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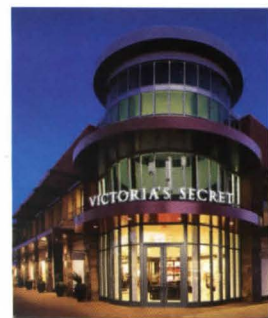




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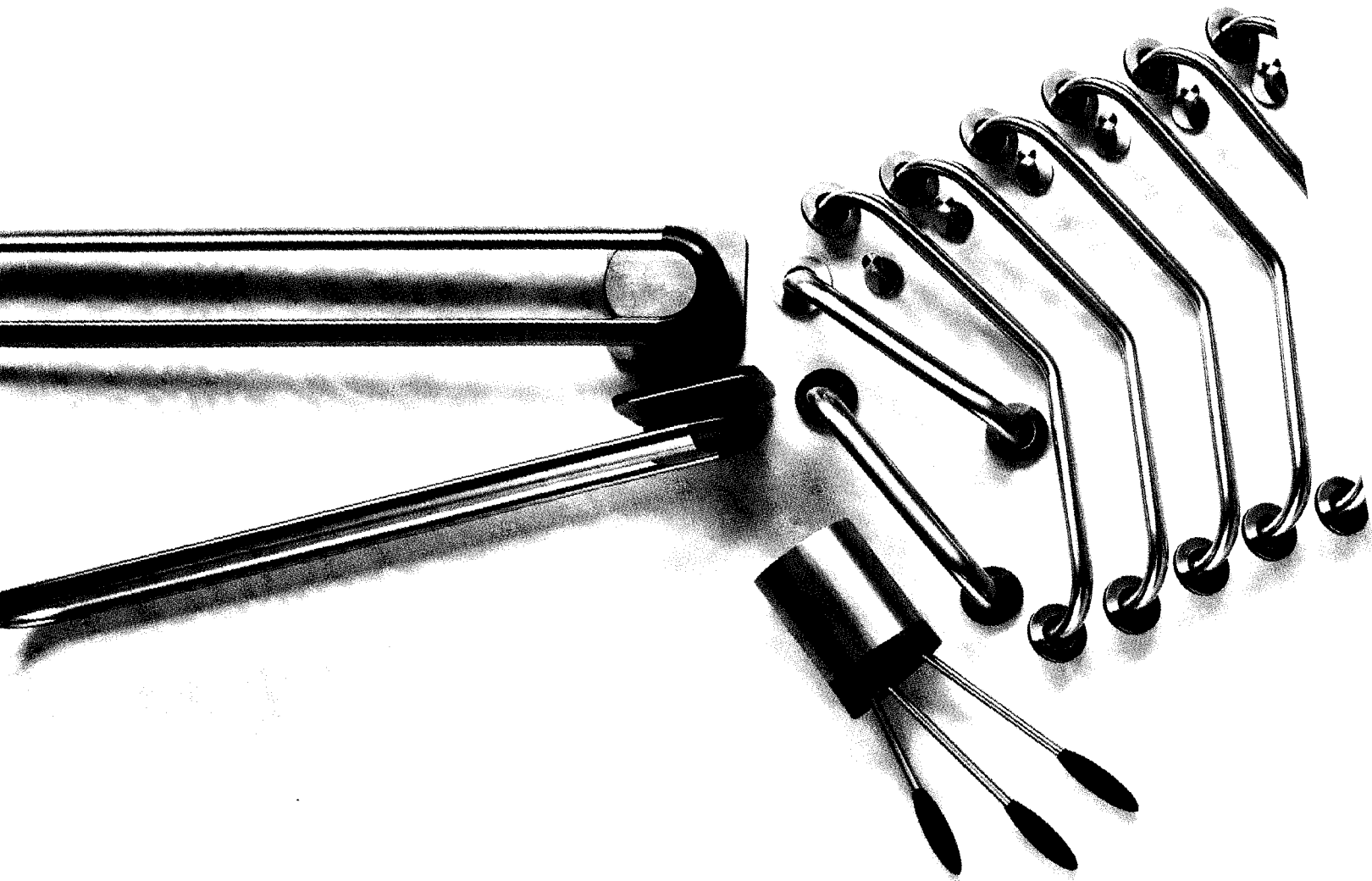
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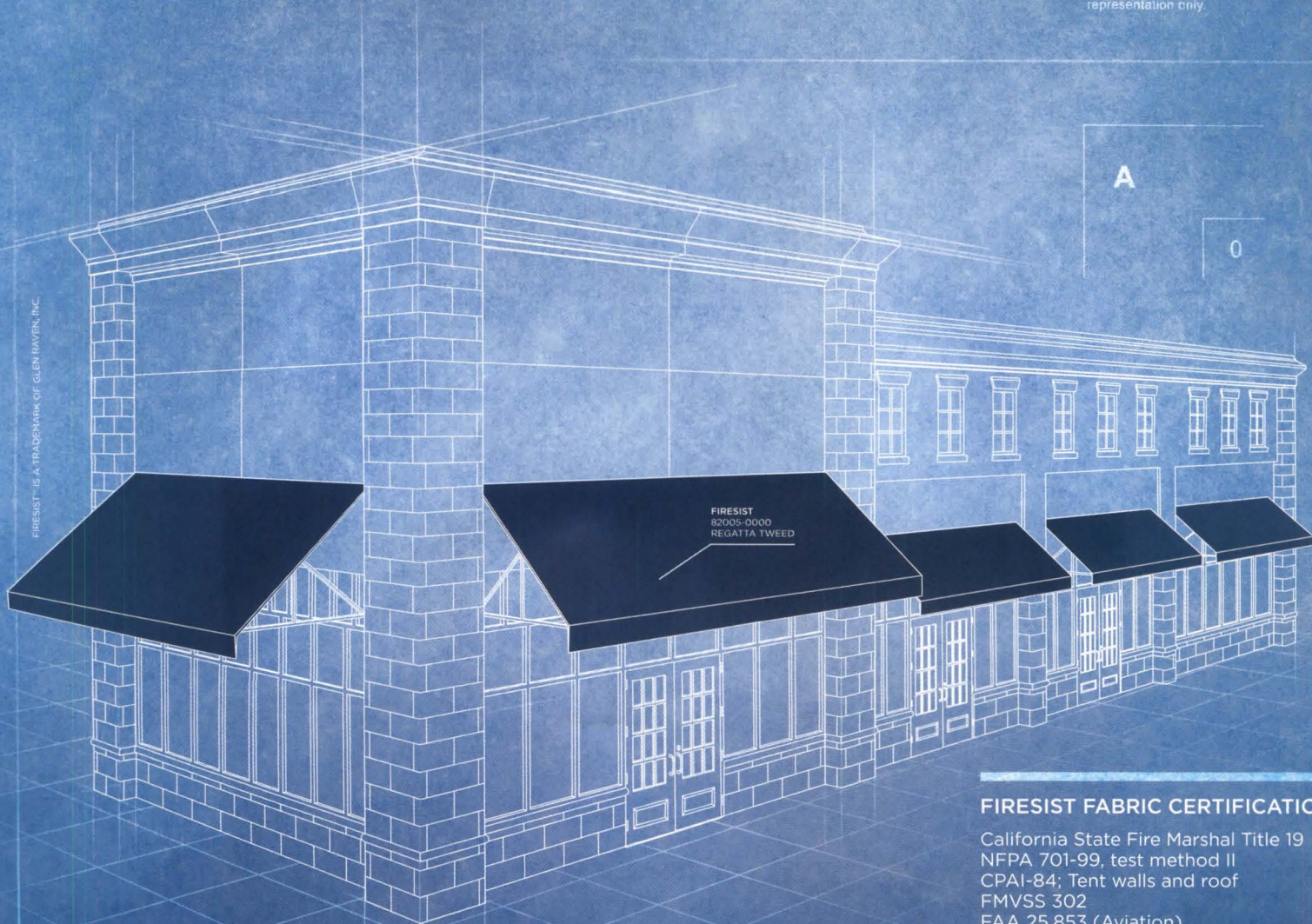
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Designers embrace glass as a structural element to create innovative facades, interiors, and urban spaces. *By Josephine Minutillo*
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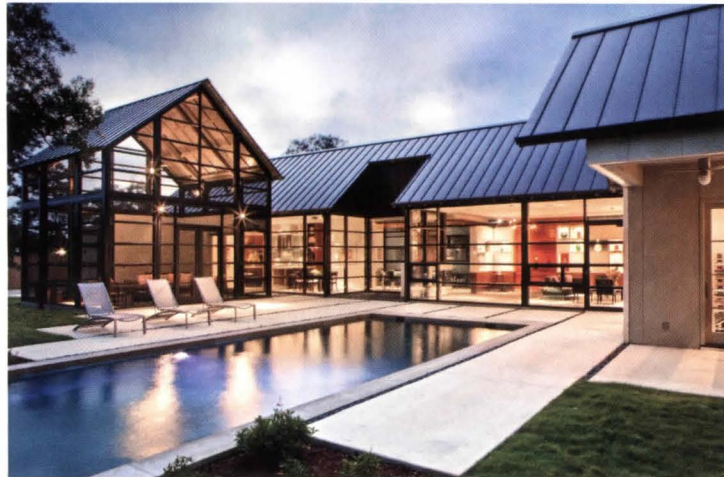


1. **Maggie's Centre, London**, by Rogers Stirk Harbour + Partners, page 72.
2. **Opposite House, China**, by Kengo Kuma and Associates, page 90.
3. **The Yas Hotel, Abu Dhabi, U.A.E.**, Asymptote Architecture, page 102.

**ON THE COVER:** Aqua, Chicago, by Studio Gang. Photograph © Steven Hall/Hedrich Blessing.



This month, our site features special reports about how architects are contributing to relief and rebuilding efforts in areas of Haiti ravaged by January's earthquake. Read first-hand dispatches from our news editor, **Jenna M. McKnight**, check in on projects, view a photo essay, and more.



[ HOUSE OF THE MONTH ]

Heather McKinney of McKinney York faced restrictions on almost every exterior aspect of the house she designed for her client in San Antonio. Somehow she made those challenges work for the project and created a Modern, light-filled sanctuary for her client, a collector of glass sculpture.

ONLINE EXCLUSIVES

GALLERIES

VIDEOS

BLOGS

FORUMS

RESOURCES

[ READER'S FORUM ]

“Pure, poetic, and the video link is very informative. I don't think architects think about what Joy describes as the necessity to remove the view [to the landscape] while traversing a stone maze before ‘becoming reintroduced to it.’ There is simplicity and magic in that concept.”

— Anonymous on Woodstock Farm, by Rick Joy Architects, from Record Houses 2010



1 | BTS EXCLUSIVE  
Hotel Axis Viana,  
Viana do Castelo,  
Portugal.



2 | REBUILDING HAITI  
In our new special section, keep up-to-date on how architects are getting involved in Haiti.



3 | RECORD TV  
Take a video tour of the Will Bruder-designed Agave Library in Phoenix.

EXPANDED COVERAGE

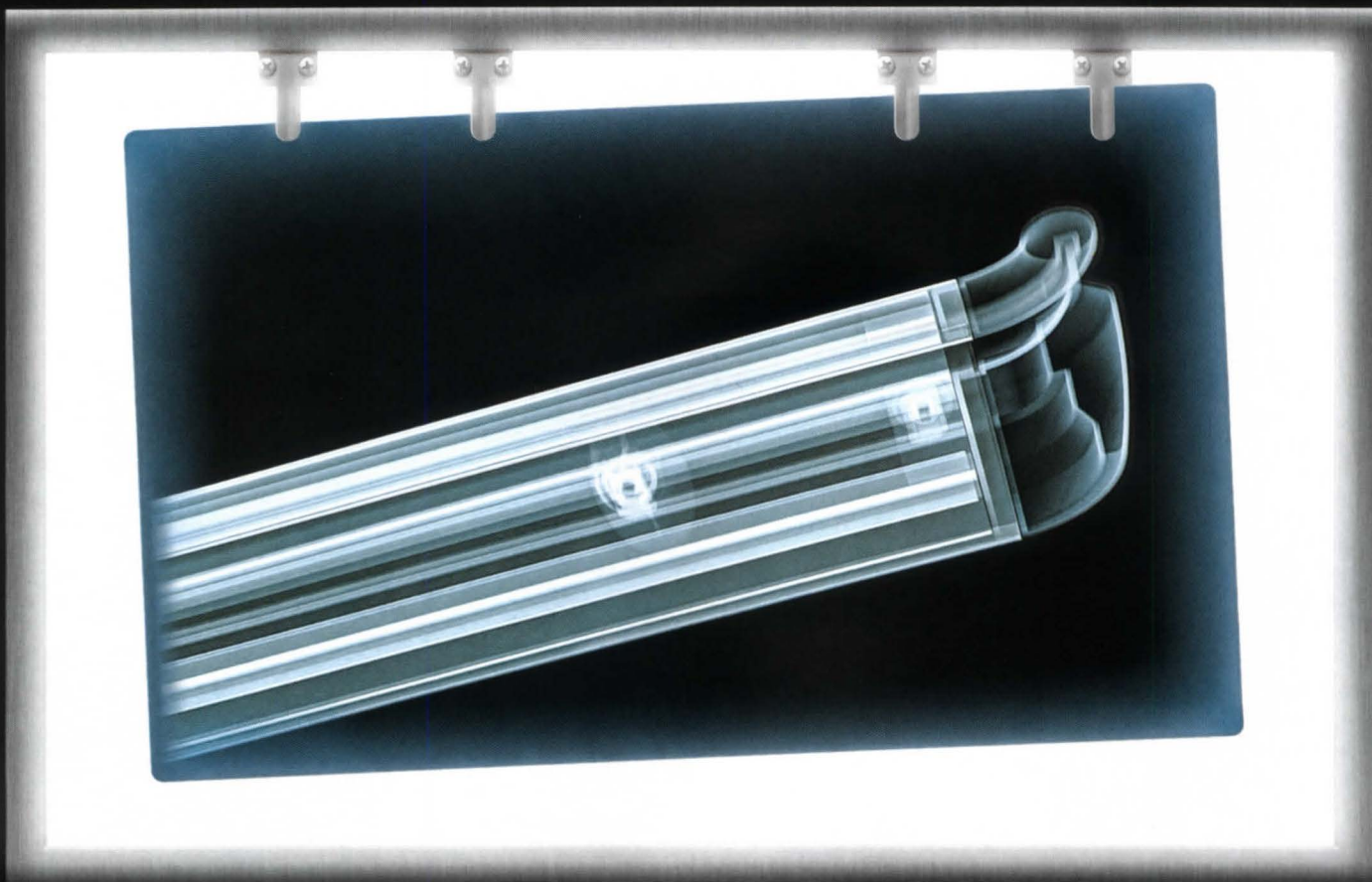


RECORDNEWS  
Read more about this year's Pritzker winners, Kazuyo Sejima and Ryue Nishizawa, and view a slide show of their work.



AR2  
Meet Enrique Limon. He's neither mad nor a scientist, but unique experimentation in his five-year-old “urban lab,” limonLAB, is yielding beautiful design from Philadelphia to Norway.





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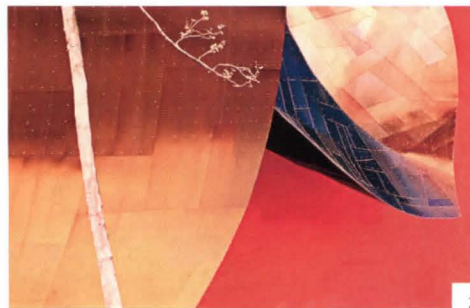
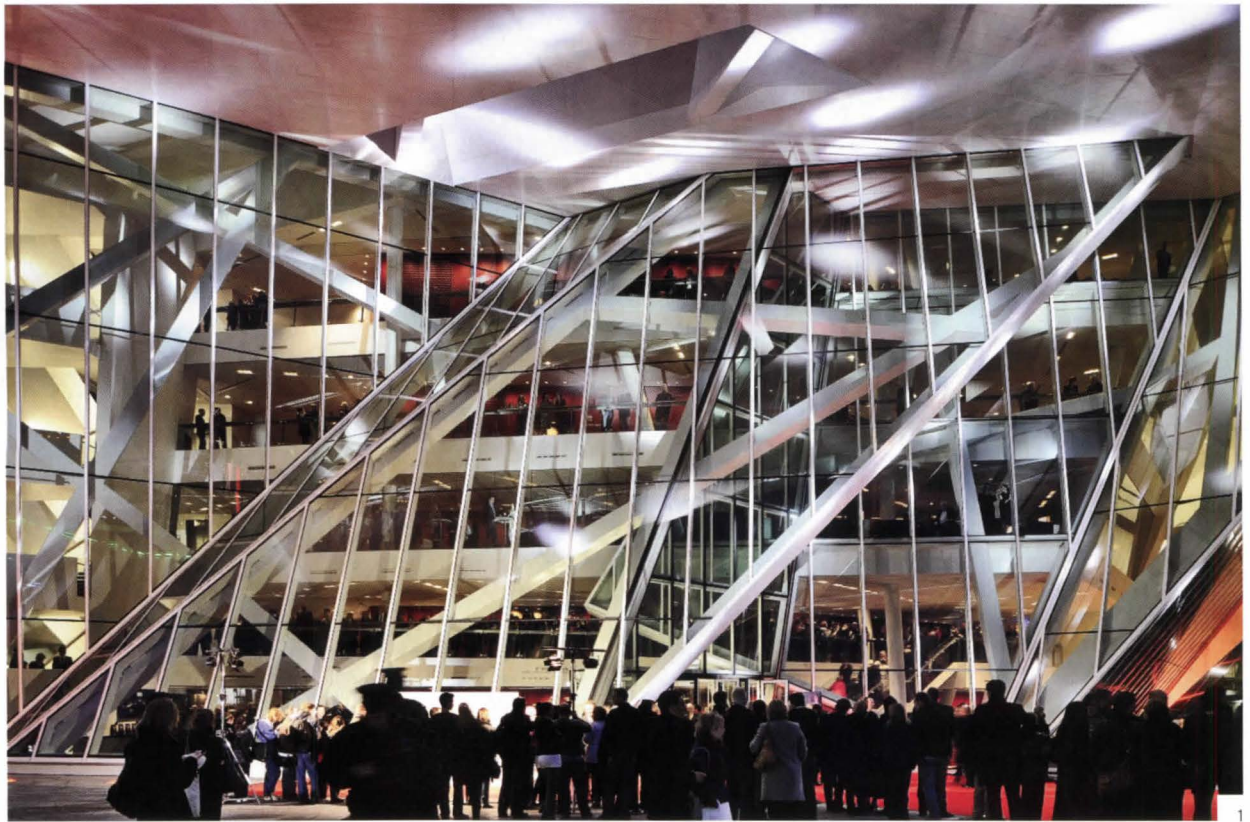
## READER'S GALLERY

Every month, our online readers vote for their favorite images from our Web galleries. The top three photos appear on this page. To vote for photos and to share your own, visit [architecturalrecord.com](http://architecturalrecord.com) and click on Community.

1. The opening of Daniel Libeskind's Grand Canal Square Theater in Dublin. Photo submitted by "jm. matla."

2. Frank Gehry's Experience Music Project in Seattle. Photo submitted by "richardmartinphoto."

3. The Silvertree Residence in Tucson, designed by Secrest Architecture. Photo submitted by "Ccrest3."





FINE INCHES

# ARCHITECTURAL RECORD

## Cocktail Napkin Sketch Contest

# OFFICIAL ENTRY FORM

## Call for Entries

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All materials must be postmarked no later than Monday, June 21, 2010.

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- Create a sketch on a 5-inch-by-5-inch white paper cocktail napkin.
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9th Floor  
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10121-2298
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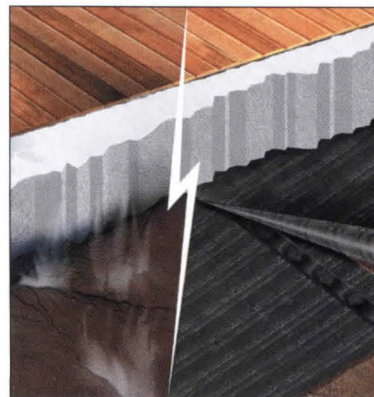
## Cool Roofs in Perspective: Not Just Black and White

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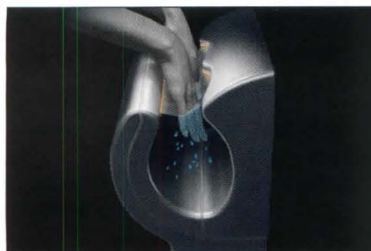
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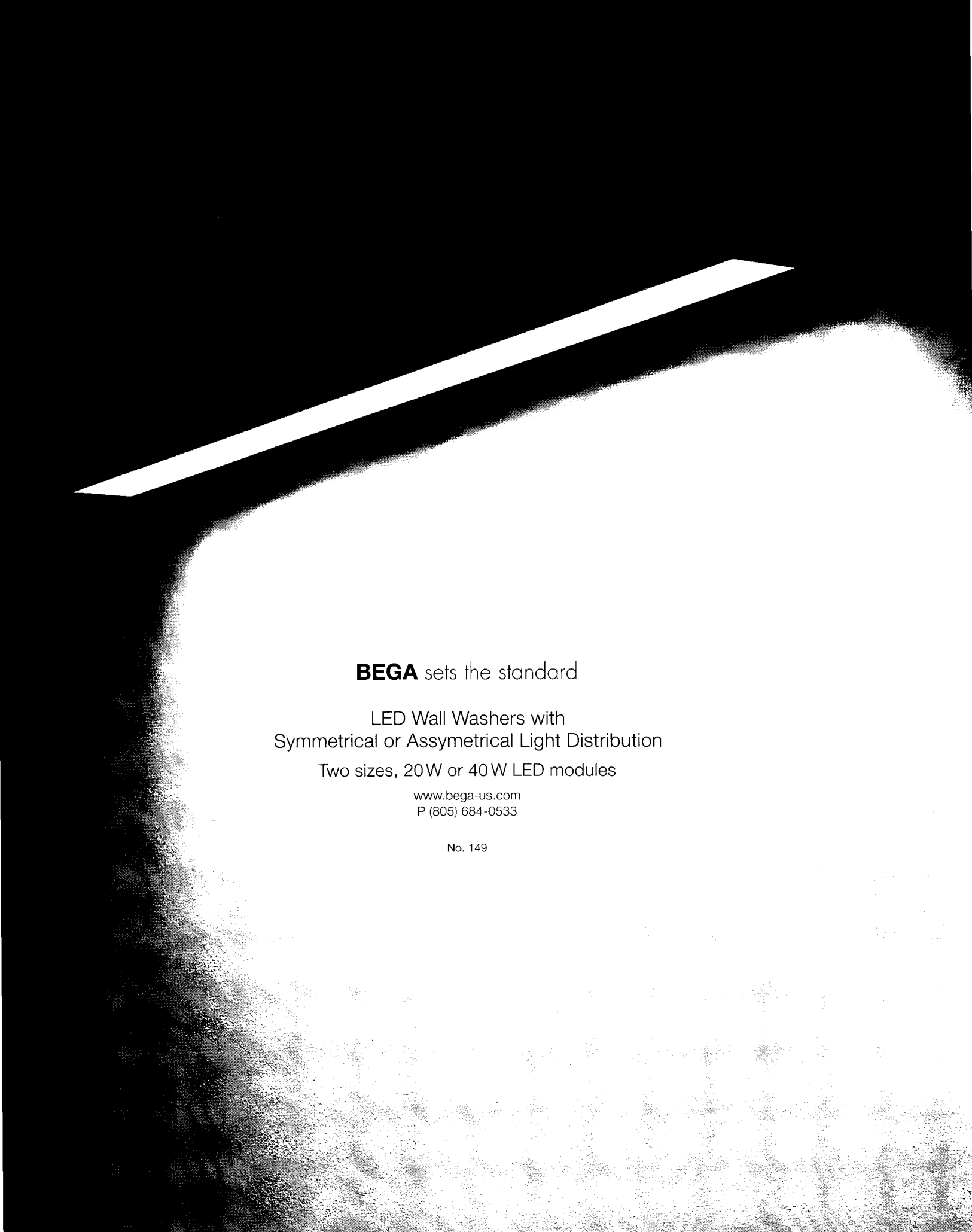
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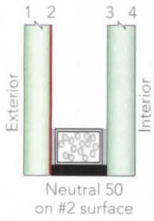
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## The Architecture of Growth

Infrastructure propels development worldwide.

BY ROBERT IVY, FAIA

**DESPITE THE NEWS** of a rising stock market, or the fact that the Dow Jones average has topped 11,000, your own architectural practice may be struggling. Where is the recovery, you might ask? Why hasn't the stimulus package hit the marketplace yet, or affected your revenues? You must wonder if the whole world feels as you do, if the economy has gotten back to normal anywhere, and is it possible there are places that are actually prospering.

McGraw-Hill Construction convened a gathering of construction leaders to address some of those questions last month, and the answer is: It's a big world out there. At the Global Construction Summit, held in New York on April 7 and 8, approximately 400 people from more than 20 countries gathered to find out where the work is and who is doing what. Cosponsored by the China International Contractors Association, the gathering of leaders, many of whom seemed eagerly poised for answers on those sunny spring afternoons, included constructors, architects, owners, representatives from industry, and engineers, from places as diverse as Nigeria and Korea. At times, the stage resembled a mini United Nations.

Why, you ask, should I care? My own practice is local, rarely going beyond my home turf. What you would have discovered, however, is the fact that some firms have learned to go where the work is, even if that work lies far afield. More important, you would have seen that the world is building, and that some markets, including China and India, are booming, despite the pall that has settled like gypsum dust around our feet. It served as a reminder that the globe is interlinked, and that the construction economy rolls in cycles that will inevitably ramp back up.

How? What will be the engines of growth and change? The underlying theme seemed to be the importance and ubiquity of infrastructure. India's minister of road transport and highways, Kamal Nath, put it eloquently and succinctly when he described infrastructure as the underlying architecture of economic growth. India, he explained, has enjoyed a decade of expansion in the virtual world, a software economy where relatively little had to be built. The present and future years should be devoted to expanding that nation's ports, roads, rail system, and airports. Currently, there is a need for \$500 billion of infrastructure expansion and upgrade, a situation that will be met by a combination of public and private capital.

As an example, Nath cited the country's slow turnaround time in its archaic ports, which now require 2.5 days, compared with Hong Kong, which typically flips cargo in a scant 2.5 hours. Port expansion will radically alter India's competitiveness for the 21st century. Delhi's large new Terminal 3 at Indira Gandhi International Airport, which opens later this year as the world's third-largest airline terminal (after Dubai and Beijing) – with a capacity for 33 million visitors – will open up the center of the country for international trade and expansion. All of India's infrastructure plans trail architectural projects in their formidable wake.

As for China, if you thought you had heard the whole of that country's story, you would have been surprised by the news presented at the summit. Shang Qingxi, deputy chief economist for the China Railway Construction

Corporation, bowled the room over when he declared that China is linking its entire country via an updated, high-speed rail service in a \$300 billion (1.25 trillion yuan) commitment. Not only Beijing to Shanghai (roughly the equivalent of New York to Chicago) and down to Guangzhou/Hong Kong, but all the burgeoning second-tier cities will be tied together via a completely modernized system that will vastly improve travel time and connectivity, easing the commutes and mobility of a new generation of Chinese workers. It made the rail aficionados in the audience pant for more at home. For architects, Chinese mobility equates to new places of employment, new housing, new commercial centers – all are architecture.

If you thought the Middle East had calmed down (all those see-through buildings in Dubai), builders and consultants reported on the visionary work at the carbon-neutral city of Masdar and the massive investments in Saudi Arabia, which is supporting new hospitals and entire research campuses. Their message? Like it or not, oil still provides the economic engine for building, despite the slowdown in real estate markets in glittering Dubai.

Mega projects continue to live. In Korea, architect James von Klemperer, FAIA, from KPF, and Gale International's Charles D. Reid told the story of New Songdo City – a massive green development previously, if briefly, reported in these pages, containing Korea's tallest tower and its largest convention complex cheek-by-jowl with the ever-expanding Incheon International Airport. Infrastructure begets architecture.

Get the picture? Large firms are out there, chasing every opportunity, finding their own share of the global marketplace. As countries modernize their antiquated internal service systems and organize their transportation systems, architects are finding opportunities that cluster around them. Infrastructure dollars are yielding ripples that extend beyond highway and bridge repair, to the centers of cities and out to small towns.

Still confused about the relevance to your own world? You might be unable, because of scale, to fly off to Africa or Southeast Asia, or too small to be considered a contender to design the master plan of a new town from scratch. However, it is heartening to see that the larger world continues its business, with ambition and energy, and instructive to understand the reasons behind the headlines. One unambiguous theme from the summit: Infrastructure has jump-started growth and propelled even developing countries into an expansionist mode. The analogies and challenges for the United States are clear.



## LETTERS

### Rich man's bike rack

The Bicycle Transit Center in Washington, D.C. [March 2010, Snapshot, page 144] is a nice looking structure with a noble intent. But let's look at some numbers: parking for 150 bicycles, cost \$2.4 million – that's \$16,000 per bicycle. This is elitist architecture of the first order! RECORD frequently features articles about affordable housing, bootstrap projects for the disadvantaged, third world volunteering, and the like, so why choose to feature a rich man's bike rack such as this? This project is good intention that spiraled out of control. And as for the closing claim of being "green," just look at it. To me it looks like a monument to scientific technology and the art of many moving parts.  
*Steve Wallace, AIA  
Pocatello, Idaho*

### Domestic housing

I am truly amazed that out of seven selections, RECORD was only able to find three houses located in the

U.S. that are worthy of the "Record House" designation for 2010. Very disappointing, again.

*Bruce Frasier  
Omaha, Nebr.*

### Out of town, out of touch

I read with both amusement and an air of resignation Robert Ivy's editorial on David Owens's new book, *Green Metropolis* [March 2010, page 17]. I find it difficult to take seriously his advocacy of high-density living in New York while living in Washington, Connecticut, a Rip Van Winkle small town of 130 persons per square mile. As is so often the case with sustainable design issues, it's "do as I say, not as I do." Particularly with the perils of our energy dilemma, credibility is everything – if you don't walk the walk, then your actions simply make your words pointless. In one way, I am stunned you don't seem to be aware of this. Yet in another way, it goes a long way to explaining why the architectural profession is so

marginalized from the real world.

*Gary Moore  
Kansas City, Mo.*

### Biophilia's origins

Robert Ivy's assertion in his April editorial [page 15] that the term *biophilia* was "coined by the biologist E.O. Wilson" is inaccurate. The term was first used by the psychologist Erich Fromm (see his "Humanist Credo," circa 1965). Fromm's work focused on the nature of love and the pathological behaviors that often masqueraded as such. In a discipline that was focussed on the implications of interpersonal dynamics, Fromm championed the assertion that the life force, the positive emotional connection to all things living, plays a significant role in human behavior. An exploration of the dynamics of animism in primal cultures suggests that biophilia is anything but an arriviste notion. A rediscovery of this powerful instinctual energy shared by all living beings can inform our evolu-

tion as a species as we strive to heal our relationship with our world. The emerging field that takes this relationship as its subject matter is called *ecopsychology*, a term that I hope will meet with Ivy's approval.

*A. Vernon Woodworth, AIA  
Boston*

### Corrections:

In our story on SANAA's Rolex Learning Center in Lausanne, Switzerland [March 2010, page 25], the credits should have noted that Frankfurt-based Bollinger + Grohmann and Basel-based Walther Mory Maier were responsible for the structural engineering during the entire design process and construction, while SAPS/Sasaki and Partners served as an engineering consultant during the first planning phase. In the April Archrecord2 Work section [page 32], instructor Rob Pyatt was accidentally given the title professor.

Send letters to [rivy@mcgraw-hill](mailto:rivy@mcgraw-hill).

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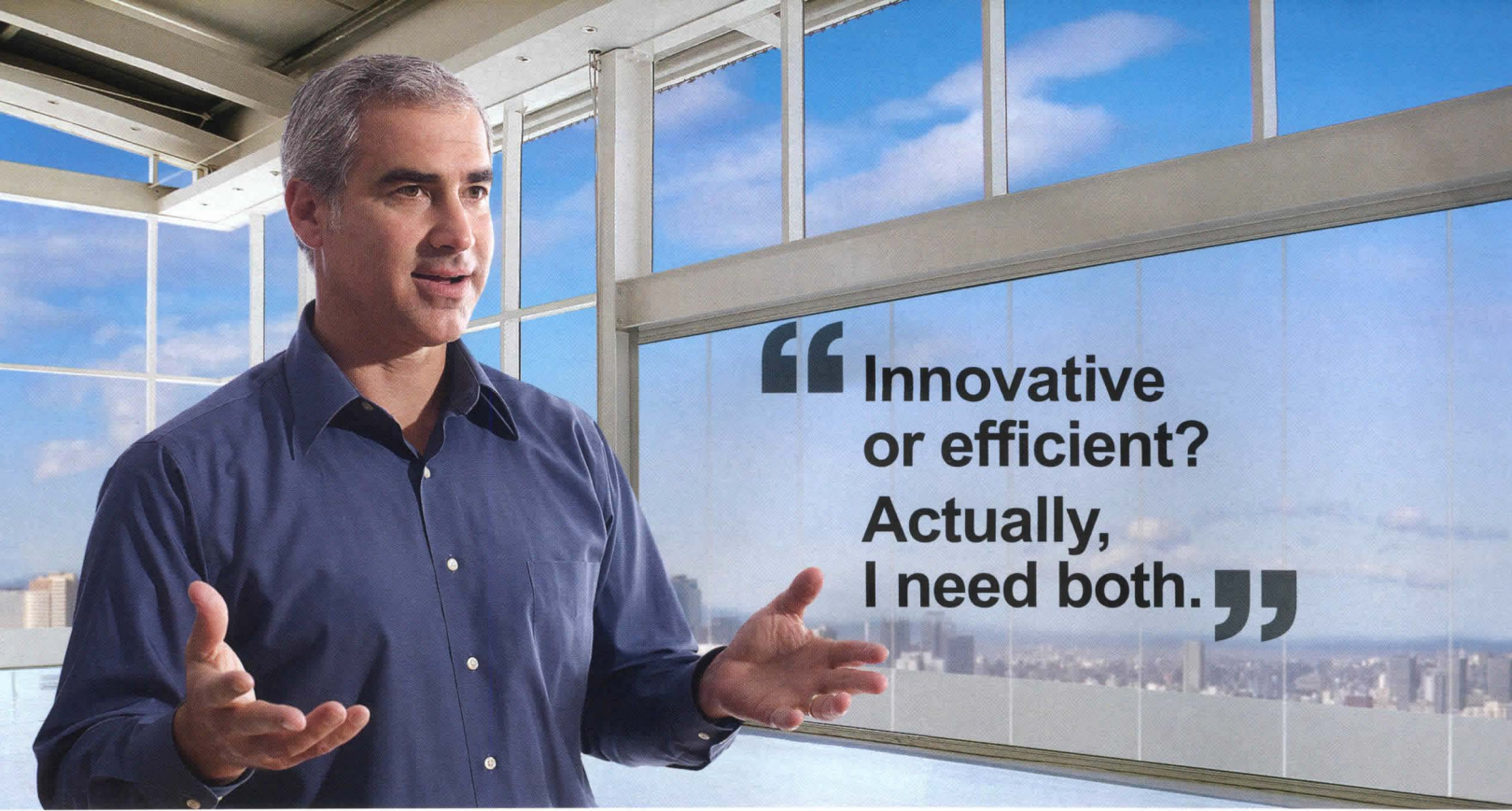


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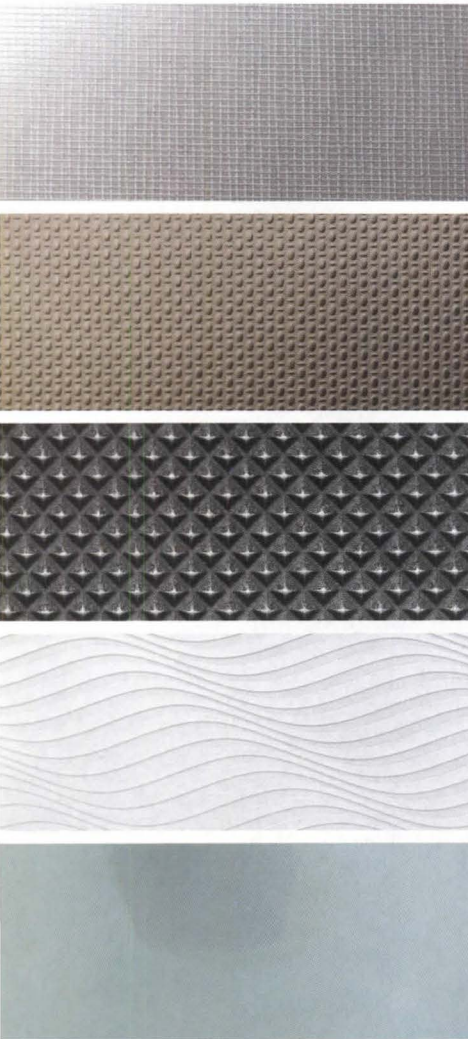
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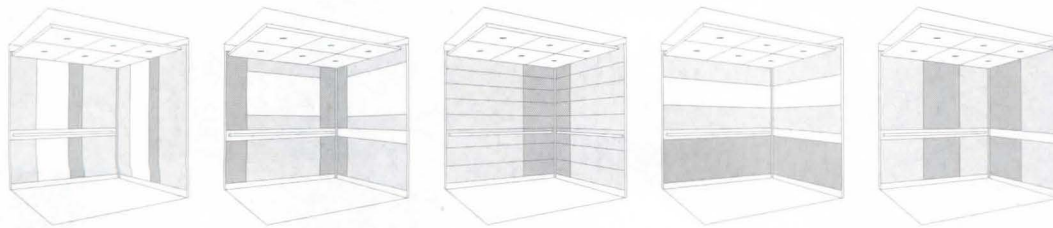


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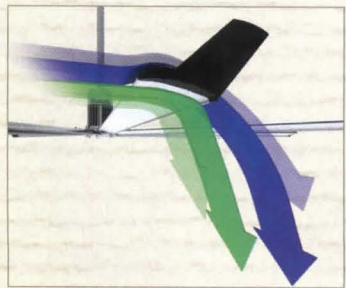
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# RECORD NEWS

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[ TOP HONORS ]

## SANAA Duo Win Pritzker Prize

**KAZUYO SEJIMA AND RYUE NISHIZAWA**, of the Tokyo-based Sejima and Nishizawa and Associates (SANAA), will receive the 2010 Pritzker Prize at a ceremony on New York's Ellis Island on May 17. The firm's architecture, distinguished by its Minimal material palette, spare details, and fluid spatial organization, elicited praise from the jury as environments where "the physical presence retreats and forms a sensuous background for people, objects, activities, and landscapes."

