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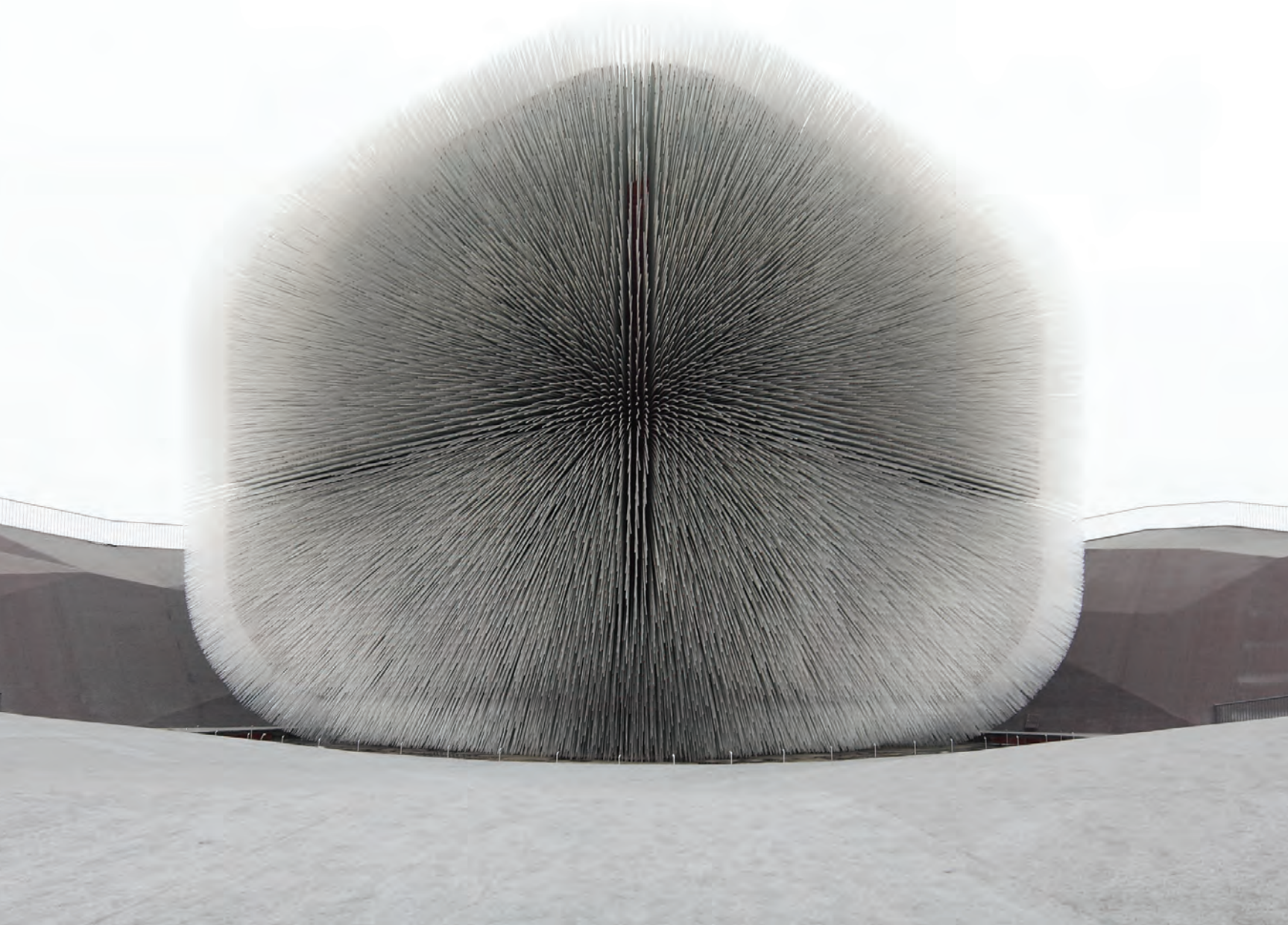

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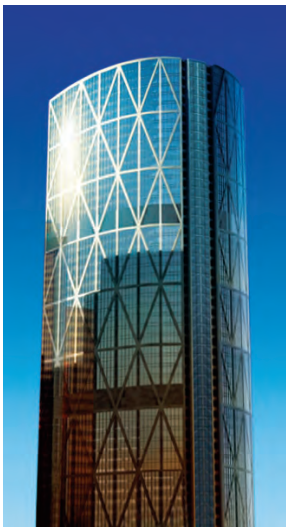

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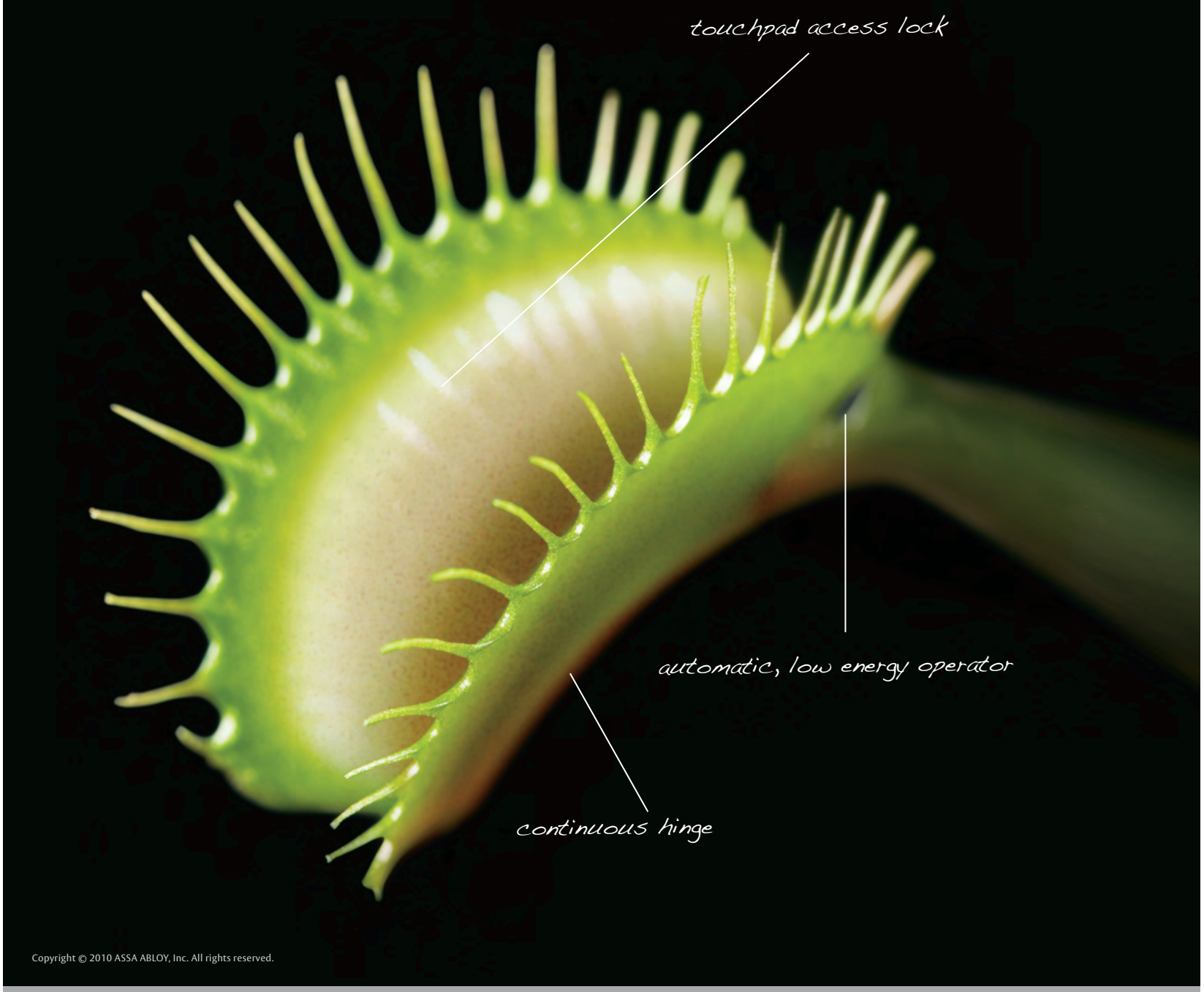

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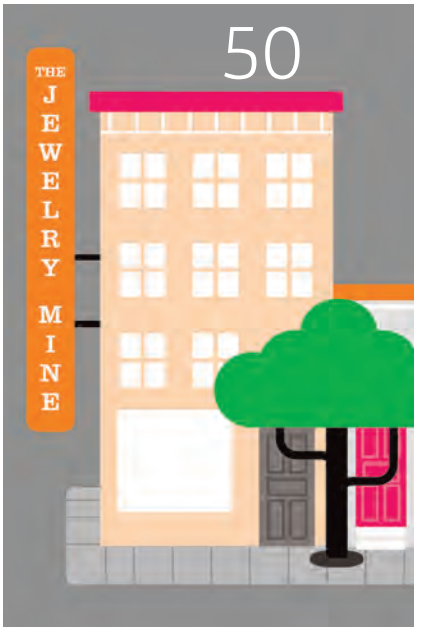

HEADCASE DESIGN

Sara Hart
"North Carolina Museum of Art," page 69

After a visit to Thomas Phifer and Partners' new North Carolina Museum of Art, Sara Hart commented, "Not since Louis Kahn worked his magic at the Kimbell Art Museum has an architect manipulated natural light to intensify the museum experience, while literally expanding that experience beyond the walls." And New York–based Hart is one to judge: She has been writing about architecture and design for 15 years. Hart is currently curating an exhibition—innovate:Integrate—at the AIA New York Center for Architecture. It opens on Oct. 5.

ON THE COVER
UNITED KINGDOM PAVILION AT THE 2010 SHANGHAI WORLD EXPO. PHOTOGRAPH BY EDWARD DENISON

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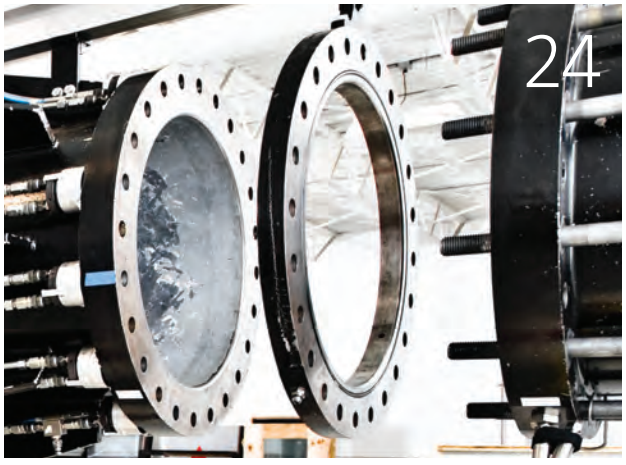

MIKE MORGAN

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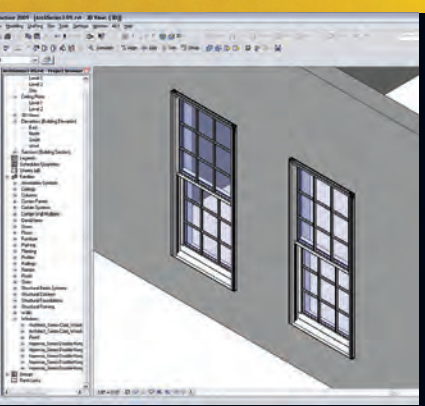

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MIKE MORGAN

ARCHITECTS ELEVATED SUSTAINABILITY TO A DE FACTO INDUSTRY STANDARD. THE TIME HAS COME TO MAKE IT A DE JURE STANDARD.

THE ENERGY CRISES of 1973 and 1979 weren't enough to scare America off our addiction to fossil fuels. Is it possible that the Deepwater Horizon oil spill will do the trick?

Right now, everyone's attention is focused on stopping the leak, cleaning up the Gulf of Mexico, and bringing the perpetrators to justice. It's difficult to imagine how architects can contribute to, or benefit from, this effort.

But restoring balance to the Gulf shouldn't mean reverting to the pre-spill status quo, and that's precisely where architects will prove essential. The spill has caused great suffering; it has also opened a window onto a new and improved national destiny.

As millions of gallons of crude belch into the Gulf, the American people face, arguably for the first time, an unmistakably negative consequence of our awful energy habits. With a bit of luck and a lot of lobbying, public outrage about the spill might translate into a political mandate and market demand for clean, renewable energy.

Society, the environment, the economy, and national security would all benefit from lowering our fossil fuel consumption, through public and private investment in smart planning, zero-energy buildings, mass transit, and high-speed rail. Just imagine the spark the profession would get from a complete overhaul of our nation's infrastructure. Sound impossible? Not for the country that built the Transcontinental Railroad and the Interstate Highway System.

Architects elevated sustainability from a fringe movement to a de facto industry standard. The time has come to complete the task and make sustainability a de jure standard. A carbon-neutral, zero-energy built environment is an attainable goal, given the right market incentives and regulations at the national, state, and federal level.

The profession scored big on this front last month, when the U.S. Conference of Mayors endorsed the International Green Construction Code, a model set of governmental standards for sustainable building crafted by the AIA, ASTM, and other groups (see the news story on page 12).

It remains, however, for the profession to once and for all prove the feasibility and reliability of green design. To accomplish this goal, architects and building owners and managers must get serious about building performance measurement and adopt an open-source attitude about the exchange of information.

For the profession to maintain its leadership position—to maintain its very viability—we must aggressively promote green policies and invest significant amounts of money and brainpower into proving the value of sustainable design. Because an oil spill is a terrible thing to waste.

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THE WALL STREET JOURNAL

Missed opportunity

Pia Catton reports that the New York City Ballet's collaboration with Santiago Calatrava has failed to excite. Only one of the six ballets presented included an object designed by him. "[T]his collaboration did not realize its full potential," Catton writes. "When friends have asked me what 'Calatrava ballets' to see, my advice has been: Pass."

USA TODAY

Local project spending cut

State and local construction project spending has been cut faster than federal government stimulus funding has been added. Dennis Cauchon reports that 2010 infrastructure investment in the U.S. is expected to be $269 billion, a 7 percent decline. It's the first decrease since the Census Bureau introduced the metric in 1993.

CNN

Lower costs, fewer masterpieces

Kyle Almond reports that AIA chief economist Kermit Baker thinks the economy will prevent the creation of new masterpieces in the coming years. "I think most buildings that are being built are very much focused on managing cost," Baker says. "[Y]ou tend to see less creativity in that environment, less exciting designs, less upscale materials being used."

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Polshek Partnership's New Identity: ENNEAD ARCHITECTS

FIRM SPENT MORE THAN A YEAR CONSIDERING NAMES.

"ENNEAD"—MEANING A GROUP OF NINE—has long referred to a group of nine Egyptian deities with names like Atum, Shu, and Tefnut. Now it also refers to a group of nine architects with names like Todd Schliemann, Susan Rodriguez, and Richard Olcott. The firm they run, founded by James Stewart Polshek in 1963 and known for years as Polshek Partnership Architects, has adopted the name—pronounced "EN-ee-ad"—in the most radical identify shift since HOK Sport Venue Event became Populous in March 2009.

The New York firm is known for public buildings like the William J. Clinton Presidential Center, in Little Rock, Ark., the Standard hotel straddling Manhattan's High Line, and the Newseum, in Washington, D.C. Current projects include the Utah Museum of Natural History in Salt Lake City, the Bing Concert Hall at Stanford University, and museum renovations in New York and New Haven, Conn.

Polshek, who is 80, gave up his partnership five years ago, taking the title of design counsel. The remaining partners—Schliemann, Olcott, Rodriguez, Duncan Hazard, Tomas Rossant, Timothy Hartung, Kevin McClurkan, Don Weinreich, and Joseph Fleischer—were looking to avoid the fate of Pei Cobb Freed & Partners, which people still think of as I.M. Pei's firm, 20 years after Pei retired. The partners spent a year and a half considering names before selecting Ennead Architects. They hired Michael Bierut, of the design firm Pentagram (named, incidentally, for its original five partners) to create a logo, and Lisa Strausfeld, also of Pentagram, to design the website, ennead.com.

Polshek himself, reached by phone at his apartment in Paris, says, "It was inevitable that the transition had to involve a change of name," adding that he had written a letter to 750 friends and associates endorsing the partners' decision.

FRED A. BERNSTEIN

U.S. Mayors Endorse IGCC

ON JUNE 14, the U.S. Conference of Mayors endorsed the International Green Construction Code (IGCC), a new, comprehensive green building code authored by the International Code Council (ICC). In a resolution passed at the group's annual meeting in Oklahoma City, the Conference of Mayors "call[s] on all local governments wishing to take a more holistic approach to incorporating energy efficiency in residential and commercial buildings, sustainable community planning and healthy and safe building practices ... to adopt the IGCC."

The IGCC, developed by the ICC with assistance from the AIA, ASHRAE, the ASTM, the IESNA, and the USGBC, encompasses all aspects of building design, construction, and maintenance, including energy use, water management, air quality, and safety. Released in March, the new code is meant to provide a baseline for compliance, to be supplemented by local code changes and additions. The LEED rating system, which has already been adopted in some cities as a minimum standard, will remain a voluntary, above-code standard.

George H. Miller, AIA president, said in a statement, "The IGCC needs the backing of leadership within local jurisdictions if it is to have any impact on the carbon footprint of the nation's building sector. ... This resolution by America's mayors is a huge step in that direction." PETER JAMES

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GREENGUARD

BUSINESS

INTERVIEW BY EDWARD KEEGAN
PHOTO BY KAREN MOZKOWITZ

→BEST PRACTICES

Above All, Clients

IF YOU OFFER THOUGHTFUL SERVICE IN ADDITION TO GOOD DESIGN, NOT ONLY WILL CUSTOMERS RETURN FOR MORE, THEY'LL BE YOUR FIRM'S BEST ADVOCATES, TOO.

MOST OF THEM PROBABLY wouldn't trumpet it, but architects are in the service industry. And service is at least as much about process (meetings, invoices, etc.) as it is about results (the building). Seattle-based Schemata Workshop, a five-year-old, five-person firm that specializes in small institutional projects, readily credits its early, and continuing, success to an unrelenting focus on customer service—or, in the firm's preferred construction, "client satisfaction." In 2009, Schemata won a Seattle Mayor's Small Business Award, earning praise for how the firm works with clients and for its open communication. Grace Kim is co-principal and co-founder there with Mike Mariano, and both bring large-office experience to bear on the small practice.

"Client satisfaction is the first of five objectives we listed when we started the firm," says Schemata Workshop co-principal **Grace Kim**. Design is "the reason we do what we do," she adds, "but we don't practice architecture as a service to ourselves."

What's the difference between customer service and client satisfaction?

If you have good customer service, you get client satisfaction. It's ingrained in our culture. We think design is hugely important, [but] the notion of customer satisfaction has been an underlying thread in the way we deliver our services.

→

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Your website refers to a "transparent approach to design and fees." What does that mean?
I've never had a client call because they didn't understand their invoice. We clearly explain where we are on the budget; where we are in the current billing; what we've invoiced to date; where are we in the context of the fee. If people understand that, they don't have a problem paying.

Where does this transparency start?
Prospective clients get a spreadsheet of the various tasks we're going to do. We give them the detailed backup that most firms do to get to a number. That way, when they say, "Your fee is too high," they can see what we've included. That gives us a basis to negotiate: Where do they want us to cut? We've accounted for this number of meetings; can you do with less? Maybe instead of three design alternatives, we'll do one or two. It sets the expectations.

But can't that lead to cutting corners?
If we're working with a client whose budget won't support meticulous note-taking, we at least follow up immediately with an e-mail that summarizes the decisions and outlines the key next steps. Keep all communications clear, concise, frequent. That's part of it.

What kind of clients have you found with this approach?
We look for projects where the client will appreciate working with a small firm. We work with smaller clients and jurisdictions that can benefit from having a hands-on, personal experience. They get me at the interview. They get me on a day-to-day basis.

Where does design fit in?
Design is of paramount importance. We definitely have a style we'd advocate. We try to be on the modern side, but as an extension of the client's identity and mission.

How often do you keep in touch with current clients?
If we don't have a meeting, I e-mail at least once a week to say: Here's what we're doing, here's what we're working toward before we meet with you. The worst thing is for us to go quiet and not be in communication.

How often do you stay in touch with former clients?
We try to keep people abreast of what's going on. If I'm in the neighborhood, I drop by and ask how things are going.

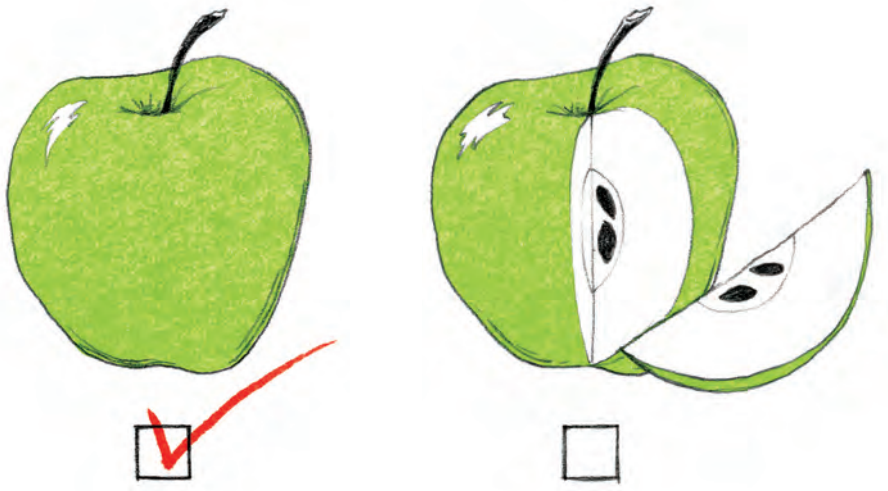
How much of your success is based on people skills rather than the quality of the design?
It's a combination of both. Mike and I have strong people skills. When we hire, that's what we look for. During the interview process, I'm evaluating: How comfortable will I be having this person represent my company?

How do you know your approach works?
Repeat customers and client referrals. We count on our satisfied clients to help us get our next clients. In a competitive situation, if a prospective client calls our past clients, we know we'll get the job. □

→STRAT

What's Yo

IN THE FIRST ARTICLE OF A THREE-PART FIXED-FEE MODEL HAS THE MOST TRAC



TEXT BY ERNEST BECK
ILLUSTRATION BY LAUREN NASSEF

SOME OF THE MORE senior architects working today might recall learning about the percentage fee. Long ago, in a time before CAD and BIM and Skype, architectural fees often were based on a simple percentage of the project's overall design and construction costs. Now, however, fees are a more complex arrangement based on a broad set of criteria, concerns, and benchmarks, plus the shifting structures of product delivery, as well as the economy.

