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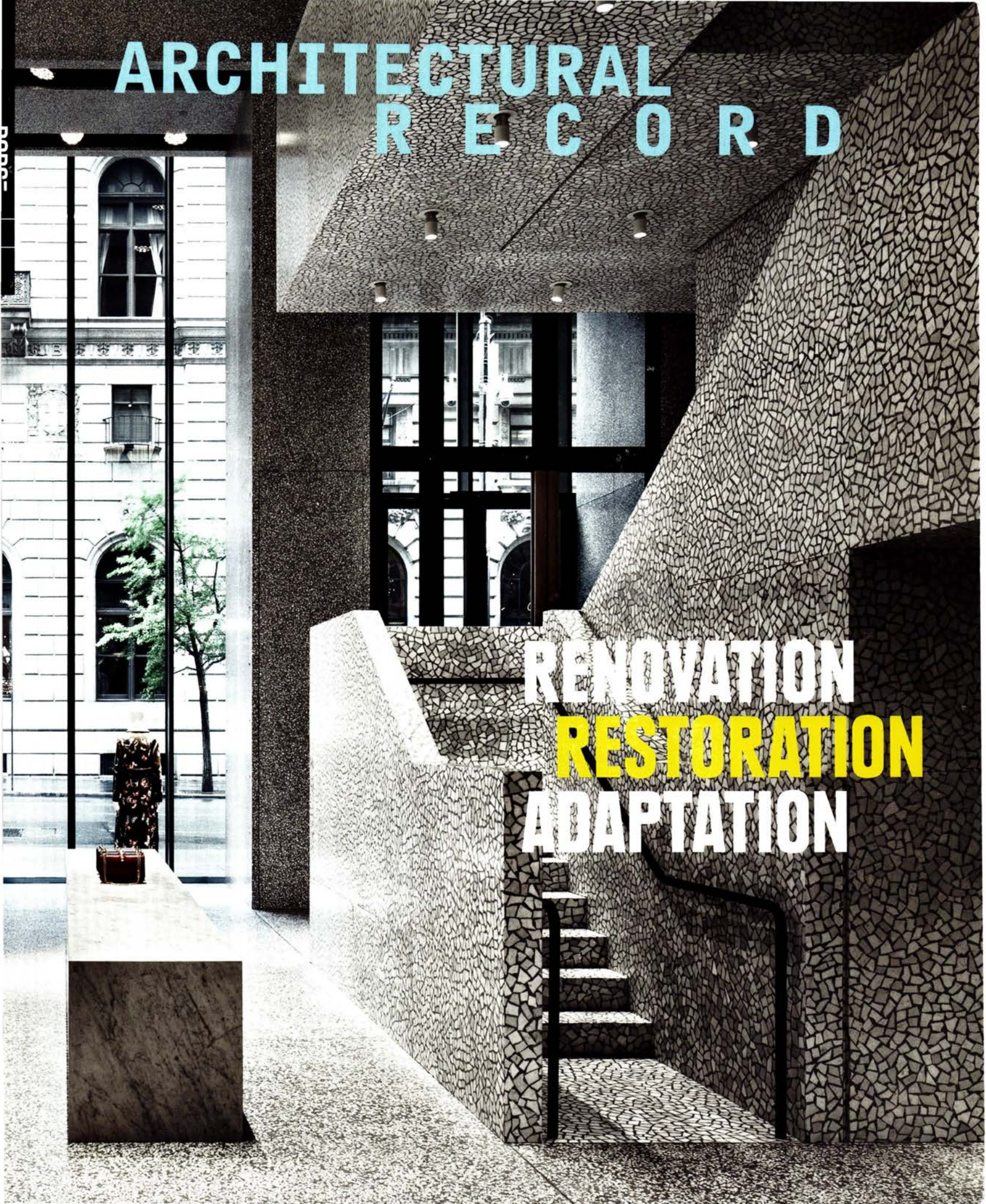

RENOVATION RESTORATION ADAPTATION

full circle design

WoodWorks® Torsion Spring Ceiling System combines the warm sophistication of wood with practical accessibility. The natural wood panels feature swing down access in straight or radial designs and a variety of finishes and acoustical perforations. Learn more about full circle design at armstrong.com/woodworks 1 877 ARMSTRONG **CIRCLE 14**

Inspiring Great Spaces™

PRODUCT: WoodWorks® Torsion Spring Ceiling System in Natural Variations™ Light Cherry
BUILDING: FedEx Expansion Air Operations Training Center, Memphis, TN
ARCHITECT: Renaissance Group, Lakeland, TN

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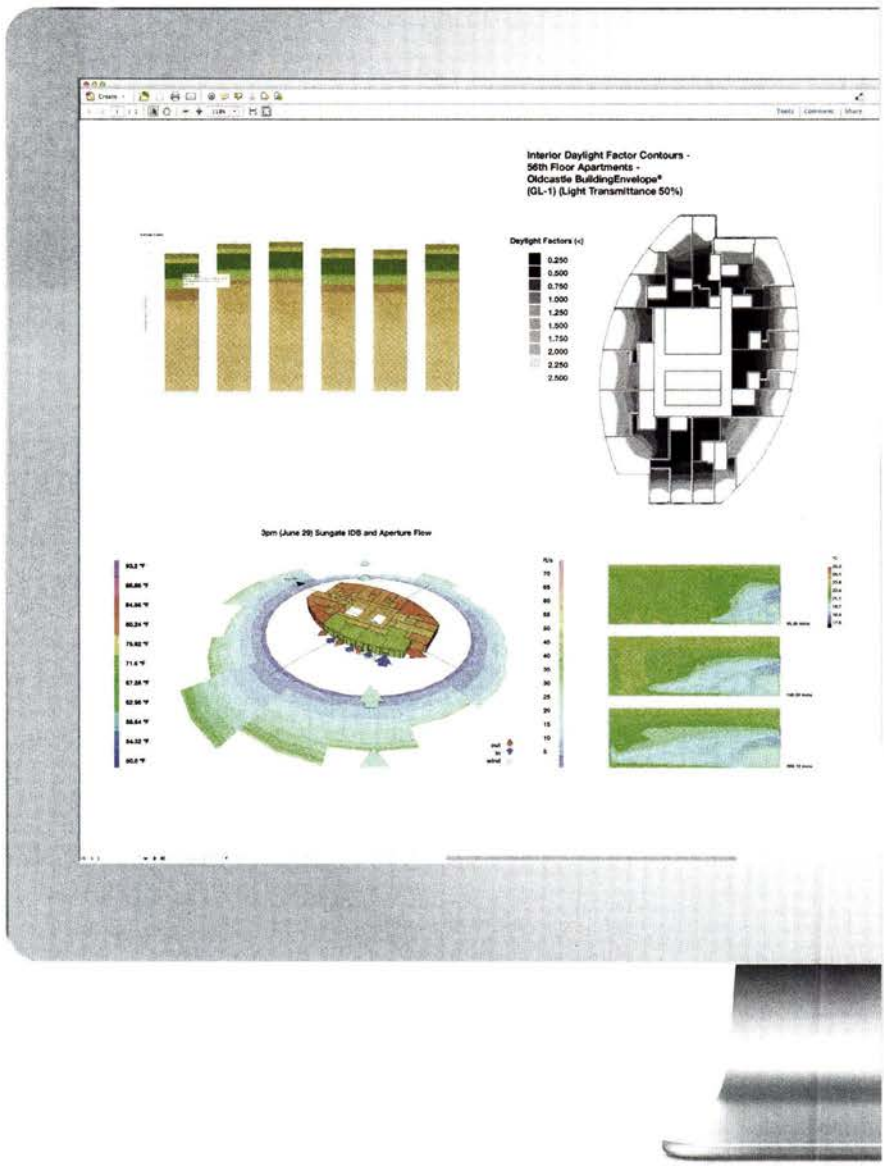
CEILING SYSTEMS

Left brain.



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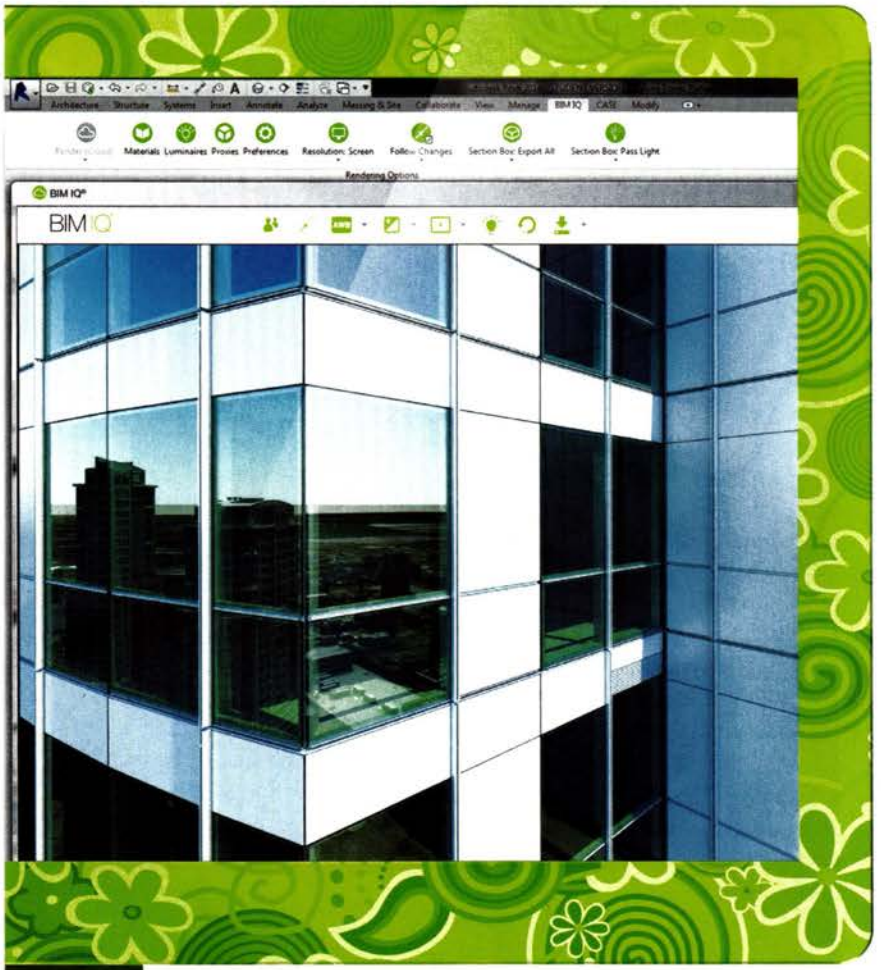
Meet right brain.



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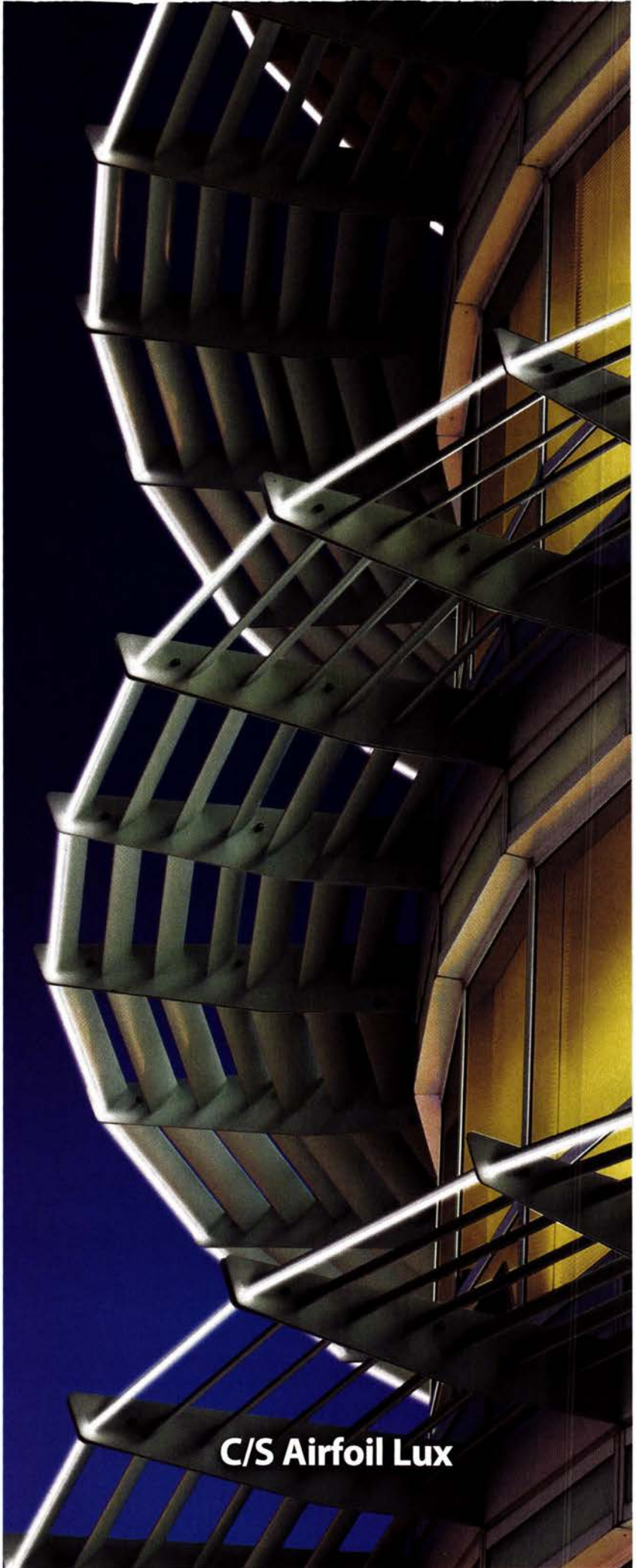
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Stage Right

FXFOWLE's design for the **Hunter's Point Campus** embodies a new academics, one rooted in preparing students for the professional world. Needing theater-like space for those aspiring to careers in television and film, they used long-span steel to make it column-free—giving students clear sight lines into life on a grand stage. Read more about it in **Metals in Construction** online.

Steel Institute of New York

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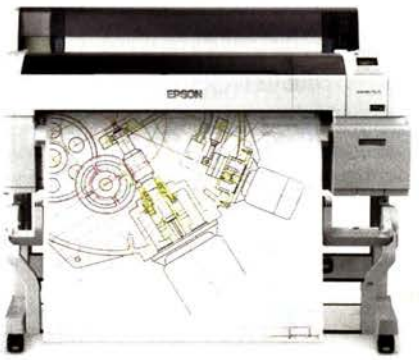

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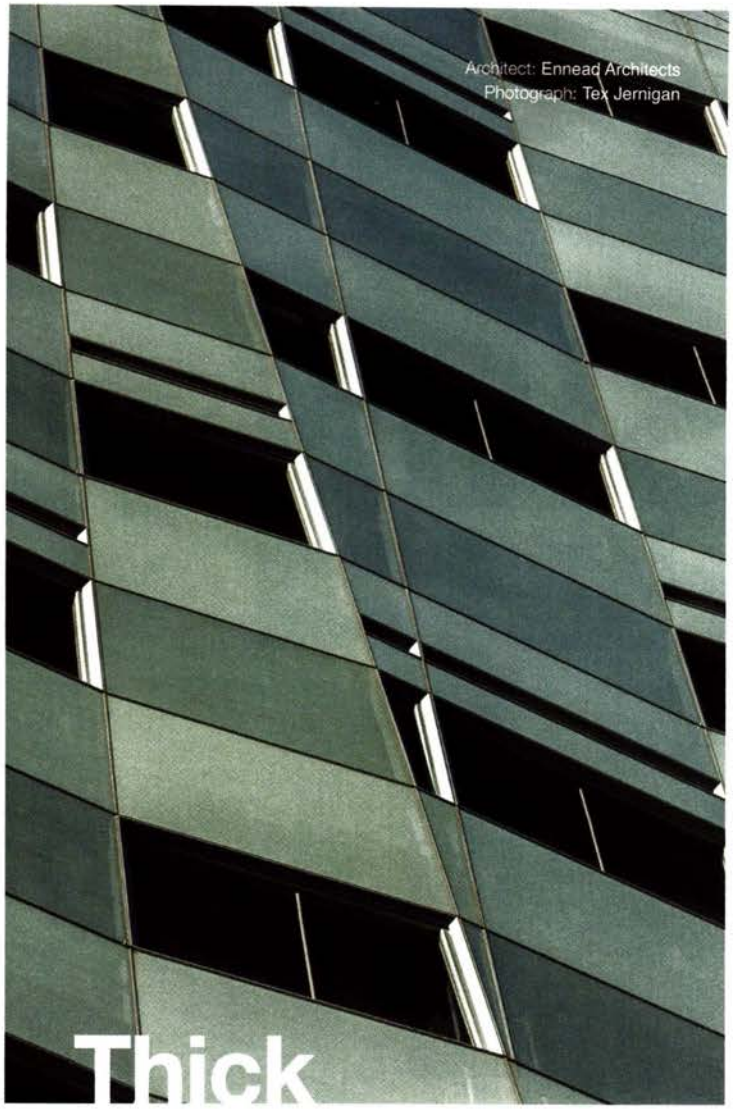

Thick Skinned

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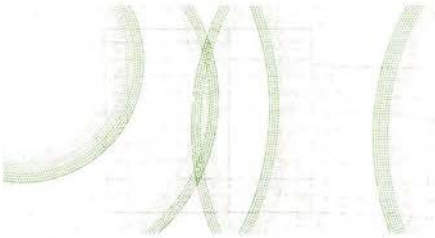

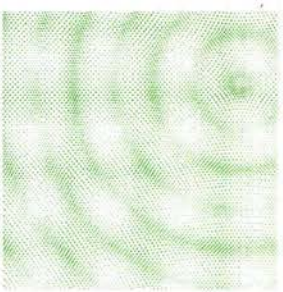

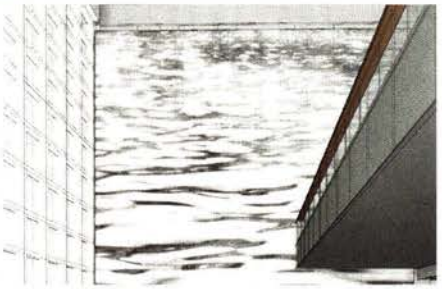
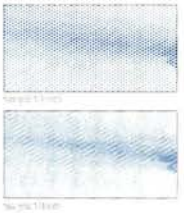

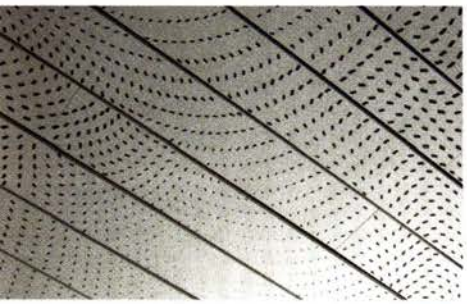
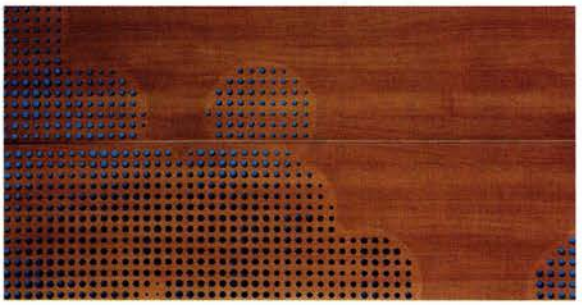

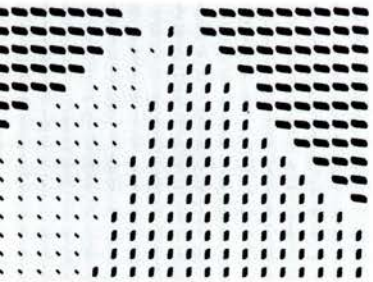
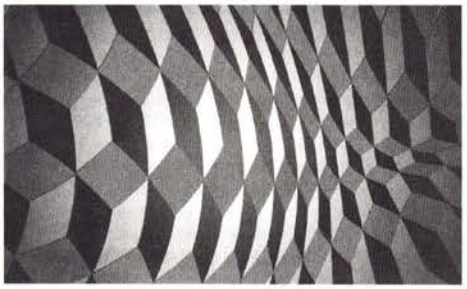
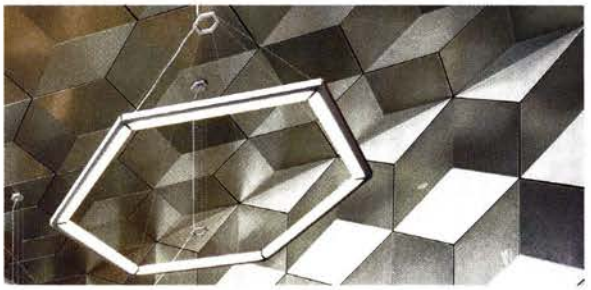

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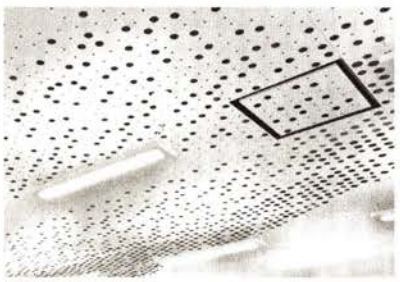
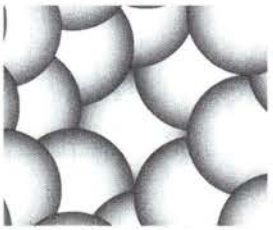
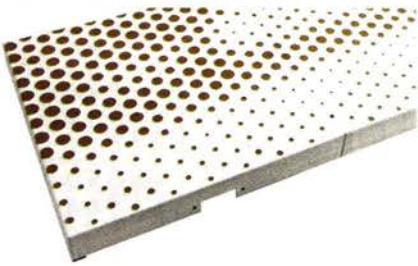

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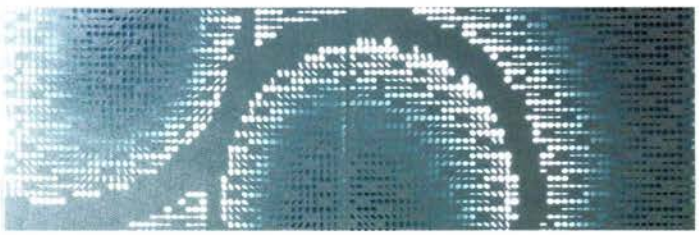
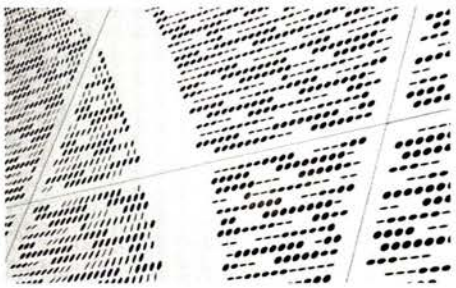
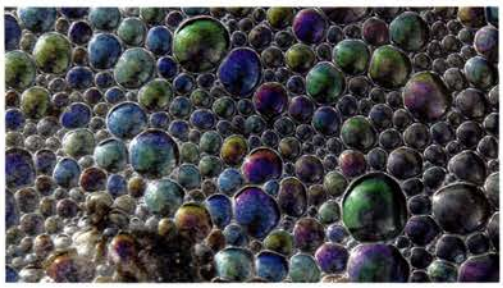

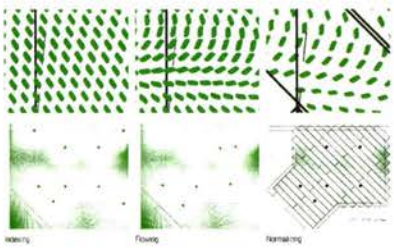

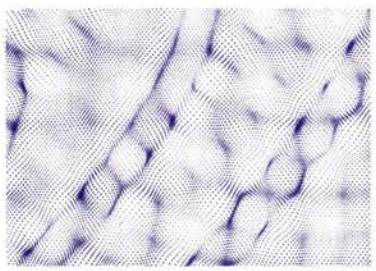

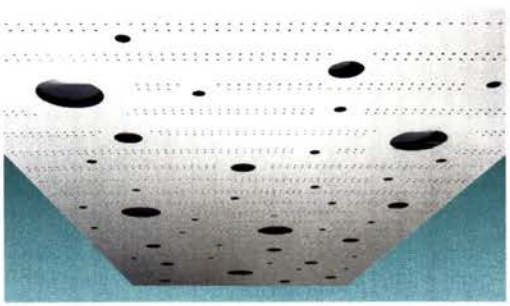
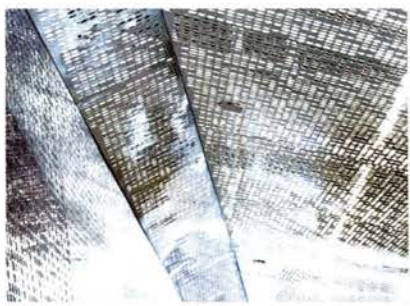
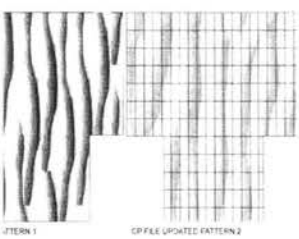

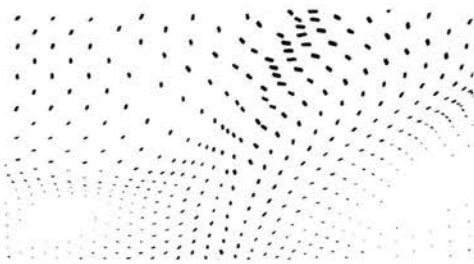
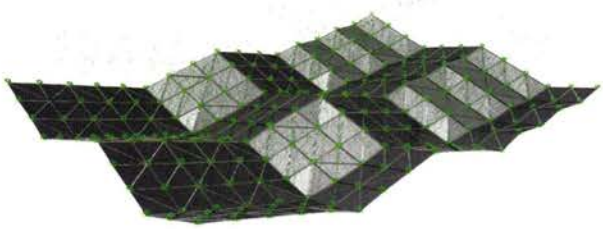

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CIRCLE 52

Project: University of San Francisco, John Lo Schiavo, S.J. Center for Science and Innovation

Location: San Francisco, CA

Architect: NBBJ

Product: Pilkington Profilit™ translucent channel glass system with Lumira® aerogel insulation

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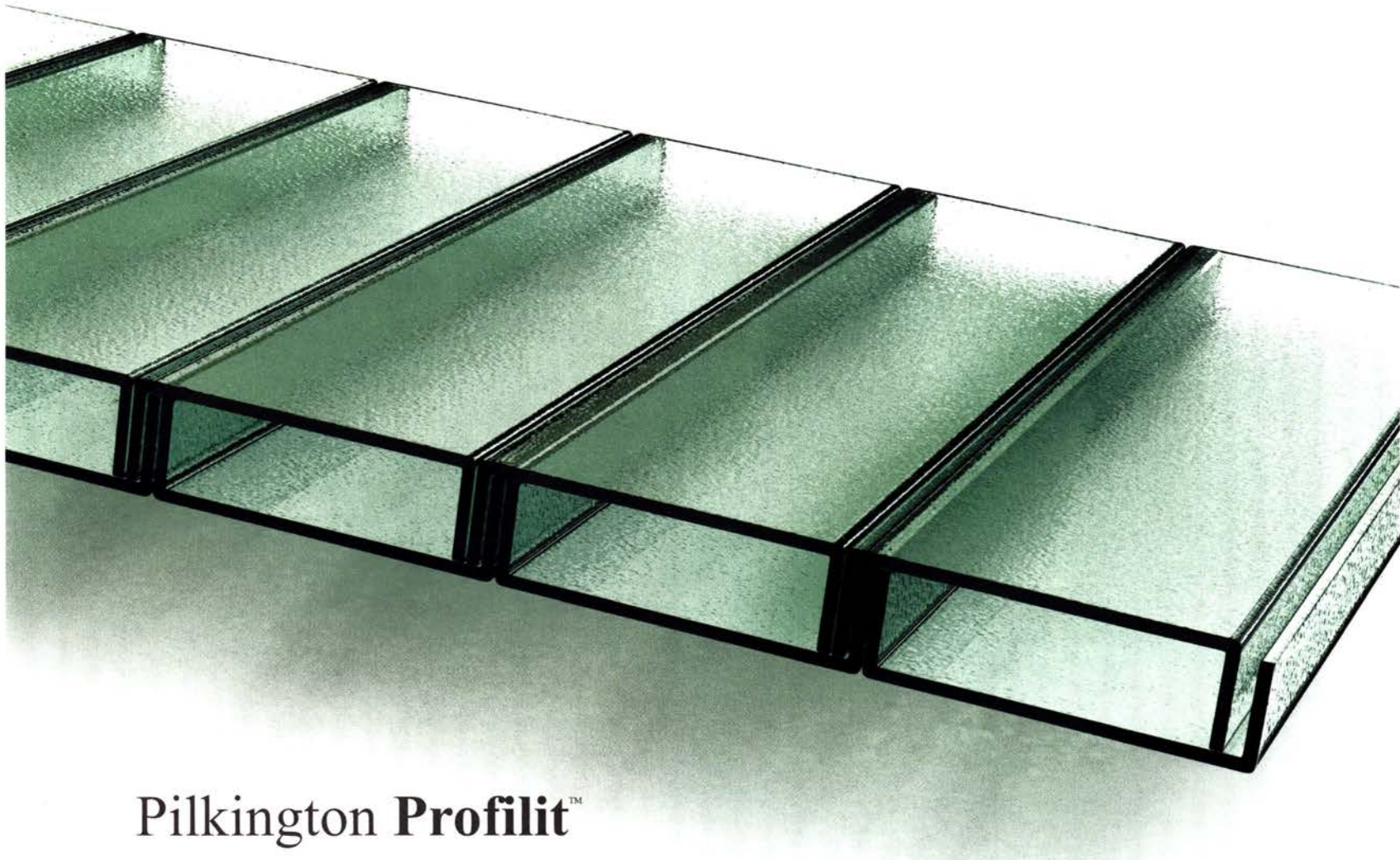

Pilkington **Profilit**™

Pilkington Profilit™ from Technical Glass Products lets your imagination take shape. This interlocking channel glass system comes in a variety of unique colors, textures and finishes. Pilkington Profilit lets in natural light without the loss of privacy. It can be backlit for dramatic effect and insulated with Lumira® aerogel for energy efficiency.

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A Delicate Balance

How to honor the layers of history and express the culture of today

THIS SPRING marks the 50th anniversary of the law that created New York City's Landmarks Preservation Commission. It is not the oldest such law in the country—cities like Charleston, Baltimore, and New Orleans had protections against the destruction of historic property much earlier—but New York's is considered a national model because it is so comprehensive, according to Andrew Dolkart, professor of preservation at Columbia University's Graduate School of Architecture, Planning and Preservation. The statute is broad—it can be applied to single buildings, interiors, or entire neighborhoods. And its definition of places that are architecturally, historically, and culturally significant, says Dolkart, is "deliberately vague. The built-in flexibility has made the law successful."

When New York finally passed its landmarks law in 1965, it was not in direct response to the demolition of McKim, Mead, and White's Penn Station that had begun two years earlier, as is widely believed. The real catalyst was the sneaky razing of the Brokaw houses on the corner of Fifth Avenue and 79th Street—an extravagant mansion in the French Renaissance style, designed by Rose & Stone and built in 1888 by Isaac Vail Brokaw, along with three adjoining townhouses he built for his children. As protests mounted over plans to demolish the houses—while a landmarks law languished in the city council—the real-estate developer who'd bought the properties tore them down over a weekend in February 1965. The landmarks law passed that April, too late to save them. Later the law stood up to review by the U.S. Supreme Court in the successful but highly contentious fight to save Grand Central Station.

In New York, a building can be considered for landmark status after just 30 years (the federal standard is 50), and it's fascinating to note how ideas of architectural significance keep shifting. The early commissioners didn't think to landmark Art Deco structures like Rockefeller Center (1930–33) or the Empire State Building (1931), says Dolkart, and they would have been stunned to look into the future and see that the Seagram Building (1958) and Lever House (1952) would be landmarked by later commissioners as soon as they were eligible.

In this issue of RECORD, we look at contemporary interventions in historic structures around the world, from the careful restoration of an early seaside tearoom by Álvaro Siza (page 84) and the witty conversion of an indoor swimming pool in Tokyo into an event/retail space (page 108) to the adaptation of an early 20th-century Catholic-school complex in Singapore into the National Design Center (page 112).

What is clear in these projects is that history never stands still. Even Siza's own faithful restoration of his tearoom cannot re-create the casual beach culture of the 1960s that his charming structure once served—it is now a high-end restaurant with a big-name chef—while the other adaptations respect and reveal their origins as they incorporate major contemporary design elements.

Adaptive reuse of structures that are historically important—or just plain old—is a major force in today's construction market (and a key means of building sustainably). For architects working on such projects, it is often a delicate balancing act. Just as vibrant cities evolve by reflecting the textured layers of history while continuing to build anew, so do many great structures stand the test of time by adapting to changed uses that honor the past but honestly express contemporary culture. "The past lives only as part of the present," wrote the late critic Ada Louise Huxtable, discussing how preservation should be pursued. "The results will never be perfect, but they will be real." ■

Cathleen McGuigan

Cathleen McGuigan, Editor in Chief

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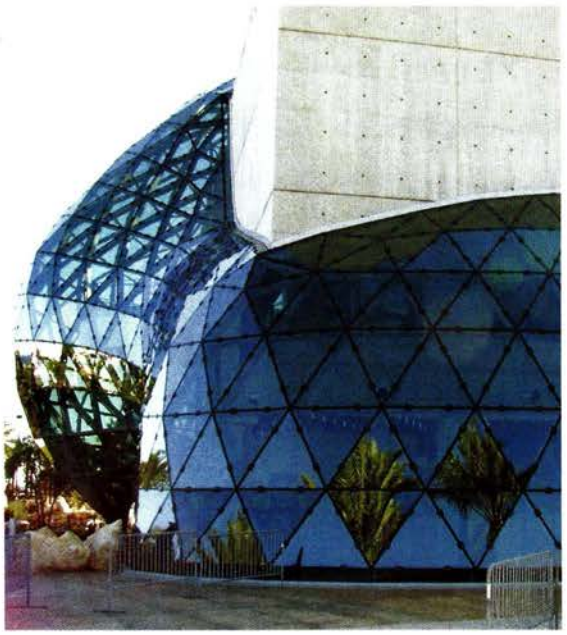

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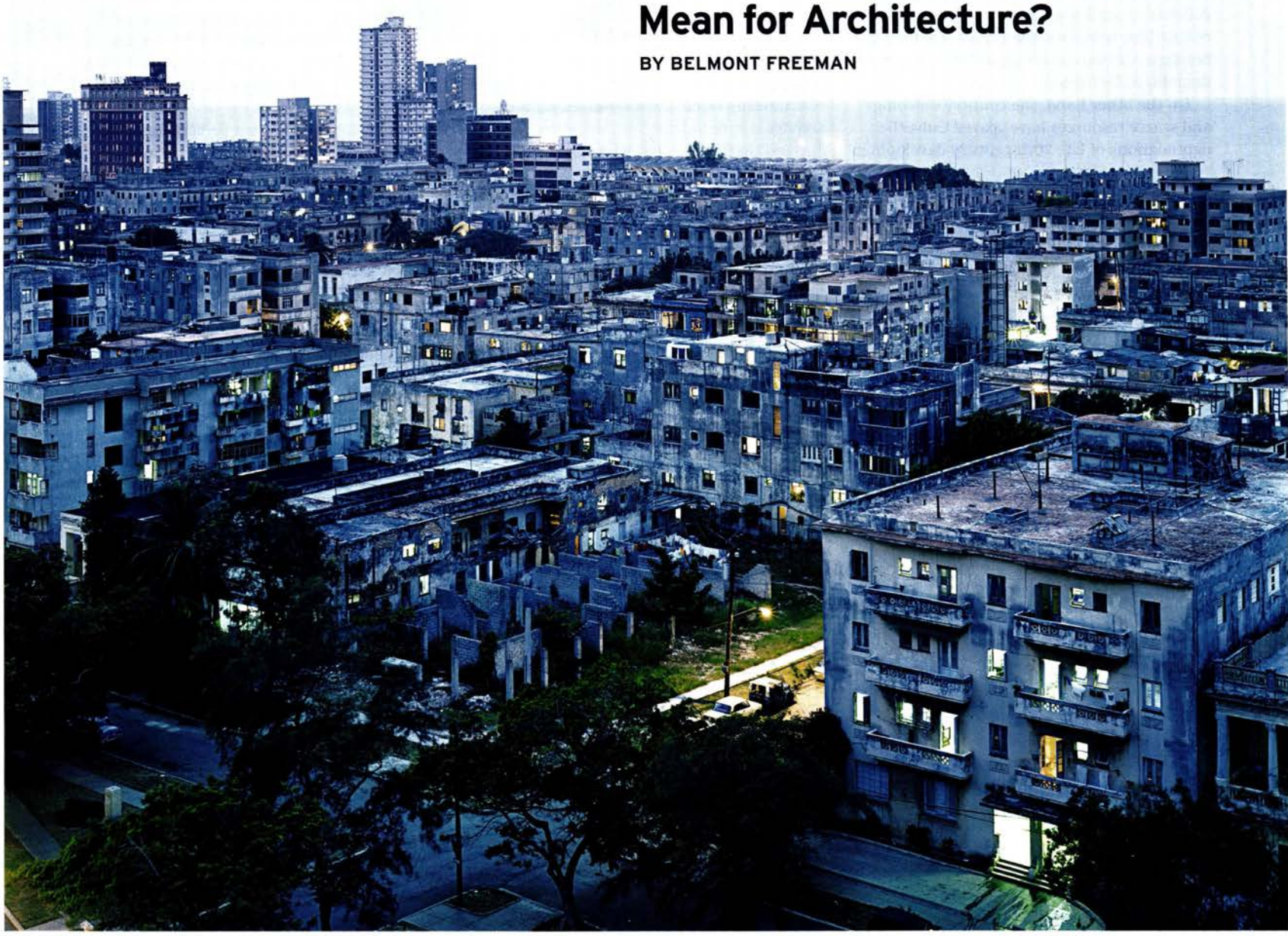
What Does a U.S.-Cuba Détente Mean for Architecture?

BY BELMONT FREEMAN



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Vedado, developed in the early 20th century, is a leafy residential neighborhood of Havana that is ripe for restoration. This view toward the Malecón, a promenade along the sea, is from 2000, but the deteriorating area looks much the same today.

PRESIDENTS BARACK OBAMA and Raúl Castro stunned the world on December 17, 2014, when they announced that the United States and Cuba would restore diplomatic relations after 55 years of estrangement. The news incited jubilation on the streets of Havana and condemnation in Miami from the dwindling cadre of hard-liners who oppose interaction with the island's Communist regime. Among a growing majority of Americans, the reaction was "It's about time," though I, for one, did not expect such sweeping changes while anyone named Castro still held power. Besides plans to open an embassy in Havana, the White House laid out a menu of changes to be made by executive action, including relaxing travel restrictions, broadening categories of approved export and import products, and permitting U.S. financial institutions to operate in Cuba (with the use of credit cards, for example).

As the implications of détente sink in, I pause to consider what it might mean for architecture—its practice, appreciation, and preservation—in Cuba. The island nation is rightly proud of its architectural legacy, older by a

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century than anything in North America and unrivaled in quality right through Midcentury Modernism, including radical experimentation during the first decade after the 1959 revolution. But the economic embargo imposed by the United States in 1960 and failures of the socialist economy slowed architectural production in Cuba in the 1970s and '80s; since the collapse of the Soviet Union in 1991 and the end of East Bloc subsidies, the island's rich built heritage has been on an inexorable slide toward demolition by neglect.

On the other hand, the country's ideology and scarce resources have spared Cuba the depredations of late 20th-century development

The Reguero Theater in Morón, built in 1922, lost its roof in a cyclone 11 years later and was used as a boxing arena and a cabaret before becoming a theater again in 2004. Seen above in 2012.

—no urban renewal, no highways slicing through cities, no vast swaths of mediocre modern construction. Cuba today retains historic urban neighborhoods that are deteriorated but intact, vast unspoiled countryside, and miles of pristine coastline. With the restoration of ties to the U.S., the conditions that brought about the island's state of "preservation by poverty" are poised to change.

The thaw in Cuban-American relations promises to open up significant commercial opportunities to U.S. companies, including architectural firms, but far-reaching normalization with Cuba won't happen until the embargo against Cuba is lifted, and that will require an act of Congress. The new Republican majority is unlikely to deliver that during Obama's two remaining years in office. But we may be surprised: the farm states have long sought to raise the cap on agricultural exports to Cuba, and American real-estate developers and hospitality operators won't stand by quietly while Spanish, French, Canadian, and Chinese companies build hotels and resorts across the island.

So pressure from the business community will ultimately undo the embargo, but even then, the Cuban government's obsession with maintaining tight control over all economic activity is sure to frustrate American developers (and their architects) when they enter the market, just as it vexes the Europeans now active on the island. And the woeful obsolescence of Cuba's infrastructure—roads, sewers, water, electricity—puts a stricture on new development, even as an impending surge in North American tourism will require thousands of new hotel rooms. All of which is to say that the feared invasion of developers from the United States "when Cuba opens up," will probably unfold in slow motion and, I hope, at a pace that will allow conscientious environmental and historic-preservation controls to prevail.

In the meanwhile, the beautiful city of Havana continues to crumble. The government has executed masterful restorations in the colonial core of Old Havana and rescued many principal monuments, but in less fortunate neighborhoods, living conditions are deplorable and building collapses common. For the city's splendid modern architecture, the Office of the Historian of the City of Havana (which directs most restoration work) has yet to focus equal attention on preservation. With the expansion of Cuban-American trade, the upswing of tourism, and the increase of remittances from the north to finance the small-scale private enterprises that the Castro regime has recently allowed, an infusion of capital might help stem the decline of the city before it's too late. The single best thing that can happen for the preservation of Cuba's architectural legacy is the revival of the island's moribund economy, but the Cuban government must also resist the fast money to be gained by selling off development rights for ill-conceived projects, which could be just as destructive to the city as its current entropy.

One immediate benefit to the architectural community will be easier travel. While ordinary tourism—sun and fun—is still banned, certain categories of travelers (including journalists and professional researchers, which covers many academic architects) will be allowed to visit Cuba without obtaining a special visa. This will enhance interaction between American and Cuban architects and preservationists, allowing the exchange of ideas and technical information, and potential collaboration.

Friends and colleagues want to rush to Cuba "before it changes." My response is yes, of course, visit Cuba—but you have time. It's not going to happen overnight. I also admonish people not to view change in Cuba as something to be dreaded. Cuba does not exist as a time-warp curiosity shop for our amusement or prurient fascination with ruins. It's a vibrant nation of people who desperately need and deserve improvement in their lives. Raúl Castro has stated unequivocally that new diplomatic and commercial ties with the U.S. do not herald any deviation from Cuba's socialist path, and I sincerely hope that Cuba can reboot the positive achievements of the revolution (in areas like medicine and education) and avoid the extreme income inequality that infects capitalist society today. One thing certain is that future relations are far more likely to encourage the evolution of an increasingly open civil society in Cuba than the failed policies of the past. This is what the Cuban people need the most. ■

Belmont Freeman, FAIA, is the founding principal of Belmont Freeman Architects in New York. An American of Cuban descent, Freeman has written and lectured widely on the subject of Cuban architecture.

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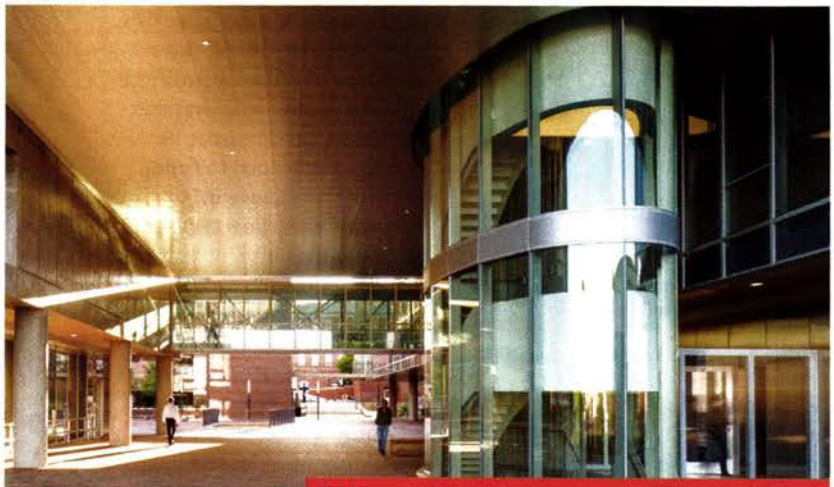

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Clock's Ticking on Two Houses

BY SARAH AMELAR

MOST BUILDINGS never leave their original sites, but Frank Gehry's 1987 Winton Guesthouse may be facing its second move within six years. And another remarkable house from the banks of Minnesota's Lake Minnetonka—the 1972 Dayton House by Romaldo Giurgola—is poised for an ambitious relocation of its own.

There, wealthy shoreline communities have a history of great architectural patronage, as well as stunning losses. In Wayzata, Frank Lloyd Wright's Francis Little residence was razed in 1972 (though its living room survives in the Metropolitan Museum of Art). And in 1997, the wrecking ball shattered Ralph Rapson's nearby Pillsbury House.

But the Herculean feat of disassembling, relocating, and re-erecting the Winton Guesthouse, between 2008 and 2011, set a new precedent here. Rescuing the Dayton House would engage similar means. Yet currently, the fate of both houses is uncertain.

The Winton odyssey began when developer Kirt Woodhouse subdivided its 12-acre property, separating the guesthouse from the 1952 Philip Johnson–designed main house. High land values impeded the survival of the 2,300-square-foot cottage as a stand-alone house. Ultimately, Woodhouse donated it, in 2007, to Minnesota's University of St. Thomas.

Gehry's Winton Guesthouse on the University of St. Thomas campus, 2011.

