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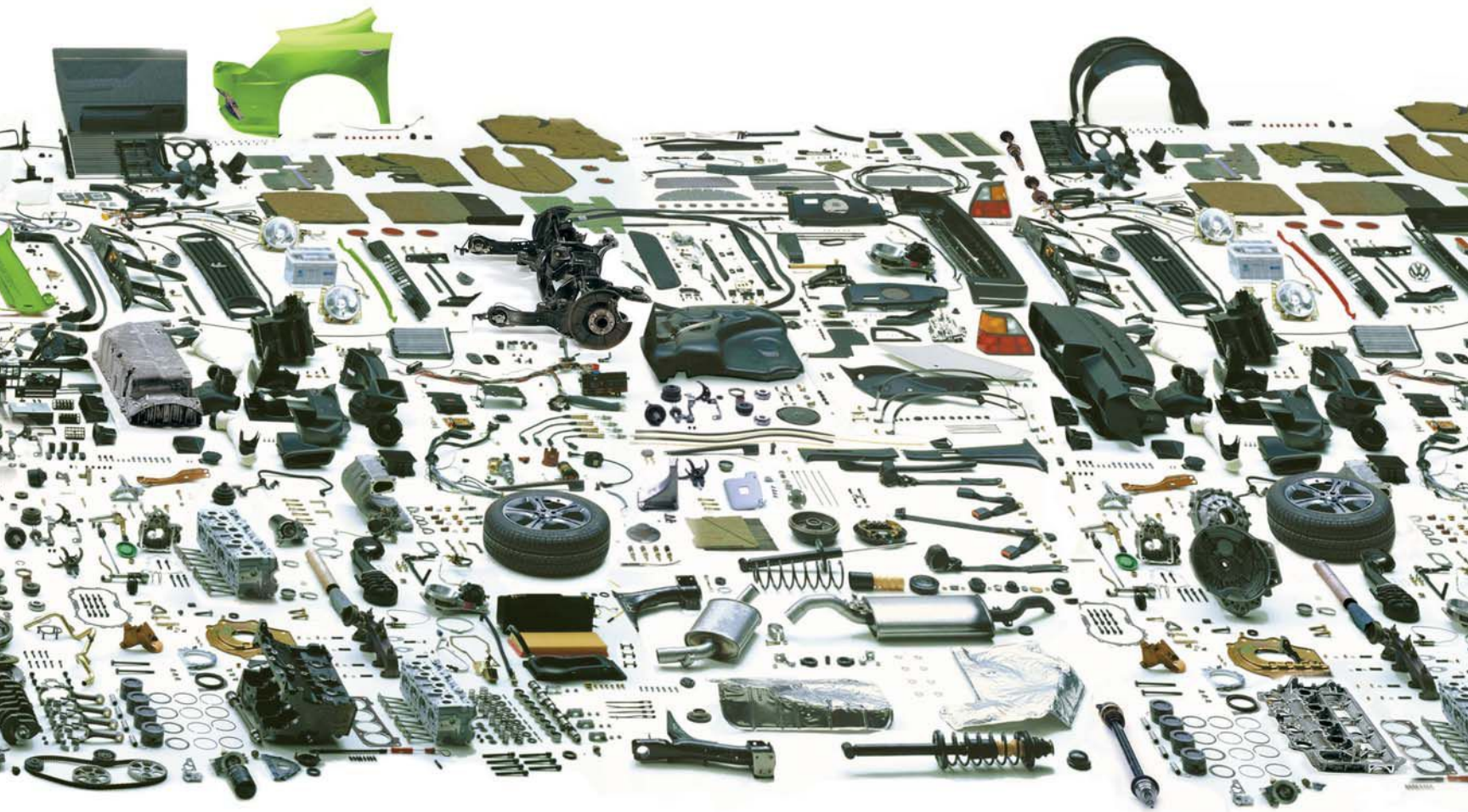

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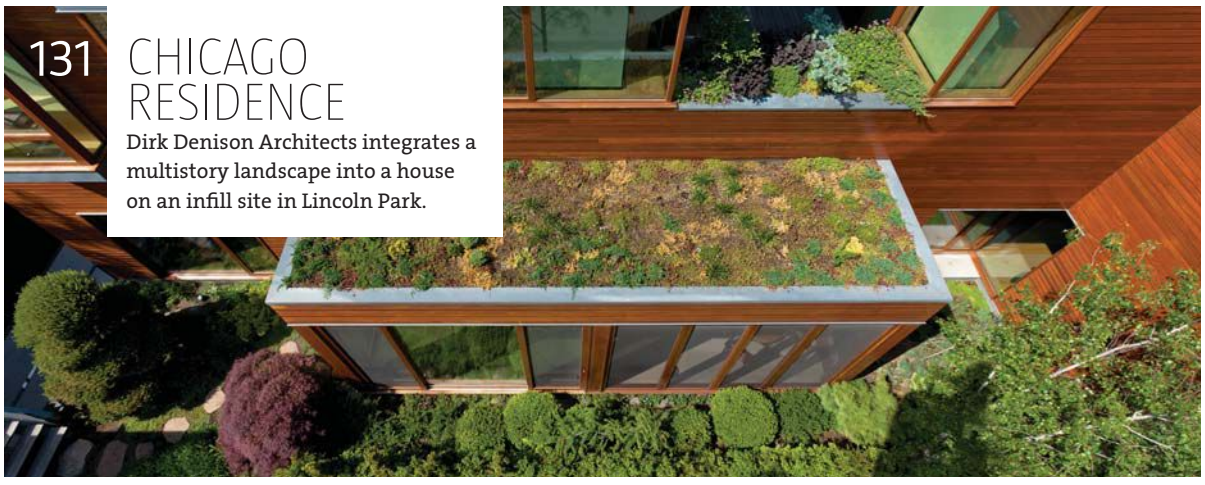

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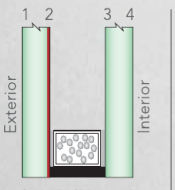

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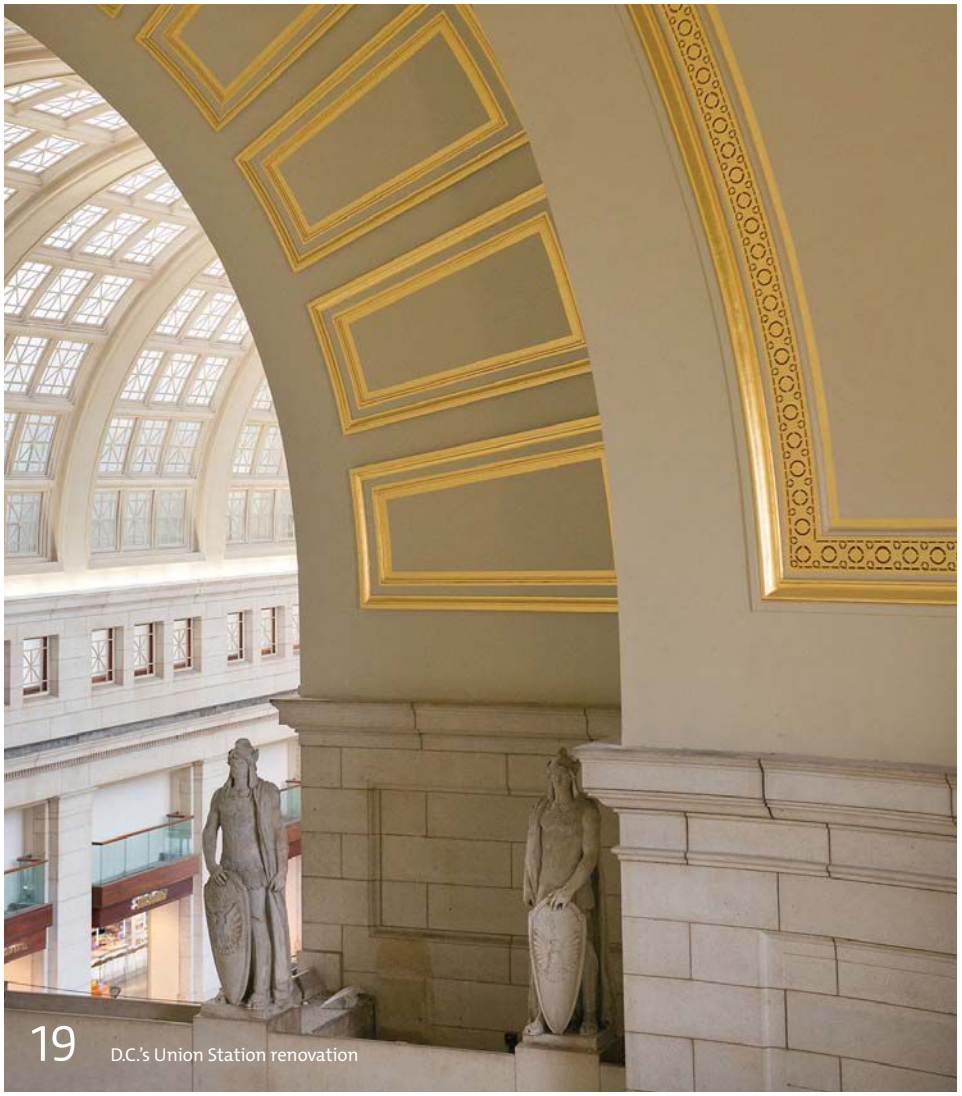

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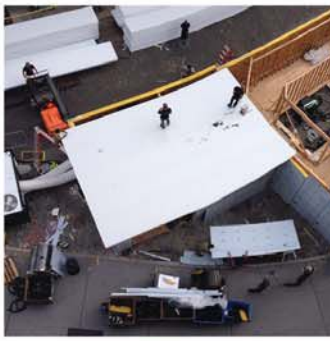



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IS IT A COINCIDENCE THAT THIS YEAR THE JURY LANDED ON A LAUREATE WHO IS NOT ONLY A GREAT DESIGNER, BUT ALSO A GREAT HUMANITARIAN?

THE SHIGERU BAN WIN IS A BIG DEAL

NAMING THE SOCIALLY MINDED JAPANESE ARCHITECT AS THE 2014 PRITZKER LAUREATE DOESN'T QUITE LET THE JURY OFF THE HOOK FOR SNUBBING DENISE SCOTT BROWN LAST YEAR—BUT IT'S A START.

WAS NAMING SHIGERU BAN, Hon. FAIA, as the recipient of the 2014 Pritzker Architecture Prize an implicit apology? Last year, the jury refused a popular change.org petition to retroactively recognize Denise Scott Brown alongside her partner and husband Robert Venturi, FAIA, who won in 1991. In picking Ban, were Lord Palumbo & Co. quietly making nice, as it were? A cynical person would describe the selection as a calculated ploy, a grasp at political cover—kind of the same deal as the Museum of Modern Art hiring Diller Scofidio + Renfro, after deciding to demolish Tod Williams and Billie Tsien's American Folk Art Museum.

To be clear, Ban absolutely deserves the prize, just as Diller Scofidio + Renfro deserves the MoMA commission. It's the great talent of these architects, and their justifiable popularity, that makes the respective Pritzker and MoMA decisions to choose them so very clever. In MoMA's case, it's easy to believe that the hiring of Diller Scofidio + Renfro was a deliberate move by the museum board and director Glenn Lowry to appease vocal and outraged members of the design community.

But what about the Pritzker? Is it a coincidence that this year, of all years, the jury landed on a laureate who is not only a great designer, but also a great humanitarian? A laureate who simply by association will make the jury, and the prize as a brand, look a little less … corporate? Maybe even a little more … caring?

If this year's Pritzker recipient had been a woman, the gesture might have come across as pandering—a criticism I've heard repeatedly about the AIA Gold Medalist for 2014, the late Julia Morgan. "What! There aren't any *living* women architects who deserve the Gold Medal?" was the reaction of one (female) friend.

While there's no getting past the facts that a) Ban has a Y chromosome and b) Morgan is dead, it is still a good thing that two of architecture's major institutions have chosen in the same year to recognize excellent work for, and by, the historically marginalized.

It's fashionable—maybe a little too fashionable—to decry the Pritzker and other such design awards for perpetuating the starchitecture-industrial complex, the whole Howard Roark lone visionary thing.

Are the winds of change a-blowin'? Medals for Morgan and Ban are healthy institutional acknowledgements of the truths that women have every right and reason to be architects, for equal pay and equal recognition, and that architecture isn't just another luxury good for the 1 Percent—like some oversized Hermès handbag with a moisture barrier.

I love when awards deliver a surprise, and it's especially great when the Pritzker names a laureate from off the beaten path, like Sverre Fehn or Paulo Mendes da Rocha. Just as lovely would be for the jury to rethink the convention of only recognizing individuals, and to also give the nod to teams, institutions, and collectives.

As we all know, it takes a village to design and construct a building. So how about this? The 2015 Pritzker jury could take a cue from the AIA and posthumously honor Sam Mockbee, who died in 2001. The Rural Studio he founded still thrives in Hale County, Ala., and it is a model for architecture and social justice. I'm thinking of starting another change.org campaign, called "A Pritzker for Sambo." If it's successful, the ceremony should happen in Hale County, in the presence of every student, teacher, and client of the studio since its inception in 1993.

Not that the Pritzker jury should give up the big boys of high design. There will always be another Thom Mayne, FAIA, or Zaha Hadid, Hon. FAIA, ready for the spotlight. And there will always be armchair jurors like me, second-guessing the jury's motives and choices. The bottom line is that the profession is lucky to have such a high-profile program as the Pritzker. The prize does an essential job: It reminds people of the value that architects provide through their work.

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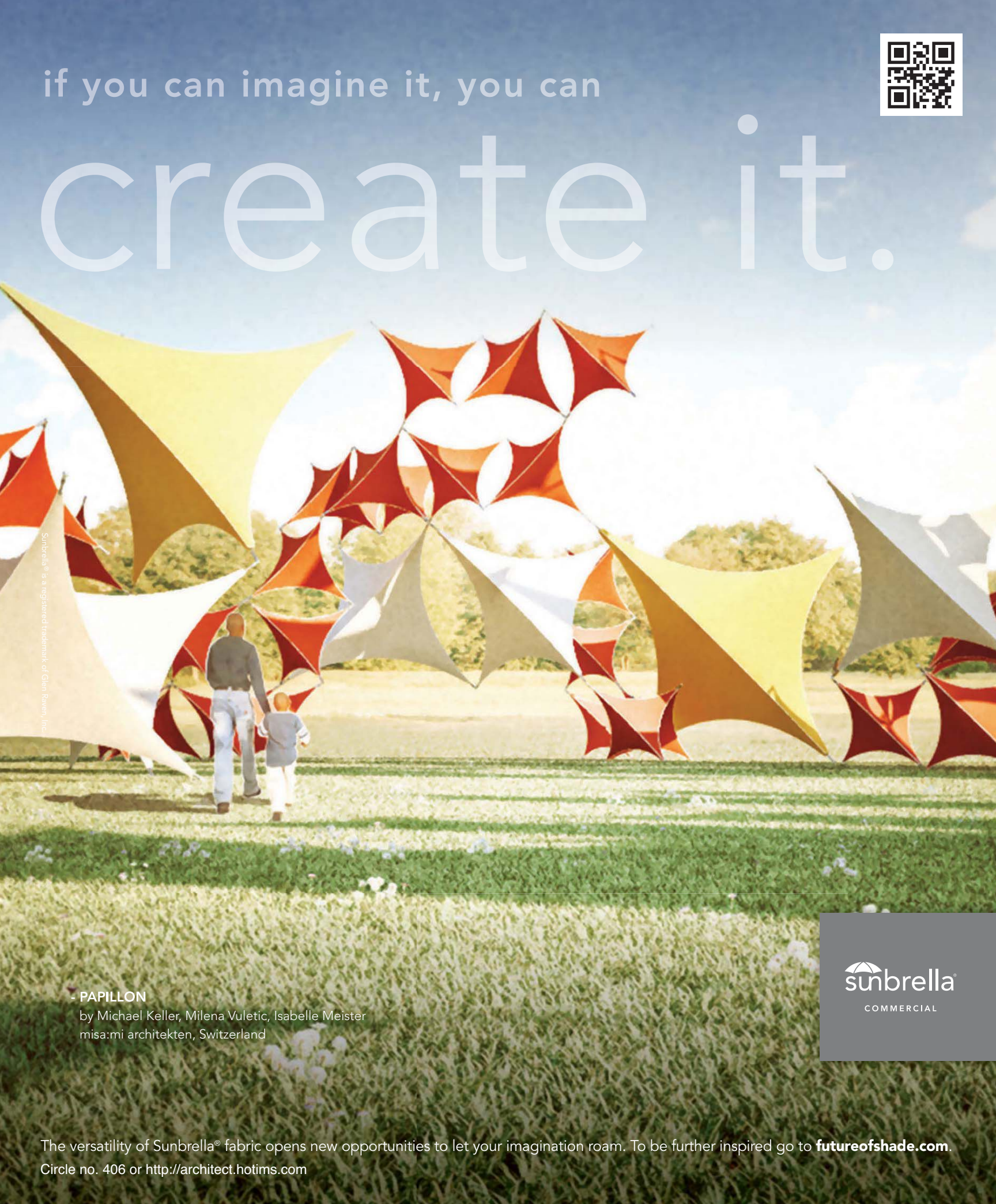
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Coleman is an adjunct professor at her alma mater, the School of the Art Institute of Chicago. She also serves as the professional adviser for the Marcus Prize, a $100,000 biennial architectural prize administered through the University of Wisconsin-Milwaukee School of Architecture and Urban Planning and the Marcus Corporation Foundation. In 2010, Coleman was named a senior fellow by the Design Futures Council.

Coleman received a bachelor of fine arts degree in interior architecture as well as a master of design methods degree from the Institute of Design at the Illinois Institute of Technology.

Read Coleman's story on Dirk Denison Architects' Chicago Residence on page 131.

Corrections: In the February issue, the name of the author of the *Twilight* series is misspelled (in "Star Turn," page 70). The author's name is Stephenie Meyer. The February issue also featured an incorrect label for the cover image on the table of contents. The caption should have read: The National Music Centre of Canada by Allied Works Architecture.

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FRONT

THE 2014
PRITZKER PRIZE

PAPER TIGER

KNOWN FOR HIS PAPER STRUCTURES AND SOCIAL MISSION, SHIGERU BAN IS THE WINNER OF THE 2014 PRITZKER PRIZE.

IN 1994, 2 million Rwandan refugees streamed into neighboring countries as they fled the ethnic conflict in their homeland. They set up crude camps, living in a stew of mud and plastic tarps. Like much of the rest of the world, Japanese architect Shigeru Ban, Hon. FAIA, was watching. Unlike much of the rest of the world, he did something.

Ban got on a plane to Geneva, where he talked his way into the offices of the United Nations High Commissioner for Refugees. He could do better, he told them. The U.N. agreed.

For applying design innovation to pressing need, and for using modest materials such as cardboard and paper in ground-breaking ways, Ban has been named the winner of the 2014 Pritzker Architecture Prize. In bestowing the award on the 56-year-old architect (the seventh Japanese designer to win the prize during its 35-year history), the jury has chosen to celebrate a body of work that is often ephemeral in nature and built for the displaced rather than the wealthy—an architecture of need rather than an architecture of ego.

Devastating earthquakes in Japan, Turkey, and India inspired Ban to design paper-tube houses that could be easily manufactured on-site. These provided victims with sturdier emergency housing than the usual flimsy tents. The houses could be recycled once they weren't needed.

In 1995, after the earthquake in Kobe, Japan, he designed the Paper Church for a community that had lost its place of worship. The structure was built out of 16-foot paper tubes and sheathed in corrugated polycarbonate. It was erected in five weeks by a crew of volunteers. And it didn't sacrifice aesthetics for speed: the church's elliptical form was inspired by Bernini.

Born and raised in Tokyo, Ban was educated in the United States. He attended SCI-Arc in Los Angeles for three years, then transferred to Cooper Union in New York, where he went on to study under John Hejduk. It was in conceiving an exhibition about Finnish architect Alvar Aalto for a Tokyo gallery in 1986 that he came upon the idea of using cardboard tubing as a structural element. Ban has used the material in many of his designs—to particularly wondrous effect in his pavilion for Expo 2000 in Hannover, an undulating caterpillar of a building.

Overall, the selection represents an intriguing move for the Pritzker and for architecture in general. In the past, the award has honored conceptualists (Wang Shu, Peter Zumthor, Hon. FAIA), monuments men (Thom Mayne, FAIA; Zaha Hadid, Hon. FAIA), and the occasional architect's architect (Glenn Murcutt, Hon. FAIA). In choosing to honor Ban, the Pritzker takes us back to the very foundations of architecture: providing shelter.

CAROLINA A. MIRANDA

Above: Ban is the seventh Japanese architect to receive the Pritzker Prize. For complete galleries of his disaster-relief work, residential projects, and commercial design, visit architectmagazine.com.

Previous page: Hualin Temporary Elementary School, Chengdu, China.

Top: Centre Pompidou Metz, Paris.

TOP: JAMES EWING/OTTO; BOTTOM: FERNANDO GUERRA

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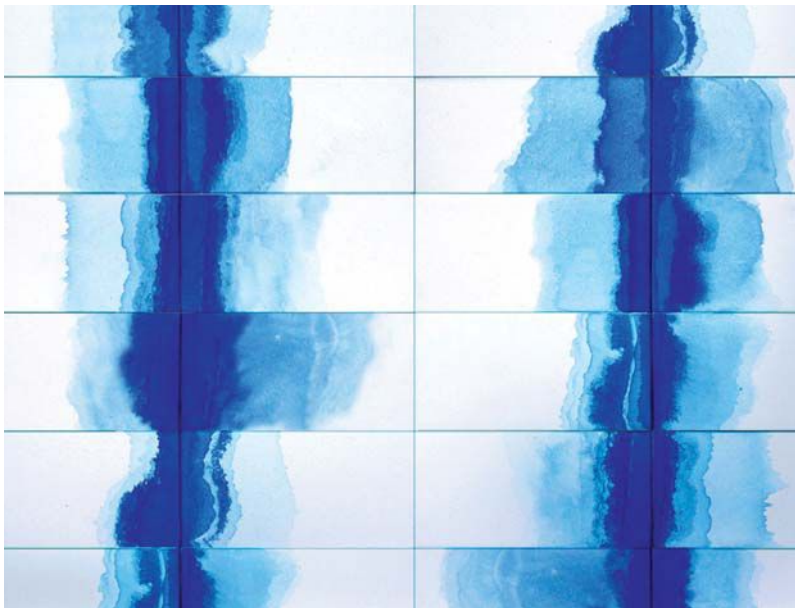


UNGLAZED TILES PROVE TO BE A WORTHY CANVAS FOR RICH DYES

FROM TERRA-COTTA TO CEMENT, unglazed tiles offer a seemingly endless array of design options. But one designer has found a way to take their versatility even further. Deborah Osburn, the California-based designer behind online high-end tile marketplace Clé, is applying traditional Japanese textile–dyeing techniques to tile through a production process that requires equal parts science and patience.

The porcelain tiles in Clé's **Watermark** collection derive their vivid ombré by slowly and naturally absorbing dye. The resulting hues—purples, blues, greens, and golds—make for installations that can run the gamut from enlivening to meditative.

Osburn discovered the process by way of experimentation. Curious about the potential of pigmented surfaces as a design finish, she placed a small order for blank, unglazed tiles and got to work—by first leaving one sitting in a container of indigo stain. "It immediately started drawing up the dye," she says. "After several days, I pulled it out and it was wonderful. What I was hoping would happen had happened."

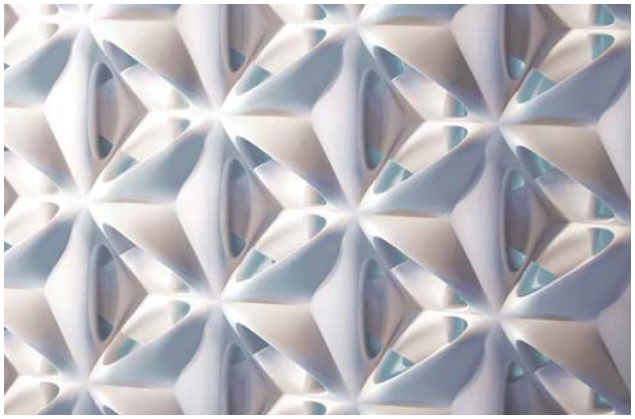
Though large orders are now coming in, Osburn still hand dips the tiles into the dye vats and closely monitors each batch as it soaks up the liquid. Natural material variations cause the kiln-fired tiles to absorb the colorant at different rates. To ensure visual harmony, Osburn circulates the tiles among three or four basins that are filled to different depths with the dye. The extra step ensures that each tile has approximately 3 to 4 inches of its 6-, 8-, or 12-inch-long surface covered in either the indigo or the gold verdigris tints.

The results meld modern design with an age-old fabrication method. Though the marriage of high-end design and homemade handiwork hasn't always been so seamless, Osburn says, times have changed. Now, she says, "you can have unbelievable craftsmanship that's called artistry, or you can have do-it-yourself craftsmanship that the younger generation embraces as something they would put in their home."

The Watermark collection comprises the dipped tiles (shown) as well as stroked, stained, and washed variations. The tiles are sealed for indoor and outdoor use in applications such as backsplashes, showers, and feature walls. *cletile.com* HALLIE BUSTA Circle 100

SOUND-OFF

Sound-deadening panels don't have to blend into the wall. **Ginkgo,** a series of acoustic modules designed by Stone Designs, which has offices in New York, Tokyo, and Madrid and produced by Blå Station in Sweden, is made to dampen noise while enhancing the walls. The panels can be installed in small or large clusters for a feature piece or a muted accent wall. *stone-dsgns.es* Circle 101



THE GREAT DIVIDE

ModularArts' series of cast-mineral-composite sculptural screens joins drywall, glass, and textiles as materials used to partition interiors. **InterlockingRock Blocks** feature bold geometries that use eye-popping dimension to segment spaces. A bio-based foam core reduces each module's weight. Available in 12 patterns (Nelson, shown), each unit measures 24" wide, 32" tall, and up to 8" deep. *modulararts.com* Circle 102

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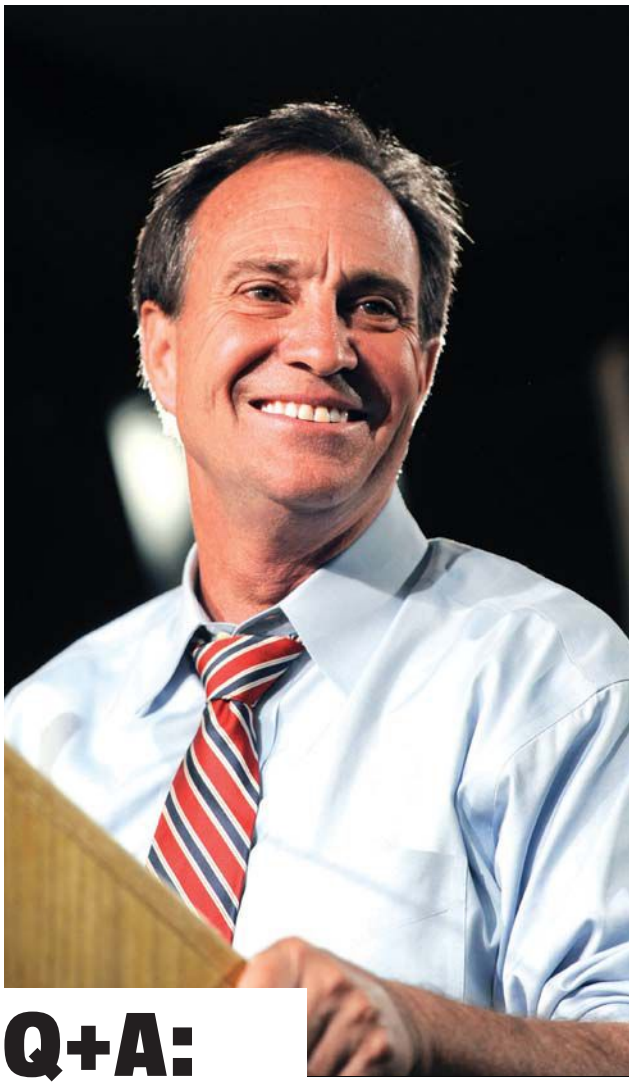

Q+A: REP. ED PERLMUTTER

THE CONGRESSMAN INTRODUCED THE NATIONAL DESIGN SERVICES ACT TO ALLEVIATE ARCHITECTURE STUDENTS' DEBT IN EXCHANGE FOR PUBLIC SERVICE.

$72,000

AVERAGE DEBT INCURRED BY STUDENTS GRADUATING WITH M.ARCH. DEGREES

SOURCE: 2012 AIAS SURVEY

ACCORDING TO a 2012 survey conducted by the American Institute of Architecture Students (AIAS), students graduating with B.Arch. degrees leave school with an average of $42,300 in federal and private loans. Last month, Rep. Ed Perlmutter (D-Colo.) introduced the National Design Services Act to alleviate some of the debt incurred by architecture students. This bipartisan legislation would assist architects with student loans in exchange for community service in underserved areas. Rep. Perlmutter spoke to ARCHITECT about what the bill could do—not just in the architecture world, but in communities across the country.

How did you find support for this bill from your fellow Congressmen?
When you enroll or file a bill like we have, you go and seek co-sponsors from both sides of the aisle. This is one where listing co-sponsors is easy. I've seen similar pieces of legislation to assist the medical profession, the legal profession, and law enforcement, to help students who have accumulated a lot of student loans and other kinds of debt, to help them cover some of that debt by returning good works to the community. For doctors, it might be practicing medicine out in the rural parts of the state; for lawyers, it's helping the public defender's or district attorney's office.

Architects should be able to bring ideas to our community development to help design public buildings, schools, hospitals, and to provide designs and ideas for energy-efficient or water-efficient types of projects—and also enable students to get some help with their student debt.

Why do you think a program like this doesn't already exist?
It probably should've been in existence, and I don't know why it isn't in existence today, but it's one that I'd like to see put into law and put into practice so we can attract smart young people into the profession. Because we need architecture professionals. We need new, fresh ideas.

I think this is a good bill that helps young men and women who want to take up the profession of architecture. And it's a bill that will create jobs as young people are designing new spaces, new buildings, and new communities.

The short-term effects of the bill include communities receiving architectural services they might not otherwise be able to access, and students receiving debt relief. What do you see as the longer-term effects of the bill?
The long-term effects are bringing young people with great ideas into designing things that will be sustainable, efficient, and valuable for the communities that people enjoy living in. That's what architects do. They build spaces for people to do business in or to live in, or to just be a member of a community. This gets young people helping, coming in with good ideas and great design. In addition, when architects are involved in a project, it means something new is happening and that means jobs.

Are there any architects that inspire you? Do you have a favorite architect?
My brother-in-law, Joe Levi [AIA], is an architect I admire. I also admire Philip Johnson, who was the architect for the Wells Fargo Center in Denver. And, of course, Frank Lloyd Wright. CAROLINE MASSIE

More interviews at architectmagazine.com

CHRIS SCHNEIDER

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THE RISE OF PERKINS+WILL

The merger between Perkins+Will and the Freelon Group, a move announced in March, will create the largest architecture office in North Carolina. That's no surprise: Since Lawrence B. Perkins and Philip Will Jr. launched Perkins & Will in Chicago in 1935, the company has grown into a veritable behemoth. Joining up with the Freelon Group is just the latest in a series of **mergers, acquisitions, and partnerships** that has fueled the company's growth over the last two decades. The timeline at right shows those strategic moves alongside other **milestones** in the firm's very recent history. The map below, meanwhile, shows where in the world the firm has opened or absorbed offices. Note: One of the biggest changes for Perkins+Will came in 2004, when the firm swapped its & for a +. KRISTON CAPPS

1985
The 250 employees at Perkins & Will celebrate the firm's 50th anniversary

1989
Desert View Elementary School in Sunland Park, N.M., wins an AIA National Honor Award

1990
Russo & Sonders (NEW YORK)

1993
International Terminal at O'Hare International Airport opens

1995
Nix Mann & Associates (ATLANTA)
Nix Mann Shive (CHARLOTTE, N.C.)

1996
The Wheeler Group (MINNEAPOLIS)

1999
AIA Firm of the Year Award

2001
The Excellence in Design Initiative launches

2001
DTS Shaw Associates;
Marsters & Partners (BOSTON)

2002
CRa (DALLAS)

2003
Redevelopment of San Francisco's Ferry Building completed

2003
B2HK (HOUSTON)

2004
The Sustainable Design Initiative launches

2004
Busby & Associates (VANCOUVER)

2005
Work begins on the Atlanta BeltLine

2005
Ai (WASHINGTON, D.C.; SAN FRANCISCO; HARTFORD, CONN.) MBT (SAN FRANCISCO; SEATTLE)

2006
Phil Harrison becomes CEO

Interdisciplinary Science and Technology Building completed for Arizona State University

2006
Fuller & Associates (BOSTON)
CNI Design (LOS ANGELES)

2007
Rozeboom Miller Architects (MINNEAPOLIS)
Guenther 5 Architects (NEW YORK)

2008
The Environments Group (CHICAGO)
SMWM (SAN FRANCISCO; NEW YORK)

2009
Great River Energy Headquarters (MAPLE GROVE, MINN.) and Synergy at Dockside Green (VICTORIA, B.C.) are named AIA COTE Top Ten Green Projects

2010
Shore Tilbe Irwin and Partners (TORONTO)
Eva Maddox Branded Environments (CHICAGO)

2011
Allison Held is hired as chief marketing officer

Brian Healy is hired as design director (BOSTON)

2011
Vermeulen Hind Architects (DUNDAS AND OTTAWA, ONTARIO) Hinthorne Mott (SEATTLE)

2012
Signer Harris Architects (BOSTON)
Envision Design (WASHINGTON, D.C.)
Rocco, Vidal + arquitetos (SÃO PAULO)
Pringle Brandon (LONDON)

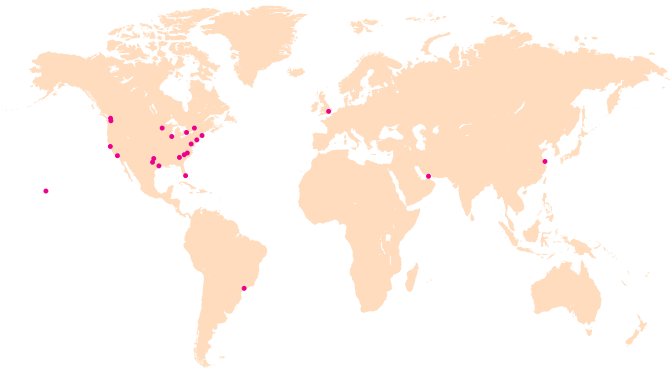
2014
John Haymaker is hired as director of research

2014
The Freelon Group (RESEARCH TRIANGLE PARK, N.C.)

1,610
TOTAL NUMBER OF PERKINS+WILL EMPLOYEES

$360 million
TOTAL REVENUE AT PERKINS+WILL (2012)

The World According to Perkins+Will



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CHICAGO
DALLAS
DUNDAS, ONTARIO
HONOLULU
HOUSTON
LOS ANGELES
MIAMI
MINNEAPOLIS
NEW YORK
OTTAWA
RALEIGH, N.C.
RESEARCH TRIANGLE PARK, N.C.
SAN FRANCISCO
SEATTLE
TORONTO
VANCOUVER, B.C.
WASHINGTON, D.C.

