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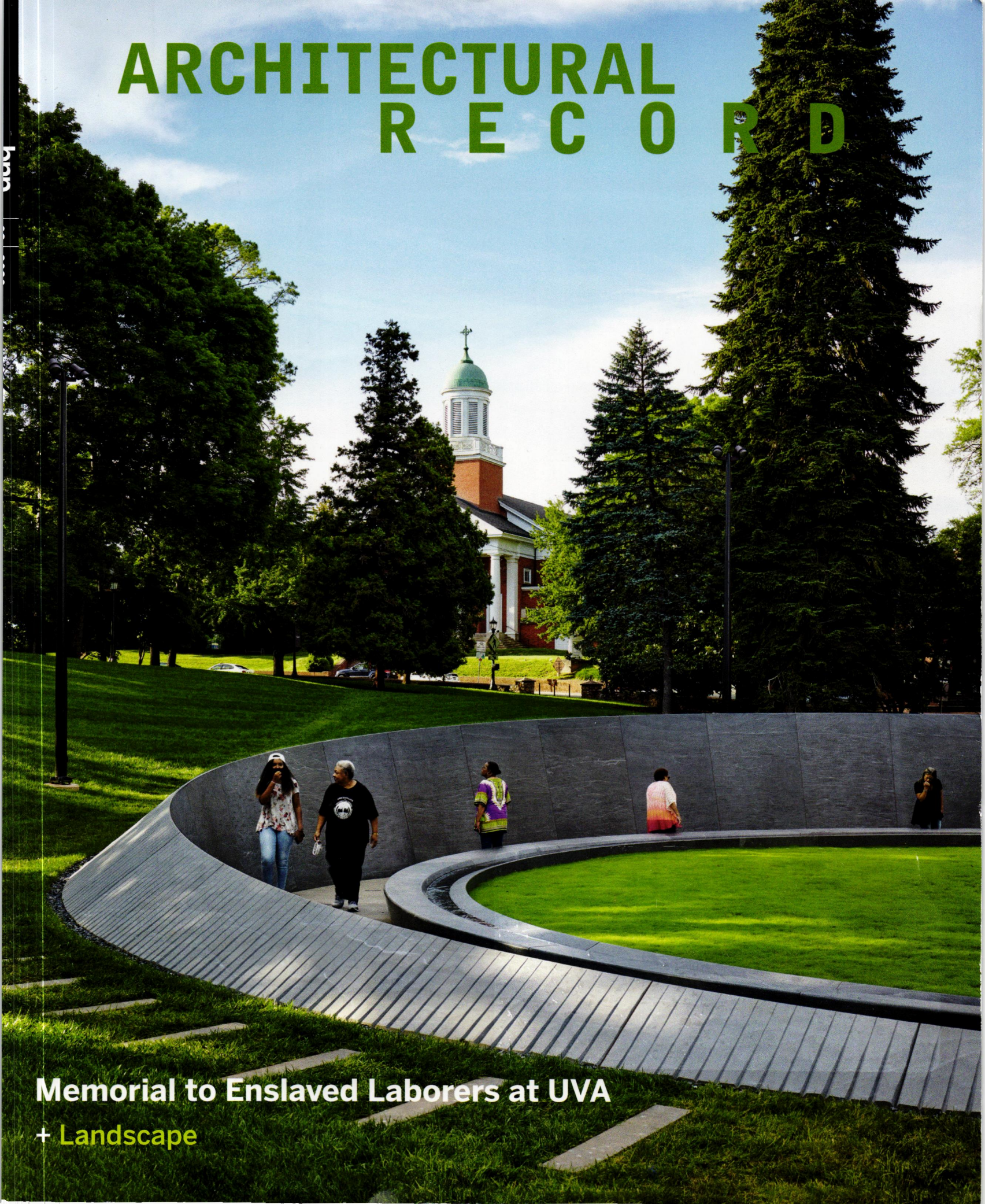

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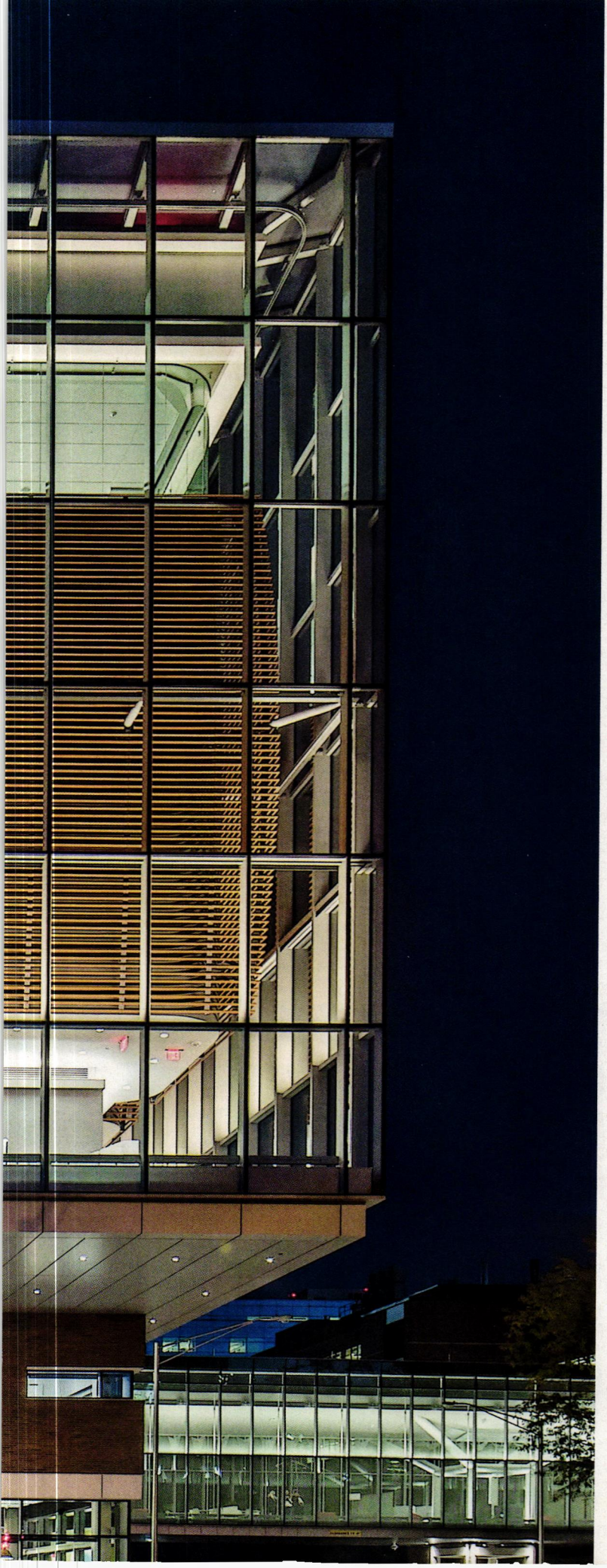

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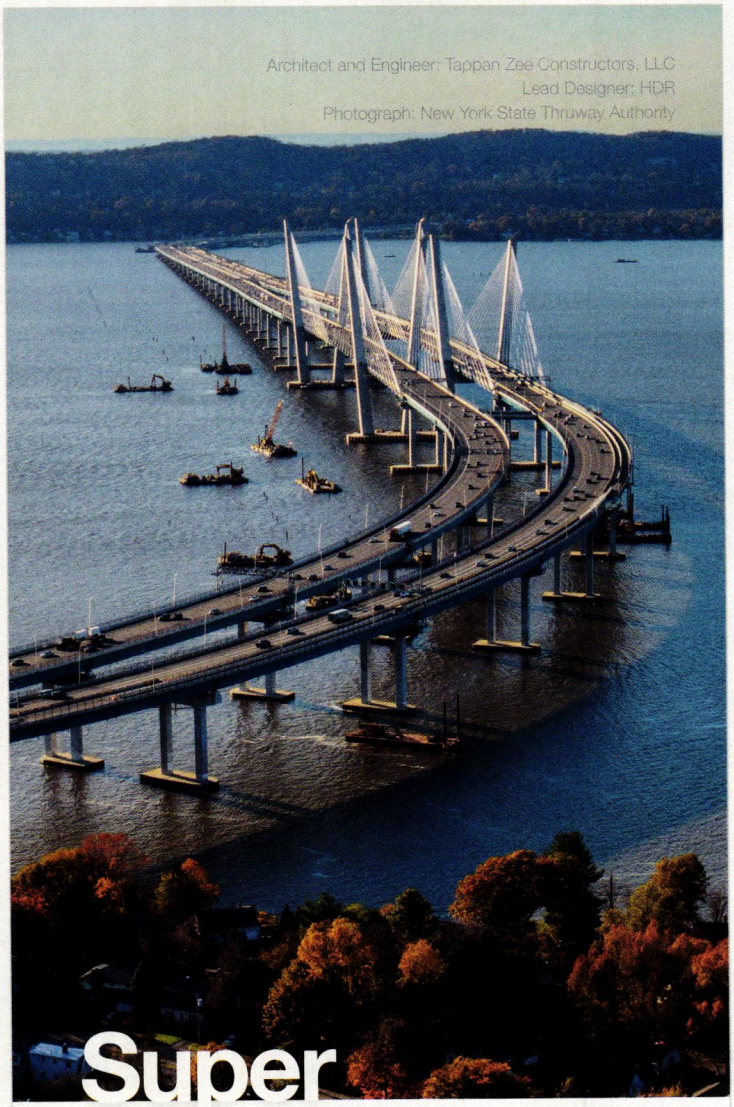

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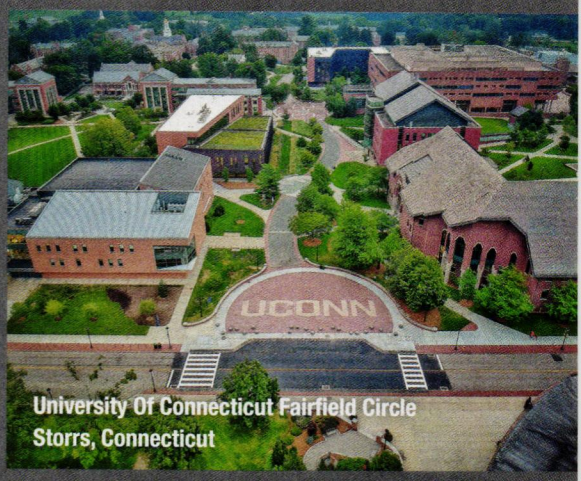

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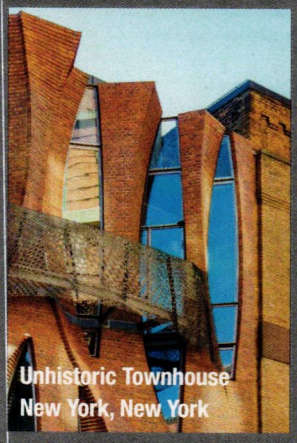

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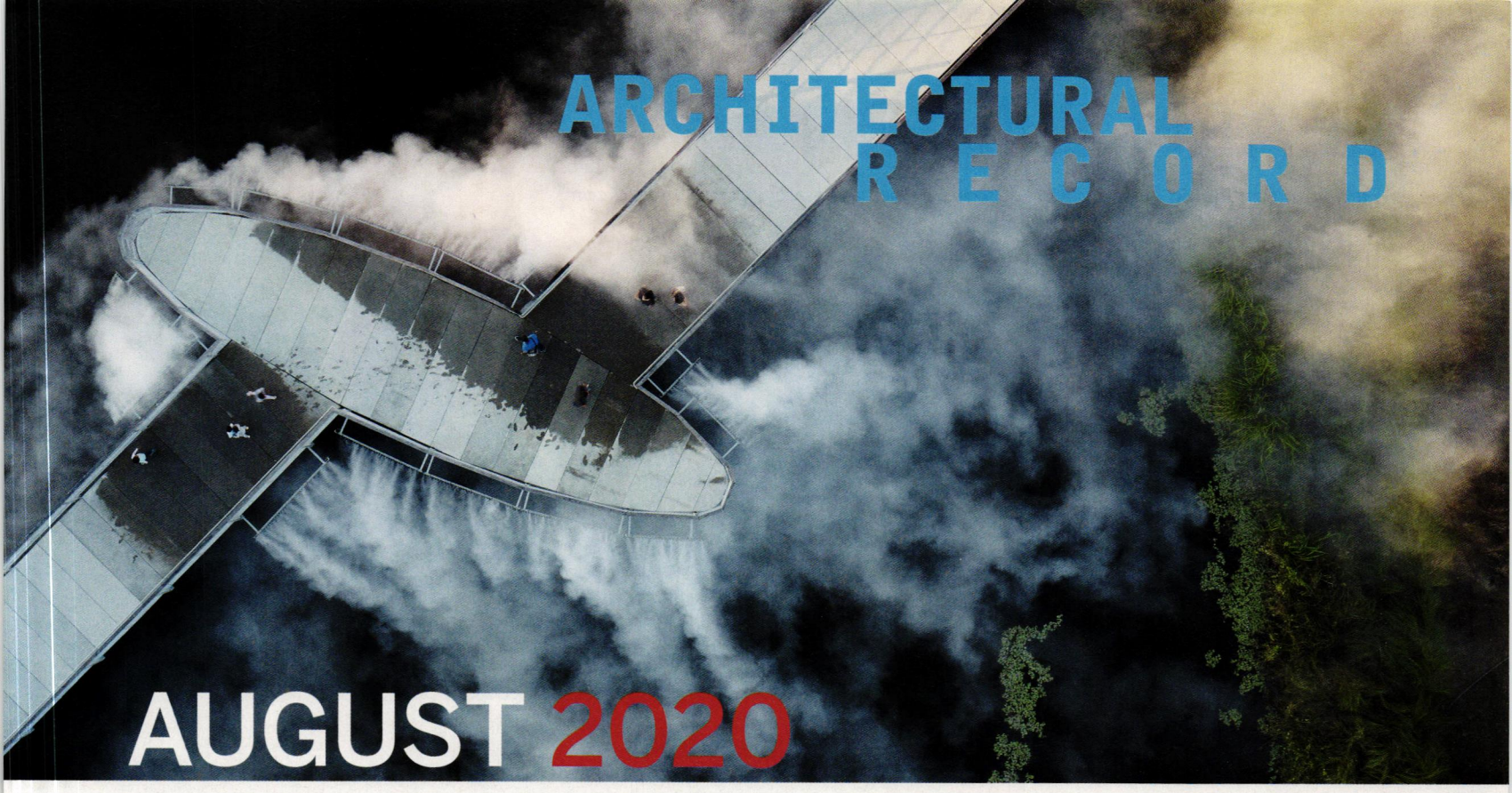

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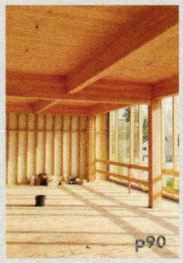

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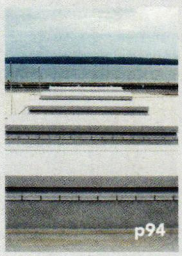

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This Land Is Our Land . . . or Is It?

Public parks—even when supported by the private sector—need to be preserved for everyone, now and in the future—especially with pressure from COVID.

BECAUSE the COVID pandemic has quashed so many travel plans, parks have become more important than ever, for people to walk, exercise, or just hang out (socially distancing, of course). If you're a city dweller, you're lucky if your hometown has a high ParkScore, a rating system developed by the Trust for Public Land that analyzes how many residents of a city have a park within a 10-minute walk of home. The index factors in investments in parks, acreage, and amenities to come up with each rating. The research also shows that, regrettably, 100 million Americans don't have green space within 10 minutes of home in cities and surrounding metropolitan areas.

The Trust's criteria, it must be noted, do not just count public parkland but also privately owned parks that are managed for "full public use." Given the squeeze on the public purse, parks owned and/or operated by private companies or organizations seem to be filling a growing need, with obvious benefits though potential drawbacks. In this issue of RECORD, we explore several such recently completed public—yet private—landscapes. In Seattle, Expedia developed a 2.6-acre waterfront beach, adjacent to its headquarters and connecting to a public trail, with walking and bike paths. The company owns the property, yet its investment in remediating the former brown site is an environmental benefit to all, and the park is kept open to the public 24/7 (page 23). Similarly, CityPlace and CityPlace Park, a large residential and commercial real-estate development north of Houston, has incorporated essential flood-control systems (paid for by the county government) into a series of cultivated landscapes—from nature preserves to man-made ponds to urban-style plazas. All are open to the public beyond its residents and tenants (page 62).

While such amenities are a boon in underserved areas, not everyone feels welcome in certain corporatized places. And a category of such parks—POPS—privately owned public spaces—have proliferated in cities, giving developers zoning concessions in exchange for creating and operating a public space. But such private operators don't always continue to live up to their agreements, rewriting the rules for such spaces, decreasing the hours they are open, or taking over space for commercial use. Dozens, if not hundreds, of POPS in New York are no longer operating as promised for the public. And, because of COVID, New York's mayor is allowing a temporary change to the rules, so that outdoor restaurants can operate in some of these spaces.

Right now, true public space is particularly vulnerable. A bleak report on New York's parks—significantly financed through private donations and revenue—describes a funding loss of nearly 70 percent this year due to COVID, which will lead to severe cuts in maintenance and services. Brooklyn Bridge Park, including Pier 3, one of its latest phases (page 74), is in a different position: though on city land, its operating funding comes from the commercial and residential enclave along the park's highly desirable urban edge—part of a controversial land deal made with the developer.

Such relinquishment of development rights or other versions of privatization may look tantalizing to cash-strapped government officials, but public outrage tends to be swift. The waterfront Liberty State Park in New Jersey would lose 22 acres of a fragile environment for migratory birds to the expansionist plans of an exclusive private golf club next door—though conservationists and many of the state's officials say they are against allowing the club to lease any land from the park.

America's extraordinary collection of National Parks is facing similar pressure. The National Park Service is short $12 billion for maintenance, yet a proposal to privatize some park services—outsourcing management of campgrounds, for example—sparked an instantaneous backlash when it became public last fall. Among other things, the plan called for allowing Amazon deliveries and limiting senior discounts.

A vast amount of public land is supported in part by private entities. When those private funders are donating for the public good, that should earn our gratitude. But when public space is privatized for profit, or for a quid pro quo that will not be honored, that hurts all of us. Whether an urban pocket park or a vast national wilderness, public lands need to be conserved and maintained for everyone. It is an effort that deserves our vigilance and our advocacy to protect what we have now and for generations to come.

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—*Paul Edmondson, president and CEO of the National Trust for Historic Preservation, discussing the organization's support of removing Confederate monuments.*

Mentorship Programs Aim to Diversify the Profession

BY MIRIAM SITZ AND KARA MAVROS

THE PROFESSION of architecture has long been dominated by white men. And while the latest demographic data from the National Council of Architectural Registration Boards (page 18) shows some improvements in diversity in recent years—particularly in the early stages of careers—the historic trend holds, with men representing 78 percent of all licensed practitioners, and white people comprising 89 percent.

To create a more just and equitable built environment, the profession must reflect the communities it serves, and many suggest that the best way to effect that change in a long-term, meaningful way is through education and mentorship. RECORD spoke with leaders of five free programs working to ensure that the next generation of designers looks more like the world they will shape.

Architectural designer Michael Ford, also known as the Hip Hop Architect, founded the **Hip Hop Architecture Camp** in Madison, Wisconsin, in February 2017. Since then, the program has expanded to 45 cities. Over the course of a week, about 40 middle and high school students explore how hip-hop music comments on the built environment, and how design can be a tool for social change. "We invite young people to hear the critiques embedded in the music they listen to all day, to understand them, and then to respond architecturally," explains Ford. After selecting a song lyric that describes a problem in communities, participants devise a solution through iterative creative and technical activities, using a variety of digital tools, from 3-D modeling software to 3-D printing. Flexing other creative muscles, they eventually create a rap and music video on the same theme. The 2,400 young people who have attended the camps over the last three and a half years are largely from backgrounds underrepresented in the field, and the adult facilitators—many of whom are architecture students from historically Black colleges and universities—share a similar diversity. "Another goal of Hip Hop Architecture is to provide a vernacular that young Black folks can own and exhibit while they're in architecture school," says Ford, something he hopes will increase retention of Black students by "giving them an identity in architecture." The next camp, starting on August 1, will be entirely virtual and allow for as many as 1,000 participants. It will conclude on August 11 —the 47th anniversary of hip-hop.

Michael Ford (at center, above) works with Hip Hop Architecture Camp students at the St. Louis County Library (right) in 2018.

PHOTOGRAPHY: © KARA HAYES SMITH/ST. LOUIS COUNTY LIBRARY; TOM HARRIS (OPPOSITE, TOP); FRANCISCO LOPEZ DE ARANOSA (OPPOSITE, BOTTOM)

In New York, Cooper Union's **Saturday Program** (SatPro) has been a bastion of public arts education in the city for more than 50 years, providing some 15,000 high school students with instruction in eight different artistic disciplines. From October to April, more than 200 young people—80 percent of whom come from low-income neighborhoods —spend their Saturdays at the institution's Manhattan campus, taking courses taught by Cooper Union students in architecture, painting, graphic design, sculpture, and more. No portfolio is required to apply, making the program accessible to those with limited resources.

See daily updates at architecturalrecord.com

Professor Elizabeth O'Donnell, who served as associate dean for Cooper Union's school of architecture, notes that in addition to learning concrete skills, participants gain familiarity with the higher-education environment. "They're getting to see what being an architecture student in college looks like," explains O'Donnell. "Exposure to that world is incredibly important to helping a young student overcome barriers to getting there." Each year, she says, two or three of Cooper Union's architecture school's new enrollees are SatPro alumni. And, sometimes, those same individuals return to the program as instructors—a fact that underscores the program's nature of mutual exchange. "Everybody comes into the room as a teacher, and everybody comes in as a student," she says. "Everybody has something of value that informs the process." The fall 2020 program will take place online.

Maya Bird-Murphy, founder of **Chicago Mobile Makers** (CMM), considers herself lucky to have grown up in Oak Park, Illinois, home to Frank Lloyd Wright's studio. But that's not the case for many; without having lived in the shadow of the masterworks, she asks, "Why would you ever think about architecture, or know what it is, or say, 'I want to be an architect'? You would need someone to plant that idea in your head." The architectural designer founded her nonprofit organization in 2017 to do just that.

Offering design programming to children ages 8–18 in Chicago public schools with diverse student bodies, program facilitators (who are architects or designers) visit classrooms once a week at the teacher's invitation to guide students through the design process. In as many as 10 sessions, they map and analyze sites, draw floor plans, and build models. Leaders pick locations the participants know and have access to—an intersection near the school, for example—so they can create positive change for a familiar place.

CMM was built on several questions: "How do we diversify the architecture and design fields? And how do we improve the disinvested communities that have no [prominent] architecture? And then, can these things happen simultaneously?" Bird-Murphy believes they can: in 2019 alone, the organization engaged more than 650 young people, most of whom were people of color, through over 150 workshops. The next phase for the fledgling program is transforming a former USPS truck into a mobile design studio called the "Makerspace." Outfitted with power tools, a laser cutter, and a 3-D printer, the truck will host design-build programs—hopefully later this summer, COVID-19 permitting.

Chicago Mobile Makers' converted truck (above) will host design-build workshops. Previously, programs took place in public schools (left).

Since 1994, the **ACE Mentor Program of America** has provided hands-on after-school education to high school students, introducing them to architecture, engineering, construction, and related industries. Supported by companies from these fields (which also supply volunteer mentors), the nonprofit engages more than 10,000 kids annually across 77 chapters, or "affiliates," in 37 states, plus Toronto. Each year, 70 percent of ACE seniors head to a trade school or college with an industry-related major, and, over the years, the organization has disbursed $21 million in scholarships to its alumni.

ACE groups students into teams of no more than 20, pairing them with a group of professionals from various parts of the design and construction sector. Over the course of 15 two-hour sessions, participants and their mentors work together to solve a "real world" problem, like designing improved water-management infrastructure or a new public monument. "We want them to see and understand all the different career paths in the integrated construction industry, so that they can make an educated decision about their own futures," says ACE president Diana Eidenshink.

Most groups are school-based, ranging from charter and inner-city public to suburban and private, and, while the program is open to all, 69 percent of students are people of color, and one-third are women. Affiliate directors in each city build relationships with staff at underserved schools, charting the course for this diversity by helping to guide student recruitment efforts, says communications director Tiffany Millner, an architect (and the 233rd Black woman to become licensed), who served as a mentor, then ran the Philadelphia chapter for six years. This coming school year, the program will operate online, thanks to a new virtual resource center.

In 2017, the **Architectural League of New York** partnered with New York City College of Technology (City Tech) and the Spitzer School of Architecture at City College of New York (CCNY) (both part of the City University of New York system) to establish a mentorship program between college students—many of

Architect Christina Marconi meets with ACE students in Philadelphia after school (left).

whom work full-time while studying, support their families, commute, or are returning to school—and local professionals. Rather than offering hard skills, says City Tech architecture chair Sanjive Vaidya, "the mentorship program is meant to provide a sense of exposure and belonging to the design community at large."

This mission is particularly important for students of the two CCNY colleges, who may lack the built-in network that comes with attending a "name-brand" school. "The four years they spend here are packed to the hilt with technical training, but there's not a lot of time for reflection and soft skill growth for many of our students," Vaidya explains. That "missing link," he says, puts the City Tech population at a disadvantage after graduation. "They're competing against private school students who don't have to feed entire families, who have time to go to museums and cultural gatherings. This entire group of students of color—who are rich in history and ethnic knowledge and experience—are left locked away from the broader architecture community."

"It's especially meaningful because of the access that the Architectural League has to all of these offices," says City Tech assistant professor Claudia Hernandez, who runs the program with Vaidya. Thomas Phifer and Partners and Leroy Street Studio, for instance, have hosted events for students and their mentors. "The program opens doors to having conversations with people who would be challenging for students to get access to otherwise." Starting this fall, pairs will meet virtually.

Whatever the approach to mentorship, the field must reckon with its problem of disproportionate representation, says architect and Cooper Union professor Elizabeth O'Donnell —and commit to seeing it through. "We've been bringing women and kids of color to the table for 50 years through the Saturday Program," she notes. "What is it about our profession that's so resistant to expanding participation in the making of architecture and cities? It's a question that we really have to address." Read more about these programs and others online. ■

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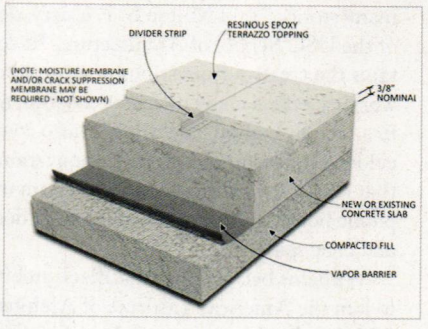

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Paul R. Williams's Archive Finds Home with USC and Getty

BY MIRIAM SITZ

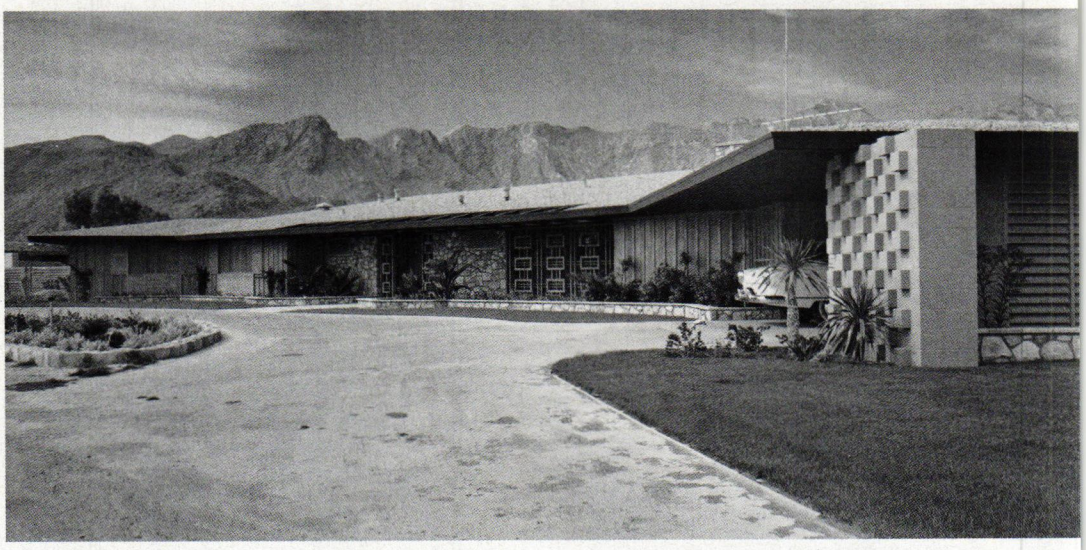
THE UNIVERSITY of Southern California (USC) School of Architecture and the Getty Research Institute (GRI) have together acquired the archive of late Black American architect Paul Revere Williams, who died in 1980 at age 85. The collection—which has been maintained by his granddaughter Karen Elyse Hudson and will be housed at the Getty—includes some 35,000 plans and 10,000 original drawings of both built and unbuilt work, as well as blueprints, project diazotypes, hand-colored renderings, vintage photographs, and correspondence.

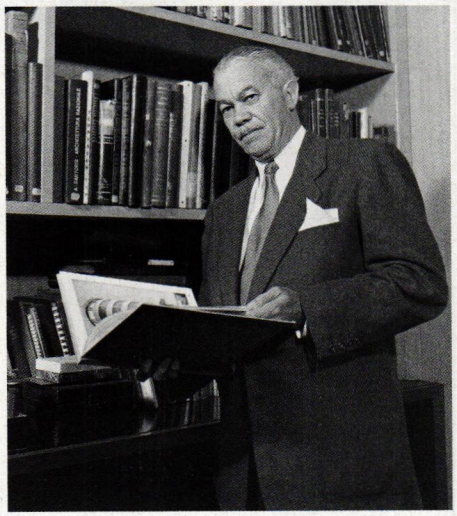
Williams operated extensively in Los Angeles and Southern California for nearly six decades, completing more than 3,000 projects in the U.S. and abroad. A master of the Late Moderne style, he made single-family residences his major focus, designing homes for Hollywood stars, business leaders, and middle-class citizens alike. Some of his A-list clients included Lucille Ball and Desi Arnaz, Bill "Bojangles" Robinson, Frank Sinatra, and Cary Grant.

Later in his career, Williams's work included commercial, institutional, and public buildings. In Los Angeles, some of his most notable projects include the headquarters of Music Corporation of America in Beverly Hills, the Crescent Wing of the Beverly Hills Hotel, the interiors of Saks Fifth Avenue at 9600 Wilshire Boulevard, and the Golden State Mutual Life Insurance Building. He designed the Hotel Nutibara in Medellín, Colombia, and served as associate architect for the U.N. Building in Paris and Langston Terrace in Washington, D.C.—the first federally sponsored public housing in the country.

"The work contained in this archive tells many stories," said Milton S. F. Curry, dean of the USC School of Architecture. "It contains the creative expressions of an architect working across many different constituencies in a socially complicated time. It also contains evidence of stunning aesthetic innovations that reimagined the space and program of public housing, hotels, and residential design and civic space."

Williams became the first Black architect to join the American Institute of Architects (1923) and to become a member of its College of Fellows (1957). In 2017, the organization posthumously awarded him the Gold Medal, making Williams the first Black architect to receive the AIA's highest honor.





Paul Revere Williams (left, pictured in 1952) designed a house (above, completed in 1955) for Lucille Ball and Desi Arnaz in Palm Springs, California.

But despite his success, he still endured the hardships of being a Black professional working in largely white spheres, where racism openly touched every aspect of life. He was known for his ability to draw upside down—a skill developed so that his predominantly white clientele could sit across the table from him, at a distance.

"During a period of de jure segregation, Paul R. Williams mastered architecture, a public art form, and was as prolific as he was persistent," said LeRonn P. Brooks, associate curator for modern and contemporary collections at the GRI. "His legacy is therefore as much about the character of the man himself as it is the scale, variety, and ambitions within a professional practice wed to realizations of perpetual excellence."

Much of Williams's archive was thought to have been destroyed in a fire in 1992, during the period of civil unrest in Los Angeles that followed police brutality against Rodney King. But, according to USC and GRI, it was business records primarily that were lost at that time.

The collection will become a cornerstone of the Getty's African American Art History Initiative, which launched in 2018. "This rich, comprehensive archive is one of the most significant acquisitions of 20th-century architecture that Getty has worked on," said Maristella Casciato, senior curator of architecture at GRI. "The Los Angeles cityscape is a testament to Paul R. Williams's lasting impact on Southern California and modern architecture in general."

"Our goal is to continue advancing the incredible legacy of Paul R. Williams, a true trailblazer in the field of architecture, and to share the archive with new and diverse audiences through publications, symposia, exhibitions, and more," explained Curry. In the coming years, the archive will be digitized and made accessible to scholars and others. ■

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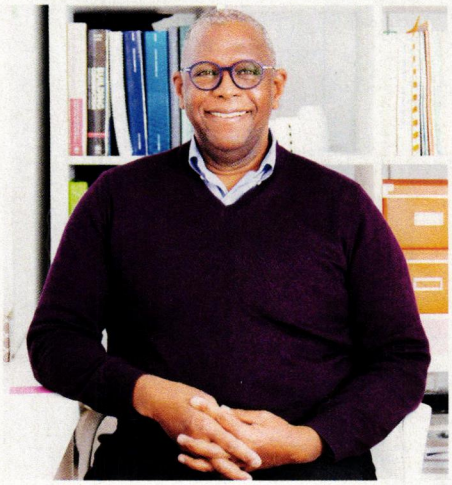
Glenn LaRue Smith

BY KARA MAVROS

LANDSCAPE ARCHITECT Glenn LaRue Smith has practiced for nearly 40 years, but he admits the profession wasn't even on his radar when he was young. After a stint as an engineering student, he sought a more artistic path and turned to landscape architecture, eventually earning his master of landscape architecture from the University of Michigan-Ann Arbor. Smith served a term as president of the American Society of Landscape Architects' (ASLA) New York chapter, and received a Loeb Fellowship in advanced environmental studies from the Harvard Graduate School of Design. In 2013, he cofounded PUSH Studio, where he is a principal, in Washington, D.C. Smith spoke with RECORD about how race intersects with design, and about his most recent endeavor, the Black Landscape Architects Network (BlackLAN).



You founded BlackLAN in 2010. Where did that idea come from, and how has it grown?

I was the first African American graduate of Mississippi State's landscape architecture program. While I didn't have a difficult time there, there is a certain difficulty that comes from realizing no one else looks like you. I was in graduate school before I met my first Black landscape architect, Elon Mickels, in Detroit—and it was powerful. I realized there should be a way for us to connect. I created an invitation-only LinkedIn group for individuals of African ancestry to post relevant information about the profession or the diaspora in general. We now have 148 members across the U.S., Canada, and several African countries. Growth and visibility are important for gathering more accurate statistical information, because right now it's just not there. The ASLA estimates that less than 1 percent in the profession are African American.

What's next for the group?

I have two major goals: to create a database of as many Black landscape architecture students and professionals as possible, and to begin to document the history of Black landscape architects. It's a big project, but necessary. A lot of people complain about the history of the profession being very Eurocentric, but that's because the research hasn't been done. I think it's our responsibility in the BlackLAN network to bring that to the surface, so that schools and firms can't say "we don't have any information" or "we can't find anyone to work in our office."

Much of your work has focused on environmental justice. What does that term mean to you?

I look at it from the perspective of "How do you educate underserved communities about design and teach them how to ask the right questions?" People who have been well educated, with exposure to money and certain projects, ask for things that people in underserved communities might not consider.

How can designers advocate for those communities?

Design has to become contextually three-dimensional. This means that designers have to look deeper at community nonprofits, banking, zoning, politics, race, and embedded bias within project areas. Architects, landscape architects, engineers, and planners must forge new relationships to bridge current professional roadblocks that diminish a sense of humane communities.

What does the future of environmental justice look like?

