

ARCHITECTURAL RECORD

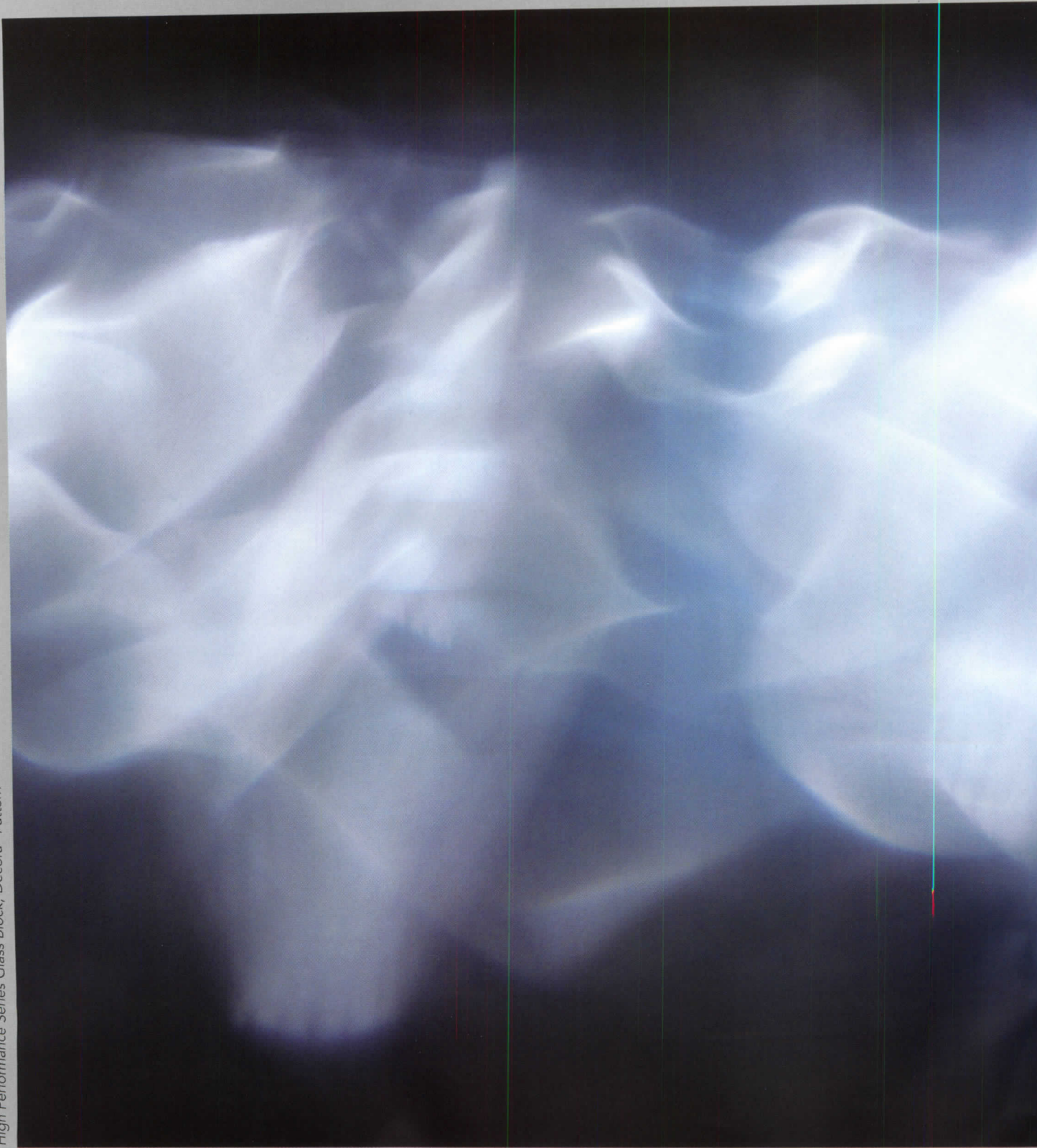


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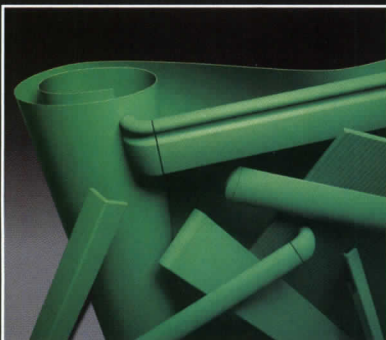