Europe (1 office)
LONDON

South America (1 office)
SÃO PAULO

Asia (1 office)
SHANGHAI

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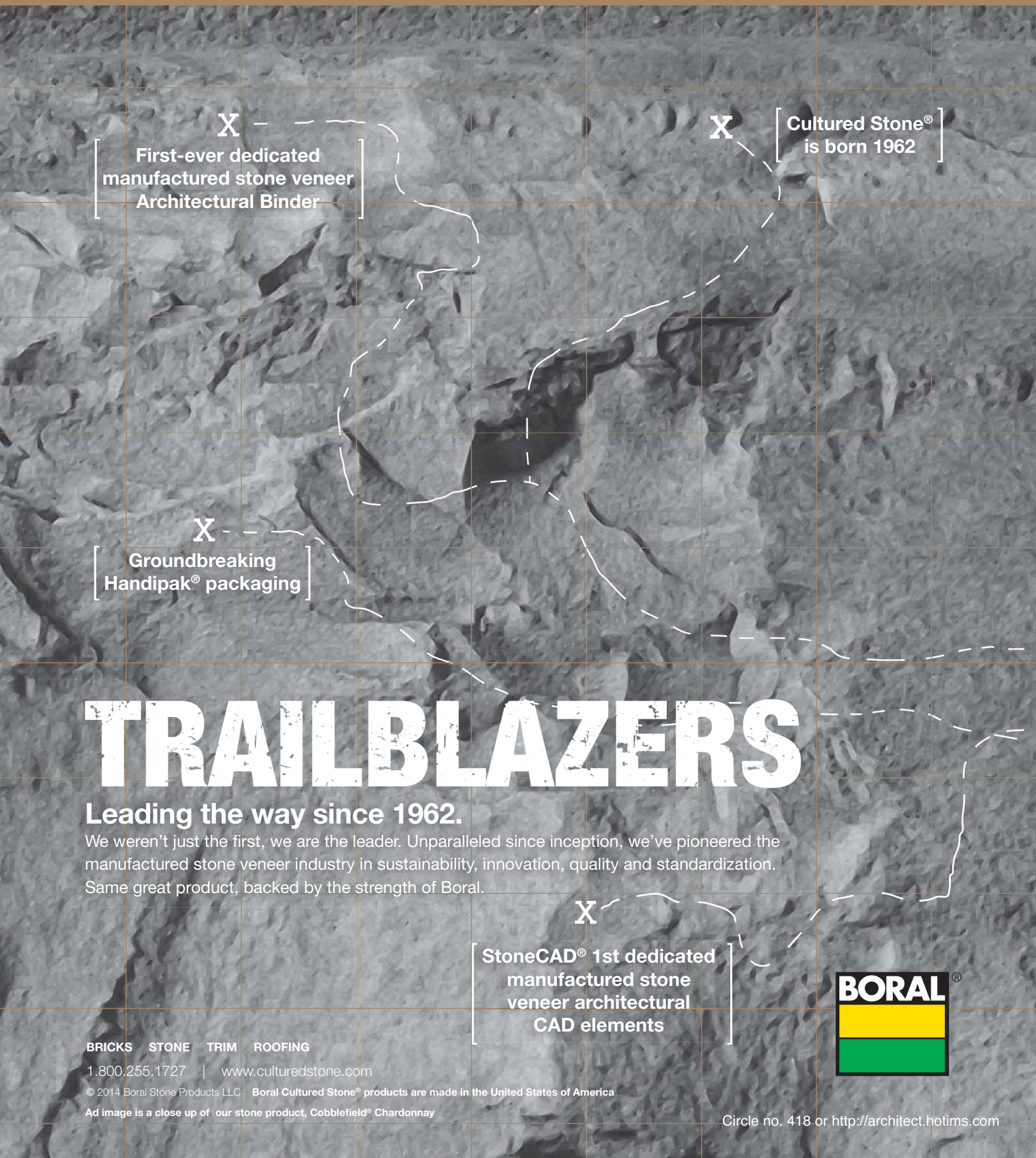
DUBAI, UNITED ARAB EMIRATES

Closed Offices:
WHITE PLAINS, N.Y.; FORT LAUDERDALE, FLA.; TEHRAN



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EARTH AND SKY: SMILJAN RADIC'S SERPENTINE GALLERY PAVILION

CHILEAN ARCHITECT Smiljan Radic, Hon. AIA, will design this summer's Serpentine Galleries Pavilion in London's Kensington Gardens. Since the program began in 2000, the gallery has invited a parade of stars to design its annual folly, including Peter Zumthor, Hon. FAIA, and Toyo Ito, Hon. FAIA.

Radic is arguably one of the less well known architects selected to date. His higher-profile projects include the Chilean House 1 in Rancagua, Chile, and the House for the Poem of the Right Angle in Vilches, Spain.

Radic's design is a stark contrast to the latticelike 2013 pavilion designed by Sou Fujimoto. Radic's 3,767-square-foot structure, held up by stone monoliths, will be made from translucent fiberglass. **KATIE GERFEN**

More images at architectmagazine.com

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ESTO GALLERY

In April, architect celebrates significant contributions to the field of architecture by women—through shots of their work. Captured by Esto photographers, these images illustrate the breadth of projects led by female practitioners, from Jean Fletcher and Sarah Harkness to Annabelle Selldorf, FAIA, and Claire Weisz, FAIA. (Pictured: West Classroom at the University of Connecticut, designed by Andrea Steele, AIA, and Jane Weinzapfel, FAIA, of Leers Weinzapel Architects.) Explore the entire gallery of photographs online at architectmagazine.com.

BOTTOM: ANTON GRASSL | ESTO

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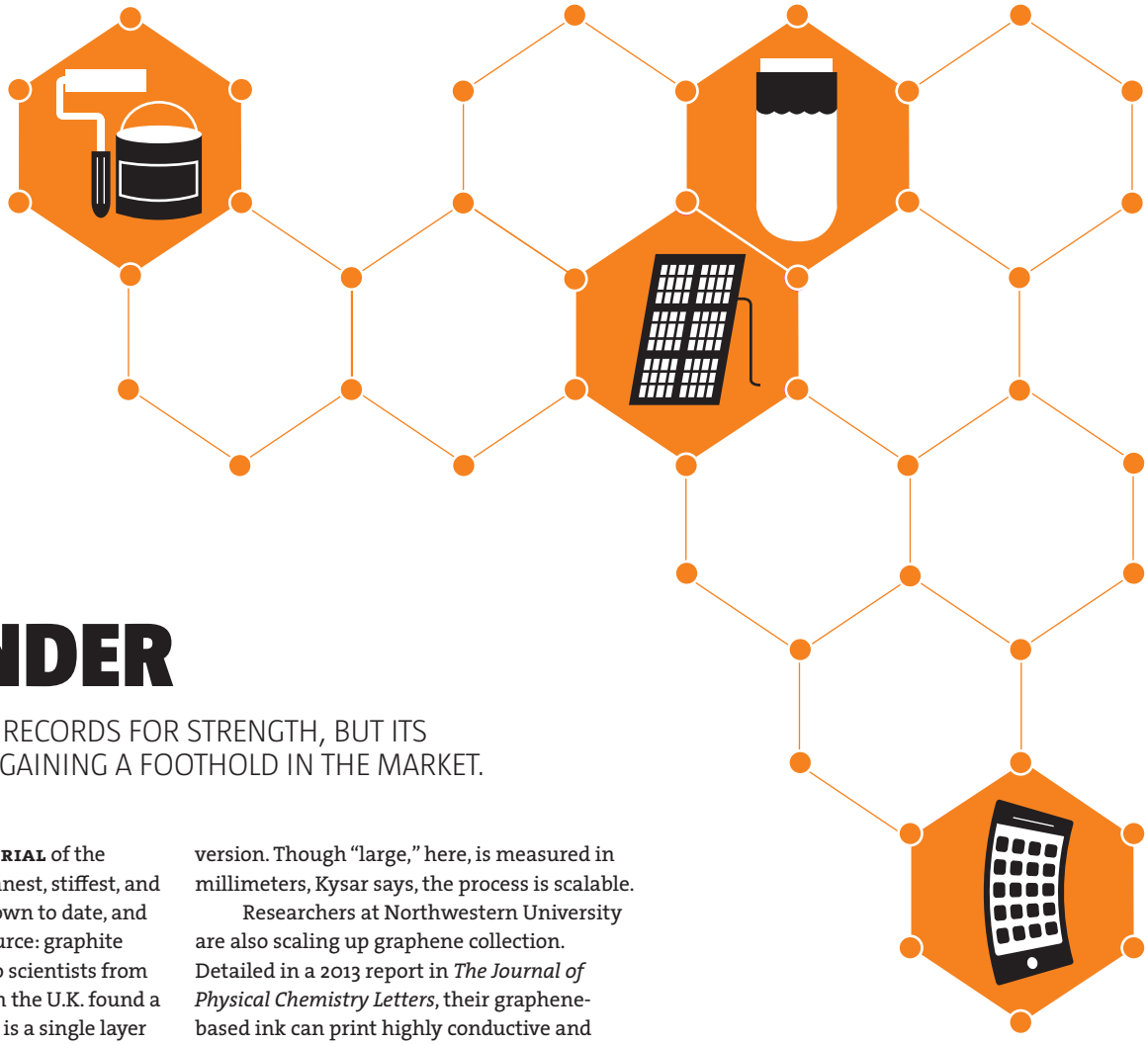

2D WONDER

GRAPHENE BREAKS ALL RECORDS FOR STRENGTH, BUT ITS HARDEST TEST WILL BE GAINING A FOOTHOLD IN THE MARKET.

GRAPHENE IS THE NANOMATERIAL of the moment. It's the strongest, thinnest, stiffest, and most conductive substance known to date, and it derives from a ubiquitous source: graphite (think pencil lead). In 2004, two scientists from the University of Manchester in the U.K. found a way to isolate graphene, which is a single layer of carbon arranged in a hexagonal lattice. The work won them the 2010 Nobel Prize in physics, and graphene the spotlight. Now, researchers are exploring uses for the material that range from solar panels to structural members.

Once merely a "laboratory curiosity," graphene may soon be a common engineering material, says Jeffrey Kysar, a mechanical engineering professor at Columbia University.

Mechanical exfoliation, the process used by the Nobel laureates who peeled one-atom-thick layers off of graphite, is time-consuming and doesn't yield much. Chemical vapor deposition is more efficient but brings its own challenges. Metallic foil is saturated with carbon, which diffuses as it cools and assembles into one or more layers of graphene. But the strong chemicals, or etchants, used to separate the graphene and foil weaken the already unstable bonds between graphene's flakes.

In a study published in *Science* last year, Kysar's team found that using weaker etchants kept the bonds intact and resulted in larger graphene sheets that are only slightly weaker than the highly desired crystalline version. Though "large," here, is measured in millimeters, Kysar says, the process is scalable.

Researchers at Northwestern University are also scaling up graphene collection. Detailed in a 2013 report in *The Journal of Physical Chemistry Letters*, their graphene-based ink can print highly conductive and bendable electrodes for next-generation flexible electronics. Mark Hersam, director of Northwestern's Materials Research Science and Engineering Center, says his lab and the university are in talks with potential partners to supply ink to the industry.

Slowly, but surely, graphene is making its way from the lab to the market. Spanish nanotech research and manufacturing group Graphenano is marketing its graphene- and limestone-based paint as ultra-strong and eco-friendly. Sports-equipment maker Head is reinforcing the shaft of its tennis racquets with graphene to increase their resilience. And from the Nobel Prize–winners comes the subsequent discovery that graphene-oxide sheets stacked in a mesh-like lattice are permeable only to water molecules, adding reverse-osmosis water filtration to the material's potential uses.

Structural applications are also on deck. Kysar, for one, is trying to engineer graphene composites to handle tensile loads. Spanning a 3D space with a 2D material will be a feat, but graphene has already proven capable of taking on more than its own weight. HALLIE BUSTA

2004

THE YEAR THAT UNIVERSITY OF MANCHESTER RESEARCHERS ANDRE GEIM AND KONSTANTIN NOVOSELOV ISOLATED GRAPHENE BY STICKING TAPE ON A GRAPHITE CRYSTAL, TRANSFERRING IT TO A SUBSTRATE, AND REPEATING THE PROCESS.

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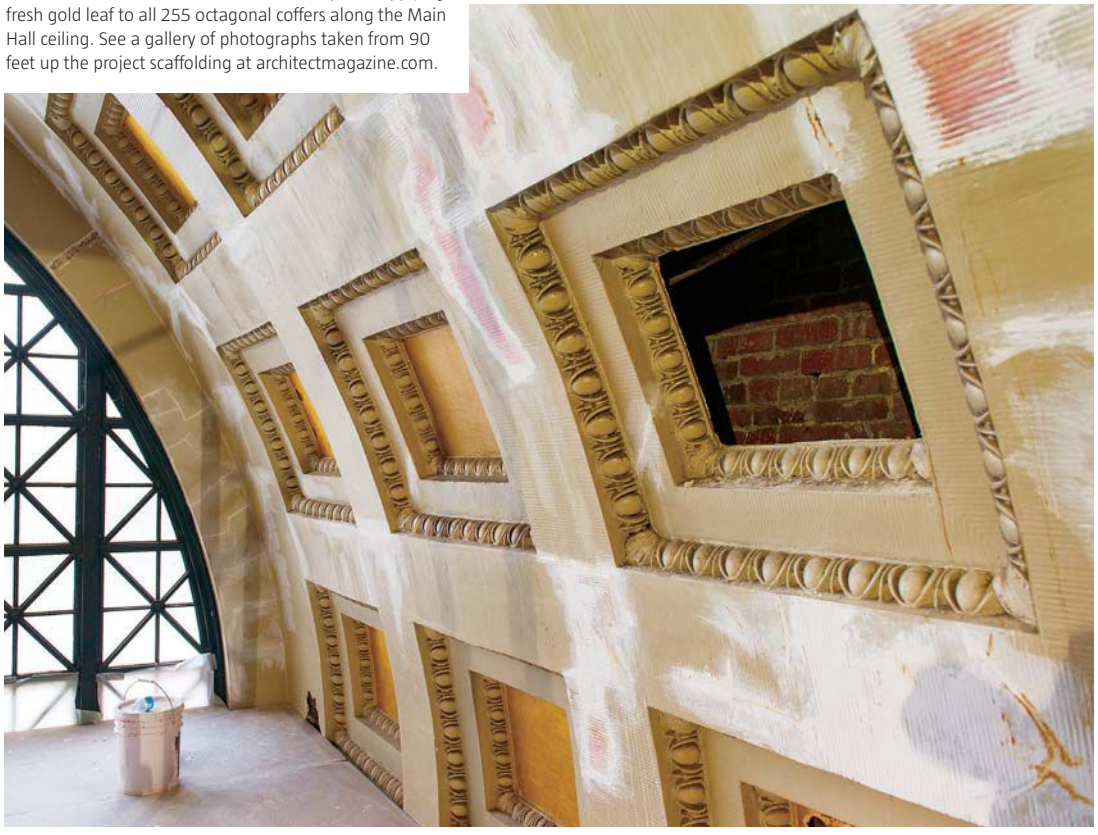
BEHIND THE SCENES AT UNION STATION

Union Station suffered damage from the 5.8-magnitude earthquake near Mineral, Va., in 2011, but it was already due for a restoration. Among the tasks now underway to renovate the 1907 Daniel Burnham masterpiece: applying fresh gold leaf to all 255 octagonal coffers along the Main Hall ceiling. See a gallery of photographs taken from 90 feet up the project scaffolding at architectmagazine.com.



BETTER BLOCKS

Alternatives to building materials that contain Portland cement are few. But the modular **Watershed Block** from Watershed Materials in Napa, Calif., aims to fill the gap. Made of fused soil and rock fragments including quartz and other minerals, it contains half the cement of typical concrete units but weighs up to 30 percent more. Backed by a National Science Foundation grant, the manufacturer is working on a structural block that contains no cement. Offered in standard CMU dimensions. *watershedmaterials.com* Circle 103

NIGHT LIGHT

Adding to the annals of what-took-so-long products, Kohler outfitted its **Cachet Q3** and **Reveal Q3** toilets with LEDs installed beneath the lid. The LEDs' warm glow makes the otherwise-unadorned toilet easy to spot in the dark—important in spaces accommodating aging adults or kids. The light runs in seven-hour cycles and can be programmed to turn on at the same time each night. Perfect for anyone who has known the shock of bright lights while using the bathroom in the middle of the night. *kohler.com* Circle 104

LEFT: ANNE HOACHLANDER DAVIS

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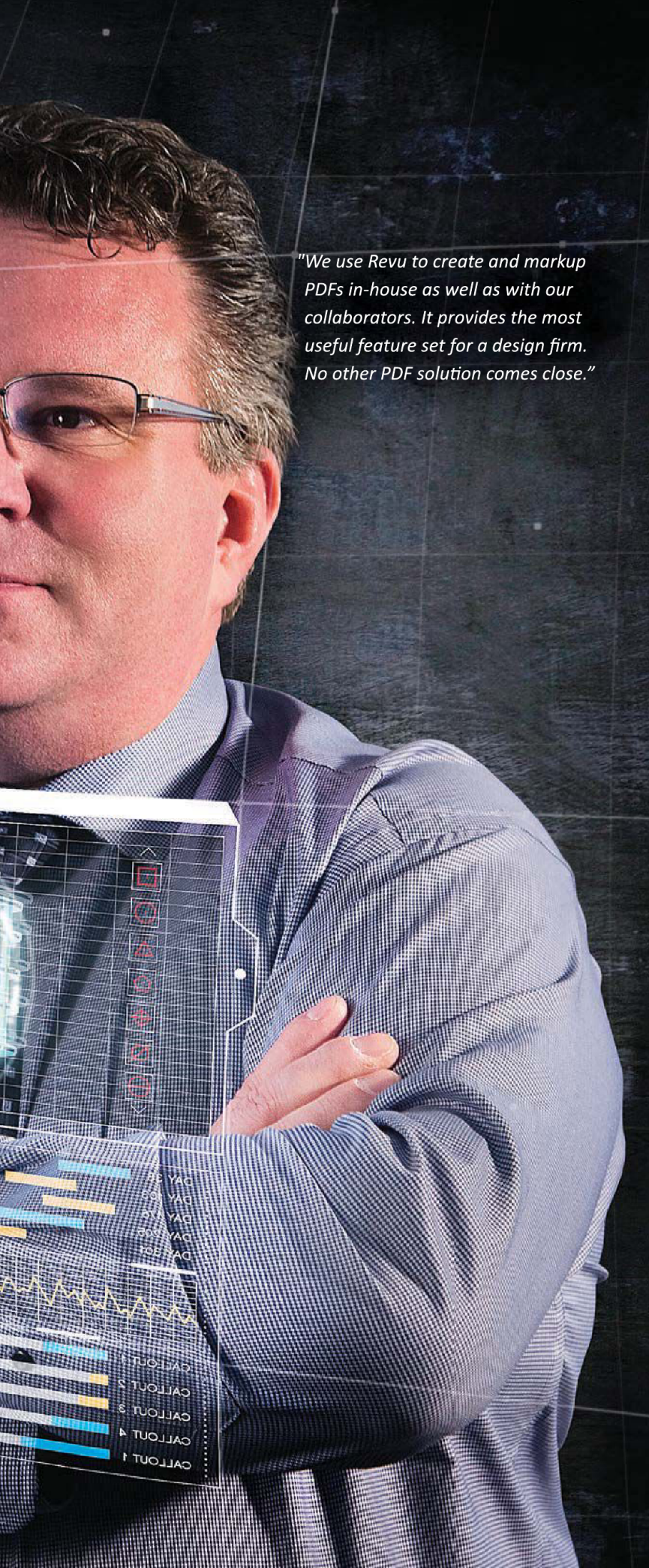
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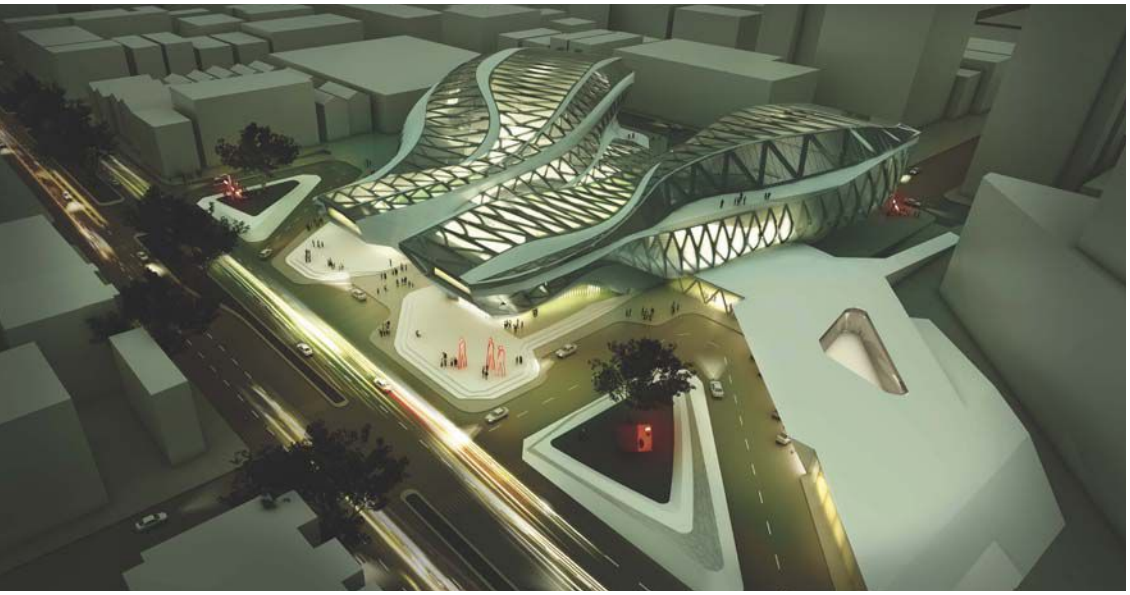

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LEED EXPOSED: BELTWAY ASTROTURF ORGANIZATION EYES GREEN BUILDING

RICK BERMAN, A SERIAL ASTROTURFER WORKING UNDER A MAZE OF ACRONYMS, IS BEHIND A NEW, ALL-OUT ATTACK ON THE LEED BUILDING-PERFORMANCE RATING SYSTEM.

THE TAGLINE ON THE SITE, leedxposed.com, says it all: "Wasting taxpayer money to fund not-so-green buildings." The website's mission is written in the name itself. The scandalous operation that the site claims to be exposing—LEED, the ubiquitous building-performance rating system developed by the U.S. Green Building Council—is failing society, apparently. This website breaks the message down into four talking points: arbitrary point system, questionable science, taxpayer costs, and uncertain future.

The message is clear. But the organization behind this message is less obvious.

LEED Exposed is an example of astroturfing, perhaps the first such example in the world of architecture. The site is run by an organization called the Environmental Policy Alliance. That alliance's website says that it is a "project of the Center for Organizational Research & Education"—an organization with no obvious website or virtual paper trail.

But that's the point of astroturfing. *The Journal of Business Ethics* describes astroturf organizations as "fake grassroots organizations usually sponsored by large corporations to support any arguments or claims in their favor, or to challenge and deny those against them." The organization behind LEED Exposed sounds like your typical D.C. nonprofit organization or think tank, perhaps one that draws its grassroots support from thousands or millions of Americans outraged by green building.

The address listed on the Environmental Policy Alliance's website (the group uses the acronym EPA, thus burying its own online search results) is the same Washington, D.C., address as an outfit called Berman and Company, which describes itself as "a dynamic research, communications, advertising, and government affairs firm" with a staff of 30. The organization's president and founder is Rick Berman, a serial Beltway astroturfer who draws favorable comparisons to the tobacco lobbyist from the movie *Thank You for Smoking*, according to *USA Today*. A former executive for the AFL-CIO has described him as "Dr. Evil."

The path connecting Berman with LEED Exposed is a winding one. A press release from Feb. 28 quotes a research analyst for the Environmental Policy Alliance named Anastasia Swearingen. A December 2013 *Forbes* column byline describes Anastasia Swearingen as "a senior research analyst for the Center for Consumer Freedom."

The Center for Consumer Freedom's executive director is Rick Berman. According to 2012 and 2011 tax documents, the Center for Consumer Freedom operates activistcash.com, consumerfreedom.com, animalscam.com, humanewatch.org, obesitymyths.com, petakillsanimals.com, and other astroturf sites.

According to a document on the West Virginia Secretary of State's website, the D.C. Department of Consumer and Regulatory Affairs issued a certificate of amendment effective Jan. 28 approving that the Center for Consumer Freedom now be called the Center for Organizational Research and Education.

In case you're lost—and that is very much the point of this matryoshka doll of nonprofit organizations—the Center for Organizational Research and Education is the listed parent organization of the Environmental Policy Alliance. And, thus, of LEED Exposed.

SARA JOHNSON AND CAROLINE MASSIE

20,000

THE NUMBER OF LEED-CERTIFIED COMMERCIAL PROJECTS IN THE UNITED STATES (AS OF DECEMBER 2013).THE GREEN MOUNTAIN COFFEE ROASTERS PLANT IN KNOXVILLE, TENN., MADE THE MILESTONE WITH ITS CERTIFICATION FOR COMMERCIAL INTERIORS.

SOURCE: U.S. GREEN BUILDING COUNCIL

DETAIL:
AROUND THE SQUARE

K2S ARCHITECTS REALIZED AN UNORTHODOX FORM FOR A CHAPEL IN HELSINKI WITH HELP FROM A TEAM OF FORMER SHIPBUILDERS.

FINLAND HAS a rich tradition of rural wooden churches, the most iconic of which grace the coastal plains like cubist sculptures, their steep gable roofs standing in defiance of the harsh northern climate. But for the Kamppi Chapel of Silence in downtown Helsinki, local firm K2S Architects turned tradition on its head, eschewing angles for curves in its ovoid bowl design.

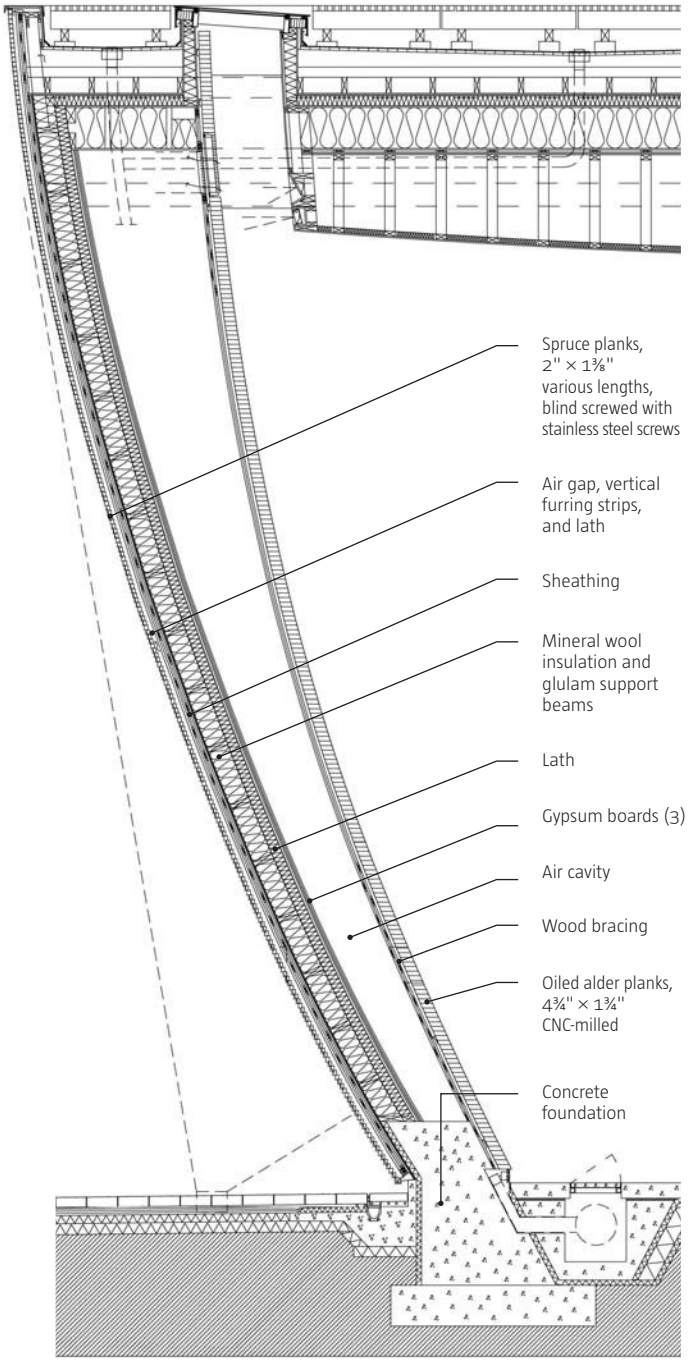
Though the roughly 38-foot-tall form is more suited for concrete, K2S made it work with the traditional, warm, familiar wood by utilizing clever detailing, computer-aided design, CNC milling, and a construction team that counted a former shipbuilding company—Late-Rakenteet Oy in western Finland—among its crew.

Steel brackets attach more than two-dozen curved and tapered ribs—CNC-milled glulam columns, each approximately 36 feet tall—to the concrete foundation. Steel brackets also anchor the glulam roof beams, the longest of which spans 49 feet.

Once the structural frame was in place, local contractor Pakrak Oy added mineral wool insulation, sheathing, and a vapor barrier to the wall. Vertical furring strips with custom-designed, CNC-milled notches guided each plank of curved, finger-jointed spruce cladding into place. The notches are slightly angled, like teeth in a saw, to compensate for the wall's pitch.

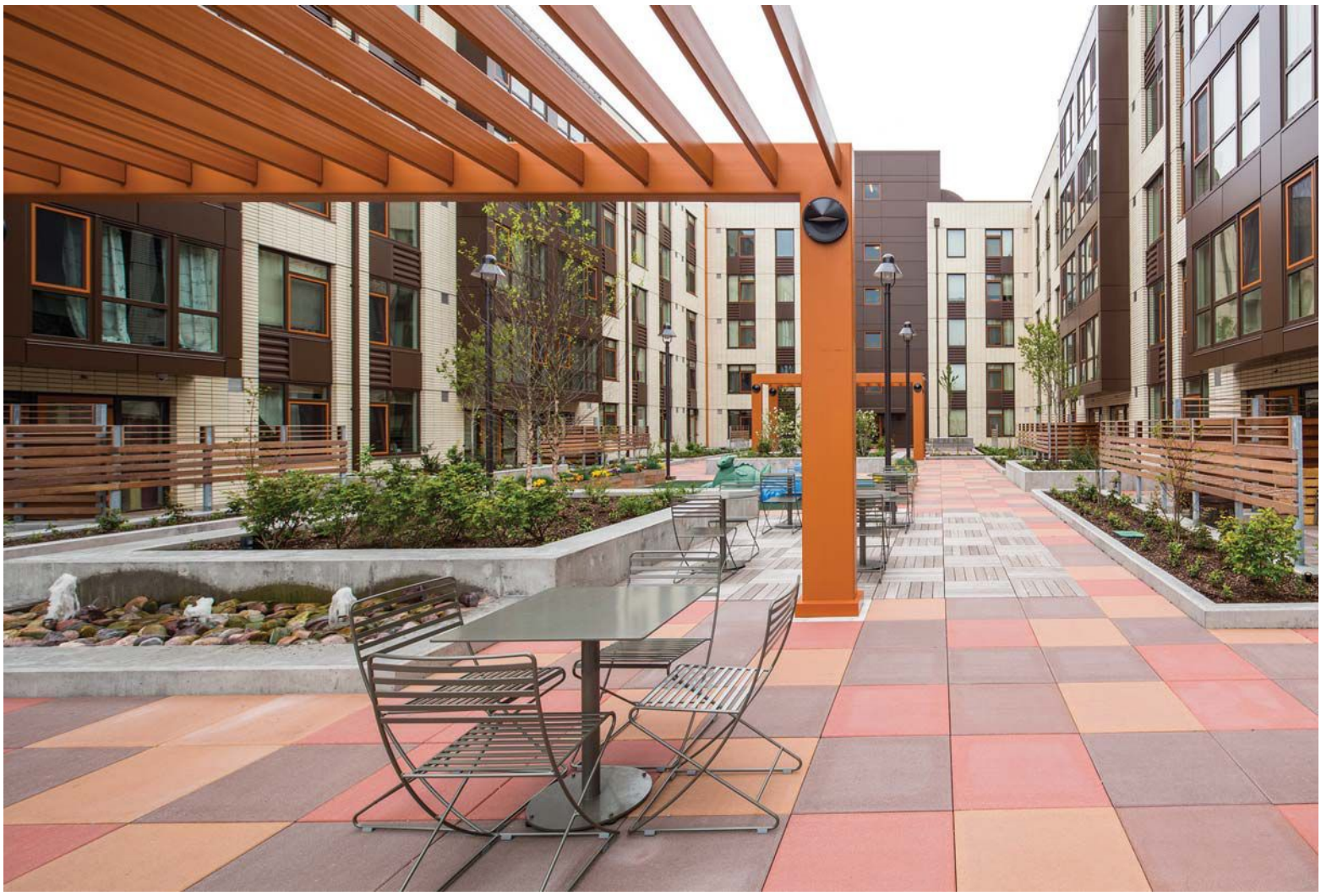
All of the lumber used in the chapel—glulam structural beams, exterior finger-jointed spruce planks, and interior alder siding—was sourced and processed within 125 miles of the site in the bustling Narinkka Square. The chapel was completed in May 2012 after 14 months of construction. LOGAN WARD

Wall Section



Learn more about K2S Architects' design for the Kamppi Chapel of Silence, and why the project's wood cladding is faring remarkably in Helsinki's climate, at architectmagazine.com. The Detail series of innovative material-assembly solutions is proudly supported by reThink Wood.

MARKO HUTTUNEN



Gray's Landing LEED Platinum Affordable Housing in Portland, OR, designed by Ankrom Moisan Architects, Inc.
The second floor courtyard provides private green space for the tenants and their guests to enjoy spectacular views of the surrounding 245,000 square-foot building (five stories of wood over concrete podium with another level of concrete underground).
Credit: Jeff Amram Photography

ONLY WOOD

"Our goal with Gray's Landing was to build as many dignified affordable apartments on our site as our budget would allow. Building with a primary structure of wood is the only way we could have come close to our goal. We need to make responsible decisions about how our choices of building materials contribute to the global impact on the environment. For Gray's Landing, wood was the smartest and most responsible choice."

—Mike Cline, AIA, Principal,
Ankrom Moisan Architects, Inc.

Innovative Detail is a monthly presentation in Architect of distinct building design and modern architecture. It is sponsored by reThink Wood.

The reThink Wood initiative is a coalition of interests representing North America's wood products industry and related stakeholders. The coalition shares a passion for wood and the forests it comes from.

Innovative technologies and building systems enable longer wood spans, taller walls, and higher buildings, and continue to expand the possibilities for use in construction.

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WOOD
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PORTFOLIO: HUFFT PROJECTS

Offices: New York and Kansas City, Mo.
Principals: Matthew Hufft, AIA (creative director); Kimball Hales, AIA (managing director)
No. of Employees: 31
Founded: 2005
Latest News: The firm moved into a 60,000-square-foot former warehouse in Kansas City's historic Roanoke Park district in January.
Recent Work: Andy's Frozen Custard Tulsa, Okla. (right) and Baulinder Haus Kansas City, Mo. (top)

Every month we dedicate this space to work that architects have uploaded to our online Project Gallery. Publish yourself at architectmagazine.com/projects

Integrated power sources put an end to travelers' quests for spare open outlets in airport terminals.

WAITING ROOM

This architect-designed seating system aims to make long waits at airports and elsewhere more bearable—maybe even productive. The beam-mounted **Place** is fitted with power outlets and USB ports, extra space to store baggage, a wide arm, and optional cup holders. Co-designed by Denver-based Fentress Architects' CEO and design principal Curt Fentress, FAIA, the modular system is inspired by the firm's aviation projects in the U.S. and South Korea. *arconas.com* Circle 105

TOP LEFT: DON SHREVE; RIGHT: ANDREW FABIN

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February 2014

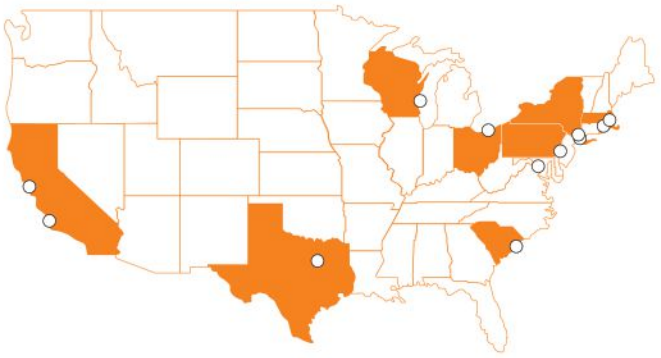
Architecture Billings Index
50.7
↑ 0.3 pts

Institutional
49.6
↑ 1.6 pts

Mixed Practice
46.6
↓ 0.8 pts

Commercial
51.9
↑ 0.9 pts

Multifamily Residential
52.5
↑ 0.3 pts



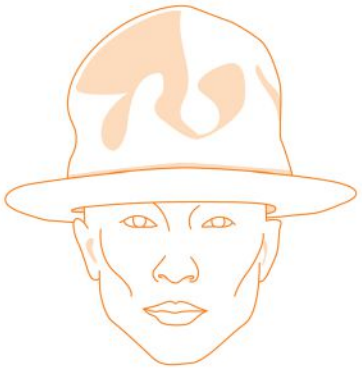
Endangered Species: Full-Time Newspaper Architecture Critics

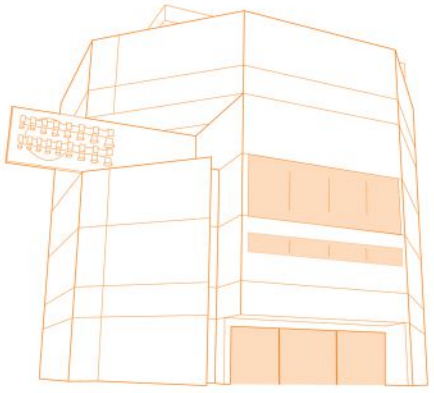
John King, *San Francisco Chronicle*
Christopher Hawthorne, *Los Angeles Times*
Blair Kamin, *Chicago Tribune*
Michael Kimmelman, *The New York Times*
Philip Kennicott, *The Washington Post*
Inga Saffron, *The Philadelphia Inquirer*
Robert Campbell, *The Boston Globe*
Robert Behre, *The Post and Courier*
Steven Litt, *The Plain Dealer*
Mark Lamster, *The Dallas Morning News*
Mary Louise Schumacher, *Milwaukee Journal Sentinel*
David Brussat, *The Providence Journal*
Julie Iovine, *The Wall Street Journal*

ADP NATIONAL JOB GROWTH IN THOUSANDS

Architects Get Lucky With Pharrell

Pharrell Williams—"Happy" auteur, man of the buffalo hat—will give the keynote address at the AIA 2014 National Convention. He joins a speaker lineup that includes architect Jeanne Gang, FAIA, artist Theaster Gates, and (possibly) Chicago Mayor Rahm Emanuel.





