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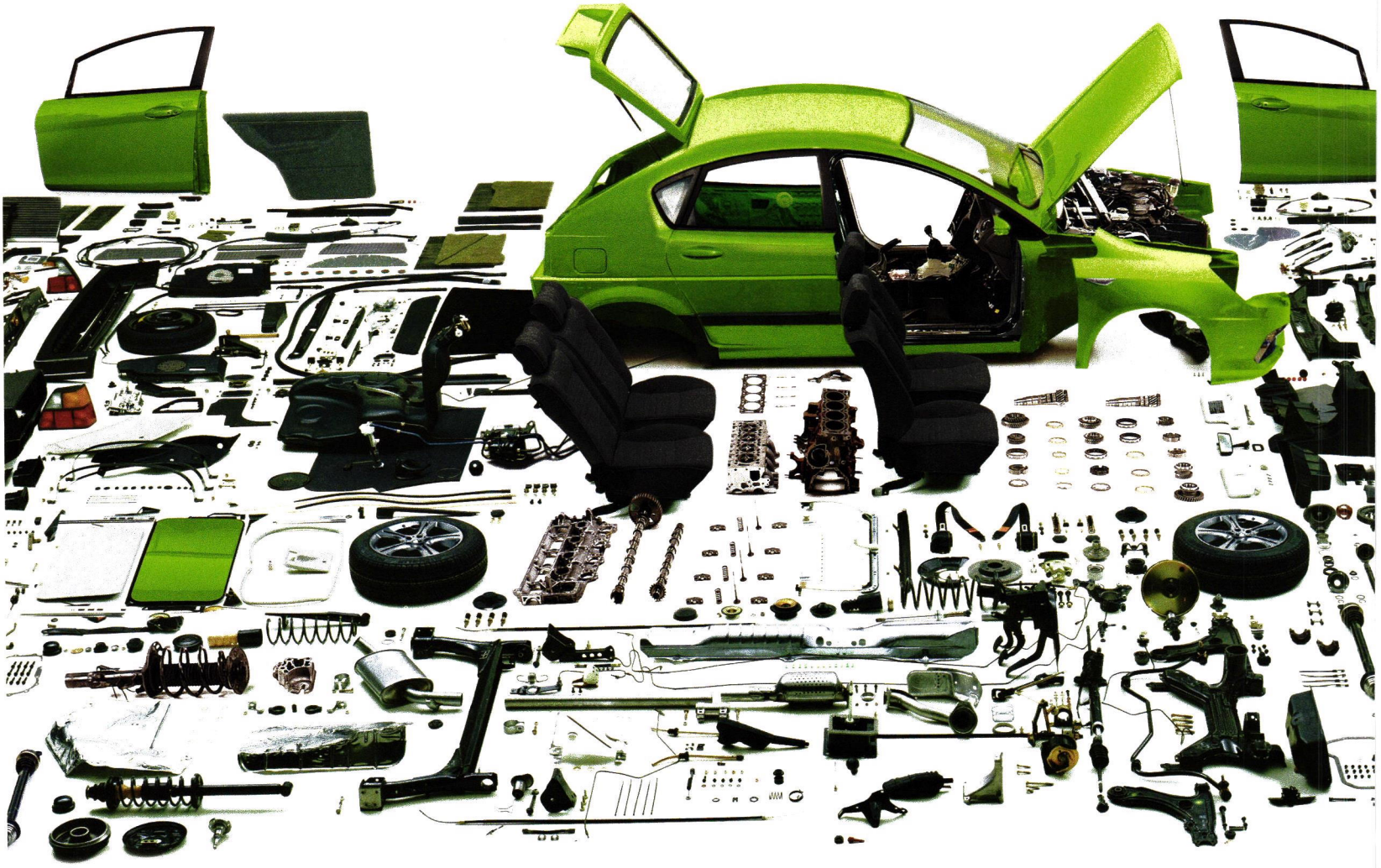

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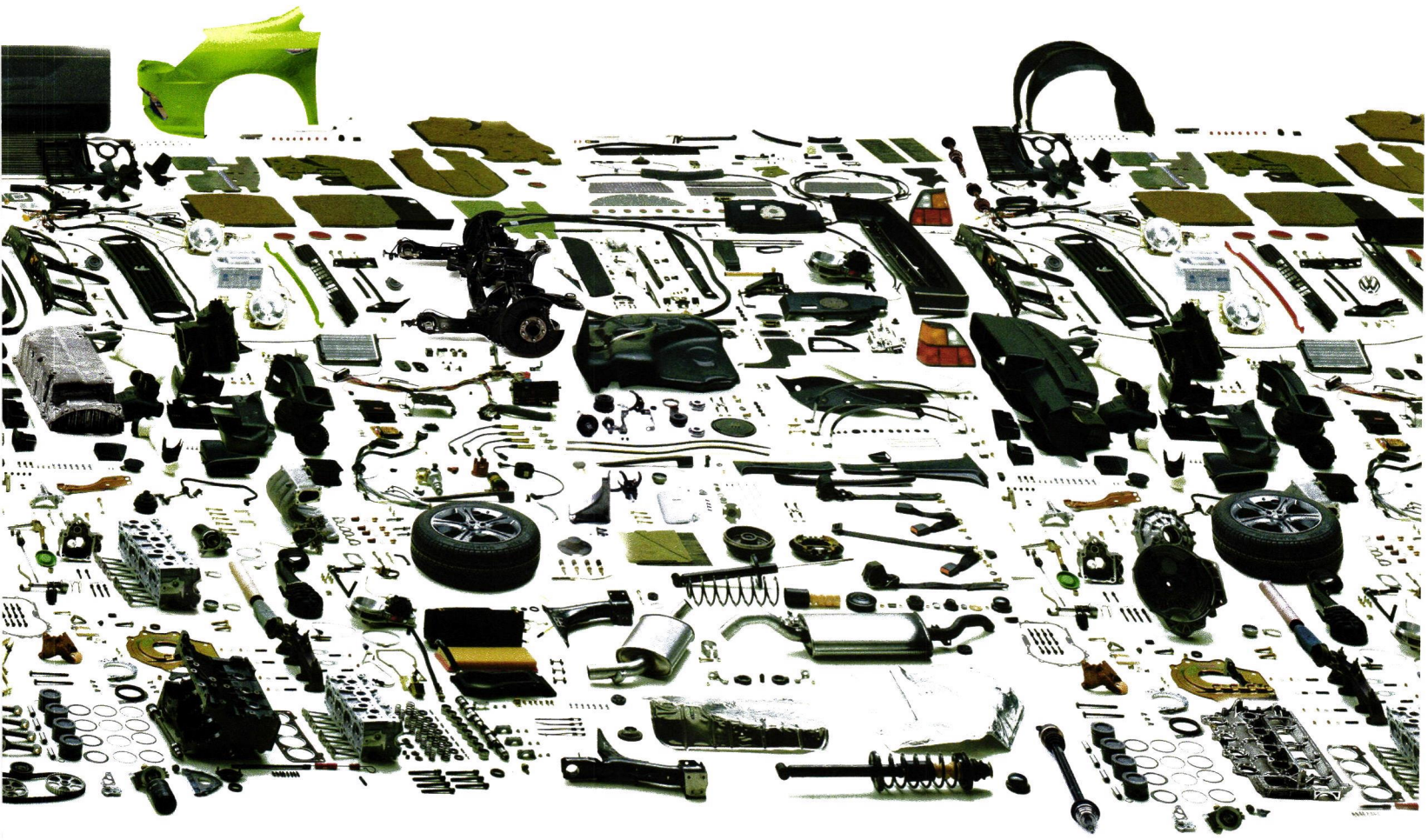

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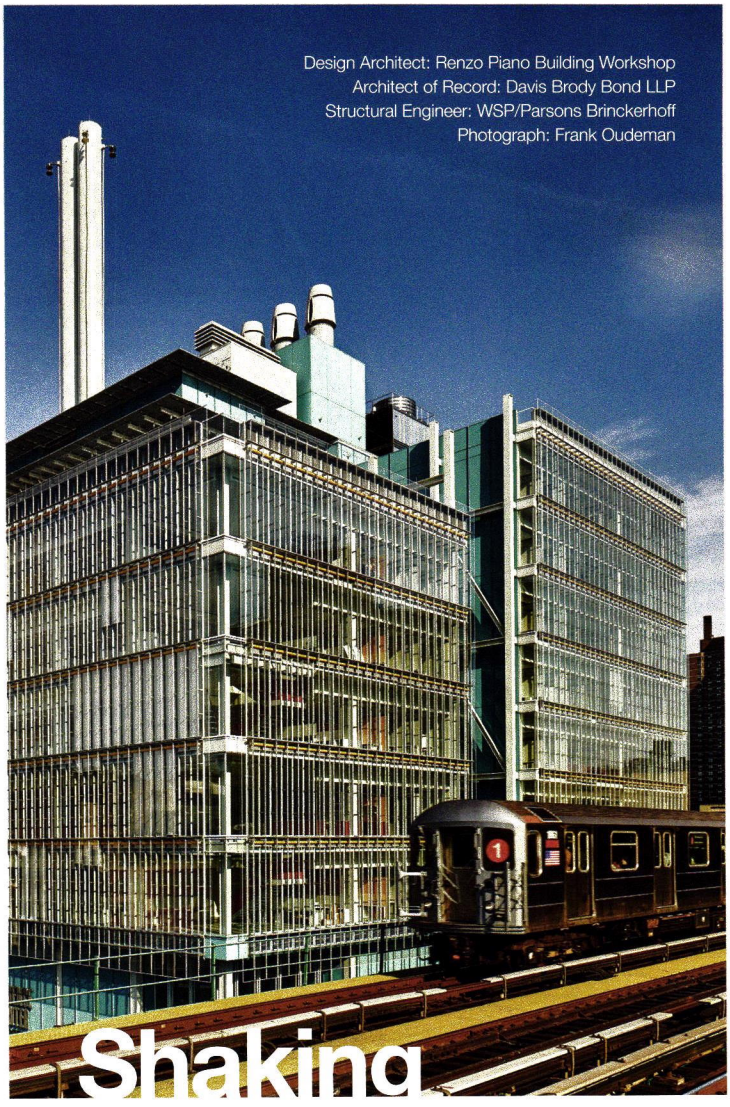

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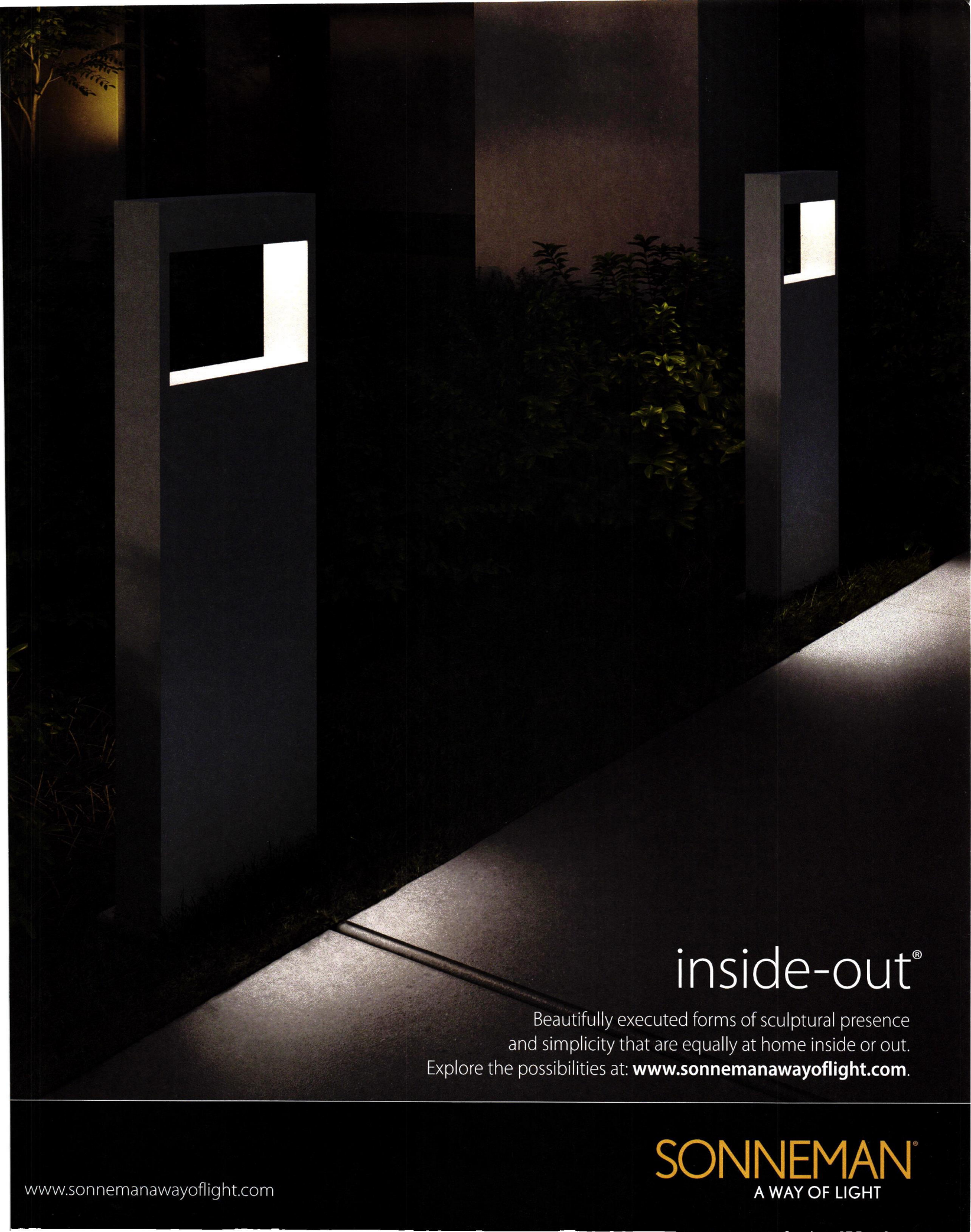
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Page Turner

Queens' new **Elmhurst Community Library** serves one of the most diverse and vibrant communities in New York. Designed by **Marpillero Pollak Architects**, the LEED Silver-rated facility features two structural glass-encased reading rooms that allow light to flood in during the day and offer glimpses of the state-of-the-art library setting at night. Erected by **W&W Glass**, its glazed features have become beacons for the community, drawing its knowledge-hungry members to the wealth of information within. Read more about it in **Metals in Construction** online.

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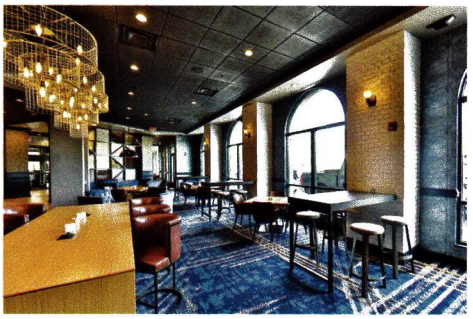

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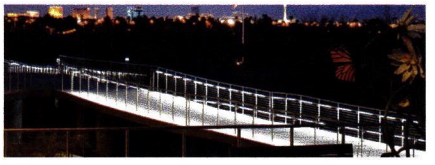

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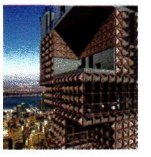

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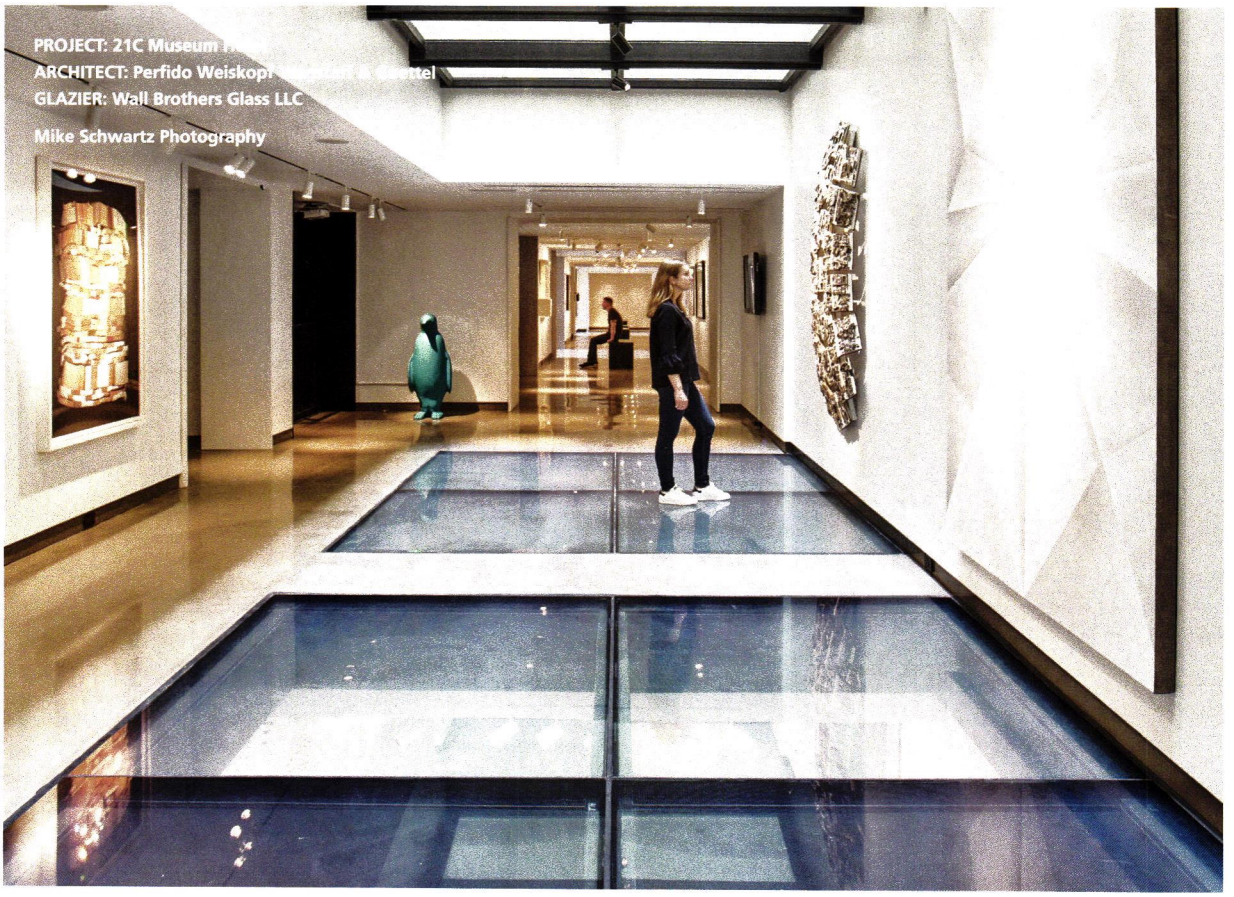

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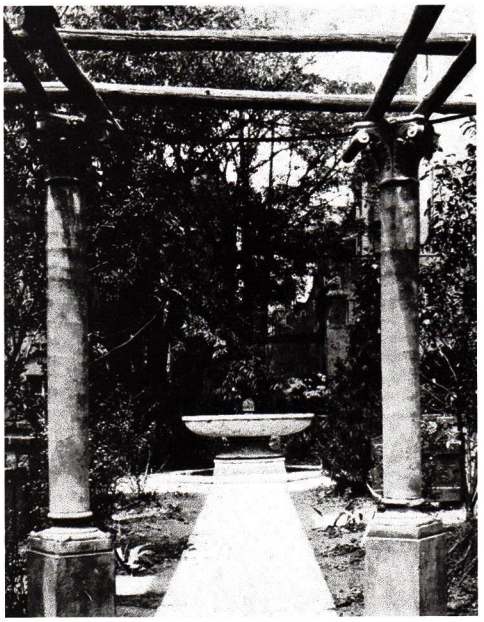
MODEL STUDENTS

Cooper Union architecture students, posing here with the school's president, Laura Sparks (center), and associate dean and professor Elizabeth O'Donnell (far right), created this model of the National and University Library of Kosovo for the MoMA exhibition *Toward a Concrete Utopia* (page 43).



THROWBACK THURSDAY

Architectural Record has covered a wide range of projects since its founding in 1891, from Neoclassical civic buildings to unique landscapes such as the Turtle Bay Gardens in New York, pictured here and published in December 1920. Follow the magazine on Instagram for a weekly peek into the archive.

PARKED IN THE SHADE

Managing editor Beth Broome visited with architect Marlon Blackwell and his team on the porchlike stage pavilion at Shelby Farms Park in Memphis (page 66).

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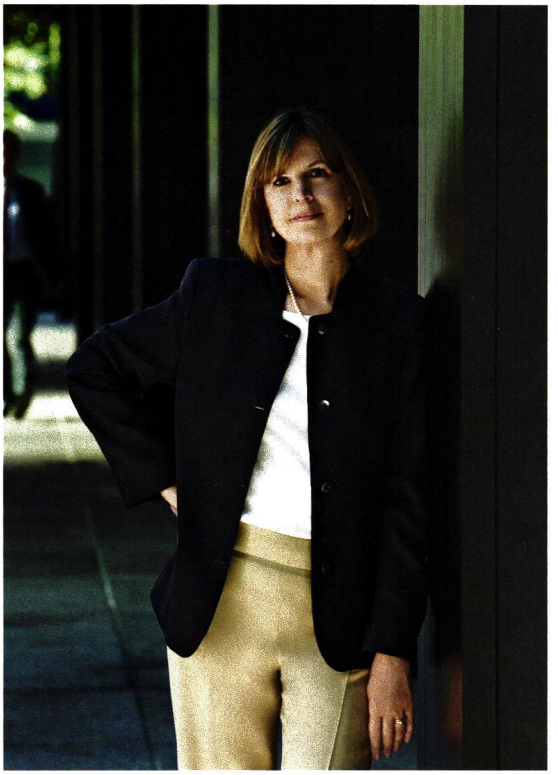
In architecture, those who are foreign-born are part of revitalizing the culture and our cities.



THE STORIES about children separated from their parents at the U.S.-Mexico border earlier this summer were a heartbreaking reminder of how terribly broken our immigration system is, and the practice was condemned across the political spectrum. But how to "fix" the system is a process that's also painfully broken, with Congress unwilling to seriously take up immigration reform, and Federal judges having to take the lead against border-guard actions such as de facto rejection of legitimate asylum seekers, or their indefinite detention, in violation of federal policy and international law.

We're a very different country from what we were a century ago, when Emma Lazarus's poem beckoned from the pedestal of the Statue of Liberty, "Give me your tired, your poor/ Your huddled masses yearning to breathe free"—though, in fact, the invitation was never exactly open-ended. But as we grapple today with how to control our borders in ways that are fair, sensible, and humane, one thing hasn't changed: we always will be a nation of immigrants and descendants of immigrants. Unless you are 100 percent Native American (and one of those DNA tests can help you figure that out), you or your forebears came from somewhere else, whether laborers, teachers, or firemen—or groundbreakers in science, business, or the arts.

Earlier this year, the Vilcek Foundation, dedicated to raising awareness of immigrant contributions in America, awarded its annual prizes in biomedical science and the arts. Dr. Jan Vilcek, along with his wife, Marica, came to the U.S. in the 1960s from the former Czechoslovakia. Thanks to his immigrant success story—he developed an anti-inflammatory drug used to treat rheumatoid arthritis and Crohn's disease—he and his wife, an art historian, are generous philanthropists. This year, the $100,000 Vilcek arts prize recognized an immigrant architect—Teddy Cruz (I was on the jury that selected him). Three younger practitioners were also honored for showing creative promise, each receiving a $50,000 award: Mona Ghandi (born in Iran), James Leng (born in China), and Jing Liu (also born in China).

Cruz emigrated to the U.S. from Guatemala at the age of 20—where he had witnessed lawless violence—and studied architecture at Cal Poly at San Luis Obispo and earned a Master in Design Studies at the Graduate School of Design at Harvard, before establishing what is now Estudio Teddy Cruz + Fonna Forman. His firm is deeply engaged in research, advocacy, and urbanism as well as design, in the cross-border communities of San Diego, where is office is based, and Tijuana.

The issues Cruz confronts in his work could not be more timely. He is also only one of a long list of prominent American architects who are immigrants from elsewhere. Just a short tally would include Frank Gehry (born in Canada), Daniel Libeskind (Poland), Denise Scott Brown (Zambia), Cesar Pelli (Argentina), Rafael Viñoly (Uruguay), Liz Diller (Poland), Annabelle Selldorf (Germany), Nader Tehrani (London), Gisue and Mojgan Hariri (Iran), Enrique Norten (Mexico), Moshe Safdie (Israel), Amale Andraos (Lebanon), and Florian Idenburg (the Netherlands), to name only a few. (If you would like to add a foreign-born American architect to RECORD's list, please go to the end of this editorial on architecturalrecord.com.) Like their cohorts in sciences, arts, and other disciplines, the contributions that these architects make to American culture, as well as to the wider world, are immeasurable.

At this strange moment in our history, when the government seems to be closing the door on many new immigrants and foreign visitors from certain countries, architecture can only suffer. Our schools have long been enhanced by students with varied backgrounds, and architectural thinking is enriched by the free flow of ideas across borders, from the foreign practitioners who join our firms to those who come from abroad to visit or lecture. Like most significant endeavors today, architecture is a global profession. Let us continue to benefit from a wide and diverse chorus of voices and range of visions for the future.

Cathleen McGuigan

Cathleen McGuigan, Editor in Chief

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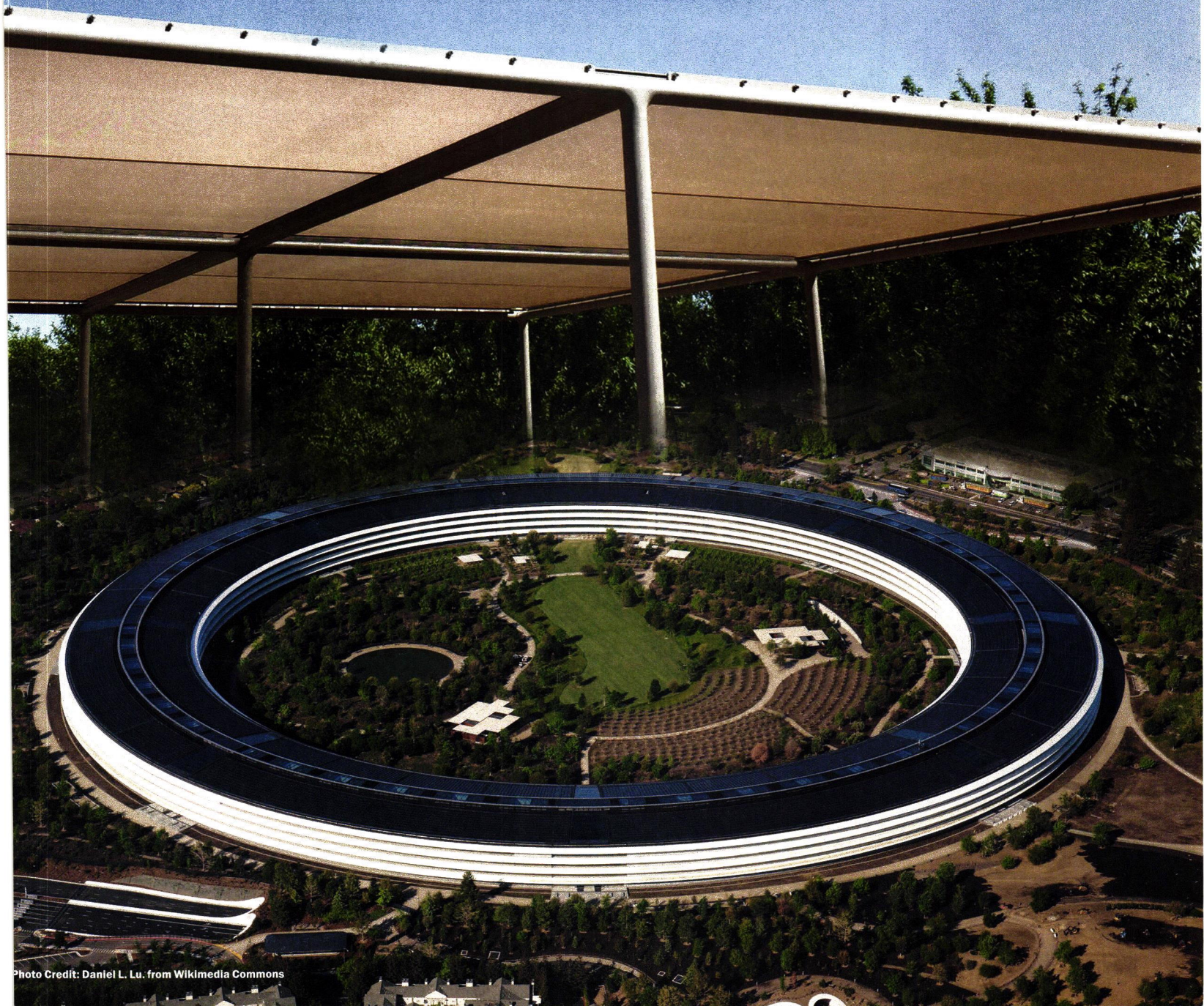

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perspective

You are not a profession that has distinguished itself by your social and civic contributions to the cause of civil rights... You are most distinguished by your thunderous silence and your complete irrelevance.
—*Whitney M. Young, Jr., in his 1968 keynote speech at the American Institute of Architects conference.*

Calls for Equity and Inclusion Echo Long After AIA Conference

BY HEATHER CORCORAN

IN ARCHITECTURE, as in other fields, the #MeToo movement of the past year has prompted the profession to grapple with whispered rumors, deeply rooted biases, and longstanding inequalities, catalyzing a chorus of voices calling to make the field more equitable, and inclusive. And, if the political activity at the 2018 American Institute of Architects (AIA) Conference in New York this June was any indication, advocates are refusing to be ignored any longer.

"This is time for a revolution," said 90-year-old Beverly Willis, FAIA, just days before the longtime activist for women in architecture took the stage as part of the Voices of Plurality flash mob at the AIA Conference. The demonstration was one of several official and unofficial events focused on equity and diversity, including AIA-organized panels on harassment-free workplaces, the Architecture Lobby's National Think-In, and exhibitions on the history of activism in architecture (organized by ArchiteXX) and architects of the African diaspora (by S9 Architecture and the National Organization of Minority Architects). Yet despite the swell of conversation, building on decades of activism, many who spoke with RECORD said they were tired of waiting for change from the top down.

During the 2018 AIA Conference in New York, more than 100 demonstrators gathered outside the Jacob K. Javits Convention Center for the Voices of Plurality flash mob.

"The AIA has many committees, and they're doing many studies and making other slow-moving efforts aimed at minimizing this problem in the profession," says Frances Halsband, FAIA, of Kliment Halsband Architects. "I think what all of us believe is, it has to be done faster." Before the conference, Halsband circulated a petition that asked members of the College of Fellows to demand the AIA's Code of Ethics be amended to specifically address discrimination, harassment, and abuse. "Amending the Code of Ethics is the key to change," Halsband says. "It's absolutely imperative we do it as soon as possible." After gathering hundreds of signatures in just days, Halsband adapted the petition into a formal motion, which passed with near-unanimous support at this year's AIA Business Meeting. The board of directors, which holds the power to change the Code of Ethics, will consider formalizing the amendments during their next meeting, in September.

While the fight for equal representation, pay, and respect has been going on for decades—it's been a full 50 years since civil rights leader Whitney Young, Jr., implored architects to take an active role in creating a more just society, and some four decades since women began pushing for equality at an AIA conference in the 1970s—much of the recent activism stems from the "missing 32 percent," a gap between the women who graduate from architecture school (about 50 percent) and those who get licensed (now about 20 percent but previously 18 percent, hence the missing 32). That statistic led to the formation of Equity by Design, within the San Francisco AIA, which works to identify and eliminate the pain points driving people from the field, no matter their identity.

The shift is away from the idea of equality—everyone gets the same resources—toward a framework that focuses on removing barriers to success and leveling the playing field. "We can't say we're inclusive when we only talk about one specific group," says Rosa Sheng, FAIA, founding chair of Equity by Design.

A rising generation is also rejecting entrenched injustices and advocating for a more holistic balance between life and work. Boston-based designers Juliet Chun and Zhanina Boyadzhieva, both of Leers Weinzapfel Associates, created Girl UNinterrupted, a research project studying the challenges facing emerging professionals. The duo recently

Visit our online section, architecturalrecord.com/news.

The flash mob at the AIA was organized by (from left to right) Pascale Sablan, Rosa Sheng, A.L. Hu, Julia Murphy, and Caroline James.

published their findings from a survey of 533 Boston designers and conversation series with women architecture leaders, and presented them at this year's AIA Conference. The document blames professional dissatisfaction on a lack of transparency and on poor communication between leaders and early-career employees, especially about benefits, company culture, mentorship, and being heard. "Emerging professionals need to speak up. If there are things that you don't agree with—it's a matter of expressing your values, desires, and wants," says Chun. As Carole Wedge, FAIA, says in an interview in their publication, "Don't be a bystander."

Architect Frances Bronet, who this year became the first woman president of Pratt Institute in Brooklyn, sees the potential of the coming demographic shifts. "A lot of emerging professionals are going into leadership positions very soon," she says. "They can start to make the changes that will better their practices and architecture in general." In fact, AIA chief economist Kermit Baker estimates some 25,000 new positions will need to be filled in the field in the next decade, paving the way for a new generation.

Providing tomorrow's practitioners equitable paths to leadership and strong role models is essential if the profession hopes to meet the challenges of the 21st century. It's been "an exclusive club for many years, and it's out of sync with the times," Louise Braverman, FAIA, agreed after the flash mob outside of the Jacob K. Javits Convention Center. "It's keeping the profession down. It's 2018: old-school is not gonna cut it." ■

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Emerging Architects Play *Hide & Seek* at MoMA PS1

BY ERIN HUDSON

WHEN JENNIFER NEWSOM and Tom Carruthers, the founders of Minneapolis-based art-and-architecture practice Dream the Combine, learned they won this year's Young Architects Program (YAP), an initiative of the Museum of Modern Art and MoMA PS1, it was the couple's 4-year-old daughter who celebrated the most. "She clenched her fists, held them up, and just kind of crowed to the sky, 'Victory!'" Carruthers recalls. The couple, on the other hand, had mixed reactions. "It felt really good, and then it struck fear into our hearts, because we actually had to make what we said we were going to make," says Newsom.

The annual competition, now in its 19th year, invites emerging designers to develop a temporary installation that provides shade, seating, and water for the urban courtyard of MoMA PS1, the Museum of Modern Art's satellite location in Queens, New York. Dream the Combine and their longtime collaborator, Arup engineer Clayton Binkley, responded to the challenge with *Hide & Seek*, a series of steel-and-fabric canopies that stretch across the courtyard and fasten to the concrete walls of the enclosed outdoor space. Mill-finish steel frames support several gimbaled mirrors, which are positioned at various angles throughout the space to provide glimpses of infinite reflections, including unexpected views out to the surrounding streets. "As you move around, there are moments of discovery," says Binkley. *Hide & Seek* is the trio's largest project to date, and one of YAP's most structurally challenging.

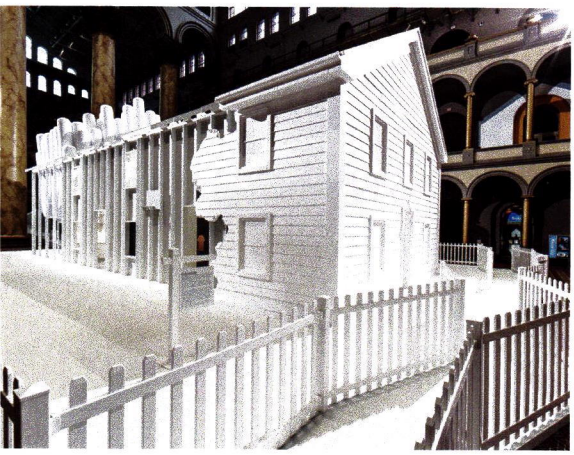
For the 19th edition of the Museum of Modern Art and MoMA PS1's Young Architects Program, the winning team designed a site-specific structure providing shade, seating, and water.

The immediate focal points are the two largest structures—one elevated roughly knee height from the ground, the other waist-high—which are bookended with reflective walls that can be manually adjusted by a shaft but also sway with a strong gust of wind. When in motion, the mirrors function "kind of like an eye," Newsom says, able to shift focus to different areas of the courtyard. The structure's black fabric appears translucent from some angles, but also provides meaningful shade.

Drawing inspiration from New York–based artist Lorraine O'Grady's 1983 performance piece *Art Is*, in which O'Grady walked the streets of Harlem with a gold picture frame, holding it up to make passersby pieces of art, Dream the Combine's pavilion reflects and distorts its visitors, creating compositions of intersecting lines of view. The effect is heightened during weekend Warm Up events—MoMA PS1's popular summer music series, which began mid July and runs through the beginning of September. (With these crowds in mind, the designers added water misters to the crisscrossing trusses of *Hide & Seek* to cool down attendees during performances.)

According to Dream the Combine, the ultimate intention of the pavilion is to bring multiple perspectives to the foreground. "You bring the color; you bring the flavor. Everyone is part of the art," says Newsom. ■

The 2018 Young Architects Program installation Hide & Seek *will be on view at MoMA PS1 in New York through September 3, 2018.*



Surrounded by a white picket fence, the incomplete structure at the center of Snarkitecture's installation is "either decaying or being built," say the designers.

Snarkitecture Makes D.C. Fun Again

BY DEANE MADSEN

WASHINGTON, D.C.'S cultural institutions can feel a bit stuffy and buttoned-down, but a newly opened exhibition at the National Building Museum (NBM) encourages something wholly unexpected: fun. For the fifth iteration of its series of Summer Block Party exhibitions, the NBM brought back New York–based firm Snarkitecture to build an immersive installation called *Fun House* within its football field–size Great Hall.

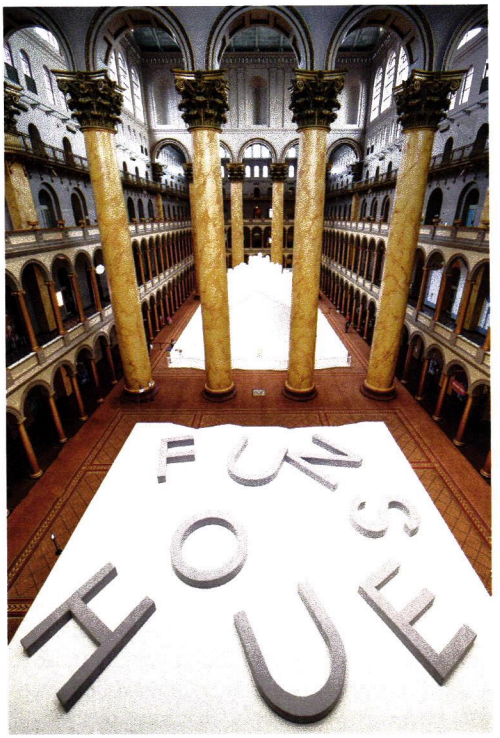
The firm's 2015 show at the NBM, *The Beach*, remains one of the museum's most popular exhibitions ever, receiving over 180,000 visitors during its eight-week run. *Fun House* includes a kidney-shaped kiddie-pool-sized ball-pit filled with thousands of translucent plastic spheres—in essence, a scaled-down version of *The Beach*'s main attraction. This year's installation adds an encapsulated retrospective look at Snarkitecture's other work and collaborations by way of a gabled, roughly 24-foot-tall house at the center of the Great Hall.

"Usually with art and architecture, you go and you stand—and you don't touch it. You just kind of observe the space around you," says Snarkitecture partner Benjamin Porto. In contrast, his firm's monochromatic interactive work invites a focus on materials and textures.

"People let their guard down, and then they start touching everything, and that's how you let adults be kids."

Engagement starts just inside a white picket fence, where visitors enter through an excavated foam doorway that recreates *Dig*, a piece commissioned by New York's Storefront for Art and Architecture in 2011. The ceiling of the central hallway pays homage to the firm's partnership with apparel retailer Kith, with dozens of all-white Air Jordans suspended from the ceiling. In the bathroom, the hexagonal penny tile floor repeats as a camouflage print on clothing—a 2015 collaboration with Print All Over Me—hanging from the walls; an all-white wooden crate filled with more of the translucent balls of *The Beach* stands in for the bathtub. In the study, experiments with the form of furniture—a broken cabinet, a cracked marble record crate, and a bifurcated bench—dive into Snarkitecture's fascination with creating a sense of erosion.

"So much of our work is about this area between construction and demolition," says Snarkitecture cofounder Daniel Arsham. "You could look at this house and say, 'OK, the house is actually falling apart.' But you could also look at it as being in the process of construction. And that middle place where the work sits is often where we try to situate a viewer."



The National Building Museum's third-floor balcony provides a bird's-eye view of enormous letters that spell out the name of the installation.

Visitors are also free to explore the museum's upper levels—the best perspective on the oversize letters that double as seating on what the artists call their gabled cottage's front lawn. The seats collectively spell *Fun House*.

"There's this game of change of perspective, change of scale, change of familiar and unfamiliar. It's all a double-take on the world where we live," exhibition curator Maria Cristina Didero says. "They have this way of working with things that are very normal and simple, yet they have the capacity to twist them and elevate them to a different level."