The transformative focus has to be "human justice," which encompasses the full range of human living and engagement. This expands upon how designers interface with scientists, politicians, policy makers, and builders to bring balance to racially and environmentally separated communities. ■

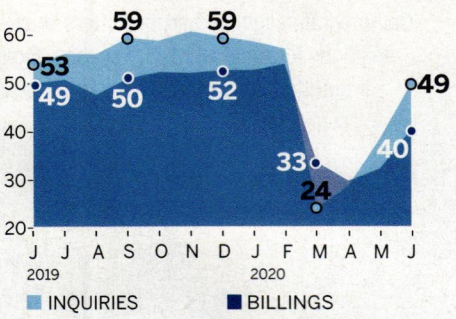
NCARB by the Numbers: 2020

In mid-July, the National Council of Architectural Registration Boards (NCARB) released its annual report, offering a snapshot of the profession in 2019. In addition to the usual metrics on licensing and education, the report includes preliminary findings from a survey NCARB conducted with the National Organization of Minority Architects (NOMA).

The number of architects in the U.S. increased by 1 percent last year, for a total of 116,000 licensed practitioners at the start of 2020. Architecture schools accredited by the National Architectural Accrediting Board (NAAB) saw a 2 percent increase in matriculation compared with the prior academic year—some 7,700 students, evenly divided between men and women. In total, just over 26,000 students were enrolled in an NAAB-accredited program—the highest numbers since 2013—49 percent of whom were women. But gender parity declined among graduates by 1 percentage point: 53 percent of degrees were conferred on men, 47 percent on women.

With expanded demographic data, the 2020 report shows that fewer than two in five architects are women, and fewer than one in five is of a racial or ethnic minority. Women represented 35 percent of new NCARB certificate holders in 2019; nonwhite people, 16 percent.

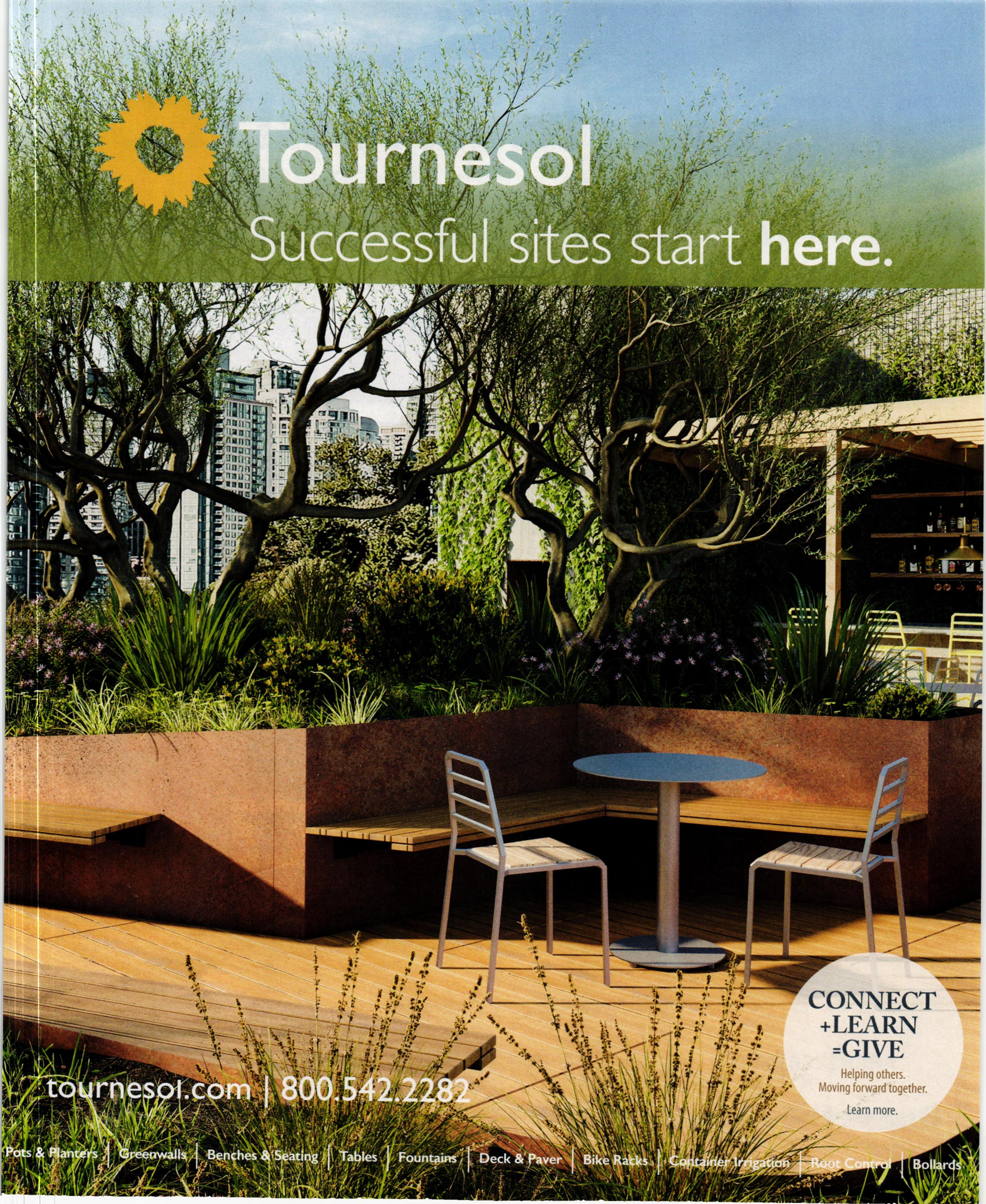
Early analysis of the NCARB/NOMA survey indicates "there is often slight, but widespread, disparity throughout the licensure process and in firm culture," with women of color and Black professionals particularly affected. Read more online.



Still Low, June Architecture Billings Fare Better than May's

The AIA reports that the Architecture Billings Index (ABI) eased from 32 in May to 40 in April. (A score below 50 indicates decreasing billings.) Inquiries moved from 38 to 49.3 (but the AIA notes that during the last recession, high inquiries did not convert to billings), and design contracts changed from 33.1 to 44.

PHOTOGRAPHY: © KEVIN ASSIÉ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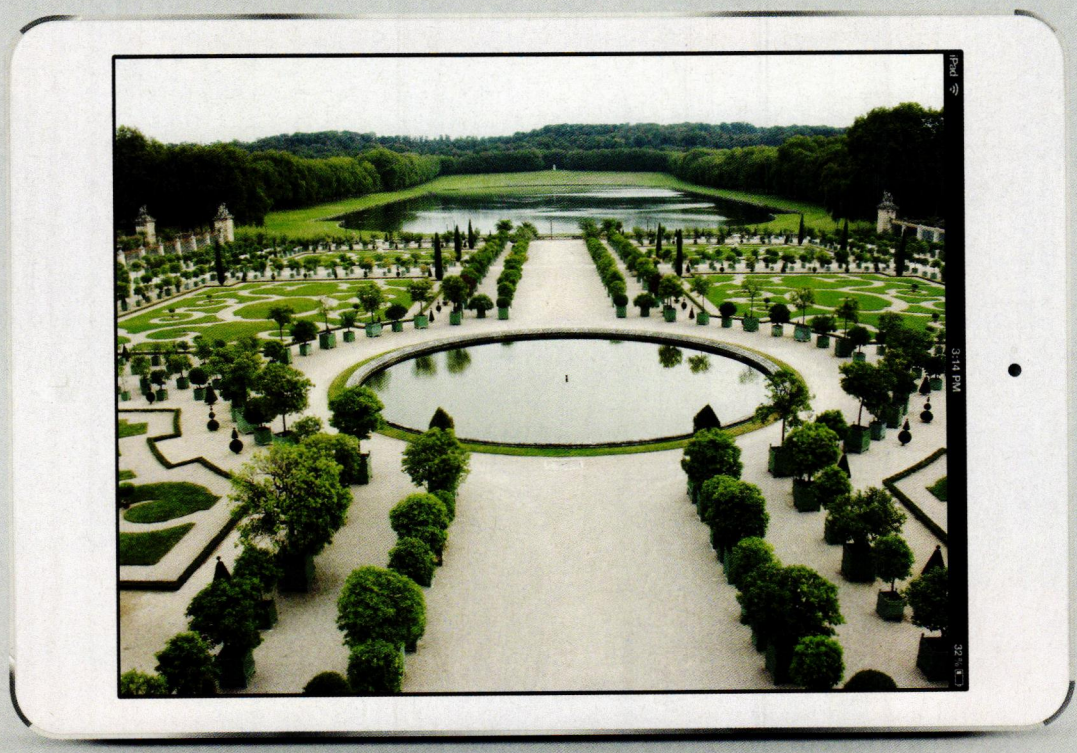

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▶ TAKE A LOOK ON PAGE 27

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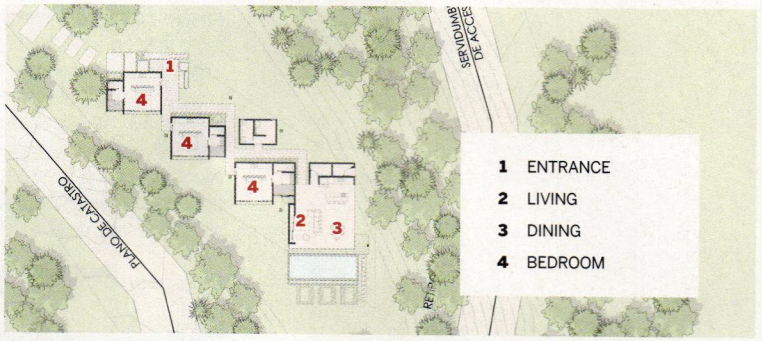
HOUSE of the Month

STUDIO SAXE ENVISIONS AN OPEN-AIR PAVILION FOR A VACATION HOUSE IN COSTA RICA. **BY SUZANNE STEPHENS**

IN DESIGNING a vacation house on the Pacific coast of Costa Rica, the architect Ben Saxe faced a common problem here: how to address the climate, which can alternate between drenching rain and hot sun on the same day. Saxe, who founded Studio Saxe in San Jose five years ago, had previously worked for Rogers Stirk Harbour + Partners in London. Drawn to the firm's high-tech ethos, he decided to create a canopy-like white steel structure for this 4,000-square-foot house.

Saxe tucked all of the various functions under a broad, gently pitched polygonal roof, leaving the living/dining area open to the outdoors as if it were part of a large porch. Built-in cabinets store furnishings when the Santiago Hills house is unoccupied, since the owner, who is Belgian, frequently rents it out. Three discrete bedroom pavilions zigzag to the rear, each a module fronted by sliding glass doors facing southeast. Cement board and aluminum panels held within the steel frame enclose the bedrooms' remaining sides.

The steel, precut and imported to San Jose, was assembled on-site. "It's put together by local labor, much like the teak furniture," says Saxe. "We seek to create an authentic language of local materials and industrial technology." ■



SITE PLAN

The white-painted steel-framed structure floats over the various spaces with an 18-foot cantilever at the east end (top). The living/dining area is open to the outdoors, like a porch (above); the bedrooms are contained in discrete modules (left).

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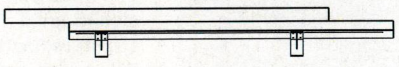

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CEU LANDSCAPE

SURFACEDESIGN CREATES A PUBLIC WATERFRONT PARK ON A CORPORATE SITE IN SEATTLE. **BY KARA MAVROS**

JAMES LORD and Roderick Wyllie, partners at the San Francisco–based landscape firm Surfacedesign, acknowledge that new tech parks can often feel anonymous. To prevent this effect, especially when working with corporate clients, they always seek to strike the balance between flexibility and character in their landscapes. "We're not asking people to come and be nowhere—we're asking people to come and be where they are," explains Wyllie. The "where," in this case, is the 2.6-acre "Beach" at Expedia Group's new campus on the shores of Seattle's Puget Sound. Formerly belonging to a biotech company, the entire 40-acre site became the travel giant's headquarters last fall.

The Beach, a privately owned park that is open to the public, is part of a larger campus that includes a new building by ZGF and a small pavilion by Aidlin Darling, all tied together by an overall landscaping scheme. This waterfront area, which is a patchwork of tall grasses and, in addition, layers pebbles and driftwood throughout the site, also overlaps with a portion of the Elliott Bay Trail, a popular running and biking path for locals. Here, Surfacedesign separated the existing bike and pedestrian paths and rounded a 90-degree turn into a gentle arc for added safety.

"We talked about how to pull people out from their desks into the landscape," says Lord, pointing to the increased productivity that comes from spending time in nature. "The big move," as he calls it, was extending the urban waterfront edge deeper into the site, "to the front door of Expedia's campus," by taming the previously inaccessible shoreline with pathways, plantings, and seating.

Before this slice of land was home to corporate entities, it was a more rugged kind of workplace. Its previous life included a series of commercial finger piers that served as a crossroads for the shipping, railroad, and logging industries that have defined the Pacific Northwest for generations.

Slowly, over the years, the site was filled in, leaving Surfacedesign to conduct extensive soil remediation. "The success of any landscape is what happens underground," explains Lord. As part of its site analysis, the team worked with soil scientists to concoct bespoke "compost teas" of helpful bacteria and fungi, among other microbes, to inoculate the land for optimal planting conditions—all part of a chemical-free bioretention strategy considered "salmon-safe."

To manage stormwater runoff, Surface-design subtly graded the entire site. Where the park comes to a point, on the footprint of a former pier, an elevated series of curved concrete "terraces," padded with grass between levels, descends toward the water, designed to provide a graceful wind barrier to those in the lookout area. Amid these elevated forms live a variety of mostly native wetland plantings, including tufted hairgrass and meadow barley, that naturally treat runoff before it flows into the sound. These meadows were designed as alternatives to seawalls, able to defend against

Though the site underwent heavy remediation, neighboring reminders of its industrial past remain (top). Elevated concrete "terraces" (above) create a wind barrier and seating areas.

PHOTOGRAPHY: © MARION BRENNER

SITE PLAN

Native wetland species and repurposed driftwood (above) were used throughout the park. The logs, which serve as benches, face views of Mt. Rainier in the distance.

rising seas. Here, wild patches of grassy flora sway in the coastal breeze, resilient in the face of the Pacific Northwest's unpredictable elements. Repurposed driftwood logs from a neighboring port are used as seating around the Beach, strategically placed to maximize views of the Seattle skyline and Mt. Rainier in the distance.

Though intended for outdoor meetings, the Beach has been hosting small musical performances, yoga, and other open-air activities, even during recent months seized by COVID-19. "Especially in these times, it has been a huge relief," says Lord of the park. "There's nothing more exciting than that *Titanic*-esque moment of being out on the point looking back at the city, the Sound, the Olympic Mountains, and realizing where you are in the world and how special Seattle is." ■

This article is part of the August issue's CEU on landscape. For more information, see page 57.

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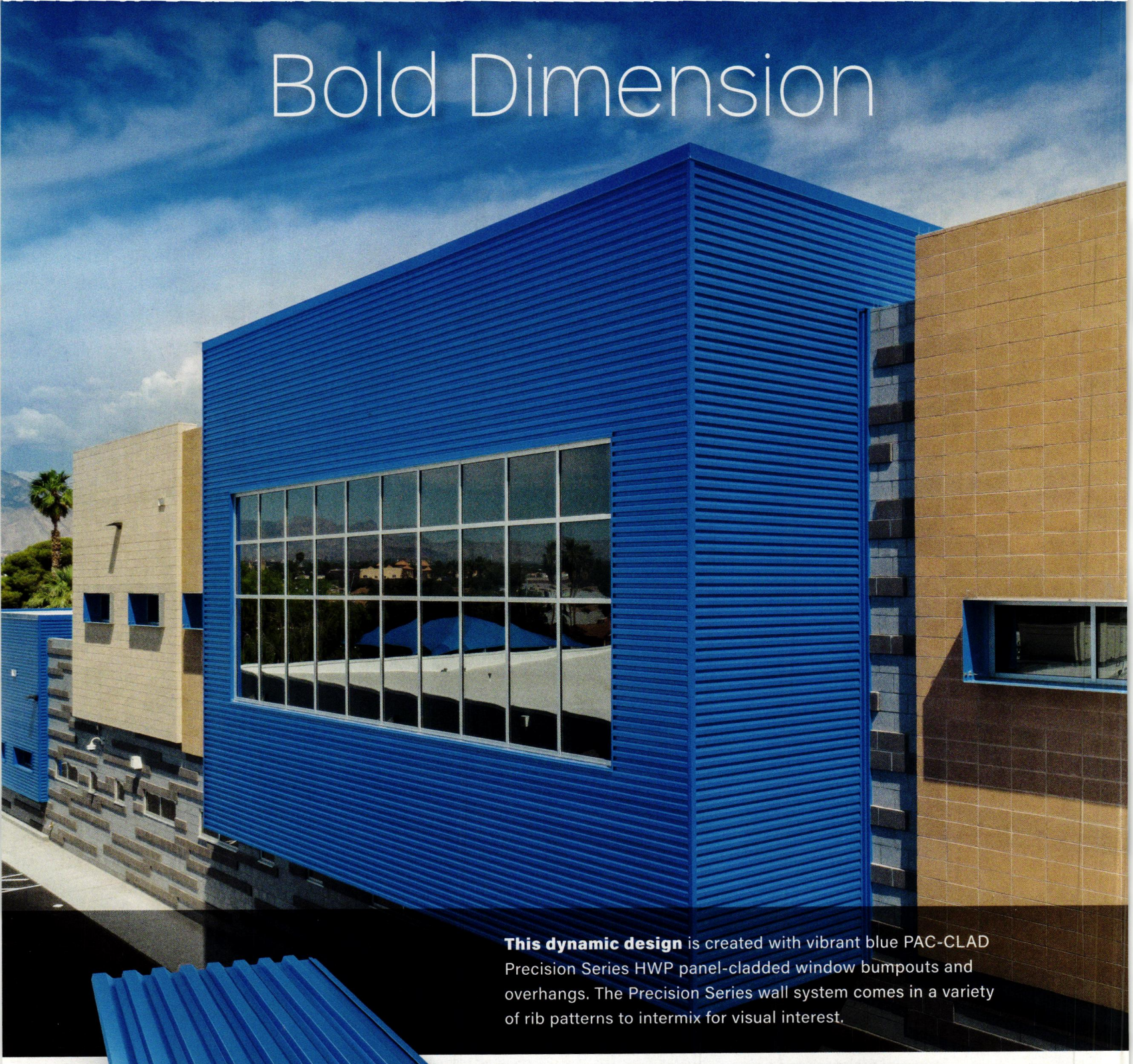

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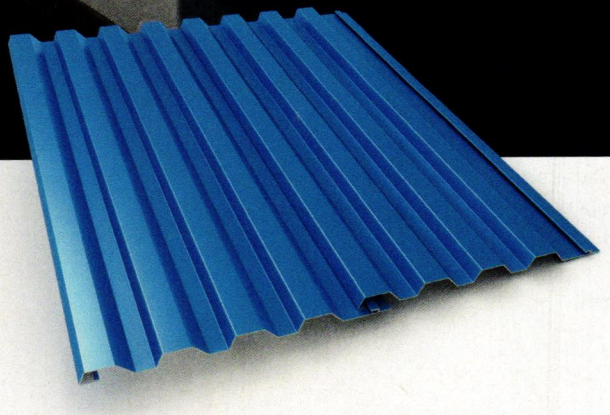

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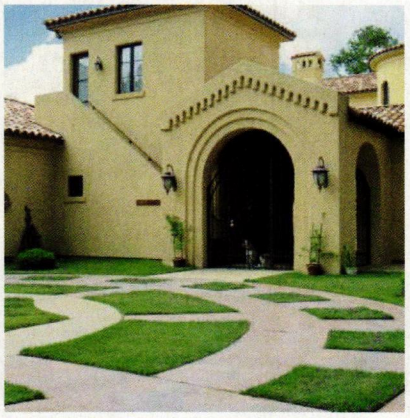

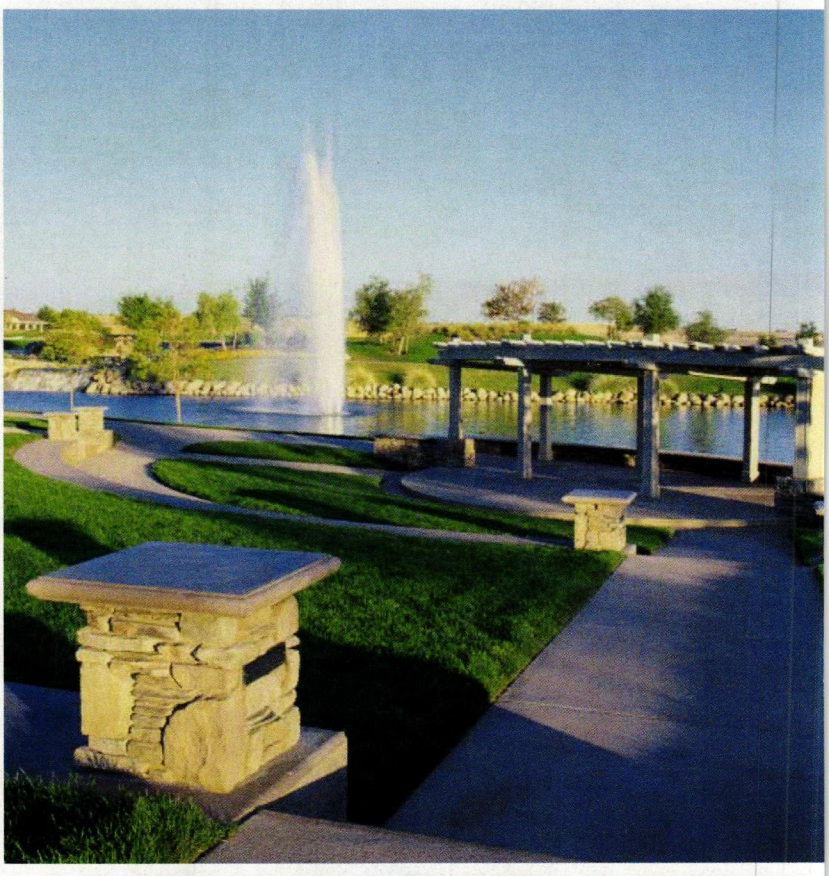

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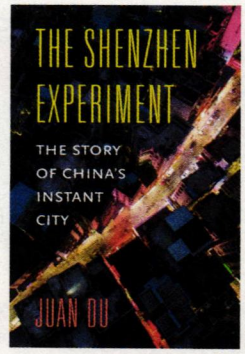
Setting the Record Straight

The Shenzhen Experiment: The Story of China's Instant City, *by Juan Du. Harvard University Press, 384 pages, $35.*

REVIEWED BY DANIEL BROOK



IN THE SUMMER of 2005, Princeton-educated architect Juan Du was recruited to the burgeoning Chinese megacity of Shenzhen to curate an urbanism exhibition celebrating the 25th anniversary of its founding. Shenzhen's salute to itself would visually recount its origin myth—how reformist premier Deng Xiaoping's dream of a paint-by-numbers metropolis springing from virgin land near the Hong Kong border came to pass. Opened as a market-friendly "special economic zone" in 1981, the upstart city was already on track to eclipse New York in population. As a swaggering 25-year-old, Shenzhen touted itself as a model—a centrally planned SimCity whose success could be replicated all over China, maybe even the world.

After taking myriad study tours of Shenzhen's skyscraper-studded sprawl with municipal officials, Du missed a flight out one fateful night and began wandering the back alleys alone. There, hidden behind walls in the automobile-dominated, self-consciously "modern" metropolis, she found an informal world of deep-rooted urban villages teeming with pedestrian-packed open-air night markets. Circling back today, a decade and a half after mounting her government-backed exhibition, Du has published a myth-busting history of Shenzhen that highlights the interplay between the region's centuries-old villages and the vaunted "instant city" layered over them.

Despite the urban legend that Deng Xiaoping founded Shenzhen by drawing a circle on a featureless map, the actual urban plan incorporated the layouts of villages that long predated the special economic zone. To this day, the footprints of the original villages remain evident, even as taller buildings have been extruded from them as savvy villagers cash in, developing their now-prime real estate. Similarly, the locations of the modern city's parks, Du wisely notes, mirror those of the orchards and farm fields that once surrounded the villages.

Du convincingly argues that the city took on a life of its own, far exceeding its planners' blueprints. Easing migration regulations led to an unprecedented flood of humanity as the young and hungry flocked in from all over China. By 2000, the city boasted 6 million residents, 20 times the planners' 1979 goal.

The shift toward a market economy also came less from on high and more on the fly. One entrepreneurial construction manager wondered if workers might finish projects on time if they got bonuses. The answer was yes. Soon developers began speaking of the "Shenzhen speed"—a new high-rise floor built every three days.

Du's focus on the enduring urban villages is a useful corrective to the propagandistic fiction of the *ex nihilo* city but, at times, her book crosses into overcorrection. The credit for Shenzhen's breakneck growth doesn't belong to Deng or his planners—or to Du's villagers. Instead, it's the urban newcomers, who move to the experimental city and live in the makeshift rental housing the urban villagers build, who are the soul of Shenzhen. Du briefly notes the migrants who have brought their "spicy Sichuan hotpots, steaming Shandong dumplings, smoky Mongolian barbecues, and sweet Guangdong dessert[s]" to the alleyways of Shenzhen, but she sidelines them as so much B-roll footage in her documentary when they should be its primary focus. E.B. White famously observed that natives, commuters, and transplants all rub shoulders on the sidewalks of New York, but it is the transplants who give the city its ambitious character. Likewise, what makes Shenzhen Shenzhen is its migrants.

Still, debunking the myth of Deng and his all-seeing planners sketching a *tabula rasa* metropolis is welcome. Deng never actually drew that circle on the map. Instead, a quote attributed to him better sums up the improvisational history of Shenzhen: "We are crossing the river by feeling the stones." ■

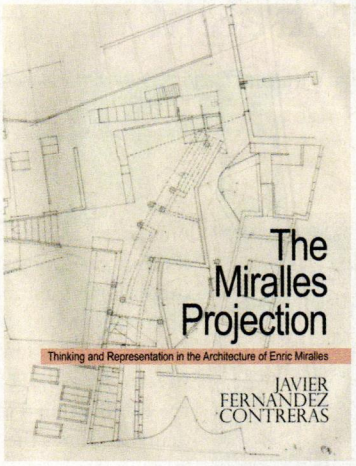
Daniel Brook is the author of A History of Future Cities.

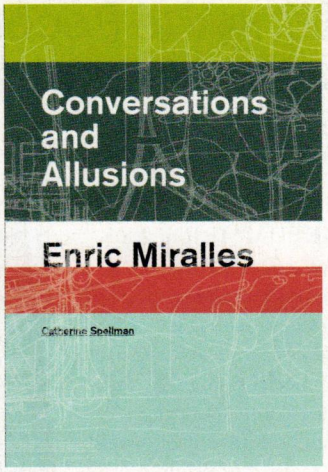
Remembering Miralles

The Miralles Projection: Thinking and Representation in the Architecture of Enric Miralles, *by Javier Fernandez Contreras. Applied Research + Design Publishing, 220 pages, $34.95.*

Conversations and Allusions: Enric Miralles, *edited by Catherine Spellman. Actar Publishers, 225 pages, $34.95.*

COMMENTARY BY FABIAN LLONCH





1993. Deep winter in Barcelona. Sunday, late afternoon.

Enric would set the time for our meetings: 6 p.m. at his office on Carrer de Avinyo.

While I was in the Catalan city, Enric agreed to be the tutor for my thesis project at the Universidad Nacional de Rosario in Argentina, where he was a rock star, and a hero of mine. We would meet on Sundays when the office phone would be quiet and people in the office would be at a minimum.

With the last sunlight, I arrived at the studio. A large wood door opened up to a magnificent, quiet patio. I climbed the imposing stairs, looking down at beautiful wood architectural models as classical music emanated from above. The old walls of the office appeared magical, revealing layers of time.

Enric was a tall man, elegant, curious. He would smoke cigars as we talked about architecture.

I remember showing him the first ideas for my project. Hardline drawings, sketches, photos of models.

Javier Fernandez Contreras's well-detailed

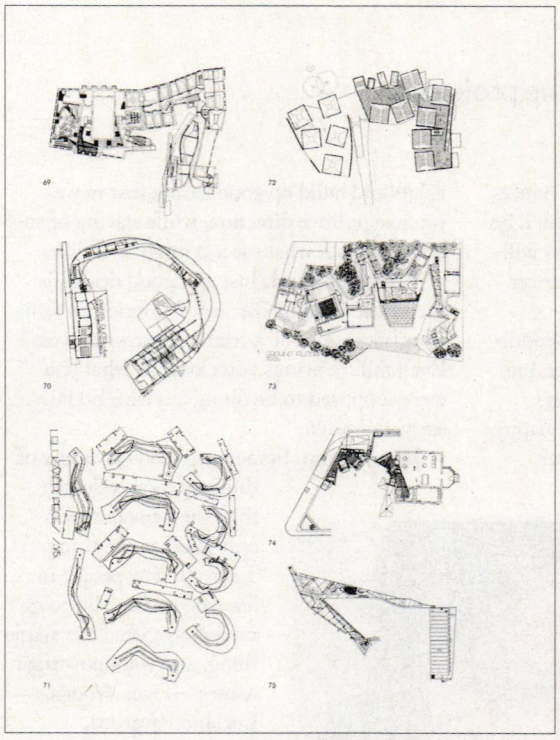


IMAGE: COURTESY APPLIED RESEARCH + DESIGN PUBLISHING

new book, *The Miralles Projection*, discusses Enric's highly personalized methods of representation and describes his layered hand sketches. My project, for a library in Rosario, was full of Enric's gestural lines. The measurements, the fonts, the line weights, the curves. Plans, sections, and elevations would come together in a single complex drawing.

Enric talked about my project, but he would never draw. We would drive off at times—car rides full of conversations about art and sports, maybe a cartoon he saw on television that day.

As Carles Muro explains in another recent book, Catherine Spellman's *Conversations and Allusions*, "Miralles understood both the history of architecture and the design process itself as a form of conversation—a conversation whose start had already taken place and in which we simply had to engage."

Enric would mention to me informal conversations he had in Germany with an artist friend, or he would show me a black-and-white photograph, only to pay attention to the shadow of a particular figure and discard everything else.

It was my task to find the relationships, to connect the dots, to imagine the full picture.

This summer marks 20 years since he left us way too soon.

As my meetings and conversations with him pile up in my memory, what I recall most was how skillful, sharp, and brilliant he was to teach me things that went beyond architecture.

Despite the complexity of his thinking and his drawing, Enric's work had an essential quality.

With him as a tutor, I designed the most simple project during my time as a student, and probably the most profound. ■

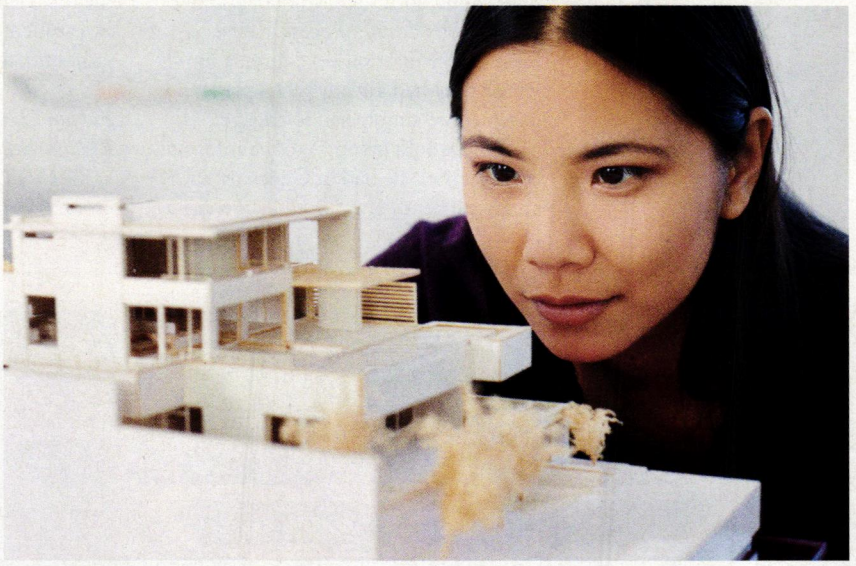
Fabian Llonch is a principal at Llonch+ Vidallé Architecture and associate professor at the City College of New York Spitzer School of Architecture.

Speaking from Experience

A seasoned architect offers advice for young designers entering the profession.

BY JOHN RONAN, FAIA

UP UNTIL NOW, you have been on a well-worn track where the next step is known in advance: graduation. From this moment forward, your life is like a path through the trees that the falling snow has covered over; the one clear course is now a memory, and in its place are many possible paths. You will have to rely on your internal compass to navigate, like so many before you. This annual rite of passage has been made all the more unsettling by the pandemic. Not fair, I know. Life has thrown you a curveball, but it won't be the last time in your career that conditions suddenly change—so get used to it. Learn how to hit curveballs.



Architecture school teaches you how to be a good student, but it doesn't teach you how to be a good architect. Your first job in architecture is the most critical one because it shapes your understanding of the field when you are most impressionable, and the habits you pick up there will serve you (or dog you) for a lifetime. Think of it as an investment, not a dividend. Put yourself in an environment where everyone is better than you, because it will make you better. Here are suggestions to help you avoid some common missteps and hopefully make seeing your path a little easier.

Passion is overrated. About 90 percent of the cover letters we get from entry-level job applicants include some version of this phrase: "I am passionate about architecture." Frankly, I don't care about your passions; I only care what you are good at. I would rather hear you say that you are passionate about opera, or stamp collecting, or golf (OK, maybe not golf), but that your talents lie in architecture. To illustrate: when I was your age, I was passionate about literature, but I didn't become a novelist, and, to this day, I am passionate about football, but that doesn't mean I could play in the NFL. You get the idea. Assess what you are good at, and become great at it through hard work and perseverance. Chances are that if you are good at something, you'll be happy doing it and your resulting success will allow you to indulge your passions, whatever they may be (hopefully, not golf).

Beware desire. Architecture school conditions students to "want" to be a designer, but only a fraction end up there (the numbers don't lie). Do you really need that to be happy, or are you chasing someone else's dream? Philosopher René Girard is credited with the theory of imitative desire, which basically states that you want what other people want. Put a kid in a room full of toys and her curiosity will direct her to a toy; put a second kid in the room and watch what happens: the second child will ignore every toy in the room except the one the first child is enjoying; conflict ensues. Be like the first kid and liberate yourself from the constructs of others.

Avoid goals. Conventional wisdom states that you need to have goals to be successful. This is the dumbest advice you'll ever receive. Strive for specific outcomes and you will live your life in partial failure every day until you reach that goal—or don't, in which case you're a permanent failure (of your own making). Reaching a goal feels good—for about 10 seconds. Then an emptiness creeps in which you fill with some new goal to restart the cycle; either way, you lose. It is better to develop good habits and build up good karma that moves you in a positive direction, while staying open-minded about what success might look like.

Failing is good. Just as a good design is the result of many discarded inferior versions, your life should be a trial-and-error process. Each failure brings you closer to what you were supposed to be doing anyway. So fail early, fail often.

Be an onion. Someone good at a variety of things is more valuable than the person who is only good at one thing. There are few people in life who succeed by being supremely gifted at a single thing, and you know their names—Tiger Woods, Luciano Pavarotti, Michael Jordan. They're so good at what they do that other skills don't matter. The bad news is that you're not the Michael Jordan of architecture; the good news is, you don't have to be. Your chances of success increase with each new skill you develop (as long as those skills are complementary), so become good at other things (speaking, writing, technical knowledge) and layer your skills like an onion.

My first boss in architecture once told me, "To be a good architect, you have to be optimistic, and you have to overcome all kinds of forces lined up against you. It's a killer field." The problem is that he didn't bother to tell me this until I'd had a firm of my own for 20 years and I already knew it through lived experience. So let me not repeat that mistake: the path you travel is not an easy one, and you will get knocked down from time to time. But life is less about what happens to you and more about how you respond to what happens to you; persevere. Our world is changing rapidly, and soon we will need you to lead the way. We're counting on you. ■

John Ronan is the founding principal of Chicago-based John Ronan Architects, and the architecture chair at the IIT College of Architecture.