A BRUTAL END

By the time you read this, there may be nothing left of the Third Church of Christ, Scientist, in Washington, D.C. A Brutalist sanctuary designed by Araldo Cossutta in 1970, the building is being razed only seven years after it earned landmark status.

February Jobs Report

New construction jobs reported by the U.S. Department of Labor's Bureau of Labor Statistics

1,700	+	12,300	+	400	+	3,200	=	**17,600**
Residential Construction		Heavy and Civil Engineering		Nonresidential Construction Jobs		Architectural and Engineering Services		Total Construction Jobs Added

STEP UP

Sherry-Lea Bloodworth Botop
Executive director
American Institute of Architects Foundation

Erica Rioux Gees, AIA
Director of the Octagon
American Institute of Architects Foundation

Kimberly Bowes
Director
American Academy in Rome

Peter W. Lyden
President
Institute of Classical Architecture & Art

Molly McGowan, AIA
Partner
Ennead Architects

Steve McConnell, FAIA
Managing partner
NBBJ

Charles Dalluge, Assoc. AIA
President and COO
DLR Group

Gene Kaufman, AIA
Board of governors
Museum of Art Fort Lauderdale

STEP DOWN

Joseph Fleischer, FAIA
Partner
Ennead Architects

Christopher S. Celenza
Director
American Academy in Rome

Ted Mosby
Architect
How I Met Your Mother

After nine seasons, the sitcom comes to a close—meaning an end to the career of television's most famous architect. Played by Josh Radnor, Mosby is best known for designing the Goliath National Bank building in Manhattan. That project replaced a historic hotel, the Arcadian, inspiring a tense preservation battle (and much romantic woe). After launching his own firm, Mosbius Designs, Mosby later joined the architecture faculty at Columbia University.

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LASER SCANNING APPLICATIONS FOR ARCHITECTURE

By: John Smits, AIA,
Partner, J. Grammas Consultants Architects & Engineers.
President, Actus3D, New York, N.Y.

LEARNING OBJECTIVES

- Learn the basic mechanics of modern 3D laser scanners and understand the differences between various operational technologies.
- Identify the varied applications of 3D laser scanning and how it enhances safety and creates value in projects versus traditional measurement methods
- Determine uses for this technology in applying its 3D spatial characteristics to enhance the integrated design delivery.
- Learn how to apply this technology to provide forensic documentation for both new construction and existing building conditions.
- Understand specification options for optimizing use of the data in design and construction applications.

CONTINUING EDUCATION

CREDIT: 1 LU
COURSE NUMBER: ARapril2014.1

Use the learning objectives above to focus your study as you read this article.

To earn credit and obtain a certificate of completion, visit http://go.hw.net/AR414Course1 and complete the corresponding quiz. If you are new to ArchitectCEUniversity, create a free learner account; returning users log in as usual.

INTRODUCTION

High definition laser scanning is a non-destructive method for recording a 3D digital image of a building. Its unique ability to precisely record flat and uneven surfaces makes it a valuable tool within the AEC industry. One real advantage of 3D laser scan data is its ability to accurately document variations in surface conditions. When properly scanned in the field, the resulting data will capture every nuance of a building's surface, such as the variations in surface plane of a rusticated stone wall, or the bulges and tilts in a seemingly flat planar wall or floor surface. As modern design leans towards creating buildings with multiple undulating surfaces and non-planar walls, and century-old ornate masonry buildings begin to deteriorate and shift, 3D laser scanning becomes a needed and effective method to gain accurate documentation for both design and construction.

WHAT IS 3D LASER SCANNING?

Often referred to by the acronym LIDAR (light image detection and ranging), laser scanning is a remote sensing technology that calculates distance by illuminating a surface with a laser and analyzing the returned reflected light. It is a relatively new technology. The first 3D laser scanner was invented approximately twenty years ago. Since then the technology has advanced and matured aided by the growth of computer capabilities and software development. Today there are a variety of highly accurate portable scanning devices available. The units have been designed using various laser scanning technologies; each has been intended to meet specific needs within an industry. One technology most may recognize is the Kinect unit. Kinect uses structured light technology to rapidly create a 3D image, allowing the computer to read placement and movement. Structured light technology relies upon a pattern of light placed upon an object; the resulting deformed pattern is then read by a camera to record the image. While it is an inexpensive and fast method of image capture, it is limited to relatively small areas and short range. There are handheld scanning units that provide a very high degree of accuracy. These are normally used for parts replication and quality control checks. They produce a triangular mesh database that is read by most modeling software. These units, due to their limited range and the large file size produced, are primarily used on smaller objects. For long range distance and the high degree of accuracy required by the design and construction field, two types of scanners predominate: time of flight and phase based scanners. These two devices are commonly referred to as land based mid-range terrestrial laser scanners. These scanners have seen an exponential increase in accuracy, speed, and data collecting capacity over the past ten years.

Time of flight scanners are designed to cover long distance environments, both interior and exterior. Often used for survey work, certain time of flight scanners will provide precise return on targets and surfaces over 1000 feet and more. Phase based units have a shorter range, although newer units will provide data returns at distances up to 1000 feet. Their strength lies in providing a faster scan time and denser array of points returned. Both scanners have a 360 degree horizontal view, within a +/- 270 to 320 degree vertical arc. They record everything within line of sight of the scanner's range; they do not have x-ray or heat sensing capabilities. The scanners emit pulses of laser light which capture millions of data points on any surface detected. Each point is positioned in space with an x,y,z designation, creating a 3D digital image of the environment or building scanned. The resulting images are referred to as "point clouds" since the 3D images have a cloud-like density when viewed in the computer **(Figures 1, 2)**. Since a scanner works on line of sight only, most buildings or structures require multiple scans to provide comprehensive documentation of all areas. These scans are digitally aligned within a software program usually proprietary to the scanner's manufacturer. Once processed and aligned, the scans join together to create a 3D image of the building and its site environs.

SCANNER PRECISION

Specifications for individual models vary dependent upon manufacturer and age of the scanner. As a rough basis for comparison, time of flight units can capture 50,000 points per second, with an average accuracy of +/- 4mm at mid-range, although accuracy varies from 2mm to 6mm dependent upon range and machine technology. Phase based units can capture up to 500,000 data points per second at a mid-range accuracy of +/- 2mm within 100 to 150 feet. In practice, precision is a byproduct of not only the scanner's technical design, but the skill of the person operating the unit in the field. The scanners set resolution, the alignment and post-processing, which will all affect the resultant data. Scan data accuracy also varies dependent on the distance to the object. A smaller size laser dot yields better pinpoint return data. As distance increases, the size of the laser dot hitting the surface grows, and the distance between laser dots expands. Thus an object at a 25' distance from the scanner will have a larger array of points within a square inch than an object 100' away. Points hitting corners will split, points hitting curved pipes will bounce creating a halo affect around

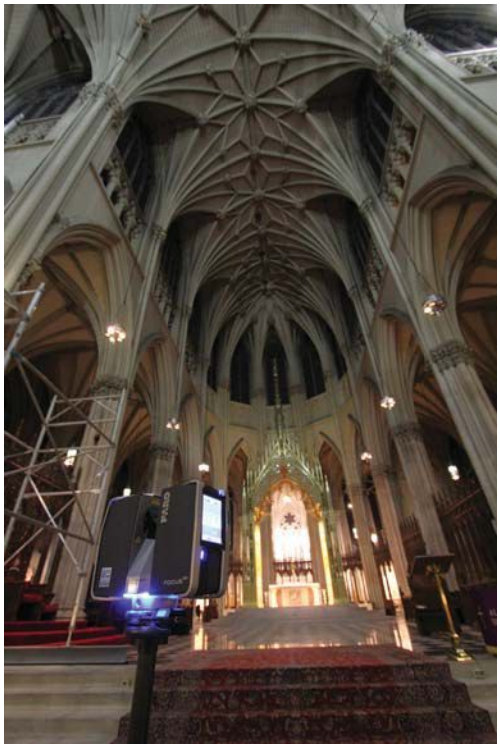

Figure 1

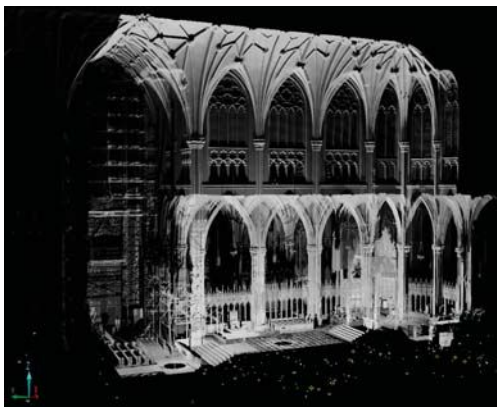

Figure 2

the pipe. The angle of incidence and the color and surface reflectivity of the object being scanned also affect data return. Bright shiny objects and reflective surfaces have difficulty providing clean feedback to the scanner, resulting in a loss of data or multiple ghost images. Since scanning produces its own light, it can scan in low light levels or total darkness; often an advantage in a building's basement and attic spaces. Weather and time of day also come into play. Mist, fog, and bright sunlight can all adversely affect scan data collection. All these factors must be taken into account when planning to scan a building and while processing the data complied.

Phase based scanners are often a preferred means for capturing building environments, especially close quarters in process plants or boiler rooms with multiple layers of pipe and ductwork that require numerous viewpoints to record accurate 3D mapping. Phase based scanners will also record data at closer range more effectively. This allows the scanner to be setup and moved in and around the close confines of a building, capturing its geometries within minutes with each scan. When using the scanner to map floor or wall surfaces on a building, a primary concern is the angle of incidence. As the incidence angle decreases and distance from the scanner increases, there can occur a slight "rise" in the data points. This sharp angle also creates a situation whereby the majority of the laser pulses hitting the target spill off into space, rather than return to the scanner, resulting in poor data accumulation. It is important to try and limit the angle of incidence on large vertical or horizontal surfaces by closer positioning and overlapping of multiple scans.

Routine laser maintenance is imperative. Scanners should be factory calibrated at least once each year to insure that they are functioning accurately. The operator of a scanner can also perform periodic test scans to see how well overlapping scans align in both vertical and horizontal positions as distance increases from the scanner. Scan data of preset measured targets can be reviewed and dimensioned within the computer software to ascertain dimensional accuracy levels. These steps will provide a quantifiable level of confidence to the scanner data's accuracy.

ADVANTAGES OF 3D LASER SCANNING

Why use 3D laser scanning for data acquisition within the architecture profession? Among the advantages:

1. Accuracy to +/- 2mm at 100 feet distance for points within a single scan
2. Provides a 3D digital record of a 360 degree area within minutes
3. Reduces time in the field and return trips to the project site
4. Enables measurement of building elements and details without need for scaffold or ladders
5. Measures hazardous or unapproachable elements from as far away as 250 feet
6. The data serves as a basis for 3D BIM models

It can also serve as an active component in enabling sustainable design goals. Scanning will provide precise volumetric and square footage data for energy modeling studies. It accurately records complex shapes and forms of older ornamentation, and maps timber structures in place, providing non-invasive replication for preservation and adaptive reuse.

These advantages have led many firms to consider the purchase and use of a laser scanner for their office. Up until a few years ago scanners were heavy cumbersome machines that often cost in excess of $150,000. Add to that software and personnel costs, coupled with many months of a learning curve and you had a return on investment that did not make sense to many in the profession. Current laser scan technology has produced units that are small and lightweight. The cost has dropped below $50,000, and the learning curve for operation and software use has diminished. As a result, a number of firms have purchased scanners and are finding them helpful in cutting cost and decreasing the time schedule for many of their projects. Other firms are renting units on an as-need basis. Some are beginning to use service providers on a regular basis while they adapt to the changing methods of 3D modeling production.

APPLICATIONS

How is the scanning data being used? Here are examples of various applications:

3D laser scanning has become an accepted method for documenting existing building and site conditions. It provides a fast, accurate, and comprehensive means to obtain a three dimensional digital image of a building or structure whether it's a 10 to 12 story building easily documented from street level, or a 40,000 sf floor complied through multiple scans. This digital data can be easily exported into most common 2D and 3D CAD programs and used as a basis for creating architectural drawings. Among the uses of scan data are: create 2D floor plans, sections and elevations, 3D models, topographic mapping of sites and building surfaces, volumetric studies of land and excavations, and documentation of building sites pre-construction and during construction.

Scanning of a building is usually done within twenty to one hundred feet from the façade or area of the building to be documented. The scanner is mounted atop a stable tripod. It is important that the scanner remain on a steady fixed mount while it is scanning. Any movement to the scanner will alter the positioning of the resultant scan data, therefore reducing its accuracy. Resolution, or scan density, should be set to provide enough data points sufficient to allow creation of the desired CAD deliverable. Scanning is line of sight only, so the distance between setups is not only dictated by the scanner's range, but usually by the need to catch certain elements along the face of a building or its interior. Simple orthogonal interiors or facades can be scanned quickly and with few setups. For more detailed drawings, or 3D models with multiple pipes, ductwork, or ornamentation, resolution must be set higher and more scan station setups are required to gain full visual coverage of the areas. Many scanners have a built in color camera, which can be used to give an RGB value to the otherwise typical black and white toned scanning data. The addition of the color photos married to the scan data provides a unique 3D image that makes it easy to discern the various parts and pieces while creating a CAD overlay.

Figure 3

Figure 3 illustrates a typical scan, with color added, taken from a rooftop in Manhattan, showing the amount of distance and data covered by just one single scan at medium level resolution. The image is referred to as a planar view, similar in look to a flattened map of the earth, giving the horizontal planes within the image a curvilinear effect. One can see the level of detail that has been received from over 240 ft. away. When the image is placed in 3D mode, the true characteristics of the data are now revealed and can be used for a variety of documentation purposes.

Figure 4a

Figure 4b

FAÇADE DOCUMENTATION

Figures 4a and 4b illustrates a typical older ornamental masonry building, and the resulting scan image from multiple street level scans. A pair of street façade CAD drawings was required for this building to serve as an updated basis for the architects' use in their renovation and restoration design. To provide greater level of detail at the upper ornamental levels, additional scans were taken from surrounding roofs and terraces. These scans fill in those areas of the building obscured from the ground level. Scans from street level are matched with scans taken from upper levels, to provide a comprehensive façade database that becomes the basis for a 2D

Figure 5

or 3D CAD drawing **(Figure 5)**. Once all scans are processed and aligned, data from multiple scans are brought into CAD and aligned to a prescribed UCS (user coordinate system) view providing a true perpendicular plane for each façade drawing. As various pieces of scan data are brought into the drawing, each will place itself in its proper position relative to one another. This is important, as scan data can be very heavy, often as much as 150 MB per scan. Using full multiple scans within a CAD program can quickly overwhelm a computer's processor, and slow down work efficiency. By selectively bringing in just parts of the scan data, you

minimize the memory needed and lessen the strain on your video graphics card. This enables quicker drafting within the CAD environment. Advances in computer technology have been instrumental in allowing scan data to integrate easily within typical computer graphics environments.

The aligned data will now serve as an underlayment for drawing CAD lines. Zooming in and out of the scan data within CAD enables one to discern the various ornamental elements, and place lines to accurately show windows, trim and ornamentation. In some areas, the level of detail acquired by the scanner even enables one to see the actual brick coursing **(Figure 5)**. Once your drawing is completed, you have an accurate as-built CAD image of the façade, along with a record set of digital data showing actual façade conditions that can be used for future reference.

This article continues at http://go.hw.net/AR414Course1. Go online to read the rest of the article and complete the corresponding quiz for credit.

SPONSOR INFORMATION

FARO

FARO is the world's most trusted source for 3D measurement, imaging and realization technology. The Company develops and markets computer-aided measurement and imaging devices and software used for inspecting components and assemblies, production planning as well as documenting large volume spaces or complex structures in 3D.

QUIZ

1. Phase based laser scanners will
   a. record a 360 degree view within minutes
   b. produce an image referred to as a point cloud
   c. capture over 50,000 data points per second
   d. all of the above

2. 3D laser scanner technology includes the following attribute
   a. it can operate outside in any kind of weather
   b. will detect metal objects within concrete
   c. operates on line of sight data capture only
   d. if not properly calibrated, it can emit harmful rays melting objects

3. An advantage of 3D laser scanning over traditional hand measuring techniques is:
   a. it can eliminate the need to be on a ladder or scaffold
   b. you can document hazardous areas from a safe distance
   c. it gives you three dimensional data versus two dimensional hand measurements
   d. all of the above

4. Multiple scans of a building can be aligned and processed in software. This data can be:
   a. imported into CAD programs and used as a basis for 3d models
   b. automatically turned into drawings with a few keystrokes on the computer
   c. used for pictures, but will not match any scale
   d. only useful with third party software add-ons

5. Applications of scanning data within CAD include all but:
   a. topographic mapping of floors and walls
   b. basis for floor plans and reflected ceiling plans
   c. indicating infra-red emissions from heat loss off walls
   d. creating 3D CAD models

6. When planning to document piping, what should the scan operator avoid?
   a. use a scanner's color camera to capture color imagery of the areas
   b. space the scan station locations together closer to gain multiple line of sight images
   c. scan at low resolution to minimize the overlapping data
   d. scan at high resolution to maximize data returns

7. Clash detection can best be accomplished by:
   a. importing scan data and 3D models from various disciplines together into a CAD program
   b. taking photos of a building and then looking at the construction drawings
   c. overlaying plan and reflected ceiling plan drawings to see how things line up
   d. cutting a few cross sections through proposed construction

8. Advantages of 3D laser scanning during construction are all the following except:
   a. lets you see how many workers are on the job
   b. will serve as a record of pipes and ducts that will be hidden from view once work is completed
   c. gives you data to compare placement of work against design drawings
   d. provides accurate dimensioning for shop drawings

9. Hand scanners are primarily used for:
   a. capturing whole buildings
   b. acquiring data on quick moving objects
   c. detailing ornate or organic shapes
   d. MEP documentation

10. Which of the following building types are difficult to scan?
    a. red brick masonry up to 10 stories high
    b. hi-rise mirrored glass building facades
    c. wood framed structures under construction
    d. interiors with curved walls and shifting floor planes

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BREAKTHROUGH DECKING

LATEST DEVELOPMENTS IN WOOD-ALTERNATIVES

LEARNING OBJECTIVES

After reading this article you will be able to:

1. Explain the evolution of decking materials
2. Describe the differences between wood and alternative decking materials
3. Discuss the basics of high-performance composite decking materials
4. Refer to case studies and other uses for high-performance composite decking materials

CONTINUING EDUCATION

CREDIT: 1 LU

COURSE NUMBER: ARapril2014.2

Use the learning objectives above to focus your study as you read this article.

Visit http://go.hw.net/AR414Course2 to read more and complete the quiz for credit.

By Kathy Price-Robinson

Since the first generation of wood-alternative decking was introduced to the market in the 1990s, outdoor living has continued to gain in popularity. The latest innovation in composite decking material allows for improved durability, more beautiful options and lower maintenance requirements.

OVERVIEW

Wood-alternative decking materials have undergone a major transformation since first introduced in the 1990s. But homeowners and even industry professionals are not always aware of these advances. This course examines the wood-alternative decking materials presently available and provides information about the evolution of decking materials, the differences among wood and various alternative decking materials, and the enhanced capability for building design and aesthetics offered by wood-alternative decking.

The decking and railing market in North America is considerable, with about $3.6 billion spent annually, and is expected to rise.[i] The primary driver of this market is residential remodeling. Some 3.1 million residential decks were built in 2008, with 91 percent of those either added to existing homes or replacements for older decks.

With 40 million wood decks already in existence and aging every year, the market for low-maintenance wood-composites will surely grow.

It's easy to understand why the deck business is gaining strength. Adding a deck is a relatively low-cost method of adding space to an existing home.

According to Hanley Wood's Cost vs. Value Report of 2014, deck additions rank in the top six remodeling projects for resale value. Nationwide, homeowners can expect to recoup up to 81 percent of their investment for deck additions. In the Pacific region, the return on a deck addition jumps to more than 100 percent.[ii]

According to REMODELING Magazine's Editorial Director, Sal Alfano, in his Cost vs. Value Report summary, "Historically, exterior replacement projects have always achieved a higher overall cost-value ration than discretionary projects, and that is once again the case."[iii]

Decking is a good investment, with a return from 81 percent to more than 100 percent upon sale of the house.

With usefulness three or four seasons of the year, depending on geography, decks are the most economic way to add enjoyable living space to a home.

Trends that contribute to the lucrative decking market include a growing interest in outdoor living, green building, and low-maintenance environments. American homeowners want to spend less time maintaining a home and more time enjoying it. Faced with economic challenges, homeowners have realized that they can extend their living space outside less expensively than they can by adding interior space. And, consumers' growing desire to be more environmentally friendly makes wood-alternative materials even more attractive.

In the luxury market, according to surveys by the AIA, outdoor living space is the number one trend. While lot and house sizes are not getting any bigger, homeowners are trying to optimize their home and lot by extending their living space outdoors.

HOW WE GOT HERE

Our history begins with covered front porches where neighbors sat and waved to passersby. In the 1950s, when the focus of family life turned to the back yard, the first residential decks begin to appear on American homes. At that time, wood planks served as the decking material.

Decks turned out to be an enduring trend. From relaxing, to grilling, to Sunday breakfast in the out of doors, homeowners found themselves drawn to their new outdoor living space.

Homeowners want to make the most of costly home sites, and a deck provides instant living space for a fraction of the cost of a home addition. In temperate parts of the country, they can be enjoyed nearly year round. In many other parts of the country, a deck serves as a three-season space.

For gardeners, decks provide a space to enjoy the results of one's green thumb. Whereas a backyard without the benefit of a deck would rarely be seen by anyone other than the gardener of the family, time spent on a deck puts family and visitors alike in close proximity to the gardener's handiwork.

Decks are an excellent transition from interior to exterior, and especially from a home to a pool area. The deck can add visual interest to a yard, especially if it's built in multiple levels to provide distinct spaces for various activities: one level for an outdoor kitchen, another for the dining furniture, and perhaps one more level for a hot tub, pergola, seating or planter box.

Homeowners love their decks. However, scores of wood-deck owners have learned the hard way that wood decks inevitably will fade, warp, rot, and splinter. When homeowners tired of the regular care and maintenance needed for wood decks, an opportunity arose for low-maintenance alternatives and forward-thinking companies took note.

FIRST-GENERATION ALTERNATIVE MATERIALS EMERGE

The early 1990s saw the introduction of wood-alternative decking materials to the residential market as homeowners embraced the idea of low-maintenance outdoor living.

By the late 1990s, alternative materials began to challenge wood's dominance. Thereafter, new materials and approaches emerged. PVC decking was introduced to the market around 2003. Around 2008, high-performance composite decking made its debut.

High-performance composite represents the latest in decking technology. It is sometimes referred to as "capped" composite decking. This material is a blend of synthetic and wood fiber, covered, or capped, with a durable,

The latest in wood-alternative decking is capped or wrapped with a non-porous membrane that is both durable and attractive.

attractive, and non-porous membrane. This external shell offers scratch, stain, fade, and mold resistance, and is backed by enhanced warranties to reflect the improved benefits. In addition, the product is considered environmentally friendly with some boards consisting of up to 95 percent recycled content.

Architects, builders, deck builders, and specifiers embraced this newer generation of wood-composite decking material and for good reason: "All deck products evolve, just like computer technology," says Greg DiBernardo, owner of Bergen Decks in Bergen County, N.J. "So new product lines are usually better, at least historically, than the ones they replaced."[iv]

CASE STUDY

Big Creativity in a Small Space

Not just another front porch. These unique steps are made with the latest in wood-alternative deck boards

Deck builder Jake Mathias of Great Big Decks in Barrie, Ontario, likes to go the extra mile to make his customers happy. Three years of deck building convinced him that high-performing composite decking is the way to go.

"It's my personal preference," he said, noting the beauty of the grain patterns, color options, performance, and ease of use of the new composites.

Mathias builds about 12 wood-alternative decks a year, both big and small. Recently, a homeowner made a simple request to replace a battered concrete front stoop and walkway with four stairs and an upper platform that would host a bistro set.

The end result demonstrates what a touch of creativity can achieve in a small space.

Mathias created a 21 ft. x 14 ft. curved design featuring high-performance composite decking, lighting, and an alternating board placement that wins raves by passersby and the homeowner. "I said I wanted a showpiece," said Arden Spicer of Ontario. "I didn't know what to expect. I was joyous when I saw it."

In addition to the peaceful feeling her entry area evokes, Spicer said she is especially pleased with its durability. "It will probably withstand a tornado; the house will be gone, but the front porch will still be there," she laughed.

Mathias agreed. The easy maintenance requirements, long-lasting durability of advanced composite decking are important to the deck builder whose clients deal with snow nearly half the year.

CHOICES IN DECKING MATERIALS

To better understand the available options in decking material, and the various pros and cons associated with each, let's review them individually, from the old-school wood to the highest performing innovations.

Traditional Wood Decking Materials

Pressure Treated Lumber—Arsenic-free pressure treated deck boards do not require EPA warnings and are considered safe to handle. However, environmental concerns remain. According to a U.S. Dept. of Agriculture document titled "Alternatives to Chromated Copper Arsenate for Residential Constriction,": "CCA alternatives have been developed and are becoming more widely available. The alternatives rely heavily on copper as the primary biocide, with a range of co-biocides to help protect against copper-tolerant organisms. Studies indicate that the CCA alternatives do release measurable quantities of copper and co-biocide into the environment."

In addition, there are concerns about rotting, warping, splintering, and the susceptibility of these boards to insect damage. They also require ongoing maintenance to keep the boards looking good, adding to the cost of investment.

Cedar—A respected member of the cypress family, cedar is resistant to rot, and lasts nine to 30 years if properly maintained. It has high initial beauty. However it has relatively low strength and only moderate impact resistance. Of course, old growth harvesting has become quite restricted. And the boards harvested from the second growth shows reduced longevity and diminished aesthetics.

Redwood, Cedar, and Douglas Fir—Once the darling of outdoor use from decks to picnic tables, redwood trees are now in short supply, and availability issues abound. The redwood, cedar and Douglas fir available these days are typically of much lesser quality than those available years ago. New growth products are prone to warping, splintering, and cupping. There can be challenges sourcing needed sizes, which can delay a project, or even require a redesign. Once installed, there may be more maintenance requirements for this kind of deck than the average homeowner cares to tackle. A deck that fails prematurely, even when it's caused by lack of required maintenance, reflects poorly on the designer, contractor, and subcontractor alike.

Exotic Woods—High-end decks may be built with ipe, mahogany, and other species and sub-species. These woods are gorgeous, with great aesthetic appeal to owners. Plus, they are typically durable and strong, requiring very little maintenance and having minimal shrinkage. If maintained properly, a deck of exotic woods could last more than 30 years.

On the down side, of course, woods harvested from Central America and South America rainforests may not be appropriate for a green-leaning project. Even if the owner finds the sustainability issues acceptable, the high initial costs need to be factored in. Due to limited availability, the cost of these exotic woods is considerable and may even be prohibitive to most homeowners.

BENEFITS AND DRAWBACKS OF WOOD DECKS

A wood deck traditionally meant an affordable addition to a family's home, an addition that is aesthetically pleasing and that can weather naturally. Benefits for the builders include wide ranging availability (in most cases) of the boards and ease in cutting and fastening.

However, simply installing the deck does not complete the job. A wood deck requires staining, painting, sanding, and/or sealing. Going forward, once the deck is in use a few years, the drawbacks reveal themselves. Wood boards have a tendency to rot, split, swell, twist, and fade. You won't have to survey many owners of older wooden decks to receive a litany of anecdotes attesting to these occurrences. Add to that nail pops and splinters, as well as mold and mildew growth. When you add to that a possible contributory factor toward deforestation, wood becomes less and less desirable as a durable deck material.

Shift Toward Alternative Materials

Over time, the drawbacks of wood decks have increased as the quality of lumber has decreased. As homeowners seek to spend less time maintaining their homes, wooden decks are less durable.

With the liability issues for specifiers and builders added into the mix, you have a perfect opportunity for a new type of decking material to emerge.

Alternative materials to wood for residential decking can be categorized into three categories: Traditional composites (uncapped), PVC (polyvinylchloride), and high-performance composites (capped or shelled).

TRADITIONAL COMPOSITE LUMBER

The composite lumber alternatives that showed up on the scene in the mid-1990s are sometimes referred to as "uncapped" composites. That means the whole board is of the same material, and is not covered or capped with a secondary shell.

The first generation of composite lumber consists of polyethylene (PE) or polypropylene (PP) along with waste hardwood and softwoods. Most manufacturers use significant amounts of virgin PE or PP, while a few manufacturers use significant amount of reclaimed/recycled PE. The wood comes from manufacturers as excess scrap and is ground into wood flour. Plus, additives are used for color and UV stabilization. The post-consumer, postindustrial content can range from 40 percent to 95 percent, depending upon manufacturer.

Traditional composites remain pliable in low temperatures, require gapping between boards to allow for contraction/expansion. They come in a range of colors.

A review of the benefits of traditional composite lumber indicates why it became popular and widespread. Differing radically from wood, composites won't warp, crack, or splinter, which make them a nice product when running, bare-footed children use the deck.

Depending on the manufacturer, the product is environmentally friendly based upon its composition of recycled content. And, most importantly to homeowners, these materials require less maintenance than wood and resist termites and decay.

Visit http://go.hw.net/AR414Course2 to read more and complete the quiz for credit.

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QUIZ

1. In Hanley-Wood's Cost Vs. Value Report 2014, what percentage of investment can homeowners nationwide expect to recoup for money spent on deck additions?
   a. 55 b. 67
   c. 74 d. 81

2. Which of the following problem(s) with wood decks created a market for composite decking?
   a. Cracking b. Splitting
   c. Rot d. Insects
   e. None of the above f. All of the above

3. Arsenic used as a preservative for pressure-treated boards has been phased out, but leaching of toxins into the environment is still a problem. Which of the following additives in current use in pressure-treated boards is a concern to the U.S. Department of Agriculture?
   a. Copper b. Sodium
   c. Magnesium d. Hydrogen

4. At what temperature does lumber made of polyvinyl chloride become brittle?
   a. 40˚F b. 45˚F
   c. 50˚F d. 60˚F

5. In which decade was the first generation of composite decking introduced to the market?
   a. 1970s b. 1980s
   c. 1990s d. 2000s

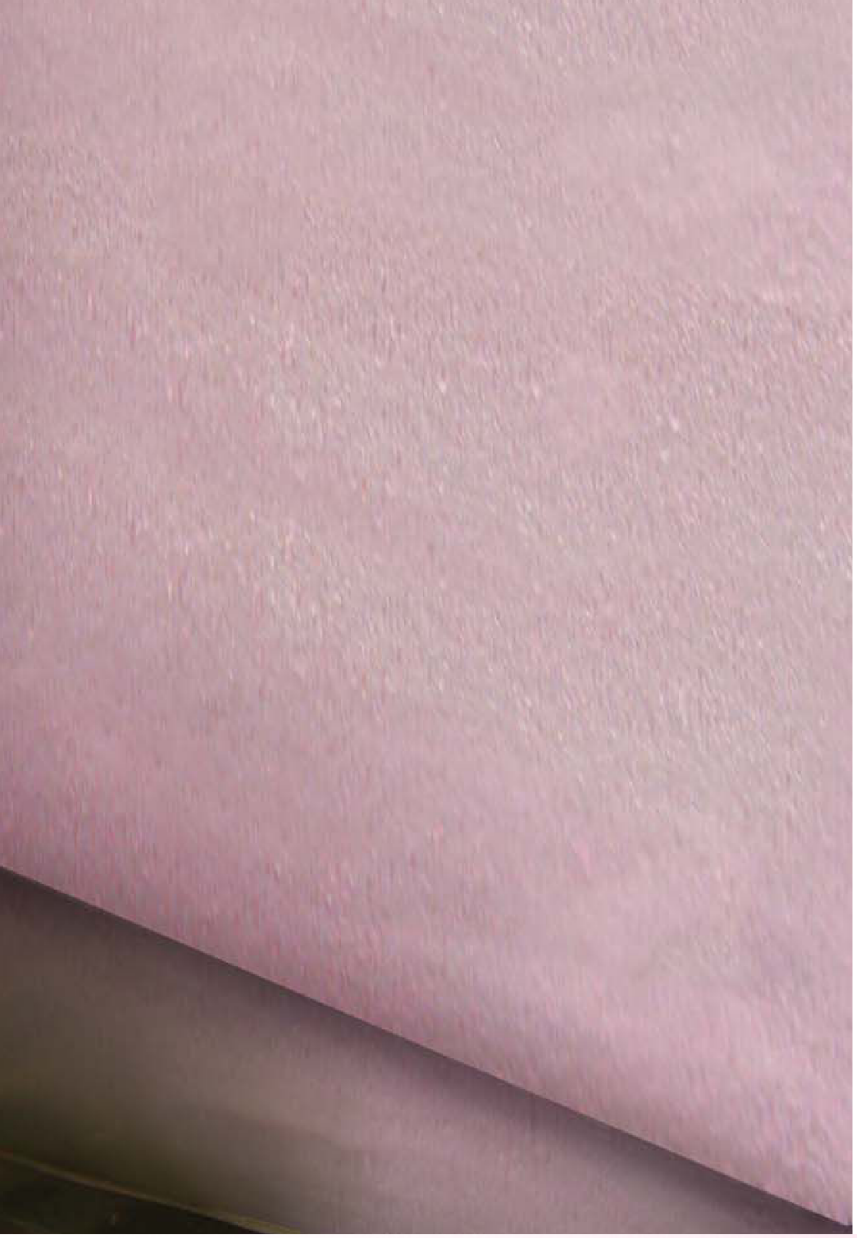
6. What does it mean when next-generation composite boards are "capped"?
   a. There is a cap on export prices b. Small caps indicate nailing patterns
   c. They are capped with a non-porous membrane for aesthetics and durability d. The newer boards are packaged with caps on the ends for shipping

7. Using recycled materials, the leading maker of wood alternative composite decking says it keeps how much plastic and wood scrap out of landfills each year?
   a. 200,000 tons b. 200,000 pounds
   c. 400,000 tons d. 400,000 pounds

8. What is the weight comparison between high-performance composite boards and hardwood?
   a. High-performance composite board and hardwood weigh the same at about 2.5 lbs. per linear ft.
   b. High-performance composite boards weigh twice as much as hardwood.
   c. High-performance composite boards are half the weight as hardwood.