Established in 1979, the Pritzker, which has a \$100,000 cash prize, is bestowed annually by the Hyatt Foundation on a living architect – or architects – who has consistently produced important work. This is the third time two architects have received the award simultaneously. Jacques Herzog and Pierre de Meuron, firm partners, won in 2001, and in 1988, Oscar Niemeyer and SOM's Gordon Bunshaft shared the honor. In its citation, the jury said of Sejima and Nishizawa's collaboration: "It is virtually impossible to untangle which individual is responsible for what aspect of a particular project."

At 44, Nishizawa is the youngest architect to win the Pritzker. Sejima, 54, is only the second female laureate, following Zaha Hadid in 2004. Sejima, who graduated from the Japan Women's University in 1981, first worked for the Tokyo-based Toyo Ito. In 1987, she established her own firm, Kazuyo Sejima and Associates, which Nishizawa joined the same year while a student at Yokohama National University. He graduated in 1990, and five years later became Sejima's partner. The office was renamed SANAA, although both principals also maintain separate practices.

Early SANAA commissions, mostly in Japan, include the long, curving O-Museum in Nagano (1999) and the 21st Century Museum of Contemporary Art in Kanazawa (2004). Considered the firm's first masterpiece, the circular building in an urban park opens on all sides to its surroundings.

In recent years, the firm has completed a series of acclaimed international projects: the Glass Pavilion at the Toledo Museum of Art in Ohio (2006), which was its first U.S. project; the Zollverein School of Management in Essen, Germany (2006); the Staatstheater Almere in



1. **The 21st Century Museum of Contemporary Art (2004), in Kanazawa, Japan.**

2. **Ryue Nishizawa (left) and Kazuyo Sejima.**

the Netherlands (2007); and the New Museum of Contemporary Art in New York (2007). This past February, the Rolex Learning Center at the Ecole Polytechnique Fédérale de Lausanne, in Lausanne, Switzerland, opened, and its Louvre-Lens museum in Lens, France, is currently under construction. Sejima is also the director of the Venice Biennale's 2010 International Architecture Exhibition, which runs from August 29 to November 21. *Aleksandr Bierig*

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[ MIDDLE EAST ]

# While Dubai Stumbles, Abu Dhabi Marches On

**ONLY ABOUT 125 MILES** separate Dubai and Abu Dhabi, but the Persian Gulf emirates can seem worlds apart in terms of opportunities for architects.

In Dubai, unfinished high-rises litter the horizon, as the emirate suffers the dramatic effects of the housing downturn. In January, the emirate even experienced its first foreclosure when the British bank Barclays won a case to take back a property (details are undisclosed). More foreclosures are expected.

But in Abu Dhabi (right), office buildings, houses, and even airports continue to be planned and built, as the city pushes beyond its borders to encompass former desert lands and tidal flats. Architects from overseas seem to be betting that the growth spurt will continue, since about a dozen firms from the U.S. and elsewhere, including HKS, FXFowle, and Leo A Daly, have opened offices there.

"It's a bit like the California Gold Rush," says Ross Ensor, a vice president of the Omaha-based Leo A Daly firm, whose Abu Dhabi office opened in January. Around the same time, Daly was completing a design for an Abu Dhabi outpost of the New England Center for Children, which will occupy a flat-roofed 118,000-square-foot complex whose walls feature colored-glass panels.

Because Abu Dhabi's economy relies on oil, and not tourism like Dubai, it is inherently more stable, says Ensor, adding that "the price of a barrel of oil would have to drop considerably for a major period of time to have any impact." And because oil revenues flow mostly to the government, which finances the bulk of Abu Dhabi's development projects, those projects have relatively strong financial backing, says architect Paul Katz, president of Kohn Pedersen Fox Associates (KPF).

The New York-based firm, whose Abu Dhabi office was something of a pioneer, opening in the 1990s, recently designed the Midfield Terminal Complex, a new 45-gate facility that will almost double the size of the emirate's early-1980s airport. At 6.42 million square feet, it will also make the Abu Dhabi International Airport one of the world's largest, up there with Hong Kong's and Singapore's. Although design revisions have pushed back the facility's opening from 2012 to 2015, according to KPF, construction is under way. "If it involves a government contract, it will probably happen," says Katz about the likelihood of Abu Dhabi projects being built.

Even though it is not a separate country, Abu Dhabi requires foreign architects to set up a physical office there, part of an arduous licensing process that can take up to eight months, architects say. But an on-site presence can also benefit client relations, explains architect Ted Strand, a principal with Solomon Cordwell Buenz (SCB). The firm,



## FIRMS IN ABU DHABI

*Firms from around the globe are opening offices in the oil-rich emirate. Here are a few examples.*

- Benoy
- Carol R. Johnson Associates
- Design World Partnership
- FXFowle
- Gensler
- HKS
- Kohn Pedersen Fox Associates
- Leo A Daly
- Otak International
- Perkins Eastman
- Rafael Viñoly Architects
- Solomon Cordwell Buenz

which has offices in Chicago and San Francisco, opened an Abu Dhabi branch in March 2009. "These are hugely demanding clients. They want to feel that you are committing to them," says Strand, who is currently creating a master plan for Capital City Center (above), a mixed-use community intended to house 200,000 people on 2,400 acres outside the existing metropolitan area.

Yet the cost of maintaining an overseas office can be "overwhelming" for a small firm, says architect Michael Kostow, a principal in the 15-employee Kostow Greenwood, whose sole office is in Manhattan. The firm, which specializes in designing television studios, is subcontracting with KPF for the new headquarters of the Abu Dhabi Media Company. Still, it doesn't plan to open an office in the emirate anytime soon.

Working in Abu Dhabi does present challenges. Housing is pricey, which means many foreign architects employed there are forced to commute from Dubai, where rents are lower on account of the downturn.

And despite few obvious signs of struggles, some projects have stumbled, says Jonathan Stark, a managing director of Perkins Eastman International, which will open an office in Abu Dhabi this year. Indeed, in recent months, Stark explains, a mixed-use community designed by his firm was postponed, and an international school project was nixed entirely.

Yet delays in Abu Dhabi tend to be temporary, says Bill Taylor, a principal with Carol R. Johnson Associates, a Boston-based landscape-design firm. Its highest-profile commission is Central Park, a 25-acre swath of canals, parks, and shops that anchors the Shams City housing development.

Besides, steep housing prices indicate that more units are needed, says Taylor, which may bode well for future projects: "There's pent-up demand that hasn't been met yet." C.J. Hughes



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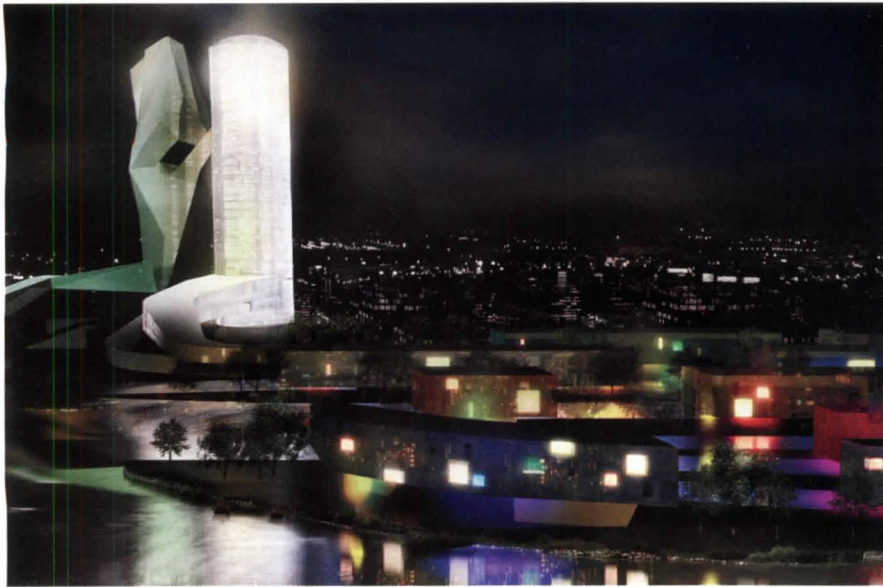
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[ COMMISSIONS ]

## Holl Prevails in Global Competitions

**ARCHITECT STEVEN HOLL MIGHT** not have nabbed this year's Pritzker Prize, as some predicted he would, but he is on a winning streak nonetheless. Last fall, he won an international competition to design a new building at the Glasgow School of Art, alongside Charles Rennie Mackintosh's masterpiece. More recently, he was victorious in two competitions: one for a campus building in Iowa, the other a master plan for an industrial section of Hangzhou, China.

Of the two projects, the Hangzhou International Tourism Complex is further along in design. Encompassing a bowtie-shaped parcel where factories churn out boilers and oxygen tanks, the plan calls for apartments, shops, and offices across a 60-acre canal-lined site.

A nine-member jury that included Terry Riley, Thom Mayne, Ralph Lerner, and Wolf Prix selected the scheme over entries by Herzog & de Meuron and David Chipperfield. In the complex, Holl divides the site into thematic "water" and "mountain" zones. On the water side will rise nine 18-story apartment towers whose southern Fresnel glass facades will glow yellow at night, courtesy of photovoltaics.

The mountain side, meanwhile, will offer a hotel called "3D Park" because its low-slung ramp-shaped structure, whose roof is planted and traversable, resembles a peeled-back slice of earth. Connected to the hotel is an existing boiler factory, which will become an event venue. Seven additional factories on the site will be preserved.

The plan's most striking feature is the two high-rises standing where the zones meet: One, with a rock-facelike ceramic skin, is for a hotel; the other, smooth and cylindrical, for offices. In addition, 18 apartment buildings resembling boxcars, many separated by fingers of waterways, will rib the site's narrowest section.

Holl's other prize commission, for Iowa City, puts

him in familiar territory. Holl, along with Berkebile Nelson Immenschuh McDowell Architects (BNIM) of Kansas City, is to design an arts center for the University of Iowa to replace one damaged by flooding of the Iowa River in 2008.

The new center, at 113,000 square feet, will be roughly the size of the current one, but it will sit higher above the river. The Federal Emergency Management Agency will pick up 90 percent of the construction tab.

What the new center will look like, however, is uncertain. The competition, which drew 22 submissions, required only that applicants submit examples of relevant projects.

Fortunately, in 2006, Holl had designed the university's Art Building West, a nearby 70,000-square-foot facility clad in Cor-Ten steel whose library is cantilevered over a pond. (Even though the building's systems were damaged by the floodwaters, the actual structure was minimally affected.) *C.J. Hughes*

[ OBITUARIES ]



### Bruce Graham, 84

Invariably described as tough and gruff, Bruce Graham, FAIA, died March 6 of complications from Alzheimer's disease at his home in Hobe Sound, Florida. A hard-driving principal of Skidmore, Owings & Merrill until he retired in 1989, Graham was the most

powerful Chicago architect of his generation. Along with SOM structural engineer Fazlur Khan, he executed supertall structures such as the Sears (now Willis) Tower (1973) and the John Hancock Center (1970), the iconic skyscrapers that bracket Chicago's skyline like enormous parentheses. But evidence of Graham's influence can be found in the city's glistening Inland Steel Building (1957) and in the visionary urban plan, Chicago 21 (1973), that revitalized the city's celebrated lakefront.

Born in Colombia in 1925, Graham was the son of a Canadian-born banker and a Peruvian mother. He received his B.Arch. from the University of Pennsylvania in 1948 and joined Skidmore, Owings & Merrill's up-and-coming Chicago office in 1951. *Blair Kamin*



### Frank Williams, 73

Frank Williams, FAIA, who died from esophageal cancer February 25 in New York City, was credited for a sense of detail, massing, and planning in the design of high-rise housing and hotels. He also

had the rare skill of being able to work amicably with New York's real estate moguls, including Zeckendorf Development and Donald Trump: Among the 20 tall buildings in New York City for which he was responsible are the Columbia (1983), Trump Parc (1988), 515 Park Avenue (2000), and (with I.M. Pei) the Four Seasons Hotel (1993). Trained at U.C. Berkeley (B.Arch., 1961) and Harvard's Graduate School of Design (MAUD, 1965), Williams was also coauthor of *Urban Design Manhattan* (1969). *Suzanne Stephens*



### Der Scutt, 75

Der Scutt, FAIA, a New York architect who left his mark on Manhattan's skyline, died at home from liver failure on March 14.

Scutt designed numerous notable New York skyscrapers, including Trump Tower (1983) at 721 Fifth Avenue and 100 United Nations Plaza (1986).

Scutt studied at Wyomissing Polytechnic and Penn State before interning with Philip Johnson, who encouraged him to move to Yale, where he earned his M. Arch. in 1961. After graduation, Scutt worked with Paul Rudolph and several New York firms before opening his own office in 1981. *Tim McKeough*





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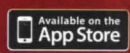
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[ REBUILDING HAITI ]

## Surveying the Wreckage

Charles Newman, a Manhattan-based architect, began volunteering for Engineers Without Borders in 2009. His first project involved building a library for a Kenyan village. In January, when a massive earthquake struck Haiti, Newman wanted to lend his expertise to the relief effort. He headed to the devastated island country in late February and spent two weeks there surveying structural damage. Here, he shares his personal account. An expanded version is featured online.

I didn't know what to expect when I arrived in Haiti. I was worried about the tragedies I would encounter, the challenges that Haitians face, and my own personal safety. Yet I was bringing skills that were desperately needed. I had been working with Engineers Without Borders for over a year, and my experience building structures in one of the most impoverished areas of Kenya had provided a solid foundation for working in difficult environments. I supplemented this experience by attending workshops on post-earthquake damage assessment, rereading culturally related texts from my university days, and brushing

up on my French. I knew that I would be challenged in ways I could not imagine, but I was optimistic.

I landed in Port-au-Prince on February 26 with a team of volunteers. Our assignments were determined by the National Organization for the Advancement of Haitians (NOAH) and Mercy Corps, which sent me and Tom Sullivan, a structural engineer, to Petit-Goâve, a village three hours west of Port-au-Prince.

Over the next two weeks, we analyzed civic buildings, schools, and private properties, and marked them with spray paint denoting their condition



(green for "safe," yellow for "semidangerous," and red for "very dangerous").

Every failed structure we saw was the result of bad design or bad construction. Many buildings had undersize beams and columns, lengthy spans, few continuous shear walls –

and in no cases did we find masonry with horizontal re-inforcing. Also, across all of Haiti, we saw exposed rebar protruding from the tops of columns and pilasters. We wondered why this was so common. Often we were told it was to reserve the possibility of adding a second floor. In many instances, however, it seemed that the structure in question was not originally intended to support a second story.

The quality of construction was also extremely problematic. Not only did we see exposed rebar running visibly along the bottom of cast-in-place beams, but rebar regularly protruded from slab edges as well. This trend of not cutting or locating hooks in the rebar substantially weakened structures and left steel vulnerable to corrosion. Furthermore, the formwork used to create many of these structures also seemed weak and improperly supported. This led to inconsistent slab thicknesses, at times varying from 6

inches to 10 inches within a single structural bay.

The lack of concrete standards and oversight seems to affect the entire country. Because of years of deforestation, concrete has become the primary building material. Along with its rise in use has been the reliance on inconsistent aggregate, crushed limestone in place of river sand, and the inevitable shorting of cement ratios. All of these factors would put even the best-designed structures at risk of failure.

Currently, various organizations seek to apply building codes from Martinique (a seismically active French-speaking country) to Haitian building standards. This, however, must be accompanied by educational workshops across the country so that these practices reach the masons working on the building sites. Moreover, a few quality structures should be built in each town to serve as good examples and hands-on building tutorials for laborers.

Upon our return from Haiti, Tom and I consolidated all of our assessment forms, photos, sketches, and notes into a comprehensive report for the town. This should help a second group of engineers headed to Petit-Goâve for further building assessments.

Surveying the quake damage was by far my hardest job to date. The pressure of providing immediate answers to those asking if it was okay to live and work in these structures was more responsibility than I could have imagined. These events have undoubtedly reaffirmed my commitment as an architect to high-quality, responsible design. I look forward to returning to Haiti and the next set of challenges as the country moves past the need for assessments and recovery and into a phase of rebuilding for a better, safer future.





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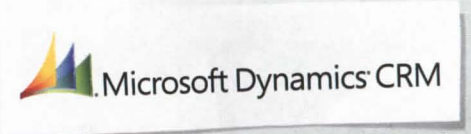
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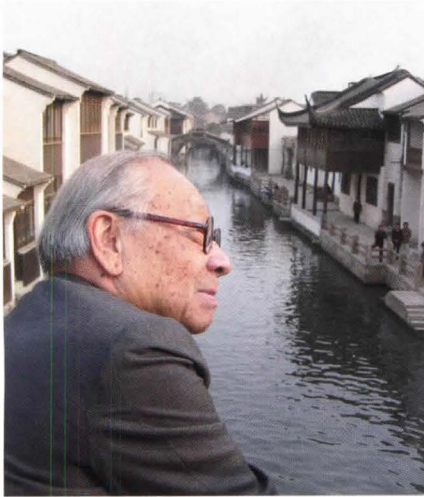


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[ NOW SHOWING ]

## I.M. Pei Returns to China in PBS Documentary



**THE SUZHOU MUSEUM** might not be I.M. Pei's most famous building, but it clearly expresses the architect's long-standing quest to meld local traditions with modern architecture. And with the documentary *I.M. Pei: Building China Modern*, that quest will receive a little more recognition.

The one-hour show, part of PBS's *American Masters* series, follows Pei as he returns to Suzhou, the 2,500-year-old city of his ancestors, to construct a museum for ancient Chinese art. Along the way, the filmmakers recorded various milestones, from Pei's first site visit in 2002 to the building's jubilant opening in October 2006, and interviewed Pei, now 92 years old; his sons, Didi and Sandi Pei, partners

at Pei Partnership Architects who oversaw the project; and architecture historian and critic Charles Jencks.

At the film's March premiere in New York, producer Eugene Shirley said he seized on the Suzhou Museum to investigate how China's rapid modernization impacts its traditional culture. When he learned Pei would be designing the museum, he said, it seemed like the perfect lens through which to view the topic.

That didn't mean the eight years of filming were a breeze. Director Anne Makepeace described the subtle restrictions imposed by the crew's omnipresent, Chinese government-approved "handlers," who limited the choice of interview subjects. Notably, no residents on camera oppose their displacement by the construction.

When asked about the film's central theme, the dialogue between modernity and tradition, Didi Pei explained the goal of the Suzhou Museum by saying, "How do you move forward, to bring more current building technology into China, without completely destroying the original spirit?" He compared the project to late-20th-century Japanese architecture, which is clearly modern, but which retains a very Japanese spirit (for an example, one need look no further than the portfolio of newly minted Pritzker winners Kazuyo Sejima and Ryue Nishizawa).

"That's what I'm really hoping will happen in China," Didi Pei said, "and I think that's what my father was trying to do, to show, 'Look, you don't have to throw away that spirit in order to be modern.'"

The show can be viewed through June 30 at [www.pbs.org/americanmasters](http://www.pbs.org/americanmasters). For television airings, check local listings by PBS affiliates. *Carl Yost*



[ NEW PRACTICE ]

## Former BBG-BBGM Partners Open a Boutique Firm: studioaria

**FOR 10 YEARS**, architects Jeffrey Williams, AIA, and Yann Leroy, AIA, and interior designers Kate and Paul Greenwood – partners at BBG-BBGM – with the firm's director of China, Patrick Lo, considered branching out on their own. Frustrated by the constraints of a large international architecture and interior design practice, they aspired to a more personal, hands-on working environment.

They took the plunge in January, launching studioaria, an office still global in scope – with a similar client base of luxury hotel, commercial, and residential developers – but scaled

down to be able to offer the individualized service such projects often warrant.

According to the five directors, their studio is the world and their aria is a unified voice. Divided into interactive offices on three continents, each with its own specialty, the boutique firm is positioned to service markets worldwide.

"We're trying to bring a different take to the field," says Williams, project manager and director of global business development, marketing, and public relations, who, with design director Leroy, heads the firm's architecture and urban planning services from New York. Both *Greenwoods* oversee the interior design studio out of Sydney. Lo serves as project manager and director of business development, marketing, and public relations for China from his base in Shanghai.

The directors hope to build studioaria's business on established relationships. And while still negotiating responsibilities for projects initiated at BBG-BBGM, the firm is already working on its first major commission (still confidential) – received just one week after opening its doors. *Linda Lentz*

[ NEXT CHAPTER ]

## A Resurrection of Sorts for Cubellis

**CUBELLIS, THE BOSTON-**based firm that was written off for dead five months ago when it closed over creditor problems, has staged a phoenixlike comeback.

Former principals John Larsen and Christopher Ladd and former partner Richard Rankin have launched a new firm, CI Design, which appears

to be a spitting image of its predecessor. For one, the firm, which opened in December, just a few weeks after Cubellis was shuttered, takes its name from the initials for "Cubellis International." It also focuses on familiar markets, with offices in three cities where Cubellis was based: Boston, Baltimore, and Dubai.

Similarly, all 20 employees are Cubellis alumni, and most of the firm's commissions are ones begun by Cubellis. The 24-year-old firm, which had five partners and 28 principals when it folded, was known for campus buildings, apartments, and shopping centers.

While Cubellis was ultimately saddled with cum-

bersome debt because of ill-timed mergers, such as the one in 2008 with Atlanta's Dougherty Design Group, CI can run much leaner, said Larsen, CI's president. "The larger the firm, the greater the overhead," he said. "We're in a much more competitive position."

Some clients that had hired Cubellis – including the

Howard Group, a Florida developer that is expanding its Silver Sands Factory Stores from 450,000 square feet to 600,000 square feet – will now employ CI. "We're pleased we could keep the design team together," says John Heiser, a Howard vice president. "They transitioned without a hiccup." *C.J. Hughes*



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[ GRAND OPENING ]

## A+D Museum a Nomad No More

**SINCE ITS START** in 2001, Los Angeles's A+D Architecture and Design Museum has been a vagabond, migrating from one donated (i.e., rent-free) space to another, staying for as long as three years, and once, unexpectedly, as briefly as a single night. But the museum will wrap up that nomadic journey on April 27 with the opening in Los Angeles of its first permanent home, at 6032 Wilshire Boulevard.

A+D was the brainchild of Stephen Kanner, FAIA, and Joe Addo, AIA, who envisioned a progressive, grassroots exhibition venue without a permanent collection, to bring architecture and its processes to the general public. Developer Ira Yellin gave A+D its first space, in downtown L.A.'s historic Bradbury Building, but after Yellin's death, in 2002, the museum had to find new quarters.

Once again, this nonprofit turned to philanthropic landlords with spaces available between leases. "No developer wants a dark building," says Tibbie Dunbar, who has been the museum's director

since December 2004 (and, until recently, its only paid employee). "Whenever we moved," recalls Dunbar, "people lost us. It's great to bring art and architecture to different neighborhoods, but hard to fund-raise around a nomadic existence, or plan ahead and commit to exhibitions."

Galvanizing the local design community, A+D created its 20/20 Foundation: 20 architects and 20 designers from fields including graphics, landscape, cars, and clothing. Each member has committed a \$24,000 contribution (in \$2,000 installments, over six years).



After canvassing Museum Row on Wilshire Boulevard, A+D signed a six-year lease, with a five-year renewal option, for a 4,800-square-foot, street-level space, in a small, Moderne, 1948 office building, opposite LACMA. Design work, for a light exterior remodel and open galleries, was donated by Kanner's firm, with Richard Meier & Partners and Gensler. Materials, fixtures, and con-

struction came from philanthropic contractors and suppliers.

The inaugural show, *CELEBRATE 2010* (April 27 to June 11), will feature pieces by the 20/20, plus select artists, a fifth-grade class, and other invitees, working with a "kit" of geometric, basswood blocks.

Reflecting on A+D's newfound stability, Dunbar says, "Now we're positioned to fly." Sarah Amelar

IMAGES: COURTESY GENSLER (THIS PAGE)





[ ON THE BOARDS ]

## Lorcan O'Herlihy Paints the Town Blue

**FEW MUNICIPAL TRANSIT FLEETS** have cruised through popular culture like the Big Blue Bus (BBB) of Santa Monica, California. "The blue bus is callin' us," insisted Jim Morrison in the Doors song "The End." A later model, starring in the 1994 movie *Speed*, careened through city streets, at risk of detonating a bomb if it slowed down.

While the buses – colorful descendents of Santa Monica's original blue livery jitney, from 1928 – have been highly visible, the bus stops haven't been so easy to spot. But that will soon change, as the system's 360 drop-off/pick-up points take on an identity as playful and Santa Monica-specific as the "Big Blue Bus" name (officially adopted in 1999).

In January, Lorcan O'Herlihy Architects (LOHA) won City Council approval for "The Blue Spots," a passenger-shelter prototype, flexible enough to meet

diverse site constraints and rider volumes. For branding, LOHA is partnering with Bruce Mau Design.

Like the beach umbrellas dotting Santa Monica's shores, The Blue Spots will feature circular shading disks, supported on poles. This modular system of blue-painted steel "umbrellas," designed to unify the current, ad hoc mix of stops, allows for clustered "parasols" at venues with high passenger volume, but as few as one at low-volume stops. With an average of 320 sunny days per year –

but only four existing stops with shading devices – local riders have advocated for shade. Analyzing each stop's unique orientation, LOHA positioned seating for maximum sun protection during peak ridership.

Recent city ordinances banning bus-shelter advertising allowed LOHA to dispense with standard walls. So, where conventionally boxy shelters would have blocked narrow sidewalks,

the minimal poles fit, readily accommodating wheelchair access. A kiosk at each stop will include redesigned maps, timetables, and real-time bus arrival updates.

In the progressive spirit of BBB, longtime champion of mass transit with clean, renewable fuels, The Blue Spots will be sustainably fabricated and operated – with recycled and locally sourced materials, as well as solar panels that power

efficient LED downlights.

The budget is \$6.9 million, with \$3 million from the Federal Transit Administration and nearly \$2.5 million from stimulus funds. The first Blue Spots, if not all 360, should be up and running by the end of 2010.

So, just as "the blue bus is callin' us," even from heavy traffic, you may soon be spottin' Big Blue Bus stops from way, way down the street. *Sarah Amelar*



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## Ivy Named "Master Architect"



**ALPHA RHO CHI**, a national architecture fraternity, has named Robert Ivy, FAIA, editor in chief of ARCHITECTURAL RECORD and vice president of McGraw-Hill Construction Media, a "Master Architect." The century-old fraternity has awarded the designation to only seven people: Nathan Ricker (the first graduate of an American architectural school), Cass Gilbert, Eiel Saarinen, John Wellborn Root, Ludwig Mies van der Rohe, Richard Buckminster Fuller, and I.M. Pei.

Ivy, who oversees the editorial quality of 16 print and 17 digital publications, was chosen for his contributions to communicating the value of design both within the fraternity and to the larger world. He will serve as a mentor for students and alumni of the organization. *Lisa Jaycox*

## RECORD Nabs Several Awards

**MCGRAW-HILL CONSTRUCTION**, which includes ARCHITECTURAL RECORD, *Engineering News-Record*, and *GreenSource*, received seven Jesse H. Neal Business Journalism Awards from American Business Media at the organization's annual ceremony on March 11 in New York City. Called "the Pulitzer Prize of business journalism," the Neal Awards recognize editorial excellence in business-to-business publications. ARCHITECTURAL RECORD received awards for Best Integrated Package for "The Recession Report" coverage, Best Use of Video for "RECORD TV," and Best Use of Social Media for its "Photo Showcases and Reader Feedback." *Lisa Jaycox*



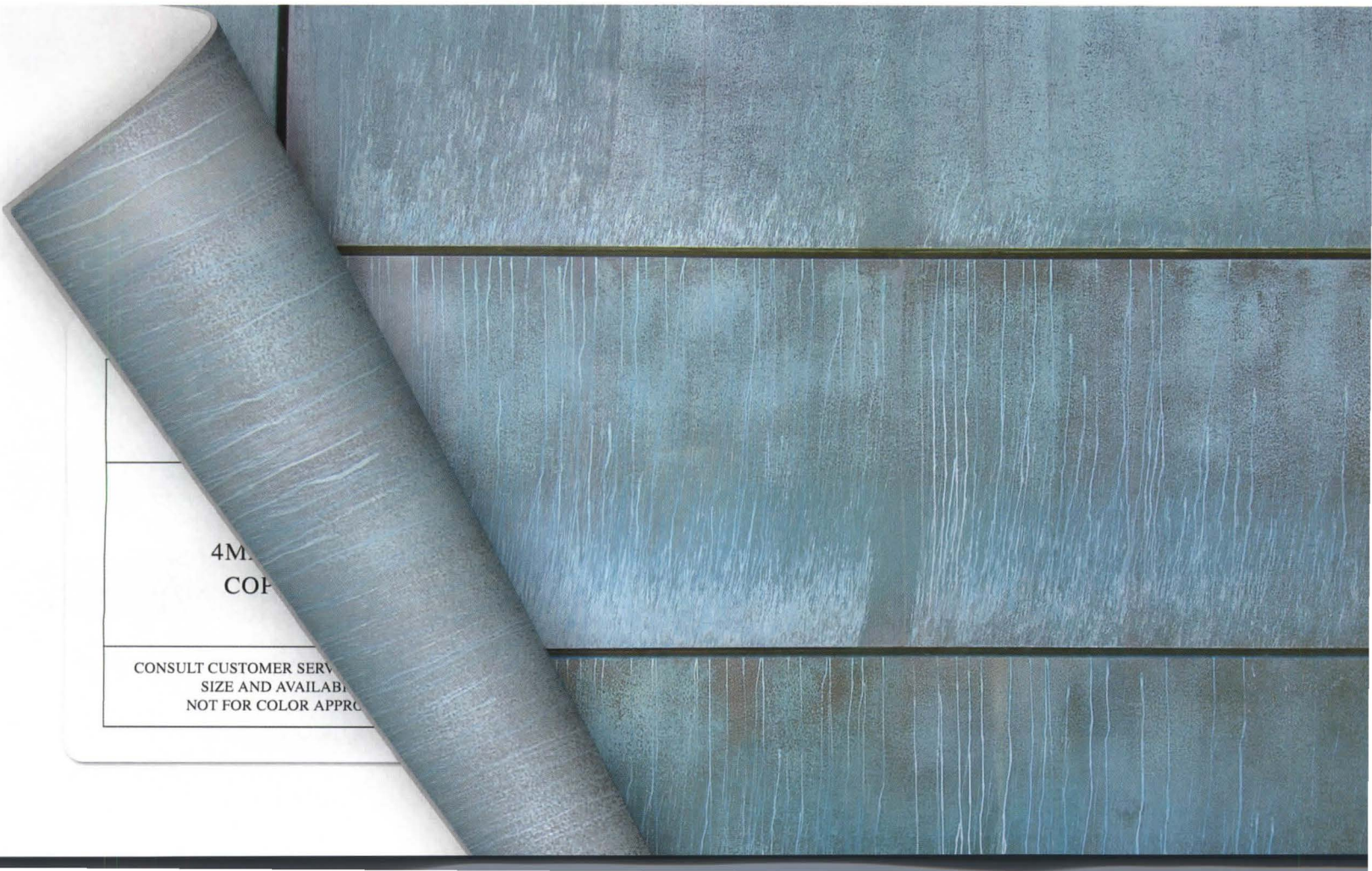
## Gehry's Ike Memorial Design Revealed

**THE EISENHOWER MEMORIAL** Commission has unanimously approved Frank Gehry's design of a new Ike Memorial in Washington, D.C. (Gehry was chosen last year following a three-stage competition.) His plan calls for a series of columns, limestone walls, and large stainless-steel "tapestries" embedded with images related to Eisenhower's life. The monument, which will

be constructed on a 4-acre site at the base of Capitol Hill, will be the United States' seventh official presidential memorial.

"We were all impressed with Frank's vision for the memorial," said David Eisenhower, President Eisenhower's grandson and a commission member, in a prepared statement. "His understanding of my grandfather's accomplishments and legacy is remarkable, and he was able to translate the key theme of democracy into a compelling visual experience." *Jenna M. McKnight*

PHOTOGRAPHY: AMERICAN BUSINESS MEDIA (TOP LEFT): EISENHOWER MEMORIAL





**Safdie Play Debuts in N.Y.C.**

**THE BILBAO EFFECT**, a play by Los Angeles writer Oren Safdie, son of architect Moshe Safdie, will premiere on May 12 at New York's Center for Architecture. The work is a tragicomic satire in which a Staten Island resident takes an architect to a court of sorts – a hearing in front of fellow AIA members – because he blames the aggressive form and metallic skin of a project by the designer for the circumstances leading up to his wife's suicide. The show (Oren's second at the center) runs through June 5. *Rachel Somerstein*

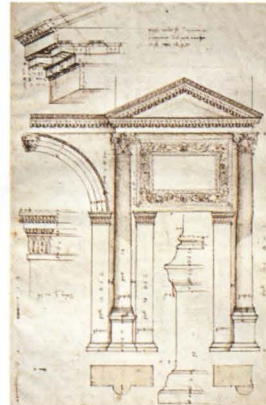
**More Firm Mergers**

**IN MARCH**, Chan Krieger Sieniewicz of Cambridge, Massachusetts, merged with Seattle-based NBBJ. The two firms, which collectively employ more than 700 architects, urban designers, planners, and interior designers, have been collaborating for three years on a New England hospital project.

