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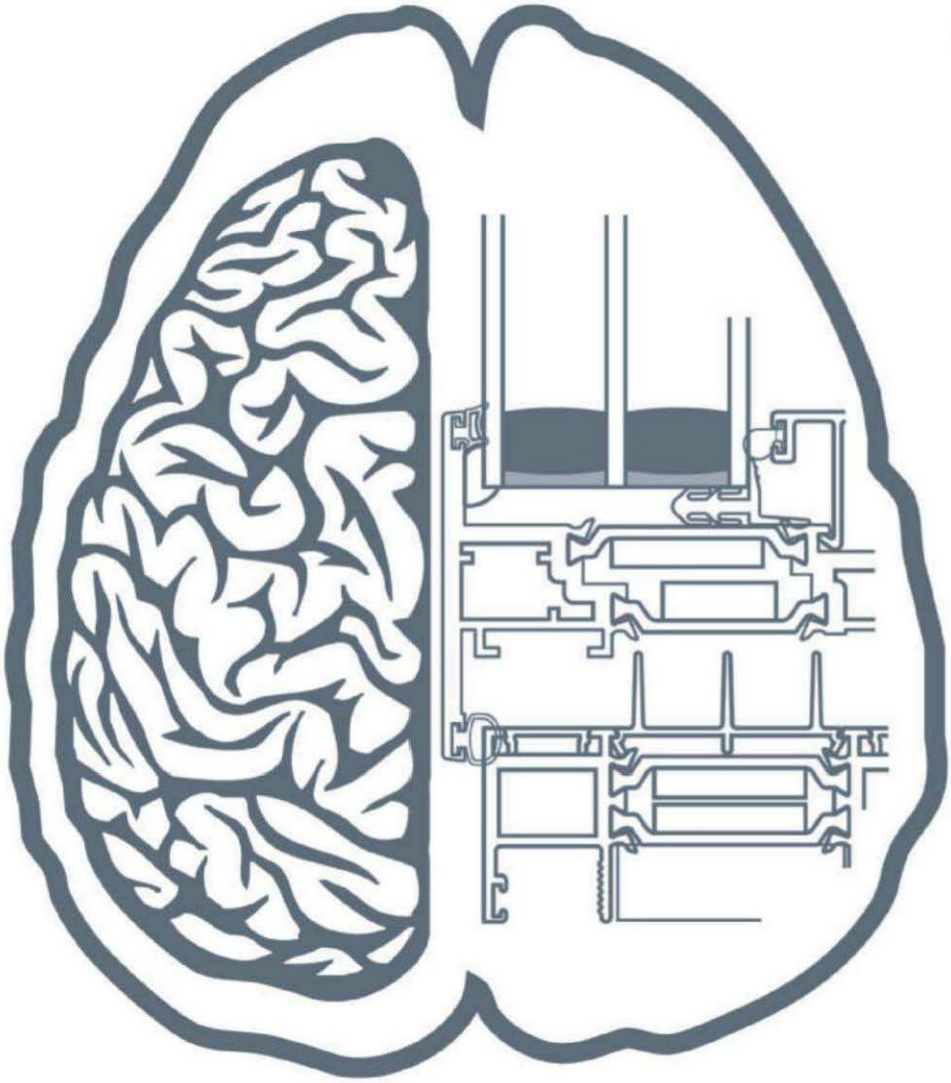

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Designing Women

Architecture isn't always an equal opportunity profession.

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LATER THIS month, the Pritzker Architecture Prize will be awarded to the Chinese architect Wang Shu at a ceremony in Beijing. It's an exciting choice—though it's worth noting that the prize did not include Lu Wenyu, his wife and architectural partner in the firm they founded together, Amateur Architecture Studio, in Hangzhou.

I've been thinking about women architects. A few months ago, Anne Tyng died at age 91. As you probably know, Tyng worked closely with Louis Kahn, on the Trenton Bath House (1959) in New Jersey, among other projects. She was also a mistress of Kahn's and the mother of one of his two out of wedlock children. The other child, Nathaniel Kahn, told the story of Kahn's complicated personal life in his moving 2003 film, *My Architect*. Though Tyng's history has been overshadowed by her connection to Kahn, it was extraordinary for her time. The daughter of American missionaries to China, where she was born, Tyng was one of the first women students at Harvard's Graduate School of Design under Walter Gropius, and the only woman to receive a license to practice in Pennsylvania the year she became an architect (1949); one of the men on the licensing board famously refused to administer her test.

Five years later, Norma Merrick Sklarek, FAIA, was the first African American woman in the country to become an architect. Sklarek, who died in February at 85, directed major projects for Gruen Associates and Welton Beckett Associates in California over the course of a long career.

Such groundbreakers surely helped open doors for succeeding generations, but architecture is still a tough profession for women. When we attend the AIA convention in Washington, D.C., later this month, we'll see, among the architects, overwhelmingly white male faces. Not that we don't like and respect you, gentlemen! But here is a key fact: In 2010, women made up 49 percent of students in architecture schools but only 18 percent of the membership in the AIA.

March was Women's History Month, in case you missed it, and here at ARCHITECTURAL RECORD, our parent company, McGraw-Hill, marked it by inviting the veteran activist Gloria Steinem to speak. At 78, Steinem is an inspiring figure, but despite the positive social changes that have occurred in the decades since she became a feminist force, she reminded us how deeply ingrained our ideas of gender and power remain. The same month, the National Building Museum in Washington, D.C. partnered with the Beverly Willis Architecture Foundation—which brings to light the achievements of women architects—to host a panel. Along with the architects Sheila Cahnman of HOK and Claire Weisz of WXY Architecture + Urban Design, the developer MaryAnne Gilmartin of Forest City Ratner, and the moderator Mara Liasson of NPR and Fox News, I participated in a discussion of women in architecture today. We touched on familiar points: how difficult it is for women to juggle family life with the grueling demands of large firms, and the aptitudes of women for planning, problem solving, and working in teams.

We talked, too, about how practice is shifting—thanks to new technologies and increasing collaboration across disciplines—in ways that benefit women (and men) who want to pursue work outside conventional offices, in such areas as urbanism, planning, and public interest design.

Still, despite the collaborative nature of most design projects, the media continue to reflect our culture's desire to focus on the story of a single creator. Even in architecture, we seem to need heroes.

When the Pritzker jury made this year's selection, they must have seriously debated choosing only Wang Shu. (The last time the Pritzker prize went to a husband, Robert Venturi in 1991, and ignored his wife and partner, Denise Scott Brown, it created quite a flap.) Wang Shu is being honored for his contributions to teaching and theory, as well as built work, according to a Pritzker official. And how the couple works together isn't clear. On the firm's website, its design philosophy is expressed in the first person singular—was something lost in translation?—and Wang Shu has reported that the design for their acclaimed Ningbo History Museum came to him on a sleepless night when he sprang from bed and began to sketch it.

Such "Eureka!" moments are common in architectural lore—the cocktail napkin sketch that contains the entire DNA of a design, no matter how complex its execution.

We all know and admire many women architects who run their own firms, or are partners or principals, and who take the lead in design. But we also know that the contributions of many women (and men) to architecture too often remain anonymous. ■

Cathleen McGuigan

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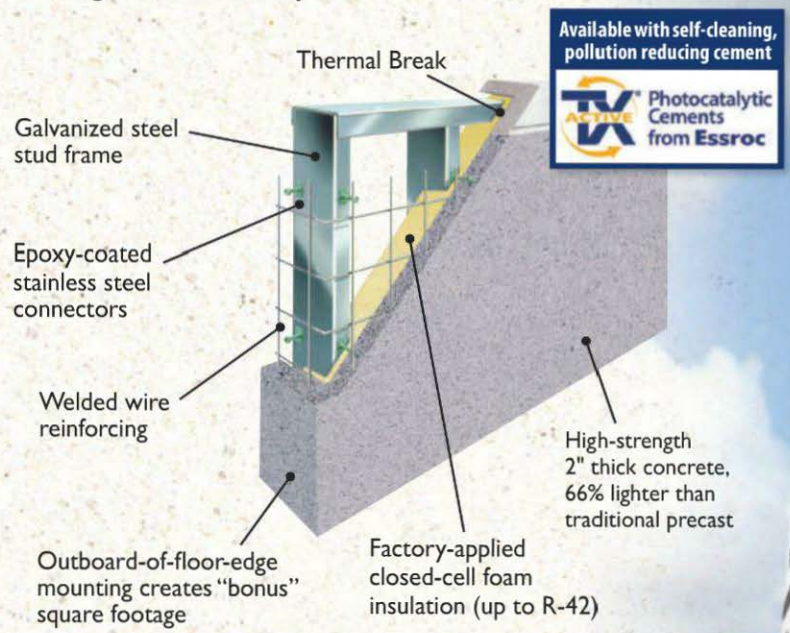

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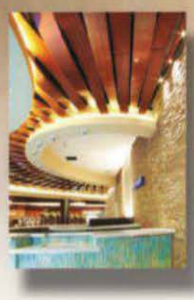

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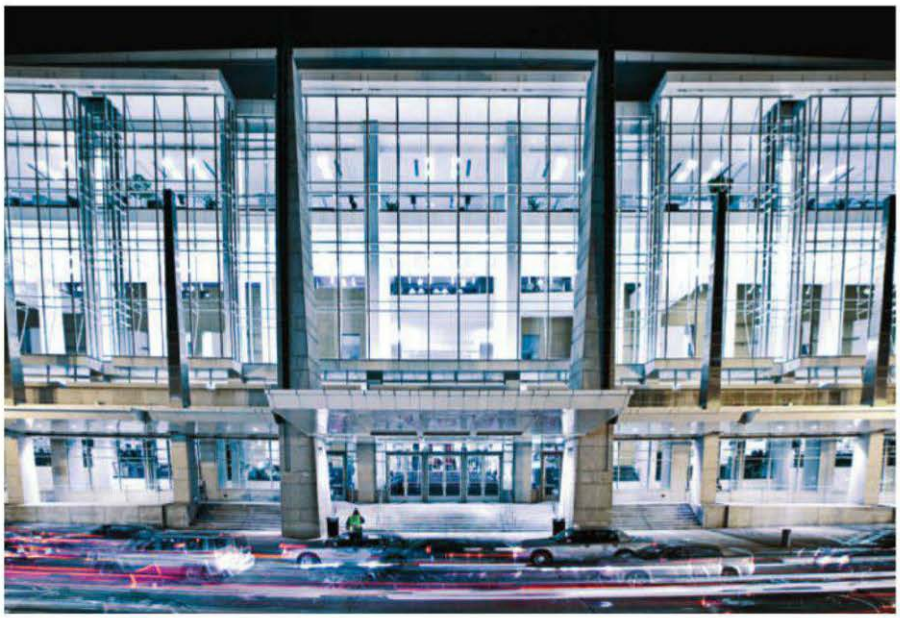
perspective

"Drawing is a magical act, filled with passion. You must draw all the time, even if you don't draw well. It helps you to analyze and to remember."

—Michael Graves, upon receiving the 2012 Richard H. Driehaus Prize during a March 24 ceremony in Chicago.

Straying from Convention



The owner of the Walter E. Washington Convention Center in D.C. hopes a new hotel will boost revenue.

BY FRED A. BERNSTEIN

AFTER DECADES of being dissed, New York's Jacob K. Javits Convention Center is finally getting some respect: A $463 million renovation, designed by the Manhattan firm FXFOWLE, will play to the building's strengths (preserving its once-revolutionary space frame) while bringing massive aesthetic, organizational, and environmental improvements. And with a subway line being extended to its front door—dramatically improving access to the Far West Side location—the 25-year-old facility by James Ingo Freed (of the firm now known as Pei Cobb Freed & Partners) may finally live up to its potential.

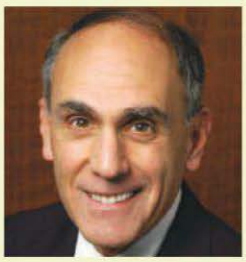
Unless it is torn down. In January, New York governor Andrew Cuomo announced that because the 600,000-square-foot Javits Center is too small for the biggest conventions, he wants to replace it with a 3 million-plus square-foot facility at Aqueduct Racetrack, in southeastern Queens. Genting, the vast Malaysian company that already runs a gambling operation at the Queens site, has reportedly offered to underwrite the new facility, at a cost of $3 billion or more. The Javits property would then be sold for residential or commercial development.

Spending $463 million to renovate a building slated to be torn down? In the world of convention centers, stranger things have happened. In the last decade, the number of national conventions—as well as attendance at those conventions—has declined, in some cases precipitously, according to Heywood Sanders, a public policy professor at the University of Texas at San Antonio. (One example is the AIA convention; its registration has dropped from 23,916 in 2008 to 13,369 in 2011.)

At the same time, dozens of cities have been building new centers or enlarging old ones. In the last year alone, Indianapolis and Philadelphia have opened sprawling new centers, while plans for such facilities are being floated in Baltimore, Los Angeles, San Francisco, Seattle, and Boston. Miami Beach recently solicited proposals for a *(continued)*

GSA Scandal

On April 2, a scathing report prompted the departure of three senior officials at the General Services Administration (GSA): Martha Johnson, GSA chief; Robert Peck, head of the Public Buildings Service division; and Stephen Leeds, senior counselor to Johnson. The personnel changes were sparked by an inspector general's report blasting the agency for "excessive and wasteful" spending on an October 2010 conference near Las Vegas that drew roughly 300 attendees and cost more than $822,000. Organizers also failed to follow federal contracting rules while planning the event, says the report. The shake-up comes at a time when the agency's construction budget is under severe pressure in Congress. Dan Tangherlini is now serving as GSA's acting chief; Linda Chero has replaced Peck. *Tom Ichniowski*



Commissioner Robert Peck (left) was removed from his post after a report accused the GSA of wasteful spending on a conference at the M Resort near Las Vegas (below).

PHOTOGRAPHY: COURTESY EVENTS DC (ABOVE); ENGINEERING NEWS-RECORD (TOP RIGHT); M RESORT (BOTTOM RIGHT)

The space frame in Manhattan's Javits Convention Center will be preserved during a restoration overseen by FXFOWLE. The building, completed in 1986, was designed by I.M. Pei and Partners.

IMAGE: COURTESY FXFOWLE

(Convention continued)
mixed-use development of up to 6 million square feet on the site of its existing, 640,000-square-foot convention center. In San Diego, hoteliers are being asked to accept a new hotel tax to cover the $520 million cost of a convention center expansion, with a rooftop park, by Fentress Architects of Denver. It's much the same in smaller cities: Spokane's convention center, enlarged only six years ago, is being readied for a new, $60 million expansion.

The good news for architects: The money is being spent not just on bigger centers, but also better ones. According to Rob Svedberg, an associate principal at Atlanta-based Thompson, Ventulett, Stainback & Associates (TVSA), the last few years have seen a pronounced shift from convention centers as giant, hangarlike buildings—"box with docks," as they are known—to buildings with finishes comparable to those of concert halls and hotel lobbies. His firm is building a convention center in Nashville with so much woodwork, "you'll feel like you're inside a Stradivarius violin," he says. People who travel to attend conventions, he says, "are looking for authentic experiences. They want to be in a real building."

Svedberg's firm also designed the Walter E. Washington Convention Center (2003), site of this year's AIA convention. If any center deserves to be a financial success, it is this one: an attractive building that seems to invite people in (unlike so many older convention centers), at the heart of the bustling Penn Quarter neighborhood, in a city that is already popular with conventioneers. And yet the center lost $18 million in 2011. Chinyere J. Hubbard, vice president of communications and marketing for the building's owner, Events DC, says most convention centers show losses and deserve to be judged by how much economic activity they bring to the community. But, she adds, "we have increased our business development effort." (The goal, she explains, is to land more conventions that make use of food and beverage, audiovisual, and other revenue-producing services.) Events DC has also arranged more than $200 million in city financing for the developer of a Marriott Marquis hotel, now under construction across the street from the convention center.

"You'll feel like you're inside a Stradivarius violin," says Rob Svedberg of a convention center his firm has designed for Nashville.

Washington is following the lead of many other cities in using new hotels to prime the convention-center pump. In Austin, Gensler has designed a 1,000-plus-room, 47-story hotel—the Grand Hotel Austin at Waller Creek—attached to the convention center by an "open-air garden bridge." Todd Runkle, the managing director of Gensler's Austin office, says that, in his experience, "the adjacency of a large hotel, usually with meeting space of its own, makes a big difference" to the success of a convention center. Gensler has also designed a master plan for the area around Houston's convention center, which would be anchored by three new hotels at the center's corners.

Runkle, who has been involved in numerous convention center projects, says of the enlarged buildings, "The revenue they generate when they are full makes up for the time they sit empty." And Loren G. Edelstein, editor of *Meetings and Conventions* magazine, says that "while a convention center itself might not be making money," it may be paying for itself with revenue the facility brings to the city in other ways.

But such claims are difficult to prove. Critics like Professor Sanders believe the convention center boosters are making a buyer's market—in which supply now far outstrips demand—even more unbalanced. Though the decline in attendance began before 2008, he says, "the recession worsened an already bad situation."

Back in New York, Robert Yaro, of the nonprofit Regional Plan Association, favors the Queens convention center plan, which will free up land on the West Side of Manhattan for development and (if all goes well) revitalize an outer-borough neighborhood. But meeting planners, according to the *New York Times*, are skeptical; people looking for a New York experience, they say, will not be lured to a facility an hour from Midtown.

One thing is clear: The governor's big plan for Queens has cast a pall over the Javits Center renovation. While the first phase of the project is proceeding, what would have been important parts of the next phase—including a complete revamping of the plaza in front of the building—are on hold. "We're not allowed to dream," says Bruce Fowle, founding principal of FXFOWLE.

But Fowle hopes that the completion of phase one, some of it by the end of this year, will help demonstrate that the Javits Center is far from a white elephant. "It's still going to be a major transformation," Fowle says. "When the scaffolding comes down, people will be very surprised." ■

View additional images at architecturalrecord.com.

A Monumental Debate

Will the Frank Gehry–designed Ike Memorial ever get built?

BY BEN ADLER

FOR AN architect, no commission is more troublesome than creating a national memorial. Frank Gehry is learning firsthand just how fraught the process can be, with his design for a President Dwight D. Eisenhower memorial in Washington, D.C., generating widespread debate.

The mammoth project—it will stretch the length of a city block and be twice the size of the Lincoln Memorial—has drawn fire from an array of critics. Most notably, Eisenhower's grandchildren complain the design fails to pay proper homage to the career of the World War II general and 34th U.S. president.

Gehry has proposed creating a park with several sculptural elements. Eighty-foot-high metal tapestries, with imagery depicting Eisenhower's childhood in Kansas, would frame the 4-acre, open-air site. The interior features a low-lying stone wall inscribed with excerpts of speeches delivered by Eisenhower; a statute of him as a boy; and two stone bas-reliefs—one depicting him as a military hero, the other showing him as president. The memorial is slated to be built near the National Mall, across from the Smithsonian's National Air and Space Museum.

"We're losing a huge opportunity to tell the story of how Eisenhower served his country," Susan Eisenhower, the president's granddaughter, told ARCHITECTURAL RECORD. "You don't earn a place in the memorial core of Washington based on your origins and your life's journey. You're there because the nation is grateful for your contribution. We don't have Lincoln in a log cabin."

Dissenters also argue that the design isn't traditional enough. "The focus is Gehry, not Eisenhower," says Justin Shubow, president of the National Civic Art Society, an organization that promotes classical design. "Gehry describes his work as representing chaos and danger. He has never done work representing someone else."

So far, the 11-member Eisenhower Memorial Commission (EMC), which is overseeing the project, stands in full support of Gehry's proposal. (Eisenhower's grandson, David Eisenhower, sat on the commission until December 2011, when he stepped down). The olive branch the EMC has offered to opponents is that the Los Angeles–based architect hopes to meet with the Eisenhower family to address their concerns. Gehry declined to be interviewed for this story, although his firm did make public a letter the architect wrote to Congress stating that he would be willing to work with the family and modify the scheme.

The project is being condemned for reasons beyond design. Some complain that the EMC should have hosted an open competition rather than using the federal government's standard approach to hiring an architect: The General Services Administration posts an online call for portfolios; a committee selects finalists who submit designs; the committee then chooses a winner. In the case of the Ike Memorial, Gehry beat out finalists Krueck + Sexton Architects, PWP Landscape Architecture, and Rogers Marvel Architects.

Defenders of the process say that an open competition wouldn't draw top talent. "You're basically saying to architects: 'You're skilled professionals and you're going to go up against grade-school students,'" says Witold Rybczynski, an urbanism professor at the University of Pennsylvania. In March, he wrote an op-ed for the *New York Times* defending both the design and the selection process. Rybczynski sits on the U.S. Commission on Fine Arts, which ultimately must approve the memorial design.

Many hurdles await. Beyond getting the green light from the Arts Commission, the design must go before the National Capital Planning Commission for preliminary and final approval. Moreover, money must be raised. Congress has agreed to pay for only half of the estimated $112 million project. As observers have noted, the Eisenhower family's endorsement could be helpful, even necessary, when it comes to fundraising—and getting this memorial built. ■

The design features metal tapestries depicting Eisenhower's childhood, along with stone bas-reliefs showing him as a general and president.

View additional images at architecturalrecord.com.

African American Museum in Progress

While the Ike Memorial's fate remains uncertain, another Washington, D.C., project is moving ahead. Work has begun on the Smithsonian's National Museum of African American History and Culture, a $500 million project designed by the Freelon Group, Adjaye Associates, Davis Brody Bond, and Smith Group. The building, whose February groundbreaking ceremony was attended by President Barack Obama, is rising on the National Mall near the Washington Monument. The museum is slated to open in 2015. *Jenna M. McKnight*

IMAGE: COURTESY EISENHOWER MEMORIAL COMMISSION (LEFT); NMAAHC (TOP RIGHT)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Utah Architects Vie for Congressional Seats

BY DAVID HILL

CURRENTLY THERE are no architects serving in the U.S. Congress, and according to the AIA, there was only one during the entire 20th century: Richard Swett, who worked in Skidmore, Owings & Merrill's San Francisco office before entering politics in the 1990s. A New Hampshire Democrat, he served two terms in the House of Representatives.

This year, two Utah architects hope to make their way to Capitol Hill: Søren Simonsen, 44, a Democrat who sits on the Salt Lake City Council; and Stephen Sandstrom, 48, a Republican from Orem who has served in the Utah House of Representatives since 2007 (he recently resigned so he could focus on his Congressional campaign). Simonsen is running in the 3rd Congressional District, while Sandstrom is a contender in Utah's newly created 4th Congressional District. Both face primary challenges from other candidates.

Simonsen is a principal at Community Studio, a small firm specializing in neighborhood-based urban design. He was Utah's first LEED-accredited professional. In 2009, while up for reelection to the city council, Simonsen won the endorsement of the *Salt Lake Tribune*, which praised his progressive politics, "including clean air (he rides a fuel-efficient scooter), advancing mass transit and its related development, and building the city's trail system."

Sandstrom is principal of Sandstrom Associates Architecture, a 24-person firm that specializes in school design. "I come from a long line of architects," says Sandstrom, whose great-grandfather began practicing in Utah in the 1930s. Sandstrom calls himself a "Reagan conservative" who favors small government, lower taxes, and tough immigration laws.

For the AIA, having two members run for Congress is a coup. Since 2006, the organization has encouraged members to become "citizen architects" by serving in political positions. "Architects are recognizing the need to get involved," says Paul Mendelsohn, the AIA's vice president for government and community relations. "There aren't many who have been successful in pursuit of Congress. Having two run in the same year is really exciting." ■

Stephen Sandstrom is a Republican contender in the 4th Congressional District. He has served in the state's House of Representatives and leads an eponymous firm based in Orem, Utah, and Denver.

Søren Simonsen, a Salt Lake City Council Member, is running as a Democrat in the 3rd Congressional District. He is a principal at Community Studio, a small firm specializing in urban design.

PHOTOGRAPHY: COURTESY STEPHEN SANDSTROM (LEFT); SØREN SIMONSEN (RIGHT); SHOP (OPPOSITE PAGE)


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Vishaan Chakrabarti

BY FRED A. BERNSTEIN

NO ONE has a résumé like Vishaan Chakrabarti, a planner who has darted between the public and private sectors: as a top executive at Related Companies; a director at the New York City Planning Commission; an associate partner at Skidmore, Owings & Merrill; a transportation planner for the Port Authority of New York and New Jersey; and, most recently, as the director of Columbia University's Center for Urban Real Estate (CURE). In March, Chakrabarti became a partner at SHoP Architects. He will retain his position at Columbia while helping steer the Manhattan firm responsible for such projects as the Atlantic Yards arena in Brooklyn. We caught up with Chakrabarti as he was out and about.

The urban planner Vishaan Chakrabarti (second from right) recently became a partner at SHoP.

Where are you right now?

I'm walking on the High Line. I love seeing how the rezoning we devised at City Planning has engendered so much architectural experimentation. The only negative is that we worked very hard on an affordable housing plan for this neighborhood, but we may have underestimated the popularity of condos. I'm hopeful there will be more rental-building activity, and with it more affordability, during the next round of construction.

Are you excited about the Cornell/Technion campus planned for Roosevelt Island?

Yes, but the jury is still out on the key question: If we're going to bring this campus to New York City in an effort to diversify the economy, where will the businesses it spawns find space to grow? To fulfill the promise of the tech campus, there needs to be proximate, relatively cheap real estate, and the place I see that happening is Long Island City. It's just a few subway stops from Midtown Manhattan, but it's mostly one- and two-story buildings.

So you favor increased density?

Yes, in places that are well served by the subway, like Long Island City and Downtown Brooklyn. That's why we need projects like Atlantic Yards.

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Absolutely! The SHoP plan is tremendous—it's going to create a great new neighborhood. And the goal to build modular housing could be a game-changer. Prefabricating buildings within New York City, which is what's really being talked about, could become an important new industry.

You're well known for a project that will never be built: LoLo, the land bridge connecting Manhattan and Governors Island proposed last year by CURE.

There has been so much down-zoning in the outer boroughs that we've limited our capacity to meet the needs of a growing population. The proposal was asking: Do we have to create more Manhattan?

Why did you decide to join SHoP?

I've known the partners for years, and I've watched it go from an avant-garde start-up to a 90-person firm. Now it's SHoP 3.0—a global practice interested in large-scale urbanism. The hope is that my coming to the firm will send a concrete signal that we're poised to build the skyscrapers, museums, and transportation infrastructure of the future. ■

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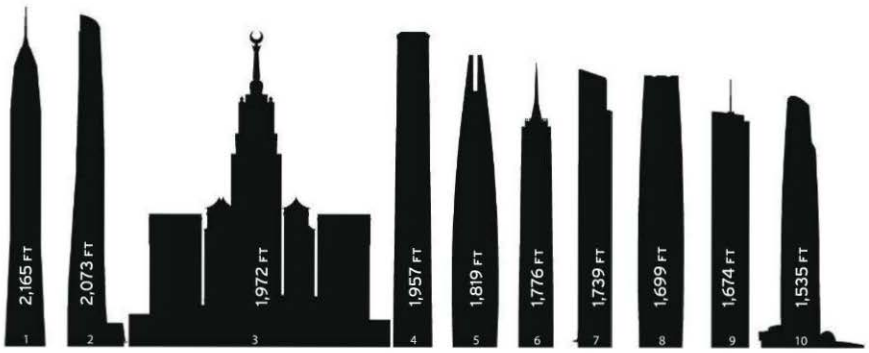
While Kingdom Tower awaits groundbreaking (page 160), other skyscrapers around the globe are now under construction. The Council on Tall Buildings and Urban Habitat ranks the loftiest.



	Project	Architect	Location	Completion
1.	Ping An Finance Center	KPF	Shenzhen, China	2015
2.	Shanghai Tower	Gensler	Shanghai	2014
3.	Makkah Royal Clock Tower	Dar al-Handasah Shair	Mecca, Saudi Arabia	2012
4.	Goldin Finance 117	P&T Group	Tianjin, China	2015
5.	Lotte World Tower	KPF	Seoul	2015
6.	One World Trade Center	SOM	New York City	2013
7.	Chow Tai Fook Guangzhou	KPF	Guangzhou, China	2017
8.	Dalian Greenland Center	HOK	Dalian, China	2016
9.	Busan Lotte Town Tower	SOM	Busan, South Korea	2016
10.	International Commerce Center 1	KPF	Chongqing, China	2016

See Us at the AIA Convention!

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» Stop by the McGraw-Hill Construction booth (#2603) on the expo floor to learn about our various offerings, including the Sweets Building Product Database, Dodge Project Center News Database, and our award-winning print and digital publications. Check out our second annual "Meet the Expert" series, where ARCHITECTURAL RECORD editors interview luminaries such as Thom Mayne and Tom Kundig. For a full schedule, see our website; also, keep abreast of our activities on Twitter at #AIAMHC or @ArchRecord.

» On Thursday, from 4–5:30 p.m., "Design Connects to Nature" will explore the innovative ways the built environment uses nature as a metaphor and an amenity. Nadav Malin, executive editor of our sister publication, *GreenSource*, will moderate the panel (worth 1.5 CE credits). The speakers: Bob Berkebile, principal at BNIM; Bill Browning, principal at H2B Architects; and Jason McLennan, CEO of the Cascadia Green Building Council and author of the *Living Building Challenge*.

» On Friday, from 2–3:30 p.m., "Connecting Architects to the World of Print and Digital Media" will offer tips on navigating the publishing landscape. Earn 1.5 CE credits for attending this panel featuring: Cathleen McGuigan, editor in chief of ARCHITECTURAL RECORD; Ned Cramer, editor in chief of *Architect*; Julie V. Iovine, executive editor of the *Architect's Newspaper*; Inga Saffron, architecture critic for the *Philadelphia Inquirer*; and Marc Kushner, cofounder of *Architizer*. Scott Frank, AIA's director of media relations, will moderate.

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noted

Zaera-Polo Named Dean of Princeton Architecture School

Princeton's School of Architecture has chosen Alejandro Zaera-Polo, 48, a theorist and practitioner, as its next leader. His appointment begins July 1. He will replace Stan Allen, who has held the position since 2002 and will resume teaching at the Ivy League school following a yearlong sabbatical.

Kéré Nabs Top Holcim Prize

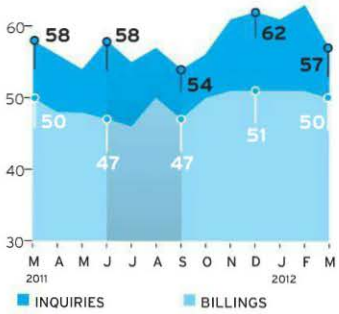
Berlin-based architect Diébédo Francis Kéré has won the Gold Global Holcim Award, a $200,000 prize, for a school he designed in his native Burkina Faso. The Silver Award went to Brazil's Urban Think Tank; Realities United, in Germany, earned the Bronze. The accolades recognize sustainable construction projects.

Unveiled: Proposed Schemes for National Mall in D.C.

In April, the Trust for the National Mall revealed proposals that reimagine three portions of the Mall: Constitution Gardens, the Washington Monument Grounds at Sylvan Theater, and Union Square. Four finalists for each site were selected last fall; the winners will be announced in May.

ENR Honors Bridge Engineer

Engineering News-Record, published by McGraw-Hill Construction, gave its annual Award of Excellence to Theodore Zoli, the national chief bridge engineer for HNTB Corporation. Known for his innovative designs, Zoli was recognized at a ceremony in New York City on April 12. In 2009, he won a MacArthur "Genius" Grant.



ABI Hovers Around 50

The Architectural Billings Index, a leading economic indicator, hit 50.4 in March—down slightly from 51.0 in February. The inquiries score slipped to 56.6 from 63.4. With a number of architecture firms still struggling, "progress is likely to be measured in inches rather than miles for the next few months," says Kermit Baker, the AIA's chief economist.

DIAGRAM: © COUNCIL ON TALL BUILDINGS AND URBAN HABITAT

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FORECAST 2012

High-Rise Construction

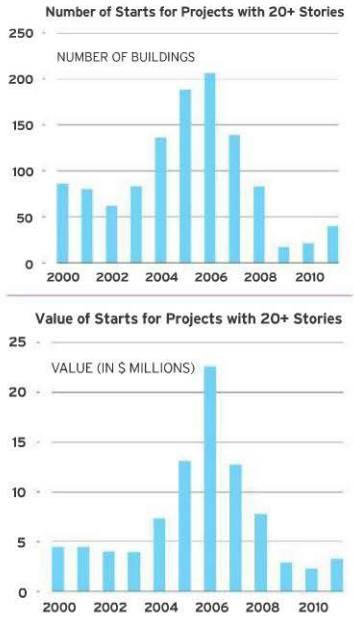
According to construction-economics data from McGraw-Hill Dodge, U.S. tall-building construction is down significantly from its 2006 peak. However, a handful of high-profile projects continue to move forward.

Although most of today's tallest structures are built in Asia and the Middle East, a number of tall buildings have broken ground in the U.S. over the past twelve years. Since 2000, 70 buildings with at least 50 stories broke ground. Most are concentrated in New York, Miami, and Chicago. Three of the five tallest are under construction at Ground Zero in Lower Manhattan, including One World Trade Center, which will be the Western Hemisphere's tallest building when finished in late 2013. Its neighbors, Two World Trade Center and Three World Trade Center, both in the early phases of construction, will not be completed until the market dictates, but also made the top five. Two completed Chicago mixed-use towers are on the list: the Trump International Hotel & Tower and Aqua.

70
Number of U.S. starts for buildings with at least 50 stories since 2000.

Nonresidential and Multifamily Starts (20+ Stories)

Including number of starts and value of starts for 2000–2011



The 5 Tallest U.S. Buildings Started Since 2000 Ranked by Number of Stories

1. *1 World Trade Center (start 2006, in progress)* • ARCHITECT: ***Skidmore, Owings & Merrill (SOM)*** • LOCATION: *New York City* ..... STORIES: **104**
2. *Trump International Hotel & Tower Chicago (start 2005, completed)* • ARCHITECT: ***SOM*** • LOCATION: *Chicago* ..... STORIES: **98**
3. *Aqua (start 2006, completed)* • ARCHITECT: ***Studio Gang Architects / Lowenberg Architects*** • LOCATION: *Chicago* ..... STORIES: **86**
4. *3 World Trade Center (start 2010, in progress)* • ARCHITECT: ***Rogers Stirk Harbour+Partners/Adamson Associates Architects*** LOCATION: *New York City* STORIES: **80**
5. *2 World Trade Center (start 2010, in progress)* • ARCHITECT: ***Foster+Partners / Adamson Associates Architects*** • LOCATION: *New York City* STORIES: **79**

0 10 20 30 40 50 60 70 80 90 100 105
Number of Stories

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Based on number of starts for buildings of 20+ stories (2000–2011)

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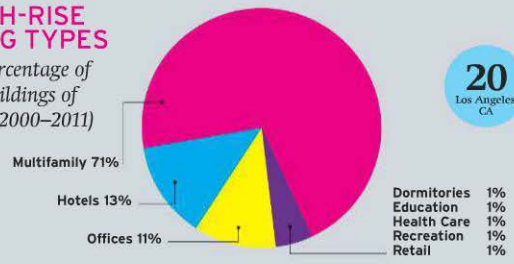
Based on percentage of starts for buildings of 20+ stories (2000–2011)



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CIRCLE 64

perspective practice

INCREASINGLY, ARCHITECTURE FIRMS OF ALL STRIPES ARE OFFERING IN-HOUSE DESIGN AWARDS TO INSPIRE CREATIVITY AND IMPROVE EMPLOYEE MORALE.

BY C.J. HUGHES

ED FEINER, the former chief architect of the General Services Administration, made a name for himself creating the agency's well-regarded Design Excellence program, which raised the creative bar for government buildings. Today, he's taking on a similar challenge at Perkins+Will (P+W), which he joined in 2009. As director of the firm's Design Leadership Forum, started in collaboration with chief executive Phil Harrison and design principal Ralph Johnson, Feiner coordinates several in-house award programs that aim to recognize and encourage better design across the company's 23 offices, totaling 1,600 employees. "A little competition is a good thing, particularly if it's positive," Feiner says.

(Left to right) Casey Jones, Ron Bogle, Nancy Easton, and Steve Turckes assess entries in Perkins+Will's annual design competition in 2011.

P+W is not alone in offering internal design awards. In recent years, practices of all sizes have introduced similar initiatives, including RTKL, whose "Works in Progress" program began in 2005, and HOK, whose "BIM-ies" started in 2010. Organizers say the programs not only enable employees to stay apprised of each other's work, but also serve as important recruiting tools. Most critically, they spark creativity and boost morale. "You're not going to win a $600 million lottery prize," Feiner says, "but you stand a good chance of being respected by your colleagues."

"A little competition is a good thing, particularly if it's positive," says Ed Feiner, who oversees internal award programs at Perkins+Will.

Of course, organizing these programs can be daunting, particularly for megafirms. A methodical process is key, Feiner says. For P+W's recent in-house "biennale," Feiner asked the six judges, all of whom work outside the firm, to initially review the 149 submissions online and pick their top 20. Later, the judges convened in New York for a five-hour session in which they selected 16 winners and 16 recommendations. The entries ranged from completed towers to on-the-board schemes.

While programs often begin as internal reviews, many now rely on external judges from the fields of academia, journalism, and real estate development. These outsiders can provide "an interesting perspective on what's happening in the world," says Carlos Martinez, the Gensler principal who oversees the firm's Design Excellence Awards, which began in 2000 and have ballooned in popularity. With growing interest comes challenges: Last year, Gensler's 3,500 employees, dispersed among 41 offices, contributed a hefty 190 entries, forcing Martinez to nix projects that won't be built in the foreseeable future. In the end, the six jurors—including Tom Buresh, chair of Berkeley's architecture department, and Alexa Arena, a vice president at Forest City, a Bay Area developer—evaluated 160 entries and picked 20 winners, ranging from an Atlanta office renovation to a fritted-glass facade for a Chicago college building.

Though confidentiality agreements prevent Martinez from publicly sharing certain winners, many do end up in promotional e-mails. The goal is to remind clients that the firm is multifaceted. "We want them to think, 'I didn't know Gensler had done that,'" says Martinez.

Some firms go far beyond e-mail blasts. In 2001, Skidmore, Owings & Merrill published its first *SOM Journal*, a 200-page monograph that showcased five designs selected by an external jury. "My aspirations in the beginning were more about communicating what we were doing so that young talent would come here," says partner Roger Duffy, who compiled the inaugural journal; they have since published six more. "It has blossomed into something nobody could have imagined." Today, mixed with the winning projects are essays that explore a theme, like teamwork, which will be the focus of *Journal 8*, due this fall. It will be available for sale.

For NBBJ, the focus is more on rewarding talent internally. Its "Projects of the Year" program, launched in 2007, has been so well received that the 700-employee firm added five categories this year, says A.J. Mantero, a partner based in Columbus, Ohio, who oversees the program.

The entries are generally evaluated by two in-house designers and three visiting jurors. "It costs money to fly people in, but when you think about the great feedback you get, it's worth it," Mantero says. The jury spends a full day studying the entries before announcing winners. This year, the grand prize went to the team behind the Lunder Building at Massachusetts General Hospital (2011), which will star in a video shown in all eight NBBJ offices.

In-house programs also help firms improve their applications for external programs, such as AIA chapter awards, says Omaha-based Tom Trenolone, a principal at HDR. He manages the company's "Opacity" program, which the 185-office company introduced in 2008. "It's a great proving ground," he says.

Even when the jury constitutes staff members, there's still much to be gained, says David Parks, a senior associate at Gould Evans, the 150-member firm in Kansas City, Missouri, that started an awards program in 2006. Winning projects, selected largely by an in-house team, are presented in a book and on the company's internal website. It's no Mega Millions jackpot, but garnering peer recognition and elevating a firm's design standards have their own payoffs. ■

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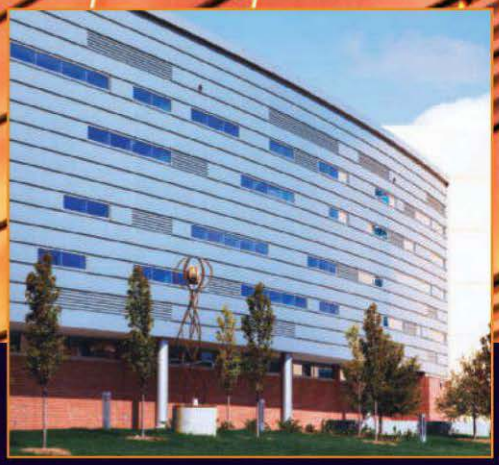

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CIRCLE 70

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CIRCLE 60

Bigger! Faster! Urbanism in Asia, Then and Now

Project Japan: Metabolism Talks, *by Rem Koolhaas and Hans Ulrich Obrist. Taschen: 2011, 684 pages (paper), $60.*

Reviewed by Victoria Newhouse

Rem Koolhaas's most recent publication (with Hans Ulrich Obrist) tells the story of Metabolism, a technocratic movement of the 1960s based on ideas of organic growth. Nine surprisingly personal interviews with Metabolist architects and related figures (such as Atushi Shimokobe, a government official who helped many of the architects get early commissions) make the book a page-turner. Chapters on 20th-century Japan are also engaging, as are the comments in side notes. Captioned photo essays supplement illustrations that are interspersed with the text.

Two key events in this meticulously researched history are the World Design Conference in 1960, which marked the beginning of the movement, and Expo '70 in Osaka, its climax. However, just as the narrative goes beyond architecture to cover the politics, sociology, and culture of Japan, it follows those involved with Metabolism from the early 1970s to the present. Despite the distance he maintained from Metabolism, Kenzo Tange, the late dean of Japanese architecture, served as an eminence grise, a role that is vividly recalled by his right-hand man Arata Isozaki. Tange's teaching and practice created a hospitable environment for new ideas, and he master-minded Expo '70, which marked the restoration of Japan's postwar moral and economic influence.

What makes the interviews so fascinating is the remarkable candor of the colorful interviewees. For example, the industrial designer Kenji Ekuan provides a hierarchical classification of the seven principal Metabolists; although the group included Fumihiko Maki and Kisho Kurokawa, the star seems to have been Kiyonori Kikutake. A recurring note of revival is sounded in Ekuan's unexpected reaction to the hellish atomic ruins of Hiroshima, which he describes as "transformed … by the setting sun into a dazzling vision of paradise." Repeatedly, the war's desolation is viewed as the potential for a new beginning, rather than the end of a civilization.

Some of the Metabolists experimented with plug-in architecture (which also fascinated the Archigram group in Great Britain at the time). Perhaps the most famous example of such work is Kurokawa's 1972 Capsule Tower in Tokyo, which has survived but is now threatened with demolition. The Metabolists' ongoing influence can be seen in the work of young firms such as Atelier Bow-Wow, which has explored the notion of "in-between" space in projects like the nomadic BMW Guggenheim Lab; such work recalls Metabolism's search for alternatives to Japan's land limitations.

Koolhaas says that besides chronicling what he calls "the last movement that changed architecture," the authors want to understand how the Metabolists feel about their work in retrospect. Could it be that *Project Japan* is a preparation for this great experimenter and theorist's review of his own past through the lens of earlier innovators?

Designed by Irma Boom so it can be read selectively according to subject matter, the book signals different sections by using attention-getting colors (pink, orange, khaki) for certain essays and page borders. Some barely legible colored text and a gutter that is too narrow are the only flaws in an otherwise stunning publication. ■

Victoria Newhouse is an architectural historian and the author of SITE AND SOUND: THE ARCHITECTURE AND ACOUSTICS OF NEW OPERA HOUSES AND CONCERT HALLS, *published by Random House in April.*

The Vertical Village: Individual, Informal, Intense, *edited by Winy Maas. NAi Publishers: 2012, 528 pages, $45.*

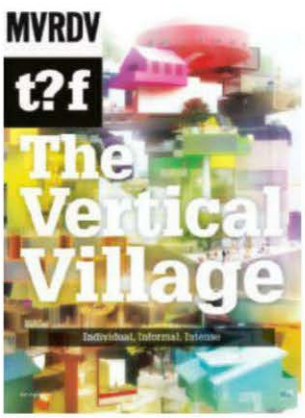
How the City Moved to Mr. Sun: China's New Megacities, *by Michiel Hulshof and Daan Roggeveen. SUN Publishers: 2010, 392 pages, $51.*

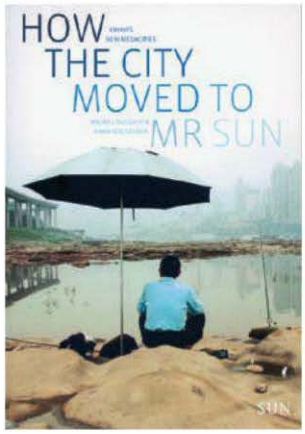
Reviewed by Clare Jacobson

Two new books take on the complex and timely topic of contemporary urbanism in Asia. Coincidentally (or not) written by Dutch teams, *The Vertical Village* and *How the City Moved to Mr. Sun* are both smart and stunning. Like good urban planning, they are well conceived, thoroughly researched, and beautifully designed. And while two new books on one topic may seem one too many, their radically different points of view—one utopian, the other journalistic—make them both necessary reads.

The Vertical Village is a collaborative research project led by architect and urbanist Winy Maas, his firm MVRDV, and his think tank the Why Factory, with participants from several Dutch and Taiwanese universities. Maas's utopian vision aims to replace the residential tower in the sky (the 20th-century's utopian vision) with a high-rise village, which he defines as "a vertical stack of low-rise, individual homes and amenities." This idea of flexible, expandable housing is not exactly radical; works by Archigram and the Metabolists come to mind. What is new is the context—major Asian cities where traditional urban villages are being replaced (or already have been replaced) by towers.

The book's 14 chapters include an introduction to what its authors dub the "block attack" of tower residences, mappings of tower infiltration in nine Asian cities (Beijing, Seoul, Tokyo, Shanghai, Taipei, Hong Kong,





Bangkok, Singapore, and Jakarta), examples of low-rise holdouts to these blocks, screenshots of software for do-it-yourself house and village design, and both abstract and site-specific student-designed models of vertical villages.

The proposal is unabashedly idealistic. When asked about the market practicality of the vertical village, Maas responded, "We probably need to first invent a new infrastructure. Like a sky car. … And another financial system." Still, the project is well rooted in data. Clear and consistent maps and charts; explorations of the effects of energy, economy, and structure on the model; and interviews with experts on its feasibility make the vertical village seem almost buildable.

One weakness stands out: The book contains a limited number of voices from its region of study. Hsinyao Huang's interviews with house hunters and Yen-Fen Tseng's discussion of high-rise social interaction give the reader a glimpse into Taiwanese ideas of individuality and community, use of outdoor space, and home as a place of refuge rather than socialization. Additional voices from other Asian locations would help balance some of the book's Eurocentrism, such as its romanticization of traditional urban conditions. I am curious to hear what an Indonesian writer might have to say about the proposal to develop a vertical village around a Jakarta garbage-picking slum.

The local voices missing from *The Vertical Village* play a significant role in *How the City Moved to Mr. Sun*. This study of urbanism in China is informed by interviews with those affected by it. The country's coastal development has been well documented in books like Thomas Campanella's *The Concrete Dragon* and John Friedmann's *China's Urban Transition*, but here journalist Michiel Hulshof and architect Daan Roggeveen discuss 13 inland cities, the of-the-moment centers of China's urban growth. A chapter on Shijiazhuang relates how the farmer Mr. Sun of the book's title helped create "a village in the city" (not dissimilar to Maas's vertical village) in the wake of the budding metropolis. Other chapters recount the stories of people involved in a central business district cut-and-pasted from multiple design proposals and in a neighborhood-development project that changed from historic preservation to recreation. The book also presents housing trends for China's superrich and super-poor, and information on government assistance in establishing artists' enclaves.

These tales are presented within a broader study of Chinese urbanism. The authors take on subjects that include the historical creation of cities, the Special Economic Zones established by Deng Xiaoping, and the effects of the *hukou* (residency) system on migration and education. A fascinating section in the chapter on the city of Xi'an traces the progression of a housing model from sixth-century imperial *fang* to 1950s communist *danwei* to contemporary gated compounds. All of this is set in language that is a delight to read. On one page, the authors seamlessly segue from Zhengzhou's Go West development policy to Village People's *Go West* disco hit to the classic Chinese novel *Journey to the West*.

A couple of choices in the book seem off target, though. Most photos do not have captions, which I assume was a design decision. Many are self explanatory, but many more would benefit from descriptions. And the conclusion of the book, tucked into the final chapter on Kashgar, skips the specificity that makes the rest of the texts so strong, in favor of overarching statements. Sentences like "Press freedom and freedom of opinion stretch only to the extent permitted by the Ministry of Propaganda" are not exactly enlightening.

But these weaknesses and those in *The Vertical Village* are minor points in otherwise winning publications. The importance of their topic—the rapid growth of Asian cities—cannot be underestimated. And whether considered through the designs of visionaries or the chronicles of realists, these books offer the context for contemplation. ■

Clare Jacobson is a Shanghai-based writer and editor.

[BRIEFLY NOTED]

Shanghai New Towns: Searching for Community and Identity in a Sprawling Metropolis, *edited by Harry den Hartog. 010 Publishers: 2010, 416 pages, $44.*

This densely packed book presents a broad range of research on the remarkable growth of the greater Shanghai metropolitan area in recent decades. With more than 300,000 people moving to Shanghai each year, the city government is busy building satellite towns, some of which are themed on ersatz visions of foreign places. So today, you can live in or visit Holland Village or Thames Town. Other new towns, such as Qingpu and Jiading, employ more sophisticated planning concepts and have welcomed projects by cutting-edge Chinese and foreign architects. Photo essays by Richard Rowland and and Chen Taiming supplement texts by writers and designers from Holland, China, Hong Kong, and Canada. Li Xiangning, who teaches at Tongji Univeristy in Shanghai and was a fellow at the MAK Center in Los Angeles in 2009, compares themed spaces in Shanghai and LA, reminding us that the Getty Villa, Venice Beach, and LA's Chinatown may not be so different from Thames Town in Shanghai. Like its subject, this book sprawls but fascinates. *Clifford A. Pearson*

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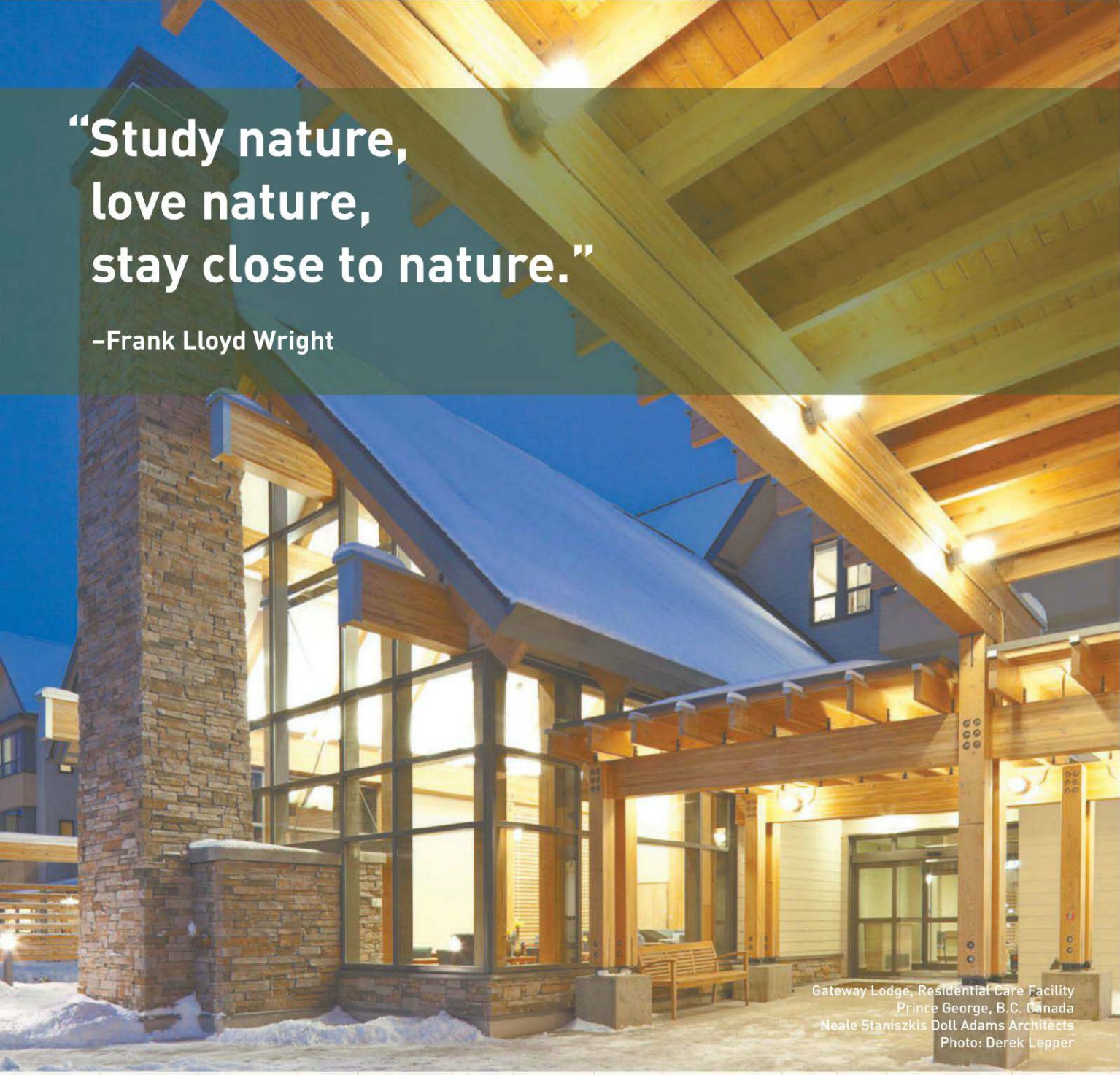
CIRCLE 61



Gateway Lodge, Residential Care Facility
Prince George, B.C. Canada
Neale Staniszkis Doll Adams Architects
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CIRCLE 37

All in the Family

Where there's an architect, there are probably a few more—from the same gene pool.