9. True or False: Next-generation composite boards can be cut, sawed, routed, and drilled with common woodworking tools.
   a. True b. False

10. What is the typical warranty period for high-performing composite boards?
   a. five years b. 10 years
   c. 20 years d. 25 years



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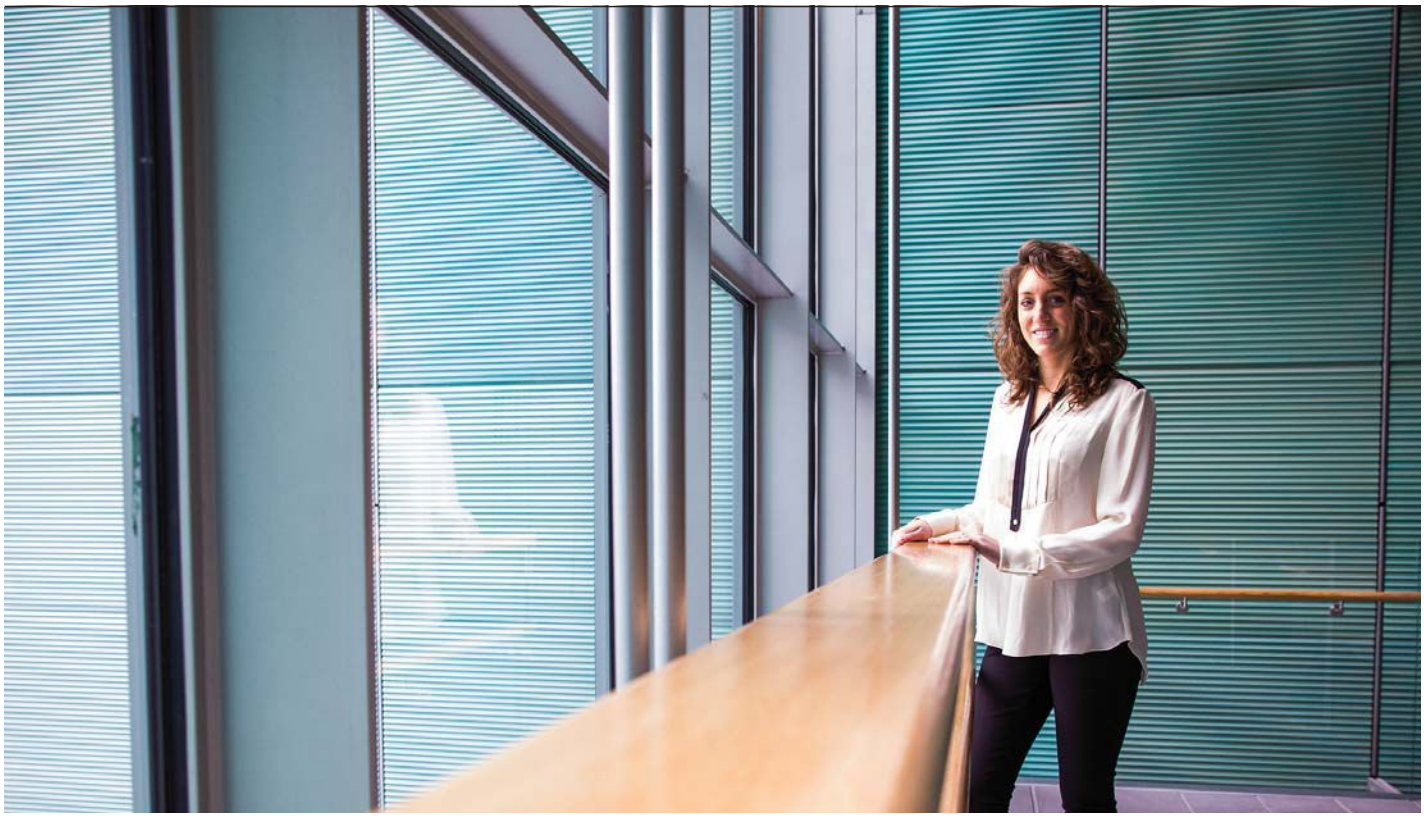

PHOTO: PORTER GIFFORD

AIAVOICES

DON'T FORGET FUNCTIONAL AND BEAUTIFUL | CREATING A BEACON FOR PORT-AU-PRINCE AND BEYOND

Katie Davis is a designer with Stantec in Boston. In the last three years, Davis has provided humanitarian relief in Haiti through Architecture for Humanity, and designed a school for Port-au-Prince through Islamic Relief Worldwide. "My intentions in Haiti, at the most basic level, were about learning as much as I could," she says. "And designing a school on site with what was readily available was a very steep learning curve."

ARCHITECTURE CAN BE RESILIENT AND IT CAN BE SUSTAINABLE, but it's a humanitarian pursuit at base level—it's about helping people and providing them with something functional as well as something desirable. Designing Lycée Jean Marie Vincent for Port-au-Prince was about assessing what was lost, as well as the ongoing needs of the students, their parents, teachers, and the community at large since the earthquake took a toll that spared no one.

But it was also about finding long-term solutions for a generation of students—like introducing simple composting, bio-systems, and solar power to improve the country's disposal, sanitation, and electricity. Islamic Relief Worldwide had funded the rebuilding of four schools in Haiti, and the one I worked on was both the largest of the four and the precedent for the other schools. It was more about creating a set of standards for ourselves at Islamic Relief, and working with the local municipalities and firms, to move forward with responsible design recommendations that were specific to each site and condition.

You also have to use what's available to you on the ground, on site. You have to use what makes sense to the local economy, including working with its local material and physical resources. One thing that everyone seems to agree on is that you have to design seismically. So we worked with structural engineers on the ground and made sure what we were doing aligned with their recommendations. Rebar is all over the place now, which is great, but part of our mission was to teach others how to build with it properly. And local metalwork was everywhere—intricate pieces created by hammering and bending is a traditional craft done by many Haitian artisans—so we found it a great fit for the beautiful and secure façade elements, such as the school's windows and doors.

It took—and is still taking—a lot of patience and hard work to collaborate and coordinate the needs, construction, and systems because, even in the Third World, design matters—and design can make functional things stronger because they are useful and inspire others. We want this school to be a beacon for the community, for Haiti, and for the international community.

The funny thing is, when I was in school myself I didn't do much related to the school building type. But I've always been interested in humanitarian design, how simple spaces can be designed to be functional and beautiful, like adapting modular blocks to different programs and carving interesting moments out of these spaces. *—As told to William Richards* AIA

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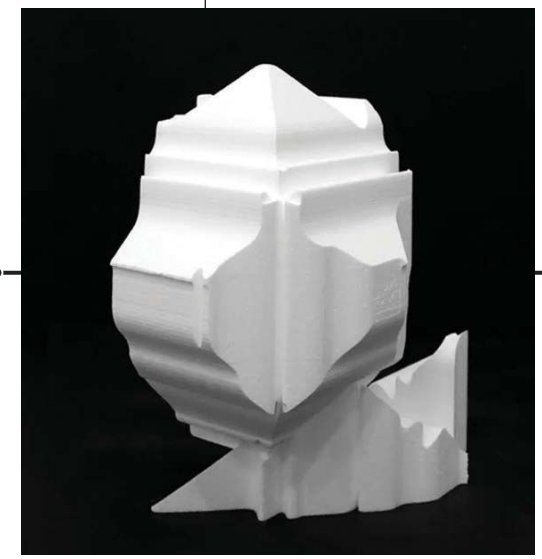
AIANOW

ACROSS THE INSTITUTE

Edited by William Richards

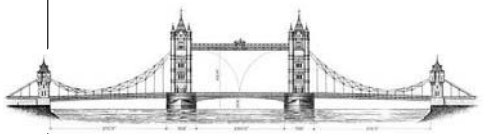
1 Garden State Great
May 7–11

3 Beslerations
May 19



4 Discover Design
May 25

5 Space City Cycling
May 17



2 Building Bridges
May 8–9

IMAGE 3: LOW FIDELITY, ERIN BESLER | IMAGE 4: SOUTH LOOP RIVER VIEW, MARK MONTGOMERY, © CITY OF CHICAGO

1 Garden State Great. For 34 years, the members who comprise Vernacular Architecture Forum (VAF)—architects, historians, folklorists, and archaeologists—have called much-needed attention to the ordinary buildings and landscapes that we tend to take for granted: houses, storefronts, corn cribs, and other types—all of which represent evidence of regional building traditions, material innovations, and long-invisible communities that once thrived. This year, VAF goes to southern New Jersey—far from the political antics of Trenton—to examine the Pine Barrens, Delaware Bay shoreline, and beach communities from Cape May to Atlantic City.

↗ Learn more at *vernaculararchitectureforum.org.*

2 Building Bridges. The idea of a resilient city centers on adaptability and smart planning, but there are competing plans for getting there. Is there a middle ground? On May 8–9, UMass Boston's Center for Rebuilding Sustainable Communities After Disasters, Boston Architectural College, and the School of Architecture, Art, and Historic Preservation at Roger Williams University will host "Disaster Mitigation, Preparedness, Response, and Sustainable Reconstruction" to answer that question.

↗ Learn more at *umb.edu/crscad.*

3. Beslerations. Erin Besler is all about iterations. Or is she about all iterations? Starting with the 14 layered, colored-paper collages that Peter Eisenman, FAIA, produced for House VI (1975), Besler created 42 analytical drawings that suss out the spaces that Eisenman's collages suggest. Besler produced the drawings with broken-tipped felt pens, from which her project, Low Fidelity, gets its name. She then carved 48 foam versions, 34 of which are axonometric sculptures, and drew 412 "translations" based on the original 14 collages. Is it iterative overkill? Or, just the tip of the analytical iceberg? Find out on May 19 when Besler, an AIA Henry Adams Medal recipient and current teaching fellow at UCLA's School of Architecture & Urban Design, will present Low Fidelity and other research projects in a lecture at UCLA A.UD.

↗ To learn more, visit *aud.ucla.edu.*

4 Discover Design. You don't need to be Carnac the Magnificent to see how project-based learning and collaboration in secondary education is naturally aligned with architectural practice. The Chicago Architecture Foundation's Discover Design program promotes architectural awareness and design problem-solving skills in the two ways that matter most: among high schoolers who want to know more about architecture, and digitally with discoverdesign.org's sharing options. Last year's Discover Design challenge was a library; this year it's a school athletic facility. Finalists are due to be announced the week of May 25.

↗ Learn more at *discoverdesign.org.*

5 Space City Cycling. The Heights, Houston's first mixed-use neighborhood and one of its first planned communities, is home to more than half of the city's properties listed on the National Register of Historic Places. Victorian piles, Craftsman bungalows, and Colonial Revival saltboxes define about three square miles in northwest Houston—many built around the turn of the last century. You can walk it, but why not bike it? Join AIA Houston on a bicycle tour that will cover individual homes and the overall neighborhood context.

↗ Learn more at *aiahouston.org.*

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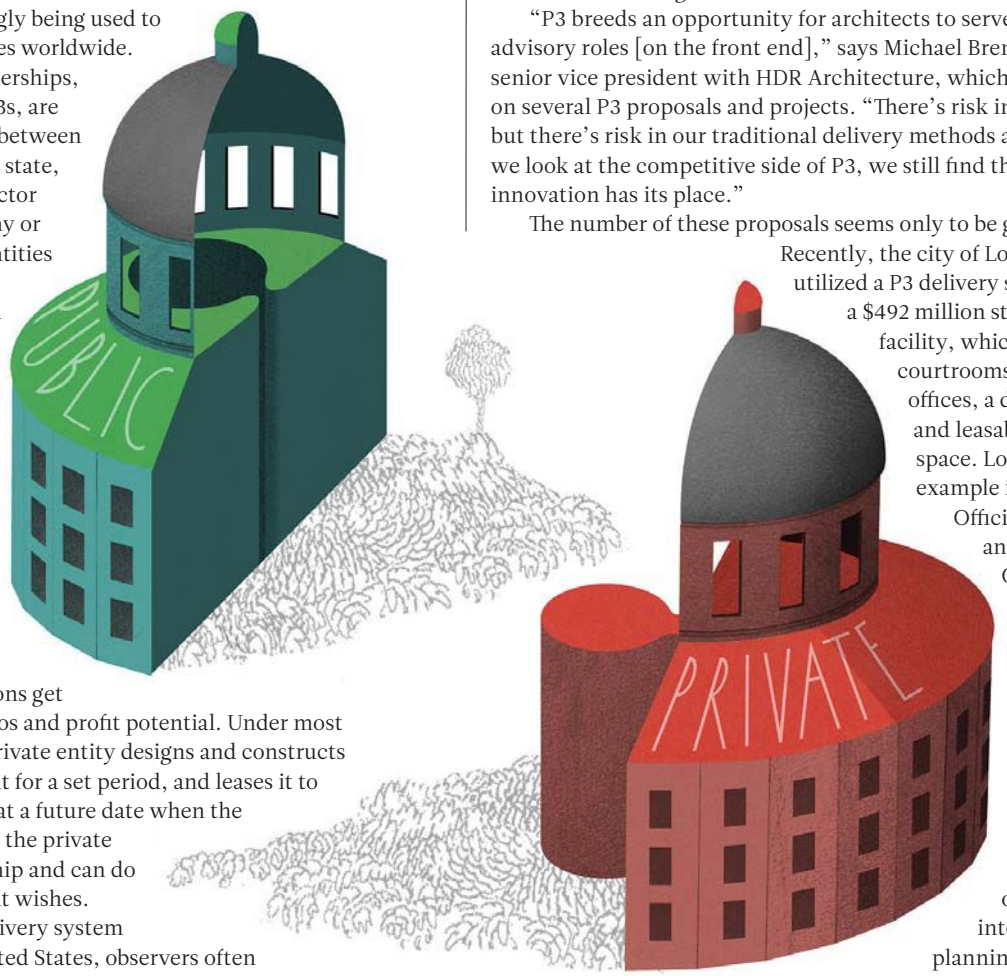
AIACOLLABORATION

MODEL BUILDING | ARE JUSTICE FACILITIES AND PUBLIC–PRIVATE PARTNERSHIPS A NATURAL FIT?

THE PRICE TAG OF A $250 MILLION DEVELOPMENT PROJECT IS bound to attract attention. But when that project also involves public–private partnerships to finance it, design and construction professionals should take notice. In this case, the project in question is a massive 3,500-bed jail and court complex in Indianapolis, currently out for development proposals, whose total cost may end up somewhere between $200 million and $500 million. Yet even with that hefty price tag, city and county officials are hoping that the project can be designed, built, and funded without raising taxes, by leveraging private resources instead. It's a model that is increasingly being used to fund correctional facilities worldwide.

Public–private partnerships, also known as PPPs or P3s, are contractual agreements between a public agency (federal, state, or local) and a private sector entity (usually a company or corporation). The two entities share their resources to push the project forward to completion, with benefits in the end for both of them. For one thing, public agencies use this process to find greater access to private capital and usually a more efficient process (especially over the project's full lifecycle), while private organizations get to increase their portfolios and profit potential. Under most P3 configurations, the private entity designs and constructs the building, maintains it for a set period, and leases it to the public entity. Then, at a future date when the public lease has expired, the private entity gains full ownership and can do with the property what it wishes.



As the P3 project delivery system gains traction in the United States, observers often cite Canada, Australia, and Europe as successful early adopters in the last decade. And certain building types may be better suited than others for a P3 approach, which really works best for large-scale buildings that have a complex set of programmatic requirements. Correctional facilities fit squarely into that category, and some architects are taking notice.

"We have known for quite some time that the delivery method for corrections and other justice projects has been changing and evolving," says Linda Bernauer, AIA, a project manager with Dewberry Architects. Bernauer is also the current chair of the Academy of Architects for Justice, an AIA Knowledge Community devoted to correctional and justice facilities.

"Over the last decade, many design/build and design/build/operate projects have been constructed throughout the U.S.," she says. "The obvious next step is P3s."

The potential downside for architects working in a P3 delivery model, however, is that they are no longer the owner's agent-advocate or the primary design professional. Instead, they have found themselves (in previous P3 examples) in a subcontractor role to the developer or financier. One of the principal drawbacks of this arrangement is that it may diminish the architect's ability to positively affect outcomes or respond to owner concerns and programmatic needs.

At the same time, the P3 model also may allow firms to diversify their skill sets and go after new work.

"P3 breeds an opportunity for architects to serve in owner-advisory roles [on the front end]," says Michael Brenchley, AIA, a senior vice president with HDR Architecture, which has worked on several P3 proposals and projects. "There's risk in P3 delivery, but there's risk in our traditional delivery methods as well. When we look at the competitive side of P3, we still find that design innovation has its place."

The number of these proposals seems only to be growing. Recently, the city of Long Beach, Calif., utilized a P3 delivery system to open a $492 million state justice facility, which contains 31 courtrooms, administrative offices, a detention center, and leasable commercial space. Long Beach's example is catching on. Officials in Houston and Multnomah County, Ore., are also looking into a P3 for new justice facilities, in addition to the new complex in Indianapolis.

Stephen Carter, founder of CGL, an international planning, design, and financing firm that specializes in correctional facilities, says that while fewer than 5 percent of current correctional bed spaces are being developed this way, P3 justice projects represent a much higher fraction of the marketplace in terms of financial worth.

Going forward, Carter says, owners and developers will have to rely on very sound evidence-based architecture briefs on the front end to define the functional and financial needs for correctional projects. Architects are essential to that process. "Architects need to understand that if they're going to get into correctional work [in this environment], adjustments to the way they're going to market and perform their work will be essential," he says. "It's happening faster than most of us realize." —*Kim O'Connell* AIA

↗ Learn more about the AIA Academy of Architecture for Justice at *aia.org/aaj*.

ILLUSTRATION: BRETT RYDER

Long-Term Benefits

Beyond the quick fix of public-private partnerships.

BY CINDY SHINER

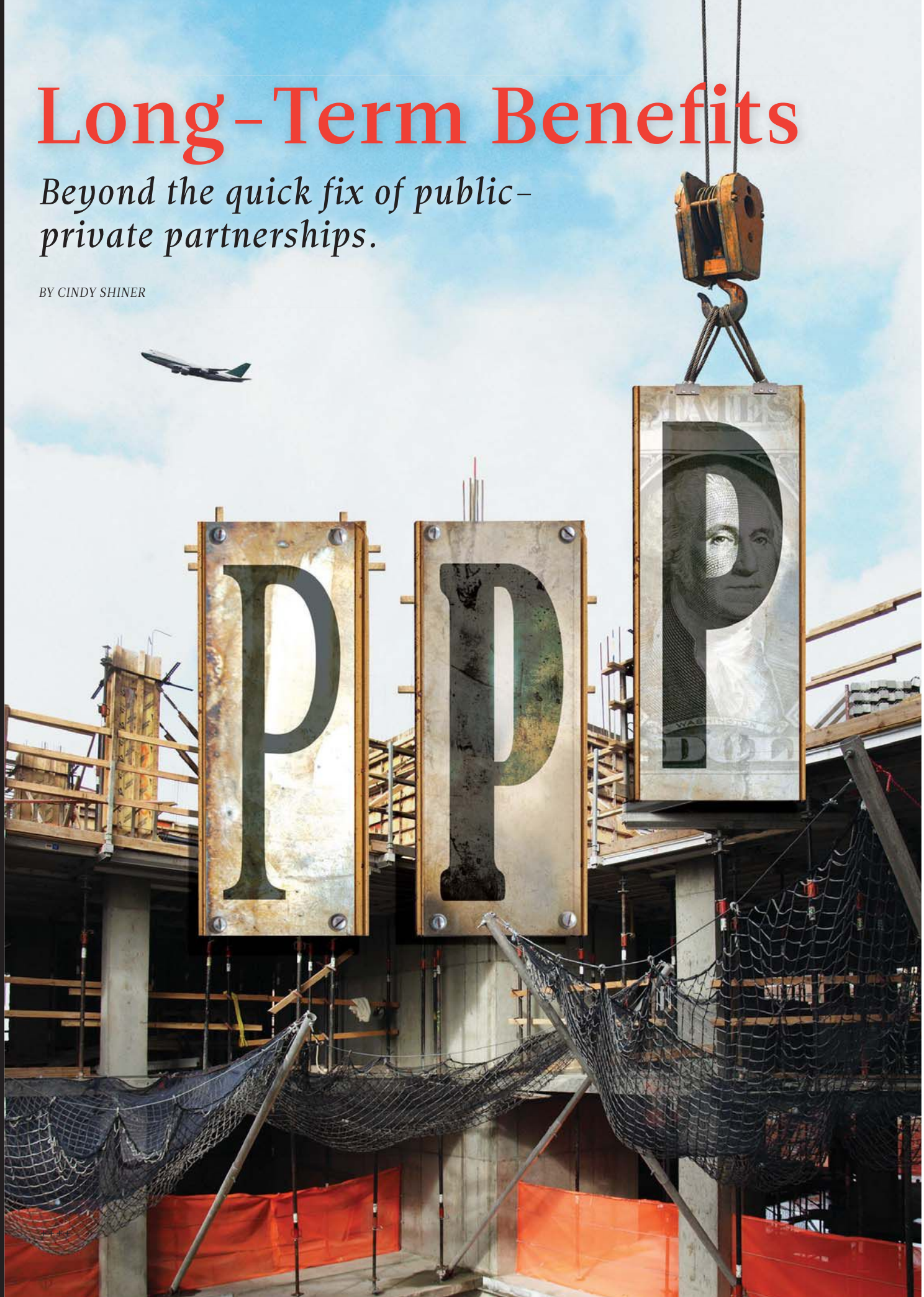


ILLUSTRATION: VIKTOR KOEN

AS STATE AND LOCAL GOVERNMENTS INCREASINGLY TURN TO THE private sector to finance public infrastructure projects, architects need to defend their future roles—for their own sakes as well as those of public owners and taxpayers. Public-private partnerships, known as PPP or P3s, introduce a fundamental change in project delivery because they shift the role of the architect from owner's agent-advocate to developer's subcontractor. With the potentially diminished role of the architect, say some industry analysts, public owners could get stuck with obsolete or poor-quality buildings, and taxpayers could be left footing the bill.

Since the recession began in 2008, government funding for public works has dwindled even though an investment of $3.6 trillion across all infrastructure types would be required to reach a state of good repair by 2020, according to the American Society of Civil Engineers. Lawmakers whose districts are struggling to get schools, hospitals, libraries, and other public facilities built thus see P3s as a win-win situation.

"This is being sold in the policy arenas as 'free money,' basically," says Yvonne Castillo, AIA director of state and local government relations. "No one uses that phrase, but that's the excitement that we hear from lawmakers when they're talking about P3s. It's an easy crutch that is plagued with long-term disastrous implications if it's not used properly."

Take the 2009 case of three schools in the U.K.—a pioneer in P3s, along with Canada and Australia—where teachers and students became ill from heat exhaustion and the National Union of Teachers said faulty ventilation and excess glass were partially to blame. A U.K. Audit Commission report on private finance initiative (PFI), or P3, schemes found that the quality of early PFI schools was worse than traditionally procured schools. "Most users were understandably pleased to have a new school, but they were less happy with some specific aspects of their buildings—for example, size, layout, and environmental control," the report said.

There were cases when public officials turned up at ribbon-cutting ceremonies for a new school only to leave red-faced because of the poor quality of the structure. "The expression I heard was 'an agricultural shed with windows in it,' which means a barn," says Brian Watkinson, an architect and principal of the Canadian professional service firm Strategies4Impact. Other reports detail cases in the U.K. in which PFI schools had to close because of falling student numbers, but education officials had to continue to pay the contractors millions of dollars for the schools for years to come.

"My cautionary tale is about underinvestment in design, adaptability, and sustainability. We must ensure that design has the space it needs," says Sunand Prasad, Hon. AIA, a senior partner of London-based Penoyre & Prasad and the 2013 president of the Royal Institute of British Architects. "If not, then the public sector will get a bad deal in the long term."

For those reasons, the AIA has been trying to ensure that architects have a place at the table while legislation is being drafted to cover P3s; its leaders advocate for provisions at the state level specifically (and more generally at the federal level) that protect and promote design quality, and provide reasonable guidelines and screening of P3s so that public risk is minimized and value for money is maximized.

The model legislation includes provisions that require public entities to make architects' qualifications—not price—the first consideration. Provisions also include stipends for unsuccessful shortlisted proposers, which the AIA says will help smaller firms, including those headed by women and minorities. Development industry leaders, however, say some of the AIA's efforts merely hold up business.

"Their members have important roles and interests, both as matters of public policy and their own livelihood, in the public procurement process," says Rodney Moss, chairman of the law and legislative committee for the Association for the Improvement of American Infrastructure (AIAI). "When those interests serve the public good and integrity of the procurement, they should be preserved in P3 legislation. However, when those interests promote inefficiency and, therefore, increase cost and risk, and are self-serving, they should not be preserved."

Development firms have been fiercely lobbying public officials to pass legislation quickly to get the ball rolling on construction projects. Five states—Florida, Maryland, North Carolina, Texas, and Virginia—as well as Puerto Rico—have passed legislation to bring procurement regulations on P3 construction up to date. Georgia, Indiana, Kentucky, and Oregon—as well as the District of Columbia—are actively negotiating bills.

In its most basic sense, the legislation being passed in states codifies P3 as a delivery method that transfers, in one contract, all responsibilities for the design, construction, and financing of publicly funded buildings to one private entity. The public entity, depending on the contractual terms of the agreement, no longer regulates the procurement process. Some projects are structured as long-term contracts in which the public entity pays the private entity to use the building after it's constructed, with interest and a premium built in for the financier. The model bill that the AIA has drafted defines a performance-based delivery method using public-private partnership nomenclature. "We're saying a public-private partnership delivery method requires that a public entity enter into a contract with a private entity to design, build, finance, maintain, and operate a public building," says the AIA's Castillo.

And Castillo goes on to explain that this is important because if a developer-financier is there only to design, build, and finance without a commitment to the long-term maintenance and operation of the facility, then its quality and long-term viability could be compromised.

"The simplest illustration is: You go to buy a television set and one of them has a 30-day warranty," says Trey Wheeler, AIA, vice president of TWH Architects in Chattanooga, Tenn., and legislative chairman for AIA Tennessee. "The one that has a five-year warranty makes me think the manufacturer is standing behind what he is selling. So if we're delivering quality buildings here, what's the problem with standing behind them for some period of time?"

The AIA says it already has had some success with influencing legislation at the state level. A bill in Pennsylvania that attorneys say lacked adequate quality protections was significantly slowed down. A similar one in Tennessee has been put on hold. Wheeler urges architects in other states to get involved. Large development companies are already making themselves heard. Lobbying by U.K.-based Balfour Beatty, for whom Moss worked previously and is a current AIAI member, was instrumental in getting the legislation in Florida and Texas passed. It also lobbied to get the Tennessee legislation passed, but the AIA successfully managed to convince state officials to reconsider it.

"Well before the session starts, [large development firms] are already meeting with lawmakers, saying what they want and why they want it, and selling this bill as, 'It's the private sector, we can help you out. We're ready to fund your buildings,'" said an attorney familiar with the legislation. "To a lawmaker trying to solve problems during their term, it looks awfully appealing." AIA

AIAPERSPECTIVE

CIVIC CONTINUUM

PHOTO: WILLIAM STEWART

WHILE I DECIDED TO STAY CLOSE TO MY BELOVED VIRGINIA mountains after graduation, one of my fellow classmates in Virginia Tech's architecture program, Mike Mense, FAIA, packed his gear and headed north to set up practice in Alaska. A brilliant scholar and an enviably talented designer, Mike has stayed in touch over the years after we went our different ways. No less passionate about his chosen career than when we worked together in studio, Mike recently asked me where our profession would be headed if we succeeded with Repositioning the Institute. In his note, he included a copy of a presentation he delivered to AIA Alaska's Central Section about the current state of the profession and where it ought to be trending. I was particularly struck by the words that accompanied an image he titled "From Monument to Instrument:"

> *Monumentality has long ceased being our most important contribution. Architects will always inevitably write the palpable history of our culture. As important now, though, is the role our work plays in the day-to-day lives of our clients and communities. If we make environments and buildings that support human life and the specific goals of each project, and if we emphasize that as our primary goal, without downgrading in the least our aesthetic concerns, we will become much more important, and valued.*

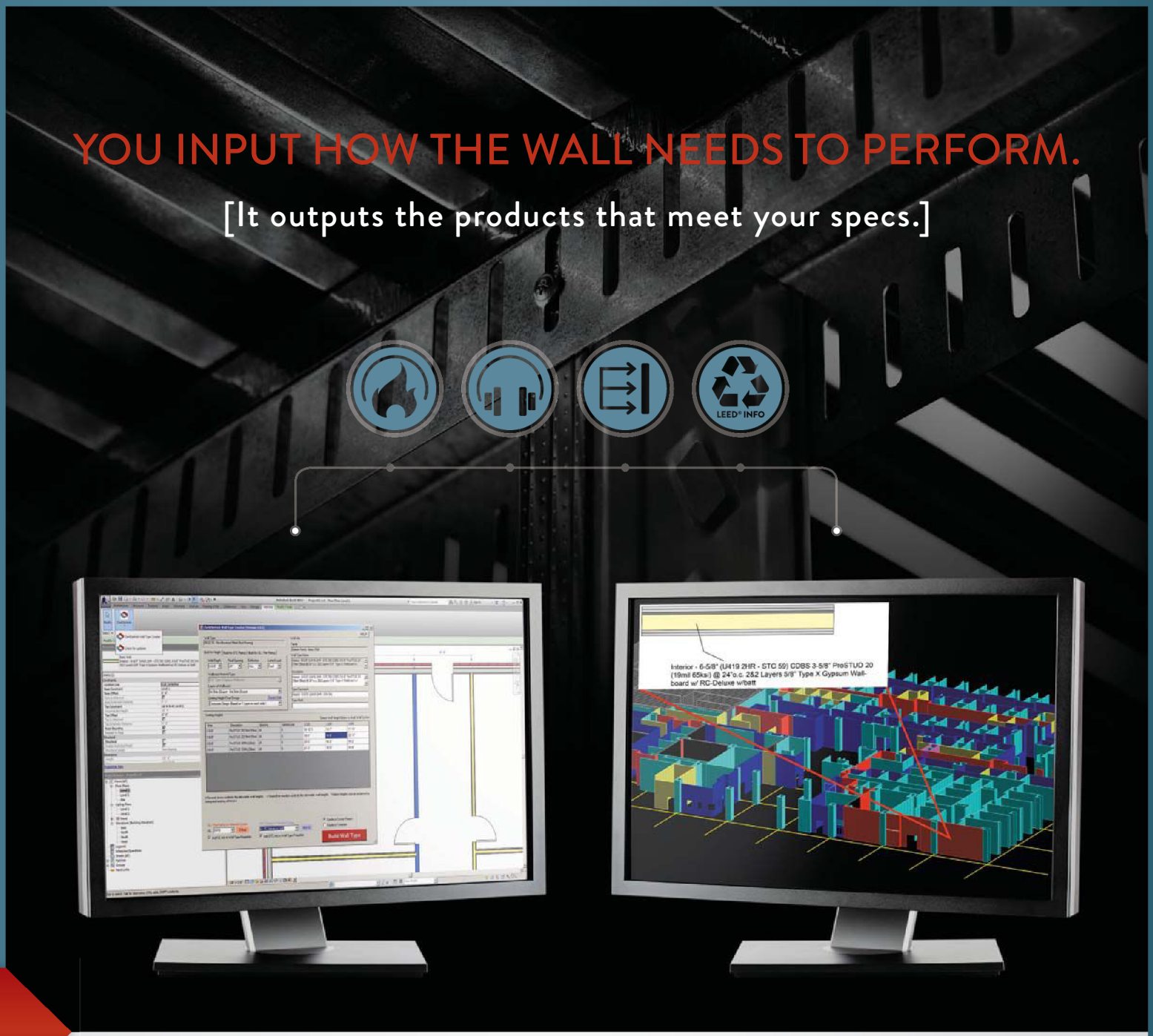
Mike knew perfectly well I'd snap at that bait. As I thought through his words and the passion behind them, I wondered: Has monumentality, for the sake of monumentality, ever been our profession's "most important contribution?" The public (and some clients) might think so, especially since our media environment celebrates the exceptional, the odd, the one-off, and the unusual. But when I look around at the contributions, both humble and sublime, that architects have made to shape and nurture communities, I know that monumentality does not reflect the bulk of the work that day in and day out enriches our communities both large and small.

These are the stories that need to be told, stories about architects and architecture that, again to quote Mike (and here I'm in full agreement), "support human life." That's what most of us do. It's what gives what we do value. Telling that story is indeed one of the objectives of the AIA's Repositioning Initiative.

This commitment to explore a broader narrative of the many different ways architecture advances life has guided the recent work of the AIA's Awards Task Force. The recommendations of the task force rightly conclude there is no inherent disconnect or hierarchy between aesthetics and function. Rather, they are complementary aspects of any persuasive definition of excellence. Architecture at its best is indeed an instrument to advance life. It is not simply a monument or an image isolated on a page.

There will always be a place for work that leans toward the purely sculptural, that wows the eye and teases the imagination. On this, Mike makes another point that hits the mark. "Architecture is cultural," he says. "It shapes culture for the future and, at the same time, reflects the history of that culture. This challenge—to use our talents to serve and support life in all its contradictions and complexities—is no different today than it was yesterday or will be tomorrow." AIA

Helene Combs Dreiling FAIA,
2014 President



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FASHION STATEMENT

THE NEW MANHATTAN OUTPOST FOR DOVER STREET MARKET WAS DESIGNED AS A RIOTOUS INTERPRETATION OF A HIGH-END POP-UP.

Text by **Karrie Jacobs**
Photos by **Connie Zhou**

THE LOCATION IS COUNTERINTUITIVE to the point of brilliance. The founder of Comme Des Garçons, Rei Kawakubo, decided to open the New York branch of her international fashion empire, Dover Street Market, not in SoHo or the Meatpacking District—places where fashionistas congregate—but at the corner of Lexington Avenue and East 30th Street. Sitting immediately north of a stretch of Indian restaurants generally referred to as Curry Hill, this is one of the last stubbornly un-chic precincts in all of Manhattan.

The building itself is a hidden-in-plain-sight gem: I've walked by it countless times but never noticed it before I came looking for Kawakubo's outpost. It's a classical temple, circa 1908, relatively compact, decidedly vertical, with Ionic columns and a frieze poached from the Parthenon topped with a roof pitched a bit too steeply. The architect was Harvey Wiley Corbett, a proto-modernist who is also responsible for the beloved landmark Art Deco tower at 1 Fifth Avenue (1929) and the infinitely less beloved New York City Criminal Courts Building (1939). The building now occupied by Dover Street Market New York (DSMNY) was originally the home of the New York School of Applied Design for Women, an institution founded to train women for careers as artists and architects. Kawakubo couldn't have found a location with a more appropriate backstory if she tried, although Daphne Seybold, who handles communications for the store, tells me that Kawakubo found the building pretty much by accident.

On the outside, the former school (landmarked in 1977) is as sober, beige, and unrevealing as it was the day it was completed. It suggests nothing of the "beautiful chaos"—Kawakubo's term—contained within.

The Junya Watanabe Man Comme des Garçons space on the second floor.

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LEGACY PROJECT AWARD

Kawakubo explains her approach as "the mixing up and coming together of different kindred souls who all share a strong personal vision." Indeed, each of DSMNY's seven floors contains a cluster of mismatched pieces, with different fashion labels displayed within artistically wrought spaces. The most diverse floors contain 20 different brands. On one, a lush, mural-covered, greenish cave for high-style Prada abuts a utilitarian display of street style by Supreme, a clothing line that grew out of skateboarder culture. Everything clashes. "It's this interaction we're interested in," Seybold says.

IN A RARE (and rather brief) interview, Kawakubo told *Women's Wear Daily* in December that she wanted to "impregnate" the New York version of the store—the other locations are in London and Tokyo—"with a spirit of outsider art." And so she has. Near a display of stylish deck shoes, for example, there's a pig-shaped sculpture made of cast-off alarm clocks, gears, fabric scraps, and random detritus. A bored-looking salesman tells me that it's from Kawakubo's private collection, and that she found it at a "reclamation art fair."

Seybold insists the store is entirely Kawakubo's creation. "We conceive of her as the architect." (According to the New York City Department of Buildings, Richard H. Lewis is the architect of record.) There are some distinctly architectural gestures, the dominant one being a glass elevator that runs through the center of the building's seven floors like a skewer—designed, of course, by Kawakubo. Here and there, in the middle of the sales floors, are freestanding shacks of the sort that might be assembled by a beachcomber. Those, again, are Kawakubo's handiwork. The other overtly architectural gesture is the imposition of columns—non-load-bearing—that go from the ground floor to the sixth. They are there, like everything else, as visual punctuation marks, serving as surfaces for artworks by Magda Sayeg, the "mother of yarn bombing," who has knitted brightly colored cozies for some of the columns; arts practice London Fieldworks, which clad a number of the columns in wood blocks; and artist Leo Sewell, who turned his columns into collages of found objects.

