The term “rammed earth” is somewhat of a misnomer, because the ingredients—ground stone, sand, silts, and gravels—are selectively quarried, and cannot include any organic material.

Like the museum in Jingdezhen, the walls at Spring Ranch are stabilized with cement. But, according to Easton, it's possible to achieve similar strength and durability without the additive, depending on the availability of refined materials like crushed granite. Mostly because consumers and building officials feel more confident with cement added, only stabilized rammed earth is used in the U.S. Unstabilized rammed earth is still common in Europe, Easton adds.

Building departments often require special testing for alternative materials such as rammed earth. In the case of Spring Ranch, county officials followed a guideline for non-standard concrete applications that called for a minimum bearing capacity of 2000 pounds per square inch (psi).



ABSTRACT ART SmithGroupJJR conceived a 20-foot-wide, 19-foot-tall rammed-earth wall as the focal point of a Santa Clara, California, office building. The 10-ton element is made up of four segments fabricated off-site in Napa.

Rammed-earth walls are capable of only 800 to 1600 psi, but since they are often much thicker than typical concrete walls, the total bearing capacity can be as good or better. (In other words, the strength per square inch may be lower, but there are more square inches of bearing than are provided by a typical 8-inch concrete wall.) After a round of tests tailored to the specific characteristics of Spring Ranch walls, which are up to 24 inches thick, officials gave the green light, says Feldman.

In addition to concerns about bearing capacity, there were also seismic constraints since the house is situated only a few hundred yards from the San Andreas Fault. The engineers for the project specified two cages (grids) of rebar for each wall. The loads of the roof structure and floor plates are transferred to the walls via reinforced-concrete bond beams embedded with the rammed earth elements.

Up until recently, the nature of rammed-earth walls and the process of producing them limited their use to projects where they could be poured on-site. But new, off-site fabrication techniques have made other applications possible. SmithGroupJJR recently made a 20-foot-wide, 19-foot-tall precast rammed-earth wall the focal point of the

main lobby for the Stadium Tech Center in Santa Clara, California—a six-story office building completed in 2016 with a shell designed by the Bay Area firm Arc Tec.

SmithGroupJJR saw the precast panel as the perfect backdrop to the 25-foot-tall reception area, envisioning it as “a large elemental work, like a Mark Rothko painting,” says lead designer Matt Smialek. But, in this case, the wall itself would be the art, he says. The panel, which retains the stratified layers of more traditional cast-in-place rammed earth, also serves to offset the aesthetic coolness of the lobby’s polished-concrete floors and sleek white walls. The designers recessed the panel behind a wide stained-oak frame and then illuminated it from the perimeter.

Although much lighter than conventional rammed earth, the entire 6-inch-thick precast panel, fabricated in a Napa, California, plant, weighed over 10 tons. In order to accommodate transportation and assembly, the installation is held in place by a steel backing frame and made up of four 22-foot-long by 5-foot-tall segments stacked horizontally. Because an open parking deck is located below the lobby, most of the weight of the panel is suspended from the building’s steel

structure above, which has been reinforced to carry the extra load.

Factory-fabrication techniques, like those deployed for the Santa Clara project, enable tight control of the mix and the formwork, as well as other factors. They allow slabs as thin as 3 inches to be produced for uses such as exterior wall panels. This evolution from hefty load-bearing wall to cladding demonstrates how far this humble approach has come in its long history. And new applications will continue to emerge. Last year, several Chinese universities won the 2017 World Architecture Award for their work in replacing housing in earthquake-ravaged Guangming Village with reinforced-rammed-earth structures. At the other end of the spectrum, Peter Zumthor has released preliminary plans for a rammed-earth addition to Beyeler Museum in Basel, Switzerland, which was designed by fellow Pritzker Prize-winner Renzo Piano and completed in 1997. Given the abundance of the raw material and the growing need for sustainable building assemblies, architects can be expected to further extend rammed earth’s limits. ■

Michael Cockram is a freelance writer and director of Bowerbird Design in Fayetteville, Arkansas.

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Learning Objectives

- 1 Define the term “rammed earth” and explain how walls of this material are typically built.
- 2 Discuss the structural and regulatory challenges presented by rammed-earth construction.
- 3 Explain how the thermal mass provided by a rammed-earth wall can contribute to a building’s climate control strategy.
- 4 Describe the advantages of factory-fabricated rammed-earth elements.

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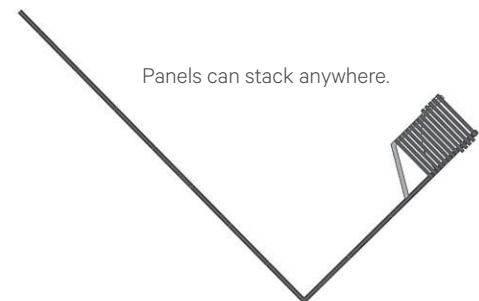


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The eyes may be the window to the soul, but doors and windows are often the heart of a building, providing everything from daylight to access and functionality. Whether it's aesthetics or performance, fenestration options can have a profound and transformative impact on building design. In order to make the wisest decisions, architects need to stay informed about the latest trends, innovations, and performance requirements as well as understand how to maximize efficiencies in their next project.

This course will look at a wide variety of innovative fenestration products, systems, solutions, and trends that affect the design, functionality, and overall long-term success of today's built environment—everything from material selection to code compliance.

DESIGN AND PERFORMANCE TRENDS

Meeting Codes for Minimal Framing and All-Glass Aesthetics

A prominent trend in architecture today focuses on facades and fenestration systems that feature minimal hardware and all-glass aesthetics.

When specifying these types of systems, however, architects are faced with the challenge of meeting energy codes. Codes are also becoming more stringent nationwide, as is exemplified in California Title 24.

“Understanding the fenestration code compliance process and the documentation required can be a challenge,” says CRL – U.S. Aluminum FenestrationMaster® and Director of Product Testing and Certification Ron Wooten. He advises, “Check with the local code authorities to determine the requirements as early as possible in order to avoid complications down the road.”