In related news: WWCOT, a 140-employee firm based in Southern California, has joined DLR Group, a 500-member firm with offices across the country (it ranked 30th in RECORD's most recent list of the top 250 U.S. firms). The WWCOT leaders have become DLR Group principals. *Jenna M. McKnight*

**Palladio Drawings on Display**

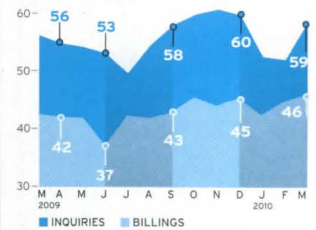
**A SMALL, ELEGANT** exhibition, *Palladio and His Legacy: A Transatlantic Journey*, is on view at the Morgan Library & Museum in New York City until August 1. Organized by the Royal Institute of British Architects (RIBA) Trust, in London, in association with the Centro Internazionale di Studi di Architettura (CISA) Andrea Palladio in Vicenza, Italy, and the Morgan, the show includes 31 infrequently seen drawings by Andrea Palladio (1508–80) from the collections of the RIBA Trust. Supplementing the drawings are the RIBA's rare books by Vitruvius, Palladio, and 18th-century followers of the architect. In addition, 16 plaster models were specially commissioned from Timothy Richards for the exhibition, along with seven bas-reliefs provided by CISA. See our Web site for an online feature on the show. *Suzanne Stephens*



**Andrea Palladio, Measured drawing of the Arch of Jupiter, Ammon, Verona, ca. 1540.**

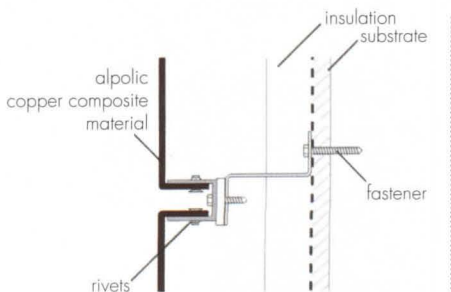
**ABI Inches Upward**

The Architectural Billings Index rose to 46.1 in March, up from 44.8 the month prior. The inquiries score was 58.5. Says AIA chief economist Kermit Baker: "This is certainly an encouraging sign that we could be moving closer to a recovery phase, even though we continue to hear about mixed conditions across the country."



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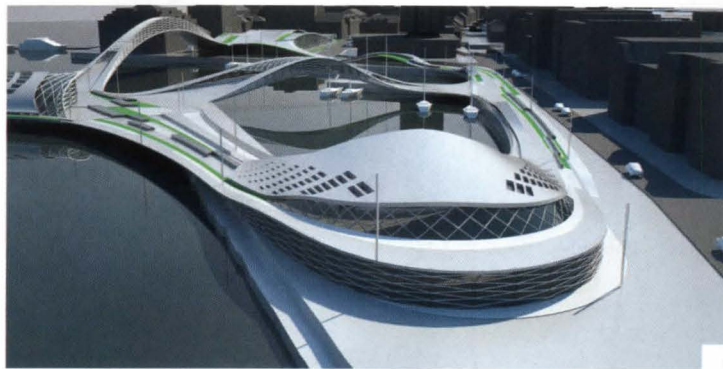
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# The emerging architect

**IT'S AN URBAN LABORATORY.** That's how architect Enrique Limon explains why his New York City-based firm is called limonLAB. Established in 2005, the two-to-four-person firm's bent toward experimentation has yielded a number of completed and on-the-boards projects, including a bar in Philadelphia, a gallery in New York City's Harlem, a guest house in Hawaii, an auditorium for a school in Kenya, a resort in Thailand, and a prototype soccer park slated to be developed in 20 U.S. locations. Crediting his education for his success is fair – B.Arch. from the University of Southern California; M.Arch. from Columbia University; and a graduate degree from the Architectural Association in London – but Limon says it is working for others that taught him the most. “I think architects really need to work for people before they have their own firm,” he says. “Working in a firm, you see all the roles, and how everything happens. With your own firm, you take on all those roles yourself. It helps to have watched others accomplish construction managing, accounting, marketing. Running a firm is much more than just designing.”

When Limon returned to New York City following his studies in London, he was awarded a Smithsonian Fellowship at the Cooper-Hewitt, National Design Museum. The research he did



1. **limonLAB's Elastic Urbanism strategy for the port city of Bodo, Norway, includes a connected library, theater, and museum.**
2. **This solution to the 2012 Expo in South Korea recycles an oil rig, with a biomembrane (plankton-algae growing skin) wrapping exhibition and circulation spaces.**

there was for an exhibition that never actually materialized. Despite that fact, Limon says that what he learned from the experience of researching the “complex transparency” in the work of artist László Maholy-Nagy continues to influence limonLAB's current work. “We experiment with every project, but there's also a thread from previous work and experiences. The objective with every new project is to do something that has never been done.”

One important thread he's currently working on has to do with a competition he just completed for the 2012 Expo in South Korea, centered around preserving the Earth's oceans, which are

design  
limonLAB



**PRINCIPAL:** Enrique Limon

**LOCATION:** New York City

**FOUNDED:** 2005

**DESIGN STAFF:** 2 to 4

**SELECTED WORK**

**HISTORY:** Clodagh Design, N.Y.C., 2003–04; Peter Marino, N.Y.C., 2001; Robert Davis, N.Y.C., 1998–2000; Bernard Tschumi, N.Y.C., 1997; Academic: Pratt Institute School of Architecture, N.Y., 2005–present

**EDUCATION:** Architectural Association, London, Graduate Design Diploma, 1997; Columbia University, M.Arch., 1994; University of Southern California, B.Arch., 1987

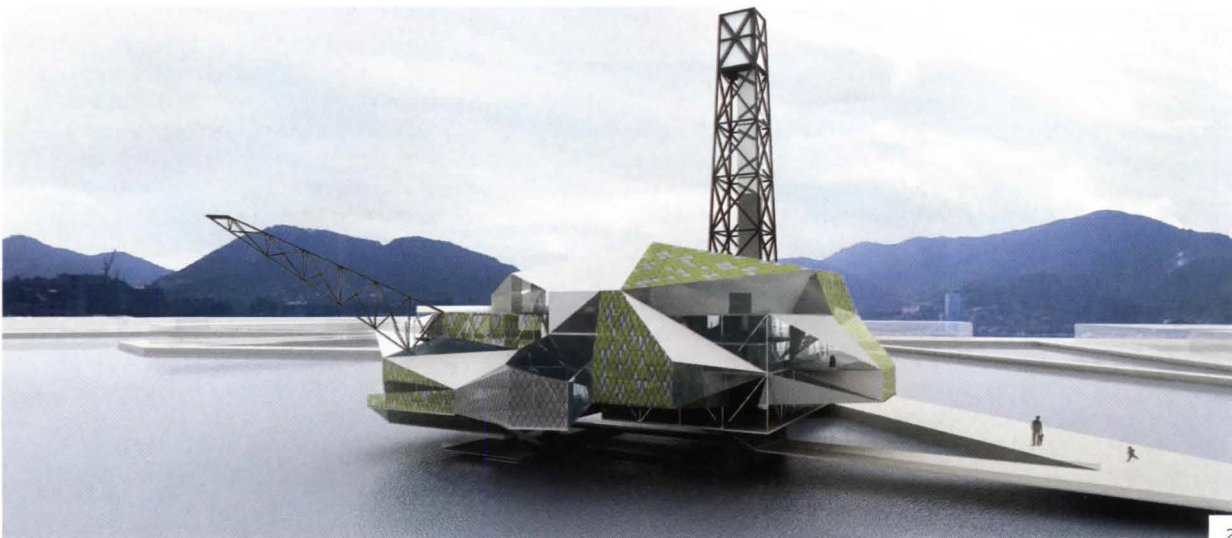
**KEY PROJECTS:** NoHo Loft, N.Y.C., 2007; T.O.C. night club, Philadelphia, 2008; Elastic Urbanism, Bodo, Norway, unbuilt

**KEY CURRENT**

**PROJECTS:** Lanta Resort, Lanta, Thailand, 2011; Ying Yang Lounge, N.Y.C., 2012

**WEB SITE:** limonLAB.com

[View additional images online.](#)





threatened by toxic waste. "Through our research for this competition, we came up with the concept of a biomembrane – a growing algae wall. This same system could be used in a suburban house. Competitions, teaching: It keeps me flowing."

It seems that each job he has had has resonated, he says, especially the last one at a firm, Clodagh Design. "From Clodagh, I learned that there are no limits to what an architect can do," he notes. "From silverware to resorts, she does it all, and that really inspired me. As well as creating the architecture, you can make a piece of furniture for one project, a lighting fixture for another, and on and on – and suddenly you have a line of products that you've designed, which can really augment your architectural practice."

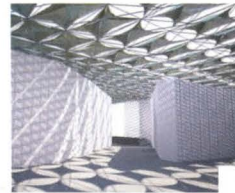
For Limon, augmenting his practice is paramount. He would like to grow limonLAB to six or seven people; come out with a line of products; continue his teaching at Pratt Institute School of Architecture, in New York; continue competing in international competitions; and get some larger-scale commissions for the firm.

"There's a lot of international work out there," he says. "And our intent is always to move things forward." *Ingrid Spencer*

1. For the Sereolopi Primary School in northern Kenya, an auditorium pavilion will incorporate a self-sustaining roof structure with photovoltaics.

2. This NoHo loft in New York City, completed in 2008, offers storage units that are practical as well as artistic.

3. The T.O.C. night club, in Philadelphia, contains a light wall using the latest digital and "C" light technologies.



3 [View additional images online.](#)

work  
Design studios,  
taught from afar



**CLASS:** Remotely led Design Studio

**LOCATION:** Montana State University

**SCHOOL/INSTRUCTOR:** Peter Jahnke

**CURRICULUM:** Nicholsville: Architectural Solutions to Seattle's Homeless Problem

SEATTLE ARCHITECT PETER JAHNKE

enjoys a thriving practice, travels extensively, and still finds time to indulge his passion for teaching architecture. How does he manage all of this? Remotely. Jahnke, 31, teaches from his office or wherever he happens to be at the moment while his graduate students gather in a studio classroom at Montana State University in Bozeman, Montana. Employing Webcams and video-chat software by ooVoo, he and his students were able to successfully conduct an entire semester-long studio, a broad-scope project entitled "Nicholsville," addressing Seattle's homeless problem.

This was a natural approach for Jahnke, whose partners in Pique Architecture [RECORD, April 2007, page 51] each live in different locales. The three geographically separated architects rely heavily on diagramming to communicate their ideas with precise detail, and this was a form of communication that Jahnke hoped to develop in his studio class. "In diagramming, every step is considered visually," he says, "so you become very fluid in creating things that are presentation-quality."

According to Curt Lamb, executive director of education initiatives at Boston Architectural College (BAC), which offers a complete, remotely taught graduate program, there is still great resistance by most universities to teach design studios this way. "There's a long history of face-to-face crits in studio classes," he says. "So it's hard for schools to move to online formats. Also, there are the increased IT demands to consider." Lamb says that for BAC's mission of providing accessible

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CON »

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- Continued IT needs

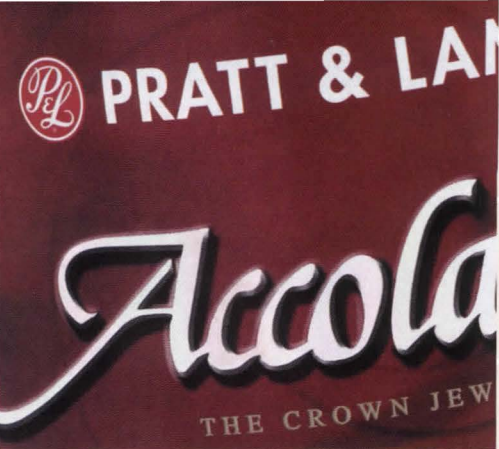
and affordable learning, using digital tools is obvious. BAC uses customized software such as VoiceThread and Blackboard's Angel edition to run its remote studios.

While this method of teaching wasn't optimal for all of Jahnke's students, those who were more self-motivated found it an exceptionally useful way to learn. The fact that their instructor was not physically present forced students to communicate their design ideas far more thoroughly than usual. Graduate student Blake Webber discovered that the remote studio "challenged me to think about architecture and the process two-dimensionally

and verbally, and as a result I became quite fluid in communicating my ideas." Fellow student Brian Johnson adds, "These sorts of courses are essential for career development, when you need to communicate professionally, sharing files and information with clients and coworkers."

Both the BAC studios and Jahnke's require some face time with an instructor. Jahnke made three trips to Montana throughout the semester and also met locally with his students in Seattle for a weeklong on-site session. BAC's courses have an intensive weeklong residency in Boston. Instructors are also readily available online and via phone. "This kind of learning lets students gain some fluency with the way global business is practiced," says Lamb. According to Jahnke, Montana State has no current plans to go through with another remotely run studio. *Kurt Butterfield*





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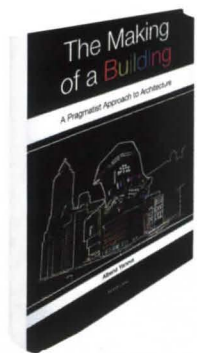
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# Looking for Answers Beneath the Skin



**The Making of a Building: A Pragmatist Approach to Architecture**, by Alben Yaneva. Peter Lang AG, 2009, 223 pages, \$50.

The process of making a building requires the architect to redesign again and again and again – for clients, colleagues, engineers, the public. Everyone must be appeased. In her new book, Alben Yaneva, a

lecturer at the Manchester School of Architecture, in England, traces Office for Metropolitan Architecture (OMA)'s endless remaking of the failed 2004 addition to the Whitney Museum of American Art in New York. From 2001 to 2004, Yaneva embedded herself as an ethnographer in OMA's Rotterdam office (full disclosure: I was at OMA as an intern in 2007–08). She interviewed architects and observed OMA's famously chaotic design process, attempting to construct an anthropology of contemporary architecture.

Yaneva's book focuses solely on the machinations of the architects themselves – model making, photoshopping, meeting with collaborators, and so on. Following her mentor, French sociologist Bruno Latour, she tries to describe how small, seemingly insular operations shape the process of a building's "becoming social": how

the architects' production informs and reforms the social, historical, and economic forces that revolve around it.

But Yaneva's attempts never achieve her goal. She jumps from idea to idea, first tracing the history of the Whitney building, designed by Breuer in 1966, and its first failed addition, by Robert Graves (1981–89); then diving into the architects' processes, making the creation of foam models sound even duller than it is; and later describing meetings with engineers and cost evaluators. We never find out exactly where the design started, or why it failed. A formidable conclusion brings together some of the story and reestablishes Yaneva's aim of studying how architecture is an intrinsically social art. But the book, written in a drab academic style, leaves us wishing for a more compelling account. *Aleksandr Bierig*

**Architecture and Narrative: The Formation of Space and Social Meaning**, by Sophie Psarra. Routledge, 2009, 304 pages, \$54.

The principal irony of *Architecture and Narrative*, a book about the perplexities of architectural schema as they are navigated by bodies in space, is that it is itself schematically perplexing and difficult to navigate. It is, in essence, a case of Russian dolls.

On its face, the book purports to be about the morphology of narrative in architecture – the way spatial events appear in sequence before the viewer – and tries to develop those experiences into separate, abstract narratives, in order to "explore the relationship between conceptual and perceptual experi-

ence." These two narrative types, Psarra contends, are necessary complements in understanding how architectural space is ordered, as she demonstrates through incisive readings and sophisticated visual mapping of the Parthenon, Mies's Barcelona Pavilion, and other standards of the architectural canon.

The book contains a surprising "digression" into quasi-literary criticism, with a chapter on the novelist Jorge Luis Borges, in which Psarra seeks to establish an analogy between the architectural content of Borges's labyrinth-filled fictions and the actual structure of his stories, larded as they are with plots-within-plots and Escher-esque complexity.

And yet within that lies a still deeper sociological argument,



informed chiefly by the writings of Henri Lefebvre and Bill Hillier, about the social formation of space – or how spatial configurations condition social relations, or how one subsumes the other. This argument is only the last of many mirrors in Psarra's theoretical fun house; yet if you can persevere through its convolutions, *Architecture and Narrative* reveals at its center an author whose insights are no less astute for being somewhat tortuous. *Ian Volner*



**Smart Surfaces and Their Application in Architecture and Design**, by Thorsten Klooster. Birkhäuser, 2009, 184 pages, \$60.

What is a surface? In architecture, we think of a surface as the skin that expresses a building's form, or the plane between inside and outside, between the rest of the world and the spaces within. For Thorsten Klooster, an architect and researcher of new materials, a surface is much more complex. He uses part of this book to explore materials on the infinitesimally small "nano" level, where "the fundamental physical laws of the macro world appear to change completely." In other words, Toto, we're not in Kansas anymore. Klooster takes us to an Oz-like world inside architecture's skin, where he finds fantastic potential for energy-producing surfaces: surfaces that glow and react to our presence, convey information, repair themselves, grow with vegetated life, clean themselves, produce heat and cold, and change shape to create dynamic architectural forms.

This book is filled with examples of advanced technologies developed in other fields that could be and are being applied to architectural materials. And the author offers examples of some of these technologies that link the theoretical with the practical. *Michael J. Crosbie*



## Minority and Disadvantaged: Pros, Cons

MBE and DBE firm owners debate whether the designation really helps their business.

BY G. CHAISE NUNNALLY

**CAN A LABEL HELP OR HINDER BUSINESS SUCCESS?** The obvious answer is that it depends on the message behind the label and what one ultimately hopes to gain from it. Such is the quandary that confronts many minority architectural firms that opt to certify themselves as minority-owned or disadvantaged business enterprises (MBE/DBE) to compete for public-sector contracts.

These well-known industry acronyms are the product of government regulations designed to help businesses owned by members of economically disadvantaged groups gain access to contracts funded with public dollars, such as education, transportation, and infrastructure projects. Businesses obtain actual certification at the state and local level by fulfilling specific qualifying criteria related to firm size, revenue, and the ethnic background or gender of the owners.

Black architects such as Roland Wiley, AIA, managing partner of RAW International, a DBE-certified firm in Los Angeles, have expressed unease with the negative perception he believes such labeling can promote about the quality and capability of black firms. Yet, as he takes note of the dearth of major projects designed by black architects in Los Angeles and most large urban centers, he acknowledges the value certification can provide.

"In reality, yes, we are disadvantaged because of our lack of access to social and financial opportunities," Wiley says. "But on the other hand, you don't want to perceive yourself as disadvantaged or being 'less than.'"

Wiley, who estimates 10 to 15 percent of his firm's revenue comes from public-sector contracts, says

there can be significant financial benefits to taking advantage of certification programs, particularly for up-and-coming firms.

"Notwithstanding the current economic times and the scarcity of projects," he notes, "we are still at the bottom of the ladder in terms of access to opportunity, so you still need those kinds of programs to ensure some level of participation from qualified, and potentially great, architects."

Wiley's conflicted reaction reflects the ongoing challenge for many minority-owned architectural firms; while more plentiful in number than they were decades ago, they can still find opportunities to design major projects difficult to come by. This reality is further buttressed by limitations created by a lack of access to well-established social and professional networks that determine who gets work, as well as perceptions about race and gender that influence which firms or architects clients choose to hire. It is these persistent challenges that certification, in its spirit, has attempted to address by aiming to achieve the lofty goal of "leveling the playing field."

Sanford Garner, AIA, a partner in the Indianapolis-based, minority-owned firm A2SO4, believes there



are advantages and disadvantages to being a certified minority firm, but the benefits mostly depend on how firms go about it.

"With anything, if you manage it well, there can be huge advantages," Garner said. "What a certification status could do is give you the opportunity to interact with other companies on larger projects – dif-

ferent types of projects – that you more than likely may not have the chance to participate in."

Garner argues that firms that team on projects must be concerned about being labeled or marginalized as "just minority firms" that can fulfill a required small percentage on a contract but are not selected for the quality of their work or reputation.



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## PRACTICE MATTERS

A2SO4 has turned down teaming opportunities with majority firms that merely needed a minority presence in order to bid on a project. In those situations, the firm's response to such offers has always been "No, thank you," Garner says. "Because if I do that, I am perpetuating a stereotype."

To avoid allowing "minority status" to define its firm, RAW International uses its DBE certification as a valued-added service rather than directly promoting it to secure work. Wiley says it is about letting the quality of your firm's work speak for itself.

"We will use the wow factor: the quality of work, our client list, the size of work, how long we've been in business. We go through all those bells and whistles about how great we are and then at the bottom is: By the way, we are DBE certified."

David Kirk, AIA, founder

and principal architect of DNK Architects, in Cincinnati, cautions against another pitfall firms should avoid: overdependence on certification programs to get work, which he says can stifle growth. "Often firms that continue to market themselves as MBEs or DBEs tend not to grow because you can't build a business off a percentage of a project," he notes.

Perhaps it is the potential for even those small percentages of work, among other things, that led some black architects to regard minority certification as, at best, a necessary evil. Lingering barriers to access and opportunities in the architectural profession mean that certification programs are still needed, they believe, in the contemporary marketplace.

Wiley says there is clearly a larger handful of black-owned firms that exist today, but it is still

not nearly enough, so certification programs continue to have a place in 21st-century architectural practice.

"The playing field isn't level," Wiley says. "Yes, we have a black president, but the playing field isn't level."

Kirk, who boasts of having a highly capable and talented 24-year-old firm that can compete against anybody, says he wishes there weren't still a need for certification programs, but that some aspects of the U.S. culture have been slow to change.

"Certification is something that's been imposed upon us because culture in this country just hasn't caught up to where it should be," says Kirk. "So the only way to even out the playing field is to have this mechanism in place."

But it is important to recognize that this mechanism, whatever its value and application, is also by no means one that all minority firms are compelled to use or rely on. Kirk, for example, asserts that there are many times that being a minority firm – certified or not – can have its

own advantages strictly because of the design perspective and experience such firms can bring to the table, which was the case in two projects completed by his firm.

The first project involved developing a \$1 billion master plan for the Cincinnati Public School District in 2002. His second commission, the \$100 million Cincinnati Children's Hospital Medical Center, involved designing a facility for a major health-care client in a predominantly African-American community. In both instances, DNK's presence, experience, and history in the urban community proved to be an asset for the clients.

"We understood the community and could address community concerns in a way that I'm sure other, non-African-American firms would not have been able to do," Kirk said. ■

*G. Chaise Nunnally is a writer in Southern California. He can be reached at [gcnunnally@aol.com](mailto:gcnunnally@aol.com).*

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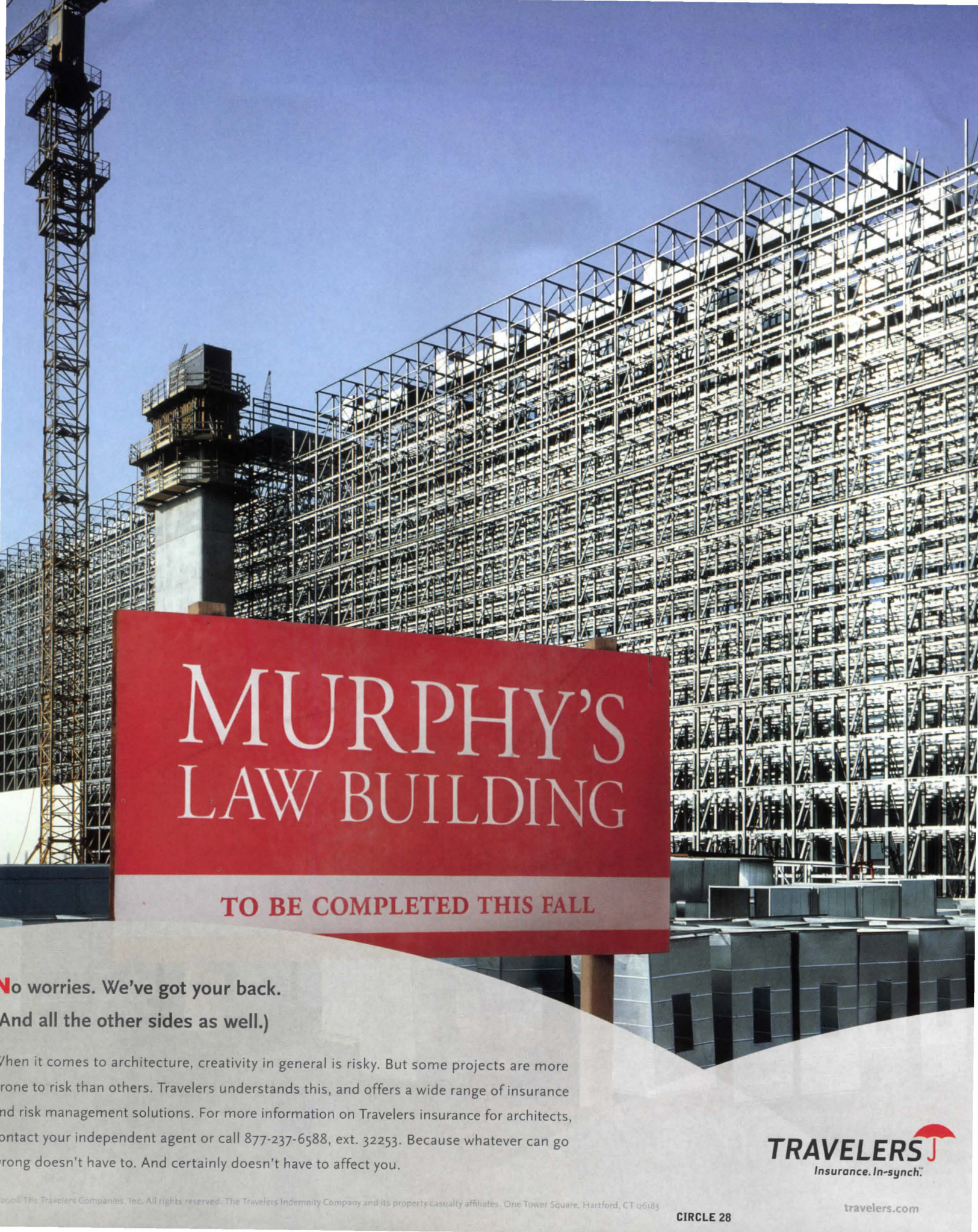
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The Urban Trees project designed by b9 Architects is a winner of an AIA Seattle "Future Shack" award. (Image Courtesy of b9 Architects) | 2: The new headquarters of the International Fund for Animal Welfare (IFAW) designed by DesignLAB architects is a COTE Top Ten Award winner. (Photo©PeterVanderwerker) | 3: The Ross Street House in Madison, Wisconsin designed by Carol Richard of Richard Wittschiebe Hand (RWH) architects achieved LEED for Homes Platinum level. (Photo©ZaneWilliams)

CIRCLE 29



# Sustainable Roofing Options

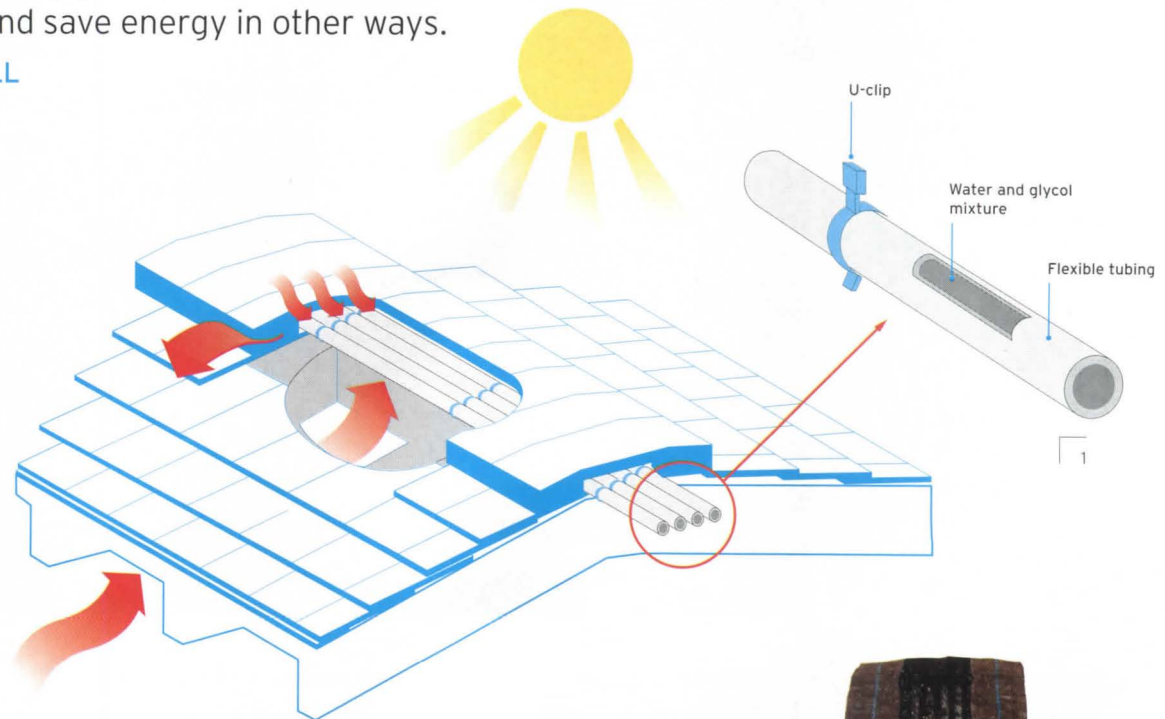
While some roofs are literally green, others use new technologies to collect and save energy in other ways.

BY RITA CATINELLA ORRELL

**IN ADDITION TO OFFERING** the benefits of a traditional ridge vent, the Greenward system from Energy Alternatives harvests escaping hot attic air and uses it to preheat the incoming water of a hot-water tank. "This is not a solar system, although a majority of the heat comes from the sun," explains Kevin B. Scott, president of Energy Alternatives. "It's an ambient heat collector."

Introduced at last year's GreenBuild show in Phoenix, the Greenward system utilizes flexible PEX tubing that contains a water/corn-based glycol solution that picks up the heat from escaping attic air. A differential temperature-control sensor, located by the ridge vent, is triggered when the temperature of the water in the storage tank is 20 degrees cooler than the temperature of the ridge vent. A circulator pump is then activated and pushes the hot solution down in a closed loop around the tank, where it heats up the incoming city or well water, before going back up to the roof area. "It's a very low-tech solution for a high-tech problem," says Scott. "A perfect example of utilizing existing energy that is normally wasted." The system contributes to the Optimized Energy Performance credit in programs such as LEED for Homes and LEED for New Construction.

According to the manufacturer, the Greenward Ridge Vent can reduce energy consumption by just over 12 million BTUs a year and reduce CO<sub>2</sub> emissions by just over 1,400 pounds annually. Scott says that many variables, including climate, shingle color, and attic size, affect how the system performs. The company is still collecting data from test homes in Tucson, the



GREENWARD RIDGE VENT

Carolinas, and Atlanta. One test, held in New York State on a day with temperatures of 85 degrees Fahrenheit, showed the ridge vent temperature at 120 degrees and the solution at 100 degrees, which helped the system raise 80 gallons of water from 65 to 90 degrees.

The system was recently installed in a LEED-certified home built by Habitat for Humanity Saint Louis, Missouri's largest green builder. "The product installed like any other ridge vent," says Kyle Hunsberger, director of construction for the chapter. "After that, the rough-in is just a matter of connecting the PEX lines to the location of where your storage tank will be." He cites an easy install, discreet profile, and the elimination of unsightly solar panels as the main benefits of the system. Hunsberger is monitoring the utility bills for the home and hopes to use the system on future projects.

Scott claims a main advantage of the system is the price point – the

complete system comes in under \$6000, fully installed. While he sees interest nationwide, "the hotter the attic, the more hot water we will generate." For those in colder climates, the solution in the tubing is formulated in order to prevent freezing. The system works with both traditional on-demand water heaters as well as tankless hot-water heaters, adds Scott, and will help prolong the life of the heater.