Previous Summer Block Party installations at the NBM include *The BIG Maze*, by Bjarke Ingels Group, in 2014; *The Beach*, by Snarkitecture, in 2015; *Icebergs*, by James Corner Field Operations, in 2016, and last year's *Hive*, by Studio Gang Architects. ■

Snarkitecture's 2018 Summer Block Party installation Fun House *will be on display at the National Building Museum in Washington, D.C., through September 3, 2018.*

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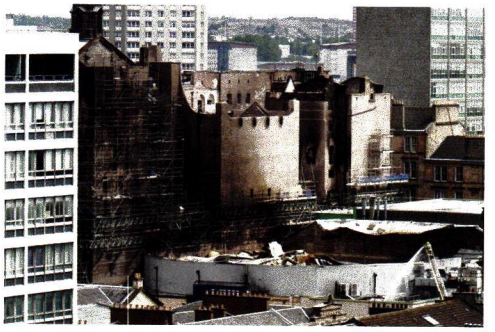
Glasgow School of Art Plans to Rebuild Mackintosh Building

BY CHRIS FOGES

EVEN AS FLAMES poured from the roof of the Glasgow School of Art (GSA) on the night of June 15 and before the damage could be fully assessed, passionate debate on the building's future began. Online and in the morning's newspapers, architects began to advocate for different approaches to Charles Rennie Mackintosh's masterwork, built 1897–1909, which was nearing the end of a $45 million restoration following a smaller fire in 2014.

Prominent Scottish architect Alan Dunlop suggested that the destruction appeared so comprehensive that any reconstruction would produce a "sad replica" and that an ambitious new building would make a better legacy. GSA professor Ray McKenzie offered another radical proposal: leave the ruin to stand "as a silent witness to the value—and the precariousness—of history itself."

Over the following days, as it became clear that large areas of stonework had survived, GSA director Tom Inns told the BBC that the building "will be saved in some form," and discussion among architects turned to the question of whether to build an exact replica or reconstruct with contemporary additions that acknowledge its troubled history.

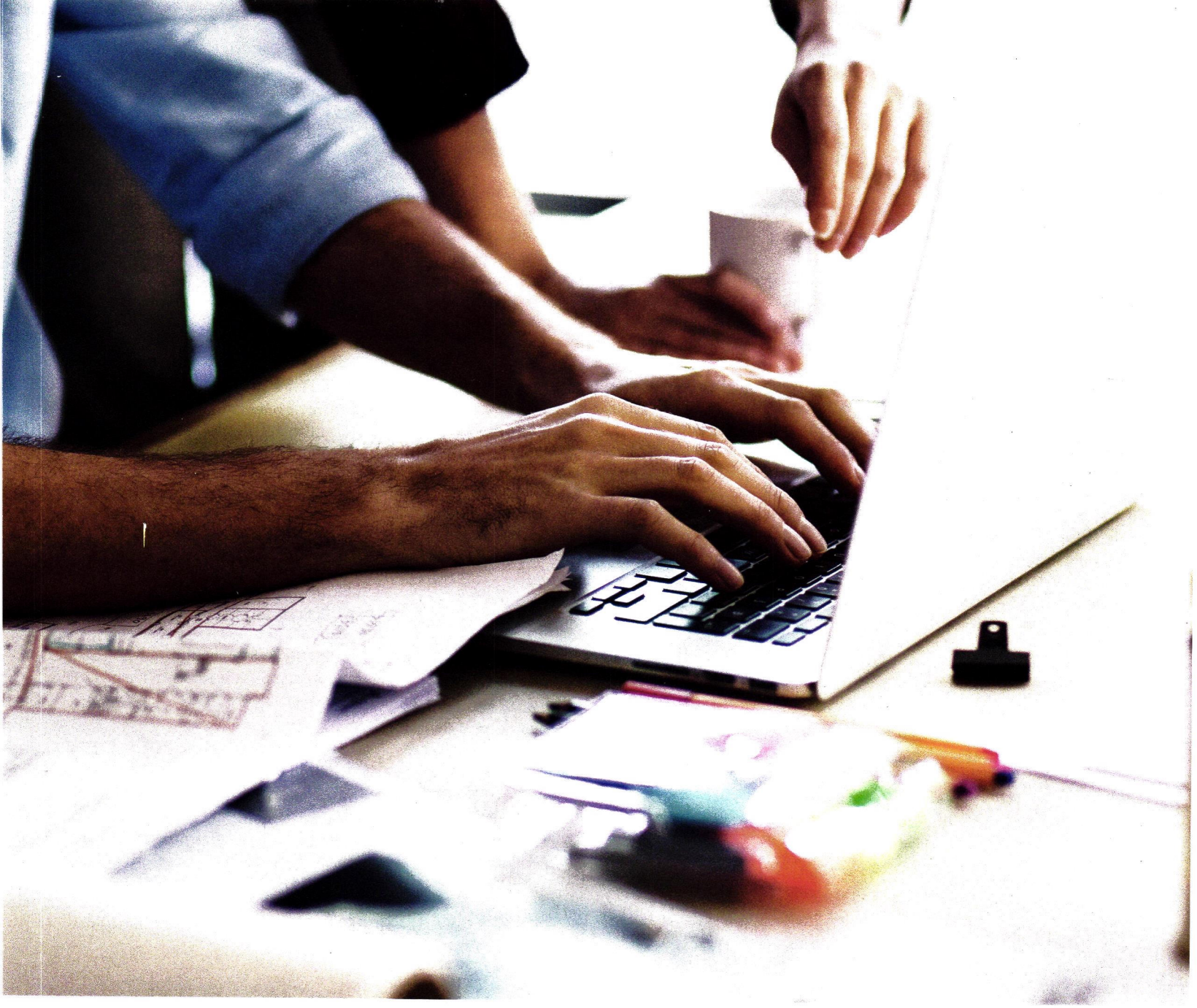


The Mackintosh building, seen here two days after the June 15 blaze, is located in the center of Glasgow.

Conservation architect Julian Harrap, who collaborated with David Chipperfield on the repair of Berlin's Neues Museum, argued that an exact copy would be a "disgrace" to the profession, while a wholly new building would be "equally unacceptable." Chipperfield also came out in favor of reconstruction but added that the approach "should be based on intellectual and technical criteria and opinion."

An argument for the faithful reconstruction of the school "exactly as it was just before the 2014 fire" came from architect John McAslan, who restored Haiti's Iron Market after the 2010 earthquake, only to see it burn down again this year. This also seems to be the view of the GSA. On July 10, Inns told the *Guardian* that "it is critically important that the building comes back as the Mackintosh building." Although the cause of the blaze is not yet known, he also expressed confidence that insurers will foot the bill.

He spoke as contractors prepared to dismantle some unstable walls. Later assessments will show what materials might be reused, but new 3-D scans are being added to an already formidable quantity of documentation. The recent restoration project bolstered that knowledge and showed the quality of work that can be done. The school and its supporters will now dig even deeper to preserve an icon of world architecture. ■



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Tiffany Brown

BY MIRIAM SITZ

AROUND THIS TIME last year, when the 400th African American woman was licensed as an architect in the U.S., designer Tiffany Brown learned she was a finalist for a Knight Arts Challenge grant. A Detroit native and employee of SmithGroupJJR, Brown is a passionate advocate for increasing diversity, focusing her energies on growing the numbers of African American women in the profession. Her initiative, 400 Forward, which won the award—a $50,000 matching grant from the John S. and James L. Knight Foundation—aims to provide mentoring and support for the next 400 black women to become architects. Brown spoke with RECORD about her work and the ways architects can promote diversity.

Obama and Brown (right) at the 2017 AIA Conference.

What first drew you to architecture?

In middle school, I was in a precollege engineering program, but it wasn't something that sucked me in. Art, on the other hand, always had me by the arm. When a recruiter from Lawrence Technological University's college of architecture [near Detroit] came to my high school, I was hooked. I ended up studying architecture there, and developing my interest in the built environment.

What was your transition to college like?

I had a tough time going from the public school system to a private university. I'm a first-generation college graduate, so I didn't have anyone guiding me through the obstacle course. But I did it. I just kept telling myself that it had to be done. I earned my undergraduate degree and two masters—my M.Arch. and an MBA.

Did the demographics of your college classmates reflect the profession?

I had a lot of female classmates, but there was no diversity as far as race. I'm still close friends with many of the women I went to college with. Some work in architecture, but a lot of them don't. It's not a field that's very inviting to women, let alone minorities.

And much of your work now revolves around making architecture more welcoming and accessible, especially to young African American women.

Yeah—it's important to get in front of kids who may not know what they want to do when they grow up and introduce them to architecture. We need to focus on minority women, and African American women in particular, who represent less than half a percent of our profession, which is obviously not what our communities look like. I think that once we really get a concrete pipeline in place, to get kids interested and then make sure college students are successful and have the mentorship and support that they need, we will begin to see a change.

It's the early days of 400 Forward, but you're already connecting professional women with girls who are interested in architecture and want mentors. What other plans do you have for the future of the organization?

I can imagine us having chapters all around the country and coming together for conferences and different events to support each other. My dream is to partner with Michelle Obama's Reach Higher and Let Girls Learn initiatives. I had the chance to meet her at the AIA convention last year in Orlando [see photo]—she walked right up to me and asked me my name and what I love to do. I gave her my elevator pitch about 400 Forward, and she signaled her assistants to get us connected.

What should architects be doing to promote diversity?

As professionals it is our duty to make sure that we are creating a proper environment for generations to come, and we can't do that without diversity. We can't create beautiful cities without diversity. We can't serve our neighborhoods without diversity. Whether you're a student or you're an instructor or you're a professional, it's something that we should all advocate for.

What does that look like in practice?

Mentoring people who don't look like you. Telling students who don't look like you about architects who do look like them. We need to seek out diverse talent, and diverse student bodies, and we need to be supportive of their success. ■

noted

Crocker Art Museum Taps Olson Kundig for Park Project

The Seattle-based firm will work with San Francisco landscape architects SURFACEDESIGN to transform three acres of land north of the Sacramento museum's main building into a multifunctional civic space. The $40 million project is expected to break ground in the fall of 2020.

Cooper Hewitt, Smithsonian Design Museum Honors Ford Foundation Prez with National Design Award

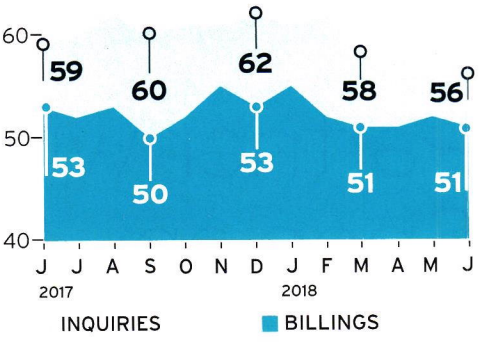
Museum director Caroline Baumann named Darren Walker the 2018 Director's Award recipient. During his tenure as president, Walker has overseen a total renovation of the Foundation's 1967 landmark building by Kevin Roche John Dinkeloo Associates.

Frank Gehry Designs Philadelphia Museum of Art Restaurant

With an undulating ceiling, Douglas fir walls, and red oak floors, Stir, the architect's first fine dining restaurant on the East Coast, will open in early October. Gehry is currently leading a major transformation of the museum's main building, slated to conclude in 2020.

List Names Most-Endangered Historic Places in the U.S.

The National Trust for Historic Preservation has published its annual list of significant buildings and sites under threat of destruction, including five secondary schools in Los Angeles that were central to the 1968 East L.A. student walkouts, and multiple properties in Puerto Rico and the U.S. Virgin Islands that were damaged by the 2017 hurricanes.



Architecture Firm Billings Rise for Ninth Consecutive Month

The latest AIA data show that billings once again rose in June, despite a slight ease in the Architectural Billings Index, from 52.8 in May to 51.3 in June (Scores over 50 indicate an increase in billings.) The project inquiries index decreased by 3.3 points, but the design contract index grew by 0.8 points.

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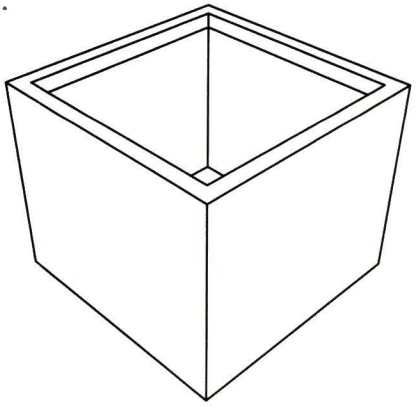

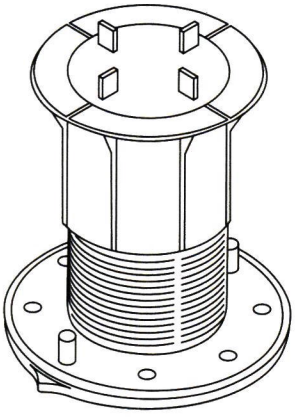

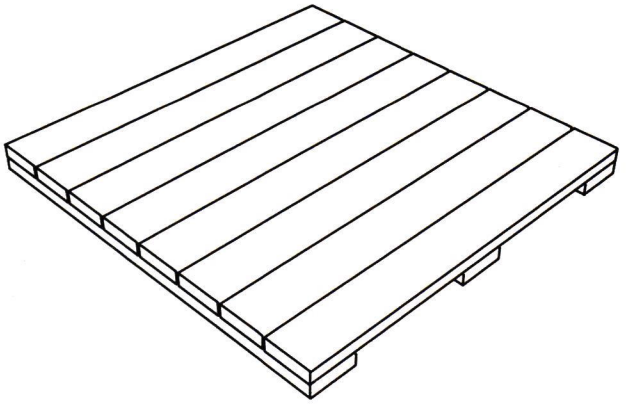

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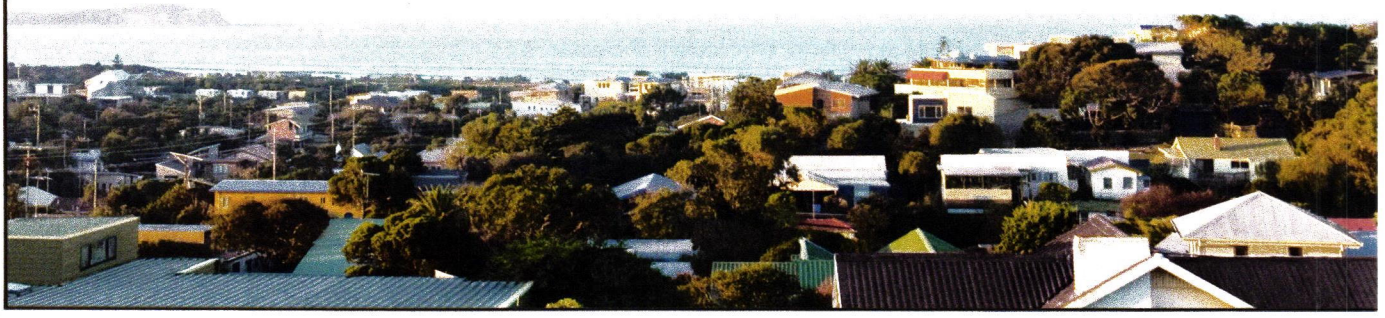

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perspective **house of the month**

A STRINGENTLY PURE SCHEME FOR A COTTAGE IN MIAMI BY K/R CONTRASTS VIVIDLY WITH ITS LUSH SURROUNDINGS. **BY SUZANNE STEPHENS**

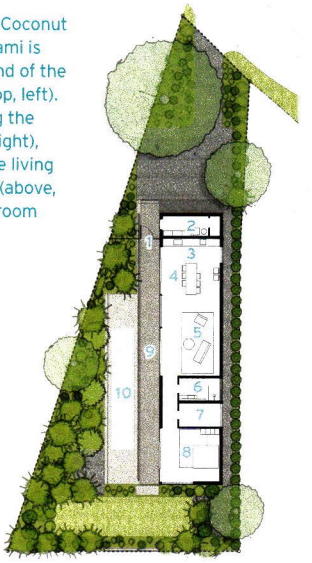
IF YOU ARE AN ARCHITECT with a minimalist approach, it may be hard to find clients equally obsessed with abstraction and austerity in materials and details. Yet Terence Riley, principal of the New York– and Miami-based firm K/R, recently designed a small one-story, one-bedroom cottage in Coconut Grove for someone who might be more minimally minded than he is. "I could live in a house and be completely satisfied if it were empty," says the owner, Sonya DeLong, an American who spends part of the year in Switzerland, her husband's native country. "I deliberately own very little." Which is a good thing. Her new rectangular dwelling is 80 feet long and 20 feet wide. The attenuated 1,500-square-foot bar-like building sits within a 6,800-square-foot property roughly the shape of a triangle: at the narrow, western end is the entrance from the street, which leads into the living and dining area. At the opposite end is the bedroom, opening onto a verdant garden.

The elegantly proportioned plan allows the elongated south-facing wall of glass to open out to a perimeter walkway sheltered by the roof's 6-foot cantilever. On the other side of the covered walk, a linear pool echoes the house's proportions at a smaller scale. Demarcating the edge of the narrow path is a pebble-filled channel that captures rainwater from the canopy overhead.

To give a sleek, pristine finish to the planar surface of the concrete block structure, Riley coated it with a smooth, high-grade stucco. Inside, the floor of Douglas fir planks, 12 inches wide, adds warmth to the almost monastic ambience. Contrasting with these precise architectural moves is the luxuriant planting outside, created by landscape consultants Naturalficial with a voluptuousness that softens the residence's spartan tone.

"The integration of outdoor and indoor spaces and the lack of clutter keep the spaces from feeling cramped," says Riley. "And not having stuff makes Sonya and her husband feel comfortable." While Riley and his partner, John Keenen, are engaged in nonresidential projects such as the new Sarasota Art Museum and a mixed-use building in the Design District in Miami, their completed houses already demonstrate an impressive investigation of plan, line, and surface. Serenity is in the details. ■

The house in the Coconut Grove area of Miami is entered at one end of the triangular site (top, left). A pool runs along the south side (top, right), overlooked by the living and dining areas (above, left) and the bedroom (above).



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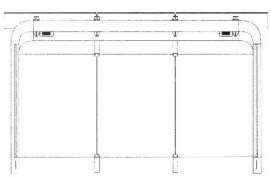

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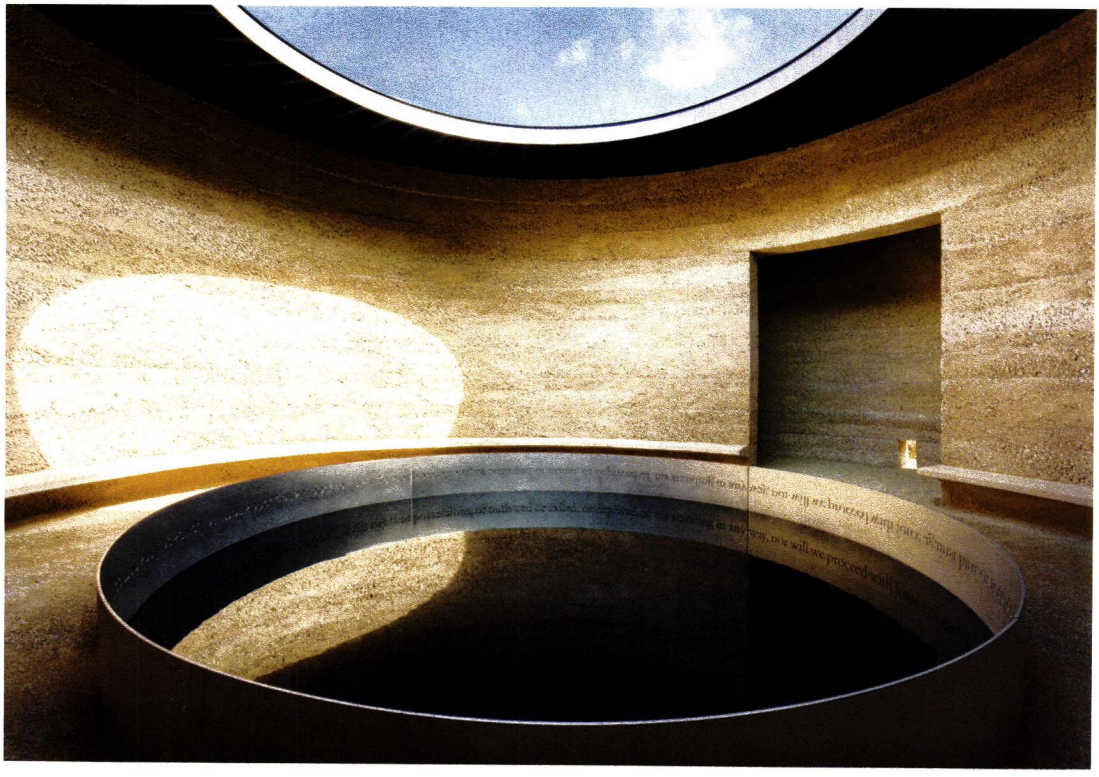
A BRITISH TEAM RECALLS DEMOCRACY'S ORIGINS BY INTEGRATING HISTORY AND NATURE INTO THEIR DESIGN. BY ERIN HUDSON



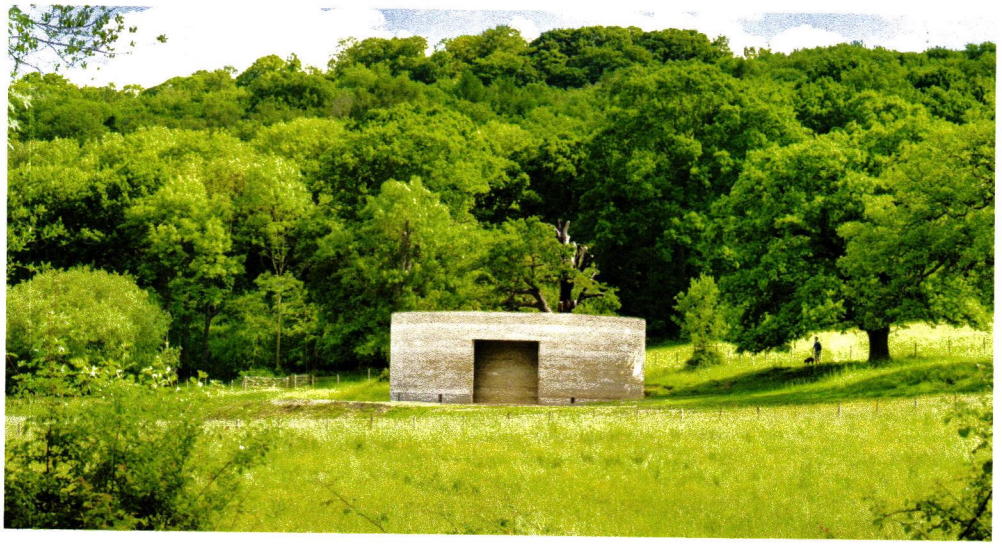
NESTLED IN the meadows of Runnymede, a site-specific installation commissioned by the UK's National Trust subtly honors events that took place in this lush countryside more than 800 years ago. It was here that feudal barons forced King John to put his seal on the Magna Carta—a document that established principles of individual rights and the rule of law. Named *Writ in Water*, a nod to British poet John Keats's epitaph, the architectural artwork, designed by Turner Prize–winning artist Mark Wallinger with architecture firm Studio Octopi, relies on historical references and the permeating presence of the surrounding landscape to prompt contemplation.

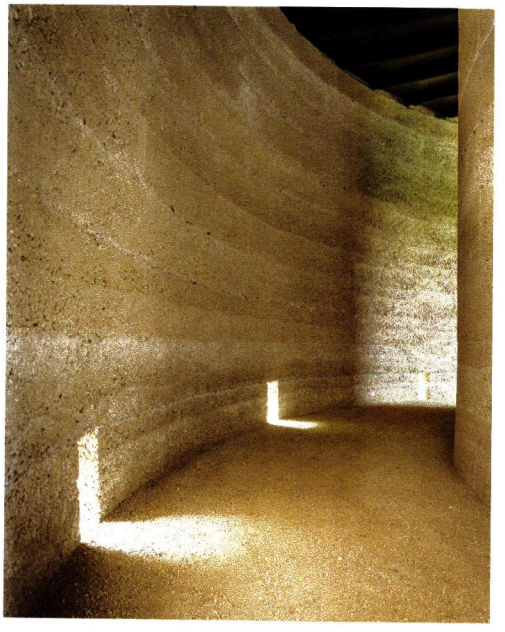
Wallinger, who was originally selected as the sole designer, developed the underlying concept. Inspired by a medieval castle keep, he envisioned a cylindrical chamber containing a shallow pool with an oculus positioned directly above it. A clause from the Magna Carta would be engraved inside the pool's metal ring. When the artist's design took shape as a space people could occupy, the need for an architect became apparent, so Wallinger called on London-based Studio Octopi (see page 105).

With their contribution, the architects sought to pay homage to both the passage of time and history by embedding subtle references, such as employing 52 Douglas fir rafters, which allude to the number of weeks in a year, as well as assessing every dimension of the project in cubits, an ancient form of measurement (the equivalent of 18 inches) based on the forearm.

"We wanted the building to feel as if you're viewing it in the context of 800 years of history," says firm cofounder James Lowe. To achieve this, the team created a textured wall from white cement with a gravel-and-sand aggregate sourced from local quarries. Pouring one layer of the mixture per day resulted in a structure that, through its striated surfaces, recalls its hillside and surrounding geology.

The oculus and pool in the inner chamber is an unexpected pairing that allows visitors to glimpse the treetops as well as the occasional plane flying to or from nearby Heathrow Airport. An imperceptible downward tilt of the rooftop overhang directs precipitation into the reflective pool, disrupting its calm surface. It's a reminder, says Lowe, of how different interpretations of the Magna Carta make the document "something that is constantly moving, evolving, and being challenged." Similarly, weather and changing landscapes ensure that each visit to *Writ in Water* will be unique. ■





Entering *Writ in Water* (above), visitors can choose to walk left or right to reach the inner chamber (right); small rectangular apertures illuminate the covered passageway. Overhead, cantilevered dark-stained rafters tilt down toward the pool (top).

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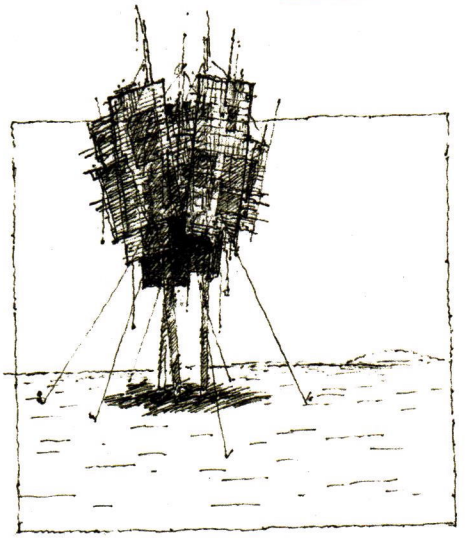

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The architect for the July issue's contest is **Giorgio Vasari**. The 16th-century Tuscan architect designed the Uffizi Gallery (left) for Florentine ruler Cosimo I de' Medici between 1559 and 1581. He is best known as the author of *The Lives of the Most Excellent Painters, Sculptors and Architects* (1550), an influential work of biography that was the first of its kind.

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Brick by Brick, Word by Word

An architect takes lessons from a poet's craft and construction.

BY JOHN RONAN

I MAKE MY LIVING as an architect, and one of my favorite buildings is a poem. It was constructed in 1966 by Seamus Heaney, and I make periodic return visits to it, and—as with any great work of architecture—I find something new each time. Like the best buildings, it provides a memorable experience that touches all the senses. When Heaney describes "Under my window, a clean rasping sound/ When the spade sinks into gravelly ground," I can hear the sound of shovel hitting gravel. And when he writes about new potatoes "Loving their cool hardness in our hands," my own hand involuntarily contracts as my sense of touch is activated. Likewise, I can smell "the cold smell of potato mould" in my nose, while the onomatopoeia of Heaney's "the squelch and slap/ Of soggy peat" transports me to a bog. And when he describes his grandfather's pausing his backbreaking work to drink bottled milk, I taste it too. Through language, he creates a three-dimensional space that I can inhabit, and his observations and memories beckon me to enter.

Heaney constructs his poem like a skilled mason using common brick. As he builds the poem word by word, what becomes so striking is the sheer ordinariness of both its subject and language. Heaney doesn't resort to inventing words (though who knew a "drill" was a furrow?); when he writes "between my finger and my thumb/ The squat pen rests; snug as a gun," even a kid can understand it. Through the precise selection and controlled arrangement of words, the common act of digging in an Irish peat bog is made extraordinary, and the mundane becomes transcendent. This use of commonplace language makes the poem's architecture all the more impressive and sends us the reassuring (yet somewhat intimidating) message: Look, it's all there, hiding in plain sight.

Heaney situates his poem carefully, creating what architects like to call "a sense of place," resisting generic recall when he claims, "My grandfather cut more turf in a day/ Than any other man on Toner's bog." He describes not just any bog, but a specific place which his language invites us to imagine (substitute "the" for "Toner's" and see how the atmosphere changes). In a subtle and deft act of transference, his deeply rooted memories become ours.

I often ask myself, why does this poem stick in my head? What makes it special? The conclusion I have come to is that, like all great works of art, it endeavors not to be noticed, but to be remembered. And, to succeed in being memorable, something must make an emotional connection. Heaney achieves this with an impressive economy of means, in eight short stanzas constructing a space for us to inhabit, and inviting us in—a place with its own smells, sights, sounds, tastes, and textures. As his pen digs into the past, he makes palpable the admiration he feels for his father and grandfather—despite their different paths in life—so that it begins to register, causing us to think about our own relationships, our own choices. Heaney's work is personal, but not about self-expression (which would exclude us). It has its own order and form—like a memorable piece of architecture—its beginning and end slightly asymmetrical but purposely so. From "Digging":

But I've no spade to follow men like them.

Between my finger and my thumb
The squat pen rests.
I'll dig with it.

We are all poets, Heaney seems to imply, and, just as he digs with his pen, for us it is a matter of finding an instrument through which to find our own voices. As an architect, I write with wood, concrete, glass, and metal, calling attention to those things that are in plain sight but hard to see. In my line of work, materials are the words, buildings the poems. And just as Heaney crafts poetry through the careful selection and ordering of words, I endeavor to thoughtfully select and arrange materials in a way that creates authentic experiences in which people form meaningful bonds. If I am doing my job correctly, the building will unfold space by space, as a poem unfolds line by line, and each visit will yield new discoveries. Like Heaney, I am conscious of those who came before me and whose legacy I extend. In my case, it is skilled Chicago architects from a tough, no-nonsense town that values hard work, who managed nevertheless to transcend pragmatism and extract a certain poetry from it. Their digging is what I see when I look out the window of my office (by God, they could handle a spade too). I follow in their path, planting in their drills, searching for the transcendent within the pragmatic. Occasionally I succeed, and the building becomes a poem. ■

A visit to the Poetry Foundation in Chicago, designed by John Ronan, reveals the building's spaces as a quiet journey.

John Ronan's eponymous firm is based in Chicago. His essay first appeared in the March 2018 edition of Poetry *magazine.*

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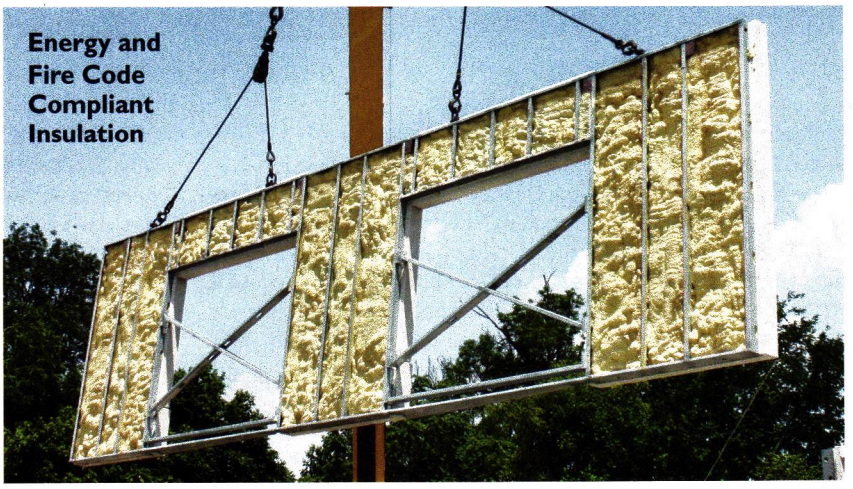

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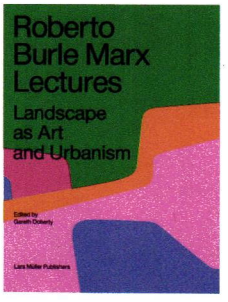
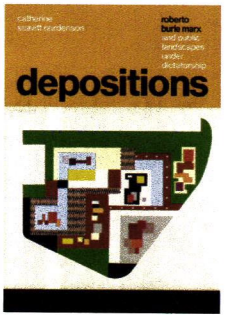
The Landscapes of Modern Brazil

Depositions: Roberto Burle Marx and Public Landscapes Under Dictatorship, *by Catherine Seavitt Nordenson. University of Texas Press, 336 pages, $45.*

Roberto Burle Marx Lectures: Landscape as Art and Urbanism, *edited by Gareth Doherty. Lars Müller Publishers, 288 pages, $35.*

Reviewed by Alex Klimoski





BORN IN São Paulo in 1909 to a Brazilian mother and a German father, Roberto Burle Marx (distant cousin of Karl) was a self-taught botanist and trained painter. Fusing a deep reverence for nature with love of the arts, he designed many of Brazil's most celebrated public parks, plazas, and gardens during the middle of the 20th century. He was known for the asymmetric and organic forms of his landscapes—incarnations of his abstract, Matisse-like paintings—and his collaborations with architect Oscar Niemeyer, especially the 1962 Palácio da Justiça in Brasília. The symbiosis of Niemeyer's curved concrete forms and Burle Marx's meandering compositions of native flora would come to define the country's tropical Modernist style, but Burle Marx's physical creations are only part of his genius. His speeches, many translated into English for the first time, appear in two recent books—one assembled by Catherine Seavitt Nordenson, the other by Gareth Doherty—reveal a prescient thinker, who warned of climate change, as well as a passionate urbanist concerned with the well-being of city dwellers. He was also, however, a loyal counselor to the brutal 21-year regime that began with a 1964 coup and killed, exiled, and detained thousands—an irony that forms the crux of Seavitt Nordenson's analysis in *Depositions: Roberto Burle Marx and Public Landscapes Under Dictatorship.*

Depositions comprises 18 written statements delivered by Burle Marx between 1967 and 1974 to the dictatorship's Ministry of Education and Culture. Seavitt Nordenson organizes these pieces—addressing deforestation, land conservation, and botanic gardens—into thematic groupings, each anchored by sociopolitical context and commentary and rare archival photographs. The author skillfully weaves a narrative about Burle Marx into a turbulent history defined by an empire, a republic, a democracy, and two military juntas, highlighting his four-decades-long ties to the political elite and his role in shaping a state-sponsored national culture. But Seavitt Nordenson also argues that Burle Marx, although conservative, actually opposed the military regime, and that he leveraged his position, compromised though it may have been, to protest the government's ecologically destructive economic-development strategies—a bold move by him, considering the 1964 regime's intolerance of dissent.

Seavitt Nordenson's volume is as much about the political construction of modern Brazil as it is about Burle Marx. Gareth Doherty's *Roberto Burle Marx Lectures: Landscape as Art and Urbanism* can be best described as a tribute to a brilliant designer and his ideas. In his book, Doherty, who worked in Burle Marx's studio for a short time after his subject died in 1994, includes 12 of Burle Marx's lectures, from 1954 and 1986, delivered at institutions such as Harvard University, MIT, and the American Society of Landscape Architects. They are bookended by glossy photographs, including stunning aerial views of the biomorphic motifs of Burle Marx's seminal works, including the 1951 Parque Jaqueira in Recife and the 1970 Copacabana Beachfront in Rio de Janeiro.

Burle Marx recycled and adapted his speeches over the years, so the two books do overlap. But the distinction in audience and circumstances surrounding each collection—official sessions with a murderous government versus intellectual meetings at democratic institutions—yield vastly different tones. Pleading to the dictatorship to protect Brazil's ecological diversity, many of Burle Marx's depositions reveal his anguish in a masterful blend of pathos, ethos, and logos. His lectures to American audiences are more philosophical musings: a discussion about garden lighting digresses into a history lesson that touches on the Impressionists, Afro-Brazilian rituals, and the Counter-Reformation.

Depositions offers an understanding of Burle Marx beyond his gardens and parks; it is a solid introduction to both his work and Brazil's quest to establish its cultural identity. With less context, the lectures might be best enjoyed by those already familiar with him. But both publications illuminate his astuteness, approaching clairvoyance, still pertinent today. ■

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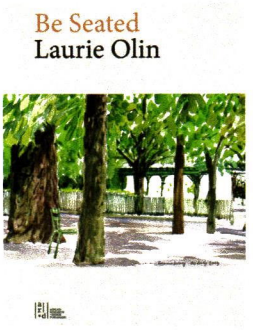
Not Just Garden Variety

Be Seated, *by Laurie Olin. Applied Research+Design Publishing/ORO, 200 pages, $34.95.*

Reviewed by Paula Deitz



AFTER READING this book by the distinguished landscape architect Laurie Olin, I realized how certain rituals of sharing life in public out of doors have been made comfortable by centuries of design practitioners from antiquity to the present. This is especially so in Paris, where Olin first studied park and café life. In fact, *Be Seated* is three books in one: first, the narrative encompassing the history of outdoor seating down to current design practices—Olin's and others; second, almost 50 years' worth of his endearing, squiggly ink and watercolor sketchbook renderings, with handwritten commentary, interleaved between text pages, making his points actively visible. Finally, he includes photographs of contemporary parks, squares, and other public places. The effect is richly cumulative when read or studied in sequence.

Though Classical amphitheaters and low stone ledges encircling Renaissance churches and fountains made for early communal seating, paramount through time is the proliferation of benches and chairs, in wood, metal, or stone. As Olin says, "Almost all benches are really just stretched chairs." On another page, his sketch of banquettes and Thonet bentwood chairs inside a Viennese café shows the inspiration for his juxtaposition of a stone ledge "bench" and Harry Bertoia chairs outdoors in New York's Paley Park. In essence, the book is both show and tell. With his exquisite eye for detail and vast knowledge gained through an academic and professional life and travels on both coasts and abroad, Olin writes the story in a personal and thoughtful manner, highlighting both the places where people have "pleasure in one another's company" and the designs that made them possible. Examples include an ornate garden bench designed by William Kent for Rousham Gardens in England, Frederick Law Olmsted and Calvert Vaux's many-styled benches for New York's Central Park, and Antoni Gaudí's curvilinear seat wall for Park Güell in Barcelona.

This general discussion leads into Olin's own practice—and that of other contemporary landscape architects—recalling his engagement in the recovery of Bryant Park (behind the New York Public Library) completed in 1991. Though this itself is history, he brings back vividly that period when the sociologist William H. Whyte advocated placing movable chairs in public parks. While this custom was long viable in the Jardin du Luxembourg in Paris (witness Olin's many evocative drawings of his favorite garden), it was new to New York, where anticipated theft was a concern. Now those chairs contribute to Bryant Park's enduring success. Olin takes readers step by step through other seating solutions, like the marble "pillow" benches his firm designed for the Washington Monument site in the nation's capital, and arc-shaped slatted benches in wood around the fountain at Columbus Circle in New York.

I often sit reading on Sundays in Central Park and watch the parade of people going to and fro against a skyline of majestic trees. But now the experience will be forever enhanced by visualizing, through Olin's words and sketches, my companionship with others doing the same, whether sitting on chairs, benches, or ledges, around the world. ■

Paula Deitz, the editor of The Hudson Review, *often writes about landscape.*

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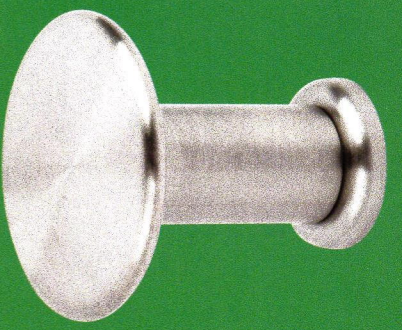

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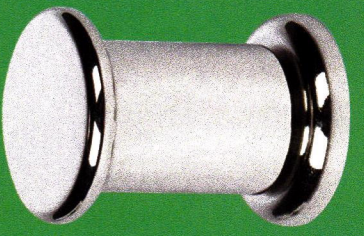

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An exhibition explores the little-known architecture of Yugoslavia.

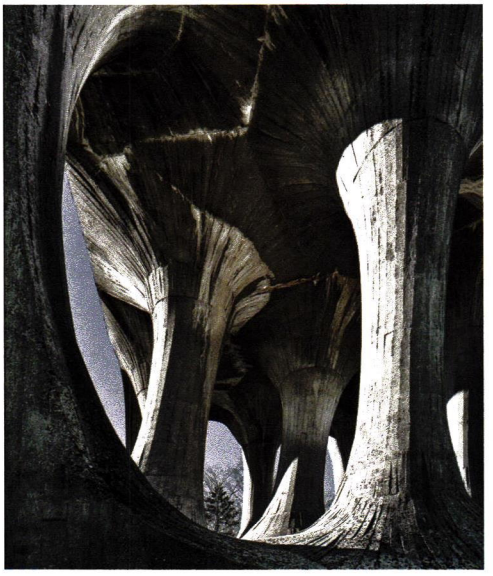
BY JOSEPHINE MINUTILLO

WHY YUGOSLAVIA? It's a question one can't help but ask, given the circumstances. Martino Stierli, the new chief curator of architecture and design at the Museum of Modern Art, chose for his first major exhibition at the New York institution to focus on the built environment of the former Balkan nation, forever imprinted on the collective consciousness for the ethnic war that raged there for over a decade at the close of the last century.