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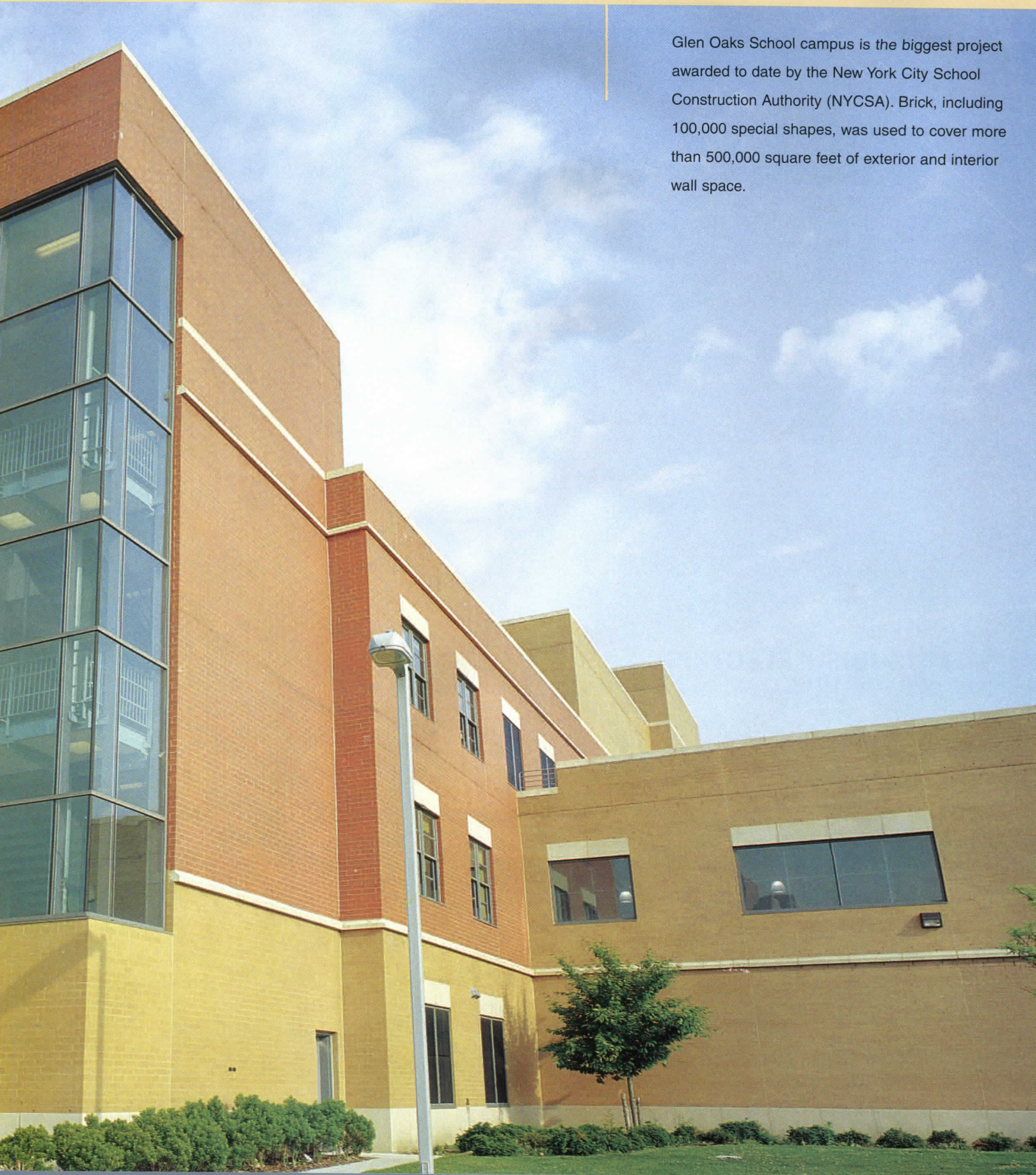
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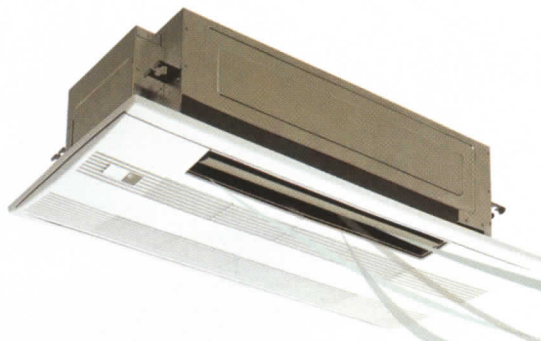
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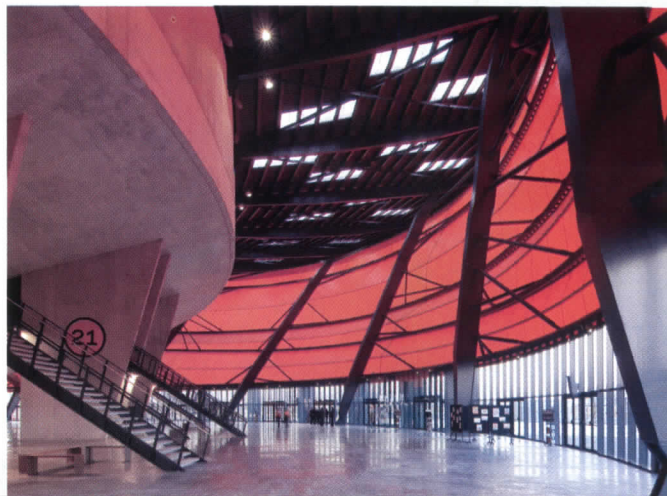
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On the Cover: *The National Opera House, by Snøhetta. Photo by Jiri Havran.*
Right: *Zenith de Strasbourg, by Massimiliano and Doriana Fuksas. Photo by Moreno Maggi.*



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This month, our vastly expanded video library, **Record TV**, features tours of several projects, including a controversial Massachusetts residence, COTE Award-winning buildings, and two museum exhibitions. You can also view and **comment** on stories, **share** your images, and **participate** in our forums at **archrecord.com**.



Reader Photo One of nearly 2,000 images posted by our readers: A house in the Tennessee woods designed by Norris Architecture.

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Our weekly conversations with people making headlines. New this month: Museum of Modern Art curator **Barry Bergdoll**.



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Your comments

"Why do so many architects equate good design with angry neighbors? Can't we design houses that people want?"

— Anonymous, on July's House of the Month.

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Consider:

- Economy
- Aesthetics
- Clear spans
- Structural integrity
- Construction ease

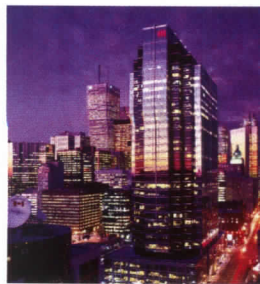
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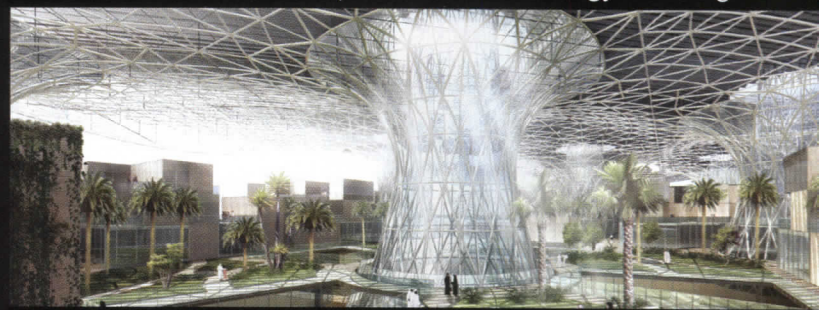
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Editorial

By Robert Ivy, FAIA

omit the “pre” from prefab: There’s nothing preliminary about the term. If you have any doubt that prefab’s moment has arrived, ask the educated general audience that reads *Dwell* and other shelter magazines or watches HGTV—many have become passionate devotees of the idea. Hundreds, no thousands, of true believers poured through the doors of the Museum of Modern Art in New York City on July 15, drawn to the opening of a major show devoted to the subject, entitled, *Home Delivery: Fabricating the Modern Dwelling*. Five actual structures, illustrative of the most provocative ideas in house making today, offered a counterpoint to drawings and models inside the museum, which told the rich history of alternative home-building methods.