PHOTOGRAPHY: © GETTY IMAGES

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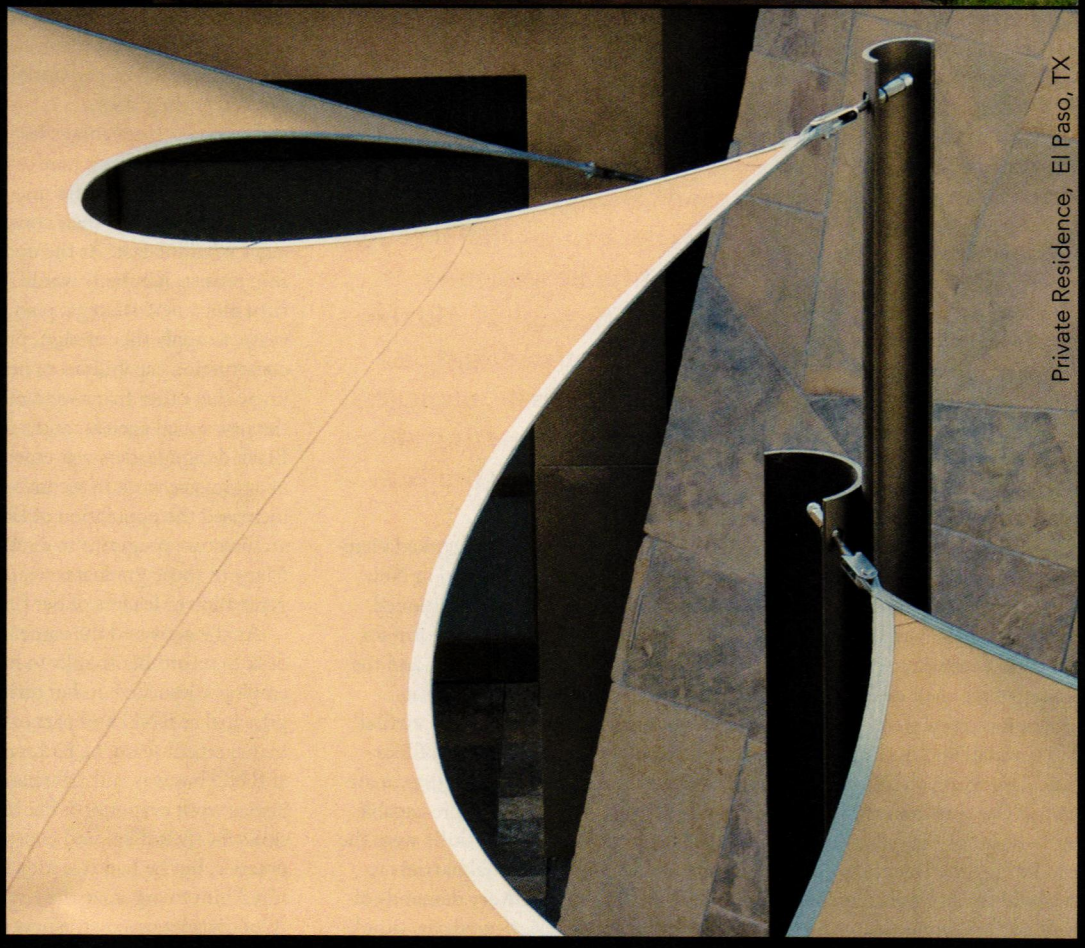

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Fast Forward: Architecture in 2031

BY PHIL BERNSTEIN, FAIA

Systemic change in architecture moves slowly, or sometimes not at all. Much of the "PPP" (post-pandemic prognostication) about the profession has focused on implications for the near term, after what is hoped to be a short but probably severe recession. Le Corbusier once declared that "[i]n every field of industry, new problems have presented themselves and new tools have been created capable of resolving them. If this new fact be set against the past, then you have revolution." If the crises of 2020—economic, epidemiological, and social—are to really change architecture, it may take another decade. So the following is a brief speculative fiction about the practice of architecture, 2031.

Kimberly Sklarek closed her last holographic message and looked across the Inner Harbor of Baltimore from her office window. She stopped to think how things had changed in the eight short years since she had left Washington and set up her firm. That message, left by her newest client, was particularly satisfying: she had just won a major commission for a new social-services center in Minneapolis, and beaten corporate design giant RNO, her former firm, for the job.

Architects could practice anywhere these days, so she and her partners chose Baltimore for its East Coast location and steady stream of top graduates who no longer wanted to work only in New York, L.A., or Berlin. They built an office at the top of a 25-story hybrid timber tower with easy access to the I-95 Hyperloop. Forty-three staff fit nicely in the 12,000-square-foot space, which included three teamwork pods, an automated fabrication research lab, and three conference rooms outfitted with high-resolution collaboration software. Across town was the warehouse, where their design mock-ups and construction projects were staged. Only a third of the staff was in the office on any given day, depending on the state of their projects; everyone else was in the field or working from home—some of them around the country. The periodic all-office meeting, when the entire staff would fly into Baltimore for a few days, was held in the shared event space on the second floor of the tower, adjacent to the café and gym. But the COVID-26 pandemic of 2027 had convinced the firm that dedicated space for every employee would never be necessary again.

Kimberly had worked toward licensure while at Princeton, passed the exam less than a year after receiving her M.Arch. in 2021, and quickly climbed the ladder at RNO, despite being the only Black woman hired that year. Two years later she was a lead designer, but, seeing the white male leadership team clearly through the glass ceiling, she decided to leave before she hit it. She sensed an opportunity to capitalize on the emergent design-justice market, where architecture was an instrument for clients committed to social change. With her elite design training, big-firm experience including project management, and deep technology know-how, she joined three friends and formed a firm. They were a powerful quartet: an architect, an engineer, a construction manager, and the former CEO of a successful tech start-up.

The firm positioned itself as a design-build delivery platform for projects with a social-justice agenda and measured success (and generated profits) through quantifiable outcomes. It expanded through an alliance of like-minded designers, engineers, scientists, managers, and contractors, getting more capable with each project.

For the first three years, they worked virtually, meeting twice yearly in person in New York to plan strategy. The firm positioned itself as a design-build delivery platform for projects with a social-justice agenda, and they measured success (and generated profits) through quantifiable outcomes. The virtual firm expanded through an alliance of like-minded designers, engineers, scientists, managers, and contractors, getting more capable with each project. Since digital skills were the price of entry, the informational barriers to collaboration across the delivery demands of projects—whether in design, analysis, simulation, or digital construction—were low.

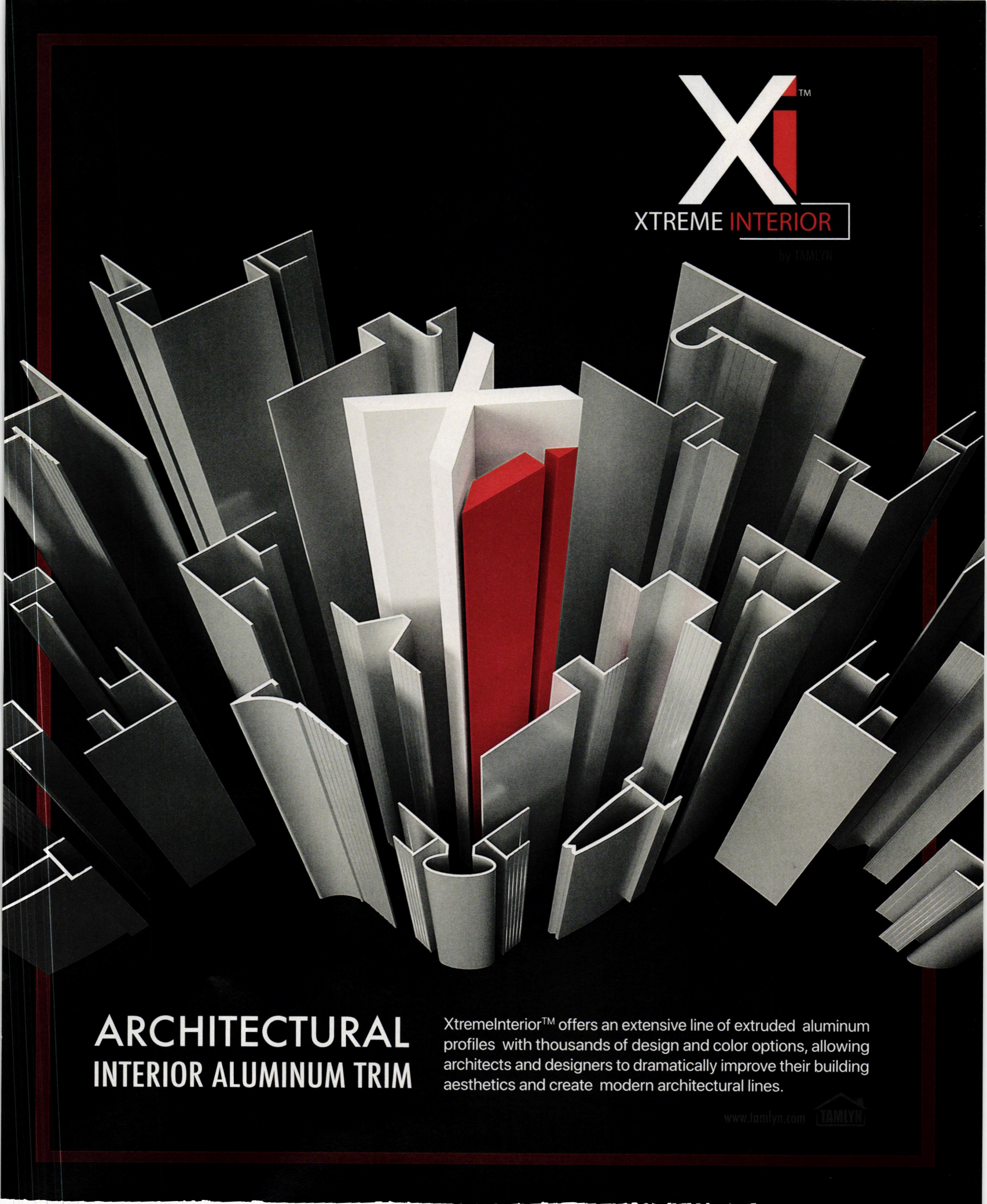
Their team was facile with sophisticated digital modeling, enhanced by generative design through algorithms, simulation, and principles of digital fabrication. They did their first four projects with digital fabricators and builders, and moved easily from design-only to design-build to integrated projects, because they never developed the "risk avoidance" antibodies of their mentors.

Projects were not based on traditional lowest-first-cost procurement strategies. They created buildings that actually improved social conditions, used energy responsibly, met strict construction budgets and schedules, and supported the local economy, so firm profits were tied to achieving these ends by predicting the outcomes during design. An early investment in data collection and analysis platforms made such predictions increasingly reliable. And having more than design awards (architects flattering other architects) to demonstrate the value of their work, they found a variety of clients—local governments, colleges, even a few SRDs (socially responsible developers)—flocked to their door.

But no such advantage lasts forever. Firm leadership knew from hard-won experience that it had been six years since the last downturn, and over time their competitive advantages wouldn't last. At the upcoming leadership retreat, Kimberly would insist that the firm plot a new strategic plan for its next five years, to apply their design, prediction, and construction capabilities to new markets. She knew that other firms were rapidly adjusting to the new social agenda, and a new generation of Black design leaders was emerging; 10 years of aggressive work in secondary schools had increased the population of Black students in architecture programs to a robust 20 percent. Many of those graduates would be the next generation of leaders of her firm.

As she activated the camera on her holodesk to record her thanks to her client, a new employee knocked on her office door. A former principal at RNO and part of their (all-white) management team, he had mentored Kimberly at RNO but was laid off when the firm's social-justice work evaporated. He lacked any relevant skills for their data- and construction-driven practice, but he had two kids in college, so she hired him to organize the firm's archives. "Congratulations on the new Minneapolis job!" her former boss told her. "I finished the image catalogue for 2024 and 2025." ■

Phil Bernstein is an associate dean and professor adjunct at the Yale School of Architecture, where he teaches professional practice in the hopes of inspiring the next generation of firms.



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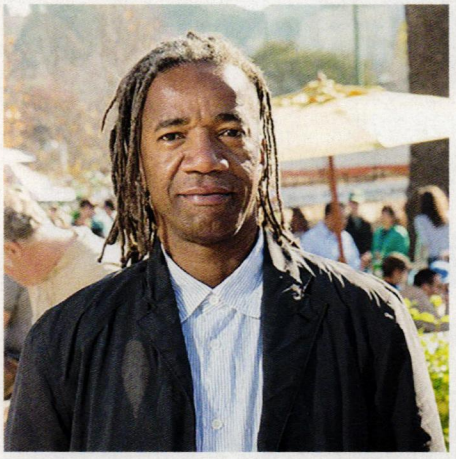
Walter Hood on History and Race in Landscape Design

BY CATHLEEN MCGUIGAN

Landscape architect and public artist Walter Hood founded Hood Design Studio in Oakland, California, in 1992 after earning an MLA and M.Arch. from the University of California at Berkeley. Hood has received numerous honors, and last year was named a MacArthur Fellow. He spoke to RECORD*'s editor-in-chief, Cathleen McGuigan, about his forthcoming book,* Black Landscapes Matter *(written with Grace Mitchell Tada), and how his design work increasingly is inspired by his identity as a Black man and by history.*



Your idea for the book, *Black Landscapes Matter*, came a few years ago, after a series of police killings of Black men.

We could go back 20 years, after Rodney King, but I've never really talked about race as a major factor that informed my work, because I was just doing the work in places that required you to tell the truth about things. As we were writing the book, we talked about these issues that have come to light now, because it is just so systemic in our society. There's a lot of pressure for this book to be the answer, but it's not. It's just reflections based on what was happening when we started, back in 2016.

How has the sense of history come into your design of landscapes?

Landscapes are layered. I spent a year in Rome in the mid-90s at the American Academy. Before that, I'd done smaller community design projects, but never really thought about how history can inform the present. In architecture school, I was definitely a Neomodernist. But I was intrigued by a few people—J.B. Jackson and Dell Upton—who were writing about culture. I just didn't really know how to take that information and use it.

At the Academy, there is this amazing archeological program, and we went to Pompei and Herculaneum, but then to North Africa and around the Horn. And I started to understand. In some of these places, most of us architects were just looking and thinking there's nothing there, but that was not the way these scholars talked about the landscapes.

Every place has a story to tell. When I got back to the U.S., my office worked on a few projects that allowed that kind of research. And if you looked closely enough, you could begin to read how people made decisions either to erase something or to embrace it. And I became intrigued with how we as designers were really erasing.

What project is an early example of using history in your work?

I found ways to talk about these histories in a much more transgressive way. Lafayette Square Park here in Oakland was one of the first projects where I looked at the history. An observatory had been there. During the Depression, immigrants sat in the park and waited for work. After the war, a women's auxiliary group came and created a garden and a bathroom. And during the time men were actually waiting for work, women were not allowed in the park except to sit in one place—it was called a petticoat corner.

In 1995, it was a place where predominantly African American men just whiled away the day—but it had always been like this. While our mayor and other people were saying, "Move the homeless out," I wanted to find a different script to keep them there, since this was always a place of social service. I knew I wanted to design a space that was more deconstructed, that wasn't about a center; it was about breaking things apart. So there are different parts—the grassy dome where kids play recalls the observatory. And 20 years later, the guys are still there. The bathroom's still there. The design we did is still intact. It hasn't been maintained like other parks, but the people are still there. That became a way for me design, to really talk about places.

And beginning to take my personal experience as a Black man, and relating that back to my education as an architect and in urbanism has become a way for me to make work. People don't get it explicitly—that's OK—because I had to cultivate this on my own. There's no book out there to read as a Black person on how to be a Black architect.

It's not coming up with something that's homogenous but having the discussion about

Hood is redesigning Dan Kiley's landscape, including the rooftop gardens, for the 1969 Oakland Museum by Kevin Roche.

IMAGES: © MOLLY DECOUDREAUX (TOP); COURTESY HOOD DESIGN STUDIO (RIGHT)

History informs Hood's designs, as in Lafayette Square Park in Oakland (right) and a work planned for the International African American Museum in Charleston, South Carolina (above).

difference—not diversity, but difference. Diversity doesn't get at the crux of things. Just to have a varied set of things is one thing—to be really different is another. My opinion can be different and we can still coexist.

So how do you make spaces—whether it's about diversity or difference—where people can all come together?

We're in the 21st century, but we've only had about 55 years where we've explicitly talked about living together. Remember, we created institutions that kept us separate, and we think that landscapes were not separate, but they were. Blacks couldn't sit on certain benches. I even found examples where there were whites-only trees! So we've had this collective consciousness, and the old guard still see the world through this binary of age.

We have these institutions that still promote binaries. You see it between urban/suburban, you see it with the romance of the picturesque garden that we don't want to critique as a tool of colonialism. Or the Western European ideal of what wilderness should be. All of these constructs we have to deconstruct. To me, the bigger question is how do we deal with this legacy when we can't even articulate what it's done to us? How do we get out of the fear of the other?

I saw the Central Park story—here's the Black guy birdwatching in the Ramble, right? All these ideas are out there and there is no answer one way or another, but we have to acknowledge them, so we can start having these conversations.

You've spoken about not over-prettifying urban neighborhoods on the brink of gentrification.

People have ideas about what a place should become, without any understanding of what's there. You hear people say "placemaking," which I really hate. It's this colonial attitude, versus going into a place and trying to cultivate what's there. But it's hard to do because of these aesthetics, and the ways that making landscapes are codified, bureaucratized, and maintained.

In Charleston, South Carolina, you're working on a landscape and art project around the International African American Museum, designed by the late Henry Cobb and under construction. It's by Gadsden's Wharf, where an estimated 40 percent of Africans first landed during the Middle Passage.

I came up with 29 different designs—it was cathartic—as a way of thinking about how do I tell this story. We ended up with probably the most conservative idea, which is still pretty radical—to take the Brookes map, the famous lithograph that showed the spatial layout of these bodies in slave ships. It's the thing we have that shows the horror of it all.

The building is lifted up 13 feet. We're casting full-scale figures, in relief, in tabby—a concrete made from shells taken from the ocean—and like the Brookes map, they will lie head to toe in this shallow infinity fountain under the museum, where the water recirculates and falls out. The fountain is almost like a floor—you walk across a middle walkway and look out toward the Atlantic. I wanted people to come into confrontation with the scale of these human figures. And having water was important—water in Black mythology is a very powerful source.

I have never done anything like this. Seeing black bodies in space is something that's intentionally been marginalized and maintained through bureaucracy—first slavery, then police, and now militarism. There's always been this kind of undercurrent. And so I just think, how do we—and how can places like Charleston—spur people to want to tell more truths? ■

IMAGES: COURTESY HOOD DESIGN STUDIO

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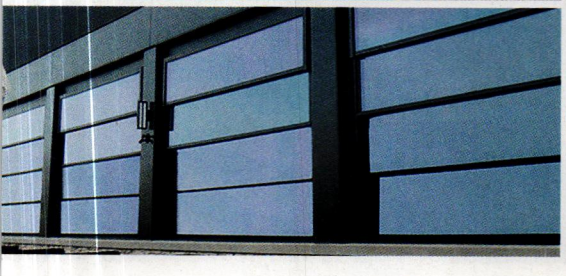

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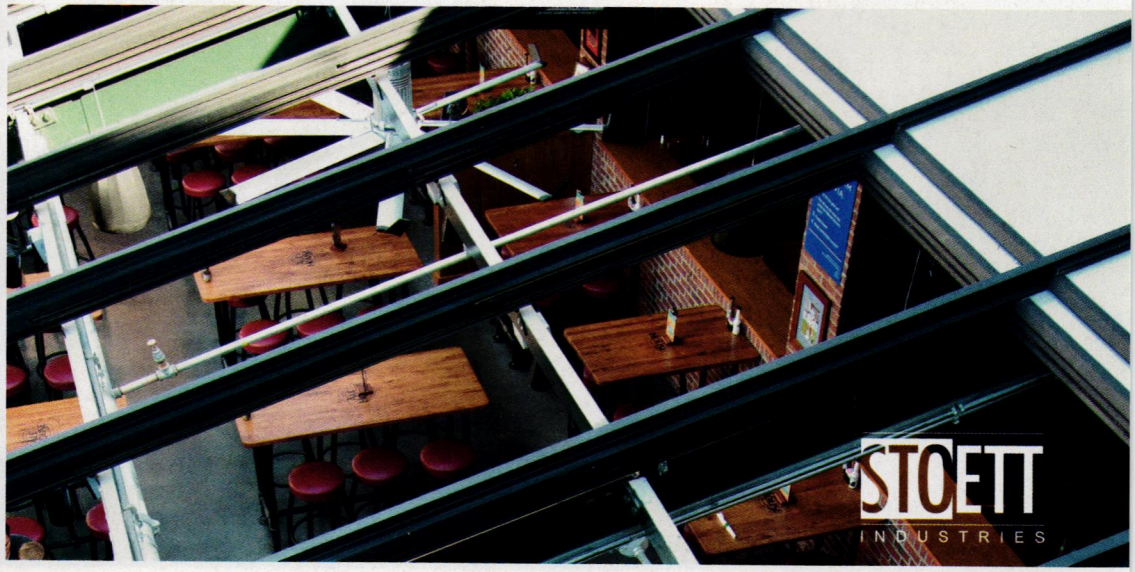

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Inner Sanctum

Wang Shu's Amateur Architecture Studio designs an idiosyncratic Buddhist retreat.

BY ARIC CHEN
PHOTOGRAPHY BY IWAN BAAN

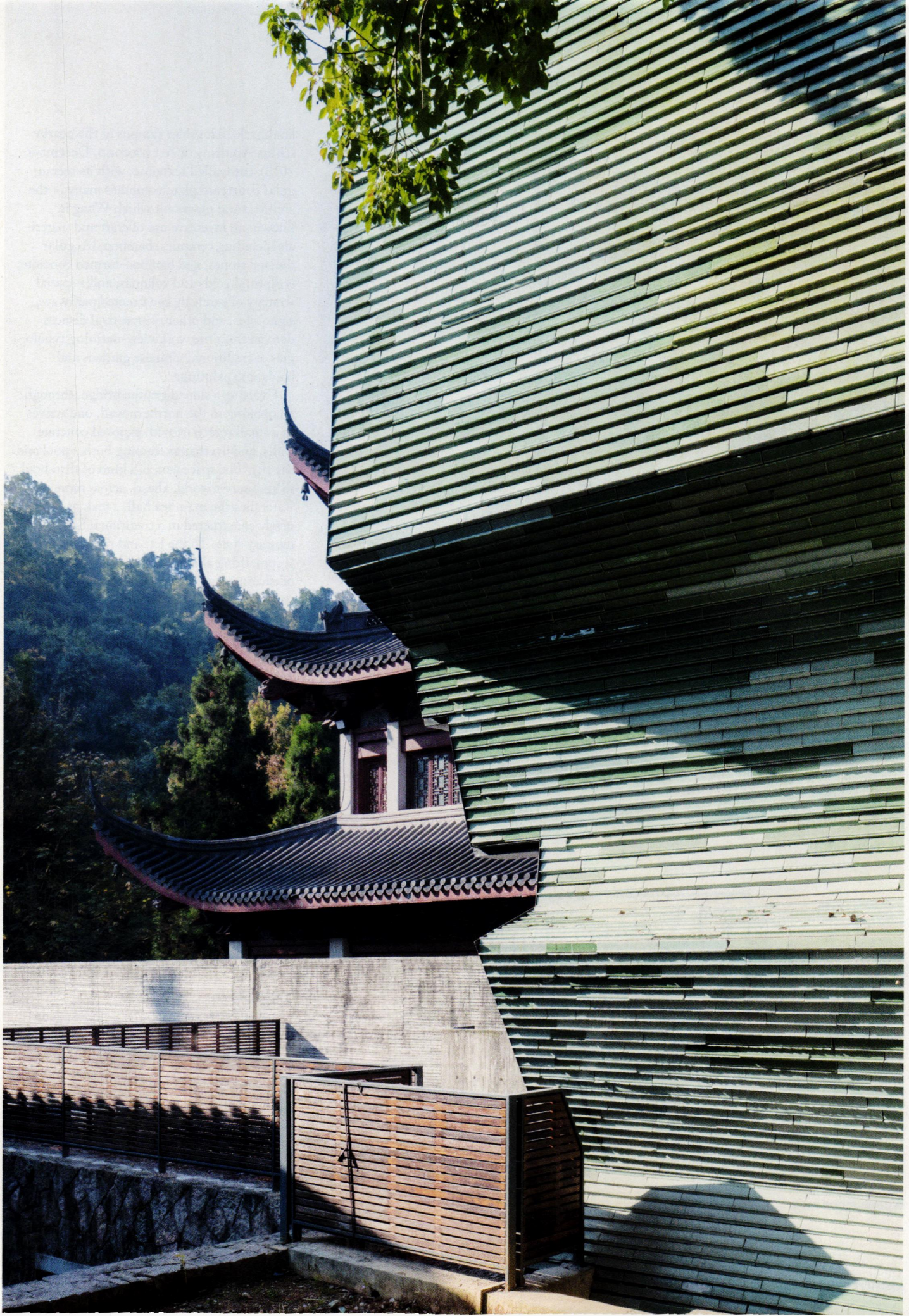
AS OF THIS SUMMER, the teahouse that Wang Shu and his wife and Amateur Architecture Studio partner, Lu Wenyu, began designing 10 years ago for a Buddhist temple in their home city of Hangzhou, China, was just about finished. In fact, Wang reckons, it's been "almost finished" for the past three years—the main issue being that "the monks are in no hurry."

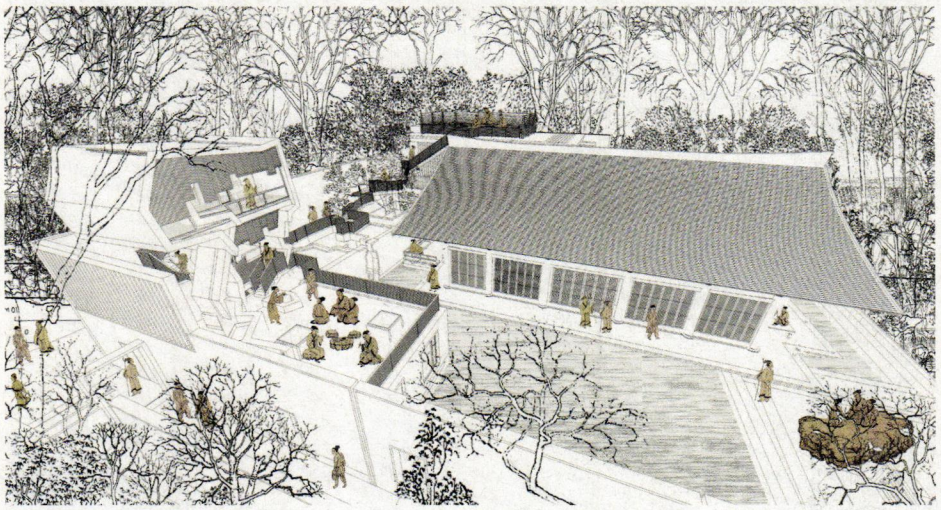
Buddhism may teach that the universe exists in a state of perpetual incompletion. But architecturally speaking, save for a few outstanding adjustments, the teahouse has reached a compellingly final form. Tucked away from the tourists and worshippers who throng the sprawling Lingyin temple and monastery—one of China's best-known religious sites, off the mountainous western shore of Hangzhou's West Lake—the project occupies about 15,000 square feet in a part of the temple grounds that's closed to the general public.

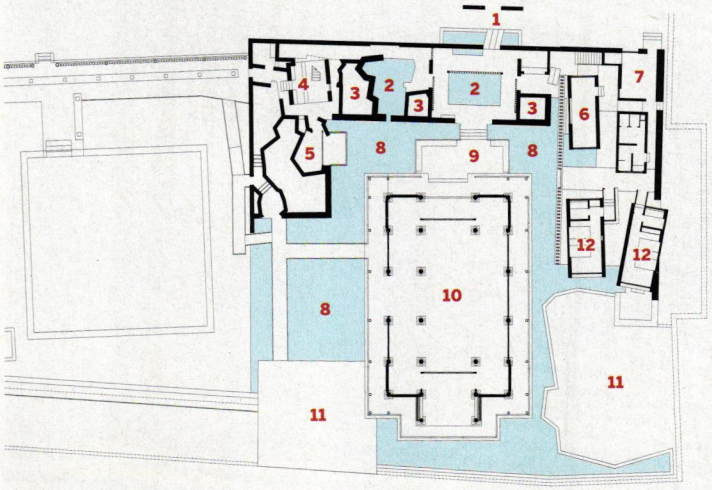
With a tea hall, "tea tower," and guest rooms for meditation organized among terraces, pools of water, and winding stairs and walkways, the complex is meant as a retreat for the temple's 200 resident monks and their guests—an inner sanctum within the inner sanctum. "From the outside, it almost disappears," says Lu, referring to its low-key exterior of white and stone walls obscured by camphor trees. "It's like a secret place."

Begun soon after the Pritzker-winning Wang completed his now-

The concrete tea tower has a craggy profile (this page) and is clad in ceramic tiles hung loosely on concealed metal rods (opposite).

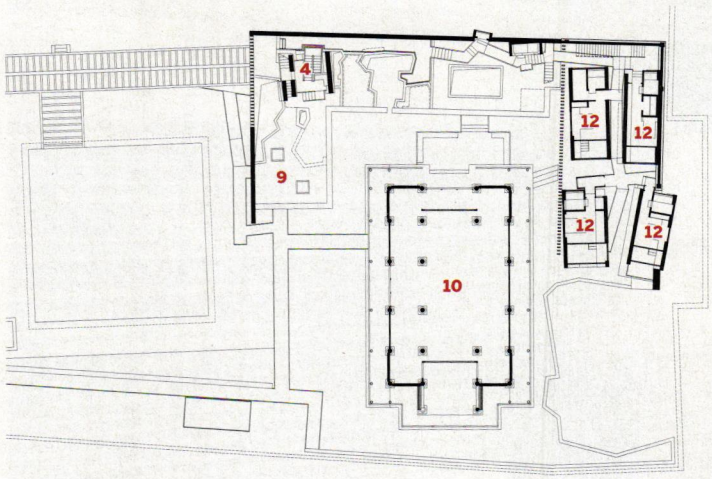






1 MAIN ENTRANCE
2 WATER COURTYARD
3 TREE
4 TEA TOWER
5 TEA CAVE
6 TEA PREPARATION
7 KITCHEN
8 POND
9 PLATFORM
10 TEA PALACE
11 GARDEN
12 GUEST ROOM

GROUND-LEVEL PLAN



SECOND-FLOOR PLAN

0 30 FT.
9 M.

landmark Xiangshan campus of the nearby China Academy of Art (RECORD, December 2013), the walled teahouse, with its rectangular courtyard plan, combines many of the architectural moves for which Wang is known: an inventive use of craft and materials including ceramics, bamboo, irregular dressed stones, and bamboo-formed concrete; sculptural voids and volumes; and a spatial strategy of carefully constructed pathways, sight lines, and other perspectival devices derived from the worldview-defining typologies of traditional Chinese gardens and landscape paintings.

Crossing a sloped granite bridge, through an opening in the northern wall, one arrives in a small forecourt with exposed concrete walls, and overhangs framing both a pool and the sky. The space acts as a kind of threshold to an interior world: ahead, across more water, lies the main tea hall, a teak pavilion newly constructed in a traditional Song-dynasty style. To the left and right, however, is something altogether different: a sequence of cavernous, winding passageways, punctuated by openings, that connect the guest rooms, tea tower and other facilities.

The cavelike quality evokes a longstanding Buddhist tradition that includes the 10th- to 14th-century grottoes and rock carvings of the Feilai Feng limestone peak, which faces the teahouse from the other side of a stream. Emerging from this quasi-subterranean space, the craggy profile of the precast-concrete tea tower erupts from the complex's northwest corner, its jagged silhouette clad in ceramic tiles glazed in celadon greens and blues and hung loosely on concealed metal rods.

Escheresque stairs lead up and down the tower, connecting to a series of winding and crooked pathways and stairs that traverse their way towards the six guest rooms. Stacked in pairs, the latter's concrete walls and bed platforms lend a, well, monastic feel. As in other projects by Wang, the walkways

Credits

ARCHITECT: Amateur Architecture Studio — Wang Shu, Lu Wenyu, Chen Lichao

ENGINEERS: Shentu Tuanbin (structural); Sun Mingliang (m/e/p)

CLIENT: Linyin Buddhist Temple

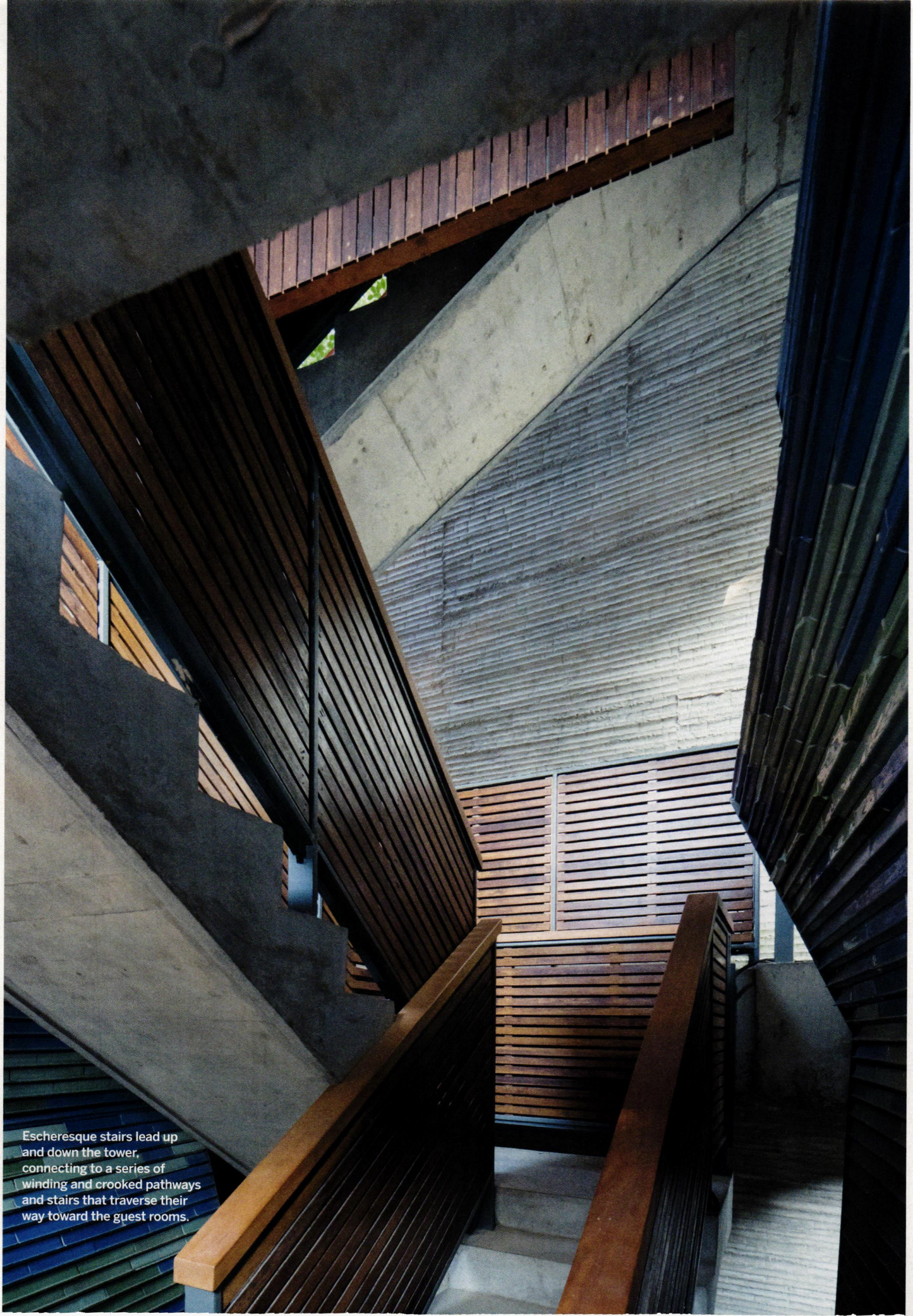
SIZE: 9,000 square feet

COST: withheld

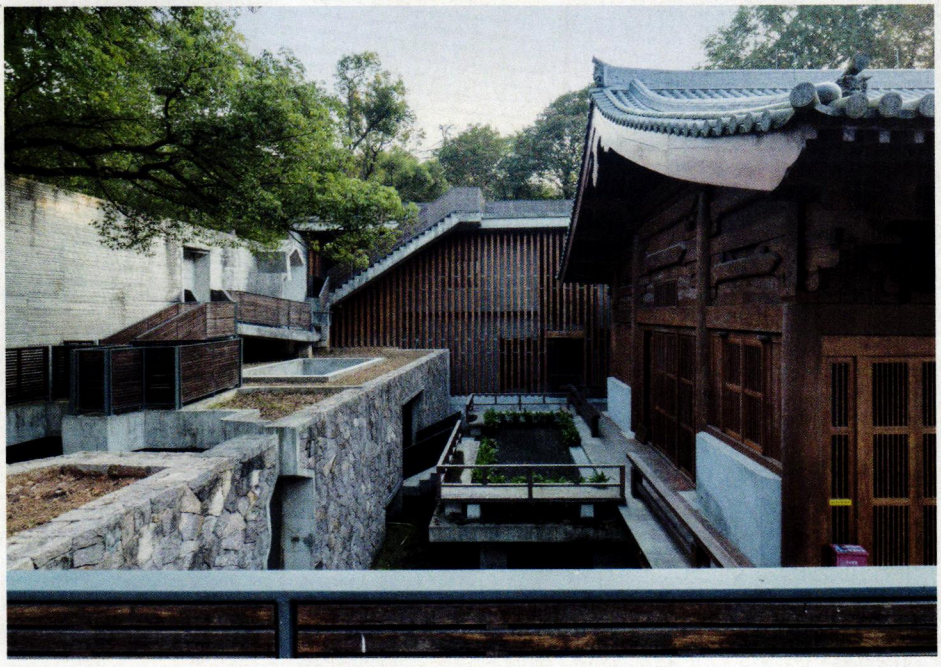
COMPLETION DATE: June 2020

Sources

CERAMIC TILES: Chaoxing Celadon Workshop, Idite Coloured Glaze Handicraft



Escheresque stairs lead up and down the tower, connecting to a series of winding and crooked pathways and stairs that traverse their way toward the guest rooms.