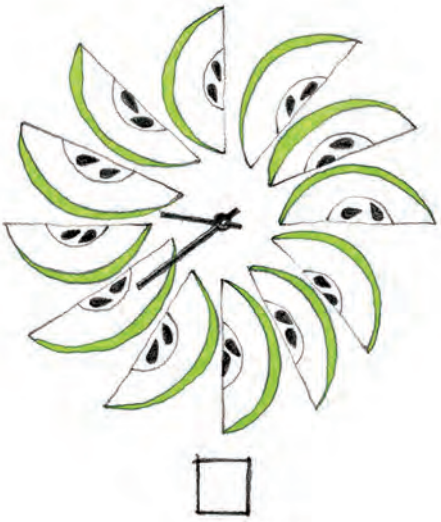
Indeed, architects surveyed for an ARCHITECT series on fees—the second and third parts will cover fee cutting and the ever-growing costs of competing for new business, respectively—say they base fees on a variety of models: fixed costs, hourly costs, per-square-foot calculations, or some combination of all of these. "Fees are all over the map," says Thomas Kerwin, managing principal at Brininstool, Kerwin and Lynch, a 12-person firm in Chicago that works across several design sectors.

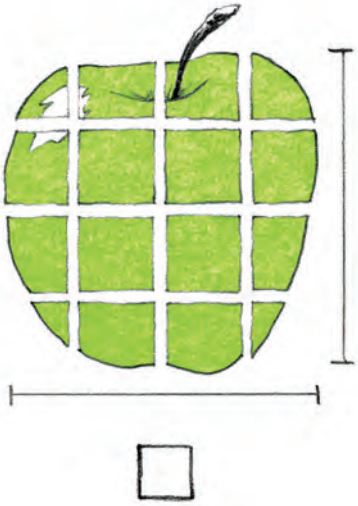
One reason for the change has been the expansion of specialized services within the profession. The days of one firm taking a job entirely from beginning to end are pretty much over. In addition to design work, nonarchitectural services—including landscaping, engineering, and interiors—are being packaged by architecture firms and then carved up between the architects and the sub-contractors. "Every project has so many different players, and there's more collaboration than ever," Kerwin explains.

Even with these variables, the fixed or flat fee for full design services has emerged as the most popular model, except for high-end house projects that tend to be based on an hourly rate (because of the difficulty in defining the

ur Time Worth?

SERIES ON ARCHITECTURAL FEES, WE LEARN WHY THE TION—NOT THAT IT'S ALWAYS EASY TO CALCULATE.





final scope) and commercial projects that are by square footage. Owners are demanding fixed fees "because they want to know what costs are going to be, to compare apples to apples," says consultant Michael Strogoff, a member of the AIA's Practice Management Knowledge Community Advisory Group.

That works for architects, too. "We use our best guess about how long a project might take and how much profit is reasonable, and to me that's the fairest way to do it," says Andrew Bernheimer, co-principal at Della Valle Bernheimer, in Brooklyn, N.Y.

Still, the concept of a percentage—even if it's a vague number, often market- and location-dependent—hasn't entirely disappeared when architects are mulling fees.

"There is a prevailing understanding of what is appropriate on a percentage basis," notes Bob Miklos, a partner in Boston's DesignLAB. "We use a percentage ... to establish the fee that becomes a fixed fee, to see if we're in the ballpark." This can range from 9 to 10 percent for new construction and basic services and consulting to 10 to 12 percent for renovations "in a good year," Miklos says, while commercial projects ratchet down to 5 to 7 percent. (Renovation projects get higher fees because architects must investigate and document existing conditions that will be preserved, worked around, modified, or added on to.)

Yet all of these calculations can be upended by client demands or competitive pressures. And the same holds true for profit margins if costs soar. Figuring out profit, too, often amounts to architects "sticking their finger in the air ... and hopefully adding some number to their actual costs," says Ray Kogan, a strategic planning and management consultant for AEC firms.

The upper end of fiscal-year firmwide profit margins for recession-hit practices is in the range of 8 to 10 percent, down from a high of between 15 and 20 percent a few years ago, says Kogan. Cost overruns and unexpected expenses, however, usually on the construction end, can eat into fees. The ultimate profit, Kogan notes, is "almost always less than the anticipated budget at the beginning."

The AIA does not recommend fees, discuss the basis of fees, or offer fee guidelines for its members. This is the result of a 1990 consent decree with the U.S. Justice Department settling an antitrust suit alleging that the association tried to discourage price competition for architects' services by suggesting a uniform, sliding-scale fee structure. According to the decree, the institute agreed not to adopt policies dictating pricing practices.

For most firms, then, calculating fees is a bit of a guessing game whose factors include the project, the client relationship, the competition, the firm's overhead, and the economy. This can be tempered by knowledge of the building type, its value to the prospective client, and the firm's ability to deliver quality goods on time.

"What we do is ... try to understand the unique requirements and character of the project, and then we build a fee based on the hours we think it will take to do the project," says Dennis King, corporate chairman of Detroit-based Harley Ellis Devereaux. And then they leave room for some haggling. "In the end," King adds, "we prefer a meeting of the minds to establish a fixed fee." □

→LOCAL MARKET

Wilmington, Del.

TEXT BY MARGOT CARMICHAEL LESTER


1


2


3


4

LIKE MANY URBAN CENTERS, Wilmington, Del.'s downtown started to decline with suburban flight in the 1960s and 1970s. The dwindling population drove small businesses out, but the corporate entities, lured by Delaware's business-friendly attitude (and the state's lack of usury laws), stayed. In the 1980s, the city became a haven for credit card companies, including Bank of America and Chase. That boom led to bust as Wilmington was slammed by the recent collapse of the banking industry and the ensuing recession.

"Many of our businesses were tied to the needs of the financial corporations, and that market has gone away," laments Mary Severino, president of local architecture firm MGZA. "The credit crunch has stalled development. This has a domino effect, with completed buildings left vacant because no one can obtain credit to move, and projects put on hold."

Some projects are moving forward, though, many of them spearheaded and funded by three-term Mayor James Baker before the economic tsunami hit. Baker led the effort to revitalize the city's waterfront and the Lower Market district, known by locals as LoMa. He also created the Upstairs Fund, which provides gap financing to help building owners create residential units above street-level commercial property in an effort to bring people and small businesses back downtown.

Thus local architects such as Mike Deptula, principal at ABHA Architects, aren't without hope. "Clients who are venturing out to build are getting great value for their dollar," he notes. "They are getting more building than they possibly could [have] in the past. The flip side is that there are still clients who need convincing to go forward. Most corporate clients are looking at renovation work because they want to preserve their assets and take care of their facilities. This is a great time to build, but people are afraid to." □

1. Lincoln Towers/Wilmington Fire Department Station No. 5
ARCHITECT: Design Collaborative, Wilmington. **COMPLETION:** 2012. **BRIEF:** HUD invested $10 million in this apartment building that also houses a fire station.

2. P.S. duPont Middle School
ARCHITECT: ABHA Architects, Wilmington. **COMPLETION:** 2008. **BRIEF:** $44 million renovation of the 206,000-s.f. school was the largest such project, budgetwise, in Delaware's history.

3. Queen Theater
ARCHITECTS: Homsey Architects (lead), Wilmington; Belk Architecture, Durham, N.C. **COMPLETION:** 2011. **BRIEF:** $16 million in private and charitable funding, plus three kinds of tax credits, fuels the renovation of a historic performance venue.

4. The Residences at Justison Landing
ARCHITECT: Burt Hill, Philadelphia. **COMPLETION:** 2008. **BRIEF:** $123 million residential project is phase one of a $400 million development on the Christina River.

POPULATION/EMPLOYMENT
2009 population: 72,868;
2009 job growth: -4.6%.

OFFICE MARKET
15.6% Class A vacancy rate on asking rates of $26.88/s.f. in the first three months of 2010.

RESIDENTIAL MARKET
Median home sale price, first quarter 2010: $167,000.

MARKET STRENGTHS
- Highly educated workforce
- Proximity to Philadelphia, New York, and Washington, D.C.
- Philanthropic community

MARKET CONCERNS
- Vacant commercial space
- Ongoing recession
- Lack of affordable housing

FORECAST
"A lot of people still work in the city, and ... hopefully more will actually live in the city," says Eldon Homsey, president, Homsey Architects. "We just have to get enough merchants downtown to support those residents. The city seems to be interested in helping architects and their clients develop the buildings that they want."

1–4: CADRENDER; GREG SACHS; BELK ARCHITECTURE; THOM THOMPSON

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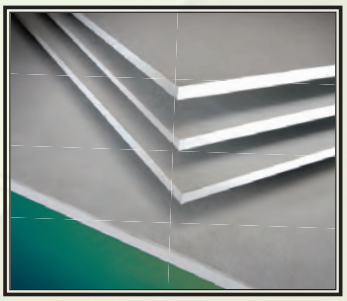

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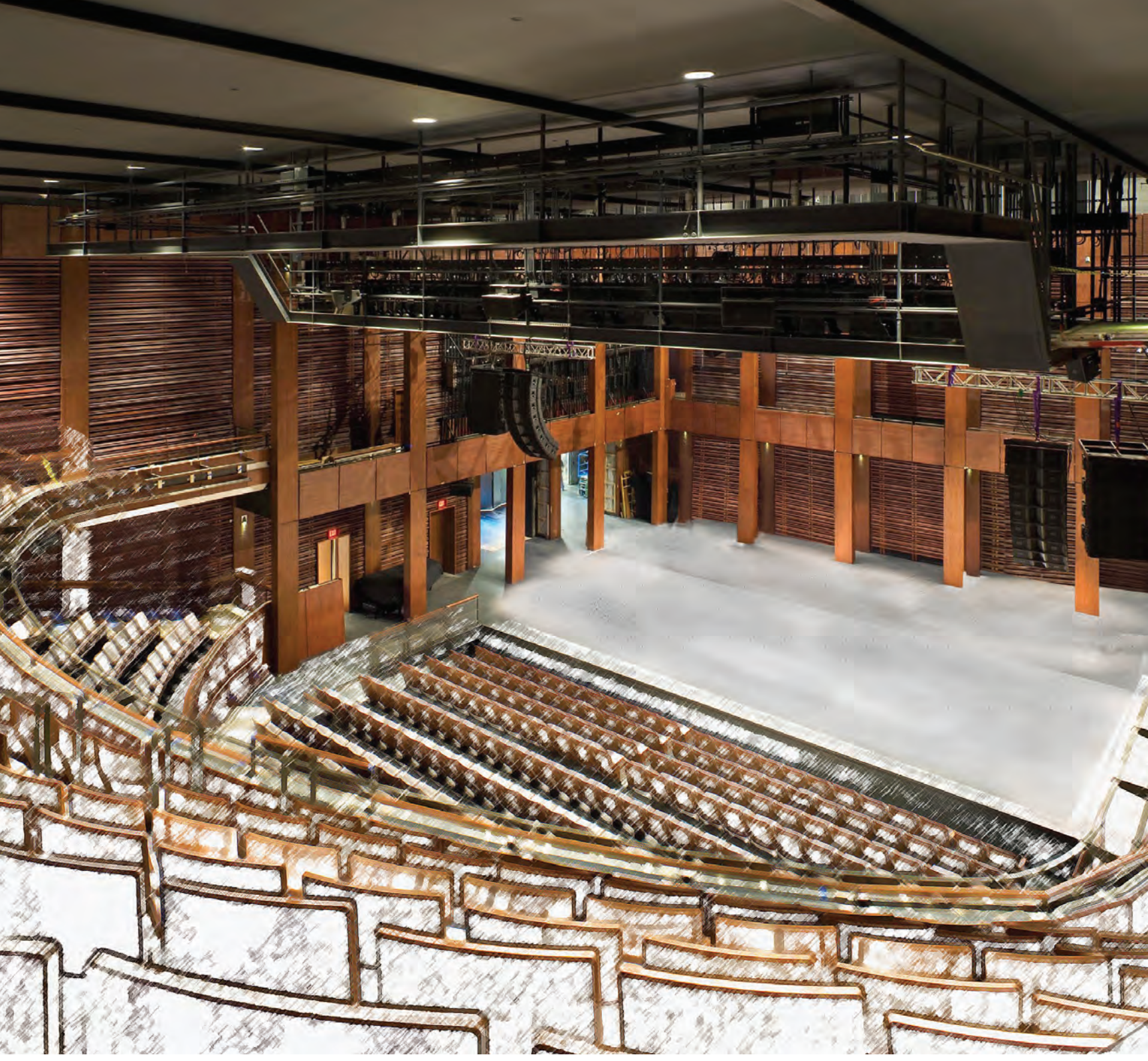

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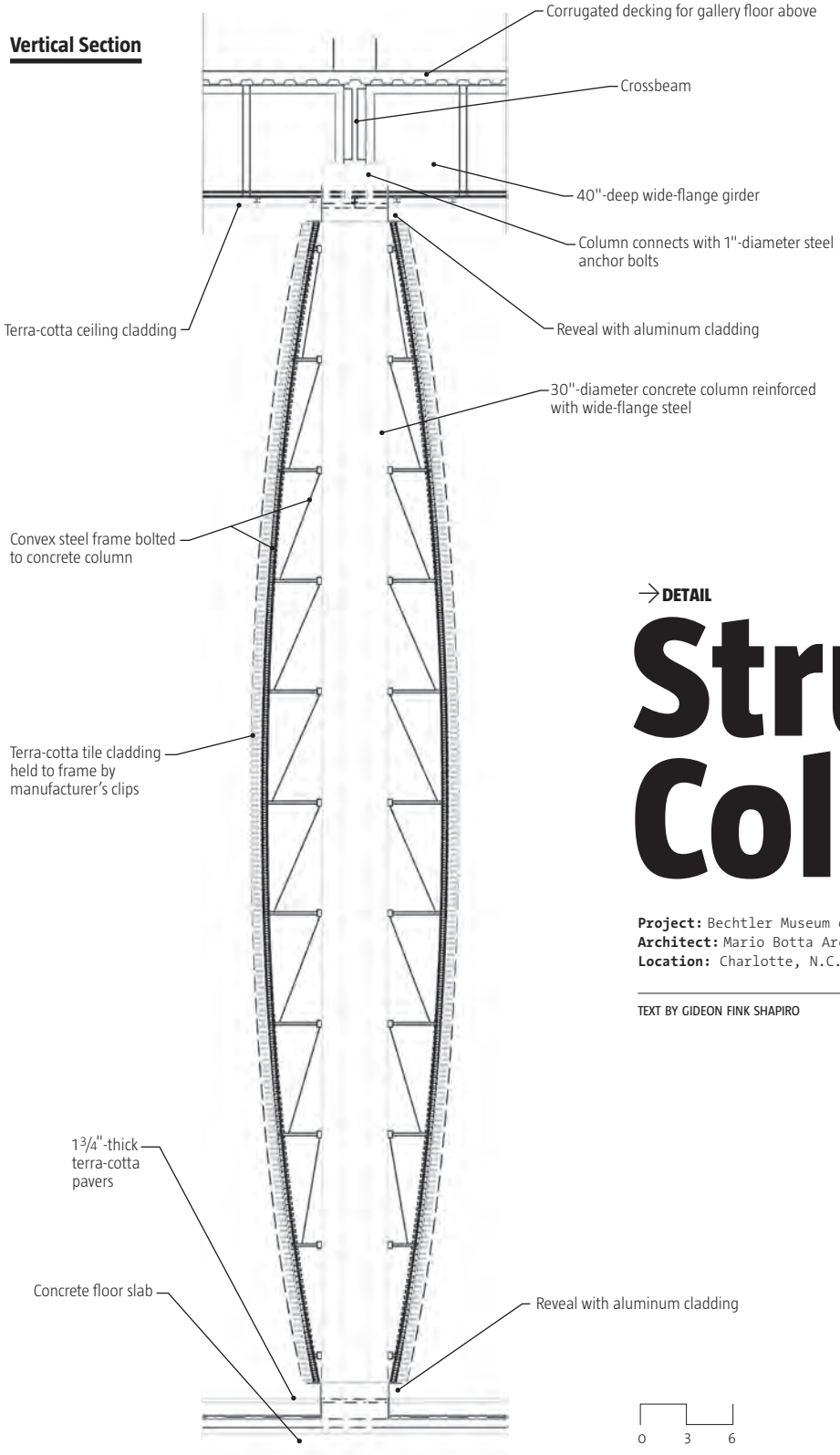
TECHNOLOGY

Vertical Section



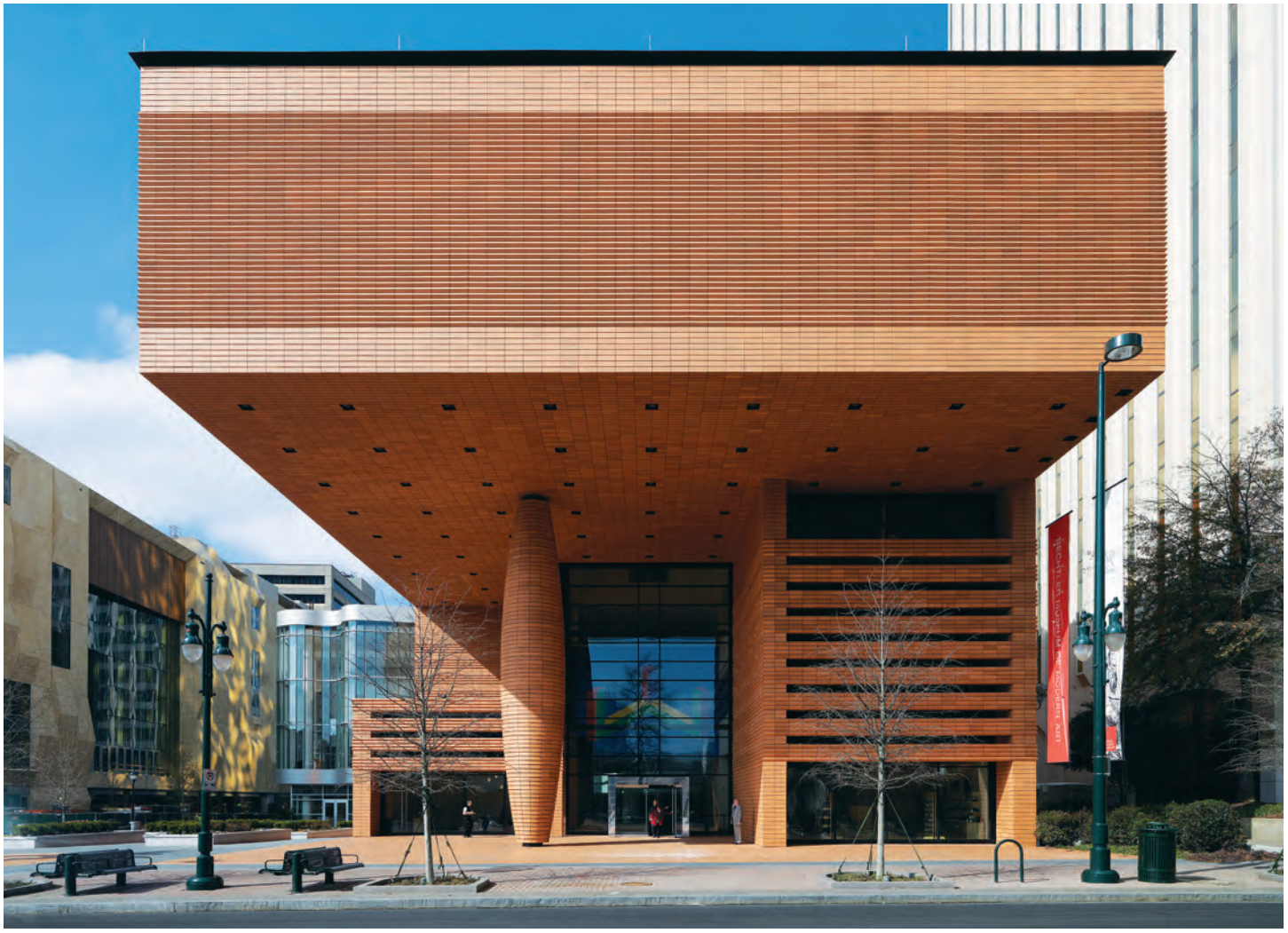
COURTESY WAGNER MURRAY ARCHITECTS

→DETAIL

Structural Column

Project: Bechtler Museum of Modern Art
Architect: Mario Botta Architetto
Location: Charlotte, N.C.

TEXT BY GIDEON FINK SHAPIRO



A lone column keeps silent sentry in the plaza of Charlotte, N.C.'s Bechtler Museum of Modern Art, which opened in January. Although the 47-foot-tall pillar is structurally necessary and part of the overall column grid, its girth is deceptive—a convex steel armature encloses the load-bearing concrete column within and supports a skin of terra-cotta tiles—and is meant to convey the building's massiveness.

YOU DON'T NEED A SIGN to figure out where to enter the new Bechtler Museum of Modern Art, designed by Swiss architect Mario Botta and located in downtown Charlotte, N.C. A huge chunk of the building's base appears to have been carved out of its east side, leaving a covered plaza that connects the street directly to the Bechtler's central skylit atrium. "The idea was to build a public space, something personal and human scale, in contrast to the surrounding skyscrapers," says Mario Botta Architetto project architect Tobia Botta, who works for his father.

Almost half of the museum's 10,762-square-foot fourth-floor gallery is cantilevered over the entrance plaza, and the absence of windows in the austere, yet warm, terra-cotta façade only accentuates this deep opening. As in traditional museum and church architecture, the entrance proclaims itself; here, however, the grade does not change as the sidewalk plane slips through the plaza and into the lobby.

A single, 47-foot-tall column stands in the plaza, disrupting the play of pure solids and voids. It bulges in the middle, as if compressed by the weight of the gallery space atop it. (The center diameter measures 8 feet—double that of the column's endpoints.) While the structural member itself is made of standard reinforced concrete, the tile cladding is mounted to a convex steel armature. This maneuver one-ups classical builders who used the technique of column entasis, or tapering, to subtly manipulate optical effects. But in contrast to the columns of the Basilica in Paestum, Italy, for example, which have massive capitals, Botta's column meets floor and ceiling with minimalist delicacy.

"Sometimes, in architecture, you let the mystery prevail," observes David Wagner, principal of Charlotte-based Wagner Murray Architects, the architect of record. (KingGuinn Associates, also located in Charlotte, provided structural engineering services.) Yet the column's capacity is anything but ethereal. According to Wagner, its strength is rated at 12,000 psi, or two to 2.5 times greater than that of a standard column. Its 14-foot-6-inch-square footing lies hidden underground, below the basement level. And gravity is not the only stress acting here. The enormous overhang must resist potential wind loads from below (uplift) as well as from the side.

