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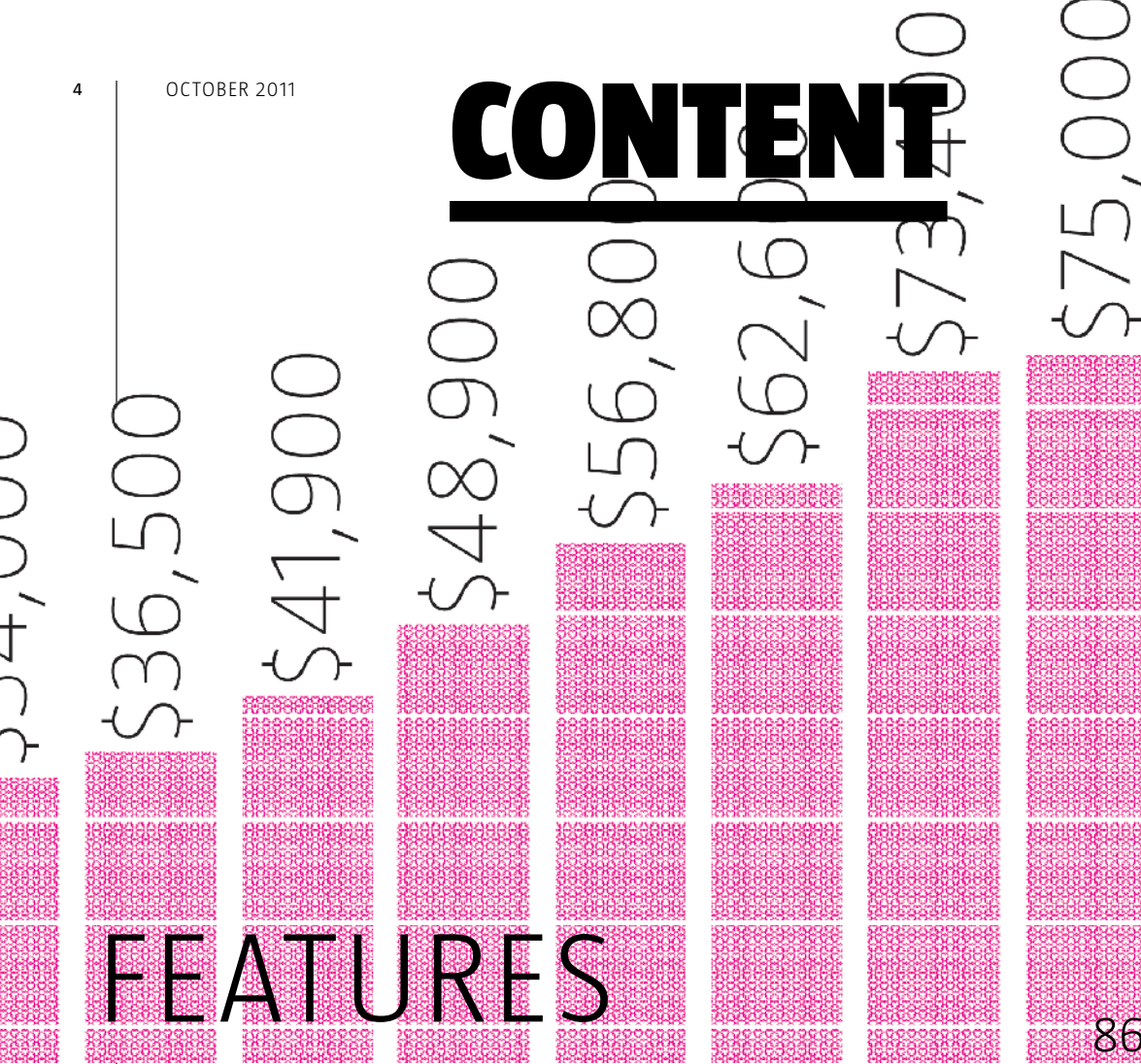
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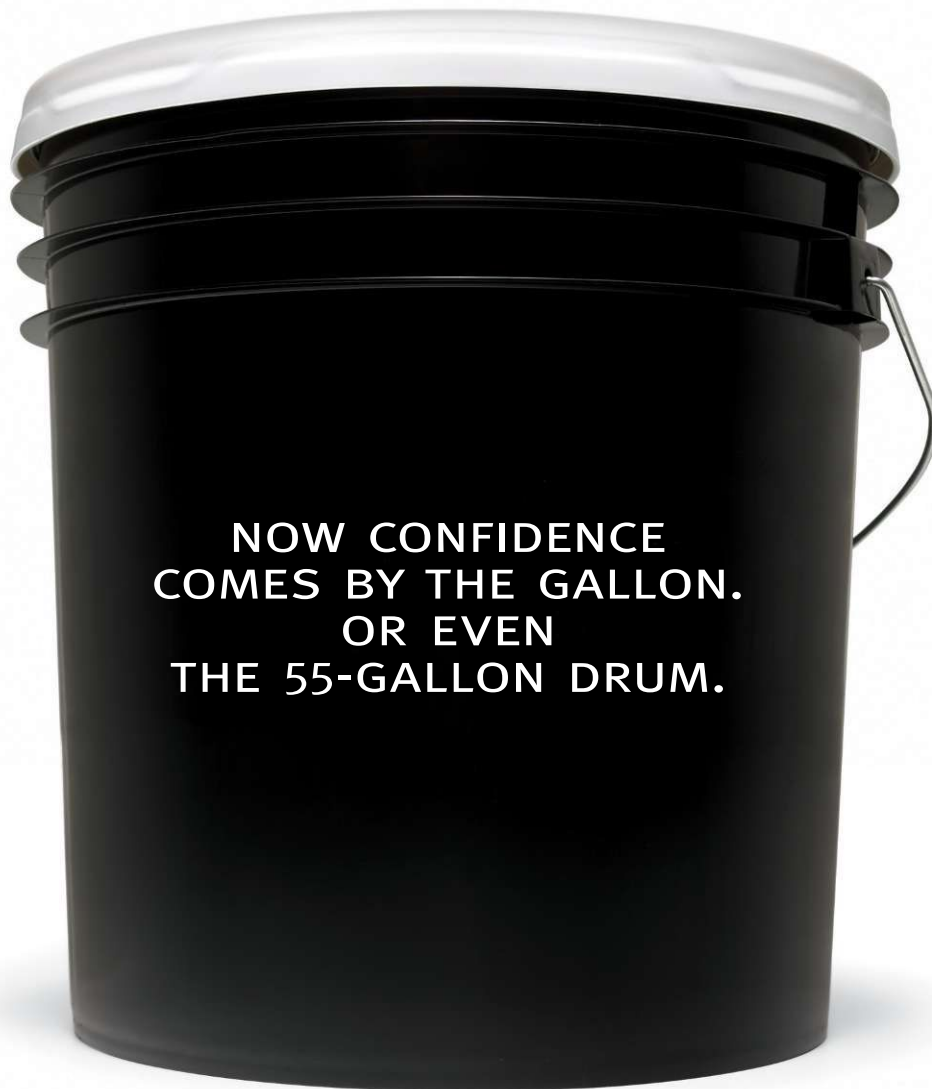
Follow a conversation between architects about the new Martin Luther King Jr. National Memorial in Washington, D.C.

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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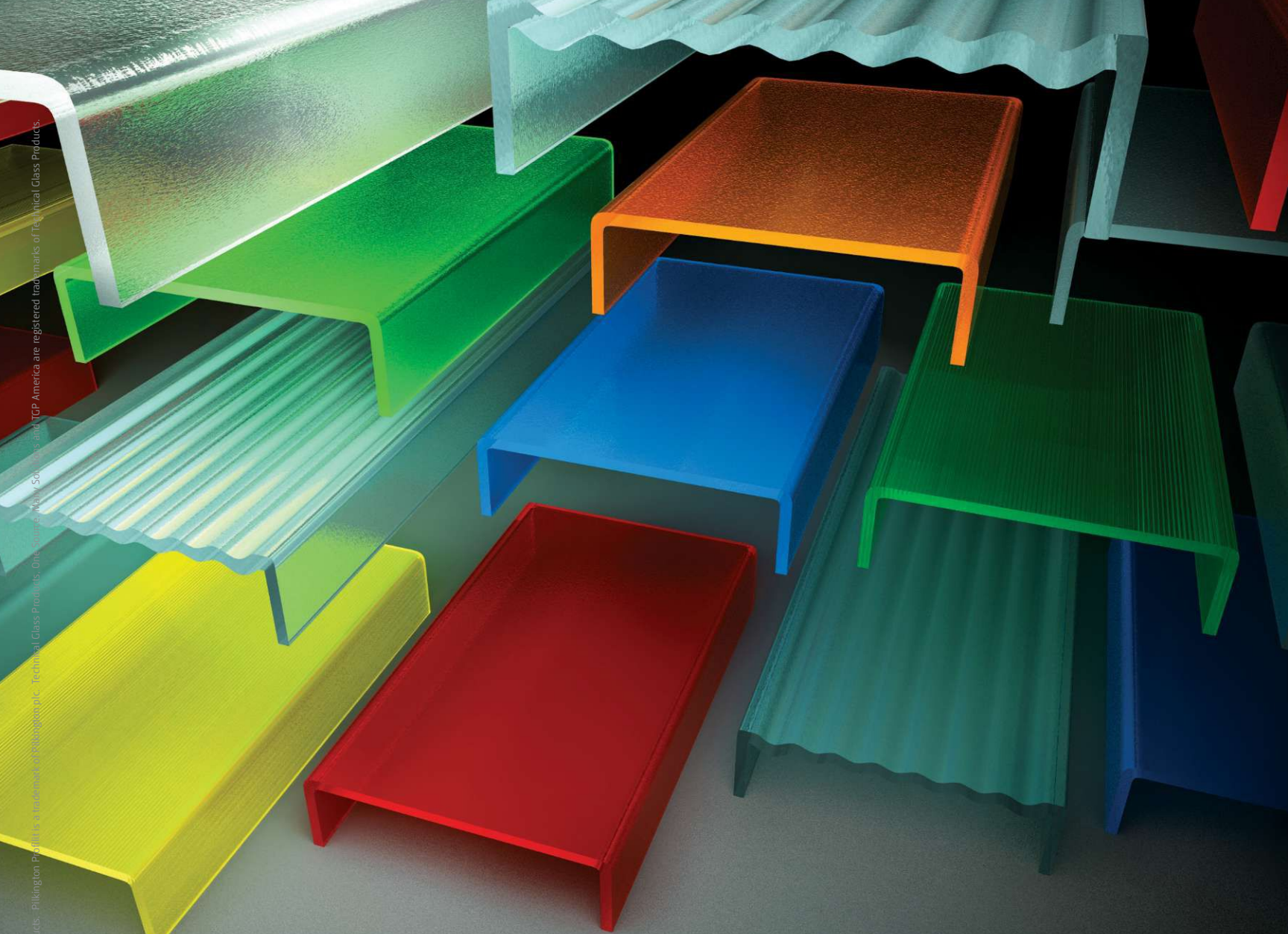
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Ned Cramer, Assoc. AIA
ncramer@hanleywood.com

MANAGING EDITOR
Greig O'Brien
gobrien@hanleywood.com

SENIOR ART DIRECTOR
Aubrey Altmann
altmann@hanleywood.com

SENIOR EDITOR, BUILDINGS
Katie Gerfen
kgerfen@hanleywood.com

**SENIOR EDITOR, FEATURES
AND RESEARCH**
Eric Wills
ewills@hanleywood.com

ASSOCIATE ART DIRECTOR
Marcy Ryan
mryan@hanleywood.com

**ASSOCIATE EDITOR,
DEPARTMENTS**
Kriston Capps
kcapps@hanleywood.com

**ASSISTANT MANAGING
EDITOR**
Lindsey M. Roberts
lmroberts@hanleywood.com

GRAPHIC DESIGNER
Michael Todaro
mtodaro@hanleywood.com

ASSISTANT EDITOR, NEWS
Alex Hoyt
ahoyt@hanleywood.com

SENIOR WEB PRODUCER
Amy Wiersum
awiersum@hanleywood.com

CONTRIBUTING ARTISTS
Ian Allen, Peter Arkle,
Catalogtree, Noah Kalina,
Mike Morgan

CONTRIBUTING EDITORS
Ernest Beck; Aaron Betsky;
Blaine Brownell, AIA;
Elizabeth Evitts Dickinson;
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773.824.2411

**GROUP PUBLISHER,
COMMERCIAL DESIGN**
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rellis@hanleywood.com
202.736.3310

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202.736.3457

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MANAGER, WEST**
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mweinstein@hanleywood.com
562.598.5650

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MANAGER, CHINA,
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Judy Wang
judywang2000@yahoo.cn
0086.10.64639193

**REGIONAL SALES
MANAGER,
UNITED KINGDOM, EUROPE**
Stuart Smith
stuart.smith@ssm.co.uk
44.020.8464.5577

**GROUP PUBLISHING
SUPPORT MANAGER**
Angie Harris
aharris@hanleywood.com
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MARKETING MANAGER
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**ADVERTISING ACCOUNT
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EDITORIAL AND ADVERTISING OFFICES

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EQUITY & INCOME

PRIDE WAS HARDLY THE EMOTION I expected to feel upon reading the AIA's 2011 Compensation Report. What reaction did I anticipate having? Perhaps mild interest in some detail such as the differences in income from region to region, or a touch of boredom from perusing such a data-intensive report. But to be perfectly honest, what I really expected to feel was sadness at the negative effects of the recession on peoples' livelihoods.

Given the state of the economy, it should come as no surprise that compensation is down across the board. And that is not good news. But the dip isn't consistent at every rung on the career ladder—which is where the report gets interesting, and even inspirational.

Here are the basics. Executive compensation has dropped from an average of \$208,600 in 2008 (the last time the AIA conducted the survey), to \$164,800 this year. That's a mighty big drop. On the other hand, the three other core job categories (senior managers, architects and designers, and interns) actually saw an increase, which means that principals and partners gave modest raises to their employees, even as their own take-home shrank.

Unfortunately, when pay is adjusted for inflation, pretty much everyone came out a loser. As I read the numbers, however, the important takeaway is not just that compensation is down, which one would expect under the circumstances, but that the percentage of income lost *decreases* the further down one looks on

the totem pole: senior staff lost 3 percent in the three-year gap between surveys; architects and designers lost 1.7 percent; and interns lost 0.3 percent. Everybody got pinched, but the pain that they felt was proportionate to their station. Those who make the least money took the smallest cut.

There are plenty of reasons why the numbers may have played out the way they did. But, ever the optimist, I believe that the proportional income distribution evident in the 2011 survey was at least in part the result of deliberate action—and wise leadership—on the part of architecture executives. A proportional compensation policy is good business: There's no long-term value, but there is long-term harm, to be had in alienating prospective architects and future industry leaders by offering a low entry-level pay grade. Architecture should attract, and retain, the very best minds possible.

Moreover, a proportional pay policy is the right thing from an ethical perspective. Families supporting themselves on less than \$50,000 a year feel small fluctuations in income much more acutely than families making six figures. I know I couldn't look my staff in the eye if I ever took a raise at their expense. It makes me proud to think that the profession's leadership feels the same way.

Ned Cramer

LETTERS

In Ned Cramer's "Goose Bumps and Ballyhoo" editorial for the August issue, we asked you, our readers, for "your architectural goose-bump moments." And many of you responded. Here is a selection of those responses.

I've had plenty of goose-bumps moments: touring Rome for the first time, walking a half-mile away from the Cologne Cathedral to contain the façade in my camera viewer, entering the red-veined-marble and bright-brass lobby of the Empire State Building. But after visiting Fallingwater with my husband (also an architect), coming across a photo of it still brings out a gasp. *Linda Derivi, AIA, Stockton, Calif.*

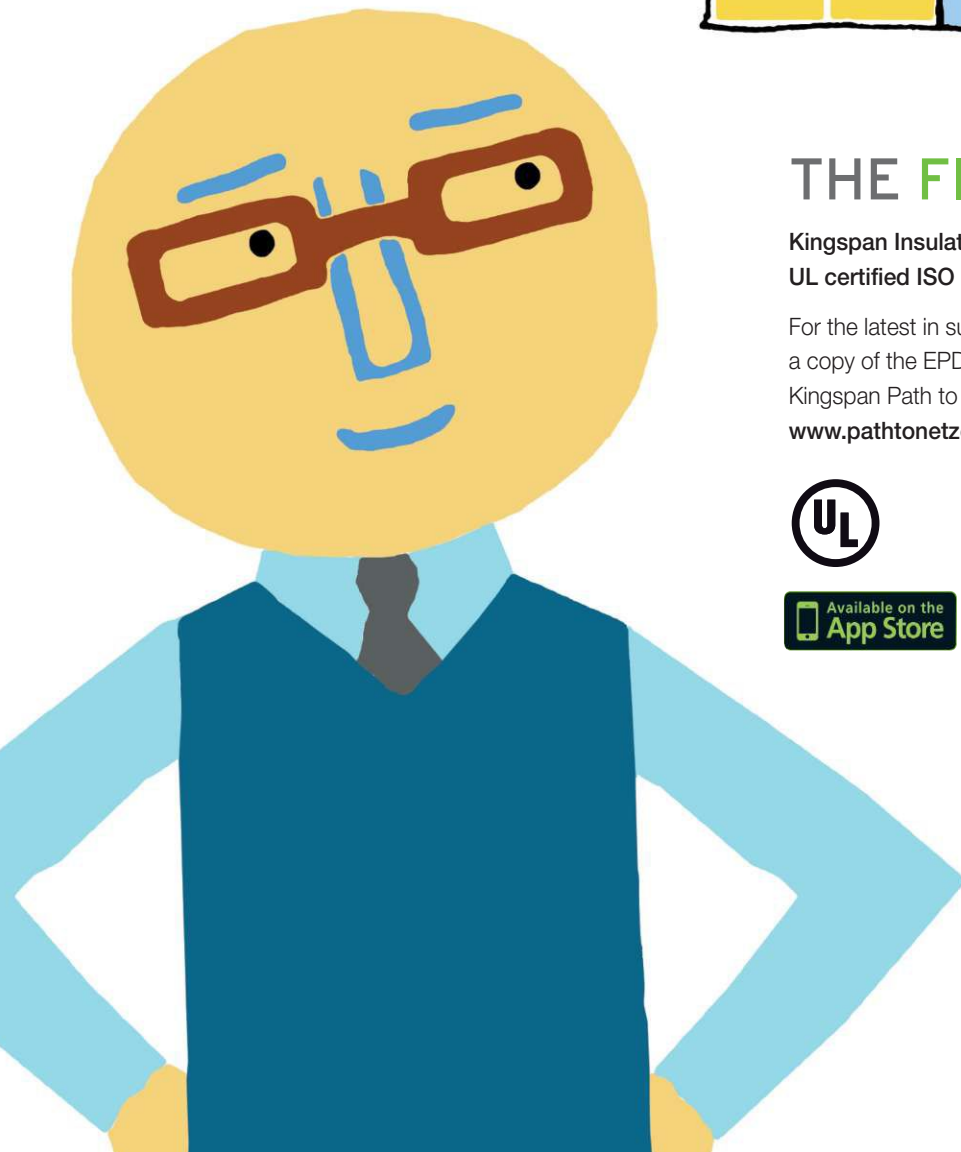
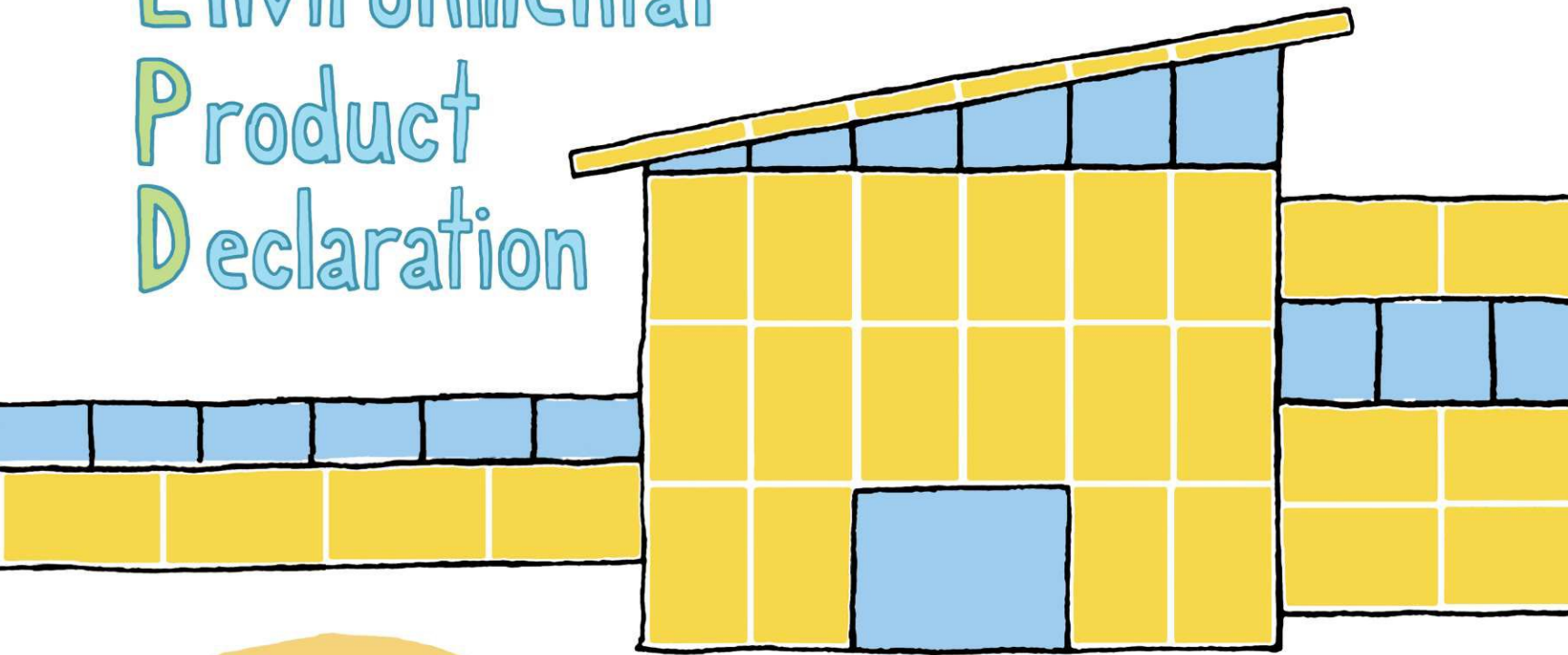
After college and Vietnam, I spent four-and-a-half months driving through the U.S. and Europe. Nothing can compare to standing 6 feet from Michelangelo's *La Pietà* in St. Peter's (before that idiot attacked it and they moved it a football field away from viewers). It was a spiritual enlightenment. *Rick D. Clark, AIA, San Diego*

The first time I visited Carlo Scarpa's restoration of the Castelvecchio in Verona, Italy, I was in graduate school. My day spent exploring the nooks and achingly particular crannies of that renovated castle was one of constant discovery and inspiration.

I had the good fortune to return on a family vacation this past June. But what made it that much more special was that I could share my passion with my 12-year-old son and eight-year-old daughter. I love what I do, and it is in no small measure due to the impact of that one building that I do it. *John Noble, AIA, Cincinnati*

I've seen a lot of great buildings, but my goose-bump moment was when, at age 12, the sales staff let me pore over the CDs of the homes being built in my development. I went every week and took copious notes so I could reproduce them on my drawing board. I remembered the architect's name (David Baumgartner, AIA) and called him 27 years later to thank him for jump-starting my career. I'm still in awe at age 42 when

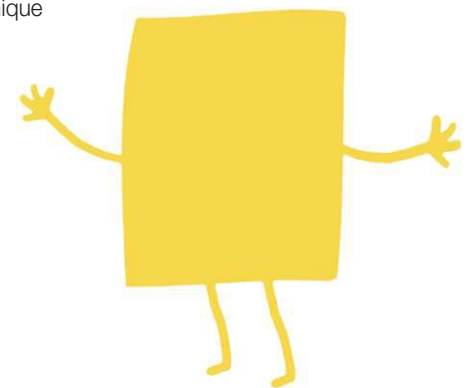
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I finish a set of CDs with my stamp on them. I couldn't do anything else. *Colin Edward Slais, AIA, Scottsdale, Ariz.*

Sir John Soane's House and the Pantheon are of that order for me. I have to add the Duomo in Florence, Italy; the Doge's Palace and Carlo Scarpa's Fondazione Querini Stampalia in Venice, Italy; and the Potala Palace in Lhasa, Tibet. *Sherwood Case, Long Beach, Calif.*

Seeing Fallingwater for the first time while in architecture school. Visiting Philip Johnson's Glass House while carrying my infant daughter. Touring Kahn's Salk Institute. Visiting the Acropolis in Athens as the sun set. Seeing David for the first time in Florence. *Jerry Bronstein, AIA, Malvern, Pa.*

I didn't exactly get goose bumps the first time I stepped inside the Pantheon. It was more like vertigo—that sudden feeling of expansive space you get when standing at the edge of a cliff or looking out over vast expanses of water. Until then, I had assumed that feeling was reserved for nature, unattainable by mere humans. But the Pantheon was a reminder that architecture has sublime power too. *Christine Moser, Assoc. AIA, New Orleans*

I recall walking into Fallingwater. I'm 6-foot 2-inches tall; the ceilings are not a whole lot higher. It made me

realize, instantly, that there is no way to truly understand architecture through photographs. Architecture must be experienced. *Peter Piven, FAIA, Philadelphia*

Almost every day that I go out to a client meeting or whatever, I plainly hear Wagner's *Flight of the Valkyries* playing in my head. I can't help but think that I am being sent forth to solve the world's problems, albeit only the architectural ones. Gives me goose bumps. And pumps me for the meeting. *Eric V. Horstman, AIA, Dallas*

I spent the entire school year of 1972–73 in Florence, as one in a class of 16 fourth-year architecture students from Cal Poly at San Luis Obispo, in the California International Studies Program. I had goose bumps every day. *Eric Charles Parlee, AIA, Pasadena, Calif.*

I got goose bumps when I researched the destroyed Baroque castle in Karlsruhe, Germany, and found in the archives the original drawings that Balthazar Neumann submitted for the architectural competition in the 18th century. Unfortunately, he did not get the job. *Otto Reichert-Facilides, FAIA, Philadelphia*

Seeing long-lost fellow architecture graduates after three decades. There were hugs, tears, and plenty of stories to acknowledge how our group had bonded for five years

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at the university, and, now 30 years later, we were still a unique family. *Russ Angelo, AIA, Charlotte, N.C.*

Some of my most treasured and inspiring architectural moments were triggered by Giovanni Michelucci's Chiesa dell' Autostrada del Sole in Florence, Eero Saarinen's TWA Terminal at JFK Airport, Helmut Jahn, FAIA's United Airlines Terminal at O'Hare, and James Hubbell's chapel at Sea Ranch, Calif. *Dennis Paoletti, FAIA, San Francisco*

In 2000, I was in Los Angeles with a list of iconic modern architecture that I wanted to see. High on the list was Pierre Koenig's Case Study House #22. I came to a security gate, and, after a brief hesitation, I hopped over the fence. A guy was loading photography equipment into a van; he was a location scout there to document the house. I figured I'd made it this far, so I asked him if I could take a few photos. He went to see, and returned saying the owner had invited me in. I walked through the breezeway to the pool area and there in front of me was that famous house. The owners, Carlotta and Buck Stahl, welcomed me, allowed me to take as many photos as I wanted, and shared stories of their life in the house. Carlotta said, "You have to come back and see the house at night," and proceeded to give me the security code for the gate.

I could hardly wait for the sun to set. I punched in the code and drove through. I walked through the breezeway

and there before me was the ethereal vision I was so familiar with: the illuminated glass box precariously perched on the edge of darkness over a vast sea of twinkling city lights. *Tom McElroy, AIA, San Francisco*

To touch and breathe and absorb a space that once only existed as an idea. There is nothing quite like transforming imagination into built form. It is humbling, rejuvenating, and emotional all at once. Thanks for reminding me why I do what I do. And thanks for doing what you do. *Robin R. Randall, AIA, Oak Brook, Ill.*

I was humbled, awed, and weak-kneed on a day-trip out to Bath last winter, when I first saw Robert Adam's Pulteney Bridge over the Avon and then sat on a bench on the greensward below John Wood the Younger's Royal Crescent. I still get tears thinking of those two gorgeous structures. *Robert Meyers, AIA Emeritus, San Francisco*

In a mind-numbing recession, I got goose bumps reading your positive editorial and realizing how fortunate we are in having a pie-eyed optimist as the editor of a professional journal supported by (amazingly) the American Institute of Architects. *Stanley Tigerman, FAIA, Chicago*

You can feed your kids goose, but you can't feed them goose bumps! *Terrance Thompson, Yuma, Ariz.*



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Contributors



Greig O'Brien

As ARCHITECT's managing editor, Greig O'Brien oversees the magazine's production, working with the art, editorial, online, and production teams. A native of upstate New York, O'Brien originally pursued astronomy and physics at Cornell University but changed to history and English. "It seemed as though research would involve sitting in a lab all day crunching numbers instead of looking at the sky," he says. "Instead, ironically, as a managing editor, I sit in my office all day and work on text, budgets, and schedules." While enjoying an externship at *The Washington Monthly*, he decided to go into magazine publishing. O'Brien joined the staff at *Popular Mechanics* in 2000 and rose to deputy managing editor. In 2008, he became managing editor of ARCHITECT, and serves in the same role for its sister publications *Architectural Lighting* and *Eco-Structure*. When not in the office, you can often find him at home, trying to satisfy his dog's insatiable desire to play fetch.



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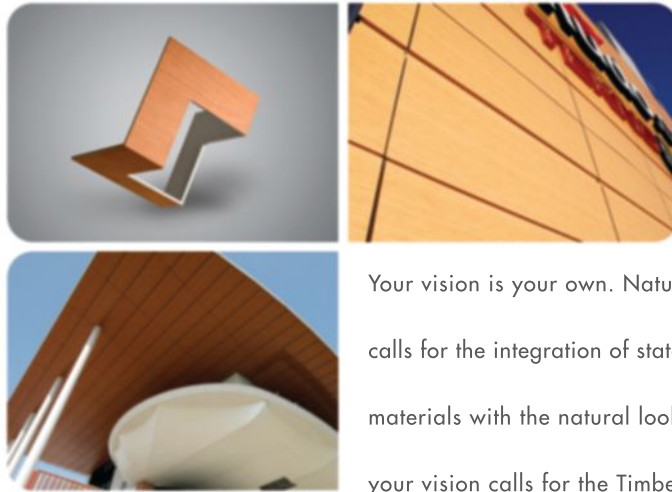
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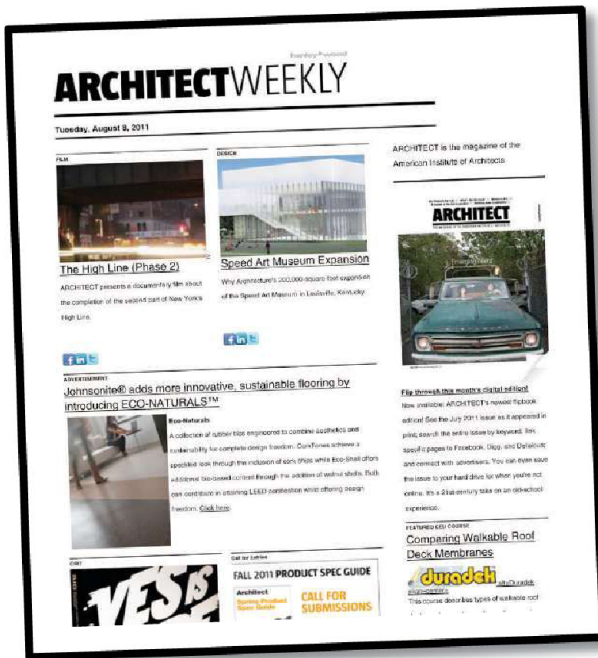
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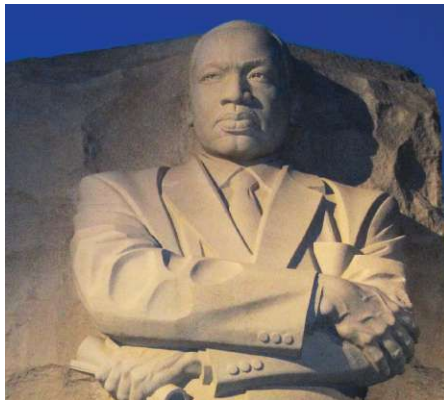
EDITED BY KRISTON CAPPS



THE SAN DIEGO UNION-TRIBUNE

Architects look to save the Chargers

A few San Diego-based architects hope to keep their professional football team by renovating Qualcomm Stadium, an aging field that won an AIA national design award in 1967.



THE WASHINGTON POST

MLK Memorial misquotes MLK

A clipped quotation on the newly unveiled memorial to Martin Luther King Jr. changes the original meaning, appearing to capture King in a boast—when he was warning against pride.



MLIVE.COM

Detroit skyscraper to be rehabbed

The long-vacant David Whitney Building in downtown Detroit will be revived by the Roxbury Group as a combination luxury hotel and boutique residential tower.

Jeanne Gang, Genius

For the first time in 11 years, an architect is among the annual class of MacArthur Fellows. Jeanne Gang, AIA, the 47-year-old founding principal of Chicago's Studio Gang Architects, is among 22 fellows to be awarded the \$500,000 grant by the John D. and Catherine T. MacArthur Foundation. The money is to be given without stipulation over the next five years.

An Illinois native, Gang is best known for Aqua, an 82-story residential skyscraper in Chicago revered for its rippling concrete-and-glass shell and distinctive curving balconies, which double as passive solar shading. Other notable projects include a modestly budgeted community center on Chicago's South Side and the tessellated, tortoise-inspired pavilion accompanying her Nature Boardwalk at the Lincoln Park Zoo.

The daughter of a civil engineer, Gang seeks to create structures with a local identity that also reverberate globally. Since 1998, she has served as an adjunct professor at the Illinois Institute of Technology. Her academic career also includes visiting professorships at the architecture schools of Harvard, Princeton, and Yale.

Gang is the first in the field to win a MacArthur Fellowship since Samuel Mockbee, who founded Auburn University's Rural Studio in Alabama, received the award in 2000. Ricardo Scofidio, AIA, and Elizabeth Diller, founders of Diller Scofidio + Renfro, won the award in 1999. Architectural critic and historian Ada Louise Huxtable received the fellowship in 1981, the first year it was awarded. ALEX HOYT

Solyndra Meltdown

PHOTOVOLTAIC PANELS are at the heart of a new scandal in Washington, one that threatens to undermine the Obama administration's support of alternative energy.