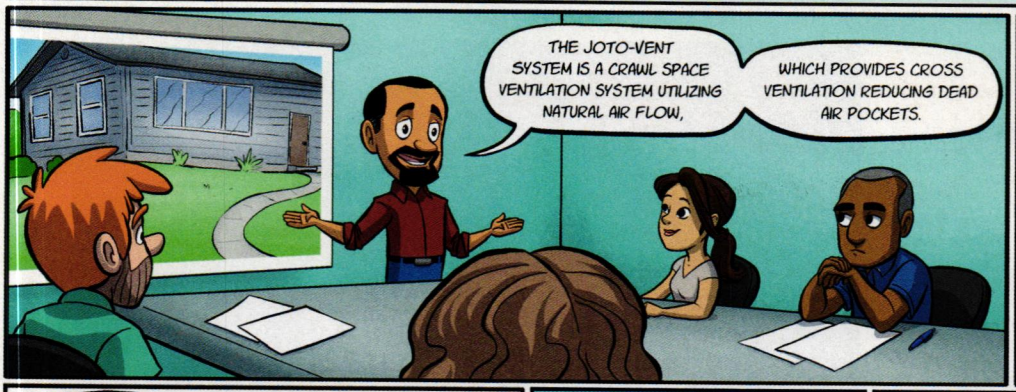
Cavernous, winding passageways, punctuated by openings (above) connect the different spaces. A teak pavilion was newly constructed in a traditional Song-dynasty style (left).

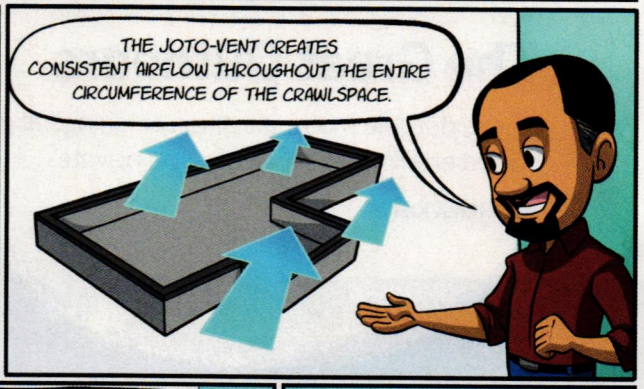
meander up onto the roof, "as if you're climbing a mountain," he says.

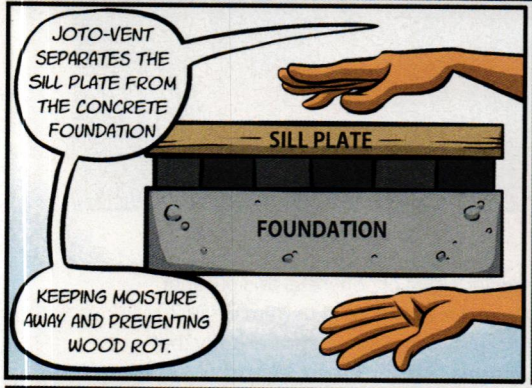
A teahouse in a Buddhist monastery makes an especially convincing setting for Wang and Lu's innovative architectural language, which extracts from tradition without copying it. But this makes the main tea hall—essentially, a Song dynasty re-creation—all the more puzzling.

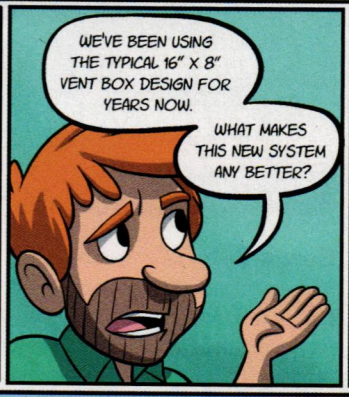
"I wouldn't be allowed to design something totally new here," Wang explains, referring to the site's historic sensitivity. (Though dating to the 4th century, the temple mostly comprises modern constructions designed in a traditional style.) "But if I give you an ancient-style structure, it's OK," he continues, before adding with a wink: "The rest is just adding on a 'landscape.'" ■

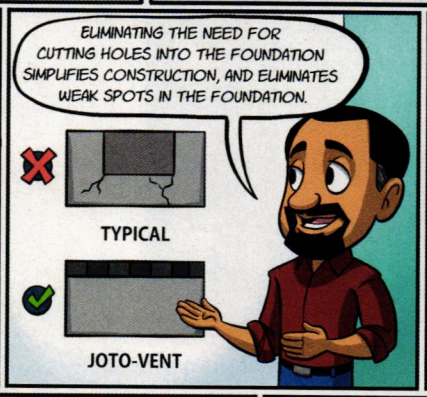
Continuous Perimeter Foundation Vents

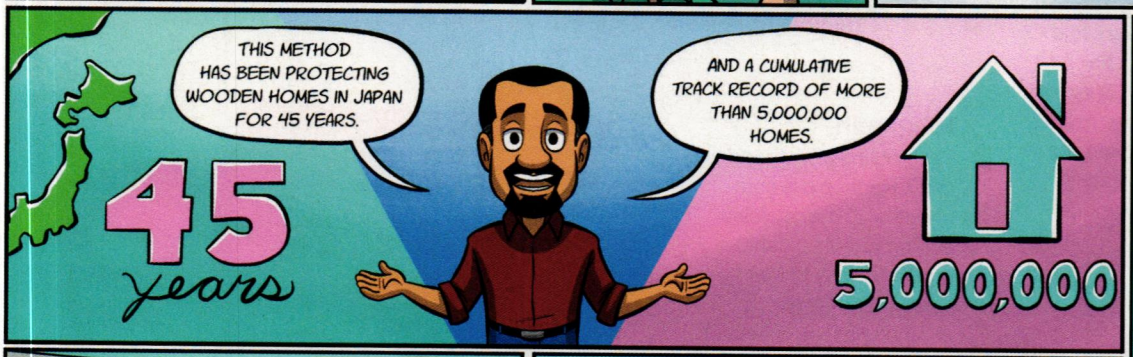


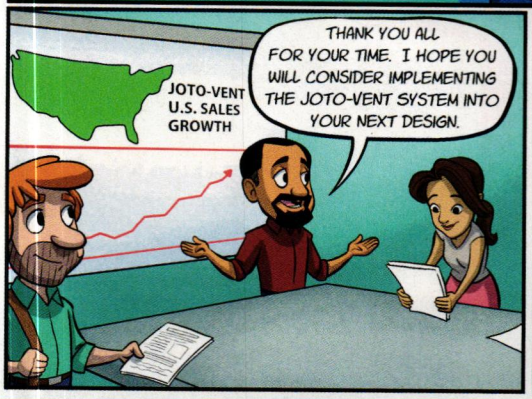












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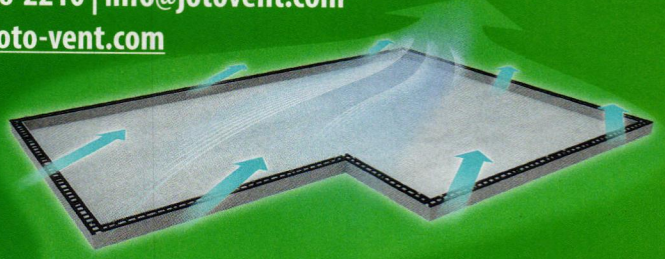

The Joto-Vent System is a new and innovative way to vent crawl space foundations on residential homes. This continuous perimeter vent will create maximum cross ventilation to help protect crawl spaces from moisture problems while maintaining the structural integrity of the concrete foundation and adding a clean aesthetic appearance.

ICC ES ESR-4161

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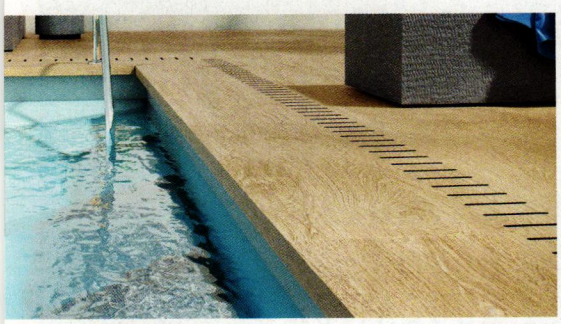
The Great Outdoors

These durable materials and furnishings fit into varied environments, public and private.

BY SHEILA KIM

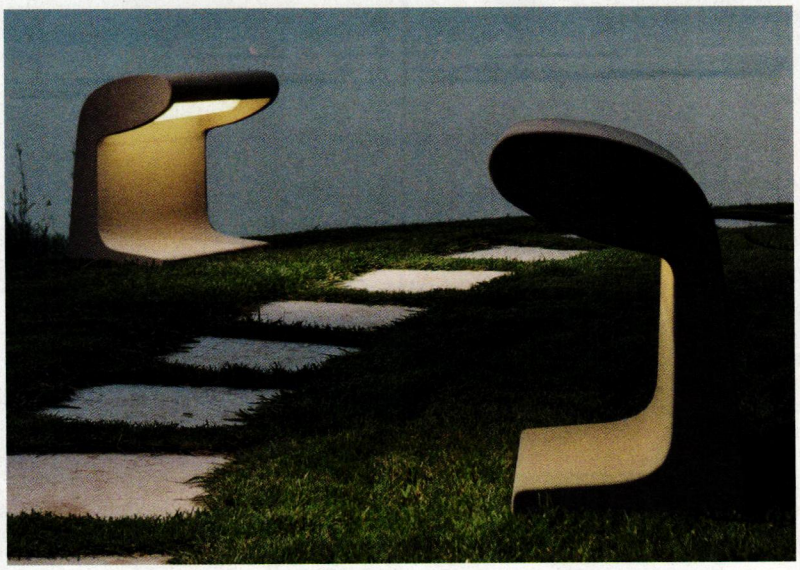
Equinox Cabana

Tuuci's Equinox pergolas come in three square and three rectangular formats and a choice of 11 finishes, four of which are teak-clad aluminum. A spate of other customizable options include marine-grade downlights, benching, privacy curtains, and alternatives to the standard slatted roof such as a water-resistant hard top or solar shade, and a new model with an automated-louver roof.
tuuci.com



Artwood

As faux-wood porcelain-tile patterns get more realistic year after year, architects have increased opportunities to install convincing replicas in wet areas such as baths and poolside. Novabell's Artwood is one example that was developed for outdoor use. It mimics the appearance and texture of timber down to grain patterns and knots and is UV-resistant. It comes in three sizes, up to 24" by 71".
novabell.it



Borne Béton Grande

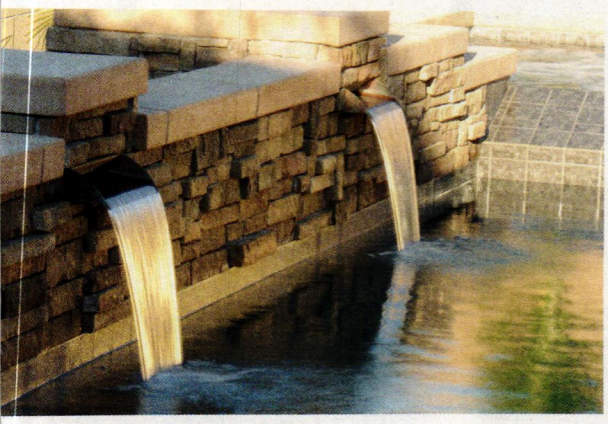
A physical manifestation of Le Corbusier's love of concrete, this outdoor floor lamp from Nemo is a Corbu design for India's Bhakra Dam in 1952, balancing the rigid Brutalist aesthetic with a smooth sculptural body that holds an LED board. Each piece measures 19¾" wide by 29¾" high.
nemolighting.com

Hennepin

Resembling an Adirondack chair, Hennepin is composed of 100% recycled and recyclable plastic, making it easy to maintain as well as movable and ecofriendly. The collection comprises single-, double-, and triple-seaters, and coordinating tables in nine colors. Loll Designs created this collection exclusively for Design Within Reach.
dwr.com

Link

This modular benching system offers numerous design options: wood slats in in-line or piano-key styles, mitered ends (in-line only), or with inward- or outward-facing curves (piano-key models only). Mounting styles range from wall-mount brackets and metal legs to concrete blocks, and each section can be customized further with backs, arms, and powder-coat colors (on metal supports).
landscapeforms.com



Trex Outdoor Fire & Water Spillways

In addition to decking, fire tables, and other outdoor elements, Trex offers five spillway designs—Smooth Flow, Radius (shown), U-Shape, Wall-Mounted Bowl, and Cannon—that enhance water features and add to their tranquility. Composed of premium-grade copper, the spillways will develop a patina over time that's unique to the installation's immediate environment.
trexoutdoorfireandwater.com

Flexx

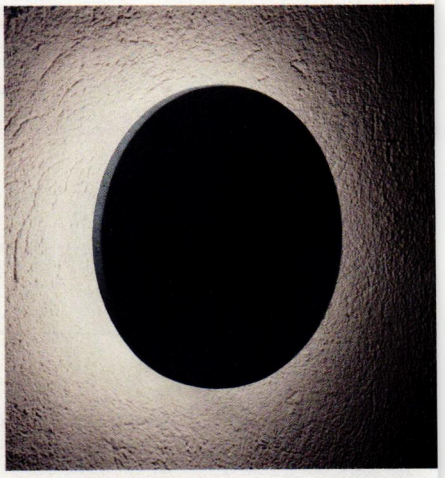
Not your ordinary partitions, Maglin's Flexx screens boast eye-catching laser-cut patterns in saturated or subdued colors, which define outdoor spaces, provide privacy, or highlight a focal point. The panels are made of 11-gauge steel, are supported by steel poles, and come in five patterns that offer different levels of transparency. Three panel sizes are offered: 4' square, 4' wide by 6' high, and 6' wide by 4' high.
maglin.com

Elements by Tecno

Frequent collaborator for Brown Jordan Outdoor Kitchens, architect Daniel Germani created this model to afford more customization for nearly every outdoor footprint. The system achieves this by introducing freestanding stainless-steel modules in several standard dimensions to accommodate everything from refrigeration to grilling.
brownjordanoutdoorkitchens.com

Camouflage

As the name hints, this Piero Lissoni–designed outdoor sconce blends into its surroundings during the day. Its round diffuser is surface-mounted and clad with a material to mimic wall finishes, such as concrete, aluminum, and stone. Available in 5½" or 9½"-diameter formats, it comes in a choice of three white color temperatures and with or without dimming capability.
flos.com



Arcana

Unilock's new product blends fine granite, marble, and quartz particles, resulting in a sophisticated stone slab that is at nce silky, matte, and speckled. Well suited to outdoor ame- spaces such as rooftop decks or plazas, it features a surface and comes in three gray tones in a 24"-square pecial-order beige in 18" x 24" or 12" x 24" slabs.
al.unilock.com

ARCHITECTURAL RECORD

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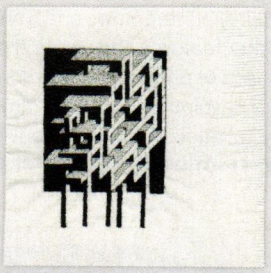
The sketches of the winners and runners-up will be published in the November 2020 issue of *Architectural Record* and shown online in the ArchitecturalRecord.com Cocktail Napkin Sketch Gallery.

HOW TO ENTER:

- Sketches should be architecture-oriented and drawn specifically for this competition.
- Create a sketch on a 5-inch-by-5-inch white paper cocktail napkin. You may cut a larger napkin down to these dimensions.
- Use ink or ballpoint pen.
- Include the registration form below or from the website.
- You may submit up to 6 cocktail napkin sketches, but each one should be numbered on the back and include your name.
- All materials must be postmarked no later than September 4, 2020.

Winning Sketch 2019 by Jeongin Kim, Registered Architect



Winning Sketch 2019 by Jordan Lutren, Non-Registered Architect

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- ❒ ENGINEER
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ARE YOU REGISTERED?

- ❒ YES
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ARE YOU AN AIA MEMBER?

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Entry form the size of 5 x 5 cocktail napkin, for reference.

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Assistant Professor in Medicine, Harvard Medical School and Cambridge Health Alliance

HEATHER CASTRO, AIA, LEED AP®, WELL AP, EDAC, GGP
Lead Healthcare Project Architect, Cuningham Group

DUSTIN SCHIPPER
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Full Circle

The Memorial to Enslaved Laborers is a reckoning with the University of Virginia's—and the nation's—past.

BY CATHLEEN MCGUIGAN
PHOTOGRAPHY BY ALAN KARCHMER

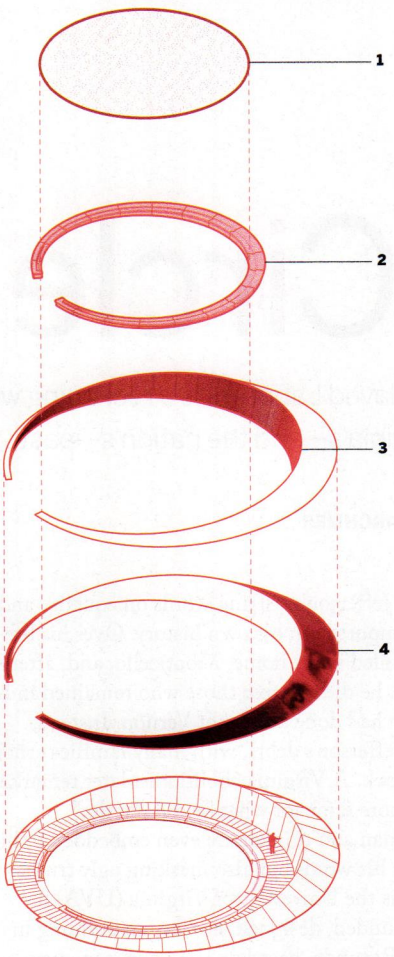
WE KNOW that Thomas Jefferson's stirring words on equality and inalienable rights do not comport with his own history. Over his lifetime, 600 enslaved people toiled at his home, Monticello, and, after his death there, on July 4, 1826, he did not free those who remained in his will, as George Washington had done at Mount Vernon. Instead, almost all were sold to pay Jefferson's debts, with many families cruelly broken up on the auction block. A Virginia abolitionist later remarked, "Never did a man achieve more fame for what he did not do."

Jefferson's conflicts as a man and thinker are even embedded in his architecture—as majestic as his words but also masking ugly truths. His crowning achievement is the University of Virginia (UVA) in Charlottesville, which he founded, designed, and began building in 1817. With its magnificent Rotunda, based on the Pantheon, overlooking a terraced lawn lined with colonnaded classical pavilions, the historic campus is now a UNESCO World Heritage site.

But about a decade ago, a group of UVA students began to push the university to grapple with the harsh reality that Jefferson's beautiful "academical village" could not have been built, or maintained for its first 40 years, were it not for the labor of 4,000 enslaved men, women, and children. What is clear in the design, particularly in section, is how deliberately Jefferson hid the spaces for enslaved servants, tucking them out of sight behind and under the pavilions where professors would live. "He is very astute about the design of separation," notes the cultural historian Mabel O. Wilson, a professor at Columbia University.

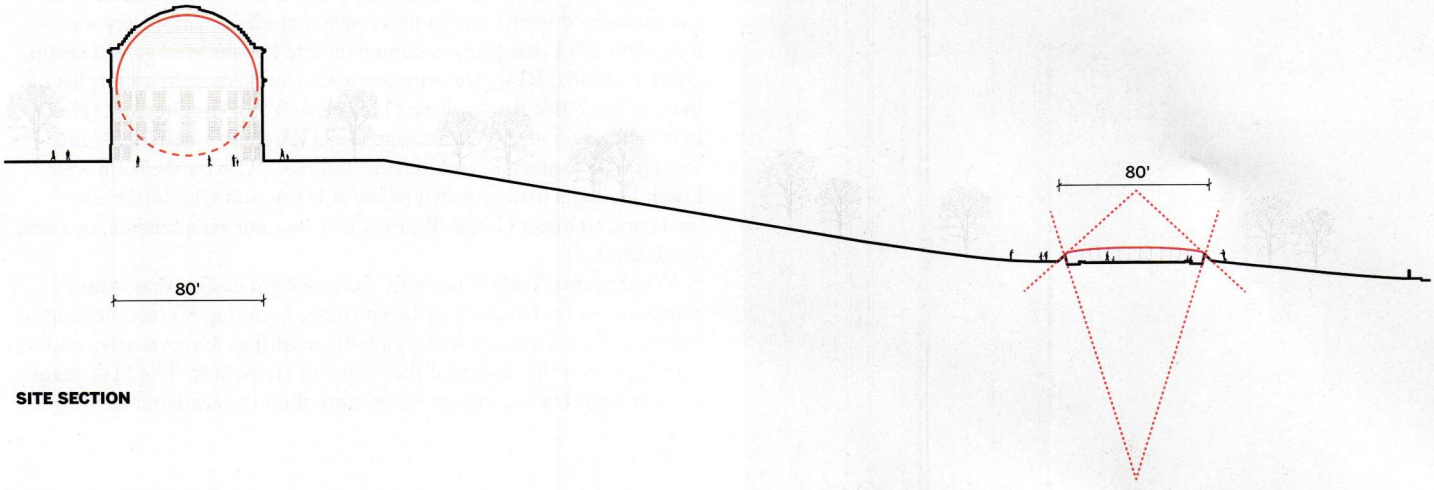
While the idea for the Memorial to Enslaved Laborers came from the students, it wasn't until a university commission on slavery was formed in 2013 that plans to commemorate the enslaved gained steam. After a national RFQ, the winning team emerged, from a short list of four, in late 2016: Boston-based Höweler + Yoon Architecture (H+Y), in collaboration with Wilson, who is a UVA alum, a designer, and a scholar who focuses on architecture and race. Also on the team were Frank Dukes, a distinguished fellow at UVA, and Charlottesville landscape architect Gregg Bleam. There was not yet a scheme, or a site, or a budget.

What's remarkable is not only the powerful design that is now complete—a walled circle of hewn stone, spanning 80 feet, nesting gently in the earth, rich with symbolic markings and evocative craftsmanship—but the design of the *process* to arrive at it. The H+Y team knew it would take a village—but more than the academical village.



ELEMENTS OF THE DESIGN

1. GATHERING CIRCLE
2. WATER TABLE, TIMELINE
   LIBERATION AND LIBATION
3. NAMES, MEMORY MARKS
   HONORING THE ENSLAVED
4. PORTRAIT OF ISABELLA GIBBONS
   REMEMBERING THE ENSLAVED



SITE SECTION

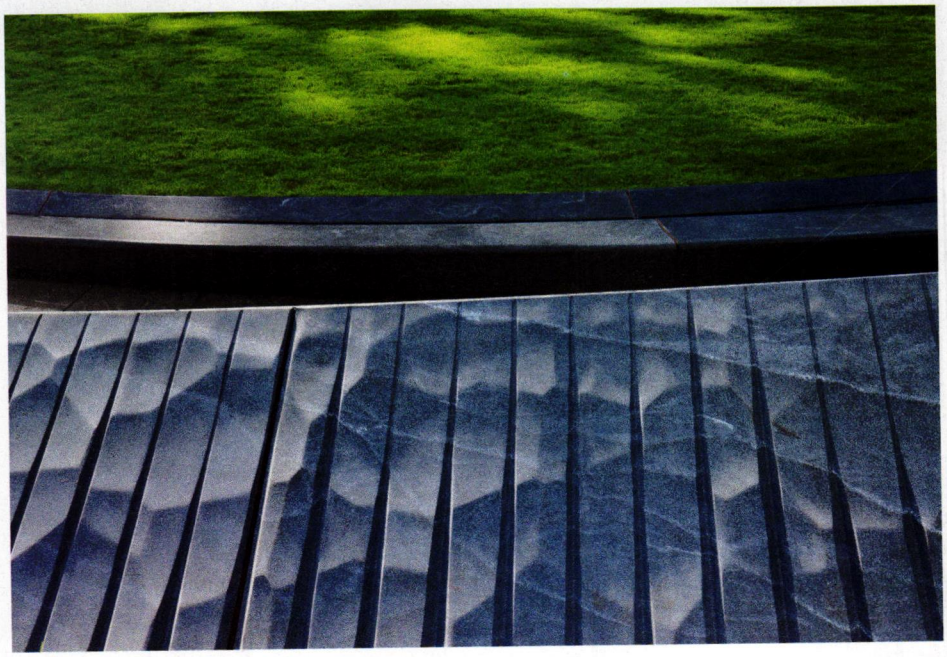
THE MEMORIAL is located to the east of the Rotunda (opposite). The haunting eyes of Isabella Gibbons, created by artist Eto Otitigbe, gaze out from the northwest side of its exterior wall (this page).

With the university's blessing, they engaged the Charlottesville community, particularly the wary descendants of the enslaved laborers, who refer to UVA as "the plantation." The design team fanned out for town meetings at halls and churches. An early conflict arose over choosing a site: students longed for the Memorial to be on the historic lawn, but locals were uncomfortable venturing into the heart of the elitist institution. So the site chosen is down the slope, east of the Rotunda, closer to downtown. "We have 200 years of earned mistrust," says Dukes, who was vital in facilitating the dialogues. "This process has gone a long way to ease that."

Then the question: what form should the memorial take? Wilson had introduced the idea of the "ring shout," an ecstatic ritual dance of enslaved people. While that was simmering, the "aha moment," recalls Meejin Yoon, principal of H+Y along with her husband, Eric Höweler, came when someone in the annual Charlottesville Freedom Day march, marking the liberation of the enslaved by Union troops on March 3, 1865, carried a banner that read "Let Freedom Ring." The design took shape as concentric rings of stone—the 80-foot diameter across the exterior is the same as that of the Rotunda—with an interior walkway, a circular bench ringing a water feature, and a large grassy space in the center for gatherings.

The granite for the walls, called Virginia Mist, is from a nearby quarry, with the exterior roughly honed. "It is grooved to evoke how stone was cut," says university architect Alice Raucher, "and also the scarring of those who were whipped." (The stone fabricator had worked with H+Y on their extraordinary Collier Memorial on the MIT campus.)

Another hurdle was how to commemorate 4,000 people, most of them anonymous. Many in the community wanted a lifelike sculpture. "There was a struggle between abstractness and a desire for a literal figure," says Yoon. "Yet people also like that the Memorial is a space, not an object." Several eloquent elements have been incorporated into



VISITORS read the historical timeline (left). The rough-hewn granite exterior is meant to evoke multiple meanings (below, left).

the design. Memory marks—4,000 horizontal slashes—are carved into the interior wall, each denoting one human being; of those, 900 names are known and inscribed there as well, and more names can be added if scholars unearth them. A timeline, etched into the ring of the shallow water feature, details some of their stories from the scant historical record, from the violence inflicted upon them to their workmanship—*Thrimston Hern, a tolerable good stonecutter.*

The desire for a figurative depiction was met with a hauntingly beautiful work, created by the Brooklyn-based artist Eto Otitigbe. An enormous pair of eyes—drawn from a 19th-century photograph of Isabella Gibbons, a remarkable woman once enslaved at UVA who, after her emancipation, became an educator—is carved into the rough stone exterior, so subtly as to not be immediately noticed. Yet once you see those eyes, you cannot forget them.

Another unexpected sensation comes from walking the pathway inside the Memorial, where the outer wall begins to rise and cant slightly out, until it is 8 feet high, obliterating the horizon line—and then the wall slowly lowers again as you complete the circle. The effect comes from geometry: the form is not a sliced cylinder—far too obvious for these architects—but instead was generated by the intersection of two cones.

The Charlottesville community is not waiting for the official dedication, now postponed by the pandemic, to inaugurate the Memorial. Scores of white-coated health-care workers knelt there in early June to honor George Floyd. And the descendants have come—to touch the names of their forebears and witness the result of their dialogue. A community-engaged design process doesn't always result in architecture of such uncompromised strength and symbolism. "We thought very carefully about what people would gain, engaging at both an intellectual and emotional level," says Wilson. The designers asked themselves too, as Höweler puts it, "How do we make meaning in ways that are open to interpretation and have multiple readings?" Already, the Memorial is evoking the unexpected—and even its meticulous designers have had surprises. The first time they saw a soft rain fall, it looked as if the memory marks were shedding tears. ■

THE 4,000 MEMORY MARKS commemorate each enslaved person (right); how the slashes appear on the interior wall after a rain (above).

Credits

ARCHITECT: Höweler + Yoon — Eric Höweler, J. Meejin Yoon, principals; Namjoo Kim, Caroline Shannon, Anna Kaertner, Alex Yueyan Li, Caleb Hawkins, Boris Angelov, Julia Roberts, design team

COLLABORATORS: Mabel O. Wilson; Frank Dukes; Gregg Bleam Landscape Architect; Eto Otitigbe

ENGINEERS: Silman (structural); Nitsch (civil); WSP (m/e/p)

CONSULTANTS: George Sexton Associates (lighting); DEW (water feature)

CONSTRUCTION: Team Henry Enterprises (general contractor); Quarra Stone (stone fabrication and installation)

CLIENT: University of Virginia

SIZE: 6,155 square feet

COST: $7 million

COMPLETION DATE: July 2020

Sources

STONE: Virginia Mist Group

STONE SEALANT: Laticrete

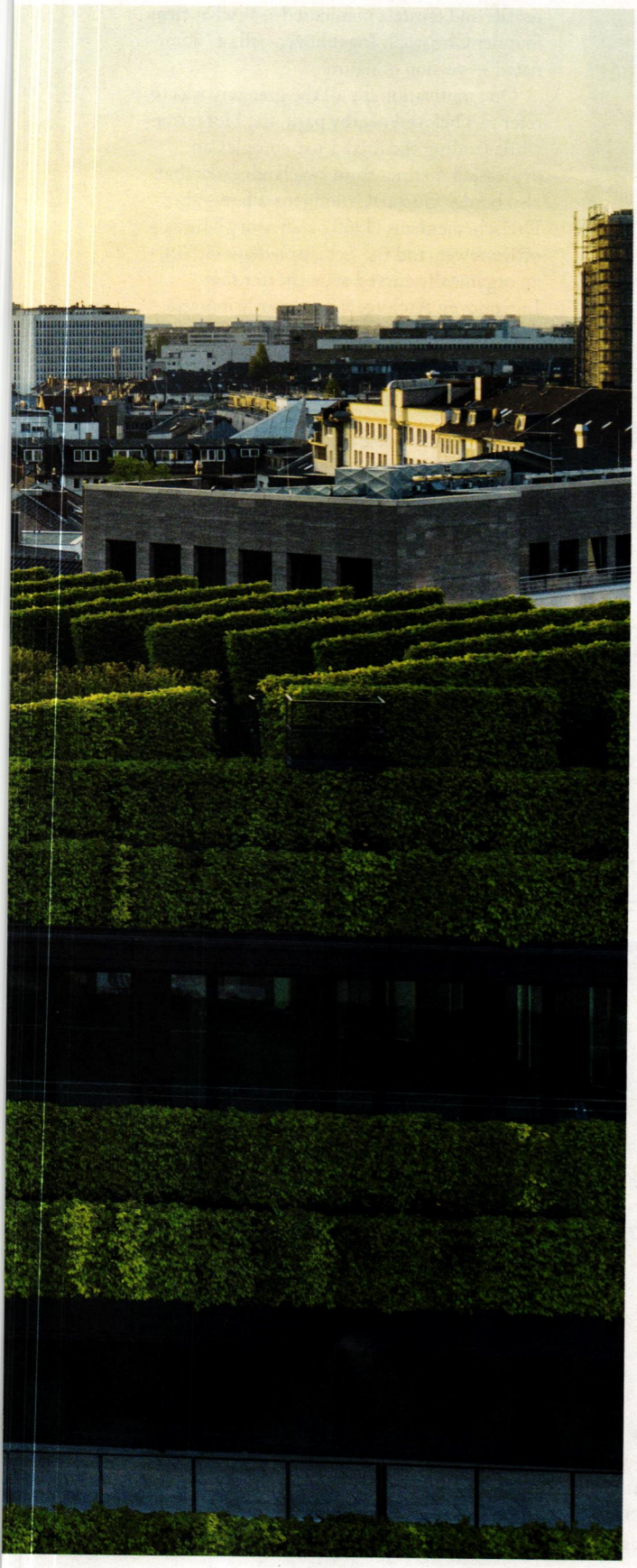
PAVERS: Pine Hall Brick

VAULT HATCH: Bilco

DRAIN: Dura Trench

LIGHTING: Valmont, Bega, Erco

PHOTOGRAPHY: COURTESY HÖWELER + YOON (TOP)



Hedging Your Bets

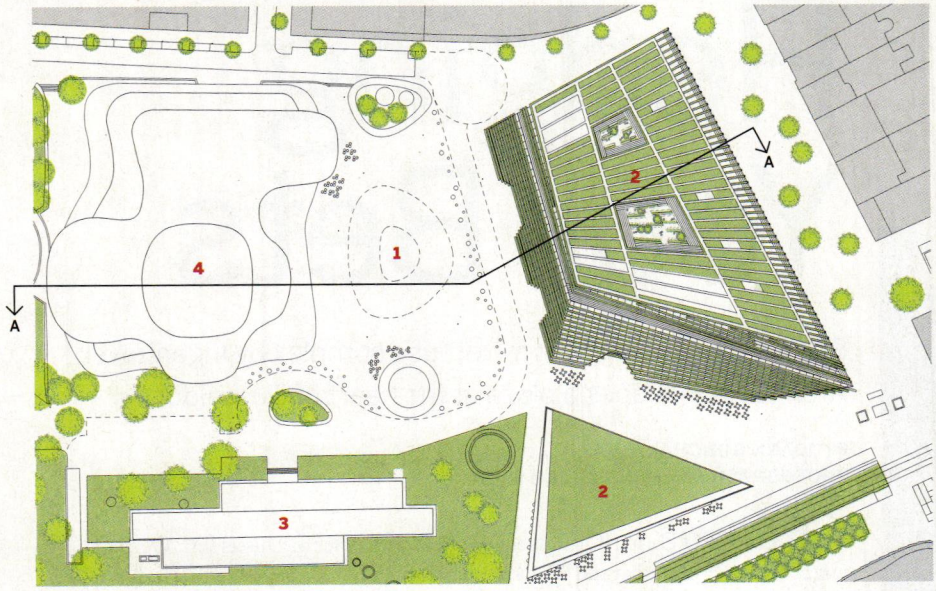
Shrouded in greenery, a mixed-use complex by Ingenhoven Architects reshapes a plaza at the heart of Düsseldorf.