For all of its uniqueness, the swollen column does, in fact, belong to the building's regular 29-foot-by-29-foot column grid—it's just that all of the other columns are concealed within walls, and six of the 20 grid points are left empty. Could this massive external column have been left out, too? Tobia Botta and Wagner both confirm that they briefly considered this option. "We can all imagine a 90-foot cantilever in our dreams," Wagner says, but the structure "would have [to have] been so massive as to significantly reduce usable space inside."

Having accepted the necessity of the column, Mario Botta assigned it primary symbolic duties as well as load-bearing ones. "It's not just something structural," Tobia Botta says, "because we could have made it thinner. It has to represent the whole weight of the building." □

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→RESEARCH

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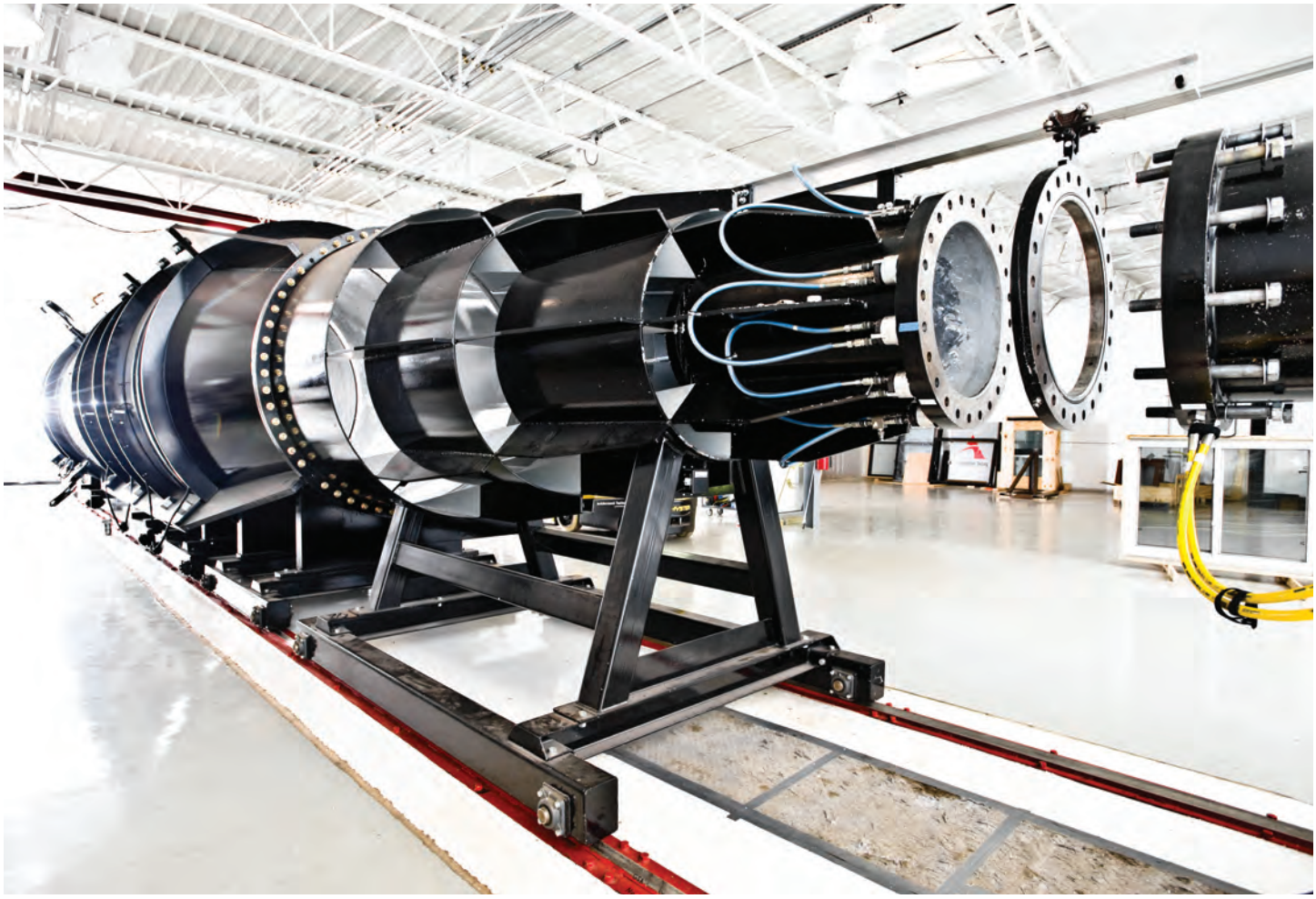

TEXT BY BRAULIO AGNESE
PHOTOS BY MIKE MORGAN

The telescoping design of Architectural Testing Inc.'s shock tube—which houses a driver (at far right) capable of generating up to 3,000 psi of air pressure—means the company can shape a "blast profile" as precisely as a particular fenestration test might require.

DRIVING ALONG I-83 north of downtown York, Pa., you might glimpse the headquarters of Architectural Testing Inc. (ATI) at exit 24: a few unassuming, low-slung offices, a warehouse-type structure, and some curtain-wall mock-up facilities. Pass by there at the right time, however, and you'll hear an ominous boom coming from ATI's campus.

That sound—which occurs about twice a week and, up close, is akin to "a heavy load of concrete dropped into an empty trash container," says ATI vice president Rich Biscoe—is produced by an impressive apparatus, about 13 feet tall and 80-plus feet long, known as a shock tube. Designed to mimic bomb explosions, the tube has a driver at one end that generates up to 3,000 psi of pressure. Fenestration specimens up to 7 feet square, whose fate is measured in milliseconds, sit at the opposite end in the "witness chamber," where they receive a punishing blast of air. The chamber also holds a high-resolution camera, which records the action at up to 5,000 frames per second; four transducers that each collect 5 million air-pressure samples per second; and aluminum-faced foamboard, which gets embedded with shards of glass.

The shock tube sits in ATI's new Security Research Center (SRC), a 10,000-square-foot facility that also offers ballistics-resistance testing and assault-protection evaluation—i.e., the testing of windows' and doors' ability to withstand a determined attack by a group, such as prisoners or a mob. In essence, the SRC is one-stop shopping for protective-glazing manufacturers to

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An air cannon (opposite) is used to fire variously sized timber pieces at windows for impact testing. Like almost all of ATI's equipment, it was designed and manufactured in-house. For an extra-large apparatus such as the aptly named Mega Rack 500 (above)—which is for the seismic testing of glazing systems—or the shock tube (on page 24), the company works with steel-fabrication specialists.

conduct research-and-development (R&D) and proof-of-performance tests.

At a time when private-sector commercial work is way down, Uncle Sam is still building things. But the U.S. government's fenestration requirements are far stricter than those for the corner store, and the architects it hires must be confident that the products they're specing meet General Services Administration, Department of Defense, or Department of State standards. The SRC helps ensure just that.

ATI trumpeted the SRC's arrival in December 2009, after the ballistics and assault facilities were finished, but it's the shock tube, which has been in operation quietly (as it were) since summer 2008, that Biscoe, who oversees ATI's R&D and the construction of new equipment, discusses with obvious glee.

There were two tubes available for manufacturers' use when ATI started developing its own several years ago, Biscoe says, "but they had limitations. ... We made sure our tube addressed those issues and added more features." Among them: a modular, telescoping design that allows the company to fine-tune the "blast profile" (how air pressure changes over time); a blast profile that includes the negative phase (the period when air pressure drops below the ambient norm), something previously available only through open-arena testing, which employs live explosives; and the witness chamber, designed for the quick changeout of specimens, allowing up to 15 tests a day.

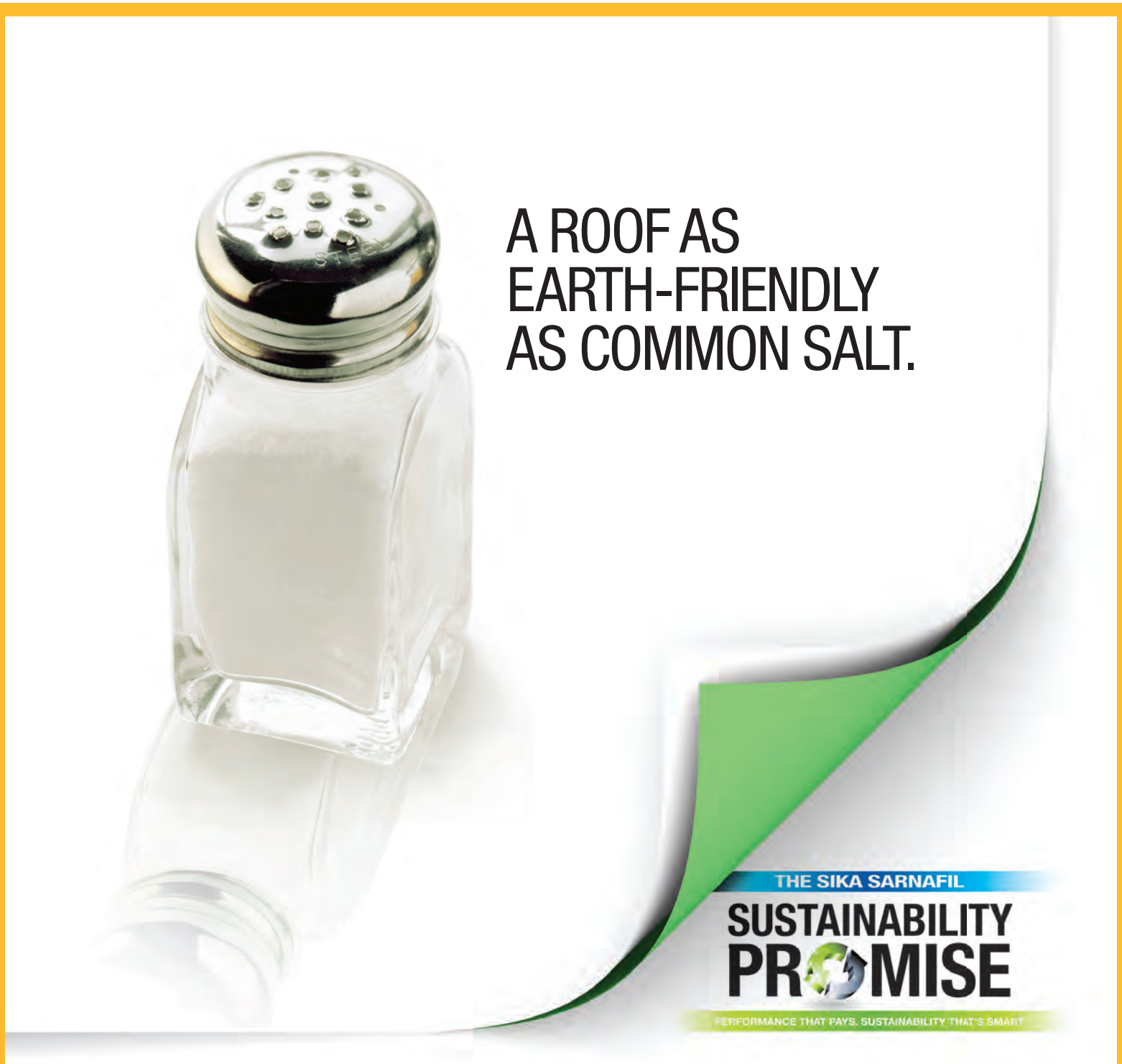
The SRC is the latest addition to ATI's ever-growing list of testing and certification services for manufacturers. What began in 1975 as a small company has grown over the past 35 years into a product- and materials-evaluation business with 11 labs, 10 offices, and 252 staff across the U.S. The standards ATI meets and the trade groups to which it belongs read like a building industry stock ticker: AAMA, ANSI, ASTM, IAS, IGCC, NFRC, NSPE, SGCC, UL, plus seven others.

In other words, if it involves building-product science, ATI

can handle it—or will puzzle out a way to. An anecdote told by founder Henry Taylor, about the time ATI used the 440-cubic-inch engine from his wife's Chrysler New Yorker to power a fan for a dynamic curtain-wall test, epitomizes the company's DIY approach. All of ATI's facilities and equipment—including analytical software—are designed and, with few exceptions, built in-house, and from the start, says Biscoe, ATI has put the vast majority of profits back into the company for capital expenses: new outposts, new hires, new R&D. The result? ATI has doubled its business every five years, Biscoe says. (A privately held company, ATI does not disclose financial data.)

The company's clients—who come not just for testing but for ATI's many professional services, including forensics and building-enclosure commissioning—number "in excess of 5,000," says executive vice president Scott Warner. Glazing manufacturer NanaWall has worked with ATI for 18 years. "It behooves us to have an independent lab confirm our testing," says NanaWall president Ebrahim Nana. "We have nothing to hide by [using] the strictest lab in the country." Greg McKenna, chief product engineer at Kawneer, manufacturer of aluminum building systems, says that although ATI may not cover all aspects of product testing, it has "probably the broadest range, of any test lab, for fenestration products."

Indeed, ATI has competitors in various niches, but only a few companies, such as Intertek, whose reach is global, match its scope. Working with a company that's willing to investigate new fields of expertise doesn't hurt, either. A witness chamber for the shock tube capable of holding specimens up to 12 feet square is already planned, Biscoe says. And ATI's vision for the SRC includes electromagnetic security issues, says Joe Reed, director of engineering and product testing. "With so much communication being done wirelessly," he notes, there's a need to defend against "eavesdropping and remote sensing." You can bet that when products are developed to do just that, ATI will be ready to put them through their paces. □



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TEXT BY LANCE HOSEY
ILLUSTRATION BY PETER ARKLE

"IS THERE SUCH A THING as a surrealist building?" Jonathan Glancey once asked in the *Guardian*. The architecture critic's answer: "Of course—although it may not keep the rain out." Glancey saw dream imagery in the swirling exteriors of Antoni Gaudí's Casa Milà, in Barcelona, and Frank Gehry's Experience Music Project, in Seattle. The same could be said of Paris' Musée du Quai Branly, by Jean Nouvel, whose unruly façade of exotic plants is the architectural equivalent of Giuseppe Arcimboldo's vegetable portraits. But while these buildings may bear a resemblance to the work of artists such as Jean Arp, Yves Tanguy, and Salvador Dalí, a more insidious brand of surrealism can be found in the way commercial development treats the environment.

In one respect, the surrealist movement, fed by flights of fantasy, had a strange kind of innocence. "The mind which plunges into Surrealism," wrote the poet André Breton, "relives with burning excitement the best part of childhood." The same can be said of the built environment, particularly developed landscapes. The Savanna Theory suggests that because the human brain evolved in a particular environment—namely, the African savanna—people unconsciously have sought, and built, the same spatial cues everywhere since leaving that place long ago. Rolling terrains dotted with trees and modest bodies of water characterize parks, gardens, and golf courses—savannas with sand traps and putting greens. The manmade landscape is a kind of archaeology of the unconscious that mines the distant, collective memory of the cradle of our species.

But surrealism also had a profoundly dark undertone, motivated partly by the absurd horror of World War I. Artists' canvases and poems often were spaces of desolation, places populated by jarring contrasts and things out of place. Today, development echoes these hallucinatory landscapes wherever artificial savannas are constructed in extreme conditions, especially desert resorts.

Nevada's Furnace Creek Resort—advertised as a "lush oasis" of manicured lawns, palm trees, and 18 holes of golf—sits in "complete contrast to the desolate desert landscape" of Death Valley, 214 feet below sea level and often hotter than 120 degrees in the summer shade. This surrealist playground should be called "Dalí-wood." With only less than 2 inches of rain a year and the local springs and aquifers all but depleted, Furnace Creek maintains the mirage with untold gallons of water pumped in artificially. The surrealist's dream is the environmentalist's nightmare. □

→PRODUCTS

Outdoor

TEXT BY KIMBERLY R. GRIFFIN

Created by Italian designer Antonio Citterio with Toan Nguyen, **Flos' Belvedere** collection of outdoor lights uses remote phosphor LEDs, power LEDs, and metal halide light sources. The fixtures are available in five models—each of which has multiple height and base options—including two area lights, two spots, and a wall sconce. A four-phase finishing process combines a cast-aluminum alloy, anodized surfacing, a polyester powdercoat, and vinyl with metallic pigments. • *flos.com* • Circle 100

Manufactured by **Onadis** of Spain and distributed in the U.S. by Magnuson Group, **Recicla** standing waste receptacles are constructed from Syntrewood, 100% recycled material made primarily from plastic. The material is pressed into thick, curved panels and round legs, which are then bolted together to form the three-legged round bin. A water-based dye gives the Recicla its dark green-gray color. Heavy-duty waste bags are secured by an internal metal ring. The bin stands 31 1/2" tall and can hold up to 21 gallons of waste. A 31 15/16"-square surface space can be set aside for advertising. Kits are available for securing the bin to soft surfaces, as at beaches or playgrounds. • *magnusongroup.com* • Circle 101

The **Air** stool is the latest addition to **Gandía Blasco**'s Plastic collection of indoor-outdoor furniture. Made of rotationally molded polyethylene, the hollow stool comes in two sizes: the Bar stool measures 16" by 12" by 30"; the Low stool (shown) measures 12" by 10" by 16". Four colors are available: white, black, tobacco, and warm gray. The Air stool was created for Gandía Blasco by Spanish product designer Héctor Serrano. • *gandiablasco.com* • Circle 102

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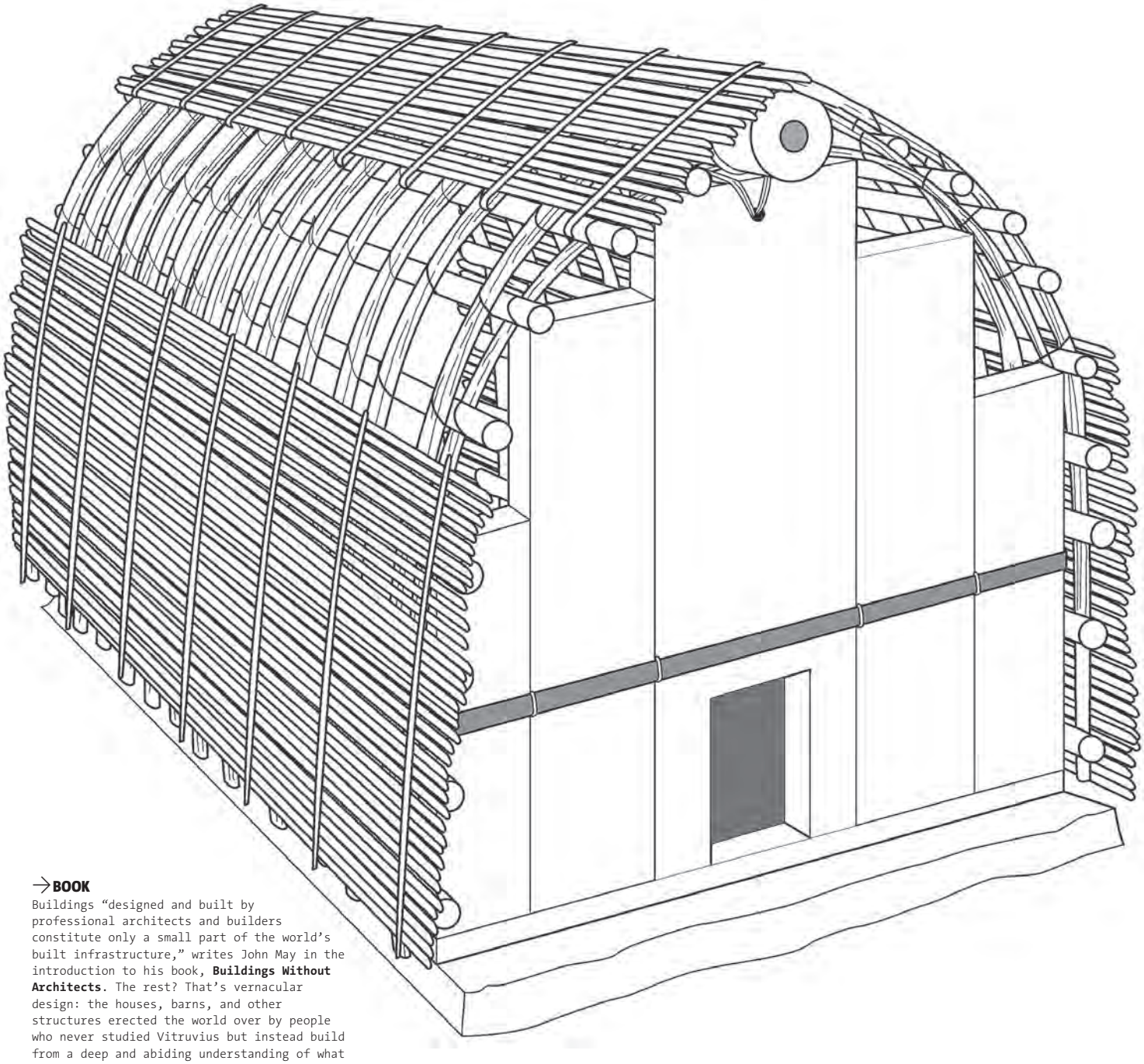


→BOOK

Buildings "designed and built by professional architects and builders constitute only a small part of the world's built infrastructure," writes John May in the introduction to his book, **Buildings Without Architects**. The rest? That's vernacular design: the houses, barns, and other structures erected the world over by people who never studied Vitruvius but instead build from a deep and abiding understanding of what works best for them and for their environs. Structured roughly by typology, May's book offers brief descriptions of the Toda hut (shown), found in southern India, and 60 other examples of true contextualism. Best of all are the building drawings by Coral Mula, which manage to be both charming and informative. $22.50; Rizzoli

