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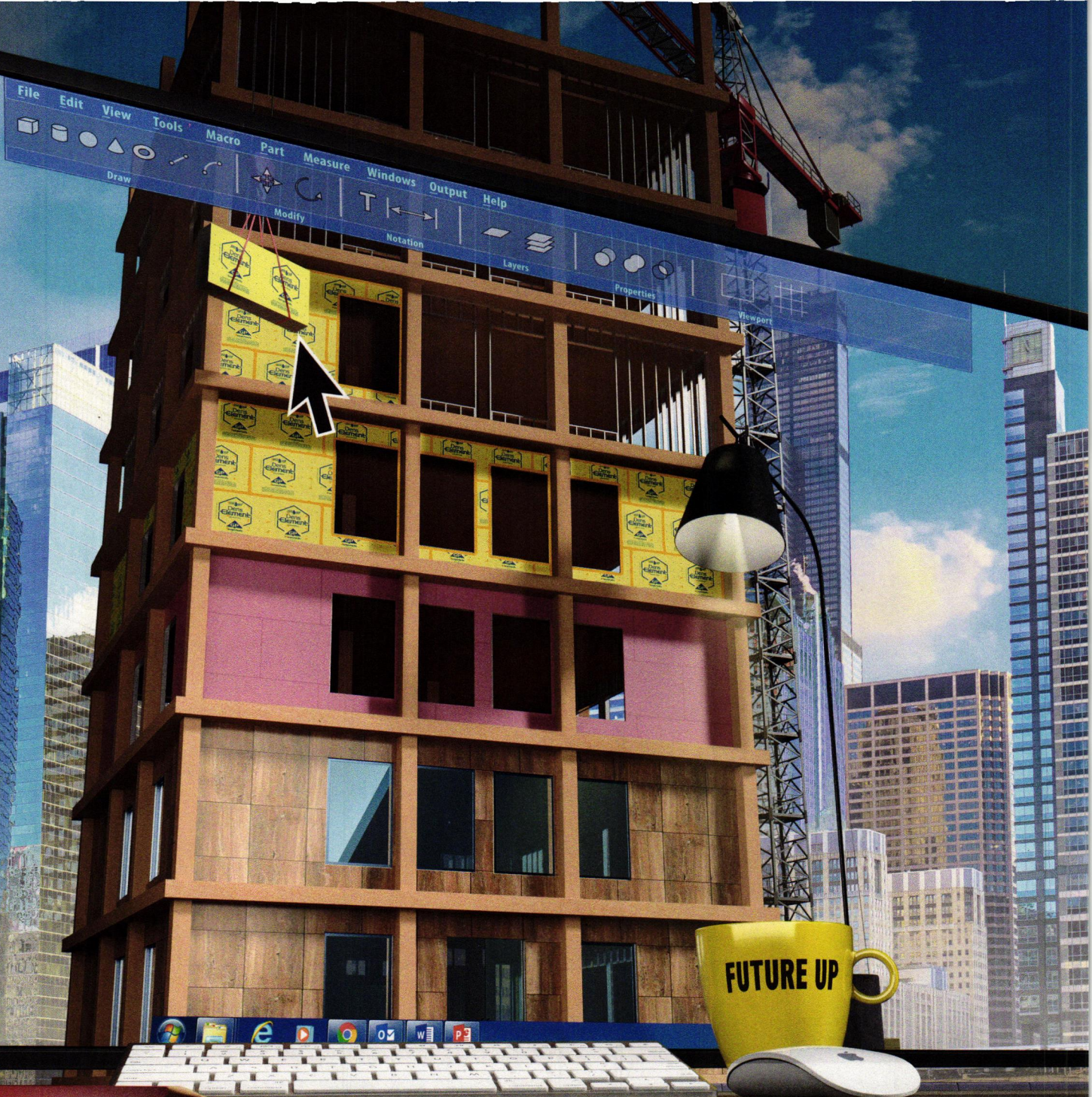
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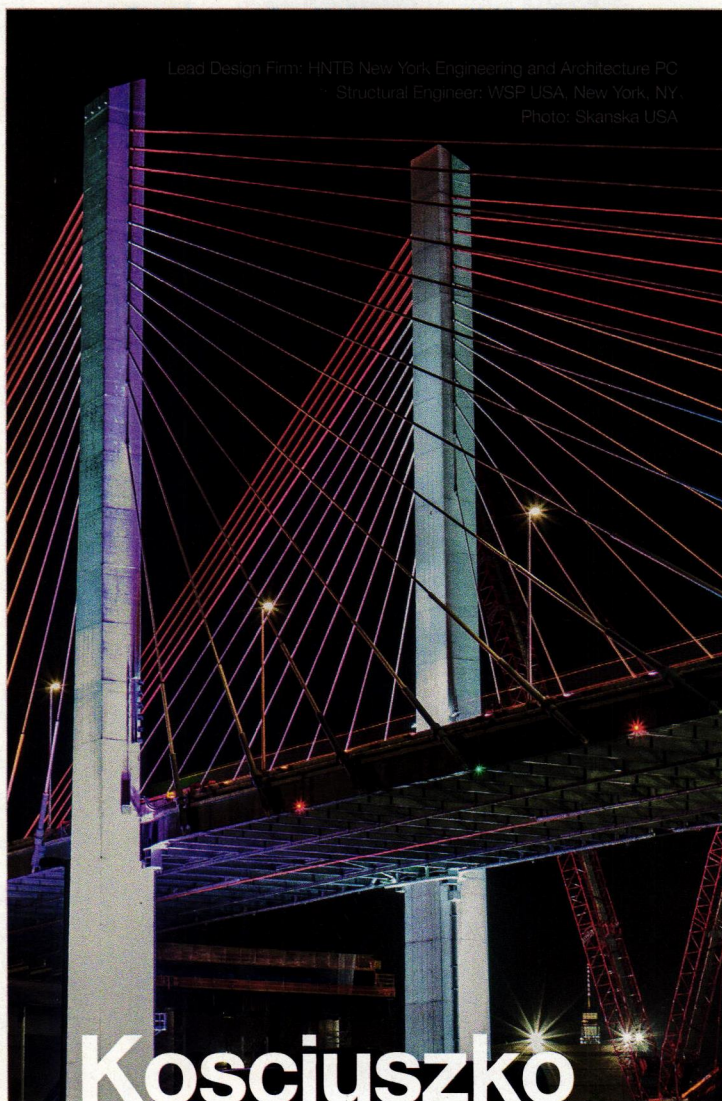
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ARCHITECTURAL RECORD (ISSN: Print 0003-858X Digital 2470-1513) February 2020, Vol. 208 No. 2. Record is published 12 times annually, monthly by BNP Media II, LLC., 2401 W. Big Beaver Rd., Suite 700, Troy, MI 48064-3333. Telephone: (248) 362-3700, Fax: (248) 362-0317.

ANNUAL RATE FOR PRINT OR DIGITAL: US \$48.00, Canada \$72.00 and Foreign \$132.00. Single Copy sales \$10.00.

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POSTMASTER: Send address changes to: ARCHITECTURAL RECORD, P.O. Box 1440, Lincolnshire, IL 60069.

CANADA POST: Publications Mail Agreement #40612608. GST account: 131263923. Send returns (Canada) to IMEX Global Solutions, P.O. Box 25542, London, ON N6C 6B2.

CHANGE OF ADDRESS: Send old address label along with new address to ARCHITECTURAL RECORD, P.O. Box 1440, Lincolnshire, IL 60069.

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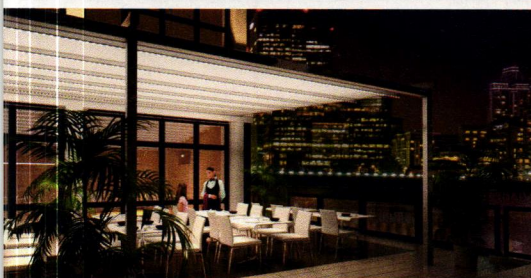
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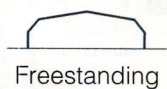
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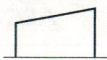
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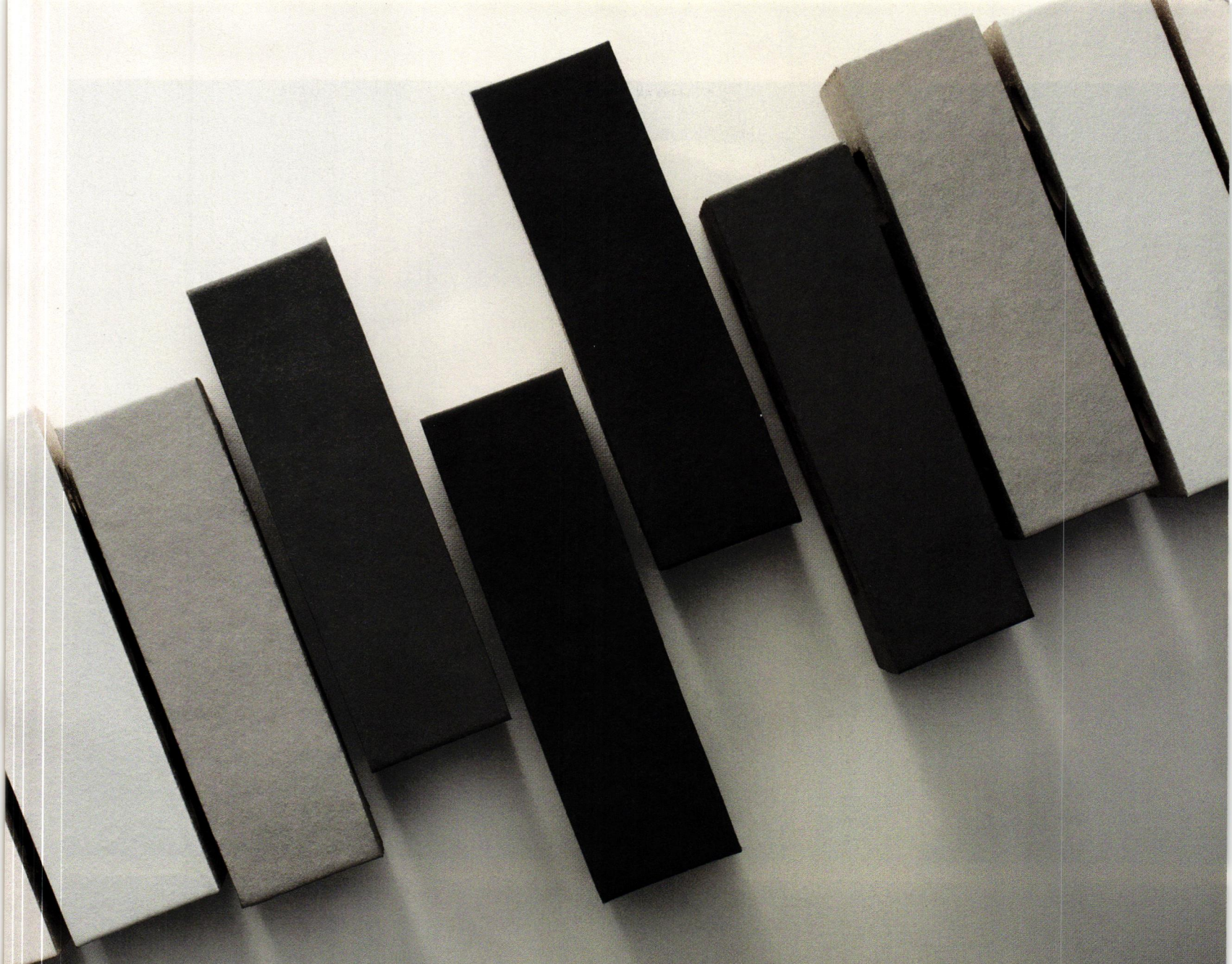
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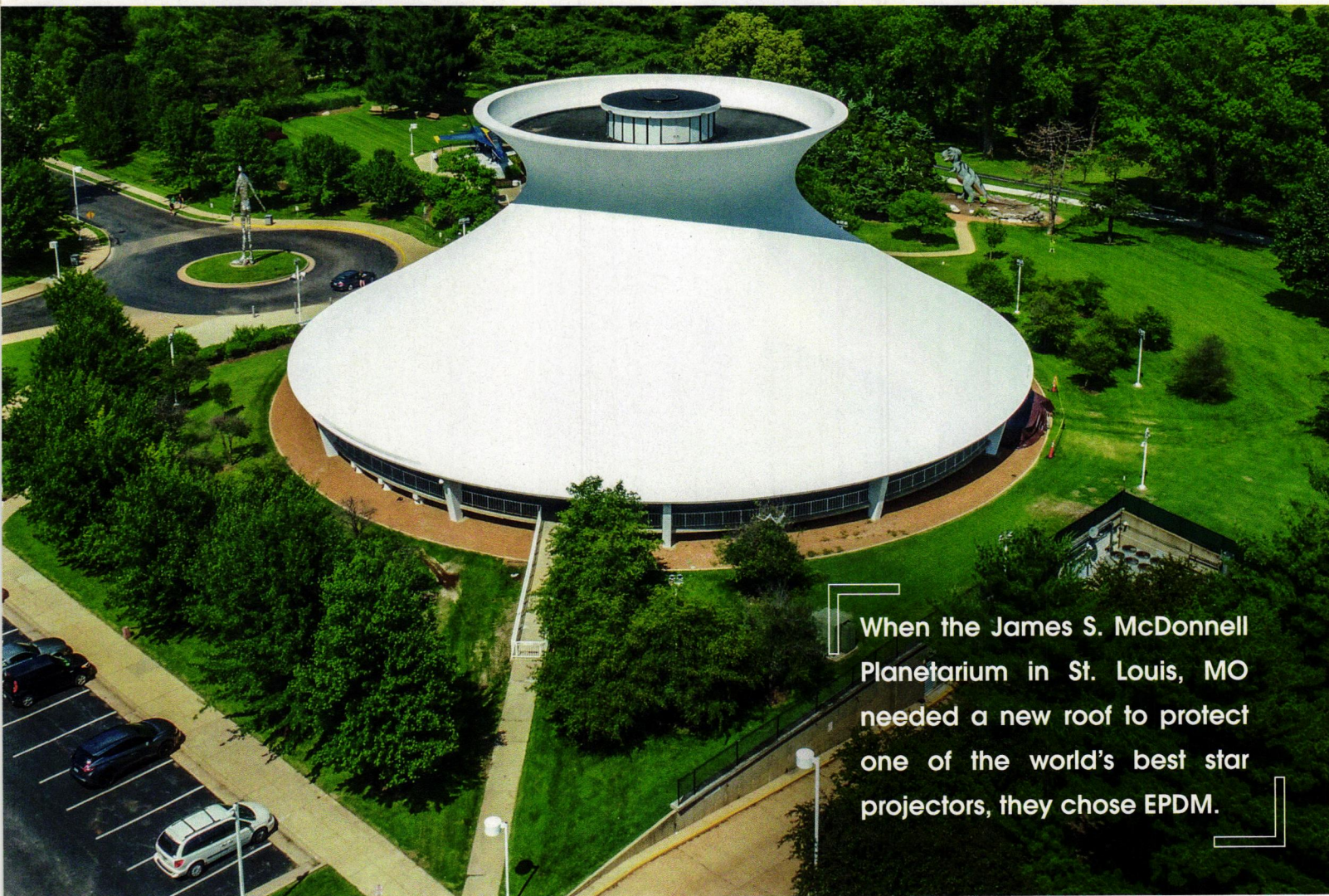


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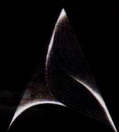
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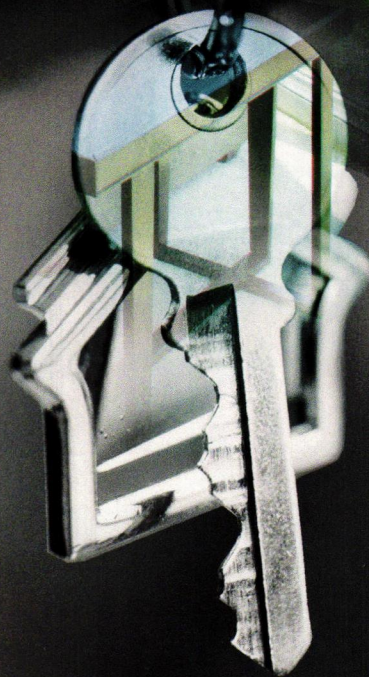


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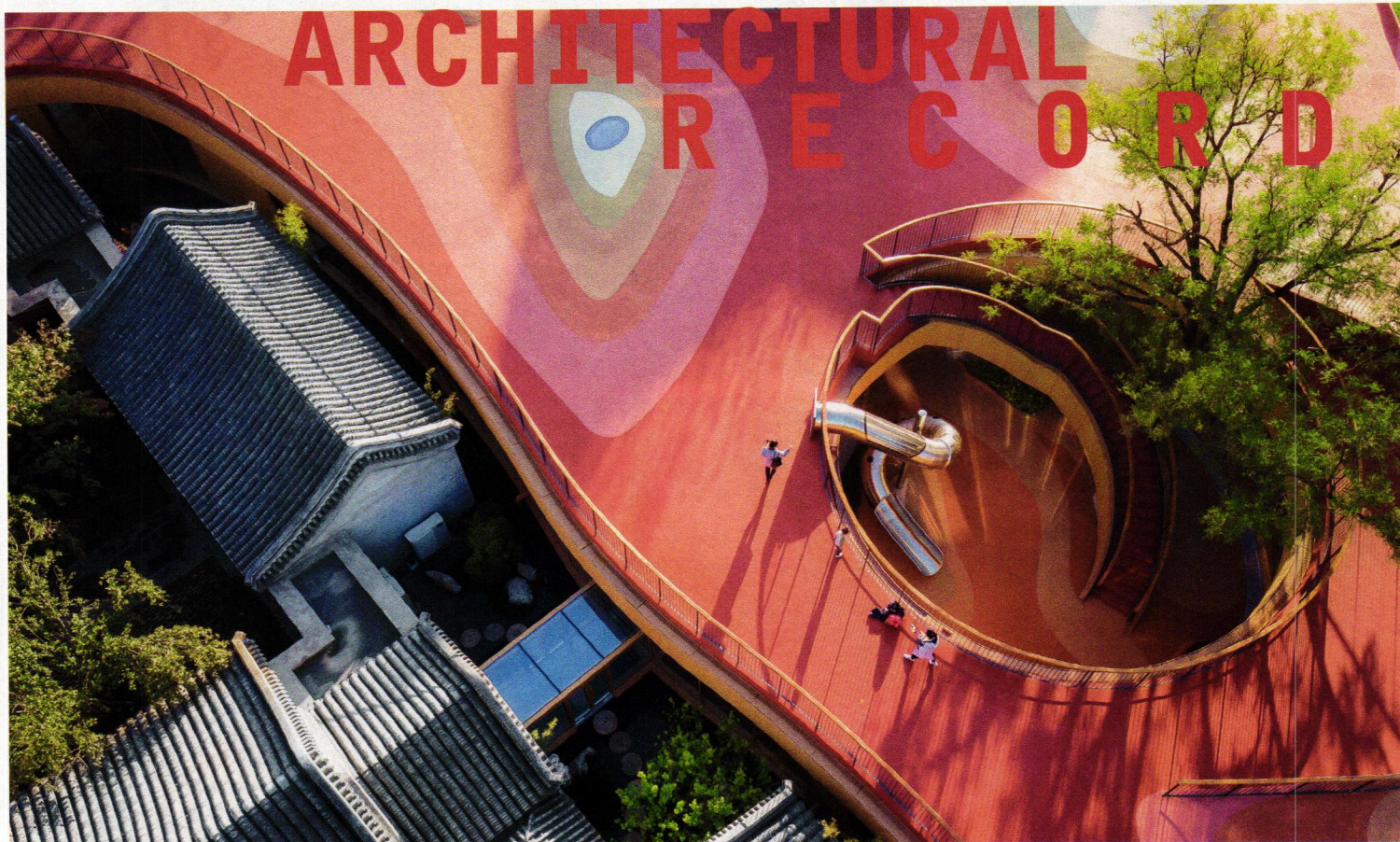
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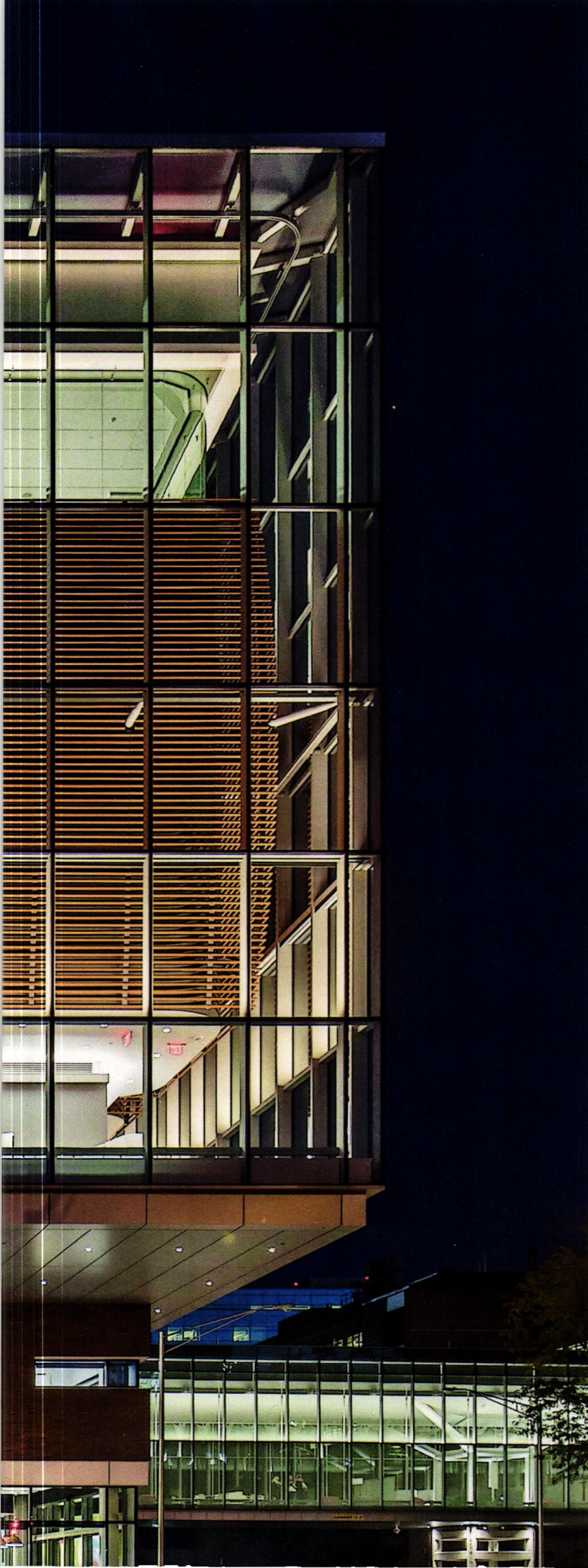
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THIS PAGE: COURTYARD KINDERGARTEN, BEIJING, BY MAD ARCHITECTS. PHOTO BY ARCH-EXIST.

COVER: EERO SAARINEN'S BELL LABS (1962), NEW JERSEY. RENOVATION MASTER PLAN BY ALEXANDER GORLIN ARCHITECTS. PHOTO BY ERIC PETSCHKE.

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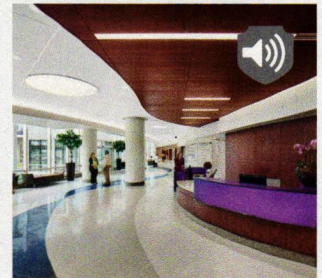
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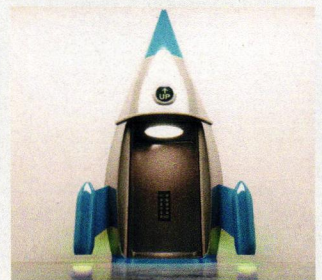


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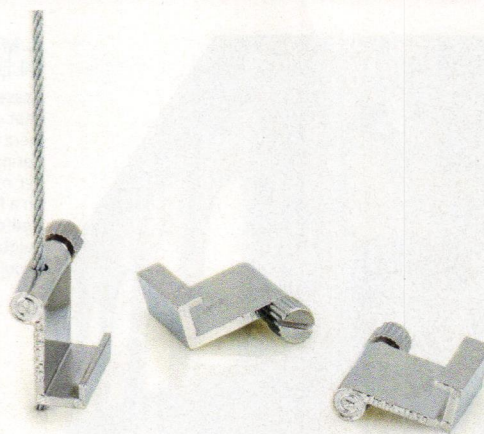
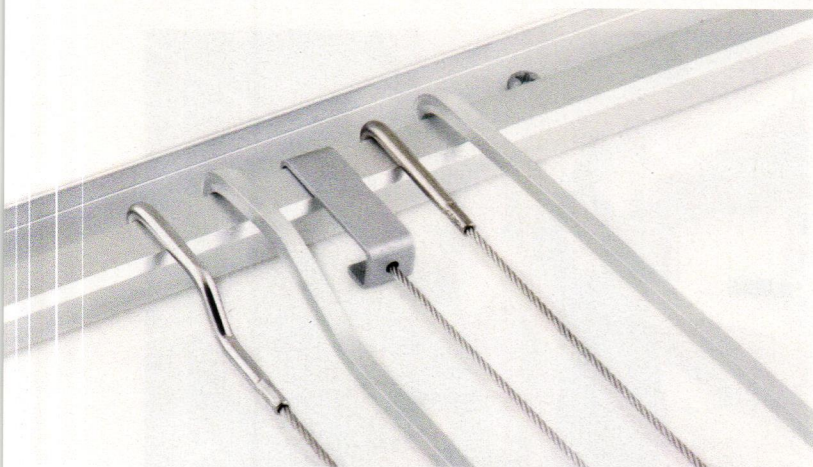
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IN THE CITY OF SEVEN ISLANDS

Early last month, Record editor in chief Cathleen McGuigan (far left) visited Mumbai to speak at the HECAR Foundation's Women In Design 2020+ International Conference. Other presenters included Annabelle Selldorf, Brinda Somaya, Billie Tsien, and Meejin Yoon (from left to right).



HOW MANY EDITORS DOES IT TAKE . . .

. . . to write about Bell Labs? Deputy editor Suzanne Stephens (left) and editor in chief Cathleen McGuigan (center) toured the project in April 2019, followed by senior editor Joann Gonchar, FAIA (right), in December. Read more on page 74.



A MURAL GROWS IN BROOKLYN

Passersby stopped to chat with artist Katie Merz (bottom, left) during the installation of her mural (page 116) on a building in the Bedford-Stuyvesant neighborhood of Brooklyn, New York.



SOUTH TYROL, NORTH ITALY

Managing editor Beth Broome (center) met with architect Claudio Lucchin (right) and associate Stefania Masuino (left) at the office of Claudio Lucchin & Architetti Associati in Bolzano, the capital of Italy's northern South Tyrol province. With the Milan office of Chapman Taylor, the firm designed the nearby NOI Techpark (page 86).

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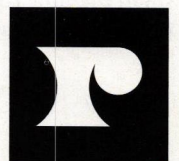
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Preservation is not just about saving history but is the essence of responsible design.

LAST MONTH, nearly 500 architects and design enthusiasts, from across five continents, came together in Mumbai, India, for the Women in Design 2020+ International Conference. I was fortunate to be among them. Over the course of three days, three dozen speakers—including the architects Annabelle Selldorf, Billie Tsien, and Meejin Yoon from the United States—presented their work and shared experiences and insights about design, community, culture, history, and much more. Besides architects and urbanists, we heard from artists, and even a filmmaker, Vibha Bakshi, whose award-winning documentary *Son Rise*, about misogyny and the quest for justice for rape in patriarchal rural India, moved many in the audience to tears.

The conference, organized by the Mumbai architect Brinda Somaya, was the sequel to the first Women in Design event she initiated, in 2000. “Much has changed,” she said in her opening remarks, “but much has not.”

Gender, of course, was central to the conference. Said Shimul Javeri Kadri, who heads her own firm in Mumbai, “I was not a feminist. Architecture made me one.”

Yet the primary subject of interest was the work itself—not just the varied types presented, but the fact that much of it involved conservation and renovation. Somaya provided a key example of the breadth of practice. While her firm, Somaya & Kalappa Consultants, has designed handsome new buildings for such clients as tech companies and institutions, she has also led a number of significant restoration projects, from renovating Louis Kahn’s Indian Institute for Management in Ahmedabad (so far, the upgrade of the library has been completed) to the rebuilding of a Gujarat village after the 2001 earthquake.