BY JOANN GONCHAR, FAIA
PHOTOGRAPHY BY HANS-GEORG ESCH

VISITORS TO Gustaf-Gründgens-Platz in the center of Düsseldorf, Germany, might initially think that the 90-foot-tall off-kilter box shrouded in precisely clipped shrubs is a living sculpture or some sort of oversized topiary. The mysterious volume at the plaza's southern edge is, in fact, enveloped in nearly 30,000 hornbeam hedges. And, if laid end to end, they would stretch nearly five miles, making the installation Europe's largest green facade, according to Ingenhoven Architects, the project's designer. But underneath this leafy layer, and within a smaller adjacent triangular structure topped with a sloping lawn, are 450,000 square feet of retail and office space. The only hint of human occupancy, at least from the vantage point of the plaza, are a set of glazed portals inserted within the hedges that lead to the office tenants' elevator lobbies.

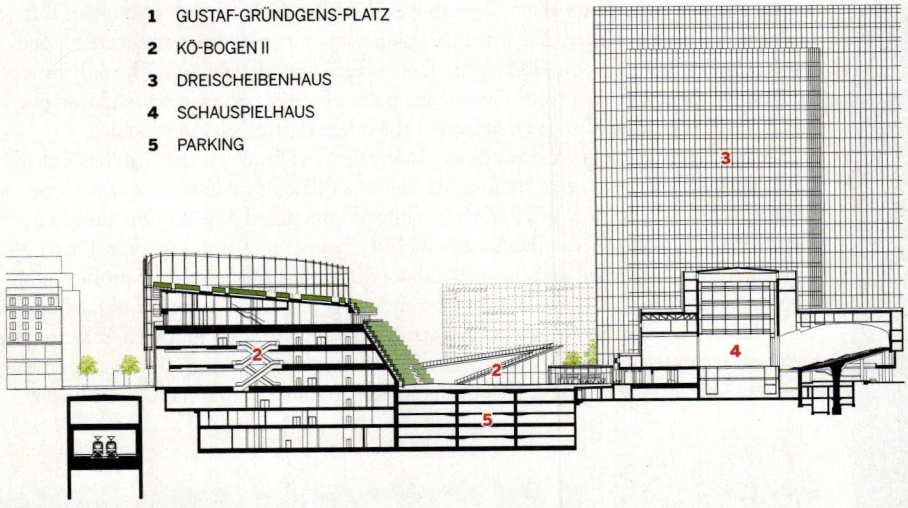
Kö-Bogen II, as the project is known, is not the first in which the firm has linked landscape and architecture so thoroughly that it is difficult to determine where one ends and the other begins. In 2017, the architects completed Marina One (RECORD, July 2018) in Singapore in collaboration with the landscape firm Gustafson Porter + Bowman. The residential and commercial development has a junglelike profusion of tropical vegetation that grows within a central court and from terraces and rooftops. In Düsseldorf, Ingenhoven Architects has taken a more controlled approach, selecting the hornbeam, a native coniferous tree whose leaves turn brown in the fall but stay on the branches all year round. These shrubs have been groomed to maintain a rectilinear

THE DEVELOPMENT'S shrub-covered building has a terrace that wraps its fourth floor (opposite). This volume, along with a smaller sloping lawn-topped structure, defines a new entry for a plaza that is also home to the state theater and an office tower (above).



SITE PLAN

1 GUSTAF-GRÜNDGENS-PLATZ
2 KÖ-BOGEN II
3 DREISCHEIBENHAUS
4 SCHAUSPIELHAUS
5 PARKING



SECTION A - A

Credits

ARCHITECT: Ingenhoven Architects — Christoph Ingenhoven, Peter Jan van Ouwerkerk, Cem Uzman, Mehmet Congara, Ben Dieckmann, Patrick Esser, Vanessa Garcia Carnicero, Yulia Grantovskikh, Tomoko Goi, Olga Hartmann, Jakob Hense, Melike Islek, Fabrice-Noel Köhler, Christian Monning, Daniel Pehl, Andres Pena Gomez, Peter Pistorius, Lukas Reichel, Jürgen Schreyer, Susana Somoza Parada, Jonas Unger, Nicolas Witsch, Dariusz Szczygielski, Stefan Boenicke, Thanh Dang, project team

CONSULTANTS: Schüßler-Plan Ingenieurgesellschaft (structure); Werner Sobek Group (facades); Ingenieurbüro Dr. Bleiker (building services); CEP City-Elektroplanungs-Gesellschaft (electrical); Tropp Lighting Design (lighting); Karl-Heinz Strauch (phytotechnology); Albert Reif (vegetation ecology); Heinz Jahnen Pflüger (urban planning)

BUILDING SHELL CONTRACTOR: HOCHTIEF Infrastructure, LEONHARD WEISS-Group

CLIENT: Düsseldorf Schadowstraße, CENTRUM Projektentwicklung

SIZE: 450,000 square feet

COST: withheld

COMPLETION DATE: August 2020

Sources

CLADDING: FRENER & REIFER

GREEN FACADE: Jakob Leonhards Söhne

IRRIGATION: Mastop Totaaltechniek

LIGHTING: Zumtobel Lighting, WILA Lichttechnik

CLOSERS AND EXIT DEVICES: Dorma, GEZE

ELEVATORS/ESCALATORS: KONE, Windscheid + Wendel

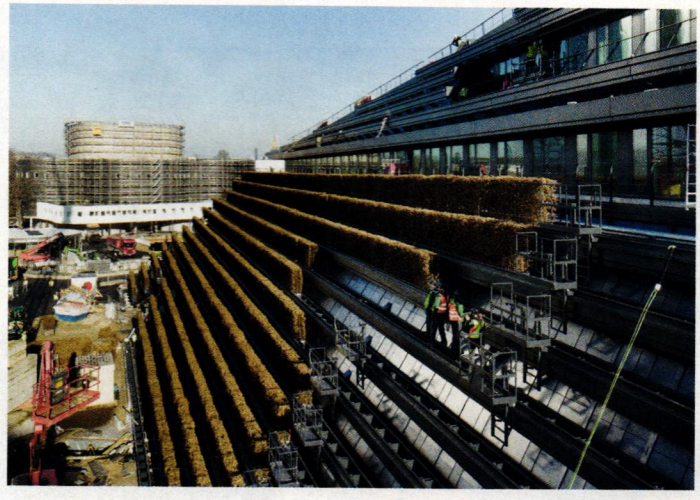
profile and create a manicured—or what firm founder Christoph Ingenhoven calls a "dominated"—version of nature.

One motivation for all the greenery was to refer to a beloved nearby park, the Hofgarten, while lending the mixed-use complex an expression distinct from two landmarks that also border Gustaf-Gründgens-Platz—the Dreischeibenhaus (1960), a 25-story Miesian office tower, and the Schauspielhaus (1970), an organically curved state theater that Ingenhoven Architects is currently renovating. "We didn't want to compete with the two icons," says Ingenhoven. "The third building on the plaza had to be completely different."

The project is the culmination of Ingenhoven's decades-long preoccupation with the center of Düsseldorf—the city where his international practice is based. Since the early 1990s, he had been advocating for removal of a postwar-era multilane roadway elevated on piloti. It sliced through the urban fabric, dividing the Hofgarten in two and isolating the Dreischeibenhaus and the Schauspielhaus from much of the city. In large part due to Ingenhoven's efforts, the thoroughfare was finally torn down in 2013 and replaced with a tunnel system. Meanwhile, Kö-Bogen I, designed by Daniel Libeskind, was built on the opposite side of the elevated highway. That mixed-used complex, comprising a pair of sinuous structures connected by a pedestrian bridge, anticipated the roadway's removal, opening soon after demolition was complete. Ingenhoven's firm subsequently won an invited competition for Kö-Bogen II, which he saw as an opportunity to reimagine the Gustaf-Gründgens-Platz and highlight the relationship between the theater and the office tower. The scheme not only provides a sharp contrast to the two existing buildings, but the combination of the sloping lawn and the shrub-covered facade form a void or a "valley" that frames these older structures and also defines a new entry to the plaza.

Above five levels of underground parking, Ingenhoven's reinforced-concrete structures are organized so that the smaller, triangular one and the basement and first three floors of the trapezoidal one are devoted to retail (its top two levels house offices). And although, from Gustaf-Gründgens-Platz, the larger volume appears almost entirely wrapped in shrubs, its south facade, which faces a major shopping street, is glazed, as is the east facade. The other two elevations are clad in metal panels, with the hornbeam planting beds, each 18 by 40 inches, supported on their own armature, which includes a system of cages that travel on rails, allowing horticulturists to access the shrubs.

THE HORNBEAMS were installed during the winter, when their leaves are brown (right). The only indications of human habitation from the plaza are ground-level portals set within the shrubs (above).



(The roof is also covered in hornbeams, but these are more conventionally supported). The arrangement provides one facade for the retailers, who generally prefer mostly black-box store environments, to place signage and showcase their wares, while allowing some connection to the city. A terrace wrapping the building's fourth floor and tucked between the rows of hornbeams on the north and west faces gives office workers access to daylight, views, and fresh air.

Despite some delays due to COVID-19, the shops are slated to open this fall, with the first office tenants moving in at the end of the year. But Kö-Bogen II should provide advantages for city residents—even before anyone steps inside. The sloping lawn, for instance, is accessible for people to lounge and enjoy the sun. The hornbeams create ecological benefits, including storing as much carbon as 80 fully grown trees, says the project team. Karl-Heinz Strauch, a specialist in phytotechnology, helped develop the plan for the hornbeams' irrigation, nutrients, and pruning. He has thoroughly investigated the bushes, in addition to monitoring the individual selected shrubs at the nursery in northern Germany, where they had been growing in their planters since 2016 before being installed on the building early this year; he studied a full-scale mock-up of one corner erected near the site and worked with specimens at his lab at Beuth University of Applied Sciences in Berlin. Strauch knows how much water the engineered soil mix can hold, how long it takes for each hedge's root system to fully form, and the plants' rate of transpiration (the process through which they give off water vapor through their leaves). He points specifically to urban heat-island mitigation, explaining that the plants will prevent the building envelope from absorbing solar radiation and then warming the adjacent air.

Should any plants fail, they could be swapped out by crane. But Strauch sees this as unlikely, assuming that the maintenance regimen—including clipping the shrubs back about three times a year and periodic fertilization—is adhered to. The living facade comes with a 99-year warranty. "If replacement is necessary, it will be far into the future."

For Ingenhoven, this aspect of the project's performance is part and parcel of his larger sustainability and urban place-making goals. As architects, "we have to ask what our buildings do for the city," he says. "We can't do things merely because they are beautiful." ■

Water World

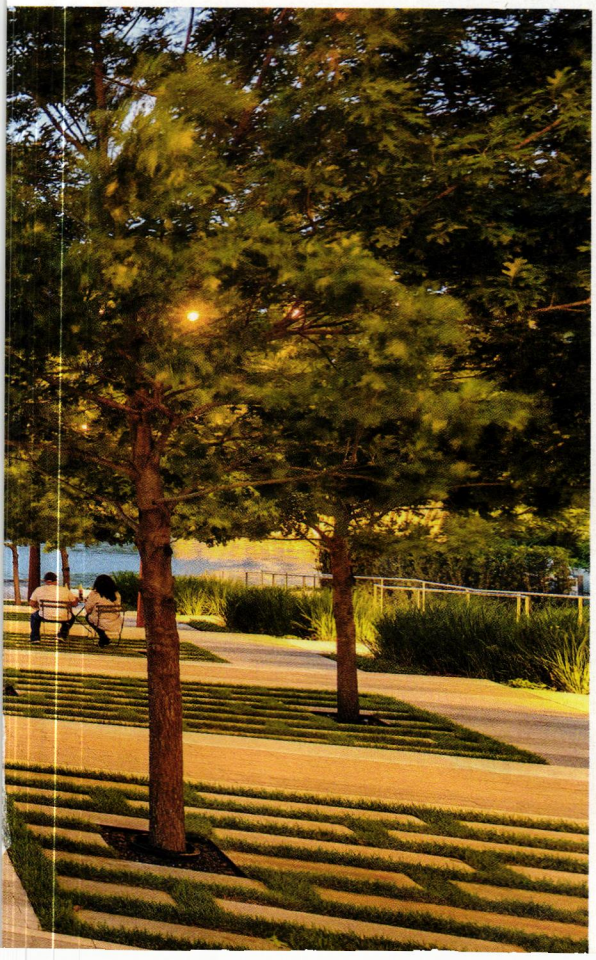
OJB Landscape Architecture manages flooding naturally in an exurban Houston development.

BY SUZANNE STEPHENS
PHOTOGRAPHY BY GEOFF LYON

TEXAS IS one of those places where it's still possible to have land, lots of land, close by a major city. Such is the case with Springwoods Village, once a 2,000-acre forested property on the northern edge of Houston, now being transformed into a mixed-use community, including office, residential, retail, recreation, and greenspace. And the developer, CDC Houston, has added a natural water-management system to its agenda. While the parent company, Coventry Development Corporation, had acquired the land in the 1960s, it wasn't until after 2000, when ExxonMobil bought 400 acres of the property for its main North American campus, and a beltway (Grand Parkway) was constructed around much of Houston's outskirts, that Springwoods Village took shape. In 2010, CDC embarked on a master plan to develop a $10 billion project on the remaining 1,600 acres, with 4,000 to 5,000 houses and apartments projected to be built within commuting distance of downtown Houston, 25 miles away.

One significant aspect of Springwoods Village is the inclusion of large swaths of landscape. In a recently completed area in the eastern portion of the development, CDC commissioned OJB Landscape Architecture to design and construct a landscape component, finished in 2016, that provides recreational features and aids in stormwater management. The 32-acre CityPlace Park is composed of waterfalls, bridges, and trails, with ipé boardwalks threading through a landscape planted with buffalo grass, prairie wildrye, and Texas cupgrass, as well as cypress, water oak trees, and loblolly pines. Included within this park is an entity given the evocative name of Drainage Corridor-1 (DC-1) and composed of a string of eight man-made ponds to mitigate flooding. "We wanted to make sure our stormwater-management system would be seen as an amenity, so we combined it with the large park," says Warren

PHOTOGRAPHY: © SLYWORKS



CITYPLACE is a residential, office, and hotel enclave organized around a linear plaza (above). Lawns (left) draw residents and the public to the man-made freshwater pond at the edge of the plaza.

Wilson, executive vice president of Coventry Development. To its credit, the drainage corridor not only does a lot of invisible work during extreme weather "events" but looks as if it has always been there.

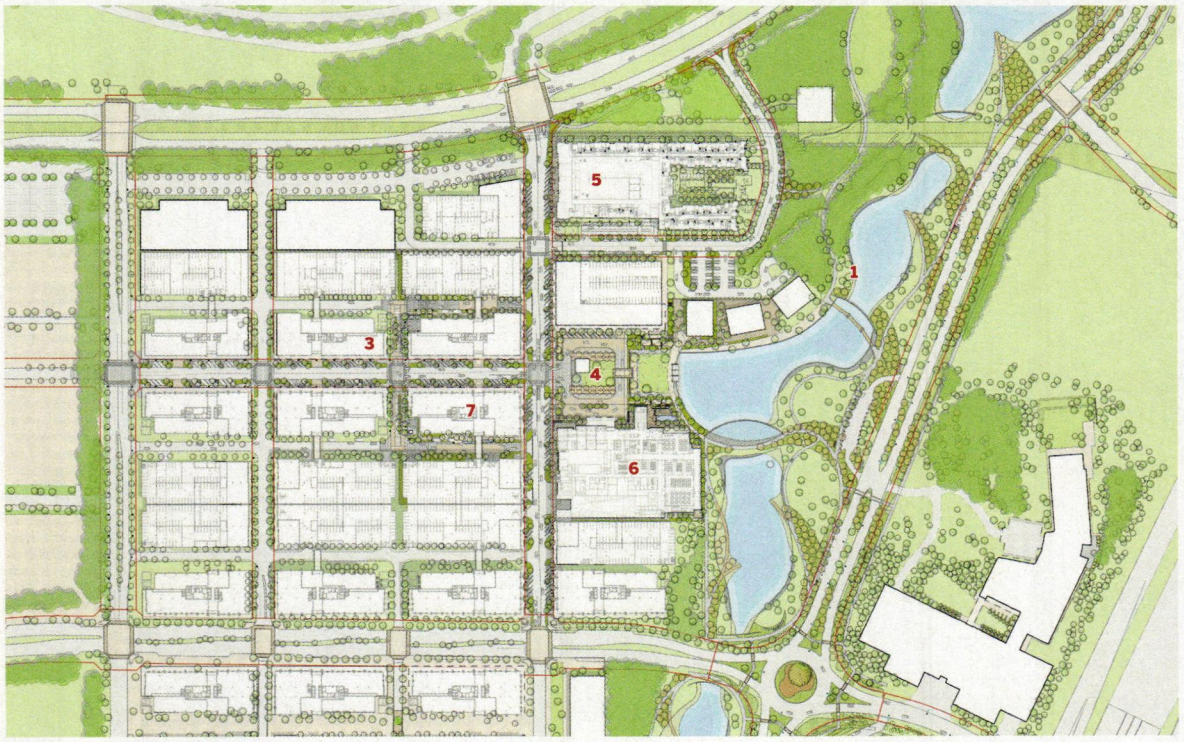
Contrasting with CityPlace Park, which comprises DC-1, is a second component, the urbane 60-acre enclave called CityPlace, whose infrastructure was finished in 2019. Here a mix of office buildings, hotels, multifamily residences, retail shops and restaurants are open or in construction, organized around a large linear plaza that gradually descends east to meet DC-1 and its lush environs.

While Houston-based OJB was in charge of all the landscape design, as well as the master plan for the drainage corridor and park, the firm worked with Gensler on CityPlace's overall master plan. This component features a grid of 250-by-400-foot blocks and the stretched-out plaza, softened by vegetation. Grass energetically sprouts up in the 7-inch joints between limestone pavers. Along with rectangular stainless-steel fountains, the pavers reinforce a rational design scheme—its artificial character contrasting nicely with the biomorphic park.

Yet the most important element of this two-part complex is the infrastructure of the drainage system, especially since its purpose is hidden and designed to look natural. CDC was crucially aware of the need to have strong stormwater management: the region is famous for its flatness and flooding, and climate change means not only a warmer but also a wetter future. While the developer had initially cleared land for Springwoods Village's unfolding, the company wisely embarked on a green initiative that includes planting over 2,200 trees in CityPlace Park and CityPlace as part of a reforestation effort.

Springwoods Village as a whole complies with county requirements for low-impact development and green infrastructure practices, but also benefits from a designation as an improvement district, which enables the county to collect property taxes to construct and operate the infrastructure for storm drainage, wastewater treatment, and water supply.

The timing was crucial. DC-1 and



1 CITYPLACE PARK
2 DRAINAGE CORRIDOR-1
3 CITYPLACE
4 CITYPLACE PLAZA
5 APARTMENTS
6 HOTEL
7 OFFICE BUILDING
8 FUTURE CORPORATE CAMPUS
9 EXXON MOBIL CAMPUS
10 NATURE PRESERVE
11 GRAND PARKWAY
12 INTERSTATE 45
13 SPRING CREEK
14 FUTURE PARK

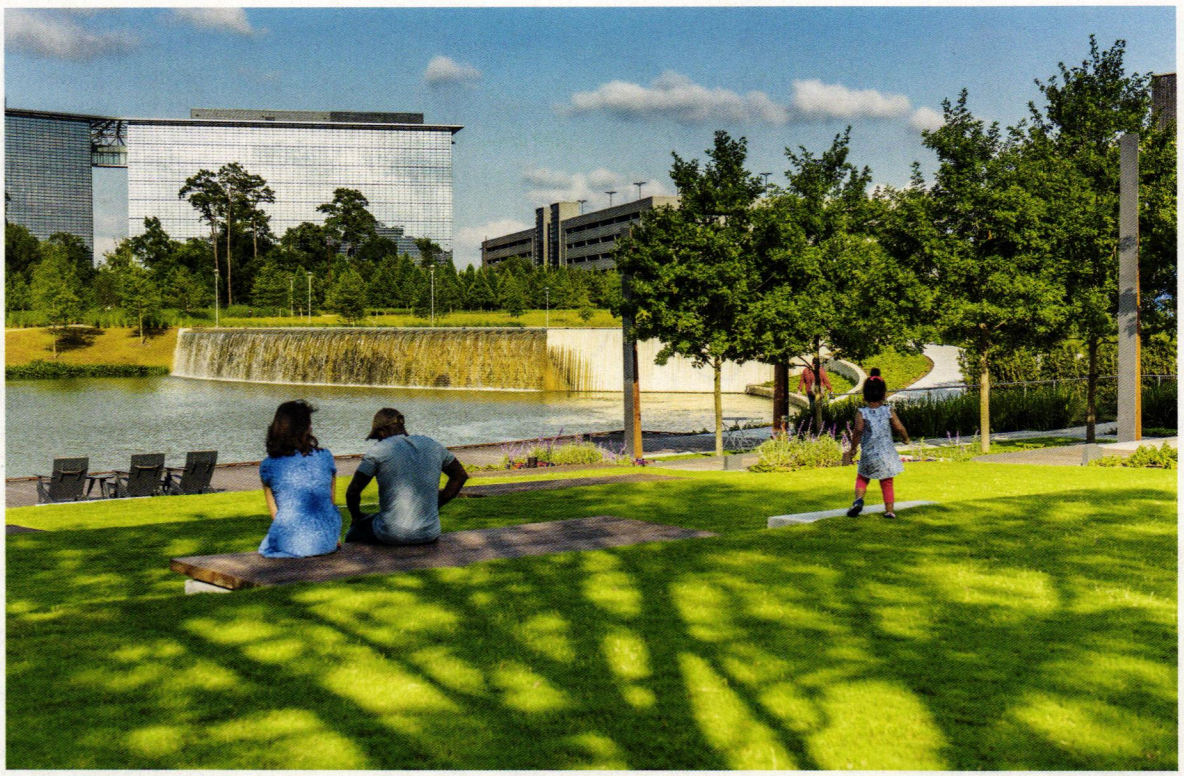
CITYPLACE PLAN

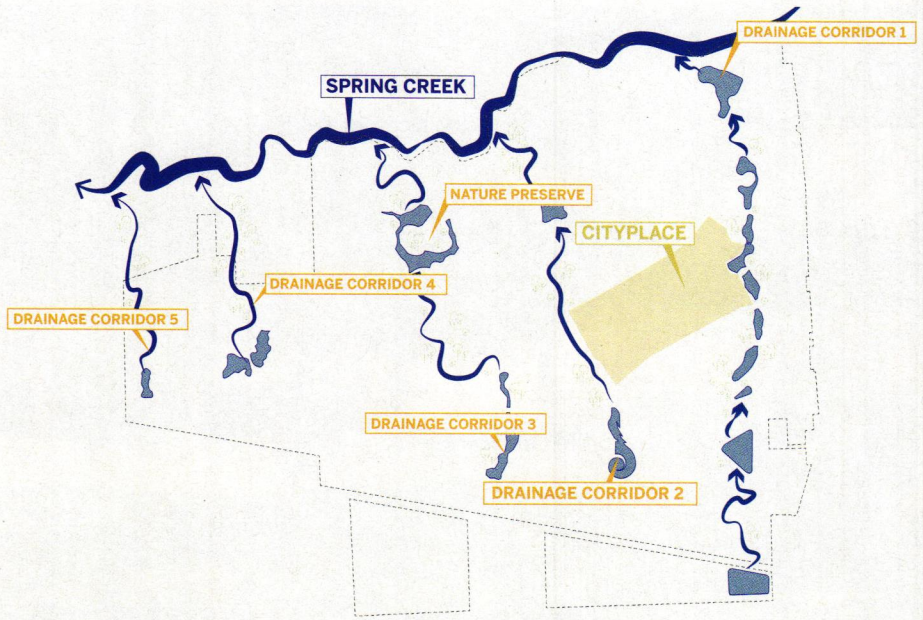
0 200 FT.
50 M.

MASTER PLAN

0 800 FT.
250 M.

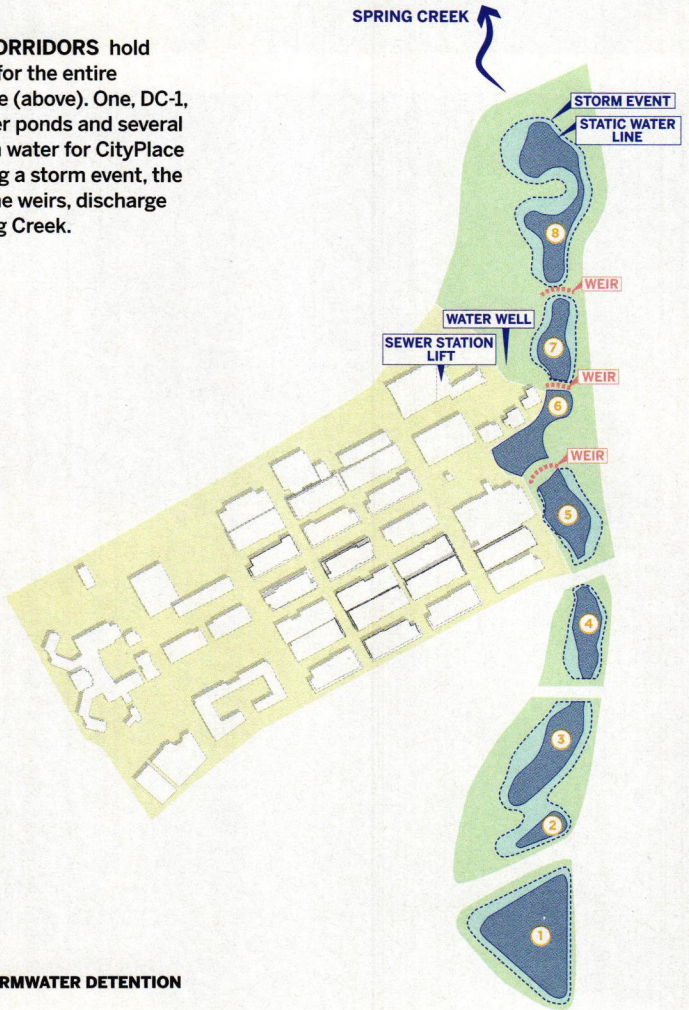
A WATERFALL attracts visitors in CityPlace's plaza (right), where the elevation drops naturally, descending gradually to the man-made pool of the drainage system. The plaza features plantings of local species along with seating, and tents put up for various festivities (right, below).





SPRINGWOODS VILLAGE DRAINAGE CORRIDORS

FIVE DRAINAGE CORRIDORS hold stormwater runoff for the entire Springwoods Village (above). One, DC-1, has eight freshwater ponds and several weirs to help detain water for CityPlace Park (below). During a storm event, the ponds, helped by the weirs, discharge overflow into Spring Creek.



CITYPLACE PARK STORMWATER DETENTION

CityPlace Park were already in place when Hurricane Harvey hit in 2018, so the area impressively survived 30 inches of rainfall that spilled down in four days—FEMA called it the largest amount of rainwater from a single storm documented in the U.S.—without serious flooding of the development's businesses and homes.

In addition to DC-1, four more drainage corridors serve the entire Springwoods Village area. When flooding occurs, corridors detain the water and gradually discharge the overflow into Spring Creek, which runs into the man-made Lake Houston. "We wanted to avoid putting water into pipes," says Chip Trageser, OJB's design lead on DC-1. "We just needed to slow it and let it gradually drain into Spring Creek."

DC-1 is the most dramatic piece of the stormwater-infrastructure system in the Springwoods Village development. Its ponds altogether hold about 50 million gallons of water normally, but can accommodate 126 million gallons during a storm. This system also decontaminates, desilts, and moves treated effluent from the drainage area to Spring Creek. And the ponds and weirs do welcome the occasional kayaker.

As part of the decontamination effort, the landscape architects installed aquatic plants that take out impurities such as fertilizers and help prevent algae growth. Shrubs, native grasses, and wild flowers planted between impermeable surfaces and the ponds help filter out heavy metals, oils, and other pollutants. And the slowing of the flow of water by the vegetation helps it infiltrate into the ground.

The vast green acres of the parks and open spaces attract the public from the metropolitan area outside Springwoods, says Wilson, acting as a magnet to outdoor activities. The bridges over ponds and trails invite the experience of "nature," where visitors can escape the hot, sticky Texas weather: Trageser points out that the tree canopy causes the temperature to drop as much as 10 degrees Fahrenheit. Depending on the season, the wild flowers and native grasses add touches of color and scent.

In CityPlace's plaza, people like to sit beneath the trees, or explore open-air festivities set up under tents. This is a more social idea of connecting to the outdoors. Yet in both of these two man-made landscapes of Springwoods Village, OJB has given a strong hand to nature with its environmentally sound design. The land may be plentiful, but it does benefit from a judicious intervention. ■

Credits

ARCHITECT: OJB Landscape Architecture — Chip Trageser, design lead; Tyler Jurney, project manager

ARCHITECT OF RECORD FOR CITYPLACE: Gensler

ENGINEERS: Walter P. Moore (civil and structural); Wylie & Associates (electrical); Jacobs (district engineer)

GENERAL CONTRACTOR: L.N. McKean Construction

CONSULTANTS: BergOliver Associates (environmental services/land use); Sweeney & Associates (irrigation); Lake Management Services (pond management)

CLIENT: Coventry Development Corporation

SIZE: 32 acres (CityPlace Park); 60 acres (CityPlace)

COST: withheld

COMPLETION DATE: June 2016 (CityPlace Park); June 2019 (CityPlace infrastructure)

Sources

CONCRETE UNIT PAVING: Pavestone

PEDESTRIAN BRIDGE: Contech Engineered Solutions

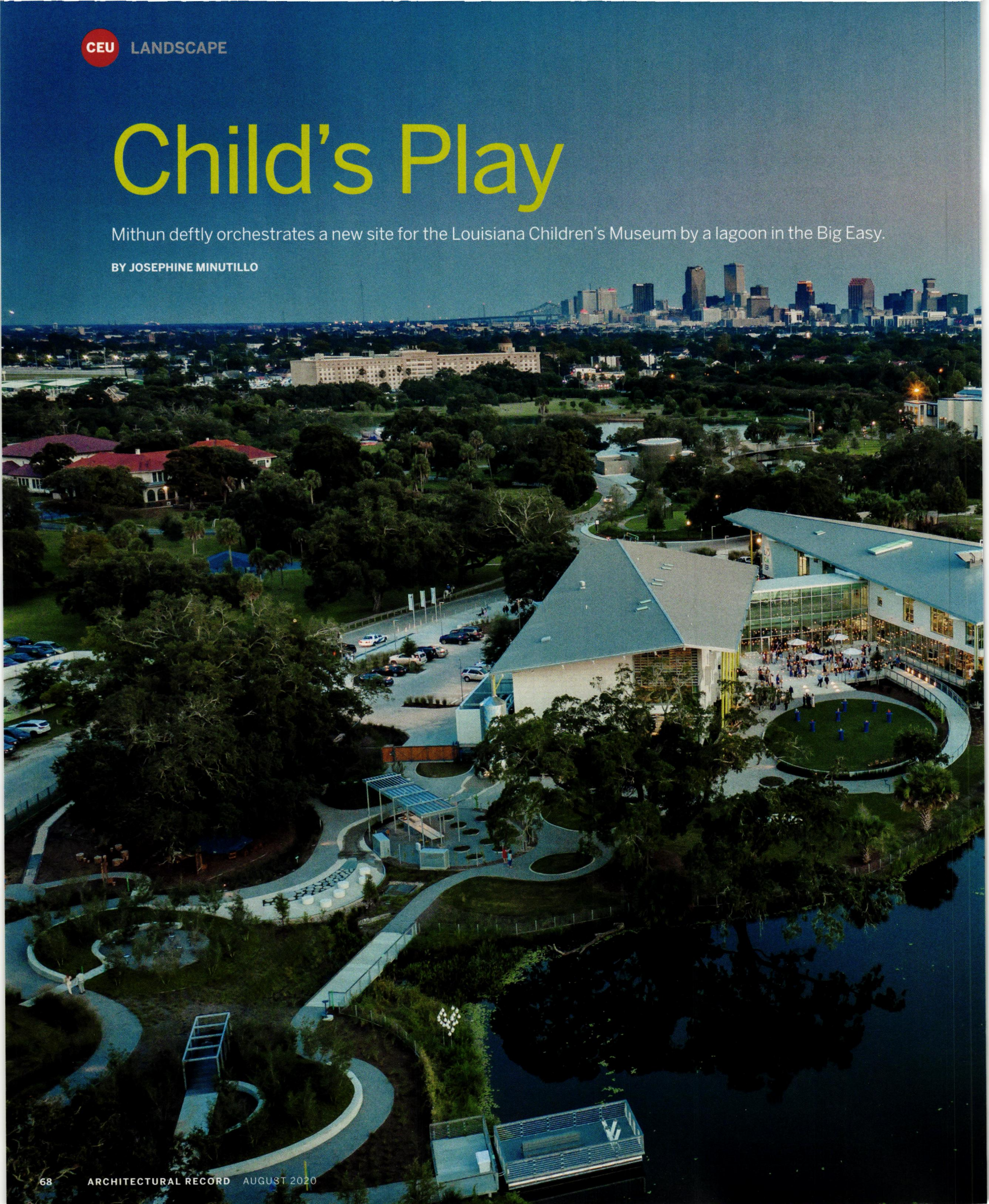
LIGHTING: Selux Saturn Cutoff LED; Louis Poulsen's Kipp Post LED; Hess America; Tivoli

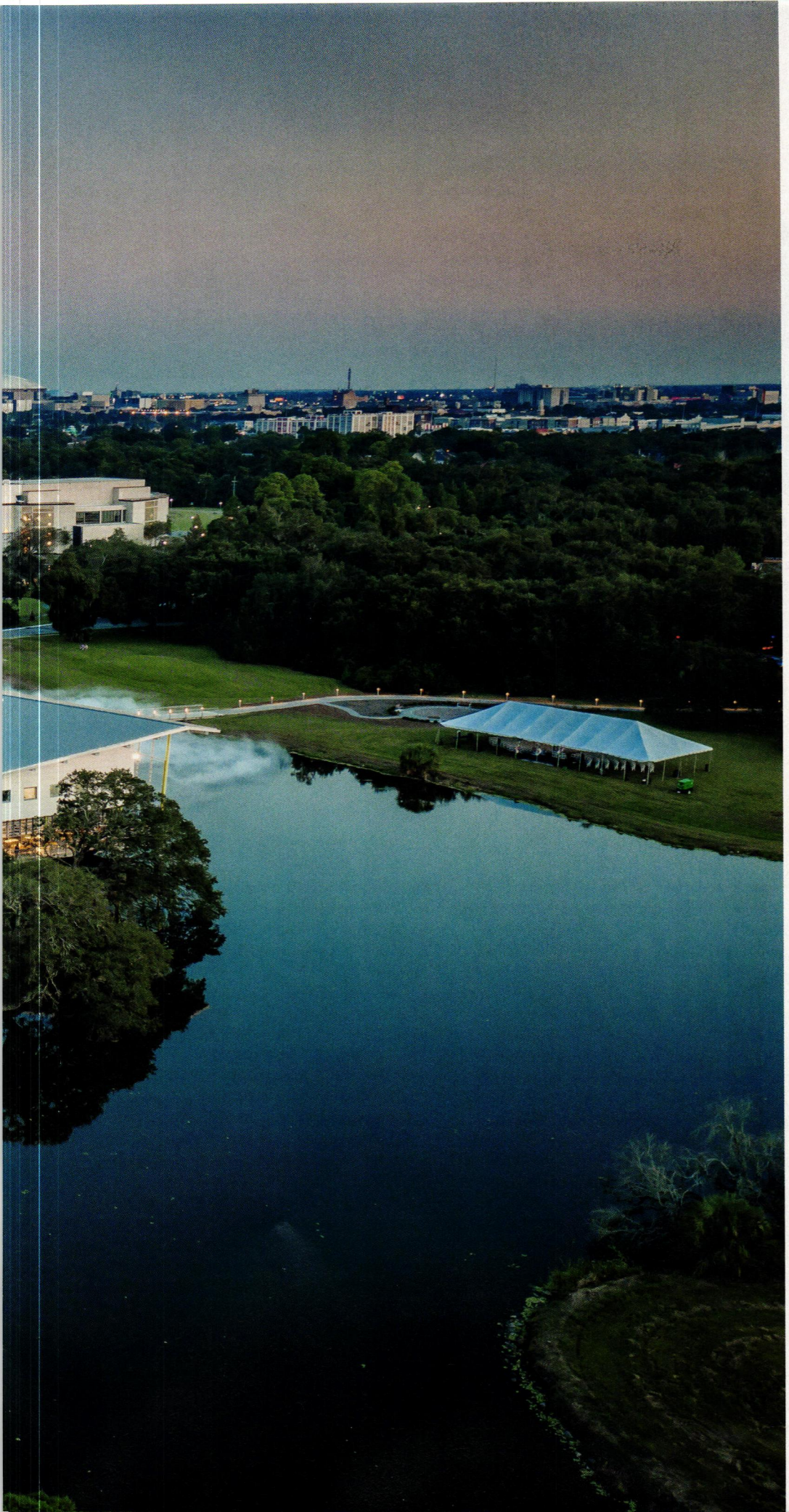
AS PART of the park, boardwalk and trails take visitors past the ponds (top). The weir structures (above) mark the drop in elevation between the ponds, generating waterfalls, while storm overflow is drained into Spring Creek.