Stubbs Building Movers orchestrated the move, cutting the house into eight pieces, at a reported cost of $1 million, and reassembling it 75 miles away, on the university's conference and retreat campus, in Owatonna. Last August, St. Thomas sold that campus, with the guesthouse excluded from the sale and the agreement to relocate it within two years. University trustees are expected to decide whether to either move the building to its main campus, in St. Paul; store it for integration into a future arts center there; or find a donor or new owner to move the house to another site. "It's a pivotal Gehry work," says architectural history professor Victoria Young, who oversees the house. "And at least 18 months are needed to fund, engineer, and move it."

Meanwhile, the 9,300-square-foot Dayton House, in Wayzata, has 16 months to work out relocation plans. Its owners are occupying it until their new home, elsewhere on-site, is done (anticipated to be in December). Since local zoning allows only one residence per parcel, the older building must be gone within six months of its replacement's completion. St. Thomas investigated rescuing it, but another, more viable option has emerged. Blue Water Theater Company, working with Stubbs and architect Neil Weber, hopes to reestablish the building across the lake on a city-owned site. An operator-owner nonprofit would form, adding an auditorium, with the Dayton housing the lobby, black-box performance space, and offices, plus galleries for other organizations. Moving the massive structure demands descending a steep slope to a lake crossing or navigating mature trees along a winding land route. Stay tuned. ■

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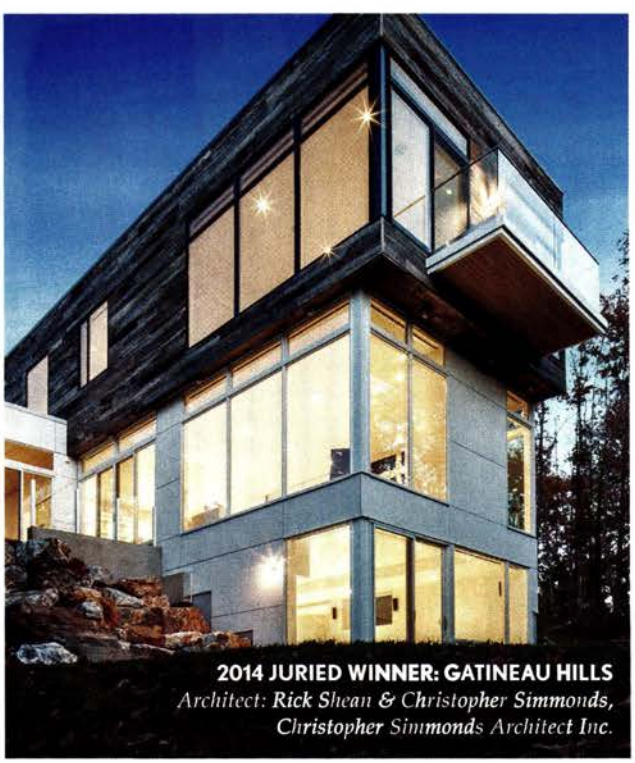

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AIA Rejects Ethics Amendment

BY ZACHARY EDELSON

IN DECEMBER, the American Institute of Architects (AIA) declined to adopt a rule forbidding AIA members to design specific buildings whose purposes involve human-rights violations (as defined by international laws), such as executions or prolonged solitary confinement.

The proposed amendment was submitted to the AIA on August 1, 2014, having been drafted by Architects/Designers/Planners for Social Responsibility (ADPSR), a San Francisco–based 501(c)3 organization, with the help of human-rights lawyers. The amendment would have stipulated that AIA members "shall not design spaces intended for execution or for torture or other cruel, inhuman, or degrading treatment or punishment, including prolonged solitary confinement." In effect, this would have prohibited members from designing facilities such as execution chambers, interrogation suites meant for torture, and super-maximum-security prisons that enable long-term solitary confinement. The proposed amendment would add "enforceable language" to an existing AIA ethics rule that states, "Members should uphold human rights in all their professional endeavors." The ADPSR submitted the proposal along with a set of endorsement letters and two petitions (one was worded for architects, the other for educators—they have accrued more than 2,100 signatures on Change.org).

In the AIA's rejection notice to the ADPSR, 2014 AIA president Helene Combs Dreiling cited a number of concerns conveyed by a special panel appointed to examine the proposal. The panel consisted of seven AIA members, none of whom were AIA elected leadership or board members, chosen by Dreiling for their diversity of expertise and of views on the issue. Reviewing a range of documents and research material, some provided by the ADPSR, the panel evaluated the amendment in terms of the ethics code's structure and goals. A final report, approved by all seven panel members, was submitted to the AIA board of directors in September.

The AIA concluded that its code of ethics already provides members with strong guidance.

Questions of scope and enforceability were the principal rationale for rejection, including the potential of an antitrust challenge on the basis of inhibiting competition, the need for a preliminary ruling by an independent court, and the difficulties for an architectural organization of making legal findings. In a statement provided to ARCHITECTURAL RECORD, AIA CEO Robert Ivy said that the "AIA board concluded that the current AIA code of ethics provides members and the public with strong and clearly stated guidance concerning the lawful and ethical practice of architecture."

Architect and ADPSR president Raphael Sperry argues that demonstrating that design is intended for human-rights violations would be easy in the case of execution chambers or interrogation suites but possibly difficult regarding facilities constructed for prolonged solitary confinement. Along those lines, Sperry approved of the ongoing efforts of the AIA's Academy of Architecture for Justice (AAJ) to write best-practice guidelines on designing segregated housing units (SHUs), i.e., solitary confinement facilities. Such guidelines would define how architects could improve SHUs and provide a standard against which their conditions could be measured. However, the ADPSR still decries the lack of enforceable rules to punish such violations and the opacity and insularity of the AIA board of directors' evaluation of their proposal. ■

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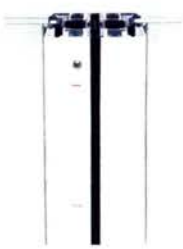

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Olajumoke Adenowo

BY FRED A. BERNSTEIN

OLAJUMOKE ADENOWO has been practicing architecture in Nigeria for more than a quarter of a century. Still, she became significantly better known when CNN named her "Africa's star architect" in December, as part of a report on her Lagos-based practice, AD Consulting. The broadcast gave her a chance to talk about the state of African architecture, which she says "reflects national aspirations as countries race to develop; corporate aspirations as multibillion-dollar firms take root here; and individual aspirations within Africa's rapidly growing middle class."

Adenowo, 46, grew up on the campus of the University of Ife (now Obafemi Awolowo University), where her parents taught. She enrolled in the architecture program at age 14 and received her master's degree at 21. Two years later, while working for Femi Majekodunmi Associates, she helped design the Federal Ministry of Finance building in Abuja. She founded her own firm, AD Consulting Limited, in 1994, with an office "the size of three chairs"; it now has 19 employees.

How are architects perceived in Nigeria?

The general public doesn't distinguish us from engineers or builders. People think it's our job to make sure buildings don't fall down.

How do you explain architecture, then?

I define it as art you can experience, functional art. Not art for art's sake.

What buildings are you most proud of?

I'm particularly happy with our own studio, which is full of surprises, from the sculptural screen I designed to act as burglar bars to the conference room accessed via a glass bridge. The stairs are an abstraction of our firm's logo—the nautilus shell. My Obafemi Awolowo University Senate Building is a contemporary interpretation of the famous bronze cast of the Yoruba King Olokun. It is naturally lit and ventilated, with a central atrium open to the sky and cooled by fountains. The Guiding Light Assembly (in the northeast of Lagos Island) is a church building designed as a mixed-use civic center to ensure it never goes the way of its counterparts in other countries, which end up as bingo halls and apartments. It has become the hub of community life and buzzes with activity all week long.

What would a western visitor make of Nigerian architecture?

At Obafemi Awolowo University the visitor will find the best attempt at developing a contemporary African architecture. But the same visitor might balk at some of the private residences in Lagos—fake Tuscan- and Georgian-style houses! Nigerians are incredibly well-traveled, and I guess they aspire to replicate designs they saw abroad as status symbols.

So what does Nigeria need, architecturally?

In the urban centers we need an architecture that speaks to the culture, speaks to our era, the geography, the climate and the spirit of Nigeria—if we don't want to end up a bad copy of Dubai or Texas.

What will you do to make that happen?

What I am doing now: speaking, writing, and designing buildings that are true to my convictions.

Are you interested in sustainability?

My architecture is, and has to be, sustainable. Heating is not an issue in Nigeria but cooling is, and my buildings can all be cooled passively. Natural daylight streams into even the largest buildings I design. We find places for solar panels. But we can't force clients to use solar panels; these energy alternatives must be adopted by a critical mass to encourage economies of scale. And for private commissions we can't optimize proximity to transportation nodes or central sewage or waste-recycling plants, because the city infrastructure to support these is still developing.

How has the ongoing terrorism in northeast Nigeria affected your work?

I have completed over 20 projects in the north (one narrowly escaped collateral damage from a bomb blast), but no one from Lagos (in the south) would travel there for work now.

Like the U.S, Nigeria faces a problem of inequitable distribution of wealth. How does that affect architects and architecture?

When there's a dwindling middle class, society is politically and economically unstable. And for architects, it's the middle class that aspires to own their own homes, and whose commercial ventures call for new buildings. The future of Nigerian architecture—and of the country—lies in the continued growth of the middle class. ■

For the complete interview, visit architecturalrecord.com/news.

noted

Architectural Record and Van Alen Institute Launch Survey

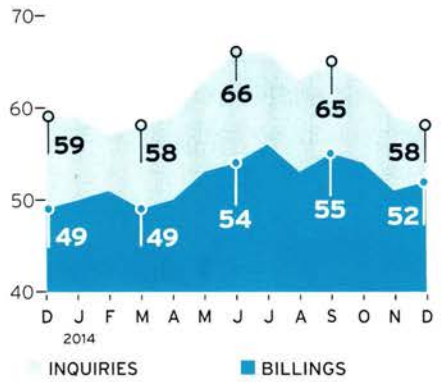
ARCHITECTURAL RECORD is partnering with the Van Alen Institute on the organization's international Competition Survey, which will ask designers what they love and hate about competitions and how to make them work better. The survey will begin in April. The results will be published and discussed at a conference, Redesigning the Design Competition, cohosted by the Van Alen and Harvard University's Graduate Schoool of Design, April 23–24. Visit vanalen.org and architecturalrecord.com.

Five Firms Short-listed for Glasgow School Restoration

Five architecture firms have been short-listed to lead the restoration of the Glasgow School of Art's fire-damaged Charles Rennie Mackintosh building: Avanti Architects, John McAslan and Partners, LDN Architects LLP, Page\Park Architects, and Purcell. The winning firm will be chosen in March.

Swanke Hayden Connell Files for Bankruptcy

The New York City–based firm filed for protection from its creditors on January 9. Its projects included the 1986 restoration of the Statue of Liberty, New York's Trump Tower, and offices of some of the most prestigious corporations in the world, but the firm had dwindled in recent years to a small practice. The final blow apparently came with a $2.3 million dispute over payments due from the developers of a Russian office tower.



ABI Ends 2014 on Solid Ground

The American Institute of Architects reports that the December ABI score was 52.2, up from a mark of 50.9 in November (any score above 50 indicates an increase in billings). Ten out of 12 months in 2014 showed increasing demand for design services, and the ABI points to a healthy outlook for the nonresidential construction industry.

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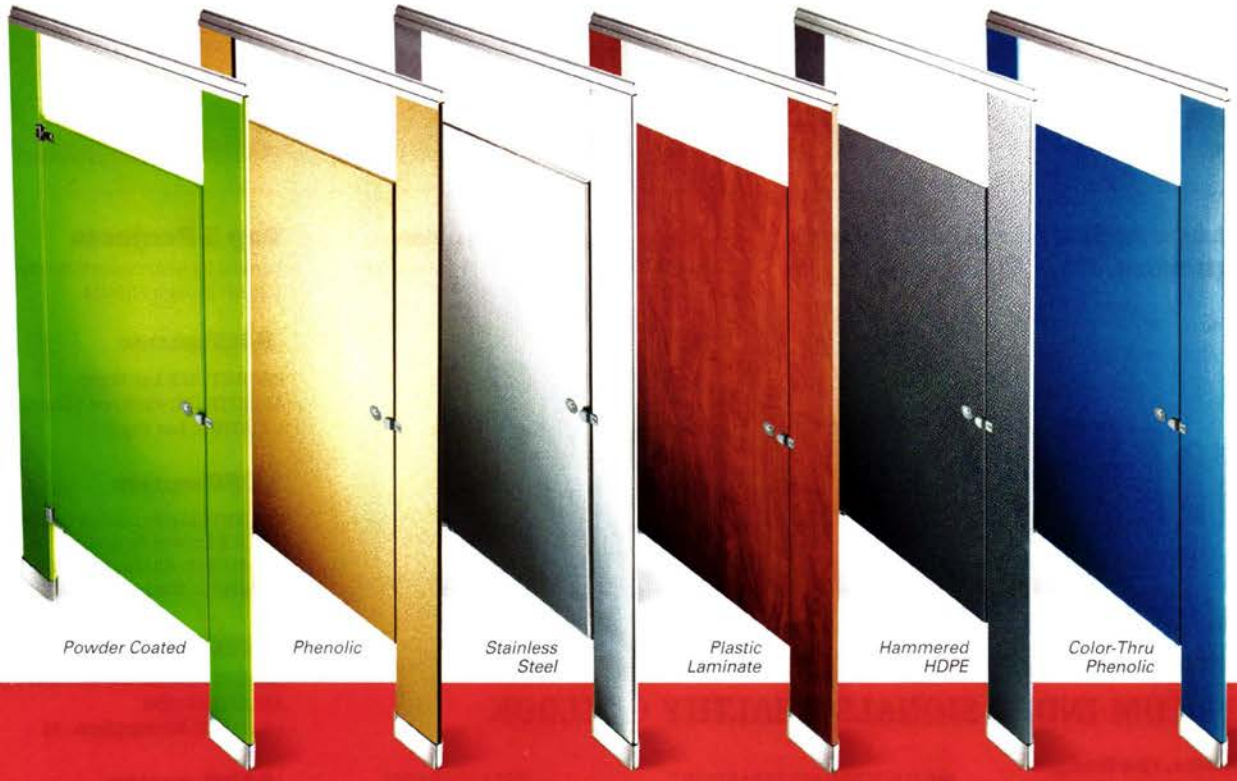

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CIRCLE 17

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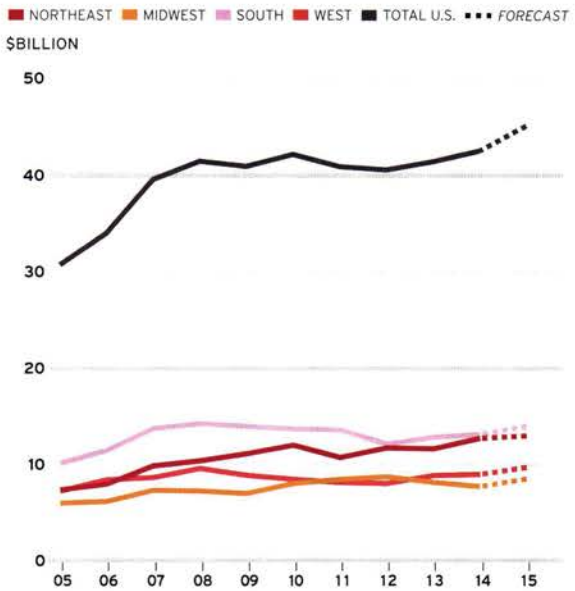
Data from Dodge Data & Analytics

MARKET FOCUS
RENOVATION

The renovation market is relatively immune to economic ups and downs with fairly stable performance in both good times and bad. For the coming year, the value of renovation construction starts is expected to grow 6%, to $45.3 billion.

Renovation Starts by Region

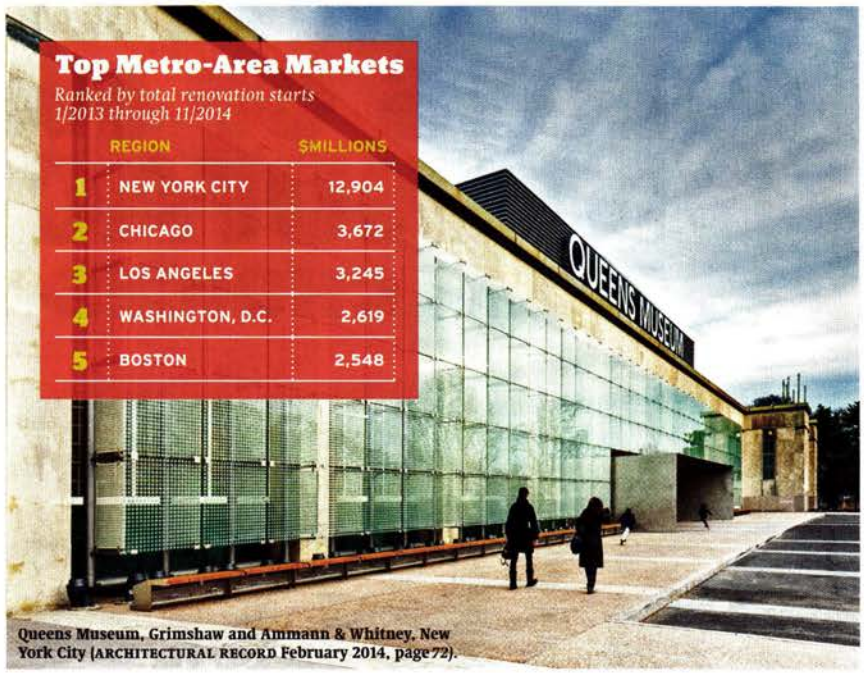
In addition to U.S. total and 2015 forecast figures



Top Metro-Area Markets

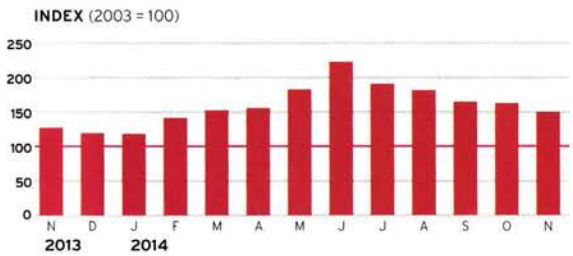
Ranked by total renovation starts 1/2013 through 11/2014

	REGION	$MILLIONS
1	NEW YORK CITY	12,904
2	CHICAGO	3,672
3	LOS ANGELES	3,245
4	WASHINGTON, D.C.	2,619
5	BOSTON	2,548



Queens Museum, Grimshaw and Ammann & Whitney, New York City (ARCHITECTURAL RECORD February 2014, page 72).

The Dodge Index for Renovation Construction 11/2013–11/2014



The index is based on data for renovation starts that have not been seasonally adjusted. The average dollar value of projects in 2003 serves as the index baseline.

Top 5 Design Firms

Ranked by nonresidential-renovation starts 1/2011 through 11/2014

1. **Gensler**
2. **Perkins+Will**
3. **AECOM**
4. **HGA**
5. **Stantec**

Top 5 Projects

Ranked by nonresidential-renovation starts 1/2013 through 11/2014

$415 MILLION

PROJECT: SLS Las Vegas
ARCHITECTS: Philippe Starck, Gensler
LOCATION: Las Vegas

$250 MILLION

PROJECT: International Monetary Fund HQ1 Renewal Project
ARCHITECT: Skidmore, Owings & Merrill
LOCATION: Washington, D.C.

$200 MILLION

PROJECT: Grandview Medical Center
ARCHITECT: ESa
LOCATION: Birmingham, AL

$200 MILLION

PROJECT: Trump International Hotel at the Old Post Office
ARCHITECTS: WDG, Beyer Blinder Belle
LOCATION: Washington, D.C.

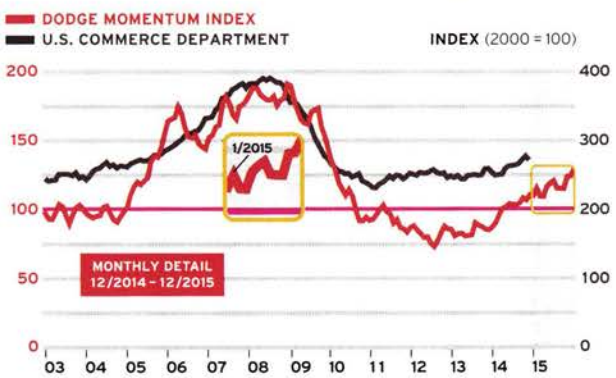
$185 MILLION

PROJECT: The Cromwell Las Vegas
ARCHITECT: Leo A Daly
LOCATION: Las Vegas

MOMENTUM INDEX SIGNALS HEALTHY OUTLOOK

In December, the Dodge Momentum Index increased 4.0% from November. Now at 128.7, the index is 17% higher than it was a year ago—a sign that the recovery will continue into 2015.

The Dodge Momentum Index is a leading indicator of construction spending. The information is derived from first-issued planning reports in the Dodge Data & Analytics Reports database. The data lead the U.S. Commerce Department's nonresidential spending by a full year. In the graph to the right, the index has been shifted forward 12 months to reflect its relationship with the Commerce data.



PHOTOGRAPHY: © DAVID SUNDBERG/ESTO

Dodge Data & Analytics tracks projects from predesign through construction to capture hard construction costs, square footage, and other key statistical information.

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Thousands of San Francisco building owners are now required by law to seismically retrofit multi-unit (at least five) soft-story, wood-frame residential structures that have two or more stories over a "soft" or "weak" story.

These buildings typically have parking or commercial space on the ground floor with two or more stories above. As a result, the first floor has far more open areas of the wall than it actually has sheathed areas, making it particularly vulnerable to collapse in an earthquake.

That was the case in both the Loma Prieta and Northridge earthquakes, which is why cities in California, including Berkeley and Oakland, have recently passed similar legislation and many others, including Los Angeles, are now considering it. San Francisco's ordinance affects buildings permitted for construction before January 1, 1978.

One solution to strengthen such buildings is the Simpson Strong-Tie® Strong Frame® special moment frame. Its patented Yield-Link™ structural fuses are designed to bear the brunt of lateral forces during an earthquake, isolating damage within the frame and keeping the structural integrity of the beams and columns intact.

"The structural fuses connect the beams to the columns. These fuses are designed to stretch and yield when the beam twists against the column, rather than the beam itself, and because of this the beams can be designed without bracing. This allows the Strong Frame to become a part of the wood building and perform in the way it's supposed to," said Steve Pryor, S.E., International Director of Building Systems at Simpson Strong-Tie. "It's also the only commercially-available frame that bolts together and has the type of ductile capacity that can work inside of a wood-frame building."

Another key advantage of the Simpson Strong-Tie special moment frame is no field welding is required, which eliminates the risk of fire in San Francisco's older wood-framed buildings."Field welding is not a good thing, particularly in an existing building because the chance of fire is just too great. A bolted solution is much safer."

The special moment frame has been recognized in the construction industry for its innovation. It was one of only 16 products selected to win a 2014 Parade of Products@PCBC award, given by the California Building Association.

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For more information about the Strong Frame special moment frame, visit the website at **strongtie.com/strongframe.**

Watch a video about San Francisco's retrofit ordinance at **strongtie.com/softstory.**

CIRCLE 54

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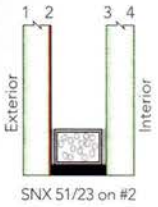

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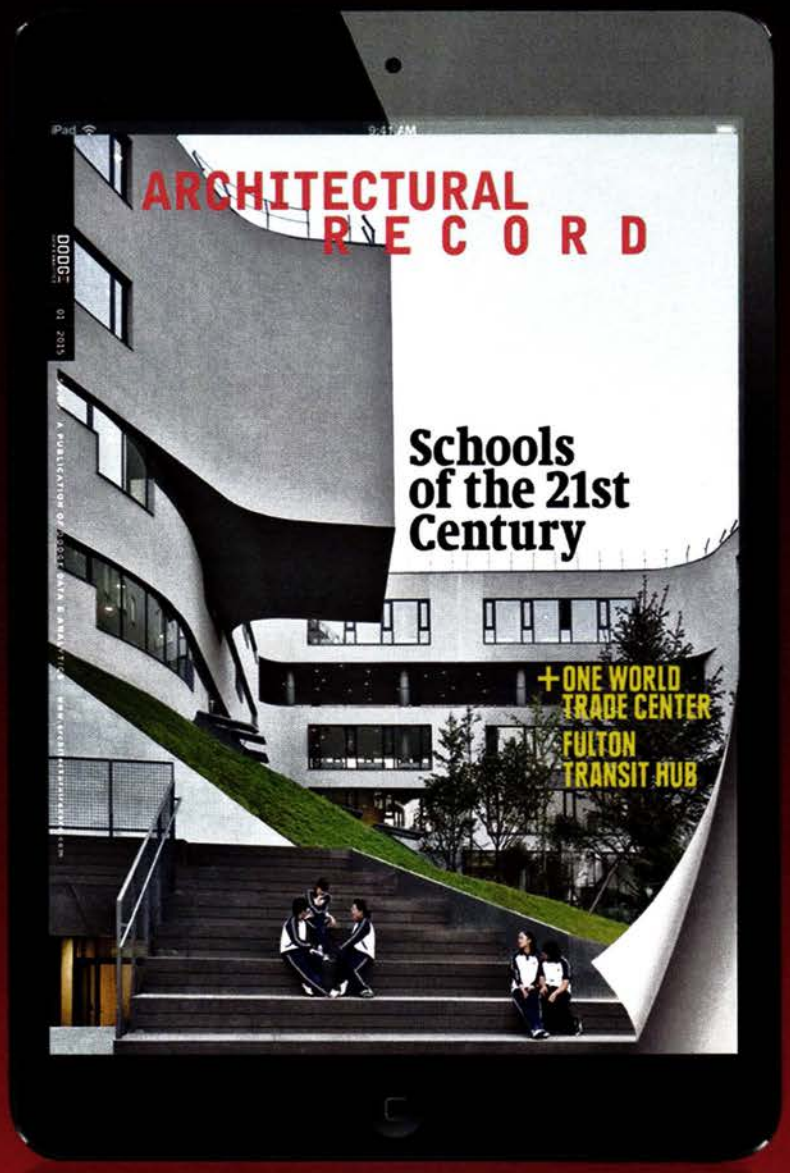

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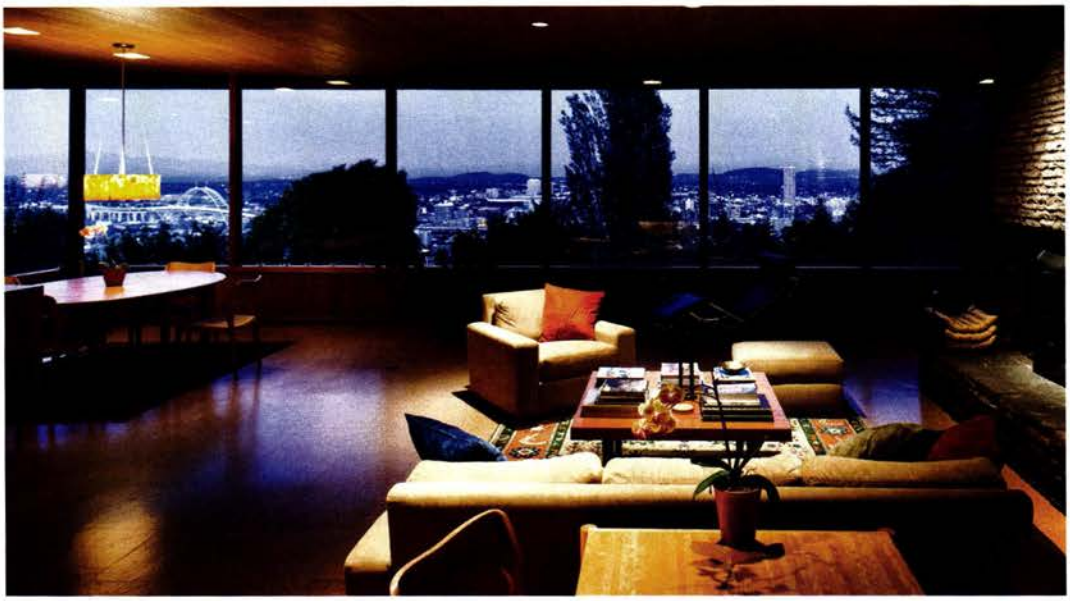
CIRCLE 37

perspective house of the month

A HOUSE DESIGNED BY PIETRO BELLUSCHI IN PORTLAND, OREGON, HAS BEEN RENOVATED AND EXPANDED WITH SENSITIVITY AND IMAGINATION BY HIS SON ANTHONY. **BY SARAH AMELAR**



Anthony Belluschi added a second-story loft space to the house his father, Pietro, built in 1948 (top, left). Original glass expanses (top, center and left) offer views of downtown. A guesthouse built in 2008 (above) is shown with other changes to the father's plan (below).

AFTER ARCHITECT Anthony Belluschi and his brother inherited the Portland, Oregon, home of their late father and stepmother, in 2009, their real-estate agent pronounced the spectacularly sited modernist house a potential "teardown." Recalls Anthony, "The first words out of my mouth were 'Over my dead body.'"

So began his odyssey to restore the final home of his father, Pietro Belluschi, MIT's dean of architecture and planning (from 1950 to 1965) and a designer whose achievements include Portland, Oregon's Equitable Building (1947) and New York's Juilliard School and Alice Tully Hall (1969).

Pietro built the 2,500-square-foot house for Dr. and Mrs. D. C. Burke in 1948 on a secluded wooded hillside with panoramic city views. Twenty-five years later, he bought it from his client and lived there until his death at 94, in 1994, as did his wife until hers, in 2009. In 2008, Anthony added a 235-square-foot guest pavilion—but reclaiming the main house was more daunting.

"I couldn't have worked on it during my father's lifetime," says Anthony, who'd always practiced far outside Pietro's formidable shadow. But the prospect of a teardown spurred him to action. As he meticulously restored the house, "My wife and I realized we wanted to live here, but not enshrine it like a museum." They added 1,200 square feet, creating a new bedroom and doubling the size of the 1948 kitchen. Cedar walls inside and out and vast windows left few surfaces for art, so Anthony joined the house's old and new sections with a white-walled, skylit gallery. He also enclosed the carport and modernized the master bath, retaining original glass wall panels, and restored the bedrooms' woven-wood ceilings.

Whether or not Pietro was peering over his shoulder, local preservationists were. The project—a 2013 recipient of Restore Oregon's DeMuro Award—ultimately won their approval. ■

PHOTOGRAPHY: © SALLY PAINTER (TOP, LEFT AND MIDDLE); BLAINE TRUITT COVERT (TOP, RIGHT) BRUCE WOLF (BOTTOM)

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CIRCLE 36

Amnesia at Chartres

The controversial restoration of the interiors of a sacrosanct cathedral elicits a call to action.

BY ALEXANDER GORLIN, FAIA

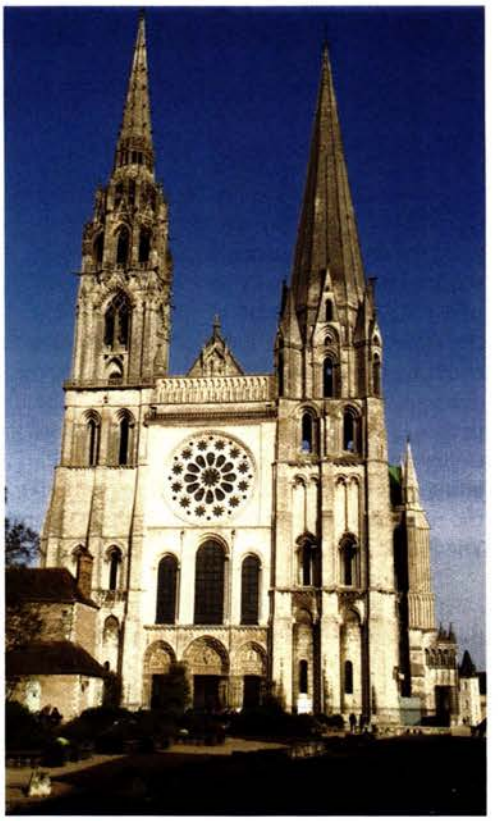
AMONG MODERN architects, Chartres Cathedral, largely built in the first half of the 13th century, holds a special place. Philip Johnson famously said, "I would rather sleep in Chartres Cathedral, with the nearest toilet two blocks away, than in a Harvard house with back-to-back bathrooms." (He first visited Chartres at age 13 with his mother, but the comparison came after he attended Harvard.) Much later, Johnson remarked, "I don't see how anybody can go into the nave of Chartres Cathedral and not burst into tears." Frank Gehry agreed, saying in the 2005 documentary *Sketches of Frank Gehry*, "If you go into Chartres, it drops you to your knees."

The cathedral is remarkable for its siting—rising like a mirage above the flat agricultural plains surrounding the town not far from Paris—and for its robust exoskeleton of flying buttresses, its striking facade of mismatched early- and late-Gothic towers, and its extraordinary collection of stone figures carved into the columns of the exterior. Its sublime interior, dark and cavernous, with jewel-like stained glass emerging from the gloom, has what Sir John Soane called the *lumière mysterieuse*, which he sought to emulate in his own architecture.

But today there is another reason to weep. A misguided "restoration," under the auspices of the French government's division of Monuments Historiques, is erasing the patina of age by painting the ancient stones with white lime wash and beige paint, allegedly to recreate the 13th-century interiors. Research revealed that originally the stone was covered with a plaster surface, then painted to articulate the walls and columns, with faux stone joints that intentionally did not match the actual ones.

What constitutes proper historical restoration is not engraved in stone. While Auguste Rodin referred in 1914 to Chartres as "the Acropolis of France," no one has repainted the Parthenon in its original gaudy blues and reds. John Ruskin avowed in 1849 it was "impossible . . . to restore anything that has ever been great or beautiful in architecture," adding that restoration "is a Lie from beginning to end." About the same time, Viollet-le-Duc was rebuilding many French monuments from ruins, introducing contemporary materials, such as iron, so that the new was distinct from the traces of the past. Why not leave alone the layers of history at Chartres? To erase the marks of time from the interiors—to attempt to go back to the beginning—is to destroy the poetic effect of hundreds of years of aging.

Until the cathedral's current restoration began, the interior was all of a piece, as if carved from a single rock; its power derived from the ancient floors whose stone grew like trees into massive columns, then flowed upward into the interlocking ribbed vaults. This unity is now shattered at the juncture of the antique stone floor and freshly painted columns. The juxtaposition of white columns rising just above the existing bases is an aesthetic disaster: the white makes the floor and base look dirty, jarring with the antique. Perhaps the restorers should go all the way and remove the floor and install newly cut limestone paving. After all, ancient stone floors excised from old French houses go for top dollar at high-end decorator shops in New York or London. Imagine what the original stone floors of Chartres Cathedral would fetch!



Chartres Cathedral's west front (above) is well known for its two spires, reflecting very different styles of early- and late-Gothic architecture. The interior is being repainted to take it back to its earlier, whiter days (left) in the 13th century.

This could be the revenge of the spirit of Le Corbusier in his book *Quand les Cathédrales Étaient Blanches* (*When the Cathedrals Were White*). That 1937 polemic was meant as a metaphor, to show that the rise of modern architecture was a promise of a better life, comparable to the medieval era in France, when all society worked toward a single goal, and "the cathedrals were white because they were new." But now that Chartres Cathedral is some 800 years old, do we really need to go back to the 13th century?

To correct this travesty will require the world's attention. Critics such as Adrien Goetz in *Le Figaro* and Martin Filler in the *New York Review of Books* have pointed this out. Though Chartres is a Unesco World Heritage site, to get another organization such as the World Monuments Fund to take action, you have to nominate the monument to its watch list of endangered cultural heritage sites. So let's do it! This is a call to arms. ■

Alexander Gorlin is an architect with a New York City practice who writes frequently on design.

PHOTOGRAPHY: © ANNE HARRIS (CENTER); ALEXANDER GORLIN (RIGHT)

Stars War Over Chicago's Lakefront

The problem with the Lucas Museum? Not just the design but the planning and the politics.

BY BLAIR KAMIN

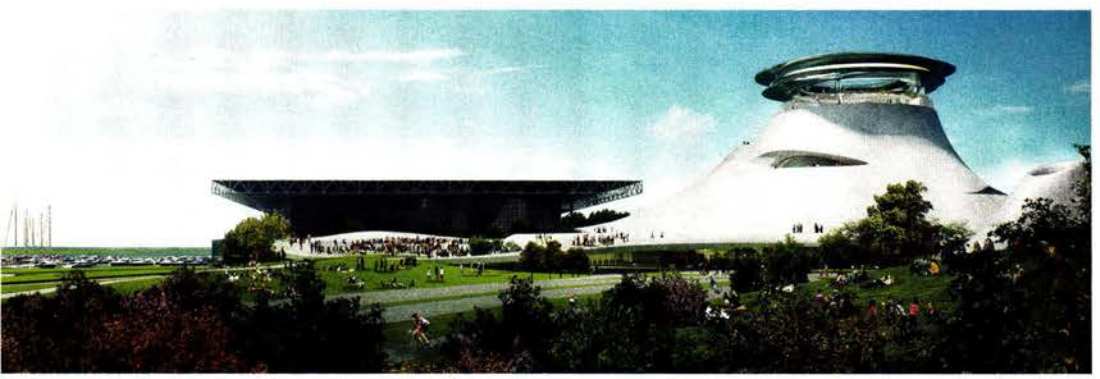
THE AVANT-GARDE'S defense of the mountainous blob that *Star Wars* creator George Lucas wants to erect on Chicago's lakefront speaks volumes about all that's wrong with architecture today: a celebration of object-making at the expense of public space, plus a shameless coddling of the powerful, provided they serve one's aesthetic agenda. The defenders of the proposed Lucas museum, who include Frank Gehry and critic Michael Sorkin (RECORD, January 2014, page 39), still want to party like the recession never hit. Superrich clients! Icons! The Bilbao effect!

They need to sober up.

The field for this battle is Chicago's greatest public space, a nearly 30-mile-long chain of parks and beaches along Lake Michigan. Outsiders often fail to grasp the complementary contrast between the lakefront and the Loop. The shoreline is both a forecourt for Chicago's man-made topography of skyscraper cliffs and canyons, and a realm unto itself. Chicagoans prize the sacrosanct front yard for its open spaces and a sweeping horizontal gestalt that encompasses the lake as well as the land and buildings that rim it.

For more than a century, visionaries like mail-order mogul A. Montgomery Ward have fought to preserve the lakefront from well-meaning incursions that would forever compromise its character. MAD Architects' design for the $300 million Lucas Museum of Narrative Art—unveiled last November and planned to house an eclectic collection of Realist paintings, "Star Wars" memorabilia, and digital art—is simply the latest would-be invader. At a projected 400,000 square feet, it's a needlessly massive intruder—four times the size of the banal Beaux Arts museum Lucas originally proposed for San Francisco's Presidio. When those plans were rejected, Chicago Mayor Rahm Emanuel lured Lucas to the prime Chicago lakefront site.

That the 17-acre site consists of a two-level parking deck and a surface parking lot makes the choice seem easy. Why not put a museum there? But things look dramatically different when you widen the lens and see that the parking is sandwiched between a massive Miesian convention hall (McCormick Place's Lakeside Center) and a Klingon-meets-Parthenon football stadium (Soldier Field). Cramming yet another building between these alien objects would push this already overburdened stretch of lakefront past the tipping point, fouling it with new levels of crowding and congestion. It would be far better to convert the parking into parkland.



After a proposed Lucas museum, with a banal Beaux Arts design, was rejected for the Presidio in San Francisco, the filmmaker brought an edgy new 400,000-square-foot scheme by MAD Architects to Chicago—nearly four times the size of his original plan.

In January's RECORD, Sorkin ignores this issue and many others. He doesn't address how the museum's nearly windowless, Jabba the Hutt–like mass would block views of Lake Michigan from Lake Shore Drive. Nor does he note the irony of a building along Lake Michigan that would largely prevent people inside it from seeing the lake. And the famously skeptical critic takes Lucas's claims at face value, asserting that MAD's site plan "will allow green space to flow around the museum." Really? The plan provided little or no new parkland.

Worse is Sorkin's apologia for the autocratic process that led to the lakefront site: "It was proposed by a well-composed committee with no particular axes to grind," he claims. But the story of the Emanuel-appointed committee was hardly an exercise out of a civics textbook. Lucas wound up hiring a committee member, architect Jeanne Gang, to design the museum's landscape—a classic inside job. The public hearings are happening only now—after the site selection is a fait accompli. Sorkin's usual sense of righteous indignation took a backseat to his avant-gardism.

As I've suggested, the museum should be built a few miles to the south, atop a deck envisioned for a convention-center truck yard. There, west of Lake Shore Drive, MAD Architects' mountain would still command lake views but would not crowd the shoreline—and it would boost the nearby historic African-American neighborhood of Bronzeville.

The shoreline is both a forecourt for the city's man-made topography of skyscraper cliffs and canyons, and a realm unto itself.

Open-space advocates, who are fighting Lucas's plan in court, like the idea, but Emanuel has ignored it.

As for the design itself, even the mayor is holding it at arm's length, terming it "bold" but also merely "conceptual" and "part of an overall process." Gehry, for his part, argued in a November *Chicago Tribune* op-ed that radical architectural experiments deserve a chance to evolve.

But why not rethink the design altogether, making the museum the equivalent of a low-slung dune, not an overwhelming mountain? A horizontally massed Lucas museum, with parkland on its roof and parking placed underground, could be integrated with the lakefront, not just a domineering object plopped onto it.

Architecture matters, to be sure, yet the character of a public space matters far more. Too bad for Chicago's lakefront—and for architecture as a whole—that the defenders of Lucas's Darth Invader design don't get that. ■

RECORD *contributing editor Blair Kamin is the Pulitzer Prize–winning architecture critic of the* Chicago Tribune.

IMAGE: COURTESY LUCAS MUSEUM OF NARRATIVE ART

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CIRCLE 18

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CIRCLE 56

ARCHITECTURAL RECORD

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Putting together the January issue of RECORD, we worried that our selection was too easy! But it wasn't: because of a production error, the wrong photo accompanies the clue. The image shows Sir Herbert Baker's North Block of the Secretariat for New Delhi (1931); the clue refers to Sir Edwin Lutyens's Viceroy's House, now Rashtrapati Bhavan (1931), nearby. If you guessed either or both architects who collaborated on this civic center, you were eligible to win the prize. For more details, go to architecturalrecord.com.

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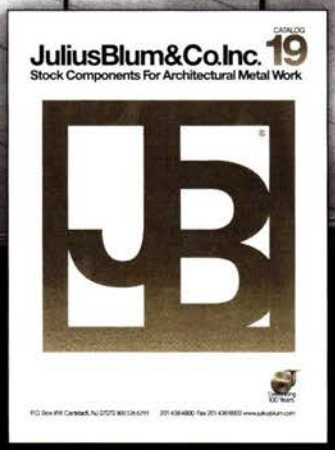

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CIRCLE 71

First in Class in the Second City

A young Chicago designer makes her mark as a citizen-architect.

BY ANNA FIXSEN

WHEN LIFE gave Katherine Darnstadt lemons, she made an architecture firm.

Fresh out of a job at a midsize firm during the drowsy economy of 2010, Darnstadt, then 28, reckoned kick-starting her own practice was a way to remain afloat until she found a real job. But her contingency plan began to evolve into something more: "If design can be a tool for equity," she asked herself, "what can that look like, and how can my firm have a place in that?"

Just five years later, Darnstadt's firm, Latent Design, has established itself as one of Chicago's most promising young offices. The firm, which takes on projects ranging from tactical urbanism to branding, has a growing list of accolades, including *Crain's Chicago*'s 2014 "40 under 40" list. The American Institute of Architects called Darnstadt "a shining example of the next generation's citizen-architect" when they gave her their 2013 Young Architects Award.

Latent Design and its three staff members (Darnstadt included) occupy a quaint storefront on Chicago's north side. As its name suggests, the firm considers unseen forces such as political systems and cultural nuances, a philosophy summed up in the tagline "defining the context, designing the content."

"Design can validate initiatives and ideas. And it can highlight where policies and systems are failing," Darnstadt explains. "We design for gaps."

A prime example of this strategy is a 2011 project with Architecture for Humanity Chicago—a mobile produce market in a fleet of tricked-out transit buses deployed in the city's food deserts. Fresh Moves, as it is called, was included in the 2012 Venice Biennale and has been replicated in several other U.S. cities.

The firm has forged long-term relationships with such clients as Grant for Good, a fund for Chicago nonprofits, with whom they partnered to revamp the Chicago Women's Health Center, a clinic devoted to women and transgender health care. Similarly, the firm has designed the H.O.P.E. center—an after-school program run by nonprofit Demoiselle2Femme to empower young African-American women—in a historic firehouse on Chicago's far south side, as well as developing a new STEM-based curriculum.

Latent Design is moving forward at a steady pace; by the time this magazine is printed, it will have wrapped up a prototype program for the YMCA. The firm is also pursuing its general contractor's license and designing two park field houses. "I had to figure out a way to make everything work," Darnstadt says, reflecting on the last five years, "and it's been working." ■

Last year, the firm made over the Metropolitan Family Services Center (top, left) in a one-day "build blitz," with bright colors and bold graphics. Principal Katherine Darnstadt (top, right). The Fresh Moves project converted buses into mobile produce marts (above). For the new home of a women's health clinic, the firm used the '70s wood paneling from its former facility for a reception area (left).

PHOTOGRAPHY: © CLOCKWISE, FROM TOP LEFT: TYLER MALLORY, LATENT DESIGN (2), KIRA KURKA

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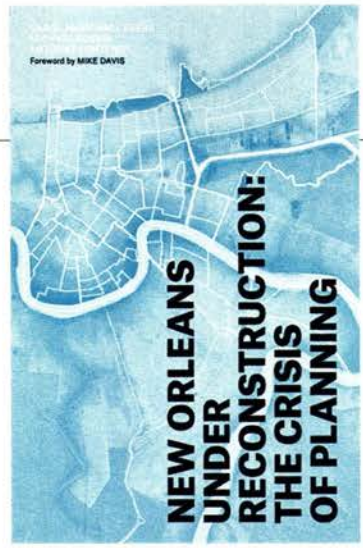
CIRCLE 70

Can the Good Times Roll After the Flood Waters Recede?