As current as it seems, ironically, the notion has attracted interest for centuries. A bit of clarification is in order, however. As curator Barry Bergdoll points out in his essay accompanying the exhibition, “The history of off-site fabrication of buildings and the history of an architectural culture of prefabrication are distinct.” The first stretches back to early recorded history, while the second gained currency after the Industrial Revolution and increased with 20th-century Modernists confronting the challenges of housing for burgeoning worker populations. Today, after economic and market-based vicissitudes, our interest has risen to fever pitch.

Home Delivery and recent scholarship indicate that both prefabrication and experiments in off-site fabrication have stirred many of our greatest designers and inventors to action. Consider Thomas Edison’s 1908 experiments in New Jersey with poured-concrete houses; Buckminster Fuller’s aluminum Dymaxion house, suspended from a single mast; Paul Rudolph’s multifamily experiments; and the multiplicity of ideas for single-family houses of Walter Gropius and Marcel Breuer. Partnerships with industry—with a capital “I”—however, have offered the most promise for the most people: Sears, Roebuck, and Company managed to sell 75,000 precut houses by the 1920s; and later, preconstructed travel trailers made by various, smaller companies came to ascendancy. By the late 1940s, inexpensive, cheaply constructed trailer homes accommodated 50,000 families per year, becoming the major form of nonsubsidized affordable housing in the United States, with 9 million documented by the year 2000. Improperly tied to foundations, too often cheaply constructed, mobile homes have provided fodder for comedians while masking this country’s intrinsic needs for shelter.

Architects in the 1970s and ’80s, enamored of off-site manufacture abroad, looked to Scandinavia, particularly to Finland, where factory-built houses achieved high-quality standards and wide acceptance. What they found, however, on attempting the Nordic experiment in the United States, was a barrage of

socioeconomic impediments that included unions unwilling to relinquish their traditional roles in plumbing or electrical oversight, for example, as well as building codes that were slow to adapt to change. The crafts held the industry in a virtual stranglehold.

Why the renewed excitement today? In recent research, McGraw-Hill Analytics cites several compelling reasons for prefabrication. Included in its findings are reduced construction times and improved productivity, better quality control and ultimate durability, construction safety, reduced labor costs, and reduced environmental impact. Unstated in this list are the reasons that draw architects long-interested in modular design and prefabrication, such as Ray Kappe, the founder of SCI-Arc, who has collaborated with a prominent developer of prefabricated residences in Los Angeles—a company called Living Homes. Kappe’s solutions manage to offer contemporary flexibility for homeowners and a true spatial sense with handsome, high-quality houses strongly committed to sustainable design. Sustainability and controlled customization derived from digital design come with the zeitgeist for a new generation of home buyers.

Today, excitement comes from a future in which digital fabrication and robotics promise a brave new world of home-building, custom-tailored with minimal expenditure of materials and methods. In an age in which Volkswagen already produces complex, entire automobiles in a transparent, robotic factory in Dresden, the leap to making human shelter in a highly controlled, digitally manipulated environment does not lie far behind.

With human societies continuing to grow, and the population of the United States alone projected at 450 million persons by 2050, our need for shelter demands that we look beyond stick-built construction and sticky, traditional crafts to sleeker, quicker, more environmentally friendly solutions. Though the idea has knocked around the culture, prefab and premanufacturing offer promising new outlets for architectural design energy, enhanced quality control, creative construction techniques, and a chance to avoid much of the waste inherent in earlier processes. While admitting that off-site construction arrives with its own questions to solve, including those intractable local codes, premanufactured housing has moved past the trailer home and left our preconceptions in the dust, allowing us to realize that there’s nothing “pre” about prefab any more. It’s here, now, and to a new generation, simply fab.



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Letters

Urban myths

I read and reread John King's June Commentary on urban neighborhoods and San Francisco's Mission Bay with both interest and self-interest ["Lost opportunities in developing urban America," page 55]. King aptly identifies the challenges of creating large and entirely new neighborhoods against the economic imperatives of packaging industrial-strength development opportunities for REITs, and alludes to the attendant scalar issues these engender. But while some of the projects in Mission Bay can be seen as a failure of imagination, I do not think the quality of design is as uniformly disheartening as he describes it.

The backstory that eludes King involves a cadre of credible and energetic local architects who, with support from the Redevelopment Agency, have attempted to lead various housing developers (sometimes reluctantly) toward more sustainable and urbanistic residential designs. Architects with recent experience in Mission Bay include Richard Stacy, FAIA, Sylvia Kwan, FAIA, David Baker, FAIA, Craig Hartman, FAIA, and myself. None of us represent "corporate-size firms that do everything the same old way." Nor do I believe the work of this group (which has occasionally found its way into the pages of RECORD) is "low slung mediocrity without a hint of creativity or conviction ... formulaic and thuddingly dull," lacking in ambition, or, most oddly, reminiscent of "shopping malls with the tops peeled off."

For instance, our own design for 355 Berry Street, which is likened to one of a "squad of tanks rolled into place" along Mission Creek, is a contemporary apartment project with a diversity of unit types organized around six courtyards terracing toward the water. It is threaded with multiple circulation

paths, both interior and exterior, connecting common spaces. The project also has active pedestrian level frontages lined continuously with either storefront or residential lofts with tall glazing and private entries, in distinction to one of the (undeniably attractive) projects highly praised in the article which presents the blank facade of a garage to the pedestrian on the street.

While Mission Bay may not represent the last word in creating a new mixed-use urban neighborhood, there is some thoughtful work under way that can fairly be considered to make a positive contribution to the fabric of the neighborhood and the city.

—Alexander Seidel, FAIA
San Francisco

Ghosts of Beijing

Am I the only one? Did I just imagine seeing ghostly historic images of the "magnificent" architectural achievements of Brasilia, the USSR, and even Berlin seeping through your special July Beijing issue?

—Gregory Munford
Alexandria, Va.

Historic interventions

Thank you for your recent online Record News story on the heated topic of Renzo Piano's visitor's center for Le Corbusier's chapel of Notre Dame du Haut in Ronchamp, France [June 17]. The validity of constructing within fairly close proximity to the significant, landmarked building is increased by the facts that the old building continues to serve its original purpose and the new construction on-site is critical to that purpose. Considering the functional programmatic necessity, and that the new structure is subservient in its character and placement on the site (in fact, most of it is underground), I conclude that it could work. This particular solution is

similar to what Robert A.M. Stern did to a historic house museum in Connecticut recently, and the underground museum constructed in Lyon, France adjacent to a Roman amphitheater some time ago.

—James C. Stratis
Preservation Projects Manager
State Historical Fund
Denver

Misplaced criticism?