Solyndra, a California-based solar-panel manufacturer, declared bankruptcy in August, after receiving some \$535 million in federal loan guarantees since 2009. Critics, in particular Republicans, have accused the administration of fast-tracking the loans without due diligence.

Emails obtained by *The Washington Post* reveal that the White House may have pressed the Office of Management and Budget to accelerate the approval process for the nearly half-billion dollars in federal stimulus loans. In emails in 2009, OMB staffers said that they felt rushed to green-light the loans before they could sufficiently assess taxpayer risk.

Rep. Cliff Stearns (R-Fla.), chair of the House Energy and Commerce Committee, seized on the Solyndra scandal to slam President Obama, challenging that "green energy isn't

going to be the solution."

But Solyndra's failure is unlikely to lead to the end of energy subsidies altogether. Prominent congressional leaders, including Senate Minority Leader Mitch McConnell (R-Ky.), have appealed to the Energy Department for federal loans to support clean-energy projects in their home districts. Federal aid is critical to energy innovation, as energy firms spend far less on research and development than other private sectors, such as the pharmaceutical industry, according to the American Energy Innovation Council.

That didn't stop Solyndra's critics from forcing the issue. House Republicans demanded \$1.5 billion in spending cuts to clean-energy loans to partially offset \$3.5 billion in Hurricane Irene disaster relief for a continuing budget resolution in September. In the end, Senate Democrats and Republicans reached a budget compromise without pay-fors—but the status of federal clean-energy loan guarantees remains in question. KRISTON CAPPS



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35,000

PUBLIC SCHOOLS TARGETED FOR MODERNIZATION AND REHABILITATION UNDER THE OBAMA ADMINISTRATION'S PROPOSED AMERICAN JOBS ACT

SOURCE: AMERICAN JOBS ACT FACT SHEET

98

PERCENTAGE OF SMALL BUSINESSES WITH PAYROLL UNDER \$5 MILLION WHOSE PAYROLL TAXES WILL BE CUT BY HALF

SOURCE: AMERICAN JOBS ACT FACT SHEET

100,237

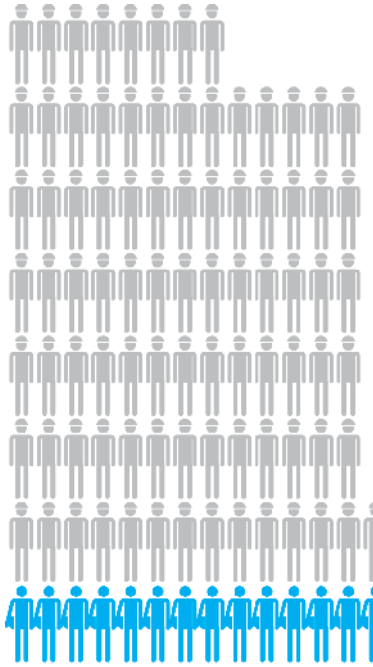
JOBS IN THE SOLAR ENERGY SECTOR AS OF AUGUST 2011

SOURCE: NATIONAL SOLAR JOBS CENSUS 2011

6.8

PERCENTAGE GROWTH IN SOLAR JOBS FROM AUG. 2010 TO AUG. 2011

SOURCE: NATIONAL SOLAR JOBS CENSUS 2011



13.5

UNEMPLOYMENT RATE IN CONSTRUCTION SECTOR, AUG. 2011

3.5

PERCENTAGE DECLINE IN EXISTING HOME SALES IN JULY 2011



4.4

PERCENTAGE DECLINE IN HOME PRICES FROM JULY 2010 TO JULY 2011



32

PERCENTAGE DECLINE IN HOME PRICES SINCE 2006 PEAK



SOURCE: S&P/CASE-SHILLER COMPOSITE 20-CITY HOME PRICE INDEX

→ NUMBERS

The Jobs Front

TEXT BY KRISTON CAPPS
ILLUSTRATIONS BY DAVID FOSTER

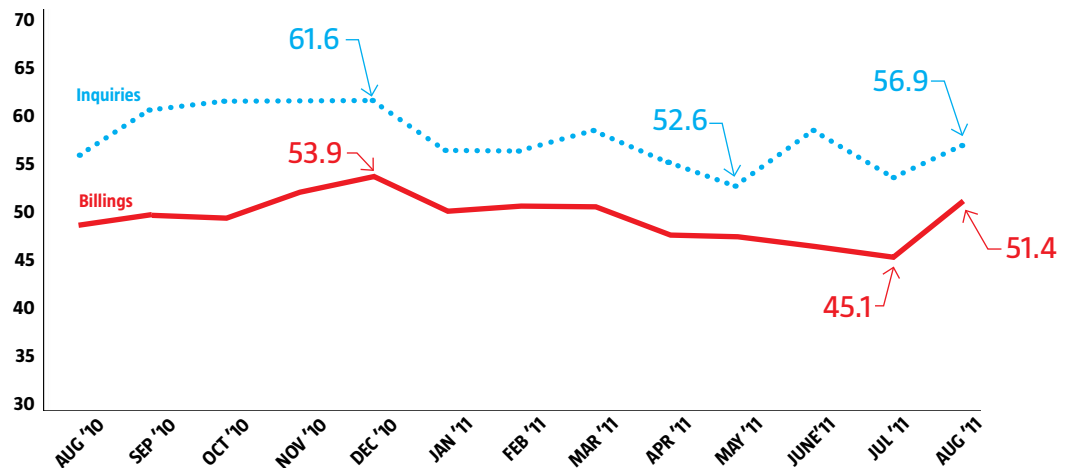
EVEN AS PRESIDENT BARACK OBAMA and House Speaker John Boehner prepare to square off again over the deficit, the proxy for the argument has shifted from the debt ceiling to jobs. And not a moment too soon, either: According to the U.S. Bureau of Labor Statistics, unemployment nationwide was 9.1 percent in August.

The situation facing the design industry is more dire still. Unemployment in construction remained high at 13.5 percent in August. And before an August uptick in the Architecture Billings Index, indicators had shown contraction for four straight months. So it may come as a relief that President Obama's proposed American Jobs Act includes some specific prescriptions for putting building back on track.

Should Congress pass the legislation, some 35,000 schools will be targeted for modernization and rehabilitation. The proposal to cut payroll taxes by half for 98 percent of small businesses would be welcome news to architecture firms. And a bipartisan National Infrastructure Bank could spark new investment in stalled infrastructure projects.

Partisan rancor following the declaration of bankruptcy by the California-based solar-panel manufacturer Solyndra—which received some \$535 million in federal loan guarantees—may undermine clean tech as an avenue for job creation. Meanwhile, jobs in the solar-energy sector increased by 6.8 percent from Aug. 2010 to Aug. 2011, according to the National Solar Jobs Census 2011. It remains to be seen whether this trend will survive congressional skepticism.

BILLINGS AND INQUIRIES INDEXES

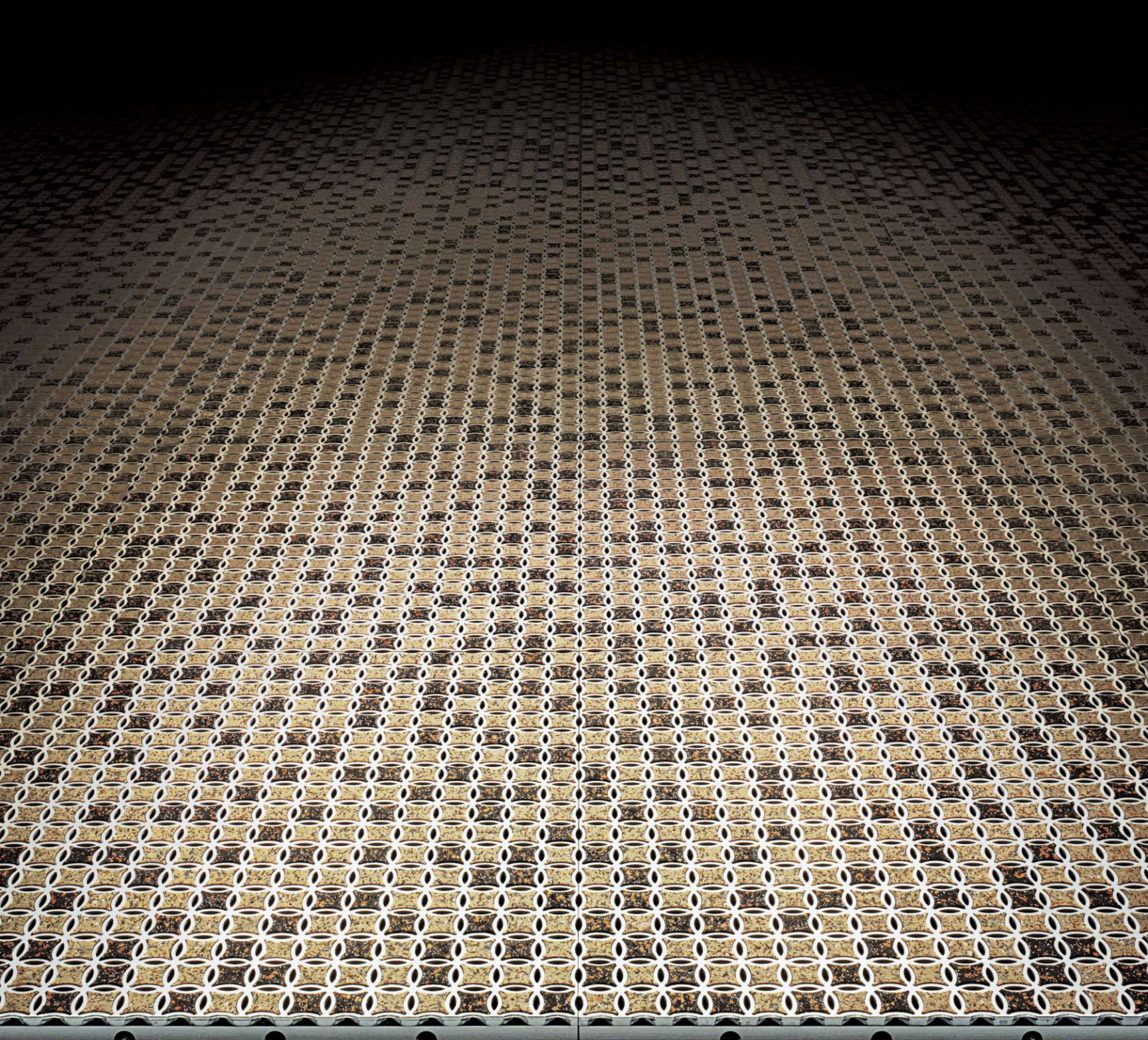


AUGUST 2011 ARCHITECTURE BILLINGS INDEX

↑ 51.4

- ↓ 46.0 commercial
- ↑ 48.5 institutional
- ↑ 50.9 mixed practice
- ↑ 44.8 multifamily residential

SOURCE: AIA



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On the Boards



U.C. Berkeley Art Museum & Pacific Film Archive

DILLER SCOFIDIO + RENFRO

Formerly housed in Mario Ciampi's 1970 Brutalist icon, the University of California at Berkeley's Art Museum and Pacific Film Archive—which make up the school's visual arts center—are moving to a 1939 Art Deco printing plant wrapped in a sleek, zinc-panelled addition. Initial designs by Tokyo-based Toyo Ito, Hon. FAIA, called for the plant's demolition, but were abandoned due to a prohibitive \$150 million budget. New York-based Diller Scofidio + Renfro created a new \$90 million scheme that preserved the existing building, combining old and new in what Charles Renfro, FAIA, calls "a very sartorial way." The museum's broad-ranging collection will inhabit the existing 10,800-square-foot plant; excavation of a new basement level will add a 12,500-square-foot gallery for light-sensitive art. The Pacific Film Archive will be housed in the 30,000-square-foot addition, which will include a theater, café, and film library. "We've found a middle ground between making highly expressive architecture and also a highly respectful vessel for art," Renfro says. The museum and archive will open in 2015. **ALEX HOYT**



University of Minnesota Cancer and Cardiovascular Research Building

ARCHITECTURAL ALLIANCE AND ZGF ARCHITECTS

Plans are under way for a new Biomedical Discovery District (BDD) on the Twin Cities campus of the University of Minnesota, which will include 700,000 square feet of research space and house up to 1,000 scientists.

Designed by Architectural Alliance and ZGF Architects, the 285,000-gross-square-foot Cancer and Cardiovascular Research Building will serve as a front door to the larger district, and will house a shared research commons, researcher offices, laboratory spaces, and public areas such as a café and a seminar room. It will house a portion of the faculty and staff associated with the expanding cancer and cardiovascular research programs on campus. The majority of the skin is brick, and a curving curtainwall frames a public plaza, which serves as "the iconic element that forms the gateway to the district," says Tim Williams, project manager at ZGF. Offices are located along the curving façade, which places them close to the building's lab spaces, and creates a "greater connectivity" between the two, Williams adds. Now under construction, the building will open in 2013. **KATIE GERFEN**





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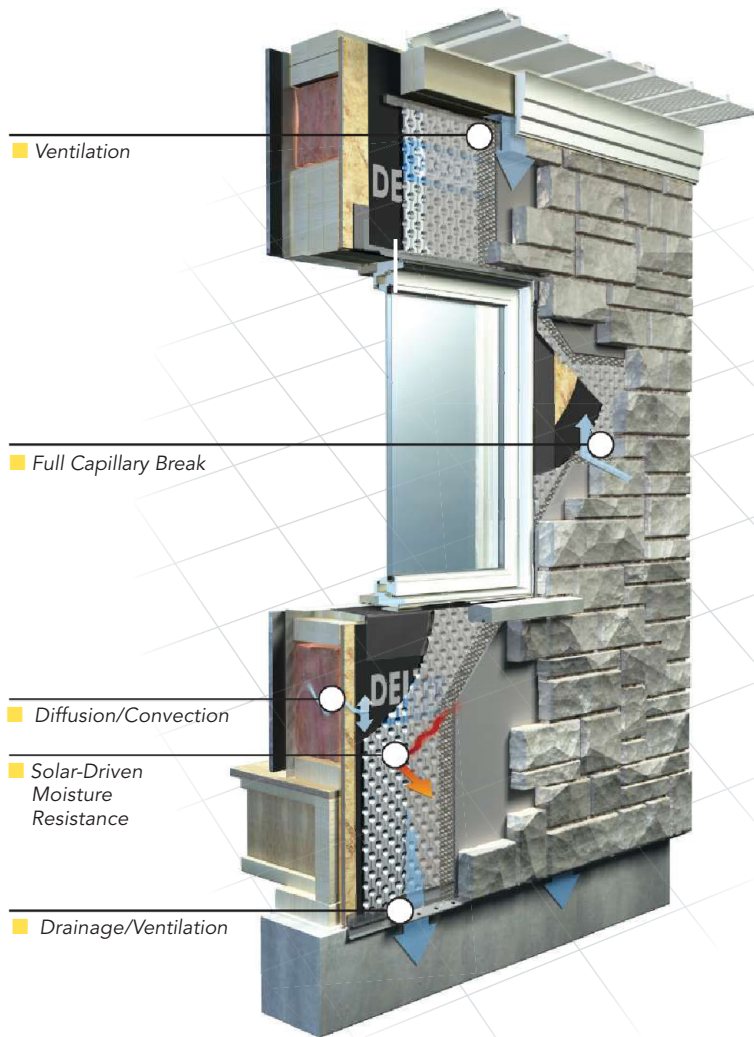
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AIA VOICES

ONSITE IS NOT YOUR TYPICAL FIRM, BUT ITS PRINCIPALS ARE PURSUING AN ELEMENTAL PRACTICE.

Founded by Marie Zawistowski, Architecte DPLG, and Keith Zawistowski, Assoc. AIA, GC, OnSite is a design/build practice which draws on the two principals' shared experience at Auburn University's Rural Studio in Alabama, the building traditions of southwest Virginia (where they live), and the classroom. The Virginia Tech School of Architecture + Design's first professors of practice, the Zawistowskis are recipients of Graham Foundation grants, and in 2011, were awarded NCARB's \$25,000 grand prize for the course Designing Practice. "As creative professionals, we should be as creative about our approach to business as we are about design," Keith says. The business model of OnSite is "one project at a time."

The Rural Studio was a life-changing experience for us, as human beings and designers. We knew what we were getting into in terms of the Rural Studio's values. Because we were outreach students—in other words, we weren't from Alabama—Sambo [Rural Studio co-founder Samuel Mockbee] took us around on what he called his "Southern Odyssey"—the building traditions, the food, and the music. We became totally immersed in that culture—learning about a side of architecture that we didn't know existed.

But it was really a total immersion in a specific place. Our design/build practice is called OnSite, which is to say that we live and work in a place—a specific place—and we teach that as a value to our students. We encourage personal approaches to design and architecture, and we encourage students to find their own course.

When you think about the architect as master builder—that old idea—it forces you to consider who is on the ground, involved in

every step of the project's design, sourcing materials, and making the physical project. So we use the term "design/build" to describe our firm because one of the things that matters to us is initiating a complete approach to a project—becoming a partner in the project. It means going out and finding the clients, and helping those clients with funding, designing, and building.

We give a lecture together called "High-Tech/Low-Tech," which deals with minimal means in terms of materials or funding, and we talk about developing a high-tech system that draws on what's locally available. In the case of the Covington Farmers Market [pictured above], all of the goods sold there are produced within 100 miles. And so our students, who designed and built the project, tried to source building materials within that same radius as well.

It's about fostering a culture of initiative and resourcefulness for us—making something happen that couldn't happen otherwise. It goes beyond the regular scope of an architect's work. You become a person in the community who can identify a problem and find a solution to it.

Over the last few years, there's something that we've found—a strategy of dealing with clients: Most clients don't care what you, the architect, like or what buildings you think are interesting. But when you describe architecture in terms of how it solves a problem, then it makes sense for them regardless of what they think a building should look like. —As told to William Richards **AIA**

➔ To see Keith and Marie's work, visit onsitearchitecture.com.

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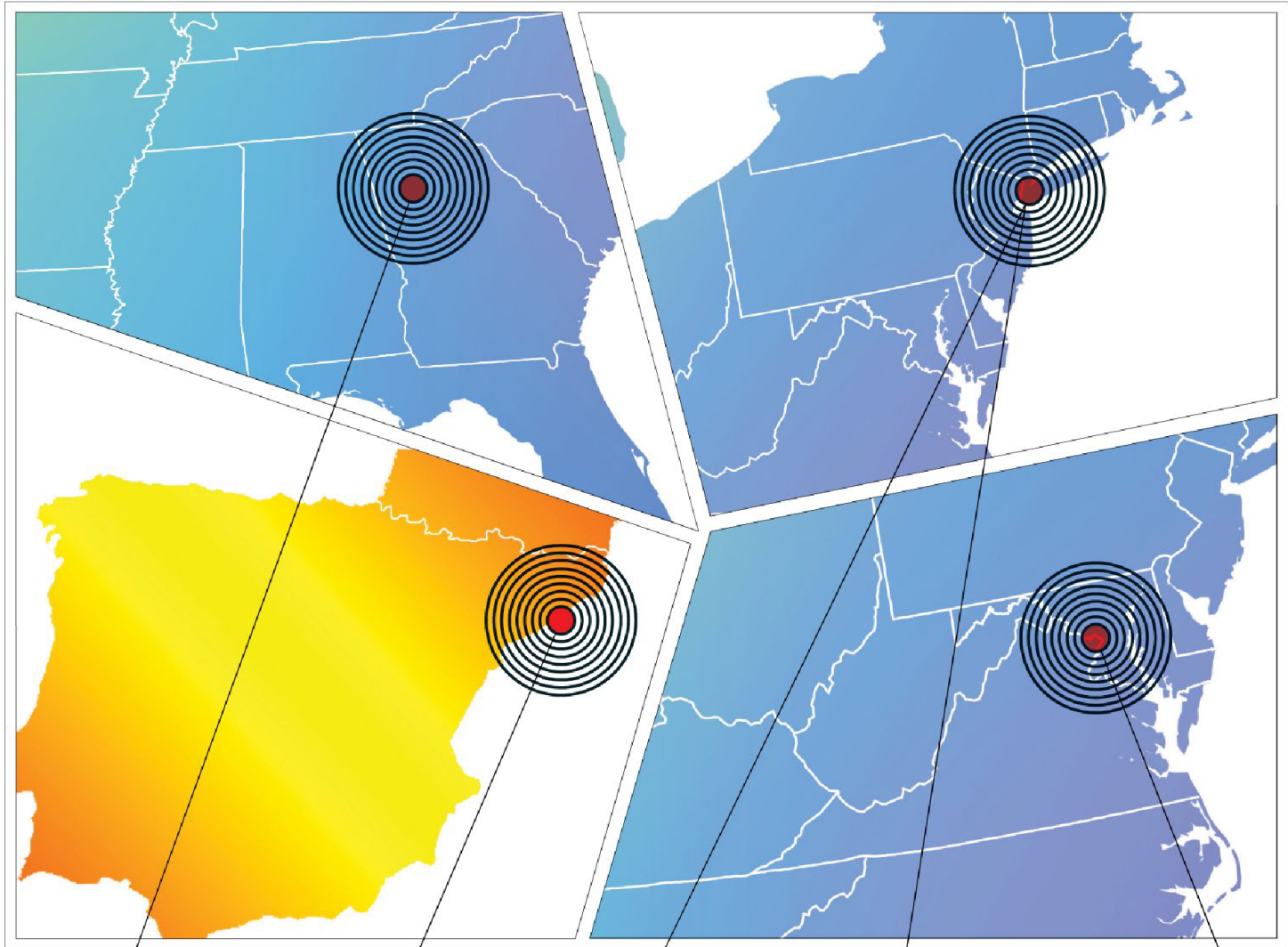
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ATLANTA

Growing Diversity

Fostering professional diversity is every architect's responsibility, and, since its founding in 1971 at the AIA National Convention in Detroit, the National Organization of Minority Architects (NOMA) has been on the front lines. NOMA celebrates its 40th anniversary this month in Atlanta by hosting its annual conference, entitled "Architects as Visionaries." Scheduled events include student presentations for a "transit village" at Atlanta's Ashby MARTA station as well as the results of a professional design competition. The conference takes place Oct. 20–22.

➔ Learn more at noma.net.

BARCELONA

All the World's Watching

Technology has made a global practice possible for everyone. Join more than 1,400 architects at the fourth-annual World Architecture Festival (WAF) in Barcelona, Nov. 2–4. Billed as the world's largest interactive global design awards program, the event draws together designers, product manufacturers, provocateurs, and thought-leaders from 65 countries. One of the highlights will be the Gallery, which will offer more than 700 designs from 59 countries.

➔ Learn more at worldarchitecturefestival.com.

NEW YORK

Archtober

Why take a week to celebrate architecture when you can take the whole month? Archtober is currently under way in New York, hosted by AIA New York, the Center for Architecture Foundation, and Openhousenewyork. Lectures, tours, films, exhibitions, and what organizers promise to be "special access to sites" underscore not only the general value of design, but how architecture shapes our everyday lives.

➔ Learn more at archtober.org.

NEW YORK

Site Work

The AIA, Culture Now, and AIA New York City pilot a new public engagement tool allowing architects and others to stream stories about new and iconic buildings of New York via the Web and smart phone platforms. The service, offered through Broadcastr, uses streaming audio of designers sharing insights into their work. To be included: America's Favorite Architecture poll winners matched with post-9/11 voices from design. AIA New York's Archtober participants will join the mix next month, and the AIA hopes to bring this service to other cities in 2012.

➔ Learn more at broadcastr.com and click Featured.

WASHINGTON, D.C.

Best Practices

Design is serious business and you need serious advice. The AIA's Practice Management Knowledge Community has reorganized, culled, and expanded the online compendium of nearly 400 AIA Best Practices, which now align with *The Architect's Handbook of Professional Practice*. Best Practices continue to evolve, and you can join the discussion by emailing pm@aia.org.

➔ Learn more at aia.org/practicing/bestpractices.



AIAPRACTICE

BRANCHING OUT

Architects are offering supplemental services as a way to stay afloat in a tough economy.

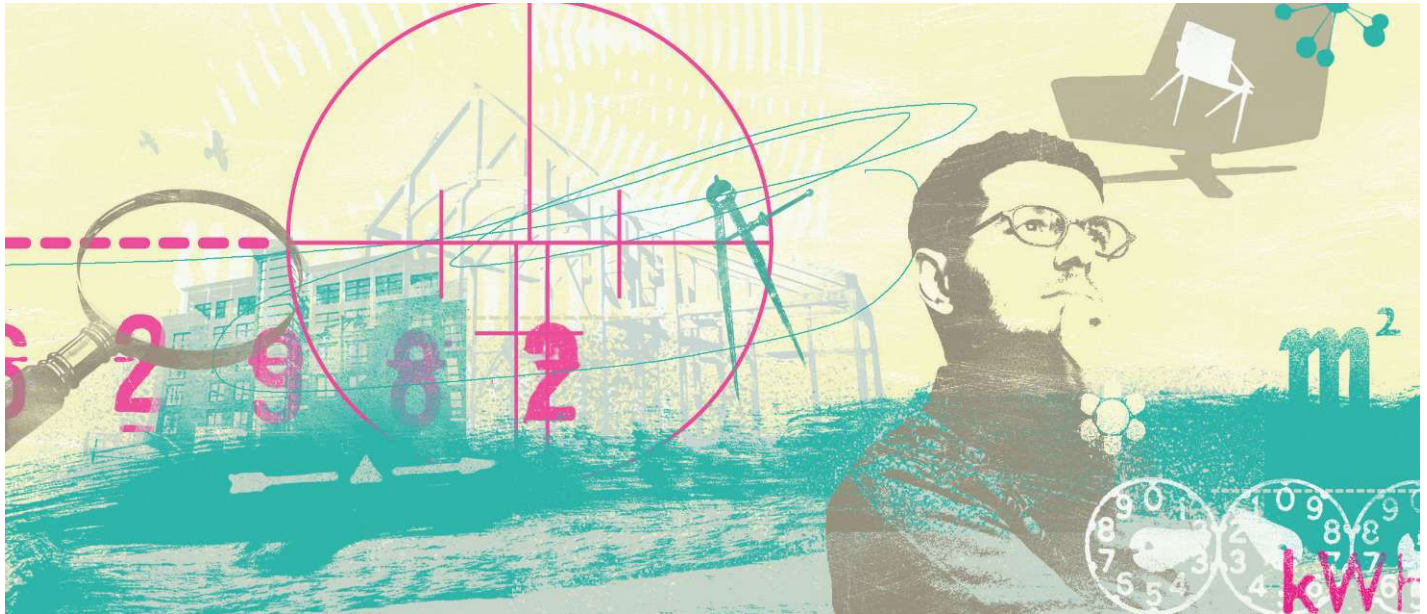


ILLUSTRATION: CLARE NICHOLAS

AT THE AIA NATIONAL CONVENTION IN MAY, A YOUNG ARCHITECT attended a lecture on AIA's new Supplemental Architectural Services program, which assists architects looking to diversify their practices. When Richard L. Hayes, AIA, the AIA's director of knowledge resources, explained how parking plans and code compliance can be considered supplemental services, the architect said, "You mean I can charge for this?" Hayes affirmed, and she replied, "I just paid next year's dues."

In a down economy, supplementing traditional design with other services can be an exciting and lucrative option. AIA's Supplemental Services program provides essays and slide presentations on aia.org that offer technical assistance to architects interested in consulting in a variety of fields. When full commissions aren't available, Hayes says, offering supplemental services allows a firm to go after a key part of a project or provide a niche capability as a subcontractor to another firm. It can also be a way to allow younger professionals to manage special projects.

"In architecture school you're trained to do the whole project," Hayes says. "This program requires architects to step back and think about doing just pieces of it. Some architects might already have the skills to provide a new service, while others might want to get additional training."

So far, AIA has identified 135 supplemental services that its members could pursue. Of these, 48 have been listed on the AIA website with detailed essays taken from *The Architect's Handbook of Professional Practice* (available as downloadable PDFs), along with concise PowerPoint presentations and citations for the appropriate AIA contract documents for each service. The list includes such diverse services as architectural acoustics, construction defect analysis, historic preservation, model construction, research services, sustainability consulting, and writing.

Hall Architects of Charlotte, N.C., for one, offers services including analyzing building pathology, providing expert witness testimony in building disputes, and developing construction specifications. In a recent construction dispute, firm members analyzed the design and construction of the building using exterior wall mock-ups to demonstrate possible water intrusion. Offering these services has been so successful, according to principal Dennis J. Hall, FAIA, FSCI, that

the firm has created a separate legal entity for this work, called HALL | Building Information Group (using the same architectural staff).

"As the architectural work has slowed down with the current economic climate, the consulting work has picked up, enabling us to maintain a high-quality staff," Hall says.

Diversifying is not without its potential downsides, however. Hayes says that clients might already expect some of these supplemental services to be rolled into the basic design service and may not understand the potential benefits of using a specialist. Yet, he says, architects have the opportunity to expand revenue possibilities by offering a supplemental service that is more detailed, exacting, and expansive than what might be included in the basic design.

Hall adds that being a consultant instead of the design architect requires a mental shift on all sides. "As a second-tier consultant," Hall says, "you are not on top of the food chain in getting paid and may not have direct contact with the paying entity. And there may be the perception by some firms that you are 'competition' and not part of a team working for the success of the project." Still, he adds, being an outside "expert" can sometimes garner more respect on certain topics than one might receive as the architect of record.

Nicholas R. Koch, associate vice president of HGA Architects and Engineers in Minneapolis, says that his firm prioritizes the pursuit of more supplemental services. "We really appreciated the in-depth thinking that the AIA has done on this topic, the way that supplemental services are linked to AIA contract documents, and the well-structured comments on services and the skill sets required," Koch says.

Hayes and his colleagues are now working on adding new essays for other supplemental services as well as identifying new services that could be included. "Whether someone is already established or thinking of hanging out their shingle for the first time, they could come to an existing building owner and say, 'Here's something I can do for you,'" Hayes says. "This is a good way to keep people working." —By Kim A. O'Connell **AIA**

➔ To learn more about the AIA's efforts on supplemental architectural services, visit aia.org/practicing/akr/AIAB089194.



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The New Normal

ILLUSTRATION: MARK MCGUINIS



Can urban, multifamily rentals drive the economy forward?

BY CAMILLE LEFEVRE

The second in a three-part series on residential architecture in today's economic climate.

ACROSS POST-RECESSION AMERICA, STILL REELING FROM THE housing tsunami of easy credit, subprime mortgages, and packaged collateralized debt obligations, the homeownership landscape is littered with foreclosed condominiums, empty and molding single-family homes, and underwater mortgages. Still, a building boom is on the horizon. It's multifamily housing.

Demographics and demand are propelling the design and construction of new rental housing. The U.S. Census Bureau projects that from 2010 to 2015, homeownership rates will decline and 4 million renters will enter the housing market. Some are baby boomers downsizing their lifestyles. Others can't qualify for mortgages that now require 20 percent down. About 3 million, according to Marcus & Millichap Real Estate Investment Services, are "echo boomers" (otherwise known as Generation Y or Millennials) who lived with their parents between 2005 and 2010, and are now entering the job market and leaving home. Traumatized by the housing crash they experienced with their parents, they're renting, not buying.

"Homeownership is no longer the investment people thought it would be, and it almost takes your firstborn to qualify for a home right now, so more people are choosing to rent," says Don Meeks, AIA, founder and principal of Meeks + Partners in Houston. "But there's a huge demand for new product that hasn't been built yet." According to the real estate intelligence provider CoStar Group, 94,000 new



AIAFEATURE



units will be built in 2012, up from the 22,000 it forecasts for this year. In 2013, CoStar is forecasting just over 109,000 new units.

According to Meeks, “There’s a lot of ‘A’ product that’s turned ‘B,’ ‘B’ product that’s turned ‘C,’ and so on. So there is existing product that hasn’t been updated, which is filling the need for affordable rental.”

The new renters, however, want apartments designed to cater to their 21st-century lifestyle, needs, and values: sustainably designed buildings with gyms and coffee shops, public open space, and landscaping located in urban hubs near public transit, their workplaces, restaurants, and retail. It doesn’t seem to matter that these new rental units are smaller than those designed a decade ago. Open plans, light-filled spaces with floor-to-ceiling windows, and slimmer, lightweight technology allow renters to live smaller without feeling the pinch.

“It’s all about lifestyle,” Meeks says.

“Since the first of this year, we’ve booked 8,000 units of multifamily luxury rental. That’s the big demand right now.”

Job growth is fueling the market for apartments. Washington D.C., and the mid-Atlantic states (government), as well as the Texas cities of Dallas, Houston, and Austin (energy and technology), have been the first markets to rebound, Meeks says. Secondary markets include Raleigh and Charlotte, N.C., and Charleston, S.C., then San Antonio, Denver, and parts of Florida.

Along with changing demographics, capital markets are driving the apartment market, says David Graham, FAIA, principal of Elness Swenson Graham Architects in Minneapolis. “They’re saying that urban high-density, mixed-use multifamily housing that’s sustainable in cool neighborhoods and next to transit is the new hot investment commodity. In the Midwest, the slice of the pie that’s been getting the most attention is luxury rental communities.”

Mid-rise structures are still the norm, despite the call for the greater density that high-rise buildings provide. “Before the

“Since the first of this year,” Don Meeks says, “we’ve booked 8,000 units of multifamily luxury rental. That’s the big demand right now.”

economic crunch, we had several high-rises on the boards, but they have since all disappeared,” says Douglas Root, AIA, founder of Douglas Root Architects in Boca Raton, Fla. “In the last two years, we haven’t received one request for a high-rise.” While projects in other parts of Florida are starting back up, Root argues that most banks appear to be still refusing to lend money for high-rises until the current glut of foreclosed properties gets eaten up.

High-rise density also remains a challenge in many urban neighborhoods. “Architects would like to do tall buildings, but we still experience significant resistance from neighborhood groups on structures of more than four or five stories,” Graham says. “Our role and value as architects is to mediate between the developer, who is in fact an investment banker; the bureaucracies of the city, which are well intended; and the neighborhood groups, which only want what’s best. Our job is to bring those values together and design a higher-quality building that provides density, works with the city’s vision, benefits the public, builds the tax base, and creates vibrant cities.”

Or as Clark Manus, FAIA, principal of Heller Manus Architects in San Francisco and 2011 AIA president, recently wrote in *Multi-Housing News Online*, “Not only do architects have to find what projects might be funded; we have to be part of the effort that puts all the players together in public-private partnerships. We have to be among the rainmakers who make things happen.”

The current challenges are formidable, especially for architects who focus on affordable housing. “When the recession hit, and real estate dropped in price, some of the affordable-housing developers in the Los Angeles area started to be able to compete for the properties which were previously being snapped up by market-rate housing developers, which was a positive,” says Julie Eizenberg, AIA, founder and principal of Koning Eizenberg Architecture in Santa Monica, Calif. “But in California, the funding system has been volatile, so [the] ability to move projects forward has been less than predictable and consequently, projects are stalling.”

