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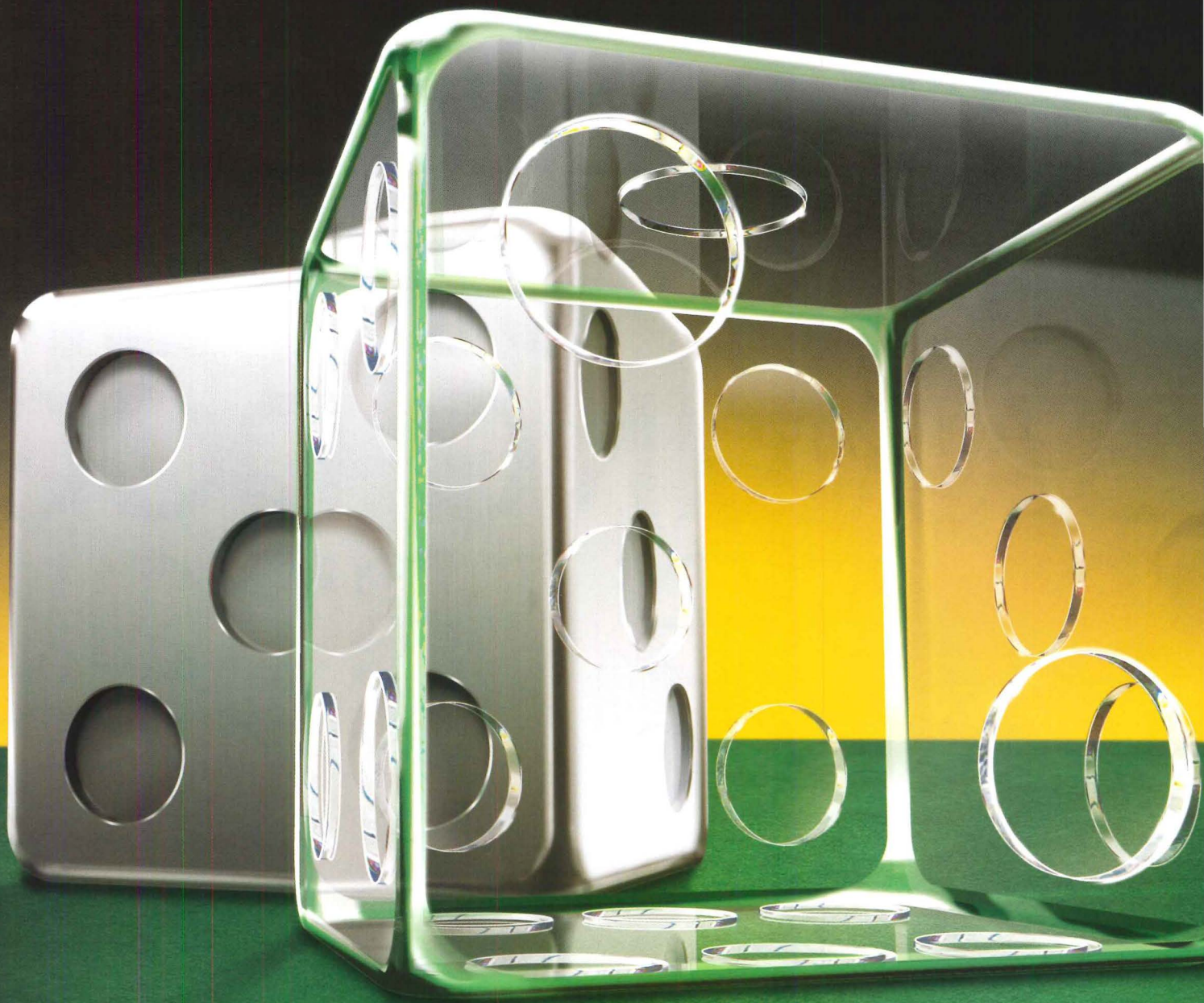
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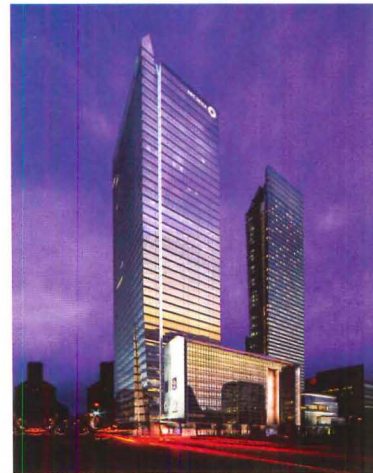
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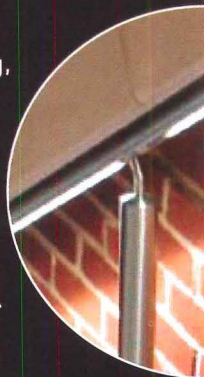
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Francesca Messina, [francesca\\_messina@mcgraw-hill.com](mailto:francesca_messina@mcgraw-hill.com)

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Charles Linn, FAIA, Profession and Industry, [linnc@mcgraw-hill.com](mailto:linnc@mcgraw-hill.com)

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Josephine Minutillo, [josephine\\_minutillo@mcgraw-hill.com](mailto:josephine_minutillo@mcgraw-hill.com)

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Sebastian Howard, [sebastian\\_howard@mcgraw-hill.com](mailto:sebastian_howard@mcgraw-hill.com)

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Encarnita Rivera, [encarnita\\_rivera@mcgraw-hill.com](mailto:encarnita_rivera@mcgraw-hill.com)

**EDITORIAL SUPPORT**

Monique Francis, [monique\\_francis@mcgraw-hill.com](mailto:monique_francis@mcgraw-hill.com)

**EDITORIAL ASSISTANTS**

Aleksandr Bierig, [aleksandr\\_bierig@mcgraw-hill.com](mailto:aleksandr_bierig@mcgraw-hill.com)

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Bryant Rousseau, [bryant\\_rousseau@mcgraw-hill.com](mailto:bryant_rousseau@mcgraw-hill.com)  
William Hanley, [william\\_hanley@mcgraw-hill.com](mailto:william_hanley@mcgraw-hill.com)  
Susannah Shepherd, [susannah\\_shepherd@mcgraw-hill.com](mailto:susannah_shepherd@mcgraw-hill.com)  
Laurie Meisel, [laurie\\_meisel@mcgraw-hill.com](mailto:laurie_meisel@mcgraw-hill.com)

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Paul Bonington, [paul\\_bonington@mcgraw-hill.com](mailto:paul_bonington@mcgraw-hill.com)

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Harvey M. Bernstein, FASCE, [harvey\\_bernstein@mcgraw-hill.com](mailto:harvey_bernstein@mcgraw-hill.com)

## VICE PRESIDENT, MARKETING & PRODUCT DEVELOPMENT

Potoula Chresomales, [potoula\\_chresomales@mcgraw-hill.com](mailto:potoula_chresomales@mcgraw-hill.com)

## SENIOR DIRECTOR, MARKETING COMMUNICATIONS

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## MANAGER, MARKETING

Erica Mileo, [erica\\_mileo@mcgraw-hill.com](mailto:erica_mileo@mcgraw-hill.com)

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**PACIFIC:** Sherylen Yoak (760) 568-0465 Fax: (720) 559-9818, [sherylen\\_yoak@mcgraw-hill.com](mailto:sherylen_yoak@mcgraw-hill.com)

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**WORKFORCE/ RECRUITMENT:** Diane Soister (212) 904-2021 Fax: (212) 904-2074, [diane\\_soister@mcgraw-hill.com](mailto:diane_soister@mcgraw-hill.com)

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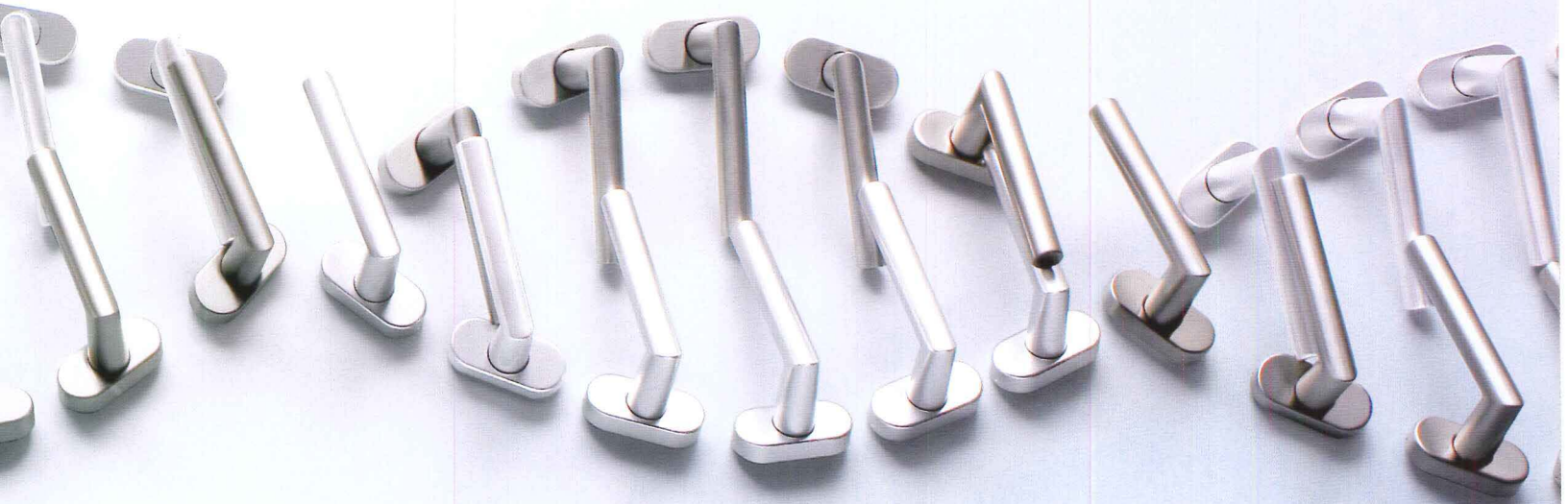


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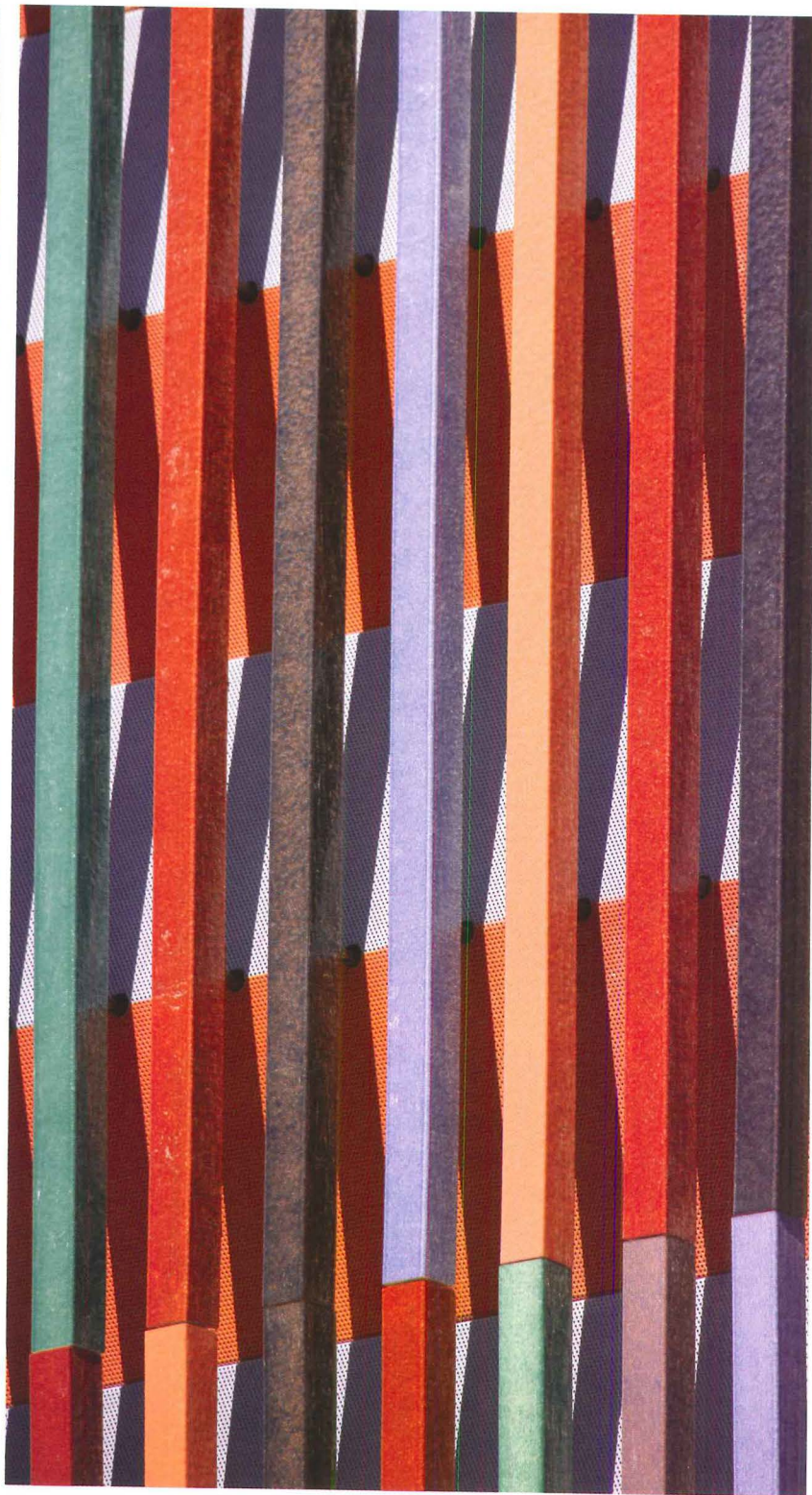
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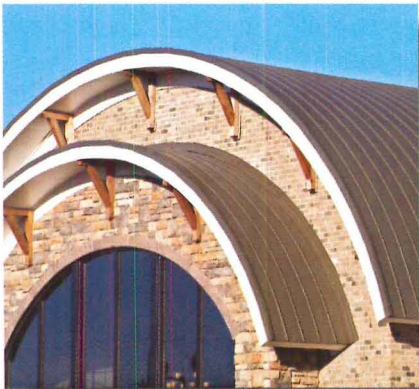
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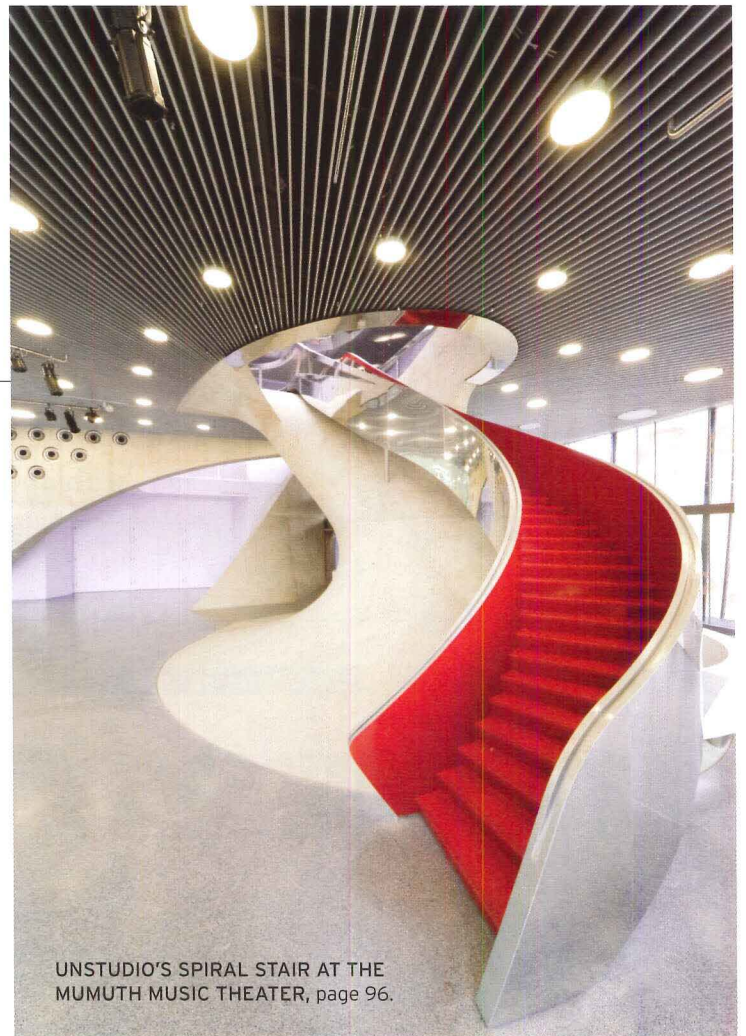
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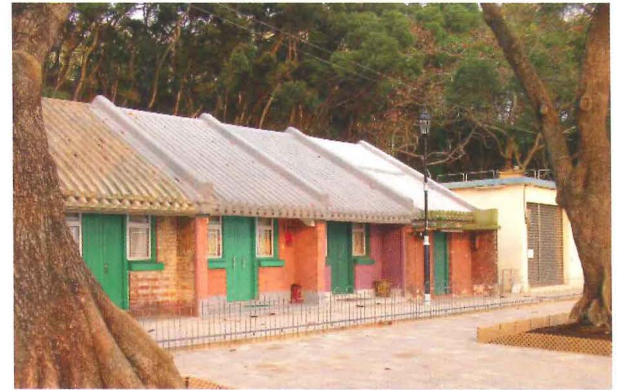
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Expanded coverage of Projects, Building Types Studies, and Web-only features can be found at [architecturalrecord.com](http://architecturalrecord.com).

**ON THE COVER:** *High Line, New York City*, by James Corner Field Operations and Diller Scofidio + Renfro. Photograph by Iwan Baan.

10.2009  
ON THE WEB

This month, we have several additions to our **video library**, including a tour of Bernard Tschumi's favorite New York structures, a trip to a new UNStudio-designed visitor center, and a walk on the High Line with its designers.



Reader Photo: This image from our Vernacular Architecture gallery shows a street in Hong Kong. It is one of more than 2,000 reader-submitted images in ARCHITECTURAL RECORD's online galleries.

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**House of the Month**  
 Peter Hamilton designed a house for a couple with six children on a Toronto site that allowed only one building and one sleeping cabin.

**Green Project Database**  
 Search thorough, data-rich case studies of sustainable buildings published in RECORD's sister publication, *GreenSource* magazine.

**Record TV**  
 Video: Rotterdam-based UNStudio and N.Y.C. firm Handel Architects unveil an amorphous visitor center in Manhattan's Battery Park.

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 "The architectural profession [has a] pressing need for professionals who ... have a broad range of construction and substantial engineering knowledge to differentiate between the charlatans who wear green because it's fashionable and those who really know how to build for a post-peak oil future."  
 —Phil Allsopp, on "The Gray in Green: Eco-Design Risks"

Expanded Coverage



**Project Portfolio**  
 Video: Walk the High Line with Lisa Switkin of James Corner Field Operations and Ricardo Scofidio of Diller Scofidio + Renfro.

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 Video: Acropolis Museum architect Bernard Tschumi takes us on a tour of his favorite places in New York City's built environment.

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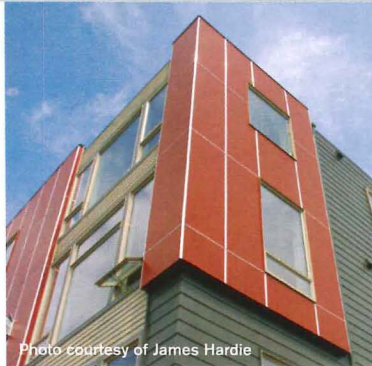


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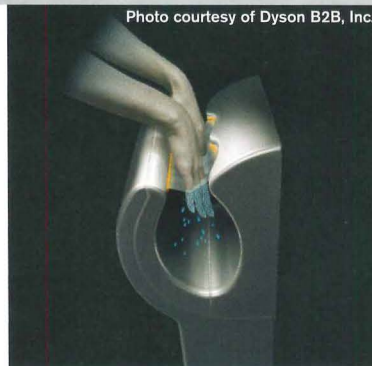


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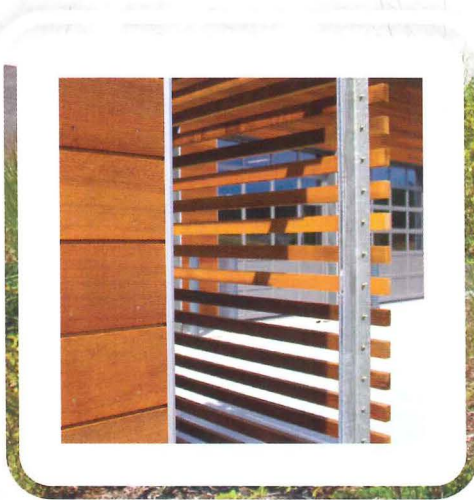
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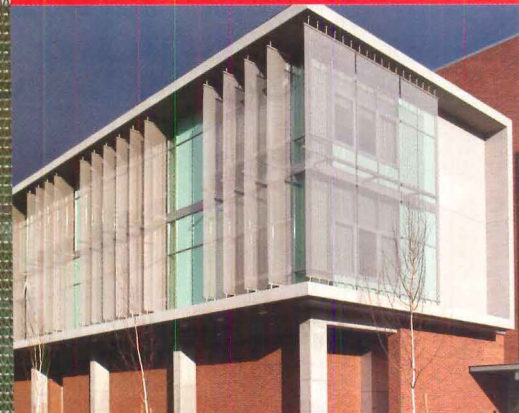
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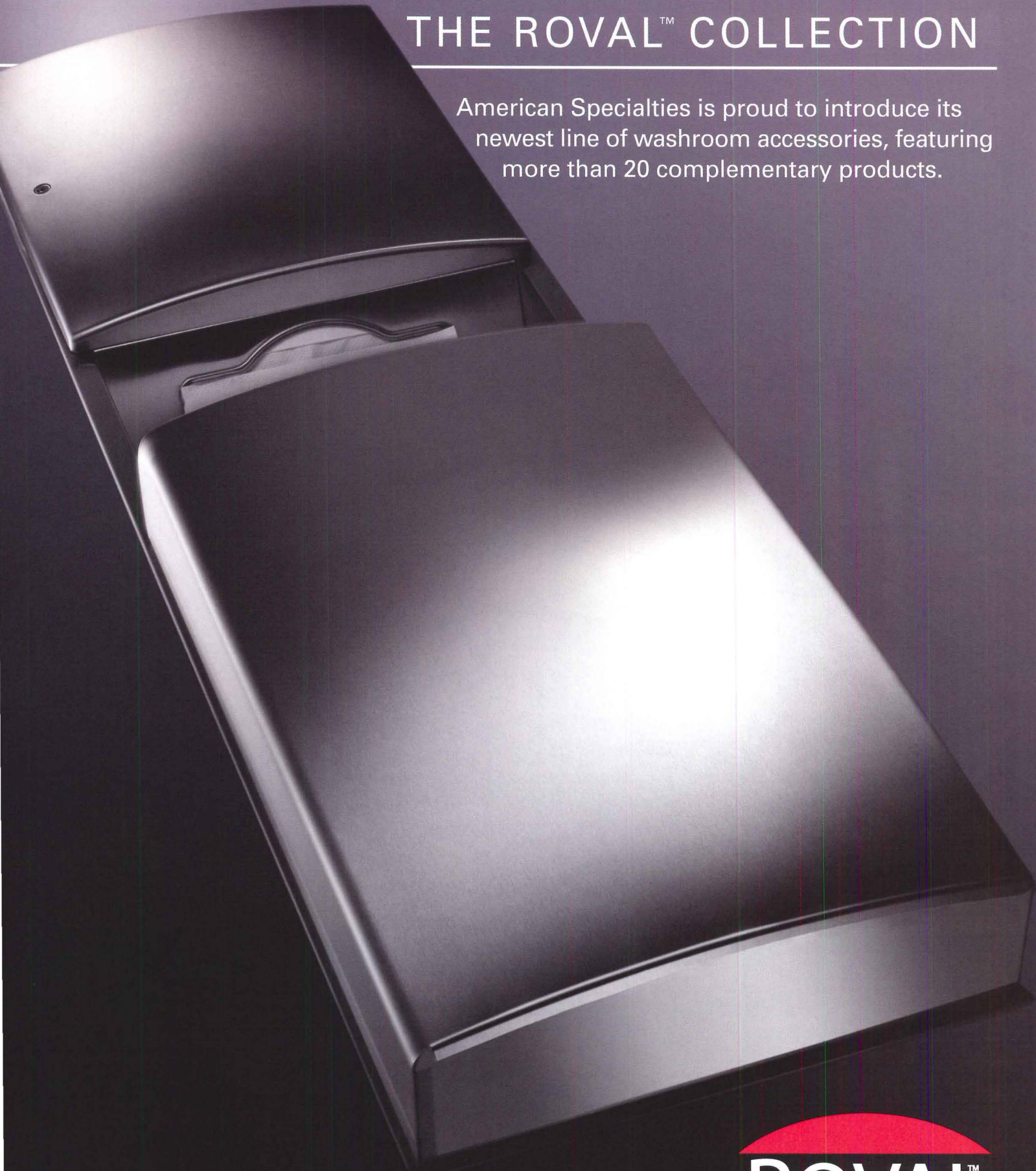
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## Editorial

By Robert Ivy, FAIA

**THE GAGGLE OF INTELLIGENT-LOOKING FOLK** dressed in black under the marquee on Governors Island in mid-September could have come from any urban center – Manhattan's SoHo, perhaps, except that they primarily spoke Dutch. They gathered to celebrate their ancestors' prodigious contributions to contemporary design and commerce near the 400th anniversary of Henry Hudson's momentous arrival in New York harbor (an event that occurred in September 1609). Their presence on the silent, tree-shrouded parkland, with its magnificent, unfamiliar views of the harbor islands, offered an ironic commentary on New York's origins and a living, chattering mnemonic on what might have been if the British had not asserted themselves in 1664. It also prompted speculation on where America's largest city now stands.

Throughout its history, New York has remade itself. Perhaps the most visible and meaningful change to the single island that its first settlers called Mannahatta ("island of many hills") has been the rediscovery of its waterfront. As the city's economy has shifted from industry and jammed docks to more intellectual and service-oriented pursuits, the waterfront has sprouted, with greening parkland that almost circles the entire island of Manhattan and spreads to the other boroughs. Hudson River Park, which stretches from Lower Manhattan to Midtown in a green linear zip of joggers and skaters and sunset-watchers, may be the most significant new public space since Central Park.

Transformation has been the watchword: New blood is inhabiting old neighborhoods, bringing youthful vitality to places like Brooklyn's Fort Greene or Williamsburg or Greenpoint neighborhoods, with condo and apartment and town-house development in its wake. The High Line (seen on the cover) has brought a sanguine new perspective to the formerly gritty Meatpacking District in Manhattan and a welcome promenade where a rusting relic once loomed. The last decade of prosperity brought iconic new work to the density, with stellar, international names jockeying for attention (Nouvel here, SANAA there).

Yet the developer-driven city that Ada Louise Huxtable has so forcefully described in a lifetime of writing has lurked just underneath the sheets. Witness the inertia that has surrounded Ground Zero, where a giant hole in the ground only now has begun to fill with construction, eight years after the World Trade Center disaster of 2001. Will Silverstein's three additional towers find a home in a shrinking economy? Will the tallest tower in fact reach its purported height (much less retain shreds of artistic vision and power)? Much rests on the city's thralldom to commerce, the realpolitik of the streets, where rents rule.

For architects, New York remains one of the hardest places on planet Earth to build. Witness how little architecture today gains distinction, even those projects by famous names (with some exceptions, the New York projects often lack the finesse of these designers' work outside the city). True three-dimensional architecture, in such a hermetic environment, where buildings abut, seems

almost impossible. Those few, mainly larger firms that do succeed have acquired their own mega-scale to match the high-rises that they design; younger, smaller firms must struggle or ally themselves with larger, older peers to survive.

The litany of woes at a professional gathering can proliferate. The housing stock is aging or old. The bad economy has killed the larger scale of ambitious plans, such as Manhattan's Hudson Yards – sometimes deservedly. We lack rail-to-train seamlessness that London or other international capitals enjoy. Our subway ceilings are literally falling down. Vocal community engagement makes gaining acceptance the contemporary equivalent of running a gauntlet.

Yet despite the downturn, New York thrives. Many of its museums, filled with patrons, circle through spaces already graced with newly minted galleries and courtyards. Historic restoration has already renewed much of the best older architecture, from the period of the city's emerging 19th-century hegemony. On the floor of the economic recession, plans are afoot to revitalize Pennsylvania/Moynihan Station. Underutilized resources, such as Governors Island, are receiving fresh attention.

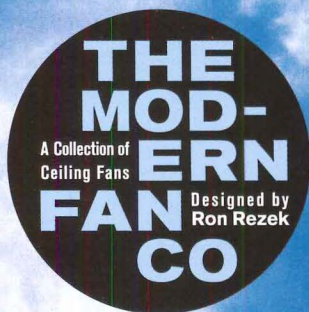
Most important for the future, people still seek out the city. By 2025, according to the New York Planning Commission, it will have to accommodate more than 400,000 new workers in upwards of 110 million square feet, in multiple centers of population within the five existing boroughs – a process already under way. The city's metropolitan reach, like the circulation of blood, extends many states up and down the seaboard. The work is cut out for the planning commission, currently ably chaired by Amanda Burden, and for the ideas promulgated by the Regional Plan Association, under President Robert Yaro.

New York, like the Statue of Liberty, remains an international beacon of renewal, and therefore of hope. This city of more than 8 million persons still welcomes new waves of immigrants, from Africa or the Caribbean or Latin America, who are arriving, not by ship, but by air, filled with their own expectations and languages and rich cultures, to a place with multiple heart-centers, interlinked and interconnected into an urban whole. Like the Dutch before them, who found a magnificent harbor, another age is discovering the waterborne city and is busily transforming it to fit its own image and expectations. In 2009, as in 1609, the city changes and moves: Despite the general economy, New York is pumping.



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CIRCLE 15

## Letters

### Architectitis

The aptly called barnacle (or did the writer mean carbuncle?) protrusion on the Grange Park facade of Frank Gehry's makeover of the Art Gallery of Ontario [August 2009, page 66], as well as the decimation of the historic Walker Court, represent a new low in architectural gibberish. Not satisfied with obliterating any sense of peace in Grange Park with the hulking facade, Gehry's protruding, totally out-of-proportion, bulbous facade on Dundas Street desecrates the residential scale of the area. This schizophrenic creation, which does not even create a decent gallery, coupled with the gargantuan south tower gallery, makes one wonder when barnacles became more important than pure, beautiful space. I get a headache looking at this building.

*Jeffrey A. Laird*

*Estancia, N. Mex.*

### Palate cleanser

Thank you for publishing Martin Filler's excellent Critique of the Four Seasons Restaurant in New York City's Seagram Building ["Serving up a heady cocktail of gravitas and glamour," September 2009, page 45]. The article served a rich plate of history and detail on Mies van der Rohe and Philip Johnson's landmark design of a landmark restaurant. Until now, about all I knew came from a brief 1980 conversation with Johnson in which he mentioned spending six months at Mies's insistence figuring out how to keep a primary bearing column from penetrating the middle of a ground-floor restaurant space. (So much for Modernist structural purity.) Filler's writing skills brought to life a great story about what goes into great architecture.

*Ronald Wendle, AIA*

*Spokane, Wash.*

### Gender studies

The headline of Michael Sorokin's August Critique is long and laborious ["Connect the dots: Dubai, labor, urbanism, sustainability, and the

education of architects," page 33], though I enjoyed his dour assessment of the current urban-development crisis in Dubai. I am, however, dismayed by his quick deliberation of gender separation vis-à-vis a school of architecture he visited. I would have expected him, being a scholar and teacher, to look deeper into the subject of teaching and learning in an Islamic setting such as the U.A.E. before presenting his sensationalized findings to the readers. In most liberal Islamic nations such as the U.A.E., the issue of gender separation in a higher education environment is more a personal choice than the norm; students can opt for either a single gender institution or co-education institution – a fair and democratic choice that safeguards the cultural wishes of families while providing students with a learning environment that is culturally sensitive. During his visit to the Emirates, I hope Sorokin was able to visit other institutions, such as the co-educational School of Architecture & Design at the American University of Sharjah.

*Mehdi Sabet, AIA*  
*American University of Sharjah*  
*School of Architecture & Design*  
*Sharjah, U.A.E.*

### Corrections

The order of the architects' names in the credits for the Museum of Islamic Art in Doha [August 2009] should have been as follows: I.M. Pei, FAIA, Perry Chin, Hiroshi Okamoto, AIA, Toh Tsun Lim, AIA, Aslihan Demirtas. In a September News story [page 29] about progress at the World Trade Center site, RECORD stated that the National September 11 Museum will be 30,000 square feet and was designed by the late J. Max Bond, Jr., who was a partner at Davis Brody Bond Aedas. In fact, the museum will be 120,000 square feet and was designed by a different partner at the firm, Steven Davis, FAIA.

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

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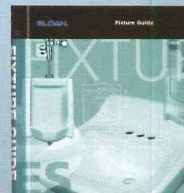
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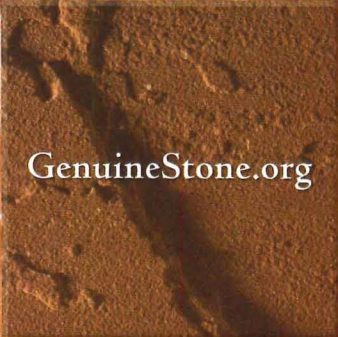
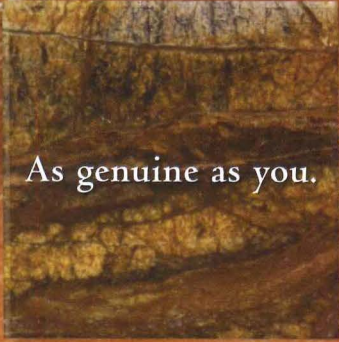
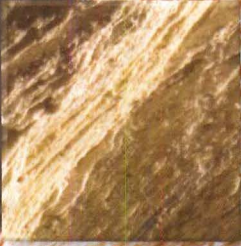
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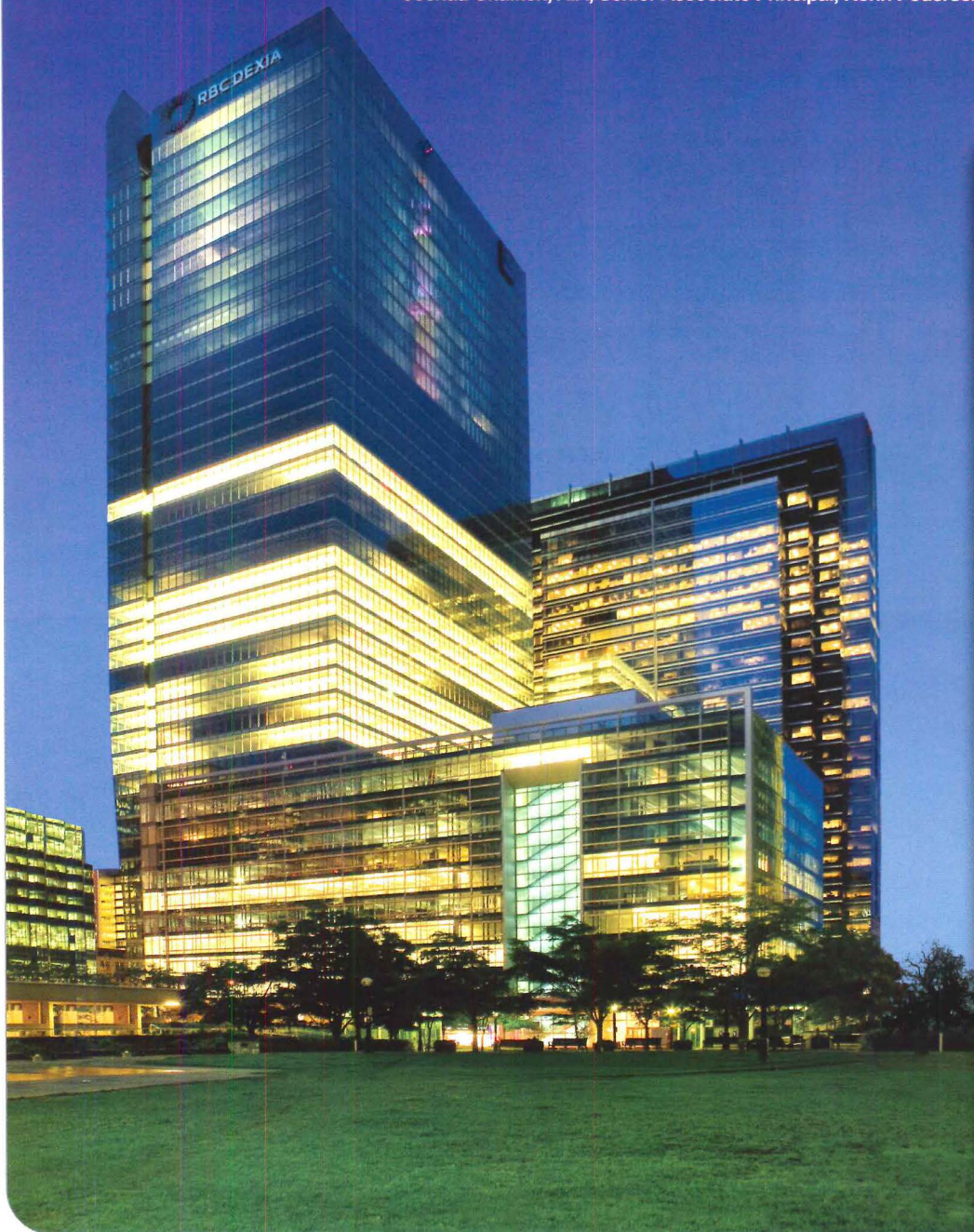
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## New art parks enliven urban centers

Just days after the July 1 opening of Citygarden in St. Louis, landscape architect Warren Byrd observed people using the sculpture park in ways he hadn't quite imagined. A father and daughter waded in an 18-inch-deep reflecting pool while other visitors, unencumbered by do-not-touch regulations, interacted with some

of the 24 sculptures by artists such as Jim Dine and Martin Puryear.

"There's a real hunger," Byrd says, "for these amenities in this context."

This context is a two-block swath of Gateway Mall, a public space that extends 1.1 miles west of the famous Gateway Arch. Located in the heart of St. Louis, the mall has been under-used for decades; Barbara Geisman, deputy mayor for development, once referred to it as an obstacle bifurcating downtown. The \$30 million, 2.9-acre park, designed by Virginia-based Nelson Byrd Woltz and funded by the Gateway Foundation, is helping change that perception. "With one stroke, Citygarden has made downtown so much more attractive as a place to do business. And as a place to live, too," Mayor Francis Slay said during the opening ceremony.

It isn't the only downtown district recently renewed by a design intervention involving sculpture and landscape. Coming on the heels of successful precedents such as Millennium Park in Chicago (2004) and Seattle's Olympic Sculpture Park (2007), urban art parks are invigorating city centers across the country.

In late September, Des Moines saw the much-anticipated opening of the 4.4-acre John and Mary Pappajohn Sculpture Park. Featuring 16 pieces donated by the Pappajohns, local philanthropists, the project was designed by New York architects Diana Agrest, FAIA, and Mario Ganelsonas, AIA, who developed a master plan for Des Moines in the early 1990s. The park offers users of the downtown district the twin benefits of high-quality outdoor space and



1. Dilworth Plaza redesign by KieranTimberlake.

2. Citygarden by Nelson Byrd Woltz Landscape Architects.

3. Jaume Plensa sculpture in Pappajohn Sculpture Park.



fine art. "This provides us an ability to reach an audience that would think to come to a beautiful public space, but might not consider visiting the museum," says Jeff Fleming, director of the Des Moines Arts Center, which contributed \$6.1 million to the project.

For its pending reconstruction of Dilworth Plaza, located in front of Philadelphia's City Hall, KieranTimberlake will "restore to prominence the extraordinary public art program of Alexander [Stirling] Calder," says partner Stephen Kieran, FAIA, referring to the sculptor who created many installations for Philadelphia.

(Calder's son, Alexander Calder, was the famous artist best known for his mobiles.) The Dilworth Plaza scheme calls for a lawn, large fountain, and two glass pavilions that will serve as a subway-station entrance.

And the Virginia B. Fairbanks Art & Nature Park – adjacent to the Indianapolis Museum of Art and opening in June 2010 – will draw people to central Indianapolis. Lisa Freiman, park director and IMA curator, plans to rotate site-specific commissions through the 100-acre parcel, with a Marlon Blackwell-designed visitor center providing one constant.

Indeed, while this new spate of parks reflects the continuing revitalization of American cities, it also amplifies the phenomenon. Besides filling in gaps in the urban fabric, they are generating all-new commitments to it. For instance, Wellmark Blue Cross and Blue Shield is developing a new building adjacent to the Pappajohn Sculpture Park. "The potential success is enormous," Fleming says, "so maybe more museums and cities will follow this lead."

*David Sokol*



View additional images online.

## Record News



### Gates campus to open in 2011

Work is progressing on a new headquarters for the Bill & Melinda Gates Foundation, the world's largest charity organization.

Located a few blocks north of downtown Seattle, under the iconic Space Needle and across the street from the Frank Gehry–designed Experience Music Project, the \$500 million campus (above) will encompass an entire city block, approximately 12 acres. Announced in the fall of 2005, the campus is expected to open in the spring of 2011.

The project's first and largest phase – two six-story office buildings designed by NBBJ – is more than halfway complete. Meant to resemble “arms reaching out to the world,” the L-shaped buildings wrap a landscaped courtyard and are mostly clad in glass, explains NBBJ managing partner Steve McConnell, AIA. With a host of sustainable features, the foundation is targeting LEED Gold for the buildings. *Brian James Barr*

### Container office shipping to a site near you?

For years, designers have used old shipping containers to construct new single- and multifamily housing. Now, perhaps as a sign of our cost-conscious and eco-minded times, architects on opposite coasts are expanding this concept to another building type: commercial offices.

This month in Providence, Rhode Island, on-site assembly is slated to begin on a project by distill studio. Dubbed the Box Office, the project takes 32 cargo containers – most of which measure 40 feet long by 8 feet wide and 9.5 feet high – and combines them into a 10,000-square-foot office building located in a gentrifying neighborhood. Rather than disassemble the corrugated-steel boxes or disguise them with a new skin, principal Joe Haskett, a registered architect, treated them as discrete structural units, stacking and cantilevering the blocks to create a three-story complex. “It’s an Adolf Loos-ian approach: Don’t adorn it if you don’t need it,” he says. “It also makes a statement about being frugal.”

Cargo containers remain watertight during ocean voyages, Haskett adds, but they require interior modifications to become habitable. These include spraying walls with a 2½-inch layer of foam and, leaving a ½-inch plenum, installing batt insulation finished with Sheetrock. Other enhancements, such as high-performance windows and air-to-air heat pumps, mean Box Office will consume 25 percent less energy than a traditional building, according to Haskett.

Likewise, c3600, a Seattle project by HyBrid Architecture, aims to be an exemplar by incorporating a green roof and walls, above-ground water retention, and myriad other sustainable features. Even with these sometimes pricey systems, constructing the 7,200-square-foot commercial showroom and offices will cost 20 to 40 percent less than a conventional project, says principal Joel Egan.

Cargo containers account for the savings. Crews hoisted into place all 12 boxes in just four



1. Box Office in Providence.  
2. c3600 in Seattle.

hours on June 18. “That’s one advantage of doing modular construction: speed of assembly,” Egan observes. His design overcomes a disadvantage of containers, their limited width, by stacking boxes into columns of three, leaving two 20-foot gaps between stacks and enclosing those areas with glass cladding and a structural-insulated-panel roof supported by open-web steel trusses. The gaps, or spines, will contain showrooms and offices; the pods will house service elements such as restrooms and kitchenettes. *James Murdock*

### Stakes high for CityCenter

CityCenter, the highly publicized \$8.5 billion mixed-use project now under construction on the Las Vegas Strip, has been saddled with problems: the death of six construction workers, a lawsuit between development partners over rising costs, and funding woes brought on by the global credit crisis.

Additionally, a tower designed by Foster + Partners, the Harmon Hotel & Spa, will be considerably shorter than planned due to construction defects (reinforcing steel rebar was improperly installed on 15 floors). The oval-shaped glass building will now be 28 stories, instead of 49.