New Orleans Under Reconstruction: The Crisis of Planning, *edited by Carol McMichael Reese, Michael Sorkin, and Anthony Fontenot. Verso, May 2014, 544 pages, $50.*

Reviewed by Martin C. Pedersen

THE SUBTITLE here is a bit of a spoiler. News flash: equitable, sound, socially responsible planning did not happen in post-Katrina New Orleans. This won't shock anyone who watched HBO's *Treme* on a regular basis. But that's the message conveyed by the book's editors right at the outset, in their lively, polemical introduction. Fortunately, their rueful pessimism tells an incomplete and still-evolving story, as they will be the first to concede. New Orleans, nine years after the flood, remains a work in progress.

In the immediate aftermath of the storm, it seemed as if the entire world of architecture and planning had descended on the besieged city. Exactly who and what they would design and plan for was uncertain at that point. There was a feeble, corrupt (as it later turned out) mayor ostensibly in charge, along with an almost tragic lack of government leadership, and no clear lines of authority. The design schools arrived soon after, working on a parallel track, armed with foundation grants, good but often misguided intentions, and the willful naiveté typical of architecture and planning students (and their professors).

Architects at Waggonner & Ball devised plans for the Hoffman Triangle area that change its current state (top) into one that accommodates various water-storage options (above).

IMAGES: COURTESY WAGGONNER & BALL

As recounted by essays early in the book, the official planning process got off to a bumpy start in January 2006, with the Bring New Orleans Back commission, which recommended shrinking the city's footprint and not redeveloping six low-lying neighborhoods. The communities slated for elimination (the infamous green dots) took vocal exception, and the plan died a quick death. Two other major planning efforts were launched, while the real power brokers pushed a different redevelopment agenda: the abandonment of Charity Hospital (in favor of a mammoth suburban-style replacement near the French Quarter), the dismantling of the public schools in favor of a charter system, and the unnecessary demolition of much of the city's public housing. Eventually these initiatives became official policy.

Meanwhile, in the absence of municipal leadership, something more promising began unfolding in the neighborhoods. "What was amazing about the UNOP [Unified New Orleans Plan] process was the phenomenal level of grassroots engagement," writes Derek James Hoeferlin in his essay on the rebuilding. "The real work happened—and succeeded—at the neighborhood and district level." Broadmoor, a racially and economically diverse neighborhood, was particularly well organized, spearheading efforts to save its own branch library and build an award-winning addition, designed by Eskew Dumez + Ripple.

The book—a huge doorstop that might have been considerably improved with judicious pruning—tells that messy, complicated story. It includes solid essays by Denise Scott Brown, Naomi Klein, Rebecca Solnit, and Melissa Harris-Perry and William M. Harris, as well as interviews with notable local players, including the architects David Waggonner and the late Allen Eskew, and a particularly cogent and clear-eyed assessment of things by community activist Jeanne P. Nathan. Providing a kind of academic snapshot of Katrina-as-learning-experience, it also includes dozens of largely unrealized design projects by leading practitioners and students. Taken together, the book is fragmentary and something of a free-for-all, but should provide an indispensable roadmap for future historians, and is fascinating in that regard. As a reading experience, however, it's a mixed bag, elegant and engaging in some places, lumpy and academic in others.

And yet despite the book's all-too-accurate subtitle, the city is in the midst of a continuing renaissance. It's an uneven revival, as is typical of the Crescent City, but the energy here remains real and palpable. The music and food scenes, in particular, have come roaring back. This raises an uncomfortable question for planners: did the rebirth of New Orleans happen in spite of them? Does "official" planning even matter? For its part, the book offers up some consolation, featuring a smattering of real-world projects, modest victories, that are all small-scale and community-based. It was here in the neighborhoods where the authentic seeds for renewal were planted. As it turns out, top-down planning did, in fact, fail New Orleans, but citizen activists surely saved it. ■

Martin C. Pedersen, former executive editor of Metropolis, *is a writer and editor living in New Orleans.*

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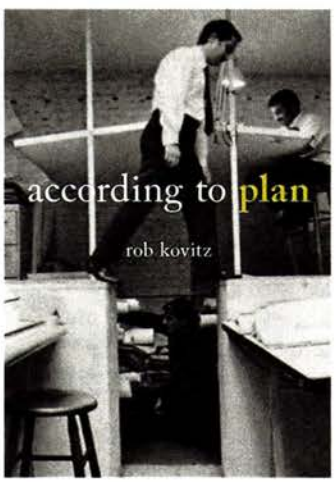
CIRCLE 69

According to Plan, *by Rob Kovitz. Treyf Books, November 2014, 664 pages, $30.*

Reviewed by Philip Nobel

THE ONLY bit of original text in Rob Kovitz's diverting *According to Plan* is a last-page mission statement about his imprint, Treyf Books. The objective of that publishing project is described there as making "unusual books of an indeterminate type, sort of story-picture remix books for people who can't stomach any more schmaltzy *Chicken Soup for the Soul*." If we are to take that title, volume one of the enormously popular self-help series, as a stand-in for all things that limit creative possibility through oversimplification, overdetermination, and, yes, schmaltz, then Kovitz is serving up a proper antidote: books that mean absolutely nothing until you make meaning out of them yourself.



Like Treyf's other books, *According to Plan* is a compilation, a collection, a farrago of found objects. Reading it is like holding in your hands a discrete piece of that great, galling, joyous abyss we're used to falling into via our search boxes—in this case, a search for writing (and associated images) that contains the loaded word "plan."

Even the book's about-the-author blurb is poached—from a literary biography of the novelist Chaim Potok ("I don't ever have an idea . . . The material does it all . . . I know I could never plan a plot . . ."). Between those end-thoughts and the first excerpt, from a policy statement by the Association of Newfoundland Land Surveyors ("Therefore, under fair use, a surveyor has the right to use the information from a plan in the preparation of another plan . . ."), we find a rich, strange, very broad sampling—from poems and instruction manuals, television and film, *Moby Dick* and urbandictionary.com. Along the way, the idea of making, following, and even completing that thing we call a plan is subjected to a furious and entertaining, if purposefully vague, curatorial critique.

The book is arranged as a sequence of excerpts in (possibly) thematic chapters; allusion and smash-cut are the principal techniques. There is always the specter of irony; a chapter called "Easy Enough to Plan" contains every sentence in *Don Quixote* that uses the subject word. But *According to Plan* is never winking: the author, so epically absent, is never there to wink. So, flipping through, skipping over, diving into its many pages, one may experience something else: a sort of pleasurable tug at your habits of ratiocination, an insistent voice (perhaps that of Kovitz himself) telling you that there are a host of connections to be made, if you feel like making them.

Whether the book offers a way forward for architects is, by design, an unanswerable question. The material is far from architecture-centric; there are, for instance, many well-placed excerpts from *Battlestar Galactica* where the plan in question was to eradicate, not build for, the human race. But with a photograph of Paul Rudolph's Manhattan office on the front cover and a paragraph on architectural composition on the back, architects appear to be intended as a primary audience.

And what might the book tell us about our field, and the hopeful, limiting, optimistic, outdated, futile, and necessary habit of planning at its core? What insight might it contain about the best plans for an era of rippling change, one that can produce a wonderful book made of nothing but repurposed words and pictures? Perhaps not a single thing. Or, possibly, that, like Kovitz's book, the best plans now are different from what we were taught to make and draw in simpler times: nimble and inclusive, open-ended and brave, unafraid to break the rules.

Not plans at all, maybe. Just loosely framed action. ■

Philip Nobel is the editorial director of SHoP Architects and the author of Sixteen Acres: Architecture and the Outrageous Struggle for the Future of Ground Zero.

[BRIEFLY NOTED]

Building for a Changing Culture and Climate: World Atlas of Sustainable Architecture, *by Ulrich Pfammatter. DOM Publishers, May 2014, 584 pages, $116.*

This well-documented volume casts a wide net in gathering sustainable projects from around the world—including floating reed houses in Iraq and the glass-and-steel headquarters Christoph Ingenhoven designed for Swarovski in Switzerland (RECORD, June 2013, page 131)—and has a foreword by Stefan Behnisch.

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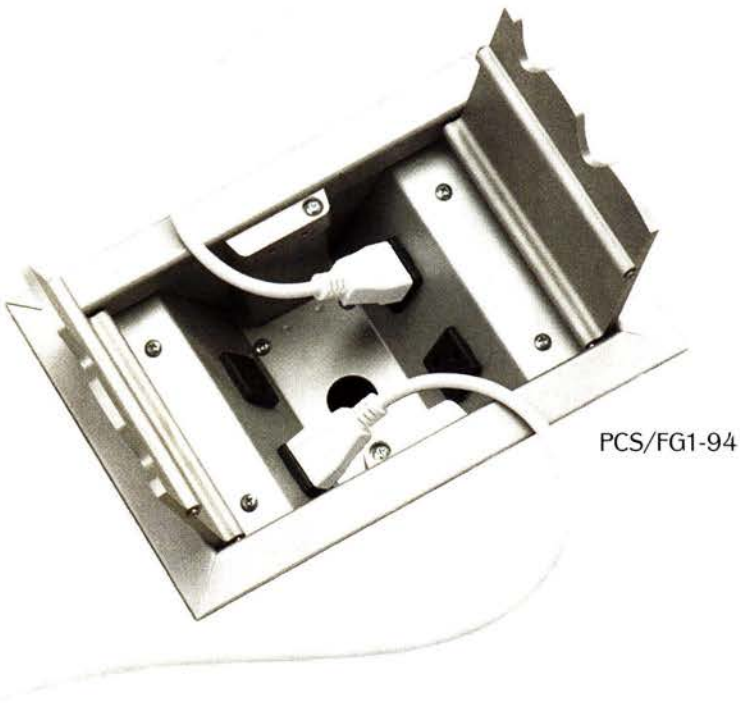

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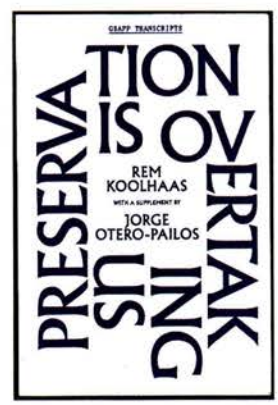
Preservation is Overtaking Us,
by Rem Koolhaas with a supplement by Jorge Otero-Pailos, edited by Jordan Carver. GSAPP Transcripts, September 2014, 104 pages, $ 18

Reviewed by Suzanne Stephens

THE IDEA that Rem Koolhaas and his firm, OMA, staunchly advocate preservation might come as a surprise. His large-scale buildings, such as CCTV in Beijing (RECORD, November 2012, page 86); or the Seattle Central Library (RECORD, July 2004, page 88) attest to a "starchitect" at work, one who pushes for the new and unique, not the old and historic. Koolhaas, not surprisingly, abhors this hackneyed epithet. And now, two of his past lectures—assembled with a concluding essay by Jorge Otero-Pailos, associate professor of historic preservation at Columbia University—make a strong case for Koolhaas's being a "preservationist." Koolhaas gave the lectures at Columbia in 2004 and 2009.

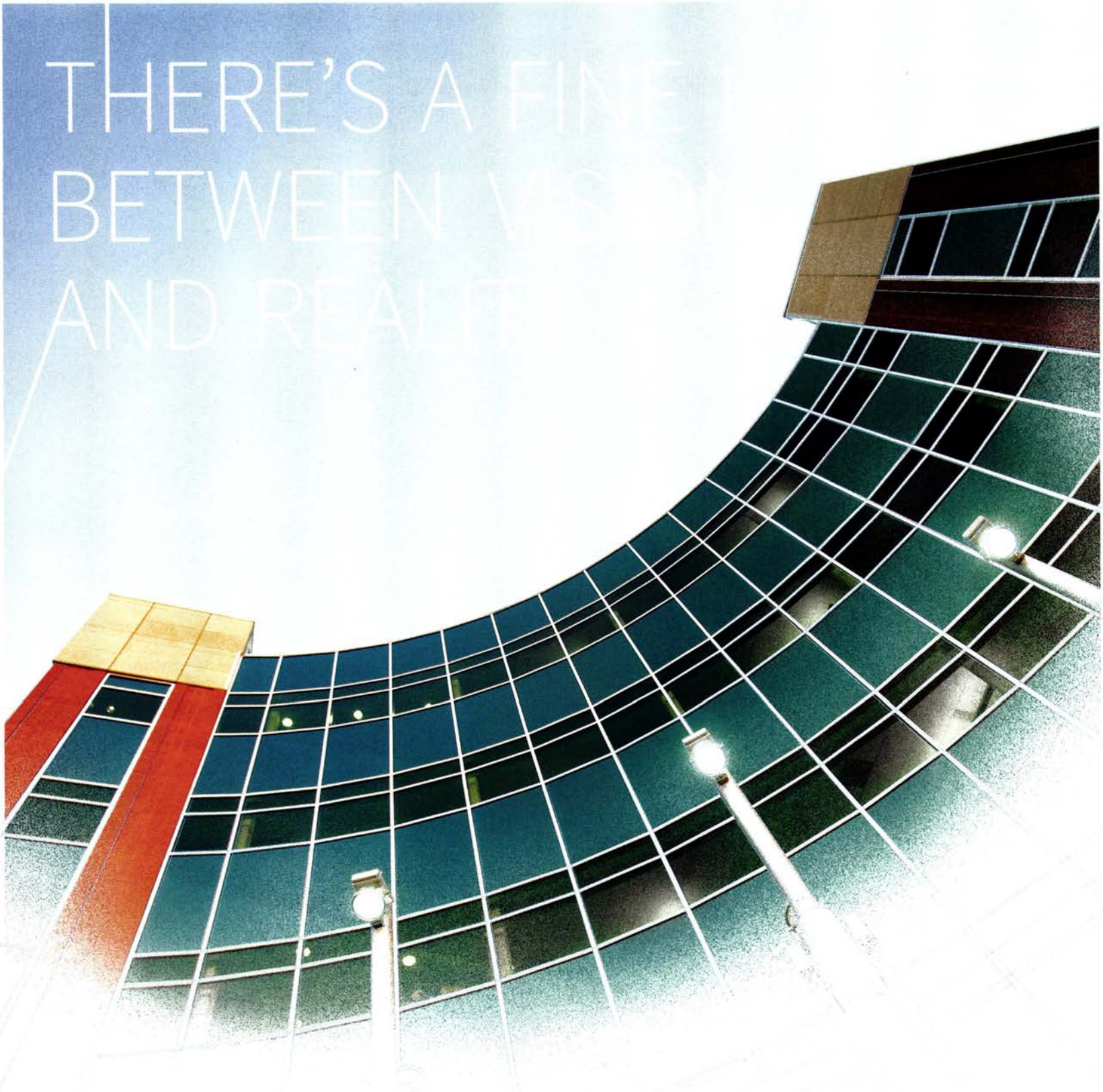


The title of the book comes from Koolhaas's observation in 2004 that the interval of time keeps narrowing between the decision to save a building and its age: when preservation took off as a serious effort in the early 1800s, its targets were monuments about 2,000 years old. In 1900, they were often just 200 years old; and by the 1960s, the gap was as short as 20 years. Similarly, the definition of architecture worth keeping has become more inclusive—from Classical temples to department stores, amusement parks, even concentration camps. "We are living in an incredibly exciting and slightly absurd moment, namely [one in which] preservation is overtaking us," Koolhaas says. But he maintains the movement is limited by being "dominated by the lobby of authenticity, ancientness, and beauty."

In his 2009 lecture, Koolhaas argues that, 30 years ago, "architecture was a very serious effort" and "buildings were not luxury items" but "necessary." And now that the derisory label "starchitecture" is slapped onto so many buildings, including CCTV, he avows that "preservation is, for us, a type of refuge from this term."

In his later essay, Otero-Pailos analyzes five key principles he found in Koolhaas's lectures and other statements to form what he calls a "retroactive manifesto" for the architect: "1) Starchitecture is dead; 2) New forms are no longer relevant; 3) Preservation is architecture's saving retreat; 4) Preservation creates relevance without new forms and 5) Preservation is architecture's formless substitution." (This final tenet, Otero-Pailos explains, means that "preservation's mode of creativity is not based on the production of new forms but rather on the installation of formless aesthetics" as seen in OMA's Ruhr Museum renovation in Essen, Germany (2010).

But what if Koolhaas's thoughts have gradually shifted from those of 2004 and 2009? Not discussed in this GSAPP publication is Koolhaas's lecture at Harvard in July 2013 (now on YouTube). Here Koolhaas laments the confusion in preservation. Increasingly, its "artificiality and inauthentic architecture" results in "quasi-historical buildings" and a "faux monumentality," exemplified by the reconstruction of Dresden. At the end, Koolhaas makes clear that these efforts are leading to a "terrible situation"—"the end of the new." Despite this caveat, Koolhaas's ideas of the last decade, along with Otero-Pailos's "supplement," offer intriguing reading about the vagaries of preservation. ■



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CIRCLE 57

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A Sound Idea

Studio Odile Decq creates an acoustic ceiling cloud that doubles as a light pendant

By Sheila Kim

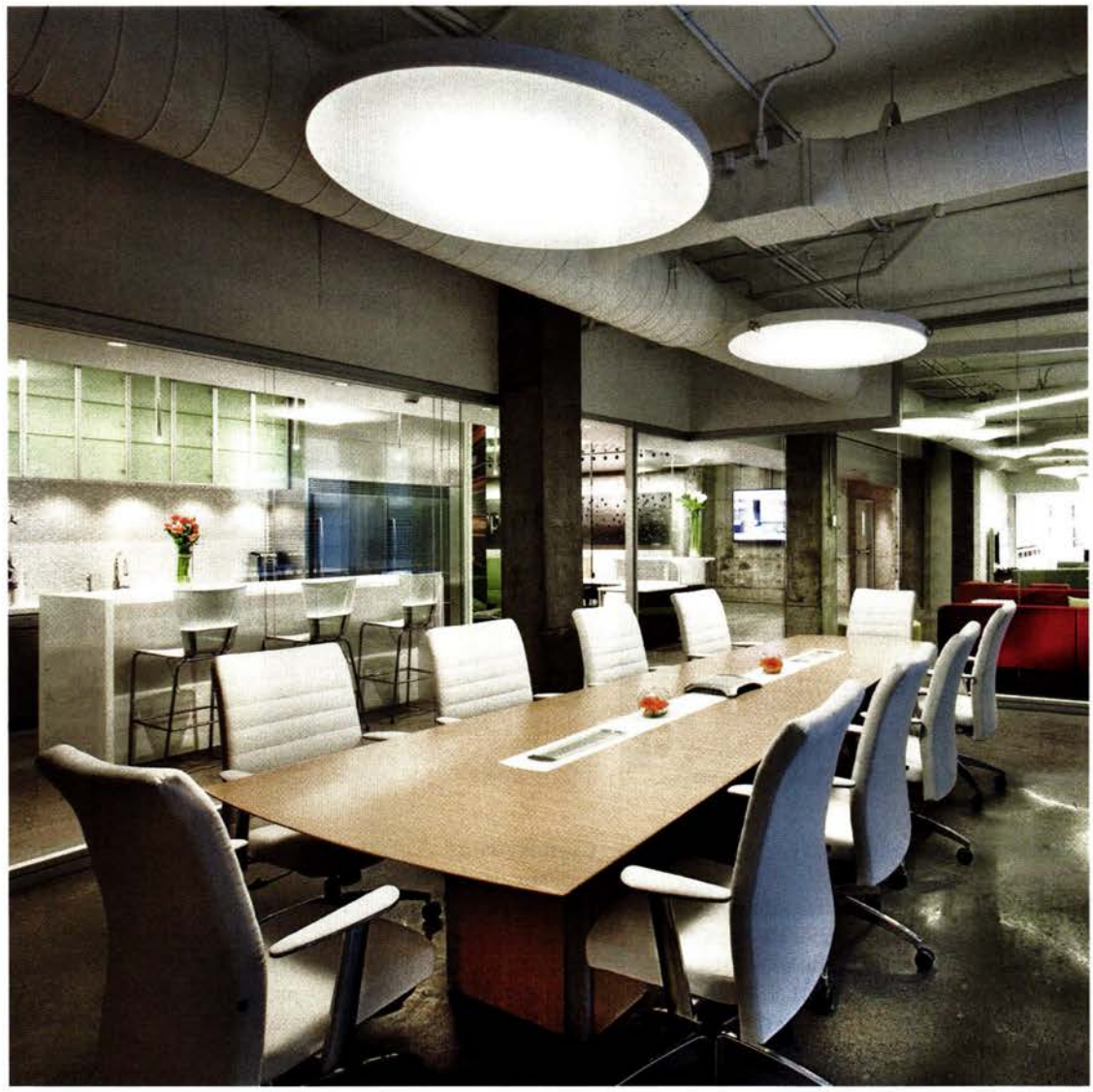
IT WOULD seem like a logical leap to combine acoustics and lighting into a single ceiling fixture but, surprisingly, few such products exist, especially in the realm of high design. French architect Odile Decq sought to remedy this while designing the open and airy—translation: noisy—GL Events headquarters in Lyon, France (RECORD, July 2014, page 66).

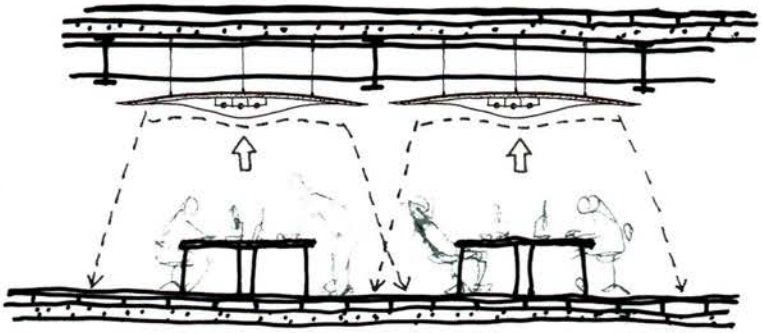
To reduce energy consumption in the all-glass building, Decq left the ceilings exposed and used concrete surfaces as a thermal mass. "But this created the problem of sound and a need for special lighting," she explains. "Thinking about how to solve the two problems in one object, I designed Pétale."

The luminaire, fabricated originally for the GL project and now mass-produced by Luceplan, possesses a light, ethereal look with white fabric stretched over a petal-shaped frame. Underneath, a round polycarbonate lens at the center diffuses either LED or fluorescent lamping and bulges against the fabric to create a gentle contour on the pendant's face. An optional strip of LEDs lines the frame's perimeter for more general illumination. But the real innovation of this floating sculpture is what isn't visible: a 2½"-thick glass-wool core runs from the diffuser to the frame, absorbing sound from above and below.

For the best results in a given project, specifiers can either work with their own acousticians or Luceplan. Two amorphic shapes—55" x 33" and 60" x 47"—are available, as is a 47"-diameter round version.

According to Luceplan USA CEO Giuseppe Butti, Pétale has become the company's top-selling product because "it's really *three* things: an acoustical panel, light fixture, and design element." CIRCLE 200





Pétale (top) by Odile Decq (above) addresses both lighting and sound control. For the Artopex showroom in Montreal (center), lighting designer Nicolas Brassard of LumiGroup used the round versions above a meeting table. A sketch by Decq (right) illustrates how the product's sound absorption and downlighting work.

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products ceilings

DYNAMIC BACKLIGHTING, WARM WOOD PANELING, AND SLEEK MONOLITHIC AND LINEAR SYSTEMS ARE AMONG RECENT OFFERINGS IN THE CEILING MARKET. **BY SHEILA KIM**

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For the lobby of an apartment complex in Sugar Land, Texas, RC Interior Design Group specified cellular resin modules to create a decorative light installation that wraps the wall and ceiling. Programmable color-changing LEDs are embedded within the quadrilateral units. A total of 96 modules were used to create a 14' x 20' ceiling cloud.
CIRCLE 201

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Granary Plank Antique

Viridian viridianwood.com

The wood in these panels is reclaimed from decommissioned granaries in Washington state and given a combination smooth-face and rough-sawn look. The ⅝"-thick planks come in 24" to 96" lengths and natural, amber, candlelight, ebony, walnut, or custom stains. The firm DL English Design specified the material to wrap beams and cover ceiling areas within a Whole Foods Market in La Jolla, California. CIRCLE 202

TechZone Ceiling System

Armstrong armstrong.com

An acoustical ceiling system that incorporates lighting, ventilation, and sprinklers via channels, TechZone was expanded to offer more panel options and slimmer 4" channels. The system, which previously only worked with Armstrong's Optima ceilings, now takes Ultima, drywall-like Calla or Lyra, WoodWorks, and MetalWorks panels to suit a range of projects, from institutional and office to hospitality. CIRCLE 205

Celebration Torsion Spring System

USG usg.com

Eliminating the visible grid of typical suspension systems, the Celebration ceiling series utilizes torsion springs and cross tees to align and hold the panels in place, resulting in a more monolithic plane. The Class A fire-rated panels are constructed of moisture- and mold-resistant aluminum, 90% of which is recyclable, and offered in 2' square and 2' x 4' formats with a flat-white finish. CIRCLE 203

Revelation SkyCeiling

Sky Factory skyfactory.com

According to studies, access to views, nature, and light can positively impact the wellbeing of a building's occupants, particularly recovering patients in health-care facilities. Yet many existing buildings in the U.S. have deep interior spaces devoid of daylight. This virtual skylight provides a solution for such closed-off environments, realistically depicting sky and tree branches via LED backlit acrylic panels with high-resolution photo reproductions. CIRCLE 204

PHOTOGRAPHY: © DL ENGLISH DESIGN (CENTER, TOP)

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LEFT TO RIGHT: BAMBOO PULLS, DESIGNER COLLECTION WITH WOOD TEXTURE AND RIDGE LEVER, AND BRUT KNOB BY TED BOERNER

HANDCAST BRONZE | rockymountainhardware.com

CIRCLE 22

SERENE SPACES FOR CONTEMPLATION AND COMMUNITY

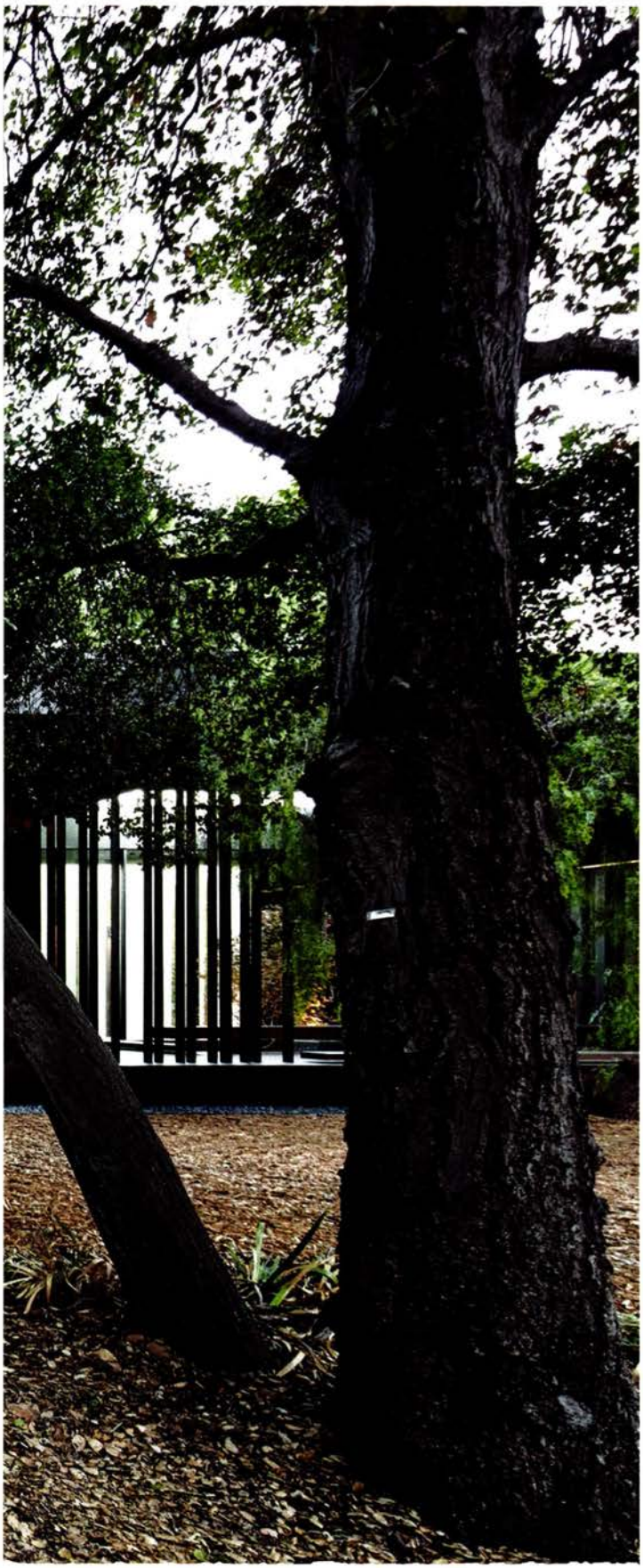
In an overstimulating world, where we are constantly barraged by information, tweets, pings, and rings—where the virtual can at times overshadow reality—the need for quiet and human connection is more important than ever. The buildings on the following pages, at once meditative and energizing, muffle the cacophony of daily life while letting occupants interact with each other, art, and nature. They allow traditions to carry on and, perhaps, will inspire new ones.

PHOTOGRAPHY: © MATTHEW MILLMAN

WINDHOVER CONTEMPLATIVE CENTER IN PALO ALTO, CALIFORNIA, BY AIDLIN DARLING DESIGN

Windhover Contemplative Center | Aidlin Darling Design | Palo Alto, California

MIND OVER MATTER



At Stanford University, a student retreat is also a meditation on architecture.

BY DEBORAH SNOONIAN GLENN

PHOTOGRAPHY BY MATTHEW MILLMAN

The Windhover Contemplative Center at Stanford is a delightful amalgamation: neither a house of worship nor a traditional art gallery, it has an open-ended program that embraces both and more. This secular temple has a decidedly ecumenical approach, offering a space for structured meditation or just quiet observation of art and nature, a reminder that design can be transcendent.

A student, faculty, and staff sanctuary from the rest of campus and daily life (it is only open to the public once a week during a docent-led tour), the 4,000-square-foot building houses a handful of immense canvases from the late painter Nathan Oliveira's *Windhover* series, inspired by kestrels in flight. The center, which formally opened in October of 2014, fulfills Oliveira's dream of a space that isn't constrained only to display art. Instead, it is like an exquisite modern house, furnished with impeccable contemporary art, that anyone in the university community can use for an instant getaway.

An internationally renowned figurative painter, Oliveira joined the Stanford faculty in 1964 and taught art there for more than 30 years. He also served as a student advisor, and

BREATHE IN
The Asian overtones of the design are not unusual for Northern California, but are exotic in the Stanford context (left and above): A narrow bed of river rocks encircles and flows through the building, and a fast-growing bamboo hedge blocks out the neighboring parking lot (not shown). On the eastern side of the building, a series of black aluminum fins screens the art from direct light.

View additional images at architecturalrecord.com.

MIND FLIGHT Nathan Oliveira's *Windhover* paintings (above) were inspired by kestrels (also poetically called windhovers for their ability to hover in midair) flying in the nearby hills. His painting studio in the foothills just west of campus was lit mostly by a skylight, and the design team used that as a reference for the lighting in Windhover.

became concerned with the amount of stress he observed. On the occasion of his retirement in 1995, he gave a talk about his vision for a contemplative space that could provide some moments of quiet respite. In the audience was a collector of his work, Suzanne Duca, who offered to help fund the center.

It would take nearly two decades for the project to get off the ground; in addition to standard bureaucratic hurdles, its rather amorphous program didn't fit neatly into the university structure (eventually, it would come under the wing of two offices, religious life and student affairs), and it took a while to settle on a central location that could be easily accessed by students. Oliveira was pleased by the final determination, a former parking lot bordered by a grove of old oak trees, adjacent to student housing. He died in 2012, well before Aidlin Darling Design had been selected as architect. However, his son Joe Oliveira thinks he would have been "overjoyed" by the result. "I know he would have loved the soft quality of the lighting and the calmness of the building," he says.

Stanford's strict architecture guidelines, which reference its historical Romanesque quadrangle, have made it difficult for contemporary architects to assert themselves. But Windhover, the Anderson Collection building by Ennead (RECORD, December 2014, page 96), and the Diller Scofidio + Renfro–designed McMurtry Art & Art History building, currently under construction, are evidence that the university is allowing more leeway for buildings designed for art.

Windhover's long rectangular pavilion has a classic minimalism. But here the lightness of glass and aluminum is juxtaposed with the weight of rammed earth and wood siding. "The rammed-earth walls are like ruins coming out of the ground, which anchor and frame the entry sequence,"

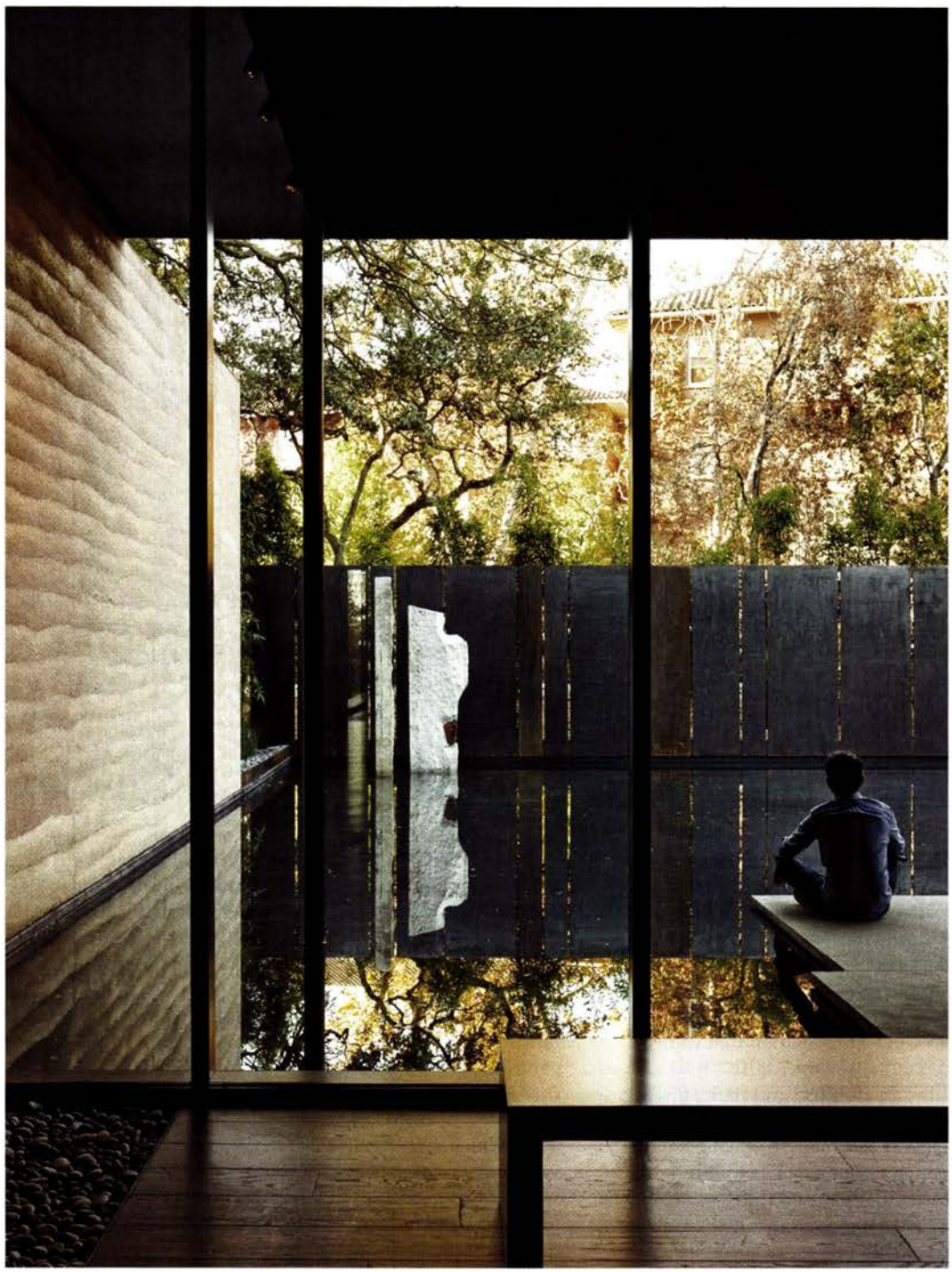
says Joshua Aidlin, principal of the San Francisco–based Aidlin Darling. When a wall meets glass, it often extends past it, creating an effortless indoor–outdoor connection; the same is true of the floor, which continues outside to form a deck. Unlike the Rothko Chapel in Houston (1971), which is probably the closest point of reference, Windhover continuously looks outward. "Nathan wanted a very organic space, not a museum but a place of contemplation that valued nature and his paintings equally," says Aidlin. "It was a dream project—it was like an architectural thesis project, combining architecture, nature, art, and spirituality."

From the street, it appears as a modest, opaque box, clad in vertical strips of cedar (a "non-facade," as Aidlin describes it). The front door is set as far away from the road as possible, so visitors travel along a path that runs nearly the full length of the building. This extended entry sequence was inspired by Chinese temples, where a progression of garden walls helps the mind transition from the bustle of the world.

The building unfolds as a series of richly nuanced spaces. Once past the front door, the center's transparency becomes apparent. Visitors gaze out through a whole wall of glass to the oak grove on the east. On the facing wall, Oliveira's immense *Diptych*, depicting two outstretched wings, is naturally lit by a narrow skylight that runs the length of the painting. The dim interiors are further subdued by a plenitude of dark-stained oak, used for the flooring, slatted ceiling, and simple benches. In the main space, heavy rammed-earth walls, which range up to 2 feet in thickness, highlight the sedimentary layers of the soil that was used to form them.

In marked contrast to this weightiness, a glass-enclosed bridge leads visitors past a courtyard to the northernmost space, where the final painting, *Sun Radiating*, is on display.

SURFACE REFLECTIONS
Students wanted 24-hour access, so the design team made sure that even when the building is closed, there are places to sit. The siting of the building was a collaboration with landscape architect Andrea Cochran, who also designed the surrounding grounds, including a large reflecting pool (opposite and below).



As you cross the bridge, you have the lovely feeling of floating a couple of feet above the ground plane. The bridge looks onto a courtyard, where a serene cube of a fountain (a salvaged chunk of stone from the university's building boneyard) burbles away. "The paintings are about flight and being inspired by greater possibilities," says Aidlin. "So we thought about how the building could begin to disengage itself from the ground." A student coming from the dormitory next door expressed appreciation for a space designed for rejuvenation. "I was really stressed at the time," said Jessie Cho, a senior in pre-med who took advantage of Windhover shortly after its opening. "I went in there and closed my eyes for 30 minutes, and I felt renewed." ■

credits

ARCHITECT: Aidlin Darling Design – Joshua Aidlin, principal in charge; David Darling, principal; Roslyn Cole, project manager; Kent Chiang, project designer

ENGINEERS: Rutherford and Chekene Structure and Geotechnical Engineers; BKF Engineers (civil); Air Systems; Elcor Electric

CONSULTANTS: Andrea Cochran Landscape Architecture; Auerbach Glasow French (lighting); Charles M. Salter Associates (acoustical)

GENERAL CONTRACTOR: SC Builders

CLIENT: Stanford University

SIZE: 4,000 square feet

COST: withheld

COMPLETION DATE: October 2014

SOURCES

CURTAIN WALL: Arcadia

GLASS: Viracon, PPG

OAK FLOORING: H.Y. Floor

Muckleshoot Smokehouse | Auburn, Washington | Mahlum

NEW LIFE FOR THE LONGHOUSE

A communal space celebrates a Native American tribe's identity and helps keep age-old rituals alive.

BY ADELE WEDER

PHOTOGRAPHY BY BENJAMIN BENSCHNEIDER

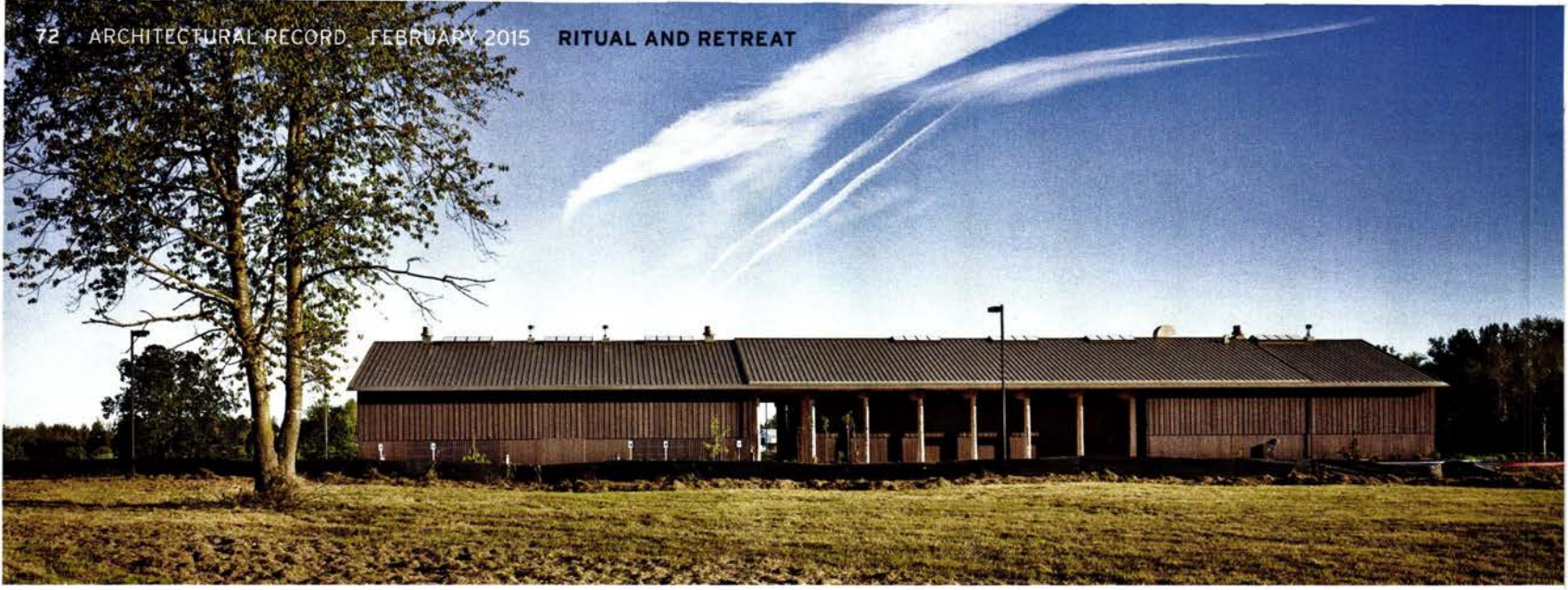
When the U.S. government subjugated Native American territories in the 19th century, the loss of communality was one of the most destructive consequences. With the tribes' traditional ways of living, working, and celebrating together severely curtailed or outlawed, communal architecture, exemplified by the longhouse, became untenable. But in recent decades, the Muckleshoot Indian Tribe of the Pacific Northwest, like many others, has been reacquiring their lands, rebuilding, and restoring their traditions and rituals. The Muckleshoot's new Smokehouse, built on their reservation near Tacoma, Washington, marks the tribe's first longhouse in over a century.

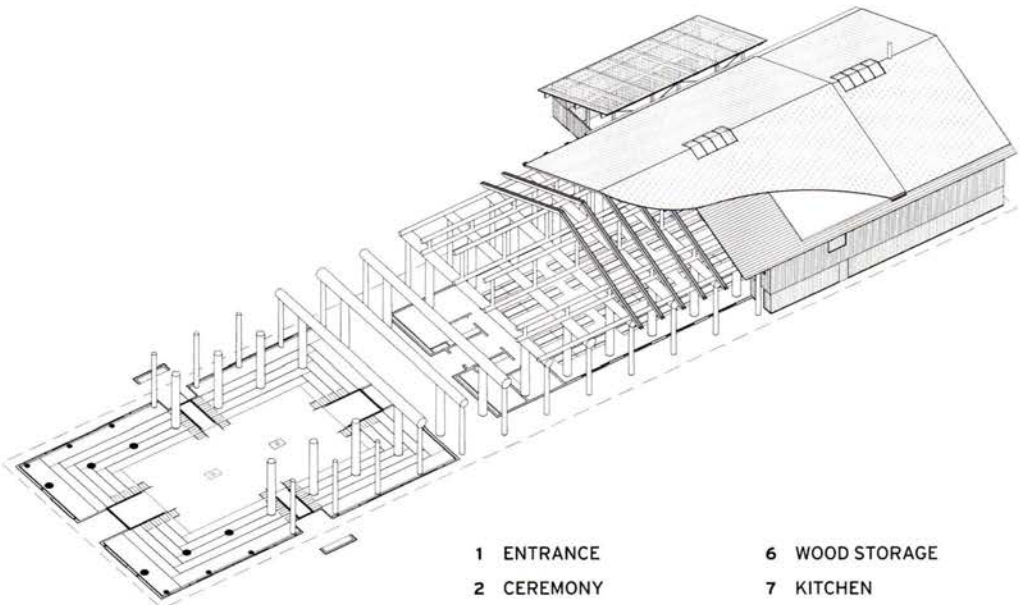
The building's prosaic name belies its spiritual importance and programmatic ambition: the Smokehouse is not a workaday meat-and-fish smokery but a large multiuse space for the practice of the Smokehouse faith, also known as Seowyn and observed by various Native Americans throughout the region. The Seattle-based architecture firm Mahlum had already honed an important relationship with the Muckleshoot, having previously designed a school and childcare center for them. While drawing on culturally specific requirements, such as a dirt floor, wood-based heating, and the use of locally sourced materials, the architects' scheme addresses the universal values of communal gathering and sharing, says Gerald (Butch) Reifert, managing partner at Mahlum: "We like to say that we work to improve the human condition, whatever that is."