Also, Eizenberg’s firm is “having trouble competing for market-rate housing, because we can’t pay salaries at the rate of service,” she continues. She fears that to survive “architects will have to get clever at delivering quality inventive housing without spending the time.”

Still, Graham suggests, “Innovation in design is more important than ever. We’re constantly trying to come up with a new brand or identity through aesthetics. It’s as though we’re designing in the same realm of consumer goods as automobiles and technology.” Undoubtedly, such innovation will play a large role in moving the economy forward as new rental apartments enter the market as a consumer product rather than as an investment. Graham says, “In 2011 it would appear that urban multifamily rental is the new economic engine that will drive the economy forward.” **AIA**

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AIA PERSPECTIVE

DESIGN ETHIC



PHOTO: WILLIAM STEWART

A WASHINGTON, D.C., ARCHITECT WHO OCCASIONALLY TEACHES at the University of Maryland posed this question to his class:

“An energy company has approached the director of Washington’s National Gallery of Art. In front of the historic Classical Revival building designed by John Russell Pope is one of those pie-shaped pieces of land that occur throughout the city where L’Enfant’s diagonals (in this case Pennsylvania Avenue) intersect with the grid (Constitution Avenue). Currently, the site is tree-shaded; at the center is a large fountain. The company has offered to lease the land for a princely annual rent if in return it gets the right to build a gas station.

Recognizing the sensitivity of the site, the company has in effect offered a blank check that, if cashed, will ensure the gallery’s financial health indefinitely. All that the gallery has to do in return is give the company the right to build a gas station on the site of that small parklike space.

The challenge is this: You, the architect, are responding to an RFP for a design appropriate to the site. What would you design?”

The issues raised by the challenge clearly go beyond the art and science of our profession. They engage matters that deal with our responsibility to our clients, our communities, and the environment. How do we decide what ought to be done? What is “best” or “right” in any given situation?

In discussions that revolve around what architects do, we frequently find ourselves pigeonholed as artists—masters of set designs whose primary motivation is the creation of beauty, or at least of something new and interesting to look at. But questions about what we do ought to go deeper into the why of it: What is the purpose of the project? How well does it carry out that purpose for the client and the user? Dig a little deeper and an even larger

question comes to light: Was it worth doing in the first place?

During times like we’re experiencing, when the construction industry is hit especially hard, ethics may seem to be something of a luxury. After all, we have an obligation not only to our client, but also to our firms. When the economy tanks, no project is too small if it keeps the lights on. We all know the importance of providing jobs and a path for career aspirations.

But what if the client has a deaf ear to sustainable design or wants to tear down an irreplaceable piece of a community’s historic legacy? What if the project chews up open space, compromises a viewshed, or introduces light

pollution into a previously starry night? Doable? Yes. But is it right? And what is right when your decision will affect subcontractors and allied professionals, who are just as eager for work?

These are questions that go beyond talent and technical expertise. What *can* be done is one thing; what *ought* to be done may be something quite different. The issues raised involve ethics, a discipline that unlike architecture is not collaborative but very much a personal matter that nevertheless has an impact on the entire profession and how we’re viewed by our clients and the public.

Years ago Philip Johnson made a comment during a symposium at the University of Virginia that has always rankled me: “I am a whore, and I am paid very well for building high-rise buildings.” Of course, that was Philip being a provocateur. On the other hand, if words mean something, we ought to be outraged rather than, as Johnson may have intended, amused.

These are challenging times for the profession, when our values are most severely tested. Our schools do a great job of preparing students for the science and art of our profession. It may be a cliché, but I truly believe that the rising generation of young men and women pursuing a career—not just a job—in architecture are equipped with a more robust toolkit than ever. Yet I wonder how well they are being prepared for the ethical challenges that they will certainly confront. I say this because I believe that ethics is not a way of thinking different from architecture, but at the heart—no, the soul—of what it means to be a professional.

To be a professional means rising above the calculus of ego and fashion to focus on issues of right and wrong. **AIA**

Clark D. Manus, FAIA, 2011 President

➤ Read next month’s AIA Perspective to find out what answer received an A+.



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INTERVIEW BY ERNEST BECK
PHOTO BY SIOUX NESI



AS FOUNDING PARTNER of WXY Architecture + Urban Design, Claire Weisz, 50, AIA, has steered her small, 15-person firm toward a wide range of multidisciplinary assignments. With projects ranging from a charter school for the arts in the Bronx to police security booths in Brooklyn, as well as regional sustainability plans, New York City-based WXY has honed its skills working with community groups. “Our concentration is architecture in the public realm,” Weisz says. She notes that architects provide important services to this sector—which is why firms that do so require a special business sense. Weisz spoke with ARCHITECT about the balance between a firm’s practice and a community’s priorities.

“WE WORK WITH DISADVANTAGED COMMUNITIES AND ORGANIZATIONS ON TIGHT BUDGETS. THAT IS THE ECOSYSTEM WE ARE IN ... OUR WORK GOES BEYOND A DAY OF VOLUNTEERING.”

More than a niche.

Community groups play many different roles, from supporting education to sustaining the environment. “Their needs are huge,” Weisz says. These groups contribute as much to the economy as their for-profit counterparts, often forming partnerships with private developers to get things done. Community groups serve niche interests that add up to important market sectors. To approach them, it helps to know about finance, economics, and politics. “Think about it in a broad perspective,” she says.

Make it personal.

When choosing projects, content trumps clients. If you’re interested in, say, education, gravitate to that field and develop relationships. “We worked on an adaptive reuse of a remediated brownfield site for a community-development association in the Bronx, which had a broad mission, including arts and education. That led us to look at educational opportunities with them, and

eventually we got the project to design a charter school for the arts,” Weisz says. “We knew about it because we saw what was happening in the neighborhood. We followed our interest in how communities impact schools and were already working there.”

Get your foot in the door.

Get involved with an organization at an early stage and offer your services before anything happens. Talk to them to find out what they’re working on. That puts you in a position to see if your skills match what they might need before you discuss working together. Community groups often need planning and design services, from vision statements to concept designs to feasibility studies. And they need consultants who understand how to plan for them. “It doesn’t always result in a building, but you can help them imagine where they can go,” Weisz says.

Walk in their shoes.

Serving on the board or doing volunteer work for a community organization will provide insights into how they work, how fees are structured, and how grants are secured. It’s like being on the client side, Weisz says, even if it’s working in a soup kitchen or organizing a park clean-up campaign. “You get to know them and see things from the perspective of their network.”

Vary your commitment.

Communities need architects for short- and long-term projects. “Even if it’s a quick project, though, we try to develop the relationship because that helps us better understand their mission,” Weisz says.

Adjust your fee.

By raising capital and paying fees, communities and the organizations that serve them function as a part of the economy the way that any company does. But unlike for-profit corporations, there are no shareholders taking the profits. That means that it’s important to set special rates for community groups. “We try to structure fees in a way that makes sense with their economic needs and what they are able to do,” Weisz says. “It also takes into account the fact that these organizations are dependent on grants and philanthropy, and we try to respond to that. Nonprofits have budgets and they want the most value for their budget, like everyone else.”

Go beyond pro bono.

“We do a lot of pro bono, as a firm and individually. We work with disadvantaged communities and organizations on tight budgets. That is the ecosystem we are in,” Weisz says. As architects and citizens, pro bono is one way to be involved directly, she says. But she recognizes that communities and community organizations hire architects in order accomplish concrete goals. Communities respond well to architects who understand them as target driven. “Our work goes beyond a day of volunteering,” Weisz says. “We see nonprofits as clients and partners.” □

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Fitting In

TODAY'S CULTURAL INSTITUTIONS LOOK TO REUSE AND ADAPT RATHER THAN TRANSFORM THEIR ENVIRONMENTS.



The Tobin Center for the Performing Arts

• San Antonio, Texas
• LMN Architects •

The renovated former Municipal Auditorium will be home to the resident symphony, opera, and ballet companies in San Antonio, and will seat more than 1,700 people.

TEXT BY KRISTON CAPPS

IF THE BILBAO EFFECT is a phenomenon that only describes one project, that may not be such a bad thing. There's no question that the Guggenheim Museum Bilbao turned out the once-sleepy city of Bilbao, Spain, drawing art tourists by the thousands. The 1997 museum is both an architectural icon and a cultural touchstone, often cited as the most important cultural building of the last 15 years as well as the building that marked the rise of the starchitect.

Yet the Guggenheim transformed Bilbao both for better and for worse. In their significant 2003 study, *The Globalized City: Economic Restructuring and Social Polarization in European Cities*, scholars Frank Moulaert, Arantxa Rodriguez, and Erik Swyngedouw examined the Guggenheim Museum Bilbao as one of nine critical case studies. The report demonstrated the relationship between large-scale development projects and their unintended sociopolitical side effects—including social stratification, elitism, and exclusion.

More recent projects suggest that Frank Gehry, FAIA, is not a prescription that works for every city, even in terms of ticket sales. Betting on a Bilbao effect for Biloxi, Miss., the Ohr-O'Keefe Museum of Art—an institution devoted to the work of artist George Ohr, the “Mad Potter

of Biloxi”—commissioned Gehry to build a new five-building campus. For reasons that fell in part outside Gehry's control, project costs ballooned. Hurricane Katrina damaged the museum during its construction, as if to underscore the reason that insurance costs are so high for Gulf Coast art institutions. Protecting the galleries from the notorious high humidity further added to project costs. As of July 2011, a year after the museum's opening and with a still-incomplete campus, the Ohr-O'Keefe Museum admitted that it was facing steep financial hurdles.

Facing an economy that some observers are now describing as the Lesser Depression, cultural institutions looking to expand their footprint must tread carefully. The Bilbao effect seems like a vestige of a different economic and architectural era, and cultural institutions are now pursuing progressive designs to suit the changing strategies of the performing and plastic arts. New designs that adapt or reuse existing institutions in innovative ways also examine the ways that these cultural institutions interact with their host cities.

The Hirshhorn Museum and Sculpture Garden, part



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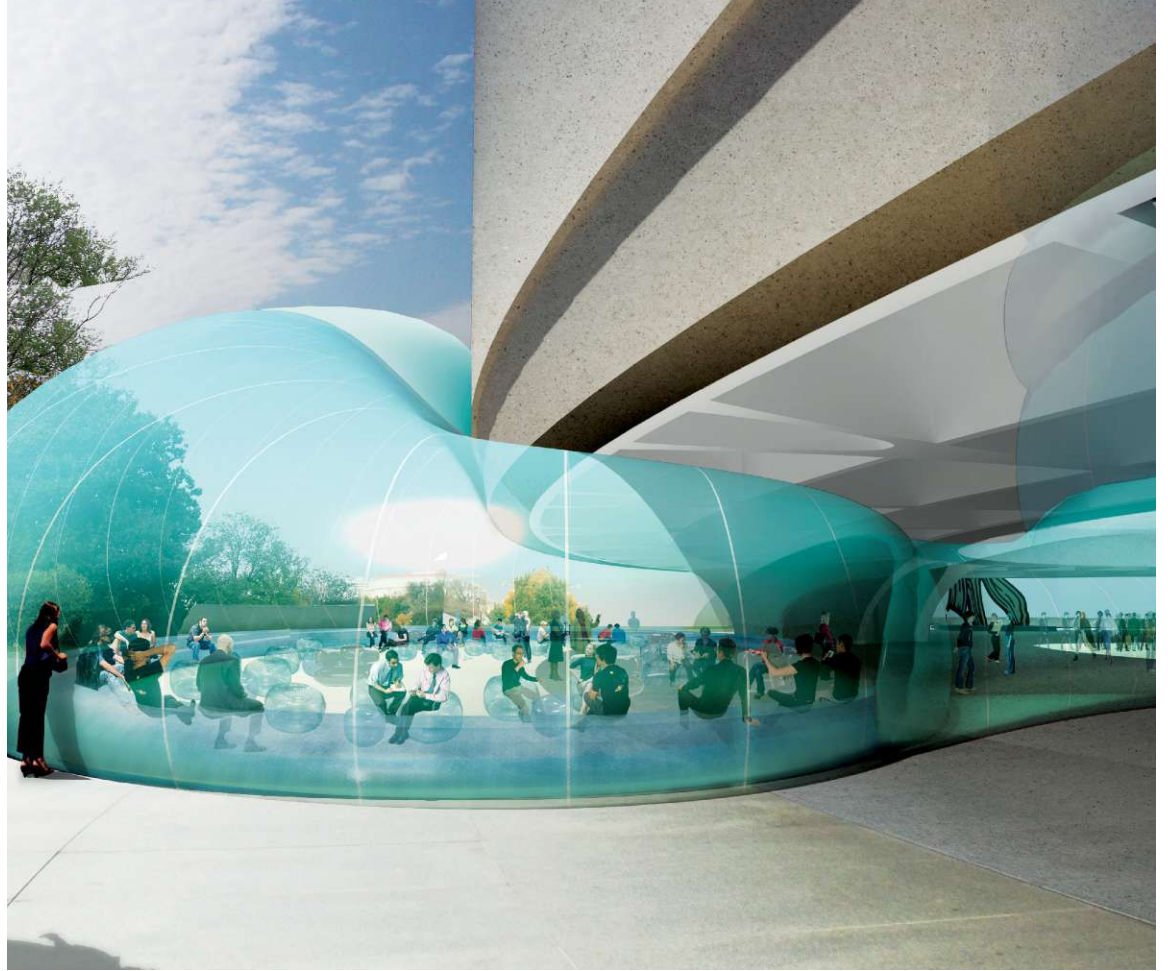
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**Hirshhorn Museum
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Inflatable Structure**

• Washington, D.C.
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Renfro • One of the
programs that will
serve to introduce the
Seasonal Inflatable
Structure during its
inaugural season will
complement a museum
exhibition on the
intersection between
art and destruction.



of the Smithsonian Institution in Washington, D.C., put the cart in front of the horse with its Seasonal Inflatable Structure (referred to by everyone else as the Hirshhorn's Bubble). The winner of a 2011 P/A Award for Cultural Projects, the Seasonal Inflatable Structure by Diller Scofidio + Renfro seeks to extend the museum into the national social and political debates—realms of experience that modern and contemporary art museums don't typically address through their buildings.

"Except for the museum's one window, the Hirshhorn has turned a blind façade to the rest of the city," says Erica Clark, the associate director for program partnerships at the Hirshhorn. "There's something that Liz [Elizabeth Diller] said that we love: 'The Hirshhorn is going to inhale the air of the National Mall. It's going to breathe in but also give back out by virtue of the experience there.'"

The Seasonal Inflatable Structure's inflatable membrane complements Gordon Bunshaft's original 1974 concrete-donut museum design, filling its center and encapsulating 14,000 square feet of space within the museum's central courtyard and plaza. The space will provide a seasonal conference area and stage for Bubble-specific programming, which the museum describes as a new "cultural research think tank."

"The raising of the structure is going to be an extremely festive occasion," Clark says, likening its potential to that of the annual architectural pavilions erected by London's Serpentine Gallery, which draw large and varied crowds.

The Seasonal Inflatable Structure physically and figuratively extends the museum's mission into Washington itself. The first of three programs for its inaugural season, for example, will be a three-day international conference on cultural diplomacy, presented

jointly with the Council on Foreign Relations. Another program, an "experiential public forum" called "Open Sources" reveals the self-referential potential for the Bubble as a transparent, permeable membrane.

Clark describes the event space as an "anti-auditorium," one that does not privilege listener over speaker. "We have plenty of auditoriums in Washington," she says. "This is never going to be strict rows of seating."

Whereas Washington loves its public-policy chambers, San Antonio prides itself on its traditional spaces. One of those, the 1926 Municipal Auditorium, is undergoing a renovation that will reorient the theater. When the Tobin Center for the Performing Arts opens in 2014, it will retain the building's historic stone façade yet also open on to the River Walk.

"The formal stone façade [of the Municipal Auditorium] is oriented to face right into the urban street grid," says Mark Reddington, FAIA, partner at LMN Architects. "On the back side, there's a loading dock and blank walls. Then along came the River Walk. Now you have one amenity meeting a cultural landmark on its backside, and there's no relationship between the two."

Reddington says that LMN's renovation will preserve 70 percent of the existing façade and associated arcades. But the existing core and auditorium will be demolished and replaced in the new 157,000-square-foot facility. The core elements are not partial to the original 1926 design; they were built after a fire gutted the auditorium in 1979.

The new performance hall is wrapped in a metallic veil, a counterpoint to the sturdy stone of the surrounding component. The surface quality of the punched metal veil will be lacy, airy, and porous, Reddington says.





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Dee and Charles Wylie Theatre • Dallas • REX and OMA • Audience members entering the theater must first descend down an esplanade, then rise to the first-floor theater level using one of four elevators.

“The historic stone façade is very powerful, and we did not want to preserve a thin façade,” he says, explaining that the renovation retains the public arcade spaces abutting the stone exterior. “The new piece [the veil] has a similar color, but the way the veil and the façade will take the light will be completely different.”

The most dramatic departure for the new Tobin Center may be its new face along the River Walk. LMN Architects introduced a studio theater space that overlooks the promenade, while a new lobby and River Walk Plaza will greet entrants directly. The tall profile of the performing arts core will also change the character of the Museum Reach portion of the River Walk.

For the performing arts stage itself, LMN Architects is planning a modular stage design, one that can transform between orchestra seating and smooth floor with the push of a button. This highly configurable, mechanical approach to the open theater is already in evidence elsewhere in Texas: the Dee and Charles Wylie Theatre.

Part of Dallas’s AT&T Performing Arts Center complex, the Wylie Theatre space can undergo any number of transformations within a season. “The idea of a self-obliterating theater, built in service to theater-design elements, is a reversal of several thousand years of theater architecture,” Dallas Theater Center artistic director Kevin Moriarty says.

Designed by REX and OMA and built in 2009, the 80,300-square-foot theater is built around an open theater space that occupies the entire first floor. All of the theater’s amenities—including the lobby, costume shops, and administrative offices—are located on one of nine levels either above or below the first-floor stage. The stage is an adaptable space that can be transformed with the press of a button, mechanically shifting between proscenium, thrust, flat-floor, and alternative stage configurations in a matter of hours. Employing sports-stadium technology, balconies on three sides can be raised or lowered, depending on performance needs.

“The idea of a flexible space has certainly existed in the American theater for the last 50 years,” Moriarty says. “But that’s typically been done by assuming an open space and a team of carpenters to build the stage out. The challenge of that is that it’s incredibly expensive and very, very time consuming for each new performance.”

The Wylie Theatre replaces the Arts District Theatre, a beloved and highly configurable metal barn designed by preeminent stage designer Eugene Lee in 1984. REX and OMA maintained the older theater’s experimental legacy but built all of the capital costs for the Wylie Theatre’s adaptive stage into the project’s \$354 million total.

“Rem [Koolhaas] and Joshua [Prince-Ramus] managed to remove that predetermination” between stage and performance, Moriarty says. And there’s nothing standing between the glass walls of the theater space and the city; the famous Dallas skyline could easily be featured as an element of a production.

While the Wylie Theatre can switch between a Broadway configuration and an Elizabethan production in a matter of hours, it’s unlikely to ever be mistaken for a traditional theater. “We’re asked one question often: How do I get into the building?” □

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TEXT BY NATE BERG
ILLUSTRATION BY LAUREN NASSEF

JUSTIN LARSON'S FIRM in Fort Collins, Colo., found itself in a situation facing many small offices at the end of 2009: There just wasn't enough work to sustain his moderate practice. His bank was steadily reducing his line of credit, and he eventually had to lay off most of his staff. Larson wasn't alone. A competing firm in Fort Collins was also struggling through the recession. Rather than competing against one another for diminishing commissions, the two firms merged earlier this summer.

Their new firm, Vaught Frye Larson Architects, now employs 12 full-time staffers, and work is streaming in.

"We've been capturing more market share just because of the intertwined strength that potential clients see as a result of the merger," Larson, AIA, says.

It's true that the Architecture Billings Index was down for four successive months until an upswing in August, and that the economic slump seems to be

dragging on. But while some firms are eyeing a belt-tighteningly uncertain near future, others see an opportunity to grow. Some, such as Larson's, had to shrink first in order to grow, but many are approaching a down market with confidence and optimism. Is this the right time to run to the bank for a loan to expand?

Well, yes and no.

"You can't expand just by getting credit, but you may not be able to expand without getting credit," says Peter Piven, FAIA, who offers management advice to architects and other design professionals as principal of Peter Piven Management Consultants.

Piven advises that relying on a loan to make new hires or increase business is a bit too much of a gamble for architects, especially when billings are so uncertain. Having credit available, though, is a critical safety net. Unfortunately, credit is a lot harder to get today than

it was just a few years ago, especially for small- to midsized firms.

Piven sorts architecture firms into three groups: those that have no problem getting credit, those that don't use credit but still have it, and those that can't get it. Each group, he says, is populated about evenly. The firms that succeeded in a recession use credit as defense rather than offense.

"This is a profession and a business where most folks cannot expand simply because they have money. It doesn't work that way," Piven says. "You don't staff up before you have the work to do."

And firms tend to agree. Those smaller firms that are expanding tend to be doing so reactively as opposed to proactively. They're nailing down the work, then adding the workers to get it done.

But expansion doesn't just mean adding more desks to your office. In addition to hiring personnel, firms are adding new specializations and building up marketing efforts to stay afloat. Often, the partners of smaller firms tend to pull from their own resources to make these kinds of investments, essentially serving as their own creditors. Rather than borrowing a bank's money, they borrow their own. Integrated Architecture in Grand Rapids, Mich., uses this approach, and they get particularly bullish when the market's tumbling.

"We're maybe a bit of an anomaly," says founder and president Paul Dickinson, AIA. He recently added about 10 people to the 50-person firm. He and his partners used their own capital to do the hiring. "As a firm we've always done well when the market's down. We look at it as an opportunity to pick up new talent."

Most notably, Integrated Architecture created a separate company to finance the construction of its own office building in 1997. Rather than leasing generic space, the firm decided that it made sense from a marketing standpoint to be housed in a building that matched its aesthetic values. It wasn't an expansion, per se, but a move that drew new clients, according to Dickinson. Pooling their resources was instrumental.

"You always want credit available," Dickinson says. "There's no question about it."

When development in Atlanta started to dry up during the economic decline, Markham Smith, AIA, knew that he had to adapt. He began to practice during the recession of the mid-1970s and founded his firm, Smith Dalia Architects, during the oil bust of the late 1980s. "We're familiar with how bad things can be," he says.

So his 20-person firm adopted a strategic marketing approach focused on luring in the limited work available rather than waiting for it to come to them.

"If we had not done that over the last three or four years, we might have gone out of business," Smith says. The firm used its own capital to invest in marketing efforts, instead of taking out a loan. "Borrowing is just not part of our business plan."

For Larson, whose pre-merge firm had wound down to just a few people by early 2010, filling gaps with a loan was not only too risky a bet, but the loan itself was almost impossible to get. While the credit line of his smaller firm trickled away and eventually disappeared

during the downturn, the recent merger with another local firm has enabled the new company to get greater access to credit than Larson had ever seen.

And that's one of the ironies of credit: It's there when you need it the least, according to Nic Perkin. He's the president and co-founder of a new company called the Receivables Exchange, which is hoping to reengineer the way that small- and midsized companies access capital.



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— PETER PIVEN, PETER PIVEN MANAGEMENT CONSULTANTS

The firm sells a new type of borrowing in which firms can auction off their accounts receivable. Rather than waiting 60 or more days for clients to pay, firms can essentially sell their receivables to the highest bidder.

"Small and medium companies have been disadvantaged in terms of accessing capital for far too long," says Perkin, whose company is already in use by a number of architecture firms, as well as companies in 50 or so other industries.

By selling their accounts receivable to larger institutional lenders and funds, smaller firms can quickly get the money they're owed, less a 1 to 2 percent fee, and put that money back to use.

Perkin says that this immediate access to capital can

be especially helpful when commissions are fewer and farther between, and can even be a way for firms to avoid having to take out a traditional loan.

As the market shifts, firms recognize the need to be more nimble. Though most will concede that bank lending remains an important element to the financial health of any firm, architects are learning to rely less on money they don't have.

"In these recessionary times, it's a much more difficult choice to borrow because it's not as clear for most folks that the work will be there," says Piven, the consultant. "I was actually surprised in talking with people recently how many of them wanted to operate on a cash basis. But I do think it's prudent." □

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NEW PROJECTS**1. SALT LAKE COUNTY PUBLIC WORKS ADMINISTRATION BUILDING**

Architect: Blalock & Partners Architectural Design Studio, Salt Lake City
Total Cost: \$4.6 million
Completion: 2010

2. SAINT JOSEPH THE WORKER CATHOLIC CHURCH

Architect: Sparano + Mooney Architecture, Salt Lake City
Total Cost: \$4.5 million
Completion: 2011

3. MUSEUM OF NATURAL CURIOSITY

Architect: FFKR Architects
Total Cost: \$20 million
Completion: Fall 2012

MARKET STATS**0.13**

EXPANSION INDEX VALUE, SALT LAKE CITY METRO AREA

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

1.5 MILLION

POPULATION, 2010

SOURCE: CITY OF SALT LAKE ECONOMIC DEVELOPMENT

1.8 MILLION

PROJECTED POPULATION, 2020

SOURCE: CITY OF SALT LAKE ECONOMIC DEVELOPMENT

7.5%

UNEMPLOYMENT, JULY 2011

SOURCE: CITY OF SALT LAKE ECONOMIC DEVELOPMENT

30.6 MILLION S.F.

OFFICE INVENTORY

SOURCE: CB RICHARD ELLIS

16.4%

OFFICE SPACE VACANCY RATE, JUNE 2011

SOURCE: CB RICHARD ELLIS

440

COMMERCIAL BUILDING PERMITS ISSUED THROUGH JULY 2011

SOURCE: CITY OF SALT LAKE ECONOMIC DEVELOPMENT

→ **LOCAL MARKET**

Salt Lake City, Utah



TEXT BY MARGOT CARMICHAEL LESTER AND CLAIRE PARKER

THE SALT LAKE CITY METRO AREA is frequently listed on “best of” lists, including best city for young professionals and retirees, best city to get a job, and even best city for public transportation. It’s also a favorite destination among vacationers.

Kevin Blalock, AIA, principal with Blalock & Partners Architectural Design Studio, a local firm, says that the area’s perennial appeal is related to its “location, proximity to outdoor activities, favorable ‘four season’ climate, and accessibility from other major cities.” It’s also an ideological island of sorts in a traditionally red state. “The government is progressive,” Blalock says.

Founded in 1847 by Mormon pioneers, Salt Lake is one of the oldest cities in the West. The Church of Jesus Christ of Latter-day Saints has been instrumental in local development—economic and otherwise—by putting its international headquarters here, attracting tourists to the metro area, leading faith-based philanthropy, and driving construction.

Downtown Salt Lake City is both fully developed, and in need of some updates. The Mormon Church is leading the way with the \$1.5 billion, 900,000-square-foot City Creek project, scheduled to open in March 2012. This mixed-use development is the centerpiece of the city’s ongoing Downtown Rising initiative to revamp downtown with residential, retail, and restaurant space.

The 23-acre project is led by the retail developer, Taubman Co., and landowner City Creek Reserve, a

private real estate subsidiary of the Church of Jesus Christ of Latter-day Saints. The project incorporates both new and remodeled office space, including a renovation of the historic First Security Building and a new office building.

“If you look at a map, SLC is not that big, and it’s full,” says Marianne Wander, AIA, project architect at the local office of FFKR Architects. “So building is happening outside the city limits proper because there isn’t room.”

Locals worry about sprawl. “As a state and a region that is growing, we need a coordinated and well-planned regional growth strategy,” says Robert Farrington Jr., economic development director for Salt Lake City. To that end, the city is expanding its three-line light-rail system.

For now, the city and county are making approvals and permitting easier for developers. LEED projects such as City Creek benefit from a streamlined permitting process that puts them at the front of the line. The city also has implemented an online process for submittal and review, which is “effective and relatively simple and efficient,” says Seth Striefel, project architect with local firm Sparano + Mooney Architecture.

That has resident architects such as Pierre Languet, AIA, design principal with Axis Architects, hopeful. “Utah has been very conservative in terms of architecture, but it is evolving,” he says. “In the past, most architectural projects were given to the same large production firms. Today, we are finding clients who demand a very high level of design that [those] firms can’t deliver.” □

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Mitsubishi Electric Cooling & Heating Presents:

Benefits of VRF in the LEED® Certification Process

By Marc Zipfel, Director of Product Marketing, Mitsubishi Electric Cooling & Heating



Hotel Indigo: The energy efficiency of the Mitsubishi Electric VRF system and the ability to capture waste heat helped contribute to the energy credits, while the high degree of controls available helped earn points for user comfort.

When considering Variable Refrigerant Flow (VRF) systems to replace traditional ducted HVAC systems, it's easy to get caught up in the promise of VRF technology — the expected energy savings, the flexible heating and cooling zones, the space savings for the owner and the various LEED credit opportunities (up to 28 points).

But it all boils down to how the system works in the finished building, a point made clear to Dennis Hertlein, Atlanta architect, when he stayed overnight at Hotel Indigo, Athens, a LEED Gold-certified project he and his firm helped design.

In the morning, Hertlein was rested ... and impressed.

"Because of the super quiet system, filtered air, outstanding indoor air quality, clean environment, hardwood floors and no carpet," he says, "I had the best night's sleep in a hotel I've ever had and woke up feeling great."

VRF and smaller mini-split ductless systems have long been used in Europe and Asia. In 2009, AIArchitect magazine highlighted VRF technology, calling it "new and cool." The article concluded: "As more U.S. engineers become familiar with the technology, many in the industry expect to see VRF systems grow in popularity." 1

NEW AND TRADITIONAL HVAC SYSTEMS: WHAT ARE THE DIFFERENCES?

All buildings have some type of HVAC system. For large commercial and industrial applications, the options fall under one of these three categories:

Traditional Package Systems — The HVAC system is contained in one unit and often includes traditional boilers, chillers, water-source heat pumps and multi-zone rooftop units — essentially any system based on water or direct expansion (DX). Typically, conditioned air moves from the system to the indoor space through ducts.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- Describe the basic differences between VRF and split-ductless HVAC options, and more traditional systems.
- Recall the LEED categories where VRF and split-ductless systems provide credit opportunities.
- Describe a minimum of three design challenges that were met with a VRF solution, using examples from the article.
- List three advantages VRF provides for BIM.



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

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Rooftop System: The outdoor compressor units operate quietly and out of sight, skillfully directing cooling and heating refrigerant to 39 indoor fan coils.

Split-ductless Systems — In these systems, the major HVAC components occupy a separate chassis, which permits split-ductless systems to operate at low sound levels. The outdoor unit contains the compressor, condenser, propeller fan(s), circuit board and a heat exchange coil. The indoor unit, or air handler, contains a heat exchange coil, air filter(s), remote signal receiver and fan. The outdoor and indoor unit components connect via electrical and control wiring, and a refrigerant piping system — one pipe for the refrigerant in its liquid state and one pipe for the refrigerant in its gas state — requiring only a 3-inch opening in the wall or ceiling.

VRF Systems — The newest and most exciting HVAC technology choice, VRF is a flexible version of both of the more traditional options. The key difference? VRF reacts to changes in cooling and heating requirements by varying the flow of refrigerant rather than moving chilled or heated air through ductwork.

For residential and light commercial buildings, common HVAC solutions include Packaged Terminal Air Conditioners (PTACs), unitary air conditioners

(traditional central air conditioning), window units and wall-mounted units both radiant and ductless.

Here is the major benefit of this technology: Split-ductless and VRF systems save energy. Owners or occupants can cool or heat only the spaces that are occupied, without wasting energy to condition a whole building. No ductwork means split-ductless systems avoid the up to 30 percent energy loss associated with central forced-air systems.

Advancements in compressor technology further add to the efficiency of these split-ductless systems, most of which now incorporate inverter-driven compressors. Instead of switching on at full speed, inverter-driven compressors ramp up until the desired set temperature is met and then vary their speed to maintain the desired comfort level. By operating in this manner, the innovative inverter-driven compressor technology avoids the abrupt and energy-consuming start-and-stop exhibited by traditional HVAC systems, while also preventing power surges to a building's electrical system.

PAST, PRESENT AND FUTURE OF SPLIT-DUCTLESS SYSTEMS

When first introduced to the market, split-ductless systems were offered in a one-to-one (or mini-split) configuration with one wall-mounted indoor unit connected to one outdoor unit. These products were installed in home additions and renovations or were used to transform a hot or cold area into a comfortable living space.

As split-system technology continued to advance, manufacturers eventually developed mini-splits with higher capacity sizes and multi-split systems that could connect two, three, or more indoor units to one outdoor unit. They added ceiling-suspended and ceiling-recessed cassettes, as well as floor-standing indoor unit styles, to their product offerings. Current split-systems achieve higher energy efficiencies than before, and some heat pump models provide heating at extremely low temperatures.

The HVAC industry, private and public energy groups, and U.S. government agencies have taken notice, recognizing split-ductless systems in certification programs, product standards and federal, state and local major-appliance rebate offers.

FLEXIBILITY AND VRF TECHNOLOGY

The beauty of a VRF system lies in its flexibility. Leveraging a building's diversity is a key advantage of VRF systems. These systems can distribute capacity to keep up with changing cooling and heating loads, such as solar heat gain and the building's conduction-driven load. A VRF system can cool and heat simultaneously, providing heat at the perimeter and coolness in the interior of a building without wasting energy. Because the compressor varies its speed and capacity, and the indoor units vary their capacity, the system delivers the cooling and heating to precisely meet the load in each zone.

The result — more comfort using less energy.

This contrasts with a traditional ducted system, with its constant fan speed and a damper that closes when the

zone is satisfied. But what about the air remaining in the duct? Often, this air is routed to a dump zone, a common area such as a hallway, or in some cases, pushed outside for a tremendous energy loss.

When you are considering renovating an existing building, reuse of the existing architecture, structure and material becomes paramount in not only reducing the cost of the project, but also in reducing the environmental impact of the renovation.

“When you have the proper HVAC technology, engineering and equipment, historic preservation and energy conservation are a perfect partnership, like hand in glove,” says Patrick Shay AIA, LEED AP, whose firm Gunn Meyerhoff Shay in Savannah, Ga., helped achieve a LEED Platinum certification for an historic building for Georgia Power in downtown Savannah.

MORE BENEFITS OF VRF SYSTEMS

Lighter: Based on standard manufacturer data, VRF systems are 31 percent lighter than water-cooled chillers, thus cutting down on structural cost.