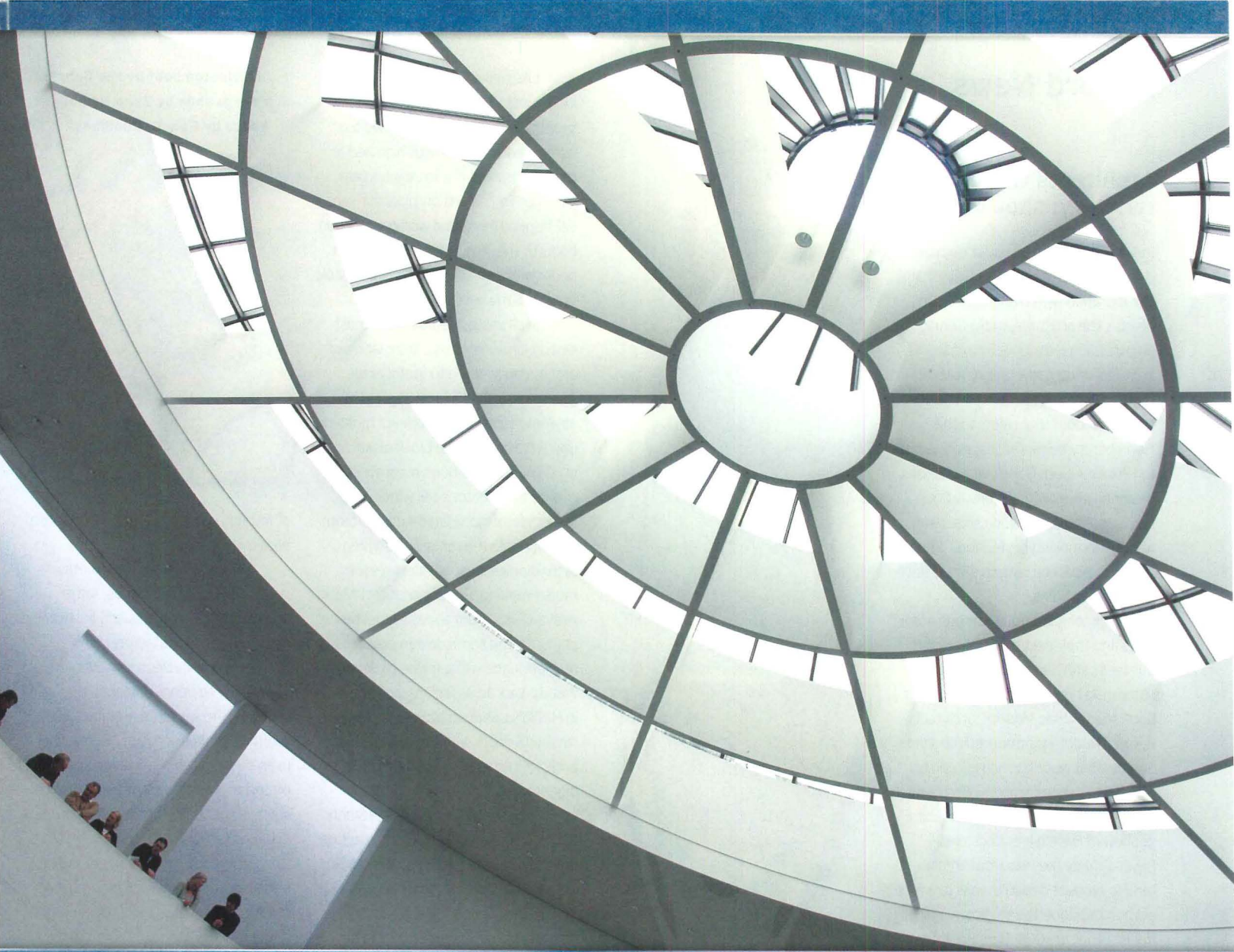
Despite the complications, work on CityCenter has proceeded, with most of the complex slated to open this December. “CityCenter construction continues to be on track as planned,” said Robert Baldwin, CityCenter president and C.E.O., during a September 1 investor conference call.



Billed as the largest private development in the U.S., the 18-million-square-foot, 76-acre complex (above) departs from the stereotypical Vegas aesthetic, with sleek Modern designs by Foster,

Studio Daniel Libeskind, Murphy/Jahn, Rafael Viñoly Architects, Pelli Clarke Pelli, and Kohn Pedersen Fox. All of the buildings are designed to achieve a Silver or Gold level of LEED certification. The complex also features \$40 million worth of public art installations by high-profile artists such as Maya Lin, Jenny Holzer, and Claes Oldenburg.

While it promises to make a strong visual impact, CityCenter will be opening during a drastic economic downturn in Las Vegas, with record unemployment and far fewer visitors. In August, gaming revenue was down 11 percent, or \$89.5 million, from a year prior, while taxable sales dipped nearly 22 percent, according to a recent report. Jim Murren, MGM Mirage chairman and C.E.O., is placing his bets on CityCenter, which he expects will spur an increase in tourists next year. “CityCenter will be one of the great urban communities of this century,” he adds, “attracting visitors from around the world.” *Tony Illia*



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## Record News

### Architects tread in new territory: shoe design

In May, the French luxury shoemaker J.M. Weston unveiled the result of a collaboration with Frank Gehry and his son, the artist Alejandro Gehry: an oxford-based monochromatic boot featuring a row of four leather-covered buttons, as well as a two-tone, six-button boot that refers to the 19th-century balmoral design invented for Prince Albert. Gehry, who also has designed jewelry for Tiffany & Co., notes an affinity between shoes and his legend-making profession. "Shoes are very architectural and always have been," he explains.

Not coincidentally, famous architects and their next of kin have clad our feet before. In a 1944 Museum of Modern Art exhibition inspired by his book *Are Clothes Modern*, architect Bernard Rudofsky introduced the sandal designs that would launch his and his wife Berta's shoe company, Bernardo, in 1947. Five decades later, Ito Morabito, nephew of French architect Yves Bayard, made the leap from architectural to product design thanks to a project commissioned by stiletto inventor Roger Vivier. In 2003, Rem Koolhaas's nephew Rem D. Koolhaas cofounded the shoe company United Nude.



Like Gehry, Zaha Hadid is freshly indoctrinated into shoe design. Last year the Brazilian shoemaker Melissa introduced an eponymous high heel to the marketplace. And in July, Lacoste launched limited-edition, gladiator-sandal-inspired men's and women's leather boots by the architect, and the fashion house will begin selling a more affordable version of the boot in September.

In all cases, Hadid's work most clearly demonstrates a translation of architectural vision to tootsy scale. The Melissa shoe's form, topped by asymmetrical straps, appears molded upward from a single block of warm wax. The Lacoste boot, meanwhile, evokes an alligator's tail winding up the leg, for which Hadid's design team appropriates the rapid-prototyping technologies it usually deploys for model-making. Project architect Maria Araya says, "From shoes to master plans, it's the same design process and language we're trying to develop." Woody Yao, an associate director in Hadid's London studio, concurs: "In my 15 years with Zaha, a smaller project is like a testing field for the bigger scale."

"You shouldn't have to differentiate between disciplines," Gehry says of the phenomenon of architects taking on shoe-design commissions. John Storey, the Lacoste global publicity director who oversaw the Hadid project, says that based on the company's success teaming with designers outside

1. J.M. Weston boot by the Gehrys.
2. Melissa shoe by Zaha Hadid.
3. Wedge by Rem D. Koolhaas.



of fashion, consumers can expect more architect crossovers.

Yet those collaborations may not be limited to celebrities. Annie Mohaupt is a Chicago-based footwear designer and manufacturer who worked in architecture for seven years prior to opening Mohop Shoes in 2005. She says that architecture "definitely influences how forms work in an efficient way," and even uses materials from her former line of work, such as hospitality-grade faux leathers, in her collection. Mohaupt also notes that lately she's been inundated with e-mails from architecture students assessing the job market. "Architecture offers really great preparation for all sorts of careers," she says. "It's nice to know you have options." *David Sokol*

### New Corian studios surface in Milan, New York, and Philadelphia

DuPont developed Corian over 30 years ago. But it wasn't until 1998 that the company began to explore the solid surface material's full potential by collaborating with architects such as Zaha Hadid and Jean Nouvel and displaying their designs at high-profile shows like Milan's Salone del Mobile.

Today, this formable, transformable surfacing has been adapted for myriad commercial and residential applications – lighting, retail displays, and exterior cladding among them. Yet, according to Elizabeth Lawson, North America commercial marketing manager for DuPont Surfaces, many designers still see Corian as a kitchen and bath product. To alter this perception, the company expanded its outreach in the spring by launching the Corian Design–Milano Store (pictured) and Corian Design Studios in New York and Philadelphia.

Operated by regional suppliers and fabricators ready to work with the design community to detail custom, even experimental, specifications and accept orders, the 2,500- to 5,000-square-foot ateliers were designed by local architects

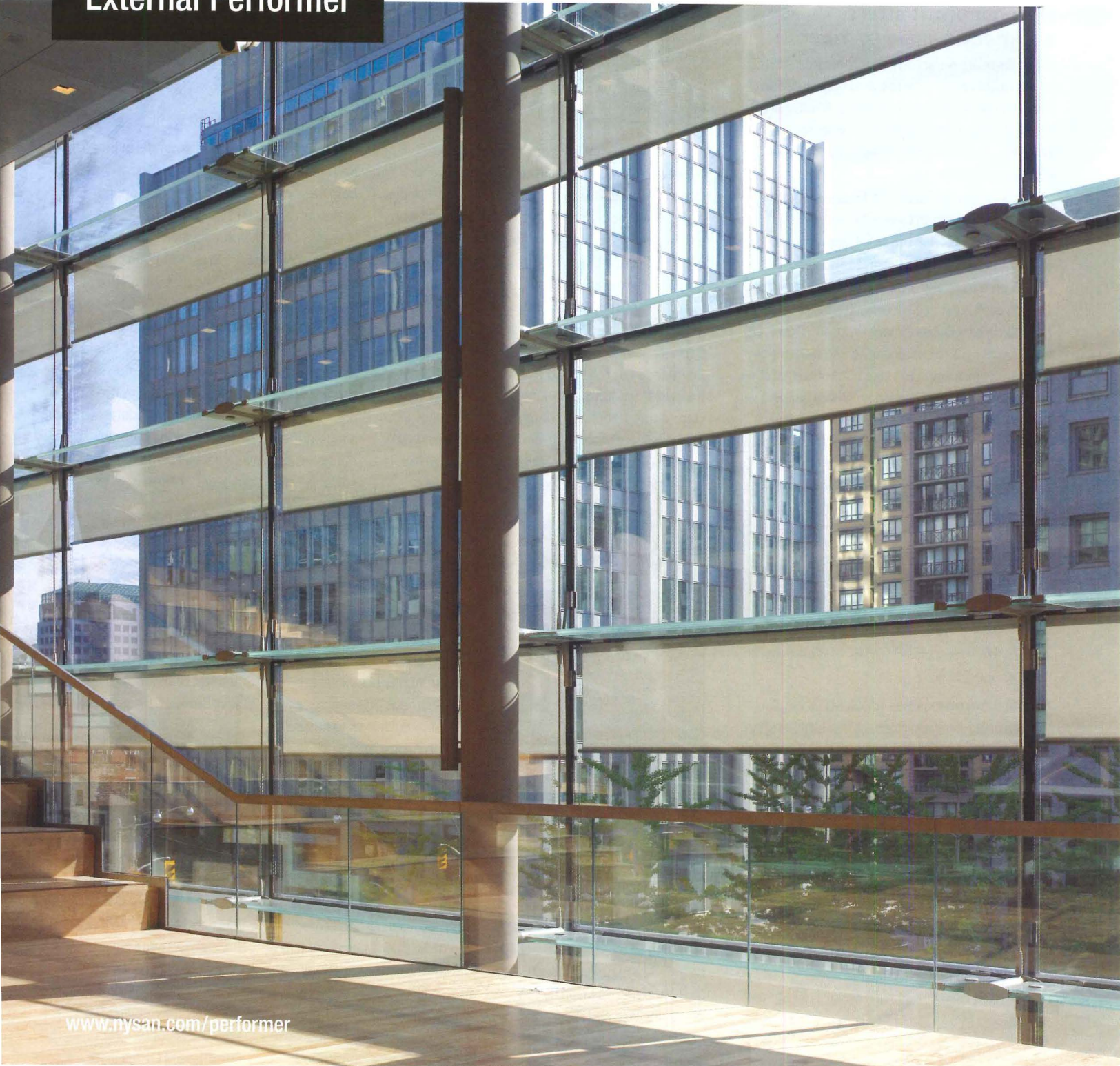


familiar with the properties of Corian and other DuPont materials, including Zodiaq, Tyvek, and SentryGlas. Each locale reflects and serves its market (though Milan and New York are also geared toward more international needs).

All three studios feature vignettes that demonstrate real-world applications: light-transmitting LED fixtures and health-care units in New York; workstations and a free-form conference table in Philadelphia; furnishings and backlit panels in Milan. Plans for educational seminars, events, and traveling exhibitions are in the works. "The best way to be relevant for [architects and designers] is to provide a place for information and collaboration," notes Lawson. As to whether the company intends to open additional studios in the future, she says, "Stay tuned." *Linda C. Lentz*

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# Record News

## New nonprofit offers architectural aid to Tibet

While there are numerous nonprofits that aim to realize buildings for those in need, a fledgling Brooklyn-based organization wants to offer architectural assistance to a group of people it feels is underserved: the Tibetan exile community living in northeast India.

Named Architecture for Tibet, American designer John Ullman founded the registered nonprofit after visiting the small town of Tawang in the Himalayas. The initial motivation for his trip didn't come from any grand ambitions: He needed to fulfill community-service requirements as part of NCARB's Intern Development Program. However, while teaching basic engineering and working on a master plan, he couldn't help but notice that the local orphanage "needed a new school building very urgently." By the end of a two-week trip in March 2007, he had promised that he would help build such a structure. "And when you make a promise to 150 kids, you want to make good on it," he says.



Back in his hometown of New York, the 40-year-old Ullman established Architecture for Tibet in June 2008, and four months later left his job at Andrew Fredman Architect, where he worked on pricey Upper East Side town houses, to focus on his organization full time. While he has yet to complete the IDP, his organization counts registered architects Evan Akselrad and Brent Porter among its advisers.

The group's first project is the Manjushree Orphanage Academic Center (pictured above). Envisioned as both a school and community center, the two-story, 10,000-square-foot facility will house classrooms, a library, a computer and language lab, and a multipurpose room, and will be equipped with a geothermal system for radiant heating. Ullman notes that in Tawang, "people experience eight

months of winter, and three months of monsoons" and spend much of their time indoors. "This building," he says, "is a way for them to continue their activities throughout the year."

Although the organization is still in its infancy, Ullman expects to begin construction on the center in March 2010. Estimating that the main academic building will cost a total of \$200,000 – a second phase comprising standalone classroom buildings is also in the works – Architecture for Tibet has planned a series of fund-raisers. Ullman says high-profile supporters on the event committee include architect Daniel Libeskind, noted Buddhist writer and academic Robert Thurman, and Thurman's celebrity daughter, Uma. "Seeing it all come together," he says, "is a great privilege." *Tim McKeough*

### NOTED

**Carl Galioto, FAIA**, the partner in charge of SOM/New York's technical group, has taken a new position at HOK.

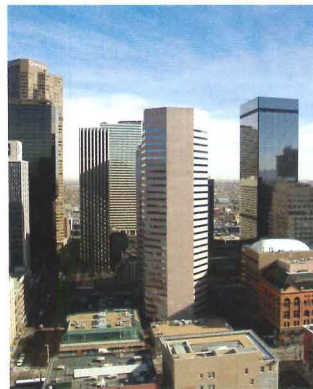
**Richard Sommers** has replaced George Baird as architecture dean at the **University of Toronto**. Sommers formerly taught at Harvard's Graduate School of Design.

**Terry Irwin**, a designer and educator who specializes in sustainability, is the new head of **Carnegie Mellon's School of Design**. She succeeds Stephen Stadelmeier, who served as interim head since the fall of 2008.

**Fatih A. Rifki** is the new director of the **School of Architecture at Montana State University**. Prior to this appointment, he helmed the architecture school at the American University of Sharjah in the United Arab Emirates.

**The New York School of Interior Design** has announced three new degree programs: M.F.A. in interior design, M.P.S. in sustainable interior environments, and B.A. in history of the interior and decorative arts. Also, the school recently launched an institute for continuing and professional studies.

## Denver's revamped zoning code could set precedent



Denver's 639-page zoning code, written in the 1950s and amended countless times since, is getting an overhaul. Gone will be arcane zoning terms such as R-1 and B-2, replaced by specific guidelines and illustrations describing what new buildings should actually look like. And instead of a one-size-fits-all approach, the new rules could vary neighborhood to neighborhood.

Unveiled in May, the proposed new code is an attempt to better manage growth in a city that's seen hundreds of older

homes torn down and replaced by much-larger – critics say, inappropriate – houses, explains Peter Park, Denver's manager of community planning and development. The new code will establish guidelines to ensure that new construction fits in better with a neighborhood's historic context.

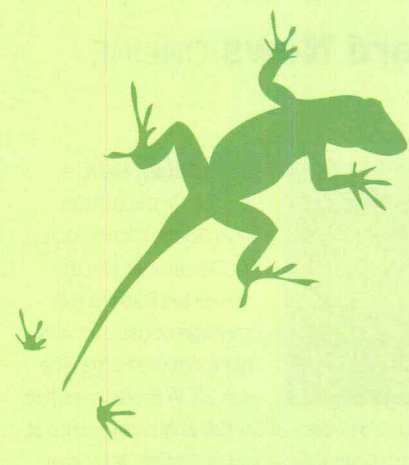
Under the proposed code, which employs a "form-based" approach, the city will be divided into seven types of districts: suburban, urban, urban edge, general urban, urban center, downtown, and special context. Different rules will apply within those districts. For example, a new one-story ranch house might be considered inappropriate in a 1920s neighborhood dominated by bungalows and Denver Squares.

In certain cases, however, the new code would loosen restrictions. For instance, it might permit accessory dwelling units, or carriage houses, in

some neighborhoods; under the current code, carriage houses are not permitted. "I think it will allow for more options for architects and their clients," says Steven Carr, president of AIA Denver, which has endorsed the proposed code. City council members are expected to vote on a final version early next year.

Denver isn't the only city moving away from traditional zoning codes, which tend to regulate how buildings are used but not what they look like. Miami has been working on a new form-based code called Miami 21; planners in Nashville have developed a form-based code for the city's downtown area. Carol Wyant, executive director of the Form-Based Codes Institute, says this type of zoning is "a response to people wanting a sense of place and being upset at the loss of a sense of place that's occurred as historic neighborhoods have been torn apart building by building." *David Hill*





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Quiet on the forest floor  
Is one with the earth*



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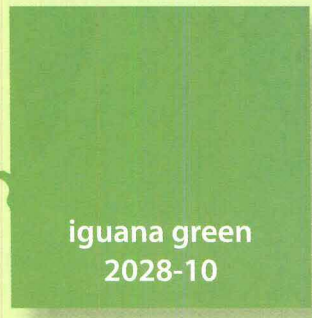


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# Record News ONLINE



**Joan Goody, FAIA**, a partner in the Boston firm Goody Clancy, died on September 8 in the converted Beacon Hill carriage house that was her longtime home. She was 73. A Brooklyn native,

Goody studied history at Cornell and architecture at the Harvard Graduate School of Design. After marrying architect and MIT professor Marvin Goody, she joined his firm in 1970 and became a partner in 1978.

Among the significant projects for which she was lead designer were the renovation of **H.H. Richardson's Trinity Church**, and the transformation of a deteriorated public housing project called **Harbor Point** into a vibrant mixed-income waterfront community. Having entered the field when there were few women in architecture, Goody came to be seen as a pioneer and role model for younger women. She taught a GSD design studio in the 1970s. She also served on numerous boards, most notably for 11 years as a member of the Boston Civic Design Commission. *Robert Campbell, FAIA*

**Vincent Scully, Jr.**, whose lectures and books on architectural history have influenced generations of architects, announced on **August 20** that he is stepping down from his teaching post at Yale, where he has worked since 1947. He actually "retired" from the university 17 years ago; his last lecture, attended by former students such as Maya Lin and David Childs, was covered on the front page of *The New York Times*. Since then, he has served as a Yale emeritus professor, leading a lecture course in the fall and teaching at Florida's University of Miami in the spring. No word yet on whether he will continue teaching in Florida. *Aleksandr Bierig*

During a ceremony on November 5, the National Building Museum will present the **11th Vincent Scully Prize** to **Christopher Alexander**, a professor and author of books such as *The Nature of Order: An Essay on the Art of Building and the Nature of the Universe*. Established in 1999 and named after the prominent Yale professor, the prize honors a practitioner, teacher, or writer who has made a significant contribution to the architecture profession. Past winners include Robert A.M. Stern, Jane Jacobs, and the Aga Khan. *Jenna M. McKnight*



After years of controversy, Forest City Ratner Companies, the developer of the **Atlantic Yards** project in Brooklyn, says it expects to begin construction of the development's centerpiece – the Barclays Center, an arena for the New Jersey Nets – later this year. Ratner anticipates opening

the facility for the 2011–12 basketball season. On September 10, the company released renderings of the stadium's redesign (above) by **Ellerbe Becket** in collaboration with **SHoP Architects**. The original architect was Frank Gehry.

The new scheme calls for a 675,000-square-foot arena clad in weathered steel and glass. The building features three separate but woven horizontal "bands," says the architect. The first engages the ground and includes a canopy that hovers 30 feet over a plaza. The second band consists of glass, and a third band varies in transparency and "floats" around the roof. *Nadine M. Post*

**LEFT BRAIN**

SCOPE	DESIGN	PROGRAM	NAME	LEVELS	LEAD
PROLOGUE + PROLOGUE	PROLOGUE	PROLOGUE	PROLOGUE	PROLOGUE	NO
CONCEPTUAL DESIGN	CONCEPTUAL DESIGN	CONCEPTUAL DESIGN	CONCEPTUAL DESIGN	CONCEPTUAL DESIGN	YES
ARCHITECTURAL DESIGN	ARCHITECTURAL DESIGN	ARCHITECTURAL DESIGN	ARCHITECTURAL DESIGN	ARCHITECTURAL DESIGN	YES
CONSTRUCTION ADMINISTRATION	CONSTRUCTION ADMINISTRATION	CONSTRUCTION ADMINISTRATION	CONSTRUCTION ADMINISTRATION	CONSTRUCTION ADMINISTRATION	YES
POST-OCUPANCY	POST-OCUPANCY	POST-OCUPANCY	POST-OCUPANCY	POST-OCUPANCY	NO

**LEAD LEVELS**

- CONCEPTUAL DESIGN
- ARCHITECTURAL DESIGN
- CONSTRUCTION ADMINISTRATION
- POST-OCUPANCY

**RIGHT BRAIN**

**THE BIG IDEA**

**EXPERTISE**

**SYNERGY**

**GROWTH**

**WALLS**

**INTEGRAL SYSTEM PROCESS**

**TO DO LIST**

1. Pay Invoice
2. Resolve scheduling conflict

**RIGHT BRAIN**

**THE BIG IDEA**

**EXPERTISE**

**SYNERGY**

**GROWTH**

**WALLS**

**INTEGRAL SYSTEM PROCESS**

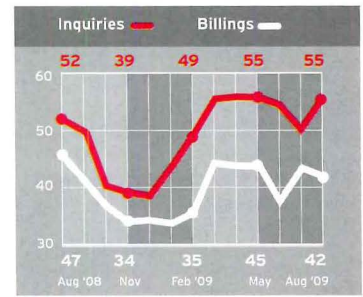
**TO DO LIST**

1. Pay Invoice
2. Resolve scheduling conflict

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The AIA's Committee on Architecture for Education (CAE) has announced the 13 winners of this year's **Educational Facility Design Awards**. Beyond honoring architects for exemplary work, the program aims to identify trends in educational design and disseminate knowledge about best practices in the educational sector. The AIA also recently announced the recipients of its second annual **National Healthcare Design Awards**, presented by the AIA Academy of Architecture for Health. Selected from nearly 100 entries, two of the three projects are hospitals in Portland, Oregon, including the Peter O. Kohler Pavilion by Perkins + Will (left). To see images of all award winners, visit us online. *Mae Ryan*



While the inquiries score was 55.2, the Architectural Billings Index fell to 41.7 in August. The credit crunch continues to plague the construction industry, says Kermit Baker, chief economist for the AIA, which produces the index based on firm surveys. "The overwhelming majority of architects are reporting that **banks are extremely reluctant** to provide financing for projects," he says. "Until the anxiety within the financial community eases, these conditions are likely to continue." *Jenna M. McKnight*

**Robert Berkebile, FAIA**, founding principal of Kansas City-based **BNIM Architects**, is one of the 10 recipients of the 2009 Heinz Awards, which were announced on September 15. Berkebile, a leader in the field of sustainable design and construction, helped establish the AIA's Committee on the Environment and the U.S. Green Building Council. Given in memory of the late Senator John Heinz, the awards recognize individuals who are bettering society; each winner receives \$100,000. *Alanna Malone*



Page & Turnbull has converted an old army barrack, gymnasium, and storage facility at the historic Presidio in San Francisco into The Walt Disney Family Museum. The 77,000-square-foot facility, which will present the life and work of the animation pioneer and entertainment entrepreneur, opens this month. Interior architecture and installations were designed by Rockwell Group. *Clifford A. Pearson*

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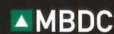
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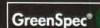
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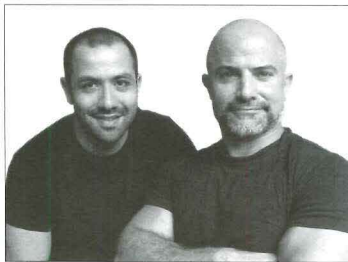
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Urban nomads refine their craft in New York City

#### Fire Island Gate (far right), New York, 2008

*A louvered wooden gate and front deck for a summer house takes fluid form, starting as a box to store garbage cans, then bending toward the property before rising to cantilever over the door.*

Although his path took him from Turkey to Los Angeles to New York City, 33-year-old architect Koray Duman, who started his firm, Studio Urnod, in 2004, doesn't think his route to becoming a designer was anything less than direct. "I always wanted to be an architect," he says, "and I've been lucky enough to find my way here." Also lucky for Duman was meeting 38-year-old Laith Sayigh, who joined the firm as coprincipal in early 2009. "We found that designwise, we were on the same page," says Sayigh of the partnership. The two may also have found similarities in their Middle Eastern roots, as Sayigh spent his childhood years in Saudi Arabia and Kuwait before moving to the U.K., then San Francisco, then New York City.

But although a worldview of architecture can't help but influence their designs ("it all becomes part of the rich tapestry of our work," says Sayigh), both say it's their belief that big ideas can come from a small, focused practice that really

keeps Studio Urnod (the name comes from a merging of *urban* and *nomad*) busy. That, and their assertion that their practice bridges the gap between the experimental nature of an academic environment and the realities of, well, reality, including budget constraints and contractor limitations. "Clients don't usually have the budget for experimental design or high-end manufacturing processes," says Duman, "and they don't want their project to be a testing ground. It's our job to find the right collaborators – manufacturers and contractors – and speak a hybrid language to communicate clearly for the highest possible result." Sayigh agrees. "It's an intricate dance," he says, "but we find that as a small firm we can be nimble."

The two have experience working on large commercial projects with both large and medium-size firms – Duman's experience includes working for Frederick Fisher and Partners Architects in Los Angeles, and Sayigh has interned with Thom Mayne and worked for Diller Scofidio + Renfro in New York, SOM in San Francisco, and Norman Foster and Partners in London – but find the most rewards working in tandem on the mostly small-scale residential projects in and around New York City that they've completed. Even *The New York Times* has taken notice of Duman, featuring his own apartment in its

**Volpe St. Pierre, New York City, 2007** *A butcher-block surface in this 600-square-foot apartment starts as a kitchen countertop, then becomes a dining table, which, when folded, creates a separation for the sleeping area. A wall contains closets and bookshelves.*





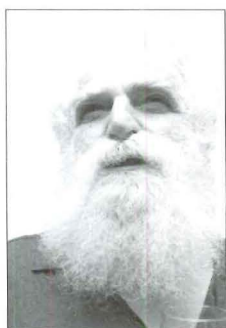
online Home & Garden section in December of 2008 (and later in print). The 600-square-foot renovation is a clear example of how an awkward, cramped apartment can be transformed into beautiful, bright, and efficient living spaces.

Efficiency, to Duman and Sayigh, means that sustainability is paramount to every project. "My father is an expert in renewable energy, so it's just always been there for me," he says. To that end, the designers carefully consider all designs and materials for energy efficiency and sustainability. "It's just the default," says Duman.

**Chavez Residence,  
New York City, 2006**

*A 1,100-square-foot terrace is conceived as a continuation of the living room and kitchen. The deck includes a fireplace, table, shower, hot tub, and a glass/light sculpture.*

But even though Studio Urnod has its plate full, with more residential work, a New York City building-lobby project, and a conceptual design for a gym in Connecticut, the two partners aren't content enough to stop exercising their experimental arms. They enjoy the unrestricted nature of competitions, and continue to participate in any that interest them worldwide. They are also branching out into furniture design, and if they can find the time, they would eventually like to teach. The teaching part will have to wait, though. "There's a lot we'd like to do," says Duman. "When the moment is right." *Ingrid Spencer*



*He's not Santa Claus, but MEx founder Al Atarra has given the gift of community and place to many emerging design and architecture firms, including Patten Studio, whose Tangible View Cube is shown at right, and Decker Yeadon, who designed the PAAR Silverware, below.*

# work

**MEx**  
a design cooperative grows in Brooklyn

Al Atarra, the owner of the seven-story Metropolitan Exchange Bank building near downtown Brooklyn, New York, envisioned creating a "professional arts complex." His first tenants were Interboro Partners, winners of the AIA New York Chapter New Practices Award in 2006. Together, Atarra and Interboro established the Metropolitan Exchange (MEx), "an architecture, urban planning, and research cooperative" where members would "collaborate on architecture and planning projects, pursue development opportunities, and sponsor lectures, film screenings, and exhibitions."

Word spread to friends and colleagues about the affordable studio space, attracting other emerging practitioners and small partnerships such as Decker Yeadon, MAN Architecture, Kaja Kuhl, and slo.viz, all of whom find MEx a much more productive environment than their living rooms. Aside from traditional architectural practices, other MEx tenants include Patten Studio, which provides design technology for interactive media; Terreform ONE, a nonprofit philanthropic design collaborate; and Meredith TenHoor, who researches and writes on contemporary urbanism and politics.

MEx includes a "diverse range of creative people," according to Peter Yeadon of Decker Yeadon. The tenants often turn to each other for advice and pool their resources. "Work gets exponentially more interesting," confirms his partner, Martina Decker. To further facilitate interaction, a few tenants have organized a series of Dinner Exchanges, inviting other tenants as well as other designers and community members to experience the space.

Meredith TenHoor and David Frisco, professors at nearby Pratt Institute, recently organized an exhibition and lecture series for MEx titled *Brooklyn Exchanges: Design, Development and the Future of Brooklyn*, courtesy of a grant from the Graham Foundation. By "using the Metropolitan Exchange to generate dialogue about Brooklyn's future," TenHoor hopes the exhibition will draw community members, since there aren't other spaces showing architectural work in the area.

Although MEx is only three years in the making, Atarra has grand plans for the future. He hopes to create an exhibition space for large artwork, hold meditation classes for tenants, and establish a sustainable-food restaurant on the ground floor, which currently hosts a large farm share. Atarra also hopes to expand to other buildings as the cooperative grows. In a city that lacks affordable work space for designers, MEx fills an important void. *Murrye Bernard*



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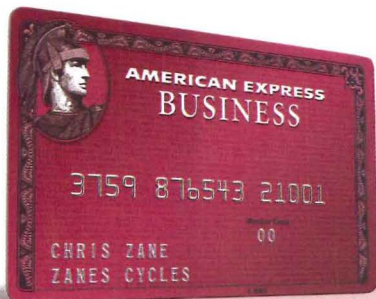
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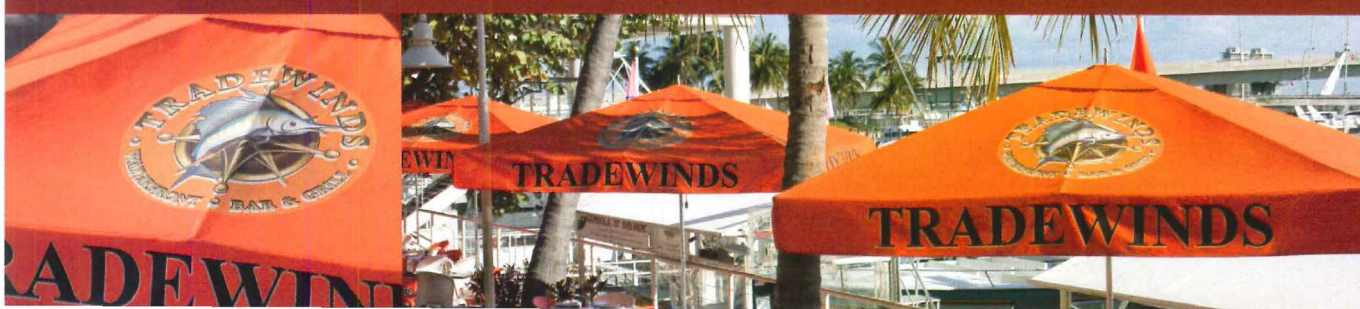


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CIRCLE 28

# Don't roll your eyes: Architects can learn a lot by playing golf

## Critique

By Robert Campbell, FAIA

**I KNOW PEOPLE WILL BE READING** this in crisp October, but as I write I'm hanging on to summer in the week before Labor Day. Summer is a time for many things. One of them, for the right-minded architect, is golf. I realize that I'll alienate some readers here, but golf and architecture are, I believe, related activities. Golf is said to be an old person's sport – witness Tom Watson, who almost won the British Open this summer at age 59 – and as we all know, architects, like symphony conductors, tend to flourish in their later years. I.M. Pei was 91 when his museum of Islamic Art recently opened in Qatar.

Mark Twain said, "Golf is a good walk spoiled," a snotty comment that is usually quoted by people who've never picked up that amazingly crafted artifact, a golf club. Twain was seldom wrong, but this time he blew it.

Golf is the only sport that is played in a landscaped garden. A golf course, especially an American one, is the latest and perhaps the final iteration of a great design movement, namely the English country garden of the 18th century, the movement we associate with names like Capability Brown and William Kent. Like Stowe or Stourhead or Rousham, a golf course is an entirely artificial landscape that has been reconfigured in such a way as to resemble the more romantic, naturally sloping meadows of a sheep farm or deer park.

All the old tricks are here: The picturesque grove or single tree sited in exactly the right position to punctuate a view, the rolling contours that seem to be God's work but are actually the product of shovels or bulldozers, the carefully managed tricks of perspective that make you think you are closer to the putting green than in fact you are, the open axial views to the far horizon ("prospects," in the language of landscape), or the water feature so placed that it reflects a copper beech against the sky. Even the ha-ha is here, put into service as a hazard that lurks invisibly until you discover it has engulfed your shot. Some golf courses feature actual deer, foxes, or rabbits. I'm talking about the typical inland course, not the "linksland" courses made mostly of sand dunes, which are common in Britain but rare in the U.S.

Golf is not a good walk spoiled. A walk in the country is merely a spectator sport. The viewer is not involved in the scene. But a golfer, like a farmer or a hunter, is deeply engaged with the landscape. And golf is spatial. Your architectural skills come into play. You're always figuring distances, angles, slopes, textures, winds, maybe the grain of the grass (meaning the direction it's pointing, which may follow the sun). You're a kind of land surveyor. If you're a pro, you will even want to know what variety of grass was planted to surface the greens. You're alive with all your senses to landscape in all its aspects. Landscape isn't just there, it matters.

### Never the same shot

Golf is also like architecture in that there are no cookie-cutter plans, or at least no good ones. Unlike bowling or tennis, golf is played on a surface in which every course, every fairway, every green is different. In a lifetime, you never play exactly the same shot twice. Isn't that part of what makes the practice of architecture, too, so fascinating?

Mark Twain should have tried golf. He might have come up with something to rival John Updike's marvelous short story "Farrell's Caddie," in which a wizened caddie steers a callow American golfer around a Scots course. Updike describes the caddies as "hunched little men in billed tweed caps and rubberized rain suits, huddled in the misty gloom," which may not sound much like your desk critics in design school, but Sandy the caddie coaches his American visitor with a similar

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## Critique

mix of encouragement, challenge, and collaboration. Eventually, writes Updike, "Farrell and his cad-die began to grow into one another, as a foot in damp weather grows into a shoe."

I'm no landscape historian, so I consulted some experts as to whether my instinct is right about the similarity between the American golf course and the English country garden of Capability Brown. Betsy Rogers is the founder of the Central Park Conservancy, and her book, *Landscape Design: A Cultural and Architectural History*, is the only one I know of that deals with golf. On the phone, she gives me a "Yes, but." Says Betsy: "They're both designed landscapes, they're both recreational, and they both go back to the 18th century in the British isles." She sees the resemblance,

but she says golf courses were and are usually designed by golf pros and specialists, and she can't document any direct influence.

I try Doug Reed of the Boston landscape firm Reed, Hilderbrand,

who says, "It sounds so right and believable to me, but I don't know of any literature on it."

I phone Peter Schaudt of Hoerr Schaudt landscape architects in Chicago, and here I finally hit a kind of jackpot. Schaudt first says, "I would guess there's a genuine correlation," and he then specu-

lates that early golf courses were sometimes converted from private estates, the former garden being directly transformed into the future golf course. Then he begins talking about the late Dan Kiley, the great

landscape architect, for whom Schaudt once worked.

Kiley, says Schaudt, was a golfer who hated Capability Brown and forbade the name from being mentioned in the office. "He thought Brown's work was a profanity," says Schaudt. "He thought he ruined many good landscapes." What were

the landscapes he ruined? They were the axial, gridded, geometric parks we associate with continental Europe, the opposite of Brown's more free-form, more romantic, let's-pretend-it's-natural spaces.

**A golfer, like a farmer or a hunter, is deeply engaged with the landscape. And golf is spatial. Your architectural skills come into play. You're always figuring distances, angles, slopes, textures, winds, maybe the grain of the grass. You're a kind of land surveyor.**

"Dan always wanted to design a Le Notre golf course," says Schaudt, referring to the French designer of the formal gardens at Vaux-le-Vicomte and Versailles. "It would have had a symmetrical, axial plan. When Dan played, he always hit straight short axial shots, and he always beat us younger guys who



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were hitting longer balls but spraying them all over the course."

I rest my case. If Dan Kiley despised Capability Brown, and if he wanted golf courses to look more like Le Notre, then he's at least implying that actual courses are too Brownian.

Dan Kiley was very much a Modernist, of course, not a product of the French Baroque. But like so many classical Modernists, he was in love with grids and geometric rigor. You have to wonder whether anyone has ever attempted a Modernist golf course. What would one look like? Or is the American golf course so deeply imbedded in the mythos of the Romantic movement that any change would be impossible? ■

Robert Campbell is the Pulitzer Prize-winning architecture critic of *The Boston Globe* and author (with Peter Vanderwarker) of *Cityscapes of Boston*.

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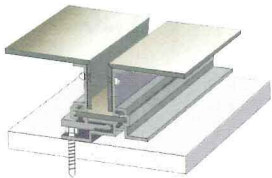
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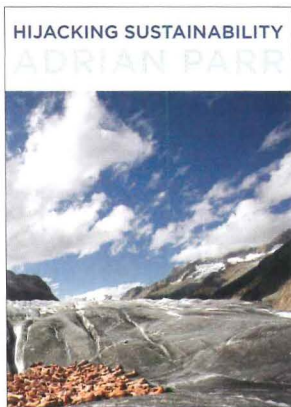




# Looking at the soul of sustainability

## Books

**Hijacking Sustainability**, by Adrian Parr. MIT Press, 2009, 224 pages, \$25.



In this cautionary tale about the politics and culture of sustainability and the efforts being directed toward sustainable design, Adrian Parr suggests that sustainability has two strands – capitalist and grassroots – and that they are incompatible.

At first, the book explores the popularization of sustainability culture: the proliferation of green brands, green Hollywood activism, and the greening of the White House. Parr draws such a sharp line between the approaches toward sustainability taken by capitalism (bad) and grassroots organizations (good) as to leave little room for their coexistence.

Later, Parr describes the challenges to sustainability culture, such as trash, slums, and natural disasters. Here, she highlights creative approaches to problems that address social, economic, and ecological issues. She opposes leaving these challenges to market solutions and is skeptical of those who promote business and industry as the path toward a sustainable

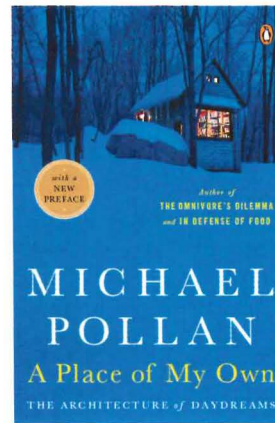
culture. (Among the latter is William McDonough, the founder of the architecture firm I work for.)

The trouble with Parr's argument, of course, is that capitalism is this nation's prevailing market system, and the prevailing view is that we need grassroots efforts (by people of all political stripes) to balance and mitigate the effects of government and industry's actions. Parr's framework is too black and white, and she offers no vision of sustainability's future. *Kira Gould*

**A Place of My Own: The Architecture of Daydreams**, by Michael Pollan. Penguin Books, 2008, 301 pages, \$16.

Thirteen years ago, Michael Pollan, bestselling author of *The Omnivore's Dilemma*, set out to understand architecture by designing and building his own "primitive hut," a writing cabin in his wooded backyard. Pollan wanted to flee the world of computer screens and abstract concepts and make something "real." But he recognized early on that his cabin, like all structures, began as an abstraction.

His book's dynamic hangs on the tension between architect and contractor. Pollan becomes the intellectual intermediary between his designer, who Pollan sees as wanting to design a building that overcomes nature and time, and his builder, who can't see the point of "pretty design." Pollan can't help but wonder how architecture lost control of the building process. "You wouldn't seriously argue that architecture was a language," he writes, "unless



you'd forgotten the specific heft of a cool brick." The author wishes the profession would renew its relationship with nature, an uncommon idea when *A Place of My Own* was originally published in the 1990s.

The book's central question remains vital: If four walls and a roof worked just fine for the primitive hut, why have architects continuously reimagined the dwelling? As Pollan's architect and builder bicker over his cabin, the answer becomes clear – architects must offer fresh insights to get us beyond the primitive or ordinary. *Brian James Barr*

**Earth Architecture**, by Ronald Rael, edited by Linda Lee and Dorothy Ball. Princeton Architectural Press, 2009, 208 pages, \$45.

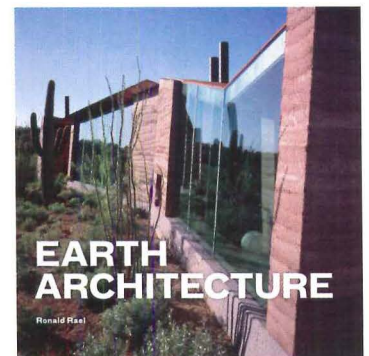
Architects tend to approach earth construction either as a primitive, anti-industrial technology of and for the poor, or with enthusiasm, as sustainable, sophisticated, and adaptable – though resistant to commodification. Ronald Rael is sensitive to this polemic in *Earth Architecture*,

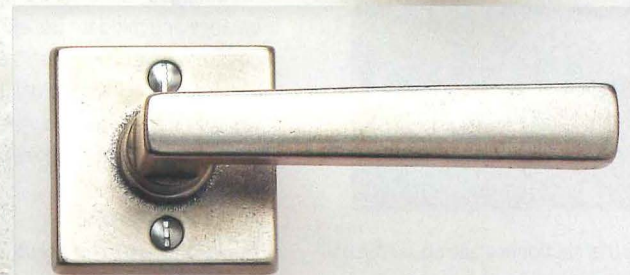
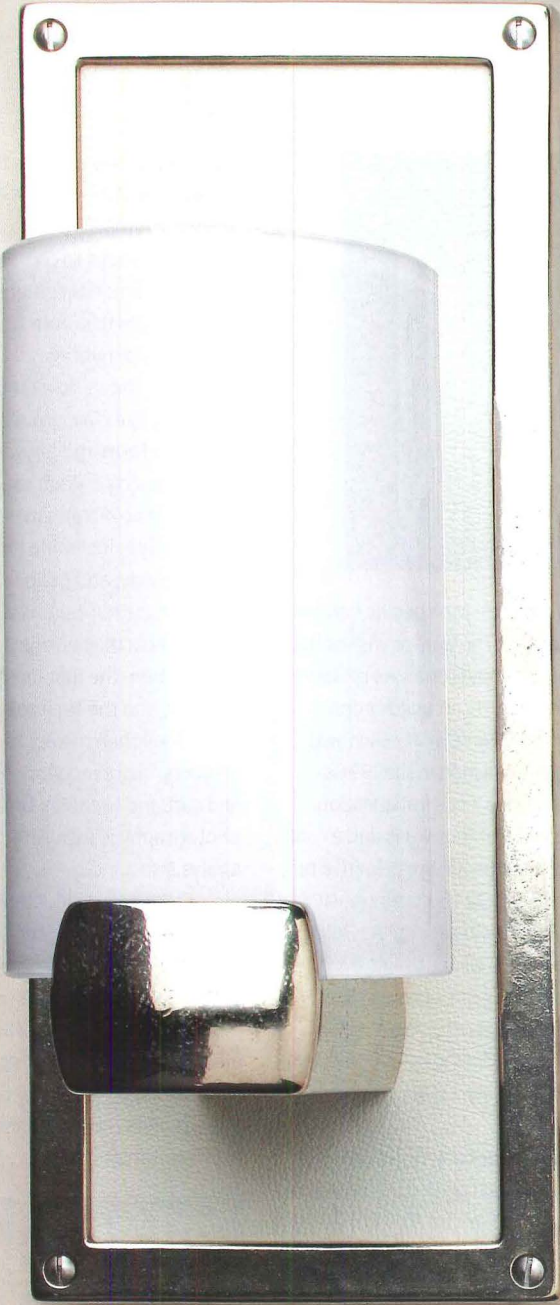
a critical survey of more than 40 projects built after 1970. The case studies exemplify a contemporary trend that seeks to combine vernacular construction techniques with new technologies to create "ingenious" architectural hybrids.

Rael shows how employing materials like clay, gravel, and loam influence form and allow architects to explore color. Each case study illuminates central issues of earth architecture, including industrialization, ecology, and politics.

The author begins with rammed earth: its origins, means of compaction, the algebra of an ideal mixture, and the technology of formwork. Rael then moves to completed projects, including work by Glenn Murcutt and Nicholas Grimshaw. The photography is exquisite, and Rael's analysis succinct.

From an introduction tracing the history of earth architecture to an afterword addressing hybrid building systems and the digital process of "contour crafting," Rael offers a balanced reconsideration of earth architecture's central issues and 40 of its most interesting built representations. *T.A. Horton*





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CIRCLE 31



# In-house engineers make sustainable design work better

## Practice Matters

By B.J. Novitski

**THE TRADITIONAL WAY IN WHICH ARCHITECTURE** and engineering firms partner may be transforming. It is becoming widely understood that interdisciplinary collaboration is critical early in the design process if maximum sustainability is to be achieved. To encourage such novel relationships among owners, architects, consultants, and constructors, the AIA has been promoting "integrated project delivery" and has developed legal documents to support it. [See *RECORD*, July 2008, page 59.]

Some architecture firms are responding by shedding traditional relationships with consultants and hiring their own in-house engineers. Some existing AE firms are changing the way they practice by promoting interdisciplinary collaboration earlier in the design process.