The Muckleshoot chose the form of a longhouse, a building type designed for winter reunion, which is at the heart of the Smokehouse faith. Usually a single-room structure, this version is divided into two main halls, as well as an adjoining room for smaller meetings and rituals. These are linked by a contiguous roof with strategically interwoven outdoor spaces underneath, such as a covered area with a grill for al fresco cooking of elk, salmon, and oysters.

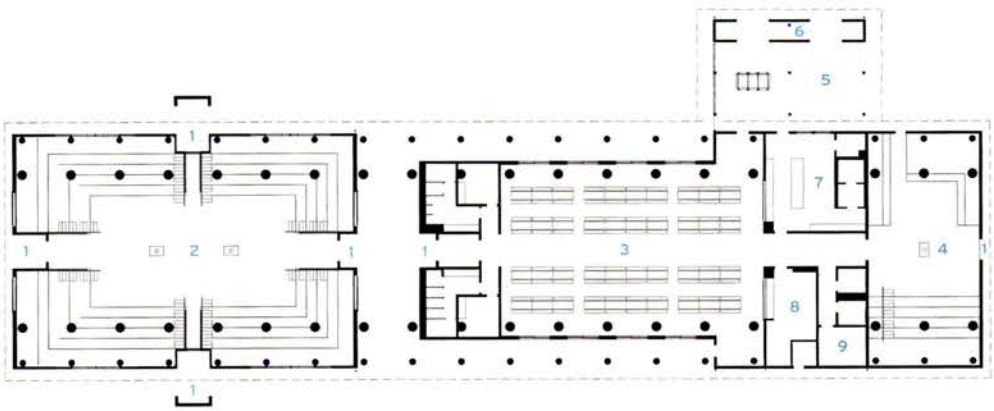
In the tradition of longhouse construction, the Smokehouse, clad in dark-stained cedar, is a post-and-beam structure built with logs culled from the nearby Cascade Mountains; its main components were prefabricated off-site and then transported for assembly. Within the enormous, dimly lit interiors, with their massive redwood cedar trunks that support the spaces like baroque columns, you

GRAND ENTRANCE Visitors pass through a central open space into the performance hall on the left or dining room on the right. Huge red-cedar logs serve as both supporting columns for a framework of Douglas Fir header logs as well as symbolic sentinels for the Smokehouse. Variegated tongue-and-groove cedar cladding brings the expansive facade down to a human scale.





1 ENTRANCE
2 CEREMONY
3 DINING
4 "LOCAL" ROOM
5 PORCH
6 WOOD STORAGE
7 KITCHEN
8 STORAGE
9 MECHANICAL



GROUND FLOOR

0 50 FT. 15 M.

credits

ARCHITECT: Mahlum – Gerald (Butch) Reifert, principal in charge; Anne Schopf, design principal; Forest Payne, project architect; Dwayne Epp, project manager; Cristine Traber, James Steel, Masako Flood, Joe Mayo, JoAnn Wilcox, team

ENGINEERS: PCS Structural Solutions (structural); Hultz BHU Engineers (m/e); Coughlin Porter Lundeen (civil)

CONSULTANT: Caribou Creek Log & Timber (timber construction)

GENERAL CONTRACTOR: Donovan Brothers

CLIENT: Muckleshoot Indian Tribe

SIZE: 16,600 square feet

PROJECT COST: withheld

COMPLETION DATE: August 2013

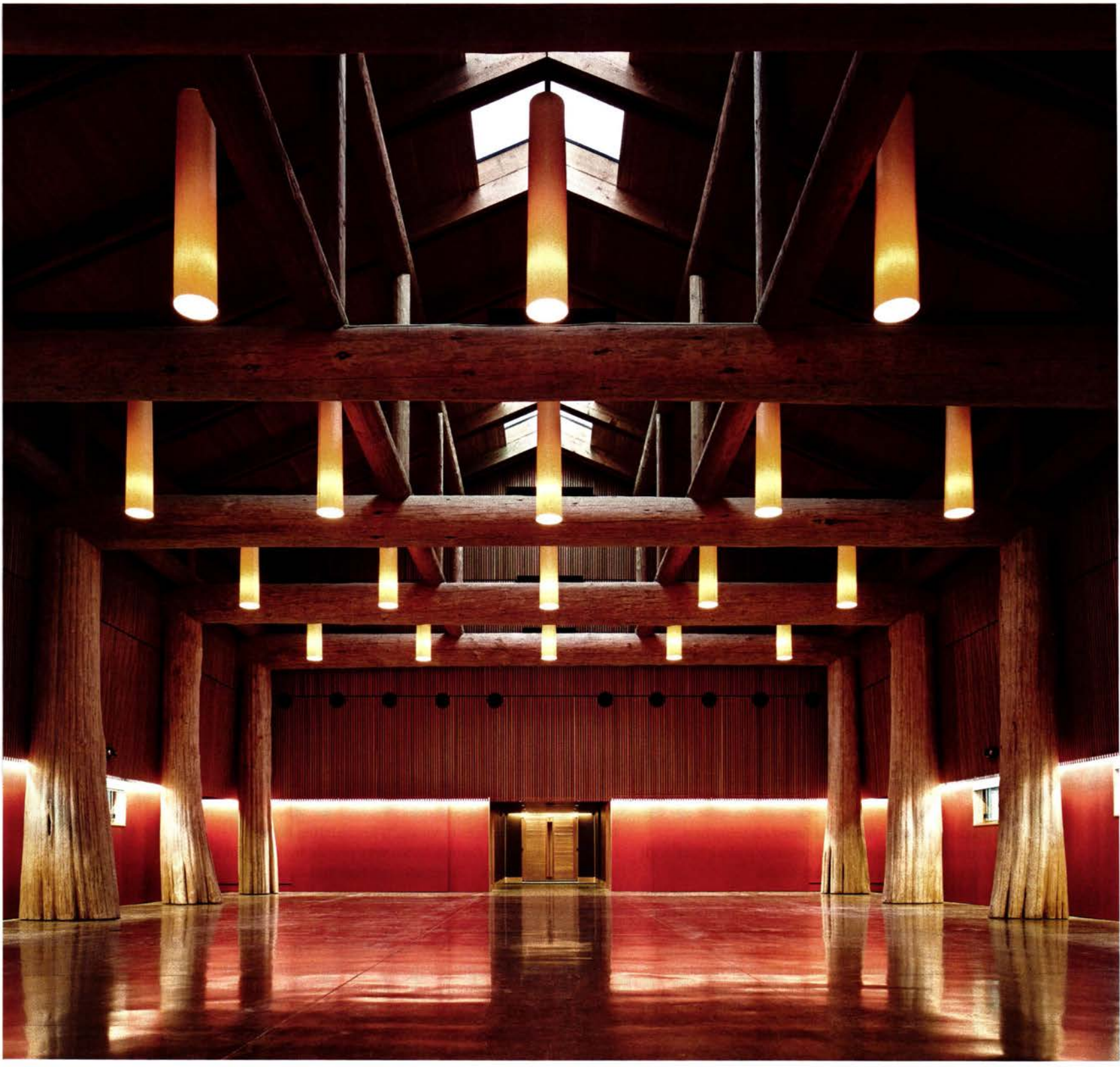
SOURCES

ROOFING: Architectural Metal Solutions

WINDOWS: Weather Shield Windows & Doors

SKYLIGHTS: CrystaLite

INTERIOR LIGHTING: Resolute, WAC Lighting



SITE SPECIFIC The Smokehouse (opposite) follows the precepts of traditional Native American longhouse architecture and is in strong dialogue with its flat agrarian site. The Dining Hall (above) accommodates the tribe's core ritual of communal feasting on hunting and fishing bounty. Woven pendant lights imbue the space with a warm glow.

feel as if you are passing through a forest clearing or a sanctuary; even when empty, this is clearly a place that is all about the group rather than the individual.

Dominated by its hefty structure, the large Ceremony Hall is fitted with tiered cedar-plank seating to accommodate up to 500 tribe members who watch dancers move to the rhythm of singing and drumming in multi-day ceremonies. The windowless space is illuminated by three skylights and—for health and safety reasons—in lieu of a traditional open fire-pit, it uses two wood-burning stoves. Treading on the soft dirt floor here, one feels truly "outdoors" rather than inside, and deeply connected to the earth. In the Dining Hall, which seats up to 250, striking red-tinted plywood walls enliven the space, their hue reflecting off the polished-concrete floor. The architects had initially suggested sliding glass doors for the room; the tribe instead chose a series of small rectangular windows that are too high to offer the standard horizontal views of the surroundings. It's a fenestration pattern outside European-derived convention, but a longhouse is not about light or views. "This building is about introspection," says Reifert. "It's a very private building for a private belief system." These sorts of decisions underscore how the Muckleshoot's connection to nature is different from a Neutra-esque blurring of indoor-outdoor boundaries. It is a more tactile and vertical relationship that is communicated by the earth floor below and glimpses of sky above.

The history of the Muckleshoot's cultural suppression is still within living memory, and their sense of caution and inwardness remain. Few outsiders are allowed to witness the Smokehouse ceremonies, and photography of these events is prohibited. "They seem to be internally collaborative," says Reifert. "We were told early on not to expect an answer at every meeting, because there is this internal respect within the tribe." The Muckleshoot would confer amongst themselves to create a unified voice. So the architects used a kind of reductive methodology for many design decisions. "A lot of our process was guess-and-check: 'Is this right? Is that right?'" recalls Reifert. "They would explain things only as

AT THE HEART
The Ceremony Hall (above) hosts dancing, storytelling, and other rituals. Its "dirt" floor is a specially mixed soil compound that is compactable and dust-free. Firewood, for heating the hall during ceremonies, is stored in a special closet (opposite, top). Wood is also the primary building material, and structure is prominently expressed, as in an exterior cloistered promenade (opposite, bottom).

necessary; if they saw something that needed to be done differently, they'd say exactly what they did want and would reveal how they would use the space to inform our design. But it was very much on a need-to-know basis."

In the nearby town of Auburn stands a cluster of big-box casinos and bingo parlors owned and managed by the Muckleshoot. The gaming houses, with their brash neon signage, are an ironic counterpoint to the inward-looking Smokehouse. They also are a surprising vehicle for carrying on tradition. For centuries, when the tribe hunted along the coast of Puget Sound, they would haul their bounty back to the communal security of a longhouse. Now, their new "bounty"—gaming revenues—has paid for the Smokehouse, enabling the continuation of age-old rituals in dignified splendor. ■

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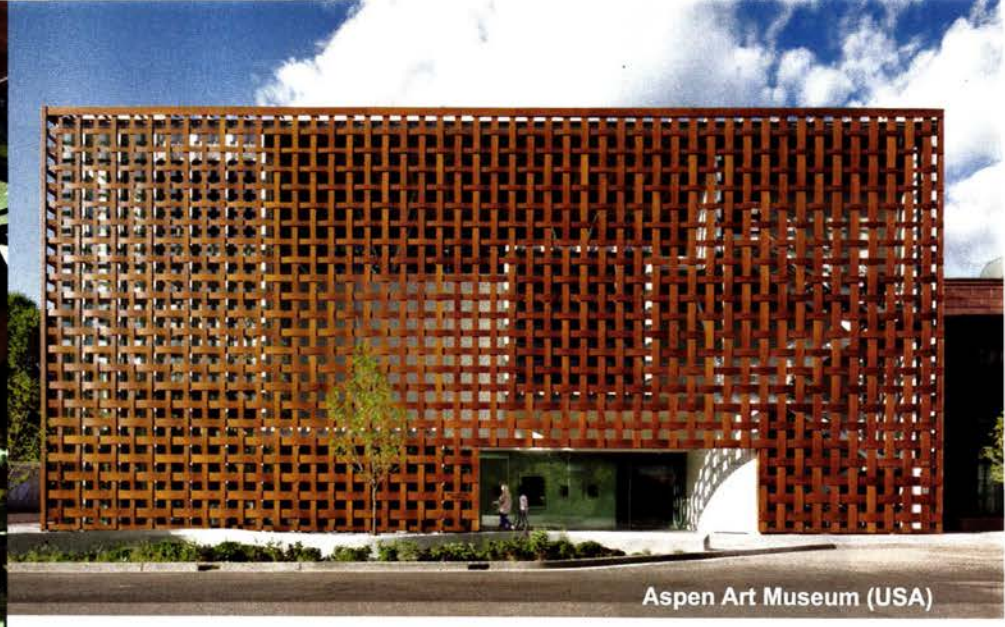
The Carve (Norwey)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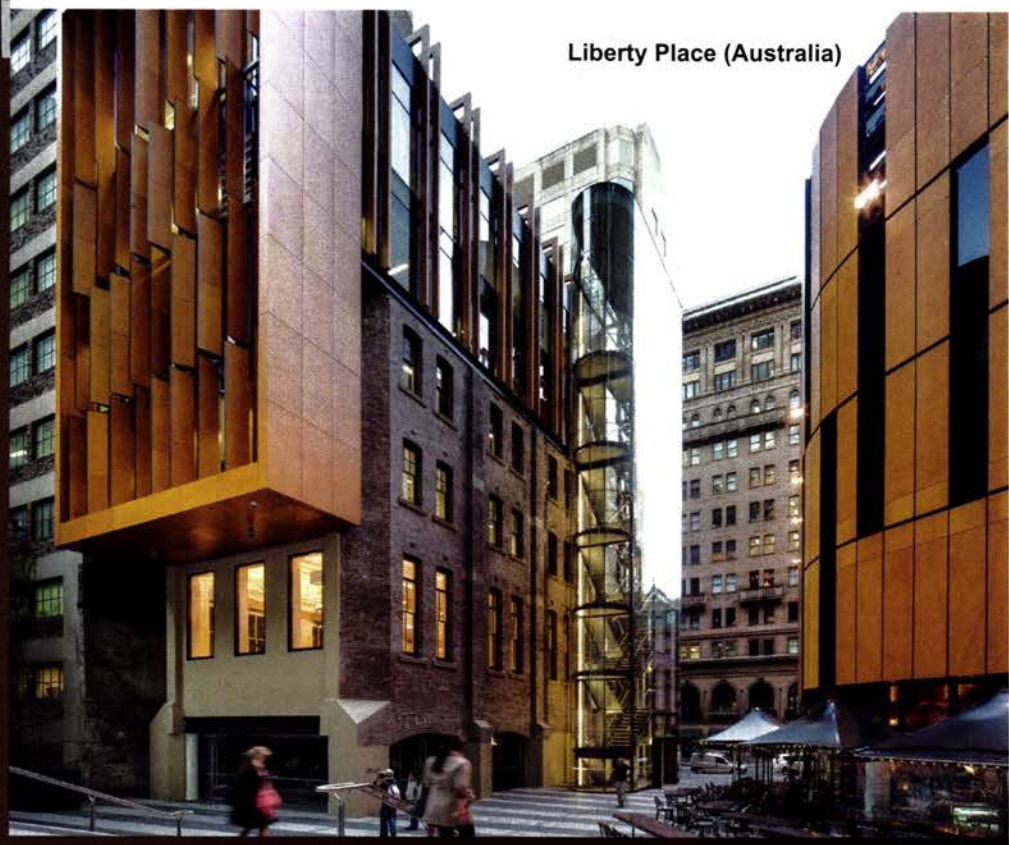
Liberty Place (Australia)

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Top - Southern California Edison, Rosemead CA (photo Richard Price, RPALA Group, Inc.) | Bottom Right - Skyline Tower, Bellevue WA; Bottom Center - Kaiser Permanente, Antelope Valley CA; Bottom Left - Chandler Fashion Mall, Chandler AZ.

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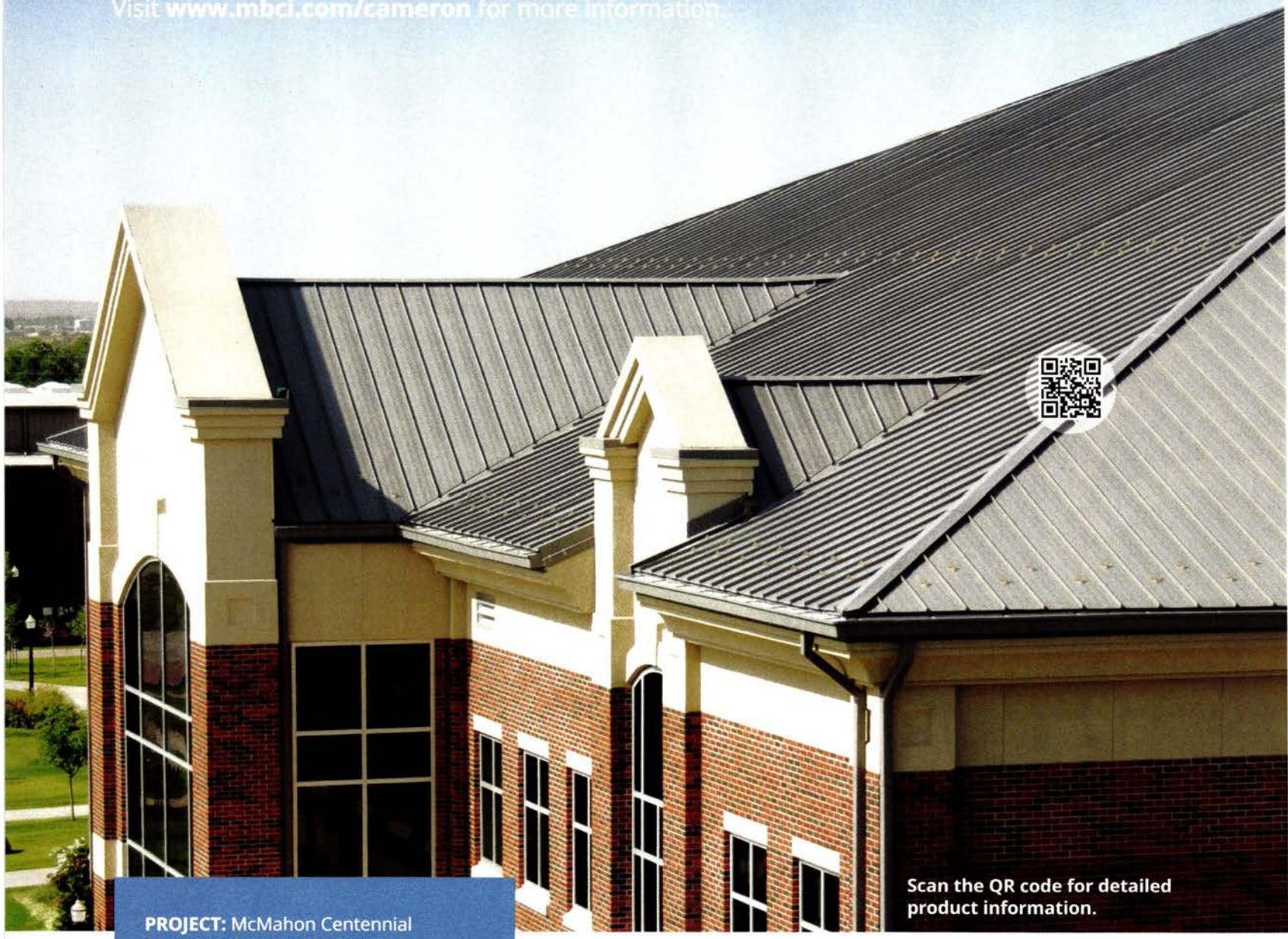

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LOCATION: Lawton, Oklahoma

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CONTRACTOR: Brox Industries

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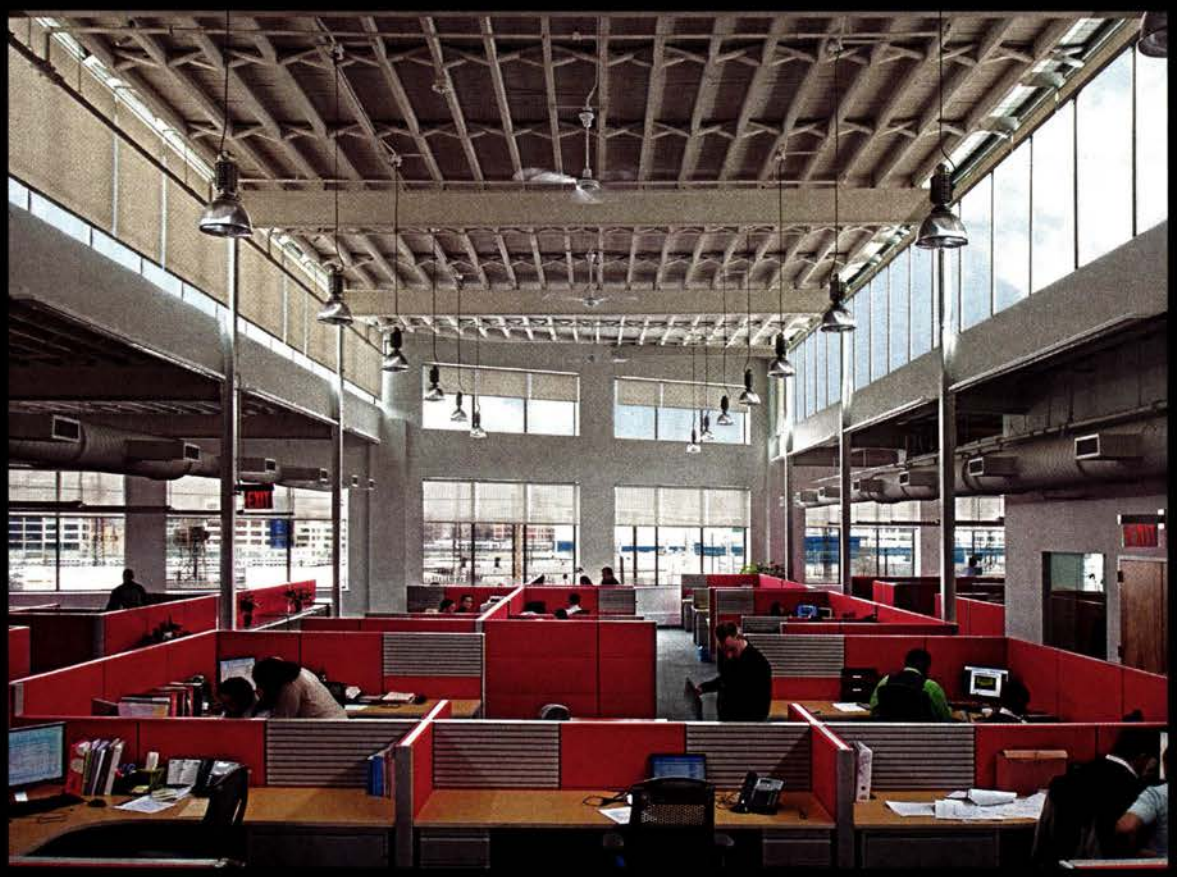

CIRCLE 41

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REIMAGINING THE PAST

The renovation of an aging building often involves a major expansion in which the new almost buries the old. In the following pages, we show that it's possible to imaginatively reconfigure an existing structure without overpowering the spirit of the original. As these projects demonstrate, architectural adaptations can be the most challenging—and most inspired—when the new is contained within the parameters of the old. Look at the solutions, which are both timeless and contemporary, in the underground expansion of one of the world's most revered small museums; a veil-like insertion inside a church and columbarium; and the sumptuously modern revitalization of a prime store on New York's Fifth Avenue.

PHOTOGRAPHY: © LUUK KRAMER

BELOWGROUND ENTRANCE COURT OF ROYAL PICTURE GALLERY MAURITSHUIS, THE HAGUE, BY HANS VAN HEESWIJK ARCHITECTS.

Boa Nova Restaurant and Teahouse | Leça da Palmeira, Portugal | Álvaro Siza Vieira

TIME MACHINE

A Pritzker Prize winner turns back the clock, restoring one of his first works of architecture after it had fallen into disrepair.

BY DAVID COHN

PHOTOGRAPHY BY JOAO MORGADO

Álvaro Siza's restoration of his first building, the Boa Nova Restaurant and Teahouse, five decades after it opened in 1963, is the happy ending to what could have been an architectural tragedy. The casual pavilion, snuggled into a rocky promontory on Portugal's Atlantic coast, in the town of Leça da Palmeira, 6 miles north of Porto, was left empty by its municipal owners in 2011 and vandalized by thieves, who ripped out copper gutters and wiring for salvage, destroyed the roof and interiors, and left the structure open to the elements.

COASTAL ROOTS
A series of steps and landings leads visitors from a parking lot (not shown) to the restaurant, creating a winding procession that alternates views of the sea with close-ups of the architecture. The building nestles into its rocky, sloped site, so people enter from the upper level. New roof tiles were made to match the originals, but do not yet have the weathered look of those on neighboring buildings.

Fortunately, the building had important defenders, led by the Casa da Arquitectura, a local civic association dedicated to documenting and promoting Portugal's contemporary architecture. Despite the country's deep economic crisis, the organization persuaded the town to restore the structure, after the central government declared it a National Monument, together with Siza's nearby seaside swimming pools of 1962, which did not require restoration. The town brought in Rui Paula, a celebrated chef from Porto, to launch an ambitious restaurant in the space. Siza and his team updated the kitchens to Paula's specifications, and immaculately restored the building, its interiors, and grounds to their original state, including the custom-designed furniture and woodwork.

Boa Nova marked a turning point in the rebirth of Portuguese modernism during the waning years of the Salazar dictatorship (1932–74), which had isolated the country for decades. With its low tiled roofs and deep eaves hovering over the rocks, counterbalanced by irregular, whitewashed vertical volumes rising to form a chimney and a light scoop, the building mixes elements from Portuguese vernacular architecture with influences from Scandinavia, Frank Lloyd

View additional images at architecturalrecord.com.

Wright, and Japan. Siza was just a student at the time and under the supervision of Fernando Távora, his teacher at the University of Porto, who exposed the young architect to such international references. Siza began the project with four fellow students, but his scheme won out over the others.

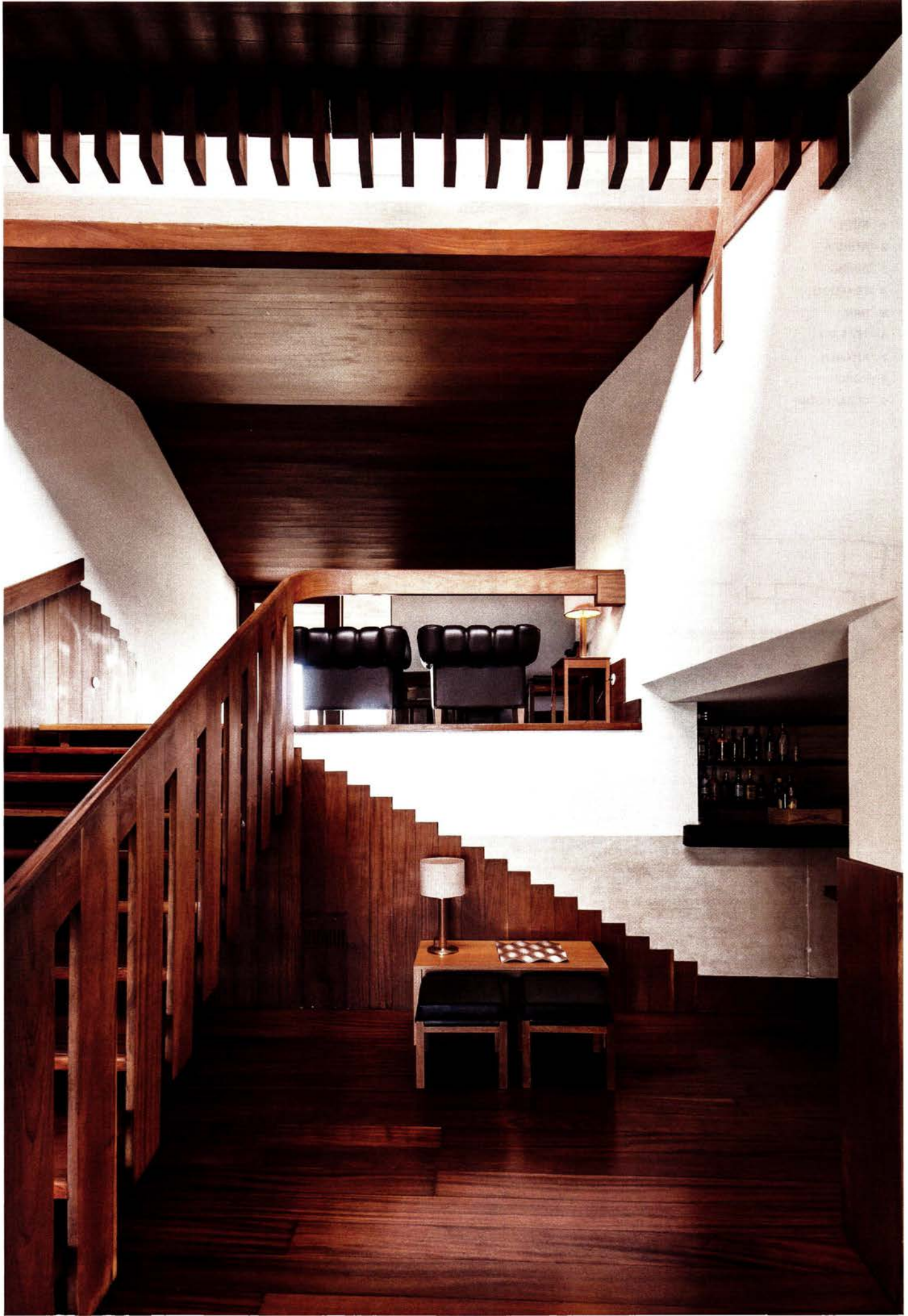
As young architects do, Siza put everything he could find from this new world of references into the design. He recalls, for example, buying a magazine featuring Alvar Aalto's work. "I didn't have the least idea who he was, but I thought it was marvelous. In Boa Nova, the influence of his Maison Carré is very clear," says Siza.

Now 81, Siza brought to the restoration an authenticity and continuity with the original project that would be difficult for anyone else to achieve. He restored the original wood windows, for example, including their single-pane glazing, something a contemporary firm might not have contemplated. Equipped with new motors, the floor-to-ceiling windows in the dining room can once again retract into the floor, merging the space with the adjacent terrace, a detail he picked up from Mies van der Rohe's 1930 Tugendhat House in what was then Czechoslovakia.

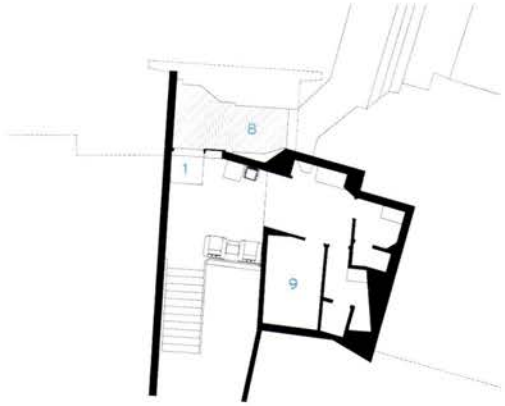
The original woodwork and furniture was made with afzelia, a reddish tropical hardwood from Angola (then a Portuguese colony) that was cheap and abundant at the time, but is expensive and difficult to find now. Siza considered the original tables, chairs, and serving carts to be beyond repair, but he found a carpenter with a stock of old wood to remake them, as well as the table lamps with shades made from translucent wood veneer. To treat water stains on the ceilings, he explains, "an old furniture restorer treated the wood with something, and it doesn't look too bad." He removed varnish applied in an earlier restoration to the exterior carpentry and treated the wood with oils, giving it a weathered look. As a result, though the building has been thoroughly restored, equipped with modern mechanical services, and brought up to code, one can still sense its time and age. The only elements that are jarring are the new roof tiles, which had to be specially made to match the originals, but lack the patina of seaside exposure.

The project's conversion into a luxury, reservations-only restaurant is a sore point for Siza, as local residents can no longer come simply to drink a coffee or a glass of wine, and architecture students and aficionados find it more difficult to drop by. Visits can be arranged through the Casa da

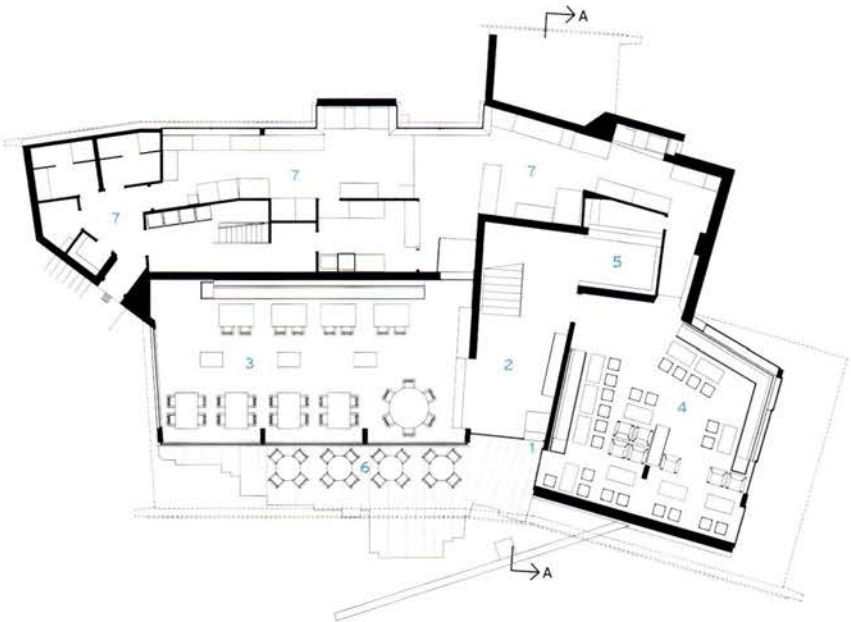
JUST LIKE THEN
The dining room (above) once again glows with the reddish embrace of floors and ceilings made of afzelia, a tropical hardwood from Africa. New copies of the original tables, chairs, trolleys, and lamps were made with old wood. A two-story atrium (opposite) leads to a small bar and the tearoom on one side and the dining room on the other.



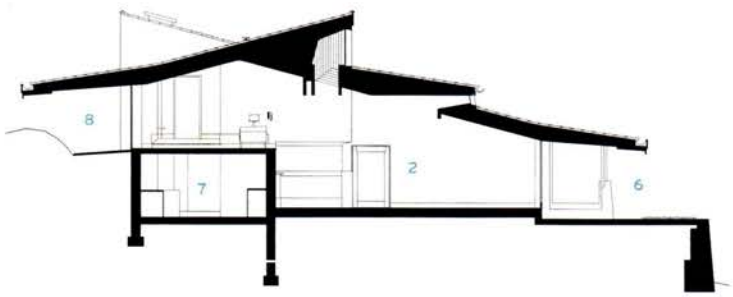
1 ENTRY
2 ATRIUM
3 DINING
4 TEAROOM
5 BAR
6 TERRACE
7 KITCHEN
8 PORCH
9 CLOAKROOM



UPPER FLOOR



MAIN FLOOR



SECTION A - A

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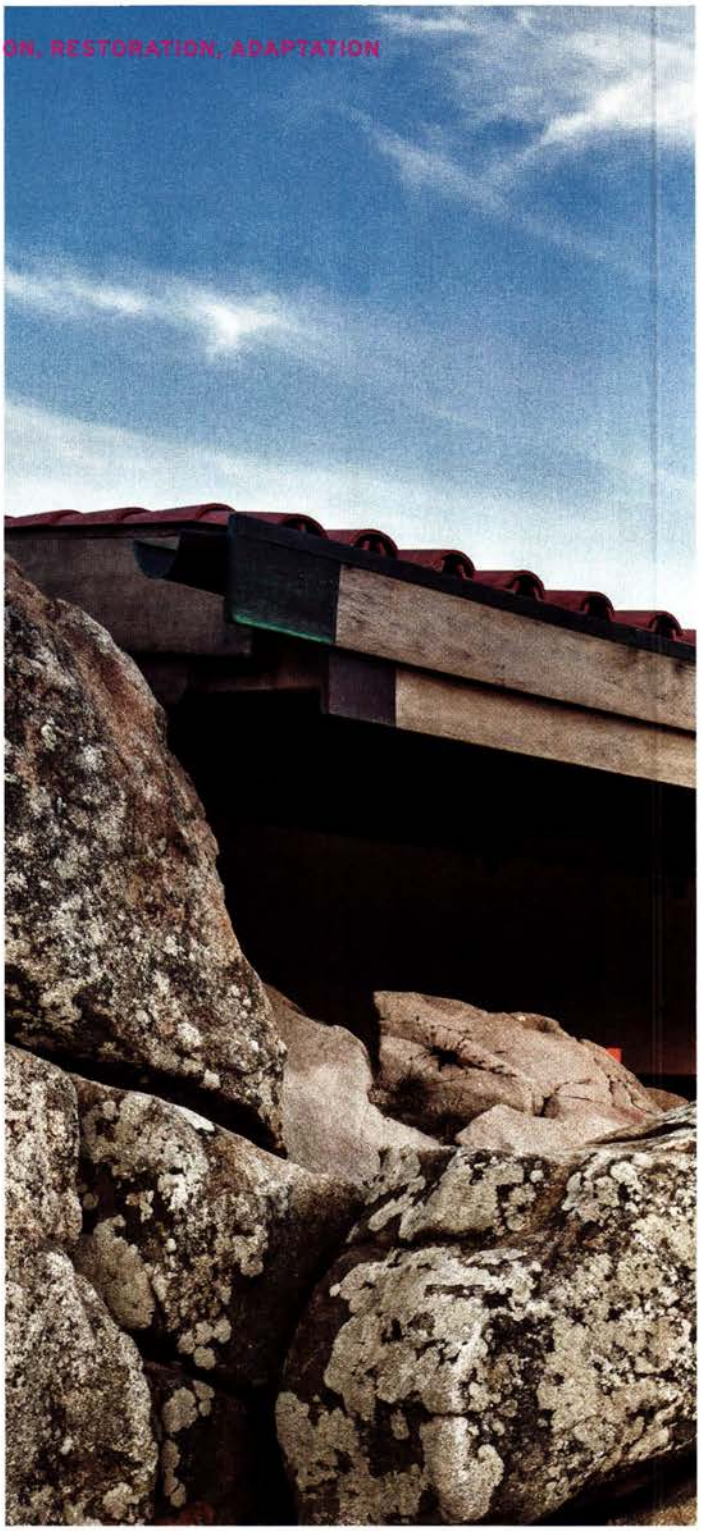
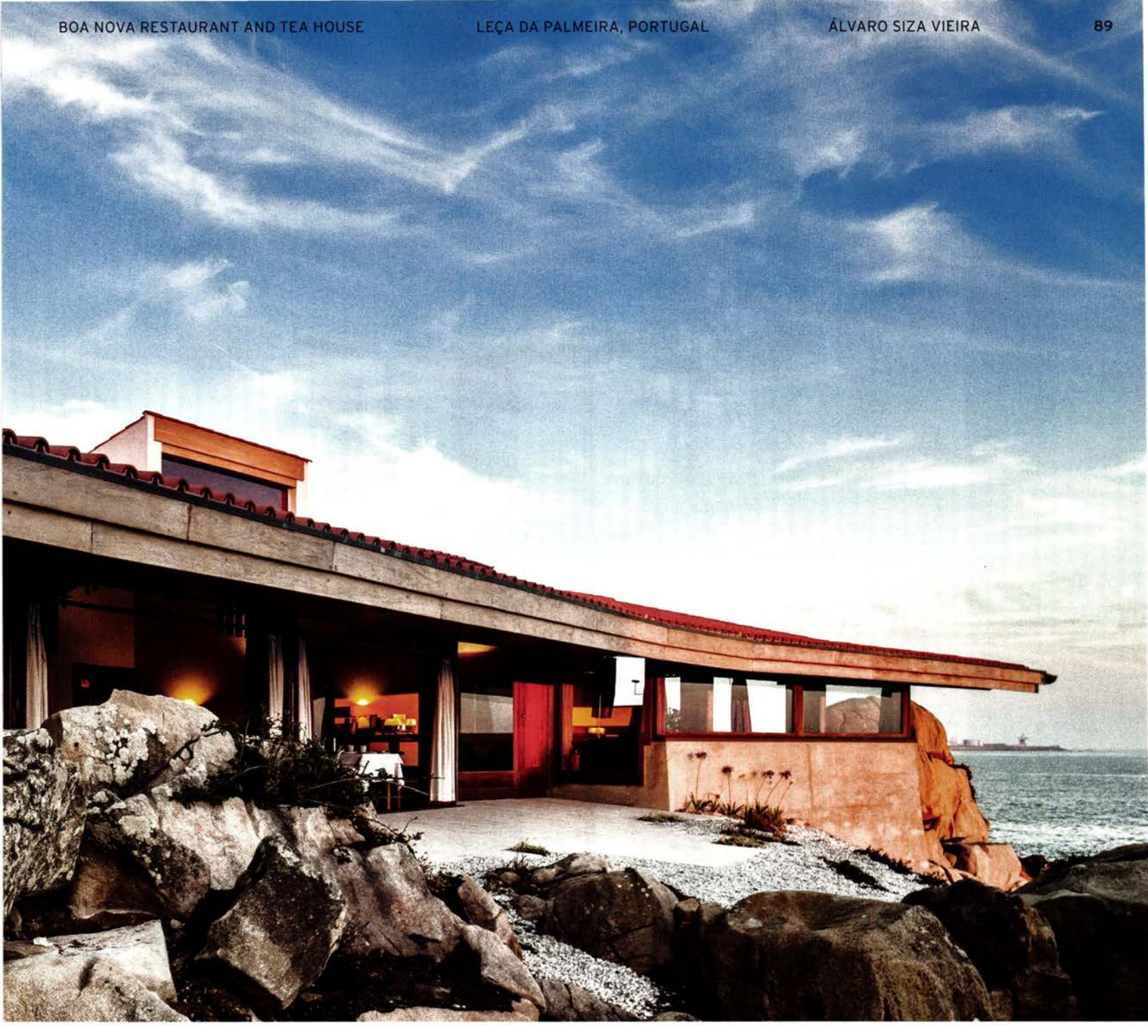


ROOM WITH A VIEW The dining room faces the ocean, to the west. In good weather, floor-to-ceiling windows can retract into the floor to open the room to a terrace and views.



Arquitectura, which is negotiating with Paula for greater access. Siza complains, "Only rich people can go there. It wasn't a luxury restaurant before. It was built using good materials, but it was very popular. The other day, they even turned away Rafael Moneo!"

Indeed, the accessible, small-scale gentility of the building belongs to a different age, when a concessionaire could make a living serving tea and snacks on a rocky shoreline beside the ocean, in a country suspended in time. Today, a visit to that once-isolated world is reserved for only a few, it seems. As Siza points out, "The building's use has changed more than its form." ■

credits

ARCHITECT: Álvaro Siza Vieira, designer; Alberto Neves, António Menéres, Botelho Dias, Joaquim Sampaio, Carlos Castanheira, Cristina Ferreirinha, Jane Considine, Carlos Leite Pereira, collaborators

ENGINEERS: Jorge Silva, Filipa Abreu (structural); Raquel Fernandes (plumbing); Alexandre Martins (electrical); Raul Bessa, André Tiza (mechanical)

CONTRACTOR: Soares da Costa

CLIENT: Municipal Government of Matosinhos

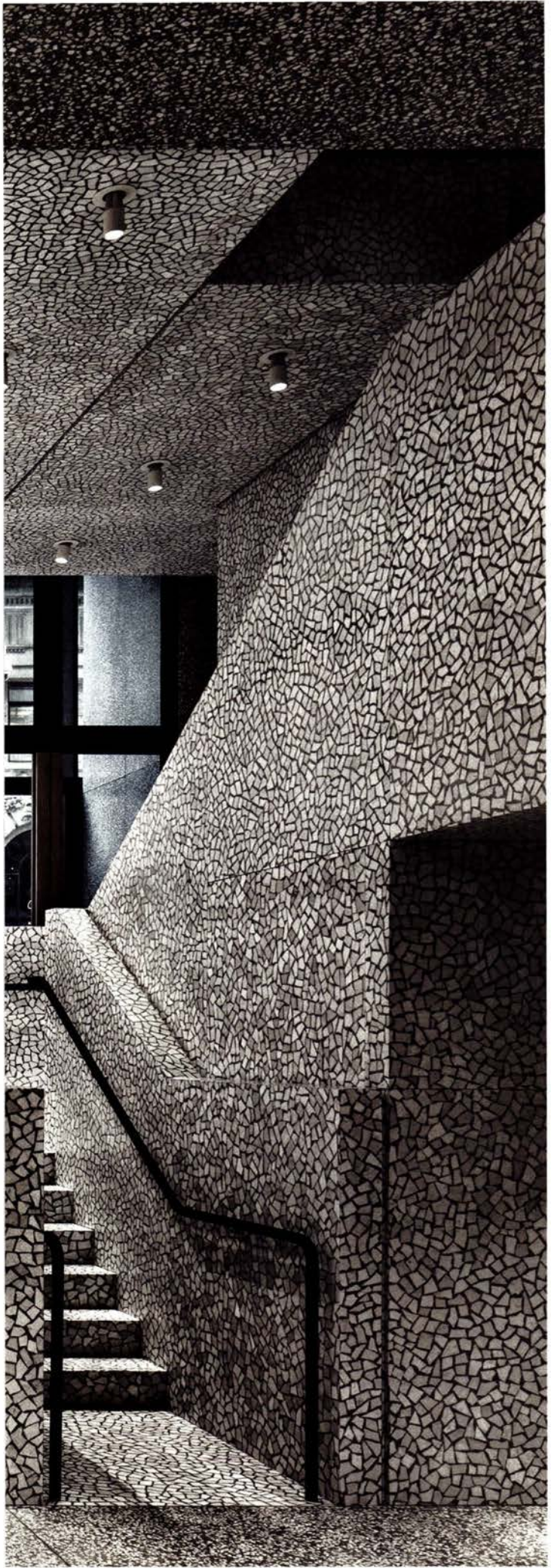
SIZE: 5,250 square feet

COMPLETION DATE: July 2014

SOURCES

ROOF TILES: Silmar

FURNITURE: Serafim Pereira Simões



Valentino | New York City | David Chipperfield Architects

FASHION FORWARD

An Italian sense of craft and detail is brought to New York City's major shopping street by David Chipperfield's design for Valentino.

