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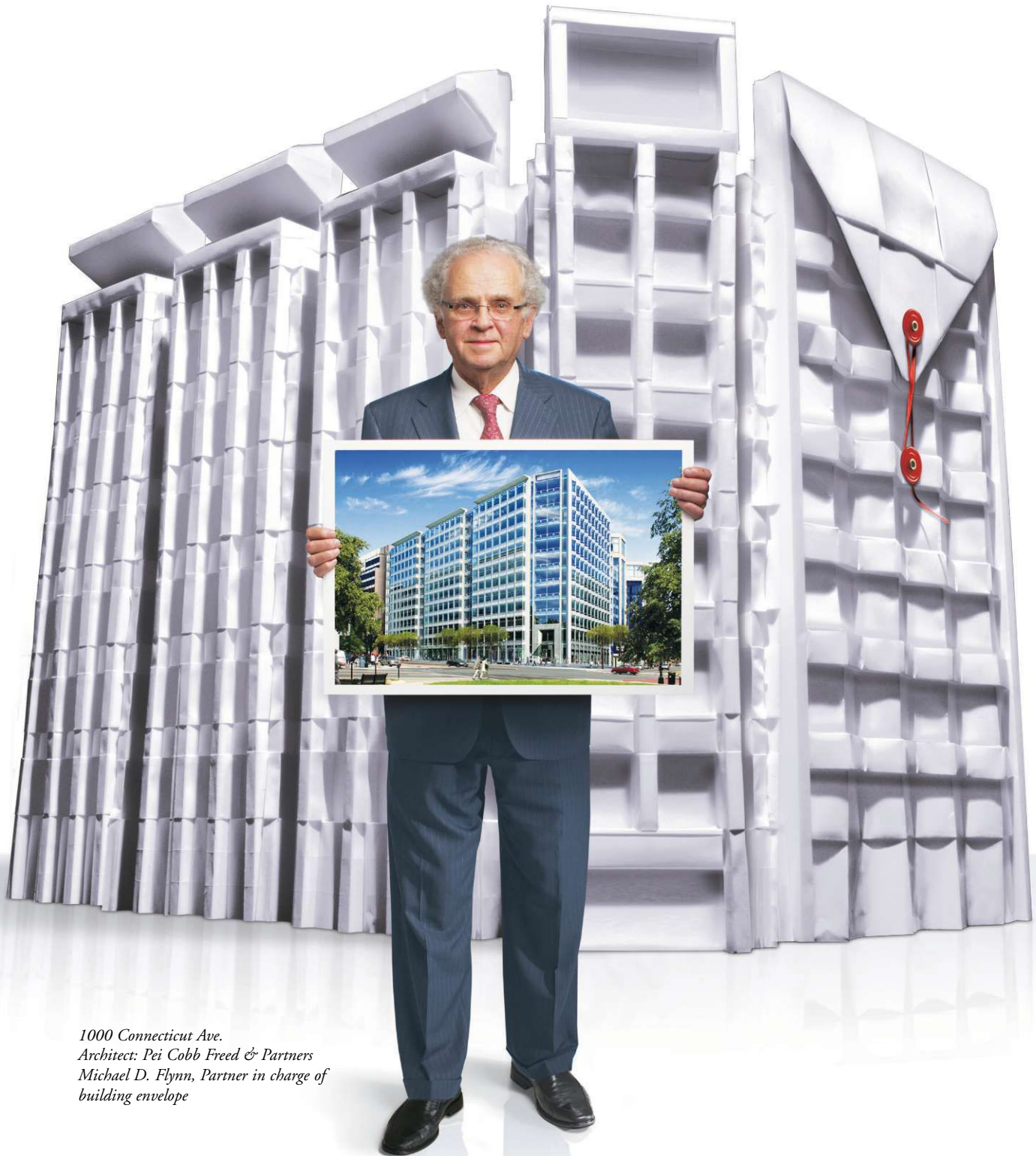
# ARCHITECT

THE MAGAZINE OF THE AMERICAN INSTITUTE OF ARCHITECTS

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Emerging Talent





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Architect: Pei Cobb Freed & Partners  
Michael D. Flynn, Partner in charge of  
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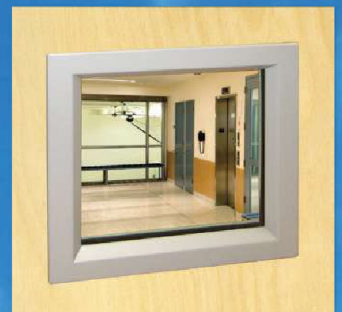
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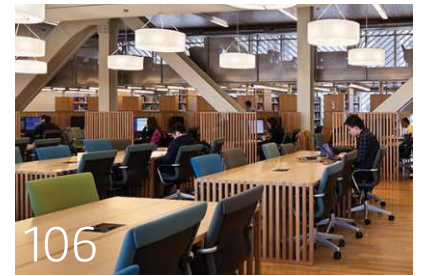


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## Emerging Talent

There are many ways to nurture the best and brightest of a new generation. For some architectural go-getters, a step up the traditional career ladder is less rewarding than a nod from one of the handful of nonprofit programs that supports young designers. ARCHITECT talks to some of the most respected institutional talent scouts, along with some of the talent that's getting the nod. **MIMI ZEIGER**

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For our Emerging Talent cover story, go beyond the profiles shown on these pages and explore slide shows that include images of each group's work.

Blaine Brownell's Mind & Matter blog looks at products and materials in development and on the market.

Aaron Betsky's Beyond Buildings blog comments on the impact that design has on our society and culture.

And there are constant updates: breaking news, new products, slide shows, extra images of the projects in the issue, and more ...



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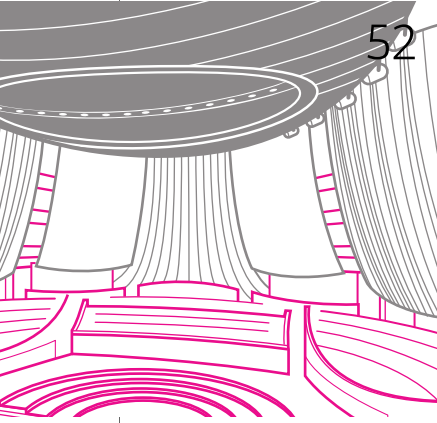
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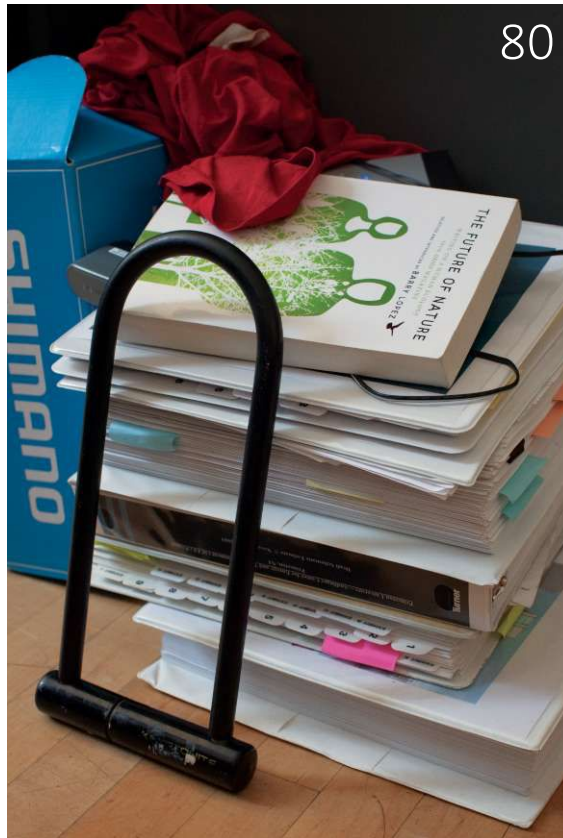
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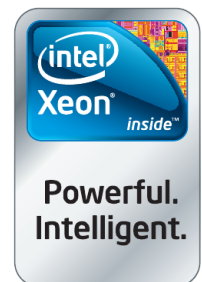
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WONKS AND POLITICIANS TO THE RIGHT, THE LEFT, AND THE CENTER SAY THAT VITAL INFRASTRUCTURE IMPROVEMENT IS A SUREFIRE WAY TO GET MORE AMERICANS ON THE PAYROLLS, REBOOT THE ECONOMY, AND INVEST IN THE FUTURE.

# GET TO WORK

**FOURTEEN MILLION AMERICANS** have a problem. That includes thousands upon thousands of architects. What's the problem? *No jobs*. The Great Recession may be officially over, but the hangover just won't go away.

It's not like the country has run out of options. Wonks and politicians to the right, the left, and the center say that vital infrastructure improvement is a surefire way to get more Americans on the payrolls, reboot the economy, and invest in the future. Conveniently, infrastructure-making happens to be a big part of architecture's skill set.

When the American Recovery and Reinvestment Act (aka the stimulus) was in the works in the winter of 2008–2009, I heard a lot of architects wish out loud that the legislation would result in a 21st-century Works Progress Administration, or WPA—a federal program that engaged millions of citizens during the Great Depression in the creation of public buildings and other forms of infrastructure.

*New York* magazine published an article in late 2008 speculating about the possibilities of a latter-day WPA: a Santiago Calatrava—designed bridge across the Hudson River, for instance. (No offense to Calatrava, but he was an unfortunate suggestion; under the circumstances, such jobs should go to Americans.) The vision of beautiful public works taking shape across the country seemed to have broad, if not universal, appeal during the hope-and-change frenzy of the last election cycle.

Communities throughout the United States can point with pride to fine, enduring examples of New Deal architecture: theaters, libraries, parks, athletic facilities. My hometown, St. Louis, boasts the suitably named Jewel Box, an Art Deco conservatory that remains a popular venue for weddings. So where are the landmarks of the 2009 stimulus? Was our \$787 billion investment worthwhile?

Most of the stimulus funds—\$512 billion—were devoted to tax breaks and to entitlement programs such as Medicaid, not to programs designed for direct job creation. The leftover money—\$275 billion—went to a bundle of contracts, grants, and loans that did include capital projects of benefit to architects. But even that \$275 billion slice of the pie wasn't dedicated strictly to construction; it included \$81 billion for education, \$13 billion for health, \$4 billion for job training, and so forth. The final, much-reduced figure, along with delays inherent in getting construction projects through the approvals process, means that the stimulus had far less potential to get architects working again than the whopping overall number suggested.

Some economists argue that the 2009 stimulus program should have gone further, and that another is necessary. But austerity, not stimulus, has been the focus of recent economic debates in Congress. A balanced budget and manageable debt load are without

question essential to the nation's long-term economic well-being. Bill Clinton admitted as much in a June 19 *Newsweek* article, "It's Still the Economy, Stupid"—though he believes that we should wait to make deep cuts until the economy stabilizes.

Clinton was the last U.S. president to deliver a budget surplus: four years in a row, to be precise, for the duration of his entire second term. So when he offers advice about the economy, it pays to at least listen. The subtitle of his *Newsweek* article is "14 Ways to Put America Back to Work." Five of those ideas are tailored specifically to the design and construction industries, and several more would be of indirect but consequential benefit to architects and to the built environment.

Number one on Clinton's list is "Speed the Approvals," a suggestion to eliminate red tape for most government construction projects (except those of extreme environmental concern). "Harry Hopkins [the 'architect' of the New Deal] had nowhere near the rules and regulations we have now," Clinton observes.

Idea four is "Copy the Empire State Building," not in the sense of erecting new faux-Deco skyscrapers, but in the sense of replicating the tower's 2010 energy-efficient retrofit in buildings around the country.

Idea five identifies how to pay for retrofits, namely by engaging the utilities. "You wouldn't even need banks if states required the electric companies to let consumers finance this work through utility savings," Clinton writes. "At least 11 states [already] allow the electric companies to collect the money saved and use it to pay the contractors."

Idea seven would encourage the banks to start lending again, by setting aside \$15 billion to guarantee \$150 billion in loans. "We should start with buildings we know will stay in use: most state and local government buildings, schools, university structures, hospitals, theaters, and concert halls," Clinton suggests. "We could include private commercial buildings with no debt."

Idea eight would employ low-skill labor and young people right out of school in applying coats of white paint to flat, black-tar roofs. The straightforward effort would lower utility bills, save energy, and reduce the urban heat island effect. New York Mayor Mike Bloomberg already has such a project up and running.

The doom-and-gloom scenario being played out in the media can't undermine the fact that the U.S. economy, even in its enfeebled state, is the largest in the world—more than double the size of China's. We have the means. If we use them wisely, we can transform our country for the better and create jobs for millions of out-of-work Americans. Now that's my idea of progress.

*Reed Crane*



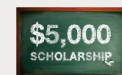
**Unknown Architect Exhibit: item #626KS**

This is a fragment of an Insulated Metal Panel (IMP), used in the construction of the Aquatic Athletics Centre, Toronto, c. 2048.

It's believed that Insulated Metal Panels were a preferred choice of Unknown Architect, due to their superior energy efficiency, and aesthetic beauty.

## In the end, your legacy may be built out of paper.

The [Kingspan Legacy Papercraft Competition](#) is open to professional architects and students of architecture. The challenge: create the most visually arresting and legacy-worthy structure you can. It matters not who you are; judging is based on the imagination and talent applied. The winner will receive an Apple MacBook Pro, and a scholarship of \$5,000 donated in their name; if the winner is a student, they'll receive the scholarship. Both runners up get an iPad 2, and all three finalists will be featured in the November issue of Architect Magazine. Enter the contest and explore future legacies in The Unknown Architect Exhibit at [LegaciesAreBuilt.com](#).



## LETTERS

### **BIG-BOX PARADOX, April 2011**

Although I agree with the issue side of Mr. Cramer's editorial, as well as Mr. Tigerman's endorsement (May, Dialogue), both choose to take the low road of personal attack rather than focus on ideas. In my opinion, furthering discourse should be foremost, yet the editorial has the effect of furthering alienation. I'm surprised to find such hateful language promoted within a publication supposedly representative of the profession. *Darryl Wally, North Carolina*

While I may agree with much of what you wrote, the vitriolic tone was inappropriate for a publication representing 50,000 AIA members. You owe Alice Walton an apology. It would be better if we entered into a "dialogue" to educate her on the potential of Walmart's great strength. John D. Rockefeller and others employed destructive strategies, but at some point were convinced that their great fortunes could be applied to society's improvement. And is Ms. Walton that much more socially and environmentally irresponsible than the Las Vegas Gehry building featured in the same issue, with all that unprotected glazing facing south in one of America's harshest environments? *Scott Levitan, AIA, Baltimore*

*Editor's response: Scott Levitan compares Alice Walton's philanthropy to John D. Rockefeller's. But Journalist Ida Tarbell's famously outspoken criticism of Rockefeller and Standard Oil was a big factor that "convinced" him to hand out all those dimes to children and millions of dollars to universities and other institutions.*

### **GUANGZHOU OPERA HOUSE, May 2011**

I loved the dreamy long-exposure night shots of Zaha Hadid's Guangzhou Opera House. They make the project look beautiful and add to the glory of starchitectdom. But the building does not look that good in person. Zaha's brilliantly conceived shapes and intricate formal resolution gets lost in badly cut panels, oozing oversized silicone joints, rusting exposed steel, and uneven segmented surfaces failing to describe the smooth curve of the original design intent. In China, it is very difficult to get complicated buildings built well. I know from personal experience. You should show the real building and discuss the issues with constructing complex geometries. *Michael Gale, AIA, Shanghai*

→ Want to be part of the conversation? Go to [architectmagazine.com](http://architectmagazine.com). All letters and comments may be edited for length, content, grammar, and style.

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## Contributors



**Brian Libby**

"BIM, Bang, Boom" • page 48

A writer, photographer, and filmmaker based in Portland, Ore., Brian Libby has written on art and architecture for *The New York Times*, *Architectural Record*, *Dwell*, *The Oregonian*, and other publications. His photographs have been featured by many of the same. Libby's award-winning short films have screened at the Northwest Film & Video Festival, Portland International Film Festival, and London's Exploding Cinema. He is the author of *Tales From the Oregon Ducks Sideline* (2007), a history of Oregon football, as well as the Portland Architecture blog. Libby holds a bachelor's degree in politics from New York University. Writing about tools used by designers—as he does frequently, including his examination of BIM software plug-ins in this issue—"opens a window into the design process," Libby says.

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## NEWSWIRE

EDITED BY KRISTON CAPPS



### THE WASHINGTON POST

#### Hundreds of HUD projects stalled, abandoned

A year-long investigation finds that some 700 projects, funded to the tune of \$400 million by the U.S. Department of Housing and Urban Development, have lapsed or been abandoned.



### THE NEW YORK OBSERVER

#### Nicolai Ouroussoff leaves *The New York Times*

After seven years as the *Gray Lady's* architecture critic, Ouroussoff is leaving to write his take on the last 100 years of architecture, *The Tower of Babel: Building the Twentieth Century*.



### PORTLAND TRIBUNE

#### Michael Graves building a national landmark?

The 29-year-old Portland Building in Portland, Ore., has been nominated to the National Register of Historic Places—an honor usually reserved for buildings 50 years or older.

## Interior Design Billings Improve

The American Society of Interior Designers has released the findings of its first interior design billings index—and the news is good.

Despite high unemployment and the slow speed of the national economic recovery in other industries, the interior design industry saw moderate growth across various regions and sectors. Both the billings and inquiry indexes have stayed above 50, the number that indicates growth, for the past four months. Data from the first quarterly index registers growth in the Northeast (65.2), Midwest (55.3), South (57.8), and West (57.1). Further, the sector index indicates growth: residential (57.1), commercial (55.9), and institutional (55.4), with the larger increases in the residential sector reflected in increased sales for fabrics, paints, and renovation materials.

“The ASID index is intended to differentiate interior design performance measurements from those that are used in the construction and architecture industries,” said ASID president Michael Thomas. “In addition to a focus on interior design billings, the index monitors key indicators such as product selection. This information is a valuable resource for keeping our members apprised of the industry outlook.”

The quarterly index is based on a monthly survey of 300 firms focusing on billings, business conditions, inquiries, and outlook. “Interior designers have good reason to be optimistic,” ASID economic advisor Jack Kleinhenz says. “The renewed health of the U.S. economy is becoming evident in interior design.” **LINDSEY M. ROBERTS**

## Merger in Manhattan

**ROBERT SIEGEL**, FAIA, the surviving founder of Gwathmey Siegel & Associates Architects, has sold a majority interest in that firm to Gene Kaufman, AIA, the designer of dozens of budget hotel properties around Manhattan. Though Gwathmey Siegel is by far the better-known firm, it is Kaufman's investment that is driving the deal. He will serve as chief executive officer of the new Gwathmey Siegel Kaufman & Associates, while continuing to run his firm, Gene Kaufman Architect.

Charles Gwathmey, the son of well-known painters and a famous bon vivant, was beloved by his clients. When I was writing his obituary for *The New York Times* in 2009, my phone didn't stop ringing—Steven Spielberg, Ralph Lauren, and Jerry Seinfeld (among others) wanted to tell me how much they loved Charlie, who gave them some of the most luxurious residences in the world without betraying his modernist roots.

But the firm was becoming less viable even before Gwathmey's death.

The Sculpture for Living (a curvy apartment tower near the Cooper Union); an addition to Paul Rudolph's iconic Art & Architecture Building at Yale University; and the new United States Mission to the United Nations, have received scathing criticism.

Kaufman, for his part, has a thriving firm, but also his share of critics. He has bragged of his ability to squeeze the maximum number of rooms into narrow midblock buildings, making it possible for “flags” such as Hampton Inn, Fairfield Inn, and Holiday Inn Express to gain footholds in the lucrative Manhattan market.

But Kaufman has set his sights higher. Among his current projects is the development of an eight-square-mile island in the Yangtze River in Wuhan, China. “It's a blank slate, which we don't usually get at home,” he said by phone from Wuhan.

“I'm not Charlie Gwathmey,” Kaufman said. “Charlie was unique. I can't do what he did. I have to make my own way.” **FRED A. BERNSTEIN**

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19

TOTAL NUMBER OF PROJECT STAFF INVOLVED IN DESIGN, FABRICATION, AND REPURPOSING OF THE AVENUE

675

HOURS SPENT DESIGNING THE AVENUE

1,430

HOURS SPENT FABRICATING AND INSTALLING THE AVENUE

3

NUMBER OF SEMITRAILERS USED TO CONVEY MATERIALS FROM KANSAS CITY, MO., TO NEW ORLEANS

SOURCE: EL DORADO INC.



NUMBERS

# On The Avenue

TEXT BY KRISTON CAPPS  
PHOTO BY NOAH KALINA

ONE OF THE NEW FEATURES from this May's AIA 2011 National Convention held in New Orleans was the Avenue, an 1,110-foot-long showroom-floor promenade connecting the General Session area to the Town Square area. El Dorado brought 1,000 2x4s, 70 gallons of paint, and numerous other materials to bear in order to create a public space inside the expo for the three-day conference. But the Avenue doesn't end there.

A joint project with Tulane University's URBANbuild program—for which the students design and produce one house in New Orleans each year—the Avenue will have a higher calling beyond being a design element at the show. El Dorado team lead Dan Maginn, AIA, worked with Tulane professor and URBANbuild director Byron Mouton, AIA, to design a convention feature that could be fully repurposed as URBANbuild's 2012 home.

Before the convention, El Dorado and URBANbuild agreed to a "kit of parts": a list of materials (and restraints) that would make both projects possible, including insulation, lighting, studs, joists, and flooring. The raw feel of the Avenue's benches, display surfaces, and enclosures was a design element: All of these were built to be quickly and easily demounted and then stored off-site by Tulane as construction materials for URBANbuild's next project.

"We also were happy with the way the different Avenue elements—the overhead signs, the A-frames, the different pavilions—expressed the connection with the Tulane School of Architecture's URBANbuild program," Maginn says.

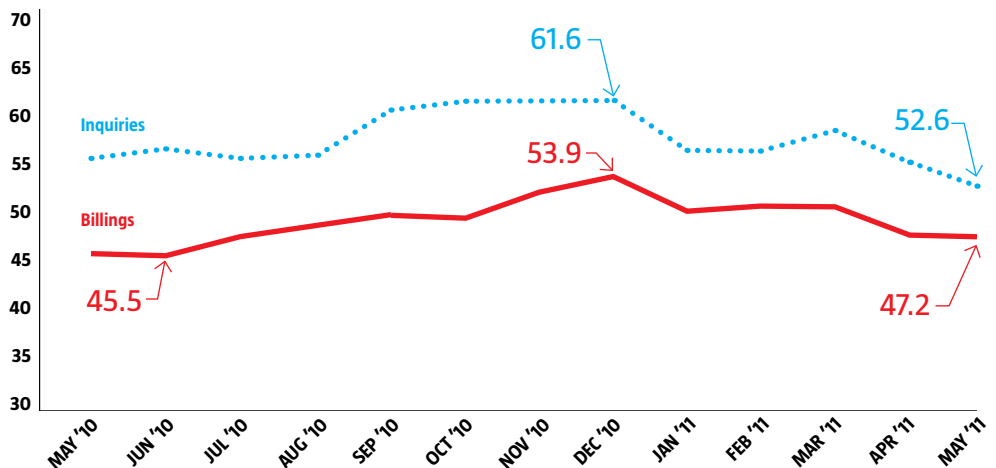
## BILLINGS AND INQUIRIES INDEXES

MAY 2011 ARCHITECTURE BILLINGS INDEX

47.2

- ↓ 46.5 commercial
- ↓ 44.9 institutional
- ↑ 49.1 mixed practice
- 53.9 multifamily residential

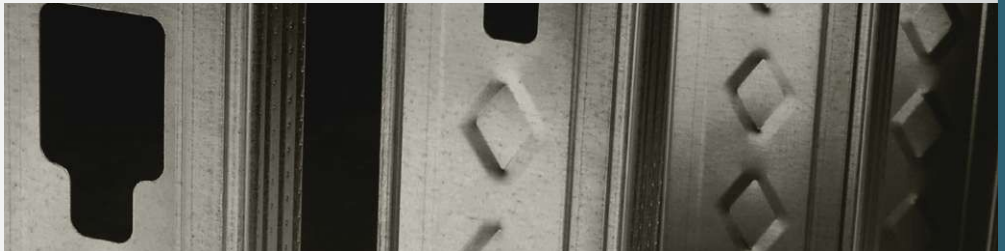
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# On the Boards

TEXT BY KATIE GERFEN



## Speed Art Museum Expansion

WHY ARCHITECTURE

The Speed Art Museum in Louisville, Ky., is planning a 200,000-square-foot expansion and renovation, all within the confines of its existing 6-acre site. The expansion includes new gallery spaces as well as a new entry sequence and a 3.5-acre greenspace with a Wi-Fi-enabled plaza and sculpture garden. A new theater space will provide room for lectures and musical performances and opens up onto the plaza for additional seating. A successful renovation and expansion should feel like “acupuncture,” says Kulapat Yantrasast, Assoc. AIA, partner in charge of the project. “Of course there’s an operation involved. But it’s not like a face-lift or adding another body, but adding a sense of clarity from within.” Fundraising for the project is ongoing.

## San Francisco Museum of Modern Art Expansion

SNØHETTA

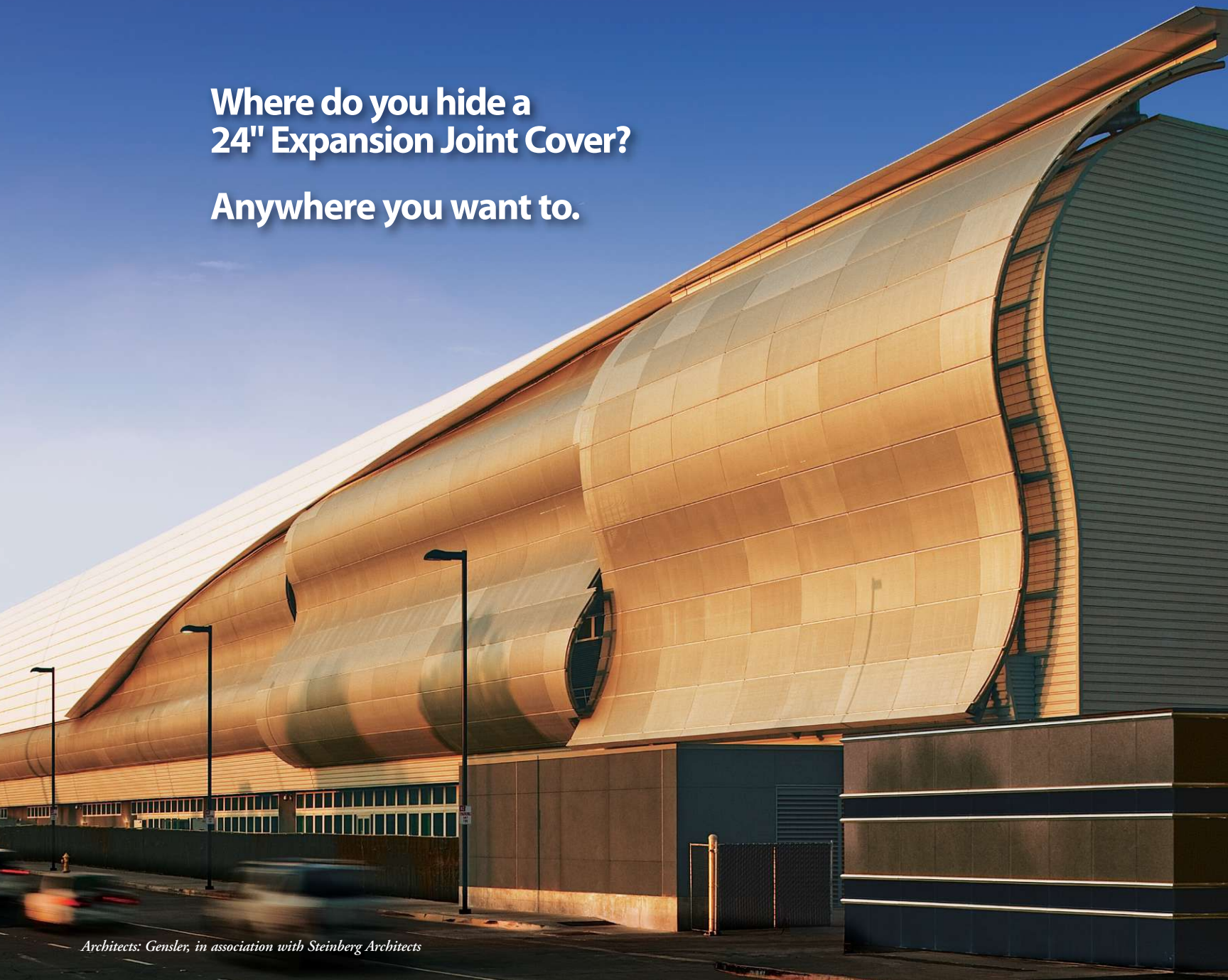
The San Francisco Museum of Modern Art (SFMOMA)’s 225,000-square-foot expansion, slated to open in 2016, will double the institution’s gallery and education space as well as enliven now-quiet side streets surrounding the dense urban site. Oslo, Norway–based architecture firm Snøhetta, which won the competition last year and is working in collaboration with local firm EHDD Architecture, has released a preliminary design for a slender volume tucked behind (and rising 50 feet above) the existing Mario Botta–designed building. It will run the full width of the city block. The design also calls for the creation of an 18-foot-wide pedestrian allée from one end of the new structure to Natoma Street (currently a dead-end alley that cuts through the middle of the site).

“Just as the design of Mario Botta effectively invented the South of Market neighborhood in 1995, so too will the Snøhetta design open up new avenues for South of Market foot traffic, and attract visitors from four sides of the building,” says Neal Benezra, director of SFMOMA. “Our new museum will engage the city from all angles, and may be discovered anew from multiple perspectives.”





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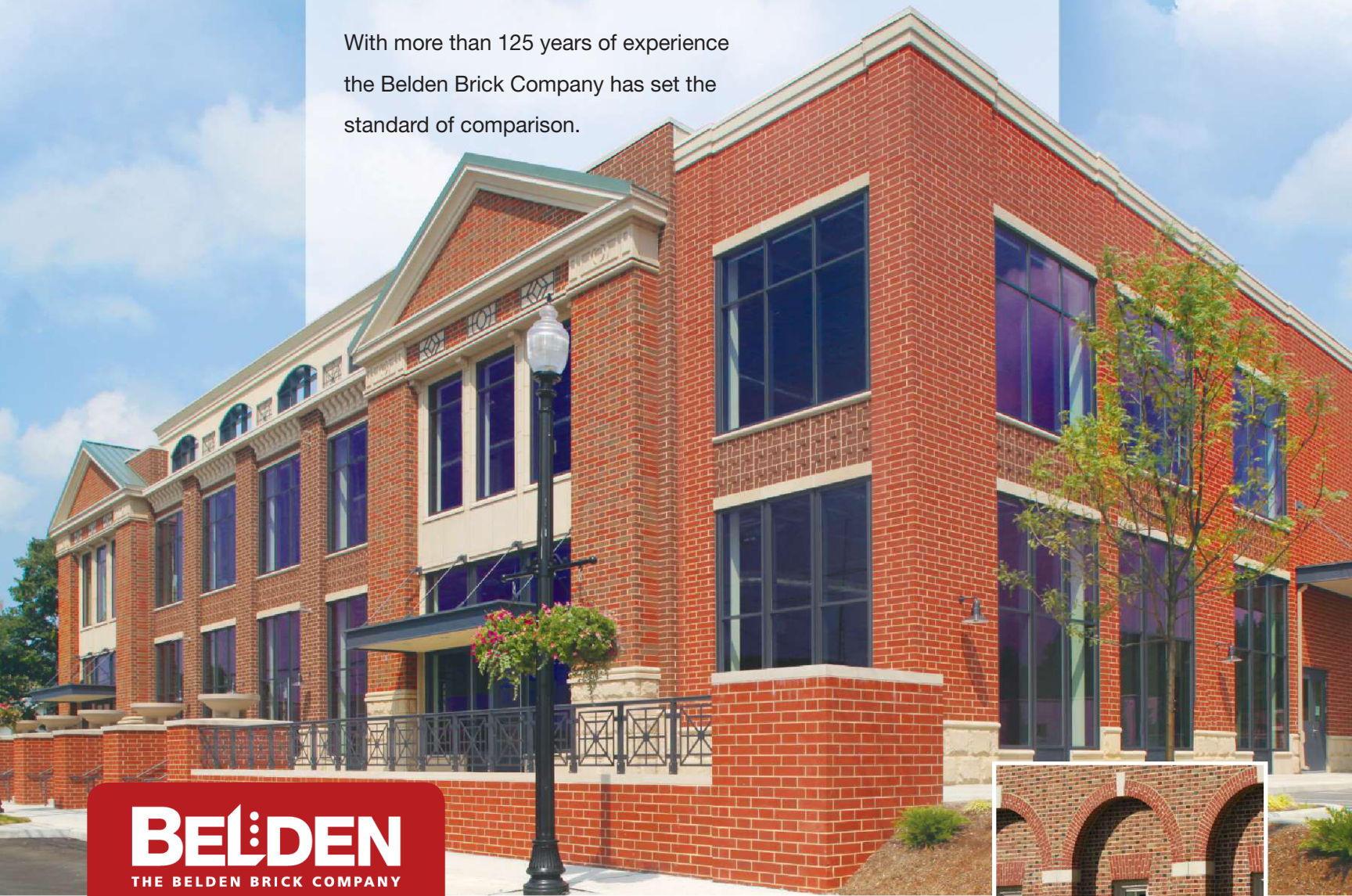
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PHOTO: SAM KITNER

## AIA VOICES

WORKING SMALL CAN HAVE BIG RESULTS.