Even before that, it was not exactly known as a hotbed of design. With the exception of Jože Plečnik, whose conical 1947 design for the Slovenian Parliament in Ljubljana is on display (but who is mainly included for his influence on later generations), most of the names in *Toward a Concrete Utopia: Architecture in Yugoslavia, 1948–1980* are unfamiliar. "It is part of the job of the museum to critically reassess the canon of architectural history and look at parts of the world not seen as they should have been seen," explains Stierli.

Indeed, the biggest strength of the exhibition is the abundance of beautifully hung and arranged drawings, photographs, and models of striking, and in some cases downright bizarre, buildings and monuments that most visitors have probably never seen before. It is astonishing also that much of this material, particularly the archival drawings, survived the ethnic war.

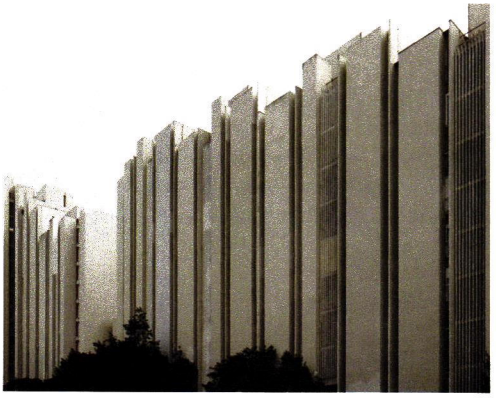
But while what's on display may be completely new to most eyes, it's not exactly groundbreaking. MoMA's 2015 exhibition, *Latin America in Construction: Architecture 1955–1980*, with which this show will inevitably draw comparisons, presented an architecture that, despite being more familiar to viewers, is exciting and utterly unique to its region. The theory posited here is that Yugoslavia produced a distinct architecture because of its ethnic diversity, break with the Soviet bloc in 1948, and socialist agenda, but aside from the experimental and multitudinous monuments, some of which anticipated the Earth Art movement, what we see resembles much of what was built in Europe at the time.



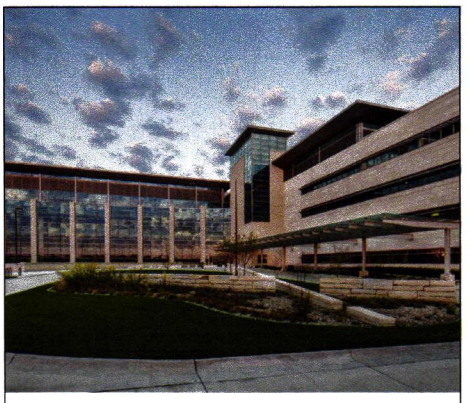
Monument to the Fighters Fallen in the People's Liberation Struggle, 1965.

For a nation that was also perceived to be behind the Iron Curtain throughout the period this exhibition covers, the displays, chiefly the specially commissioned photos of buildings now worn by age or from the war, do little to counter the notion of it as a gloomy place. The curators, who with Stierli include architectural historian Vladimir Kulić, seemingly aware of this danger, added pops of color where they could, including a slide show of Croatian resort hotels from the 1960s and '70s populated by bikini-clad guests.

There is, at the end of it all, an unsettling irony to this exhibition. Stierli rightly placed this architecture "on equal par with anything built in post–World War II Europe." But the architecture—much like the installation itself, well done though it is—is just not inventive or surprising enough. The exhibition, on view until January 13, 2019, introduces the work to a wider audience, but whether it will extend the influence of the region's architecture beyond its own now completely altered borders remains a question. ■



The Braće Borozan building block, 1970-79, in Split, Croatia.



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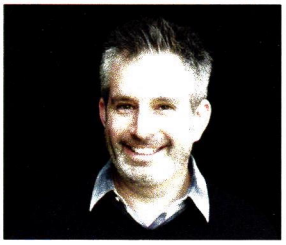
For City and Country

Adam Greenspan creates landscapes at vastly different scales, from the pastoral beauty of Glenstone to an elevated urban park, tucked above the dense downtown of San Francisco.

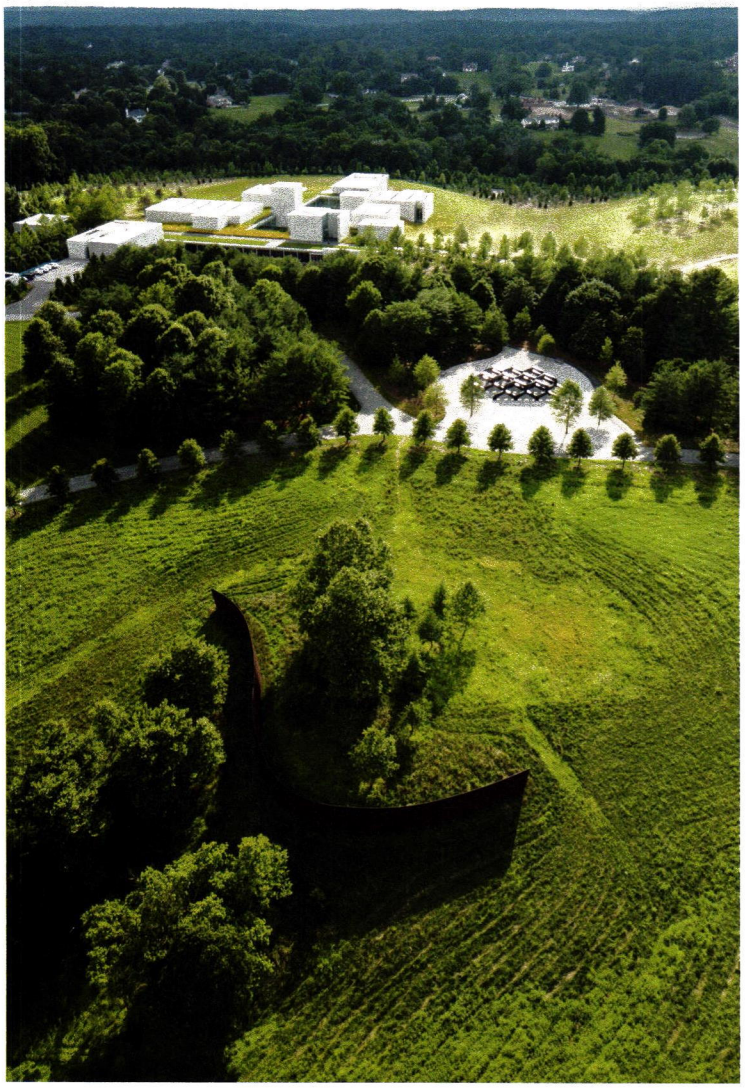
BY CATHLEEN MCGUIGAN



KEEP YOUR EYE on Adam Greenspan, design partner at the Berkeley-based PWP Landscape Architecture, founded by the esteemed Peter Walker. Greenspan is just completing two remarkable—and vastly different—projects in which landscape and architecture are inextricably intertwined. For Glenstone, in suburban Maryland, a 200-acre park with a new contemporary art museum designed by Thomas Phifer and Partners, set to open in October, Greenspan and his team created a 21st-century arcadia for the clients, Mitchell and Emily Rales; in San Francisco, the office has built a five-acre respite for urbanites atop the Salesforce Transit Center designed by Pelli Clark Pelli (PCP), amidst a cluster of skyscrapers, including the city's tallest, Salesforce Tower, also by PCP (RECORD, July 2018). Greenspan spoke with RECORD editor in chief Cathleen McGuigan about the two projects. Here are excerpts from their conversation.

It's hard to imagine two more different landscape designs than Glenstone in rural Maryland and the transit center park in the heart of San Francisco.

Yes, there is a drastic difference but, that said, as in all our projects, we really try to bring together nature and the cadence of life, whether it's about the seasons or the



GLENSTONE SITE PLAN

1 PAVILIONS
2 GALLERY
3 ARRIVAL HALL
4 PARKING GROVES
5 CAFÉ
6 WOODLAND TRAIL

The Pavilions at Glenstone (left) and from the air (above) with Richard Serra's *Contour 290* (2004) at bottom and Tony Smith's *Smug* (1978/2005) in the middle.

lives of trees, or about stone and geological time. And even though these projects are in very different settings, with very different programs, we're working closely with architects to bring an aspect of art and nature into the lives of people who move through these places.

At Glenstone, your role began long before Tom Phifer designed the new museum, when the late Charles Gwathmey was working on the Gallery there (RECORD, June 2008).

When we first came to the site in 2003, the property was probably about 40 or 50 acres. We were incredibly impressed with the scale and the way that it sat. Even though it had been graded for a subdivision, with engineered ditches, we thought there was a bigger potential. So, rather than having water go into ditches and drains, we let it flow over meadows. We worked with the client to purchase adjacent properties, so it is now 200 acres. It is not being restored so much as becoming a new place that highlights the beauty of the systems of the natural world. It was taking what was the suburb to become someplace more pastoral. On the other hand, the Salesforce site was all infrastructure, where freeways and overpasses and the old bus depot once were. Those were demolished, and now, in San Francisco, it's a new kind of urbanism, with multiuse structures that are part of an integrated new neighborhood.

People might think a landscape architect makes things green and plants trees, but, really, you create experiences. Tom Phifer has talked about a choreographed experience for the visitor at Glenstone.

Yes, we thought about how you take visitors and slow them down from the way they're moving through life. From the entrance, we curved the driveway and made the drive go through an allée of trees, at the edge of the woods. So it is really about slipping from one world to another. You leave the car and walk into the trees and begin walking across the meadow. It's all about a procession—the opening up of spaces, as in a building, but at a much larger scale that's about landscape and about time.

We think of architecture as timeless—you know, as the cliché goes, as frozen music. But the way you think about designing and managing the landscape has everything to do with time.

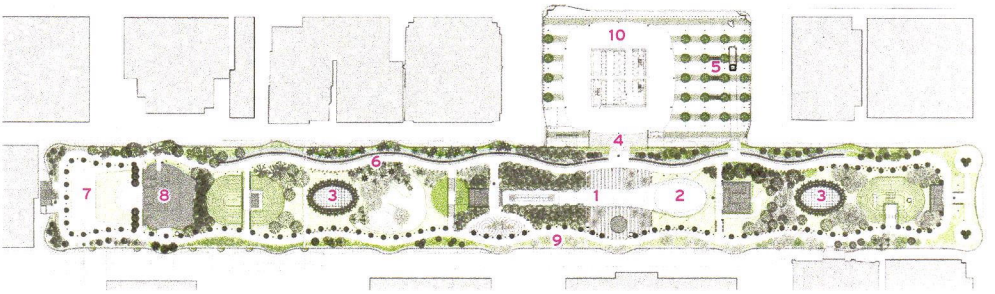
What's been amazing at Glenstone is being part of the cultivation and evolution of the site over time. We've been able to see things change, like a grove of pines that we put in in 2003 that looked like a

Salesforce Park, which stretches out above the new transit center, 70 feet up, next to San Francisco's tallest skyscraper (above) offers a verdant respite for urbanites (right).

solid mass of green, but then the trunks grow up, and the grove becomes more transparent. We all are confident that if you come back to Glenstone a number of times, you'll see different aspects of the landscape, at different times of the year but also if you come back when you're young and when you're old.

But the experience is not just about movement and change, but also about framing views from inside the museum.

Yes, there is one room, with a big window looking back out at the landscape, at a knoll with honey locust trees on it, which are very light and airy. So, at the culmination of moving through the bigger landscape, when you get to the building, we were able to conceive, with Tom, another choreography within the Pavilions, where visitors would walk and experience the interior watercourt and its plants—lilies, irises, rushes—and frogs or dragonflies or butterflies. That's the center of the space. And this is another place where people can see seasonal changes, or even weekly changes, each time they go. So you can have a very insulated experience of the art in one of the rooms and then come back out and focus on the watercourt again.



SALESFORCE TRANSIT CENTER PARK PLAN

1 MAIN PLAZA AND CAFÉ
2 LIGHT COLUMN (GRAND HALL BELOW)
3 SKYLIGHT
4 BRIDGE TO TOWER
5 MISSION SQUARE
6 BUS JET FOUNTAIN
7 AMPHITHEATER
8 RESTAURANT
9 BOTANICAL DISPLAY GARDENS
10 SALESFORCE TOWER

At Salesforce Park, how did you plan the visitor experience?

We also choreographed the experience there, but one difference is there's not a single point of entry—we wanted to make it accessible from as many locations as possible. When we began in 2007, we thought, how do we get people up to the roof for a public park in the middle of the city—will they definitely go 70 feet in the air? All the streets that go under the building or border the two ends of the building have elevators that bring you up to the roof, so you can start your experience at any point along what is a continuous half-mile

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The approach to the Gallery at Glenstone is part of the choreography through the landscape to get visitors to slow down and slip into a quieter contemplative world.

circuit path. And you can come from inside the Grand Hall in the Transit Center, up an elevator or an escalator, underneath the part of the park that has a skylight over the interior space.

You managed to create, in a relatively small space, so many different zones and experiences in this urban park.

Its shape—one block wide by four blocks long—allows a sequence of experiences.

In working with Pelli Clark Pelli, your park required hiding and burying architectural mechanicals, plus incorporating the skylights. Yet you wanted to make this artificial topography look parklike.

We worked closely with the architect—and also Pete Walker, my senior partner, came up with the topographical idea of hiding the architectural pop-up. Together he and I worked on the original competition design. We made an unusual topography of glass and grass and ground cover, so that, overall, it doesn't feel like you're on a roof in the city or you're on the paved streetscape of the downtown, but feels instead like you're in some place, I hope, that is new and unusual but connected to nature.

On both projects, you worked with artists—obviously, at Glenstone, where there are a number of outdoor sculptures, and at Salesforce, where you worked with Ned Kahn.

That's been ongoing. Even at the beginning at Glenstone, we worked back and forth with Richard Serra's studio, and we were on-site with Ellsworth Kelly, with a mock-up of his piece that we moved around together to site in the landscape. At Salesforce, together with Ned, we developed a way that his fountain would be completely integrated into the park. His idea was that the jets in the fountain would be triggered by buses that arrived below. It's not an objectlike art piece, but runs almost the full length of the park.

The park itself is extremely varied.

We were able to create all these different, almost residential-scale gardens. We have the Chilean garden, the New Zealand and the Australian gardens. We also have a prehistoric garden, which has plants of the same types that grew at the time of dinosaurs—and they actually found a mammoth tooth when they were excavating the site. All these gardens and plants were chosen because they are suited to the climate of the Bay area—even though they're from far-off places.

But choosing to use specimens from distant locations, you're creating something a bit surreal. Glenstone seems more "natural," with almost all-native species and even local stone.

Exactly. At Salesforce, you notice the singular specimens or combinations you see next to each other with all of that being on a roof. At Glenstone, it's about the total envelopment inside of an amazing landscape that changes with the seasons. The stone we have used, carderock, comes from a quarry 15 minutes away. All of these moments, where you see things that are organic get organized into some kind of order, will be where Glenstone reveals that it's been thought out, designed, and intentional. But, also, people who walk through the meadow might think, "That's the way the meadow always has been"—when in fact we've regraded about 75 acres in order to get it to look that way.

Obviously, the challenges in creating both Glenstone and Salesforce were immense.

They were both hard. You could naturally think that Salesforce was more difficult, because it's so technical to make a park on a roof. We have an average of 3 feet of soil over the whole building. And creating drainage, as well as just the structure and construction coordination, has been very, very difficult. But Glenstone wasn't easy either, when you think of the scale: 200 acres. And we planted over 8,000 trees, and also moved over 400 existing trees on the site. Glenstone also has a constructed wetland in the middle of the museum, and others in the woods.

If you're an architect, you finish a building and hand it over to the client, but as a landscape architect you have to be extraordinarily patient, because your work really flowers 10 or 20 years later.

With landscape architecture, there are things we do that are more static—the paving, a stone wall—but, as you're looking at everything, you're growing it with your eyes through time. At Glenstone, when you look at it at a distance, it's not that everything grows and lives. Some things also die. Some branches get cut off, some ground cover or the meadow evolves. It'll begin as very mixed, with flowers and grass, but over time, it will become more grassy, with fewer flowers. There are key places where a line of trees, or a grid of trees or the trees on the knoll, are meant to be maintained as they are laid out, but there are other large expanses which are meant to evolve and change, and that's part of the concept of the design. Our design intent isn't about staying static—it's about things changing. ■

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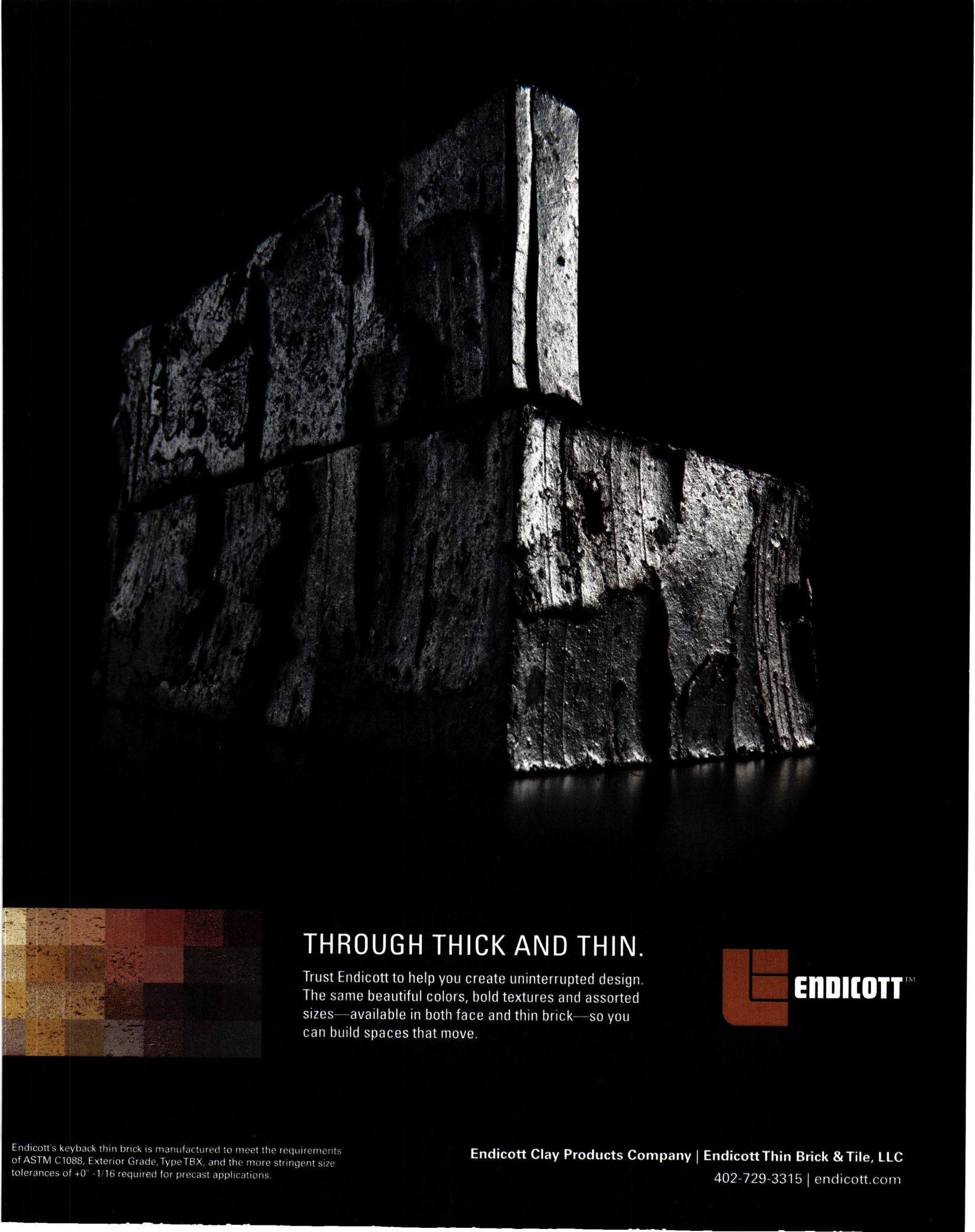

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Culture Beat

Herzog & de Meuron transforms a former police station and judicial complex in Hong Kong into an arts hub.

BY CLIFFORD A. PEARSON
PHOTOGRAPHY BY IWAN BAAN

FOR MOST of its history, the Central Police Station in Hong Kong was a walled compound off-limits to most people, a void at the heart of a hectic, dense metropolis. Begun in 1841 by the British colonial authorities, the multibuilding complex eventually included not just the main police station but the Central Magistracy, Victoria Prison, officers' quarters, and police barracks—all arranged around a trio of outdoor spaces spilling down a steep site on Hong Kong Island. In the 19th century, it sat at the edge of the town's colonial core but, fast-forward 175 years, and it stood as a crumbling relic surrounded by skyscrapers and some of the priciest real estate in the world.

In 2006, years after the police moved out, the city finally decommissioned the complex. As part of a larger effort to expand arts facilities, the local government agreed to convert the low-rise 19th-century structures—listed as historic monuments—into a cultural center. The city entered into a joint venture with the Hong Kong Jockey Club Charities Trust, the philanthropic arm of the company that runs horse racing and gambling operations and uses those revenues to fund nonprofit groups. The idea was to turn this dark hole in the urban fabric into the bustling Tai Kwun Centre for Heritage & Arts. Herzog & de Meuron and conservation architects Purcell soon began work on the $484 million project, which takes its name, Tai Kwun, from the colloquial term "Big Station." The difficult site, arduous approvals process, and precarious condition of some of the buildings stretched the planning, design, and construction of the project to a dozen years.

An aerial view shows the Tai Kwun Centre for Heritage & Art within Hong Kong's dense Central District. The architects added two new buildings to the 16 historic ones on the site.

"We don't interpret history," says Jacques Herzog, one of the partners in charge of the project. "We accept history as it exists." For Tai Kwun, that meant revealing the powerful materiality of the existing stone and brick structures, while devising ingenious ways of updating the buildings, in close collaboration with Purcell, so they meet today's code but don't appear to have changed.

Among the mix of 16 heritage buildings are two visible new elements—a 200-seat auditorium called JC Cube and a 44,000-square-foot contemporary art gallery, JC Contemporary. Herzog & de Meuron clad both volumes in radically modern skins featuring cast-aluminum apertures set in front of glass curtain walls. Flowing around and between old and new structures are walkways, stairs, and bridges that knit together once segregated zones. This network is critical to the experience of the complex and opens it to the surrounding context, via gateways the architects punched through the thick stone revetment walls on the east and west. To link various levels internally on the site, the architects carved out a new north–south pedestrian axis that connects the large Parade Ground at the lower part of the site to the former Prison Yard at the upper end.

Most visitors arrive first at the Parade Ground, off the Hollywood Road, where cafés, restaurants, and shops occupy the older buildings. They can then follow the north–south axis through a sequence of

structures and a new gateway cut in a stone wall to ascend to the Prison Yard from the lower portion of the compound. Along the way are "heritage storytelling spaces," including prison cells and rooms now mounted with exhibitions on Tai Kwun's history. The paths and outdoor spaces create a sense of discovery, one of the more unusual aspects of this project.

"We try to expose the archaic nature of places," says Herzog, explaining his team's strategy in shaping the flow of visitors through the site, "by moving people through a narrow passageway or into an open yard."

At the top of the site, the Prison Yard is now a beautifully proportioned outdoor room dotted with trees, benches, and sculpture. On the east side is the new JC Cube, which visitors can enter through a renovated prison building to get to the auditorium. Taking advantage of the change in grade, the architects carved out an outdoor amphitheater-like space tucked underneath the new building.

On the opposite side of the Prison Yard, JC Contemporary features a 16,000-square-foot gallery on the top floor that's lit from above, a terraced restaurant on the second floor, and a

credits

DESIGN ARCHITECT: Herzog & de Meuron – Jacques Herzog, Pierre de Meuron, partners; Ascan Mergenthaler, partner in charge; Edman Choy, associate project director; Chi-Yan Chan, project manager; Vladimir Pajkic, associate project director until 2011; Raymond Jr. Gaetan, associate until 2012

EXECUTIVE ARCHITECT: Rocco Design Architects

CONSERVATION ARCHITECT: Purcell

ENGINEERS: Arup (structural, civil, facade engineering; fire; geotechnical; IT) J Roger Preston (m/e/p)

CONSULTANTS: Arup (lighting, security); Shen Milsom & Wilke (acoustics engineering and AV); Hyder Consulting (sustainability); AECOM (landscape); Townland Consultants (planning); Marc & Changal Design (signage)

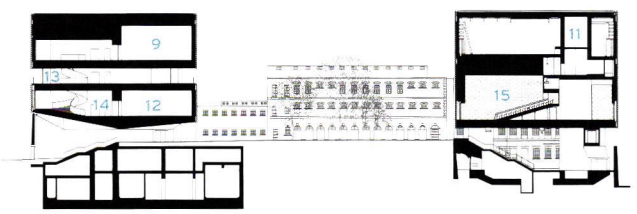
CLIENT: Hong Kong Jockey Club

SIZE: 156,000 square feet (site); 290,600 square feet (gross floor area)

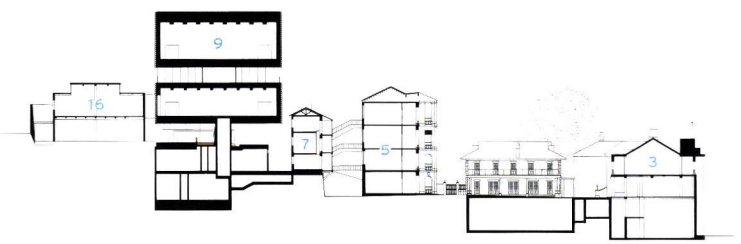
COST: $484 million

COMPLETION DATE: May 2018

LEVEL 0 PLAN



SECTION A - A



SECTION B - B

1 ENTRANCE
2 NEW STAIR
3 OLD POLICE HEADQUARTERS
4 PARADE GROUND
5 BARRACKS
6 MAGISTRACY
7 RESTORED PRISON CELLS
8 PRISON YARD
9 JC CONTEMPORARY
10 EVENT SPACE HISTORIC BUILDING
11 JC CUBE
12 GALLERY
13 RESTAURANT
14 SHOP
15 AUDITORIUM
16 EVENT SPACE HISTORIC BUILDING

The former prison yard of the complex has been turned into an urban oasis (opposite), with the new Herzog & de Meuron–designed JC Contemporary building on one corner. On the other side of the yard stands JC Cube, which houses a 200-seat auditorium inside (above). It is entered through an historic redbrick building (right), which has been restored and renovated in collaboration with Purcell. Both new structures are clad in an innovative cast-aluminum rainscreen.

Tucked under the JC Cube is an amphitheater-like space (top). The stair in the JC Cube angles up to the auditorium (left), while the curving concrete stair in the JC Contemporary takes visitors to the gallery space on the top floor (above).

museum shop and galleries at the entry level. Sculptural poured-concrete stairs connect the floors. Like JC Cube, the art-gallery building cantilevers beyond its base, hovering above the ground to provide an outdoor space protected from the sun and rain.

Made of 100 percent recycled aluminum, the distinctive rainscreen wrapping JC Cube and JC Contemporary continues Herzog & de Meuron's ceaseless exploration of unusual ways to clad buildings. The shape and dimensions of the modules were inspired by the granite blocks used to build the fortresslike walls surrounding the police complex. The modules encase mouthlike oblong apertures with lips that protrude to varying lengths and open to varying degrees—depending on the amount of daylight required inside. Looming over the historic surroundings, the new buildings, with their thick but porous envelopes, spark an intriguing dialogue between old and new.

Free to the public, the Tai Kwun Centre offers a welcome escape from the intensity of modern Hong Kong, an oasis of culture in a city best known for its business deals. "We wanted to create a place where people could slow down," says Herzog. Its architecture literally breaks through walls to get out a message that says art may be as important to the city's future as office towers and shopping malls. ■

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Inside Out

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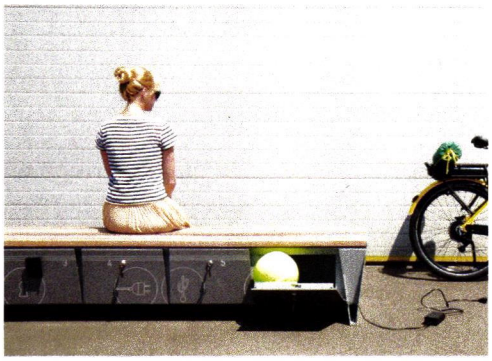
By Kelly Beamon



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Risom Outdoor Lounge

The furniture collection Jens Risom designed for Knoll back in 1943 remains popular, especially the Risom Lounge chair. Now the chair (shown) is among select Risom pieces being manufactured for the first time for use outside. Produced in teak with Sunbrella webbing—made from a water-repellent, UV-resistant, bleach-cleanable acrylic-polyester blend—the lounge and its ottoman are durable enough to specify poolside.

knoll.com

Stool-Tool

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vitra.com

Knit Rocking Chair

The latest addition to Italian manufacturer Ethimo's Knit collection by Patrick Norguet is a rocking chair, in line with the current trend of specifying casual, indoor-style furniture for outdoor spaces. It is made of teak, with a back and seat covered in the company's Comfortable Flat Rope, a woven polypropylene.

ethimo.com

Outdoor Tubular

Elkay Manufacturing's new collection of marine-grade stainless-steel drinking fountains, Outdoor Tubular, features a special valve system that prevents freezing, for year-round use, and is available in 20 ADA-compliant variations, including models with bottle-filling stations and tiered drinking heights, like the example shown here. Custom shapes and 12 colors amplify its flexible user-friendly design; a single water-line connection makes it ideal for replacing existing fountains.

elkay.com

THE MOD-ERN FAN CO

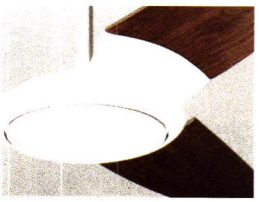
A Collection of Ceiling Fans

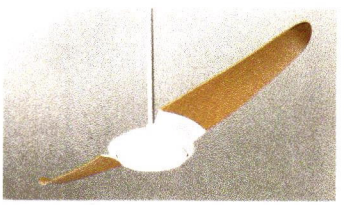
Designed by Ron Rezek

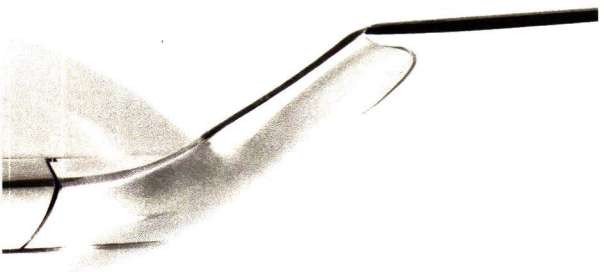
IC/Air3

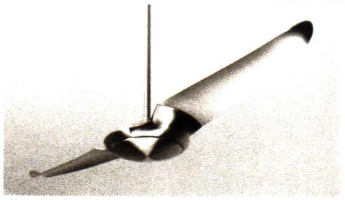
: designed by Guto Indio da Costa

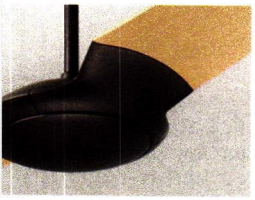
modernfan.com

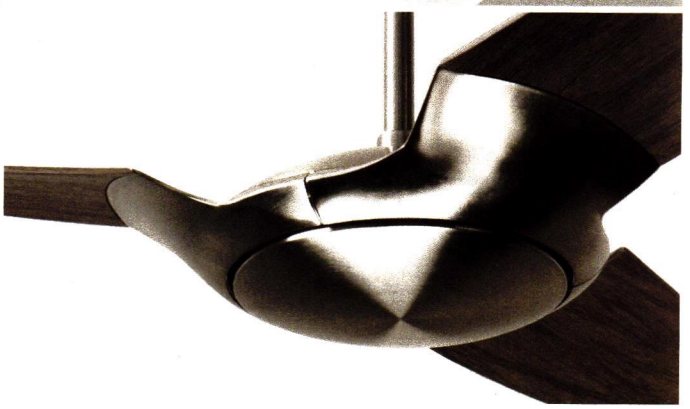












Ultra-efficient DC Motor | 2 or 3 Blades | Nickel, White or Dark Finish | Solid Color, Wood Grain or Clear Blades | Optional LED Lighting

About Face

Innovative materials amplify the performance and appearance of these cladding systems.

By Kelly Beamon

Stone Veneer

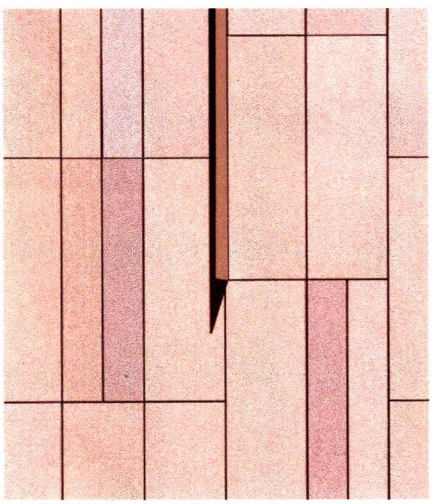
What appears to be wallpaper is a flexible, thin veneer of real stone suitable for cladding. In a process that includes applying ultra-high temperatures (3,000–5,000°F) to the top layer of rock, the manufacturer is able to loosen the stone's components and peel away sheets of 0.07"-thick slate and mica, which it backs with cost-efficient substrates such as MDF and cement board for installation. An epoxy adhesive and sealant are recommended for exterior applications.

modstoneus.com

Coil Anodized Aluminum

This aluminum cladding is said to deliver better than average durability because the anodizing process creates a hard layer of aluminum oxide. Immersing the aluminum in an electrochemical bath makes it porous, so that it absorbs dyes, but also hard, to resist abrasions. Suitable for use on facades, as part of a curtain wall system, or to wrap columns, the material is also sealed to resist stains and fading.

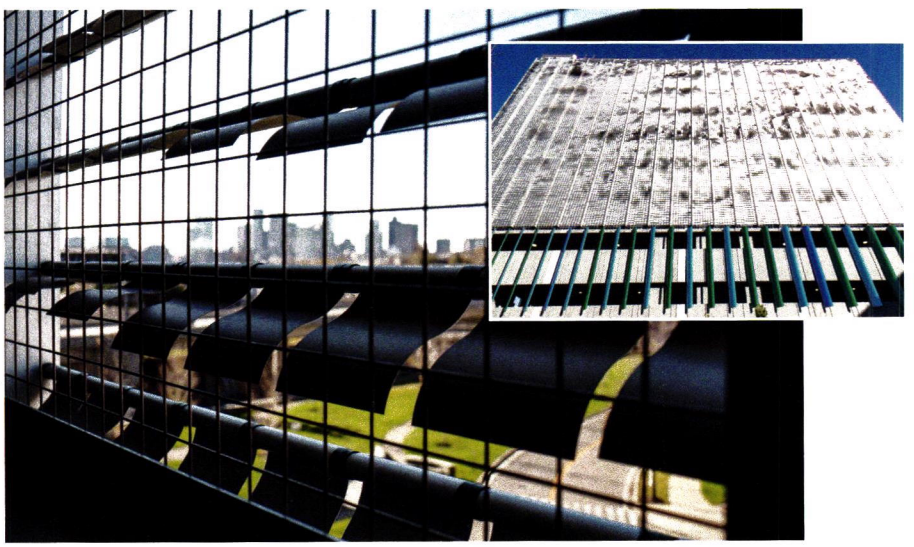
lorin.com/architecture



ALPHATON BM2

The mix of matte engobe and glossy finishes on panels in this facade system is a new option available to specifiers of Shildan Group's ALPHATON back-ventilated rainscreens. Developed to provide aesthetic appeal, while keeping water from penetrating a building's exterior, the product is composed of extruded terra-cotta panels that are attached using an aluminum mounting system. Available in nearly any custom color, shape, and size up to 16" x 60", the panels do not require grout or sealants, which can degrade over time.

shildan.com



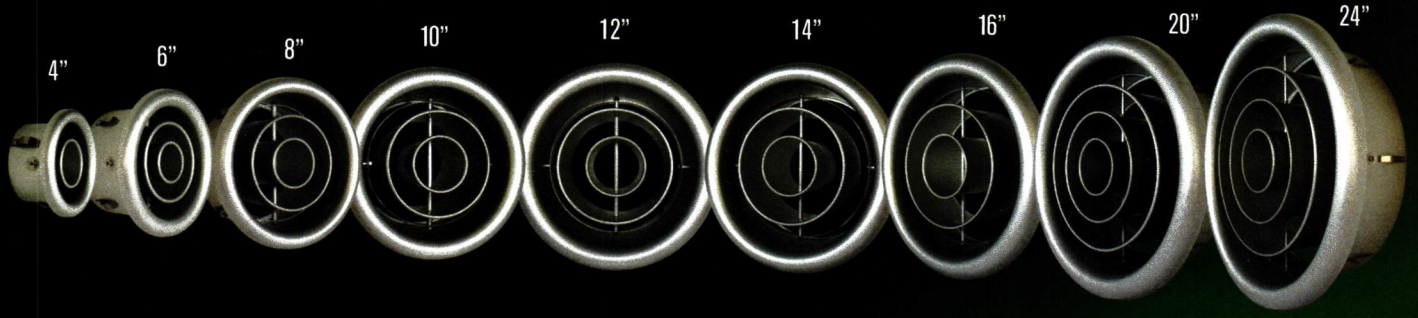
Kineticwall

Moving parts are what distinguish Exterior Technologies' dynamic facade systems. The 6" flapper panels of the Kineticwall structural grid react to wind, creating the appearance of waves rolling across the facade, to add visual interest. The system is also built to withstand hurricane winds and torrential rain, while still allowing building occupants a view. Architects can specify the panels in polycarbonate, glass, aluminum, or steel, straight or curved, and in a variety of finishes and colors.

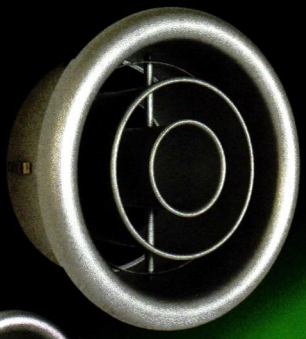
extechinc.com

Aluminum TurboNozzle Series

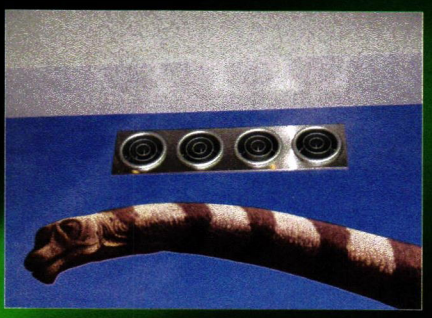
Made in U.S.A.