Advances in fenestration thermal performance are helping to alleviate the situation. Some new thermal entrance systems, for instance, offer sought-after all-glass aesthetics using ultra-narrow (as thin as 1¹/₈-inch) vertical stiles and a low overall system depth (some only 2½ inches). In addition, select systems have the unique ability to support handle hardware on 1-inch insulating glass using proprietary through-glass fittings. This produces a streamlined “floating on air” visual. Despite its all-glass aesthetics, such a system can deliver

CONTINUING EDUCATION



1.25 AIA LU/HSW

Learning Objectives

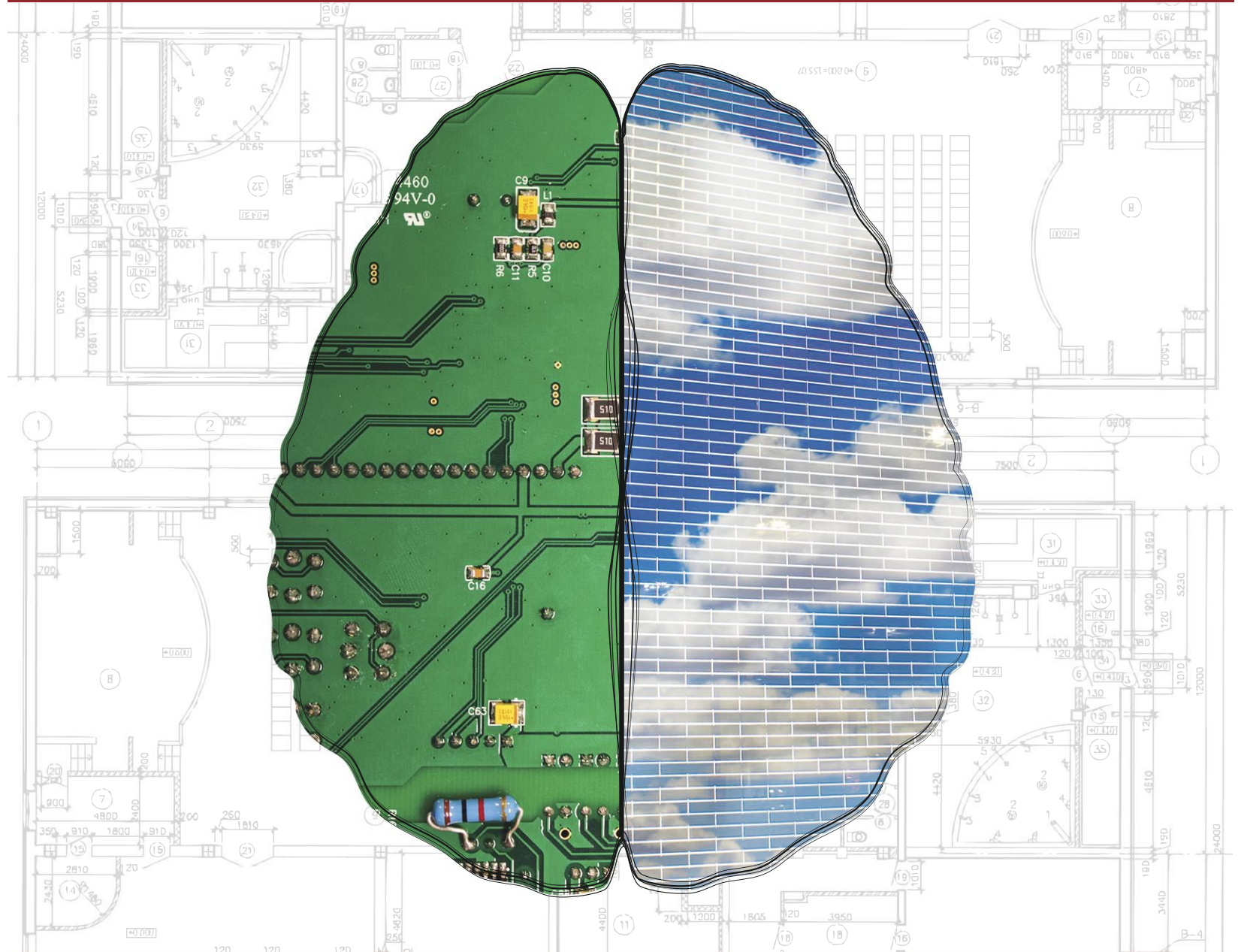
After reading this article, you should be able to:

1. Discuss a variety of materials used in the design and manufacture of fenestration products, including wood, extruded aluminum, and thermoset composites.
2. Explain the use of fire-rated safety glass for windows and doors.
3. Describe advances in fenestration hardware, accessories, and glazing options to support aesthetics, accessibility, safety, energy efficiency, and performance.
4. Identify the design and performance benefits of opening glass wall systems.
5. Define features and benefits of slim glass systems.

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

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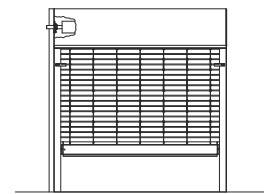


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This thermal entrance produces all-glass aesthetics via ultra-narrow (as thin as 1¹/₈-inch) vertical stiles and the unique ability to support handle hardware—including panic devices—on 1-inch insulating glass.

U-factors as low as 0.43 using thermally broken framing and cladding, allowing it to comply with strict energy codes.

Butt-glazed curtain wall systems with no exposed exterior vertical mullions or joint fasteners can also provide uninterrupted horizontal glass spans that produce clean, all-glass visuals. Some have a double thermal system with 1-inch insulating glass, allowing them to deliver exceptional thermal performance to meet code. One manufacturer's product features a polyurethane thermal break and a unique injection-molded thermoplastic connector that produces superior thermal isolation. This type of butt-glazed curtain wall system is ideal for retrofit applications because its clean sightlines can achieve an all-glass aesthetic while simultaneously meeting energy codes. Systems should be tested using standardized performance tests to ensure strength and durability.

Codes and Energy Performance

Achieving the desired aesthetic is just one piece of the puzzle. With any project that involves fenestration—whether it's new construction or a retrofit application—architects must be aware of the local codes that specify energy performance requirements and understand the NFRC's role in complying with these codes. They should only

work with fenestration system manufacturers that can supply the necessary documentation, such as NFRC Bid Reports and Label Certificates. Some manufacturers will also provide State Energy Commission Document Coordination and hardware consultations. Partnering with local code authorities in the early stages of the design process is also advised.

In retrofit applications, architects should know that although performance requirements for existing fenestration components can sometimes be grandfathered in, new systems must comply with the energy codes of local jurisdictions.

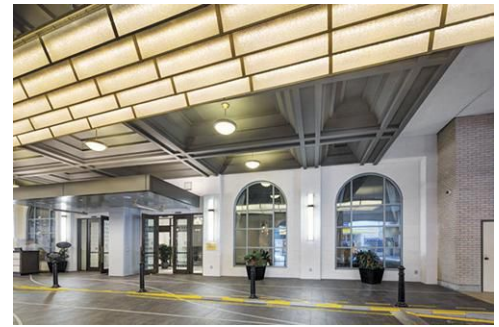
FIRE-RATED SAFETY GLASS

Another performance feature manufacturers may offer is superior fire-resistant and fire-protective safety glass, including fire-rated doors, systems, and curtain walls; intruder-, impact-, bullet-, and hurricane-resistant glass; and other clear fire-rated glazing products that protect from 20 to 180 minutes. Often, these products combine a minimalistic appearance with maximum safety and performance.

Wireless Alternatives

Why fire-rated glass? Because of Building Code Requirements. But today, you have a choice of

Photos courtesy of Olaf Rohl, 2015 (top); Robert Steve, 2017 (bottom)



Fire-rated glass offers high performance and design flexibility while maintaining strict building code requirements. Shown here, The Fairmont Hotel in Vancouver, British Columbia, Canada (top); CCU I-study corridor, Coastal Carolina University in Conway, South Carolina (bottom).

products that offer higher performance and human safety while still meeting building code requirements. You can achieve a better design aesthetic with larger sizes that allow you to specify a passive rather than active system, such as sprinklers. Clear glass also allows you to bring light into your spaces.