Underpinning such restoration efforts are the designers’ engagement with communities and their strong respect for local conditions and materials. Salma Samar Damluji, a Beirut-based architect, showed her powerful projects rebuilding vernacular housing and mosques in bombed-out villages in Yemen, using traditional sun-baked mud brick. “It is their heritage, identity, and integrity,” she said of the local residents and craftsmen. Iranian-born architect Yasaman Esmaili, who is based in Boston and Tehran, presented her work with Mariam Kamara on the Hikma complex in Niger, which called for restoring and converting a crumbling mosque into a library and community center, and building a new mosque next to it out of the same beautiful, reddish compressed earth block (RECORD, June 2019).

Some architects talked about their involvement in restoring indigenous infrastructure such as the famous Indian stepwells; others about defending the modest, unscripted streetscapes—the jumble of shops, small manufacturing and housing—that make up so much of Asia’s vibrant urban culture. Collectively, the presentations underscored the



value of tradition and heritage as well as the designers’ profound belief that the conservation or repurposing of existing building stock is the bedrock for making cities sustainable.

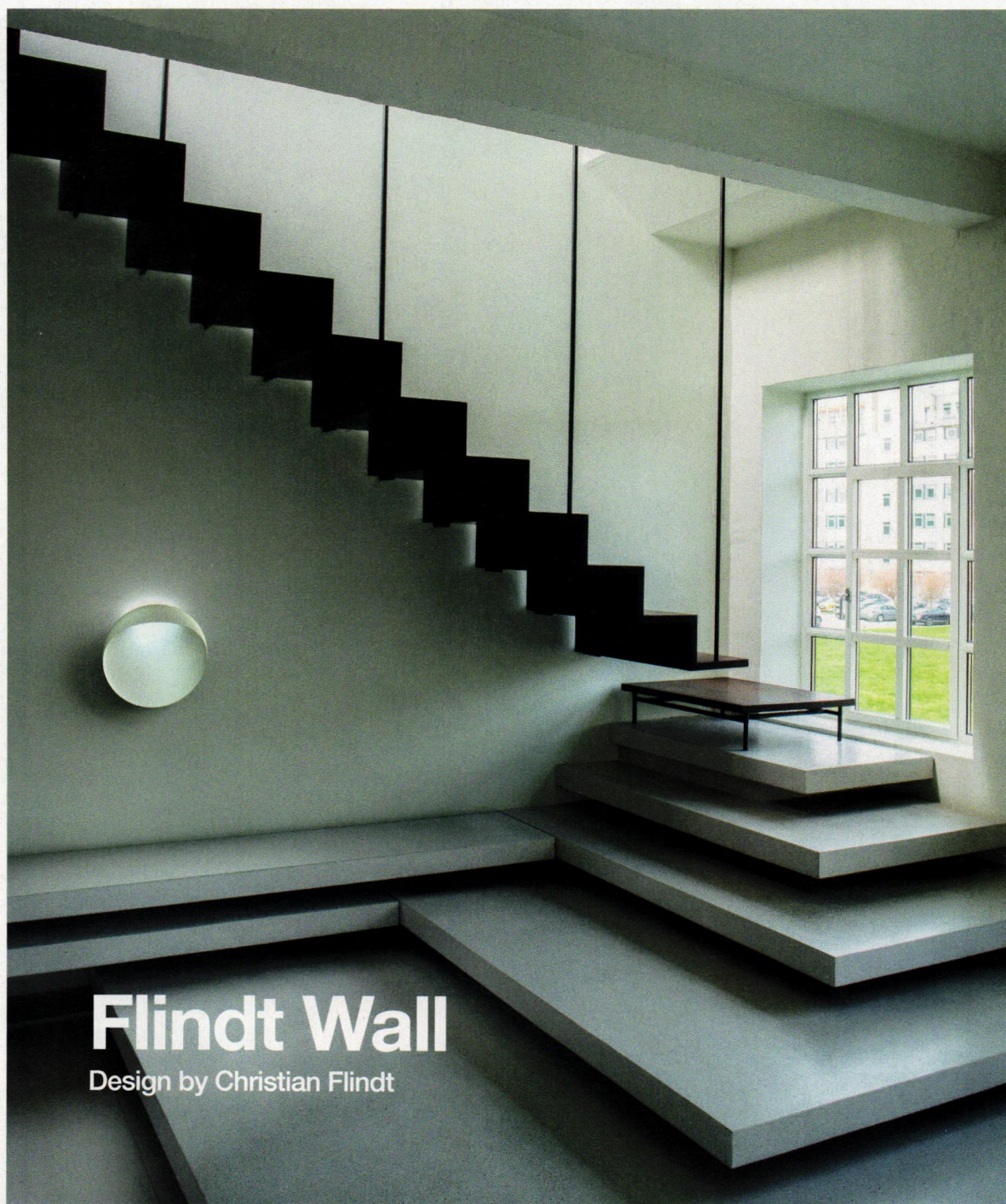
It is a lesson that hasn’t taken firm root in most of the world, as soaring land values in major metropolises encourage developers to tear down and build bigger, despite the waste produced by demolition and the cost in carbon emissions from all aspects of new construction—from extraction to manufacture to transportation of building components to the site. Despite the real-estate profits to be made today, the bill to the planet will come due, sooner rather than later.

In this issue of ARCHITECTURAL RECORD, we celebrate a varied collection of restored, renovated, and repurposed structures, from a 1930s aluminum factory complex in Northern Italy, now transformed into a tech hub (page 86) to a tough 1965 concrete library in Nashville converted to offices (page 100) and the rethinking of Eero Saarinen’s immense Bell Labs in New Jersey as a “metroburb”—a “downtown” in the suburbs—with shops, dining, and offices all under one gigantic roof (page 74).

These gestures toward recycling buildings rather than destroying them may seem minor, but they are part of what should be a growing shift in attitude—a way of embracing the past to protect the future. At the Mumbai conference, Somaya took a moment to quote Gandhi: “In a gentle way, you can shake the world.”

Cathleen McGuigan
Cathleen McGuigan, Editor in Chief

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perspective

You are in danger and need to act immediately to survive. Take shelter indoors immediately. It is too late to leave.

—A tweet from the **Victoria Country Fire Authority** on December 30, warning residents of the rural Guys Forest area in southeastern Australia that out-of-control wildfires had made evacuation impossible.

Arkansas Lawsuit Seeks Protection of Intellectual Property

BY MIRIAM SITZ

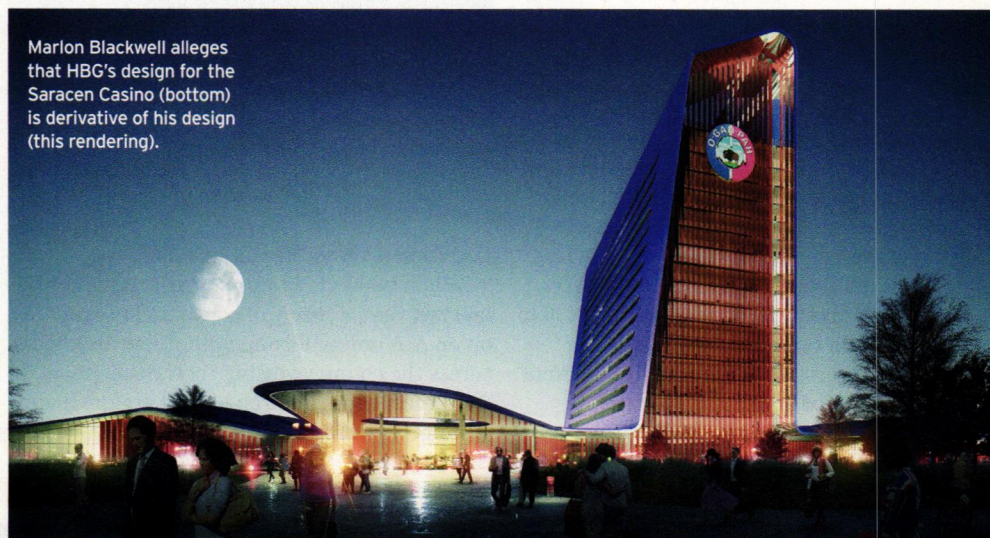
IN A creative profession like architecture, no one wants to take a gamble with intellectual property rights—even when designing a casino. A federal lawsuit related to such a project, currently under way in Arkansas, brings into sharp focus the complex nature of collaboration.

In late December 2019, Marlon Blackwell Architects (MBA) filed a lawsuit with the U.S. District Court, alleging that Memphis-based HBG Design and representatives of the Quapaw Nation, a Native American tribe, have stolen MBA's architectural designs and failed to pay the Fayetteville, Arkansas-based firm for its work on the Saracen Casino Resort, currently under construction in Pine Bluff, Arkansas. Intellectual property rights attorney Mark Henry with the Rose Law Firm, headquartered in Little Rock, is representing MBA.

The origins of the case date back to the summer of 2017, according to MBA founder Marlon Blackwell—the AIA's 2020 Gold Medal winner (RECORD, January 2020)—when John Lane Berrey, the elected leader of the Quapaw Nation, first approached him about designing a casino. Headquartered in northwest Oklahoma, not far from MBA's home city, the Native American tribe had hired Blackwell for previous projects, including the John Berrey Wellness Center and the renovation of parts of another Quapaw casino.

According to MBA's complaint, Blackwell and Berrey were in regular contact for almost two years as the architecture firm developed and refined a concept for Saracen Casino. (The Quapaw Nation created the limited liability company Saracen Development to own and operate the facility.) MBA alleges that, throughout this time, Berrey publicly shared MBA's drawings and renderings with investors and the community while promoting the casino and a ballot measure, passed in November 2018, that would allow the nearly \$250 million project to proceed. The suit also lists eight separate rules and standards from the AIA's Code of Ethics and Professional Conduct that it alleges HBG violated.

HBG joined the team in December 2018,



Marlon Blackwell alleges that HBG's design for the Saracen Casino (bottom) is derivative of his design (this rendering).

bringing significant experience in casino design. The firm had not previously worked with the Quapaw Nation. Exhibits attached to MBA's complaint indicate that HBG acted as architect of record, with responsibilities including construction drawings and management, while Blackwell's firm would continue to act as the design architect, ensuring that the original design intent was preserved as the project moved closer to becoming a reality. Blackwell says the two firms agreed upon the division of work and a fee split (with roughly 65 percent of the fee going to HBG, and 35 percent to MBA). The suit outlines how MBA shared "plans, drawings, sketches, schematics, footprints, renderings," and more, "including architectural computer files and substantially complete architectural schematic design plans for the Saracen Casino."

But in early March 2019, according to the complaint, the relationship between the two architecture firms—and between Blackwell and Berrey—soured. On March 15 of last year, Berrey dismissed MBA; the suit alleges this



was directly the result of HBG's providing false information to the Quapaw leader "by intentional and improper interference." The complaint further claims that HBG has continued to use Blackwell's intellectual property without credit or payment, and asks for a judgment of no less than \$4.45 million (representing the fee Blackwell's firm expected to receive from the project) plus damages, interest, legal fees, and a declaration indicating MBA's original authorship of the designs.

HBG principal Rick Gardner tells RECORD, "We strenuously dispute all the allegations in this complaint, and we'll defend our position through the legal process." Acting on the advice of their counsel, they declined to discuss any specifics of the suit. Berrey opted not to make any comment. ■

Architects React to Trump's New 'Architect' of the Capitol

BY KARA MAVROS

IN MID-DECEMBER, the U.S. Senate confirmed President Trump's appointment of J. Brett Blanton as the next Architect of the Capitol (AOC). While Blanton, the deputy vice president for engineering at the Metropolitan Washington Airports Authority, is a licensed engineer, he is neither trained nor licensed as an architect. He holds a bachelor's degree from the United States Naval Academy in aerospace, aeronautical, and astronautical engineering, and a master's in ocean engineering from Virginia Tech.

The official role is to serve as head of the agency of the same name and be responsible for the maintenance of 18.4 million square feet across 36 buildings on Capitol Hill, including the Library of Congress, the U.S. Supreme Court, and the Capitol Visitor Center, to name a few. Blanton's predecessor, Stephen T. Ayers, FAIA (RECORD, March 2019), served from 2010 to 2018, retiring shortly before the end of his 10-year term. Ayers, who won the AIA's Thomas Jefferson Award for Public Architecture in 2018, is best remembered for completing the



The Architect of the Capitol oversees more than 570 acres of grounds and 18.4 million square feet of buildings, including the Capitol Building (above).

U.S. Capitol Visitor Center in 2008.

When news of Blanton's confirmation broke late last year, a flurry of conversation erupted on an AIA online forum, with many architects across the country voicing their disapproval. One commenter, Montana-based architect and architecture professor Jack Smith, FAIA, tells

RECORD that he finds it "entirely out of order," on the grounds that "it is unlawful to use the name or term 'architect' unless one is a licensed architect."

While state licensing boards and laws regulate and protect the title architect, the designation becomes more complicated within federal agencies, where different rules (which some might call loopholes) apply to civil servants.

"There is no statutory requirement for the head of the AOC to be a licensed architect," Edmond Gauvreau, FAIA, a D.C.-based architect with professional knowledge of relevant governmental regulations, chimed in to the online discussion. Noting Blanton's 20-plus years of service in the public sector, Gauvreau tells RECORD, "He's got the skill set they really need."

When Blanton is sworn in as AOC (as of press time, that date has yet to be set), he will be the 12th person to hold the position since 1793, of whom most—but not all—have been trained or licensed architects. ■

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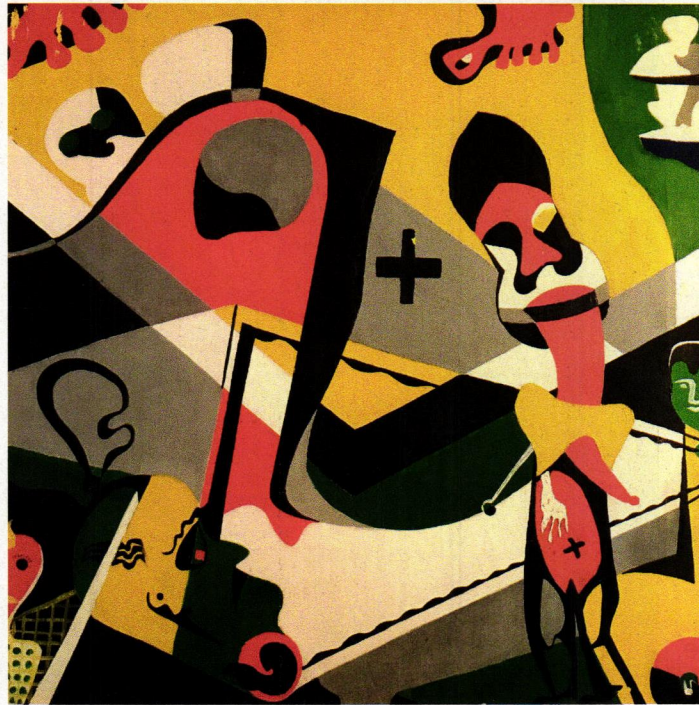
Discovery: An Unknown Painting by Gordon Bunshaft

BY NICHOLAS ADAMS

The author of the just-published Gordon Bunshaft and SOM: Building Corporate Modernism (Yale University Press) recently came across the only extant painting by the architect. Adams, professor emeritus at Vassar, tells the story here.

IN HER new book on the urban planner Ed Logue, *Saving America's Cities*, Lizabeth Cohen makes a point I wish I'd had the wit to write in my own book on the architect Gordon Bunshaft. Writing a book, she notes, about someone recently deceased means forming your interpretation out on a windy promontory, balancing yourself against the opinions of people who knew your subject personally and, sometimes, intimately. The breeze is invigorating but it presents some difficulty when it comes to forming your own take. A trivial incident in the case of Bunshaft comes to mind. In the casual way of many biographers, I took to calling my subject by a pet-name: "Bun," or "Uncle Bunny." One of his former colleagues was outraged. "He was always Mr. Bunshaft!" he insisted—and was only partially assuaged when I sent him letters addressed "Dear Bun," and diary entries in which the architect referred to himself as "Uncle Bunny."

Another reality of writing about the relatively recently deceased (Bunshaft died in 1990) is that new information keeps popping up. One day I went to SOM in New York to see a box of letters from Bunshaft's files that just had been discovered. In one stunning reply, he told his Pittsburgh client Jack Heinz that he would not be attending his son John Heinz's fundraiser for his senate campaign because he was a Democrat and Heinz a Republican, and he just didn't have money for politics. As a



Bunshaft's homage to Mirò (left); the architect at his Beinecke Library (bottom).

current partner observed when I showed him the letter: "Just send Heinz \$25 and shut up."

Then, this past November, while at an event at Bunshaft's Beinecke Library at Yale University, I met a collector who specializes in pre-1950 American abstract paintings, and among his holdings was an original "Bunshaft," dated 1939. We made a date to meet at his house to see the painting. An oil on canvas entitled "Homage à Mirò," it measures approximately 24" x 24". The painting seems to show a series of sculptures, one possibly African with insect- or bird-like legs, another possibly classical set against a tilted white plane (possibly a table). To the left is another plane, possibly a painting, set against the table. Other faces or partial faces hover around the canvas. The palette is dominated by golds, reds, and white and (most surprisingly) touches of green, generally known as Bunshaft's least favorite color.

But how can we be sure Bunshaft is the painter of this painting?


Of course, there is no certainty. The painting is signed in pencil on the back "Gordon Bunshaft 1939," and the signature appears to be his, though possibly signed long after the painting was done. And Bunshaft was very fond of Mirò as an artist. In his war-time Greenwich Village apartment he had a panoramic photographic reproduction of the Mirò mural from SOM's Terrace Plaza Hotel in

Cincinnati placed over the mantelpiece. Later, after his success with Lever House (1952), he began to buy works by Mirò: he purchased one work, "Le Paysage" (1927), in 1958 from the Pierre Matisse Gallery for \$15,450—and sold it in 1977 for \$800,000 to the National Gallery in Australia!

Though he was an eager collector of painting and sculpture, we also know that he made paintings in the style of artists he admired, like

this "Mirò," to help create a particular interior environment. In his later Manhattan apartment, photographed by Ezra Stoller in the 1950s, there was a "Mondrian" by Bunshaft (its location today is unknown). So far as we know, there are no other paintings by him in existence, so the discovery of what seems to be a new painting is exceptional. This impulse—to make a work in the manner of a painter he admired—points to his ambitions and the worlds he wanted so badly to inhabit. These were places he ultimately did come to inhabit, but in 1939—with only a couple architectural works to his name that he called "not lousy"—as he completed work on the Venezuela Pavilion for the New York World's Fair, that future was only a dream. How a young Jewish man from Buffalo would make his mark in the world was far from clear. Art provided one route forward. We can imagine that works like "his" Mondrian or "his" Mirò became the ornaments of his apartment or his office. "Mirò" was also the bridge between his earlier affinity for Alvar Aalto and Art Deco at the Venezuela Pavilion and the geometric abstraction of Lever House. Bunshaft was never a "painterly" architect and he hated the Beaux-Arts exercises he was forced to do as a student at MIT. Here, on this canvas, he was experimenting with abstraction, indulging his taste fully, in a way that was never possible in his architecture. ■





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Ian Weir

BY MIRIAM SITZ

SINCE SEPTEMBER 2019, catastrophic wildfires have scorched tens of millions of acres across Australia. As of press time, at least 28 people have died, as well as hundreds of millions of animals, and more than 3,000 houses have been destroyed. The combination of unprecedented heat and drought have made this bushfire season one of the most devastating to date; the country experienced its hottest day on record in mid-December, following the driest recorded spring.

RECORD spoke with Ian Weir, Ph.D.—an architect and researcher at Queensland University of Technology in Brisbane, who studies (and structured his practice around) wildfire-adapted architecture—about risks and design strategies.

What has made this bushfire season so bad?

It's really the current drought conditions, and not only have we had very little rainfall where the fires are happening, but the normal winds that run west to east across Australia are picking up really hot, dry air as they traverse the middle of the continent, which has an extra drying effect on the southeast coast, where the fires are the worst.

How do settlement patterns and land clearing affect wildfires?

I grew up on a farm in southern Western Australia that was developed as part of a massive land-clearing scheme in the late 1950s and early 1960s. I have witnessed first-hand how regional-scale clearing creates dry microclimates, which has subsequently led to decreased rainfall and major droughts. Queensland also has well-documented native-vegetation clearing to facilitate cattle grazing and agriculture. It's fair to say that these examples are representative of a nationwide problem, which is desertification. My landscape ecologist colleagues agree that it is primarily desertification that is driving droughts, which, in turn, is the key factor in driving up the fire danger.

The idea behind removing vegetation is to make homes more defensible from fire, right?

That's the intention, but this is where we have a problem emerging in Australia: the clearing of vegetation is actually driving the resilience of homes down, because the more you clear around a house, the less resilient it

has to be. Now, that sounds quite logical, but in a fire event of the magnitudes that we're seeing in the eastern states, clearing becomes a bit redundant, because embers—the primary danger to houses—can travel from many kilometers away.

Also, the clearing-around-homes regulations are often, unfortunately, misread as wholesale clearing. But there's no justification for eliminating trees, for instance; that just creates a dry microclimate around the house. We need to make a distinction between trees and the meaningful fuel, which actually contributes to the fire front.

This relates to the profession because, in my view, architecture's primary role is to engender connection with place. That means

protecting the natural assets of the site and celebrating that biota. That simply cannot be done when biophysical assets are removed due to what I consider to be rather draconian, top-down mandates to create so-called "defendable zones."

How can existing houses and buildings be retrofitted to be more resistant to bushfires?

The first thing I encourage homeowners to do is to think like an ember—to forensically look at all the gaps where em-

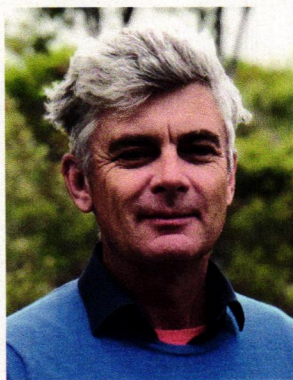
bers could become lodged. During a fire, negative pressure inside houses can create a vacuum that effectively sucks embers in through even very small gaps.

Otherwise, sprinklers certainly help; there are many cases where people have effectively protected their houses with a really good water supply—and not just during the emergency, but leading up to it, to get moisture back into all of those combustible materials.

And then, of course, managing the fuels around the house—not just in the vegetation, but other landscape features, by minimizing combustible fences and so on.

Why should fire-adapted design matter to architects?

Over the years, I've encouraged many fellow architects to work in this space, and I've been surprised at how little people appreciate that this can be a driver for creativity. Many in the profession think this is a hopeless situation, that no house can be built for fire conditions. But the reality is, a lot of people get trapped in circumstances where they can't escape, by roadblocks or by bushfire, and they have a greater chance of surviving when their house has a greater chance of surviving. I'm hoping these events of late start to get into architects' heads. ■

**AIA New York Announces 2020 Design Award Winners**

In mid-January, AIA New York recognized Glenstone in Potomac, MD, by Thomas Phifer and Partners as Best in Competition. Other projects that received top honors for architecture include the Shed in New York by Diller Scofidio + Renfro; the Los Angeles LGBT Center by Leong Leong; the Calgary Central Library by Snøhetta; and the Reach in Washington, D.C., by Steven Holl Architects.

City-Owned Buildings in Seattle Will Drop Fossil Fuels for Clean Electrics

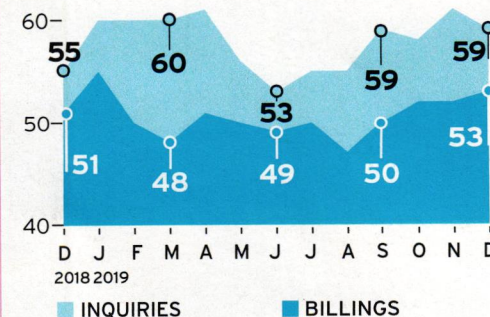
In early January, *The Seattle Times* reported that new and substantially altered city buildings will move away from using natural gas and other fossil fuels. A part of Mayor Jenny Durkan's Green New Deal executive order, the directive requires a plan for implementation to be developed by 2021.

California Bill Aims to Speed Low-Income Housing Development with Environmental Law Exemption


The *Los Angeles Times* reported that Assemblyman Miguel Santiago, a Democrat representing Los Angeles, introduced legislation in early January that would allow new shelters and low-income housing projects across the state to bypass the 50-year-old California Environmental Quality Act.

Record Number of Supertall Buildings Completed in 2019

According to a report from the Council on Tall Buildings and Urban Habitat, 26 towers taller than 984 feet (300 meters) were completed last year, beating the 2018 record of 18. For the sixth year in a row, at least one skyscraper over 1,640 feet (500 meters) finished. But 2019 saw 20 fewer buildings over 656 feet (200 meters) completed than 2018.

**December Billings Remain Strong**

The Architectural Billings Index rose to 52.5 in December, according to the AIA's latest data. (Scores over 50 indicate an increase in billings.) Inquiries dipped slightly, from 60.9 to 58.7, while new design contracts increased, from 52.9 to 53.4.



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A Future Museum, Towers, and New Urban Waterfronts

BY JOSEPHINE MINUTILLO



Rotterdam-based MVRDV has won a competition to redesign the Tancheon Valley and waterfront in Seoul, a site currently dominated by surface car parking and elevated highway structures. Called "The Weaves," the design threads a tangle of pedestrian and bicycle paths, natural terrain, and public amenities into a playful landscape.



French architecture practice Moreau Kusunoki with Australia's Genton as local architect have won the international competition to design the new Powerhouse Museum in Sydney. According to the architects, "We envisage the new Powerhouse as a hyper-platform, a building with many functions and limitless potential. The built form will tread lightly on the site, with the architecture opening up towards the river, providing generous public space and creating an open, 24-hour precinct."

IMAGES: © MVRDV (LEFT); MOREAU KUSUNOKI-STUDIO PAN (RIGHT); ADRIAN SMITH + GORDON GILL ARCHITECTURE (OPPOSITE, LEFT); JAMES

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The South HeXi Yuzui Financial District Tower in Nanjing, China, is a 1,640-foot-tall mixed-use building designed by Adrian Smith + Gordon Gill Architecture. The design draws its inspiration from the patterns in the flowing waters of the nearby Yangtze River. Its resulting shape mitigates wind vortices, optimizes views, and enhances both the structure and the program. The tower will integrate rainwater harvesting into multiple green spaces and sky gardens, with an open-air observatory amenity containing a 360-degree viewing platform. Completion is expected in 2025.



In Brooklyn, the River Street Waterfront Master Plan, by BIG - Bjarke Ingels Group in collaboration with James Corner Field Operations for Two Trees Management, seeks to enhance connectivity to the waterfront, restore natural habitats, elevate the standard for urban waterfront resiliency, and transform the way New Yorkers interact with the East River. The 1.27-million-square-foot project includes two residential towers with a footprint designed to expand the public realm, creating six acres of new park space.