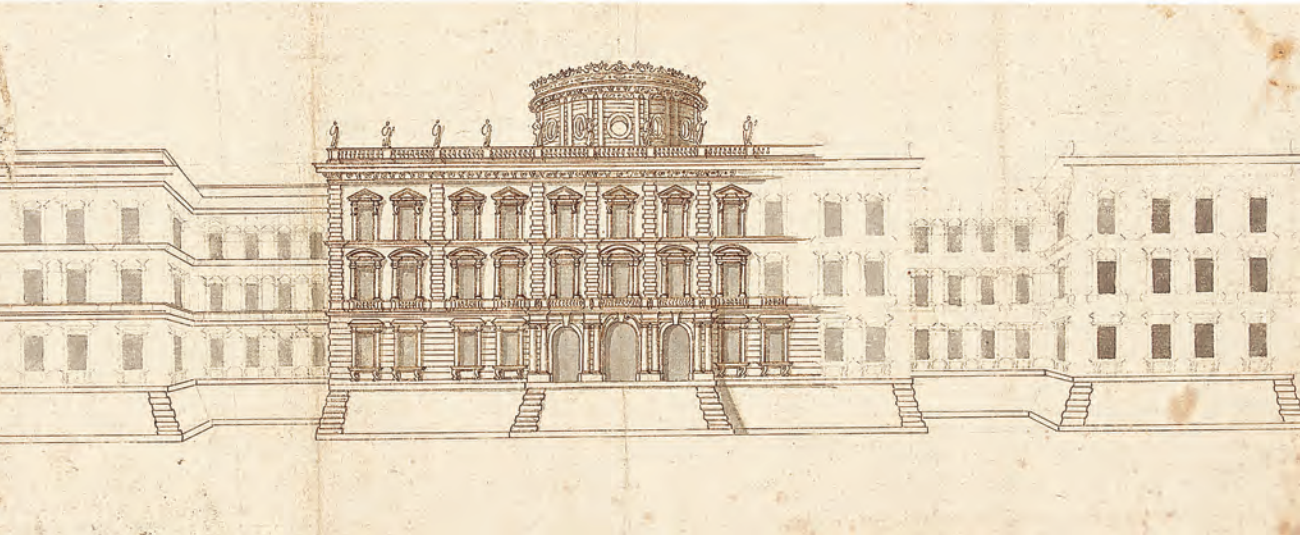
→OBJECT

Facilitator of mood lighting, lengthener of bulbs' lives, **Lutron Electronics' Caprí dimmer** (above) was a revelation for homeowners when it debuted in 1964. Its inventor, Lutron founder Joel Spira, recently donated the Caprí and other control systems and materials from the company's 50-year history to the Smithsonian's National Museum of American History, where they will join the Electricity Collection. But these artifacts of lighting history will remain in the dark for now: The museum has no immediate plans to put any part of the Lutron materials on display. *americanhistory.si.edu*

→EXHIBIT

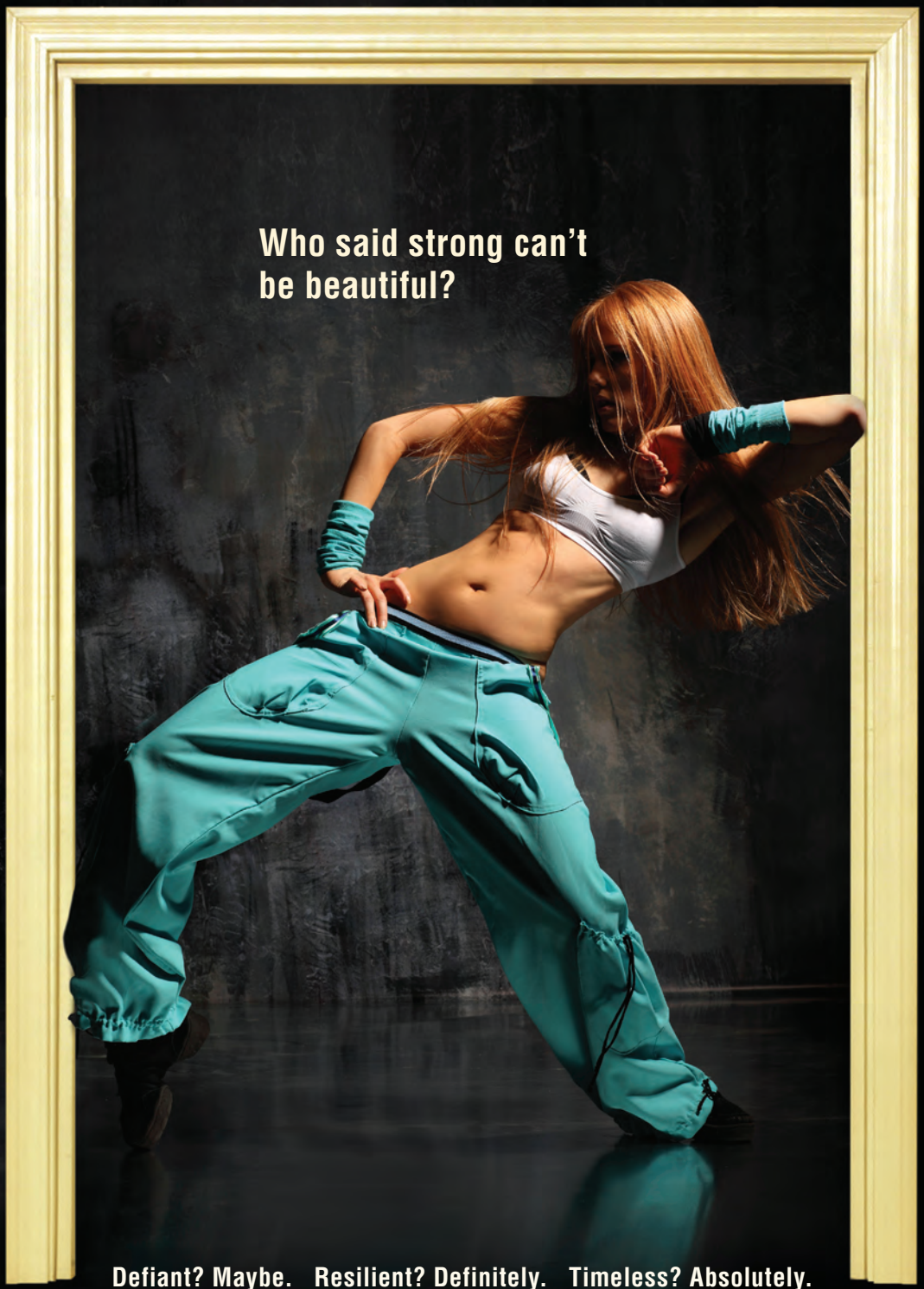
Curators Ellen Lupton, Cara McCarty, Matilda McQuaid, and Cynthia Smith took a novel tack for the 2010 Cooper-Hewitt **National Design Triennial**. The quartet answered the question "Why Design Now?" by showing work in eight virtuous categories: communication, community, energy, health, materials, mobility, prosperity, and simplicity. To discover what category the Cabbage Chair by Oki Sato of Nendo (below) fits into, visit the exhibition website: *exhibitions.cooperhewitt.org/Why-Design-Now*.

PREVIOUS PAGE: © CORAL MULA, *BUILDINGS WITHOUT ARCHITECTS*, RIZZOLI, 2010; CLOCKWISE FROM TOP LEFT: COURTESY OF LUTRON; MASAYUKI HAYASHI; © CHRISTIE'S IMAGES LIMITED 2010



→OBJECT

Does the drawing at left look familiar? It should, if you were paying attention during that Renaissance and Baroque survey course. It's one of **Gian Lorenzo Bernini**'s studies for the Louvre, drawn in this case by his right hand, Mattia de Rossi, in black chalk, pen and brown ink, and gray wash. Long overlooked in the family collection of the electors of Hanover, the 19½-inch-wide drawing went up for auction at Christie's London on July 7. The estimate was a mere $30,000–$40,000—a steal for such a remarkable piece of architectural history. *christies.com*



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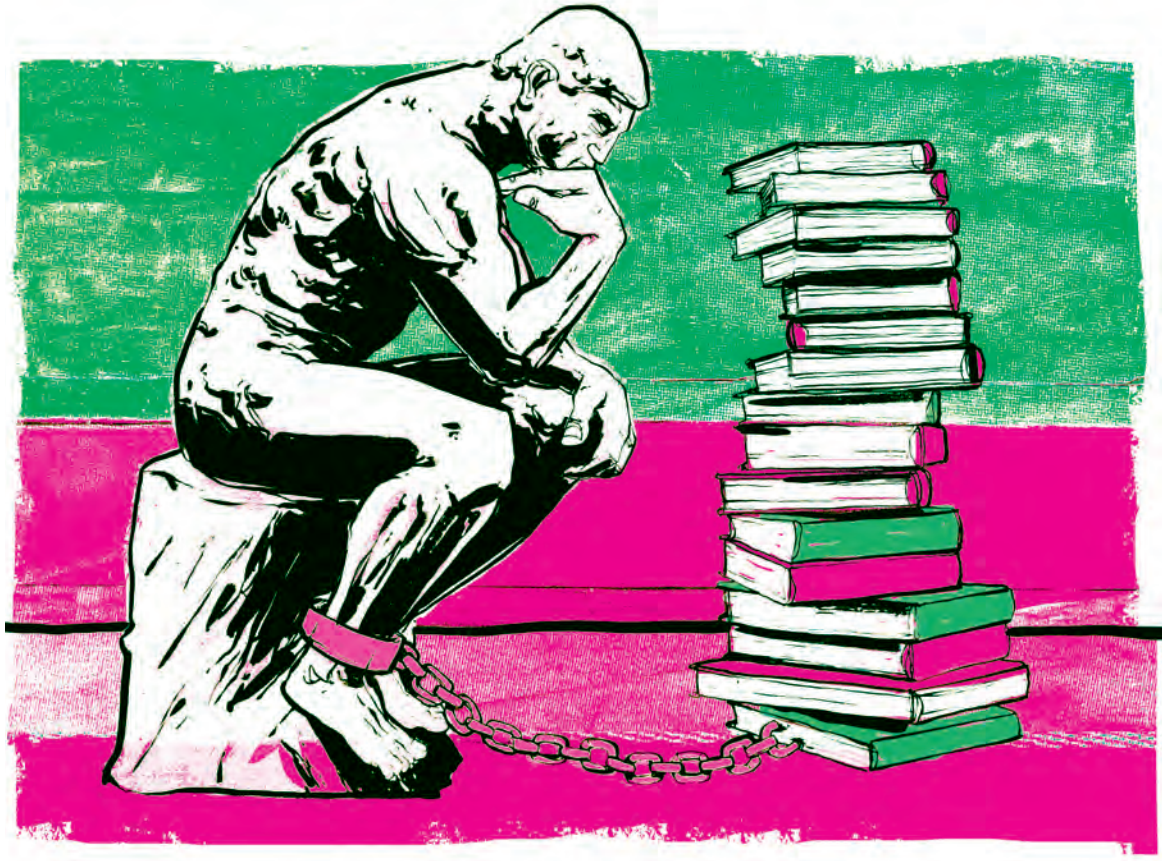
→CRIT

Business Philosophy?

ON THE VIRTUES—AND PERILS—OF DESIGN THINKING.



TEXT BY MARK LAMSTER
ILLUSTRATION BY PJ LOUGHRAN

EARLIER THIS YEAR, an episode of the sitcom *30 Rock* made great work of parodying Six Sigma, the business-management system developed by Motorola. With its penchant for pseudoscientific jargon and karate-inspired hierarchies, it makes for a ripe target, but it's hardly a unique phenomenon. Every few years, the business world latches onto some new management paradigm that promises to reinvigorate corporate America and—perhaps more critically—maintain liquidity in the highly lucrative business-consultancy sector.

The latest panacea offered by the management-industrial complex, as you may have noted, is "design thinking." A whole raft of books on this subject has hit stores over the past year. There's Warren Berger's *Glimmer: How Design Can Transform Your Life, and Maybe Even the World*, a Gladwellian self-help primer drawn from the platitudinous mind of design guru Bruce Mau. There's *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*, a manual for the MBA set penned by Ideo's Tim Brown. There's *Design Thinking: Integrating Innovation, Customer Experience, and Brand Value*, by Thomas Lockwood, president of the Design Management Institute, whatever that is. These are just a few of your options, and if they don't suffice, you can enroll in Stanford University's Hasso Plattner Institute of Design, where you can earn a graduate degree in, yes, Design Thinking.

For the practicing architect, this new trend (fad?) must be received, on some basic level, as a kind of long-sought validation. To the extent that "design thinking" correlates to a systematic emphasis on research, collaboration, modeling, and critical evaluation—that is to say, an idealized vision of the design process—one can only applaud its broader adaptation by the business world. Presumably, a greater respect for the thinking characteristic of design professionals will lead to a greater respect for design professionals themselves. (And higher fees? Well, let's not get carried away.) Indeed, we can probably trace this newfound appreciation for design methodology to the higher status of architecture and design in the public realm over the past couple of decades. It is a field born of Frank Gehry and Steve Jobs.

It is more than a bit ironic, then, that architects, the standard-bearers of professional design, are virtually nonexistent in discussions about design thinking. At Stanford, for instance, you can study design thinking

with a dancer, a filmmaker, an entrepreneur, or a mechanical engineer, but not an architect. Architecture, the profession that ever casts itself as befitting a place at the table where decisions of import are made, has been relegated—as usual—to the children's dining area, if even there.

Perhaps there's some justification in this affront. If architecture is an insecure profession, it is also an egotistical one, its practitioners frequently harboring the belief that they are somehow uniquely possessed of an ordering vision to which the world should simply conform. Too many architects don't just want a seat at the table, but the seat at the very head of the table, from which they can pontificate ad nauseam. This is not the kind of design thinking that the design thinking folks want to promote.

Still, the absence of the architecture profession from this conversation is somewhat alarming, as it suggests a certain willful disinterest as to the lessons that might be drawn from its history. It also implies a somewhat fixed conception of the design process. The systematic practice that characterizes design thinking is no magical elixir to any challenge, architectural or otherwise. And, of course, many design thinkers aren't particularly systematic at all. Put 100 accomplished architects in a room and you'll find 100 different design methodologies, all of them legitimate, so long as the end product is a success.

Collaboration, a hallmark of design thinking, may be vital for large projects, but at some point at the beginning of any endeavor, *someone* has to sit down in front of a blank page and make a mark. That creative act requires a combination of disciplined training, historical knowledge, personal experience, and natural ability that no system can provide. And this illustrates a truth about systems: They are only as good as the material they process. Although "design thinking" suggests a kind of progressive altruism, it's not necessarily benign. One could argue that the most comprehensive application of design thinking in history was the orchestration of the Nazi war machine by Albert Speer, Hitler's architect.

Educating businesspeople in the ways of design practice, if nothing else, can only improve the lot of future architects when these professionals become clients. As clothier Sy Syms, a design thinker in his own way, always told us, "An educated consumer is our best customer." Whatever its value, it's worth noting that design thinking did not quite emerge organically as an academic field of study. Though its currency is undeniable, it has had a deep-pocketed sponsor in Hasso Plattner, a German technology magnate who has funded several design-thinking initiatives, including the Stanford institute (to which he gave more than $35 million) that bears his name. The good news, of course, is that with that kind of money, you can do a lot of design thinking about design thinking. □

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

→SCREEN GRAB

architects2zebras.com bimandintegrateddesign.com

DESIGN PRACTICE IS EVOLVING, AND BIM IS A CRUCIAL PART OF THAT CHANGE.

TEXT BY ELIZABETH EVITTS DICKINSON
PHOTO BY TIM EVANS

Architect and consultant **Randy Deutsch** maintains two streams of thought on the Web: Architects 2 Zebras is about design practice and culture, while BIM + Integrated Design zeros in on the benefits of the collaborative, technology-driven model for building structures. "BIM allows the architect to tap into all the core attributes I talk about on Zebras," Deutsch says.

FOR 10 YEARS, Randy Deutsch led a double life. A building designer by day, he was also a playwright whose romantic comedies found homes at small theaters in various cities. Today, the Chicago-based architect and consultant unites his love of design and of writing in two blogs: Architects 2 Zebras and BIM + Integrated Design.

Architects 2 Zebras came first, in January 2009. Deutsch wanted to spark a dialogue about how the fundamental aspects of an architecture career were changing. "A lot is happening to the profession," Deutsch says. "I saw a gap in information representing the core competency of what architects are today." His blog attempts to bridge that gap with coverage that speaks to both building and software architects, whether it's book reviews, Q&A's, commentary on current events, or service pieces with titles like "55 Ways to Help You Evolve as an Architect."

Deutsch quickly noticed that he was posting a stream of items around the benefits of integrated design, a topic that is close to his heart. He spun off a second blog, called BIM + Integrated Design, which is also the title of a book being published in 2011. An early adopter of BIM, Deutsch says the book, like the blog, examines the sociological side of BIM and looks at the psychological impacts of this new technology on firm culture as well as its potential uses. "BIM is important," Deutsch notes, "because it has the potential to stop the marginalization of the profession."

It's evident that an architect's synthesizing mind is at work on these blogs. Deutsch moves seamlessly across disciplines and genres, blending vast amounts of information succinctly. He references Claude Monet when discussing BIM's 3D qualities, quotes F. Scott Fitzgerald for a piece on ambiguity, and finds inspiration for a post on BIM physics in Neil Young lyrics. Deutsch says his goal is to help ease other architects into this next technological and creative phase and get them comfortable working in an integrated way. "Architects [can] translate from one medium to another," Deutsch says. BIM lets them "work harmoniously … for a common goal." □

LINKS

flickr.com
Using data from Flickr's and Picasa's search APIs (application programming interfaces—geek argot), photographer Eric Fischer created "The Geotaggers' World Atlas" (bit.ly/ayW7qs), maps of 100 cities that reveal where the most photos were taken. He also created "Locals and Tourists" (bit.ly/aZRnLY), a series that attempts to parse the API data to determine whether photos were taken by tourists or residents.

accents-by-design.com
Creating an optimal working environment is something designers have been wrestling with for years. Interiors firm Accents by Design ups the ante in a new white paper, "Multi-Generational Design: A Space Plan for the Emerging Workplace," by noting that, for the first time, the employee base now includes four generations: traditionalists (born 1930–1945), baby boomers (1946–1964), and generations X (1965–1976) and Y (1977–1990). • *bit.ly/bahmnt*

itunes.com
Have you ever wanted to be Renzo Piano? Thanks to Italian design magazine *Abitare*, you can—sort of. The publication's app for the iPad, iPhone, and iPod Touch lets you track the architect's travels and offers a look at work in progress through galleries of sketches, models, and drawings. There are also videos to watch and interviews to read. The $11.99 price tag may seem steep, but it's a lot less than the cost of a Piano building. • *bit.ly/bZbfTY*

visitnorway.com/holmenkollen
The Holmenkollen Ski Jump, in Oslo, Norway, is a stunning structure by JDS Architects being built for the 2011 Nordic World Ski Championship. But you don't have to wait until next February to see athletes at work. Send them soaring off the Holmenkollen's ramp now with this simple, addictive game.

roofgenuity.com
Firestone Building Products has launched RoofGenuity, an online BIM tool for developing roof assemblies using the company's products. If you sign up, you can save your creations for future use. Currently, the site supports only Revit, but RoofGenuity will be compatible with other BIM platforms in the near future.

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SHANGHAI SURPRISE

TEXT BY FRED A. BERNSTEIN
PHOTOS BY EDWARD DENISON

HUNDREDS OF THOUSANDS OF DAILY VISITORS, ABOUT 200 BUILDINGS, $4.2 BILLION SPENT: SHANGHAI'S LAVISH WORLD EXPO, WHICH OPENED ON MAY 1 AND RUNS THROUGH THE END OF OCTOBER, IS A CHANCE FOR CHINA'S LARGEST CITY TO ANNOUNCE ITSELF AS A CULTURAL AND ECONOMIC POWERHOUSE. IT'S ALSO A STAGE WHERE THE NATIONS OF THE WORLD CAN SHOW OFF—TO VISITORS AND EACH OTHER—THROUGH ARCHITECTURE. FRED A. BERNSTEIN TOURS THE EXPO, SURVEYS ITS ARCHITECTURAL HITS AND MISSES, AND EVEN GETS INSIDE THE MUCH-MALIGNED U.S. PAVILION.

Previous pages: Chinese pavilion • He Jingtang
Unlike most expo buildings, the 200-foot-high "Oriental Crown" is a permanent structure: it will be converted into a history and culture museum when the fair closes.

1. Shanghai World Expo Cultural Center • Shanghai Xian Dai Architectural Design Group
The expo's saucerlike, 18,000-seat performance arts center will become a sports and entertainment venue after the fair closes.

2. British pavilion • Heatherwick Studio
"The world's largest ever hairy building," in the words of designer Thomas Heatherwick.

3. German pavilion • Schmidhuber + Kaindl
Named "Balancity," this mesh-wrapped sculptural pavilion is intended to represent "a city in balance," in keeping with the expo's urban theme.

4. Danish pavilion • BIG
Bjarke Ingels and colleagues convey the Danes' athleticism—and sentimentality—with a velodrome that circles Copenhagen's *Little Mermaid* statue, imported for the occasion.

5. Russian pavilion • P.A.P.ER
The studio P.A.P.ER beat out 22 competitors with a scheme of 12 irregularly shaped white towers, perforated with folk-art motifs.

6. Shanghai 2010 Boulevard • SBA Design
Created in collaboration with engineers Knippers Helbig, what is touted as the world's largest membrane roof—supported by six massive funnels—forms the main entrance area and boulevard of the expo.

OF THE HUNDREDS OF BUILDINGS at the Shanghai Expo, the British pavilion, designed by Thomas Heatherwick and dubbed the "Seed Cathedral," has become the darling of the design world. Not only is the building—studded with 60,000 acrylic tubes—visually compelling, but the tubes contain seeds (from Kew Gardens' Millennium Seed Bank Project) that will be dispersed to Chinese schoolchildren after the expo closes, making it an elegant comment on biodiversity. Critic Brooke Hodge, writing in *The New York Times*, called it the expo's "only national pavilion that truly integrates concept, container and content."

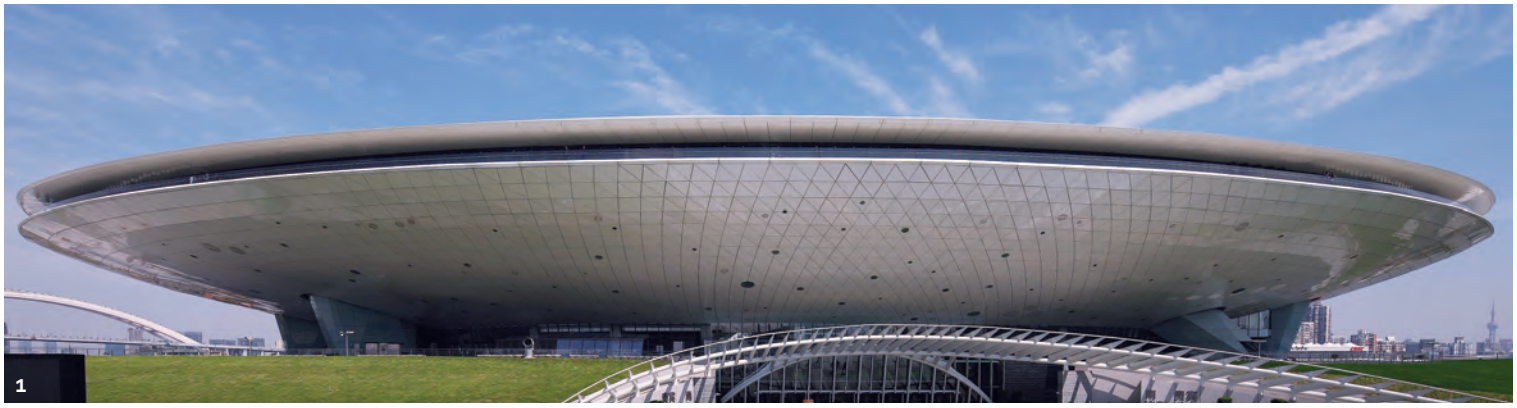
It is also a perfect example of the architectural experimentation that world's fairs have long made possible. Who knows whether the thousands of tubes, inserted into a plywood box, would last through even the mildest Shanghai winter? And who cares, given that virtually all of the Expo's buildings, on a two-square-mile site flanking the Huangpu River, will be torn down by the time winter comes around. Heatherwick's pavilion demonstrates what has, for more than a century, made World's Fair architecture so intoxicating: temporariness.