Southern California-based architecture firm LPA began hiring engineers in 2005. They now make up about one eighth of LPA's professional staff. According to firm president Dan Heinfeld, FAIA, the resulting cultural shift was made easier by the fact that the firm has done landscape and interiors in-house for many years. "Our whole practice is based on the idea of collaboration as a design mode," he explains, "so we know the benefits of having a multi-discipline firm. They make us look at the world a little differently."

When architects and engineers work together, schematic design can benefit from better energy-related data. For example, LPA recently designed an atrium ventilated by entirely natural means. This would

not have been possible without the engineers proving from the outset that it was possible. Heinfeld calls this "informed design," replacing intuition or guesswork. Another example is LPA's design of a building that was required, by social function and site configuration, to be transparent and elongated in the north-south dimension. Early solar-shading studies by the engineers informed the architects in their design of louvers that shaded the east-facing glass most efficiently, with the least amount of material. Such collaboration differs from the conventional practice of handing the engineers a completed design idea and asking them to come up with an HVAC system to compensate for the overheated air. Optimizing sustainable design demands passive solutions first, systems later.

Having engineers in the office full-time also benefits the firm through insights that emerge from impromptu meetings and casual conversations. These are less likely to occur if, as with outside consultants, meetings are infrequent and tightly scheduled. Heinfeld reports that LPA engineers experience a different comfort level when the



architects are their peers. Engineers working as consultants may be less than candid in their opinions because they don't want to jeopardize their chances for being rehired.

Understandably, there is always some degree of resistance when people are asked to approach their work in unaccustomed ways. Though Heinfeld acknowledges that LPA has felt some of this, it is less than it might have been without the firm's long history of in-house collaboration with other disciplines. Also, he says, sustainability is integral with the firm's design philosophy, and 75 percent of the staff is LEED-accredited; they are highly motivated to make the engineering collaborations work effectively.

The symbiotic advantages also show up in structural collaborations. For the California State University Northridge Student Center, due for completion in June 2011, the structural engineers suggested a V-shaped structural frame to efficiently reduce the spans in a gym. The exposed structure became an important part of the design aesthetic. "Between the angled columns, I was able to put a running track on the second floor," Heinfeld recalls. "So now, I'm not only reducing the roof span, but literally getting that balcony space for nothing. That kind of design integration makes you design and practice differently, and the work shows it."

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*B.J. Novitski writes frequently about practice and sustainability. She can be reached at [bjn@efn.org](mailto:bjn@efn.org).*



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CIRCLE 32



## Practice Matters

HOK has employed both architects and engineers since its early years. In the beginning, the professional relationships between architects and engineers were similar to conventional silos of expertise: One team creates a design; then the other engineers it. This relationship has evolved as, over the past 15 years, HOK has worked proactively to bring sustainability into mainstream practice. Mary Ann Lazarus, AIA, is HOK's firmwide sustainable design director, promoting integrated design among the firm's project teams. She is also coauthor of the second edition of *The HOK Guidebook to Sustainable Design*. She recalls that when the firm first committed to green design, multidisciplinary teams were formed to research the various topic areas, such as indoor environment, energy, and materials. This multidisciplinary approach then continued as ordinary design practice.

Although only a few of HOK's offices have in-house engineers, the firm prioritizes early-design collaboration when hiring engineering consultants. "There's a unique kind of engineer who we love to bring to the table," Lazarus explains, "who is really able to do conceptual thinking when we have our initial sustainability charrette and goal setting, to identify passive solutions." The idea is to do passive design first, "without a switch or a duct," fully exploiting climate, building form, and orientation. Then they look for opportunities for integrated systems, taking into account structure, site, and so on. Only then do they look for the most efficient HVAC systems. In-house or not, Lazarus says, when you work with the same people repeatedly, the benefits appear in design efficiency and quality. But having engineering in-house, she adds, does enable that relationship to be more integrated. And the increased diversity of the firm's capabilities also makes it more resilient during economic down times.

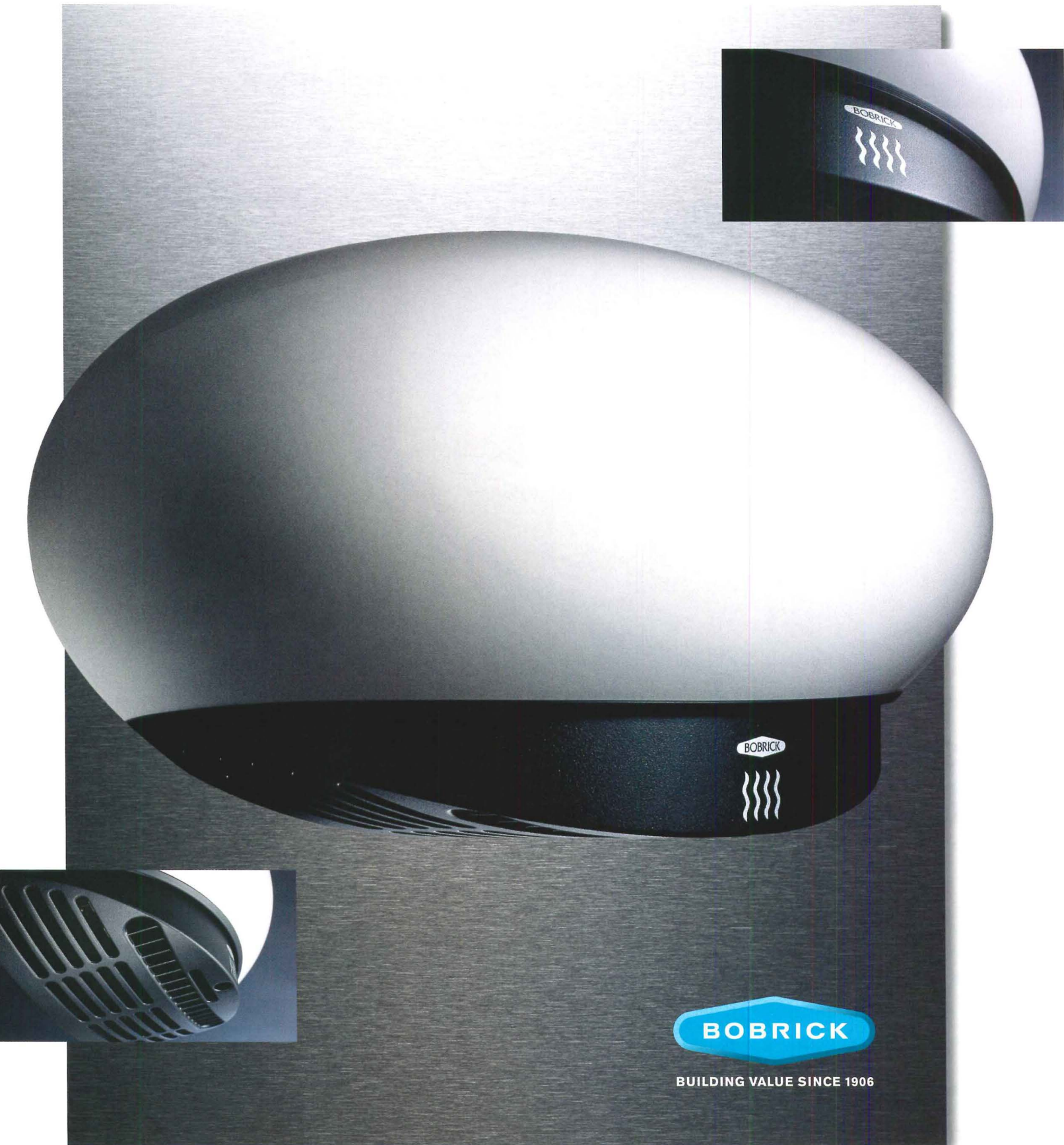
Now that m/e/p engineers are recognized as key to sustainable architectural design, HOK president

Bill Hellmuth, FAIA, likens their importance and creativity to that of structural engineers in tall-building design after World War II. Structure was integral to the beauty of the post-war high-rises, not a system added after the architectural design was fixed. Lazarus says, "This is what's happening now with m/e/p. Our 21st-century partnership is reaching better performance outcomes, just as the mid-20th-century partnership did."

She cautions that when transforming an "A" firm into an "AE," it is critical to find the right people – engineers who can both take on a broad design role and partner effectively with the more traditional engineers. "You're not going to get everyone to change the way they've been doing things, but you'll find some people who will be that bridge," she predicts. "Energy modeling is extremely important as part of this role, but look for m/e/p engineers who have the capacity to do conjectural, comparative modeling early in design."

Having just gone through the transformation process, Heinfeld also has advice for other architecture firms. "Number one is to quit looking for the reasons it's not a good idea," he says. "You can always find financial reasons, from the point of view of a business model. But for us, the rewards of how it has affected the practice far outweigh them." Like Lazarus, Heinfeld emphasizes that it's essential to find the right professionals. "You've got to find people willing to go off on this experimentation," he says, "and that's not everybody. Someone might challenge something you've done for 20 years and suggest that's not the best way to do it. You have to be willing to take that kind of criticism." Heinfeld believes this new practice has profoundly changed the firm. He concludes, "We believe the engineers are making us better architects, and architects are making engineers better, too." ■

Two volumes of past **Practice Matters** columns are available for the **Kindle** reader at [amazon.com](http://amazon.com).



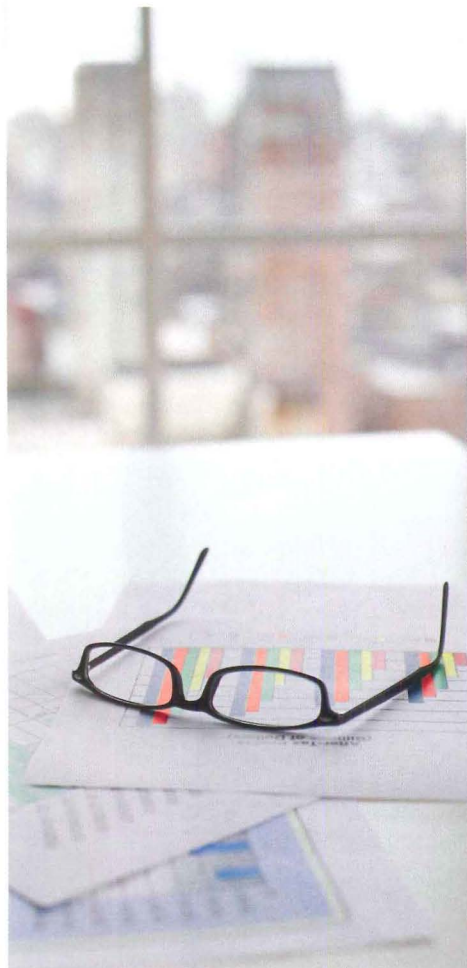
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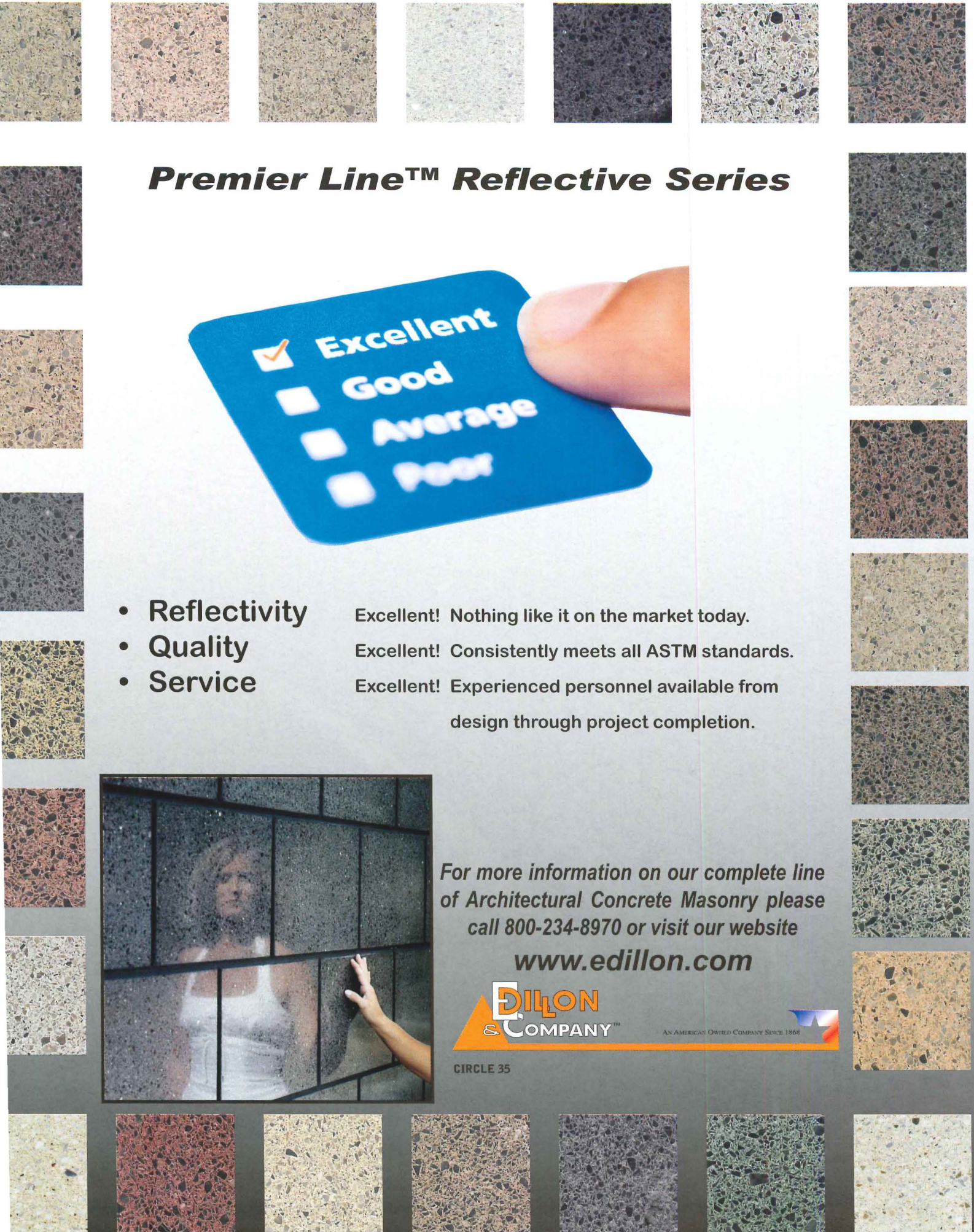
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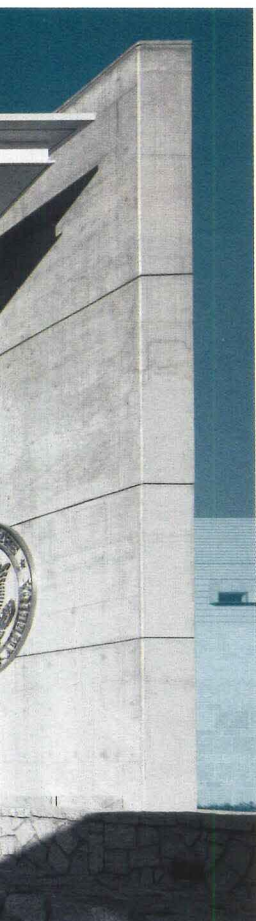
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By placing the Beijing embassy behind a protective wall, SOM was able to use lots of glass on its buildings.



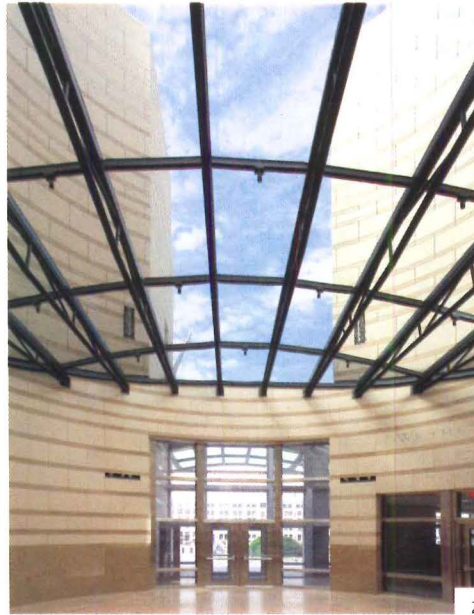
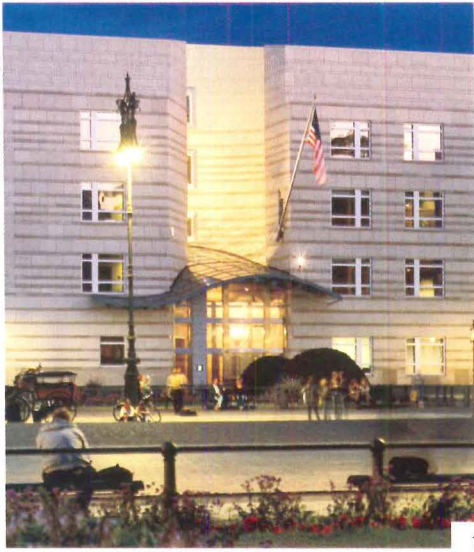
Standing next to the Brandenburg Gate (left in photo), Moore Ruble Yudell's Berlin embassy engages the city with classic geometries.



**IN THE SIMPLER DAYS BEFORE AND** after World War II, the architectural protocols for U.S. embassies yielded suave, pin-striped, diplomatic buildings – complete with sedate processional spaces, a hierarchy of parts, and idealistic symbolism. In a Classicized idiom before the war and then in a stately version of Modernism in the decades after, embassy designs expressed the virtue and virtues of the country itself. But the 1983 bombing of the U.S. Embassy in Beirut (which killed 60 people) and then the 9/11 attacks in New York City radically changed the government’s approach to embassies: Design became sited on a graph of frustration measuring cultural expectations against ever-steeper security constraints. The culture of formality in embassies has always bred just that, polite formalism, but the new restrictions put traditional architectural decorum at risk. Embassy designers faced the apparent, maybe even inherent, contradiction between the democratic ideal of an open building designed to portray a transparent society, and the security restrictions that virtually jail diplomats in safety.

With increasing difficulty, American architects have to locate their buildings at the intersection of what they want their designs to become and what they have to be. Just where the intersection lands on that graph pitting architectural desire against requirements depends not

only on the instincts and the moves architects bring to the table, but how, like Houdini, they break free of the handcuffs. Host audiences, especially in countries wary of America, are watching. If you can see the world in a grain of sand, you can certainly judge America by its embassies.



The challenge facing architects becomes even greater with high-profile commissions, such as the recently finished embassies in Berlin and Beijing, where such projects are not architectural islands floating serenely above tides of criticism. In politically charged Berlin and culturally sensitive Beijing, the Santa Monica firm Moore Ruble Yudell (MRY) and the San Francisco office of SOM, respectively, negotiated a slalom of demands, each firm shaping a very different public image for its work set before highly judgmental courts of public opinion.

#### BERLIN | A LONG GESTATION

Now standing on its prewar site adjacent to the Brandenburg Gate, MRY's American Embassy

*Joseph Giovannini is a New York–based critic and architectural designer who writes for a variety of publications.*

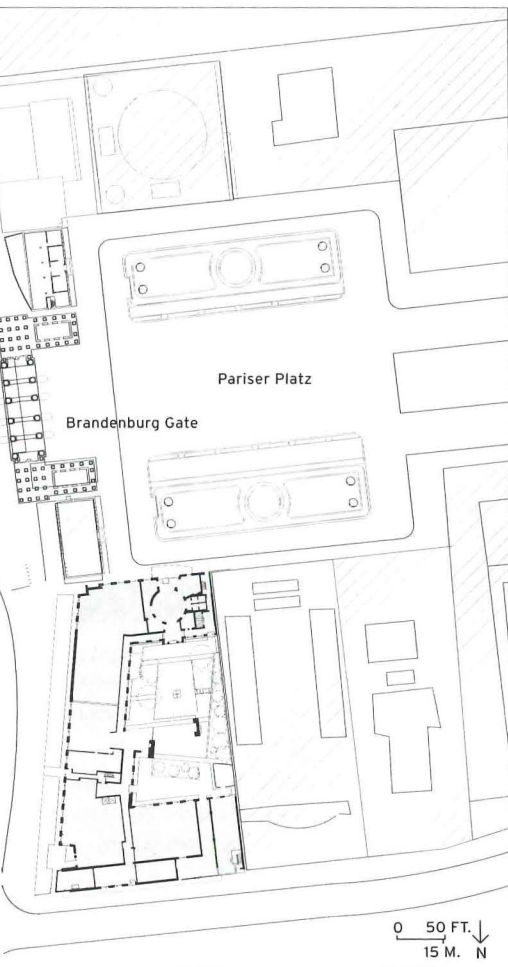
opened last fall to howling reviews. One embassy administrator, perfectly content working in a tranquil environment centered on a grassy courtyard, explained that German critics would have been kinder had the building opened during the Obama presidency.

Two-going-on-three sets of constraints prescribed the design. Soaked in history, some of it violent and Nazi, the site in City Center is susceptible to assault, because the city comes so close to it. Although the Tiergarten park bounds one side, the front faces Pariser Platz, the “salon” of cosmopolitan Berlin (leading toward the great architectural monuments of Prussian and German history, such as the Altes Museum and the Berlin State Opera). State Department design requirements mandated a bunkerlike wall on all sides, with a limit on the size of windows and a 100-foot setback opposite the Tiergarten. While wearing a dignified face, the building projects an

attitude that is defensive – or, as many Germans wrote, paranoid.

The second set of constraints came from the design regulations set by Hans Stimmung, who was Berlin's planning czar at the time. Stimmung believed that stone facades, not glass, defined the character and space of the European city, and his rules prejudiced all design in the City Center toward the typology of street-wall, courtyard buildings. Berlin's masonry facades have long shaped streets as corridors of public space, so Stimmung reasoned that requiring these elements as a basic building block would help reconstruct the historic plan. While some Modernists have tried to abstract the rules, the city's DNA is basically traditional. The American design mandate for securing embassies only confirmed the solidity of street-wall facades imposed by Berlin's design statute.

The third restriction was the time warp



– and aesthetic agony – of a 13-year-long project. MRY won the embassy design competition in 1995, when the embers of Postmodernism still glowed, particularly in the office of Stimmung, who hung on office walls tender Postmodernist sketches by Charles Moore (a founding partner of Moore Ruble Yudell). The winning MRY design drew inspiration from Neoclassical palaces of the German Enlightenment. Embedded within a composite of intersecting volumes, the main block featured a symmetrical, tripartite facade with the proportion and scale of aristocratic 18th-century buildings, and a rhythmic, symmetrical, ABBA fenestration pattern. Projecting character and story rather than abstraction, the golden-hued building embodied grace, symmetry, and lightness, as though Frederick the Great's flute concerti might be heard wafting outside on warm evenings. Deferring to the Brandenburg Gate, the architects underplayed the facade, and sited a



1. A glass canopy announces the main entry facing the Pariser Platz, the public square that serves as the "salon" for cosmopolitan Berlin.
2. The canopy continues inside the building as a skylight above the entry rotunda.
3. The building's exterior needed to respond to U.S. security protocols and Berlin's planning codes encouraging masonry street-wall facades.
4. The ambassador's conference room sits in a two-story lantern that acts as a hinge between intersecting volumes on the outside.

pavilion atop the structure to speak to the gate, object to object, symbol to symbol.

But that was then. In the 13 years since, as American security requirements hardened, and \$50 million was subtracted from the original \$180 million budget, architecture moved on, and so did MRY. Still, the firm remained faithful to its original commitment, even though the embassy finally opened after the firm was producing exuberant Modernism elsewhere. The architects held on to the pure geometries of Enlightenment forms, such as a lantern on the roof and a rotunda at the entrance. But the original clarity and poetry of the building weakened in the gestation, as architectural paradigms shifted. A building with a sweet historicist narrative edged toward abstraction, and took on weight, becoming stylistically ambiguous.

As built, the exteriors of the Berlin embassy come across as repressed, as though disciplinary parents blunted the sensibilities of a

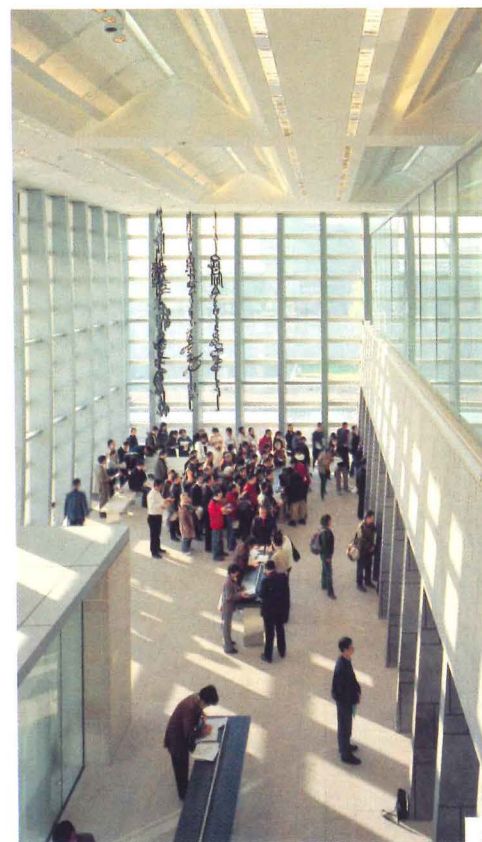
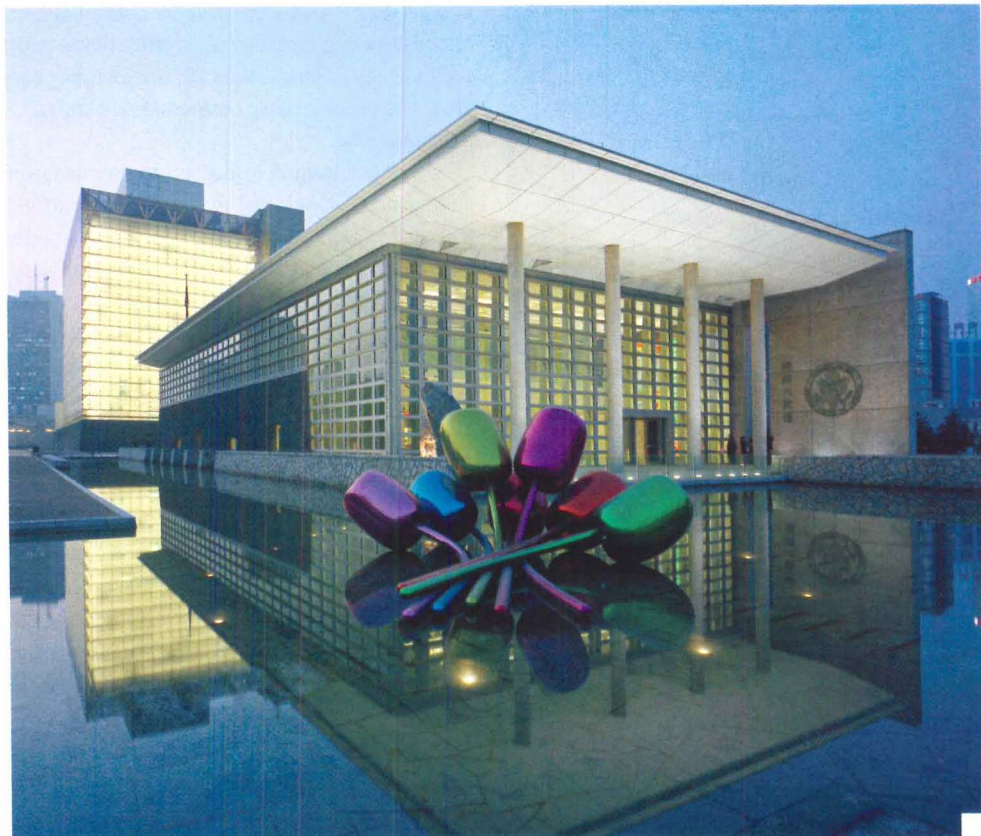
sensitive child. Their role as a literate afterimage of a palace has ceded to the more conventional, less historicized typology of an office block, and their formerly wistful, vertically aristocratic character has become more businesslike, abstract, and horizontal.

Originally designed as an assemblage of intersecting volumes that responded to three different exposures, the building volumes stiffened in later iterations, and their warmth cooled. Because of a wider setback opposite the Tiergarten and the huge budget cuts, the embassy lost one full wing, the fourth side of the rectangular courtyard plan. Gone, too, was a "lodge" of small-scale "hospitality" rooms bordering the courtyard, with charming (and daring) vernacular shed roofs alluding to buildings in America's national parks.

Still, facing the streets, the exteriors remained sensitively massed and masterfully scaled. The architects got the big moves right the first time, and kept them in later versions. The facades acquired subarchitectural elements such as sunscreens and trellises, which helped break down the scale of the architectural collage. "The scale was kept delicate, so the monumentality of the gate would have impact," says John Ruble, the project architect. "Each piece had a clear role."

The rules relax inside, where a different character emerges. A furling canopy graces the entrance on Pariser Platz and leads to a domed entry court that breaks open the four-story mass. On the Tiergarten side, the ambassador's office penthouse shifts out of alignment with the office block below, revealing a double geometry inside, and a second nature. The building splits as parts align respectively with the different grids of the Brandenburg Gate and the adjacent streets.

Charles Moore advocated the principle of the Easter egg, whose shell hides an unexpected, elaborate interior. So, too, does the embassy: A design that tends to simplicity bordering on blandness outside verges on complexity inside. Even without the lodge, the architects make the most of the courtyard to humanize the building. Responding to the budget cuts, MRY moved the lounge from the center of the court to the side, mingling it with the elevator core, main staircase, and corridor, so the public spaces border the landscaped court. The intersection becomes a social center. Partner Buzz Yudell notes his team "choreographed" the plan for serendipitous social encounters. The double geometry seen outside



1. The eight-story chancery (office building) and the more horizontal consular building sit within a series of gardens, reflecting pools, and courtyards. Jeff Koons's *Tulips* enlivens a pool.

2. People applying for visas to go to the United States gather in the main hall of the consular building, enjoying views of the landscaped grounds and plenty of daylight.

plays itself out more fully inside with one geometry moving back and forth with ease and discipline between the other, creating a complexity that eludes the simplified exterior. The architects orchestrate a rich palette of materials, including a variety of woods, and subtle colors to warm the already friendly organization. "We often start with a fairly clear order, and inflect it in ways that deal with the specificity of the place," says Yudell. "We played the formal against the informal."

The interior, which few Berliners see, is where the architects exercised discretionary design, and by the time they reached the ambassador's offices at the top, they outdid themselves in ingenuity, creating an extremely complex and literate suite of offices, richly detailed and beautifully executed in a spatial homage to the abstractions of the Bauhaus.

#### BEIJING | GARDENS AND COURTYARDS

The Berlin site is woven into a dense urban fabric, but the embassy in Beijing, designed by Craig Hartman of the San Francisco office of SOM, sits

within a gated island of walled space several ring roads removed from the Forbidden City.

The firms competing for the commission happened to be in Beijing on 9/11. "I watched CNN in horror all night," remembers Hartman. "In downtown Beijing the next morning, hundreds of bouquets with condolences were placed at the U.S. Embassy. It was very moving, and for me it reinforced the symbolic importance of our embassy and our project's mission."

The U.S. government's early analysis of the 500,000-square-foot program suggested two towering and vaguely threatening megastructures on the 10-acre site. Hartman had another idea. "The fundamental design challenge was to represent American values in a sovereign country that has a cultural reality so different from ours," he said. "But that's the question that informed our search: how to build notions of a Western democracy within another political system."

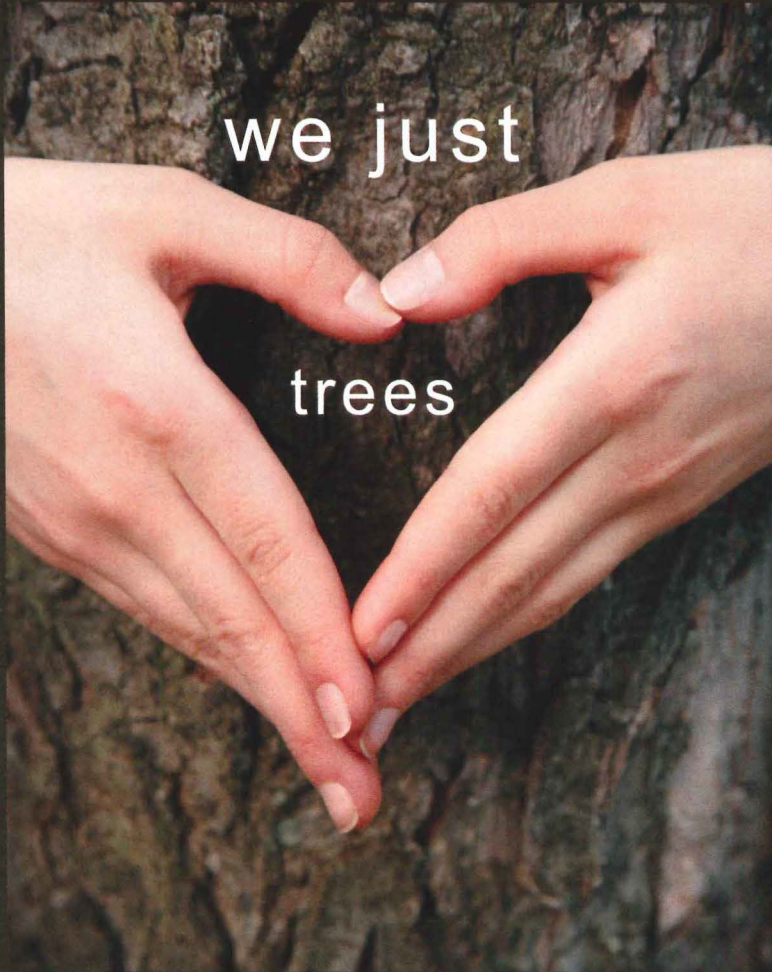
Counterintuitively, the architects found cues to democracy in Beijing itself. "We walked around Beijing and discovered these hidden urban

spaces that were extensions of the social life of neighborhoods," says Hartman. "People walked around the streets in their pajamas, playing cards, and as you entered courtyards off the streets, you stepped into increasingly private realms. A series of gardens and courtyards seemed like a natural way to deploy the embassy's program. As in the Forbidden City, the embassy could enjoy the openness behind a perimeter that was walled and secure."

Within a gated, guarded enclave, the architect enjoyed considerable design freedom, and the large site allowed him to build densely, without resorting to megastructures that could be interpreted as arrogant or imperialist. He hybridized the paradigm of courtyard neighborhoods with the notion of pavilions in the garden – that is, with visually porous buildings that shape gardens in a figure-ground relationship. He was interested in the single, stand-alone object as it weaves exterior and interior space into what he calls "a platform for social life." Foregrounding voids between buildings and developing them as landscaped

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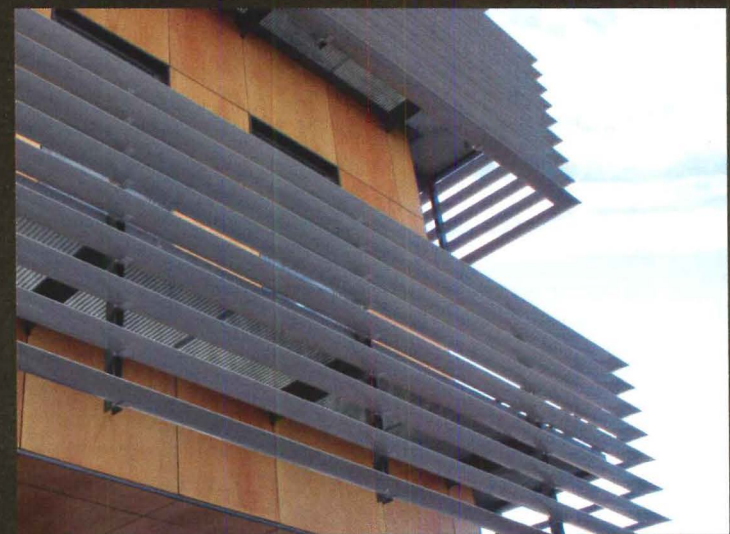
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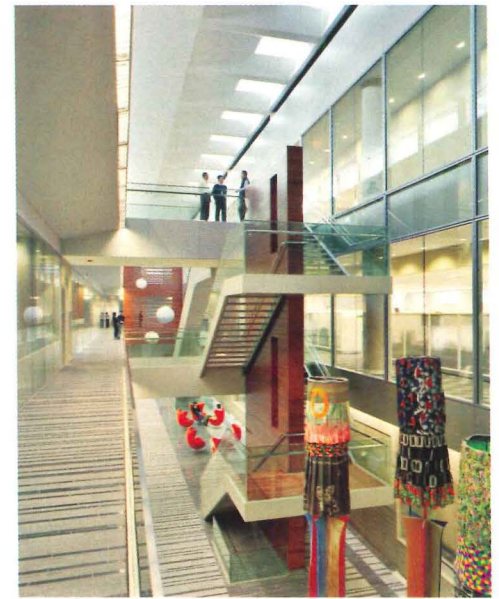
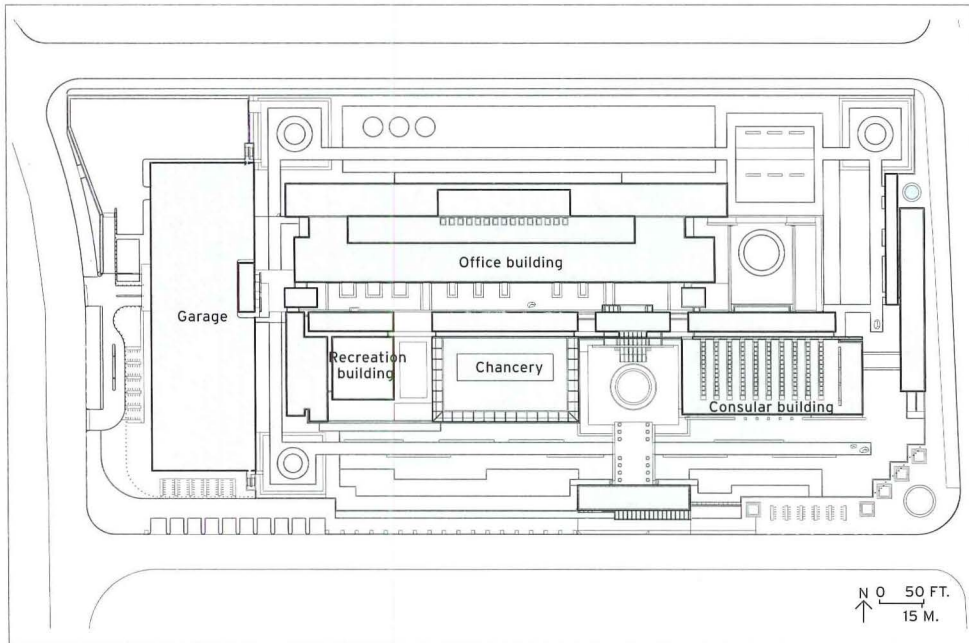


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“solids,” Hartman turned the walled site into not only an asymmetrical architectural checkerboard, but also an urbanized enclave where the buildings shape the streets and courtyards of a cloistered but animated town. “We wanted to blur the edges between public and private,” says Hartman, “and foster all that accidental rubbing between people.” The idea was to create fabric rather than object.

The Beijing embassy has many constituencies, from Chinese nationals applying for visas to administrative staff, Marine guards, ambassadors, and visiting dignitaries. By breaking down the site into its main programmatic parts, Hartman cast it as a security gradient – ranging from an exterior that provides the greatest protection to a garden street that links a series of interior and exterior public spaces and serves as the project’s social heart. This long spine connects an auditorium, café, conference rooms, post office, and commissary to create a linear place where everyone at the embassy can mix. “The site plan is like an artichoke,” says Hartman. “You peel away the layers to get at the center.”

The architect massed small, medium, and large buildings and adjusted their degree of porosity to shape the qualities of outdoor spaces. The east-facing consular entrance, which leads to a portico structure, is the first encounter many Chinese will have with America; its open, human-scaled spaces are simple and welcoming.

Dignitaries arriving at the entrance on the south side drive across a forecourt to a formal front door. In both cases, a bridge leads through a lotus garden.

The courtyards and landscaped streets may be the elements binding diverse structures into an ensemble, but SOM also threaded the buildings together with a conceit that echoes China’s biggest monument, the Great Wall. Using dark-gray, fractured granite, the firm erected a great stone “dragon” wall that meanders through the gardens, into and out of buildings, integral yet independent. Like an archaeological stratum, the stone recalls old Chinese structures. Other materials, including lotus and bamboo, respect the *genus loci*. Referencing Chinese tradition through materials, if not form, did not mean the architects were mining history for sentimentalism; rather, they were abstracting the culture of a place to a material essence that was not historicist.

The delicacy of the reference, though, would have been crushed by the sheer mass of the eight-story chancery building, and the longer, lower support office building behind it, but Hartman counteracts the impression of a bunker with a deft use of glass. On the chancery, a glass thermal barrier envelops the core concrete structure, with its pillbox security windows; the transparent veils the solid. Throughout the enclave, the architects played the nuances of glass

off the opacity of stone, allowing views between the gardens and the interiors in a reciprocal inside-outside relationship. The gardens provided the reason to open the buildings and confirm the metaphor of democracy as transparency, and the glass added a lightness of architectural being.

It is tempting to compare the two embassies because they were completed within months of each other. But they began a decade and a paradigm apart. The Beijing embassy was conceived and built relatively quickly in a snapshot of design time, while the Berlin embassy developed as a time-lapse photograph capturing changes in Berlin and American political regimes, and the shift to a new architectural generation. Patience was part of the job description. MRY played defense. In Beijing, the perimeter wall allowed SOM to play offense.

#### DESIGNS THAT LOOK INWARD

Both projects show creative responses to the hard facts of protecting American diplomats abroad, challenging the architects to build fortresses in the city. In Beijing, Hartman hid and opened buildings behind a wall, whereas in Berlin, the building was the wall – a wall that was largely shaped by Department of State and Berlin dictates. Tellingly, in both projects, the architects turned their designs inward, developing interior spaces nested in more complex forms. American embassies can no longer be judged by their covers. They are not books. The best are Easter eggs. ■

[To comment on these two embassies, go to \[architecturalrecord.com/features\]\(https://www.architecturalrecord.com/features\).](https://www.architecturalrecord.com/features)





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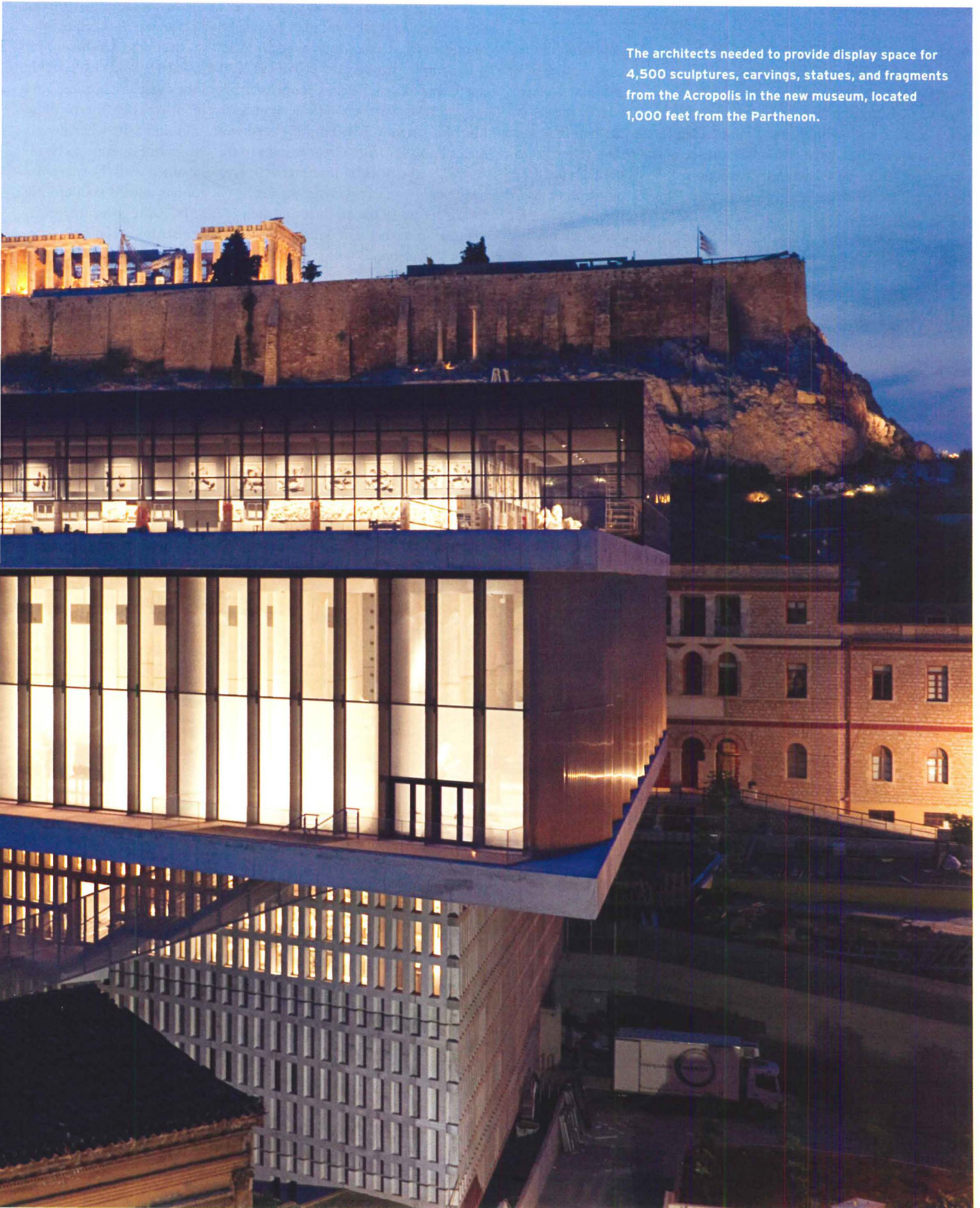
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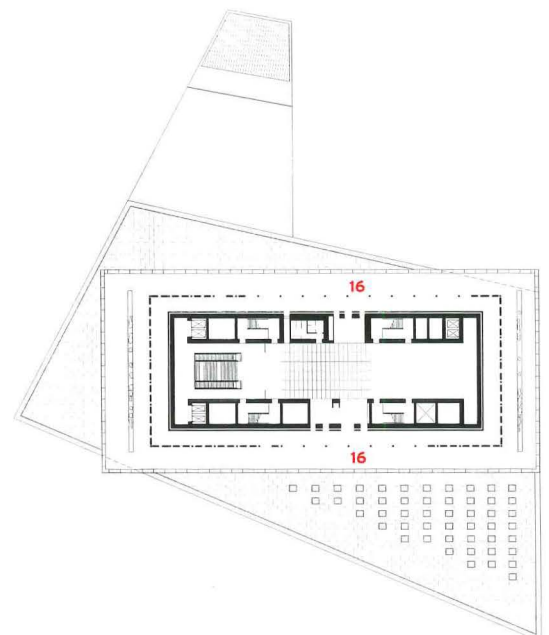
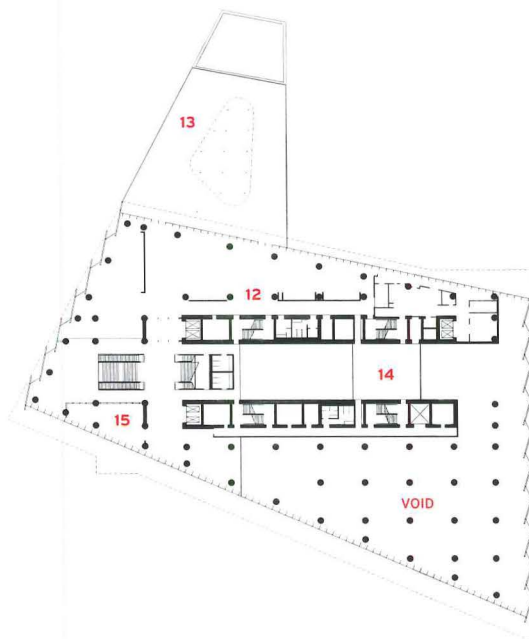
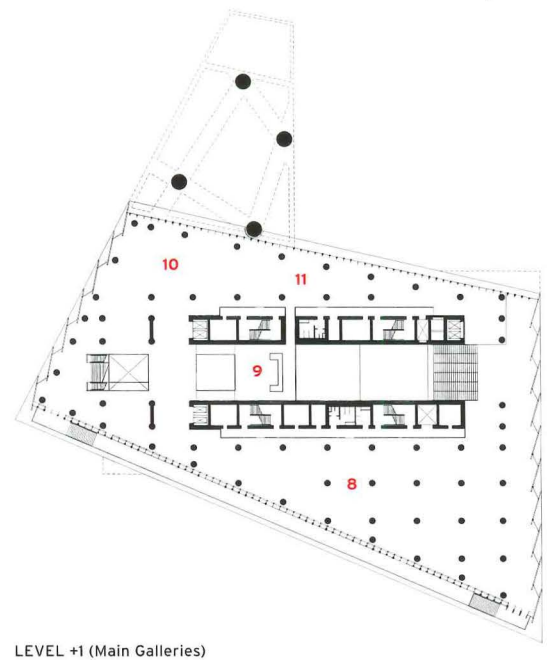
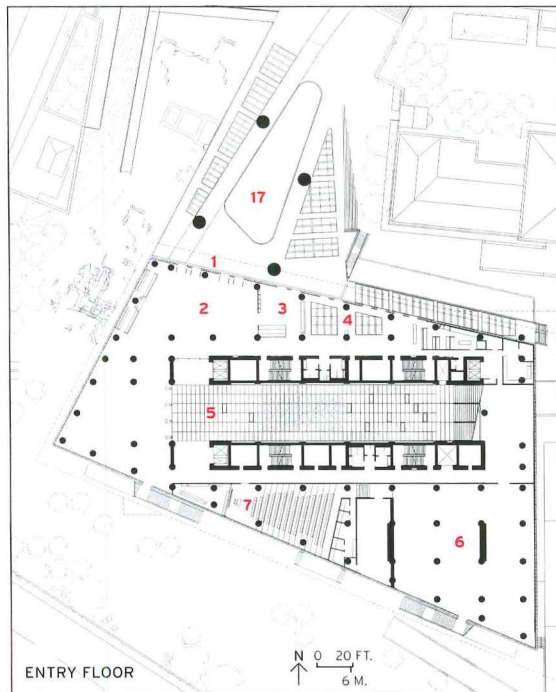
The architects needed to provide display space for 4,500 sculptures, carvings, statues, and fragments from the Acropolis in the new museum, located 1,000 feet from the Parthenon.