Features and Benefits of Fire-Rated Glass

Innovations in glazing technology and materials have dramatically changed the industry, bringing several benefits to architects, designers, and building owners:

Expanded Fields of Use

- Longer fire ratings and larger-sized glass
- Higher degrees of fire resistance/protection
- Application-adapted performance
- Accidental human impact solutions

Multifunctional Features

- Visual clarity
- Sound reduction
- Decorative and privacy treatments
- Solar and thermal insulation
- Explosion resistance
- Bullet resistance
- Hurricane resistance
- Seismic rating

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Daylighting for Energy Efficiency

Using fire-rated glass is also an excellent way to harness natural daylight in open-plan building designs while ensuring fire safety and energy savings, reducing the need for artificial light, reducing carbon footprint, and cutting heating and cooling costs. In exterior applications, these products may be incorporated into double and triple glazing with solar control and low emissivity features, which allows for the most amount of light while maintaining the energy performance of a building.

With the number of new glazing products available and the advancement of production technologies, the design possibilities continue to grow. Products now exist to accommodate virtually every condition, thus allowing the architect/designer to satisfy cost and performance objectives without sacrificing design or code compliance.

HIGH-PERFORMANCE GRILLES AND WHEN TO USE THEM

High-performance grilles can provide a number of advantages for such applications as parking garages, storage facilities, and a host of other building types. Benefits include aesthetics, security, and visibility. High-performance grilles not only provide valuable functionality but also give the feeling of openness. They are available in myriad colors to suit the style of virtually any building.

According to Siva Davuluri, director of strategic marketing at CornellCookson, for parking garages in particular, grilles are the most common option, even compared to doors. He says, “Architects, owners, and designers like the open feeling as opposed to having a dark, closed space. With many parking garages, the same grille panels are used to make fixed panels around the perimeter so it all looks similar with the same cohesive design. For security purposes, high-performance grilles help security personnel to see there is no one doing mischief. Also, high-performance grilles aid with visibility for customers, making it easier for cars to see what’s behind the opening.”

Cycle Counts and Why They Matter

The term cycle means one full opening and closing of a door or grille—going from fully closed, fully open, and back again. The Door & Access Systems Manufacturers Association (DASMA) definition of high-performance doors states that they must meet the 100 cycles per day mark, except that cycles of doors/grilles aren’t always spread out over the entire day. There is a significant difference in wear (and subsequently in construction requirements) for a grille that will cycle 100 times in one hour vs. one that will cycle four times each hour for 24 hours.

Figuring out the right kind of cycle life (meaning maximum cycles expected during peak periods, not just total cycles) is critical to selecting the right type of high-performance door.

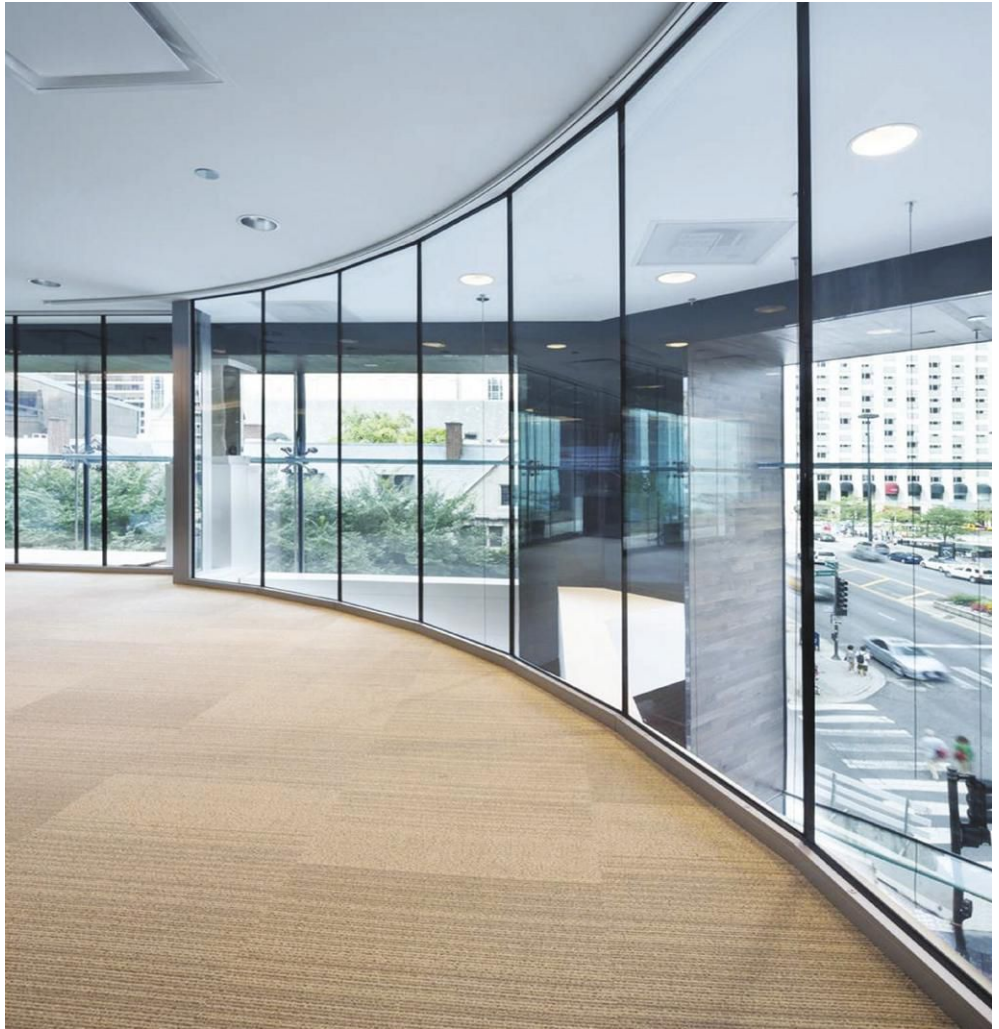


Photo courtesy of Olaf Rohl

Fire-rated glass can be used to harness natural daylight while ensuring fire safety, minimizing the need for artificial light, and cutting heating and cooling costs. Shown here is the Verizon Flagship Store, Chicago.

Photo courtesy of CornellCookson



The benefits of high-performance grilles include aesthetics, security, and visibility.

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Photo courtesy of Marvin Windows and Doors



Wood is among the most popular window and door materials in the marketplace, offering environmental benefits, excellent insulation, and classic aesthetics, as well as many options for customization and design versatility.

Total cycles matter, but as noted, timing matters more. Let's say you have a grille in a parking garage with 100 spots in a secure building that requires proof of clearance to enter and closes after each car passes through. There is only one way to enter, and staff that work in the building have shift times that start between 7 a.m. and 9 a.m. and end between 3 p.m. and 5 p.m. This means you'll have 200 daily cycles, but the vast majority will be in two separate two-hour windows. Your door must be able to handle the high use in the short window of time without breaking down or wearing out.