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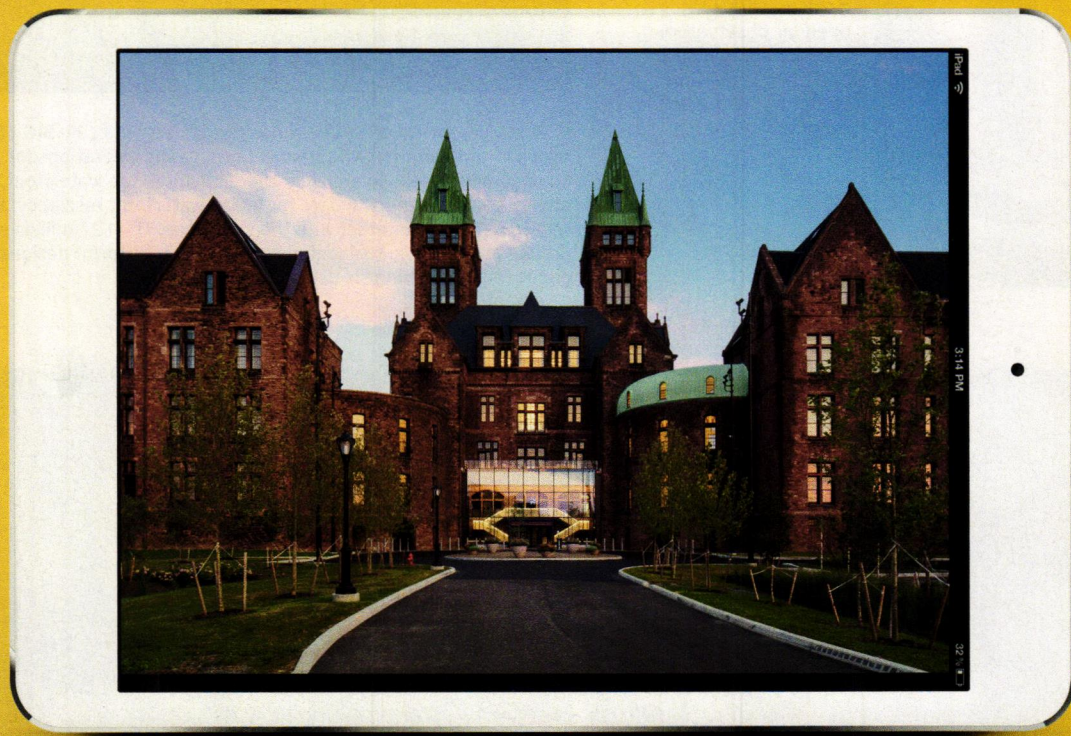
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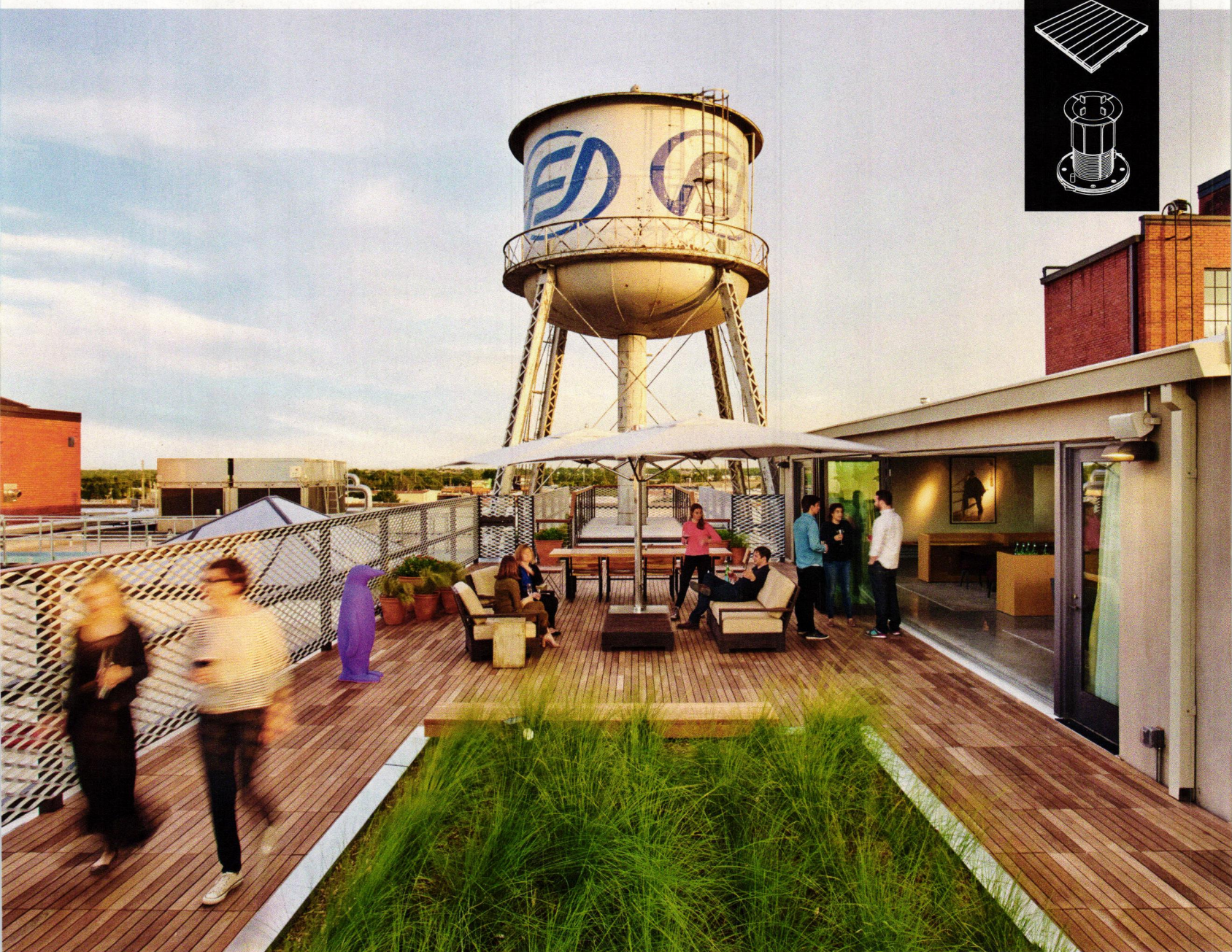
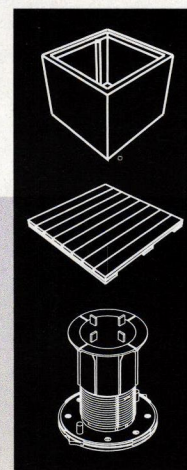


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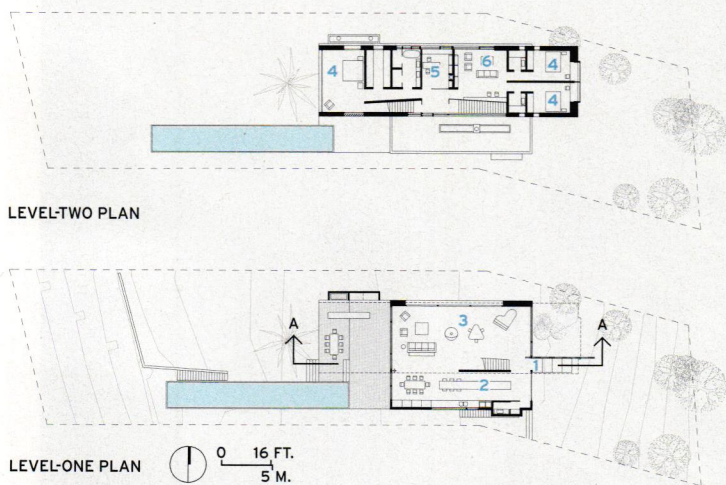
perspective **house of the month**A CANTILEVERED RESIDENCE ON A NARROW SITE IN BUENOS AIRES CAPTURES
DRAMATIC VIEWS OF THE RÍO DE LA PLATA. BY ALEX KLIMOSKI

IN THE port city of Buenos Aires, views of water are hard to come by. But in the San Isidro area in its north, hills make the Río de la Plata visible on the horizon. On a narrow plot of land in this residential neighborhood, Chilean architect Mathias Klotz constructed an elongated rectilinear house that draws visitors through its interior toward wide-open vistas at its rear.

The house, known as Casa G, replaced a decades-old residence that was not up to the needs of the current owners, a couple with two young children. They chose Klotz to be the architect of their new home after seeing the sleek and contemporary Ponce House (2002), which he de-

signed on a similarly constricted site nearby. Like that edifice, Casa G is composed of two rectilinear stacked volumes of poured-in-place concrete. The generously glazed lower level contains the living spaces, while the second one, with the bedrooms, a play area, and a study, relies on steel beams for the cantilevered portions. Klotz wanted to differentiate the private spaces from the more public ones, so he wrapped the upper level with slats of lapacho wood, leaving the concrete exposed at the ground floor.

The architect's primary aim was to maintain unobstructed visual access between the interiors and the backyard. The ground floor is



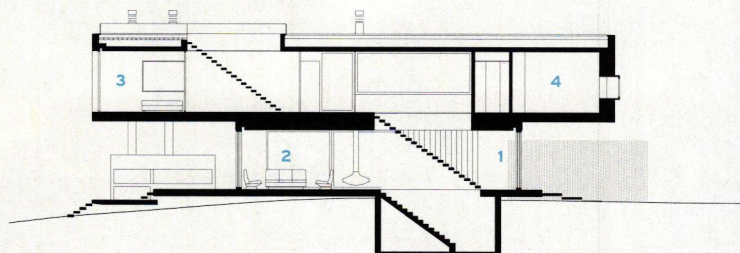
- | | |
|------------|------------|
| 1 ENTRANCE | 4 BEDROOM |
| 2 KITCHEN | 5 STUDY |
| 3 LIVING | 6 PLAYROOM |



A narrow pool emphasizes the house's length and rectilinear geometry (top, left). A spacious landscaped rear lawn serves as an extension of the ground floor spaces (top, right). An open living and dining area, separated only by a freestanding wall that supports an open-riser stair, allows unobstructed views across the interior (above).

The house is composed of two stacked concrete volumes. The cantilevered top level, which contains the private spaces, is clad in lapacho wood, while the concrete at the bottom level is left exposed.

largely open, separated only by a freestanding east-west wall that shields the kitchen from the living room while supporting an open-riser stair that appears to float in space. A separate stair on the second floor leads to a landscaped roof, which Klotz describes as an extension of the master bedroom. The spacious back garden features a long, linear pool that echoes and extends geometric motifs found throughout the interior spaces. Perhaps the most striking view is from within the pool itself, where, says Klotz, you can "swim toward the river." ■



SECTION A - A

- | | |
|------------|----------------------|
| 1 ENTRANCE | 3 MASTER BEDROOM |
| 2 LIVING | 4 CHILDREN'S BEDROOM |



PHOTOGRAPHY: © ROLAND HALBE

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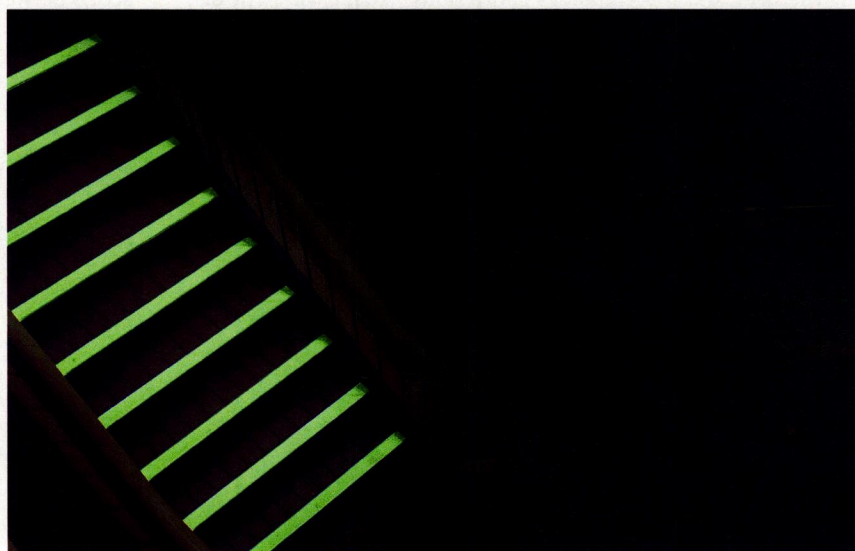
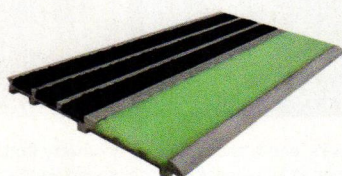
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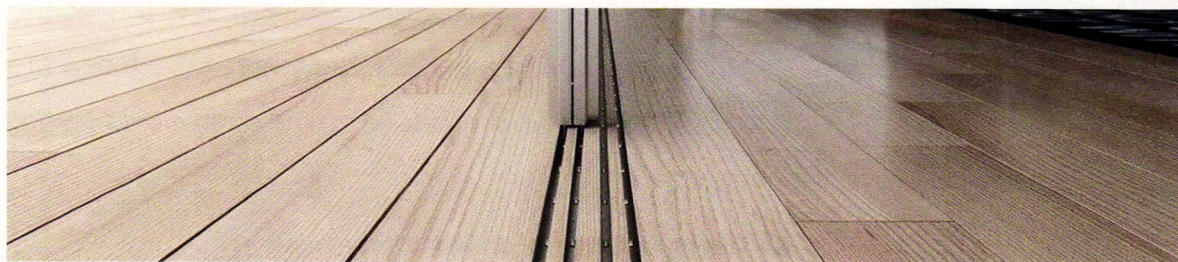
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-Eric Requist, Senior Project Architect, Ellis Architects

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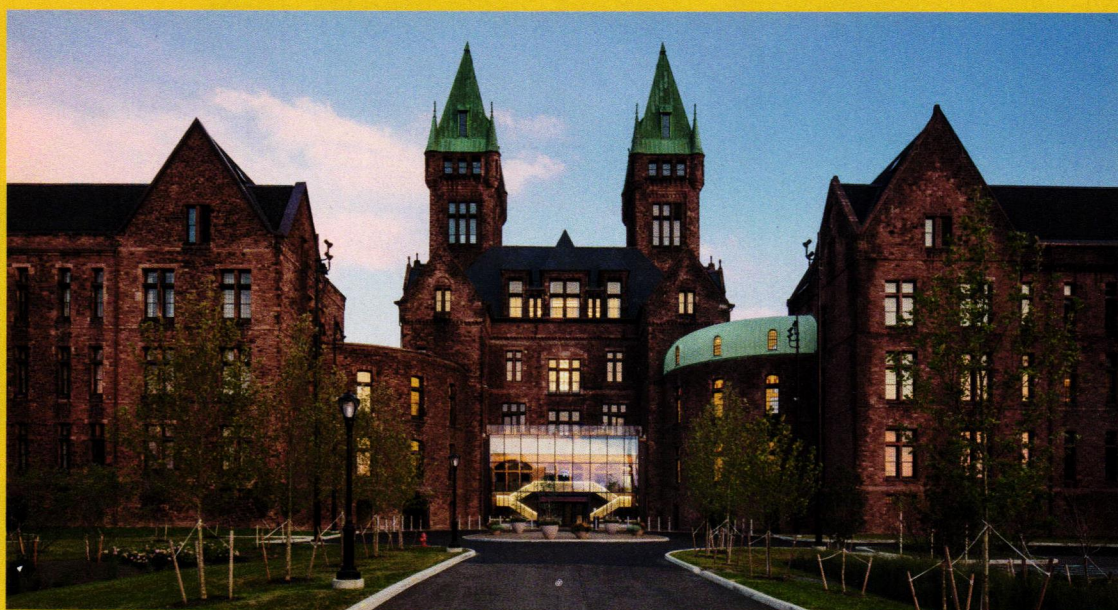


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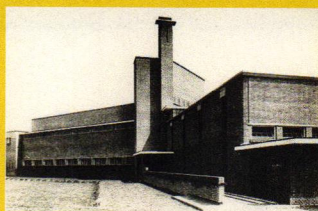
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The architect for the Dr. Bavinck School at Bosdrift in Hilversum, the Netherlands, was **Willem Dudok**, who designed the Modernist work in 1922. As the director of public works and then Hilversum’s municipal architect, Dudok notably constructed the town hall and 17 schools. His articulation of brick to emphasize a strong interplay of vertical and horizontal forms evokes Cubist and de Stijl motifs and gives his work a human scale.

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A Cultural Institution Analyzes Its Goals

The Museum Is Not Enough, by Canadian Centre for Architecture. CCA/Sternberg Press, distributed by MIT Press, 200 pages, \$22.95.

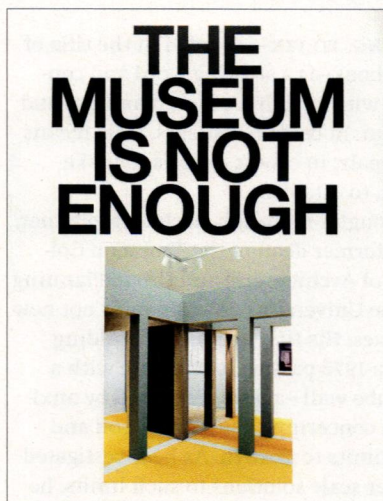
Reviewed by Cynthia Davidson

WHY WOULD an institution that collects, curates, and exhibits architecture produce a book called *The Museum Is Not Enough*? Not enough for what? Not enough to educate? To entertain? To change the world?

Architecture museums and departments have always been compromised by their inability to exhibit their actual subject. Art museums show art, film museums show films, but architecture museums show mostly drawings and models of actual architecture. Debates over style or aesthetics can be illustrated by representations and are important to cultural discourse, but the new questions being imposed on architecture today—particularly social, technological, and environmental—are not easily shown in a museum context. So what is the architecture museum's role?

The Museum Is Not Enough takes up this question. It is written in the first person singular, yet it is not by an individual but by a five-person collective—which includes Mirko Zardini, director of the CCA from 2005 to 2019, and Giovanna Borasi, a CCA curator who assumed the title of director last month—posing as the voice of the Canadian Centre for Architecture. If the first-person voice is atypical for an institution, so is the introspective narrative, which is organized along “nine lines of thinking” that include phrases such as “I seek,” “I’m wary,” and “I could reinvent.” This “personification” of the institution suggests new ways of thinking of the museum as an actor rather than a place for archives and exhibitions. But the CCA has always surpassed the usual expectations of museums. Its 20th-century archives are open to visiting scholars and accessible for reference online, the CCA has enlisted numerous guest curators to stage exhibitions and events, and founding director Phyllis Lambert commissioned architectural photographs for the collection. So why is this not enough?

Some answers may lie in the commissioned conversations interspersed with the



lines of thinking. These include Mark Wigley (professor of architecture at Columbia University) and Kieran Long (a British architecture critic and curator), who discuss the relationship of archival research to our changing world. Additionally, 12 international curators and writers each select three recent architecture exhibitions that they think will be “relevant” for the discipline in the future. (Their choices include the Prada

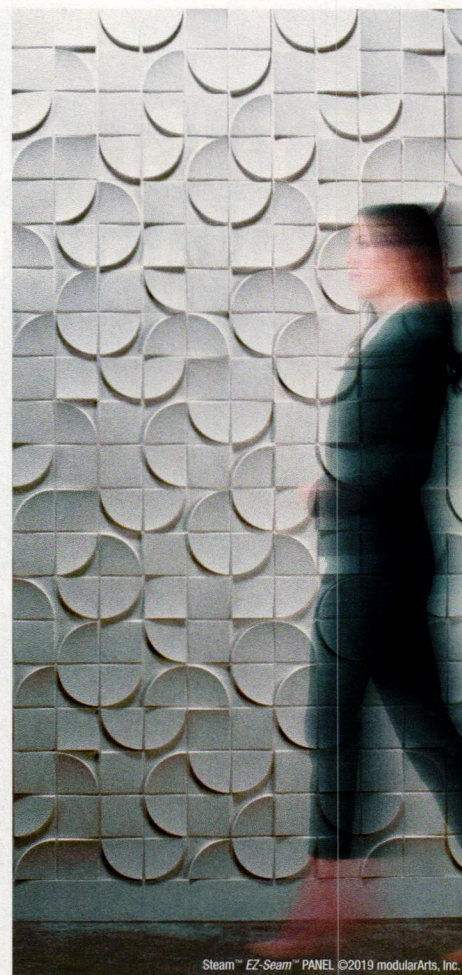
Foundation’s 2018 *Machines à penser* in Venice and architect Sou Fujimoto’s *Architecture Is Everywhere* installation at the 2015 Chicago Architecture Biennial.)

Is the need for relevance the reason for this introspective book? What does relevance mean in a post-truth world that is returning to nationalist politics and facing global climate change? When technology and science seem to hold the keys to the future, what is the role of museums that exhibit work associated with the arts?

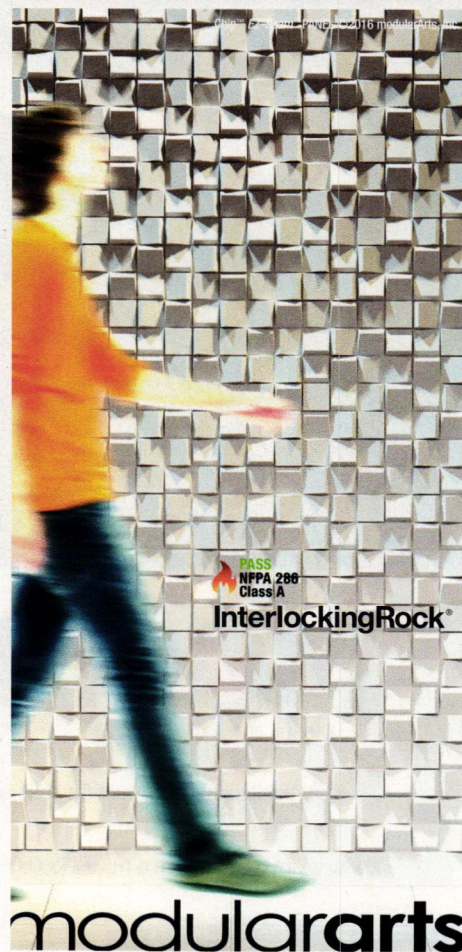
In an interview with activist and *Adbusters* editor Kalle Lasn, the CCA asks how institutions can address the urgent problems of today. Lasn replies that institutions “have to be full of fear about the future [and] realize we’re in a crisis—of finance, of climate, of democracy—that the current global system is incapable of solving. If you want to be relevant, you have to get scared. And then you have to get angry.”

Fear and anger are not easily conveyed in a museum, but they are motivations for change. Arguably, both the architecture museum and architecture are at critical points of transition, if not transformation. Sustainability practices, for example, are important, but they are neither easy to exhibit nor sufficient to overcome the climate crisis. Instead, as *The Museum Is Not Enough* clearly suggests, new thinking and new actions are required on all fronts. ■

Cynthia Davidson is editor of Log.



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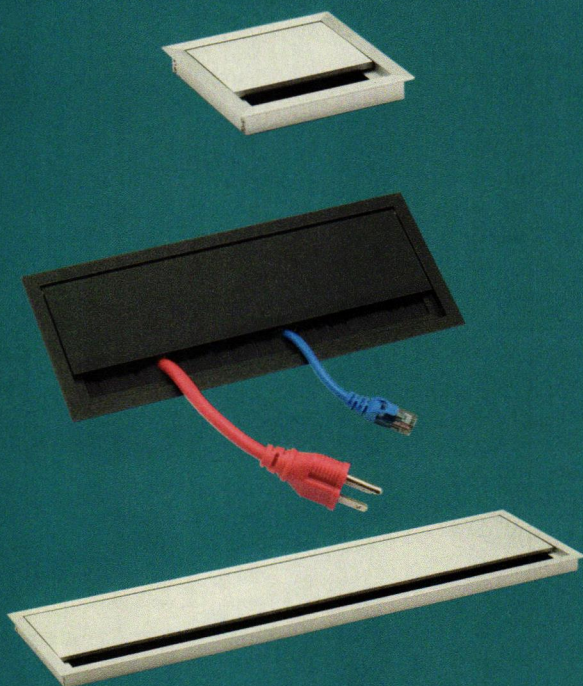
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Strategies for a Crisis

The Urban Fix: Resilient Cities in the War Against Climate Change, Heat Islands and Overpopulation, by Douglas Kelbaugh. Routledge, 334 pages, \$39.95.

Reviewed by Aleksandr Bierig

FIXING, TO FIX—included in the title of this book—is a striking word and concept within architecture, planning, and design. In certain contexts, *to fix* means to repair; in others, *to fix* is to make firm, to establish.

Douglas Kelbaugh, architect, planner, and former dean of the Taubman College of Architecture and Urban Planning at the University of Michigan, is not new to fixes. His first completed building was a 1975 passive solar house with a trombe wall—a design spurred by anxieties concerning the limits of oil and the limits to growth. As he investigated larger-scale solutions to such limits, he wrote *Repairing the American Metropolis*, among other books on similar topics.

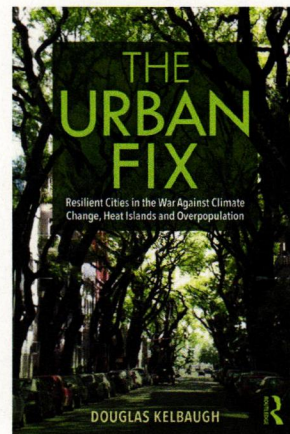
In *The Urban Fix*, Kelbaugh argues that cities are a frontline in the “war” against climate change, and need to be reoriented through urban planning and design. In doing so, he reviews current research on climate change—a large inventory of frightening probabilities that will be familiar to many readers. Kelbaugh then passes over scores of strategies that would provide respite from the hot days ahead. The book’s sprawling attempts—each well-intentioned if inadequate—provide one indication of the immense complexity of the problems we face.

The book is particularly concerned with “urban heat islands”—how to relieve the excessively high temperatures caused by the tendency of urban centers to trap heat within their built fabric. Addressing the problems of these sites suggests, for Kelbaugh, a way to attack the huge, looming problem of climate change at a scale that seems meaningful. He discusses well-known palliatives like green or white roofs, as well as lesser-known studies demonstrating, for instance, that complicated street patterns dissipate heat better than linear ones. Another chapter is devoted to urban tree planting, which, in addition to reducing ambient heat also—according to one study cited—lowers levels of street crime.

This last claim evokes older, top-down planning strategies that echo throughout the book, solutions that might render the city stable, manageable, and beautiful once again. But environments and ecologies, social and natural, interfere with such clear-cut approaches. An urban tree is not a discrete entity: it is a regionally specific species and a part of an ecological system; it is a shading device; and it is an instantiation of spatial and social and class disparity, among many other things.

Fixing is the problem. In much of the wealthy world, particularly in America, we are fixed in place by highways, by poor public transport, by energy-intensive and fuel-hungry buildings—themselves stitched together, in their seams and sealants, from the fantastic surpluses of petroleum processing. The tension between such fixes confronts us. It is hard to fix the problem when the problem is itself so fixed. ■

Aleksandr Bierig is a Ph.D. student at the Harvard Graduate School of Design.





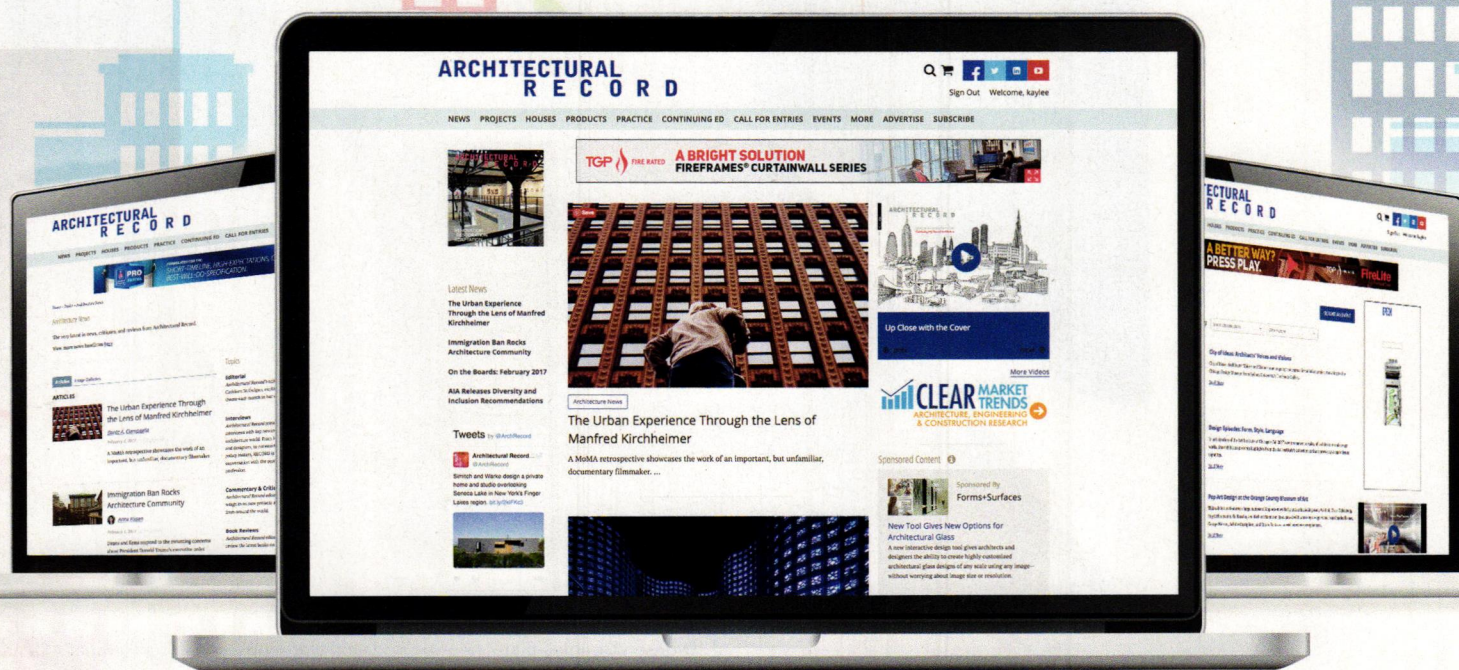
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Leaning In

An abandoned urban icon in Montreal is transformed into a new workplace.