**AFTER ALL THE CONTROVERSY,** lawsuits, and delays in building the New Acropolis Museum in Athens, it will no doubt seem churlish to point out that the \$180 million museum, designed by Bernard Tschumi Architects, is not the firm's most spectacular work. It lacks the lyrical grace of the stainless-steel-and-concrete Zenith concert hall in Rouen [RECORD, June 2001, page 102] or the finesse of the shimmering, perforated-steel Vacheron Constantin headquarters in Geneva, Switzerland [RECORD, June 2005, page 98], to name two. The dour mien of the New Acropolis Museum, with its sharp angles, black-fritted glass (except for a small section of the south wall), and less-than-perfect concrete work evokes High Modernist commercial American buildings of the 1970s.

That said, the interior of the museum provides a stunning setting for the Parthenon marbles displayed on its top floor. Here, museumgoers first encounter staggering views of the ancient, 5th-century B.C. temple through an expansive, 276-foot-long glazed wall facing north. Indeed, the elegant design of many of the museum interiors, and especially the Parthenon Gallery, makes a convincing case for the Elgin Marbles—removed by Lord Elgin between 1801 and 1810, when he was an ambassador from Great Britain to the Ottoman Empire—to be returned by the British Museum to Greece, and joined with the surviving originals. Increasingly over the years, Greece has argued vociferously for the return of the marbles to Athens: Since 1975, the government has planned to replace its smaller, 19th-century museum tucked into a corner of the Acropolis with a much larger structure that could adequately

DRAWINGS



- 1. Entrance
- 2. Lobby
- 3. Museum shop
- 4. Café
- 5. Gallery of the Slopes
- 6. Temporary exhibitions
- 7. Auditorium
- 8. Archaic Gallery
- 9. Caryatids
- 10. Post-Parthenon Gallery
- 11. Roman Period Gallery
- 12. Restaurant
- 13. Public terrace
- 14. Balcony lounge
- 15. VIP lounge
- 16. Parthenon Gallery
- 17. Void over excavations

LEVEL +2 (Mezzanine)

LEVEL +3 (Parthenon Gallery)





1. The 226,000-square-foot museum occupies a 5.68-acre site in a historic residential district.
2. The reinforced poured-in-place-concrete structure turns into a steel post-and-beam cantilevered structure on the top floor to capture views unimpeded by columns.
3. The entrance leads to 150,000 square feet of exhibition space.
4. Stainless-steel fins shield the middle level from sun on the west and east, while precast-concrete panels clad the first level.





house the priceless treasures. It took four competitions to arrive at the final scheme, located in the historic, residential Makriyianni district. (The third, won in 1989 by Italian architects Manfredi Nicoletti and Lucio Passarelli, was aborted after archaeological remains from the 6th-century B.C. to the 5th-century A.D. were found on the 5.68-acre site.)

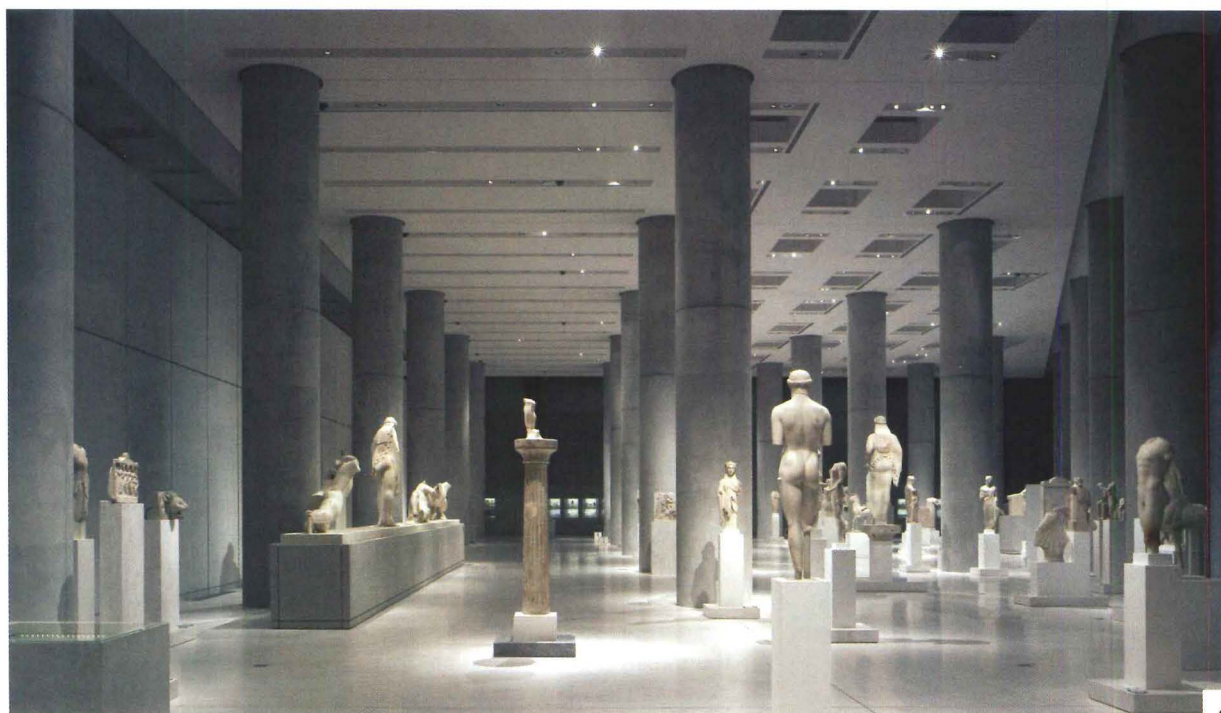
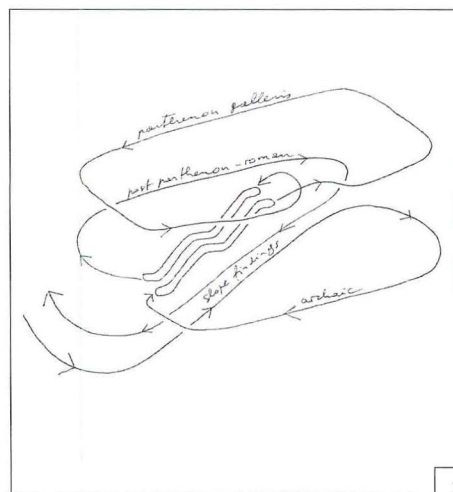
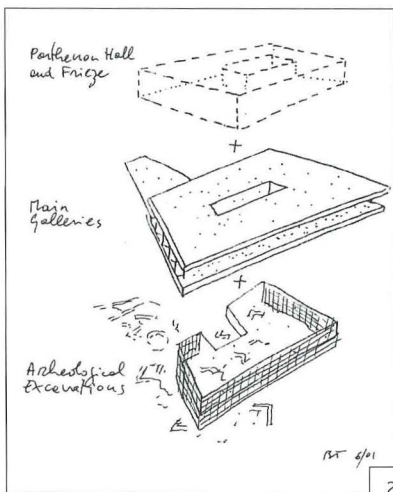
When Tschumi and his associate architect Michael Photiadis entered the fourth competition in 2000, a jury that included Santiago Calatrava and author/architect Dennis Sharp selected their scheme over those by Daniel Libeskind, Arata Isozaki, and nine other architects. Even though the program called for building over the ruins, the extensiveness of the excavations required the winning project to be readjusted in 2002, and any thought of its being finished for the 2004 Olympics in Athens was dismissed. The museum finally opened in June 2009, unsurprisingly accompanied by a chorus of impassioned pleas by Greek officials that the Elgin Marbles be brought back to this new home.

Tschumi's concept for the 226,000-square-foot museum called for stacking three rectangular volumes on top of each other. The first two floors conform to the street grid, while the third rectangle is rotated 23 degrees from them to align its Parthenon Gallery with the ancient building itself. The gallery displays both surviving

**The glass ramp of the Gallery of the Slopes allows visitors to see the ruins, while the stairs take them to the sculptural fragments from the pediments of the Hecatompedon, the pre-Periclean temple of Athena.**

marble reliefs owned by the Greek government, along with plaster casts that the British Museum made of the original Lord Elgin trove. Visitors arriving at this third-floor outlook can behold the breathtaking majesty of the Parthenon high on its stony ramparts, and then direct their gaze back to the interior core where the marbles (real and fake) are arrayed from the original Ionic Panathenaic frieze sculpted by Phidias, of which 335 feet still exist from the 552-foot-long original. Tschumi placed the panels according to their sequence on the upper wall of the cella (the inner sanctuary of the Parthenon) girded by a pteroma, or corridor, and the Doric columns. Here, too, you find the metopes, cruder in relief, that once alternated with triglyphs in the entablature above the temple's perimeter columns. Here they are held between steel columns (sheathed in a gleaming stainless steel), which are spaced to follow the original 14-foot-on-center placement of the slightly wider ones in the Parthenon.

To get to the Parthenon Gallery, visitors follow a processional



1. The Caryatids from the Erechtheum on the Acropolis are now on a mezzanine overlooking the glass Gallery of the Slopes.
2. An exploded axonometric sketch illustrates the museum's organization.
3. The circulation is based on a loop through the chronologically arranged exhibition.
4. On Level + 1, a 33-foot-high space devoted to the Archaic Gallery contains 6th-century kouros and kore statues placed dramatically between the concrete columns.

path ingeniously devised by Tschumi that takes them through the various levels of the museum—and through layers of time. They see arrayed before them objects arranged in chronological order that belong not only to the Periclean temple, but to other temples on the Acropolis as well. The museum circulation, an angular spiral, begins at the first level, where a fritted-glass floor and a curved void under the entrance canopy reveal the excavated ruins below. Proceeding inside, museumgoers find the Gallery of the Slopes, an inclined ramp also fitted with a glass floor over the excavations and flanked by vitrines containing artifacts from the lives of the ancient Greeks who resided on the Acropolis's hillsides. A short stair ahead leads to another level (Level + 1), where fragments from the pediment of the 6th-century B.C. Hecatompedon—the Acropolis temple devoted to Athena that existed before the Parthenon—terminate this axial path, albeit without the punch one might expect: The angled stainless-steel brise-soleil backdrop distracts the eye from the ancient marble pedimental sculptures.

Proceeding to the south side of the building, visitors find themselves in an awe-inspiring, monumental, 33-foot-high hall. Here, 6th-century kouros (youth) and kore (maiden) statues from the Archaic period stand on marble pedestals among a forest of concrete columns.

The design team's brilliant juxtaposition of columns and freestanding statues emphasizes their differences in scale, and provides an effective spatial play for visitors meandering through the space. The processional path continues around to the west side of the museum, where museumgoers encounter the Caryatids from the Erechtheum (circa 405 B.C.)—one of which is still in the British Museum. Finally, the museumgoers ascend the escalator to the top level—the main event—where the Parthenon Gallery wraps around four sides of the concrete core of the museum unfolding views of Athens—and the Acropolis.

Here, the mottled mix of real and fake Parthenon marbles argues the case for repatriation better than if the museum had omitted the casts: You want to see all authentic surviving pieces put in place. And it is strikingly easy to spot the missing ones, owing to the disparity between the white plaster casts and the tan marble sculptures.

Having understood the *raison d'être* for the museum, you might think you're done—but more awaits. A downward progression takes museumgoers to the Post-Parthenon and Roman exhibits on the west and north side of Level + 1 gallery, and on to the ground level. If you are a hurried, been-there, done-that tourist, look for the elevators.

The actual problem with the architecture of the museum hardly



1. The view of the Parthenon to the north through the double-glazed curtain wall is dramatic.

2. Panels from the Panathenaic frieze – both originals and plaster casts from those in the British Museum – are set in the concrete core walls 5 feet above the floor. The bolder reliefs of the metopes, a part of the Parthenon's entablature, are mounted between stainless-steel columns 8 feet 4 inches above the floor.

dwells in a very directed processional path: It has more to do with the exterior. If the circulation and the careful installations prove to be the museum's strong points, its elevations are the weakest. Like much modern architecture—and unlike the Parthenon—they seem as if Tschumi wanted to build the diagram and call it a day. Having each floor's elevation differ in the handling of light, energy load, and view (through varied curtain walls, steel fins, and precast panels) has created a disjointed whole. Tschumi rightly resisted pressure to use the Parthenon's Classical vocabulary, even if dividing the building horizontally into three parts may seem to be an abstracted gesture toward the tripartite division of the Classical column, with its base, shaft, and capital. But these variegated stacked rectangles of reinforced concrete supplemented by precast panels, plus the Parthenon Gallery, which is cranked and cantilevered from a steel frame, are unresolved as an ensemble. While the top rectangle is the best, owing to its impeccable double-facade curtain-wall system that cuts solar load and helps ventilation [RECORD, June 2007, page 176], from the outside it still looks like the box the Parthenon came in.

The rotation of that top creates odd roof wedges, repeated in the angular entry canopy and the stainless-steel fins. Whereas the glass-mullioned curtain wall and the metal fins give many surfaces a certain luminosity and sheen, the black frit of the curtain wall is too

grim from most viewpoints. (Granted, frit is needed for solar protection, but black?) In addition, the Herculean columns resting on smaller clusters of below-grade piloti (to carry the weight of the structure by carefully negotiating footholds among the ruins) create an odd lack of coherence between pieces and parts, proportions and scale. The biomorphic shapes of the cutouts over the ruins may help in viewing the archaeological excavations, but do add to the jarring gestalt.

The whole is hardly helped by the mediocre craftsmanship of the concrete. When Tschumi used concrete in France, it looked like the ghost of Auguste Perret had guided the pour. In this case, any New York contractor might be credited with calling the shots. This is a far cry from what Callicrates and Ictinus did with marble up the hill. Nevertheless, the strength and drama of the galleries, especially those devoted to the Archaic period and the Parthenon marbles, create a stunning home for these precious fragments of Western civilization. The Parthenon Gallery's space and majesty alone makes the strongest argument for returning the Parthenon marbles to their proper setting. ■

**Project:** *New Acropolis Museum, Athens, Greece*

(structure); MMB Study Group, Arup (m/e); Hugh Dutton Associates (glass)

**Architect:** *Bernard Tschumi Architects—Bernard Tschumi, principal; Joel Rutten, project architect*

**Associate architect:** *Michael Photiadis*

**Engineer:** *ADK, Arup New York*

#### SOURCES

**Aluminum:** *Alumil*

**Glazing:** *Eckelt/Saint Gobain*

**Stainless steel:** *Eckelt*

**Spherical bearings:** *Maurer Söhne*

For more discussion about the Parthenon and its marbles, plus the technics coverage in the June 2007 issue of RECORD, go to [architecturalrecord.com/projects](http://architecturalrecord.com/projects).

At the entrance, a large, biomorphically shaped void reveals glimpses of the excavations. A system of seismic isolators was inserted between the pilotis and the lobby level for earthquake protection.





# high standard

Two projects that work hand in hand, the **High Line**

GGA & SPIT

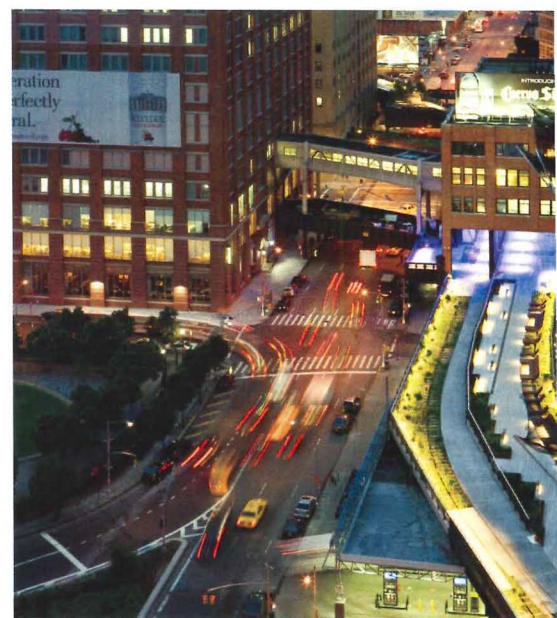


HIGH LINE | STANDARD NEW YORK

the **Standard New York**, bring new life to New York's west side



# James Corner Field Operations and Diller Scofidio + Renfro change our perspective on parks with the **High Line**



1. The 17th Street overlook offers people on the street a glimpse of what's happening on the High Line and mediates the view of park visitors so watching cars becomes entertainment.
2. Where the park slices through a building, blue lights were installed for a cinematic effect.
3. To retain the High Line's identity, the designers kept its old balustrade but added a new railing.

By Clifford A. Pearson

Like our own personalities, urban identities evolve over time but risk snapping if pushed too far. The High Line—an elevated rail that snakes through Manhattan's Meatpacking District and Chelsea, sidling up to some old buildings and slicing through others—has stamped its ever-changing character on its environs for 75 years. Opened in 1934 as a freight line bringing sides of beef and cases of milk to warehouses on the city's west side, it morphed from a symbol of progress to a white elephant to a noirish backdrop for late-night assignations with hookers and drug dealers. Over the years, the hulking metal viaduct had attracted people who loved it—such as Robert Hammond and Joshua David, who founded Friends of the High Line to spearhead efforts to save it—and others who hated it as an eyesore, a magnet for illicit activities, and an impediment to new development. So when James Corner Field Operations (JCFO) and Diller Scofidio + Renfro (DS+R) won the job to transform the abandoned High Line into an elevated urban park in 2004, the two firms needed to craft yet another identity for the

1.5-mile-long behemoth without stretching it too far from its past.

The designers approached this challenge by resisting the temptation to do too much. “We kept protecting the High Line from architecture,” says Ricardo Scofidio, the principal in charge for DS+R. “The idea was to retain the singularity of the place, to capture its postindustrial charm,” explains James Corner, principal of JCFO. In the past, various parties had proposed building housing on the High Line, using it as a passenger rail linking the Jacob Javits Convention Center to Chelsea and Greenwich Village, even turning it into one very long swimming pool. But, after holding an open ideas competition, the clients—the nonprofit organization Friends of the High Line and the City of New York (represented by its Department of Parks and Recreation and its Economic Development Corporation)—determined it should be an elevated park. At a few points, private developers would be allowed to erect buildings (such as the Standard Hotel) that touch the rail line, but such intrusions would be kept to a minimum to prevent clutter. After years of clamoring for its destruction, the city's developers suddenly realized the High Line was an asset increasing their property values, not real estate poison.





A pivotal moment in the long battle to save the High Line occurred in 2001, when Joel Sternfeld published photographs he took of the derelict structure throughout 2000. The haunting beauty of wild grasses growing on a rail line in the middle of the city captured the public’s imagination and helped galvanize support. It also fixed in people’s minds the image of a green ribbon running 30 feet above street level. JCFO and DS+R’s design retains that spirit, featuring some of the grasses and wild species seen in those images, along with plantings selected by Piet Oudolf that will bloom at different times of the year.

“We didn’t want a sharp delineation between the plantings and the hardscape,” states Corner. “So we treated the park as a continuous carpet where the hard and soft blend together,” he adds. That carpet unfolds as a system of concrete planks interwoven with strips of greenery. In certain places, planks seem to have been yanked up to form ipé-wood benches with metal grilles underneath for drainage. The designers refer to this feathering of hard and soft elements as “agri-tecture.”

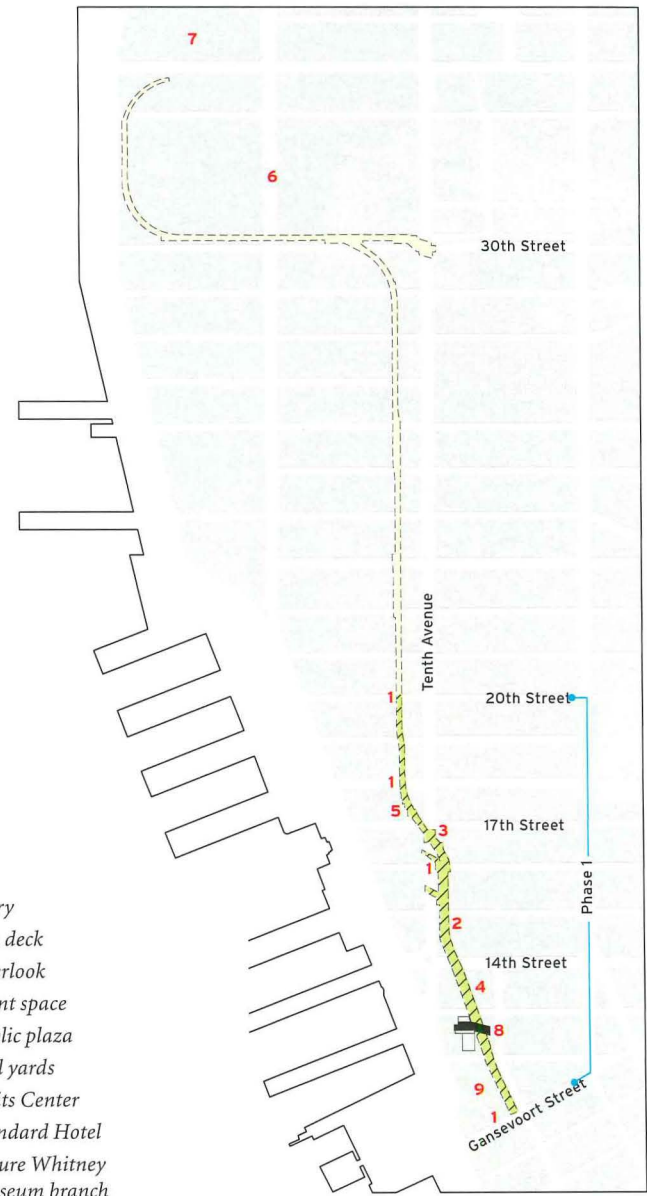
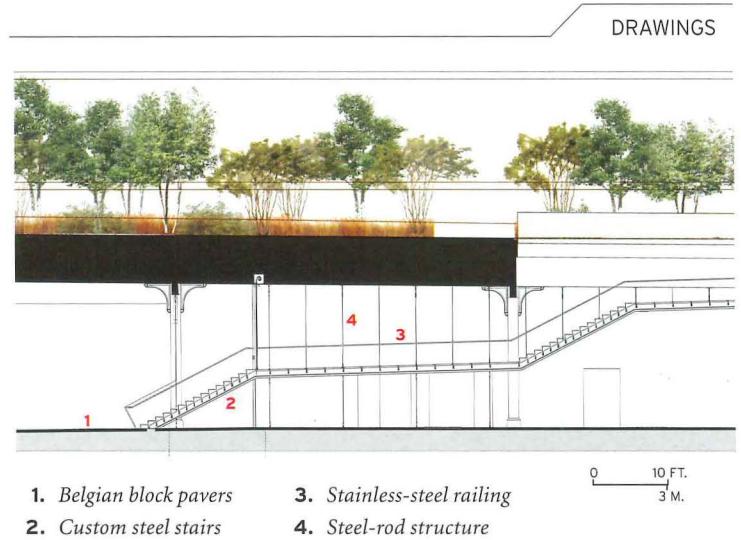
The first phase of the park, stretching from Gansevoort Street (where the Whitney Museum of American Art plans to build a downtown branch designed by Renzo Piano) to 20th Street, opened in June. Phase Two, which runs from 20th to 30th Street and is under construction, will open in late 2010. A potential third phase would encompass the spur looping west around the 30th Street rail yards and up to the Javits Center, but is threatened by private development.

With steel trestles 5 feet deep and muscular steel columns, the High Line offered plenty of structure to support an elevated park. But workers needed to repair rusted beams and parts of the viaduct’s concrete “bathtub.” They also needed to remove the old rail surface and clean up materials contaminated with lead paint and oil.

As part of their design of the new park, JCFO and DS+R returned some of the old tracks to the new surface. They also created a series of outdoor spaces, some that act as memorable moments and others that emphasize the park’s spatial continuity. Highlights include a sunning area at 16th Street with wooden chaise longues (some of which roll on wheels set on old tracks), an overlook at 17th Street where the architects cut a large window into the steel structure as it crosses 10th Avenue, and a grasslands south of 19th Street where the old rails and plantings provide an inkling of the rail line’s once-derelict charms. As you walk the project, you brush past giant billboards, third-story apartments, fire escapes, and the roofs of low buildings. “Most parks provide an escape from the city,” says Scofidio, “but this one puts you in the middle of it.” Although surrounded by the familiar, you find everything looks a little different from 30 feet up. At the 17th Street overlook, for example, you stare out the “window,” then realize you’ve spent five minutes looking at traffic! The power of the High Line lies in its ability to change our perspective without taking us very far away. ■

**Project:** High Line, New York City  
**Architects:** James Corner Field Operations and Diller Scofidio + Renfro—James Corner, Lisa Switkin, Elizabeth Diller, Ricardo Scofidio, AIA, Charles Renfro, AIA, project team  
**Engineers:** Buro Happold (new structure: m/e/p); Robert Silman (old

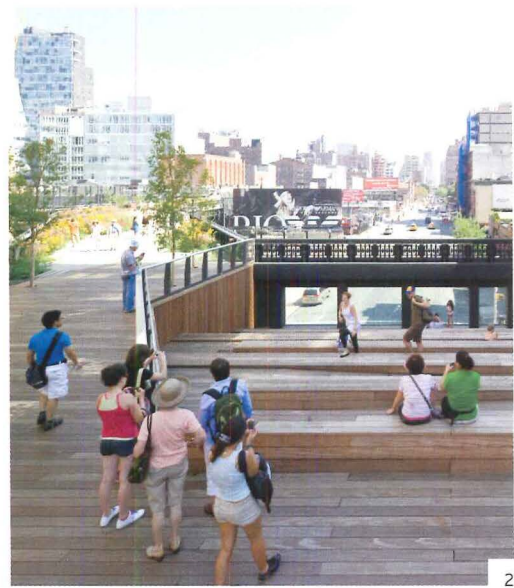
structure: historic preservation)  
**General contractor:** KiSKA  
**SOURCES**  
**Glass guardrails:** DuPont  
**Stainless-steel railings:** Jakob  
**LED lights:** Winona Lighting  
**Precast-concrete planks:** BPDL



To comment on this project and rate it, go to [architecturalrecord.com/projects](http://architecturalrecord.com/projects).



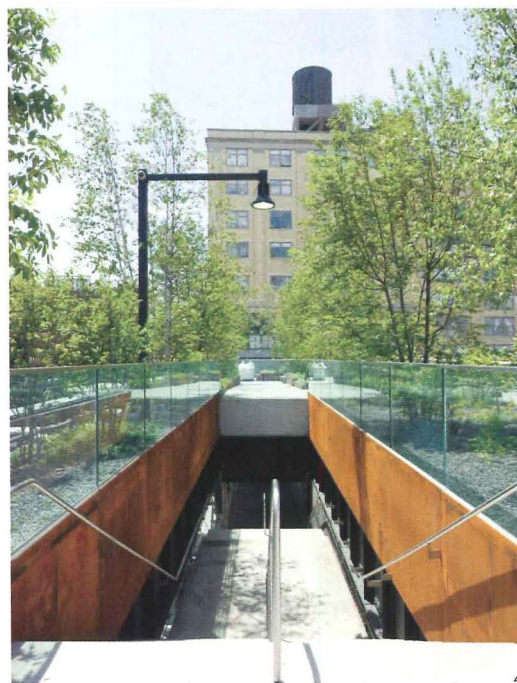
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Concrete planks, mostly 12 feet long, serve as paving and “bend” to form benches.

The 17th Street overlook incorporates amphitheater seating and a zigzagging ramp.

A sunning area features chaise longues set in old train tracks.

Cor-Ten steel panels, stainless-steel railings, and glass balustrades help define a material palette that recalls an industrial past.

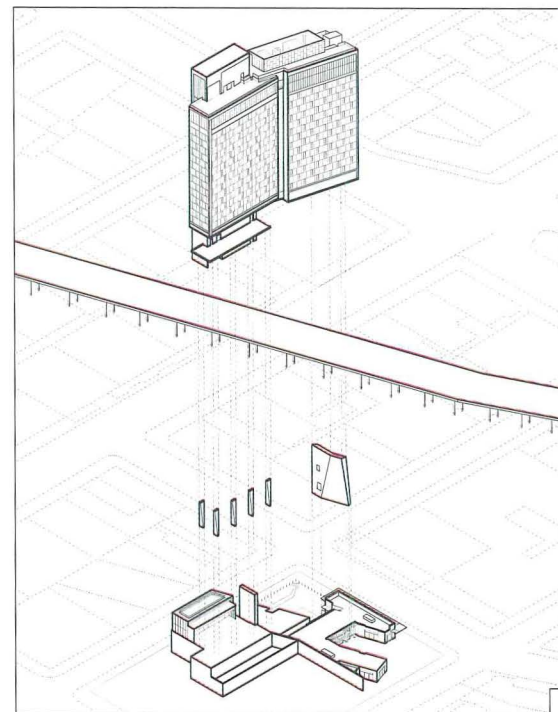
The designers feathered grasses and plantings into the park’s hardscape.

As the High Line crosses 10th Avenue, it provides visitors with a remarkable vista south all the way to the Statue of Liberty.



6

# Polshek Partnership raises the bar with a new benchmark in hotel design at the **Standard New York**



1. A brick-clad restaurant is tucked under the hotel.
2. The Standard is the first new building to rise over the old rail line, straddling its elevated tracks.
3. Perched like an open book standing on its end, the hotel's highly transparent facade allows High Line visitors a peek inside the guest rooms.

By Josephine Minutillo

IMAGINE NEW YORK CITY'S UN HEADQUARTERS building transported from its stuffy midtown location to a trendy downtown spot, kinked in the middle, rotated 90 degrees, and balanced over an elevated rail-line-cum-popular parkland and you've got the Standard New York. The latest incarnation of hotelier André Balazs's chain of hip, "anything but standard" accommodations is the first he built from the ground up. His surprising choice of architect, Polshek Partnership, is not exactly a firm that's in demand among the jet-set crowd. And though the Standard's unapologetically Modern design shares little in common with the sinuous building shapes and exploding assemblies by more sought-after architects that have sprung up nearby, its fearless form—as if from a bygone era—is an attention-grabber nonetheless.

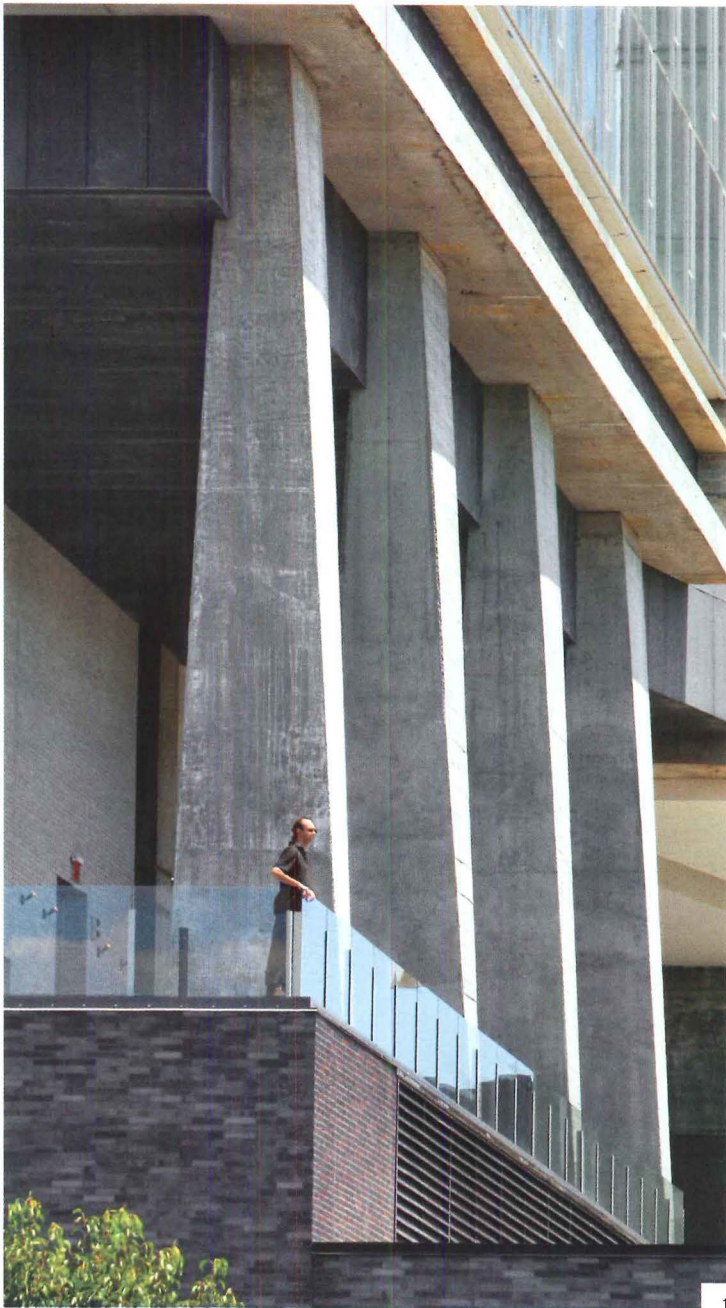
Packaged in rough, board-formed concrete and vast expanses of transparent glass, the Standard is sleek and gritty at the same time, echoing its Meatpacking District neighborhood, where high-end fash-

ion showrooms and pricey art galleries have supplanted bloody butcher shops and no-frills warehouses. But the building draws inspiration from a surprising mix of influences beyond its immediate context, borrowing heavily from the architectural purism of the International Style on the one hand, and the flamboyant hotel design of Morris Lapidus—upon whose work those purists looked down—on the other.

"We designed from the inside out," says Balazs, who collaborated closely with the Polshek team, led by Todd Schliemann, FAIA, a college friend. "We wanted the building to be all glass to make the rooms feel as expansive as possible, but we searched to find the right vocabulary. The result is a structure that is clearly Modern, but vaguely familiar."

Schliemann quite literally uses a Corbusian vocabulary that is widely known, yet rarely referenced by contemporary designers, and calls the five massive, twisting concrete pylons that hoist the west side of the building the required 30 feet over the railway bed *pilotis*. (A single, sloped concrete pier, along which a tantalizing set of fire stairs runs, supports the building's east end by the hotel entrance.)





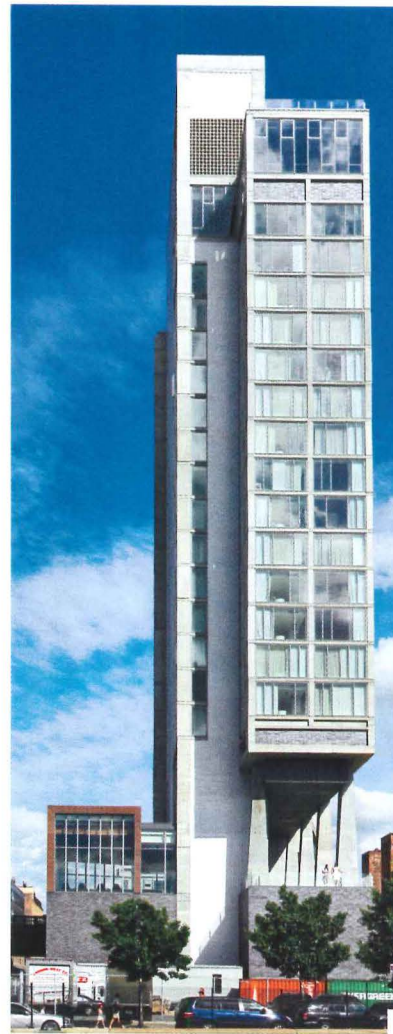
1. Concrete pilotis support the west side of the tower, where a terrace offers views over the High Line.

2. External fire stairs are a design element on the building's east side.

3. The guest rooms' unconventional layout allows the tower to achieve a very thin profile. A multipurpose room sits opposite the terrace.

4. A street-level plaza at the hotel's entrance provides outdoor seating for guests and the public.

5. Glass railings along the roof deck, where an outdoor bar is planned, offer unobstructed views.



References to Le Corbusier’s buildings and urban design are both intentional and incidental. While the zoning envelope only required that new construction over the raised railway essentially be a box with a hole in the middle to allow the tracks to pass through (like the older structures that were built over the High Line decades earlier), the completely as-of-right hotel rises heroically above the High Line—an elevated pedestrian zone slicing through the building reminiscent of Le Corbusier’s multistreet-level designs for *La Ville Radieuse*. But since Balazs purchased the site before the High Line was handed over to New York City, the Standard will likely be the only new construction to span across the recently opened park.

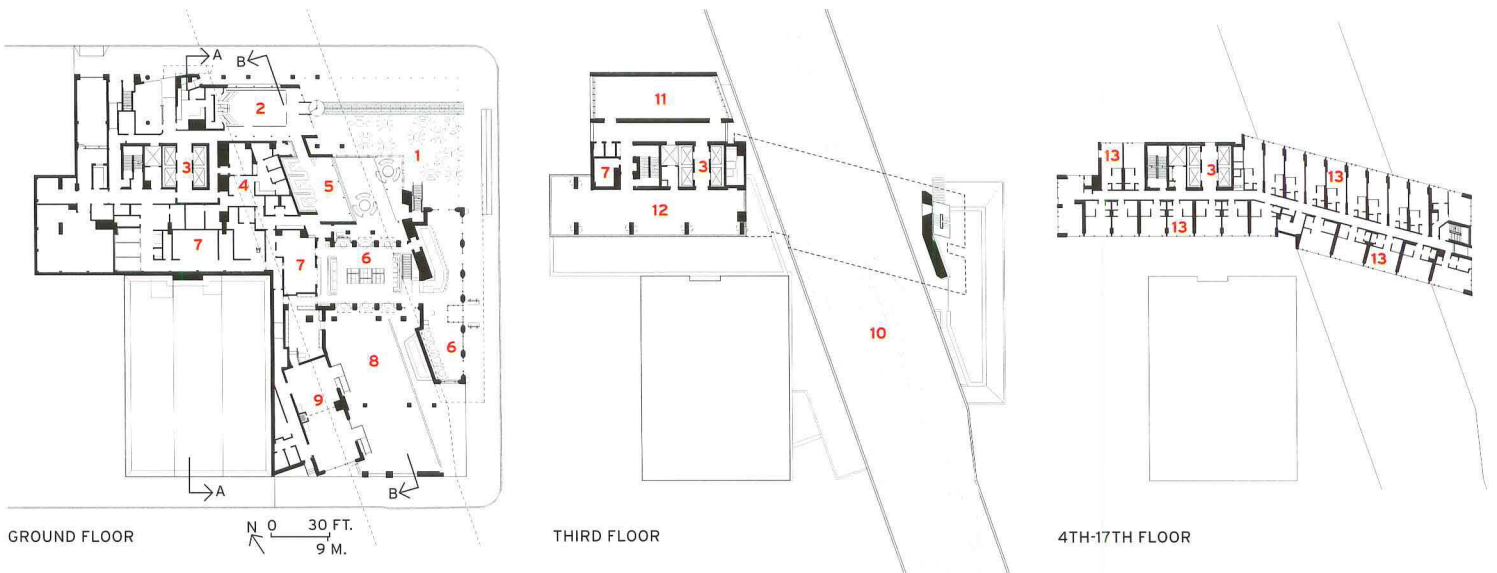
And as Corbusier did, Schliemann takes advantage of the rooftop as more than just an area for mechanical equipment, using

minimal railings made from the same ultra-clear, low-iron glass of the facades to create a breathtaking deck, like that of a ship, with unobstructed, 360-degree vistas over the skyline and the Hudson River. (While an outdoor bar is planned, for now the roof, along with the rest of the building, is a popular location for photo shoots.)

The bent slab, however, was a Lapidus trick. “It allows us to squeeze in an extra room per floor, but more significantly, it provides a variety of view corridors while retaining as many views as possible of the Empire State Building,” explains Balazs, adding that the floor-to-ceiling glass “psychologically thrusts the guest out into the city.”

While the panoramic views from inside the Standard’s 337 rooms are spectacular, views into the hotel—perched over the High Line like an open book for all to see—can also get quite titillating as

DRAWINGS



1. Outdoor plaza
2. Hotel lobby
3. Elevator lobby
4. Staff offices
5. The Living Room (lounge)
6. The Standard Grill (restaurant and bar)
7. Kitchen
8. Beer garden
9. The Garden Room
10. The High Line
11. The High Line Room (meeting and banquet space)
12. The High Line Terrace
13. Guest rooms
14. Club
15. Mechanical
16. Roof deck
17. Existing High Line structure foundations



1. Roman and Williams designed the Standard Grill's bar to be light and airy, a contrast to the rich colors of the restaurant's dining room.

2. The lobby is intentionally kept small, creating a sense of intimacy for the 200,000-square-foot hotel.

3. Wraparound views of New York City and the Hudson River offer a spectacular backdrop for the guest rooms' spare, Modern decor.

4. The new building towers over the low-rise structures of its lively west-side neighborhood.



guests sometimes opt not to draw the curtains, prompting one local paper to refer to the building as the “eyeful tower.”

The guest rooms—spanning levels 4 through 17 above two 114-foot-long, 15-foot-tall steel trusses over the east pier and core shear walls—are laid out somewhat unconventionally. While rooms on one side of the corridor are oriented with the short end facing the window (as in most hotels), the rooms get flipped on the opposite side so that the long end opens up to more expansive views. The width of the building slab decreases accordingly, creating an elegantly thin exterior profile.

Those expansive views, along with the spare but smart interior design, add unmeasurable area to the moderately priced and moderately scaled rooms (averaging 250 square feet). New York-based interior designers Roman and Williams custom-designed much of the furniture and fixtures in the guest bedrooms and baths, and throughout the hotel and the Standard Grill—a one-story, reclaimed-brick-clad restaurant and bar underneath the High Line. Together with Shawn Hausman, who worked on the other Standard hotels, in downtown Los Angeles, Hollywood, and Miami Beach, the firm created interiors with styles that evolve chronologically as you ascend the building, encompassing Midcentury Modern and culminating in a soon-to-open lounge on the top, or 18th, floor, inspired by Warren Platner’s 1970s *Windows on the World*.