The one actual architect who turns up on the store's lengthy list of credits is the visionary Madeline Gins, who created the "Biotopological Scale-Juggling Escalator" with the Reversible Destiny Foundation, which she founded with her husband, the artist Arakawa. This "escalator" is actually a stairway connecting the second and third floors through a bulbous tunnel that resembles a giant wasp's nest. The design, with its striking color scheme and serpentine handrails, is intended to "operate against the aging process," but those seeking eternal youth should note that it didn't quite work for Gins, who died in January.

In truth, it's very hard to classify the store and its aesthetic as architecture, or design, or fashion. Rather, it's the inner world of the designer made visible. In fact, it's even difficult to think of it as a store. What it feels like is a museum, not a place where you would actually buy anything. (Although I was tempted by a $925 Comme des Garçons jacket, navy with

Opposite: The 1908 building that houses Dover Street Market New York.
This image: Magda Sayeg knitted this brightly colored covering for a third-floor column.

1


2


3


4

white splotches.) Instead it calls to mind the 2011 Alexander McQueen exhibition at New York's Metropolitan Museum of Art in that the clothing often takes unexpected forms, from Andre Walker's voluptuous sculptural dresses to Junya Watanabe's oddly misshapen suede fringe dusters to pairs of shoes that sit by themselves on pedestals looking like little gargoyles.

On the ground floor, DSMNY provides a small respite from beautiful chaos: namely, a café that serves simple meals from a stainless steel kitchen (it looks like a space station module) to diners seated at a row of marble-topped communal tables. I sat there one afternoon and was mesmerized by the way sunlight streaming through high windows was refracted by the glass water bottle on my table. After all of the riotous visual stimulation of the sales floors, I felt as if I'd somehow walked into a Vermeer painting.

IF ARCHITECTURE IS about creating space, DSMNY is more like anti-architecture, an exercise in breaking space. It's all interruption. If architecture is about permanence—and it's not clear that it is—this place is about transience. The corporate culture of Dover Street Market even dictates that each store undergoes something called "tachiagari," a word that translates as "beginning." Twice a year, in January and July, each shop will bring in new artists to remake everything. It's a perpetual pop-up.

It's tempting to write off what's taking place here as mere fashion, as something inherently trivial, but what Kawakubo has succeeded in doing is merging the strong voices she cultivates into an aesthetic experience that's as unpredictable, bedazzling, and profound as a good Biennale.

1. The seventh-floor outpost for Supreme, a label inspired by skateboarding culture, which abuts Prada's greenish cave. The And Re Walker space is visible in the far background. **2.** The DSMNY café, a respite from the visual stimulation of the rest of the store. **3.** The "Biotopological Scale-Juggling Escalator," a tunnel-shaped stairway. Designed by Madeline Gins, a visionary architect, it connects the second and third floors. **4.** The ground floor space (the building's original windows on the left) for the jewelry shop and Black Comme des Garçons, a lower-priced line. The ceiling was designed by Rei Kawakubo.

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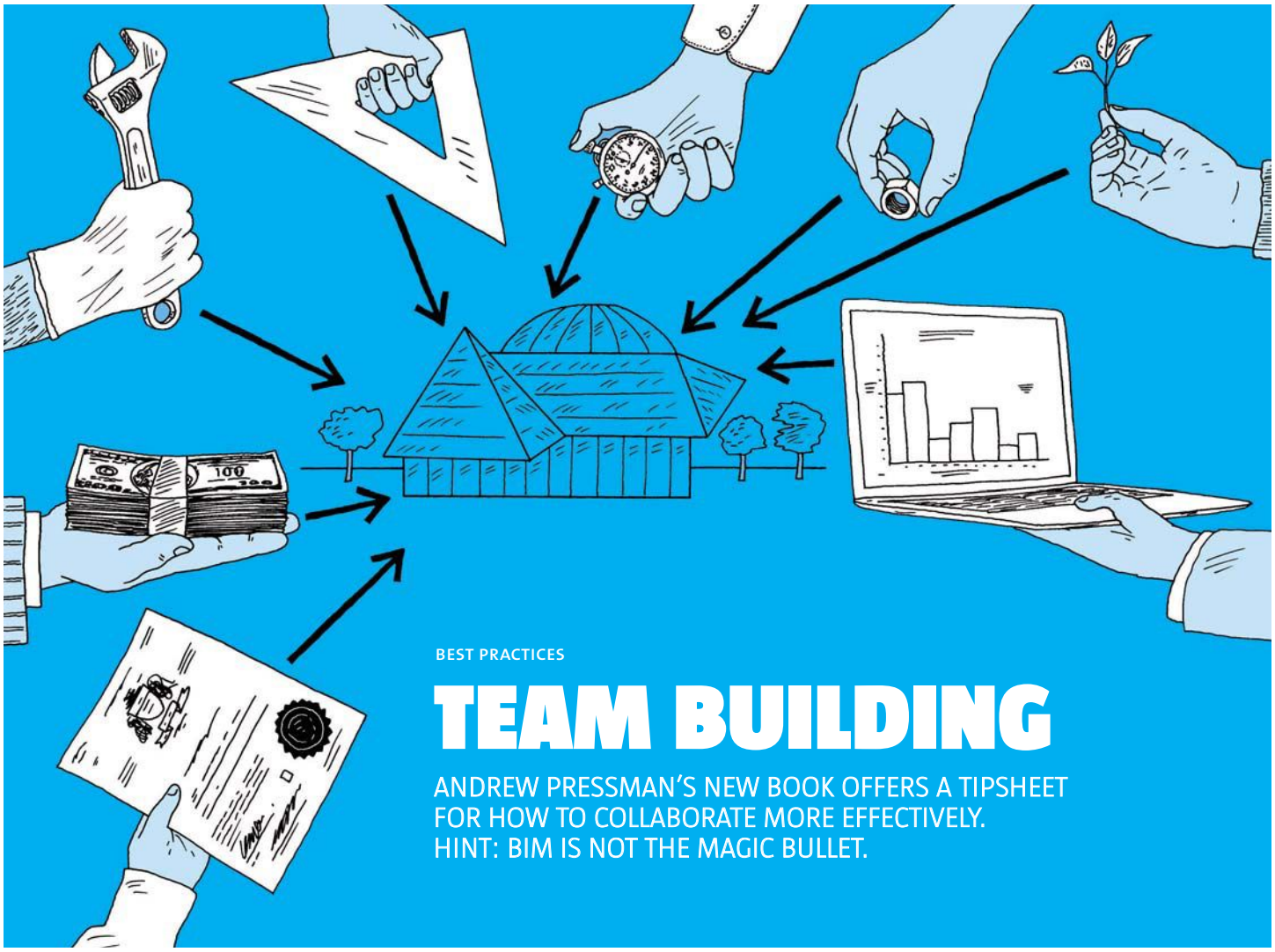

BEST PRACTICES

TEAM BUILDING

ANDREW PRESSMAN'S NEW BOOK OFFERS A TIPSHEET FOR HOW TO COLLABORATE MORE EFFECTIVELY. HINT: BIM IS NOT THE MAGIC BULLET.

Interview by **Nate Berg**
Illustrations by **Peter Arkle**

CONTRARY TO THE long-glamorized Howard Roark model, architecture is a team sport. But getting a team to work together seamlessly can be a challenge. In his book, *Designing Relationships: The Art of Collaboration in Architecture*, Andrew Pressman, FAIA, argues that effective collaboration is a prerequisite for good design work. Pressman, a professor emeritus at the University of New Mexico and a lecturer at the University of Maryland, runs his own architectural practice in Washington, D.C. In his book—a brisk read at 120 pages—he offers tips and tricks about how to inspire the best creative give-and-take from any team.

BERG: The message of your book is pretty straightforward—collaboration is important. Do architects need to be reminded of this?
PRESSMAN: Absolutely. Collaboration may be messy—and it's a challenge to do it well—but both design and productivity can be improved. I think innovative practice, creative ways of delivering services and discovering new practice opportunities is now part of the mix with innovative design, and collaboration is an essential means to achieve both.

There's a reason why architects have been inherently non-collaborative. Architecture schools have promoted a subculture in which graduates spend their careers working as heroic, solitary, isolated designers. And then there's also the traditional way projects are procured and delivered—the design-bid-build delivery method—in which the architect and contractor are natural adversaries. The tension between the parties is intended to be part of the system of checks and balances.

But in the current practice environment, a completely different mindset is required, with all stakeholders working together for the good of the project. That's easy to say but not so easy to do.

What's so bad about the model of architects as egotistical dictators of design?
I actually don't think there's anything wrong with it for certain projects. In some ways it can be very effective. But practice today has become very complex and requires collaboration in order for buildings to succeed and perform well. Certainly, not every project or task is amenable to collaboration. On most projects there will be a mix of collaborative and individual work.

In *Designing Relationships*, David Riz, AIA, a principal at KieranTimberlake, discusses the firm's work on a headquarters for the Energy Efficient Buildings Hub, a Department of Energy project that epitomizes the benefits of collaborative design. The collective act of goal setting and values alignment, by itself, cemented the team and eliminated discord. Team members were encouraged to wade into other areas of expertise, allowing architects to engage critical topics such as the influence of construction logistics in deriving design solutions.

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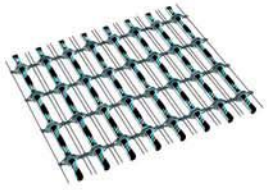

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In fact, you argue that having an ego and having strong opinions can be good.
The conventional wisdom of "check your ego at the door" is not necessarily a great idea. Confidence—and even a bit of arrogance—is helpful to innovate and transcend mediocrity. People should believe that they can do the impossible. At the same time, valuable contributions made by others must be acknowledged.

A great collaborative team could be characterized as one big, unhappy, dysfunctional family. That speaks to seeking diversity in team composition, and that would apply to experiences, background, culture, worldviews, and areas of expertise. The more diverse the team and the more potential for creative tensions, the more likely there will be innovative ideas.

What role does technology play?
Building Information Modeling (BIM) by itself does not cultivate meaningful engagement. Collaboration skills and processes are essential, and they transcend technology and tools. I would underscore the point that it is the less tangible elements of collaboration—a nuanced and subtle skill set—that provide the magic that transforms the most challenging projects into great works of architecture.

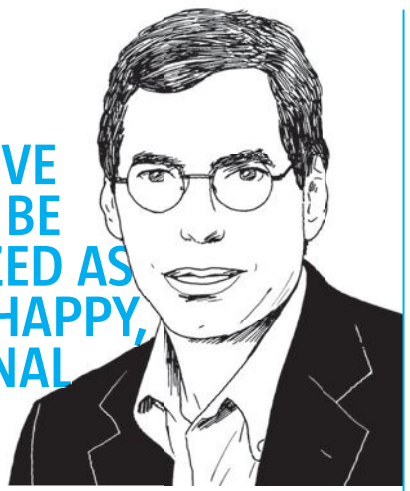
That said, software can greatly facilitate collaborative work. But so can drawing, which communicates design concepts and reveals opportunities for building upon, triggering, and critiquing ideas. A skillful collaborator recognizes that digital and physical methods elicit different dimensions of creativity. Tools should be used in support of a particular collaborative design process—not to dictate it.

How do you deal with difficult team members and still do good work?
View resolving conflicts as a design problem. Invoking a self-effacing attitude by asking for help, suggestions, or guidance based on someone else's experience can be very helpful to diffusing the chip on their shoulder. Take time to discuss a problem face-to-face to get the individual on board as an ally. Developing genuine personal bonds after sitting down with someone and discussing the issues will make it easier to disagree without emotional or professional cost in the future.

What can firms start doing to help spur collaboration?
Create a studio or war room. A common work area is highly desirable to optimize high-quality interaction. Take time to design the process (even before a contract is signed). Develop a master plan of all collaborators and their respective roles, when they should be involved, and define integration nodes in which individual and multidisciplinary teams should come together.

Then start the project with a charrette. This will facilitate getting to know the collaborators, personally and professionally, and it is an opportunity to observe and assess professional expertise and social skills. Apply Alex Osborn's original brainstorming principles: do not criticize or judge ideas; generate unfettered, wild, and crazy ideas; develop as many ideas as possible; and combine and build upon ideas.

A GREAT COLLABORATIVE TEAM COULD BE CHARACTERIZED AS ONE BIG, UNHAPPY, DYSFUNCTIONAL FAMILY.



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NEXT PROGRESSIVES

INTO THE WILD

JOYCE HWANG'S PRACTICE, ANTS OF THE PRAIRIE, IS GENERATING BUZZ WITH INNOVATIVE PROJECTS THAT CREATE URBAN HABITATS FOR BEES, BATS, AND OTHER THREATENED SPECIES.

Joyce Hwang in front of Habitat Wall, a project under construction as a home for birds and bats.

As Told To **Alex Hoyt**
Portrait by **Scott Gable**

"ANTS ACT AS INDIVIDUALS and as part of a super-organism," says Joyce Hwang, AIA. That's also how she sees architects' role in designing the built environment—distinct yet connected. In 2004, Hwang, who got her B.Arch. from Cornell University, founded Ants of the Prairie in Buffalo, N.Y., a quirky, innovative research and design shop with the aim of "confronting the pleasures and horrors of our contemporary ecologies." She has built her practice around finding ways to incorporate animal habitats into urban areas and projects, helping to stabilize landscapes for bees and other threatened species. Her Bat Tower design—she hopes the concept will soon dot the rooftops of Manhattan—and other experiments with bat housing helped her win a 2014 Emerging Voices Award from the Architectural League of New York.

Now an associate professor of architecture at the State University of New York's Buffalo campus, Hwang spent the formative years of her career entering competitions—for the High Line and a proposed American Museum of Slavery—and also worked for Carlos Ferrater and his Office of Architecture in Barcelona.

ON WORKING ABROAD: "One of my first assignments at Cornell was to draw my

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favorite building, and I drew the Sagrada Família. I've always loved Antoni Gaudí, and when I graduated, after a few years in San Francisco, I moved to Barcelona. There I worked for Ferrater, on a competition for the extension to the Barcelona airport. In the U.S., I have never felt ownership of a project the way I did working on the airport—and I was 24. I told myself if Ferrater's office won the competition, I would stay in Barcelona and learn Catalan. But we didn't win.

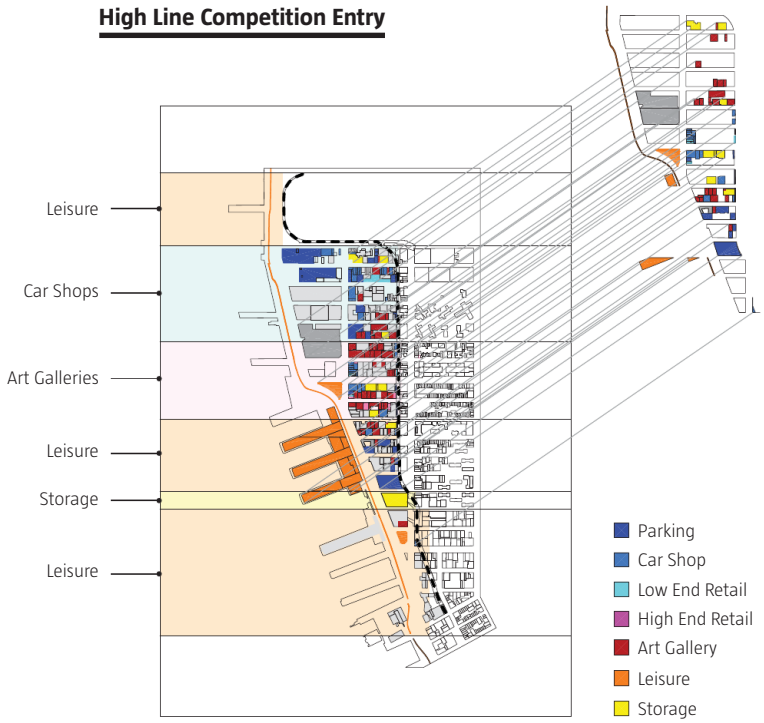
"I wanted to teach and do research, so I went to grad school at Princeton University. Our orientation day was Sept. 11, 2001. I had Liz Diller for studio that fall, and she had us design 15 million square feet of displaced Manhattan office space. Everyone had a different response. Some people were talking about how to camouflage a building. Some people wanted offices to move to Jersey City, N.J. I came up with a system for assessing real estate based on post-Sept. 11 values—fire escapes, for instance."

ON THE HIGH LINE COMPETITION: "I had just finished grad school, I hadn't yet formed an office, and I was looking at different competitions when I heard about the High Line. The idea of reusing that infrastructure was phenomenal. Within that surrounding area was such an eclectic mix of businesses—retail, art galleries, body shops. We asked ourselves, if the High Line were repurposed, how would it change the surroundings? Would some occupants have to leave? If gentrification was inevitable, how could you still maintain some degree of difference? And could the High Line be the collector of those differences? We thought that if people could shift their displaced businesses to the High Line, it would become this amazing heterogeneous space."

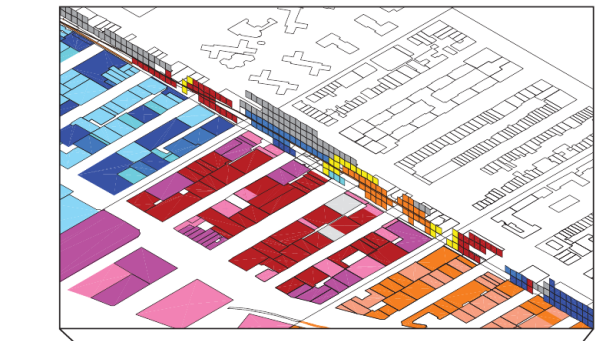
ON AN AMERICAN MUSEUM OF SLAVERY: "*Mastermind* magazine, in its first issue, had a design competition for a hypothetical museum of slavery on the National Mall, and I entered. My feeling was that once you commemorate something with a museum, you mark a place for it in history, as if it's in the past. But slavery is still everywhere, so I designed a museum that would be intensely visible to tourists. We looked at what areas on the Mall are photographed the most, and in our design those are the areas interrupted by this partially subterranean museum, which surfaces above ground as a scar on the Mall."

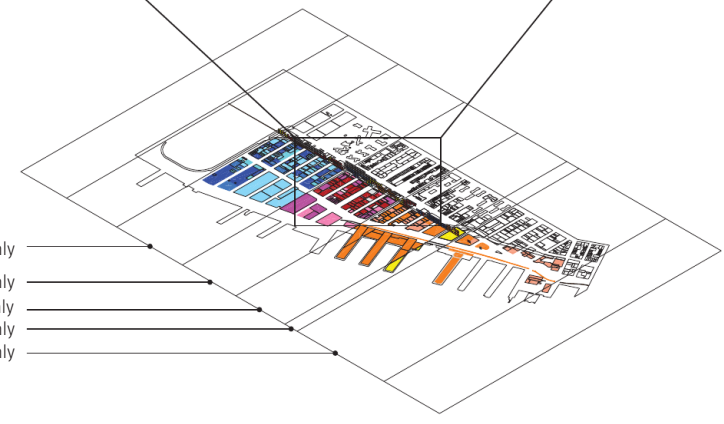
ON ECOLOGY AND ARCHITECTURE: "For my master's thesis I designed a zoo and genetics lab. One reason I became interested in bats and bees is the dependency so many species have on these animals, which are potentially

High Line Competition Entry



Non-Dominant on the High Line





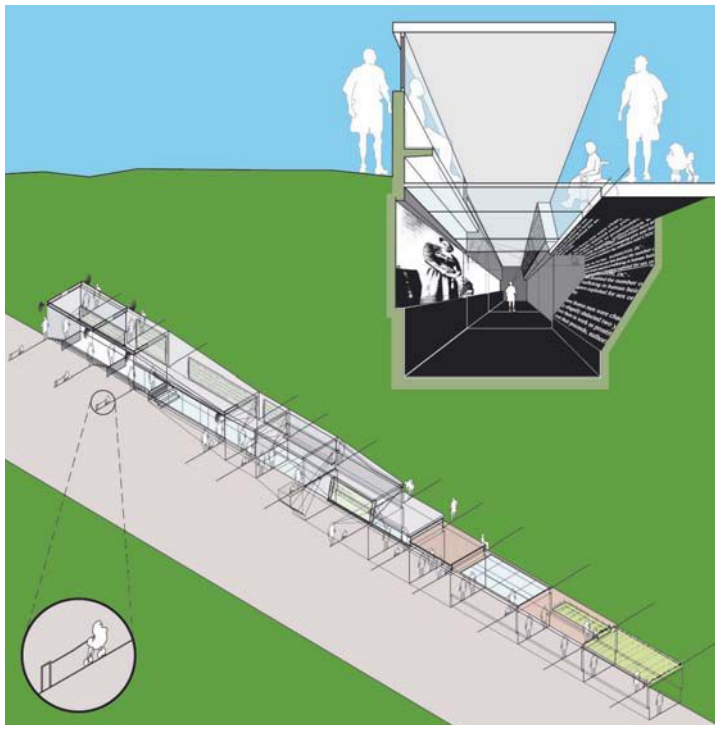
Clockwise from top:
Bat Cloud, a hanging series of vessels filled with soil and native plants; a detail of the vessels, which are fertilized by the guano of the occupants; Pest Wall, constructed on exterior walls in urban environments for bats and other wildlife; and Bat Tower, designed prominently on the landscape in order to bring attention to declining bat populations.

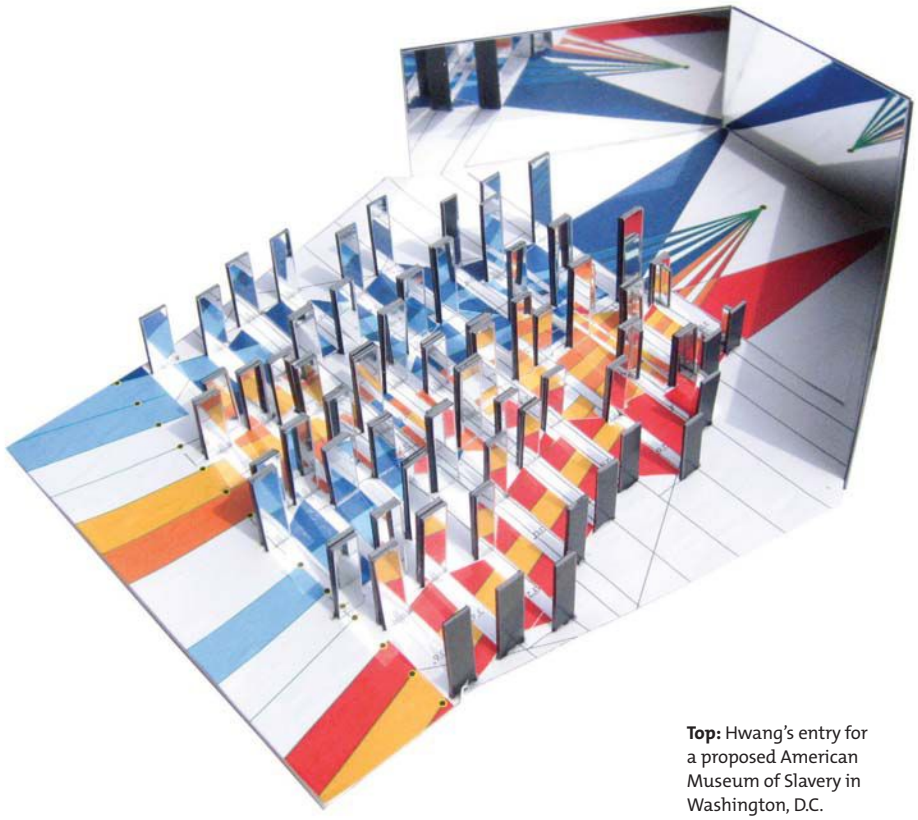
disappearing. What might our future be like without pollination? There are two reasons to be concerned with ecologies as we design. First, we should save this animal because it's almost extinct—biodiversity for its own sake. Second, we should realize that [if it goes extinct], that could have a profound impact on your life today. How do we think about the inclusion of life in the way we design space? How do we think about life when you think about designing the world? Seeing a million bats fly out at once from under a bridge—those are experiences that are sublime."

ON THE BAT TOWER: "I was interested in making an urban habitat for bats. There was no funding, so we developed the project in prototype. Then we got a grant from the New York State Council on the Arts to hire students and source material. It was difficult to get Buffalo-based organizations to want big, visible structures that attract bats, so we got in touch with a local sculpture park with a large bat population in East Otto, N.Y., a town outside Buffalo. There's a pond there—bats like water—and it's quite humid, with lots of mosquitoes. We wanted a massive presence in the landscape.

"Because we had started the design prior to finding a site, we designed it in modules. The tower is similar on all sides—there's no front or back, but it has a sloped roof that's meant to face south, so that it gets more sun. We wanted to produce a vertical cave. We started by researching bat habitats, like attics, and found they can get into very small spaces—vents and cracks half an inch thick. So we used these slotted, plywood pieces. We grooved the surfaces so that bats would be able to cling to them. The exterior skin is dark, so that it can absorb more sunlight and be warmer in the evening—bats like to roost in warm places."

ON COLLABORATING WITH A BIOLOGIST: "I walked the grounds with my collaborator, a biologist named Katharina Dittmar, and the head of the sculpture garden. [The head of the garden's] interests were how picturesque it was; [Dittmer's] was what kind of habitat it would be. It's enlightening to see the world through the eyes of another. When you go for a walk with a biologist, you as an architect might be looking at size, volume, spatial sensibility, and she's looking for animal droppings, signs of habitation. It's almost like having a consultant, a structural engineer. You start to look at things you didn't look at before."





Top: Hwang's entry for a proposed American Museum of Slavery in Washington, D.C.
Bottom: Intensified Reflections, the seventh hole of a mini-golf course installed on Governors Island in New York in 2008.

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TECHNOLOGY

SETTING A STANDARD

THE UNITED STATES IS BEHIND IN EMBRACING NATIONAL BIM GUIDELINES. HERE'S A LOOK AT THE INDUSTRY LEADERS WHO ARE TRYING TO EFFECT CHANGE AND WHY ARCHITECTS SHOULD CARE.

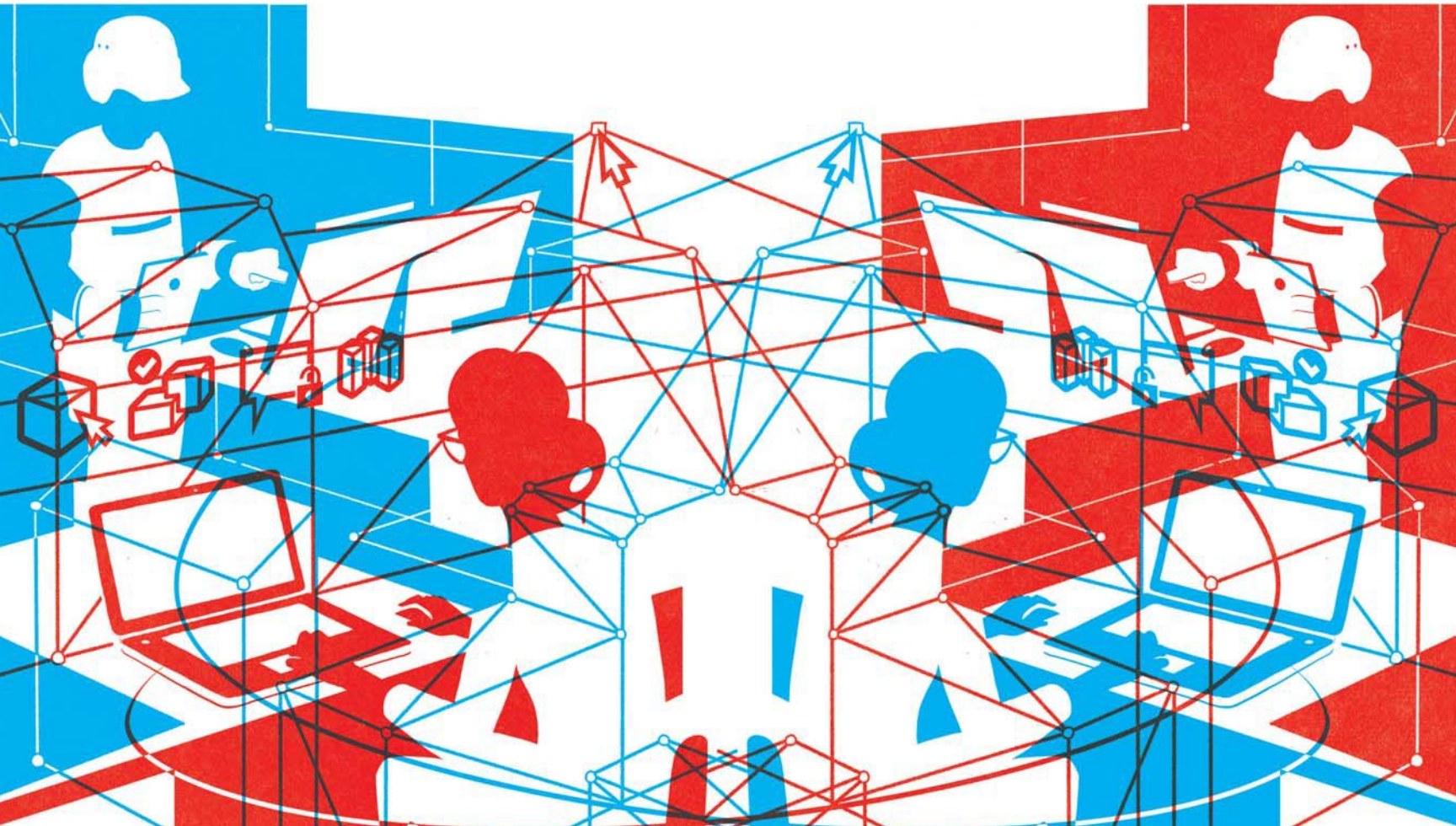
Text by **Gideon Fink Shapiro**
Illustration by **Daniel Stolle**

DRONES THAT TRACK construction through RFID-tagged hard hats and materials. Emergency responders with real-time knowledge of which building areas are structurally sound. Architects who can project revenue accurately. This is the nirvana of an architecture, engineering, construction, and operations (AECO) industry that is empowered by building information modeling (BIM).

Although the number of project teams using BIM tools increases each year, the transformative potential of these tools remains checked by barriers that impede the information exchange among participants and across different software platforms. Getting the most out of BIM will require an open exchange of information, which in turn requires defining and implementing common protocols and standards. But who wants this arduous task?

In the United Kingdom, the answer is simple: the government. By 2016, all British government building contracts will require "fully collaborative 3D BIM," according to the country's 2011 Government Construction Strategy. The NBS National BIM library—yes, such a thing exists—already contains thousands of both generic and proprietary BIM objects. (These objects are virtual building components containing performance parameters and physical attributes that can be placed in digital building models.) Singapore, Finland, and Norway also have national BIM standards, and China has one in the works.

The situation is less unified in the United States. BIM standards are as varied as railroad



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track widths were in the early 1800s. Often they are decreed by the particular owner, such as a state or university, and limited to deliverable specifications. "Sadly, many of these BIM standards don't look any further than the design process, or are not open, requiring a single vendor-specific file format," says Jeffrey Ouellette, Assoc. AIA, the vice-chair of the project committee for Version 3 of the National BIM Standard–United States (NBIMS-US), and an architect product specialist at Nemetschek Vectorworks.

Ouellette is one of the leaders behind the effort to update NBIMS-US, a consensus-based set of technical and practice specifications that could be adopted, in whole or in part, by everyone in the industry, from owners to architects to contractors. Introduced in 2007, NBIMS-US is developed by the BuildingSmart Alliance, a council of the nonprofit, non-governmental National Institute of Building Sciences (NIBS), in Washington, D.C. Yet even Ouellette concedes that few AECO professionals notice that either the standard or NIBS exists.

BUREAUCRATIC Insipid Mumbo jumbo. That's what BIM may as well mean for architects who are non-believers in the process and, as one can imagine, who view a BIM standard with skepticism. But unlike other short-lived technologies, such as Zip disks, BIM is bigger than any one technology or project; it is a meta-level process that can streamline communication and decision-making over a building's entire life cycle.

Perhaps more designers will take notice as the industry shifts from what Rebecca J. McWilliams, AIA, founder of BIM consultancy Independent Design, dubs "lonely BIM," in which architects and engineers essentially hoard the virtual model, to "social BIM," where consultants, contractors, owners, and facility managers share and feed multiple intelligent building models with schedule, performance, and systems data. This shift is already evident, McWilliams says, in BIM teams that incorporate the builder's input during the design stage, eroding the traditional sequence of design-bid-build.

Make no mistake: BIM is not a design tool, which may be why it's struggling to win over architects. But what it can do is liberate them from the escalating demands of data coordination and give them more time to devote to design and client services, says Phil Bernstein, FAIA, a lecturer at Yale University School of Architecture and Autodesk vice president. "If you don't have to worry about whether that duct fits in that plenum, you can use your brain to make that building better."

An accurate and smart BIM model can also save architects significant time and money during construction, says Franca Trubiano, an assistant professor of architecture at the University of Pennsylvania and principal investigator at the Energy Efficient Buildings Hub in Philadelphia. "Architects typically don't leave enough of their fees for project management or site supervision," Trubiano says. "Every time the general contractor or project manager sends off an RFI, the architect often has to gather the advice of consultants, which becomes really expensive."

Building owners and facility managers can also repurpose BIM models to analyze energy use, collect sensor data, or simply order replacement parts, Trubiano says. Even the U.S. General Services Administration's (GSA's) BIM Guide Series (2007) posits this long-term usefulness: "It is the owners who will potentially benefit the most [from BIM

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WITHOUT A PLAYER THAT IS "STRONG ENOUGH TO CREATE A PULL, THERE'S NO WAY TO TALK TO THE WHOLE U.S. CONSTRUCTION INDUSTRY."

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adoption], through the use of the facility model and its embedded knowledge throughout the 30- to 50-year facility life cycle."

Post-occupancy data coordinated through BIM processes can also increase a building's resale value by validating its purported energy savings and other building performance–related design decisions. "Building data is becoming just as valuable—if not moreso—than the physical building itself," says Kimon Onuma, FAIA, the developer of the cloud-based Onuma System BIM tool. BIM's greatest potential, he says, lies in its ability to incorporate occupancy patterns and the fourth dimension of time into building models.

The catch? If building data is to flow as smoothly as Internet data, all information must be software and platform agnostic, and not stored in proprietary formats. It must be, in industry terms, *interoperable*. The GSA's BIM Guide also named open standards and interoperability as "a governmental imperative" to ensure that building information survives the inevitable obsolescence of the hardware and software that created it.

SOFTWARE DEVELOPERS are slowly chipping away at their intellectual property walls. Even the big players in proprietary BIM tools have embraced open, or non-proprietary, data exchange standards, which allow applications to communicate with one another. Currently, the most common open BIM protocol is Industry Foundation Classes (IFC), which is authored and maintained by the BuildingSmart Alliance. IFC allows, for example, a model or object created in Graphisoft's ArchiCAD to be opened, used, and manipulated with Autodesk Revit, Bentley AECOsim Building Designer, Nemetschek Vectorworks, the Onuma System, and other BIM software. IFC also allows for even more radically "open" BIM tools that enable users to create custom plug-ins to augment commercially available software. An example of this is xBIM, a free, open-source software development toolkit from Northumbria University's BIM Academy.

Still, the scope and appropriateness of a universal BIM standard remain up for debate. "What do you mean by 'standards?'" Bernstein deadpans. Though he avidly supports open BIM processes and interoperable data, he is less sanguine about the prospect of a single national standard in the near future. It is difficult, he says, to codify "the interaction of a bunch of procedures and protocols" while the market is in the midst of rapid innovation.