Stylish anodized aluminum finish with exceptionally high quality construction



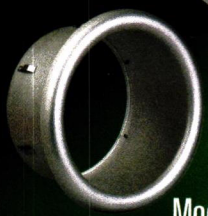
Model: **NT**



Natural History Museum Los Angeles, CA

Model: **NTX-R**
(Exposed Duct Mounted)

Model: **NTX**
(Surface Mounted)



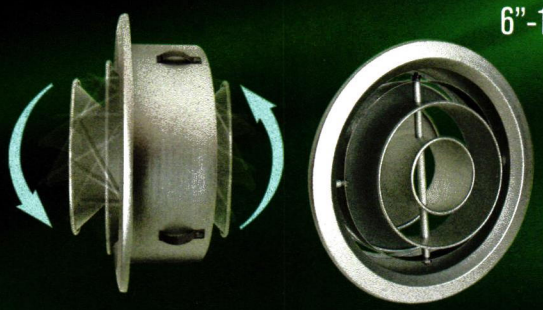
Model: **NP**

- Airport Concourses
- Shopping Centres
- Sports Facilities
- Convention Centres
- Factories
- Retail Stores

Model: **NT-P**
(TurboNozzle Panel)

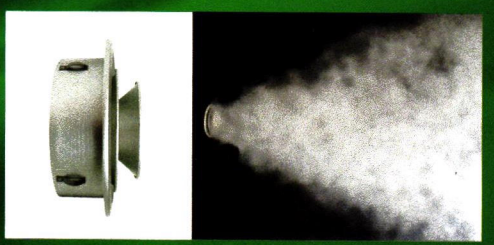
Model: **BS**
(Butterfly Damper)

Reversible TurboNozzle

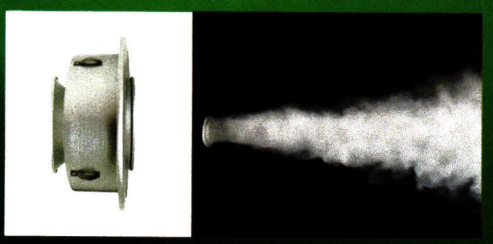


Model: **NX**

- Reversible Center Cones for Narrow or Wide Jet Air Pattern
- Adjustable Air Direction
- High Airflow Capacity



Diffusing Pattern



Straight Pattern

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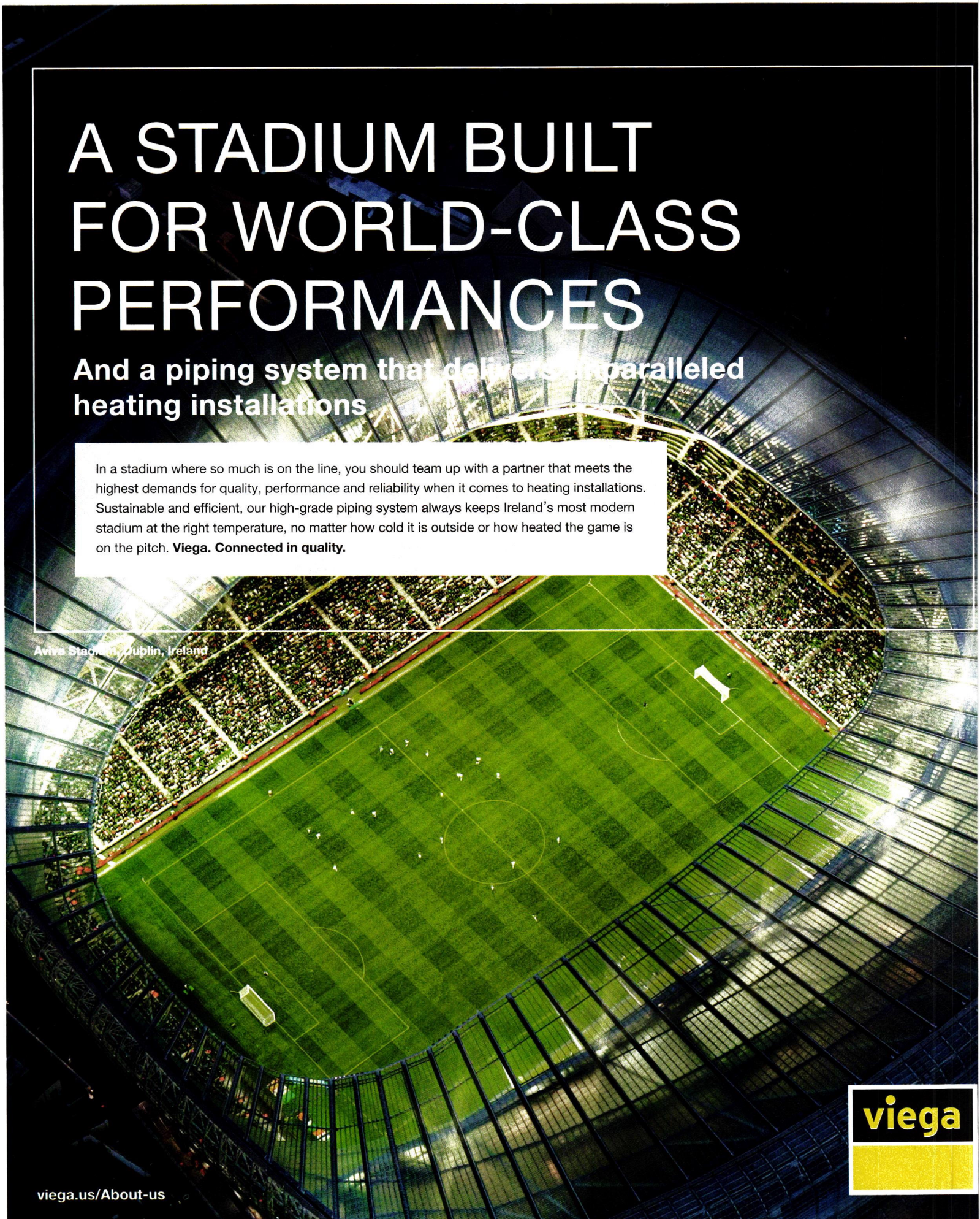
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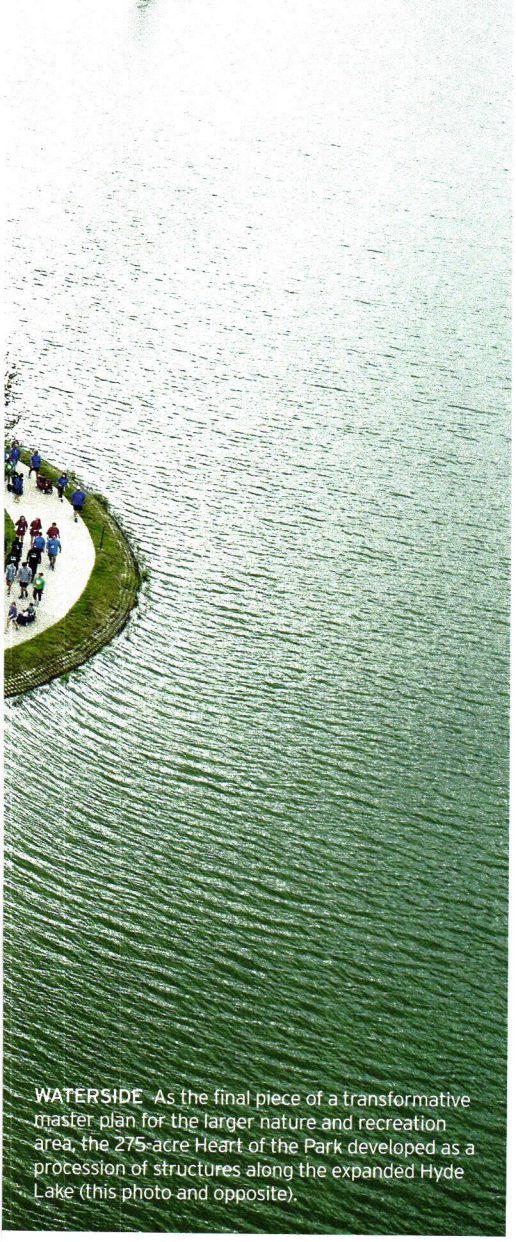
viega.us/About-us

Landscape & Recreation

From mountain-bike riding to a trip to the horse track or an excursion by kayak on an urban waterway, how people today spend their free time is wide-ranging. As the varied projects on the following pages show—including a pool that immerses swimmers in the surrounding woods, and a distillery and visitor center that seems to grow out of the landscape—the design of buildings and public spaces plays a vital role in enriching contemporary leisure activities.

SHELBY FARMS PARK, MEMPHIS, JAMES CORNER FIELD OPERATIONS AND MARLON BLACKWELL ARCHITECTS



WATERSIDE As the final piece of a transformative master plan for the larger nature and recreation area, the 275-acre Heart of the Park developed as a procession of structures along the expanded Hyde Lake (this photo and opposite).

Shelby Farms Park | Memphis
James Corner Field Operations and Marlon Blackwell Architects

Heart of the Matter

A central grouping of buildings creates a gateway and support system for 4,500 acres of parkland.

BY BETH BROOME

PHOTOGRAPHY BY TIMOTHY HURSLEY

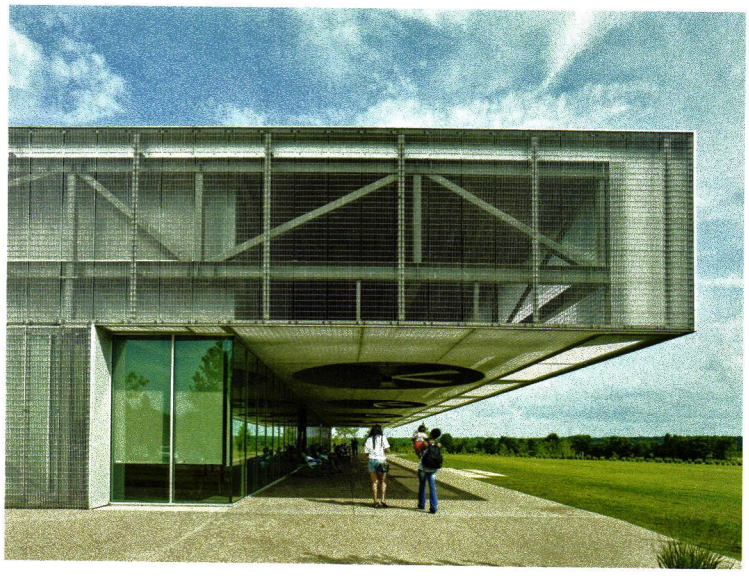
On a recent afternoon at Shelby Farms Park in Memphis, the sun beat down with ferocity, the sultry air wrapping visitors in a smothering embrace. Nevertheless, intrepid joggers zipped by, kayakers paddled across Hyde Lake, and bicyclists pedaled along the trails that zigzag through the varied landscapes, while most of us mere mortals sought refuge in the shade thrown by the group of buildings abutting the water. Designed by Fayetteville, Arkansas–based Marlon Blackwell Architects (MBA), the structures, which range from an 8,000-square-foot visitors center to diminutive picnic pavilions, introduce a modern alternative to the more typical scout-camp-style "parkitecture" by alluding to an agricultural vernacular, in both the plainspoken forms and the spare material palette. This family of buildings serves as an entry point and support system for the sprawling 4,500-acre park—master-planned by James Corner Field Operations (JCFO)—beyond.

Back in 1929, the site on the city's eastern outskirts housed a penal farm where hundreds of inmates worked in the property's fields and orchards. After decades of operation, county officials argued for a new use for

SITE PLAN

1 VISITORS CENTER
2 THE KITCHEN RESTAURANT AND EVENT CENTER
3 STAGE PAVILION
4 BOATHOUSE
5 PICNIC PAVILION

BACK TO BASICS For the boathouse (top), aluminum bar grating forms a ventilated vitrine for kayaks. The same material clads the visitors center (above and right), exposing the structure above the cantilever, which shades a deep porch. A picnic pavilion (opposite) is little more than a standing-seam roof on a steel frame.



the land. Various plans for its sale and development were floated, but tenacious citizens persevered in designating the area for a public park, and in 1975 brought in landscape architect Garrett Eckbo to draw up a report and make recommendations. As the site gradually transitioned into a recreational area, however, the vision for its future remained nebulous until the early 2000s, when a conservancy was formed to manage the facility—one of the biggest urban parks in the world—which, by this time, was well used.

In 2007, JCFO won an international competition to craft a cohesive master plan. "We were struck by how immersive the park was—the scale was hard to fathom," says principal in charge Richard Kennedy, noting its diversity of natural habitats: forest, marshlands, streams and ponds, and big open fields, as well as the eclectic mix of recreational facilities, from BMX bike courses to an equestrian area, and extensive

OUTDOOR LIFE
Visitors exercise on and around Hyde Lake (left). All the new buildings function as porches. The metal-clad and cypress-lined stage pavilion (below) provides shade even when it is not hosting events for audiences as large as 20,000 on the lakeside lawn. The building that holds the Kitchen restaurant and event space (opposite) employs the same materials, as well as stone, for its spacious open-air dining room.

paths and trails. But "all these things made it difficult to understand the park as one place," says Kennedy. "The edges were not defined, and roadways bisected the park." Besides the fragmentation, ecological areas had deteriorated and were overrun with invasive species. JCFO put forward three main concepts: "One Park/One Million Trees/Twelve Landscapes." To promote unity and connectivity, the team created new entrances, linked circulation, and built bridges to adjacent residential neighborhoods. They employed earthworks and plantings to form screens and frame views, and their ongoing replanting scheme focuses on ecological improvement, while maintaining the park's wide-ranging landscapes. "It's a great prototype for how parks can contribute more to communities beyond recreation," says Kennedy.

The final, and crowning, effort of this phase was to create a hub—the Heart of the Park—by expanding the lake and surrounding it with variously programmed facilities. This active area would draw visitors and provide a plethora of amenities while generating revenues (through rentals of bikes, boats, event spaces, and picnic pavilions, as well as from retail and food sales) for the upkeep of the more natural precincts. Before, the park was used mostly by regulars. "It felt like a secret," recalls Jen Andrews, CEO of Shelby Farms Park Conservancy. "I remember thinking, 'Gosh, 4,500 acres, we can't keep *that* a secret,'" she adds, noting Memphis's soaring rates of childhood obesity, diabetes, and heart-health issues. The buildings at the Heart of the Park (the visitors center is LEED Silver and the restaurant/event center is LEED certified) had to be pragmatic and durable, but "rustic was not what we were going for," says Andrews. "This is an urban park. We wanted the buildings here to be modern and sculptural, but also we didn't want them to look like they dropped out of a spaceship onto the site."

The conservancy worked extensively with consultants to devise a programmatic mix that would ensure the Heart of the Park could financially sustain the larger facility. In 2012, MBA won the contract and collaborated with JCFO to refine the building siting and develop the space between structures, which include a destination restaurant (the Kitchen, cofounded by Kimbal Musk, brother of Elon) and dividable event space, a stage pavilion, and a boathouse. The architects' interest in building something "strangely familiar" jibed with the conservancy's desired aesthetic. "We were intent on using the vernacular and transcending it," says Blackwell. "The visitors center is the mothership, and the rest are progeny. If you trace their family tree, a barn in a pasture—or other Southern typologies, like the dogtrot, the shotgun, or the shed—would be where they originated from." This approach, combined with the instinct to create shade and exploit the territory between the built and natural worlds, led the team to turn to the regional phenom-

enon of the porch as a uniting feature: each structure has one.

As with most of MBA's projects, the buildings at Shelby Farms employ few and simple materials but elevate them through smart applications and sensitive detailing. The minimalist visitors center (which contains an information desk, gift shop, café, and offices) is largely clad in aluminum bar grating, which exposes the steel structure while mitigating solar gain on the glazed facades and providing ventilation (along with five 16-foot fans) for the 30-foot cantilever that forms a lakefront veranda. At the prow-like boathouse, the grating forms an elegant screened vitrine for kayaks. Metal panel, used on this building's enclosed portion, makes appearances as cladding for the restaurant and is echoed at the picnic pavilions (named "crickets" for their crouched forms), which are little more than standing-seam canopies on steel frames. While the metal plays with the sunlight, bringing a dynamism to the structures, cypress—for cladding and ceilings—lends a warmth to the porches and other spaces, and helps to blend inside with out.

Last year, the new facilities generated $2 million in revenue, and projections for 2018 are looking up, as more Memphians discover this urban retreat and its alluring facilities—from its water playground to its zip-line, buffalo range, and open-air concert venue. With the Heart of the Park, says Andrews, "we've given people who hadn't yet found a reason to come to the park, a reason. If, before, people weren't sure what there was to do at Shelby Farms, they definitely know now." ■

credits

LANDSCAPE ARCHITECT: James Corner Field Operations – James Corner, Richard Kennedy, Tsutomu Bessho, Sarah Astheimer, Christopher Marcinkoski, Maura Rockcastle, Lisa Tziona Switkin, Hong Zhou, Megan Born, Kim Cooper, Sanjukta Sen, Baewon Suh, Doug Meehan, Donghyouk Ahn

ARCHITECT: Marlon Blackwell Architects – Marlon Blackwell, Meryati Johari Blackwell, Jonathan Boelkins, David Jaehning, Kertis Weatherby, William Burks, Stephen Reyenga, Justin Hershberger, Bradford Payne, Stephen Kesel, Spencer Curtis

ENGINEERS: Pickering Firm (civil, site structural, m/e/p); Guy Nordenson & Associates, Engineering Consultants (structural for buildings)

GENERAL CONTRACTOR: Montgomery Martin Contractors

CLIENT: Shelby Farms Park Conservancy

SIZE: 45,000 acres; Heart of the Park: 275 acres; buildings: 35,000 square feet

COST: $70 million (total project); $52 million (Heart of the Park); $8.4 million (buildings)

COMPLETION DATE: September 2016

SOURCES

METAL PANELS: Petersen Aluminum

CURTAIN WALL: Tubelite

ALUMINUM COMPOSITE MATERIAL: Alcoa Architectural Products

GLASS/SKYLIGHTS: Vitro Architectural Glass

MASONRY: Schwartz Stone

VISITORS CENTER FANS: MacroAir

ACOUSTICAL CEILINGS: Armstrong

PAINTS & STAINS: PPG

SOLID SURFACING: Caesarstone

Longchamp Racecourse | Paris | Dominique Perrault Architecture

Down the Stretch

A historic track is reimagined with an open grandstand for crowds both big and small.

BY JOSEPHINE MINUTILLO

By the first Sunday in October, the leaves in the Bois de Boulogne, the large, heavily forested park in Paris's tony 16th arrondissement, begin to turn a beautiful shade of gold. It is on that day that the nearly century-old Prix de l'Arc de Triomphe is held at the Longchamp racecourse along the western edge of the park bordering the Seine. Considered Europe's most prestigious horse race, its timing influenced the look of the track's new grandstand, designed by Paris-based Dominique Perrault Architecture (DPA). "It's a soft color," says Perrault of the gilded hue of the structure, inaugurated with its first race on April 29. "It's all about the relationship to the landscape."

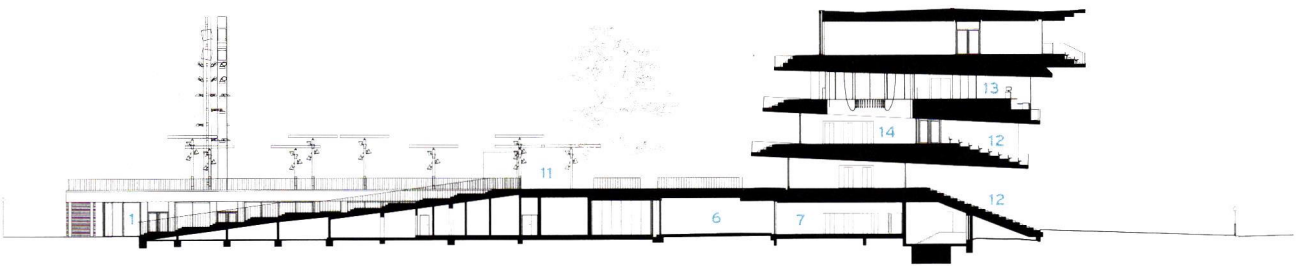
From the pixelated frit on the glazed balustrades to the metal mesh doors and mushroom-like sunshades that line the walkways, every part of the building is golden. But if its color was meant to blend in with nature, its form is all about the horse. "We wanted it to look like a galloping Thoroughbred," says DPA associate and artistic director Gaëlle Lauriot-Prévost. The 115-foot-wide by 525-foot-long structure culminates in a large cantilever on the uppermost level—the metaphoric head of said Thoroughbred.

The steel-and-concrete building, which has seating capacity for about 10,000 spectators, comprises four levels—noticeably inclined toward the racecourse and slightly offset from one another for the best sightlines—giving the impression from the short direction that it, like the horses, could take off at any moment.

In the long direction, the dynamic new building—open on all sides with plein air seating, terraces, or stepped platforms—appears stretched to its limits, but it is actually considerably shorter than the pair of structures from the 1960s that it replaced. "The old stands were

FRANCE GALOP

JOCKEY FOR POSITION
The racecourse borders the western edge of Paris by the Seine River (left). A wide staircase greets visitors at the main entrance (opposite, top). The new structure sits adjacent to two historic buildings that include a rarely used 1921 grandstand at the center (opposite, bottom).



SECTION A - A

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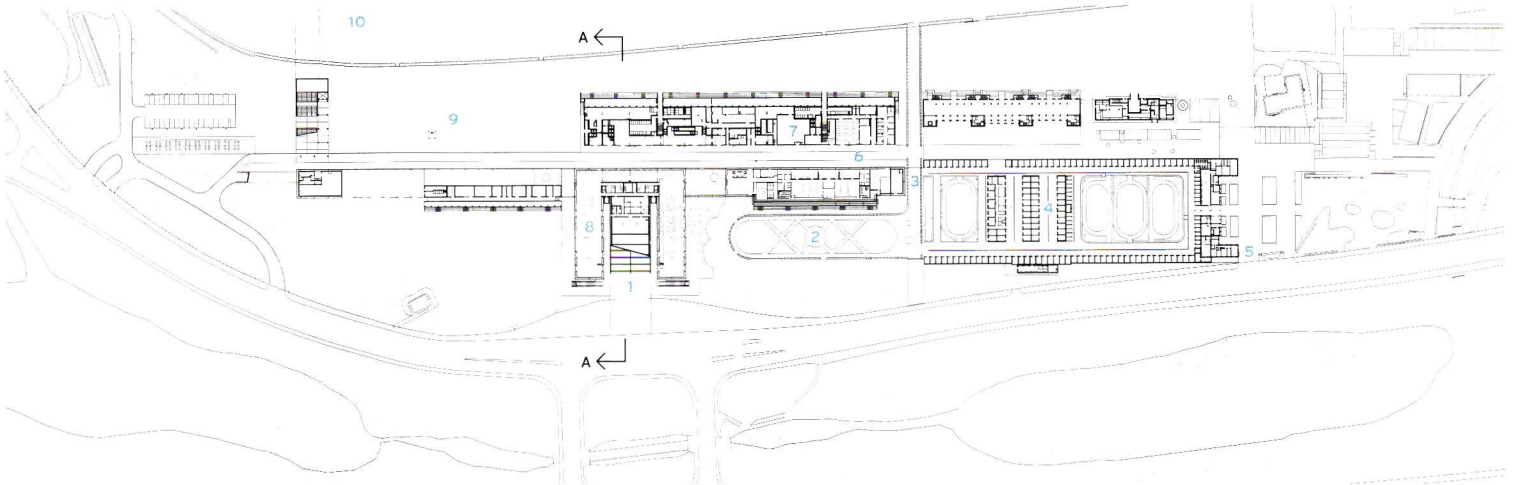
10 M.



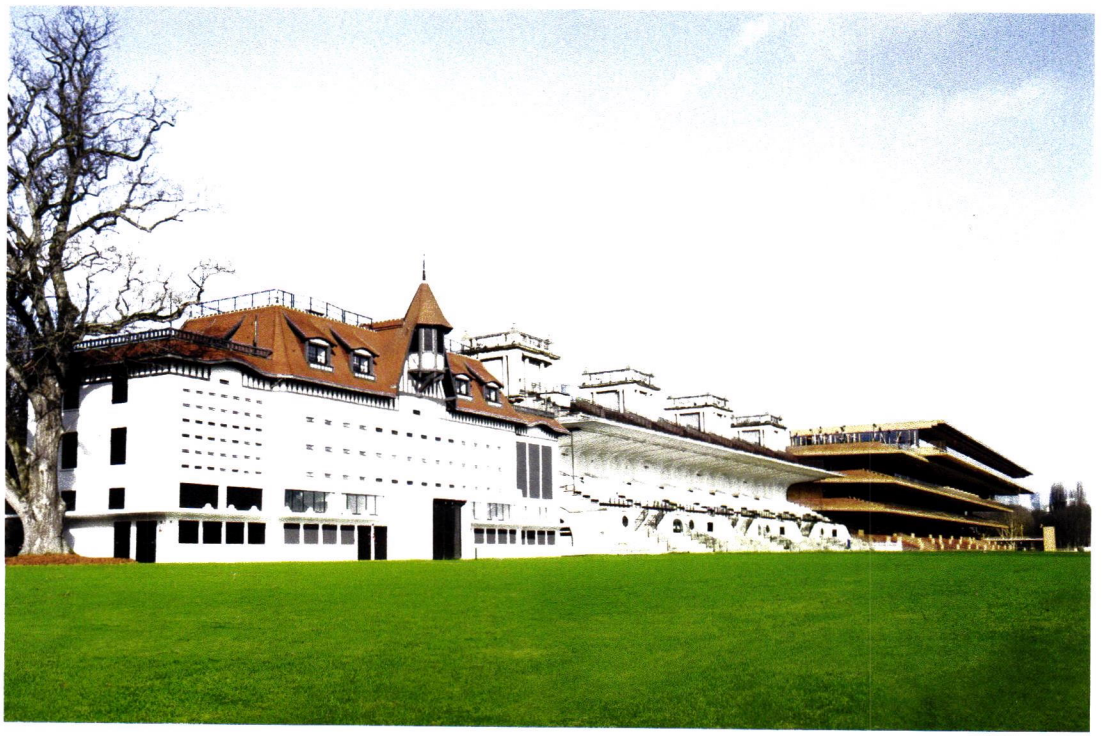
GROUND-LEVEL PLAN

0 200 FT.
60 M.

1 MAIN ENTRANCE
2 PADDOCK AREA
3 HORSES' ENTRANCE
4 STABLES
5 OWNERS' ENTRANCE
6 ROAD
7 SERVICES
8 BISTRO
9 OPEN GREEN/TEMPORARY SEATING
10 RACECOURSE
11 WALKWAY
12 SEATING
13 VIP SUITES
14 PRESIDENTIAL LOUNGE

often empty," says Lauriot-Prévost. While the annual Arc competition can draw up to 70,000 visitors over the course of the weekend, horseracing throughout Europe has declined in popularity, and weekly races at Longchamp host much smaller crowds. DPA's design needed to be flexible enough to adjust to such fluctuations in numbers, and also to accommodate concerts and other cultural and sporting events—which this summer included Lollapalooza—as well as smaller private affairs, to add year-round value to the project outside of racing season.

Parallel to the grandstand, a substantial walkway that DPA calls *la planche* extends nearly twice the length of the building itself and acts as an elevated viewing platform in front of a large green. From that vantage point, one can see the famous flat track, which was slightly altered in the new building project. For more popular races and events, that large green accommodates temporary seating, as does the landmarked 1921 grandstand—used only on very rare occasions—on the opposite side of DPA's building. (A third building next



PARISLONGCHAMP

BACKSTRETCH The ipé seating features gold accents (opposite, top). The towers of La Défense are visible from the turf course (above). An open green in front of the raised walkway and beside the grandstand accommodates temporary seating for larger crowds (opposite, bottom).

to the historic structure houses offices and services.)

The precast-concrete walkway, which becomes U-shaped around the cascading main entrance, is an integral part of the design. The grandstand and racecourse flank the walkway on one side. On the other, a series of spaces—from the renovated and enlarged stables to the beautifully landscaped paddock area where horses are shown off before and after races—border it. At the center of it all, *la planche* is really a *grand boulevard*, a promenade to see and be seen. Beneath it is an enfilade of flexible rooms and spaces for storage, meeting, and mechanicals, as well as a large bistro and the all-important jockeys' weighing room. On the walkway itself, those square-topped, mushroom-like umbrellas, as DPA calls them, either 15- or 18-feet tall, add a lively rhythm to the procession, and provide shelter from the sun, if not the rain.

Interiors have been kept simple, punctuated here and there with custom light fixtures DPA designed, including a grand chandelier in the presidential lounge. A rhythmic pattern of evenly spaced rows of discs mounted to ceilings incorporates lighting, speakers, and—critical for placing smartphone bets—WiFi access points. (Betting stations are located at various spots within corridors and in a first-floor lounge.)

DPA, inspired by the nature of the activity on this 140-acre site and its incomparable setting within the stately Bois de Boulogne, kept the focus on the outdoors, wisely making the grandstand itself as porous as possible—a significant change from the previous incarnation. While there are elegantly appointed VIP suites on the upper levels, the more public areas are, in this case, more desirable—exposed to race-day activity and sounds on either side, with both sunlight and breezes flowing through. A rooftop restaurant and terrace offer breathtaking views over the park and to the jumble of towers of La Défense to the west, and the center of Paris to the east. The wide open building, despite being gilded and set in the poshest part of Paris, welcomes all visitors, including those unfamiliar with the elite sport and its hallowed traditions, to enjoy a day at the races. ■

credits

ARCHITECT: Dominique Perrault Architecture

ENGINEERS: Tractebel Engineering (structural)

CONSULTANTS: Agence Ter (landscape); Terrell (facade); J-P Lamoureux (lighting, acoustics)

GENERAL CONTRACTOR: Bouygues Bâtiment-Ile-de-France

CLIENT: France Galop

SIZE: 645,000 square feet

COST: withheld

COMPLETION DATE: April 2018

SOURCES

METAL STRUCTURE: Bysteel

METAL ROOF: Riverclack

GLAZING: Saint-Gobain

METAL MESH: GKD

WOOD PANELS: Topakustik

ELEVATORS: Otis

WildWoods at Fernbank Museum of Natural History
Atlanta | Sylvatica Studio

Into the Woods

A landscape project decades in the works opens an old-growth forest to a new generation of museumgoers.

BY MIRIAM SITZ

PHOTOGRAPHY BY TIMOTHY HURSLEY

Once upon a time, in the affluent Druid Hills neighborhood of Atlanta, a dark, forbidding forest bordered the Fernbank Museum of Natural History. But now, thanks to thoughtful interventions by local landscape architect Sylvatica Studio, an inviting path winds into the woods, allowing visitors a privileged view of the wild, including access for the first time to a rare stand of pristine old-growth Piedmont forest.

On a 16-acre section of the museum's property, Sylvatica and its collaborators created the WildWoods—a lightly landscaped wooded area accessible on an elevated boardwalk that meanders down a hill and through a lush creekside meadow, to connect with a rustic trail into Fernbank Forest. Just a few steps onto the gently sloping path, you are surrounded by forest, where dappled light and the gentle rustle of branches replace the sights and sounds of the bustling museum. "We were trying to change visitors' perception of going out into nature," says Susan Stainback, Sylvatica's founder. "We hope this experience inspires curiosity and gets people to reexamine the forest."

Sylvatica worked with architects Perkins+Will and engineers Uzun+Case on the walkway, which, rising as high as 35 feet above grade, is supported by a structure of horizontal glulam beams and steel columns. The elevation provides a thrill—and a unique perspective on the trees: where else do you get a close-up view of the trunks of tulip poplar, beech, or oak trees nearly a dozen yards up? Measuring roughly a mile, the boardwalk fulfills the institution's goal of unifying its campus, while the larger master plan (completed with consultant landscape architecture firm Reed Hilderbrand) expands the educational facilities and addresses the proliferation of invasive plant species.

The museum's property was preserved in the 1930s by Emily Harrison, a conservationist whose family originally owned the land. But since the mid-1960s—nearly three decades before the institution's Graham Gund–designed building was completed—65 of the 115 total acres were leased to the local school district. Knowing that parcel would return to their control in 2012, the museum leadership embarked on a strategic plan to make the entire property accessible to visitors. "We were always planning for that transition," says president and CEO Jennifer Grant Warner.

Fernbank selected Sylvatica for their light-on-the-land approach and

FLOWERING FORM The doubling of cedar louvers on a large seating pod (left) recalls the colorful corona found around the base of tulip poplar flower petals.

SITE PLAN

1 FERNBANK MUSEUM OF NATURAL HISTORY
2 WILDWOODS
3 FERNBANK FOREST

FERNBANK PROPERTY
PROJECT AREA

charged the firm with physically and programmatically connecting the museum to the forest. "We wanted to break with the formal programming inside the building," she says, "and provide an immersive experience."

With planks made from coumarou, a Brazilian teak, the boardwalk is enclosed on its sides by a flexible steel net topped with sturdy ipé handrails. The walkway varies in width and includes several areas meant for lingering, including a 30-foot-tall biomimetic "pod"—a semi-enclosed structure with benches and uplighting, inspired by flowers of the tulip poplar and articulated with cedar louvers. A second, smaller pod meant to resemble the fronds of a fern provides a more intimate place in which to stop for a rest. (Sylvatica conceptualized the forms, then designed them in more detail in collaboration with Perkins+Will and Uzun+Case.)

Views from these scenic outlooks are framed to focus a visitor's gaze up into the canopy of the trees, out to the densest parts of the forest, and down on the restored riparian lowlands. By compressing the slats on certain sides of the pods, the designers ingeniously obscured sight lines to the museum's mechanical plant and other more programmed areas of the WildWoods, including a jungle gym–like structure, a screened-in outdoor classroom, and an interactive water feature play area, built atop an underground detention pond.

As much as Sylvatica's interventions benefit visitors, they're also strengthening the Fernbank

ecosystem. The project included the planting of more than 100 varieties of native plants after the removal of great quantities of invasive species. (The museum opted for time-intensive manual extraction, rather than using herbicide, out of an abundance of caution for the health of amphibians living in the area's watershed.) Now lush, waist-high spreads of River Oats, Beaked Panic Grass, Indian Grass, Swamp Hibiscus, and Switchgrass grow alongside the creek, swaying in the breeze as they filter water and attract pollinators. "The increased biodiversity is beneficial for the health of the forest," says Stainback. The institution is even offering free memberships to owners of adjacent properties who remove non-native invasive vegetation from their yards.

Before the WildWoods project, the forest was inaccessible to museumgoers. "People were so curious about what was there," says Warner; since the soft opening in September 2016, she reports there's been an increase in visitors, members, and in "dwell time," or how long people stay. The undertaking has radically enhanced Fernbank's mission: to inspire greater appreciation for the natural world. ■

credits

LANDSCAPE ARCHITECT: Sylvatica Studio – Susan Stainback, Ryan Jenkins, Curtis Alter

ASSOCIATE ARCHITECT: Perkins+Will – Jared Serwer, John Poelker

ENGINEERS: Uzun+Case, CFD Structural Engineering (structural); Long Engineering (civil)

CONSULTANTS: Reed Hilderbrand (master planning); Steven Handel (ecological); Thinkwell Group (exhibition design); Tunnell and Tunnell (historic)

GENERAL CONTRACTOR: Van Winkle Construction

CLIENT: Fernbank Museum of Natural History

SITE SIZE: 16 acres

COST: withheld

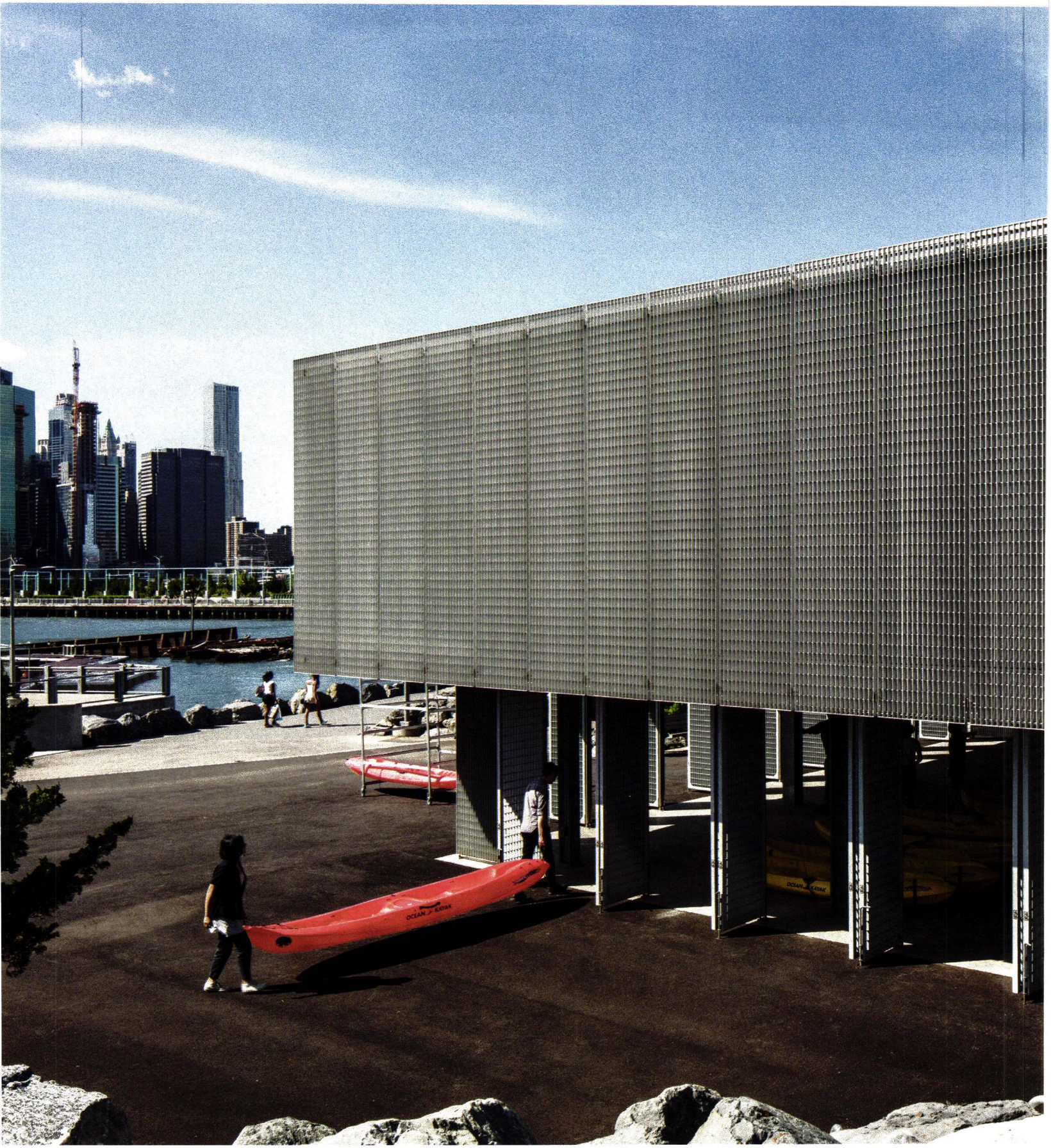
COMPLETION DATE: January 2017

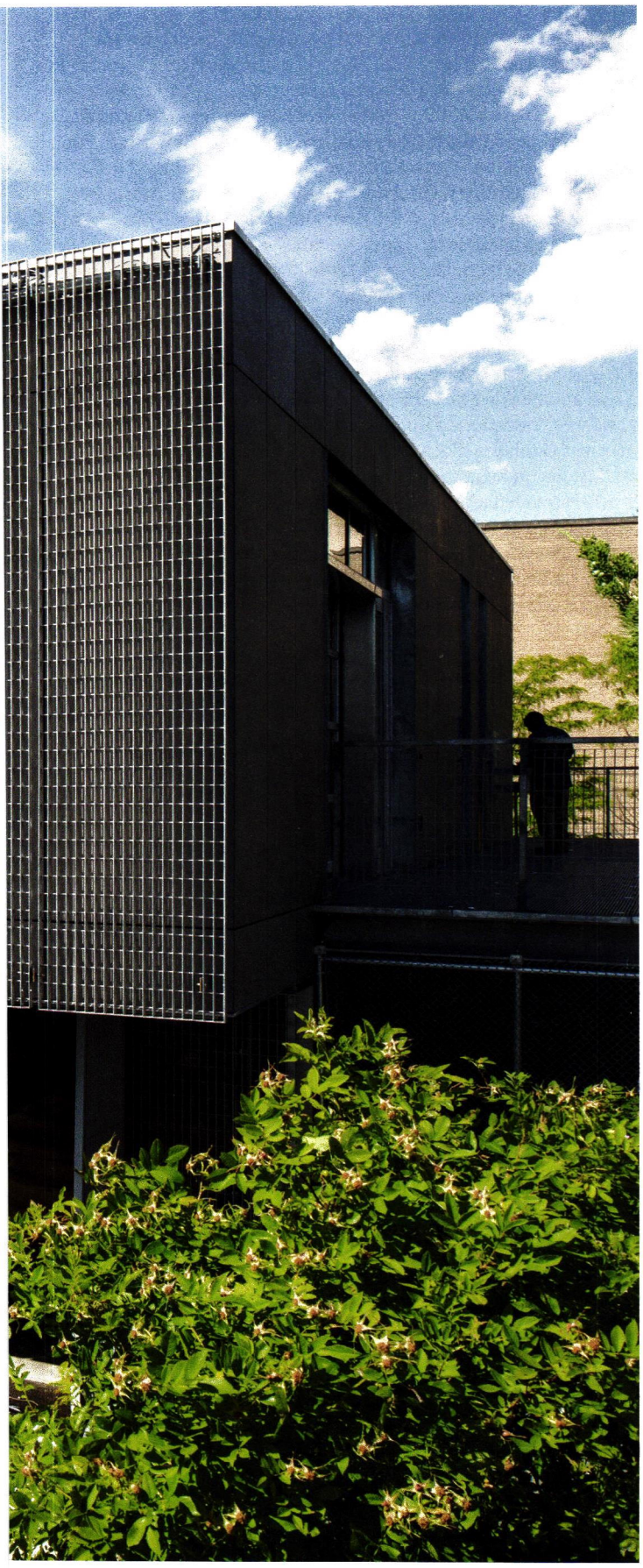
SOURCES

MESH GUARDRAIL: Carl Stahl DecorCable

LIGHTING: Sistemalux

WINDING ROAD The simple screened-in classroom (opposite, top) provides an educational venue for summer camps and field trips. Minimal lighting along the elevated path (top) reduces disturbances to wildlife at night. The architects limited signage on the gently sloping WildWoods path (above).





Brooklyn Bridge Park Boathouse | New York
Architecture Research Office

On the Rocks

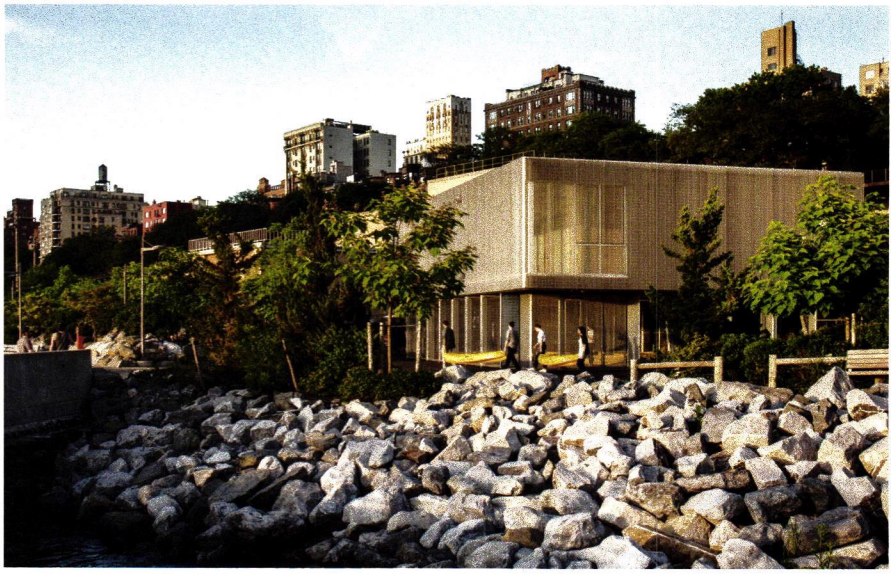
Careful siting elevates a rugged boathouse.

BY HEATHER CORCORAN

PHOTOGRAPHY BY ELIZABETH FELICELLA

"This boathouse has the best view in the world," says architect Stephen Cassell, gazing out the window of the Brooklyn Bridge Park Boathouse he designed with Adam Yarinsky, a fellow principal at Architectural Research Office (ARO). With an enviably clear sight line across the East River to Lower Manhattan, the simple structure is home to a variety of functions: free public kayaking programs, a pilot for a potential park information center, and new public bathroom facilities beyond other existing ones. "You can never have too many bathrooms in a park," explains Eric Landau, president of the Brooklyn Bridge Park Corporation.