*David Jameson, FAIA, principal of the Alexandria, Va.-based firm David Jameson Architect, has built a strong identity and over 150 award-winning projects in just a decade. In evaluating his firm's work, awards juries typically call out a rigorous attention to detail as well as a consistent and cohesive design concept throughout. This is no mistake, Jameson says.*

If we choose, as architects, to develop projects—either alone or with partners—those projects are, by definition, design-oriented. If they're successful, they help bring in other work. And if we begin with the premise that “architecture” is about creating space—that the word starts with a capital “A”—then the development side is a natural role for architects. If you're willing to jump into the trenches, you're willing to work with all of the allied craftspeople and fabricators that are working on your project. When we have photographers come shoot our work, they always remark on the value we've created with so little. It's because we've created consensus with all of the contractors and subs. Staying small allows consensus to occur more readily.

So when you talk about the braiding of the architect and developer roles in small firms, you're talking about a very intimate process. My life is intertwined with my studio, which is intertwined with developing good work, and development circles back around to my life as principal of a small firm.

So what does it mean to run a small firm? Control. I have an

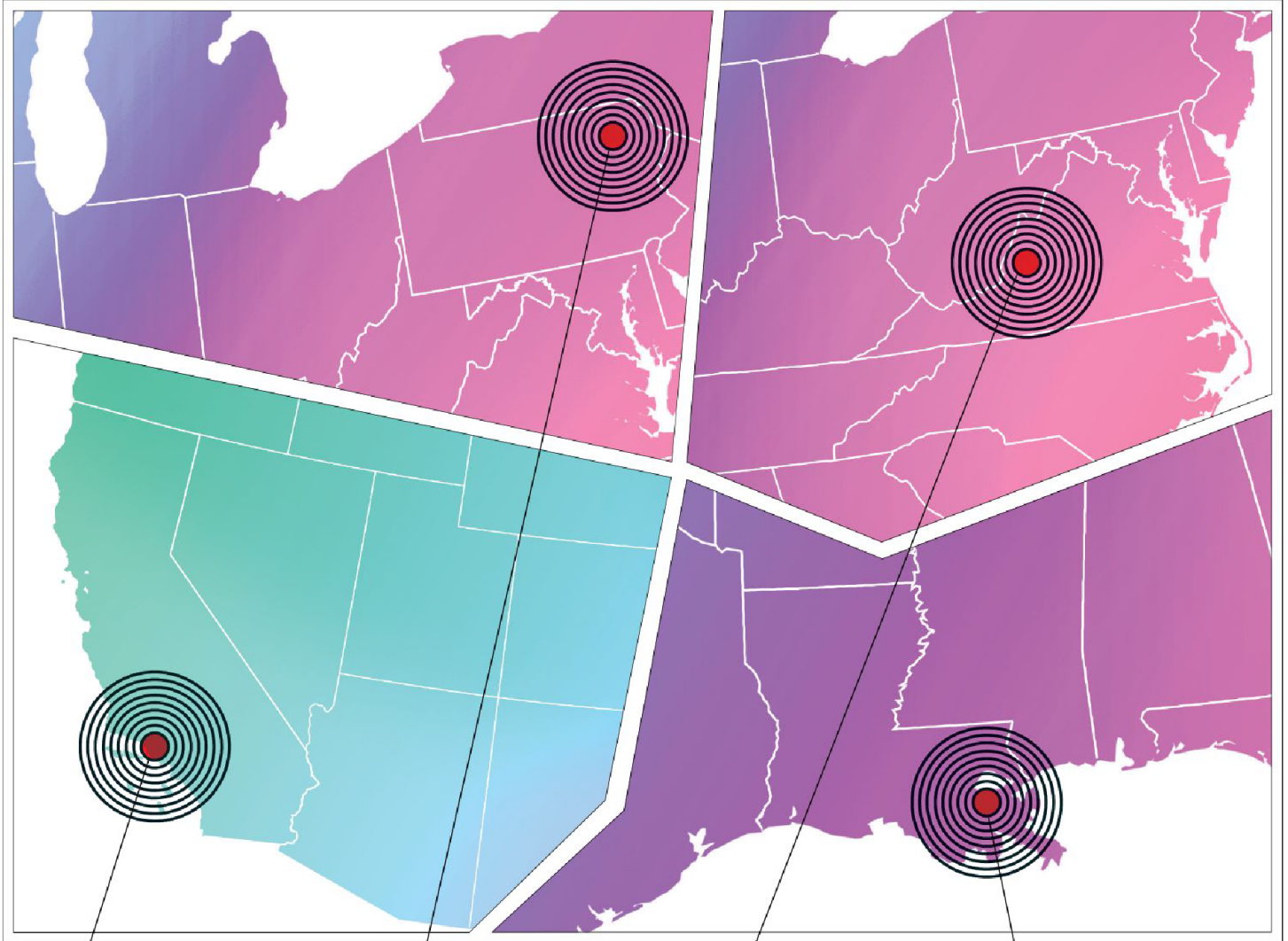
intimate knowledge of everything that's going on in all of our projects. When I say this, I don't mean that you can't care or have control at a large firm. But in a larger firm, you tend to settle in terms of winning the war, maybe, but not every battle. Running a small firm also allows you to be holistic. Landscape, interior, envelope, spaces—it's about creating an environment.

So the question becomes: Is what we're doing scalable? The answer is yes—if our studio has a culture in which everyone shares the same experience of input and concept. In our firm, we've proven that it can work in large and small residences. Right now we're working in San Francisco; Hanoi, Vietnam; Dubai, United Arab Emirates, and in and around Washington, D.C. This idea of being holistic and scalable can be applied to any geography—no matter if it's a house, interior, or small interventions. Can it be applied to larger projects? Yes, I think so, if the studio always shares the same culture. No matter where you are, if you're doing work with intense review boards, the members of those boards are more receptive if you're working at the grassroots level—if you're directly involved in what you're doing in the trenches. *As told to William Richards. AIA*

➔ To hear more Voices, visit [architectmagazine.com/AIA](http://architectmagazine.com/AIA).

# AIANOW

ACROSS THE INSTITUTE



## LOS ANGELES

### Watts Are You Doing?

This summer marks the third anniversary of the Watts House Project (WHP), a collaborative neighborhood redevelopment scheme across the street from Simon Rodia's iconic Watts Towers in Los Angeles. To date, four properties have been renovated through a joint effort by local artists, families, and landscape designers led by four city firms: Hughes Umbanhowar Architects, Escher GuneWardena Architecture, SW-SH Architecture, and Stephen Slaughter, AIA. Founded by artist Rick Lowe, and in the spirit of his earlier Project Row Houses (a wildly successful Houston initiative that has transformed 40 properties since 1993), WHP hopes to keep "neighbors" at the center of neighborhood revitalization.

➔ Learn more at [wattshouseproject.org](http://wattshouseproject.org).

## DUNMORE, PA.

### Homecoming

Few know that Jane Jacobs, the indefatigable New Yorker (Greenwich Villager, please) and Torontonian was actually born in Pennsylvania. AIA Northeastern Pennsylvania hopes to change that. This past April, its members unveiled a plaque honoring Jacobs—activist, urbane critic, and author of *The Death and Life of Great American Cities*—in front of her childhood home at 1712 Monroe Avenue in Dunmore. Like her contemporary Andrew Warhola, Jr. (Andy Warhol, please; New York-via-Pittsburgh), she left Pennsylvania at an early age and never looked back. Now, at least, we can look back—in the form of a bronze plaque eight blocks from her birthplace in neighboring Scranton.

➔ Learn more at [aianepa.org](http://aianepa.org).

## BLACKSBURG, VA.

### The Envelope, Please

Designing Practice, a soup-to-nuts course offered at Virginia Tech on professional practice, took home the National Council of Architectural Registration Boards \$25,000 grand prize this year. Taught by Keith Zawistowski, Assoc. AIA, and Marie Zawistowski, principals at OnSite Architecture, the curriculum included risk management, licensure, and ethics. Through lectures by area architects, firm visits, and research, the Zawistowskis (the School of Architecture+Design's first professors of practice) helped make the academy-to-practice transition not just clearer, but more palatable. Since 2001, NCARB has awarded \$555,000 to NAAB-accredited programs that explore the practice/academy relationship.

➔ Learn more at [ncarb.org](http://ncarb.org).

## NEW ORLEANS

### Virtual Reality

Missed a session at the 2011 AIA National Convention in New Orleans? Virtual Convention is now open on your computer, iPad, or mobile device—and has more than 20 recorded sessions that are free (or priced for continuing education credits). Twenty-five courses from the Miami and San Francisco conventions are also available to view.

➔ Learn more at [aia.org/virtualconvention](http://aia.org/virtualconvention).

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## **AIA CUSTOM RESIDENTIAL ARCHITECTS NETWORK SYMPOSIUM**

October 14-17 | Indianapolis

## **PROJECT DELIVERY SYMPOSIUM**

In conjunction with Texas Society  
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October 27 | Dallas

## **ACADEMY OF ARCHITECTURE FOR JUSTICE FALL CONFERENCE**

November 2-4 | Los Angeles

## **PRACTICE MANAGEMENT FALL CONFERENCE**

In conjunction with Architecture  
Exchange East 2011  
November 2-4 | Richmond, Va.

## **COMMITTEE ON ARCHITECTURE FOR EDUCATION FALL CONFERENCE:**

Building Better Schools—  
Investing in Education  
November 9-11 | London

## **HEALTHCARE DESIGN.11**

November 13-16 | Nashville

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# AIA COLLABORATION

FLOOD? QUAKE? FIRE? CALL AN ARCHITECT



ILLUSTRATION: SHONAGH RAE

Architects can make the difference between a resilient community and one whose hidden fissures become chasms.

BY BILL MILLARD

**NATURAL DISASTERS ARE UNPREVENTABLE, NOT UNPREDICTABLE:**

The United States sustains about 10 declared major disasters a year. And architects' expertise in immediate response and long-term mitigation is an underused resource. Disaster-oriented design, says Rachel Minnery, AIA, LEED AP, chair of the AIA's Disaster Assistance Advisory Group, is the foundation of sustainability: once the province of specialists, it is now something that every architect should understand. Increasing awareness of risks underscores what she calls "the bittersweet result for everyone after a disaster," an enhanced sense of responsibility.

In Florida's four-hurricane 2004 season (Charley, Frances, Ivan, and Jeanne), "a state employee with a degree in communications and no additional training was allowed to assess the damage and

determine if homes and businesses were safe," says Orlando-based Advisory Group member Michael Lingerfelt, AIA, LEED AP. "I thought that was unconscionable. You have architects and engineers who are licensed for the health, safety, and welfare of the public in Florida, and you're not using them?" Trained in post-disaster assessment in 2003, Lingerfelt now teaches colleagues at AIA conventions and elsewhere.

Lingerfelt says that a suitable state organizational context would include five elements: a Good Samaritan liability-immunity law; workers' compensation procedures; training and credentialing standards ("so you can get by the National Guard"); procedures for network activation, notifying architects and engineers alongside first responders; and licensure portability across state lines. "Only California has all five," Lingerfelt adds. In Missouri, the AIA has partnered with SAVE (Structural Assessment and Visual Evaluation) to certify architects and engineers in investigating building habitability post-disaster. Architects in Missouri and elsewhere undertaking rapid-response evaluation must assign properties color-coded placards.

Hurricane Katrina provided a nationwide wake-up call. AIA New Orleans Center for Design executive director Melissa Urcan, AIA, joined AIA New Orleans after the storm and saw this "sleepy organization" reinvigorated as it launched an Architect Pairing Program to help homeowners afford design services. Reconstruction under the Unified New Orleans Plan lags behind other states' efforts, Urcan notes, but





the business district is repopulating, reversing 20 years of decline.

The storm caught New Orleans' transportation system short, producing memorable images of stranded New Orleanians. "Clearly, there will be no one point for pickup or leaving ever again in New Orleans," Urcan says. Evacuations during Hurricane Gustav (2008) fared better, safely moving 18,000 people in two days. AIA New Orleans has worked with the New Orleans Arts Council, Office of Homeland Security and Emergency Preparedness, and the citizen's volunteer group Evacuteer.org on design charrettes for 17 pickup points. As an AIA New Orleans' Legacy Project, designs for the pickup points were displayed at the 2011 AIA convention.

Dean J. Vlahos, FAIA, principal of the DLR Group at WWCOT in Santa Monica, Calif., also stresses transportation resilience. After the 1994 Northridge earthquake, California's Office of Emergency Services expanded inspection systems, but evacuation networks remain vulnerable. "Off of the coast of Southern California there exists an underwater shelf adjacent to a 1-foot-deep crevice," he says. "In the event of a major earthquake this shelf could be severed and drop into the ocean, creating a huge tsunami that could wipe out a portion of the coastline.

"The general population believes, 'My building is earthquake-proof since it was designed to the building code,'" Vlahos says. His response: "No, your building is designed to a building code which is only the

minimum standard. In an earthquake, it's not going to fall down on top of you. It will stand long enough to allow you to get out of the building—at which point it may need to be demolished."

"It's not an issue of designing that super-safe house," comments Architecture for Humanity managing director Kate Stohr. "The profession knows how to do that. But after a disaster, nobody puts together the entity that can receive and distribute capital effectively." Post-Katrina homeowner grants, she says, should have been processed locally and accountably, not through a remote contractor with "unclear bureaucratic mandates" at state, county, and municipal levels. She advises architects to apply "the power of a professional network," alongside nonprofits and local leaders, to improve public and private funding channels by tying relief to safe construction.

Nuts-and-bolts preparation, Stohr says—the \$2 hurricane strap to secure roofs to walls, the distribution of code information to contractors—saves lives. "If you see a project that could, with small refinements, be made safer, and you can recommend what those refinements are, there's a very good chance that they [homeowners] will go do it. Especially if they hear it from a credible third party."

Lori Reed, AIA California Council communications director,

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### Individuals need to educate themselves about the rebuilding process and review their options first.

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worked with AIA San Diego staff to coordinate responses and expedite permits after the 2007 San Diego wildfires. The AIACC warns disaster survivors to watch for potential fraudulent activity regarding damage assessment, financing, and rebuilding. For example, unqualified consultants may say, "Yeah, you can rebuild on that foundation," when, if you poke it with your finger, it turns to chalk," Reed says. AIA San Diego and AIACC launched public-service announcements after the fires and a toll-free hotline for architects' advice; AIACC's *Disaster Preparedness Handbook* advises disaster victims against hasty decisions. "Individuals need to educate themselves about the rebuilding process and review their options first," Reed says.

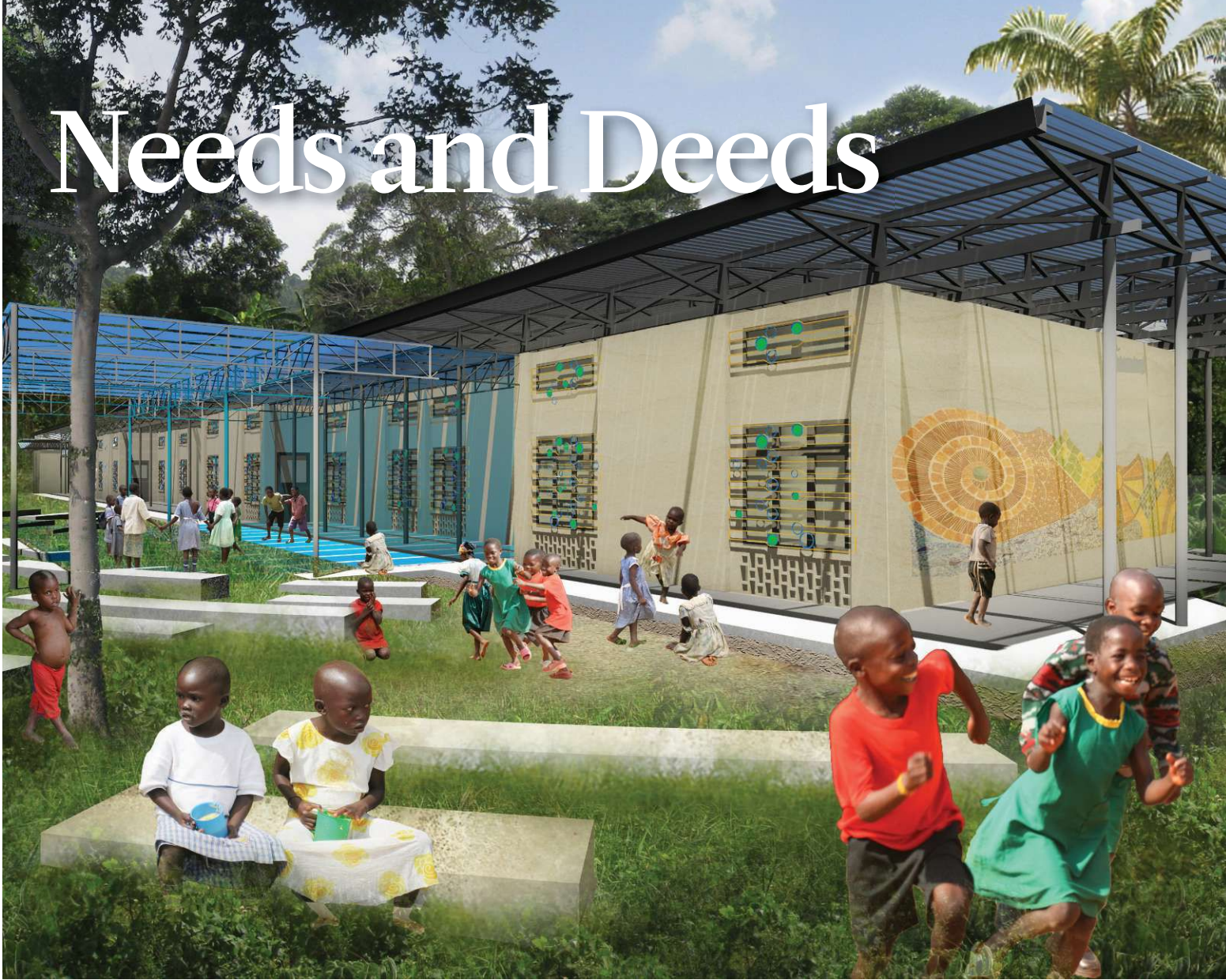
To the New York City Office of Emergency Management, inducing displaced residents to return means restoring whole communities. In FEMA's "trailers and single-family modular homes," says commissioner Joseph F. Bruno, "the density they were generally looking at was about 10 residential units per acre. In New York City, we have a density of 200 residential units per acre."

A 2008 New York City design competition for units rapidly deployable in a hurricane gave \$10,000 grants for 10 selected designs, then generated a basic performance spec. The project will release an RFP for prototype construction and study on a CUNY campus within about a year, using the Army Corps of Engineers as general contractor. The goal is large-scale production in the event of a Stafford Act declaration. "We're trying to influence the federal government—FEMA and HUD—to see this as a local solution to a national problem," Bruno says. **AIA**

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# Needs and Deeds



PHOTOS: DWIGHT CENDROWSKI

## Design between architecture's practice and academy for areas in need.

BY ANGIE SCHMITT

**IMAGINE YOU HAVE A \$48,000 CONSTRUCTION BUDGET TO BUILD** a school. The majority of your materials will have to originate from within a 6.2-mile radius of the building site. Also, the design will have to be simple enough to be constructed by a team of untrained volunteers. Oh, and there won't be any electrical power at the jobsite.

That was the challenge that Anselmo Canfora, assistant professor of architecture at the University of Virginia (U.Va.) in Charlottesville, posed to his senior architecture students in 2008. The result was the Gita Primary School—the first educational institution within a 9-mile radius in Uganda's Wakiso District. The school opened its doors to about 200 students last year, and has already received the AIA Education Honor Award and the Association of Collegiate Schools of Architecture Collaborative Practice Award.

Canfora's Initiative reCOVER, shaped around a U.Va. studio curriculum, focuses on developing countries and disaster zones. But it's not just about deploying solutions "over there" so much as embedding the process in the jobsite. For Gita, students had to adjust their design to accommodate handmade bricks that varied greatly in size. "We want to give our students a sense of what the other 98 percent of the population works with in terms of architecture," Canfora says. "Our goal is to engage architecture in a more meaningful manner, and show students how they could begin to have an impact on society in a positive way."

Initiative reCOVER contributes to the focus of the School of Architecture curriculum: Offered in spring term, it is one of four or five studios offered to fourth-year students. But it's not all about architecture; it's about teaching students how to collaborate with other parties, as they eventually must do as practicing architects. The Indianapolis-based nonprofit Building Tomorrow (through its U.Va.-student chapter) initiated the project and provided fundraising and cultural guidance. Building Tomorrow then asked Initiative reCOVER to design the school. The project also benefited from the donated labor of hundreds of Ugandans, many of them parents or relatives of the school's pupils.

Initiative reCOVER students have recently turned their sights southward to Haiti. Their latest project, Breathe House, was designed with a very specific type of tenant in mind: the stigmatized members



## AIA FEATURE

of Haiti's HIV population. Breathe House aims to provide a degree of normalcy and relief to its inhabitants, while addressing larger public health concerns, in a modest but elegant prefabricated structure built entirely around the concept of passive ventilation. The project, which incorporates a lofted design with a special air filtration and purification system, draws its name from micropockets, which are part of the wall panels. These "gills" facilitate air exchanges with minimal energy input for four to six inhabitants.

The concept won first prize this year in the Archive Institute's Kaye Sante nan Ayiti Open Innovation Competition. (The name is Creole for "Housing and Health in Haiti.") The Archive Institute is a global nonprofit that seeks to improve worldwide health through improved housing.

Breathe House, along with four other designs, will be constructed this fall in Saint-Marc, Haiti, with funding from Archive Institute.

In developing this specialized domicile, Initiative reCOVER students were careful to consider how disease (particularly tuberculosis, which poses a grave threat to Haitians living with HIV) could potentially spread between family members. The structure stresses passive ventilation and the importance of separating sleeping areas from eating areas or, in other cases, providing a family member who may be ill a more private bedroom. At the same time, the group sought to incorporate design elements such as outdoor gathering spaces that would help make the family unit cohesive, says Aja Bulla-Richards, a U.Va. graduate student who worked on the design.

Although Initiative reCOVER is not the first academic architecture program to focus on low-cost, high-impact, needs-driven solutions, Canfora sees the field growing. He credits former Vice President Al Gore and journalist Thomas Friedman with nurturing awareness of design's social mission in the Millennial Generation. He also points to people like Architecture for Humanity's Executive Director Cameron



"Our goal is to engage architecture in a more meaningful manner, and show students how they could begin to have an impact on society in a positive way," says Anselmo Canfora, assistant professor of architecture at the University of Virginia.

Sinclair and Managing Director Kate Stohr, who signal a shift in architecture's professional scope.

Another related pedagogical shift is in post-disaster development. The New York University Schack Institute of Real Estate offers a seminar on the intersection between disaster relief and real estate, led by divisional dean James Stuckey. In planning the curriculum, Stuckey drew on his experience in New York commercial and residential development in the wake of 9/11. He presented a set of ethical dilemmas not usually covered in real estate coursework: What is the value of the land? How do you provide free title? Who would be the natural tenants? These questions continue to be raised in New Orleans, Myanmar, and, now, Japan—not just for legal reasons, but because the answers will frame the future of communities and commerce.

Stuckey's students are currently helping sort out some of the complicated legal questions that surround property ownership and development in Haiti following last year's devastating earthquake. Their current focus is 17,000 acres north of Port-au-Prince (known locally as the North Pole), which has potential for residential and agricultural development.

But the concept of organizing a lot of people around a central effort is certainly not foreign to architects. "In the middle of a crisis," Stuckey says, "you're trying to bring order to the chaos, and this is an area where lots of people should be collaborating." **AIA**

Learn more at [studiorecover.virginia.edu](http://studiorecover.virginia.edu)



# AIAPERPECTIVE

AFTER THE END

PHOTO: WILLIAM STEWART



## THE TEMPTATION TO MAKE LIGHT OF RECURRENT DOOMSDAY

scenarios (and there are many) is not easy to resist. However, for many of the world's people, something like Armageddon is increasingly intruding into their lives. As I write this, I'm looking at a report in *USA Today* that states that in 2011, the United States is on a record pace for high-cost weather-related disasters. This story appeared on May 12, before the full impact of the Mississippi River's flooding had been felt. The tornadoes that devastated the Carolinas and the lower South earlier this spring or Joplin earlier this summer may not have been Biblical in scope geographically, but for the people in their paths who lost homes, businesses, and loved ones, the terror and heartbreak were epic.

As AIA National Convention keynoter and *New York Times* columnist Thomas Friedman said in New Orleans, you don't have to believe in global warming to acknowledge that we have a problem. The mere fact that there are more of us on an increasingly crowded planet means more of us are inevitably in harm's way when natural disaster strikes.

What does not have to be inevitable is the toll. This is where design comes in. Few buildings will escape unscathed the force of a tornado with winds in excess of 250 miles per hour. But they will perform differently according to code and the quality of construction. And lives will be saved if provision is made for safe areas especially designed to provide shelter.

In flood-prone areas, building ever-higher levees can protect communities only up to a point: The water has to go *somewhere*. In the case of the Mississippi, it simply backed into the tributaries and flooded communities and thousands of acres of farmland.

Houses in post-Katrina New Orleans can be and are being designed to withstand the kind of flooding that inundated the city. Once again, a cry has gone up to take a design approach to the issue of water management in the Mississippi basin. A regional approach would work with (rather than against) nature in the delicate relationship between natural cycles and the needs of human habitation—

something the Dutch have managed rather better than we Americans.

Farther afield, events in Haiti, Chile, New Zealand, and, last March, in Japan, reminded us yet again about the relationship between how we build and the impact of natural disasters. Designed to the most-stringent contemporary codes, the buildings in Tokyo swayed but withstood the impact of a powerful earthquake (9.0 on the Richter scale). A lesser earthquake in Port-au-Prince (7.0) buried thousands and left many more injured and homeless throughout the country. This must not be allowed to happen again.

In an encouraging development, the Japanese do not seem to be reflexively turning to a more-of-the-same "solution" by proposing even higher walls to protect human settlement along the nation's northeast coast. Instead, they are exploring the larger issue of where and how it is appropriate to build in coastal areas prone to earthquakes and tsunamis. It's a discussion that communities in our own Pacific Northwest ought to be listening to closely.

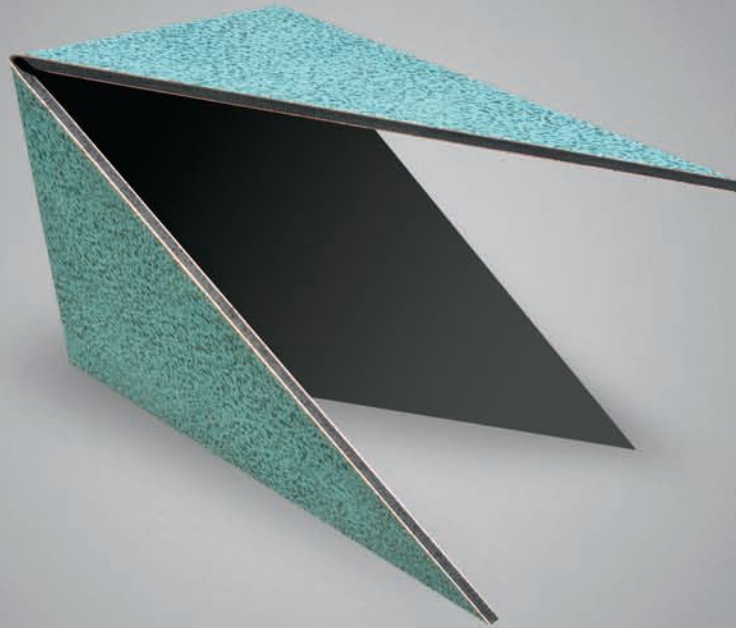
In the immediate aftermath of this spring's floods and storms, the AIA reached out to communities throughout the south and central states. An assistance team was assembled to provide relief, damage assessments, and to help guide the recovery in the weeks and months ahead. However, as important as it is for architects to be prepared to extend a helping hand in the face of nature's Armageddons, our profession has a much larger role to play. Design can mitigate the impact of these events before they occur.

This coming September, I will be leading the AIA delegation to the International Union of Architects Congress in Tokyo. Disaster response and mitigation by design will be high on the agenda. Watch these pages for the results. **AIA**

Clark D. Manus, FAIA, 2011 President

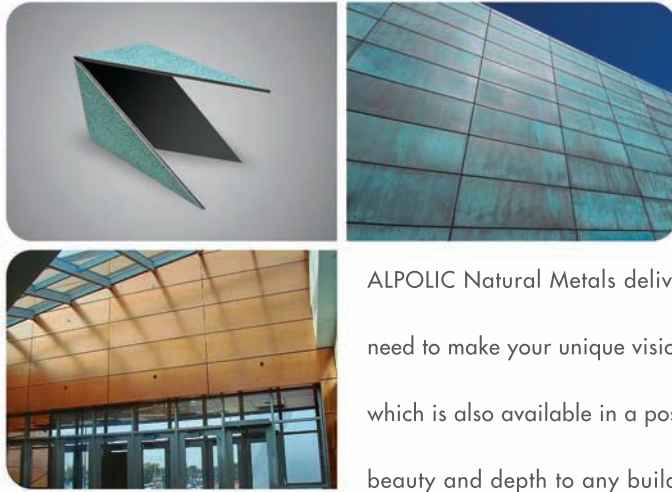
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# BUSINESS



INTERVIEW BY ERNEST BECK  
PHOTO BY SIOUX NESI

Integrating design and construction within a firm can help architects generate expertise, revenue, and credibility. **Gregg Pasquarelli**, principal at SHoP Architects, says that an in-house construction unit does all these things—and results in better buildings.

→ BEST PRACTICES

## Do It Yourself

**SINCE 1996**, New York-based SHoP Architects has honed its reputation as a firm pushing the boundaries of how technology can deliver better design. In 2007, the 65-plus-person firm moved in another new direction by establishing SHoP Construction, an integrated design/build unit responsible for building-enclosure consulting, engineering, and construction. Headed by SHoP Architects principal Jonathan Mallie, AIA, SHoP Construction aims to break down barriers between architects, owners, and contractors. Gregg Pasquarelli, 46, AIA, a founding principal at SHoP Architects, spoke with ARCHITECT about bringing design and construction together under one roof.

### Go build something.

The design-bid-build process just isn't the way to go, according to Pasquarelli. An architect makes a series of images of what a building should look like as the owner brings in a construction manager—putting the design out of the hands of the architect at an early stage. While the architect stands on the sidelines, the design may be compromised, becoming something less than what the architect intended. "It's better to engage the process of construction," Pasquarelli says. "Don't reject it."



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business



**Think systems.**

It's not about the image of a building but the system of architecture around it—including everything from the political to the financial, the technological to the actual construction. "All these things coming together is what makes architecture work," Pasquarelli says. "That's why it is important to take the concept of integrated delivery to the next level."

**Evolve internally.**

An existing construction-management firm can be difficult to integrate with designers. Buying such a firm can create an "us versus them mentality." Instead, look to the people inside your firm who understand your culture, design, and buildings. It has to be natural, so start with them, Pasquarelli says, and then hire other staff with different skills and grow from there. Bringing on board people with a broad range of skills—from field construction to software management to façade engineering—helps to foster an in-house collaborative discussion with the architectural design team.