Without a player such as the federal government that is "strong enough to create a pull, there's no way to talk to the whole U.S. construction industry," Bernstein says. So while he views NBIMS-US as an experimental or "emerging" standard that may contribute

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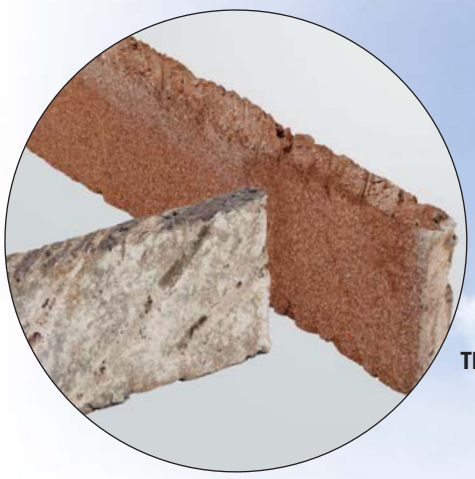

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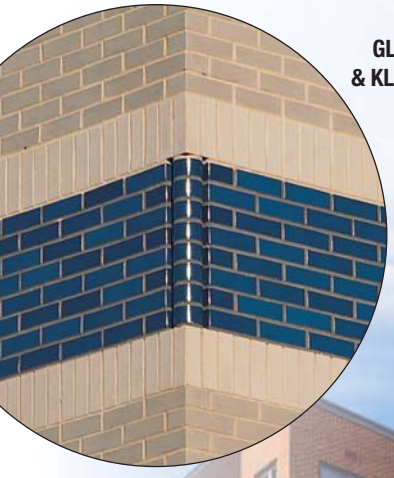

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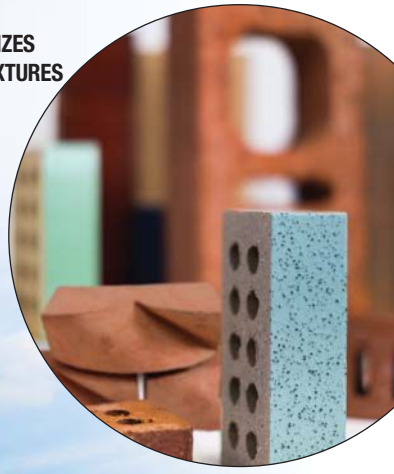

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to the eventual adoption of a national, industry-wide standard, he expects market competition to drive the continued development of BIM protocols. (Autodesk does have representatives on NBIMS-US project committees.)

Owners, cognizant of the bottom line, may become the unexpected pullers toward a BIM standard, says Paul Audsley, Assoc. AIA, principal and director of design technology at NBBJ. "Only when [owners] start requiring it in contracts will firms fully align with a standard," he says. Until then, firms may hesitate to invest the time and effort required to integrate a BIM standard into their workflows.

Audsley, a member of the NBIMS-US Version 3 project committee, believes that building owners could profit from standardized BIM processes just as owners in the pharmaceutical, oil, and gas industries—for which he has consulted in the past—have profited from the adoption of standards.

LABOR PRODUCTIVITY in the building industry has declined by 15 percent since 1964, according to the U.S. Bureau of Labor Statistics. Compare that to a 150 percent gain in other nonfarm industries during the same period. Citing this data, Nemetschek Vectorworks' Ouellette agrees that owners are "the most important part of the whole equation" when it comes to adopting standards. But he takes neither a strictly laissez-faire nor an autocratic approach to reform. Rather, he says, the people involved with NBIMS-US want to shape the future of BIM through a consensus process in which volunteer representatives from across the industry debate and vote upon each ballot, or proposed amendment, to the evolving body of standards.

Out of 41 open ballot submissions for NBIMS-US Version 3 filed last summer, 27 survived the subcommittee review process. After a comment period, the project committee's nearly 200 members voted and overwhelmingly approved all 27 ballots in February and March.

Version 3 will be launched sometime around this fall, after the new content is formatted for publication online, in print, and as an ebook. It will include updated specifications for reference standards, data exchange standards, best practices, and terminology. Changes include new OmniClass tables to help determine what a BIM object does and who is responsible for it, and added references to industry standards such as the U.S. National CAD Standard and the 2013 Level of Development Specification from the AIA and AGC.

Ouellette says that the formalities of NBIMS-US are only a means to an end. The larger goal, he says, has to do with changing the culture of the AECO industry to enable more efficient, consistent, and collaborative data sharing. Imagine not merely a single virtual building model, but a GIS-linked model of an entire campus, neighborhood, or city. Everyone from a fire chief to a facility manager would benefit.

As for architects, some will inevitably see the benefits of systemic data modeling and embrace BIM. Others may be motivated by a more direct incentive: the fear of being left behind, not only by rival firms, but also by contractors who could take over project coordination duties if the owner sees them as more BIM-savvy than the architect. As Penn's Trubiano says, "I would hate to see the day when architects have to explain to contractors what they wish to see drawn in a BIM model."

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DETAIL

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USING ADVANCED DIGITAL AND LIGHTING TECHNOLOGY, UNSTUDIO CREATED A DYNAMIC FAÇADE THAT CAPTIVATES THE CITY OF WUHAN, CHINA, DURING THE DAY AND NIGHT.

Text by **Logan Ward**
Photos by **Edmon Leong**

EMBLAZONED WITH LEDS and pulsing with color, video, and scrolling text, the Hanjie Wanda Square shopping plaza in Wuhan, China, has all the makings of yet another three-dimensional electronic billboard. Instead, Amsterdam-based UNStudio merged the latest electronics with thoughtful design to turn the five-story building into a veritable work of art.

"We wanted to avoid designing a high-definition surface that could be used purely as an advertising platform," says principal architect and co-founder Ben van Berkel, who also oversaw UNStudio's first animated façade in 2003 for a department store in Seoul, South Korea. "For us, it is always essential with these façades that they not only avoid a Times Square effect, but that they result in a more holistic form of branding for the building and create a kind of urban effect."

Another distinction is size: Hanjie Wanda Square boasts 192,000 square feet of illuminated area—bigger than three football fields—while the largest video display in Times Square measures only 5,000 square feet.

Beyond sheer magnitude is the fact that UNStudio's design is far more sculptural. In the daytime, the façade looks like a giant silver cuff of aluminum panels studded with 42,333 stainless steel spheres. At night, it becomes a curvaceous medium for a light show.

Each approximately 2-foot-diameter, hollow spherical body contains multiple colored (red, blue, green) LEDs: one inward-facing fixture with 32 diodes, and one outward-facing fixture with up to 104 LEDs. The inward-facing diodes illuminate the building's aluminum cladding, located 5⅛ inches to 15¾ inches away, through four apertures capped by translucent mirrored acrylic lenses that further reflect the diffused light.

The outward-facing LEDs in more than three-quarters of the spheres shine through apertures that are covered by a patterned glass lens that concentrates light into a tight, circular beam. The 9,700 spheres that

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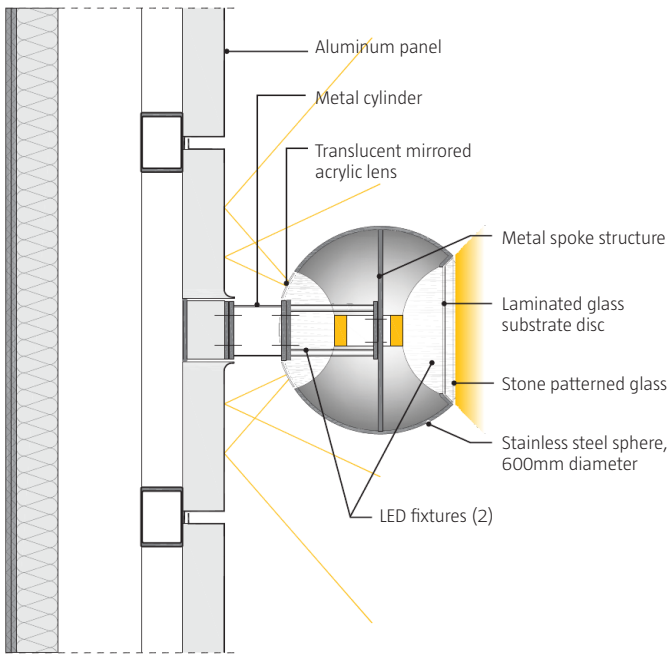

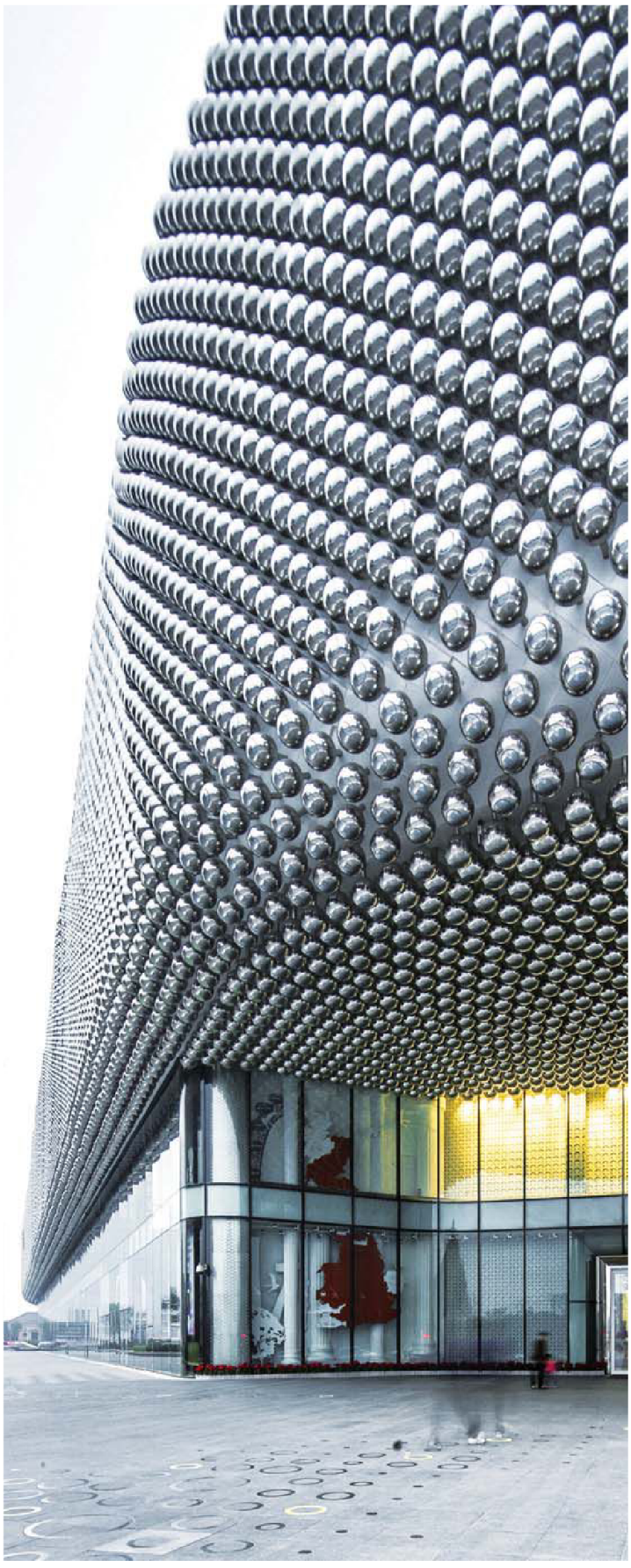

remain are capped with translucent, mirrored acrylic domes that match the stainless steel body, creating the impression that the balls are blank. To create wavelike patterns that enhance the cascading light effect, UNStudio designed nine different ball profiles, ranging from hemisphere to sphere.

The net result is 3.1 million LEDs working in sync to create a mesmerizing, fully programmable curtain of light. An astounding 99.5 miles of digital multiplex (DMX) cable connects the LEDs to a Coolux control system. At 100-percent illumination, the façade consumes 792 kilowatts, the equivalent of 7,920 100-watt lamps. On average, the façade consumes around 317 kilowatts.

When illuminated, the dense array of mirrored spheres, coordinated by digitally programmed choreography, effects "a fluid, flowing current of light around the building, with smooth color changes and soft waves of motion," van Berkel says. "It also provides directionality on the façade flow, with a climax around the mall entrances."

CRITIQUE

TAKING A SEAT

ANDO'S NEW CHAIR? LESS THAN DREAMY. WHY ARCHITECTS STRUGGLE TO ACHIEVE SITTING COMFORT.

Text by **Witold Rybczynski, Hon. FAIA**
Photo by **Adrian Gaut**

OVER THE YEARS, architects have designed chairs for many reasons. For the early moderns, it was a way to furnish their own buildings: one thinks of Josef Hoffmann and the Café Fledermaus Chair, or Mies van der Rohe and the Barcelona Chair. For some, like Alvar Aalto and Arne Jacobsen, chair design was a productive sideline; for others it was a temporary distraction, a way of making a statement in the absence of major building commissions. Today, when well-known architects are being invited to design motor yachts and plane interiors,

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designing a chair might seem like small beer. But the age-old problem of sitting comfort remains a worthy design challenge.

To the long list of architects who have had a go at designing a chair, we can now add Tadao Ando, Hon. FAIA. Carl Hansen & Søn, a Danish manufacturer known for its association with the great Hans J. Wegner, recently unveiled Ando's Dream Chair. I visited Hansen's Hudson Street showroom in New York to see the chair—and to sit in it. The Dream Chair consists of a molded plywood shell as the seat, attached to a second shell that forms the base. In the frontal silhouette, the sculptural shape reminded me of a traditional Japanese kimono and hakama. The forms are punctuated by three ovals: a head rest, a hole cut into the seat, and an identical hole in the base. The padded headrest is adjustable, like a car seat, a mechanical feature that I found mildly disturbing in a lounge chair. The base is cantilevered, so that when I sat down, the chair flexed pleasantly. The problem was that the edge of the hole in the seat also cut into my tail bone, and I couldn't find a comfortable position. It was a small but persistent irritation, like having a tiny stone in one's shoe.

The manufacturer describes the Dream Chair as a tribute to Wegner, whose low lounge chair, the Shell Chair, was also on the showroom floor. That chair consists of two upholstered shells of molded plywood—a seat and a back—supported on three laminated legs. I've long admired the Shell Chair for its utter simplicity—and, now that I finally had a chance to sit in it, I can also appreciate its comfort. Perfect.

When Wegner introduced the Shell Chair—in 1963—he had more than 20 years of experience designing chairs, whereas the Dream Chair is Ando's first production chair. But the difference between the two designs is not merely the difference between the work of an old pro and a neophyte. Wegner was not an architect; he came out of a craft tradition. His father was a master cobbler, and Wegner apprenticed as a carpenter before studying cabinetwork at Copenhagen's School of Arts and Crafts, now the Danish Design School. Perhaps that's why, unlike the Dream Chair, the Shell Chair doesn't look like a sculpture. It looks like something to sit in. The offending oval hole in the Dream Chair is a mannerist gesture that has nothing to do with the chair's function. Wegner's chair, on the other hand, includes only what is required for sitting. The single rear leg doubles as a support for the back; the decorative "wings" that flare out on each side turn out to be pleasant places to rest one's hands; and the wings also work as aids in pushing oneself out of what is a particularly low chair, only 14 inches off the ground.

BECAUSE OF BACKGROUND, training, and sensibility, furniture designers and architects approach chair design differently. For example, architects are by habit customizers, since each building is a one-off project; production, therefore, is a means to an end. But modern

chairs, unlike modern buildings, are mass produced, so manufacturing is an integral part of the design. Ando achieved the evocative shape of his chair by using three-dimensional plywood shells, which are difficult to mold and require additional sheets of veneer compared to Wegner's two-dimensional Shell Chair design. As a result, Ando's chair incurred a considerable increase in manufacturing cost: In walnut and upholstered, the Dream Chair retails for $5,345, the Shell Chair for $3,075. But what practical end was achieved by using the more expensive shells?

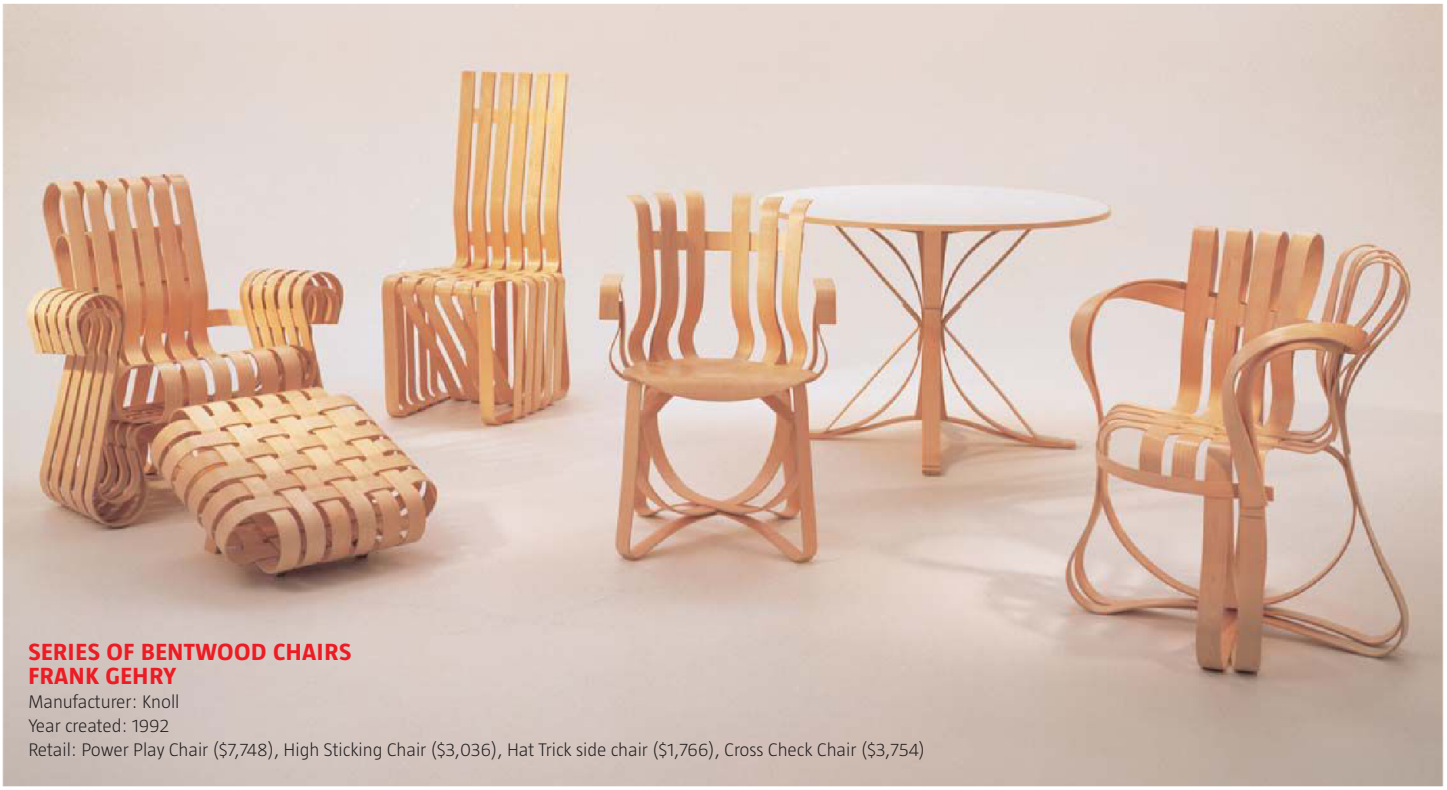
Architects who design chairs tend to favor the purity of the concept. Mies designed the Brno Tubular Chair with Lilly Reich for the Tugendhat House. The chair is very beautiful—the L-shaped leather seat and back floats mysteriously within the cantilevered tubular steel frame. But when you sit in it, the steel armrests are not pleasant to touch, and the padded seat and back are a little too flat for true comfort. It is the design idea that predominates.

On the other hand, consider Marcel Breuer's version of the cantilevered chair, the B32 (now called the Cesca). At the time he designed the chair, his architectural career had yet to begin; he was a teacher at the Bauhaus, in charge of the cabinetry program. This may explain why the Cesca pragmatically combines a seat and shaped back made out of bent beechwood and traditional woven cane inserts with the tubular steel frame. The armchair model has curved wood armrests, which likewise add to its sitting comfort.

When Charles and Ray Eames designed what would be the world's first mass-produced plastic chair, the DSR, in the late 1940s, like Breuer they separated the seat (originally metal, then molded fiberglass, today polypropylene) from the base. This separation accounts in part for the chair's longevity, since the same shell can be mated with different bases: steel rods, tubular legs, wooden dowels, stackable frames, or even rockers. Conversely, when Eero Saarinen, who had collaborated with the Eameses on chairs at the Cranbrook Academy of Art, designed his version of a molded fiberglass side chair, he was preoccupied with a singular concept. "I wanted to clear up the slum of legs," he said. "I wanted to make the chair all one thing again."

His solution to this somewhat obscure "problem" was the Tulip Chair, which is supported by a single leg that flares out of a circular pedestal, like the foot of a wine glass. The chair was originally intended to be entirely fiberglass, but since that material is not strong enough for such a slender leg, the base is fabricated out of cast aluminum, painted white to give the impression that base and seat are

SESSEL NR. 14 (TODAY, MODEL 214) MICHAEL THONET
Year created: 1859
Manufacturer: Thonet
Retail: $825



SERIES OF BENTWOOD CHAIRS
FRANK GEHRY
Manufacturer: Knoll
Year created: 1992
Retail: Power Play Chair ($7,748), High Sticking Chair ($3,036), Hat Trick side chair ($1,766), Cross Check Chair ($3,754)

one. Sitting down and getting up at a table both require moving one's chair, but a chair with a heavy circular base is awkward to move, so Saarinen included a swiveling option. Making the chair "all one thing" proved to be complicated.

THE MOST SUCCESSFUL mass-produced chair ever made was the work of a cabinet maker, Michael Thonet, who invented a method of steam-bending wood into a variety of shapes. Sessel Nr. 14, the famous café chair, was produced in his Moravian factory in 1859. The chair was made out of six pieces of bentwood that could be shipped flat and assembled on site with 10 screws and two washers (shades of Ikea). By 1930, the Thonet company had sold 50 million of its various café chairs.

I thought of Thonet in connection with a series of bentwood chairs designed in the early 1990s by Frank Gehry, FAIA, for Knoll. The different models are made of curved laminated maple veneer strips (less than a quarter-inch thick) glued together. The playful designs, which resemble bushel baskets, are extremely light, surprisingly strong, and the flexible material makes the chairs very comfortable.

Nevertheless, it's unlikely that Knoll will sell millions of them since, like most architect-designed chairs today, they are very expensive. One Gehry side chair costs more than a *dozen* Nr. 14s. Whether the high price is a marketing strategy, or because the complicated design is

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costly to fabricate, is unclear, although I would guess the latter. Wegner once remarked, "If you knew how much polishing work goes into making a Barcelona Chair, you wouldn't call it an industrially made chair."

The dining chairs in Gehry's Santa Monica, Calif., home are his bushel-basket side chairs. But when I first saw photographs of his house in a 1986 exhibition at the Walker Art Center in Minneapolis, the chairs in the dining room were director's chairs. Many architects had director's chairs at that time—I did. They are comfortable, the canvas seat and back are easily replaced when they sag, and the chairs are collapsible. The X-braced legs ensure that no matter the weight of the sitter, the canvas remains taut.

Like Thonet's bentwood chair, the director's chair is a 19th-century invention, although it has a long pedigree: X-braced legs were used first by the ancient Egyptians in folding stools, folding scissor chairs appeared during the Renaissance, and collapsible chairs were used during the Civil War. The director's chair was introduced in the early 1890s by the Gold Medal Camp Furniture Manufacturing Company of Racine, Wis., which produced military, camping, and porch furniture. The designer may have been Louis Latour, who was responsible for the company's classic wood-and-canvas folding cot. The Gold Medal director's chair, unchanged in design, is currently made in Tennessee; on sale, it will set you back $59.95. A dream chair, indeed.

GOLD MEDAL DIRECTOR'S CHAIR
Manufacturer: Lord's Table
Year created: 1892
Retail: $59.95 (on sale)

Project: GuardianCoil Security System
Architect: LS3P Associates Ltd.
Location: The Trone Student Center at Furman University

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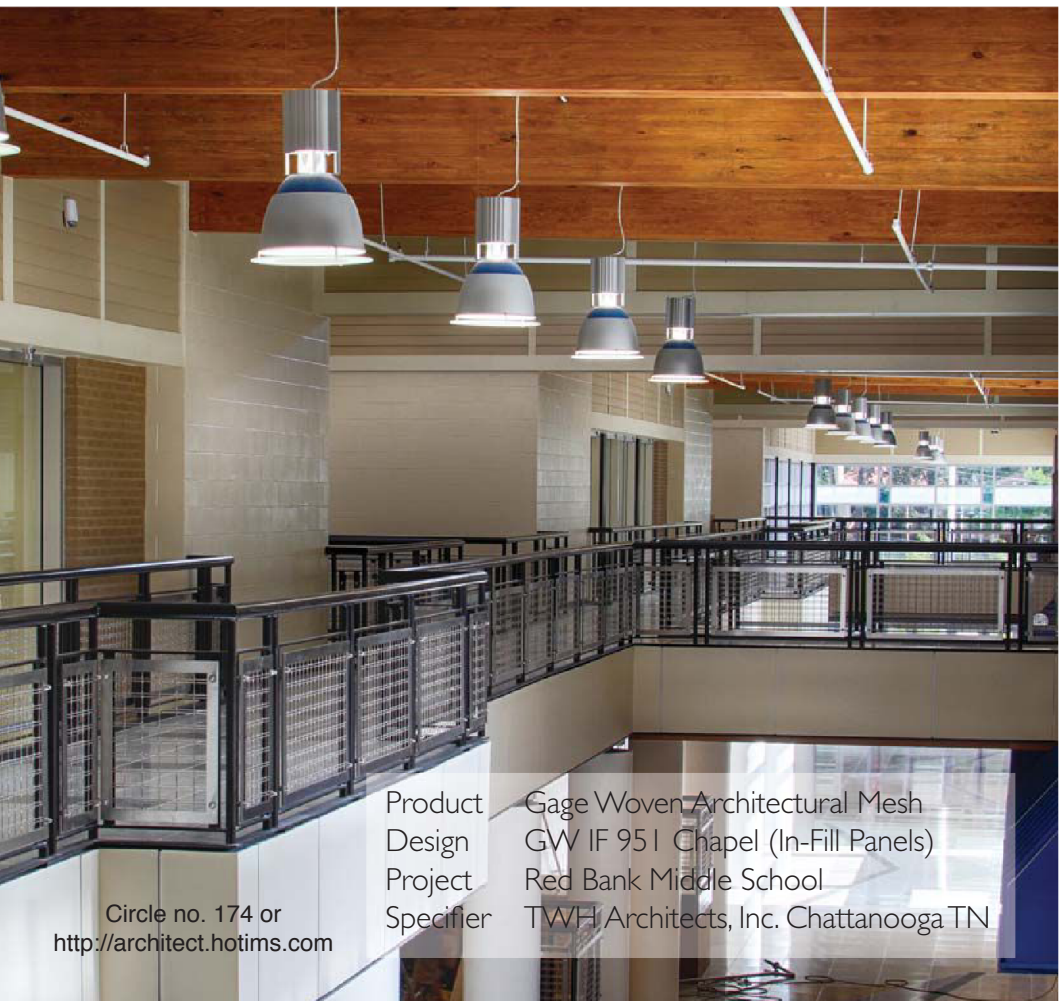

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TAIYUAN MUSEUM OF ART

WITH HIS NEW ART MUSEUM IN NORTHERN CHINA, CAMBRIDGE, MASS.–BASED PRESTON SCOTT COHEN PROVES THAT PARAMETRIC FORM CAN STILL FOLLOW FUNCTION.

Interview by **Joseph Giovannini**

How did you get the project? I heard that somebody in China was talking to Steven Holl, FAIA, he was not able to do it, and suggested you.
Cohen: Well, it wasn't Holl directly. It was Li Hu, who was running his Beijing office. I met him when I went there for the first time in 2007. He toured me through the office project by project, and he began to have a lengthy conversation with someone about this project. At some point in the conversation he sort of had a kind of epiphany that they just weren't going to be able to do it. They had too much work.

So he said: "Would you do this? At least it will be your first competition in China, you can make some headway." And I thought, "I'll be damned. If I'm going to do this, I'm going to win." So, I set out to win. Li Hu simply passed me on—told the client that I'd be a great replacement and he accepted. They just needed somebody for the competition. I don't think anybody thought I would win, necessarily. I do think it was an unexpected outcome. Truly, it was.

But then you went on to win it. How many other competitors were there?
At that point, I think there were four finalists, four final projects done.

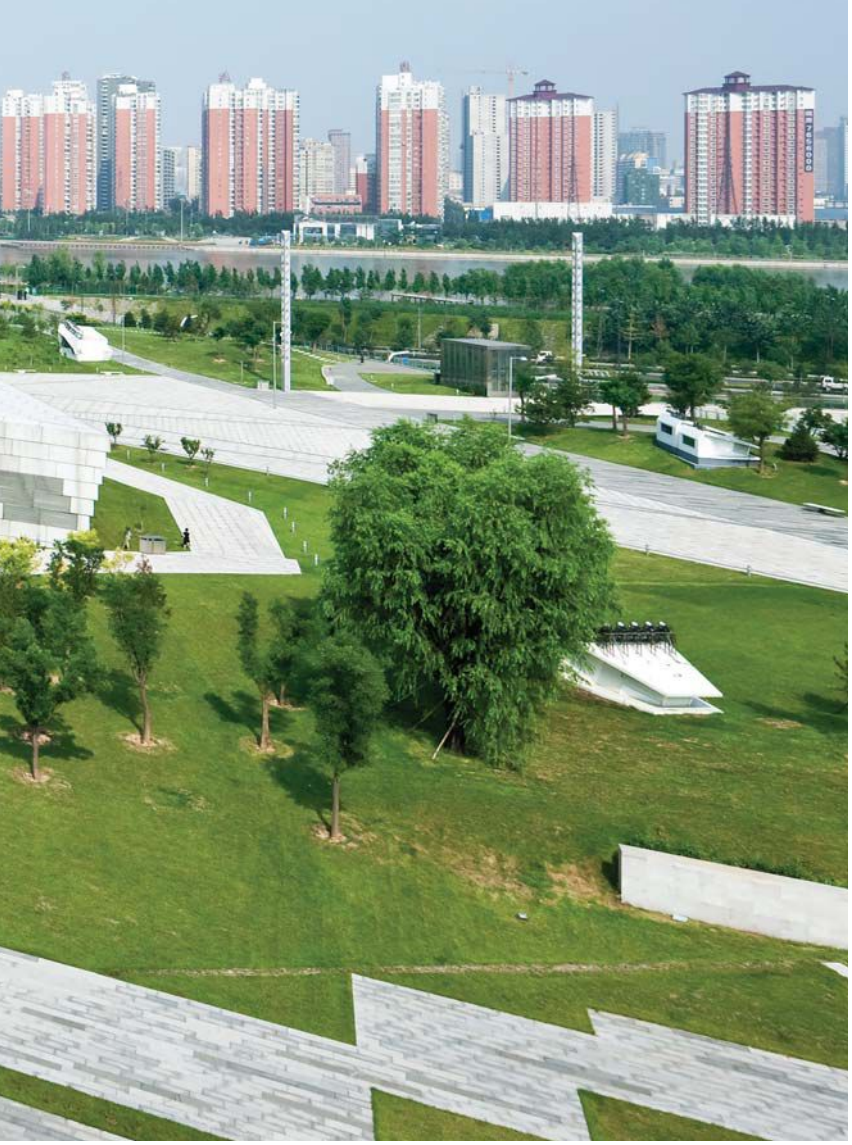
When you won the competition, you had a fairly bland, flat site without any existing built context that you knew of yet.
That's right. There was a plan to have five significant buildings—ours, a science center, a library, an opera, and another museum—none of which existed when we arrived and which were so far apart that they weren't really shaping each other. They are big objects, all the other four. This is not. It lays lower than any of them, conspicuously lower. This is a big deal for me: When you see the site, you see these big buildings and this one hugs the ground and engages it. It's not making an object in that sense that others are and that's what makes it stand out.

So would you consider it an environmental building?
You could call that environmental, if an environment is more about site. I don't know about that word, "environmental," though, because it implies energy systems today, which is a different territory of discussion. You can call it a building that builds on landscape.

I understand that you did the conceptual drawings. To what point did you carry it? At what point did you pass it off?
We went deep into design development (DD), and we went much further when it came to the façade. What we initially were asked to do was just to go at a very low level into DD. The façade became an issue, and they realized that we had to do it. They let us work directly with the manufacturer and model it continuously throughout the process.

And the whole idea that the building would be steel was a breakthrough. Normally in China, for a building of this scale, they prefer to build a concrete structure. And that we were able to persuade them to build large cantilevers and have a Vierendeel truss, to have a steel frame was, I think, a rare opportunity, actually. We were pleased they were willing.

SERGIO PIRRONE



Previous spread: A series of promenades leads visitors around the angular structure, and to an open-air courtyard. **Left:** The building's faceted form is sited in a larger complex of five cultural buildings in Taiyuan, a city of 4 million located 325 miles southwest of Beijing. **Below:** Emerging from the low-slung, knot-like form of the museum, a large prismatic cantilever on the south façade marks the entrance.

With such a light-colored building, did you have to accommodate for air pollution in the design in some way?
In China you should, and we do. We have a good solution with the drainage and the materials. In this case, they wanted a white building from the very beginning. We couldn't shake that. We had a great solution for recessed gutters, which didn't ultimately get built out. But the other approach would have been to have had a textured and dark-colored building.

Can a system of façade washing occur?
Oh yes, they've already cleaned it several times.

Tell me about your design intentions for the building itself.
We were still in the throes of the Tel Aviv Museum of Art project when we got this commission, and one of the things I was particularly trying to work out there was how to create an itinerary through the entire museum that would unfold as a spatial experience, but could also support a curatorial idea, if the curators were to wish to curate the building to correspond to this sequentiality of the space. I would like that to have been possible, that you would walk through it and the way you move through it, would also support different kinds of curatorial arrangements.

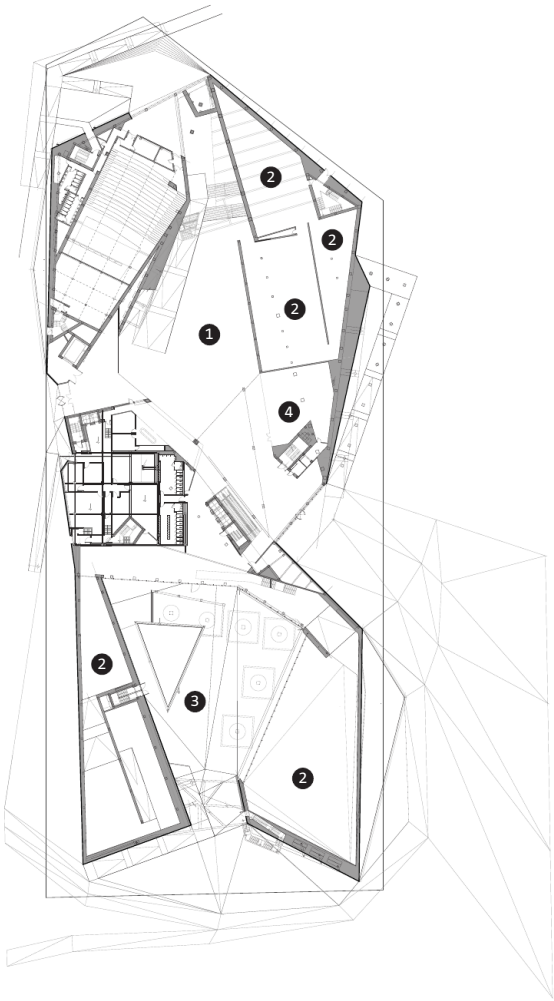
So this building is a museum as a promenade.
It's a promenade, but also with curatorial flexibility. I wanted both. It's not easy to do because the promenade idea is linear and a curatorial project may or may not be linear. The promenade of the exterior, however, is related to the landscape. It creates a context as well as connecting to one. So the two promenades have very different goals, necessarily.

But with each, you are creating an immersive environment. Although the environments are different, you're engaging the viewer in a promenade that is delivering some form of experience.
The inside one was complex because, on one hand, I wanted the visitor to move through the entire building and not be confused and have a fragmentary experience. I wanted the whole building to be a cohesive experience. But on the other hand, it was necessary to allow for different pieces of the exhibition to be independently trained and developed. It had to be a cluster of curatorial projects.

Given the scope of the building, I knew it wouldn't always be unified. It had to be more like the Met, with multiple wings and multiple exhibit areas. The ramp sequence weaves in and out of the galleries and keeps moving up as it does so. At the very end, there's a remarkable spiral stair that you descend, which is a synopsis of the whole sequence until that point—kind of an analogy of the whole building in this one episode.