BY SUZANNE STEPHENS

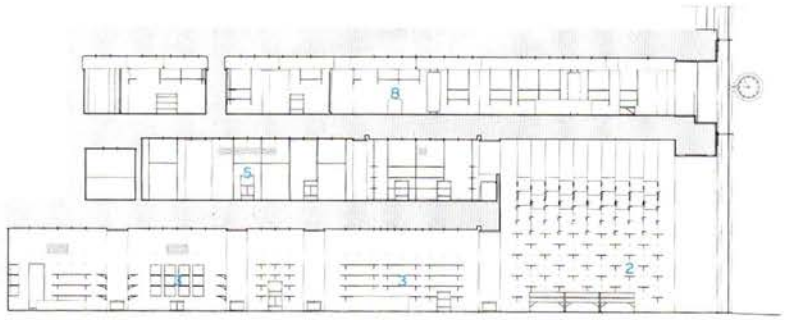
PHOTOGRAPHY BY SANTI CALECA

IMAGE AND SUBSTANCE In the Valentino store on Fifth Avenue, shoppers can see McKim, Mead & White's University Club (1900) through a high, glazed curtain wall with slender mullions. Handbags mounted on a two-story-high terrazzo wall across from the volumetric stair seem like archaeological fragments displayed in a museum.

NEW YORK CITY'S ever-changing landscape is particularly fast-paced when it comes to retail shops. Where once a fancy facade of columns, capitals, and cornices heralded Takashimaya New York on Fifth Avenue between 54th and 55th streets, a discreetly linear, glass-and-steel facade signals the new Valentino flagship store. When the high-end Japanese emporium closed in 2010, the original facade, with black granite engaged columns, paired red granite colonnettes, and bowed windows, already looked out of fashion. While you can still catch a glimpse of the upper floors of the 21-story tower designed by John Burgee Architects in 1993 (two years after Burgee and Philip Johnson had dissolved their partnership), its eight-story base now reflects the austerely modern approach of David Chipperfield Architects. (Few have lamented the loss of Burgee's flourishes: no DocoPomo conservation group has sprung up in the tracks of Docomomo.)

The Valentino overhaul continues a tradition of top and bottom schizophrenia prevalent in so many shopping spines where an ornate Beaux-Arts facade is effaced at street level by a banal storefront. But Chipperfield's treatment here imparts a discerning elegance and attention to detail in the black-steel and waxed-brass frame supporting low-iron glass.

Valentino commissioned Chipperfield to design the three-story flagship store (with the five floors above to be leased out) in 2008 after the founder of the Italian fashion house, Valentino Garavani, decided to pass the red velvet cape, so to speak, to the creative directors Maria Grazia Chiuri and Pierpaolo Piccioli. Since Garavani had left, the company took the opportunity to reestablish its identity for the future, and architecture was to be part of it. While Chipperfield may be best known for the rigor and clarity of his museum and gallery design, impressively displayed in the Neues Museum in Berlin that he renovated with Julian Harrup (RECORD,



SECTION A - A

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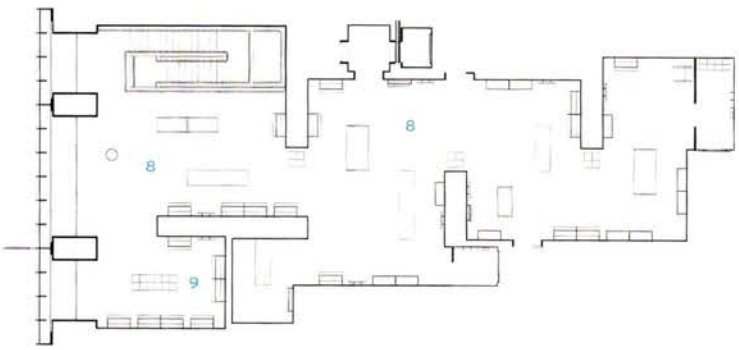
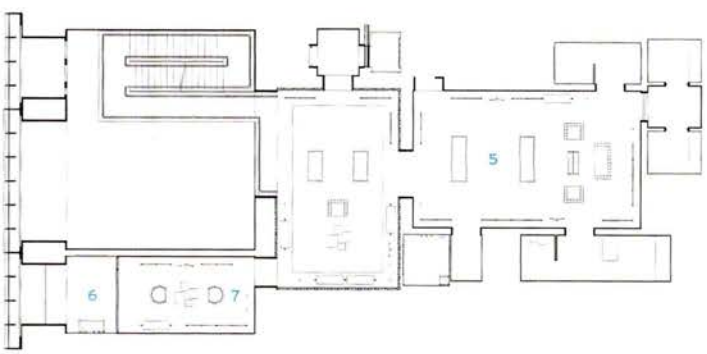
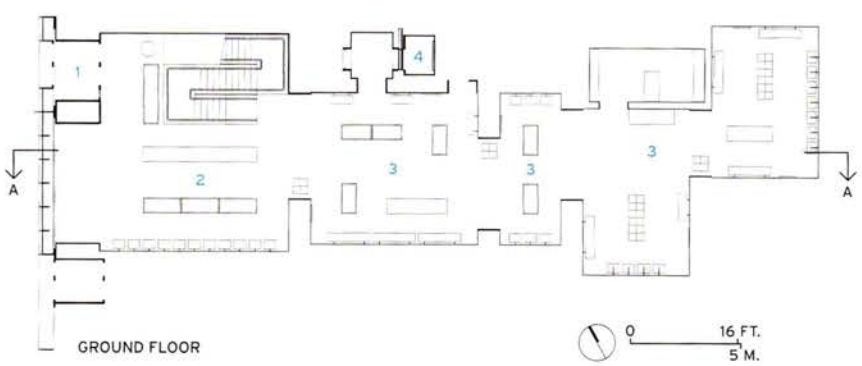


THIRD FLOOR



SECOND FLOOR



GROUND FLOOR

DAYS OF TAKASHIMAYA
In 1993, John Burgee Architects designed the postmodern 21-story tower (left) on Fifth Avenue near 54th Street. David Chipperfield replaced the facade with an eight-story glass-and-steel curtain wall to herald the new Valentino store (below). The boutique occupies three floors; the five floors above will be leased out by the owner.

1 ENTRANCE
2 MAIN HALL
3 WOMEN'S ACCESSORIES
4 ELEVATOR
5 WOMEN'S CLOTHES
6 FITTING ROOM
7 VIP ROOM
8 MENSWEAR
9 MEN'S ACCESSORIES

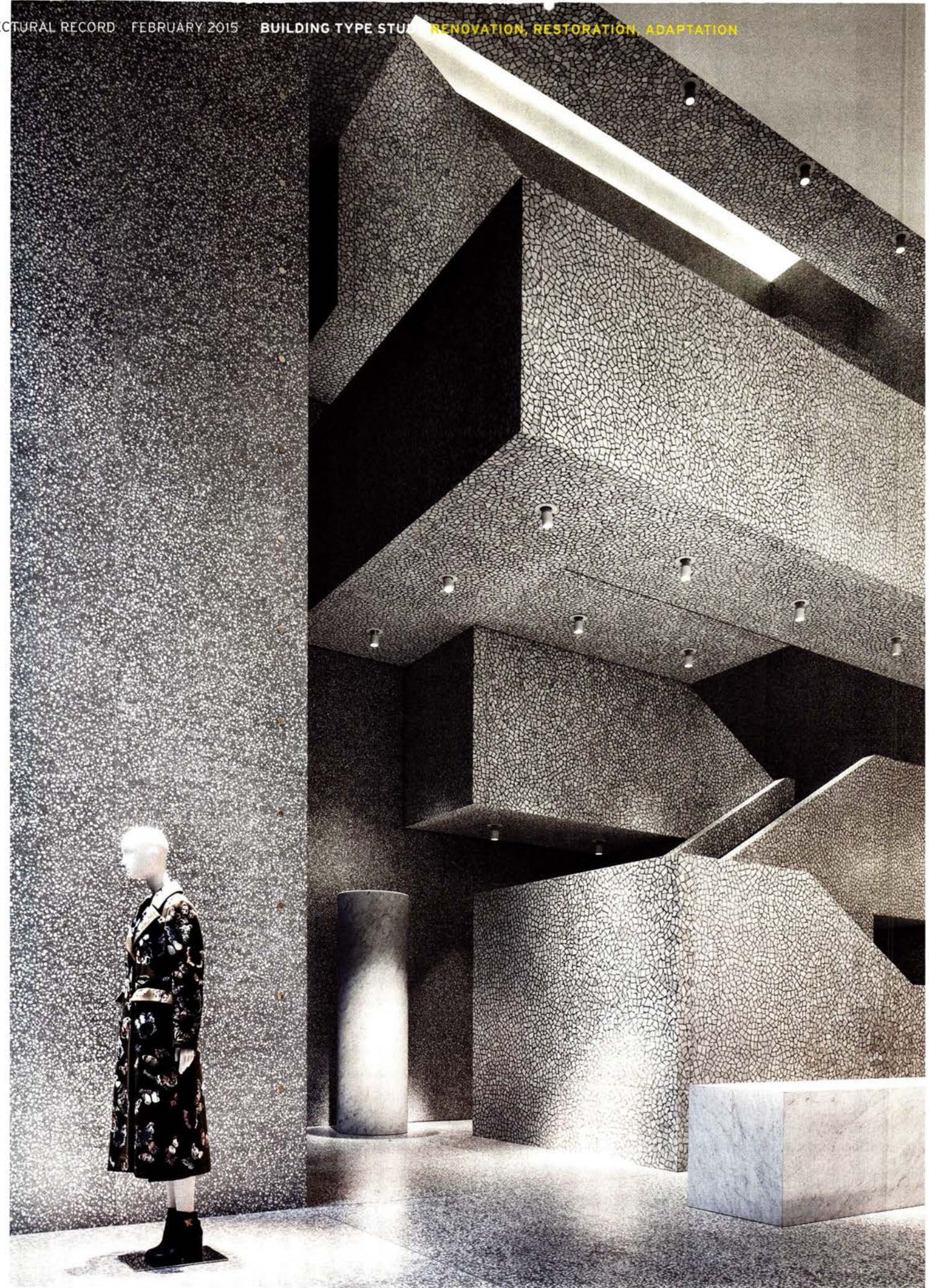
March 2010, page 58), as the British architect points out, he has long worked with fashion designers such as Issey Miyake, Joseph, and Dolce & Gabbana: "Without the Miyake shop on Sloane Street in London [1985], I would not have started my own firm," he says. Chipperfield's Milan office, established in 2006, has already executed a handful of projects for Valentino and has many more on the boards.

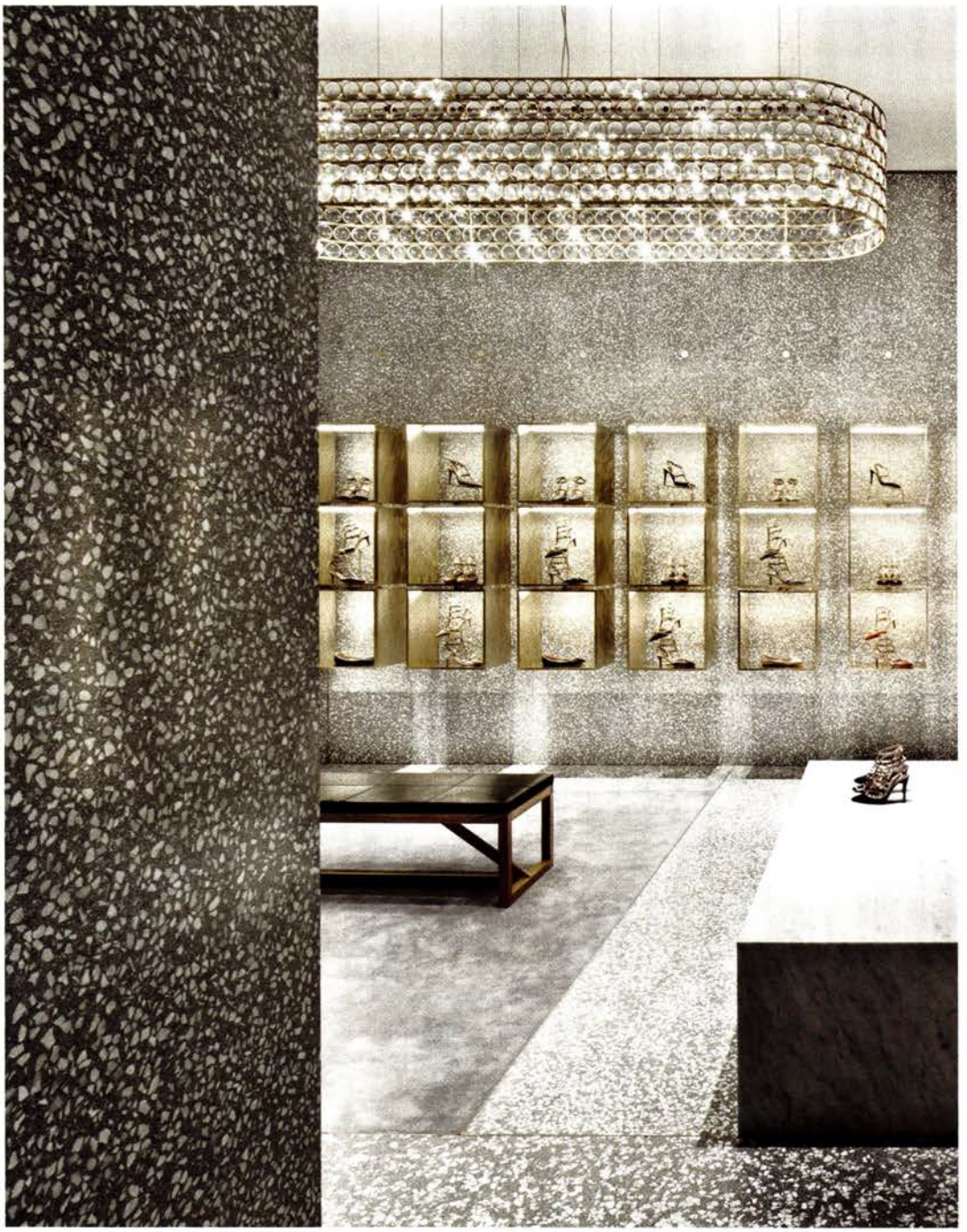
Entering the Fifth Avenue shop, the visitor finds a powerful interplay of spaces and solid planes that highlights the clothing on display. Originally a 42-foot-high atrium cut through Takashimaya's first three floors, with its grandeur pumped up by interior designer Larry Lazlo using black metal Doric columns, a gold-leaf ceiling, onyx, and marble. Chipperfield, with New Jersey–based associate architects Tricarico, brought the atrium height down to 27½ feet for a ground-floor space devoted to women's accessories; a second floor for women's clothes overlooks it. The team filled in the third floor for the men's department and pulled it back from the facade so that it seems to float in space. They also linked the three levels with an open stair, cantilevering its steel frame from the north wall of the building and off the second-floor slab.

The stair's enclosing planes of palladiana (where large pieces of marble are embedded in panels of cement and marble dust) turn this circulation device into a rectilinear, sculptural entity slightly reminiscent of Adolf Loos's veined marble-wall sequence of steps in the Villa Müller in Prague (1930). Employing palladiana in the stair and other strategic locations was not all that easy: panels and tiles were cast in Italy and assembled on-site, where they had to be lifted into place by crane and then screwed, glued, and even welded in some places. Offsetting the palladiana are light- and dark-gray terrazzo floors and walls with secondary, more diminutive marble chips. The contrapuntal play of the two differently scaled stone patterns creates a mesmerizing backdrop without overwhelming the clothes and accessories on view.

Furnishings include massive white Carrara marble counters and plinths, and oak and leather seating, combined with rectilinear vitrines of brass, and carbon fiber racks. On the second floor an unexpected softness is created by white

DRAMATIC ASPERITY
On the third floor, the menswear department has palladiana flooring and terrazzo walls (above). The 9-foot-high ceilings have coves of Venetian plaster. Oak display cases, along with Carrara marble blocks and free-standing columns, add to the serene elegance of the setting.





GLAM ROCK
Sparkling LED lighting, softly gleaming brass-finished shelving, sleek terrazzo walls and floors, plus lush carpeting, give the women's shoe department at the rear of the first floor a restrained sumptuousness (above).

credits

ARCHITECT: David Chipperfield Architects – David Chipperfield, principal; Giuseppe Zampieri, design and managing director; Giuseppe Sirica, associate director; Adolfo Berardozzi, project architect

ASSOCIATE ARCHITECTS: Tricarico Architecture and Design; Bill Manoliadis, studio director

ENGINEERS: Eipel Engineering Group, Scl Ingegneria Strutturale (structural); Rosini Engineering, (m/e/p); Seele (facade)

CONSULTANTS: Heintges (facade)

GENERAL CONTRACTOR: Michilli Construction and Consulting

CLIENT: Valentino USA

OWNER: Thor Equities

SIZE: 13,450 square feet

COST: withheld

COMPLETION DATE: August 2014

SOURCES

CURTAIN WALL: Seele

VENETIAN TERRAZZO, PALLADIANO PANELS AND TILES, MARBLE: Laboratorio Morseletto

gypsum board cast in vertical ripples resembling the folds of curtains; gray padded-leather walls for the fitting rooms add to the low-key luxe ambience. Custom LED lighting keeps up the glitter without glitz and provides accurate color rendering throughout the store.

Facing west, visitors have views of Fifth Avenue through the expansive glass facade. The architects wanted to keep the steel profiles minimal for the sight lines, explains Karen Brant, partner of Heintges, the curtain wall consultants. To create the extremely high glass wall with the narrowest mullions possible, she adds, "We had to distill, distill, distill." The system—fabricated in Germany—and the elegance of the Miesian detailing make it easy to see why Chipperfield was chosen to renovate and restore Mies's New National Gallery in Berlin.

The architectural counterpoint of three-dimensional solidity and mass with two-dimensional surfaces and pattern creates an arresting environment in which to show Valentino's often bold and dramatic attire. The mastery of materials and craft further enhances a sense of timelessness so alluring for a venue where fashion reigns in all its ephemerality. It helps to have the money for the means (no one will reveal the construction budget), but fortunately the architects have used the opportunity to investigate design ideas that could be applied in situations with less lavish budgets—even museums or galleries. ■

Royal Picture Gallery Mauritshuis | The Hague | Hans van Heeswijk Architects

DOUBLE DUTCH MASTERWORK

GRAND STANDING From the back, the 17th-century mansion appears to float alongside the historic buildings of Parliament (the corner tower holds the prime minister's office). From the front, (opposite), the museum looks across the street to the newly acquired Art Deco building, Plein 29, which holds the new wing.

A design team digs down to artfully connect a historic museum to a building across the way.

BY TRACY METZ

PHOTOGRAPHY BY LUUK KRAMER

In the hands of Dutch architect Hans van Heeswijk, the Mauritshuis, a 17th-century mansion in The Hague that later became the Netherlands' first museum, has undergone an impressive expansion.

In 1644, when Count Johan Maurits moved into his grand Dutch Renaissance–style home, with its elegant gates and forecourt, it was dubbed the "Sugar Palace"; Maurits was the former governor-general of the Dutch colony in Brazil, the heart of the sugar and slave trades. The house's lavish interior was lost in a fire in 1704, but the building was restored and in 1822 became home to the royal art collection. Today, its holdings of just 800 works include paintings such as Vermeer's *Girl with a Pearl Earring* and *View of Delft*, Rembrandt's *The Anatomy Lesson of Dr. Nicolaes Tulp*, Paulus Potter's *The Bull*, and Carel Fabritius's *The Goldfinch*.

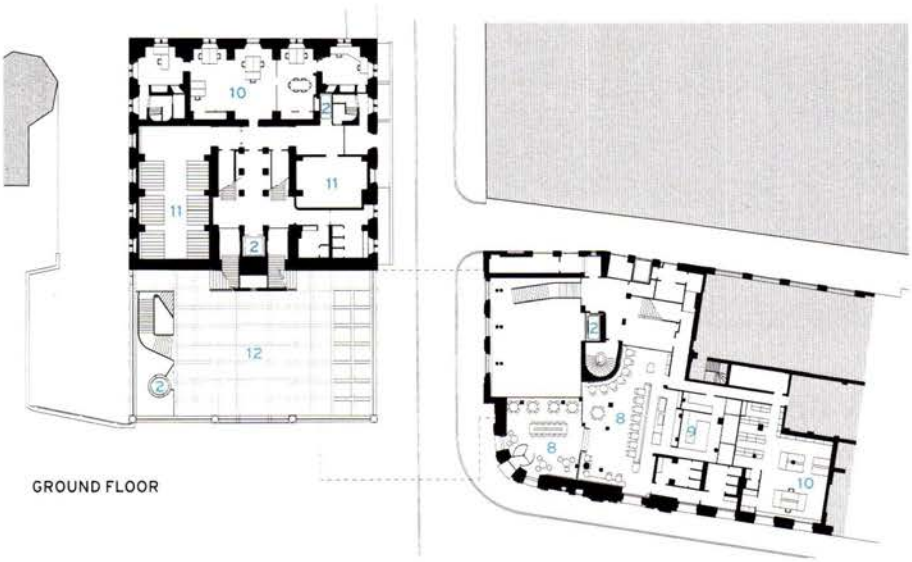
Toward the end of the last century, the Mauritshuis's popularity grew rapidly and quarters became cramped, both for visitors and staff, who had to be housed in a nearby building. The museum was able to rent space across the street at Plein 26, a brick Art Deco addition to a private club, but connecting the two buildings in the dense historic center of The Hague—right next to Parliament and the prime minister's office—was not a slam dunk.

Van Heeswijk, who is known for his conversion of a home for the elderly into the Hermitage, among other projects, won the commission for the Mauritshuis with his plan to double the floor space to 73,000 square feet while stitching the two

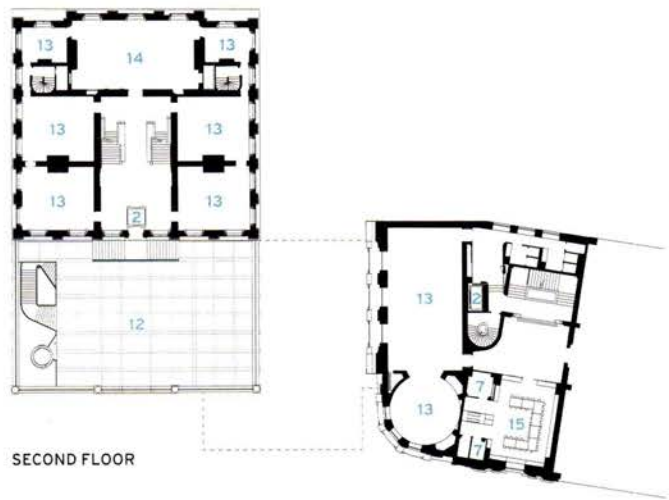
pieces together by digging down. "This project was all about logistics," he says. "It is more about organizing and cleaning up than about design—it is important that visitors immediately understand where they are and where they're going."

To connect the mansion to Plein 26, the team excavated below the forecourt, expanding the basement to create a new lobby, which extends beneath the street, creating a seamless and inviting new public space. Since the last renovation, in 1987, visitors had to enter a cramped lower level, arriving through a service entrance. Now they pass through the mansion's gates—a privilege long reserved for royalty and visiting dignitaries—and descend to the lobby through an opening carved out of the forecourt. They can take a cylindrical glass elevator or an elegant winding stair to a sunken courtyard, from which they enter the building through a full-height glass wall.

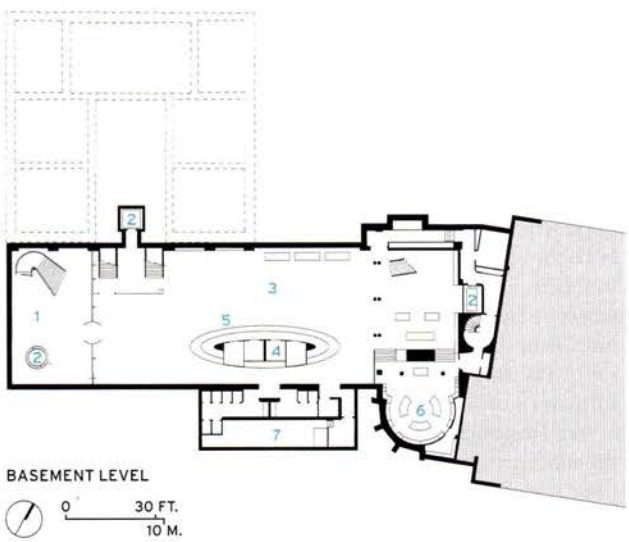
Subterranean though it is, there is nothing gloomy about the new lobby. Daylight streams in through the glazed wall as well as through glass panels in the forecourt's paving.



GROUND FLOOR



SECOND FLOOR



BASEMENT LEVEL

0 30 FT. 10 M.

1 ENTRANCE
2 ELEVATOR
3 LOBBY
4 CLOAKROOM
5 INFORMATION DESK
6 MUSEUM SHOP
7 TEMPORARY EXHIBITION
8 BRASSERIE
9 KITCHEN
10 OFFICE
11 ARCHIVE
12 FORECOURT
13 GALLERY
14 BANQUET ROOM
15 ART STUDIO

credits

ARCHITECT: Hans van Heeswijk Architects – Dick de Gunst, project architect; Stephanie Haumann, project manager

CONSULTANTS: ABT, Arup, DPA Cauberg-Huygen (engineers); Askon Eden (restoration); Stephanie Gieles (interiors)

CLIENT: Royal Picture Gallery Mauritshuis Foundation

SIZE: 38,000 square feet (renovation); 73,000 square feet (new construction)

COST: $36 million

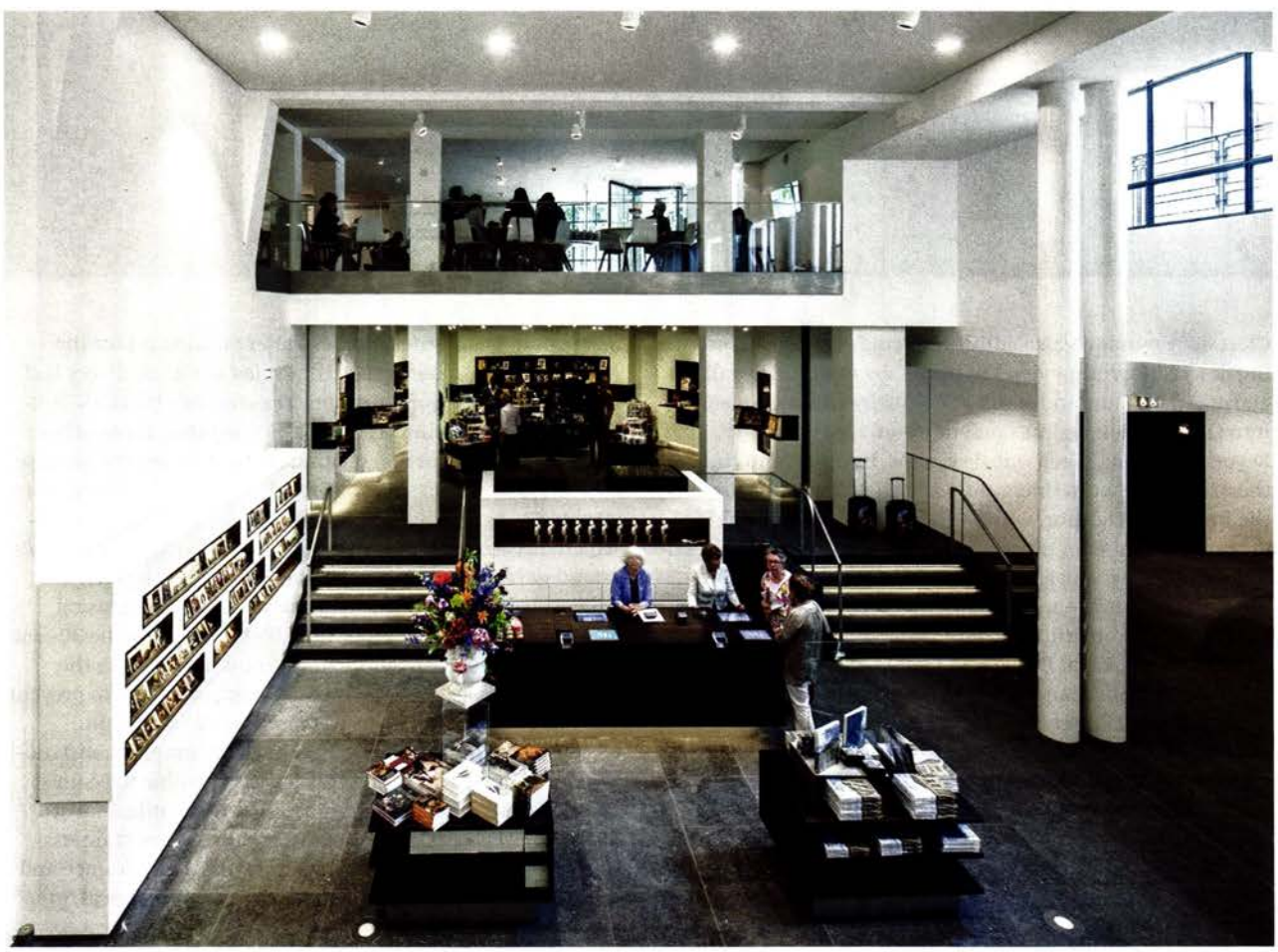
COMPLETION DATE: June 2014

SOURCES

ELEVATORS: Mitsubishi

GLASS ELEVATOR SHAFT: Octatube

BENEATH THE FRAY
Visitors descend from the forecourt by glass elevator or stairs to a courtyard (above) and enter the museum through the full-height glass facade. The museum shop (right) leads off of the new subterranean lobby; the higher portion sits on level with the original basement floor. The museum brasserie above it is accessible from the street.



FIT FOR A KING
The front door of the old mansion (above) is still reserved for royalty. Just beyond it, a new glass vestibule forms an elevator shaft. When the elevator descends, its marble-clad roof forms a seamless surface with the hall's floor.

Clerestory windows also admit light and serve as an orienting device, providing views of passersby on the sidewalk above. An elevator and stairs at the lobby's west end lead into the mansion and its opulent, renovated galleries. Beyond updating mechanical systems, lighting, and finishes, the architect's main intervention in the actual museum is the ingenious elevator, which emerges just beyond the mansion's front door. Here, van Heeswijk replaced the vestibule with a glass elevator box, providing accessibility to the galleries while opening up sight lines to the art. To the lobby's east, circulation carries visitors up into Plein 26, now called the Royal Dutch Shell Wing, which houses temporary exhibitions as well as a brasserie, library, children's education area, meeting rooms, and offices.

The biggest challenge in expanding the Mauritshuis, says van Heeswijk, was to logically link the old and the new spaces while reconciling different floor levels. For example, four feet of soil had to be excavated from under Plein 26 to bring the new wing's floor down to the same level as the lobby. The excavation process was particularly arduous. To counterbalance the pressure from the surrounding earth and groundwater, the team let the excavation pit for the lobby fill with water as they continued to dig, so divers had to build the formwork and pour the concrete for the 4-foot-thick steel-fiber-reinforced floor. Beyond this, three other foundation-construction techniques were employed because of the highly varied site, with its 17th- and early 20th-century structures, as well as the new excavation below the street—which, because protests occur in this precinct (the country's seat of government) had to be able to support the weight of a tank. Excavating for the elevator beneath the mansion also required special preparation. Before digging the 30-foot-deep shaft, which extends below groundwater level, the team had to inject the surrounding earth with gel to prevent the void from caving in, as well as make it watertight.

But all the high-tech engineering and complex construction maneuvers that made this project possible have now faded behind the scenes. In the end, it is the minimalist 21st-century design and its restrained palette of stainless steel, glass, and stone that shape the visitor experience and join two disparate historical landmarks into a logical, gracious whole. ■

FRAME OF REFERENCE
Old Masters in the mansion's William V gallery (left) provide a counterpoint for the ceiling painting, *Icarus Atlanticus*, by Dutch artist Ger Lataster (1987). The library in the new Art Deco wing (bottom) visually connects to the building's grand stair through a glass wall.

St. Bartholomäus Church | Cologne, Germany | Kissler + Effgen Architects

HEAVEN AND EARTH

A firm turns a 1960s church into a place of final repose and, once again, worship.

BY MARY PEPCHINSKI

PHOTOGRAPHY BY DIETMAR STRAUSS

Dwindling congregations and shifting demographics have led to church closings throughout Germany, as elsewhere, in recent years. Yet some, such as Saint Bartholomäus, a Roman Catholic church in Cologne, are deconsecrated and repurposed as columbaria housing the ashes of the deceased. After it shut down in 2006, the congregation wanted Saint Bartholomäus's building to retain a sacred space to hold funeral services in addition to a desanctified area to house the urns. Because Catholic doctrine permits burial within church walls only for popes, emperors, and archbishops, and it prohibits the celebration of the Mass in cemeteries, the task required the interior to be divided into two spaces, one sacred and the other secular.

Modernist Hans Schwippert designed St. Bartholomäus, a stark, brick-faced concrete cube, in 1960, and it was declared a historic monument in 1995. (Buildings can be landmarked in Germany after one generation, or roughly 30 years.) Located among multi-family housing and light industry near downtown Cologne, the abandoned church possessed, recalls architect Hans-Peter Kissler, "a dark interior with a graveyard quality that was perfect for this task. I only wanted to reinforce it."

HALLOWED GROUND The church of St. Bartholomäus (above), designed by modernist architect Hans Schwippert in 1960, shut down in 2006. It was revived as a columbarium last January by Kissler + Effgen Architects at the request of the church's parishioners. Because the Catholic faith prohibits services in cemeteries, the architects inserted an ethereal bronze mesh enclosure to separate the columbarium from the sanctuary (opposite).

To define the sanctified area, he inserted into the church's center an architectural bronze mesh enclosure, measuring 23 by 33 feet in plan. The mesh stretches between a track in the floor and a rectangular frame located 33 feet above. Steel bars secure the frame to the church's concrete ceiling beams. Adjustable LED luminaires, which are attached to the frame, shine on the mesh, wrapping the sacred area in an ethereal glow. Depending on their angle, the LEDs cause the mesh to appear either transparent or translucent. Furnishings include both new pieces (the bronze and steel pulpit and urn stand, the concrete altar) and recycled ones (the church's original pine benches).

Six-foot-high black-steel cabinets, which house the urns, form 10 alcoves around the sanctified area. The cabinets contain 1,600 niches for a total of 2,400 urns (800 in single

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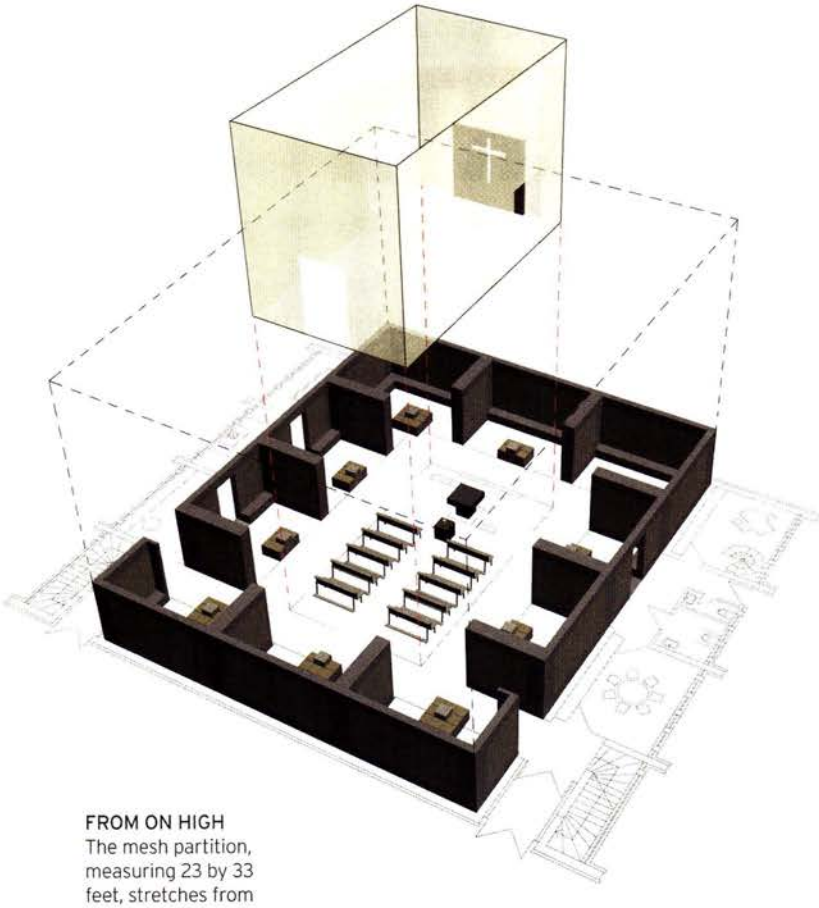
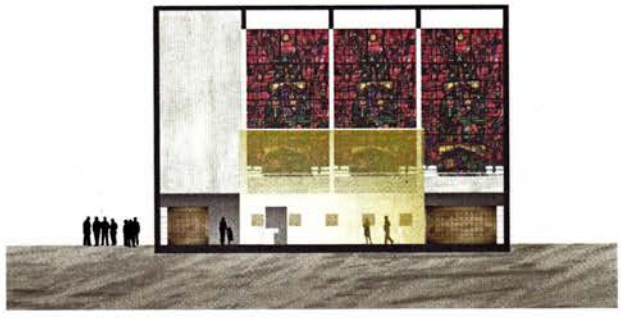
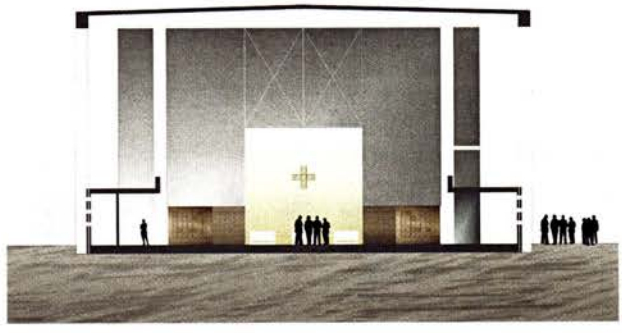
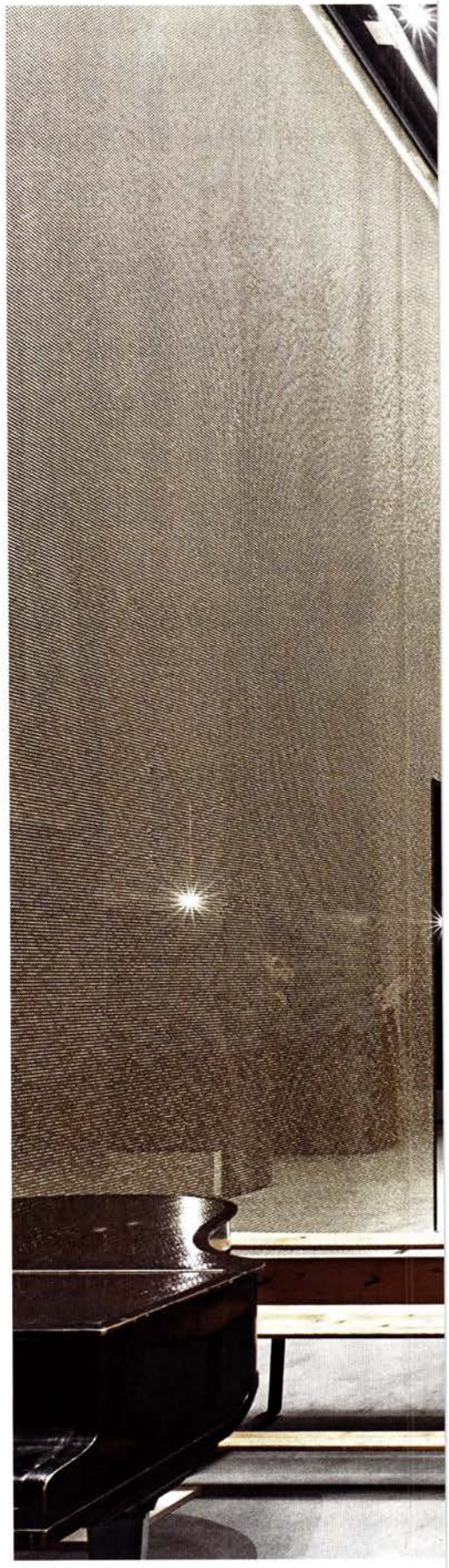
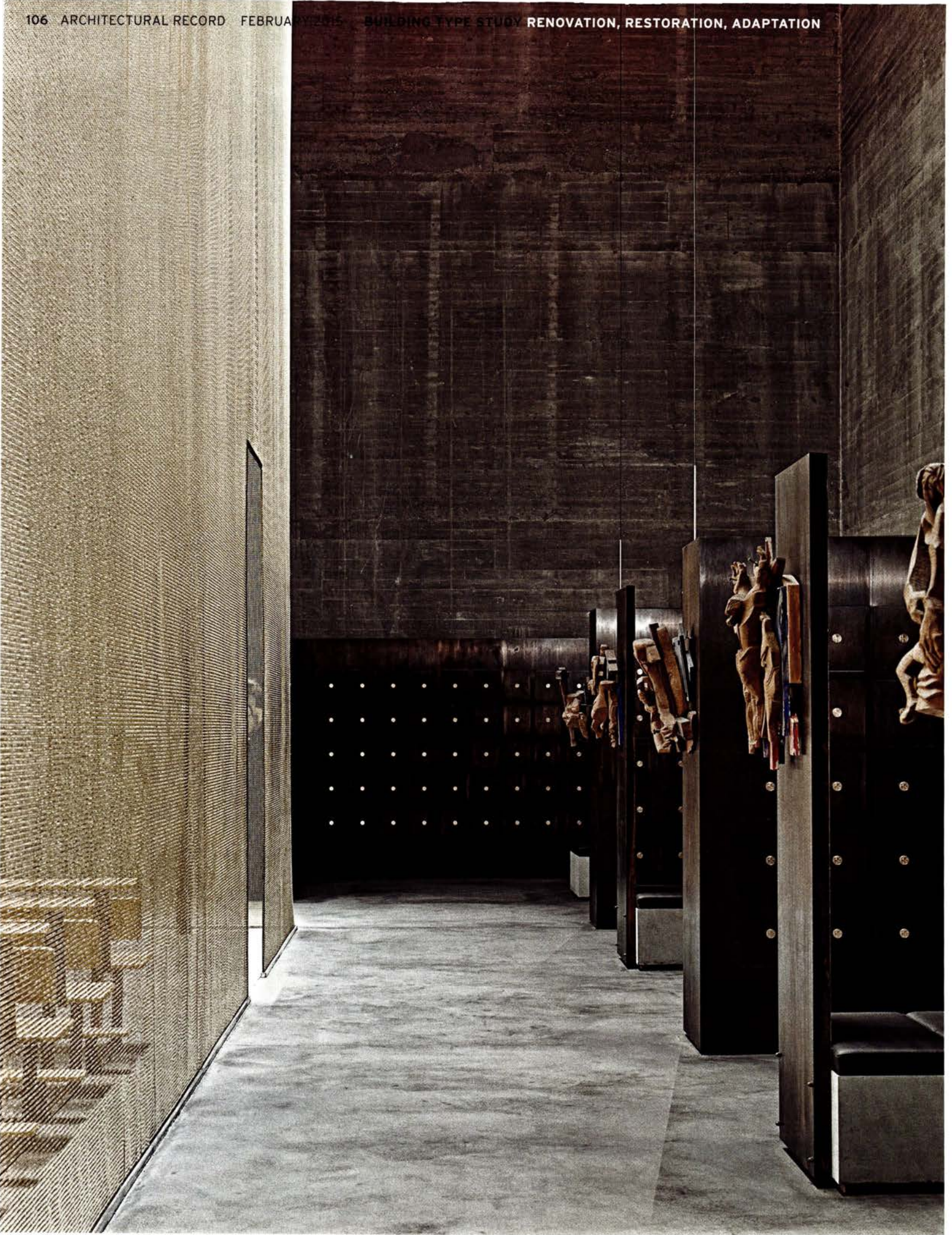


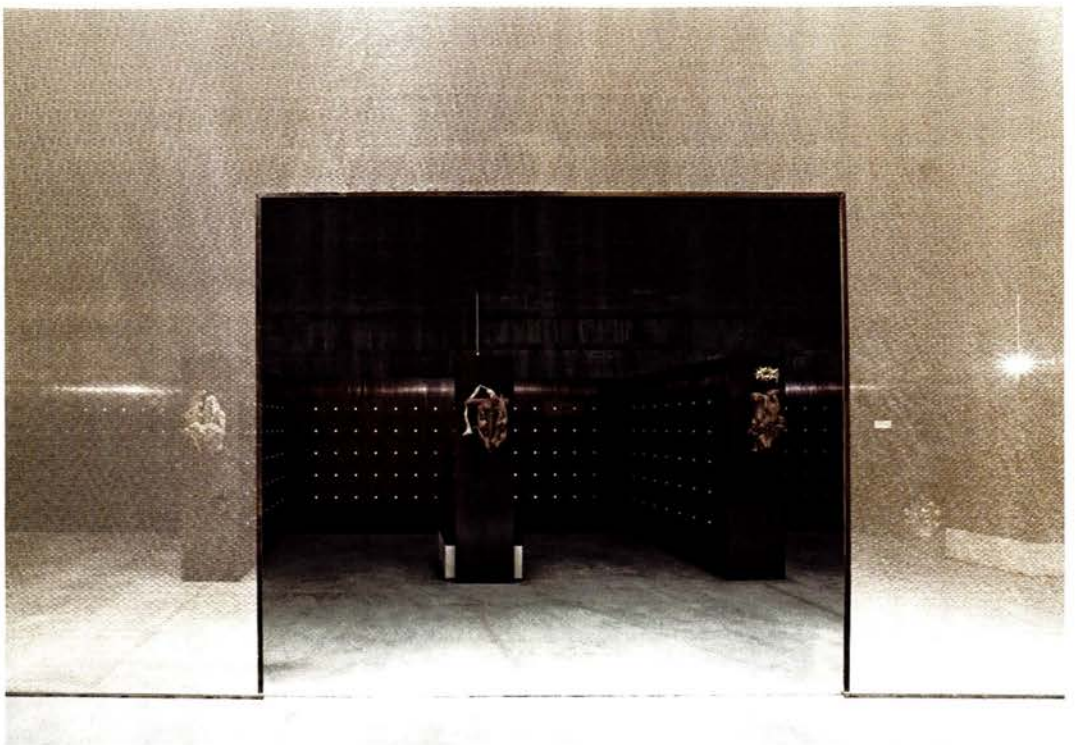
FROM ON HIGH
The mesh partition, measuring 23 by 33 feet, stretches from floor tracks to steel bars attached to the church's concrete ceiling beams (above). The sections, which cut through the sanctuary, show the stained-glass windows on the east wall (right) and the sanctuary's cross in front of the north wall (bottom, right). Entrances are on the south and east. The chapel, in addition to a new bronze and steel pulpit and concrete altar, houses the original pine benches (opposite).











credits

ARCHITECT: Kissler + Effgen Architects – Hans Peter Maria Kissler, Roland Gert Effgen, partners in charge

CONSULTANTS: Corinna Arens and Dorette Faulhaber (lighting)

CLIENT:: Catholic church of St. Rochus, Three Kings, and St. Bartholomäus

SIZE: 6,450 square feet

COST: $1.2 million

COMPLETION DATE: January 2014

SOURCES

URN CABINETS: Schlosserei and Metallbau Venino

LIGHTING: Philips; Viabizzuno

CUSTOM STAINED GLASS: Giselbert Hoke

BRONZE MESH CURTAIN: Alphamesh

and 1,600 in double compartments). After an urn is installed, a bronze plaque with a shelf for commemorative items seals the niche; a single light bulb, suspended from the ceiling, illuminates each alcove.