**"WE SEE ARCHITECTURE AS A WAY OF GETTING INVOLVED IN ALL ELEMENTS OF WHAT MAKES A BUILDING A BUILDING."**

**Integrate but separate.**

Design and construction units at SHoP are integrated "intellectually and spiritually," Pasquarelli says, but they are maintained as completely separate legal and financial entities. Though housed in the same office with SHoP Architects, SHoP Construction is a different company, which helps mitigate risk when they work on projects for other firms. "We keep a firewall between the units so they can work effectively on these projects," Pasquarelli says.

**Impress clients.**

Integrating design and construction generates real credibility with clients. A good example, Pasquarelli says, is SHoP's complex design for the Barclays Center in Brooklyn, N.Y. The project called for 12,000 uniquely shaped pieces of preweathered steel plate for the façade to be built in a cost-effective way. If SHoP Construction were not involved, Pasquarelli says, "the project would have been value-engineered and lost a lot of its beauty."

**Stay small.**

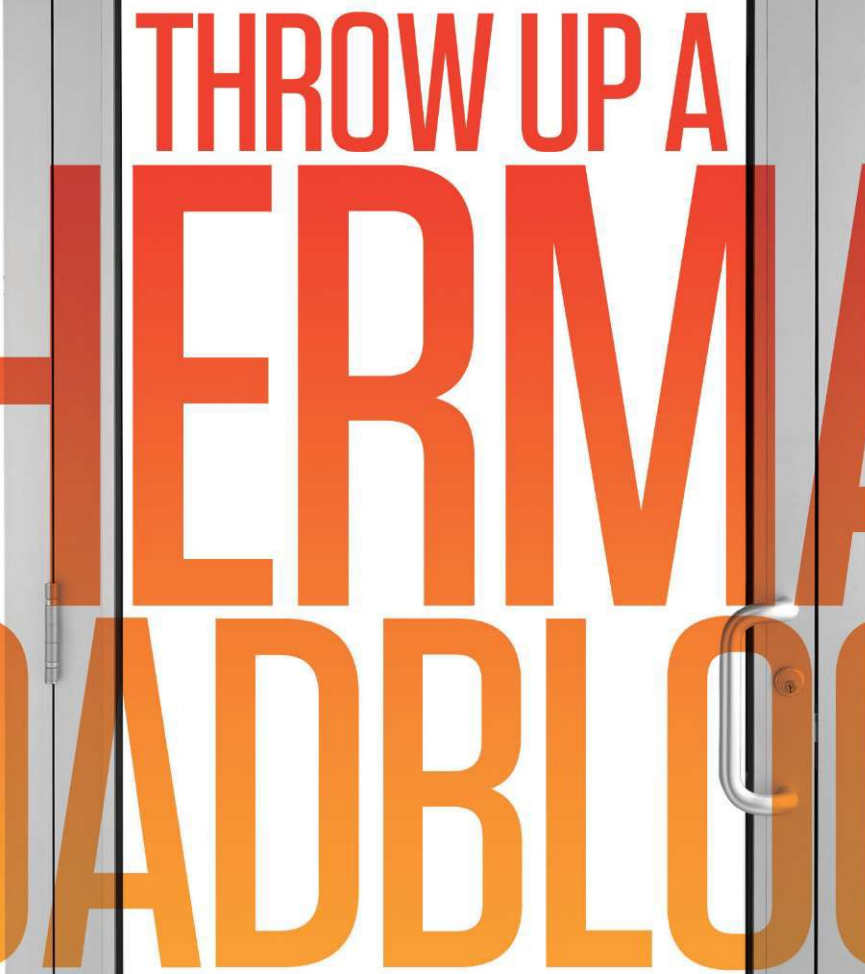
"Don't strive to become a Bovis or a Turner," Pasquarelli says. SHoP Construction has a staff of 26; keeping it a boutique, high-concept, and high-execution entity is the goal. The company can handle smaller jobs (under \$10 million) on their own, but for bigger projects, they partner with construction companies. There's no competing with large construction companies, Pasquarelli says, but you can show them how to get better buildings built.

**Earn money.**

Whether it's furniture, graphic design, or app-based design tools, specialization adds another revenue source that helps diversify the income stream. Construction is another service that the firm can offer a client.

**Go beyond the image.**

Working directly with construction adds another level of expertise and expands what architects can do. "If we are just left generating images of what buildings look like, then we are in trouble," Pasquarelli says. "We see architecture as a way of getting involved in all elements of what makes a building a building." □



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# Uneasy Rider

FACING BUDGET CUTS, TRANSIT AGENCIES BUILDING NEW RAIL PROJECTS ARE STRUGGLING TO MAKE THE TRAINS RUN ON TIME—OR AT ALL.

TEXT BY NATE BERG  
INFOGRAPHICS BY CATALOGTREE

**PUBLIC TRANSIT** needs public funding. And that goes way beyond the fare box. Local, state, and federal dollars are the lifeblood of public transportation projects in the United States. But with the country in recovery from the recession and states cutting back programs to close budget holes, support for public transit looks to be grinding to a halt.

There's an obvious downside for those who rely on public transit to get around, but there's also a potentially more confounding problem for the nation's transit

are being forced to slow down or even reconfigure planned projects due to vanishing funds.

That's the reality in Los Angeles, where budget cuts made by the state of California to address massive deficits could derail a new transit initiative. L.A.'s Metropolitan Transportation Authority is deep into a drawn-out and expensive light-rail construction project: It's a 15.2-mile route known as the Expo Line, which will be the first rail connection between downtown and the populous

FIVE DISTINCT RAIL PROJECTS REPRESENT A VARIETY OF COST STRUCTURES, FUNDING HURDLES, AND TRANSIT PURPOSES. →

## ATLANTA BELTLINE



TOTAL LENGTH

22 MILES

agencies. Some of them are right in the middle of expanding or building entirely new projects such as light-rail lines—projects planned during a better economy—or will begin them soon. **What only recently seemed to be a set of projects on the path to ribbon cutting have seen transit agencies scrambling to find new sources of funding and to justify projects that had enjoyed wide support.**

This is the case in Los Angeles, where the state's endemic budget crisis could end up eliminating more than half a billion dollars earmarked for an expansion of the city's light-rail system. Just as local support and taxes are increasingly called upon to fill holes in L.A., similar local sources are the main driver behind an ambitious redevelopment and transit project in Atlanta. Across the country, other impacts are more subtle. In Charlotte, N.C., a recent funding scare has left thankful transportation officials with money still on their books—and a persistent fear that the money nevertheless could be taken away. And in Detroit, where a new light-rail line is on a fast track to completion, state and local economic troubles are posing problems for its future operations.

"What that [present funding levels] would translate to is forgoing improvements," says American Public Transportation Association chief engineer Martin Schroeder. He says that transit agencies across the country

Westside of Culver City and Santa Monica. Its first phase, an 8.5-mile segment, is under construction and slated to begin operations later this year. The second phase, however, has a future that's increasingly unclear.

Both phases of the project have relied heavily on a transportation fund created by voter-approved bond sales. But in an attempt to close budget holes, the state halted bond sales this spring. That essentially pulled \$174 million of expected money out of Metro's pockets. And if things don't shape up soon, the state could be halting bond sales again in the fall, which will take another \$400 million out of play. Such a decision would likely mean delays to phase two of the Expo Line, which had been expected to begin operations in 2015.

"It's the worst possible time to suspend the funding, because we're already under construction," says Metro deputy executive officer for regional programming David Yale. "If this is a pattern that they're not going to be able to do a sufficient level of borrowing, then, yeah, we'll have problems."

Overall, the Expo Line is a \$2.43 billion project, and Metro's still \$229 million short of being able to complete it. For now, L.A. County has been able to patch up some of the





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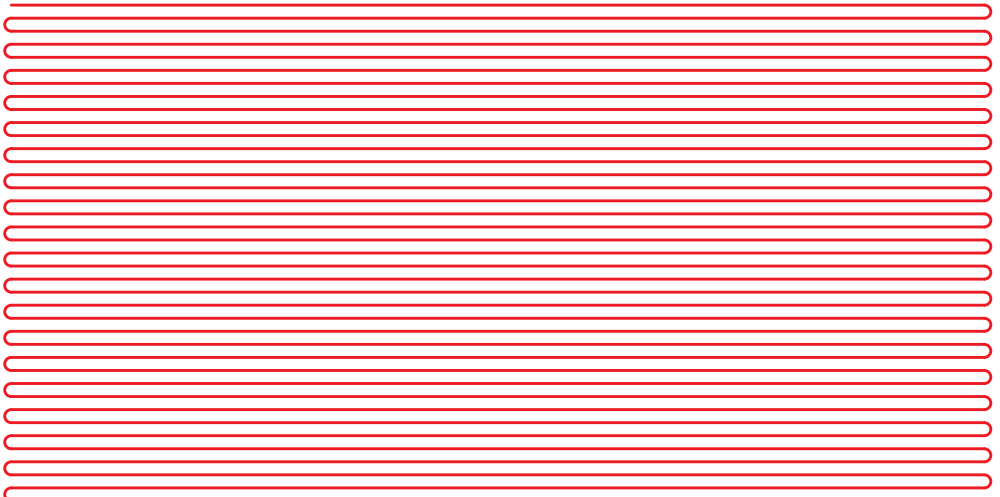
business

# LAS VEGAS/L.A. DESERTXPRESS



**COST: \$32 MIL./MILE**

TOTAL LENGTH



**185 MILES**



holes created by the state's budget crisis, in part by passing a half-cent sales tax in 2008 in order to introduce a dedicated fund for transportation projects. That fund is designed to generate \$40 billion over a 30-year life span.

Yale says that Metro has been able to tap into some of those funds to keep construction of the Expo Line's first phase on track. "That money is there. It is reliable. And we are using it to keep these projects moving while we wait for the state to get its act together," Yale says.

But he says that **voters' willingness to tax themselves for these sorts of expensive and time-consuming projects has limits.** Unless the state can find a way to navigate the billions of dollars of deficits it appears to be facing, L.A. may be forced to look for other creative ways of raising the money needed to keep this project on schedule. "It is very difficult to keep going back to our local voters without the confidence that the state will be part of the partnership," Yale says.

In Atlanta, local sources are providing almost all of the funding for the broad-scale redevelopment of a former railroad corridor — which includes 22 miles of light rail, a series of parks and open spaces, hiking trails, and affordable housing — will be primarily funded by a tax-allocation district. Also known as tax-increment financing, the developers borrow against the incremental rise in tax revenues

predicted from rising property values and dedicate those funds to a specific purpose. The district created for the BeltLine project covers about 6,500 acres and is expected to generate \$1.7 billion in taxes over 25 years.

Some aspects of the project are already under way, as the city has successfully obtained the property along about half of the 22-mile loop. Hiking trails are opening, but the rail element is still three to four years off, according to Perkins+Will design manager Ryan Gravel, who proposed the project. Like much of its local funding, the BeltLine will roll out incrementally. And while the parks and trails are technically easier to realize, the transit is key.

"It's a great project without the transit, but it's not a transformative project," Gravel says. "This project will transform the city of Atlanta if it's done right."

When the LYNX Blue Line light-rail service first opened in Charlotte in 2007, the Charlotte Area Transit System (CATS) estimated about 9,000 daily riders on average. After a few months of service, daily ridership was more than double that. Though ridership has since fallen somewhat, today, it's still above those early projections. Charlotte, it seems, likes its light rail. And CATS is pushing ahead with plans to connect the system with the nearby University of North Carolina campus.

To keep the project on time and within the \$977 million budget, officials cut 1.2 miles from the proposed extension this January, bringing the new line down to 9.4 miles across

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11 stations. It's a move that CATS CEO Carolyn Flowers says helped bring the extension's open date a year closer, to November 2016.

Then state legislators got into the mix.

This spring, legislators proposed cutting more than \$22 million in funds for the Blue Line extension. Transit officials were outraged. After further debate, legislators agreed to return \$28 million in funding to the budget (more, oddly enough, than they proposed to cut). That budget passed in June; CATS will move forward with the extension. But the budget scare has left an air of uncertainty surrounding the project and the money behind it.

"When you're building a capital project, it's extremely expensive," Flowers says. "The only thing that you can do is hope that you have sufficient funds for the project and that you have them programmed over a period of time that's realistic in this economy."

In the end, Flowers knows that many of the decisions about where the money comes from are out of her hands. "We're saying that we are confidently persistent and cautiously optimistic," she says.

That sort of **caution is evident in nearly any transit project today.** The reliance on unsteady public money has pushed some projects to look to the private sector. In Detroit, a coalition of private funders is supporting plans for a 9.3-mile light-rail line along Woodward Avenue, one of the city's main commercial corridors. The first, 3.4-mile segment is expected to begin construction this year; the entire line has an estimated open date in 2016. The funders are still working to secure funds toward the \$528 million total project costs.

"On the capital side, we're looking pretty good," says Detroit Department of Transportation manager of strategic planning Tim Roseboom. The project has received Transportation Investment Generating Economic Recovery grant money through the federal government's American Recovery and Reinvestment Act of 2009 as well as federal New Starts money. The city has begun selling bonds to raise the rest of its local match. And about \$125 million of local matching funds have come from private sources, in part through a coalition of local business and civic leaders known as M-1 Rail.

But while the up-front costs of building the line seem to be in good shape, finances for the light-rail line become a little murkier once the project is complete. Roseboom says that running the line could be a big challenge.

"We are definitely having budgetary issues in the state, and locally, just maintaining our service," Roseboom says. "And we have for the last, well, longer than I care to admit."

Planners are hoping that the Woodward

light-rail line will help spur a regional collection of transit services, which are currently managed under two disparate organizations: the Detroit Department of Transportation and the Suburban Mobility Authority for Regional Transportation. But with the metropolitan unemployment rate about 2 percentage points above the national average of 9.1 percent, expansion looks less and less likely.

"It's kind of sad, but that is the environment that we're in. It's like, what service are we going to cut out this year, which positions are we going to eliminate, which reforms are we going to have to make in order to continue to operate within the budget that's been approved," Roseboom says. "But that's not unique to Detroit or to Michigan."

**Private funding has proven most effective in Las Vegas, where a long-planned and completely privately funded high-speed rail project is edging closer to approval.** The federal government recently approved the \$6 billion DesertXpress project's draft environmental impact statement. Its backers have raised more than \$25 million, and they have applied for a \$4.9 billion federal loan through the Railroad Rehabilitation & Improvement Financing program—more than four times the amount the program has loaned since 2002 in total.

While much of the DesertXpress's funding has yet to be acquired, federal and state transportation officials support the project—which could make this private venture the first U.S. high-speed rail project.

The 185-mile line would connect Las Vegas with Victorville, Calif., about 60 miles to the east of Los Angeles. With projected speeds of 150 miles per hour, the train would shave hours off the drive between L.A. and Las Vegas. Groundbreaking could happen by the end of the year, with trains running by 2014.

**On the public side, funding for high-speed rail is less certain.** The federal government's \$10 billion High-Speed Intercity Passenger Rail program failed to secure any additional funding for fiscal year 2011; its chances for fiscal year 2012 are just as dim. But the \$10 billion that's already in play has sparked progress for a variety of passenger-rail corridor projects, according to Petra Todorovich, director of America 2050, a national planning initiative focused on infrastructure and development.

"Many states were not doing rail planning at all because they did not foresee having a federal partner in it, and the only funding they were able to put into their rail corridors was money that was generated by the states," Todorovich says.

State budget deficits have made it harder



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## LOS ANGELES EXPO LINE



COST: \$160 MIL./MILE

TOTAL LENGTH



15.2 MILES

## CHARLOTTE BLUE LINE



COST: \$104 MIL./MILE

TOTAL LENGTH



9.4 MILES

## DETROIT WOODWARD AVENUE LINE



COST: \$57 MIL./MILE

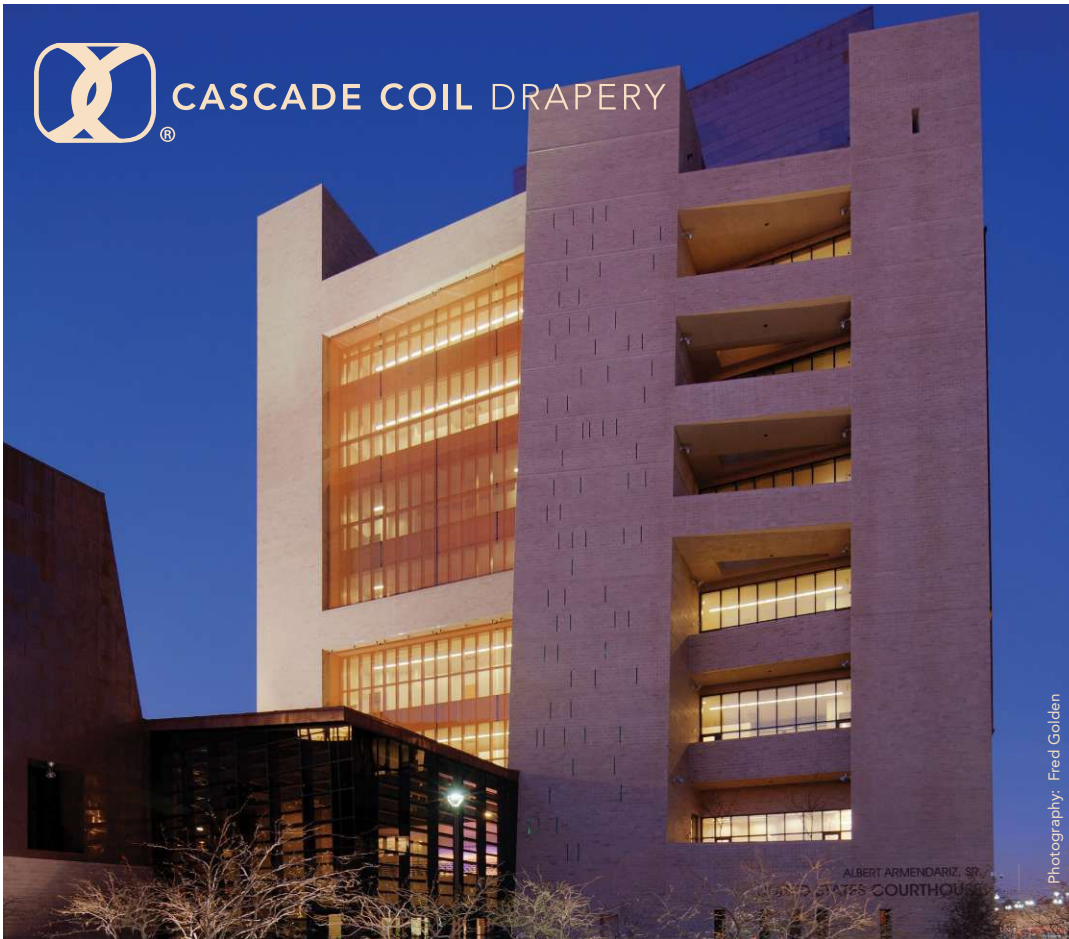
TOTAL LENGTH



9.3 MILES



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Photography: Fred Golden

## Is High-Speed Rail a Third Rail?

**Start small, they thought.** The 84 miles between Tampa and Orlando in Florida would be an ideal corridor for the first of a nationwide series of high-speed rail lines. Travel would ease between the two economically linked cities, and their sizable populations would serve to demonstrate how non-boondoggish high-speed rail can be.

So it was relatively unsurprising last year when the U.S. Department of Transportation granted the state of Florida \$2.4 billion of the \$8 billion in stimulus funds dedicated to high-speed rail. Then-Gov. Charlie Crist, R., called it a "great win for Florida." But less than a year later, then-Gov. Crist became former-Gov. Crist, and the \$2.4 billion he'd rallied for was returned to Washington by the state's new governor, Rick Scott, R.

Two other newly elected Republican governors shot down stimulus money for high-speed rail. Gov. Scott Walker of Wisconsin wasted little time in office before

rejecting \$810 million for high-speed rail between Milwaukee and Madison. And Ohio Gov. John Kasich returned \$385 million for a high-speed line connecting Cleveland, Columbus, Dayton, and Cincinnati. Seemingly a negative referendum on high-speed rail, the rejected funds may yet result in high-speed rail elsewhere.

The \$1.195 billion returned by Wisconsin and Ohio was spread out among 14 states in December 2010, with California receiving the bulk of it (\$624 million) for a proposed line connecting Northern and Southern California. From the money Florida declined, the DOT opened up more than \$2 billion in funds for other high-speed rail projects. More than 100 applications were received, and in May, the DOT awarded those funds to 15 different states as well as to Amtrak for improvements to the Northeast Corridor. (In a change of heart, Gov. Walker requested \$232 million for improvements to an existing

Wisconsin rail line; that request was denied.)

Though the original, stimulus-fueled infusion of money for high-speed rail projects has kick-started a variety of projects, little has followed. Lawmakers recently cut out all high-speed rail funding from the fiscal year 2011 budget. But that could turn around.

In his 2011 State of the Union Address in January, President Barack Obama announced a goal of bringing high-speed rail access to 80 percent of Americans within the next 25 years. Vice President Joe Biden further proposed a \$53 billion plan to pull that system off, starting with an \$8 billion proposal for fiscal year 2012.

With no federal dollars allocated for high-speed rail efforts this fiscal year, advocates are skeptical that the entire \$8 billion will materialize in the budget for fiscal year 2012. But they're hoping that at least some money appears to sustain high-speed rail's momentum.



for states to play along. The high-speed rail program requires a 20-percent match of funds from states; though most have been able to raise that amount, the lack of federal funding for at least another fiscal year could put a stop to those local fundraising efforts.

"It is a challenge for a lot of the states that are facing high budget deficits, but it hasn't meant the death of the program by any means," Todorovich says.

States such as California, Connecticut, and Washington have maintained funding for passenger-rail corridor projects, Todorovich says, because these states have been

empowered by federal funds to make them priorities. She is hopeful that the 2012 federal budget will include \$1 billion to \$2 billion more to keep the program's momentum going. Still, she recognizes that it's a difficult fiscal environment.

Despite economic and budgetary concerns, rail projects at a variety of levels will continue to scrape by. Their riders may have to live with delays for now. But through a combination of federal, local, and private funding, expensive and multiyear rail projects at the city and state level may yet be up and running even before the economy is fully back on track. □

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TEXT BY MARGOT CARMICHAEL LESTER  
AND CLAIRE PARKER

# 2.31

## EXPANSION INDEX VALUE, SPOKANE METRO AREA (June 2011)

The Expansion Index from Reed Construction Data is a 12- to 18-month look ahead at the construction marketplace. A value of 1.0 or higher signifies growth.

SOURCE: REED CONSTRUCTION DATA

### → LOCAL MARKET

# Spokane, Wash.

#### MARKET STRENGTHS

- Proximity to natural resources
- Compact city, convenient commutes
- Regional hub for transport, healthcare, and industry

"I can take my bike from home, be on great uncrowded mountain biking trails, go downtown, and be back home all within a couple hours," says Doug Mitchell, AIA, principal architect with Madsen Mitchell Evenson & Conrad, a local firm. "Yet if you're commuting 20 minutes to downtown, you're living 'way out.'"

#### MARKET CONCERNS

- History of slow recession recoveries
- Large government and public sectors don't contribute to tax base
- Limited high-tech, high-paying jobs

#### POPULATION & JOB GROWTH

The Washington State Office of Financial Management reports that 206,900 people call Spokane home, with 217,454 expected by 2016. Unemployment was 8.9 percent in 2010.

"Our economy is closer to that of northern Idaho than western Washington," Mitchell says. "There aren't a lot of high-tech, high-paying jobs compared to Seattle or Portland." The higher-paying jobs in the region are available in Spokane's healthcare and higher-education sectors.

#### RESIDENTIAL MARKET

The median home sale price in the first quarter of fiscal year 2011 was \$162,600, down from \$170,200 in the same quarter last year.

"In spite of a historically high 'housing affordability index' and low interest rates, Spokane's home values continue to be affected by weak demand from impacts of the national recession," Spokane business and development services director Teresa Brum says.

#### COMMERCIAL REAL ESTATE MARKET

The 7.1-million-s.f. commercial office market was 16.3 percent vacant for 2010, up from 15.2 percent in 2009.

Development in the Arts and University districts is putting more inventory on the market ahead of demand. "The roughly 100-block [University District] on the eastern edge of downtown is nearing the pinnacle of its transformation from a dilapidated railway-transfer station and stockyard to a thriving, live-learn-work-play neighborhood," says Keith Comes, AIA, principal at local firm NAC|Architecture. "And our firm's renovation of the Art Deco Fox Theater for the Spokane Symphony was one catalyst to the [Arts and Entertainment District's] development."

#### FORECAST

"With the ongoing development of the north-south freeway—using both state and federal funding—comes the opportunity to reconsider and redevelop neighborhoods and districts that may have been bisected or impacted by this vehicular artery," says David Huotari, principal with local firm ALSC Architects. "Opportunities for planning, design, and construction look to remain strong."



**Martin Woldson Theater at the Fox**  
**ARCHITECT:** NAC|Architecture, Spokane.  
**COMPLETION:** 2007.  
**BRIEF:** \$31 million, 47,000-s.f. renovation of the historic Art Deco Fox Theater and restoration of historic features. Won a 2010 Preservation Honor Award from the National Trust for Historic Preservation.



**The McKinstry Building**  
**ARCHITECT:** CTA Architecture, Missoula, Mont. (shell); Stephen Day Architecture, Seattle (preservation); McKinstry (core).  
**COMPLETION:** Fall 2011.  
**BRIEF:** \$18.5 million, 68,000-s.f. rail-car facility dates from the turn-of-the-last-century and will be transformed into a LEED Gold office building.



**Washington State University College of Nursing, Spokane**  
**ARCHITECT:** Integrus Architecture, Spokane.  
**COMPLETION:** 2009.  
**BRIEF:** \$34.6 million, 90,000-s.f. center includes an amphitheater and medicinal garden. Earned a 2010 AIA Spokane Honor Award, 2010 Masonry Industry Promotion Group Merit Award, and 2009 City of Spokane Award.



**Bishop White Seminary**  
**ARCHITECT:** Architects West, Coeur d'Alene, Idaho.  
**COMPLETION:** 2009.  
**BRIEF:** \$4.3 million, 22,275-s.f. project includes 19 dorm rooms, a dining hall, and a 50-seat chapel. Received a 2010 honor award sponsored by the Masonry Industry Promotion Group and the Eastern Washington Masonry Producers Association.

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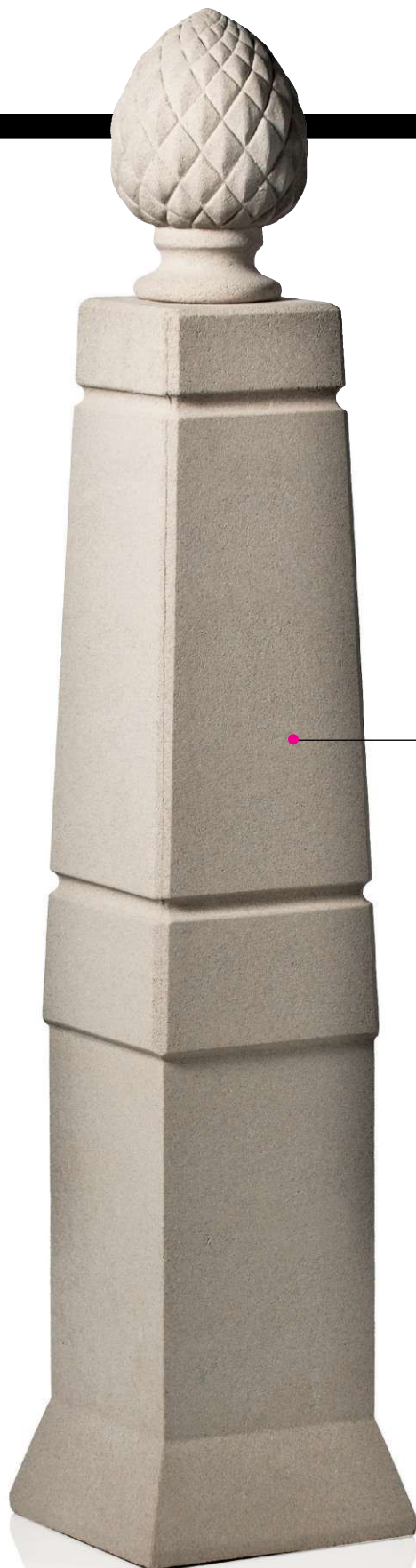


# TECHNOLOGY

→PRODUCTS

# Bollards

EDITED BY LAURIE GRANT  
PHOTOS BY MIKE MORGAN



The **D110** from **Haddonstone** is a decorative cast-stone bollard with a fir-cone finial that can be used to divide patios or lawns or along a driveway. Three colors—Portland, bath, and terra-cotta—are available. Each bollard weighs 74 lbs., is 6½" wide at the base, and is 25½" tall. The finial is 7" tall. Optional hooks are available for connecting chains. [haddonstone.com](http://haddonstone.com) • Circle 100

**Meteor Solar LED's SP-010** bollard has an extruded aluminum housing with a fluoropolymer FEVE coating; available colors include black, dark bronze, and platinum silver. The bollard can be embedded or surface-mounted. Powered by a lithium iron phosphate battery, it requires four hours of sunny weather or eight hours of overcast weather to maintain function and can operate for at least 12 hours. Six pieces of low-voltage LEDs can cast light up to 400 yards. [meteor-lighting.com](http://meteor-lighting.com) • Circle 101

**Reliance Foundry's R-7581** bollard is an ornamental iron bollard that can be used as a security post cover. It features a flat-style top casting and a fluted base that measures 15" in diameter. Decorative, security, and removable mounting options are available and the R-7581 is available in six colors. Made of ductile iron and aluminum, it stands 31" high and weighs 114 lbs. *bollards.ca • Circle 103*



**Forms+Surfaces' Knight Bollard** consists of a square column with a light source (compact fluorescent or HID are available) positioned above quadrant casting. The 8"-by-8" extruded aluminum column has rounded corners and the bollard is available in heights from 33" to 43.1". Standard powdercoated finishes for the head and column are textured black and textured slate. Quadrant castings are textured aluminum. The bollard can be specified with an optional security core. *forms-surfaces.com • Circle 102*



The **Sierra** family from **HessAmerica** includes architectural light columns and bollards with circular (shown) and square profiles. The illuminated columns provide accenting or zonal definition for commercial, institutional, and government buildings. Lighting sources can be ceramic metal halide or single-color or color-changing LEDs. Ceramic metal halide sources come in 70W or 150W, or 35W for low-level bollards. LEDs are available in white, red, green, or blue. Columns are 13' tall and bollards have an overall height of 39". *hessamerica.com • Circle 104*

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WESTLAKE REED  
LESKOSKY

→IT

# BIM, Bang, Boom

## FOUR PLUG-INS FOR BETTER PERFORMANCE WITH BUILDING INFORMATION MODELING TOOLS.

TEXT BY KRISTON CAPPS  
ILLUSTRATIONS BY PETER ARKLE

In the past, integrated design culture favored collaboration between team members early and often, so that expertise about energy performance could be shared. That's still true today, but a range of new BIM plug-ins and other tools allow designers access to a range of scientific data that can enlighten their decisions on materials and form in rapid speed. Instead of stopping for days or weeks to analyze data before returning to the drawing board, architects and designers can now access data on the fly. Collaboration is still key—and instantaneous answers make collaborations even more rewarding.



**Brad Clark, BNIM**

At the Kansas City, Mo.-based firm BNIM, designer Brad Clark likens Autodesk's **Green Building Studio** conceptual energy analysis plug-in for Revit Architecture to visually thinking out loud. “It doesn't do super-detailed analysis,” he explains of the software. “It's really for designers to quickly start to get some answers about how the building is going to function.”

Working recently on a school building that combined classrooms, labs, and offices, Clark and his colleagues used **Green Building Studio** to ask basic questions about form: What does a square building deliver in energy performance, for example, versus an elongated building? “It can tell you how big the change is from point A to point B rather than just the value of point A,” he says. “It lets you play out some intuitive assumptions, and see if your intuition was right.”

Clark says that previous platforms he used offered more information but provided it less quickly. “They were specialized to the point where the cost of using them tended to push their usage a little bit deeper into the design process,” Clark says. “You actually had to invest some resources in making a model with a program to get a design-specific answer.”



**Trent Cito, RNL**

Landscape architect Trent Cito of RNL in Denver also seeks to adjust design parameters and gather information without fully committing to changing the design. He uses **Grasshopper**, “a parametric software that allows you to change things on a model easily within BIM,” Cito says. “It works for architecture as well as landscape architecture.”