In February, Greenward won a Green Dot Award, which rewards excellence in environmental responsibility. This year, the system will be on display at the Western States Roofing Expo in Las Vegas in June and the GreenBuild show in Chicago in November. Scott says that this is just the beginning of his company's role in the green marketplace. "This is our flagship product, and we have more products in the pipeline." Energy Alternatives, Thiells, N.Y. [www.nuenergyalternatives.com](http://www.nuenergyalternatives.com)

CIRCLE 200



1. A drawing illustrates how the escaping attic heat warms up the water/glycol solution within the ridge vent's tubing.

2. The system's PEX tubing was selected for its flexibility and ability to be rolled.



1 | PRODUCT **InstaGreen Sedum Carpets**  
 MANUFACTURER **American Hydrotech**  
 hydrotechusa.com

InstaGreen Sedum Carpets (shown here at the LoveJoy Block II mixed use project in Portland, Oregon) are rolled mats of vegetation that can be installed on low- and steep-sloped roofs. All carpets are delivered with a minimum of 75% coverage and achieve 90% coverage after two years. Perennial plants or plugs can be planted through the mat after installation for added flexibility. **CIRCLE 201**



2 | PRODUCT **Dow Powerhouse Solar Shingle**  
 MANUFACTURER **Dow**  
 dowsolar.com

Expected to be widely available next year, Dow's Powerhouse Solar Shingle installs and performs like a standard asphalt shingle – there is no on-roof wiring, minimal through-roof penetrations, and no need for an electrician at the installation – but works as a building-integrated PV system. The shingles are cost competitive with frame-mounted panels on asphalt roofs and offer significant savings over integrated PV panels used on tile or slate roofs. **CIRCLE 202**

3 | PRODUCT **Vegetated Sedum Tiles**  
 MANUFACTURER **Carlisle SynTec**  
 carlisleroofgardens.com

Carlisle SynTec's new Vegetated Sedum Tiles provide instant vegetative coverage for commercial roofing systems. After the tiles are dropped in place over Carlisle's growth media, the installation is complete, eliminating the need for landscapers and the labor associated with planting a large roof area. The tiles are shipped in a manner that prevents damage and mold, two common concerns with shipping in a rolled packaging method. Four tile choices are available: All Season Mix, Tuff Stuff Mix, Shade Mix, and Color Max Mix. **CIRCLE 203**

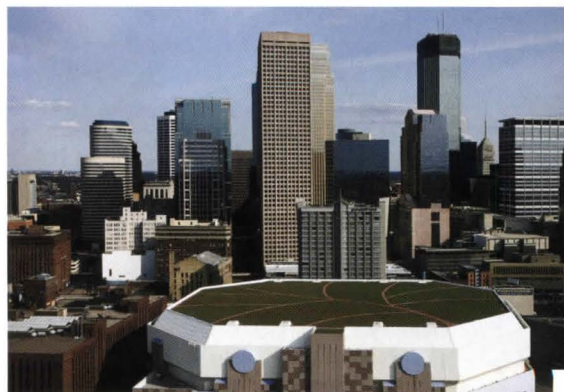


5 | PRODUCT **ZIP System**  
 MANUFACTURER **Huber Engineered Woods**  
 zipsystem.com

The ZIP System roof and wall sheathing eliminates the need for house wrap and felt, saving time on the job site while providing a tight building envelope and superior moisture resistance during and after construction. The system's new, more durable tape gun loads twice as fast as the previous version and durably seals panel seams, helping to reduce air leaks. **CIRCLE 205**

4 | PRODUCT **Target Center's Green Roof**  
 MANUFACTURER **Sempergreen**  
 sempergreen.com/USA

An extensive vegetated green roof manufactured by Sempergreen was completed last September on the main arena structure of Target Center in downtown Minneapolis. The nearly 2.5-acre green-roof project, led by the Minneapolis office of Leo A Daly, is the largest green roof in Minnesota and replaces 29 conventional roofs on five levels of the center. Tecta America was selected to construct, install, and maintain the roof, and was able to recycle almost 95% of existing materials. The roof uses pregrown mats as the base and will capture an estimated one million gallons of storm water per year. **CIRCLE 204**





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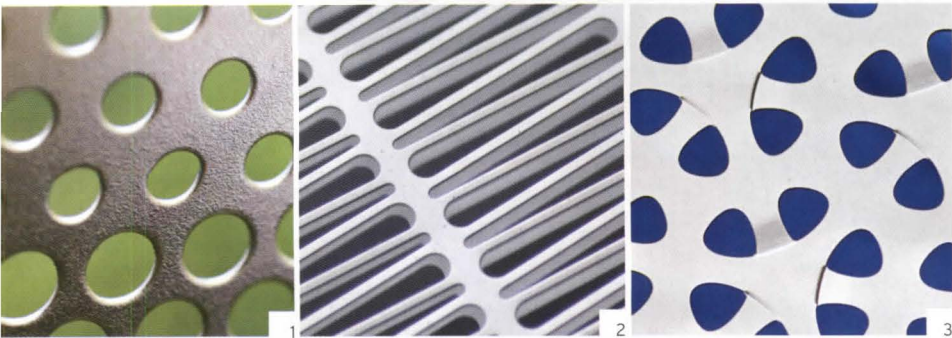
Novo Nordisk Inc. Princeton, NJ | Details: Gently curved, custom translucent ceiling panels of frame and fabric transform this space into an inspirational brainstorming area. | Fabrication: Eventscape Inc. | Design: Kling Stubbins

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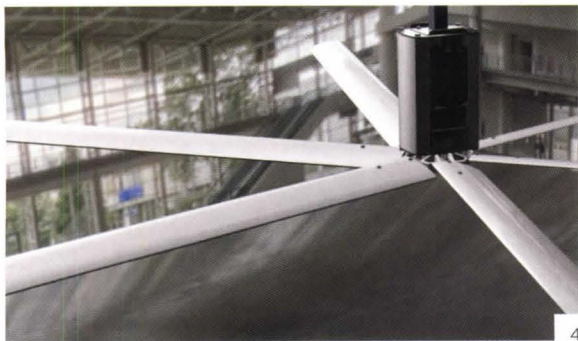
## PRODUCTS IN BRIEF



### 1-3 | PRODUCT **Screens**

MANUFACTURER **Forms+Surfaces**  
forms-surfaces.com

Screens, a new program from Forms+Surfaces, enables architects and designers to create a custom look without the associated constraints. Suitable for interior and exterior use, Screens can be incorporated into a building facade, fencing, room dividers, partitions, elevator interiors, doors, lighting, railing systems, and more. They can be specified in any sheet size up to 48" x 96" and are available in stainless steel or the manufacturer's proprietary Fused Metals. **CIRCLE 206**



### 4 | PRODUCT **MacroVoltaic Fan**

MANUFACTURER **MacroAir Technologies**  
macro-air.com

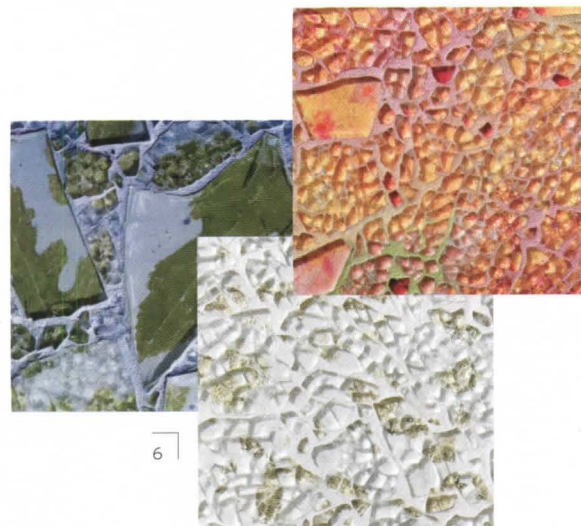
The MacroVoltaic solar high-volume, low-speed industrial fan is designed to generate a column of air that flows down to the ground and outward 360 degrees. The fan consumes approximately 400 watts of power and can be used in applications that call for a completely solar air-cooling system, such as buildings unable to run traditional AC power sources to remote locations. **CIRCLE 207**



### 5 | PRODUCT **S1E Eco-Screen**

MANUFACTURER **Centor Architectural**  
centorarchitectural.com

Introduced at this year's International Builders' Show in Las Vegas, the S1E Eco-Screen is said to be the first large horizontal retractable screen-and-blind system for windows and doors. The screen is available for any architectural opening up to 24' wide and 10' high and comes in two fabric classes: Insect Mesh and Solar (UV) blind control. As an added bonus, the screen can double as a projection screen when combined with the blind option. **CIRCLE 208**



### 6 | PRODUCT **Mosaic Glass Tiles**

MANUFACTURER **Ellen Blakeley Studio**  
ellenblakeley.com

The tile collections from Ellen Blakeley Studio are crafted from tempered glass recycled from the waste of commercial-glass manufacturers in Northern California. Every tile is made in an intricate process involving painting, layering, and hand placing the broken tempered glass to make a flat surface, which is then grouted and sealed to finish the tile. A palette of 45 colors is available, or tiles can be customized with specific paint colors and materials. The studio uses sanded water-based grout, low-VOC paints, and a two-part epoxy resin that minimally binds the separate elements together. **CIRCLE 209**



### 7 | PRODUCT **Amee G Series**

MANUFACTURER **Thyssenkrupp Elevator**  
thyssenkruppelevator.com

The Amee G Series system is a two-stop hydraulic elevator that offers capacities up to 2,500 pounds and operates at a low speed and at a lower weight. Cab panels can be installed from the elevator platform, and structural supports are all pre-positioned in the factory, minimizing installation time. The elevator uses mineral-based biodegradable oil that meets the EPA's low-acute-toxicity criteria. **CIRCLE 210**





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CIRCLE 30



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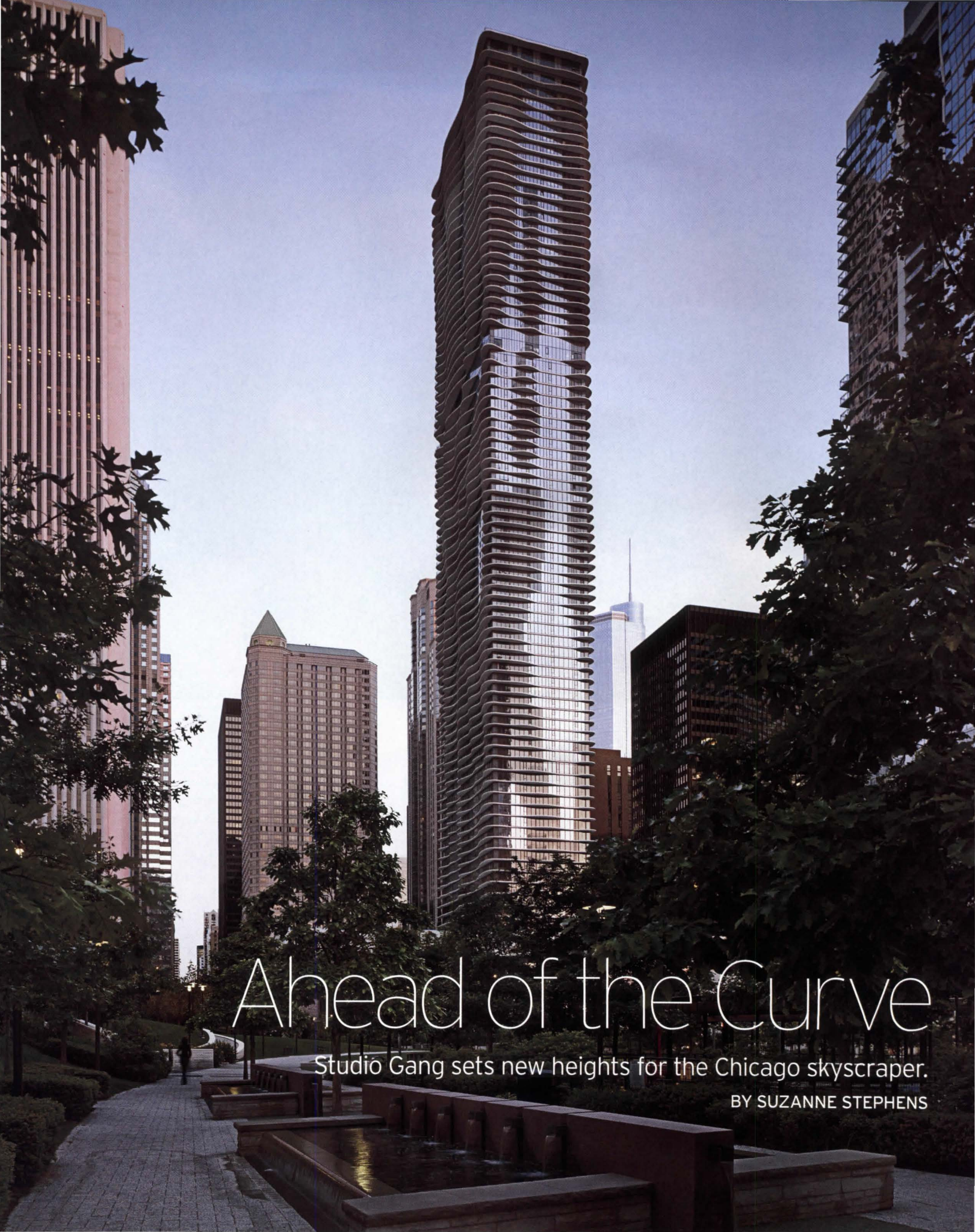




THIS PAGE: Aqua's swerving cantilevered concrete balconies allow panoramic views of Lake Michigan and surrounding landmarks.

OPPOSITE: The 82-story tower overlooks Harbor Park, the center of the Lakeshore East development.





# Ahead of the Curve

Studio Gang sets new heights for the Chicago skyscraper.

BY SUZANNE STEPHENS





**CHICAGO'S SKYSCRAPERS MAY BE FAMOUS** for their technical achievements and functional expression, but they are often short on pizzazz. Now, Studio Gang has designed Aqua—a Niemeyeresque apartment and hotel tower whose architectonic facade of sensuously swerving, white concrete balconies jumps out from among its stolid brethren. Enabled by client Jim Loewenberg of the Magellan Development Group, Jeanne Gang, principal of Studio Gang, conceived the 82-story tower on a podium as part Loewenberg's Lakeshore

East, a 28-acre mixed-used development on the former Illinois Central Railroad yards edging Lake Michigan.

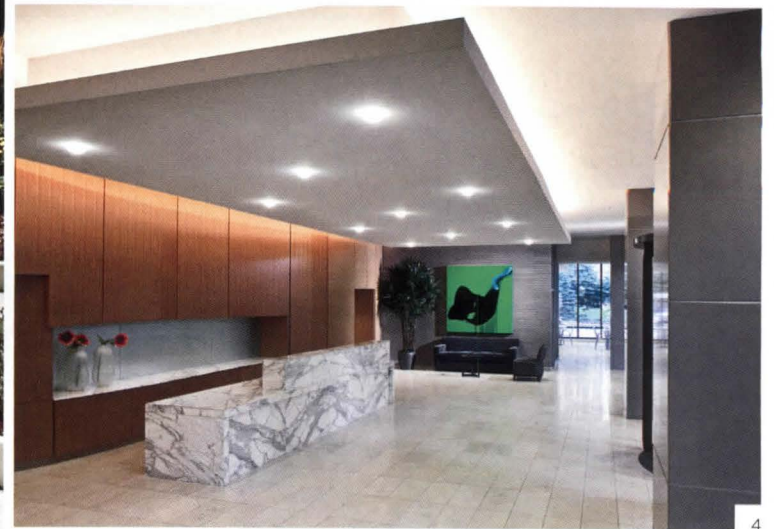
In addition to the water views on the east, this soigné antidote to Chicago's straitlaced Modernism looks south to Millennium Park and the Art Institute of Chicago and north to the Chicago River, with the Hancock Center in the distance. Along the river, Aqua's curvilinear architectural precursor—the cylindrical twin towers of Bertrand Goldberg's Marina City (1964)—can be glimpsed from many balconies. While Goldberg's scheme integrates the plan with the envelope, wedge-shaped rooms came with the price of admission. Since not all prospective occupants enjoy fitting furniture into irregularly shaped spaces, Gang's decision to wrap a rippling carapace around a rectilinear poured-in-place concrete frame at

Aqua makes sense in terms of construction and marketing. For her part, Gang contends that the building's orthogonal core reflects Chicago's grid.

Naturally, the question arises about how a female architect with a 37-person firm, known for smaller-scale community centers and houses, got to design a 1.9-million-square-foot tower, which cost \$300 million in construction. Loewenberg, an MIT-trained architect as well as developer, met Gang at a dinner in Chicago following a lecture by Frank Gehry. Since Loewenberg had already enlisted the usual ranking Chicago architects to design portions of his development, including Skidmore, Owings & Merrill as master planners, he claims he was ready for a "young architect who had not done a high-rise before." Gang, trained at the University of Illinois, Harvard's Graduate School of Design, and Eidgenössische Technische Hochschule (ETH) in Zurich, offered the proper pragmatic sensibility. Loewenberg wasn't worried about Gang's high-rise experience: He would be the executive architect as well as the client.

The 180,000-square-foot site on the western edge of Lakeshore East generated a tower-on-a-podium solution





that would negotiate the 50-foot drop in grade between Upper Columbus Drive on the west and Harbor Park at the center of the complex on the east. The podium itself contains lobbies for both the hotel (a hotelier is to be designated this month) and the apartments, along with retail stores, a ballroom, an indoor pool, and other public spaces. Beneath all that is a parking garage. Above, the tower is divided into the hotel, on floors 4 to 18; 474 rental apartments, on floors 19 to 52; and 264 condos on the floors above. Atop the tower are penthouses, on the 80th and 81st floors, where ceilings go as high as 14 feet.

In designing the balconies that extend outward from 2 to 12 feet, Gang thought of them as a concrete topography that would remind Chicagoans of limestone outcroppings along the Great Lakes—only in this case, the rises and falls would extend vertically from the top to the bottom of the shaft. Here, too, the ledges—9-inch-thick concrete balconies—thin out toward the edge of the cantilever to help drainage. In working out the balcony contours, Gang conducted view studies of unimpeded sight lines for places of interest. The different ripples also allow oblique views up and down the facade from the various

balconies. Moving between physical models and digital ones—switching from hand to computer—Gang’s team arrived at separate calculations for each floor plate.

Magellan found a way to be efficient about creating curves for the concrete balconies: An edge-form steel plate guided the pour and, when finished, snapped back into a straight plane to be reused and bent into another curve. While this method saved on construction, the team did not include thermal breaks between the outdoor and indoor slabs, owing to the complexity of the cantilevers. The absence has received criticism for the loss of heat during the winter due to the radiator effect. (For more on this debate, see *GreenSource*, Letters, March–April 2010, page 14, and Editors’ Letter, page 13). In response, Gang says that while thermal breaks would have been preferred, other considerations have saved energy, such as using Chicago’s District Energy System, along with the apartments’ natural ventilation, sun shading during the summer, and the use of high-performance glass to cut solar loads.

The architects wanted to make sure apartments could receive sufficient direct light and so created “ponds” of glass that interrupt the balconies in certain

1. The 82-story tower sits on a three-story podium containing retail, apartment and hotel lobbies, and public spaces.
2. Views from the cantilevered balconies include Millennium Park and the Art Institute of Chicago.
3. Atop the podium is a roof garden where paths echo the serpentine lines of the balconies above.
4. The luxuriously Modern residential lobby off Upper Columbus Drive reflects the design input of Loewenberg as well as Studio Gang.
5. Studio Gang’s model town house, shown in a rendering, occupies the lower portion of the podium, facing Harbor Park.



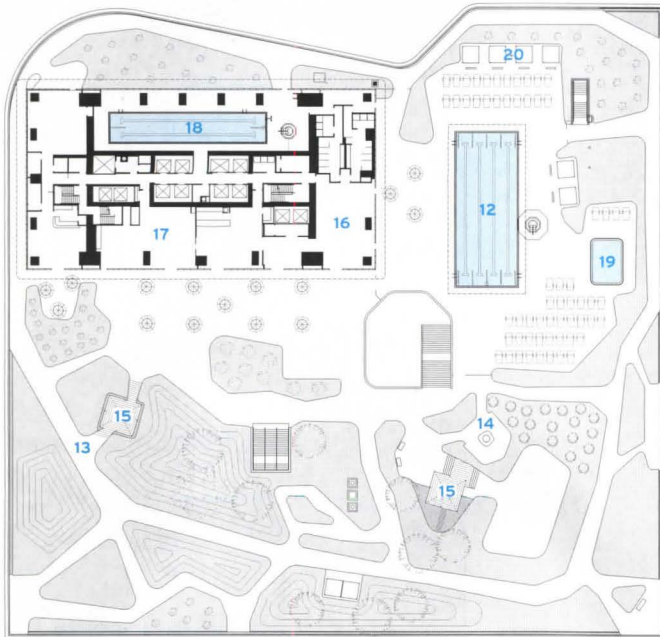
DRAWINGS



TYPICAL FLOOR PLAN

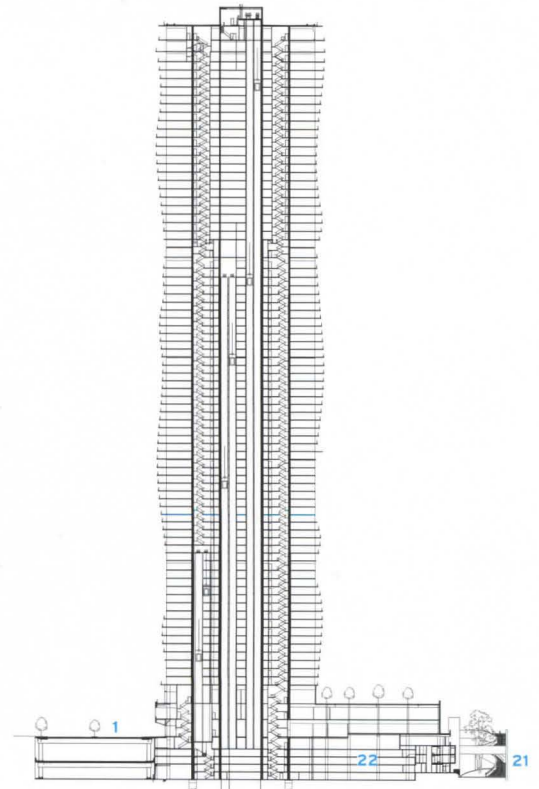
0 10 FT.  
3 M.

- |                         |                      |                |                         |
|-------------------------|----------------------|----------------|-------------------------|
| 1 Upper Columbus Drive  | 7 Offices            | 13 Track       | 19 Small pool           |
| 2 Columbus/Walker Drive | 8 Restaurant         | 14 Fire pit    | 20 Cabana               |
| 3 Lake Street           | 9 Retail             | 15 Pavilion    | 21 Stair to Harbor Park |
| 4 Harbor Park           | 10 Hotel prefunction | 16 Commons     | 22 Parking              |
| 5 Residential lobby     | 11 Hotel ballroom    | 17 Club        |                         |
| 6 Hotel lobby           | 12 Pool              | 18 Indoor pool |                         |



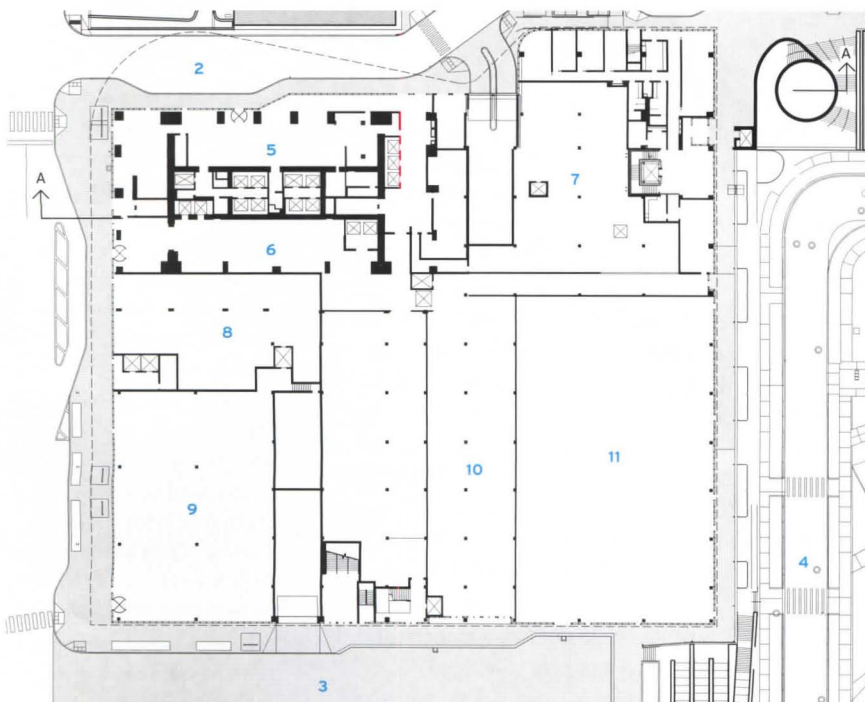
THIRD FLOOR WITH PLAN

0 20 FT.  
5 M.



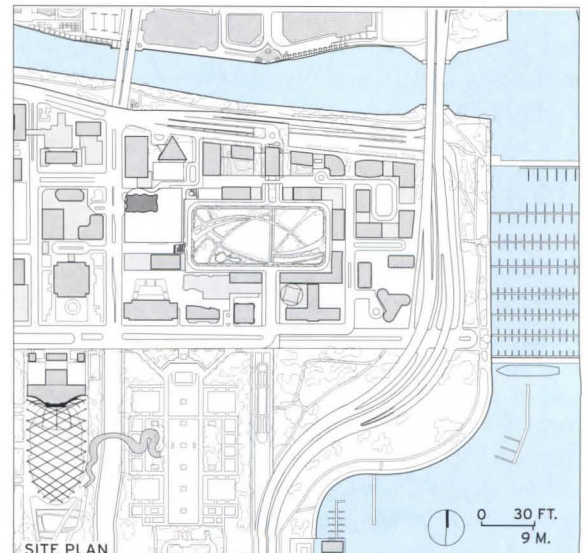
SECTION A-A

0 10 FT.  
3 M.



GROUND FLOOR PLAN

0 50 FT.  
15 M.



SITE PLAN

0 30 FT.  
9 M.



portions of the facade. To reduce the solar loads, they specified six types of glazing, including tinted, reflective, and fritted, along with low-E glass. The fritted glass also doubles as a safety factor in keeping birds from crashing into the tower—a strategy that won Aqua an award from People for the Ethical Treatment of Animals.

One of the most compelling features—besides the balconies—is the landscaped roof, 80,000 square feet in size, atop the 3-story podium. Working with Wolff Landscape Architecture, Studio Gang created a swirling garden with paths reminiscent of Roberto Burle-Marx and planted with colorful flora in light soil. A sustainable by-product of the garden is the mitigation of the summer heat-island effect so typical of asphalt roofs. In addition, it provides occupants with other amenities—such as a running track, outdoor pool, and outdoor fireplace.

Although the rectangular podium itself is stark and blocky in comparison with the garden and tower, Gang softened the effect with two large concrete staircases that link the upper street level with the lower Harbor Park: One is a switchback stair, the other a spiral. On the east face of the podium, Gang inserted nine town houses, for which she designed interior finishes. She also executed finishes as well as furnishings for a model town house nearing completion.

Rectilinear floor plans and a squared podium are pro forma. What advances architecture at Aqua is the inventiveness of its swerving tiers of concrete, which not only heighten the tower's livability for the occupants, but add to the appearance of the cityscape for Chicagoans. Yet the optical play is not without drawbacks: The visual appeal of Aqua's curves works best close-up or at mid-distance, and on a bright, sunny day when the gleaming glass adds luster to the sinuous balconies. However, from a distance, and on a gray day, the curves flatten into straight lines, the white concrete darkens, and the ponds of glass turn into irregular swaths of patchwork. As an optical experiment—as a machine for viewing (looking at the city from the tower, and at the tower from the city)—Aqua is enchanting, but needs further research. ■



**Project:** Aqua, Chicago

**Architect:** Studio Gang  
– Jeanne Gang, Mark Schendal, principals

**Architect of record:**  
Loewenberg Architects

**Consultants:** Magnusson Klemencic Associates (structural engineer); Advanced Mechanical Systems (mechanical engineer); Wolff Landscape

Architecture (landscape)

#### SOURCES

**Concrete:** Prairie Concrete

**Metal-and-glass curtain wall:** EFCO (tower); Schaaf Glass (podium)

**Glass:** Viracon (tower); PPG, with Jeld-Wen coatings (town houses)

**Exterior panels:** Trespa

**Brick:** Endicott Clay Products (town houses)









# Surround Sound

Shim-Sutcliffe Architects created a house that doubles as a performance space without overwhelming its site or its neighbors. BY CLIFFORD A. PEARSON

**LIKE A PAIR OF JUGGLERS**, Brigitte Shim and Howard Sutcliffe approached the Integral House, in Toronto, as a balancing act—creating a building that seems to defy basic forces of architecture. By anchoring the horizontal thrust of the project’s floor plans to the vertical force of its tumbling section, and spinning intimate elements off of grand gestures, they made a 15,000-square-foot house perched on the side of a steep ravine appear effortlessly connected to its site and the larger context of the city’s cultural topography. Fluid yet orthogonal, handcrafted and digitally

produced, the house performs by reconciling opposites.

Designed for James Stewart—a mathematician who has made a fortune writing calculus textbooks and is a violinist and music patron—the house serves as a performance space as well as a home. The name of the project derives from the role of integrals in calculus and Stewart’s request that the design incorporate curves (remember those sine and cosine curves from math class?). The integral symbol also echoes the shape of a violin’s sound holes and the S in the client’s and architects’ last names. “I didn’t give Brigitte and Howard any specific integrals to work with,” says Stewart. “As a mathemati-

cian, I just find curves more interesting. As soon as you have curves, you need calculus.”

Curves, though, had never been part of Shim and Sutcliffe’s design vocabulary. “It took a while for us to figure out how to integrate this new geometry into our work,” admits Sutcliffe. The architects started by spending a month working out of the 1960s stucco house that came with the property and that they would later tear down. The experience helped them understand the intricacies of the site: the way it begins as tableland near the street then drops 65 feet down a wooded slope; the way views work through the ravine; and the way changing light animates

**OPPOSITE: From the ravine, visitors can see the full five stories of the house. But by treating each floor’s skin differently, the architects broke down the visual bulk of the building.**

**1. Seen from the driveway, the house appears to be just two stories high.**



interior spaces. “Toronto is a city of hidden landscapes,” says Shim, referring to the ravines that slice through the local terrain but remain mostly out of view.

Capturing this sense of discovery became a key part of the architects’ scheme. They designed the street elevation as a relatively modest, two-story pavilion with a translucent-glass upper story floating above a wood-and-clear-glass entry level. A reflecting pool wrapping around one corner of the front reinforces the fluid geometry. From the driveway, visitors have no idea that the house sprawls over five stories or is any larger than the typical home in this affluent neighborhood. “The house unfolds,” explains Shim. “You are unaware of the total volume until you move through it.”

Once inside, visitors face a living room that spreads out toward a view of the ravine and spills down a grand stair to a lower level. The two-story living room serves as a space for musical performances, with seating for up to 150 people, but also offers more intimate areas for relax-

ing and conversation. Shim and Sutcliffe enveloped this multifunctional space on three sides with an undulating perimeter of clear glass and oak fins. “We wanted to create a foreground to the ravine, to modulate the relationship between the man-made and the natural,” says Shim.

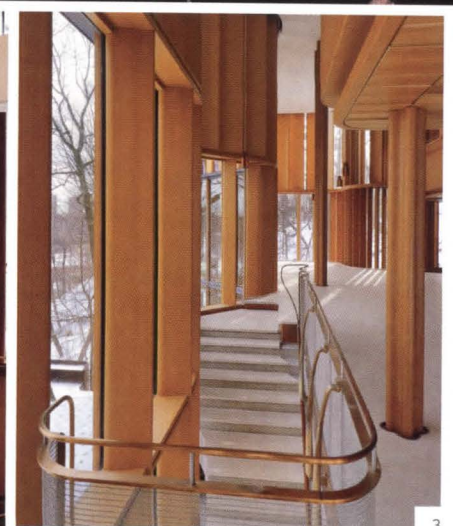
The fins—each set at a different angle and distance from the one adjacent to it—create a syncopated rhythm that varies from one floor to another. On the entry level, the fins stand fairly close together, offering narrow view slots out to the trees and piquing our curiosity about what lies beyond. “At this level, you are between the city and the forest—a suspended place floating among the trees,” states Sutcliffe. One flight down, the wood-clad fins provide more generous views, establishing a more direct connection to the ravine. Because the fins are angled, the view through them depends on your vantage point. Looked at straight-on, they frame a big view of the ravine; turn your head a bit, and they close off most of the scenery. In Philip Johnson’s Glass House or Mies’s Farnsworth

DRAWINGS



ILLUSTRATION: TADY; ED RURTZYNSKY (2); JIM DOW (3)



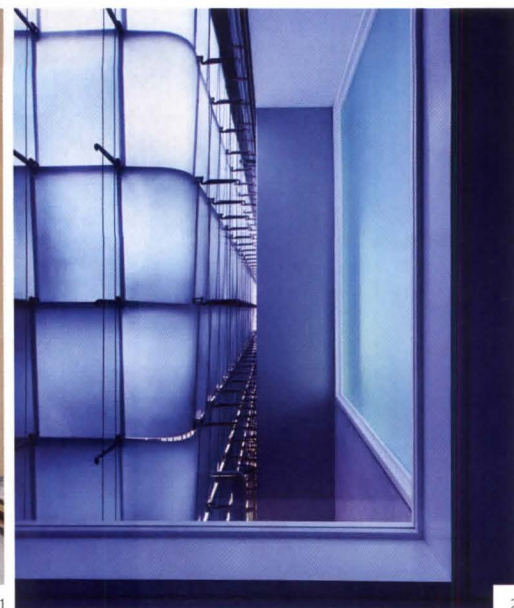
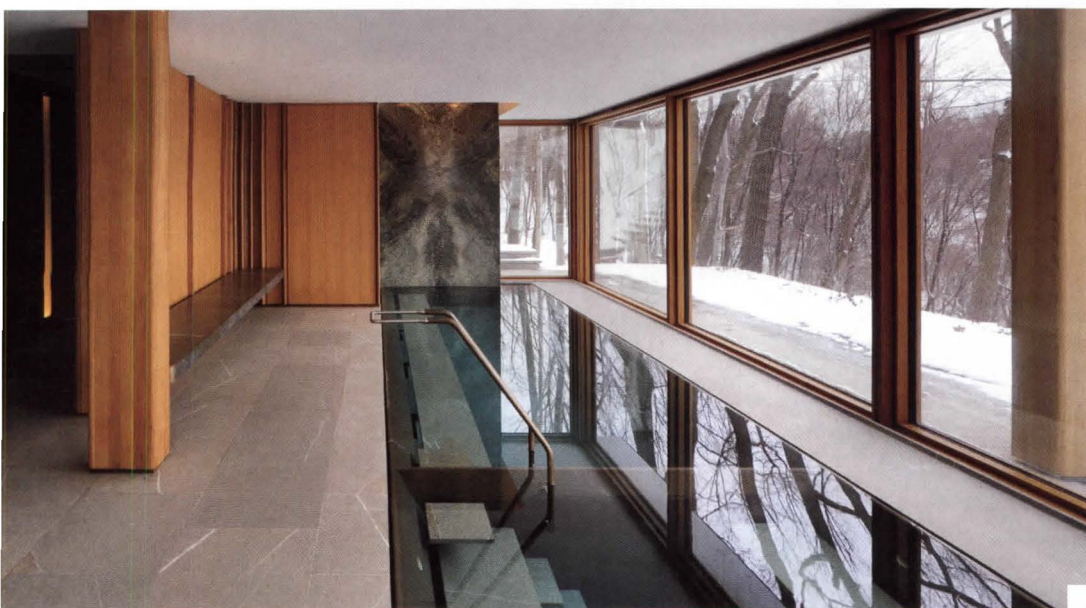


TOP: The undulating line of the perimeter wall and the angled wood fins give the living room/performance space a "rich and immediate" sound, says the client. While he is pleased with the sound, he said he didn't want acoustics to drive the design of the room. "Otherwise, I would have gotten a shoe box."

2. The architects tucked areas off the living room for dining and relaxing.

3. A stair leads from the lower living room to a floor with a study and guest room.





House, large glass panes frame static views. But at the Integral House, the fins create changing views as you move through space. “It’s the difference between cinema and still photography,” says Shim.

To anchor the liquid forms of the house to a more stable visual language, Shim and Sutcliffe designed a trio of freestanding concrete elements that rise through all five floors: a stairwell, a chimney, and an elevator shaft. The architects also designed a trio of “performance pieces”: the grand stair connecting the two living-room levels, a large hearth, and a saturated blue-glass installation created with artist Mimi Gellman in the stair leading to the bedrooms on the top floor. The installation, which surrounds a steel-frame stair with translucent-glass treads, features indigo-colored glass shingles suspended from cables with bronze clips. Set within a building that has a mostly subdued material palette, the striking glass art piece “has a complex relationship with the rest of the house,” says Sutcliffe. “It’s like a geode, a private crystalline object that’s almost undigested.”

A concrete frame and concrete floor slabs serve as the structural system for most of the house. Slender triangular steel columns with pin connections, though, run approximately every 8 feet through the sinuous wall overlooking the ravine. The architects, who admit they don’t care much about expressing structure in their work, hid the columns in some of the wood fins (most have no column inside). The top floor has its own structural system: a lightweight steel frame.

To maintain proper humidity levels for musical instruments, the house has almost no operable windows. But triple glazing reduces energy loss, and 23 geothermal wells connected to multiple heat pumps provide most of the energy needed to operate the house. On the

lowest floor, a 35-foot-long glass wall sitting on a steel beam can slide below grade to open an indoor swimming pool to the outdoors.

Shim and Sutcliffe used both digital technologies and traditional fabrication methods in creating the Integral House. For example, they made a clay model of a custom bronze door handle, converted it to a digital drawing and a CNC-milled model, and then used the ancient process of sand-casting. The couple also designed most of the furniture, handrails, and even the music stands used during performances.

Walking through the house, you notice Mies’s influence in the architects’ way of abstracting nature in orthogonal elements such as the swimming pool, and Aalto’s spirit in the organic, fluid form of the living spaces. The tension between these different approaches helps animate the architecture while demonstrating the skillful calibration of opposites. ■

1. On the lowest level, a swimming pool and exercise area look onto the ravine. In good weather, the glass wall, which sits on a 35-foot-long steel beam, can slide below the floor and open the space to the outdoors.

2. A cable-and-rod system supports a glass installation by artist Mimi Gellman.

OPPOSITE: The glass installation sits within a stair leading to the top floor.

**Project:** Integral House, Toronto, Canada

**Architect:** Shim-Sutcliffe Architects – Brigitte Shim, Hon. FAIA, Howard Sutcliffe, Hon. FAIA, principals; Betsy Williamson, project architect; Andrew Hart, assistant project architect; Denise Haradem, Kyra Clarkson, Michael Goorevich, Sara Iwata, design team

**Engineers:** Blackwell Bowick (structural); Toews

Engineering (mechanical)

**Interior designers:** Julie Latraverse and Chris Oliver

**General contractor:** Eisner Murray

#### SOURCES

**Windows:** Fulton Windows

**Glazing:** Custom by Cricursa

**Exterior wood fins:** Custom by TWP

**Interior wood fins:** Custom by Craftwood











# Here's Hope

A new center offers cancer patients a peaceful place for care other institutions cannot provide.

BY CHARLES LINN, FAIA

**IN 1988, AN EXTRAORDINARY SCOTTISH WOMAN** named Maggie Keswick Jencks was diagnosed with breast cancer. She was a mother, a scholar who wrote and lectured about Chinese landscape gardening, a world traveler, and the wife of designer and critic Charles Jencks, not to mention an accomplished landscape designer in her own right. After surgery, and a five-year period of remission, the cancer returned. This time an aggressive strain attacked her bones, bone marrow, and liver. Maggie was also outgoing, articulate, and an often-published writer who was willing to try an extraordinary range of treatments and strategies as she fought for her life. She won a second period of remission, but finally succumbed to her disease in 1995.

Toward the end of her life, one of Keswick Jencks's doctors invited her to write an article about what she experienced for his medical journal. Her essay, "A View From the Front Line" (downloadable at [maggiescentres.org](http://maggiescentres.org)), is a highly personal account of her life with cancer, coping with surgeries, confusion over the efficacy of treatment options, and the despair of life coming to an end. Not the least of her concerns was her experience that the cold, sterile institutions where cancer patients receive treatment could not give people the warmth and support they need in these challenging times.

Keswick Jencks had what all designers have: a drive to analyze and improve the world around her. During the last few months of her life, she and Charles worked together to conceive of a different kind of place for patients. It would be a place near a hospital, where patients and

OPPOSITE: A wall shields the unmarked entrance to Maggie's Centre from heavy traffic on Fulham Palace Road. The cutout in the wall provides a glimpse into the building's interior courtyard.