BY ALEX BOZIKOVIC

PHOTOGRAPHY BY STÉPHANE BRÜGGER



IN 1976, Montreal hosted the Summer Olympics, and the games left a wild architectural legacy. The showpiece was the main stadium: French architect Roger Taillibert designed an elliptical structure of precast concrete components; its retractable Kevlar roof would hang on cables from a curving, inclined tower.

That 541-foot-high tower, with its 45-degree lean, wasn't completed until 1987, and it never served its intended purpose as a center and sports-association office. Empty for 30 years, the structure, in the east end of Montreal, has now been repurposed as the workplace for 1,300 employees of the cooperatively owned financial institution Desjardins. The company took seven of the tower's 12 triangular floors in late 2018, after a renovation by local architecture and interior-design firm Provencher Roy.

As Provencher Roy's Richard Noël admits, nothing about this was simple. Office uses usually demand regular floor plates, which the building does not have: it is a thin, triangular tower that shrinks and shifts as it rises to a cantilevered tip. Yet the renovation's design resolves this tension with careful space planning, and it takes advantage of the building's Olympic history to create an attractive sense of place.

On the 7th floor, which houses roughly 300

staffers, Noël points out the array of original massive tree-shaped columns that branch upward along one facade. "No two are the same," he points out, gesturing toward the double-curved concrete members. "We've taken advantage of that and exposed them; they are like sculpture within the space."

Customer-service employees work here in a hoteling system, choosing one of the (very rectilinear) cubicles at the beginning of each workday. But when they step away from their workstations, they can nest within the building's irregular geometries. Niches between the columns are stocked with chairs for solitary work as well as booths lined in a gray felt for small-group meetings. These areas enjoy fantastic views over Montreal's east end.

Those views are enhanced by a new curtain wall system, designed by a team led by Claude Provencher. The architects carried out this work for the Olympic Park organization in 2017, replacing precast concrete panels and windows with the all-glass curtain wall. In the process, they smoothed out the building's geometry: where the original facade panels had dipped in and out to touch the varied shapes of the columns, the architects created a more regular plane of curtain wall and extended the concrete floor slabs out to meet it.



The Olympic stadium's retractable Kevlar roof is supported by cables that hang from a futuristic, swooping tower. The 541-foot-tall structure now houses corporate offices on its unique triangular floor plates, which get smaller as they rise.



A new curtain wall system enhances views to the city from various spaces, such as the cafeteria and lounge (left), and a meeting and training area (opposite, top). An interior passage leads past the stadium (bottom) to the office elevators (opposite, bottom).

Then a Provencher Roy team, led by Noël, oversaw the office fitout. The design picks up on Olympic history. In the Desjardins lobby, a custom ceiling light fixture imitates the orange Kevlar originally planned (but executed in white) for the stadium roof. Images of athletes from the 1976 games—an equestrian, a cyclist—are printed on room-size murals in kitchens and breakout rooms. The interior design also pays tribute to Taillibert's sinuous architecture. In one staff training area, custom hickory benches echo the swooshes of the stadium's facades. In the main cafeteria, on the second floor, interior designer Julien-Pierre Laurendeau points out the grain in the veneer of millwork: the grain runs at 45 degrees, the same angle as the tower itself.

This thoughtful use of the tower is part of the resurgence of the Olympic site, which was troubled from the start. The stadium suffered from construction problems and enormous cost overruns. Its original budget of USD\$105 million ballooned to about \$750 million. The resulting debt earned the stadium the nickname of "the Big Owe." By the time its tower was belatedly finished—fully 11 years after the games—it was clear that the city's ambitions had outstripped its spending power.

And yet the stadium is the most recognizable building in the city; it captures the big dreams of midcentury in concrete. Unlike many of its equivalents in other Olympic cities, the whole complex, located



next to two subway stops, remains in active use. A multisport facility, including a pool, operates next door; Taillibert's indoor bicycle arena, or Vélodrome, was converted into the Biodôme, part of a science museum now under renovation.

The stadium itself, once home to the Montreal Expos, today hosts occasional concerts and monster-truck rallies—Desjardins employees can see these on their way up to work. The procession to the offices includes an interior passage along the edge of the stadium, with expansive glazing to one side that overlooks the field. But the architects and designers worked to open up the other side of the corridor as well: here, giant arching panels land lightly on more trees of poured concrete. “This had to be a place that people were excited to walk into,” Noël explains. And in an ordinary workday, such architectural drama can’t help but lift the spirit a bit higher. ■

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



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Something Old, Something New

In Beijing, a kindergarten embraces an existing 18th-century courtyard, providing children with a surprising space to play.

BY KARA MAVROS

AS A CITY founded over 3,000 years ago, Beijing has a culture that hinges on its relationship to its rich past. Architecturally speaking, the depth of that connection, according to Ma Yansong, lies in the negative spaces. The founder and principal of Beijing-based MAD Architects is specifically talking about the firm's recently completed Courtyard Kindergarten, an unusual school that surrounds and preserves a group of 300-year-old residences in a traditional *siheyuan* courtyard (one surrounded on all four sides). "That's the beauty of the city," he says. "It's about emptiness between the buildings, not about the buildings them-

selves." This idea, along with fusing the old and the new, was the basis of the firm's strategy for this project.

The architect, who was born and raised in Beijing, says he lived in a similar courtyard house when he was young and that this fusion of indoor/outdoor living spaces is unique to the Chinese capital. By building the 85,000-square-foot kindergarten around the existing 9,500-square-foot courtyard, Yansong gave new life to the limited site, repurposing the existing structures into classrooms, and its original central courtyards as three distinct outdoor spaces: two will serve as outdoor

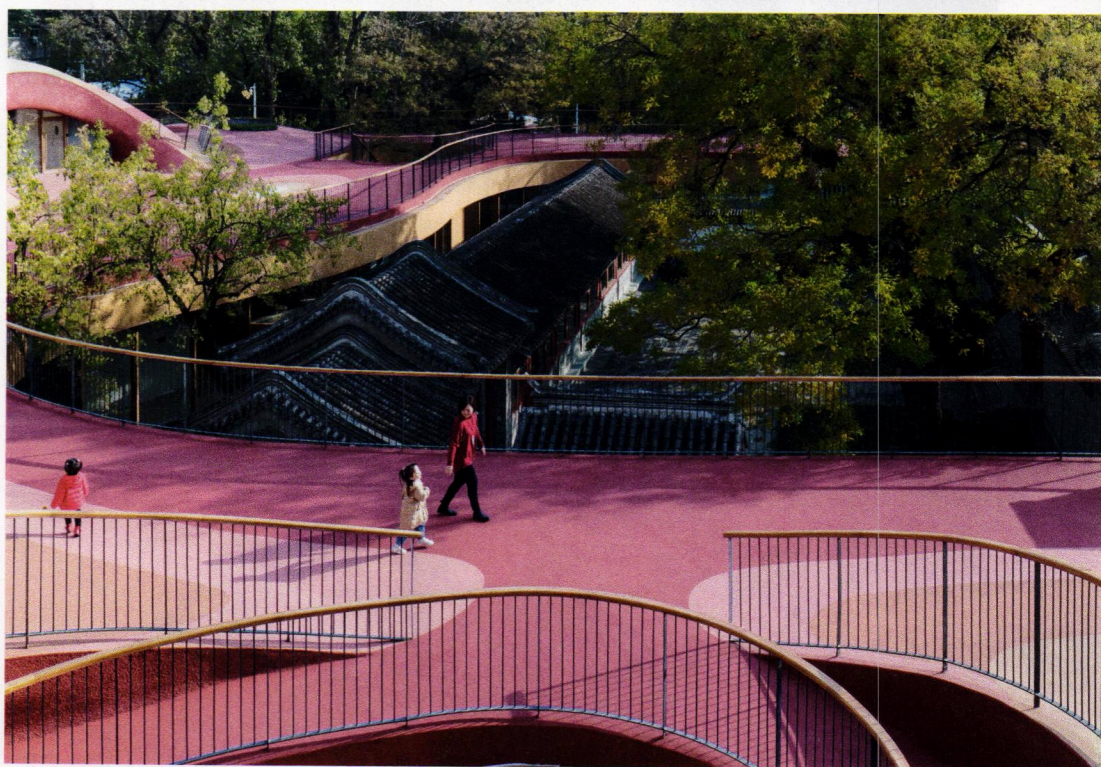


A series of slides, ramps, and stairs within the new building's courtyards connects its rooftop playground to classrooms on the ground level.

learning centers and one as an area for ceremonies and events.

A playful undulating landscape made of a (breathable) red, rubberlike plastic, the kindergarten's 37,000-square-foot rooftop provides much-needed outdoor space for the children to safely run, climb, and slide around the traditional gabled rooftops of their city's past. "When there's an unfamiliar experience like that," says Yansong, "people can truly start to explore." As for the playground's bold color choices, he says the firm was inspired by the bright reds and golds of Beijing's Forbidden City. By adapting the historic hues to this new, unfamiliar landscape, the goal was to create an environment that would stimulate the imagination.

The architect fondly recalls a time when neighbors daily gathered beneath the trees in courtyards like these. "We all miss that," he says, referring to Beijingers like himself who remember a time before high-rises were ubiquitous. Surprisingly, he adds, while the





The kindergarten's interior is open-concept and features a metal-lattice ceiling, painted to look like wood. A library, theater, and gymnasium are housed inside, while central-facing glazed walls spotlight the history outside.

city only started preserving its historic architecture in relatively recent years, today it struggles with finding ways to reuse these buildings. So, instead of leaving the old structures vacant, the firm decided to give future generations the opportunity to experience the quickly vanishing charms of the city's historic past.

In that regard, by inserting several glazed courtyards inside the kindergarten's new facility, the firm was also able to preserve three ancient pagoda trees on the site. An open floor plan that features an abundance of daylight and pine wood unifies the spacious interior.

According to Yansong, the private kindergarten, which opened in late 2019, is not only popular with the 400 young children it accommodates, but also among their parents.

When asked if the goal was to interest the younger generation in architecture or history, Yansong didn't hesitate to answer: "Both." ■

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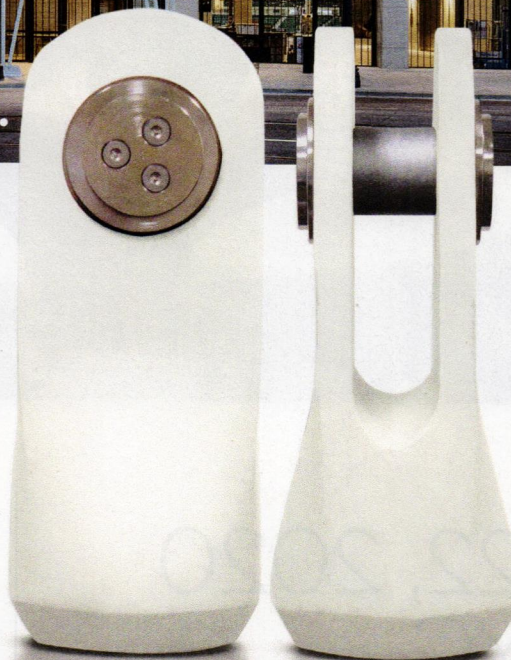
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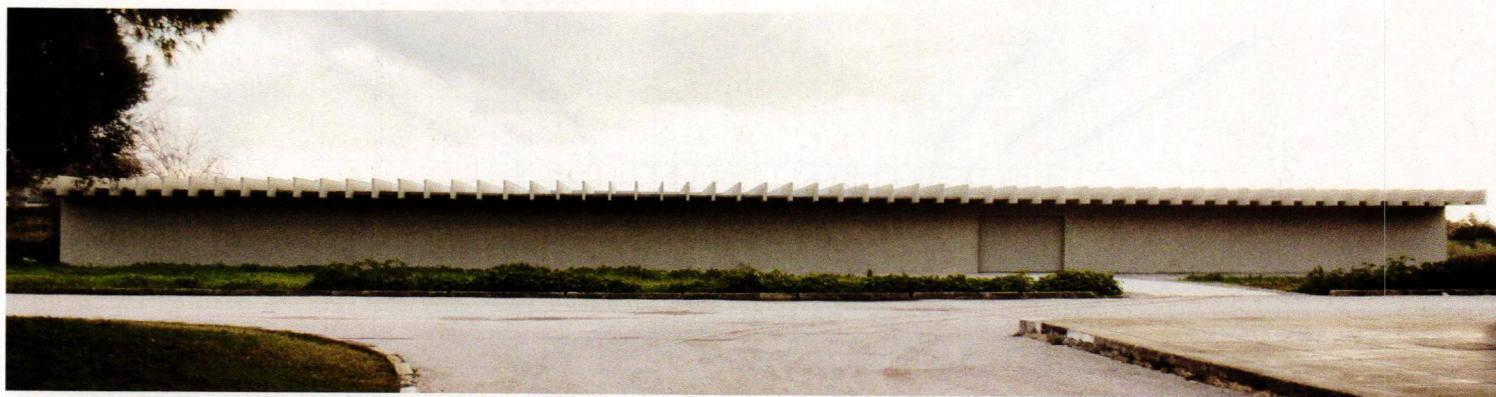
A deteriorating pavilion at the Niemeyer-designed Rachid Karami International Fair in Lebanon becomes a workshop for local carpenters.

BY ALEX KLIMOSKI

A 250-ACRE oval-shaped area in Tripoli, Lebanon, once replete with economic promise, has remained an eerie sight for decades: a graveyard of deserted concrete shells, skeletons of the 15 unique pavilions designed by Oscar Niemeyer in the early 1960s for the Rachid Karami International Fair. Commissioned during Lebanon's golden modern age, the complex was intended as a permanent fairground to showcase the country's development and innovation, meant to accommodate more than 2 million people a year. In 1975, just prior to its completion, the outbreak of civil war halted construction. Neglected ever since, the structures are an important legacy of modernism in the Middle East; the site is currently being considered for UNESCO's World Heritage list. Now one of the pavilions—the low-slung, rectilinear guesthouse—has been renovated into a woodworking design facility by Beirut-based firm EAST Architecture Studio.

The fairground, which also includes a scaled-down Saarinenesque arch, an elevated helipad with a spiral staircase, a 2,000-foot-long boomerang-shaped canopy, and a domed theater, has become a mecca for architecture students. EAST's principals,





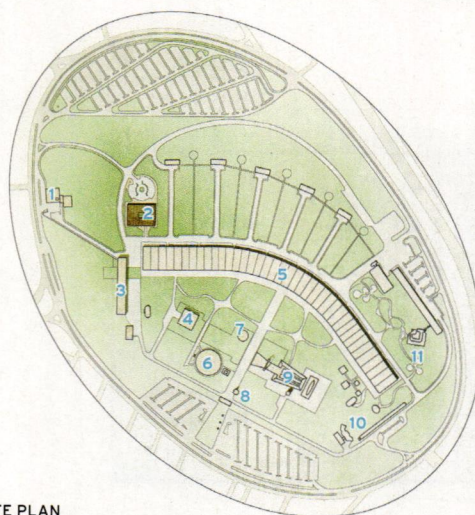
Nicolas Fayad and Charles Kettaneh, had both visited the site in graduate school, but they never noticed the flat-roofed, horizontal guest-house next to its more flamboyant neighbors. The lack of windows on the 26,000-square-foot edifice's facade—plus the fact that it had been taken over by fig trees—disguised its significance (Niemeyer's design provided daylighting via three internal courtyards—a central 40-foot by 40-foot atrium and two strips of open space along the east and west walls). It wasn't until the firm responded to the project RFP that they learned of the structure. "I had visited the site many times, so I was really surprised by its presence," says Fayad. "Because we had overlooked it, the task of bringing it back was all the more interesting."

Niemeyer's design featured 14 equal-sized guest rooms for overnight visitors, organized in a line parallel to the east wall, giving each a sliver of outdoor patio. In addition, there was meant to be a reception hall, information area, and restaurant surrounding the atrium, and back-of-house spaces, including a kitchen and laundry facility along the west end. Expertise France—a European Union-funded international public agency that aims to stimulate economic development through region-specific initiatives—was charged with transforming the incomplete structure into a platform that could help revive the carpentry industry in Tripoli, which is 50 miles from Beirut. The group hired EAST to create a flexible program for fabrication studios and exhibition areas.

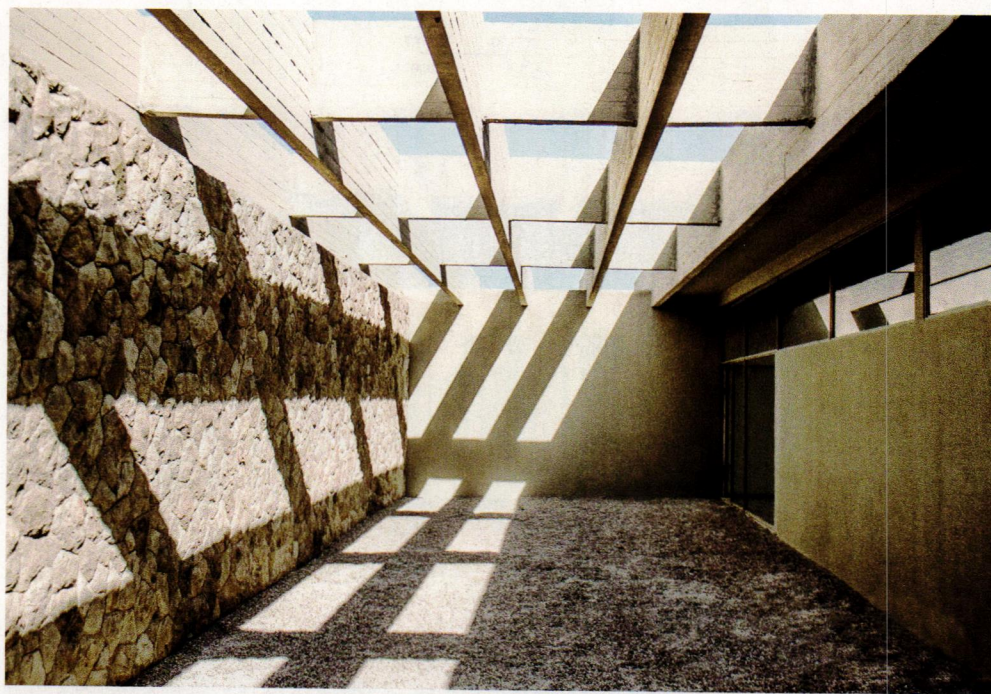
According to Fayad, the main challenges were completing the work on an expedited schedule and the small budget—a large chunk of which had to be dedicated to repairing the concrete, damaged over the years by Lebanese and Syrian militias that occupied the structure. There was not enough funding to renovate the guest rooms, so the architects worked only on the areas surrounding the central courtyard and the ancillary rooms.

Because the primary interior spaces were

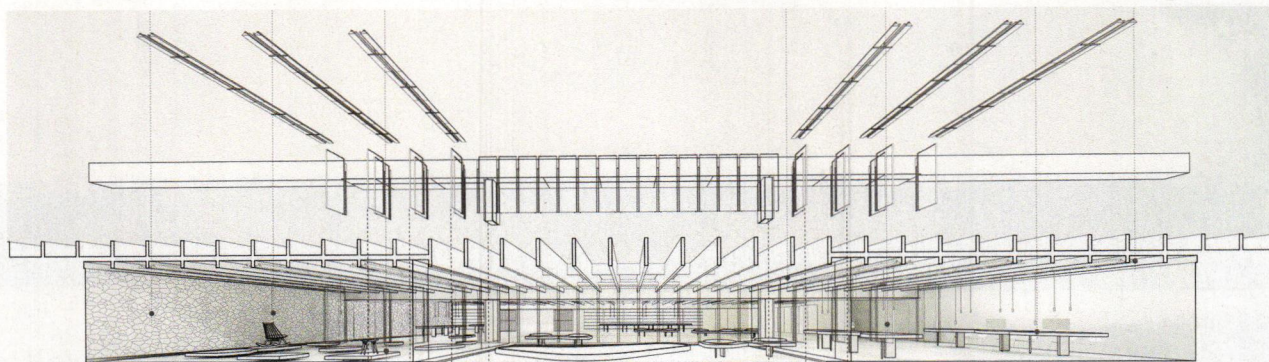
- 1 ENTRANCE PAVILION
- 2 GUESTHOUSE
- 3 ADMINISTRATION BUILDING
- 4 LEBANESE PAVILION
- 5 EXHIBITION HALL
- 6 DOMED AMPHITHEATER
- 7 HELIPAD
- 8 NURSERY
- 9 OUTDOOR THEATER
- 10 DIRECTOR HOUSE
- 11 COLLECTIVE HOUSING



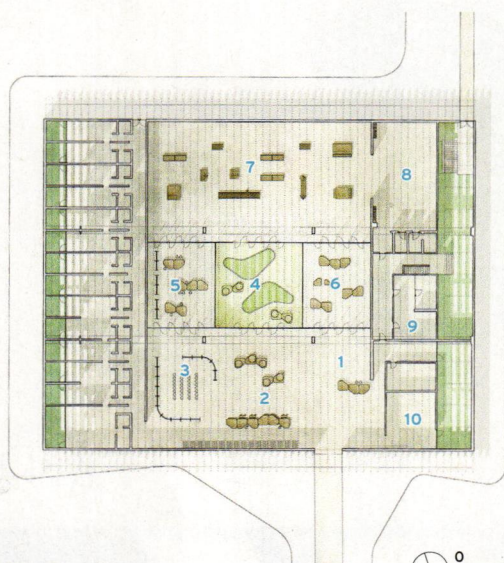
SITE PLAN



The low horizontal concrete structure has a windowless facade (top); daylight enters through interior courtyards. One of the outdoor spaces is protected by a limestone-clad wall (above). Operable glazed partitions promote transparency and flexibility while separating the interior functions (opposite, top). The ceiling's one-way concrete joists extend out beyond the building's exterior, accentuating its linearity (opposite, bottom).

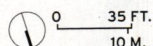


SECTIONAL PERSPECTIVE



FLOOR PLAN

- 1 RECEPTION
- 2 MATERIAL LIBRARY
- 3 PROJECTION SPACE
- 4 ATRIUM
- 5 THINK-TANK SPACE
- 6 EXHIBITION SPACE
- 7 WORKSHOP
- 8 ASSEMBLY SPACE
- 9 TECHNICAL AREA
- 10 OFFICE



A material library, exhibition space, and workshop surround the central atrium, the space's primary source of daylight. Light fixtures run along the ceiling, hugging the concrete joists to emphasize the rhythm of the structural elements.

open-plan, design interventions—after the architects did careful research—were minimal. “We wanted to find out how the pavilion was originally conceived by Niemeyer himself,” says Fayad. “We looked at the fairground’s other structures, but also at some of the buildings he had completed around the same time.” One of those buildings was the Itamaraty Palace in Brasília, which, according to the architects, shared similar features to the guesthouse, such as the ceiling’s exposed one-way concrete joist system. To divide the spaces in a way that promotes transparency and flexibility, and that emphasizes the rhythm of the ceiling structure, they inserted custom-made glass partitions that fit over the joists like puzzle pieces, but can pivot. They also sandwiched each of the four primary rectangular concrete columns on their broad sides between two panels of plywood, creating a shadowed, striped effect on the narrow sides—a decorative detail that Niemeyer employed throughout Itamaraty, and one that was particularly appropriate here, given the facility’s purpose; wood panels were also placed underneath the drop beams that intersect these columns, hiding new mechanical and electrical systems.

Since its opening in 2018, the completed building, known as Minjara—an Arab word that roughly translates to “carpentry workshop”—has provided local carpenters hit by economic downturn with the tools and space to work, connecting them with architects, designers, and local showroom owners. Minjara recently launched a furniture collection that has been exhibited in Paris and Beirut. As the first pavilion to be given new life in the exposition complex, the project signals growing interest in capturing the site’s lost economic potential. “We are excited to see things happening in the building,” says Fayad. “Hopefully, the rehabilitation of the fair’s other structures will follow.” ■



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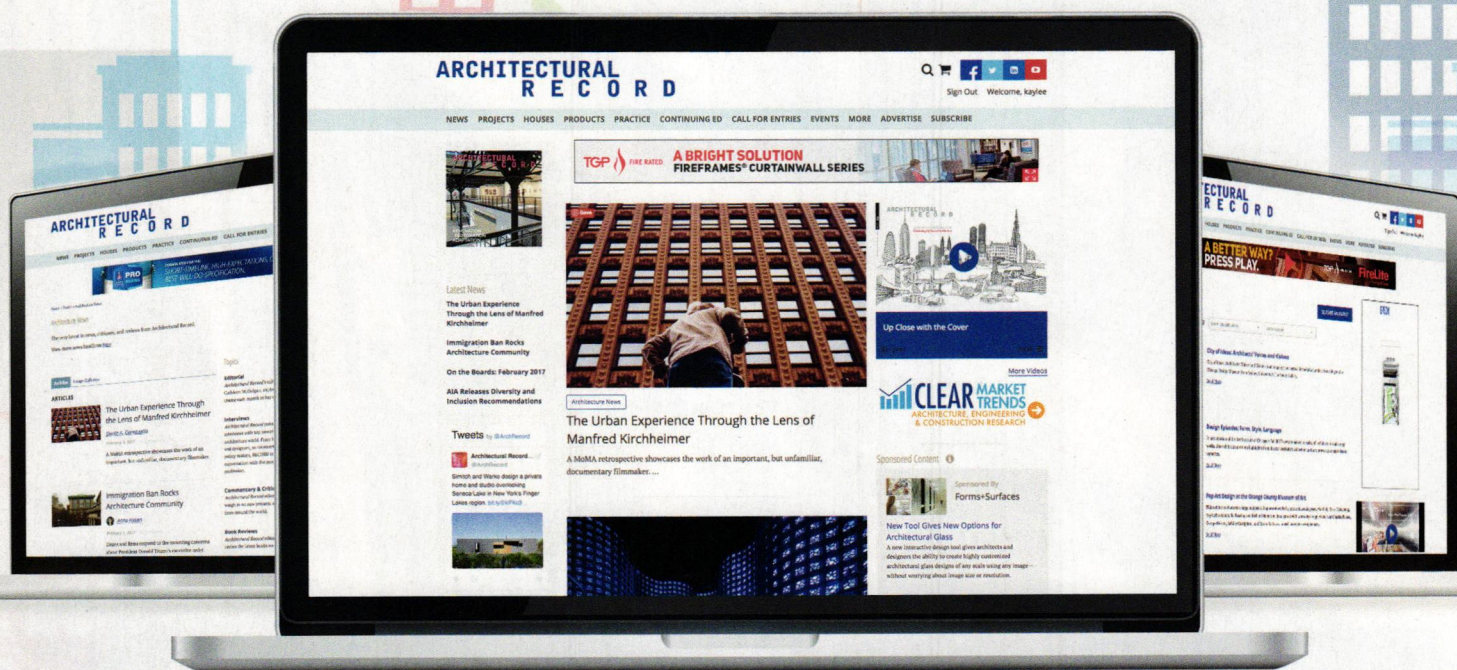
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In 1985, Charles Moore and Chad Floyd of Centerbrook designed the Hood Museum of Art at Dartmouth College (above, center) in a Postmodern style. The museum (top) was renovated and expanded by Tod Williams and Billie Tsien in 2019, introducing a modernist thrust.

Back in the Hood

Record returns to Tod Williams Billie Tsien Architects' redo of a Charles Moore museum.

BY SUZANNE STEPHENS
PHOTOGRAPHY BY MICHAEL MORAN

A year ago, the Hood Museum of Art at Dartmouth College in Hanover, New Hampshire, reopened after a major remodeling by the New York firm Tod Williams Billie Tsien Architects | Partners (TWBTA). As *RECORD* wrote then (January 2019), this was indeed a radical transformation of a 34-year-old Postmodernist artifact by Charles Moore and Chad Floyd, of the Connecticut firm Centerbrook. We suggested that an assessment of the controversial project should wait until the 62,400-square-foot building had been functioning for a bit. Now it's time. To the chagrin of those who hoped to keep Moore's idiosyncratic imprint totally intact, the museum seems to have benefitted from this incarnation. Why is this the case?

Let's go back to the beginning: in February 1986, *RECORD* commend-

ed the Hood for Moore and Floyd's *batterie de cuisine* of Postmodern architectural allusions, from a Romanesque monastery and an outpost of the late Roman Empire to a 19th-century mill, along with a sprinkling of motifs reminiscent of Gunnar Asplund and Eiel Saarinen. As the magazine postulated, "The Hood is meant to improve with age."