Some of Martin Filler's Critique of museums in the June issue ["New museums: The good, the bad, and the horribly misguided," page 51] hit the catty note of a "worst dressed" lineup and left me curious. I am not a regular reader of your magazine, or any other design-related publication for that matter, but I reread the section on the Creation Museum in Kentucky looking for a single word about bad choices in the building design. It wasn't there. There was some substance to the Akron Art Museum critique—at least I could understand the complaints about misplaced flamboyance resulting in ineffective public spaces. But the Creation Museum seemed to offend Mr. Filler personally because it espouses a view he inexplicably fears. What does that have to do with architectural critique?

—Lynn Hazen
Via e-mail

Martin Filler responds:

The criticism of architecture, as I see it, is not limited to building design, but also encompasses the function a structure is meant to fulfill. In reply to fundamentalists who were outraged by my remarks about the Creation Museum, I could say I regret that they are offended, except I am not. There is all the difference in the world between reviewing a house of worship such as a Roman Catholic cathedral and mocking the doctrine of the

Immaculate Conception—which I would never dream of doing—and in this case, disparaging a museum, an institution that in no way can be deemed a house of worship, however reverential Creationists may be of it. It should go without saying that freedom of speech works both ways.

After the quake

While Prof. Zhi Wenjun acknowledges the collapsed jerry-built school buildings in your July coeditorial [Sichuan Earthquake and the Chinese Response," page 21], one does not get the feeling the obscenity of parents trying to visit the horrific sites, holding their child's shoe or homework assignment, has the government's passion or priority. Not to mention the families that adhered to the one child edict that have lost their legacy. All the conversation about Ministry this and Council that is enough to bring parents to tears. How do you say righteous in Mandarin, or do you?

—John Klein
Los Angeles

Corrections

The photos on page 148 accompanying the story on Jianfu Palace Garden [July 2008, page 144] should have been credited as follows: Cheng Shouqi/China Heritage Fund (top left and bottom), Hisun Wong/China Heritage Fund (top right). Additionally, the north arrow for the drawing on page 145 is incorrect and is pointing south, and the first item on the legend for the section on page 147 should have been identified as "Gate of Preserving Integrity."

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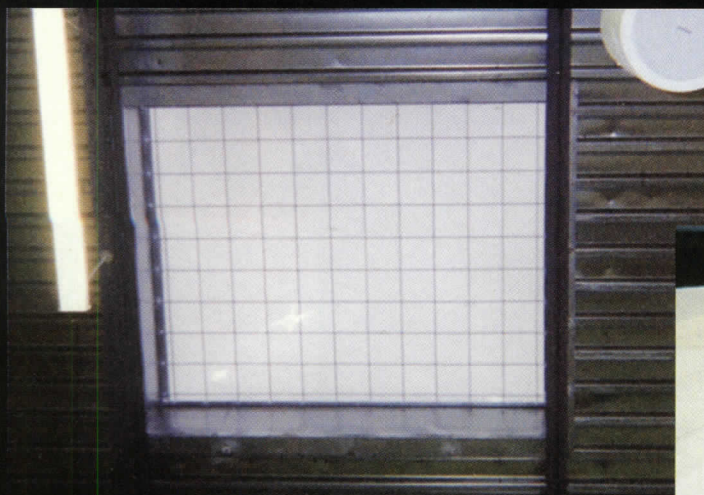


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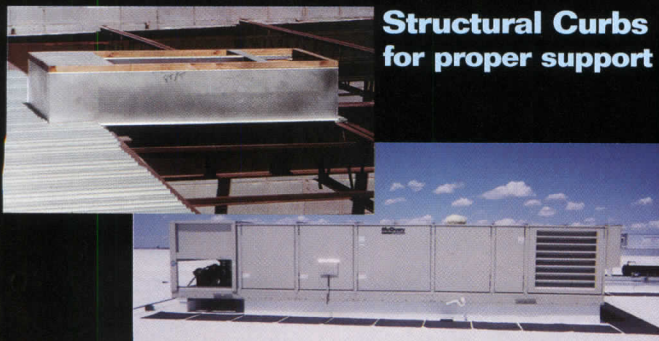


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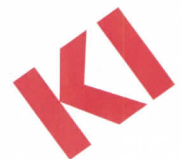




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Midwest floods wreak havoc on architectural landmarks



The floods that ravaged the Midwest in June did not discriminate between corn and soybean fields, aging riverfront downtowns and renowned architectural landmarks. Iowa was especially hard hit, with buildings by Louis Sullivan, Frank Lloyd Wright, Frank Gehry, Steven Holl, and Max Abramovitz taking on significant amounts of water. As the floodwaters receded, the overriding, still-unanswered question was whether the damage was structural or cosmetic.

In Cedar Rapids, Iowa's second-largest city, the raging Cedar River poured into Sullivan's exquisitely proportioned Peoples Savings Bank of 1911 (now owned by San Francisco-based Wells Fargo Bank). The two-story bank, which sits less than a block from the river and is clad in a ruddy tapestry brick, was painstakingly restored by Chicago architect Wilbert Hasbrouck in 1991. Water filled the building's first floor and basement, according to bank officials. Preservationists held out hope that the water did not reach the bank's upper level, which houses irreplaceable Regionalist murals.

The University of Iowa recently endured severe flood damage. The school's Arts Campus (right) includes buildings designed by Frank Gehry, Steven Holl, and Max Abramovitz (Hancher Auditorium, above).

Upriver in the north-central Iowa town of Charles City, the Cedar River struck Wright's Alvin Miller house of 1946, a low-slung, L-shaped home where terraces and an outdoor fireplace extend downward to the river's banks. The house's owners told the Chicago-based Frank Lloyd Wright Building Conservancy that water reached up to the roofline.

The most widespread damage occurred at the University of Iowa in Iowa City, where the Iowa River bisects the campus, forming what is normally a picturesque river valley. The swollen river damaged 20 university buildings, wreaking havoc in the loosely arranged, riverfront cluster called the Arts Campus. There, several late 1960s and early 1970s Modernist structures by Abramovitz, including Hancher Auditorium and the university's art museum, took



on water. Most of the auditorium's first-floor seats were submerged, university officials say.