High-Performance Construction vs. High-Cycle Springs

A true high-performance rolling grille must be built for durability from the bottom up. There is a myth circulating in the industry that springs = cycle life. If everything about your high-performance grille is the same as a standard grille, but you put high-cycle springs on it, you have a high-cycle-spring grille—not a high-performance grille. In fact, the gold standard for high-performance rolling closures is actually a springless design. Springs inevitably break and need to be replaced, causing downtime and maintenance fees.

So, what else needs to be built for high performance? The operator system, for one, needs to be able to handle the maximum number of cycles in the minimum amount of time you expect to use it. A direct drive operator is a good investment, as there are no chains or sprockets to wear out. And it should feature a soft start and stop to increase life by reducing wear and tear. On open, the speed of a best-in-class, high-performance rollup grille should start opening at a slow speed, ramp up in the middle, and then slow down before reaching the fully open position. The reason is to reduce wear and tear on all door components, but especially the operator. The guides (metal channels that hold the curtain in) also need to be robust enough to handle frequent fast operation. Experts recommend looking for self-lubricating guides to prolong curtain life.

CHOOSING MATERIALS FOR DESIGN AND FUNCTIONALITY

The fenestration materials that you choose matter to the design, function, and longevity of your building—whether it's withstanding weather or replicating the details of historic design. Choosing the right material for windows and doors is an important but sometimes con-

fusing decision—the core structural composition, interior material, and exterior cladding all contribute to appearance and performance.

It is recommended to look for a manufacturer where experts regularly assess each material and adjust selection, testing, and design accordingly in an effort to make durable and high-performing products.

Among the most popular window and door materials in the marketplace—each offering unique benefits and advantages for homeowners, builders, and architects—are the following:

- **Wood** is a premium material for windows and doors, offering classic aesthetic appeal, many options for customization, and design versatility, creating a warm, natural feeling within contemporary spaces and historic buildings alike. Also, it handles various treatments and finishes well. Unlike other materials, wood has an inherent richness due to it being a natural material—no two pieces are exactly alike.

As a material, wood offers many benefits. It maintains its properties throughout drastic temperature changes. It also provides exceptional insulation. And it is a renewable material that also requires very little energy in the production of an end

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INNOVATIONS IN WOOD WINDOWS AND PATIO DOORS SUPPORT DURABILITY, SUSTAINABILITY, AND ACCESSIBILITY GOALS

The diverse product portfolio that some window and door manufacturers offer can satisfy multiple price points and product applications. One type of innovative wood window and patio door product on the market combines the strength, durability, and energy efficiency of a fiberglass exterior with the aesthetic beauty of a solid wood interior. The addition of specialized hardware, including those utilizing a unique technology, not only add to the aesthetic appeal but can also aid in meeting the accessibility and performance goals of many projects.

According to Kevin Anez, director of product management at Milgard Windows & Doors, "The fiberglass exterior cladding on these new products is an extremely strong material offering outstanding durability. Contractors enjoy the rigidity of the frame during installation, while homeowners appreciate the traditional beauty of wood interiors."

DESIGN AND PERFORMANCE

Strength, Durability, and Energy Efficiency

As energy efficiency guidelines and building codes become more stringent, window manufacturers are developing more innovative methods to improve the performance of their products. By choosing a product that combines a durable, energy-efficient fiberglass exterior for exceptional weather performance with a beautiful wood interior, specifiers accord themselves the best of all worlds.



New window products can combine the strength, durability, and energy efficiency of a fiberglass exterior with the beautiful aesthetic of a solid wood interior.

In addition to the excellent thermal properties of fiberglass, a selection of energy-efficient attributes help meet performance requirements in multiple geographic regions. For instance, features might include argon gas-filled IG units and low-e glass, while additional options may include an assortment of warm-edge spacers, fourth surface low-e, triple glazing, and foam-filled patio door profiles.

Hardware and Accessibility

Advances in the hardware available with this type of product is a response to the need for easy-to-operate, easy-to-maintain products. Innovations in window locks and door handles

utilizing an exclusive technology are at the forefront of an important new trend in home design known as "aging in place." With so many baby boomers approaching their senior years, this technology and others are enabling people to live independently in their own homes longer and more comfortably. Additionally, from an aesthetic standpoint, these specialized lock systems can complement the frame to create a cohesive look by matching the hardware to fit within the frame width rather than above or below the frame. The hardware is generally available in different contemporary colors from white and clay to oil-rubbed bronze and satin nickel.

product, making wood an environmentally friendly option.

According to Ben Wallace, materials science manager at Marvin Windows and Doors, one caveat with wood is that if wood has too much moisture, it is more vulnerable to warping and unable to accept preservatives, paints, or stains. He recommends making sure the manufacturer confirms that suppliers are consistently grading lumber and providing the moisture content required. He adds, "To be sure that the wood has the right percent-

age of moisture content, the manufacturer should take an extra step once they receive it from suppliers, running cut lumber through machines that measure its moisture content. If the moisture content does not fall within the acceptable 6 to 12 percent range, the machine should separate the unsatisfactory lumber from the rest of the wood. This attention to wood throughout the supply chain contributes to quality craftsmanship, as well as longevity and performance of products over time."

- **Extruded aluminum** is an extremely tough cladding that protects wood windows. This results in superior durability for the major clad components of typical fenestration products—frame, sash, casing, and divided lites.

Thin aluminum, however, can dent easily, causing headaches for homeowners and builders alike. To provide protection and strength, experts recommend looking for extruded aluminum that exceeds industry standards, thereby elevating exterior cladding to a new level of performance.



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Some manufacturers' extruded aluminum meets the highest American Architectural Manufacturers Association (AAMA) 2605 standard, which requires 10 years of color retention and chalk resistance. An extruded aluminum substrate with an extremely tough surface coating will result in significantly superior surfaces on major clad components.

Unlike rollform aluminum, high-quality extruded aluminum profiles are formed first, then painted, which results in superior adhesion and a consistently uniform finish. The AAMA 2605 standard for rollform aluminum components requires only a 0.9-millimeter finish thickness, instead of the 25 percent thicker 1.2-millimeter coating required to meet the AAMA 2605 standard for extruded aluminum. This means that the extra finish provides increased protection, thickness, and durability, ensuring that clad products meeting these specifications will retain their color, gloss, and beauty for years to come.

- **Pultruded fiberglass**, an innovative material that is highly durable, as strong as steel, extremely reliable, and can perform as well years after installation as it does on day one—requiring little maintenance.

Composite materials used by different manufacturers will vary. Experts recommend thermoset composite materials rather than thermoplastic. When the material makeup contains a high density of woven fibers bound by a thermally set resin, it will make the prod-

uct more resistant to pressure and temperature than thermoplastic composites. Thermosets, in fact, will hold their shape up to 285 degrees Fahrenheit. This means that windows using this type of composite will maintain their shape—even in harsh climates with regular exposure to temperature variation.