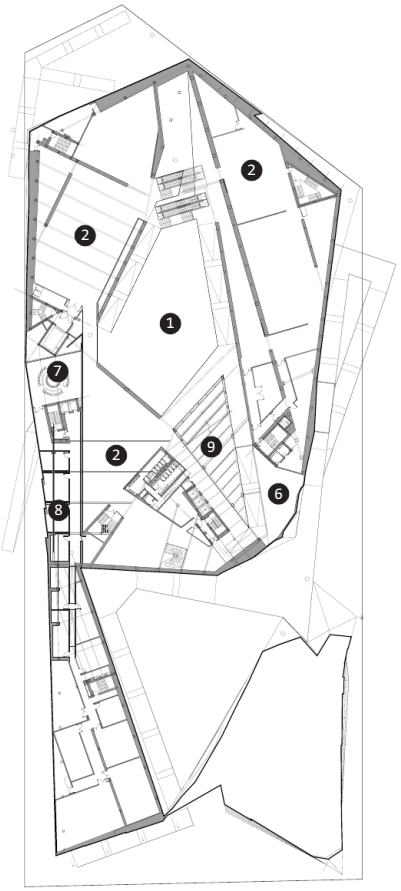
You've talked about the importance of a continuity and discontinuity and neither one nor the other being dominant.
In the sequence of spaces here, you could skip from one floor to the next or bypass certain important spaces on the way to others. You can have a

Ground-Floor Plan



First-Floor Plan

Second-Floor Plan



discontinuous experience of the building or, on the other hand, follow the promenade all the way through—but the discontinuous way of experiencing it also has to work. It is important to understand that people will, from time to time, be in the building and only see parts of it and go from one part to another, as opposed to moving through it in a way which is comprehensive, giving one a feeling of having seen it all.

In the Guggenheim in New York, for example, it's not very often that you take the elevator to one level and then another. With the continuous ramp, the levels are invisible. I've never done that, by the way. I've never skipped floors or ramps, if you want to call them that, at the Guggenheim. I'm fascinated by the idea, though, that a building like that can sort of happen and coexist with the possibility of skipping.

A lot of architects have been questioning structure, but you're the only one I know who has actually looked at the core as kind of the stabilizing, permanent thing and questioned its primacy.

Well, by the core, I mean everything that defines the innermost part of the building—a combination of the structure and the mechanicals, the innermost guts of the building. What I have come to understand is that when those things are arranged in ways that are not typical, the interior space develops in a different way.

If these things are really thought about spatially and sequentially—it is a far more fundamental question of architecture, in my view, than the interior finishes and the façade surface—the innermost structure will persist far longer and have a greater impact on the social order of the building. In Taiyuan, for example, we had a lot of half-levels and unusual sectional conditions in the building, and a lot of the elevators have doors on opposite sides. It's a very simple thing, but it really enables the plan to not stack up in a typical fashion.

How does this affect the building spatially?

We think so much about the outside of buildings. The fact is, the interiors are more important, and are really what sustains the architectural idea.

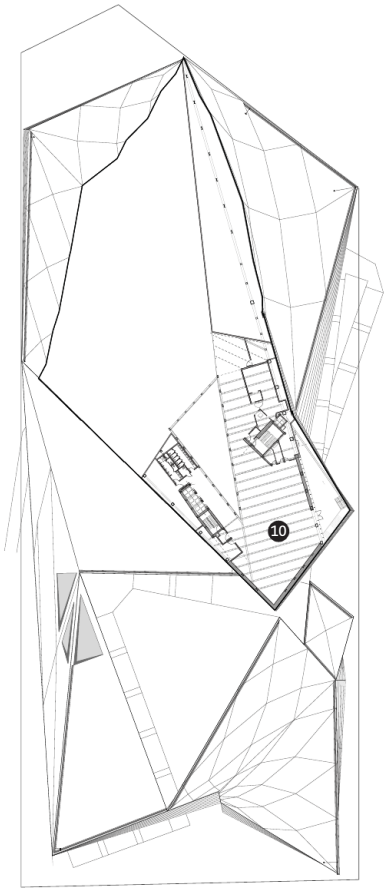
You obviously capitalize on the computer, but it seems that you're not captive to it. It strikes me that your designs are computer-enhanced or -enabled, but not aimless. Can you elucidate that?

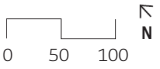
Clearly, the computer allows us to think nonlinearly, to test and transform, to edit, to look at variations. The flexibility that it offers is just remarkable. It would be extremely laborious to try to panelize and make all these complex forms make sense. By panelize, I mean to make discreet units out of all these curved surfaces, to turn a more curved surface into many parts. Imagine doing that by hand—it could be done, but it would be extremely laborious and the economy of that would limit you.

The computer allows for a critical dialogue with the work, at a much higher level than manual work. I don't see it as a generator. It's precise and it's a tool of great power, but I don't think drawing makes form, and I don't think the computer makes form. Neither one is the source of architecture. Architecture comes from ideas about space. It comes from ideas about the type of building, not the computer.

Third-Floor Plan

Fourth-Floor Plan





1. Atrium
2. Gallery
3. Courtyard
4. Shop
5. Library
6. Lounge
7. Conference room
8. Offices
9. Garden
10. Restaurant

A ground-floor opening in the west façade gives way to an open-air courtyard.

SERGIO PIRRONE

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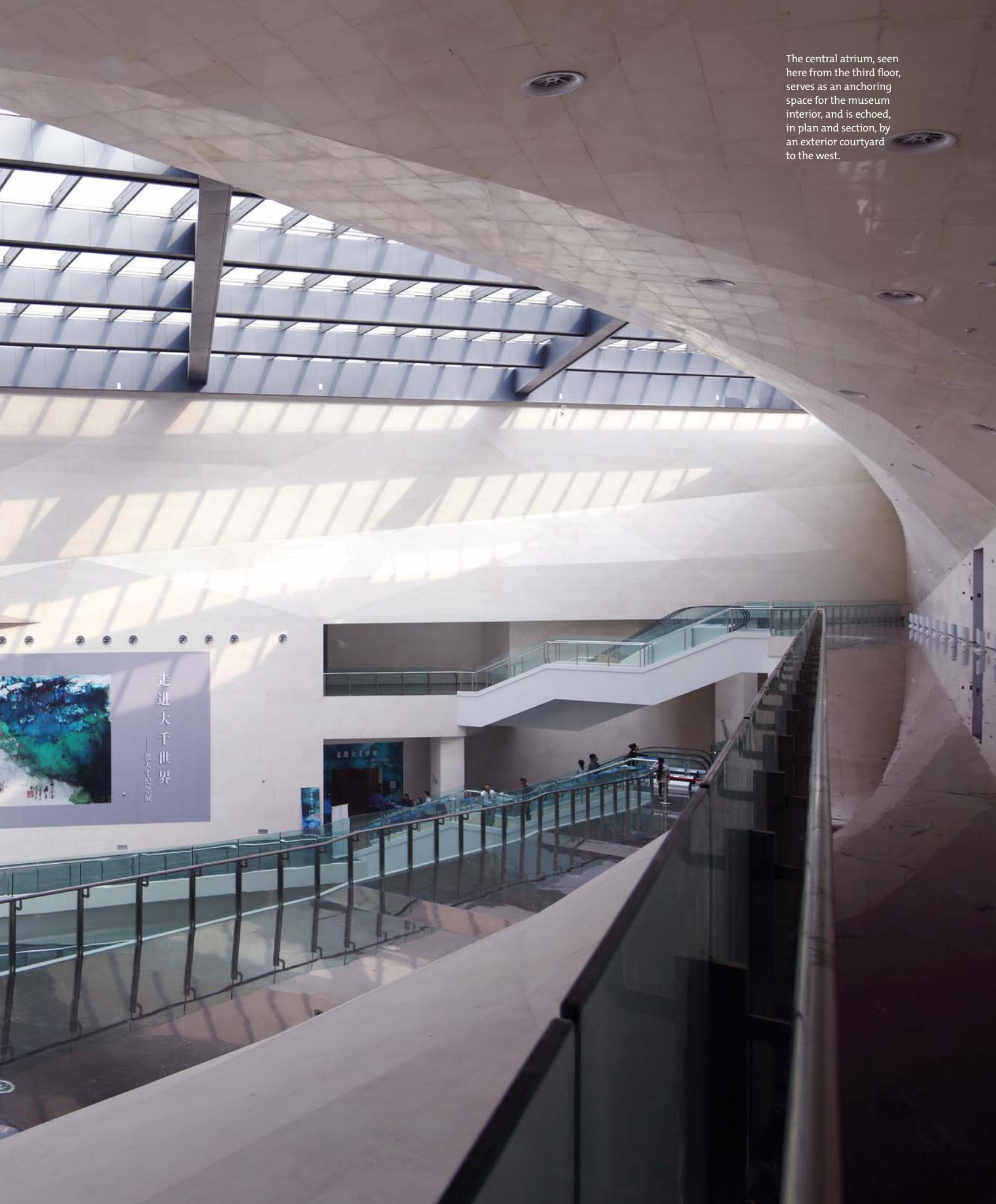
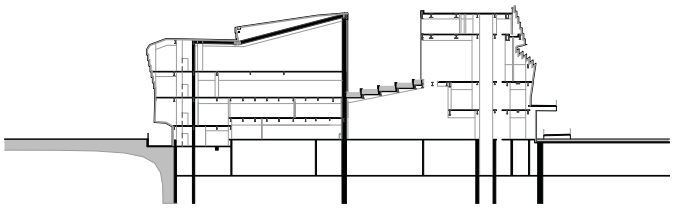
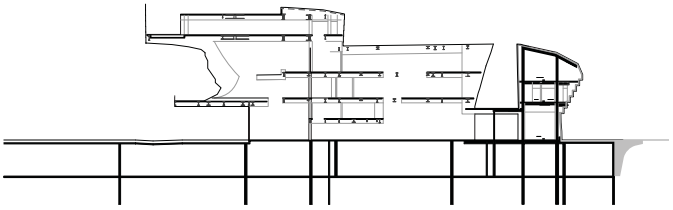


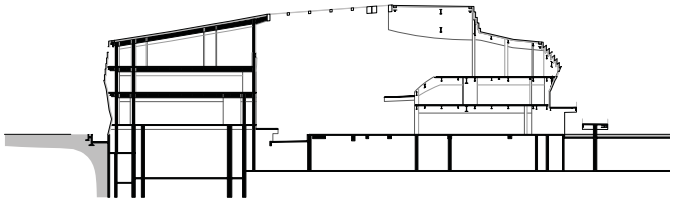
The central atrium, seen here from the third floor, serves as an anchoring space for the museum interior, and is echoed, in plan and section, by an exterior courtyard to the west.

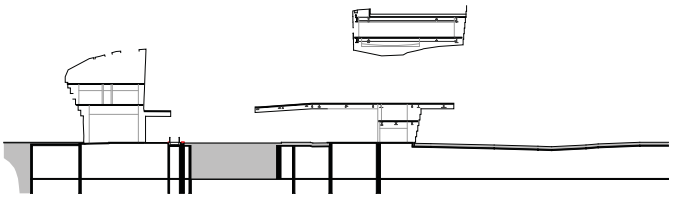
This image: The atrium's appearance changes with each sight line (here, looking south toward the main entry) as the parametric form of the building reveals itself. **Opposite:** The circulation sequence, which involves a series of ramps and promenades, becomes evident in the Piranesian criss-crossing of staircases, seen here at the eastern edge of the atrium.

Section Diagrams









This image: A staircase leads from the upper-level galleries down to the ground level. From there, visitors can access the exterior promenades that line the courtyard, seen here through the glazing. **Opposite:** Cohen designed the galleries as relatively neutral backdrops for the works on display; the continuous circulation system of ramps extends through these spaces.

OPPOSITE: IWAN BAAN; THIS PAGE: SHU HE


KUNSTHAL
ROTTERDAM
KUNST HAL
CAFE
KLOK

KUNSTHAL

MORE THAN TWO DECADES AFTER ITS COMPLETION, THE MUSEUM AND ARCHITECTURAL ICON GETS A 21ST-CENTURY UPDATE FROM THE FIRM THAT KNOWS IT BEST: THE OFFICE FOR METROPOLITAN ARCHITECTURE.

Text by **Ian Volner**
Photos by **Ossip van Duivenboden**

SURELY NO CONTEMPORARY BUILDING has had a more unlikely trajectory over the last two decades than the Kunsthal in Rotterdam. It is both an emblem of the rise of arguably the world's most influential living architect and the setting for one of the most spectacular art-heists in modern memory. Action, adventure, architectural history—this project has it all. And now it has entered a new chapter quietly and inconspicuously—just how the architect would like it.

Completed in 1992, the Kunsthal was one of the first buildings to emerge from the Office for Metropolitan Architecture (OMA), cofounded by Dutch design mastermind Rem Koolhaas, Hon. FAIA. Koolhaas had come to architecture after years as a would-be filmmaker and journalist; his 1978 book, *Delirious New York*, broke like a thunderclap over the profession, announcing the arrival of a wildcat iconoclast who'd set his face against modernist pieties and postmodernist cheek. Until the late '80s, OMA's work had comprised mostly speculative and unbuilt—or unbuildable—projects, including a contribution to the 1980 Venice Biennale's Strada Novissima installation and a failed proposal for Paris's Parc de la Villette.

The Kunsthal could thus be considered the first project to translate Koolhaas's hyperactive functionalism and irreverent regard for form into architecture. Squat and square, the structure is divided into two volumes. One features an upper course of stone cladding above a lower register of glass, in alternating straight and angled strips that are punctuated by regular vertical mullions. The other features a fully glazed enclosure topped by a Miesian, flat, steel roof.

With Rotterdam's existing art museums freighted with their own permanent collections, the municipal government commissioned the project to create a space that could host temporary exhibitions, film screenings, art classes, and dining. Koolhaas seized the mixed program with gusto, creating a layered sequence of spaces, including a semi-outdoor café, auditorium, and exhibition halls, all of which overlapped each other in a determinedly anti-hierarchical jumble.

OMA has certainly evolved since then, but signature elements in the Kunsthal have appeared again and again, in projects from the Casa da Musica in Porto, Portugal, to the Seattle Public Library. As the firm's breakthrough building, the Kunsthal had surely secured a place in history. Unfortunately, it's not the only reason why the building is famous.

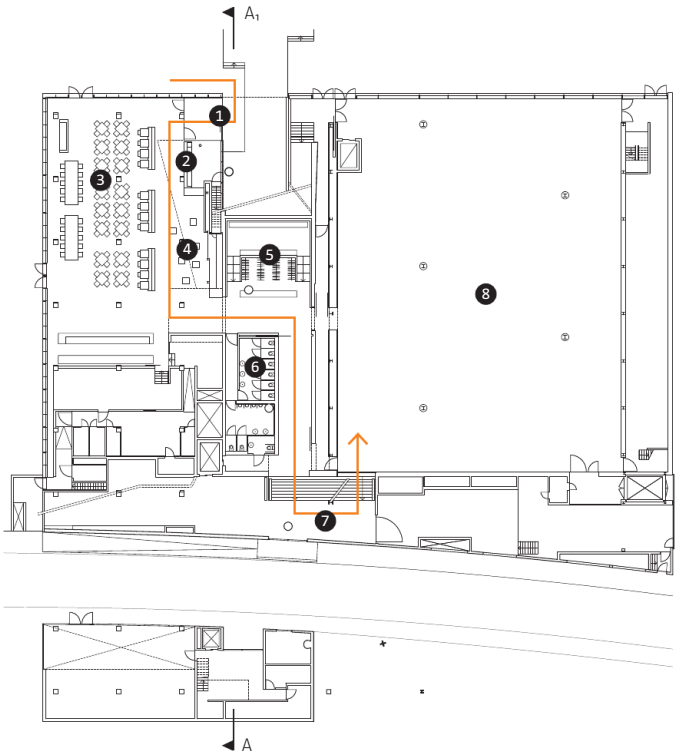
In October 2012, as part of the institution's 20th anniversary, the Kunsthal presented a show of major 19th- and 20th-century paintings from the Triton Foundation collection. On Oct. 16, two thieves broke into the rear entrance of the building in the early morning, triggering the alarm but escaping with seven masterpieces by the likes of Picasso and Matisse.

The robbery was one of the most costly to hit the art world in a long time: The combined insurance value topped $23.8 million, and the resale price would have been even higher. But with the pieces logged in the Art Loss Register, hindering their sale on the international market, the thieves fled with the loot to their native Romania, where one of them made a fateful decision: He entrusted the paintings to his mother, who then allegedly burned them in her home fireplace to hide her son's guilt.

The thieves and conspirator pled guilty last year and were sentenced to prison. But with its security system exposed as a near total dud, the Kunsthal has not quite recovered from the publicity. As part of its efforts to reinvent itself, the institution completed its first major renovation in January, with Koolhaas and company back at the helm.

OMA partner Ellen van Loon, who led the renovation, wasn't with the firm during the Kunsthal's original construction, but she certainly knew it well. "It's a project that's hard to miss," van Loon says. "At the time it was built, it was quite a progressive project in Holland, and it made a lot of people discuss architecture. There weren't any architects who didn't notice it."

Updated Ground-Floor Plan and Entry Sequence



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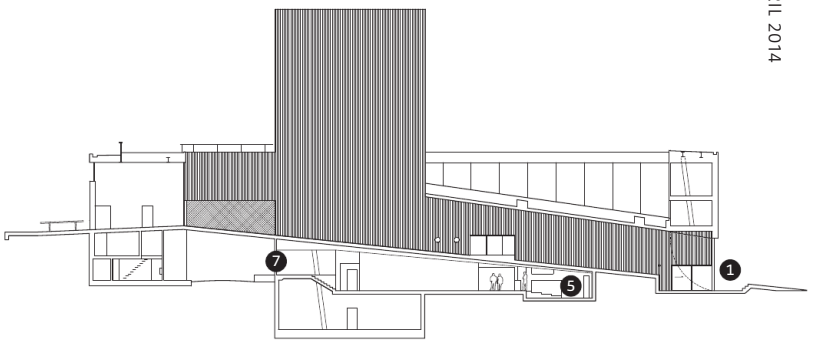
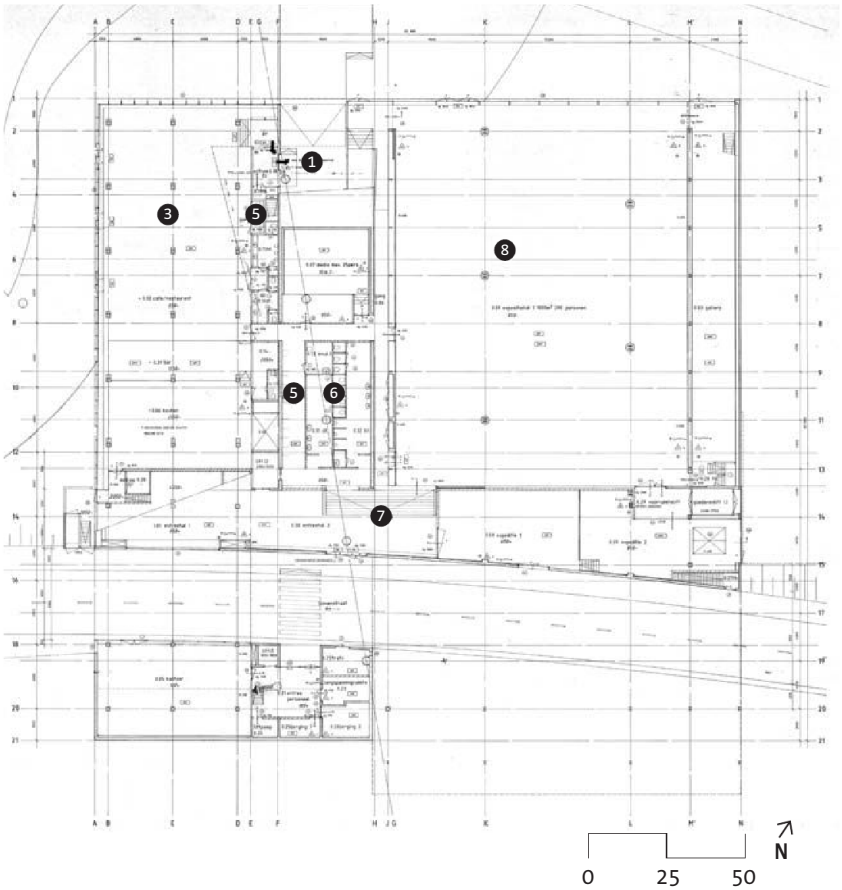
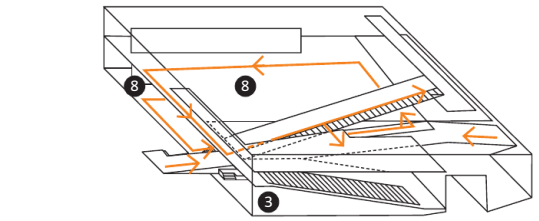


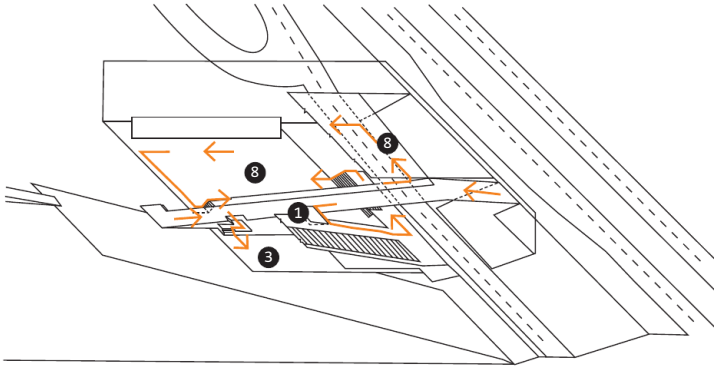
1. Main entrance
2. Reception desk
3. Restaurant
4. Museum shop
5. Cloakroom
6. Bathroom
7. Exhibition entrance
8. Exhibition hall

Original Ground-Floor Plan



Original Circulation Diagram





Previous spread: As viewed from the southeast, the Kunsthal is intersected by a service road and edged by a highway to the south. **Opposite:** Ground-level exhibition hall, north elevation. The renovation included the partial replacement of light fixtures to improve energy efficiency.

An open-air pedestrian pathway runs through the Kunsthal along the north–south axis. The new building entrance directs visitors into the restaurant.

In returning to a building that was so central to OMA's early days, you might expect a certain cringe factor—like looking at your own baby pictures—but van Loon and her team were fairly pleased by how well the building had weathered. "Our conclusion was that the building worked better than anyone thought, from day one," she says. "Materials that people said would only wear five years would wear 20 or longer."

That said, the building needed a tune-up, and not just to its security system. Sustainable design was in its infancy when the initial scheme was completed, and higher performance standards have since become de rigueur for OMA and the profession at large. Updates to the building envelope and M/E/P systems, which will slip by unnoticed by most visitors, will reduce the museum's heating bill by an estimated 30 percent, and the energy consumed by its electrical and HVAC systems by 28 percent.

Achieving these improvements without distorting the essence and experience of the Kunsthal required strategic moves guided by the subtlest of design changes. High-performance double-glazing replaced the wraparound windows. Fluorescent lamps and LEDs have partially replaced conventional sources in the museum's distinctive lighting plan. Low-flow fixtures outfit the reconfigured bathrooms, and a heat recovery system salvages thermal energy circulating through the building. Humidity and carbon dioxide monitoring systems maintain the physical comfort of visitors.

The central museum's open plan also experienced some tweaks. The "continuous routing," as van Loon describes it, meant that large swathes of the building had to be conditioned even when they weren't in use. New glass partitions allow heating and cooling to be delivered to areas where needed, and shut off where they're not.

Next on the docket was the Kunsthal's programmatic layout. "The building is visited by many more people than we originally planned," van Loon says. Though the renovation brief didn't specify an expansion of the approximately 70,000-square-foot interior, the existing envelope could accommodate more museumgoers. The building's main entrance was relocated to what was formerly the entrance to the restaurant; now guests are steered through the café and museum shop, around a cloakroom and restrooms, and then up and down the iconic ramps.

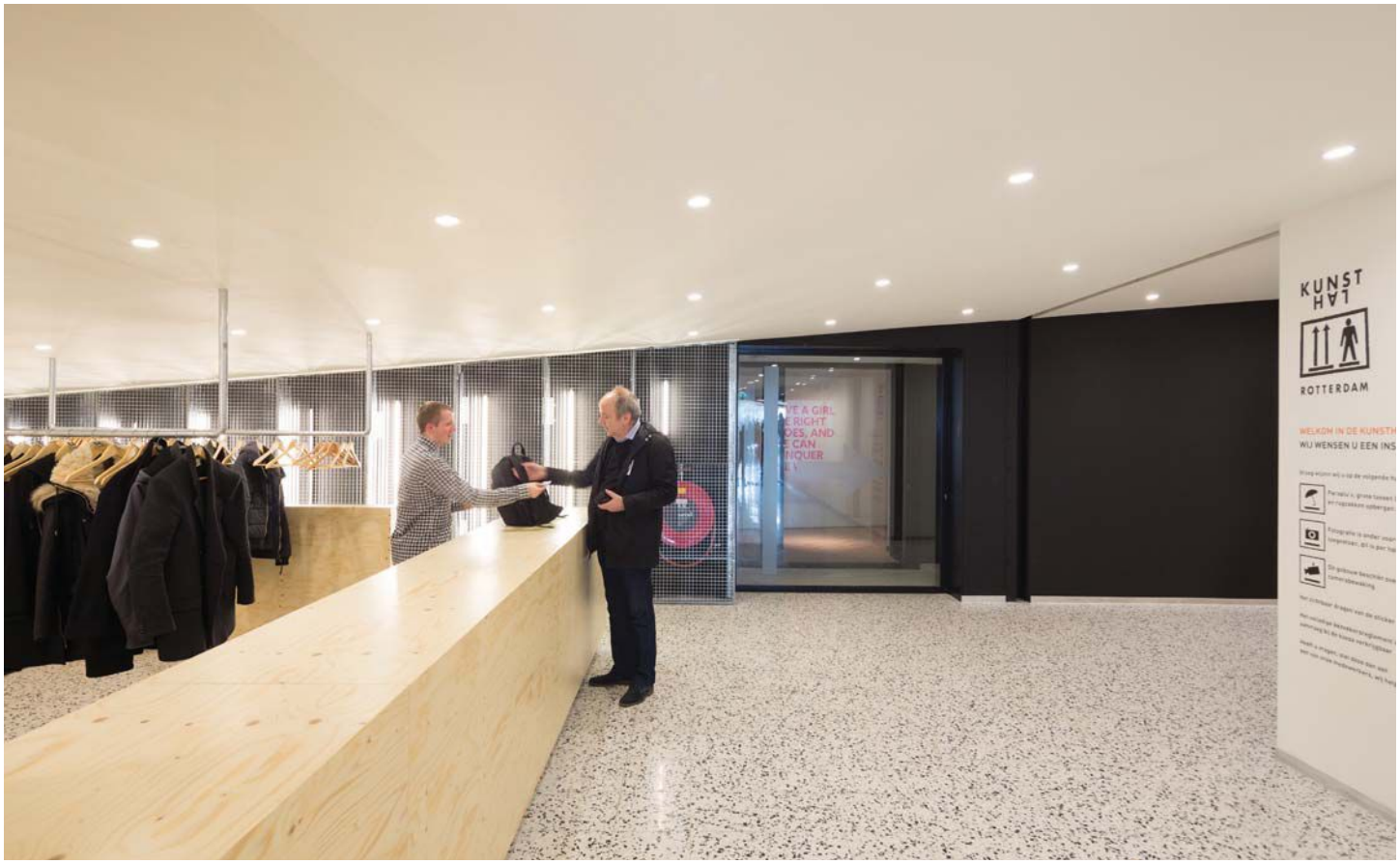
Along with minor shifts and partitions in the interior plan and a revised wayfinding and signage system, the rearrangement allows different parts of the building to be used simultaneously and discretely by different users. This reflects in part a major shift in Dutch society since the early '90s: While the Kunsthal was once almost exclusively government funded, it now has to rent out its spaces to outside groups to generate revenue. "We basically made the building more multifunctional," van Loon says—an operation that is very much in line with OMA's functionalist philosophy.

As for security... well, let's just say major changes have been made. With the top-to-bottom refurbishment of Amsterdam's massive Rijksmuseum finished just last year, a lot of experts in art protection are rattling around the Netherlands these days. OMA found a local consultant—they declined to name which—to help ensure that the 2012 incident does not repeat. Neither van Loon, nor anyone else, can discuss the new security measures. "It's confidential," she says. Understandable.

When it comes to iconic buildings, the potential to over-tinker with the original concept always hangs above the heads of those who are overseeing the renovation. The Kunsthal, though, had the good fortune to be operated upon by its own progenitors, who—as parents often do—combined a special reverence for their creation with a frankness in assessing its flaws.

Looking back, van Loon does see that the initial scheme left room for improvement—but not in the way of making the museum more of a guarded citadel. If anything, she says, the renovation has opened up the building and made it even more of an OMA project: active, stimulating, and full of surprises and unexpected maneuvers. "What we've done is [added] these acupunctural interventions on the project to make it work better functionally," she says. "It's just more flexible now, without losing the original idea."

Top: Upon entering the museum, visitors are directed immediately into the reception area and the Kunsthal café. **Bottom:** The renovation integrated the museum shop into the entry sequence. **Opposite, top:** Glass partitions inserted between public spaces and the circulation ramps enable zone conditioning. **Opposite, bottom:** Visitors can stop by the cloakroom before entering the exhibition halls and auditorium.



TOP: JEROEN MUSCH

EMERSON COLLEGE LOS ANGELES

EMERSON COLLEGE'S NEW HOLLYWOOD OUTPOST, DESIGNED BY MORPHOSIS ARCHITECTS, BRINGS ADDED DENSITY—AND A STRIKING SILHOUETTE—TO THIS RAPIDLY CHANGING NEIGHBORHOOD.

Text by **Mimi Zeiger**
Photos by **Bruce Damonte**

DRIVE DOWN LOS ANGELES'S Sunset Boulevard and you'll discover Morphosis Architects' latest project, a futuristic cube, rising from a strip of lowly fast food outlets. The structure is the West Coast micro-campus for Boston's Emerson College, and is home to 217 students majoring in television, film, marketing, acting, screenwriting, and journalism. As you draw closer, the solid mass reveals itself as a proscenium, framing a patch of blue sky. The building's two residential towers bookend open-air courtyards and performance spaces. "Some might say it is an aggressive building, but I see it as rather classical," says Thom Mayne, FAIA, principal of Morphosis Architects, with offices in Culver City, Calif., and New York. "[The design] is a critique of an institutional building as a big block."

At 107,400 square feet and 10 stories high, Mayne's building is a robust addition to the neighborhood's transformation, which is being spurred by the city's Hollywood Redevelopment Project. The structure, on track to achieve LEED Gold certification, is not a traditional academic building. Emerson College, with the support of a strong alumni community, commissioned the $85 million facility to accommodate its long-standing internship program, which brings students to L.A. each year to work in the media and film industries. The building boasts 188 student rooms and four faculty apartments, as well as classrooms, faculty offices, and video and film production labs.

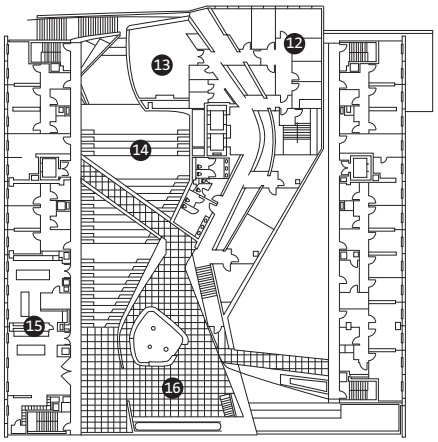
Mayne, an Angeleno who studied in the Boston area at the Harvard Graduate School of Design, recognized the culture shock potential between the two cities and based his concept on an idea about urbanism that mediates between East Coast density and the wide-open L.A. basin. His concept weaves an imagined urban fabric from indoor and outdoor spaces, including courtyards that double as performance spaces. A large outdoor stair serves as a gathering area for students, but it's also an amphitheater equipped with theatrical lighting for public events. "Los Angeles can be a very complicated and opaque place to visit," Mayne says. But sitting on the steps looking out at the Hollywood sign framed by his building, there's no confusion: This is L.A.


Sunset Bl
EMERSONCOLLEGE 5960

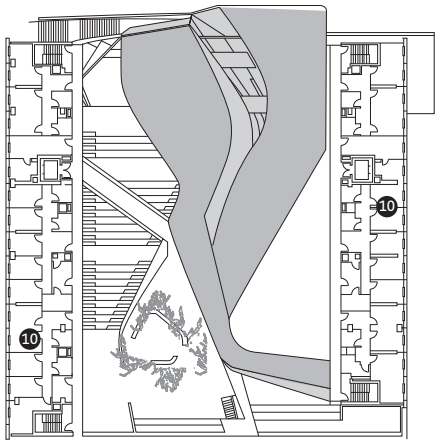
Above: This stretch of Sunset Boulevard was far from glamorous when Emerson purchased property along it in 2008. Today, condos are rising in once-empty parking lots. Although the academic building incorporates 120,000 square feet of parking spread across three levels, it is located near the Hollywood/Vine Metro station and is designed to be pedestrian friendly. The ground floor café is open to the public.

Right: Two single-loaded residential towers present austere perimeter façades to the east and west. An automated system connected to weather stations that monitor temperatures and sun angle controls the horizontal sunshades. A high-performance glass curtainwall features operable windows in the dorm rooms. Rooftop solar panels on the west tower provide enough power to heat hot water for the entire complex, and each dorm room is equipped with a valence system that provides radiant heating and cooling. “The first way to deal with energy is to reduce the load,” Mayne says. “There isn’t much coming out of the office that isn’t [LEED] Gold or Platinum.”