Space saving: The VRF system connects from the outdoor unit to the indoor units via refrigerant pipes. VRF uses two 1 1/8 inch pipes with 1/2 inch insulation, a total of 2 1/8 inches in diameter, whereas chilled water uses two 3-inch pipes with 1 1/2 inches insulation, for a total of 6 inches in diameter. In a ducted system, ductwork can be up to 33 inches round.

In many buildings, the mechanical equipment dictates plenum space requirements. By running smaller refrigerant pipes, the space can be given back in the form of higher ceilings. If enough space is saved on enough floors throughout a building, space can be given back in the form of an additional floor, without the need to increase the overall building height.

- **Flexible location:** The outdoor unit can be mounted either above or below the indoor units within the limitations of the piping lengths. The ability to mount mechanical equipment into smaller spaces frees up more desirable spaces for other uses.
- **Transportation to site:** The small



Georgia Power Coastal Regional Office: The ductless equipment allowed Georgia Power to integrate many small ductless air handling units, refrigerant piping, drain piping and small ventilation and exhaust ductwork into the historic fabric of the building in a concealed manner.

footprint of a typical VRF 6-ton outdoor unit, for example, at 36 inches by 30 inches, allows it to be transported to the top of buildings using a service elevator, saving the cost of a crane.

- **Exposed ceilings:** Wall-mounted, ceiling-suspended and floor-standing units are ideal for exposed ceilings, providing efficient comfort without large pipes or ductwork detracting from the architecture.
- **Ceiling units:** Cassette units offer a solution for the standard lay-in ceiling. Units also have the capability to integrate outdoor ventilation air.
- **Sound levels:** Most traditional HVAC systems, as you know, are noisy. The outdoor units of a VRF system are no louder than a typical conversation, while the indoor units are on par with a quiet room or library. A typical commercial application of a VRF system has sound levels ranging from 58 to 65 decibels.

All in all, VRF technology provides many benefits to building designers and engineers, especially in pursuit of LEED certification.

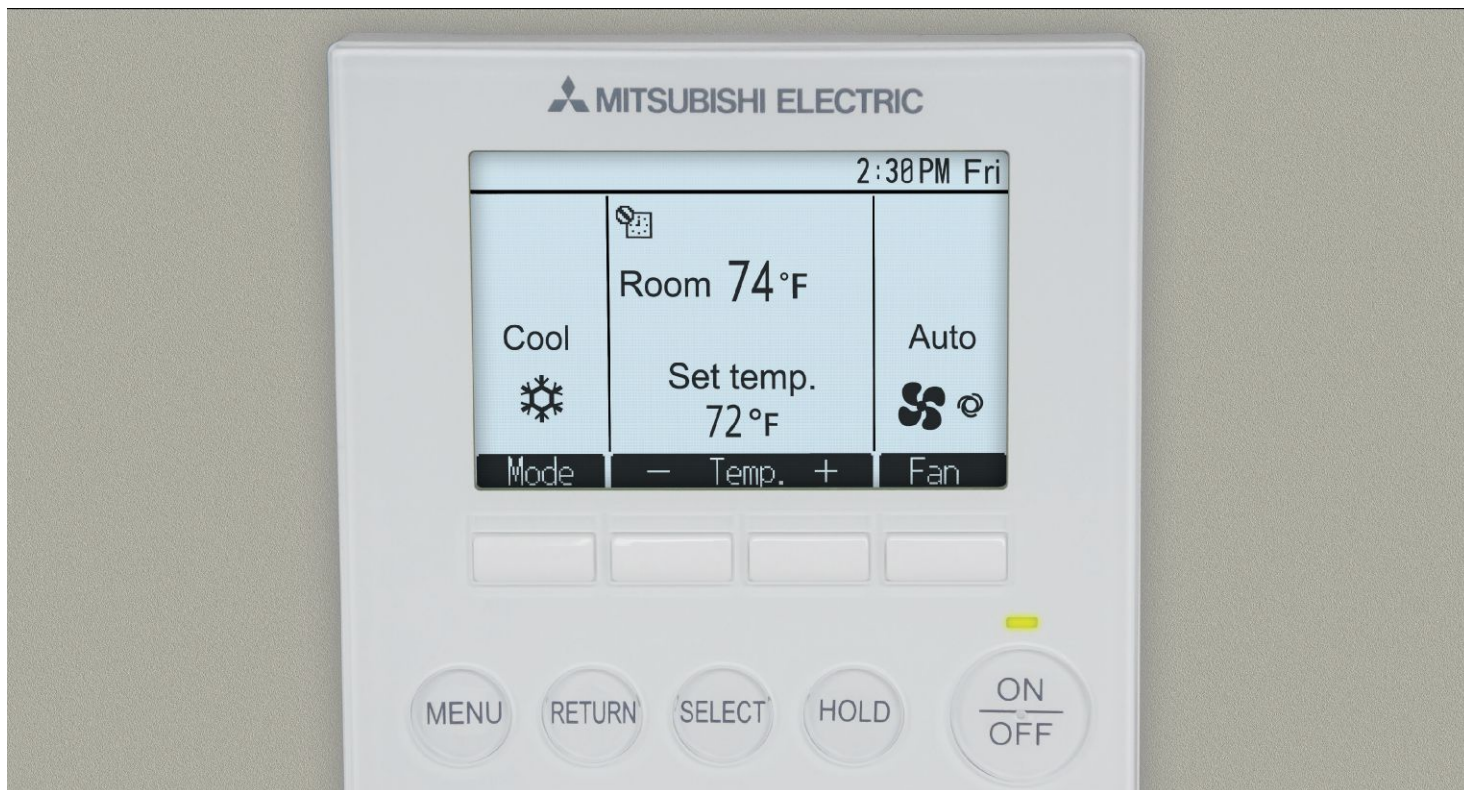
CATEGORIES WHERE VRF AND SPLIT-DUCTLESS SYSTEMS PROVIDE LEED POINTS

VRF systems can contribute a great deal to meeting LEED requirements, providing up to 21 points in Energy & Atmosphere and up to seven points in Indoor Environmental Quality. Certain VRF systems can contribute to LEED-NC v3.0 under the following credits.

Energy & Atmosphere (EA)

Prerequisite 1: Fundamental Commissioning of the Building Energy Systems (Required) — VRF control systems can help building commissioning by allowing easy testing, setting and adjusting of the entire system.

Prerequisite 2: Minimum Energy Performance (Required) — All buildings must be designed at a minimum to exceed the mandatory and prescriptive or performance requirements of ASHRAE 90.1-2007. A whole building simulation that illustrates a savings over the Appendix G baseline of 10 percent for new construction or 5 percent for major renovations using EnergyPro software is recommended. VRF equipment has many energy-saving features, further described



PAR-30 Remote Controller: The new PAR-30MAAU remote controller, part of Mitsubishi Electric's Advanced Controls Network, features complete individual zone control of up to 16 indoor units in a single zone.

under EAc1, which help to meet this prerequisite.

Prerequisite 3: Fundamental Refrigerant Management (Required) — VRF systems use R410A, which is an HFC-based refrigerant, is CFC-free and has no ozone-depletion potential.

Credit 1: Optimize Energy Performance (1-19 points) — Inverter-driven VRF systems are ideal for achieving one of the most important credits in LEED, based on how much you're able to reduce a project's predicted energy cost.

The system can be coupled with an energy-recovery ventilator (ERV) to further reduce energy usage. Building energy savings can be demonstrated by performing a building energy model and comparing the building design with a baseline building as defined by ASHRAE 90.1 2007. An optional exemplary performance point is also available under the Innovation in Design category for

buildings that reach a larger energy savings.

Credit 5: Measurement and Verification (3 points) — Software can provide for the ongoing accountability and optimization of building energy consumption over time. The software can log variable frequency drive (VFD) operation, heat-recovery cycles and other building-specific systems and equipment. Software with tenant billing can be used to monitor the energy consumption of the system. Energy usage data obtained from the software can be compared with a building energy model to verify the energy savings.

Indoor Environmental Quality

Prerequisite 1: Minimum IAQ Performance (Required) — VRF systems can often meet minimum outside air requirements through the ventilation connections of indoor units. In applications where more outside air is required, and the indoor unit's capacity is exceeded, ERVs can

bring in outside air by using the exhaust air from the building and transferring energy and moisture to or from the outside air before delivering it to occupied zones.

Credit 1: Outdoor Air Delivery Monitoring (1 point) — An ERV can be fully integrated within a VRF controls network. This function allows the unit to be programmed based on occupancy. An ERV can also be integrated with a CO2 sensor to energize the unit and/or vary the airflow based on CO2 levels within the space.

Credit 2: Increased Ventilation (1 point) — An ERV can be used to exchange a high percentage of air, which when used with adequate air distribution from ducted units can increase the ventilation rates to 30 percent above the requirements of ASHRAE 62.1-2007.

The article continues at www.hanleywooduniversity.com.

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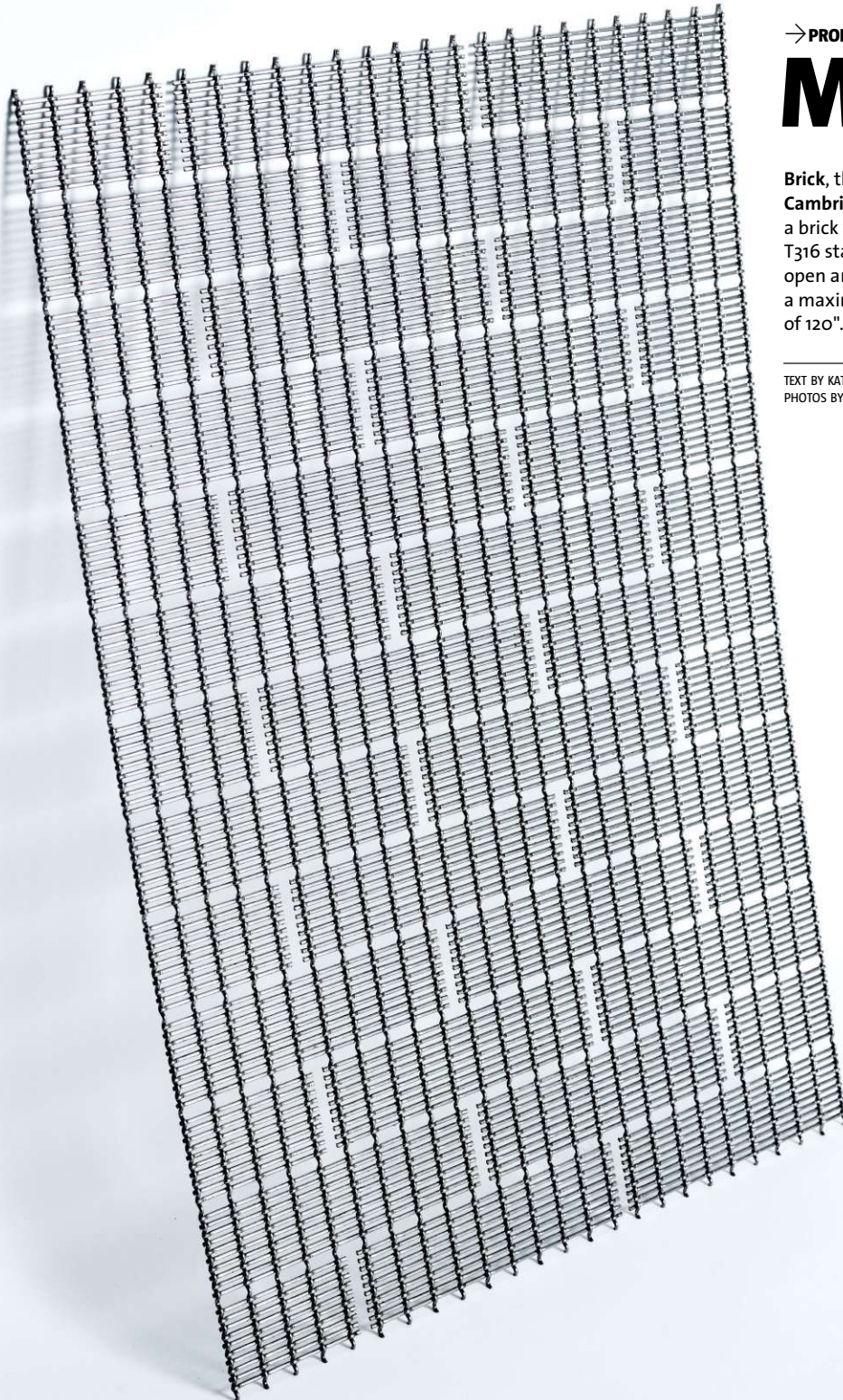
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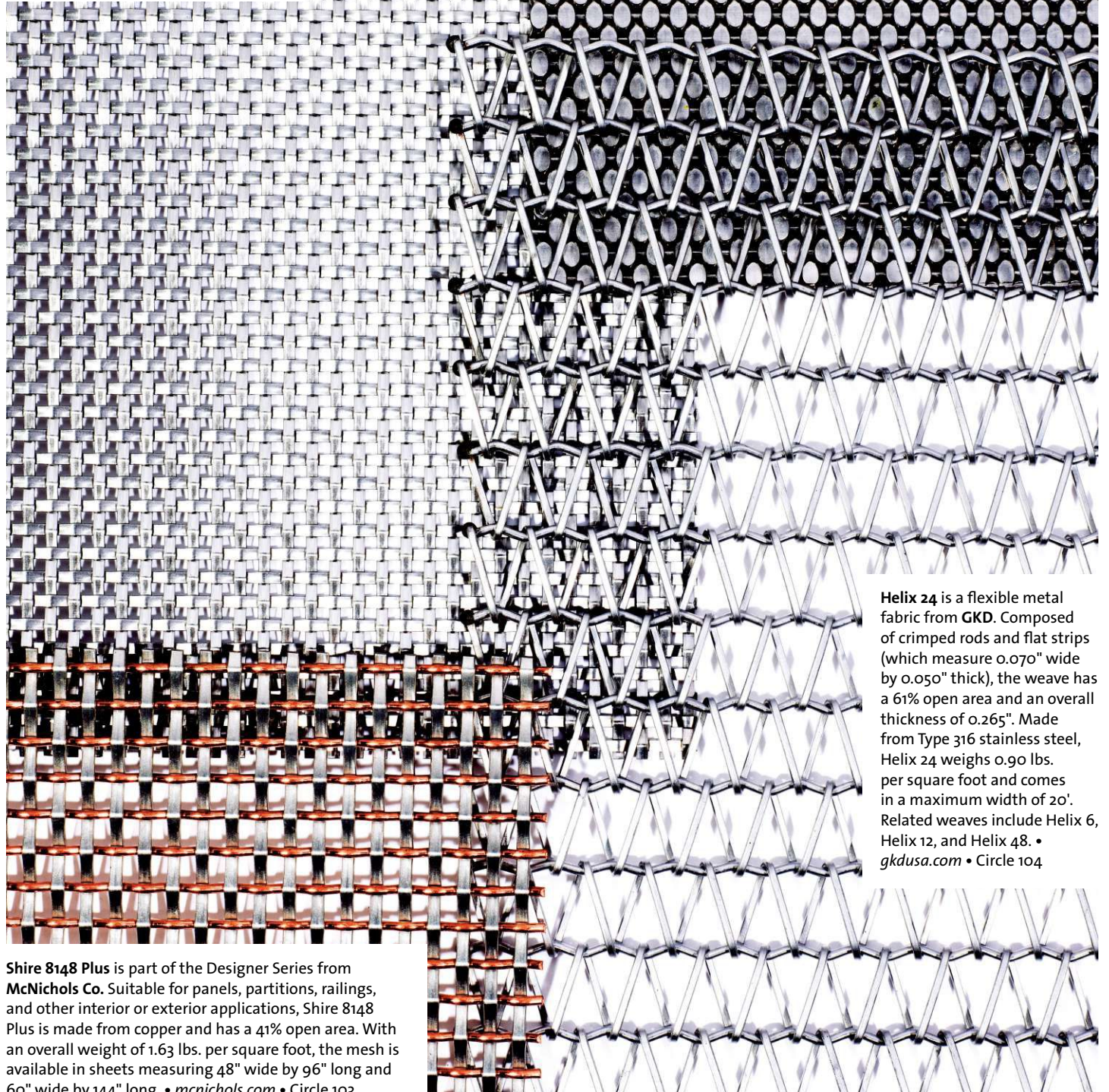
Metal Mesh

Brick, the newest pattern of metal mesh from **Cambridge Architectural**, mimics the pattern of a brick wall. The rigid mesh is available in T304 or T316 stainless steel, and the weave features a 50% open area. It weighs 2.3 lbs. per square foot and has a maximum width of 60" and a maximum length of 120". • cambridgearchitectural.com • Circle 100

TEXT BY KATIE GERFEN
PHOTOS BY NOAH KALINA

Suitable for use as a wall cladding, room divider, railing infill panel, and in other interior and exterior applications, **Korba-Weave 2015** from **W.S. Tyler**, a member of the Haver & Boecker Group, consists of horizontal and vertical crimped flat wires. With an open area of 25%, the relatively opaque mesh still offers a degree of transparency. With an overall weight of 1.21 lbs. per square foot, Korba comes in a maximum width of 98". • wstyler.com • Circle 101

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Helix 24 is a flexible metal fabric from **GKD**. Composed of crimped rods and flat strips (which measure 0.070" wide by 0.050" thick), the weave has a 61% open area and an overall thickness of 0.265". Made from Type 316 stainless steel, Helix 24 weighs 0.90 lbs. per square foot and comes in a maximum width of 20'. Related weaves include Helix 6, Helix 12, and Helix 48. • gkdusa.com • Circle 104

Shire 8148 Plus is part of the Designer Series from **McNichols Co.** Suitable for panels, partitions, railings, and other interior or exterior applications, Shire 8148 Plus is made from copper and has a 41% open area. With an overall weight of 1.63 lbs. per square foot, the mesh is available in sheets measuring 48" wide by 96" long and 60" wide by 144" long. • mcnichols.com • Circle 103

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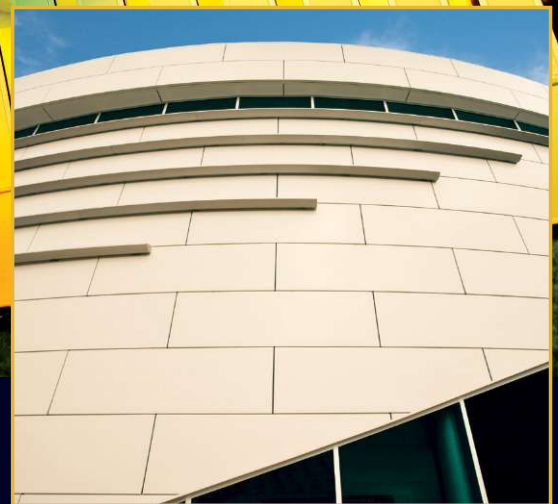


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NO RENDERING SOFTWARE IS THE COMPLETE PACKAGE. FOUR DESIGNERS TALK ABOUT THE PLUG-INS AND PROGRAMS THEY EMPLOY TO GET ANY JOB DONE.

TEXT BY BRIAN LIBBY
ILLUSTRATIONS BY PETER ARKLE

For architects who render and model digitally, it's not a matter of choosing a single software, but several. Like car engines enhanced with special carburetors or camshafts, rendering engines incorporate a host of plug-ins and other tools to generate more sophisticated, naturalistic presentations of light and materials. The following group has employed a variety of these tools, but as architect Mark Oldham, AIA, of Boston firm William Rawn Associates, Architects cautions—echoing a still-common refrain—“We’re a firm that really believes in the physical model, so our use of digital software is supplemental to that.”



Adam Amsel, Miller Hull Partnership

Seattle's Miller Hull Partnership explored creating renderings directly from **Revit** modeling software, only to up the ante. “We didn't have great results with Revit's internal engine, so we exported Revit models into **Google SketchUp** and use **V-Ray for 3ds Max**, or even started with SketchUp and then went into V-Ray and **Adobe Photoshop**,” says Miller Hull's Adam Amsel.

Amsel believes that SketchUp gets unfairly criticized. “Any input coming straight from SketchUp, it's obvious when renderings stop there,” he says. “But now with the ability to plug in different things like V-Ray to add realistic light conditions, you can get a lot of mood.”

Amsel recalls a Miller Hull project that recently broke ground, the Bullitt Center, which seeks to meet Living Building Challenge strictures. “The building has a very large photovoltaic canopy. We were always interested in the quality of light from street level looking up at that,” he says. “While we were exploring different types of solar panels, we'd use V-Ray to see if it was going to look like a big black hat or a dappled tree canopy.”



Eugene Kwak, Dattner Architects

An adjunct professor at Parsons the New School for Design, Eugene Kwak helps faculty incorporate the latest software into their lesson plans, such as the free program **Grasshopper**. “It's like Revit in how it has the parametric aspects built in for geometry, logic, vectors, curves. As a designer, I'm interested in seeing what the script looks like in physical form,” Kwak says. “Grasshopper is also very visual based, easy and intuitive to use.”

In the classroom, Kwak draws from his work in the field. But Kwak's experience teaching Parsons's Modeling for Urban Design seminar has influenced his work at New York's Dattner Architects, too. “Our class needed to create layers of information. If you're designing something and put it into **Google Earth**, somebody can add an image, a YouTube video, some time bars showing the history of that site,” he says. “You can just share a link, and anybody can open it up. It became a class archive. The principals in the office decided to pursue that idea in a project.”



Matthew Kreilich, Julie Snow Architects

"We use **Flamingo** all the time for diagrams and quick sketches in house and in some of our final renderings for client presentations," says principal Matthew Kreilich, AIA, of Minneapolis's Julie Snow Architects. "For us, it's the ability to have a library of materials that we can edit, manipulate, and create within that, [which] Rhino doesn't allow."

Kreilich isn't looking for photorealistic images. He aims for a level of abstraction that he associates with sketching by hand. "But that lighting aspect is critical," Kreilich says. "Trying to render glass is challenging, and lighting is an important component to that effect. It's something we can't do otherwise."

Kreilich also likes how Flamingo incorporates the look of different materials into renderings. "There's the library of materials that it comes with, or you can also scan in different materials images and add them to those surfaces."



**Mark Oldham,
William Rawn Associates, Architects**

Although Boston firm William Rawn Associates, Architects still emphasizes physical models, "with a rendering you can focus or highlight or turn the camera any way you want," says Mark Oldham.

Oldham favors a combination of **Rhino**, **V-Ray**, and **Photoshop**. "If it's all about specifics of sun moving through the building, we'll use Rhino and V-Ray more to show the client how it will work," Oldham says. "It simulates how light bounces across multiple surfaces. If we're doing an in-house study, we put it up on the wall and we're in design-charrette mode. If we're going to show it to the client, there's a decent amount of Photoshop post-production. Rhino is really good at getting the iridescence of metal and glass, for example."

The key, Oldham says, is flexibility. "With our physical models we have a no-glue policy. You can change it right there," he says. "With a very finished rendering, obviously that isn't the case." □

"ANY INPUT COMING STRAIGHT FROM SKETCHUP, IT'S OBVIOUS WHEN RENDERINGS STOP THERE. BUT NOW WITH THE ABILITY TO PLUG IN DIFFERENT THINGS LIKE V-RAY TO ADD REALISTIC LIGHT CONDITIONS, YOU CAN GET A LOT OF MOOD."

—ADAM AMSEL, MILLER HULL PARTNERSHIP

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Learning Objectives

1. Describe diagrid, and explain how this form of design and construction works, compared to other forms.
2. Explain at least two reasons why diagrid is getting so much attention from the profession now.
3. Describe why the perception of sustainability has contributed towards the diagrid explosion.
4. Describe how cultural anxiety has led to the use of diagrid in the last decade.



Swiss Re Building, Foster + Partners, Interior

→ CONTINUING EDUCATION

Dissecting Diagrid

A LEGACY OF R. BUCKMINSTER FULLER, THIS DIAGONALLY BASED STRUCTURAL SYSTEM IS QUICKLY BECOMING A HALLMARK OF 21ST-CENTURY MODERNISM.

FROM ITS INCEPTION, the basic structural tendency of mainline, 20th-century Modernism was a simple one. Whether you take as a starting point Le Corbusier's ultrareductive Maison Domino, or Meyer and Gropius's Fagus-Werk, or the more apparently complex tectonics of Frank Lloyd Wright's Robie House, the pattern is the same: a stack of floor plates upheld by vertical supports (preferably of steel), with a disengaged skin (preferably of glass). Especially in taller buildings, the stolid, rectilinear skeleton was in the ascendant for decades.

There were always, of course, departures—formal excursions, breakaway movements, the work of structural geniuses near the outermost limits of the field. But over the last several years, something new has been under way. The accumulated results of those outsider experiments have coalesced into a structural type that has wedged its way into practice, and that is now having its moment. This is the moment of diagrid.

"I think the one person that really popularized it in the last 20 years or so has been Norman Foster," observes

engineer Guy Nordenson, founding principal of Guy Nordenson and Associates. In 2001, Foster, Hon. FAIA, and his firm started work on two high-profile projects, in London and New York, both sporting a unique diamond patina running up their glassy façades—the Swiss Re building at 30 St. Mary Axe, and the Hearst Tower at W. 57th St. and Eighth Avenue. They appear remarkably different in silhouette: the former like a slender torpedo, earning it its nickname, the Gherkin; the latter, a four-square ziggurat, cinching in every several stories. But the same system, expressed in the same pattern of triangular external struts, gave each its beguiling effect, one that seemed to promise a new kind of structural clarity in tall buildings.

Together, they marked the watershed for diagrid. Since 2003, the telltale diamond pattern has graced a host of large-scale projects around the world. A biggest-hits compilation would have to include OMA's Seattle Public Library and CCTV Building in Beijing; Herzog & de Meuron's Prada store in Tokyo; RMJM's Capital Gate



Swiss Re Building, Foster + Partners, Exterior

in Abu Dhabi, United Arab Emirates; and Zaha Hadid's Zaragoza Bridge Pavilion in Spain.

The fundamental operation of diagrid, and its root appeal for architects, is plain enough. Yoram Eilon, vice president of engineering firm WSP Cantor Seinuk, was project manager on Foster's Hearst Tower, and he distills diagrid to its essential physics: "A series of triangles that combine gravity and lateral support into one, making the building stiff, efficient, and lighter than a traditional high-rise." The portmanteau says it all—"diagrid," from "diagonal grid." The crisscrossing steel members, connected at specially jointed nodes, are mutually reinforcing: they create an integral network across a building surface that braces against the floors, the wind, and the members above. With this exoskeleton in place, the designer can cut down on internal supports, saving on space and building materials, allowing naturally broad apertures, and providing greater flexibility for systems installations.

Simple in outline, the morphological potential of diagrid is almost endless. In London, artist Anish Kapoor has been at work on a monumental sculpture, called the ArcelorMittal Orbit, for the city's upcoming Olympic Games, developed in collaboration with Cecil Balmond, the once director of engineering giant Arup. Intended to stand outside the main 2012 stadium, the Orbit is a twisted knot of diagrid masts, curled into a self-supporting roller coaster some 375 feet high.

In Seoul, South Korea, Skidmore, Owings & Merrill (SOM)'s Lotte Super Tower, a nearly 2,000-foot-tall office

building that incorporates three different geometrical masses, begins on the ground floor as a square, rises to a triangle, and culminates at the top as a circle. Says SOM's Mustafa Abadan, FAIA, "Diagrid allowed that to happen, providing an architectural enclosure made of straight planes"—a consistent sleeve that could be pulled over the ensemble, stretching to follow the contours of the building's different forms.

The stretching takes place in diagrid's diamonds, which open and close, widen and flatten, to accommodate the various twists and turns in the overall structure, as well as its shifting loads. That can make for vexing logistics. The new opera house in Guangzhou, China, from Zaha Hadid Architects uses a lattice frame of striking variability, its irregular grid requiring a series of fitted joints that had to be sand-cast, as Hadid, Hon. FAIA, notes, "as in a medieval bell foundry."

The recent profusion of diagrid has seen it appear as everything from an integral structural system for large buildings to a freestanding screen. But in every instance, the identifying trait, the underlying module of diagrid, is the triangle. In that form lies both diagrid's structural strength and its historical origins. "Nature's own system of coordination [is] based on triangles," said visionary engineer and designer R. Buckminster Fuller: provided its joints are strong enough, the triangle does not collapse under pressure applied to any one point, as each side is buttressed by its neighbors. Upon



Lotte Super Tower, Skidmore, Owings & Merrill, Plaza



Lotte Super Tower, Skidmore, Owings & Merrill, Diagrid on Skin



this principle, Fuller built an entire worldview, along with scores of proposals for buildings that elaborated his triangular concept into buildings of all kinds, notably his famous tensegrity and geodesic constructions.

Fuller was foremost among those ingenious tinkers testing the limits of modern structure, and he stands as the most immediate forefather to the current wave of diagrid buildings. Norman Foster worked with Fuller in the last decade of the engineer's life, and has described him as having "a profound influence on my own work and thinking." Nordenson is another product of Bucky's office, and cites him as a prime source of the diagrid trend, as does Arup's Dominic Munro, structural engineer on the Swiss Re project. Munro's firm has helped shape a number of recent diagrid-type projects, and around the office, he says, "The reference that we usually use is 'back to Fuller.'"

But there are other antecedents, too, as Munro is quick to point out. "What diagrid does is take the structure of a continuous shell, which works in any direction, and pair it with the constructability of the discrete element, the beam-and-stick approach. It's a discrete-ized shell." In a similar key, SOM partner William Baker has cited the work of 19th-century Russian prodigy Vladimir Shukhov, a mathematician and scientist who pioneered lightweight hyperboloids and radical tensile structures. There are still other innovators whose insights into tall-building construction have contributed to the present diagrid craze (Fazlur Khan's X-braced John Hancock Center is a major milestone), but the idea of diagrid as a simplified take on continuous concrete or fabric structures connects its newfound popularity to a distinct tradition: a plastic, expressive strain of Modernism, one that runs through figures such as Felix Candela and Eero Saarinen, and that links up neatly with the heady ambitions of today's international designers.

Certainly, the endless sequence of new and increasingly complex geometries that has emerged from the design profession in the last two decades has been a driving force in the growing popularity of diagrid. As we've moved outside the Modernist box, diagrid has rushed in to keep the roof over our heads. Sometimes literally: Asymptote Architecture's Yas Hotel in Abu Dhabi features a vast diagrid screen that vaults up and over the main body of the hotel. Firm principal Hani Rashid connects the use of diagrid in the project to the formal possibilities unleashed by digital design techniques. "There are these remarkable possibilities to optimize and parametrically control ... that we didn't have even five or six years ago," the designer says.

In fact, the opening salvo in contemporary architecture's digital revolution features, if rather discreetly, a diagrid structure. Frank Gehry's Guggenheim Museum in Bilbao, Spain, is famed for its computer-molded, curvilinear metal cladding. But lift up the lid, notes Guy Nordenson, and it's "a kind of diagrid, a triangulated surface back from the skin. It's all made up of triangles. It's just not the kind of filigree that people associate with diagrid."



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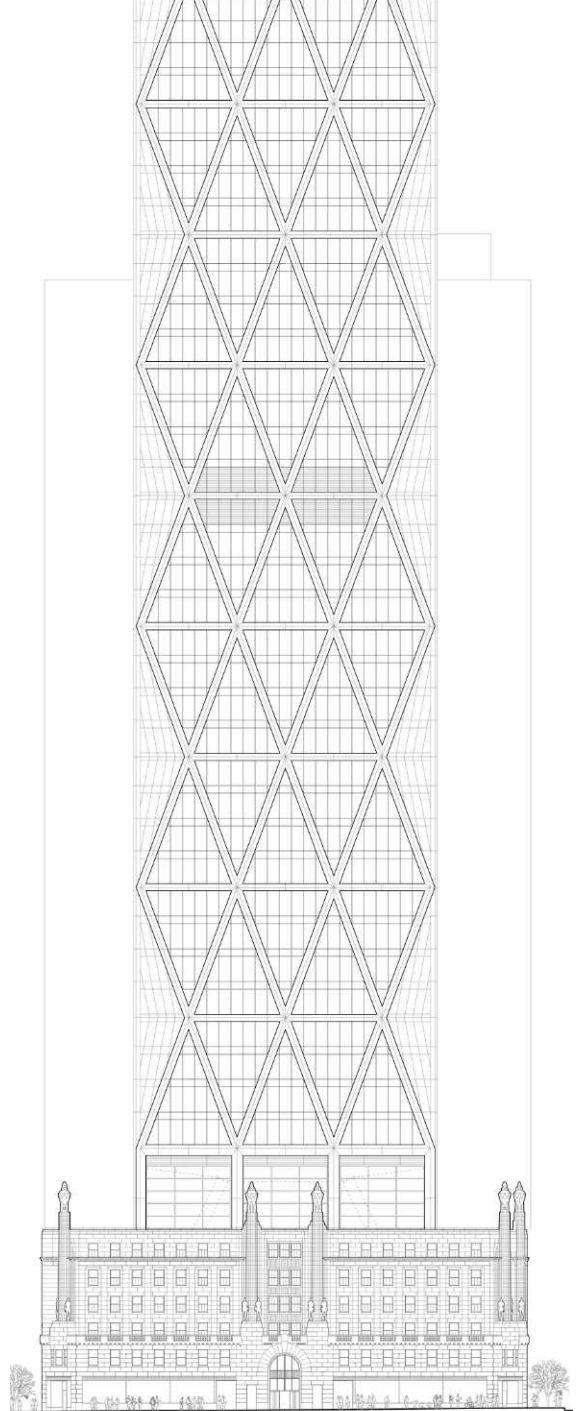
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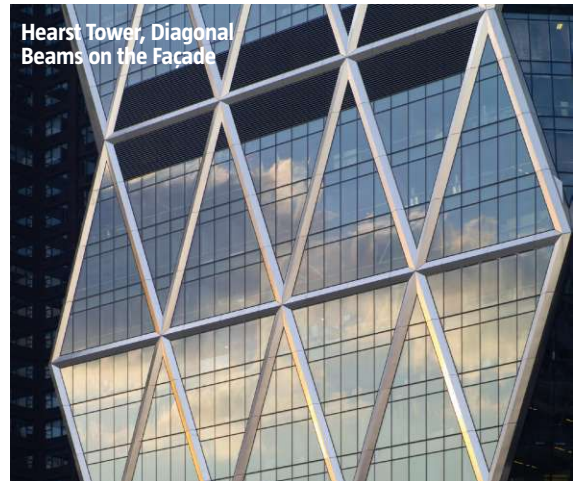
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Hearst Tower, Foster + Partners, East Façade



Hearst Tower, Diagonal Beams on the Façade



But what “people associate with diagrid” is an essential part of the equation, since it’s the forthright presentation of the grid—not the obscuring of it—that seems to have caught on so dramatically with the profession of late. “It’s the image of sustainability,” opines Craig Schwitter, managing director for design consultant Buro Happold. “It helps form an understanding of what environmentally sensitive buildings could look like.” Schwitter’s firm has been involved with a series of projects that have included the “mapping” system of diagrid, and he sees it as a kind of advertisement for the material thrift, and the attendant green benefits, of the buildings that deploy it. “That’s where a building like Hearst really sings,” Schwitter says. “It looks energy efficient and it is.”