OPENING GLASS WALL SYSTEMS

For manufacturers, it's important to supply products that enable the architect to fulfill their vision while also providing a product that lasts. These points are as important to the architect as the aesthetic—as well as the product being recommended to the client. In other words, you want to be able to trust the product within your design to fulfill the objective but to also not let you down. An example of such a product is opening glass wall systems, which can be customizable.

Design and Performance

According to Matt Thomas, marketing manager for NanaWall Systems Inc., "Large openings are easy to design, but it's the performance when closed that matters most. Glass walls must perform during all seasons of the year—especially glass walls that open. Their performance is critical." In fact, the true measure of quality is how an opening glass wall performs when closed. This is the most important attribute, as it's potentially the weakest link if not designed correctly. Performance attributes to look for may include:

- **Energy efficient:** When the opening glass wall system is closed, the energy-efficient design should keep the cold on the outside while maintaining warmth inside—even right up against the glass and frames.
- **Seals out wind and rain:** Specialized seals and panel design can provide superior humidity and moisture control, while sill designs can resist wind-driven water from entering the home.
- **Extreme weather resistance:** When closed, the glass walls should form a refuge against extreme weather, keeping occupants comfortable and secure. Some manufacturers' products include moving structural posts that provide unparalleled strength in a Miami-Dade County and AAMA hurricane approved (NOA 15-0226.05 and 15-226.06) system.

SLIM GLASS SYSTEMS

Structurally glazed, operable walls with minimal sightlines is a growing trend in the industry. More and more people are becoming aware of the benefits from both aesthetic and performance perspectives.

Architects tend to question how the profiles of this type of system are so thin (less than 1 inch), but manufacturers rely on the structural glazing rather than the frame for support. This also allows for the panels to be larger, so that occupants can enjoy an expansive, uninterrupted view.



Photo courtesy of NanaWall Systems

Opening glass wall systems provide both beauty and function for a variety of applications. Shown here is Skullcandy headquarters in Salt Lake City.

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Starrett-Lehigh Building, New York City

Photo courtesy of Vitrocsa USA



Eighteen-foot oversized sliders have been installed at St. Patrick's Cathedral. The aluminum is clad in bronze to match the surroundings.

"Twenty-five years ago, Swiss engineers at a leading fenestration manufacturing company modified the function of glazing to invent a sliding system with ultra slim sightlines," explains Jessica Kim, senior technical marketing manager at Vitrocsa USA. "In its traditional role, glass fills the frame and performs virtually no static function. It was found that glass can be used as a structural element that itself supports the window, resulting in a minimal frame that serves simply as the guide along which the glass can slide. The invisible sliding glass wall was invented."

Features of Slim Glass Systems

Sliding systems are available with both horizontal and vertical profiles, but slim glass systems can also be fixed, or there can be pivoting systems with the same slim and matching profiles. Regardless, stainless-steel roller bearings are in



The Starrett Lehigh Building retrofit in New York City features a new steel replication window for the landmark structure.

the tracks, which allows for the panels to span from the floor to the ceiling. Some of these systems are even self-draining, meaning water and debris can flow through the tracks without interrupting the operation of the system.

Design Features

- Maintain consistent slim sightline throughout all product offerings
- Slim profile allows zero visual boundaries between the inside and outside of building; brings the outdoors in

Performance

- The units are generally dual glazed or triple glazed
- Thermally broken
- NFRC rated
- Air and water tightness tested
- Acoustic rated
- Able to withstand harsh climates

HISTORIC RENOVATIONS

Specialty manufacturers can play a key role in helping owners and developers meet stringent historic renovation requirements with innova-

tive solutions, including replication windows. Architects frequently seek a design that has not previously been manufactured. Architectural product manufacturers that specialize in custom solutions will work closely with them to create a new design to meet their exact needs.

Product options may include not only custom designs to satisfy project needs but also creation of an entirely new product, such as a new steel replication window for the Starrett Lehigh Building in New York City.

Benefits of Using Modern Materials and Designs

Retrofitting older buildings with modern materials and designs provides higher structural performance and thermal efficiency. Historic window products can offer a wide range of aesthetic options that transform historic buildings into modern performing buildings while retaining their original appearance.

Continues at ce.architecturalrecord.com

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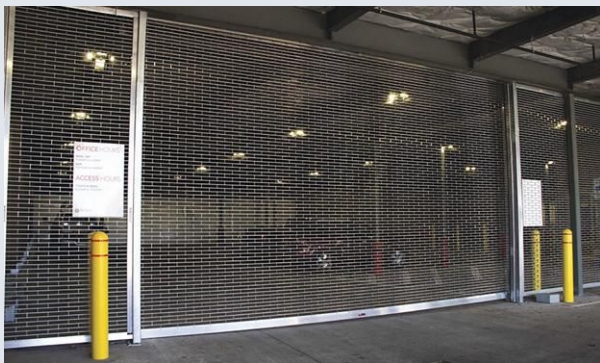
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PRODUCT REVIEW

Advances in Fenestration Design and Functionality

CornellCookson

Photo courtesy of CornellCookson



Extreme 300 Series High Performance Grille

The Extreme® 300 Series Grille is three times faster than standard coiling grilles and performs 300,000 cycles. Opening at speeds up to 24 inches per second and closing at 12 inches per second, it also improves air flow and allows more natural light in applications like parking facilities and transportation hubs.

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Image courtesy of C.R. Laurence Co., Inc.



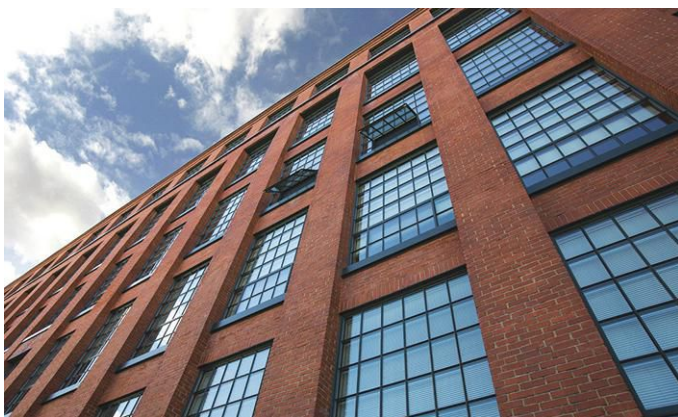
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Entice merges all-glass aesthetics with full-frame thermal performance. Featuring ultra-narrow 1 $\frac{1}{8}$ -inch vertical stiles, it offers one of the thinnest profiles available while delivering U-factors as low as 0.33 using thermally broken framing and cladding. Entice also has the unique ability to support door handle hardware—including panic devices—on 1-inch insulating glass.

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Graham Architectural Products

Photo courtesy of Graham Architectural Products



SR6700 Series Steel Replica Window

Graham Architectural Products' innovative SR6700 Series window is designed to replicate the original steel windows used in many older buildings. It features large sizes with a floating vent, minimal sight lines, and applied grids. The SR6700's design is so authentic, it has helped numerous projects attain National Park Service approval.