Child's Play

Mithun deftly orchestrates a new site for the Louisiana Children's Museum by a lagoon in the Big Easy.

BY JOSEPHINE MINUTILLO





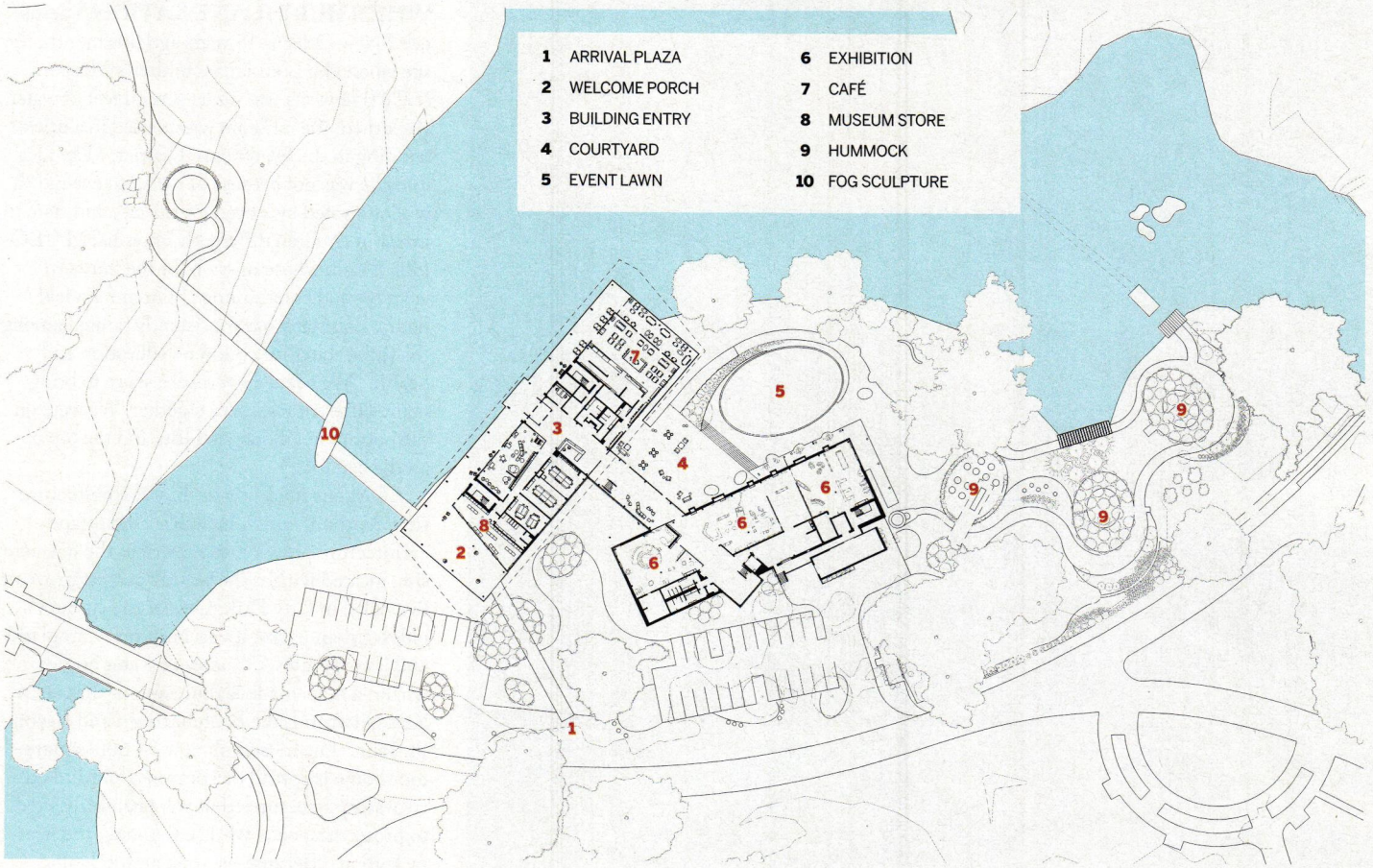
WHEN HURRICANE KATRINA devastated New Orleans 15 years ago this month, the site where the Louisiana Children's Museum (LCM) now sits was under several feet of water. Back then, the museum was housed in a brick building in the Warehouse District. "The idea to move was not because of a plan to expand. It was motivated by a need for the city and state to invest in children differently," says LCM CEO Julia Bland, whose mission for the museum went beyond entertaining children for a few hours. Louisiana has consistently ranked among the worst states for children's education and health. "We needed to create a space to bring many different resources together. We were on the bottom of all the good lists and the top of all the bad lists."

LCM engaged Seattle-based architecture firm Mithun, which includes a landscape architecture practice, to negotiate the 8.4-acre site, located within the world's largest grove of live oaks, in City Park. One of the country's oldest urban parks, it was built on swampland and incorporates 137 acres of water bodies within a man-made lagoon system that circulates between Lake Pontchartrain and Bayou St. John. The museum's new 54,600-square-foot home is spread out between two linked two-story structures that were carefully sited to protect the oaks while enhancing the nearby lagoon. "Because we took an integrated approach to the design, we did not put the front door at the drop-off," says Mithun landscape architect Christian Runge.

Indeed, the overall design encourages meandering. Mithun transformed the previously flat site, once part of a golf course, to create a rolling topography that mimics the hummocks and hollows—shallow rises and depressions—characteristic of Southern Louisiana landscapes, and regraded the lagoon, softening it to establish a living shoreline and carving out areas for wetlands. A diatom-shaped platform at the center of a bridge over the lagoon includes a fog sculpture—by artist Fujiko Nakaya, who consulted on Diller + Scofidio's 2002 Blur Building—that softly erupts into a dense mist every 20 minutes. "There's still trauma associated with water in New Orleans," says Mithun design partner Richard Franko. "We want to connect with water in a positive way."

The building sits on 60-foot-deep piles and is set 5 feet above existing grade for flood mitigation. The steel structure is painted a yellow green to evoke new botanical shoots, another important aspect of the design. Leafy plants inhabit the wetland areas, while grassy species are planted upland. The entire land-

PHOTOGRAPHY: © KEVIN BARRACO



SITE PLAN

Credits

ARCHITECT: Mithun — Richard Franko, design partner; Joshua Distler, project architect; Michael Fiegenschuh, project manager; Gregory Catron; Jason Steiner, design visualization; Bob Trahan; Debra Guenther, landscape architecture partner; Christian Runge, landscape architect; Annie Rummelhoff, interior designer

ASSOCIATE ARCHITECT: Waggonner & Ball

ENGINEERS: Schrenk Endom & Flanagan (civil); Thornton Tomasetti (structural); Arup (m/e/p)

GENERAL CONTRACTOR: Roy Anderson

CONSULTANTS: Gyroscope (exhibition design); Bayou Tree Service (arborist); JRS Engineering (building envelope); Integrated Design Lab (daylighting); Pastorek Habitats (planting)

CLIENT: Louisiana Children's Museum

SIZE: 56,400 square feet

COST: $47.5 million (total); $33.4 (construction)

COMPLETION DATE: August 2019

Sources

EXTERIOR METAL PANELS: Berridge

CURTAIN WALL: Southern Walls and Windows

GLASS: Viracon

LOCKSETS: Assa Abloy

ROOFING: Soprema

scape is conceived as a sensory garden, with edible plantings, but also highly aromatic and colorful ones such as anise plants and pink muhly grass. The oaks provide a high canopy year-round.

The choreography of the visitor experience of the landscape and the architecture connects children (and adults) from across the city and region to nature, increasing the museum's focus on environmental education. Part of a parkwide plan to include more institutions—City Park is home to several, including an art museum and botanical garden—LCM's extensive landscape and outdoor programming allowed it to reopen earlier than others during the coronavirus shutdown.

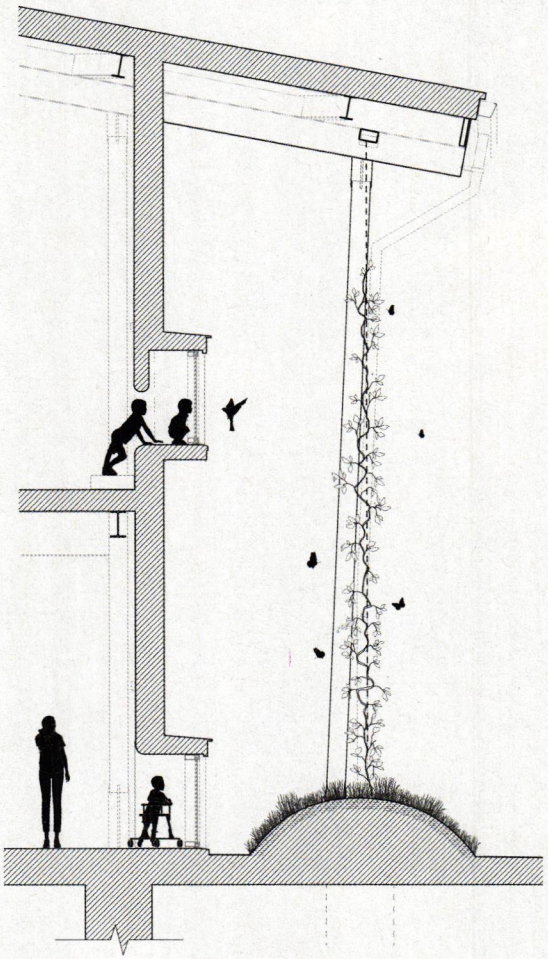
The landscape design adheres to the guidelines of the New Orleans Water Plan pilot project, which aims to address increasingly frequent high-water levels. The lagoon could function as a stormwater basin to relieve pressure on the canal systems. A second water system captures rainwater from the building roofs and parking areas and feeds it to bioretention swales, while a portion of it is diverted to a 9,000-gallon cistern that feeds irrigation. Existing live oaks and related drainage patterns were integrated into the site grading and carefully protected during construction. "We layered a new, more resilient system on top of what's already a fairly artificial one," Runge points out.

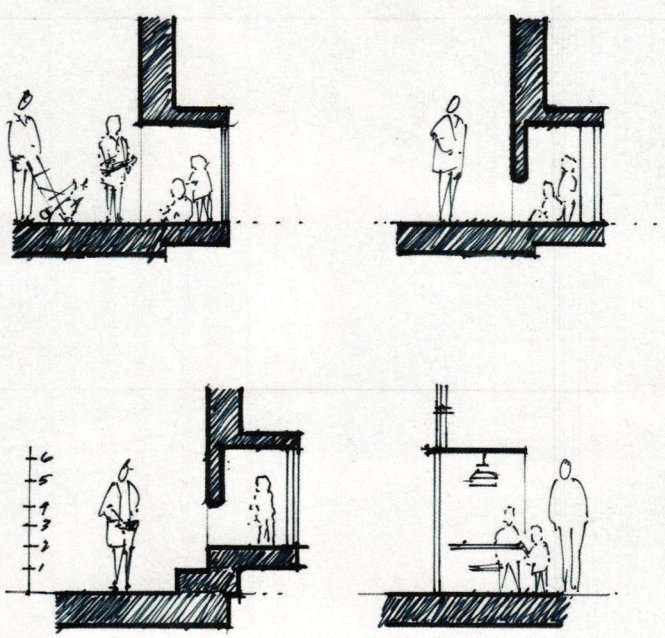
The building, too, features sustainable strategies, and is currently tracking for LEED Gold certification. To deal with the city's subtropical climate, the structure features radiant cooling in the concrete slabs, with a dessicant wheel in the intake airstream to dry the humid outdoor air. There are also large overhangs and a generous porch, the kind for which New Orleans is famous. The project exceeds energy code through a high-performance envelope—over 4,000 linear feet of perforated louvers provide solar control at the porch—and a high-efficiency mechanical system. (The roof is set up for a PV array, with conduit infrastructure, though one is not yet installed.)

About a third of the new building—

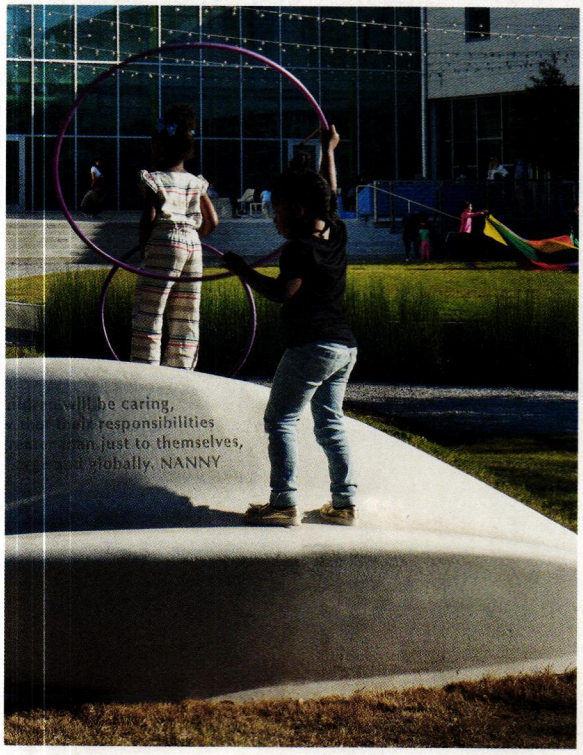
PHOTOGRAPHY © KEVIN SCOTT

A DIATOM-SHAPED platform includes a fog sculpture that erupts into a mist over the lagoon every 20 minutes (above). An outdoor seating area of the café overlooks the water (right).





PHOTOGRAPHY © KEVIN SCOTT



18,000 square feet—is dedicated to exhibitions, which include a life-size interactive chessboard sharing New Orleans history, and a display about the "Mighty Mississippi." (A floating classroom takes groups out on the lagoon and provides a different perspective on the land from the water.) The museum's south wing features a literacy center and parent-resource center providing families with free information and educational events.

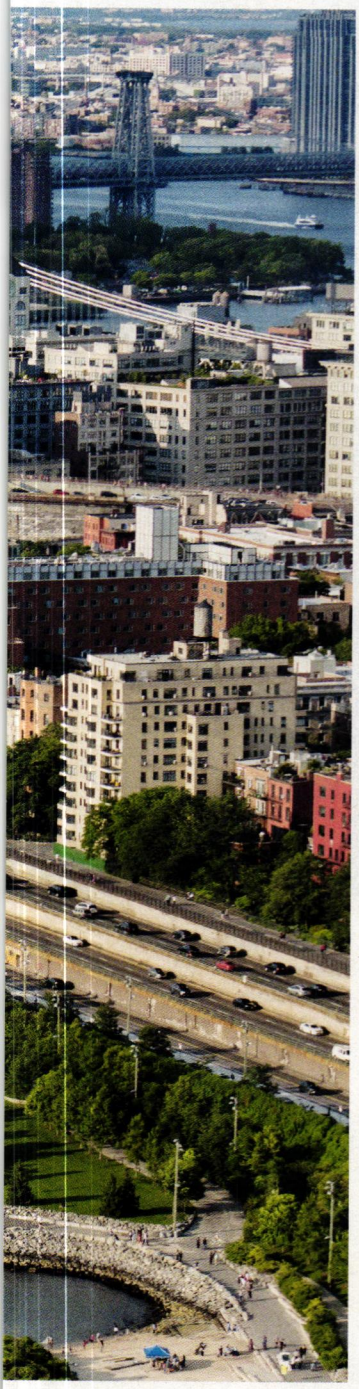
Opened last August, the new museum is located near public transportation, and is meant to be accessible to all school groups and families. "We wanted it to be more welcoming, more beautiful, more inclusive," says Bland. "The play factor here is dramatic, along with the way parents are engaging with their children. The community has really embraced this place." ■

MATURE OAKS were preserved (top left). A contemporary version of a New Orleans-style porch includes glass beads along the railing that were inspired by Mardi Gras beads (above). Design elements including 12 "kindows" (opposite, bottom) and benches (bottom right) were scaled to children.

Surf and Turf

Brooklyn Bridge Park by Michael Van Valkenburgh Associates nears completion with Pier 3.

BY BETH BROOME



PHOTOGRAPHY: © ELIZABETH FELICELLA, EXCEPT AS NOTED; ALEX MACLEAN (LEFT)

OVER 20 YEARS, Brooklyn Bridge Park, designed by Michael Van Valkenburgh Associates (MVVA), has transformed a 1.3-mile stretch of a once-gritty industrial waterfront into a lush and treasured resource for New York. The completion of Pier 3, one of the last major elements—and the final of five piers to be developed—has been timely, providing a verdant landscape for locals to retreat to during the pandemic. With its loosely defined program, this park on a pier has drawn a range of visitors as they temporarily leave behind the stresses of dense urban living during a summer of COVID restrictions.

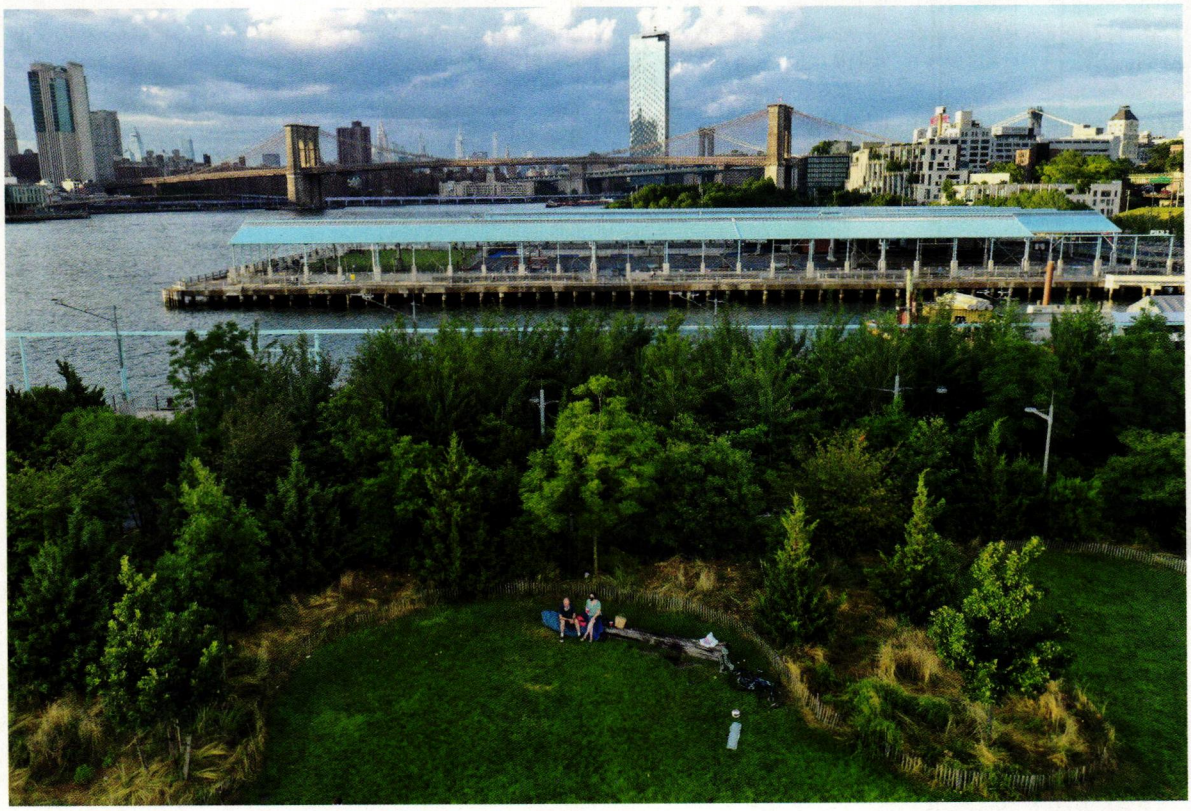
The long, narrow 85-acre park is squeezed between the Brooklyn–Queens Expressway and the East River, a tidal estuary, with Manhattan's skyline just beyond. Managed by the not-for-profit Brooklyn Bridge Park Corporation, the park includes eight acres of private development—largely condos and a hotel—that provides the income for maintenance and operations. The first portion, Pier 1, was completed in 2010 (ARCHITECTURAL RECORD, January 2011). Today, the park—which attracts over 5 million visitors annually—includes piers dedicated to soccer fields and basketball courts, as well as playgrounds, a marina, fishing and barbecuing areas, zones for kayaking, and a spine-like greenway along the shore that links the pieces and is well-used by cyclists and runners.

To this mix, Pier 3 brings 4.6 acres of cultivated nature and recreation space, a balance of active and passive use.

PIER 3 abuts the busy BQE on one side, faces Manhattan on the other, and sits adjacent to Pier 2's basketball courts (left). Cedar dune fencing and recovered black locust log "benches" offer coastal references (above).

"Pier 3 provides a different take on the concept of play, as well as a more traditional pastoral destination," says Michael Van Valkenburgh. "Brooklyn Bridge Park is extroverted, water-centric, but with Pier 3, we wanted a place that was more introverted." Retaining the steel frame of the warehouse that once occupied the pier, the team left the original concrete deck at the perimeter exposed, to create a promenade. Passing across this rough industrial edge and through the steel ghost of the warehouse, you enter a green oasis.

The biggest challenge of putting landscape on a site like this, points out MVVA principal Jason Siebenmorgen, is accommodating the weight of soil—especially the depth required for shade trees. In the project's early stages, the pier's existing wood piles were reinforced with rebar and concrete that was pumped into fiberglass forms installed to surround them. Existing seawalls were then removed and replaced with riprap edges on the adjacent shoreline. Finally, to create some separation from the mainland, the team cut out the deck that connected the pier to the greenway, installing two concrete bridges instead. To build topography on this flat surface without overloading the structure, MVVA erected a system of lightweight geofoam blocks. Pier 3 (most of which sits below the 100-year-flood



THE AMORPHOUS shape of the central lawn creates nooks for gathering (above and left). Toward the water, the scale of plantings diminishes (opposite, top). Mooring bollards add to the Discovery Garden's playscape (opposite, bottom).

SITE PLAN WITH CLOSE-UP OF PIER 3

PHOTOGRAPHY: © KELCO CONSTRUCTION (OPPOSITE, BOTTOM); SCOTT SHIGLEY (BOTTOM)

line) is designed to withstand water inundation. Because 2012's Hurricane Sandy flooded the park and dislodged the foam on Pier 5, a geotextile was used this time to anchor the material. On top of this is a 30-inch layer of sand, subsoil, and topsoil. Runoff (greatly reduced by the dramatic reduction of impervious surfaces) flows into plant beds, with their porous sandy soil mix; the rest is directed into the East River.

Hillocks and gentle rises lend this park-within-a-park a bowl shape, and define its expansive central lawn, which is flanked by meandering paths, an open event plaza, and the labyrinthine Discovery Garden, with its funhouse mirrors and "whisper room." In plan, the lawn resembles an amoeba, with numerous curvy nooks, perfect for small private gatherings and picnics. "We had never heard of social distancing when we designed the park," says Van Valkenburgh. "But the concept was there—in the public realm, many of us like to have separation." Low cedar dune fencing appears to be holding back dense growth as if to prevent it from jumping out onto the tamed grass.

MVVA used a resilient, salt-tolerant plant palette that includes bayberry, beach rose, witch hazel, switch grass, and quaking aspen. Juniper brings year-round greenery. The horticultural staff here is deeply invested in ecology, says Siebenmorgen: Brooklyn Bridge Park is managed organically, irrigation is used sparingly—largely to help establish new plantings—and maintenance is adjusted according to such things as pollination studies, which might, for example, indicate when to prune. This jibes well with MVVA's "natural and rowdy" general aesthetic, notes Siebenmorgen. "Plants are not sitting clipped and well-behaved in the corner," he says. "They brush up against your ear or touch your arm—it's about that kind of physical interaction." While larger plantings—oak, black cherry, coffee trees, lindens, and hedgerows—are inland, moving toward the waterfront, the scale comes down with scrubby specimens such as sea kale, sassafrass, salt shrub,

A SANDY BEACH facing Pier 3 is a popular play spot. Steel framing from a former warehouse delineates the lush interior of the pier, and new concrete bridges connect it to the mainland.

Mauntauk daisy, and beach pea. The overall effect is that of an accelerated trip through a chain of microclimates: from forest to meadow to headland.

In recent months, the park's users have changed dramatically. Gone are the tourists, which usually make up about a third of visitors, and there are fewer New Yorkers from distant ends of the boroughs. But even during the lockdown, Pier 3's—and the larger Brooklyn Bridge Park's—mission to bring respite to the diverse city has not changed. "We're all very different, and we're not really all that very different," says Van Valkenburgh. "We think we're moving fast-forward on a rocket ship, which in many ways we are, but not experientially. Smelling a rose a hundred years ago affected my grandfather the same way it affects me. That's what I love about landscape: its enduring quality, no matter what your background is." ■

Credits

ARCHITECT: Michael Van Valkenburgh Associates — Michael Van Valkenburgh, Matthew Urbanski, Paul Seck, Scott Streeb, Andy Wisniewski, Nik Elkovitch, Jason Siebenmorgen, Tyler Krob, Leo Miller

ENGINEERS: CH2M/Jacobs (marine); Altieri Sebor Wieber (electrical); E2PM (structural)

CONSULTANTS: Domingo Gonzalez Associates (lighting); F2 Environmental Design (soil science); Northern Designs (irrigation); CNC Construction (concrete benches); Open (graphic design)

GENERAL CONTRACTOR: Kelco Construction

CLIENT: Brooklyn Bridge Park

SIZE: 4.6 acres

COST: $13 million (landscape); $13 million (marine)

COMPLETION DATE: July 2018

Sources

LANDSCAPE FURNISHINGS: MVVA custom

PLAY EQUIPMENT: Richter Spielgeräte

Submit your products for recognition!

2020 Record Products of the Year

The editors of *Architectural Record* are currently inviting submissions for the 2020 Products of the Year Awards, which salute the best building materials introduced to the U.S. market within the last year (no earlier than August 15, 2019).

A panel of architects and designers will judge the entries on the basis of innovation, function, sustainability, and aesthetics. Winners will be published in the December 2020 issue of RECORD.

Pictured: The 2019-winning Ventilated Glass Facade System for Parking Structures by Bendheim

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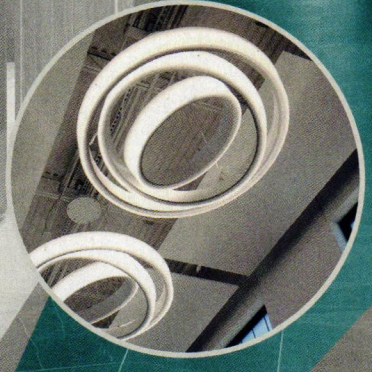
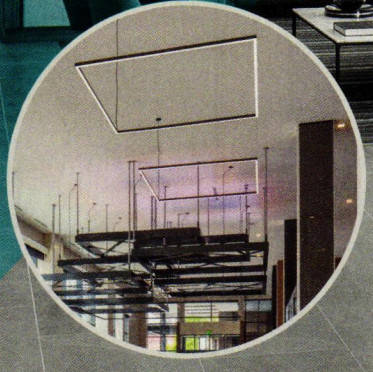
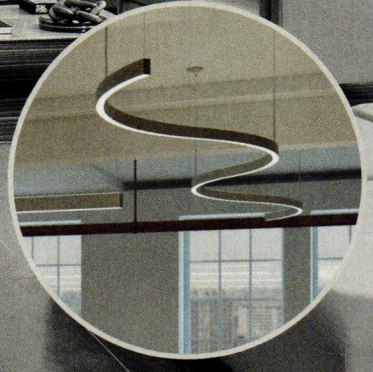


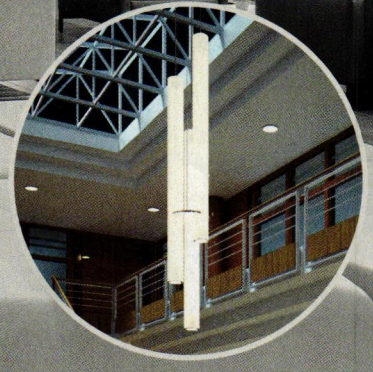
CIRCLES



SQUARES



CURVES



TUBES

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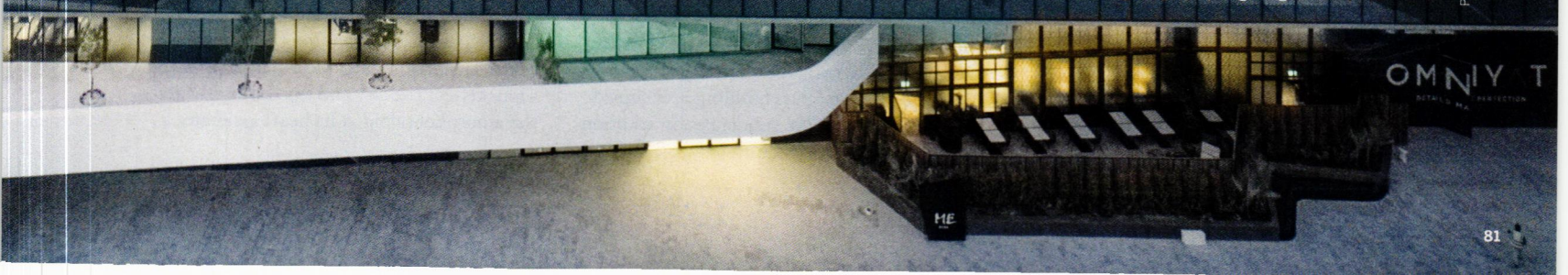
LIGHTING

FIRST IMPRESSIONS

Design teams collaborate to create advanced schemes that shape building identities.

The Opus by Omniyat, by Zaha Hadid Architects, with facade lighting by dpa lighting consultants

PHOTOGRAPHY © LAURIAN GHINITOIU

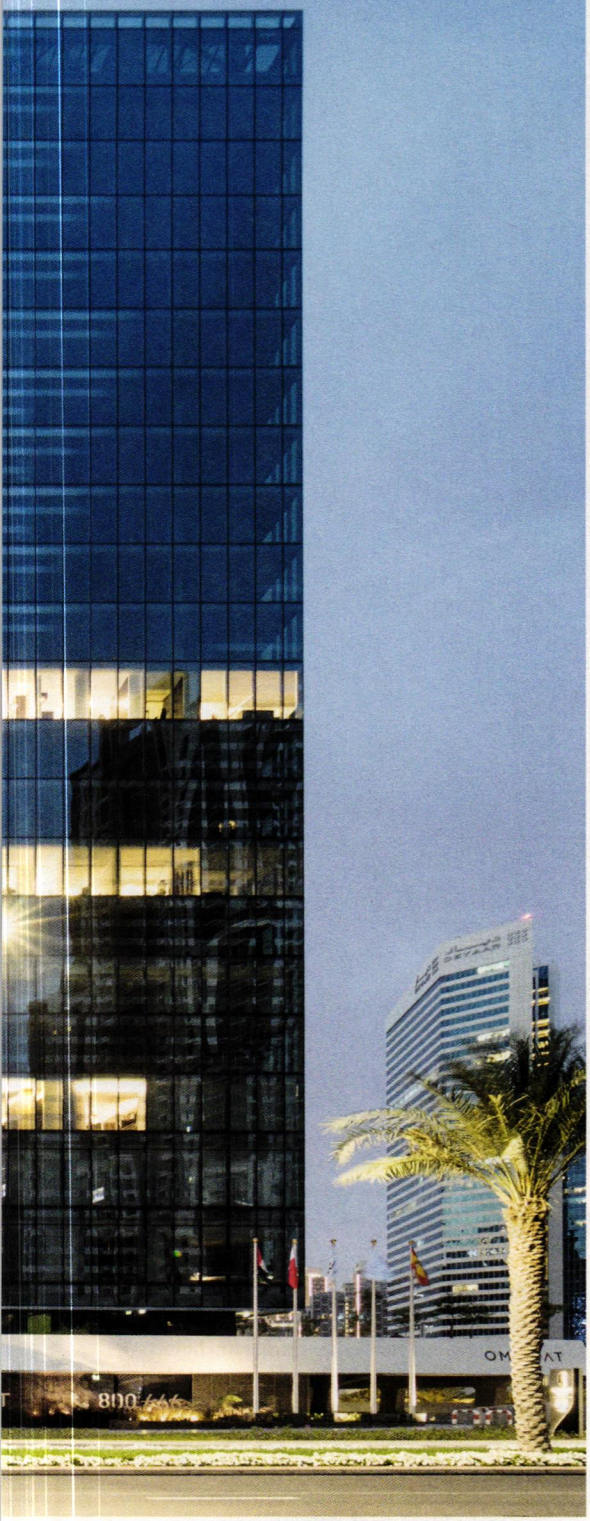


The Opus by Omniyat

Zaha Hadid Architects
dpa lighting consultants

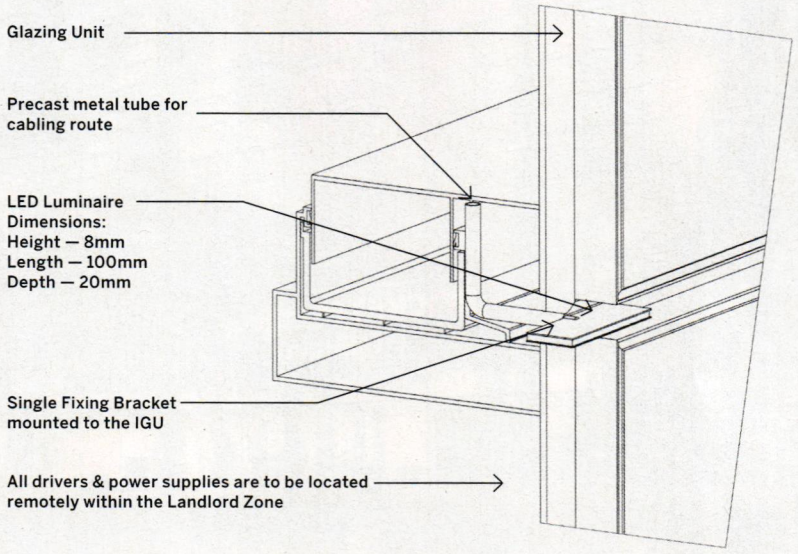
BY LINDA C. LENTZ

CONCEIVED by Zaha Hadid in 2007, the Opus by Omniyat was completed posthumously by her firm Zaha Hadid Architects (ZHA) earlier this year, adding a welcome volumetric diversion to the rigid linearity of Dubai's Burj Khalifa district. At just 305 feet high, the 20-story glass building is occupied by a ME Hotel and 96 residences, in addition to offices, restaurants, and bars. With a cube-like form that dissolves at its core, the structure is divided into two towers that are connected by a four-story atrium at the base and a three-story bridge spanning the upper floors of one side. And while the outer walls of the Opus reflect the city and sky during the day, the amorphous void at its heart generates a



PHOTOGRAPHY: © LAURIAN GHINITOIU

In addition to tucking thin, blade-shaped luminaires flush between the IGUs to keep the facade free of visible protrusions or cleaning obstacles, as illustrated in the rendering (left), dpa located the drivers in a remote interior spot, easily accessible for maintenance.