1. **Maggie's Centre is an oasis of calm within a bustling neighborhood. Its roof structure blocks views of Charing Cross Hospital, which towers above it.**
2. **Each step toward the entrance of the building moves one away from the din. Much attention was paid to creating entry circulation that would be welcoming but maintain patient privacy.**
3. **A fully enclosed exterior courtyard just outside the center's kitchen provides visitors with a sheltered place to rest or have a conversation.**

family members could walk in without an appointment and immediately be welcomed into a caring community of cancer-support specialists, other patients and their families, and survivors. Visitors could receive informal personal counseling, gain information about insurance benefits, participate in individual and group therapy, and learn about such things as nutrition, stress reduction, and other kinds of therapy. Above all, the design of the centers would not resemble a hospital. They would be small-scale and emphasize open space, daylighting, and selective use of color, plants, and landscaping. A year after Keswick Jencks's death, the first Maggie's Centre opened in the shadow of Edinburgh's Western General Hospital. In the ensuing years, six centers have been built, there are four interim centers, and another four are in development. These are almost entirely funded through donations. Several were designed by prominent architects such as Frank Gehry and Zaha Hadid (see sidebar, page 77).

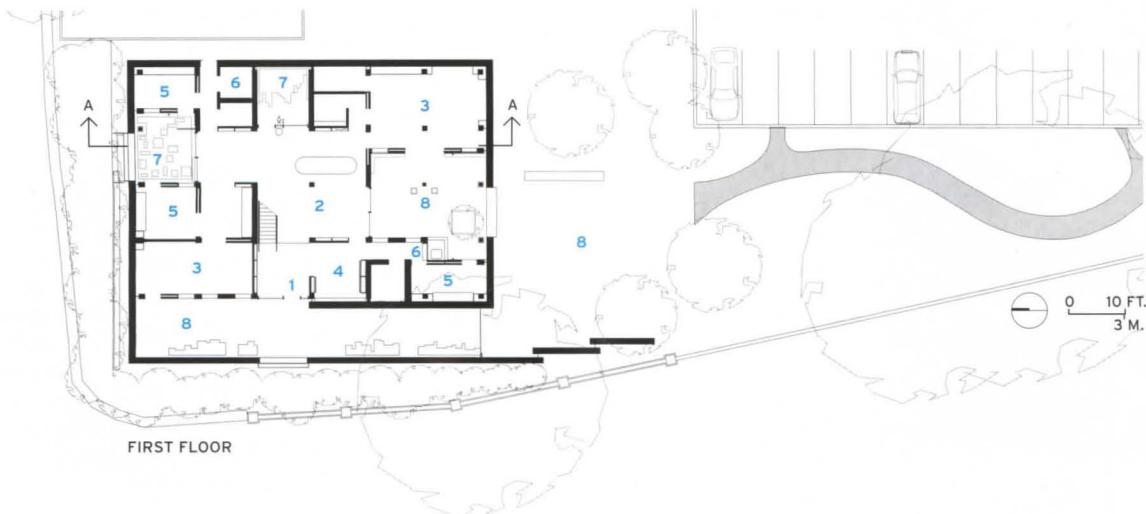
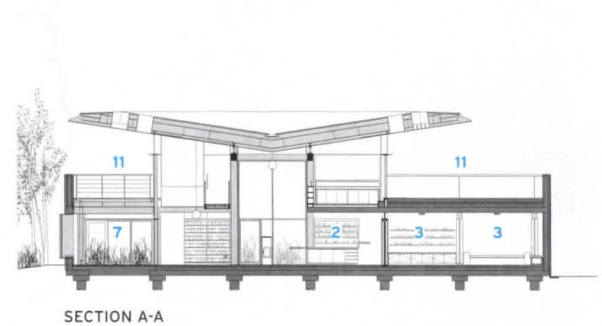
Rogers Stirk Harbour + Partners' Maggie's Centre London is a gift to the emerging genre. The building is

tucked into the northwest corner of the grounds of Charing Cross Hospital. Although the neighborhood is far from the middle of London and composed primarily of pleasant brick-and-stucco row houses, the spot is anything but serene. A few feet to the west runs Fulham Palace Road. It carries heavy car, bus, and ambulance traffic, and is described by William Wimshurst, Rogers Stirk Harbour + Partners' project architect for Maggie's, as "one traffic jam, all day long." To the east, the hospital's gray, 1960s-era, 15-story concrete tower looms over the site.

The vibrant red-orange of the Maggie's building the firm created provides worthy opposition for what otherwise could be an extremely oppressive environment. One approaches the center by crossing a courtyard inserted between a few of the site's mature plane trees. The only hint of what's inside is a glimpse of an enclosed outdoor courtyard visible through a cutout in the south wall of the building. One passes it, turns 90 degrees, and then another 90 degrees to reach the protected entry. The effect is to become, with each step, more and

DRAWINGS

- 1 Entry
- 2 Kitchen
- 3 Sitting room
- 4 Library
- 5 Personal space
- 6 Storeroom
- 7 Winter gardens
- 8 Courtyard gardens
- 9 Office
- 10 Meeting room
- 11 Roof terrace
- 12 Open to below











1. The center is built around its kitchen table. This relaxing, well-lighted gathering point is perfect for the cups of tea and informal conversations that help make visitors feel welcome.

2. Work spaces on the second floor are located on balconies and reached via bridges in order to allow daylight to flood the first floor of the building.

3. The center's head, Bernie Byrne, describes interior spaces, such as this sitting room, as "fluid." Visitors and groups can rearrange furniture as they wish.

more isolated from the hustle and bustle of London, a process that Wimshurst describes as "accepting the hug of the building. We're trying to create a domestic, calm feeling." Inside the door, it is readily apparent that much attention has been paid to relating to the mind-set of a person coming to Maggie's for the first time, who may be fighting emotional conflicts that can prevent them from seeking the help that they need. "One of the things we noticed when we were looking at the first Maggie's in Edinburgh was that it sometimes took people three tries before they came into the building. By actually coming into the building, you've had to overcome fear and the recognition that you actually have cancer," he says.

Bernie Byrne, the head of the center, adds, "Maggie's is very homey, and works very much at a more human level than most institutional architecture. The fact that we don't have a reception area allows people to be equal. Ideally, the first time you come here, someone from staff

would see you come in and would be there to meet you." To help eliminate that clinical appearance, there is no signage anywhere, not even on bathroom doors. "When you go to someone's house," she adds, "you don't look for a sign. You ask your friend where it is."

Even on a gloomy January day, the building is warm and full of daylight. The first and second levels are entirely open to each other, and most of the exterior walls at the second level are glass; the steel diagrid roof structure sits on columns and simply cantilevers out over them. Staff and fund-raisers' work spaces occupy balconies and are connected from one side of the building to the other by bridges, so no walls block the daylight. Each corner of the second story of the building has an exterior deck.

The red-orange coating slathered on the exterior stucco walls is not used indoors, although it is visible through some windows. Instead, warm tones from the



# Many for Maggie

A patient's vision of what cancer care should be like inspires the greats.

BY DAVID SOKOL

**DURING THE LAST FEW** months of Maggie Keswick Jencks's life, she and her husband, the architecture critic and landscape designer Charles Jencks, hatched the idea of cancer-caring centers. Located adjacent to hospitals, patients could casually enter these welcoming, almost domestic spaces to access the help they couldn't find at the neighboring institution.

In August 1994, Western General Hospital, in Edinburgh, Scotland, allowed Keswick Jencks to develop one of these unprecedented facilities. She died in July 1995 and did not see that cancer-caring center open in a historic stable block near Western General in November of the following year. "She never imagined more than one," adds Jencks, who named the center in Maggie's honor.

If Keswick Jencks could not have conceived of multiple facilities, then it is even more remarkable that Frank Gehry, Zaha Hadid, and Richard Rogers designed three of the six Maggie's Centres built today. "Our first two buildings were by architects we knew, who were small in size but good and committed, and who could do conversions," Charles Jencks says of architects Richard Murphy and David Page. But then Gehry presented a series of schemes for a building in Dundee, Scotland, and "the press in Britain went crazy with excitement."

"From that we realized that architects both well-known and unknown could be of great help in not only designing a building, but also giving us a certain kind of importance within the British system."

Jencks admits that the architects who design Maggie's Centres negotiate a kind of Catch-22, as they are encouraged to create strongly expressive buildings while paying heed to the relaxed, homey atmosphere Keswick Jencks described in her original brief. Although their design schemes share several features, such as central kitchens and transformable open floor plans, Jencks says the architects of existing buildings and works in progress have resolved this contradiction in unique ways.

Such variety reflects the hybridized qualities of Maggie's Centres. "It's an institution that isn't an institution, a house that isn't a home, a museum that is not an art gallery, and a church that is nonreligious," Jencks observes of the building type, instead calling it an "architecture of hope." A book by that name will be available Stateside later this year.



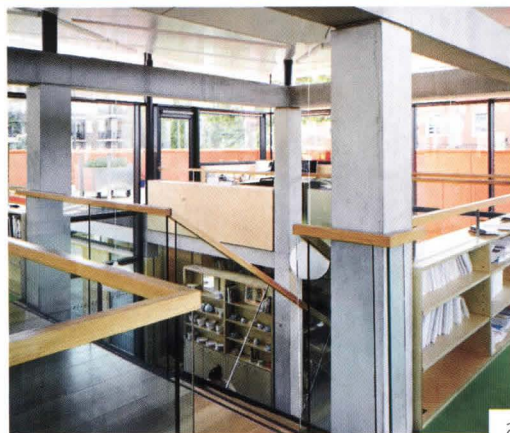
1. Frank Gehry's design for Maggie's Centre Dundee (with a labyrinth by Arabella Lennox-Boyd) boosted the organization's renown.
2. Maggie's Fife is the first built work in the United Kingdom by Zaha Hadid.
3. The second Maggie's Centre was a gatehouse conversion in Glasgow by David Page of Page\ Park Architects.
4. The David Page-designed Maggie's Highlands nestles into a complex landscape by Charles Jencks.





1. The entrance to a courtyard is located next to the kitchen table. A cutout in the building's exterior wall provides the only glimpse into Maggie's Centre from the plaza.

2. The steel diagrid roof structure is supported by interior columns, allowing it to cantilever over the low-iron glass exterior walls.



birch paneling, Siberian larch trim, and polished concrete predominate. Wimshurst notes that chemotherapy often drains the color from people's skin, and so they have avoided greens, blues, and beiges. The concrete floors also aid the effectiveness of the radiant heating system. "When people go through chemotherapy, it is sometimes quite difficult for them to regulate their body temperature, and often they feel quite cold," says Wimshurst. "The concrete's mass helps maintain that constant warm temperature."

A kitchen occupies the central space on the first floor. It is furnished with a counter, racks of tea bags and mugs, and a large kitchen table visible from almost any point in the building. In the winter, a woodstove radiates heat. "We know that there are three elements that crop up time and time again when people get a cancer diagnosis," says Byrne, "and those are social isolation, helplessness, and hopelessness. What the kitchen table does is provide a forum for people to meet. They can choose to be either an active or a passive participant in anything that's going on. So you can sit there with your cup of tea and read the paper, and also listen to what's going on, or you can actually be part of the conversation."

As one steps away from the kitchen table and toward the perimeter of the building, Maggie's breaks down into secondary spaces: a large courtyard adjacent to the kitchen, two winter gardens, three large sitting rooms, and several more intimately scaled rooms designated simply as personal spaces. There is even a tiny corner room, called the "snug," whose two glass walls face the courtyard.

In 2009, Maggie's Centre London won the Stirling Prize, which surprised some who associate Rogers Stirk Harbour only with large projects with exposed cables and polished stainless-steel components. In contrast, Wimshurst says of Maggie's, "These details are very simple, to actually reflect the type of building we were trying to do. It's one of the smallest buildings we have done in a long time. So often practices lose that touch, and it's nice to show we can still do it." ■

**Project:** Maggie's Centre, London

**Architects:** Rogers Stirk Harbour + Partners – Ivan Harbour, project director; William Wimshurst, project architect

**Engineers:** Arup

**Consultants:** Dan Pearson Studio (landscape design); Speiers and Major Associates (lighting)

**General contractor:** ROK

#### SOURCES

**Roofing:** SAS International

**Gas fires:** Real Flame

**Curtain wall:** Shuco

**Render system:** Sto

**Weather screen:** Trespa

**Lighting:** Louis Poulson; Aktiva Systems; Encapsulite

**Wall capping:** Lockmetal

**Woodwork:** Midland Interiors

**Carpet:** Westbond Carpets





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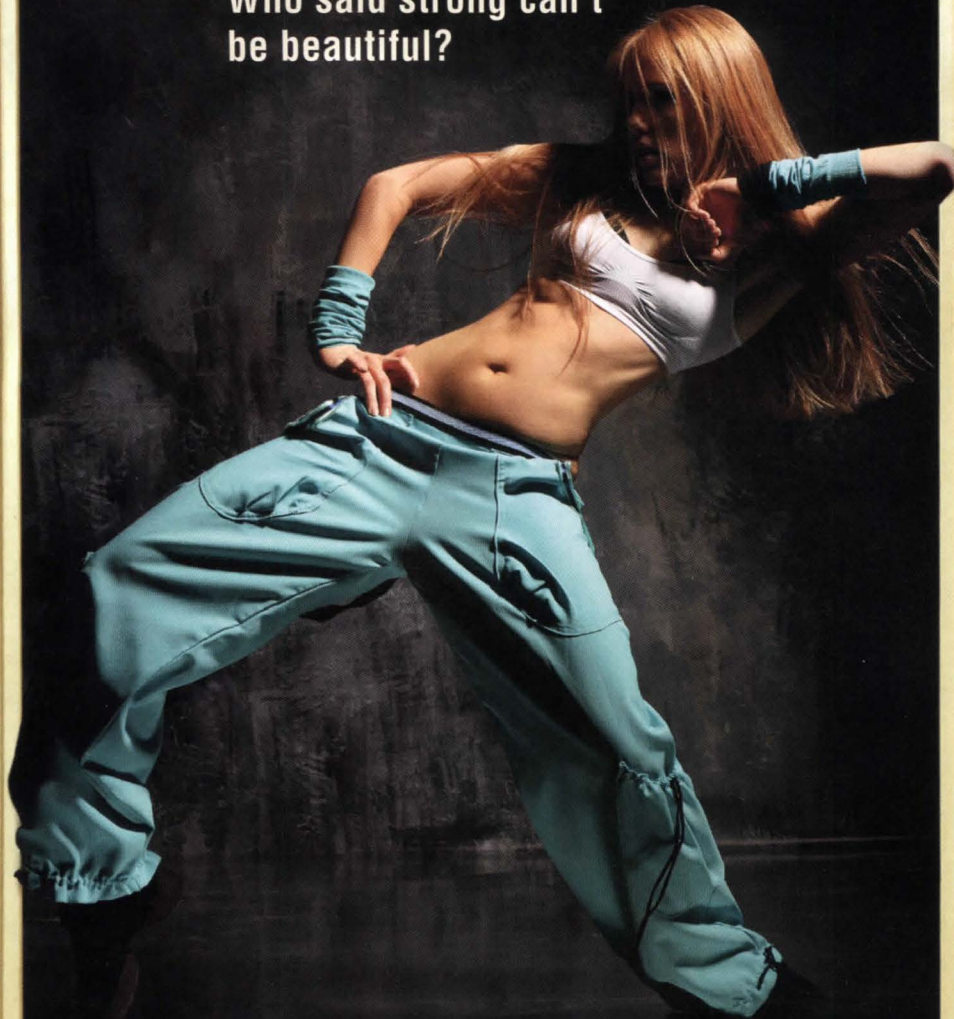
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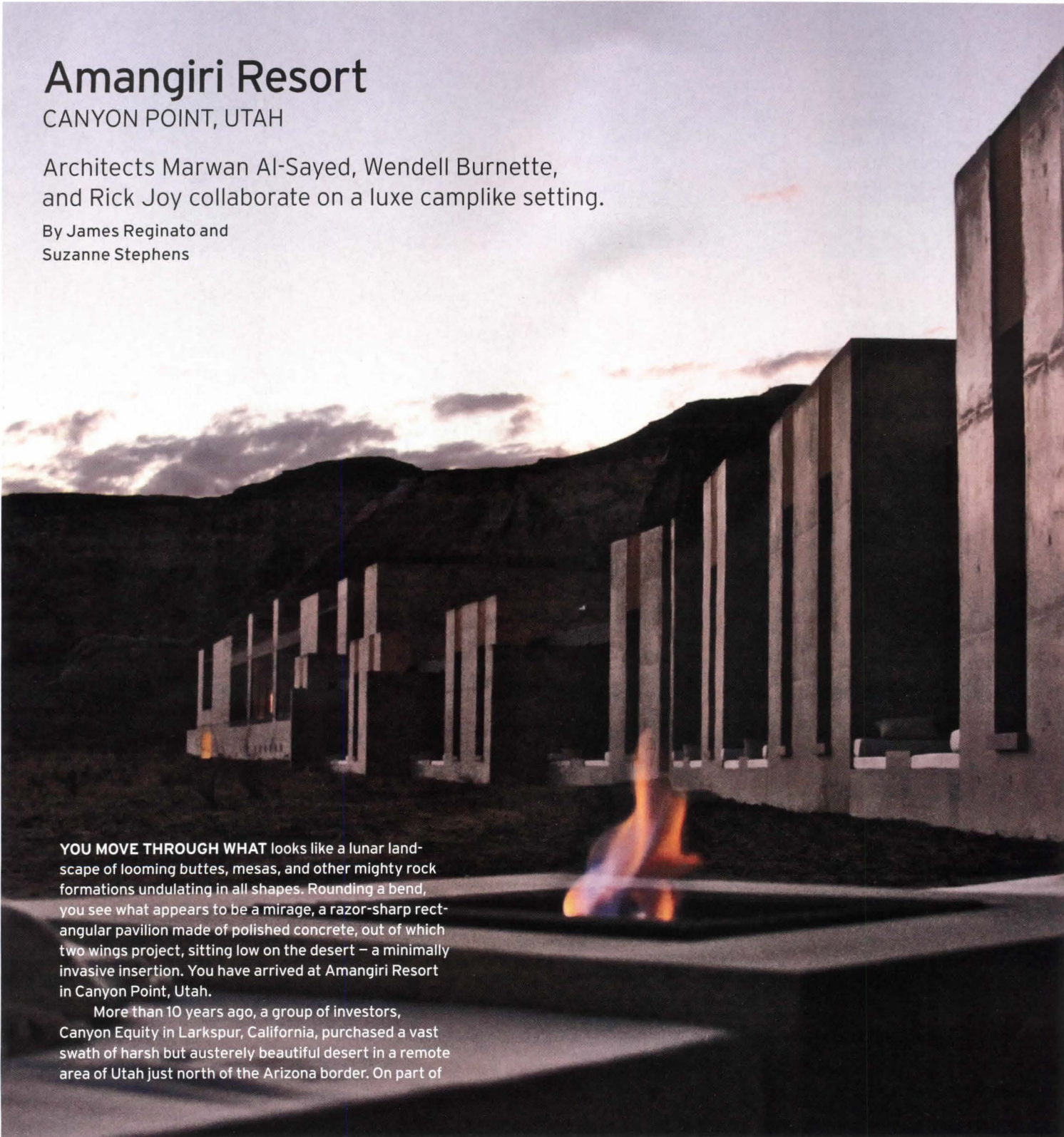


## Amangiri Resort

CANYON POINT, UTAH

Architects Marwan Al-Sayed, Wendell Burnette, and Rick Joy collaborate on a luxe camplike setting.

By James Reginato and  
Suzanne Stephens



**YOU MOVE THROUGH WHAT** looks like a lunar landscape of looming buttes, mesas, and other mighty rock formations undulating in all shapes. Rounding a bend, you see what appears to be a mirage, a razor-sharp rectangular pavilion made of polished concrete, out of which two wings project, sitting low on the desert – a minimally invasive insertion. You have arrived at Amangiri Resort in Canyon Point, Utah.

More than 10 years ago, a group of investors, Canyon Equity in Larkspur, California, purchased a vast swath of harsh but austere beautiful desert in a remote area of Utah just north of the Arizona border. On part of



PREVIOUS PAGE: The concrete walls of the northwest guest wing take on a soft sheen at dusk.

1. The rectangular components of resort and spa contrast with the free-form topography of this remote site.

2. The main swimming pool wraps around a sandstone rock; behind it are the public areas of the hotel.

3. The furnishings, colors, texture, and lighting of the lobby blend with the desert setting.

4.,5. Guest suites have a private view; the sandstone plinth in the bedroom contains sofa, bed, and desk.



**Architect:** I-10 Studio:

Marwan Al-Sayed Architects – Marwan Al-Sayed, principal; Wendell Burnette Architects – Wendell Burnette, AIA, principal; Rick Joy Architects – Rick Joy, AIA, principal

**Architect of record:** Aiken Pate – Dana C. Aiken, principal

**Client:** Canyon Equity

**Engineers:** Harris Engineering Services (structural); Kunka Engineering (mechanical/plumbing); Stantec Consulting (civil)

**Consultants:** Michael Boucher Landscape Architecture (landscape); Ljusarkitektur P & Ö (lighting); CSR Design (interiors)

**Size:** 78,400 square feet

**Cost:** Withheld

**Completion date:** October 2009

**SOURCES**

**Roofing membrane:** Sika Sarnafil

**Concrete formwork:** FinnForm

it they envisioned a resort of 600 acres that would make the most of the rocky site, and enlisted three inventive Arizona architects to collaborate on the design – Marwan Al-Sayed, Wendell Burnette, AIA, and Rick Joy, AIA. For this particular project, the trio of friends formed a company, I-10 Studio, named after the freeway that connects their offices in Phoenix and Tucson. The investors then brought in Adrian Zecha, the Indonesian-Czech founder of Amanresorts, to manage the new hotel. The luxe Minimalism of Zecha's 23 caravansaries, located largely in Asia, has made him legendary. While he quickly saw the potential in the Utah development, Zecha wanted to move the resort to a different site from the one selected. Since it was partially owned by the federal government, a complicated land swap was needed. After almost two years and an act of Congress, construction began.

**Program**

In order for the I-10 Studio to design

the 78,400-square-foot resort with 34 very private rooms and a spa, the three principals had to do some homework. While Zecha knew that the architects were familiar with the Southwest region, he wanted to make sure they were aware of the special qualities of the Aman hotels – and the expectations of their guests. So the team was assigned to visit the heralded resorts in Thailand, Bali, Java, and Morocco.

**Solution**

At the Utah site, a 150-foot-high rock appealed to Zecha as the focus of the compound. The architects made this the hub of the design, surrounding one of the rock's protrusions with the main swimming pool, which they edged with a sandstone and concrete piazza, enclosed by the reception, dining, and living areas of the main pavilion. Two wings containing the guest rooms branch away from this center, with a secluded spa at the southern end of the complex.

In deference to the rugged Utah terrain, the three conceived

the hotel as a “block of cast earth – a sort of massive ruin eroded by the climate and the program,” says Burnette. To blend the hotel in with the area's Entrada sandstone, the three devised a unique concrete mix of local sand, cement, and aggregate that approximates the coloration and density of the surrounding geologic formations.

Since the hotel was so remote, the team set up a batch plant on-site and used gang forms for a monolithic-looking pour. The special plywood surface for the formwork gives the smooth concrete a highly reflective sheen.

In this polished and protected campus, each of the 34 guest suites opens up literally to the desert floor. The idea of being around a campfire (a luxurious one) generated the notion of designing the exterior edges of the bedrooms to have retractable doors that open onto a private patio equipped with gaslit fires. Obversely, the team thought the spa should be a reprieve from the landscape: Many of the spa's rooms focus inward,





2



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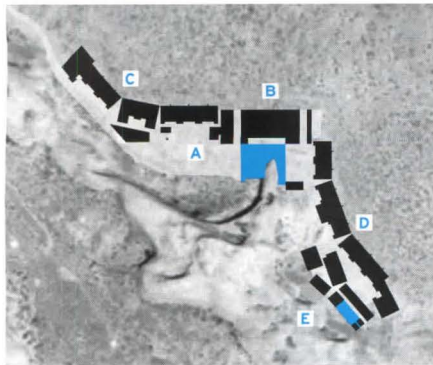
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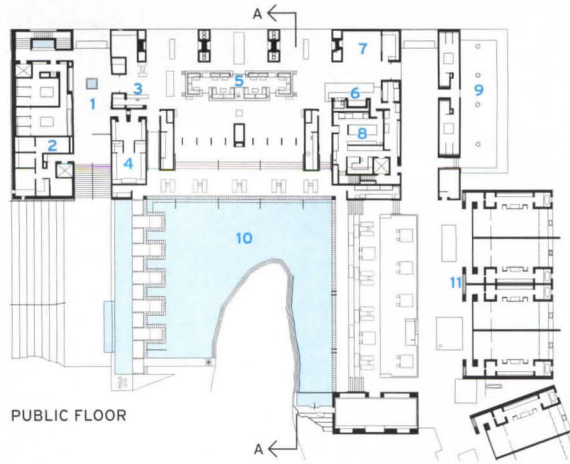


DRAWINGS



SITE PLAN

0 250 FT.  
75 M.

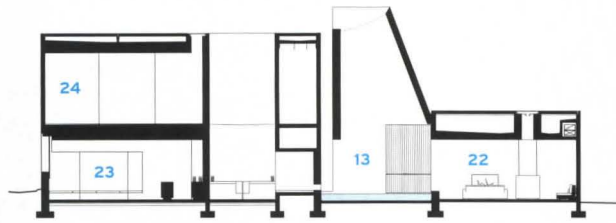


PUBLIC FLOOR

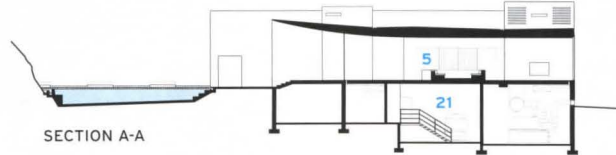
- 9 Sunset lounge
- 10 Pool
- 11 Suites 18-34
- 12 Spa entry
- 13 Reflecting pool
- 14 Changing rooms
- 15 Yoga
- 16 Piazza for suites
- 17 Suite with own pool
- 18 Spa pool
- 19 Outdoor treatment
- 20 Treatment room
- 21 Mechanical
- 22 Reception
- 23 Salon
- 24 Fitness

0 20 FT.  
6 M.

- A Arrival
- B Living room/pool
- C Suites 1-17
- D Suites 18-34
- E Spa



SECTION B-B



SECTION A-A

- 1 Entry court
- 2 Administration
- 3 Reception
- 4 Gift shop
- 5 Living room
- 6 Chef's counter
- 7 Private dining
- 8 Kitchen

0 10 FT.  
3 M.



PLAN OF SUITES 18-34 AND SPA

0 20 FT.  
6 M.

with dark walnut covering walls, floors, and ceilings. "We wanted it to feel like a Navaho hogan, without overt Native American associations," says Al-Sayed.

Similarly, interiors, furnishings, lighting, and graphics are meant to evoke the Southwest vernacular through the rarefied deployment of Minimal architectural elements and motifs. In each bedroom, for example, the trio created a sandstone plinth containing a bed, a desk, and a sofa: It is positioned so that the surface of the top of the bed is at grade with the landscape – "the perspective of a cowboy sleeping on the ground," says Joy.

Although the construction and design process was rather extensive – owing to the remote location,

the need to import labor, and the custom nature of the design and workmanship – the hotel opened to the public last fall. For the next phase of the resort, Canyon has commissioned Annabelle Selldorf to design 30 villas that are in I-10's master plan. Selldorf is currently building a prototype but proposes using less concrete and more stucco and wood for the construction.

**Commentary**

At Amangiri, sparseness and purity are dominant parts of the architectural gestalt. You feel as if you are camping out in an understated, luxurious setting, where you can contemplate a wild landscape from a protected and comfortable enclosure. Here everyone has a great

view, with no one walking across it (or driving, since guests' cars are stowed in a building a mile away.)

A spacious, quiet aura pervades the entire resort. Absent is the background noise (aka music) hip hotels think they need to foist on guests. Instead, isolation and austerity meet extravagance of the most refined nature.

Getting there underscores the remoteness. You can fly to the closest airport in Page, Arizona, from Phoenix or Denver, or, if time permits, land in Las Vegas and rent a car. The spectacular five-hour drive through the canyons will put you in the right mood for the rare and mesmerizing Amangiri experience. ■

*James Reginato is a New York writer.*

1. One of the architects, Marwan Al-Sayed, walks by the main pool heading to the battered walls of the main pavilion.
2. From the spa's outdoor treatment areas, guests have a view of Horseshoe Canyon.
3. The rhythm and massing of the concrete blocks and wood screens of the south wing's guest suites create a secluded street near the spa.







# The Study at Yale

NEW HAVEN, CONNECTICUT

Kuwabara Payne McKenna Blumberg reinvents a worn hotel and energizes its streetscape.

By Joann Gonchar, AIA

**Architect:** Kuwabara Payne McKenna Blumberg Architects – Thomas Payne, AIA, partner in charge; David Poloway, project architect; Dan Benson, Jill Greaves, Mark Jaffar, Rita Kiriakis, Lilly Liaukus, Amir Sharokhi, project team

**Client:** Hospitality 3

**Consultants:** DeSimone (structural); Natcomm (mechanical/electrical); Vanasse Hangen Brustlin (civil); Langan Engineering (geotechnical); Suzanne Powadiuk Design (lighting)

**General contractor:** Enterprise Builders

**Size:** 70,000 gross square feet

**Cost:** Withheld

**Completion date:** September 2008

## SOURCES

**Curtain wall:** EFCO

**Operable windows:** Kawneer

**Glazing:** Viracon; Rohlf's Stained and Leaded Glass Studio

**Entrances:** Blumcraft

**Elevators:** Otis

**Acoustical ceilings:** Eurospan

**Ambient lighting:** Nelson Garrett

**Task lights:** Artemide

**Case goods:** Benchmark

**Carpet:** Durkan

**Washbasins:** Duravit

**Ceramic tile:** Ascot Floor Ceramics

**THE COLONY INN HAD BEEN** in a constant state of decline almost since its construction in 1962. By the late 1990s, the 86-room, five-story hotel in New Haven, near Yale University's historic core, looked worn and dated despite numerous piecemeal renovations. But even in this dilapidated state, the inn's prime location on Chapel Street guaranteed its popularity with visiting academics, parents of students, and others connected to the university.

One frequent Colony guest was Yale architecture alumnus Thomas Payne, a partner at Toronto-based Kuwabara Payne McKenna Blumberg Architects (KPMB). Starting in 2000, he began to travel regularly to New Haven to oversee a KPMB project for Yale's School of Music. Payne realized that the Colony could readily be transformed into a more appealing hotel: In addition to its location, many of the guest rooms offered idyllic views of the spires and grassy quadrangles of the Collegiate Gothic campus.

## Program

Even though he had no client or contract, Payne formulated a sketch concept for the inn's reinvention. It included complete renovation of the existing building plus the addition of two new floors of guest rooms and a penthouse. The upward extension would capture even better views than the floors below, and it would also complete the parapet line established by the early-20th-century masonry buildings to the hotel's east and west. Payne verified that the expansion would conform to zoning regulations and confirmed that the existing structure, with some retrofit,

could support it. The Colony's owner liked the scheme, but he was not in a position to implement it.

When hotel developer Hospitality 3 acquired the Colony in 2006, Paul McGowan, the company's principal, found that his own vision for the property was sympathetic with Payne's. McGowan needed the additional 38 "keys" the two new floors would provide in order to make the project economically viable. In addition, the former W Hotels design and construction executive wanted to maximize the potential of ground-floor revenue-generating spaces, like the restaurant and meeting rooms, and make back-of-house functions more efficient. McGowan hired KPMB to renovate and expand the building.

## Solution

In addition to expanding vertically, the conversion of the Colony into what is now known as The Study at Yale included recladding north and south building faces with an aluminum curtain-wall system in place of the "egg crate" facade that expressed the poured-in-place concrete structure. The taut new skin is composed of large fixed lites, small awning windows, metal spandrel panels, and louvers, creating a riff on the facade of Louis Kahn's Yale University Art Gallery (1953) just down the street, while the colored glass of the operable units provides a "cheery association" with the leaded windows found in many of Yale's residential colleges, notes Payne.

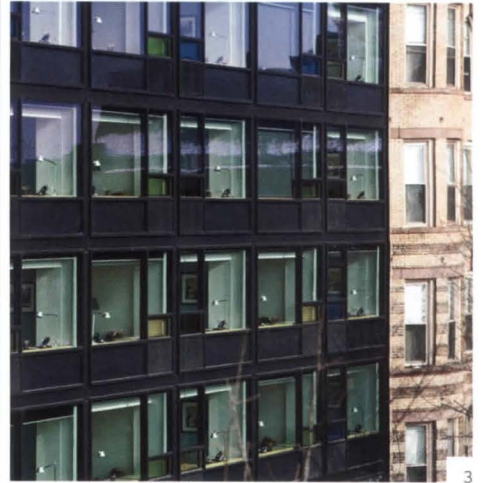
At the ground, KPMB simplified what had been a first floor with several elevation changes and an illogical layout, creating one walnut-







2



3

LEFT: As part of the hotel's reinvention, the architects added two floors, completing the parapet line established by adjacent buildings.

2. Before renovation, the reinforced-concrete structure was expressed on the exterior with an egg-cratelike facade.

3. Small awning windows in the new curtain wall contain colored glass – a reference to the leaded windows found in many of Yale's residential colleges.

PHOTOGRAPHY: © TOM ARBAN, EXCEPT COURTESY KPMB (2)



plank-covered plinth that sits a few feet above the sidewalk level and cantilevers from a granite-clad base. Instead of the Colony's two distinct vestibules, a single entrance, up a short flight of steps, penetrates a sleek glazed storefront, neatly dividing the space beyond into a living-roomlike lobby and an inviting restaurant and bar. Behind this public zone is a set of meeting rooms and support functions.

Upstairs, the compact guest rooms feel bright and airy, due to the generous glazing and smart space planning. For example, replacing the old facade with a curtain wall made the new rooms a foot deeper. Other space-saving features include oak built-ins at each room's outside edge. The millwork conceals the air-conditioning unit and provides a desk that resembles a spacious library carrel.

**Commentary**

The atmosphere in The Study's rooms and in its public spaces is comfortable and calm, and luxurious without being glitzy. But arguably more significant than this interior ambience is the contribution the hotel makes to its surrounding environment: The architects approached the renovation and expansion like an urban infill project, replacing a visually almost impenetrable facade with one that is transparent and welcoming. The strategy proves especially effective at night, when activity in the lobby and restaurant, illuminated from within, helps animate the street.