Using the application, which works within and is made for Rhino modeling software, Cito assigns what is called a point-data cloud to an overall design or some specific aspect of it, such as a landscape berm. “You can adjust variables like heights on the fly, then it allows you to what's called ‘bake’ the design,” he explains. “It makes a static version of it, and captures a placeholder. Then you can adjust it again. You can bake it, refine the design, and bake it again.”

Cito notes that Rhino was not intended to cater to any specific industry, such as nautical design. “But there are some design schools that teach it as such because of the free-form capability versus others that are more orthogonal,” he adds. “It's important because you're not limited by squares and rectangles. Your architecture can really start to generate different shapes.”



## STOENERGY GUARD

AIR BARRIER

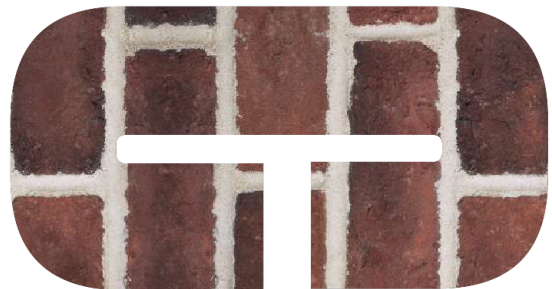
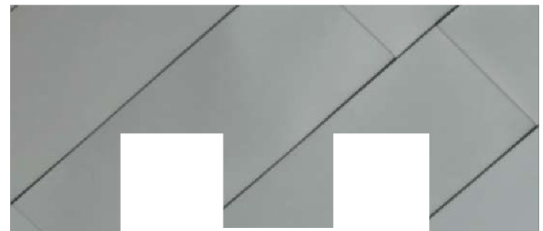
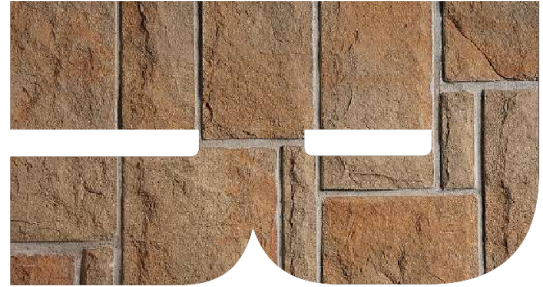
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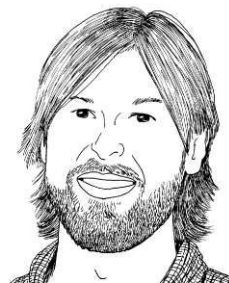


**Kurt Johnson, HGA**

In addition to real-time computations, design firms are also able to increasingly offer access to in-house digital libraries of information. **SmartBIM Library Manager**, says Kurt Johnson, engineer and associate vice president for information technology at Minneapolis's HGA, has made significant strides in providing easy solutions to managing the data.

"We looked at it a few years ago and it did not adapt well to individual needs, and it had a much narrower scope," Johnson says. "Now it's much more flexible. You can organize things into categories and actually preview the information. It's strengthening the 'I' in BIM, the information part of it."

Companies often invest in information and place them in firm-wide networks only to see the data go unutilized, like dusty books on a shelf. "Without that interface, it can be a needle in a haystack in terms of their list of available objects to bring in," Johnson explains. "Others operate at the purely visual aspect. This integrates the modeling aspect of the objects with the informational aspect."



**Shawn Lawler, Westlake Reed Leskosky**

Autodesk's **CFDesign** software, which the company acquired in December, is popular with mechanical engineer Shawn Lawler of Westlake Reed Leskosky's Washington, D.C., office. "If you want to look at natural ventilation or exterior wind flows," he says, "you can directly export that architectural file into the CFD software. Once you made those geometric changes, importing the 3D file is very fluid. And it makes having a lot of different versions easy. You can have one for your presentation to the client and another (or several) for the CFD analysis, for example. Once you're in the CFD module within those different geometries, you can have different boundary conditions and sub alternate ones."

"If you make a slight change and you decide you don't like how the analysis turned out and need to move something around, you just go into Revit, make the change, and relaunch that geometry," Lawler adds. "Whatever you see is what you'll export. If there's anything you don't want, if you're doing internal flow analysis and you have some external geometry you don't want to export, you just hide that." □

# SUSTAIN

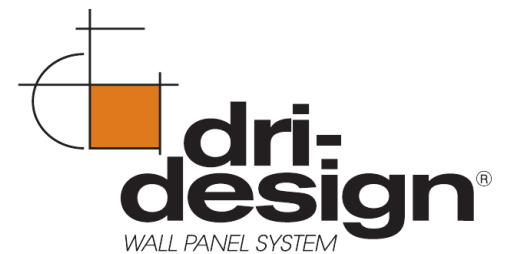
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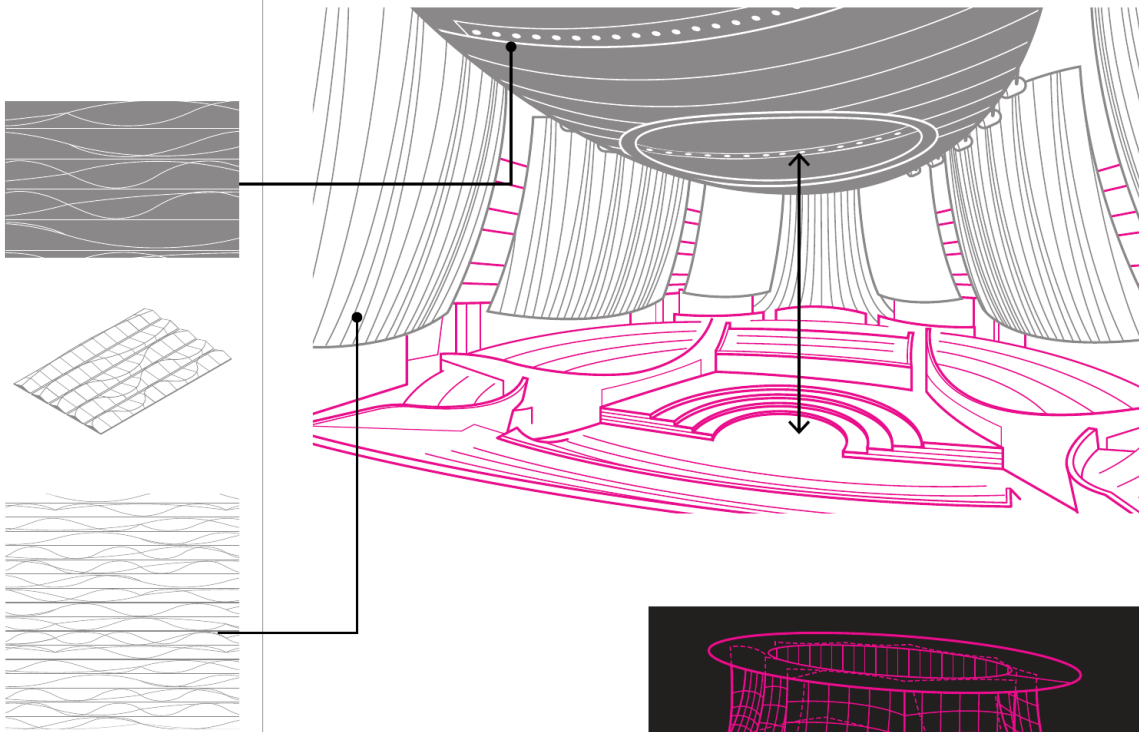


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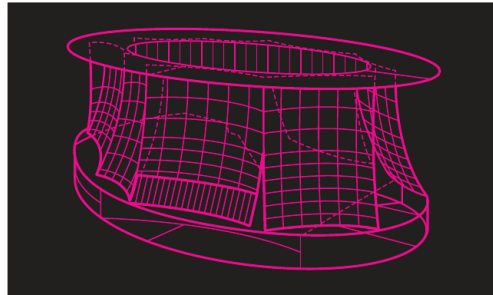
→ACOUSTICS

# Sounding Off

THREE NEW PROJECTS SHOW HOW SOUND SHAPES DESIGN AND VICE VERSA.



Illustrations of Stanford University's Bing Concert Hall, an 844-seat music venue planned for summer 2012 and designed by Ennead Architects with Nagata Acoustics's Yasuhisa Toyota, theater consultant Fisher Dachs Associates, and landscape architect Cheryl Barton. Fiber-reinforced concrete "sails" disperse sound, whereas random ridges on these and other surfaces prevent echoes.



TEXT BY FRED A. BERNSTEIN  
ILLUSTRATION BY JAMESON SIMPSON

**"IN MY NEXT LIFE,"** says Richard Olcott, FAIA, a partner at Ennead Architects, "I want to come back as the acoustician. The acoustician always gets his way."

Projected on the wall in front of Olcott in his Lower Manhattan office are diagrams that appear to be CT scans. They are plans for a new concert hall now being built at Stanford University, and they have been marked up—electronically—by acoustical consultant Yasuhisa Toyota. In the course of designing the concert hall, Olcott says, he went through some 50 iterations, sending each (in the form of a Rhino model) to Yasu, who used proprietary software to determine how the room would sound.

Yasu, who prefers to keep his process secret, says only that the software has improved so dramatically in recent

years that "until the last 10 years, we didn't do a very good job." He calls his earlier work "very primitive."

But the use of sophisticated modeling software—including nonproprietary programs used by other firms such as Connecticut-based Akustiks and Kirkegaard Associates of Chicago and Boulder—means that the process of designing spaces where sound is important is largely data-driven. That means architects are likely to have less control of the overall design process than they might like. Still, the best consultants help apply data to realize the architect's vision. "Yasu never tells you what to do," Olcott says. "He looks at what you've done, and tells you how it's working."



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For Stanford, Olcott designed an oval hall with 844 seats, arranged in a vineyard style (that is, surrounding the stage and divided into groupings by low walls). Those walls closest to the musicians bounce sound back to them, which is why, Olcott learned, they need to rise from the stage at right angles, and reach a height of at least three feet. Other “vineyard walls” bounce sound around more generally, creating pleasing reverberation in the

hall. “The idea,” Olcott says, “is that you should be hearing sounds coming from more than one direction—that’s what gives it the richness.”

But the oval design posed a problem: “Concave shapes concentrate sounds; you need convex shapes to disperse it,” Olcott says, explaining why he festooned the room with giant sails—actually panels of fiber-reinforced concrete, providing the necessary convex-ness. And what would those sails be covered in? “Yasu wants every surface to have a degree of bumpiness,” Olcott says, explaining that the bumpiness adds to the richness of the sound as it moves through the room.

And yet the bumps and ridges shouldn’t repeat at fixed intervals—which can cause echoes at particular frequencies. Olcott, taking off from a drawing by artist Robert Mangold, devised a random pattern of ridges, which were cut into the wall and ceiling panels (of fiber-reinforced concrete) by Kreysler & Associates of American Canyon, Calif., on a vast computer-numerical-control router. For architects, chance is just another way that acoustical consultants have influenced their designs.

Avoiding echoes was also a goal at Temple Beth Elohim, in Wellesley, Mass., where Kirkegaard Associates was the acoustical consultant. William Rawn, FAIA, the Boston architect, had designed a square sanctuary designed to take advantage of the woodland views—two of its four walls, nearly 70 feet long and 40 feet high, are glass. The effect is dramatic, but the danger “was that the sound would bounce back and forth” between the glass and other smooth surfaces, project manager Mark Penz says.

The solution was to ensure that parts of the interior walls were angled slightly. Other parts were covered in panels, from Akustik & Raum AG, consisting of a perforated wood veneer over absorptive backing.

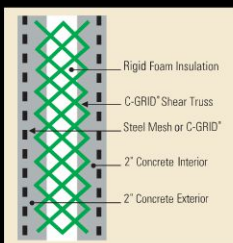
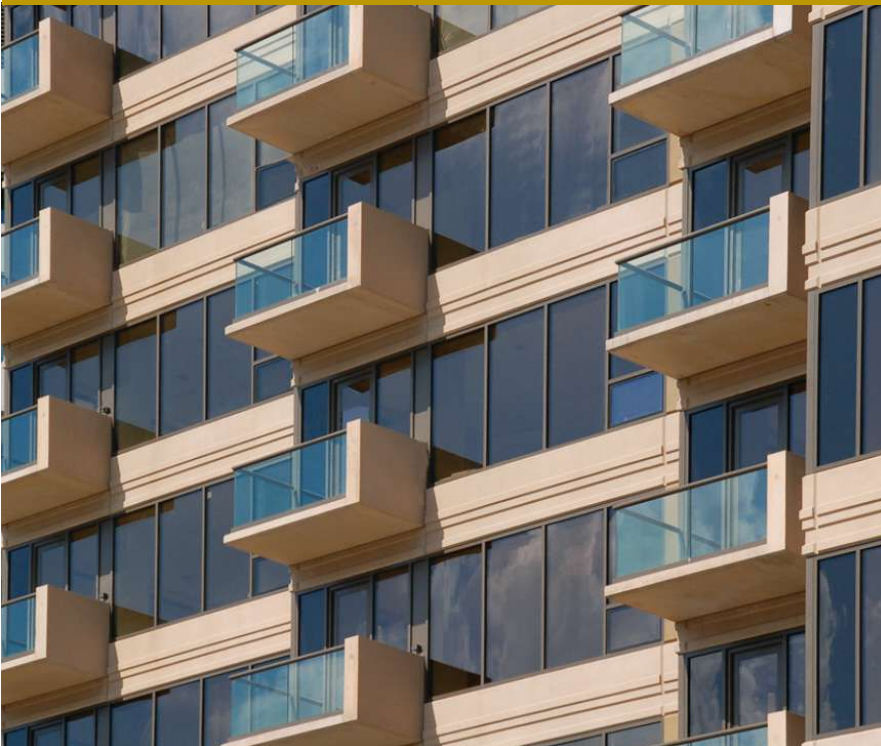
Penz said that he looked at dozens of materials before deciding on the company’s Makustik panels (his options multiplied, he says, when construction costs declined after the financial crash in 2008). “When you’re right up against it, you can see the perforations, but from everywhere else it looks like wood,” he says. The sound system, also designed by Kirkegaard, uses speakers set into wooden screens, an aesthetic choice that is consistent with the building’s religious purpose. “You don’t want to be worshipping a loudspeaker,” Penz says. The speakers were also designed to project sound down, toward the congregation, rather than up to the ceiling, where it could get lost, Penz says.

At both the Bing Concert Hall and Temple Beth Elohim, the goal was to please large crowds. But the DiMenna Center for Classical Music, the Manhattan home of the Orchestra of St. Luke’s, posed a different acoustical problem: DiMenna is where the 37-year-old orchestra rehearses. As it was a rehearsal space without a full auditorium, there was a danger that there wouldn’t be enough distance for sound to travel before bouncing back at the musicians. For that reason, rehearsal spaces, says Russell Todd, a partner in the Connecticut consulting firm Akustiks, are always in danger of being too loud.

But at the same time Todd was making sure that the musicians could hear themselves, he had to make sure they couldn’t hear noise from outside—a danger

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given that the space is near the entrance to the Lincoln Tunnel. Luckily, they had a good starting point: the room, a former theater, was essentially a concrete bunker, and “heavy concrete construction is good for sound isolation,” Todd says. Within the existing concrete box, Akustiks and H3 Hugh Hardy Collaboration Architects designed a second concrete box that floats. The floor was a particular challenge: A new slab was poured atop the old one,

“walls” in acoustical panels.

In the end, the similarities between a rehearsal space and an actual concert hall outweigh the differences.

“Musicians are the most important people in the room,” Olcott says of his Bing Concert Hall, scheduled to open in summer 2012. “You want it to sound good to them.” He adds: “You want them to say to other musicians, ‘Have you played at Stanford yet?’” □

“CONCAVE SHAPES CONCENTRATE SOUNDS; YOU NEED CONVEX SHAPES TO DISPERSE IT,” OLCOTT SAYS, EXPLAINING WHY HE FESTOONED THE ROOM WITH GIANT SAILS—ACTUALLY PANELS OF FIBER-REINFORCED CONCRETE, PROVIDING THE NECESSARY CONVEX-NESS.

then jacked up about 2 inches, leaving room for metal and neoprene springs between the layers. The springs dampen vibration from outside, with the metal ones handling the lower and the neoprene ones attenuating the higher frequencies, Todd says.

But what about the sound inside the room? The main determinant of how the room would sound—and look—were the four walls, which are made of masonry “hard cap” decorated with hundreds of vertical wood slats. The spacing of the slats was randomized, just like the grooves in the wall and ceiling panels at the Stanford concert hall and the wooden screens at Temple Beth Elohim. Behind the slats are velour drapes that can be raised or lowered, for additional sound dampening.

Overhead, the DiMenna room features a large skylight—making it a pleasant place for musicians to spend long hours rehearsing. But with a skylight, there was a danger of street noise leaking, and of sound from inside bouncing back too sharply. The first problem was solved by building the skylight out of two layers of glass, separated by 4 feet; the second by lining the skylight



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### Learning Objectives

1. Identify contemporary design elements that foster the interplay of built and natural environments.
2. List at least three benefits or reasons to select a green-roof system.
3. Compare and contrast green roofs and vegetative systems.
4. Identify the different types of water-management options for green roofs.

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#### → CONTINUING EDUCATION

# Designing the Building-Landscape Interface

AS BORDERS BETWEEN BUILDINGS AND THEIR NATURAL SURROUNDINGS BECOME MORE PERMEABLE, EXPERTS SEE GREEN SURFACES AND RELATED FEATURES AS FUNCTIONAL COMPONENTS OF BUILDING SYSTEMS, WITH EVOLVING STANDARDS, CLEARER METRICS, AND DEFINABLE BENEFITS.



**NATURE HAS BEEN** prototyping designs far longer than humans have. And as architects strive to keep up with the rapidly evolving world of green-building standards, some of them are looking to exploit that experience by bridging the gap between nature and the built environment. The end goal: creating a functional interface between the two that improves building performance.

In the second half of the 20th century, buildings and landscape became disconnected. Many architects saw nature as an unruly force to be excluded at all costs. Nonetheless, a small but vocal group maintained interest in the interplay of the built and natural environments. And today, architects increasingly see biomimetic and biophilic approaches as practical strategies.

Contemporary systems that exemplify this interplay include green and blue roofs, green façades, living greenwalls, porous pavements, and associated systems for managing water and soil. But putting these green machines to work isn't plug-and-play; it calls for patient cost-benefit assessment. Well-deployed natural features

can improve water management and thermal control and reduce operating costs, but they are not a panacea.

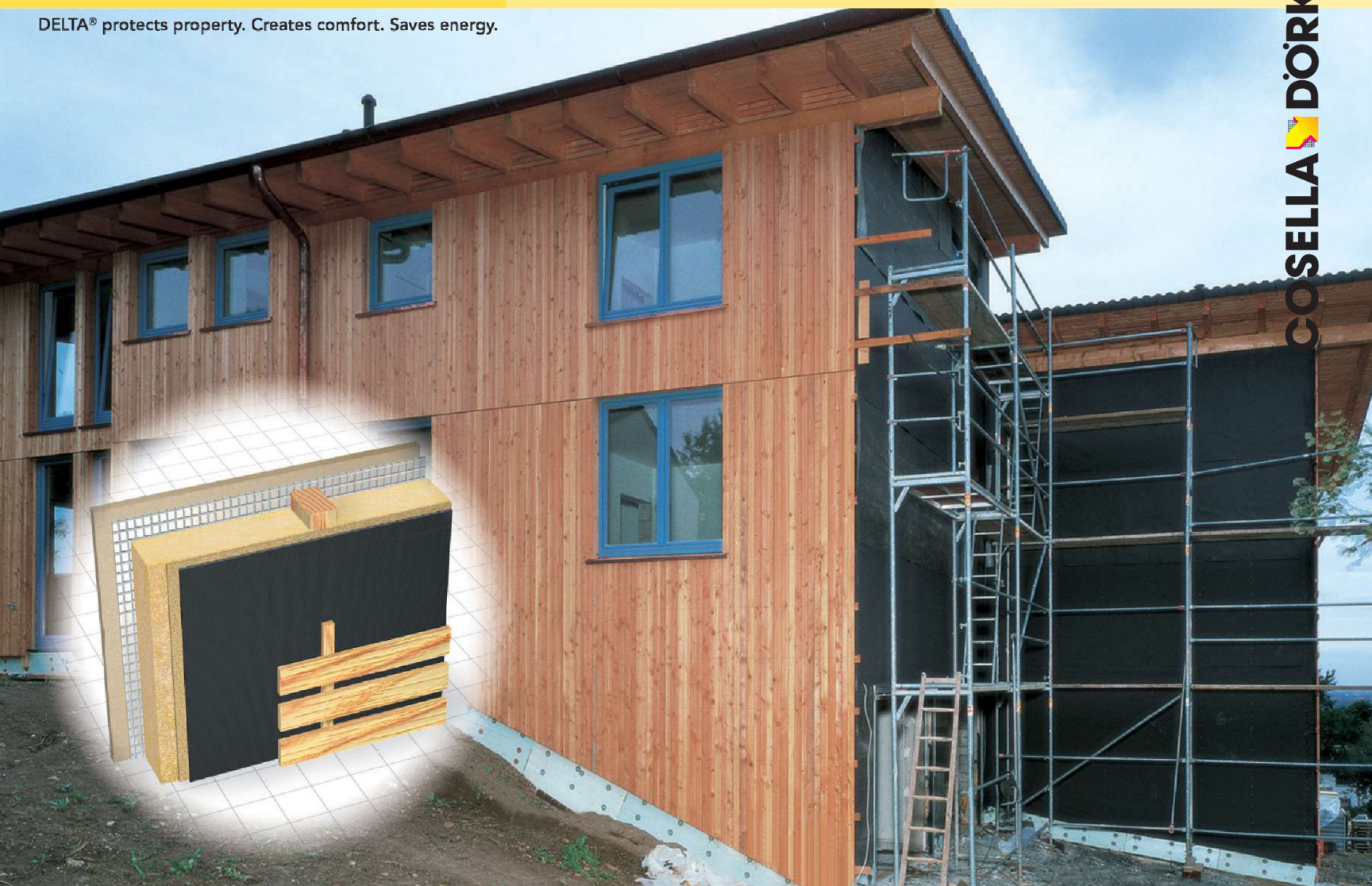
"We have to break it down three ways," says Signe Nielsen, a principal at the New York landscape architecture firm Mathews Nielsen. "We've got the up-front capital costs, the long-term maintenance cost, and then the long-term benefit to society." In communications with clients, she recommends, "you ought to be prepared for developing an opinion on all three and backing it up with facts and dollars." Specific metrics exist for irrigation, stormwater control, energy modeling, and benefits produced by trees, among others.

Architects, Nielsen notes, can employ resources such as the National Tree Benefit Calculator, which takes location, species, tree size, and nearby land-use categories as inputs, and returns estimates of cost savings for stormwater control, electricity and natural-gas savings, air quality, property value, and carbon



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Landscape is being integrated into all manner of buildings, including transit shelters (preceding page) in Tempe, Ariz. Solar gain for buildings can be reduced by adding green façade systems with climbing vines. (opposite top). Vegetation can also help with water on site, including the filtration of and management of runoff (opposite bottom).

“ONCE YOU HAVE A FULL CANOPY DEVELOPED THAT’S THREE TO FOUR YEARS OLD, AND IT’S MATURED, YOU’RE LOOKING AT PROBABLY A 95 PERCENT REDUCTION IN THE SOLAR LOAD.”

—DAVID R. TILLEY,  
UNIVERSITY  
OF MARYLAND  
DEPARTMENT OF  
ENVIRONMENTAL  
SCIENCE AND  
TECHNOLOGY



reduction as outputs. Related instruments exist for irrigation calculations in certain regions, but shading, thermal, and cost data require site-specific calculations.

These measurements can also be a reality check. Nielsen recalls writing a manual for green roofs in New York and noting that a 4,000-square-foot green roof with 6-inch-tall foliage does wonders for stormwater retention, but, because oxygen production is a function of leaf mass, the roof’s potential by that metric was equivalent to that of a single tree. “I remember trying to make my case to the city, and they said, ‘You know, if we just planted four trees, it would cost us a tenth the cost of a green roof,’” she says. And while the argument over including such features rarely rests on a single variable, it is important to know which will resonate with decision-makers.

#### Systematizing Interface Standards

The LEED system, says Frederick Steiner, Assoc. AIA, dean of the School of Architecture at the University of Texas at Austin, “did a pretty good job with buildings, but once you got outside the building envelope, there wasn’t much there. Basically it was ‘use native plantings; conserve water,’ both of which are worthwhile goals, but it doesn’t go into very much depth.” New site-scale standards are evolving. The American Society of Landscape Architects (ASLA), the University of Texas’s Lady Bird Johnson Wildflower Center, and the United States Botanic Garden have formed an interdisciplinary partnership, called the Sustainable Sites Initiative (known as SITES), with a complementary voluntary rating system for sustainable landscapes, with or without buildings.

“The USGBC, a stakeholder in the initiative, anticipates incorporating the SITES guidelines and performance benchmarks into future iterations of the LEED Green Building Rating System,” reports Mark Simmons, director of the Wildflower Center’s Ecosystem Design Group and a member of the SITES Technical Core Committee. SITES, Simmon’s colleague Steiner says, is organized around the idea of ecosystem services, the accounting of processes that nature provides gratis: clean water and air, oxygen, climatic mitigation, plant pollination. And there are other groups exploring these ideas as well. Jeffrey L. Bruce, the chair of Toronto-based Green Roofs for Healthy Cities—a group that increases awareness of the economic, social and environmental benefits of green roofs and green walls—also recommends the Cascadia Green Building Council’s Living Building Challenge, which is “projecting a standard that may take us decades to reach. They’re looking at net-zero energy, net-zero carbon, net-zero water,” he reports. “Totally off the grid.”

The trick is to determine which interfaces are appropriate. “Why do you want a green roof?” Simmons says. “What do you want your roof to do?” Beyond aesthetic appeal, choices involve thermal control, stormwater management, externality mitigation, and biodiversity. Extensive green roofs, with a light vegetative layer, differ from intensive roofs, with thicker

soil, sturdier structures, and more ecological complexity. David R. Tilley, associate professor at the University of Maryland’s Department of Environmental Science and Technology, estimates that green roofs are “about five to eight years ahead of the greenwall industry in terms of market penetration, popularity, standards, and size.”

“Designers should ask clients, ‘Which of these do you want: just aesthetics, stormwater, biodiversity?’” Simmons says, then tailor designs to performance. “Then the onus is on the industry to say, ‘OK, you live in Atlanta, you’re limited to 100 pounds per square foot, you want to absorb a half-inch of rainwater, and you want to attract butterflies. OK, those are the specifications; thank you, we’ll go back and design it and give you a roof that can do that.’ Now, that implies a lot of accountability.”

#### Light, Shade, and Energy

Shade is vegetated surfaces’ primary service to the ecosystem. “Once you have a full canopy developed that’s three to four years old, and it’s matured,” Tilley says, “you’re looking at probably a 95 percent reduction in the solar load.” Canopy is measured according to leaf-area-index (LAI) relative to wall area; for each unit of LAI, sunlight decreases by about half. Effects on interior temperatures depend heavily on insulation: If walls already have a high R-value, even dramatic reductions in LAI will cut temperature only slightly, but at low R-values, a dense canopy reduces cooling costs appreciably. Replacing black asphalt with vegetation raises rooftop albedo, and evapotranspiration can add humidity to an urban atmosphere; both help mitigate heat-island effect.

The converse benefit—reducing heating loads with passive solar energy through the use of green façade systems—calls for deciduous species, which lose their leaves and thus allow light to penetrate into the building during winter. Native plants known to thrive under local conditions (climate zones, pest resistance, and soil compatibility, for instance) are preferable; consulting with local botanists is advisable.

Every region has its success stories and its problem children with regard to the plant varieties installed in a project. Maryland-based Tilley warns against using English ivy (*Hedera helix*), which adheres tenaciously and is aggressive enough to move beyond its support structure and enter a building through windows. Nielsen, based in New York, identifies wisteria as another potential monster: attractive and fragrant, but capable of growing 70 feet tall and forming a woody trunk powerful enough to crush metal and tear roof leaders off a building.

In French botanist Patrick Blanc’s vertical gardens, mesh-supported systems of felt, pipes, and valves deliver hydroponic nutrients to roots by capillary action. Maintenance is considerable: soil dries out faster in containers than at grade. “Those are art pieces, effectively,” says Denise Hoffman Brandt, landscape architecture program director at the Bernard and Anne Spitzer School of Architecture, City College of New York (CCNY). “They’re extraordinarily expensive to install and maintain. A modular, low-maintenance greenwall system hasn’t hit the market yet.”

The alternative—green façade systems or lightweight trellises on or near a building's exterior, with plants rooted in ground-level soil—offers thermal and other benefits with lower operating costs and fewer structural complications. These systems can also be deployed to integrate plantings when “you're dealing with not as much available plan space to incorporate gardens or large specimen trees,” or when retrofitting an existing project, says James Sable, vice president of Los Angeles-based Greenscreen. On the whole, green façades are more reliable on lower stories or on roofs than on a full skyscraping scale: With a few exceptions in tropical climates (such as towers in Southeast Asia by Malaysian architect Kenneth Yeang, Hon. FAIA), wind loads can make vertical green structures above four or five stories problematic.

### Water Management

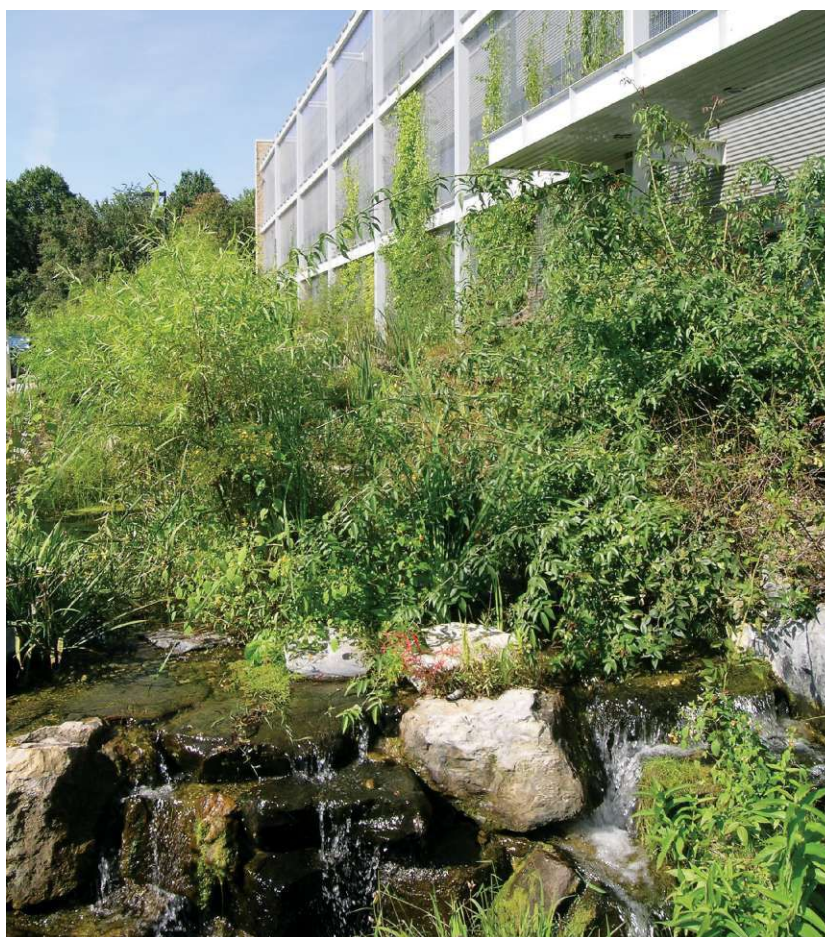
Green roofs, combined with water-capture methods using infiltration trenches or cisterns, reduce stormwater runoff that contributes to combined sewer overflows (CSOs). Since energy is invested in potable water, capturing rainwater for functions that graywater or treated blackwater could perform (irrigation, fire protection, waste removal, cleaning, or cooling) conserves energy as well as water itself. Toronto's Bruce adds that any structure holding water at elevation can put its embodied energy to work. There is wide room for creativity where biofiltration and mechanical systems intersect.

The first variables to know in calculations related to stormwater or biofiltration, New York's Nielsen says, include local soil volume and quality, including the soil's percolation or infiltration rate (available from shallow studies performed during geotechnical borings). Both vegetated and nonvegetated strategies, she notes, involve specialized maintenance: Porous concrete, for example, accumulates silt in spaces between the aggregate and needs periodic power-washing or vacuuming. Blue roofs—designed to store water—are an intuitive strategy, though their enthusiasts often face opposition because “architects are trained to get rid of water as fast as possible off a roof ... even if it'll work in the first five years, over time that membrane will fail.”