That’s true. On its completion, the Hearst Tower became the first in New York City to merit LEED Gold certification for its exterior and interior fittings. Likewise the Gherkin, whose diagrid was born of Foster’s effort to create a sequence of skewed atria to allow for natural ventilation and light wells that could cut down on energy consumption: vertical columnar supports simply wouldn’t do the job. Not only that, but, as Dominc Munro of Arup explains, “The Swiss Reinsurance company’s business is global risk. They were amongst the first in the world to underwrite the potential risks of climate change.” For them, the building had to read “green,” and the legibility and openness of diagrid fit the bill exactly.

With all this, and the public accolades that so many diagrid buildings have attracted in the press, the prospective benefits of using the technique (where appropriate) seem to outweigh the obstacles of building in it. Rashid’s client initially balked at the notion of putting in place some 5,680 individual diamond shapes, but eventually saw the light, especially after “we got it done in under 14 months,” he says. And as the approach diffuses throughout the practice, it filters down to builders and fabricators, so that erection is getting easier and more efficient. Says WSP Cantor Seinuk’s Eilon, “If you built ... [Hearst] now, you would save a lot more” on construction and material costs.

There is one additional factor, however, that may also account for the surge in diagrid designs over the last 10 years, though it’s a great deal harder to quantify. Norman Foster unveiled his initial proposal for his Manhattan tower to his clients on the morning of Sept. 11, 2001; three years later, it became the first large tower to break ground in New York after the attacks. In the initial proposals for the new World Trade Center, one of the most popular submissions—from the collective team of Allied Architects—made extensive use of diagrid, as did an early model for 1 World Trade Center, developed in consultation with Guy Nordenson. Even Foster’s Swiss Re is a building inextricably bound to the memory of violence: The former 30 St. Mary Axe was critically damaged in an IRA bombing in 1992.

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age of anxiety. It may be only a coincidence, but it is an uncanny one. We live in an era in which the representation of structural strength takes on a deep moral resonance. Even in Asia or the Middle East, diagrid speaks a reassuring language of stability, a message qualified by its real physical economy and resilience. As Buro Happold’s Craig Schwitter puts it, “You can’t fool mother nature.” Diagrid looks like it should work, and it does. □



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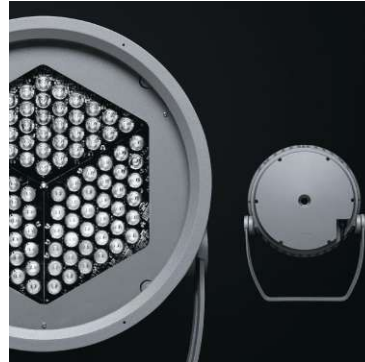
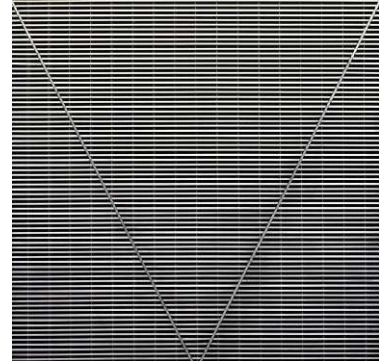
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TEXT BY GREIG O'BRIEN

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SOURCE: NATIONAL GEOGRAPHIC

The back of **Resol's Trama** chair (shown), part of the company's Dd line along with its Peach chair, was designed by Josep Llusçà to have a transparent effect. It is available with or without arms, and in three color groups—natural and soft tones, neutrals, and very saturated. The company intends Trama to fit both indoor and outdoor settings, as well as residential and commercial spaces. • resol.es • Circle 120

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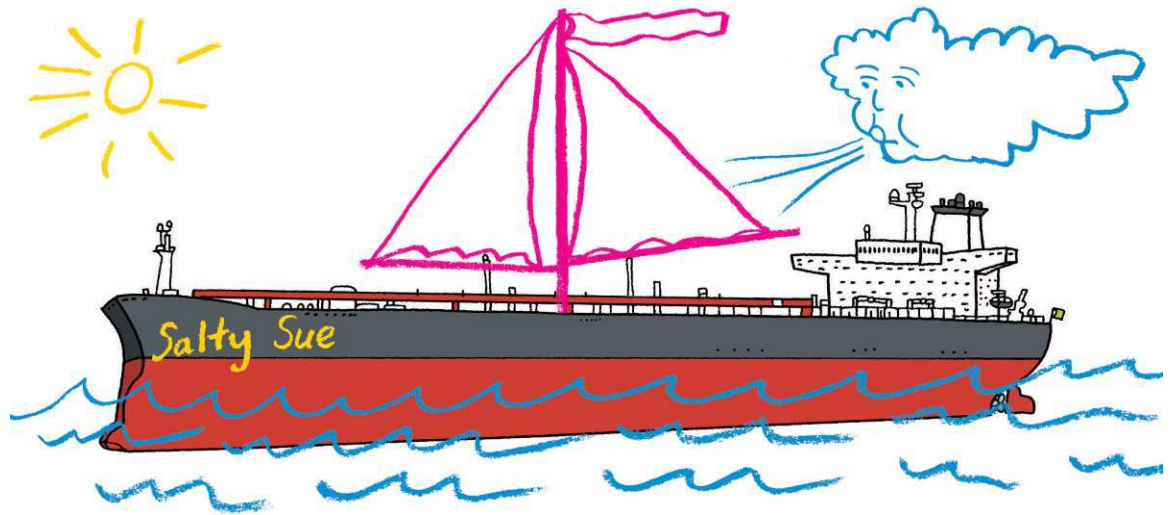
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AS THE U.S. ECONOMY continues to stagnate, those looking for the means of creating jobs and improving overall economic health need look no further than clean technology. According to a Brookings Institution report released last July, the green-technology sector produced "explosive job gains," while "newer clean economy establishments—especially those in young energy-related segments such as wind energy, solar PV, and smart grid—added jobs at a torrid pace." As architects and designers will be happy to note, solar power in particular is becoming diversified in its methods of implementation as well as its materiality.

Transportation is a promising frontier for solar photovoltaic power. Based on concerns related to future petroleum price increases, the Japanese company Eco Marine Power has developed a novel solution in the form of solar sails. The Aquarius System capitalizes on the unlimited access to sun and wide berths of large shipping vessels. The sails collect energy from sunlight and harness the wind to power nautical vessels—primarily oil tankers and large carriers. The company claims that the sails may be carefully positioned to simultaneously capture optimal sunlight and wind, though ostensibly they will not always be positioned for both.

Back on dry land, architects and manufacturers have acknowledged the façade as a promising space for energy harvesting, particularly in tall buildings. GreenPix, the head-turning zero-energy media wall designed by Simone Giostra & Partners and Arup for the Beijing

Summer Olympics, demonstrated that solar power need not be relegated to the roof. This year, an industrial designer with Jerusalem-based Bezalel Academy of Arts and Design developed a GreenPix-like solution that may be easily adapted to existing structures. Meidad Marzan's proposal, called UrbanTiles, is an adjustable shading device that absorbs solar power during the day and uses the energy for nighttime lighting.

While silicon has been the traditional feedstock for photovoltaic cells, scientists are studying more novel materials—including living matter—for future PVs. The University of Cambridge's Engineering and Physical Sciences Research Council (EPSRC) and Design in Science project have developed a series of energy-harnessing interfaces that incorporate living, biophotovoltaic (BPV) technology. The project integrates biological organisms such as moss and algae into solar projects—including a proposal for giant algae-coated lily pads that in aggregate form offshore power plants, generating 5 to 6 watts per square meter.

These promising applications are not without challenges or potential negative side effects. For example, broad adoption of UrbanTiles could facilitate entire urban skylines accommodating flashy, Times Square-style advertisements. Nevertheless, these innovative approaches demonstrate the extent to which solar-generated power is becoming an important and interdisciplinary consideration for architecture and design—and for the economy. □

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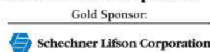
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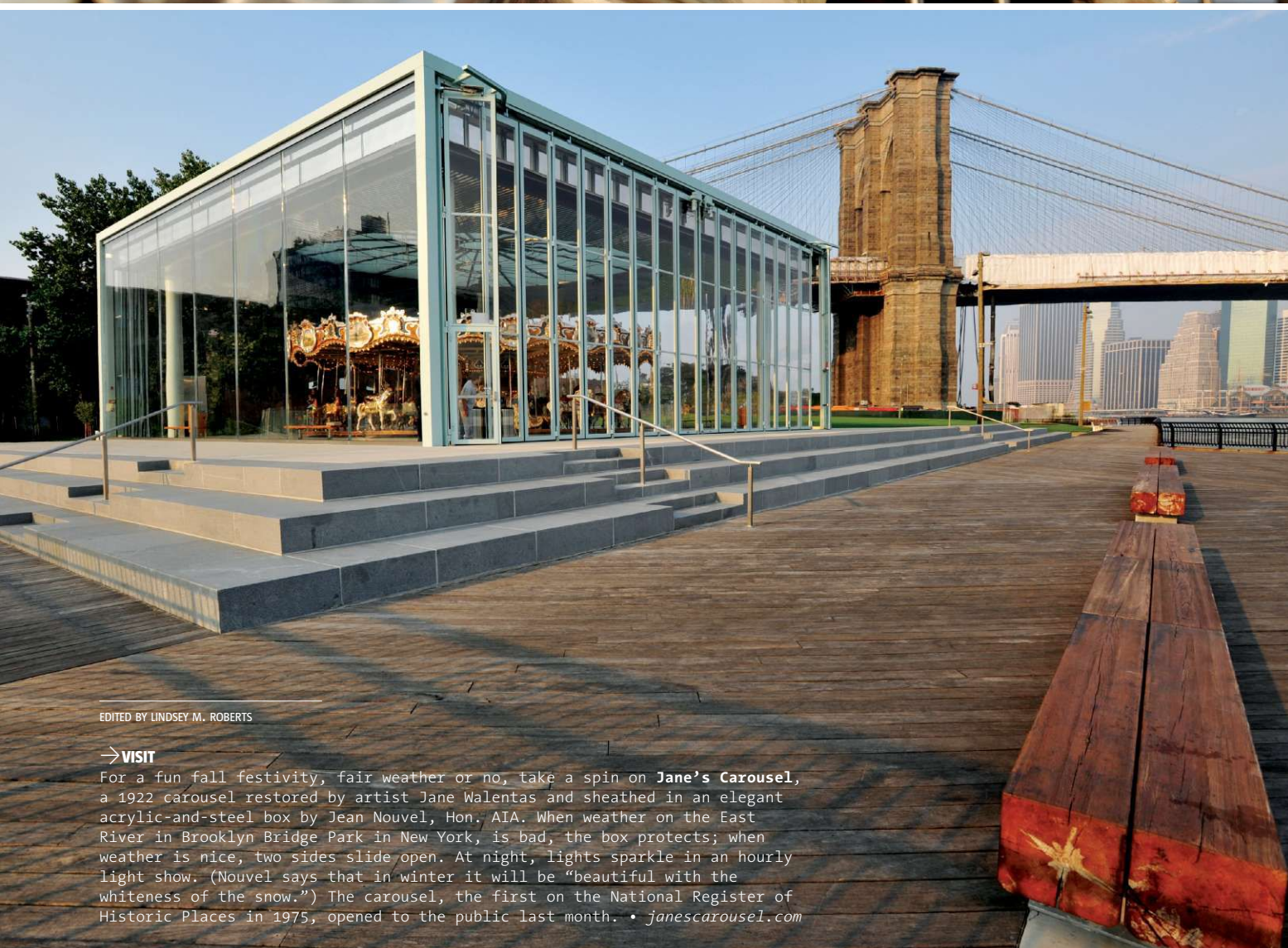
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CULTURE



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→ VISIT

For a fun fall festivity, fair weather or no, take a spin on **Jane's Carousel**, a 1922 carousel restored by artist Jane Walentas and sheathed in an elegant acrylic-and-steel box by Jean Nouvel, Hon. AIA. When weather on the East River in Brooklyn Bridge Park in New York, is bad, the box protects; when weather is nice, two sides slide open. At night, lights sparkle in an hourly light show. (Nouvel says that in winter it will be "beautiful with the whiteness of the snow.") The carousel, the first on the National Register of Historic Places in 1975, opened to the public last month. • janescarousel.com

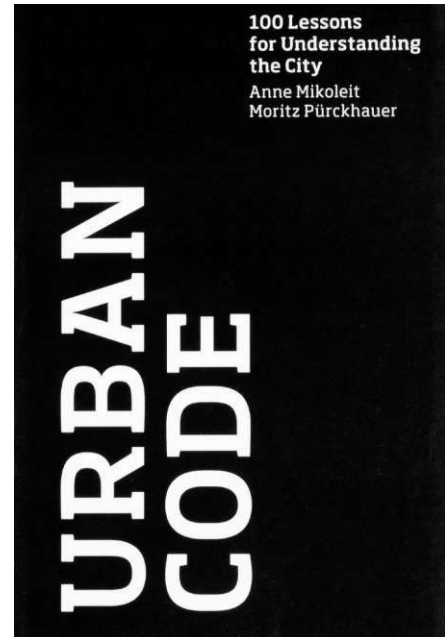


→EXHIBIT

Apex: The Anatomy of the Egyptian Pyramids at Norway's National Museum of Art, Architecture and Design examines one of architecture's most spectacular mysteries: the design of the Egyptian pyramids. Working in collaboration with Norwegian University of Science and Technology scholar Ole Jørgen Bryn, the museum presents evidence—in the form of drawings, models, and artifacts—to support the theory that the ancient designers used a projection system to build the pyramids' exceedingly accurate apex points. Through Nov. 6. • nasjonalmuseet.no

→BOOK

Lesson one: People walk in the sunshine. Lesson two: Street vendors are positioned according to the path of the sun. Ninety-eight additional maxims follow with illustrations and photos in **Urban Code: 100 Lessons for Understanding the City** by Anne Mikoleit and Moritz Pürckhauer. The architect and architecture professor from Zurich present results of a phenomenological investigation in New York City and describe what makes SoHo, SoHo. Inspired? Go forth and write your own city's code. • \$18.95; The MIT Press, October 2011



→EXHIBIT

From antiquity to the present, librarians and architects have always belonged to the same guild: Together, they have built some of history's most progressive buildings. (Mario Botta's 2006 Werner Oechslin Library in Switzerland is shown here.) Taking its title from an eloquent Bible verse, **Wisdom Builds Her House: The Architecture and History of Libraries** at Munich's Pinakothek der Moderne illustrates the relationship between architecture and libraries through film, photos, and other media. Through Oct. 16. • pinakothek.de



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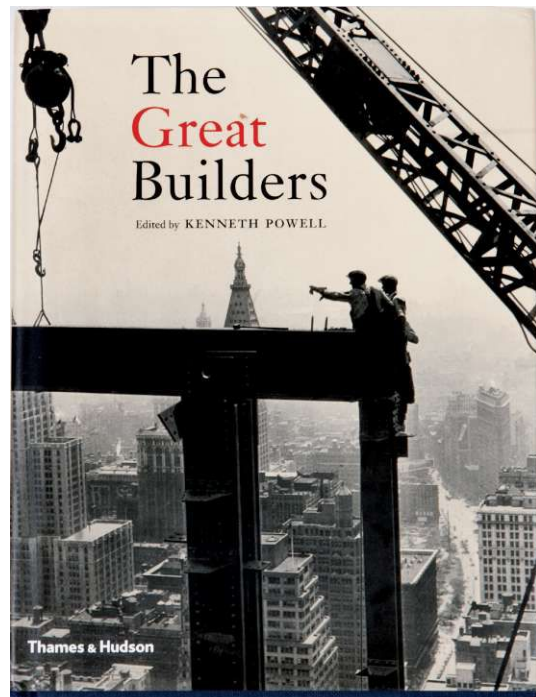


→ **EXHIBIT**

Sweeping across four millenia and five continents, **The Life and Death of Buildings** at the Princeton University Art Museum looks at the rise and fall of buildings great and quotidian, and the photographs that outlasted them. Moss blankets Ford's Model T headquarters (shown), Russian soldiers play Tchaikovsky in a rubbly Berlin living room, and, in a pixelated JPEG, the North Tower collapses. From the wreckage emerges a theme, exemplified by Charles Clifford's 1853 study of Burgos Cathedral. Because of the long exposure then required, the hands of the church's clock, now removed, are blurred with motion. Through Nov. 6. • artmuseum.princeton.edu

→ **BOOK**

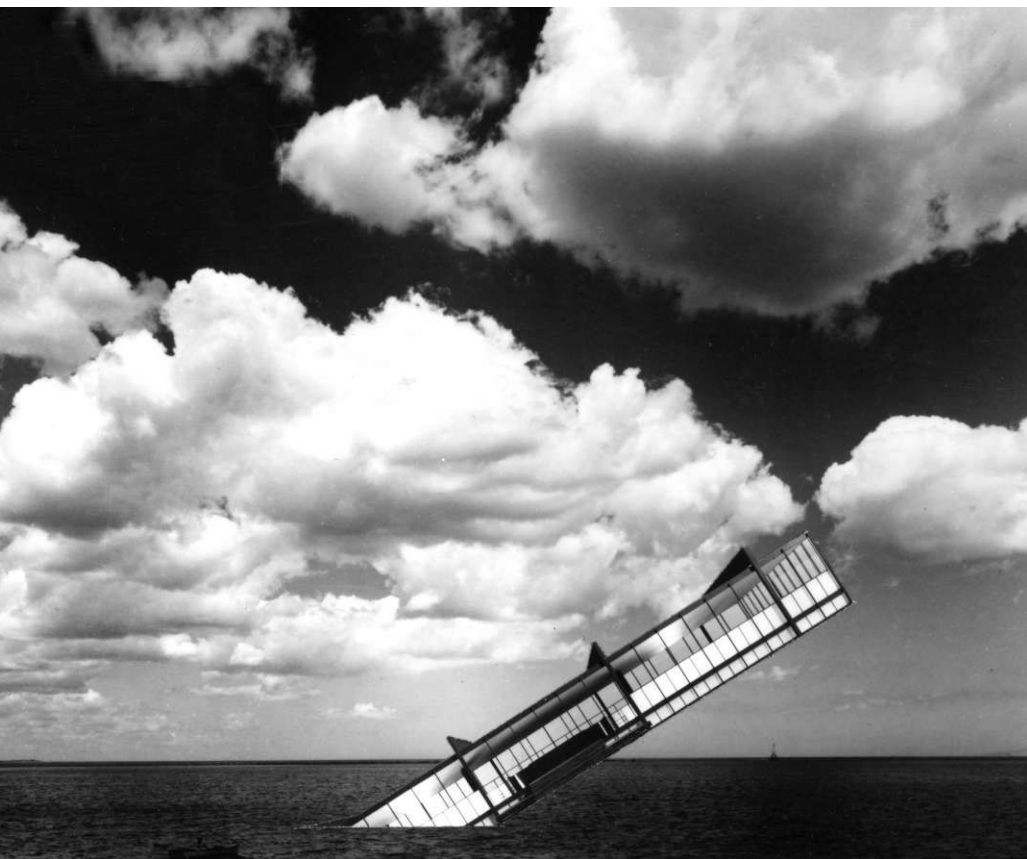
From Sinan and his mosques to Sullivan and his skyscrapers, **The Great Builders**, edited by Kenneth Powell, profiles 40 canonical architects and engineers and their structural legacies. Similarities among them include an interdisciplinary mind (who knew of Eiffel's Indian summer as a meteorologist?), the influence of nature (cf. Viollet-le-Duc's study of an alpine peak's crystalline structure), and, for now, the XY chromosomes. The study fascinates most when detailing dreams deferred—for example, Schinkel's unbuilt Crimean palace for Tsarina Alexandra and the "Plan for Tokyo" by Kenzo Tange that's hard to fathom. \$40.00; Thames & Hudson, October 2011





→ EXHIBIT

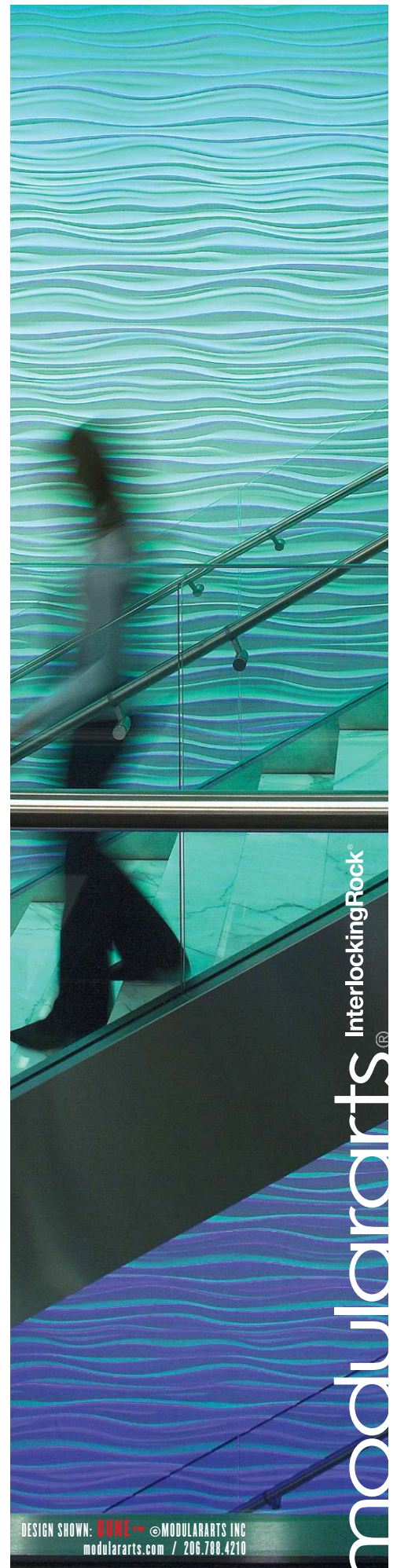
In Latin America, the built environment can reflect the political instability, rapid urbanization, and preservation of resources on the continent. The Pratt Institute School of Architecture in Brooklyn, N.Y., and its student research group, Latin Pratt, present **Breaking Borders: New Latin American Architecture**—covering these issues over the past 10 years in more than 10 countries, and highlighting the work of 45 firms. (Casa View in Argentina by Diego Arraigada Arquitectos and Johnston Marklee is shown.) Through Nov. 30. • pratt.edu



→ EXHIBIT

Creative types with staying power usually transform over time from enfants terribles to éminences grises. But it would be a crime to lump 81-year-old architect Stanley Tigerman, FAIA, into the latter category. He earned his role as de facto dean of Chicago architecture the hard way, stepping on well-shod toes, speaking truth to power, and strategically shooting at sacred cows. **Ceci n'est pas une rêverie**, a Tigerman retrospective now at Yale's A&A Building, explains why his wife and partner Margaret McCurry, FAIA, can fairly say, "He's the bravest man I've ever met." A case in point: Tigerman's photomontage *The Titanic* condemns Mies van der Rohe's iconic Crown Hall to a watery grave—in 1979, when Mies's rep ostensibly was watertight. Through Nov. 5. • www.architecture.yale.edu

CLOCKWISE FROM TOP LEFT: COURTESY PRINCETON UNIVERSITY ART MUSEUM; GUSTAVO FRITTEGOTTO; ORLANDO CABANBAN; NOAH KALINA



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→ CRIT

Urbanized

GARY HUSTWIT'S THIRD DOCUMENTARY EXPLORING THE LEGACY OF MODERNISM TACKLES THE SUBJECT THROUGH HIS MOST AMBITIOUS LENS YET—THE GROWTH AND FUTURE OF THE MODERN CITY.

TEXT BY ADAM MAZMANIAN



Adam Mazmanian is a writer living in Washington, D.C. He is the editor of the daily international development news publication *UN Wire* and reviews movies for *The Washington Times*.

URBANIZED, the third documentary in a series by director Gary Hustwit, plays out like the first day of an ambitious, sprawling survey course on urban history and design. It follows the template of the previous entries in the trilogy, *Helvetica* and *Objectified*: interviews with a cast of opinionated practitioners and theorists interspersed through a global tour of urban projects. While Hustwit's trilogy presents a consistent visual brand, his approach here suffers from a lack of detail—and a reliance on well-worn narratives about urbanization and its discontents.

Helvetica, the 2007 introduction to the series, examines the history of how one font came to represent a certain corporate, modernist perfection, and thereby conquered graphic design. Hustwit's first documentary foray can be faulted for being too precious, but with its finite focus, it cannot be criticized for a lack of detail.

Objectified, his 2009 follow-up, is more of a social mixer in movie form, introducing consumers to leading industrial designers and exploring how people connect with manufactured objects. The subjects are given license to wax philosophically on the importance of design (and by extension, their own importance) to every aspect of human life. Hustwit's latest film lacks the quirky intimacy of *Helvetica*, but fortunately, it avoids the pomposity that crops up in *Objectified*.

Because its subject is so vast, *Urbanized* does not pretend to be exhaustive or definitive. It aggregates trends from the kaleidoscopic field of urban design, with flashes of economics, transportation, architecture, engineering, demographics, politics, and philosophy. It does so while managing to maintain a high degree of interest for over 85 minutes, and it may convince some

viewers—particularly younger viewers—to consider a professional interest in these issues. That's the case despite the film's missed opportunities, elisions, and unfinished stories.

Global urbanization is placing unprecedented stress on governments and economic systems. Currently, just over half of the world's population lives in cities. That figure is projected to climb to 70 percent by 2050, according to the latest State of the World Cities report from the United Nations Human Settlements Programme (UN-Habitat). Overall, the movement of people to cities generates wealth, but the economic benefits of urbanization are not shared out in a way that benefits whole populations. Impoverished new arrivals gravitate to unplanned, informal settlements that lack clean water and sanitation and become magnets for crime and economic exploitation.

In *Urbanized*, Hustwit's academic subjects are to varying extents awed, dismayed, and bewildered by the challenges facing the world's cities. But Hustwit's project is at heart a work of optimism. Innovators, including architects, artists, activists, and designers, show how new ways of thinking can offer solutions to what appear to be intractable problems. So in Santiago, Chile, we see a scheme that builds homes for former slum dwellers and makes them affordable by compromising on certain amenities and leaving some elements of the house unfinished. In Khayelitsha Township, a blighted settlement on the edge of Cape Town, South Africa, residents were plagued by gangsters as they walked to and from the train station that took people to jobs in the city. A government initiative to provide paved walking paths, streetlights, and manned lookouts for law enforcement contributed to a 40 percent reduction in murders.

In each case, projects were advanced by the concepts of "participatory design" and "negotiated development"—essentially do-gooder jargon for treating poor people like clients. There is a conceit at work here. By juxtaposing endemic social problems with charming design solutions, a viewer might get the idea that this approach is scalable, and applicable to slums worldwide. But a social housing project such as the one *Urbanized* depicts in Chile, which has one of the lowest proportions of its urban dwellers living in slums of any country in South America, might not have much relevance to Mumbai, India, or Lagos, Nigeria. The underlying problems of land acquisition and property rights that bedevil efforts to create sustainable housing for poor populations are never addressed.

Urbanized follows the lead of its predecessors by engaging with the legacy of Modernism. In *Objectified*, this legacy is characterized by the minimalist designs of Braun's Dieter Rams and Apple's Jonathan Ive. Georgia Institute of Technology professor Ellen Dunham-Jones, AIA, presumably under her own steam, frames the connection nicely in *Urbanized*. "Modern urban planning is very similar to modern graphic design or modern industrial design," she says. "It's minimalist; very ordered, very rational."

With urban planning, any discussion of Modernism

invariably leads to aerial shots of Brasilia, Brazil. Oscar Niemeyer, the 103-year-old Brazilian architect who designed much of the city along with Lúcio Costa, eloquently defends the plan of the city on artistic grounds; in the next sequence, Danish architect Jan Gehl, Hon. FAIA, demolishes the plan as unlivable and inhumane. Hustwit does not dwell on evaluating Modernist urban design beyond this exchange—instead using the separation of traffic and roads from people and buildings that characterizes Brasilia to introduce a discussion of transportation. This tension comes up again as Amanda Burden, New York City's director of planning, discusses her efforts to humanize her city in the wake of the transformational changes wrought by master builder Robert Moses.

The decline of Detroit is told through the efforts of community-garden activist Mark Covington. In addition, historian Noah Chasin offers a vague paean to the "DIY aesthetic" of local empowerment movements, while urbanist Bruce Katz advises "thinking as entrepreneurs"—but no one will go quite so far as to suggest that a city of 700,000 can retrofit its way into being a self-sustaining agricultural hub. Instead, *Urbanized* is interested with Detroit largely as a visual phenomenon. The segment begins with one of the film's longest uninterrupted shots: a minute-long spin on Detroit's elevated light-rail through the unoccupied urban center. Glimpses of demolished neighborhoods and ruined houses follow.

No UN-Habitat statistical annex can evoke the ghostly, rusted-out beauty of postindustrial decay—but run a finger down a table titled "City Population of Urban Agglomerations City Population Growth Rate of Urban Agglomerations," and you'll find declining populations in industrial cities throughout Russia and the former Eastern Bloc. Detroits everywhere are losing population. Is this a global urban phenomenon in which the fates of mono-industry cities are linked? It would have been instructive for Hustwit to unclench his grip on some of the more familiar visual tropes to explore their underlying complexities.

If the goal of *Urbanized* is to stimulate the imagination into thoughtful consideration of how the human species builds, inhabits, and then dispossesses its urban environments, then it is an unqualified success. However, there is something about Hustwit's crisp, spare visual style that serves to paper over some of the darker aspects of his topic. There is no faulting his composition and balance of the cinematography. A shot of a favela in Rio de Janeiro lingers lovingly on the snug fit of the dilapidated houses against the steep hillside. A row of ramshackle corrugated aluminum dwellings, framed in a certain way, assumes a raw and vivid kind of beauty. But such a romantic approach nevertheless tends to obscure the suffering of the lives that are lived therein. The visual language that served *Helvetica* and *Objectified* so well disappoints here. The passion and knowledge of the talking heads in *Urbanized* are not in doubt. But the film would benefit from a few more charts and graphs—and a harder look at the people that these data represent. □

The Dharavi slum in Mumbai, India—which may house more than 1 million people in an area of just 0.7 square miles—is one of the largest slums in the world, but only the fifth-largest slum in Mumbai.

→STUDIO VISIT

The Jerde Partnership, Los Angeles

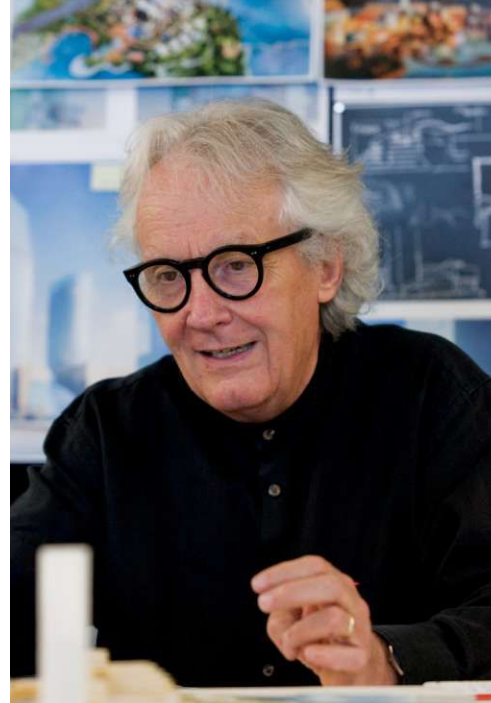
WITH AN EMPHASIS ON CREATING DESIGNS SPECIFIC TO PLACE ACROSS THE WORLD, THE GLOBALLY FOCUSED JERDE PARTNERSHIP STILL ANCHORS ALL OF ITS DESIGN WORK IN ITS OCEANFRONT VENICE BEACH OFFICES.

TEXT BY KRISTON CAPPS
PHOTOS BY JASON FULFORD



The Jerde Partnership's studio in Venice Beach, Calif., faces directly out on the Pacific. When the firm moved here in 1990, it left a historic Red Car electrical substation on Sunset Boulevard. "It took a few years for there to be a patina on this place to give it the experience," says David Rogers, AIA, partner and design co-director. "But Venice Beach is the most culturally dynamic, ethnically diverse place in the world. It's a wonderful human experience."

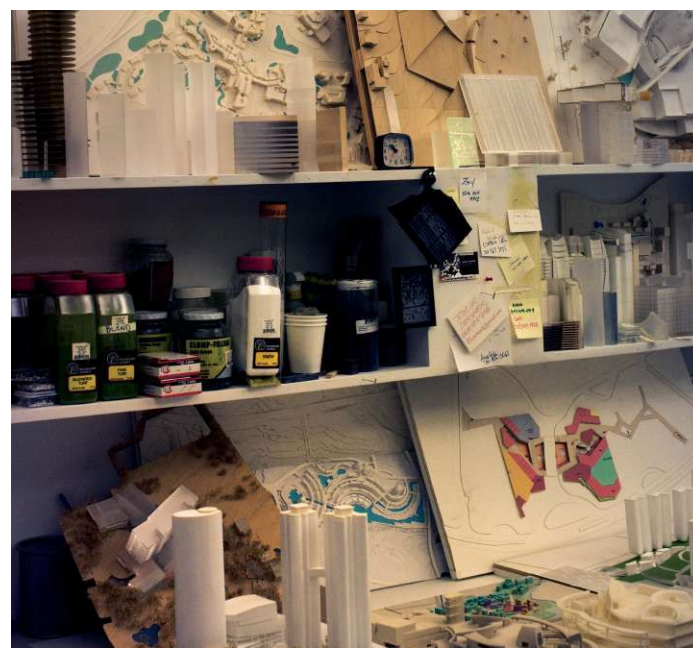




Jon Jerde, FAIA, top center, is the firm's founder and namesake. Though the firm has grown to about 120 people and five offices worldwide since its start in 1977, some staffers have stayed on nearly since the beginning. John Simones, left, partner and design co-director, came on in 1983. And Rogers, right, has been with Jerde for 22 years.

Although the Jerde Partnership has offices in Berlin, Hong Kong, Seoul, South Korea, and Shanghai, the firm's design work happens at its Los Angeles headquarters. Senior design staff are assigned to every project, which is reviewed by the entire group and reflects the opinions of the office as a whole. Design work happens on the road, though: When the designers travel to pitch projects to clients, they build a three-dimensional model on site to demonstrate some proposals. "We bring foam-cutters with us and build a studio within the client's office," Rogers says.