Whether this visibility is responsible for the hotel's commercial success is hard to ascertain. However, according to the client, the property, which reopened as The Study in September 2008, is meeting his objectives. Nightly rates are almost double those charged by the Colony, and occupancy is already averaging around 60 percent – a level that is usually achieved only after two or three full years of operation, explains McGowan. And, he adds, for independent hotels like The Study, which typically take longer to gain a foothold in the market, such performance is especially unusual. ■

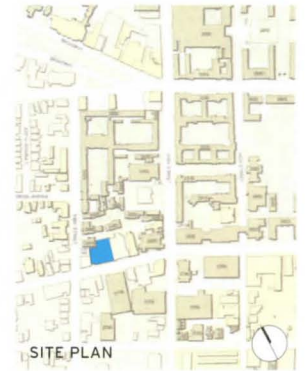
DRAWINGS



FOURTH FLOOR

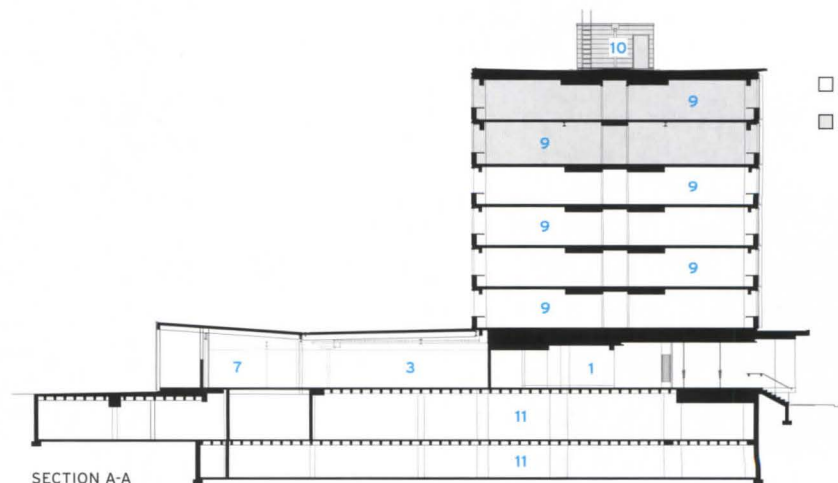


GROUND FLOOR



SITE PLAN

- 1 Lobby
- 2 Reception
- 3 Meeting
- 4 Restaurant
- 5 Café
- 6 Parking access
- 7 Kitchen
- 8 Office
- 9 Guest room
- 10 Mechanical
- 11 Parking



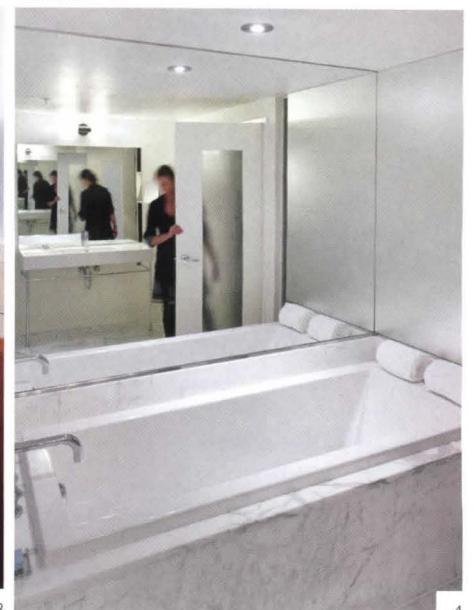
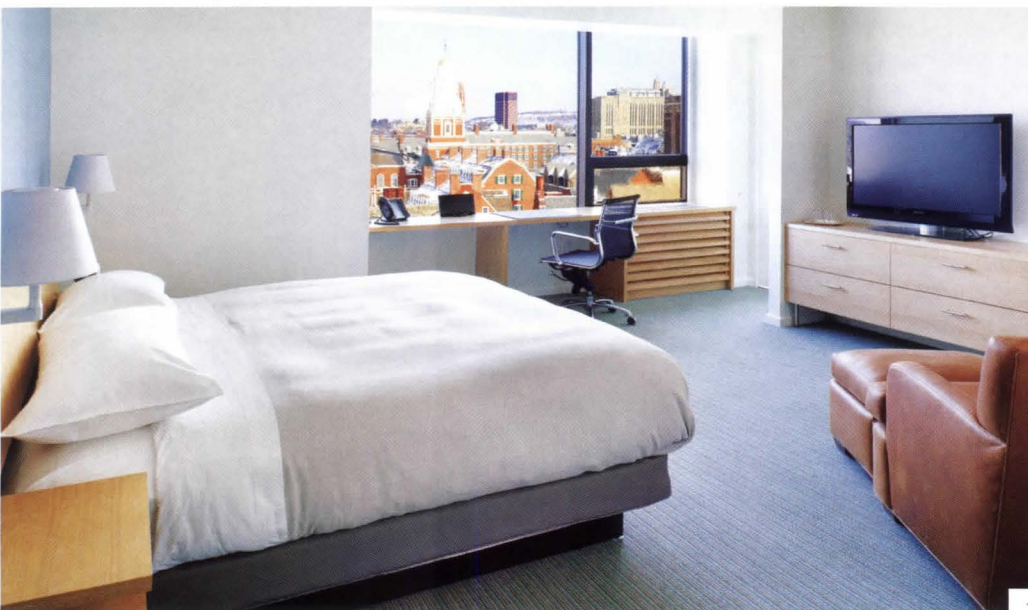
SECTION A-A

- Renovation
- New construction





1. A central entrance divides the ground-floor public areas into a lobby (foreground) and a restaurant and bar area (background).
2. The ground-floor public spaces, including the restaurant, offer a vantage point for viewing activity on the street.
3. In the guest rooms, generous glazing makes the most of campus views. Built-in desks resemble study carrels.
4. The bathrooms, with dimensions constrained by the existing structural grid, achieve a sense of spaciousness with mirrors and Minimal design.





# Opposite House

BEIJING, CHINA

Kengo Kuma contributes to his own master plan of this smart new Beijing district.

By Robert Ivy, FAIA

**Architect:** Kengo Kuma and Associates – Kengo Kuma, Yuki Ikeguchi, Jun Shibata, Jun Florian Peine, project team; with Neri & Hu (restaurants, collaboration on public spaces) – Lyndon Neri, Rosanna Hu, principals

**Associate architect:** Beijing Architectural & Engineering Design

**Architect of record:** Oval Partnership

**Client:** Swire Hotels

**Engineers:** Arup Beijing

**Consultants:** Isometrix (lighting)

**Contractors:** Beijing Yang Jia Construction Engineer (guest rooms); Yearfull Construction (public areas)

**Size:** 154,225 square feet

**Cost:** Withheld

**Completion date:** August 2008

## SOURCES

**Glazing:** Shangfei China

**Paints and stains:** Nippon Paint

**Stainless-steel mesh:** proMesh

**Cabinetwork:** Shanghai Cheng Meng Interiors

**Furnishings:** Kenkoon (outdoor chairs); Gandia Blasco (daybed); Emeco (café chair)

**Upholstery and carpets:** Tai Ping Rugs

**Elevators and escalators:** Hitachi

**Revolving doors:** Boon Edam

## THE SANLITUN NEIGHBORHOOD

in the Embassy District at the center of Beijing was once an entertainment strip where karaoke music wafted from open doors and barkers called visitors inside. Today, Sanlitun has been rethought and rebuilt as a 3,229,173-square-foot development on two sites – North and South. Kengo Kuma's design for a hip hotel called Opposite House provides an anchor for the new neighborhood, attracting an affluent crowd drawn to its art and urbane vibe. Sanlitun Village, which was also master planned by Kuma, contains 250 retail establishments in 19 major, low-scaled shopping and entertaining buildings by contemporary designers such as New York architects LO-TEK and SHOP.

## Program

The hotel, developed by Hong Kong-based Swire Properties, called for six above-grade floors of guest rooms set above public spaces. Its aesthetic agenda, radical for Beijing, proposed a type of Minimal luxe, featuring such departures from the norm as a concierge-assisted check-in and the display of Chinese artwork throughout the facility. While most contemporary hotels in Beijing achieve mega size, Opposite House took the iconoclastic position of fewer, though larger, rooms than Beijing's norm: Among its 98 rooms, eight of which are suites, the average size is 450 square feet – with a large duplex penthouse and terrace capping the structure. The lower levels contain five restaurants, a 72-foot stainless-steel-lined pool, and a gym.

## Solution

The name *Opposite House* derives from the traditional Chinese *siheyuan*, or courtyard architecture, in which a secondary structure for guests, typically facing north, sat opposite the primary residence. In another sense, the word *opposite* in the name announces the individualistic hotel as set apart from its peers, turning Beijing's traditional ideas of hotel design around.

Kuma set the pattern for other buildings at Sanlitun with a gridded exterior structure that has been repeated by other builders. The silk-screened green-glass facade establishes a sleek pattern related to adjoining structures and the street, stepping down at one point to a bamboo-filled courtyard adjacent to the dining area. Kuma has used the term “urban forest” to describe his intent for the overall structure within the Sanlitun Village.

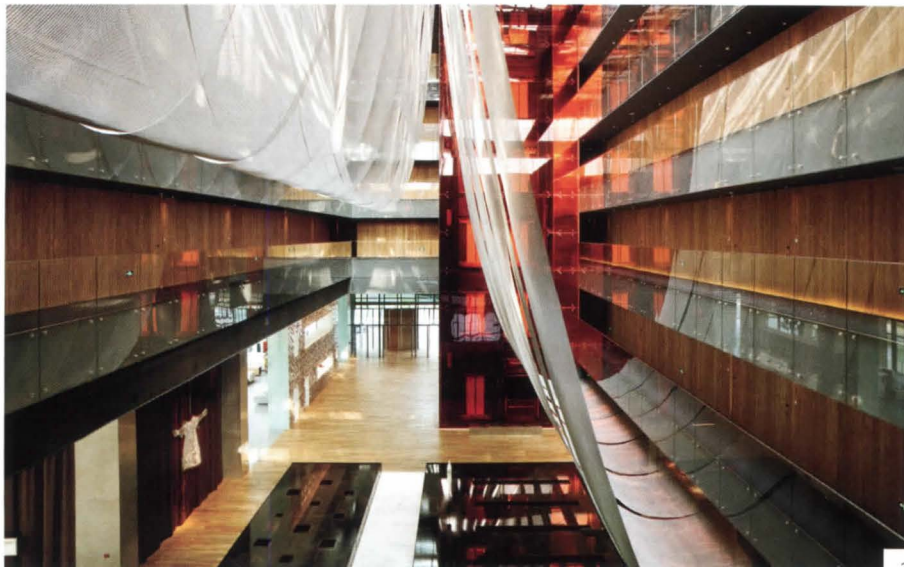
From the primary entrance, the interior opens to a cavernous, seemingly smoky atrium lined with ascending hotel rooms. An immense drape of metal mesh folds within the space, reducing its starkness while adding texture. Both the exterior grid pattern and metal mesh are attempts to create a “contemporary version of designs translated from Chinese traditional lattice and fabrics,” according to Kuma. At the back of the atrium, an elevator tower, enclosed in translucent cherry-red glass, draws guests toward the primary circulation core.

Uniquely, the lobby/atrium doubles as an art gallery, highlighting the work of notable contempo-



PHOTOGRAPHY: © MICHAEL WEBER, EXCEPT AS NOTED





1. The green glazing of the gridded exterior, together with patches of bamboo, sets the building apart in Sanlitun Village.

2. The entry lounge forgoes a formal check-in desk and features a distinctive installation – a 6,000-drawer apothecary wall that separates the seating from the central atrium.

3. The central atrium has an immense drape of metal mesh and a red glass-clad elevator shaft.



rary Chinese artists, whose dramatically lit installations punctuate the space's chiaroscuro. Initial displays included human forms in cracked, discarded blue-and-white porcelain by the artist Li Xiao Feng, and a "dragon robe" made of PVC by Wang Jin.

In opposition to most hotels, arriving guests encounter a decidedly low-key reception. No long counter offers the typical signal for a check-in. Instead, a striking 20-foot-tall apothecary unit with thousands of drawers reflects

this hotel's different approach. Concierges are standing by available to assist personally with check-in and guests' individual requests. The adjacent reception, bar, and seating areas enjoy abundant natural light.

Hotel rooms feature sleek brushed-oak floors, an open floor plan, and traditional Asian craft touches, including solid oak soaking tubs, sinks, and counters. The textural material display, such as smooth slate walls in bathrooms, adds a sensory note. Kuma, known for his affinity for wood, continues

this effect with built-in wooden furnishings and contrasting planar white ceilings.

Several larger units, called studios, open to decks that look out over the growing Embassy District. Sheer draperies turn the floor-to-ceiling windows into translucent panels.

The penthouses, however, allowed the architect to vary sectional levels with wooden platforms. Woven wooden partitions and ceiling treatments separate sleeping and other spaces.

For the variety of restaurants

on the lower levels, Kuma was joined by Neri & Hu, the Shanghai-based firm of architects Lyndon Neri and Rosanna Hu, who devised contrasting schemes for the venues that have been inserted into the below-grade concrete shell. Their colorful work in the restaurants varies from Kuma's intentional quietness, providing animation and activity, though both firms collaborated on public areas.

Faced with a blank slate on the lower level, Neri & Hu brought a Shanghai élan to the entertaining spaces, setting each apart with

DRAWINGS

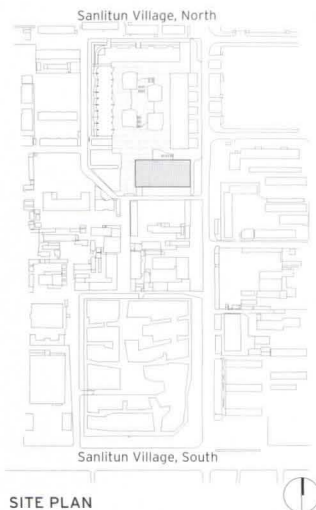


GROUND FLOOR

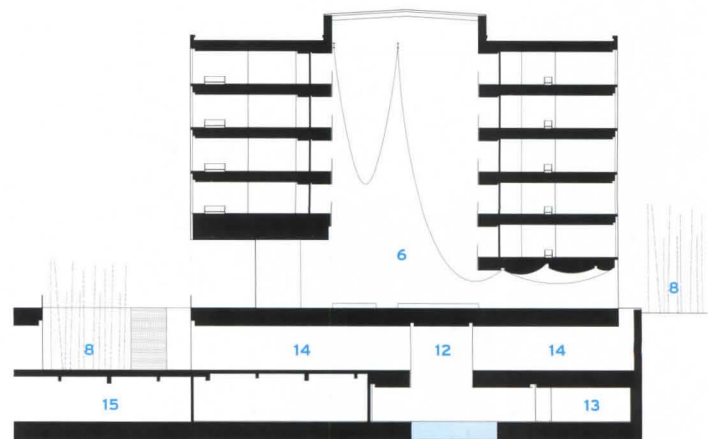


TYPICAL FLOOR

- 1 Vestibule
- 2 Reception
- 3 Art display
- 4 Bar
- 5 Café
- 6 Atrium
- 7 Reflecting pool
- 8 Garden
- 9 Studio 45
- 10 Studio 70
- 11 Studio 95
- 12 Open to Swimming pool
- 13 Gym
- 14 Restaurant
- 15 Parking
- 16 Visitor drop-off



SITE PLAN



SECTION A-A

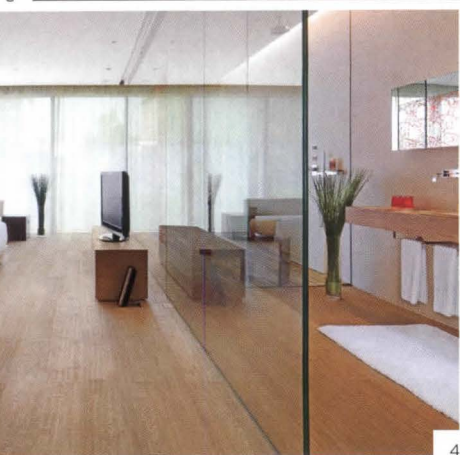




1. The larger Studio 95 unit includes planar surfaces of glass and slate, as well as Minimal furniture in wood and simple fabrics.

2.,3. The duplex penthouse features woven partitions and ceilings characteristic of Kuma's interest in textures. The unit also features an expansive terrace.

4.,5. The smaller Studio 70 unit features a smooth oak floor, built-in cabinetry, and a glazed partition that separates the bathing area from the bedroom. The bathroom features a solid oak soaking tub and oak twin sinks that are reminiscent of Asian craft traditions.







color and a few decorative elements, complementing the spare sensibility yet enlivening the entire complex. The color palette distinguishes the cuisines. From the plain white arrival point (called the “egg”), the visitor can choose among Sureno, a Mediterranean restaurant overlooking the garden, with a blue accent wall; Bei, an Asian-themed room with an orchid-colored wooden screen wall; and Punk, inevitably set apart by red. In addition, a bar called Mesh tucks under the draped canopy in the lobby.

#### Commentary

Opposite House meets its goal of offering an alternative form of lodging to a new generation of guests. Its architecture underscores its intentions, creating a strong, quiet respite from Beijing’s, and Sanlitun’s, bustle while offering a kind of self-directed form of retreat. If the hotel’s atrium design can sometimes seem intimidating, forcing public display on guests as they enter and exit their rooms and encouraging a certain aural and visual lack of privacy, the hotel more than makes up for this in the comfortable seclusion of the luxurious guest quarters.

Kengo Kuma has jumped in scale and building type with this, his first major hotel. Currently the master planner of another large urban neighborhood located nearby, Sanlitun SOHO, he will have additional opportunities to experiment at the urban scale. The question raised by Opposite House, and to be answered by the architect, is whether he can retain his distinctive hand and material sense as his projects and his clientele continue to grow. ■



- 1.,2. The Punk and Bei restaurants by Neri & Hu use color and lively detail for differentiation.
3. The stainless-steel-lined pool on the building’s lowest level opens to the atrium and light above.
4. A Mediterranean restaurant, Sureno, overlooks the adjacent sunken bamboo court.
5. Mesh, the lobby bar, brings the theme of metal mesh in from the central atrium and provides protected enclaves within a larger space.



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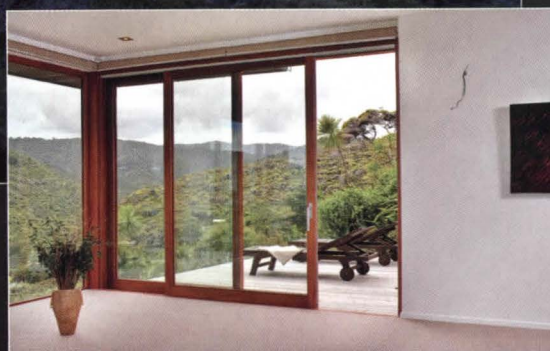


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- 98 **iluma**, Singapore
- 102 **The Yas Hotel**, Abu Dhabi, United Arab Emirates
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- 108 **Lighting Products**

Building skins covered with vibrant moving light screens (aka signs) are a fact of life in cities like Las Vegas, New York, and Tokyo – and have been for decades. But a growing group of designers is creating iconic structures with media-driven facades that fuse art and architecture. The following projects by WOHA, Asymptote, and Ex Machina demonstrate the current state of the technology. They also offer a glimpse into its future potential. *Linda C. Lentz*

[ ILUMA, SINGAPORE ]

## WOHA and RealU craft a crystalline hybrid

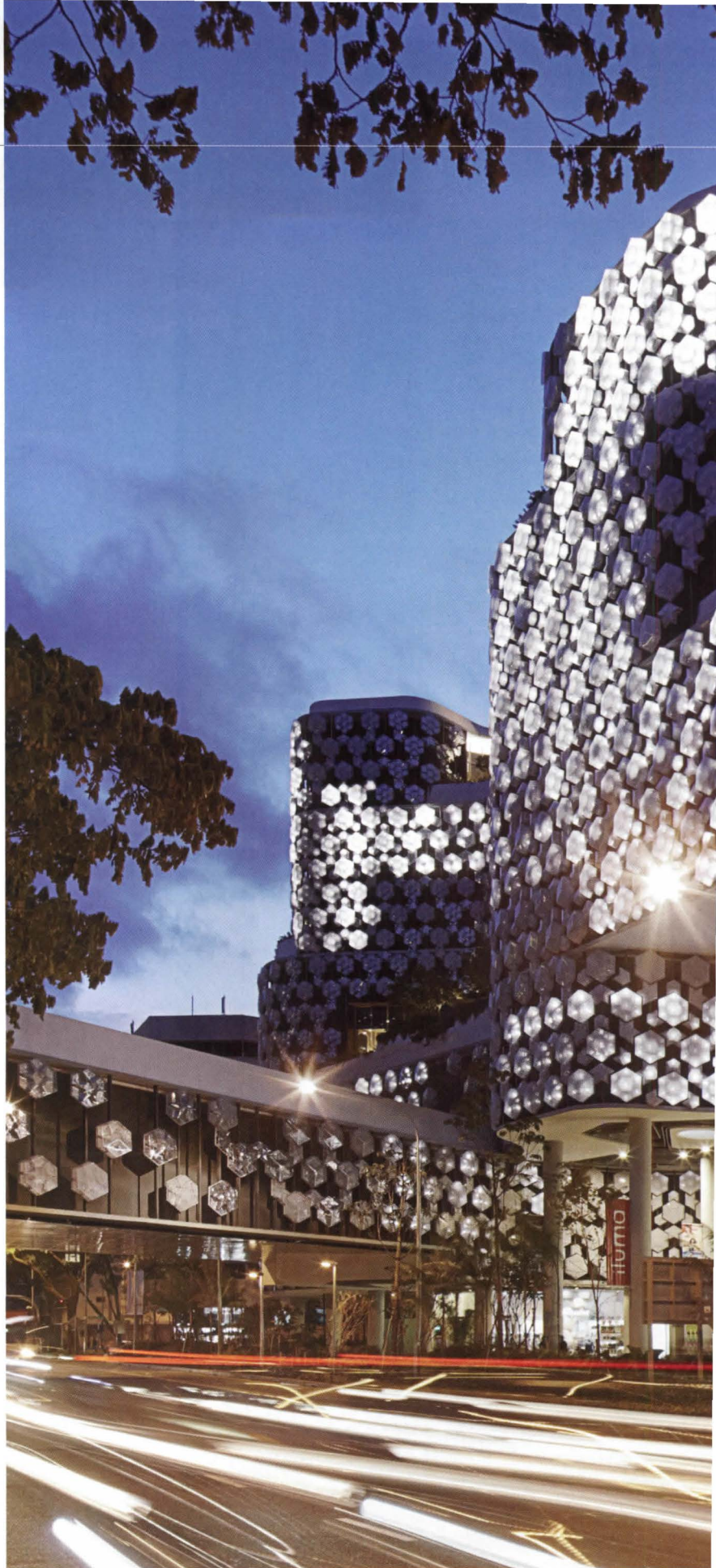
BY ROBERT SUCH

**TOUTED AS SINGAPORE'S FIRST URBAN** entertainment complex, the recently completed *iluma* project by WOHA takes a radically different approach to the kind of lighting found elsewhere in the Asian city-state, using a media facade designed to mesh artistic creativity and commercial interests in a developing arts and heritage district.

The \$79 million complex, by WOHA's principals Wong Mun Summ and Richard Hassell, stands in an area that has evolved over the past two decades from a place frequented by street hawkers, transvestites, and transsexuals to a district dotted with arts schools, galleries, shopping malls, and institutions such as the Singapore Management University, the National Library, and the Singapore Art Museum.

Completed in November of last year, the *iluma* project began in 2005, when the Singapore government offered a street-level parking lot for sale and redevelopment as part of an existing long-term master plan to transform the 235-acre Bras Basah Bugis area, on the northeast edge of downtown, into an arts, culture, learning, and entertainment district.

A local developer and WOHA teamed up in a bid for the site. Working from a sketchy client brief, WOHA proposed



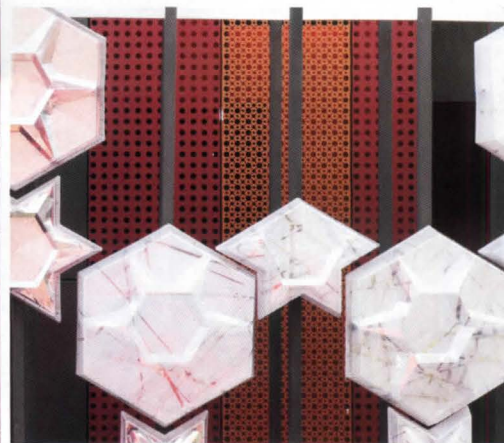
PHOTOGRAPHY: © TIM GRIFFITH





The curvy east facade of the iluma complex features a digital Crystal Mesh system that morphs the building into a dynamic light sculpture.





LEFT: Warm white metal-halide uplights illuminate the colorful aluminum-paneled box.

ABOVE: The hexagonal polycarbonate "crystals" measure 5 feet wide.

a "concept and design for a building to act as a focal point and platform for the arts and to find a commercial connection between the arts and entertainment," says Wong, WOHA's cofounding director and principal in charge of the project.

WOHA beat out the competition with a design for a building composed of a red box and a curvy east facade. "We adopted this solution partly because we wanted to show the difference in function," says Wong. "The client had fixed, square rooms, and the rest were unspecified retail or flexible spaces." A parking structure, an eight-screen cineplex, and a top-floor theater for live performances now occupy the equivalent of a 10-story rectangular box clad in solid and perforated aluminum panels. Diffusing the warm white light from a row of 3000K metal-halide uplights around the base, the perforated surfaces cause the building to glow at night.

"The curving, undulating, overlapping and overhanging floor plans," says Wong, "were meticulously adjusted to create an open, outdoor plaza space [on level 7], an indoor activity space on the ground floor, and two levels of atriums [that provide] an amphitheater quality, so that one can see and feel more activities in the complex."

To assist in creating a unique and spectacular visual landmark, the architects persuaded the client to bring in Berlin-based brothers Tim and Jan Edler of realities:united (realU) to work on the wavy facade. The founders of the German art, architecture, and technology studio came up with some over-the-top ideas, one of which included a semirobotic lighting system, before they finally settled on a crystal-like skin that "physically and conceptually merged WOHA's existing idea of a glass facade with the idea of a pixelated media surface," says Tim Edler.

By day, realU's so-called Crystal Mesh (CMesh) glints in the sunlight. Structurally, it is made up of 3,120 polycarbonate and aluminum "crystals" arranged in a tessellated pattern and clipped to a steel support frame bolted to the building's outer wall.

Roughly two thirds of the CMesh becomes illuminated. Over this area, 1,849 of both the larger, 5-foot-wide hexagonal CMesh crystals and smaller connecting elements (which measure about 3 feet across) have up to seven individually dimmable 4000K compact fluorescent lamps inside them.

In the evening, the polycarbonate crystals housing the compact fluorescent lamps

take on the role of pixels in the programmable CMesh media facade, controlled by German firm thismedia's software and Swiss company se Lightmanagement's Adaptolux hardware.

Unlike large LED screens designed for display videos and logos, CMesh requires custom-made content that takes into account the facade's atypical design. Programmed to treat passersby to wavelike patterns in shades of gray, the software also works with video, animation, and digital camera files, says Edler. Additionally, it could use a range of sensor-based input to visually communicate people's emotional states, interests – through social networks, Web-site forums, mobile-phone technology – or traffic movement and intensity.

Ultimately, the iluma project was designed to be "dynamic architecture rather than a media event," explains Edler. "We don't expect people to look at the facade, since that is not what architecture is made for. We hope that people perceive this as a part of the natural appearance of the building, something that is indistinguishable from the rest of the building." ■

*Robert Such is a photographer and writer specializing in architecture, lighting, and landscape design.*

**Project:** iluma, Singapore

**Architect:** WOHA – Wong Mun Summ, Richard Hassell, principals

**Lighting design:** realities:united – Jan Edler, Tim Edler,

principals (media facade); Lighting Planners Associates (static)

**SOURCES**

**Lighting:** se Lightmanagement (controls); thismedia (software)



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[ THE YAS HOTEL, ABU DHABI, U.A.E. ]

# Asymptote illuminates the fast track

BY LINDA C. LENTZ

**WHEN ASYMPOTTE PRINCIPALS** Hani Rashid and Lise Anne Couture won a 2007 competition to design a 500-room luxury hotel and marina on Abu Dhabi's Yas Island, northeast of the mainland, the directive was firm: to create an iconic complex around a Formula 1 racecourse and complete it in time to host the country's inaugural Grand Prix on November 1, 2009. According to Rashid, "They wanted something spectacular, engaging, and powerful that would put the race and city on the world map."

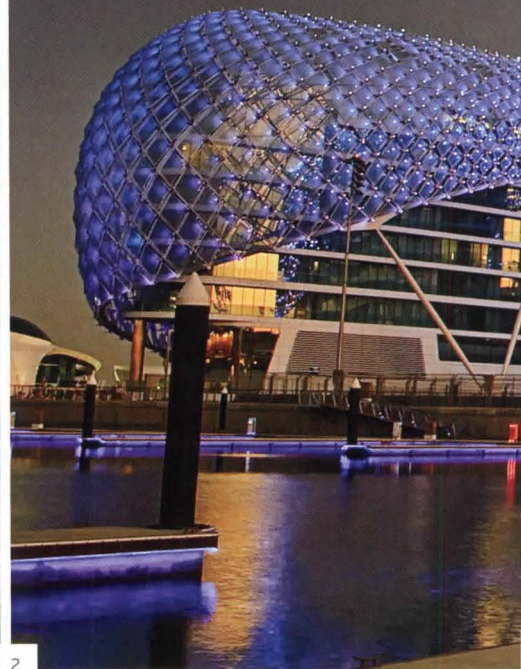
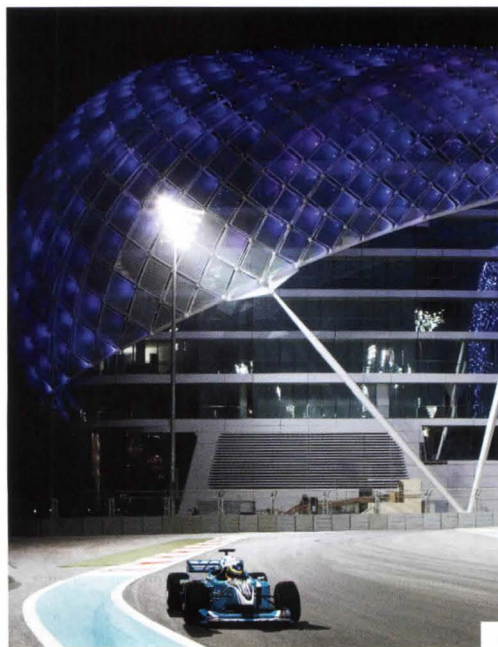
Like a mirage, the sweeping form of The Yas Hotel – part of the first phase of an ambitious master plan by developer Aldar Properties to convert the 10-square-mile desert oasis into an alluring tourist destination – evokes the speed and excitement of the event and the lifestyle it celebrates. Plus, the 914,932-square-foot project was realized in under 24 months, thanks to a skillful pragmatism comparable to that of the drivers who shared the spotlight on opening day.

Working within the time constraints of the job, the architects devised a dynamic composition incorporating the existing elliptical footprint of a previous design (halted during the early stages of construction) by juxtaposing a larger oval plan perpendicular to it. The resulting pair of glazed, 12-story, flat slab-and-column buildings are linked by an elegant "monocoque" steel-and-glass bridge and cloaked in a virtual veil of modulating light.

"It quickly became an issue to produce something to control the heat in the building," says Rashid. So he and Couture collaborated with the BIM specialists at Gehry Technologies and Stuttgart-based engineer Schlaich Bergermann to develop the structurally independent outer skin. Comprising 5,096 lozenge-shaped, coated-and-fritted-glass panels, framed in steel, the grid shell, as it's called, serves as a solar-shading and heat-chimney device. The 712-foot-long faceted expanse also provides a continual surface that reflects beautiful, luminous effects as the sun moves across its surface during daylight hours.

Once the designers established the idea of the grid shell, the design team saw its potential as an immense canvas on which to input data that could transfer into light sequences. "That's when we turned to Arup Lighting," explains Rashid.

As the architects' main concern was to avoid a Las Vegas-style light show, they worked closely with Arup Lighting designers Brian Stacy



and Richard Fisher to create a program of subtly changing, ambient light values that would not be immediately evident to onlookers and passersby. What they came up with, says Stacy, is one of the most advanced systems Arup has ever produced.

The design strategically positions close to 5,000 IP65-rated, RGBW LED luminaires at the intersections of the grid shell. These project any of seven customized video sequences onto and around the fritted-glass panels, resulting in swift 3D sequences that "fly" around the grid shell.

The lighting designers tapped U.K.-based Cooper Lighting and Safety to fabricate project-specific fixtures to meet the stringent environmental and technological demands, assuring that the light output is balanced over the various-size glass panels. At the same time, they partnered with German controls manufacturer e:cue to develop the equipment and software required to configure and monitor the sophisticated media-facade system. Features such as luminaire feedback alert the control system of problems such as overheating, in which case the LEDs can be powered down to maintain optimum operation.

"What's beautiful about the lighting system Arup worked out for us is that we put in video

feeds as opposed to color data," notes Rashid. "The video then is parsed over 5,000 pixels running over the entire surface."

Arup wrote the scripts and refined them to Asymptote's specifications in New York. Prior to launch day, the designers and client tested the sequences from numerous positions around the site.

Tweaking it, says Rashid, is like working with a giant light sculpture. "The colors are muted, and there are times when it looks as if a wave has gone over the building or the building is submerged in liquid. That is quite powerful." ■

**Project:** The Yas Hotel, Abu Dhabi, U.A.E.

**Architect:** Asymptote Architecture – Hani Rashid, Lise Anne Couture, principals

**Lighting Design:** Arup Lighting – Brian

Stacy, Richard Fisher  
**Engineers:** Schlaich-Bergermann, Waagner-Biro (shell)

**SOURCES**

**Lighting:** Cooper Lighting and Safety (luminaires); e:cue (controls); Enfis (LEDs)





PHOTOGRAPHY: © BJORN MOERMAN, EXCEPT DARREN HEATH (1)

1. The Yas Hotel spans a Formula 1 racecourse.
2. A sweeping 712-foot-long grid shell serves as a brise-soleil and heat chimney, as well as a vast surface to capture light and video streams.
3. Subtle, static landscape lighting complements the vast, dynamic media facade of the grid shell.
4. LED luminaires are fitted between the glass panels.



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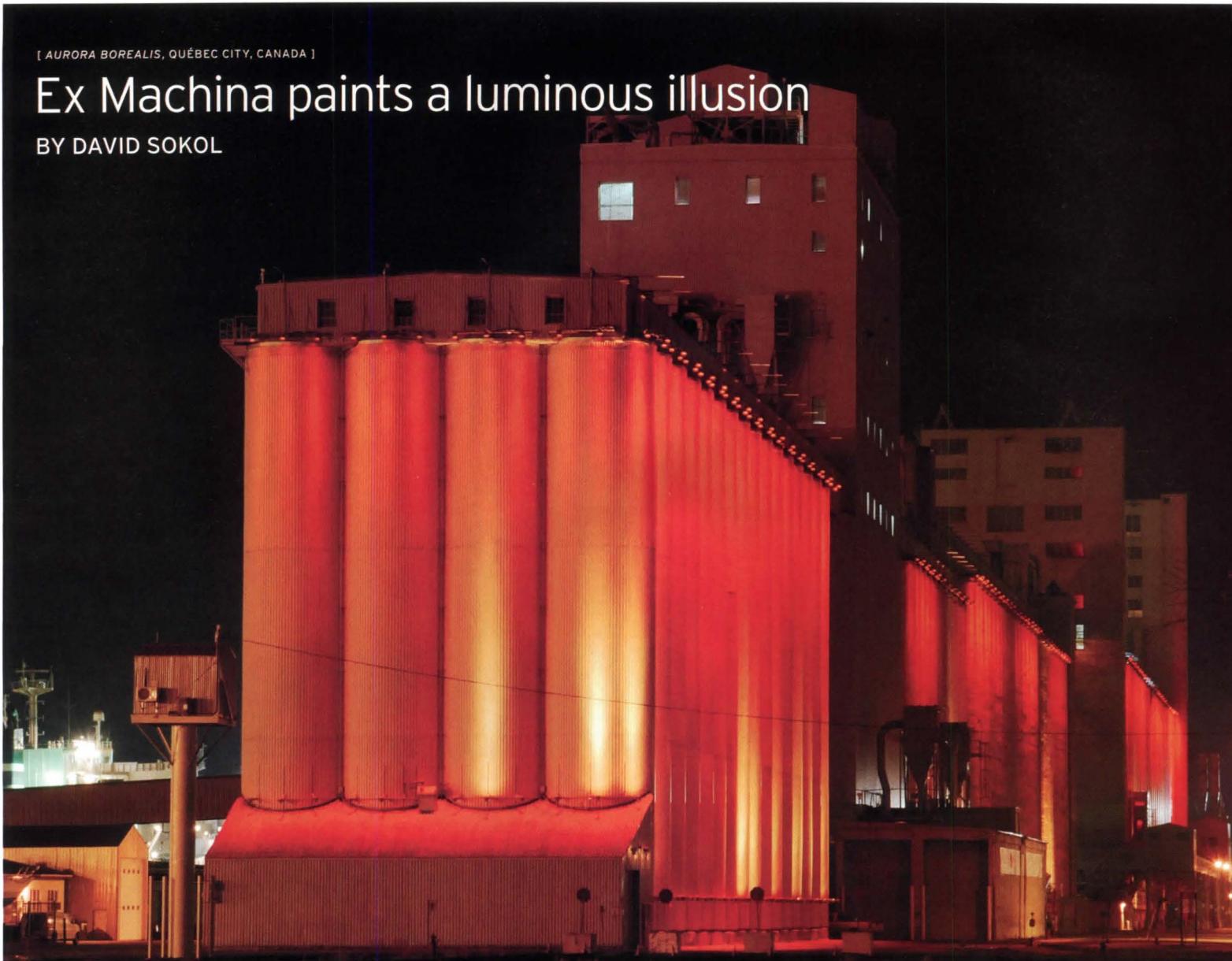
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[ AURORA BOREALIS, QUÉBEC CITY, CANADA ]

# Ex Machina paints a luminous illusion

BY DAVID SOKOL



**EVEN AS A YOUNG PLAYWRIGHT,** Québec City's Robert Lepage, the prolific artistic director responsible for such productions as Cirque du Soleil's *Kà* in Las Vegas and the upcoming staging of Richard Wagner's Ring cycle at the Metropolitan Opera in New York City, wanted to make his mark on the Bunge. The massive grain-storage terminal blocks city views to the Saint Lawrence River, and Lepage has been

staring at the 1,968-foot-long building since 1997, when he moved his production company, Ex Machina, into a converted firehouse facing its 81 silos. In 2008 he began to realize his vision.