It didn't. Several decades later, Dartmouth found it needed more space for its strong gallery-based art history program as well as additional galleries for its 65,000-piece collection of Old Masters and American, Native American, African, and Indian art, not to mention more offices. Other problems to be addressed concerned wear and tear, as well as damage from leaks and snow accumulation.

Adding extra space was difficult on the elongated site, crammed between the Richardsonian Romanesque Wilson Hall of 1884 and the ornately modernist Hopkins Center for the Arts, designed by Wallace Harrison in 1962. First-time visitors couldn't easily find Moore's dark brick-arched entrance, facing north to the Dartmouth Green. Postmodern vocabulary emphasized ambiguity, but the architectural sensibility of the times gradually favored clarity and simplicity.

Enter Williams and Tsien in 2012 (in spite of a renovation master plan submitted by Centerbrook in 2011, with Wilson Hall as the main entrance to the Hood). TWBTA's scheme for the Hood caused a stir. In 2016, *The New York Times* noted that the design drastically altered Moore's venerated artifact, pointing out the irony that in 2014 Williams and Tsien lost its American Folk Art Museum of 2001 to the New York Museum of Modern Art's expansion by Diller Scofidio + Renfro (RECORD, December 2019).

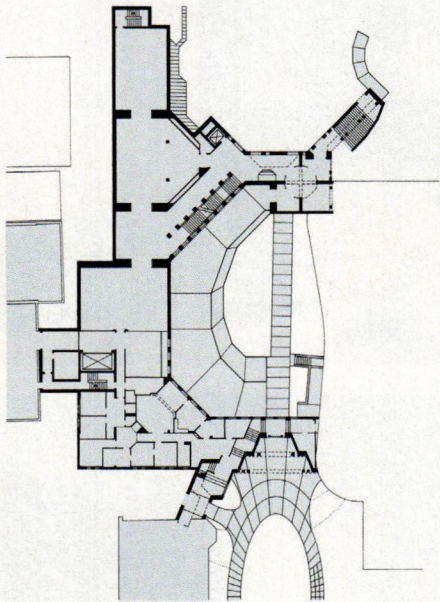
In enlarging and reworking the Hood (a \$50 million project), TWBTA added six new galleries and renovated 10 Moore-designed ones, and created three new classrooms for the center for object study. The architects say that they kept almost half of Moore's contribution: the museum is 55 percent new steel-frame and concrete construction, at the front (north) end of the building, with 45 percent on the south, where there is another entrance, devoted to restoring and renovating Moore's architecture. (Chad Floyd, Moore's partner, declined to comment to RECORD on the results.)

TWBTA replaced the original arched brick gateway with an abstract cubic volume of off-white handmade brick, in which a 14-foot square vitrine juts out from the second floor. To give the front entrance a presence, Williams says the firm developed the concept of the vitrine "as a potential cabinet of curiosities."

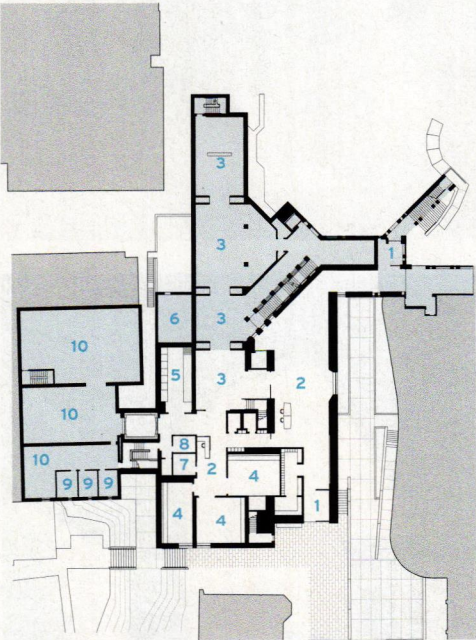
While Moore had shown more architectural



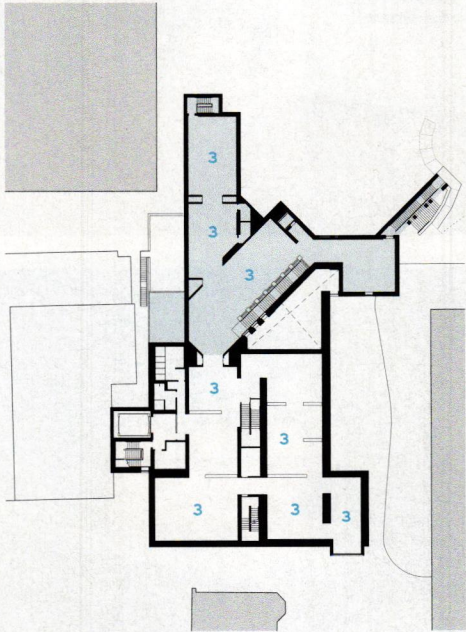
Williams and Tsien filled in a courtyard for a new lobby and designed its felt mural (top). They kept the signature Moore stair (middle) and retained the architecture on the south entrance (above), with some modification of the fenestration.



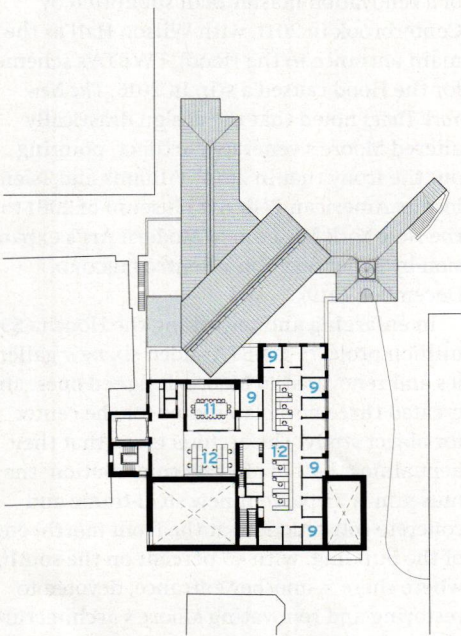
ORIGINAL ENTRANCE LEVEL



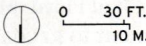
FIRST-FLOOR PLAN



SECOND-FLOOR PLAN



THIRD-FLOOR PLAN



- 1 ENTRANCE
- 2 LOBBY
- 3 GALLERY

- 4 CLASSROOM
- 5 OBJECT STAGING
- 6 GENERATOR

- 7 ARCHIVE
- 8 SECURITY
- 9 OFFICE

- 10 ART STORAGE
- 11 CONFERENCE ROOM
- 12 OPEN OFFICE

deference to the Romanesque style of Wilson Hall next door, TWBTA's design, with its light brick cladding and rectilinear forms, evokes the coloration and massing of the Hopkins Center (now called "the Hop"). Ironically, Harrison's kitschy arched extravaganza, which had anticipated his Metropolitan Opera House at Lincoln Center (1966), has become more beloved of late. Times do change.

TWBTA's demolition also pulled the Hood away from the east side of the Hop to open a passageway between the two. As you walk along the path, you easily find the entrance to the new 2,600-square-foot museum lobby where Moore's open courtyard had been—now a favorite student gathering place, according to John Stomberg, director of the Hood.

On one end of the light-filled atrium's reception desk is the entrance to the Bernstein Center for Object Study. On the other side are the new and renovated galleries, which continue upstairs. The galleries, of varying heights, typically have oak floors instead of the carpeting of the old days, and most are painted white. Reveals and details in the Moore galleries can still be found, and one of the favorite Moore-ish elements, the ceremonial stair, with its file of ascending concrete piers and distinctive lighting fixtures, remains intact. TWBTA did add a more minimal staircase on the north end, to ameliorate congestion.

Stomberg, who wasn't the director when TWBTA was hired, says of the reworking: "Tod and Billie conceived the spaces and made them flow much better than we thought could happen." Various artists at a recent Dartmouth conference also responded warmly, he says.

Even so, nothing is perfect. While the architects solved the problematic snow accumulation by installing a snow-melt system for the copper-hipped roofs and the pavement, visible water spots have appeared on the white brick wall next to the vitrine. Its splotchiness reminds you that, in 1986, *RECORD* exclaimed that Moore's Hood did not belong to a "vulnerable modernism whose esthetic purity diminishes with every weather stain." A schadenfreude moment: you can almost hear Charles Moore saying, "You can't see watermarks as easily on dark brick." Nevertheless, the problem, involving flashing, is being resolved.

In the meantime Dartmouth has already expressed its appreciation for the outcome by bestowing Williams and Tsien with honorary Doctor of Arts degrees at its 2019 commencement. As Stomberg points out, "One of the benefits of the Moore space was that you felt his presence. Tod and Billie are quieter. You can almost forget there is a controlling hand in shaping spaces." And when you walk through the museum, you realize he has a point. ■



The bird's-eye view shows the main entrance to the Hood in its context (opposite); a square vitrine on the second floor allows views to Dartmouth Green (top), and the galleries now have oak floors and simplified details (above).



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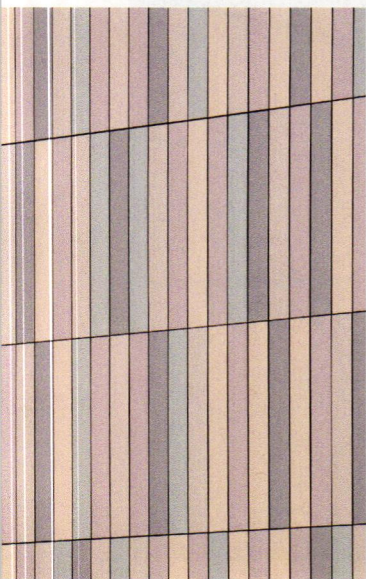
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The Winds of Change

Climate-adaptive features, plus easier installation and maintenance, distinguish these facade materials.

By Kelly Beamon



Shildan/Moeding Alphaton

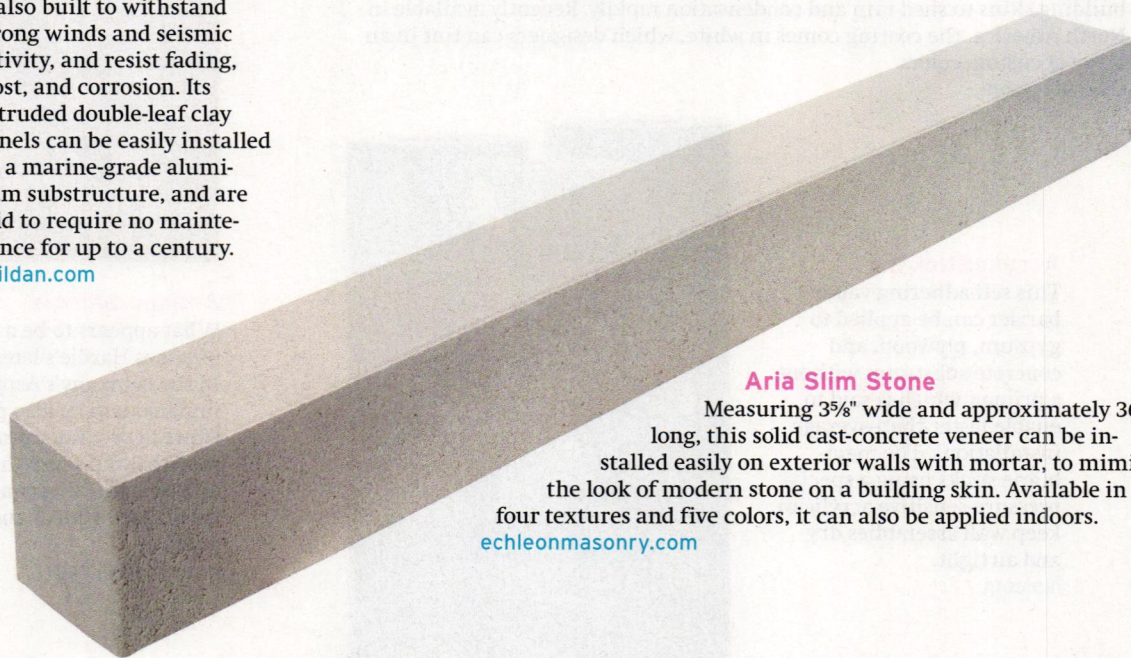
Designed to simplify customization of the color, shape, and glaze of its terra-cotta panels, the Shildan/Moeding Alphaton rainscreen system is also built to withstand strong winds and seismic activity, and resist fading, frost, and corrosion. Its extruded double-leaf clay panels can be easily installed on a marine-grade aluminum substructure, and are said to require no maintenance for up to a century.

shildan.com

CalPlant 1 MDF

What looks like conventional wood MDF is actually a new low-carbon alternative made of rice straw—the leftover stalks of the harvested grain. The agricultural waste is sourced from farms within 25 miles of the plant, and the panels are fabricated using a process the company says emits 20 times fewer VOCs than the average manufacturing of traditional MDF. It is one of Building Green's Top 10 Products for 2020.

calplant1.com



Aria Slim Stone

Measuring 3¾" wide and approximately 36" long, this solid cast-concrete veneer can be installed easily on exterior walls with mortar, to mimic the look of modern stone on a building skin. Available in four textures and five colors, it can also be applied indoors.

echleonmasonry.com



NH

Atlas Roofing, a manufacturer of rigid polyiso roof and wall insulation, now offers the panels with a proprietary non-halogenated fire retardant instead of those commonly used throughout the industry. Atlas's ACFoam and EnergyShield products labeled NH (for non-halogenated) feature the new formula, making them eligible for certain sustainability credits. All are Red List-free and come with a Declare label.

atlasroofing.com



StoColor Dryonic

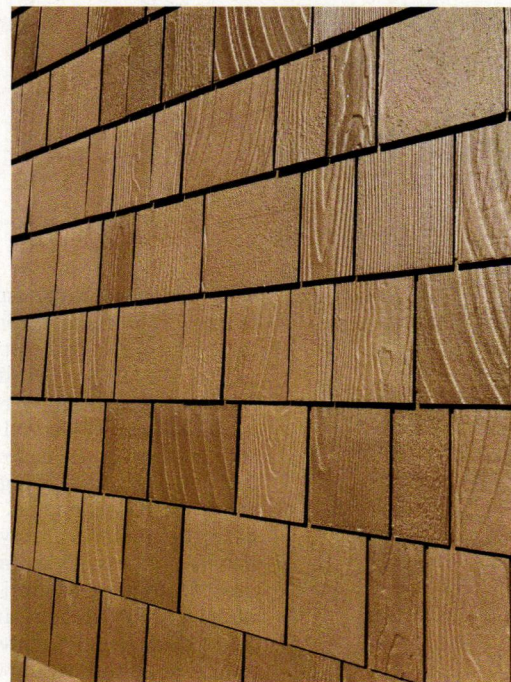
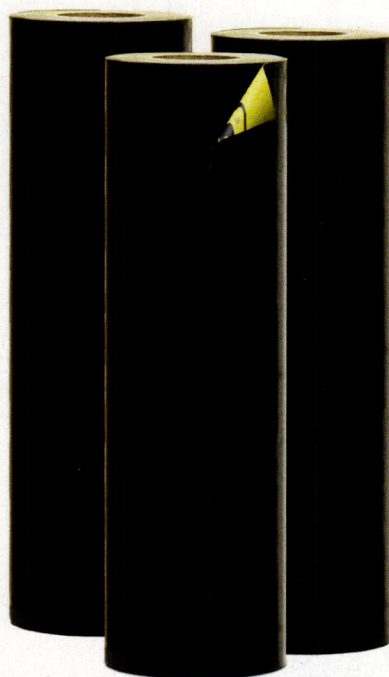
This biomimetic, fast-drying exterior paint is one of Sto's IQ Technology Coatings, which are modeled on surfaces found in nature. It features a rough finish, like the shell of the African fog-basking beetle, to enable building skins to shed rain and condensation rapidly. Recently available in North America, the coating comes in white, which designers can tint in an array of custom colors.

stocretec.com

AcrylicStick SA

This selfadhering vapor barrier can be applied to gypsum, plywood, and concrete substrates without a primer, which is said to enable faster-than-average installations. The membrane sticks using a special pressure-sensitive acrylic to keep wall assemblies dry and airtight.

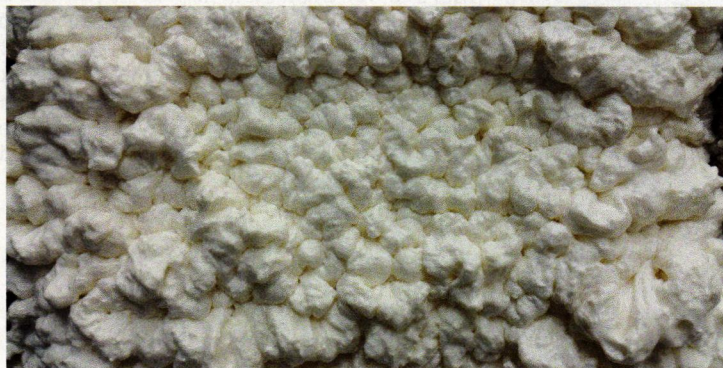
iko.com



Artisan Shingle

What appears to be a cedar shingle is actually one of James Hardie's latest fiber cement alternatives. In the company's Aspyre Collection, this wood impersonator is also part of its Engineered for Climate program, products specially developed to withstand severe heat and humidity (HZ10) and wet, freezing conditions (HZ5). Units are $\frac{5}{8}$ " thick, pre-primed, and available in six woodlike profiles.

jameshardie.com



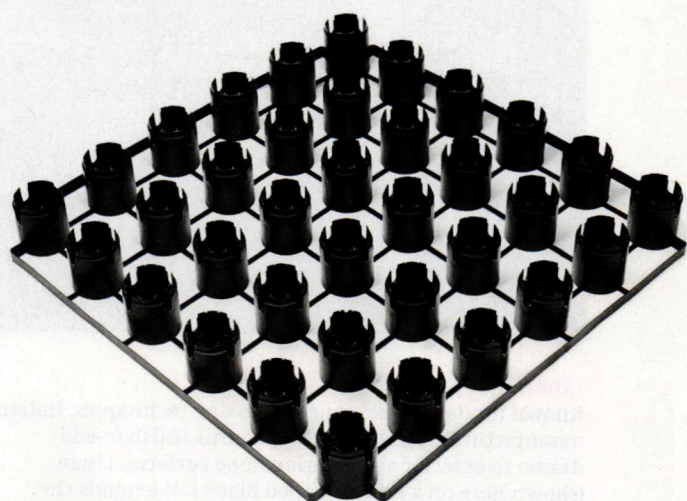
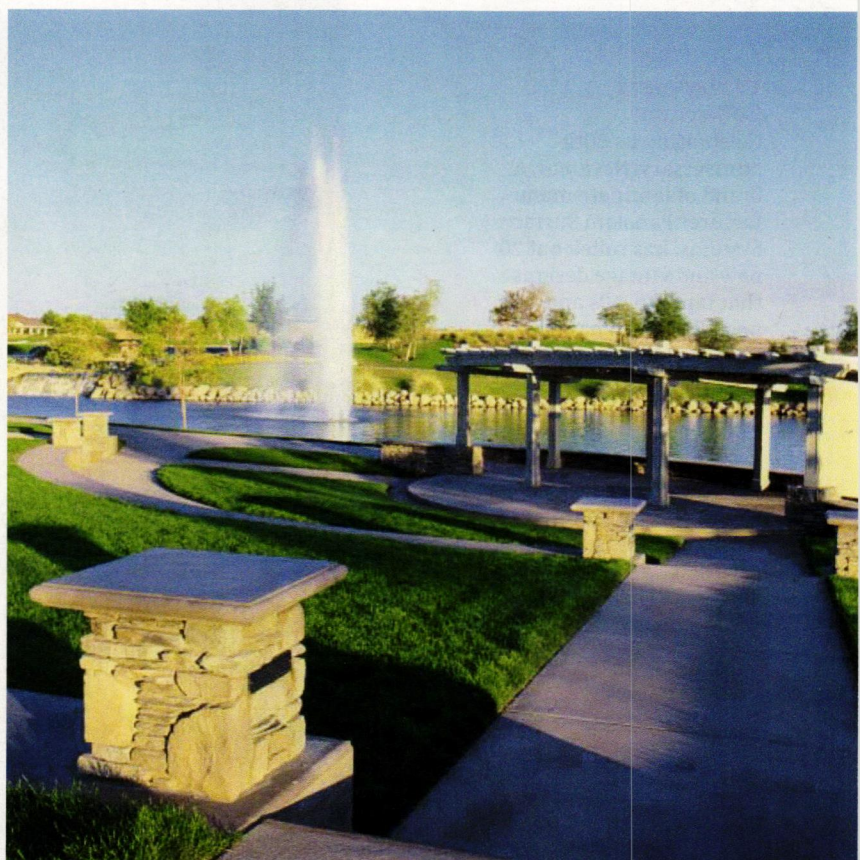
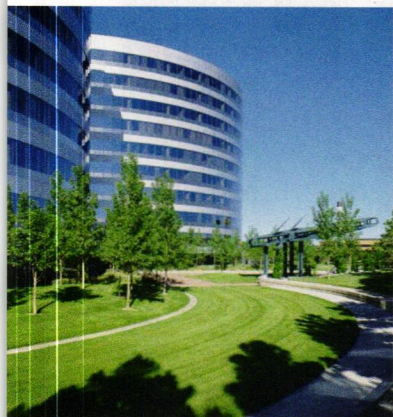
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Plane Truths

These innovative materials add function and durability to vertical and horizontal surfaces.

By Kelly Beamon

Yesteryears Collection

Celebrating its 80th anniversary, Nevamar, a brand of laminate manufacturer Panolam Surface Systems, has rolled out 20 new and vintage designs that tap into '50s and '60s nostalgia, with names such as Odenton, Mid Mod Walnut, and Miesian. The Yesteryear Collection can be specified on the company's Fiber-Reinforced and High-Pressure laminates. All are Greenguard certified.

panolam.com



Full Body Veining

To better mimic the pattern of natural stone, Neolith's latest sintered stone products feature the company's proprietary three-dimensional veining technology, which integrates colors and patterns throughout slabs and is visible even along edges. Developed to enhance the company's thicker ½" and ¾" slabs, it will be rolled out in a Full Body Veining collection this year.

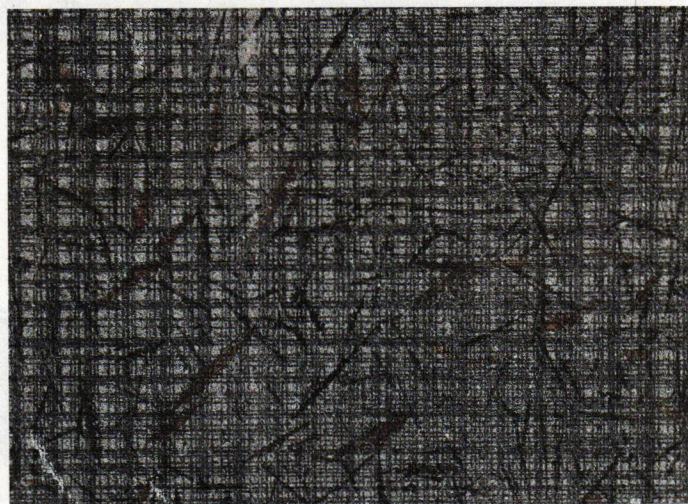
neolith.com



Wetwall

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wilsonart.com



Linen

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antolini.com

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Learning Objectives

- 1** Describe structural retrofit techniques for historic buildings that have minimal impact on original fabric.
- 2** Describe strategies for upgrading mechanical systems in historic buildings to achieve code compliance and efficiency.
- 3** Identify construction-phasing strategies that can help minimize disruption to building operations during an extensive renovation and expansion project.
- 4** Discuss some of the hidden conditions that can complicate and delay renovation projects.

AIA/CES Course #K2002A

WATER TOWER AT BELL LABS
EERO SAARINEN, 1962

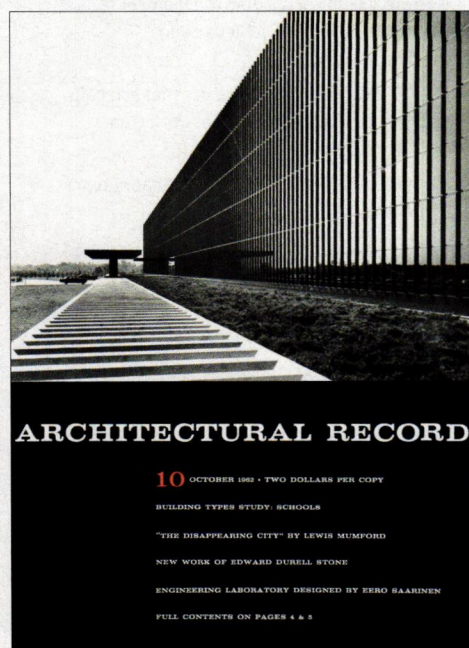
Bell Works | Holmdel, New Jersey | Alexander Gorlin Architects

A New Lease on Life

The renovation of a storied Eero Saarinen building brings a bit of the city to suburbia.

BY JOANN GONCHAR, FAIA

PHOTOGRAPHY BY ERIC PETSCHKE



FROM ITS BEGINNINGS in the 1920s to the breakup of the Ma Bell monopoly six decades later, Bell Labs—the new-technology division of AT&T—was arguably the most successful corporate research organization in the world. Among its scientists' achievements were the development of the transistor, the continuously operated laser beam, and cellular networks. The institution's researchers were so prolific, and their work so consequential, that they garnered six Nobel prizes, including one for a discovery that confirmed the big bang theory.

The site of many of these breakthroughs was an immense mirrored-glass box in suburban Holmdel, New Jersey. The original portion of the structure, designed by Eero Saarinen and Associates and completed in phases in 1962 and 1964, sat on 472 pastoral acres and was surrounded by a rolling landscape created by Sasaki, Walker and Associates, with lagoons, lawns, groves of trees, and 5,000 parking spaces. Expanded in the 1980s by the Saarinen successor firm, Kevin Roche and John Dinkeloo Associates, the 2 million-square-foot complex at its peak hummed with the activity of nearly 6,000 employees.

But the scientific ferment wound down well before the AT&T spinoff, Lucent Technologies, put the building on the market in 2005. Zoned for a single tenant and too large to appeal to most corporations seeking a suburban location, it was threatened with demolition. Then Somerset Development bought the building in 2013 for \$27 million after convincing the town to allow multiple tenants. Now renamed Bell Works, and renovated according to a master plan by New York-based Alexander Gorlin Architects, it has been transformed into a mixed-use facility that Somerset president Ralph Zucker calls a "metroburbs"—a term he coined. It is a city in microcosm, he says, containing all the elements of a thriving downtown, from workplaces and retail space to art and culture, but in suburbia.



The transformation was made economically viable by selling some of the original site's outlying property for a subdivision of neocolonial houses arrayed around cul-de-sacs. But despite the unfortunate architectural disconnect, Zucker's metroburbs idea seems to have legs. Bell Works is now 90 percent leased, with office tenants such as software developers, law firms, and investment companies as well as shops, several eateries, a yoga studio, a hair salon, and a branch of the county library. The project benefited from historic-preservation tax credits, because the building and primary portion of the site and its landscape earned national landmark status, in 2017.