“I think the primary focus of green machines would be essentially water management,” Bruce says. “If you look back in the history, just about every landscape has been optimized for aesthetics ... and we're just reaching the nexus point where landscapes are being mandated to perform work, whether it's bioswales or rain gardens.”

As knowledge about stormwater management evolves, Bruce expects green infrastructure to assume the functions of a utility. “If you extrapolate from the past and look at solar energy, it's only been recently when individual property owners can capture solar energy and sell it back to the purveyor. If I look at stormwater ... and the degradation of water quality, there's an opportunity or likelihood in the future that we could end up selling polished stormwater back to the utility as a resource.”

Green roofs will capture and store about 75 percent of annual precipitation, Bruce says. Some skyscrapers may





never capture enough water to go off the hydrologic grid, but “integrated water management that tries to achieve net-zero water” can assign appropriate uses for different water sources and separate them from sinks where they are unhelpful or harmful, as when urban infiltration puts phenols and other pollutants into aquifers. “Water

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becomes almost instantaneously classified and siloed depending on what it touches,” Bruce observes. “If it hits the roof, it becomes rainwater, and there’s a whole series of regulatory requirements that glom onto it. If it hits the ground, it becomes stormwater, and there are regulatory environments that hit it. Once it goes into the combined CSO, it’s classified as blackwater and requires enormously high treatment levels. ... Right now there isn’t much of a classification system for exterior water use.”

Among Bruce’s projects, the Kauffmann Center for the Performing Arts garage under construction in Kansas City, Mo., will include a 147,000-square-foot green roof whose soils will handle a 100-year storm, holding half of the stormwater for 12 hours and another 25 percent for 66 hours. “We really had a significant reduction in stormwater runoff based purely on soil pore space, and we were able to eliminate a half-million-dollar stormwater-detention facility, take that budget allowance, and put it into two 50,000-gallon cisterns, which would harvest all of the water coming off-site and recycle it for irrigation. So we’re pretty close to achieving what I would consider a net-zero-runoff 2½-acre site.” Permeable pavement, bioswales, rain gardens, and other best-management practices at Southern Methodist University’s George W. Bush Presidential Center in Dallas will likewise capture and treat condensate, vehicle-washing graywater, foundation drainwater, and cooling-tower blowdown as well as rainwater, recycling all these sources to irrigate the 22-acre site.

But in systemic contexts, not all green structures produce a net energy benefit. “Buildings that appear very green in every likelihood are not functioning in the way that would be ecologically viable in the long term,” CCNY’s Hoffman Brandt says. With lightweight extensive green roofs, cooling and hydrologic benefits may be meager; “in order to do a more meaningful green-roof system, you would want to use actual soil that retains water ... that means it would have depth, and then it would also be heavy,” he says, noting that such systems require more steel to support them. “Where’s the tipping point ... [where] the carbon footprint of the steel and construction expansion doesn’t make it worth the benefits of the green roof?”

Planning for green surfaces should occur early, Hoffman Brandt suggests. “When you actually start designing the green roof as part of the building should be right from the start in schematic design, and it should be engineered and costed in design development. That means linking up the landscape architect, the architect, and the structural engineer.” Plants usually need irrigation during their first two years, particularly in desiccating rooftop or vertical-wall conditions; with a lightweight soil system, value-engineering irrigation out of the plans may also shorten the life of the plants.

Bruce’s office has a standing joke about value-engineering: “We’ve said ‘it adds no value, and it really ain’t engineering.’ But it’s why I’m so interested in this living-machine or green-machine concept ... if it becomes a regulatory mandate, then it’s much more difficult ... [to remove] from the project.”

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### Biodiversity and Ecosystems

Flora attracts fauna, and vegetated features often become complex and unpredictable local ecosystems with butterflies, hummingbirds, bees, and worms, plus new plants colonized via wind and pollinators. The preference for local species is an expression of what Simmons calls “ecological intuition,” but intuition isn’t perfect; a sustainable site-wide ecosystem can involve scientifically informed trial and error.

Most early green roofs were in northern Europe; sedums and similar succulents perform well both there and in the northern United States. But they have not translated as well to the South, Simmons observes, and botanists are not sure why. “It might be that the root temperature gets too high; it might be that when you get a lot of rain in the spring and it’s warm, then weeds come in and outcompete them, and they seem to rot,” he says.

Changing plants in an established green roof involves many sensitive variables: water requirements, growing media, drought-mitigation structures, and unexpected organisms that find a niche in the system. “Once you change one thing, you have to start thinking about changing everything else,” Simmons says. His group has been pilot-testing a wide range of plants on roofs in the hot climate of Texas. A drought-tolerant local perennial that they expected to thrive, damianita (*Chrysactinia mexicana*), defied ecological intuition and failed because the roofs stay wet for too long. A deep-rooted prairie grass fared better. Simmons calls the grass “morphologically plastic: they ... [the grass] can change their architecture to the conditions, so if you give them 6 inches of soil, they’ll still grow in it. They’ll just be a much smaller plant.”

Dean Hill, director of sustainability at Greenscreen, recalls another situation with a poor match between a species and a support system: creeping fig (*Ficus pumila*) on a vertical screen held about half an inch from the first story of the Energy Centre parking garage in New Orleans. The species attached to the precast concrete surface and rendered the screen superfluous. Had this happened in a climate with a freeze-and-thaw cycle, Hill says, moisture introduced by the plant would have caused flaking and chipping in the precast. If a more appropriate native plant species with a twining habit had been selected such as Trumpet Vine (*Campsis radicans*), the system would have been better suited to the site and application.

There is still much to discover about interface systems, though they are rooted in ancient practices. Hoffman Brandt, having worked in Near East archaeology, warns that “the popularity of the Hanging Gardens of Babylon comes from a kind of idealization of nature in the city—and archaeologically, there’s not a ton of evidence for [them].” Knowing these gardens from historic references and not direct material remains, it is easy to romanticize them and their descendants. The legend “reinforces the kind of Western dualism between seeing humans and urban systems ... [as] antithetical to natural systems; this is a way to bridge the gap,” Hoffman Brandt says.

Inviting vegetation into the human environment may appear remarkable only to the degree that we see built and organic structures as antithetical. But by integrating the two, “you have a lot of opportunity to refine, reconstitute,

and treat landscape as a visual texture as well as an important benefit in integrating into how ... a building or a site program works,” Greenscreen’s Sable says. And viewing the two as integrated, and not opposing, forces strengthens the ties that unite our technologically driven modern architecture with nature’s wild wisdom. □



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**1. True or False: A concern with the interplay of built and natural environments has remained a strong theme for some designers since the 1960s.**

**2. What are some contemporary design elements that foster the interplay of built and natural environments?**

- a. Green and blue roofs
- b. Green façades
- c. Living greenwalls
- d. Soil- and water-management systems
- e. All of the above

**3. SITES, or Sustainable Sites Initiative, is organized around the idea of the accounting of processes that nature provides gratis: (Select all that apply)**

- a. Clean water and air
- b. Building envelope
- c. Climatic mitigation
- d. Plant pollination

**4. Aside from aesthetic appeal, what are some benefits of green roofs?**

- a. Thermal control
- b. Stormwater management
- c. Biodiversity
- d. All of the above

**5. True or False: When looking at a vegetated surface, canopy is measured according to the leaf-area-index relative to the wall area.**

**6. True or False: For each unit of LAI, sunlight increases about 50 percent.**

**7. As opposed to a greenwall system, lightweight trellises on or near a building's exterior offer:**

- a. No thermal benefits
- b. Lower operating costs
- c. Fewer structural complications
- d. B & C only

**8. Blue roofs are designed to store water and often face opposition because:**

- a. Architects are trained to get rid of water as fast as possible off a roof
- b. Storing water on a roof does not hold any benefits
- c. Water management is not possible on a roof system
- d. None of the above

**9. Changing plants in an established green roof involves many sensitive variables such as:**

- a. Water requirements
- b. Growing media
- c. Drought-mitigation structures
- d. Unexpected organisms in the system
- e. All of the above

**10. True or False: When designing a green roof as part of a building, it should be included from the start in schematic design, and it should be engineered and accounted for in design development.**

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# Editor's Choice



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**Steelcase** unveiled additions to its collection of collaboration systems. **Media:Scope Mini** is a tabletop video-conference unit that features a high-definition display and mounted camera, as well as four pucks that users can connect to their laptops to switch between shared computer screens. The Mini allows users to integrate the system into existing spaces without replacing furniture. A mobile cart-mounted version is also available. • [steelcase.com](http://steelcase.com) • Circle 123

**Sebastopol** is a series of occasional tables from **Coalesse**. Created by Icelandic designer Emilia Borgthorsdottir, the collection has two shapes that can be combined in a variety of configurations, including a basic rectangle. Each unit is available in two heights and with an oak or walnut veneer exterior and a glossy laminate interior in five colors. Envisioned for lounge or informal meeting spaces, the Sebastopol units help create a flexible working environment. • [coalesse.com](http://coalesse.com) • Circle 121

**Pop!**, the newest collection of contract upholstery and multiuse fabrics from **Luna Textiles**, responds to industry trends by complementing neutral tones with bright colors such as yellow, fuchsia, and peacock blue. Pop! has six patterns—propeller (shown), Dish, Sketch Stripe, Peek, Eclipse, and Wish—each available in as many as 12 colorways. Wish is a biodegradable polyurethane that is PVC-, antimony-, and heavy metal-free. • [lunatextiles.com](http://lunatextiles.com) • Circle 124

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## technology



**Science Matters** is a new high-performance fabric collection from **Pallas Textiles**, suitable for a range of commercial applications. Designed by Laura Guido-Clark, the collection has five patterns: Gene Pool, H2O, Cell Theory, Flexing Muscles, and Heartbeat (shown clockwise from left), each available in a range of colorways. Cell Theory and Gene Pool contain post-consumer recycled polyester (22% and 10%, respectively). All patterns exceed 100,000 double rubs. • [pallastextiles.com](http://pallastextiles.com) • Circle 134

A collaboration between Brooklyn, N.Y.-based industrial designer Todd Braher and **Shaw Contract Group**, **The Music Project** is a new modular carpet collection. The design team worked with software engineers to develop a program that translates the gravity and pitch of songs into visual displays. These were then used to influence the five carpet patterns: Jazz, Classical, Electronica, Ambient, and Silence. The carpet tiles feature Eco Solution Q nylon fibers and EcoWorx backing. • [shawcontractgroup.com](http://shawcontractgroup.com) • Circle 136

**Rise** is a new seating element that is part of the new Gather Collection from **Allsteel**. A modular system of two- and three-tiered upholstery-covered steps, Rise can be configured in multiple ways to allow for informal bleacher-style seating in informal or flexible meeting spaces. Foam cushioning allows for tiers to serve both as seats and back supports, and allows for multiple seating styles. Rigid tablets can be applied to the soft surface to form movable writing surfaces. • [allsteel.com](http://allsteel.com) • Circle 125

**The Change Collection** from **Tandus** is available in three patterns—Change, Nonconform, and Factory Floor—each in 12 colorways. The modular carpet tiles are made with solution-dyed Dynex SD nylon, and both Change and Nonconform are also available as Powerbond, a hybrid resilient sheet flooring. Available backings include ER3 (with 100% recycled content), Ethos (made from the film in recycled windshields), and Conserv (which uses 25% less material than other backings). • [tandus.com](http://tandus.com) • Circle 137

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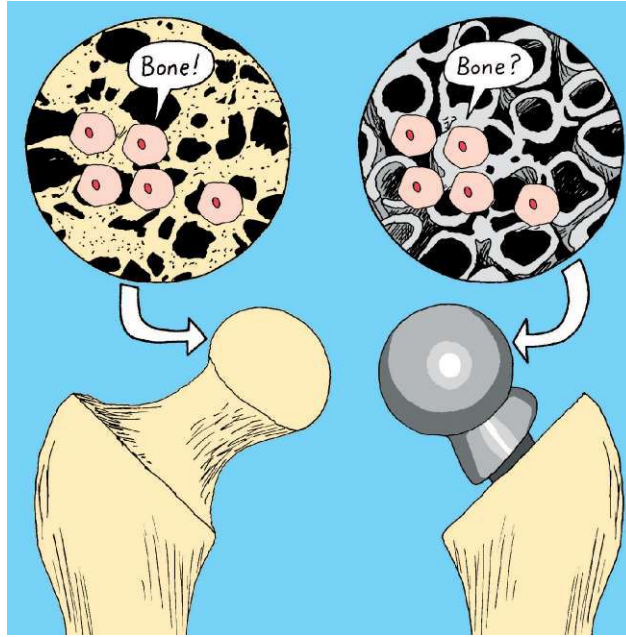
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→ MIND &amp; MATTER

# Jailbreaking Cells

NANOSCALE AND CELL-SIZED DESIGN: THE INTERSECTION OF NEW MATERIALS RESEARCH FOR THE HUMAN BODY AND FOR ARCHITECTURE.



5

NUMBER OF DAYS UNTIL SKIN-CELL DENSITY ON THE TITANIUM IMPLANT FORMS AN IMPERMEABLE SKIN LAYER BETWEEN ABUTMENT AND BODY.

SOURCE: JOURNAL OF BIOMEDICAL MATERIALS RESEARCH

**IN HIS SEMINAL BOOK**, *Out of Control*, Silicon Valley pundit Kevin Kelly presaged the imminent convergence of mechanical and biological systems. “When the union of the born and the made is complete,” Kelly wrote, “our fabrications will learn, adapt, heal themselves, and evolve. This is a power we have hardly dreamt of yet.”

Nearly two decades after the book’s publication in 1994, validations of Kelly’s prediction have surfaced in material technologies developed for the human body as well as for architecture.

Synthetic materials play increasingly complex roles in prosthetic applications. In a recent paper published in the *Journal of Biomedical Materials Research*, a team from Brown University describes its development of a process to modify the surface of titanium leg implants to accelerate skin-cell growth.

The scientists’ approach is a significant departure from traditional methods. Rather than fight the body’s natural tendency to protect itself against foreign materials, they sought to blur the lines between living and synthetic matter. “What we’re trying to do is fundamentally different,” lead researcher Thomas Webster says. “We’re trying to find materials that the body accepts, rather than develop drugs or develop materials that will kill a cell—no matter if it kills a bad cell or a good cell.”

Hoping to decrease the opportunities for infection and improve recovery time, the scientists devised a

two-step method: contouring the nanoscale surface to mimic bone—in which hollow, tubular microstructures encourage skin-cell attachment—and applying skin-cell-growing proteins, which prevent infection.

In initial experiments, endothelial cells demonstrated more successful colonization of the nanostructured surfaces than conventional smooth prosthetic materials.

Architects also seek the benefits of blurring living and manmade systems in buildings. Researchers from the University of Greenwich aim to integrate biology and architecture to tackle problems ranging from climate change to aging infrastructure—in particular, by developing protocells, fluid sacs of oil droplets and photosensitive liquids that respond to stimuli.

Researchers at the University of Southern Denmark’s Center for Fundamental Living Technology have further developed these cells to act as carbon sinks. The cells convert carbon dioxide to carbon-rich material that may be used to reinforce a building’s structure.

Unlike synthetic implants that mimic living material, protocell projects seek to enhance synthetic materials with active biochemical processes. Both approaches successfully mimic life to solve previously intractable problems. And both applications suggest that biology’s role in a world where the made and born converge will demand increased experimentation—with less predictable yet more exciting results. □

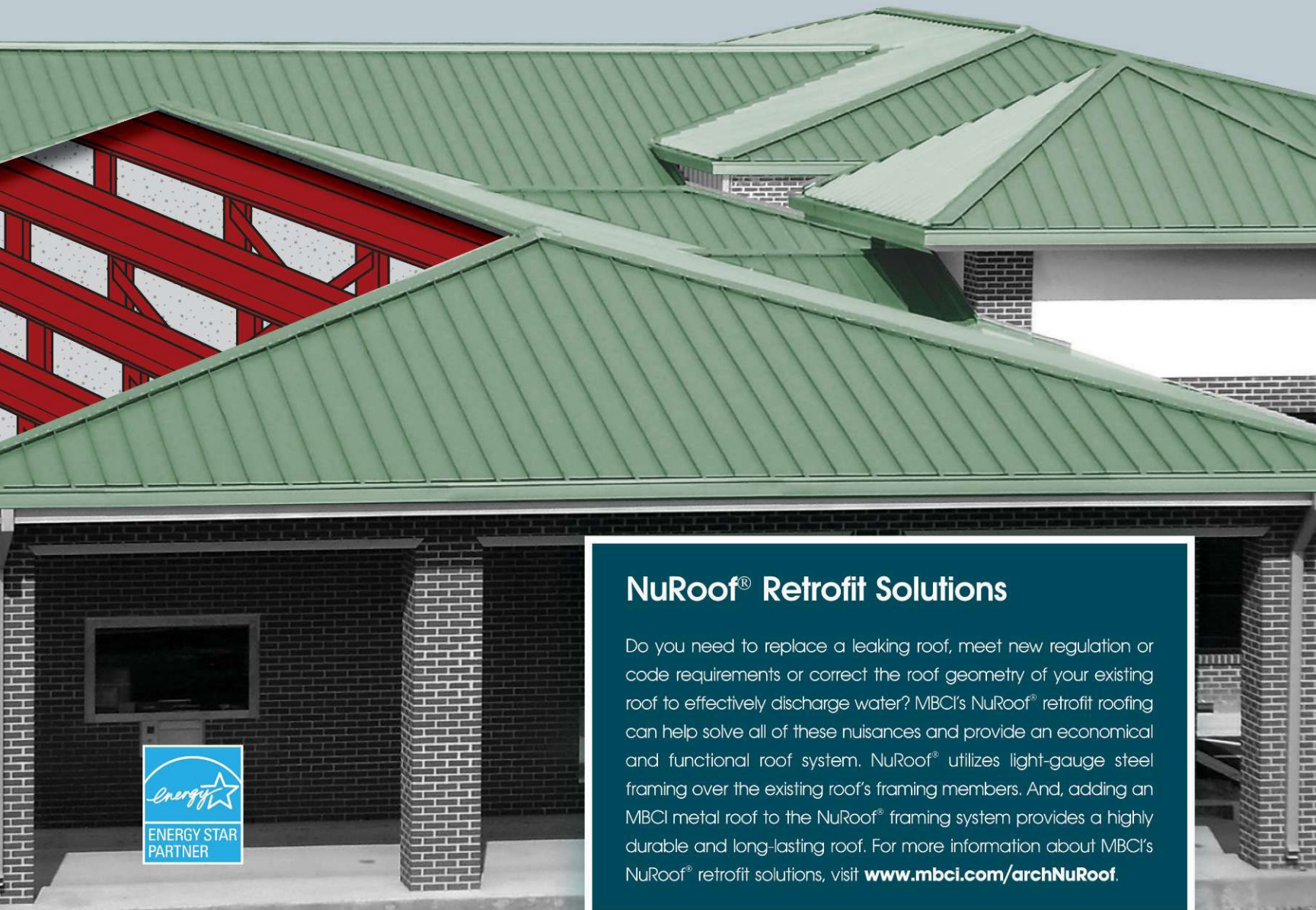
TEXT BY BLAINE BROWNELL, AIA  
ILLUSTRATIONS BY PETER ARKLE



→ Read more of Blaine’s reports on cutting-edge tech at ARCHITECT’s Mind & Matter blog: [go.hw.net/brownell](http://go.hw.net/brownell).



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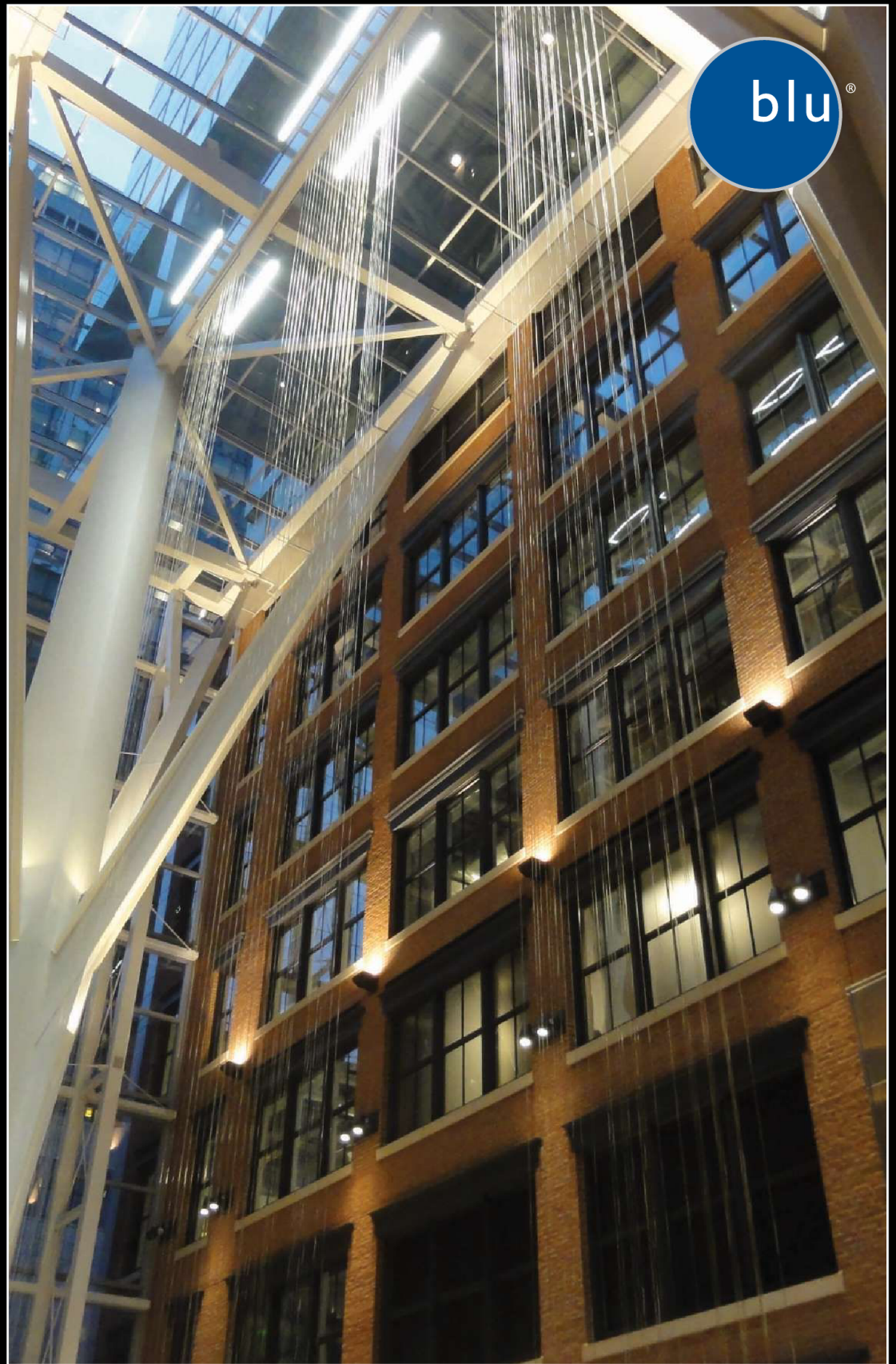
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# CULTURE



EDITED BY LINDSEY M. ROBERTS

## → EXHIBIT

After street artist Shepard Fairey designed the Obama campaign poster, who would have thought street art could rile authorities? And yet the Museum of Contemporary Art Los Angeles's exhibition **Art in the Streets** is doing just that. A commissioned mural by artist Blu was censored by the museum before the exhibition opened. And taggers have "bombed" MOCA's Little Tokyo neighborhood to match art in the exhibit (including Fairey's), illustrating that graffiti still has a context in crime. Through Aug. 8. • [moca.org](http://moca.org)



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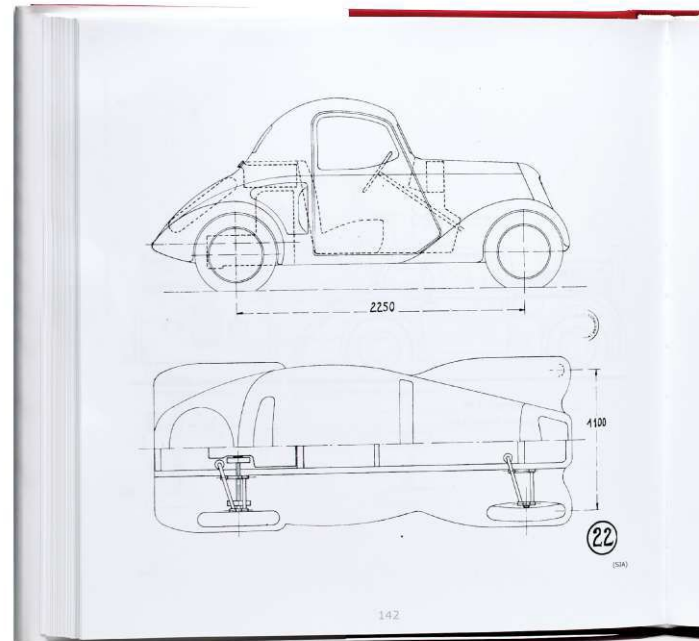
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→BOOK

Le Corbusier was a car junkie. In the '20s and '30s, automobiles regularly appeared in photos of his buildings, the way that families with strollers appear in renderings today. And in 1936, Corbu designed his own vehicle, the never-mass-produced Voiture Minimum. In **Voiture Minimum: Le Corbusier and the Automobile**, author and architect Antonio Amado places the architect's fascination in context with the Volkswagen Beetle, Porsche 356, and Citroën 2CV, and with the auto-love of his peers Wright and Gropius. • \$49.95; MIT Press, March 2011



→MUSIC

Watch New York's iconic buildings blast off into space to the tune of **Change**, a song on the chamber orchestra Now Ensemble's April 2011 album, *Awake*. Composer Judd Greenstein wrote the Indie-Classical music in tandem with animator Joshua Frankel for the film *Plan of the City*. In the 13 minute 36 second extended music video, Now Ensemble musicians rocket into the atmosphere alongside the buildings, their course set for Mars. When they arrive on the Red Planet, the group takes a subway car to a city composed of buildings that left Earth from Shanghai. • [vimeo.com/23282730](http://vimeo.com/23282730)

→INSTALLATION

To lend some site-specific oomph to the summer exhibition "Modern by Design," Atlanta's High Museum of Art has commissioned installations from Dutch designer Joris Laarman and Japanese collective Nendo. Laarman's contribution, **Digital Matter** (left), features a robotic arm called Abby that has been programmed to construct an elaborate, quasi-Baroque console table using tiny metal blocks. Each block is the physical-world equivalent of a three-dimensional digital unit called a voxel, or volumetric pixel. If you can't make it in person, to watch Abby at work, check out the video on the museum's website. Through Aug. 21. • [high.org](http://high.org)

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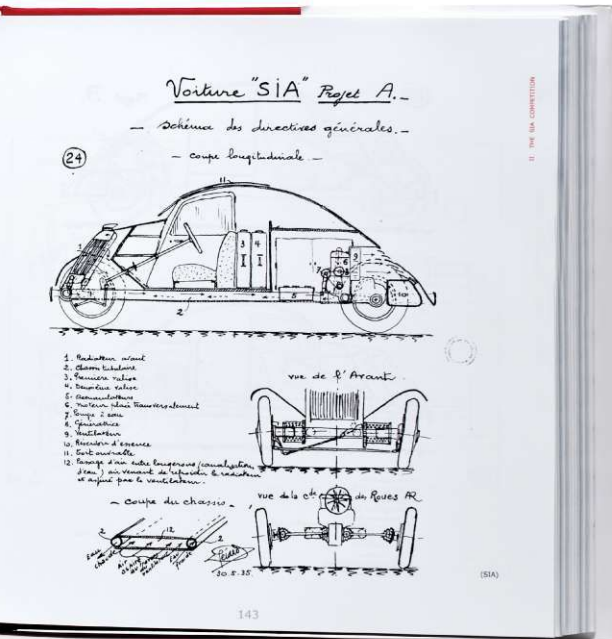


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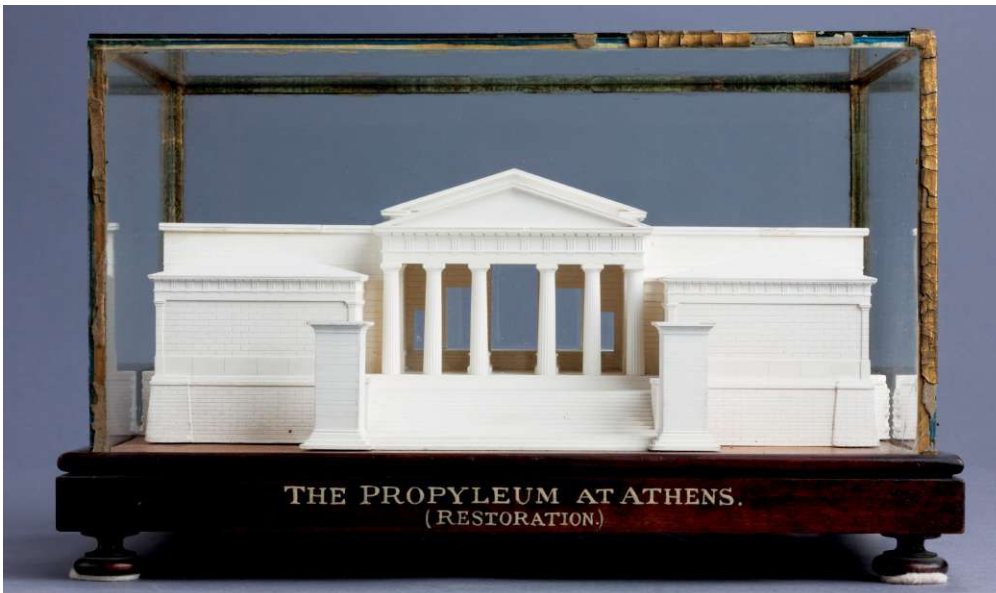
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culture



## → EXHIBIT

Sir John Soane's Museum in London is one of the great architectural pilgrimage destinations of the Western world. The Regency architect left his townhouse to the British nation upon his death in 1837, and ever since, visitors have marveled at Soane's densely layered interiors: Seemingly every available surface is occupied by sculptures, architectural fragments, or paintings. This summer, in **Wonders of the Ancient World**, the museum highlights one of the lesser-known subsets of the collection: 20 plaster models by French craftsman François Fouquet, which Soane bought for £100 from architect Edward Cresy. Each depicts a different landmark of Classical antiquity, such as the Parthenon and the Pantheon. Through Sept. 24. • [soane.org](http://soane.org)



# ARCHI/MAPS

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Sitting room inside the Hindenburg Airship

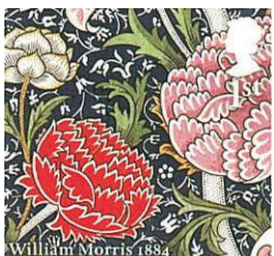
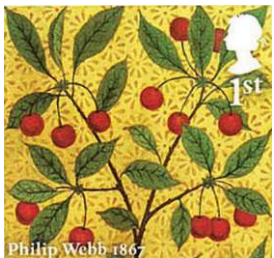
## → EXHIBIT

Looking at **Formations** is a lot like looking at Louis Sullivan's organic-geometric details through a kaleidoscope. Now at the Austrian Museum of Applied Arts/Contemporary Art (MAK) in Vienna, this exhibition of architectural elements, models, and videos offers a chance to examine the design strategy of the Viennese firm Span Architecture & Design. Principals Matias del Campo and Sandra Manninger, both former architects-in-residence of the MAK Center for Art and Architecture in Los Angeles, use computers to generate architectonic models from the geometries of organic systems. While artists and architects have long taken inspiration from the mathematical forms of nature, in their own hands, del Campo and Manninger say, the results are often like a "spontaneous mutation in nature." Through Sept. 11. • [mak.at/e/jetzt](http://mak.at/e/jetzt)

## → INTERNET

Architecture lovers lap up Web-based feeds of visual inspiration more eagerly than a cat proffered a bowl of milk, so **Archi/Maps**—a self-styled "electorama" of architectural images—should be bookmarked in every design fan's browser. Created by Parisian Cedric Benetti, senior creative director at the occasional French fashion magazine *Creem* and currently a student of architectural history at the Sorbonne, the site offers captions that provide only the most basic information for each image (e.g., "Florence in 1835," "Bank of Montreal, Winnipeg, Manitoba") and gives no links to source materials. Thus **Archi/Maps** serves primarily as a record of one man's wandering fascination with things architectural—and, perhaps, may inspire visitors to make their own discoveries. • [archimaps.tumblr.com](http://archimaps.tumblr.com)

CLOCKWISE FROM BOTTOM LEFT: ©THE TRUSTEES OF SIR JOHN SOANE'S MUSEUM; COURTESY MAK;



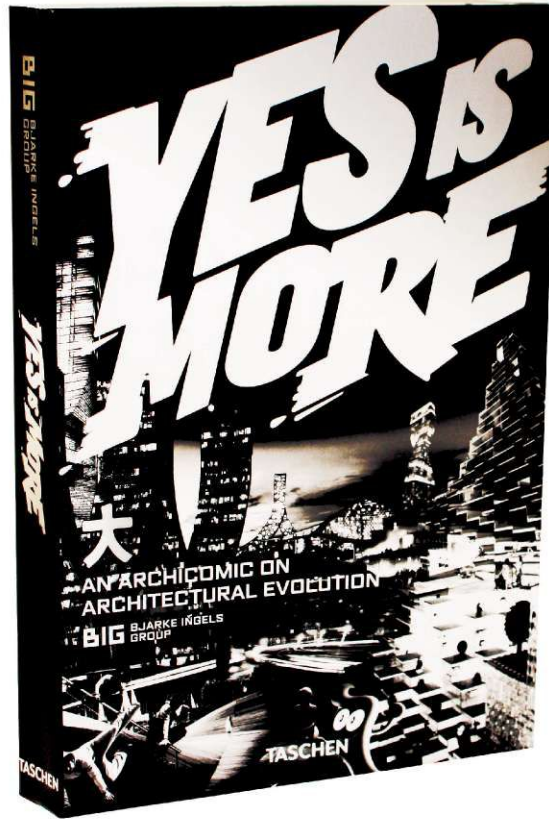
## → OBJECT

**William Morris** (1834–96) seemed destined for a career in the church before art critic John Ruskin's writings turned him on to architecture. Then artist Dante Gabriel Rossetti opened Morris's eyes to painting. The resulting philosophy-architecture-art combo sparked the English Arts and Crafts movement and moved Morris to found a firm of craftsmen who contradicted the Industrial Revolution with nature-inspired stained glass, fabrics, and wallpaper—miniatures of which are now available as stamps from the Royal Mail. • [royalmail.com](http://royalmail.com)

→ CRIT

# Up, Up, and Away

YES IS MORE IS NO TYPICAL MONOGRAPH—BUT **BIG** IS NO TYPICAL FIRM. DOES BJARKE INGELS BELIEVE THAT HE IS ARCHITECTURE'S NEXT SUPERMAN?