Back on the ground level, hotel guests and the public can sit and relax at the outdoor plaza near the hotel entrance, or gaze up at the steel underbelly of the High Line from the open-air beer garden behind the restaurant. Leaving so much of the ¾-acre buildable site unbuilt may seem counterintuitive from a business point of view, but business at the Standard is good. While hotel occupancy rates nationwide have fallen to all-time lows, the Standard boasts near 90 percent occupancy since opening earlier this year. According to Balazs, “Value comes in creating an experience with the architecture.”

As Schliemann puts it, this is not “look at me” architecture. But you look anyway (and not just to catch a glimpse of the naked revelers inside). After years of training our eyes to take in the fantastical forms that have defined architecture at the turn of the 21st century, we’re left almost incredulous that such a simple and straightforward design can be so arresting, literally stopping people in the tracks as they meander along the High Line. That animated interaction with the High Line affirms the early-20th-century belief that good architecture, coupled with good urban planning, can transform society—in this case, converting a derelict part of the city into a popular pedestrian area topped off by a welcome new landmark. ■

**Project:** *Standard New York, New York City*

**Architect:** *Polshek Partnership—Todd Schliemann, FAIA, design partner; Kevin McClurkan, AIA, management partner; Megan Miller, AIA, Tara Leibenhaut-Tyre, AIA, project architects; Amy Lin, AIA, project designer*

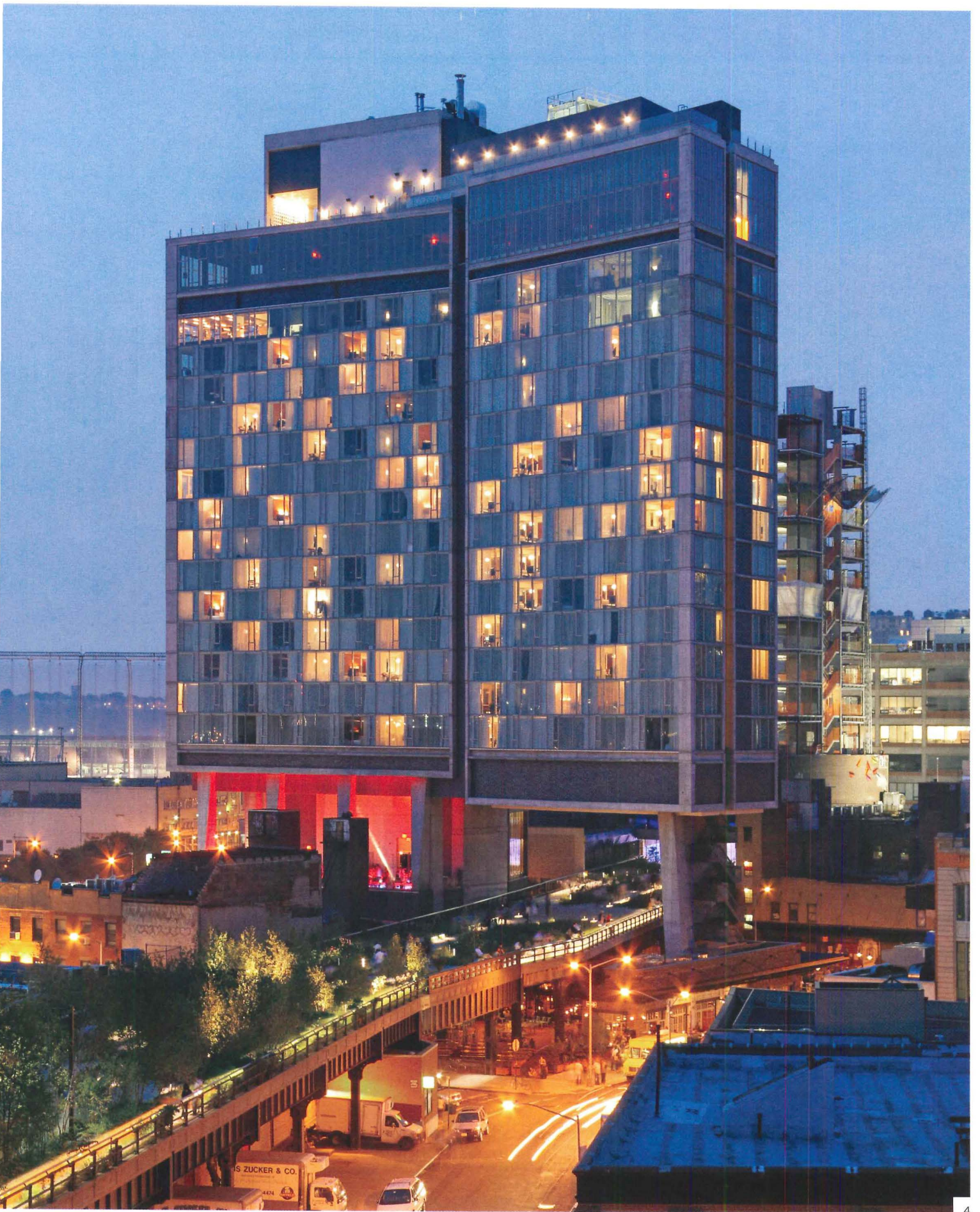
**Interior designers:** *Roman and Williams—Stephen Alesch, Robin Standefer, principals; Shawn Hausman*

**SOURCES**

- Curtain wall:** *Permasteelisa*
- Glass:** *Viracon*
- Acoustical ceilings:** *Decoustics*
- Elevators:** *Fujitec*
- Steel windows:** *Hope’s Windows (ground-floor restaurant)*
- Custom woodworking:** *Eastern Millwork*
- Entrances:** *Crane Revolving Doors; Blumcraft*
- Bath tile:** *Castaic Brick*
- Partitions:** *Skyfold; Modernfold*

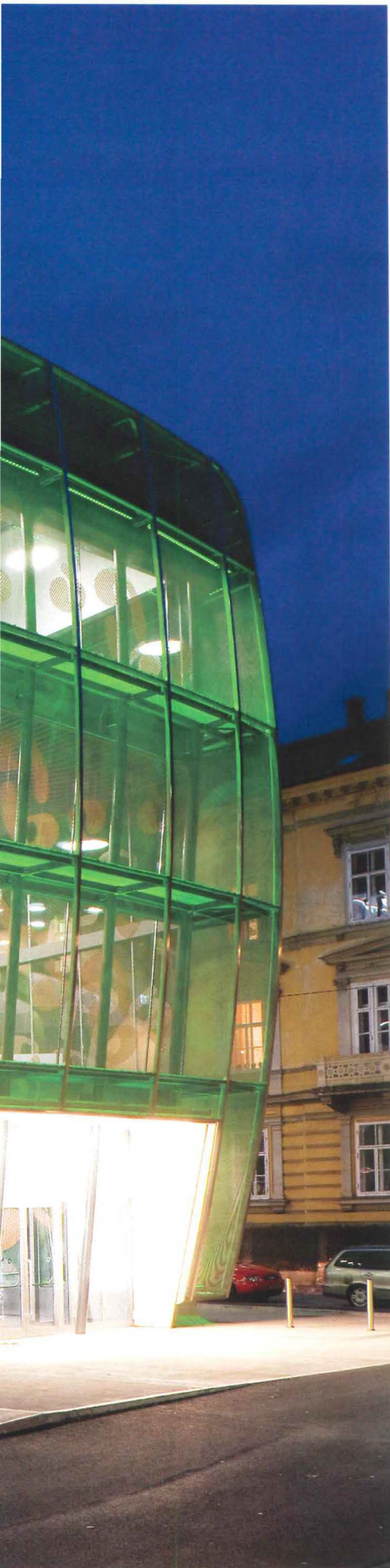
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By day, the music school and theater for the Kunstuniversität Graz is anonymous, owing to its stainless-steel-mesh facade. By night, it becomes a lantern to herald its function as a theater.





PHOTOGRAPHY: © PAUL OTT (OPPOSITE AND TOP)



## UNStudio keeps Graz humming with its **MUMUTH** music building

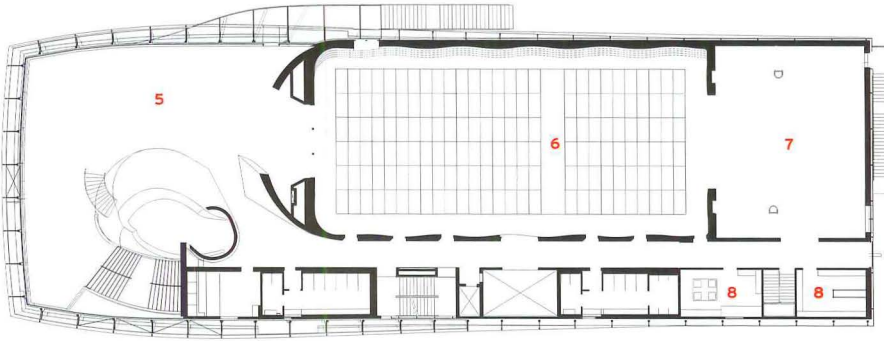
By Victoria Newhouse

**IN THE DAYTIME,** UNSTUDIO'S Haus für Musik und Musiktheater (MUMUTH) is a mysterious presence among historic houses on Lichtenfelsgasse Street in Graz, Austria's second-largest city. A fine, stainless-steel mesh attached to gently curved steel frames completely masks the four-story, glass-and-steel structure as well as the spectacular concrete spiral that is the heart of the building. During the day, when only students and staff of the Kunstuniversität Graz (KUG) use its teaching and administrative spaces, they enter the building from the adjacent park at the west. But at night, interior lighting brings the building's public identity as a theater to life, and the visitors enter the music house by a separate entrance on the south.

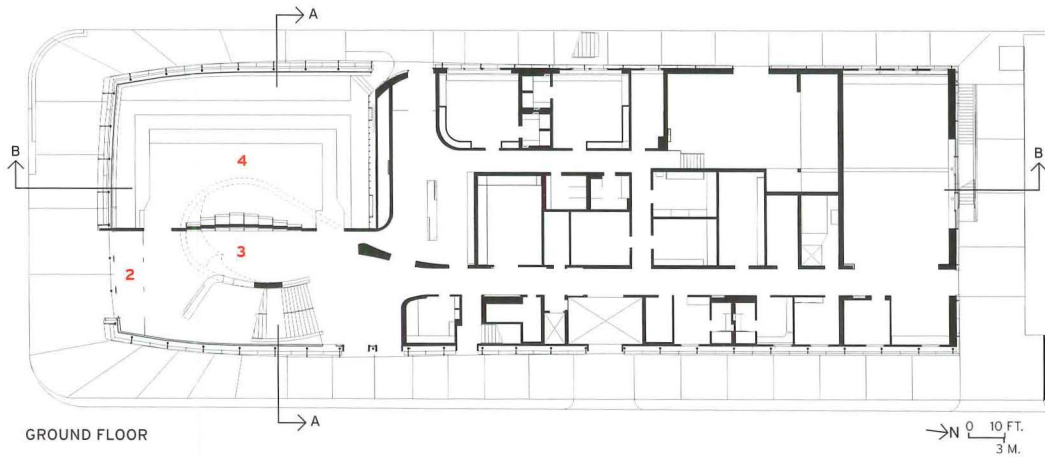
MUMUTH resulted from a 1998 competition held by KUG (also known as the Universität für Musik und Darstellende Kunst) that called for a theater for its 2,100 international students as well as rehearsal rooms, workshops, and a lounge. (The theater will also be leased for nonuniversity events.)

*Victoria Newhouse, known for her writing about museums, is currently preparing a book on new spaces for the performance of classical music.*

DRAWINGS

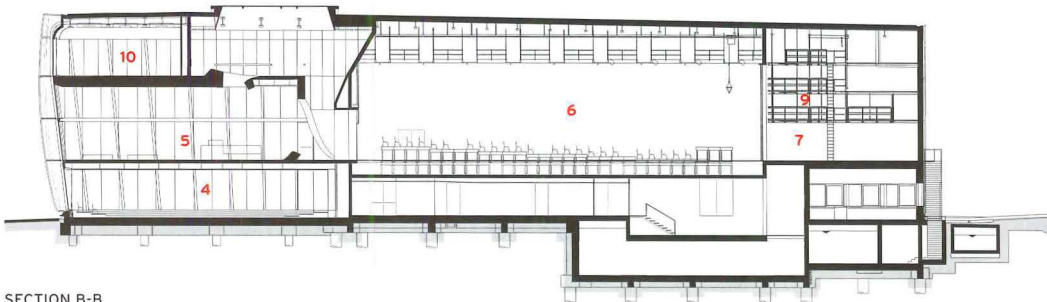


SECOND FLOOR



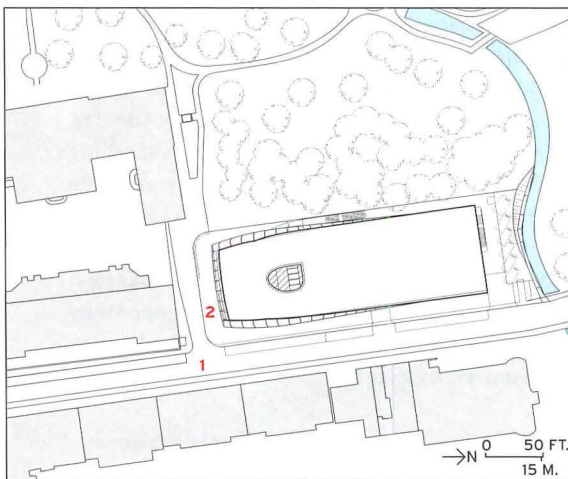
GROUND FLOOR

→ N 0 10 FT.  
3 M.

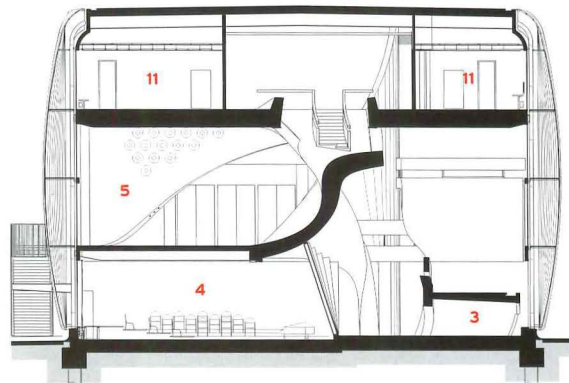


SECTION B-B

- |                        |                          |                    |
|------------------------|--------------------------|--------------------|
| 1. Lichtenfelsgasse    | 5. Theater foyer         | 9. Fly space       |
| 2. Public entrance     | 6. Main hall and stage   | 10. Rehearsal room |
| 3. Lobby               | 7. Backstage             | 11. Dressing room  |
| 4. Orchestra rehearsal | 8. Theater support space |                    |



→ N 0 50 FT.  
15 M.



SECTION A-A



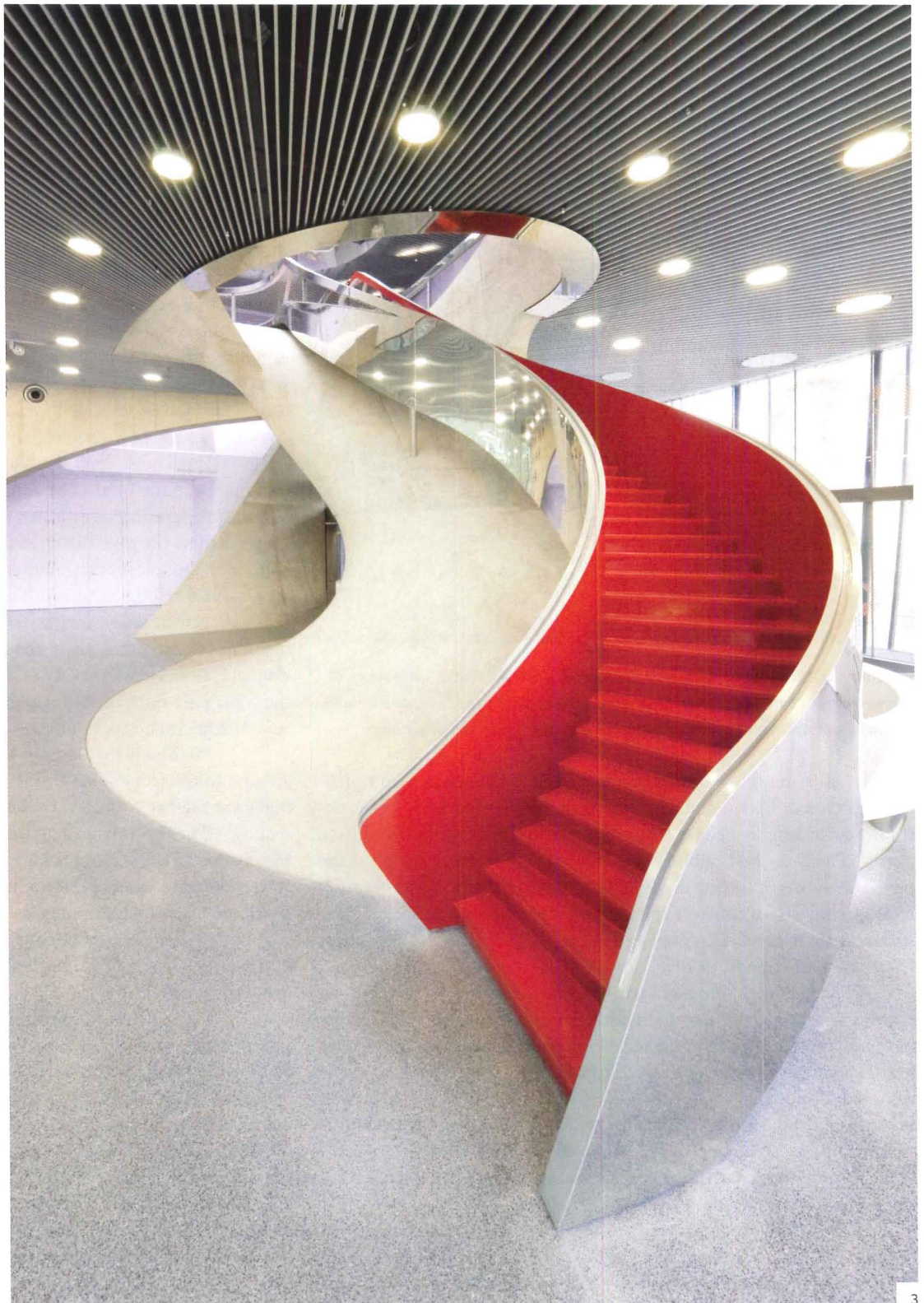
PHOTOGRAPHY: © IWAN BAAH (1, 3); CHRISTIAN RICHTERS (2)



1



2



3

1. UNStudio joined up with Arup to design the "twist," a spiraling element of two layers of self-compacting reinforced concrete over a steel framework that connects various floors.

2. The twist in the lobby

joins with the large stair to bring the public up to the second-level auditorium, where a polished metal stair continues to the third floor.

3. The team conceived the spiraling structure as a continuation of the

theater's longitudinal walls, torqued from a vertical to a horizontal position in the foyer. The twist connection also supports the two floor planes that cantilever from the reinforced-concrete theater box. The architects

and engineers placed the floor plates' steel beams in a radial arrangement around the stairwell. Inclined steel columns around the perimeter provide additional support for the 66,736-square-foot structure.



**Informal recital spaces provide students at the music school with views of the surrounding neighborhood. The woven metal skin over the glass facade, which is silk-screened with stylized musical clefs, reduces solar glare.**

As a response to this program, the Amsterdam firm's principals, Ben van Berkel and Caroline Bos, divided the building structurally according to a concept van Berkel calls "blob-to-box and back again." The foyer and public circulation spaces at the south form the blob; the theater at the north is the box. Joining the two—and organizing the whole—is a concrete spiral much like a Möbius Strip, a single-surface form the architects explored in their Möbius House built in Het Gooi, the Netherlands, in 1998.

Van Berkel compares the twisting structure to serialism in contemporary music, since it shares the ability to absorb and regulate intervals, interruptions, changes of direction, and leaps of scale without losing its continuity. The architect's convincing parallel between architecture and music was the determining factor in the jury's decision in his favor. Indeed, although his helix is related to different musical principles, it bears a striking resemblance to the composer/architect Iannis Xenakis's polytopes of the 1960s, as he called his conceptual models for electronic light and sound projection.

A number of factors delayed the beginning of construction of MUMUTH. First, the city did not want to detract attention from other projects it was sponsoring, such as Peter Cook and Colin Fournier's nozzled, biomorphic Kunsthaus Graz [RECORD, January 2004, page 92]. Furthermore, political changes jeopardized MUMUTH's funding, which was only reinstated after elections in 2005. In the interim, the architects transformed the structural spiral from steel to a composite of steel and concrete. The delay also allowed the installation of new acoustic technology that became available in 2006 and promised to be flexible enough for a range of live acoustic to electronically amplified performances. (The system, and other technology, added between \$7 million and \$10 million to the building's \$23 million cost.)

As the public enters the building for performances, it is im-

mersed in two levels of the dynamic concrete twist around which the massive spiral of the grand stairway rises to the music theater on the second floor and continues upward to a roof skylight. Van Berkel says the form was even more challenging than the spiral ramps of UNStudio's much larger Mercedes-Benz Museum in Stuttgart [RECORD, November 2006, page 126]. Its dimensions required such precision that self-compacting concrete was pumped from below instead of poured from above. The bold gesture could have done without the spindly red-carpeted, metal-encased stairway that piggybacks the twist from the theater level to the floor above.

Compared with this showy structural tour de force, the sober 450-seat theater appears tame. However, its technology makes it anything but. Granted, the auditorium is a simple black box, except for the dark eggplant walls articulated by a shallow, three-dimensional lacquered wood of the silk-screen pattern printed on the building's glass curtain wall. This modest setting, however, may well provide a long-sought answer to the search for a venue that can satisfy any number of purposes.

Until now, that search has yielded no perfect solution. Walter Gropius's unbuilt Total Theater project of 1927, proposing the mechanical reconfiguration of a theater from proscenium to thrust to arena stages, had by the mid-1950s led to the design of pneumatically adjustable floor modules. Such modular halls, however, have proved more successful for long-running theater productions than for one-night musical performances, owing to the prohibitive cost of physical modification. Furthermore, their acoustics need to be adjusted physically. Zankel Hall in New York City's Carnegie Hall, for example, remains for the most part unchanged for public performances since its inauguration in 2003 [RECORD, January 2005, page 156].

MUMUTH's 108 floor modules—measuring in length from about 3 to 6½ feet and able to rise hydraulically to almost 11 feet and higher at the back—follow these precedents, albeit with easily moved seating. "The room is a stage that will be reconfigured at least three times a week," says Georg Schulz, the university rector. An instance of such a change was the performance of Bach's *St. John Passion* given in April 2009, in which the stage configuration echoed the Möbius Strip. Van Berkel designed the floor modules to be raised in a double-eight design and to stretch throughout the hall to place the choir within the audience.

The real innovation is the theater's Meyer Sound Constellation system that can vary reverberation time electronically from just over one second (without the system) to over two seconds to suit a gamut of performances, from the spoken word to chamber music, symphonic music, opera, and jazz. Theoretically, the room could be adjusted electronically so Bach's *St. John Passion*, for example, would sound much as it did in the larger church for which it was created. Assuming that current resistance to electronic enhancement of classical music can be overcome, the combination of refined electronic acoustics and inventive architecture could be thrilling for future performances. ■

**Project:** MUMUTH, Graz, Austria

**Architect:** UNStudio—Ben van

Berkel, Caroline Bos, principals;

Hannes Pfau, project architect

**Consultants:** Arup, London (structural); ZT Gerhard Tomberger, Pro Acoustics Engineering (acoustics and building physics); Bauunternehmung

Granit Gesellschaft (landscape)


#### SOURCES

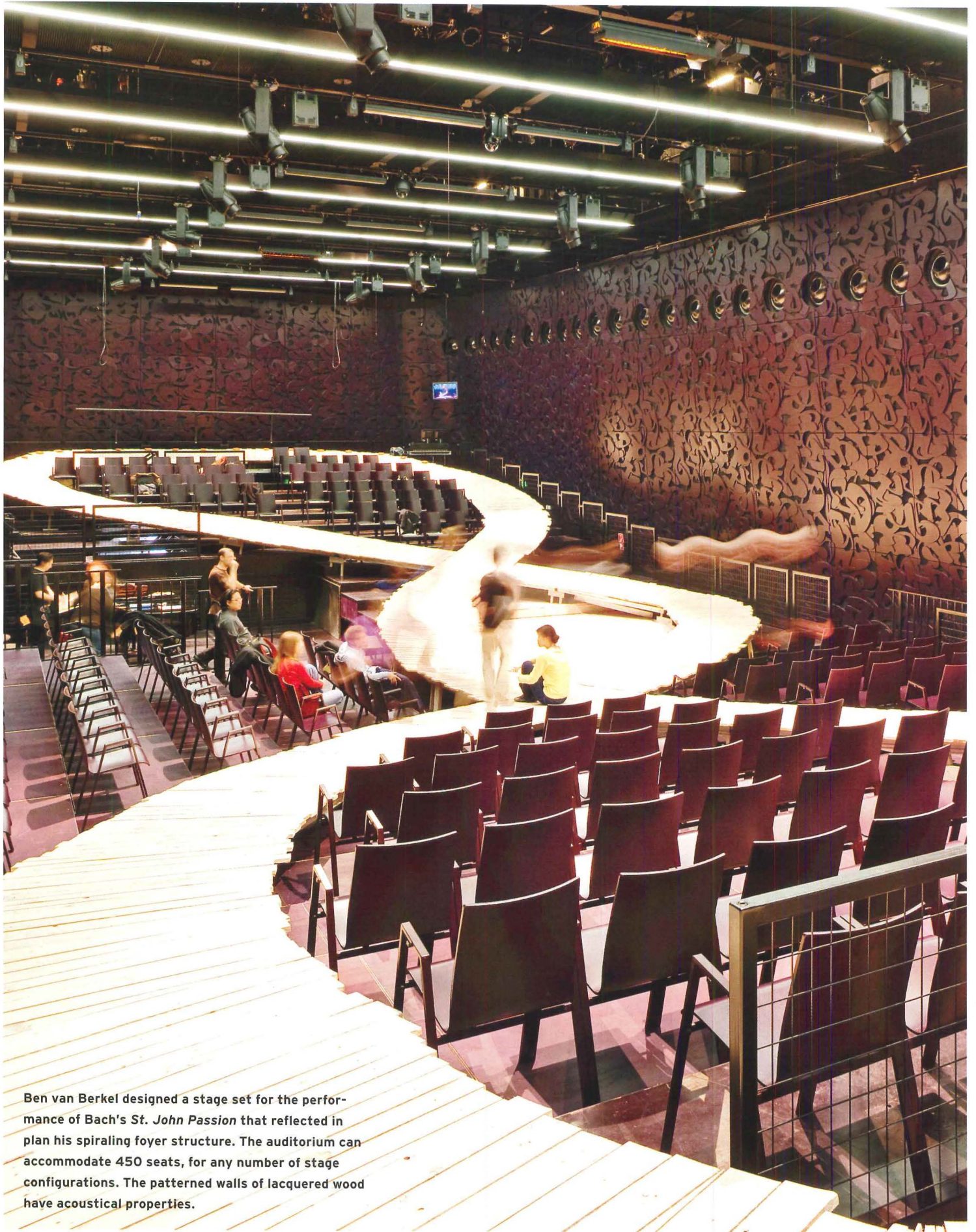
**Metal-mesh facade:** GKD-Gebr. Kufferath

**Metal panels:** Prodinger Metallbau

**Glazing, curtain wall, and**

**skylight:** MATEC Stahl und Alubau

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Ben van Berkel designed a stage set for the performance of Bach's *St. John Passion* that reflected in plan his spiraling foyer structure. The auditorium can accommodate 450 seats, for any number of stage configurations. The patterned walls of lacquered wood have acoustical properties.

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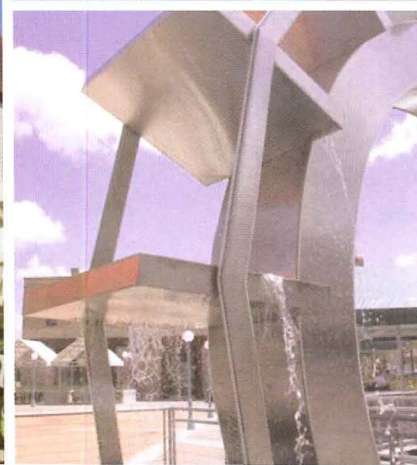
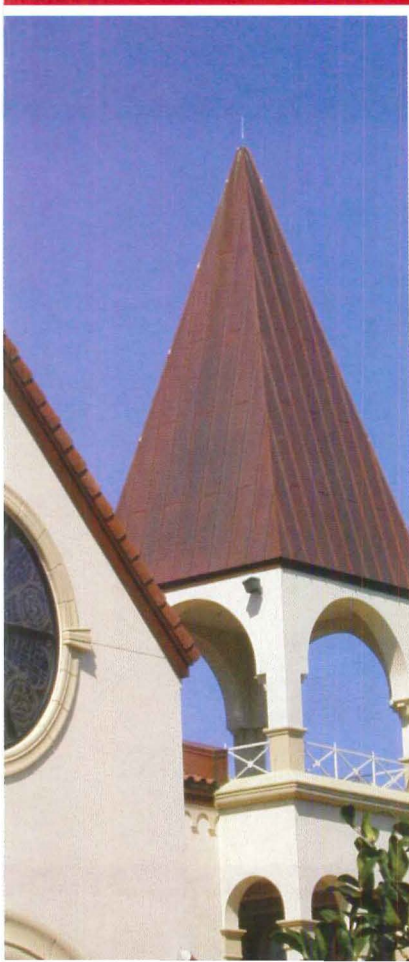


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## GREEN CIVIC BUILDINGS

# Eco-opportunity

Three distinct civic projects illustrate the triple-bottom-line values of modern government buildings – humanistic, economic, and environmental.



## COMMUNITY ROWING BOATHOUSE

Boston

*Incorporating sustainable features, Anmahian Winton Architects designed this community-based boathouse inspired by regional vernacular design.*



## BALDWIN HILLS SCENIC OVERLOOK

Culver City, California

*Designed by Safdie Rabine Architects, this project exemplifies green design in both its building features and its landscaping of an urban state park.*



## WHISTLER PUBLIC LIBRARY

British Columbia, Canada

*Awaiting the winter Olympics, the resort town of Whistler becomes home to a high-performance green library by Hughes Condon Marler Architects.*

By Jane F. Kolleeny

### CIVIC BUILDINGS IN THE U.S. AND CANADA

lead the way in sustainability as governments commit to green design for their communities. According to the U.S. Green Building Council, in the U.S. alone, government-owned or -occupied buildings make up 31 percent of all LEED-certified projects. The Canadian Green Building Council's number is equally impressive – 35 percent of all LEED projects in Canada are civic. There are also numerous other green municipal buildings that are not LEED certified.

The economics of sustainability make a compelling argument for governments to go green. The payback on minimal up-front costs for energy-conserving measures averages between four to eight years, small potatoes in the life of civic buildings.

Because municipalities and governments own and operate their own facilities, they are uniquely positioned to analyze and evaluate the life-cycle costs and benefits of their buildings for long-term performance. Owners can calculate the construction, operation, maintenance, and decommission costs of a building over its expected useful life,

looking at the value of current design options as investments for the long haul. This creates a treasure trove of strategies based on real data.

In addition to saving energy, healthy buildings offer a variety of added environmental, economic, and social benefits. They reduce water and resource consumption, provide healthier and more productive work environments, and support alternative transportation due to their siting.

Each of the projects featured this month demonstrates a unique combination of these characteristics. The Whistler Library serves as a cornerstone of an existing green community poised to receive the public's attention during the 2010 Winter Olympics. While it did not pursue LEED certification, the Community Rowing Boathouse on Boston's Charles River successfully transforms a neglected riverfront site into a handsome energy-efficient facility offering a valuable public amenity. Baldwin Hills Scenic Overlook, while constrained in its operation due to California's financial woes, provides access to a hilltop arroyo in a city with less green space per capita than any other in the U.S. In each of these cases, the building contributes to its community in important ways. What's not to like about green civic buildings? ■

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# Community Rowing Boathouse

BOSTON

Anmahian Winton Architects' sleek, unorthodox facility on the Charles River puts a face to a name for a public rowing club.

By Beth Broome

**Architect:** *Anmahian Winton Architects*—Alex Anmahian, AIA, principal in charge; Nick Winton, AIA, principal; Todd Thiel, AIA, project manager; Sydney Schremser, project architect; Joel Lamere, Makoto Abe, Aaron Stavert, AIA, Mazen Sakr, Garth Goldstein, Andrew Plumb, AIA, Julia Davis, AIA, project team

**Client:** *Community Rowing, Inc.*

**Engineers:** *Stantec (civil); Childs Engineering (marine structural); Richmond So Engineering (structural); RW Sullivan (m/e/p)*

**Consultants:** *Harriman Associates (geothermal); The Green Roundtable (sustainable systems analyst); Extech Exterior Technologies (cladding systems fabricators); Wiss, Janney, Elstner Associates and Richard Keleher (envelope consultants); Consigli Construction (general contractor)*

**Size:** *30,000 square feet*

**Cost:** *\$11.45 million*

**Completion date:** *October 2008*

## SOURCES

**Wood panels:** *Prodema*

**Windows:** *Kawneer; Schuco*

**Glazing:** *PPG; Oldcastle Glass*

**Bifold doors:** *Wilson Door Company*

**Structural system:** *Mandate Erectors*

**Acoustical ceilings:** *Ecophon*

**Suspension grid:** *Armstrong*

Community Rowing, Inc. (CRI) is the largest rowing organization in the country, and fully 40 percent of the boats on Boston's Charles River belong to the club. Yet until last fall, it had no place to call home. After operating seasonally out of the nearby Daly ice-skating rink for over 20 years, CRI has finally laid down its roots on the city's edge with a 30,000-square-foot boathouse designed by Cambridge, Massachusetts-based Anmahian Winton Architects.

## Program

The sleek Community Rowing Boathouse makes a bold statement on the banks of the Charles, where historic and historicist facilities dominate. Neither the client nor the architects were interested in reiterating this precedent. "We wanted the building to be of its time," says principal Alex Anmahian, AIA. The unconventional approach is in line with the club's mission. "There are a lot of elitist boathouses on the Charles," continues Anmahian. "This one is like the YMCA of rowing – it's open to everyone." The nonprofit organization, founded in 1985 by individuals who rowed for renowned coach Harry Parker on the national team and at Harvard, welcomes the public and runs a number of recreational and competitive – as well as community-outreach – programs, and has outfitted the facilities for visually and physically challenged users.

The awkwardness of the city-owned, triangular, 3.5-acre site, previously used as a staging area for



nearby infrastructure projects, posed challenges. The facility had to accommodate storage for over 170 boats and include a repair shop, training and locker rooms, administrative spaces, and classrooms. Additionally, the architects insisted on creating a public path along the riverbank, in contrast to other boathouses that tend to block the waterfront with broad ramps.

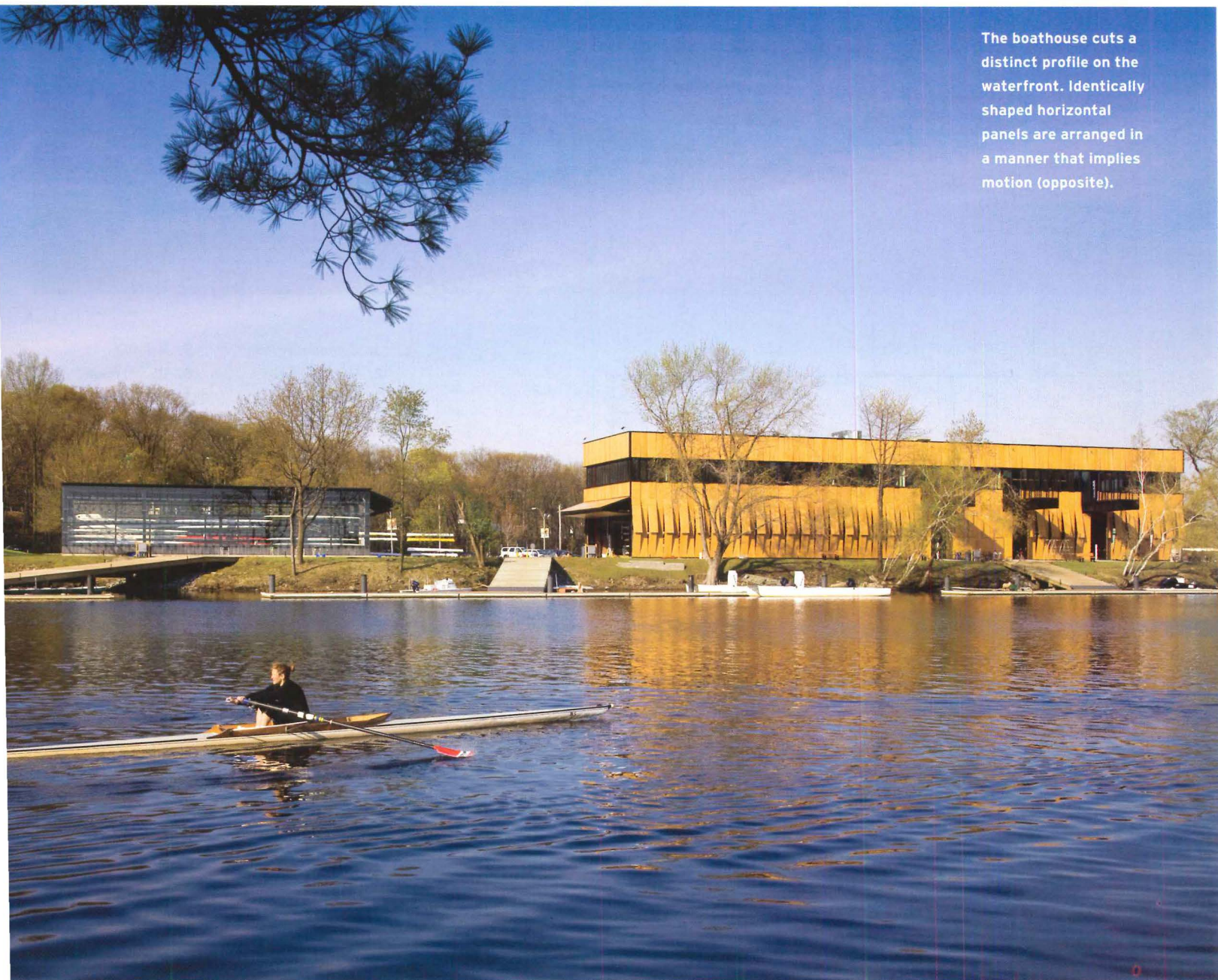
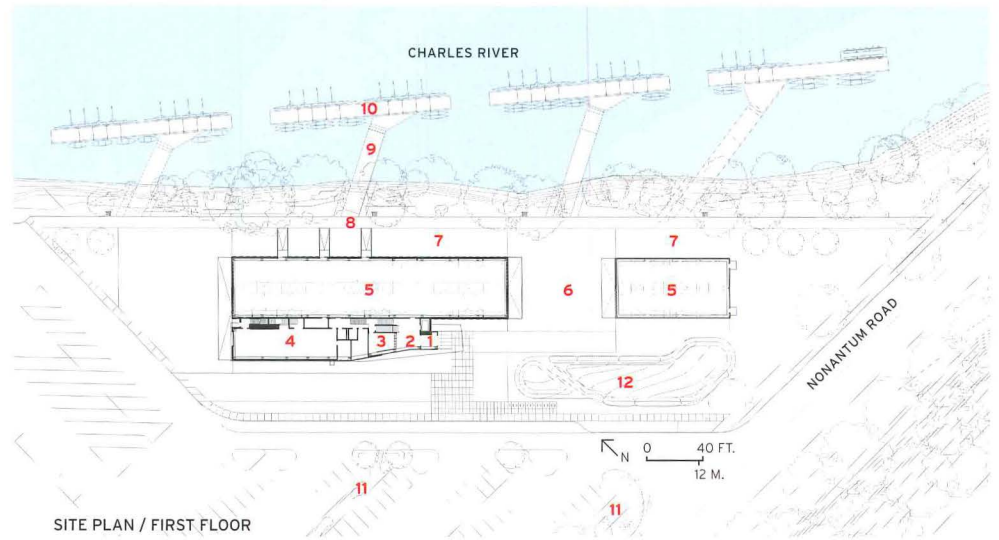
## Solution

To house the large number of boats, Anmahian Winton split the facility into two separate volumes – one glass, one wood – rendering a court that visually and functionally connects the buildings to each other and the water. While most boathouses store boats perpendicular to the river, the architects oriented this project paral-

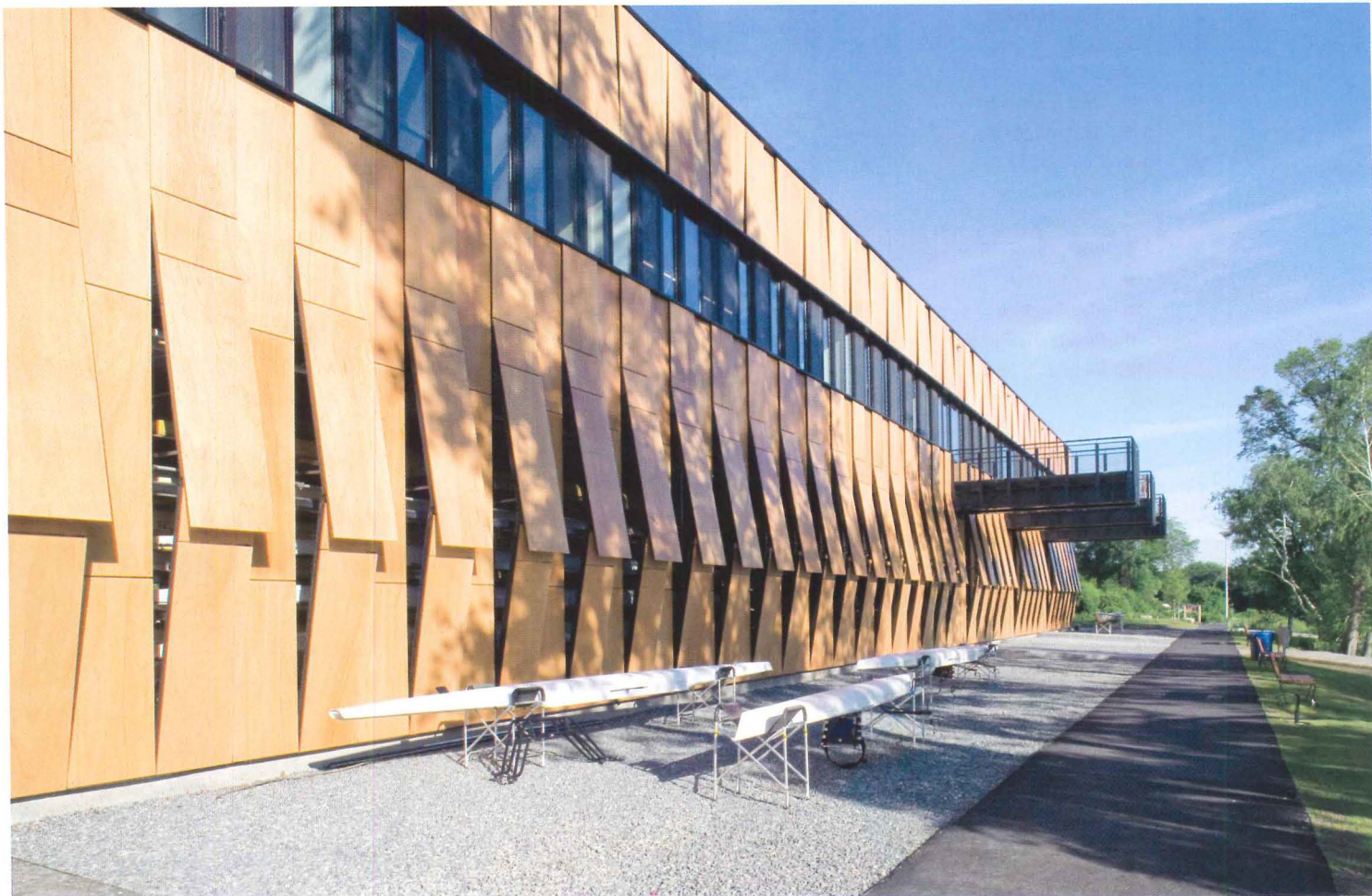
lel to the water, allowing maximum efficiency in terms of boat storage (the 8-oar shells measure up to about 60 feet long) and minimal impact on the land. Budget constraints had forced the architects to abandon their vision for an all-glass main building, but created other opportunities.

For inspiration for the wood Harry Parker Boathouse, the architects looked to regional vernacular linear buildings, such as covered bridges and tobacco sheds. Tobacco sheds provided a particularly compelling model because sculls and shells, like tobacco leaves, need proper ventilation. This observation led the architects to the idea of a kinetic building. Eighteen-foot-tall bifolding vents clad in high-density composite panels with sustainably

1. Main entrance
2. Lobby
3. Office
4. Boat repair bay
5. Boat storage bay
6. Courtyard
7. Boat washing/derigging
8. Pedestrian path
9. Fixed pier
10. Floating dock
11. Biorretention swale
12. Biorretention basin



The boathouse cuts a distinct profile on the waterfront. Identically shaped horizontal panels are arranged in a manner that implies motion (opposite).



SECOND FLOOR PLAN

- 1. Community room
- 2. Women's lockers
- 3. Men's lockers
- 4. Ergometers/  
multipurpose
- 5. Balcony
- 6. Weight room
- 7. Classroom
- 8. Coaches' office
- 9. Administration



ELEVATION



0 20 FT.  
6 M.