BY LAURA RASKIN

Moshe Safdie and his daughter Taal observe the construction of Moshe's Habitat 67 in Montreal. Taal, now an architect, lived in the apartment complex.

ARCHITECTS BEGET architects, so it seems. Eliel Saarinen had Eero Saarinen. Two of Frank Lloyd Wright's sons, Lloyd and John, became architects. Walter Gropius's father was an architect. And if not begotten, then nearly so: Maya Lin's architect aunt, Lin Huiyin, helped conduct the first comprehensive study of architecture in China. Charles Eames was the nephew of architect William Eames. Henry Smith-Miller, of Smith-Miller + Hawkinson Architects, could (and perhaps should) write a book about his family of architects, which stretches back, with baroque twists and turns, to Silas Smith, an engineer and carpenter who left for Chile after the Civil War. Smith-Miller discovered this history after his architect father's death. "My father was extremely progressive. He thought family history was totally unimportant," he says.

While joining the family trade isn't unique to architects, their proliferation raises the question: Is architecture in your blood? Lee Silver, a molecular biologist and professor at Princeton University, doubts we'll ever be able to fully answer that. "It's a very complicated network of genes that influence personality and behavior," he says. "It's clear to geneticists that there is no such unified entity as creativity or intelligence." That said, there is a genetic context for talent, but it's taboo to talk about it. "It's part of the American educational system to say, 'You can do anything you want if you just try hard enough!' It turns out, that's not true," says Silver. "Most people are pretty disappointed about what they accomplish in life."

Annabelle Selldorf is relieved not to count herself one of them, given that she "wanted to do pretty much anything but become an architect." The German-born principal of her eponymous New York City firm overheard her architect father Herbert Selldorf's conversations with clients and contractors and thought, "That must not be fun." When her best

While joining the family trade isn't unique to architects, their proliferation raises the question: Is architecture in your blood?

PHOTOGRAPHY: COURTESY TAAL SAFDIE

View additional images at architecturalrecord.com.

friend suggested they become interior designers, Herbert told his daughter that architecture would be more practical. She acquiesced.

Selldorf now understands that she wanted to please her parents and relate to them more than she acknowledged—her mother, Dorrit Selldorf, was an interior designer, and her grandmother founded the interior design studio Vica in the 1950s. "I think there's the conscious and the unconscious," she says. "The conscious side said, 'Way too much work, way too little pay,' and the unconscious part knew that's what I really wanted to do." Besides, architecture was inseparable from her life.

Silver believes that environment, perhaps even more so than genetics, is responsible for success in a chosen career: "I am sure there are kids born every day around the world who could have been brilliant architects, if they only had the right mentors and had gone to the right schools. But their talent was never expressed."

Taal Safdie, daughter of Moshe, was "breathing architecture"—a heady mix of job sites, client dinners, and office flurry—from a very young age. She spent part of her childhood living in Habitat 67, the Montreal apartment complex designed by her father. She didn't realize then how special it was, irritated instead by its distance from her friends' houses. "But when I go back there now, and show our kids, I think, 'I cannot believe this was built then,' " she says. Safdie and her husband, Ricardo Rabines (whose parents were *not* architects), had already established San Diego–based Safdie Rabines Architects when she and her father collaborated on the design of Eleanor Roosevelt College at the University of California, San Diego. She enjoyed that experience. "But I didn't want to go work for him," she says. "I took some pretty conscious steps to find my own way."

Victorian scientist Francis Galton, Charles Darwin's cousin, was the first to study whether genius could be inherited—he coined the term "nature versus nurture." After examining families of renowned scientists, he determined that creative genius was innate. Scientist Alphonse de Candolle refuted his claim almost immediately: Genius was the product of one's environment. Renowned psychologist Dean Keith Simonton recounts the history of this lasting debate in his 2008 article "Scientific Talent, Training, and Performance: Intellect, Personality, and Genetic Endowment" in the *Review of General Psychology*. Simonton, who studies the concepts of genius and talent, asserts that every human variation, from eye color to personality, is attributable to genetic influence, and concludes that there must be some genetic foundation for talent.

He adds that there is reason to believe that artistic talent is more heritable than scientific talent. So if architectural talent is an unusual mix of science and art, then children of architects may be more likely to be architects—but that's just his guess.

Rob Rogers's daughter Andrea Bucher Rogers, an architecture student at Rice University, could be an example of this special inheritance. Her father says she didn't show an interest in the subject until he and his wife, Alissa Bucher, an architect, talked to a friend of Andrea's about their jobs. Rogers says Andrea then asked, "Why don't you ever talk to me that way?" But from an early age, she exhibited a unique spatial awareness. "That's the classic distinction of architectural thinking and other kinds of problem solving, that spatial and temporal understanding of places. For sure, she's got it," says Rogers, partner of Rogers Marvel Architects (partner Jonathan Marvel's father is an architect). Rogers's parents were architects, but he wanted to be a lawyer until a high school art teacher "threw a fit" about his intentions and told him to consider his parents' profession. Like Taal Safdie, he purposely never worked in his father's Colorado firm. "I think the distance let us be closer in other ways," he says.

Ah, fathers. Or, "the father problem," as Stefan Behnisch calls it. "It's a heavy burden on the children of architects because they always feel they have to please the father or compete with the father. But I never had that," says Behnisch. His father, the architect Günter Behnisch, was a German submarine commander captured by the British during WWII. A fellow prisoner of war suggested Günter study architecture in Stuttgart when he was released. He later designed the Olympic Park (completed in 1972)

Rob Rogers strikes a cool pose with his architect parents during a visit to the University of Texas School of Architecture in June 1973 (above). Andrea Bucher Rogers, 19, Rogers's daughter (right), is studying architecture.

in Munich and helped Stefan get his start by allowing him to open a branch of the firm in 1989, which became independent two years later. "One of the reasons why it worked with us was that there was not too much affection," says Behnisch. "But we shared the same humanistic ideals, which are the basis of architecture."

The reasons for a child's proclivity for his parents' profession may never be fully unpacked. The mystery, in the meantime, is a delight. "I think that architecture is as much a choice of a lifestyle as it is a profession," says Rogers. "My father died a little over a year ago. He was at the office Friday and he died Sunday. He loved what he did, even as his role changed. Believing that the love of life and place was one's personal and professional responsibility—I think that's instilled in you." ■

PHOTOGRAPHY: COURTESY ROB ROGERS

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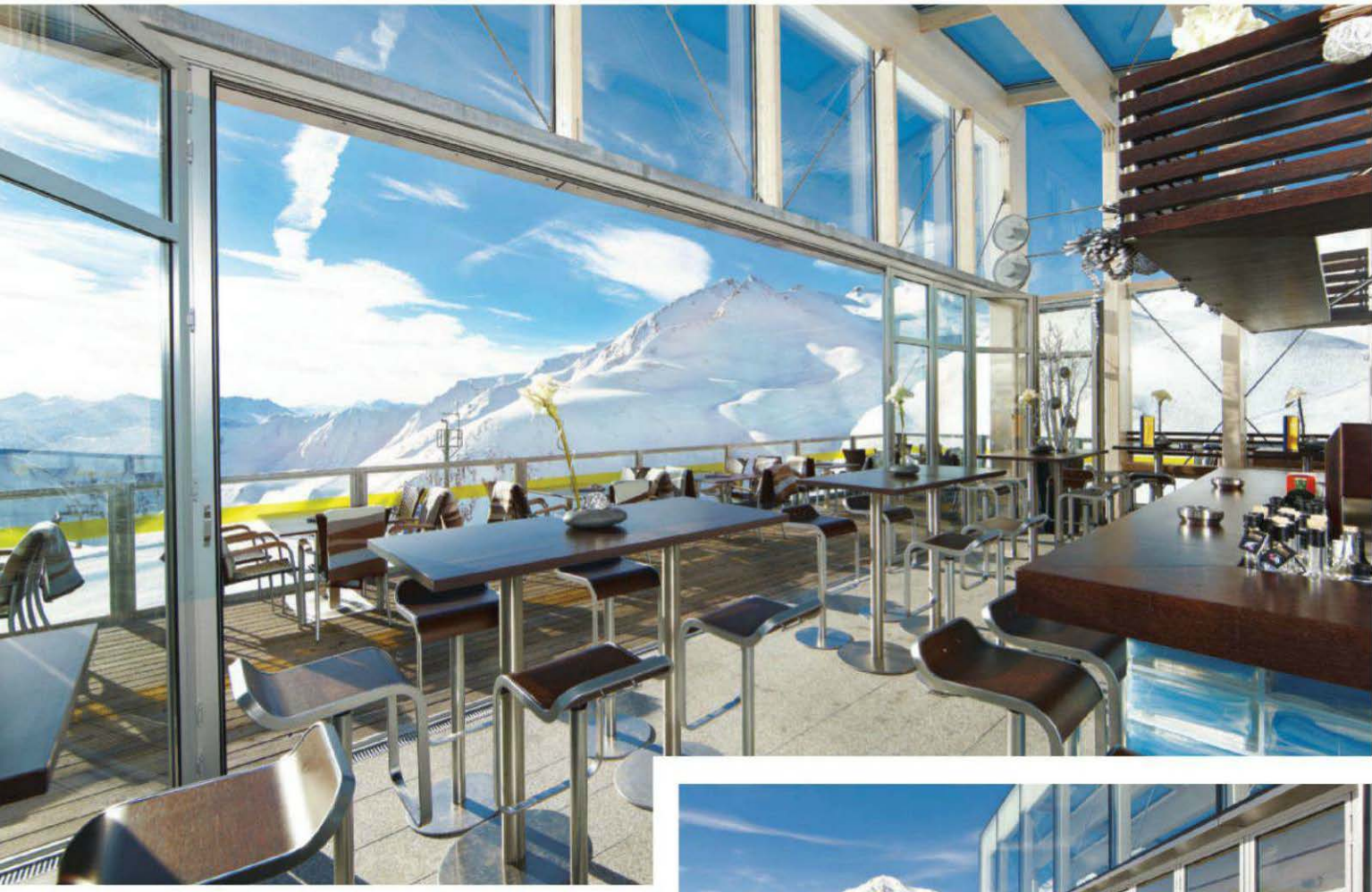

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perspective **on the record**

RECORD SITS DOWN WITH THE NEW ARCHITECTURE CRITIC OF *THE NEW YORK TIMES* TO DISCUSS HIS PLANS FOR COVERING THE DESIGNS OF BUILDINGS, NEW YORK, AND THE WIDER WORLD.

MICHAEL KIMMELMAN

PHOTOGRAPHY: © MARCO TAMBARA

LAST FALL, Michael Kimmelman, the longtime chief art critic of the *New York Times*, became the architecture critic at the paper and immediately set a new agenda. Rather than write about the latest starchitect building, he began with a piece on a mixed-income housing project in the Bronx by Grimshaw Architects and Dattner Architects called Via Verde, and followed up with articles that focused largely on social architecture and the public realm. Trained as a pianist, he grew up in New York's Greenwich Village and studied for a doctorate in art history at Harvard before pursuing journalism. Previously he'd written occasionally about architecture for the *New York Times Magazine* and the *New York Review of Books*. He talked to RECORD's editor in chief Cathleen McGuigan about his ideas from what is the most visible perch in architectural criticism.

Before you came back to New York to write about architecture, you spent several years writing from Europe.

I went abroad for the *Times* because I thought there really was a way to reconnect culture—and here I mean culture with a big *C*—to the way we live, to social, political and economic affairs, to use culture as a prism through which to see different social issues, to see how the world worked. At heart, that is what this job I do now is about.

So you see your job as not so much writing about individual works of architecture?

I am always struck that there should be any question about a focus on urbanism, equity, social justice, or infrastructural affairs or whatever that is not specifically about a building in isolation. It seems the great defining virtue of this field is that it's inextricable from the world around it. And the thing that architects and urban planners and everyone related to these fields do, fundamentally, is to try to figure out how to make the world a better place for people to live in.

Still, will you write about a major new building when it opens? Will you write about what's in the air?

Will I pay attention to what's newsworthy? Sure. But you asked *when* I would write about a building, and this is an interesting question. I went to Paris to look at a retrofitting of a housing project from the '60s, by a French firm called Vassal and Lacaton, working with Frédéric Druot. The building had been in the show at MoMA, "Small Scale/Big Change," and it reopened last fall. So now was a good time to see if it actually works, what it actually cost, what the tenants think of these changes.

Part of the beauty of architecture and urban planning is that there is an unpredictability, a way that things take on a life of their own. So looking into a building after it's been open, to see if the promises are related to the reality, is a natural part of my job.

It's not so much whether I'm writing about a building, it's a question of how—whether it's embedded within other issues or whether it's about the craft, the formal qualities, how it fits in relation to other buildings being made now, and within the career of the architect or architects who designed it. I believe all of those are extremely important issues. I spent 20 years as an art critic writing about sculpture and artists—I get it. And to talk about a building as if it were a sculpture is a legitimate way of seeing it but is also an impoverishment of the various things that have gone into thinking about that building and to the life of the building and the people who use it. I think it is a disservice to readers. Talking about buildings is a multifaceted thing, and I know it is for the architects who design them.

"The great defining virtue of this field is that it's inextricable from the world around it."

Our contemporary culture is showing a far greater interest in the issues you happen to be addressing. Your timing is perfect.

I would have written about the same things 10 years ago. I don't think I'm pointing out anything new. I think I'm probably talking about things in a forum that reaches a lot of people—the impact of the *New York Times*. The reception, such as I can judge it, has been overwhelmingly welcoming because there are so many people who want to be included in this conversation beyond just the people who seem to have been at the center of the conversation for so many years. And the whole point about going into this field is to act in the real world and try to bring about some things which change people's lives.

You've written a lot about New York City, about Piano's project at Ronchamp, and a park in Madrid; you also recently visited Bogotá and Medellín. Are you going to go out in the U.S.?

Yes, but I need some time. First of all, it was a pleasure to rediscover New York and to have an excuse to see all five boroughs, to embrace the city in its true amazing complexity and during an administration that has been focused on urban affairs. And to establish a base of operations, to use New York as a constant ground note for exploring other issues. That said, I have no limit on what I can cover. So of course I look forward to traveling around the country.

There's a long shadow cast on your job by Ada Louise Huxtable, the *Times*'s first full-time architecture critic. That's a very high bar. How does that affect you?

Thank you for asking this question. Look, my conception of this job was created by Ada Louise. When I was young, she was the critic, and she established this not as an extension of the art world but as a position of buildings in the context of public policy and urban affairs. That was, for me, the touchstone. It's exactly how I would like to see this job. I think Ada Louise also chose her subjects very carefully and didn't write about buildings as detached from the world.

It's very interesting to me that you have two women—I mean, I was a little boy, but still—who were such powerful figures in shaping what remains, half a century later, this conversation: Jane Jacobs in the neighborhood where I grew up, and Ada Louise, who is still writing so wonderfully [in the *Wall Street Journal*]. You know, without thinking this consciously, they both have had such a profound effect on my idea of what it means to be really engaged in these issues. ■

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A TOUCH OF GLASS

A new cultural center for Italian tile manufacturer Bisazza makes a strong case for glass mosaic—outside the powder room.

BY ASAD SYRKETT

View additional images at architecturalrecord.com.

PHOTOGRAPHY: COURTESY BISAZZA / © ALBERTO FERRERO

ROSA BELLA Bisazza's Carlo Dal Bianco–designed headquarters puts their product in the spotlight: Visitors are greeted by a mosaic of vivid pink roses on the front facade, while tile "topiaries" stand sentry on either side of the decorated entrance portal.

OUTSIZED The foundation's permanent collection will include pieces by artists Tord Boontje, Jaime Hayon (bottom), and others whose work incorporates Bisazza tile in occasionally wacky ways. In one gallery (left), visitors are dwarfed by a tile-encrusted armchair designed by industrial designer Alessandro Mendini. In another, a larger-than-life tea set designed by Belgian design collaborative Studio Job sits atop a series of pedestals (below).

RARELY DOES a 1-inch-by-1-inch building product get to take center stage. But in Vicenza, a quiet city of gabled roofs and winding, narrow roads two hours east of the self-assured Italian design capital of Milan, the tile manufacturer Bisazza is determined to change that trend. This year, the 56-year-old organization will open the Bisazza Foundation for Design and Architecture as part of their headquarters there. The 64,580-square-foot space will house exhibitions by architects and artists such as Alessandro Mendini and Marcel Wanders and show Bisazza-produced tile used in a variety of whimsically out-of-scale ways. The inaugural exhibition, which opens on June 8, is a collection of works by minimalist British architect and designer John Pawson entitled "Plain Space," which will showcase the appeal of the product's simplicity, says CEO Piero Bisazza. The foundation will also host shows "not necessarily associated with mosaics," Bisazza explains.

Vicenza-based architect Carlo Dal Bianco oversaw the 2001 transformation of the 1960s brick-and-reinforced-concrete factory that houses the headquarters, and also worked on the recent conversion of some of the building into the foundation's new facility. After some technical hoop jumping, including creating a new entrance along an axis that stayed away from load-bearing walls, showcasing the product was icing on the cake, says Dal Bianco: "The beauty of *Springrose*, the mosaic at the main entrance, still moves me." ■

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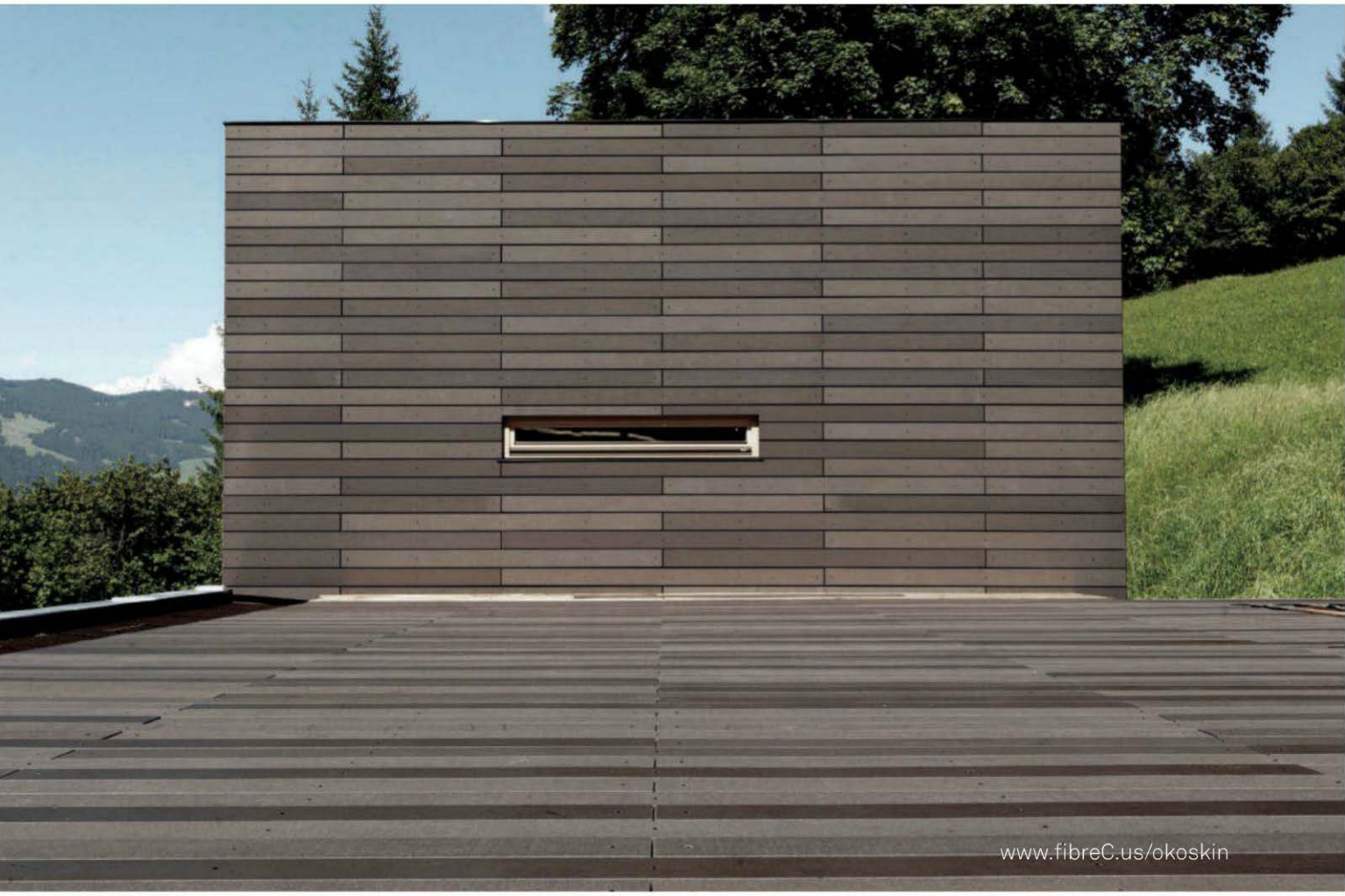

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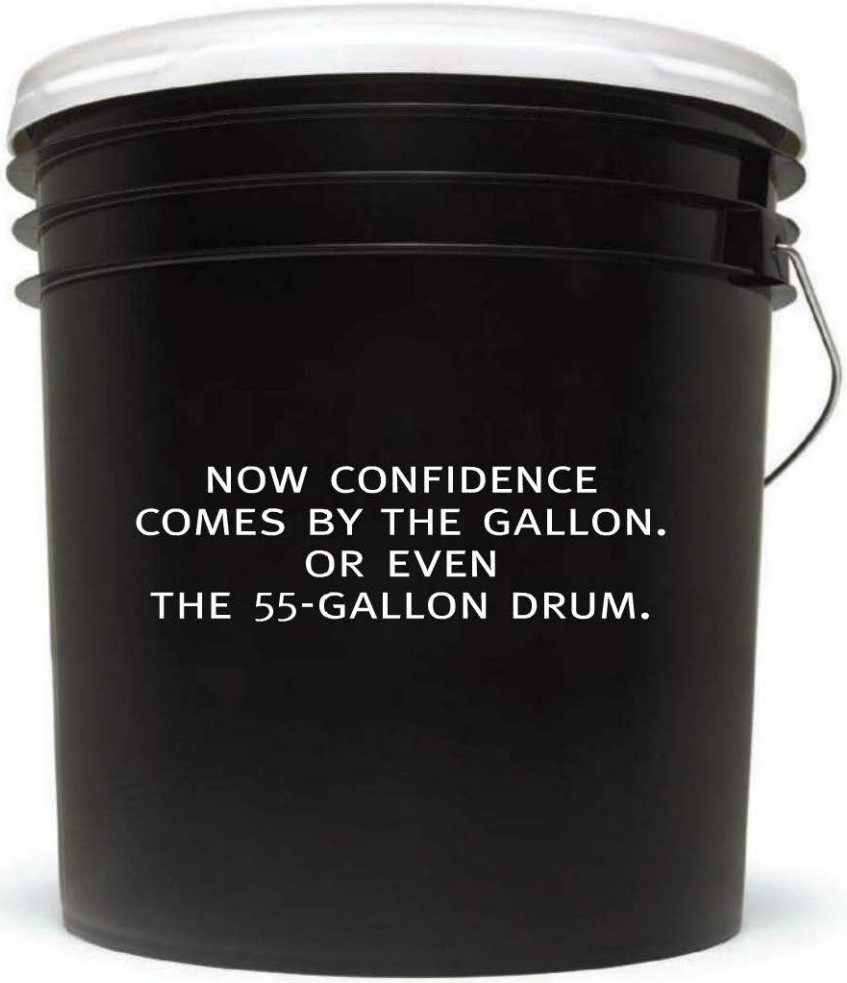

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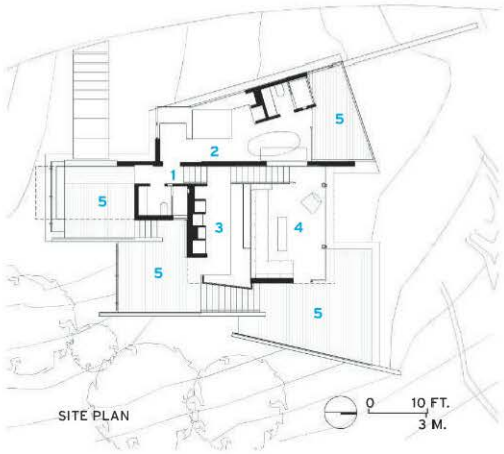
perspective **house of the month**

COOPER JOSEPH STUDIO'S SMALL HOUSE IN A CALIFORNIA OLIVE GROVE COMPLEMENTS THE LUSHNESS OF THE LANDSCAPE WITH COOL GRAYS AND MINIMALIST INTERIORS. **BY LAURA RASKIN**

FACING NORTH Concrete retaining walls nestle the house in a hill (left). The region is subject to landslides so the architects buried utilities and improved grading.

They chose a monochromatic palette (below), but experimented with texture. Zinc panels, concrete walls, and stained redwood screens unify the exterior.

The concrete wall that divides public and private spaces (bottom) was a very complicated pour because of precise window and door openings—"a real feat," says Chris Cooper.

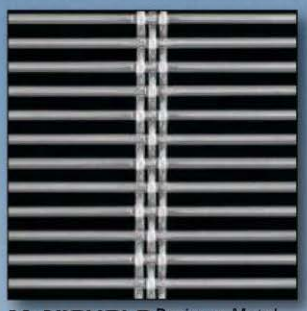


ON A steep 25-acre site near Sonoma, California, two scientists harvest some of the bounty from their vegetable gardens, olive trees, and beehives to deliver to a Michelin-starred restaurant in San Francisco. Although these locavores were already living in an existing house on the property, they became enamored of a writer's cottage designed by Cooper Joseph Studio in Ghent, New York, and wanted a similar small house for a weekend retreat/office.

"From early on the concept was to nestle the house on the top of the hill in a way that the rooms spill down, to maximize the view," says Chris Cooper, firm partner. The resulting three-story, 890-square-foot house made of poured-in-place concrete is organized around a central wall, which divides public and private spaces. A bedroom and bath are on the entry level. The lower level contains a living room, and a kitchen perches above it on the mezzanine. "From the interior, it's really all about the exterior," says Cooper. ■

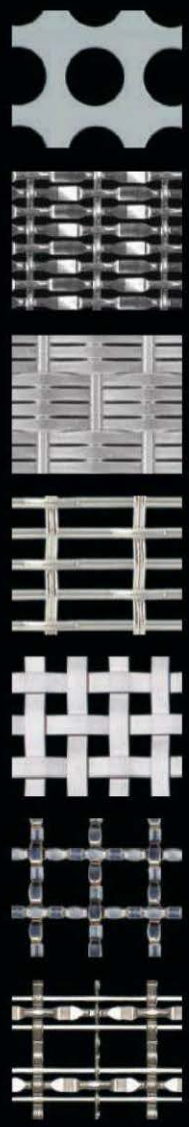
View additional images at architecturalrecord.com.

Hole Metal Designs



McNICHOLS Designer Metal Aura™ 8856 ® in stainless steel was used to create this high tech column.

The Amway Center's 180-foot needle tower is a beacon in the city of Orlando, FL. The column is made of **McNICHOLS** Designer Metal - Aura™ 8856 ® in stainless steel.



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products ceilings

WHAT'S UP WITH CEILINGS—FROM A NEW CUSTOM-DESIGN PROGRAM TO THE INDUSTRY'S FIRST ENVIRONMENTAL PRODUCT DECLARATION.
RITA CATINELLA ORRELL

Ultima Create!

Armstrong armstrong.com/ultimacreate
With Armstrong's new Ultima Create! custom program, designers and architects can create full-color custom ceiling art from either original artwork or an original digital image (custom colors for full-sized ceiling panels are also available). Available on both the Ultima and Health Zone Ultima products, the program is ideal for retail, hospitality, health-care, education, corporate, and other commercial applications. The artwork shown in the classroom above was created by a kindergarten teacher at the Susquehanna Waldorf School in Marietta, Pennsylvania. Based on the school's logo, the colorful abstract design was printed on Formations Acoustical Ceiling Clouds with Ultima Create lay-in panels. CIRCLE 200

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Philips Ledalite ledalite.com
Adding a seamless, luminous curve to the ceiling plane, ArcForm features advanced LED engineering and state-of-the-art MesoOptics technology to deliver precise, 3-D, symmetrical-batwing light distribution. In addition, it controls high-angle glare and conceals the light source. Offering efficacies of up to 91.2 lumens per watt, the luminaire is ideal for offices, classrooms, and retail spaces. CIRCLE 201

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CertainTeed certainteed.com
CertainTeed made news late last year when they issued the industry's first series of Environmental Product Declarations (EPD) for ceilings solutions. An EPD provides scientifically robust and transparent information about environmental performance. Partnering with the Green Standard, the company developed four EPDs for 19 product families, covering issues such as use of recycled content, packaging, and end-of-life impact. CIRCLE 202

Expanded Manufacturing Capabilities

Hunter Douglas hunterdouglascontract.com
Hunter Douglas announced a 40% expansion of their Architectural Products facility in Norcross, Georgia, which designs, manufactures, and sells a range of Luxalon metal ceilings, wood ceilings, custom ceilings, and wall panels. The expansion will result in enhanced production capabilities of Hunter Douglas's 12"-wide Plank metal ceilings, Plank & Tile product tile, Woodwright ceiling systems, and specialty client-designed products. The maple-finished, curvilinear ceiling system designed by Populous for Louisville's KFC YUM! Center (shown above) was produced at the manufacturer's Norcross facility. CIRCLE 203

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products**roundup**

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Nest Learning Thermostat

Nest nest.com

Created by two former Apple designers, this sleek thermostat "learns" heating and cooling habits in a week; it then automatically adjusts to save energy while a building is empty. A leaf appears when occupants set a particularly energy-saving temp by rotating the outer ring. An energy-history option allows users to see how much they've saved over time. Nest is also wireless and can be controlled from a laptop, smartphone, or tablet. CIRCLE 205

Haiku

Big Ass Fans bigassfans.com

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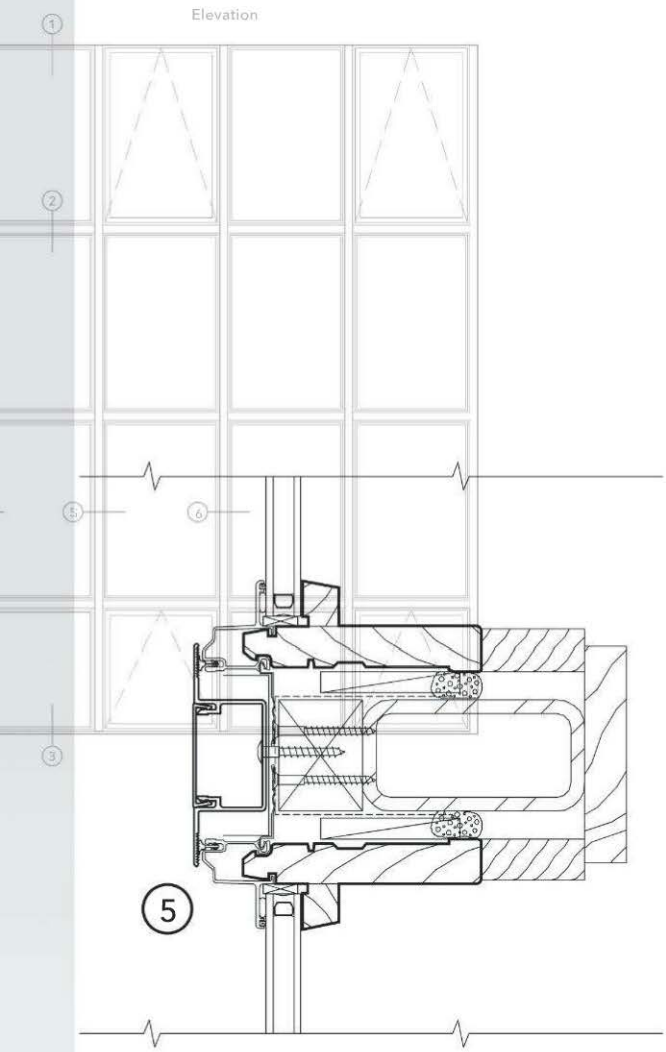

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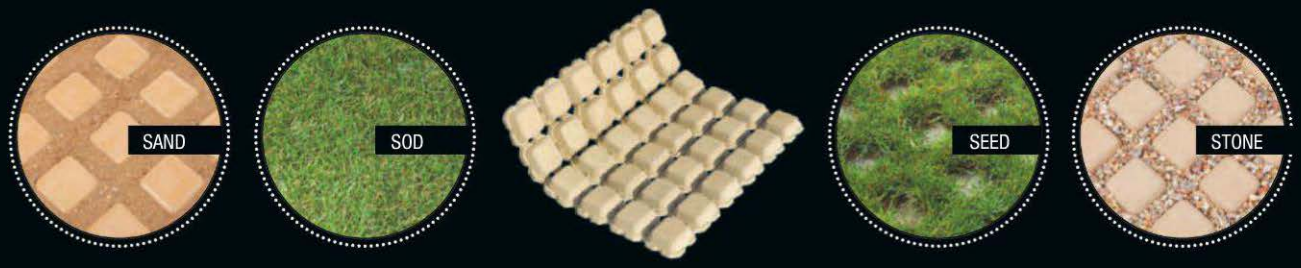

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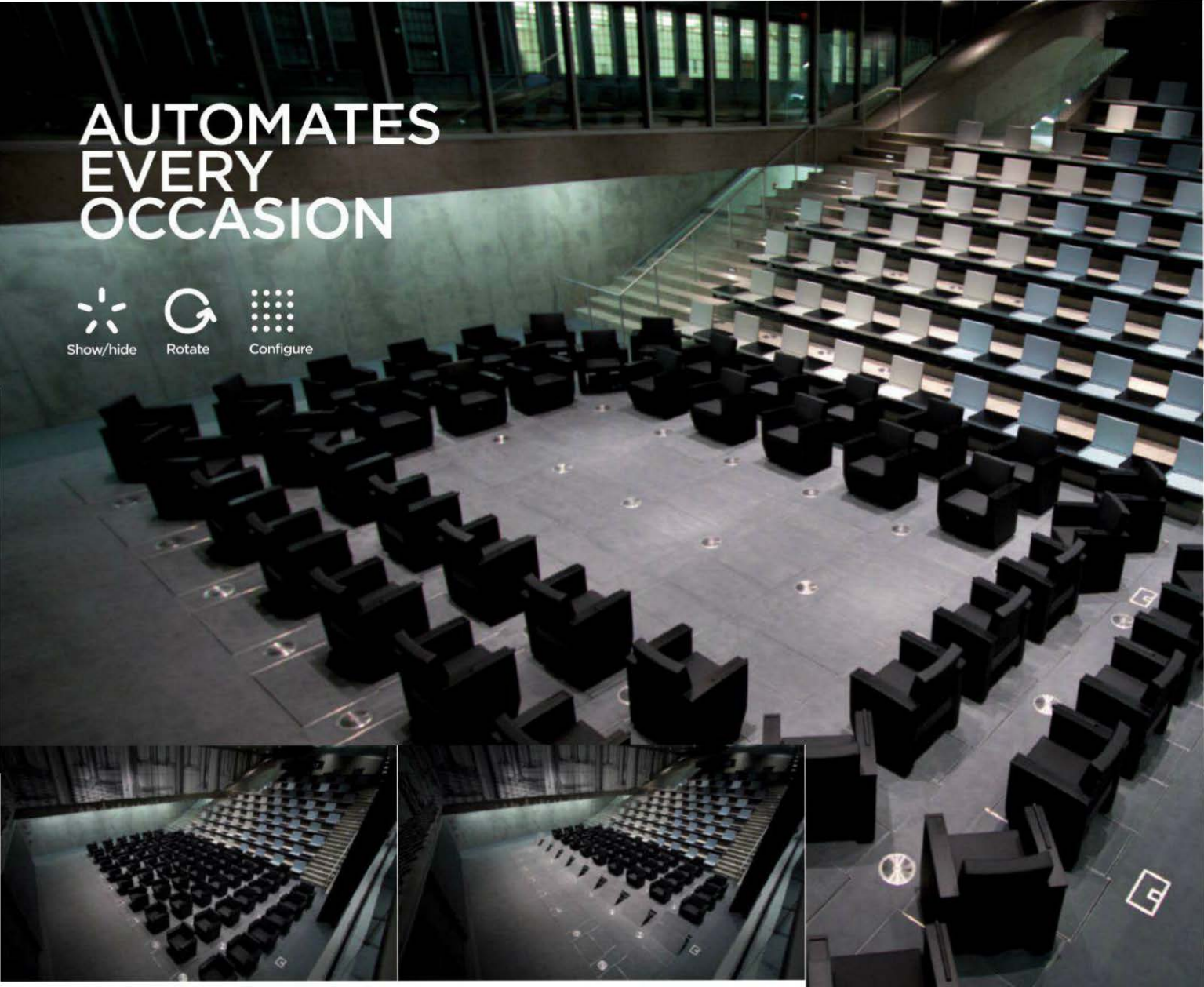

Milstein Hall
Cornell University

Design: OMA team, Rem Koolhaas

The chairs can be stored out of sight, fully or partially deployed, and rotated through 360°. The entire process is completely automated.

Rem Koolhaas, the OMA team and Figueras worked hand-in-hand to create a multipurpose auditorium for Milstein Hall at Cornell University. Used primarily as a meeting room for university trustees and as a teaching space, the hall can also be transformed into an open space where a wide range of events can be held.

The Cornell chair, a product that's unique in the world, was created by combining two Figueras systems: Mutasub and the RT System. The result: spacious chairs that can be stored under the floor, deployed as needed, and oriented to the desired position.

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CIRCLE 59

ARCHITECTURAL RECORD

ESSENTIAL DISCUSSIONS

MAY 17 10 a.m. – 3 p.m.

VINCENT JAMES & JENNIFER YOOS Vincent James Associates
TOM KUNDIG Olson Kundig Architects
BRIAN MACKAY-LYONS MacKay-Lyons Sweetapple Architects
THOM MAYNE Morphosis Architects
MARION WEISS & MICHAEL MANFREDI Weiss/Manfredi
JOHN RONAN John Ronan Architects

MAY 18 10 a.m. – 3 p.m.

MARLON BLACKWELL Marlon Blackwell Architect
ANGELA BROOKS & LAWRENCE SCARPA Brooks + Scarpa
RICK COOK Cook + Fox Architects
STEVE DUMEZ Eskew+Dumez+Ripple

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CIRCLE 80

ARCHITECTURAL RECORD | 2012 AWARDS

good design is GOOD BUSINESS

IT'S BEEN fifteen years since RECORD launched the Good Design is Good Business Awards (initially with BUSINESS WEEK magazine), and we've all had quite a ride—from the economic highs of the '90s and early- to mid-2000s through the humbling realities of the more recent downturn. The good news: The momentum is growing. Corporate heads and small business owners alike continue to work with architects, developing solutions that will make their companies more relevant and successful in a global culture that increasingly demands environmental stewardship and social responsibility. This year's winning projects, and the firm/client relationships responsible for them, represent the best of these collaborations and demonstrate that many enterprises do prioritize quality of life and sustainability—a positive leap toward an improved business ethic that benefits everyone.

The Editors

Sheehan Partners
Facebook Data Center, Prineville, Oregon

EYP Architecture & Engineering
GE Renewable Energy Global Headquarters
Schenectady, New York

Starbucks Global Store Development
Starbucks
The Netherlands/Japan/United States

Helix Architecture + Design
Missouri Bank, Kansas City

STUDIOS Architecture
200 Fifth Avenue, New York City

KAA Design 1300 Highland Shops & Worklofts
Manhattan Beach, California

Skidmore, Owings & Merrill
KIA Motors America Research and Development Headquarters, Irvine, California

Fuse Architects + Builders
Verve Coffee Roasters, Santa Cruz, California

PHOTOGRAPHY: © TOM ACKERMAN

Facebook Data Center
Sheehan Partners
Prineville, Oregon

IN JANUARY, Facebook users spent more than 10.5 billion minutes a day accessing the site just by computer, according to the company's IPO. That takes a lot of energy. Most data centers—large hubs of servers that handle bank transactions, cloud-based email services, and friend requests—devote around one-third of their energy consumption to building operations. Having leased space in such facilities, Facebook wanted its first data center to maximize energy efficiency. Working with Sheehan Partners and AlfaTech Consulting, the company rethought every piece of equipment, from circuit boards to air handling. Thanks to an evaporative cooling system, a custom power-distribution system, and a backyard solar array, the new data center devotes just over one-fifteenth of its power to operations.

To do away with power-guzzling air-conditioning towers, Facebook located the 333,400-square-foot facility in the high desert of central Oregon, where humidity stays low and summer temperatures peak at 90 degrees. Clad in corrugated steel and enclosed by a wall of precast-concrete panels, Sheehan Partners' design functions as a giant cooling system. Large fan walls in the mechanical penthouse push dry desert air through filters; next, misters send fine sprays of water into the air. When the water evaporates, the air temperature drops in a process called evaporative cooling. This arrangement takes advantage of advances in the operation of servers, which now run comfortably at 80 degrees, warmer than the former standard of 68 to 72 degrees.

The architects used earth-toned concrete panels for the perimeter wall, and landscaped with large rocks salvaged during construction. The center's southwest corner houses a small office area with conference rooms and two courtyards with glazed walls, which bring daylight into the compoundlike structure.

"The building is designed around the layout of servers in their racks in rows," Sheehan says, explaining that the length of the rows is based on the most efficient airflow through them. Facebook's custom servers accept a higher voltage than standard equipment, eliminating extra transformers and the energy loss they create. And instead of a central uninterruptible power supply (another source of waste), each

PHOTOGRAPHY: © JONNU SINGLETON PHOTOGRAPHY

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server has its own small power supply that accepts both alternating and direct current. As a result, the LEED Gold Certified data center's operating costs are 24 percent lower than at the company's leased data centers. A second Prineville center is under construction, with two more under way in North Carolina and one in Sweden. To share its success—and its own model—Facebook publishes the non-proprietary portions of its technical specs through its open-source design initiative, the Open Compute Project. "Four or five years ago, there was some public discussion about the idea that data centers were going to become huge energy hogs," says Sheehan. "This project is the answer to that concern." *Lamar Anderson*

Lamar Anderson is based in San Francisco and frequently contributes to RECORD.

CREDITS

ARCHITECT: Sheehan Partners – Neil Sheehan, principal in charge; Marissa Brown, project manager; Sylvia Billisics, design lead

ENGINEERS: Alfa Tech (m/e/p)

CONSULTANTS: WH Pacific (landscape); Hessler (acoustical); DPR Construction/Fortis Construction (general contractor)

CLIENT: Facebook

SIZE: withheld

COST: withheld

COMPLETION DATE: April 2011

SOURCES

FACADE: Kawneer (curtain wall); Northwestern Industries (glazing)

METAL PANELS: Metal Sales Manufacturing

PRECAST CONCRETE: Central Pre-Mix Prestress

LIGHTING: Cooper, Lithonia, Gotham (downlights); Se'Lux, Cooper, Bega (exterior); Redwood (controls)

EARTH FRIENDLY

To complement the desert surroundings, the architects used earth-toned concrete panels for the perimeter wall and landscaped with large rocks salvaged on the site during construction (opposite).

Where courtyards open into the office areas of the building, the concrete wall is replaced with full-height glazing, layered from the entry court deep into the office and the interior courtyard (top).

The overall form of the building is designed around the layout of servers in their racks in rows (above). The length of the rows is, in turn, based on the most efficient airflow through them.

GOOD DESIGN IS good business

GE Renewable Energy Global Headquarters

EYP Architecture & Engineering

Schenectady, New York

FOR GE, staying at the forefront of renewable energy research is such a priority that the company has invested $6 billion in that effort. The nation's top-selling wind-turbine company, GE has plans to build the largest 400-megawatt thin-film solar-panel factory in the country by 2013. The company's LEED Silver renewable energy headquarters building in Schenectady, New York, stands as a significant commitment to the growing success of its renewable energy division. It is also an investment in the community, its workforce, and the 628-acre, 120-year-old campus—a mix of manufacturing and administration buildings that hadn't seen a significant architectural project since the 1990s.

Taking advantage of its own resources, the company charged the Albany-based EYP Architecture & Engineering to adapt Building 53, an aging, century-old concrete factory, into a new headquarters to centralize executive, administrative, and engineering divisions for wind and solar power, and house a remote operation center that would contain monitoring and diagnostic capabilities for worldwide wind energy uses. "GE wanted the building to communicate a sense of purpose about the company's goals—harnessing the wind and projecting their commitment to innovation," says Matthew O'Grady, EYP senior designer. So the architects opened the old structure, adding a glazed atrium equipped with interactive kiosks to inform visitors and employees. Its transparency reveals the inner workings of the building to the public and lets them view its key energy-related activities. An adjacent Renewables Operation Center ("The ROC") features a system that keeps track of solar and wind-turbine activity round-the-clock.

The remainder of the building is a study in efficient, collaboration-friendly workspaces, where windows more than doubled in size and operable sun shades control solar gain. Over 90 percent of the original structure was reused for the project, and 32 percent of the materials were processed within 500 miles of the site.

"Considering a renewable energy focus didn't exist for us a decade ago," says GE spokesperson Christine Horne, "the design of this building represents a growth and transformation of our business." *Ingrid Spencer*

Ingrid Spencer is a contributing editor for RECORD.

CREDITS

ARCHITECT: EYP Architecture & Engineering (EYP) – Tom Birdsley, executive principal; Michael Goard, project designer; Matthew O'Grady, senior project designer; Robert Muscatello, architect of record

ENGINEERS: EYP Architecture & Engineering

CONSULTANTS: J.K. Fraser & Associates (landscape); SMRT Enigneers (commissioning); Dente Engineering (geotechnical)

CLIENT: GE, Power Systems Division

SIZE: 205,000 square feet

COST: withheld

COMPLETION DATE: April 2010

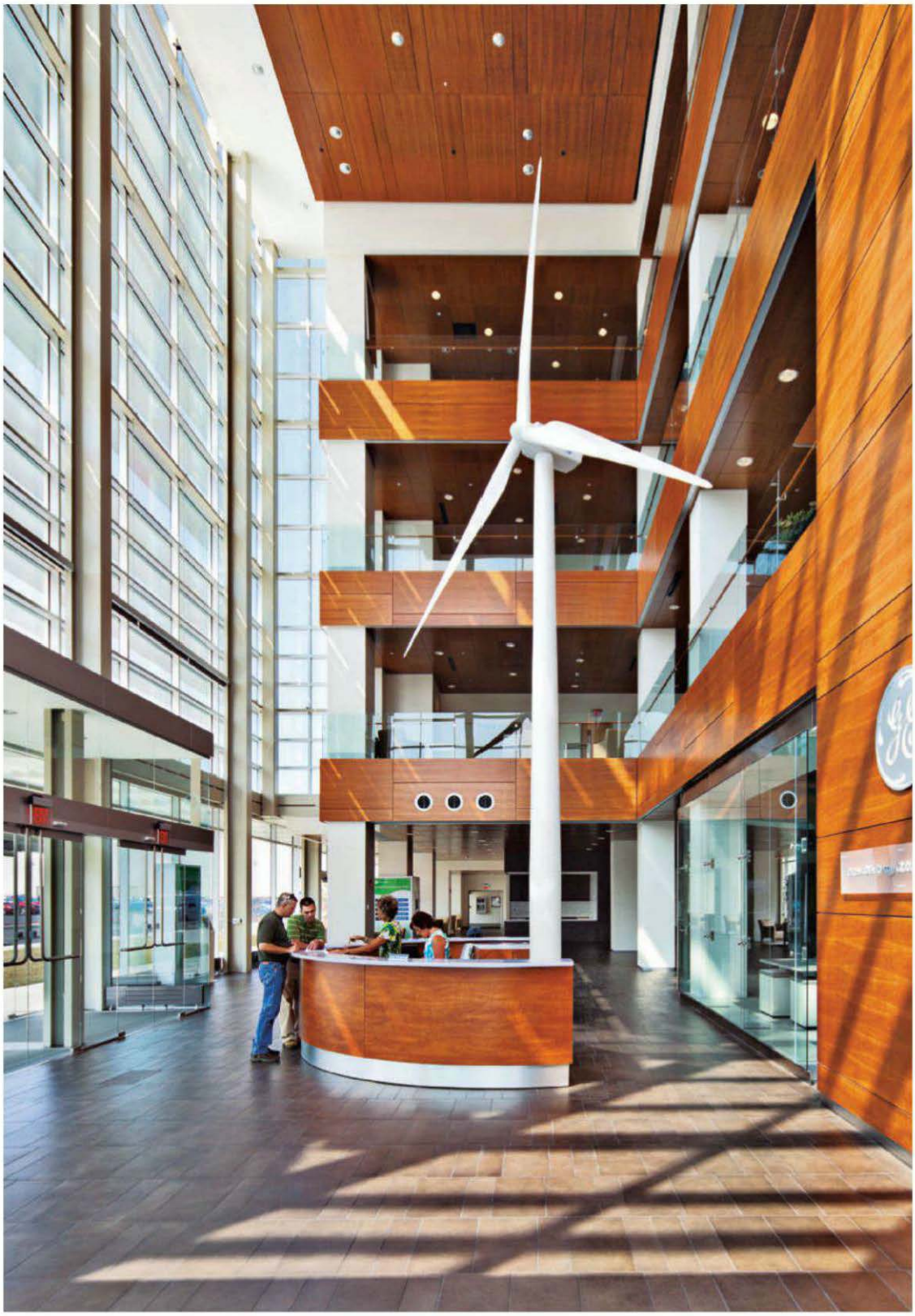
SOURCES

GLAZING: PPG Industries

WINDOWS: Oldcastle BuildingEnvelope (metal frame)

CEILING: Armstrong

View additional images at architecturalrecord.com.