**BJARKE INGELS**, architecture's latest wunderkind, looks like he's 25. You've seen him, no doubt, either in magazines or on the lecture circuit: a strapping Dane with casually mussed hair, a strong jaw, and a bold-graphic on his T-shirt. If there is any living architect who might be expected to rush into a telephone booth and emerge wearing a bodysuit and cape, it is him.

Ingels, who is actually a still-youthful 36, does in fact imagine himself as something of an architectural superman. His recent monograph, *Yes Is More: An Archicomic on Architectural Evolution* (\$29.99; Taschen, 2010), is presented in the form of an inch-thick graphic novel, and there is no question as to the identity of its avenging hero—never mind that the comic book is the work of his firm, Bjarke Ingels Group (BIG).

Architecture is “never conceived by a single mind, and never shaped by a single hand,” Ingels writes in its first pages. That’s a generous concession, yet it follows an

opening sequence of double-page spreads that is quite frank in its estimation of Ingels’s place in architectural history. These splash pages proceed from Mies van der Rohe (“Less is more”) to Robert Venturi (“Less is a bore”) to Philip Johnson (“I’m a whore”) to Rem Koolhaas (“More is more”) to Barack Obama (“Yes we can”) before culminating with Ingels himself (“Yes is more”), his feet propped up on his desk, a smile on his face as if he’d just gotten the call from Pritzker HQ.

Ingels reappears throughout the comic as the chipper narrator of his firm’s work, his speech rendered in comic-book bubbles as he walks the reader through each project. His exuberance suggests he’s onto something new. It’s a spirit very much indebted to Koolhaas, which makes sense, as Ingels is one of the seemingly countless progeny of OMA.

In fact, the very format and tone of the book seems to have been the product of a visit by Bruce Mau, the graphic design guru and co-author, with Koolhaas, of 1995’s *S,M,L,XL*, that most transformative of all recent monographs. Like any good comic, *Yes Is More* begins with its own origin story: Mau was impressed with Ingels’s work and presentation skills, according to the text, but not the banal portfolio he received after his visit. Why not choose a mode of presentation that would better capture the spirit of the studio? And so the idea for the graphic novelization was born, to “transmit the energy of a face-to-face encounter with the architect.”

That it does. “What if trying to make everybody happy did not have to lead to compromise or the lowest common denominator?” Ingels writes in a two-page introduction, which reads as something of a manifesto. For BIG, every problem is an opportunity, every constraint a solution in disguise. Ingels’s particular gift is what management consultants call “getting to yes.”

Case in point: When the developers of a housing

TEXT BY MARK LAMSTER



Mark Lamster is at work on a biography of Philip Johnson.





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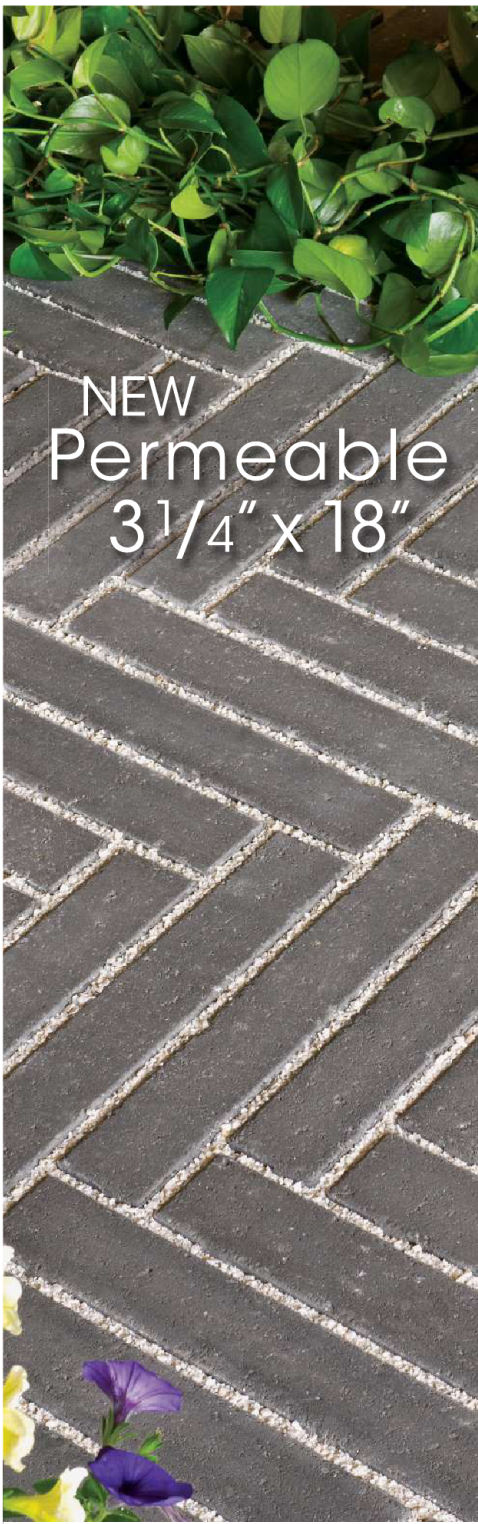
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complex in the Copenhagen suburbs deny a request to commission a mural for its entry, Ingels responds with the suggestion that the mural should be a portrait of the developers themselves. Arne Jacobsen had placed such a tribute in Copenhagen's Royal Hotel, an example Ingels proffered as a Danish "tradition." Not suprisingly, the mural was approved. Says Ingels, narrating the sequence in speech bubbles: "We literally turned ass-kissing into an art form!"

Ingels deals in that most alluring of enticements: empowerment. "As architects our role is often reduced to the beautification of predetermined programs. A client calls us up on the phone, after having determined all issues of a project, and asks us to 'make it nice,'" Ingels writes. "While we sit at home waiting for the phone to ring or someone to announce a competition, the future is being decided by those with power: the politicians or those with money: the developers."

Ingels, to his credit, is not one to sit around and wait for the phone to ring. *Yes Is More* finds him, time and again, generating audacious ideas and finding a place for them. In one episode from 2005, for example, Ingels approaches a newly elected Copenhagen mayor—who had

## THE VERY FORMAT AND TONE OF THE BOOK SEEMS TO HAVE BEEN THE PRODUCT OF A VISIT BY BRUCE MAU, THE GRAPHIC DESIGN GURU AND CO-AUTHOR, WITH KOOLHAAS, OF S,M,L,XL.

promised an influx of affordable housing—with a plan to ring the perimeter of an old airfield with an enormous, undulating megastructure. In one fell swoop, it would satisfy nearly half the mayor's housing goal while dramatically upgrading the sports fields occupying the site.

*Yes Is More* depicts the mayor, the kids who use those sports fields, plans, photographs, news clippings, and a plaintive Ingels himself. The ambition of the plan proved its undoing, the opposition galvanized by the sheer size of the project. As his firm's name implies, Ingels likes to build big. Very big. *Yes Is More* brims with massive mixed-use projects, the most pronounced being a planned artificial island in the waters off the Azerbaijani capital of Baku.

Ingels is also an unapologetic architectural recidivist, happy to repurpose a shelved project for an entirely different program or client. And so Ingels has "resurrected" the essential concept for that Copenhagen airfield for an amusement park in Abu Dhabi, United Arab Emirates, as yet unbuilt, where it will be a "hedonistic mirage in the Emirate sand dunes."

There's a method to Ingels's shameless opportunism. *Yes Is More* details his quest as he embarks on a tour of Denmark shopping around an aquatics center cancelled by the city of Aalborg. Alas, it seems there are still no takers for the project.

*Yes Is More* does not lack for compelling projects that have failed to materialize. Among the most dramatic is BIG's competition entry for a performing arts center for Stavenger, Norway. BIG's proposal is a series of boxy concert halls set on a contoured site of illuminated steps. The entry won the public vote, but a jury chose a more conservative scheme. BIG, predictably, has repurposed the idea for a proposed office tower for Copenhagen.

Formally, Ingels seems to have a few go-to moves, the most common being to either take a simple volume and torque it around or shove it over. Many of the projects are composed of modular blocks. (Fittingly, the Danish Lego corporation is both a client and sponsor of the book.) Taken together, these strategies give BIG's projects a visual consistency that can at times seem formulaic. Just how well the formal conceits translate into actual architecture is a bit hard to determine. Two of his most significant projects are located in the new town of Ørestad—an emerging Copenhagen suburban project that remains very much a work in process.

*Yes Is More* doesn't provide any easy answers, either. As a vehicle for delivering Ingels's can-do dynamism, it works. But as a tool for studying his architecture in a concrete way, it's not always an ideal format. The pictures tend to be too small to fit within the comic frames, and many of them are of low quality. Even when these images escape their confines to bleed out to full-page size, the layouts are busy, with dialogue boxes and arrows and other graphic distractions. There are few finished drawings or details for close examination. Some projects are given short shrift. Most frustrating: it's hard to tell which of the 35 illustrated projects are actually built. (Careful inspection reveals that the number is under 10.)

It's telling that, historically, the comic format has been used in architecture for avant-garde, speculative work, most famously by the British collective Archigram. Ingels wants to have things both ways: to carry the mantle of those earlier heroes and to build in the real world, to conflate idealism and pragmatism. "Telling your clients that they can get anything they want," as he says in *Yes Is More*, turns out to be "a successful strategy." Go ahead and use it yourself. □



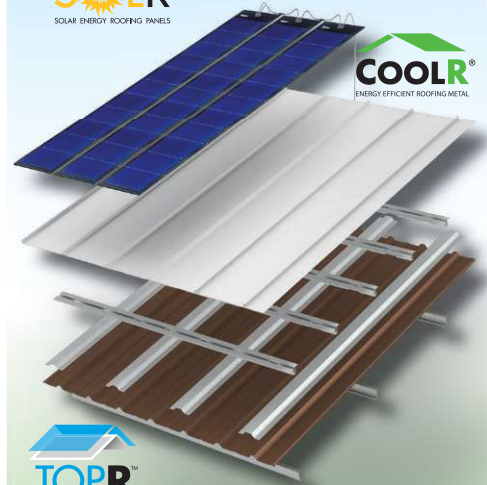
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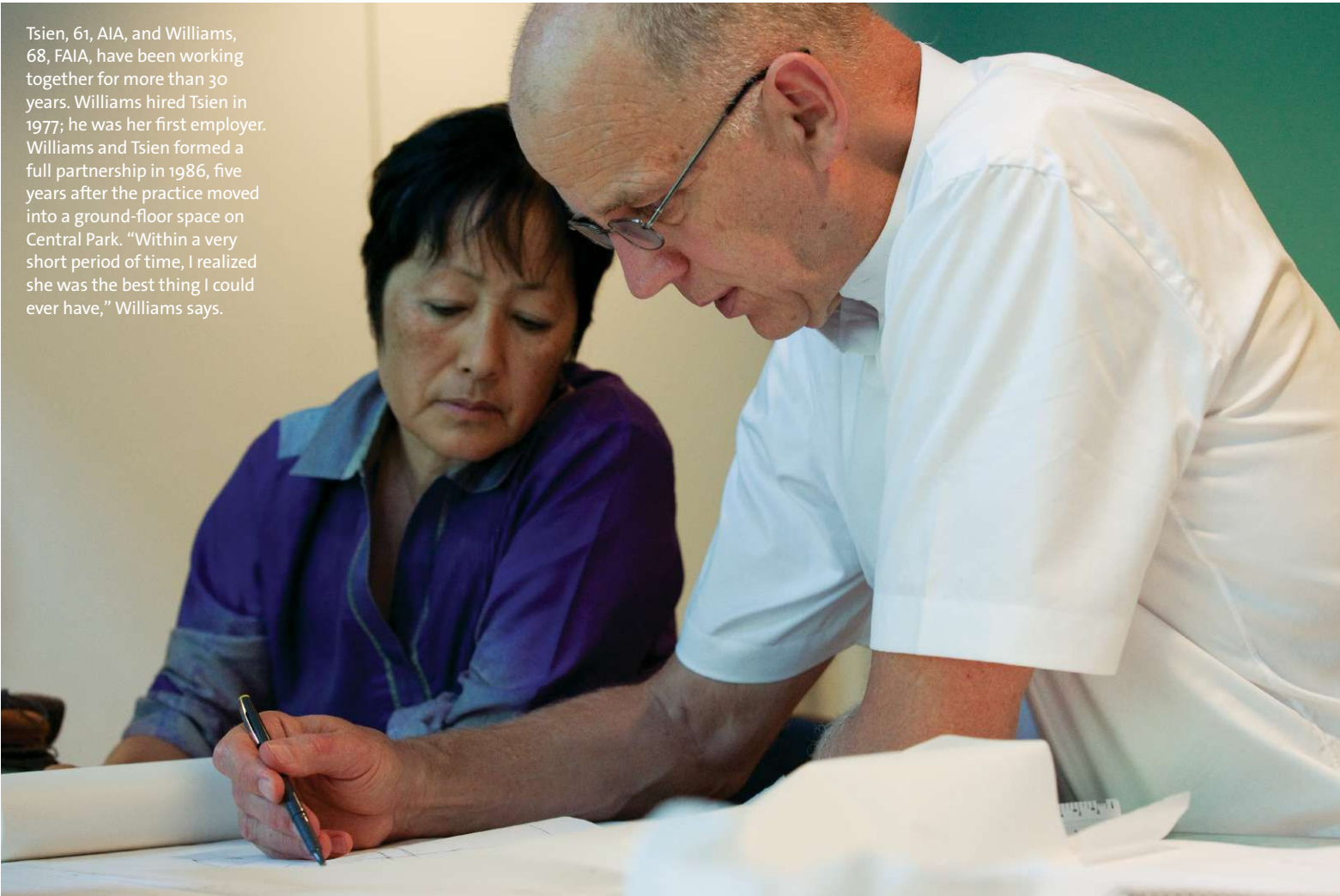
→STUDIO VISIT

# Tod Williams Billie Tsien Architects

THE PERSONAL AND PROFESSIONAL RELATIONSHIP BETWEEN COLLABORATORS TOD WILLIAMS AND BILLIE TSIENT HAS COME TO DEFINE THE ALMOST FAMILIAL CULTURE OF THEIR EPONYMOUS STUDIO—ONE THAT LOOKS OUT ONTO CENTRAL PARK AND MAINTAINS A YOUTHFUL VIBE.

TEXT BY KRISTON CAPPS  
PHOTOS BY JASON FULFORD

Tsien, 61, AIA, and Williams, 68, FAIA, have been working together for more than 30 years. Williams hired Tsien in 1977; he was her first employer. Williams and Tsien formed a full partnership in 1986, five years after the practice moved into a ground-floor space on Central Park. "Within a very short period of time, I realized she was the best thing I could ever have," Williams says.





The studio expanded in 2000, assuming space formerly used by photographers. "The designation was residential and commercial," Williams says. "Starting in 1981, we could only get a residential mortgage, because we couldn't prove anything."

Many of the firm's 30 employees bike to the studio, which has three showers and a full kitchen. "To me, it's not so different from the kind of studio atmosphere you have in school," Tsien says. "We interview people because we want them in the studio. They come understanding that."

Williams and Tsien are "by far" the oldest people in the studio, though they all work in the same space. "We're kind of like the parents," Williams says. (Tsien strenuously disagrees.)



→ BEYOND BUILDINGS

# High Times

A DEFENSE OF THE HIGH LINE—AND THE HOPE FOR LANDSCAPE URBANISM THAT IT HERALDS.



The High Line is a collaboration between Diller Scofidio + Renfro and James Corner Field Operations.

**WITOLD RYBCZYNSKI** does not like modern architecture much. Usually, that doesn't matter that much, as his screeds are confined to either *Slate*, that failed relic of the dot-com bubble communication confusion, or *The Atlantic*, the even-more-ancient remains of great journalism. On May 14, however, *The New York Times* gave him a chance to vent his spleen on its op-ed pages.

Rybczynski's target this time is the High Line. Now, I had thought that project was about as controversial as the proverbial mom and apple pie, but our backward-looking critic sees many problems. First, he believes the designers see it as a "model for a new form of town planning, dubbed 'landscape urbanism.'" Now it is true that James Corner—whose firm James Corner Field Operations collaborated on the High Line with Diller Scofidio + Renfro—is an advocate of what I think is an altogether sensible approach to urban planning, but I do not think that he would say that the High Line is a model of such a form of planning. It is, as Rybczynski goes on to point out, an exceptional project in a very particular location.

The critic points out that several other cities are looking at their own projects to reuse elevated tracks and states his belief that they will fail because they are not in situations as dense as those of Manhattan. I am not sure that is the case for all examples, but even if it is, why so gloomy? The sky might fall, but it could also frame some great new public spaces.

The problem is threefold, Rybczynski says. First, neither landscape urbanism nor the idea of an elevated,

linear park on a former railroad track are new, and both have been tried before. Why this is bad or a problem, I have no idea.

Second, not all situations will be perfect. True. They rarely are.

Third, the High Line is expensive. Also true, but then any physical operation in New York involves an absurd outlay of money. Rybczynski doubts that many cities will be able to raise such money, and that is also true. But perhaps they can raise the money to create either examples of landscape urbanism or ways to reuse infrastructure for public space (not the same thing) that are appropriate for their situations, and they may find inspiration and an example to show funders in the High Line. So, that is bad? And would we not rather spend money on great public spaces than on, say, subsidizing New Urbanist enclaves at the edge of sprawl?

What really gets Rybczynski is that he sees the High Line as a project that might entice other cities to try a "quick fix." It might be a model that, like skywalks or monorails, festivals or stadiums, might not work everywhere as an urban revitalizer. Many things might not work, Mr. Rybczynski, but this is one project that has worked in one location and should be celebrated, rather than held up as a warning sign. I think the author's real agenda is that the High Line represents the kind of architecture he dislikes, and so he is jealous of its success. I would say to him, wake up, smell the wild dandelions: We are seeing a renaissance of public space designed by good architects. Enjoy. □

TEXT BY AARON BETSKY



→ Read more of Aaron's design observations at ARCHITECT's Beyond Buildings blog: [go.hw.net/betsky](http://go.hw.net/betsky).



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## MATERIALS & APPLICATIONS

**OLIVER HESS, CO-DIRECTOR; JENNA DIDIER, FOUNDER AND CO-DIRECTOR**

If you boil it down, Materials & Applications' 25-by-40-foot outdoor exhibition space, just off of Los Angeles's Silver Lake Boulevard, is nothing much fancier than a repurposed front garden. However, in its nearly 10 years of existence, nonprofit founder Jenna Didier, 41, and her co-director Oliver Hess, 38, have made that gravel yard a 24/7 laboratory for experimental architecture. Didier always knew that she wanted a place where innovative and emerging artists and designers could collaborate on new ideas for public space. "Architects seemed to understand its purpose intrinsically and began right away to propose ideas," she says.

Materials & Applications (M&A) works with architects who often spend much of their time gazing at a computer screen, so the architects' installations often test how to viably translate ideas from science and computational design into structural reality. "Software-based design tools allow for such diverse creative and technical pursuits, but they often remove the depth of process," notes Hess, himself an artist with a technological bent. "By returning to the meaning of these processes it allows for greater perspective on the design process. It is necessary to reaffirm this approach daily."

→ To see work from M&A and other organizations in this article, visit [architectmagazine.com](http://architectmagazine.com).





# EMERGING TALENT

THERE ARE MANY WAYS TO NURTURE THE BEST AND BRIGHTEST OF A NEW GENERATION. BIG RAISES AND FANCY TITLES ARE ONE. BUT FOR A CERTAIN BREED OF ARCHITECTURAL GO-GETTER, A LIFT UP THE OLD CAREER LADDER IS LESS REWARDING THAN A NOD FROM ONE OF THE HANDFUL OF NONPROFIT PROGRAMS THAT SUPPORTS YOUNG DESIGNERS. **ARCHITECT** CONTRIBUTING EDITOR MIMI ZEIGER TALKS TO SOME OF THE TOP INSTITUTIONAL TALENT SCOUTS, ALONG WITH SOME OF THE TALENT THAT'S GETTING THE NOD.



## YAP\_MAXXI YOUNG ARCHITECTS PROGRAM

CLAUDIO CASTALDO, FRANCESCO COLANGELI, AND SIMONE CAPRA OF STARTT

This year marks the debut of the YAP\_MAXXI Young Architects Program, a partnership between MoMA PS1 in New York and the National Museum of XXI Century Arts in Rome. Inaugurating the program is stARTT, a three-year-old Roman practice founded by Simone Capra, 33, and Claudio Castaldo, 33. "In Italy, architects like us, under 35 years old, are not considered able to pull off a public project, but YAP shows that, we, as generation, can demonstrate the opposite," Capra explains.

The firm's name, an acronym for *studio di architettura e trasformazioni territoriali*, represents the partners' obsessions with the larger conditions of the built environment: infrastructures, ecologies, and urbanism. With their project WHATAMI (another title provoking contemplation), Capra and Castaldo, with Francesco Colangeli and Andrea Valentini, created a series of artificial, turf-covered islands in the concrete plaza of MAXXI's Zaha Hadid-designed building. Reconfigurable, these green pieces can be moved around to create spaces for concerts and events. It's a sophisticated idea about urban ecology and cultural capital, since the project's life cycle doesn't end with the summer season. Once dismantled, both natural and technological design elements will be recycled and used to rehabilitate abandoned areas in the city.

## AMERICAN ACADEMY IN ROME: ROME PRIZE

**ERSELA KRIPA AND STEPHEN MUELLER OF AGENCY ARCHITECTURE**

It would be wrong to think that 2010 Rome Prize winners Ersela Kripa, 32, and Stephen Mueller, 30, have spent their time at the American Academy in Rome holed up on the historic grounds of the Villa Aurelia. Hoping to use architecture to address humanitarian and economic crises, they took their studies to the streets. Kripa and Mueller, partners in New York-based Agency Architecture, are investigating the marginal and informal settlements that are booming around the city's urban edge.

The grandpappy of emerging-architect programs, the American Academy is celebrating its centennial this year. The Rome Prize, the academy's most prestigious honor, supports the interdisciplinary research of architects, artists, writers, and scholars. During its residency, which runs through this month, Agency is reaching out to local architects, community advocates, city officials, and urban planners with the hope of developing participatory design strategies to help those most in need. "We've moved away from a tradition of architect-as-master-builder, and it's becoming difficult to sustain the current paradigm of architect as a coordinator of specialists," Mueller explains. "The more we can support innovative models of practice, the better chance the profession has to evolve, and [to] respond appropriately to changing global conditions."







## SCOTTSDALE MUSEUM OF CONTEMPORARY ART: ARCHITECTURE + ART

**DANIEL MIHALYO AND ANNIE HAN OF LEAD PENCIL STUDIO**

A billboard made out of debris. A ghostly shell of a museum rendered in scaffolding and netting. The work of Seattle-based Lead Pencil Studio begs the age-old question, “Is it art or is it architecture?” Annie Han, 44, and Daniel Mihalyo, 41, are happy to split the difference. They founded the firm in 1997 because they wanted to practice architecture and spend equal time in the art studio. “We’ve spent the intervening years figuring out that balance,” Mihalyo explains.

The duo’s latest museum exhibition opened this June—it’s the second iteration of the Scottsdale Museum of Contemporary Art’s annual Architecture + Art series, which invites designers to create installations within the Will Bruder–designed facility. The Lead Pencil project, “Extended Collapse,” fills two galleries. With a marquee and video projections, the artwork riffs on the history of movie theaters and architecture on film.

Han reflects on the museum’s support of the project: “It is good for our culture in general whenever institutions take the risk of elevating the discourse among interdisciplinary art forms, bridging what otherwise would have been seriously balkanized professions.”

# ARCHITECTURAL LEAGUE EMERGING VOICES

**ANNE RIESELBACH, PROGRAM DIRECTOR**

Every year, the Architectural League of New York gives its Emerging Voices award to practitioners with just enough work under their belts to attract attention. Founded in 1982, the annual honor is a bellwether for architectural ascendance. Early rosters included a young Steven Holl, AIA, an edgy Morphosis Architects, and an experimental Elizabeth Plater-Zyberk, FAIA. Winners are invited to present as part of a public lecture series, with back-story interviews and images of their work featured online. In addition to the Emerging Voices program, the institution now sponsors the Architectural League Prize for Young Architects and Designers, a thematic competition, series of lectures, and exhibition open to those out of school for 10 years or less and who have a graduate or undergraduate degree.

“Back when Emerging Voices was initiated, there were very few opportunities for emerging architects to have their work published in mainstream journals, at the time one of the only means to draw the attention of a national audience,” explains League program director Anne Rieselbach, 53, who has overseen the awards since 1986. “On the whole, the juried series has been a great predictor of future success—in the winners’ own designs as well as in their roles shaping future generations of architects through design education and mentoring.”





## SUPERFRONT

FROM LEFT: JOHN HARTMANN, BOARD MEMBER; SARAH MILLSAPS TOWLES, BOARD MEMBER; MANUEL AVILA, 2011 ARCHITECT-IN-RESIDENCE; MARK GARDNER, AIA, BOARD MEMBER; CHLOË BASS, DIRECTOR, SUPERFRONT DETROIT; MITCH MCEWEN, FOUNDER AND DIRECTOR

"It bothers me that primarily wealthy individuals and well-funded institutions engage with architects," says Mitch McEwen, 32, founder and director of Superfront, an independent and scrappy organization that curates architecture exhibits on a shoestring budget in three locations: Brooklyn, N.Y.; Detroit; and Los Angeles. "This may sound incredibly presumptuous or haughty — that a little upstart nonprofit could contribute anything to the promotion of a profession hundreds of years old — but I am talking about the significance of small conversations across disciplines."

Since its founding in 2008, Superfront has presented solo and group shows, organized workshops, and, maybe most importantly, forged collaborations with community groups and more-established architecture venues such as the Architectural League of New York. This year, Manuel Avila, 31, was the winner of Superfront's architect-in-residence program, geared towards emerging practitioners. He worked with residents in Brooklyn's Crown Heights neighborhood to rethink vacant spaces for the aptly named "Participatory Urbanism" project. McEwen and her team are always scheming; this season debuts a large outdoor installation called "Public Summer" and a crowd-sourced video on ideas for Detroit. But given their super-DIY approach on all three fronts, it's hard to predict what's next. Or, according to McEwen: "Beyond that, we figure it out as we go along."







## MOMA PS1 YOUNG ARCHITECTS PROGRAM

**DANIEL D'OCA, GEORGEEN THEODORE, AND TOBIAS ARMBORST OF INTERBORO PARTNERS**

The program brief for the MoMA PS1 Young Architects Program, now entering its second decade as arguably the most high-visibility gig for emerging talent, could be read as “create a cool shade structure in the PS1 museum courtyard and get ready for a dance party.” But in an era when the profession is feeling a bit hungover from the indulgences of formal expression, Interboro’s piece, “Holding Pattern,” takes a refreshingly different approach.

Brooklyn, N.Y.–based partners Daniel D’Oca, Georgeen Theodore, AIA, and Tobias Armbrorst asked folks in PS1’s Long Island City neighborhood a question: Is there something you need that we could design, use in the summer courtyard installation, then donate in the fall? Their query turned up a mixed-bag of materials, including ping-pong tables, mirrors, and a grove of 60 red oak trees, all of which will be deployed beneath a canopy of rope that stretches across the PS1 courtyard. Their outreach can be seen as a model for young architects who might be frustrated with traditional practice.

“They take classes about ‘social design’ but end up sourcing bathroom fixtures for luxury apartment units,” D’Oca says. “[With ‘Holding Pattern’] we spent a good amount of time talking to taxi-management companies, libraries, high schools, senior and daycare centers, community gardens, the post office, and dozens of other Long Island City–based institutions. We feel like a part of the neighborhood and that makes us happy.”



## SCI-ARC GALLERY

BARBARA BESTOR OF BARBARA BESTOR ARCHITECTURE

"SCI-Arc is still a raucous place in a pedagogical way," says director Eric Owen Moss, FAIA, "but administratively it is more institutional than it used to be." The Los Angeles school's gallery encourages that active discourse and provides the framework, sweat equity, and funding for experimental installation work. This spring, local architect Barbara Bestor, AIA, 44, worked with students to construct "Silent Disco," an unfolded plywood polyhedron that doubles as a dance club. The piece, a perceptual play on surfaces, is covered in Dazzle camouflage graphics and glittery mirrors.

By engaging the whole school in the process, SCI-Arc continues its hands-on legacy, even as it embraces digital tools. "Built work—whether in installations or 'bricks and mortar'—is both a crucial form of engagement and ever more difficult to achieve due to the institutionalization of so many building practices," Bestor says. "There are fewer design-centric architecture projects to do out there. It is not a new problem, but it is hard to get new interesting or challenging work built in the U.S. in this climate. The schools have become crucial to supporting the next generation."

## AIA INSTITUTE HONORS FOR YOUNG ARCHITECTS

LEFT TO RIGHT: GAIL PETER BORDEN, AIA; AMY J. SLATTERY, AIA; KIEL MOE, AIA;  
THOMAS J. TRENOLONE, AIA; JACK BAUMANN, AIA; SARA BEARDSLEY, AIA;  
SANFORD E. GARNER, AIA; STEVEN DWYER, AIA; SEAN STADLER, AIA;  
CHRISTOPHER HERR, AIA. NOT PICTURED: JENNIFER T. KNUDSEN, AIA

"All architectural careers are built upon the foundation of previous generations. If we believe in the importance of supporting the long-term needs of society, we must believe in supporting the next generation of architects," says Chester A. Widom, FAIA, 2011 Chancellor, College of Fellows, and jury member for the AIA Institute Honors for Young Architects. Since 1993, the AIA has recognized the contributions of architects who, although they've been licensed for fewer than 10 years, have made significant contributions to the profession through built work and leadership.

The 11 winners this year represent a cross-country group with a diverse range of interests. They support sustainable practices and community development. They research, teach, and mentor. Looking at the work, Widom is optimistic about the future of the profession: "Based upon the quality of the submissions, we have nothing to worry about. Architecture will be in excellent hands."