Master-planned by Michael Van Valkenburgh Associates in 2005, Brooklyn Bridge Park (RECORD, January 2011) stretches along 1⅓ miles of the New York borough's waterfront and is nearing 90 percent completion, Landau says, about a decade after construction began. When it came time to build on the Pier 5 uplands in 2014, ARO took a bold approach in responding to the competition brief for one building to house boating programs as well as



SUN SCREEN The metal grill wrapping the second story of the boathouse complements the operable metal gates below (left). The materials were chosen for durability and how they reference the surrounding Michael Van Valkenburgh-designed Brooklyn Bridge Park (above).

SHIP SHAPE A riprap berm rises at the rear of the structure (above). A metal-grate walkway leads to the upper garage-door entry (opposite, top), allowing light to reach the boat storage below. At night, cool LEDs illuminate the facade's metal grill, while warm interior lighting reveals the wood-lined space above (opposite, bottom).

maintenance and operations facilities: divide the public-facing and behind-the-scenes functions into separate structures, using the park's signature landscape feature, the berm, to site them.

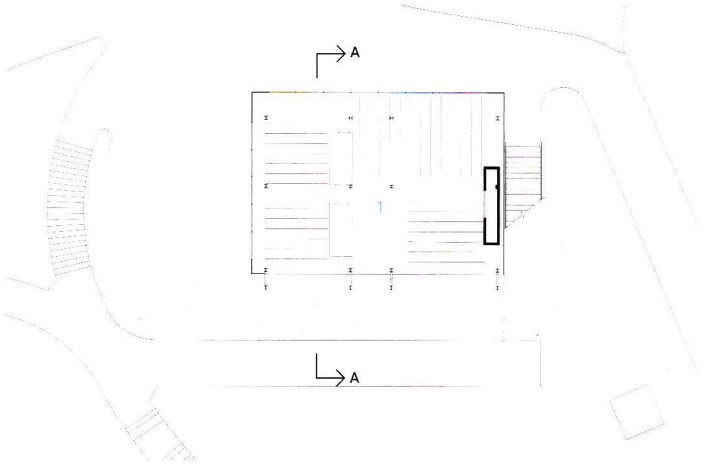
Their proposal tucked the maintenance-and-operations building behind a curve of a Van Valkenburgh–designed berm, an intervention that deflects sound from the nearby Brooklyn–Queens Expressway. Then, using a large model built by the landscape architects as a guide, ARO developed a scheme for the boathouse, ultimately nestling two stacked boxes totaling about 5,000 square feet into the riprap berm.

Referencing the park's design and the area's industrial past, the materials are rugged and off-the-shelf. "There is nothing custom here," says Cassell, citing materials like the aluminum grating system that wraps the structure. "These buildings evolve—everything needs to work five different ways." So, he adds, ARO's goal was to "make something that was simple, durable, and can be adapted, without being fussy."

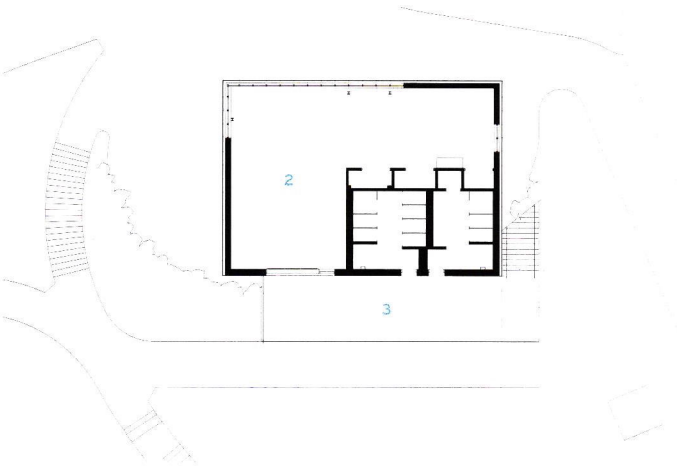
Despite their simplicity, the materials are used to dramatic effect. Visitors are treated to views of the park and Manhattan skyline from both levels of the boathouse. Open, operable grate panels, around three sides and accessible from the park's promenade, filter light and air into the boat-storage area at grade. The multiuse second floor—raised safely above FEMA flood-guideline levels—can be accessed by way of a series of sloping paths and stairways that meet near the top of the berm. There, a glazed garage-door entrance opens to a plywood-lined room where city and park views fill floor-to-ceiling low-E windows on its south and west elevations. Cement board panels block out views of less picturesque neighbors, like a Metropolitan Transit Authority (MTA) airshaft just beyond the park's boundaries.

The MTA provided a complex—if invisible—engineering challenge as well. The boathouse is located within the zone of influence of an underground subway tunnel, and, since much of the parkland is landfill, the soil is prone to liquefaction. Collaborating with structural-engineering firm Leslie E. Robertson Associates and geotechnical firm Mueser Rutledge, the architects were able to avoid placing weight on the tunnel by supporting the simple galvanized-steel frame building with some 45 piers, reaching roughly 40 feet deep. "There's a lot more structure under this than one would imagine for a tiny little building," Cassell says.

As much attention as the design team paid to the building's details, care was also given to the way it would be viewed from a distance, an

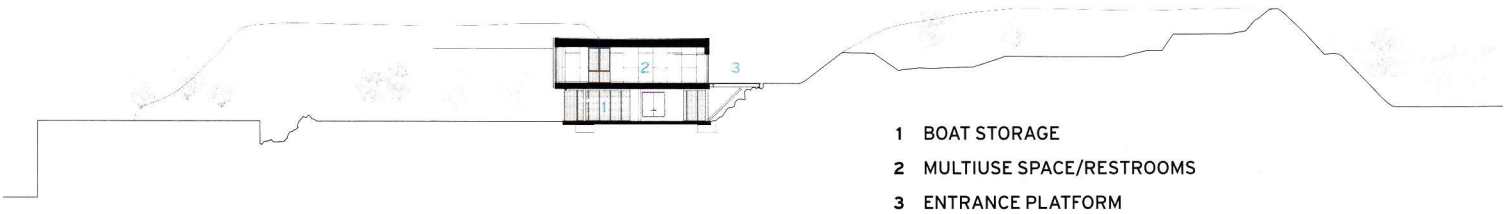


LEVEL-ONE FLOOR PLAN



LEVEL-TWO FLOOR PLAN

0 20 FT. 6 M.



SECTION A - A

1 BOAT STORAGE
2 MULTIUSE SPACE/RESTROOMS
3 ENTRANCE PLATFORM

0 30 FT. 10 M.

experience that shifts as the sun washes over the metal grill, which also serves as a brise soleil. "It changes every minute," says the project's lighting designer, Linnaea Tillett. "The building has a lot of poetry."

Tillett's firm illuminated the boathouse with LED strip lights outside and linear interior fixtures. The color temperature follows the building's shift from cool galvanized steel exterior to warm plywood, creating what Tillett describes as a "quiet lantern" nestled within the park. "We wanted it to sit very, very quietly—a lantern that illuminates the landscape around it but doesn't demand you look at it." ■

Heather Corcoran is a writer and editor based in New York. She was recently married in Brooklyn Bridge Park.

credits

ARCHITECT: Architecture Research Office – Stephen Cassell, Adam Yarinsky, principals in charge

ENGINEERS: Leslie E. Robertson Associates (structural); Altieri Sebor Wieber (m/e/p); Sherwood Design Engineers (civil); Mueser Rutledge (geotechnical)

CONSULTANTS: Michael van Valkenburgh Associates (landscape architect); Tillett Lighting Design Associates (lighting design)

CLIENT: Brooklyn Bridge Park

SIZE: 5,000 square feet

COST: withheld

COMPLETION DATE: April 2018

SOURCES

CLADDING: American Fiber Cement; Custom Exterior Systems; Ohio Gratings

GLAZING: Vitro Architectural Glass; Futureshock Architectural Metals & Glass

FENESTRATION: YKK AP; Clopay; Overhead Door Company

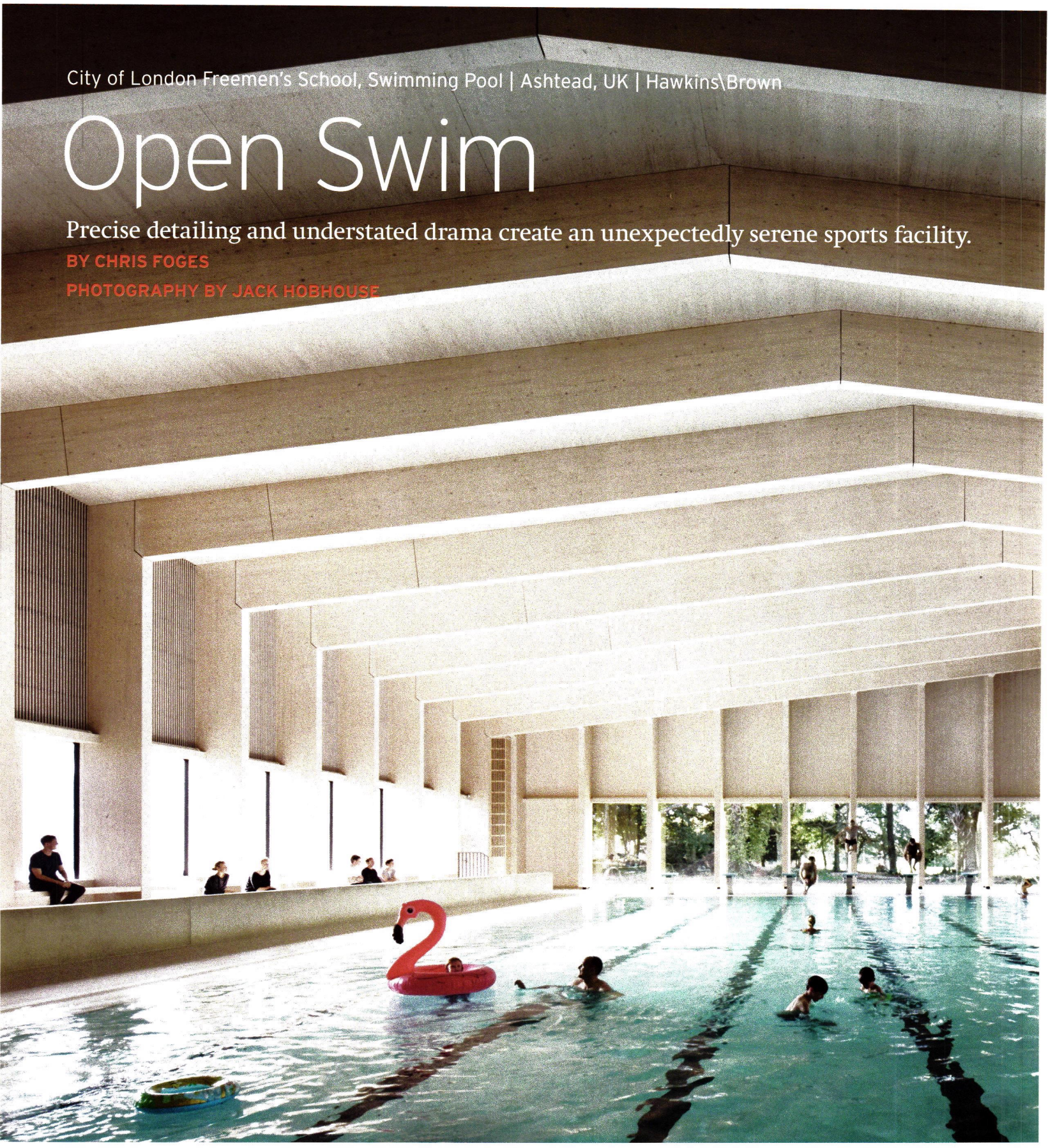
City of London Freemen's School, Swimming Pool | Ashtead, UK | Hawkins\Brown

Open Swim

Precise detailing and understated drama create an unexpectedly serene sports facility.

BY CHRIS FOGES

PHOTOGRAPHY BY JACK HOBHOUSE



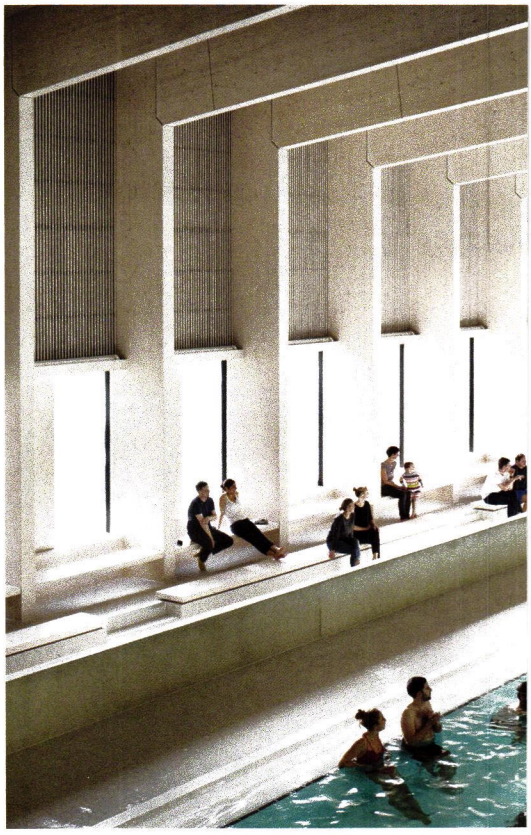
All four classical elements combined to shape architect Hawkins\Brown's new swimming pool for the City of London Freemen's School, set in the grounds of a former country estate in Ashtead, a leafy suburb. The dark, low-slung building is partly embedded in the earth of its sloping site, minimizing its outward impact, but from the water swimmers enjoy the airiness of a light-filled enclosure whose pale wood portal frames arch overhead like the ribs of a gothic vault. And it was the fourth element—fire—that initiated the project, after the school's previous pool building burned down in early 2014.

Hawkins\Brown had already embarked on a phased program of improvements to the private boarding school, whose main building dates back to the 17th century and is historically listed, along with the surrounding landscape. Replacement and relocation of the 1970s pool had been planned for later, in part to improve views of the historic house from its original driveway. However, the fire required a hasty reshuffling of the schedule.

With pressure to get the new $10.8 million facility operational, design decisions were made quickly. The most important was the choice of a glue-laminated timber frame braced by cross-laminated timber (CLT) panels. The material resonates with the chosen site, near the main house but screened from view by established trees. There were also practical reasons: off-site-manufactured timber buildings are fast and quiet to erect, and particularly appropriate to pools, says architect Harriet Redman: "Because wood is thermally insulating, there is less condensation and fewer maintenance requirements."

To minimize heat loss, a compact volume was also desirable. Ancillary spaces are stacked over two stories at the southern end of the rectangular structure, with the entrance and a classroom at second-floor level, where the building meets high ground, and changing rooms below, sunk into the sloping bank. The orthogonal box was then inflected by a roof ridge that runs diagonally, so that the highest parts are above the entrance and the northwest corner of the pool hall, with the roof falling to the opposite two corners. On entering, the eye is drawn through an internal window into the pool hall, and follows the

IN THE TREES The roof, clad in standing-seam zinc (above), has a diagonal ridge supported on the interior (left) by shifting glue-laminated timber portal frames and CLT panels. These wood elements are connected by concealed steel plates.

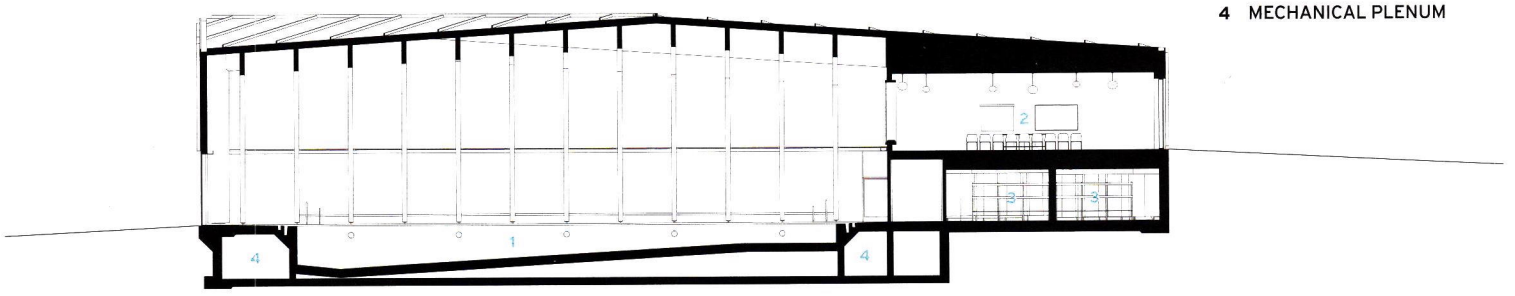


shifting apexes of the portal frames to its far corner, where wrap-around glazing at poolside gives expansive views of the surrounding woodland.

"The shift in geometry is a straightforward move but makes a dramatic interior," says Redman. "Once we'd locked that down, the main design challenge was in the detailing." Here the effort was to maintain the apparent simplicity—a complicated task given the functional and environmental requirements of pools.

Visible evidence of mechanical and electrical equipment has been successfully minimized. A plenum wraps the pool tank below deck, through which warm pressurized air is pumped. This washes over the glazing, via discreet grilles set into the timber structure, to prevent condensation. All lighting and electrical systems are gathered in a wooden header above the windows that line three sides of the 25-meter (82-foot), six-lane pool. The bottom of the glazing drops below the edge of the pool deck, which is level with the water, so swimmers have direct views into the trees. Spectator seating is accommodated within the depth of the frame and fashioned from CLT.

Hawkins\Brown was also able to meet strict standards for competition pools without deviating from the building's minimal architectural language. One rule, for example, requires ceiling markings to orient backstroke swimmers, so the CLT roof panels are laid with their subtly



LONGITUDINAL SECTION

SPECTATOR SPORT Seating is fashioned of CLT and set within the portal frames (opposite, right). An entry level internal window frames a view out over the pool (opposite, left). At the end of the hall and on one side (right), the glazing drops below the deck, which is level with the water, so swimmers can see directly outside.

visible grain and joints running perpendicular to the glulam frames, parallel to the lanes.

Simplicity also characterizes the design of the facades and the surrounding landscape, both of which are intended to allow the building to merge with its setting. The lower story is faced in fiber-cement board, while the upper parts are clad in standing-seam zinc. Both materials are in shades of brown, to blend in with bare trees in the winter.

In the summer, the leafy woodland provides camouflage, now supplemented by two new trees for every one removed to make way for the structure. A planting plan by B|D Landscape Architects "is very subtle," says Redman. "There are no big moves; as with the building, we didn't want to do anything that was louder than the surrounding woodland." Containers filled with lavender step down the sides of the building, and the forest's understory has been filled out with ferns and flowering bulbs.

Just as the dark exterior allows the building to recede from view, so the pale, unfussy interior directs attention to splashes of color inside and out—azure water and green landscape—creating the sense, as Hawkins\Brown partner Adam Cossey suggests, that one is "swimming amongst the trees." ■

credits

ARCHITECT: Hawkins\Brown – Oliver Milton, Adam Cossey, Harriet Redman

CONSULTANTS: Eckersley O'Callaghan (structural); Skelly and Couch (building services); Motion Consultants (transport); B|D Landscape Architects (landscape); Aspect (ecology); Treeline (arboriculture)

GENERAL CONTRACTOR: Gilbert-Ash

CLIENT: City of London Freemen's School

SIZE: 19,000 square feet

COST: $10.8 million

COMPLETION DATE: October 2017

SOURCES

GLULAM AND CLT: WeiHag

STANDING SEAM METAL: ElZinc

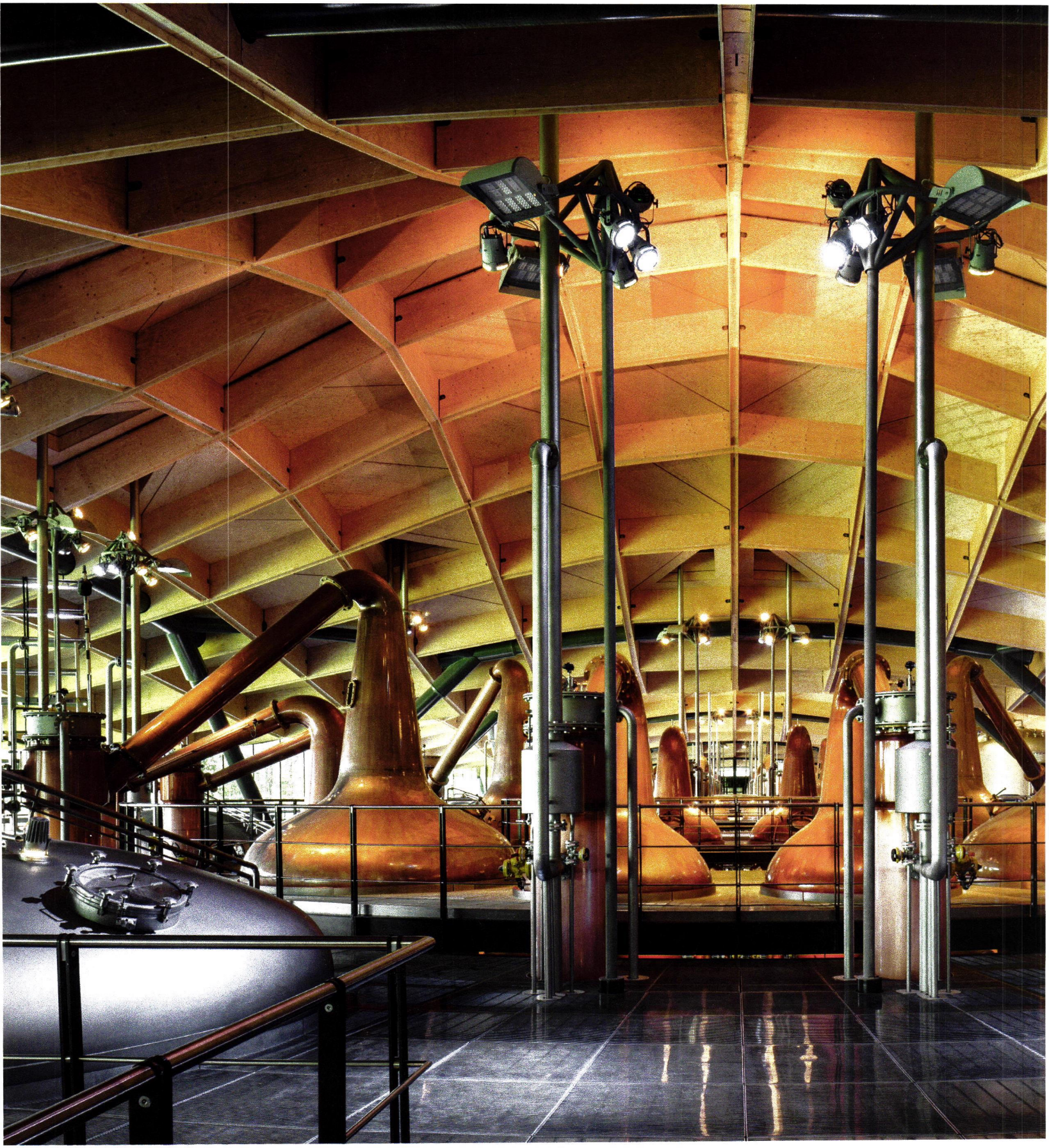
CURTAIN WALL: Aluprof

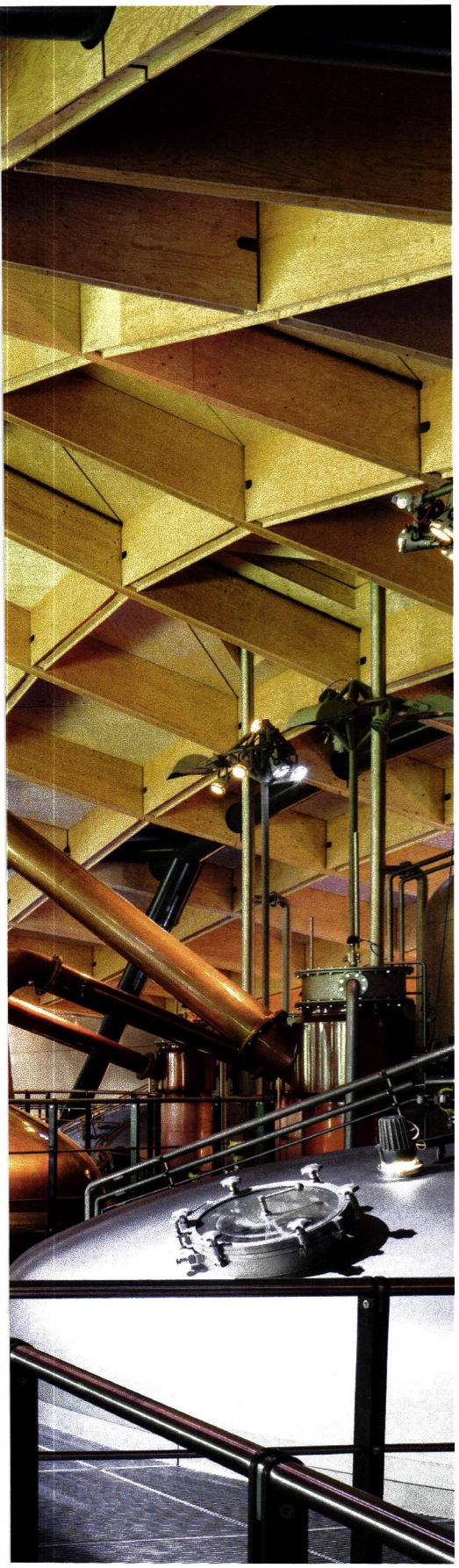
GRC PANELS: Marley Eternit, Equitone

ACOUSTICAL CEILINGS: ToughSorba

LIGHTING: Thorlux, Solow, Lucis, Diadem

TIMBER WHITEWASH: HSP Envirograf





The Macallan Distillery and Visitor Experience | Craigellachie, Scotland
Rogers Stirk Harbour + Partners and Gillespies

Toast of the Town

A spirited public facility integrates with its verdant topography.

BY HUGH PEARMAN

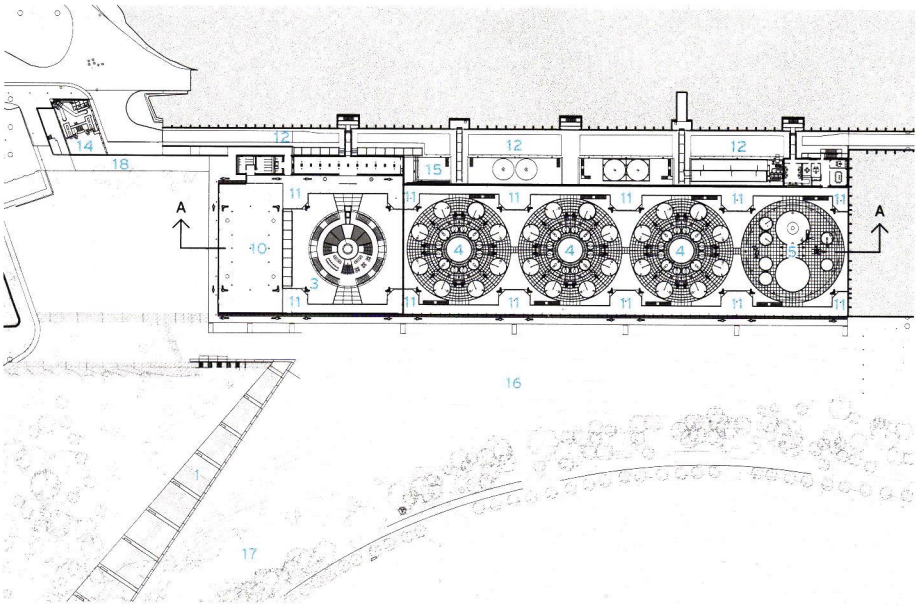
PHOTOGRAPHY BY JOAS SOUZA

Speyside, in Northeast Scotland, is the heart of the Scotch whisky industry, with some 50 distilleries across a relatively compact area. Of the many premium brands based here, one of the leaders is the Macallan Distillers, right at the heart of the region. To expand production and enable public engagement, the company has reinvented itself with a remarkable new distillery and visitor center designed by Rogers Stirk Harbour + Partners (RSH+P)—a project won through competition. The resulting building puts the manufacturing process on display while also responding to, and enhancing, the landscape.

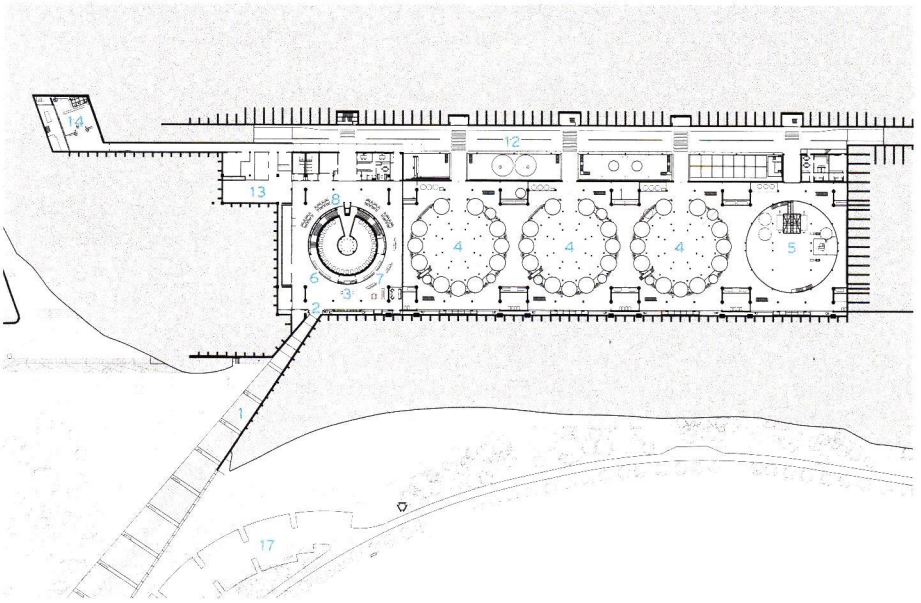
This is an industrial complex in protected countryside, perched on a hillside rather than in a valley bottom, as is more typical for this water-intensive enterprise. A network of underground pipes connects it to the Spey River and to boreholes on the Macallan property. It is a large, $185 million building: 656 by 200 feet, with an internal height of up to 50 feet on two levels. The challenge the architects set themselves, says partner in charge Graham Stirk, was to respond to the setting so that the building "just becomes part of the land." Aligned with the historic heart of the 139-acre estate—the 1700 Easter Elchies house, now used for corporate entertaining—the new building sits beneath an undulating meadow-covered roof that is tucked into the slope.

Set within an enhanced landscape by U.K.-based Gillespies, the structure's green covering of Scottish grasses and flowers tops a hybrid timber-and-steel roof comprising five linked domes that collectively form a gridshell. The grid is made of 10-foot-square laminated veneer lumber (LVL) cassettes. Each of the domed modules is clasped by exposed gray-painted tubular steel members. This dramatic roof sits lightly on top of a sunken concrete box that forms the base for the visitor center and distillery equipment.

BOTTOMS UP Industry meets Jules Verne in the Macallan building, where copper whisky stills (opposite) are located beneath the distillery's undulating timber gridshell roof. Dubbed "the cut," the sloping pedestrian approach (above) paved in striated bands of polished concrete and loose gravel, rises to the visitor entrance.

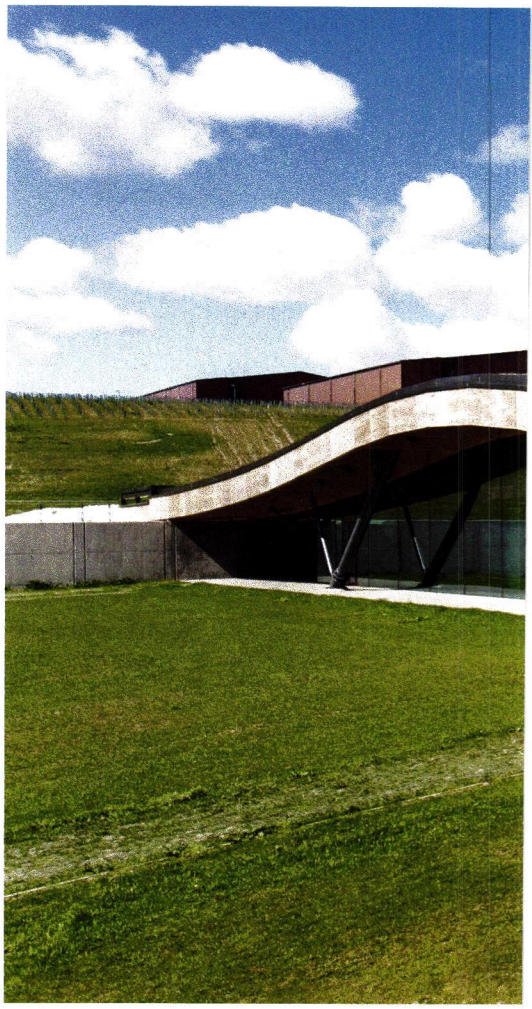


LEVEL-THREE FLOOR PLAN

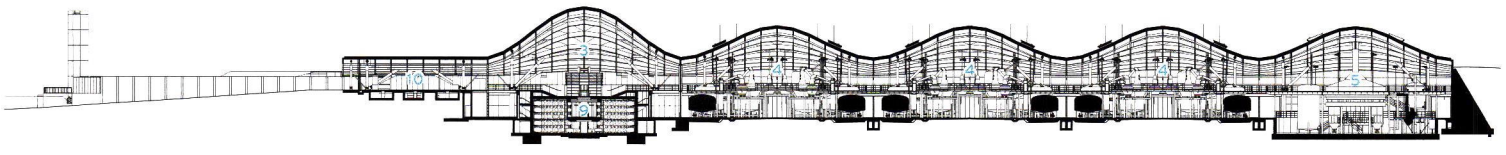


LEVEL-TWO FLOOR PLAN

0 100 FT.
30 M.



1 APPROACH
2 ENTRANCE
3 VISITOR CENTER
4 STILL POD
5 MASH HOUSE
6 RECEPTION
7 RETAIL SHOP
8 CAFÉ
9 PRIVATE CELLAR
10 EXHIBITS
11 PROMONTORY
12 SERVICE ROAD
13 PLANT ROOM
14 BOILER HOUSE
15 WATER PUMPS
16 MEADOW
17 CAR PARK
18 FIRE-EMERGENCY ACCESS



SECTION A - A

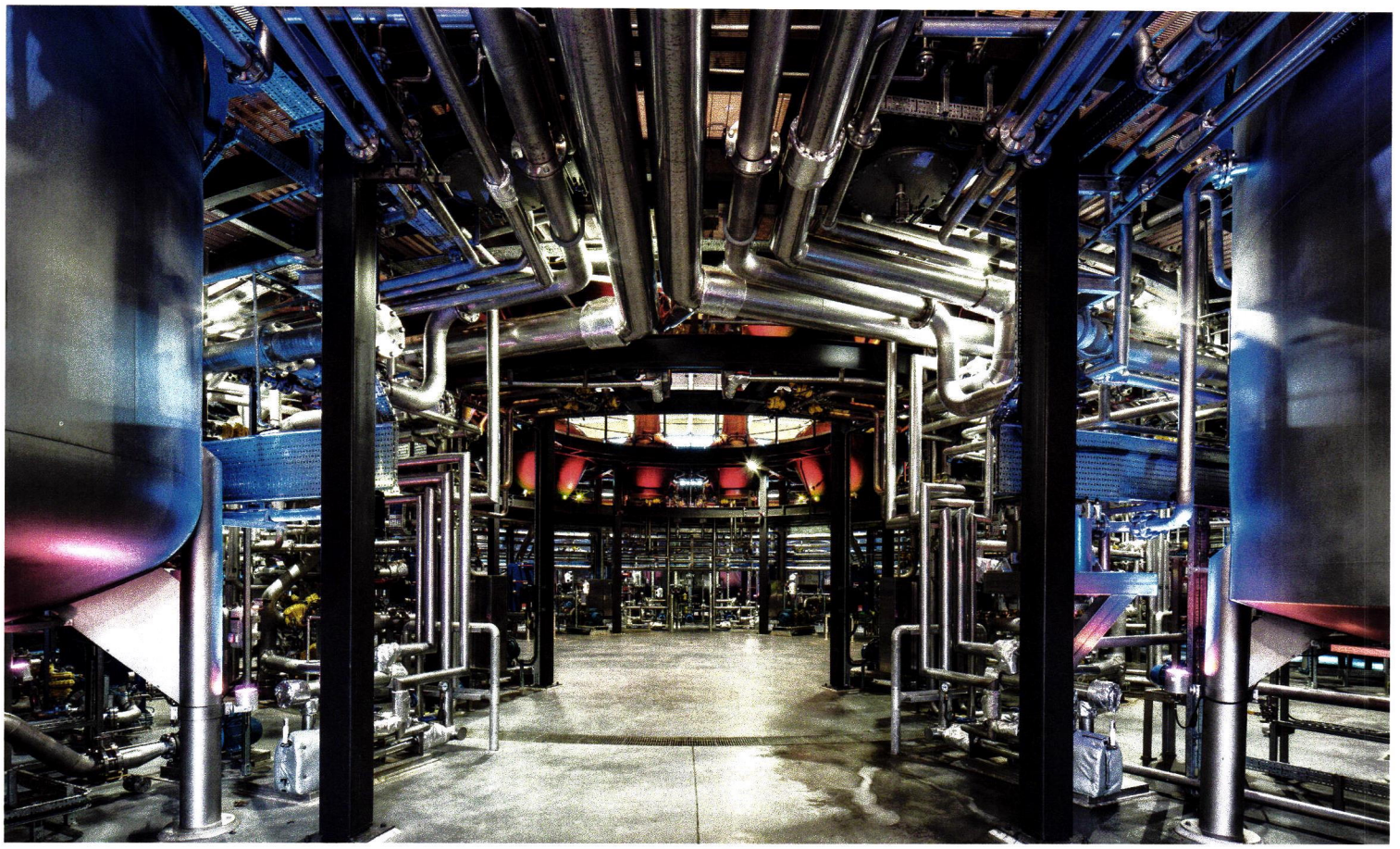
0 50 FT.
15 M.

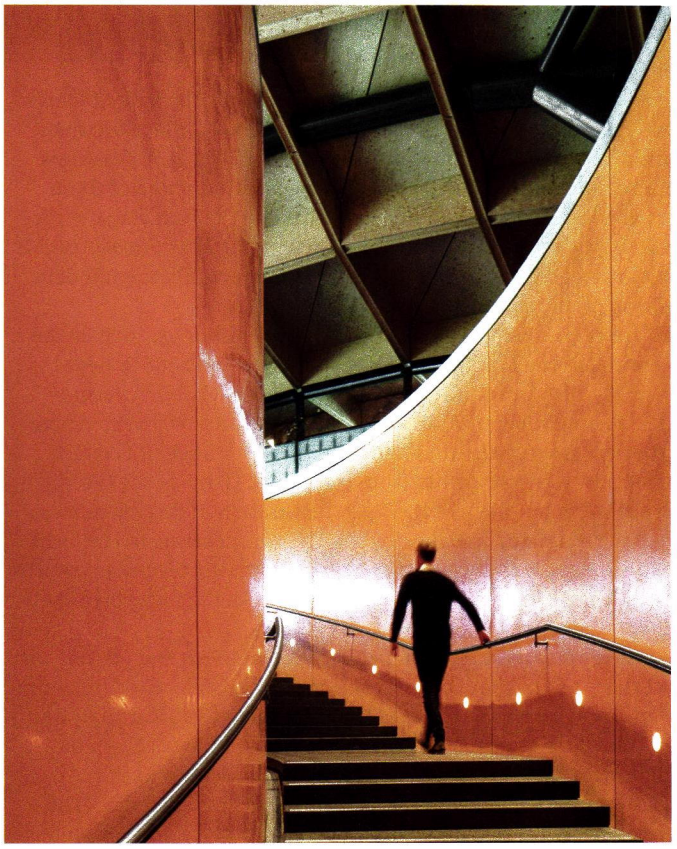
MAN MADE As if lifted from the sloping landscape and molded into accentuated forms, the new visitor center (top) responds to the surrounding woodlands and meadow. The distillery looks northwest across the Spey Valley, bringing views of the protected countryside into the building through glazing along its top level (above).

Each module is defined by a particular function. The visitor center is beneath the biggest dome, at the entrance. The distillery occupies the remaining four, with circular formations of large stainless-steel tanks and copper-snouted stills dominating the first three of these production zones, and the last one given over to the first stage of the fermentation process, containing an enormous circular "mash tun." If the distillery needs to expand further, the design will accommodate the addition of more modules.

There are echoes of other RSH+P wave-form buildings, such as the 2005 terminal at the Madrid-Barajas Airport and the 2008 Bodegas Protos winery, also in Spain. The intent was not invisibility—from above, the form of the building is clearly visible—but rather to create an appropriate man-made intervention: Stirk cites ancient Scottish burial mounds. Daylight comes from the glazed flank of the building, looking out over the valley of the Spey. Integration of disciplines was key, ranging from Arup, responsible for the engineering, to the local copper still-maker Forsyths, who created the curious birdlike pot-stills unique to Macallan—fully exploited visually by the architects in their circular arrangements.

As a visitor, you arrive along a meandering lane that tempts you with a view of the building from above, then takes you back on a descending S-bend until you reach a surprisingly small parking lot (Macallan wants no more than 30,000 visitors a year, and no tourist buses). From there, you walk toward the old house and then turn to follow a long pedestrian ramp known as "the cut" up to the visitor entrance. (The distillery operation is serviced via a separate, sunken spine road along





the back of the building, which also conceals storage tanks.)