FRESH AIR EYP replaced the former concrete factory's stalwart facade with glass panels that allow light in and views out (far left). In the airy entrance atrium, a single wind turbine announces the building's dedication to clean, renewable energy (left).

PHOTOGRAPHY: © DAVID SUNDBERG / ESTO; © RANDALL PERRY (OPPOSITE, CENTER)

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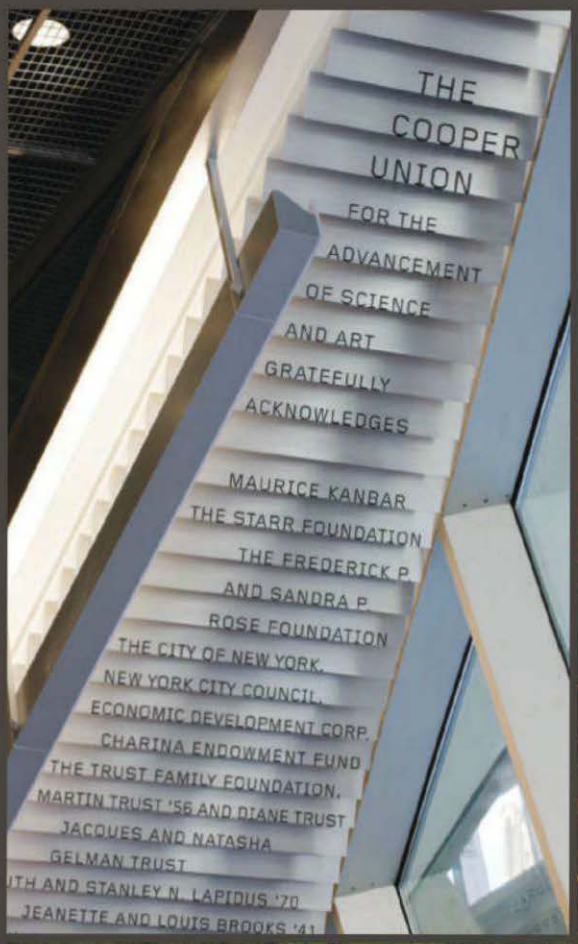
CIRCLE 92



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DESIGN: 2X4
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CIRCLE 82

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GOOD DESIGN IS good business

FILLING STATION Four shipping containers were used to construct the "Reclamation Drive-Thru" facility, which opened in December 2011 on a vacant lot in Tukwila, Washington.

PHOTOGRAPHY: © TOM ACKERMAN

Starbucks
Global Store Development
The Netherlands, Japan, U.S.

WHAT STARTED in 1971 as a small stand in downtown Seattle has evolved into a global enterprise. Today, Starbucks, a publicly traded company, has more than 17,000 stores in 58 countries, from Malaysia to Norway, and earned $11.7 billion in revenue during its last fiscal year. Its cultural contribution is most profound in the United States, where it popularized the Italian coffeehouse tradition yet gave it an American twist, offering gussied-up espresso drinks to stay or to go. A Starbucks pit stop is now a daily ritual for many.

The retailer's shops often share a uniform look. Still, Starbucks has always aimed to craft artful spaces that respond to their context and serve as gathering hubs, says architect Arthur Rubinfeld, president of global development. In recent years, the company has raised its design ambitions to *venti*-sized proportions, opening branches that generate considerable buzz for their distinct styles. Here, we feature four such examples, designed mostly by in-house teams.

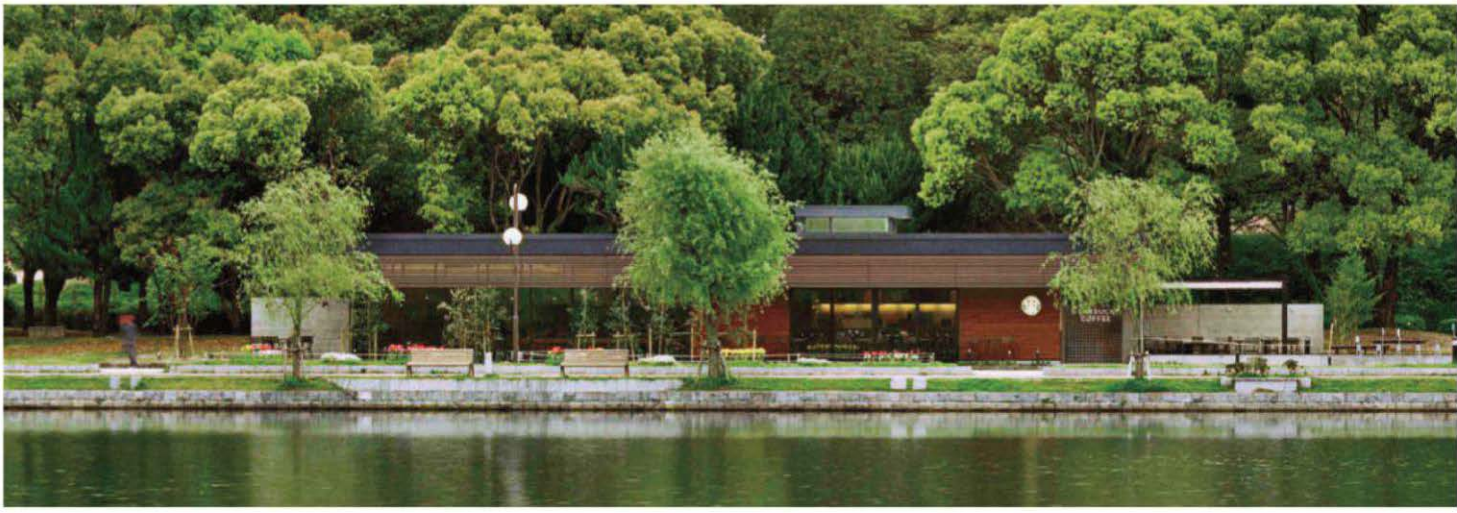
First up: the company's maiden concept store in Europe. Located in the vault of a converted bank in Amsterdam, the expansive café contains areas for poetry readings and jam sessions, a wall covered in used bicycle tubes, and a dramatic ceiling installation made of wooden blocks. Other standout features include oak furnishings, Delft blue tiles, and a mural that pays tribute to the Dutch coffee trade. The architects were inspired by the history of the Netherlands and its contemporary role "as a creative capital," says Liz Muller, director of global concept design.

Over in Japan, two equally striking facilities point toward Starbucks's growing commitment to singular architecture. In the city of Dazaifu, on a street leading to a shrine visited by 2 million people annually, sits a head-turning café by Kengo Kuma & Associates (the building's owner asked the coffee company to work with Kuma). To enliven the space, the architect inserted a weblike composition of thin, elongated wooden blocks into the empty shell. "I wanted to recreate the beauty of the Japanese wooden structure in the modern context," says Kuma, adding that the organic material fits nicely with Starbucks's "comfortable" atmosphere.

Wood was also integral to the design of a freestanding store in a Fukuoka City park, but in a much different way. The quiet, low-slung building was clad in FSC-certified cedar and was "purposefully nestled into a grove of trees, to help it blend into the environment," says architect John Harrison, a Starbucks design manager. The project boasts a bevy of sustainable elements, including on-site composting and an exterior shade screen. According to Harrison, it's Japan's first LEED-NC retail

project. (Starbucks has pledged to earn LEED certification for all of its new stores.)

While foreign countries have proved fertile testing grounds, Starbucks's most adventurous project was conceived stateside. Located in Tukwila, Washington, "Reclamation Drive-Thru" is composed of four cargo containers and is meant to be transient (the landowner wanted a temporary facility). Beyond being environmentally responsible, the structure is "intended to be expressive and provocative," says Anthony Perez, a senior concept design manager. "We've never done this before. It's created a lot of conversation." With projects like this spurring dialogue and making headlines, who knows what the coffee superpower will brew up next. *Jenna M. McKnight*



GOING GLOBAL In Dazaifu, Japan, Kengo Kuma's team inserted a web of elongated wooden blocks into a retail shell on a busy road that leads to a major religious shrine (top).

Designed by Starbucks's in-house architects, the elegant store in Ohori Park—a prized sanctuary in Fukuoka City—is meant to meld into the natural environment (above).

In February, Starbucks unveiled "The Bank" in Amsterdam, the company's first concept store in Europe. Notable features include oak furnishings and a ceiling installation made of 1,876 hand-cut wooden blocks (left).

CREDITS

ARCHITECT: Starbucks Global Store Development in-house architects – Arthur Rubinfeld, president; Kengo Kuma & Associates (Dazaifu, Japan)

CLIENT: Starbucks Coffee Company; Manten Corporation with Starbucks (Dazaifu, Japan)

SIZE: 4,600 square feet (Amsterdam); 2,260 square feet (Dazaifu, Japan); 1,730 square feet (Fukuoka City, Japan); 448 square feet (Tukwila, Washington)

COST: varies

COMPLETION DATE: 2010–12

SOURCES

ALUMINUM WINDOW FRAMES: YKK (Fukuoka City)

LIGHTING: Panasonic, Endo (Fukuoka City)

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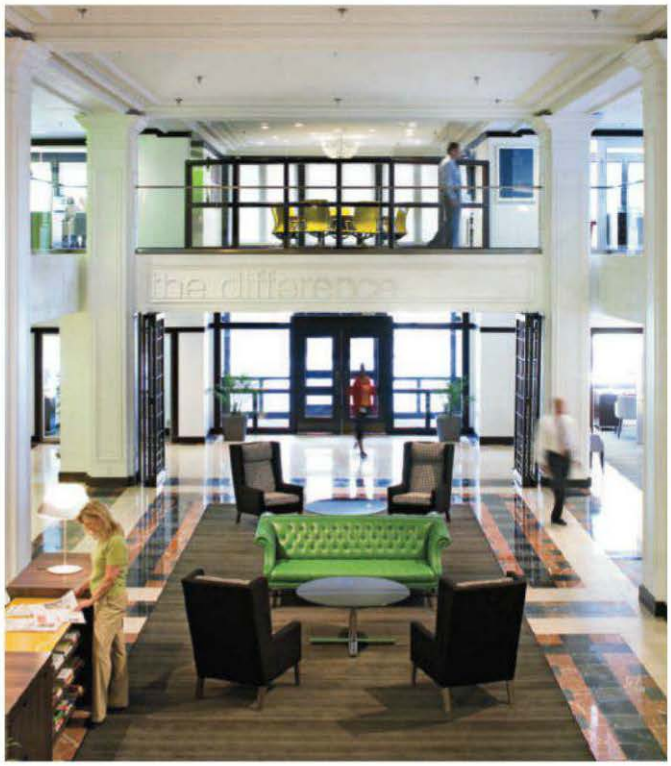
CIRCLE NO 21

GOOD DESIGN IS good business



MINT CONDITION
The Brookside drive-through (left); counters at the Crossroads branch (top); and the foyer of the Downtown branch (bottom).

PHOTOGRAPHY: COURTESY HELIX ARCHITECTURE + DESIGN

Missouri Bank
Helix Architects + Design
Kansas City

AFTER THE collapse of several major financial institutions set off the global recession in 2008, "bank" became a dirty word. But the 121-year-old Kansas City–based Missouri Bank and Trust (MO Bank) has long operated counter to today's perception of "banking," emphasizing its relationship with its customers, who are largely small business owners. In 2008, MO Bank set out to update its offices, which "really didn't represent the character of the bank anymore," says Jay Tomlinson, founding principal of Kansas City–based Helix Architecture + Design. But the bank's public image wasn't MO Bank president Grant Burcham's sole concern: "Redesigning became really important to our internal culture, too."

To create a more inviting look and feel in each of three offices, Helix opened up floor plans to allow tellers and customers to interact with less formality and specified furnishings and finishes in MO Bank's signature shade of green. At the Brookside branch, which is located in a dense, urban section of Kansas City, Helix added a drive-through with transparent glazing that creates greater intimacy in what are usually grab-and-dash transactions.

Missouri Bank has seen quantifiable results: "Our deposits were up nearly 10 percent last year alone," Burcham reports. And customers like the new look so much that more of them, says Burcham, "park and come in anyway."
Asad Syrkett

CREDITS

ARCHITECT: Helix Architecture + Design – Jay Tomlinson, principal in charge; Bryan Gross, project designer; Jacob Palan, project architect; Kathy Kelly, project designer; Brad Kingsley, project architect

ENGINEERS: Sys-Tek; Lankford & Associates (m/e/p); Structural Engineering Associates (structural)

CLIENT: Missouri Bank

SIZE: 5,000 square feet (Brookside); 7,500 square feet (Crossroads); 15,300 square feet (Downtown)

COST: $340,000 (Brookside) $1.9 million (Crossroads); $1.4 million (Downtown)

COMPLETION DATE: February 2010 (Brookside); January 2009 (Crossroads, Downtown)

SOURCES

GLASS: Oldcastle BuildingEnvelope

FLOORING: Daltile (tile); Interface FLOR (carpet)

FURNISHINGS: Allsteel; American Leather; Vitra

CEILINGS: CertainTeed

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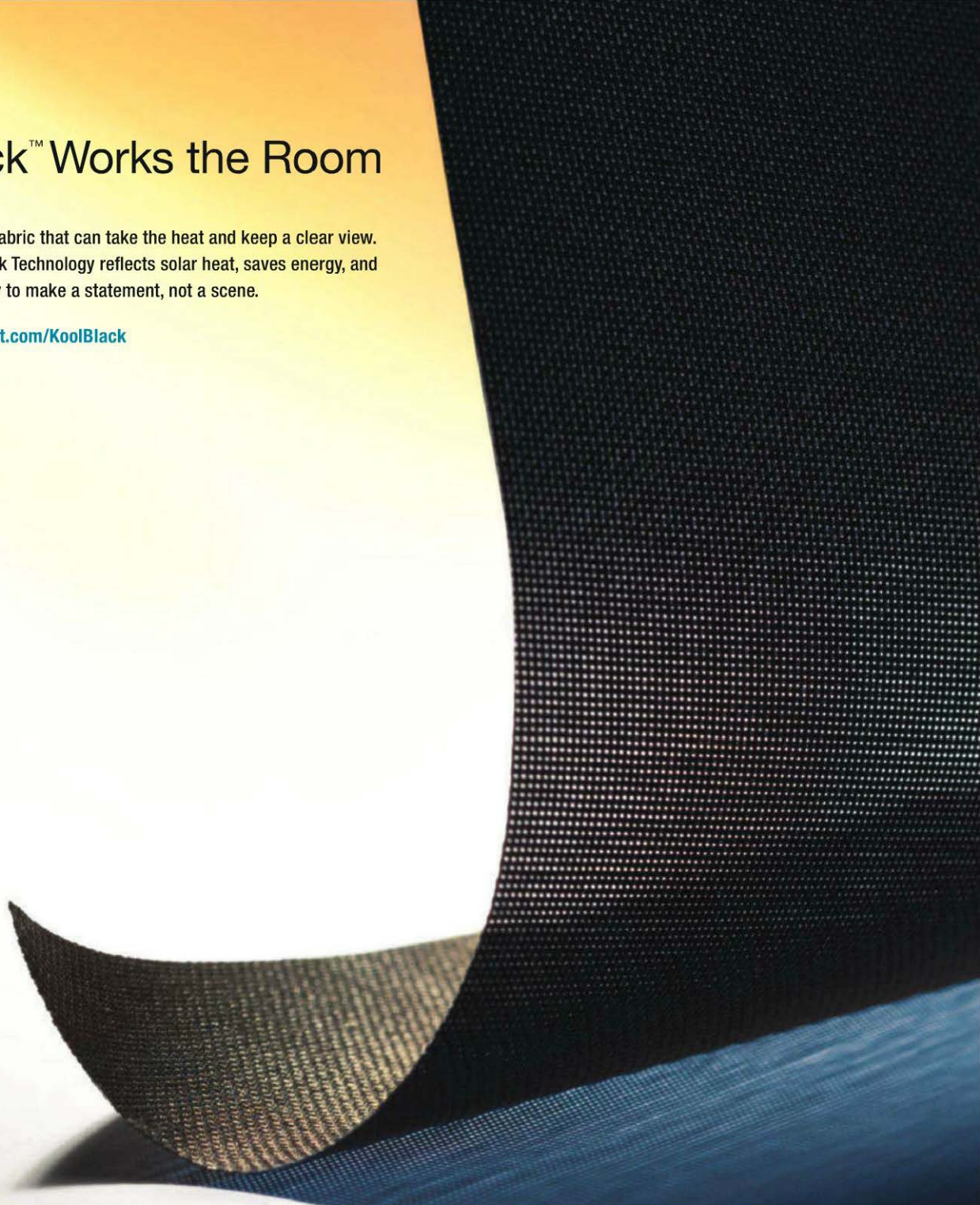

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CIRCLE NO 22

GOOD DESIGN IS **good business**

CITY GREEN The sensitive creation of a LEED Gold landmark was achieved through such features as four green roofs, an open-air courtyard, and a new curtain wall (left).

The sleek new entry and lobby (above) echoes the architectural language established in the courtyard.

Before (right) the exterior envelope of the building underwent a complete historic restoration.

200 Fifth Avenue
STUDIOS Architecture
New York City

AN ORIGINAL 1909 marketing brochure, found during the renovation of 200 Fifth Avenue, touts the white terra-cotta cladding on a wall surrounding the courtyard as a reflective surface that would bring daylight into the heart of the workspaces within. Along with STUDIOS Architecture's bold design, that 100-year-old brochure helped convince New York's Landmarks Preservation Commission that replacing the terra-cotta wall with a glass curtain wall would respect the original architects' intentions. The change was allowed, and STUDIOS transformed the aging 14-floor edifice into a LEED Gold Certified, Class-A office building. "They used the latest technology from their day, and we're using ours," says David Levinson, chairman and CEO of L&L Holding Company, the project's developer. Serving as the International Toy Center for over half a century, what once was a warren of showrooms for thousands of small toy companies is now a sleek, 650,000-square-foot mixed-use property—complete with a restored Neo-Renaissance facade—that maintains the character of the building and boosts its value. Tenants such as Grey Global advertising and marketing, the Tiffany & Co. headquarters, and Mario Batali's Eataly Italian market and restaurants pay upwards of three times more per square foot than previous occupants.

Grey Global, the building's major tenant, now occupies a new four-story addition at the rear of the courtyard. Once underused, the gracious courtyard boasts a vertical garden that brings the outdoors into the building. A pristine, minimalist lobby beckons visitors, while a new 18-foot-wide landing west of the elevator core offers efficient circulation.

Sustainable features include a rainwater recovery system, green and reflective roof surfaces, the use of certified wood, and an abundance of daylight throughout the interior.

"We took the idea of bringing a garden inside, while respecting what was there," explains STUDIOS design principal David Burns. "Not everything that is original is precious, but the spirit of what was intended remains."

Ingrid Spencer

CREDITS

ARCHITECT: STUDIOS Architecture – Todd DeGarmo, principal in charge; David Burns, design principal; David Must, project manager; Graham Clegg, project architect

ENGINEERS: Thornton Tomasetti (structural); FMC (m/e/p); Langan (geotechnical)

CONSULTANTS: Landworks Studio (landscape); Gardiner & Theobald (project management); CodeGreen (LEED); Higgins Quasebarth (preservation); Structure Tone (construction)

CLIENT: L&L Holding Company

SIZE: 859,102 square feet

COST: withheld

COMPLETION DATE: May 2009

SOURCES

CURTAIN WALL: Alumicor; PPG

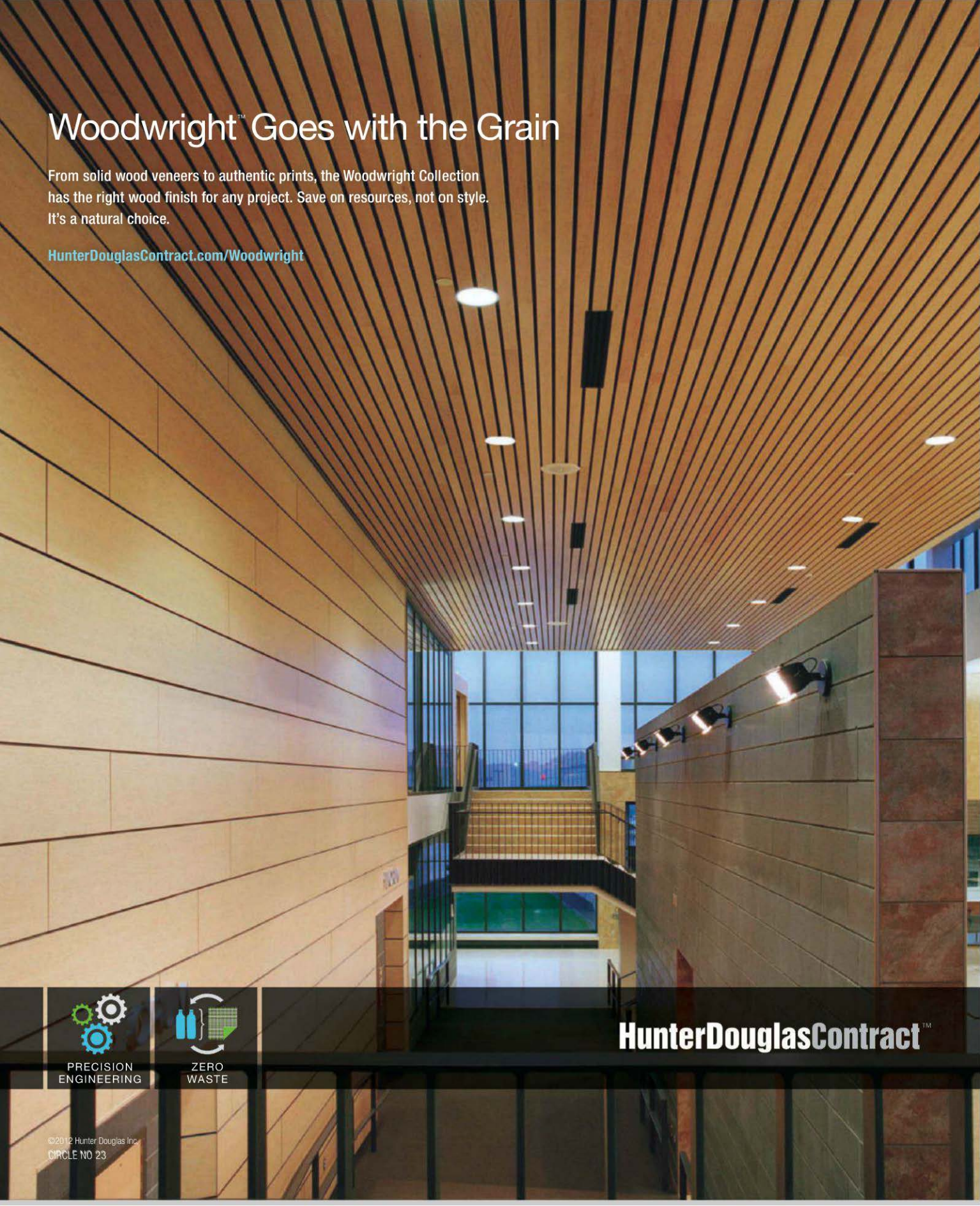
RAINSCREEN: NBK (terra cotta)

ENTRANCE: St. Gobain (structural glass); Tri-Pyramid (tensile fittings)

METAL WALL PANELS: ATAS

PHOTOGRAPHY: © NIKOLAS KOENIG

View additional images at architecturalrecord.com.



CIRCLE NO 23

GOOD DESIGN IS good business

SURF'S UP This "urban village" of five buildings has a beachy look outside (left) and light-filled, loftlike office spaces inside (below). Surfboard and bicycle storage, in addition to a spa, locker rooms, and other basement amenities, allow workers in the 34 units to enjoy their beach-adjacent location.

1300 Highland Avenue
KAA Design
Manhattan Beach, California

WHEN THE Los Angeles developer Bryn Stroyke of Stroyke Properties acquired a prime corner location in downtown Manhattan Beach, he planned to replace the site's existing restaurant with a mixed-use office building—but not a standard box with street-level retail. Instead, he and his investors wanted to build a boutique office complex to attract individual proprietors whose small size excluded them from the community's competitive market. The opportunity for an interior designer or a solo real estate broker, for instance, to acquire centrally located office space was unprecedented, says Grant Kirkpatrick of KAA Design, "especially in Manhattan Beach, where downtown development is extremely limited and property rarely changes hands." Stroyke saw a chance to serve a small market willing to pay for ocean views, understated loftlike spaces, and the work-play lifestyle the location affords. And because prices per square foot increase as the space an occupant buys or leases shrinks, Stroyke's concept allowed his company to maximize the property's earning potential.

Imagining 1300 Highland as an urban village, the architects distributed its 34 units among five small buildings linked by outdoor circulation. An exposed steel structure, bleached cedar cladding, and a glazed ground level suggest a series of modern beach houses. A 10,000-square-foot basement with a spa, locker rooms, and surfboard and bike storage allows owners and tenants to include trips to the beach into their routine. "It's a much different setup than you'd traditionally find," says Stroyke. "You have a freedom you don't have in a more traditional office building."

To open the units—ranging between 320 and 350 square feet—to daylight and breezes, the architects gave the buildings butterfly roofs with transoms. Each has a balcony or patio.

Though Stroyke Properties built the condos for sale, the company is leasing them to weather the economic downturn. The sold units have gone for upwards of $2,000 per square foot—a record, says Stroyke—and leased spaces rent for $6 to $9 per square foot. "People will pay more because of the location and the facility than they ordinarily would," says Kirkpatrick. "Yet they still get a return on their investment, and the developers and investment partners get a tremendous return on their original investment by maximizing the property and leveraging a unique idea." *Lamar Anderson*

CREDITS

ARCHITECT: KAA Design – Grant Kirkpatrick, principal in charge; Alex Anamos, project manager; Brian Adolph, project coordinator

ENGINEERS: KPFF Consulting Engineers (civil); Simpson, Gumpertz & Heger (structural); Integrated Engineering Consulting (m/e/p)

CONSULTANTS: AJS Acoustics (acoustic); Kaplan Gehring McCarroll (lighting design); Linscott, Law & Greenspan (traffic)

CLIENT: 1300 Highland LP

SIZE: 23,141 square feet

COST: $7 million

COMPLETION DATE: July 2009

SOURCES

ROOFING: Mule-Hide

CONVEYANCE: ThyssenKrupp (elevators)

LIGHTING: Axis Lighting (interior); BK Lighting, Sylvania, Visa (exterior)

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CIRCLE NO. 24

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CIRCLE 84

GOOD DESIGN IS **good business**

Kia Motors America Research and Development Headquarters

Skidmore, Owings & Merrill
Irvine, California

STAGE SETTING A perforated steel-mesh canopy cantilevers out over the dramatic lobby (top), providing shade while admitting light to penetrate through it. The 36,000-square-foot reflecting pond (bottom) can be seen from all three floors of the main building. A glass bridge connects two tilt-up concrete bar buildings and contains administrative and executive offices.

KIA MOTORS may be South Korea's oldest car company—it was established in 1944 as a manufacturer of bicycle parts—but traditional thinking is not what makes it an industry leader. The company's Research and Development Headquarters in Irvine, California, designed by the Chicago office of Skidmore, Owings & Merrill (SOM), proves Kia's commitment to design and the U.S. market, where sales have increased by 77 percent since 2008, when the project was completed.

"Both our company's vision and design philosophy are the context for what Kia wanted to project to our team members and to the public," explains John Yoon, Kia Motors America vice president and general counsel. Simple, efficient, and environmentally sound, the buildings provide generous space for work

PHOTOGRAPHY: © FOTOWORKS (TOP); © JULIUS SHULMAN AND JUERGEN NOGAI (BOTTOM)

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in a logically organized campuslike setting.

Located on the main expressway into the city of Irvine, the project encompasses a pair of straightforward two-story, tilt-up concrete buildings—one 230,000 square feet and the other 71,687 square feet—connected by a third-level glass bridge that floats over a reception gallery/automobile showroom. The entry plaza extends south along a double-height glazed wall that reveals the Design Center, which features a cantilevered, perforated steel-mesh canopy that shades the lobby within, yet still admits daylight.

Designed to accommodate myriad functions, the complex includes administrative, technical, multipurpose, training, and gallery spaces, as well as indoor and outdoor presentation areas and parking. The Design Center is most prominent. Here, Kia's overall aesthetic philosophy, which emphasizes "the simplicity of a straight line," is exploited by an elongated series of spaces supporting design, presentation, and modeling programs. Adjacent to these "shops" are rooms for the high-tech presentation and display of car designs in progress.

Adhering to California's Title 24 requirements, the city's development guidelines, and the client's request for a sustainable facility, the architects brought sunlight into the interior with skylights and roof openings that also provide vertical clearance for specialized equipment. They installed LED, T8, and T5 lamps controlled by occupancy sensors, and covered both buildings with a reflective elastomeric coating that keeps the roof cool to minimize heat gain inside. Outside, an extensive bioswale filtration system in the parking area removes silt and pollution from surface-water runoff. Drought-resistant plants enhance the landscape. "We tried to relate to the work culture and climate in Irvine by bringing abundant daylight into the interior spaces, opening up the lobby to naturally ventilate the display and gathering space, and providing interior courts and adjacent gardens for a connection to the outdoors and surrounding landscape," says Brian Lee, design partner at SOM.

The new campus is a commanding presence for Kia. Certainly there are other factors involved in the company's significantly improved U.S. sales figures, but credit must be given to the company for embracing a vision where design is paramount and workers feel linked to their environment. "Cars are changing from just being a mode of transportation to a new space that connects people to their families, work, and society," says Yoon. "Our facility in the U.S. exemplifies this new space philosophy." *Ingrid Spencer*

OUTSIDE IN Pivoting glass doors (right) connect the Design Center with the entry plaza. The Center (bottom) supports high-tech presentations and modeling programs.

CREDITS

ARCHITECT: Skidmore, Owings & Merrill – Brian D. Lee, design partner; Gene Schnair, managing partner

ENGINEERS: Nabih Youssef & Associates (structural); RBF Consulting (civil)

CONSULTANTS: Patrick B. Quigley and Associates (lighting); Shen Milson Wilke (acoustical)

CLIENT: Kia Motors America

SIZE: 297,130 square feet (gross)

COST: $51.9 million

COMPLETION DATE: 2008

SOURCES

MASONRY: Division 3 Construction Services

GLAZING: Oldcastle BuildingEnvelope, Viracon

DOORS: Horton; Haley (door components)

PHOTOGRAPHY: © JULIUS SHULMAN AND JUERGEN NOGAI (TOP); © JULIUS SHULMAN (BOTTOM)

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CIRCLE 86

GOOD DESIGN IS good business

Verve Coffee Roasters
Fuse Architects + Builders
Santa Cruz, California

WHEN COLBY Barr and Ryan O'Donovan opened Verve four and a half years ago on a shoestring budget, they did all the interior work themselves, from pouring the concrete counters to driving to Sausalito, California, to buying stoneware tile. Slinging espressos for the surfers and other locals in the Pleasure Point area of Santa Cruz, California, proved successful, and soon they took over the space next door and began roasting their own coffee. By 2010 they had outgrown both spaces and, to keep up with growing demand, Barr and O'Donovan decided to expand their roasting capacity. Working with Daniel Gomez and Daniel Townsend of the Santa Cruz–based design-build firm Fuse Architects + Builders, they found space in the city's old Seabright Cannery to adapt for the new roastery. At the same time, they planned a second café in a storefront on Pacific Avenue, the main drag downtown. For both renovations, Barr and

COMPETITIVE EDGE The new headquarters/roastery (top) and Pacific Avenue Café (above) have been an easy sell for recruiting employees. Since the facilities opened, Verve Coffee Roasters has more than doubled its head count from 23 to 52, with over 100 prospective applicants showing up for a Roastery job fair.

PHOTOGRAPHY: © TED HOLLADAY

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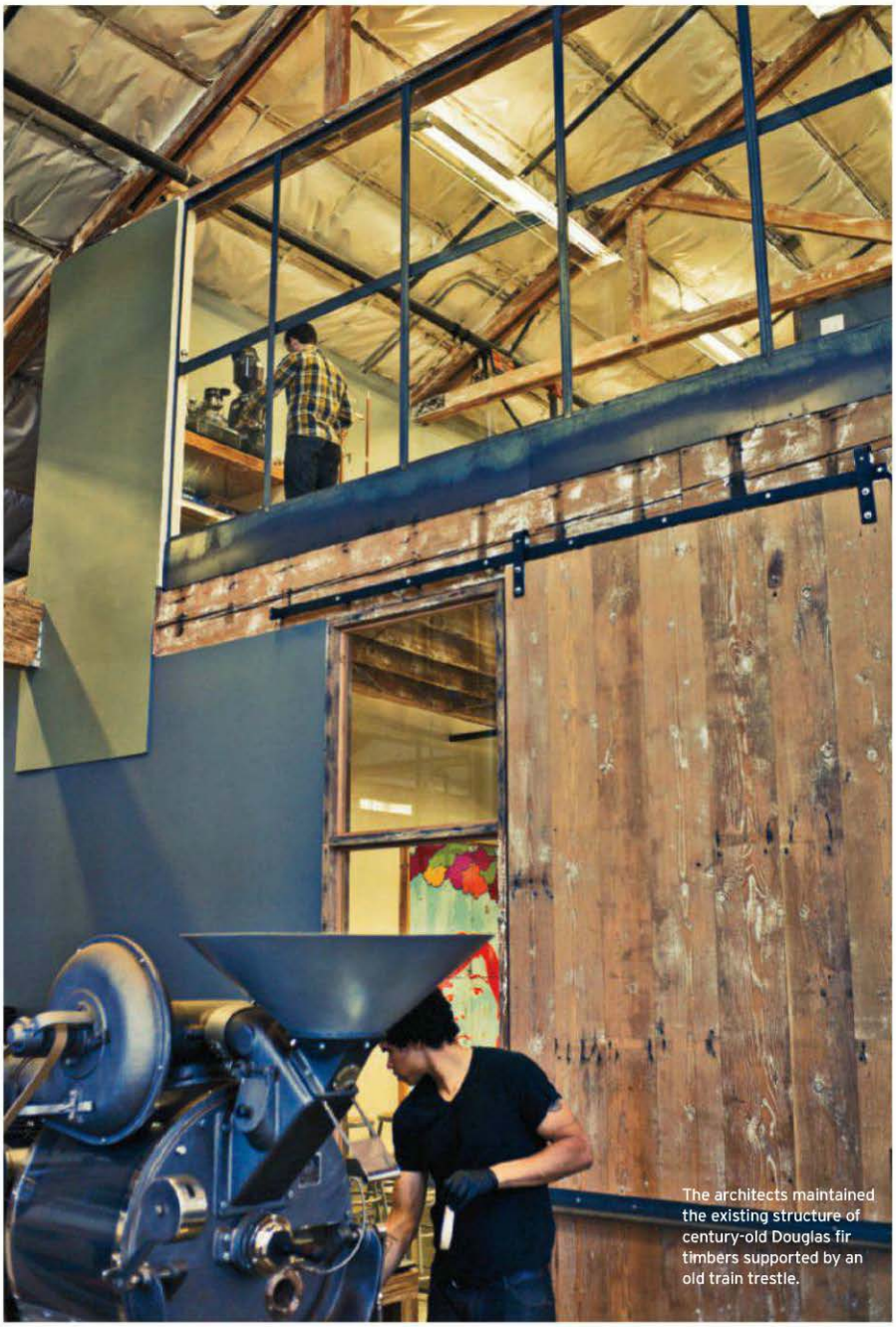
O'Donovan wanted to translate the honest, do-it-yourself spirit of their first coffee shop into a pair of open, daylit, industrial-modern spaces that would communicate their brand's focus on straightforward, unfussy quality.

Joining a bike shop, a surf shop, and other businesses in the circa-1914 cannery, the owners liked that their new roastery belonged to a residential neighborhood—which had been built to house cannery workers. "It's easy to find industrial space out of town, but that's not our vibe," says Barr. "We're always trying to connect our business with people and include them in the manufacturing side of it." In addition to an office, a barista training area, and a cupping room (for experimenting with brewing techniques), the 7,200-square-foot roastery includes a small ground-floor café.

To rejuvenate the industrial space, the architects added large windows, reclad the building with bonderized metal siding and flat-panel Cor-Ten, and, inside, removed a chunk of the mezzanine. When they ripped out the plywood and drywall, Gomez and Townsend discovered a preserved structure of century-old Douglas fir timbers—along with an old train trestle that had apparently been used to bolster it. They exposed the timbers and the trestle and used the leftover wood to mill doors and woodwork for the roastery and the Pacific Avenue café. The architects glassed in the remainder of the mezzanine to create an office that overlooks the roastery floor, where visitors can walk in for tours. "This had been a dilapidated section of the cannery; people didn't really have a reason to come down here," says Gomez. "Now there are 40 people every morning."

Barr and O'Donovan wanted the Pacific Avenue café to recall the roastery's raw-edged authenticity but with a clean, modern twist. The architects replaced the existing drop ceiling with a pressed tin ceiling and painted it white, poured a self-leveling concrete floor, and dangled a grouping of tungsten bulbs at different heights above the counter. The fir salvaged from the roastery—most prominently on a boatlike overhang housing an office, above the service area—has tighter joinery and smoother surfaces to complement the 2,800-square-foot café's more refined finishes. Since the spaces opened last fall, Verve's roasting capacity has increased sixfold. Revenues have more than doubled, and Barr expects them to triple by year's end. He and O'Donovan see Fuse's work as key to the perception of their brand. "We wanted these projects to be beautiful, and we did that because that's who we are," says Barr. "But over time it has reflected on how people interpret us as a company and reflects directly on the product." *Lamar Anderson*



The architects maintained the existing structure of century-old Douglas fir timbers supported by an old train trestle.

CREDITS

ARCHITECT: Fuse Architects + Builders – Daniel J. Gomez, Daniel R. Townsend, project architects

ENGINEERS: Redwood Engineering – Leonard Willis

CLIENT: Verve Coffee Roasters

SIZE: 7,200 square feet (Seabright); 2,700 (Pacific Avenue)

COST: withheld

COMPLETION DATE: Fall 2011

SOURCES

CLADDING: Western States Decking (Cor-Ten Steel)

INTERIOR MATERIALS: Caesarstone (solid surfacing); Heath Tile (Pacific Avenue back wall); Super Crete (Pacific Avenue flooring); Commercial Seating Specialists (upholstery)

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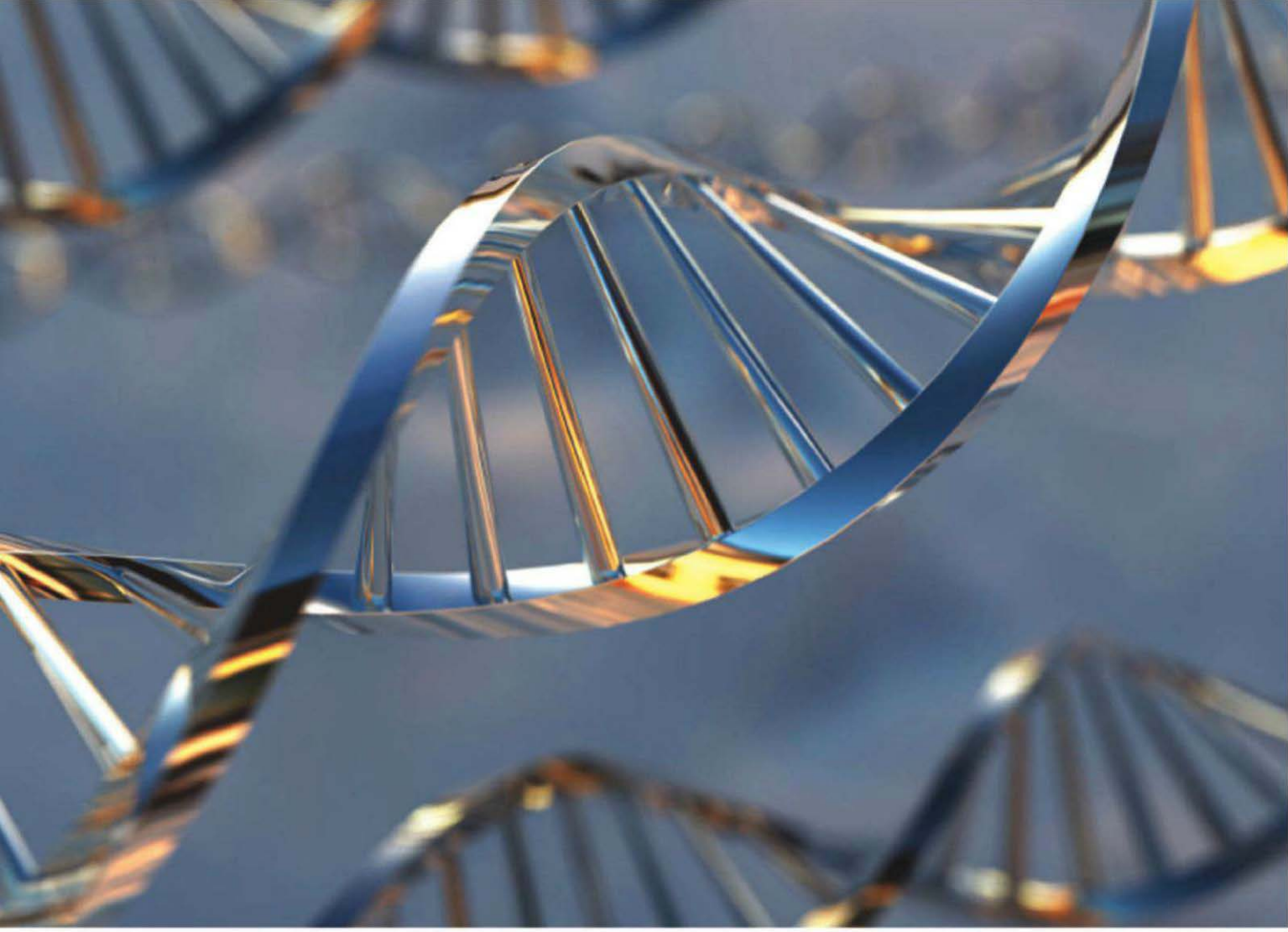

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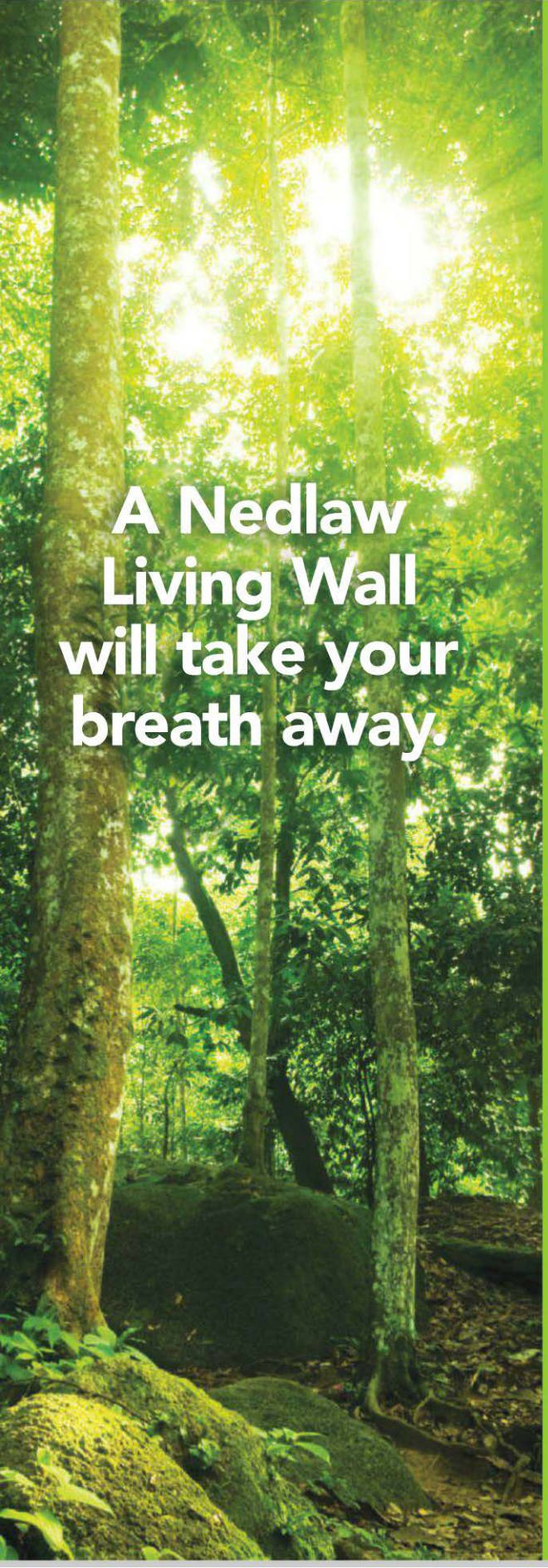

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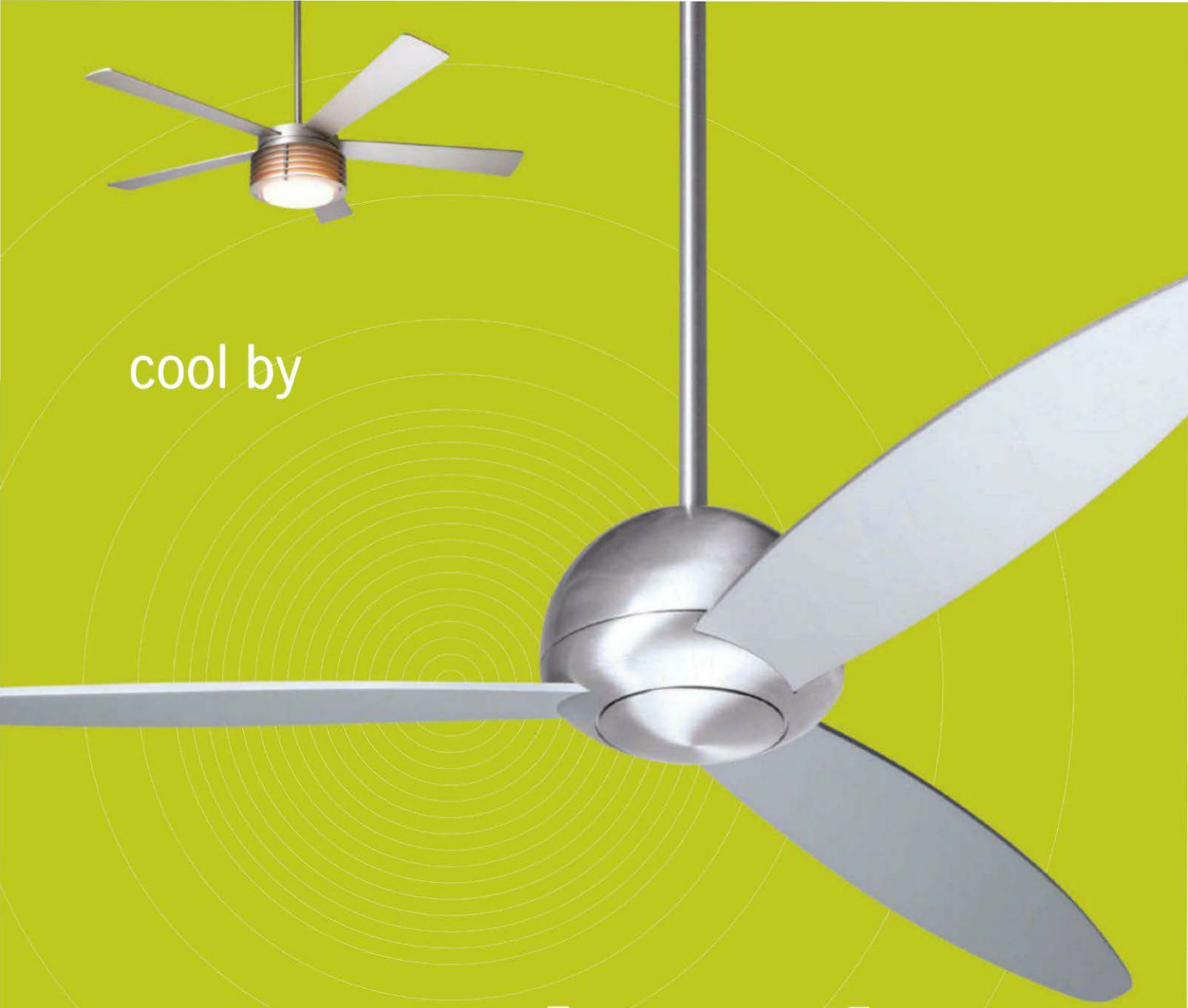

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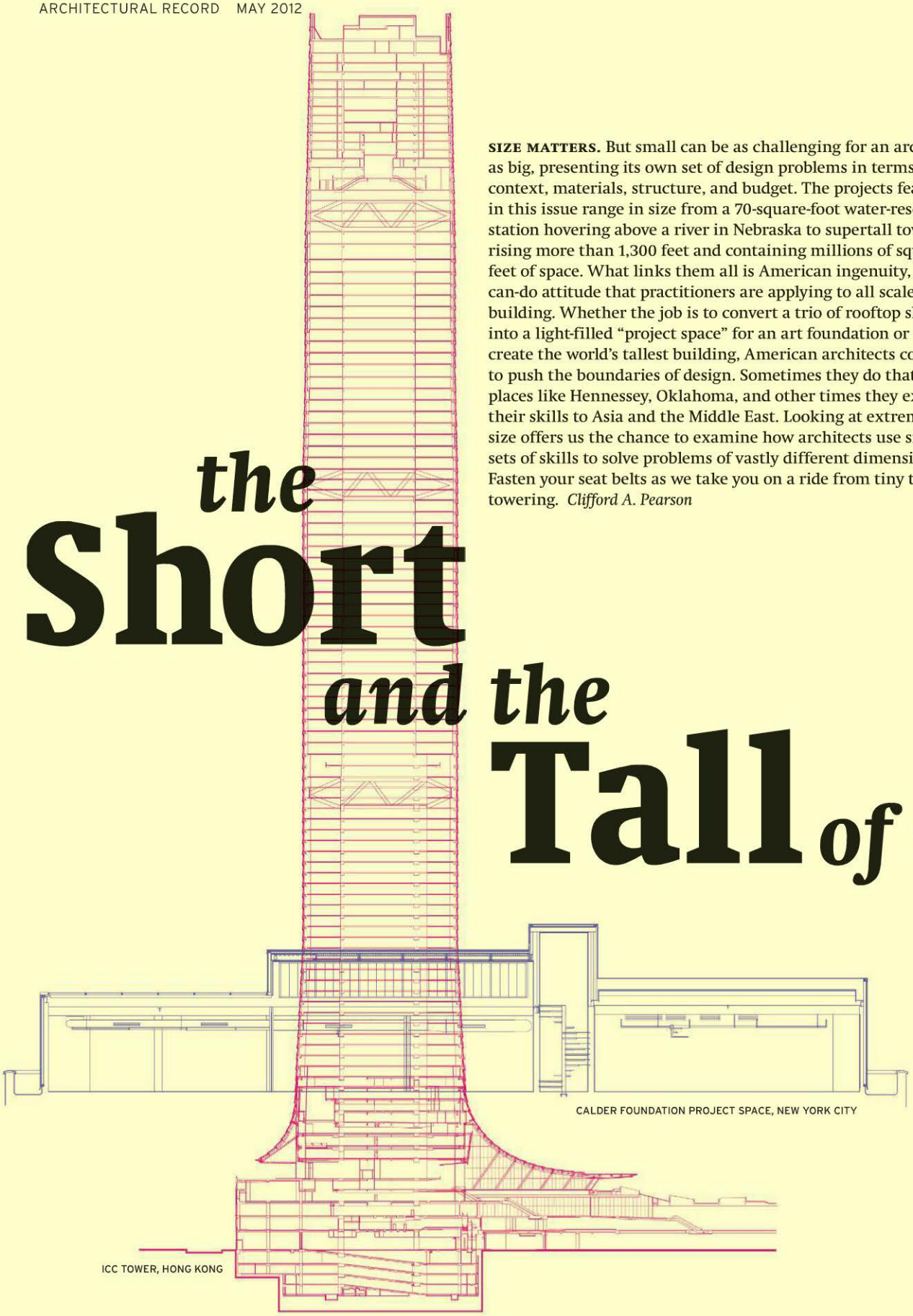
CIRCLE 96