Yes, that means there is something terribly extravagant about expos; in this case, more than 200 buildings will close forever on Oct. 31. At the same time, the temporariness is liberating for architects, who get to experiment with forms and materials that aren't required to stand the test of time—though sometimes, triumphantly, they do. The Eiffel Tower, gateway to the 1889 Paris expo, was meant to be temporary; the requirement that it be easy to dismantle explains its distinctive Erector Set appearance.

But that's not the only form of freedom afforded Expo architects. There's also a complete absence of NIMBYism—not just because this is China (where almost nothing is allowed to stand in the way of progress), but because Shanghai is already a kind of architectural theme park. Buildings are outlined in flashing LEDs and bridges are lit like amusement park attractions; skyscrapers struggle to outdo each other not just in height but in outlandishness. Restraint was hardly expected of the architects invited to this party.

Then, too, the theme of the fair is "Better City, Better Life"—a phrase that resonates deeply in a society undergoing the most rapid urbanization in history. One focus inside the German pavilion is Herzog & de Meuron's concert hall in the HafenCity area of Hamburg; in the vast "urban best practices" zone, representing 55 world cities, a Bilbao-sponsored tribute to Frank Gehry is one highlight. And the massive expo-sponsored themed pavilions offer a complete education in city planning. It would take a month to see not just the architecture, but the architecture-related exhibitions, at this expo.

Of course, the expo is about far more than design—it is a brilliant act of international diplomacy, designed to show visitors (most of them Chinese) that they have friends around the world. And, thanks to subsidies from the organizers, even the world's poorest nations are strutting their stuff. Enter what is called the Africa Joint Pavilion–provided by the expo to dozens of African countries at a reported cost of $100 million—and you can feel the pride of nations like Chad, Malawi, and Djibouti, which have rarely had such prominence on a world stage. Long after the Expo has closed and its site turned into a high-end residential neighborhood, China will be reaping the rewards of its outreach to poor (but in many cases resource-rich) countries.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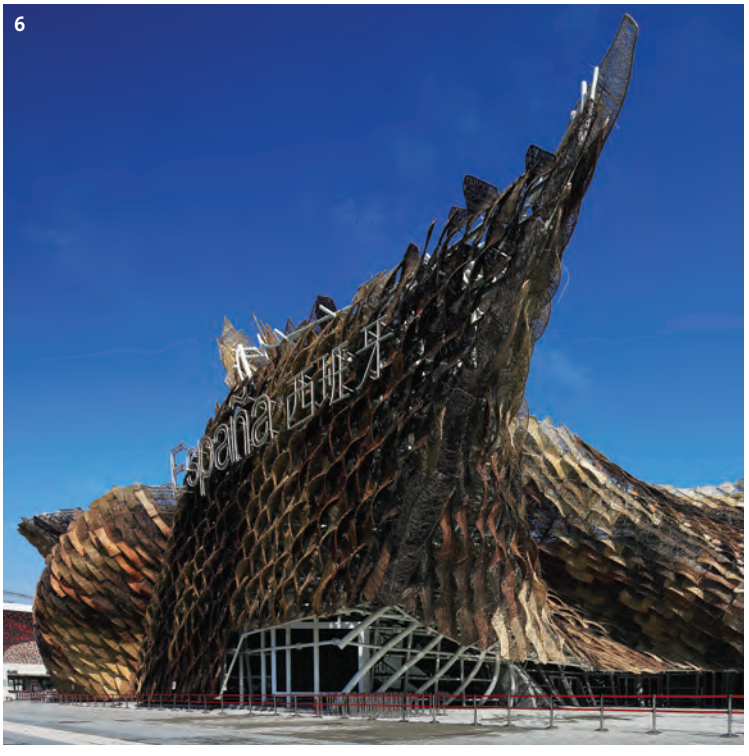
USA PAVILION
USA


España 西班牙

Yet with nearly 60 major buildings (and with a daily population of up to 600,000), the expo is a city in itself, not just an exhibition about cities. And so it's fair to ask what kind of example it sets. Here's a scorecard:

INFRASTRUCTURE: Signage is superb, almost completely eliminating the sense of disorientation a large city can induce in first-time visitors. Maps at three scales—imitating the zoom effect of Google Earth—are everywhere. And other amenities, from bathrooms to wheelchair rental sites to fountains dispensing chilled, purified water, are plentiful.

TRANSPORTATION: Ferries running between the two sections of the fair—the larger area on the Pudong side of the river, the smaller on the Puxi side—are streamlined and efficient. On land, however, the only options besides walking are electric buses, which run in loops far from many of the pavilions, and oversized golf carts available to VIPs. The absence of a monorail or tram is surprising, especially given the kinds of transportation available elsewhere in Shanghai, where a Maglev ride from downtown to the airport takes just seven minutes.

SAFETY: With the eyes of the world on China—where poor construction led to thousands of deaths in Szechuan Province after the 2008 earthquake, and (less tragically but almost as visibly) a fireworks display destroyed part of the CCTV showpiece by Rem Koolhaas—the organizers have been obsessive about safety. Architects reported countless meetings with code enforcement officials to get the approvals they needed.

OPEN SPACE: The density of the expo is balanced by a huge new park stretching more than a mile along the Huangpu River. Called the Houtan Garden, it is a mix of natural and man-made elements reminiscent of other great new urban parks (including New York's High Line). A bookend to a handsome new promenade along the city's Bund, the garden will remain in place after the expo closes.

ORIGINALITY: The expo has been plagued by charges of plagiarism. The mascot bears a striking similarity to Gumby; the theme song was based too closely on a Japanese pop tune. And the master plan bears strong resemblance to one submitted by Frederic Schwartz, the New York–based architect, in a competition sponsored by the organizers in 2004. Schwartz said that he was paid $50,000 for his work, but never received another cent, much less a contract, after the expo organizers ended the competition without naming a winner. With controversies like this, the fair did nothing to assuage architects wary of working in a country with a spotty record of respecting intellectual property rights.

SUSTAINABILITY AND HISTORIC REUSE: It's hard to apply the term "green" to an event expected to draw 70 million visitors to hundreds of temporary buildings. (The 2005 expo, in Aichi, Japan, consisted almost entirely of prefab buildings that could be recycled after the fair, a more direct nod to sustainability.) On the other hand, urbanization—the selling of which is a key agenda of the fair—is greener than suburbanization, a scary alternative in a nation of 1 billion people.

Perhaps the biggest surprise of the expo is how many existing buildings were repurposed, part of a conscious effort by the organizers to demonstrate environmental stewardship. On the Pudong side, a former factory building was given sleek new appointments as a joint pavilion for 10 Latin American countries (including Panama, with a working canal model). Also on the Pudong side, a former steel mill became an impressive indoor-outdoor sculpture garden, while old gantries morphed into Calder-esque constructions.

On the Puxi side (the smaller of the two fairgrounds), the examples of reuse are even more spectacular. A monumental shipyard building, its steel beams as thick as railroad cars, became the China State Shipbuilding Corp. pavilion, filled with high-tech displays on the history of ocean voyaging. A few hundred yards away, a factory building with a towering smokestack became the Pavilion of the Future, with a central space that resembles the turbine hall of London's Tate Modern museum.

AND WHAT OF THE NATIONAL PAVILIONS? A few countries (Vietnam, Pakistan, and Thailand) produced buildings in "historical" styles that seem out of step with the rest of the expo, with its relentless focus on the future. Oddly, China itself was tripped up by an attempt to use historical motifs. The 200-foot-tall China pavilion—the so-called "Oriental Crown," designed by He Jingtang (and shown on pages 40–41)—is a monumental extrapolation of traditional *dougong*, or wooden brackets. Up close, its giant cantilevers (56 of them, representing China's 56 recognized ethnic groups) feel menacing; from a distance, especially at night, when bare strip windows dominate the façades, it resembles an office building (and in a city where office buildings look like world's fair pavilions). After the expo closes, this pavilion will become a museum, making it one of the few structures to escape demolition.

At the other extreme from the hugely extravagant Chinese pavilion are the prefab buildings occupied by countries with modest budgets. Some—including the pavilions of Croatia, Cambodia, and Belarus—are sheathed in billboard-sized photos. In other cases, the ugly ducklings are transformed into swans with ingenious façade systems, including Serbia's, which employs snap-together modules reminiscent of Legos.

The U.S. pavilion, which looks like a suburban auto dealership, is just one step up from the prefabs. The pavilion is the result of a 1999 law that makes it hard for the U.S. government to spend money on international expos, a short-sighted bit of isolationism that has led to a series of embarrassments. A nonprofit corporation struggled to raise money to build it, and—with funding unsure until the 11th hour—commissioned a no-frills building by the Canadian architect Clive Grout, whose firm specializes in pavilion and "attraction" design.

The building Grout produced isn't the complete humiliation some predicted: It has a graceful shape and a high-tech sheen. But it's hardly a beacon of U.S. ingenuity. By contrast, there are some strong showings from south of the border. Chile put up an urbane pavilion (by Sabbagh Arquitectos) of recycled wood and Cor-Ten steel that makes you want to hop a plane to Santiago. Mexico's witty pavilion (by the firm Slot) is a series of colorful, kitelike umbrellas, shading a slanted lawn (with galleries below).

Two pavilions that get visitors moving are big draws: Denmark's pavilion, by Bjarke Ingels of BIG, is a giant

cont. on page 76 →

1. Irish pavilion • Office of Public Works–Architectural Services
That's right: Ireland's translucent, U-shaped pavilion was designed by the architectural arm of that country's Office of Public Works.

2. Dutch pavilion • John Körmeling
The Netherlands' kitschy pavilion, called "Happy Street," is an elevated figure eight with more than 20 small houses. One loop of the figure eight encircles a yellow building in the shape of a tulip.

3.French pavilion • Jacques Ferrier Architects
Sheathed in a delicate concrete trellis, France's entry encloses a large courtyard with "growing walls" and is topped by a green roof.

4. U.S. pavilion • Clive Grout Architect
The map in the lobby of the pavilion (which was designed by a Canadian firm) identifies only three U.S. states—Texas, Tennessee, and Hawaii—because only those three gave money. Dismaying.

5. Swiss pavilion • Buchner Bründler Architects
In this pavilion, meant to represent Switzerland's urban-rural dichotomy, a spiraling chairlift takes visitors from the hardscaped ground plane to the "mountains" of an undulating green roof.

6. Spanish pavilion • EMBT
Dubbed "The Basket" by visitors, its skeletal steel structure is wrapped with more than 8,000 unique wicker panels handmade by Chinese craftsmen. The lobby is dominated by Miguelín, a 21-foot-tall animatronic baby.

→For a slideshow of more expo architecture, visit *architectmagazine.com*.

GUESS WHO: IT OR BUILDING ARCHITECT?

A

TEXT BY AMANDA KOLSON HURLEY
PHOTO BY NOAH KALINA

I'M AN ARCHITECT

ARCHITECTS ARE FED UP WITH PEOPLE IN THE TECHNOLOGY FIELD USING THEIR TITLE, STYLING THEMSELVES "SOFTWARE ARCHITECTS," "ENTERPRISE ARCHITECTS," AND "INFORMATION ARCHITECTS," TO NAME A FEW. IT CAN'T BE STOPPED—BUT MORE OFTEN THAN NOT, IT'S THE SINCEREST FORM OF FLATTERY.

WHAT'S THE FIRST THING YOU DO if you're an architect looking for a new job (as so many are, these days)? You polish off your résumé and portfolio—and then, most likely, you hit the online job boards.

Let's say you live in New York City. You visit the website indeed.com and type in the search terms "architect" and "New York." So far, so good: There were 3,710 results when I tried this experiment one day in late June. But look closer: Not every listing is for a job at an architecture firm, or even in the AEC industry.

On page five of my search results, I came across an ad for the position "Architect Lead." Sounds promising—until you read the job description and discover that this "architect" is in fact an asset manager at a global financial services firm (and will report, naturally, to "the Asset Management (AM) Chief Architect"). Ten pages into the search results, only two out of 10 ads are for AEC jobs; most of the rest are in information technology (IT).

Searches using other major job websites produced similar, or worse, results. When I typed "architect" and "Seattle, WA" into monster.com, it returned 65 jobs—only one of them architectural, in the strict sense of the word.

"I FEEL VERY STRONGLY THAT THE LABEL [OF ARCHITECT] IS APT, AND USEFUL. IT HELPS EXPLAIN WHAT WE DO TO FOLKS WHO ARE NOT AWARE OF THE PROFESSION. I TELL PEOPLE, **'I DO FOR LARGE WEBSITES WHAT ARCHITECTS DO FOR BUILDINGS.'**"

—JORGE ARANGO, INFORMATION ARCHITECT

The embrace of the words "architect" and "architecture" by IT professionals isn't new, and neither is the indignation felt by "real" (i.e., building) architects at what they see as the hijacking of a title they worked hard to earn and feel ought to be protected, or at least more tightly restricted. The down economy has only sharpened their displeasure, as thousands of un- and underemployed architects sift through job listings for software architects, systems architects, data architects, and information architects: in short, every kind of "architect" except their own kind.

In the ARCHITECT group on the networking site LinkedIn, a recent discussion on the topic ("Title of 'Architect' used by IT Technogeeks") attracted more than 250 comments. These ranged from expressions of frustration ("I find this really annoying!") to calls for the AIA and the National Council of Architectural Registration Boards (NCARB) to protect the title. "I really think the AIA should double or even triple dues to fight the menace of IT," said one architect. Some commenters maintained that protection of the title was down to state licensing boards; others claimed that the dictionary definition of "architect" is broad enough that its use can't be confined to a single profession. To this argument came the response, "The dictionary definition is irrelevant. We're discussing a title that is legally defined and legally protected."

In fact, the dictionary definition *is* relevant, according to the AIA. That organization "supports protecting the public by reserving the use of the term 'architect' and its derivative forms to those individuals licensed as architects," in the words of an official position statement. But "reserving" the term is not the same as protecting it. Any attempt to do so, said AIA spokesman Matthew Tinder, "would require a costly and protracted legal battle with very limited prospects of success." In a test case, the National Society of Professional Engineers lost its legal action against the software company Novell over the designation "Certified Novell Engineer."

The AIA's stance is that it's "usually impossible for a professional society to assert an enforceable proprietary interest" in a title, and Tinder cites, among other reasons, the second definition of the word in the *Merriam-Webster Dictionary*: "a person who designs and guides a plan or undertaking (e.g. the architect of American foreign policy)." NCARB also views enforcement as impossible. "'Software architects' or even 'personnel architects' (once seen used by a temporary employment firm) can use the term … without fear of legal entanglement," says Lenore Lucey, the executive vice president of NCARB. "No U.S. jurisdictional licensing board could pursue such a use of the term."

So, architects, the upshot is: Learn to live with other professions adopting your title. And try to take it as a compliment. Leaders in the field of information architecture say they're genuinely inspired by building architecture. Which is not surprising, given that information architecture—a sliver of the IT industry that is concerned with structuring complex systems like libraries and databases, and with designing user interaction—can trace its ancestry back to its brick-and-mortar namesake.

In 1976, well before the birth of the Internet, the phrase "information architecture" was coined by Richard Saul Wurman—a trained architect who studied under Louis Kahn. (That same year, Wurman gave the keynote at the AIA National Convention.) Two decades later, the migration of architecture grads to Web jobs in the first tech boom was a major factor behind the terms "architect" and "architecture" becoming more widely used. (That, and Bill Gates' decision to dub himself "Chief Software Architect" of Microsoft.)

Jorge Arango is a past president of the Information Architecture Institute (IAI) and a user-experience design consultant in Panama. He has a B.A. in architecture from the University of Arkansas at Fayetteville and sees meaningful overlap between his field of study and his profession, as different as they may appear. Back in the late 1980s and early 1990s, when he was in architecture school, Arango remembers, many conversations were inspired by poststructuralism and other strains of theory: "The field was questioning the relationship between space and language, and how architects convey the experience of navigating through space."

Then he graduated from college and the Web broke out. "My thinking at the time was [that the Web was] a very natural extension of that line of thinking. People would be experiencing these mental spaces—which is how I saw a website—and there should be someone in charge of making sure that the design program behind those spaces got executed in a coherent way. Conceptually, there seemed to be a relationship between the two fields."

Arango is not an outlier in his industry: Andrea Resmini, a current IAI board member, holds a master's degree in architecture and industrial design. Andrew Hinton—an information architect who has no architectural training—published a paper last year in the *Journal of Information Architecture* that draws parallels between our navigation through Web spaces and how we experience the physical environment. Hinton sees information architecture as a new kind of architecture: "the name … is not merely metaphorical," he contends in the paper, and it has "an honest intellectual origin."

"I feel very strongly that the label is apt, and useful," Arango says. "It helps explain what we do to folks who are not aware of the profession, [by tying] it to a field that already exists. I tell people, 'I do for large websites what architects do for buildings.'"

What about the other self-described architects: of software, systems, and more? The International Association of Software Architects (IASA) is a nonprofit

founded in 2003 to advance the still-fledgling IT architecture profession, and it now counts 8,000 members worldwide. Its website is rife with unqualified references to "architects" and "architecture." In an ironic touch, the IASA borrows liberally from the organizational structure of—you guessed it—the AIA. It is happy to admit the debt. "The IASA adapted Knowledge Communities from ... the AIA," reads the text on the group's "Knowledge Communities" page. "Although the AIA is for building architects, the IASA knows a brilliant idea when we see it."

The CEO and founder of the association, Paul Preiss, says his objective is to reduce the "pain points" of being an IT architect. These include, he says, a lack of strong community and a lack of consistent training or standards. "If you want to become a building architect, there's not any question about what the process is," he says. "You go to school, get your certification, get your job. For IT architects, planning a career is pretty much next to impossible." To that end, the association has launched two certification programs and established more than 40 chapters.

Preiss is accustomed to accusations of not being "a real architect," and doesn't apologize for using the term. "Nobody owns words," he says. "We're not taking anything away from them [building architects]. Nobody's going to call us when they're looking for someone to design a house or office building."

Bryan Reichert, a senior sourcing recruiter for Amazon .com in Seattle, has a long track record in IT recruiting (for Microsoft, Expedia, and other companies), and is baffled by the resentment among building architects at the morphing of the title. As he sees it, the title isn't bandied about loosely within his industry—if anything, its comparative rarity connotes a high level of respect for the holder. IT architects are senior-level professionals, he explains.

"When I think of 'architect,' or we open up an architect role, it's a senior-level person. It's not like you open up a software engineer role, and we need 20 of those guys; we need one or two [architects]," Reichert says. "It's very targeted." Typically, he adds, a software architect is higher up the food chain than a software engineer. (Building architects: Take note.)

In pockets of the building design community, at least, acceptance of "title creep" may be growing. Fred Scharmen, who works for Ziger/Snead Architects in Baltimore, recently wrote an essay in the journal *Crit* urging his fellow designers to "move beyond their annoyance" at the appropriation of the title and reclaim it in its new, expanded sense, "to the benefit of our discipline."

"People working in software and interactivity realize that the best models for making things at a certain scale and complexity are found within architecture," Scharmen writes. "We can cede the use of the word to describe a general method of working and making, as long as we make sure that method stays true to the values and techniques that have made our own best work so impactful." If architects do this, it will be a step toward "taking better control over our agency as political actors," Scharmen believes.

There is a chance, however, that the whole debate will prove moot—that the appeal of "architect" will fade as other, more novel titles gain traction in Silicon Valley (and elsewhere). According to a recent article in *The Wall Street Journal*, the new hot job title, especially among computer programmers and software engineers, is "ninja."

"Architect" can't hold a candle to that. □

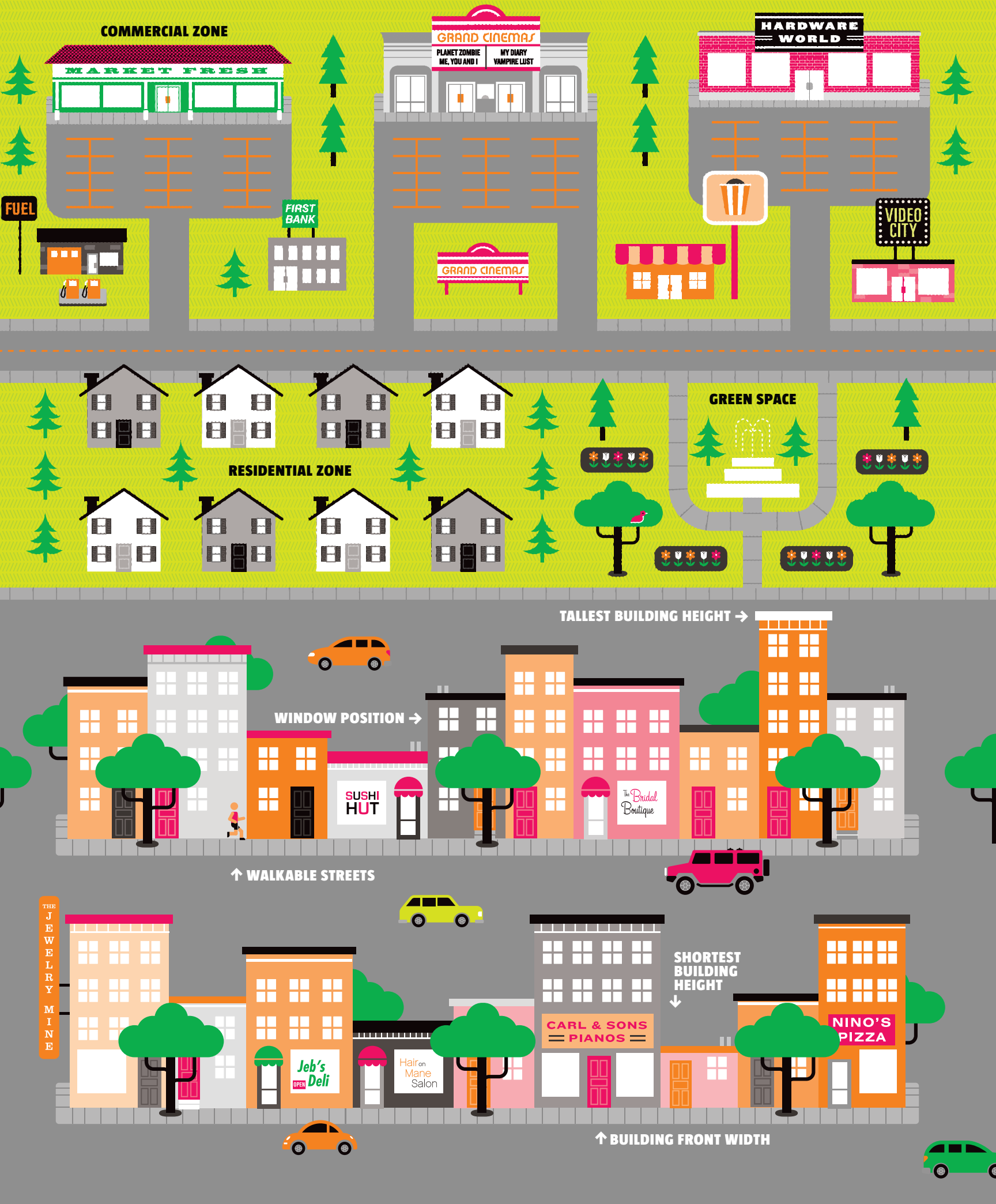
GUESS WHO: IT OR BUILDING ARCHITECT?