Water covered much of the first floor in Holl's Art and Art History Building [RECORD, January 2007, page 92], the reddish, guitar-shaped structure designed to soar over an old quarry pond, and Gehry's Iowa Advanced Technology Laboratories of 1992, a fragmented collage sheathed in limestone and stainless

steel. University officials expressed concern about damage to research equipment in the labs. In the art building, the flood was expected to leave behind foul-smelling air and contaminated materials in the first-floor rooms around the building's Constructivist-inspired staircase. "Our building was built with the ground floor raised for a 100-year flood," Holl says. "Unfortunately, this was a 500-year flood." *Blair Kamin*

In a desert city, a skyline grows ever higher

The world's tallest building, the 162-story, 2,680-foot Burj Dubai, designed by Skidmore, Owings & Merrill (SOM), is set to open next year. But Dubai also has six other skyscrapers of at least 100 stories in the works, making it the supertall building capital of the world—head and shoulders above other cities.

The towers include SOM's Al Sharq (102 stories, 1,180 feet),

fronted by vertical glass curtain walls that open at the top like flower petals; and the Al Sharq will be formed by nine tall, filigreed glass-and-steel cylinders. Most, if completed, will be located either on Sheikh Zayed Road, the city's central thoroughfare, or in the new Dubai Marina district. Catering to a population dominated by wealthy expatriates, most will include high-

Dubailand, which will cover about 3 billion square feet.

"It's the greatest game of one-upmanship I've ever seen," says Michael Brendle, design principal at Denver-based ELS, a firm that has worked on several master plans and towers in Dubai. "It's all about image: bigger, better, cooler, neater."

Few Middle Eastern cities have towers that even approach the scale of those contemplated in Dubai, where there are already more than 10 towers taller than 50 stories. According to Emporis, a research firm that tracks building projects, the tallest towers in neigh-

Dubai's unbridled exuberance to build higher and higher. Willis, for instance, wonders how the city will deal with traffic and human scale. Others ask if the towers will overtax the city's infrastructure and natural resources, and whether or not tenants will ever fill these gigantic buildings.

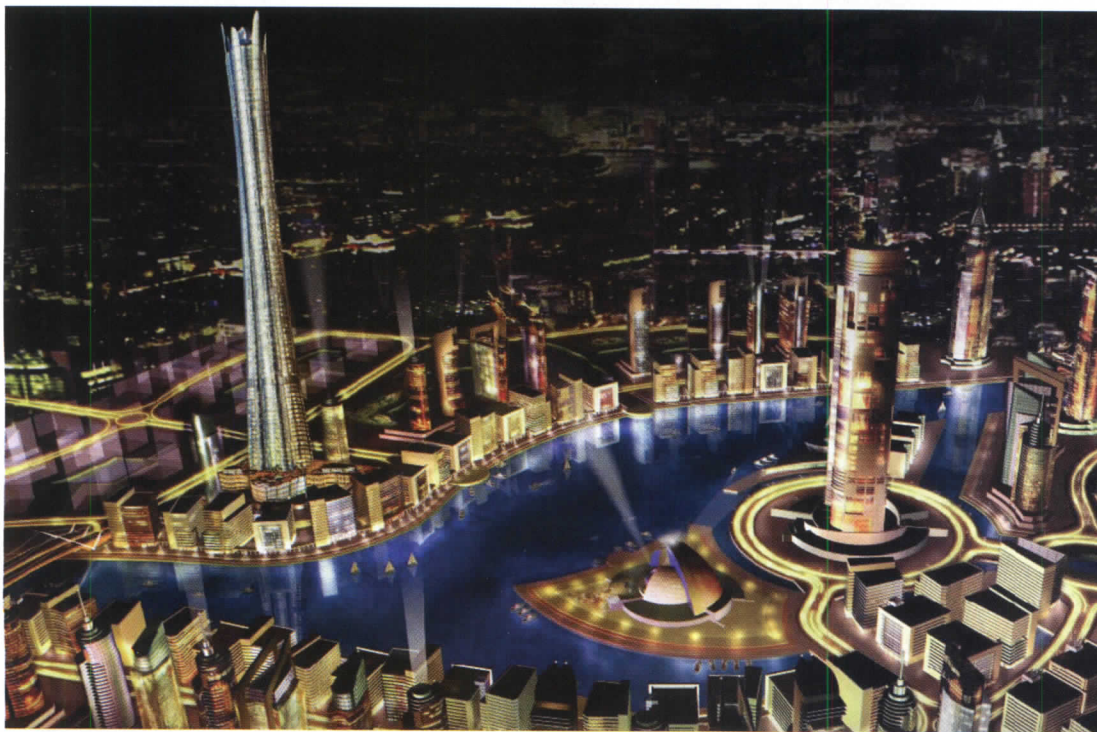
George Efstathiou, a managing partner at SOM's Chicago office, has visited Dubai often during the past five years while leading the Burj Dubai project. He notes that development thus far has been fairly unplanned and unregulated, with developers "doing their own thing." But he says that concepts of urban design control—including height limits, zoning for human scale and walkability, and providing public transportation—are slowly starting to emerge.

Dubai's recently released Strategic Plan 2015 calls for the adoption of "integrated urban planning," although it fails to give specifics. The plan does, however, call for a \$20 billion investment in new roads and an elevated rail system to alleviate the city's growing traffic problems. And some developers, including those behind the 100-acre Burj project, are making an effort to include promenades and parks, on a voluntary basis.

Efstathiou is concerned that buildings have low tenancy, despite being sold out, because most units are investment properties. But he thinks a slowdown is unlikely, despite tenuous world real estate markets. "Five years ago, everybody I talked to said the activity can't sustain itself. They were guessing that there would be a five-year window. Nothing has slowed down at all."

Interestingly, one trend that Efstathiou sees declining is the desire to build more than 100 stories. "I think now the focus is more on quality than height," he says, adding that clients are starting to hire better firms as they begin to recognize they can't get the same results with cheaper architects. "They've gotten attention from their buildings. I think they've gotten it out of their systems." *Sam Lubell*

 [View additional images online.](#)



More than a half-dozen towers 100 stories or higher are rising in Dubai, such as the Burj Al Alam (left of center).

National Engineering Bureau's Marina 101 (101 stories, 1,350 feet), Tameer's Princess Tower (107 stories, 1,360 feet), Nikon Sekkei's Burj Al Alam (108 stories, 1,645 feet) Aedas's Pentominium (120 stories, 1,690 feet), and the Tall Tower, formerly known as Al Burj (projected between 180 and 228 stories, 3,400 to 4,590 feet). Their designs range from the formulaic to the fantastic. The Princess, a fairly traditional concrete and blue-tinted-glass tower, will be topped with a faceted, dome-shaped concrete "crown"; the Burj Alam will be

end residences and hotels.