Working with longtime collaborator Martin Gagnon, principal of Ambiances Lighting & Visual Design, Lepage created *The Image Mill*, a series of video images condensing Québec City's 400-year history into 40 minutes, which he displayed around two outer walls of the structure using 27

freestanding Christie projectors. During its first season, the projection – presented by the City of Québec, with the Bunge of Canada and the Port of Québec, to celebrate the city's 400th anniversary – attracted hundreds of thousands of viewers. This prompted the municipality to extend it for five summers – and to commission the designers to devise a new spectacle to add on to the work.

The resulting *Aurora Borealis* is a light installation that washes the Bunge with a re-creation





PREVIOUS PAGE AND ABOVE: **Ex Machina and Ambiances Lighting & Visual used over 500 LED**

**luminaires to create a man-made version of the northern lights around the expanse of Québec City's Bunge.**

of the northern lights via 574 LED luminaires integrated into the landmark. According to Gagnon, "Producing an impression of the northern lights is a project we've had in our pocket for a long time." *Aurora Borealis* follows presentations of *The Image Mill* in the summer but is also shown during the rest of the year, from dusk until 11:30 p.m.

To produce this show, the project team installed custom brackets at the top and bottom of each silo that hold Illuminarc Ilumipod 48 IP luminaires. Three-armed aluminum-tube brackets grace the 16-foot-wide silos, while five-armed versions are mounted to the 24-foot-wide concrete cylinders at the east end of the Bunge. The armatures bolt directly onto the structure or to pre-existing steel decking on top of it. The tubing also conceals the DMX and fiber-optic cables required to carry the signals from the control consoles located in a construction trailer next to the Bunge

and at the Ex Machina headquarters. "Because most people view the Bunge from a minimum distance of 500 feet, you don't really notice all the systems in place," Gagnon says. "The integration had to be as slick and slim as possible."

Each fixture includes 48 RGBW LEDs directed at a 15-degree opening. "We had to get a beam spread narrow enough so we could isolate each silo, but without having voids. That allowed us to create smooth transitions through the programming," Gagnon explains, referring to the grandMA consoles that control the complex color schemes.

Besides passing tests for Québec City's moisture levels and temperature extremes, the equipment has an International Protection rating of IP66, because, as production manager Mario Brien explains, "There is a lot of grain dust in suspension, and the rating ensures that the instruments don't pose a danger to this explosive condition."

One of five color sequences runs for 25- to 35-minute loops each evening. Gagnon and Lepage watched hours of video to replicate nature's color transitions. Yet the man-made version of the northern lights is more intense than the real thing, Gagnon notes, with higher illumination

levels compensating for citywide light pollution.

Currently, 1,000 puck-size discs containing three white LEDs and mounted on aluminum tubing in the folds between silos are being tested for durability. These will be programmed to mimic the stars and punctuate the washes of color throughout the *Aurora Borealis* displays. Come summer 2011, Lepage and Gagnon will put this new infrastructure into service to make the world's largest lighting projection even more dazzling. ■

*David Sokol is a New York-based contributing editor for ARCHITECTURAL RECORD.*

**Project:** *Aurora Borealis*, Québec City

**Production Design:** Ex Machina – Robert Lepage, principal designer

**Lighting design:** Ambiances Lighting

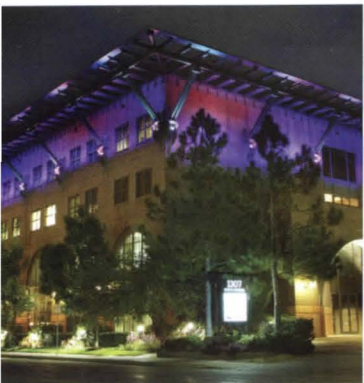
& Visual Design – Martin Gagnon, principal designer

**SOURCES**

**Lighting:** Illuminarc (LED luminaire); Ma Lighting (control console)



# SMART SUSTAINABLE LIGHTING



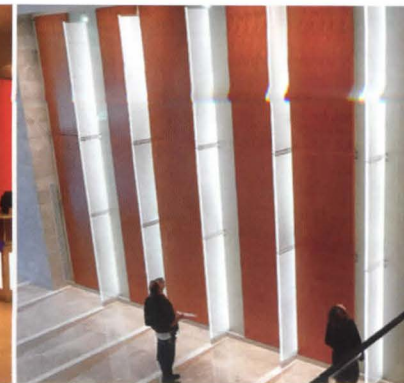
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**SmartPanel**  
Interior LED Illuminated Graphic Panels



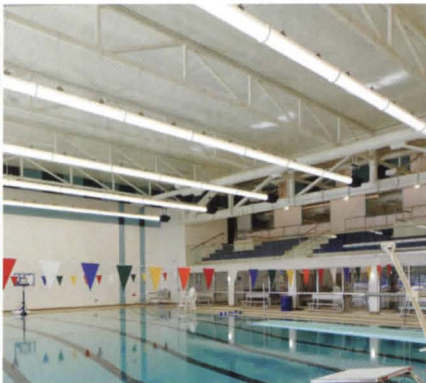
**SmartWall**  
Interior LED Illuminated Wall Systems



**TRE'O®**  
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**STRUCTURE®**  
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**ILLUSIONS®**  
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1 | PRODUCT **Supersystem and Tempura LED lighting systems**

MANUFACTURER **Zumtobel**  
zumtobel.com

Zumtobel's Supersystem LED and Tempura LED spotlight systems were recently installed in the Throne Room of the Neuschwanstein Castle near Füssen, Germany. The luminaires were chosen for their ability to fit into existing fixing points (or use clamps that do not interfere with the historic structures), as well their easily modifiable color temperatures. This year, nearly all areas in the castle accessible to visitors are scheduled to be fitted with individual LED lighting solutions by Zumtobel. **CIRCLE 211**



4 | PRODUCT **Sera LED**  
MANUFACTURER **HessAmerica**  
hessamerica.com

The pedestrian-scale Sera LED is a pole-mounted LED luminaire with a low-brightness optical system and field-replaceable light engine. The luminaire emits zero uplight above 90 degrees horizontal and is suitable for a broad range of public and private sidewalks, pathways, and two-lane street lighting **CIRCLE 214**

5 | PRODUCT **Fluxus**  
MANUFACTURER **Andromeda**  
andromedamurano.it

The Fluxus light sculpture, a collaboration between designer Karim Rashid and artist Michela Vianello, is the centerpiece of the White Gallery retail shop in Rome. The 200-square-foot structure consists of a track that anchors 80,000 hand-made glass elements (dubbed the Knit) and 5,000 punctiform halogen lamps distributed in a network across the internal surface of the wave. **CIRCLE 215**



6 | PRODUCT **EverGEN luminaires**  
MANUFACTURER **Carmanah**  
carmanah.com

Ideal for applications such as parking lots, residential streets, and site lighting, Carmanah's EverGEN solar LED lighting can produce light levels equivalent to AC-powered lighting while remaining completely off the grid. Utilizing BetaLED NanoOptic technology, the 1520 model (shown) is designed with a five-year battery life, reducing concern about frequent maintenance cycles. **CIRCLE 216**



2 | PRODUCT **Light-Drive Elite**  
MANUFACTURER **e:cue Lighting Control**  
ecue.de/light-drives

The award-winning Light-Drive Elite DMX controller features a sleek design and an intuitive interface that allows for the creation of static and dynamic lighting scenes. The glassy interface features an LED ring around the touch wheel to guide users in selecting and adjusting colors, intensity, and speed, as well as create color-changing lighting scenes without the requirement of software. **CIRCLE 212**



3 | PRODUCT **io Balance Beam**  
MANUFACTURER **Cooper Lighting**  
cooperlighting.com

Developed by LED luminaire designers with input from health-care designers and researchers, this ADA-compliant illuminated grab bar employs Touch Sensing Technology that activates the LED light inside the bar. A touch anywhere along the rail's length activates the LED light bar that illuminates a path to the patient's destination. **CIRCLE 213**





TURN LIGHTING ON ITS HEAD!

# THINK

## INSTALLATIONS

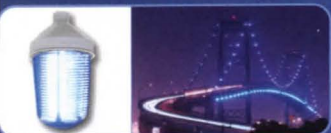
# LED BULBS



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# Shattering Myths About Glass

As architects and builders put more faith in the structural properties of glass, its use has expanded to all areas of design.

By Josephine Minutillo

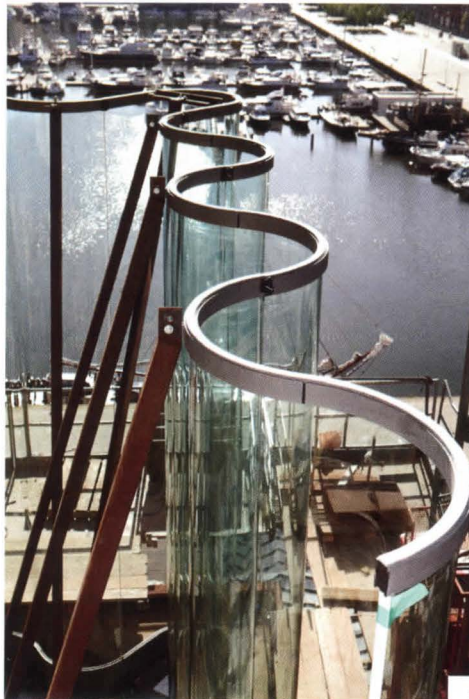
**GLASS MAY BE STRONGER** than concrete, but you're not likely to see too many glass columns holding up floor slabs. Nevertheless, more and more projects are beginning to embrace glass as a structural element to create innovative facades and interiors as well as bold urban spaces.

Though vast expanses of glass are not holding up huge sections of the soon-to-open Museum aan de Stroom (MAS) in Belgium, it certainly looks as if they are. The surprising building, designed by Dutch architects Neutelings Riedijk and located along Antwerp's waterfront, contains a series of stacked boxes housing galleries, each twisted 90 degrees and connected by a spiraling staircase. Visitors traveling up the staircase have broad, unobstructed views of the harbor and city center thanks to the groundbreaking use of corrugated glass in the facade.

"If you used straight panels, the glass would have been enormously thick because the free span is 18 feet," explains Rob Nijssse of ABT consulting engineers. "Since the corrugated glass is so much stronger in bending, we were able to use 1/2-inch-thick panels to take up the wind load for the large span." Nijssse first used corrugated glass in the Casa da Música in Porto, Portugal, designed by Office for Metropolitan Architecture (OMA) and completed in 2005. There, three layers of 13-foot-high corrugated panels rest on top of each other to form nearly 40-foot-high window openings within the heavy concrete facade.

With MAS, the heavy elements of the facade seem to float above the glass, which wraps around the building. In reality, the concrete boxes cantilever out from a central core and are separated from the glass panels by a 2-inch-wide airspace. "We had to keep the glass clear of the cantilever because there's a tendency for the concrete to deform slightly when it is loaded with people," says Nijssse.

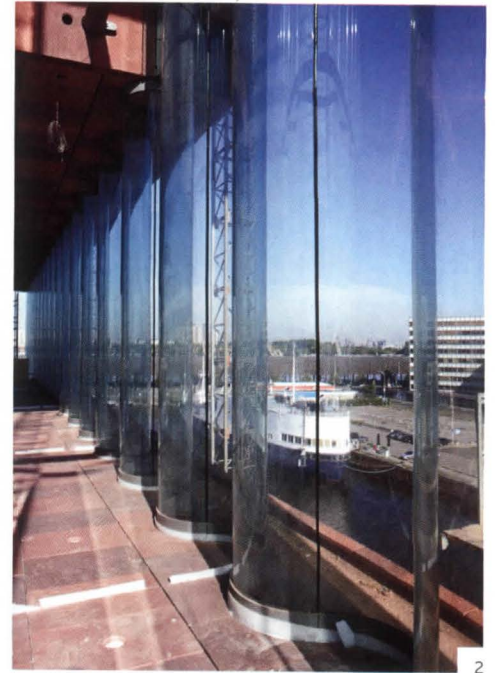
At the building corners, two layers of 18-foot-high panels are stacked on top of each other. The stacked glass panels in the Casa da Música incorporate steel I-beams to help support the wind load, but only a hollow steel tube, which is set back 1.5 feet behind the corrugated panels, is used for



that purpose at MAS's 36-foot-high spans. To connect the stacked panels, a steel U-profile is glued to the top of the lower panel and the underside of the upper panel, then bolted together with a corrugated steel plate in front and back. Structural silicone joins the individual vertical panels, each forming one S-shape 5.25 feet long.

The corrugated glass is fabricated in a similar fashion to curved glass, but goes one step further. A flat glass panel, cut to the appropriate dimensions, is placed in a furnace, where it melts over a mold. Since the glass gets its stiffness from its shape, the designers could use ordinary float glass rather than laminated or tempered glass, allowing significant cost savings.

According to Nijssse, the curved glass only produces slight deformation in views when standing at a distance from the panels. Its effect on the overall building, he says, is a "spectacular openness."



OPPOSITE: Soon to open along Antwerp's waterfront, the Museum aan de Stroom was designed by Neutelings Riedijk. The spiraling exhibition "boxes" appear to float above vast expanses of glass.

1.,2. The building is one of the first to use structural corrugated glass. Panels 18 feet high are stacked on top of each other at the building's corners.



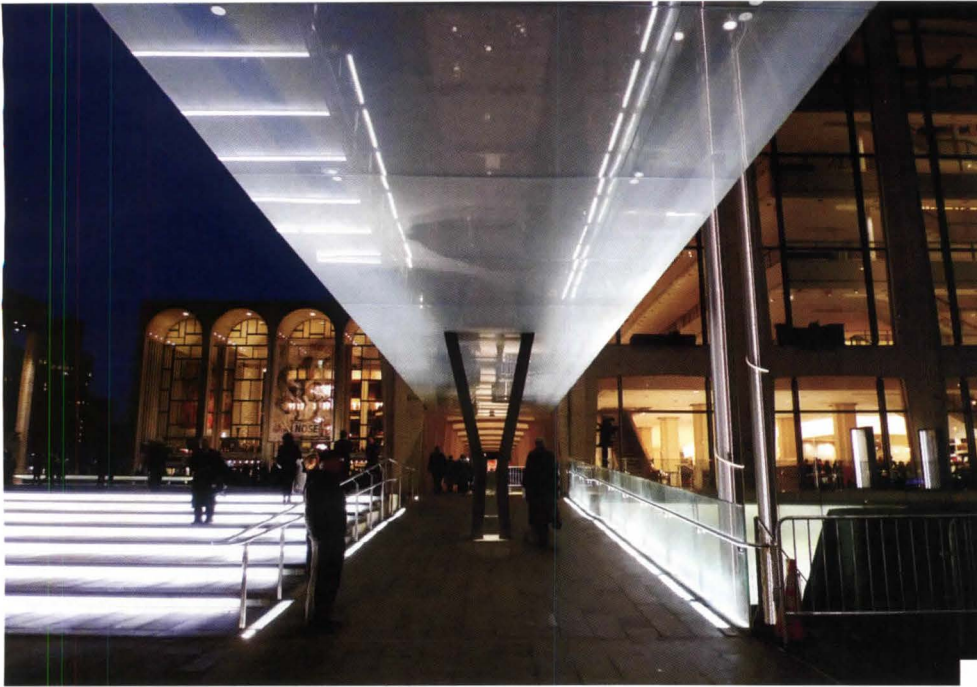
## Continuing Education

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To earn one AIA learning unit, including one hour of health, safety, and welfare (HSW) credit, turn to page 119 and follow the instructions.

### Learning Objectives

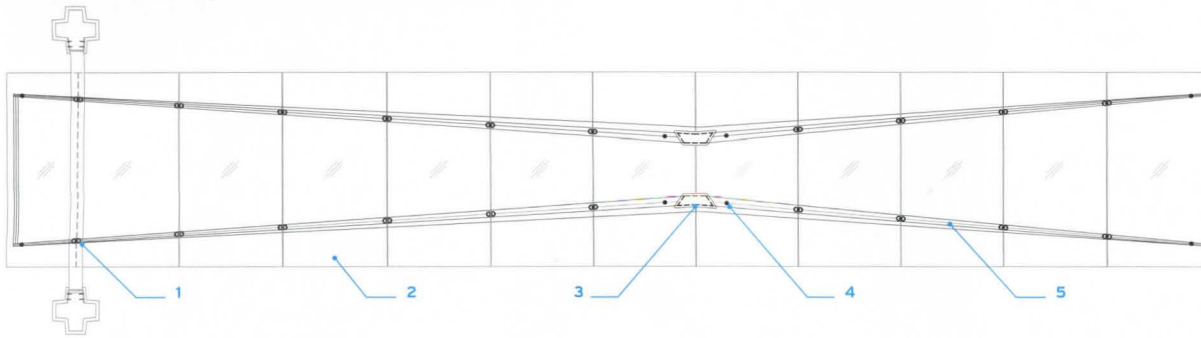
- 1 Recognize the differences between annealed, tempered, and laminated glass.
- 2 Understand the advantages and disadvantages of various types of glass.
- 3 Understand how various glass structures are assembled.
- 4 Identify innovations in the use of structural glass.





1. Two 89-foot-long glass canopies were recently unveiled as part of the ongoing redesign of New York's Lincoln Center by Diller Scofidio + Renfro.  
2. In a design by KieranTimberlake in

collaboration with Olin, two all-glass pavilions act as gateways to the transit concourse below Philadelphia's Dilworth Plaza. Connected by a single arcing gesture, each rises 20 feet.



LINCOLN CENTER CANOPY PLAN

- 1 Building-interface support member
- 2 Overhead glazing
- 3 Pier
- 4 Rotule fitting
- 5 Overhead beam

Of course, the desire to create a spectacular openness makes glass the material of choice. Diller Scofidio + Renfro enlisted Dewhurst Macfarlane, engineers of the iconic, glass-themed Apple flagship stores, for the design of a pair of canopies at New York's Lincoln Center. "They really just wanted a slab of nothing to keep the rain off people walking from the buildings to the street," recalls Tim Macfarlane. The nearly 90-foot-long canopies connect to existing building columns at one end and are supported by a pier toward the middle, leaving close to 40 feet of overhead glass to cantilever above.

"The real innovation here is that the glass structure stabilizes the steel," Macfarlane says. "We've gone from steel supporting glass, to glass supporting glass, to glass supporting steel." The canopies consist of a series of 14-foot-6-inch-by-7-foot-7-inch glass panels, joined by weathering silicone, underneath a pair of bent steel beams, which, according to the engineers, would buckle were it not for the glass below. A small glass panel located between the legs of the pier provides lateral support to the canopy.

The 2-inch-thick laminated glass, fabricated by the German manufacturer Seele, incorporates another recent innovation. An ionoplast seal binds the layers of glass together for full composite action, making the material itself part of the structure and allowing for a very stiff and relatively thin panel. Panels using earlier bonding materials like polyvinyl butyral (PVB) were not as strong, because the laminated sheets would behave independently rather than as a single unit. "If we didn't use ionoplast, the glass would probably be 3 to 4 inches thick," Macfarlane explains. "It's a big savings in terms of weight." Another project by Dewhurst Macfarlane, for a balustrade at the Victoria & Albert Museum in London, uses ionoplast to bond glass to metal.

Since the canopies' unveiling earlier this year, Macfarlane and his team have noticed that some visitors – who don't seem to have as much faith in the glass as the engineers do – prefer to walk around the glass structures rather than beneath them. For an underground entrance at Dilworth Plaza in Philadelphia, "There's no 'walking around it' option," Macfarlane jokes.

Designed by KieranTimberlake in collaboration with Olin, two 17-foot-wide, all-glass pavilions connected by a single arcing gesture are planned as gateways to a below-grade transit concourse. "A continuous circle is set against a Classical facade," says Macfarlane. "It's a simple gesture that deserved a simple solution."

That solution eliminated any steel structural members or metal connections whatsoever. Instead, the 2-inch-thick laminated-glass panels of the curving roof are joined by structural silicone and supported entirely by vertical glass panels – without fins – of equal thickness. "It's basically a giant glued structure," says Dewhurst Macfarlane associate Nicholas Roach. The walls support all vertical and lateral loads, including wind and snow. Wind loads present the greatest challenge, especially at the top of the staircases, where the wall reaches nearly 20 feet in height. "We needed to transfer those loads down the cantilever where it is stiffer," Macfarlane explains. "The closer you get to the bottom, the more capable the structure is of supporting the load."





**PNCSC**  
Port and Cruise Service Center  
港埠旅運中心



## 高雄港客運專區— 港埠旅運中心國際競圖

PORT OF KAOHSIUNG PASSENGER TRANSPORTATION DISTRICT -  
PORT AND CRUISE SERVICE CENTER  
INTERNATIONAL COMPETITION

### The Invitation

With a view to create a quality environment in which to serve passengers and clients, the Kaohsiung Harbor Bureau, Ministry of Transportation and Communications of Taiwan R.O.C. has formulated a plan for the "Port of Kaohsiung Passenger Transportation District" and the construction of the "Port and Cruise Service Center". Passenger service facilities and the surrounding environment will be improved, visitors will be provided with more convenient and comfortable facilities, and the offices of various port administrative agencies will be integrated within one area to enhance service quality. Furthermore, the plan will help promote international exchange and boost international as well as domestic tourism. The 6.13-hectare district site includes the area occupied by Piers 18-21 and their backyards in the Lingya commercial port district, POK. The Port and Cruise Service Center will be constructed first on the 2.46-hectare area at Piers 19 & 20 and their backyards to serve, upon completion, passenger vessels moored between Berths 18 to 21. The main spaces consist of vessel transportation management center, offices, conference room, boarding ramp, passenger arrival and departure spaces, integrated service counter and other service spaces.

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#### • Service Fees

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#### • Qualifications for Participation (for Stage One)

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- (2) Any licensed architect (or Firm / Corporation) of foreign country is qualified to tender.
- (3) Joint tender is available for licensed architects of the R.O.C. (Taiwan) and licensed architects (or Firms / Corporations) of foreign countries.

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#### • Timetable

Stage One Tender Submission Deadline  
2010/08/30  
Stage One Jury Session  
2010/09/02 ~ 2009/09/03  
Announcement of the Short-lists  
2010/09/03  
Stage Two Tender Submission Deadline  
2010/12/06  
Stage Two Jury Session  
2010/12/09 ~ 2010/12/10  
Announcement of the Winners  
2010/12/10

#### • For more information, please visit

[www.PNCSC.com.tw](http://www.PNCSC.com.tw)

(official launch on May 28th, 2010)

#### • Host Organization



Kaohsiung Harbor Bureau, Ministry of  
Transportation and Communications,  
Taiwan, R.O.C.  
<http://www.khb.gov.tw>

#### • Coordinator

Barry Cheng, Barry Cheng Architect  
TEL: 886-4-2326-1799  
FAX: 886-4-2326-5212  
Email: [barry-cheng@umail.hinet.net](mailto:barry-cheng@umail.hinet.net)





1. In a design by Grimshaw Architects, a tensegrity structure was used for an innovative glass staircase.

2. Prestressed cables running from the floor to the castellated steel beams overhead carry the glass treads.

3. A fish-bow truss beneath the treads provides lateral stability.



Dewhurst Macfarlane can predict to some extent how the structure will perform, since its parts – including finless vertical glass walls – and scale are similar to the TKTS Booth in New York City's Times Square they worked on [RECORD, January 2009, page 47]. But they used NEi Nastran, a finite element analysis program typically used for designing complex machine parts, to understand all the stresses in the structural silicone, or glue. As currently designed, the silicone will only be used for the 1/2-inch-wide gaps between the roof panels. Those same gaps between the vertical panels will be left open, keeping the pavilions ventilated and capturing light during the evenings for a dazzling enhancement to a grand urban space.

Structural glass can be used on a much smaller scale to create equally dazzling interior spaces. AMG Design, a high-end steel-and-glass specialty contractor, is using its new facility in Plainview, New York, to showcase its fabrication capabilities. The showstopper is a dramatic glass-and-cable staircase designed by Grimshaw Architects together with Thornton Tomasetti engineers.

The 4-foot-wide staircase is centered in the foyer of a newly built, all-glass box within an existing traditional industrial building. It may be the first staircase to form a true tensegrity structure (Buckminster Fuller – who coined the term – created what is probably the most famous type of tensegrity structure, the geodesic dome). As such, the solid members, or glass, are loaded under pure compression, with the cables providing all the tension.

"What's unique about the staircase is that we don't have any stringers in the conventional sense of two bending beams," says Thornton Tomasetti's Wilfried Laufs. "We prestressed thin cables like a harp from the floor to the ceiling and clipped the glass treads in between. There are no beams or slabs or walls in this system at all." Instead, the inclined cables are tensioned against the floor and ceiling, where castellated steel beams receive the cable ends and transfer the loading over to the main building-structure columns.

Underneath the treads, the 1/4-inch-diameter cables form a fish-bow truss in order to avoid

staircase vibrations and stabilize the treads laterally. Vibration control is most critical compared with static deflection and stress limitation for this type of staircase. EASY Technet, a specialty German software for lightweight surface structures, was used to determine the critical lowest vibration modes both unloaded and loaded with people at different locations.

The treads are made up of laminated safety glass. Ionoplast is used to bond the four glass layers to each other, and the stainless-steel connectors to the glazing. As standard practice, the top layer, referred to as the "sacrificial layer," is assumed to be broken for calculations. "Imagine you would drop a sharp metal suitcase and that top layer would break while you're standing on it," Laufs explains. "We already don't take that into account."

The designers will use annealed glass, or basic float glass, so that the edges can be polished. (The same polish is not possible with heat-strengthened, or tempered, glass.) A continuous weaving handrail will be assembled along the cables, which will be lit from the floor.



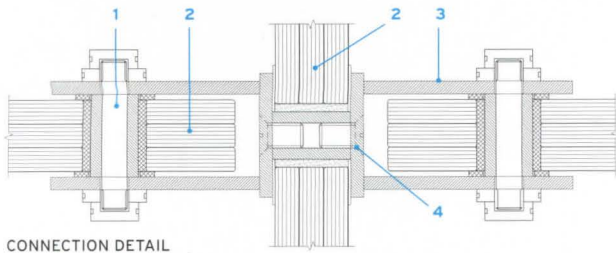
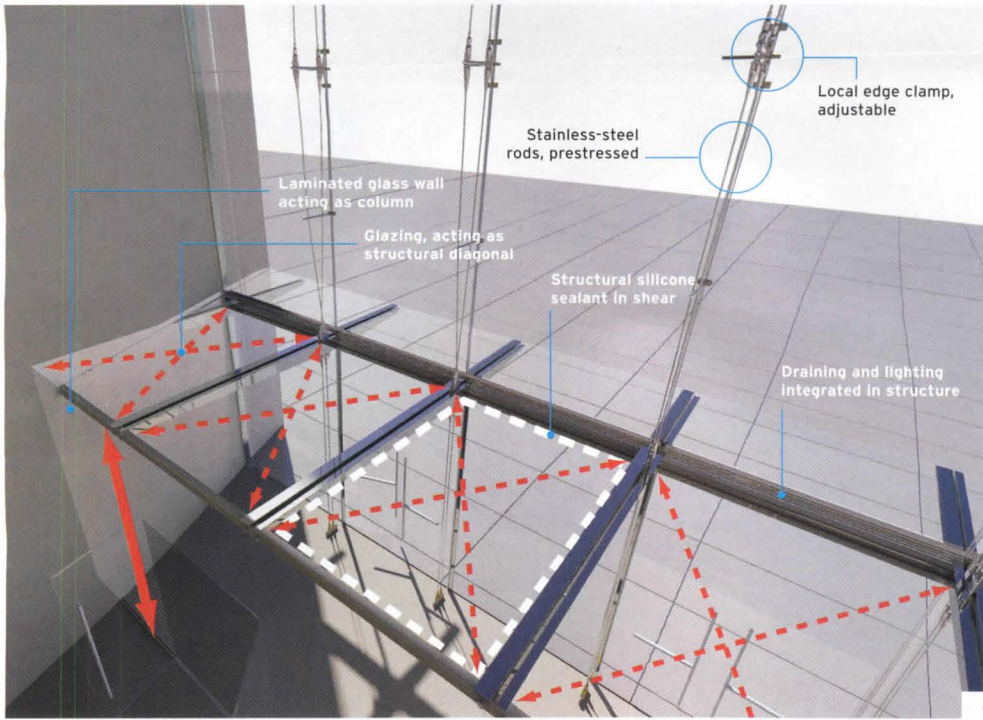


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CONNECTION DETAIL

- 1 Rod
- 2 Laminated glass
- 3 Stainless-steel plate
- 4 Stainless-steel screws

1. For a mixed-use development under construction in Washington, D.C., designed by Pelli Clarke Pelli, two structural-glass entry walls enclose an atrium that links two commercial buildings and leads from the street to the courtyard.

2.,3. A glass walkway animates an otherwise ordinary lobby inside a London office building. Hung from above, a steel fork slots over the glass beams beneath the walkway's floor panels. Tensile stresses are high around the holes in the glass.



2



3

Another project by Thornton Tomasetti, this time in collaboration with Pelli Clarke Pelli Architects, also aims to maximize transparency while minimizing structure. A mixed-use development currently under construction in Washington, D.C., features two structural-glass entry walls that enclose an atrium and provide a daylight-filled walkway through the complex.

Each of the three-story-high glass-and-cable facades incorporates a glass-canopied entrance. "What we tried to do is basically use these pieces that we need anyway and make sense of them structurally in a bit of an innovative way," explains Laufs. For example, the back wall of the vestibule, containing a second set of entry doors, acts like a column to hold up the vestibule roof. "We figured that if we have to have a second door situation for thermal reasons, let's use it structurally as well," says Laufs. Perhaps more interesting, the structural silicone-sealed vestibule roof glazing over the entrance doors uses the glass as shear bracing, acting like a horizontal intermediate truss to further reduce the effective span of the facade.

Only the horizontal glass of the vestibule roof is laminated for redundancy purposes because of its overhead position. According to Laufs, "If the glass would really fail badly, it would still stay in place."

The engineers used SJ Mepla, another finite element analysis program, for the calculations of the glass structure, but relied on the same tensegrity software used for the staircase design to determine the prestressing of the cables on the facade.

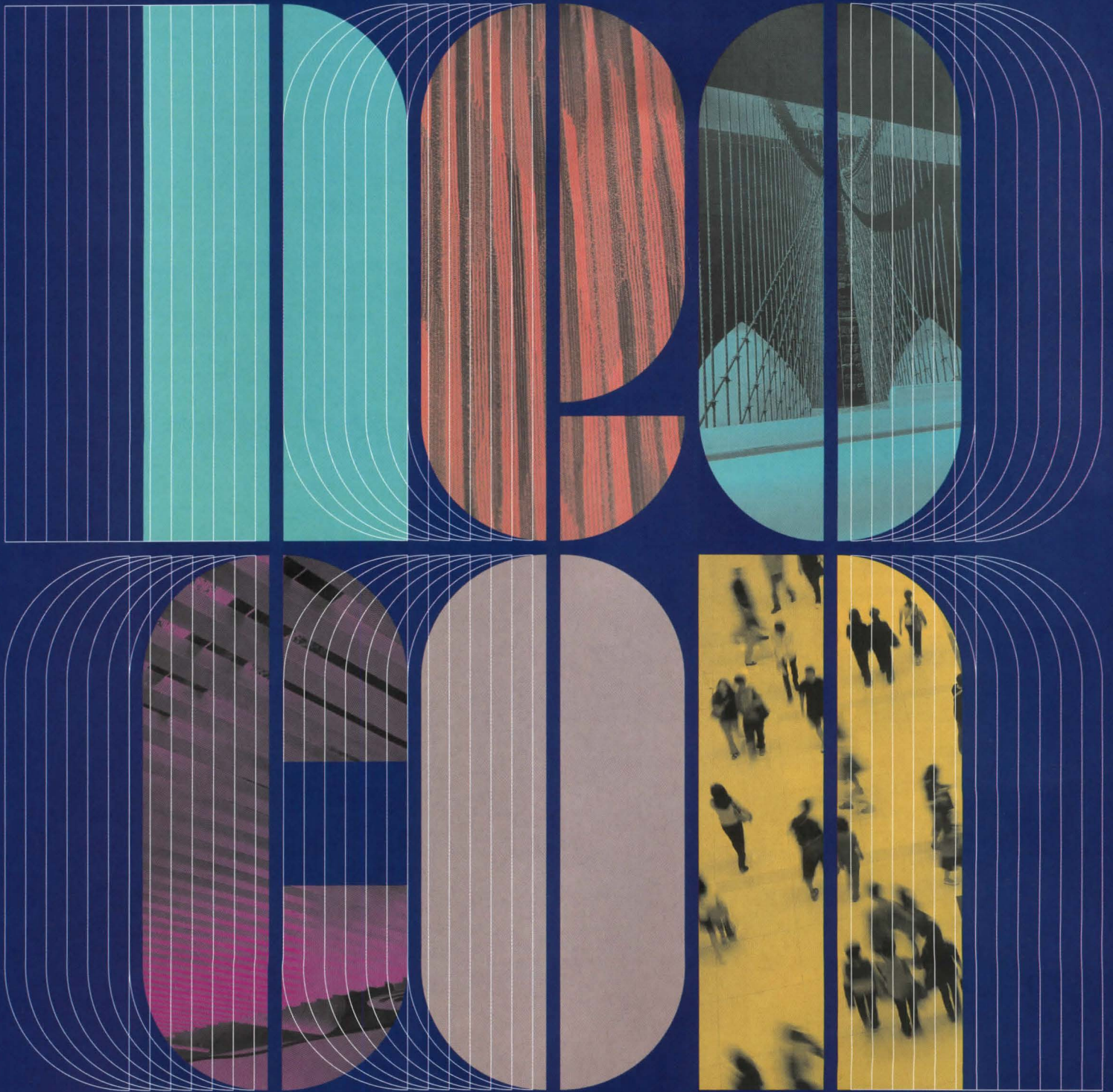
Just past the entrance doors of another building, in this case a new office building in London designed by Michael Aukett Architects, Malishev Wilson Engineers animated an otherwise ordinary lobby by suspending a glass walkway over the reception desk. "The architect thought that the entrance lobby needed some kind of special feature," recalls engineer Gennady Vasilchenko-Malishev. "The challenge was convincing a conservative client who was very mindful of the budget, without sacrificing the quality we were aiming for." (As a cost-cutting measure, the designers opted out of using low-iron, or completely transparent, glass – hence the greenish tint to the walkway.)

The walkway's floor panels are composed of three layers of 1/2-inch-thick glass. The laminated panels rest on a series of glass beams. Primary beams, running along the width of the walkway, are spaced 5 feet apart, with every other one hung from the ceiling above by high-strength stainless-steel rods. (The structure is not completely suspended; one end of the walkway is connected to a wall.) Two secondary beams run along the length of the walkway.

"The splice detail between the primary and



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Without the use of highly transparent low-iron, or white, glass, the walkway has a greenish tint.

secondary beams looks fairly simple, but because glass is obviously a very tight-tolerance material, fitting all this together was really quite complex," says Malishev. The glass works in both compression and tension. The stainless-steel forks that are fixed to the ends of the beams to hang the walk-

**"Each job requires a custom solution. We keep starting from a blank page."**

way create high-tensile stresses around the holes in the glass. While the fork slots over the beam, a pin passes through the fork so that the whole weight is transferred through the hole in the glass. A high-strength, epoxy-resin-based mortar completely fills the hole to ensure a good load transfer between the different plies of the glass.

"The real improvement over the last decade is in the detailing," Malishev notes. "When we carried out tests on earlier projects, we found that the load share was uneven. A full-scale mock-up test of this project revealed that the load transfer between the laminates was very even. That means we've achieved a detail with greater reliability."

The mock-up was built not necessarily to test the glass, but to prove to the client beyond a doubt that structural glass is safe. "We re-created an extreme situation where we broke some of the glass and loaded it to full capacity to show that the walkway would still work in a fail-safe environment," Malishev explains. The mock-up

also revealed to the engineers that they needed to increase some of their tolerances. "When we were assembling the mock-up, we realized that some of our tolerances were too tight, and the builder couldn't successfully put it together without too much trouble."