# STOREFRONT FOR ART AND ARCHITECTURE

DANIEL ARSHAM; EVA FRANCH I GILABERT, DIRECTOR; AND ALEX MUSTONEN

For nearly 30 years, New York's Storefront for Art and Architecture has taken the *avant* position in architectural discourse—defining, then redefining, what it means to exhibit experimental design. Eva Franch i Gilabert, 32, took the directorial helm last year, and she is quickly carving out her own take on radical. Literally. This spring, Franch i Gilabert commissioned the installation “DIG” from artist Daniel Arsham, 30, and designer Alex Mustonen, 29, who together form the edgy practice Snarkitecture. The pair filled the tiny Storefront space with blocks of expanded polystyrene and then set upon it with hammers and picks, excavating a volume from the foam. Like looking into a frozen tableau, glimpses of the cavelike space could be seen through the openings in artist Vito Acconci and architect Steven Holl's iconic façade.

“I seek individuals or collectives able to propose alternative models, methodologies, and spaces of action in relation to that what is considered established or part of the status quo,” Franch i Gilabert says, weighing in on Storefront's role in supporting emerging practices. “If we are to change the terms of production, thinking, and action, the younger generation—the one that is fearless, full of intuition more than knowledge, with vectors of desire more than with constructed paths of action—is the one that needs to take the lead in shaping the future that lies ahead.”





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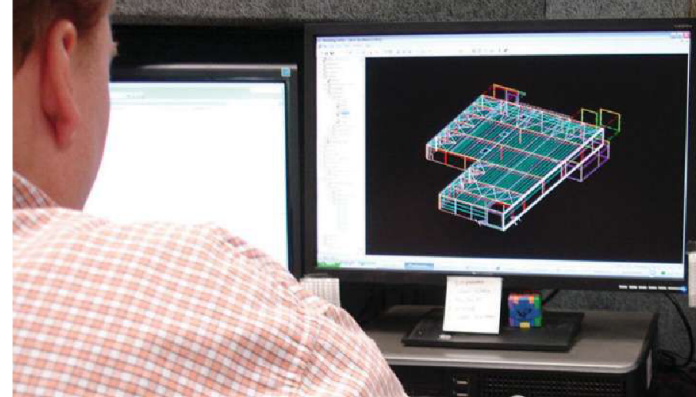


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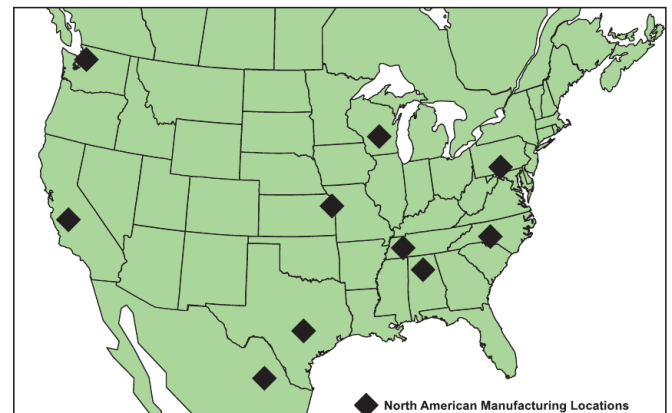
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# → DESIGN

RENE GONZALEZ ARCHITECT 100

RAFAEL MONEO WITH MONEO BROCK STUDIO 106

WESTLAKE REED LESKOSKY 116

# ALCHEMIST

MIAMI BEACH, FLA.  
**RENE GONZALEZ ARCHITECT**

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TEXT BY JOHN GENDALL  
PHOTOS BY MICHAEL STAVARIDIS









Kinetic mirror installation



Movable display racks

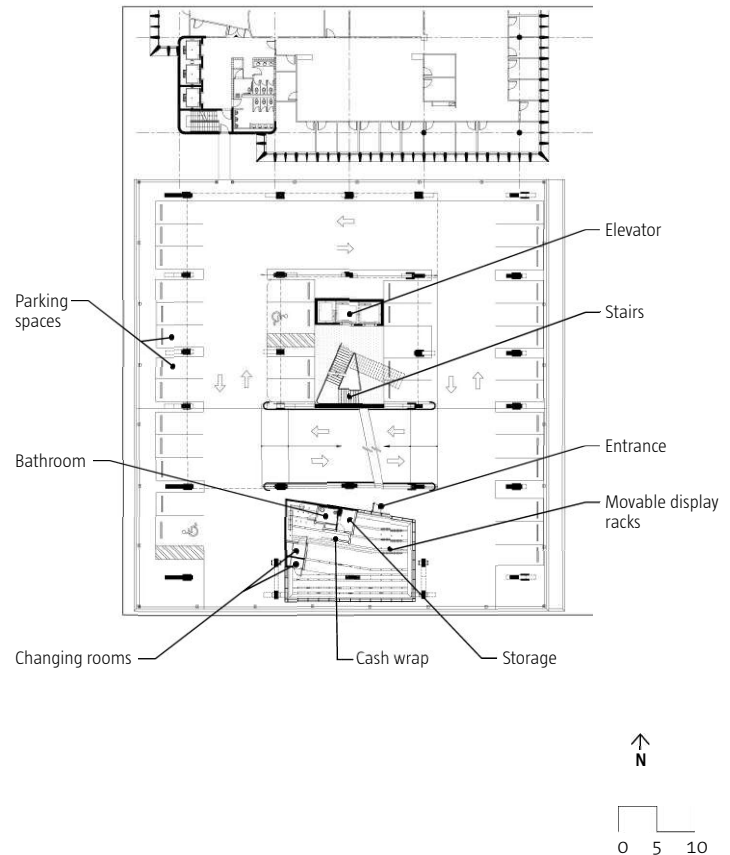
**THE PERFECT SITE** for a new boutique is rarely wedged into the fifth floor of a parking garage, but in Miami Beach, Fla., Alchemist is proving conventional wisdom wrong. Of course, the scenario couldn't work with just any store, or with just any parking garage: Roma Cohen and Erika Sussman already have a successful boutique farther down the street and a devoted clientele, and the setting is 1111 Lincoln Road, the Neapolitan-like Herzog & de Meuron design that merges parking, retail, and residences, and anchors the western terminus of Miami Beach's main retail allée.

But even with such a pedigree, the retail world can be fickle, and success is never assured. The duo's first step, they knew, would be to hire the right architect. "When we started the project, we were in the middle of a recession, so we knew we had to create something really, really exciting," Cohen says. This brought them to Rene Gonzalez, AIA. The kind of designer who understands the world poetically, Gonzalez's work is distinguished by a singular attention to environment—the hues of blue in the sky, movements of people, patterns of shade. It "is about making observations and putting them into architectural filters," he says. When it came to designing the interior of a 1,726-square-foot glass cube housed in a car park, however, he was faced with an unusual context.

The views from the site are far-reaching, encompassing the Miami Beach cityscape and the area's characteristic deep-blue sky. "You have a feeling of being in the clouds," Gonzalez says. He kept the floor-to-ceiling glass free from obstruction to capitalize on these stunning vistas.

But this is, after all, an urban boutique in a busy parking garage, not a beachside meditation retreat. Concerned with context as Gonzalez is, he wanted the store to acknowledge that kind of energy. "We wanted to keep a connection with the parking garage and the busyness of the sidewalk below," he says. To this end, the ceiling is lined with ribbons of

### Site Plan



mirrored panels, which then cascade down the walls, setting up a series of fragmentary views within and out of the space. There are infinity effects around the room, but views are often cropped—you can see the back of your head in one mirror and your feet in another—so the experience of moving through the store is always changing.

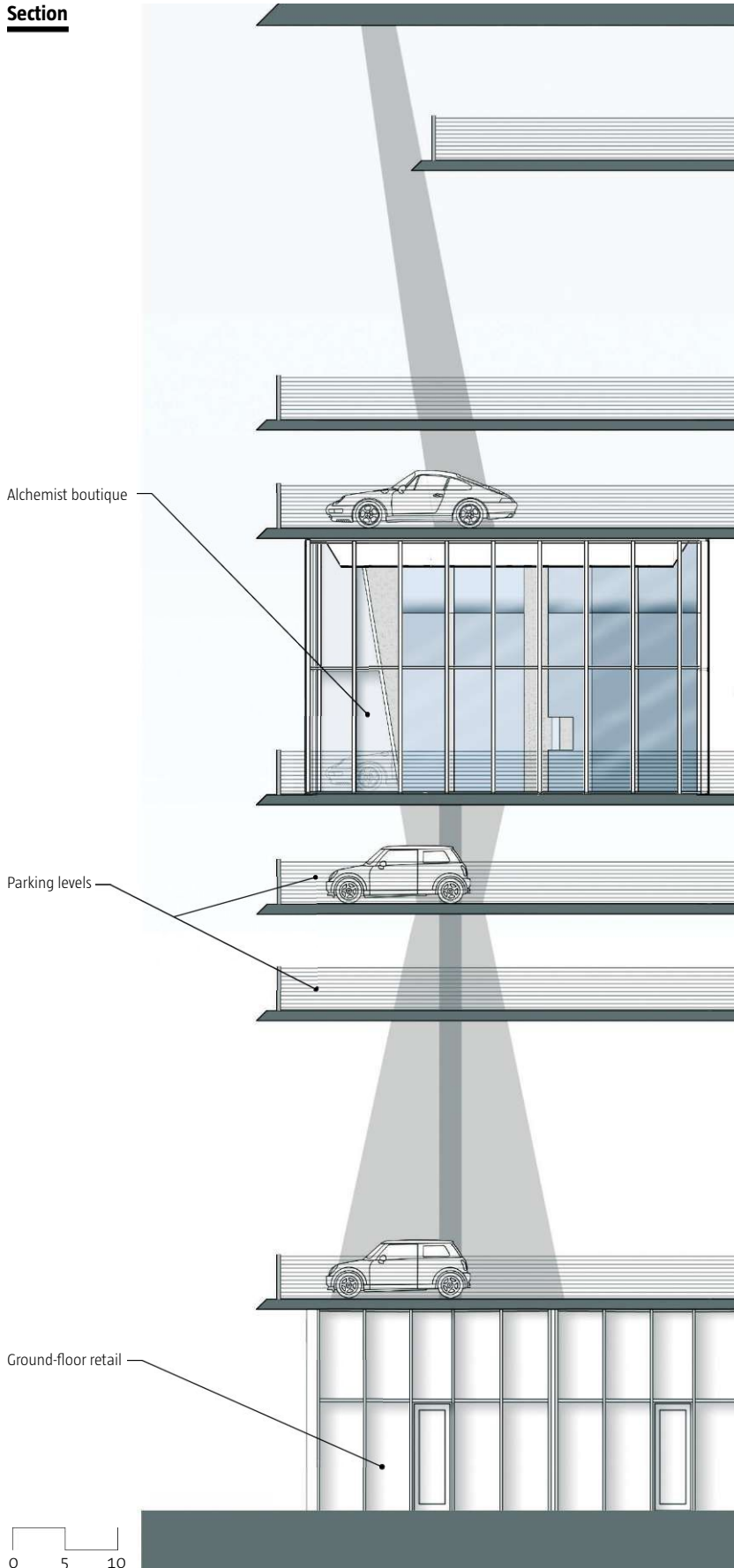
In an effort to amplify this visual energy, Gonzalez collaborated with Random International, a London-based art practice, to rig the mirrors into a kinetic installation. As a result, some individual panels move, pivoting on one edge, like a door. The result is a constantly changing kaleidoscopic effect. "The environment is fragmented, reflected, and reverberated around," he says.

The subtle movements of the mirrors also attract the attention of street-level pedestrians, unifying the retail experience of the street and of the boutique five stories overhead. Taking this into account, the store was able to avoid using garish signage: Its presence speaks for itself. "The space is a store and a billboard," Gonzalez says. On a sunny day, the mirrors in the store reflect the sky and the space emits an azure hue.

In addition to drawing people in, the space also needed to be flexible. "Sometimes we might want to just show a handful of pieces and other times, we may want to show much more," Cohen says. "This is really a gallery space, so we wanted a blank canvas."

In an effort to give Cohen and Sussman as much flexibility as possible, Gonzalez poured a 2-inch layer of a clear satin-finish concrete over the rougher garage slab. He included periodic perforations that hold custom clothing displays, so the space is unencumbered by bulky racks.

The pair admit that the decision to lease the equivalent of 13 glassed-in parking spaces for their new store was born more of instinct than wisdom. But having recently finished their first year with revenues 25 percent above projections, the gamble seems to be paying off.

**Section****Project Credits**

**Project** Alchemist, Miami Beach, Fla.

**Client/Owner** Roma Cohen and Erika Sussman

**Architect** Rene Gonzalez Architect, Miami—Rene Gonzalez, AIA (principal); Monica Vazquez, Assoc. AIA (associate); Kevin Regalado, AIA (project director)

**Mechanical/Electrical Engineer** Vidal & Associates

**Structural Engineer** Optimus Structural Design

**Construction Manager** Chris DiFranco

**General Contractor** Aaron Builders & Development

**Lighting Designer** Brand Lighting; G2J Design

**A/V Consultant** HED South

**Size** 1,726 square feet

**Cost** Withheld

**Materials and Sources**

**Ceilings** Conti Glass (installed  $\frac{3}{16}$ " custom clear mirror with safety backing) contiglass.net; Random International (kinetic mirror installation) random-international.com

**Fabrics and Finishes** Daniele Di Monte (black high-definition net window treatments) dadimo.com

**Flooring** 2" self-leveling concrete with clear satin finish over existing concrete

**Furniture** Chrome Hearts chromehearts.com

**HVAC** Rheem Manufacturing Co. (RHGG 240) rheem.com

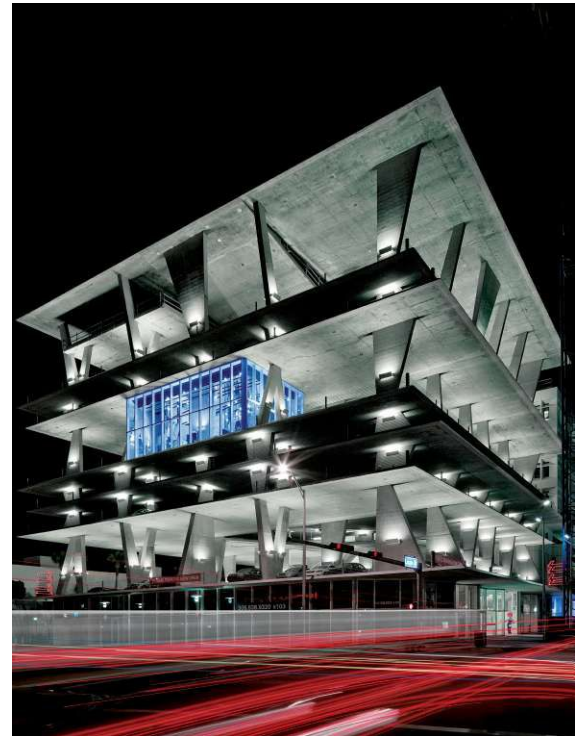
**Lighting** Philips Lightolier (Mini Universal, black finish) lightolier.com

**Metal** Marine Designs, Rick Tavares (custom mannequins and rack systems)

**Millwork** Chrome Hearts (custom display cases) chromehearts.com

**Wallcoverings** Auralex Acoustics (Pyramis Studio Foam, purple finish wallcovering in changing rooms) auralex.com

**Walls** Conti Glass Corp. (installed  $\frac{1}{4}$ " custom clear mirror and  $\frac{1}{4}$ " acid-etched Starphire mirror) contiglass.net



# Annual Design Review

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# NORTHWEST CORNER BUILDING

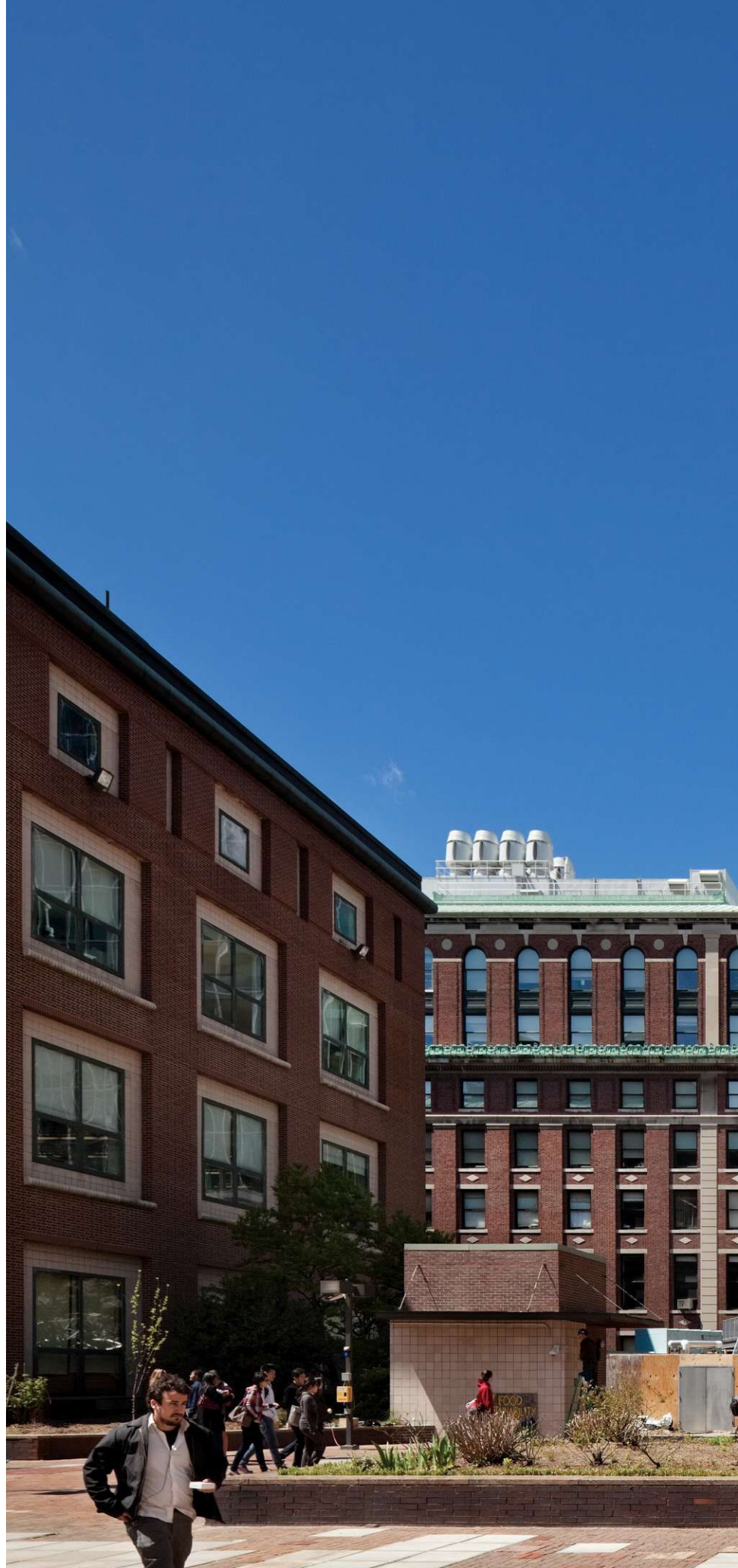
NEW YORK  
**RAFAEL MONEO WITH  
 MONEO BROCK STUDIO**

TEXT BY SARA HART  
 PHOTOS BY MICHAEL MORAN

**THE NORTHWEST CORNER BUILDING (NWC)**, Columbia University's new interdisciplinary research facility for chemistry, biology, engineering, and physics, is the final architectural piece in the school's 1903 Morningside Heights campus master plan, designed by Charles Follen McKim of McKim, Mead & White. The university entrusted the task of designing this final piece of the puzzle to 1996 Pritzker Prize-winning Spanish architect Rafael Moneo, with his daughter and son-in-law's firm, Moneo Brock Studio, serving as the design studio. New York-based Davis Brody Bond Aedas participated in the role of associate architect.

Moneo began the design process by acknowledging the contextual weight of the McKim, Mead & White plan. Then he looked five blocks north to the site of the university's planned 17-acre Manhattanville expansion. This ambitious project has its own master plan—designed by Renzo Piano Building Workshop and Skidmore, Owings & Merrill—and the Columbia administration expected Moneo to form a conceptual gateway to the new campus and a bridge between the educational architectures of the 19th and 21st centuries.

But there was another challenge, one that was still more daunting. The site, rather than being a vacant lot, was already taken by the Francis S. Levien Gymnasium, a 2,760-seat arena that houses the university's basketball teams and serves as a rainy-day location for commencement ceremonies. In other words, Moneo was confronted with an intrinsic (and immovable) part of





the campus. Constructing the new science facility meant building above and spanning 129 feet over the gym, without penetrating the existing structure at any point.

Working closely with structural engineers from Arup, the design team created a strategy that would meet requirements for 40-foot clear spans in the laboratory bays and auditorium and for the stiff laboratory floors by using diagonal cross-bracing at the perimeter. “The boldest expression of this gesture is given to the library, made completely free of columns and occupying the interstitial space between the roof of the gym below and the mass of the building overhead,” Moneo says.

Simply put, the building’s envelope is a giant steel truss from which spaces in the base—including a library, a café, and a lecture hall—are hung. Such a move could have wreaked havoc on the façades, but the designers purposefully incorporated the diagonal bracing as an element of the unitized curtainwall’s design (see Toolbox, page 114). This honest expression is apparent in the composition of aluminum fins and façade panels. The campus side to the east is mostly glazed, reinforcing the university’s expansive mission, particularly its evolving cross-disciplinary culture in the sciences.

More than 70,000 square feet of laboratories are located above the stone base. A narrow footprint allows daylight to penetrate deep into the 14-story building. Moneo amplifies the light by creating double-height spaces on the laboratory floors; broad eastern exposure illuminates adjacent mezzanines that house faculty offices and semiprivate student workstations. Gathering spaces pop up around the labs in an effort to encourage mingling by students from different disciplines.

Multiple bridges connect the new building to Pupin Physics Laboratory to the east and Chandler Laboratories to the south; they are cantilevered from the NWC so as not to add additional loads to the older structures.

Throughout the interior, Moneo frames unexpected glimpses of the stately architectural enclave into which his project boldly encroaches, in homage to the classical motifs that define the cloistered campus’s architectural heritage. These views are subtle gestures, but they admit the past into a building that itself looks to the university’s future. “We have been planning this project for 10 years,” explains Joseph Mannino, AIA, associate vice president of Columbia’s Capital Project Management office. Acknowledging that conventional laboratory buildings are hermetically sealed, “the goal was to create public spaces within the building that reflect the university’s openness,” he says.

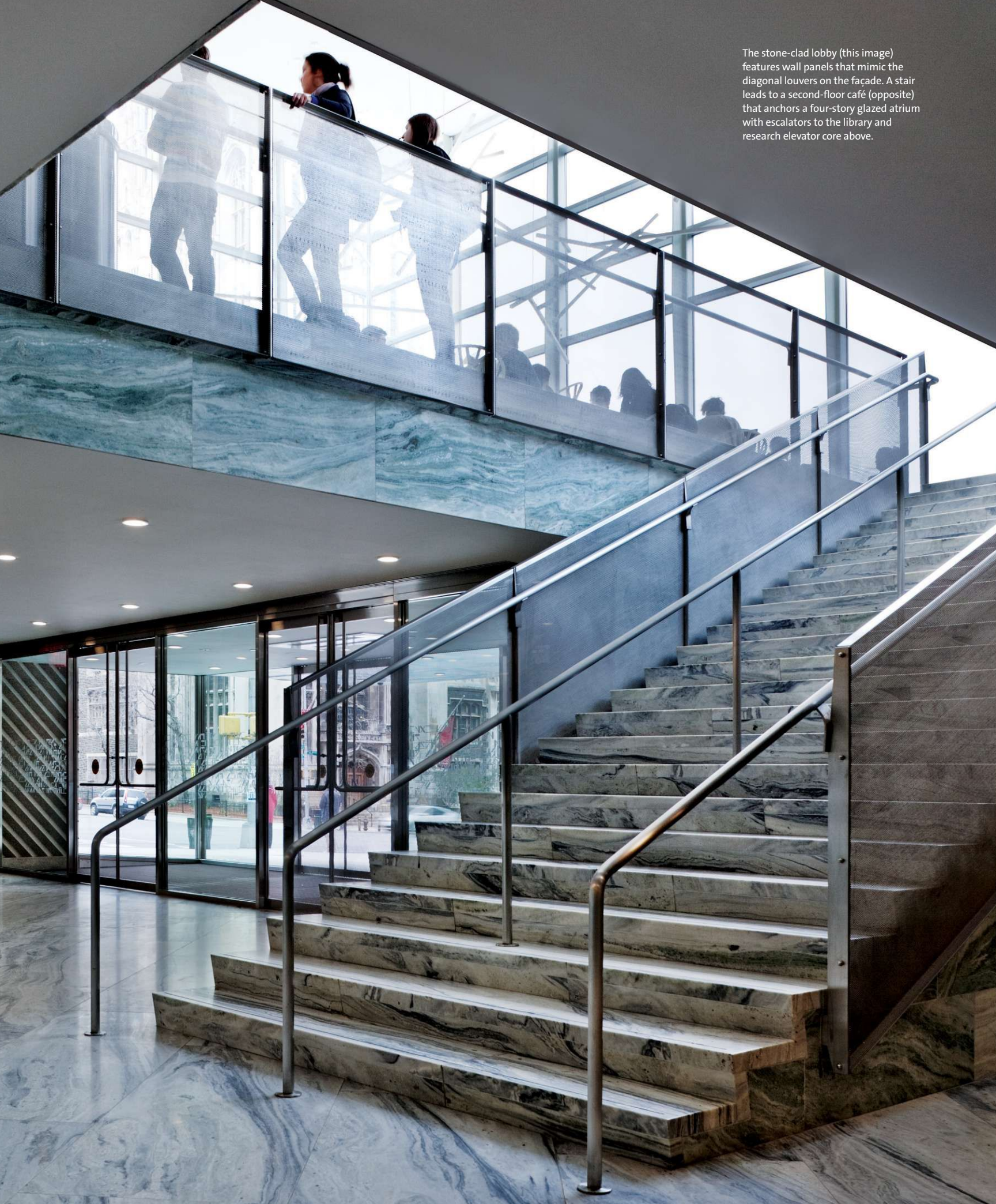
The café sits 12 feet above street level, offering views up Broadway to the new Manhattanville campus. The gymnasium entrance has been relocated to 120th Street, and a new exterior stair—partially made of recycled granite from the gymnasium’s former exterior—rises 30 feet from the sidewalk to provide a much-needed entry along the main campus’s northern perimeter. Most importantly, the stair activates the new public spaces and will eventually be a vital conduit connecting the Manhattanville campus. The bridge metaphor permeates all aspects of the project; it serves as a thoughtful end to one plan, and a gracious point of entry into a newer one.



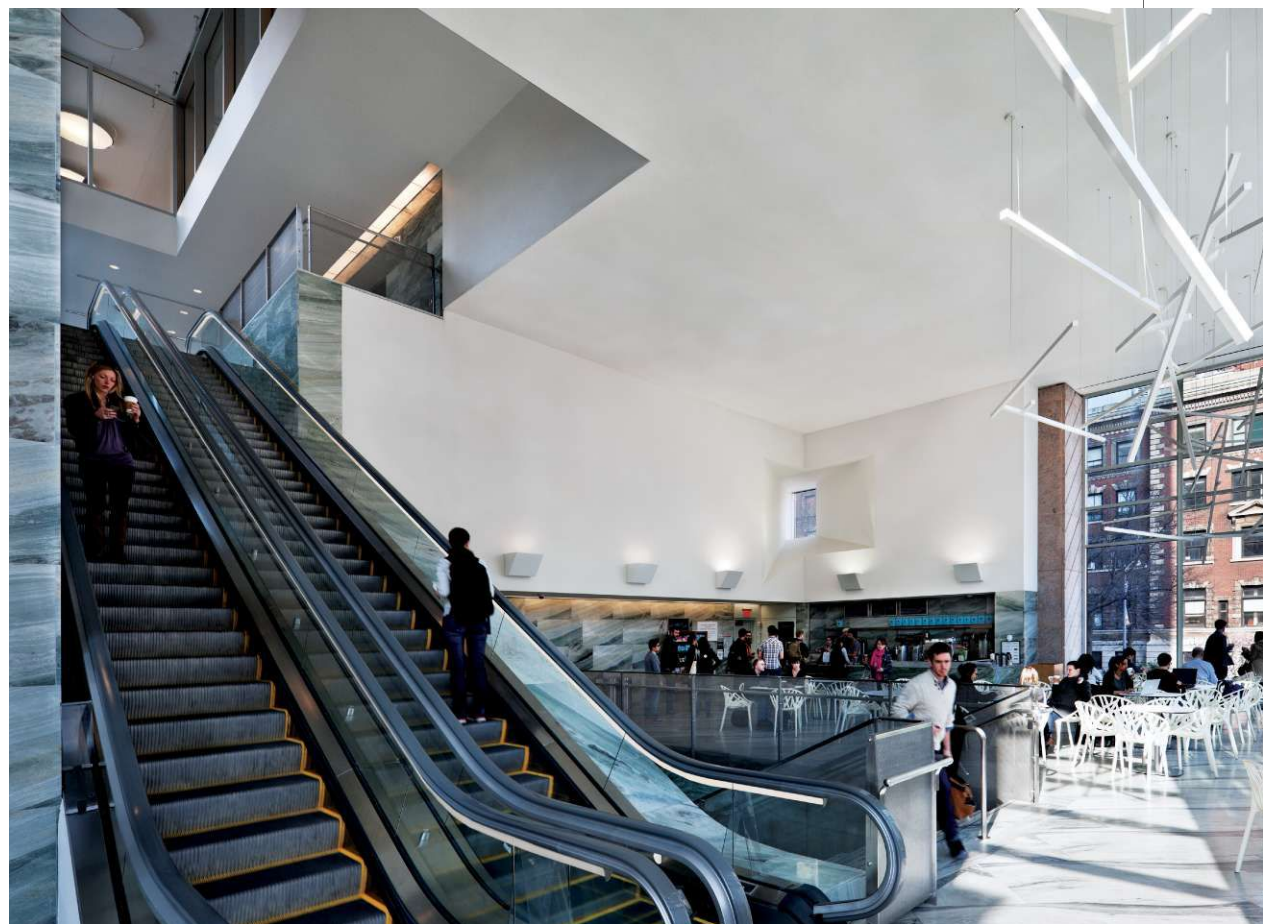
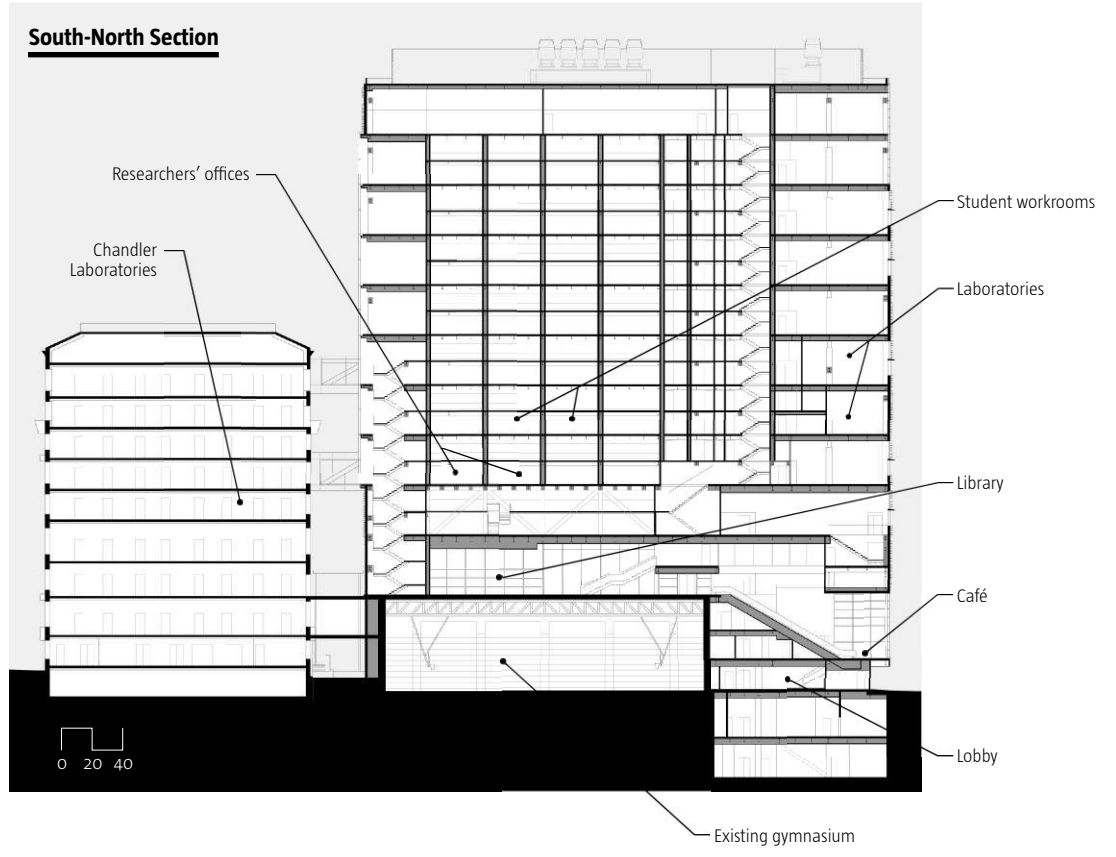




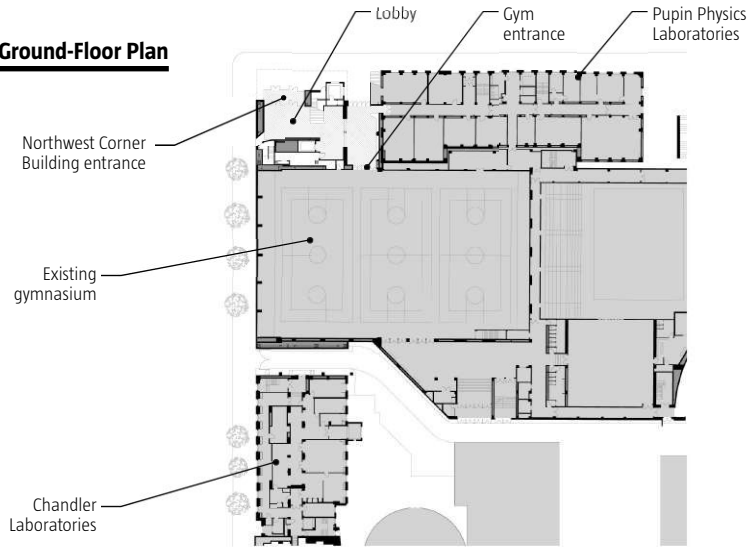
The east façade of the new Northwest Corner Building (preceding spread) faces Columbia's original Morningside Heights campus; largely glazed, the elevation clearly showcases the building's diagonally braced structure. The façades (including the north and west, this image) incorporate extruded aluminum louvers and clear anodized aluminum panels. A four-story bridge (opposite) cantilevers off the new building and connects with the existing Pupin Physics Laboratory next door. Additional bridges on the south face connect to Chandler Laboratories, farther down Broadway.