The visitor center in the lofty first dome contains a reception area, shop, and restaurant; the tours start upstairs and finish there for the whisky-tasting at the end. In a circular chamber belowground, an exhibition "warehouse" houses special customer-owned casks around the walls. It's a fine piece of visual theater—a catacomb of whisky—but it is also functional: climatic conditions there are designed to align with those of a normal aboveground warehouse.

A special fire-safety strategy based on supersensitive constant-sampling smoke detection and rapid drainage to the outside was necessary. According to Stirk, you don't want a pool of burning spirits in what he likens to a petrochemical plant. The design avoids sprinklers or any other intrusive ceiling-mounted equipment. However, in an industry first, sprinklers are installed along the top of the glass wall between the public area and distillery, providing a two-hour fire barrier while preserving the desired transparency. The domed structure is also a good shape for everyday constant ventilation, as distilling is a hot, steam-powered business: the vents are deliberately expressed on the outside of the dome, projecting through the rooftop meadow.

When I visited, the undulating green roof had turned brown in the driest heatwave since 1976—usually this is a rainy part of Scotland. Over time, and with correct use of the integral irrigation system, it should green up and get quite shaggy. That issue aside, the distillery was operating smoothly both as a factory and as a tourist destination. "It's supposed to be a mystery revealed, a Jules Verne–like interior," says Stirk. The design team has succeeded: seldom has an industrial process seemed quite so seductive. But then, this is an industry devoted to one of mankind's more refined pleasures. ■

Hugh Pearman is a London-based architecture critic and editor of the RIBA Journal.

credits

ARCHITECT: Rogers Stirk Harbour + Partners – Graham Stirk, senior partner; Toby Jeavons, associate partner

ENGINEERS: Arup (structural/services/fire)

CONSULTANTS: Gillespies (landscape architect); Speirs + Major (lighting design); Atelier Bruckner (visitor experience and exhibition design); Forsyths (distillery)

GENERAL CONTRACTOR: Robertsons Construction Group; Sheppard Engineering Services

CLIENT: Edrington

SIZE: 159,000 square feet

COST: $186 million

COMPLETION DATE: June 2018

SOURCES

ROOF: Topek (green); Weihag (timber gridshell)

GLAZING: Glassolutions (facade)

CONCRETE: Decomo (precast)

POLISHED PLASTER: Armourcoat

CEILINGS: Kvadrat (acoustic); BCL (timber)

RESIN FLOOR: Flowcrete

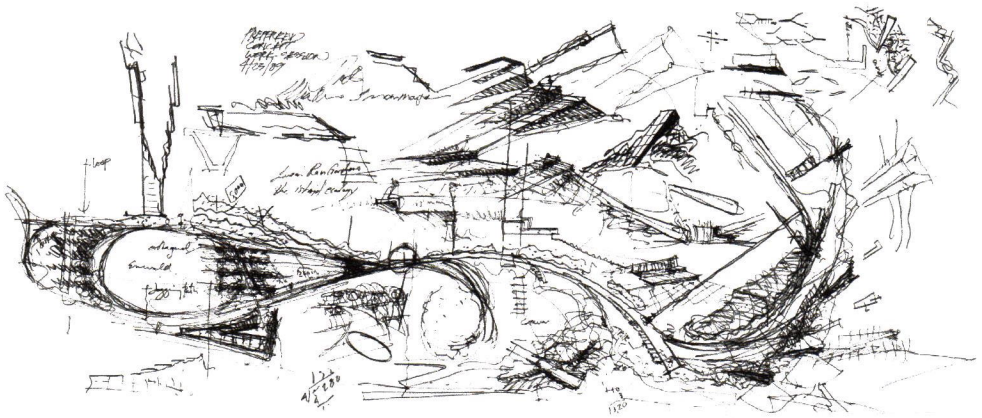
FINE FINISH Production equipment is organized and lit in theatrical fashion (opposite, top). Polished plaster walls line stairs up to the exhibition, tour, and tasting areas (opposite, bottom). A glass fire wall (top) and sprinkler system separate the distillery from the public. An exhibit (above) by Atelier Bruckner features a wall of sample bottles.

Hunter's Point South Park | Queens, New York | SWA/Balsley and WEISS/MANFREDI

Turning Point

A once-noxious industrial frontier is now a wellspring of hope for the future of New York's waterfront.

BY ALEX KLIMOSKI



HIGH AND DRY The new parkland occupies a former industrial site at the southwestern tip of Queens (above). The design concept developed from an early sketch of the site's natural contours (top). A cantilevered outlook takes the form of a ship, referencing Hunter's Point's nautical history (opposite, top). Restored wetlands provide a soft resiliency barrier while harking back to the area's original freshwater-marsh ecology (opposite, bottom).

There is something surreal about the journey to the fringe of the Hunter's Point peninsula in Queens, New York. As you walk to the water's edge from the congested boulevards in a labyrinth of new glass towers, the skyline of Midtown Manhattan comes into view over a desert of empty lots waiting for more construction. Just beyond, you discover nearly six acres of lush terrain and meandering trails designed by SWA/Balsley and WEISS/MANFREDI that wrap around the borough's southwestern waterfront tip.

Located at the junction of the East River and Newtown Creek—a nearly four-mile-long waterway that separates Brooklyn and Queens—Hunter's Point was once home to slaughterhouses, oil refineries, and chemical plants, which dumped toxic waste freely into the water well into the 20th century. For decades, the area reeked of a stench that could "nauseate a horse," according to an 1883 *New York Times* article. Now the beachy aromas of rosebushes, pine trees, and salt water fill the air of this 21st-century urban oasis.

In June, the second and final piece of sprawling Hunter's Point South waterfront park opened to the public. It is a quiet counterpart to the first phase, to the north, which, since 2013, has featured highly active spaces, including a playground and a promenade. Both phases are part of a 30-acre mixed-use plan, led by the New York City Economic Development Corporation (NYCEDC) and funded primarily by the Department of Housing Preservation and Development (HPD), to create up to 5,000 housing units, 60 percent of which will be reserved for low- to moderate-income families. The project's first phase provided over 900 residential units—all affordable—as

well as 20,000 square feet of retail, plus a school. Two new mixed-use towers, yet to be designed, are planned for the second phase and will include an additional 1,120 housing units, more than half of which will be permanently affordable.

This summer's parkland addition continues the swirling forms found in Phase 1's circular lawn and crescent-shaped pavilion. According to architect Marion Weiss, an initial sketch of the site's natural contours became an inspiration for the design concept, from which she and her team generated a series of "unfurling sweeps." "Looking at the site's edge, you can see it frays almost like a rope unraveling into little lookout areas," she says. "We then translated these sinuous gestures into different scales of spatial experience: robust, medium, and intimate."

The area's rolling topography allowed the designers to carve out multiple tiers of landscape and create viewing platforms for visitors. From street level, the site gradually descends 30 feet to the water's edge; you can stay on an

URBAN OASIS A walkway coils from the main path into a newly formed island, where a lawn is verged by a public art piece by Nobuho Nagasawa (both opposite). A dramatic overlook swerves out to greet the Manhattan skyline (left). A seating alcove faces south (above). A zigzag path takes visitors down along the water (bottom).

elevated network of paths or mosey down to the river. The upper north–south circulation route swoops elegantly to the east, where it transitions into a dramatically cantilevered outlook on axis with the Empire State Building. The colossal steel-and-concrete viewing platform resembles the bow of a ship—an allusion to the maritime legacy of Hunter's Point—accentuating the site's natural summit with its climactic panoramic vista.

One of the park's major features is its wetlands, which both improve water quality and safeguard the peninsula from rising seas. Their restoration harks back to the site's preindustrial state as a freshwater marsh. Along the descending trail, WEISS/MANFREDI installed an angular barrier of concrete slabs, like a sea wall, which encloses a wetland habitat. A serpentine passage follows the outer edge of the marsh and takes you surprisingly close to the shore—as if you are "walking on water," says architect Michael A. Manfredi—for a more intimate connection to the site. It also serves as a "soft" barrier: in the case of severe flooding, the low walkway is sacrificed, protecting the upland community.

To the north, the design team created an "island" from a small piece of land jutting out from the coast, digging out wetlands to separate two land masses: when the tide is high, water fills the channel. A bridge takes you onto the rounded island, where a boardwalk spirals uphill, enclosing a circular lawn adorned by seven phosphorescent white mounds—an art piece by Nobuho Nagasawa that glows at night, resembling phases of the moon. The isle's dune-like upward curvature and the plantings that surround its edge contribute to a sense of enclosure, most strikingly at its top, which offers a tranquil setting to take in the skyline. It is an encounter rich in dichotomies: isolation and connection, density and openness, the natural and the machine-made. "It's not just about sculpting the earth," says Weiss, "but, more, it's about creating a cinematic experience of the landscape."

One impressive aspect of the Hunter's Point South park extension is how it encourages the public to engage with it. "It's the result of how well we have observed the ways people occupy space," Thomas Balsley says, "and how many choices we have given them." By taking advantage of the idiosyncrasies of the site, the designers have created areas to be alone, areas to gather, areas to be near the water or above it—and it is an exceptional model for what could become of New York's remaining industrial waterfront. ■

credits

DESIGNERS: SWA/Balsley – Thomas Balsley, lead designer; Brian Starensnick, project manager; John Donnelly, Christian Gabriel, Michael Koontz, Dale Schafer, project team
WEISS/MANFREDI – Marion Weiss, Michael A. Manfredi, lead designers; Lee Lim, Michael Blasberg, Michael Steiner, project architects; Seungwon Song, Jinhui Huang, project team

PRIMARY CONSULTANT & INFRASTRUCTURE DESIGN: Arup

ENGINEERS: Arup (structural/civil/lighting); CH2M Hill (marine); A.G. Consulting (electrical); Yu & Associates (environmental)

ART: Nobuho Nagasawa

GENERAL CONTRACTOR: Galvin Brothers/Madhue Contracting

CLIENT: New York City Economic Development Corporation

OWNER: New York City Department of Parks and Recreation

SIZE: 240,000 square feet

COMPLETION DATE: June 2018

SOURCES

PRECAST CONCRETE: BDL

STEEL CLADDING: Newport Industrial Fabricators

Domino Park | Brooklyn, New York | James Corner Field Operations

Sweet Spot

A waterfront park on the site of an abandoned sugar factory pumps up a once barren post-industrial neighborhood.

BY ALEX KLIMOSKI

PHOTOGRAPHY BY DANIEL LEVIN

New Yorkers—as they do—grumble about new development and the gentrification that comes with it, but Domino Park, Brooklyn's newest waterfront destination, is proof that, with the right deal, they can get something spectacular in return. The six-acre park, designed by James Corner Field Operations (JCFO), is part of a mixed-use development, led by Two Trees Management, that will eventually bring 2,800 market-rate and 700 affordable housing units, 380,000 square feet of offices, and 200,000 square feet of commercial and retail space to the former Domino Sugar factory parcel. For the price of allowing three gargantuan glass towers, which will dwarf the site's landmarked redbrick refinery building, once the tallest in Brooklyn, the previously inaccessible waterfront has been transformed into a vibrant recreational space, open to the public.

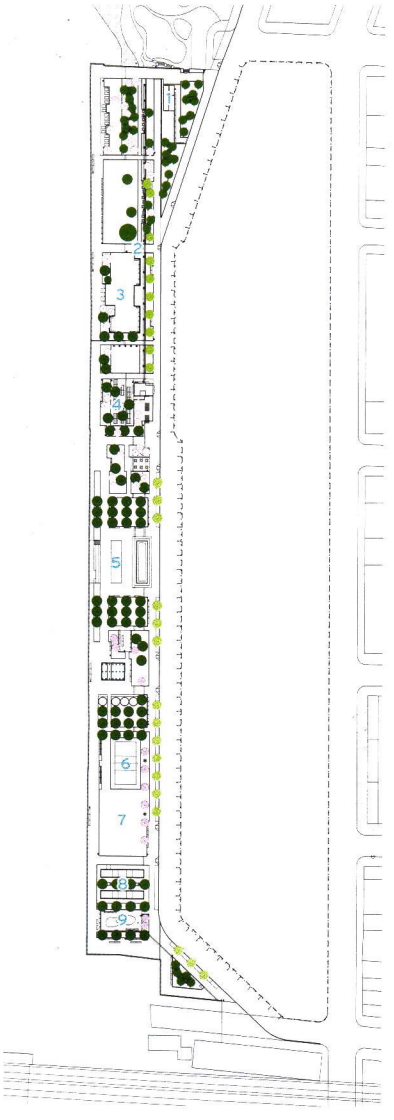
Two Trees purchased the 11-acre site for $185 million in 2012 from a developer that ran into financial trouble. A previous plan by Rafael Viñoly had already undergone public approval, but Two Trees submitted a revised version, with more commercial space and parkland, developed by SHoP. Contentious from its inception, the new plan eventually won community support in large part because of its affordable-housing and public-space components.

Domino Park marks the estimated $3 billion development's second phase. The first, a SHoP-designed residential building on nearby Kent Avenue resembling a square doughnut, was completed last summer; the final phase—a tower that will loom over the Williamsburg Bridge—is estimated to open in the early 2020s. Within the next few years, construction will begin on the 1882 refinery, which will be converted into a flexible-workplace campus by New York–based Practice for Architecture and Urbanism (PAU).

The park—its spine a continuous 1,200-foot walkway along the East River, with the Manhattan skyline beyond—features a gradient of active to passive spaces, with semiprivate nooks carved out along the way. According to Lisa Switkin, partner at JCFO, what allowed leeway for the design is the fact that the project is entirely privately financed. "The Parks Department reviewed drawings and details, but, ultimately, they're not responsible, so we were able to use materials for the furnishings that are unfamiliar to them, like reclaimed wood from the warehouse," Switkin says. The Parks Department can, however, take over maintenance should Two Trees default on their fiscal responsibilities.

The design team took measures to root the new park in its past life as one of Brooklyn's dominant industrial operations (the factory controlled over 90 percent of the country's sugar production at the turn of the 20th century but was shuttered in 2004, when American Sugar Refining consolidated production elsewhere). Twenty-one steel columns from the demolished 1930 Raw Sugar Warehouse and 585 linear feet of crane tracks form an elevated colonnade that stretches from two original teal

1 GANTRY CRANES
2 ELEVATED WALK
3 PLAYGROUND
4 TACOCINA
5 WATER FOUNTAIN
6 VOLLEYBALL
7 FLEXIBLE FIELD
8 BOCCE
9 DOG RUN



SITE PLAN 0 80 FT. 25 M.

SUGAR COAT Inaccessible to New Yorkers for over a century, the erstwhile Domino Sugar plant's sweeping waterfront now connects to the neighborhood. JCFO transformed the once dilapidated pier into a quarter-mile long esplanade anchored by the original 1882 refinery building (opposite). Salvaged factory artifacts are woven into the fabric of the park, which features nearly 175 different species of trees (left).

REFINED USE The park is rooted in the site's industrial past. Two gantry cranes (above) signal the park's presence and serve as the base of an elevated promenade, a reference to the catwalks connecting the original factory buildings. The walkway is supported by steel columns from the demolished Raw Sugar Warehouse (right).

gantry cranes, docked at the park's north end, down to the refinery. Other salvaged artifacts, notably the 36-foot-high rusting syrup tanks, are placed along the esplanade. A children's playground takes the form of a miniature sugar plant, its climbing towers painted in the turquoise and yellow of the original Domino color palette. Plus, the iconic neon sign that once adorned the 1960 glass Bin Structure will be resurrected on the refinery's facade once renovation is completed.

Switkin notes that it was important that the park not seem "like the backyard of some development" but rather stand on its own. In this regard, it is quite successful: by extending a city street into the site, the waterfront is both separated from the development's accompanying buildings and connected to Kent Avenue, the area's main thoroughfare.

As you walk along Kent, there is no doubt that the park is welcome to all. Open for just two months, it has already established itself as a neighborhood mecca. It certainly doesn't lack choices: a dog run, volleyball court, and taco joint run by restaurateur Danny Meyer are all included, and—if it's not too crowded—there are ample places for quiet reflection. The central gathering area—anchored by tiered seating and a fountain of gurgling mini-geysers, à la the Spanish Steps—pulses with activity on a hot summer day.

Some attempts to connect the new park to Domino's industrial past seem a bit contrived—the factory relics can appear as mere quirky sculptures. That aside, the park provides a crucial amenity for a neighborhood lacking green space and, well before the development's completion, gives the existing community a stake before a new one arrives. ■

credits

LANDSCAPE ARCHITECT: James Corner Field Operations – Lisa Switkin, partner in charge; Karen Tamir, Sanjukta Sen, Tsutomu Bessho, Johanna Barthmaier, Ashley Ludwig, Eric Becker, project team

ENGINEERS: Robert Silman Associates (structural); Philip Habib Associates (civil); Altieri Sebor Wieber (m/e/p); McLaren Engineering Group (marine)

CONSULTANTS: Lighting Workshop (lighting); Mark Riegelman (playground); Soucy Aquatik (water feature)

GENERAL CONTRACTOR: Kelco

CLIENT/OWNER: Two Trees Management Company

SIZE: 6 acres

COST: $50 million

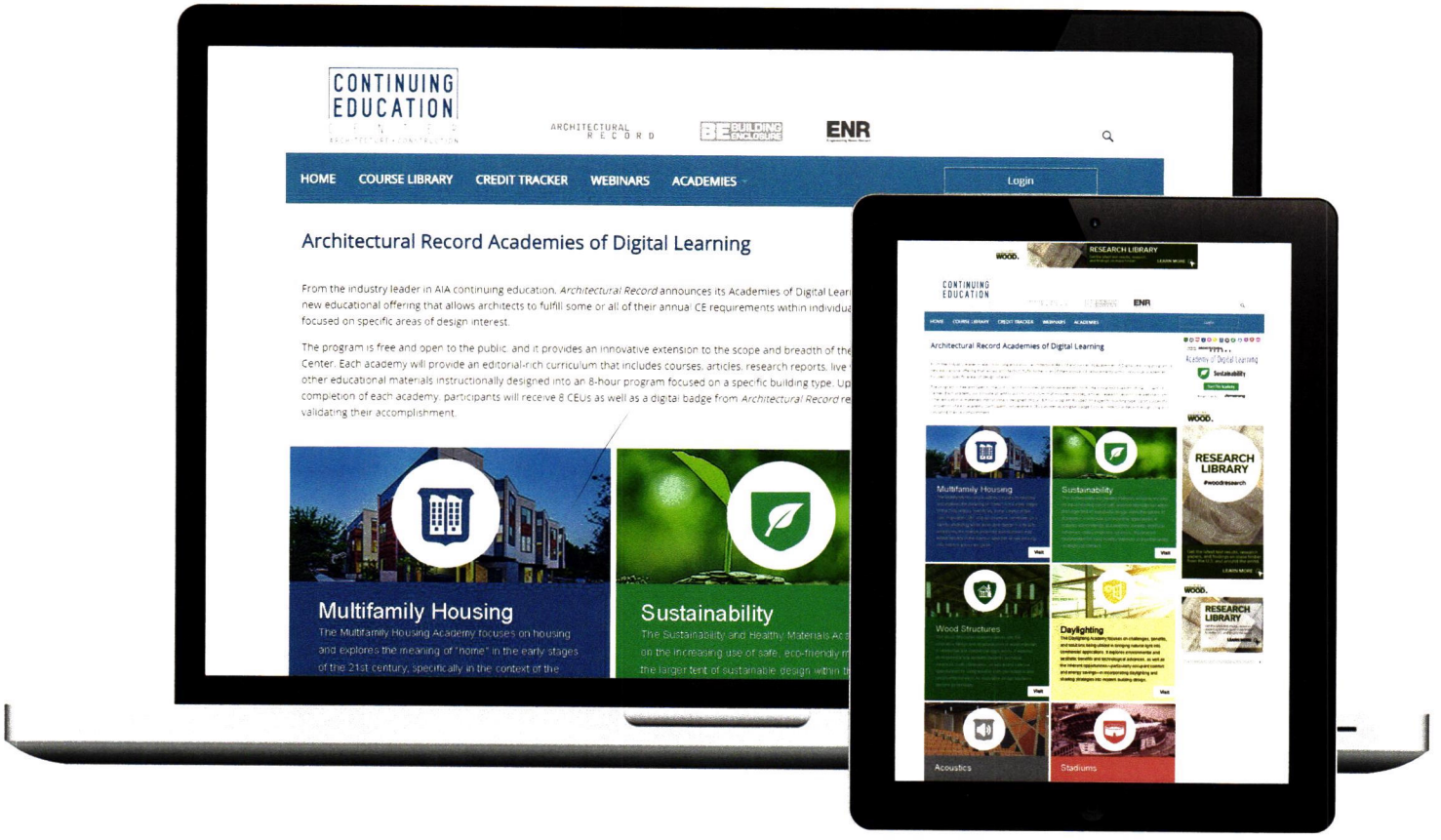
COMPLETION DATE: June 2018

SOURCES

CONCRETE PAVERS: Wausau Tile

LIGHTING: VarioLED; Bega

Academy of Digital Learning



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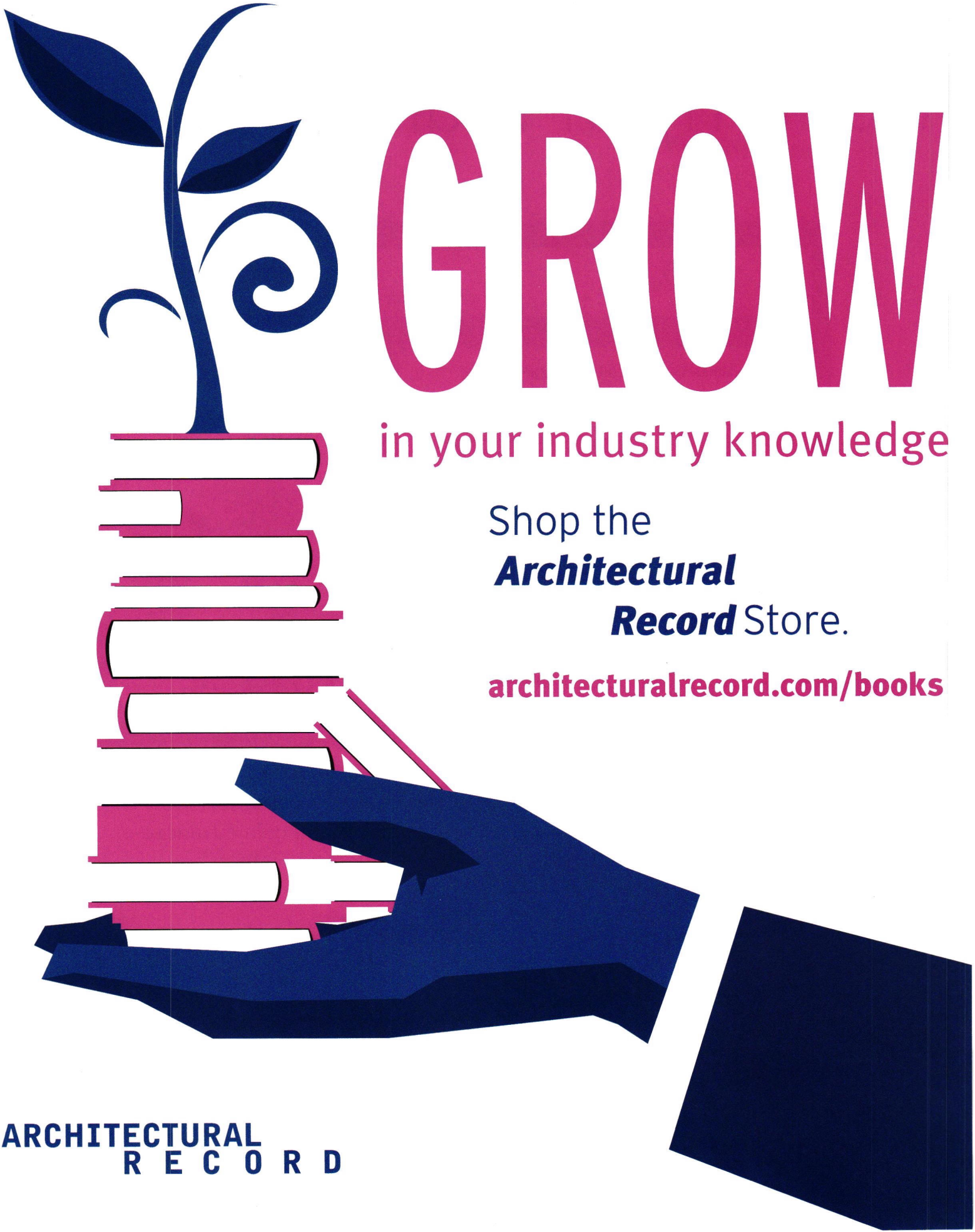
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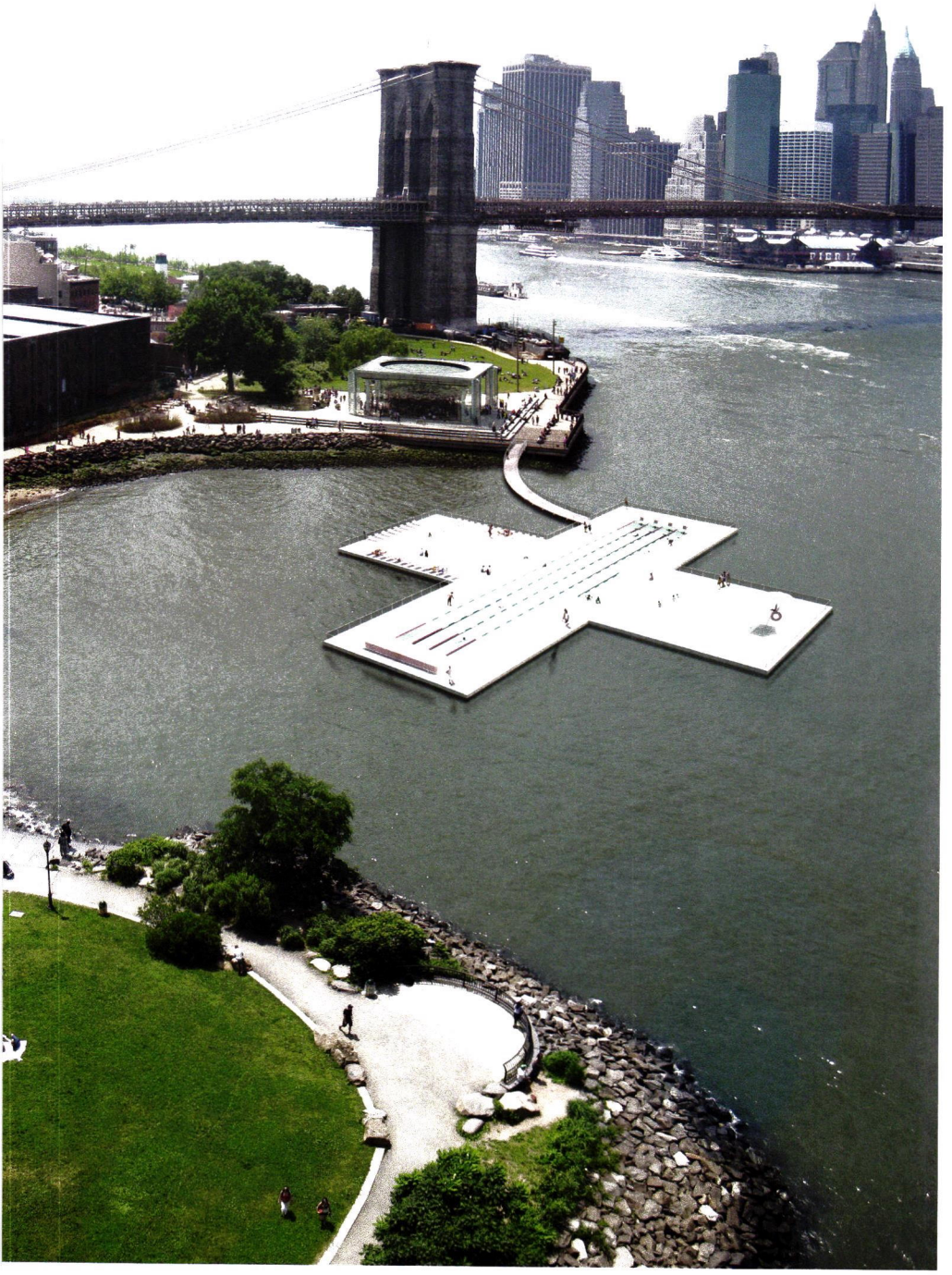
Ripple Effect

A string of proposed projects aims to reclaim urban waterways for people.

By Joann Gonchar, FAIA



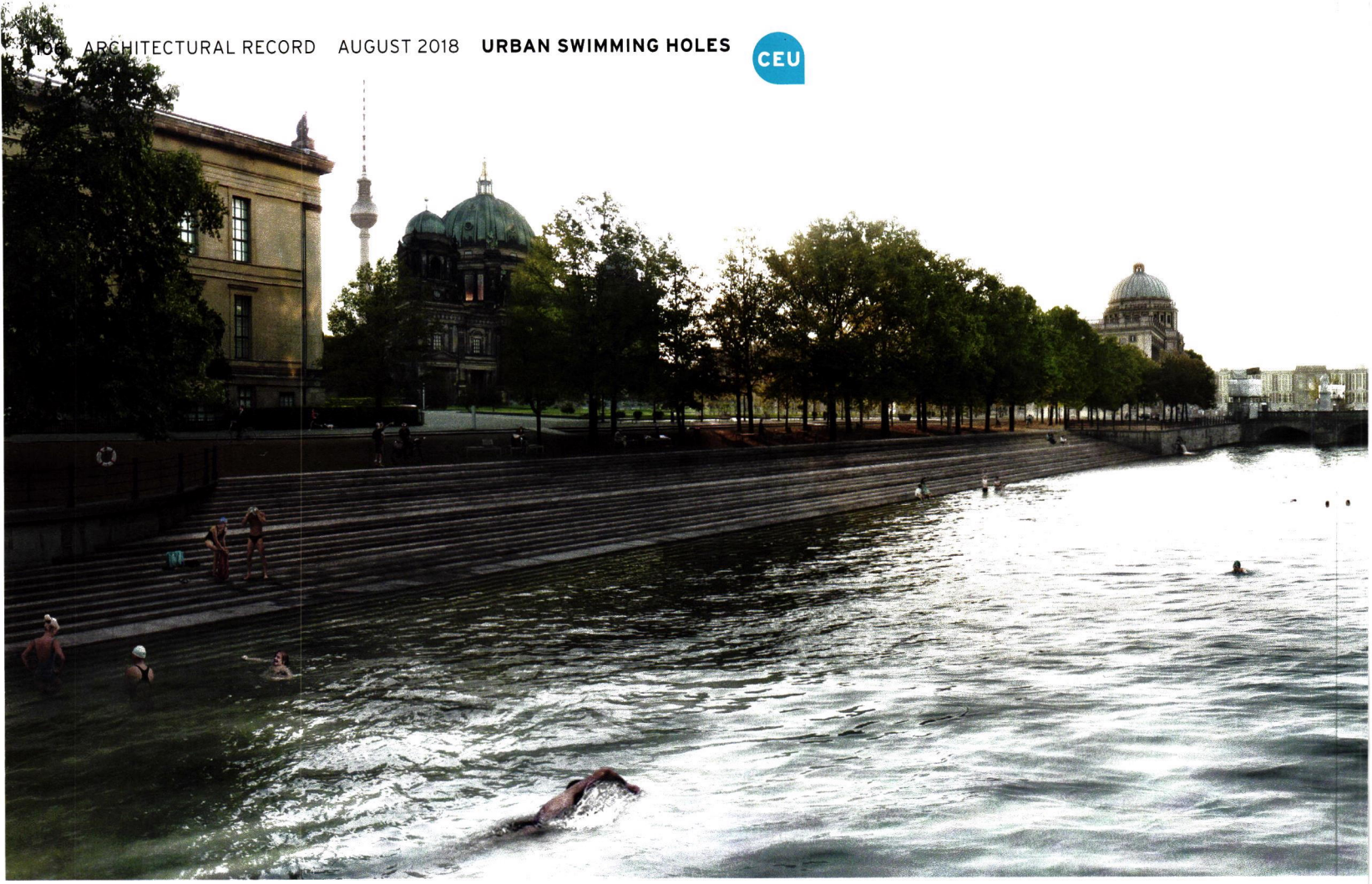
AS ARCHIE LEE COATES tells it, + Pool—a concept launched in the summer of 2010 for a swimming facility that would float in New York's inner harbor and be filled with river water filtered by the pool's own walls—was created almost on a lark. He and Jeff Franklin, his partner in the multidisciplinary design firm PlayLab, along with Dong-Ping Wong and Oana Stanescu, founders of the former architecture firm Family, wanted to make it possible for their fellow New Yorkers to swim in the city's rivers without worrying about the dangers posed by currents, boat traffic, floating debris, or pollution.

By Coates's own admission, the four friends, then all in their mid- to late 20s, and who had all launched their firms only a year before, were incredibly naive: "We didn't understand anything about water quality, how to build in New York, or how to fundraise," he says. But they had hardly any work—it was the depths of the Great Recession—so they spent a few weeks developing a scheme for a cross-shaped pool 50 meters across in both directions. They made a website (pluspool.org) and a pamphlet that they sent to the parks department and other city agencies. They received little response at first, but the project started getting attention after a friend wrote an article for a business newsletter. A few weeks later, the idea caught the eye of the engineering firm Arup, which offered to help develop the filtering system.

In the intervening years, more than $340,000 dollars has been raised for + Pool in two Kickstarter campaigns, the project has attracted support from corporate sponsors (including Heineken), and it has won grants for the development and testing of its filtration system and for other activities. Friends of + Pool—a nonprofit established in 2015 whose primary mission is to support the development of the facility but which also oversees a number of other initiatives, including a children's learn-to-swim program—has an annual operating budget of $1 million. Significant hurdles remain. The one that looms largest is finding a site, but, according to Coates—who serves as the organization's executive director—the mayor's office has committed to helping identify a spot in the Hudson or East River by the end of the year. Clearly, this seemingly outlandish idea has legs.

New York is hardly the only city considering a swimming facility for waters previously thought unsuitable for such a use. In the U.S. and Europe, there are several active proposals.

JUST ADD WATER The walls of + Pool, a proposal for New York, will be made of fabric membrane that will filter river water. Though shown here near Brooklyn Bridge Park, the location of the pool is not yet determined.



One with considerable momentum is Flussbad for the center of Berlin, first proposed two decades ago by brothers Jan and Tim Elder, cofounders of realities:united, an art-and-architecture studio perhaps best known for its light and media facade on Peter Cook's Kunsthaus Graz in Austria. The Flussbad project would transform the Spree Canal, the disused waterway that slowly flows alongside one edge of Museum Island, where many of the city's important museums are located, into a 2,700-foot-long swimming channel, 50 feet across at its narrowest point.

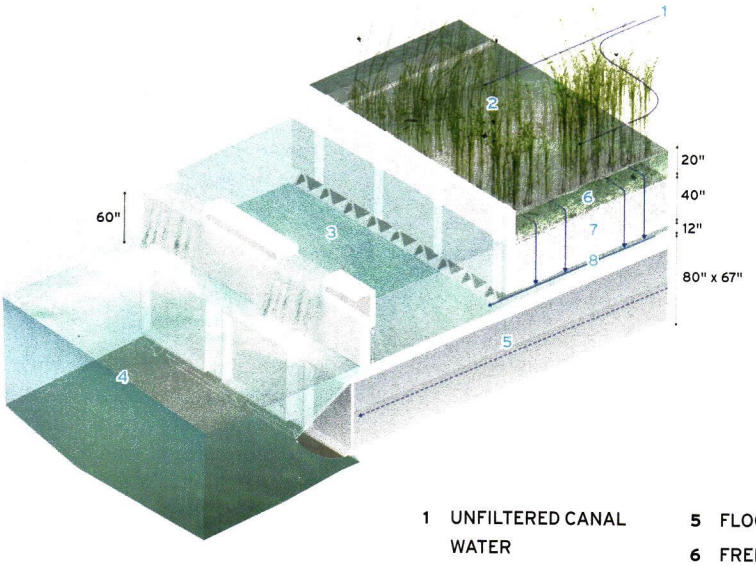
Although Flussbad involves few built elements—access to the water, a bioremediation zone that would cleanse the water, and potentially changing and showering facilities—Jan Elder says that full realization might not become reality until 2025. It could take that long to sort out questions surrounding land ownership and usage, secure funds for construction and management, and develop a legal framework that would allow safe operation of the facility in the middle of the city. But there has been notable progress in recent years, including two Holcim prizes with a combined cash award of $150,000, financing of a feasibility study with about $130,000 from Berlin's LOTTO, and the granting of nearly $4.7 million from the federal government for further development of the Flussbad concept. Last November, the state parliament voted to establish a committee that would help the project obtain the necessary permits. It is rare, points out Elder, for a grassroots project to receive so much official support.

In London, a scheme for a floating river pool on the Thames also shows promise. Since the project was chosen as one of the winners of a 2013 call-for-ideas competition organized by the Royal Academy of Arts, the Thames Baths Community Interest Company, led by the local architecture practice Studio Octopi (see page 31), raised almost $200,000 in a 2015 Kickstarter campaign; refined its plans for a pontoon that would accommodate two pools, including a 25-meter lap pool, with marine engineers and other consultants; created a business and operations plan; and assessed a number of potential high-profile sites, includ-

LIVING FILTER Flussbad would transform the canal running along Berlin's Museum Island into a swimming channel (opposite, top and bottom). A planted bioremediation zone (above and right) will clean the water.

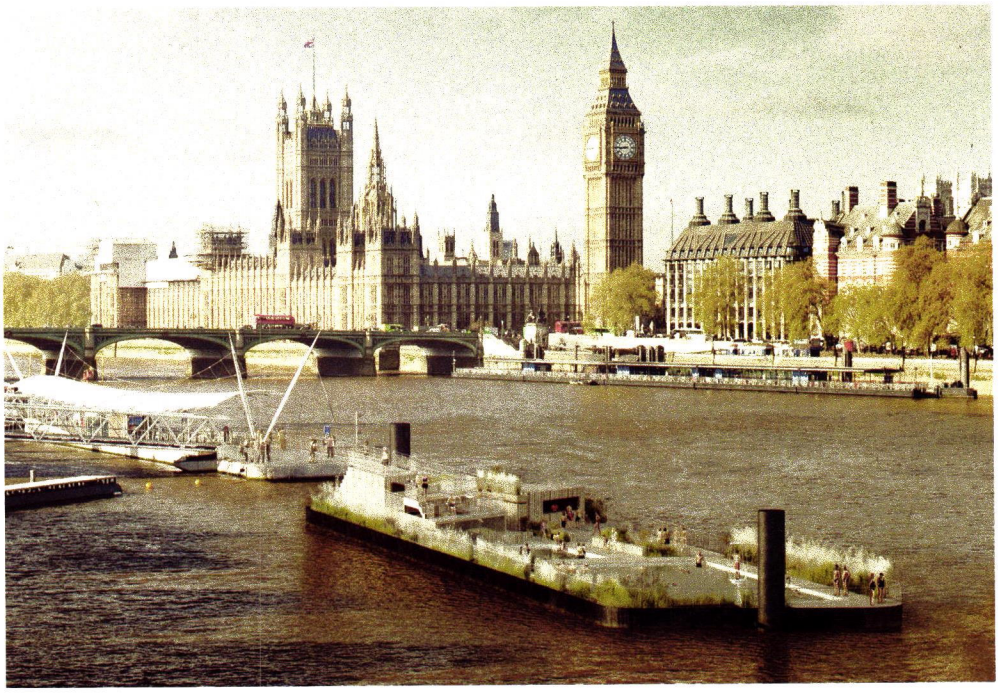
ing one outside the Tate Modern. But now the project team is evaluating opportunities with the owners and developers of a property in East London. Chris Romer-Lee, a Studio Octopi director, says the move away from the center of the city should benefit the project. "We've begun to realize that the baths are a place-making tool, rather than something you plug into an already established site," he says.

Launched only two years ago, an effort to create a river swim park in Boston or Cambridge, Massachusetts, is a relative newcomer among proposals for floating urban baths. But the group behind the plan—the Charles River Conservancy, a nonprofit dedicated to enhancement of the river's parkland—has already completed a feasibility study with the local office of Stantec and has commissioned a second engineering firm, Foth-CLE, to further develop the concept for an enclosed swimming facility that is most likely to be located adjacent to North Point Park in Cambridge, a green space created to replace parkland lost to Boston's Big Dig highway project. The spot has several advantages, according to Vanessa Nason, the conservancy's



FILTER DIAGRAM

1 UNFILTERED CANAL WATER
2 FILTER AREA
3 FILTERED WATER
4 SWIMMING AREA
5 FLOOD DISCHARGE
6 FREE-FLOWING WATER
7 GRAVEL
8 DRAINAGE



SITE SPECIFICS The team behind the Thames Baths has explored a number of Central London sites, including one near Westminster Bridge (above), but it is now evaluating an East London location. Meanwhile, a group behind a proposal for Boston's Charles River (top) is focusing on a spot adjacent to a Cambridge park.

project manager, including sufficient water depths, limited boat traffic, and accessibility from subway and commuter rail stops.

Though these four proposals take varying approaches to bringing natural swimming to cities, they are all motivated by a shared view of urban waterways as untapped resources. As Romer-Lee puts it: "The Thames is the city's largest public space, but most Londoners just travel over or around it. They have no engagement with it."