GROOMING BY JENNIFER FLEMING; STYLED BY CARMEGIE AND DARRYL G. FOR iYLi Li

ANSWER: (A) IT ARCHITECT (B) BUILDING ARCHITECT

BRAVE NEW CODES

CITIES AND TOWNS ACROSS THE COUNTRY ARE ABANDONING CONVENTIONAL ZONING CODES IN FAVOR OF A NEW URBANIST ALTERNATIVE, THE FORM-BASED CODE. SOME ARCHITECTS HAVE EMBRACED THE CHANGE, BUT OTHERS ARE WARY.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TEXT BY NATE BERG
ILLUSTRATION BY HEADCASE DESIGN

NOBODY EVER REALLY READS a zoning code, unless you want to rewrite it. That's what the city of Miami experienced over the past five years as it replaced its old zoning code with a new one, dubbed Miami 21.

"I'll tell you one thing: Miami 21, everybody read," says former Mayor Manny Diaz. "From commas and semicolons to substantive provisions."

That's partially because the process of rewriting the code was made intentionally participatory, with more than 500 public meetings throughout the process. But the main reason it was so closely scrutinized is because the new code is a form-based code, one that seeks to achieve a specific urban form by focusing on the relationship between buildings, streets, and public spaces.

"There was resistance up front. And, I wouldn't kid you, there's still resistance," says Diaz, who was termed out of office last fall. Miami 21 is likely the most important legacy of his tenure at the city's helm. The new code emphasizes mixed uses, walkability, and the predictable development of neighborhoods via "orderly housing transitions" and "proportional buildings with proper setbacks," among other urban design principles.

While Miami's form-based code is the best known of its kind, it's certainly not alone. "We haven't been able to keep up with the explosion," says Carol Wyant, executive director of the Form-Based Codes Institute (FBCI). The institute is a group of architects and planners who advocate for this new kind of zoning. Well, it's not exactly new, but it's definitely different from what most cities and towns have had in the past. And now, more and more of them are switching things up.

"There are hundreds of codes that have been adopted," Wyant estimates. A recent study by the consulting group PlaceMakers confirms this: At press time, it found 323 form-based codes either adopted or in development in the U.S. and Canada.

Miami was the first large American city to adopt a form-based code, but Denver was close on its heels, adopting its New Code in late June. Montgomery, Ala., has one. So do Sonoma, Calif., and West Evanston, Ill. But according to Wyant, the most common use of the form-based code is much smaller in scope. "The trend for a long time has been neighborhood by neighborhood, doing a portion of the city, focusing on those types of places where there's a either a problem of disinvestment, a problem of development pressure, or of losing historic resources," Wyant says.

For architects, the idea that a code is going to dictate the form of their buildings may seem heavy-handed. But the creator of Miami 21—and of the first ever form-based code—says they're really not so different from what architects already deal with.

"It's not unlike architects working with design guidelines," says Elizabeth Plater-Zyberk, lead consultant for Miami 21. "And it's not unlike architects working with conventional zoning codes and building codes, in that there's a kind of intellectual contract within which one tries to produce a great place."

The conventional method of zoning, known as Euclidean zoning, determines what sort of development can be located in specific areas based on type of use. So houses end up near other houses, factories near other factories. But that division of land uses can make it difficult or even illegal to build developments that mix different but compatible uses, like an apartment building with ground-floor retail. The separation of uses written into Euclidean zoning codes made sense to the lawyers who wrote them, but they have the effect of creating bland and inefficient places, Plater-Zyberk says. As a response, she and other New Urbanists developed an alternative, the form-based code.

"A FORM-BASED CODE MIGHT BE IMPLEMENTING A MORE COHES ON THE PUBLIC CHARACTER OF

Instead of focusing only on the separation of types of land uses, form-based codes are organized around the physical form that a development should take. Under the guidance of a regulating plan, form-based codes emphasize connectivity between buildings, their façades, and the public realm, and how those connections play out across variously scaled streets and blocks.

Great places weren't being produced under Euclidean zoning, according to Plater-Zyberk. "It became evident that this regulatory framework was really what was driving suburbia, sprawl, and the things that were being criticized as being inefficient and unsustainable," Plater-Zyberk says. "It wasn't that people wanted it to be that way—the codes were just written that way."

Plater-Zyberk, who's also the dean of architecture at the University of Miami, is a co-founder of the Congress for the New Urbanism and a principal at the influential architecture and planning firm Duany Plater-Zyberk & Co. (DPZ). Her DPZ co-principal, Andrés Duany, also helped found the Congress—and sits on the board of the FBCI. For its part, the FBCI is supported by funding from philanthropist Richard Driehaus, a champion of traditional architecture. In short, form-based codes are deeply rooted in New Urbanism.

"Most zoning codes are written from sort of a legal,

attorney's point of view. So they've got a lot of words," says Peter Park, manager of community planning and development for the city of Denver (and a long-time Congress member). "A lot of times, they're just telling you what you can't do." Park says Denver's form-based code tries harder to guide developers and designers toward what they *can* do, mainly by being a very visual document. Drawings of example neighborhoods and streetscapes are on nearly every page in the city's New Code, which Park says helps give everyone a better idea about what impact the right kind of projects can have.

But having a picture book for a zoning code was a bit worrisome for some of the city's architects. Paul Brady is an associate principal at Godden|Sudik Architects and the chair of the housing committee of AIA Denver, which helped the city fine-tune its New Code through the writing process. He says that earlier versions of the code had many architects concerned about losing some of their design freedom. "The early drafts were definitely a lot more prescriptive," says Brady, who cited tight rules on wall lengths and plate heights and what seemed an incredibly limiting guideline on roof pitches. But after collaboration between architects and the city's planning staff, most of the concerns were ironed out. "What's being enacted, I think, doesn't concern anybody," he says.

And that's actually one of the main goals of a form-based code. By using a charrette format to gather public input and debate design ideas that define the final code, it's hoped that projects approved under the community-vetted code will be NIMBY-resistant.

"The code is really a tool to implement the vision that everyone has agreed upon. So it's more time- and labor-intensive upfront, but once everyone's agreed on the vision, then the rules are very clear and the process for development goes much more quickly," claims Wyant. "There don't have to be public hearings, and the NIMBYs don't have to show up, because the project conforms with the vision everyone's agreed upon."

Visions can change, of course, so most form-based codes are written to be able to evolve along with the changing land-use environment—and to help fix any mistakes made along the way.

The form-based code adopted in 2003 for the Columbia Pike area in Arlington, Va., has seen numerous changes over the years. "There've been some ups and downs. We've gone back and modified and updated and amended the form-based code to be as exact and as correct as we thought we had been in the beginning," says Richard Tucker, a planner with the county who helped develop the code. He says the code was much more flexible than a traditional zoning code. "Some of the things we were absolutely descriptive about, we were absolutely wrong about. So we had to change some of those things."

Miami architect Bernard Zyscovich has been perhaps the most vocal opponent of Miami 21, arguing that it could transform the city into a monotonous spread of look-alike buildings and neighborhoods. "It homogenizes the city's form," he says. "Sometimes, the change of form from neighborhood to neighborhood as a result of architectural evolution is something that's one of the best assets of a place."

Zyscovich says the formula of Miami 21 doesn't recognize the difference between neighborhoods such as tree-lined Coral Way and bustling Little Havana. He also doubts the purported guiding vision behind it. "It's not based on a vision or a master plan—it's based on making easy regulation," he argues. "The result for the architect is that he becomes the decorator of the forms that are imposed."

Plater-Zyberk says she and her team encountered this sort of skepticism as they were pushing Miami 21 forward. And though Zyscovich is still arguing against the code, Plater-Zyberk believes that most protests have faded away. Killing the creative spirit of architects is not the goal of a form-based code, she adds.

"If the architects could understand that they're part of a larger effort of placemaking, and it's not just a restriction like any old code, I think that they would have a good time working with form-based codes."

Houston is the largest American city with no formal zoning code. The freedom that affords might seem exhilarating to architects, but working with no limitations isn't all it's cracked up to be, says Carlos Jiménez, principal of Carlos Jiménez Studio in that city. "It's a perplexing reality that has created an urban and suburban concoction," he says. "So from that perspective, a form-based code might benefit a city like Houston, by implementing a more cohesive set of guidelines to improve on the public character of the city and, more critically, to foster density."

"Often 'design freedom' becomes another term for 'anything goes' solutions that contribute little, if any, to the collective enterprise," Jiménez adds. "Limits are not the curtailing of freedom, but rather opportunities to transcend them." □

NEFIT A CITY LIKE HOUSTON, BY IVE SET OF GUIDELINES TO IMPROVE THE CITY." —CARLOS JIMÉNEZ

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TEXT BY KATIE GERFEN
PHOTOS BY SHANNON MCGRATH

ONE SHELLEY STREET

SYDNEY
CLIVE WILKINSON ARCHITECTS

THE ORIGINAL IDEA for the new Macquarie Group office at One Shelley Street in Sydney was more akin to a scene from a Pixar movie than to the perception of a modern banking institution. Inspired by the nearby Darling Harbour—where containers were loaded and offloaded from cargo ships with heavy cranes before the area was redeveloped into a tourist district—West Hollywood, Calif.–based Clive Wilkinson Architects imagined a large gantry at the top of a 10-story atrium that could carry moveable meeting pods to preordered locations. "We wanted to container-ize meeting rooms and move them up and down at will," says president and design director Clive Wilkinson. "For a very short while, we thought the client had bought it. But the look and aesthetic stuck."

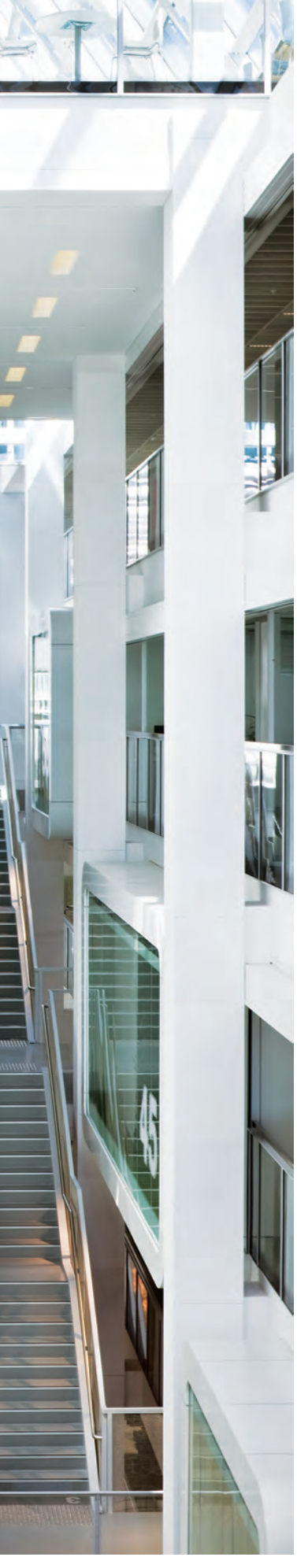
Though far more static than the original scheme, the realized design is still a far cry from the buttoned-up board rooms one might find on Wall Street. Working with local firm Woods Bagot, Wilkinson designed a light-filled, brightly-colored, and highly efficient working environment. The atrium still serves as the center of the project and the meeting pods as focal points—26 glass-enclosed cubes, with candy-colored furnishings and finishes, that cantilever into the void. Some pods are devoted to formal conference space with tables and task chairs; others are informal with built-in benches flanking the walls and no tables at all. Small pods are supported by steel members below the floor that extend back several bays into the core structure, medium pods are held by beams at the top and underneath, and the largest have diagonal support rods. "We were very lucky in that when the job started, the base building [designed by local firm Fitzpatrick + Partners] wasn't built. That meant we were able to influence the structure," Wilkinson explains.

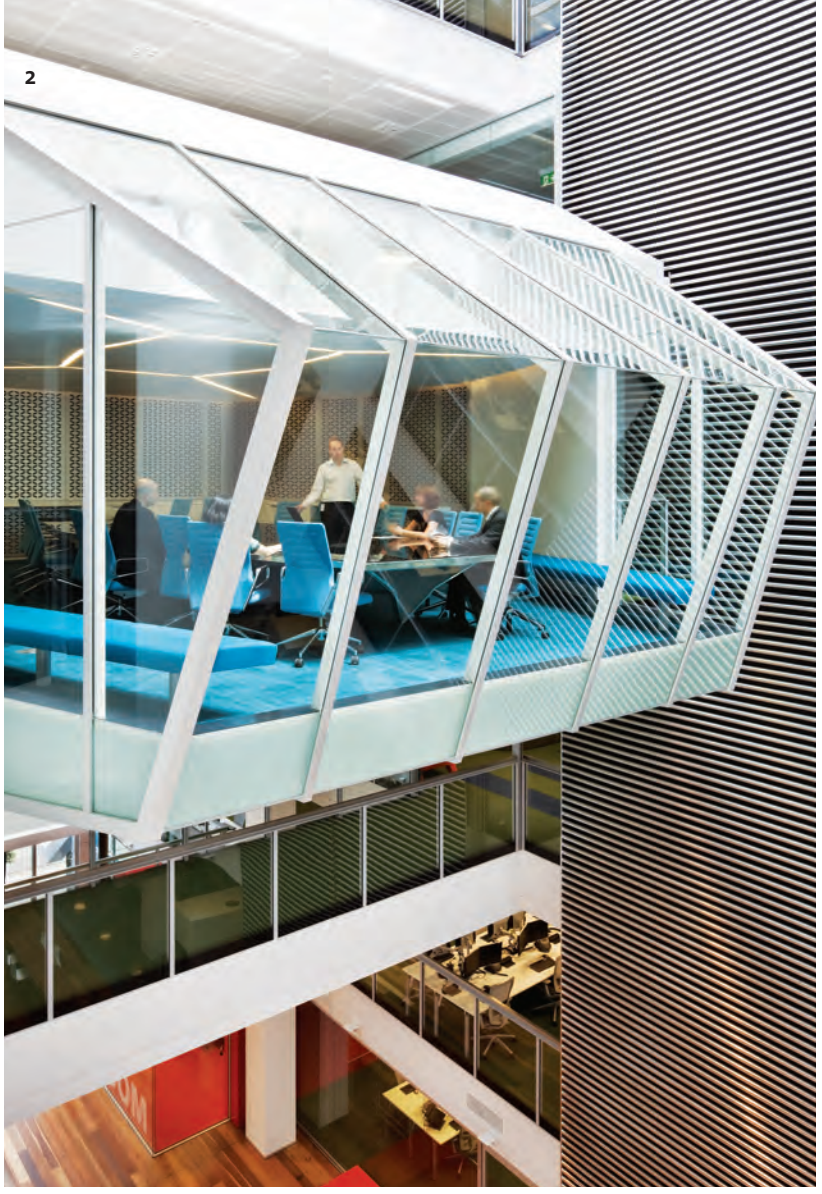
In addition to the pods, the rest of the 330,000-square-foot office space also bucks convention. Macquarie partnered with Dutch workplace consultants Veldhoen + Co. to study the work patterns of its employees and decided to implement a strategy called Activity-Based Working (ABW). Instead of a traditional desking environment, the space is divided into a series of flexible workspaces—"neighborhoods"—that each accommodate roughly 100 employees. In accordance with the principles of ABW, employees do not have assigned seats, but rather they can choose each day from collaborative bench seating, breakout spaces and lounges, or small private stations that can be used for solo projects.

To foster community within the building, the architects developed a series of seven themed plazas, which are "inspired by archetypes of human behavior," Wilkinson says. The Square, Garden, Dining Room, Tree House, Coffee House, Library, and Playroom all have communal workspaces and are branded using supergraphics, plants, and color. "The reason for the themes is to drive movement in the building," Wilkinson says, because they create destinations to encourage employees to move from one neighborhood to another.

In a traditional industry such as banking, there are "a lot of people who regard this as slightly crazy," Wilkinson says. But for the Macquarie Group and its leaders, whom Wilkinson credits as having had the vision to be open to change, One Shelley Street is "a massive success."

1

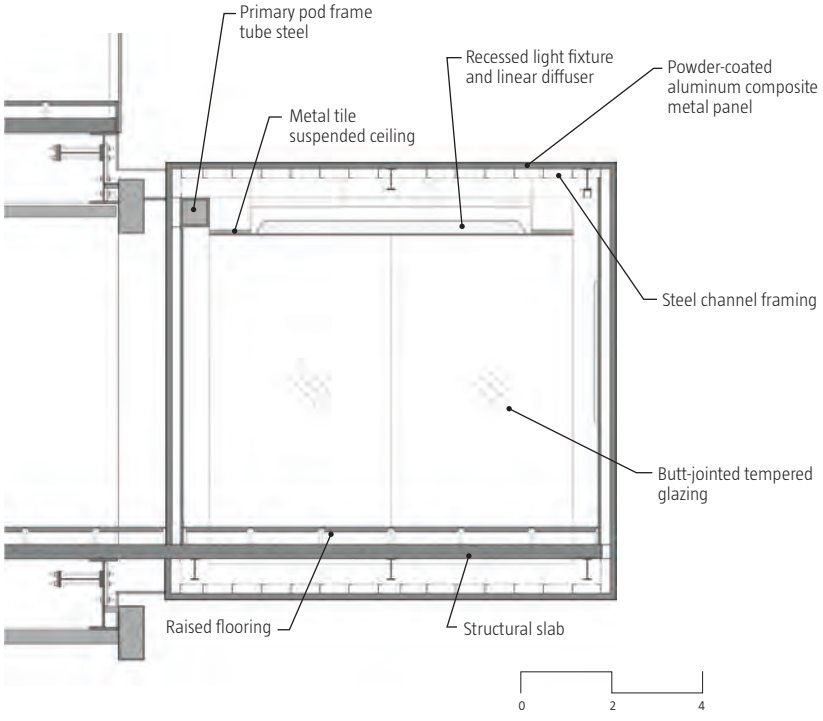




1. The 10-story atrium at One Shelley Street is the hub for the Sydney branch of Macquarie Bank. The ground level entry area features a warm recycled gum-tree hardwood floor, which serves as a counterpoint to the brightly colored finishes and stark white structure. A series of pods—programmed for meeting rooms, breakout spaces, and eating areas—cantilever out into the void, which is topped by a canted skylight that brings in natural light. Employees move around the space via staircases and bridges that offer circulation alternatives to elevators. "It's had a great impact on [elevator] usage," says Wilkinson, who notes that "they are operating at well below capacity."

2. Not technically a pod, the Skybox is a formal conference room that bridges the two sides of the atrium on the fourth floor. With an articulated glass skin that nods to the angled skylight above, the room features bright turquoise furniture and finishes. Wilkinson's team worked with furniture manufacturers to create a custom conference table with inset monitors to facilitate high-tech teleconferencing and presentation options.

Small Pod Section



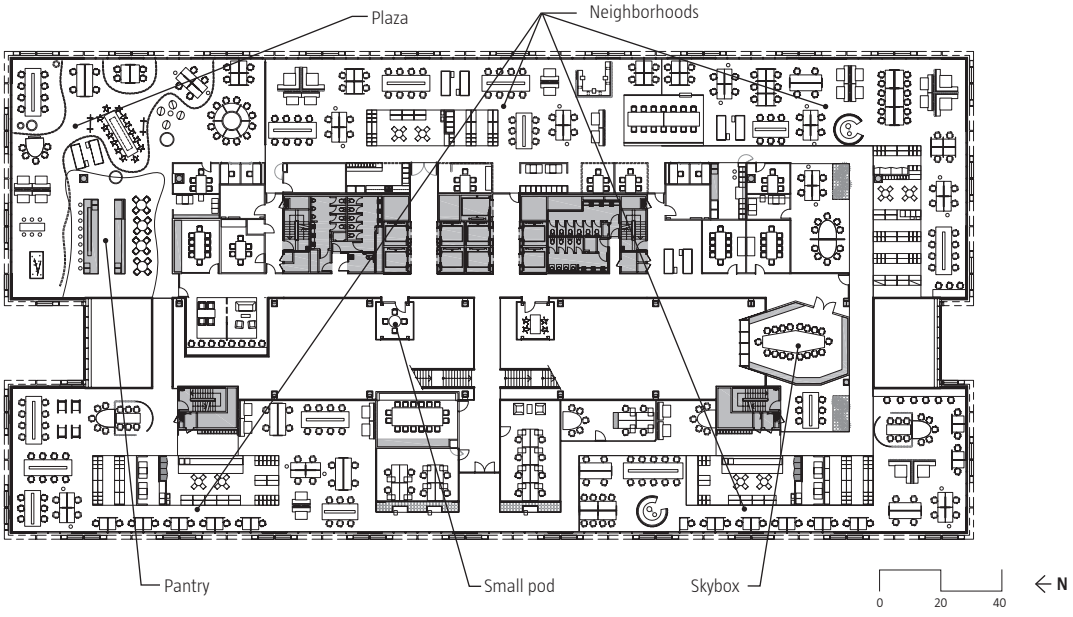
1. Working with workplace consultants Veldhoen + Co., the architects determined that formalized desking options were not necessary for the majority of the bank's operations. Instead, the design centers around different "neighborhoods" and "plazas" that offer a variety of workspaces that can accommodate the different types of work being carried out within each department.