Fifteen-foot-tall "oar doors" sit below cantilevered balconies (top), which are populated during regattas and parties. Boats are carried out through hangar doors (left). "Ergs" are located upstairs in a room that doubles as an event space (right).





farmed ayous-wood veneer line the 200-foot-long bays, and are manually operated with a chain pull with gear reducers to admit light and air. Timber piles support the building's steel moment frame, and boats are carried out through modified hangar doors at the east and west ends. "It's really a warehouse with a special functionality about it," notes Anmahian. Vertical cladding continues on the second floor. On the south, street-facing side the cladding takes the form of horizontal louvers to shade the building, mask mechanical vents, and shield locker-room clerestory windows.

The steel-framed Ruth W. Somerville Sculling Pavilion houses the smaller, one- and two-person sculls and shells. It realizes the original transparent scheme with ¼-inch tempered-glass shingles fastened to the structure with aluminum clips. The pavilion, a vitrine for the streamlined fiberglass and carbon-fiber vessels within, admits light and facilitates natural ventilation while functioning

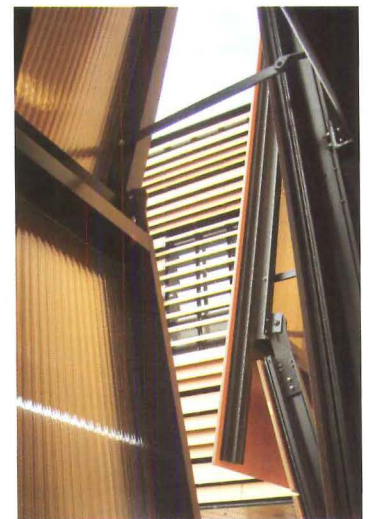
as a billboard seen by cars zipping along the busy surface road and the Massachusetts Turnpike just beyond.

The team employed many sustainable features and approaches. In addition to the boat-storage bays, which are naturally ventilated, 50 percent of the second-floor window area is operable. The entire facility is heated and cooled with ground-source heat pumps supplied by a 1,500-foot-deep geothermal well. And by expanding the thermal comfort boundaries to 68 to 84 degrees from the typical 72 to 76, it was possible to reduce the size of the mechanical equipment. Extensive glazing provides direct sight lines to the outside for all occupants, and low-flow plumbing fixtures mitigate water consumption. Storm-water runoff is managed by a hardscape of permeable pavement and crushed stone, and bioretention swales recharge groundwater rather than directing rainwater into the river. A green roof will be installed once funding is secured, say the architects. The team did not seek

LEED certification, notes Anmahian, citing the cost of the process.

### Commentary

Aside from the bays, interiors are bland and basic, with a preponderance of dropped ceilings and drywall. Rowers' focus lies outside, of course, and Anmahian explains that limited resources – \$11.45 million for construction – were used where they would have the greatest civic impact. Indeed, Anmahian Winton has helped Community Rowing successfully transform a neglected patch of riverfront into the club's calling card. The handsome new facility eschews nostalgic, Victorian pastiche and in a Modern language lifts the shroud of exclusivity from an age-old sport, bringing it down to earth and into the present day. With membership up 30 percent and youth-program participation up as much as 100 percent since the boathouse opened in October 2008, CRI is furthering its cause of making rowing, and the Charles River itself, accessible to all. ■



**The glass-shingled sculling pavilion houses smaller boats (top). The Harry Parker Boathouse's bays are ventilated by manually opening large bifolding vents with a Victorian chain-pull system (above).**

# Baldwin Hills Scenic Overlook

CULVER CITY, CALIFORNIA

Safdie Rabines Architects tread lightly with a master plan for a new state park above the Los Angeles suburbs.

By Sebastian Howard

**Architect:** *Safdie Rabines Architects—Taal Safdie, AIA, and Ricardo Rabines, principals; Susan Richard, project manager; Charles Crawford, AIA, project architect; Francis de Jesus, job captain; Kevin Schiller, designer*

**Client:** *California State Parks and Recreation*

**Consultants:** *Wallace Roberts & Todd (landscape architects); Earthworks (habitat restoration)*

**Size:** *7,200 square feet*

**Cost:** *\$7.5 million*

**Completion date:** *April 2009*

## SOURCES

**Windows:** *Arcadia Architectural Products*

**Concrete:** *Metro Builders*

**Roof:** *Sarnafil (elastomeric membrane); Atlas Sheet Metal (metal, custom scuppers, and downspouts)*

**Doors:** *Arcadia Architectural Products (entrances); Nana Wall Systems (aluminum-and-glass folding doors)*

In 2000, California State Parks (CSP) spent just over \$41 million acquiring 57 rolling acres for parkland after citizens of Culver City, California, had protested a planned residential development on the site. The land rises more than 400 feet above the L.A. basin – high enough that the roar of Interstate 405 begins to fade into the sound of wind howling through the hills. Turning the land into a vibrant state park would be a challenge: The previous owner had discarded construction materials on-site, cleared the area of vegetation, and flattened the ridgeline, allowing invasive grasses to overtake indigenous plants.

## Program

The state government allocated money to build “improvements” on the site, including hiking trails and a visitor center that would educate parkgoers about the surrounding environment. The design would have to be unobtrusive – a CSP administrative code prohibits buildings “which are attractions in themselves.” According to Barney Matsumoto, who oversees construction in Southern California’s state parks, Safdie Rabines was chosen for the project in large part because the firm’s previous work tended to “tread lightly on the landscape.”

Baldwin Hills’ program evolved through a series of public workshops with the local community (which initially requested that the park include amenities such as soccer fields and playgrounds before warming up to CSP’s sparer, more naturalistic vision).

Working closely with landscape architects Wallace Roberts & Todd (WRT) and California State Parks designers, Safdie Rabines began overhauling the site in 2006.

## Solution

The buildings seem to have been designed in accordance with the Hippocratic oath: Above all, they do no harm to the landscape (or very little, anyway). Safdie Rabines’ master plan includes a visitor center, support building, and open-air pavilion, in addition to a garden and a series of trails.

A concrete path leads from a parking lot to the visitor center, which houses an exhibition on the area’s ecology. The path continues outside the building before it connects with an ADA-accessible trail leading to the area’s highest point (hikers can also access the overlook via a staircase, built with concrete found on-site, that ascends from Culver City below). On top of the hill, visitors get an unobstructed view of the L.A. basin, where mountains and the Pacific Ocean frame the relentless urban sprawl. It’s a jarring contrast: Walking back down from the lookout, a visitor may see a Monarch butterfly flitting past oil derricks that slowly pump crude at the park’s edge.

At every turn, Safdie Rabines’ design engages with the environment. The crescent-shaped visitor center nestles against a regraded ridgeline so the earth’s insulation reduces heat load. The building’s glass wall looks over the site, while a butterfly roof shades both the transparent facade

and a walkway beside it. Although a HVAC system mechanically cools the visitor center when needed, operable windows and clerestories provide natural ventilation. Pivoting glass doors at each end of the visitor center can also open to induce a breeze, blurring the line between inside and out.

## Commentary

In creating unobtrusive facilities that increase public access to the landscape, the Safdie Rabines design succeeds. By integrating a simple building and its environment, the architects demonstrate a respect for the park itself.

But the project has been hamstrung by a dismal economy. California’s unique financial restraints – among them, a rule that a supermajority of state lawmakers is required to pass tax increases – helped put the state into debt some six months before America’s current recession began. Financial woes threaten to close a majority of California’s 279 state parks, and CSP can only afford to staff Baldwin Hills on weekends. Parks officials said in interviews that the National Park Service and the Audubon Society might provide volunteer employees, but no formal arrangement exists yet.

“The irony,” says Matsumoto, “is that we built these nice facilities, but we can’t operate them because of lack of funding.” So on a hill above Los Angeles, a Modern arc of glass and concrete sits locked up five days a week, the wind whistling through a crack between its closed doors. ■





1. Parking lot
2. Visitor center
3. Support space
4. Pavilion
5. To overlook



SITE PLAN / GROUND FLOOR

↑ 0 20 FT.  
N 6 M.

The architecture defers to the site: A visitor center (below) is composed of humble materials and affords wide views; a small pavilion (above) is open to the elements.



# Whistler Public Library

BRITISH COLUMBIA, CANADA

Hughes Condon Marler Architects showcase locally sourced hemlock in Whistler's new public library.

By Jane F. Kolleeny

**Architect:** Hughes Condon Marler Architects—Darryl Condon, principal; Bill Urich, project architect; Kurt McLaren, Julia Mogensen, Jay Lin, Kayna Merchant, project team  
**Client:** The Resort Municipality of Whistler

**Engineers:** Fast+Epp Structural Engineers (structural); Stantec Engineering (mechanical); Acumen Engineering (electrical)

**Consultants:** Phillips Farevaag Smallenberg (landscape)

**General contractor:** Whistler Construction Company

**Size:** 14,500 square feet

**Cost:** \$6 million

**Completion:** January 2008

## SOURCES

**Wooden windows:** Loewen Windows

**Glazing and curtain wall:**

Phoenix Glass

**Cabinetwork and custom**

**woodwork:** CWC Architectural

Millwork

**Paints and stains:** Benjamin Moore

**Carpet:** Interface Flooring Systems

**Plastic laminate:** Nevamar

**Raised flooring:**

Camino Modular Systems

**Pulls:** Gallery Specialty Hardware

**Locksets and exit devices:**

Corbin/Russwin

**Roofing:** Soprema

**Fire-control doors/security**

**grilles:** Raynor

As the key location for skiing events at the 2010 Winter Olympics, Whistler, British Columbia, will no doubt be irrevocably imprinted on people's minds this winter. Two hours north of Vancouver, the village occupies a narrow valley along the Sea to Sky Corridor of the Coast Mountains. With over 200 ski runs, the area has become a top resort for winter sports and a natural for the Olympic races.

While the 10,000 residents of Whistler prepare for the onslaught of spectators, athletes, and the media arriving in February, they can seek respite in their new 14,500-square-foot public library, designed according to green principles by Vancouver-based Hughes Condon Marler Architects. The library, which opened in January 2008, has been lauded for its design, functionality, and sustainability by locals and the international design community alike.

## Program

Strictly enforced methods for harvesting wood ensure that British Columbia, whose land mass is two-thirds woodland, serves as a leading global provider of wood from sustainably managed forests. In addition, government requirements encourage design teams to use indigenous wood as a primary building material in local construction. When the architects expressed an interest in hemlock, the Coast Forest Lumber Association (CFLA) offered them incentives to incorporate it in the library's design. The CFLA provided 20-by-26-



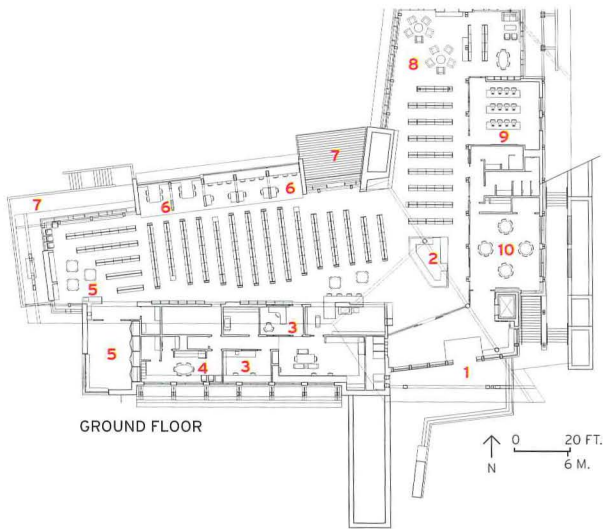
foot lengths of the wood, and the architects and structural engineers investigated how best to utilize these structural members in a manner that resolved the wood's susceptibility to warping and bending. The design team also needed to satisfy a challenging program, which included significant green features, a durability to withstand heavy winter snow load, and the need for a daylight interior open to mountain views.

## Solution

The architects sought a design that reflects both the drama of the garland of peaks circling Whistler as well as the village scale of the town, modeled after a Swiss village. "With its pitched roofs and fake trim, romantic to a fault, the typical design of buildings in the village is popular with tourists and has its place, but is not becoming for a civic building," commented Daryl Condon, the firm's principal in charge. "So we took a more

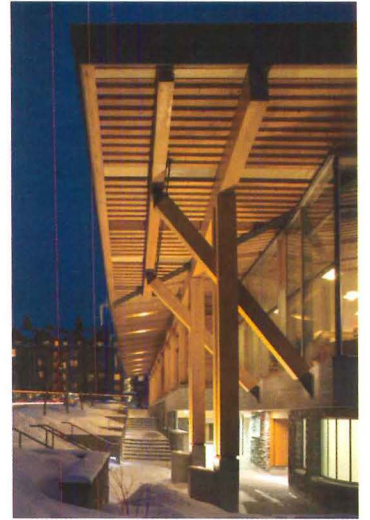
intellectual approach," he continued. The front of the building, with a raised wall of high-performance glazing and an exposed ceiling, contains the main areas of the library. The rear lies in a lower elevation with standard ceiling heights and more intimate gathering areas. The height juxtaposition responds to the differences in scale between the surrounding mountains and the village. Existing parking is tucked under the front of the building, creating a plaza in front of the library where strolling pedestrians can congregate.

The building features hearty structural roof panels fabricated from interlaced hemlock. "Managing the snowfall is a major consideration. You either hold the snow on top of the building, or provide a dump zone for it to drop into that does not interfere with pedestrians," added Condon. "So we did both, but maximized the amount held on the roof." The structure gains strength from its stag-



1. Entry
2. Circulation
3. Offices
4. Staff room
5. Children's area
6. Study
7. Outdoor reading
8. Reading room
9. Computer lab
10. Multipurpose room

The Whistler and Blackcomb peaks, which wreath the town, receive abundant snowfall (opposite and below). The roofline's upward tilt (below) holds snow on top, and plant beds at street level receive the snowmelt (right).



gered arrangement, steel I-beams, and king-post trusses. In between each 4-foot-wide panel, a narrow column accommodates conduit to allow a clear expanse of panels overhead. Off-site prefabrication of the components using modeling software allowed the team to keep to a tight schedule, and to fulfill sustainable goals, including "quality control, economies of scale, low-embodied energy, and a reduction in the amount of glues used in production," explained Condon.

The architects' daylighting scheme minimizes the need for elec-

tric light while maximizing northern light suitable for reading. The gently sloping building provides dramatic views to the mountains, establishing a strong visual connection between outside and inside. In addition to the hemlock, building materials include locally quarried basalt, and cedar for cladding. Ground-source heat exchange, underfloor heating and cooling, and high-efficiency boilers provide energy savings. Windows can be operated manually or controlled by a digital system. A green roof covers 80 percent of the library, reducing storm-water runoff and increas-

ing insulation. The high-performance library is the first municipal facility in Whistler to apply for LEED Gold certification and is projected to use 45 to 50 percent less energy than a comparable facility with conventional systems.

### Commentary

The Disney-like character of the adjacent village posed challenges for the architects. Using vernacular mountain design elements, including heavy-timber construction, abundant local stone, and broad overhangs, they succeeded in responding to the

context while raising the bar for good design. Martin Pardoe, project manager of the Whistler Public Library, commented, "The local community's prescriptive design approach challenged the library team to reinterpret existing design guidelines. The [team's] innovative and contemporary interpretation has produced an original look that is the new precedent against which other projects are evaluated." Since opening, visitation has increased by 185 percent and the library has become one of the community's favorite gathering places, a true measure of success. ■

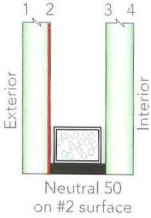


The architects developed a system of laminated-wood construction for a ceiling of repetitive bands of rich mahogany-hued hemlock, robust enough to support the green roof and the snow. The main area of the library accommodates the entry sequence, the circulation desk, and the stacks.

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CIRCLE 49

# Quenching the Built Environment's Thirst for Water

Designers deploy synergistic strategies to decrease demand and find new sources of supply

By Joann Gonchar, AIA



## 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/sustainable design (HSW/SD) credit, turn to page 132 and follow the instructions. Another opportunity to receive AIA/CES credit begins on page 135.

### Learning Objectives

1. Identify strategies for conserving water.
2. Identify sources of nonpotable water and methods for treating it.
3. Discuss the various uses for nonpotable water.
4. Explain the relationship between energy and water consumption.

## NOT SO LONG AGO, WATER CONSERVATION

took a back seat to energy efficiency in the world of green building. But that seems to be changing as designers, building owners, and the public become increasingly aware of pressures on freshwater supplies.

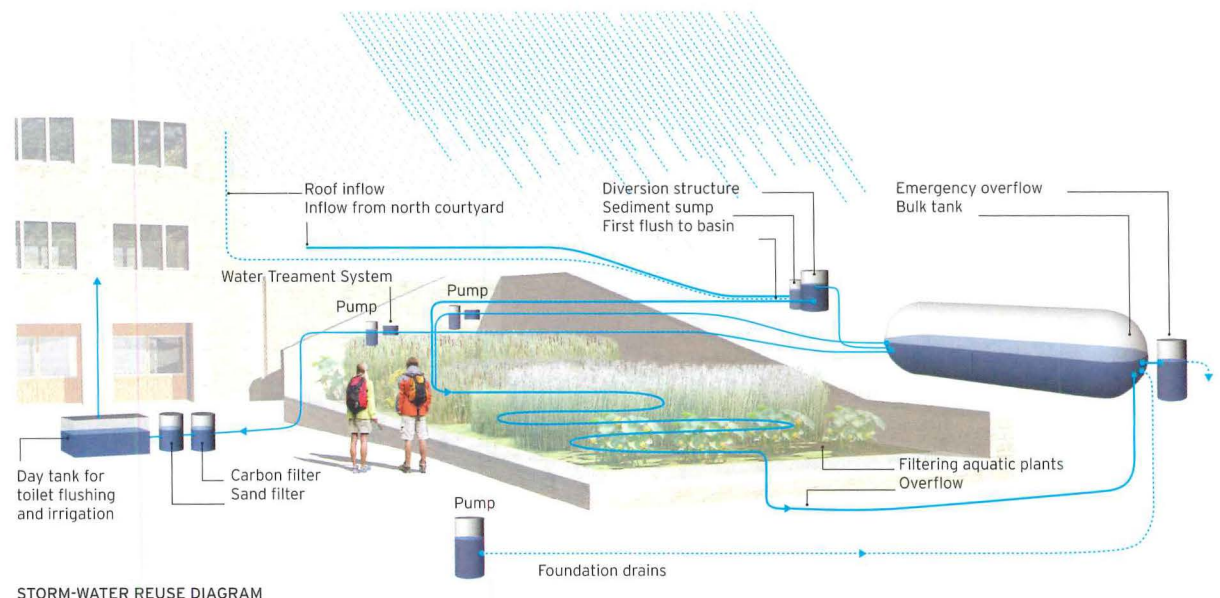
Perhaps this is due to the news of dwindling reservoirs, water rights wars, and limits on use that appear in the media with alarming frequency. California is in its third consecutive year of a drought that has hit the state's agricultural industry particularly hard and has prompted many districts to impose water restrictions. For the Southwest as a region, some long-term predictions are especially sobering: Lake Mead, which supplies water to millions of people, has a 50 percent chance of running dry by 2021, according to a recent study from the Scripps Institution of Oceanography. In the Southeast, the drought conditions of the past few years have eased, but Georgia is still in the midst of a two-decade-long battle with Alabama and Florida over Lake Lanier,

a reservoir built primarily for hydropower generation and flood control that is now the source for almost all of metro Atlanta's water supply.

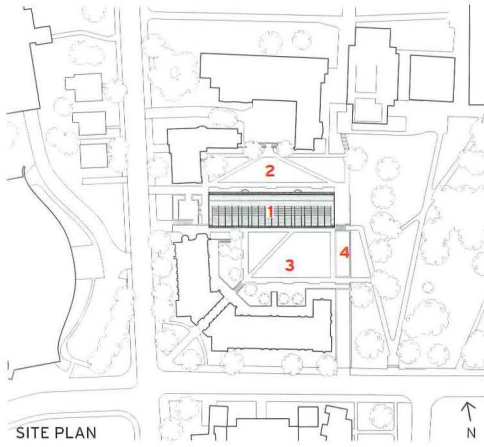
## An intimate link

Conservation is especially critical in water-stressed parts of the country, but regions not prone to shortages can also benefit from its methods. One reason is the often overlooked connection between water use and energy production. Studies quantifying the relationship between the two resources are limited, but according to an estimate by the Electrical Power Research Institute, about 4 percent of power generation is used for moving and treating water and wastewater nationwide. Water use also has a corresponding tie to greenhouse-gas production. The River Network, a nonprofit organization focused on preserving freshwater sources, calculates that the carbon dioxide associated with moving, treating, and heating water is 290 million metric tons annually, or about 5 percent of U.S. carbon emissions.

**Kroon Hall at Yale University has a storm-water treatment and reuse system that collects runoff from the building's roof and green spaces and directs it to irrigations and toilet flushing. The system, along with water-conserving plumbing fixtures, is expected to save 500,000 gallons of water each year.**



STORM-WATER REUSE DIAGRAM



1. Kroon Hall
2. North courtyard
3. Service courtyard
4. Filtration pond

**Kroon's runoff cycles through a water feature (right) containing native wetland plants (below) that remove impurities such as nitrogen and phosphates.**



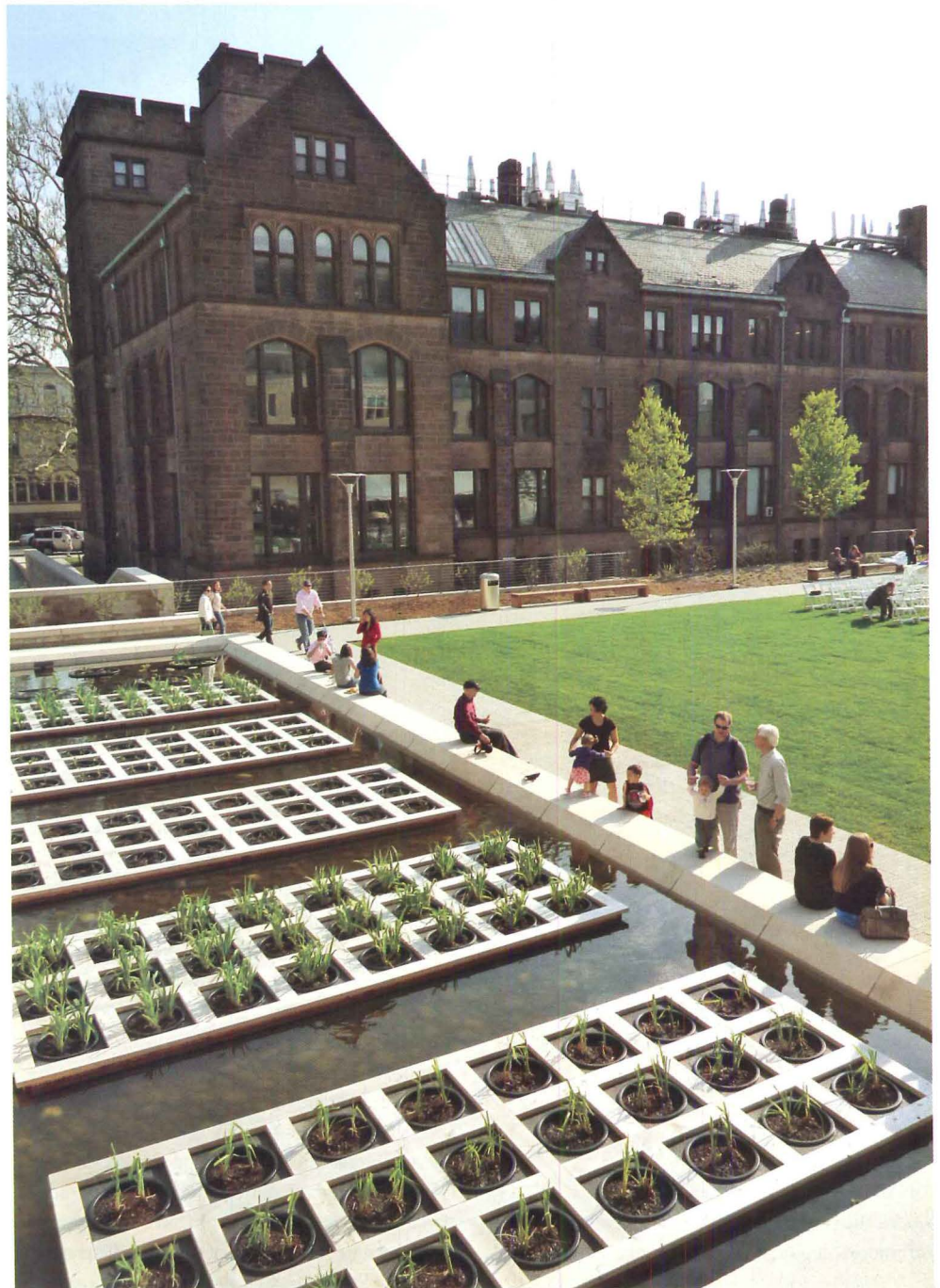
Electricity production is also highly dependent on water. Thermoelectric power plants (those that rely on fossil fuels, biomass, or nuclear energy) withdraw about 25 gallons of freshwater for every kilowatt of electricity generated, according to the U.S. Department of Energy.

In buildings, plumbing-fixture selection is an important component of water efficiency. And trends like the growing rigor of the popular rating system, the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED), are pushing design teams to choose fixtures that consume less water. Before the latest version of the rating system launched in late April, projects could earn one point toward certification by reducing indoor water use by 20 percent when compared to baseline fixture requirements. But under the new system, this savings level becomes a prerequisite: Projects earn no points for satisfying this performance minimum, but those that do not comply are ineligible for certification. In addition, the baseline for some fixture types has become more stringent. For example, allowable flow rates for lavatory faucets in public buildings have decreased from 2.5 gallons per minute (gpm) to 0.5 gpm.

Fixture selection is, of course, only one part of the water conservation picture. Project teams should also consider other methods for reducing demand, including specifying water-efficient appliances and other process equipment, and designing landscapes that are less dependent on irrigation. But after chipping away at demand, architects and their consultants should examine the water supply: Buildings in North America typically rely on only the highest-quality water for all applications, including drinking, bathing, irrigation, and flushing toilets. However, where regulations allow, water that may not meet potable standards can be substituted for some of these uses.

#### **Water and the land**

Especially in nonarid climates, an obvious alternative source is the water that falls from the sky.





1. Below-grade septic tanks
2. Below-grade anaerobic tank
3. Constructed wetland
4. Aerated lagoon
5. Sand filter
6. Parking/subsurface dispersal
7. Rain garden
8. Below-grade cistern



The Omega Center for Sustainable Living has a south-facing glass facade (above) with an integrated sunshade. It provides the sunlight that the aerated lagoons' plants need to thrive while protecting them from direct solar exposure in the summer.



The Omega building houses aerated lagoons where the roots of wetland plants act as habitat for microbial populations that scrub the water.

And combining rainwater collection and reuse strategies with low-impact development techniques, such as green roofs, permeable pavement, and rain gardens, can help resolve storm-water-control problems, points out Stephen Benz, a civil engineer and principal at Sasaki in Watertown, Massachusetts. By considering these issues in tandem, "you end up with good synergy between rainwater and storm-water solutions," he says.

One project that takes a coordinated approach to water conservation, rainwater harvesting, and site development is Kroon Hall, an academic building for Yale University's School of Forestry and Environmental Studies (F&ES) in New Haven, completed in May and on track for LEED Platinum certification. Designed by London-based Hopkins with the Connecticut firm Centerbrook Architects, Kroon consolidates staff offices and other F&ES facilities that had been previously

scattered among nine buildings. The long and thin building sits between a pair of L-shaped neo-Gothic structures on a site that had been occupied by a long-defunct power plant and parking lots with impervious pavement. But now, the new and old buildings define a pair of grassy courtyards that help transform the previously almost industrial site into an inviting series of outdoor spaces and play an integral role in Kroon's water-conservation and storm-water-mitigation strategies.

From the building's southern courtyard, which is essentially a ground-level green roof built atop new loading docks and other services, an underground tank collects runoff and slowly discharges it, lessening the burden on New Haven's combined sewer system. From the roof and the northern courtyard, a rainwater-harvesting system collects runoff and channels the so-called "first flush" – the first inch of rain that falls during a storm – through



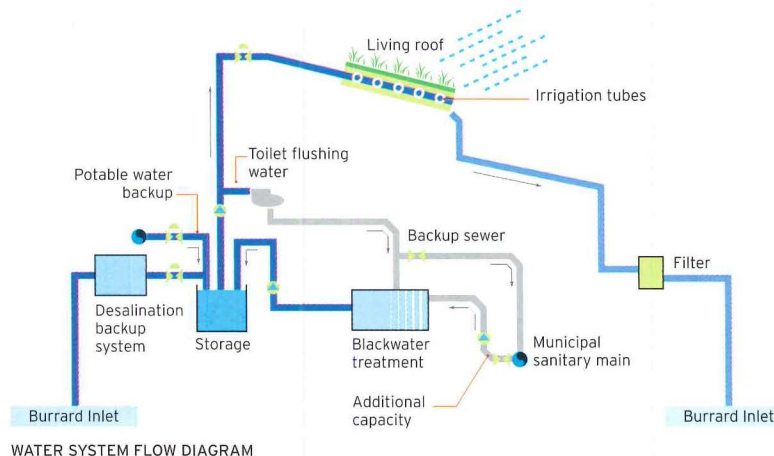
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Designers took advantage of the Vancouver Convention Center's site on the harbor by incorporating seawater into several of the expansion's building systems, including the blackwater treatment system (below), which has desalination backup. The treated blackwater is used to flush toilets and irrigate the convention center's 6-acre green roof. According to the project team, it is the largest nonindustrial planted roof in North America.



WATER SYSTEM FLOW DIAGRAM



a filter that removes particulate matter such as leaves, insects, or dirt. Then, all of the water from the roof and northern part of the site, both filtered and unfiltered, empties into a water feature filled with native wetland plants such as cattail, iris, and lotus. The plants, which remove impurities, including nitrogen and phosphates, help make the pond into "a machine for treating water and an asset to the landscape," says Cricket Brien, an associate at Philadelphia-based OLIN, the firm responsible for Kroon's landscape design. From the pond, the treated water is directed to storage tanks and used either in irrigation or toilet flushing.

The project team estimates that the rainwater-harvesting and site-design strategies, in combination with water-conserving plumbing fixtures, will result in a 75 percent reduction in potable water use when compared to a standard building, or a savings of about 500,000 gallons per year.

### Refuse to resource

Rainwater is not the only source of reclaimed water suitable for nonpotable applications within buildings. A few institutional and commercial buildings treat and reuse on-site-generated wastewater. One such project is the 351-bed dormitory under construction at Emory University in Atlanta, which will include a system for recycling graywater (wastewater generated from nonindustrial processes such as dishwashing, bathing, and laundry, and excluding water from kitchen sinks and toilets). The dorm, designed by Ayers/Saint/Gross and slated for completion in 2010, will capture shower and lavatory water and will use it for toilet flushing after filtering and chlorination with sodium hypochlorite. The system is expected to save 1 million gallons of potable water annually.

Another type of on-site wastewater treatment, known as an "Eco-Machine," mimics

nature and relies on beneficial bacteria, plants, fish, and other organisms to break down and consume pollutants in water. A recently installed Eco-Machine at the Omega Center for Holistic Studies, in Rhinebeck, New York, replaces the 195-acre campus's traditional septic tank and leaching field system and can handle both graywater and blackwater (sewage) from 700 guests, or 52,000 gallons each day.

In a cycle that takes about two and a half days, the Omega wastewater travels through a system that includes underground anaerobic tanks, constructed wetlands, and aerated lagoons. Along the way, contaminants such as nitrates and ammonia are removed. The process also greatly reduces levels of total suspended solids (TSS) and biological oxygen demand (BOD). Both are measures of water quality, but TSS refers to suspended material in water, either organic or inorganic,

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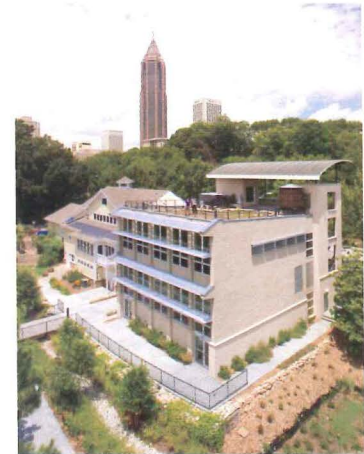
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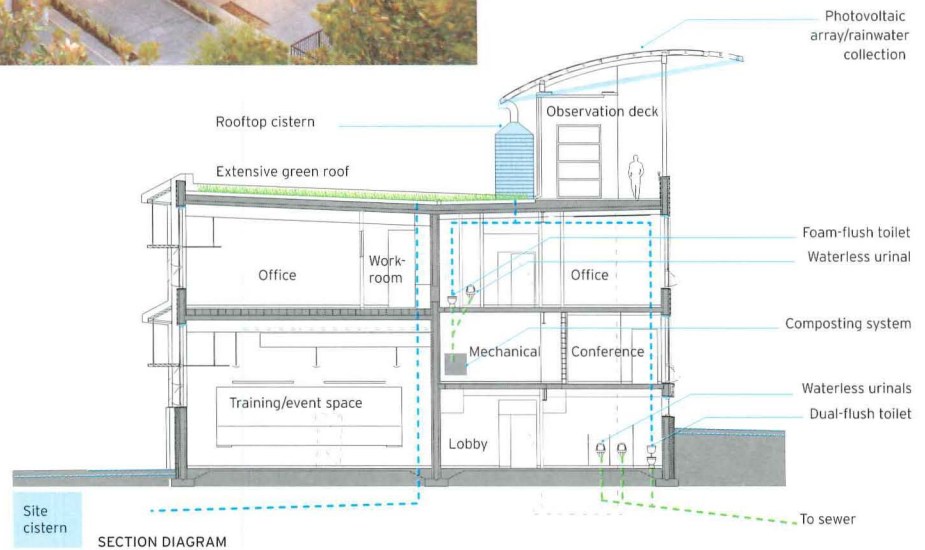
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**The Eco Office, an addition to the Southface Energy Institute's headquarters in Atlanta, has rooftop and underground cisterns that store storm-water runoff from a photovoltaic array and a green roof. The water is used for both toilet flushing and irrigation, and is part of the operation of the mechanical system.**



while BOD refers to the rate of uptake of dissolved oxygen and is an indication of the presence of organic material, explains Jonathan Todd, president of Woods Hole, Massachusetts-based John Todd Ecological Design, the Omega system's designer.

At Omega, a new building, the Center for Sustainable Living, houses part of the treatment process and has a classroom and a small lab where the institute plans to teach guests, students, and the public about the filtration system, the water cycle, and sustainable design. The institute hopes the center will achieve certification under the Living Building program created by the Cascadia Green Building Council to encourage construction of self-sustaining facilities. To that end, the center includes several tightly coordinated features, such as photovoltaics that supply all of the power necessary for operation and an integrated set of landscape and water systems. "The

building is basically a pedagogical tool," explains Laura Lesniewski, AIA, a principal at Kansas City, Missouri-based BNIM, the center's architect.

Inside the center, toilets are flushed with roof runoff stored in an underground, 1,800-gallon cistern, while the toilets elsewhere on the campus rely on well water. Omega plans to collect operations data and apply for a reuse permit so that it can eventually implement a closed-loop system, with the Eco-Machine supplying water for toilet flushing and irrigation campuswide. But for now, the clean Eco-Machine water infiltrates the aquifer that sits below the Omega property and feeds a nearby lake. Rainwater falling on the site follows a similar path, first traveling through an integrated system of bioretention swales, rain gardens, and wetland cells. The strategies ensure that storm water, along with Eco-Machine-treated water, reaches the lake much cooler and cleaner than surface

runoff would, according to Tom Price, a principal for Omega's landscape architect, Conservation Design Forum, in Elmhurst, Illinois. The temperature of the water is important for the flora and fauna living in the lake and for the surrounding wetlands, he explains.

Across the continent, on Vancouver's waterfront, the recently completed 1.1-million-square-foot expansion to that city's convention center has a treatment system hidden in its base that directs blackwater to toilet flushing and to irrigation of a 6-acre green roof. But instead of an Eco-Machine, designers chose a process that relies on a membrane bioreactor, ultraviolet light, and activated charcoal, partly because of space constraints and structural issues. An Eco-Machine's plants require sunshine, so the likely spot for its tanks would have been the roof – a problematic configuration in a seismically active zone, points out Blair McCarry, a



# Don't let your plans go sideways.



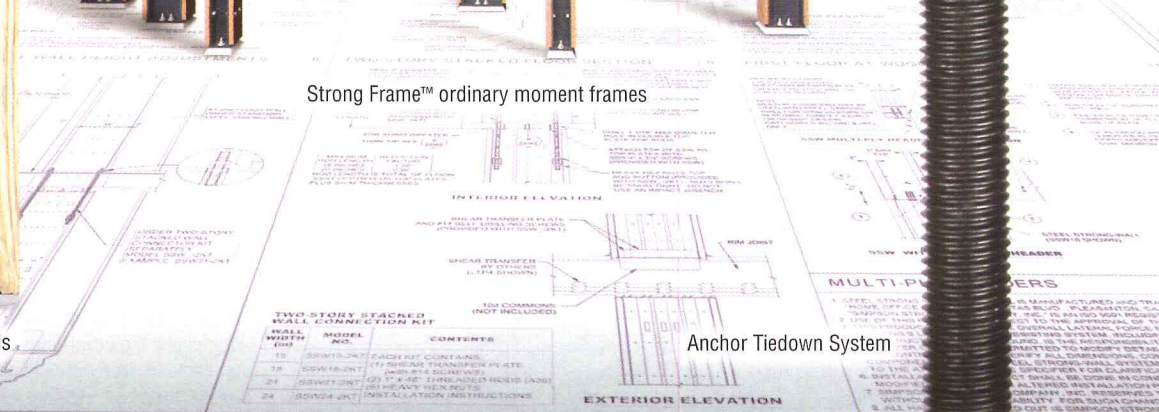
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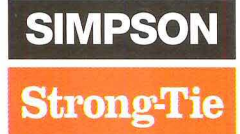


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principal in the local office of Stantec, the project's m/e/p engineer. "The secondary costs became prohibitive," he says.

Since the supply of wastewater will vary with occupancy, the convention center system has several backup options for toilet flushing and roof irrigation, including the municipal blackwater and potable water systems. It also has an on-site desalination plant. Although removing salt from water can be an energy-intensive process, here it makes sense because the site is on the harbor, says Tom Burgess, AIA, project manager for Seattle-based LMN, the expansion project's design architect. The building also has a seawater heat-pump and cooling system and a seawater fire-suppression system. "Because the building is over the water, we are taking advantage of it," he says.

#### Beyond toilets and irrigation

Uses for nonpotable water are not limited to toilet flushing and irrigation. In a recently completed project for Southface Energy Institute, an Atlanta-based nonprofit that promotes construction of sustainable homes and workplaces, harvested rainwater is used for these typical

applications but is also incorporated into the operation of the cooling system.

The 10,000-square-foot, LEED Platinum building, dubbed the "Eco Office" because it is intended to demonstrate technologies appropriate for commercial construction, is an addition to a demonstration home built by the organization in 1996. The new structure, designed by Lord Aeck & Sargent, has a dedicated outdoor air system (DOAS) with a multistage evaporative cooler that makes use of harvested rainwater to help reduce the temperature of incoming air without adding humidity, explains Gregory Jeffers, a senior project engineer with local firm McKenney's, the mechanical system's design-builder. A spray system surrounding the building's rooftop heat pumps also relies on harvested rainwater and creates a cool microclimate around the equipment, enhancing its efficiency. The technology is one of several integrated energy-conserving strategies that should help the Eco Office exceed the performance of a code-compliant building by 53 percent.

In addition to serving as a consumer of salvaged water, mechanical systems can also provide

a source of water that can be directed to nonpotable uses inside a building or on its grounds. One such source is the condensate produced by air-conditioning equipment, especially in hot, humid climates. Condensate is sometimes used directly within the mechanical system, as makeup water in cooling towers, or for flushing toilets or irrigation.

Somewhat surprisingly, condensate collection was not an appropriate strategy for the Eco Office project, despite Atlanta's hot and sticky climate. The building's unconventional cooling system makes little condensate, according to Jeffers. "Typically, the more energy-efficient a system is, the less condensate it produces," he says.

For Southface, as for almost any project that relies on thermoelectric power, this energy efficiency translates into water savings well beyond the confines of the building. Since electricity generation requires water, "we're not just saving resources locally, we're saving them regionally," says Jeffers. ■ (CEU Questionnaire on page 132)

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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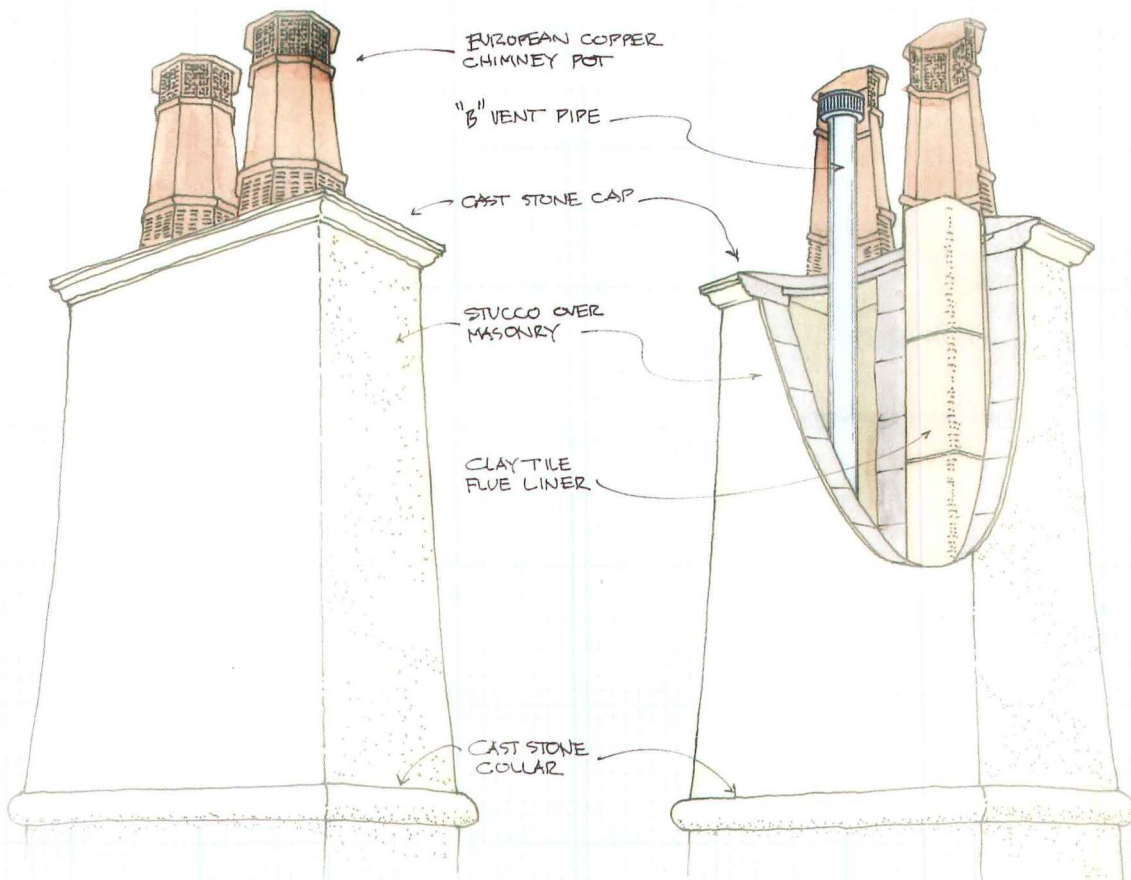
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## AIA/Architectural Record Continuing Education

To receive one AIA learning unit, read the article "Quenching the Built Environment's Thirst for Water" using the learning objectives provided. To apply for credit, complete the test below and follow instructions for submission at right.



- 1 **Which of the following is true?**
  - A water-efficiency strategies can help conserve energy
  - B energy-efficiency strategies can help conserve water
  - C both a and b
  - D none of the above
- 2 **Which of the following is an appropriate method for reducing a building's demand for water?**
  - A water-efficient plumbing fixtures
  - B water-efficient appliances
  - C landscape that is less reliant on irrigation
  - D all of the above
- 3 **Which of the following are low-impact development techniques?**
  - A green roofs
  - B permeable pavement
  - C rain gardens
  - D all of the above
- 4 **The term "first flush" refers to which?**
  - A the runoff that results from the first inch of a rainfall
  - B the system that operates dual-flush toilets
  - C the use of treated toilet water for irrigation
  - D the use of harvested rainwater for toilet flushing
- 5 **Graywater can include wastewater collected from any of the following sources except which?**
  - A lavatories
  - B toilets
  - C showers
  - D laundry machines
- 6 **A building with 20 percent less indoor-water use than a baseline building would do which?**
  - A earn one point for water efficiency under the latest version of LEED
  - B satisfy minimum water-efficiency standards under the latest version of LEED
  - C be ineligible for certification under the latest version of LEED
  - D none of the above
- 7 **All of the following statements regarding biological oxygen demand (BOD) are correct except which?**
  - A it is a measure of water quality
  - B it refers to the rate of uptake of dissolved oxygen
  - C it is an indication of the presence of inorganic material in water
  - D it is an indication of the presence of organic material in water
- 8 **Which of the following is true regarding the wastewater treated by the Omega Institute for Holistic Studies Eco-Machine?**
  - A it infiltrates an aquifer below the site
  - B it is used to flush toilets campuswide
  - C it is used to flush the toilets in the Center for Sustainable Living
  - D it is chlorinated
- 9 **Which of the following statements regarding the Vancouver Convention Center expansion is false?**
  - A treated wastewater is used to irrigate its green roof
  - B treated wastewater is used to flush its toilets
  - C it uses treated wastewater in its fire-suppression system
  - D it has a seawater heat pump and cooling system
- 10 **Which of the following statements regarding air-conditioning condensate is false?**
  - A it can be used as cooling tower makeup water
  - B it can be used to flush toilets
  - C it can be used for irrigation
  - D it is collected and reused at the Southface Eco Office.

**Program Title**  
 "Quenching the Built Environment's Thirst for Water," ARCHITECTURAL RECORD, 10/09, page 122.

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# Intrinsic Materials: Modernism, Sustainability and Fiber Cement Panels

Designers for the 21st century can choose sustainable fiber cement panels to express rhythm, fastening and texture in a sustainable, durable and affordable panel solution.