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PRODUCT REVIEW

Advances in Fenestration Design and Functionality

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Marvin Windows and Doors

Photo courtesy of Marvin Windows and Doors



Marvin Contemporary Direct Glaze Windows

Available in corner units, rectangles, polygons, and sizes up to 86 inches wide and 146 inches high, these windows give architects the luxury of matching Marvin's Contemporary Studio collection of windows with direct glaze options. With narrow profiles and clean lines, windows from Marvin deliver modern aesthetics and performance to frame contemporary points of view.

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PRODUCT REVIEW

Advances in Fenestration Design and Functionality

NanaWall Systems

Photo courtesy of NanaWall Systems



NanaWall Single Track Systems

Design around structural obstacles with the flexibility to park panels anywhere. Panels can park outside the plane of the opening in a parking bay, closet, or even in another room.

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The Invisible Glass Wall Sliding System

The original minimal sliding wall system invented in Switzerland in 1992 is now manufactured in the United States from Swiss-made profiles. This thermally broken system has ultra-slim sightlines and is offered as sliding, fixed, vertical sliding, pivoting, and from mid-2018, also as turnable corner and casement windows. It is air, water, and acoustics tested, available as dual or triple glazed, and optional hurricane impact rated.

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New York City

Through February 11, 2018

The citywide exhibit by artist and activist Ai Weiwei creates a series of installations using the security fence to examine themes of displacement and migration. Sites include the Washington Square Arch in Greenwich Village, the Unisphere at Flushing Meadows-Corona Park in Queens, and Doris C. Freedman Plaza in Central Park. The exhibit also features images on lamp-posts and other spaces usually reserved for advertisement. Visit publicartfund.org.

Inside the Walls: Architects Design

New York City

Through February 17, 2018

Friedman Benda's new gallery exhibition by furniture expert and collector Mark McDonald is a survey of pioneering 20th-century furniture design from around the world, presented by a display of archival photos and custom-built exemplars of featured pieces. Works by Gerrit Thomas Rietveld, Rudolph Schindler, and Frank Lloyd Wright are the focus, but designs by Philip Johnson, Kenzo Tange, Oscar Niemeyer, and Lina Bo Bardi are also included. For more information, visit friedmanbenda.com.

No-Thing: An Exploration Into Aporetic Architectural Furniture

New York City

Through February 17, 2018

Presented by Friedman Benda in tandem with *Inside the Walls*, this exhibition, curated by Juan García Mosqueda, features wondrous yet perplexing furniture by nine contemporary designers and architects, including Ania Jaworska, Norman Kelley, MOS, MILLIØNS, and Pezo von Ellrichshausen. More information at friedmanbenda.com.

David Zwirner: 25 Years

New York City

Through February 17, 2018

For the gallery's quarter-century anniversary, a special exhibition of its artists' work will be shown throughout Zwirner's Chelsea spaces. Selections for the exhibition were based on the artists' role in shaping the gallery itself, with some work specially commissioned for the celebration. Gallery artists include Yayoi Kusama, Gordon Matta-Clark, Alice Neel, and Donald Judd. For more information, go to davidzwirner.com.

Never Built New York

New York City

Through February 18, 2018

Cocurated by architecture critics Sam Lubell and Greg Goldin, the exhibition features original prints, drawings, models, and installations of unbuilt projects developed by architects including Robert Venturi and Denise Scott Brown, Rem Koolhaas, and Zaha Hadid. The Queens Museum exhibit was designed by Studio Christian Wassmann. For more information, visit queensmuseum.org.

Obdurate Space: Architecture of Donald Judd

New York City

Through March 5, 2018

The exhibit looks at completed and unbuilt architectural works by artist Donald Judd between 1984 and 1994. Featuring drawings, models, and photos, the display was curated by Claude Armstrong and Donna Cohen, who were both assistants to Judd. At the Center for Architecture. Visit centerforarchitecture.org.

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.

Ordinary and Extraordinary—An Architecture of Heightened Awareness

Sarasota, Florida

Through April 14, 2018

This retrospective of Brooks + Scarpa presents 150 models, 3-D visualizations, original sketches, and drawings produced by the firm's



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dates&events

founding architects, Angela Brooks and Lawrence Scarpa, over more than 30 years. Curated by Jill Slaughter, the exhibition will travel through the U.S. after its opening run at the Center for Architecture Sarasota. More at cfasarq.org.

Making Room: Housing for a Changing America
Washington, D.C.

Through September 16, 2018

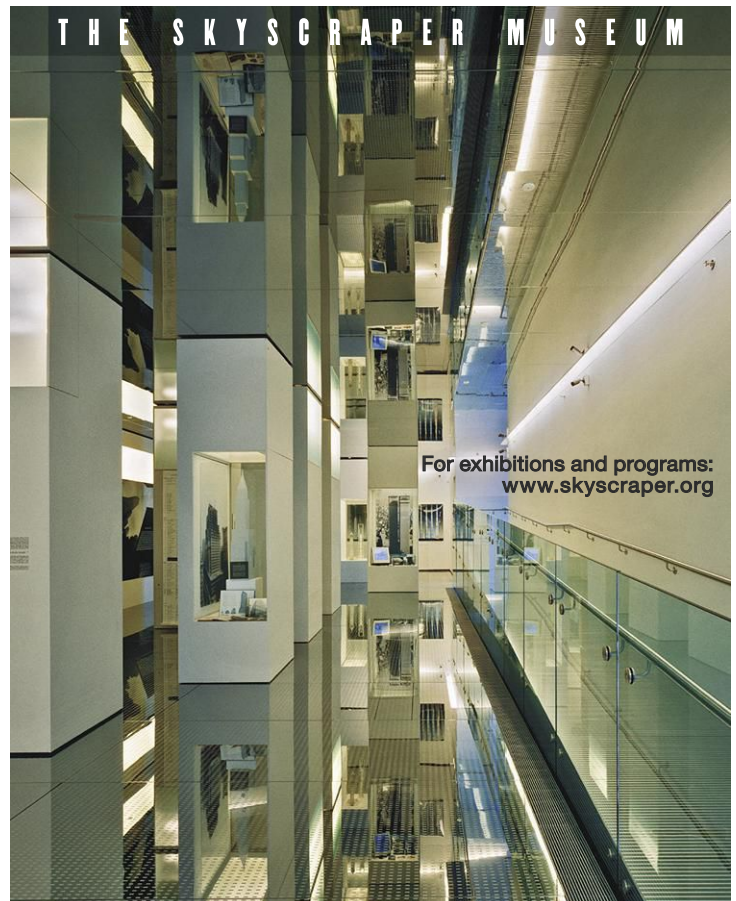
This exhibition explores how design solutions can address current housing issues through collaborations between architects, product designers, and suppliers. Installations feature various typologies, such as micro units, with a configurable 1,000-square-foot model home with movable walls and multifunctional furniture. At the National Building Museum. See nbm.org.