2. Each communal plaza has a series of private workspace options, such as these semi-enclosed touchdown spaces. Employees are free to use them to accomplish specific tasks, but the next day they may find themselves working in a more loungelike collaborative pod. Supergraphics and color delineate the plazas, which serve as destinations throughout the building.

2

1

Fourth Floor/Typical Office Floor Plan



Project Credits

Project One Shelley Street, Sydney
Client Macquarie Group
Design Architect Clive Wilkinson Architects, West Hollywood, Calif.—Clive Wilkinson (president and design director); David Altchech, Alexis Rappaport, Sam Farhang, Nicole Sylianteng, John Meachem, Kristina Hahn, Miwako Feuer, Ruben Smudde, Nicole Cannon, Iain Gulin, Neil Muntzel, Ed Ogosta, Mitsuhiro Komatsu, Jenny Huang, Sarah Smith (project team)
Executive Architect Woods Bagot, Sydney—James Calder, Amanda Stanaway, Eleana Yi, Mohammad Khaled, Felice Carlino
Workplace Consultants Veldhoen + Co.
Graphics Consultant EGG Office
Base Building Architect Fitzpatrick + Partners
Project Manager Savills
Builders Buildcorp Interiors; Brookfield Multiplex Group
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FEW AMERICAN CITIES embody "place" quite like New Orleans, where European, African, and Caribbean traditions are blended in a kind of cultural jambalaya. The city's architecture reflects this same multiculturalism, particularly in the French Quarter, which still bears the lasting imprint of Spanish rulers. Their insistence on masonry construction produced an explosion of Creole townhouses—buildings with thick, solid walls punctuated by breezeways leading to courtyards, fountains, and lush interior gardens.

These European antecedents of the old city were inspiration for lead design architect Steve Dumez, whose design for a new high-rise apartment tower at 930 Poydras Street draws on the building patterns of the city's historic quarter—and their social implications. "New Orleans really does not have a tradition of urban, high-rise living," says Dumez, design director at Eskew+Dumez+Ripple. "So we looked at the French Quarter to reinterpret the notion of a shared, semi-private domain for a small community."

His scheme for the 21-story apartment building in the city's business district does just that, seeking to create a sense of community among its residents. In this case, however, people proceed to the semi-private realm along a vertical, rather than horizontal, path. Placed on top of a rectangular podium consisting of eight levels of parking, the L-shaped residential tower consolidates tenant amenities on the ninth floor. This level functions like the inner courtyard of a Creole townhouse—a shared space that is the social heart of the complex.

Anchoring the ninth floor is the sky lobby, a dramatic glass box that cantilevers off the building façade. This double-height lounge—which features polished concrete floors, bar counters set into bright yellow walls, and informal groupings of furniture—serves as an extension of tenants' living spaces. It also houses the elevators serving the residential floors.

Outside the sky lobby is the pool deck, with tiered seating rising alongside the narrow pool. Tucked beneath the bleachers is the facility's fitness center. Five two-story townhouses create an architectural edge along the south side of the deck, producing the effect of a courtyard on the garage rooftop.

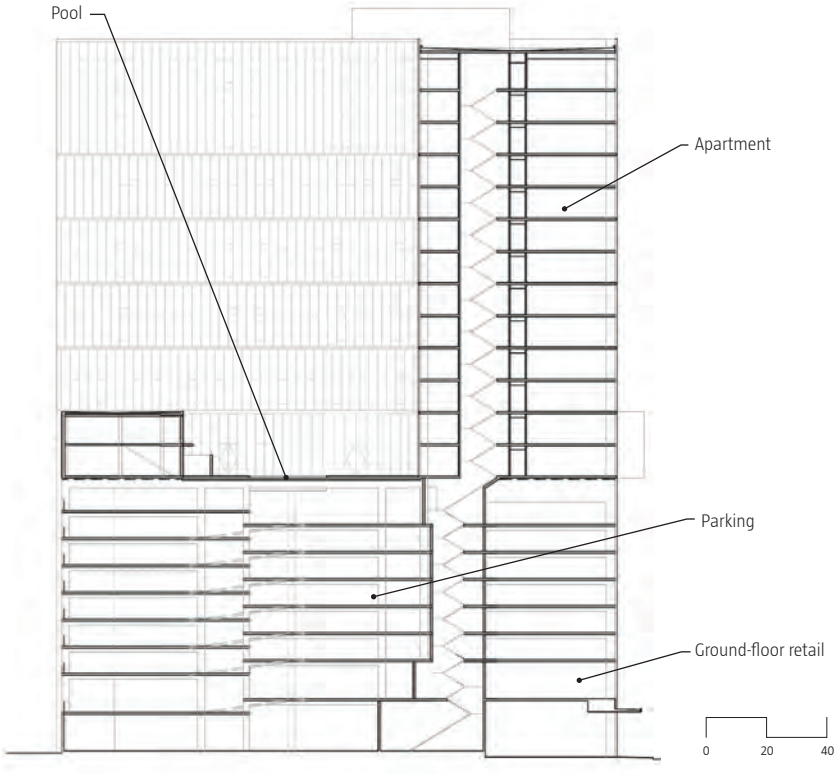
In order to make the project work financially, Dumez had to scale back his vision for an all-glass tower. Exhaustive cladding studies resulted in 35 percent glass coverage on the skin. "It was an interesting dilemma," admits Dumez, who turned the limitation into a design opportunity. He devised an animated fenestration pattern with tinted, low-E glass arranged in a field of slate gray steel panels. Most of the glass is concentrated on the upper floors to bring light into the apartments.

As the project advanced through the planning process, city staffers lobbied to include ground-level retail along Poydras Street. "We had absolutely no concerns with that," Dumez says. "We think it provides a better urban condition and a better streetscape." Three retail spaces were included, and a restaurant already occupies one of them.

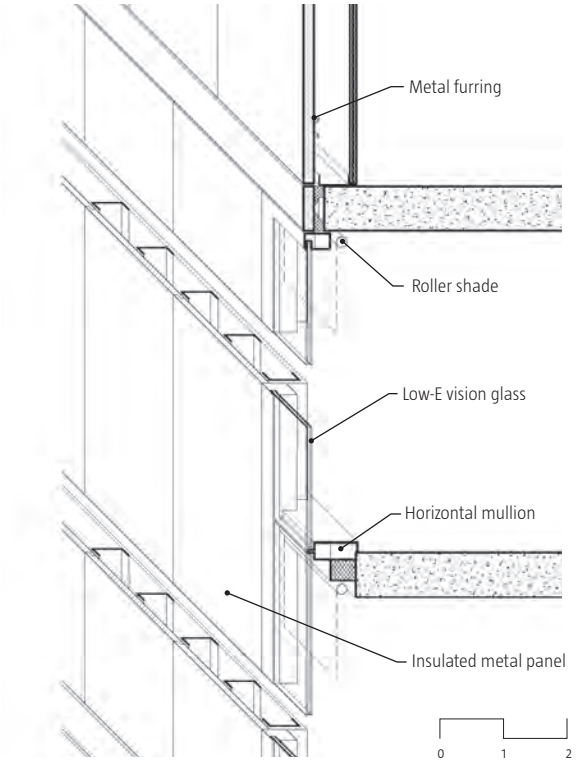
Although it looks backward to the fabric of 19th century New Orleans, 930 Poydras demonstrates that good urbanism is alive and well in the 21st century, too.

The first eight levels of the 930 Poydras tower are devoted to 500 parking spaces and, on the Poydras Street and O'Keefe Avenue elevations, are wrapped with perforated metal panels that allow for natural ventilation—peppered with just enough glass to admit some daylight. By day, the pattern reveals itself in the varied reflectivity of the shiny glass and matte-finished steel. At night, the narrow windows glow like lanterns scattered across the dark façade. The building is the first high-rise built in New Orleans since Hurricane Katrina hit in 2005—and for some time before, for that matter. Owner Brian Gibbs was able to take advantage of Gulf Opportunity Zone Act tax incentives that were passed in the wake of the storm to spur recovery. The stipulations on these credits—which expired at the end of 2009—forced a fast-tracked design and construction schedule in order to achieve substantial completion by December 31 of last year, but, in combination with other streams of funding, the credits made the financing work for the project.

Section

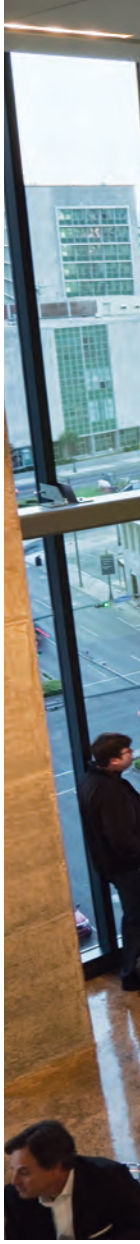


Curtain Wall Detail

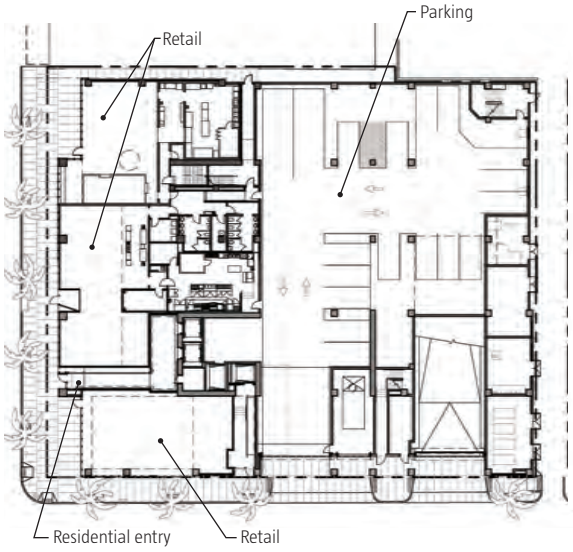


1. Residents access the ninth floor lobby by elevators from the ground floor (which let out in the red-curtained alcove) and then they must walk through the space to transfer to another bank of elevators to reach the apartments. The circulation path allows for chance interactions with other residents, creating a firmer sense of community in a city unused to high-rise living. Pop colors and exposed concrete surfaces give the interior a modern feel that targets the mainly young tenants, and glass doors lead out to the pool area.

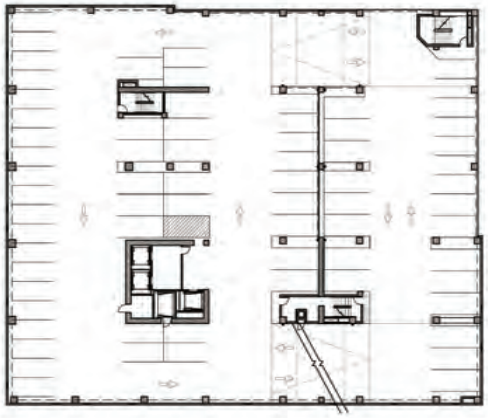
2. The sky lobby cantilevers out from the main structure and offers views of the Louisiana Superdome, City Hall, and Lake Pontchartrain. Lounge furniture and high-top tables help create a space for informal events.

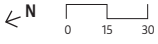


Ground Floor Plan



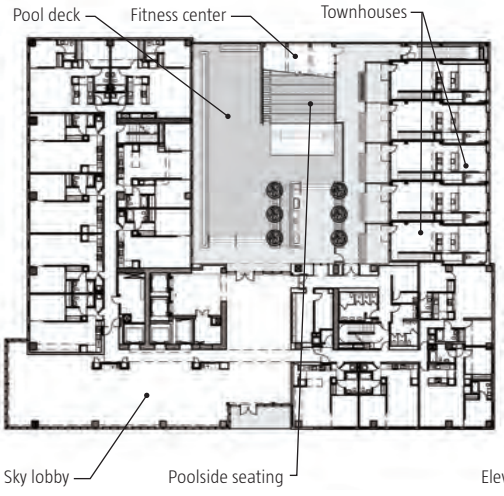
Typical Parking Floor



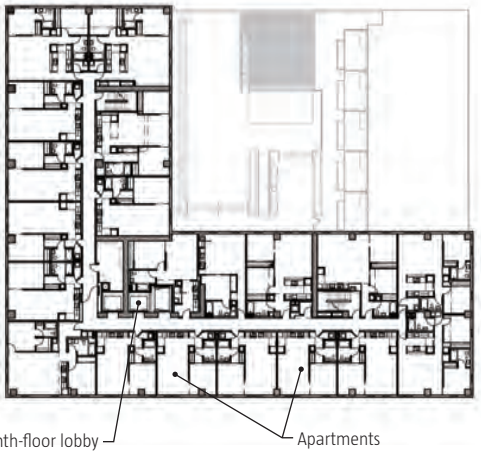


2

Ninth Floor Plan



Typical Apartment Floor



Project Credits

Project 930 Poydras, New Orleans
Client 930 Poydras—Brian Gibbs
Architect and Interior Designer Eskew+Dumez+Ripple, New Orleans—Steve Dumez (design director); Chuck Hite (project manager); Jose Alvarez, Jack Sawyer, Wendy Kerrigan, Magen R. Gladden, Bob Kleinpeter (project team)
Mechanical Engineer Mechanical Construction Co.
Structural and Civil Engineer Morphy Makofsky
Electrical Engineer Canzoneri & Associates
Geotechnical Engineer Eustis Engineering
General Contractor Gibbs Construction
Size 462,000 square feet

Materials & Sources

Adhesives, Coatings, and Sealants **Dow** dow.com; **Neogard** neogard.com; **Hilti** hilti.com; **GE** ge.com
Appliances GE geappliances.com
Artwork Jonathan Ferrara (artwork on ninth-floor sky lobby) jonathanferraragallery.com
Ceilings Hunter Douglas hunterdouglascontract.com
Concrete Harcon Forming harconforming.com
Exterior Walls Centria centria.com
Fabrics and Finishes Dazian Fabrics dazian.com; **Sunbrella** sunbrella.com; **Benjamin Moore** benjaminmoore.com
Flooring Interface Flor interfaceflor.com
Furniture Knoll knoll.com; **Quinze & Milan** quinzeandmilan.tv; **Inmod** inmod.com; **Janus et Cie** janusetcie.com; **Design Within Reach** dwr.com; **Chris Huval Carpentry**
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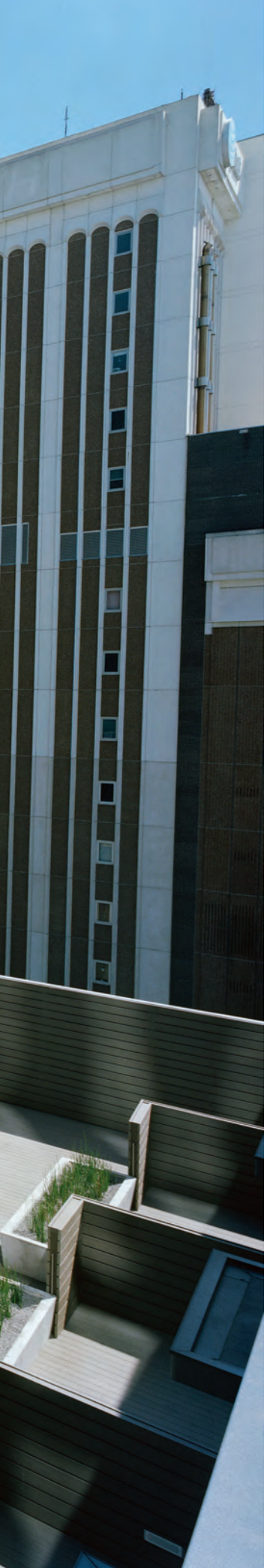

1. The sky lobby is not the only lounge space in the complex: the ninth-floor deck features a pool, terraced seating and chaises for sunbathing, and a grilling area for resident use.

2. Private outdoor space for the two-story townhouses opens out onto the pool deck but is kept separate from public circulation areas by plank fences and tall planters. The view up to the L-shaped residential tower shows the variegated façade: On these habitable levels, there are more glass panels per floor than on the parking levels below. This is in order to admit light into, and city views out of, the apartments.

3. Inside, the apartments have simple, loftlike floor plans that afford city views from the living spaces and bedrooms. Finishes are spare, consisting of gypsum walls, polished concrete floors, and sliding polycarbonate panels that divide the rooms. About two-thirds of the apartments are one-bedroom units; the others have two bedrooms.

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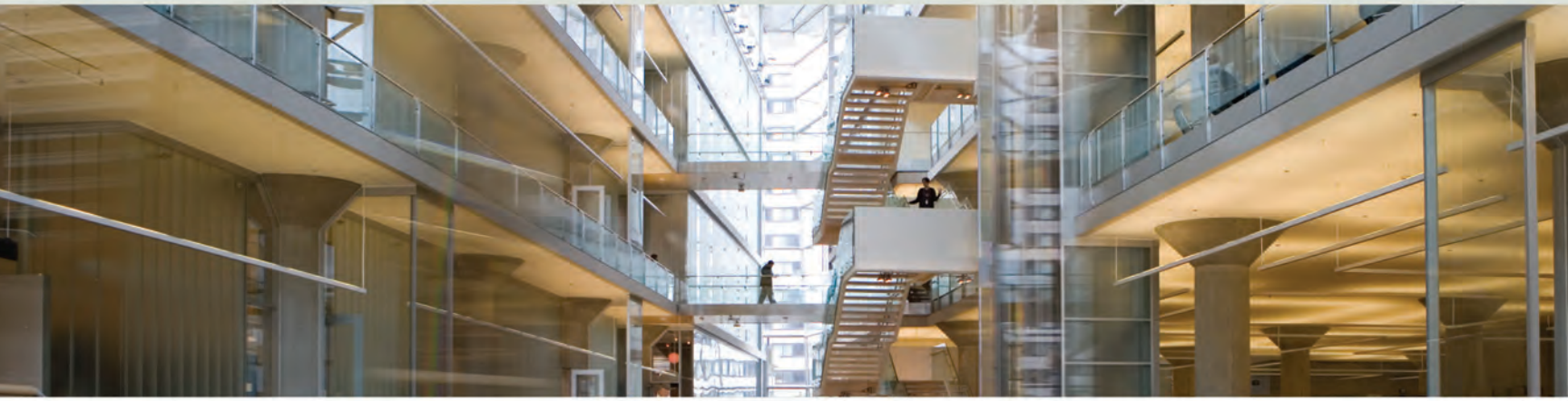

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PHOTOS BY SCOTT FRANCES

NORTH CAROLINA MUSEUM OF ART

RALEIGH, N.C.
THOMAS PHIFER AND PARTNERS

SINCE HE BECAME the North Carolina Museum of Art's director in 1994, Lawrence Wheeler has lobbied for an expansion to the Raleigh, N.C., institution's 1983 Edward Durell Stone–designed building (completed after his death). This year—after an fundraising campaign to get more than $70 million from state, county, and city funds, as well as from private donors—his vision was finally realized with the opening of a new 127,000-square-foot building by New York–based Thomas Phifer and Partners.

Wheeler's vision called for a light-filled building open to the surrounding landscape and free to the public, in which art would be presented in a less constricted

→

environment than the existing building allowed; it would also be a destination for anyone seeking a place of beauty and serenity. This became partner-in-charge Thomas Phifer's mandate. The once rural site is now a museum park, veined with hiking and bike trails leading to site-specific art installations.

A Southerner himself, Phifer sought to acknowledge the region's historic attachment to the land, designing a museum that would be an iconic landmark for the state without overwhelming the site's established identity. "The goal from the beginning was to create a beautiful environment for experiencing the museum's diverse collection of art, both in galleries and out in the landscape," Phifer says.

Phifer's parti is a large rectangle penetrated by smaller rectangles that represent the park's infiltration of the building. These penetrations evolved into sculpture courtyards with reflecting pools and a garden with granite boulders from western North Carolina that are placed as sculptural pieces. Low-E–glazed window walls allow clear, untinted views from the interior galleries to art installations outside. At these points, unlike most museums, the building allows liberal access in and out, contributing to an experience that is of the land. This is reinforced by the fact that the museum is a single story: No visitor is ever isolated from the landscape.

Elsewhere, the perimeter of the one-story structure is windowless, clad with a vertical array of anodized-aluminum panels with a matte-gray finish. Each of these panels measures 5 feet 2 inches by 24 feet, which qualifies them as among the largest aluminum panels fabricated in the U.S. to date. Each panel overlaps the next at an angle, and in the resulting gap, a highly polished, stainless-steel insert reflects the sun's rays back onto the adjacent panel. Without this detail, the solid façades would seem monolithic and impenetrable; instead, the walls seem to dematerialize as reflections of clouds and trees float across the surfaces.

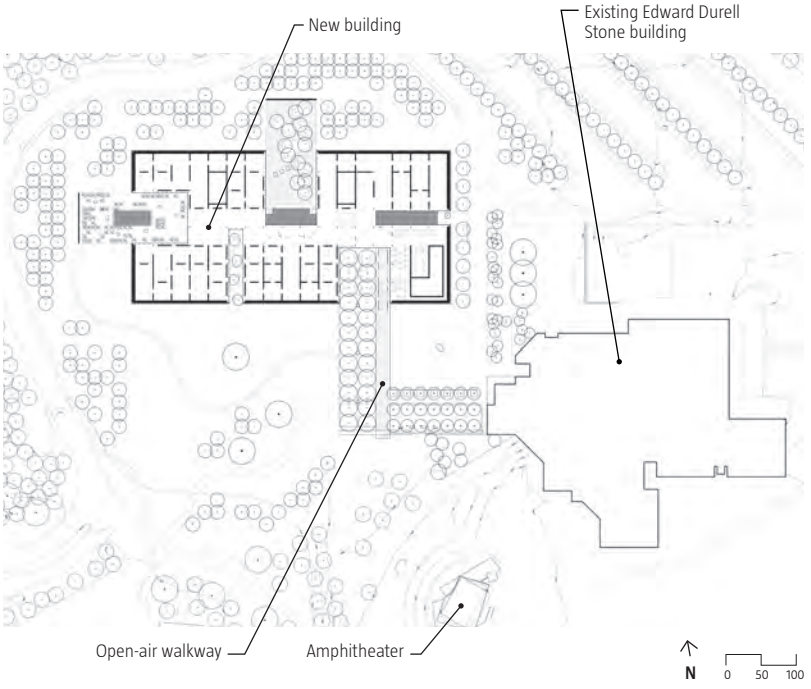
What is not perceptible is that these walls are 2 feet thick. Rigid insulation occupies the exterior space behind the cladding. Conditioned air is pumped through a cavity, dispersed at the ceiling, and returned at the floor.