This desire to reconnect people with the water that surrounds them is a logical next step, as cities revamp their riverfronts and shorelines for recreational and residential uses, according to Jane Withers, a UK-based design consultant and writer who curated *Urban Plunge*, an exhibition that explored the relationship between cities and their waterways, first shown at London's Roca Gallery in 2014. "Why should this activity stop at the water's edge?" she asks.

Withers points to the turnaround of Copenhagen Harbor, which for many years was contaminated by wastewater, oil spills, and algae. But thanks to infrastructure improvements, the water is now safe for swimming. The harbor has four popular floating swimming facilities that have helped reclaim the former industrial port as a social and cultural center. Another Danish city, Aarhus, is hoping to replicate this success. Earlier this summer, it opened what is being touted as the world's largest seawater bath, designed by Bjarke Ingels Group (BIG), which also designed the first such Copenhagen Harbor facility, with Julien De Smedt Architects, 15 years ago. Aarhus's new triangular floating complex has a wooden deck that sits on top of prefabricated concrete pontoons. Surrounded by an elevated walkway, it includes a 50-meter-long pool, a children's area, a circular diving pool, and two saunas.

For many European and American cities, the main impediment to water that is as reliably clean as that in the harbors of Copenhagen and Aarhus is outdated infrastructure. Often these places depend on so-called combined sewers, which transport stormwater that runs off roadways, domestic sewage, and sometimes industrial waste, in the same pipe. When such a system works optimally, this unsavory mixture is transported to a wastewater plant, where it is treated and then discharged to a river, stream, or other water body. But when it rains, the system can become overloaded, and the cocktail, including raw sewage, is dumped directly into waterways. This release of untreated water is referred to as a combined sewer overflow, or CSO.

New York officials maintain that harbor water quality is better than it has been in a century, due to tightening regulations and increased infrastructure investments. And in dry conditions, the Hudson and East Rivers are often free enough from contaminants to be considered safe for swimming. But 60 percent of the city is still served by a combined sewer system that discharges about 27 billion gallons of pollutants into waterways each year. And at some of its 460 outfall points, as little as 1/10 of an inch of rain can cause an overflow, according Dan Shapley, director of the water-quality program at Riverkeeper, a nonprofit organization that works to protect the Hudson River and the New York watershed. "Basically, every time it rains, sewage is overflowing somewhere in N-Y-C," he says.

To cope with these conditions, + POOL's filter, developed by Arup, will consist of multiple layers of fabric membrane that will remove successively smaller particles, as well

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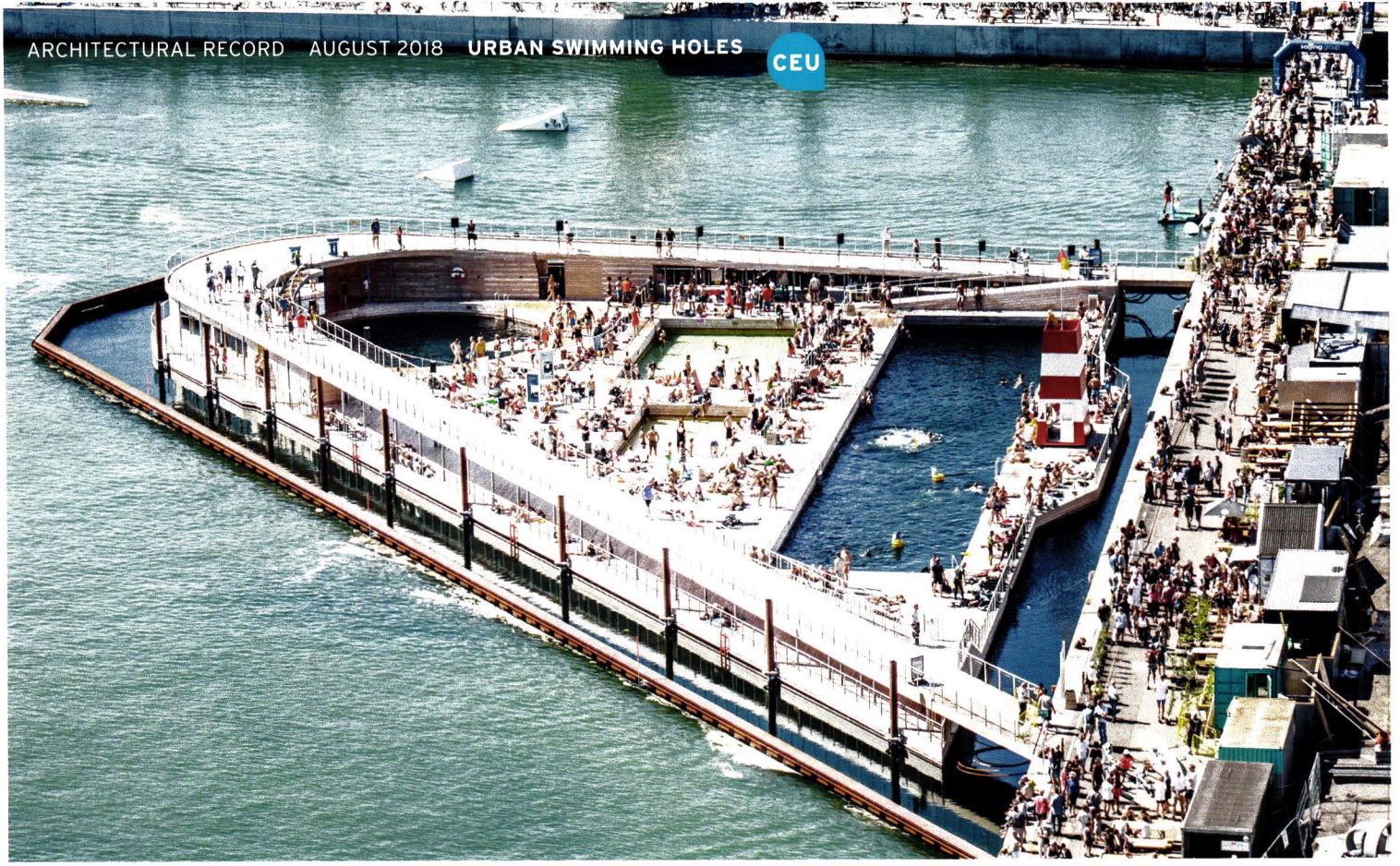

as bacteria, without the use of chlorine or other chemicals. Further refinement of the system, which was tested in the Hudson for six months during the spring and summer of 2014 and has a provisional patent, depends on site selection, since water quality varies not only with the amount of precipitation, but also with location, according to Nancy Choi, an Arup senior engineer. The team is also still working to determine an appropriate turnover for the water once it is in the pool to prevent the introduction of pathogens from the swimmers themselves. She is confident, however, that "the water will be measurably cleaner going out than coming in." The pool will filter about 600,000 gallons of water each day.

The Flussbad will take a different approach toward CSOs, which dump sewage into the Spree Canal about 15 to 20 times a year. To create its filtering system, a 1,300-foot-long section of the channel will contain a gravel-and-sand bed planted with reeds and grasses. The water will be microbiologically cleansed as it slowly flows through this zone, driven by gravity, before it is released into the swimming area. Calculations have shown that the scheme works, but a year-long test of a prototype filter has just gotten under way using a barge moored in the canal.

The Thames Baths, like the Flussbad, plans to use bioremediation with gravel beds and reeds, but, as with + Pool, the final configuration is highly dependent on the ultimate site. "It's a chicken-and-egg situation," says Romer-Lee. Meanwhile, the Charles River Conservancy also is considering plants as a means of improving water quality. However, the current scheme calls for a pool with mesh sides, with water flowing through unfiltered. The proposal assumes that the Charles is swimmable, explains Audrey Cropp, a Stantec design visualization specialist and landscape architect who acted as the feasibility report's project manager. And, in fact, the river earned an A- rating from the Environmental Protection Agency last year, which means its water almost always met standards for safe boating and swimming. (As recently as 1995, the Charles earned a grade of D.) But even with these improved conditions, the conservancy acknowledges that, like public beaches, the Charles is unlikely to meet health standards every day of the summer. On days when the water quality is poor, the swim park would be closed.

Naturally, the conservancy and the groups behind the pools in New York, Berlin, and London are also hoping that there will be a day in the not-so-distant future when the water in their cities is clean enough that neither filters nor closures will be necessary. And they hope that their projects will play at least a small part in making this transformation happen. "The idea is to connect the community to an incredible resource," says Cropp. "If they are connected to it, they will take care of it." ■

MAKING A SPLASH Earlier this summer, a new harbor bath opened in Aarhus, Denmark (above). The triangular facility can accommodate up to 650 people and was designed by Bjarke Ingels Group. Ingels was also part of the team that designed the first of Copenhagen's four harbor baths, completed in 2003.

Continuing Education

To earn one AIA learning unit (LU), including one hour of health, safety, and welfare (HSW) credit, read "Ripple Effect," review the supplemental material found at architecturalrecord.com, and complete the quiz at continuingeducation.bnpmedia.com or by using the Architectural Record CE Center app available in the iTunes Store. Upon passing the test, you will receive a certificate of completion, and your credit will be automatically reported to the AIA. Additional information regarding credit-reporting and continuing-education requirements can be found at continuingeducation.bnpmedia.com.

Learning Objectives

1 Discuss schemes for introducing public swimming facilities to natural waterways in several cities and describe how each reclaims neglected public space.

2 Describe the water-filtering technologies that each scheme plans to use.

3 Explain how outdated wastewater infrastructure threatens the swimmability of waterways.

4 Define technical terms relevant to a discussion of water quality.

AIA/CES Course #K1808A

CONTINUING EDUCATION

In this section, you'll find five compelling courses highlighting creative solutions for tomorrow's buildings brought to you by industry leaders. Read a course, and then visit our online Continuing Education Center at ce.architecturalrecord.com to take the quiz free of charge to earn credits.

Photo courtesy of Construction Specialties

Performance and Durability in Retail and Hospitality Design

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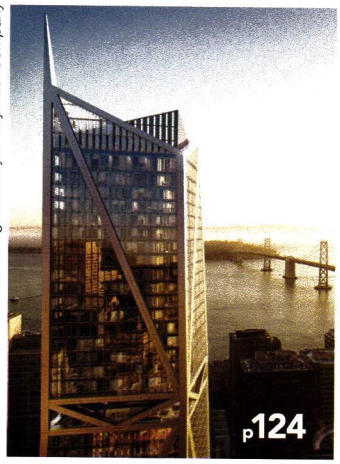
Rendering courtesy of Jay Paul Company



Resilience: Why Material Selection Matters

Sponsored by American Institute of Steel Construction

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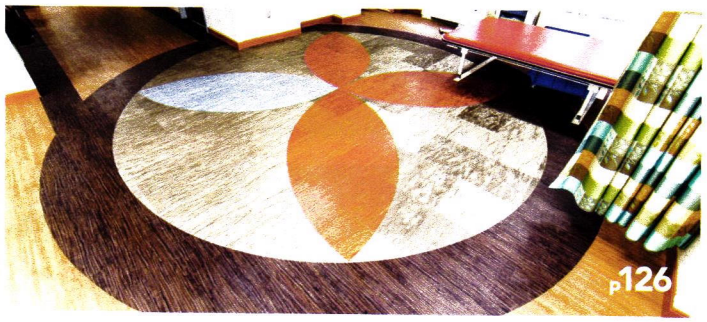

Two Reasons to Specify Experience on New and Existing Health-Care Projects

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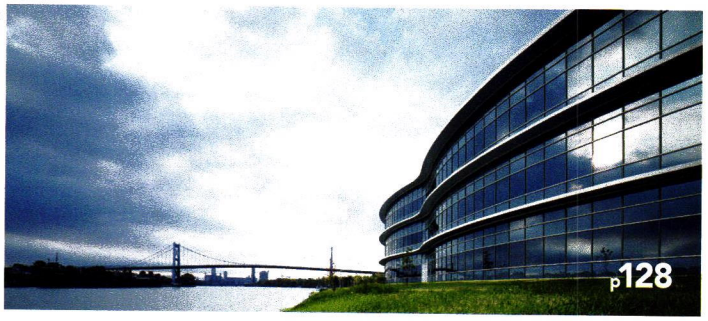

Understanding Sustainable Insulation and LEED v4

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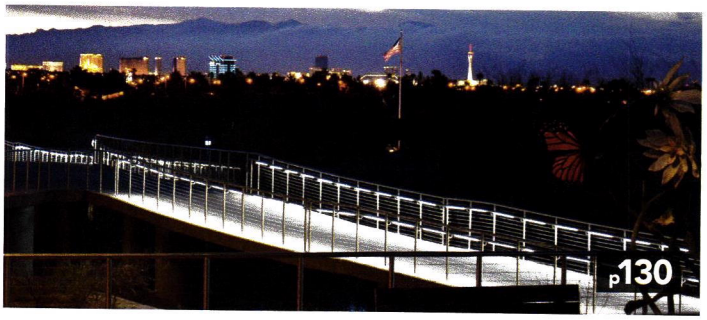

ADA, Building Codes, and Standards Relating to Handrails and Guards

Sponsored by The Wagner Companies

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CATEGORIES

- **ACC** ACCESSIBILITY
- **BE** BUILDING ENVELOPE DESIGN
- **EM** ELECTRICAL AND MECHANICAL
- **IN** INTERIORS
- **LS** LIFE SAFETY & CODES
- **PM** PRODUCTS AND MATERIALS
- **RR** RENOVATION AND RESTORATION
- **ST** STRUCTURAL
- **SU** SUSTAINABILITY

Courses may qualify for learning hours through most Canadian provincial architectural associations. This course is part of the Steel Academy.

Durable materials and products combined with strong design appearances are significant factors in retail and hospitality projects, including the Hilton Garden Inn renovation in Savanah, Georgia, shown here.

Photo courtesy of Construction Specialties

Performance and Durability in Retail and Hospitality Design

Attention to materials and product selection improves appearance, comfort, and long term results.

Sponsored by Construction Specialties, Inpro, Mitsubishi Electric Cooling & Heating, SIMONSWERK North America, and Special-Lite, Inc.

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

Retail and hospitality buildings are an integral part of any developed area. It is hard to imagine any urbanized area without shops, stores, restaurants, hotels, inns, and the like to both attract and serve people. Designing those spaces requires an understanding of the needs of the owners or tenants and the trends or forces that are moving the market. It also means understanding the types of products and materials that are best suited to hold up to the rigors of heavy use and high volumes of people. While it is easy to focus on the appearance and branding aspects of hospitality and retail spaces, it is equally important to recognize the need for paying attention to the durability and reliability aspect of many of the functional needs of these buildings and facilities too. That includes the public areas where people form their first impressions, but it also includes some of the behind-the-scenes areas or back-of-house spaces. All of these spaces need to be attractive, comfortable, durable, and functional in order for the staff to carry out its work and for customers to have a positive and pleasurable experience.

With the above in mind, we will look at several areas where careful review and selection of products and materials can help promote the intended customer experiences, achieve high levels of good design, and provide high

CONTINUING EDUCATION

1.25 AIA LU

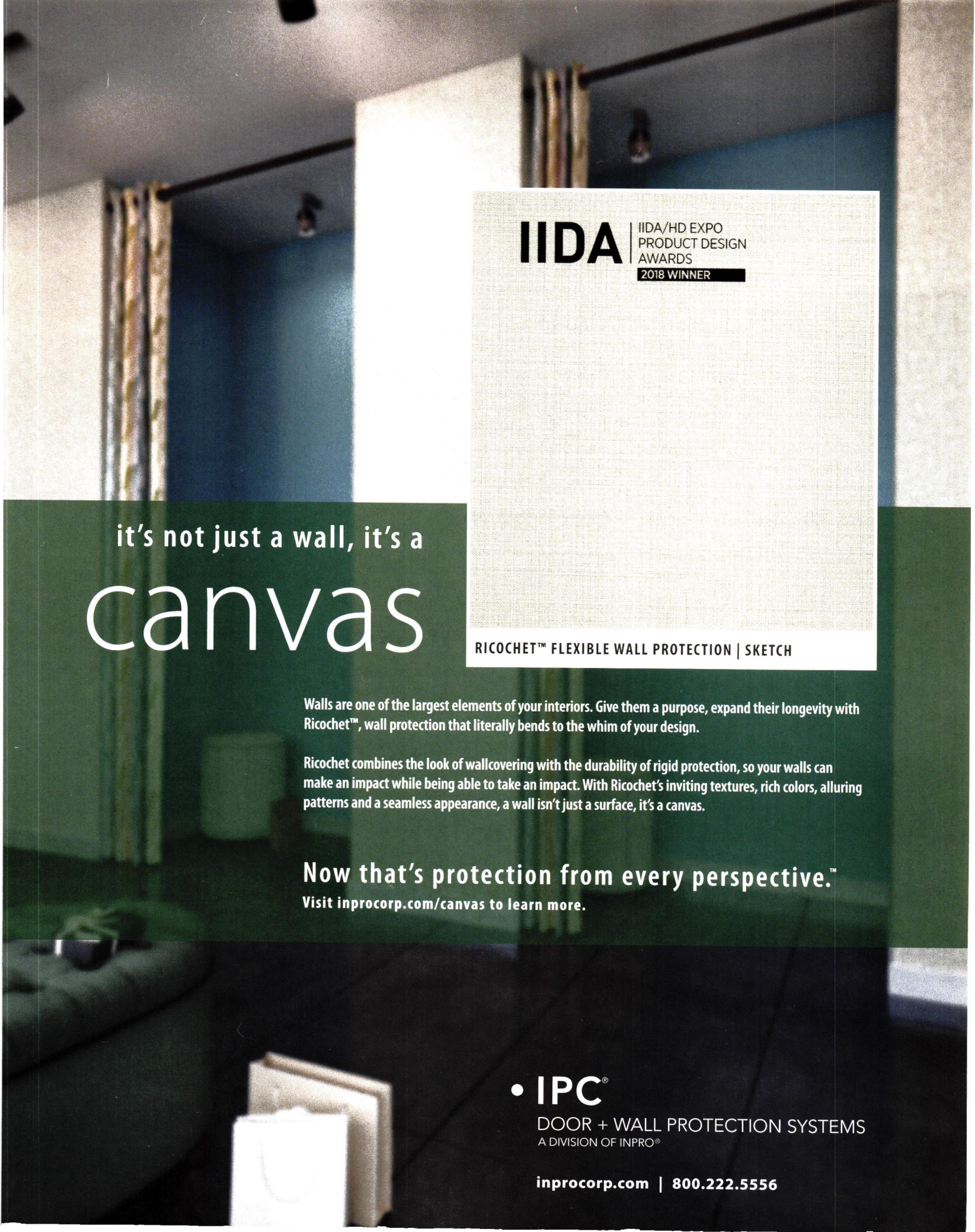
Learning Objectives

After reading this article, you should be able to:

1. Identify selected general trends and factors related to the back-of-house functions that influence the design and construction of retail and hospitality buildings or spaces.
2. Assess innovative product and system offerings that can be used to enhance building design and durability for safety and improved interior environments while enhancing the characteristics of hospitality and retail facilities.
3. Determine ways to economically address material usage, space enhancements, and occupant comfort while producing designs that meet owner and user needs for energy efficiency, longevity, and performance.
4. Investigate ways to incorporate specific building technologies into retail and hospitality designs by reviewing project case studies related to safe and functional door systems, innovative wall protection, and thermal comfort.

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

AIA COURSE #K1808F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degrees of performance and durability to help assure that retail and hospitality spaces work as intended not just on opening day but for the planned life of the spaces too.

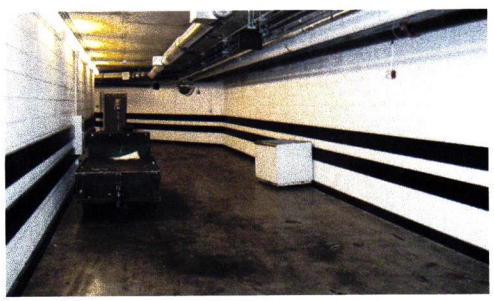
PUBLIC VS. BACK-OF-HOUSE SPACES

It is commonly acknowledged that the public areas of a hospitality or retail facility are typically where most of the effort and money are spent in both design and maintenance. The common mindset is that the front of the house is where the guests, patrons, or diners will spend their time (and money) and evaluate it as part of their overall experience. This is valid and appropriate, it and deserves appropriate attention. But equal attention is due to the back-of-house places, such as kitchens, service corridors, employee lounges, administrative offices, loading docks, storage, and similar locations.

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

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

Photos courtesy of Inpro Corporation



Durability of back-of-house areas often depends on the use of protective products, such as rigid sheet applied as a wainscot, horizontal guards, and door kick plates, all as shown here.

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

Rigid Wall Protection

What type of products are most affected by heavy use in retail and hospitality buildings? First and foremost are walls that see repeated daily use. The best approach here is to provide protective products over gypsum board or other walls in order to handle impacts, resist scuffing and scraping, and still be decorative enough to fit with an intended design scheme. Moderate-duty rigid wall panels, corner guards, and bumpers make sense in many locations. Heavy-duty protection products such as diamond plate wall covering, wall and floor bumpers, door frame protectors, and expansion joint covers are appropriately used in corridors and back-of-house applications where carts and other equipment move. It is worth noting that such corridors often include customer restrooms and may act as a passageway from back-of-house areas. It's these transition zones that are often overlooked in design and planning, and end up looking worn and battered within months of the grand opening. In this case, a bit of protective forethought will keep these areas looking new and undamaged. However, adding protection doesn't mean that design needs to suffer. Woodgrain rigid vinyl sheet, stainless steel, and 3-D trim boards have been used extensively in renovating food service and dining areas of hotels, restaurants, and retail facilities. Having a choice in materials can deliver the warmth and aesthetic of wood or the cleanliness of stainless steel yet will easily stand up to the daily wear and tear that's inherent in any hospitality facility.

When addressing wall designs, there may also be the need or desire to include graphics in the form of photos, logos, information, teaching, or wayfinding. Protecting such graphics as well

Continuous wall protection can be used with digitally printed, clear plastic wall panels as a viable wall surface option for many buildings (top). Flexible wall protection products offer the same durability and protective performance as traditional rigid wall protection but is indistinguishable in appearance from vinyl wall covering (VWC)(bottom).

as the wall can be a challenge in high-use areas, but the use of digitally printed, clear plastic wall panels has emerged as a truly viable wall surface option for many buildings. Printing the image on the back side of a tough, durable clear plastic sheet means that the image is protected by the clear covering. If the exposed surface becomes dirty or is bumped, the plastic takes the hit, not the graphic image. That means the imagery can take the abuse of luggage, shopping baskets, carts, strollers, purses, and other common wall hazards in retail and hospitality settings. Such a flexible but durable approach to wall protection allows any designer's vision for a space to come to life while truly enhancing a building's interior.

Flexible Wall Protection

Protecting wall surfaces from damage while still meeting interior design needs can sometimes be an ongoing challenge in retail and hospitality settings. While some rigid plastic protective wall cladding products are available that offer a patterned look, they may not always match what is being sought for a design scheme. Others offer the more varied look of contract wall covering with some protection characteristics but lack

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the ultra-durable performance of rigid plastics. Until now, this conundrum left architects and interiors designers in limbo, especially since certain spaces need the added protection but did not lend themselves to the aesthetic of rigid wall cladding. However, a brand new class of materials called flexible wall protection is showing great potential to be a true game changer by combining the appealing look of contract wall covering with the durability of rigid wall protection—walls can now make an impact while being able to take the impact.

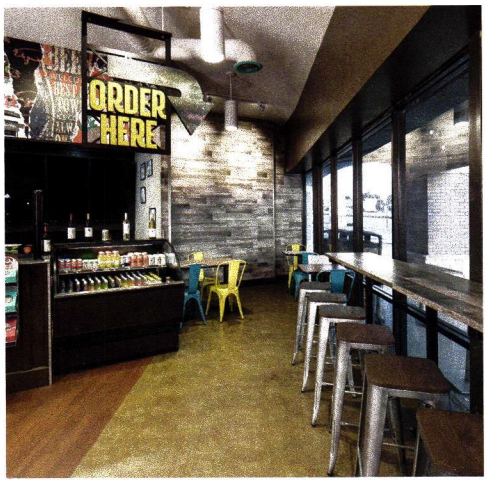
Flexible wall-protection products are durable enough to handle the conditions of harsh environments yet are literally flexible enough to become the showpiece or the backdrop of an interior design scheme. With a professional, seamless installation, they can become an uninterrupted finish with an intentional texture pattern to enhance the design. They also fend off stains and vandalism, simply by wiping with standard cleaning agents, although the amount of effort needed to remove the stain or mark will vary based on the texture selected.

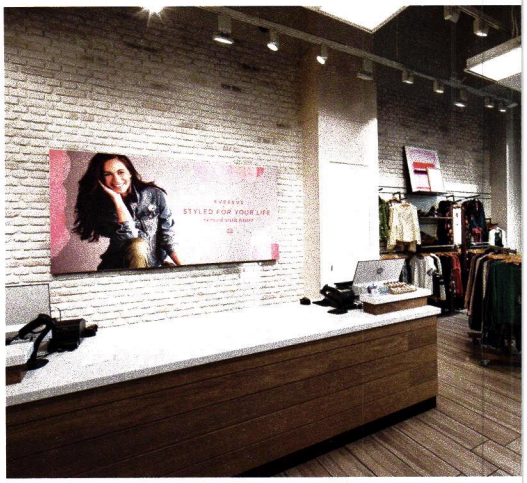
Flexible wall protection is quite appropriate for retail and hospitality facilities, particularly since most have some areas that are prone to be constantly bashed and slammed. If this causes damage, particularly in a public space, management will not want to leave it looking in disrepair, so someone on the staff is usually assigned to repair these problem areas repeatedly. There's a more-subtle form of damage, however, that often accumulates slowly but eventually leads to a shoddy appearance, namely scuffs and abrasions. For example, a heavily loaded suitcase rubbing along a hotel corridor wall may not be enough to damage drywall, but it creates enough contact to leave marks, scuffs, and rubs. When this happens dozens if not hundreds of times a month, the walls soon start looking quite different from the design intent. Flexible wall protection can provide a solution to this problem by remaining intact, masking any damage to drywall behind it, removing the urgency of a repair, and containing any gypsum dust from being released into the building. In all, it is a preferred solution over vinyl wall covering or other finish options for many wall surfaces.

Masonry-Look Wall-Panel Protection

An option for wall-panel protection includes a high-quality masonry-alternative wall panel made with real stone ingredients. It uses a crushed stone surface made from natural minerals that is molded and laid over a layer of high-density foam to create a lightweight stone panel. This produces an artistic focus on detail and authenticity while feeling cold to the touch, just like natural stone. These decorative stone wall panels are resistant to rain, snow, UV damage, heat, freezing, and defrosting with no water absorption. This makes them suitable for both interior and exterior installations with the added benefit of excellent dimensional stability.

Photos courtesy of Construction Specialties





Decorative wall panels that emulate the appearance of painted brick are used behind the counter in this retail setting (right). Custom graphics of all types can be provided behind a clear protective wall covering to display artwork, signage, or artistic or even wall covering patterns (left).

The available choices of this type of decorative wall panel include texture and qualities in different patterns that emulate brick and stone in traditional and contemporary styles. Retail and hospitality brands can choose the patterns and colors best suited for the design of their space or emulate the architecture or aesthetic in the local surrounding community. Installation is based on an interlocking edge system that enables any contractor to perform a fast, accurate, and ultimately high-quality finished surface. The average panel weight is 10–15 pounds and covers about 11 square feet. The solid, durable surface is easy to clean, maintain, and repair as needed, all of which saves the building owner time and money throughout the product lifecycle.

Karen A. Jenkins, AIA, vice president of Design Continuum Inc., has direct experience with this approach in a recent project. She notes that the decorative wall panels that emulate brick are "a great, cost-effective material to reinforce the historic, industrial character we were striving to create for the interior renovation of the Hilton Garden Inn Hotel within the historic district of Savannah. The look of the brick is authentic, which is important when you are in a historic setting, and the installation was quick and easy, which meant less down time for the hotel during renovation. It added a rich texture and pattern to set the industrial train station vibe within the hotel lobby."

Graphic Wall-Covering Protection

Sometimes, there is an interest in increasing the life cycle of interior walls and surfaces while still maintaining brand image. Further, visual merchandising is a critical component in successful retail and hospitality marketing. However, retailers and restaurateurs often have to position wall graphics above the reach of customers or risk the chance of damage and replacement. Now there are readily available products that combine custom graphic capabilities within an ultra-durable wall-protection system. This provides a unique protective wall covering that creates a sense of place, enriches the brand story, and shapes guests' experiences. Because it is resistant to wear and damage, it is a great solution for the high-traffic spaces in retail, restaurant, and hotel environments.

Using this type of system, photographs, logos, patterns, and other graphics can be safely embedded behind a clear rigid sheet that serves as a protective shield for digital imagery while providing impact-resistant wall protection. It is available in a 0.040-inch thickness and in 4-by-8-inch, 4-by-10-inch, and custom sizes. Specifications can be written for PVC and PBT-free material with no harmful chemicals to protect customers as well as the interior. Further, it can be installed using a water-based mastic adhesive. The end result is a safe, nearly indestructible graphic that enlivens a retail, restaurant, or hospitality space.

Sarah A. Curtis, AIA, CDT, LEED AP ID+C, a senior associate in the Retail | Service division of A/E firm Little, comments on the use of this type of protective wall graphic system: "This is a product that we were excited to use on a small renovation project. We wanted to provide a branded wall with custom graphics, and this product allowed us to create a custom image with the client's brand colors and logo for a great price. Small projects often have difficulty getting anything custom because we don't have the square footage to warrant custom costs. We didn't have that issue with this product. The image looked great and provided a durable solution for the result we envisioned. I look forward to using it again on future projects."

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DURABLE AND ATTRACTIVE DOORS

In the design of hospitality and retail facilities, doors and entrances play a significant role both in terms of design and performance in many different locations. Typically, architects need to be able to address doors and entrances in any or all of the following areas:

- Front entrances
- Guest rooms
- Stairwells
- Corridors and hallways
- Ballroom and banquet rooms
- Kitchens
- Mechanical rooms
- Fitness centers and spas
- Loading docks and storage rooms

Each of these locations may have different design criteria. Front entrances, for example, need to be inviting and possibly speak to the branding message, but they also need to be functional and durable. Interior doors need to work with an overall design scheme but hold up to the rigors of heavy use. Other doors may need to meet particular needs for fire resistance, security, or even blast resistance. Of course, the doors need to fit the design of the spaces they are serving, the energy conservation needs of a building envelope, and the project budget. Toward those objectives, there are choices in types of doors to select.

Aluminum, FRP, and Hybrid Doors

Recognizing the differing requirements for different types of doors, manufacturers offer a range of products to suit those differing conditions. Some of the most durable door products are made from proven, durable materials such as aluminum, fiberglass-reinforced polymer (FRP), and stainless steel. Among the most used in retail and hospitality buildings are the following:

- **Aluminum entrances:** Aluminum has long been a common choice for monumental stile and rail doors for front entrances and many hallways. Such doors can provide a look of distinction and incorporate plenty of glass for visibility and daylighting. Some offer tie-rod construction for flexural strength and engineered construction that results in exceptional durability and thermal properties.
- **Flush aluminum, FRP, and hybrid doors:** For interior hospitality and retail doors, there are variety of choices, including flush aluminum doors, hybrid aluminum and FRP doors, or all fiberglass doors. Flush-door finishes can include aluminum skins, woodgrain finishes, or all fiberglass construction. The aluminum/FRP hybrid type is a heavy-duty door for high-use applications with a maintenance-free long life expectancy. It is available in numerous stock or custom colors and is extremely flexible in terms of glazing options and hardware.
- **Fire-resistance-rated doors** When fire-rated doors are required by code, composite doors made from FRP and stainless-steel construction with mineral cores are a durable option. They offer tested and approved fire ratings from 20 minutes to 90 minutes.

The key factor for product performance in any of these choices is third-party testing. All specified or selected doors should be tested by an independent testing lab based on the applicable national standards. The manufacturers should then make the results publicly available and offer them to the architect as a submittal of proof of performance. In this way, the testing verifies any marketing claims and assures the architect and owner of performance to meet the design criteria. Such criteria may include product durability or life cycle, energy efficiency and sustainability, extreme weather resistance, sound control, fire resistance, blast mitigation and ballistic resistance, and intruder resistance.

In terms of design, aluminum and FRP products offer a broad range of choices. Multiple smooth and textured finishes are available along with numerous stock and custom colors. There are also virtually unlimited hardware choices, including custom branded or identity hardware. Glazing can be standard or custom in terms of shape, size, and type of glazing. All these factors enable considerable design flexibility, particularly since every door can be made to order.

Ben H. Dorsey III is the manager of marketing and communications with Special-Lite, Inc. He has worked with design teams on a variety of levels and says, "I do not envy the architect in terms of the breadth of knowledge he or she must have to meet the variety of client expectations and regulations in the retail and hospitality arenas. The manufacturer's goal is to serve as a reliable source of information as well as outstanding products to make the architect's daunting task achievable." His colleague, Roger J. Stempky, vice president of sales and marketing at Special-Lite, Inc., offers an example: "Our primary focus is Division 8 products for openings. Retail and hospitality facilities have a variety of openings, and I see some similarities in these venues. For instance, monumental doors with a good deal of glass are often used for front entrances. Meanwhile, flush doors that can tolerate high cycle counts and even some abuse are needed elsewhere in both markets." Both of these men reinforce the concept that recognizing the different facility needs and working with manufacturers to understand the different capabilities of different products can provide the best overall outcomes for a project.

Clad Doors

Many interior doors in hospitality and retail buildings are selected based on using a solid core construction with a cladding and edging of different types. Selecting a high-performance, highly durable clad door system will help assure they not only perform well but also look great, holding up to daily use and potential abuse. In that regard, there are several qualities to look for:

- Doors that are specifically manufactured for high-impact areas and are clad with ultra-durable coverings for demonstrated protection.
- Attention to door edges, since that is where most door damage occurs. Some are specifically manufactured to feature rounded, field-replaceable stiles and edges for extra protection. Better yet, some carry a warranty against damage for the lifetime of the door.
- The covering on doors and frames can be specified to be bacterial- and fungal-resistant and easily cleanable with non-abrasive cleaners.
- Some doors are made of PVC-free material, can be Cradle-to-Cradle Certified, and help to contribute toward LEED v4 credits.

Photos courtesy of Special-Lite, Inc.

Different locations in hospitality and retail settings can require different types of doors made from a variety of durable materials and finishes.

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While all of these attributes help with the performance of the door, designers no longer have to sacrifice aesthetics for durability. They are available in a broad range of colors and patterns, including solid colors, woodgrain patterns, and various panel designs. In addition to these extensive standard design choices, some products also allow architects to display any image, pattern, photograph, etc. on a door without compromising durability.

CONCEALED DOOR HARDWARE

One of the design trends in retail and hospitality settings is for sleek, elegant, and clean surface appearances. That has come to include the use of trimless doors that visually disappear to look as though they are part of the surrounding wall. To pull that off successfully, the doors need to be clad with the same material as the walls, which is clearly quite possible. It also means that the hardware, particularly the hinges, used for such doors must be hidden from sight. That is where manufactured concealed hinge systems for cladding come into play.

State-of-the-art concealed hinge systems are available for doors with cladding, where in the past it was only possible to use pivots to hang such doors. These concealed hinges allow a door to visually disappear into a wall with many different kinds of cladding, such as laminates, that are up to 20 millimeters (¾ inch) in thickness. This gives architects and designers new opportunities for incorporating closed door panels into a holistic room concept. Further, concealed hinge systems allow doors to open up to a full 180 degrees, thus providing some significant design options when the doors are open as well.

Adjustable, concealed door hinges allow a contemporary space to retain clean lines, undisturbed by an obtrusive service door in a common area of a hospitality environment, such as a lobby or ballroom. The refined visual appearance in combination with maintenance-free slide bearings means they help doors operate as good as they look. Durability is another notable trait of concealed hinges whether they are used in low-traffic door applications or for high-use doors in hotels, resorts, and restaurants. Concealed hinge systems specified with an adjustment feature typically install easier than those without. The adjustment feature provides a simple way to maintain a perfect margin between the door and the surrounding frame. Adjustments can commonly be made in three dimensions (horizontal, vertical, and in/out) by simply turning an Allen wrench. A completely concealed hinge system typically accepts load capacities up to 300 kilograms (661 pounds), enables an opening angle of 180 degrees, and can be used on wood, steel, and aluminum doors and frames. All of this means that concealed hinge systems can be used on a wide variety of retail and hospitality doors.

In order to accommodate the full range of needs for different door types and their specific locations, consider that there are different versions of concealed hinges that can be selected. Some of the most common are listed as follows:

Standard concealed hinges: Standard concealed hinges allow the door hinges to be hidden when the door is closed while still opening the full 180 degrees.

Concealed hinges for doors with cladding: These specific hinge systems allow a door to visually disappear into a wall with many different kinds of claddings, such as mirrors, laminates, and marble. This gives designers further options for integrating the door element into a holistic room concept.

Electrified concealed hinges: Modern and efficient buildings often require the ability to control and operate doors remotely. That often means that additional items such as card readers, access and door control systems, electrified locks, monitoring systems, and multimedia components are installed. These components require the transfer of electrical power and information from door frames to door panels. Concealed hinge systems that accommodate the needed wiring for electricity or data provide a sophisticated way to utilize any or all of this technology. Further, the needed wiring to carry electricity and/or data can be completely concealed behind the hinge arms to prevent unauthorized tampering. Wire-accommodating hinges are available in a large variety of sizes to suit different door panel weights.

Fire-resistant hinges: Certain models of concealed hinges are fire-resistant certified for up to 180 minutes. While maintaining all routing dimensions and visual features of standard concealed hinges, fire-resistant versions provide an option for use on fire resistant door units.

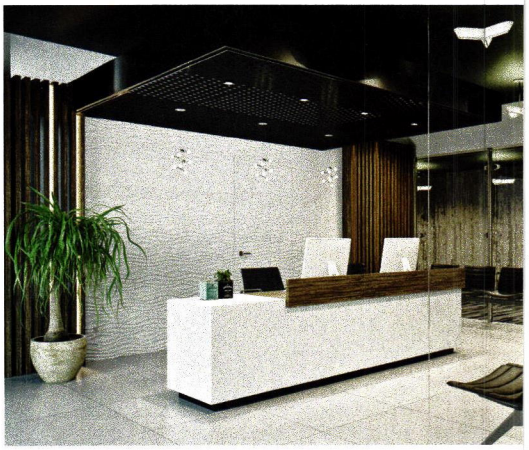
Recessed frames: Specific models of concealed hinges allow doors to be flush with the finished wall by hiding frames and recessing them into the wall structure. This provides a contemporary flush finish door and frame with clean, unobstructed lines.

Aluminum door profiles: Concealed hinges are also available for aluminum door panels and frames. There are a variety of options for different profile designs that can be selected to suit a particular project need.

Overall, architects have many choices when it comes to using high-performance, durable, concealed hinges. Creative options are not limited since fully functional, visually disappearing doors can now accommodate a wide range of needs and almost any type of cladding of up to ¾ inch thick.

Rudy Kessler, CEO of SIMONSWERK North America, sees this design trend first hand and points out, "In today's architecture, interior designers and architects are driven by the demand for contemporary and clean designs without sacrificing the functionality of a building. Typically, doors are viewed as an interruption of clean lines. Hardware companies have been challenged to come up with creative solutions for fully functional doors, especially doors with cladding, which do not disturb the design." Recounting the development of concealed hinges, he continues, "Initially, hardware companies developed products such as concealed door hinges that hid only the hardware. More recently, hardware companies took another step forward and developed innovative solutions for hiding not only hardware, but also fully functional doors that visually disappear within the wall." Clearly, the opportunities for clean, modern, and elegant spaces has increased due to the availability of these advanced hardware systems.

Photos courtesy of SIMONSWERK North America



Fully functional doors, clad to match adjacent walls, can benefit from the most advanced concealed hinges that allow doors to visually disappear into a wall expanse.

ENTRANCE FLOORING SYSTEMS

The entrance into many hotel, restaurant, and retail spaces can receive a great deal of foot traffic that can leave floors wet, dirty, or even hazardous. That is the reason that many are equipped with a proper entrance flooring system that provides a secure, slip-resistant surface. It will also reduce the amount of dirt and moisture being tracked into the facility, creating a safer walking surface for customers and employees. It can also be specified in a variety of standard and custom finishes to contribute to the overall

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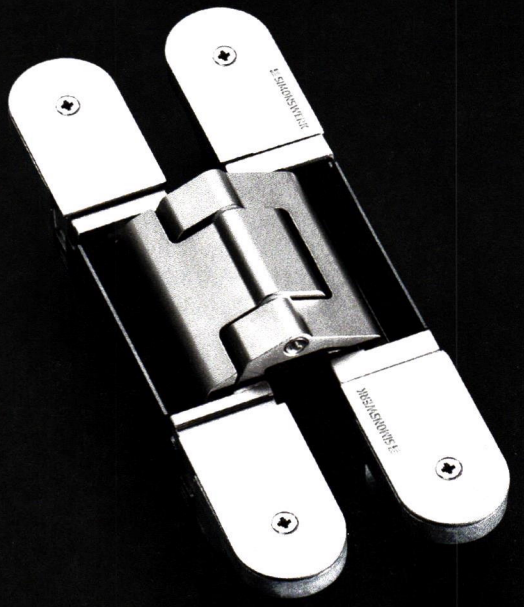

SIMONSWERK North America, Inc.
1171 Universal Boulevard
Whitewater, WI 53190
262-472-9500
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appearance of an entrance. As a result, it can protect people, increase the lifespan of interior products, enhance a brand, and redefine first impressions.