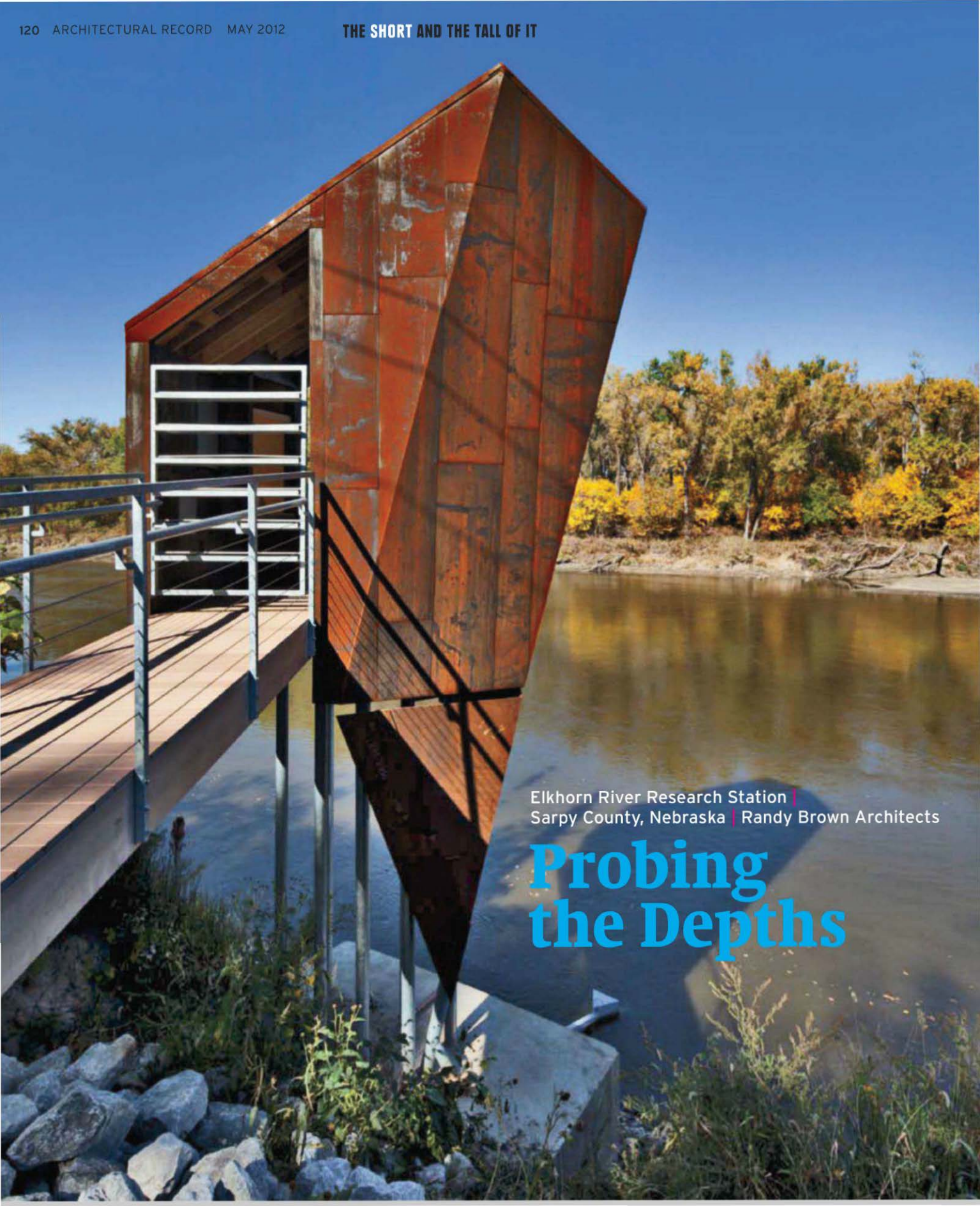
the Short and the Tall of it

SIZE MATTERS. But small can be as challenging for an architect as big, presenting its own set of design problems in terms of context, materials, structure, and budget. The projects featured in this issue range in size from a 70-square-foot water-research station hovering above a river in Nebraska to supertall towers rising more than 1,300 feet and containing millions of square feet of space. What links them all is American ingenuity, a can-do attitude that practitioners are applying to all scales of building. Whether the job is to convert a trio of rooftop sheds into a light-filled "project space" for an art foundation or to create the world's tallest building, American architects continue to push the boundaries of design. Sometimes they do that in places like Hennessey, Oklahoma, and other times they export their skills to Asia and the Middle East. Looking at extremes in size offers us the chance to examine how architects use similar sets of skills to solve problems of vastly different dimensions. Fasten your seat belts as we take you on a ride from tiny to towering. *Clifford A. Pearson*



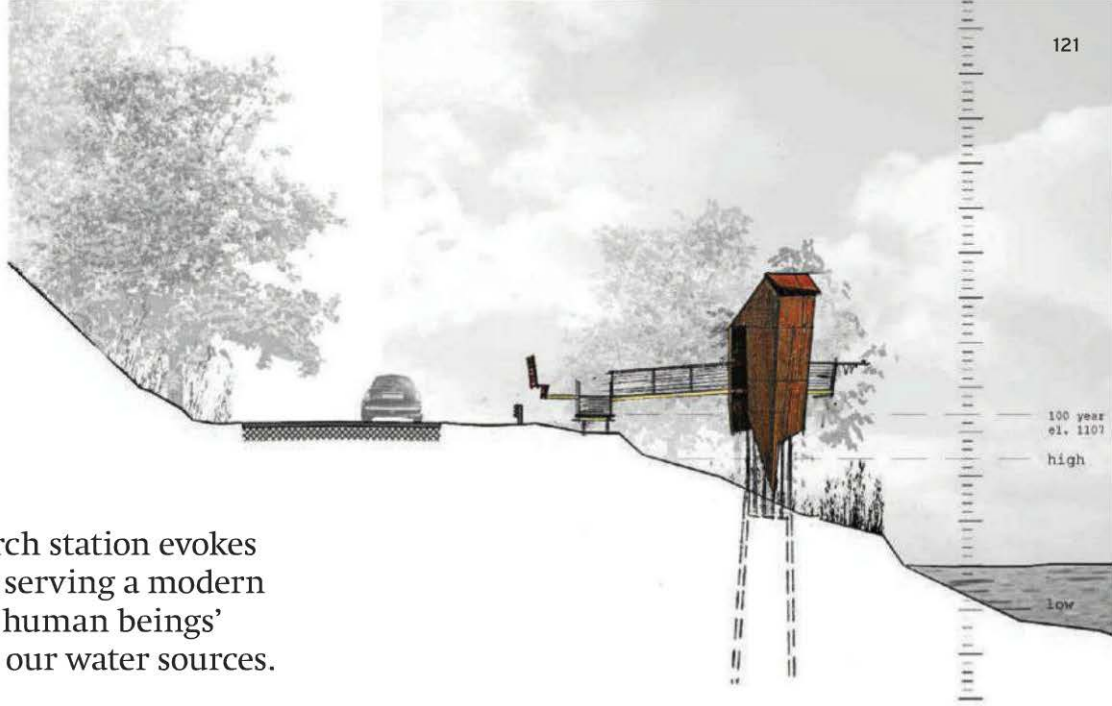
CALDER FOUNDATION PROJECT SPACE, NEW YORK CITY

ICC TOWER, HONG KONG



Elkhorn River Research Station | Sarpy County, Nebraska | Randy Brown Architects

Probing the Depths



A sophisticated research station evokes a long-gone era while serving a modern purpose: the study of human beings' deleterious effects on our water sources.

BY LAURA RASKIN

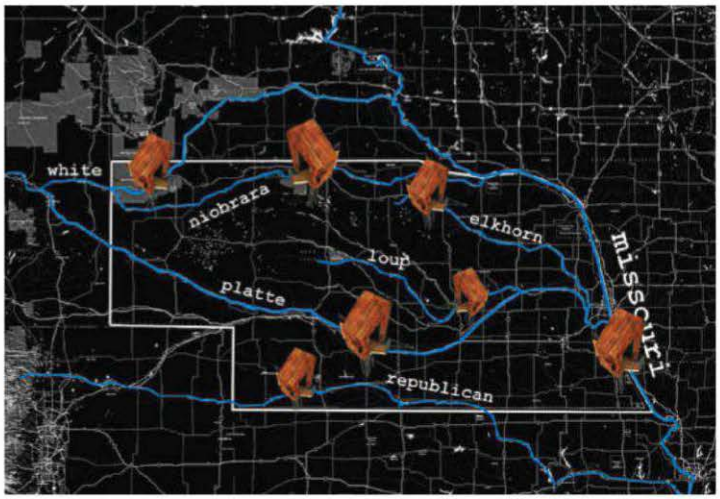
THE ELKHORN River Research Station could be mistaken for a rusting vestige of the steamboat days, left to disintegrate on the riverbank about 30 miles west of Omaha, like so many other industrial cast-offs. Clad in overlapping, Cor-Ten steel panels, with an asymmetrical roof, the station looks like the prow of a ship, or, from afar, like a preserved slice of a covered bridge.

But this minuscule, 70-square-foot, wood-frame "probe," as architect Randy Brown calls it, has a very modern function. It houses specimen tanks, water-testing equipment, and room for a few researchers to work.

You may have heard the frightening stories in the last decade: male fish and frogs exhibiting female traits because of water contamination caused by humans. Dr. Alan Kolok, an aquatic toxicologist at the University of Nebraska, focuses his research on such problems, studying "emerging contaminants"—molecules from birth-control pills, pesticides, fertilizer, and household-cleaning supplies, to name just some, that make their way into the water system and have disturbing effects on animals.

This work has taken Kolok all over Nebraska, searching for the signs and concentration of these toxins in the state's seven rivers. More recently, he decided to try to get the community to help him collect data. He discovered that if you give a Boy Scout troop or Kiwanis Club the simple tools needed to test water, they'll happily participate. "I'm really interested in community engagement and how we can empower citizens to be involved," says Kolok. "And what better way to do it than a distinctive piece of architecture?"

Kolok and his team approached the Omaha-based Brown to design a pilot research station, the first of seven that are planned, one for each river. As a center for the public and the university, and a masthead for Kolok, the compact form serves as branding. "It's the segue—the entry point—into this fairly sophisticated educational outreach system we're developing," says Kolok. Some of the more remote stations will have small living accommodations.



RIVER PROBE The open-air research station (opposite) allows a few people to work comfortably inside. Architect Randy Brown designed a slit in the Cor-Ten steel panels to signify the 100-year floodplain. The Nebraska Natural Resources District mandated that the station sit above the line. The Elkhorn River Research Station is the first of seven such stations planned, one for each of Nebraska's seven rivers (above).

PHOTOGRAPHY: © FARSHID ASSASSI (LEFT); COURTESY RANDY BROWN ARCHITECTS (THIS PAGE)

View additional images at architecturalrecord.com.

For Brown, who, like Marlon Blackwell in Arkansas and Brian MacKay-Lyons in Nova Scotia, has carved out a regional niche for himself, the project was a new challenge. "We didn't realize how tough it was going to be to build on the river," he says. The Nebraska Natural Resources District has strict regulations. Structures must be above the 100-year floodplain and pilings cannot affect the rise or flow of the river, inspiring Brown to perch the station on thin steel tubes, which have minimal effect on the water level. A symbolic slit in the metal paneling marks the flood line.

Two ADA-compliant wood ramps lead to the entrance and brace the structure. Jutting out over the water, a small wood deck has a V-shaped steel nose and a metal seat for observation. While the placid water flowed well underneath the station on a recent early spring day, it can easily flood the riverbank after winters with heavy snows. The nose helps deflect blocks of ice and logs that may float down the river. So does one of the steel stilts, which leans at an angle and has springlike give. Slabs of limestone steps lead down to the water next to the station.

Brown says he convinced Kolok to make the station even smaller than the scientist had originally requested, mostly for cost reasons. The station's pilings had to be buried 40 feet, costing a third of the $150,000 construction budget. "The lack of a big budget forces you to be creative and to clarify your idea," says Brown. "I think there's more of an experience here than in an office tower."

The 45-year-old architect has scaled back his own practice since the economic downturn and is focusing now on "just the projects I want to do," he says. These smaller designs provide immediate satisfaction and allow Brown to be less of an office manager.

Omaha was settled because of the confluence of its rivers, first by Native American tribes and then by members of the Lewis and Clark expedition. Docks provided the gateways to the river towns that developed subsequently. Today, Kolok is happy that his small metal station ties into the region's river culture, with its rusty, maritime aesthetic. "I think it resonates with people," he says. "If you live here, and you drive by that river every day, you are interested." ■

LOOK OUT The architects perched the station on thin, galvanized steel tubes that have very little effect on the rise and flow of the river. A V-shaped observation deck deflects ice and logs that could damage the station if the water table reached that height.

OBSERVATION TANK
A rendering of one of the stations (above) depicts the water-testing equipment and tanks necessary for the toxicology research, as well as the computer/workstation.

A steel grate door (left) doubles cleverly as a beaker stand when open and secured against the wall.

CREDITS

ARCHITECT: Randy Brown Architects – Randy Brown, principal; Jon Olson, Meg O'Mara, Chris Turner, project team

ENGINEERS: InfraStructure (civil); Thiele Geotech (geotechnical); JEO Consulting Group (hydrology)

CONSULTANTS: Todd Gayer (general contractor); George Killian (campus architect)

CLIENT: University of Nebraska, Aquatic Toxicology Laboratory

SIZE: 70 square feet

COST: $150,000

COMPLETION DATE: March 2012

SOURCES

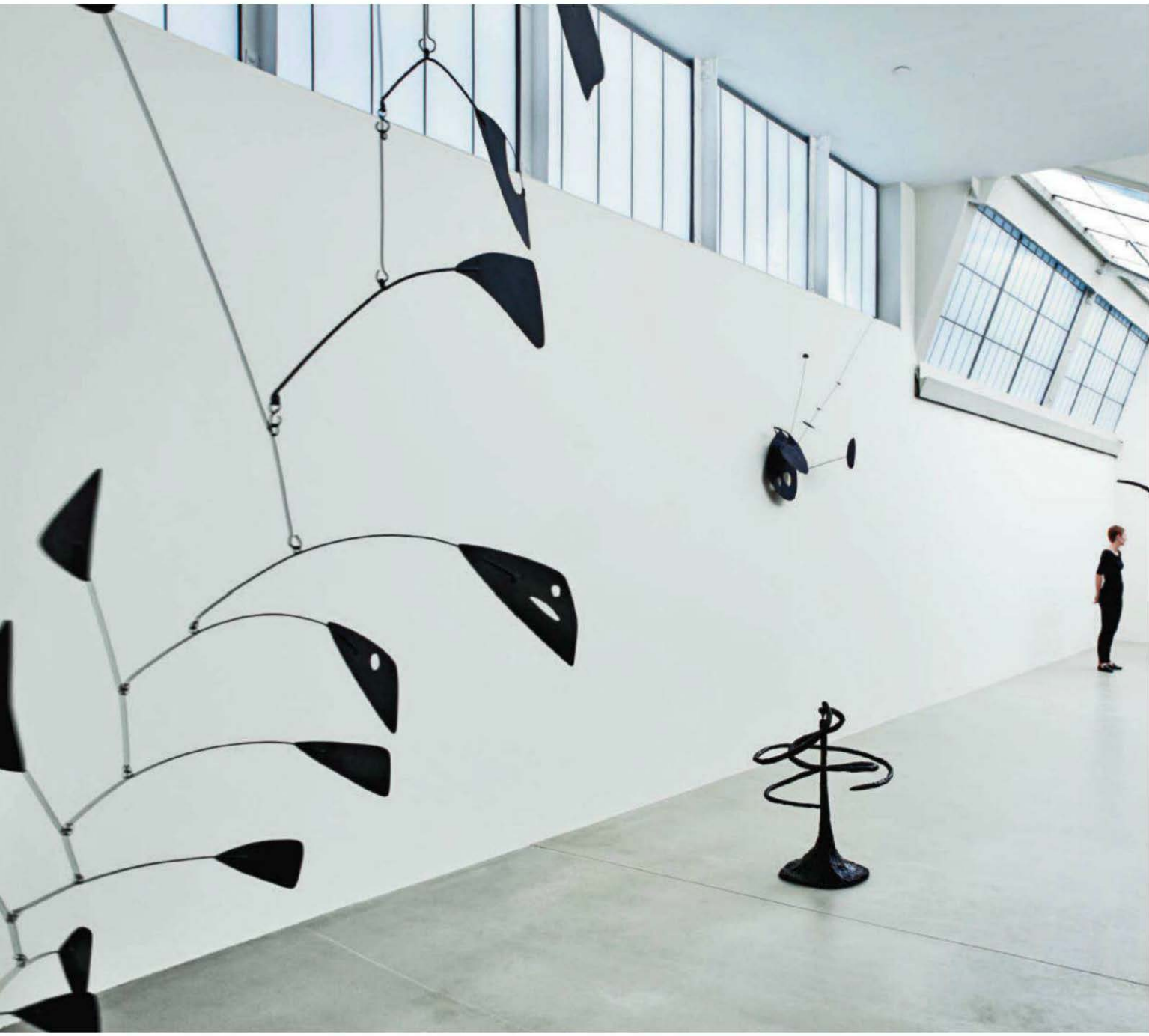
METAL PANELS: Cor-Ten Steel

COMPOSITE DECKING: Fiberon

WINDOWS AND SKYLIGHT: Polygal

EXTERIOR LAMPS: Stonco Lighting

PHOTOGRAPHY: © FARSHID ASSASSI (LEFT, BOTTOM RIGHT); COURTESY RANDY BROWN ARCHITECTS (TOP RIGHT)



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Calder Foundation Project Space | New York City | STEPHANIEGOTO

Chelsea Garret

Pieced together from old and new elements and animated by light and shadow, an industrial penthouse serves as an enticing space for understanding the work of Alexander Calder.

BY CLIFFORD A. PEARSON

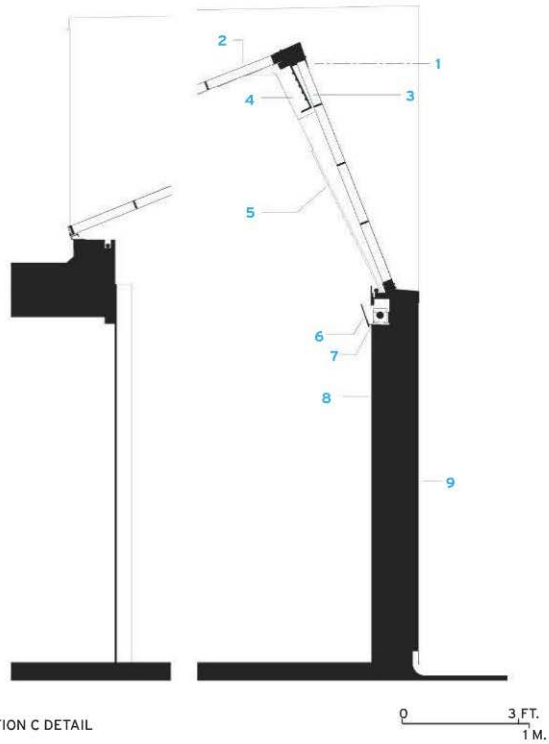
PHOTOGRAPHY: © RICHARD PARE

TREASURE BOX Stainless steel panels that reflect just blue light give the exterior (left) an aura of mystery and offer little hint at what lies inside. In renovating old roof sheds, Goto removed interior partitions and replaced wire glass with translucent sandwich panels, but kept the skylight angles and shed profiles (opposite). Original connections such as bolts and rivets add texture to the white galleries.

LIKE AN ARCHITECTURAL THERAPIST, Stephanie Goto stripped away layers of troubles that had weighed on a trio of rooftop sheds in Manhattan's Chelsea neighborhood to reveal their true personality and inner strengths. Added at different times to the roof of an early-20th-century printing building, the sheds formed a motley set of ramshackle structures when Goto was hired by the Calder Foundation, which has offices one floor below, to turn them into a 4,000-square-foot "project space." Alexander S.C. Rower, the grandson of the artist Alexander Calder and president of the foundation, wasn't exactly sure how the space would be used, but was drawn to the rooftop structures' rugged industrial character and views north to midtown and the Empire State Building.

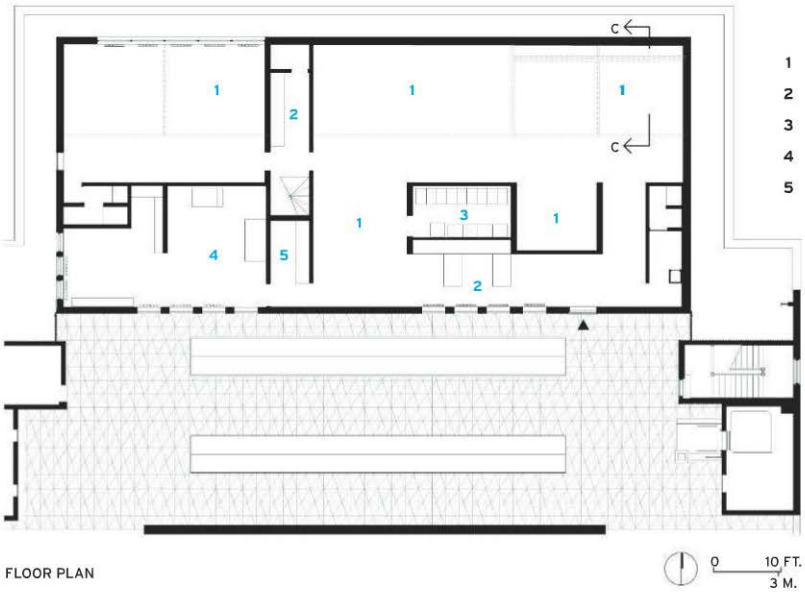
"We let the space dictate what should be there," says Goto, who has designed restaurants such as Corton [RECORD, January 2009, page 100] and collaborated with Tadao Ando on Morimoto [RECORD, September 2006, page 98], both in New York. When helping Ando with that project, she assisted him in dealings over a proposed Calder Museum in Philadelphia that didn't move forward. Rower met her then.

After removing paint and tar from skylights and taking down crumbling partitions, Goto exposed the steel frames of the three sheds, two of which touched each other and one that was separated by a narrow, enclosed space. "We were



SECTION C DETAIL

1 RIDGE CAP
2 TRANSLUCENT SKYLIGHT
3 EXISTING STEEL-CHANNEL RIDGE BEAM
4 STEEL-GUSSET PLATE
5 EXISTING SUPPORT CHANNEL
6 METAL RADIATOR COVER
7 TUBE RADIATOR
8 GYPSUM WALL BOARD AND PLYWOOD ON EXISTING PLASTER WALL
9 EIFS (EXTERIOR INSULATION AND FINISHING SYSTEM)



FLOOR PLAN

1 GALLERY
2 OFFICE
3 STORAGE
4 CONSERVATION
5 PANTRY

CREDITS

ARCHITECT: STEPHANIEGOTO – Stephanie Goto, principal; Margaret Kim, project manager; Kathleen Vogelsang, project team

ENGINEERS: Leslie E. Robertson Associates (structural)

CONSULTANTS: Front and INA Building Shop (facade)

SIZE: 4,000 square feet (inside); 3,500 square feet (outside)

COST: withheld

COMPLETION DATE: December 2011

SOURCES

STAINLESS STEEL PANELS: Rimex Metals, fabricated by A. Zahner

RUBBER ROOF TILES: ECOsurfaces

SKYLIGHTS/CLERESTORIES: Kalwall

CONCRETE FLOORS: MAPEI (Ultratop)

KINETIC ACTIVITY Inserted in a narrow space between two of the old sheds, a spiral stair (opposite) leads to a small office for the foundation's president. Treads of 3/8-inch-thick blackened steel are attached to a 4-inch-wide steel post and perimeter walls, creating a sense of movement. Large new windows orient a room (below) to north light and views and provide a dramatic setting for a table by George Nakashima, wood chairs by Zanine Caldas, and a couch by Vladimir Kagan. Goto designed the rooms to accommodate changing pieces of art and furniture.

pleased to discover the place had great bones, so we worked with the existing architecture—including the old bolts and connections," she says.

While creating a cohesive identity for the New York penthouse, Goto revealed the personality of each of its three portions. She used daylight to draw visitors through the project, but made sure each room crafted light in a different way. In the easternmost room, she repaired angled skylights, replacing old glass with translucent panels to bathe the space in an even, diffuse light that's particularly good for viewing Calder's stabiles. "It has the feeling of an artist's garret in Paris," says Rower. "My grandfather loved Paris."

In the adjacent middle gallery, Goto added a clerestory on the south to balance light coming from a restored one on the north. Although the first two rooms now flow directly into each other, the flat ceiling and translucent clerestories in the second space imbue it with a distinct character. In what had been the third shed, Goto replaced small windows with a wall of tall glass panes that maximizes the view to the north.

"We devised a narrative that pulls you through the project," says Goto. As the design developed, so did the program—with Rower seeing how the main spaces could house rotating displays of art (by Calder and others) and host symposia, performances, and parties. In the low-ceiling area on the south, Goto designed two workstations with beveled edges that minimize their profiles. She also tucked a storage space and a conservation room there.

Figuring out how to use the narrow space between the second and third sheds proved to be a challenge. After wrestling with a number of schemes, Goto finally inserted a tight stair spiraling up to a 115-square-foot room that has a floor-to-ceiling wall of glass looking south and which Rower uses as his office and a place to think. Everything in the project is painted white or off-white, but Goto used raw steel for the stair to provide an animated gray accent.

When asked if Calder's art influenced her design, Goto replies, "Spending so much time at the foundation, you breathe in Calder. But I never wanted to imitate or mimic his art. Even with the stair, which is sculptural in character, I didn't want to copy any of his forms or shapes."

For the exterior, Goto looked for a material that would unify the project. She picked a bead-blasted stainless steel with an interference coating that makes the metal look blue and designed a system of triangular panels that create diamond-shaped compositions. "We wanted a geometry that had no real pattern, so it would tie everything together," says Goto. "And we liked the idea of a material that refracts just blue light, since it echoes our use of light on the inside."

The unusual facade creates a sense of mystery, enhanced by a main entry that's clad in the same material and identified by only a stainless steel pull and a camera above the door. Inside, visitors can look through the axially aligned galleries all the way to a rounded steel door reminiscent of those on ships. The door "accentuates the procession through the galleries," says Goto, "and hints at a world beyond."

While expressing its own sense of craft and design, Goto's architecture embraces Calder's work in a setting where light, shadow, and movement bring art to life. ■

PHOTOGRAPHY: © BENJAMIN BENSCHNEIDER

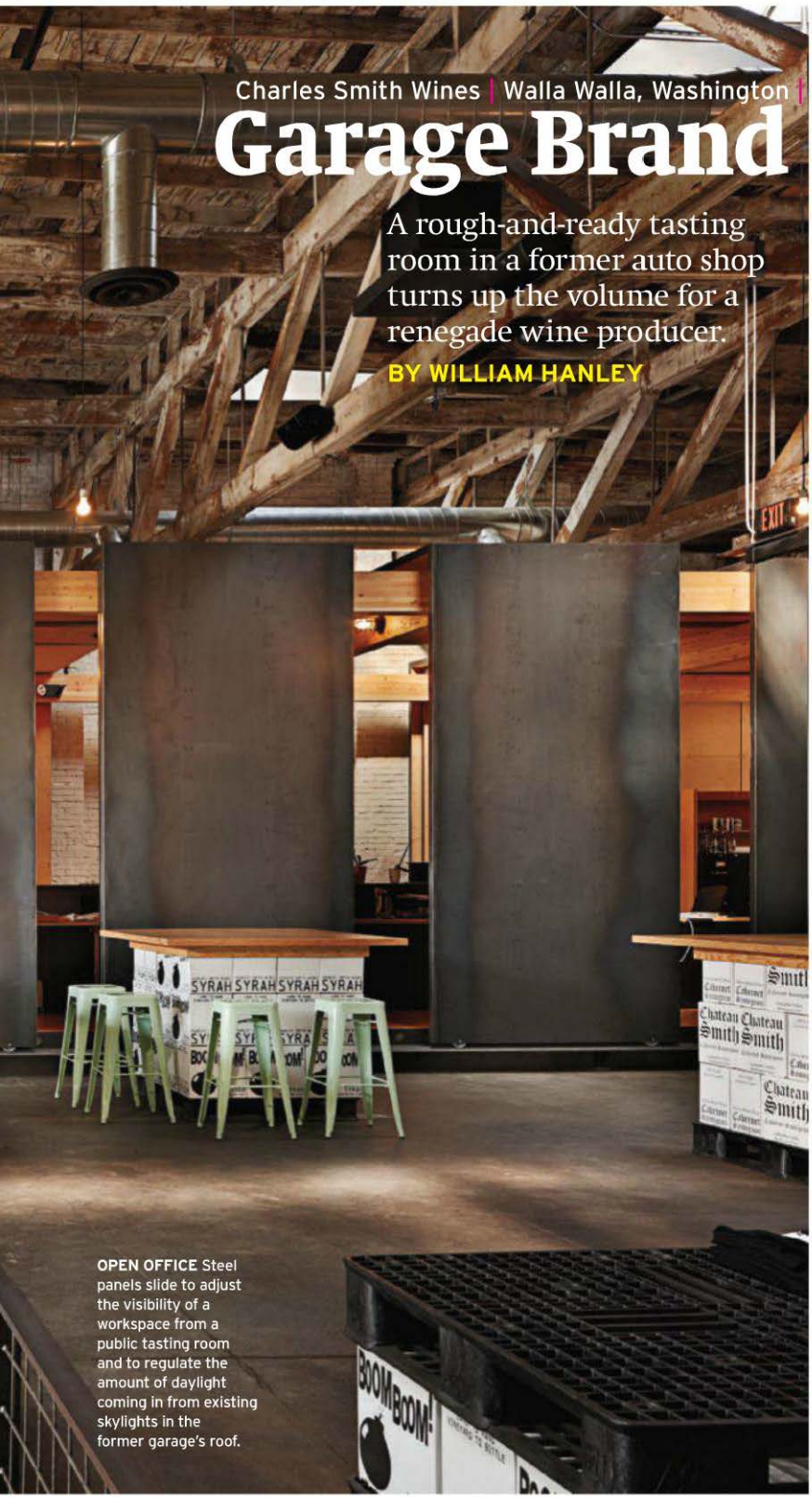
Take a video tour of this project at architecturalrecord.com.

Charles Smith Wines | Walla Walla, Washington | Olson Kundig Architects

Garage Brand

A rough-and-ready tasting room in a former auto shop turns up the volume for a renegade wine producer.

BY WILLIAM HANLEY



OPEN OFFICE Steel panels slide to adjust the visibility of a workspace from a public tasting room and to regulate the amount of daylight coming in from existing skylights in the former garage's roof.

WITH A mane of gray curls and an inveterate swagger, Charles Smith comes off as a middle-aged rock star rather than a winemaker. "He looks like Sammy Hagar," says Tom Kundig, comparing his client to the former singer for Van Halen. But the onetime band manager has parlayed his unlikely affect—and talent for marketing it—into an international business selling award-winning but affordable wine with a punk aesthetic. He acts as chief spokesperson for his "Kung Fu Girl" Riesling and "Velvet Devil" Merlot, among several varietals. Smith brands them all with black-and-white labels that look like photocopied rock-show fliers, more suited to the sides of telephone poles than wine bottles.

In the decade since he opened his winery, Smith, 51, has emerged as a leading producer and an unrelenting provocateur in the valley that surrounds Walla Walla, Washington. The region has become increasingly known for its vineyards and has begun to draw wine tourists to its hilly landscape in the southeast corner of the state. As his profile rose, Smith started looking for a storefront where visitors could stop in to sample his handiwork and where he could host events. He also wanted to upgrade his office. "I needed a workspace for my team and a cellar door for the public," says Smith. After seeing photos of Olson Kundig Architects' Chicken Point Cabin in Idaho, he approached the Seattle firm to convert a 5,000-square-foot auto-electric garage, dating from the 1920s, in downtown Walla Walla into a "world headquarters" for Charles Smith Wines. "He needed a stage," says Kundig. "For the wine, but also for himself." Despite the project's modest scale, with some creative design decisions and many moving parts, the space embodies the brashness of the brand and the impresario who leads it.

The designers left two of the garage's three bays mostly open, only partitioning off a rear loading dock with a sliding-steel panel and adding a lofted storage area above new restrooms and a small kitchen. They appointed the remaining space with easily reconfigurable furniture, including tasting counters and a set of steel-and-wood "rafts" that do double duty as seating areas and a stage. The movable elements allow the space to function as a tasting room during the day and accommodate any number of events in the evening; since its opening in 2011, Smith has hosted everything from burlesque shows to wedding receptions in the space.

Kundig left much of the interior's wear and tear as he found it—you won't find pictures of pastoral vineyards or stately chateaus. The brick walls still bear the occasional scribble of writing, and traces of white parking lines cross the concrete floors. Water stains from a roof that leaked for decades have left the wooden ceiling truss beautifully mottled. "It's a reference to the time it takes to make wine," says Kundig of preserving the building's patina.

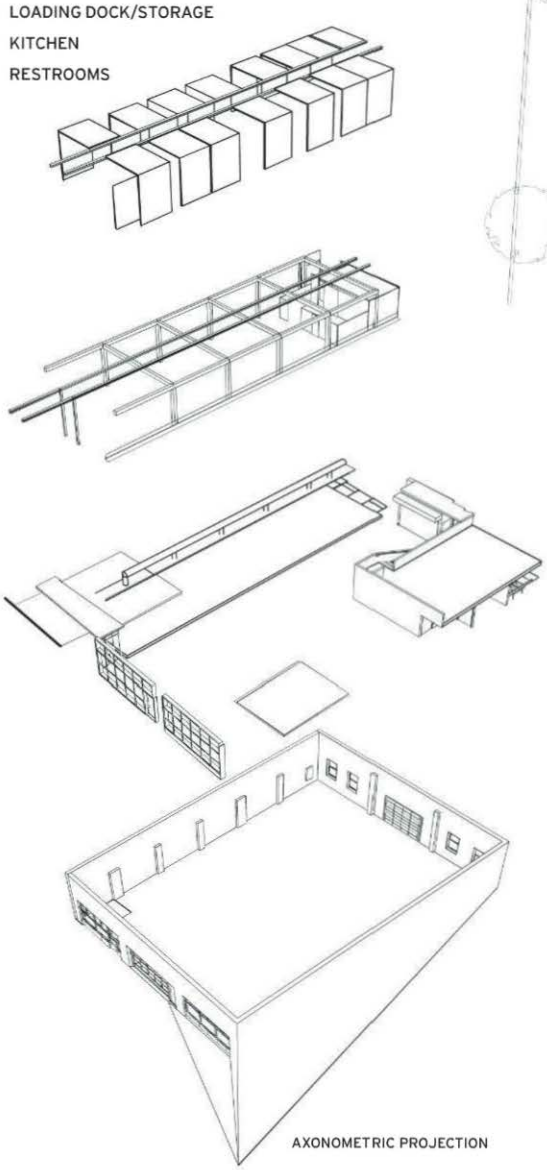
The only major intervention is the "armadillo," a shoebox-like volume with a prefab timber frame inserted into one-third of the garage. It encloses a conference room and an open-plan workspace for up to 10 employees of Smith's enterprise. "It's parked like a Trojan horse in one of the bays

of the building," says Kundig. The box gets its nickname from the 15 steel panels that cover its top and sides. The L-shaped plates slide on a set of tracks running along the floor of the box's long sides, and another running overheard through the center of the office ceiling. They open the workspace to the tasting room, blurring the line between front- and back-of-house. "The public sees what we do, and we see the public checking us out," says Smith. The box is raised on a platform to accommodate electrical and data systems and lined with cork panels to provide some acoustical isolation—though with four 90-pound subwoofers mounted in the rafters, the default volume for the music in Smith's tasting room is loud.

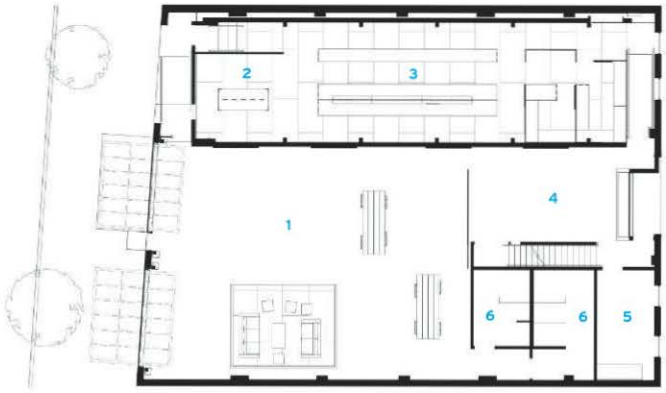
The design team converted one of the garage's three street-side openings into an entry for the office. The other two hold glass garage doors with steel frames and sashes that open and close with one of Kundig's signature hand-cranked mechanical systems. When open, the doors cant dramatically over a fenced-in plot of sidewalk, which allows for sipping outdoors in warm months. It also brings the scene inside the space into Walla Walla's downtown. The storefront is on a side street, just across a creek from Main Street's commercial stretch, and Smith was determined to be noticed by pedestrians. He even suggested painting the entire exterior black, but Kundig talked him down. "He

STREET SCENE
Garage doors swing open and closed with a custom-designed system of cranks, gears, and chains. The gadget echoes devices that Kundig has created for other projects. Here, the contraption turns a prosaic function into a head-turning detail, adding to the space's sidewalk presence.

1 TASTING ROOM
2 CONFERENCE ROOM
3 OFFICE
4 LOADING DOCK/STORAGE
5 KITCHEN
6 RESTROOMS

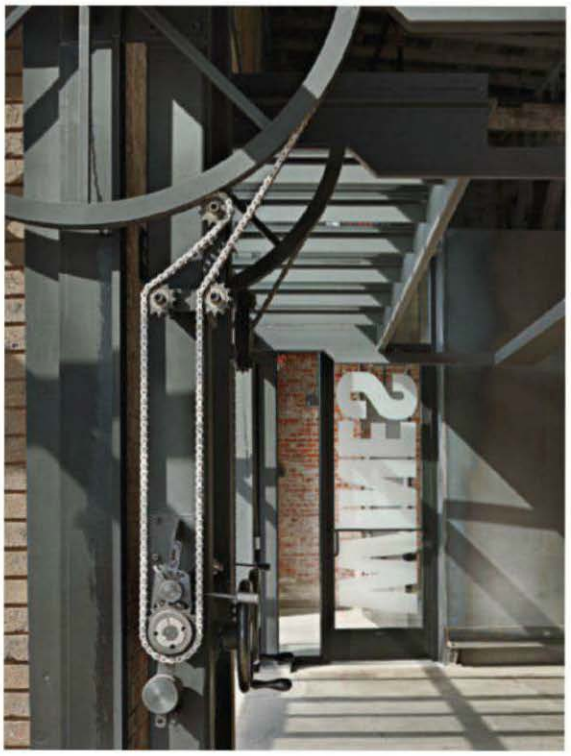


AXONOMETRIC PROJECTION



FIRST FLOOR

0 10 FT.
3 M.



wanted people on Main Street to say, 'Woah, what's going on down there?' " says the architect.

On a recent visit, the garage doors did the trick as a group of people walking by turned to watch Smith—clearly loving the physicality of the process—crank open part of the facade. The playful mechanism added tens of thousands of dollars to the cost of the job, but Smith says it was worth it for the attention that he gets. The project's combination of tough materials, street presence, and versatility has created a destination that holds its own with the personality of its owner. "Many of our clients have an urge to take risks," says Kundig. "But Charles is a force of nature." ■

CREDITS

ARCHITECT: Tom Kundig, design principal; Les Eerkes, principal, project manager; Chris Gerrick, project architect

CONSULTANTS: Turner Exhibits (pivot doors, hand-cranked mechanical devices); Spearhead (prefabricated office frame, sliding panels, custom furniture)

ENGINEERS: KL&A (structural); MEFI Engineering

CLIENT: KVintners and Charles Smith Wines

SIZE: 5,000 square feet

COMPLETION DATE: April 2011

SOURCES

ENTRANCES: Kawneer

Kirkpatrick Oil Field Office | Hennessey, Oklahoma | Elliott + Associates Architects

A White Knight in the Land of Black Gold

An Oklahoma architect fills a void on Main Street and helps bring hope to a community with a Modernist field office for a family-run oil company.

BY BETH BROOME

MAIN STREET in Hennessey, Oklahoma, is everything you'd expect of a small-town, Western main street. Seventy miles north of Oklahoma City, just beyond open prairies where cattle graze to the rhythm of nodding pumpjacks, red-dust-streaked pickups roar past Terry's Pump & Supply and the local farm bureau, and weathered grain elevators and a water tower rise nearby. There's Fun-Time Video & Tanning, Town Hall, the local newspaper office. And then, bookended by the Head Over Heels dance school and Bullfoot Station Antiques, set perfectly into the streetscape, is Elliott + Associates' gleaming new field office for Kirkpatrick Oil Company. At once camouflaged by its modest scale and highlighted by its glaring whiteness and pristine lines, it causes a double take.

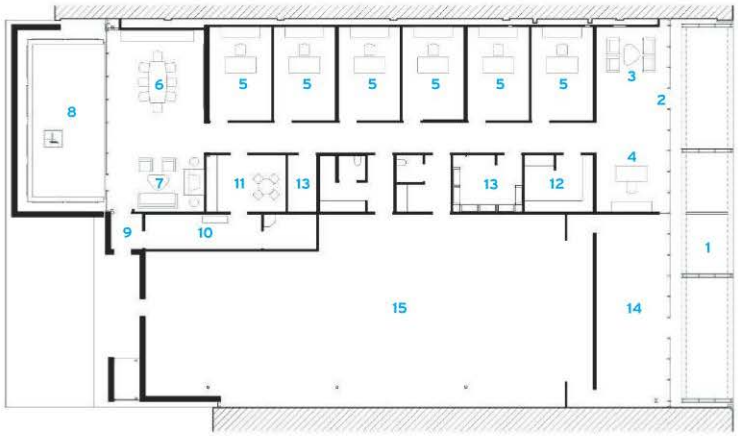
An oil field, cattle, and farming town of 2,100, Hennessey was founded in 1890, a year after the Oklahoma Land Run. The Kirkpatrick family has been drilling here for generations and, until recently, housed its field office in a squat, deteriorating building south of town on Interstate 81. On October 1, 2007, as Hennessey worked to improve its downtown, fire tore through its center, destroying the Independent Order of

View additional images at architecturalrecord.com.

NEW NEIGHBOR The building's brise-soleil (above and left), a kind of scuptural installation on Main Street, provides shading as well as functioning as a front porch for the community. In homage to the original masonry, the brise-soleil's powder-coated aluminum tubes, like standard brick, are 2 3/8 inches high.

The soaring, double-loaded corridor (right) is animated by a crystal-clear linear skylight and shadows cast from above.

PHOTOGRAPHY: © SCOTT MCDONALD/HEDRICH BLESSING



FLOOR PLAN

0 10 FT.
3 M.

1 BRISE-SOLEIL
2 MAIN ENTRY
3 LOBBY
4 RECEPTION
5 OFFICE
6 CONFERENCE
7 LOUNGE
8 COURTYARD
9 REAR ENTRY
10 MUDROOM
11 BREAK ROOM
12 COPY/WORK ROOM
13 STORAGE/MECHANICAL
14 DISPLAY AREA
15 RAW SPACE

BACK PORCH The rear of the building opens out onto a patio with a sculpture by UK artist Nigel Hall (right). Kirkpatrick's chairman, who is also an art collector and chairman of the board of the company's foundation, wanted the piece to be appreciated by the public. It is visible from the street at the end of the long corridor.

Odd Fellows hall, the American Legion building, and Dinkler Drug Store. It dealt a blow. "There were just holes—it was depressing," remembers Barb Walter, co-publisher and managing editor of the *Hennessey Clipper*.

Christian Keesee, chairman of Kirkpatrick Oil (and great-grandson of its founder), saw the void as an opportunity—both from a business and a civic perspective. He recognized the potential to create a presence for the company as well as give back to a place that's been so pivotal for Kirkpatrick. "Billions of dollars have come out of the ground around that little town," says Keesee. "Every major oil and gas company in Oklahoma has a presence there, but as a community, it's sort of ignored."

Elliott + Associates principal Rand Elliott, an Oklahoma native with a long list of renovation and adaptive reuse projects under his belt, understood that filling the gaping hole did not lie in a historicist approach. Instead, he created a bold, 21st-century building that relies on proportion and scale to fit into its historic context. The building is sensitive to the street's 25-foot-wide lots and the height of adjacent buildings, as well as other details of the surrounding vernacular.

The building greets the public with a striking steel-plate brise-soleil, comprising three sections that reflect the dimensions of the original facades. Kirkpatrick's calling card, it is painted white in deference to the grain elevators and set off from the building's glass and aluminum storefront to reveal old masonry party walls. Elliott divided his steel-framed building behind the brise-soleil in two, with the north side housing the company's offices and the south portion left raw for future development. Just beyond the reception area, the architect created the main interior event: a soaring, double-loaded corridor that terminates in a conference room and lounge at the back. A skylight runs the hall's length, admitting the big Western sky and casting intense light and dappled raindrop shadows on the white walls. The cavelike offices off the hall, which were empty on a recent visit, feel incidental—indeed, the building functions more as a home base for oil-field hands rather than white-collar workers.

The architecture far exceeds the basic programmatic requirements for this building type. But Keesee's instinct to do something special has had some surprising consequences. "We did not need to spend that much money to build a field office," he admits. "But it has brought us good will, and added spirit to the community. There always needs to be a balance struck between commerce, philanthropy, and community enrichment." If Kirkpatrick hadn't moved in, says Hennessey mayor Wes Hardin, "I promise you it would still look like we had our tooth knocked out. They're helping preserve our downtown—our community." Barb Walter agrees: "It has been a renewal for us." When the building was recently awarded an AIA Oklahoma honor award, local businesses banded together to buy a full-page congratulatory ad in the *Clipper*.

Besides giving a boost to local morale and the physical streetscape, the building has proved an invaluable resource for the people of Hennessey, who are welcome in the offices and who have adopted the raw space as a community center. The Christmas bazaar was held there and, this spring, it will host Hennessey High's senior prom. Then again, the building's local appeal might simply be visceral. "It's a quiet building," notes Elliott. "It doesn't whimper or hide, but it's not something that would reach out and yell at you. That is a personality trait in this part of the world." ■

COMMUNITY LOUNGE Just beyond the dramatic entry through the brise-soleil, the reception area (above) provides a quiet pause before the procession down the central hall. The architect has left glimpses of original masonry throughout the building.

The conference room and lounge (left) hold reproductions of the possessions of Kirkpatrick's legendary former owner, Grandpa Kirkpatrick, and have a decidedly refined man-cave feel.

CREDITS

ARCHITECT: Elliott + Associates Architects – Rand Elliott, Brian Berryhill, Michael Shuck, project team

ENGINEER: Mark Eudaley Engineers (structural)

GENERAL CONTRACTOR: Smith & Pickel Construction

SIZE: 9,400 square feet

COST: withheld

COMPLETION DATE: September 2011

SOURCES

BRISE-SOLEIL: Shawnee Fabricators (structural steel); Artform (aluminum extrusions)

GLASS CURTAIN WALL & ENTRANCES: Oldcastle BuildingEnvelope

GLASS: PPG

SKYLIGHT: Viracon

ACOUSTICAL CEILING: Armstrong

EIFS SOFFIT: Dryvit

PLUMBING: Toto

PHOTOGRAPHY: © IWAN BAAN

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Daeyang Gallery and House | Seoul | Steven Holl Architects

Water Music

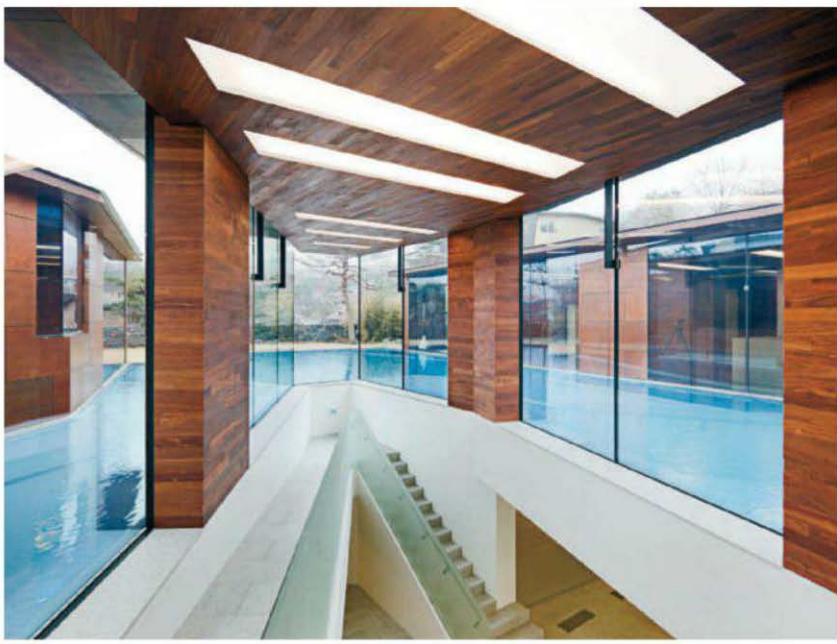
Packed with references to music, math, and more, a hybrid building finds a way of disarming visitors and dancing lightly above a rippling surface of water.

BY ARIC CHEN

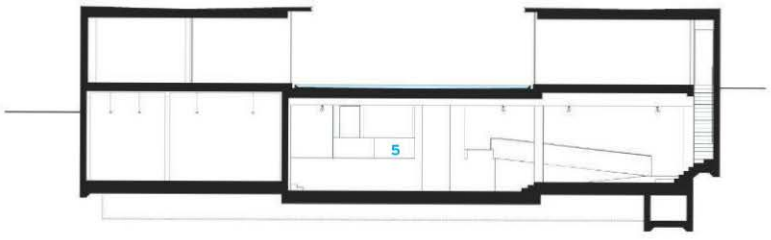
IT'S NOT EXACTLY A HOUSE, nor entirely a gallery, but it does have a wine bar—and might best be described as "semi-public." That said, Steven Holl is comfortable with fluid, hybrid typologies, having designed projects such as the Linked Hybrid complex in Beijing [RECORD, January 2010, page 48], which combines housing, retail, cinema, and recreation. But for the Daeyang Gallery and House, his first project in Korea, the New York architect also threw in an avant-garde music metaphor, a mathematical reference, and a hefty dose of the "phenomenology" for which he is known. The result is a 10,700-square-foot compound that, despite its heavy-handed complexity, resonates with remarkable subtleties.