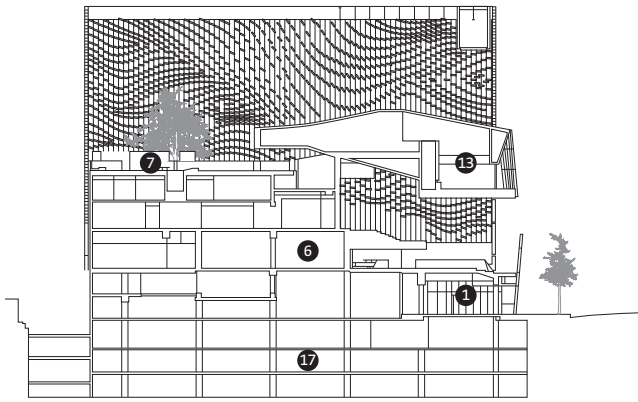
Fifth-Floor Plan



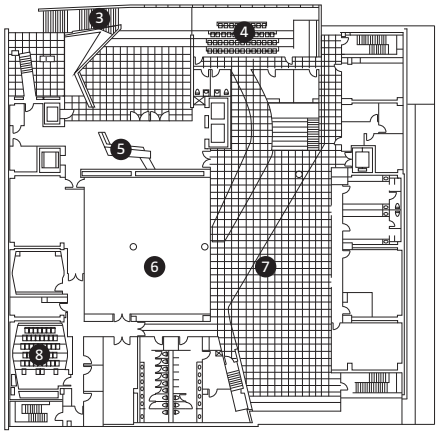
Seventh-Floor Plan



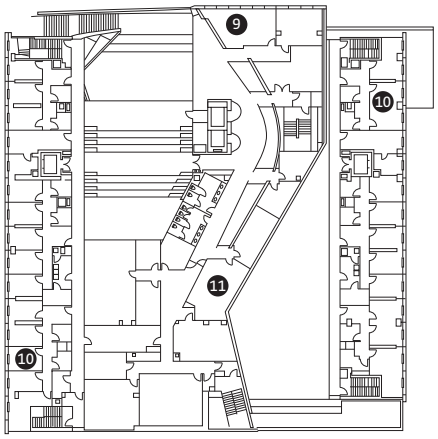
Section A–A₁



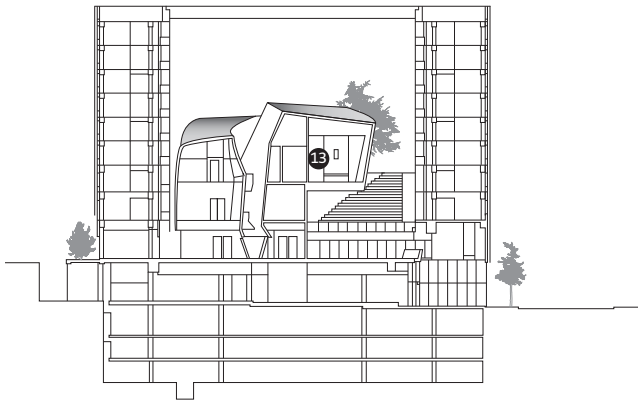
Second-Floor Plan



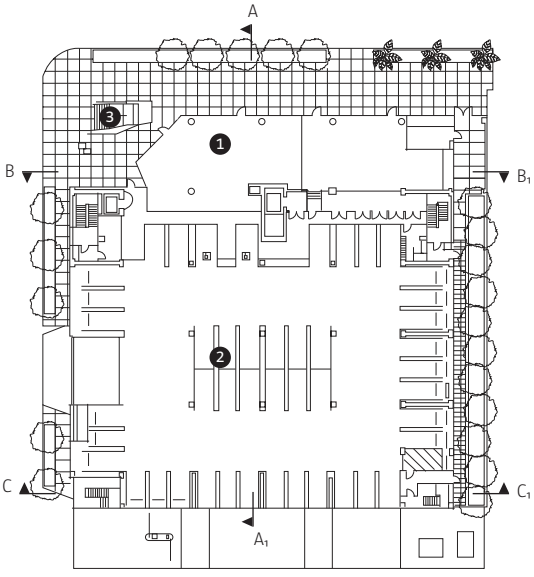
Third-Floor Plan



Section B–B₁

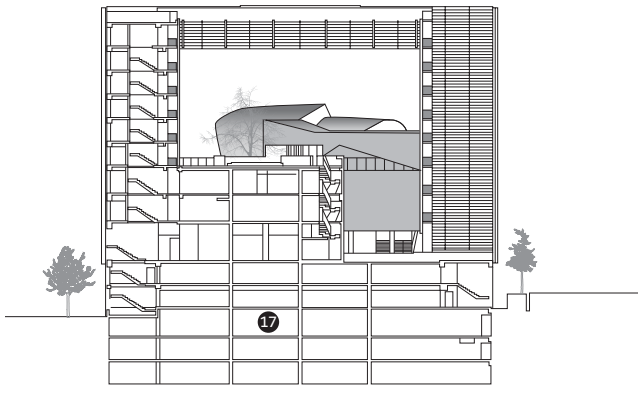


Ground-Floor Plan



1. Café
2. Parking
3. Entry stair
4. Distance learning room
5. Reception
6. Multimedia classroom and performance space
7. Courtyard
8. Classroom/screening room
9. Classroom
10. Dormitory
11. Classroom/media editing lab
12. Administrative offices
13. Conference room
14. Grand stair/outdoor amphitheater
15. Kitchen and dining
16. Residential courtyard
17. Underground parking

Section C–C₁

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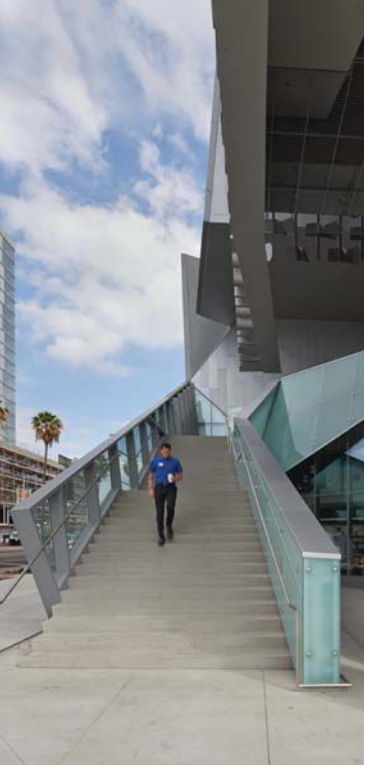
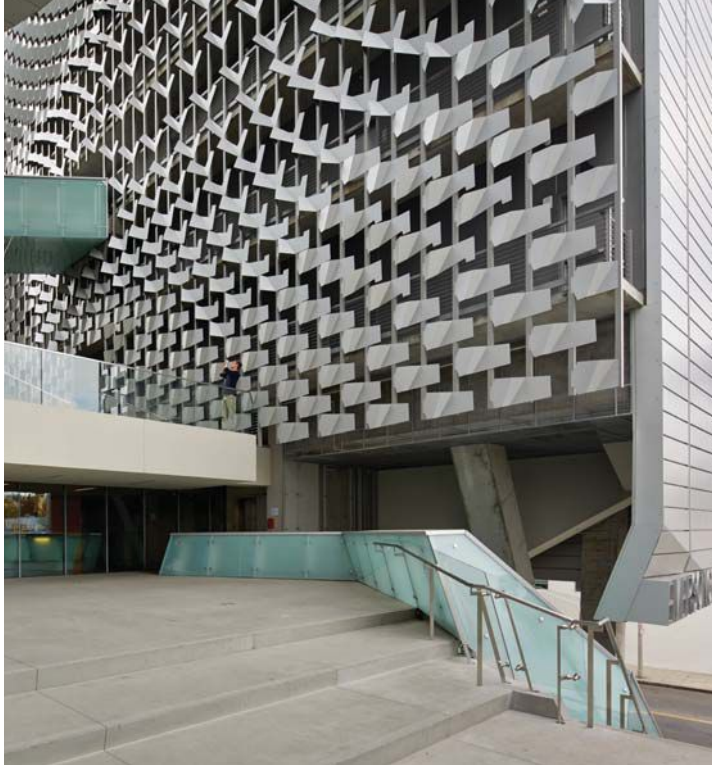
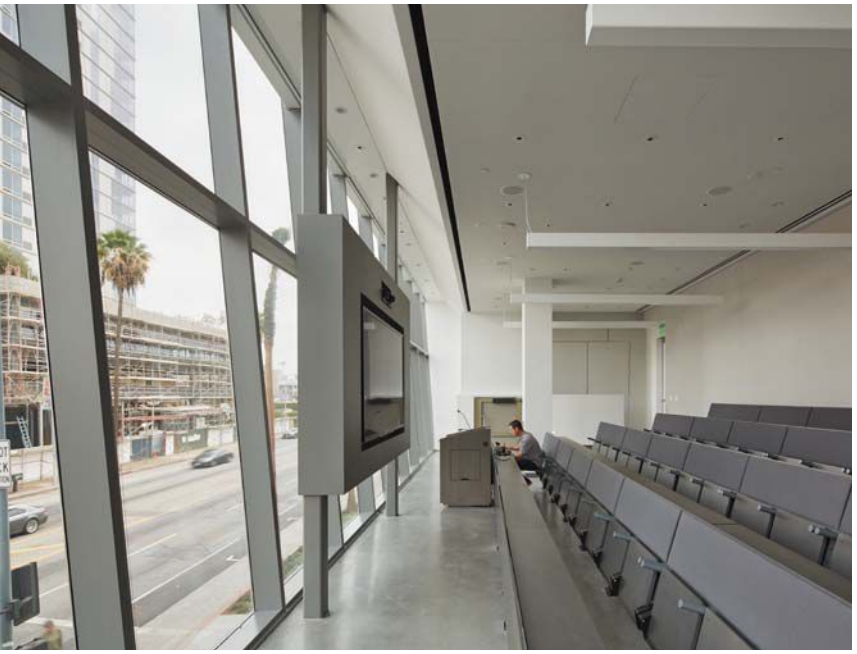
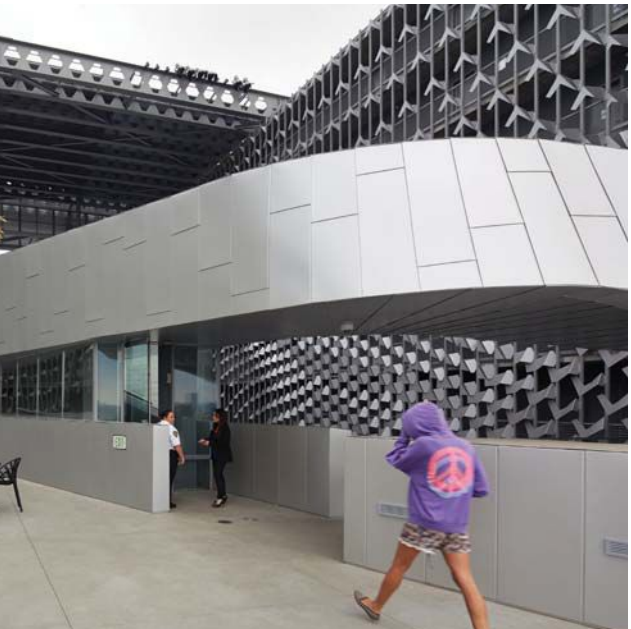




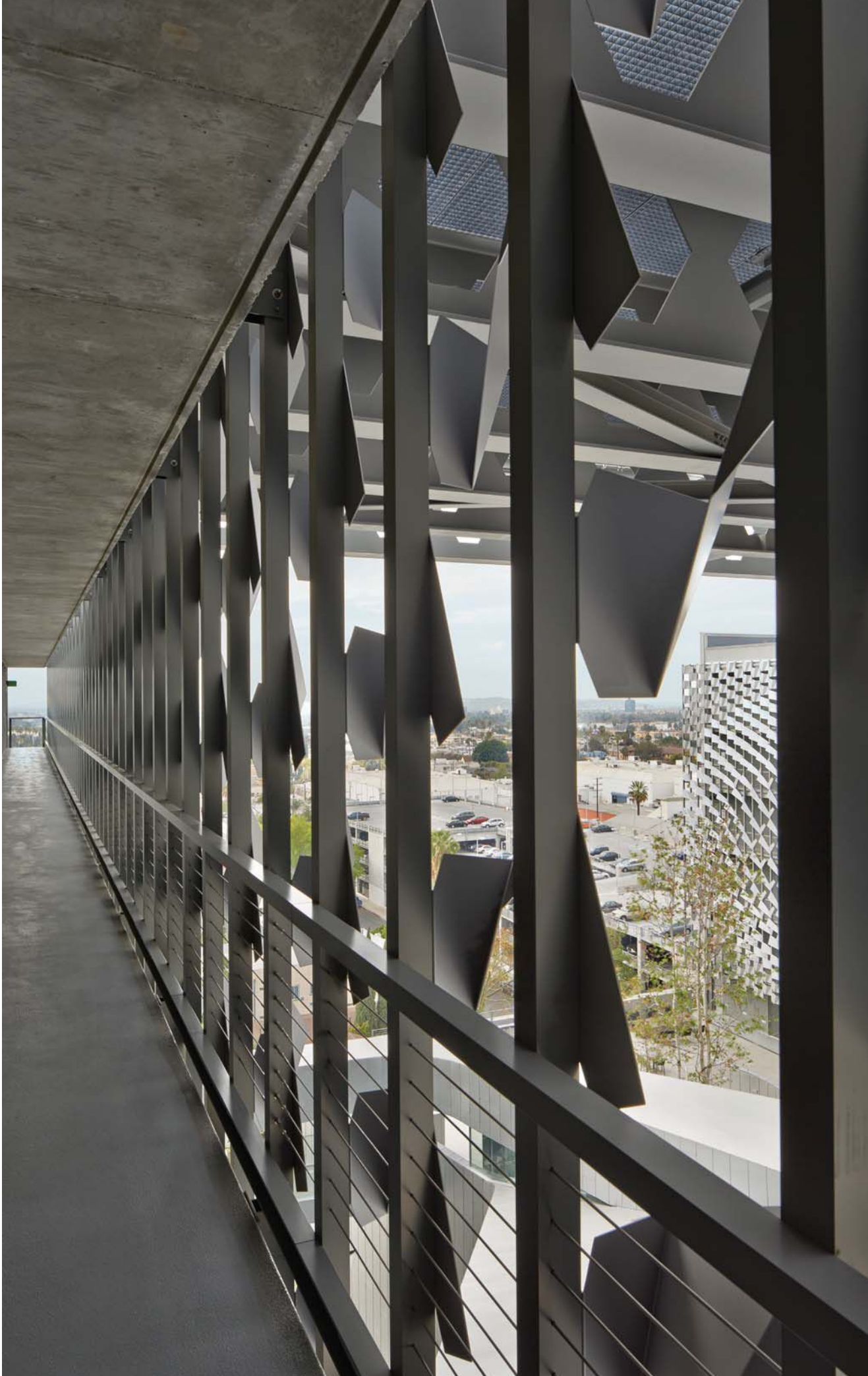




Top row: The building is located on a rapidly gentrifying commercial strip of Sunset Boulevard. Students enter via a staircase that leads to an open-air courtyard. A. Zahner Co. in Kansas City, Mo., manufactured the aluminum panels that clad the exterior walls facing the courtyard. The company used 3D models to produce the exact curvatures of Mayne's design and then shipped the panels to the site.

Middle row: The organically shaped form between the two dorm towers contains performance spaces, administrative offices, and classrooms, including a distance learning room facing onto Sunset Boulevard. For Mayne, the play between indoor and outdoor areas is more analogous to the older urban fabrics in Europe and Asia, not Los Angeles. "We built a little town. I am fascinated by the accidental feel of cities more than the formal," he says. "The building is filled with interstitial spaces."

Bottom row: The design embraces the Southern California climate with two large piazza-like spaces and integrates performance-quality lighting and audio equipment. The third-floor terrace, adjacent to a communal kitchen and dining room, is dedicated to the resident students. It features barbecue grills and outdoor dining furniture.



Opposite: One of the most striking features of Morphosis's design is the eight-story sunscreen that shades the building's two internal façades. The firm used computational scripting to determine the final geometry. Over the better part of a year, in-house designer/programmers input the parameters that created the undulating and dynamic surface. The scripting program responded to inputs such as the curvature of the classroom building and the location of the elm tree in the fifth-floor courtyard.

Right: The screens, which provide shade and privacy for the dorm rooms, are composed of 17 different folded components made out of triple-coated aluminum. The Morphosis team worked closely with the A. Zahner Co. on the fabrication.

At 10 stories tall, the building is considered a high-rise in Los Angeles, where building codes require emergency helicopter access on structures taller than 75 feet. So the project team integrated a helipad into the design. The robust superstructure bridges the two dorm slabs and doubles as a lighting grid for outdoor performances in the second-floor courtyard and in the amphitheater.

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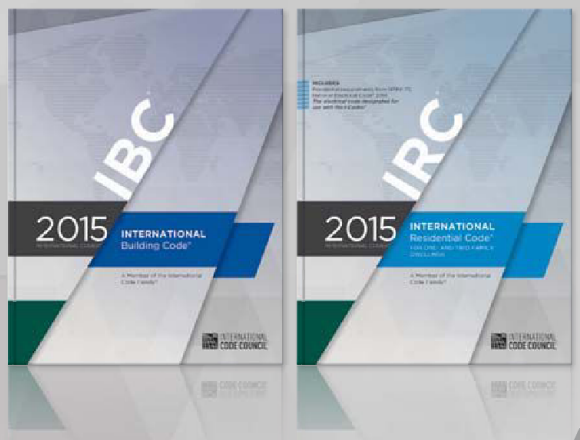

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CHICAGO RESIDENCE

LOCAL ARCHITECT DIRK DENISON INTEGRATES A MULTISTORY LANDSCAPE INTO AN INFILL SITE IN LINCOLN PARK.

Text by **Cindy Coleman**
Photos by **Michelle Litvin**

ON A CORNER lot in the heart of Chicago's Lincoln Park neighborhood, Dirk Denison Architects physically turns the notion of a family home—and its landscape—up, down, and on its side. Principal Dirk Denison, FAIA, composed an orthogonal, ipe-clad structure that "pushes out" key interior spaces with large rectangular bay windows and "pulls in" landscaped courtyards, creating voids for exterior staircases and landscaped roofs. "Essentially, we carved away the rectilinear form of the building to accommodate landscape on each level and every view of the building," says Denison, noting that each push and pull creates an opportunity (and surface) for exterior landscape.

As a first move, Denison leveraged sight lines from the home's interior out onto an open green space across the street. "For us, the landscape was both the biggest challenge and the greatest accomplishment," says Denison, who saw this project as a way to demonstrate how to rethink urban residential architecture.

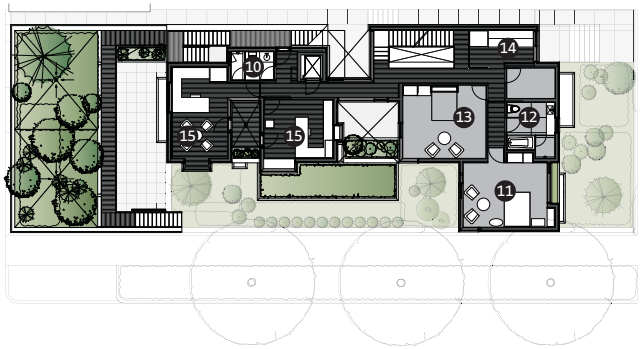
In Denison's design, sustainable features were key: The house is heated and cooled by geothermal systems and enclosed in a high-performing skin and window system. And, even though the building fills the site within the allowable city constraints, more than 50 percent of the site (by way of roof and courtyards) is considered landscaped, complete with an intensively planted roof over the garage that boasts a grove of aspen and fir trees. These features contributed to the building's City of Chicago's Green Permit distinction. (It was, in fact, one of the first projects to apply for, and get, this expedited permit, which encourages green building.)

Inside, an internal courtyard defines the transition from the formal living areas at one end of the main floor (for the adults) to the family space (for the children) at the other. In the middle zone, a stairwell (with a custom light fixture by Paris-based artist/designer Arik Levy) sets up vertical zoning between different spaces for playing, living, sleeping, and working.

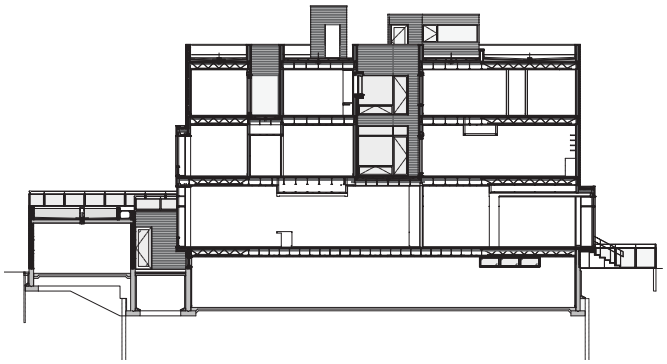
The interior of the house is conceived as a series of glass vitrines. The first is literal: integrated large-scale aquariums in the living room and master bedroom provide active backdrops to the serene interior. The second is more philosophical: views into other areas of the house, framed by floor-to-ceiling bay windows. Both of these types of vitrines are conceived as habitats—simply scaled up and scaled down. The house's interior spaces are light-filled and softly colored with natural ash-wood floors and millwork, which are balanced with darker earth-toned upholstery—an intentional move on Denison's part that provides a neutral backdrop against which to appreciate the changing colors and textures of the landscape, both inside and out.

Previous page: The house's entry is on the eastern edge of the lot. An ipe rainscreen conceals a steel frame with composite decking. **This image:** Each floor features bay windows from Dynamic Architectural Windows & Doors.

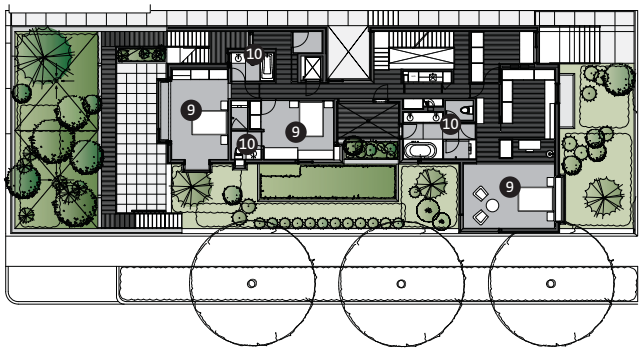
Third-Floor Plan



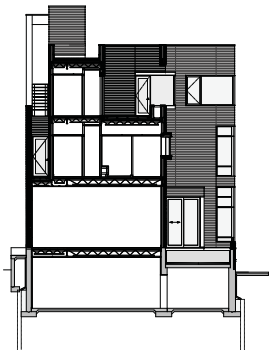
Section A–A₁



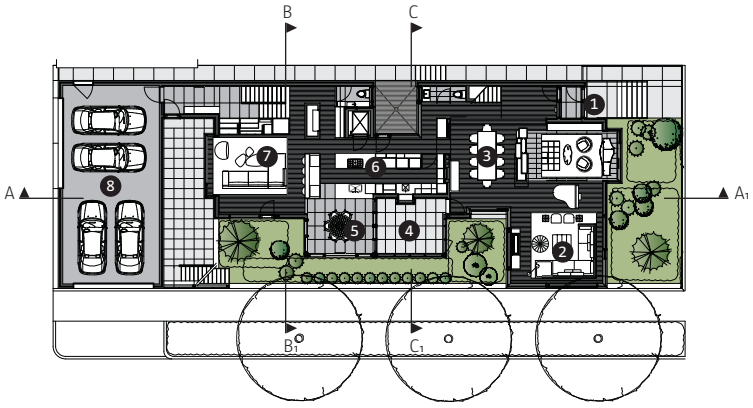
Second-Floor Plan



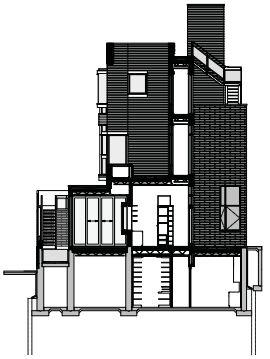
Section B–B₁



First-Floor Plan

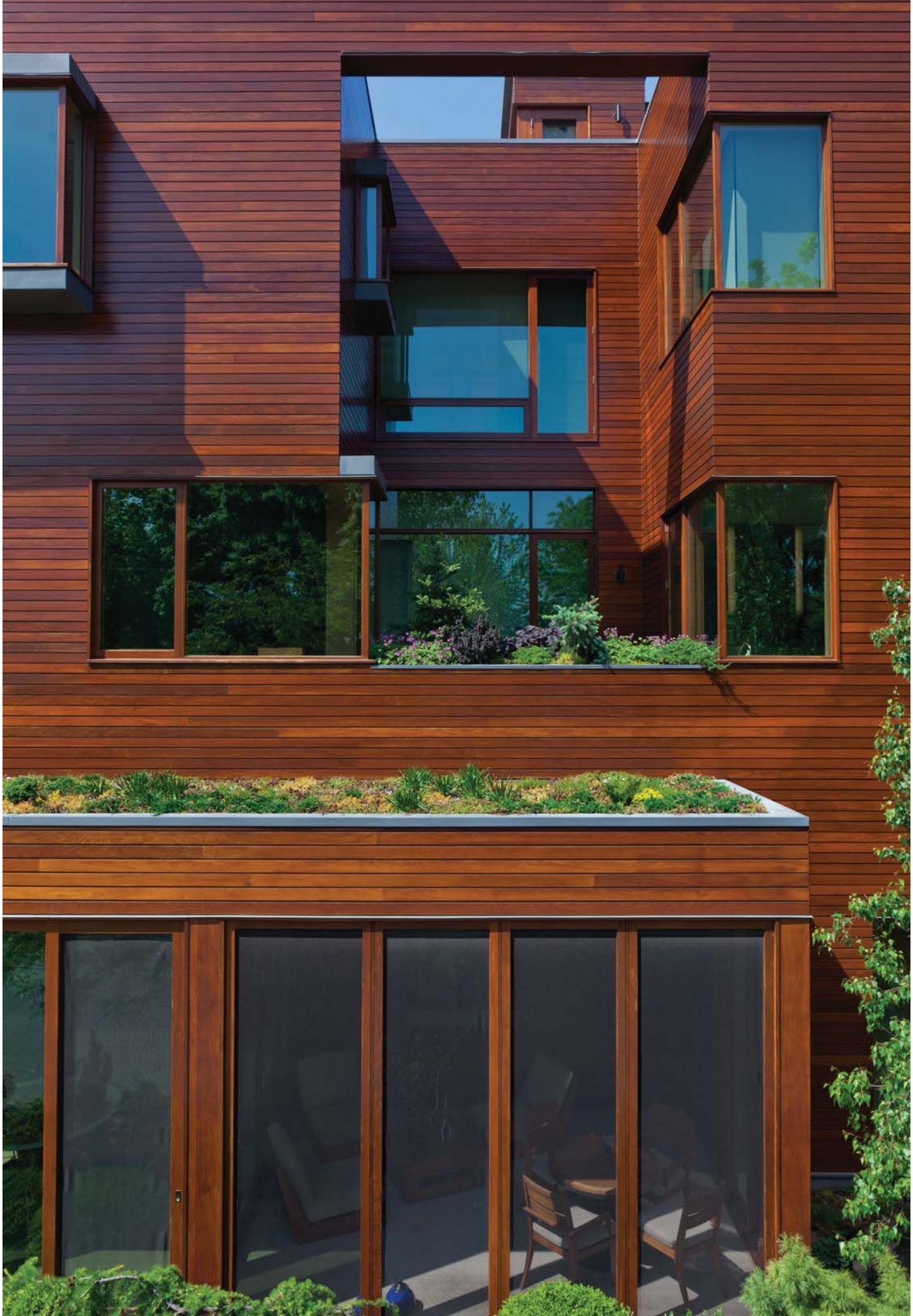


Section C–C₁



1. Entrance
2. Living room
3. Dining room
4. Porch
5. Breakfast room
6. Kitchen
7. Family room
8. Garage
9. Bedroom
10. Bathroom
11. Master bedroom
12. Master bath
13. Music room
14. Photo room
15. Office

Top: An enclosed porch on the ground floor features views out to the neighborhood through Bendheim glass. **Middle:** The third-floor master bath features fixtures from Dornbracht and a marble backsplash. **Bottom:** The formal living room is decorated in neutral tones, with paint from Benjamin Moore and a quartered ash floor. **Opposite:** The bay windows create outcroppings that make room for small green roofs on each level, which use a Sika Sarnafil system.



Taiyuan Museum of Art, page 100

Project Taiyuan Museum of Art, Taiyuan, China
Client Taiyuan City Government
Architect Preston Scott Cohen, Cambridge, Mass.—Preston Scott Cohen (principal designer); Amit Nemlich, (project architect); Collin Gardner, Hao Ruan, Joshua Dannenberg, Yair Keshet (project assistants)
Architect of Record Architecture Design and Research Institute of Southeast University, Taiyuan Architectural Design Institute
Structural Engineer Zhidong Wang
HVAC Engineer Mingli Xu
Electrical Engineer Guixiang Zhou
Automation Engineer Sheng Zang
Cost Estimator Geli Zhou
Size 40,505 square meters (435,992 square feet)
Cost $60 million

De Kunsthal, page 112

Project Renovation and update of De Kunsthal, Rotterdam, Netherlands
Client City of Rotterdam
Original Architect Office for Metropolitan Architecture (OMA), Amsterdam—Rem Koolhaas, Hon. FAIA (partner-in-charge); Fuminori Hoshino (project architect); Tony Adam, Isaac Batenburg, Leo van Immerzeel, Herman Jacobs, Ron Steiner, Jeroen Thomas (team)
Interior Consultants Petra Blaisse, Kyoko Ohashi, Hans Werlemann
Collaborating Artist Gunter Förg (restaurant light installation)
Structural Engineers Cecil Balmond, Ove Arup; City of Rotterdam
Renovation Architect OMA—Rem Koolhaas and Ellen van Loon (partners-in-charge); Michel van de Kar, Alex de Jong (associates-in-charge); Peter Rieff, Sebastian Janusz, Mario Rodriguez Lopez, Dongwoo Kim (team)
Consortium Dura Vermeer, Eneco, Roodenburg Installatiebedrijf
Structural Engineer Theo Wulffraat & Partners
Interior Builder Coors Interieurbouw
Wayfinding and Graphics Tel Design
Size 7,000 square meters (75,347 square feet)
Cost Withheld

Emerson College Los Angeles, page 120

Project Emerson College Los Angeles
Client Emerson College
Architect Morphosis, Culver City, Calif.—Thom Mayne, FAIA (design director); Kim Groves (principal and project manager); Aaron Ragan (project architect); Chandler Ahrens (lead project designer); Shanna Yates (project designer); Natalia Traverso Caruana, Brock Hinze, Yasushi Ishida, Jai Kumaran (project team); Katsuya Arai, Marco Becucci, Chris Bennett, Cory Brugger, Amaranta Campos, Joe Filippelli, Alex Fritz, Penny Herscovitch, Hunter Knight, Zach Main, Jon McAllister, Nicole Meyer, Cameron Northrop, Brandon Sampson, Scott Smith, Michael Smith, Satoru Sugihara, Ben Toam, Elizabeth Wendell, AIA (project assistants)
Visualization Jasmine Park, Nathan Skrepcinski, Josh Sprinkling, Sam Tannenbaum
Development Consultant Robert Silverman
Structural Engineer John A. Martin Associates
M/E/P Engineer Buro Happold
Civil Engineer KPFF
Landscape Consultant Katherine Spitz Associates
IT and BIM Implementation Synthesis
Lighting Consultant Horton Lees Brogden Lighting Design
Specifications Technical Resources Consultants
Theater Consultant Auerbach Pollock Friedlander
Acoustic Consultant Newson Brown Acoustics
Audiovisual/IT Consultant Waveguide Consulting
Code/Life Safety Consultant Arup
Façade Consultant A. Zahner Co.; JA Weir Associates
Vertical Transportation Edgett Williams Consulting Group
Curtainwall Consultant Walters & Wolf
Cost, LEED, and Sustainability Consultant Davis Langdon
Graphics Follis Design
Waterproofing Consultant Independent Roofing Consultants
Geotechnical Consultant Geotechnologies
General Contractor Hathaway Dinwiddie Construction Co.
Architectural Specifications Consultant Technical Resources Consultants
Architectural Visualization Kilograph
Smoke Control Exponent
Exterior Building Maintenance Olympique
Size 120,000 square feet (gross)
Cost Withheld

Chicago Residence, page 131

Project Chicago Residence, Chicago
Client Withheld
Architect Dirk Denison Architects, Chicago—Dirk Denison, FAIA (founding principal); Todd Webb, AIA (principal)
Interior Designer Dirk Denison Architects
Mechanical Engineer Building Engineering Systems
Structural Engineer Thornton Tomasetti
Electrical Engineer Building Engineering Systems
General Contractor Tip Top Builders
Landscape Architect Hoerr Schaudt Landscape Architects
Lighting Designer Filament 33
Aquatic Systems Design Bryan Schuetze, Aquamoon
Size 9,700 square feet
Cost Withheld

Materials and Sources

Adhesives, Coatings, and Sealants Sikkens Cetol *sikkens.com*
Appliances Sub-Zero and Wolf *subzero-wolf.com*; TurboChef Technologies *turbochef.com*
Bathroom Fixtures Dornbracht *dornbracht.com*
Carpet Edward Fields *edwardfields.com*; Tai Ping *taipingcarpets.com*
Cabinets Parenti & Rafaelli *parentiwoodwork.com*
Countertops Stone
Exterior Wall Systems Ipe rainscreen
Flooring Quartered ash
Furniture Custom
Glass Bendheim *bendheim.com*
Insulation Polymaster *polymaster.com*
Kitchen Fixtures Dornbracht *dornbracht.com*
Lighting Control Systems Lutron Electronics *lutron.com*
Lighting Lucifer Lighting Co. *luciferlighting.com*
Masonry and Stone Northfield, an Oldcastle company *northfieldblock.com*
Metal Custom
Paints and Finishes Benjamin Moore & Co. *benjaminmoore.com*
Roofing Sika Sarnafil (green roof assembly) *usa.sarnafil.sika.com*
Windows and Doors Dynamic Architectural Windows and Doors *dynamicwindows.com*

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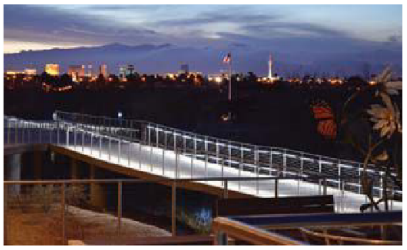

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ARCHITECT

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R+D AWARDS

CALL FOR ENTRIES

New technologies are revolutionizing the process and product of architecture. To celebrate advances in building technology, ARCHITECT magazine announces the eighth annual R+D Awards. The awards honor innovative concepts, systems, and materials at every scale—from HVAC and structural advances to digital technologies and programs, and to discrete building materials such as textiles and wood composites.

CATEGORIES

The awards will be judged in three categories, reflecting different stages in the research and development process:

- **Prototype**—Products, materials, systems, and software that are in the prototyping and testing phase.
- **Production**—Products, materials, systems, and software that are currently available for use.
- **Application**—Products, materials, systems, and software as used in a single architectural project or group of related architectural projects.

The jury will consider newly introduced technologies as well as unconventional uses of existing technologies. Entries will be judged for their documented or prospective innovation in fabrication, assembly, installation, user engagement, and performance. All entries will be judged according to their potential to advance the aesthetic, environmental, social, and technological value of architecture.

ELIGIBILITY

The awards are equally open to architects, designers of all disciplines, engineers, manufacturers, researchers, and students.

PUBLICATION

The winning entries will appear in the July 2014 issue of ARCHITECT, both in print and online.

DEADLINE

Friday, April 18, 2014
regular submission deadline (postmark)

Wednesday, April 23, 2014
late submission deadline (postmark; additional fee is required)

FEES

First entry: $175 first entry

Additional entries: $95 each

Late entries: $50 additional fee per entry by April 23, 2014. Submission requirements are available at rdawards.com.

For more information, email: rdawards@architectmagazine.com

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p/a

CELEBRATING THE WINNERS OF THE 61ST ANNUAL PROGRESSIVE ARCHITECTURE AWARDS

FIRST AWARD

Tianjin EcoCity Ecology and Planning Museums
Steven Holl Architects

AWARDS

Kaohsiung Port Terminal
RUR Architecture

National Music Centre of Canada
Allied Works Architectue

CITATIONS

Liverpool Department Store—Insurgentes
Rojkind Arquitectos

Faculty of Architecture, Building & Planning, University of Melbourne
John Wardle Architects and NADAAA in collaboration

CITATIONS (CONTINUED)

Soccer Centre at St. Michel Environmental Complex
Saucier + Perrotte Architectes/ Hughes Condon Marler Architects

The Broad
Diller Scofidio + Renfro in collaboration with Gensler

HONORABLE MENTIONS

Fayetteville 2030: Food City Scenario
University of Arkansas Community Design Center

TBA 21
Xefirotarch/Hernan Diaz Alonso

Albuquerque Rail Yards Master Plan
Eric Owen Moss Architects

2014 P/A AWARDS JURY

Lise Anne Couture,
Asymptote Architecture, New York

Sasa Radulovic,
5468796 Architecture,
Winnipeg, Manitoba, Canada

Nataly Gattegno,
Future Cities Lab, San Francisco

Marcelo Spina,
P-A-T-T-E-R-N-S, Los Angeles

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CITATION

1984 P/A Awards Jury

John Cable
Sam Davis, FAIA
Jonathan King
J. Michael Kirkland
James Polshek, FAIA
Roger Schluntz, FAIA
Julia Thomas
O.M. Ungers

PAST PROGRESSIVES

WHAT SHOWROOMS SHOW

THIS SAN FRANCISCO BUILDING REVEALS HOW OUR INTERPRETATION OF AN ARCHITECTURAL FORM CAN CHANGE WITH THE TIMES.

Text by **Thomas Fisher, Assoc. AIA**

IN 1984, the P/A Awards jury's discussion of the California DataMart focused on its plan: Designed by Tanner & VanDine Architects (now Leddy Maytum Stacy Architects), the four-story building filled its irregular site with a central atrium that juror O.M. Ungers called a "poché room" in what James Polshek, FAIA, described as "a very bizarrely shaped block." The jury hardly mentioned the building's then-innovative function as a wholesale showroom for microcomputers; in the mid-1980s, San Francisco represented the epicenter of the digital revolution.

The building's design, though, recalls some of the aesthetics of early computers. The structure's curved corners echo those of the first Apple Macintosh, released in January 1984, while its sleek, glass-block envelope glows at night, like the computer monitors once on display there. Likewise, the building's rough, rear elevation and its rooftop parking at the level of the adjacent freeway bring to mind the ugly backs of computers, full of sockets and switches.

The building subsequently became a diamond showroom, and Sally Woodbridge, in a 1989 issue of *P/A*, commented upon its "gleaming aesthetic ... appropriate ... as a jewelry mart." In the wake of the 1989 Loma Prieta earthquake, the building received praise for its seismic design, with glass-block panels that "move during quakes while remaining securely in place."

Now used by Dolby Laboratories, the building, with its still-sleek skin, seems fitting for a sound company, and offers a quiet refuge from the highways around it. It serves as proof that the best buildings do not suggest just one interpretation; they continually invite new ones.

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