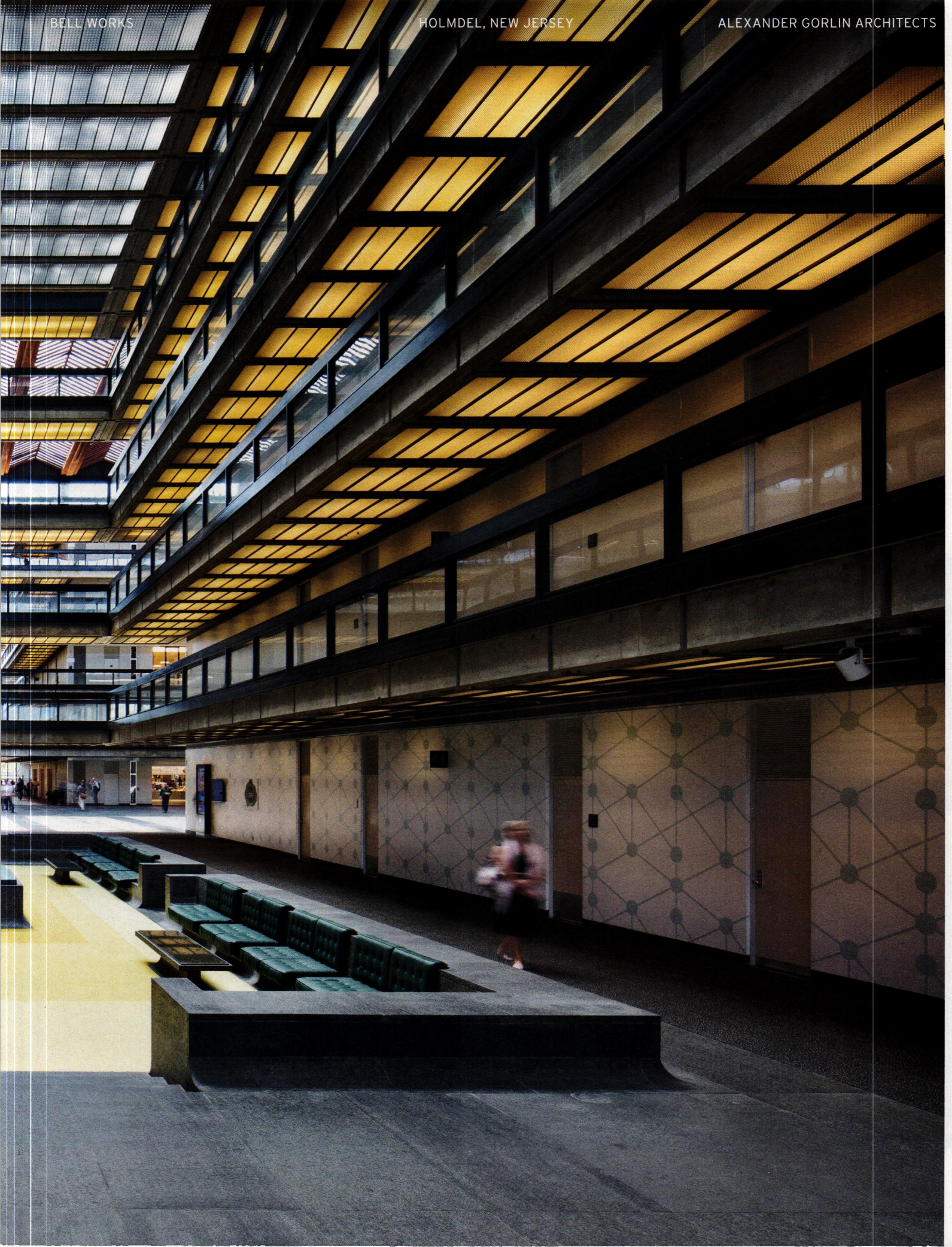
Saarinen, who died in 1961 before the building was finished, conceived the research facility as four discrete but conjoined laboratory blocks within its then-novel reflective enclosure. He arranged the concrete-framed structures so that they define an immense five-story-tall cross-shaped skylit atrium spanned by bridges and wrapped with cantilevered walkways. He also placed circulation routes at the building's perimeter, where they separate the laboratory boxes and the mirrored skin, through which users could look at the landscape. The expansion by Roche and Dinkeloo (who had worked for Saarinen) extended the ensemble by relying on the same DNA, adding four more blocks, this time framed in steel



DISAPPEARING ACT The mirrored facade, seen on axis with the main entrance and across a man-made lagoon (opposite, top) and from the rear (above), dematerializes under certain light conditions. The building appeared on the cover of *Record* soon after the first phase opened in 1962 (opposite, bottom).



MAKING AN ENTRANCE Visitors encounter the five-story atrium immediately upon walking into the lobby. In the sunken reception area, a carpet scheme that replicates the original bears a striking resemblance to a well-known series of Josef Albers paintings.



TOWN SQUARE Within the vast balconied atrium, piazza-like areas have been created with different floor treatments, including ceramic tile in gray tones (this page) and artificial turf (opposite). The covering of the skylight is photovoltaic glass.

—two at each end of the atrium's main axis.

The resulting central space is impressive for its architectural expression and its scale, achieving what Gorlin terms a “rectilinear grandeur.” Including the 1980s additions, the atrium's main axis, punctuated with a pair of stalwart concrete vertical circulation cores, is more than 1,000 feet long. Gorlin points out that the atrium's 100-foot width comes with a strong legacy of awe-inspiring spaces. It can be found in the nave of St. Peter's Basilica, the central barrel-vaulted portion of Paxton's Crystal Palace, and the courtyard of a roughly contemporaneous project—Louis Kahn's Salk Institute for Biological Studies (1963).

At least while engaged in their work, the Bell scientists were shut off from this spectacular space, which then included elaborate plantings. The individual lab blocks were clad almost entirely in metal panels, making them mostly opaque, and the environment within highly controlled with air-conditioning and electric illumination. Quoted posthumously in the October 1962 issue of *RECORD*, Saarinen painted a picture of someone emerging from deep concentration in a laboratory and encountering “a



sweeping view of the countryside or the formal planting of the winter garden interior court,” predicting that the researcher would “feel refreshed by his encounter with nature.”

Since such insular workspaces would probably not appeal to today’s office tenants, Gorlin recommended swapping the majority of the metal panels enclosing the labs for glass. He won approval from the National Park Service, which administers the landmarks program, by arguing that the blocks’ structural grid was their defining element, not the cladding material. And—to give the boxes’ atrium-facing elevations a uniform appearance—the project team created design guidelines for tenants; these include a 3-foot drywall soffit and a lighting cove just behind the atrium-facing glass and specifications for cubicle placement and signage.

Gorlin’s contribution includes two piazza-like areas near the atrium crossing, delineated in various gray tones of porcelain floor tile and based on Josef Albers’s works on etched glass from the 1920s. Vaguely resembling overlapping and layered columns and beams and the shadows they might make, the compositions serve to anchor the vast space, which hosts events such as holiday parties and a farmers and craft market. Varying shades of yellow carpeting in a sunken reception area replicates what had originally been there and bears a striking resemblance to the artist’s *Homage to the Square* series.

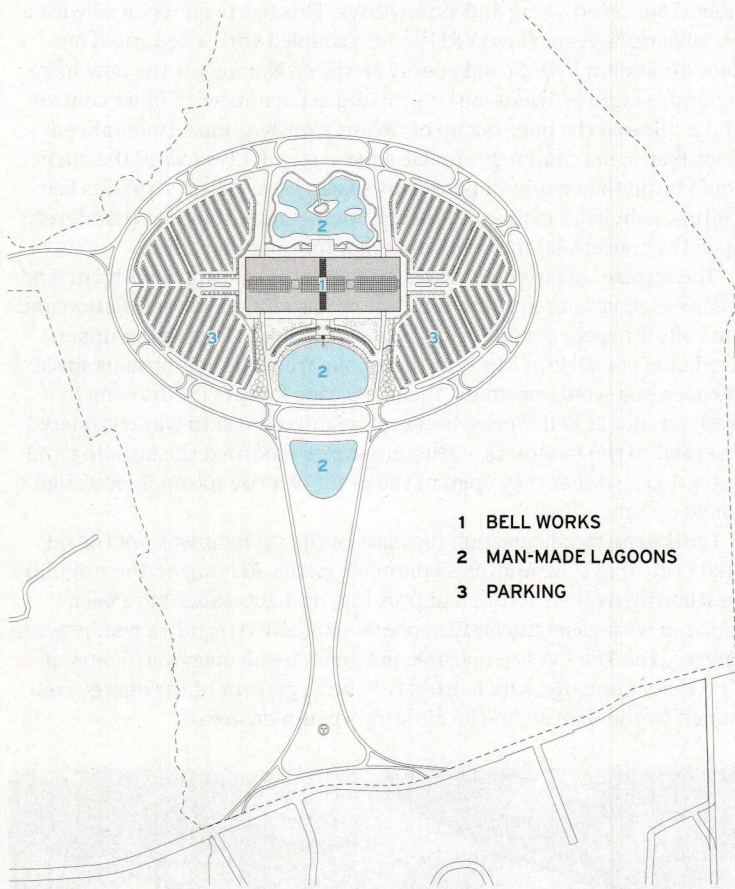
Some of the most critical modifications are practically invisible. The original HVAC infrastructure for the labs included a dual-duct variable air volume (VAV) system enclosed in vertical shafts that divided the

floors into several long and skinny bays. This has been replaced with a variable refrigerant flow (VRF) system coupled with a dedicated outdoor air system (DOAS) and energy recovery. Not only is the new infrastructure more efficient, but it provides occupants with more control, and it allowed the opening up of the previously compartmentalized floor plates, maximizing rentable square feet. It also meant the client could build the system in phases, as spaces were leased, explains Eric Collins, a division manager at Becht Engineering, the firm that developed the conceptual mechanical design for the renovation.

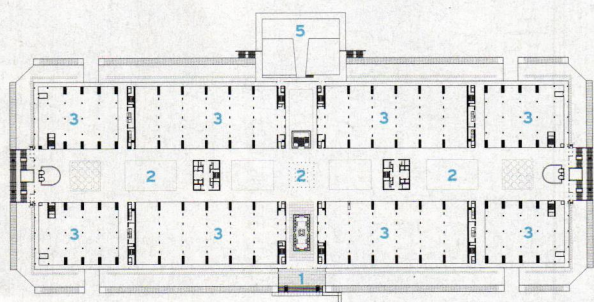
The atrium infrastructure was also updated to comply with current smoke-evacuation requirements. It now has a DOAS for ventilation and fan coils for space conditioning, while 28 exhaust fans in the upper reaches of the atrium can vent the smoke from the voluminous space. Such a setup would normally include facade louvers for drawing in fresh air. But at Bell Works, because the mirrored skin was considered essential to the landmark status, engineers modified the building’s 42 entry doors so that they open in the event of a fire to supply so-called “makeup” air.

Unlike the facade glazing, the glass of the skylight was not considered critical to the building’s landmark status. Relying on the original weathering-steel structure and framing, its 3,200 panes have been replaced with clear silicon-film photovoltaics (PVs) sandwiched between safety glass. The PVs are invisible but generate 60 megawatt hours of electricity annually, which offsets about 25 percent of the energy consumed by the lighting in the building’s common areas.

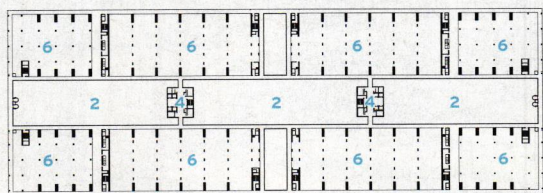




SITE PLAN

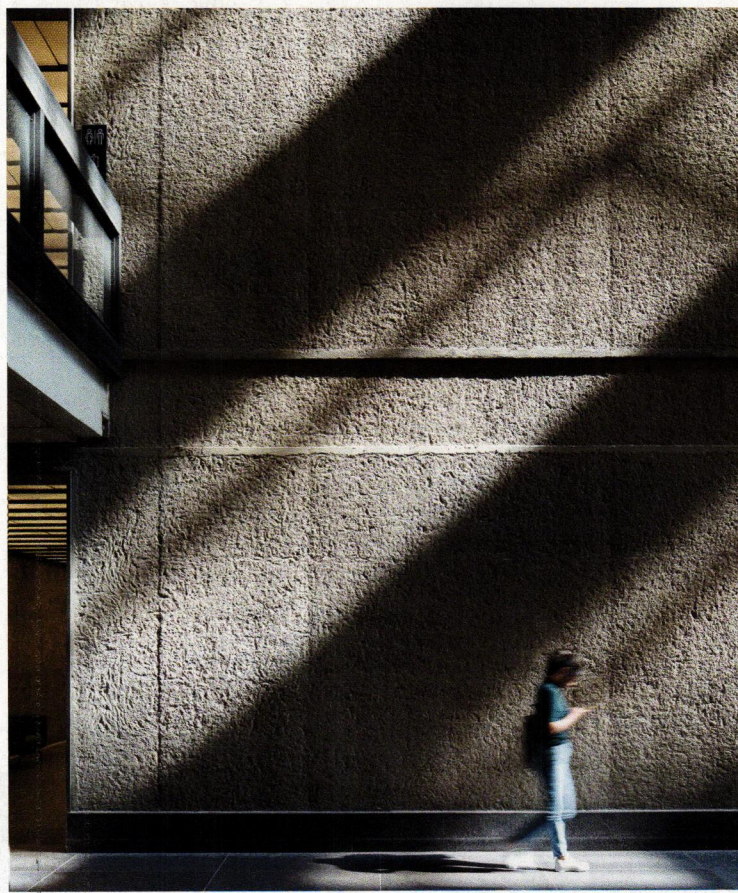


ATRIUM-LEVEL PLAN



TYPICAL-LEVEL PLAN

- | | |
|-----------------|-----------------------------|
| 1 MAIN ENTRANCE | 4 VERTICAL CIRCULATION CORE |
| 2 ATRIUM | 5 ROOFTOP TERRACE |
| 3 RETAIL SPACE | 6 OFFICE SPACE |



Zucker plans a 170-room hotel on the roof, surrounding the skylight, using prefabricated pods. The scheme already has town planning-board and National Park Service approval. It would complement the conference facilities on the building's concourse level, provide accommodations for out-of-towners visiting Bell Works office tenants, and supply the retail establishments with additional customers.

The developer is in the process of expanding to the Chicago area, where, with Gorlin's help, he is transforming a 1990s-era former AT&T campus in Hoffman Estates, Illinois. It remains to be seen if the metro-burb formula can be successfully exported to other markets. But it offers an intriguing model for repurposing America's many vacant office parks—some of which have thrilling architecture—while bringing a bit of the city to suburbia. ■

credits

ARCHITECT: Alexander Gorlin Architects
— Alexander Gorlin, principal; Cyrus Sarrafha, project manager; Vincent Linarello, senior architect; Daniel Schuetz, senior architectural designer; Reginald Dorcé, architectural designer; Derek Supinsky, junior designer

ASSOCIATE ARCHITECTS:
G3 Architecture, IA Interior Architects

INTERIOR DESIGNER: NPZ Style+Decor — Paola Zamudio

CONSULTANTS: Becht Engineering, OLA Consulting Engineers, AKF Group, Stantec (m/e/p); LaufsED (structural); Heritage

Consulting Group (landmark filing); Melillo + Bauer Associates (landscape)

GENERAL CONTRACTOR: Structure Tone, Greenfield Construction Group

CLIENT: Somerset Development

SIZE: 2 million square feet

COST: \$200 million

COMPLETION DATE: 2019

SOURCES

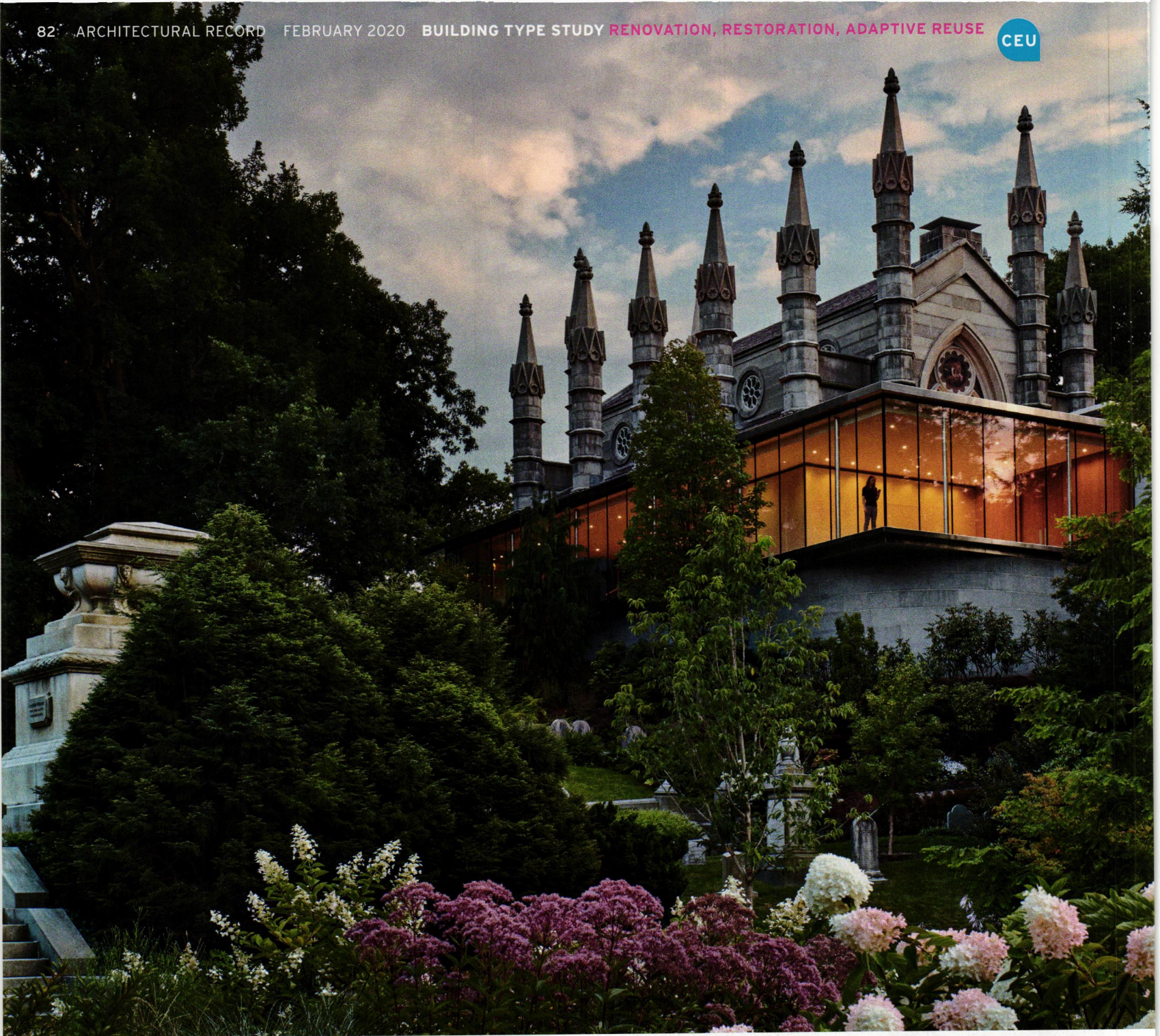
INTERIOR GLASS PARTITIONS: Metro-Wall

PHOTOVOLTAICS: Onyx Solar

CERAMIC TILE: Nemo



GLASS AND MASS
The muscular and roughly textured poured-in-place concrete circulation cores (opposite and this page, on left) punctuate the building's main axis of more than 1,000 feet.



Bigelow Chapel Revitalization, Mt. Auburn Cemetery | Watertown, Massachusetts | William Rawn Associates

Graveyard Shift

A glass pavilion gives new life to a 19th-century chapel in a historic cemetery.

BY SUZANNE STEPHENS

PHOTOGRAPHY BY ROBERT BENSON



IN ADDRESSING the gnarly question of how to add onto a building in a cemetery that is a historic landmark, architects William Rawn Associates of Boston came up with a well-known modernist, but still timeless, answer: glass. Bigelow Chapel, an early 19th-century Gothic Revival structure in Mount Auburn Cemetery, on the edge of Cambridge, Massachusetts, needed an extension to accommodate memorial services, weddings, receptions, meetings, and a crematory. But because it is perched on a small plot on the top of a hill overlooking the 175-acre landscaped garden and burial grounds, created in 1831, any new construction threatened to obscure its picturesque architecture, which is distinguished by its stolid Quincy-granite walls and minaret-like spires.

The original 6,300-square-foot building, realized in 1846, was designed by Dr. Jacob Bigelow, a physician and botanist and Harvard professor who was one of the founders of Mount Auburn (although the architectural drawings were executed by a local practitioner). Its 12-foot-diameter stained-glass rose window above the south-facing entrance and its simple groin-vaulted interior awed visitors attending services throughout the decades. But by 2016, it was clear that the chapel, which seats 75 people, could use more space, as well as benefit from upgraded acoustics, accessibility, and lighting, not to mention the construction of a more energy-efficient crematory.

Since Rawn Associates had been preparing a master plan for the cemetery, the firm's principal for design, Samuel Lasky, suggested go-

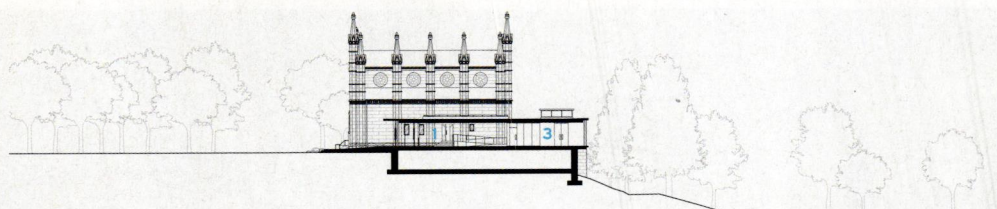
GARDEN OF HEAVENLY REST The 19th-century Bigelow Chapel now has a new public entrance through a glazed pavilion on the east (above). The extension continues around the back, overlooking the refurbished Asa Gray Garden (opposite).

ing after the commission for revitalizing the chapel. The solution is a new square-U-shaped addition that wraps around the east, north, and west ends of the chapel. Its most visible portion is a one-story butt-jointed steel-framed glass pavilion jutting out into the pastoral landscape above a blueschist foundation wall. The low-iron glass emphasizes the sense of transparency, while a skylight separating the addition from the chapel's stone wall illuminates the pavilion's new east entrance and accessibility ramp.

Most striking for visitors to the new extension, with its beech floor and stainless-steel lolly columns, is the extraordinary panorama it affords of the surrounding gardens, forests, and lawns, marked by monuments and tombstones for such notable figures as Henry Wadsworth Longfellow and Buckminster Fuller buried beneath.

On the northwest corner of the 4,100-square-foot expansion, new schist walls enclose the state-of-the-art crematory. While the blueschist's color is similar to the original gray granite, the architects changed the scale of the stone coursing to help distinguish old from new construction.

Although visitors enter the east leg of the U, the funeral personnel



SECTION A - A

- | | |
|------------------|-----------------------|
| 1 PUBLIC ENTRY | 5 INTERIOR GARDEN |
| 2 CHAPEL | 6 CREMATORY |
| 3 GATHERING ROOM | 7 BACK OF HOUSE ENTRY |
| 4 VIEWING ROOM | |



FLOOR PLAN

use a glazed vestibule to the west of the original south entrance (and its newly restored rose window) to reach the crematory. "Separating the public from daily operations is an important advantage of the new scheme," says Gus Fraser, vice president of preservation and facilities at Mount Auburn.

The crematory is not a new feature of Bigelow: the original was installed in the chapel's basement in 1899—the first such facility in a cemetery in New England—when Willard Sears, the architect for the Isabella Stewart Gardner Museum in Boston, renovated the chapel. (In 1898, he also designed the cemetery's larger, 160-seat Joseph Story Chapel, of reddish sandstone, near the entrance.)

While cremations were unusual at the turn of the 20th century, over the years the acceptance of the practice increased, so that today Bigelow's facility performs 1,200 annually. Since the "retorts," as the furnaces are called, had not been replaced since the 1970s (when the crematory was moved from the basement to the main floor's northwest corner), Rawn Associates installed computer-controlled ones that require less natural gas and less time for the process.

The team also created a viewing room, where family and friends can gather before the coffin—placed on a stainless-steel-tablelike "charger"—is rolled into the stainless-steel-



AT ONE WITH NATURE The chapel's rose window on its south wall was recently restored (right). The new lobby looks east to the landscape (opposite, top). The partially enclosed viewing room (opposite, bottom) adjoins the crematory.

clad furnace that is embedded in an anigré wood-clad wall.

Anigré covers most of the intimately scaled viewing room, where windows provide glimpses of the trees, and a glass wall reveals an interior garden inserted between the chapel's altar and the viewing room. Clerestory windows admit additional daylight, resulting in a luminously calm space.

"Mount Auburn has always been forward-thinking," Lasky notes, referring to its significance as the first parklike cemetery created in the U.S. and one at the forefront of dignified venues for cremations. "It was important for us to convey this vitality with a highly contemporary design, while not covering up the older structure or dominating the landscape," he adds. And the architects succeeded: the recent renovation and expansion underscore the progressiveness of Mount Auburn's mission with suitable elegance, grace, and aplomb. ■

credits

ARCHITECT: William Rawn Associates – Samuel Lasky, principal for design; Ellie Radich, Rob Wear, Andrew Jonic, Eric Rutgers, William Rawn, Adam Weber, team

CONSULTANTS: Halvorson Design Partnership (landscape); McGinley Kalsow & Associates (preservation architects, rose window); Serpentino Stained and Leaded Glass Studio (rose window); Building Envelope Technologies (envelope); Horton Lees Brogden Lighting Design (lighting); CSL Consulting (owner's project manager)

ENGINEERS: LeMessurier Consultants (structural); Rist-Frost-Shumway Engineering (m/e/p/fp/civil/av/it); Haley & Aldrich (geotechnical); Amec Foster Wheeler (environmental)

GENERAL CONTRACTOR: Shawmut Design and Construction

CLIENT: Mount Auburn Cemetery

SIZE: 10,400 square feet (including original building)

COST: \$15 million

COMPLETION DATE: December 2018

SOURCES

GLASS: Viracon

SKYLIGHTS: Acurlite Structural Skylights

PAINTS AND STAINS: Sherwin-Williams

ACOUSTICAL CEILING: USG Ensemble Ceiling; Topakustik

FLOOR AND WALL TILE: Porcelanosa, Casalgrande

SPECIAL INTERIOR FINISHES: Junkers Hardwood (flooring); Goldray Glass (interior wall panels); Kadee Industries (perimeter floor grill)





NOI Techpark | Bolzano, Italy | Claudio Lucchin & Architetti Associati and Chapman Taylor

Industrial Strength

Nestled in the Alps, a Fascist-era aluminum factory is reborn as a modern-day tech hub.

BY BETH BROOME

PHOTOGRAPHY BY ALESSANDRA CHEMOLLO

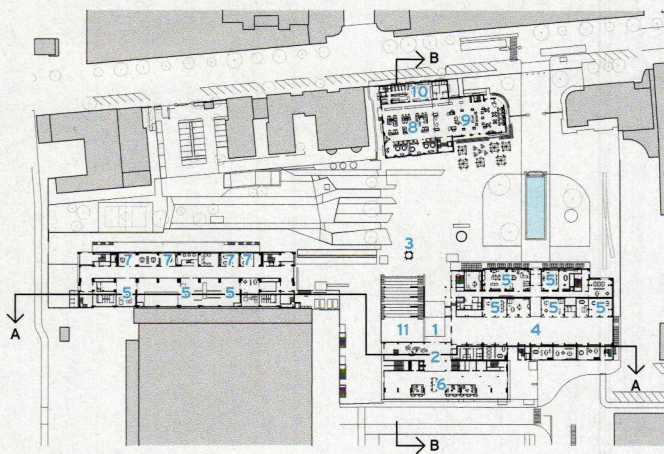
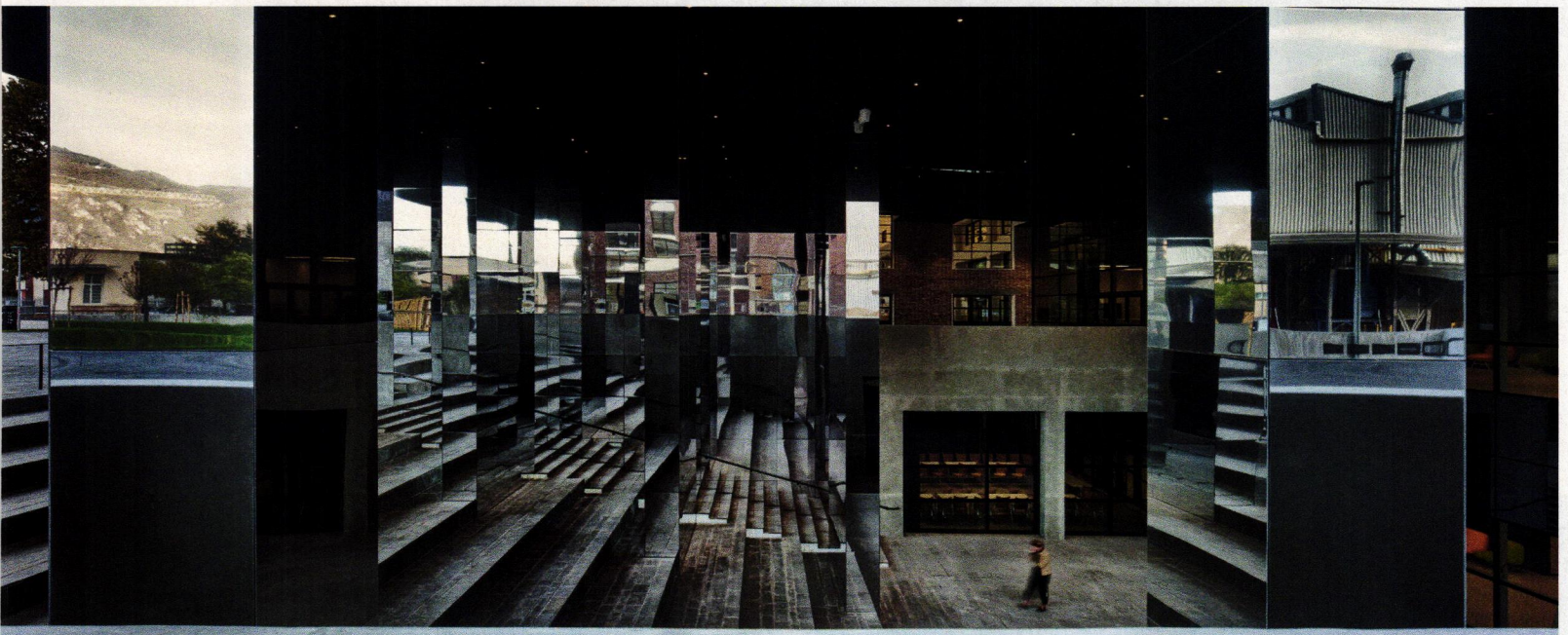


SITUATED JUST ABOUT as far north in Italy as you can go, Bolzano, the capital of the country's autonomous South Tyrol province, has its charm, with a Medieval center composed of winding arcaded streets and an impressive cathedral. In contrast is a nearby industrial zone, which, in its sprawling grittiness, offers a foil to the Alpine peaks that embrace the city. The district has its own history as a relic of the Fascist period. When Mussolini was trying to Italianize South Tyrol—previously part of the Austro-Hungarian Empire and annexed by Italy following World War I—he promoted industrialization here in the hope of outnumbering the German-speaking population with Italian immigrants.