Other alterations draw attention to the church's religious art. Expressively carved figures, depicting the Stations of the Cross (1988) by sculptor Luděk Tichý, formerly located along the interior walls, now adorn the ends of the urn cabinets. Red spotlights accentuate the concrete ceiling and complement Giselbert Höke's stained-glass windows (1978) depicting the Resurrection.

To reduce costs, heating was eliminated, except in the vestibule on the west facade, which is newly equipped with offices and restrooms. The highly emotive quality of this church-cum-columbarium notwithstanding, a prolonged visit on a recent December midday left one with cold feet and a chill. Temperature aside, the dusky space feels welcoming and surprisingly uplifting. The urn cabinets seem to disappear into the shadows, in contrast to the sacred area's radiance, which beckons, like a clearing in a forest. Small, gleaming accents throughout—the suspended light bulbs in each alcove, the glinting bronze seals adorning the niches holding the urns—inject visual warmth and a sense of enchantment into this sober setting.

The dual areas—one sanctified, the other merely solemn—were intended to maintain the church's relevance and to ensure that a respectful consideration of death plays a role in the everyday life of this urban neighborhood. This strategy is succeeding: "It is surprising," notes columbarium administrator David Blumann, "how many people have come by just to take a look." ■

Berlin-based Mary Pepchinski is a writer, architect, and professor of architecture at the University of Applied Sciences in Dresden.

ASHES TO ASHES Custom black-steel cabinets, which contain 1,600 niches for some 2,400 urns, line the periphery of the sanctuary (opposite). Bronze plaques seal each niche (below) when filled. Sculptures carved in 1988 by Luděk Tichý ornament the sides of these cabinets (above).

The POOL Aoyama | Tokyo | Nobuo Araki/The Archetype

POOL ROOM

A makeover energizes a former swimming space while retaining traces of its watery past.

BY NAOMI POLLOCK, AIA

PHOTOGRAPHY BY ATSUSHI FUSEYA (MAGNET-TOKYO)

Like a splash of cold water, POOL Aoyama is a refreshing surprise. Previously an indoor swimming center, this flexible interior is equally suited for retail or gallery use by day but turns into party central by night. While its design is the product of Nobuo Araki, a Tokyo architect whose firm, The Archetype, has a penchant for renovation, the event-space concept was developed in connection with the music mogul cum design guru Hiroshi Fujiwara and the apparel company JUN Group. Today the smell of chlorine is long gone, but the atmosphere of the vintage pool remains in the air.

Araki pulled this off by extracting unnecessary and unseen elements and then adding only what was needed. "I am not a minimalist, but I don't like excess either," states the architect. Leaving the room's appearance much as he found it, Araki ripped out the water-supply pipes and asbestos-laden dropped ceiling but salvaged character-giving doors, signage and hardware—plus the pool. Built in 1971, it started out as a tenant amenity at the bottom of a 10-unit apartment complex in Aoyama, a high-end, mixed-use neighborhood in the heart of Tokyo. Entered from the building lobby, the 49-by-66-foot hall for the pool contained the 39-by-18-foot rectangular basin bracketed by changing rooms at one end and a small outdoor garden edging the property at the other.

For the sake of direct street access, Araki uprooted the garden and replaced it with concrete stairs that ascend to the existing glass doors he converted to POOL Aoyama's entrance. These open onto the original tile-clad deck. Ringing the pool, this narrow walkway leads to the changing area, now repurposed as fitting and storage rooms, a new cashier counter that doubles as a beverage bar, and wood stairs on either side that descend to the pool bottom.

In accordance with the client's directive, Araki went to great lengths to preserve the pool. In addition to leaving steel ladders and rusty drainage grills in place, he kept its painted concrete walls as they were, reasoning that chips

DIVING IN
While converting the indoor pool to host events and other functions, architect Nobuo Araki salvaged much of the interior, but inserted a glass floor over the void (left). Chipped and cracked concrete walls remain, while the HVAC ducts suspended from the ceiling are sleek and white.

PHOTOGRAPHY: © HIROYO KAI (STUH)

NONAQUEOUS SOLUTION
The existing pool (left), located at the base of a residential building, needed a new outdoor entrance. Araki inserted one on the southwest, where the pool jutted into the garden. He also removed a dropped asbestos ceiling (opposite) and added track lighting.

credits

ARCHITECT: Nobuo Araki/The Archetype – Nobuo Araki, principal; Takanobu Matsushita, project architect

CONSULTANTS: G DeSIGN/Takeyuki Gaino (structural); On & OFF/Shinji Yamaguchi (lighting)

GENERAL CONTRACTOR: Kohsakusha (interior); Shin Corporation (exterior)

CLIENT: JUN Group

SIZE: 1,750 square feet

COST: withheld

COMPLETION DATE: April 2014

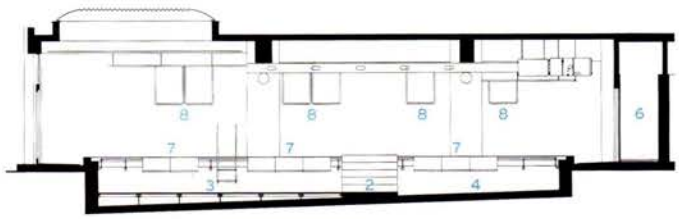
SOURCES

GLASS FLOOR: Sanshiba Shozai

CUSTOM METALWORK: Gazelle

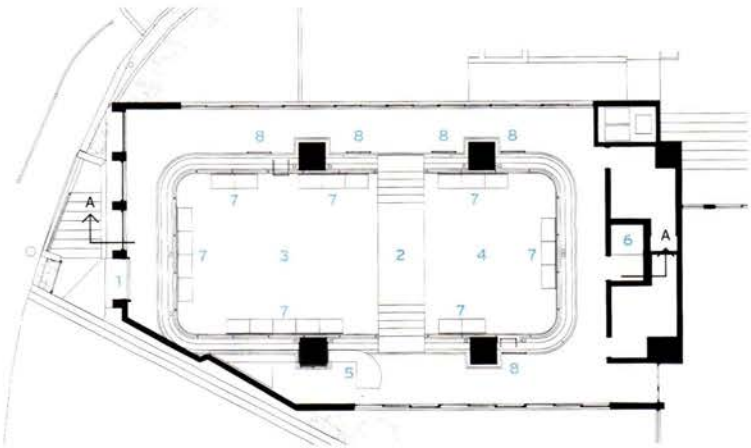
CUSTOM GLASSWORK: Activelife

BENCHES: Teramoto



SECTION A - A

0 10 FT. 3 M.



FLOOR PLAN

0 10 FT. 3 M.

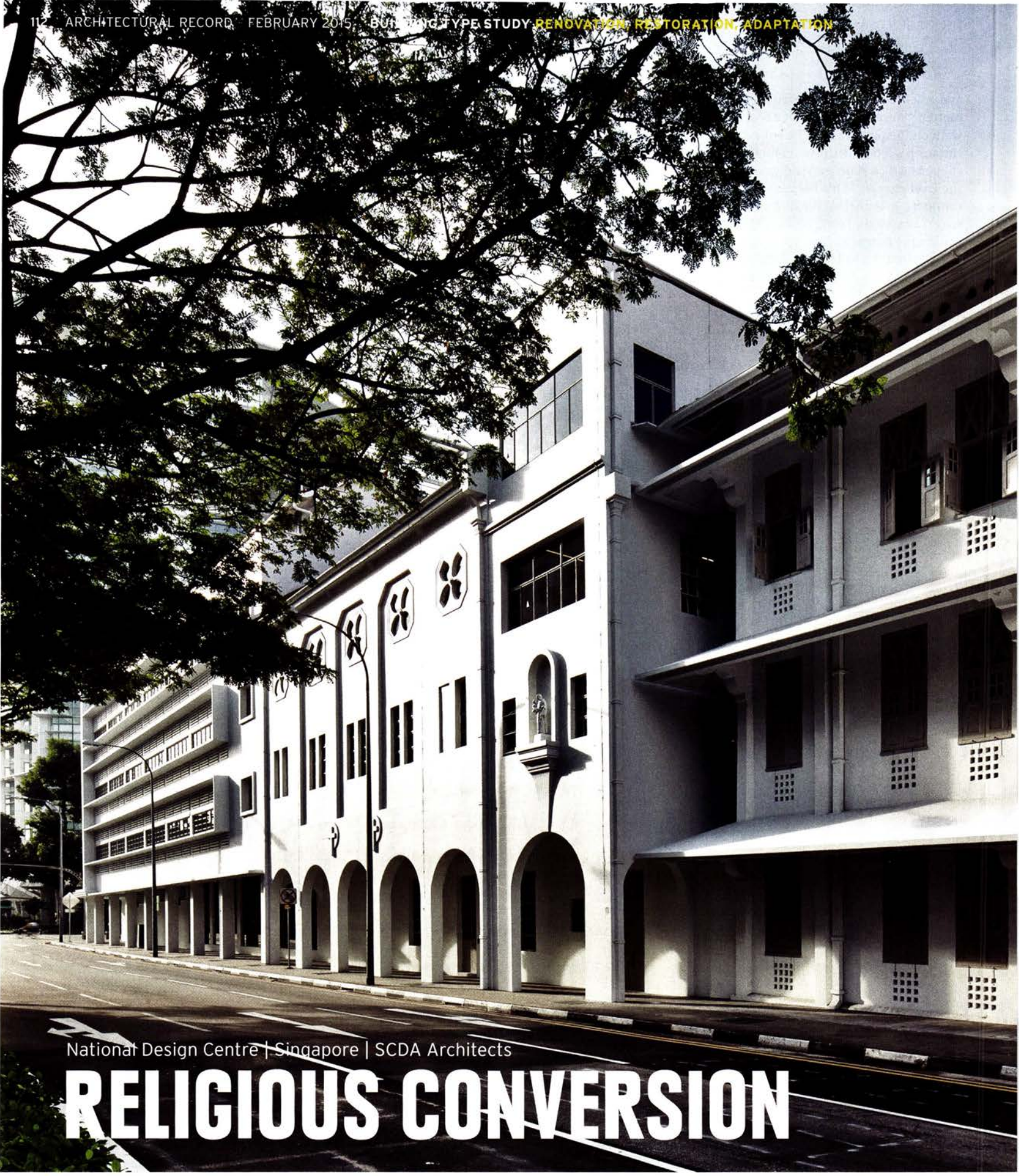
1 ENTRANCE
2 CENTRAL PASSAGE
3 GLASS FLOOR
4 OPAQUE FLOOR
5 COUNTER
6 FITTING ROOM
7 HANGING DOUBLE SHELF
8 HANGING STAINLESS STEEL PIPE

and cracks are part of the artifact. But the floor was another matter. "Since it slopes about a foot, it can be unsettling to walk on," explains Araki. He solved this problem by covering the steep portion with two ½-inch-thick sheets of clear glass supported by a stainless steel grid of varying depth to absorb the level change. "This floor is so strong, you could drive a car on it," jokes Araki. While the glass's reflectivity evokes water, a nonslip coating renders the surface appropriate for walking or dancing.

Overhead, Araki left the coarse concrete exposed, and suspended from the ceiling curved metal HVAC ducts painted nautical white, adjustable track lighting, and striped sailcloth awnings to modulate the existing skylights in the portion that juts into the garden. Matching curtains cloak clerestory windows on the room's long walls.

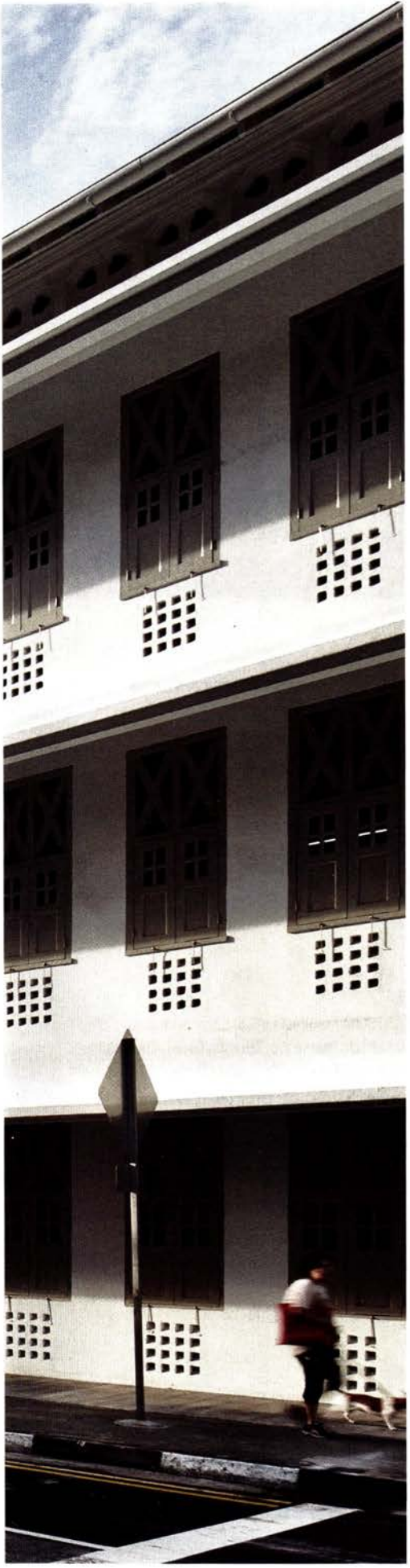
To complete the transformation, Araki finished the space with pool-like details and movable parts to enable quick installation or changes in display. Resembling poolside grab bars, stainless steel tubes encircling the pool deck and ceiling can support hooks for hanging merchandise, white laminated shelf units, and glass accessory cases. Individual plastic benches designed by Araki and made by a swimming-supply company look as though they have always been there.

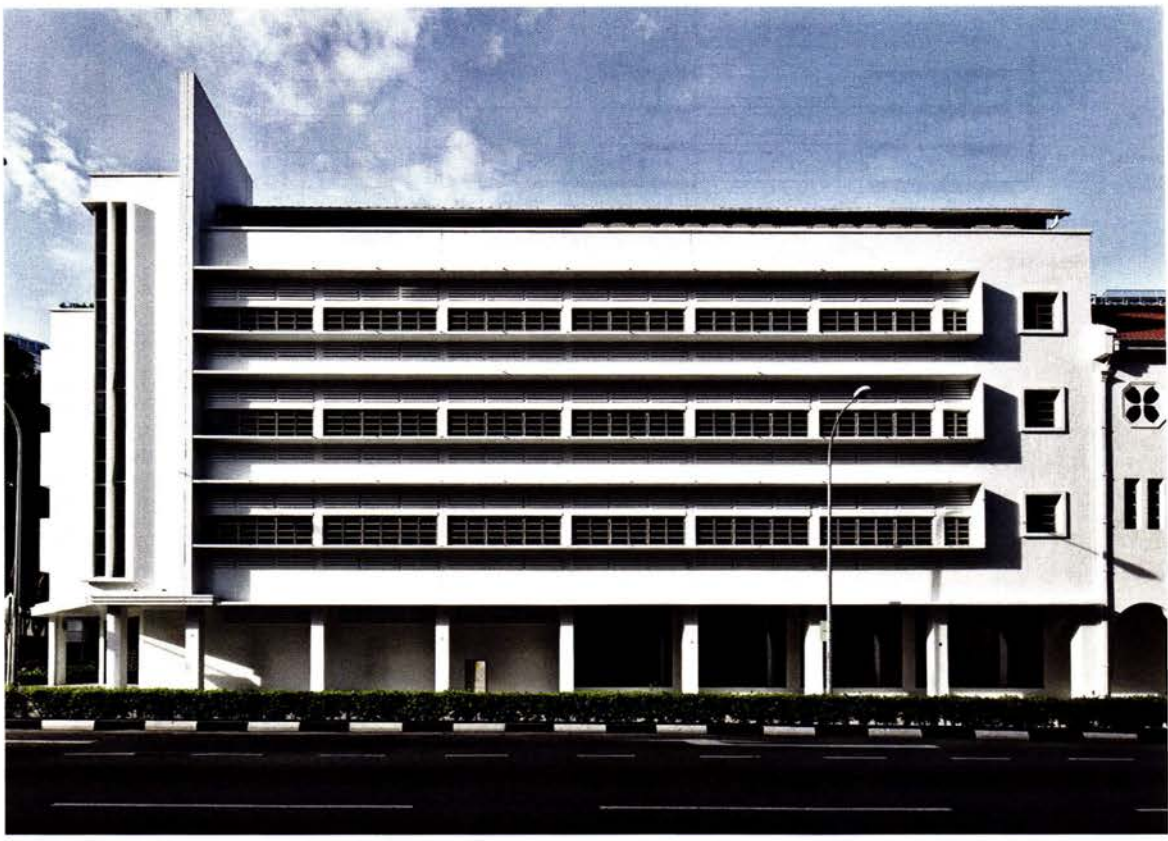
Rough-edged and raw-surfaced, this project reflects a recent trend among some younger architects toward adaptive reuse. "Previously, people equated old things with poverty," comments the architect. "But my generation doesn't share those associations." For many of his peers, the country's scrap-and-build culture no longer holds water: "It's so wasteful," laments the architect. Yet change comes slowly in Japan. "POOL Aoyama will probably disappear in the future," concedes Araki. "That's just Tokyo." ■



National Design Centre | Singapore | SCDA Architects

RELIGIOUS CONVERSION





Once a Catholic school, a set of buildings from different decades of the 20th century has been transformed into a modern design hub.

BY CLIFFORD A. PEARSON

PHOTOGRAPHY BY AARON POCOCK

HISTORICAL PROGRESSION
Three of the four buildings comprising the 85,000-square-foot NDC face Middle Road (left) with the oldest on the right and the newest on the far left (also seen above).

Change comes from within. Such advice applies not just to people but to buildings, especially those of a certain age and protected by heritage designation. With this in mind, Soo Chan, principal of the Singapore-based firm SCDA Architects worked from the inside out on the transformation of a Catholic school into Singapore's National Design Centre (NDC).

While mostly restoring the exteriors of the four buildings that make up the former Saint Anthony Convent school, Chan added and subtracted key spaces on the inside. The buildings—three of which date from the 1920s and '30s and the fourth from the '40s—represent a range of styles from British Colonial to Moderne. They sit in the Bras Basah/Bugis part of town, a few blocks from the historic Raffles Hotel and across the street from Ken Yeang's National Library (RECORD, August 2006, page 90). Three of the structures line up along busy Middle Road and are connected inside, while the fourth sits behind them on quieter Queen Street, separated by just a driveway. The NDC serves as the home of the DesignSingapore Council, the national agency for developing the design sector, and provides tenant space to a variety of private design firms, a prototyping lab, and a design store. An auditorium, a library, a roof deck, a central atrium, galleries, and meeting rooms are available to the tenants for events, making the NDC a hub for the design community.

Chan made his biggest moves inside the 1940s corner building, where he covered an outdoor courtyard with a folded skylight to create a central atrium, and removed parts of old floor slabs to make room for a set of metal-mesh-clad

View additional images at architecturalrecord.com.

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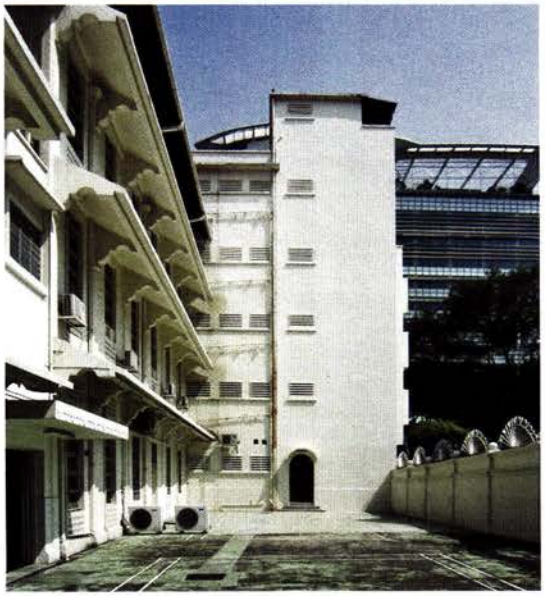
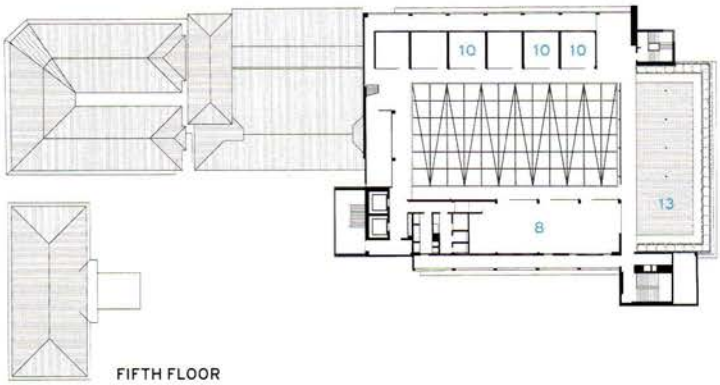
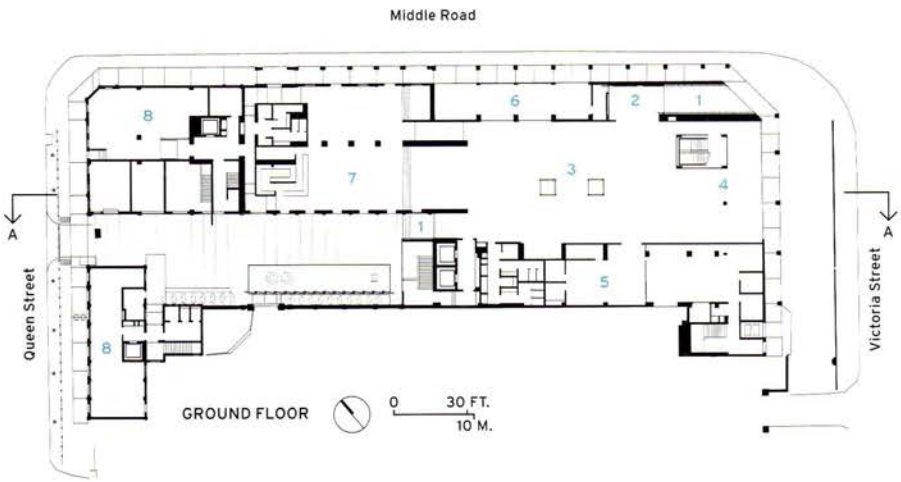




FIFTH FLOOR

SECOND FLOOR



GROUND FLOOR 0 30 FT. 10 M.

1 ENTRANCE
2 RECEPTION
3 ATRIUM
4 GALLERY
5 PROTOTYPING LAB
6 BUSINESS CENTER
7 RETAIL
8 TENANT DESIGN STUDIO
9 OFFICE
10 MEETING
11 AUDITORIUM
12 LIBRARY
13 ROOF DECK
14 STAFF LOUNGE

credits

ARCHITECT: SCDA Architects – Soo Chan, principal; Malcolm McCulloch, Darren Yio, Erickson Gopez, Engeland Apostol, John Chia, Eiwa Badilla, project team

ENGINEERS: Web Structures (structural); Bescon Consulting Engineers (mechanical/electrical)

LIGHTING DESIGNER: Lighting Planners Associates

GENERAL CONTRACTOR: Vigcon Construction

CLIENT: DesignSingapore Council

OWNER: Ministry of Communications and Information

SIZE: 85,000 square feet

CONSTRUCTION COST: $19 million

COMPLETION DATE: March 2014

SOURCES

FIXED GLASS PANELS: Fine Aluminum

ATRIUM SKYLIGHT: NYC System Engineering

FIRE SHUTTERS: CLF Shutters Asia

EXPANDED ALUMINUM MESH SCREENS: Lai Yew Seng

OPERABLE WALL SYSTEM: Great Year Industries

TIMBER FLOORING: Supreme Floors

THEN AND NOW Behind the main buildings, SCDA created a courtyard with a reflecting pool and space for tables and chairs. The firm also added a new fire stair (left), replacing an indoor stair (opposite). New lighting underscores old features such as the eaves.

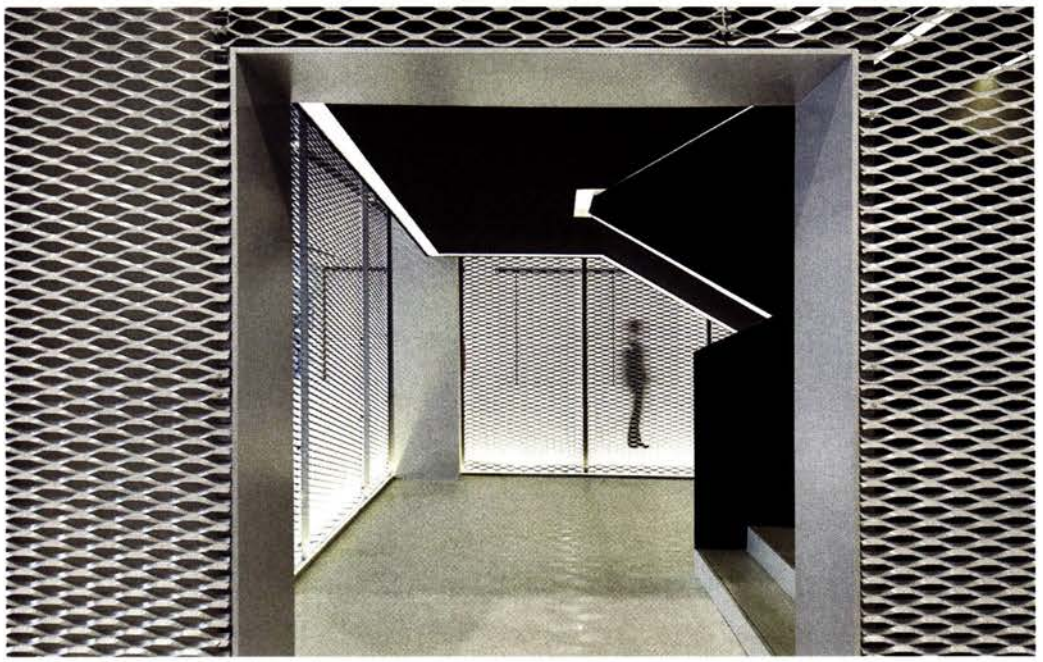
boxes that serve as galleries and meeting rooms. The aluminum-veiled volumes, clustered together on the east side of the building, overlook the new atrium and provide a modern counterpoint to the plaster detailing on the balconies wrapping around the four-story-high space. Originally, Chan wanted to turn the building's east facade into a mostly transparent curtain wall to reveal the gallery boxes floating inside. But preservation officials said he must retain the existing horizontal windows, even though Chan argued that they weren't original. Behind the 1920s and '30s buildings, on the west side of the site, he transformed a passageway into an outdoor courtyard with a reflecting pool and movable tables and chairs.

"My strategy was to be respectful of the old buildings, but introduce a pair of new spaces," says Chan, referring to the atrium and the rear courtyard. In the process, he created a dialogue between eras, in which an architecture of separate rooms and articulated parts gives way to flowing spaces and a unifying palette of materials and colors. On Middle Road, for example, the individual form of each building in the NDC ensemble is apparent, but a uniform coat of white plaster pulls them together as one composition.

Inside, Chan emphasized the communal nature of the atrium, designing 8-foot-wide pivoting doors that can open perimeter areas—such as the prototyping lab, the design store, and the ground-floor gallery—to the central space. He created upholstered furniture that can be pushed together to form sofas or pulled apart for individual seating, so the atrium can act as a lounge for those who work in the building or for visitors.

Treating the atrium as one open space required some ingenious solutions to technical problems. To connect corridors on the upper levels to the atrium, Chan treated them as internal balconies and installed hidden shutters that can be deployed in case of fire. He worked with engineers at Web

COME INSIDE
SCDA recessed the new entry, so it wouldn't disturb the colonnade along Middle Road (left). Adding a skylight above a central courtyard makes an outdoor space an indoor one (above). Pivoting partitions open the atrium to a gallery on the ground floor (opposite). The architects cut away parts of some floor slabs to insert the metal-screened boxes housing galleries and meeting rooms.



HEAVY METAL Steel-plate balustrades help define an internal stair (above, right). SCDA balanced heavy and light materials throughout the project, wrapping the stair with expanded-aluminum mesh (above, left), for example, and adding a folded metal-mesh ceiling to the muscular space that had once been the school's chapel and now serves as the auditorium (right).

Structures to design a cable-tensioned skylight that is unobtrusive, and, with its folded design, sheds rainwater efficiently. Chan used a similar geometry for the new metal-mesh ceiling in the second-floor auditorium, which occupies the space formerly used as a chapel. A graduate of Washington University in St. Louis, Chan says he was inspired by the folded-plate roof of Fumihiko Maki's Steinberg Hall (1960) there. By retaining the ecclesiastical detailing of the old chapel, with its bas-relief saints, Chan created an intriguing tension with the auditorium's contemporary secularism.

Throughout the project, SCDA complemented existing surfaces and detailing, now painted white, with metal mesh and pale wood. The new materials catch daylight and add warmth to the interiors. Shared spaces dominate the first and second floors, while the third floor has studios for design tenants; the fourth is mostly offices for the Design-Singapore Council. SCDA started work on the Design Centre in 2011, and the project opened in March 2014.

Changes to the exteriors were subtle but important. The architects replaced old tiles with new ones on some roofs, repaired crumbling plaster, and installed new low-E glass in windows. To better connect the inside to pedestrian activity on Middle Road, they added a few new windows on the ground floor. A big challenge was designing a new entrance for the complex without disturbing the 5-foot-wide colonnade wrapping around its street-side facades. In the end, they chamfered one corner and inserted an angled Cor-ten wall announcing the NDC. It's a simple but dramatic move that exemplifies Chan's approach to design. ■

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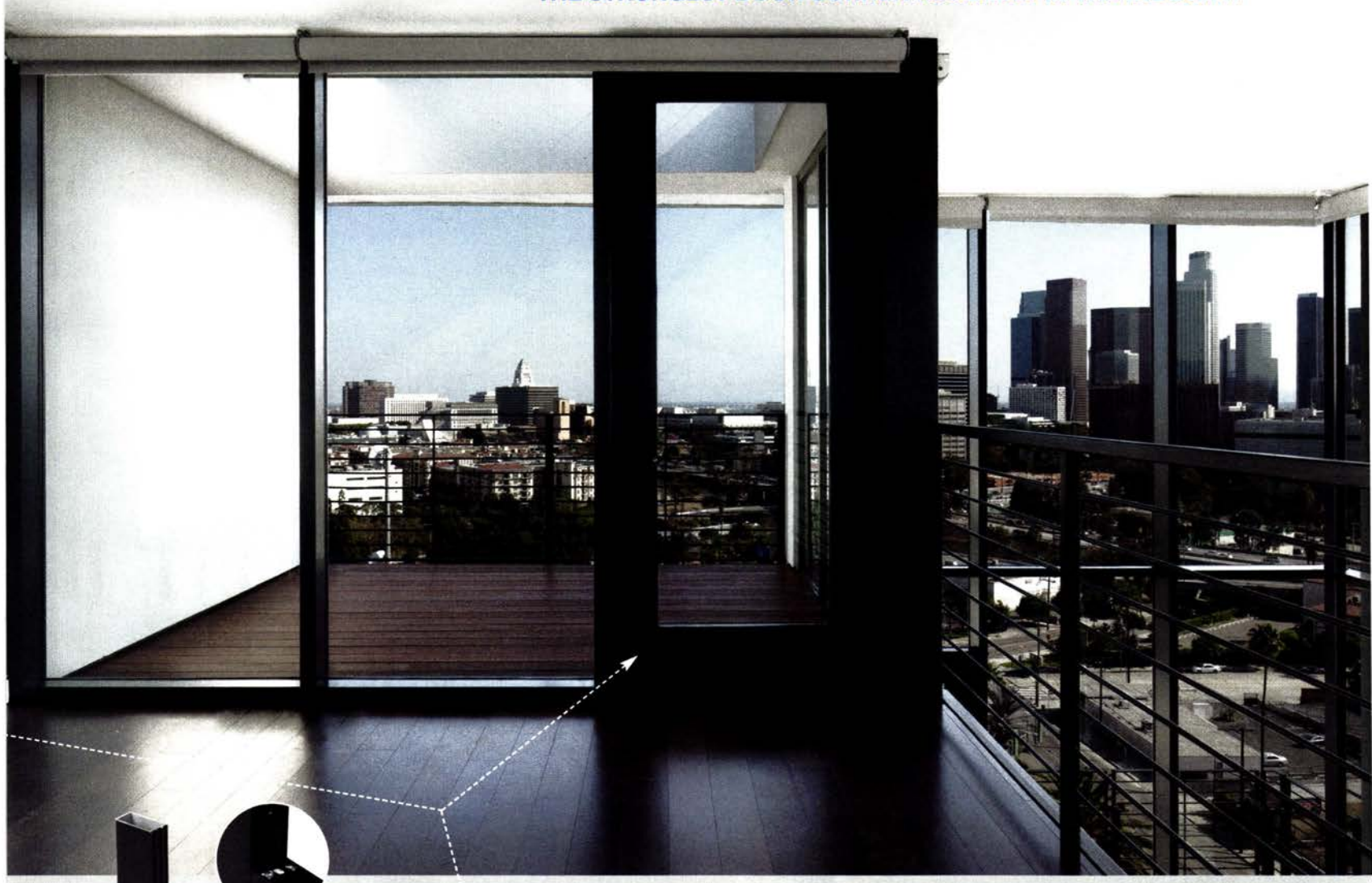

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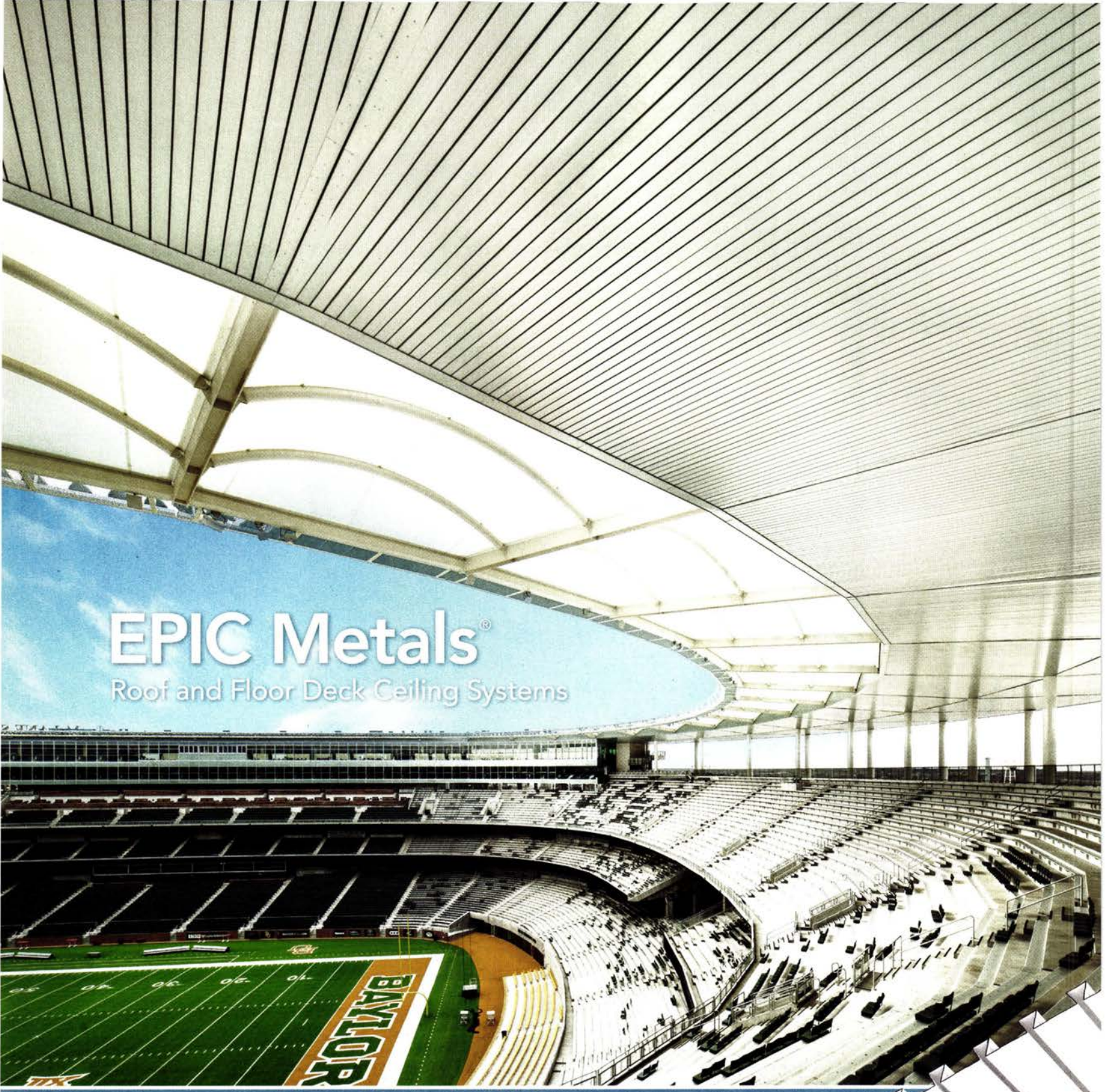

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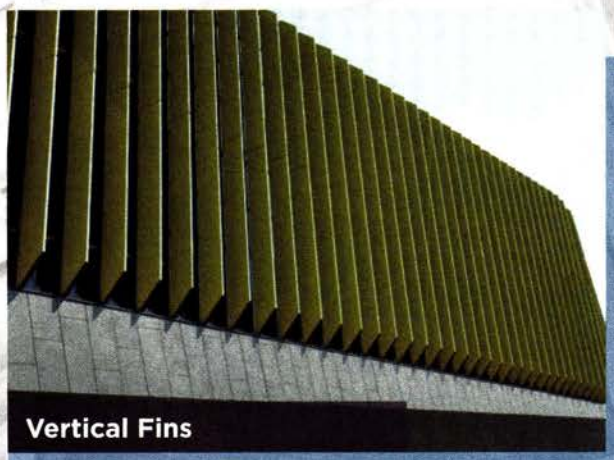

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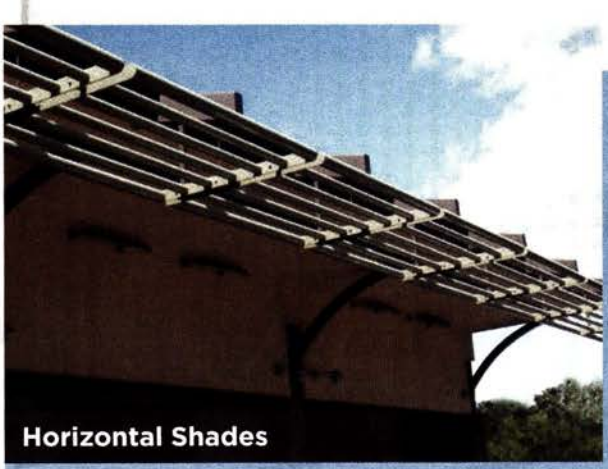

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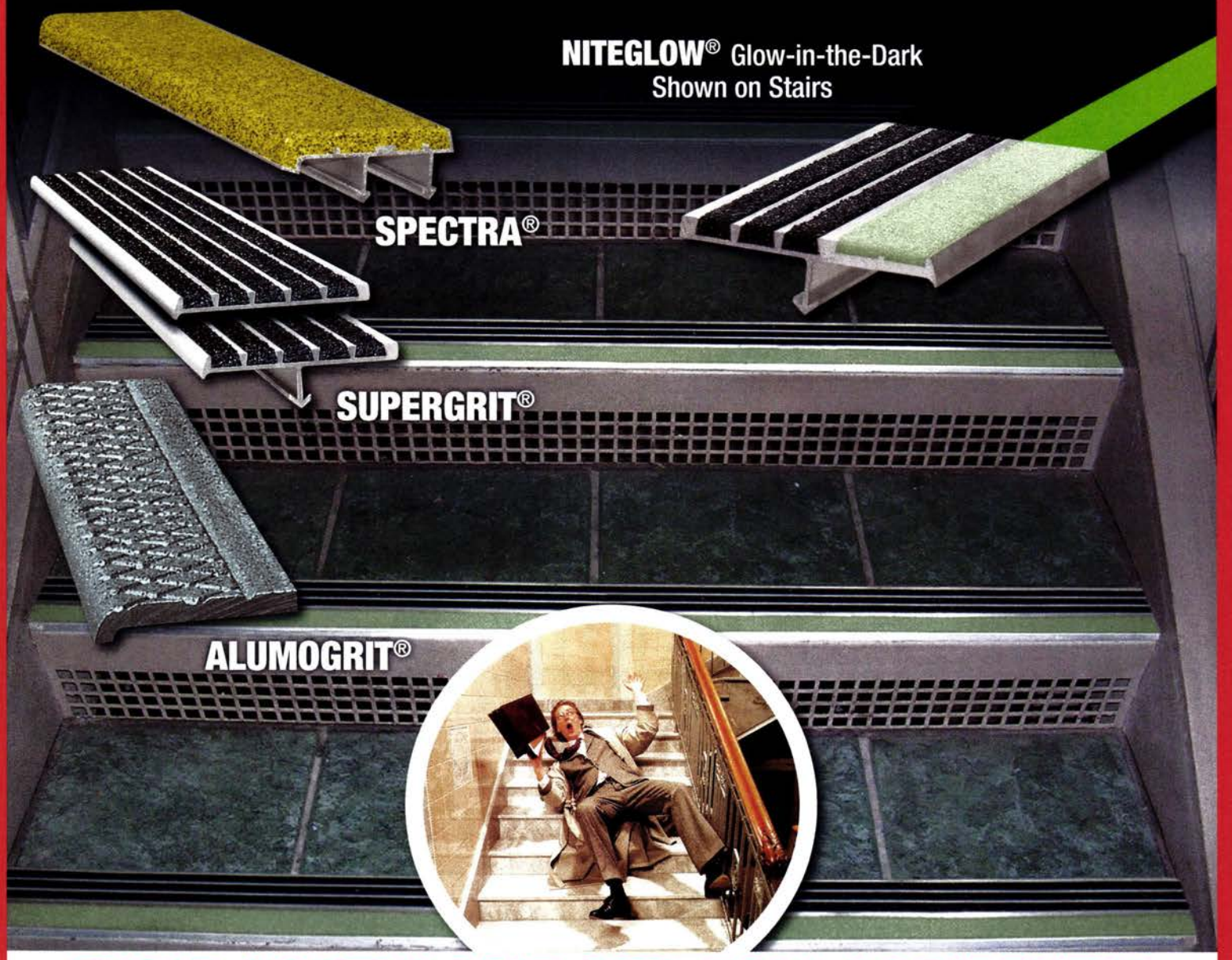

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CIRCLE 76

CEU

Reflections on Daylight

Two design teams capture the unique qualities of sunlight—one for a development in Sydney (shown here), the other for a museum in Arles, France—employing innovative solutions that not only fulfill sustainability goals but also create extraordinary effects.

PHOTOGRAPHY: © SIMON WOOD

Central Park by Atelier Jean Nouvel, Sydney

CEU

One Central Park

Sydney
Ateliers Jean Nouvel

By Elizabeth Farrelly

THE MOST engaging thing about the immense mixed-use development that is Sydney's Central Park, is neither its $1.6 billion price tag nor its role in bringing much-needed pedestrian porosity to a disused industrial site clotting the city's heart. It's not the "best tall building in the world" award, won last year by the main structure, Jean Nouvel's One Central Park; not its investment in resource-conserving strategies such as trigeneration and sewage mining, its $4.9 million public art program, or even its standout features—the world's tallest green wall and a giant cantilevered heliostat—that are now landmarks for miles around.