Built for the Daeyang Shipping Company to display its collection of art, which spans from ancient Korean artifacts to cutting-edge contemporary works, the project occupies a hilly site in a posh residential section of Seoul. It comprises three pavilions—a guest residence, an event space, and a reception area—that emerge from a reflecting pool on the

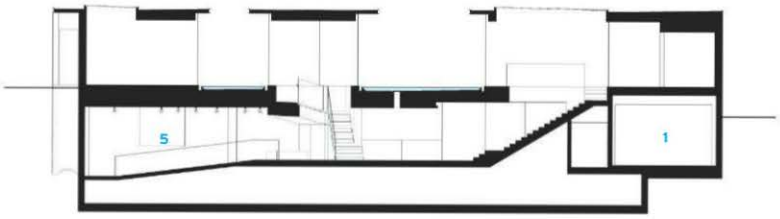
EMERGING POWER
A trio of copper-clad pavilions rise above the plane of a reflecting pool (opposite), while linear skylights set in the pool bring daylight to galleries below. A series of stairs and ramps (below) connect the galleries to a reception area and wine bar (not shown).



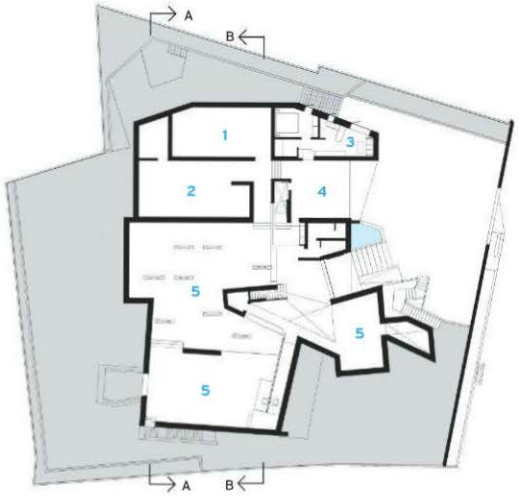
1 MECHANICAL
2 STORAGE
3 CARETAKER'S APARTMENT
4 GARAGE
5 GALLERY
6 LIVING/DINING
7 TERRACE
8 MASTER BEDROOM
9 KITCHEN
10 LIBRARY/BEDROOM
11 MEETING
12 RECEPTION/WINE BAR



SECTION A-A



SECTION B-B



LOWER LEVEL

0 30 FT.
10 M.

ENTER HERE From the street, certain elements hint at Holl's handiwork: a wall of bamboo-formed concrete and a Cor-Ten door with one of the architect's trademark cutouts (opposite). The drawing of a music score that inspired the house is embossed in concrete to the right of the main door. Ramps and steps help divide the sprawling galleries into distinct spaces for a diverse collection of art that had not been installed at the time these photographs were taken (right and below).

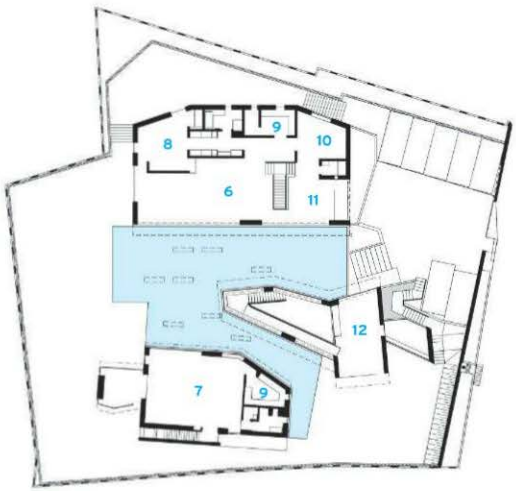
roof of a sprawling, lower-level gallery.

As inspiration for the plan, Holl used a drawing he discovered in a John Cage book of a 1967 musical score by the Hungarian-Canadian composer István Anhalt. Holl followed the sketch to a tee: two rectangular-ish shapes in the upper-left and -right corners (which he used as the footprints of the events pavilion and guesthouse), pierced from below by a vaguely sword-shaped element (now the reception space with the wine bar). He recast the spaces in between as the building's reflecting pool. "Music, in the form of the graphic of the score, was a heuristic device provoking the three-pavilion concept piercing the sheet of water," Holl explains.

Before the heuristics begin, however, you drive into a stone-paved courtyard, then enter the building at the lower-level gallery. From a split-level foyer, you take steps down or go up ramps to traverse three pleasingly diverse gallery spaces that then lead to the pavilions upstairs. Throughout the project, 59 linear skylights, parallel but staggered irregularly, bring daylight inside. Many of the skylights are set in the reflecting pool, so light trickles through water before entering the galleries below and dancing across walls and floors. "The skylights cutting through like [musical] staff lines allow sunlight to reconfigure the spaces daily and seasonally—as if the sun plays the music in light and space," Holl says.

A similar sense of fluctuation applies to the spaces themselves. One set of stairs and ramps boomerangs up, through the reflecting pool, and then to the wine bar. Surrounded by a garden with stands of black bamboo, pines, and gingko trees, the glass-and-copper pavilions create mesmerizing reflections in the pool while offering shifting perspectives of landscape, water, and architecture.

Such visual effects are heightened by the pavilions' floor-



UPPER LEVEL

Seoul Man

STEVEN HOLL titled his latest book *Scale* in recognition of the remarkable range in size of his recent work, from a 650-square-foot gallery in Dutchess County, New York, to a 3.3 million-square-foot, mixed-use complex under construction in Chengdu, China. The book (published by Lars Müller) is 5 by 7 inches, the same as the notebooks in which he has been sketching watercolors for the past 30 years. The title also refers to the scale composers use in their art and the role music has played in his body of work. "The book is the size of your hand," says the architect, who compares the musical staff to our five fingers. Showing the impact of the human hand on his buildings is important to Holl, and he tries to design door pulls and light fixtures in addition to the architecture. "Details are the strange and interesting remarks we make in our work," he says. "The intensity of architecture is really felt at the level of the detail."

Designing houses has always been a critical part of his practice, says Holl: "Architecture isn't about size. It's about the ideas, the materials, the spatial energy invested in it. Some of the greatest works of architecture are quite small. Just look at Corbusier's Heidi Weber Pavilion in Zurich." He admits, though, that "my business manager always complains about us losing money on small projects."

Music has served as a direct reference in two of Holl's previous built projects: the Sarphatistraat Offices in Amsterdam (2000) and the Stretto House in Texas (1991). But the music that inspired the Daeyang Gallery and House is different, he says, because it was never played: "We found a way of playing it, though, with light."

STEVEN HOLL

Holl says he struggled with the Daeyang project, in part because the program was vague at first. He looked for ideas in Korean ceramics, but didn't find the right spark: "This is my first project in Korea. It's a very intense place with a strong culture and rich heritage of art and design."

Asked about winning the American Institute of Architects' Gold Medal this year, Holl laughs. "I feel I'm still getting started!" Then he adds, "Doing experimental work is still important to me. Teaching is still important to me." So even though he is working on projects all over the world and at scales large and small, he tries to retain the same process and attitude toward creating architecture.

Clifford A. Pearson

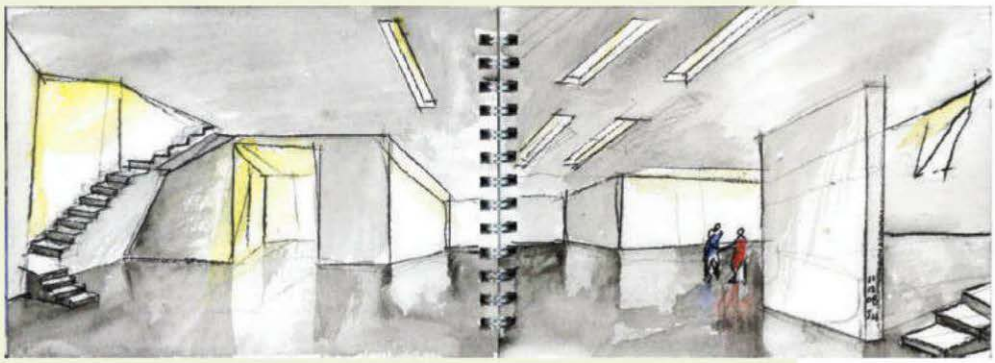
to-ceiling, double-paned glass. Instead of mullions, Holl employed barely noticeable support fins for the glass, which creates an elegant look but required one of the flat, overhanging roofs to be cantilevered and steadied by piano wire.

Other Holl signatures make an appearance: a door that wraps into a corner, notched walls, and neo-constructivist lighting fixtures. (Like many Holl projects, the building is geothermally heated and cooled.) The architect also designed custom-made rugs, which abstract the Anhalt drawing in shades of mustard, green, and Matisse blue. He even created a sculptural mailbox.

But just when you start to feel overwhelmed by a sense of Gesamtkunstwerk, the building allows your eyes to regain focus. A restrained material palette—granite and concrete below, dark oak floors and reddish wood walls and ceilings on the pavilion level—tone things down. Muted details, such as curving feet for gallery railings and recessed lighting that almost disappears, further soften the pedantic blow.

Holl's buildings, and his readings of them, sometimes feel overwrought. Besides the Anhalt sketch, the Daeyang project ostensibly follows proportions based on the mathematical sequence 3, 5, 8, 13, 21, 34, 55—the Fibonacci series. Of course, math, music, and architecture have a long history of conspiring at some larger truth; Holl himself has taught a course at Columbia called "The Architectonics of Music." But as an intellectual exercise, that triumvirate feels nearly exhausted—in the Seoul project, it risks becoming a contrivance, an overabundance of concepts. Still, that ought not take away from Holl's experiential accomplishment here. Cutting through the rhetorical clutter, one finds a building that is, in reality, full of sublime moments. ■

Aric Chen is a Beijing-based writer and curator.



INSIDE OUT A watercolor by Holl shows the fluid use of space in the galleries (above). Walls and ceilings clad with Cabreuva Vermelha, a type of mahogany, add warmth to the interiors of the guest residence (opposite top) and the reception/wine bar (opposite bottom). Rugs were designed by the architect.

CREDITS

DESIGN ARCHITECT: Steven Holl Architects – Steven Holl, design architect; JongSeo Lee, associate in charge; Marcus Carter, Rashid Satti, Francesco Bartolozzi, Fiorenza Matteoni, Dimitra Tsachrelia, Nick Gelpi, project team; Chris McVoy, Annette Goderbauer, project advisors

LOCAL ARCHITECT: E.rae Architects

ENGINEERS: SO Engineering (structural); Northstar Engineering (mechanical)

LIGHTING DESIGNER: L'Observatoire

SIZE: 10,700 square feet

COST: withheld

COMPLETION DATE: April 2012

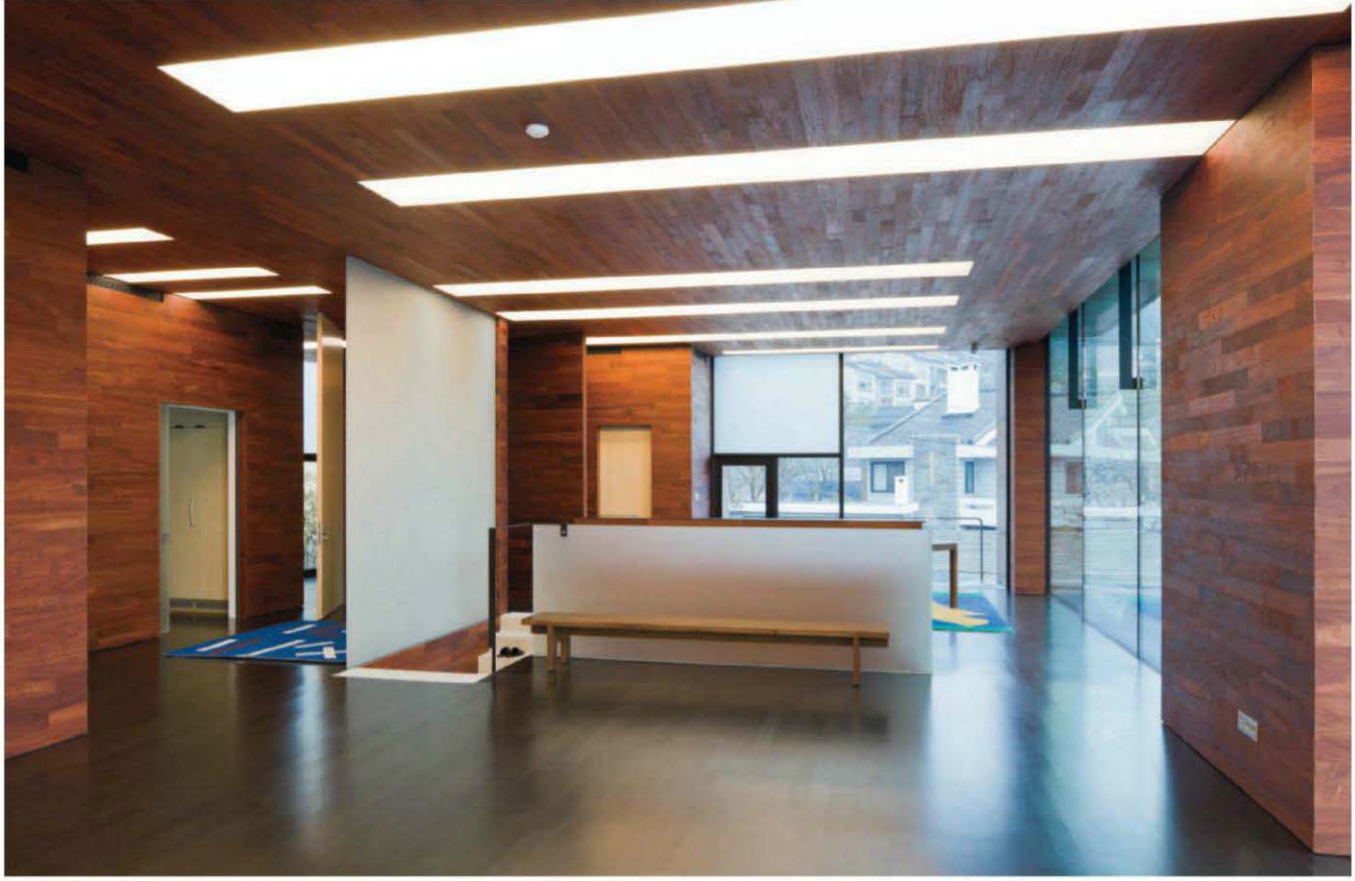
SOURCES

COPPER PANELS: A. Zahner Company

GLASS: Interpane

SKYLIGHTS: Okalux

STEEL DOORS: Jansen



International Commerce Centre | Hong Kong | Kohn Pedersen Fox Architects

Enter the Dragon

In the Kowloon district of Hong Kong, across the harbor from the main part of the city, looms a trimly tapered mixed-use tower.

BY SUZANNE STEPHENS

AMERICAN ARCHITECTS are exporting a luxury product of a dimension and scale few clients in the United States can afford at home: the supertall skyscraper—that is, a skyscraper over 1,250 feet tall (page 160). Kohn Pedersen Fox (KPF), the architect for the 1,588-foot-high International Commerce Centre (ICC) in Hong Kong, opened in 2011, ventured into Asia in the 1990s, and soon made its mark with towers in Shanghai and Tokyo. By the time the firm completed the tallest building in China in 2008—the 1,614-foot-tall Shanghai World Financial Center—it was at the center of an inner circle of (mostly American) architects designing supertall skyscrapers. Now KPF's roster of higher-than-high-rises in the works include five in China—in Shenzhen, Chongqing, Guangzhou, Shenyang, and Suzhou—one in Seoul, and another in Doha, Qatar.

William Pedersen, KPF design partner, credits America's

View additional images at architecturalrecord.com.

HARBOR VIEW The ICC looms above the West Kowloon Station's levels of retail and mass transit. Views from within the shaft overlooking Victoria Harbor are expansive, especially from the Ritz-Carlton Hotel rooms at the top.

PHOTOGRAPHY: COURTESY RITZ-CARLTON HOTEL, HONG KONG

TAILORED TOWER The ICC's elongated, glass-paneled shaft tapers gently toward the roof. Floors in the tower are typically 32,000 square feet, gradually shrinking to 29,000 square feet above the 78th floor. As the tower inclines inward 1 degree toward the top, the four glass facades seem to lift away from the shaft. In the crevasses, the reentrant corners gradually widen to mitigate wind turbulence, one of the major challenges for the supertall structure. When the four facades reach the top, they form parapet walls at the roof level. At the base, angular glass-paneled canopies for offices and the hotel shelter visitors arriving by car (below right) on the top of the station roof. On the north side, the glass forms a scooped canopy (opposite, bottom) over the atrium connecting the tower to retail and mass transit below.

edge in the global skyscraper boom to its historic role in inventing and advancing the tall-building type. And American architectural firms, says managing partner Paul Katz, are less hierarchical and more heterogeneous in their organization than many firms abroad. A "flatter" management structure allows U.S. architects to be "more inventive and motivated," he says.

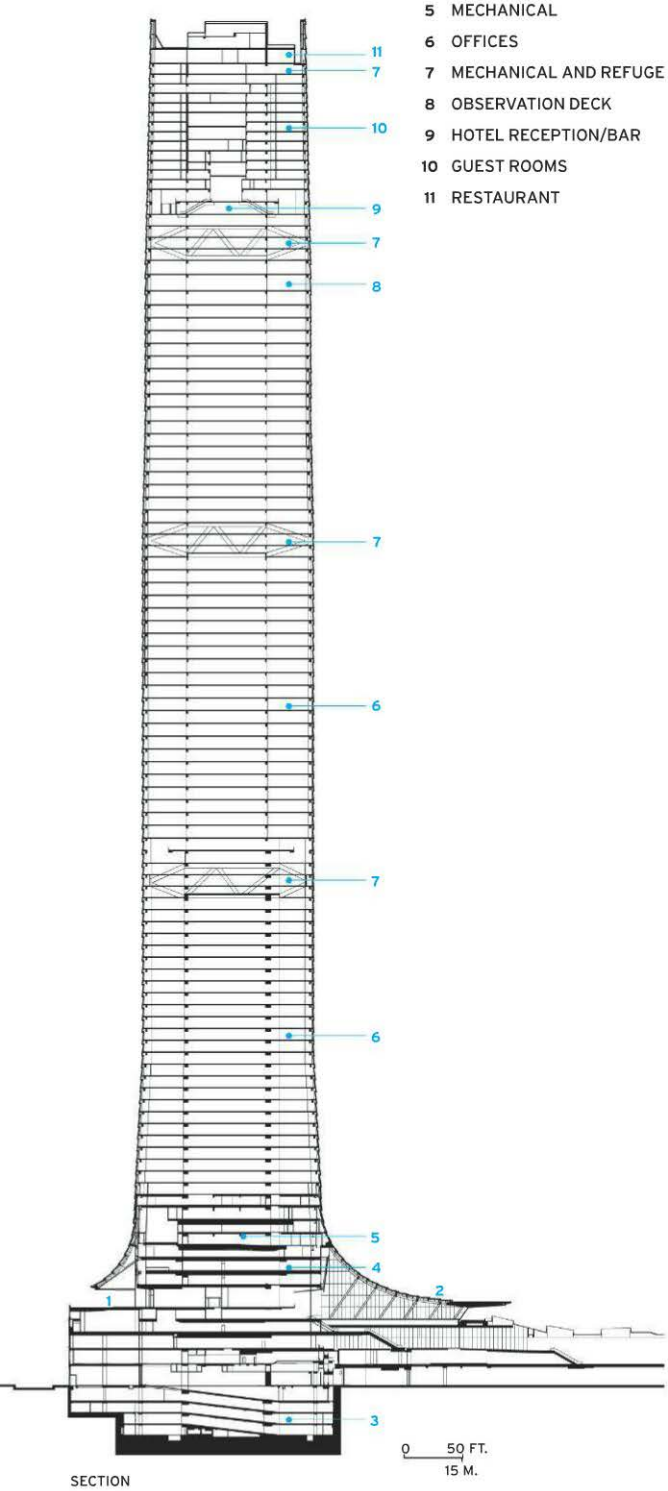
In 2000, KPF won the commission to design the 2.8 million-square-foot ICC that would loom up over the West Kowloon Station on the other side of Victoria Harbor from Hong Kong Island. The invited competition, which included Skidmore, Owings & Merrill (SOM), Pelli Clarke Pelli, and Kenzo Tange Associates, was initiated by developers Sun Hung Kai Properties, who had joined up with the Mass Transit Railway Corporation (MTR) to create an urban complex on 825 acres of reclaimed land. Residential high-rises, a W Hotel, restaurants, and cafés surround the signature tower planted atop a retail and mass-transit hub. In addition to spec office space, the ICC contains the super-luxe Ritz-Carlton Hotel within its upper reaches—for now the highest hotel in the world.

On the waterfront side of the tower to the east, construction of the Express Rail Link (ERL), a high-speed train to mainland China, is under way, and soon the much-touted West Kowloon Cultural District, planned by Foster + Partners as a series of low-rise museums and parks, will take shape to the south. Across the harbor rises the 1,335-foot-high Two International Finance Centre (2 IFC) in the Central District, also developed by Sun Hung Kai, and designed by Pelli Clarke Pelli in 2003. 2 IFC and ICC now form a totemic, monumental gateway to the city, each shooting up among an asparagus patch of Hong Kong's skyscrapers. If ICC's gleaming shaft lacks the instant recognition of Foster's much shorter HSBC (1986), its quiet comportment serves as a welcome antidote to the hurly-burly of most Hong Kong high-rises. Overlapping glass panels articulate the tapering elongated shaft, which terminates at the ground in a curved glass shed over the atrium. ICC's glass shingles and scooping canopy allude obliquely to the scales and tail of a dragon. " 'Kowloon' means 'nine dragons,' " says Pedersen of the place name that refers to the dragonlike form of Hong Kong's hills.

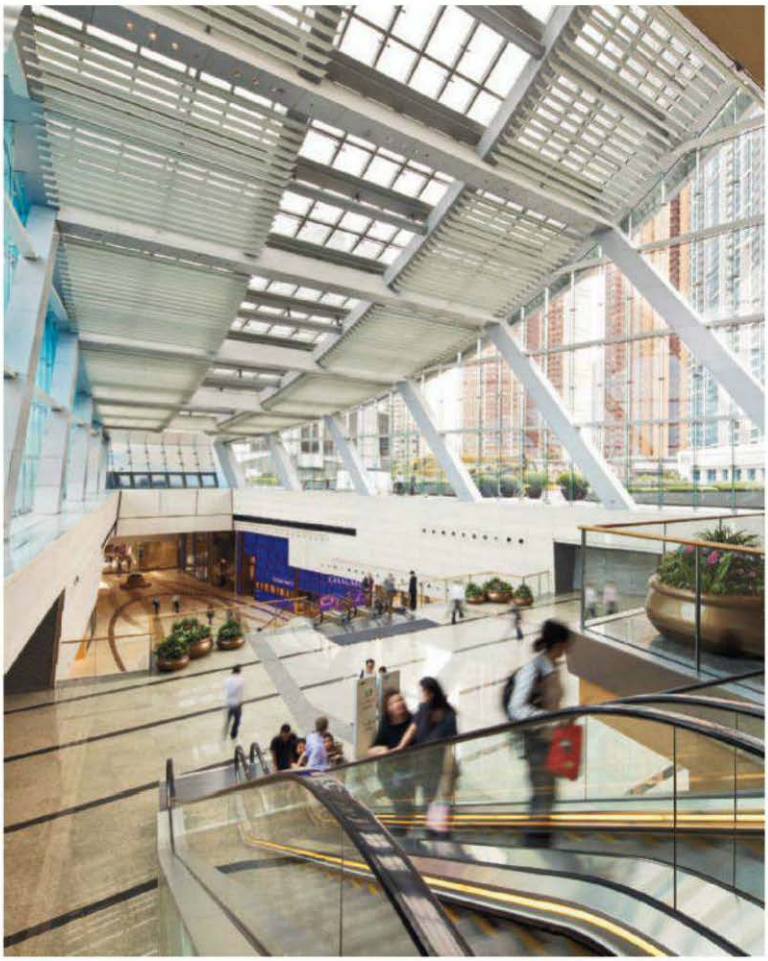
You arrive at the ICC by metro from the airport or Hong

PHOTOGRAPHY: © GRISCHA RÜSCHENDORF (FAR LEFT AND OPPOSITE, TOP); TIM GRIFFITH (LEFT); TAKUYA WATANABE (OPPOSITE, BOTTOM)

1 HOTEL LOBBY
2 ATRIUM/RETAIL
3 PARKING
4 TRADING FLOOR
5 MECHANICAL
6 OFFICES
7 MECHANICAL AND REFUGE
8 OBSERVATION DECK
9 HOTEL RECEPTION/BAR
10 GUEST ROOMS
11 RESTAURANT



SECTION



Kong Island—or by car on a curving road that leads to the hotel and office lobbies atop the station roof. From the car drop-off at Level 9, local and express elevators with requisite sky lobbies shoot up the tower: One stop away is the Ritz-Carlton reception area on the 103rd floor, where double-height restaurants overlook the city. On the uppermost (118th) floor you find the gym and pool, plus the over-the-top pulsating Ozone bar. It's all about the view, which sometimes the interior designers of the restaurants (Tokyo-based SPIN Design Studio) and the bar (the Japanese firm Wonderwall) forget in drowning the spaces in cocktail concoctions of splashy colors and frenetic motifs. LTW Design Works of Singapore gave the guest rooms a rich Buddhist-boudoir look.

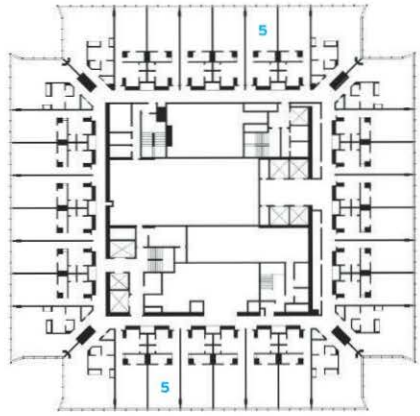
The ICC tower relies on a reinforced-concrete central core and an eight-mega-column structure for its square-donut plan, proposed by the structural engineer for the conceptual design, Leslie E. Robertson. An outrigger system of tubular steel columns just over 6 inches in diameter helps transfer loads to the mega-columns. To deal with the soil and, below that, a clifflike bedrock, structural engineers for the execution of ICC, ARUP, turned to shaft-grouted friction barrettes for the foundation. As ARUP director Philip Lai explains, the barrettes—rectangular concrete piles, with an average depth of 230 feet—transfer loads on four sides to adjacent soil for stability (for more details see architecturalrecord.com).

Since the major problem confronting supertall towers is wind loads, Pedersen designed a reentrant (notched) corner to mitigate vortex shedding. Overlapping glass panels, each one-story high, spill down the facade, articulating the skin and creating canopies for the offices and hotel entrances. The flat, shingled panels lift up horizontally 5 degrees from the sloping wall; at the base, where the tower meets the atrium, the panels seem to slide into a catenary curve formed by three tangential arc segments.

The silver-coated, low-E glass shingles come in two types—one, a 10-foot-wide-by-5-foot-high glass-spandrel panel covering the slab edge and perimeter beam; the other, a 5-foot-wide and 10-foot-high vision panel. (At the reentrant corners, a striped, ceramic-frit spandrel panel helps cut glare.) The high-performance glass—and a system of sensors and monitors for HVAC use, which was developed with Hong Kong Polytechnic University—should reduce energy consumption by 15 percent, compared with an average office building.

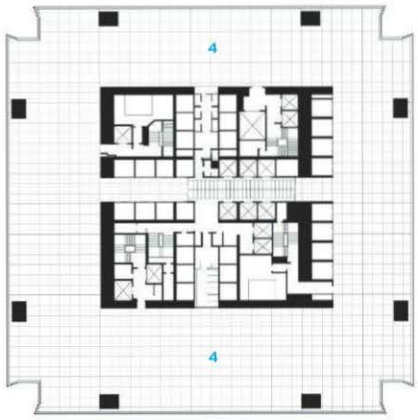
Clearly, the cost of the supertall is not cheap. According to the architects, ICC's total budget was not made known even to the team. Katz maintains that the developers supervised costs and construction time quite closely on a need-to-know basis as the different parts of the building went out to bid.

Now, a year after this vast, vertical city opened, it is possible to stay in the Ritz-Carlton, do business with financial firms, such as Credit Suisse, Morgan Stanley, and Deutsche Bank ensconced below, shop in the mall, and take the metro to 2 IFC, where you can repeat this experience—without going outside. Soon you will be able to go directly from the ICC to Shenzhen or Guanzhou. Most of the time you'll occupy American export architecture, a fitting ambience for a monocultural luxury retail environment dominated by Armani, Chanel, and the like. It's almost like being in New York, but unlike Manhattan, it's a lot taller, denser, and harder to go outside and just take a walk around the block. ■



1 HOTEL LOBBY
2 OFFICE LOBBY
3 ATRIUM
4 OFFICES
5 GUEST ROOMS

TYPICAL HOTEL FLOOR



TYPICAL OFFICE FLOOR

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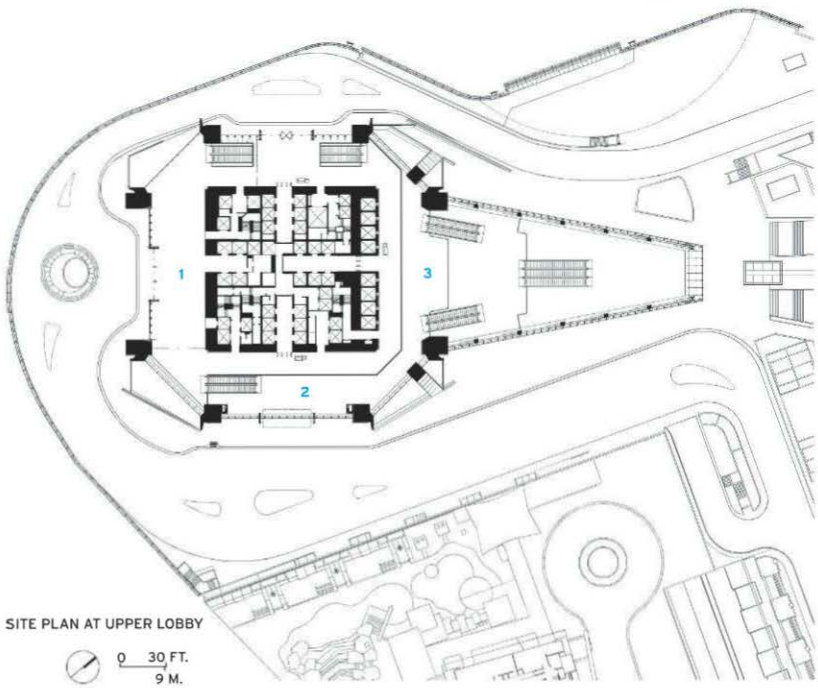
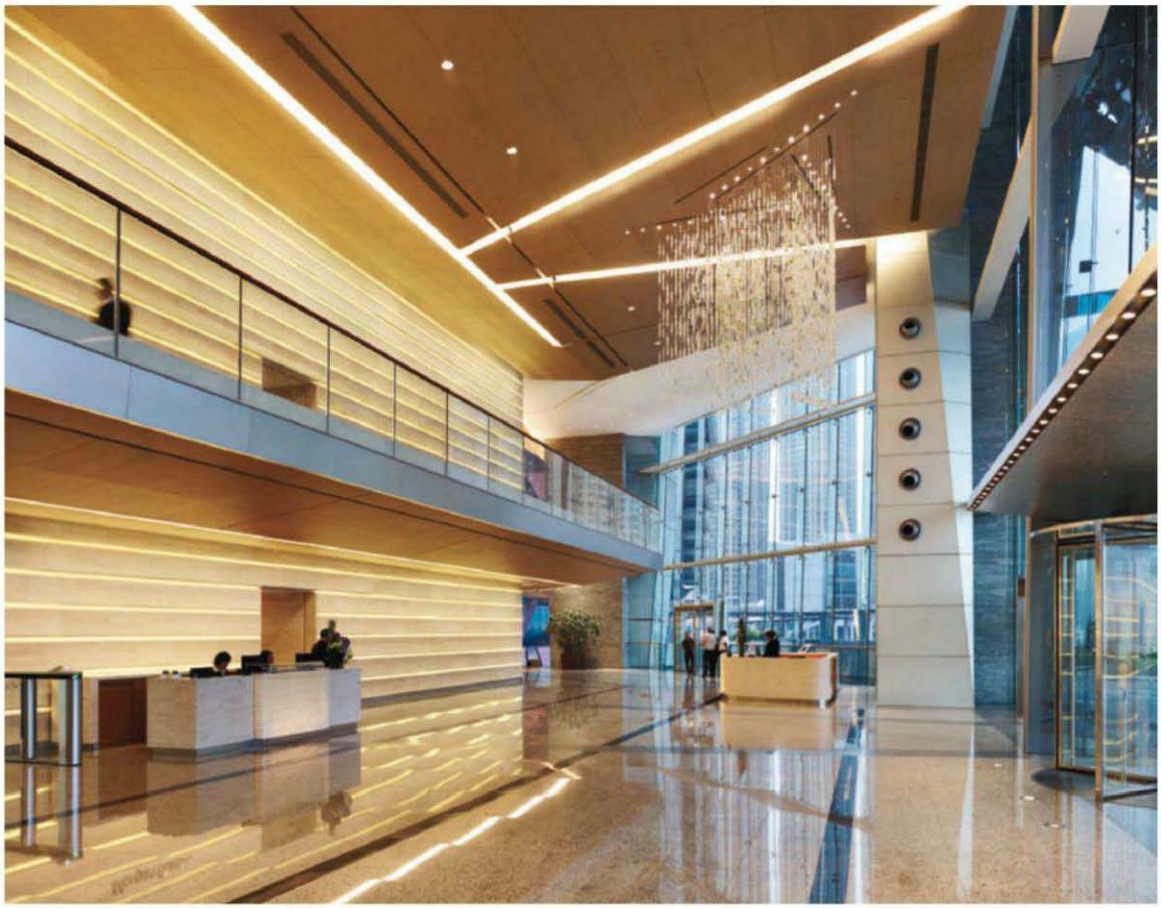
9 M.



SITE PLAN AT UPPER LOBBY

0 30 FT.
9 M.



SLEEK SURROUND KPF designed the public lobbies and circulation spaces for the tower's offices (left), using a corporate-posh palette. Cove lighting articulates the horizontal strips of travertine marble cladding the walls. The Ritz-Carlton Hotel has two lobbies, with the main one on the 103rd floor. A smaller "street" lobby (left, bottom) at "Level 9" is reached by driving up a curving road to the hotel entrance atop the station roof. The Singapore-based LTW Design Works designed the rectangular hotel lobby, which includes a pastry café, in a softly hued contemporary-luxe manner.

PHOTOGRAPHY: © TIM GRIFFITH (TOP); CHRIS CYPERT (BOTTOM)

CREDITS

ARCHITECT: Kohn Pedersen Fox Associates – William Pedersen, design principal; Paul Katz, managing principal; Shawn Duffy, project manager; David Malott, Trent Tesch, senior designers; Kar-hwa Ho, senior designer, interiors

ASSOCIATE ARCHITECT: Wong & Ouyang

CLIENT: Sun Hung Kai Properties

ENGINEERS: ARUP (structural, civil, fire safety); J. Roger Preston (m/e/p)

CONSULTANTS: Lerch Bates (vertical transport); ALT Cladding & Design Philippines (exterior wall)

SIZE: 2,822,136 square feet

COMPLETION DATE: May 2011

SOURCES

METAL PANELS AND METAL AND GLASS CURTAIN WALL: Permasteelisa

GLASS: Shanghai Yaohua Pilkington

ELEVATOR: Schindler

CEU BUILDING TYPES STUDY: THE SHORT AND THE TALL OF IT

View additional images at architecturalrecord.com.

Al Hamra Firdous Tower | Kuwait City
Skidmore, Owings & Merrill

Sculpting the Skyline

Architects, engineers, and contractors tackle a challenging geometry to build a supertall tower with a striking silhouette for a desert city.

BY JOANN GONCHAR, AIA

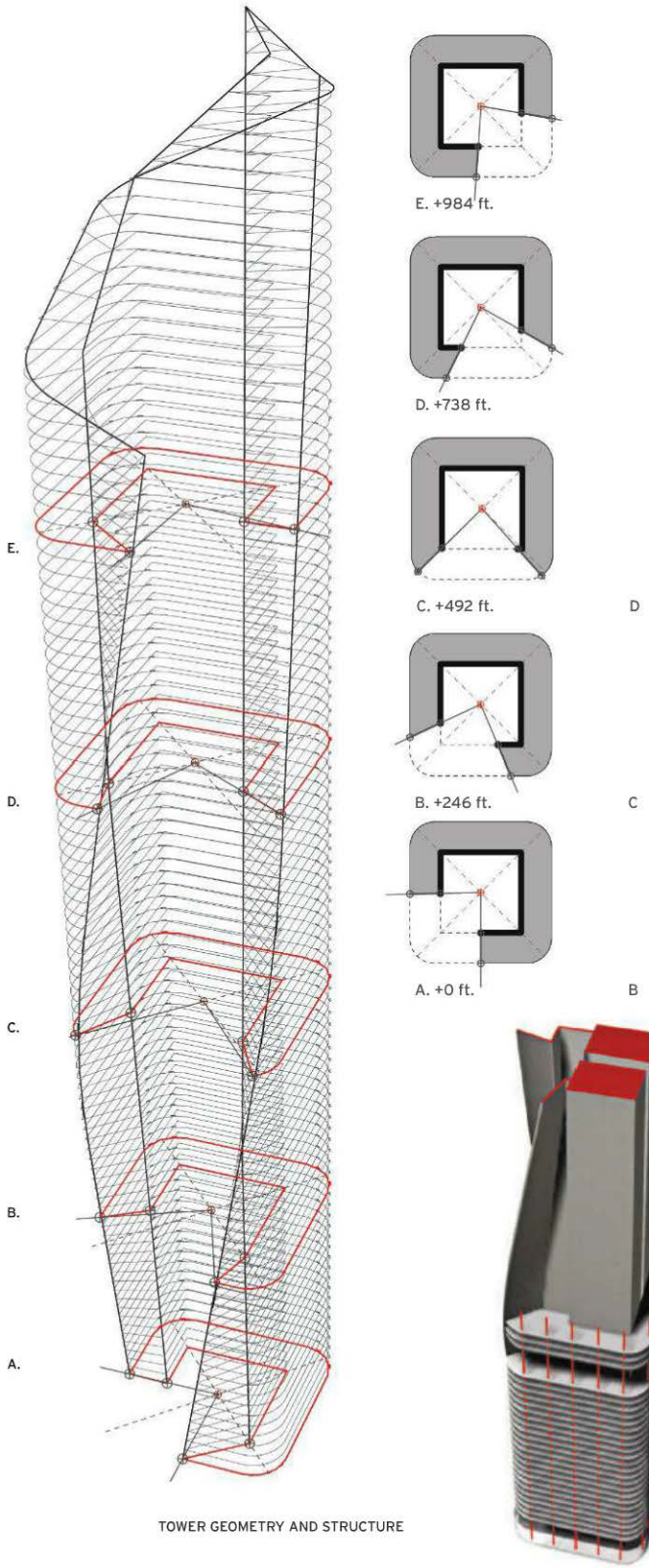
IT IS IN THE NATURE of tall buildings that rankings are short-lived, but at least for the moment, the 1,354-foot-tall, 77-story Al Hamra Firdous Tower, by Skidmore, Owings & Merrill (SOM), is the tallest building in Kuwait City. It is the tallest all-office building and the tallest skyscraper with a concrete structure in the region.

Other tall buildings now sprout from the sand in Kuwait, including the lipsticklike NBK Tower, by Foster + Partners, in the early stages of construction just across the street, and the hourglass-shaped United Towers by Kohn Pedersen Fox, almost complete on a site a few blocks away. At 984 and 787 feet tall, these are shorter than SOM's tower and don't qualify as "supertall" (see page 160). But if, or when, Al Hamra's height is superseded, its contribution to the city's skyline shouldn't be diminished. It possesses both a geometric rigor and a graceful asymmetry since it is mostly glass-skinned and rectilinear, but seemingly wears a flowing cloak of concrete.

A supertall tower was not the original plan for the site, which sits at the center of a promontory jutting out into the Arabian Gulf (also known as the Persian Gulf). The consortium that owns the land, Al Hamra Real Estate, initially planned a 50-story office building and an adjoining 4-story shopping mall—both designed by a local firm, Al Jazera Consultants. But in 2005, soon after starting construction on the mall and beginning excavation for the tower, Kuwaiti officials changed the zoning regulations to allow for a much taller structure. The clients decided to move forward with the retail portion of the project. For the architecture and engineering of the tower, however, they called in SOM, whose tall-building experience stretches back at least as far

FLOWING FORM The mostly rectilinear Al Hamra has three glazed facades that allow occupants to take advantage of views of the Gulf to the north, east, and west. However, a pair of ribbonlike reinforced-concrete walls on its south side make the tower appear as though it wears a billowing cloak.

PHOTOGRAPHY: © SOM/PAWEL SULIMA, EXCEPT AS NOTED; TIM GRIFFITH (THIS PAGE)



TOWER GEOMETRY AND STRUCTURE

as the 60-story One Chase Manhattan Plaza, completed in Lower Manhattan in 1961, and now includes Dubai's Burj Khalifa, the world's tallest skyscraper.

FORM FOLLOWS PROGRAM

The tower was completed late last year, though work on tenant spaces and some of the public areas continues. But even before completion, some observers compared its striking silhouette to a figure wrapped in a cloak or a *dishdasha*—the floor-length robe worn by Kuwaiti men. The tower's project team, however, says any such associations are purely coincidental. "It's the product of parametric study," says Gary Haney, SOM design partner, referring to the computational process used to generate Al Hamra's form. The tower's geometry is based on a set of criteria that took into account the clients' leasing strategy as well as environmental factors such as solar exposure and wind loading. "The tower responds to its context and cannot be repeated elsewhere," confirms Farid Abou Arraj, projects development manager for Ajial Real Estate & Entertainment, the owner's representative.

Among the clients' programmatic needs was office space of a certain size and configuration: The developers wanted floor plates each with a gross area of about 25,000 square feet—a size they decided would appeal to tenants interested in leasing a single floor. They also desired a narrow core-to-curtain wall span of no more than 40 feet and office space oriented to take advantage of views of the gulf to the north, east, and west.

To meet these requirements, SOM found it would have to reduce the maximum-allowable floor plate by about 25 percent on every floor. The desire to make the most of the views of the water suggested a floor plan without south-facing office space. However, solar analyses conducted with the aim of reducing heat gain from the brutal desert sun supported the removal of the quadrant at the southwest corner of every floor. Meanwhile, computational fluid dynamic (CFD) studies and the subsequent wind-tunnel testing of physical models demonstrated that a tower with a slightly irregular profile would be the most effective in mitigating vortex shedding—a phenomenon that creates wind eddies and induces side-to-side movement—an obviously undesirable feature in a supertall building. "If the shape of the tower changes as it rises, the formation of organized vortices is disrupted," explains Mark Sarkisian, SOM director of seismic and structural engineering.

SQUARE BUT SINUOUS

From the process of balancing the various criteria, a tower with a nearly conventional plan emerged: It has a central shear wall core surrounded by a perimeter moment-resisting frame. However, the building appears to have been vertically sliced, with a chiseled-out section equal to about a quarter of every floor plate that gradually travels from the southwest corner near the building's base, where it meets the retail podium, to the southeast corner at the tower's apex. A pair

SUBTRACTIVE GEOMETRY Like many tall buildings, the Al Hamra has a central shear wall core and a perimeter moment frame. However, about one quarter of its otherwise square floor plate has been removed. The removed portion incrementally shifts at each level. The edges of the resulting cut are defined by a pair of hyperbolic paraboloid walls.

of hyperbolic paraboloid, reinforced-concrete "flare walls" delineate the edges of the incrementally shifting void. And set within the resulting recess is an almost 5-foot-thick reinforced-concrete wall with punched openings angled to control penetration of the sun. On every office floor behind this hefty facade is a circulation corridor that provides a vantage point for occupants to take in framed views of the city's developing skyline.

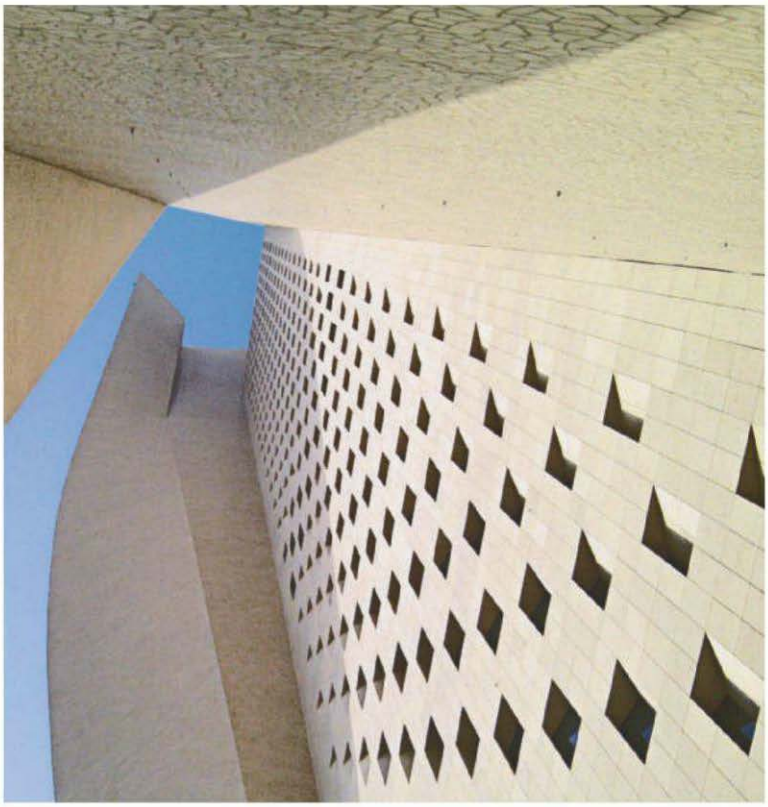
The building is divided vertically into three stacked office-floor zones. Visitors and tenants reach the upper two by taking express elevators to sky lobbies that offer meeting space and other amenities, and then travel to intervening floors via local elevators. Eventually, by way of a set of VIP elevators, they will be able to travel from the lobby directly to the crown, where developers plan a restaurant or sky lounge. It is not yet leased or fitted out, but has a dramatic sloping ceiling, almost 100 feet tall at its highest point, and affords sweeping views over the gulf. SOM wisely preserved this potentially valuable real estate as habitable space by choosing to locate Al Hamra's cooling towers on top of the retail podium instead of the tower roof.

UNDERNEATH IT ALL

In tandem with the development of the scheme for the tower's superstructure, Sarkisian's team worked on the design of the foundation, starting with the assumption that the building would be around 70 stories tall and built of cast-in-place concrete. But as the tower concept took shape, it became evident that the spiraling form would concentrate gravity loads on the west side of the building footprint below the southwest flare wall, while very little load would be applied to the north and southeast edges. In response to this load differential, engineers devised a 13-foot-thick reinforced-concrete raft supported on 289 piles, each between 66 and 89 feet long, with the deeper piles located densely around the areas of greatest stress.

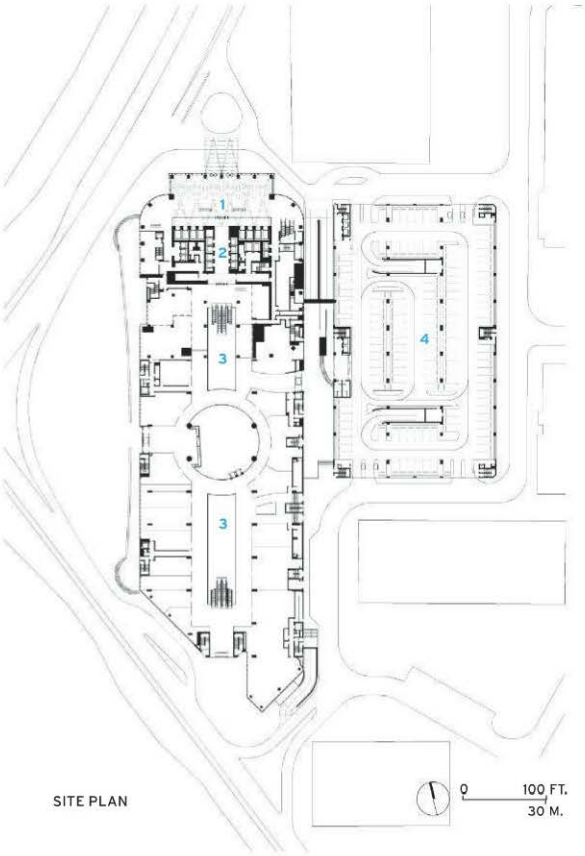
The roughly 200-by-230-foot raft, which required almost 30,000 cubic yards of concrete, was poured in 15 separate sections over a period of four months. This segmented approach was dictated largely by local production capacity, but it also helped contractors control the heat generated during concrete hydration—the chemical reaction that occurs when cement is mixed with water. If the material gets too hot—a particular concern given the desert environment—its strength can be compromised. Performing the work at night, along with the use of a concrete mix containing a high percentage of fly ash (a byproduct of coal combustion) also helped keep temperatures in check, says Ali Asfour, construction manager for Ahmadiah Contracting & Trading. The company is part of the client consortium and is the project's general contractor.

Construction of the beefy south-facing wall and the ribbonlike flare walls, which play an integral role in the building's lateral- and gravity-load-resisting systems, was also tricky. As part of a so-called "construction correction program" devised by SOM, the contractors adjusted the self-climbing formwork with each pour to compensate for displacement caused by the counterclockwise-torqued geometry. The process accounted for the elastic movement of the concrete under its own weight during construction and for long-term movement from shrinkage and creep. "Loaded



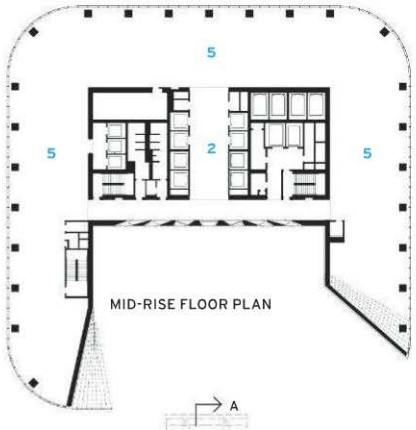
SOLID AND SHAPED The tower's almost 5-foot-thick south-facing wall has deeply set windows for solar protection. This punched wall is clad in limestone panels, both inside (top) and out (bottom). The sculptural walls that flare from this facade are clad in the same stone, but with *trencadís*—a mosaic of shardlike pieces.