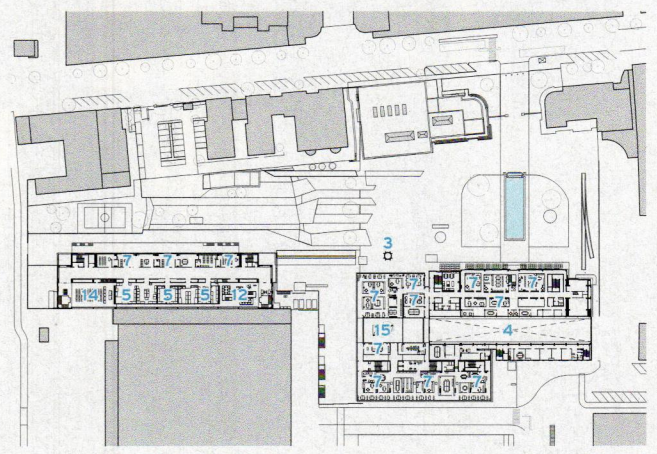
The Montecatini aluminum factory (eventually to become Italy's largest) was the first plant to open in Bolzano, in 1938, followed by

NOW AND THEN Two Rationalist 1930s transformer buildings (above and right), are linked by a new structure, dubbed the Black Monolith. A concrete water tower was fancifully painted by Polish street artist Mariusz Waras in 2008. It once served the transformers and today holds water used for heating and cooling the buildings.





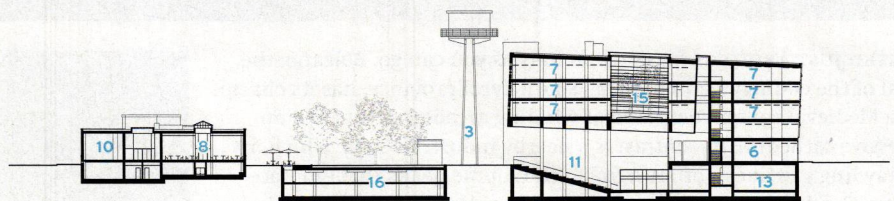
GROUND-FLOOR PLAN



SECOND-FLOOR PLAN

0 100 FT.
30 M.

- | | |
|-----------------------|---------------------|
| 1 MAIN ENTRANCE | 9 COFFEE BAR |
| 2 FOYER | 10 KITCHEN |
| 3 WATER TOWER | 11 OPEN-AIR THEATER |
| 4 OVERHEAD CRANE HALL | 12 MEDIA LIBRARY |
| 5 LABORATORY | 13 CONFERENCE HALL |
| 6 LOUNGE/MEETING | 14 AUDITORIUM |
| 7 OFFICE | 15 TERRACE |
| 8 RESTAURANT | 16 PARKING |



SECTION B - B



SECTION A - A

0 50 FT.
15 M.



HEAVY METAL Polished aluminum columns animate the open-air theater beneath the campus's new building (opposite). BZ1 (above) is one of the old concrete-frame transformer buildings clad in clinker brick that now holds laboratories and offices.

numerous other heavy industries. However, declining production over the decades led to the plant (then Alumix) being largely decommissioned in the early 1990s, with the foundries demolished. The province purchased a 22-acre parcel of the 50-acre campus shortly after, prompting a master plan and a debate about the future use of the land and its structures. In 2004, the factory's four vacant main buildings were listed as historic monuments. All designed in-house by the Montecatini company, they included two transformer plants (BZ1 and BZ2) as well as two small buildings that housed management, a caretaker's quarters, and a canteen. In 2007, the provincial administration launched a competition to reimagine the property. Initially, the brief included a museum, but it was later amended to dedicate the whole program to a research and innovation center to encourage Bolzano's evolution from an industrial hub to an enclave of high-tech. The result is a sophisticated new campus that preserves the understated facades and soaring interiors of the beautiful

Rationalist architecture here while creating a highly sustainable modern workplace that continues the tradition of industry in Bolzano.

With their scheme, the winners of the 2007 competition, Bolzano architects Claudio Lucchin & Architetti Associati and the Milan office of Chapman Taylor, have reinvented the complex as NOI Techpark—NOI standing for “Nature of Innovation” and also South Tyrol dialect for “new” and the Italian word for “us.” As a research and innovation center, the campus brings together the Free University of Bozen-Bolzano with private business and research institutions (that focus on sustainability and food production) through a diverse collection of labs, workspaces, and meeting facilities that occupy BZ1 and BZ2 as well as a new building that links the two. Housing over 60 businesses and 600 researchers, the campus will eventually expand to include five additional new buildings.

A native of Bolzano, architect Claudio Lucchin has a personal connection to the project. “We all have had a relative or friend who worked in this factory, which is a piece of the history of this city,” he says. He was immediately captivated by the challenge of developing the complex as a workplace for a new generation, hoping to “redefine the idea of



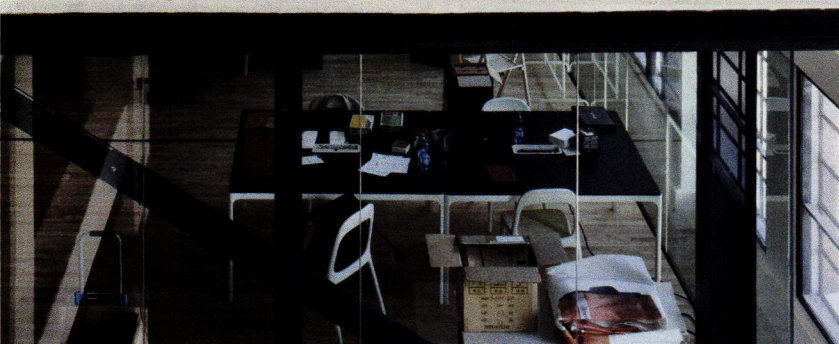
MEET AND GREET The new building has a variety of formal meeting and casual gathering spaces, some of which are open to the public (top, above, and right). The original bones of the BZ2 transformer building are visible throughout, as in this event hall (opposite).



what a factory is while retaining the genius loci of the place.” Gianfranco Lizzul, the director of Chapman Taylor Milan, points out the importance of creating a scheme that would architecturally express the site’s new use. “The project combines contemporary Italian design with a wonderful piece of Bolzano’s industrial heritage,” he says. While the competition brief mandated retaining the exteriors of the concrete and clinker brick buildings, as well as related artifacts, such as a concrete water tower and reflecting pool, there was ample room for invention within and around the historic fabric.

Entering the complex, you pass between the two more domestically scaled mixed-use buildings—one of which Lucchin’s team has convert-

ed into a restaurant and café, the other of which has yet to be repurposed—into a broad plaza. Directly behind the prominent water tower is the new building, dubbed the Black Monolith in deference to Stanley Kubrick’s *2001: A Space Odyssey*. Clad in dark gray aluminum foam (a nod to the site’s past life) with ribbon windows stretching across its north facade, and appearing to float atop polished-aluminum-clad columns, the structure (which tilts 2 degrees from front to back) strikes a mysterious—though sympathetic—pose between the two historic buildings. The main entry to the complex is tucked beneath the Black Monolith’s big overhang and leads into a series of casual meeting spaces and offices. Illuminated by a skylit courtyard at



UPLIFTING SPACE A grand overhead-crane hall (opposite) is the centerpiece of the BZ1 transformer building. Its original entry (above, right) has been restored. Steel-and-glass stacked incubator offices occupy another part of the building (above).

its center and generous glazing on its south end, the interiors are surprisingly bright and airy.

The new building connects on its upper levels to BZ1 to the east, which has as its centerpiece a grand overhead-crane hall lined with laboratories, workshops, and offices for start-ups. BZ2, to the west, similarly retains its original central hall, which is now flanked by labs, offices, and facilities for the university and other institutions. To provide the large-scale specialized labs required here, the team excavated the ground-floor level 4½ feet and dug a north-facing courtyard to bring in daylight; on the main floor, they inserted lab spaces within the existing reinforced concrete structural grid. The interventions here, including the ground-up building, do not lean on historicism but, rather, read as distinctly new. Underscoring this, many interior

insertions float within the spaces, detached from the walls and ceilings, such as BZ2's raised platform-like media library as well as the stacked steel-and-glass incubator offices that the team installed within the original concrete frame of BZ1's triple-height power-transformer room. In places, new elements are painted black to contrast with the original surfaces, which are left white. While the retention of original structure and elements throughout recalls the complex's former use, it is the spatial preservation that captures the spirit most potently. Even when chopping up some of the cavernous rooms to provide offices and labs, the team, through its abundant use of glass and the creation of breathing spaces between old and new, has maintained the sublime cathedral-like quality of these interior volumes.

Complying with stringent local CasaClima sustainability practices, NOI Techpark has achieved an A rating, the highest possible, as well as LEED-ND for neighborhood development. And the Black Monolith is a nearly Zero Energy building (nZEB): besides recovering wastewater



from the neighboring factory's production process for heating and cooling, the building employs automated operable windows to extract heat at night during the summer months, requiring less air-conditioning during the day. Rooftop PVs meet about 70 percent of the Black Monolith's electric needs, and plans are in place for future runoff recovery for landscape and green-roof irrigation. In addition to employing standard daylighting and recycling practices, NOI Techpark looks to employee transport: hydrogen buses service the complex, and surrounding bicycle paths have been expanded.

With the major and ongoing transformation of this historic campus, the architects have addressed—practically and symbolically—the evolution of industry from the creation of objects to the formulation of ideas. Just as the original buildings, in their grace and solemnity, once elevated the process of production, the intervention here communicates—in its own language—a reverence for innovation, and suggests that the future always springs from the past. ■

credits

ARCHITECTS: Claudio Lucchin & Architetti Associati – Claudio Lucchin, Angelo Rinaldo, Daniela Varnier, Roberto Gionta, Michele Capra, Marco Mozzarelli, Matteo Torresi, Alessandra Fella, Stefania Masuino

Chapman Taylor – Alessandro Stroligo, Fabiona Minas, Gianfranco Lizzul, Erika Della Rocca, Vittorio Caponetto

Mauro Dell'Orco

Andrea Cattacin

ENGINEERS: Ingenieurteam Bergmeister (structural); Manens-Tifs (systems)

GENERAL CONTRACTORS:

Volcan; Bettiol; Metall Ritten

CLIENT: Province of Bolzano Bozen

SIZE: 137,000 square feet

COST: \$64 million

COMPLETION DATE: 2017-18 (phased)

SOURCES

CURTAIN WALL: Schüco

ENTRANCES: Dorma

ACOUSTICAL CEILINGS: Celenit

ELEVATORS: Schindler

LIGHTING: Zumtobel, Atena Lux



Friends Seminary | New York | Kliment Halsband Architects

A Delicate Balance

A popular day school finds a way to grow within the limits of its historic urban locale.

BY LINDA C. LENTZ

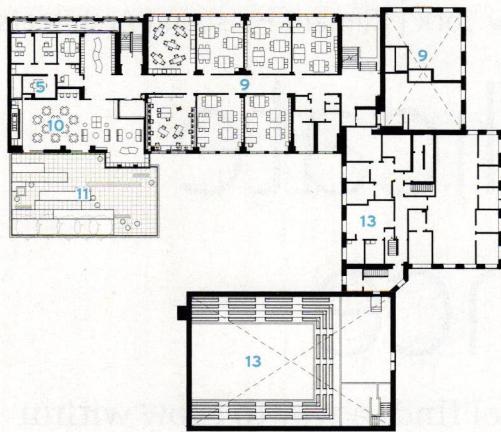
PHOTOGRAPHY BY VANNI ARCHIVE

AN INTEGRAL part of Manhattan's Stuyvesant Square Historic District, Friends Seminary has been dealing with growing pains for decades, with an increasing number of kindergarten-through-12th-grade students sharing tight quarters in a disparate group of 19th- and 20th-century buildings. Now the campus has room to breathe, due to a meticulous renovation and expansion by Kliment Halsband Architect (KHA), completed last September, that treads gently on the old-world charm of its setting.

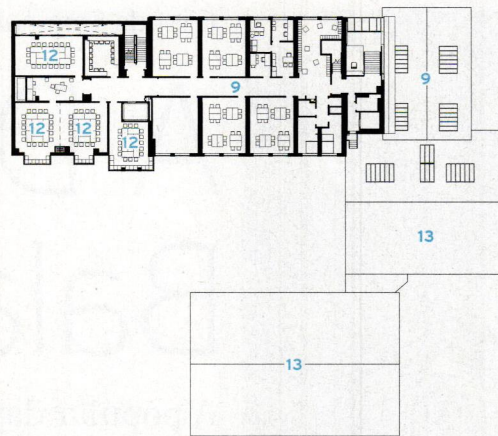
Bordered on the east by the verdant square, the independent Quaker day school, founded in 1786, still occupies one of three landmarked masonry buildings, reminiscent of Federal and Greek Revival styles, that the Society of Friends built here in 1860. (A meetinghouse and administrative building, also remain in use by the religious organization.) As with many city institutions, growth here was challenged by a tight real-estate market as well as the area's city landmark designation in 1975, which limits construction.



STREET SCENE The architect's surgically precise intervention tucks a new six-story school behind the restored facade of three 1852 townhouses on a landmarked block (left). It connects to an existing 1960s Friends Seminary building (above), which the firm had raised from four to six levels plus a play roof.

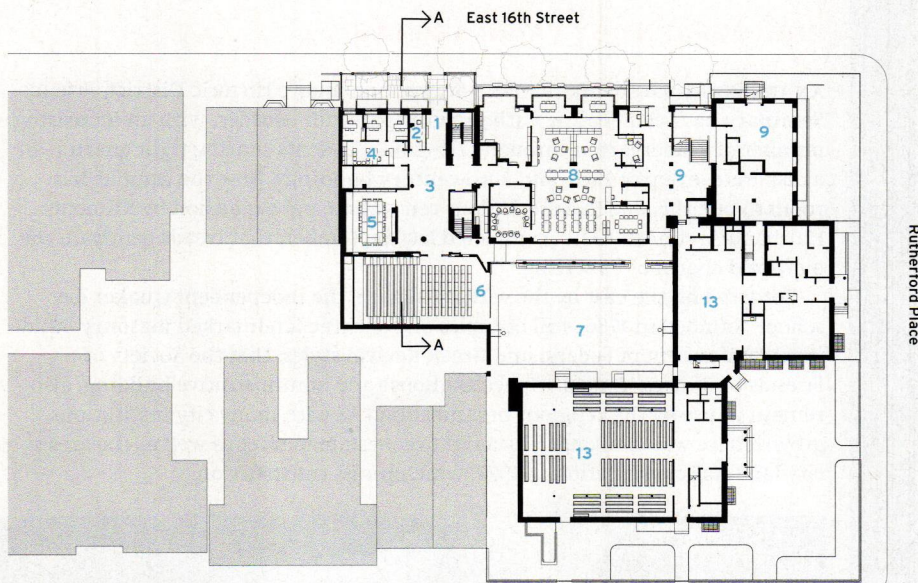


THIRD-FLOOR PLAN

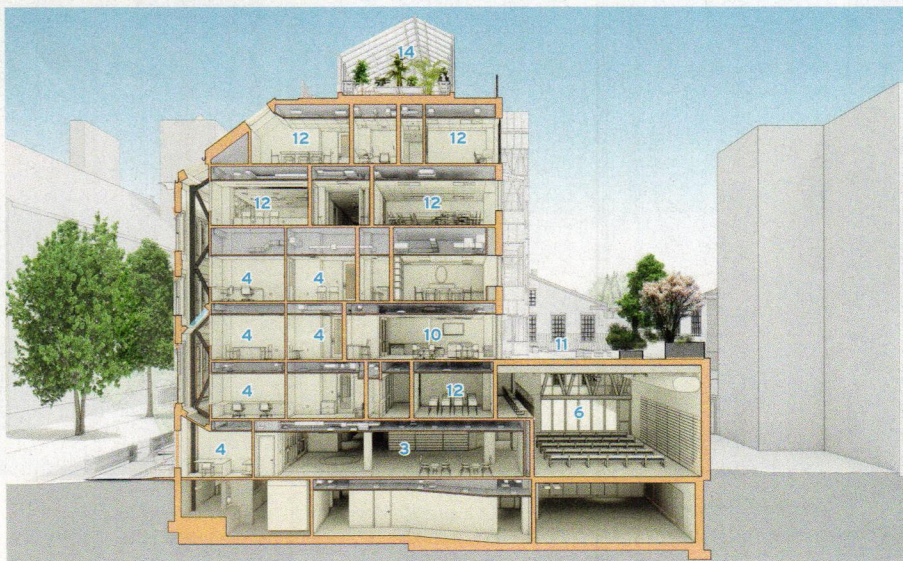


FIFTH-FLOOR PLAN

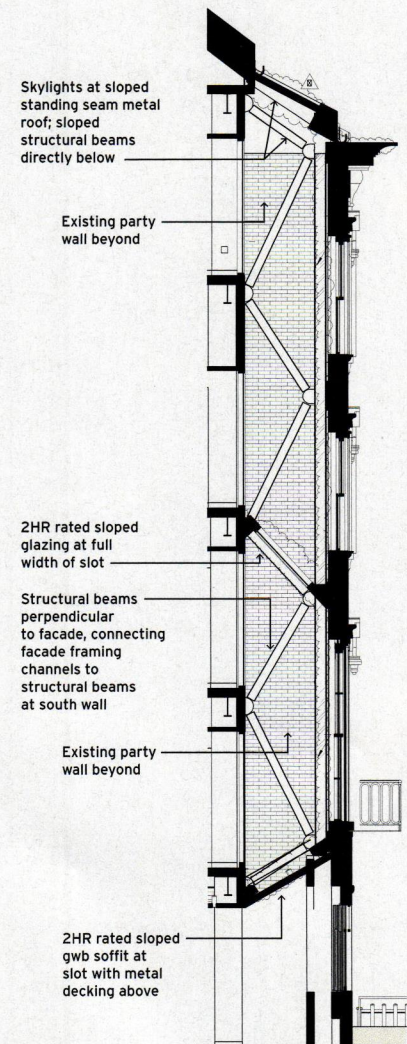
- 1 UPPER-SCHOOL ENTRANCE
- 2 RECEPTION/SECURITY
- 3 UPPER-SCHOOL LOBBY
- 4 OFFICE
- 5 CONFERENCE ROOM
- 6 GREAT ROOM
- 7 COURTYARD
- 8 LIBRARY
- 9 LOWER & MIDDLE SCHOOLS
- 10 UPPER-SCHOOL COMMONS
- 11 UPPER-SCHOOL TERRACE
- 12 UPPER-SCHOOL CLASSROOM
- 13 NEW YORK QUAKER FACILITIES
- 14 GREENHOUSE



SITE PLAN



SECTION A-A



INTERIOR FACADE SLOT - DETAIL

There has been some development over the years. In 1964 (before the landmark designation), two of eight 1852 Anglo-Italianate row houses, west of the original school house, were razed to build Hunter Hall, a four-story building by Chapman, Evans and Delehanty that created a campus quadrant around a rear courtyard. In 2006, architect Margaret Helfand was allowed to insert a small vertical core that connected Hunter Hall and the 1860s complex and created a steel-and-glass lobby and new library.

By 2014, Friends Seminary had bought three additional townhouses and linked them to each other provisionally until funds and approvals could be acquired for a proper addition. According to KHA principal Frances Halsband, "The buildings were horrible." None of the floor levels aligned and the facades were in disrepair. Charged with renovating these properties and the 1960s building to provide flexible, accessible space, making seamless transitions among them, Halsband recommended restoring the landmarked brick facades but demolishing everything behind them to build a single structure. The design team then developed a two-phase scheme that would allow the school to operate throughout the project while more than doubling the size of the facility, with a generous addition for the middle and lower schools in Hunter Hall and a distinct upper school in the townhouses.

Working with structural engineer Silman, the architects first added a play roof and two classroom floors to Hunter Hall, which would serve as swing space during Phase 2. "We wanted to minimize demolition inside Hunter Hall, so the structure behind the townhouse facades actually contains most of the lateral support system for both buildings," explains senior project engineer Jim Villano. "But we had to build the addition on top of Hunter Hall first—so we also put temporary lateral braces at the front and back of that building." To further reduce impact on the existing school building's operation during construction of the new upper floors, the crew reinforced its perimeter columns from the exterior, accessing them by removing slender portions of the brick on the north and south elevations. Likewise, they used full-story trusses on the new fifth and sixth floors, to limit disrupting the existing space on the fourth. Once this work was near completion, the permanent global lateral system of moment and brace frames was erected within the townhouses, and the facade and a neighboring party wall, west of the school, stabilized with broad concrete bench footings and temporary shoring at the facade for the restoration and construction.

The revived 19th-century facade appears as it must have more than 150 years ago but con-



INSIDE STORY Abundant skylights transfer daylight down through the interstitial space between the new building and the historic facade. Strategic internal windows allow students to view the playful structural supports.

ceals a fresh 29,000-square-foot upper-school wing that, like Hunter Hall, tops out at approximately 70 feet, more than 5 feet below the maximum height for this landmarked area. It, too, rises to six stories but is crowned on the roof with a greenhouse instead of a play space. To comply with New York City setback requirements, the additions gracefully step away from view and are virtually invisible at street level. The new structure is also about 5 feet behind

the historic facade, which is supported by a series of vertical trusses in the interstitial space. Visible through windows in adjacent internal walls, this impressive bit of engineering is meant to inspire the school's 780 students. A sloped skylight at the top transmits daylight down through that narrow volume and adjacent interior spaces. "At night," says the school's principal, Bo Lauder, "It emits a cheerful glow from within the building."

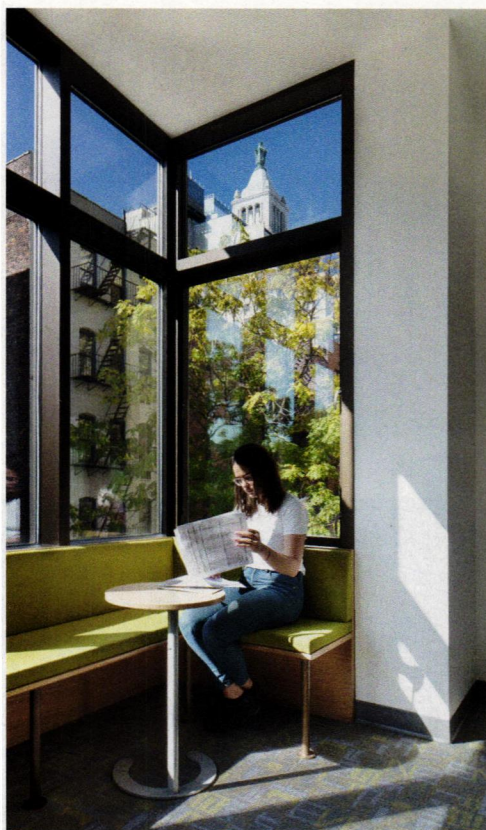


REAR WINDOWS Zinc-clad bays overlook a generous upper-school terrace (left) and provide comfortable nooks for study indoors (opposite, left). The Great Room (below) opens onto a courtyard (opposite, right).

For the new upper school of 282 students, Halsband exploited every inch available to her. She used Collaborative for High Performance Schools criteria (or CHPS, a national program to improve learning environments) as a design standard for enhanced building sustainability and occupant well-being. The entrance, accessible by a gentle gradient outside, opens to a terrazzo-clad lobby. Inside, the floors are organized around a new stairwell and elevator core at the juncture of the old and new wings. Taking advantage of zoning that permits community-facility projects to be built within the rear yard of a lot, the architect filled out the site with a near-22-foot-high extension at the ground floor. The 30-foot-wide by 63-foot-long columnless space is used for school-wide music, dance, and theater classes, while an operable, impact-resistant glass wall on the courtyard opens for indoor/outdoor assemblies and events. On its roof, a garden terrace, supported by beefy steel trusses and beams and bolstered by acoustically isolated slabs, gives the older students a peaceful outdoor setting for studying or hanging out. Located off the third floor, this 2,000-square-foot patio is accessed through a new upper-school commons (or lounge) inside. A series of bays, clad in zinc, punctuate the rear of the building, referring to the area's rowhouses and creating cozy interior nooks in classrooms.

During a school tour, the teens were lounging in the commons or mingling at their lockers, which overlook the facade. There was a cheerful sense of calm in the ample space, and Lauder seemed delighted: "For two years we were all in one building—pretty tight. Now it feels as if I could see a tumbleweed coming down the hallway." ■





credits

ARCHITECT: Kliment Halsband Architects – Frances Halsband, founding partner; Michael A. Nieminen, David Whitehill, partners; Nicholas Wan, Dalvine Charlton, Simone Meeks, Lara Makhoul, design team

ENGINEERS: Silman (structural); Altieri (m/e/p/fp); Langan (geotechnical)

CONSTRUCTION MANAGER: AECOM Tishman

CONSULTANTS: Todd Rader + Amy Crews (landscape); Tillotson Design Associates (lighting); Jablonski Building Conservation (restoration); Jaffe Holden (acoustics); Steven Winter Associates (sustainability)

CLIENT: Friends Seminary

SIZE: 76,500 square feet

COST: withheld

COMPLETION DATE: September 2019

SOURCES

STRUCTURAL SYSTEM: Metropolitan Walters

MASONRY: Acme Brick

METAL: Accurate Specialty Metal Fabrication (panels); Kawneer (curtain wall); Rheinzink (cladding and roofing)

FACADE RESTORATION: Northern Bay Contractors

FENESTRATION: Skyline Windows; Oldcastle BuildingEnvelope (skylights)

GLASS FOLDING WALL: Nanawall

ELEVATOR: Thyssenkrupp

BUILDING SYSTEMS: Johnson Controls; Mitsubishi Electric





225 Polk Avenue | Nashville | Hastings Architecture

Music City Remix

An abandoned public library is now home to the architecture studio that restored it.