An increasingly popular version of entrance flooring is a modular, interlocking tile system made from recyclable, UV-resistant rubber and vinyl compound. This dimensionally stable tile will not shrink or create gaps while effectively scraping dirt and other debris from foot traffic. Some versions incorporate durable carpet strips that are available in multiple colors and are embedded into the top of the tiles. The interlocking tiles, commonly on the order of 12 by 9 inches, produce a tight, virtually seamless appearance creating a quiet, attractive, and durable system.

This type of entrance flooring system can be recessed into a floor slab or surface mounted since it is available in a thickness of less than ½ inch. That means it can be readily compliant with ADA or other accessibility standards. A framing system around the tile allows it to integrate seamlessly into a vestibule or transition to an adjacent floor covering. As a solid system, it can endure high volumes of foot traffic as well as a heavy rolling loads. It can be specified to be resistant to grease, chemicals, and abrasions for heavy-duty entrances. The large area for debris capture, the integrated scraper bars, and carpet inserts are powerful components that keep dirt and moisture trapped at the door to mitigate slips, trips, and falls, even in wet conditions. It can also be selected with a multidirectional walking surface for use in vestibules with multiple entry sides. When periodic maintenance is needed, it can be readily rolled up and out of the way.

Gina Van Tine, AIA, LEED AP, of inForm Studios, finds that this type of modular entrance flooring works well for the firm's projects, saying, "It gives us the assurance that our clients look for to help them maintain a clean sales floor even in the worst weather winter can dish up." A growing grocery store chain concurs with this assessment. The store finds it to be an easy-to-install solution that keeps its busy interior floors clean and creates the right first impression for guests when they walk in through the doors. In fact, the store has coordinated a prestocking program that made ordering entrance flooring for the continuous store expansions and renovations a quick and simple process.

EFFECTIVE COOLING AND HEATING SYSTEMS

Providing a comfortable environment in retail and hospitality facilities keeps occupants happy and can lead to increased time spent in the facilities, which is what the business owners want. Of course, they also want that comfort to come with low energy costs and flexibility in the way the system is designed and installed. Fortunately, there is a proven technology to meet all of these needs in the form of variable refrigerant flow (VRF) systems. When incorporated properly, VRF systems give retail and hospitality facilities highly efficient HVAC performance and provide occupants with exceptional comfort without it costing more. In fact, such systems can even save owners money through high energy efficiency, better control, and low maintenance.

Architects have occasionally faced resistance from building owners on these systems due to the owner's lack of experience with or knowledge of VRF and the misperception that VRF is more costly. Therefore, it often becomes incumbent on the architects and engineers to help educate owners on the reasons to consider VRF, particularly in retail and hospitality spaces. The good news is that VRF has been in use globally for more than 35 years and is continuing to gain popularity in the United States because of the efficiency advantages and the ability to provide personalized comfort to occupants of many different building types. The flexibility of VRF systems allows building owners and architects to design spaces without having to compromise around the layout of a mechanical system.

Among the points to consider are the following:

- VRF is easier to design since it does not require long runs of ductwork and eliminates the need for large mechanical spaces.
- Compact outdoor equipment is easily transported in freight elevators, potentially eliminating the cost of cranes.
- VRF systems require minimal maintenance.
- Energy efficiency significantly reduces utility costs.
- VRF equipment typically lasts up to 20 years, reducing the expense of replacement.
- Space-zoning provides building occupants the ability to personalize their comfort, providing them with a very responsive thermal environment.
- Space-zoning capabilities also give building owners and facility managers the ability to turn off or set back systems in areas that are not occupied, further increasing savings.
- Life-cycle costs for VRF systems are also lower than generally thought. Ease of design and installation, minimal required maintenance, superior energy efficiency and long-lasting equipment contribute significant savings over the life of the system.

These savings and advantages are achieved through the basic engineering technology of the system that is energy efficient and flexible, helping retail and hospitality facilities meet their varied cooling and heating needs. Rather than inefficiently moving conditioned air to the spaces to be treated, VRF delivers refrigerant directly to those spaces and conditions the air within the space, providing better temperature control and the ability to treat zones independently.

Continues at ce.architecturalrecord.com

Peter J. Arsenault, FAIA, NCARB, LEED AP, *is a nationally known architect, consultant, continuing education presenter, and prolific author advancing building performance through better design.* ***www.pjaarch.com, www.linkedin.com/in/pjaarch***

Photos courtesy of Mitsubishi Electric Cooling & Heating

Variable Refrigerant Flow (VRF) cooling and heating systems are ideal solutions for many retail and hospitality locations for both public and back of house spaces.

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PRODUCT REVIEW

Performance and Durability in Retail and Hospitality Design

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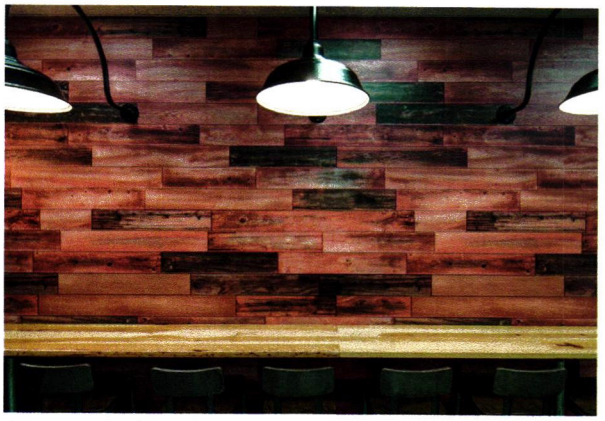

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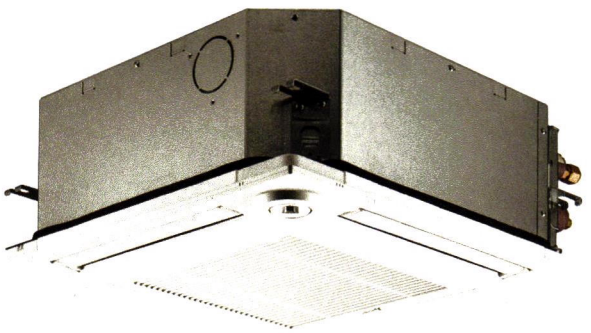

Redesigned, Better-Performing Four-Way Ceiling Cassette

Mitsubishi Electric Cooling & Heating's sleek new 2-by-2 PLFY Ceiling Cassette with square-edge design fits within the same space as many standard ceiling tiles. The redesigned 3D i-see Sensor™ continuously scans the room, adjusting temperatures to maintain comfort without sacrificing efficiency. Available in capacities from 5,000 to 18,000 Btu/h.

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inprocorp.com/ipc-door-wall-protection/ricochet

SIMONSWERK North America

Photo courtesy of SIMONSWERK North America

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CONTINUING EDUCATION

Resilience: Why Material Selection Matters

Understanding how the selection of structural framing materials impacts the resilience of buildings and communities

Sponsored by American Institute of Steel Construction

Resilience is the ability of an object or system to absorb and recover from an external shock, such as those caused by natural disasters (earthquakes, hurricanes, tornadoes, wildfires) or malicious acts (arson, terrorism).

While the primary purpose of building codes is to protect the health and safety of occupants during an extreme event, the design goal of a resilient structure is for it to withstand an extreme event with minimal damage. By doing so, the building will be able to maintain continuous function or be quickly repaired for a rapid return to service.

Resilience is a simple concept, yet it has complex implications for designers and builders. For some, resilience is viewed at the community level and refers to a community's ability to absorb and recover after a disaster. This could be measured by the ability to restore energy, transportation, clean water, and communication services to residents quickly after a disaster. As illustrated in the graphic below, communities become resilient by having an infrastructure, which includes buildings, that can withstand intense storms or disastrous events.

Often referred to as the "most resilient skyscraper on the West Coast," 181 Fremont in San Francisco utilizes external megabraces to resists shear demands in the office levels and standard buckling-restrained braces in the residential levels.

Rendering courtesy of Jay Paul Company

CONTINUING EDUCATION

1 AIA LU/HSW

1 GBCI CE HOUR

Learning Objectives

After reading this article, you should be able to:

1. Define the architectural concept of resilience and explain its implications for occupant safety and building durability.
2. Discuss how material and framing system selection can impact resilience and health, safety, and welfare of occupants in the built environment.
3. List the attributes of framing materials that contribute to resilient framing systems and building performance.
4. Compare the durability, strength, and combustibility characteristics of structural steel and other common framing materials.

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

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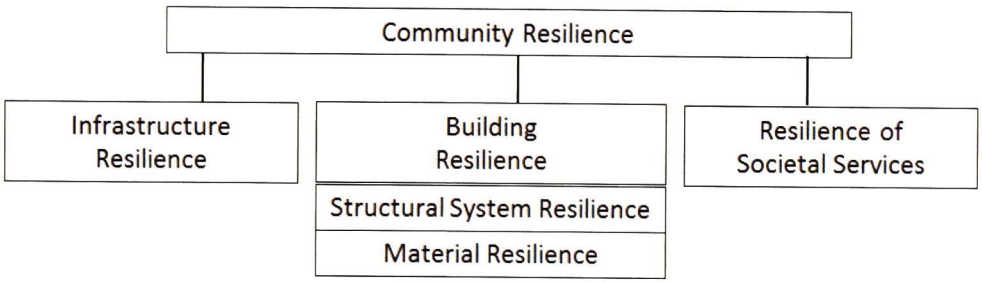
Community resilience is dependent on the resilience of multiple community assets.



Facilities such as fire, police, health care, government entities, and designated shelters or residential units are of key concern for community resilience. To enhance community resilience, key decision makers must begin by selecting structural framing materials that can efficiently and effectively be used in the design and construction of resilient framing systems for critical structures. When measured against other framing materials, structural steel clearly satisfies those requirements.

THE FOUR RS OF RESILIENCE

The resilience of a community, building, or material is often characterized by four interconnected Rs: robustness, resourcefulness, recovery, and redundancy.

Robustness at the community level refers to the ability of critical services to maintain operations during and after an extreme event. Buildings that house vital services such as health care, power management, transportation, and communications must be able to maintain operation for a community during and after a disruption. For a building to be resilient, it also must be robust and able to withstand or recover rapidly from the extreme event. The building's robustness is a function of the integrity of the structural frame and, in turn, the strength of the framing material used in that frame.

Resourcefulness is the ability to prepare for and skillfully respond to a crisis or disruption. For a community, that means not only having contingency plans in place but also identifying and providing the resources needed to implement those plans. For a building, it means having as-built building plans available for rapid reference, structural engineers identified who are prepared to provide a rapid assessment of damage to the structural frame, and sources identified for materials that may be required to implement a repair. For example, structural steel is stocked at hundreds of steel service centers throughout the country for rapid delivery to a structural steel fabricator that can quickly fabricate the members required for the repair (see MacArthur Maze sidebar).

Recovery is the restoration of key operations as quickly and efficiently as possible after a disruption with the goal of a full return to normalcy within a short timeframe. It is impossible and impractical to design a building and structural frame to handle every potential extreme event. There will be times when even the most resilient of designs are stressed beyond the point of failure. In these cases, resilience is determined by the level of loss of functionality and the time required to resume full functionality. The level of recovery and the time required to accomplish it will be in direct relationship to the robustness, redundancy, and ease of repair of the structural system, as well as the availability of resources to complete the repair.

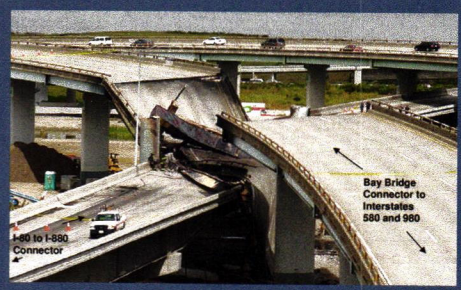
Redundancy in the community context refers to the provision of backup resources to support key functional components of the resilient community. If a key component such as the provision of health services at a local hospital is taken offline, then a backup for that service should be identified to provide the service. For a building, redundancy can best be seen as the ability of the structural framing system and the material from which the frame is constructed to provide additional load-carrying capacity and the ability of the frame to transfer loads to alternative load paths.

Structural frames constructed using structural steel consistently receive high marks when measured using the four Rs thanks to the inherent resiliency of steel. When resiliency is required in a structure, structural steel is the ideal choice.

When developing emergency management and resilience plans, it is important to recognize that not all communities are alike. The stressors that could affect a community vary by location.

Continues at ce.architecturalrecord.com

MACARTHUR MAZE



The rapid reconstruction of the MacArthur Maze illustrates the benefits of resilient design using readily available resources

The MacArthur Maze is a large freeway interchange at the east end of the San Francisco-Oakland Bay Bridge. On April 29, 2007, a tank truck carrying 8,600 gallons of gasoline overturned and caught fire beneath one of the ramps of the interchange. The petrochemical fire weakened the steel structure supporting the roadway, resulting in the collapse of the ramp connecting I-80 east to I-580. The original cost estimate for repair of the ramp was $10 million and a schedule that required the roadway to be out of service for several months, resulting in significant out-of-pocket costs to commuters and municipal agencies that provided free transportation on the local BART system. The State of California projected that the economic impact of the road closure was $6 million per day. Contrary to the initial cost and schedule estimates, the roadway was placed back in service on May 24, less than 30 days after the original accident, at cost below original budget estimates (the actual winning bid was $876,075 with an incentive of $200,000 per day if the work was completed before June 27). This rapid recovery after an extreme event was accomplished because the material and labor resources required for completing the project were immediately available. Engineers were prepared to address the design issues on an accelerated schedule, a contractor with significant experience in rebuilding damaged expressways had an existing relationship with Caltrans, and the material (steel) and fabrication resources were readily available to the project team.

Photo courtesy of Scott Jones/Flickr

The American Institute of Steel Construction is a nonpartisan, not-for-profit technical institute and trade association representing the structural steel industry. AISC provides technical assistance and complimentary conceptual solutions to architects, engineers, code officials, and educators to promote better, safer, and more economical buildings, bridges, and other structures framed with structural steel. **www.aisc.org**

New training programs are available to help installers, contractors, and construction-related personnel complete projects correctly while protecting patients and creating safe and sterile health-care interiors.

All photo courtesy of INSTALL

Two Reasons to Specify Experience on New and Existing Health-Care Projects

Avoid installation mistakes and prevent HAI's with INSTALL and ICRA-certified professionals on the job

Sponsored by INSTALL, International Standards & Training Alliance

By Jeanette Fitzgerald Pitts

Designers are no strangers to education and certifications. Years of school followed by continuing education requirements and a number of available specialties and designations offer never-ending opportunities for architects to further educate themselves on design trends, technology, best practices, and more. Today, the benefit of professional and specialized training is available to many in the design and construction industry, including the contractors and construction professionals tasked with the installation of these advanced systems and new materials.

There is no other place where extra training may be more important than projects in health-care facilities. Improper product installation can create hiding places for germs and bacteria, breeding grounds for mold and mildew, and, ultimately, compromise the safety and sterility of the health-care space. Beyond the potential hazards presented by poor or improper installations, fixing them costs time and money, often a significant amount.

This course will explore two new certifications designed to create health-care facilities that will protect patients by providing the

CONTINUING EDUCATION

1 AIA LU/HSW

1 IDCEC CEU/HSW

Learning Objectives

After reading this article, you should be able to:

1. Explain how poor flooring installations compromise the safety and cleanliness of health-care environments.
2. Use the language from the Master Specification written by the Department of Veterans Affairs to ensure only qualified professionals are selected to install carpet or resilient flooring in health-care facilities.
3. Describe how construction work in occupied health-care facilities can expose patients to dangerous pathogens.
4. Identify construction teams capable of erecting containment barriers and creating negative air pressure to effectively contain and control dangerous contaminants.

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IDCEC COURSE #CC-107435-1000

sterile and safe environments they need both before and during the occupation of the facilities. First, it will take a closer look at the way in which the United States Department of Veterans Affairs (VA) altered its specification and alleviated its flooring installation headaches by partnering with the International Standards and Training Alliance (INSTALL), the construction industry-endorsed floorcovering installation and certification program, to ensure that qualified flooring professionals were tasked with installing the carpet, athletic carpet, and resilient flooring throughout VA facilities. Then a special new training designed to teach contractors and construction teams as well as hospital staff and designers the infection-control risk assessment (ICRA) protocols and procedures will be reviewed.

THE VA'S FLOORING ISSUES

As of September 2014, the VA reported that it owned 6,081 buildings covering more than 151.5 million square feet, and it had a flooring-related problem that could potentially affect every square foot. "Like any other entity that owns and operates many institutional buildings, we have had a long history of flooring failure," says Orest Burdiak, principal interior designer at the VA.

While faulty products caused some of the issues, improper or substandard installation was the key reason for the vast majority of the flooring failures that occurred. "From poor floor prep to improper testing for moisture to inadequate moisture mitigation, we have experienced a laundry list of installation-related flooring issues across hundreds of projects," Burdiak explains. These flawed flooring installations cost the VA considerable time and money, delaying project completions and, in many instances, requiring that flooring be completely or partially replaced in order to make the interior a suitable health-care environment.

"At the end of the day, as a government entity, we owe it to the taxpayers to approach construction projects in a way that delivers quality facilities in a cost-effective manner," Burdiak says. "While the VA is a nonproprietary organization that doesn't endorse specific products or manufacturers, we realized the significant costs we kept incurring for subpar flooring installations and decided to require that installers working on VA projects have a certain level of training as a way to reduce the amount we spent fixing mistakes."

There are many issues that can and have arisen during a flooring installation at a VA facility. Some of the most common and, in some cases, most detrimental, include poor flooring preparation, improper flash coving, sloppy seaming, and pattern-matching mistakes. These flawed installation techniques can cause the flooring to fail prematurely, buckling, lifting, bubbling, blistering, or breaking, and create a situation where the flooring becomes a breeding ground for mold and mildew. All of these problems can pose significant health and safety risks, especially in health-care environments.

Improper flooring installation has caused floorcoverings to bubble and fail prematurely in numerous VA projects.

Poor Flooring Preparation

Flooring preparation refers to the preparation of the substrate, the material upon which the flooring will be installed. While there are many aspects of the substrate that must be evaluated, the amount of moisture in the concrete is one of the most critical because the substrate must be dry enough to properly install flooring upon it. Applying a floorcovering when the substrate is too wet can result in flooring failure, alkalinity issues, and rampant mold and mildew growth.

Although concrete substrates are commonly found on commercial projects, the amount of drying time necessary before the flooring can be installed must be determined on a project-by-project basis because drying times for concrete slabs vary based on concrete mix, slab thickness, and weather conditions.

The specific flooring selected for a project must also be considered. Different types of flooring respond to and manage moisture differently. For example, the structures of some types of floorcovering provide escape routes where moisture from the concrete can evaporate. Other floorcoverings are impermeable so moisture collects between the floorcovering and the substrate, where it can dissolve the adhesive holding the floor in place or host mold.

In order to determine that the concrete substrate is dry enough for a successful floorcovering installation, the level of moisture in the concrete must be measured and, if necessary, steps to mitigate the potential issues caused by the moisture present should be taken. A common moisture-mitigation technique is to put down an impermeable barrier between the substrate and the floorcovering so the moisture won't affect the adhesive. Selecting a different adhesive or type of floorcovering better suited to withstand the existing moisture levels is also a possible mitigation solution.

Continues at ce.architecturalrecord.com

Jeanette Fitzgerald Pitts *has written dozens of continuing education articles for* Architectural Record *covering a wide range of products and practices.*

INSTALL
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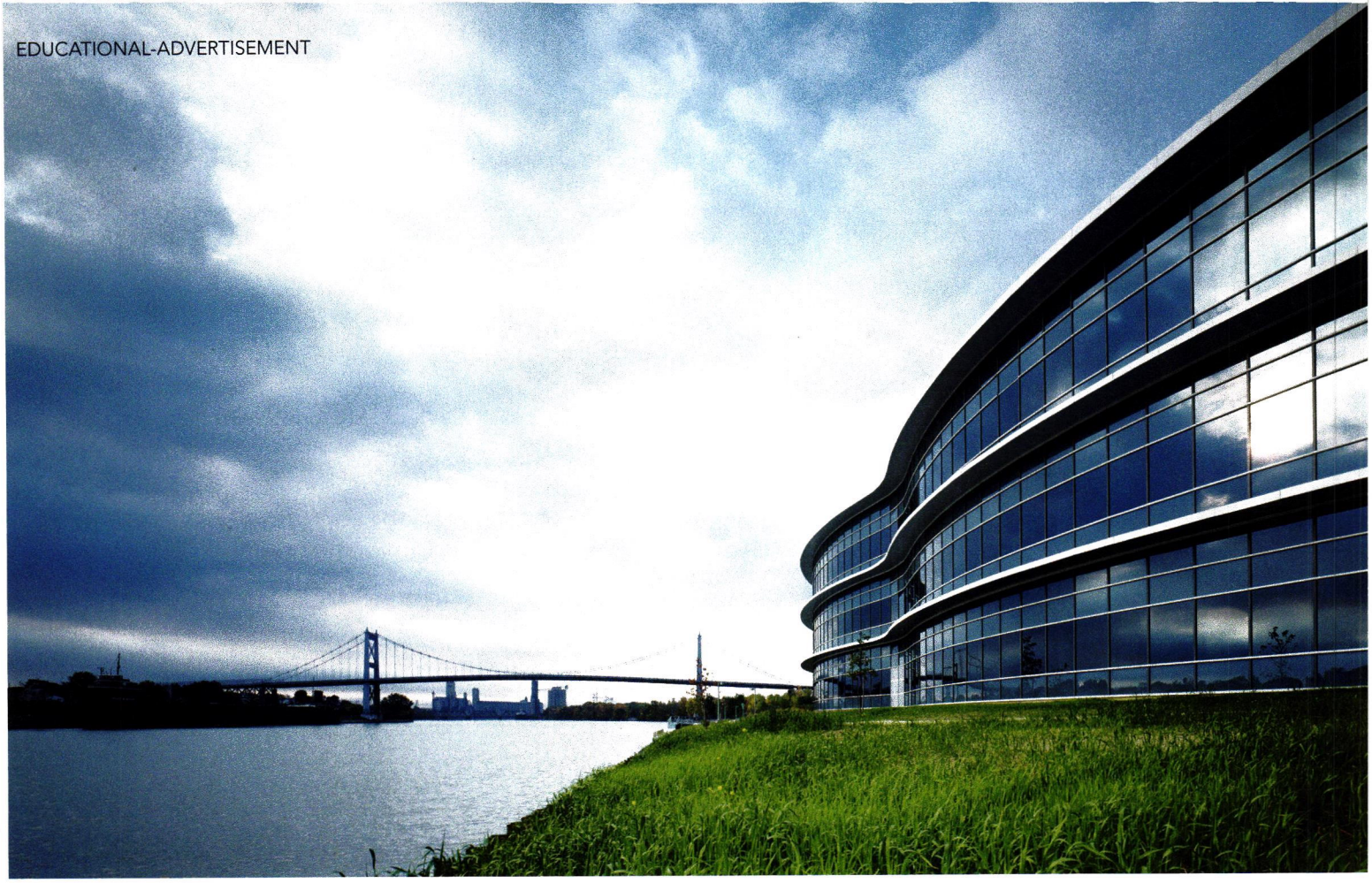
INSTALL is an association of professionals representing the entire flooring industry, including installers, contractors, manufacturers, associations, and consultants. By bringing together stakeholders at every level of floor-covering installation, INSTALL has the resources, capability, and commitment to deliver work in which we all can take pride. **installfloors.org**



All images courtesy of Owens Corning®

Understanding Sustainable Insulation and LEED v4

Sponsored by Owens Corning

The green building market is set to experience a 13 percent growth rate through 2020.[1] In fact, the global average of those expecting to design more than 60 percent of their projects sustainably by 2018 more than doubles the 2015 levels from 18 percent to 37 percent.[2] And, design firms tell us that nearly $^{2}/_{3}$ of their projects were green by 2015 and green renovations were undertaken by half of all firms worldwide. The global spread of sustainability is on fire.

Strong growth is attributed in part to the rising awareness of global warming and climate change issues and the knowledge that green building techniques lead to a lower level of greenhouse gas emissions.

Other drivers of growth include multiple government policies supporting green building construction, growing awareness of energy efficiency, and the cost-effectiveness of green buildings.

Health-related concerns are also driving product selection, especially regarding indoor air quality and chemical content. Although energy efficiency is king in the commercial built environment, indoor air quality and water are gunning for the crown. Among B2B decision makers for product selection, the number-two criteria (after energy efficiency) was: "product contains no chemicals of concern."[3]

LEED 2009 VS. LEED V4: WHAT'S NEW IN SUSTAINABLE DESIGN, CONSTRUCTION, AND OPERATIONS

Building materials impact both architectural performance and the human experience. The definition of sustainable design, construction, and operations is using practices that significantly reduce or eliminate the negative impacts of a building on its occupants and the environment.

One way to achieve sustainable design is through LEED certification. LEED has evolved since 1998 as a guide and measure for incorporating green building technologies. The pilot version, LEED New Construction (NC) v1.0, led to LEED NC v2.0, then LEED NCv2.2 in 2005 and LEED 2009 (aka LEED v3) in 2009. LEED

CONTINUING EDUCATION

1 AIA LU/HSW

1 GBCI CE HOUR

Learning Objectives

After reading this article, you should be able to:

1. Identify the positive impact of types of insulation used in the green building case studies and demonstrate how LEED requirements are changing to place greater emphasis on materials and health.
2. Examine the health-related concerns for occupants and how to leverage sustainable building techniques through the commercial built environment, indoor air quality, and water.
3. Describe how insulation products can aid in energy-efficient buildings and ultimately contribute points to LEED v4.
4. Explain credit achievement for and how insulation types may contribute to the Building Life-Cycle Impact Reduction credits, the Building Disclosure and Optimization credits, the Low-Emitting Materials credits, and the Acoustic Performance credits for LEED v4.

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v4 was introduced in November 2013 and as of October 31, 2016 was the only version of LEED under which new projects could register.

There were quite a few changes made to the New Construction (NC) category within the Building Design and Construction (BD+C) Rating System from LEED 2009 to LEED v4. A new credit, Integrated Process, encourages teams to plan and work together before a project starts in order to perform an early analysis of the interrelationship of systems. The Site Assessment credit is also new and awards one point for projects that assess the site's condition before design for features such as topography, hydrology, climate, vegetation, soils, human use, and human health effects.

Sustainable Sites (SS)

LEED v4's Sustainable Sites (SS) credit category is similar to version 2009 and still contains credits for Construction Activity Pollution Prevention, Heat Island Reduction, Light Pollution Reduction, Protect or Restore Habitat, and Open Space. But some credits such as Bicycle Facilities, Access to Quality Transit, and Green Vehicles have been moved to the new Location and Transportation (LT) credit category. Location and Transportation now comprises 16 percent of credits, while Sustainable Sites is 10 percent.

Prior Stormwater Management credits are now referred to as Rainwater Management and are under the Sustainable Sites category. Options for credits are 1) percentile of rainfall events and 2) natural land cover conditions. For percentile of rainfall events, the project must manage the runoff on the site for a certain "percentile of regional or local rainfall events." For the natural land cover conditions option, the project must "manage on-site the annual increase in runoff volume from the natural land cover condition to the post developed condition."

Location and Transporation (LT)

The new Location and Transportation credit category addresses sustainable communities and land use. Some notable new features in this category include points for projects that build on LEED for Neighborhood Development certified sites, as well as a credit for "high-priority sites." New projects can earn points for building in historic districts, on brownfield remediation sites, or on a site with "priority designation," such as one that is on an EPA National Priorities List or one that is sited as a Federal Empowerment Zone.

Energy and Atmosphere (EA)

The Energy and Atmosphere credit category is similar in structure to LEED 2009, as it still addresses commissioning, refrigerant management, minimum and optimized energy performance, green power, and renewable energy, but Energy and Atmosphere now requires building-energy metering in a new prerequisite. The building must install a meter (or submeters) that track the total building energy consumption at least monthly, and the project must commit to providing that data to USGBC for at least five years. A project can also earn an additional point for more rigorous metering and tracking of its energy usage. This is consistent with USGBC's increased emphasis on building performance rather than just design.

Water Efficiency (WE)

There are some significant changes to the Water Efficiency category; the credits are now Indoor Water Use Reduction and Outdoor Water Use Reduction. The indoor water use prerequisite and credit are similar to the Water Use Reduction credit from LEED 2009, but the Outdoor Water Use Reduction is now required as a prerequisite. Water metering is perhaps the most significant update to this credit category, as building-level water metering is now required as a prerequisite. Projects can meet the requirement by installing water meters for a selection of various water subsystems, such as irrigation, domestic hot water, and indoor plumbing fixtures. Projects can earn an additional point for installing more water meters on more types of subsystems.

Continues at ce.architecturalrecord.com

END NOTES

[1]Hermes, Jennifer. "Green Building Market to Experience 13% Growth Rate through 2020." *Environmental Leader.* 17 February 2015. Web. 3 July 2018. <www.environmentalleader.com/2015/02/17/green-building-market-to-experience-13-growth-rate-through-2020/>.

[2]"World Green Building Trends 2016: Developing Markets Accelerate Global Growth." *SmartMarket Report.* Dodge Data & Analytics. Web. 3 July 2018. <www.worldgbc.org/sites/default/files/World%20Green%20Building%20Trends%202016%20SmartMarket%20Report%20FINAL-2.pdf >.

[3]Head, Lee Ann. "Energy efficiency is king in the commercial built environment – but indoor air quality and water are gunning for the crown." Shelton Insights. 22 April 2015. Web. 3 July 2018. <https://sheltongrp.com/posts/energy-efficiency-is-king-in-the-commercial-built-environment/>.

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CONTINUING EDUCATION

1 AIA LU/HSW

Learning Objectives

After reading this article, you should be able to:

1. Explain the differences between handrails and guardrails.
2. Discuss building codes related to the design and installation of handrails and guardrails.
3. Apply the International Code Council's I-Codes to handrails and guardrails.
4. Understand the Americans With Disabilities Act (ADA) and Accessible and Usable Buildings and Facilities (ANSI A117.1) in relation to handrails and guardrails.

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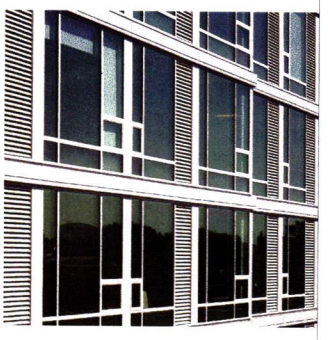

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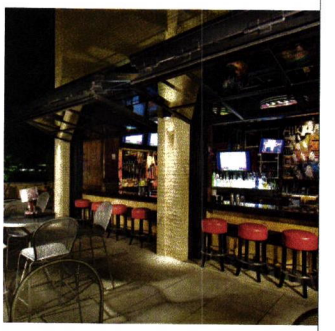

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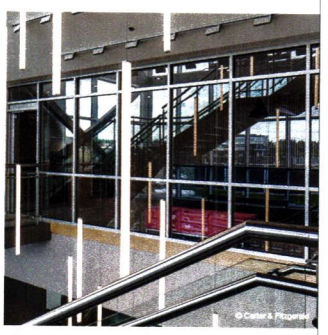

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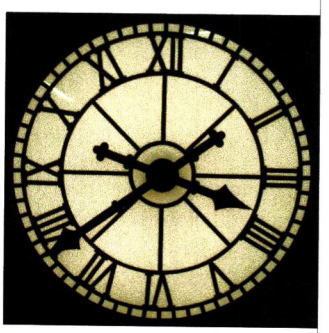

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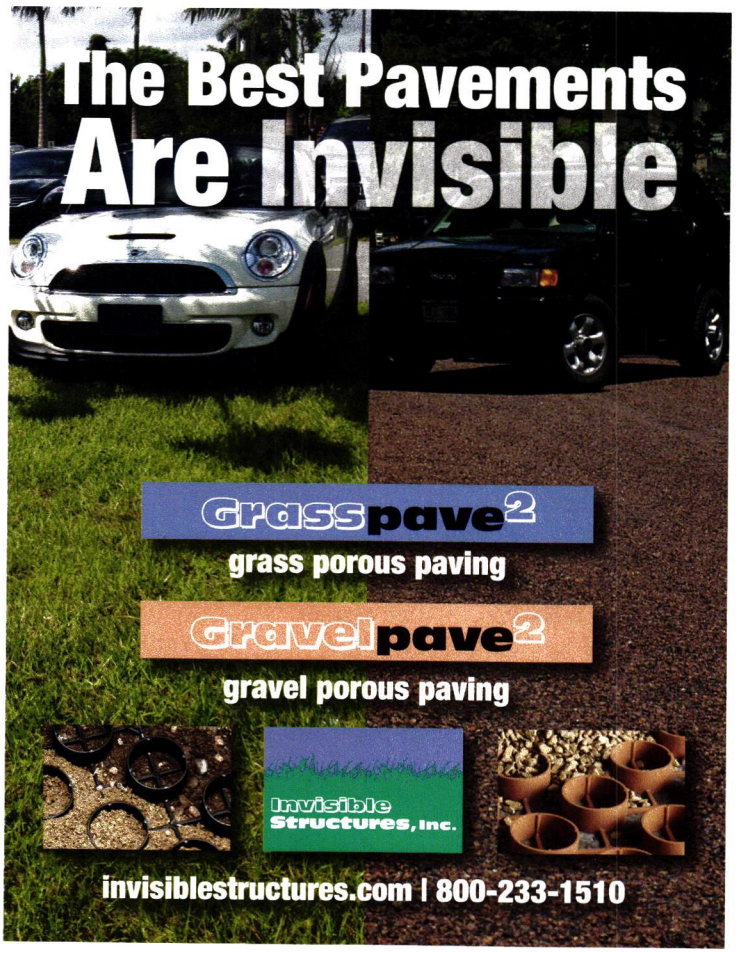

New and Upcoming Exhibitions

Investigating Where We Live
Washington, D.C.
August 11–December 31, 2018
The annual exhibit is the product of a five-week program where teens explore and document their interpretation of the city's residents and built environment through photographs, artwork, and writing. The young participants also design and install the exhibit. At the National Building Museum. More at nbm.org.

Treasures from the White City: Chicago World's Fair of 1893
Chicago
September 8, 2018–January 6, 2019
Held within a gallery that once hosted a reception for the World's Fair of 1893, this exhibit showcases original objects and memorabilia that were designed for and displayed at that international event. Highlighted objects include items from the respective pavilions of Tiffany & Company and Gorham Manufacturing Company, which were seen as groundbreaking for their use of silver production at the time of the fair. At the Richard H. Driehaus Museum. For more information, visit driehausmuseum.org.

Mario Bellini for Murano
Venice
September 9–December 2, 2018
Architect and industrial designer Mario Bellini's glasswork will be on display at the Fondazione Musei Civici di Venezia as part of Venice Glass Week. The exhibition will feature recent productions including his architecture for the Deutsche Bank headquarters in Frankfurt (2011) and the Louvre's Department of Islamic Art (2012). For more information, see museo vetro.visitmuve.it.

Renzo Piano: The Art of Making Buildings
London
September 15, 2018–January 20, 2019
This exhibit examines the design process of the Pritzker Prize winner and his firm, Renzo Piano Building Workshop, through 16 projects. Each building case study consists of drawings, models, photography, and full-scale maquettes, as well as a new film by Thomas Riedelsheimer. At the Royal Academy of Arts. Visit royalacademy.org.uk.

Ai Weiwei: Life Cycle
Los Angeles
September 28, 2018–March 3, 2019
Chinese artist Ai Weiwei's first major institutional solo exhibition in the city will feature new and previously unseen sculptural work in response to the global refugee crisis. The title installation, *Life Cycle*, depicts the inflatable boats refugees use to cross the Mediterranean Sea using the traditional Chinese medium of kite-making. At the Marciano Art Foundation. Visit marcianoartfoundation.org.

The Last Resort
Moscow
September 29, 2018–January 27, 2019
This site-specific installation by Berlin-based artist Anri Sala features 38 snare drums suspended from the ceiling as a contemporary reinterpretation of Mozart's Clarinet Concerto in A Major. At the Garage Museum of Contemporary Art. For more information, visit garagemca.org/en.

Ongoing Exhibitions

Now What?! Advocacy, Activism & Alliances in American Architecture Since 1968
Los Angeles
Through August 28, 2018
This exhibit examines how architects and designers participated in and responded to major social and political movements over the last 50 years, including those for civil, women's, and LGBTQ rights, beginning in 1968. At the A+D Museum. The exhibit will travel to other unconfirmed venues across the country following the Los Angeles exhibition. More at nowwhat-architexx.org.

International Garden Festival
Grand-Métis, Quebec
Through October 7, 2018
This annual event showcases conceptual gardens by more than 70 landscape architects, architects, artists, and designers. The 19th edition features seven site-specific installations created around the theme "Go Outside and Play!" At Reford Gardens/Jardins de Métis. More at internationalgardenfestival.com.

Lectures, Conferences, and Symposia

São Paulo Design Weekend
São Paulo
August 29–September 2, 2018
The largest design festival in Latin America, the five-day event includes over 300 planned activities and exhibits organized by local galleries, museums, and schools. Programming includes lectures, installations, and seminars. Visit designweekend.com.br.

London Design Fair
London
September 20–23, 2018
Launched in 2007, the London Design Fair is a trade show that features 550 exhibitors from 36 countries. The event showcases new work from both independent and established brands of materials, furniture, lighting, and textile design. See londondesignfair.co.uk.

2018 American Society of Landscape Architects Annual Meeting and EXPO
Philadelphia
October 19–22, 2018
The four-day event is the largest global gathering of landscape architects and students, with over 6,000 attendees expected. The program will include more than 135 educational sessions, lectures, and tours, along with a trade show featuring 350 exhibitors. At the Pennsylvania Convention Center. More information at aslameeting.com.

Competitions

M+/Design Trust Research Fellowship 2019
Deadline: August 13, 2018
Visual-art, design, and architecture museum M+, and charity Design Trust seek two fellows to relocate to Hong Kong for up to six months to conduct research into topics related to the city, the Pearl River Delta area, and the Asian region. More at westkowloon.hk/en.

International Graduation Projects Award
Deadline: August 15, 2018
Organized by the Tamayouz Excellence Award, this competition assesses graduation projects by any architecture or urban-planning student from any school worldwide. The winner will receive a two-year scholarship to the University Polytechnic of Milan, while second and third prizes include scholarships to travel to Jordan for a design workshop. See more at tamayouz-award.com.

Dewan Award for Architecture 2018
Deadline: August 25, 2018
This annual international competition invites proposals for a six-classroom primary school in Iraq's historic marshlands, at which students would arrive by car or boat. More information at dewan-award.com.

Switch: Guggenheim Museum, New York
Deadline: August 31, 2018
The jury asks participants to design a museum for the same site as the Solomon R. Guggenheim Museum's that would achieve a response similar to the one from the public in 1959 upon first seeing Frank Lloyd Wright's building. Visit switchcompetition.com.

2018 Designer Dream Bath Competition
Deadline: September 7, 2018
Duravit USA is seeking submissions for its annual bathroom competition. Projects completed in the last five years are eligible. In the unbuilt category, a sketch or rendering of the proposed design will be reviewed by the jury. Winners receive Duravit products. More at duravit.us.

The Rifat Chadirji Prize 2018: Baghdad Design Centre
Deadline: September 9, 2018
This annual competition, named for Iraqi architect Rifat Chadirji, seeks proposals for the renovation of a partially demolished vacant building in Baghdad. What remains of the structure's damaged facades should be incorporated into the new structure, which will become a center dedicated to design. Organized by Tamayouz Excellence Award. More information at rifatchadirji.com.

Bruno Zevi Prize 2018
Deadline: September 10, 2018
This 12th annual essay competition seeks entries following Bruno Zevi's methodology of critical and historical inquiry to examine an architectural work, theme, or architect. The competition is open to any Ph.D. researcher studying topics related to architecture. More information at fondazionebrunozevi.it/en.

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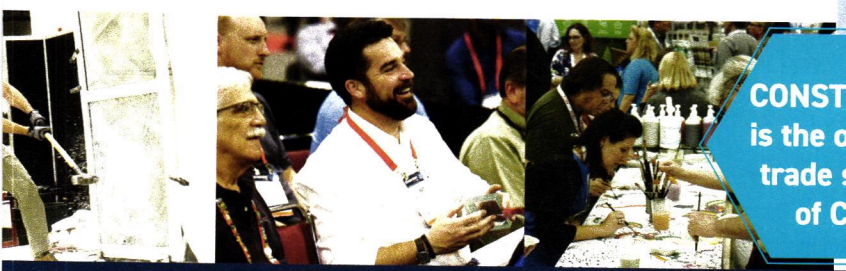

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snapshot

PROJECT THYSSENKRUPP TEST TOWER
LOCATION ROTTWEIL, GERMANY
ARCHITECT JAHN WITH WERNER SOBEK

RISING OVER 800 FEET in a Medieval town in southwest Germany, ThyssenKrupp Test Tower is difficult to miss. In 2013, the multinational industrial conglomerate needed a facility to experiment with a rope-free high-speed elevator. Architects Helmut Jahn and Werner Sobek (who is also a structural engineer) responded to the call but insisted that the project also enhance its surroundings and provide a public service. "Given the beautiful landscape around Rottweil, it was clear to us from the beginning that the tower had to be more than just a technical structure," says Sobek. The 69-foot-diameter reinforced-concrete tube houses the test facility at its center and is topped by an observation deck. The distinctive textile membrane shrouding the structure—which was completed earlier this year—is made of polytetrafluoroethylene (PTFE), and was designed to minimize thermal loads and deflect wind eddies to prevent oscillations that can occur during testing. And, as an object in the landscape, "the tower creates a new landmark," says Jahn. "It enriches and continues the city's history." *Justin Chan*

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