Lectures, Conferences, and Symposia

Frank Lloyd Wright and Newport, Rhode Island
New York City

February 14, 2018

The Victorian Society in America presents a lecture about the prolific American architect, delivered by the organization's director and architectural historian, Richard Guy Wilson. At the Jefferson Market Library. Visit victoriansociety.org.



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ADFF: D.C.

Washington, D.C.

February 22–25, 2018

The first edition of the Architecture & Design Film Festival in the capital will screen 25 films, including a documentary on Bjarke Ingels, *BIG Time*; a film about Australia's sole Pritzker Prize winner to date, Glenn Murcutt; and the intimate portrait of Rem Koolhaas, *Rem*. At the National Building Museum. Visit adfilmfest.com for more.

Museums Advocacy Day

Washington, D.C.

February 26–27, 2018

Organized by the American Alliance of Museums, the annual event gathers almost 400 directors, trustees, educators, and other professionals or volunteers who work in museums to receive training in political advocacy and attend meetings with lawmakers to discuss policy that affects museums' missions at the federal level. More information at aam-us.org.

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.

Competitions**Sydney Affordable Housing Challenge***Registration deadline: February 9, 2018*

The open competition seeks pilot-phase design concepts for affordable housing that can be scaled up and adapted to several sites across the Australian city, with minimal land use and materials. Three winning proposals, along with secondary awards, will be presented March 15 at the Sydney Build Expo. Details at sydneyhousing.beebreeders.com.

2018 BDA Prize: Charlottesville, Identity & Design*Deadline: February 22, 2018*

The annual ideas competition run by Charlottesville-based architecture firm BDA, asks architects, artists, designers, and the public for design proposals of site-specific public art that, in stark contrast to the city's Confederate monuments, represent diversity and community. Jurors include Planning Director for the City of Detroit Maurice Cox and Dr. Andrea Douglas,

the executive director of the Jefferson School African American Heritage Center. More information at bdaprize.bdarchitects.com.

Logo Against Alzheimer's*Deadline: February 25, 2018*

This competition, run by CODE, asks designers to create a logo for Italian organization Affettida, which supports families of people with Alzheimer's. Judged by a panel including Milo Manara, Milton Glaser, and Federico Babina, the winner will receive a cash prize, and the winning logo design will be adopted. Details at competitionsfordesigners.com.

RIBA Awards 2018*Deadline for UK projects: February 27, 2018*

The 180-year-old awards series, which includes regional and national prizes along with prestigious titles such as the Stirling Prize and RIBA House of the Year, is accepting applications for projects based in the UK. For more information, visit architecture.com.

Antepavilion 2018*Deadline: February 28, 2018*

The second edition of this annual pavilion asks designers to submit proposals for an installation atop a 62-foot barge, built in 1934, floating in the Regent's Canal at Hoxton Docks. Commissioned by the Architecture Foundation and Shiva Limited, the project aims to engage designers in construction processes. The winning team will work with AKT II engineers. More information at antepavilion.org.

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 archiinperspective.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 washroom 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.

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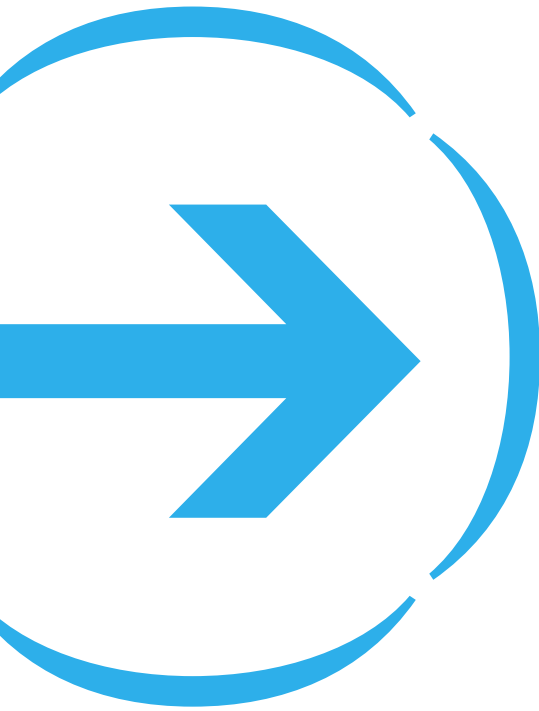
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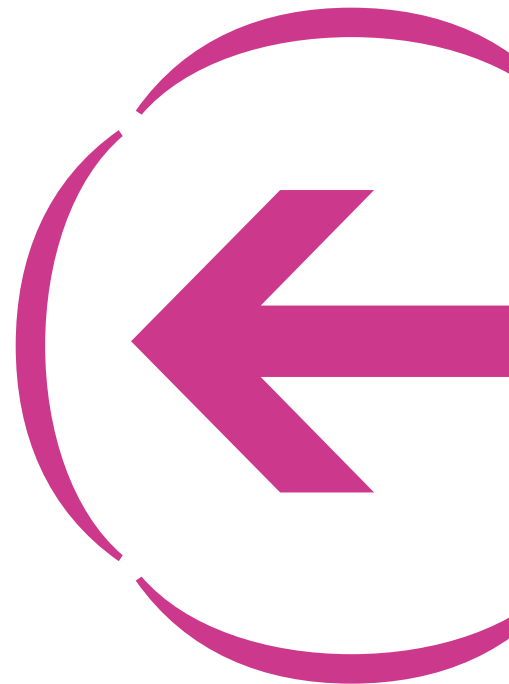
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Design Vanguard

The magazine is looking for the best emerging architecture firms from around the world to feature in our **2018 DESIGN VANGUARD** issue. Although we do not have an age limit, we try to select architects and designers who have had their own practices for less than 10 years. In 2018, for the first time, winners will be featured in the June issue (instead of December). There is no fee to enter.