CEU **BUILDING TYPES STUDY: THE SHORT AND THE TALL OF IT**

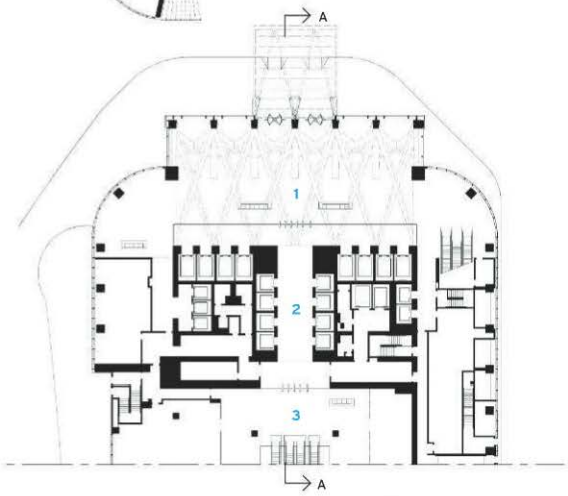


SITE PLAN

1 LOBBY
2 CORE
3 SHOPPING MALL
4 PARKING
5 OFFICE SPACE
6 VIP OFFICES
7 SPA
8 MECHANICAL
9 REFUGE
10 SKY LOBBY
11 SKY LOUNGE



MID-RISE FLOOR PLAN



LOBBY FLOOR PLAN

SECTION A-A

Continuing Education

To earn one AIA/CES continuing education hour (CEH), including one hour of health, safety, and welfare (HSW) credit, read "Sculpting the Skyline" and complete the test online at no charge at ce.construction.com. Upon passing the test, you will receive a certificate of completion and your credit will automatically be reported to the AIA. Additional information regarding credit-reporting and continuing-education requirements can be found at ce.construction.com, under "resources and requirements."

Learning Objectives

1 Explain how evaluation of programmatic requirements and environmental conditions helped designers generate the form of Kuwait City's Al Hamra Firdous Tower.

2 Describe the key structural elements of the tower and its foundations.

3 Explain the structural and construction challenges presented by the tower's geometry.

4 Describe how construction methods were adapted for the harsh desert environment.

AIA/CES Course #K1205A

CREDITS

ARCHITECT: Skidmore, Owings & Merrill – Gary Haney, design partner; Peter Magill, managing partner; Aybars Asci, senior designer; Mark Igou, senior technical coordinator; Eric Van Epps, technical coordinator

ARCHITECT OF RECORD: Al Jazera Consultants

ENGINEERS: Skidmore, Owings & Merrill (structural, m/e/p)

CONSULTANTS: Van Deusen & Associates (vertical transportation); Office for Visual Interaction (lighting), Consultancy Group Company (geotechnical)

CLIENT: Al Hamra Real Estate

SIZE: 1.9 million square feet

COST: withheld

COMPLETION DATE: December 2011

SOURCES

STONE: Jura Limestone Suppliers

GLAZING: Guardian, Pilkington

CURTAIN WALL: Wuhan Linghun

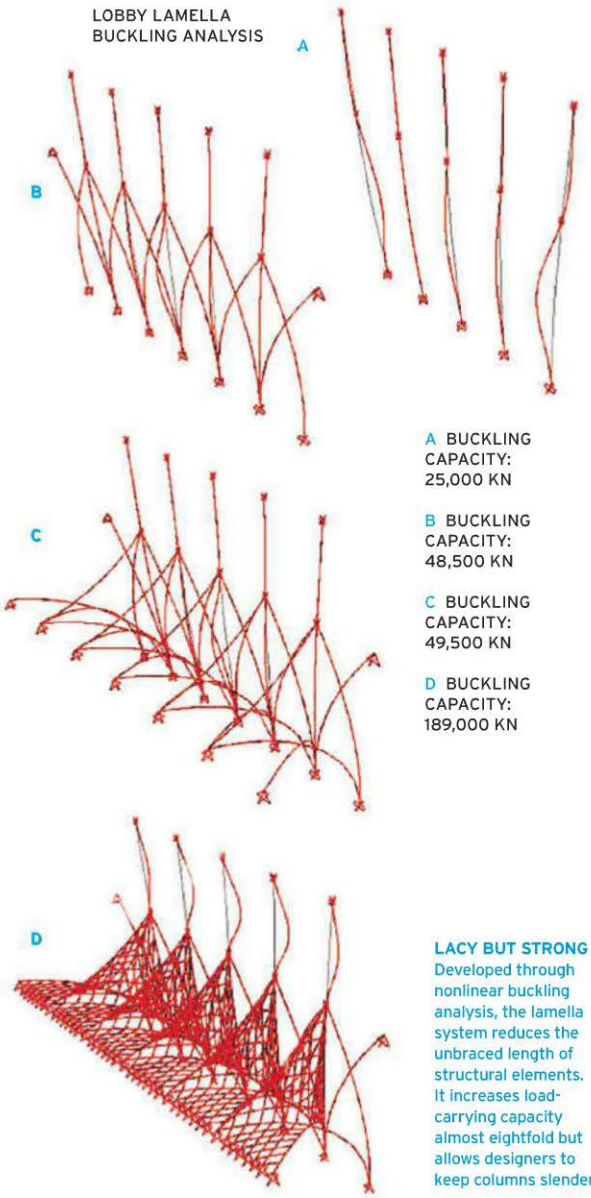
concrete can hydrate for up to 10 years," says Sarkisian, explaining the latter phenomenon. "Its properties can continue to change during that period," he says.

Arguably, the tower's base presented an even tougher design and construction challenge than its sculpted superstructure. "How a supertall building meets the ground is always problematic," says Aybars Asci, an SOM director. Compared to a lower-rise building, a supertall tower has a much smaller footprint relative to its height, but with many more people coming and going, he explains. It is also where gravity loads are greatest and where the structural elements tend to be the largest, he points out.

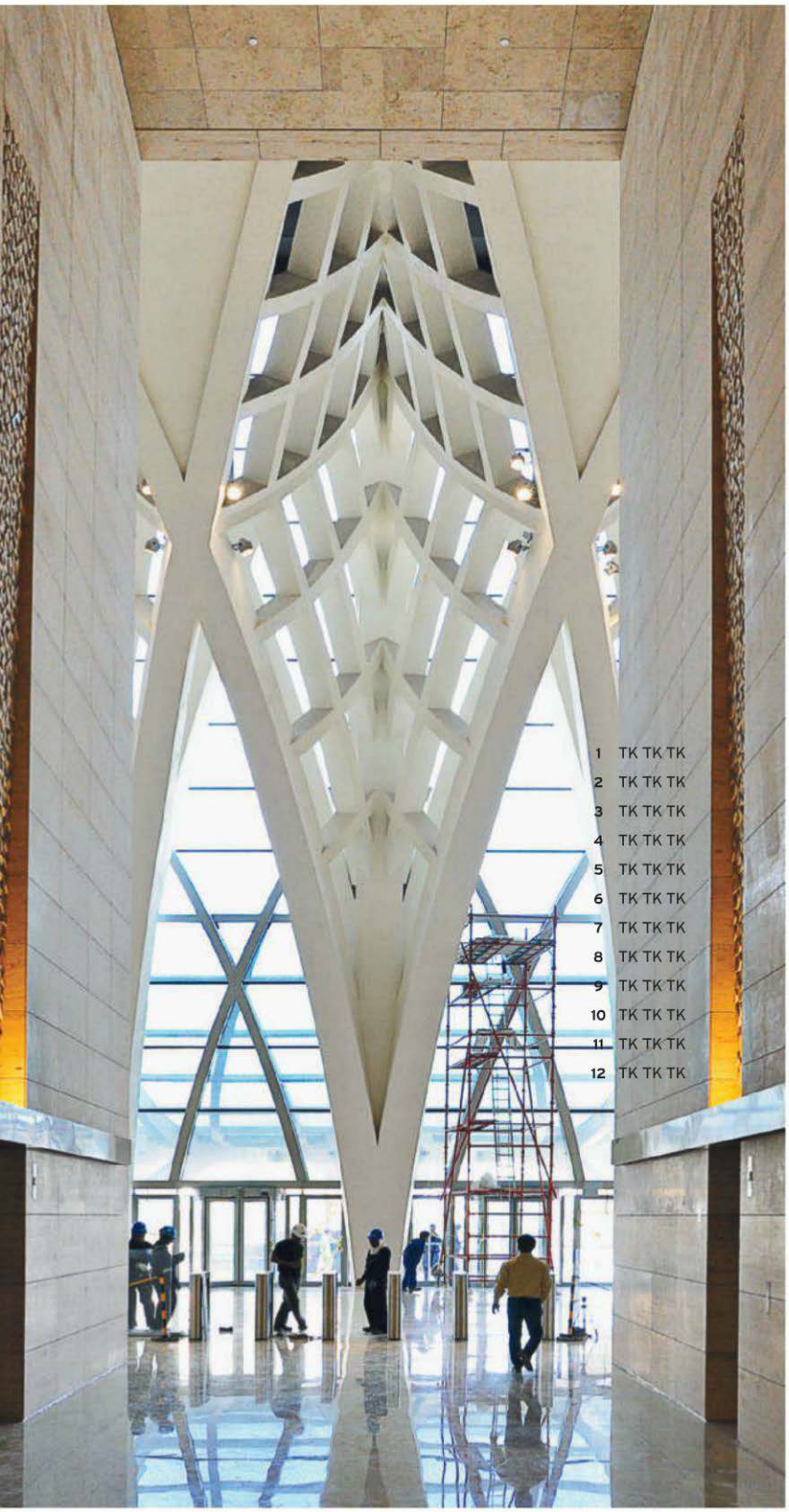
At Al Hamra, the architects created ground-floor space that could handle the tower's anticipated foot traffic by canting the perimeter columns on the building's north face, increasing the lobby's depth. Designers also made Al Hamra's nearly 80-foot-tall entry hall almost Gothic by devising a system of lamellae—a series of reinforced-concrete weblike vaults—that transfer the tower's gravity load to the foundations. Developed through nonlinear buckling analysis, the system works by reducing the unbraced length of the lobby columns and by decreasing the structural demand on each of them through load sharing with parallel members, explains Sarkisian. The lamellae's primary members are about 4 feet square where they meet the lobby floor. But without use of the bracing technique, the space would have required perimeter columns almost three times as large, he estimates.

The lamellae, which Asci describes as "structurally

FORCES AND FORM
On the building's north face, perimeter columns cant outwards to increase the lobby depth and create an impressive entrance. The columns form part of a system of weblike reinforced-concrete vaults called lamellae.



LACY BUT STRONG
Developed through nonlinear buckling analysis, the lamella system reduces the unbraced length of structural elements. It increases load-carrying capacity almost eightfold but allows designers to keep columns slender.



sensible but spatially interesting" were built with fiberglass formwork fabricated from shop drawings generated from SOM's 3-D model. Even so, constructing the lamellae was a slow process, requiring nearly 100 days to complete. In the meantime, work advanced on the rest of the tower, with floor framing on the north side catching up to the other sections of the building at the 52nd floor, according to Asfour.

White paint covers the lamellae, enhancing their filigree quality, but somewhat diminishing the brute power evident in construction photographs. "No one likes exposed concrete other than architects," says Asci. Aesthetic concerns aside, however, exposed concrete was never a practical option, especially on the exterior, due to Kuwait City's salty gulf air and its tendency to corrode rebar. In part to prevent such deterioration, the architects chose an especially durable type of limestone cladding, covering the south-facing planar wall in 2.5-foot-by-4.5-foot panels. They clad the serpentine flare walls in the same stone, but with *trencadis*—a mosaic of shardlike pieces.

The treatment of the flare walls lends them a handcrafted character, especially evident up close. Their texture contrasts with the silvery smoothness of the insulated glazing units (IGUs) cladding the east, north, and west facades. The IGUs include a low-E coating that imparts just enough reflectivity to catch the sky, points out Haney. This coating proved to be one of the key curtain wall challenges, since the architects needed to make sure it would be compatible with the heating and bending process required to fabricate the glass that wraps the corners. These curved units make up 30 percent of the building's glazing.

The reflectivity that Haney is so fond of was evident on a sunny day in mid-March, even though the curtain wall was still covered with construction grime, as well as a coating of dust from the region's frequent sand storms. After an initial cleaning, the glazing will be cleaned once every three months by workers suspended from a maintenance unit that encircles the building on a track cleverly concealed within the steeply sloping parapet.

The owners are in the process of completing their own 26th-floor offices. However, it isn't clear how many other office tenants have committed to taking space in the Al Hamra. The retail anchor tenant, Hermes, opened in December, and as of early this spring, about 86 percent of the shopping mall had been leased—information that Abou Arraj readily volunteers. However, of the tower office floors he says only that there is "considerable interest." Despite this evasiveness, and an undisclosed budget—even the architects say they don't know the building's total cost—it would be inappropriate to gauge the success of the tower from the vantage point of American developers, who are generally focused on quick financial returns. The tower is undeniably an iconic addition to Kuwait City's skyline, and Abou Arraj seems confident that tenants will materialize—eventually. "We are building for the future," he says. ■

ALMOST GOTHIC Al Hamra has a soaring, 80-foot-tall entry hall, with a floor and core walls finished in the same limestone that clads the sculptural south-facing elevation. The entry hall's vaulted, reinforced-concrete lamellae are painted white, enhancing their lacelike quality.

Shanghai Tower | Shanghai | Gensler

A New Twist on Supertall

An American firm approaches the design of a 121-story, mixed-use tower, now rising in Shanghai, as a vertical collection of neighborhoods.

BY CLARE JACOBSON

WHEN IT opens in early 2015, Gensler's Shanghai Tower will be the second-tallest building in the world. At 2,073 feet, the skyscraper will surpass its immediate neighbors, SOM's 1,379-foot Jin Mao Tower and KPF's 1,614-foot Shanghai World Financial Center, to complete a trio of supertall buildings in Lujiazui, the main business district of the city's Pudong area. Shanghai Tower's twisting, tapering, triangular form—without a typical "look-at-me" cap on top—will appear as if it could continue skyward forever.

Gensler won an invited competition in 2008 for the $1.9 billion project, beating SOM, KPF, and Foster + Partners. At the time, the tallest building in its portfolio was the then-under-construction, 54-story L.A. Live Tower in Los Angeles, which is tall but not supertall (a building that exceeds 1,250 feet). Dan Winey, Gensler's regional managing principal, believes that the firm's commitment to building a practice in Shanghai, where it now has about 150 people on staff, was key in winning over the client. Its thorough schematic design submittal, which included developed structural and mechanical schemes, was also an important factor, he says: "We convinced the owner that the building could be built and that we knew how to build it."

The firm approached the design of its first supertall tower as a collection of "communities on top of each other," explains Jun Xia, Gensler principal. According to Xia, Shanghai Tower will be a self-contained urban environment, with active communal areas, 24-hour occupancy, and unique spaces and views to provide orientation to its users. For him, the building is "a vertical city with horizontal experiences."

Horizontal delineation is at the core of Shanghai Tower. "The building structure is basically a nine-tiered wedding cake," says Dennis Poon, vice chairman of Thornton Tomasetti, the project's structural engineer. Nine cylinders, 12 to 15 floors each, are stacked in diminishing diameters with two-story outrigger and belt trusses at the transitions. These trusses form the bases of 21 atria between the facade's inner and outer curtain walls, which are circular and triangular in plan, respectively. Each triangle rotates almost one degree per floor, giving the building's exterior envelope

PHOTOGRAPHY AND RENDERING: © GENSLER

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TAKING SHAPE
The configuration of Shanghai Tower, with circular office and hotel floors stacked between triangular mechanical floors, has just begun to reveal itself on the construction site (this page). When complete in 2015 (opposite), it will dominate the city's skyline.

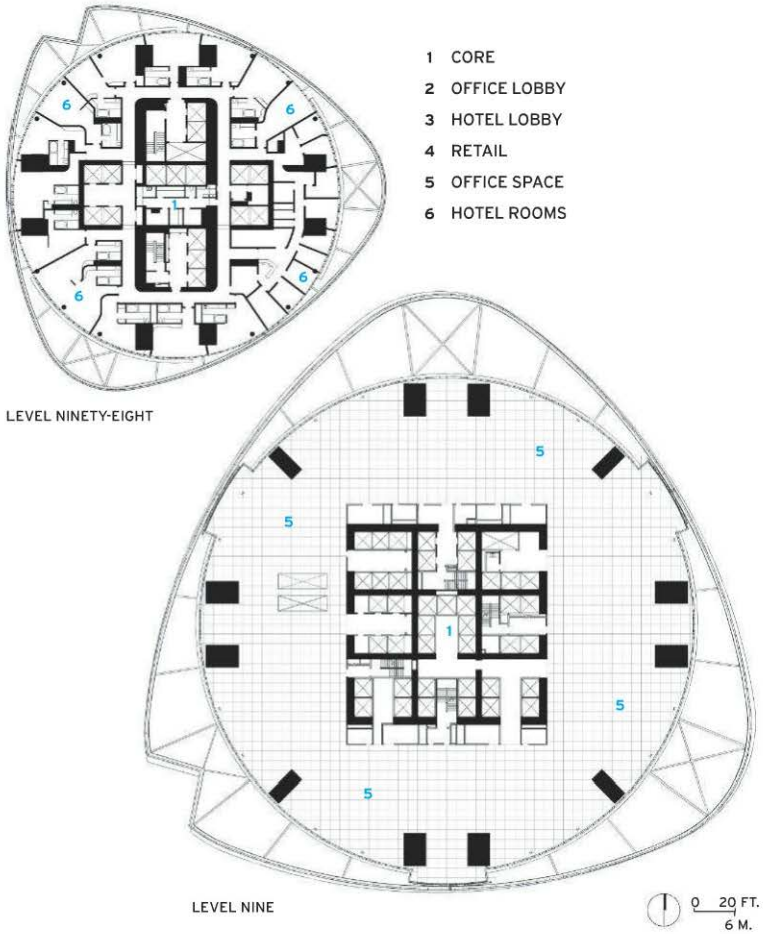
its spiraling shape—a shape that helps minimize wind loads (details, opposite). A concrete core and composite supercolumns are the main vertical supports for the 121-floor building, which rest on a 20-foot-thick concrete mat and 1,079 bored piles.

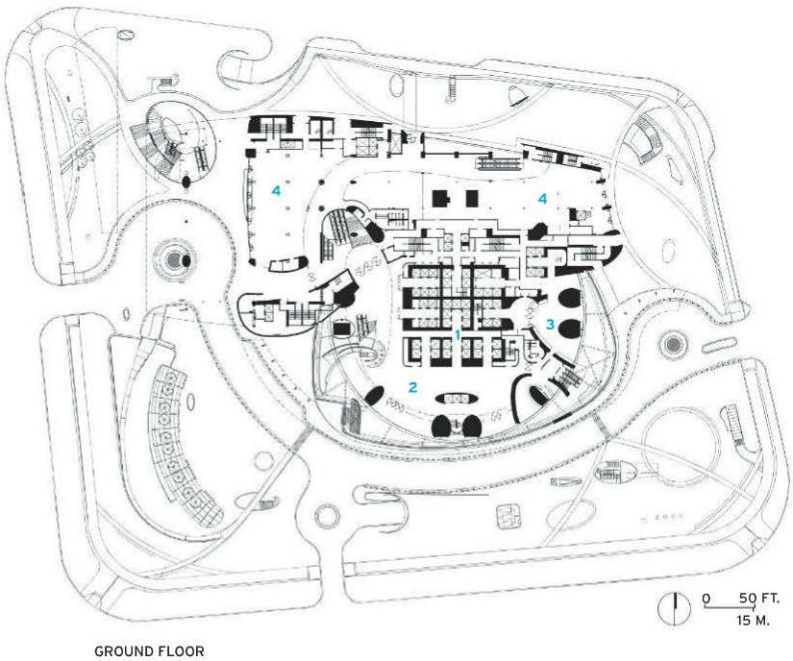
The wedding-cake configuration of Shanghai Tower is not only integral to its structure, but is also its mechanical design. "Each section is like a small building" with the atrium acting as a climatic buffer zone, says Alan Hung, principal of Cosentini Associates, the tower's mechanical, electrical, and plumbing (MEP) engineer. The atria—along with daylighting, reuse of rainwater and graywater, and a tri-generation system that will garner heat produced during electricity generation for heating and cooling—are the tower's primary resource-conserving tactics. The building is designed to meet both LEED Gold and China Three-Star standards.

Sectioned according to its program, the tower includes space for retail, offices, a hotel, and cultural facilities, as well as the world's highest open-air observation deck at 1,844 feet. The atria, divided according to these zones, will each have a unique view and twist in the spiraling exterior wall that will help orient occupants. Express elevators to different zones will ease vertical traffic jams, and atria shops and restaurants should minimize the lunchtime exodus from the building.

Instead of following a traditional base-middle-top model, Shanghai Tower's architecture, structure, and MEP systems are designed at the scale of neighborhoods in an effort to make the building sustainable to operate and pleasurable to occupy. Xia credits early collaboration between architects and engineers with the consistency of the project. Their joint effort, which began in the competition stage, has continued onto the construction site, where framing recently surpassed the 60th floor. While many innovations are being deployed to realize the design vision, "the primary innovation is that everything is very holistic," says Xia, "from technology to function to form." ■

Clare Jacobson is a Shanghai-based writer. She is working on a book about new museums in China.





GROUND FLOOR

CREDITS

ARCHITECT: Gensler – Art Gensler, chairman; Dan Winey, managing principal; Jun Xia, project design principal; Xiaomei Lee, Grant Uhlir, project directors; Dick Fencl, technical director; Fred Lu, Aleksandar Zeljic, project architects; Aidong Zheng, interior project architect; Hui-ling Hsieh, interior design director; Benedict Tranel, facade technical director; Michael Peng, senior designer

ASSOCIATE ARCHITECT: Architectural Design & Research Institute of Tongji University

ENGINEERS: Thornton Tomasetti (structural); Cosentini Associates (m/e/p)

CONSULTANTS: SWA (landscape); PHA (lighting); SMW (acoustical)

CLIENT: Shanghai Tower Construction & Development Co.

SIZE: 5.6 million square feet

COST: $1.9 billion

COMPLETION DATE: 2015

SOURCES

CURTAIN WALL: Shenyang Yuanda Aluminium Industry Engineering Co., Jangho Curtain Wall Co.

ELEVATORS: Mitsubishi

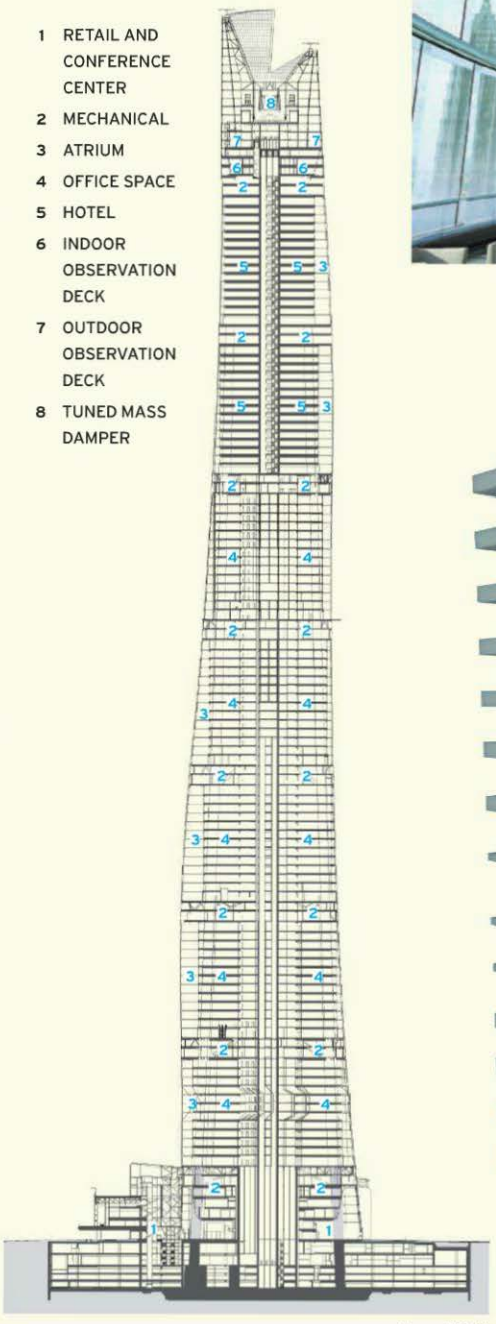
A Facade that Isn't Just Skin Deep

THE CLADDING on Gensler's spiraling and tapering Shanghai Tower is more than just a handsome glass wrapper. It is a sophisticated system made up of two layers of curtain walls carefully conceived to reduce lateral loads and save energy.

The outer skin—a segmented unitized curtain wall with laminated glass—defines the building's iconic profile. But in addition to producing the building's memorable form, the twist in its envelope also reduces wind loading by 24 percent when compared to a tower of the same size, but with a tapered box-shape. This reduction translates into a savings of more than $63 million in structural materials, according to the design team. "The wind loading determines not only the thickness of the glass and the size of the mullions, but also the required amount of overall building structure," explains Sasha Zeljic, a Gensler facade-design leader.

The tower's inner skin—an insulated glass assembly fire-rated as per the requirements of Chinese code—encloses programmatic elements, such as hotel rooms, office space, and cultural facilities. In between this inner curtain wall and the outer skin are a series of publicly accessible gardenlike spaces. Since only the lowest ranges of the 12-to-15-story-tall atria are occupied, the spaces will require minimal conditioning, explains Alan Hung, principal of Cosentini Associates, the project's mechanical engineer. The first few feet of each atrium will be heated and cooled with perimeter fan coil units, typically only during weather extremes. The rest of the volume is ventilated with natural updraft, regulated top exhausts, and so-called "spill air" from the building's interior conditioned spaces.

This double-layer configuration, along with features such as advanced lighting controls and an efficient central plant, is expected to help Shanghai Tower use 21 percent less energy than one that complies with the 2004 version of the ASHRAE 90.1 standard. *Joann Gonchar, AIA*



DOUBLE LAYERED Shanghai tower's inner facade will be supported by circular floor slabs for hotel rooms and offices. Its outer facade will be hung from the building's mechanical floors and stabilized by a series of radial struts and encircling girts (bottom). Together, the two skins will enclose a multistory gardenlike space accessible to building occupants (top). These atria will double as climatic buffer zones.

Kingdom Come

At a time when American architects are designing ever-soaring skyscrapers in far-flung places, **CAROL WILLIS**, the director of the Skycraper Museum in New York, talks to RECORD's deputy editor, Suzanne Stephens, about the highs and whys of tall buildings.

What is your definition of a "supertall" building?

In the *Supertall!* exhibition at the Skyscraper Museum in Lower Manhattan [on view July 27–February 19, 2011], we set a benchmark higher than the standard 300 meters used by the Council on Tall Buildings and Urban Habitat (CTBUH). To be included in the show, the building had to be at least 380 meters (1,250 feet)—the height of the Empire State Building—and likely to be topped out by 2016. (It takes an average of five years to complete a supertall.) Forty-eight projects met these criteria for the show.

With design of the Kingdom Tower in Jedda, Saudi Arabia, by Adrian Smith + Gordon Gill Architecture at more than 3,280 feet, we are seeing the bar raised so much higher. Why are so many supertall buildings springing up in Asia and the Middle East? Besides the money being there?

The context is important with regard to tall buildings. In a place like Hong Kong, which encourages skyscrapers, the government owns the land and can gain high bids from developers by allowing what I call "vertical-density" development. Projects such as International Commerce Centre by Kohn Pedersen Fox [page 142] are part of a centralized urban-planning and development scheme that includes transit hubs, offices, housing, and retail.

In other cities with less sophisticated infrastructure and technology, supertalls are used to create an autonomous urban place with complementary uses for business people—offices, hotel, apartments, and shopping. This is a fully acclimatized environment with reliable electricity and other services—even if the local grid is not reliable. These buildings are advanced machines of efficiency that serve a lot of people in a small space.

Urbanization in China is so explosive that many cities have populations as large or larger than New York City's 8 million. Chinese cities offer a huge, growing demand for new buildings. Yet in the Middle East—for example, Dubai—developers try to create demand by designing tall buildings that will attract affluent buyers and investors in real estate. The idea is that glamorous buildings can create demand.

Is the role of the private developer the same as in the United States?

Governments often play an important role in Asia and the Middle East, either selecting developers or investing and building themselves. For example, with the Shanghai Tower [page 156], Gensler is working with a state-run construction and investment company. I think the tower will make money, but it's hard to compare Shanghai Tower to one developed by a purely private market.

How have American architectural firms gotten into the supertall inner circle of skyscraper designers?

Obviously we can claim having been there first with our skyscrapers built in the late 19th century in New York and Chicago. But on our home turf we haven't been doing towers at this scale.

American architects and engineers had an edge when the global embrace of skyscraper design began about 20 years ago. Experience clearly matters in doing a supertall. Designers lead a team, and its members know each other and often work together in problem solving to build a better skyscraper machine. Understanding

ON A CLEAR DAY On the 157th floor of the future Kingdom Tower in Jeddah, Adrian Smith + Gordon Gill Architecture has designed a 5,800-square-foot projecting, outdoor terrace (above), part of which will have a glass bottom. An observation deck also is planned for the 123rd floor. The reinforced-concrete tower, sheathed in high-performance glass (opposite), will taper to a height over 3,280 feet.

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Super Supertall: Kingdom Tower

THE TALLEST supertall in the world, Kingdom Tower, in Jeddah, Saudi Arabia, is expected to zoom upward of 3,280 feet (over 1000 meters) when completed in 2017. But Adrian Smith + Gordon Gill Architecture won't say how much "over" that height it will soar. It could be the competition thing. Ever since the first tall buildings started breaking height records in New York in the late 19th century, architects and their clients have vied for the tallest-in-the-world title. If technology and money can provide the wherewithal, the adventurous will want to go ever higher, wrapping desire within rationales (e.g., solving population density, saving energy).

Kingdom Tower, the ultra-seductive crown of a new development—the 1,312-acre Kingdom City, in north Jeddah—got its final building approval in February. Currently it is undergoing load testing for soil conditions and has completed its test pile program.

Smith, who was the lead designer of the world's tallest tower—the 2,717-foot-high Burj Khalifa in Dubai (2010)—while he was a partner at Skidmore, Owings & Merrill (SOM)'s Chicago office, left in 2006. He joined up with Gill, an SOM colleague, and soon the new firm was invited by Prince Alwaleed bin Talal of the Kingdom Holding Company (KHC) to compete for the reportedly $1.2 billion tower overlooking the Red Sea. In 2011, Smith and Gill won the coveted commission over high-flyers SOM, Foster + Partners, Kohn Pedersen Fox, Pelli Clarke Pelli, as well as Pickard Chilton, Atkins, and Henning Larsen Architects. And while HOK is master-planning Kingdom City, Smith and Gill are in charge of the 57-acre waterfront district around the tower.

Smith maintains the scheme—a reinforced-concrete three-legged structure, designed with engineers Thornton Tomasetti—won the day because "it was cost-effective, efficient in the floor plan, and dynamic to look at from all vantage points." Like Burj Khalifa, Kingdom Tower uses a basic tripodlike form to spread the load. But this tower's tapering slope, Smith notes, helps reduce wind load more effectively than the Burj Khalifa's stepped profile. "The slope mitigates vortex shedding," says Smith, pointing out that every floor sets back from 4 to 8 inches as it inclines upward.

The tower, clad in high-performance glazing, will contain a mix of offices, hotels, condominium units, plus "service" condos maintained by the hotel, not to mention retail and observation decks. Currently Smith and Gill have a supertall just beginning construction in China—the Wuhan Greenland Center, at 1,988 feet high—with another, the 1,476-feet-high Yongsan tower, planned for Seoul. "It's exciting to design a building that is going to be a landmark," Smith says. "I look for a form that will function well and represent the country's growth and cultural leadership." *Suzanne Stephens*

PHOTOGRAPHY: © JEDDAH ECONOMIC COMPANY/ADRIAN SMITH AND GORDON GILL ARCHITECTURE

the challenges of designing a curtain wall, elevators, floor plans, and rentable floor area takes experience.

So how would Gensler get the commission to design the supertall Shanghai Tower since it had never designed anything higher than 54 stories (the L.A. LIVE, 2010)? Gensler might be the second-largest architecture firm in the U.S. in terms of revenue [RECORD, July 2011, page 24] and it has over 3,000 employees, but, as we know, a small coterie of American architects—along with Foster + Partners and others—gets these jobs. So far Gensler hasn't been part of the cloud club. Also whether the firm likes it or not, Gensler is better known for its commercial interior design work than for tall buildings.

As I understand it, Gensler builds relationships and trust, starting with interior design work for corporate clients, and then it pushes the boundaries from the office to the whole building. It builds trust with clients by coming in at the ground floor, so to speak. Gensler also has hired people and has assembled a team who had worked on supertalls elsewhere, such as SOM. Also it worked with Thornton Tomasetti and Cosentini Associates for the engineering of Shanghai Tower. I heard Arthur Gensler represented the firm for official meetings and ceremonies—which makes a strong impression with the clients.

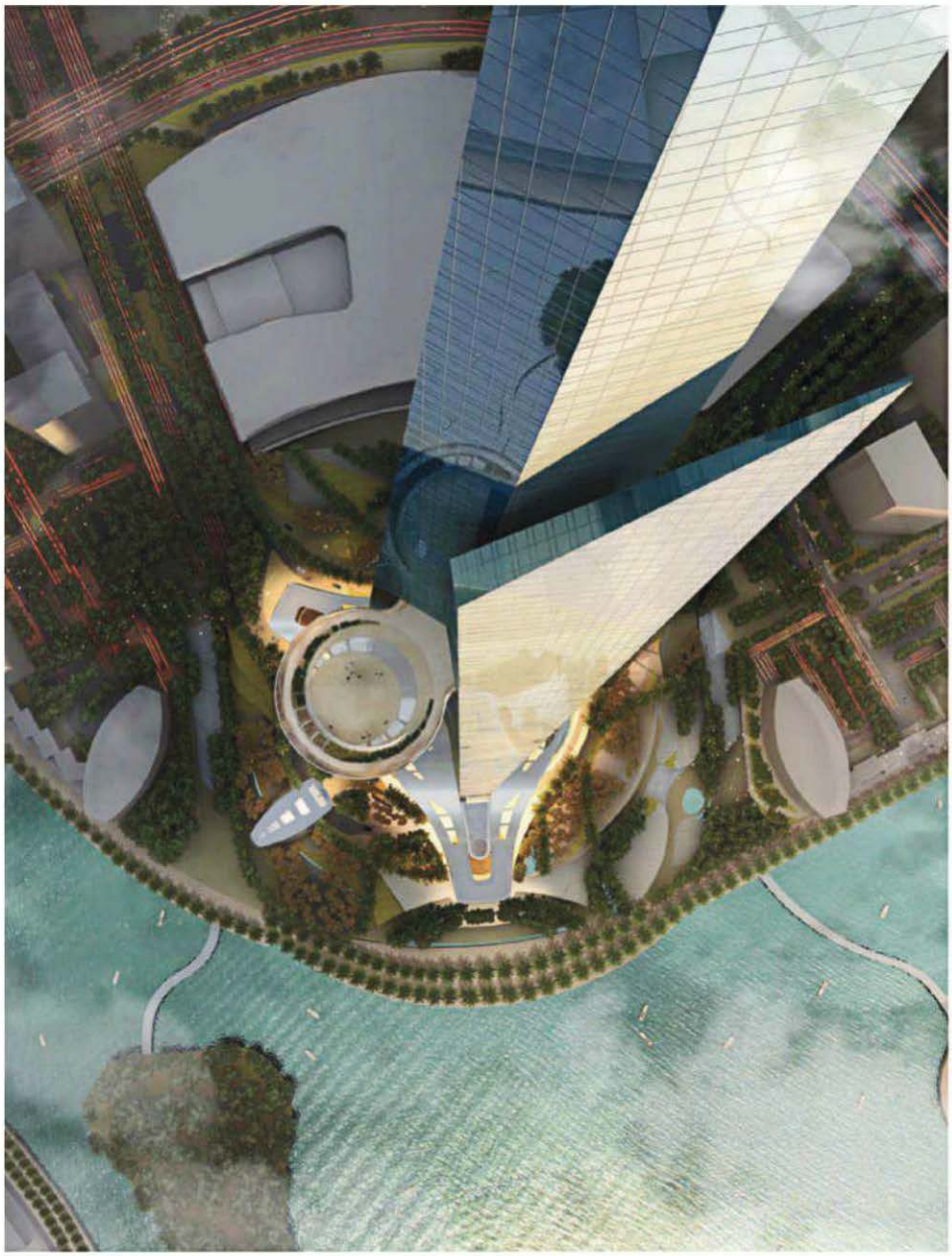
Does it make sense to keep going higher, as we see with the Kingdom Tower? The architects involved in supertalls talk about sustainability values of such density and agglomerating various forms of transit within the project.

A lot of conditions are cultural. I was just in Frankfurt, a city that likes skyscrapers, but where retrofitting and recladding towers built in the 1960s to 1980s for energy-efficiency is an important trend. In terms of the supertall sustainable skyscraper, the next step is toward net-zero energy—that is, towers producing as much energy as they consume. This idea is already starting to happen with shorter towers.

Isn't there a point when a supertall is just too tall? Even if it is energy-efficient?

A lot of people believe supertalls are irrational acts. I think they are fundamentally rational, but also aspirational. To build a supertall you are taking a risk, more than if you were building a conventional structure, but you are trying to do something that gets extra attention. These bigger-than-life skyscrapers are beautiful. Supertalls are the celebrities of the skyscraper world. ■

Carol Willis is the founder and director of the Skyscraper Museum in New York City, and a professor of Urban Studies at Columbia University's Graduate School of Architecture, Preservation and Planning.



VIEW FROM THE TOP The three-legged massing of the reinforced-concrete Kingdom Tower provides stability, while the large notches in the tower help shade terraces from the sun. No facade faces the sun directly, and the outdoor air temperature at the top of the tower is expected to be lower than that at ground level. The 5.7 million-square-foot tower, with 59 elevators and three sky lobbies, overlooks a waterfront district, which Smith and Gill are master-planning as a part of the new development of Kingdom City on the Red Sea.

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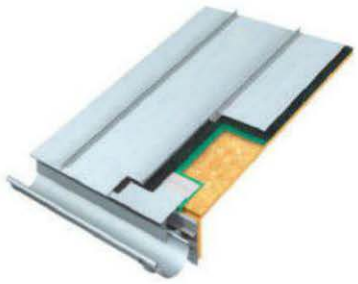

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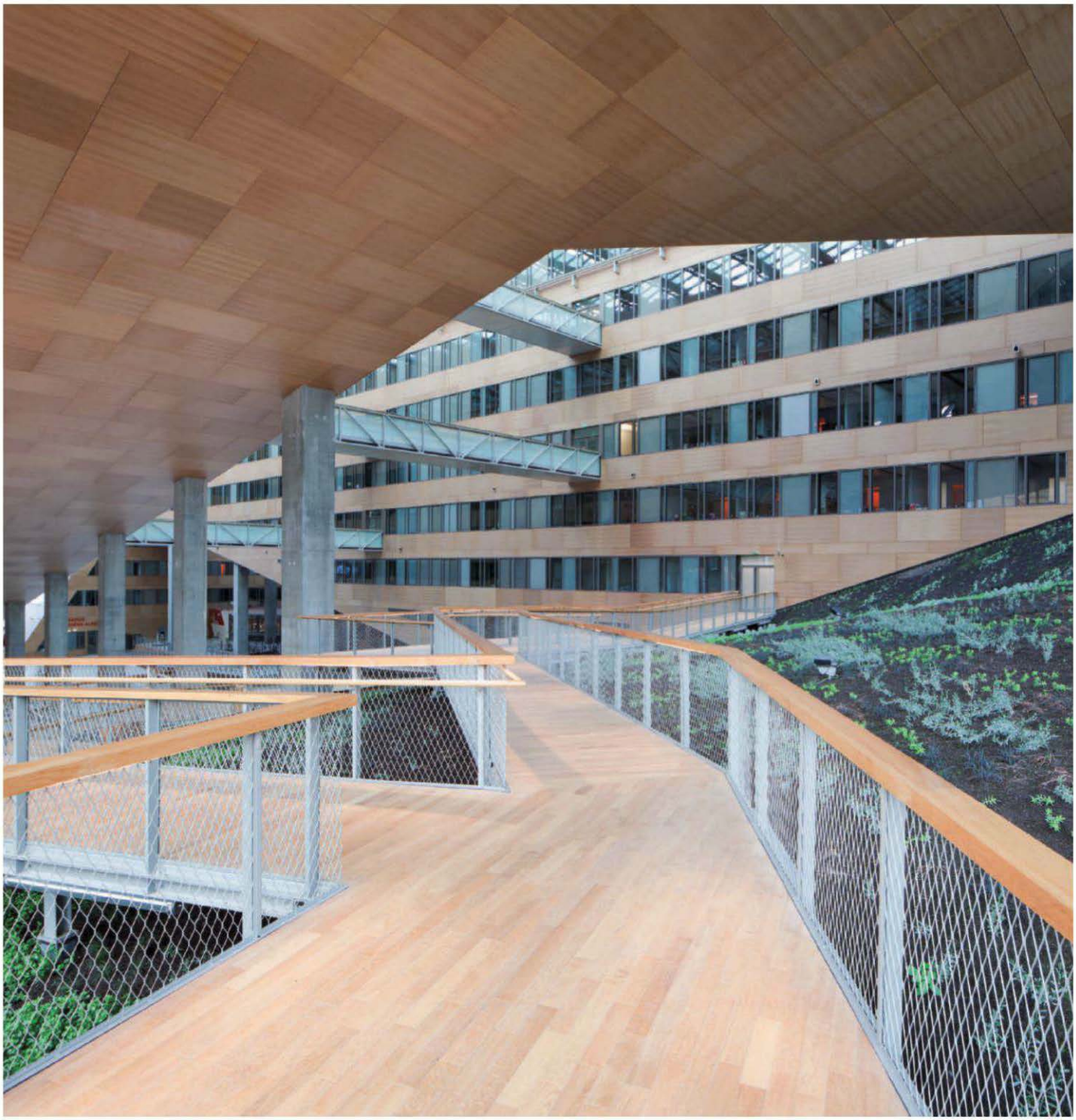

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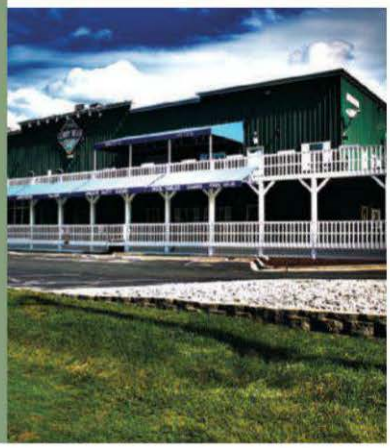

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CIRCLE 147

THE ART OF LIGHTING

"Putting light on a building is not about just putting light on a building," explains Focus Lighting principal Paul Gregory. "There has to be a story line that people can enjoy, learn from—one that causes them to think."

What Hollywood would call the backstory is key when translating an artistic vision to architecture. Like 21st-century frescoes, the illuminations that follow paint moving pictures that fuse with building surfaces, and represent Renaissance-like collaborations between art and technology—and among the artist, architect, lighting designer, and technician.

Linda C. Lentz

PHOTOGRAPHY: © IVAN TOTH DEPEÑA

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CIRCLE 108

MOTIONS CAPTURED

Reflect
Miami, Florida
Ivan Toth Depeña

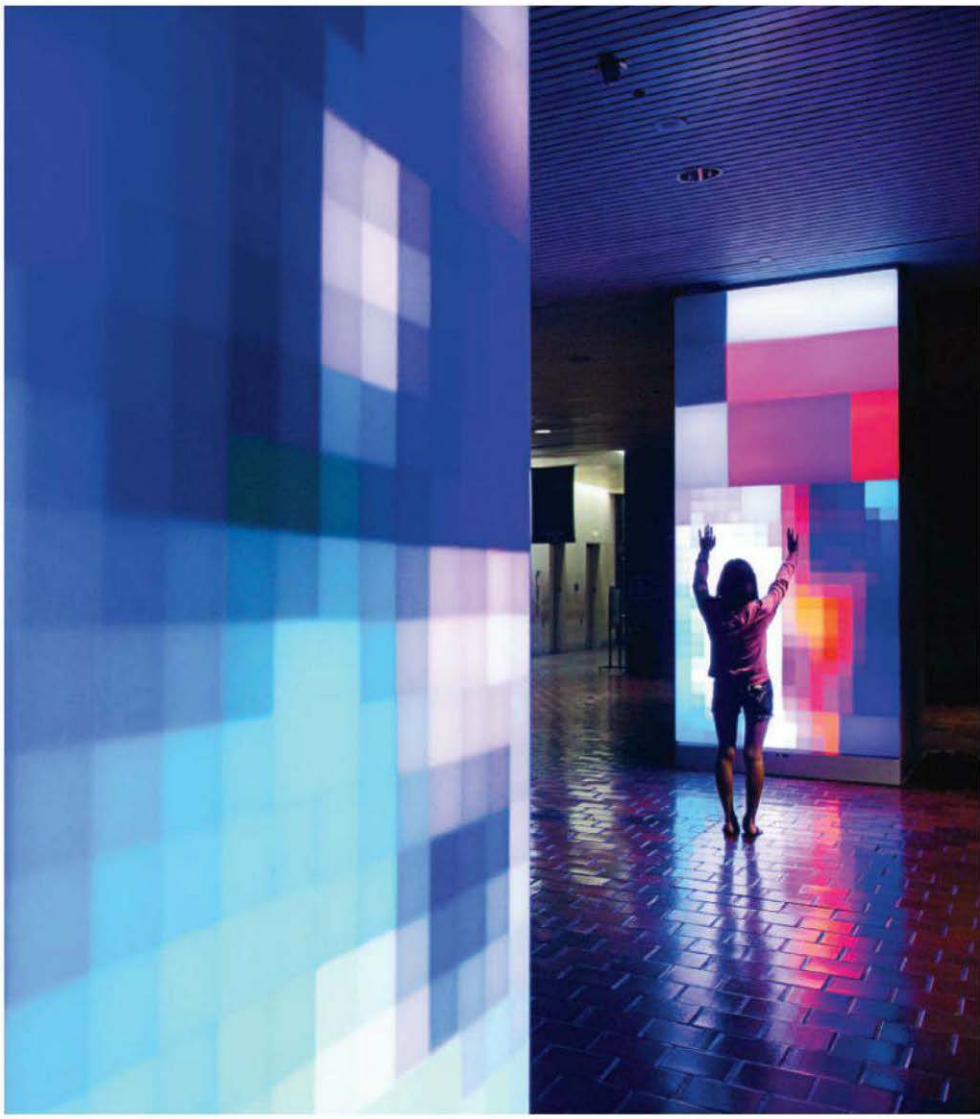
By Linda C. Lentz

ART IMITATES life in surprising ways. For Miami residents hurrying through the lobby of the city's 1985 Stephen P. Clark Government Center lobby, Reflect, a permanent, interactive installation by artist Ivan Toth Depeña, does it by capturing their movements in real time, and transforming them into dynamic video paintings that illuminate the building's columns with vivid moving pixels.

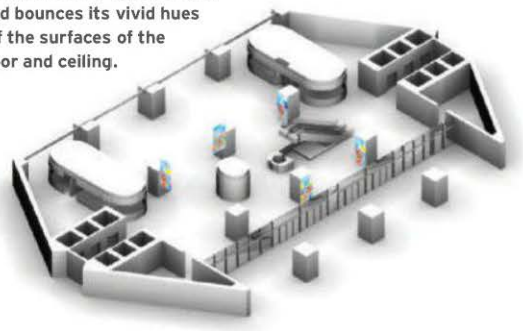
A busy commuter hub, the 3,500-square-foot lobby is adjacent to city bus and train depots and sits under a 28-story civic office tower. Depeña was commissioned by Miami-Dade Art in Public Places to create a work that would engage the community using new media. The artist—a graduate of Harvard's GSD—sought to minimize the footprint of his intervention as much as possible. "The existing [Modernist] structure is already quite massive," says Depeña. "Adding to that weight seemed to be the wrong direction to take." Instead, his concept manifests lightness, translucency and color, using surfaces already in place.

Working with New York City–based Focus Lighting, Depeña devised a series of 6-inch-deep light boxes mounted to five of the lobby's 13-foot-high structural columns. Made of steel, the giant luminaires are topped with seamless polycarbonate diffusers and outfitted with internal grids that house precise arrangements of RGB (red/green/blue) LED nodes and strips. The LEDs are programmed to respond to a system that includes special cameras, one in the base of each panel, that track the flow of people and record their form. The motion then plays back as visual patterns via custom software written by the lighting designers, based on the artist's vision. The resulting light show delights those who notice it—enticing some to mime before the panels. If no one is in front of a camera, the system repeats the last five interactions until someone approaches.

A triumph of means, Depeña's clever scheme fuses with the architecture of the space, giving static elements performative qualities. By using the circulation in the lobby to activate the art, he not only continually morphs the installation's composition, but also the public's perception of the space itself. ■



The interactive work enlivens the lobby of a busy civic building and bounces its vivid hues off the surfaces of the floor and ceiling.



CREDITS

DESIGNER: Ivan Toth Depeña

LIGHTING DESIGN: Focus Lighting – Brett Andersen, principal lighting designer; Dan Henry, lighting and software designer

CLIENT: Miami-Dade Art in Public Places

SIZE: 3,500 square feet

COMPLETION DATE: November 2011

SOURCES

LIGHTING: Philips Color Kinetics (LED system)

POLYCARBONATE PANELS: SABIC (Lexan)

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Eleven projectors surround the Hirshhorn facade, carefully positioned to avoid trees and tall sculptures on the museum's grounds.

TOP RIGHT: **Set to the tune of, "I Only Have Eyes for You," Song 1 either emphasizes the building, or causes it to fade into the night.**

Song 1
Washington, D.C.
Doug Aitken

By David Sokol

ARTIST DOUG AITKEN first visited the Hirshhorn Museum and Sculpture Garden in 2009, on the invitation of its director Richard Koshalek to conceive an entirely mirrored reading room in the lower lobby. Aitken had barely stepped out of the taxi before turning the creative brief inside-out. When he saw the curvy building on the National Mall—a hollow cylinder raised on four piers designed by Gordon Bunshaft and completed in 1974—Aitken recalls, "My mind raced to the other side of the spectrum: If we have this phenomenal building that's very monolithic in its form and structure, then can we make it almost liquid architecture?"

The result of his musing is Song 1, a series of musical vignettes, for which Aitken projects high-definition video on the entirety of the Hirshhorn's precast concrete facade, a surface measuring 82 feet high and 725 feet around its circumference. The total image size is 1,080 pixels tall by 13,444 pixels wide and requires 11 high-definition video projectors to achieve full coverage of the building elevation. Song 1 is said to be the first 360-degree convex projection in cinematic history.

In each of his works, Aitken notes, he tries to distill a concept to its minimum, so viewers can interpret a piece according to personal experience. Song 1 features a polyglot cast—from actor Tilda Swinton and musician John Doe to a woman Aitken encountered on the sidewalk—each performing, or performing to, one of 40 new versions of the 1934 standard "I Only Have Eyes for You." Filmed in what the artist calls "the places we pass by," such as short-order kitchens, factories, and cars, the performances and generic backdrops could be understood as narratives or abstractions.

As the sky darkens, these scenes brighten and the facade's pink-granite aggregate appears less textural. A scene can encompass the entire building, or multiple images section it into frames. Three real-time, media-compositing Quad HD video servers send content to the projectors via 41,500 feet of fiber-optic cable. Because each projector is capable of creating a 1,080-by-1,920-pixel image, the source material was edited into 11 components and arranged so that additional pixels overlap for visual continuity. Prior to opening, technicians aligned the 160-pound projectors encircling the building according to that digital editing, then calibrated the image to its curvature.

"There is an invisible rhythm to the way the light moves, the way the edits transpire," Aitken says of the final product. Because the scenes in Song 1 include rotation and upward movement, the installation gives the impression that the building itself is spinning, or at least evokes the carousel service that has been installed in front of the Smithsonian's Arts and Industries Building since 1967.