Provided by James Hardie Building Products

By Celeste Allen Novak, AIA, LEED AP

The giants of the modernist movement were the architects and artists of the Bauhaus. At this mid-twentieth century design school, designers probed the means and materials of how buildings were constructed and conceived. They developed a new aesthetic that elevated mass industrialization as a means to produce great design for everyone using affordable methods and materials. They celebrated the intrinsic nature of materials and the formal rhythms of design expression. Like environmentally conscious professionals today, architects such as Charles Eames, also asked questions about the permanence and cost of materials. Eames believed that any architect who wanted to design a truly successful prefabricated house “must first become a student of human behaviour, as well as science, economics and industrial engineering.” He is quoted as saying, “The value of the house that results from such a combination...will be measured by the degree to which it serves for the amount of energy it costs. The relation of service to price is so important that nothing can justifiably be added to the house that does not increase its value in service.”<sup>1</sup>

In the 1950s, architect Aero Saarinen developed materials that would be placed in a five-foot grid to standardize his design intention for the General Motors Technical Center in Warren, Michigan. The assembly line for building components was influenced by Detroit

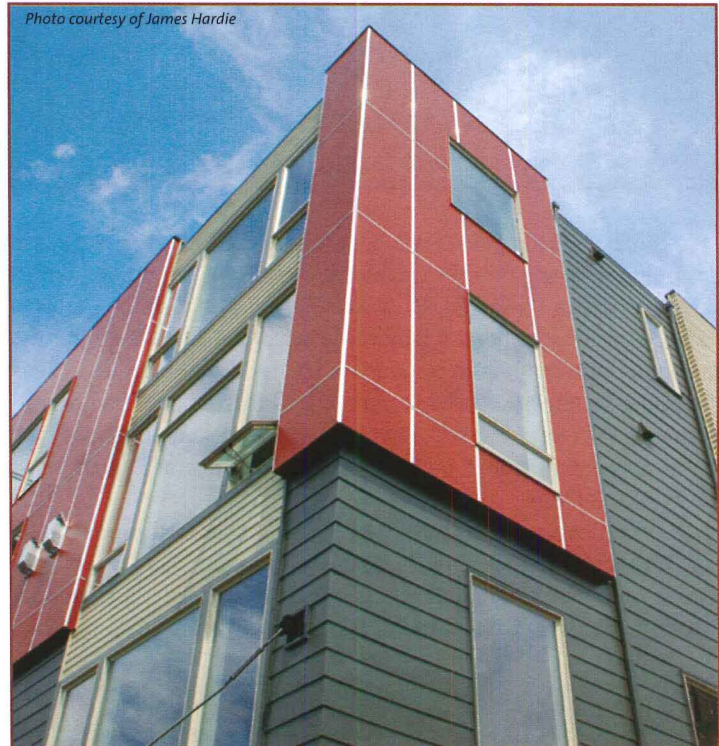


Photo courtesy of James Hardie

This work/live project in Seattle, Washington demonstrates how contemporary designers can use new fiber cement panel solutions with expressed trim and fasteners to accomplish their design goals.

## CONTINUING EDUCATION



Use the learning objectives below to focus your study as you read **Intrinsic Materials: Modernism, Sustainability and Fiber Cement Panels**. To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 139, then follow the reporting instructions or go to [ce.ArchitecturalRecord.com](http://ce.ArchitecturalRecord.com) and follow the reporting instructions.

### Learning Objectives

After reading this article, you should be able to:

- Examine the theories of Modernism and determine the application of fiber cement panels as part of a contemporary and sustainable design palette.
- Evaluate the reasons to select fiber cement panels engineered for long life/loose fit in different climate zones.
- Discuss the integration of fiber cement panels and trim components as part of a sustainable wall cladding in a weather-resistant wall system.
- Review the sustainability, durability and economic applications of fiber cement panel solutions in affordable design projects.

automotive companies. The manufacturing of building components as a design vocabulary for large buildings created a process which saved money, time and the cost of onsite training for each project, particularly for the large post-war construction of the mid-twentieth century. These designers and subsequent architects and engineers applied the fixed grid and metal panels to many projects, although their idealized cost-effective, unique design solutions for the masses were limited by standardized sizes. A welcome addition to the commercial material design toolkit is the new fiber cement panel solution that incorporates expressed seams and fasteners. Designers applying contemporary design theory into new buildings will now be able to broaden their choices to include this durable, cost-effective and sustainable material.

These panels are designed with components that can be modified to express any unique horizontal and vertical grids. They are also being used by designers seeking to broaden their material choices from contemporary to post-modern or transitional designs.



Photo courtesy of James Hardie

Fiber cement panels were used to express variation in this Portland, Oregon façade.

Fiber cement panels are a product of choice for architects designing towards a low carbon footprint. As building design scientist Joseph Lstiburek, B.A. Sc., MEng., PhD., P.Eng, attests, “The single most important factor in green architecture is durability. If you want something to be green it has to last a long time. It has to handle water, heat and UV radiation. Fiber cement handles all three exceptionally well.” Durability means longevity and the ability to weather well in both wet and hot weather, as well as resist ultraviolet damage.

New fiber cement panel solutions with expressed seams can be both an important design decision as well as a good environmental choice for a wall cladding. They are made of a material that is both low in toxicity as well as extracted regionally. They are durable,

flexible and long lasting. They can be manufactured and engineered specifically to meet the rigors of any climate zone.

Until recently, designers have been limited to using this product by the manufacturer’s production of only surfaces that mimic wood and wood siding products. Professionals have also chosen metal panels that were manufactured to a standardized “grid” limiting the aesthetic vocabulary or requiring additional costs to express unique patterns and rhythms. Another material alternative has been the use of stucco infill with wooden or metal reveals. Besides using more material, stucco, as well as its modern synthetic substitution, weathers poorly, can leave gypsum or plastic residue in the soil and requires more clean-up after installation.

In a speech given by architect Andres Duany, FAIA at the University of Michigan in the late 1990s, this traditionalist, lamented the fact that manufacturers did not provide the designer with intrinsic materials, those that celebrated their essence. He pointed out that designers’ choices were often limited to mass produced materials that were replications of older products. Fiber cement panel solutions with expressed joints may be one of the break-through products that will answer his quest for an intrinsic material in a contemporary building product.

## DESIGN: A THEORETICAL BASIS

### *Modernism and the quest for new materials*

In a 1920s Bauhaus article translated as “Must Painting be Considered Inferior to Architecture?,” artist Piet Mondrian discusses the “new” aesthetics of art and architecture. As a painter, Mondrian investigated the effects of a “bounded plane” that created

## The Juan Diego Apartments — Denver, CO

Architect Yong Cho, principal of studio completiva, in Denver, Colorado, says, “We use fiber cement cladding primarily because it is a cost-effective, durable product that allows us flexibility in designing the building skin. Using the smooth face of fiber cement panels and expressing the joints between panels gives us the urban aesthetic we prefer. Fiber cement panel also allows the flexibility of using rain screen systems we believe are environmentally responsible.”

The Juan Diego Apartments were designed by Yong Cho, a project he dedicated to his mother, Sung Ja Cho. This 26,970-square foot three-story building was developed by the Del Norte Neighborhood Development Corporation to provide needed housing for the homeless who courageously are battling AIDS. The building consists of a lobby, community room and a twenty-four space parking garage on the first level with seventeen apartments above on the second and third levels. The building is constructed mainly with load-bearing framing, concrete and concrete masonry units on the first floor. The project was designed to meet a low budget without sacrificing environmental performance.



Photo courtesy of studio completiva

The Juan Diego Apartments demonstrate how fiber cement panels with expressed joints can be used to express an urban, contemporary aesthetic.



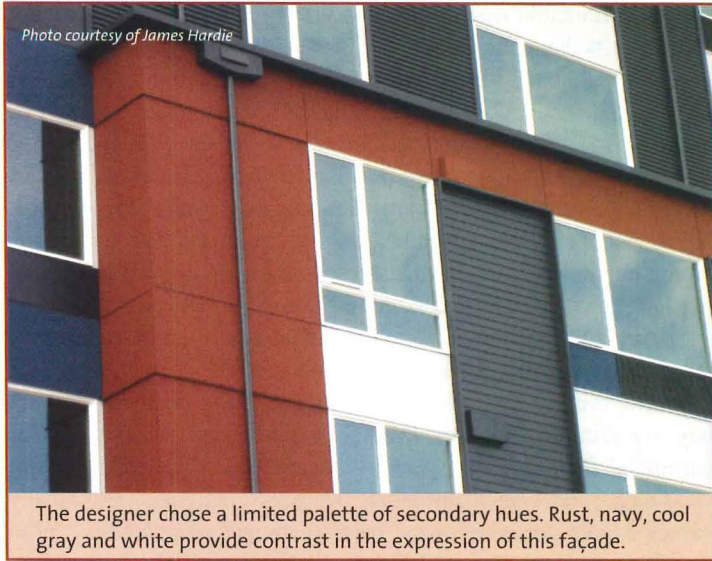


Photo courtesy of James Hardie

The designer chose a limited palette of secondary hues. Rust, navy, cool gray and white provide contrast in the expression of this façade.

a surface to engage the viewer in a conversation and reflection on form and space. He writes about art and architecture, “Pure design is the...equivalent representation of things that are permanent and transitory. It is design with straight lines. As a result of the new aesthetics, painting and architecture are consistently executing compositions of counter balancing and contrasting straight lines, thus changing the duality of the unchangeable, right angle into multiplicity. As preparation for a universal realization of beauty, a new art and a new aesthetic are needed.”<sup>2</sup> Architects today continue to explore how to express the straight lines, the art of architecture in a sustainable, modern and urban expression.

Mid-twentieth century modernist architects, such as Saarinen and Mies Van der Rohe, explored the concept of intrinsic expression, buildings that celebrated their materials and connections. Using simple, planar, pure forms, modernists translated Mondrian’s lines and planes into panels and reveals. The composition of the façade expressed the structural and behavioral program of the building and elevated the skin of a building into a work of art. Mies emphasized that design was not “decorating.” Less is more, but also related to a complex system of design relationships.

As 21st century architects explore these concepts, as well as integrating their designs with environmental mandates, they challenged manufacturers to provide the materials needed for continued development of the façade and environmental wall systems. Influenced by these modern and contemporary designers, the fiber cement industry has stepped up to meet the needs of modernist, urban and contemporary expressions. A cement fiber panel system allows the designer to create any horizontal or vertical rhythm or pattern that expresses their individual design aesthetic. Fiber cement panels with expressed grids are not manufactured to a standard application size although they are delivered to the site in standard modules that can be cut to size. The panels are both mass produced, yet able to be individualized by design and construction. Field installations provide the flexibility of installing the grids and placing the panels to express that “bounded plane” that Mondrian celebrated in the 1920s as a new aesthetic.

### **Contemporary design – transitional and industrial applications**

Not all contemporary designers are modernists. In fact, many clients resist designs that stray from familiar or historic styles. Transitional designs are often a solution for the client who wants a commercial building that is new, but also familiar. These projects often mix masonry with panels, providing a cost effective means for the designer to provide variety in form and texture.

### **Industrial and high-tech — exposing the connections**

Inspired by the simplicity of industrial buildings, professionals are also designing to express and expose structural connections. Early attempts to show steel channel separations, the rebar in concrete, the nail heads in wood and the screw heads in metal plates, often led to staining and in some cases, material failures. This new fiber cement panel solution is designed to express the seams and joints as well as expose the fasteners to add to the visual awareness of the building’s construction. The fasteners and trim are manufactured in rust resistant aluminum and will not stain the cement panel surface.

### **Color**

Although the early modernists like Mondrian and Rietveld limited their palettes to primary colors, subsequent designers revelled in color science as explored by Josef Albers. Today’s theories on color include studies on the psychology of color expression. In the Seattle library, designed by Rem Koolhaas, color is used to direct circulation as well as behavior. Rich color palettes express both the

### **Mixed-use Complex — Norfolk, VA**

Photo courtesy of James Hardie



Fiber cement panels with a powder-coated expressed aluminum seam were used to replicate a traditional bay window in this mixed-use complex.

This mixed-use complex was designed and constructed around the shell of the building built in the 1940s as a Sears department store in Norfolk, Virginia. The complex includes 225 one- and two-bedroom luxury loft style apartment homes, over 15,600-square feet of retail space, as well as a parking garage, swimming pool and fitness center. This project demonstrates one designer’s use of fiber cement as a means to suggest a traditional window bay. Historically, this infill in a brick housing complex would have been constructed either in metal or stucco panels. John M. Jenkins, AIA, LEED AP, of The Lessard Group was in charge of this complex retrofit.

culture and context by design. The fiber cement panel system with an expressed trim can be either factory finished or field painted. Aluminum panel trims can be selected that are either a clear anodized finish or powder coated to match or contrast the fiber cement panel. Panels can be painted or pre-finished to any color although the architect needs to consider the climate zone for finish applications.

## SUSTAINABILITY

Sustainability is often defined as the ability to meet the needs of the present generation without compromising those of the next generation. The Committee on the Environment of the American Institute of Architects defines sustainability as follows:

### Natural Resources Defense Council — Robert Redford Building, Santa Monica, CA



The Natural Resources Defense Council — Robert Redford Building is clad in durable fiber cement siding, that contributed to its LEED® Platinum rating.

Completed in 2003, the Natural Resources Defense Council mixed-use building complex in Santa Monica, California achieved a Platinum Rating from the USGBC's LEED® rating system. Designed by the architectural firm of Moule & Polyzoides, Architects and Urbanists, this project houses an interpretive center, commercial offices as well as retail businesses in downtown Santa Monica. The building is a complete renovation of an existing downtown building. From an analysis of energy savings to a review of all of the material choices, the architects planned the renovation to integrate as many sustainable principles as possible.

According to a well documented LEED® case study of the building,<sup>3</sup> the project team had hoped to retain most of the original building but discovered that much of the frame was rotten and had to be replaced. All new wood used in the project came from certified forests and cladding materials were chosen for their low emissions and durability. As much as possible, alternative materials were selected as a substitute for wood. Fiber cement siding was chosen because of its durability and longevity. This material also could be obtained locally and would not succumb to rot or the salty air of the coastal climate.

The building has received numerous awards and is a best practice model for sustainability.

“Sustainability envisions the enduring prosperity of all living things. Sustainable design seeks to create communities, buildings, and products that contribute to this vision.”<sup>4</sup>

One of the top ten principles of sustainability listed by the AIA includes the concept of long life and loose fit. This principal can be applied to materials that increase the ecological, social and economic value over time. Fiber cement panels meet this requirement as they are durable, water proof, and provide some insulating values towards energy efficiency as a weather barrier. Fiber cement panels are strong, lighter than masonry, cost less to ship, are impact-and insect-resistant, as well as are manufactured from regional materials.

According to the AIA, “Sustainable design seeks to enhance and increase ecological, social, and economic values over time.”<sup>5</sup>

The primary reason to choose fiber cement panels is because they are durable and long lasting. A fiber cement panel can be warrantied for up to fifty years. Fiber cement panels are made of wood pulp, sand, cement and water. These raw materials are typically extracted and processed near each manufacturing facility. With regards to the U.S. Green Building Council's LEED rating system, fiber cement panels can qualify for the use of regional materials as they are produced in numerous manufacturing plants throughout the United States.

In addition, many fiber cement products can be specified with as much as 20 percent recycled content obtaining points in both LEED, as well as in the NAHB Green Home Building rating systems when used in residential applications.

As Peter Pfeiffer, FAIA, principal of Barley + Pfeiffer Architects and designer of the first Zero-Energy home states, “Green products shouldn't be made from endangered materials. One of the reasons fiber cement products are ‘green’ is because they incorporate natural ingredients that are low in toxicity. And, they last longer than other products.”

Many building professionals choose this material to assist with green certification for environmental designs. However, not all benefits of a sustainable product are measured by green standards. Pfeiffer reminds professionals that “green programs are intended to provide guidelines, however, they don't account for everything — good, common sense tells you that if a product is durable, and doesn't rot, it will make your building better.” Durable, longer lasting building materials require fewer resources for replacement and also reduce maintenance and repair costs.

Professionals who want to limit the emissions of volatile organic compounds (VOCs), known to have cancer causing impacts, can specify factory finishes baked on the panels to eliminate VOCs during exterior painting. They can also mandate low-VOC paints applied by the contractor.

©Continues at [ce.ArchitecturalRecord.com](http://ce.ArchitecturalRecord.com).

*Celeste Allen Novak, AIA, LEED AP principal at rizzolobrown + novak architects specializes in sustainable design materials and methods and teaches as an adjunct professor at Lawrence Technological University.*

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To receive AIA/CES credit, you are required to read the entire article and pass the test. Go to [ce.ArchitecturalRecord.com](http://ce.ArchitecturalRecord.com) for complete text and to take the test. The quiz questions below include information from this online reading.

Program title: **"Intrinsic Materials: Modernism, Sustainability and Fiber Cement Panels" (10/09, page 135).** AIA/CES Credit: This article will earn you one AIA/CES LU hour of health, safety, and welfare/sustainable design (HSW/SD) credit. (Valid for credit through October 2011). **Directions:** Refer to the Learning Objectives for this program. Select one answer for each question in the exam and fill in the box by the appropriate letter. A minimum score of 80% is required to earn credit. **To take this test online and avoid handling charge, go to [ce.ArchitecturalRecord.com](http://ce.ArchitecturalRecord.com)**

**1. Fiber cement panels are a good choice for a sustainable project because they are:**

- a. durable.
- b. long lasting.
- c. low in toxicity.
- d. All of the above

**2. Fiber cement panels with expressed grids are only manufactured to a standard application size and delivered to the site in standard modules that cannot be cut to size.**

- a. True
- b. False

**3. Fiber cement panels:**

- a. can be installed in any horizontal or vertical grid pattern.
- b. can be used on the diagonal.
- c. warp easily
- d. cannot be painted.

**4. Aluminum panel trims designed for fiber cement panels:**

- a. cannot be painted.
- b. incorporate flashing membranes.
- c. are only manufactured for vertical seams.
- d. can be specified with an anodized finish.

**5. The Robert Redford Building that houses the Natural Resources Defense Council in Santa Monica, CA is an example of which LEED® certification?**

- a. Certified
- b. Silver
- c. Gold
- d. Platinum

**6. Fiber cement panels can be:**

- a. specified with baked-on low-VOC finishes.
- b. field-painted with low-VOC paints.
- c. painted with an applied stain.
- d. a. and b.

**7. Fiber cement panels with exposed seams allow air circulation and don't inhibit drainage.**

- a. True
- b. False

**8. The primary reason to specify a fiber cement product engineered for the project climate is to:**

- a. provide weather-resistant cladding.
- b. ensure low transportation costs.
- c. save money.
- d. avoid flashing details.

**9. Which type of fastener is recommended for fiber cement panels with expressed grids?**

- a. Exposed
- b. Countersink
- c. Under driven nails
- d. Staples

**10. Which of these commercial claddings is considered the most cost effective?**

- a. Brick
- b. Metal
- c. Fiber cement
- d. Stone

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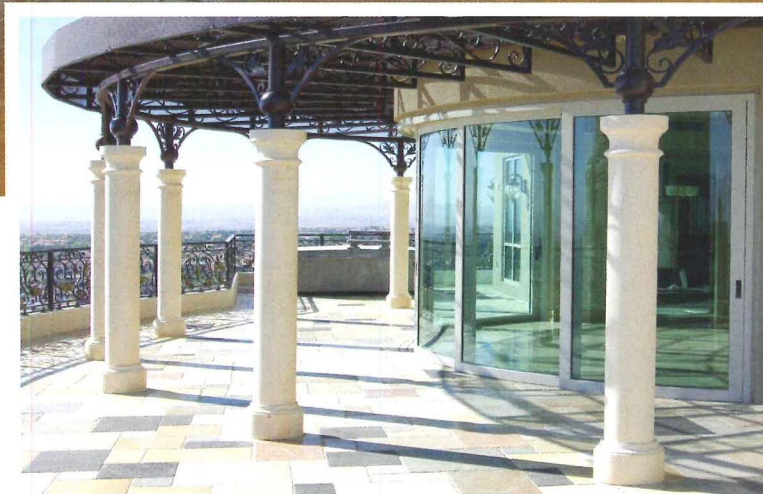


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# Product Focus

**GREEN MATERIALS** Rapidly renewable, 100 percent recyclable, post-industrial, FSC-certified – these are the sustainable qualities found in the **insulation, finishes, and flooring** presented this month. To kick it off, we highlight a biocomposite made from an unusual source. *Rita Catinella Orrell*



Hitting the market next year, Greensulate organic insulation offers an R value of 3 per inch and is intended as a drop-in replacement for EPS used in cavity walls and SIPs (top left). EcoCradle protective packaging buffers can be shaped into any form, are 100 percent compostable, and are cost competitive with EPS (top and bottom right).

## New biocomposite offers an alternative to plastics and foams

While it may sound like something out of science fiction, Ecovative Design has developed a rapidly renewable material that could revolutionize the way buildings are insulated and products are packaged.

Founded in 2007 by Eben Bayer and Gavin McIntyre, Ecovative Design manufactures a material that harnesses the power of a filamentous fungi that grows rapidly on a combination of nonedible biowaste such as cotton burrs and rice hulls. "This particular phylum of fungi can digest things like lignin, which means from our production standpoint that we can take resources nobody wants or uses right now," says Bayer.

The materials are poured into forms and over 7 to 10 days a

fungus digests the biowaste, physically binding the aggregate, and creating a dense, strong network of mushroom roots (a single cubic inch contains 7 miles of fibers). Water is removed during the final processing stage in a low-temperature drying process. "The big distinction to make is that this material is not made of mold or anything like mold," says Bayer. "You can think of its performance as very similar to wood."

Greensulate rigid insulation, one of the two products developed from the material, is biodegradable and intended for above-ground applications, such as cores for structural insulated panels (SIPs), roof panels, or as interior insulation. The chemical-free composite's high silica content (from biowaste

such as rice hulls) give it a Class-A fire rating. The R-value is currently about 3 per inch, but the team is working to get the number up to 3.5 per inch, putting it nearly on par with EPS. The material passes ASTM mold-growth and moisture-retention tests, and features some natural antimicrobial properties.

To gain traction in the SIPs market, Ecovative is working with Timberline Panel sales manager Jeff Brooks to understand the necessary specification requirements. "As Eben and I have discussed, I think initially there will be a small segment of the market that will immediately embrace the green aspect of the product and others that will be leery of having a dead organism in their wall or roof," says Brooks. However, so far Brooks

hasn't seen any negative reactions when presenting the concept to architects and builders. Greensulate is currently being tested in a school gym in Vermont and at Rensselaer Polytechnic Institute in Troy, New York.

The company starts shipping its compostable EcoCradle packaging product at the end of the year, and intends to launch Greensulate at the end of 2010. "We have a triple-bottom-line philosophy," says Bayer, "do things that are good for people, good for the planet, and of course, make money." Ecovative Design, Green Island, N.Y. [www.ecovativedesign.com](http://www.ecovativedesign.com) **CIRCLE 200**

 For more information, circle item numbers on Reader Service Card or go to [architecturalrecord.com/products](http://architecturalrecord.com/products).





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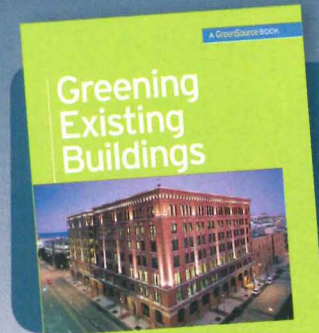
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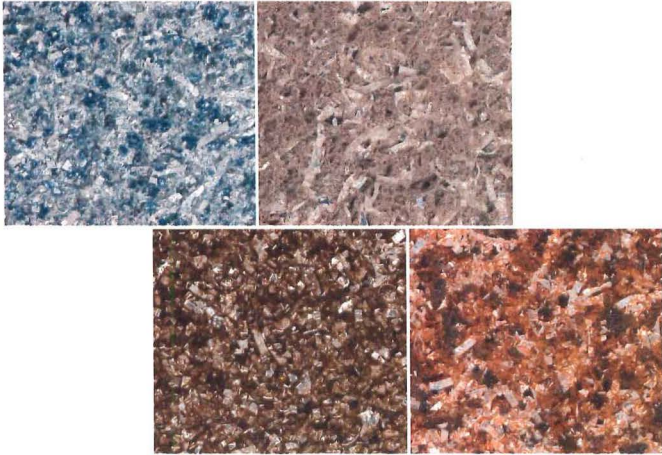
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## Products GREEN MATERIALS



▲ **There and back again** Moving beyond the virgin polyester bonding component used in its original ALKEMI line, Renewed Materials has introduced ALKEMI-acrylic, a surfacing material composed almost completely from postindustrial and postconsumer acrylic waste, solid-surface waste, and aluminum-scrap waste – the last of which burns up as a heavy smoke pollutant if exposed to conventional aluminum recycling methods. Boasting a minimum recycled content of 96 percent (pending SCS certification), ALKEMI-acrylic can also be recycled at the end of its life span. Appropriate for residential or commercial applications, the 5/8"-thick slabs come in 20 colors in either 48" x 96" or 36" x 72" sizes. Renewed Materials, Cabin John, Md. [www.renewedmaterials.com](http://www.renewedmaterials.com) **CIRCLE 201**



### ▲ ◀ **Sideways look at hardwood**

Smith & Fong, a company known for bamboo flooring and plywood, has now entered the hardwood-flooring market. The new line, called Sideways, was developed for both residential and commercial applications and comes in 1/2" x 5" x 47 1/2" engineered click-lock planks, featuring a rotary-cut hardwood-veneer face. The entire line is urea-formaldehyde free and is made in America of FSC-certified hardwood. Smith & Fong, San Francisco. <http://plyboo.com> **CIRCLE 202**



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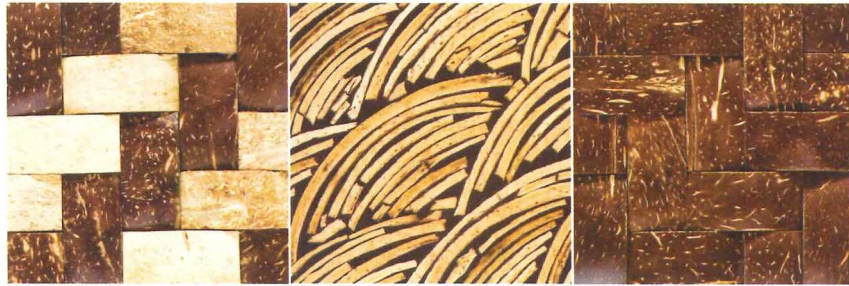


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## Products GREEN MATERIALS

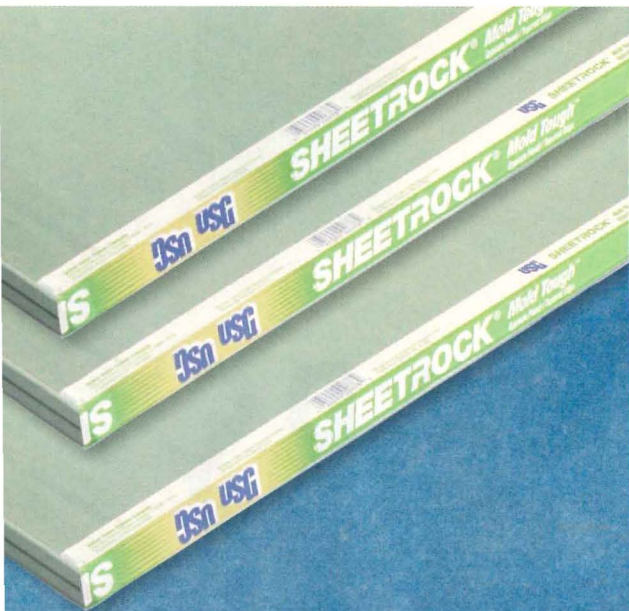


◀ **Reuse it or lose it** Kirei Coco Tiles are the latest addition to Kirei's ecomaterial palette, which consists of finishes made from wheat board, bamboo, and sorghum stalks. The tiles are made using reclaimed coconut shells that were previously discarded or burned after the edible portion was harvested. Made of low-VOC resins and a sustainably harvested wood backer, the material can be used horizontally and vertically as 11.8"-square tiles or 47.2"-square panels in residential, commercial, and hospitality applications. The first 12 styles of the new collection include multiple patterns and color combinations. Kirei, Solana Beach, Calif. [www.kireiusa.com](http://www.kireiusa.com) **CIRCLE 203**



▲ **Biomaterial sink counter** In Sloan Valve's new Bio-Deck lavatory styles, ground-up corn cobs replace the petroleum-based material typically used in solid-surfacing systems. The lavatories come with either oval-shaped, drop-in stainless-steel bowls or undermount porcelain bowls. The new single-, double-, and triple-station systems incorporate true point-of-use sensor operation for thorough, water-efficient hand-washing. Lavatories are available with Sloan battery-powered, solar-powered, or hardwired Optima sensor-operated, deck-mount faucets with water flows as low as a 1/2 gallon per minute. Sloan Valve Company, Franklin Park, Ill. [www.sloanvalve.com](http://www.sloanvalve.com)

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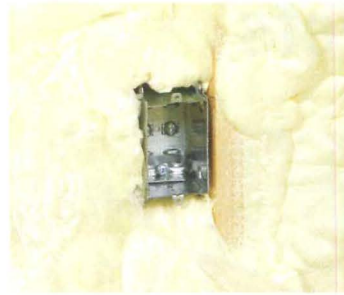
▼ **Recyclable safety floor** Flexible Floor Systems manufactures urethane-based rubberized safety flooring for pool decks, patios, and footpaths. The manufacturer claims to be the sole manufacturer of thermoplastic rubber surfacing made in the U.S. that is fade resistant and impervious to UV degradation. The decorative flooring can be laid directly over concrete, eliminating the need to tear out old materials. It



is made of 20 percent recycled materials and is 100 percent recyclable. Flexible Floor Systems, Wilmington, N.C. [www.flexiblefloors.com](http://www.flexiblefloors.com)

**CIRCLE 205**

► **Certified paper-composite material** Richlite Company's new Richlite FSC collection of premium paper-composite architectural surfacing replaces all of Richlite's former product offerings to ensure all resources are derived from responsibly managed forests, with the exception of r50, composed of 50 percent recycled cardboard and r100, a 100 percent recycled product. Richlite FSC has a matte finish, is heat-resistant up to 350 degrees, stain-resistant, and comes in seven colors. Beyond countertops, it can be used for indoor wall cladding/wainscot, work surfaces, wall caps, stair treads, and other applications. Richlite, Tacoma, Wash. [www.richlite.com](http://www.richlite.com) **CIRCLE 207**



▲ **Biospray insulation** Icynene LD-R-50 insulation is formulated using castor oil, which helps deliver up to 50 percent in energy savings, according to the manufacturer. Castor beans are a rapidly renewable material: They are a net carbon absorber (every pound of castor oil equals a reduction of nearly 3.5 pounds of CO<sub>2</sub>); and castor plants do not require irrigation and can be grown on marginal land not suitable for many food crops. The material is 100 percent water-blown, and free from HFCs and PBDEs. Icynene, Mississauga, Ontario. [www.icynene.com](http://www.icynene.com) **CIRCLE 206**



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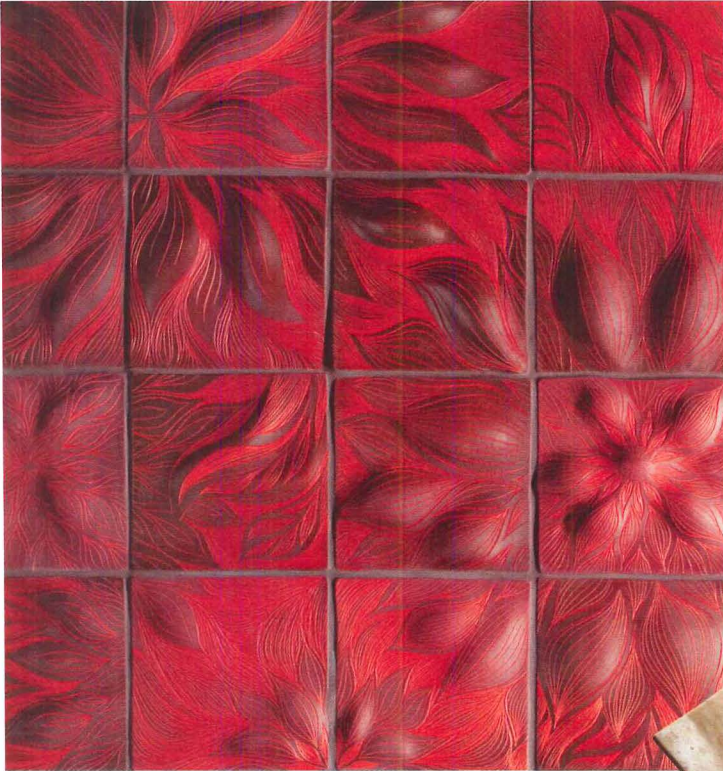
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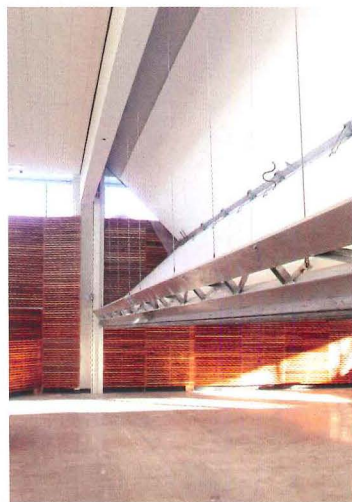
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# Product Briefs



▲ **Carved tile mural** The luxurious Blake Studios collection from Ann Sacks features three organic tile designs (Dahlia, shown) that can be applied indoors vertically or horizontally to create murals, backsplashes, fireplace surrounds, or other features. The 11" x 11" tiles are individually made by hand using the Italian Old World technique of sgraffito carving; no dies or molds are used in the process. The tiles curve downward for easy grouting and come in 18 colors, including a plain field tile. Ann Sacks, Portland, Ore. [www.annsacks.com](http://www.annsacks.com) **CIRCLE 209**



◀ **Door to ceiling** Unlike standard curtain walls that typically slide or fold up to the side, the Premier vertical bifolding door raises to the ceiling, saving floor space. Available in widths up to 140', the door is made of lightweight aircraft-grade aluminum, which puts minimal stress on the room support structure. Specifiers can clad the door with any covering needed while the frame has a raw mill finish, which can be left as is or coated. As the doors fold out while elevating within the threshold, they require only minimal headroom and wall clearance. Wilson Doors, Elkhorn, Wis. [www.wilsondoors.com](http://www.wilsondoors.com) **CIRCLE 211**

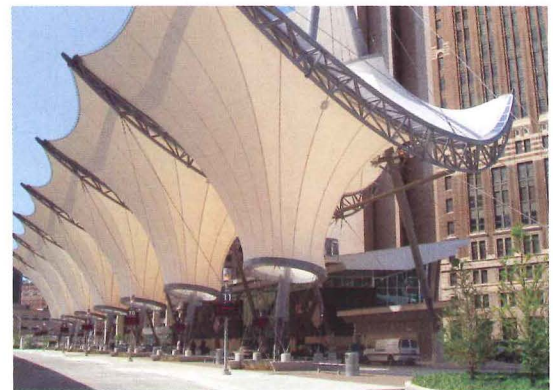
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► **Wall system solution** MetalWrap is a new foam-insulated composite-backup-system alternative designed specifically for Centria Profile series and FormaBond metal wall systems. MetalWrap's integrated single-panel design provides thermal and moisture protection but also flexible installation options that can help reduce the number of trades required on the job site. The 2"-thick panels provide an R-value of 14, while the 3"-thick panels test at R-21. Centria, Moon Township, Pa. <http://metalwrap.centria.com> **CIRCLE 208**




▼ **Otherworldly surfacing** At first glance, the subtle veining and sophisticated tonality of DuPont's 2009 Corian Private Collection looks like snapshots taken of the surfaces of other planets. The collection includes eight new hues that incorporate intricate browns, rusts, grays, blues, and greens that combine natural base tones with golden- and bronze-shaded veining, and are dotted with harmonizing particulates.

Shown here (clockwise from top left): Juniper, Jasmine, Thyme, Witch Hazel, Saffron, Elderberry, Rosemary, and Sandalwood. DuPont, Wilmington, Del. [www.surfaces.dupont.com](http://www.surfaces.dupont.com) **CIRCLE 210**



▲ **Multipurpose tensile structure** At the heart of Detroit's new Rosa Parks Transit Center is a 64,000-square-foot custom tensile structure made of translucent, Teflon-coated fiberglass fabric. The mast-supported structure consists of seven A-frames that are 96' tall and 60' wide at the base. In addition to offering shade and weather protection, the structure features catch basins at various points that collect rainwater. USAShade & Fabric Structures, Dallas. [www.usa-shade.com](http://www.usa-shade.com) **CIRCLE 212**





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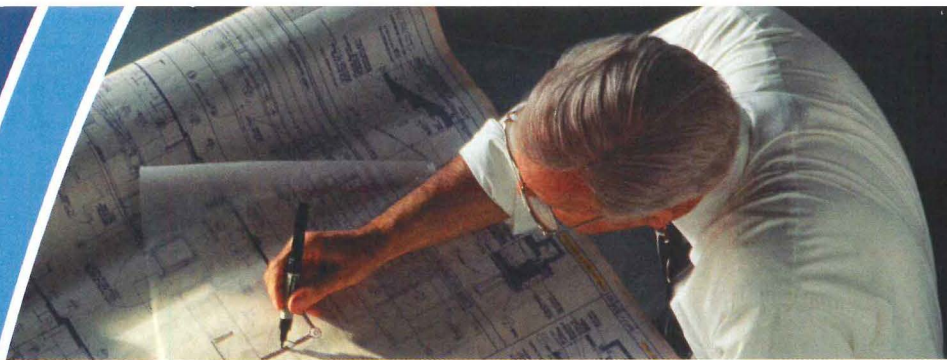
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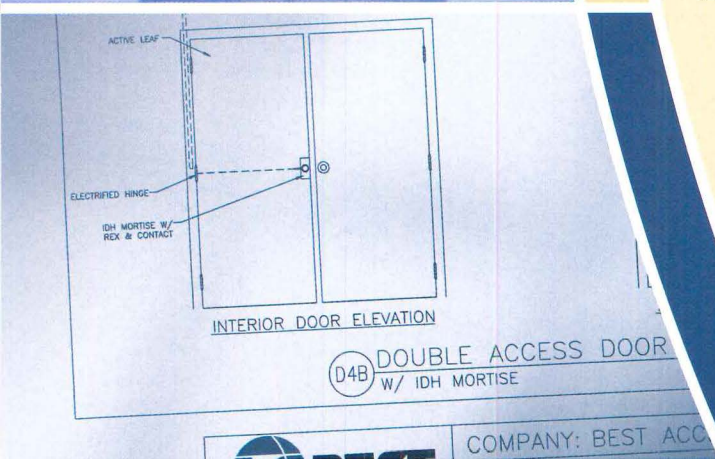
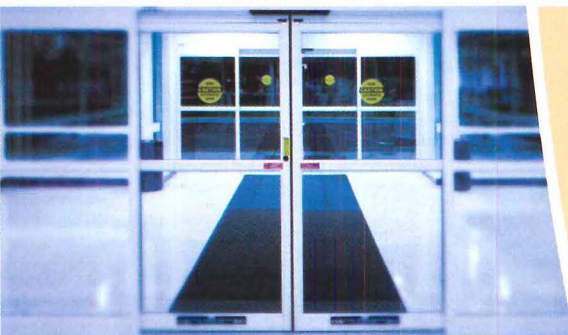
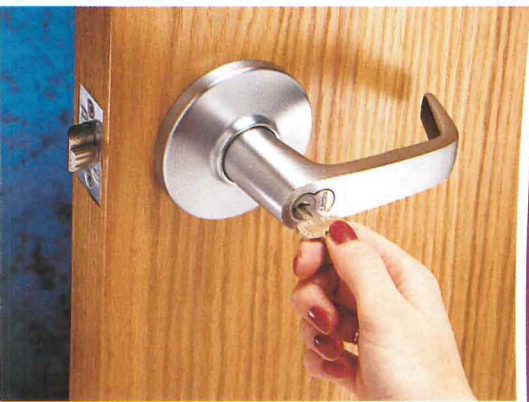
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# Dates & Events

## New and Upcoming Exhibitions

### Context/Contrast: New Architecture in Historic Districts, 1967–2009

New York City

October 6, 2009–January 23, 2010

This AIA Center for Architecture show attempts to answer the question, In historic districts, when is modern architecture okay? The New York City Landmarks Preservation Commission has always argued that historic districts can and should evolve with time. However, the legal mandate to determine the “appropriateness” of changes has proved to be one of the agency’s most demanding responsibilities, and it raises many provocative questions. How should the commission negotiate the arguments of opposing interests? How does the landmarks process make our historic neighborhoods better? For more information, visit [cfa.aiany.org](http://cfa.aiany.org).

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

Washington, D.C.

October 17, 2009–July 11, 2010

In a world without parking garages, parking lots might sprawl across cities. For more than 100 years, the parking garage has provided design and engineering solutions to the parking problem. This is the first major exhibition to explore the history of this familiar structure and open conversations about innovative designs and parking solutions for the future. For more information, call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

### What We Learned: The Yale Las Vegas Studio and the Work of Venturi, Scott Brown & Associates

New Haven, Conn.

October 29–February 5, 2010

Two separate exhibitions offer complementary perspectives on the legendary studio taught at Yale in 1969 and its subsequent impact on the teaching, research, and design work of Robert Venturi and Denise Scott Brown, two of America’s most prominent architects. The first exhibition, *The Yale Las Vegas Studio*, consists of more than 100 color photographs, slide presentations, and miscellaneous original materials documenting the famed 1968 Yale “field trip” to Las Vegas led by Venturi and Scott Brown. The second exhibition, *What We Learned*, focuses on Venturi and Scott Brown’s critical contributions to the urban landscape and our understanding of it. Visit [www.architecture.yale.edu](http://www.architecture.yale.edu).

## Ongoing Exhibitions

### Drawings and Objects by Architects

Los Angeles

Through October 10, 2009

Featuring unique and original drawings by several of the 20th century’s most iconic architects – Frank Gehry, Richard Neutra, Lebbeus Woods, and Frank Lloyd Wright – this exhibition includes preparatory studies of two prominent skyscrapers, the Empire State Building and the World Trade Center. At Edward Cella Art + Architecture. For more information, call 323/525-0053 or visit [www.edwardcella.com](http://www.edwardcella.com).

### Ron Arad: No Discipline

New York City

Through October 19, 2009

Over the past 25 years, the influential architect and designer Ron Arad has produced a wide array of innovative works, including a crystal and LED chandelier, carbon-fiber armchairs, and polyurethane bottle racks. This exhibition, the first major retrospective of Arad’s design work in the United States, presents some 140 pieces, including design objects, architectural models, and videos. At MoMA. For more information, call 212/708-9400 or visit [moma.org](http://moma.org).

### Green Community

Washington, D.C.

Through October 25, 2009

*Green Community* explores the origins of our precarious ecological situation and introduces communities large and small where citizens, political leaders, planning and design professionals, developers, and government agencies are working together for a more sustainable future. Call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

### High and Low:

#### Projects from Eisenman Architects

North Andover, Mass.

Through October 31, 2009

Through models, videos, writings, and drawings, this exhibition explores New York architect Peter Eisenman’s deconstructive theories that tear down conventional concepts. At the Robert Lehman Art Center at Brooks School. For more information, call 978/725-6232 or visit [www.lehmanartcenter.com](http://www.lehmanartcenter.com).

### Toward the Sentient City

New York City

Through November 7, 2009

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## Dates & Events

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### **B Like Burnham**

Chicago

*Through November 20, 2009*

This exhibition helps Chicago Architecture Foundation visitors understand the man, the Plan, and the legacy of Daniel H. Burnham. For more information, call 312/922-3432 or visit [www.architecture.org](http://www.architecture.org).

### **What Makes India Urban? Challenges Towards Mobility, Infrastructure, Energy, and Perpetual Change**

Berlin

*Through November 26, 2009*

This exhibition takes place in the framework of the Asia-Pacific Weeks 2009. This year's

thematic focus is "Mobility and Energy." At Aedes am Pfefferberg, with a symposium on October 10, 2009. For more information, call 0049-30-2827015 or visit [www.aedes-arc.de](http://www.aedes-arc.de).

### **Palm Springs Modern: Photographs by Julius Shulman**

Pittsburgh

*Through January 31, 2010*

This exhibition features almost 100 original photographs by renowned photographer Julius Shulman of iconic designs by Modernist architects. At The Heinz Architectural Center. Call 412/622-3131 or visit [www.cmoa.org](http://www.cmoa.org).

### **China Prophecy: Shanghai**

New York City

*Through March 2010*

This exhibition explores the 21st-century skyscraper city of Shanghai, a vast metropolis of 18 million residents – the largest city in the world's most populous nation. At the Skyscraper Museum. For more information, call 212/945-6325 or visit [www.skyscraper.org](http://www.skyscraper.org).

## Lectures, Conferences, and Symposia

### **Cityscape Dubai World Architecture Congress: A Survival Guide for Architects, Recession, and Recovery**

Dubai

*October 5–7, 2009*

In this international conference, architects and developers from around the world will discuss today's rapidly changing economy and what is on the horizon for recovery. For more information, call +9714 335-2437 or visit [www.cityscape.ae/wac](http://www.cityscape.ae/wac).