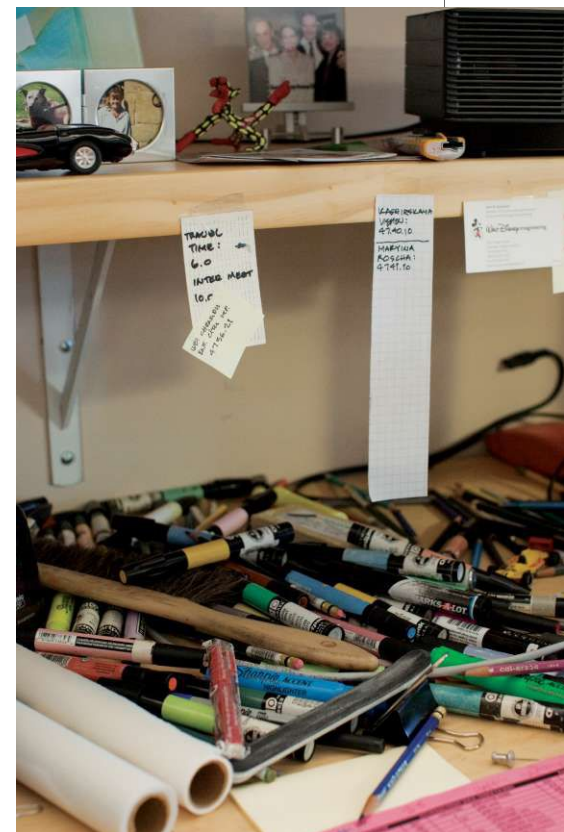
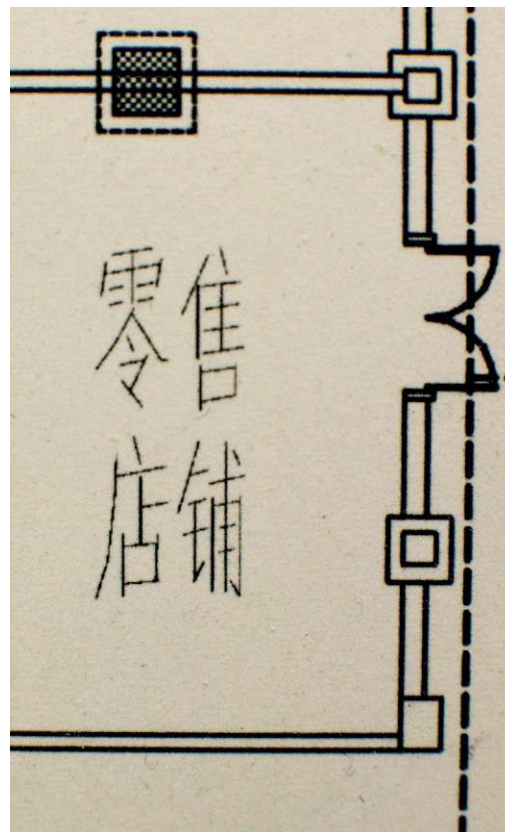
Just more than half of the Jerde Partnership's staff hail from outside the U.S., from places such as Russia, Turkey, and, increasingly, China. "It's like an international city here," says Rick Poulos, AIA, partner and executive vice president.



Despite the enviable view of the Pacific from its front door, the Jerde Partnership doesn't think of itself as a West Coast firm. "We're so global now, we think of ourselves as a global company," Simones says. But he's willing to acknowledge the advantages of location. "I can ride my Harley to work every morning. It's a nice ride along the beach."

The distinction between object-making and place-making—what other firms do and what the Jerde Partnership does, respectively—is the key way that the partners talk about their work and their firm. That distinction underscores the firm's culture, Simones says. "When you bring someone into a firm like Jerde, we've created our own approach to how we solve the problems at hand," he says. "The same approach we started with is the same approach we use now."





There's nothing fixed about the workspaces at the firm's Los Angeles headquarters. "One day you might walk through an area that's empty, the next you might find 25 people in the same spot tearing up a design charrette," Rogers says.

The partners say that the centralization of the firm's design work at its headquarters has helped it to weather its own growth. The managers and directors who work at Jerde's further-flung offices start in Los Angeles. And while the studio work takes place at headquarters, senior designers captain all of the firm's offices abroad in order to liaison with clients as well as local design institutes in the field during the design and execution stages of a project. "You kind of feel like they're your arm reaching out to the client," Simones says.

Photos taken at or near the Laurance S. Rockefeller Preserve Center, designed by John Carney and Mark Hershberger in Wyoming's Grand Teton National Park.



→ BEYOND BUILDINGS

Tetonic Order

ARCHITECTURE THAT WORKS IN NATURE DOESN'T HAVE TO HIDE ITS HUMAN FOOTPRINT.

WELCOME BACK. Did you have a nice vacation? Let me tell you about ours. We spent a few days hiking around Grand Teton National Park. That landscape will make anything by humans seem ridiculous, but what I noticed during my first foray into National Park—land in a few years was that the idea that everything we make there must be imitation log cabins seems to be finally receding. There actually *is* modern architecture in Jackson Hole, Wyo., and some of it is quite decent.

What impressed me most was the group of structures and spaces that local architect John Carney, FAIA, and landscape architect Mark Hershberger carved out of what used to be the Laurance Rockefeller estate around Phelps Lake. Rockefeller gave this—one of the last parcels from the family's once-vast land holdings—to the Park in 2001. The Laurance S. Rockefeller Preserve Center opened in 2008 after his death.

Most of the architect's work was that of un-building, which is my favorite kind of architecture. All of the family's cabins and lodges were removed, with some of them winding up on a small parcel that the family retained further up the valley. What replaced them was the landscape of the Teton's foothills, a mixture of aspen and pine trees, mountain meadows, and streams undulating from the picturesque crags to the flat prairie below where elk and moose (and RVs) roam.

The only structures that did appear were a 7,000-square-foot visitor center and three bathroom buildings. The main building is a wood structure with a sloping roof, but Carney was careful to make the roof

float over slats and beams, allowing the walls to slide underneath as continuous surfaces that present an apse to you as you hike up. Around the corner, the building expands into an L-shape, and you enter into the lower wing from a sheltered area.

What particularly impressed me were the ways in which Carney articulated the primary structure as a latticework that sketches out the basic form of the project. Smaller members and wood planes sliding over steel beams fill out the building—in a manner that distinguishes it from both the imitation of nature or the evocation of the alpine architecture that stands for vernacular in this part of the world.

Further up the trail, where a curved plank surface leads to the side of the creek, a steel grated surface departs to another point of contemplation. Around the far end of the lake, about four miles into our walk, we encountered a path of wood slats sloping over a place where water trickles down into tall grasses. At the near end of the lake, a metal grate walkway leads over wetlands, with simple wood blocks serving as perches for taking in the views.

The clarity and simplicity of all these elements maximize the natural vistas, while also marking the viewer's presence. Instead of hiding or denying the human intrusions, this design celebrates the transformation of nature into a consumable good of the highest order. That is what the best architecture that opens up to nature does: It is unabashedly romantic, while humanizing nature in the most minimal way. □

TEXT BY AARON BETSKY
ILLUSTRATION BY PETER ARKLE



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



Todd Evans

LEED AP BD+C

Project Architect
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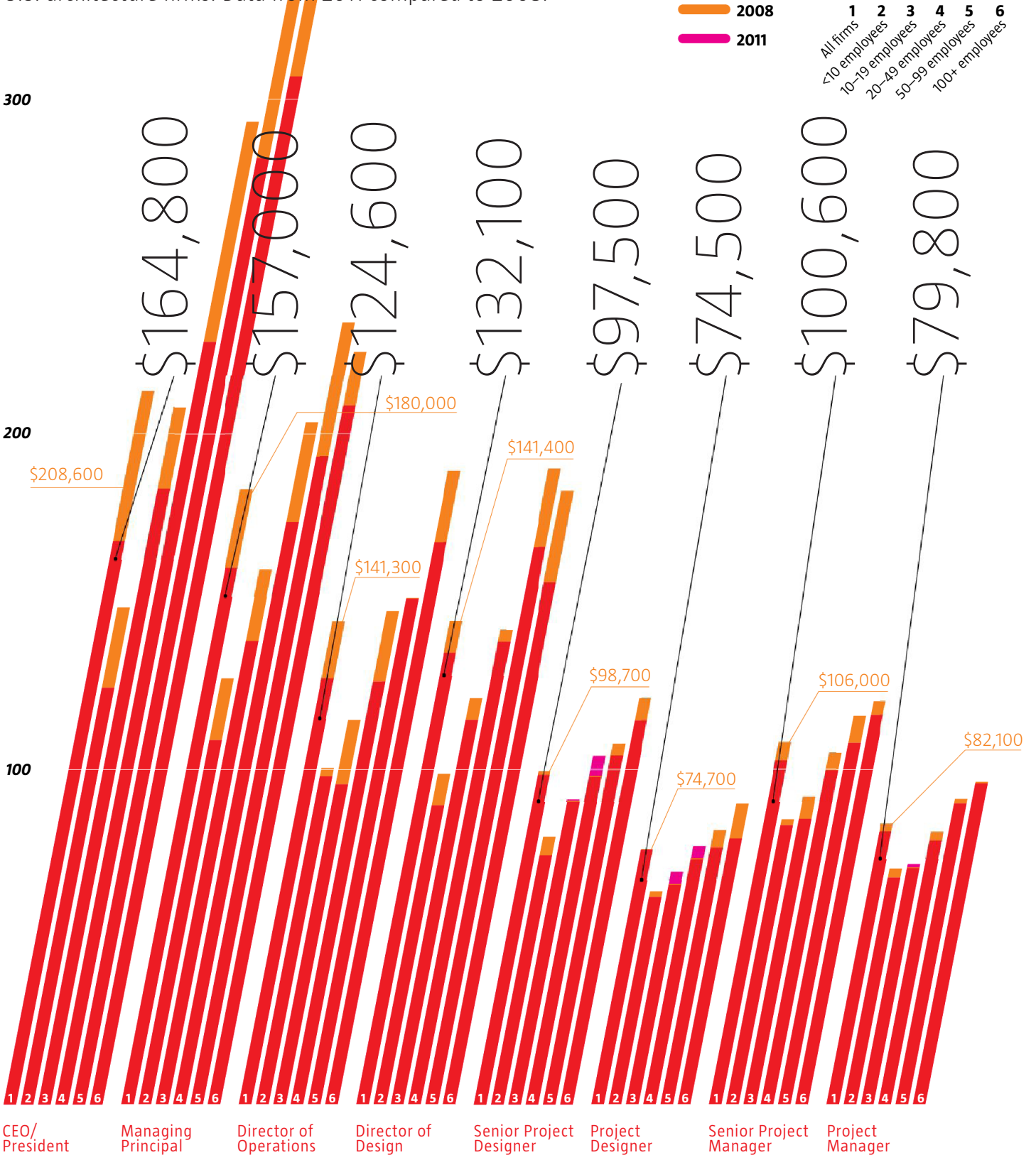
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BY THE NUMBERS

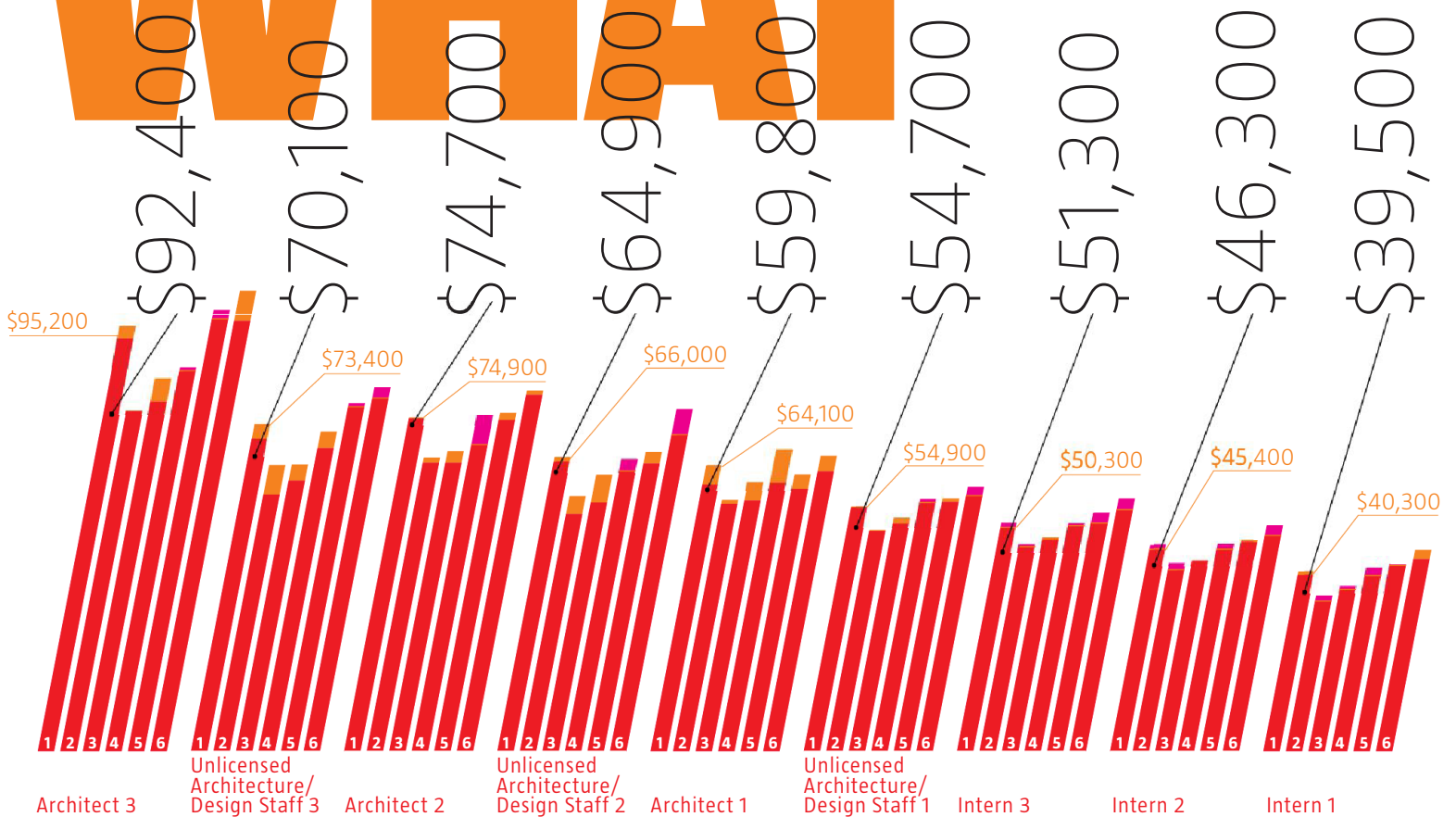
Average compensation (including overtime, bonuses, and other incentive-based pay) for architecture and design positions at U.S. architecture firms. Data from 2011 compared to 2008.



As economists debate whether another recession is in the works, the **2011 AIA Compensation Report** reveals that architects haven't stopped feeling the pinch.

INFOGRAPHICS BY CATALOGTREE

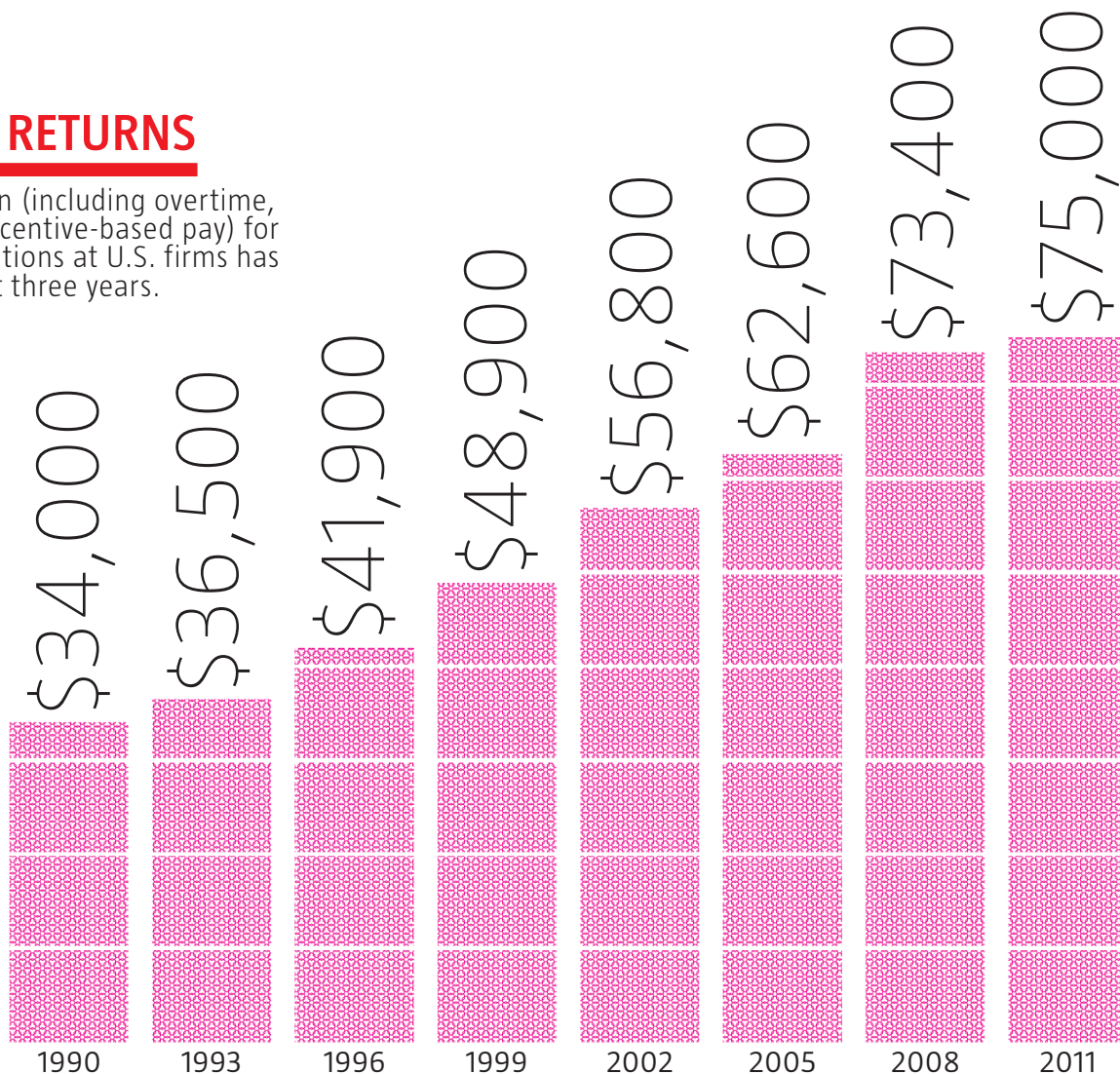
WHO MAKES WHAT



DIMINISHING RETURNS

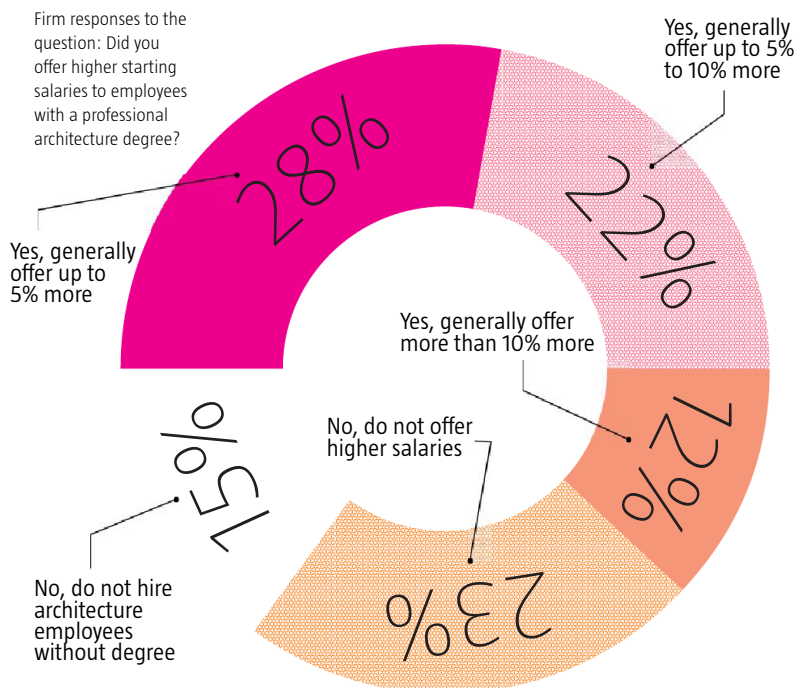
Average compensation (including overtime, bonuses, and other incentive-based pay) for staff architecture positions at U.S. firms has barely risen in the last three years.

Data based on project design and management staff, architect and design positions, and interns.



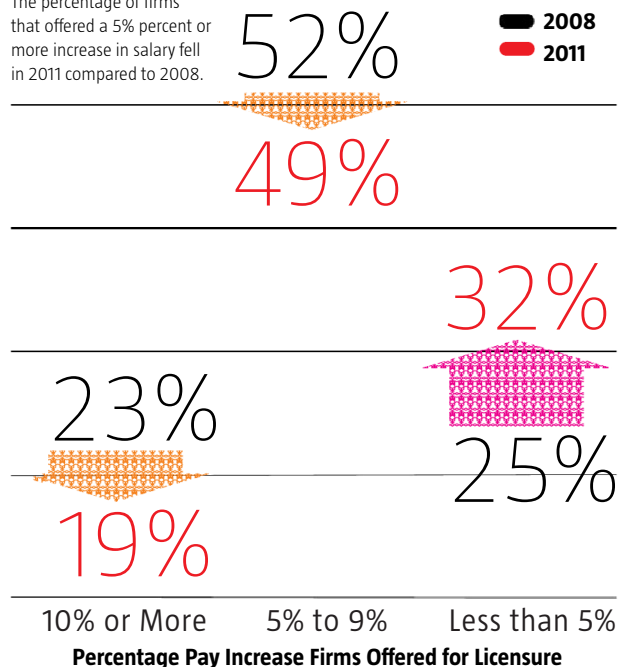
IT PAYS TO HAVE A DEGREE

Firm responses to the question: Did you offer higher starting salaries to employees with a professional architecture degree?



FIRMS ARE PAYING LESS FOR LICENSURE VS. 2008

The percentage of firms that offered a 5% percent or more increase in salary fell in 2011 compared to 2008.

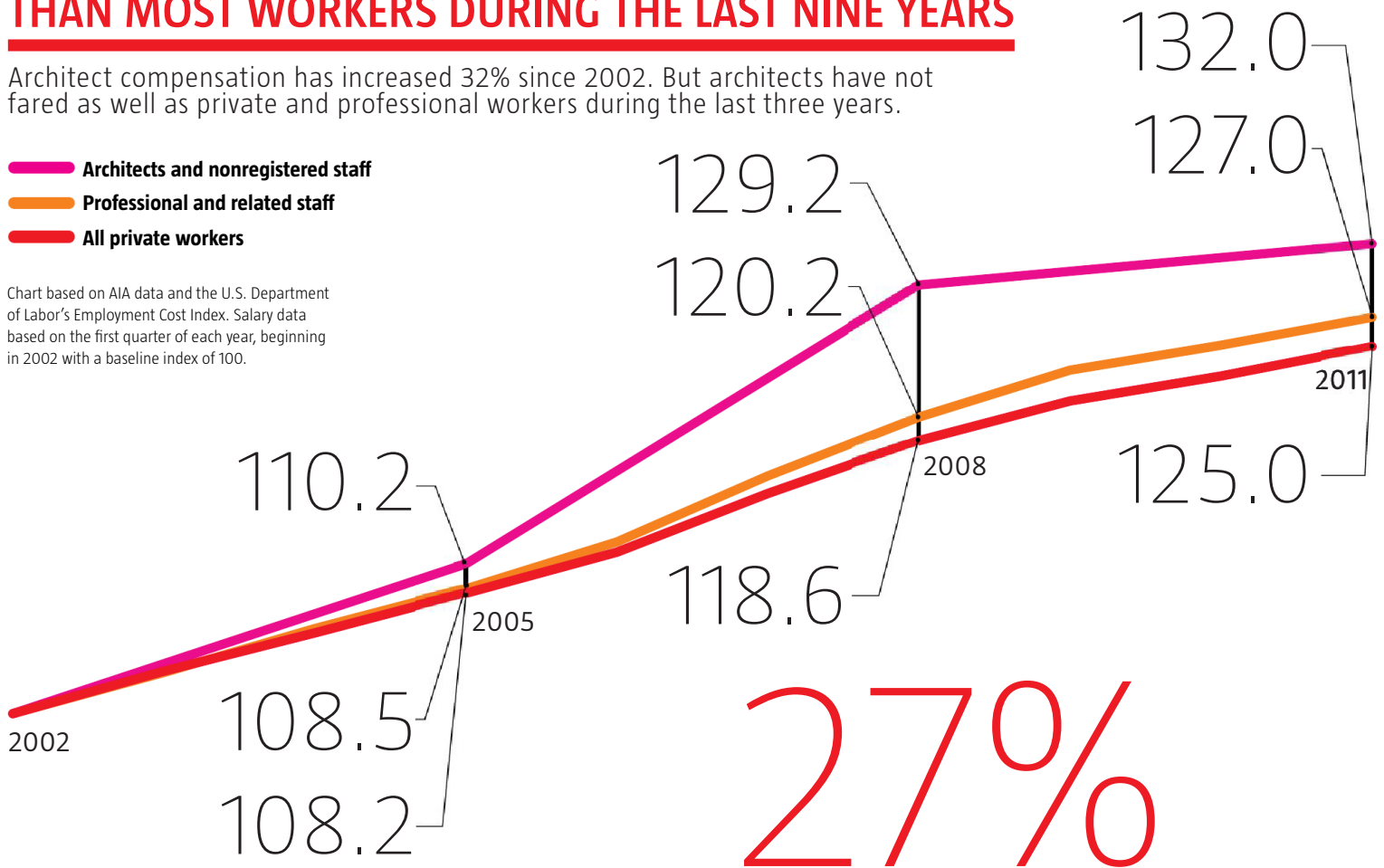


ARCHITECTS HAVE ENJOYED LARGER SALARY GAINS THAN MOST WORKERS DURING THE LAST NINE YEARS

Architect compensation has increased 32% since 2002. But architects have not fared as well as private and professional workers during the last three years.

- Architects and nonregistered staff
- Professional and related staff
- All private workers

Chart based on AIA data and the U.S. Department of Labor's Employment Cost Index. Salary data based on the first quarter of each year, beginning in 2002 with a baseline index of 100.



27%

The recent drop in payroll employment at U.S. architecture firms, from more than 214,000 employees at the end of 2007 to under 156,000 at the end of 2010, according to the latest U.S. Department of Labor figures.

SMALL FIRMS TYPICALLY PAY MORE FOR LICENSURE

Percentage of firms that offer higher salaries for degrees, licensure, and Revit and BIM expertise.

- M.Arch. Degree
- Registration
- Revit and BIM expertise



WHERE DATA CAME FROM

Every three years, the AIA conducts a compensation survey of architecture firms. This year, 1,223 firms from around the country supplied responses by the March 14 deadline. The AIA collaborated with Readex Research to process the data. To purchase the full report, visit aiastore.hostedbywebstore.com or call 800.242.3837.

The following definitions were used for the various positions:

- Architect 3:** Licensed professional with 10 or more years of experience who plans and develops medium to large projects.
- Architect 2:** Licensed professional with eight or more years of experience who has responsibility for finished plans, specifications, and material approval.
- Architect 1:** Licensed professional with five or more years of experience who receives guidance for complex projects.
- Intern 3:** Full-time employee with three to six years of experience who is pursuing licensure and may be responsible for projects' technical design.
- Intern 2:** Full-time employee with two to three years of experience who is pursuing licensure and who works from the designs of others.
- Intern 1:** Entry-level employee with less than two years of experience who is pursuing licensure.



TEXT BY ELIZABETH EVITTS DICKINSON
ILLUSTRATIONS BY KEITH WITMER

THE 50 YEAR OLD INTERN

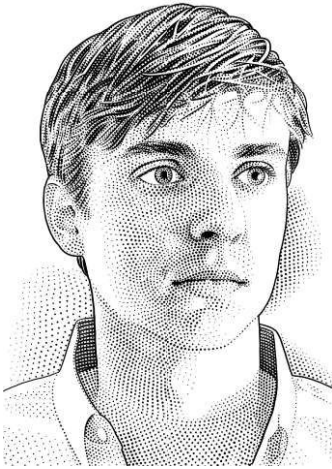
Meet Hana Kolton, an architecture school graduate with a successful career designing laboratories for high-profile clients such as AstraZeneca and Novartis. Kolton never got a license—never needed one, she says. With recent graduates pursuing other fields as the economy falters, or deciding like Kolton not to get licensed, she may well represent a worrying trend—a decline in registered professionals. Will there be a lost generation of architects? And should we care?

Hana Kolton

Age 50. Senior laboratory planner and associate at KlingStubbins in Cambridge, Mass. No license.

“After graduating from the Rhode Island School of Design and finding a job, I started taking the exams. But then I was busy designing and so engrossed in buildings, that it was never a priority. (I still have four exams to take for completion.) Then I had a family and two kids. Over the years many people have said to me, “You won’t advance without a license.” But it hasn’t stopped me from growing professionally or moving up or getting work. It was never an issue in job interviews. Now here I am, still climbing, with a specialty in research and development laboratories. When it comes to actual designing, I know the codes and can do everything but stamp the documents. Of course, having a license can be great, but what I bring to the table—my expertise in laboratory planning and design—keeps the clients coming back. They request to work with me. They respect what I can do for them, and that is more important than having a license. If I did strike out on my own, I would probably do consulting rather than designing, so I still wouldn’t need a license. Or I could always work with my husband, who is a licensed architect.”

AS TOLD TO ERNEST BECK



Adam Sauer

Age 27. Junior designer at TEK Architects in New York City. Pursuing licensure.

"Since I was a child, I always wanted to be an architect, so obtaining a license was always a personal as well as an end goal. I won't feel finished [with that goal] until I do it. If you are a junior designer, or an architect without a license, what are you? It is a blurry middle ground. Going through the process and the

education and not getting a license would be like going to medical school and residency and then not becoming a doctor. I also like the freedom that a license brings. You don't have to rely on other people to stamp drawings, or deal with other legal issues. You can get in trouble without it. Eventually, if I want to open my own office, a license is the first step in that direction. And even if I were to throttle back in the future and not open an office, or do my own thing, I would still have it in my back pocket. I want to be licensed, no matter what, and I want to do it quickly. No dragging along. Maybe a license is just a title, but I want to know that I have accomplished that." **E.B.**



John Theobald

Age 36. Planner and intern architect at Kitchen & Associates Architectural Services in Collingswood, N.J. Pursuing licensure.

"I studied architecture and then, after working for several years, continued my education in city planning. But that kind of education wasn't very interesting to many firms, until now. They wanted one or the other. So I kept putting off taking the exams. A license wasn't related to

anything I was doing at work or academically. It [not having one] didn't impede anything; it was a disconnected obligation that had very little immediate benefit. Only recently has it become an issue, because I realized there is a ceiling. It does start to matter when you reach a point where you are not going to go any further; you won't become an associate, or have your name on anything. It's an important credential that people will ask about and it will matter on a CV or on a project team. A license was never a factor in my ability to move forward professionally or earn money—until I hit that ceiling. All of sudden it is expected that you must have that credential. The process is still disconnected to what I do as an architect or an urban planner, but I think a license will help me regardless of the direction I go, which is why I will now take the exams." **E.B.**

IT'S MID-SEPTEMBER, and even though the economy isn't exactly booming, Fred Scharmen is a busy man. At 33, Scharmen is the co-founder of the Working Group on Adaptive Systems—a Baltimore-based business focused on architecture and design that he has worked hard to grow during the past year. He has just completed a small residential project in the historic Fells Point neighborhood and has started another residential rehab nearby. He is helping builders in the city with a case study for a passive house development project and is teaching 20 hours a week at three area universities, including Morgan State University and Catholic University of America, which both have architecture programs accredited by the National Architectural Accrediting Board (NAAB). As a founding board member of D:center Baltimore, a new nonprofit dedicated to the advancement of architecture and urban planning in the city, he has also spent time in D.C. lobbying on behalf of architecture projects. He recently had to do something incredible in this economy: He had to turn down work.

Scharmen is a reassuring presence for those who fear for the future of young architects. His is a promising practice built on sweat equity and talent that exemplifies the kind of diverse work that a contemporary architect can tackle. Thing is, Scharmen isn't an architect, at least not in the legal sense of the word. He has yet to earn a license.

When he started architecture school at Yale University eight years ago, Scharmen believed that he would get a license. "Once I knew about the steps to licensure, it was always a goal," he says. Today, he is almost there, having fulfilled most of the required steps. First, he earned a professional degree from an NAAB-accredited program (M.Arch. from Yale in 2006). Then, over four and a half years and at three different architecture firms, he logged the 5,600 hours required through the Intern Development Program (IDP) run by the National Council of Architectural Registration Boards (NCARB). Finally, a year and a half ago, he purchased study materials to prepare for the Architect Registration Examination (ARE) administered by NCARB. And that's when his momentum faltered.

This winter, Scharmen will need to start making significant monthly payments toward the student-loan debt he deferred in order to get his practice and teaching career started after the IDP. "If I don't have myself in a sustainable situation, I'm not going to be able to pay Sallie Mae," he says. The more than \$1,000 that he estimates he would need to pay in fees to NCARB for the ARE, plus the time spent preparing for and taking the seven divisional tests, are simply not a priority. "That time and money could go to expanding my practice, which is professional development—on my terms. Given the choice, I would [rather] invest in myself," he says.

Scharmen represents what some in the profession are calling the "lost generation"—graduates of architecture programs who find it unnecessary or untenable to pursue licensure. Because of the difficult economy, coupled with what some professionals and academics believe to be a complex and lengthy licensure process, many graduates may be discouraged from legally entering the profession. "We all fear the loss of a generation," says Judith Kinard, FAIA, professor of architecture at Tulane University and president of the Association of Collegiate Schools of Architecture (ACSA). "The road we're headed down leads to fewer talented people entering the profession as licensed professionals with the ability to use the word 'architect' legally and with confidence."

So are young professionals such as Scharmen an anomaly? Or do they represent a growing trend? Are an increasing number of architecture graduates choosing a path that does not include licensure?

A Question of Data

Let's start by asking a seemingly simple question: What percentage of architecture-program graduates eventually earn a license? Ask the organizations that oversee the academy, the licensing process, and the profession—NAAB, NCARB, ACSA, American Institute of Architects (AIA), American Institute of Architecture Students (AIAS)—and the answer is the same: We don't know. "It's been very difficult for schools to track their graduates on licensure. Given the economics of education, it's an expensive task. I think we all would love to know, but we all guess," Kinnard says.