"We call it curating public space," museum director Koshalek says. "Artists have to play a larger role in society, and they cannot be limited to isolated situations." Aitken's site-specific project animates a central section of the city, that is safely illuminated, but eerily inactive, after dusk. Joggers and bicyclists, caught by surprise, break from their exercise routines to mill around the contemporary cyclorama.

Koshalek also calls the nighttime scene a step toward repositioning the museum as an active player in cultural policy making, because, besides grabbing the attention of passersby, the temporary beacon provokes dialogue. It questions the internal meditations and public interactions that Americans want their urban plazas to achieve. (Song 1 runs through May 13th.) ■

David Sokol is a Washington, D.C.-based contributing editor and writer for RECORD.

CREDITS

ARTIST: Doug Aitken

CLIENT: Hirshhorn Museum and Sculpture Garden, Smithsonian Institution

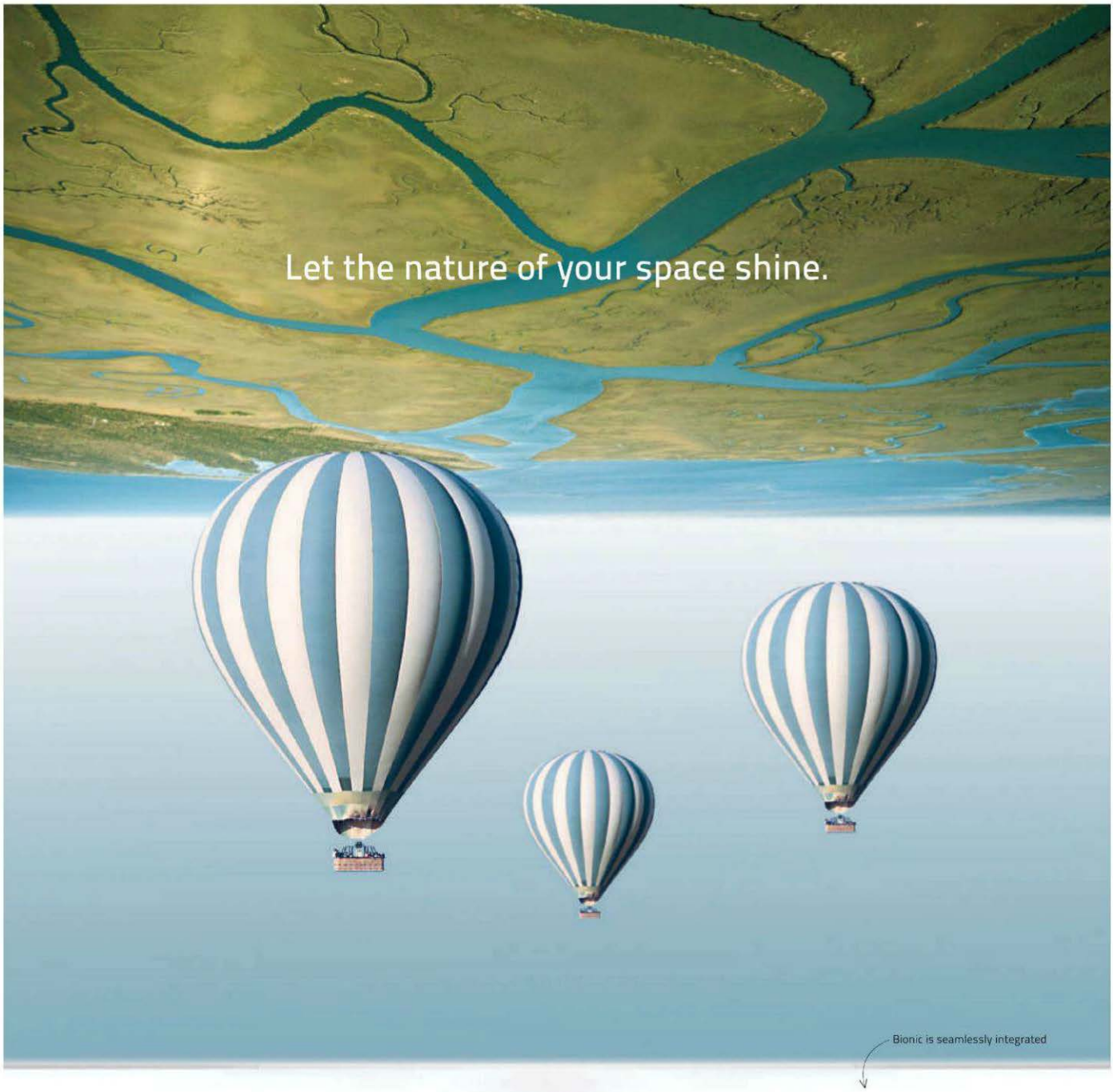
CONSULTANTS: Scharff Weisberg/ WorldStage (lighting, audio, video)

SIZE: 59,450 square feet (facade surface area)

COMPLETION DATE: March 2012

SOURCES

TECHNICAL EQUIPMENT: coolux Media Systems (servers); Christie Digital (video projectors and software)



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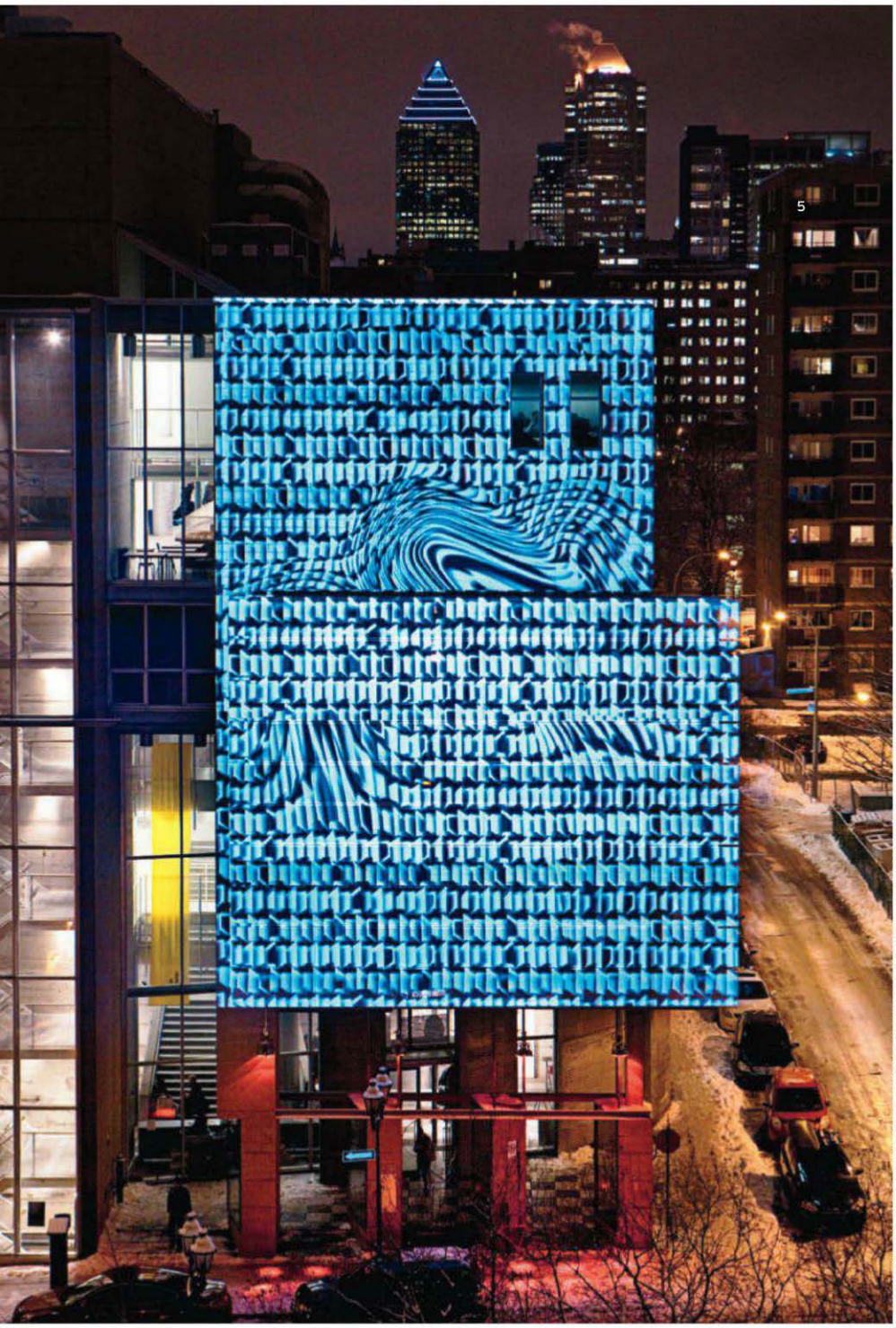


PHOTOGRAPHY: © MARTINE DOYON, PARTENARIAT DU QUARTIER DES SPECTACLES

Emmanuel Mauriès-Rinfret devised a dynamic video program for the facade of the circa-1995 Université du Québec à Montréal (UQAM) Design Center.

Luminous Pathway
Montreal
Quartier des Spectacles

By Allison Craig

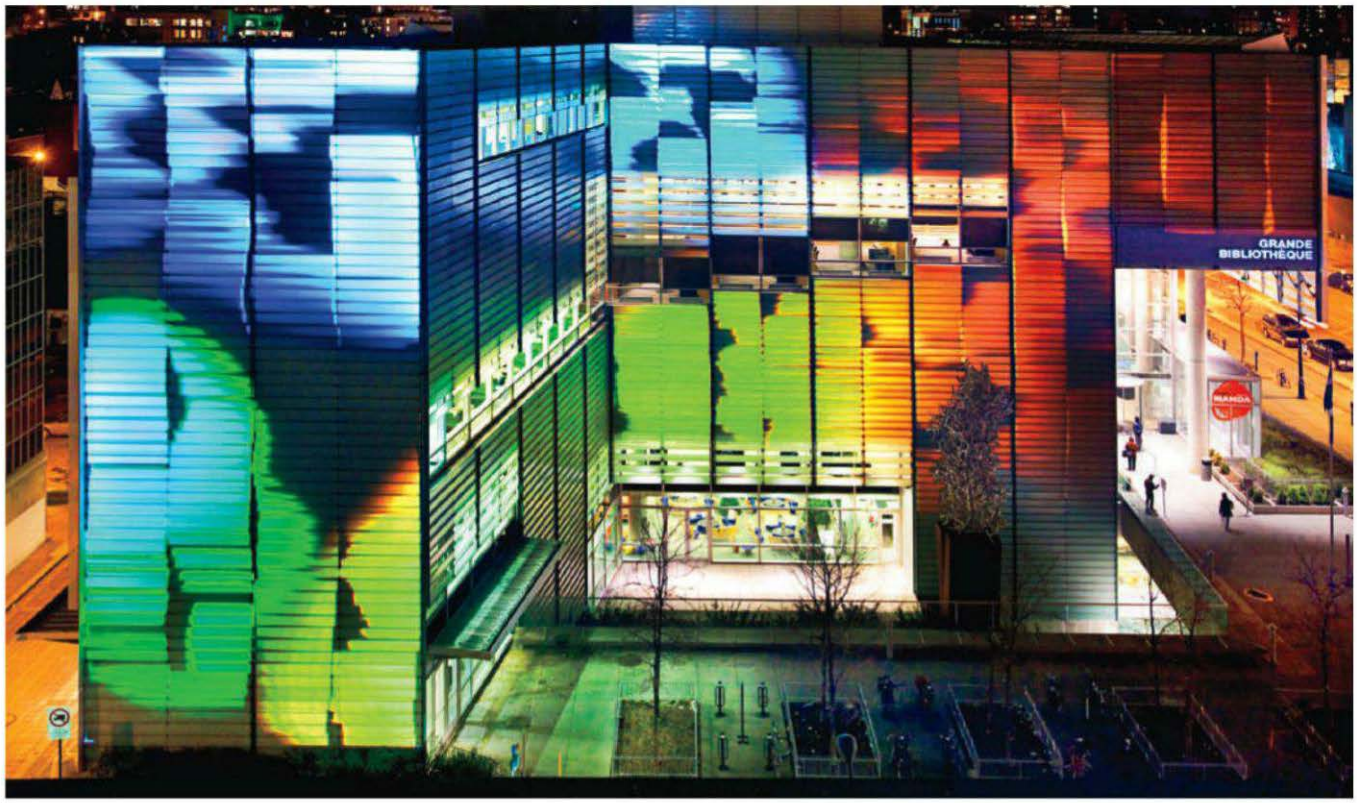
IN JANUARY 2005, the Quartier des Spectacles Partnership of Montreal, an organization of area stakeholders dedicated to promoting Montreal's cultural district, took on an ambitious urban-branding project: creating a cohesive identity for the 20 cultural venues and two public squares that make up the area. With art direction by branding experts Ruedi Baur and Jean Beaudoin, of Integral, the solution is a stunning architectural light show dubbed the Luminous Pathway.

The Pathway comprises a double row of illuminated red circles (four-headed LED fixtures mounted on adjacent buildings) that lead pedestrians from place to place. The color is a nod to the area's reputation as a former red-light district. Vivid LED systems on venue facades indicate what's happening, when.

The overall effect is riveting, but nothing beats the new groundbreaking illumination of the Université du Québec à Montréal (UQAM) Design Center and the Grande Bibliothèque. Working with the Montreal-based media technology developers VYV, the Luminous Pathway team installed projectors on rooftops around both buildings, to transform their facades into screens for multimedia presentations. The shows highlight what is going on inside or stand alone as digital artworks. According to Mikaël Charpin, Luminous Pathway assistant director, this is the first year-round outdoor projection system that can cover an area as large as 1 square kilometer.

The driver of the concept is VYV's Photon interactive 3-D media server, developed for complex Cirque du Soleil video productions, or touring pop stars. It allows for video projection on nontraditional surfaces, so it lends itself to architecture. "We use laser scanners to survey the building in 3-D, then a technique called UV-mapping to ultimately create a simpler 2-D template for multimedia artists to work with," says Emric Epstein, VYV cofounder.

For the first installation on the face of the

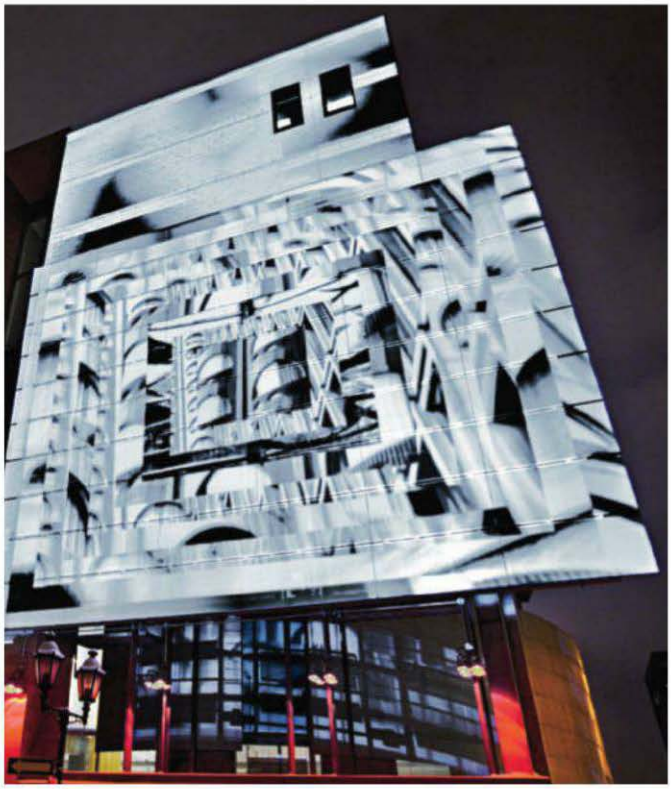


Grande Bibliothèque, designer Bernard Duquay of Lucion Média created a series of colorfully animated abstract tableaux, ranging from digital auroras to dynamic cubes. "We didn't just want to use the walls as projection surfaces," he says. "We wanted to give a hint of what was going on inside and also to honor and highlight the architecture. Our intent was to make knowledge visible and dynamic."

Nearby, Emmanuel Mauriès-Rinfret devised a program for the Design Center to promote a show of Montreal architect Norman Slater's work. "I had to establish a link between the street and the exhibition inside," says Rinfret. "I came up with a synthesis of his work."

Using a building for a projection is challenging, but VYV's technology provides a template that follows the shape of an elevation, masking elements like windows where you might not want the intrusion of a video. It works on many preexisting light-hued surfaces—in the case of the library, aluminum and glass, and for UQAM, a micro-perforated, semi-opaque vinyl screen over glass. Part art, part infomercial, these supersized "billboards" reflect the city's continually evolving cultural scene. ■

Allison Craig is a regular contributor for SNAP *and writes about architectural products and projects.*



ABOVE: **Bernard Duquay created an animated video that wraps the aluminum and glass facade of the Grande Bibliothèque, circa 2004.**

LEFT: **Rinfret's illuminations reflect an exhibition of the Montreal architect Norman Slater's works on a preexisting skin of the Design Center.**

CREDITS

DESIGN: Quartier des Spectacles – Mikael Charpin, Ivan Klein, project managers

CONSULTANTS: Integral (art direction); Lucion Media, Emmanuel Mauriès-Rinfret (visual content)

COMPLETION DATE: November 2011

SOURCES

VIDEO PROJECTION: VYV, Christie (projectors)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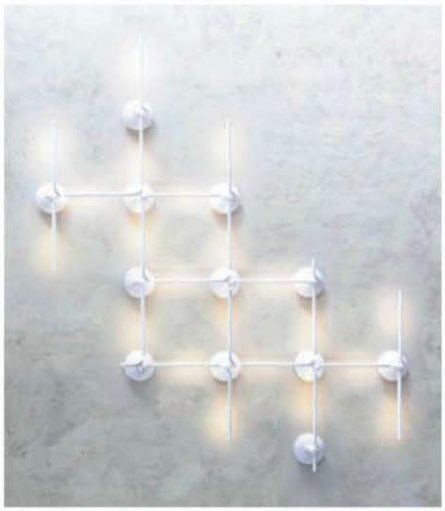
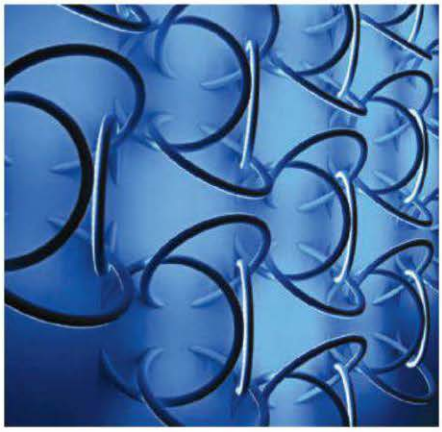
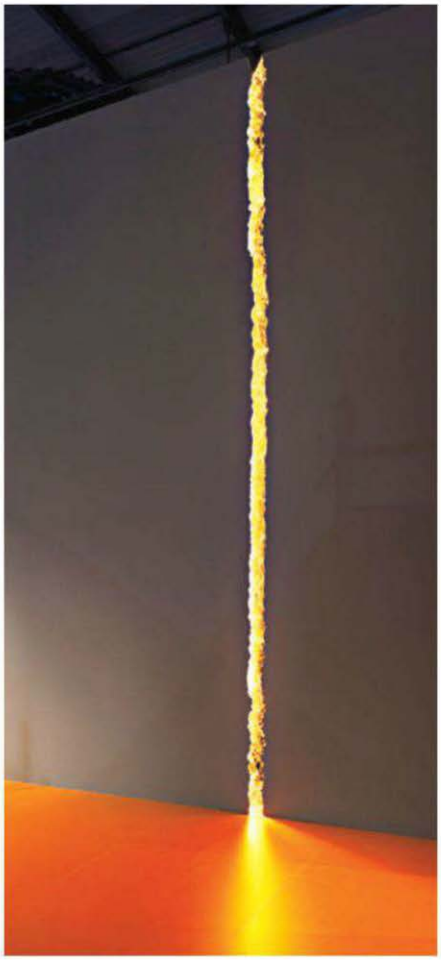
Star Lights

These unusual new lamps and fixtures for residential and commercial applications take advantage of advanced LED-lighting technologies, innovative thermal-management systems, and the latest materials, including a suspension lamp based on a NASA study for astronaut containment suits.

By Rita Catinella Orrell & Asad Syrkett



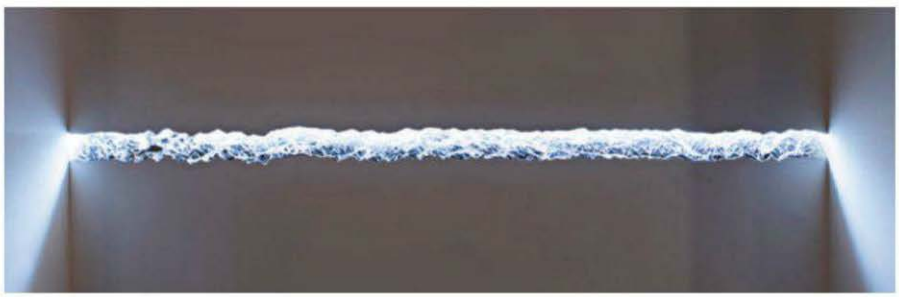




FLOS

In 1962, as Italy was poised to overtake Scandinavia in the European furnishings market, an Italian lighting company named FLOS was born. The company's first introduction, the Space Age–style Taraxacum pendant lamp (above), was designed by Achille and Pier Giacomo Castiglioni in 1960. The fixture, with its white-powdered-steel structure and experimental pliable cocoon resin, was an example of the innovative fixtures to come from the company. To help celebrate its 50th anniversary this year, FLOS briefly took over a vacant space next to its New York City showroom to create vignettes featuring office, retail, hospitality, and residential themes. The displays integrated pieces from the company's Architectural LED range currently launching in the U.S., which includes the modular Lightspring fixtures, as well as luminaries from the soon-to-be-launched Soft Architecture collection. Built directly into a wall or ceiling structure, the Soft Architecture line is "more of a concept than a product," says FLOS USA CEO Jan Vingerhoets, and includes products made of a lightweight composite material—referred to by the company as "undercover technology"—that complies with the latest international safety and green standards. One fixture is Wall Rupture, a dramatic installation that uses concealed LED strips to create the illusion that a secret crack in the earth has been revealed.
flosusa.com

CLOCKWISE FROM TOP RIGHT: **Taraxacum pendant lamp, designed by Achille and Pier Giacomo Castiglioni in 1960; Wall Rupture from the Soft Architecture collection, designed by Thierry Dreyfus, shown in a vertical application in a gold-leaf finish; Wall Rupture, shown in a horizontal application in a silver-leaf finish; an installation of Wall Piercing fixtures from the Soft Architecture collection designed by Ron Gilad; a grouping of modular Lightspring fixtures from the Architectural LED collection, also designed by Gilad.**



IMAGES: © COURTESY FLOS

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Planet

This spherical suspension lamp from Italian lighting design company Foscarini is based on an unusual source: a NASA study on the containment suits worn by astronauts. Researched by Italian motorcycle-protective-gear company Dainese in partnership with MIT, the study led to the development of a special material that adheres to the body and does not expand in a zero-gravity environment. To create a fabric lighting fixture that retains its shape without internal structural support, Foscarini commissioned multidisciplinary design collaborative Changedesign, who applied the results of the NASA study to fabricate Planet. The embroidery along the outside of the lantern, which incorporates thread used in the astronauts' suits, is treated at a high temperature and then hardens to become an exoskeleton-like support for the sphere. It is available in two colors and two sizes and uses halogen or fluorescent lamps. foscarini.com

Helen Lamp

David Litzler's interest in product design started in architecture school at the University of Oklahoma, when he participated in a competition to design and make a table lamp. "It's a creative activity on such a scale that I can afford to make my designs on my own," says Litzler, who until late last year was a residential designer for a Seattle architecture firm. In 2011, Litzler launched the Seattle-based Gambrel Workshop with the Helen Lamp, a petite, handcrafted table lamp that appears to fold into its form from a single sheet of steel. "The folding concept demanded that I express the power cord as a design feature that threads its way through the metal planes to the lamp socket," says Litzler, who added a stained alder base to soften the powder-coated-steel form. Offered in four colors, the 14"-high lamp uses a 40-watt-maximum incandescent or compatible LED bulb. gambrelworkshop.com

Otto Watt & Spock

Otto Watt (far right, with inset) is a new die-cast aluminum LED table lamp from Luceplan that swivels a full 360 degrees. Designed by engineer Alberto Meda and architect Paolo Rizzatto, the lamp comes in 110-volt and 220-volt varieties and in mirror and matte-black finishes. The LEDs in the lamp head allow the user to adjust the color temperature, causing a greater or lesser dispersal of light for work or reading. Another new highly adjustable LED fixture is the Spock luminaire (right) from Modular Lighting Instruments, distributed in the U.S. through Luceplan. This seamless disc of LEDs can be mounted to ceilings, walls, or on a track. The disc, supported by a chrome-plated hinge, is entirely wire-free and can be rotated to the desired angle. Bram Couvreur and Björn De Vos designed the hyper-modular unit, which is named after the *Star Trek* character. luceplan.com

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VU1 R30 Bulb

This 65-watt interior flood lamp is a mercury-free replacement bulb for incandescent recessed light fixtures. The R30 features Electron Stimulated Luminescence (ESL), an energy-efficient lighting technology that uses accelerated electrons to stimulate phosphor that makes the surface of the bulb "glow." ESL technology creates the same light quality as an incandescent but is up to 70% more energy-efficient, lasts up to five times longer, and is claimed to help reduce greenhouse-gas emissions. The lamp produces 500 lumens per watt and can be used with standard dimers. In addition to the R30, the company is developing a variety of energy-efficient/optimal-light-quality Zmercury-free bulbs, including the classic A-type lamp for U.S. and European consumers, and the R40 and R25 for American and European commercial use, respectively. vu1corporation.com

Pixel Pro

Designed for iGuzzini by the Italian architecture and design firm Iosa Ghini Associati, this flexible, recessed luminaire is intended for commercial environments including retail, museums, and galleries. The head of the lamp can be rotated between 45 and 75 degrees, allowing the user to decrease or increase the amount of light dispersed. Pixel Pro includes a shell-shaped heat dissipater and does not release ultraviolet or infrared radiation, so sensitive items may be lit and displayed without risk of damage. Available in three sizes and two colors, in LED or metal-halide lamp options, Pixel Pro is intended mostly for recessed indoor downlight applications, but can also be used for wall-washing effects. iguzzini.com

Aeroblades

Debuted at last month's Light+Building show in Frankfurt, this unusual new LED-based street luminaire from Cree Lighting was designed and engineered with the British lighting design firm Speirs + Major. Intended to "throw out all preconceptions of how urban luminaires should appear," the Aeroblades series features an innovative thermal-management system that enables higher lumen output and provides significant boosts to lifetime, efficacy, and color consistency. All luminaires in the line have the option of 0–10-volt dimming, are designed to meet a minimum of L70-lumen maintenance of 80,000 hours, and feature a five-year warranty. Aeroblades can be custom-designed to best fit the applications, and are available in more than 300 combinations, including two-, four-, or six-blade versions; 20 optical distributions; two pole-mount and wall-mount versions; and seven finishes. cree.com

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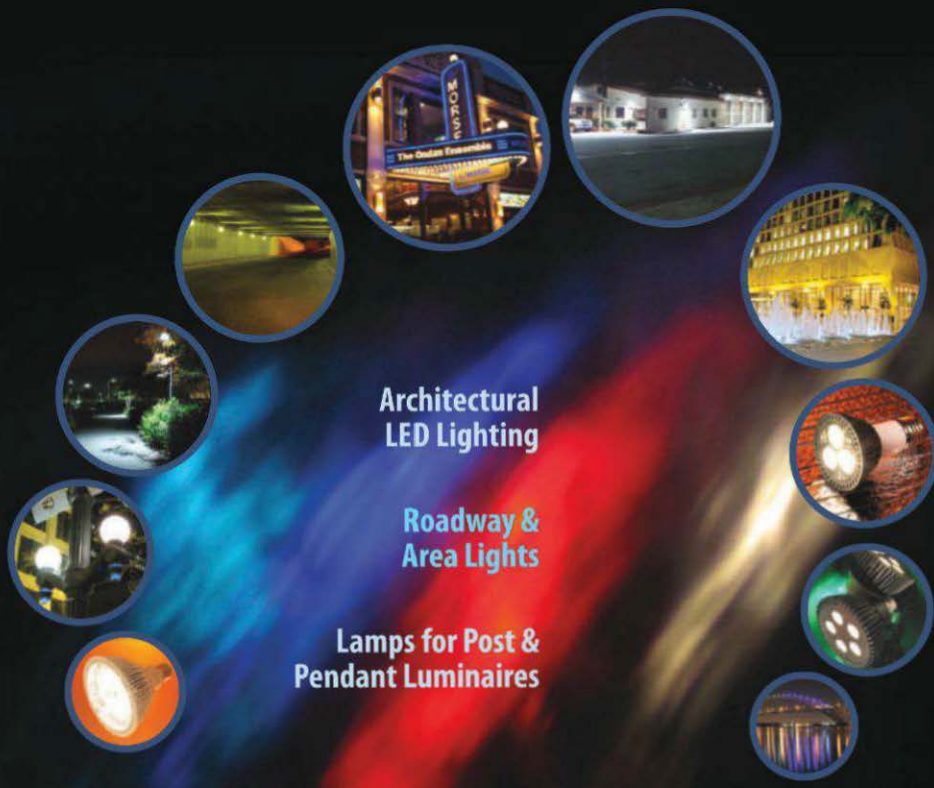

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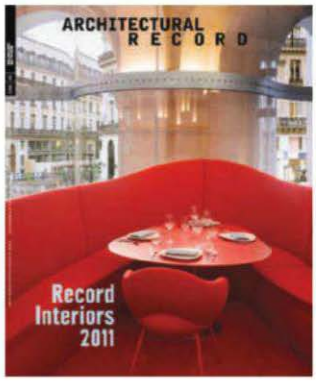

The editors of ARCHITECTURAL RECORD are currently accepting submissions for the **2012 Record Interiors** issue. All architects registered in the United States or abroad, as well as interior designers working in collaboration with architects, are welcome to submit interiors-only projects that have been completed in the last year. The projects may be new construction, renovation, or adaptive reuse, commercial or residential, domestic or international. Special consideration will be paid to works that incorporate innovation in design, program, building technology, sustainability, and/or materials. The winning projects will be featured in the September 2012 issue.

The fee is $75 US per entry. Download the official entry form with submission and payment instructions at architecturalrecord.com/call4entries. E-mail questions and submissions to ARCallForEntries@mcgraw-hill.com. (Please indicate ***Record Interiors*** as the subject of the e-mail.) **Submissions are due 6/1/2012.**

2012 CALL FOR ENTRIES
Record Kitchen & Bath

The editors of ARCHITECTURAL RECORD are currently accepting submissions for the **2012 Record Kitchen & Bath** competition. Entry is open to any registered architect who has completed an innovative residential and/or commercial kitchen or bath project in the last year. We are looking for projects that feature unexpected materials, address unique client needs, or are designed in a manner that allows these utilitarian spaces to be functional, sustainable, and beautiful. Winning projects will be featured in the September 2012 issue.

The fee is $50 US per entry. Download the official entry form with submission and payment instructions at architecturalrecord.com/call4entries. E-mail questions and submissions to ARCallForEntries@mcgraw-hill.com. (Please indicate ***Record Kitchen & Bath*** as the subject of the e-mail.) **Submissions are due 6/1/2012.**

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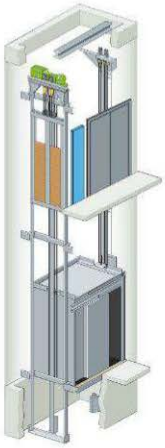

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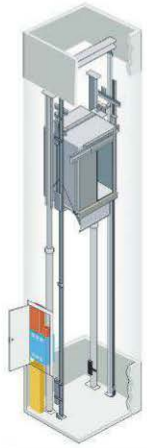

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Use the learning objectives below to focus your study as you read **Next Generation Machine-Roomless Elevators**. Answer the questions on page 197. To earn credit, take the test online at **ce.architecturalrecord.com**.

Learning Objectives
After reading this article, you should be able to:

- Explain how the latest machine-roomless technology saves on construction and operational costs.
- Discuss five elements that can increase the energy-saving potential of MRL elevators.
- Discuss why the new MRL technology is more energy-efficient than conventional products.
- Identify where MRL technology can contribute to LEED points.

Vertical transportation, which has been part of the building environment since the 1850s, has recently seen some significant advancements. One of the most recent, introduced in the 1990s, is machine-roomless (MRL) technology, named for its ability to dispense with the traditional elevator machine room. Based on the first major breakthrough in lifting technology in nearly 100 years, MRL technology continues to evolve, offering even greater design freedom for architects, revenue-producing building space, and savings in construction and operational costs.

As owners increasingly demand energy savings, lower carbon footprints, and U.S. Green Building Council LEED certifications, architects should understand how MRLs can contribute to those goals as well. This article will explain the latest advances in MRLs, their advantages over conventional elevators, and highlight the features that make for the greenest MRLs. Escalators will also be discussed in terms of what elements architects should look for in specifying the most energy efficient systems.

THE LATEST ADVANCES IN MACHINE-ROOMLESS ELEVATORS

Historically, traction and hydraulic elevators required sizeable machine rooms to store large machines, motors, or hydraulic pumps. In the 1990s, advances in technology enabled gearless machine-roomless elevators, which employ a smaller sheave and a redesigned machine that could be mounted within the hoistway itself, eliminating the need for a bulky machine room on the roof. A smaller controller room could be positioned with some flexibility near the hoistway. However, hydraulic elevators still required a full-size machine room.

Considered groundbreaking when it was first introduced, gearless MRL technology has virtually replaced the traditional geared machine type traction elevator that has dominated the mid-rise market for more than half a century, and has made inroads into the hydraulic market. Advances continue, with major manufacturers offering their own MRL solutions and innovations. In 2011, gearless models were introduced that eliminate the need for any sort of separate elevator control space, enabling all elevator support equipment to be placed within the hoistway and creating a true machine-roomless model. Also in 2011, true MRL technology was extended into hydraulic elevators, enabling those models to dispense with their full-size machine rooms. In short, with the latest advances, the elevator has become a self-contained system.

With the innovation of true machine-roomless models, the elevator has become a self-contained system. Architects can utilize the extra space.

The advantages of this are several fold. Architects are free to use the extra space, which can be as large as 100 square feet per elevator, to support their design vision. Higher use of that extra space, such as additional apartments or offices, enables developers and owners to manage the building more economically as well as benefit from lower building costs. Because an elevator machine room is not just four walls, but a space that requires a

Gearless Machine-Roomless Revolution

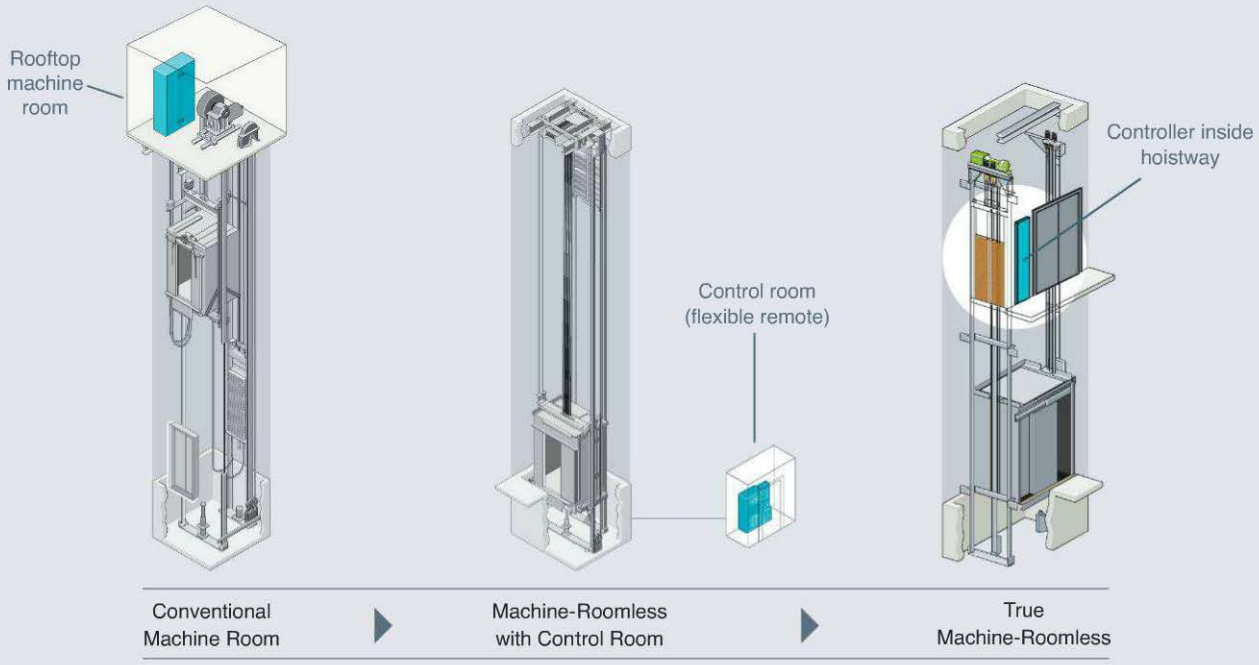


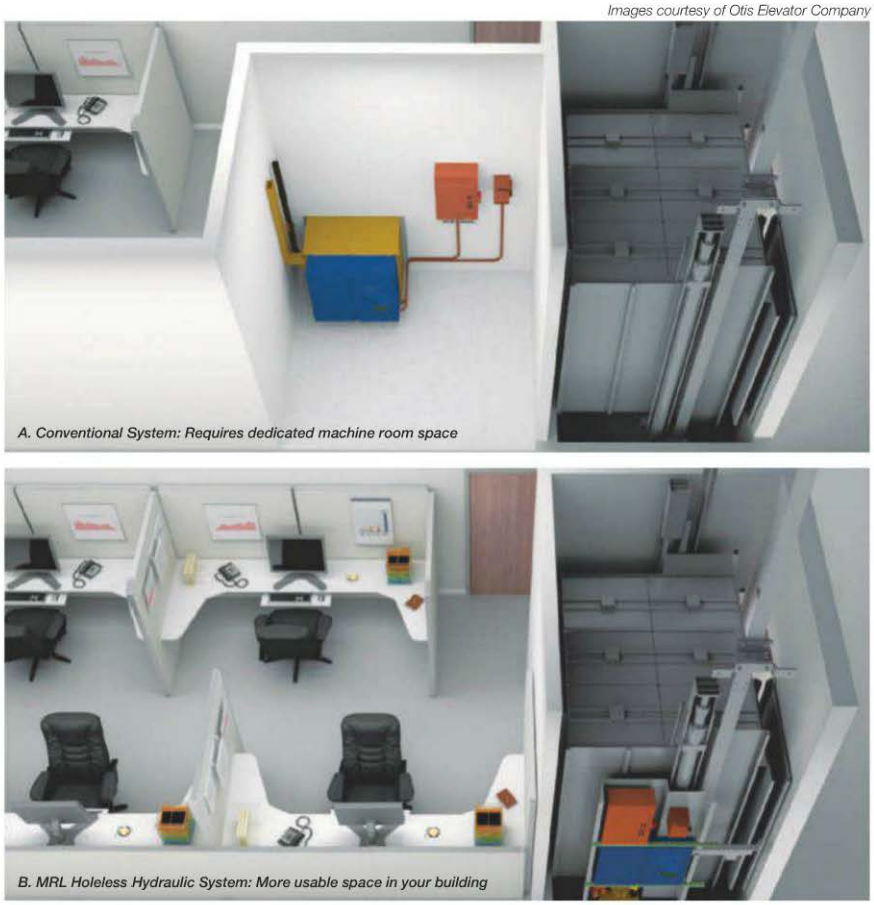
Chart courtesy of Otis Elevator Company

complex system of lights, fire protection, and HVAC equipment, eliminating the room altogether results in reduced construction costs and time, materials, and coordination issues on the jobsite. With fewer moving parts, installation can be simpler than for conventional elevator systems, with decreased requirements for interfaces and roof penetrations. In some instances, elevators can be installed via the hoistway, without having to be positioned by expensive overhead cranes. On certain products, hall call buttons can be integrated into the elevator doorjambs, rather than on building walls, which further reduces time and interface among trades on the jobsite. Newer models can have lead times as short as six weeks — half the industry average — due to their modular design, automation, and proximity of the factory. Shorter lead times enable the architect to "push the order button" on an elevator already specified when the project is further along and the owner has selected the elevator's final aesthetics. At this point, the installation date can be more realistically targeted. This avoids having to pay costly storage fees for elevators that arrive on site when the construction project is facing delays. Some true gearless MRLs are also good options from an environmental perspective. Their smaller footprints, more efficient motors and regenerative drives can reduce HVAC demand and require up to 75 percent less energy than their traditional counterparts.

TRUE MRL FOR THE HOLELESS HYDRAULIC SYSTEM

Machine-roomless systems have been available with traction systems for years, but they were not available as a major construction hydraulic product offering until very recently. The critical components of the true MRL holeless hydraulic system — oil tank, controller, and main disconnects — have been redesigned to fit into a standard hoistway, that is, a hoistway with the same depth and width, pit depth, and overhead allowance as a conventional holeless hydraulic elevator. Access to these components is obtained through a standard door that can be located on a hoistway wall on the first or second elevator landing.

Images courtesy of Otis Elevator Company



In the latest generation MRL holeless hydraulic systems, all support equipment fits in the hoistway.

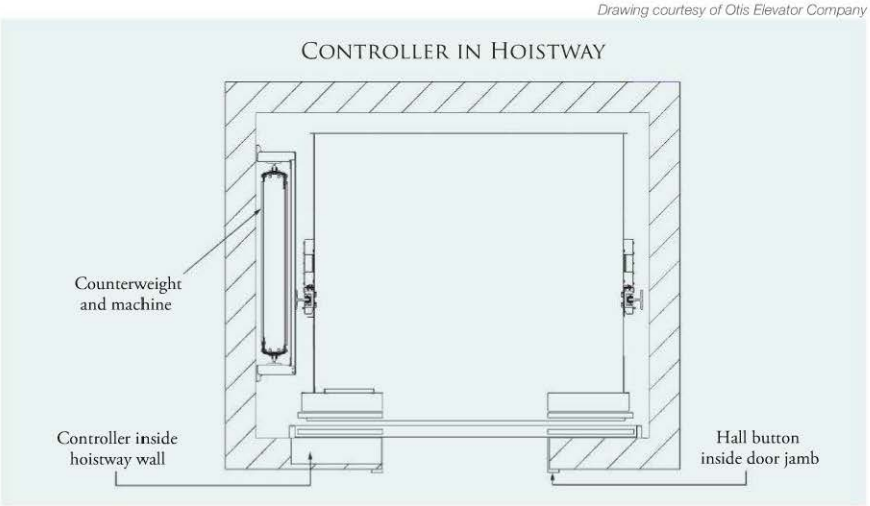
The hydraulic elevator system, in which the elevator car is pushed from below by a plunger, is the oldest operating system and the least expensive. Though highly dependable, hydraulic elevators run at lower speeds, and are thus designed for low- and medium-rise applications. Holeless systems are environmentally preferable to holed options, where the cylinder is buried underground in a hole equal in depth to the rise the elevator travels. A PVC liner protects the walls of the cylinder from underground contaminants. For the holeless option, there is no inground cylinder. Its side-mounted plungers are surface mounted at the base of the hoistway, which eliminates the need for drilling a hole into the ground to accommodate the plunger — a scenario that precludes any possibility of oil seepage into the ground, thereby lowering the risk of soil and groundwater contamination.

Manufacturers estimate that the true MRL holeless hydraulic system saves up to $10,000 in time and material costs on the construction site, while enabling more revenue-generating space for the owner. Savings is due to elimination of the need to build a large hydraulic machine room with walls, lights, fire protection and HVAC system.

TRUE MRL FOR THE TRACTION ELEVATOR

The true machine-roomless option, meaning that all components fit in the hoistway, has also come to traction elevators, which dominate the medium- and high-rise market. A traction elevator system works like a pulley — on one end is the car and on the other end is a counterweight. The car and counterweight are attached via coated steel belts or wire ropes that are looped over the machine, which is located at the top of the hoistway.

Drawing courtesy of Otis Elevator Company



In true MRL models, compact controllers fit inside the hoistway, a key advantage over other elevators.

The counterweight provides a counterbalance to the weight of the car, therefore significantly reducing the energy required to raise and lower the elevator. Traction elevators offer the ability to travel at higher speeds and rise with a smoother and quieter ride than a hydraulic system.

Historically, there have been two types of traction elevators: geared and gearless. The main difference between the two is the way in which the motor rotates the drive sheave. Today's traction market is primarily gearless. Gearless elevators incorporate a motor that connects directly to the drive sheave and rotates it at variable speeds similar to the operation of an electric hand drill. The variable-speed AC motor is cost effective, quiet at high speeds, and precisely controls maximum speed, acceleration, deceleration and leveling. The high power factors of the variable frequency (VF) drive allow for smaller mainline feeder sizes, and its reduced starting current allows for the use of a smaller emergency generator.

The true MRL gearless traction model has been made possible by two main factors: the compact controller innovation and the inspection/test panel. In these true MRL models, compact controllers fit inside the wall of the top elevator landing, and most necessary test and maintenance features can be concealed behind a panel in the elevator entrance to give building personnel, elevator mechanics, and city or state inspectors access to the critical items they need. This inspection and test panel typically includes a mainline disconnect accessible to building personnel who may need to cut power to the elevator. There is also a separate lockable panel which houses the service port for elevator mechanics and access to the safety circuits in case of emergency or troubleshooting. In most jurisdictions, safety tests can also be performed from this panel.

The true MRL gearless traction model also features flexible coated steel belts, which have a significantly smaller bending radius than conventional wire rope, allow a smaller sheave, some 4 inches in diameter vs. a conventional geared sheave of 30 inches in diameter. This enables a more compact machine that is 70 percent smaller and up to 50 percent more efficient than conventional geared machines. Pits can be shallower and overhead lower, creating the smallest hoistways to date.

Some elevators of this type feature minimal vibration and in-car noise, which creates a smooth ride and quiet building environment. Cost savings are also realized. Based on estimates of general contractors in various parts of the U.S., a machine room for a traction elevator costs approximately $35,000 on average, and a control room, $5,000.

THE GREENEST OPTIONS

True MRL elevators are designed to minimize carbon footprint by optimizing the size, materials, and weight of

Latest Elevator Design: Sustainability Meets Space Savings

The Clock Shadow Building, a brownfield project in downtown Milwaukee, replaces an abandoned, contaminated lot with a community-oriented infill development that has high-bar sustainability goals and a wide array of energy-saving features. The four-story building, completed in March 2012, is the first in the U.S. to employ a true gearless machine-roomless elevator at 150 feet per minute with the latest green technology, one of the greenest products on the market. "We were very aggressive about our environmental and economic aims on this project and we used both lenses to evaluate our options for an elevator system," says developer Juli Kaufmann, noting that every project decision was synced to meet or exceed the Living Building Challenge and LEED Platinum certification. "In terms of energy efficiency, the elevator we selected was head and shoulders above the other available options," says Kaufmann. Maintenance concerns — specifically the opportunity to use non-toxic cleansers as well as the elevator's durability — also factored in to the decision. In another environmental plus, because the elevator is belt-driven, there is no need for additional lubrication.

A bonus was the extra space afforded by the elimination of the machine room. Kaufmann used that space as an equipment storage room to house recycled carpet squares and the like. "That allowed us to buy products in larger quantities which is more cost effective," says Kaufmann. "We packed a lot of square footage onto the site and we needed to use all of it to generate revenue, so the extra space from the MRL elevator was much appreciated." Kaufmann says the building will also incorporate a rooftop oasis and urban garden that will produce food for community residents — an important project goal and a key activity for a holistic health practitioner who is a building occupant. "Because there was no requirement for a rooftop machine room, the roof can be fully used for the community," Kaufmann says.

components. Some models incorporate further energy-saving technologies. Because they are not always standard MRL features, early in the specification process architects should note whether the following five energy-saving elements are included in the model they have selected.

Gearless Machine

Permanent magnets boost the power of the motor, which enables a reduction in motor size. Some gearless machines are 70 percent smaller than machines used in conventional traction systems, and are compact enough to tuck away at the top of the hoistway. The system's efficient use of energy lowers elevator operating costs. With a permanent-magnet synchronous motor and digital VF closed-loop drive that combine to form an efficient system, the gearless machine can reduce power consumption by as much as 50 percent compared to conventional geared machines.

Coated Steel Belts

In the most environmentally sound elevators, flat polyurethane-coated steel belts replace the heavy woven steel cables that have been the industry standard since the 1800s. The belts make the smaller sheave possible. They are only 0.1 inch thick, yet they are as strong as woven steel cables and far more durable, flexible, and space-saving. There are several advantages to using these belts. Lying beneath the polyurethane coating of the belt are 588 high-tensile strength steel wires with zinc-plating to minimize corrosion. The polyurethane coating avoids metal-to-metal contact (of rope to sheave), reducing noise and vibration. It helps provide a smoother ride and higher level of passenger comfort not found in steel rope applications. In addition, coated steel belts have been found to have a life two to three times longer than conventional steel ropes.

Lastly, because of its design, the coated-steel belt eliminates the lubrication requirement of conventional ropes and its associated smells and messes as well as the need for storage, cleanup, and disposal of hazardous waste. Some manufacturers offer maintenance systems that electronically monitor the status of the belts' steel cords, and automatically detect and report belt faults to maintenance personnel.

Compared to hydraulic systems, the gearless MRL reduces car noise by 30 percent and vertical and horizontal vibration by as much as 75 percent. Compared to geared systems, this option reduces in-car noise and vibration by 25 percent. Coated steel belts help to improve ride quality. In terms of the machine, the sealed bearings reduce noise and vibration. Rubber pads are located at the bearing point at each end of the integrated machine and bedplate, and the sound-isolated structure keeps vibration to a minimum.

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Program title: **"Next Generation Machine-Roomless Elevators" (05/12, page 193)**. AIA/CES Credit: This article will earn you one AIA Continuing Education Hour (CEH) of health, safety, welfare/sustainable design (HSW/SD) credit or one GBCI CE hour (Valid for credit through May 2014). **Directions:** Refer to the Learning Objectives for this program. Select one answer for each question in the exam. A minimum score of 80% is required to earn credit. **To take this test, go to ce.architecturalrecord.com**

1. With the latest advances, the elevator has become:
- ❑ **a.** LEED compliant.
- ❑ **b.** a self-contained system.
- ❑ **c.** faster.
- ❑ **d.** maintenance free.

2. Some true gearless MRL elevators with regenerative drives require up to how much less energy than traditional hydraulic and geared counterparts?
- ❑ **a.** 10 percent
- ❑ **b.** 25 percent
- ❑ **c.** 50 percent
- ❑ **d.** 75 percent

3. Manufacturers estimate that in time and material costs on the jobsite, the true MRL holeless hydraulic saves up to:
- ❑ **a.** $5,000.
- ❑ **b.** $7,500.
- ❑ **c.** $10,000.
- ❑ **d.** $20,000.

4. What is the meaning of true MRL?
- ❑ **a.** There is a regenerative drive.
- ❑ **b.** The machine is more compact.
- ❑ **c.** All components fit in the hoistway.
- ❑ **d.** A more compact machine and regenerative drive.

5. Compared with conventional traction systems, gearless machines can be:
- ❑ **a.** 25 percent smaller.
- ❑ **b.** 70 percent smaller.
- ❑ **c.** 30 percent more powerful.
- ❑ **d.** twice as easy to maintain.