The walkway was a joint venture with U.K.-based F.A. Firman, a pioneering glass manufacturer that worked on such early structural-glass projects as Rafael Viñoly's Tokyo International Forum, completed in 1996.

A combination of forward-thinking designers and clients who weren't afraid to push boundaries was needed to get those early projects built. "When we did our first glass staircase for a shop in London in 1985, no one had ever done one before," Macfarlane recalls. "But once it's there, and you can walk on it and see that it's safe, you get confidence to do the next thing. We're working in an architectural domain where there is much more to think about than limited levels of performance. Each job requires a custom solution. We keep starting from a blank page." ■

For this story and more continuing education, as well as links to sources, white papers, and products, go to [architecturalrecord.com/tech](http://architecturalrecord.com/tech).

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# AIA/Architectural Record Continuing Education

To receive one AIA learning unit, read the article "Shattering Myths About Glass" using the learning objectives provided. To apply for credit, complete the test below and follow instructions for submission at right.



- 1 **Why were the designers of the Museum aan de Stroom (MAS) able to use ordinary float glass in the facade?**
  - A the panels are only 1/2 inch thick
  - B the shape of the panels gives it the necessary stiffness
  - C both a and b
  - D none of the above
- 2 **Which is true about MAS's glass panels?**
  - A they represent the first use of large-scale corrugated glass in a major building project
  - B they support the building's concrete boxes
  - C they are connected vertically by structural silicone
  - D they rely on an integrated steel I-beam to help counter wind loads
- 3 **Which is a disadvantage of corrugated glass over flat glass?**
  - A thinner panels can span larger areas
  - B the shape creates slight deformations in views
  - C neither a nor b
  - D both a and b
- 4 **Which material binds individual sheets of laminated glass in full composite action?**
  - A ionoplast
  - B PVB
  - C structural silicone
  - D none of the above
- 5 **In the Dilworth Plaza project, all vertical and lateral loads are supported by which?**
  - A horizontal glass panels
  - B vertical glass panels
  - C steel structural members
  - D glass fins
- 6 **As a tensegrity structure, which part of the staircase is under compression?**
  - A the prestressed cables
  - B the glass treads
  - C the beams of the stringers
  - D none of the above
- 7 **In the Washington, D.C., project, the back wall of the entry vestibule acts as which?**
  - A shear bracing
  - B a column
  - C a truss
  - D all of the above
- 8 **For the projects discussed in the article, which of the following software was used for cable structures?**
  - A SJ Mepla
  - B NEi Nastran
  - C EASY Technet
  - D none of the above
- 9 **Which glazing element in the Washington, D.C., project uses laminated glass for redundancy?**
  - A the first set of entry doors
  - B the second set of entry doors
  - C the vestibule roof
  - D none of the above
- 10 **The mock-up of the suspended walkway did which of the following?**
  - A allowed the engineers to test the load transfers
  - B made the engineers increase the tolerances
  - C convinced a skeptical client that structural glass is safe
  - D all of the above

**Program title**  
"Shattering Myths About Glass," ARCHITECTURAL RECORD 05/10, page 110.

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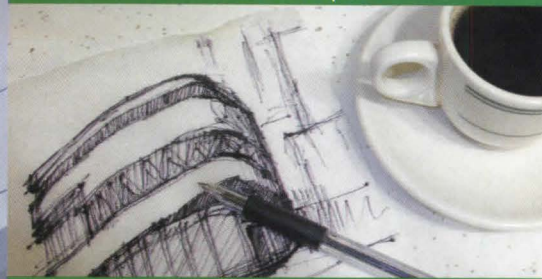
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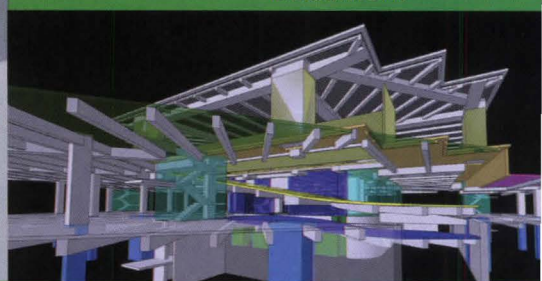
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## DATES & EVENTS

### New and Upcoming Exhibitions

#### Paul Philippe Cret and the Architecture of Dialogue

Washington, D.C.

April 29–July 3, 2010

An exhibition devoted to the Organization of American States (OAS) Headquarters Building in Washington, D.C., celebrates its 100th anniversary. Paul Philippe Cret's collection of original plans and drawings will be on display along with archival material and photographs. The show is curated by architectural historian Tom Mellins and designed by Pure + Applied, with H2L2 Architects and Planners. Visit [www.museum.oas.org](http://www.museum.oas.org).

#### Sunny Memories

New York City

May 13–June 5, 2010

A crossroads of design, engineering, and architecture, this exhibition features the work of four leading design schools that have explored the broad new realm of technology, energy, and innovation that solar dye cells have heralded. Notable projects include an energy-producing portable speaker, public park furniture that glows at night, and a sensor-based mailbox that sends SMS (short message service) when full. At the Center for Architecture. For more information, visit [www.aiany.org](http://www.aiany.org).

#### National Design Triennial: Why Design Now?

New York City

May 14, 2010–January 9, 2011

Held at the Cooper-Hewitt, National Design Museum, this exhibition provides a sample of contemporary innovation, looking at what progressive designers, engineers, entrepreneurs, and citizens are doing in diverse fields and at different scales around the world. Included are practical solutions already in use, as well as experimental ideas designed to inspire further research. For more information, visit [www.cooperhewitt.org](http://www.cooperhewitt.org).

#### Urban Green

Frankfurt

May 20–August 22, 2010

This exhibition at the Deutsches Architekturmuseum showcases 27 examples of open space design in Europe by renowned landscape architects. The designs were completed between 1990 and 2010, transforming inner-city open spaces primarily by planting greenery. The projects range from private urban gardens to major public works, such as master plans for large cities across the continent. For more information, visit [www.dam-online.de](http://www.dam-online.de).

#### 1:1 – Architects Build Small Spaces

London

June 15–August 30, 2010

The V&A (Victoria and Albert Museum) is commissioning a group of international architects to build a series of structures throughout the museum that will respond to the theme of the "retreat." One of the central aims of the exhibition is to move away from explaining architecture through drawings and models and instead allow the visitor to experience the architecture itself. For more information, visit [www.vam.ac.uk](http://www.vam.ac.uk).

### Ongoing Exhibitions

#### From Hand to Mouse / From Furniture to Architecture

Los Angeles

Through May 7, 2010

In this exhibition, which blurs the boundaries between furniture and architecture, and explores the potential of the visceral acting in concert with the cerebral, architect Coy Howard presents a selection of 30 images of three speculative architectural projects and a collection of furniture



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## DATES & EVENTS

designs revealing a rare formal inventiveness. At the Los Angeles Harbor College Fine Arts Gallery. For more information, call 310/600-4873.

### Forum 64: Cecil Balmond

Pittsburgh  
Through May 30, 2010

Cecil Balmond has transformed the role of the engineer in contemporary architecture with his unorthodox and visionary approach that merges architecture and engineering. Forum 64 at the Carnegie Museum of Art features Balmond's work *H-edge*, which consists of approximately 6,000 aluminum plates suspended between rigid stainless-steel chains. For more information, visit [www.cmoa.org](http://www.cmoa.org).

### Imagining Home: Selections from the Heinz Architectural Center

Pittsburgh  
Through May 30, 2010

In this exhibition at the Carnegie Museum of Art, the Heinz Architectural Center presents more than 125 drawings, models, books, and games from its collection that reveal ways in which the home has been envisioned over the past 200 years. Among the subjects explored are the range of styles in residential architecture, innovative construction technologies, interiors, company-built housing, and the Modern and contemporary house. Visit [www.cmoa.org](http://www.cmoa.org).

### Feelings Are Facts

Beijing  
Through June 6, 2010

Showcasing the first collaboration between the Danish-Icelandic artist Olafur Eliasson and leading Chinese architect Ma Yansong, this exhibition will create a unique experience through architecture, fog, and light. Eliasson is known for his exploration of the human perception and manipulation of light, shadows, color, water, wind, and fog. Ma's architecture stands at the forefront of new experimentation in building structures. At the Ullens Center for Contemporary Art. For more information, visit [www.i-mad.com](http://www.i-mad.com).

### House of Cars: Innovation and the Parking Garage

Washington, D.C.  
Through July 11, 2010

For more than 100 years, the parking garage has provided design and engineering solutions to the problem of parking. This is the first major exhibition to explore the history of this familiar structure and to discuss innovative designs and parking solutions for the future. At the National Building Museum. For more information, call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

### Shaping Modernity: Design 1880–1980

New York City  
Through July, 2010

This MoMA show features a selection of visionary objects, graphics, architectural fragments, and textiles from the museum's collection, revealing the attempts of successive generations to shape their experience of living in the modern world. Visit [www.moma.org](http://www.moma.org).

### Palladio and His Legacy: A Transatlantic Journey

New York City  
Through August 1, 2010

Andrea Palladio is famous for his elegant interpretation of the architecture of Classical antiquity, and his finished buildings, drawings, and writings are cultural touchstones. This show at the Morgan Library & Museum displays a collection of 31 of his rarely seen drawings. Visit [www.themorgan.org](http://www.themorgan.org).

### All or Nothing - Robert van 't Hoff

Otterlo, the Netherlands  
Through August 29, 2010

On view at the Kröller-Müller Museum, this exhibition shows the oeuvre of architect and theorist Robert van 't Hoff (1887–1979), a member of the De Stijl movement, and gives insight into his personality. The work includes projects that are being exhibited for the first time, such as a three-seat sofa (1920) and a small oak bookcase (circa 1933). Visit [www.kmm.nl](http://www.kmm.nl).

### Rising Currents: Projects for New York's Waterfront

New York City  
Through August, 2010

This major project brings together four teams of architects, engineers, and landscape designers to address and create infrastructure solutions to make New York City more resilient in response to rising water levels and to protect ecosystems. The future of New York's waterfronts has been identified as one of the most urgent challenges the nation's largest city faces, with the anticipated rise in sea levels due to climate change. At the Museum of Modern Art. Visit [www.moma.org](http://www.moma.org).

## Lectures, Conferences, and Symposia

### Lincoln Park Zoo: The Architecture

Chicago  
May 16, 2010

Revitalized for 2010, this walking tour at the Lincoln Park Zoo explores how the buildings and animal enclosures were designed and integrated



into the landscape. From historic zoo structures to cutting-edge Modern design, this tour offers a new perspective on this iconic institution. For more information, visit [www.architecture.org](http://www.architecture.org).

#### **Alfredo Brillembourg in Conversation with Hubert Klumpner**

Los Angeles

May 17, 2010

Alfredo Brillembourg and Hubert Klumpner are codirectors of Urban Think Tank – Architecture & Urban Design, in Caracas and New York. Through its work, research, and S.L.U.M. (Sustainable Living Urban Model) Lab, the firm explores the intersection of social, political, and environmental activism to create the notion of a collective territory that transgresses hemispheric boundaries. Urban Think Tank is working toward understanding the link between urban planning, architecture, and poverty alleviation. At UCLA. For more information, visit [www.aud.ucla.edu](http://www.aud.ucla.edu).

#### **Sou Fujimoto**

Los Angeles

May 24, 2010

Rising Japanese architect Sou Fujimoto explores neo-primitivism, creating a new geometric order through composition and sequence using the manipulation of basic building blocks. His work has received numerous awards in Japan. Some of his key projects there include the Tokyo Apartment in Tokyo, the House O in Chiba, and the Treatment Center for Disturbed Children in Hokkaido. Fujimoto is the principal of Sou Fujimoto Architects, based in Tokyo. At UCLA. For more information, visit [www.aud.ucla.edu](http://www.aud.ucla.edu).

## Competitions

#### **International Student Wall Competition**

Registration deadline: May 12, 2010

By providing a communicative platform, this competition aims to jump-start students' imaginations to redefine "walls" for the present and the future. Visit <http://competition.ntutarch.com>.

#### **Tiananmen Square Landscape Architecture Competition**

Deadline: June 1, 2010

This competition seeks to generate debate and ideas for redesigning part of the most important urban space in the history of Chinese civilization. The intention is to set a new course for Eastern landscape architecture, encouraging the development of an ecologically and culturally distinctive design tradition. Visit [www.gardenvisit.com](http://www.gardenvisit.com).

#### **The ARCHITECTURAL RECORD Cocktail Napkin Sketch Contest**

Submission deadline: June 21, 2010

All you need is a 5-inch-square cocktail napkin and a pen to show that the art of drawing quickly by hand is still alive. Sketches on a cocktail napkin that explain or work out a concept will be judged by RECORD editors, and the winner published in the August 2010 issue. No digital entries please. For more information, visit [architecturalrecord.com/call4entries](http://architecturalrecord.com/call4entries).

#### **Western Red Cedar Architectural Design Awards**

Deadline: July 30, 2010

The Western Red Cedar Architectural Design Awards recognize innovative design using Western Red Cedar. Winners will be chosen by a panel of architects, and the results announced at the Greenbuild Expo in Chicago. For more information, visit [www.construction.com/community/WRCLA/default.asp](http://www.construction.com/community/WRCLA/default.asp).

E-mail information two months in advance to [record-events@mcgraw-hill.com](mailto:record-events@mcgraw-hill.com). For more listings, visit [architecturalrecord.com/news/events](http://architecturalrecord.com/news/events).

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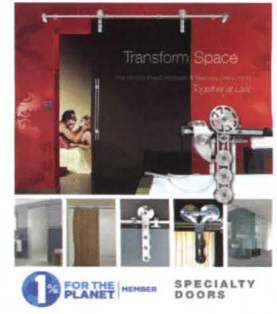
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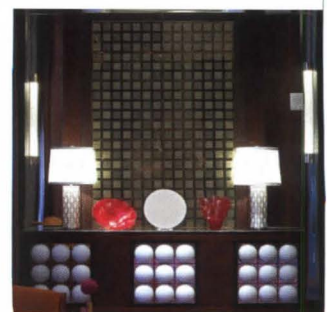
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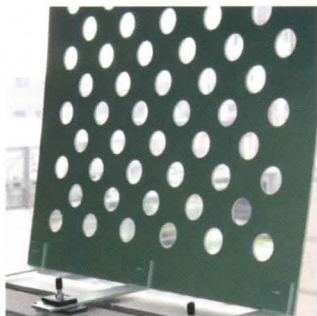
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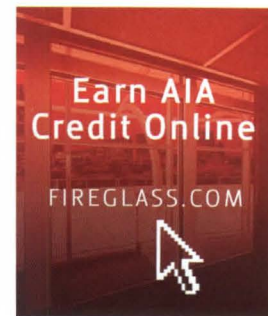
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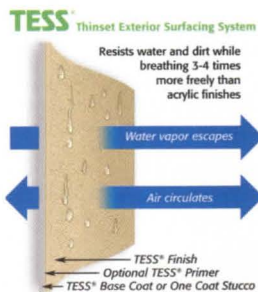
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- Their frameless brackets don't need additional support and save time and installation costs.



www.glassandglass.com  
305.796.2226 | **Contact:** Rolando Serra

Circle 167

SPECIALTY PRODUCTS

LED-LIGHTED RAILING

SS | G

**The Wagner Companies**

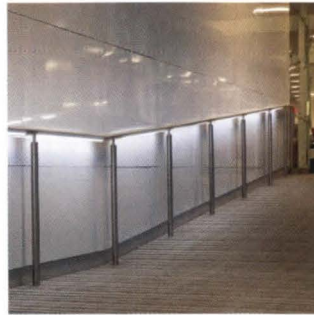
▲ Wagner Lumenrail® produces brilliant cool white light—5,400K—and comes in lengths from 6 to 60 in.

**Product Application:**

- Hope Memorial Building - Yale School of Medicine, New Haven, CT
- Johnson Controls Corp. HQ, Glendale, WI

**Performance Data:**

- 50,000 hours of continuous light output
- Accent or practical lighting to improve safety and security



www.lumenrail.com  
888.243.6914 | **Contact:** Heidi Bischmann

AIA Booth #2838 | Circle 168

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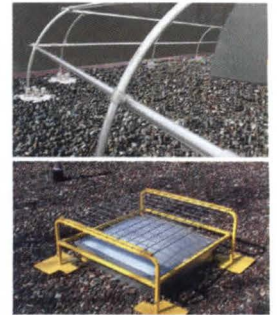
▲ Non-penetrating, OSHA-compliant fall protection systems that do not compromise the roof's integrity.

**Product Application:**

- Leading edge guardrail fall protection systems
- Skylight protection—screens and guardrails
- Roof hatch guardrail systems

**Performance Data:**

- Powdercoated or galvanized finishes available
- Fast and easy installation



www.bluewater-mfg.com  
866.933.2935 | **Contact:** David Schlaifer

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▲ Patriot Duty lockers are available in a wide variety of sizes and unlimited configurations.

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- Emergency first responders
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**Security Wall Products**

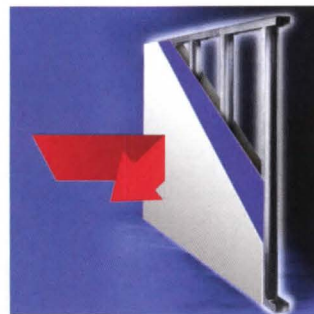
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- Government facilities, institutions, etc.
- Schools, retail, commercial

**Performance Data:**

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- Specified by the Office of General Services, New York, Army Corps of Engineers



www.securitywallproducts.com  
559.452.8450

Circle 172

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**Performance Data:**

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- Maintenance free



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AIA Booth #1019 | Circle 173



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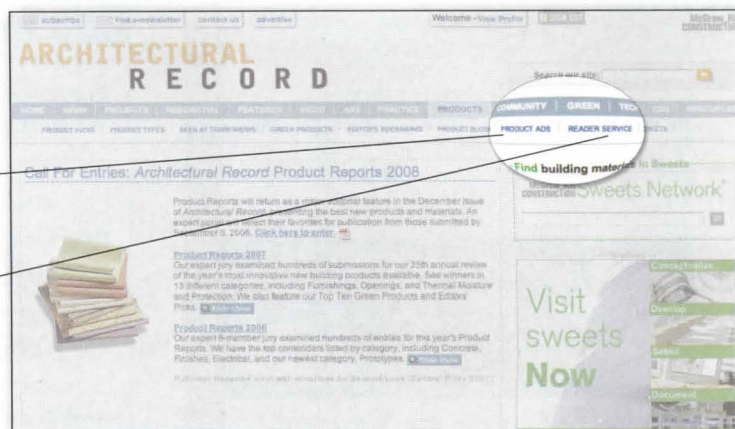
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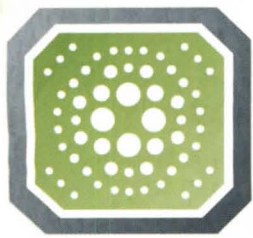
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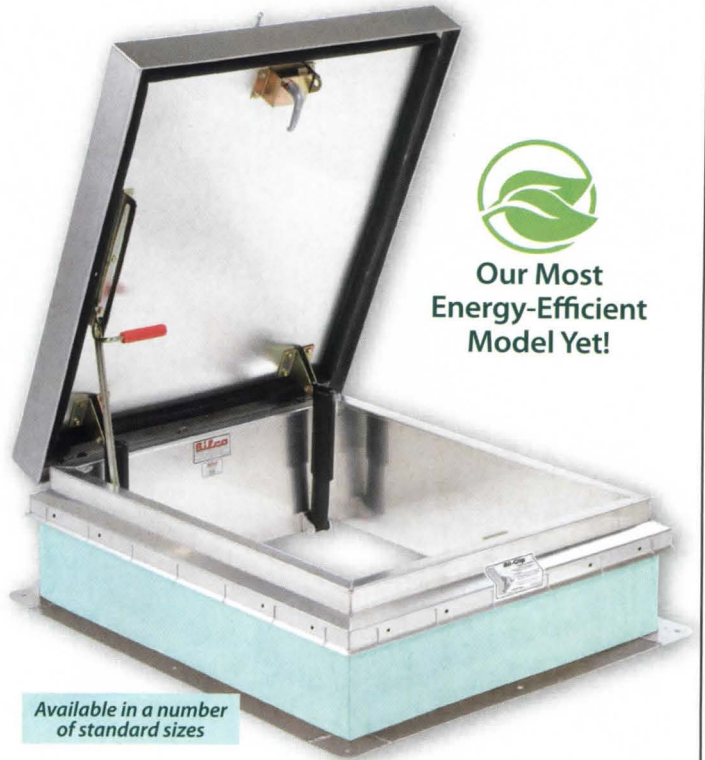


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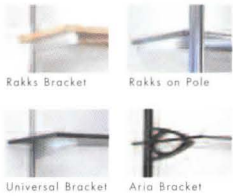






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CIRCLE 53





# Notice of AIA Candidates and Convention Business Items

## Candidates for Institute Offices

Elections for the Institute's 2011 First Vice President/2012 President-elect, two 2010–2012 Vice Presidents, and 2010–2012 Secretary will be held at the AIA 2010 National Convention and Design Exposition, which will take place June 10–12, 2010, in Miami.

If no candidate for First Vice President or Secretary obtains a majority of the votes cast during the initial round of voting on June 10–11, a run-off election will take place on June 12, 2010. The following members have declared themselves candidates for national office (with candidates to be certified no later than April 9, 2010):

### For 2011 First Vice President/2012 President-elect

Pamela J. Loeffelman, FAIA (*AIA New York*)  
Jeffery Potter, FAIA (*AIA Dallas*)

### For 2010–2012 Vice President (two will be elected)

Dennis A. Andrejko, FAIA (*AIA Buffalo/Western New York*)  
John A. Padilla, AIA (*AIA Santa Fe*)

### For 2010–2012 Secretary

Frederick F. Butters, Esq., FAIA (*AIA Detroit*)  
David Del Vecchio, AIA (*AIA New Jersey*)  
Helene Combs Dreiling, FAIA (*AIA Blue Ridge*)

## Proposed Bylaws Amendments

The AIA Board of Directors is sponsoring several amendments to the Institute's Bylaws, and those amendments are scheduled for consideration by the delegates at the annual business meeting in Miami on June 12, 2010. Bylaws amendments require approval by an affirmative vote of no less than two-thirds of all votes accredited to be cast at the meeting.

### Bylaws Amendment 10-A—Abbreviation of Titles of Associate and International Associate Members

This amendment would permit Associate and International Associate members to abbreviate their titles when they are used as suffixes to their names.

### Bylaws Amendment 10-B—Electronic Voting at Meetings of the Institute

This amendment would designate electronic voting as the exclusive method of voting at a meeting of the Institute (subject to certain exceptions).

### Bylaws Amendment 10-C—Member Dues Payment Plan

This amendment would authorize the Board of Directors to provide in the Rules of the Board for programs under which new or renewing members may pay their regular annual dues to the Institute in one or more installments over a period of time during the year in which the dues are due and payable rather than in one annual payment.

### Bylaws Amendment 10-D—Associate Members as Regional Directors on the Institute's Board of Directors

This amendment would authorize Associate and International Associate members to serve as Regional Directors on the Institute's Board of Directors (with limitations on the number of such members who would be eligible to serve as Regional Directors at any given time).

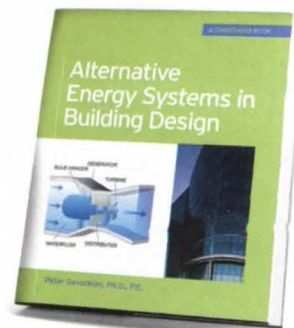
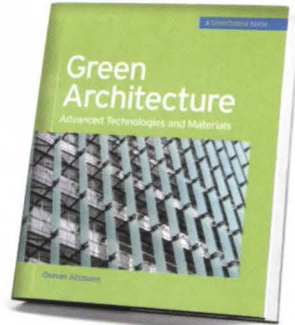
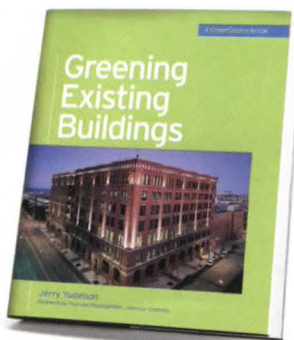
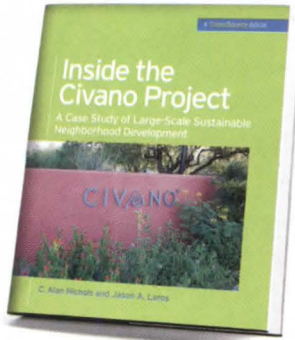
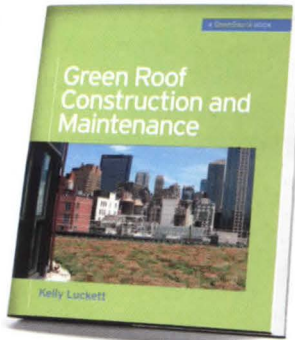
## Resolutions

The delegates at the AIA 2010 National Convention and Design Exposition will also be asked to consider resolutions, which require approval by a majority vote of the delegates present and voting. The deadline for submitting resolutions was March 12, 2010.



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**Office of Mr. Haddock Speechless.**

**Here sugar companies, one importer of sugar, a coffee merchant.**

**Foundations for new Wall St. lower than any other in N.Y., 100 feet below sea level. Sand has worked one hour; mud has worked one hour; mud has worked one hour; mud has worked one hour.**

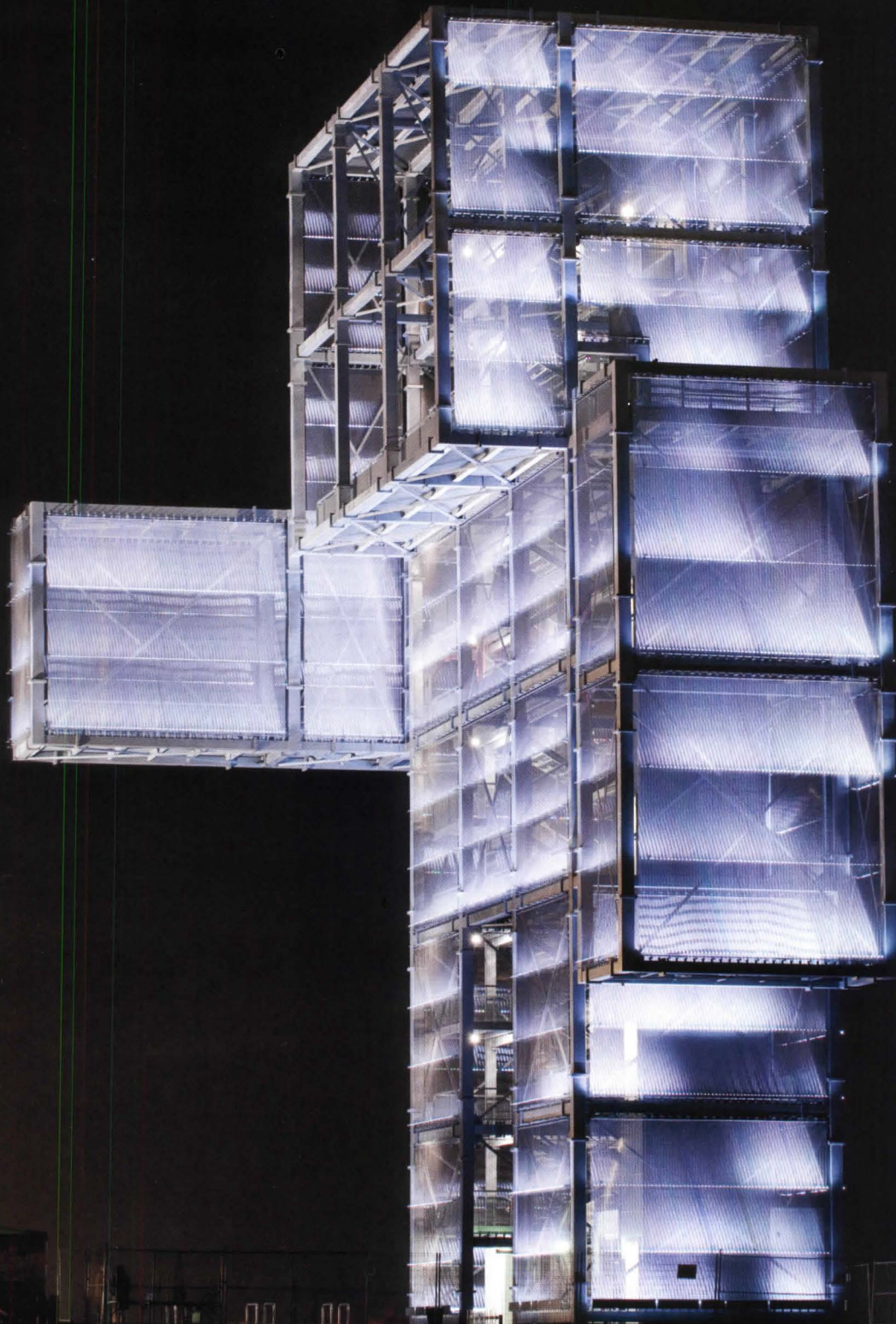
**Carrollton Bldg., largest N.Y. skyscraper in 1908. Designed by Cass Gilbert.**

**Hand a hand, old coffee importer firm.**

**American Sugar Refining Co. Will learn those old buildings to meet into the street.**



# SNAPSHOT



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## PROJECT

**Indemann Observation Tower**

## LOCATION

**Inden, Germany**

## DESIGNER

**Maurer United Architects**

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### FEW ARCHITECTS EVER GET

the opportunity to work with clients who allow them to realize their fantasies. But Marc and Nicole Maurer, principals of the Dutch firm Maurer United Architects (MUA), did just that when the city of Inden, Germany, gave them the go-ahead to build their design for a 118-foot-high robotlike observation tower. Indemann, so named for its anthropomorphic form meant to mimic early video-game characters, is made entirely of steel, and appears to be more Erector Set than building.

To expose and animate the skeletal, zinc-coated structure, the architects wrapped its multiple levels in Illumesh, a sheer facade system that allows for digital imagery by incorporating LED strips into stainless-steel mesh at regular intervals. According to Marc Maurer, "All kinds of animations can be shown on the facade." These include logos, video streams, and colorful light shows – all controlled remotely through a Web-based interface. Illuminated at night, Indemann is visible from the A4 highway between Aachen and Cologne to its south – helping to attract an estimated 10,000 visitors a month since it opened last September.

This project more than satisfies the city's brief to MUA: create an icon-cum-landmark to signal the region's infrastructural shifts, which include shuttering its strip mines by 2030 and creating a man-made lake in their place.

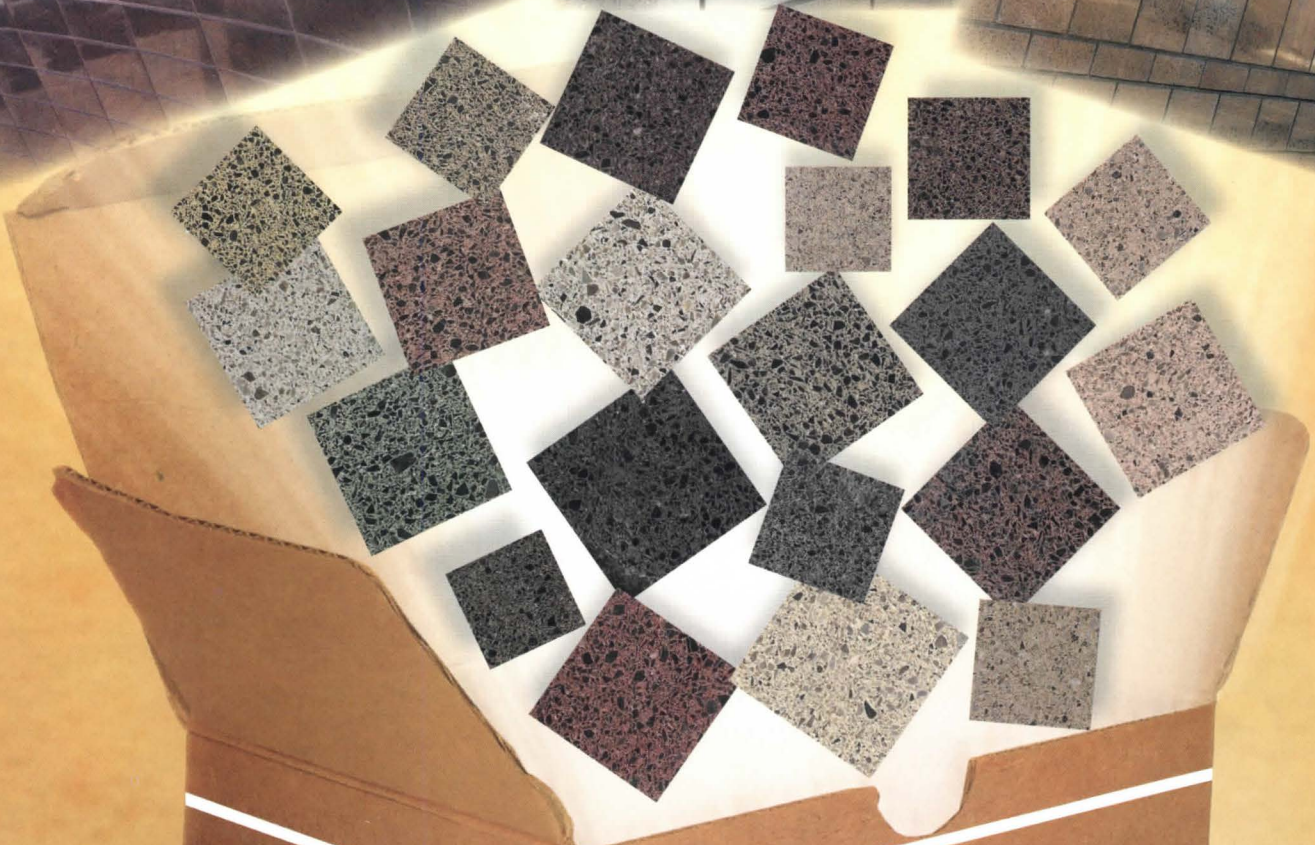
The giant figure, erected on a 164-foot-high artificial hill made from mining waste, serves as an ideal vantage point from which to survey the evolving landscape around it – and to ponder the future development of the growing city of Inden. *Linda C. Lentz*



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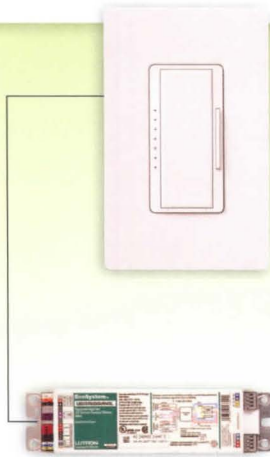
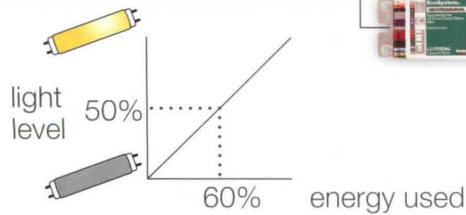
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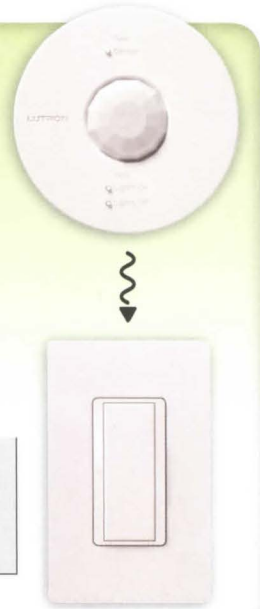
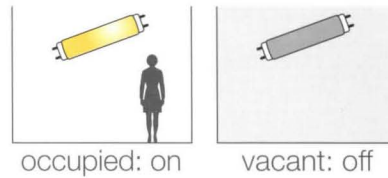
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- Can provide up to 20% lighting energy savings



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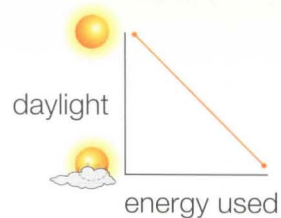
**Winter Nights:** close shades to keep heat in

**Year Round Days:** close shades to reduce glare and increase employee productivity



## Daylight Sensors

- Automatically dim or turn off overhead lights when daylight is available
- Can provide up to 20% lighting energy savings



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