LUMINAIRE MOUNTING DETAIL

dynamic glow that defines the building's form when the sun sets.

The unique strategy to illuminate the surfaces of the void's 65,000-square-foot inward-facing facade, rather than those of the outward-looking elevations around it, was developed by dpa lighting consultants in response to a brief from ZHA and the client that stipulated a seamless integration of the lighting system into the building. According to dpa designer Michael Curry, "A critical consideration was to ensure that the lighting equipment did not detract from or compromise the smooth, flowing form of the internal void." To do this, dpa collaborated with the building design team and lighting-manufacturer Vexica to create a network of 5,000 individually controllable 1.5-watt RGBW LED points of light. These are contained within blade-thin luminaires embedded, flush, into the skin of the building between its insulated glazing units. Managed by a DMX control, the system can "paint" white or colored light scenes across the expansive glass "canvas" of the void.

For a project of this scale, the illuminating scheme is low in intensity and power, as gentle on the area's dark sky as it is engaging to onlookers, and a model to be considered for future urban plans. ■

Credits

ARCHITECT: Zaha Hadid Architects — Zaha Hadid, Patrik Schumacher, Ghriston Passas, design architects; Vincent Nowak, project architect

LOCAL ARCHITECTS: Arex; BSGG

LIGHTING DESIGNER: dpa lighting consultants (facade) — Michael Curry, David McNeil, principal project lighting designers

ENGINEERS: Whitbybird; BG&E (structural); Clarke Samadin (m/e/p); Agnes Koltay Facades (facade)

FACADE CONTRACTORS: Brookfield Multiplex; Alu-Nasa

PROJECT MANAGEMENT: Gleeds

CLIENT: Omniyat Properties

SIZE: 900,000 square feet (building); 65,000 square feet (void facade)

COST: withheld

COMPLETION DATE: 2020

Sources

LIGHTING: Vexica

Rocket Mortgage FieldHouse

Gensler
Office for Visual Interaction

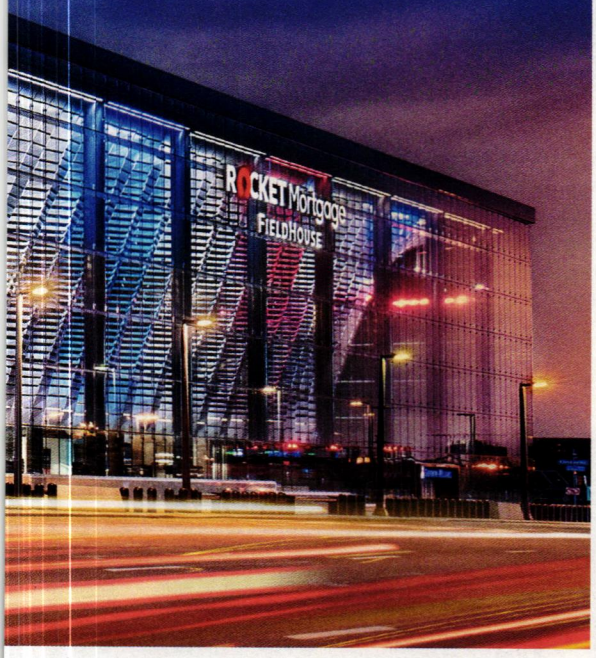
BY LINDA C. LENTZ

HOME TO the Cleveland Cavaliers basketball team, the former Quicken Loans Arena opened its 2019–20 season last autumn with a name change and new front door. After an extensive renovation by Gensler—which included bringing the 26-year-old venue to state-of-the-art standards as well as adding a glazed lobby—the Rocket Mortgage FieldHouse today welcomes guests and passersby with a fresh take on the fan experience. Rather than assaulting them with the bold, digital graphics and signage typical of sports facilities, the arena engages the public with nuanced displays of color and light, visible from the street. Behind the glass face of the new steel structure, an 80-foot-high by 840-foot-long internal wall snakes around the lobby's expanse, hovering above its floor. Erected in part to veil back-of-house and hospitality spaces, the wall doubles as a backdrop onto which light scenes can be projected.

This "curtain," as it is referred to, was engineered and fabricated by Toronto-based Eventscape to be a porous surface that enables light and views to filter into the building's interior. To do this, the crew created 4,000 unique aluminum panels, scored on a diagonal and powder-coated in a champagne hue to better catch the light. The panels, which are installed along tall steel edge-frames anchored by the building's infrastructure, are arranged with gaps of varying widths so that they are dense in some areas and farther apart in others. "The piece is impressive due to its scale and geometry," says Eventscape executive project director Steve Haniewicz. "But it becomes even more dynamic when light hits it."

The lighting, designed by New York–based Office for Visual Interaction (OVI), showcases the architecture without dominating it. Employing a straightforward strategy, lighting designer Enrique Peiniger and his team mounted a pair of adjustable floodlights at the top of each of the columns inside the building's glass front. Then they

The 65,000-square-foot wall hovers over the new lobby, anchored by building infrastructure (this page). The glazed lobby was added onto the exisiting arena (right). A full-scale mock-up of the wall enabled the lighting designers to test equipment (bottom, right).



PHOTOGRAPHY: © TREPAL PHOTOGRAPHY/CLEVELAND CAVALIERS

installed linear wall-washers along the perimeter above the glazing. By washing the curtain with light and articulating some sections so that it is not evenly illuminated, says Peiniger, the wall's sense of movement is accentuated. Louvers conceal the luminaires and prevent glare, both within the space and onto the street. There are no downlights; the reflective light bouncing off the curtain provides all the illumination. In concert with OVI's strategy, the architects wrapped the columns in glass-fiber-reinforced gypsum panels finished with a dark metallic paint to help scatter the light. The city of Cleveland, too, had a part in the scheme, replacing existing streetlights with new ones that focus the light down to the sidewalk, away from the building.

The illumination strategy helps as a wayfinding tool, leading patrons into the arena or toward food and drink. It is also an effective means for communicating what's happening inside. A light scene can be infused with the Cavaliers' wine-and-gold team colors at game time, for instance. Such scenes ramp up slowly before an event, peak as it is in progress, then taper down to a night mode, when only two recessed areas remain gently lit for visual depth.

"We typically don't do these kinds of venues," says Peiniger, whose firm has worked on such high-profile projects as Renzo Piano's New York Times Building, known for a quiet luminosity. "But we always look at how we can make the project and its architecture relevant to the culture and city it is in." The lighting, he adds, can communicate a building's identity. ■

Credits

ARCHITECT: Gensler — Andrew Jacobs, sports-design director

LIGHTING DESIGNER: Office for Visual Interaction — Jean Sundin, Enrique Peiniger, principals

ENGINEERS: Thornton Tomasetti (structural); Smith Seckman Reid (m/e/p)

GENERAL CONTRACTOR: Whiting-Turner

CONSULTANTS: Eventscape (feature wall engineering and fabrication)

CLIENT: Gateway Economic Development

SIZE: 65,000 square feet (feature wall)

COST: withheld

COMPLETION DATE: September 2019

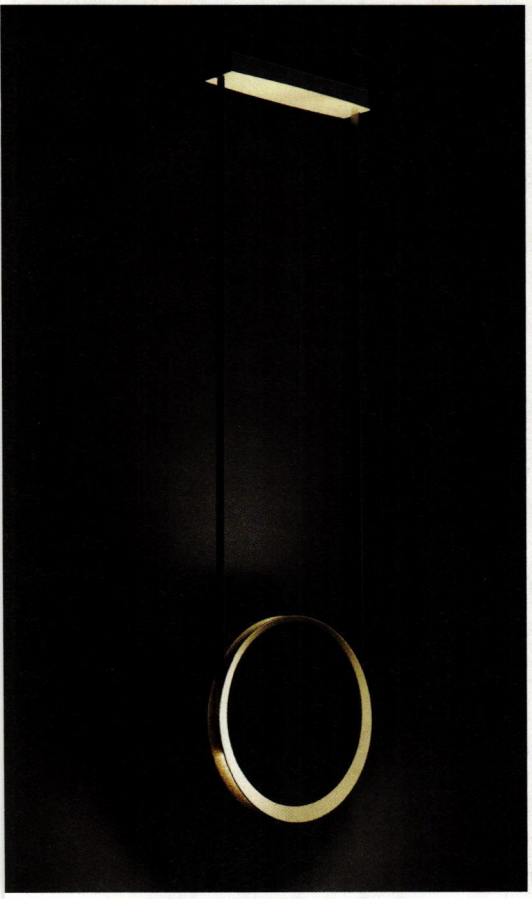
Sources

LIGHTING: Lumenpulse; Electrix; Lucifer; Element Lighting; Vibia; Lutron (controls)

Bright Ideas

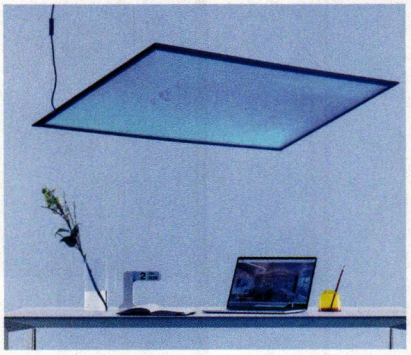
Innovation big and small abounds in the latest luminaires and controls.

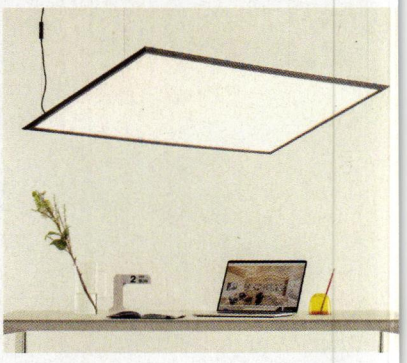
BY SHEILA KIM



Moonlight Suspension

Taking inspiration from its namesake, this suspended ring incorporates LEDs within the ring and the pendant's canopy that create an intriguing waxing or waning crescent along the rim. The pendant is available as a single 20"-diameter unit or a clustered grouping of rings in varied diameters. The suspension lamp is made of aluminum with an aluminum or brass finish.
quasar.nl



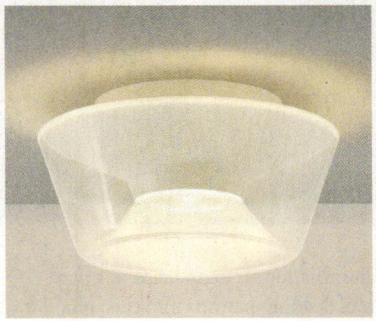


Integralis

Artemide offers a new way to sanitize spaces—without injecting a sterile-lab aesthetic. Select models from the brand integrate specific light frequencies and UV light that inhibit growth of bacteria and attack microorganisms. Controlled by way of an app on phone or tablet, the sanitizing mode can be switched off or combined with an occupancy sensor. The rest of the time, the fixtures appear and function like ordinary luminaires.
artemide.net

Stellr

Lucifer Lighting's new ceiling-mount fixture can provide direct downlighting, soft ambient light, or subtle layers of light and shadow, all with optional circadian-rhythm-supporting warm dimming. These effects are achieved by combining a special waveguide technology with a high-tech polymer diffuser. Stellr measures just over 10" in diameter.
luciferlighting.com



AR/VR Lighting App

Remote working has made product visualization challenging for architects and designers, but manufacturers are developing solutions to tackle this issue, among them Ascenti Lighting. Its new augmented- and virtual-reality app superimposes fixtures and their lighting effects onto virtual recreations of projects on-screen. Users can modify the fixtures in real time.
ascentilighting.com

Scaler

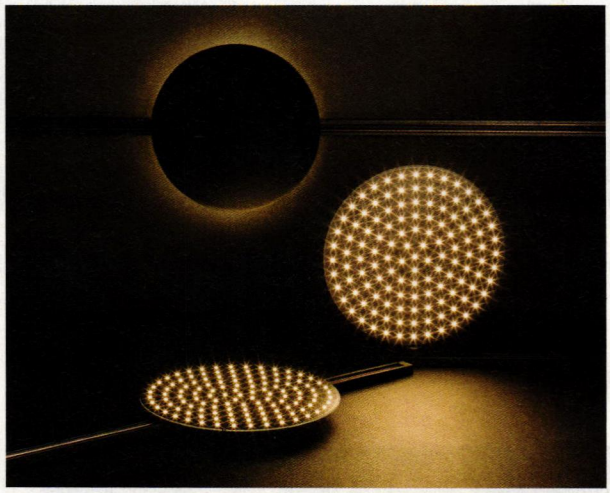
Columbia Lighting's minimalist edge-lit panels come in three sizes with either a flange or surface-mount installation kit (a cable-mount version is also available). The controls can be networked in wired, wireless, or a hybrid configuration, making the luminaire flexible for retrofit projects. Additional options include dimming, emergency battery, and up to 16 different lumen outputs.
hubbell.com

Enhanced Maya Luminaires

Luminis has updated its Maya family of exterior luminaires with enhancements such as an innovative micro-optics design to reduce glare, a micro-shield to reduce light spillage onto residences, and an increase of up to 25% in output. Three new models were added to Maya including a 90° arm post and pendant (the latter suitable for covered areas).
luminis.com

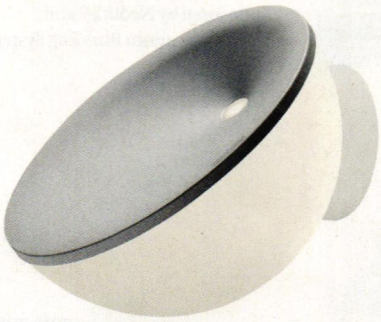
Micro for WoodWorks

Once again teaming up with Armstrong Ceilings, USAI has launched mini square luminaires that can be set into the gaps of Armstrong's WoodWorks vertical- or horizontal-slat acoustical grilles. The lighting is available in downlight and wall-wash versions, each with two to eight cells arranged in a linear configuration. The wood grilles come in a choice of four stains, white paint, or custom finish.
usai.com



Code

British designer Tom Dixon and Austrian architectural-lighting brand Prolicht partnered to reimagine track lighting. Their whimsical version features a track onto which exposed LED circuit boards are installed. The boards are available in three styles—Dot (round), Grid (square), and Dash (linear)—that can be grouped and configured in numerous ways.
tomdixon.net



Beep

Foscarini's playful LED luminaire features a button-like shade backed by a domed translucent body that rotates 360° on a partially concealed mount. This form and movement create a floating effect and indirect illumination as the light bounces off walls and ceilings. Beep is available in a 7¼" or 11⅝" diameter.
foscarini.com

Athena

Lutron is widely known for its controls and mechanized window shades, as well as its Ketra-brand dynamic lamps and luminaires. Now the manufacturer has developed a simplified app that offers universal fixture control in zones defined by the user. Athena works over local network or via internet, and makes adjustments on the fly for special events without affecting system presets.
lutron.com

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AIA Continuing Education Provider

In this section, you will find six 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 Mitsubishi Electric Trane HVAC US

Strategic Electrification, Decarbonization, and the Role of Advanced Heat Pump Technology

Sponsored by Mitsubishi Electric Trane HVAC US

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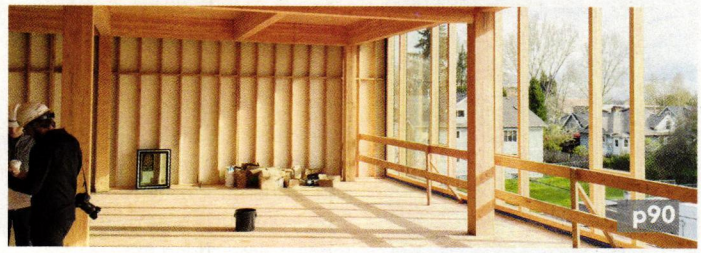
Photo courtesy of LEVER Architecture



Mass Timber in North America

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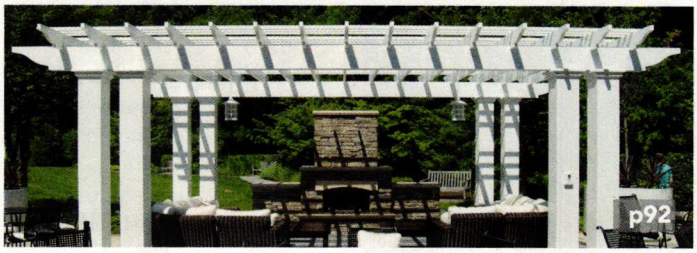

Pergolas: The Perfect Complement to Any Outdoor Room

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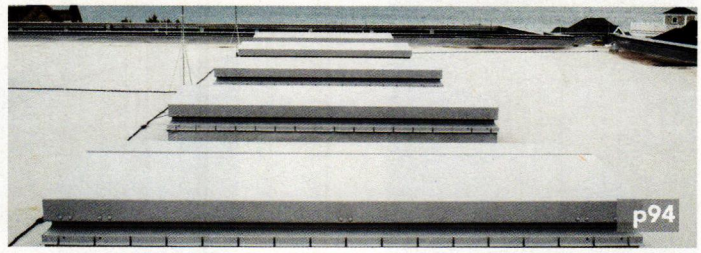

Designing Roofs for Life Safety and Sound Isolation

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CREDIT: 1 AIA LU/HSW BE IN LS

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Specifying Flooring from the Bottom Up

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CATEGORIES

BE	BUILDING ENVELOPE DESIGN	**LS**	LIFE SAFETY AND CODES	**SU**	SUSTAINABILITY
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Courses may qualify for learning hours through most Canadian provincial architectural associations.

Variable refrigerant flow (VRF) outdoor units are compact, quiet and lightweight.

Photo courtesy of Mitsubishi Electric Trane HVAC US

Strategic Electrification, Decarbonization, and the Role of Advanced Heat Pump Technology

Sponsored by Mitsubishi Electric Trane HVAC US | *By Eric Dubin*

In May of 2017, the last large coal-fired power plant in New England closed, and by the end of 2020, the last of New York's coal plants are set to close. State and local governments are implementing carbon-reduction policies with support from the building industry and nonprofit organizations. For example, Northeast Energy Efficiency Partnerships (NEEP), a nonprofit organization dedicated to accelerating energy efficiency in the Northeast and Mid-Atlantic states, says its "long-term shared goal is to assist the region to reduce carbon emissions 80 percent by 2050." NEEP notes four key strategies for achieving its carbon reduction goal: "dramatically improve the efficiency of energy use; decarbonize the electric grid through the use of distributed and large-scale renewable energy sources; move as many end uses as possible to renewable electricity; and use lower-carbon fuels for remaining needs."[1]

Continues at ce.architecturalrecord.com

Eric Dubin *is the senior director of utilities and performance construction at Mitsubishi Electric Trane HVAC US (METUS). He is active across the United States in education and policy development, and currently serves on the Board of Directors for the Northeast Energy Efficiency Partnership (NEEP).*

CONTINUING EDUCATION

AIA Continuing Education Provider **1 AIA LU/HSW**

Learning Objectives

After completing this course, you should be able to:

1. Explain the concept of strategic electrification and why building decarbonization is one impactful strategy for achieving strategic electrification.
2. Demonstrate how heat pumps help to achieve decarbonization and strategic electrification.
3. Explore the advanced heating capabilities of variable refrigerant flow (VRF) zoning technology and why there is promising opportunity for strategic electrification.
4. Analyze efforts by municipalities across the United States to implement strategic electrification.

To receive AIA credit, you are required to complete the entire course and pass the quiz. Visit **ce.architecturalrecord.com** for the full course and to take the quiz for free.

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Mass Timber in North America

Expanding the possibilities of wood building design

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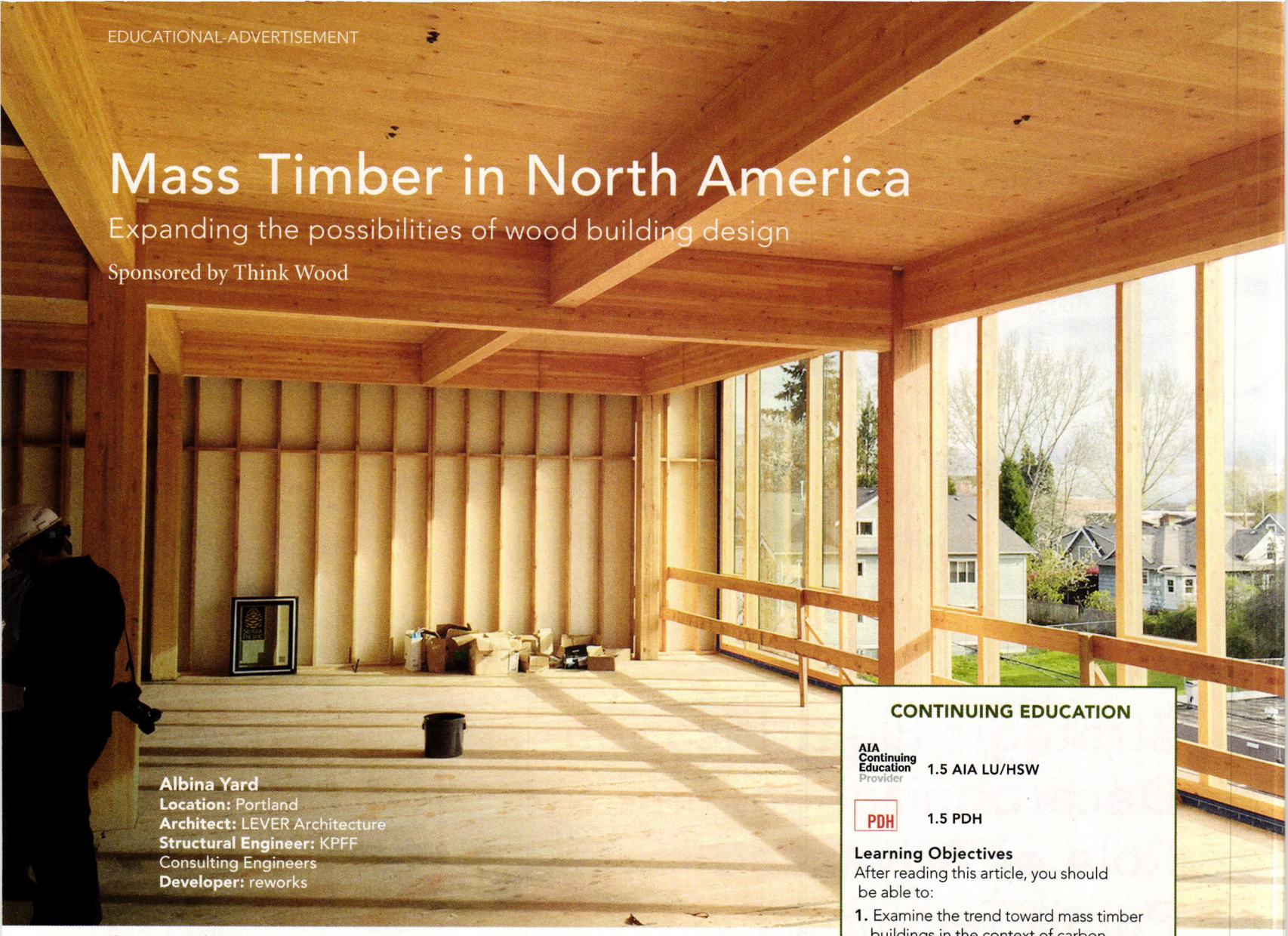


Albina Yard
Location: Portland
Architect: LEVER Architecture
Structural Engineer: KPFF Consulting Engineers
Developer: reworks

Photo courtesy of LEVER Architecture

It has been a while since a major category of building materials inspired the kind of widespread enthusiasm currently being shown for mass timber. Around the world, designers are leveraging the strength, stability, and design flexibility of products such as cross-laminated timber (CLT) to push beyond wood's perceived boundaries, achieving building heights and spans that would have once required concrete, steel, or masonry for structural support.

For many, it is the combination of aesthetics, structural performance, and opportunity for innovation that have proven irresistible. But mass timber also offers a host of other advantages, including:

Lighter carbon footprint: Mass timber products allow the use of a renewable and sustainable resource as an alternative to more fossil fuel-intensive materials. Designers of 'tall wood' buildings have been especially focused on the reduced carbon footprint achieved by using wood, which aligns with the goals of Architecture 2030. Reducing carbon is also a priority for many public buildings and schools.

Construction efficiency: Mass timber construction is fast, and speed correlates to revenue, whether the project is an office, school, student residence, condominium, or hotel. Bernhard Gafner of structural engineering firm Fast + Epp says that, in his firm's experience, a mass timber project is approximately 25 percent faster to construct than a similar project in concrete. Noting the advantages for urban infill sites in particular, he says it also offers 90 percent less construction traffic (trucks delivering materials) and requires 75 percent fewer workers on the active deck, making for a much quieter job site.

The fact that mass timber weighs less than other materials also has a number of potential benefits, including smaller foundation requirements and lower forces for seismic resistance.

CONTINUING EDUCATION

AIA Continuing Education Provider — 1.5 AIA LU/HSW

PDH — 1.5 PDH

Learning Objectives

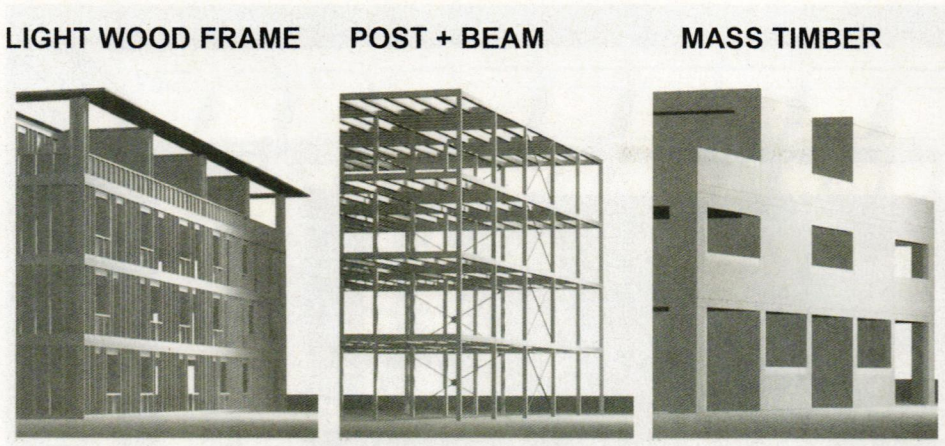
After reading this article, you should be able to:

1. Examine the trend toward mass timber buildings in the context of carbon footprint, construction efficiency, fire and life safety, occupant well-being, and other potential advantages.
2. Identify a range of mass timber products available to North American building designers.
3. Discuss research and resources related to the structural performance and fire/life safety of mass timber products.
4. Based on examples of mass timber buildings either built or under construction, describe how all-wood and hybrid systems are expanding the options for wood design.

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

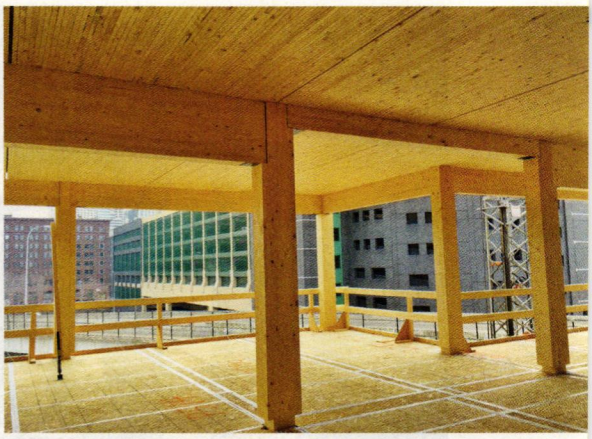
AIA COURSE #K1609D

Image courtesy of Fast + Epp



Mass timber systems are a complement to light wood-frame and post-and-beam construction.

Photo courtesy of StructureCraft



Designed by MGA, the seven-story T3 building in Minneapolis includes glulam columns and beams, and NLT floors.

Discussing the new Design Building at the University of Massachusetts, for example, structural engineer Robert Malczyk of Equilibrium Consulting says, "The seismic force is proportionate to the weight of the building. If this building were designed in concrete, which was considered, the weight would be six times more than the mass timber design."

Fire and life safety: Structurally, mass timber offers the kind of proven performance—including fire protection and seismic resistance—that allows its use in larger buildings. It also expands the options for exposed wood structure in smaller projects.

Occupant well-being: An increasing number of studies focused on wood's biophilic aspects have linked the use of exposed wood in buildings with improved occupant health and well-being.[1,2]

This course is intended for architects and engineers seeking current information on mass timber, including products, research related to structural performance and life safety, and available resources. It answers common questions regarding strength, fire protection, and durability, and highlights examples of mass timber buildings in different occupancy groups to illustrate both design trends and the extent to which mass timber has captured the imagination of North American building designers.

WHAT IS MASS TIMBER?

Mass timber is a category of framing styles typically characterized by the use of large solid wood panels for wall, floor, and roof construction. It also includes innovative forms of sculptural buildings, as well as non-building structures formed from solid wood panel or framing systems of 6 feet or more in width or depth. Products in the mass timber family include the following.

Cross-Laminated Timber (CLT)

CLT consists of layers of dimension lumber (typically three, five, or seven) oriented at right angles to one another and then glued to form structural panels with exceptional strength, dimensional stability, and rigidity.

Panels are particularly cost-effective for multistory and large building applications. Some designers view CLT as both a stand-alone system and product that can be used together with other wood products; it can also be used in hybrid and composite applications. CLT is well-suited to floors, walls, and roofs, and may be left exposed on the interior for aesthetics. Because of the cross-lamination, CLT also offers two-way span capabilities.

CLT can be manufactured in custom dimensions, with panel sizes varying by manufacturer. There are several CLT suppliers in North America, with more anticipated. The species of wood used depends on the manufacturing plant location.

The 2015 International Building Code (IBC) and 2015 International Residential Code recognize CLT products manufactured according to the ANSI/APA PRG-320: Standard for Performance Rated Cross-Laminated Timber. Under the 2015 IBC, CLT at the required size is specifically stated for prescribed use in Type IV buildings. However, CLT can be used in all types of combustible construction (i.e., wherever combustible framing or heavy timber materials are allowed). The National Design Specification (NDS) for Wood Construction is referenced throughout the IBC as the standard for structural wood design, including CLT. The 2012 IBC does not explicitly recognize CLT, but the 2015 IBC provisions for CLT can be a basis for its use under alternative method provisions.

For more information on CLT, the *U.S. CLT Handbook* is available as a free download at www.thinkwood.com.

Nail-Laminated Timber (NLT)

Nail-laminated timber (NLT) is created from individual dimension lumber members (2-by-4, 2-by-6, 2-by-8, etc.), stacked on edge, and fastened with nails or screws to create a larger structural element.

NLT is far from new—it has been used for more than a century—but is undergoing a resurgence as part of the modern mass timber movement. Commonly used in floors, decks, and roofs, it offers the potential for a variety of textured appearances in exposed applications, and wood structural panels can be added to provide a structural diaphragm. NLT has also been used to create elevator and stair shafts in midrise wood-frame buildings.

▶ Continues at ce.architecturalrecord.com

Crafted in solid cellular vinyl with columns, beams, and curved end cuts, this 12-foot x 25-foot pergola is an outdoor gathering spot at a 55-plus community in Maryland.

All photos courtesy of Walpole Outdoors

Pergolas: The Perfect Complement to Any Outdoor Room

Providing shelter and protection while allowing users to enjoy sunshine, cool breezes, and nature

Sponsored by Walpole Outdoors | *By Barbara Horwitz-Bennett*

Highly desirable features in homes, mixed-use properties, corporate and educational campuses, public grounds, and more, outdoor dwellings continue to grow in popularity.

In 2018, U.S. consumers spent $25 billion on outdoor living, according to the Cleveland-based market research firm The Freedonia Group. Additionally, the National Association of Home Builders' most recent "What Homeowners Really Want" survey found that the percentage of homeowners rating a patio as essential or desirable increased from 73 percent to 87 percent over the past 15 years.

"Outdoor living spaces, rooms, and areas are extremely valuable and important to both homeowners and commercial properties alike," confirms Joshua Gillow, owner, MasterPLAN Outdoor Living, Brodheadsville, Pennsylvania. "In just the past 20 years, outdoor living has transformed from something we might want to something we simply must have."

As part of a larger sustainability and health and wellness trend that is largely shaping today's architectural designs, homeowners and organizations are embracing outdoor spaces as natural extensions of the built environment. This trend recognizes the deep

CONTINUING EDUCATION

AIA Continuing Education Provider — 1 AIA LU/ELECTIVE

PDH — 1 PDH

LA CES — LA CES/NON-HSW

Learning Objectives

After reading this article, you should be able to:

1. Identify the current trends driving the increased popularity of outdoor rooms in residential and nonresidential applications, particularly pergolas.
2. Evaluate the pros and cons of wood, aluminum, fiberglass, and solid cellular vinyl for pergolas.
3. Discuss pergola design options, including attached versus detached, pergola placement, massing and proportion, and beam spacing.
4. Review a variety of noteworthy solid cellular vinyl pergola design and installation projects as presented in case studies.

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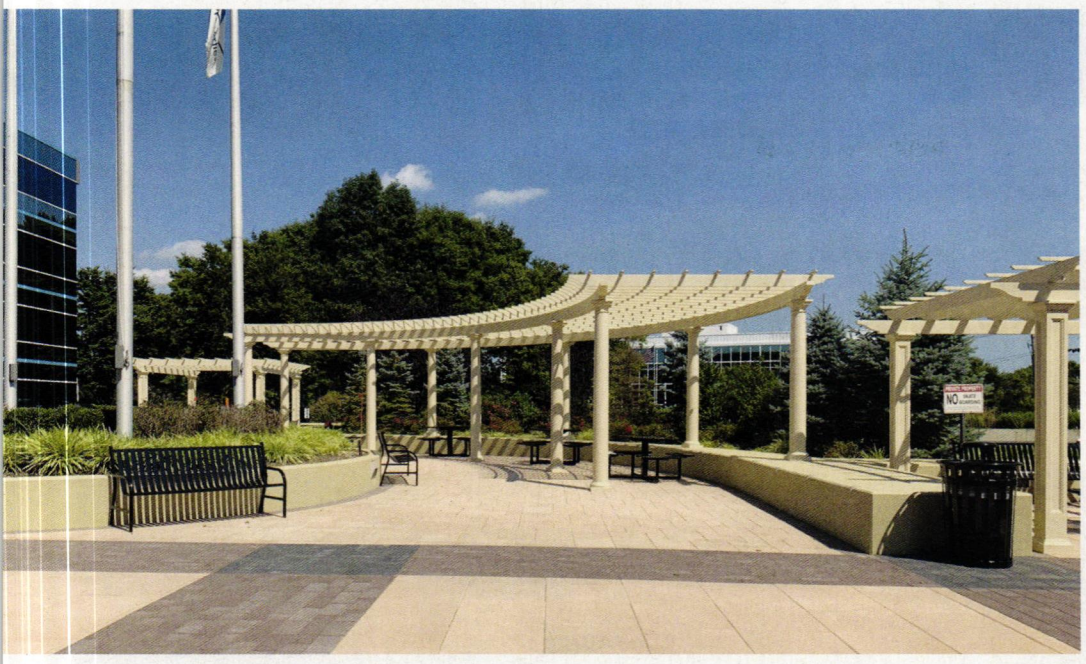


A radius solid cellular vinyl pergola measuring more than 60 feet long with 10 10-inch round tapered columns and heavy carrying beams is a popular destination for Bank of America employees on break at their Melville, New York, location.

affinity humans have for natural environments. Whether as employees on break, multifamily owners and tenants socializing, or friends meeting for a cup of coffee, people look for sunlight and comfortable, open spaces.

Describing outdoor living spaces as perfect places to enjoy the many sensory pleasures of nature like daylight, fresh air, breezes, smells, and birds chirping, Mark DuBois, AIA, LEED AP, NCARB, owner, Studio DuBois, New York City, says these designs can contribute to people's physical and emotional well-being.

"Getting outside provides a break from the glow of our computer monitors and flat-screen TVs, and the sun offers welcome relief from the fluorescent and LED lighting we bathe in most of the time," agrees Joshua Zinder, AIA, NCARB, LEED AP, managing partner, JZA+D, Princeton, New Jersey. "Outdoor dining and exterior rooms and collaboration spaces will continue to be in high demand."