6. The coated-steel belt eliminates the lubrication requirement of conventional ropes.
- ❑ **a.** True
- ❑ **b.** False

7. The capacity of an elevator motor to behave as a generator and generate electricity instead of consuming electricity in certain modes refers to:
- ❑ **a.** variable frequency drive.
- ❑ **b.** regenerative drive.
- ❑ **c.** AC drive.
- ❑ **d.** propulsion.

8. Used in conjunction with an auto-shutoff "sleep" mode, LED lighting:
- ❑ **a.** is up to 80 percent more energy efficient than conventional lighting.
- ❑ **b.** is 25 percent more energy efficient than conventional lighting.
- ❑ **c.** LED lighting cannot be used in conjunction with an auto-shutoff mode.
- ❑ **d.** can reduce kilowatt consumption by 100 percent.

9. What portion of an elevator's lifetime environmental burden is used in powering it?
- ❑ **a.** 20 percent
- ❑ **b.** one-fourth
- ❑ **c.** 50 percent
- ❑ **d.** two-thirds

10. According to codes in North America, sleep mode on escalators is:
- ❑ **a.** permitted.
- ❑ **b.** not permitted.
- ❑ **c.** pending.
- ❑ **d.** not yet addressed.

AIA/CES Course Number K1205D
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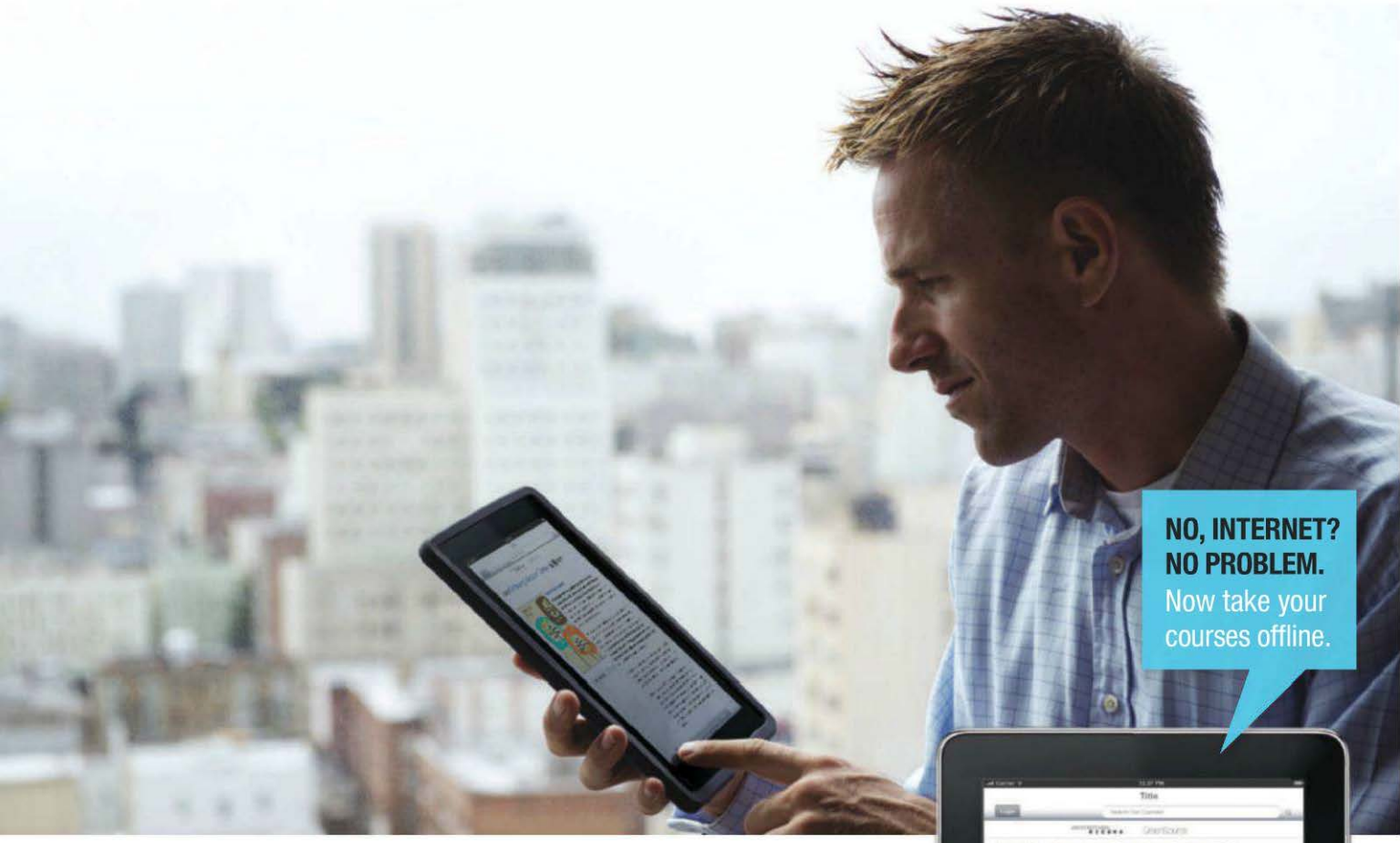

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Whole System Acoustical Treatments

Improving Indoor Environmental Quality in Green Schools

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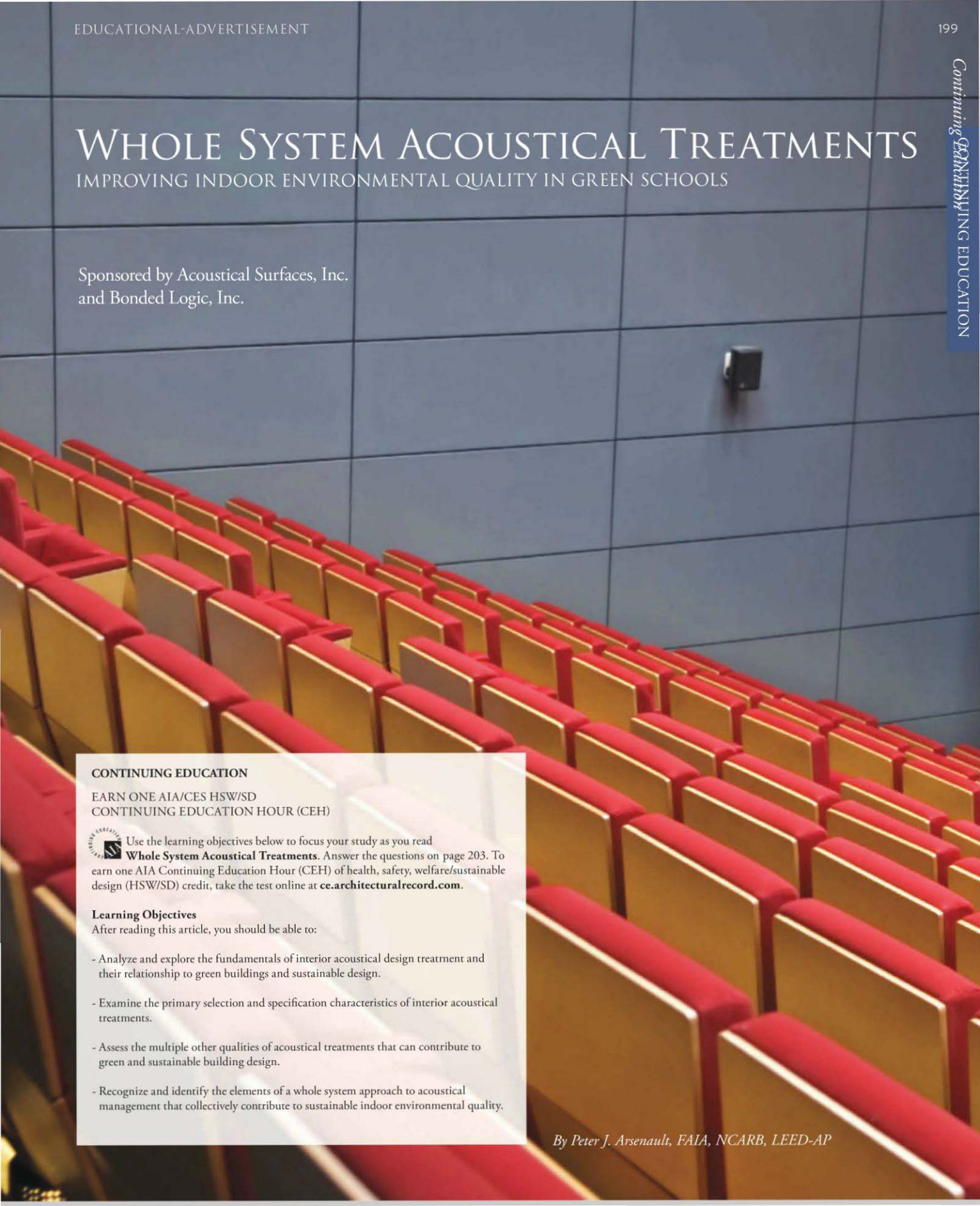

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Use the learning objectives below to focus your study as you read **Whole System Acoustical Treatments**. Answer the questions on page 203. To earn one AIA Continuing Education Hour (CEH) of health, safety, welfare/sustainable design (HSW/SD) credit, take the test online at **ce.architecturalrecord.com**.

Learning Objectives
After reading this article, you should be able to:

- Analyze and explore the fundamentals of interior acoustical design treatment and their relationship to green buildings and sustainable design.

- Examine the primary selection and specification characteristics of interior acoustical treatments.

- Assess the multiple other qualities of acoustical treatments that can contribute to green and sustainable building design.

- Recognize and identify the elements of a whole system approach to acoustical management that collectively contribute to sustainable indoor environmental quality.

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

Interior environments that are well designed strive to address all of the human sensory experiences within them. As such, the design process often pays ample attention to light quality and control as a visual sensory experience. Equally important, however, is the need to address sound quality and control as an auditory sensory experience, particularly in settings where audible speech is a primary activity such as educational buildings. This can have both immediate and long-term impacts on the users of these spaces. In the interest of achieving green or sustainable design, it is also incumbent on the designers to design, specify, and select systems and materials that not only provide effective acoustical performance, but also meet all of the relevant green building criteria.

Indoor environmental quality is enhanced in this interior space through design treatments that allow not only daylight, but also for proper acoustic control by addressing the wall and ceiling/floor assemblies and their surfaces.

ACOUSTICS AND SUSTAINABILITY OVERVIEW

As the green building movement has developed in recent years, an increasingly recognized component that is helping to define a sustainable interior environment is acoustic performance. Just as daylight and views contribute to positive indoor environmental quality (IEQ) characteristics, so too, acoustic performance addresses the control of both wanted and unwanted sound in an indoor space. While acoustic performance has been a common part of many building design types, it has increasingly been the focus of attention in school buildings for a number of good reasons.

The U.S. Green Building Council (USGBC) has been a strong leader for the promotion of highly sustainable school environments through the LEED® for Schools Program. Within that specialized version of the LEED® rating system, acoustic performance is a specific criterion in two cases. First, there is a mandated prerequisite for minimum acoustic performance. The stated intent of this prerequisite is "To provide classrooms that are quiet so that teachers can speak to the class without straining their voices and students can effectively communicate with each other and the teacher." While it would seem to many that this is a basic and commonly achieved criterion, the built condition in many school buildings indicates otherwise.

Some recently published work (February 2012) by Lindsay Baker at the University of California, Berkeley working with the Center for Green Schools at USGBC, and Harvey Bernstein, vice president, Industry Insights & Alliances at McGraw-Hill Construction, highlights some of the relevant issues. They have written a white paper titled "The Impact of School Buildings on Student Health and Performance: A Call for Research." In it they point out that ample evidence exists that poorly designed classroom acoustics can actually have a negative impact on students' ability to hear and thus to learn. Among the things they cite:

Just as daylight and views contribute to positive indoor environmental quality (IEQ) characteristics, so too, acoustic performance addresses the control of both wanted and unwanted sound in an indoor space.

"Research in classroom acoustics is a robust field in which a clear connection has been made between proper acoustic design in schools and acoustic performance. This performance in turn has a direct effect on speech intelligibility and therefore on student learning outcomes (Acoustical Society of America (ASA), 2009). One of the easiest ways to understand this connection is to imagine, as some researchers have simulated, what happens when students are unable to hear even 10% of a teacher's spoken words because of interferences in the acoustical environment. Many well-controlled studies corroborate the importance of low background noise level and speech intelligibility in maintaining appropriate acoustic conditions for student learning (Berg et al., 1996; Crandell & Smaldino, 1995; Knecht et al., 2002). Studies have also measured how unexpectedly poor many existing classrooms perform acoustically, demonstrating the extent of the problem (Feth & Whitelaw, 1999, Sato & Bradley, 2008)."

While this paper effectively states the issue of the prevalence of poor acoustical performance in schools, it is also being used as the basis to make the case for the need for more research in this area. Research such as this has been used to help develop ANSI Standard S12.60-2002, "Acoustical Performance Criteria, Design Requirements and Guidelines for Schools." This national standard is used as a basis for determining currently acceptable levels of acoustic performance in schools and as a basis for demonstrating compliance with the LEED® acoustic performance requirements.

Beyond the LEED for Schools basic prerequisite requirement, there is also an additional IEQ credit for "Enhanced Acoustic Performance." The stated intent of this credit is "To provide classrooms that facilitate better teacher-to-student and student-to-student communications through effective acoustical

design." In other words, it acknowledges the design efforts of improving acoustical design beyond the minimum prerequisite level to achieve better environments for speech communication and education. The basis for showing performance to earn this credit is also ANSI S12.60-2002. In order to achieve the this enhanced level of performance, a deeper understanding of acoustic principles and application strategies is required.

INTERIOR ACOUSTICS FUNDAMENTALS

There are four fundamental aspects used to address acoustical design that are the basis of most of the work and standards discussed above. Taken together, these form the essence of what is referred to as "whole system" acoustical design.

Background Noise

Noise in building spaces can come from a variety of sources such as building mechanical and electrical systems, outdoor activity such as transportation vehicles, or from people in adjacent indoor spaces. A certain amount of this noise in the background is certainly commonplace, but excessive background noise can seriously degrade the ability to communicate, thus making it more difficult for students to hear and for teachers to speak without raising their voices. It is generally accepted that most people would need to speak at least 15 decibels (dBA) louder than the background noise level in order to be heard at all. Therefore, ANSI Standard S12.60-2002 establishes some very stringent thresholds for background noise. Specifically, for core learning spaces of 20,000 cubic feet or less, the one-hour steady-state background noise levels should not exceed 35 dBA, while those over 20,000 cubic feet should not exceed 40 dBA. This is the same "faint" level of sound that one would experience in a quiet office. There is a caveat however that if the noisiest one-hour period during which learning activities take place is dominated by transportation noise, these maximum noise limits can each be increased by 5 dBA. The LEED prerequisite requirements follow these same ANSI thresholds for size and dBA levels of background noise, although it is only stated to address HVAC equipment noise.

Sound Transmission Class

With the acceptable background noise levels thus established, the building designers need to focus on achieving them by restricting unwanted sound from entering the spaces. This means creating wall, floor, and roof components or assemblies that first effectively block the amount of airborne sound transmitted through them. The measurement for this effectiveness is determined by a Sound Transmission Class (STC) rating. A higher STC rating means that more airborne sound is blocked by the component or assembly. Lower STC ratings mean that more sound passes through the components or assemblies adding to the background noise level in the space, degrading the ability to hear and understand speech.

It should be noted that, contrary to the popular notion that sound passes through a structure, such is not the case. Sound generated on one side of a wall will energize the wall structure and set it in motion, much like a diaphragm. The wall itself becomes the transmitter of the sound energy which can be heard on the opposite side of the wall by the listener. Hence, the ASTM test methods used to determine STC ratings have focused on this direct transmission process, although this testing has changed over the years meaning that STC results posted before 1999 may not produce the same results today. Currently, the STC number is derived from sound attenuation values tested at 16 standard frequencies from 125 Hz to 4000 Hz. These transmission-loss values are then plotted on a sound pressure level graph and the resulting curve is compared to a standard reference contour. Acoustical engineers fit these values to the appropriate Transmission Loss curve (TL) to determine a final STC rating. The measurement is accurate for speech sounds but less so for amplified music, mechanical equipment noise, transportation noise or any sound with substantial low-frequency energy below 125 Hz. As a supplement to STC ratings, Outdoor-Indoor Transmission Class (OITC) is a standard used for indicating the rate of transmission of sound between outdoor and indoor spaces in a structure that considers frequencies down to 80 Hz (Aircraft /Rail / Truck traffic) and is weighted more to lower frequencies. At least one significant research study considered students at a school in the regular flight path of an airport. After taking into account variables such as socioeconomic status, students in that school performed as much as 20% lower on a reading test than students in another nearby school (G. W. Evans & Maxwell, 1997).

In educational settings under ANSI Standard S12.60-2002, single or composite walls, floor/ceiling and roof/ceiling assemblies should provide specific sound transmission class (STC) ratings whenever separating a core learning space (e.g. a classroom) from other specific adjacent spaces as follows:

- STC-45 if the adjacent space is a corridor, staircase, office or conference room.
- STC-50 if the adjacent space is another core learning space, speech clinic, health care room or outdoors.

Ambient or Background Noise Level

Is the totality of all sounds within the room when the room is unoccupied.

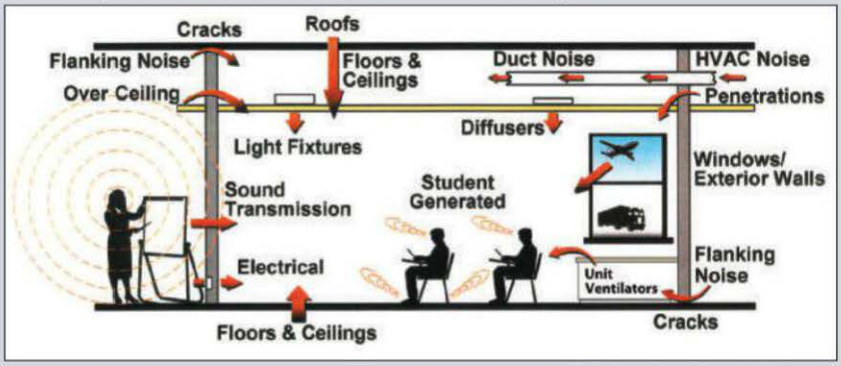
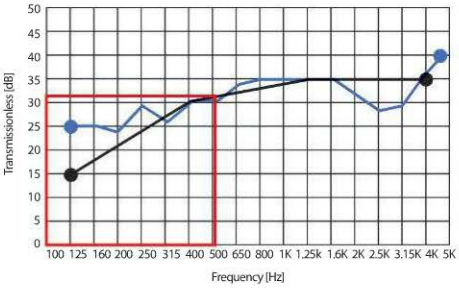


Illustration courtesy of Acoustical Surfaces, Inc.

In an unoccupied space, sounds can be heard from a variety of sources. Careful scrutiny of the room can lead to identifying the intrusive sources. The diagram illustrates a few of the most common sources of noise.



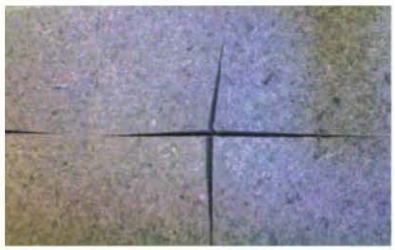


Chart and photo courtesy of Acoustical Surfaces, Inc.

The Sound Transmission Class is a rating of the effectiveness of a material or construction assembly to retard the transmission of airborne sound. The sound transmission loss between the source and receiving rooms are plotted on a graph by frequency and sound level in decibels. Once the appropriate contour has been selected the STC is determined by the decibel value of the vertical scale at 500 Hz. The STC is expressed as a single STC number (e.g. STC 32).

- STC-53 if the adjacent space is a restroom.
- STC-60 if the adjacent space is a music room, mechanical equipment room, cafeteria, gymnasium or indoor swimming pool.
- Classroom doors should be rated as STC-30 or more, and music room doors as STC-40 or more. Commonly, entry doors located across a corridor are staggered to minimize noise transmission from one room to another across the hallway.

It should be noted that open-plan classroom designs will not meet the requirements of this standard since there is nothing to impede the sound transmission from one space to another. In addition, STC ratings ranging from 45 to 60 are also outlined in the ANSI Standard for assemblies separating non-classroom spaces from adjacent spaces.

Impact Insulation Class

Beyond airborne sound, multi-story building designs need to address the resistance of structure borne sound, usually created by people walking or creating other impacts onto the floor/ceiling above the classroom space. Similar to STC ratings which address airborne sound, floor/ceiling assemblies can be tested or calculated based on Impact Insulation Class (IIC) ratings. These IIC ratings reveal the ability of a floor-ceiling assembly to absorb or deflect impact/structure borne noise and keep it from being transmitted to the space below. A floor/ceiling assembly with a low IIC rating will allow distracting noise to be transmitted into the room below leading to the associated problems of distraction and hampered communication. As such, Standard S12.60-2002 identifies specific ratings and recommendations for classroom learning spaces including the following:

- IIC ratings for floor-ceiling assemblies above core learning spaces should be at least IIC-45 and preferably IIC-50 as measured on floors without carpeting.
- In new construction, a gymnasium, dance studio, or other spaces with high floor impact activities shall not be located above core learning spaces.
- In existing facilities IIC-65-70 (depending on the volume of the space below) is recommended if gymnasia, dance studios or other spaces with high floor impact activities are located above core learning spaces.

Reverberation Time

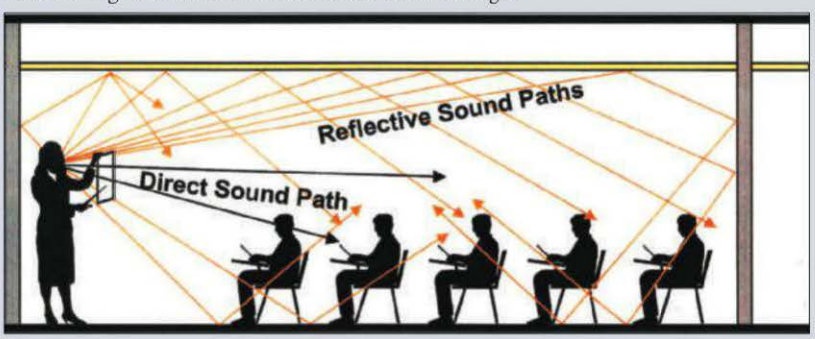
Once the issue of background noise level is addressed by limiting the airborne and structure borne transmission of sound in a space, then a second significant item needs attention. Both LEED for Schools and ANSI Standard S12.60-2002 require that the Reverberation Time (RT) of sound within spaces is also controlled. Sound reflections are created when noise reverberates and echoes around architectural spaces. RT is the acoustical concept which measures how long, in seconds, it takes for these noises to become inaudible. This is quite a significant item since the selection of materials in the space are the direct cause of the reverberation and echoes, typically because their surfaces are hard and sound reflective rather than softer and absorptive. These echoes can impair what acoustical specialists call "speech intelligibility" since the echoes create garbled sounding words and impair verbal communication. Measuring Reverberation Time is important to determine the sound quality of speech and music in acoustical spaces. Instructional spaces, such as classrooms, are best with short RTs – less than 1 second to ensure clarity and high speech intelligibility. Speech generated in a space with a reverberation time of longer than 0.6 seconds is considered difficult to understand. Although some reverberation within a space can aid in speech distribution, longer reverberation times will cause a build-up of

REVERBERATION

Illustration courtesy of Acoustical Surfaces, Inc.

The time it takes for reflected sound to die down by 60 decibels from the cessation of the original sound signal (measured in seconds).

- Reflected sound tends to "build up" to a level louder than direct sound. Reflected sounds MASK direct sound.
- Late arriving reflections tend to SMEAR the direct sound signal.



In occupied space, the Reverberation Time affects the ability of people to understand spoken words (speech intelligibility) or hear other sounds clearly.

noise and thus degrade speech intelligibility. Auditoriums, theaters, and other musical spaces will typically benefit from longer RTs, typically greater than 1.5 seconds.

RT is determined by looking at both the volume and absorption rate in an acoustical space. The volume of a space is proportional to the RT of that space; the greater the volume, the longer the RT. Inversely, the amount of sound-absorbing material in any space will have a negative effect on the RT. As an example, a large space with tiled floors and a drywall ceiling will have a long RT. Conversely, a small room with a low suspended ceiling and high-pile carpet will have a much shorter RT.

It is possible to calculate the reverberation time of sound within a space based on the interior surface qualities of a room. Using the process identified in ANSI S12.60-2002 to conduct these calculations, the resulting educational spaces must meet the following levels in order to comply:

- The maximum reverberation time for core learning spaces with internal volumes of greater than 10,000 cubic feet should not exceed 0.6 seconds.
- For core learning spaces with internal volumes of more than 10,000 but less than 20,000 cubic feet, the maximum reverberation time is 0.7 seconds.
- Reverberation time for spaces with more than 20,000 cubic feet of internal volume is not specified, however, guidelines are given in Annex C of the standard.

If an existing space or room is being investigated, then it can be tested with acoustical equipment specifically intended for measuring RT. For a new space, calculations must be relied on to determine what the RT will be in the proposed new or renovated space.

A recent study looked at classroom reverberation and children's performance and well-being in a set of classrooms in Denmark (Klatte et al, 2011). In classrooms with different RTs, they compared the children's short-term memory, speech perception abilities and attitudes about their classrooms and teachers. They compared classrooms with RTs from 0.49 to 1.1 seconds (the ANSI standard calls for a maximum of 0.6 as stated above) and found a significant negative impact on short-term memory and speech perception as reverberation time increased.

Continues at ce.architecturalrecord.com

Peter J. Arsenault, FAIA, NCARB, LEED-AP, *practices, consults, and writes about sustainable design and practice solutions nationwide.*

To receive AIA/CES credit, you are required to read the entire article and pass the test. Go to **ce.architecturalrecord.com** for complete text and to take the test. The quiz questions below include information from this online reading.

Program title: **"Whole System Acoustical Treatments" (05/12, page 199)**. AIA/CES Credit: This article will earn you one AIA/Continuing Education Hour (CEH) of health, safety, welfare/sustainable design (HSW/SD) credit. (Valid for credit through May 2013). **Directions:** Refer to the Learning Objectives for this program. Select one answer for each question in the exam and fill in the box by the appropriate letter. A minimum score of 80% is required to earn credit. **To take this test, go to ce.architecturalrecord.com**

1. The USGBC LEED® for Schools rating system includes:
- ❑ **a.** a prerequisite for Minimum Acoustic Performance.
- ❑ **b.** an IEQ credit for Enhanced Acoustic Performance.
- ❑ **c.** both a. and b. above.
- ❑ **d.** None of the above

2. According to ANSI Standard S12.60-2002, background noise levels for core learning spaces of 20,000 cubic feet or less should not exceed:
- ❑ **a.** 40 dBA
- ❑ **b.** 35 dBA
- ❑ **c.** 15 dBA
- ❑ **d.** 5 dBA

3. Currently, the STC number is derived from sound attenuation values tested at:
- ❑ **a.** sixteen standard frequencies from 125 Hz to 4000 Hz.
- ❑ **b.** one average frequency resembling speech.
- ❑ **c.** multiple frequencies across the entire range of sound.
- ❑ **d.** outdoor sounds down to 80 Hz.

4. IIC ratings reveal the ability of a floor-ceiling assembly to:
- ❑ **a.** stop airborne sound from passing through the assembly.
- ❑ **b.** absorb or deflect impact/structure borne noise and keep it from being transmitted to the space below.
- ❑ **c.** absorb outdoor noise from entering in at the roof level.
- ❑ **d.** reduce the amount of time it takes for sound to pass through the assembly.

5. Reverberation time (RT) is the acoustical concept which measures how long, in seconds, it takes for:
- ❑ **a.** noises to become inaudible.
- ❑ **b.** sound to be absorbed into the space.
- ❑ **c.** noises to create an echo.
- ❑ **d.** sound to be repeated.

6. Echoes in a space can impair what acoustical specialists call "speech intelligibility" since the echoes create garbled sounding words and impair verbal communication.
- ❑ **a.** True
- ❑ **b.** False

7. The commonly used scale to record different levels of sound absorption which ranges from zero to one is:
- ❑ **a.** Outdoor-Indoor Transmission Class (OITC).
- ❑ **b.** Sound Transmission Class (STC).
- ❑ **c.** Noise Reduction Coefficient (NRC).
- ❑ **d.** Impact Insulation Class (IIC).

8. When comparing acoustic material cost, it is important to compare not only the acoustic performance but also the thickness needed to achieve comparable performance between materials including the surface treatment if any.
- ❑ **a.** True
- ❑ **b.** False

9. Acoustic materials can be specified or selected that contain the following green building attributes:
- ❑ **a.** Recycled content
- ❑ **b.** Rapidly renewable materials
- ❑ **c.** Reduce construction waste
- ❑ **d.** All of the above

10. As with all requirements in the ANSI Standard S12.60-2002, it is the architect or designer's responsibility to take the necessary steps in specification and design to assure the acoustic performance of the building.
- ❑ **a.** True
- ❑ **b.** False

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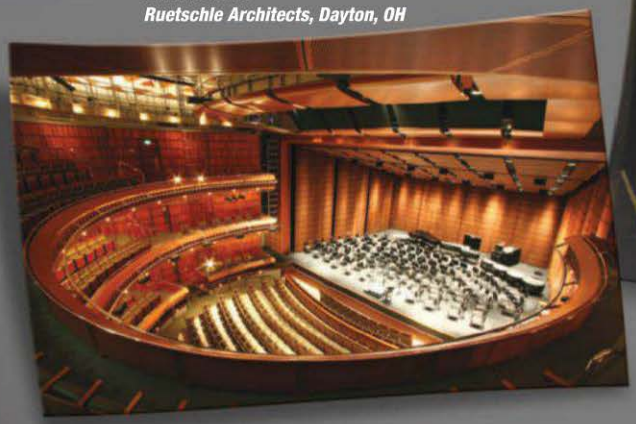

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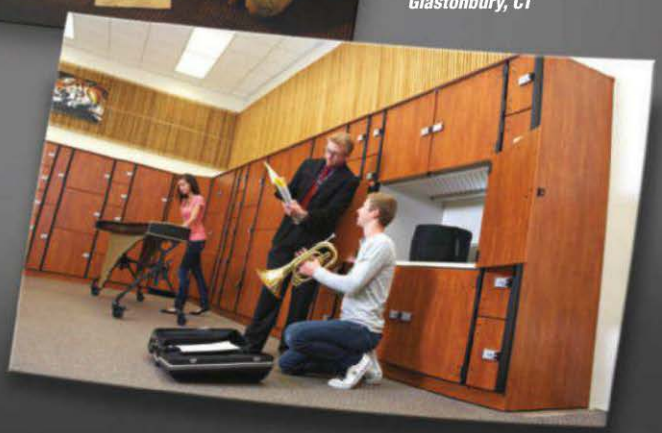

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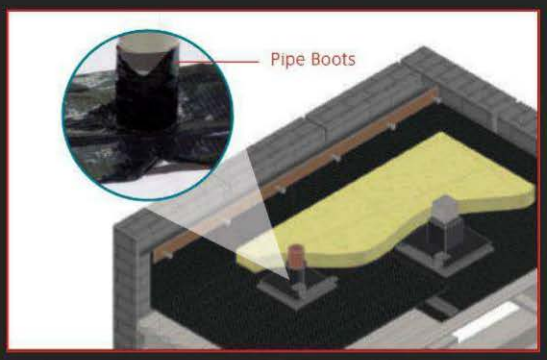

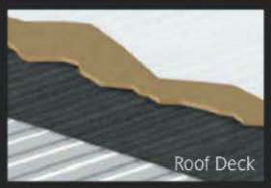

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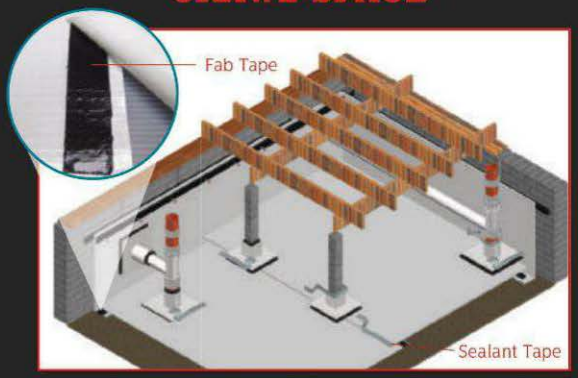

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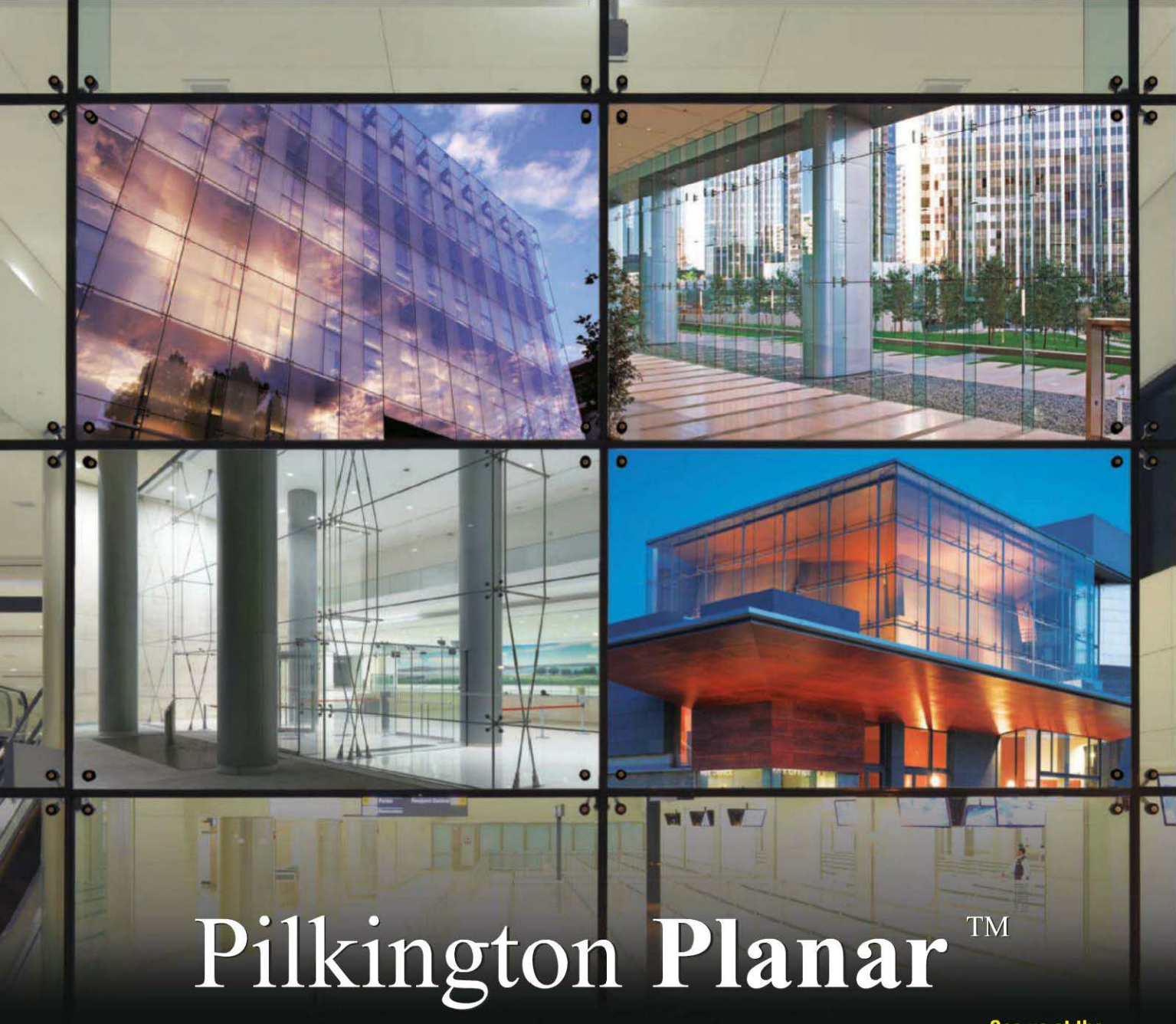

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New and Upcoming Exhibitions

RUMBLE
Los Angeles
June 11–16, 2012
UCLA Architecture and Urban Design's end-of-the-year all-school exposition engages students, faculty, and the international design community in a discourse on the forefront of contemporary design and innovation. With 10,000 square feet of studio and program installations, 200 projects on view, and 90 leading critics and practitioners, RUMBLE redefines the provocative opportunities confronting the next generation of architects. Visit ucla.edu.

Ongoing Exhibitions

Print/3D
New York City
Through May 11, 2012
This exhibition features the latest 3-D-printed objects and designs from an array of artists, designers, and manufacturers. A wide range of 3-D-printed pieces from the fields of furniture, jewelry, and product design, as well as fashion and medicine, are on display at Material ConneXion. For more information, visit materialconnexion.com.

The Architecture of Stanley Tigerman
Chicago
Through May 19, 2012
Both a retrospective and a reexamination of the architectural concepts of Stanley Tigerman, this exhibition at the Graham Foundation features texts, sketches, cartoons, object designs, architectural drawings, and models organized in relation to nine themes. Visit grahamfoundation.org.

Clear Light: The Architecture of Lauretta Vinciarelli
New York City
Through May 25, 2012
Before her death in August 2011, Lauretta Vinciarelli, the noted Italian-born artist and architect, devoted much time to planning an exhibition of her architectural drawings at the City College of New York. More than 60 of her watercolor paintings, described by critics as "exquisite and presenting new spaces of the almost familiar," will be on display at Bernard and Anne Spitzer School of Architecture's Atrium Gallery. For more information, visit ccny.cuny.edu/ssa/index.html.

Colombia: Transformed
Chicago
Through May 27, 2012
Ten recently completed projects by Colombia's top architects demonstrate the country's commitment to design, and show how architecture can improve the lives of ordinary people. These works—schools, community centers, and more—reflect the significant social shifts happening in Latin America today. The projects (by Daniel Bonilla, Giancarlo Mazzanti, Felipe Mesa, Juan Manuel Pelaez, and Felipe Uribe) will be explored through photographs, drawings, films, and models at the Cervantes Institute. Visit chicago.cervantes.es.

Unbuilt Washington
Washington, D.C.
Through May 28, 2012
Unbuilt Washington reveals the Washington that could have been—or rather, the myriad versions of Washington that could have been—by presenting architectural and urban design projects that were proposed but, for varied reasons, never executed. Explore the many proposals that would have dramatically altered the architectural character of the capital. At the National Building Museum. Visit nbm.org.

Cartasonic
Seattle
Through June 8, 2012
This exhibition at the Jack Straw New Media Gallery combines field recording, projection, and montage to convey the layered architectural history of Civita di Bagnoregio, a remote Italian hill town. This work maps the evolution of the town and its steadfast presence in a shifting landscape. In 2010, Seattle-based artist Perri Lynch and photographer Lara Swimmer and her husband, architect Robert Zimmer, were awarded fellowships by the Northwest Institute for Architecture and Urban Studies in Italy. Lynch's fellowship was devoted to field recording, while Swimmer and Zimmer documented the built environment and periphery landscapes. Visit jackstraw.org.

Snarkitecture: Funiture
Chicago
Through June 13, 2012
Snarkitecture's first solo exhibition at the Volume Gallery consists of new works and site-specific installations, which combine to create a landscape of childlike wonderment. Funiture reconsiders our reality, often centering on creating confusion—whether with familiar objects in unexpected contexts, or the dissolution of recognizable volumes into irrational forms. Visit wvvolumes.com.

CHANGE: Architecture and Engineering in the Middle East, 2000–Present
New York City
Through June 23, 2012
Architectural production in the Middle East ranges from the preservation of heritage, social housing, governmental buildings, and tourist resorts to mega-theme parks, supertall towers, knowledge cities, sustainable cities, and artificial islands. This exhibition at the Center for Architecture shows how architects and engineers have participated in the rapid transformation of the region, translating the rich geographical, cultural, and economic resources of the Middle East into contemporary form. Visit aiany.org.

News PAPER Spires
New York City
Through July 15, 2012
This exhibition at the Skyscraper Museum chronicles the high-rise headquarters of New York's great metropolitan dailies from the 1870s through the 1930s in historical prints, films, architectural renderings, photographs, typesetting equipment, and, of course, newspapers, attempting to create a collage of this lost or fading world. Visit skyscraper.org.

Inventing the Modern World
Kansas City, Missouri
Through August 19, 2012
This exhibition traces the technological, design, and artistic innovations catalyzed by World's Fairs. It features furniture, ceramics, jewelry, textiles, glass, and a papier-mâché piano. In keeping with World's Fairs as incubators for technological and stylistic advancements, the Nelson-Atkins Museum of Art launched a design contest for a temporary pavilion which will be constructed on the museum grounds during the exhibition. For more information, visit nelson-atkins.org.

The Homestead Project – A Residence Reimagined
Rockland, Maine
Through September 23, 2012
This exhibition at the Farnsworth Art Museum features the designs of 10 architectural firms, including Henry N. Cobb of Pei Cobb Freed & Partners Architects, New York, who have been charged with creating a home for a growing family in 2012. This home has been loosely modeled on the Farnsworth Homestead of 1849, designed for a successful businessman, his wife, and three young children. For more information, visit farnsworthmuseum.org.

dates&events

Lectures, Conferences, and Symposia

What Would Jane Jacobs Do?
Washington, D.C.
May 9, 2012
Jane Jacobs's ideas on livable, walkable, and diverse neighborhoods continue to impact how urban environments are designed. This lecture at the National Building Museum focuses on her legacy, including urban renewal, historic preservation, mixed-use zoning, and public space. Visit nbm.org.

LEGENDS
Los Angeles
May 9–12, 2012
Now in its fourth consecutive year, LEGENDS is a three-day event that has attracted over 10,000 designers and enthusiasts since its inception. This year, it will celebrate the impact that travel can have on design. In support of the theme, the conference will extend the reach of its program beyond Los Angeles by inviting interior designers from across the country and around the globe to participate. At the La Cienega Design Quarter. Visit lcdqla.com.

Alternative Building Materials & Design Expo
Santa Monica, California
May 11–12, 2012
Presented at the Santa Monica Civic Auditorium, AltBuild offers professional development programming for industry professionals such as architects, builders, contractors, engineers, landscapers, and exhibitors, as well as a large consumer audience. Visit altbuildexpo.com.

Clerkenwell Design Week 2012
London
May 22–24, 2012
This three-day festival brings a program of product launches, parties, auctions, debates, pop-ups, exhibitions, open studios, and workshops. The Farmiloe Building (a former lead- and glass-merchants warehouse) and the House of Detention (a subterranean Victorian prison) will be showcasing the latest product and furniture innovations from both home-grown and international manufacturers, as well as a wealth of design and architecture talent. Visit clerkenwelldesignweek.com.

A View from the Future
New York City
June 5, 2012
This lecture at the CUNY Graduate Center will illuminate the enormous transformation occurring in the spa and wellness industry over

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the last five years. Internationally acclaimed futurist Edie Weiner will be joined by a panel of top experts to discuss emerging new opportunities in the architecture/engineering/construction (AEC) industry. Visit bwaf.org.

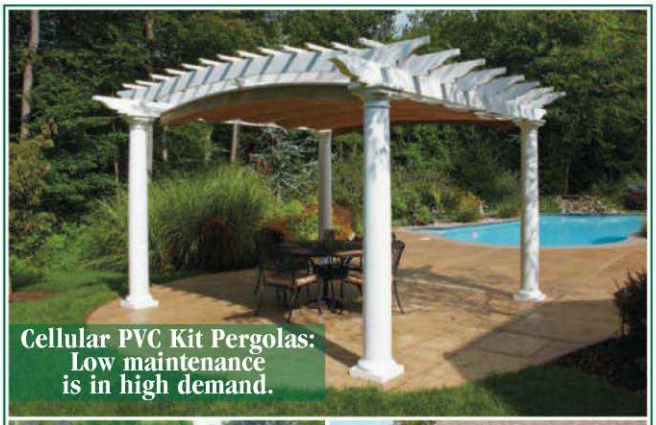
Competitions

Time to Design
Submission Deadline: June 13, 2012
What do you need in the beginning of your career as a designer? Professional facilities? Well-equipped workshops? Qualified guidance? What about possibility to show the public and potential manufacturers the design objects you have created? This competition offers winners all of this in order to pursue their architectural goals. For more information, visit timetodesign.eu.

2012 World Monuments Fund/Knoll Modernism Prize
Nomination Deadline: July 31, 2012
This prize will be awarded in fall 2012 to a design professional or firm in recognition of innovative design solutions that preserved or saved a Modern landmark at risk. The prize was established to raise public awareness of the contribution Modernism makes to contemporary life, the important place Modernism holds in the architectural record, and the influential role that architects and designers play in preserving Modern heritage. Projects must have been completed in the last five years. Visit wmf.org/modernism.

Fentress Global Challenge 2012: Workplace of the Future
Registration Deadline: August 6, 2012
Employee productivity, environmental quality, information technology, and energy costs were of little concern when many of today's buildings were designed. Now they are of vital importance. This ideas competition invites students to share innovative ideas about the future of workplace architecture. The winning student will be awarded a prize valued at $10,000, including $3,000 cash and a paid internship at Fentress Architects. Second and third place winners will receive cash prizes of $1,000 and $500 respectively. Winning designs will be displayed at the Architecture and Design Museum in Los Angeles. Visit fentressarchitects.com/edge/global-challenge/.

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



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Performance Data:
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- Narrower frame profiles and taller free-spans

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ADJUSTABLE LED DOWNLIGHT

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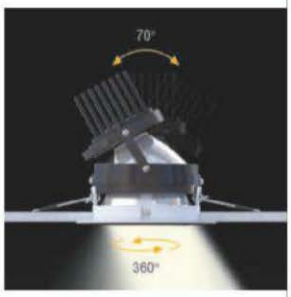
MP Lighting



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- Insulated ceilings
- Non-insulated ceilings

Performance Data:
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www.InfinityDrain.com
516.767.6786 | **Contact:** Info@InfinityDrain.com **ICFF Booth #1339** **Circle 182**

All products in this section are accessible on sweets.com. **$$$**= Premium cost | **$$**= Mid-range cost | **$**= Value-oriented cost
WR = Wide range of price points | **NC**= No charge | **G** = Product marketed as green | **NEW** = Released in the past 12 months

PRODUCT SPOTLIGHTS

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WR | G

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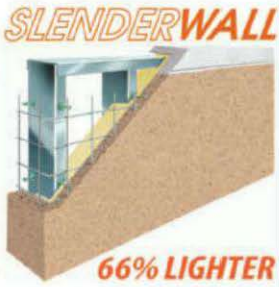

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www.stucoflex.com
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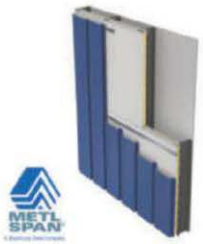

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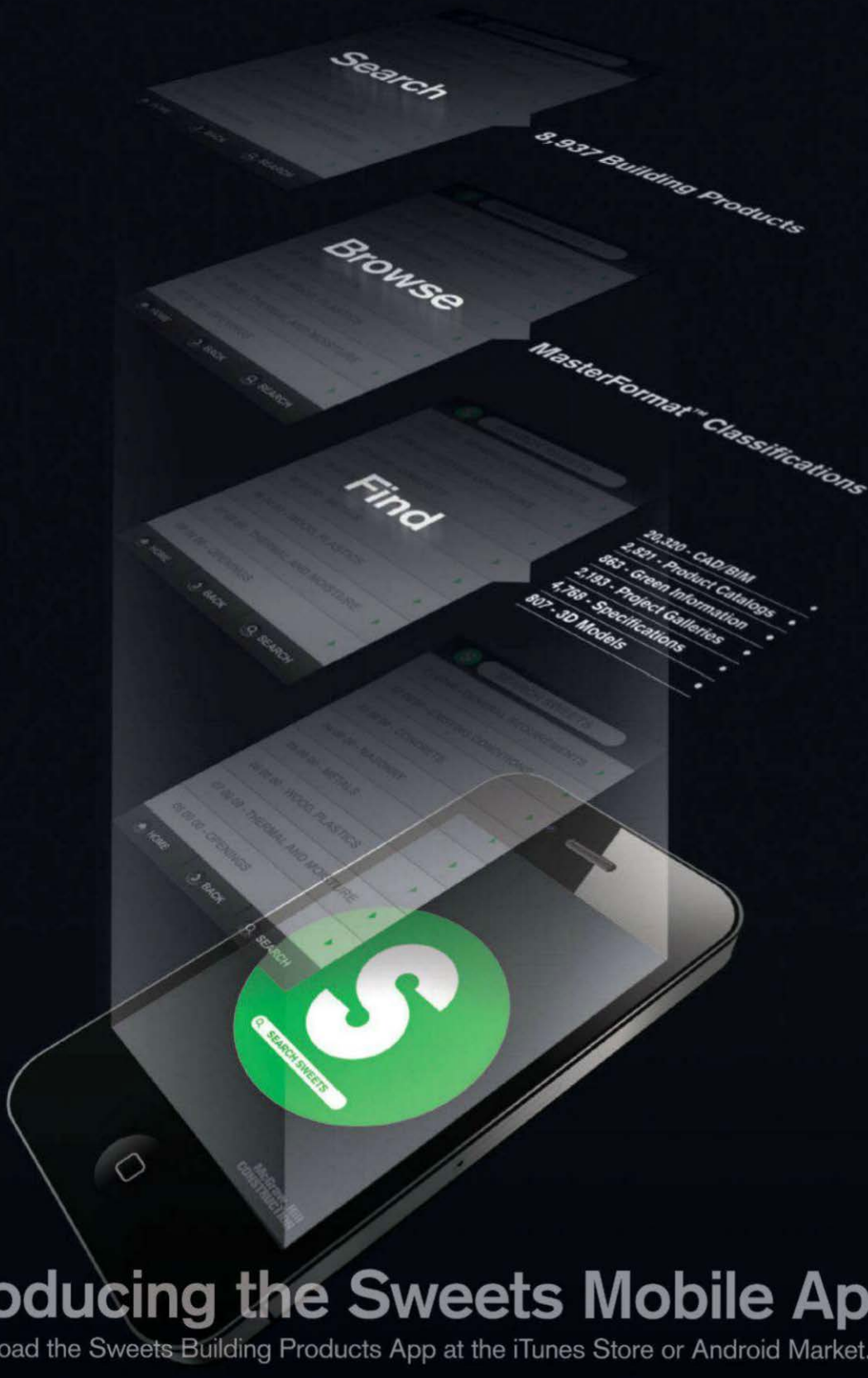

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snapshot

PROJECT FOREST CHAPEL
LOCATION TAKASAKI, JAPAN
DESIGNERS HIRONAKA OGAWA & ASSOCIATES

WEDDING VENUES (and wedding days), so often precious or bombastic, can seldom, if ever, be described as "serene." But the Forest Chapel, designed by architect Hironaka Ogawa for a company that runs wedding facilities across Japan, is a delicate pavilion in the inland city of Takasaki, 70 miles northeast of Tokyo. From the outside, the 24-foot-high chapel is an enigmatic stucco-covered concrete box that appears to float over its mirrored-glass base. Little about the building's exterior reveals its function.

But inside, maple wood pews and treelike, steel structural supports (that give the chapel its name) lend an industrial quality to the airy, ceremonial space. Each column is made of eight L-shaped steel strips gathered in a kind of bouquet, Ogawa explains. He convinced the client that exposing bolts and other structural elements was not only a good aesthetic choice, but also a sound symbolic one: "In nature, trees have knots," says Ogawa. With any luck, the knots couples tie here will be as strong as the space in which they are joined. *Asad Syrkett*

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