BY JOSEPHINE MINUTILLO

PHOTOGRAPHY BY ERIC LAIGNEL

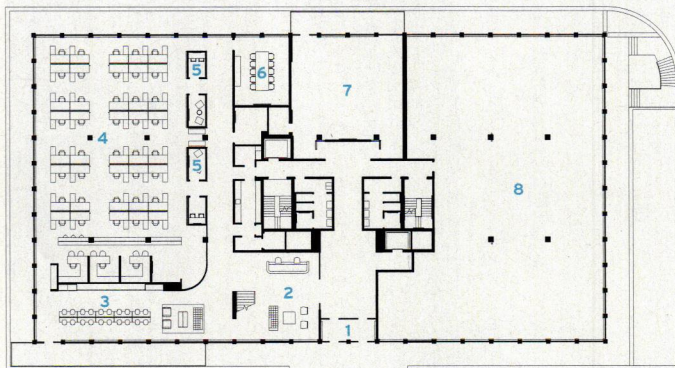


OPENED IN 1965, the Carnegie Main Library building, later known as the Ben West Library, was a rare Midcentury Modern gem in downtown Nashville. It fell into disuse by the turn of the 21st century when, in 2001, a much larger Neoclassical structure, designed by Robert A. M. Stern Architects and located a couple of blocks away, replaced it. Mainly abandoned since then, apart from a brief period when it housed the mayor's offices and city council members', the former library, unlike other buildings of its era in the city, narrowly escaped the wrecking ball. A landmark designation in 2015 saved the 42,000-square-foot modernist marble pile—for which its architect, Bruce Crabtree of the once-prominent local firm Taylor & Crabtree, had held particular affection. But a cumbersome ownership arrangement of the $\frac{3}{4}$ -acre property, involving both the city and private entities, as well as its new historic

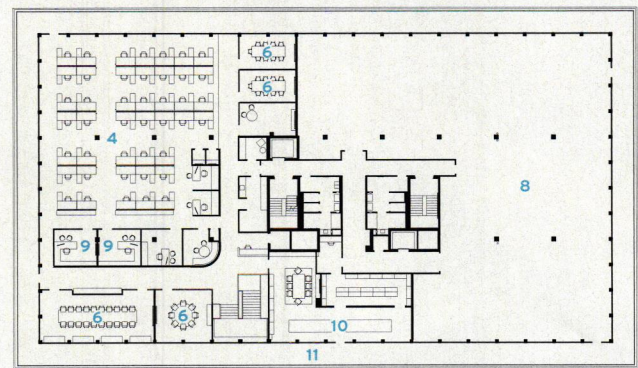
HIGH ARCHITECTURE The landmark building sits on a high point within the city, with a 15-foot grade change from the entrance on the east side, along the sloping Polk Avenue, to the west side, which offers panoramic views of downtown Nashville.

status—which scared away developers but attracted creative enterprises and nonprofits that couldn't afford it—complicated its sale for years.

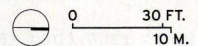
In an ironic turn of events, Hastings Architecture, which had advised a potential buyer early on, ended up purchasing the building in 2017 for \$4 million. "At one point, we were looking at it and I laughed, 'This would be a great building for us,'" recalls Dave Powell, who, along with his partners David Bailey and William Hastings, made the surprising decision to move their design firm (now 85 people) into the rescued real estate, which is set among several government buildings, including the SOM-designed Tennessee Tower (1970) across the street.



MAIN LEVEL



TOP LEVEL



- | | |
|-----------------|---------------------|
| 1 ENTRANCE | 7 ATHENAEUM |
| 2 RECEPTION | 8 TENANT |
| 3 DINING AREA | 9 PRIVATE OFFICE |
| 4 STUDIO | 10 MATERIAL LIBRARY |
| 5 BREAKOUT ROOM | 11 BALCONY |
| 6 MEETING | |

credits

ARCHITECT: Hastings Architecture

ENGINEERS: Power Management Corporation (m/e/p); EMC Structural Engineers (structural); Barge Cauthen & Associates (civil); Steve Durr Designs (acoustic)

CONSULTANTS: Hodgson Douglas (landscape); Charles M. Salter Associates (acoustic)

GENERAL CONTRACTOR: Carter Group

CLIENT: Hastings Architecture

SIZE: 42,000 square feet

COST: \$15 million

COMPLETION DATE: June 2019

SOURCES

GLASS: Guardian, Oldcastle BuildingEnvelope

ENTRANCES: Tubelite

HARDWARE: Assa Abloy, Rockwood

PLUMBING: Kohler, Duravit

CARPET: Interface, Shaw



STRIPPED DOWN Restored terrazzo floors greet visitors at the building entrance and Hastings's reception area (opposite). The open studio on the main level is a 20-foot-high daylight space with carpeted floors (above). A curving wall features walnut salvaged from an auditorium in the original library (right).

Since 2003, Hastings had maintained its office in an 1895 warehouse near the Country Music Hall of Fame, an area that has developed into a boisterous entertainment district. In recent years—coinciding with Nashville's construction boom—the rapidly growing firm could no longer comfortably fit in that space, and was happy to leave the traffic and noise behind.

As architects who had previously renovated older buildings, including Nashville's storied Ryman Auditorium, the partners knew to expect some surprises with the restoration, but even they did not anticipate how big and long a project—construction lasted 14 months and cost \$11 million—this would turn out to be. The city had already remediated the structure for hazardous materials during its temporary tenancy from 2007 to 2008, but not much else had been done to the building in more than 50 years. The architects had to replace a greater number of the ½-inch-thick Cherokee white marble cur-





LUNCH IN The staff dining area, which includes a custom 30-foot-long wood table, is situated by the windows along Polk Avenue and is visible to passersby. At one end of the café-like space is the main staircase, which was an original feature of the library.

tain wall panels than they had foreseen—up to 75 percent on the pilasters and 30 percent overall. “We started to notice a lot of bowing,” says Bailey. Previously load-bearing, the new panels, from the same quarry in Georgia as the originals, now are $\frac{3}{4}$ inches thick and supported by stainless-steel clips. Panels that were not replaced, as well as the original terrazzo floors, were cleaned and repaired.

The building’s most notable feature, a series of full-height arching windows that wrap the main level, also needed to be replaced. The openings along the south facade originally contained precast concrete infill panels to obscure a nightclub across the parking lot from view of library visitors. The landmarks committee was not initially onboard to have Hastings substitute those infill panels with glass. “We eventually found a clever detail on the original drawings that allowed for doing just that in the future,” says Powell, which convinced the committee that it was fulfilling the vision of the original architect, who died in 2014, before the landmark designation. Both the main level and top floor above it now feature double-glazed high-performance insulated glass. Below them—what Hastings refers to as “the dungeon”—are parking, mechanical and electrical equipment, archives, and a future model shop.

In renovating the interior, the architects gutted the entire building

and removed plaster that had been applied to the concrete. “We stripped it to the bones and only put back what was necessary,” says Powell. They reconfigured the floor plan to open up the core and create: a gallery-like central lobby that leads to the firm’s office, which occupies the southern half of the building; a 1,500-square-foot community room, called the Athenaeum, that is often used by government agencies as part of the purchase agreement; and two tenant spaces—another, smaller architecture studio on the top floor, and a large talent agency on the north side that is in the process of moving in.

The 20-foot-high, daylight-filled main level is now a soaring studio space, its ceiling exposed and streaked with long LED tubes, diagonally positioned to mimic the arrangement of the original book stacks. More studio space, meeting rooms, a material library, a virtual-reality room, and private offices for Hastings are located upstairs on the top level, where occupants can escape outside to a balcony encircling the building.

Both levels offer panoramic views over Nashville, since the building sits on a hill. But what’s most noticeable in the cityscape these days are the construction cranes. Within just feet of Hastings’s new home are future buildings for Amazon and Nashville tech giant Asurion. Those developments will no doubt transform the area, a change that the partners at Hastings—having already disrupted the existing fabric of the stodgy neighborhood by introducing creative offices—welcome. And while Hastings may be an agent of change in this part of town, it became so by preserving its past. ■

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Photo courtesy of Atlantis Rail Systems



p106

Cable Railing Systems

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Guardrail systems that use horizontal stainless steel cables as part of a fully coordinated and engineered system provide safety, security, and a wide range of visual styles.

All images courtesy of Atlantis Rail Systems

Cable Railing Systems

Designing for building code compliance, maximum aesthetic effect, and sustainability

Sponsored by Atlantis Rail Systems | By Peter J. Arsenault, FAIA, NCARB, LEED AP

Whenver an interior or exterior guardrail is needed, say along a raised deck, floor, or stairway, that guardrail needs to meet some specific structural requirements dictated by building codes and standards to protect the safety of people standing or walking along that guardrail. Guardrails can also be a strong visual element of the space design where they are used. On one hand, they can be intended to look heavy, bold, and traditional, or conversely designed with a minimized appearance so as not to detract from the surroundings. Materials used can run the full gamut from wood, metals, glass, concrete, and others. Recently, a popular choice has been to use steel cables run horizontally instead of vertically which often achieves two design objectives. First, the horizontal lines

often complement the surrounding design and introduce a feeling of movement along the guardrail. Second, the comparatively small diameter of cables compared to other materials means there is a reduced visual interruption when looking through the guardrails out to the area beyond. This preserves views or simply allows better visual access between separate areas. For these, and perhaps other reasons, architects have turned to cable rail systems for interior and exterior installations on all types of buildings, in all climate areas, and with all manner of design vocabularies.

With the above in mind, this course provides information related to the best practices for horizontal stainless steel cable railing systems used in commercial and residential applications. It includes a brief overview of cable railing as well

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Learning Objectives

After reading this article, you should be able to:

1. Identify the required safety and performance characteristics of horizontal cable railing systems as defined by building codes and national standards.
2. Investigate the design potential and innovative opportunities to create railing systems that are visually advanced and sustainable by nature.
3. Assess the functional contributions of cable railing systems as they contribute to green and sustainable design.
4. Specify cable railing systems in a variety of green and conventional buildings, and make appropriate selections related to specific design conditions.

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as the current general and specific code, safety, and engineering requirements and best practices to create functional, appealing indoor and outdoor railing systems. It also includes an in-depth explanation of stainless steel materials, their elemental makeup, and treatments for increased sustainability. Of significance, it points out the need to select manufacturers of a cable railing system that can demonstrate independently tested and engineered solutions that meet or exceed code and safety requirements. By demonstrating how to identify key design criteria in specifying stainless steel cable railings, it is intended to encourage the development of ideas for creatively integrating cable railing into design projects.

CABLE RAILING SYSTEMS OVERVIEW

The use of steel cables in construction is hardly new. They have been used to support bridges, pull trolley cars, and carry building loads since steel was first used in the late 1800s. It was recognized early on that even thin cables created from clusters of steel wire can carry very high tensile loads while adding relatively small dead loads from the weight of the cables. As a flexible material when not stressed, it is also fairly easy to work with. This combination of attributes has made steel cable an attractive choice for many nautical, industrial, and construction applications seeking lightweight, durable, and strong solutions for structures and personnel protection.

The process of connecting the cables to building structures, posts, top rails, etc. is also not new. Many standard and customized hardware solutions have been in use for decades based on proven engineering and performance in the field. Of course, with an industrial and nautical approach to their use, the hardware carried a similarly utilitarian appearance. Over time, as architectural applications were being sought out, connection hardware has become available that is more consistent with architectural design aesthetics.

(Of course industrial-looking products remain available too.) The variety of finishes on the hardware have also become more available, allowing more choices at reasonable cost points.

Currently, manufacturers offer complete railing systems with standard cable types, parts, pieces, and options that can be selected and specified to suit a specific building design. The standard material of choice for the cables and the connection hardware is stainless steel, which requires no other finish, blends well with virtually all design aesthetics, and creates a minimal visual impact. Standard offerings are also available for vertical metal posts and horizontal metal top rails that are all specifically designed to work with cabling and connection hardware to create a fully coordinated, engineered guardrail system. When the use of wood is desired, there are systems that are designed to work with solid wood or composite products provided by others. Any of these systems can typically be used along a horizontal deck or floor as well as be configured for use along runs of stairs and landings. Some manufacturers also offer optional items such as solid bottom rails and integrated LED lighting that can be incorporated.

Available cable railing systems fall into two basic categories as follows.

Surface-Mount Systems

In this case, the hardware that holds the cable is, as the name implies, literally mounted to the surface of posts and other components of the system. This means that everything is visible making the installation of the cabling and connector hardware easy and predictable. These systems also offer greater flexibility in design both for guardrails and stairs where the required angles are self-adjusting based on using point-connected hardware. They also make it easier to adjust the tensioning on the cables to the proper levels. Regarding to the impact on the vertical

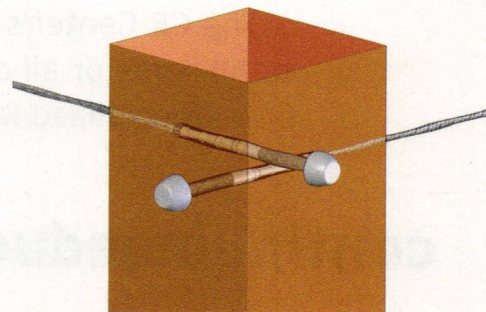
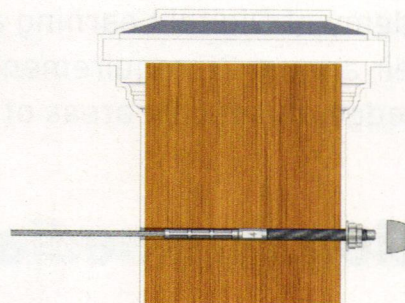
posts, surface-mount systems do not require holes drilled all the way through them, so the inside of the posts are not exposed to the elements at the point of tension. Since the posts are stressed on the front face, there is typically less overall loading stress on the post. Surface-mount hardware is the recommended choice for installing cable on composite railing systems. While all of these advantages are good, there are a few disadvantages of which to be aware. The obvious one is that the hardware is all visible, which may or may not be consistent with the design intent of the railing. Since all of that visible hardware is likely high-polish finished and mechanical, surface-mount systems are usually higher in price compared to other options. Generally, cable railing hardware is only installed at the termination of run, end and corner post, and in some cases can transcend corners. All mid posts, regardless of material, are usually drilled to allow cable to pass through.

Through-Post Systems

In this type of cable railing system, the end and corner posts (regardless of material) are drilled through so the cable and mounting hardware can pass from the front to rear side, allowing for fastening and tensioning on the rear side of the post. This is a fundamentally simpler design with the hardware mostly hidden from sight. It also usually carries a lower price than surface-mount systems. However, there are some significant points to be aware of related to through-post systems.

Continues at ce.architecturalrecord.com

Peter J. Arsenault, FAIA, NCARB, LEED AP, is a nationally known architect, consultant, presenter, and author of more than 200 continuing education courses focused on creating better buildings. www.pjaarch.com, www.linkedin.com/in/pjaarch



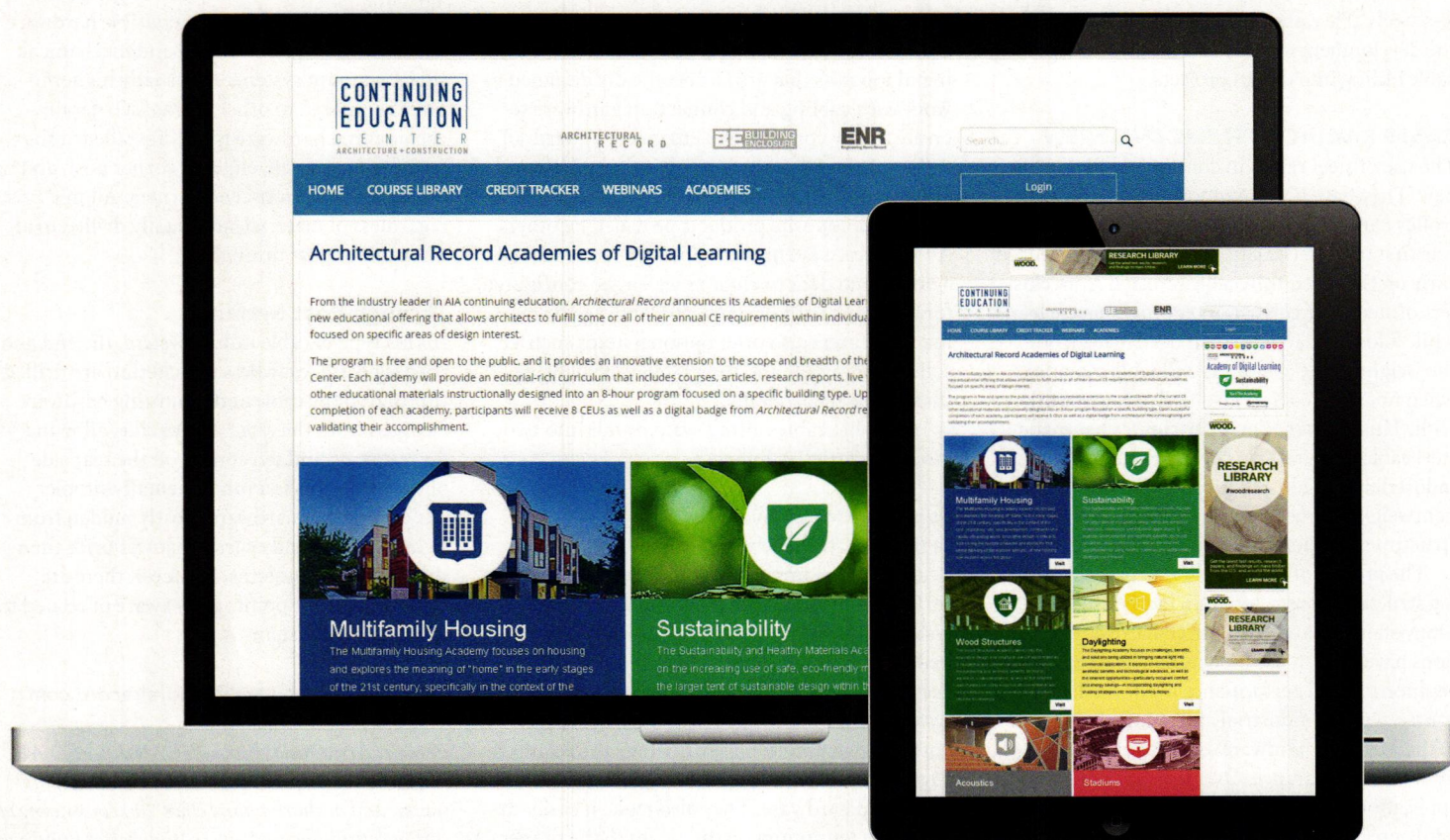
The two common types of cable railing systems include surface-mount systems (left) and through-post systems (center). Note that through-post systems will require some staggering of cable heights at corners (right).



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New and Upcoming Exhibitions

Public Architecture: Future Europe

Moscow

January 31–May 10, 2020

The Schusev State Museum of Architecture, in cooperation with the European Cultural Centre, presents realized, unrealized, and dream projects concerning social housing, green buildings, passive houses, mobility, educational and civic spaces, train stations, and airports. More than 40 architects and members of related institutions develop alternative approaches to new architecture, and to preserving the cultural heritage of Europe. More at ecc-russia.eu.

Access for All

New York

February 11–May 16, 2020

This exhibition, at the Center for Architecture, highlights public and private projects in São Paulo that improve the life of its citizens by creating inclusive places for urban society. Through commissioned drawings, films, interviews, archival materials, and “infographics,” the exhibition illustrates the city’s rich architectural history. Visit centerforarchitecture.org.

Ongoing Exhibitions

The Whole World a Bauhaus

Karlsruhe, Germany

Through February 16, 2020

The effects of the short-lived design school extended beyond Germany. This final installment, at ZKM | Center for Art and Media, of the traveling exhibition shows Bauhaus works from the following cities: Buenos Aires; Casablanca, Morocco; Mexico City; Moscow; and Santiago, Chile. See more at zkm.de/en.

Cold War and Architecture

Vienna

Through February 24, 2020

The exhibition, at the Architekturzentrum Wien, highlights building activity in postwar Austria, when Vienna under occupation became a central stage in the Cold War, carrying the competition of systems into architecture. It focuses on previously unexamined artifacts, creating a more thorough picture of postwar modernism. See more at azw.at.

Resident Alien: Architects in America

New York

Through February 29, 2020

At the Austrian Cultural Forum New York, this exhibition—curated by Stephen Philips and Axel Schmitzberger—illustrates the cultural contributions of Austrian-American architects from early Modernism through today. Find more information at acfn.org.

Props

Cincinnati

Through March 1, 2020

Zaha Hadid’s first U.S. project, the Cincinnati Contemporary Arts Center, hosts an exhibition featuring eight sculptures by artist Lauren Henkin that will be displayed throughout the structure so as to highlight elements of Hadid’s work. More at contemporaryartscenter.org

Designs for Different Futures

Philadelphia

Through March 8, 2020

This exhibition is about the role of designers in shaping how we think about the future. It brings together over 80 works that address the challenges and opportunities that humans may encounter in the years ahead, including lab-grown food, robotic companions, family-leave policy proposals, and textiles made of seaweed. For more information, go to philamuseum.org.



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dates&events

Nivola in New York

New York

Through March 15, 2020

This exhibition at Cooper Union shows the work of Italian sculptor Costantino Nivola, whose large-scale bas-reliefs, murals, and freestanding sculptural installations were created in collaboration with architects. On view in the Arthur A. Houghton Jr. Gallery, this is the first display to tell the story of Nivola's built New York projects through maquettes and sculptures, original drawings, site-specific photographs, and related ephemera. More at cooper.edu.

Agnes Denes: Absolutes and Intermediates

New York

Through March 22, 2020

This is the first comprehensive exhibition of Hungarian-born artist Agnes Denes's work in New York. The retrospective, at the Shed, includes sketches, drawings influenced by math and science, sculptures, and archival photographs and video. Learn more at theshed.org.

Passages of Light

Mexico City

Through March 29, 2020

A survey of James Turrell's works will be held at Museo Jumex. The exhibition will span two floors and show new pieces by the artist—who uses light as a medium—featuring immersive installations that test the limits of human perception. More at fundacionjumex.org.

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Lecture with Dominic Leong

Los Angeles

February 3, 2020

The founding partner of Leong Leong and adjunct assistant professor at Columbia GSAPP Dominic Leong will speak about his firm's ideas and projects at UCLA's Perloff Hall. Learn more at aud.ucla.edu.

Stockholm Furniture & Light Fair

Stockholm

February 4–8, 2020

The annual event is a meeting point for international buyers, architects, and designers. On the schedule this, its 70th, year is an anniversary exhibition on Scandinavian design, a full list of design and architecture seminars throughout the week, and a pop-up shop for design objects. For more information, go to stockholmfurniturelightfair.se.

Rolex Arts Weekend

Cape Town

February 8–9, 2020

The weekend of events (which is open to the public) will include talks, readings, exhibitions, and performances and feature the work of 2018–19 pairs from the Rolex Mentor and Protégé Arts Initiative, including mentor Sir David Adjaye and protégé Mariam Kamara. Learn more at rolex.org/rolex-mentor-protégé.

McCormick AfterParti Exhibition Tour

Elmhurst, Illinois

February 8 and 29, 2020

Led by two architects and educators, this tour gives an in-depth look at the duo's site-specific installation in the McCormick House (1952) by Mies van der Rohe, highlighting the building's history and unique design. More information can be found at elmhurstmuseum.org.

Competitions

American Roundtable

Deadline: February 18, 2020

The Architectural League will commission up to 10 editorial teams to produce reports on places they know well. The initiative focuses on small cities and rural areas, and those interested in assembling a team to explore a locale are invited to submit an editorial proposal and their qualifications for review. Commissioned teams will be awarded \$10,000 to support their work, which will be published digitally and in a series of print publications. More information at archleague.org.

LafargeHolcim Awards for Sustainable Construction

Deadline: February 25, 2020

The LafargeHolcim Awards seek projects from professionals and ideas from the next generation that combine sustainable solutions with design excellence through architecture, engineering, urban planning, materials science, construction technology, and related fields. Free submissions, with a total of \$2 million in prize money. See lafargeholcim-awards.org.

Urban Confluence Silicon Valley Open Design Competition

Deadline: April 3, 2020

International artists, architects, urban planners, landscape architects, lighting designers, and students may submit ideas for a structure intended to be a symbol of Silicon Valley. The competition seeks a transformative design complete with dramatic lighting, a net zero energy approach, and an impressive physical presence. Three finalist teams will each be given a \$150,000 stipend to refine their proposals. See urbanconfluencesiliconvalley.org.

Landslide 2020

Deadline: May 1, 2020

The Cultural Landscape Foundation (TCLF) released a call for project nominations for the foundation's annual report about threatened and at-risk landscapes. This year's theme, Women Who Shaped the American Landscape, coinciding with the centennial of women's suffrage, will focus on at-risk landscapes created by or associated with female landscape architects. The report will be released in September, along with a website and a traveling photographic exhibition that will debut at the Boston Architectural College, September 8. For more information, go to tclf.org.

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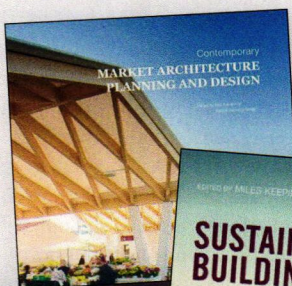
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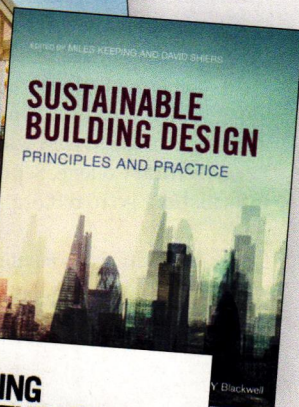


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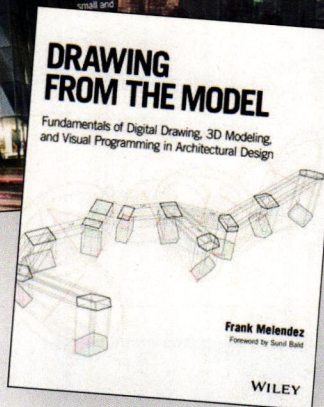
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B.



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B. Sustainable Building Design: Principles and Practice - \$95.99

An inside view of how one of the world's leading architecture and engineering practice does business, *Sustainable Built Environments: Principles and Practice* offers detailed, environmentally sound design solutions to a wide range of building engineering challenges. The text uses case examples and project data provided by engineers and designers at Arup Associates. It covers a broad range of relevant issues, with focused commentaries and explanations presented in an accessible format for use by students, busy practitioners and informed clients.

C. BIM for Design Firms: Data Rich Architecture at Small and Medium Scales - \$75.00

This book expands on BIM (Building Information Modeling), showing its applicability to a range of design-oriented projects. It emphasizes the full impact that a data modeling tool has on design processes, systems, and the high level of collaboration required across the design team. It also explains the quantitative analysis opportunities that BIM affords for sustainable design and for balancing competing design agendas, while highlighting the benefits BIM offers to designing in 3D for construction. The book concludes with a deep look at the possible future of BIM and digitally-enhanced design.

D. Drawing from the Model: Fundamentals of Digital Drawing, 3D Modeling, and Visual Programming in Architectural Design - \$79.00

Drawing from the Model: Fundamentals of Digital Drawing, 3D Modeling, and Visual Programming in Architectural Design presents architectural design students, educators, and professionals with a broad overview of traditional and contemporary architectural representation methods. The book offers insights into developments in computing in relation to architectural drawing and modeling, by addressing historical analog methods of architectural drawing based on descriptive geometry and projection, and transitioning to contemporary digital methods based on computational processes and emerging technologies.

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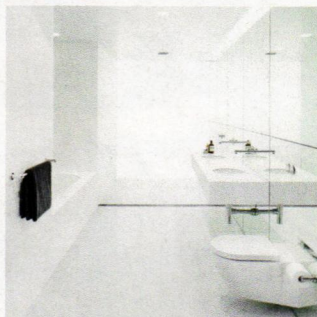
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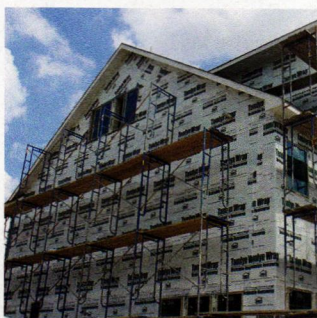
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RECORD INTERIOR 2019 WINNER: RS APARTMENT IN RIO DE JANEIRO BY STUDIO ARTHUR CASAS

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IT SHOULD SEEM only natural, perhaps, that Brooklyn-based artist Katie Merz, the daughter of architects, has made the built environment her canvas. Across the borough and beyond, Merz embellishes facades with murals composed of her signature “hieroglyphics”—a dense pattern of symbolic doodles and text in white oil stick. Her most recent project transforms the brick surfaces of the Brooklyn Bank building in the Bedford Stuyvesant neighborhood with 2,500 square feet of intricate illustrations. After its life as a financial institution, the 1931 building served as a church. Today it is a private-events space and education center, teaching financial literacy to the community. Merz says her design sprang from a list of words she chose to represent both banking and the neighborhood. From there, the collection grew into a series of “signs and symbols” that underscore that connection, including cartoon-like images of bankers grasping bills and bags of money. “In my mind, my process is a form of mathematical deduction that reduces language back into symbols,” she says. The final step is to transfer these images onto the architecture that inspired them—allowing the public to engage with the art. On a frigid December afternoon, when *RECORD* went to see the artist at work, curious passersby stopped to take in the scene and, some, to snap a selfie. “This is going to be more than just a mural,” she told the community before embarking on the project. She’s right: it is another layer of local history.

Kara Mavros