"The benefits of being outside for recreation, meetings, dining, and all other aspects of life are unmeasurable," adds Dan Berger with the design-build landscaping company Land Plan in Pleasanton, California.

And now that COVID-19 restrictions are largely limiting movement, the value of outdoor rooms has taken on all new meaning. "There is a tremendous amount of research on the physical and emotional health benefits of being out in nature," states Sarah Carrier, Ph.D., associate professor of science education, North Carolina State University in Raleigh-Durham. "Simply being outside helps relieve stress, and this is something we can all use right now."

As an important strategy for boosting employee morale and well-being, appealing outdoor areas are contributing to recruitment and retention. For condominiums, outdoor rooms are a great marketing tool for developers looking to stand out amongst the competition as residents seek properties with outdoor kitchens, barbecue pits, large flat-screen TVs, fireplaces, etc.

Daniel Lobitz, partner, Robert A.M. Stern Architects, New York, looks to create a variety of private and shared outdoor spaces. "People long for fresh air and perhaps even more so in a time of pandemic," he says. "In conceiving a full program of outdoor spaces of various scales and proportions, we try to provide some areas that are covered and can be used in inclement weather, and other spaces that are open to the sky, such as pergolas that offer moderate enclosure, a sense of privacy, and some shade while also allowing sunlight to peek through."

For homeowners, developed backyard spaces increase property value and create greater livable space without adding on to the home's square footage from a building department/taxable perspective.

Another driver boosting outdoor amenities and designs is social media, suggests Duane Draughon, VizX Design Studios, Lisle, Illinois. From Houzz to Instagram to Facebook, individuals are showcasing their unique outdoor designs and experiences to a very interested audience. People often undertake projects inspired by the things they are seeing online and attempt to recreate them in their own backyards.

PERGOLAS

While a montage of landscaping products is available to create these outdoor living environments, pergolas in particular play a unique role in optimizing these spaces.

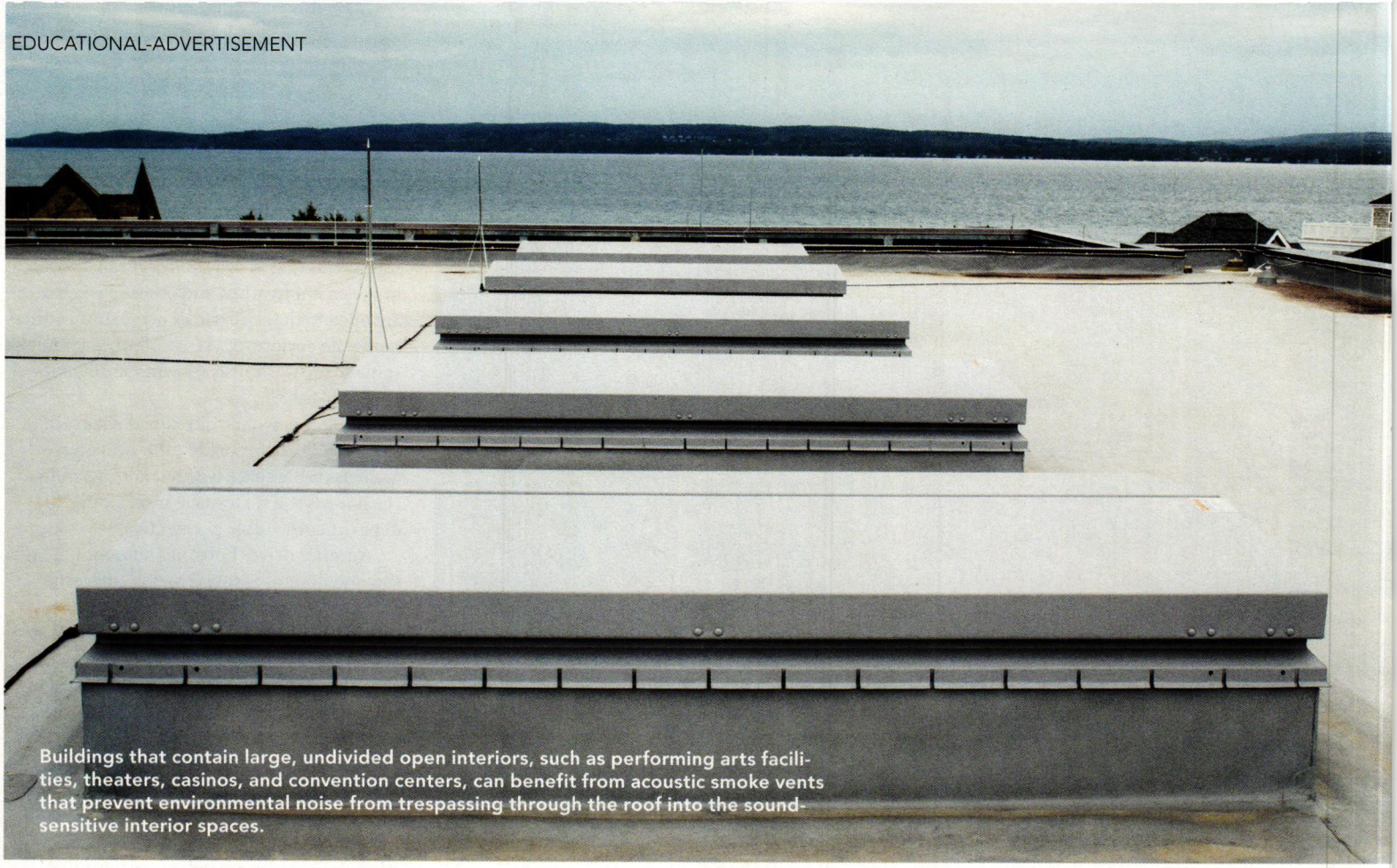
Of the thousands of projects that Berger has worked on in his 40-plus-year career, the majority have incorporated pergolas.

In fact, the "2017 U.S. Houzz Landscape Trends Study" reported that of 86 percent of homeowners who did work on the structural elements in their outdoor areas, 24 percent updated their gazebos or pergolas.

"Pergolas are enormously appealing because they create the 'walls' and 'ceiling' of outdoor rooms," DuBois explains. "They give us some of the protection and shelter that we expect from indoor spaces—the sense that we are in a safe, well-defined place—while allowing us to experience all the delights of being outdoors."

Continues at ce.architecturalrecord.com

Barbara Horwitz-Bennett *is a veteran architectural journalist who has written hundreds of CEUs and articles for various AEC publications.* ***www.bhbennett.com***



All photos courtesy of The BILCO Company

Buildings that contain large, undivided open interiors, such as performing arts facilities, theaters, casinos, and convention centers, can benefit from acoustic smoke vents that prevent environmental noise from trespassing through the roof into the sound-sensitive interior spaces.

Designing Roofs for Life Safety and Sound Isolation

Explore expert insights on how to specify sound-rated automatic smoke vents

Sponsored by The BILCO Company

"There are many reasons that a project may need to be designed to mitigate exterior noise," explains Harold Merck, INCE, LEED AP, principal at Merck & Hill Consultants. "Some spaces are sound sensitive, like the audience chamber or stage in a performing arts facility, while others have been constructed on noisy sites, near a railroad track or under a flight path. Sometimes the mechanical equipment on the roof generates a lot of noise that needs to be addressed as well. Whatever the reason, the building envelope can be designed to control the transmission of sound, just as it is designed to control temperatures and prevent water infiltration, and the roof area plays a critical role in achieving a sound management objective."

When projects must deliver greater levels of exterior sound mitigation, architects are required to spend more time shoring up the paths through which sound can most easily move from the outside to the inside. Openings are a common target of their attention. Just as openings in a building facade—doors and windows—can require soundproofing to reduce the transmission of noise from one side of the wall assembly to the other, openings made on the roof to accommodate automatic smoke vents or other products can benefit from solutions that have been specially engineered to manage sound.

This course explores the application of sound-rated smoke vents to isolate exterior noise and protect the acoustic performance and comfort of the interior space.

CONTINUING EDUCATION

AIA Continuing Education Provider **1 AIA LU/HSW**

Learning Objectives

After reading this article, you should be able to:

1. Summarize how automatic smoke vents work in response to a fire event and how they modify the way that a fire progresses through a burning building.
2. Select the appropriate noise-measuring metric to evaluate the sound-buffering performance of building facade products that need to mitigate noise made from airplanes, construction activities, and traffic.
3. Explain the ways that automatic smoke vents are required to be incorporated into a design by the standard NFPA 204, authored by the National Fire Protection Association (NFPA), the 2018 International Building Code, and the International Fire Code (IFC).
4. Describe the many ways that automatic smoke vents offer better protection for people, firefighters, and property in the event of a fire.

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AIA COURSE #K2008E

Architects of the Great Lakes Center for the Arts in Petoskey, Michigan, selected sound-rated smoke vents to provide life-safety benefits and support the world-class performance space.

Various metrics used to measure sound-buffering performance will be compared. An overview of the building codes that require the use of these automatic smoke vents will also be discussed, and the benefits of these life-safety products will be summarized. Projects where these acoustical smoke vents have been installed are also profiled.

GREAT LAKES CENTER FOR THE PERFORMING ARTS

The Great Lakes Center for the Arts is a 40,000-square-foot, state-of-the-art performance facility located in Petoskey, Michigan, a popular vacation destination for families that is now also an enticing space for world-class performers. At the heart of this $25-million project is a 525-seat auditorium outfitted with cutting-edge sound technology found in only a few theaters across the country. Both the beauty of the building and the functionality of the acoustics were critical aspects of the design that architects considered while creating this venue to deliver a top-tier experience.

"This building adds a space for world-class performers to stop that did not exist in Northern Michigan," says Jason Novotny, lead architect for TowerPinkster, the firm that designed the building. "With this being a high-performing acoustical environment, we designed a separate structure for the performance hall from the remainder of the building. This was solely for acoustical isolation of building elements."

"With the potential for more than 500 visitors, our team knew we would have a need for a dependable smoke ventilation system," Novotny explains. "The acoustical smoke vents with their acoustical sound-reducing characteristics became a part of this 'shell-within-a-shell' structure."

Smoke vents installed in the roof of the facility provide significant fire and life-safety benefits. In the event of a fire, the vents open automatically to allow smoke, heat, and gases out of the burning building. This prevents the buildup of these dangerous elements and enables air quality and visibility to be maintained so that guests can safely exit the building and firefighters can enter to do their job.

Some smoke vents are designed to block outside noise from trespassing into the interior and compromising the sound comfort level of the indoor space. They are called acoustically sound-rated automatic smoke vents. There are five of these acoustical smoke vents in the roof of the Great Lakes Center for the Arts that block outside noise from penetrating into the interior and help to maintain the quality of the sophisticated sound system.

Beyond the attention to creating impressive sound quality, the architectural team went to great lengths to develop a theme for the space that incorporated local colors and textures. "We included aged copper, Petoskey stone, natural sedimentary rock, and of course, the beautiful blue waters of Lake Michigan," Novotny says.

"The color palette and design features intentionally reflect the beauty of Northern Michigan, with blues, sands, grays, copper, and patterns and textures that evoke the water of Lake Michigan," says Jill O'Neill, executive director of the center. Even the roof is an architectural element with the curvilinear wood ceiling resembling waves of the nearby lake. There is also a large rooftop terrace with stunning lake views.

Regardless of whether an audience is enjoying classical music, ballet, intellectual dialogue, comedy, country music, cinema, jazz, or any other event hosted at the Great Lakes Center for the Arts, it will be an experience to remember. To better understand how the design team created this safe, code-compliant, and sophisticated facility, let us now take a closer look at the acoustical smoke vents that were selected for the roof.

INTRODUCING AUTOMATIC SMOKE VENTS

Automatic smoke vents are openings in the roof that are fully insulated and weathertight. When a fire is detected, the smoke vent covers open automatically, allowing the heat, smoke, and gasses produced by the fire to escape the building instead of remaining trapped inside. Once the fire has been extinguished, the covers on the smoke vent can then be reset, and the roof returns once again to a fully insulated, weathertight, and fire-ready structure.

Continues at ce.architecturalrecord.com

Creating buildings to be resilient so that they can bounce back and be usable following a severe weather event involves making some intentional design decisions on the types of products, materials, and building systems used.

Photo courtesy of Cascade Architectural

Resilient Design

Creating buildings for adaptation to changing climate conditions

Sponsored by Cascade Architectural and C.R. Laurence Co., Inc. | *By Peter J. Arsenault, FAIA, NCARB, LEED AP*

Buildings are routinely designed to meet the needs of the local site, average weather conditions, and climate. However, when those local weather and climate conditions change or become more intense than historical data suggests, it is incumbent upon design professionals to adjust building designs accordingly. The fairly recent widespread observance of such changes include an increase in the intensity or quantity of severe weather events such as hurricanes, tornadoes, heavy rain, wind, drought, etc. These conditions are leading to impacts on communities and buildings, including water-related events such as flooding and sea level rise, hot and dry conditions that are literally sparking wildfires around the world, and severe wind events that cause direct damage to buildings and infrastructure.

Recognizing severe weather and related events as a design issue is a first step. Determining an appropriate design response is the next. This course looks at some of the basic issues of resilient design and some examples of specific design strategies that can be implemented to create buildings that can remain resilient in the face of increasing changes and challenges.

DEFINING RESILIENT DESIGN

Resilience, resilient design, resiliency—these terms seem to get used interchangeably but without a lot of clarity sometimes on what is being talked about. A not-for-profit organization called the Resilient Design Institute (RDI) has done a good job of sorting these out for us. It defines the general term "resilience" as "the capacity to adapt to changing conditions and maintain or regain functionality and vitality in the face of stress or disturbance. It is the capacity to bounce back after a disturbance or interruption." This is consistent with the way the word resilience is used in general (e.g., resilient flooring "bounces back" after being stressed from foot traffic) and reflects a broad-based understanding. If this quality of resilience is what we seek in our buildings and communities, then it needs to be specifically and intentionally part of the design. Hence, the RDI defines resilient design as "the intentional design of buildings, landscapes, communities, and regions in order to respond to natural and man-made disasters and disturbances—as well as long-term changes resulting from climate change—including sea level rise, increased

CONTINUING EDUCATION

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Learning Objectives

After reading this article, you should be able to:

1. Identify and recognize accepted principles associated with resilient building design for the safety of people and the integrity of buildings.
2. Assess the durability and safety performance aspects of glass and glazing systems as they relate to resilient and sustainable design.
3. Explain the capabilities of coiled wire fabric in protecting people and property from damage and harm in both common and severe conditions.
4. Determine ways to incorporate the principles presented of public safety and resilient design into specific buildings as shown in case studies.

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AIA COURSE #K2003C

frequency of heat waves, and regional drought." In short, it acknowledges that there are specific, identifiable issues that warrant equally specific design responses.

To provide design professionals with some guidance on how to achieve successful resilient designs, the RDI offers a variety of insights and resources, including its 10 Resilient Design Principles available at www.resilientdesign.org.

In addition to RDI, the AIA and other organizations have adopted positions and policy statements on resilient design and offer programs for architects and community leaders. These include the "Reframing Resilience" initiative of the AIA and the Design and Resilience Teams (DARTs) offered through the AIA's Center for Communities by Design. More information is available on these programs at www.aia.org.

With all of the above in mind, we look next at some specific ways to implement resilient design into buildings. These examples are applicable to all building types in a wide variety of locations and contexts.

GLASS AND GLAZING SYSTEMS

For buildings to be resilient enough to survive severe weather and still be functional after an event, the most vulnerable parts of the building must be addressed. This means looking at the entire building envelope, including the roof, walls, and, most notably, glass and glazing systems. The typical approach is seen in news reports of people putting up plywood over windows as a storm approaches. That may work for residential and low-rise commercial buildings, but it is not practical for anything higher than two stories. Furthermore, typical exterior building materials for commercial and institutional buildings are normally not conducive to having plywood nailed or screwed onto them.

What is the best approach for most buildings then? To design them with glass and glazing systems that incorporate materials and products that are intentionally fabricated and tested to withstand severe weather conditions, such as high wind loads, airborne debris impact, and/or extreme temperatures. These products can significantly improve the resiliency of buildings. They can also take a variety of forms with some of the more common types discussed in the following sections.

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

High-performance entrance systems provide greater resilience through properly specified components and enhanced thermal properties, all while offering an elegant design using ultra-narrow door stiles.

Thermal Entrance Systems

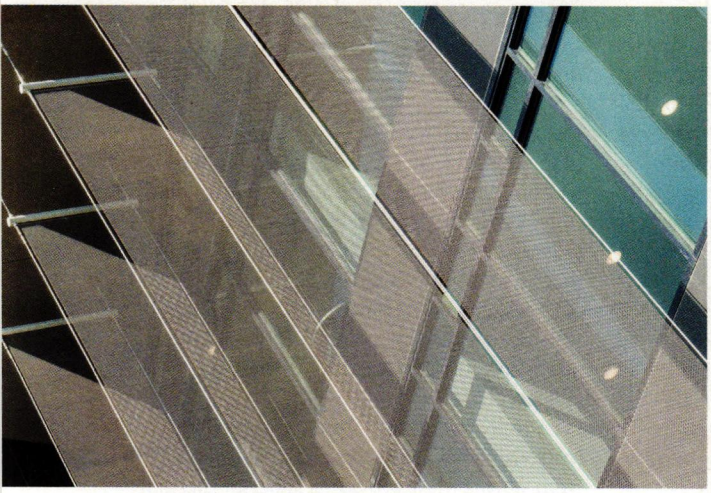
Many commercial, institutional, and industrial buildings incorporate aluminum-framed storefront and glass entrance systems on the first floor. While these are fairly common, there are real differences in the way these types of storefront and entrance products perform. In the case of resiliency, attention should be placed on the specification of the component parts and materials.

A resilient entrance system means that it is strong enough to withstand serious damage from storms while providing superior thermal performance. That way, if the building is occupied, it will help keep the interior environment warm in cold weather and cool in hot weather—a notable benefit at any time, but especially if the building is without power for extended periods.

Achieving this higher level of performance is based fundamentally on three things: the structural and material integrity of the aluminum frame and glass; the insulating value of the system; and the ability to prevent air and water infiltration through the system. Fortunately, there are products available that address all three of these criteria and manage to do so with aesthetic qualities that are appealing and sought after. For example, there are ultra-narrow stile entrance systems available that provide an elegant, all-glass appearance while still delivering exceptional thermal performance normally found in full-frame doors. Excellent thermal performance translates to U-factors as low as 0.33 to help control heat transfer during extreme temperature conditions. This is achieved in part by allowing insulating glass to be used that is 1 inch thick. In addition, such entrance systems meet or exceed the air infiltration requirements of the International Energy Conservation Code (IECC) and ASHRAE 90.1, both of which contain mandatory provisions on this topic.

As a premium storefront product, these entrance systems retain a desirable appearance of heavy glass doors with minimal vertical lines. When it comes to the hardware used for door pulls and panic devices, it is possible to attach them directly to the glass. At least one manufacturer has developed a means to secure such door-pull hardware directly onto 1-inch insulating glass panels using unique through-glass fittings. This provides an added aesthetic and functional benefit without compromising the performance of the doors.

Photos courtesy of Cascade Architectural



Coiled wire fabric can be used on either the outside or the inside of buildings to provide a variety of attributes, including increased resilient design.

PROTECTING PEOPLE AND PROPERTY

Resilient building design needs to address a variety of potential forces or conditions that can harm people or damage buildings. As already noted, these can include protection from wind-borne debris/missiles but can also include protection against sudden bursts of pressure or even blasts. An alternative to raising the protective performance of individual building envelope components, such as glass and glazing systems, is to protect them with an additional material that is placed on one side or the other. This creative solution is based on using conventional, proven materials in innovative ways.

What type of material would be appropriate here? One choice is coiled wire fabric, which acts like a metal curtain or screening to cover and protect walls, glazing, and entrances in a way that allows a good deal of design flexibility. Coiled wire fabric is often used to provide solar protection and ornamental decoration in buildings. By selecting a grade and type of wire fabric that is appropriately tested, protecting the critical components of a building's envelope is also possible. Such an approach can help avoid a breach in the envelope that would allow wind and water penetration inside. This can be achieved using coiled wire fabric systems on either the inside or outside of the building enclosure.

For a better understanding of this design concept, let's now take a closer look at this innovative product.

Coiled Wire Fabric Systems

First, it is important to recognize that coiled wire fabric products are different from traditional metal mesh materials. The essential difference is they are designed as architectural products for use as a finish material, not just a utilitarian one. As a durable, thin material, coiled wire fabric is lighter in weight than traditional wire mesh and offers more design flexibility. For interiors, architects and designers use coiled wire fabric products for window curtains, ceiling treatments, wall coverings, security gates, and even as complete sculpting partitions, all adding elegance and purpose to the spaces where they are used. On building exteriors, they can provide sun shading, fall protection, and visual facade treatments. In all cases, they can allow for ventilation or the controlled passage of air and light.

A closer look at the attributes of coiled wire fabric systems follows.

- **Material makeup:** Coiled wire fabric systems begin with a base metal wire in varieties of steel, aluminum, brass, copper, or stainless steel. The choice of the wire material and its gauge impact the weight, functionality, and aesthetics of the final fabric. By altering the base material, weave thickness, wire gauges, weave pattern, and finishes, the strength, rigidity, and appearance can all be chosen to meet the design or performance characteristics being sought. It is worth noting that the fabric is available in virtually unlimited widths and up to 40 feet in length, so large installations can be achieved with a single panel in many cases. For projects needing more than a 40-foot span of fabric, multiple coils can be spliced together at the job-site in a routine fashion and still create a continuous or seamless appearance.
- **Design concepts:** Coiled wire fabric is used as a highly decorative design element that adds dramatic and elegant screening to exterior and interior applications. It is highly customizable and available in virtually unlimited finishes. Coiled wire fabric is available in either a natural, uncoated state or with resilient powder-coating finishes for a sharp, long-lasting, durable aesthetic. This means that the color choices are broad, allowing it to be a successful part of virtually any design scheme. Further, the finishes can be specified with low VOC content to protect against that exposure when used on interiors. In fact, some coiled wire fabric products carry Declare labels with the International Living Future Institute.
- **Attachment systems:** The means of attaching the wire fabric to the building can be done in a variety of ways and with a variety of appearances. The material can be left to hang (i.e., flowing freely), secured at both the top and bottom, or even be pulled taut to create a semi-rigid condition. Because of its fabric nature, curved and undulating shapes are easily achieved, providing facades and interiors with more character and vitality than rectilinear shapes alone. Products are available in either fixed or movable configurations along track attachment systems that are engineered to fit the precise aesthetic and performance requirements of a project. Many attachments are offered in aluminum, steel, or stainless steel and are available with optional ceiling, wall, or suspended mounting systems. Engineered attachment systems can be manufactured flat or undulating to varying degrees, then finished with the coating or color of choice.

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***

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A holistic approach helps create spaces that look as good as they perform

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Flooring is one of many parts of building design that is multifaceted. Choosing the right type of flooring for a project is important for both the overall interior design and long-term resistance to wear, but these considerations are only half the task. All floor coverings need to rest on something, and often it is the structure and materials below the visible surface that determine the success of a flooring installation. This course addresses each of these aspects of flooring design and specification: the visual design choices, the product options that influence the performance of the flooring, and some options for the structural support systems that can make such a significant difference.

DESIGN CONSIDERATIONS

The design of floors, particularly in multistory buildings, is a combination of understanding the structural design options, the

The design of interior spaces is affected directly by the flooring surfaces that are visible and equally by the surfaces underneath.

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Learning Objectives

After reading this article, you should be able to:

1. Identify and recognize the design aesthetic and performance significance of floor surfaces as part of the overall interior design of a building.
2. Assess the health and safety performance aspects of floor surfaces as they relate to indoor environmental quality and durability.
3. Explain the importance of floor structure design to enhance space planning, acoustics, and flooring integrity.
4. Determine ways to incorporate the principles presented into building designs as shown in case studies.

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choices of available flooring materials, and the best ways for them to two work together. We look at some of the design considerations of floor systems and floor coverings first.

Floor Structure

The structural floor system of a commercial building provides multiple attributes for a building. In addition to tying into the rest of the building structure, it creates a solid separation between building stories to prevent the passage of sound, air, light, and fire. It is also the platform or substrate that supports everything placed on the floor, including the finish flooring. As such, it can either create favorable conditions for the finish flooring to function or, alternatively, cause problems. In fact, most finish flooring problems come about not because of problems with the finish material itself but rather the material or structure underneath it. Therefore, the attributes of the structural floor system can directly affect the real or perceived attributes of the finish flooring, regardless of what is selected.

In many commercial, industrial, and institutional buildings, steel and concrete are commonly used to create the structural floor system. However, the selection of a specific type of steel or concrete floor system can greatly affect the overall performance outcomes of a construction project. There are a variety of types and range of capabilities of floor systems that can be both complex and versatile. The final selection can directly influence the unsupported span length, acoustic attributes, vibration control, and fire-resistance ratings. Further, the integration of mechanical, electrical, and plumbing systems and even the ultimate height of the building itself can be dictated by the structural floor system selected for a project.

Photo courtesy of New Millennium Building Systems

Long-span composite floors blend in with the rest of the building construction and can create a finished ceiling appearance in addition to providing a strong, economical floor structure option.

There are at least three common structural floor system choices considered for many commercial buildings. The first is a conventional, lightweight system using steel girders, beams, or trusses to support a metal floor deck that is topped with concrete. This steel-based system is known for its speed of erection, lighter weight, and versatility. Second is an all reinforced concrete system, whether precast or poured-in-place, which is usually thinner in overall height compared to a steel floor system. However, all concrete systems need to be assessed for the amount of additional dead weight that they create compared to other systems. A third and innovative alternative is the use of long-span composite floor systems that combine the lighter weight and erection ease of steel with the strength and durability of concrete. They achieve a thin-slab advantage characterized by a narrow floor structure, longer unobstructed floor spans, and a range of under-floor aesthetic ceiling options.

Long-Span Composite Floor Systems

Composite floor systems not only provide economy for the structural system, but they also address the economy of room space, allowing for longer, unsupported spans. They also help by providing a finished ceiling design, including the efficient integration of acoustical treatments, controlled sound attenuation, and fire resistance. Long-span composite floor systems can weigh up to 40 percent less than comparably utilized cast-in-place concrete floors, provide fire-resistance ratings up to 4 hours, and achieve clear spans up to 36 feet.

All of these design attributes of composite flooring systems make them very well suited for a full range of new and renovation/retrofit building projects, including multistory residential, commercial, health-care facilities, parking garages, specialty platforms, and high-rise structures. From a budgeting standpoint, less steel and less weight in these composite systems contribute to lower overall project costs. As part of an integrated structural system, they can enhance the structural performance of the rest of the building, whether those other portions are based on steel, concrete, masonry, or framed bearing walls. Composite flooring systems can also be constructed faster, safer and more cost-effectively than alternative systems.

The flexibility and design attributes of a composite floor system can change the way architects and engineers view a project. The system is no longer just a floor—it is an

Photo courtesy of Neolith®

Sintered stone is a very durable, versatile flooring product that can also be used on other surfaces to provide the look of wood, stone, or tile.

evolved structural floor and ceiling system that is integral to better building design.

A recent hospital renovation project is a good example of how these systems can help provide better solutions. The design program called for wide, open floors designed to accommodate unique serviceability requirements. Thirty-three-foot spans between beams, combined with overhangs as long as 14 feet, provided a unique design challenge. The solution was found in a composite floor slab approach. Since the floor system also supported operating room equipment and an outboard curtain wall system, controlling deflection was a critical and successful function of the composite design. The long-span composite floor system was designed to address all of these unique project conditions, and it did so very well.

FINISH FLOORING

The selection of a finish flooring to be applied over a floor structure is based on a variety of inputs and design criteria. The shape and size of an interior space will be a determinant of things like pattern, scaling, and visual presence of the flooring. The other surfaces in the spaces (such as walls, ceilings, etc.) will influence the choice of materials, colors, and textures used for flooring in the same space, either to extend a particular visual effect or complement the interior design. When considering what to select, there are often multiple choices to pick from in terms of flooring types, but ultimately it comes down to the judgment of the design professional to make the preferred recommendation. In that regard, it is always good to be up to date on relatively new materials that can meet a variety of design conditions and still perform well at a competitive cost.

An example of such a new material is called sintered stone. Sintering is a manufacturing process that uses natural mineral materials in powder form and processes them under heat and pressure to create a product similar to porcelain tile. However, the properties of sintered stone are generally superior to porcelain tile in that it is denser, which makes it stronger, more durable, and generally more resilient. In the case of sintered stone made for flooring products, minerals and other natural materials are ground into a powder and subjected to specific heat and pressure to produce a uniquely broad combination of design characteristics. Sintered stone flooring is resistant to stains, scratches, chemicals, and heat. Additionally, its high density makes it virtually waterproof—it has a porosity less than 0.09 percent, meaning no sealers are required. Those who maintain the building find the dense, nonporous surface easy to clean, including graffiti removal, so the appearance and color are maintained over time. It is even resistant to harsh chemicals.

From a purely design standpoint, sintered stone flooring can provide the look of other familiar materials, such as stone, tile, or wood, with surfaces that are either smooth or textured and available in a variety of colors and hues. Of particular interest to many designers, it is available in larger sizes than conventional porcelain or ceramic tile. Sintered stone product sizes range from 12-inch by 24-inch tiles up to 60-inch by 60-inch tiles, or full slabs that are 4 feet by 12 feet or 5 feet by 10.5 feet. Larger sizes mean minimal grout lines for more elegant visual designs and less concern about keeping those lines clean.

In addition to the variety of size formats, sintered stone is also available in different thicknesses. Because it is so dense, it can be manufactured down to a thin $^1/_8$ inch, although ¼-inch and ½-inch products are more commonly used. Regardless, the thinner, denser products are more lightweight, coming in at only 1.1–1.5 pounds per square foot for a $^1/_8$-inch-thick panel. This lighter weight makes it ideal for renovation projects in addition to new construction. The floor slabs can be applied directly onto existing surfaces, eliminating the need for gut remodeling or costly tear-outs while reducing landfill waste.

The appearance and color of sintered stone is wide and varied with more than 50 full-body colorations and digitally enhanced patterns available, allowing design professionals to exercise full creative control over their projects. Depending on the manufacturer, sintered stone can be created to take on a highly accurate appearance of marble, granite, other stone, wood grain, or tile. For sizable projects, some manufacturers can work with designers on custom patterns and colorations to be used not only for flooring but also for walls, work surfaces, and other applications. This total combination of choices means that designers have a full palette of colors and appearances from which to choose.

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DATES & Events

Competitions

HEALING: Alternative Designs for Quarantine Cities

Deadline: August 22, 2020

This competition asks participants to come up with concepts for alternative urban life in relation to the COVID-19 emergency in only three drawings, with absolute freedom of scale, site, or program, answering the questions: "What kind of role can we play as designers in reimagining urban life?" and "How can we produce new inspiring visions to trigger a discussion around alternative models of urban living?" Two winners and six honorable mentions will be chosen by a jury. Anyone can enter in groups of up to five or individually. More at nonarchitecture.eu/healing.

Reimagining Museums for Climate Action

Deadline: September 15, 2020

This competition invites you to think about how new approaches to the design and organization of the museum experience can amplify and accelerate climate action at various scales, enabling museums and society to move further and faster together toward a net zero or zero-carbon future. Proposals that address climate justice and green futures are welcomed. The competition is free to enter and open to anyone over the age of 18. See more at museumsforclimateaction.org.

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

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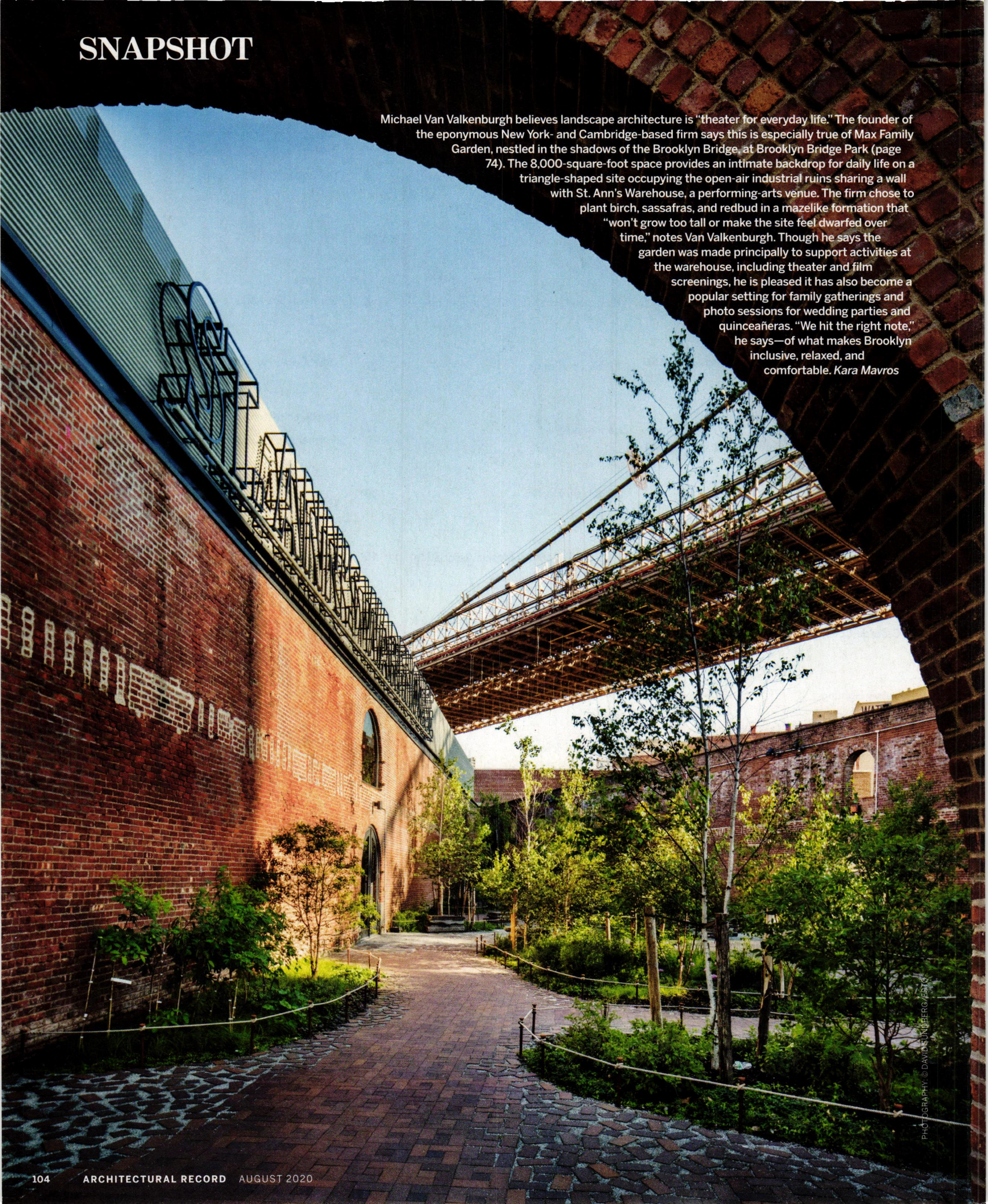

Michael Van Valkenburgh believes landscape architecture is "theater for everyday life." The founder of the eponymous New York- and Cambridge-based firm says this is especially true of Max Family Garden, nestled in the shadows of the Brooklyn Bridge, at Brooklyn Bridge Park (page 74). The 8,000-square-foot space provides an intimate backdrop for daily life on a triangle-shaped site occupying the open-air industrial ruins sharing a wall with St. Ann's Warehouse, a performing-arts venue. The firm chose to plant birch, sassafras, and redbud in a mazelike formation that "won't grow too tall or make the site feel dwarfed over time," notes Van Valkenburgh. Though he says the garden was made principally to support activities at the warehouse, including theater and film screenings, he is pleased it has also become a popular setting for family gatherings and photo sessions for wedding parties and quinceañeras. "We hit the right note," he says—of what makes Brooklyn inclusive, relaxed, and comfortable. *Kara Mavros*

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