Andrea S. Rutledge, executive director at the NAAB, says that her organization has heard the apprehensions about a lost generation: "The leaders of the AIA and NCARB have expressed concerns about the rate of licensure." But, she adds, it is not within the NAAB's mission to bolster licensure rates. "No one is coming to us to do anything about it," she says.

NCARB, the national membership organization composed of all the architectural registration boards for the 50 states, D.C., and the three U.S. territories, cites as a "primary function" maintaining records for state boards, architects, and interns. But NCARB also says that it does not have access to relevant data. Ask about the number of new licenses issued last year or the average age of the more than 105,000 licensed architects in the U.S., and NCARB officials say that the organization currently can't glean that information from its membership or from internal records. NCARB also has no specific data on what the attrition rate of the IDP and ARE programs are. Kim Kerker, NCARB's director of communications, says that the problem is data collection. "Every year, we survey our members as to how many architects they have in their jurisdictions and how many reciprocal licenses they have. We don't ask the question, 'How many new licensees did you acquire last year?' In the future we can start asking," she says.

NCARB, Kerker adds, is limited by the data and format of information kept by the architectural registration boards that compose its membership; there is no unified standard for record-keeping. Moreover, the architect and intern records that NCARB maintains were, until recently, in hard-copy and PDF formats. "This system is archaic today," Kerker says. "NCARB is moving away from hard copies to electronic data—and in the near future we will be able to analyze our data much more effectively." NCARB, she says, hopes to provide at least some of the above information on licensure by the end of the year.

Even though the relevant data currently hasn't been compiled to determine the extent—or even the existence—of a lost generation, the licensure issue has sparked a heated debate about the ways that the profession is losing future talent. So what is fueling the conjecture?

Daniel Friedman, FAIA, dean and professor at the College of Built Environments at the University of Washington, says that there's plenty of reason to be alarmed. In May, toward the end of his tenure as president of ACSA, Friedman wrote a farewell essay that called for reform within the architecture community. The profession must make licensure a priority, he wrote, citing research by AIA chief economist Kermit Baker suggesting that over the past three years, the number of employees in U.S. firms has

declined more than 25 percent. "Extrapolate this estimate among the 105,000 registered architects practicing in the U.S., and 25 percent seems alarmingly high," he wrote.

Last year, the NAAB reported 27,852 students enrolled in the 151 accredited programs in the U.S., with a total of 6,017 accredited degrees awarded. Friedman wonders how the industry can encourage those students to pursue careers in architecture, when we are "heading into a turtle-paced recovery, with little hope a shallow upturn can restore lost jobs?" (The 2009–2010 AIA/NCARB Internship and Career Survey underscores the challenge for interns, showing that of some 10,000 respondents, 27 percent were laid off in 2010, as compared to 5 percent when the survey was last conducted in 2007. Of those laid off or out of work, 30 percent said that they were unsure about returning to the profession.)

Just as alarming, Friedman notes, is that less than 30 percent of full-time faculty at accredited schools hold a license, according to the NAAB. "Soon we'll need to decide how much it matters that less than half of all our full-time tenure-track professors are licensed, and whether or not we care that fewer and fewer students and interns value registration," he writes.

Friedman is among a growing number of academics, young professionals, and architects who believe that the licensure system must be revamped. For starters, schools and the profession must better communicate how and why students should get licensed, says Nick Mancusi, Assoc. AIA, board president of the AIAS. To that end, the AIAS is currently creating marketing materials explaining the key decisions to becoming licensed—such as choosing between accredited and non-accredited programs. "The more students know, the more they are ready to make the decision whether they want to be licensed or not," he says.

INTERNS HAVE FARED BETTER THAN OTHER STAFF DURING THE DOWNTURN

Average compensation (including overtime, bonuses, and other incentive-based pay) for staff architecture positions at U.S. firms.



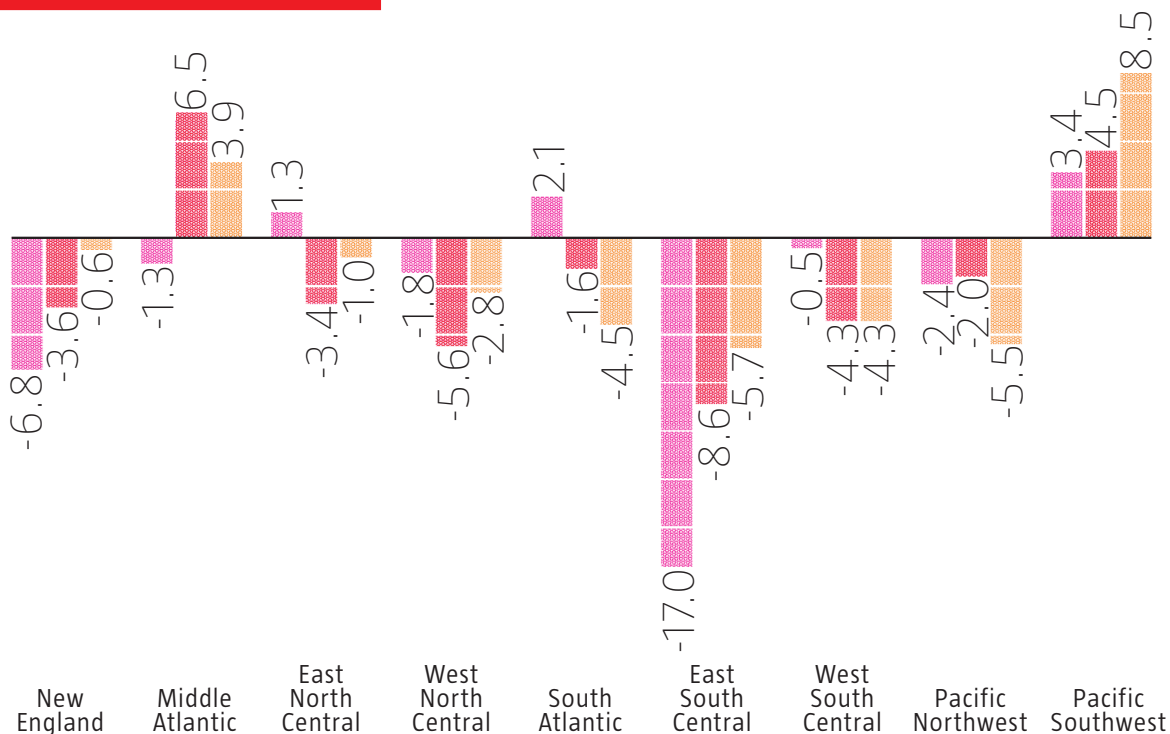
- Director of design, director of operations, senior project designer, project designer, senior project manager, and project manager
- Architect 3, 2, 1 and unlicensed architect and design staff 3, 2, 1
- Intern 3, 2, 1

INTERN COMPENSATION BY REGION

Average Salaries Nationwide

- Intern 1 = \$39,500
- Intern 2 = \$46,300
- Intern 3 = \$51,300

Compared to the national averages (represented by the baseline in the graph), interns fared best in the Middle Atlantic and Pacific Southwest regions and worst in the East South Central region.



The regions are defined as follows:

- New England** CT, MA, ME, NH, RI, VT
- Middle Atlantic** NJ, NY, PA
- East North Central** IL, IN, MI, OH, WI
- West North Central** IA, KS, MN, MO, ND, NE, SD
- South Atlantic** DC, DE, FL, GA, MD, NC, SC, VA, WV
- East South Central** AL, KY, MS, TN
- West South Central** AR, LA, OK, TX
- Pacific Northwest** AK, ID, MT, OR, WA, WY
- Pacific Southwest** AZ, CA, CO, HI, NV, NM, UT

Many believe that the biggest roadblock to licensure is the amount of time it now takes. Friedman points to research by Virginia-based architect Matt Arnold, who suggests that the process takes much longer than it did 30 years ago. Arnold, 52, is a sole practitioner who grew curious about licensure when he noticed the rising age of interns. "Everybody I knew in the IDP process was in their 30s. When I went through it [in the 1980s], everyone was in their 20s," he says.

In May, Arnold self-published a report titled "Architecture: Concerning Licensure," and submitted it to NCARB and the AIA, among other organizations. Arnold had requested statistics from every jurisdiction about licensure, but only New York, Oregon, and Nebraska complied. His analysis of those three states, however, proved illuminating. In 2009, Arnold writes, the average time it took a resident-architect in New York to achieve licensure after graduation was just over 11 years—a marked increase from the 1980s, when the average time was closer to five years. Nebraska and Oregon exhibited similar trends, he says. Based on his data, he concluded that the increase could be caused in part by the restructuring of the ARE in the 1990s. "The test is administered differently than it was [in the 1980s]," he says. "Back then it was given everywhere in one week, once a year. Now you can take the individual divisions whenever you like, as soon as you become eligible."

Changes to the ARE, according to NCARB, were meant to make the exam more flexible, and to unify it across jurisdictions, making it easier to get reciprocal licenses. But Tulane's Kinnard says that those changes have had unintended consequences: "A careful analysis of the system we have in place today suggests that the regulatory bodies, with all the best intentions, have designed a system that could not be more complex." (NCARB's Kerker says that an initial analysis of the organization's data for this article—based on a sampling of more than 30 percent of licenses issued since July 2004 that the organization could track—suggests that it

takes candidates on average 8.75 years between graduation and licensure. With the introduction of ARE 4.0 in 2008, she says, the average time it takes candidates to complete the test has dropped from three years to 22 months.)

Currently, candidates cannot take any part of the ARE until after completing their jurisdictional education requirements; 43 jurisdictions allow concurrent completion of the ARE and the IDP. Kinnard's suggestion? Allow all students to take the ARE as long as they're enrolled in the IDP. Such a change could help integrate the exam into the curriculum at school, she says, enabling educators to teach students some of the pragmatic issues relevant to practicing architecture.

She warns, however, that focusing too much on passing the ARE would come at the expense of preparing students for future career challenges. "The regulatory bodies set their standards based on the profession as it is today," Kinnard says. "Education can't do that. We need to be thinking about educating people for the profession as it might emerge in 10 or 20 years."

The IDP must also be overhauled, Friedman says. "The only future our profession has is to integrate the IDP into the curriculum," he says, which would enable students to complete the ARE exam and get licensed upon graduation. In fact, Friedman has been toying with just such a curriculum, and thinks he's found a way to incorporate the IDP into an eight-year program—less time than it currently takes students to complete their educational requirements and firm internship.

Other changes to the licensure process could be simpler, such as encouraging individuals to take the ARE quickly. Why not "develop incentives for finishing multiple exams at one sitting or for completing the ARE and the IDP within five years of graduation?" Kinnard asks, such as making exam fees cheaper. Some research suggests that fast-tracking the process would indeed help. According to the 2009–2010 AIA/NCARB Internship and Career Survey,

as age increases, the “likelihood to establish an NCARB Record decreases.” Seventy percent of 18- to 24-year-olds surveyed said that they intend to establish a record, a percentage that decreased to 55 percent among 25- to 34-year-olds and 47 percent among 35- to 44-year-olds.

Then there is the question of faculty. Various professionals and academics have debated whether the NAAB should require institutions to have a larger percentage of licensed faculty. Proponents argue that such a stipulation would help introduce a practice ethos into the academy and help encourage more students to pursue licensure.

The accreditation topic came up at a recent NCARB board meeting. “I got myself into a bit of trouble when I said that if they really thought that all faculty members should be or could become licensed that they were living in a fantasy world,” Kinnard says. The challenge, she says, is that as faculty members pursue tenure, they become completely immersed in teaching, research, scholarship, and the all-important peer-review publishing. The time they spend studying for and taking the ARE, designing and building structures, and publishing in architecture journals and magazines does not influence administration officials making tenure decisions.

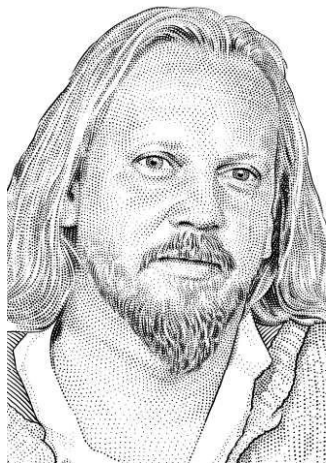
The Philosophical Debate

Ultimately, even if everyone agrees that the threat of a lost generation is real, there’s a significant philosophical question underlying the debate. Does licensure matter? For starters, there’s a pragmatic reason for licensure, according to Michael Armstrong, NCARB’s CEO: safeguarding the public by ensuring that individuals are prepared for the rigors of independent practice.

But there’s also concern about the health of the profession. Architecture has morphed dramatically in the last few decades, with the rise of interdisciplinary collaboration and innovations in technology, research, and materials. A growing number of people have recognized the power of design thinking and application. At the same time, other disciplines—engineering, construction management, real estate development—have increasingly assumed the risks for the built environment as architects have taken a back seat.

If licensure isn’t overhauled to make it less convoluted, Friedman argues, the decreasing numbers of licensed architects capable of owning risk and practicing—on all levels—would further weaken the profession’s impact. “The last defense against the trivialization of the constructed world is this profession,” Friedman says. If fewer people value the one credential necessary to practice, “we diminish the value of the profession [and] we inadvertently diminish the intelligibility of our value with the public. We have to be relentless in strengthening that understanding so that we can continue to have influence in the development and growth of cities.”

Still, for a generation of talented designers, such as Scharmen in Baltimore, capable of establishing varied and vibrant practices and wanting officially to join the profession’s ranks, the road to licensure remains daunting. “Pursuing licensure is time consuming, it’s expensive, and it’s a commitment to a certain way of practicing architecture,” Scharmen says. Does licensure matter? “If you had asked me 10 years ago, I would have said that I wouldn’t have considered anyone who wasn’t licensed to be a ‘real architect.’ And now I would have a different opinion,” he says. “I don’t think licensure is as important as it once was.” □



Stephen Alesch

Age 46. Co-founder and co-principal of Roman and Williams Buildings and Interiors in New York City. No license.

“The license issue is complicated. I started taking the tests. But the closer I came to completion, I realized that knowledge of the code became the total focus, rather than the clients and their priorities and interests or creativity. It took over everything. I asked myself, “Is this what I really want to do?” And the answer was, without hesitation, “No.” Something happens when you pass the final exam that is irreversible. You become a code administrator, with a sheriff’s badge, and it is hard to turn that off. In my lifetime, the title of architect has gone from master builder to primarily a law-enforcement profession. I want to be a collaborator, not an obstacle who always tells the client they can’t do that. I did consider finishing the exams, but then thought I would not be able to focus on creativity. You have to be free and not have a policing mentality. At times I was a bit nervous about not having a license. It seemed like a tough compromise and a potential shortcoming. But it did allow me to collaborate with clients and explore design in a larger way. It has not been a problem professionally, with clients or with fees.” **E.B.**



Jared E. Wright

Age 32. Project manager at David Hertz Architects and the Studio of Environmental Architecture in Venice, Calif. Licensed in California in August 2011.

“From the very beginning of my architecture education I never had any doubt about getting a license. For me, it was never an option not to get a license. I believe in the methods and procedures for granting a license and regulating the practice of architecture. I feel strongly about the integrity of the process, although it certainly could be streamlined. I want a license so I am able to practice any kind of architecture. As an architectural designer you are limited. Having a license opens more possibilities and gives you latitude to move in different directions. You can do space planning or interiors or master planning for a campus or a city. And I might want to teach architecture. That is what a licensed architect is legally able to do. Or I can go down a path of my own choosing under my own name, and I will be solely responsible for my work. On another level, being an architect comes with a great deal of respect from others for the profession, and for the person. Ultimately, the license gives me the title of architect and everything that comes with it.” **E.B.**



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HENNING LARSEN ARCHITECTS WITH BATTERÍÐ ARCHITECTS 112

AND OLAFUR ELIASSON



JOE AND RIKA MANSUETO LIBRARY

CHICAGO
MURPHY/JAHN ARCHITECTS

TEXT BY KATIE GERFEN
PHOTOS BY DAVE BURK





BIBLIOPHILES REJOICE: Despite the rise of the e-book, there is still a haven where the printed word reigns supreme. In 2004, the University of Chicago libraries were almost out of room, and for a university that acquires 150,000 volumes annually, the problem was quickly becoming critical. But while other institutions flocked to off-site storage solutions, “our faculty was strongly opposed to something that would remove materials from campus,” says Judith Nadler, director of the university library system and university librarian. Nadler herself thinks that “you exercise a kind of censorship of materials that are housed remotely.” With that decision made, a competition was launched for an on-campus library that could house 3.5 million volumes.

Helmut Jahn, FAIA, of Murphy/Jahn Architects, won the commission for the Joe and Rika Mansueto Library in part by suggesting that a large new facility shouldn’t be shoehorned into the already crowded heart of campus. Rather, he suggested, the university should look to place the bulk of the structure below grade. “It was significantly more attractive in terms of preserving the open quadrangle,” Jahn says.

In a feat of spatial sleight of hand, the new library plays host to a massive storage space in what appears to be a slight and deferential building. An elliptical glass dome—composed of 691 glazed panels and reaching 35 feet tall at its highest point—encloses a 180-seat reading room and a conservation and preservation department. “It’s executed technically in a very straightforward way with very minimal structure,” Jahn says. “It’s not an idea about minimalism, but the underlying goal or aim is to take away from a building anything that isn’t necessary.”

Around the base of the dome, the glass is transparent to allow unobstructed views, but roughly a third of the way up, a ceramic frit covering 57 percent of the interior surface of the outer lite of each panel

helps to reduce glare. The envelope filters out 98 percent of ultraviolet rays and 73 percent of the solar heat, while still admitting 50 percent visible light to illuminate the reading room and conservation areas.

The reading room has long tables, wired for power and Internet access, running down the center of the space, which is punctuated by smaller tables and benches around the perimeter. Metal columns conceal the mechanical systems, and are topped by light fixtures that provide indirect illumination in the evening hours.

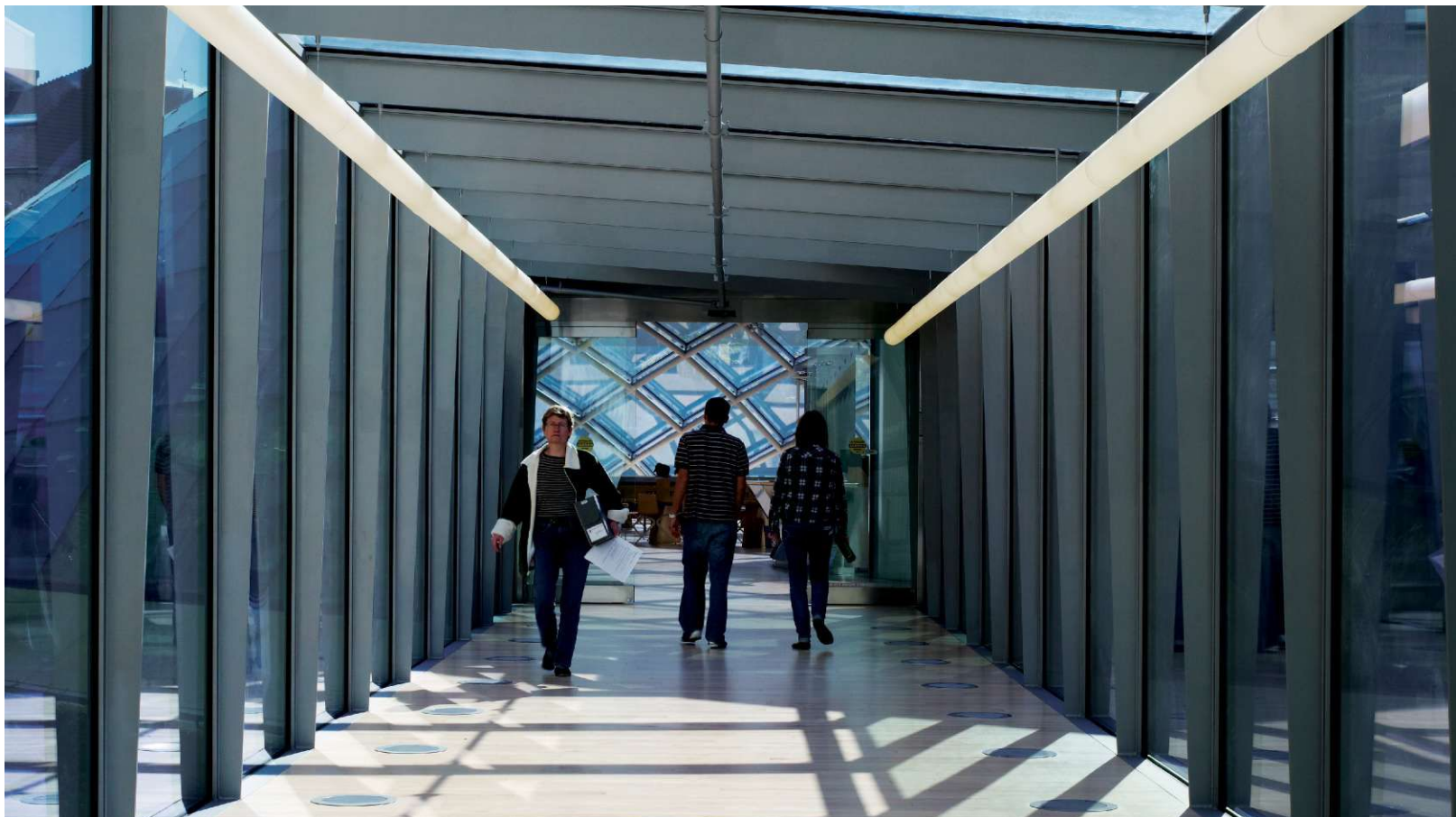
At the north end is the conservation and restoration area where volumes and documents are cleaned, repaired, and preserved for future use. Some areas are enclosed for light-sensitive materials, and enclosed carrels are available for visitors to view fragile materials. Also included is a digital preservation department, where volumes are scanned for inclusion in the university’s growing digital database.

The basement level—which is climate controlled to preserve the materials within—is 55 feet high to accommodate the massive storage system, which had only recently been employed for library storage. Currently 1 million volumes are stored in some of the system’s 24,000 metal bins and 1,200 archival racks, leaving plenty of room to grow. Once the school’s Web-based catalog receives a request, it activates the retrieval system, which uses automated cranes to retrieve the specific bin. The average retrieval time is five minutes.

The goal was to encourage use of the library system by giving students “a beautiful place, an attractive place, and then let them find out that it is the only place that they can get what they need,” Nadler says. And, Jahn says, “the result is a new building type. There isn’t a single library like this. It’s a different and new architectural problem, and it created a different and new type of library.”



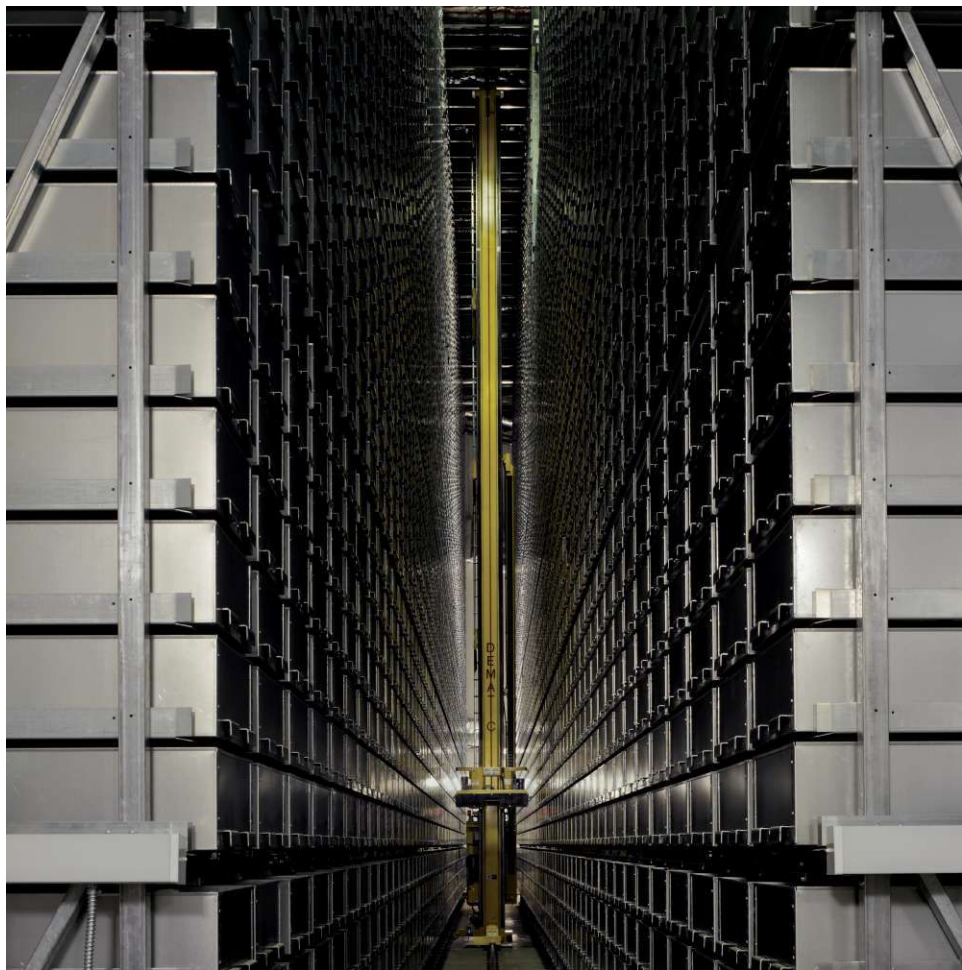
The elliptical form of the Mansueti Library (this image) is "actually almost understated," says director of the university library system Judith Nadler. "It doesn't draw attention to itself, but it draws attention to the surroundings." The reading room enclosed within is accessed via a glass-enclosed walkway (bottom) that connects to the neighboring Joseph Regenstein Library.



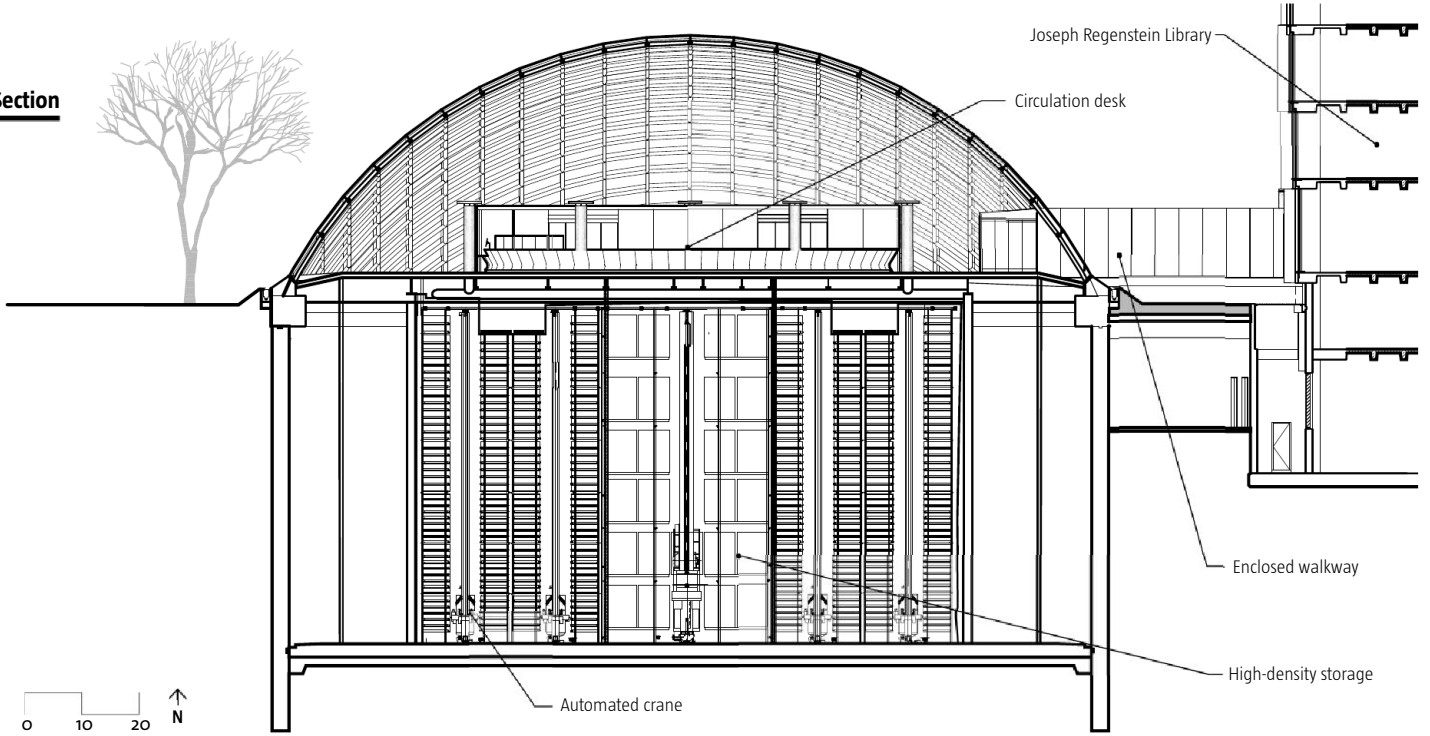




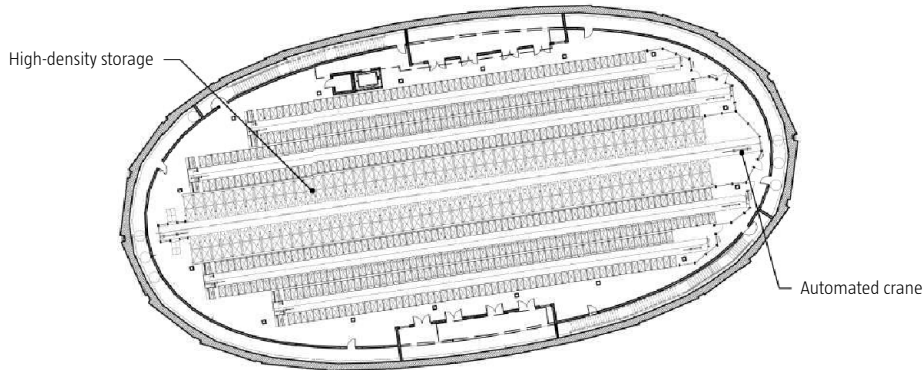
The ceramic frit pattern used on the glass dome helps to reduce glare in the reading room (opposite). The majority of the work in the preservation department (this image) can be done in natural light, but enclosed spaces were added for light-sensitive applications. In book storage (below left), which is a space that Jahn says has “a kind of sacred power,” bins of books are retrieved via automated crane (below right).



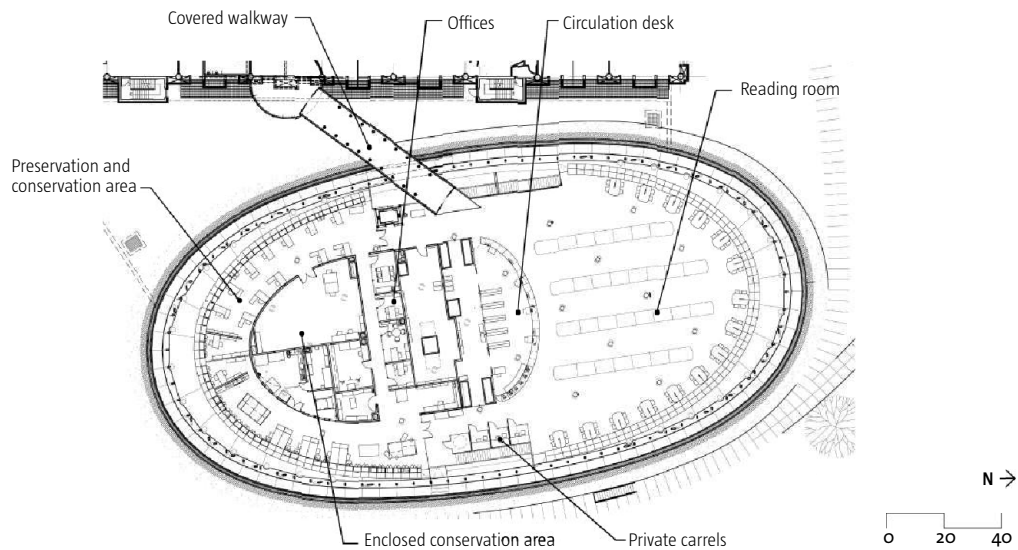
Section



Lower-Level Plan



Ground-Floor Plan



Project Credits


Project Joe and Rika Mansueto Library, Chicago
Client The University of Chicago, Chicago
Architect Murphy/Jahn Architects, Chicago
Interior Lykouria
Dome Structure Werner Sobek
Foundation Structure Halvorson and Partners
M/E/P Engineer Environmental Systems Design
Civil and Landscape Terra Engineering
Lighting Designer L-Plan Lighting Design
Contractor Barton Malow
Size 50,650 gross square feet

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LAWRENCE, KANSAS
STUDIO 804

TEXT BY EDWARD KEEGAN, AIA
PHOTOS BY NATHAN KIRKMAN

THE UNIVERSITY OF KANSAS'S Center for Design Research (CDR) is located on the rolling hills of the former Chamney Farm property on the school's West Campus in Lawrence. The center, part of KU's School of Architecture, Design & Planning, was created as an incubator for innovations in building products and services, incorporating interdisciplinary studies in mechanical and computer engineering, business, design, biosciences, health and wellness studies, and the social sciences.

The site is occupied by two existing buildings that are remnants of the old farm—a stone, gabled farmhouse at the northern edge of the property and a stone barn to the east—but neither fit the bill for the center. For its new building, the CDR didn't have to go far to find an architect: Dan Rockhill, the school's J.L. Constant Distinguished Professor of Architecture and his 23 students in the 2010–2011 design/build Studio 804 program were up to the challenge.

"The design brief was pretty simple," says Gregory Thomas, CDR director and a design professor at KU. "It had to serve a dual purpose as both a meeting and presentation venue as well as a working laboratory, and be a place that is shared with the public to inform about matters of sustainability." Sustainability is a familiar sandbox for Rockhill, who notes that the resulting 1,820-square-foot pavilion is Studio 804's fourth building designed to LEED Platinum standards and that the CDR will most likely be the first commercial certified passive building in North America.

The modest structure sits directly south of the existing farmhouse and is accessed via a concrete-and-glass ramp from a small parking area next to the barn. The exterior stonework was created from cottonwood limestone tailings—the waste product from manufacturing stone. Between March and May, several students cut each of the tailings down into smaller blocks. "I don't know if they had done something bad," Thomas jokes of the labor-intensive task. But the material and process are a good example of Studio 804's strength—the ability to transform an otherwise useless scrap into an aesthetically pleasing material through a combination of inventiveness and cheap labor. "We imbue it with design and the sense of the hand," Rockhill says.