What is most engaging about Nouvel's building, and the development as a whole, is how these attributes are interwoven to solve many problems—including bringing daylight into a space that otherwise would have been almost always in shade—with a single, essential diagram.

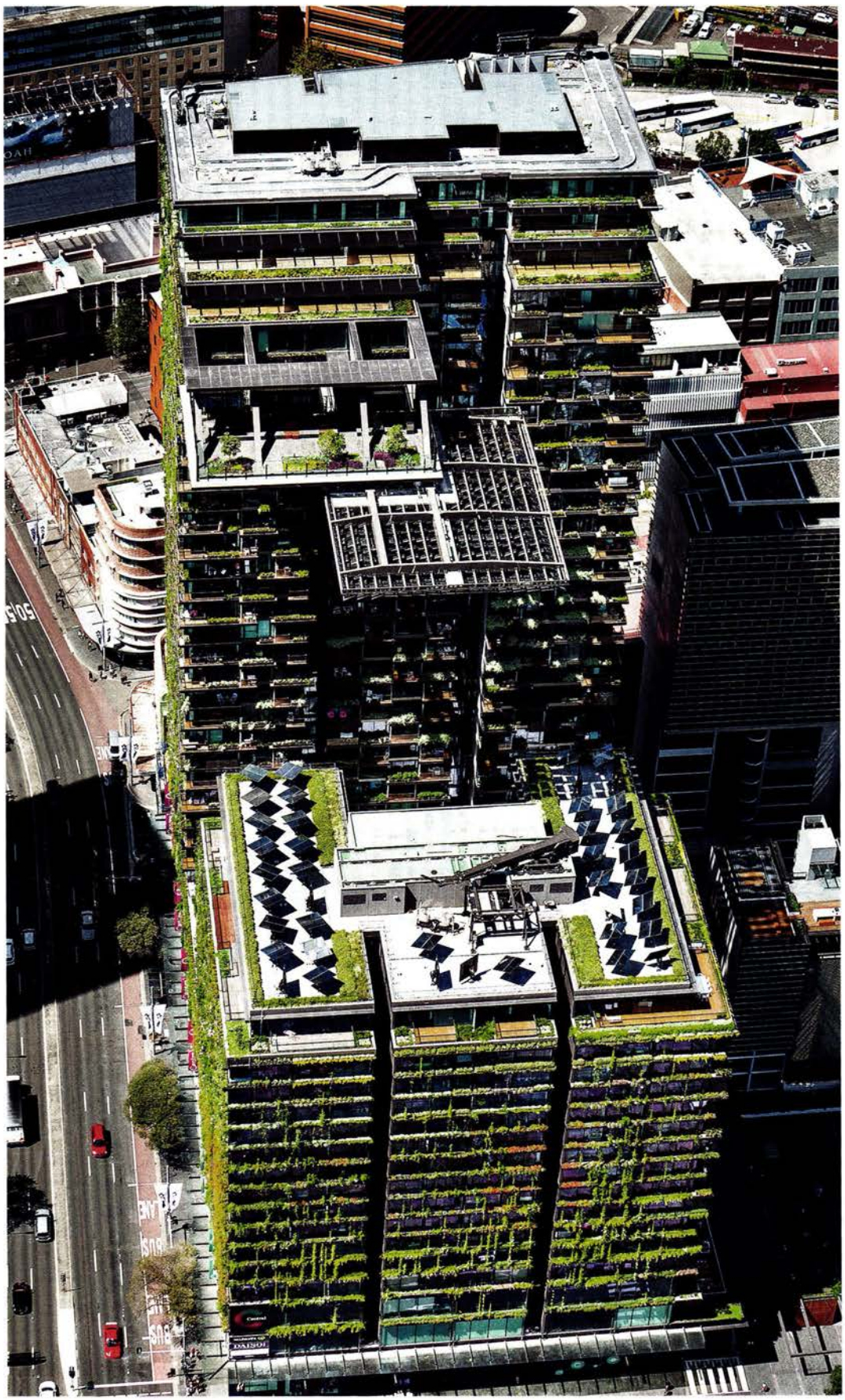
The story goes like this. In 2003, an old brewery that had sprawled ad hoc for almost two centuries over 14 acres adjacent to Central Station came up for grabs. The site's redevelopment was immediately controversial. Arguments raged over height, density, preservation, and environmental protection. The city council was dismissed and reconstituted, competitions held and won, master plans drawn and redrawn, and litigation initiated. World financial markets collapsed, the site changed hands twice, and jurisdiction shifted from city to state government.

It sounds like a recipe for disaster. Yet the resulting development, masterminded throughout by Singapore-based gynecologist-turned-developer Stanley Quek, has charmed even the residents of surrounding low-rise neighborhoods and their representative politicians.

Quek's vision was to encircle the site with buildings, creating a public garden within dense but fine-grained urban fabric. Nouvel's building is the development's first completed project. It comprises two towers—34 and 16

IN MIDAIR Because One Central Park casts a shadow over its own site, designers suspended a heliostat from a 148-foot cantilever (top), which also supports a terrace (above). After dark, LEDs illuminate the device (opposite).

PHOTOGRAPHY: © MURRAY FREDERICKS



SUN FOLLOWERS The heliostat includes 40 computer-controlled sun-tracking mirrors on the shorter tower's roof; these bounce light off fixed reflectors on the cantilever.

PHOTOGRAPHY: © JOHN GOLLINGS

stories—with 623 apartments. The towers rise from a shared three-story podium that includes a pool, restaurants, and a shopping center. The reinforced-concrete frame, enclosed by a glass curtain wall, is shrouded by horizontal planters and climbing plants. Tall for the area, One Central Park's height matches a brutalist university tower (designed by Michael Dysart in 1964) directly across the road. In urban terms, the pair serve as a gateway to the city center, since the road it straddles is the main access to Sydney from the west. But the placement also meant that Central Park's tallest structure would sit on the development's northern boundary.

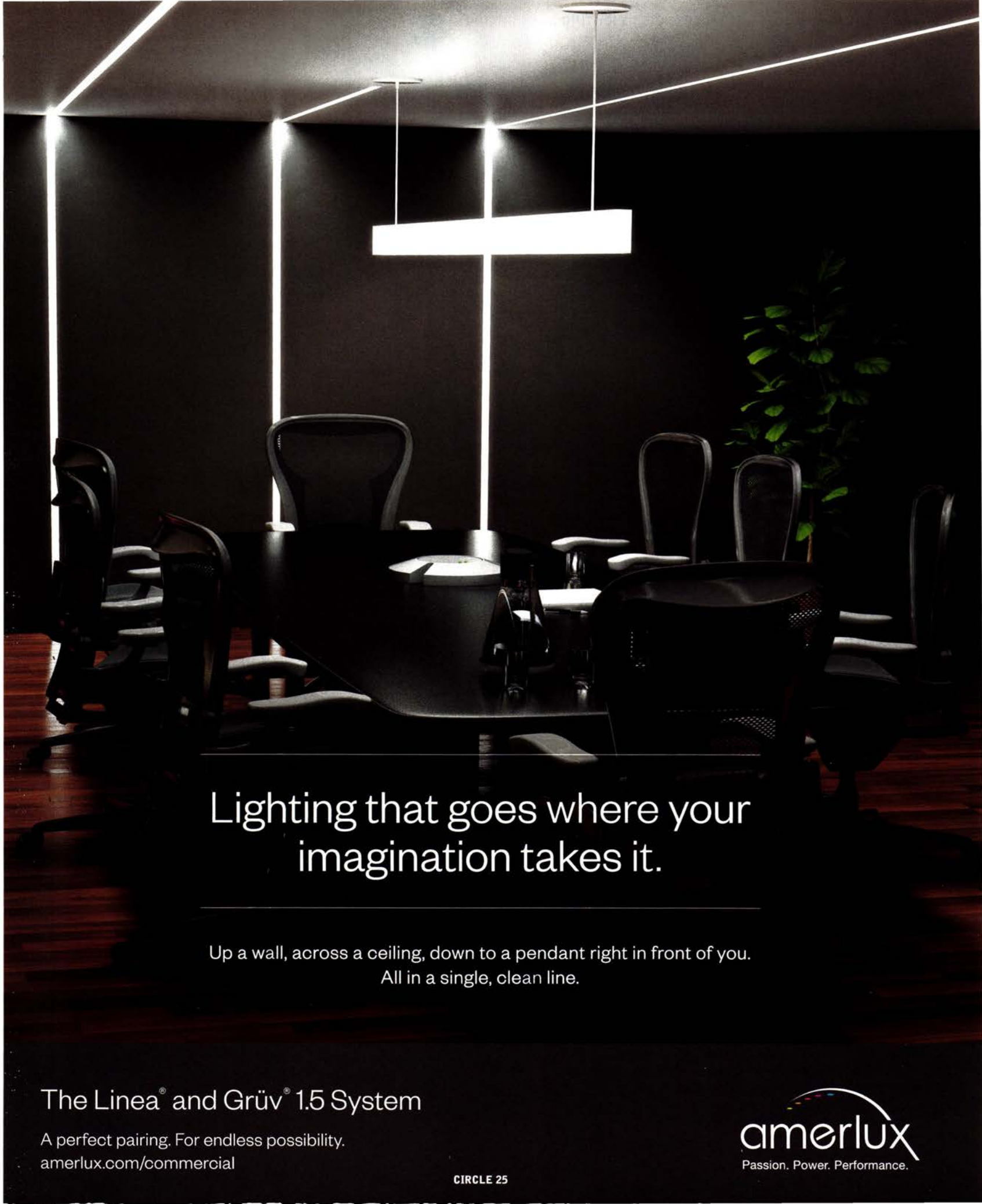
This move was diplomatic, since it will keep shadows off adjacent neighborhoods. But it was also problematic, because One Central Park would cast a major shadow over its own site—in particular the 69,000-square-foot public garden fundamental to Quek's vision. The solution was the 148-foot cantilever and its heliostat—an apparatus with a movable mirror that reflects sunlight.

The idea was to bounce sunlight into the tower's own shadow, the garden, and into the shopping center's atrium through a water-topped glass roof.

No one was sure it would work, or even really what working might mean. The structure alone—Australia's largest residential cantilever—weighs 120 tons and is supported by a huge triangular truss (which also supports a terrace).

It was the cantilever, as much as the heliostat, that had people worried. Nothing similar had been attempted on this scale. Where heliostats had been deployed, it was mostly small solar energy installations. A large, multi-mirror heliostat for the enhancement of public pleasure was a whole new deal, bringing aesthetic issues into play alongside the strictly technical.

In fact, there are two sets of mirrors: one facing down from the taller building and one facing up from the shorter edifice. The upper, 320-mirror array that is visible to passersby, appears to flutter. This is especially so after dark when, in an installation by light artist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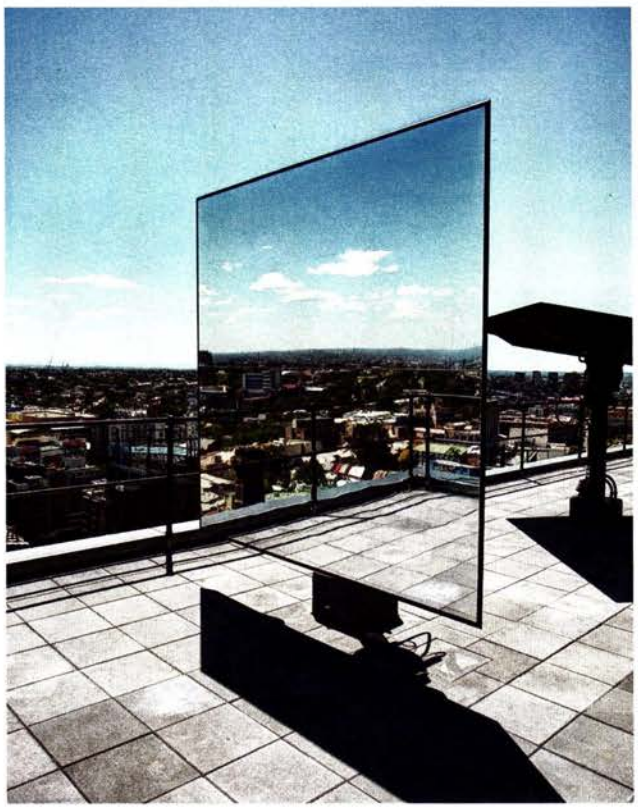

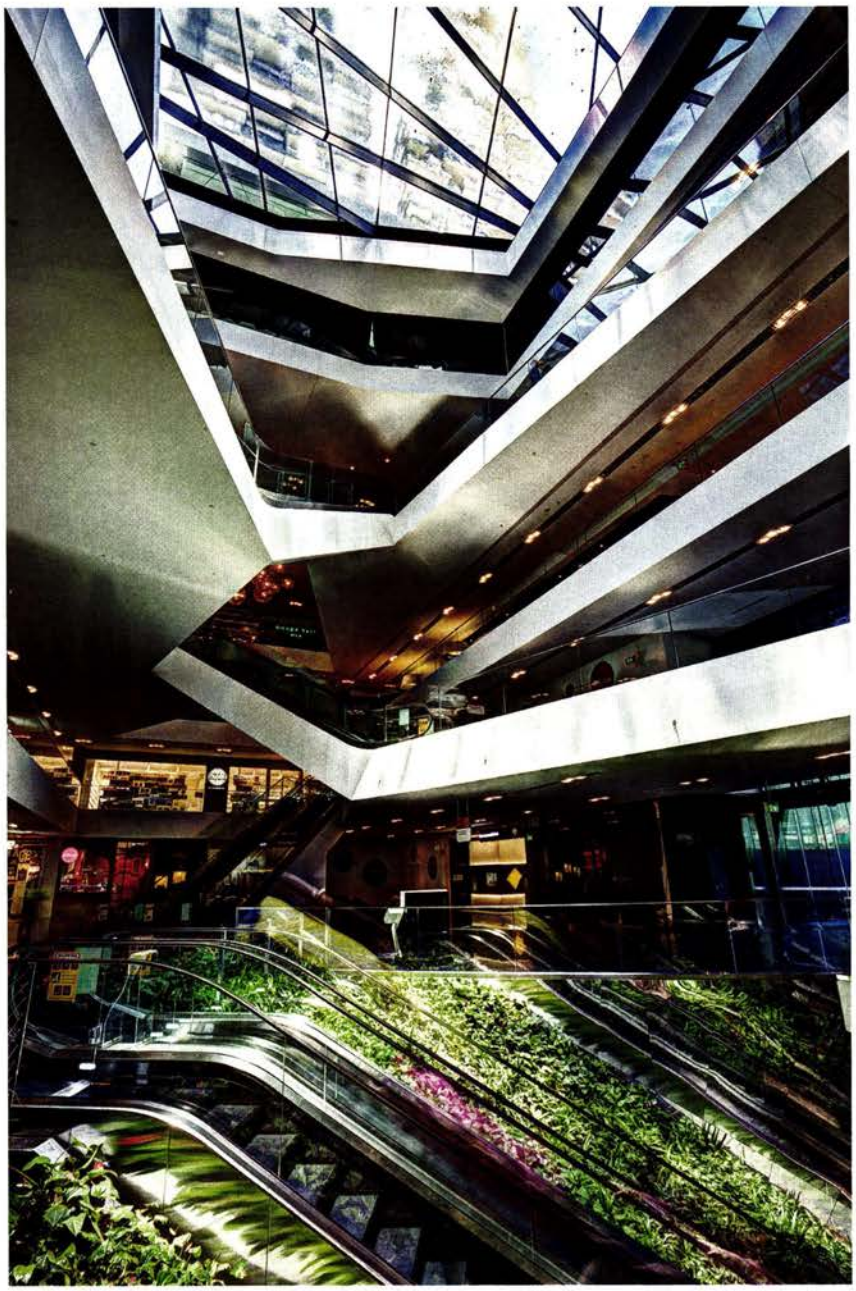

Yann Kersalé, the mirrors shimmer with many hues. Yet the flutter is illusory. The nighttime display is produced by 2,880 LEDs, mounted nine to a mirror. The mirrors themselves are actually fixed, and therefore make up the secondary, passive element of the device.

The "real" heliostat is the lower, 40-mirror array, says Tim Phillips, design engineer for Kennovations, the heliostat supplier. These lower mirrors, invisible to the general public, track the sun, relying on specially designed software that works from sun-location data. The mirrors, each of which corresponds to a nine-mirror cluster in the upper array, "remember" their position with regard to their target cluster. Sensors beneath the terrace periodically check and recalibrate the software in order to maintain this complex, three-dimensional relationship.

So, does it work? In a word, yes. Sunlight is reflected from the lower array to the upper array and then down to the ground. The mirror material has a reflectivity of about 88 percent—compared with around 93 percent for standard glass mirrors. So, with two sequential reflections, the quantum of sun hitting the ground is between 70 to 80 percent. This is enough to create

TIGHTLY ORCHESTRATED
Sunlight is directed from the lower array of mirrors (above) to the upper array, and then down to the development's garden and through a skylight over the shopping center's atrium (right).

credits

DESIGN ARCHITECT: Ateliers Jean Nouvel

LOCAL COLLABORATING ARCHITECT: PTW Architects

ENGINEERS: Robert Bird Group (structural); Hughes Trueman (civil); Arup (m/e/p); Transsolar (energy concept)

CONSULTANTS: Patrick Blanc (vertical gardens); Jean-Claude Hardy, Jeppe Aagaard Andersen, Turf Design (landscape); Yann Kersalé (heliostat lighting); Arup (general lighting); Surface Design (facades)

GENERAL CONTRACTOR: Watpac

CLIENT: Frasers Property Australia and Sekisui House Australia

SIZE: 730,000 square feet

PROJECT COST: $490 million

COMPLETION DATE: January 2014

SOURCES

HELIOSTAT AND REFLECTOR FRAME: Kennovations

HELIOSTAT LED LIGHTING: Philips

HELIOSTAT LIGHTING CONTROLS: Coolux Media Systems

CLADDING AND GLAZING: G. James

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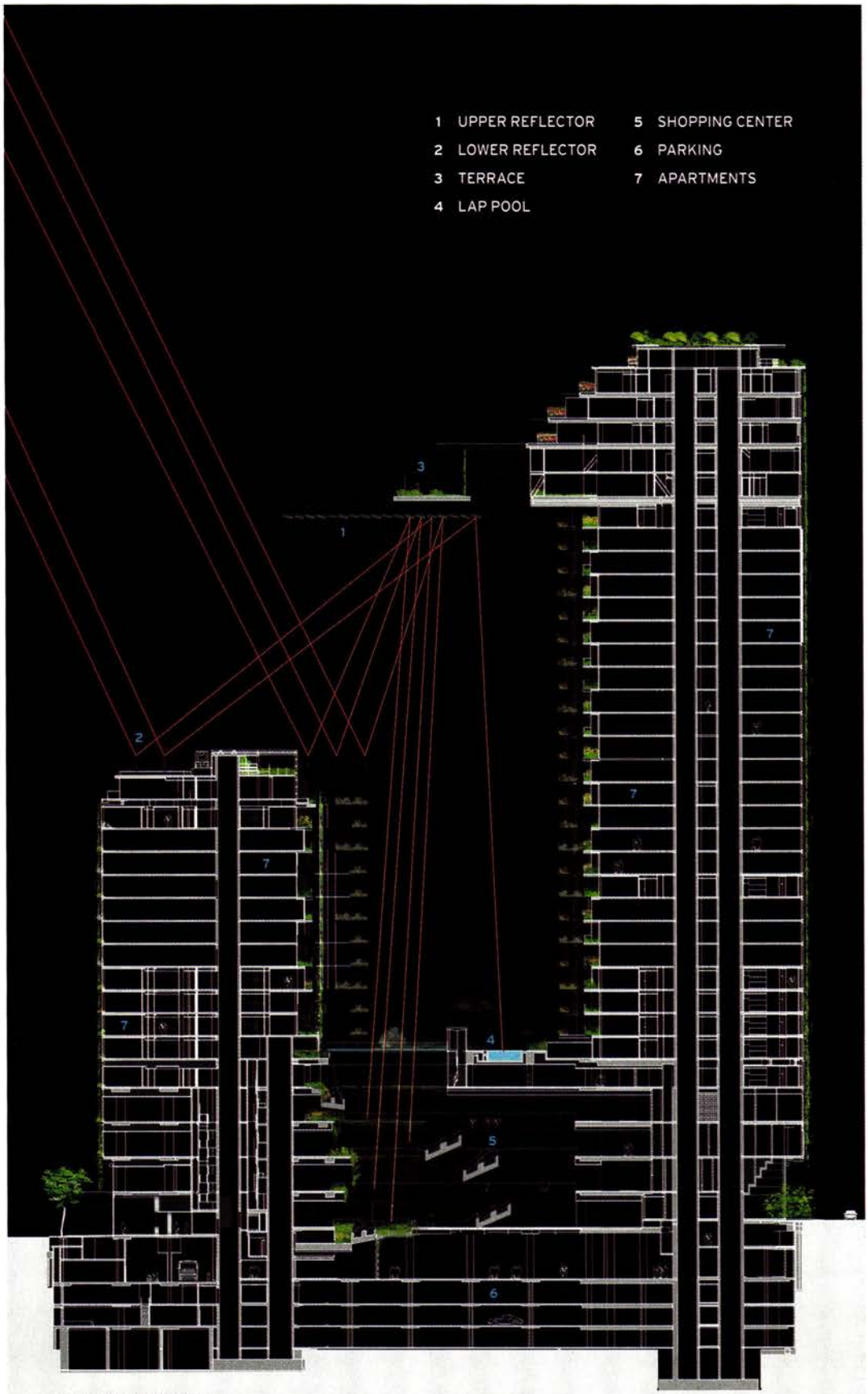

LONGITUDINAL SECTION

patches of light on grass, keep plants alive, and cause a perceptible drift among picnickers and other park users. (It is also worth remembering that for almost half the year in Sydney, shadow is to be sought, not avoided).

The building's other defining move, the 1,000-square-meter vertical garden, also generated widespread skepticism. But it seems similarly to be proving its doubters wrong. Here some 38,000 native and exotic plants, selected for their climatic suitability, their toughness, and their aesthetic qualities, have been pocketed and stapled into hydroponically nourished felt-faced panels.

It's a big ask for plants to grow more than 100 meters off the ground in Sydney's gusty and sun-blasted environment. However, the plants, drip-fed by reclaimed black water and nursed by half a dozen full-time gardeners, are thriving, and flowering. (The recycled water, which is highly purified, is also used throughout the development for toilet flushing, landscaping, laundry, heating, and chilling).

Luscious as the vertical planting now is, it still has about 18 months before reaching maturity, says designer Patrick Blanc (who, like Kersalé, frequently collaborates with Nouvel). But it's almost spooky how closely early drawings, showing exteriors sculpted in vegetation, have been replicated.

To those who dismiss the living wall as greenwash, Ateliers Jean Nouvel's project architect Bertram Beissel says, "this project was about the visibility of sustainable design." Otherwise, he argues, strategies like trigeneration and wastewater recycling remain under the radar. But this building has greater significance. It makes sustainability seductive, enchanting, desired. If the design professions had to choose a mission for the future, that should surely be it. ■

Elizabeth Farrelly is a columnist for the Sydney Morning Herald *and the author of several books, including* Glenn Murcutt: Three Houses.

Continuing Education
See page 140 for learning objectives and test-taking instructions.

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CEU

Fondation Vincent van Gogh

Arles, France
Fluor Architecture

By Josephine Minutillo

PHOTOGRAPHY: © FLUOR ARCHITECTURE (2); HERVÉ HÔTE (OPPOSITE, BOTTOM)

View video and additional images at architecturalrecord.com.

ARLES HAS BEEN an important commercial and cultural center for centuries, and it has several impressive ancient and Romanesque monuments to prove it. But the small city in southern France's idyllic Provence region is known to most of the world for an out-of-towner who briefly called the sunny port on the banks of the Rhône home more than 125 years ago.

Though Vincent van Gogh made Arles famous for the hundreds of unforgettable images of cafés, gardens, vineyards, and starry nights he created there at the zenith of his artistic production, until now the city had no venue to properly showcase those masterpieces. The new museum for the local Fondation Vincent van Gogh, with the support of the Van Gogh Museum in Amsterdam, enthusiastically embraces art—van Gogh's and more recent works—and the amazing light that drew the Dutch painter to Arles. And it does so with an innovative renovation of a historic four-story stone manor house in the center of the city that includes a two-story steel, wood, and glass addition within its courtyard.

"Van Gogh came to Arles because the

RAINBOW VISION
The violet, blue, green, yellow, orange, red house by Swiss artist Raphael Hefti is an installation of 78 differently colored glass panels (right) atop the glass roof of the second-story museum shop (above), visible from the entrance courtyard (opposite).

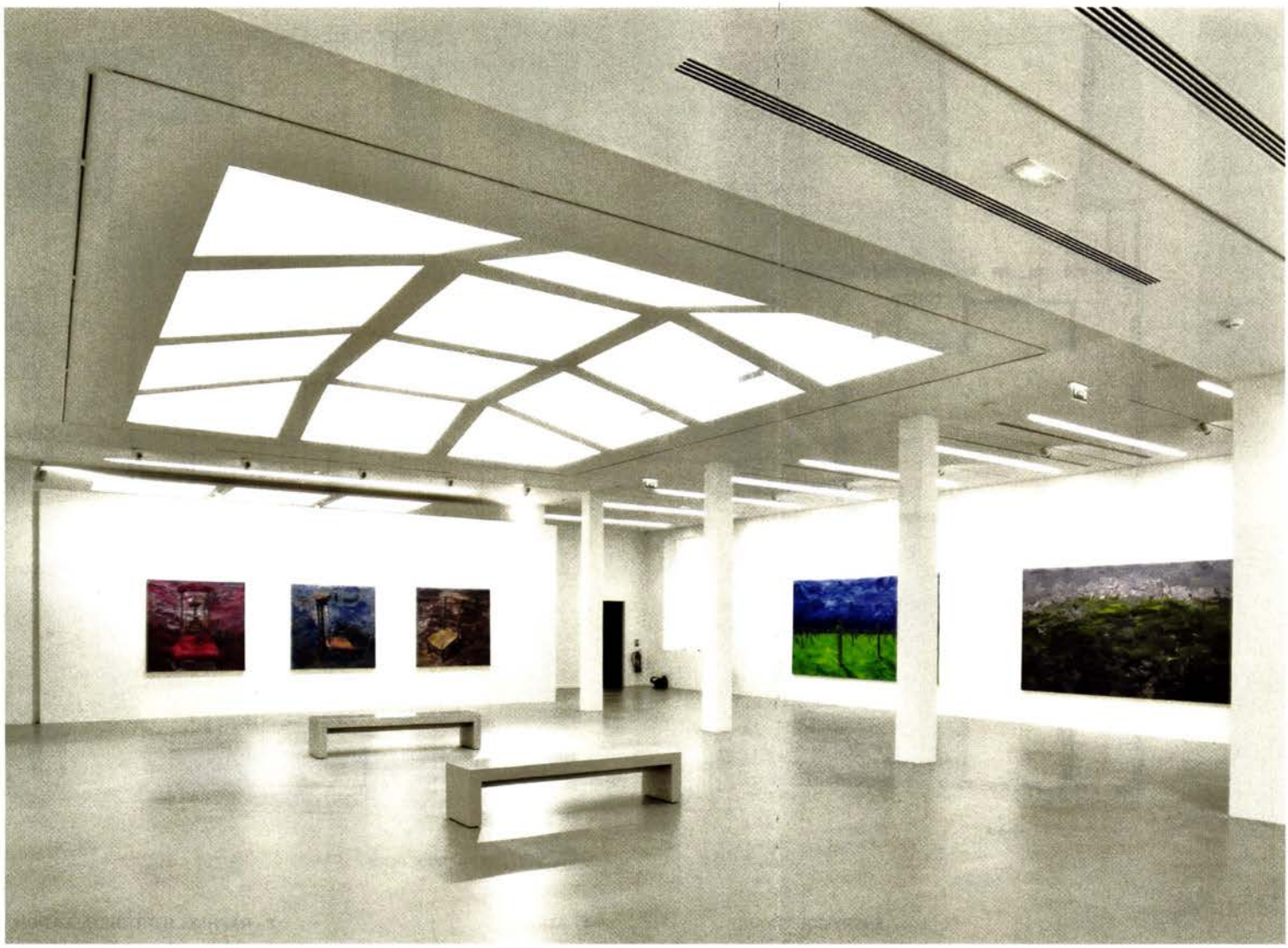
CEU

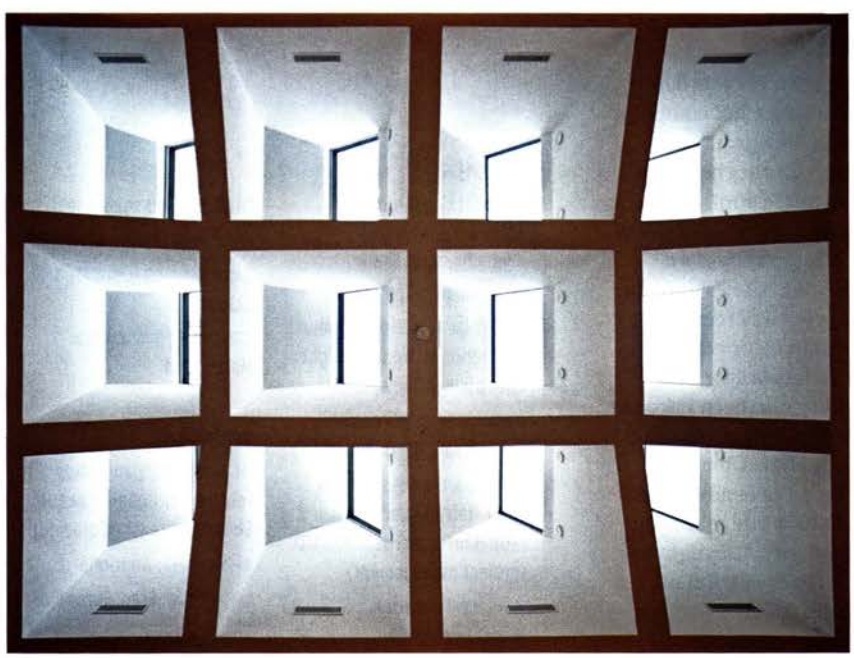
1 ENTRY COURTYARD
2 MUSEUM SHOP
3 MAIN GALLERY
4 ATRIUM
5 SHED SKYLIGHTS
6 ATRIUM SKYLIGHT
7 RAPHAEL HEFTI INSTALLATION
8 ROOF TERRACE
9 ARCADE

STACKED DECK A series of triangular sheds, most of which feature north-facing glazing, form a mountain-like topography on the roof over the grand gallery, bringing daylight into the main exhibition space (opposite top and bottom).

SECTION A - A

0 16 FT.
5 M.



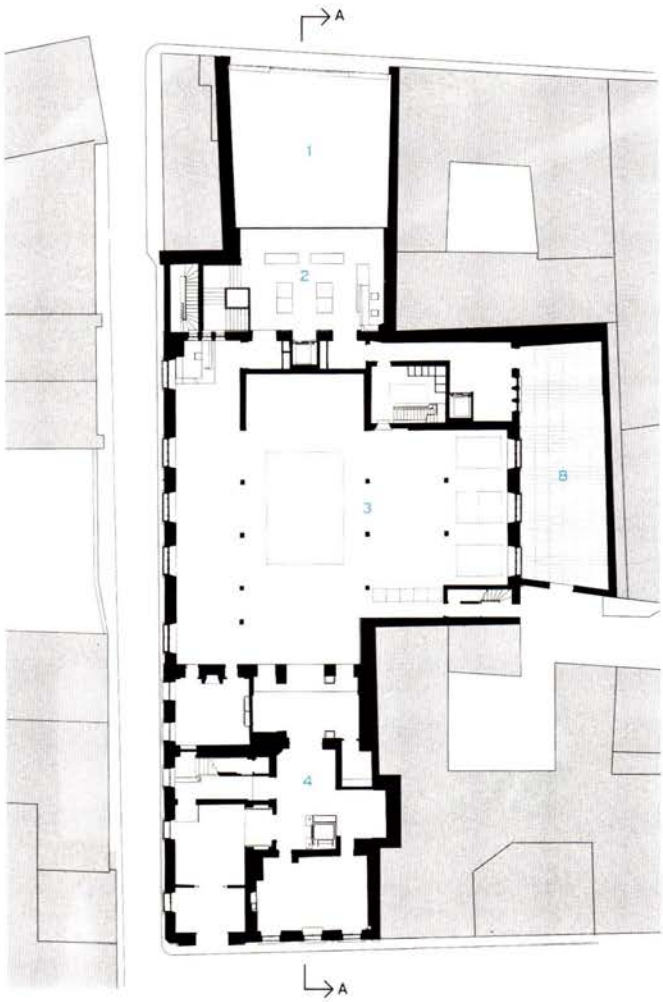


PHOTOGRAPHY: © HERVÉ HÔTE (OPPOSITE); © FLUOR ARCHITECTURE (2)

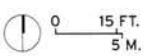
light here is very special, so we had to do something very special with the light," says Guillaume Avenard, the Avignon-based co-principal of Fluor Architecture, the 10-year-old firm he founded with Hervé Schneider. The young designers—who met while working at the studio of François Seigneur, Jean Nouvel's first partner—were prepared to take on the challenge of revamping the 15th-century Hôtel Léautaud de Donines into a state-of-the-art gallery space; they had previously transformed Arles's 2,000-year-old Roman amphitheater into a temporary stage for summer festivals, complete with the necessary modern amenities.

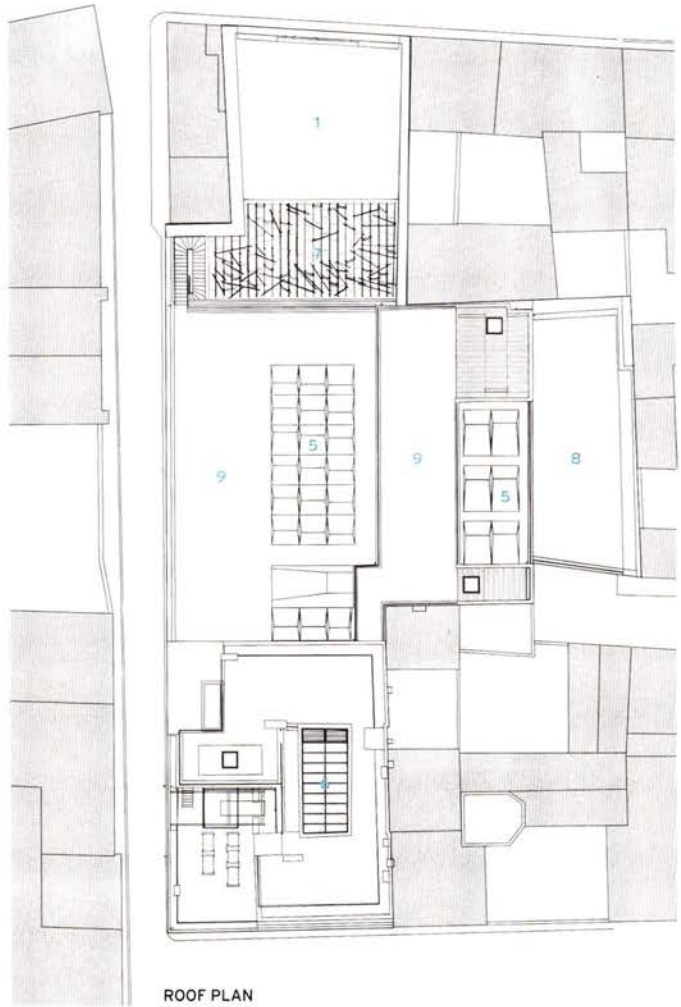
At the museum, visitors encounter a dazzling light show immediately upon entering. Just past the 39-foot-long entrance gate, onto which French artist Bertrand Lavier painted the name "Vincent," based on the artist's signature, there is an elaborate glass sculptural project by Swiss artist Raphael Hefti. Installed atop the glass roof of the elevated museum store (made of solar-control glazing), this intricate construction dances with color, creating jewel-like reflections around the courtyard and, most dramatically, within the shop itself.

At the request of Bice Curiger, the artistic director of the Fondation, whose vision it was to incorporate the work



SECOND FLOOR





ROOF PLAN

1 ENTRY COURTYARD
2 MUSEUM SHOP
3 MAIN GALLERY
4 ATRIUM
5 SHED SKYLIGHTS
6 ATRIUM SKYLIGHT
7 RAPHAEL HEFTI INSTALLATION
8 PATIO
9 ROOF TERRACE

of contemporary artists into the new building—a third piece comprises a musical installation by Swiss composer Fritz Hauser within a stairwell—Fluor worked closely with Hefti in developing the technical details of the kaleidoscopic installation. The final composition features 78 uniquely colored glass panels in 52 sizes, the largest of which is just over 9 feet long. The laminated sheets of glass have a dichroic coating—multiple fine layers of metal oxides that selectively pass light through narrow bands of color while reflecting other hues. The glass sheets are braced by a steel frame and mounted to the steel roof beams at different angles. By absorbing ultraviolet rays, they also help maintain a temperate climate and protect the shop's merchandise from sun damage.

"The position of the panels was determined by physical mock-ups, not computer simulations," explains Avenard. "The problem was how to transmit the colors without allowing too much sunlight and heat inside. The mock-up didn't work when we tried it in Paris. There really is an exceptional light in Arles." (Arles's yearly average of sunny days is 80 percent, and they are notable for high color contrast and shadows, quite different from the diffuse light common in northern Europe.)

The architects faced an even greater challenge designing skylights for the grand gallery that would take advantage of that exceptional light while maintaining conservation standards. "Daylight is the best way to show the spectrum of colors," says Laurent Escaffre of Ingélux Consultants, who helped modulate the

credits

ARCHITECT: Fluor Architecture – Hervé Schneider, Guillaume Avenard, principals

LIGHTING DESIGN: Ingélux (daylighting); Wonderfulight (electric lighting system)

ENGINEERS: Beccamel (structural); G2i (mechanical)

CONSULTANTS: Raphael Hefti, Betrand Lavier, Fritz Hauser (artists); MYAMO (project management)

CLIENT: Fondation Vincent van Gogh

SIZE: 43,000 square feet

PROJECT COST: $16.5 million

CONSTRUCTION COST: $13 million

COMPLETION DATE: March 2014

SOURCES

GLASS: Interpane (shop roof); Saint-Gobain (facade); SmartLouvre (shed glazing)

SKYLIGHT: Andriollo

LIGHTING: Erco, Europole, XAL, Zumtobel RZB, Deltalight

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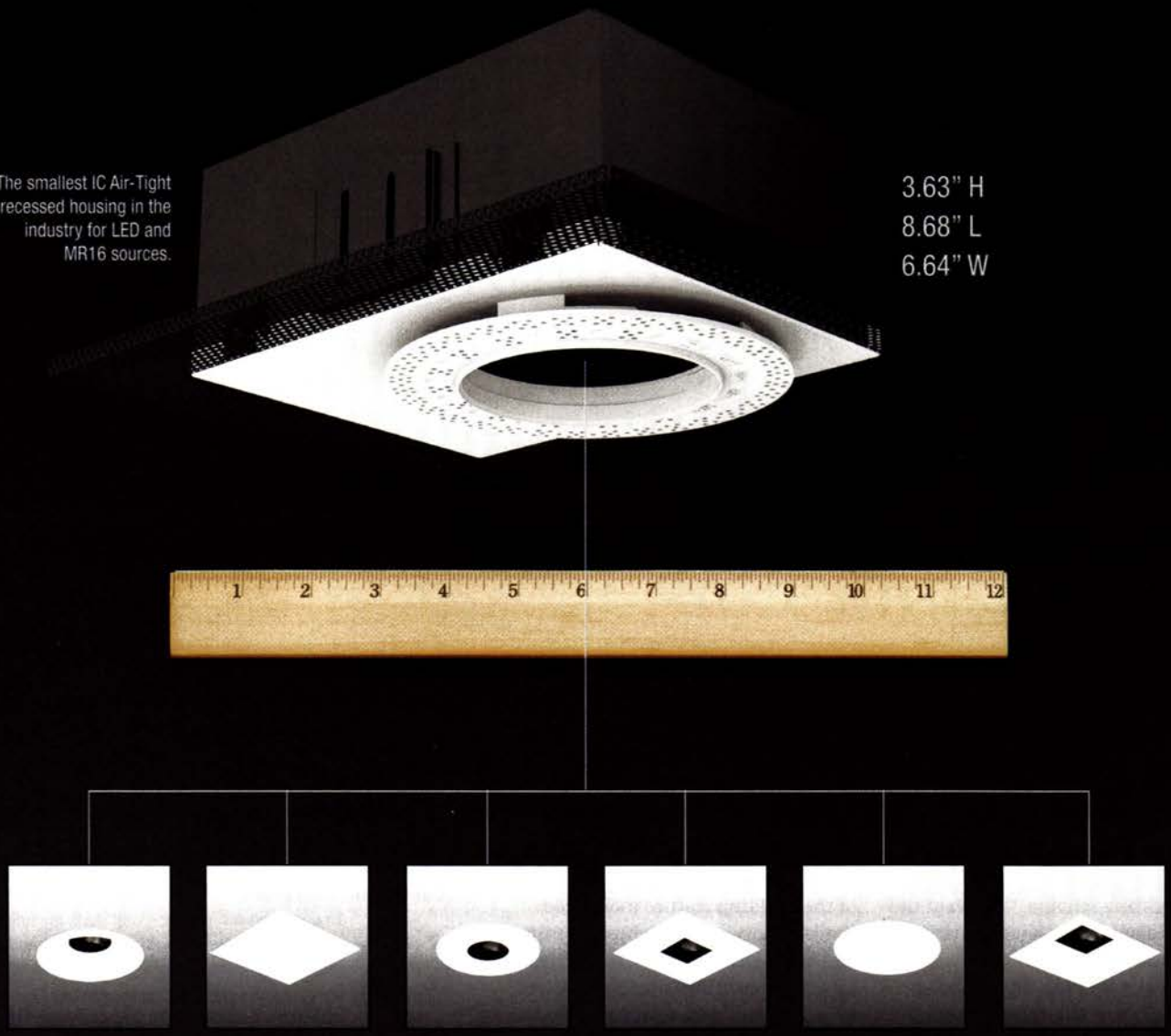

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CIRCLE 43

LIGHTHEARTED The atrium houses vertical circulation, including footbridges and an elevator with panoramic views.

natural light and devise an ancillary electric lighting scheme. "We want the benefit of daylight without the risks to the artwork."

The unique solution they came up with is a series of what the architects call "sheds," which produce a mountain-like topography on the roof over the gallery, just out of reach of a public deck where museum visitors can stroll. There are a total of 27 of the wood-clad forms, 21 of which feature north-facing glass panels tilted at varying degrees. (Six unglazed sheds are used for storage and housing technical equipment.)

The glazing comprises two layers. Between them is a .05-inch-thick screen of tiny metal louvers that blocks all of the direct sunlight and almost 90 percent of the sun's heat. "We needed that shield," explains Escaffre. "It cuts out sunbeams but is hardly visible." Daylight is blocked entirely by a blackout shade when particularly sensitive or valuable paintings are being displayed.

Smaller galleries on the south side of the building feature motorized shades over windows whose opening and closing is calculated in advance by a predetermined algorithm based on geographic and seasonal considerations, rather than as a reaction to specific conditions via sensors.

LED track lighting, with angles and power intensities precisely calculated for temporary exhibits, which are expected to change three times a year, supplements natural light. According to Escaffre, "LED lighting has become more pervasive in museums. It can render blues better than halogens, and is better for dimming."

"There were so many surprises in this project," recalls Avenard. "The final result is not what we had in our heads at the beginning, but being inside the spaces is magical, and it was an especially nice moment when the first van Gogh arrived." ■

Continuing Education

To earn one AIA learning unit (LU), including one hour of health, safety, and welfare (HSW) credit, read the stories about One Central Park and the Fondation Vincent van Gogh, review supplemental material at architecturalrecord.com, and complete the online test. Upon passing the test, you will receive a certificate of completion, and your credit will be automatically reported to the AIA. Additional information regarding credit reporting and continuing-education requirements can be found online at ce.construction.com.

Learning Objectives

1 Describe daylighting strategies deployed at One Central Park and the Fondation Vincent van Gogh and discuss how they enhance user experience.

2 Describe the components of the heliostat at One Central Park and explain the role of each.

3 Explain how daylighting was introduced into the galleries of the Fondation without compromising conservation standards.

4 Describe the electric illumination scheme devised for the Fondation and explain why LEDs were chosen as a light source.

CES Course #1502A

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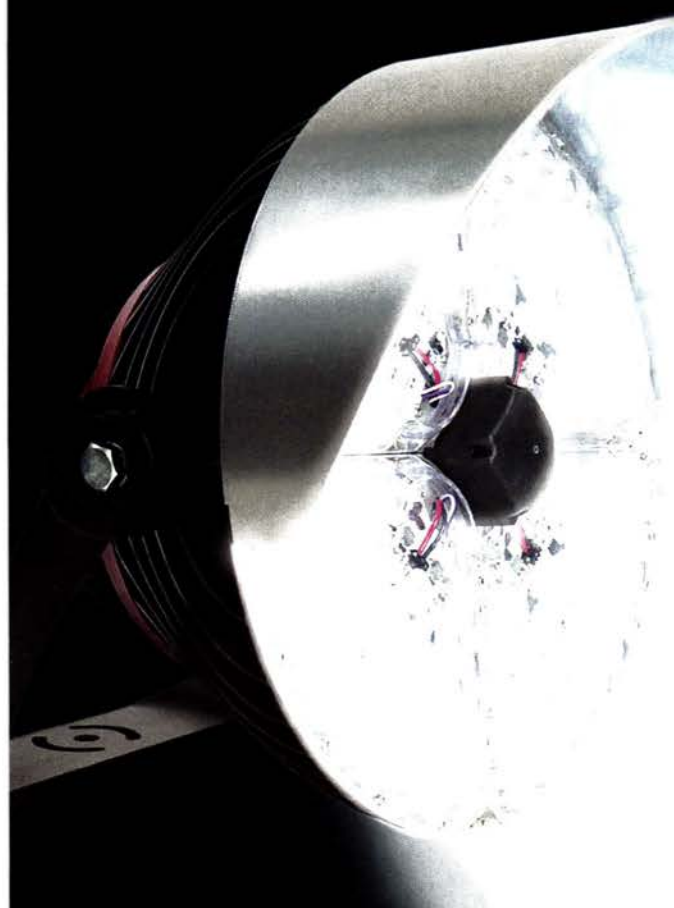

Ephesus outshines all conventional and LED lighting competitors to win the University of Phoenix Stadium.