### **Beyond the Horizon: The Next Generation of Justice**

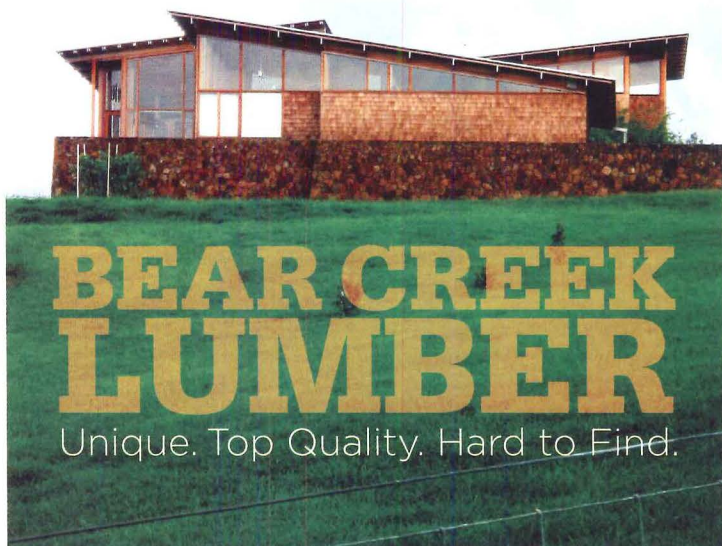
Chicago

*October 7–10, 2009*

Judges, court executives, architects, government leaders, builders, sheriffs, and police chiefs will explore the emerging trends in justice-facility planning and design. For more information, visit [www.aia.org/aaj](http://www.aia.org/aaj).

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## Dates & Events

### AIACC Monterey Conference

Pacific Grove, Calif.  
October 9–11, 2009

In this moment of change and transition, join us in Monterey to rethink perceptions and priorities. The conference will be moderated by RECORD editor in chief Robert Ivy; featured speakers include Dan Bishop, production designer for *Mad Men*; Thom Mayne of Morphosis Architects; and Kazuyo Sejima of SANAA. For more information, call 916/448-9082 or visit [www.aiacc.org](http://www.aiacc.org).

### 66th Annual SMACNA Convention and Product Show

Palm Desert, Calif.  
October 11–15, 2009

The Sheet Metal and Air Conditioning Contractors' National Association will gather for a wide variety of educational and self-development sessions on the latest issues in construction, BIM, "green" construction, energy efficiency, LEED, and sustainability. Sessions will be presented by industry experts and will provide tailor-made solutions to meet the technical and business management needs of sheet-metal and air-conditioning contractors. Former Arkansas governor and presidential candidate Mike Huckabee will speak at Sunday evening's opening session. Visit [www.smacna.org](http://www.smacna.org) or call 703/803-2998.

### Urban Waterfronts 27: Sustainable Solutions

Seattle  
October 22–24, 2009

Providing a comprehensive and in-depth view into quality developments in waterfront cities, the conference's ultimate goal is to assist communities and professions in making the wisest and best long-term uses of waterfront resources for maximum public benefit. For additional information, call 202/337-0356 or visit [www.waterfrontcenter.org](http://www.waterfrontcenter.org).

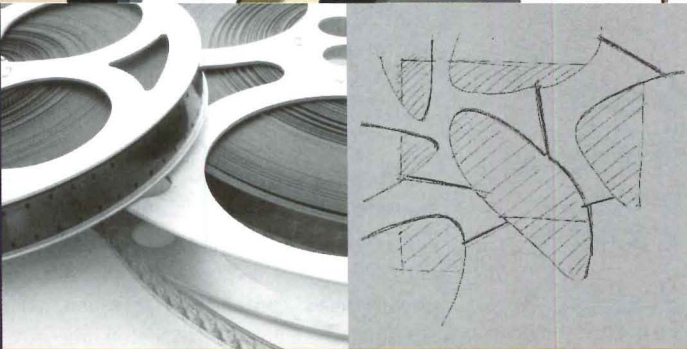
### Designing Learning Environments to Rebuild Urban America

New York City  
October 23–25, 2009

Rebuilding national infrastructure will drive U.S. economic recovery, and architects are critical in the effort to build and modernize our most basic source of future intellectual capital: our schools. Design professionals and educators will explore common ground and emerge with strategies to create learning environments that are both practical and inspiring. Visit [www.aia.org/cae](http://www.aia.org/cae).



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## Dates & Events

### GreenBuild International Conference and Expo

Phoenix

November 11–13, 2009

GreenBuild is the world's largest conference and expo dedicated to green building. Thousands of building professionals from all over come together for three days of educational sessions, renowned speakers, green-building tours, special seminars, and networking events. For more information, visit [www.greenbuildexpo.org](http://www.greenbuildexpo.org).

### Competitions

#### USITT 2010 Student Design Competition

Registration deadline: November 20, 2009

The competition asks, "What is the ideal theater for teaching professional theater?" This question is to be explored by a team composed of at least one theater student currently enrolled in a college or university theater program and one architectural student enrolled in an accredited architectural college or university program. E-mail [sfg@workshoparchitects.com](mailto:sfg@workshoparchitects.com).

#### Only in Your Wildest Dreams: Big Ideas for Boston

Submission Deadline: November 30, 2009

Submit your most provocative ideas in the SHIFTboston international design competition, which seeks to collect new visions for Boston's urban environment. The organizers solicit "innovative and radical ideas for new city elements such as public art installation, landscape, architecture, urban intervention, and transportation." For more information, visit [www.shiftboston.org](http://www.shiftboston.org).

#### Atlantic City Boardwalk Holocaust Memorial Design Competition

Deadline: April 1, 2010

This is a two-stage international design competition to choose a winning proposal to build a fitting and compelling memorial to the Holocaust and genocide in general, which has the potential to raise the consciousness of millions of visitors each year. Entry is anonymous and open to professionals and students in architecture, design, and the visual arts. Visit [www.acbhm.org](http://www.acbhm.org).

E-mail information two months in advance to [sebastian\\_howard@mcgraw-hill.com](mailto:sebastian_howard@mcgraw-hill.com).

For more listings, visit [architecturalrecord.com/news/events](http://architecturalrecord.com/news/events).

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October 20

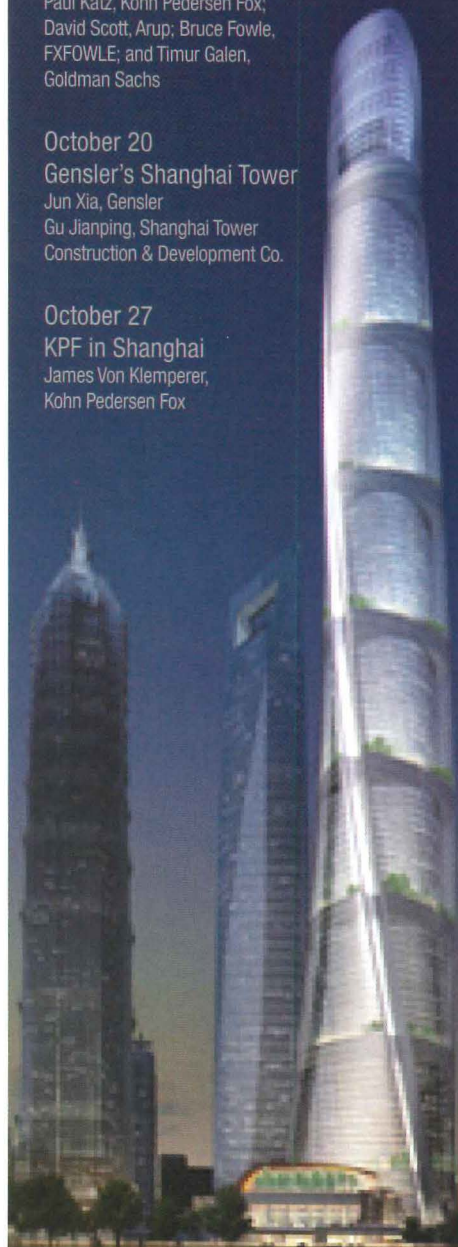
#### Gensler's Shanghai Tower

Jun Xia, Gensler  
Gu Jianping, Shanghai Tower Construction & Development Co.

October 27

#### KPF in Shanghai

James Von Klemperer, Kohn Pedersen Fox



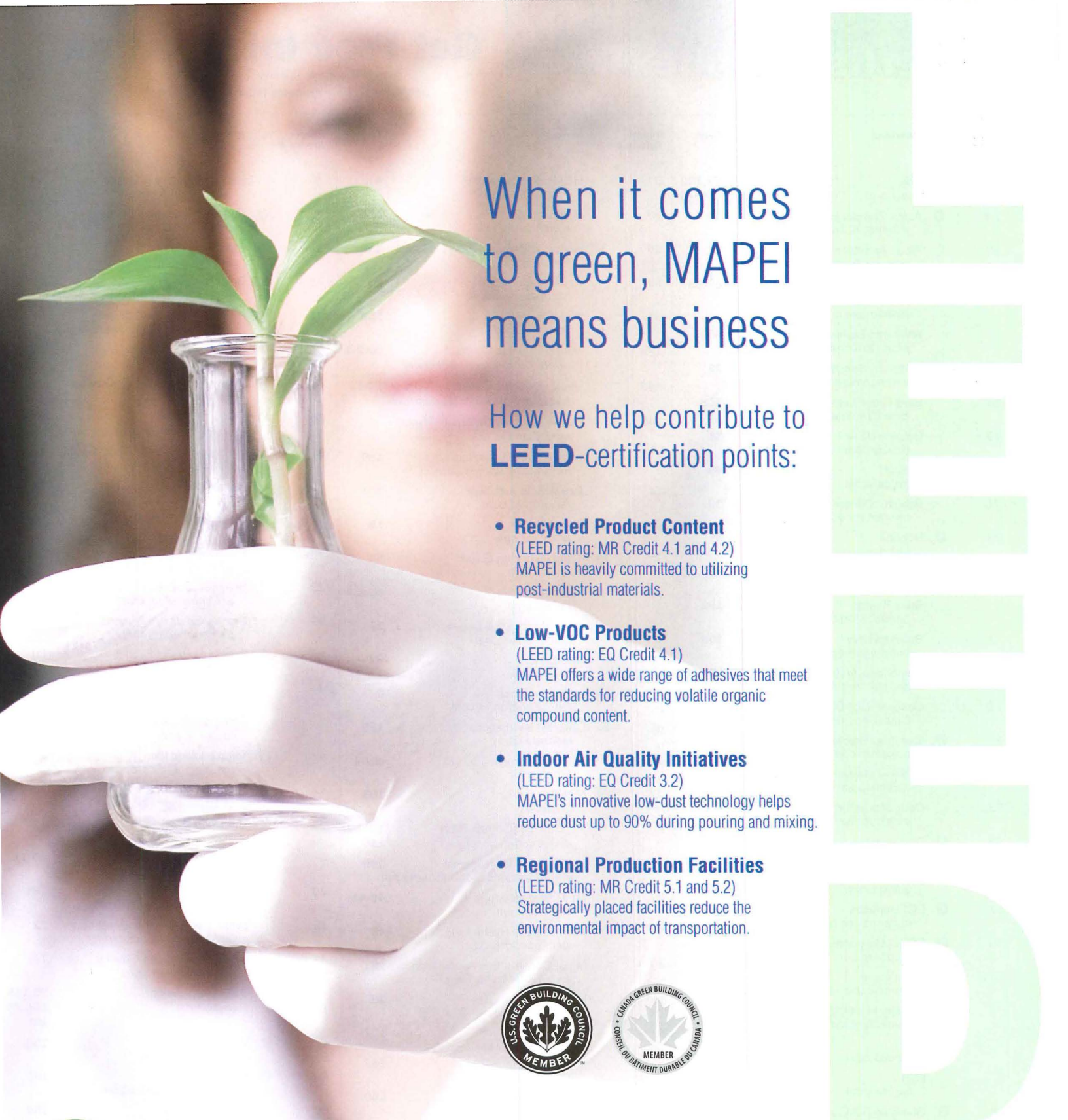
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 LEEDuser.com

CIRCLE 71



CASCADE COIL DRAPERY



Tequila Bar

Cocina Poblana  
Kathy Bate Interior Design

### Woven Wire Fabric

Projects include multi-story wire mesh draperies for hotels, auditoriums, and casinos; curved dividers for visual merchandising; window treatments for private homes; safety screening for industrial settings; sculptural forms for urban gardens; decorative interior/exterior wall coverings for buildings and parking garages; aviary round weave screening for animal habitats, and see-through appealing barriers for commercial security. Whatever the application, let us help you realize your creative vision.

[www.cascadecoil.com](http://www.cascadecoil.com) | 800-999-2645

CIRCLE 72

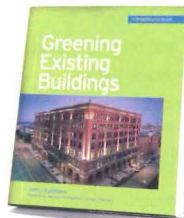
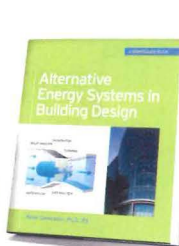
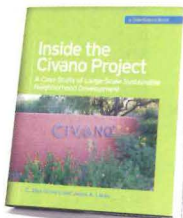
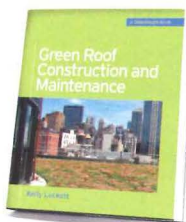
INSPIRATION FOR BUILDINGS THAT ARE AS BEAUTIFUL AS THEY ARE SUSTAINABLE

The **McGraw-Hill GreenSource Series** responds to the need for sustainable building design strategy and innovation—a concern of global significance in our world today.

To see the full line of GreenSource books and to get 20% off all titles in the series please visit

**20% off!**

[mhprofessional.com/greensource](http://mhprofessional.com/greensource)



Learn more.  Do more.  
MHPROFESSIONAL.COM



### GO BACK IN TIME.

Experience the timeless craftsmanship of an earlier age with a modern twist. Rejuvenation offers a wide variety of early to mid-twentieth century light fixtures, many of which are now Compact Fluorescent compatible. Now you'll be able to meet environmental building standards without sacrificing period authenticity.

**TAKE ENERGY EFFICIENT BULBS WITH YOU.**

**REJUVENATION**  
Manufacturer of period-authentic lighting [rejuvenation.com](http://rejuvenation.com)

888-401-1900

CIRCLE 73

DIGITAL TECHNOLOGY

DESIGN SOFTWARE

\$

**Bentley Systems, Incorporated**

▲ GenerativeComponents™: Unique design software allows architects and engineers to pursue designs and deliver inspired sustainable buildings.

**Performance Data:**

- Integrated with discipline-specific tools and technologies
- Interoperable with many applications and formats
- Extensible toolkit to enable iterative design
- Complete control of parametric object attributes
- Easy exploration of more complex designs



Circle 150

www.bentley.com/gd  
800.BENTLEY

ELECTRICAL, LIGHTING

TOTAL LIGHT MANAGEMENT SOLUTIONS

\$\$\$ | G

**Lutron Electronics Co., Inc.**

▲ Quantum automatically dims or switches all electric lights and controls daylight using automated window shades.

**Product Application:**

- New York Times Building, New York, NY
- Access Living, Chicago, IL
- Bentley Reserve building, San Francisco, CA

**Performance Data:**

- Saves up to 70% lighting energy
- Monitors, manages, and reports lighting usage



Circle 151

www.lutron.com/Quantum  
888.588.7661

Contact: Jane Zhang

INTERIOR FINISHES, FURNISHINGS

AUTOMATED SOLAR-SHADING SYSTEM

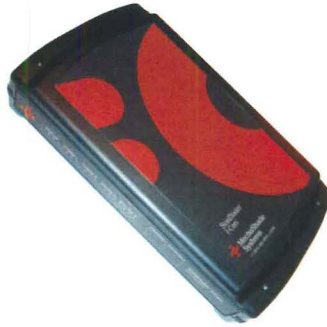
WR | NEW

**MechoShade Systems**

▲ The automated SunDialer™ solar-shading system tracks the sun and sky conditions, adjusting the shades throughout the day.

**Performance Data:**

- Optimizes daylight
- Maximizes occupants' view
- Reduces artificial lighting
- Saves money
- Assures highest levels of comfort



Circle 152

www.MechoShadeSystems.com  
718.729.2020

Contact: William L. Maiman

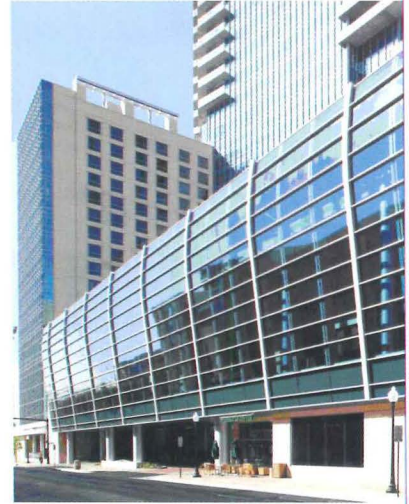
MATERIALS

BLUE-TINTED, LOW-E GLASSES

G | NEW

**PPG Industries**

▲ New Pacifica and Solarblue blue-tinted glasses combine with Solarban solar control, low-e coatings to produce architectural glazings with exceptional solar control and visible light transmittance in a range of aesthetics. For more blue options, join either glass with Solarcool reflective coatings or team Pacifica glass with subtly reflective Vistacool coatings.



Circle 153

www.ppgideascape.com/blues  
888.PPG.IDEA

DOORS, WINDOWS

EUROPEAN GLASS WALL PARTITIONS & GLASS DOORS

\$\$\$ | NEW

**Avanti Systems USA**

▲ Innovative architectural glass wall and glass door systems available for high-end applications.

**Product Application:**

- USS Intrepid Sea-Air-Space Museum, New York, NY
- UFC Headquarters, Las Vegas, NV
- Brown University, Providence, RI

**Performance Data:**

- Relocatable, dry-jointed partitioning glass walls
- Freestanding glass walls, LCD glass walls and doors



Circle 154

www.avantisystemsusa.com  
877.282.6843

Contact: Stephen Mordaunt

DOORS, WINDOWS

UNIQUE DAYLIGHTING SYSTEMS

WR | G

**Major Industries, Inc.**

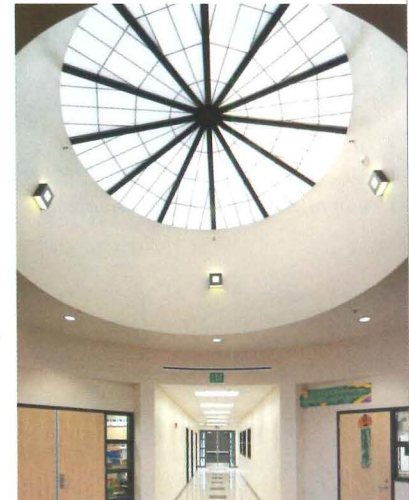
▲ Guardian 275 translucent panel skylights and curtainwall save energy and eliminate glare.

**Product Application:**

- System shown: Guardian 275 polygon skylight
- New and retrofit applications

**Performance Data:**

- Sandwich panel design for enhanced thermal performance
- Guardian 275 can be configured for blast and hurricane protection
- Field-tested results backed by industry-long warranties



Circle 155

www.majorskylights.com  
888.759.2678

Contact: info@majorskylights.com

Greenbuild Booth # 5244

ELECTRICAL, LIGHTING

ARCHITECTURAL CEILING FANS & LIGHTING

G

G Squared Art

▲ Flyte ceiling fan, GOOD DESIGN Award winner. Quiet, powerful, reliable, an energy saver.

Product Application:

- Suitable for sloped ceilings up to 30°, can be used on 8-ft. ceilings or on cathedral ceilings with optional downrods up to 6 ft. long

Performance Data:

- Other finishes available
- Cap for non-light use included; integrated 100W mini-can halogen bulb, bulb included
- Lifetime warranty



www.g2art.com  
877.858.5333

Contact: info@g2art

Circle 156

ELECTRICAL, LIGHTING

LOW-PROFILE PATH LIGHTING

Hunza Lighting USA

▲ The Hunza Path Lite is machined from solid copper or 316 stainless steel, providing a horizontal lighting effect across pathways or decks with a low-trim profile of less than 1 in. in height. There is a choice of four light beam patterns, from half to full circle, according to the number of facets specified. The Path Lite uses a low-voltage 20W MR16 lamp and is easily installed into concrete or wooden decks using one of four optional housings.



www.hunzausa.com  
866.439.7496

Circle 157

INTERIOR FINISHES, FURNISHINGS

ACOUSTIC PLASTER SYSTEM

G

Pyrok Inc.

▲ Pyrok StarSilent is a smooth, seamless sound-absorbing plaster system. This unique system, consisting of a rigid sound board made of 96% post consumer recycled crushed glass, combines the look of monolithic gypsum board with high acoustical performance.

Product Application:

- California Academy of Sciences, San Francisco, CA
- White House press briefing room, Washington, DC
- Burchfield Penney Art Center, Buffalo, NY (Pictured right)



www.starsilent.com  
914.777.7070

Contact: info@starsilent.com

Circle 158

INTERIOR FINISHES, FURNISHINGS

LIFE'S ALL ABOUT CHANGE

\$\$

Walker Display

▲ Walker Display provides an efficient system for exhibiting artwork anywhere.

Product Application:

- Residential or commercial use
- Office buildings, shopping malls, airports, restaurants, hospitals, etc.
- Schools, libraries, museums, galleries, etc.

Performance Data:

- Versatile art hanging system
- Interchangeable for easy adaptation to various projects
- Not limited to art hanging



www.WalkerDisplay.com  
800.234.7614

Contact: Richard Levey

Circle 159

INTERIOR FINISHES, FURNISHINGS

CORRUGATED METAL CEILING SYSTEMS

G

ALPRO® Acoustical Systems

▲ AVIAR metal ceilings are attractive, economical, and suitable for reducing noise in any environment.

Performance Data:

- Perforated aluminum or steel - 10 corrugation patterns
- Concealed or exposed extruded aluminum suspension systems - many perimeter trim options
- Post-fabrication powder coat finish for total surface coverage and maximum protection against corrosion
- Sound-absorptive backing material provides acoustical performance up to NRC ratings of 1.00 and above
- LEED credits available

www.alproacoustics.com  
888.733.3836

Contact: Craig Eychaner



Greenbuild Booth # 2354

Circle 160

INTERIOR FINISHES, FURNISHINGS

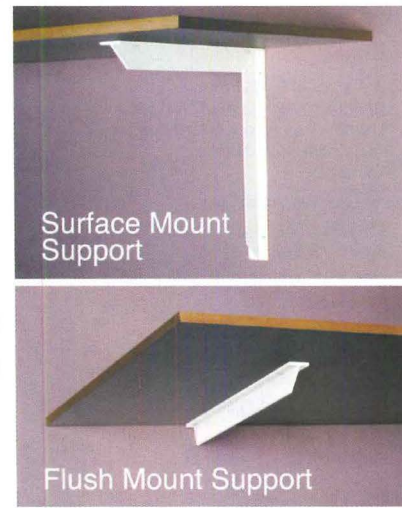
COUNTER SUPPORT BRACKETS

Rangine Corporation/Rakks

▲ Rangine Corporation's counter support brackets provide an easy-to-install alternative to full-height laminated panels. Available in a range of sizes to support counters up to 30-in. deep, brackets install easily into studs or blocking and can support loads up to 450 lb. Less expensive than laminated supports, they increase open space while improving handicapped access and ergonomics. Brackets can be ordered in either surface- or flush-mounted configurations to provide heavy-duty unobtrusive support.

www.rakks.com  
800.826.6006

Contact: David Greenburg



Circle 161

INTERIOR FINISHES, FURNISHINGS

THE ULTIMATE CHOICE

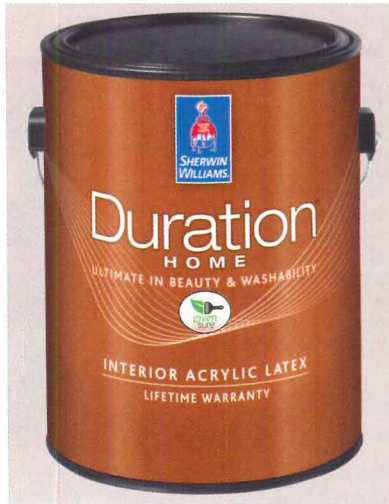
\$\$\$ | G

The Sherwin-Williams Company

▲ Duration Home keeps walls looking fresh and clean longer.

Performance Data:

- Ultra-smooth application
- Superior stain resistance
- High-reflective base for brighter, cleaner colors
- Zero-VOC, low-odor formula meets green standards
- Industry-leading washability and finish retention



www.sherwin-williams.com  
800.321.8194

Contact: Terry Makowski



Circle 162

INTERIOR FINISHES, FURNISHINGS

ORNAMENTAL PLASTER CEILING TILES

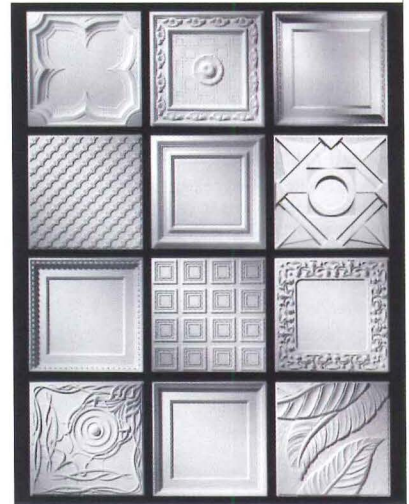
G

Above View Mfg., By Tiles, Inc.

▲ Ornamental plaster ceiling tiles fabricated from a non-toxic, non-combustible, proprietary composition.

Performance Data:

- The tiles drop into any standard 15/16-in. T-Bar grid system.
- The design line consists of more than 60 standard designs.
- Custom design work, custom colors, and faux finishes are available.



www.aboveview.com  
414.744.7118

Circle 163

LANDSCAPING, SITEWORK

LANDSCAPE EDGING

\$\$\$ | G

Sure-loc Aluminum Landscape Edging

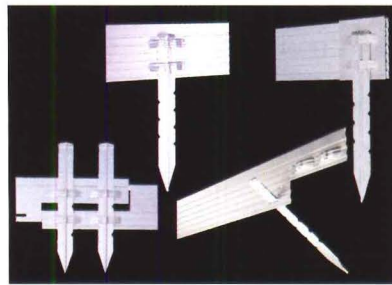
▲ Sure-loc Edging manufactures professional-grade aluminum landscaping edging, creating crisp lines.

Product Application:

- IBM Headquarters, USA
- Ritz-Carlton Hotel, Pasadena, CA
- Lincoln Park, Chicago, IL

Performance Data:

- Dual-stake locking system provides seamless connections.
- End-stake adapters allow for staking at any point.



www.surelocedging.com  
800.SURE.LOC

Contact: Karl Nieboer

Circle 164

MATERIALS

ARCHITECTURAL NATURAL STONE

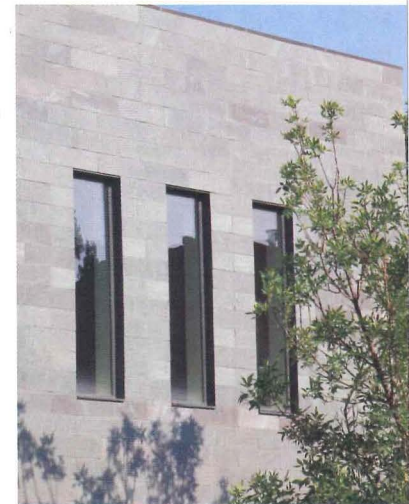
\$\$\$ | G

Vermont Structural Slate Company

▲ Quarrier and fabricator offering select slates, quartzites, sandstones, limestones, marbles, granites and basalts.

Product Application:

- Floating World Gallery
- S. Conger Architects
- Unfading Mottled Green & Purple Slate exterior wall panels



www.vermontstructuralslate.com  
800.343.1900

Contact: Craig Markcrow

Circle 165

MATERIALS

FIRE-RATED VERSION

G | NEW

Technical Glass Products

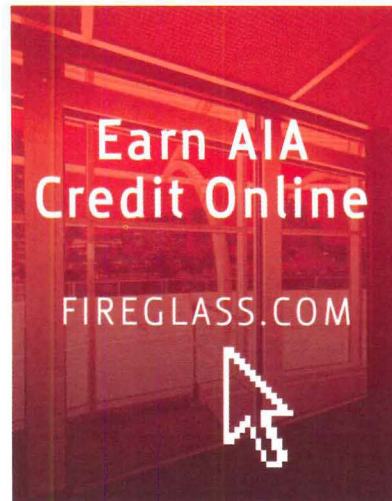
▲ Technical Glass Products offers a valuable course for AIA HSW credit: "Burning Issues: Understanding Today's Fire-Rated Glass and Framing."

Products featured:

- FireLite® family of fire-rated glass ceramics
- Pilkington Pyrostop™ safety-rated glass firewalls

Also contains:

- New trends in fire-rated glazing materials
- Assessment and liability issues
- Recent code changes and how they impact design



www.fireglass.com  
800.427.0279

Circle 166

MATERIALS

WIRE MESH SYSTEMS

\$\$\$ | G

The Gage Corporation, Int.

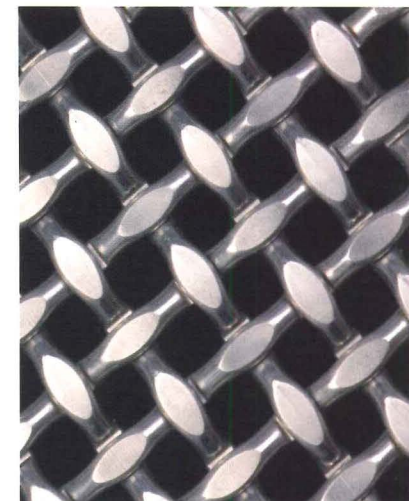
▲ GageWoven is an innovative collection of 23 architectural wire mesh designs.

Product Application:

- Rusnak BMW Dealership, Thousand Oaks, CA
- State Street Bank, North Quincy, MA
- 217 17th St., Atlantic Station, Atlanta, GA

Performance Data:

- Class A ASTM E-84
- Durable, low-maintenance stainless steel



www.gagecorp.net  
800.786.4243, 608.269.7447

Circle 167



MECHANICAL SYSTEMS, HVAC, PLUMBING

SOLAR HOT WATER

WR | G

Heliodyne Solar Hot Water

▲ Heliodyne, Solar Hot Water since 1976. Innovative design, superb product lines. Made in the USA.

Product Application:

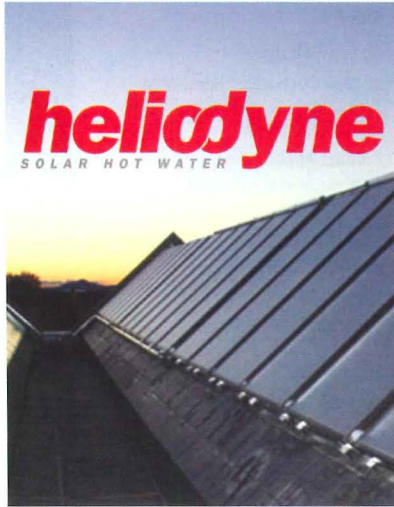
- Commercial: Fenway Park, Boston, MA
- Commercial: Stanford University, Palo Alto, CA
- Single family to residential developments

Performance Data:

- Collectors with sleek design and outstanding durability
- Unique plug & play components for ease of installation

www.heliodyne.com  
888.878.8750

Contact: Alexandra Wexler



Circle 168

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

METAL ROOFING

WR | G | NEW

ATAS International, Inc.

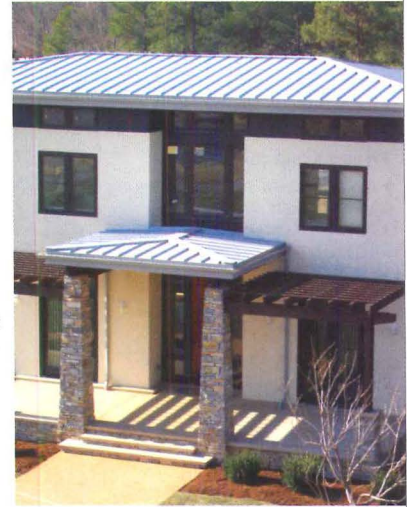
▲ ATAS, a leading manufacturer of metal roofing and wall panels, carries green roofing products that will allow you to be more energy efficient.

Performance Data:

- Cool Metal Roofing technology can help reduce cooling energy cost up to 25%.
- Above Sheathing Ventilation (ASV) creates an air cavity between the roof deck and metal roof panel to cool in the summer and negate heating penalties.
- ATA-Solar, their BIPV Standing Seam Roof System, converts sunlight into electricity.

www.atas.com  
800.468.1441

Contact: info@atas.com



Greenbuild Booth # 2768

Circle 169

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

MOISTURE CONTROL FOR METAL WALLS

WR | NEW

CENTRIA

▲ MetalWrap by CENTRIA is an alternative thermal, air, and moisture backup panel system.

Performance Data:

- Single-panel design allows for one-step installation, minimal construction waste, and lower labor costs
- High R-values reduce energy costs
- Unique foam insulated composite backup system
- Universal backup wall solution for all building types in any climate
- Excellent air, water, vapor, and thermal barriers



www.CENTRIA.com  
800.759.7474



Circle 170

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

BUILDING INSULATION

WR | G

Johns Manville

▲ JM Formaldehyde-free™ building insulation helps you build sustainable, energy-efficient structures.

Product Application:

- Solano County Government Center, Fairfield, CA; LEED Certified
- US Environmental Protection Agency Region 8 Headquarters, Denver, CO; LEED Silver; Gold expected

Performance Data:

- JM helps promote the safety, health, and well-being of those who construct and occupy the buildings you create with improved indoor air quality.
- JM products can help you earn points to qualify for LEED® certification.

www.SpecJM.com  
800.654.3103



Greenbuild Booth # 2467

Circle 171

ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

SUSTAINABLE METAL ROOFING & WALL SYSTEMS

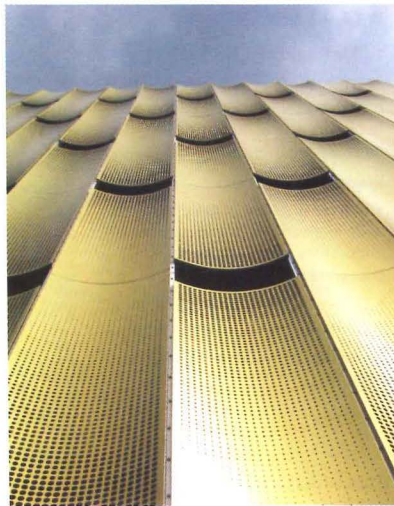
WR | G | NEW

Fabral, Inc.

▲ Fabral, a premier supplier of metal roofing and wall systems, brings a new vision to architectural metal with a new array of specialty colors and finishes on aluminum.

Performance Data:

- The natural beauty of aluminum in a wide range of color tints
- Semi-transparent clear coats and extraordinary metallics
- Iridescent finishes that combine the reflection and refraction of light
- Varying patina, natural wood, stone, and nature-inspired designs



www.fabral.com  
800.884.4484

Contact: Donna Berryhill



Circle 172

SPECIALTY PRODUCTS

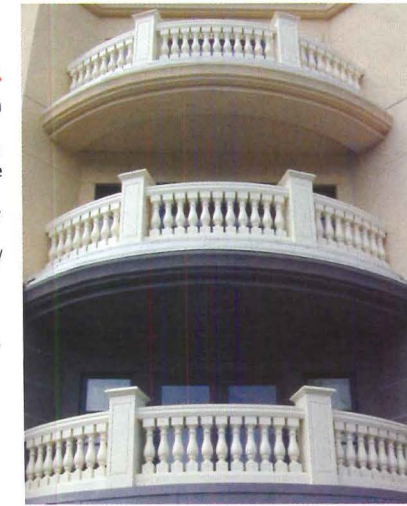
BALUSTRADES, COLUMNS & CORNICES

Architectural Columns & Balustrades by Melton Classics, Inc.

▲ Melton Classics' extensive selection of maintenance-free balustrades provide the design professional with over 100 balustrade designs, and the ability to incorporate radius stairs and balconies to enhance the beauty of their projects. Balustrades are offered in synthetic stone, fiberglass/marble composite, polyurethane, cast stone, and polyvinyl and are engineered to reduce weight and meet IBC structural codes. They also offer a comprehensive selection of architectural columns, fiberglass cornices, and polymer millwork.

www.meltonclassics.com  
800.963.3060

Contact: Mike Grimmert



Circle 173

SPECIALTY PRODUCTS

CUSTOM TRANSLUCENT CANOPIES

G

CPI Daylighting Inc.

▲ CPI translucent canopies provide excellent shelter and allow glare-free daylight into the area below.

Product Application:

- Mercy Hospital entry canopies and walkway covers, Miami, FL
- Suitable for green construction requiring LEED certification

Performance Data:

- Tested as new after 10 years of South Florida exposure
- Attractive Pentaglas Nano-Cell glazing system is affordable
- Maintenance-free



www.cpidaylighting.com  
800.759.6985



Circle 174

SPECIALTY PRODUCTS

HAND DRYER

\$\$\$ | G

Dyson B2B, Inc.

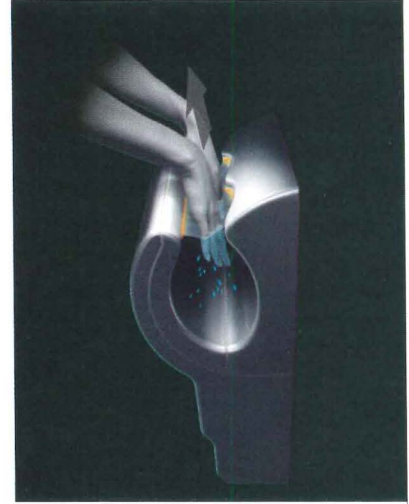
▲ New CE course: "Hand Dryer Technology: Sustainable, Hygienic, and Cost Effective."

Product Application:

- Museum of Modern Art, New York, NY
- Dodgers Stadium, Los Angeles, CA

Performance Data:

- Uses up to 80% less energy
- Qualifies for LEED



www.dysonairblade.com  
888.DYSON.AB

Contact: Matthew Cool



Circle 175

SPECIALTY PRODUCTS

SMALL, POWERFUL, VERSATILE

FAAC USA

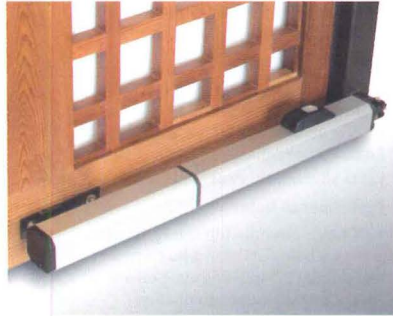
▲ The Model 400 heavy-duty hydraulic swing gate operator is specifically designed for high-volume traffic situations needing maximum versatility, such as subdivisions, apartments, busy commercial/ industrial settings, and certain residential applications. The 400 is also ideal for very large, ornate gates. Mounted inside the gate, the 400 still allows the gate to open to the inside or to the outside.

Product Application:

- Handles a gate leaf up to 22 ft. in length and 2,200 lb.

Performance Data:

- UL325 compliant



www.faacusa.com  
800.221.8278

Circle 176

SPECIALTY PRODUCTS

ONE-WAY MIRRORS

Glas Trösch AG

▲ Unlimited design options for SPYMIRROR in interior and exterior applications, e.g. coverage of information displays, TVs, etc. SPYMIRROR is a one-way mirror which allows for observations without being seen under a distinct lighting ratio. There are three options with increased clarity (LT): 1%, 12%, 20% available in 3mm to 12mm, in laminated 6mm to 12mm.



SPYMIRROR 1% SPYMIRROR 12% SPYMIRROR 20%

www.luxar.ch

Contact: hytechglass@glastroesch.ch

Circle 177

SPECIALTY PRODUCTS

RPS MOULDINGS

G

Architectural Products by Outwater

▲ Go "green" without having to spend a lot of "green." Responding to recent market demand for a moderate cost, premium-quality polymer moulding and millwork that aesthetically satisfy all decorative requirements on a more reserved budget, Outwater introduces its recycled polystyrene RPS Mouldings, the cost-effective alternative to more costly polymer mouldings and millwork without compromise. Comprising a full, decorative array of cornice mouldings and panel mouldings, they redefine the standard for architectural moulding and millwork by offering a new economical decorative and design medium. Free 1,000+ page master catalog.



www.Outwater.com  
800.835.4400

Circle 178

SPECIALTY PRODUCTS

TRANSLUCENT WALL SYSTEM

WR | G | NEW

Kalwall Corporation

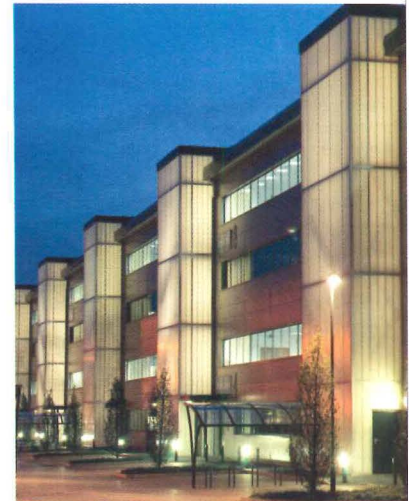
▲ Verti-Kal™ is a unique variation on Kalwall translucent Wall Systems, but with vertical emphasis to increase aesthetic options.

Product Application:

- Can be supplied in panels to 5 ft. wide and 12 ft. high and unitized for multi-story applications.

Performance Data:

- U-value options from .53 to .10
- Light transmission of 3% to 50%
- Shading coefficients from 1.0 to under 0.4



www.kalwall.com  
800.258.9777



Circle 179



# Reader's Gallery

Every month, our online community of readers vote for their favorite images from our Web galleries. The photo with the most votes and two runners-up appear on this page. To vote for photos and to share your own, visit [architecturalrecord.com](http://architecturalrecord.com) and click on Community.



**1. First Place:**  
A tunnel leads to the I.M. Pei-designed Miho Museum near Kyoto, Japan. Photo submitted by "mkondo."

**2. First Runner-up:**  
2010 Winter Olympic oval, Richmond, British Columbia, designed by Cannon Design. Photo submitted by "derek."

**3. Second Runner-up:**  
Nebra Sky Disk observation tower, near Nebra, Germany, designed by Holzer Kobler Architekturen. Photo submitted by "vkoenig."



See what's new at **KOHLER**.com/pro



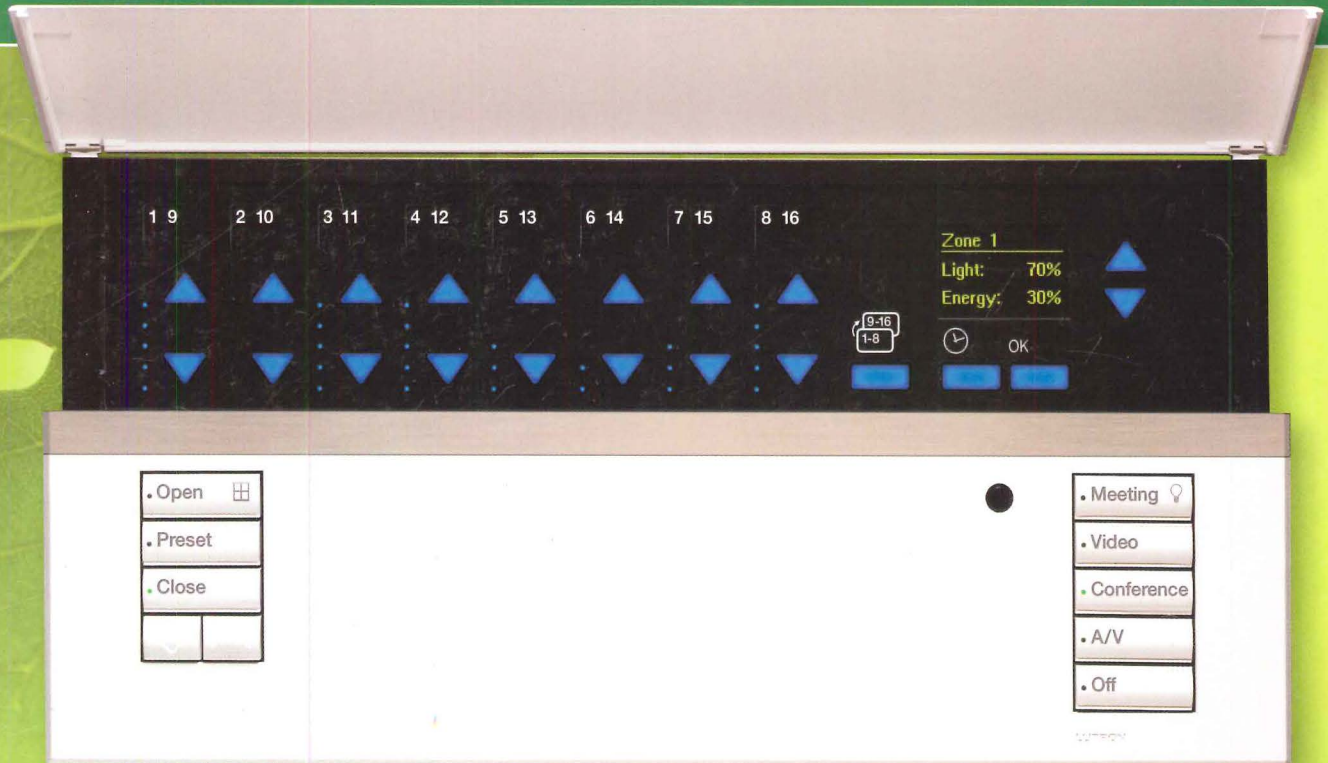
**Saile™ One-Piece High-Efficiency Toilet.**  
Featuring Dual Flush technology and a skirted trapway,  
Saile is the essence of modern sophistication.

**CIRCLE 74**

THE BOLD LOOK  
OF **KOHLER**®

# GRAFIK Eye® QS Wireless with EcoSystem®

NEW



## Lights, shades, energy savings.

Lutron® GRAFIK Eye QS Wireless with EcoSystem is the premier energy-saving light and shade control system.

### NEW EcoSystem connectivity

- Control up to 16 zones of digital fluorescent and LED fixtures—without interfaces
- Save energy by utilizing occupancy/vacancy and daylight sensors
- Program EcoSystem ballasts and sensors for up to 60% energy savings

### NEW Wireless communication

- Lutron Clear Connect RF Technology™ reliably connects sensors, shades, and keypads
- Simplified installation saves time and associated costs

Learn more at [www.lutron.com/qs](http://www.lutron.com/qs)

Visit us at Greenbuild, Booth 3154

### Energy-saving components:



EcoSystem digital addressable ballasts and Hi-lume® LED drivers



Occupancy/vacancy and daylight sensors



Sivoia® QS Wireless shades



Pico™ wireless controls



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