Although the building is clad in masonry and glass, it's framed in wood and steel. The masonry exterior walls are supported by 12-inch joists, while the roof is spanned by 20-inch joists. The cavities are filled with blown cellulose insulation. "We kept the envelope clean and taut," Rockhill says. "There's not even wiring in the walls in order to maximize insulation and prevent thermal leaks." Additional roof mass, in the form of plantings around the edges and a solar array in the center, helps insulate from above.

The entrance, on the west end of the building, leads directly to a reception area and adjacent restrooms. Here, glass cases house monitoring equipment that displays the building's energy performance in real time. A short walk down a ramp leads to a multipurpose conference area, which has a living wall that improves indoor air quality and is kept lush using rainwater for irrigation.

Natural light filters through an electrochromic, butt-glazed curtainwall that forms most of the building's south façade. A 10-inch-thick trombe wall—composed of 6-inch-thick concrete masonry units filled with sand and clad on both sides with 2 inches of limestone—sits 2½ feet behind the glass and provides much of the building's heat during winter. From the exterior, the trombe wall appears to be just a continuation of the building's envelope under glass, but it takes on a completely different character on the interior. Between every other course, there are thick sheets of laminated glass laid horizontally within the joints. From the meeting area inside, these give an otherwise heavy feature a glow when it's backlit by the sun.

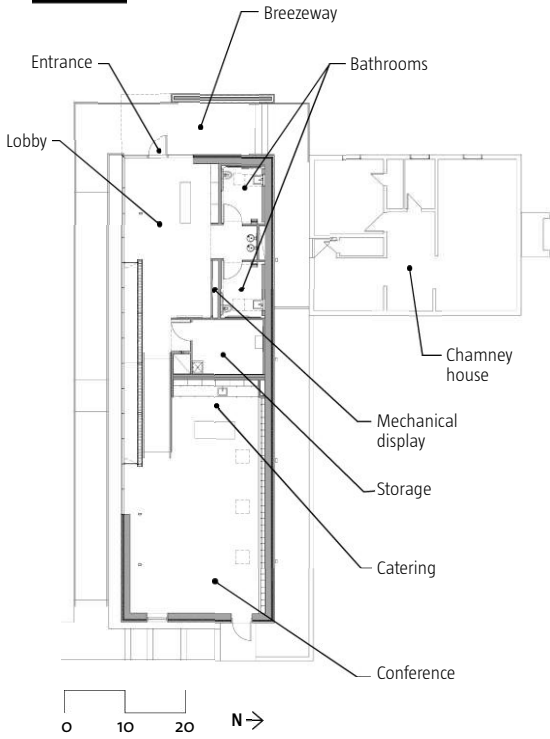
"We couldn't do this based on the university's shoestring budget," Rockhill says of the project, which counts over 100 companies as sponsors or donors. This sponsorship allows for opportunities that might not exist otherwise. "You don't have to take something off the shelf," Rockhill explains. And that ability to customize materials is explicit in detail after beautifully wrought detail. From a steel-plate floor to the custom-fabricated curtainwall to the hand-hewn recycled limestone skin, the CDR plainly makes the case for an elegantly and simply composed architecture that's also up to the highest standards of sustainable design.

To enter the center, visitors take a ramp (this image) that begins at the building's southeast corner and hugs the south façade. The lobby (opposite top) overlooks the facility's wind turbine and sports a series of monitors that display the building's energy consumption in real time. The conference space (opposite bottom) can be configured to hold everything from charrettes to community meetings.





Floor Plan

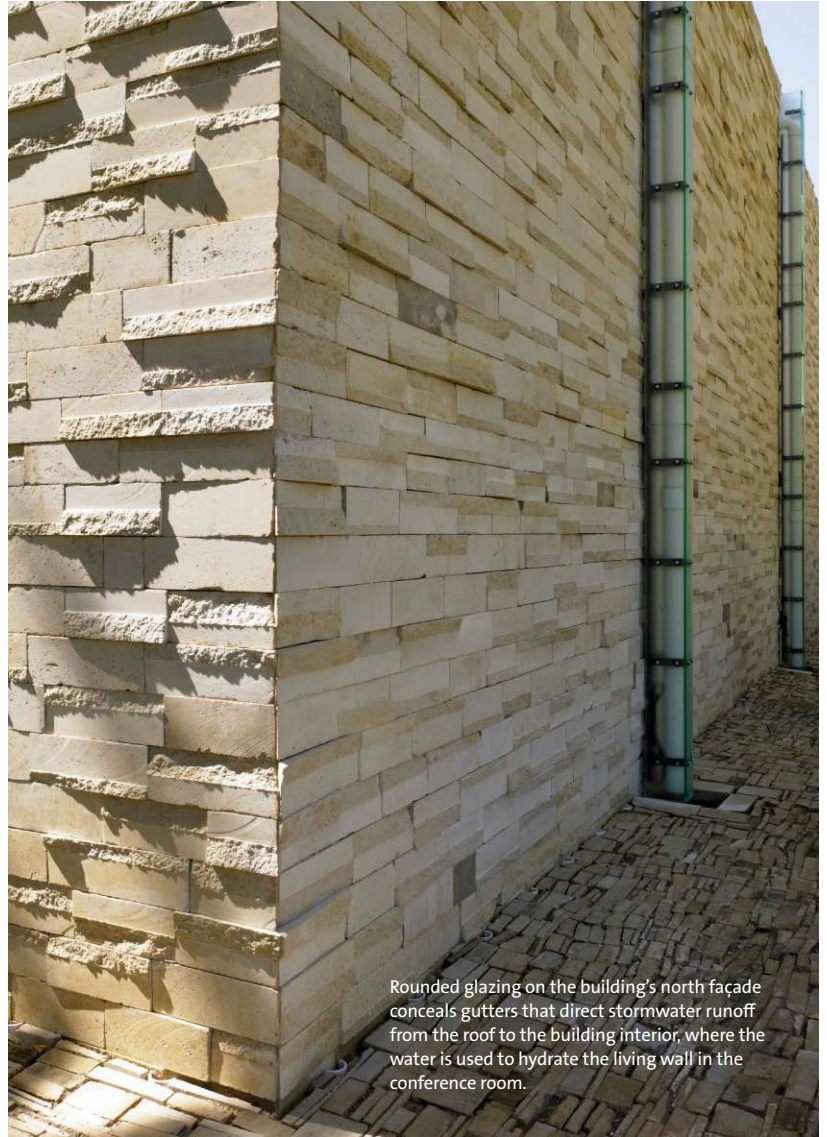


Project Credits

Project Center for Design Research, Lawrence, Kan.
Client University of Kansas Endowment Association
Architect and Contractor Studio 804, Lawrence, Kan.—Dan Rockhill; Gerard Alba, Ashley Banks, Sarah Brengarth, Cade Brummer, Matthew Holderbach, James Ice, Andrea Kirchoff, Jenny Kosobud, Michael Mannhard, Justin McGeeney, Amanda Miller, John Myers, Kirsten Oschwald, Kate Penning, Allison Pinkerton, Michael Prost, Dan Schaeffler, Ben Shriplin, Mariah Tooley, Ben Welty, Brian Winkeljohn, Andrew Younger, and Giannina Zapattini (project team)
Structural Engineer Norton & Schmidt Consulting Engineers
M/E/P Engineer Hoss & Brown Engineers
LEED Consultant Henderson Engineers
Environmental Consultants Cromwell Environmental, Lawrence, Kan.
Design and Construction Consultant Rockhill and Associates
Size 1,820 gross square feet

Materials and Sources

Structural Systems Pacific Woodtech Corp. (FSC-certified lumber) pacificwoodtech.com
Exterior Cladding Lardner Stone (drystack, cottonwood ledge, limestone tailings); U.S. Stone Industries (drystack, cottonwood ledge, limestone tailings) usstoneindustries.com; Doherty Steel dohertysteel.com
Glazing Sage Electrochromics sage-ec.com; Velux America veluxusa.com
Vapor Barrier Tamko Building Products (exterior foundation wall vapor barrier) tamko.com; CertainTeed Corp. (interior vapor retarder) certainteed.com; W.R. Grace & Co. (above-grade vapor barrier) grace.com
Concrete Midwest Concrete Materials 4mcm.com
Finishes ITW TACC (mason bond epoxy adhesive) itwtacc.com
Roofing Carlisle SynTec (white EPDM) carlisle-syntec.com; Green Roof Blocks (green roof) greenroofblocks.com
Windows Sage Electrochromics (glazing) sage-ec.com; Velux America (skylights) veluxusa.com
Doors Assa Abloy (entrances) assaabloy.com; Ezy Jamb (interior doors) ezyjamb.com.au
Hardware Häfele America Co. (mechanical display hardware) hafele.com/us
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Car Charging Station Schneider Electric schneider-electric.com
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Skystream Wind Package Southwest Wind Power windenergy.com
Photovoltaic Panels Yingli Solar yinglisolar.com



Rounded glazing on the building's north façade conceals gutters that direct stormwater runoff from the roof to the building interior, where the water is used to hydrate the living wall in the conference room.

TOOLBOX: STUDIO 804

Dan Rockhill started teaching the terminal graduate studio—which was assigned the course number 804—at the University of Kansas more than 20 years ago. It was conceived as a conventional design studio, a format that Rockhill found uninspired. “I hated it,” he says. To alleviate his frustration, Rockhill began introducing construction projects. “The students reveled in the opportunity.”

Lawrence, Kan., saw a construction boom in the 1990s and a growing need for affordable housing. Seeing an opportunity—and armed with his own design/build experience—Rockhill took the course in a new direction in 1995. Since then, the now-yearlong class has produced a building each year.

“I do whatever comes through the door,” Rockhill says of choosing the projects. “But it needs to be a holistic experience—from idea to building.” Last year’s opportunity to design the Center for Design Research (CDR) was serendipitous—especially since the program’s mission coincided with Studio 804’s commitment to sustainability. “We need to engage others in this ... [green movement], but you have to plant the seeds in young kids,” Rockhill says. It also presented a different challenge for the students: The CDR’s public program was a departure for Studio 804—which until now has focused largely on single-family houses (with the exception of the 5.4.7 Arts Center in Greensburg, Kan.).

Yet, despite the studio’s impressive portfolio of built work, “He [Rockhill] prides himself on the design and the details more than the construction,” current student Seamus McGuire says. But it’s also about imparting lessons about real-world architecture. “They’re so used to doing projects that are moving and gyrating,” Rockhill says of students’ predilection for the swooping forms of parametric design. “The subtlety of an elegant box needs to be understood.”

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HARPA—REYKJAVIK CONCERT HALL AND CONFERENCE CENTRE

REYKJAVIK, ICELAND

HENNING LARSEN ARCHITECTS WITH BATTERÍÐ ARCHITECTS AND OLAFUR ELIASSON

TEXT BY CAIA HAGEL

WHEN THE ICELANDIC CITY of Reykjavik decided to trade relative isolation on the fringes of the Arctic Circle for greater visibility on the international scene, it turned to destination architecture to catch the public eye. Danish firm Henning Larsen Architects and Batteríð Architects created the Harpa—Reykjavik Concert Hall and Conference Centre, which opened in May, a 28,000-square-meter (301,000-square-foot) building situated on the edge of the North Atlantic Ocean to the northwest of Reykjavik's center.

Harpa's signature feature is its LED-lit façade, the design of which was led by Danish artist Olafur Eliasson in collaboration with Henning Larsen. "It's unusual for an architect to work so closely with an artist on the signature part of a building, but we wanted an added dimension

for this special project," says Osbjorn Jacobsen, project design manager at Henning Larsen. Eliasson devised a compelling skin that spans the connected conference and concert hall volumes and creates a common language between them. Eliasson's approach was to fashion a structural overlay of what he calls "quasi-bricks": stacked geometric constructions of steel and glass designed to mirror the city, the light, and the changing weather in kaleidoscopic reflections inside the building. From the exterior, the geometric forms are reminiscent of the crystallized basalt columns commonly found in Iceland.

The different façades are made up of distinct variations of the quasi-brick. The south façade features 823 individually crafted 12-sided quasi-brick units, each "big enough to fit a human inside," Eliasson says,



West façade



South façade clad in three-dimensional quasi-bricks

while the remaining façades and the roof are made of sectionalized two-dimensional variants of this 12-sided geometric system, resulting in flat façades of five- and six-sided polygonal structural frames. In order to work out the fabrication and assembly of the quasi-bricks, Eliasson's team (which included structural engineers) worked with 3D computer models, finite element modeling, various digital visualization techniques, as well as maquettes, models, and mock-ups. To solve the additional challenge of how the north and east sides of the façade would meet—sides that though emerging from a similar concept, are unrelated structurally—the team drew every corner by hand and designed each joint to accommodate a unique fit. The result “is like being inside a crystal,” says Sigurður Ragnarsson, Harpa's chief engineer.

The studies that were carried out by the team on the movement of the sun and the Reykjavik light also influenced the spatial layout of the building inside the skin. The south façade is oriented toward the city, and the various types of clear, reflective, and colored glass employed in the quasi-bricks (see Toolbox, page 120) create a surface that reflects the clouds and sky in a way that turns weather into performance art. Inside the foyer, which runs along the building's south edge, sunlight filtering through the façade throws light and color onto the floors, balconies, and the polished-steel ceiling.

The vibrancy of the glass contraposes the monolithic inner volumes of the four halls, whose perimeter walls are pigmented black concrete, passively conserving warmth from the sun. The interior of the main concert hall, a 1,800-seat auditorium that is home to the Icelandic Opera and the Iceland Symphony Orchestra, is red—echoing the volcanic countryside. Vividly colored glass doors interrupt the serene black surfaces and open to meeting rooms, conference and rehearsal halls, and an exhibition area, where visitors are free to roam. The on-site amenities include shops, a restaurant, a viewing balcony and bar, a ground-floor bistro, and underground parking.

There is a dialogue between the building and the visitor, “similar to the interaction between art and spectator,” says Peer Teglgard Jeppesen, principal architect at Henning Larsen. “The building itself poses a ... question: What is art and what is architecture?”—a question that the city of Reykjavik hopes visitors will come to Harpa to answer.

Site Plan



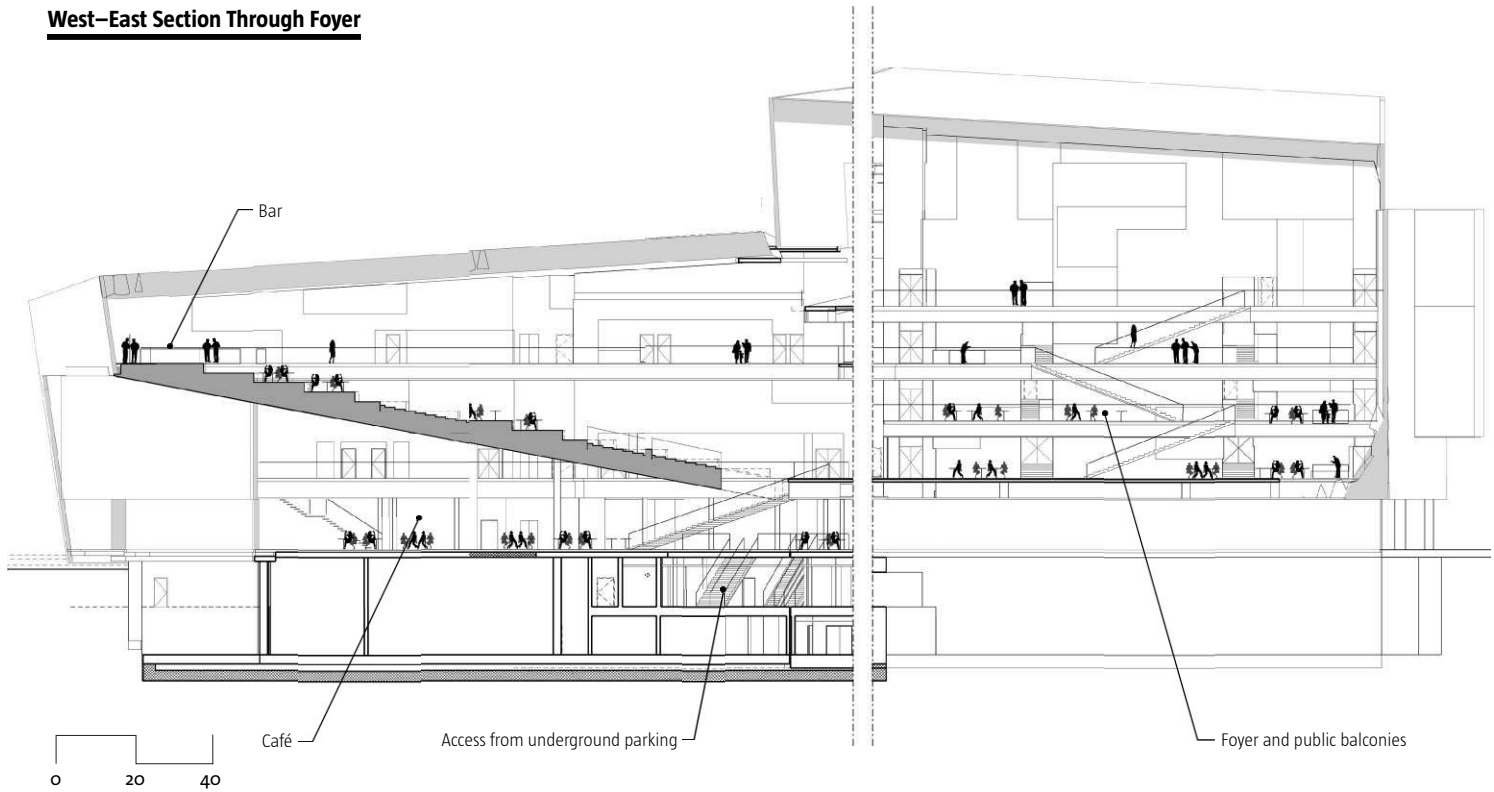


Café and seating areas in the conference hall foyer

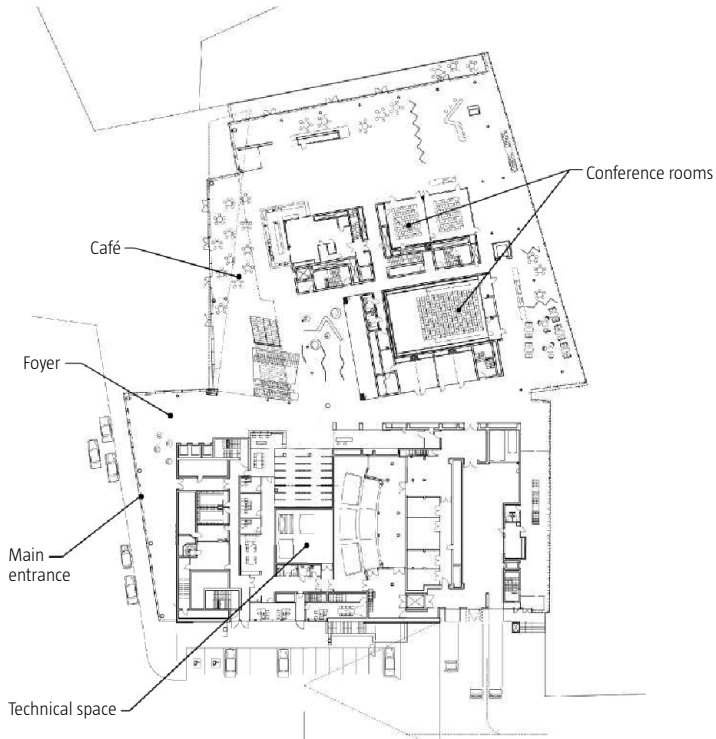


Concert hall

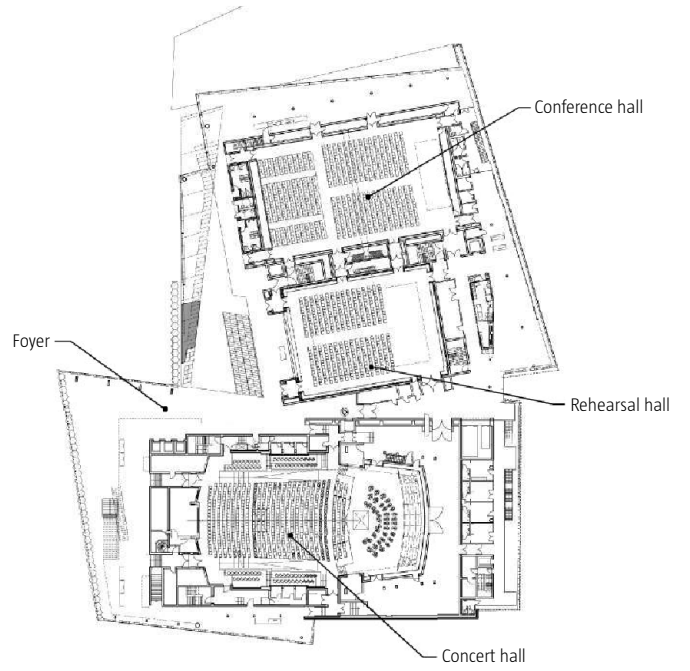
West–East Section Through Foyer



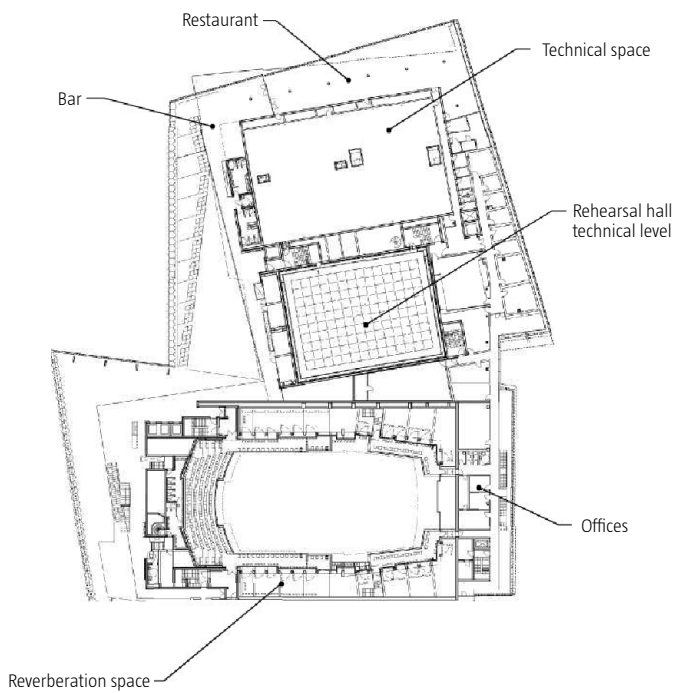
First-Floor Plan



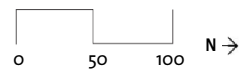
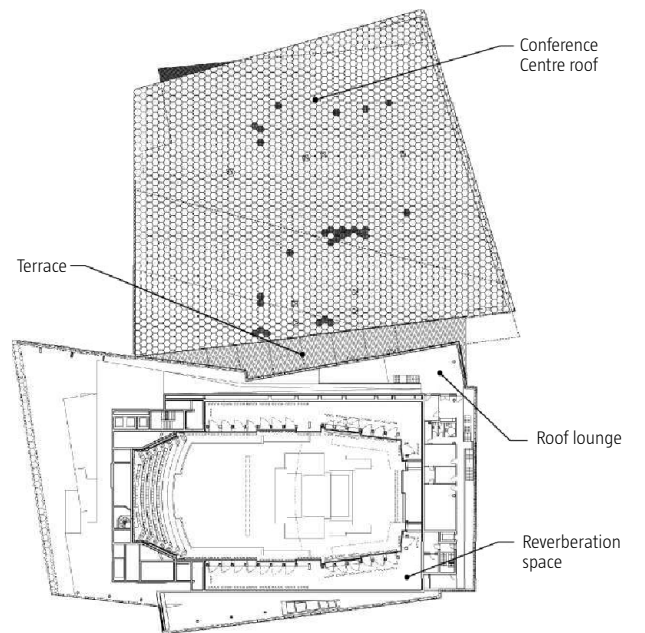
Second-Floor Plan



Fourth-Floor Plan

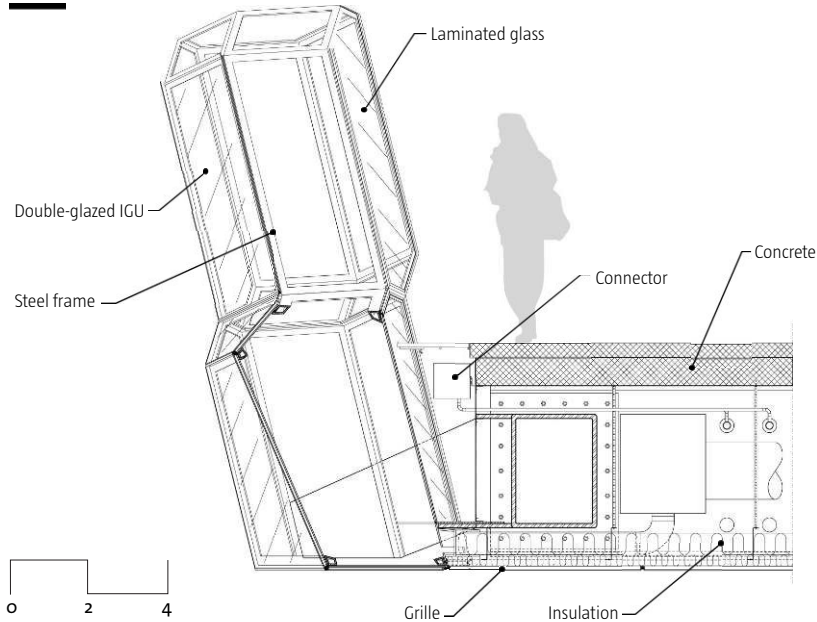


Sixth-Floor Plan





Concert in the foyer

Detail**TOOLBOX: QUASI-BRICK FAÇADE**

There is more to Harpa's varied façades than the complex geometry of the quasi-bricks. Artist Olafur Eliasson, who led the façade design, is known for lighting installations such as the New York City Waterfalls, which was on display on the East River in 2008. And while Harpa's glass-and-steel quasi-bricks interact with Reykjavik's sunlight, they do not go dark at night. There are more than 700 LED strip lights embedded in the building's façade, each approximately 1.5 meters (4.6 feet) long. Each fixture is incorporated into a slim aluminum extrusion, specifically designed to match the geometry of its specific quasi-brick and mounted to the rear vertical profile of the steelwork. This placement avoids overwhelming people inside the foyer with too much light, while offering the best diffuse and indirect light distribution. The fixtures' optics are composed of a series of filters, diffusers, and lenses and were developed for the project in collaboration with lighting manufacturer Zumtobel. There was no LED optic available at the time that gave a slim, even strip of light; this system has since been developed into a commercial product by Zumtobel.

Each fixture can produce a full spectrum of color using RGB LEDs; these are connected in vertical rows—slightly staggered, as there is no true vertical on the façade—with a maximum of 14 fixtures connected per circuit. Each strip light is individually addressable, meaning that the façade can be programmed—using the Ecue system—to create a color-changing light show.

There are 10 different types of glass used across all four of the building's façades, including three dichroic colored glasses—yellow, green, and orange—which in turn reflect the colors blue, red, and purple. There is clear glass, antireflective glass, and five different types of reflective glass, each chosen for its different color tint or degree of reflectivity. The different types of glazing are arranged in groups to emphasize both the repetitive and modular aspects of the façade and its solidity, depth, and transparency.

The different types of glass are combined to create the different visual effects in the quasi-bricks of the south façade: For example, the antireflective glass, when paired with a clear glass behind it, creates a clear view line, but when paired with a reflective or dichroic glass, reflects a kaleidoscopic view of the interior. And when two reflective or dichroic glasses are paired on the front and rear of one quasi-brick, it brings the viewer's attention to the module itself as a defined object in space. The team also considered sun angles, so that a brick that would appear solid in the morning might appear transparent during the course of the day due to the arrangement of reflective glass types. These pairings and groupings are distributed in a painterly fashion across the three-dimensional south façade; the various types of glass are likewise distributed across the two-dimensional north, east, and west façades.

The LED lighting interacts differently with each of the glazing types, and is uniformly deployed across them all. The programming for each light is on a 75-second loop and the lighting for each brick is the same—the start time, however, is staggered so that no two bricks are ever running exactly the same sequence. As the light fluctuates, the different optical effects of the façade are experienced. The lights come on at sunset, and during twilight, the intensity drops as the daylight fades. As viewers move past, the fading light gives each façade the appearance of constant change. "Because of this, the building does not appear a permanent or frozen setting," Peer Teglgard Jeppesen, principal architect at Henning Larsen, says, "but rather an active, dynamic figure reflecting the weather, the sun, the city, the people and the changes throughout the day and the year."

**Project Credits**

Project Harpa—Reykjavik Concert Hall and Conference Centre, Reykjavik, Iceland
Owner Harpa, Portus Group AGO (operator of Harpa); Totus (real estate company that owns Harpa)

Architect Henning Larsen Architects, Copenhagen—Peer Teglgard Jeppesen (responsible partner director); Ósbjörn Jacobsen (architect and design manager associate partner); Klavs Holm Madsen (project manager architect); Steen Elsted Andersen (façade specialist); Leif Andersen, Elizabeth Balsborg, Birthe Bæk, Filip Lyders Francati, Mette Kynne Frandsen, David Garcia, Niels Gravergaard, Rasmus Haak, Lars Harup, Morten Hauch, Hannibal Hink, Merete Alder Juul, Mette Landorph, Ingela Larsson, Katja Brandt Lassen, Matthias Lehr, Lisbeth Leth-Sonne, Martha Lewis, Diana Arsovic Hareskov Nielsen, Jørgen Olesen, Kristian Svejborg Olesen, Vanda Oliveira, Leonardo Paes Resende, Ina Borup Sørensen, Debbi Hedeham Thuesen, Andrea Tryggvadóttir, Helga Vilmundardóttir (constructing architect team of architects)

Architect Batterið Architects—Sigurður Einarsson (responsible partner); Arnar Skjaldarson, Grétar Snorrason, Ingvi Þorbjörnsson, and Soffía Valtýsdóttir (constructing architect team of architects)

Interior Designer Henning Larsen Architects with Batterið Architects

Engineers Mannvit Engineers; Artec Consultants (acoustic engineers);

Hnit Consulting Engineers; Efla Engineers; ArtEngineering; Ramboll

Consultants ASK Architects; Almenna Consulting Engineers; Verkis Consulting Engineers; Verkhönnun Engineers; Jasper Parrott (international consultant); Vladimir Ashkenazy (artistic adviser)

General Contractor IAV hf.; Iceland Prime Contractor Ltd.

Façade Contractor Lingyun

Landscape Architect Landslag ehf.—Lisbeth Westergaard

Lighting Designer Henning Larsen Architects, Batterið Architects, Zumtobel (interior lighting); Studio Olafur Eliasson (façade lighting)

Size 28,000 square meters (301,000 square feet)

Cost \$150 million

Materials and Sources

Acoustical System Artec Consultants (Performing arts venues' acoustics and theater design) arteconsultants.com

Theatrical Equipment Wagner-Biro wagner-biro.at

Building-Management Systems ÍAV; Rafmiðlun and Rafholt rafmidlun.is

Ceilings Ceir (grid ceiling in foyer) ceir.com; QB-ceiling

Concrete BM Vallá bmwalla.is

Flooring Flotgölf and Húsamíðjan; Shelgason (basalt floors) shलगason.is

Glass South China Glass; Scholl Glass; Samverk samverk.is

Lighting ÍAV, Iceland; Exton (production) exton.is; Zumtobel (façade) zumtobel.com

For a complete list of Materials and Sources, visit architectmagazine.com.

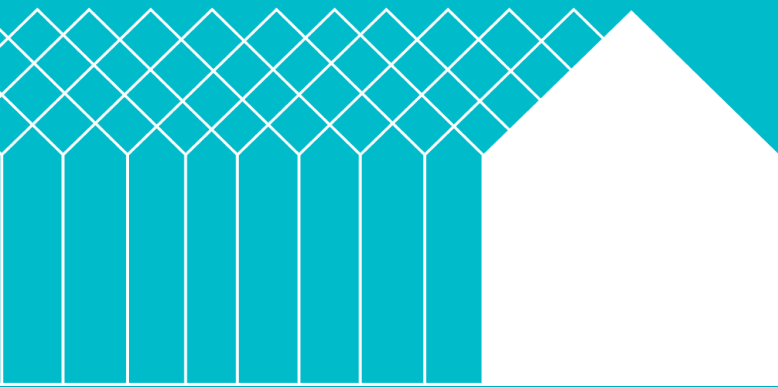
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→1988 P/A FIRST AWARD

LERNER MEETS LUTYENS

IN HIS FIRST AWARD–WINNING DESIGN FOR THE INDIRA GANDHI NATIONAL CENTRE FOR THE ARTS IN NEW DELHI, RALPH LERNER GAVE EDWIN LUTYENS’S CLASSICISM A POSTMODERN SPIN.

TEXT BY THOMAS FISHER, ASSOC. AIA



1988 P/A Awards Jury

Diana Balmori
J. Max Bond Jr.
Peter Calthorpe
Jay Farbstein, FAIA
Charles Gwathmey
Michael L. Joroff
Fumihiko Maki, Hon. FAIA
Rob Wellington Quigley,
FAIA

RALPH LERNER, FAIA, former dean at Princeton University and the University of Hong Kong, passed away in May at 61, and his partially completed Indira Gandhi National Centre for the Arts serves as a fitting way to remember him. Lerner received the commission for this project in 1986, winning an international competition that had received over 190 submissions. His scheme consisted of five linked buildings and five courts, with a central 350-by-700-foot quadrangle, arranged axially along a 25-acre site parallel to the central axis that Edwin Lutyens created for New Delhi.

Although criticized by some Indian architects and Western critics for being overly deferential to Lutyens’s “Orientalist” architecture, Lerner’s design had a degree of clarity and simplicity that appealed to jurors, including Fumihiko Maki, Hon. FAIA, who

participated in both the competition and P/A Awards juries. Although juror Max Bond questioned its appropriateness in India, Rob Quigley, FAIA, described it as “the most powerful design we’ve seen.” It is “inventive without being forced,” added Peter Calthorpe. “The forms are fresh and new ... not contrived.”

Lerner completed the first phase of the project, in association with the New Delhi firm JSA, and managed to maintain the essential features of the competition-winning scheme, with a symmetrical, U-shaped building that has a base of red sandstone, bands of the local red and pinkish-white sandstone on the upper floors, and a perforated marble wall arching over the main entrance canopy. Colleagues commented on Lerner’s eye for talent, and this project shows that he also had a great eye for architecture. □



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