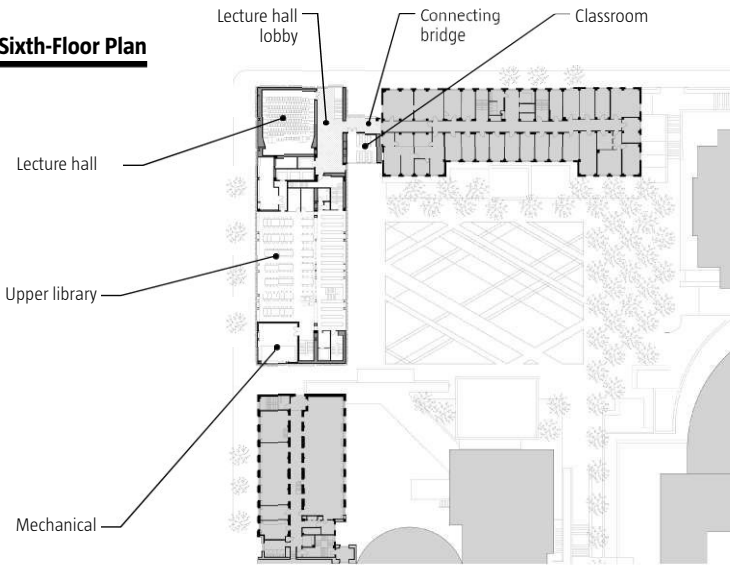
The stone-clad lobby (this image) features wall panels that mimic the diagonal louvers on the façade. A stair leads to a second-floor café (opposite) that anchors a four-story glazed atrium with escalators to the library and research elevator core above.



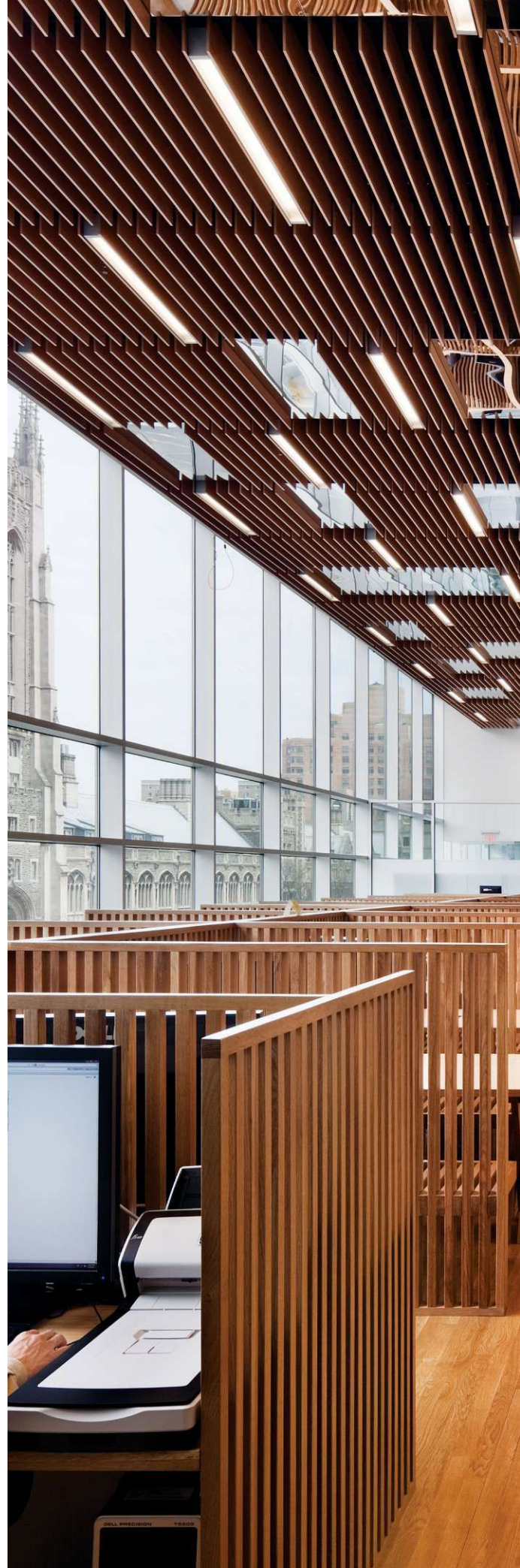
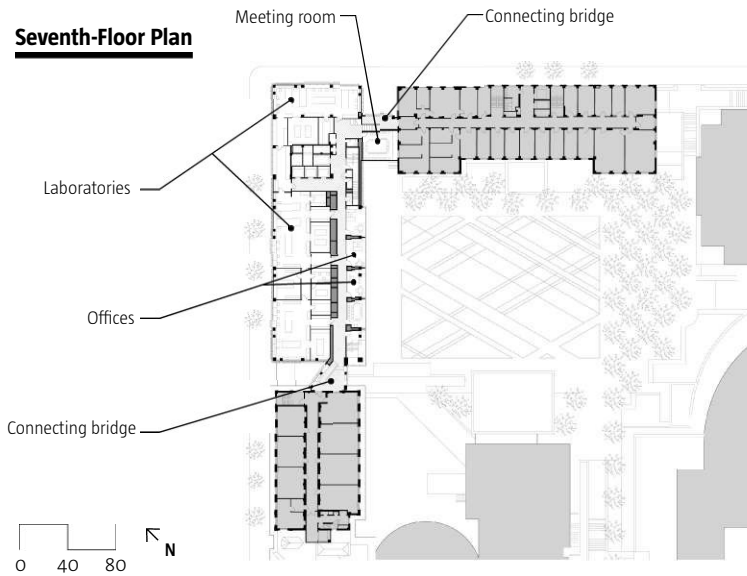
**Ground-Floor Plan**



**Sixth-Floor Plan**



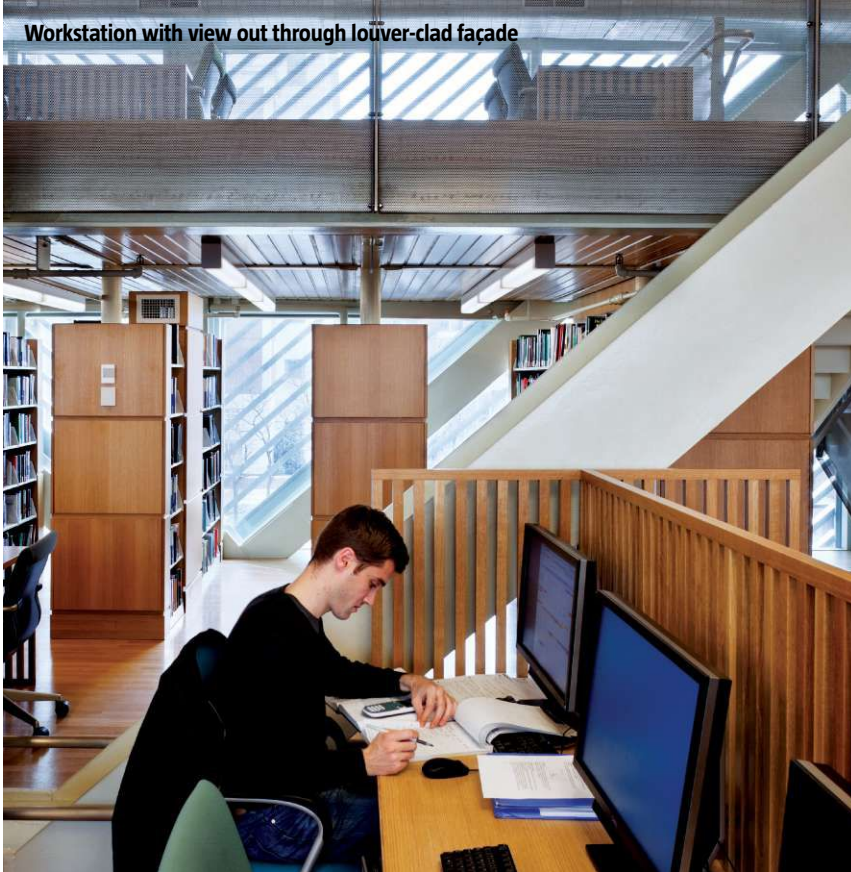
**Seventh-Floor Plan**



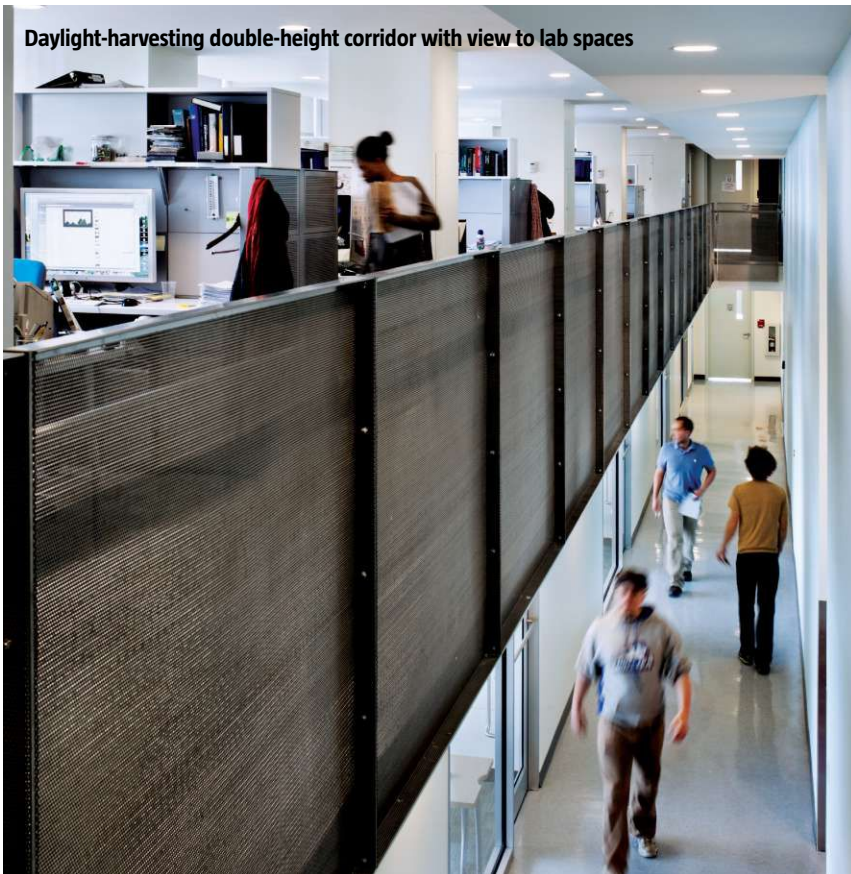


The engineering library (this image) has a wood-slat ceiling that again mimics the striations of the louvered façade panels. Inset mirrored panels reflect the students working and also reflect daylight to brighten the space.

Workstation with view out through louver-clad façade



Daylight-harvesting double-height corridor with view to lab spaces



## TOOLBOX: FAÇADE

The industrial aesthetic of the Northwest Corner Building's envelope is as complex as it is rational. After considering an infill approach to the façade, Moneo chose instead to develop cladding that is a literal expression of the building's truss system, giving particular emphasis to the regular distribution of the diagonal bracing.

To this end, the architects selected a unitized curtainwall system of textured, anodized aluminum panels. Fenestration drove the design to a large extent. Where diagonal braces were employed, the panels were opaque; where diagonals were absent, windows were introduced. Much of the façade is covered by extruded aluminum louvers, which serve two purposes: they protect windows from direct sunlight, and act as grilles for air intake.

The elegance of the façade belies the considerable effort of determining exactly where the diagonal braces would occur. After structural necessities for load were established, there remained opportunities for manipulating the structure to serve the architectural design. Arup's Dan Brodtkin, with project architect Jeffrey Brock of Moneo Brock Studio, created a computer model of the structural elements—columns, beams, slabs, openings, and cantilevers. The final result is a leaner structural system with exceptional performance. "The model shows how it's possible to have fewer pieces working harder, but it also gives the architect control of the resulting geometry," Brock says.

### Project Credits

**Project** Northwest Corner Building, New York

**Client** Columbia University

**Design Architect** Rafael Moneo with Moneo Brock Studio, Madrid—Rafael Moneo; Jeffrey Brock, Belén Moneo; Benjamin Llana, Spencer Leaf, Andrés Barron (Moneo Brock Studio project team)

**Associate Architect** Davis Brody Bond Aedas, New York—William Paxson, AIA (partner-in-charge); Mayine Lynn Yu, David Haft, AIA, Fernando Hausch-Fen, Gene Sparling, AIA, Mario Samara, Clover Linne, AIA, Dohhee Zhong, AIA, Veronique Ross, James Paxson (project team)

**Contractor** Turner Construction Co.

**Structural/Mechanical Engineer** Arup—Dan Brodtkin (structural); Josh Yacknowitz (mechanical)

**Façade Consultant** R.A. Heintges & Associates

**Geotechnical Engineer** Mueser Rutledge Consulting Engineers

**Environmental Engineer** RWDI

**Landscape Consultant** Langan Engineering & Environmental Services

**Lighting** Fisher Marantz Stone

**Cost Estimating** Wolf and Co.

**Size** 188,000 square feet

**Construction Cost** Withheld

### Materials and Sources

**Façade and Curtainwall** W&W Glass [wwglass.com](http://wwglass.com)

**Steelwork** Banker Steel Co. [bankersteel.com](http://bankersteel.com)

**Metalwork** Champion Metal

**Concrete** Commodore Construction [commodoreconstruction.com](http://commodoreconstruction.com)

**Stone** MGC Stone Co.

**Millwork** Centre Interiors Woodworking Co.

**Glass** Viracon [viracon.com](http://viracon.com)

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The tower is built on a small site in Boston's historic Copley Square. Designed by Henry Cobb, FAIA, the building had to be massive enough to accommodate the owner's requirements, yet mindful of its delicate and historic surroundings.

The solution was a smooth, reflective glass tower with no spandrel panels and minimal mullions. To minimize its intrusion on the adjacent landscape, the building is rhomboid in shape and placed diagonally on the site, so its shorter, slightest side faces the church and plaza.



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# PARKER HANNIFIN EUROPEAN HEADQUARTERS

ETOY, SWITZERLAND  
WESTLAKE REED LESKOSKY

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TEXT BY KATIE GERFEN  
PHOTOS BY THOMAS JANTSCHER



## DESIGNING A CORPORATE HEADQUARTERS ON ANOTHER CONTINENT CAN PRESENT A CHALLENGE, BUT HAVING THE RIGHT BUSINESS RELATIONSHIPS IN PLACE CAN HELP ENSURE A SMOOTH DESIGN PROCESS.

**FOR U.S. ARCHITECTS** working abroad, an unfamiliar system of codes and business mores can present serious obstacles. But having a knowledgeable team in place can help turn those strictures into the defining qualities of a design. In the case of Parker Hannifin's new European headquarters, designed by Cleveland-based Westlake Reed Leskosky (WRL), that team began with a close relationship with their client.

Parker Hannifin Corp. is a Fortune 500 company that manufactures motion-control technologies: It produces everything from O-rings, to hoses, to aircraft brake systems. Based in Ohio, the company first engaged WRL to design a corporate campus, completed in 1997, as the end result of a move from a historic building in downtown Cleveland to a site in Mayfield Heights, just outside the city.

When it came time for the company to move its European headquarters from Hemel Hempstead, England, to Etoy, Switzerland, Parker engaged WRL again, this time to do an analysis of needs for land

use. In Switzerland, such a study is required before property is acquired; a local ordinance states that new landowners must prove that they will use the land that they purchase. "You need to demonstrate that you're not taking advantage of the land," says lead designer Ronald A. Reed, FAIA. "What they don't want is a building on 50 acres saying, 'Back off.'"

Once the land use was proven, WRL was again brought on, this time to lead master planning and design. "We felt they had a pretty good understanding of our corporate culture and what we wanted to see," says Bob Bentz, corporate manager of facilities engineering and construction at Parker. The next step was to hire a local architect. Parker and WRL each did their own research, and collaborated on a short list. Then a team spent two days meeting with several firms. "It got me used to the idea of traveling to Europe for a couple days at a time," Reed says. Some interviews were positive, others disastrous. But the one with Burckhardt+Partner made it immediately clear that the two firms would



The new Parker Hannifin Corporate Headquarters is designed with future growth in mind. All public spaces are located at one end of the building (this image), with offices to the east, so that the company can expand with another office wing to the west. A triple-glazed envelope (below) with integrated blinds marks the offices.



work well together, with WRL as the lead. “They felt like a Swiss version of us,” Reed says. “The comfort level was palpable.”

Reed worked hand-in-hand with Oliver Henninger, project director at Burckhardt+Partner, who helped WRL navigate the specifics of local codes. Henninger also served as Reed’s eyes on the ground, and the two were also on the same page in terms of design and detailing. “It was an extraordinary partnership,” Reed says.

The resulting 75,000-square-foot building is sited on a hill in a corporate development. An auditorium and sales center anchor one end, with an office wing extending out to the east. The design was about “marking the horizontal datums of the rise of the hill,” Reed says.

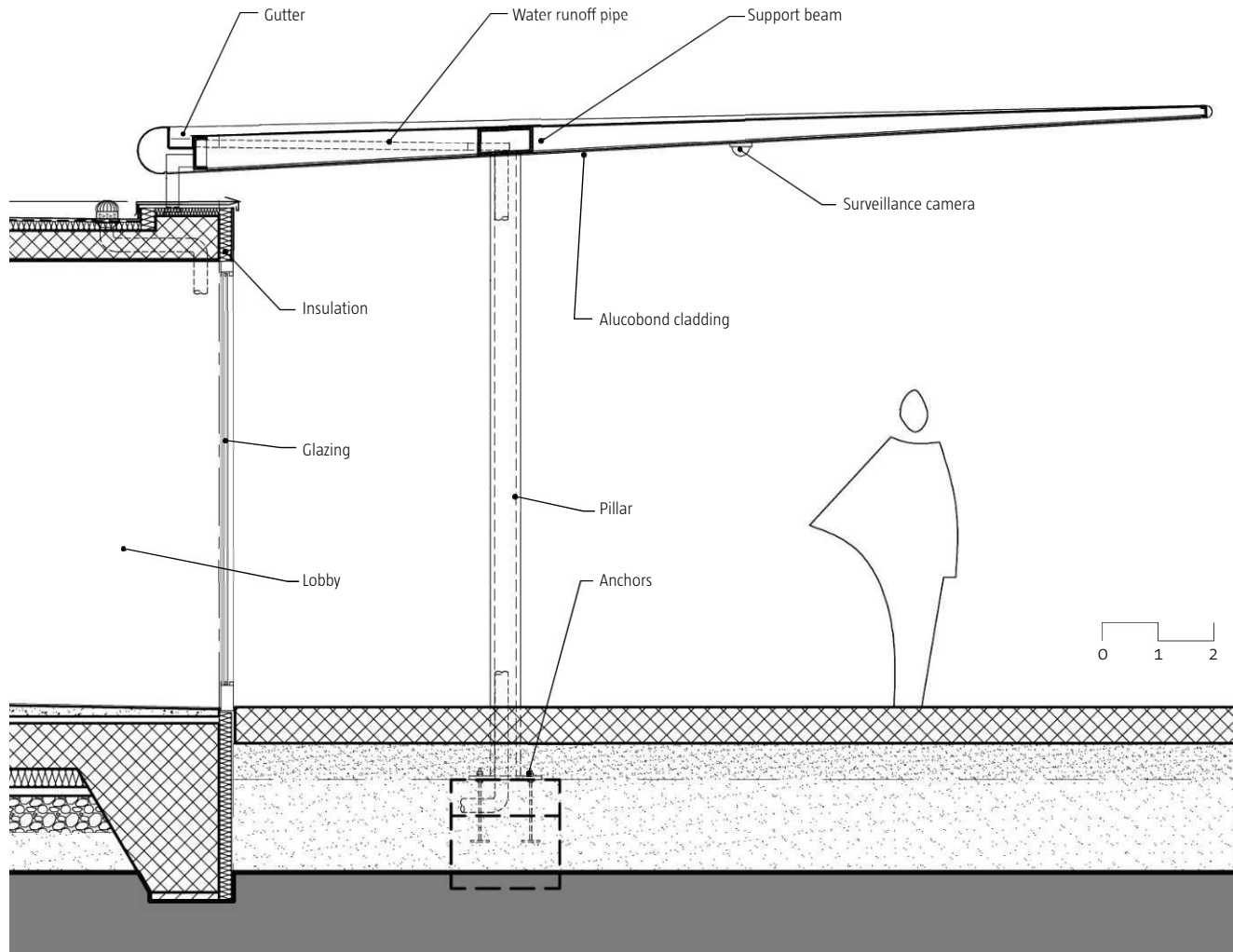
“One of the most exciting things to us ... [about the process] were the lessons about sustainability,” Reed says, but those lessons did not always manifest themselves in obvious ways. The use of natural ventilation in European offices is so prevalent as to be taken for granted. In the Etoy project, however, natural ventilation was at odds with noise regulations, so the entire envelope had to be sealed. “Because of the proximity to a four-lane major thoroughfare, the noise levels were too high to allow operable windows,” Reed says. And a train station on the other side offered no relief. “We had decibel issues all over the building,” he recalls.

A triple-glazed façade helps to insulate against the ambient noise, and it also reduces heat gain. A standard double-glazed insulated glass unit makes up the inside wall, followed by a 9-to-10-inch airspace filled with a mechanized shading system. Another pane of glass forms the exterior surface. “In Switzerland, ... [air conditioning is determined by] a delta,” Reed says. “Meaning that the interior space only has to be 10 degrees cooler than the outside. If it’s 76 outside, it might be cooled to 72, but if it’s 90, it’s going to be 80.” So limiting heat gain was crucial to maintain interior comfort and cut down on energy usage.

The glazing addressed another ordinance that requires views to the outside for every employee. “We have a very nice view of Lake Geneva,” Bentz says. “It’s not just a wow factor for customers, but for our employees as well.” A narrow floor plate that runs 25 feet from core to curtainwall—a departure from U.S. high-rise projects which, Reed says, run closer to 42 to 45 feet—ensures that everyone can see the view.

Despite the sizable learning curve, Reed cites this project as having one of the most rewarding processes of his career, largely because of the “incredible respect that existed between all parties.” And if Parker decides to expand this building as it did at its headquarters in Ohio? Perhaps the partnership can continue.

### Canopy Section



A knife-edged canopy at the entrance shows the differences between standards in the U.S. and in Europe. "At its thickest, the canopy is about 9 inches, and it tapers to 3 inches," Reed says. A similar canopy in the U.S. was slated to be 2 feet thick to cut down on production costs. By contrast in Switzerland, Reed says, the attitude is "don't use more resources than necessary for what you are trying to achieve."



**Project Credits****Project** Parker Hannifin European Headquarters, Etoy, Switzerland**Client** Parker Hannifin Corp.**Design Architect** Westlake Reed Leskosky, Cleveland—Ronald A. Reed, FAIA (principal and lead designer); Nancy Nozik, AIA (project director); Scott Snyder (design assistant)**Architect of Record** Burckhardt+Partner, Lausanne, Switzerland—Philipp Brühlmeier (partner, principal); Oliver Henninger (associate, project director); Philippe Noverraz (senior architect)**Interior Designer** Westlake Reed Leskosky—Ronald A. Reed, FAIA**Ventilation (Mechanical) Engineer** Weinmann-Energies**Structural Engineer** MP ingénieurs conseils**Electrical Engineer** Betelec**General Contractor** HRS Real Estate—Patrick Stillhart (project manager);

Jean-François Caron (site manager)

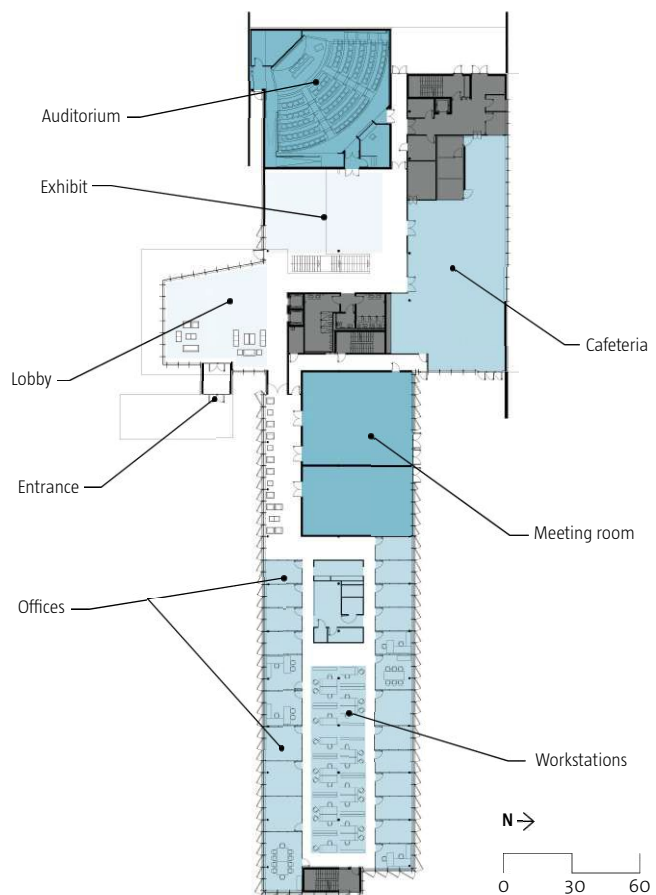
**Landscape Architect** La Touche Verte**Acoustician** AAB J. Stryjenski et H. Monti**Façade Engineer** BCS**Security Engineer** Hautle Anderegg + Partenaires**Geotechnician** Karakas & Français**Sanitary Engineer** TP**Size** 75,000 square feet**Cost** Withheld**Materials and Sources****Appliances** Gétaz Romang (kitchenettes) getaz-romang.ch; Siemens (dishwasher and fridge) siemens.com; Ginox (professional kitchen) ginox.ch**Building-Management Systems and Services** Siemens siemens.com**Carpet** Interface (Accent Flannel 338087 Grey Kelt in offices) interfaceglobal.com; Tisca (Wilton Standard velour, 80% wool/20% nylon in board room) www.tisca.ch**Ceilings** MWH Barcol-Air (active ceilings with heating and cooling through the metal ceiling panels) mwh.ch**Concrete** Vistona (waterproof concrete in basement walls and slab) vistona.com**Exterior Wall Systems** Marmoran (EIFS) maxit.ch; Fahrni Fassadensysteme (aluminum curtainwall, compact double-skin façade) fahrni.com**Fabrics and Finishes** Creation Baumann (Phantom II in auditorium) creationbaumann.com**Flooring** RAK Ceramic tiles (Riviera, in kitchen and bathrooms) rakceramics.com; Nora Systems (Norament 925, in staircases) nora.com; Earthwerks (Concrete Sky PVC slabs in kitchenettes and copy rooms) earthwerks.net**Furniture** Mobimex mobimex.ch**Glass** Trösch (façade) glastroesch.ch**Gypsum** Rigips (stud walls system) rigips.ch**HVAC** Klima; Hälg Building Services Group haelg.ch**Roof** Bauder (waterproofing membrane; EPS t vapor barrier; Bauder PIR polyurethane insulation) bauder.de; Gravel; Geneux Dancet geneuxdancet.ch**Lighting** Regent (Regent GEO) regent.ch**Masonry and Stone** Concrete and sand-lime bricks**Metal** Berisha Sàrl (structural works) berisha-sarl.ch; Morand (staircase railings) morand-sa.ch**Millwork** Marobag (doors) marobagsa.ch; Wider (decorative) w-wider.ch**Paints and Finishes** Duca ducasa.ch**Plumbing and Water System** Perret Sanitaire saniperret.ch**Site and Landscape Products** Pépinières Soupe (trees and plants) pepinieres-soupe.com; Ménétrey (installation) menetrey-sa.ch**Walls** Strähle Raumsysteme (System 3400 glazed office partition walls;

System 2000 solid office partition walls) www.straehle.de;

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**Ground-Floor Plan**

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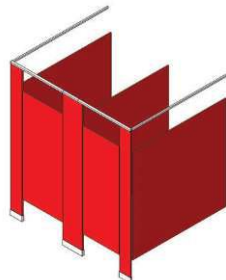
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→1985 P/A AWARD

# 20TH-CENTURY DESIGN FOR A 21ST-CENTURY PARK

BERNARD TSCHUMI'S SCHEME FOR THE PARC DE LA VILLETTE PRESENTED A NEW, CONTROVERSIAL PARADIGM FOR URBAN PARKS.

TEXT BY JOHN MORRIS DIXON



**1985 P/A Awards Jury**  
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**SWISS-BORN ARCHITECT** Bernard Tschumi, FAIA, with offices in New York and Paris, won an international design competition for a park on 125 acres that formerly held Paris's slaughterhouses. His scheme, an "urban park for the 21st century," was heralded as the first built demonstration of philosopher Jacques Derrida's deconstructivist theories.

A grid at 400-foot intervals was marked out on the flat site by bright red "follies," which serve varied purposes (cafés, information kiosks, etc.), each a variation on a 36-foot cube. The plan's underlying geometry was not arbitrary, but was aligned with two large structures to be retained on the site and the old canal bisecting it. Superimposed on this grid were meandering paths devoted to lawns and themed sunken gardens, including

a bamboo grove and a miniature vineyard. Far from bucolic, the park was programmed to include a science museum and an exposition conference hall (in the existing buildings), plus a variety of performance halls.

Tschumi's design was controversial in 1985 and still is. The Project for Public Spaces website includes this park in its Hall of Shame, saying, "Once the novelty of the structures wears off, there is little to sustain one's interest or imagination." But the website's user comments almost all defend the park, noting that it is consistently well populated, with a younger and more diverse demographic than Paris's traditional parks. Its impromptu soccer games are praised. One supporter writes that Parisians who go there would probably give it "an overwhelming thumbs up." □

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