"It's extraordinary," says Carol Willis, director of the Skyscraper Museum, in New York City. "Dubai wants to position itself as the center of the Middle East, if not the world, and their business plans are impressive." Developed by multinational firms such as Emaar and Tameer, the towers are intended to impress—an obsession in Dubai, which also contains the world's largest man-made islands: The Palm Jebel Ali, The Palm Jumeira, and The Palm Deira. The emirate also is planning the world's largest theme park,

boring countries fall under 1,000 feet. Qatar is planning an 87-story, 1,434-foot-tall building, ironically named Dubai Tower, and in Jeddah, Saudi Arabia, the 5,249-foot-tall Mile High Tower has been proposed but not yet approved.

Willis notes that when it comes to building supertall towers, the Eastern Hemisphere trumps the West. In fact, China is the only nation that can compete with Dubai. Five of the world's 10 tallest towers are located in China, with hundreds more planned.

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FXFOWLE designs world's longest arch bridge

FXFOWLE can add a bridge to the list of structures it currently is developing in Dubai. The firm's exuberant design for the Sheikh Rashid bin Saeed Crossing was the winner of a competition sponsored by the emirate's Roads and Transport Authority. When completed, likely in 2012, the 673-foot-tall structure will be the longest and tallest arch bridge in the world.

Two light-rail tracks and 12 car lanes will traverse the bridge. The \$800 million project also calls for walkways that will be placed underneath the deck to shade people from the blazing sun. Named after the

father of Dubai's present ruler, Sheikh Mohammed bin Rashid al-Maktoum, the structure will be the sixth crossing at Dubai Creek, joining four bridges and one tunnel.

Rather than a single span, FXFOWLE created two separate arches that converge on an artificial island. The west span stretches 2,000 feet—200 feet longer than China's Chaotianmen Bridge (2008), the current record holder for the arch bridge with the longest span. Visually, the Dubai bridge will frame an opera house, a project recently awarded to Zaha Hadid, on a neighboring island



The west span of the sinuous bridge (above) in Dubai will stretch 2,000 feet.

while providing multimodal access to it. "If we had created a single span, the height of the deck would have obstructed views of the future opera house," explains Sudhir Jambhekar, FAIA, senior partner at FXFOWLE.

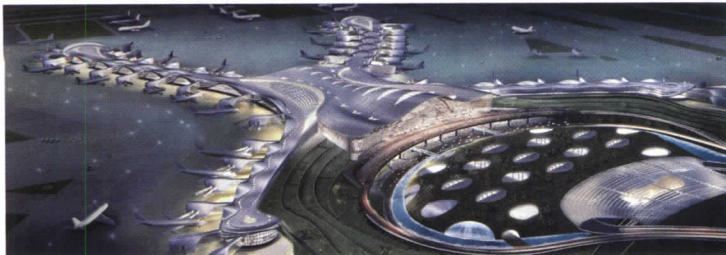
The bridge's design was inspired by Middle Eastern sources. Its rhythmic lines mimic the graceful patterns of Arabic calligraphy, while the overall form evokes sand dunes. Closer to

home, Jambhekar was influenced by one of his favorite bridges, the Bayonne Bridge, between New Jersey and Staten Island.

According to a spokesman, FXFOWLE opened an affiliate office in Dubai in 2005 and is working on four master plans and 11 structures in the emirate. *Josephine Minutillo*

[View additional images online.](#)

KPF tapped for Abu Dhabi airport expansion



From the air, the new terminal (above) by Kohn Pedersen Fox resembles an X.

Abu Dhabi has been expanding at breakneck speed, much like Dubai, its neighbor 90 miles to the north. Now the Abu Dhabi International Airport is set to grow significantly larger with a new facility: the 5.9-million-square-foot Midfield Terminal Complex designed by Kohn Pedersen Fox Architects.

The \$6.8 billion project is expected to allow the airport to handle up to 30 million passengers per year, a significant increase over its existing capacity of 8 million, explains KPF president Lee Polisano. Construction is underway and should be finished by 2012.

From the air, the new terminal resembles a gently curved X. "The genesis for the design comes from an understanding of the placement of the terminal and the two runways," says Polisano. "It generates a

form that allows for a maximum number of airplanes to actually park at the terminal—47 of them."

The design is also meant to respond to Abu Dhabi's urban planning scheme, which emphasizes green space. The terminal rises from the desert floor like a sand dune, and wraps around verdant landscaping and a pond near the building's entrance. Inside, a 49-foot-high hall welcomes visitors, followed by a series of repeating steel arches that guide people through check-in and security and then to a large public garden where they await flights.

This project marks KPF's second commission in the emirate. It also designed the Abu Dhabi Investment Authority Headquarters, completed in 2006. *Tim McKeough*

[View additional images online.](#)

Even small firms get a slice of the Dubai pie

Many of the world's A-list architects have descended upon Dubai, as its desert sands are parted for ever more extravagant developments. But lesser-known firms are showing up there as well.

ZAS Architects, a 50-person firm in Toronto, recently won a commission from Nakheel, one of the emirate's largest developers, to design a \$1.25 billion waterfront complex that will encompass 7.2 million square feet. The project, dubbed Marina and Beach Towers, is part of a larger development called Dubai Promenade, which is being constructed on a 55-acre artificial peninsula that was created by dredging up the floor of the Persian Gulf.

Like many developments in the rapidly growing emirate, Dubai Promenade is grand in scale. ZAS's portion includes five 45- to 60-story condominium towers, all of which sit atop a 2-million-square-foot, multi-level podium. This enormous base will contain high-end shops and restaurants, along with parking for 6,000 cars, explains Paul Stevens, a ZAS senior principal. The Dubai Promenade scheme also calls for six

additional buildings, including an office tower and donut-shaped hotel designed by Atkins, a U.K.-based firm.