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PraestoCowbelle

Recalling bells that hang from cows' necks, this playful collection by Ilomio consists of LED floor fixtures, desk lamps, and pendants composed of recycled aircraft-grade aluminum in any of five colors, and a polycarbonate skirt. The floor and desk versions have hand-stitched leather handles while the pendant comes in three sizes. ilomio.com CIRCLE 207

Birdie Metal

Foscarini's Birdie table lamp, originally designed by architects Ludovica+ Roberto Palomba in 2011, has received a metallic makeover. The tree-trunk inspired luminaire is composed of a polycarbonate shade, die-cast zinc-alloy base, and steel rod, lacquered in gray or amaranth orange. Two sizes are available: 6¾" x 19¼" and 9⅞" x 27½". foscarini.com CIRCLE 210

Drift Light

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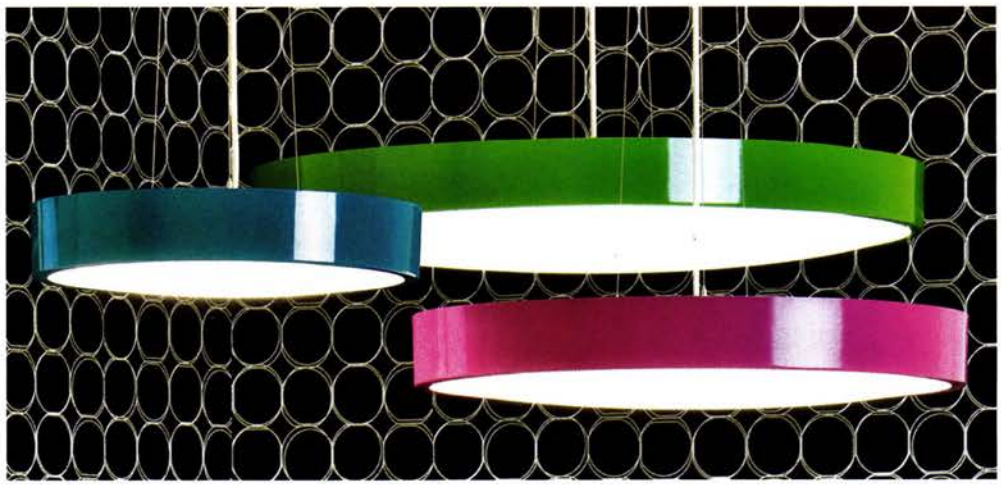

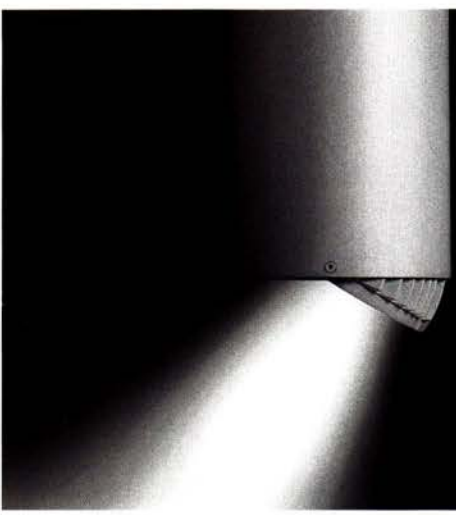

Syrios

This outdoor lighting line by Luminis comprises wall and ceiling surface-mount fixtures, as well as pendants, all bearing a cylindrical form constructed of corrosion-resistant aluminum alloy. It comes in 3", 6", or 8" diameter versions, with the larger two offering an adjustable lamp module to aim the beam—from 10° to 30° angles—onto paths or architectural elements. The LED lamping comes in 3,000K, 3,500K, or 4,000K temperatures. luminis.com CIRCLE 215

Prop Light

With its clean, white, and bubbly appearance, the Prop Light from Moooi lends a whimsical feel to virtually any interior setting. The LED family includes a linear floor lamp (right), linear suspension luminaire, disc-shaped wall light, and single- or double-sided disc-shaped pendant that can be positioned horizontally, vertically, or at an angle. moooi.com CIRCLE 212

Lightify

A DIY lighting control system, Osram Sylvania's Lightify uses a "gateway" that plugs into a standard outlet and connects to WiFi networks to control, dim, and tune compatible LED products, including Lightify A-lamp bulbs, flexible strips, and outdoor mini lights. A mobile app enables phone or tablet control. sylvania.com CIRCLE 214

MO Wall Light

FX Luminaire's new exterior LED wall fixture is available in four faceplate designs to complement a variety of residential and commercial landscapes. The plates are die cast brass finished in a choice of four metal or 10 powder coat colors, ranging from bronze to black. Four filters—amber, blue, green, and frosted—are included. fxl.com CIRCLE 213

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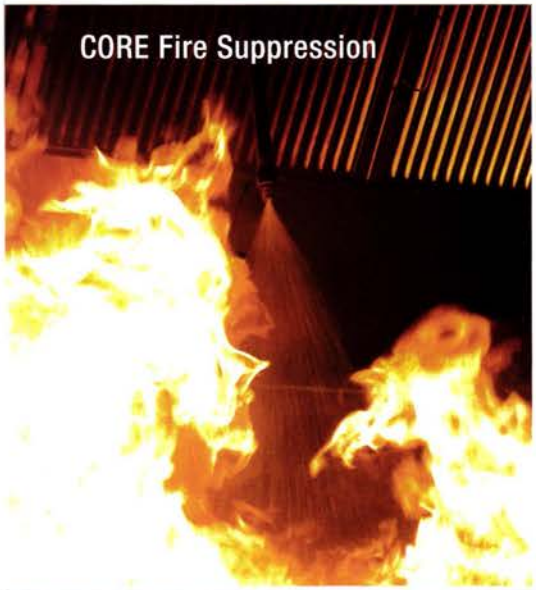

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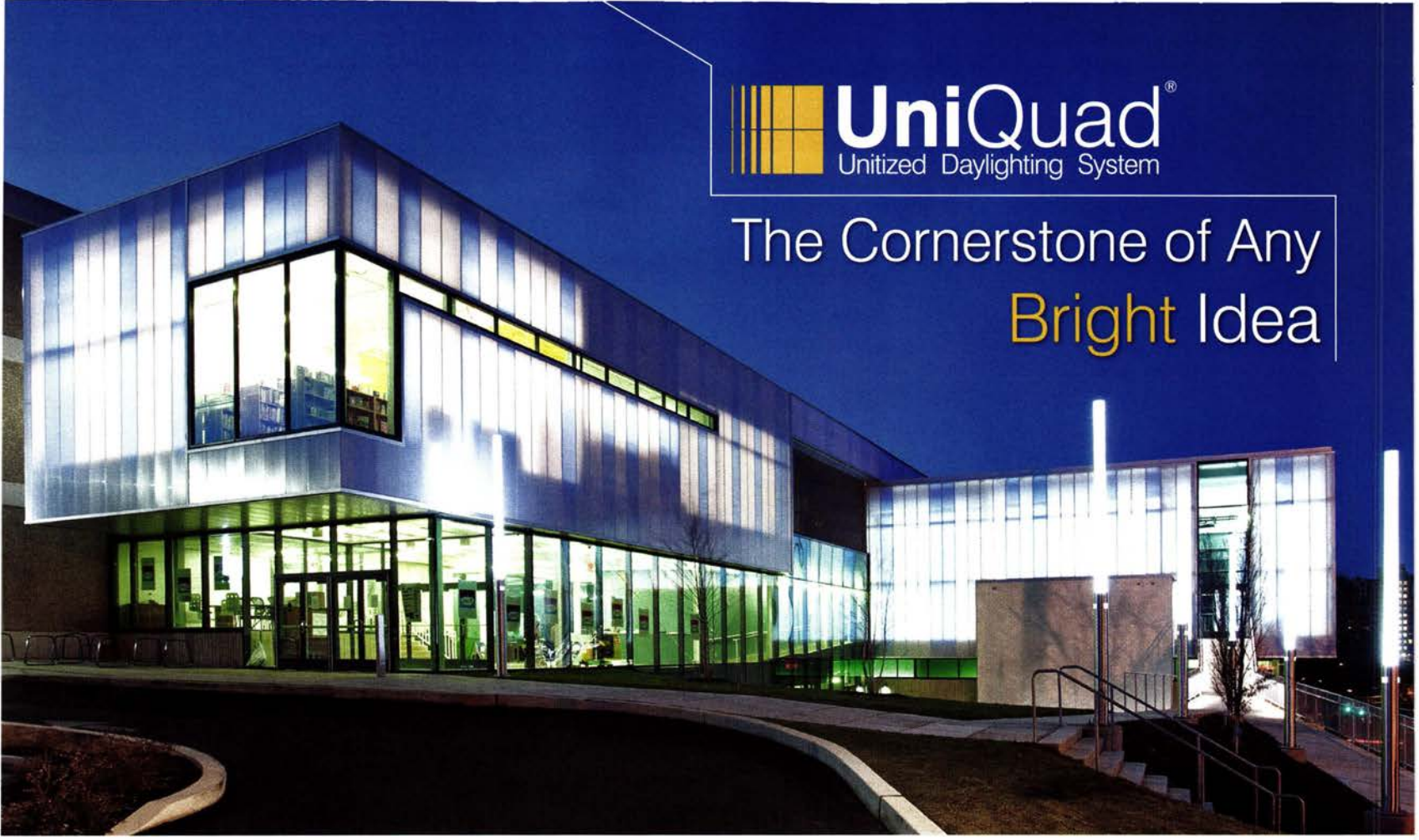

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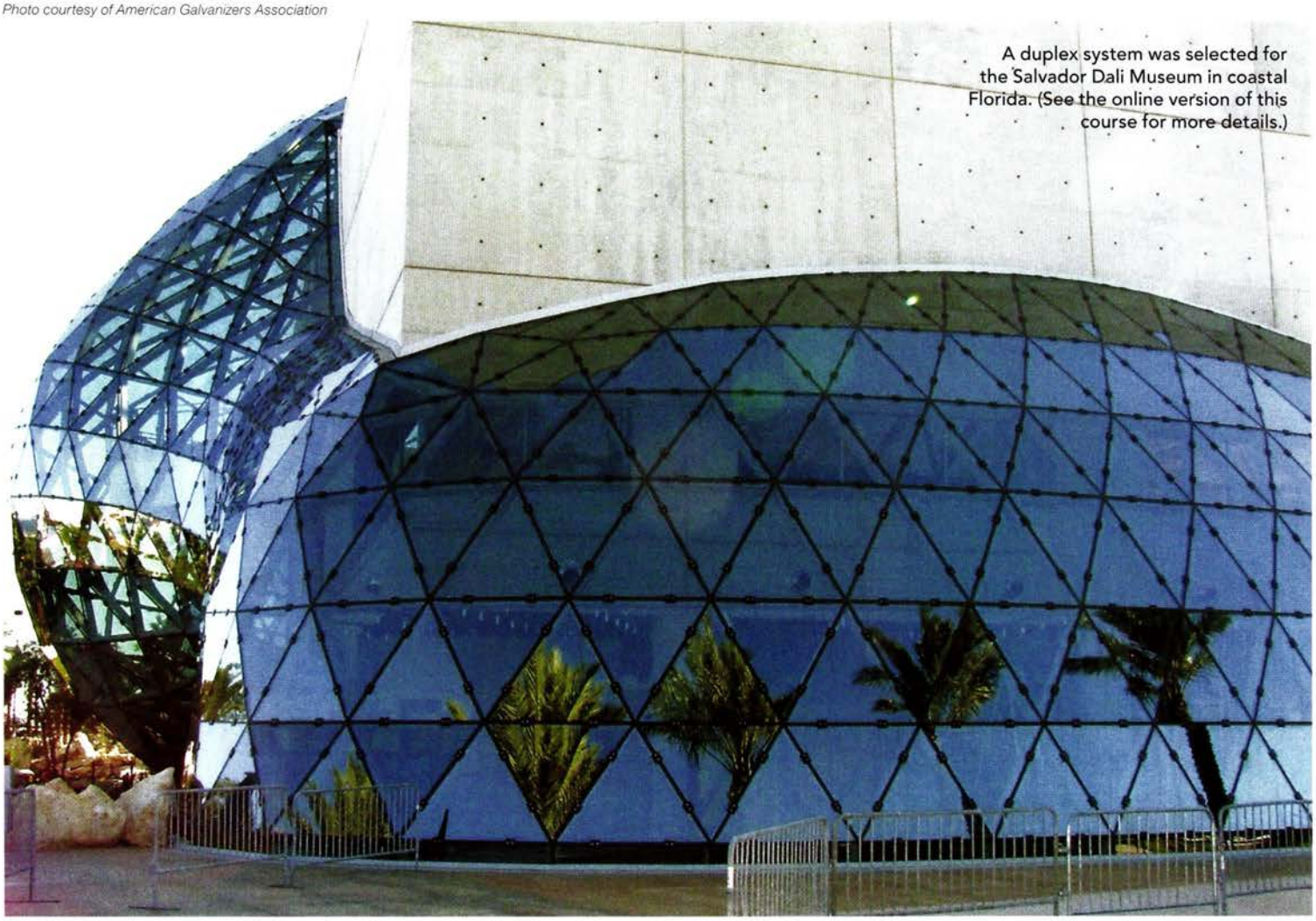

A duplex system was selected for the Salvador Dali Museum in coastal Florida. (See the online version of this course for more details.)

Why Galvanize?

Architects look to hot-dip galvanizing for sustainable, aesthetic corrosion protection

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The One World Trade Center Spire... the Salvador Dali Museum...the Cotton Bowl...Faneuil Hall—all modern signature projects that have incorporated hot-dip galvanizing. Used in industrial applications for more than a century where corrosion protection was critical, the process of hot-dip galvanizing—steel coated with zinc—is being used increasingly by architects to achieve sustainable, aesthetic results. Though corrosion resistance is implicit in any specification of galvanizing, designers are also recognizing that the process affords low initial and life-cycle cost, durability, longevity, and versatility. This article will introduce hot-dip galvanizing as a sustainable process, outlining the environmental and economic benefits, the design considerations, and aesthetic possibilities. Also highlighted will be case studies where hot-dip galvanizing has helped achieve these goals.

HOT-DIP GALVANIZING: STEEL + ZINC

Hot-dip galvanizing is the process of coating fabricated steel by immersing it in a bath of molten zinc. The process is part of a green solution for today's buildings and offers a cost-effective, low-maintenance method of enhancing steel performance by providing superior corrosion protection. Although

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Learning Objectives

After reading this article, you should be able to:

1. Discuss the ways in which hot-dip galvanizing affects steel performance and leads to fulfillment of green building goals.
2. Differentiate between hot-dip galvanizing and other coatings in terms of sustainability, coverage, maintenance, and performance.
3. Describe the contribution of hot-dip galvanizing to credits in LEED 2009 and LEED v4.
4. Explain the advantages of duplex systems in terms of an aesthetic, sustainable solution and the synergy involved.

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corrosion is a naturally occurring phenomenon, it has significant consequences, financial and otherwise. Every year, corrosion costs an estimated 3 percent of the gross domestic product in the U.S./Canada, and $2.2 trillion worldwide. Beyond that, corrosion wastes natural resources and can result in loss of structural integrity and outright structural failure—scenarios that can be reduced by effective protection systems that are best deployed at the start of a project. While protective coatings for steel differ widely in terms of cost, performance, sustainability, and durability, hot-dip galvanizing is one sustainable system that has proven real-world performance in combating corrosion for decades.

The Materials—Common, Safe, Sustainable

In hot-dip galvanizing, the two main materials, zinc and steel, are sustainable—they are nontoxic, abundantly available, and 100 percent recyclable without any loss of chemical or physical properties.

Zinc is the 27th most abundant element in the earth's crust, zinc exists naturally in air, water, and soil, and is present in rocks and many minerals in varying amounts. Plants and animals as well as rainfall and other natural activity cycle some 5.8 million tons of zinc annually through the environment. Ever since the beginning of time, organisms have adapted to the zinc in their environment and use it for specific metabolic processes. Zinc is essential for all life, in the areas of digestion, reproduction, kidney functioning, breathing, diabetes control, taste, smell, and other areas. The World Health Organization (WHO) estimates 800,000 people in developing nations die annually because of insufficiency of dietary zinc, symptoms of which range from immune dysfunction and mental lethargy to vision issues and fertility problems, respiratory and skin allergies, and premature aging. Zinc's healing properties are evidenced in the medicinal substances that are taken regularly. Is there anyone of a certain age who doesn't remember putting zinc on their nose to guard against sunburn? In addition to blocking more UV rays than other substances, zinc is widely used in treating many skin conditions, including sunburn, diaper rash, acne, cold sores, dandruff, wounds, burns, and surgical incisions. Zinc is also used in cosmetics and, in tablet form, has been recognized as a treatment for symptoms of the common cold.

Steel has a high strength/weight ratio and is known for its structural integrity. Its inherent strength facilitates design flexibility, accommodates a variety of aesthetics, and enables functional designs with long spans and curves. Because it is produced in accordance with national standards, there is no regional variation, hence hot-dip galvanized steel provides a consistent material quality. Steel is fire resistant, and does not burn or fuel a fire. As an inorganic material, it will not rot, split, or crack, twist or warp. Steel is light and easy to transport, and has a relatively rapid construction period. It creates minimal raw material waste, and at the end of its long life, steel can be fully recycled—in fact, it is among the world's most recycled materials.

As steel, like all building materials, corrodes when exposed to the atmosphere, it is important to deploy corrosion protection methods when steel is used in projects. To meet the demands of the long design lives of large modern development projects, many of which target a 50- to 100-year service life, hot-dip galvanizing offers corrosion protection in three levels—barrier protection, cathodic protection, and the zinc patina.

Barrier protection is the basic line of defense. The hot-dip galvanized coating isolates the steel from electrolytes in the environment, much like paints do. The protection is stable insofar as this barrier is not breached; however, corrosion will occur once the barrier begins to deteriorate. To ensure the integrity of the barrier, the coating must possess two critical properties: It must adhere to the base metal and it must be resistant to abrasion. With regard to these two parameters, zinc is an ideal barrier coating. Its corrosion rate is a fraction of steel's, so that a thin coating of zinc becomes similar to a significantly thicker steel element. Zinc's tightly bonded, impervious nature is far preferable to that of coatings like paint, which have pin holes that allow penetration of the elements, causing rapid spread of corrosion.

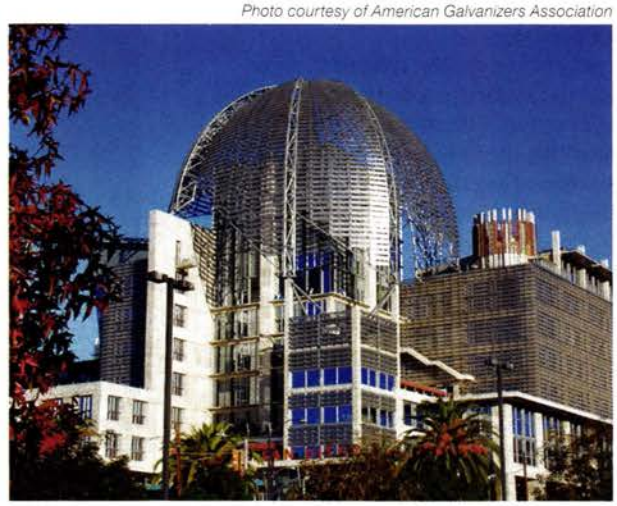
The Galvanic Series of Metals lists metals in order of electrochemical activity in seawater. Zinc is higher on the list than steel, meaning it is anodic to steel and thus offers cathodic or sacrificial protection. In cathodic protection, zinc will corrode to protect the steel beneath. Should the hot-dip galvanized coating be damaged so that the steel is exposed, corrosion will only begin after all the zinc is eroded. In "sacrificial" action, zinc will protect the steel even where cut edges, drill holes, scratches, surface abrasion suffered during steel erection, and the like may have exposed small spots of underlying steel. That said, bare spots do lessen

SAN DIEGO LIBRARY—AN ANTI-CORROSIVE AESTHETIC

San Diego's Central Library, opened in September 2013, is a nine-story 497,000-square-foot facility that is twice the size of its predecessor, and features a striking exposed galvanized arched domed terrace, 350-seat auditorium, three-story reading room, advanced technology center, art gallery, daycare center, cafeteria, outdoor garden courtyard and even a charter high school occupying the sixth and seventh floors. The library is a signature structure in the city, with views to Coronado Island across the bay, a compelling vista but a harsh saltwater environment.

Hot-dip galvanized steel is prominently displayed on both the interior and exterior of this structure, with a visual aesthetic consistent with the library's ultramodern design, and anti-corrosive properties that are critical in this location. The library had been in the planning stages for decades, with the first study completed more than 30 years ago, followed by 45 additional studies before bonds were finally issued. A key design concern was corrosion resistance. Hot-dip galvanizing was one of the main strategies considered and was ultimately used to construct the outside façade of the building, including the three-story, arched domed terrace. Ultimately the galvanizing process required two separate galvanizing plants with different kettle dimensions to accommodate the mammoth arched frame structures. The largest frames in the project were progressively dipped with various pieces even requiring a third pass through the kettle to ensure total zinc coverage.

Photo courtesy of American Galvanizers Association



Mammoth arched frames of the San Diego Central Library were galvanized in two separate galvanizing plants.

the life of the coating, so it is best to touch up those exposed areas. The zinc will prevent underfilm corrosion, which spreads across a piece, much like under a paint coating.

Lastly, zinc patina, or zinc corrosion on the steel surface, offers a third level of protection. Like all metals, zinc corrodes when exposed to the atmosphere. But the naturally occurring corrosion of zinc produces by-products—zinc oxide, zinc hydroxide, and zinc carbonate—that result in a patina that, when fully developed, actually slows zinc's corrosion rate to about 1/30th the rate of steel in the same environment.

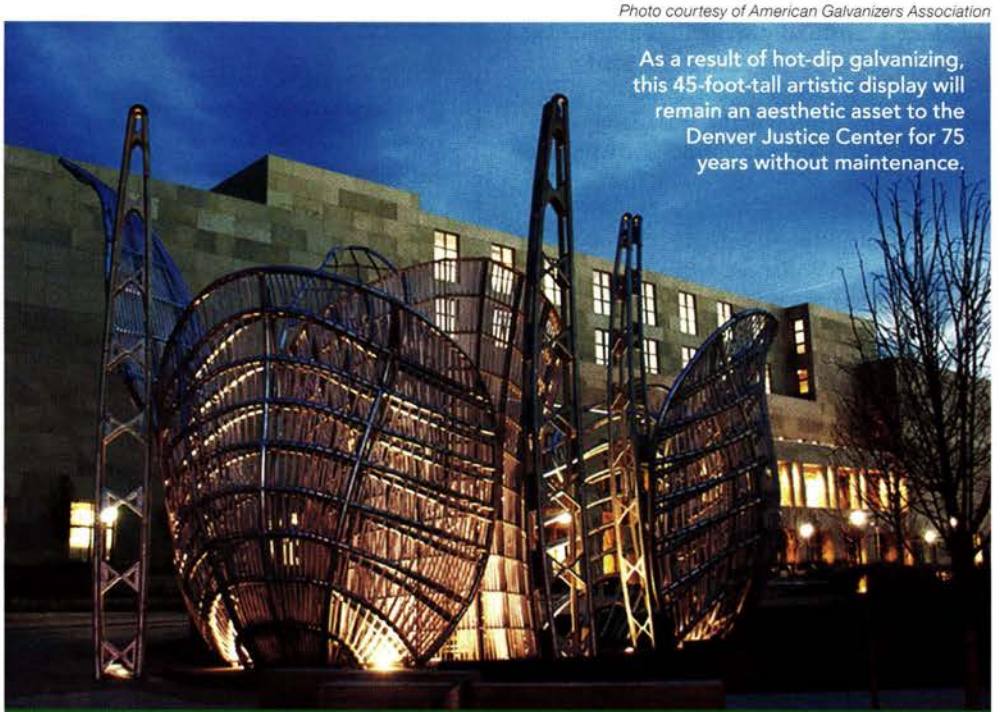
The Process

The galvanizing process consists of three basic steps: surface preparation, galvanizing, and inspection, with surface preparation representing the most important step in the application of any coating. In most instances, coating failure is due to incorrect or inadequate surface preparation. In the galvanizing process, the surface step has its own built-in quality control. Zinc will not react with unclean steel, and any failures or inadequacies in this step are obvious—when the steel is removed from the zinc bath, unclean areas remain uncoated, enabling timely action to correct the situation.

Three steps are involved in preparing the surface: degreasing, pickling, and fluxing. In the first step, dirt, grease, and oil are removed by a hot alkali solution, mild acidic bath, or biological cleaning bath; however, epoxies, vinyls, asphalt, or welding slag may require stronger methods such as grit-blasting, sand-blasting, or alternative mechanical means. In pickling, mill scale and rust are removed from the steel surface via diluted and heated sulfuric acid, and ambient hydrochloric acid. Lastly, fluxing is the final surface preparation step. A zinc ammonium chloride solution both eliminates residual oxides and deposits and creates a protective layer on the steel to prevent further formation of oxides before the steel is dipped in the molten zinc bath.

In the galvanizing phase, steel is immersed in a zinc bath heated to at least 815 degrees F. A crane hoist lowers the steel at an angle so air can escape from pockets in the steel, to be replaced by the molten zinc. In the kettle, zinc reacts with the iron in the steel to form a series of zinc-iron intermetallic alloy layers. The galvanized steel is then slowly removed and inspected primarily for coating thickness and coating appearance. Generally speaking, visual inspection is considered adequate, although basic physical and laboratory tests can establish whether thickness, uniformity, adherence, and appearance of the coating are consistent with long established and approved standards of ASTM.

Photo courtesy of American Galvanizers Association



As a result of hot-dip galvanizing, this 45-foot-tall artistic display will remain an aesthetic asset to the Denver Justice Center for 75 years without maintenance.

GALVANIZING ART

With gracefully arched petals blooming skyward, the Light Chamber sculpture blossoms at the entrance of the Denver Justice Center. Artist Dennis Oppenheim, who has incorporated galvanized steel in several outdoor artistic displays, created a 45-foot-tall free-flowing sculpture of leaves and flowers to symbolize the multitude of decisions made in the judge's chambers. All components of the main structure—more than 29 tons of steel—were galvanized. The zinc coating will protect the piece from the harsh sun and exposure to snow and rain, while the cathodic protection of the galvanized steel will protect the piece from any nicks and scratches. Time to first maintenance is projected to be 75 years or more.

The Benefits

Hot-dip galvanizing confers numerous benefits that are important to architects and owners.

▸ **Durability.** Because of its superior ability to stand up to harsh environments, hot-dip galvanizing has been widely utilized in such demanding fields as the petrochemical, industrial, and power/utility industries and on bridge and highway projects. The durability is a function of abrasion resistance, uniform protection, and complete coverage. A unique characteristic of the hot-dip galvanized coating is the development of metallurgically bonded, abrasion-resistant intermetallic layers with high bond strengths up to 3,600 psi developed naturally during a metallurgical reaction between the iron in the steel and zinc in the kettle. The top layer is pure zinc, which has the ductility to minimize damage to the coating. Compared to other coatings with lower bond strengths, many of which range between 300-600 psi, hot-dip galvanizing's abrasion resistance protects against damage from transport, erection, and service.

Hot-dip galvanizing also provides uniform protection. During the metallurgical diffusion reaction in the galvanizing kettle, the galvanized coating grows perpendicular to all surfaces, providing the same thickness throughout—on flat surfaces as well as corners and edges, where damage is typically experienced. Other coatings, particularly those applied by brush or spray, can thin at corners and edges, which become weak points for corrosion. Further, the steel is fully submerged, with molten zinc coating all surfaces, even the interior of hollow and tubular structures, where corrosion can accelerate as humidity and condensation occur. Hollow structures that are painted have no corrosion protection on the inside at all. Further, the immersion process fully coats all fasteners which, because they are used at connection points, are particularly critical to structural integrity.

It is important to note that while galvanizing is commonly used to connote all types of zinc coatings, this is an erroneous assumption. Not all zinc coatings have the same properties, and physical, chemical, and corrosion resistance can vary widely. Compared to metallizing, zinc-rich painting,

MORRIS ARBORETUM—A NESTING STRUCTURE IN GALVANIZED STEEL

Weaving like a spider web throughout Morris Arboretum, the hot-dip galvanized steel walkways of the "Out on a Limb Tree Adventure" provide a pathway to the treetops for nature enthusiasts. The Philadelphia area exhibit gives visitors an up close forest view via a hot-dip galvanized steel 450-foot-long canopy walk constructed around a 250-year-old chestnut oak tree. The structure resembles a human-sized bird's nest 80 feet above ground. The specifiers originally considered painting the project for corrosion protection, but selected hot-dip galvanized steel for its corrosion protection, and the fact that in that particular environment its life expectancy was more than 75 years before requiring any type of maintenance. The required footprint was smaller than that of concrete foundations, which minimizes the risk of damaging trees or tree roots. Should one of the surrounding trees be damaged, the galvanized steel frame design can be easily modified. A total of 155 tons of steel were galvanized, including walkways, framing, handrails, canopy, tube steel supports, tower structures, and even the life-size "nest" structure, with some of the pieces requiring a turnaround of less than a day.

Photo ©Paul Warchol

Galvanized steel was used for a human-sized bird's nest 80 feet above ground—and requiring no maintenance for more than 75 years.

sheet galvanizing, electroplating, and zinc (mechanical) plating, hot-dip galvanizing provides more uniform coverage and a significantly higher metallurgical bond.

▸ **Versatility.** Complex fabrications and forms of virtually any shape and size from bolts to beams can be hot-dip galvanized. Unlike other corrosion protection systems, the process is factory controlled and not dependent on temperature or humidity. There are no curing delays as zinc solidifies upon withdrawal from the bath, and the entire hot-dip process can be completed, and the elements shipped and erected in a day's time. Alternatively, galvanized steel can be stored on site for years as the coating is not susceptible to UV degradation or damage from the elements, enabling owners to maintain an inventory for easy replacement, saving time and often, money.

▸ **Low maintenance.** More than a hundred years of third-party testing of hot-dip galvanized steel in industrial, rural, suburban, tropical marine, and temperate marine environments together with statistical methods, and neural network technology enabled Dr. Gregory Zhang of Teck Metals Ltd. to formulate the Zinc Coating Life Predictor (ZCLP) to approximate the service life of hot-dip galvanized coatings. This predictor allows users to plug in parameters for their specific environment to determine an estimated time for first maintenance, considered at 5 percent rusting of the base steel surface, which means 95 percent of the zinc coating is still intact—the point at which initial maintenance is recommended. As can be seen in the accompanying chart (see the online version of this course), hot-dip galvanized structural steel provides 72-73 years of life to first maintenance even in the most corrosive atmosphere—industrial.

▸ **Efficiency.** Uncomplicated steel structural frame designs can be developed quickly and cost efficiently. Pre-fabricated and galvanized off-site at indoor plants, the steel members move quickly through the galvanizing process without interruption by inclement weather for a quick production phase. Their light weight relative to materials like concrete makes steel beams less costly to transport and reduce on-site crane and caisson requirements. Generally speaking, steel-framed systems can be constructed at 10 to 20 percent savings over concrete alternatives.[1]

See endnote in the online version of this article.

▶ Continues at ce.architecturalrecord.com

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The American Galvanizers Association is a non-profit trade association that serves as the unified voice of the North American hot-dip galvanized steel industry. The AGA provides architects, engineers, specifiers, fabricators, contractors, and galvanizers technical support on today's innovative applications and state-of-the-art technological developments in hot-dip galvanizing for corrosion control. **www.galvanizeit.org**

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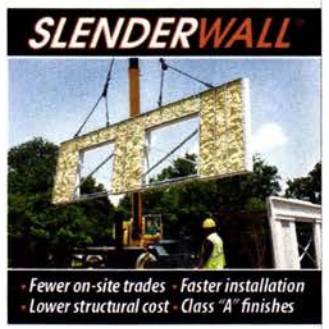

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Cambridge, Massachusetts
February 5–April 5, 2015
The Way We Live Now is a group exhibition exploring the influences and legacies of modernist visionaries on contemporary art and life through site-specific installations at Le Corbusier's majestic 1963 Carpenter Center. It also features existing work that stands in dialogue with the legacy of figures such as Mies van der Rohe, Eileen Gray, Bruno Taut, Anne Tyng, Adolf Loos, Lilly Reich, and others. The exhibition looks at the aspirations of these modernist architects and how their experiments with architecture and design radically transformed the way we experience the built environment today. At the Carpenter Center for the Visual Arts. For more information, visit ccva.fas.harvard.edu.

Provocations: The Architecture and Design of Heatherwick Studio
Los Angeles
February 20–May 24, 2015
Held at the Hammer Museum, *Provocations* will feature the imaginative work of British designer Thomas Heatherwick and his London-based studio, established in 1994 and recognized for combining novel engineering with new materials and innovative technology to create unusual, often sculptural, building forms. Heatherwick is known for unique design concepts and for range, from small products to large structures. A selection of projects will be on display, including prototypes, scale models, objects, photographs, and film and video footage. For more information, visit hammer.ucla.edu.

Ongoing Exhibitions

Assembled Realities: Jeff Chien-Hsing Liao's New York
New York City
Through February 15, 2015
A portrait of New York as seen through more than 40 large-scale photographs of the city's landscape, *Assembled Realities* features work by Taiwanese artist Jeff Chien-Hsing Liao, who came to New York at age 18 to study photography. Pushing the boundaries of traditional documentary photography, Liao creates large-scale panoramas by combining multiple exposures of the same location. At the Museum of the City of New York. For more information, visit mcny.org.

Found in Translation: Palladio–Jefferson
Montreal
Through February 15, 2015
Found in Translation: Palladio–Jefferson presents recent work by the documentary and architecture photographer Filippo Romano, at the Canadian Centre for Architecture. The exhibition offers a visual narrative tracing the principles of 16th-century Italian architect Andrea Palladio (1508–80) as they are embodied in buildings designed by American president and architect Thomas Jefferson (1743–1826), who saw Palladio's work as a model for architecture in the newly independent United States. The project attempts to shape a less conventional perspective on Palladio—whose buildings are among the most photographed in history—while also revealing the conditions of dissemination and translation behind Jefferson's adaptations of Palladio's *I Quattro Libri dell'Architettura (The Four Books of Architecture)* two centuries after they were written. For more information, visit cca.qc.ca.

COOP HIMMELB(L)AU: Dynamischer Raumplan
Los Angeles

Through March 8, 2015
Dynamischer Raumplan is a spatial installation based on the city as a dynamic and complex adaptive system. It displays the creation and use of energy as a critical parameter for urban planning of the 21st century and as a catalyst for a new city morphology. The installation can be read in several scales: a city block, a city district, or an urban region. At SCI-Arc. For more information, visit sciarc.edu.

New Territories: Laboratories for Design, Craft and Art in Latin America
New York City
Through April 5, 2015
This exhibition examines the confluence of art, design, and craft in several cities throughout Latin America, where some of the most pertinent new directions are emerging. *New Territories* explores the collaborations between small manufacturing operations and craftspersons, artists, and designers, and demonstrates how the resulting work addresses not only the issues of commodification and production, but also of urbanization, displacement, and sustainability. The exhibition explores a number of key themes, including the dialogue between contemporary trends and artistic legacies in Latin American art; the use of repurposed materials; the blending of digital and traditional skills; and the reclamation of personal and public space. At the Museum of Arts and Design. For more information, visit madmuseum.org.

Ways to Modernism: Josef Hoffmann, Adolf Loos, and Their Impact
Vienna
Through April 19, 2015
With *Ways to Modernism: Josef Hoffmann, Adolf Loos, and Their Impact*, at the Museum for the Applied Arts, legendary works of Josef Hoffmann and Adolf Loos offer a portrayal of the development of Viennese modernism into a global brand. The two designers worked out contrary alternatives for modernity in art, architecture, and design; their work is shown in tandem, allowing viewers to make comparisons between their approaches. *Ways to Modernism* focuses not only on the thinking and key works of these two visionaries, but also the historical background of their ideas, and the continued resonance of their work in architecture and design. In addition to the late œuvres of Hoffmann and Loos, the exhibition features works by Oskar Strnad, Josef Frank, Margarete Schütte-Lihotzky, Atelier Singer-Dicker, and Anna Heringer. For more information, visit mak.at.

One Way: Peter Marino
Miami Beach, Florida
Through May 3, 2015
American architect Peter Marino has been celebrated over the past four decades for his forward-thinking work, which exists at the intersection of art, fashion, and architectural design. Curated by Jérôme Sans, this exhibition, at the Bass Museum of Art, explores the interplay between Marino's iconic architectural designs and his personal collection of contemporary art, which includes pieces by Loris Gréaud, Keith Haring, Richard Serra, Rudolf Stingel, and Andy Warhol. A handful of artists, Gregor Hildebrandt and Erwin Wurm among them, will also present new work commissioned for the exhibition. For more information, visit bassmuseum.org.

Sink or Swim: Designing for a Sea Change
Los Angeles
Through May 3, 2015
Through the work of a select group of architectural, fine art, and news photographers, *Sink or Swim* casts an eye on both the problem of climate change in densely populated coastal regions and contemporary design as a means to navigate the changing landscapes. It explores the story of resilience, from adaptation for human survival to ambitious infrastruc-

ture planning, in some of the world's richest and poorest coastal communities. Curated by architecture writer and radio host Frances Anderton with the Annenberg Space for Photography, *Sink or Swim* features newly commissioned and archival works by photographers Iwan Baan, Stephen Wilkes, Paula Bronstein, Jonas Bendiksen, and Monica Nouwens. Images show highly complex coastal flood mitigation in the Netherlands, controversial sea walls in Japan, and innovative homes and community buildings by leading architects including Thom Mayne, Toyo Ito, and Shigeru Ban. For more information, visit annenbergspaceforphotography.org.

The Architectural Image, 1920–1950: Prints, Drawings, and Paintings from a Private Collection
Washington, D.C.
Through May 3, 2015
Between 1920 and 1950, architecture changed more profoundly and more rapidly than during any similar timespan in history. The changing tastes, theories, and obsessions of that era were often documented by prominent artists who found architecture and construction to be compelling subject matter. The National Building Museum presents an exhibition of 70 prints, original drawings, and paintings from this period in architectural history, drawn from the collection of David M. Schwarz, a prominent Washington, D.C., architect. The works reveal an enduring fascination with architectural and engineering imagery and offer glimpses into the artists' personal impressions of the built environment. Included are works by artists Howard Cook, Louis Lozowick, and Charles Turzak. For more information, visit nbm.org.

Uneven Growth: Tactical Urbanisms for Expanding Megacities
New York City
Through May 10, 2015
As the world's population approaches 8 billion, city authorities, urban planners and designers, economists, and many others will have to join forces to ensure that expanding megacities remain habitable. To engage this international debate, *Uneven Growth* at the Museum of Modern Art showcases the work of six interdisciplinary teams who present new architectural possibilities for global metropolises Hong Kong, Istanbul, Lagos, Mumbai, New York, and Rio de Janeiro. The resulting proposals show how emergent forms of tactical urbanism can respond to alterations in the nature of public space, housing, mobility, and other issues in near-future urban contexts. For more information, visit moma.org.

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CIRCLE 29

Lectures, Conferences, and Symposia

Gregg Pasquarelli: Never Ever Don't: Why SHoP Breaks the Rules
Los Angeles
February 11, 2015
Since 1996, SHoP has set the standard for creative exploration in the field of architecture and modeled a new way forward with its unconventional approach to design. At the heart of the firm's method is a willingness to question accepted patterns of practice, coupled with the courage to expand, where necessary, beyond the architect's traditional roles. Founding partner Gregg Pasquarelli has been at the center of this deeply collaborative practice for nearly 20 years. At SCI-Arc. For more information, visit sciarc.edu.

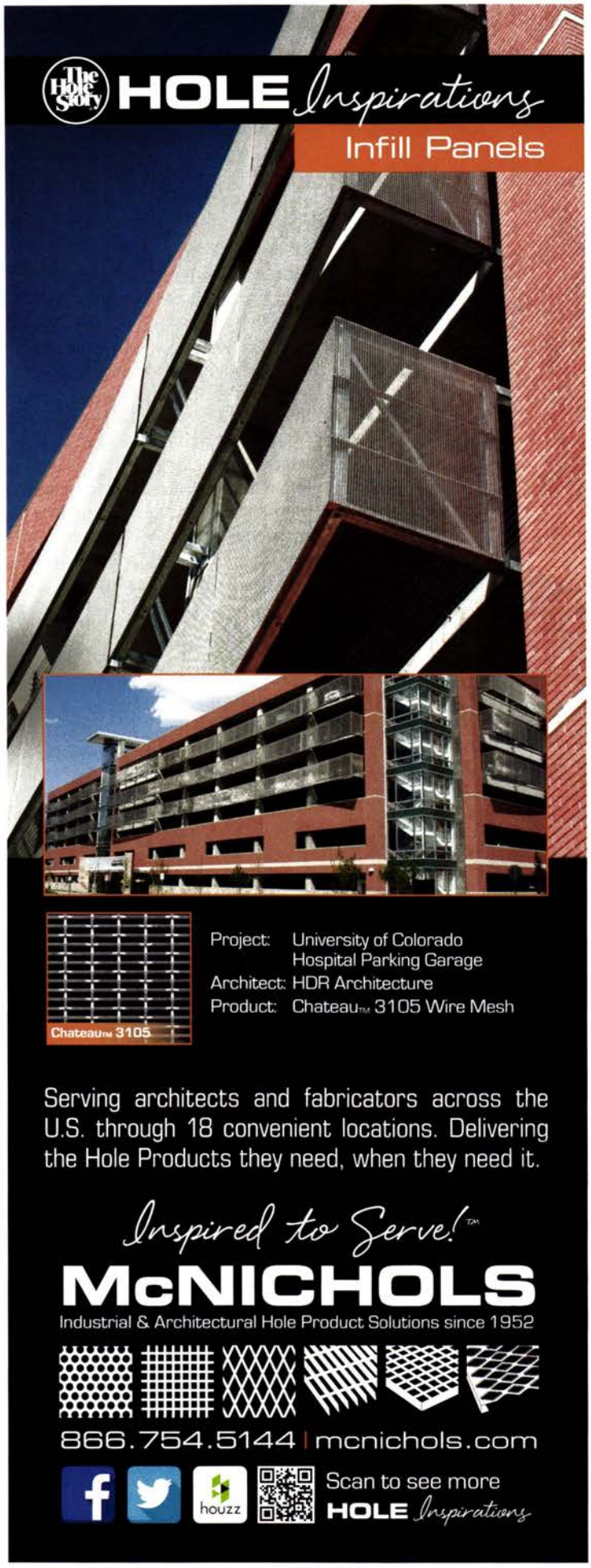
2015 SAH Annual International Conference: Chicago at the Global Crossroads
Chicago
April 15–19, 2015
The Society of Architectural Historians (SAH) will celebrate its 75th anniversary during this conference, which includes lectures, roundtables, and 36 paper sessions covering topics in architecture, art and architectural history, preservation, landscape architecture, and the built environment. SAH is committed to engaging both conference attendees and local participants with public programming that includes more than 30 architectural tours, a plenary talk, and a half-day seminar addressing Chicago's waterways and neighborhoods. For more information, visit sah.org/2015.

Competitions

2015 AIANY Design Awards
Submission deadline: February 6, 2015
AIA New York's annual Design Awards Program recognizes outstanding architectural design by AIA New York Chapter members, New York City–based architects in any location, and work in New York City by architects around the globe. The purpose of the awards program is to honor the architects, clients, and consultants who collaborate to achieve design excellence. Submissions that reflect a broad and inclusive definition of design excellence are encouraged. Submissions must exhibit design achievement that demonstrates exemplary skill and creativity in the resolution and integration of formal, functional, and technical requirements, including ecological stewardship and social responsibility. For more information, visit aiany.org.

CitiesAlive: Call for Papers
Abstract and bio deadline: February 27, 2015
This call for papers is an opportunity to present groundbreaking research, novel policy changes, or innovative design case study to a highly interested group of green-roof and -wall enthusiasts at the *CitiesAlive* conference. *CitiesAlive* is heading to the Big Apple for the first time in October 2015 and expects to draw 1,000 delegates. They will work to explore and showcase underutilized living-architecture opportunities. For more information, visit citiesalive.org.

E-mail information two months in advance to recordevents@mcgraw-hill.com. For more listings, visit architecturalrecord.com/news/events.



CIRCLE 79

snapshot

PROJECT **STEIRERECK**
LOCATION **VIENNA**
DESIGNER **PPAG ARCHITECTS**

STEIRERECK RESTAURANT, located in Vienna's lush Stadtpark, is celebrated for its modern Austrian cuisine (think wiener schnitzel with a gluten disclaimer), but the main course is a new addition by local firm PPAG Architects. Rather than conceive of the restaurant as a simple container for tables and chairs, the architects wanted to connect diners with the surrounding landscape. "We decided to follow the tradition of park pavilions, which always have been ephemeral and lightweight," says project architect Anna Popelka. The result is a row of faceted protrusions that branch out from the primary rectilinear structure, with tables placed along the irregular perimeter. Frameless motorized sash windows slide up more than eight feet, opening the dining room to the outdoors in fine weather, while reflective exterior aluminum panels shroud the restaurant like a veil of mist. —*Anna Fixsen*

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