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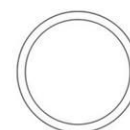
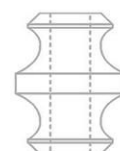
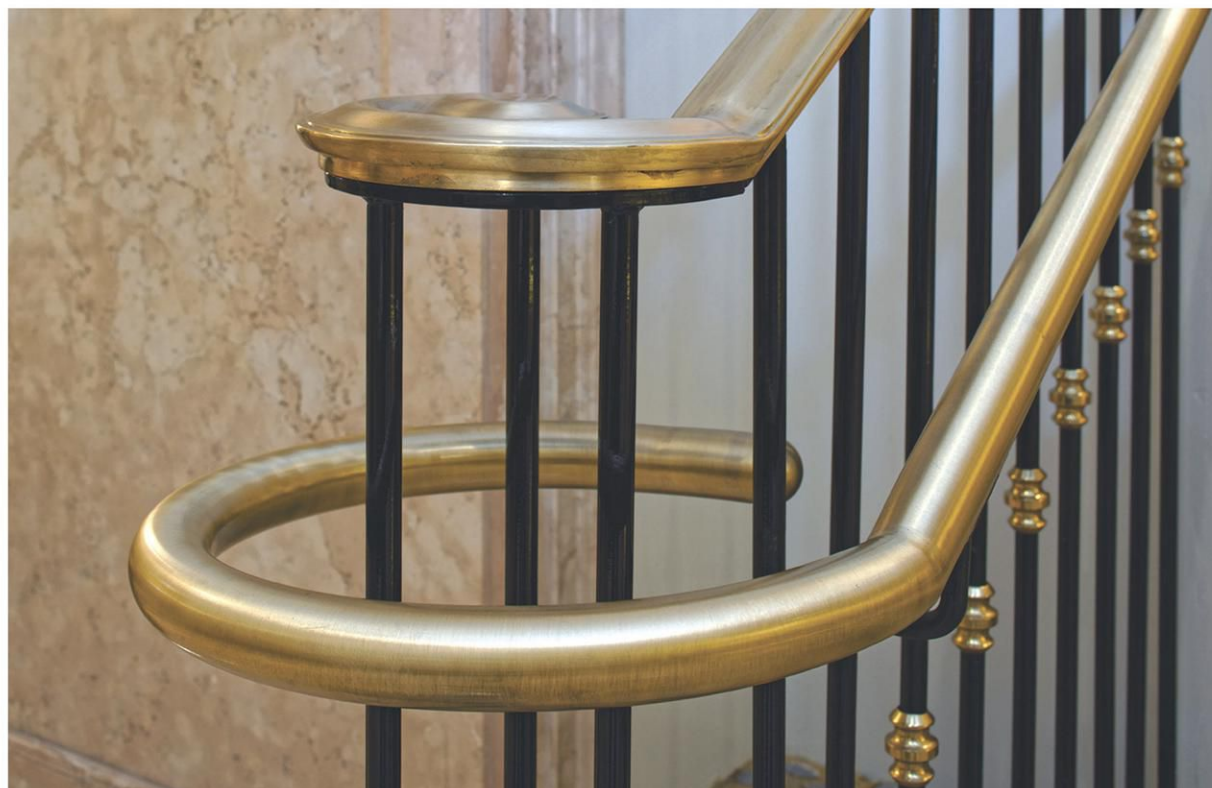
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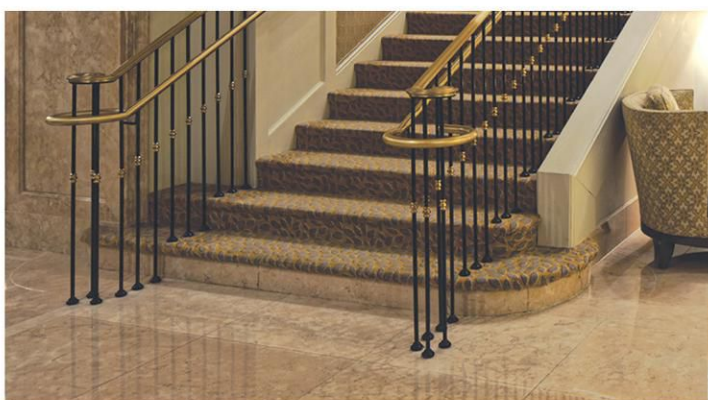
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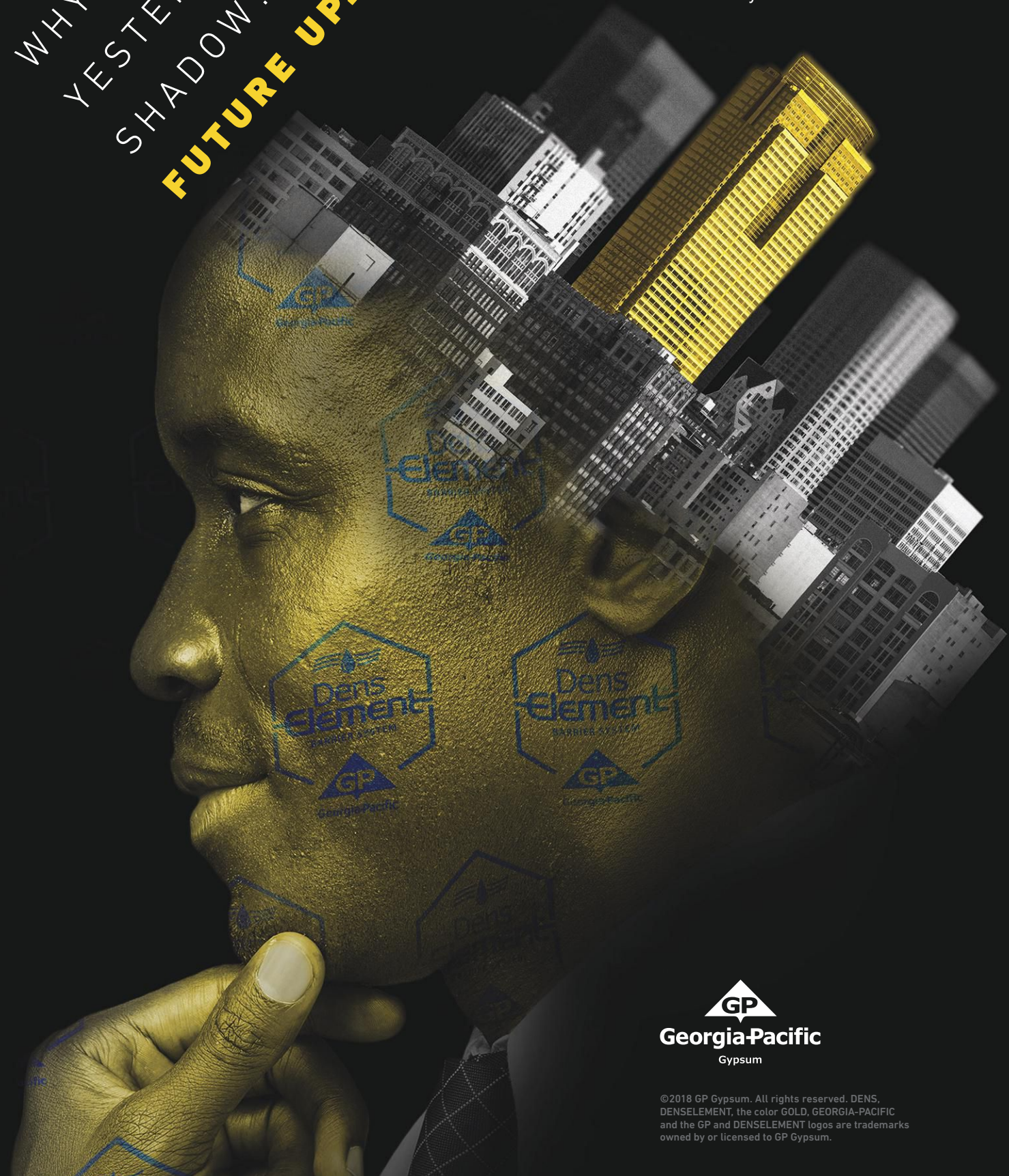
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