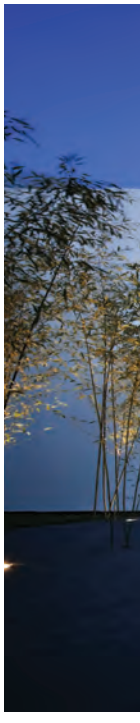
In addition to the window walls, 362 skylights admit natural light into the building. Waves of louvers on the roof allow only indirect northern light to enter the insulated skylights, set into deep molded coffers forming oval oculi, which are in turn covered by protective fabric scrims. The gently curving coffers prevent shadows, causing the art to seemingly emerge from the walls and pedestals into high relief.

Phifer cites Louis Kahn's Kimbell Art Museum in Fort Worth, Texas, as a key inspiration. Kahn's concrete barrel vaults direct daylight downward into the galleries, articulating the spaces with gently dispersed light. Phifer's design invites comparison from which neither architect suffers. The spatial articulation and detailing of each museum has been described as austere, but both were borne of steadfast logic and disciplined execution, which translates complexity into sublime simplicity.

1

Site Plan





1. The new building at the North Carolina Museum of Art provides more than 65,000 square feet of exhibition space, in addition to public areas such as a store and a café. The entry plaza is delineated by a tree-lined path that leads to a 2½-acre environmental art installation (completed in 1997), which includes an amphitheater by New York architects Smith-Miller + Hawkinson, a sprawling environmental work by conceptual artist Barbara Kruger, and landscaping by Nicholas Quennell.

2. Although the perimeter is clad in anodized-aluminum panels, which protect the artwork from harsh southern and western sunlight, the façades around inset sculpture areas are lined with fritted glass, giving the gallery spaces a connection to the outdoors without allowing copious sunlight to compromise the safety of the artwork.

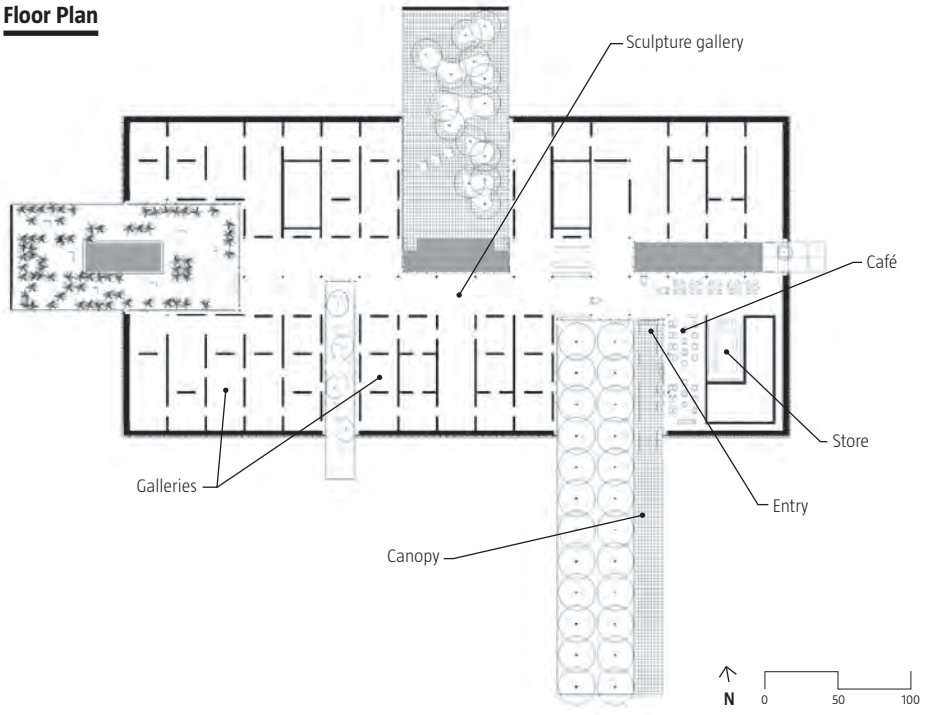
1. Outside (and reflected by) the entry canopy is an informal seating area for visitors. Covered by porous gravel pavement that admits rainwater into filtration beds, the area is part of a larger water-management strategy that includes collecting roof and roadway runoff into a 90,000-gallon cistern, which is used for irrigation and maintaining water levels in the site's reflecting pools.

2. The canopy creates a shaded indoor-outdoor entry sequence into the new building, with glass walls that allow views out to one of the five courtyards inset into the floorplan and a stainless steel ceiling that reflects the patrons entering or leaving the building. The canopy ends at tall glass entry doors that lead into the main sculpture hall, the central space around which the other 40 galleries are organized.

1

2

Floor Plan

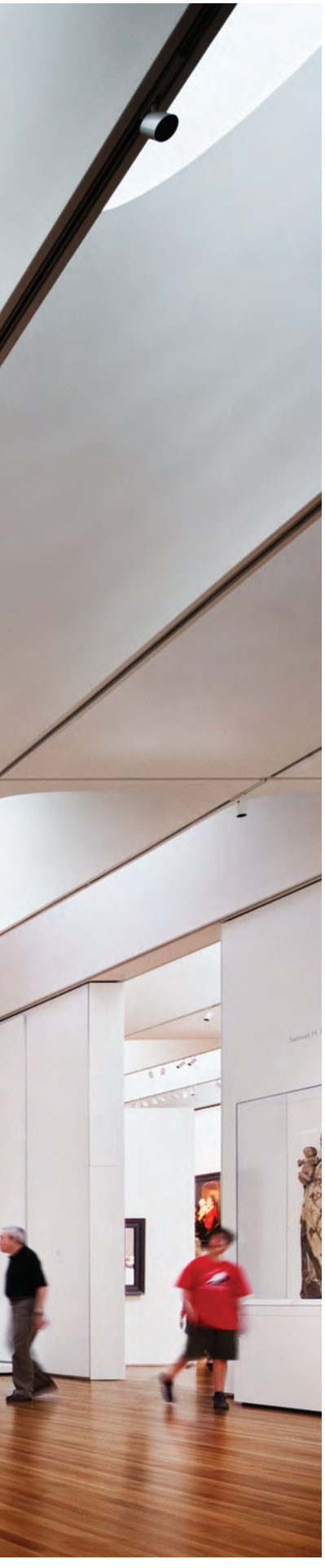


Project Credits

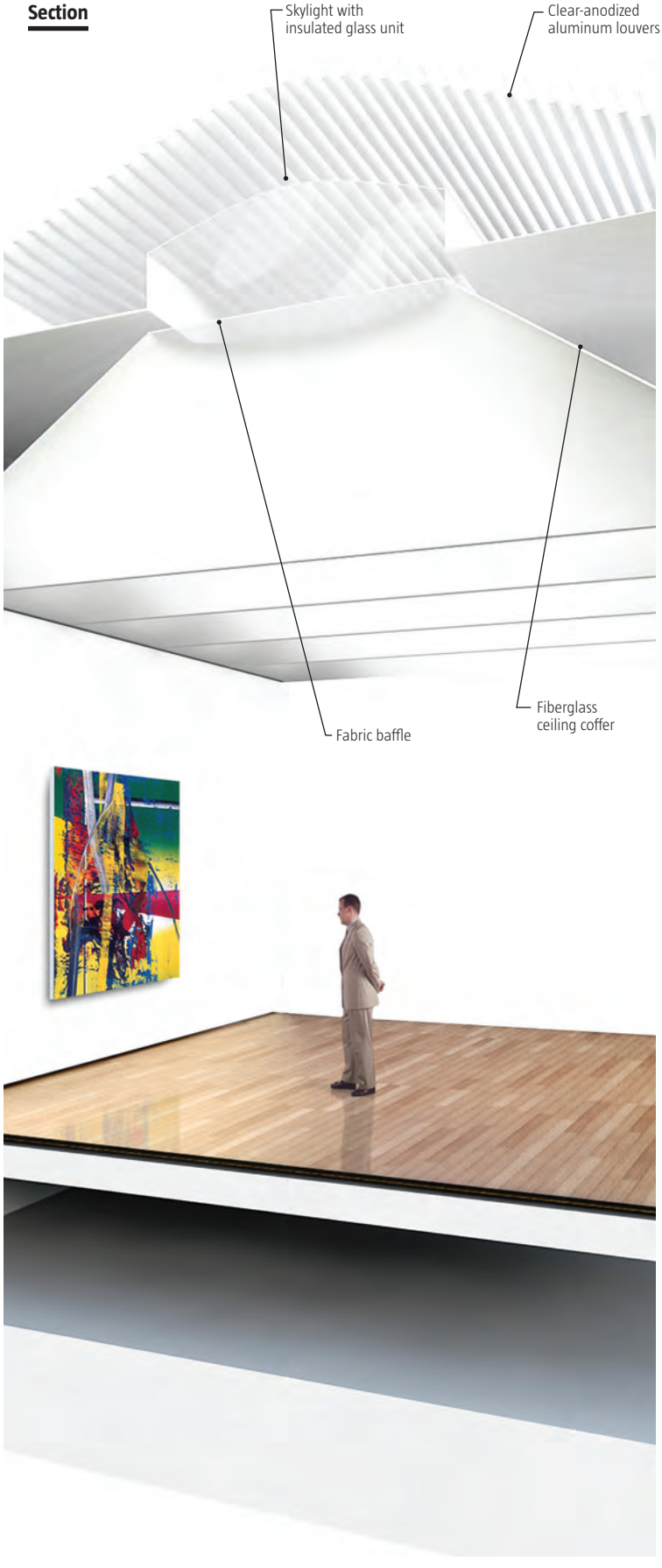
Project North Carolina Museum of Art, Raleigh, N.C.
Owner Department of Cultural Resources, State of North Carolina
Design Architect Thomas Phifer and Partners, New York—Thomas Phifer (partner-in-charge); Gregory Reaves (project partner); Gabriel Smith (project architect); Adam Ruffin, Katie Bennett, Christoph Timm, Jon Benner, Kerim Demirkan, Len Lopate, Eric Richey, Joseph Sevene, Danny Taft (project team)
Local Architect Pierce Brinkley Cease + Lee, Raleigh, N.C.—Clymer Cease (partner-in-charge); Jeffrey Lee (project partner); David Francis (project architect); Mac Nance (director of construction administration); Nelson Tang, Matt Konar, Juliette Dolle, Henry Newell, David Lehman, Jennifer Olson (project team)
Landscape Architect Lappas + Havener
Structural Engineer Skidmore, Owings & Merrill
Mechanical Engineer Altieri Sebor Wieber
Local M/E/P Engineer Stanford White
Natural Lighting Design Arup
Lighting Design Fisher Marantz Stone
Civil Engineering Steven Blake; Artifex-ED; Kimley-Horn Associates
Specifications Aaron Pine
Acoustics Creative Acoustics
Construction Manager Barnhill—Balfour Beatty
HVAC and Plumbing Ivey Mechanical
Electrical Watson Electric
Fire Protection ABL Fire Protection
Site Work Faulconer Construction; Valley Crest Landscaping
Masonry Whitman Masonry
Size 127,000 square feet
Total Cost $72.2 million

Materials & Sources

Canopy **Linel** linelsignature.com
Curtain Wall **Vistawall** oldcastlebe.com; **Viracon** viracon.com
Skylights and Louvers **Supersky** supersky.com; **Sika Sarnafil (felt-back PVC roofing)** sarnafilus.com; **Unicel Architectural (louvers)** unicelarchitectural.com; **Fibertech (fiberglass ceiling coffers)** fibertech.net
Doors **Ellison Bronze (entrances)** ellison-bronze.com; **Total Door (metal doors)** total-door.com
Curtains **Mary Bright**
Millwork **Triangle Casework** trianglecasework.com
Furnishings **Herman Miller** hermanmiller.com; **Fritz Hansen** fritzhansen.com; **Fermob USA** fermobusa.com; **Maharam** maharam.com
Lighting **Litelab Corp.** litelab.com; **Nippo Electric Co.** nippo-web.com; **Crestron Electronics** crestron.com



Section



TOOLBOX

It's well known that UV light degrades pigment and textiles over time, making daylight a problematic fit with museum spaces. Thomas Phifer addressed this problem by creating a lighting budget not defined by costs, but by how many hours over the course of a year artwork can safely be exposed to natural or electric light.

The allowable times—i.e., the hours of daylight per day multiplied first by the number of foot-candles of light directed at each artwork per hour, and then by 365 days in the year—range from 15,000 foot-candle hours per year for light-sensitive works up to 90,000 foot-candle hours per year for public spaces and most sculptures.

Using Rhino software for 3D modeling, complex computations revealed a strategy for achieving the lighting goals, using, for the most part, low-tech materials in carefully calibrated arrays.

On the roof, louvered domes hover above 362 skylights, oriented to allow only indirect north light into the galleries. The skylights also have an interlayer for UV protection. Deep, oval-shaped fiberglass coffers direct the tempered light downward into oculi, which are covered in lightweight, interchangeable fabric scrims calibrated to complete the filtering process.

Glass curtain walls are fritted to keep out UV rays while allowing visible light with a 96+ color rendering index to flood the galleries through white curtains, which range from opaque to diaphanous. Mechanically controlled roller shades can black out all daylight if desired. The multiple layers create an effect that is greater than the sum of the components.

Between the coffers and the glass walls, 50 percent of the gallery lighting is natural daylight. And to maximize energy efficiency, photocells mounted on the roof track cloud cover and sky conditions to raise and lower the shades accordingly. Temperature, humidity, and carbon dioxide levels are monitored by HVAC systems such as high-efficiency chillers to maintain human comfort and protect the artworks. An independent agent supervised the installation and will monitor performance of the environmental and mechanical systems.

SHANGHAI SURPRISE cont. from page 45 →

spiral velodrome (picture an open-air Guggenheim Museum equipped with hundreds of bicycles). At the center of the vortex is the *Little Mermaid*, the Danish icon, shipped in from Copenhagen—the statue's first voyage from home. The Swiss pavilion, by Buchner Bründler, was designed to accommodate a ski lift, which makes a 10-minute circuit through the building to a rooftop Alpine meadow.

But even large expenditures of public funds can't guarantee successful pavilions. Saudi Arabia and the United Arab Emirates created especially expensive buildings; the former with (reportedly) the largest IMAX screen on earth and 150 date palms on its roof, and the latter designed by no less than Foster + Partners. Neither is particularly exciting. Spain built a large pavilion covered in oversized wicker baskets, a less sophisticated cladding scheme than the one of earthenware hexagons conceived by Foreign Office Architects for the Spanish pavilion at the 2005 expo.

With daily crowds in the hundreds of thousands, the expo is attracting 10 to 20 times more people than even the most robust pavilions can accommodate. Many of the pavilions were conceived as shells, with the exhibitions as afterthoughts; the architects were free to create sculptural forms without being weighed down by programmatic requirements. To an architecture critic, this is troubling: Buildings need to reconcile form and function. But given the beauty of the seed cathedral, does it matter that it only holds 100 people at a time? Who remembers what was exhibited in the Trylon and Perisphere of the 1939 New York World's Fair, anyway? As past expos have shown, it's the iconic forms that linger in the imagination.

Some of the smartest exhibitions in Shanghai can be found in corporate pavilions. (This shouldn't come as a surprise, given the success of GE, IBM, Kodak, and others at the 20th century U.S. world's fairs.) This time, Chinese companies are in the spotlight. One of the boldest, Broad Air Conditioning, devoted its pavilion largely to the 2008 earthquake. There's a diorama showing lifelike figures buried under rubble, and a ride that simulates the quake itself. The goal is to shock provincial Chinese into demanding higher-quality buildings: a noble end, even if the means are a bit jarring.

Ironically, it is the U.S. pavilion (yes, that again) that seems to be compromised by financial interests. Though it purports to be a national pavilion, it is really an advertisement for the multinational corporations—including Chevron and Dow Chemical—that sponsored it. The people waiting in line for hours will be disappointed when they get inside, only to view a ho-hum video in which corporate spokesmen share a screen with Hillary Clinton and President Barack Obama (as well as a child who announces that cars may run on fruit juice some day).

To see impressive U.S. technology, visit instead the Shanghai Corporate Pavilion, nicknamed the "Dream Cube"—a filigree structure composed of 40 miles of LED-laced acrylic tubes, by Edwin Schlossberg, the New York exhibition designer. Inside, it turns a story by the ancient Chinese philosopher Zhuangzi, who dreamed he was a butterfly, into a dazzling interactive attraction. Too bad most visitors won't know it was created by Americans.

At the Shanghai Expo, scores of countries with far more limited resources than the U.S. make far, far better impressions, signaling their commitment to international cooperation, along with their ingenuity and can-do spirit. Sadly for the U.S., it may be a blessing that world's fair buildings are meant to be temporary. □

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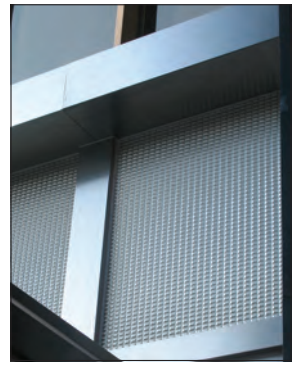

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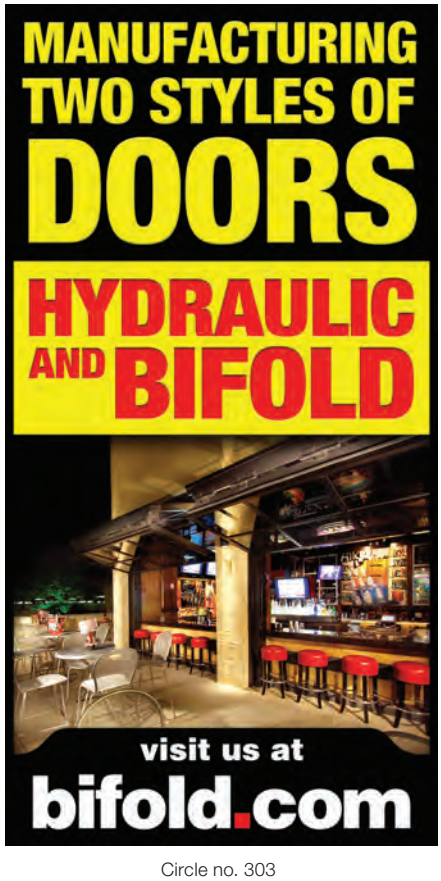

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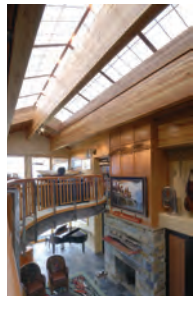

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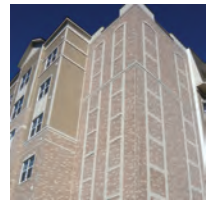

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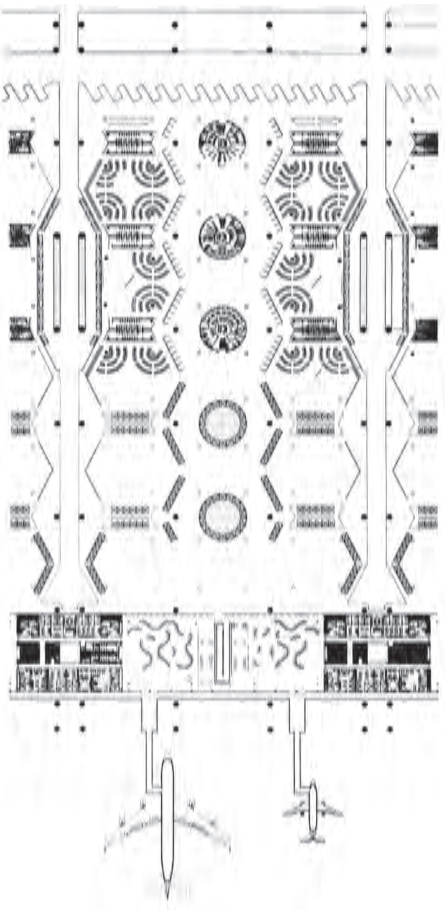

TEXT BY JOHN MORRIS DIXON

FOR THE **HAJJ TERMINAL AT JEDDAH AIRPORT**, SOM DESIGNED A COMPLEX THAT COVERS 120 ACRES AND CONSTITUTES A LANDMARK OF 20TH CENTURY ARCHITECTURE AND ENGINEERING.

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THE WHITE RECTANGLES of the Hajj Terminal at King Abdul Aziz International Airport in Jeddah, Saudi Arabia, are visible from cruising altitude. Their vastness meets a need that first became apparent when jumbo jets began delivering unprecedented numbers of pilgrims for the hajj, the Muslim ritual journey to Mecca. A new type of passenger terminal was necessary to accommodate about 1 million hajjis passing through the airport over a one-month period annually, often pausing here up to 36 hours before and after the ground trips linking them to their ultimate goal.

To grapple with this unique problem, Saudi authorities turned to Skidmore, Owings & Merrill, which organized a design process led mainly by two renowned partners, architect Gordon Bunshaft and engineer Fazlur Khan. The resulting proposal parks the planes at relatively modest passenger-processing buildings at the edges of two open-air shelters that flank a ground-transportation roadway, each measuring 1,050 by 2,250 feet. Each shelter is composed of 105 square modules capped by a Teflon-coated fiberglass fabric canopy, which is supported on 147-foot-tall pylons. The scheme was no facile allusion to the region's traditional tents, but a product of up-to-the-minute technology.

One of the few non-Muslims to visit the terminal, I can attest to its extraordinary environmental performance. In the October 1984 issue of *Progressive Architecture*, I wrote, "The fabric roof filters the desert sun to yield soft, modulated light and remarkably comfortable temperatures, even on a July day." I was hardly alone in my admiration. The completed project earned both an AIA National Honor Award and an Aga Khan Award, as well as this year's AIA 25-Year Award. □

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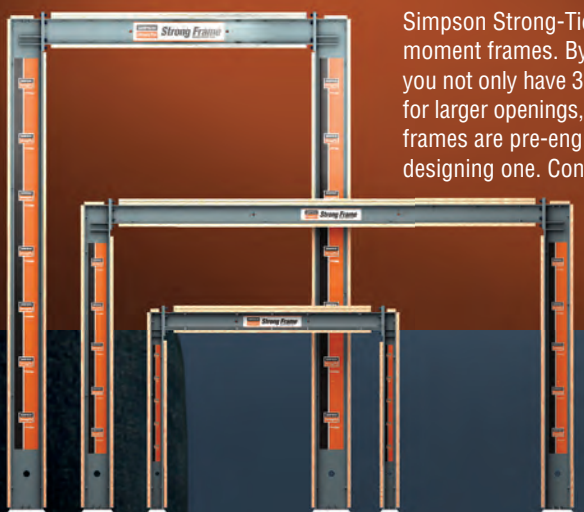

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