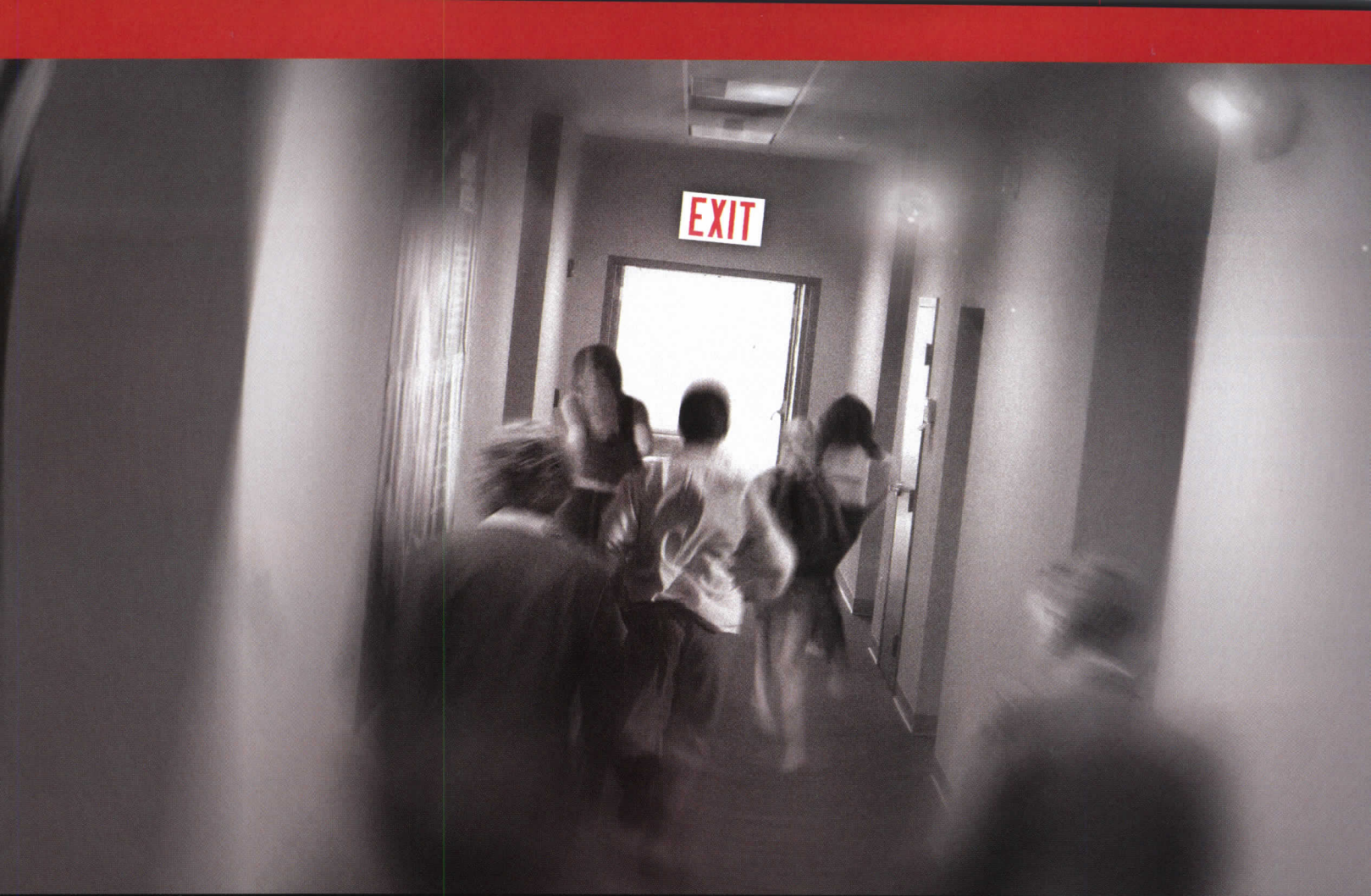
A signature feature of the ZAS towers are exterior walls that lean outward. A concrete core and concrete outrigger beams help create lateral stability, allowing for floor



ZAS Architects is designing a mixed-use, waterfront complex (above).

plates that are free of columns or shear walls—a great selling point, says Marek Zawadzki, a ZAS senior design partner.

The is one of several ZAS projects now under way in Dubai. The Canadian firm opened an office there in 2005 and is working on commissions totaling 10 million square feet. *Albert Warson*



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A prefab, rotating skyscraper coming to a city near you?

If architect David Fisher manages to achieve his dream, the world will soon have its first prefabricated, net-positive-energy skyscraper with floors that rotate independently of each other.

In late June, at a press conference in New York City attended by a crowd of international journalists, the Italian-Israeli architect presented plans for what he has dubbed the Dynamic Tower. The high-rise features revolving floors and would generate enough energy, via wind turbines and solar panels, to power itself and surrounding structures.

In the coming months, Fisher says, construction will begin on not one, but two of these buildings, in Dubai and Moscow. The 80-story Dubai tower is expected to stand 1,380 feet tall and cost about \$700 million, while the project in Moscow will rise 70 stories, or 1,312 feet, and total more than \$400 million. Both are scheduled for completion in 2010.

Dynamic Tower seems fantastical, but Fisher does have some heavyweight help. New York-based Leslie E. Robertson Associates (LERA) has signed on as structural engineer for the two commissions now under way. The firm, founded in

1923, has worked on scores of high-profile buildings, from the former World Trade Center in New York City (1977) to the soon-to-be-completed Shanghai World Financial Center. LEHR Consultants International, a 40-year-old mechanical engineering firm, also is involved.

Fisher, 59, has never built a skyscraper—or a major project, for that matter—and some have brought into question his credentials. According to a recent Associated Press story, for instance, Fisher's bio inaccurately stated that he received an honorary doctoral degree from Columbia University. (He didn't.) In the face of criticism, Fisher emphasizes that he does have experience in prefabrication and construction. In 1985, he says, he founded the New York-based Fiteco Ltd., a design company whose portfolio ranged from hotels in the Caribbean to cladding for skyscrapers. He also says he developed the Smart Bathroom for the Leonardo Group, a preassembled bathroom system that has been installed in hotels in Dubai, London, and Moscow.

More recently, Fisher founded Dynamic Architecture Group, whose sole focus is the Dynamic Tower. "I decided to put all my beliefs into



The Dynamic Tower (above) would run entirely on wind and solar power.

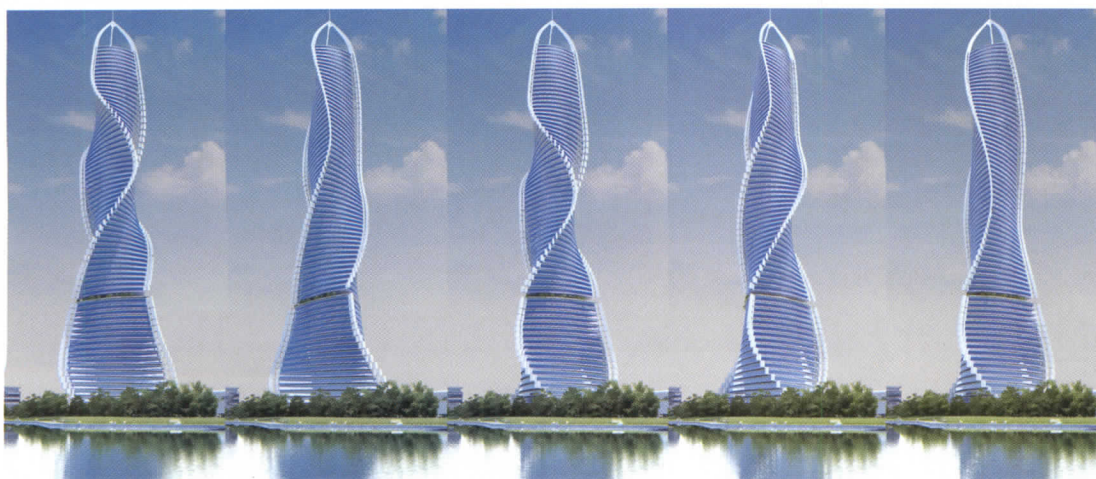
this building," Fisher says. His vision comprises three core ideas: that skyscrapers should not be static, they should produce their own energy, and they should be made with modular components built in factories.

Construction plans call for erecting a fixed concrete core, and then hoisting prefabricated living units up in sections—a process that Fisher says would be 30 percent faster than conventional construction. The shell of each living unit would be made of steel, aluminum,

carbon fiber, and glass, and the interiors would be fully finished before installation. Fisher says the units would be "mechanically fixed" to the core, but he didn't provide further information. "It's very simple, just like any machine or mechanical thing," he says. He adds that construction of the prefab components will begin "within weeks" at a factory in Italy.

At the press conference, Fisher fielded an array of questions from skeptical journalists, including queries about who would control each rotating floor. The answer wasn't clear. The architect described several scenarios, from a time-based sharing system for floors with multiple apartments, to a central control that would allow a single person to twist the entire building into different shapes. Others wondered about the wind turbines, to which Fisher replied that his group is still developing them.

While it appears the details are still fuzzy, Fisher is confidently optimistic. He has already targeted his next city: "Our intention," he says, "is to build the third rotating skyscraper in New York." *Tim McKeough*



Because floors would rotate independently of each other, the building's shape would constantly change (above).

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Walter Netsch, 88, leaves behind a complex legacy

It's no coincidence that the license plate for Chicago architect Walter A. Netsch, Jr., read "WN 21." The number stood for "21st century," symbolizing where the progressive architecture of this strong-willed maverick was always headed. Netsch's geometrically complex buildings, including the much-admired Cadet Chapel at the U.S. Air Force Academy, broke the mold of glass-box orthodoxy in the mid-20th century and helped set the stage for today's expressionistic, digital design. Yet any assessment of his work must come to terms with the fact that his labyrinthine structures could be bewildering as well as brilliant. "His buildings create wonderment, in the best and worst sense of the word," Chicago architect Stanley Tigerman once said.

Tall and thin with a booming voice, Netsch, who died at age 88 on June 15, was born on Chicago's South Side, the son of a meat-packing-industry executive and a blue blood Yankee mother. He graduated from MIT in 1943 and joined Skidmore, Owings & Merrill in 1947. He spent nearly his entire career at the firm, concentrating on prominent institutional projects in contrast to the commercial work pursued by fellow partner and in-house adversary Bruce Graham. "Netsch and Graham were bitter rivals," wrote the architectural historian Nicholas Adams in the 2006 book, *Skidmore, Owings & Merrill: SOM Since 1936*. "Partner meetings, held every Monday morning, were deemed to be concluded when the conference room door slammed shut, and one or the other (usually Netsch) stormed out."

Both men had a hand in shaping Chicago's innovative Inland Steel Building of 1958, which places a column-free office tower alongside an adjoining service tower. Historians agree that Netsch con-

ceptualized the project before moving on to the Air Force job, while Graham was responsible for its final, structurally expressive form. Frank Gehry has said that the building's



Walter Netsch (above), a long-time partner at SOM, was known for projects such as the Cadet Chapel (below), and for developing an architectural style and design process known as "field theory."



glistening stainless-steel exterior helped inspire his own, far more sculptural mountains of metal.

Netsch broke decisively with boxy Miesian geometry in his Cadet Chapel of 1962, the undisputed centerpiece of the Skidmore-

designed (and otherwise rectilinear) Air Force Academy north of Colorado Springs, Colorado. Suggesting a massed squadron of fighter jets about to shoot into the sky, the soaring, spiky chapel was built on a space frame of steel tetrahedrons and was enclosed with aluminum, the same material used for jets. Initially derided as a temple to America's military-industrial complex—worshipping there, it was said,

"field theory," whose departure point was the shifting of square shapes into a geometrically complex series of grids. At the hard-edged Chicago campus of the University of Illinois, the field theory led to such structures as the Architecture and Art Building, where rotated squares create silhouettes and mazelike floor plans. When the campus opened in 1965, critics derided it as "Fortress Illini," a Brutalist garrison that turned its back on the low-income neighborhoods around it. Students later complained that the darkened areas beneath the campus core, where a forest of columns supported elevated walkways, made students feel as if a mugger could be just around the corner. Netsch blamed the shortcomings on insufficient funding and poor maintenance. But the core and its Greek-inspired amphitheatres were demolished in the mid-1990s, replaced by a traditional college quadrangle.

Netsch retired from SOM in 1979 and served in the 1980s as Chicago's parks commissioner, where he decentralized city parks and moved to resurface hundreds of dilapidated playlots. In 1994, he donated nearly \$1 million to the unsuccessful gubernatorial campaign of his wife, Dawn Clark Netsch, raising the money by selling a Roy Lichtenstein painting that he had purchased for about \$500 decades earlier.

By 2008, Netsch had lived long enough to witness a newfound appreciation for Midcentury Modernism, including some, though certainly not all, of his own work. Many nonarchitects still rail against the difficulty of navigating and using his buildings. Yet a new generation of architects and critics are giving those very buildings a fresh look, captivated by their mystery and materiality. "I always enjoyed getting lost in his field-theory buildings," one architecture buff wrote to me after Netsch's death, "and I worry about their future because their loss would be a blow to the world's architectural variety." *Blair Kamin*

was like going to church in a B-52—the chapel ultimately came to be seen as a successful synthesis of the Gothic and the Modern. The AIA honored it with the Twenty-five Year Award in 1996.

Netsch soon developed his

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Foster paints a new future for Pushkin

Foster + Partners has been commissioned to create an ambitious, \$177 million master plan (above) for Moscow's Pushkin Museum of Fine Arts, whose collection includes Egyptian antiquities; works by old masters, such as Rembrandt and Piranesi; as well as, notably, Renoir, Monet, Gauguin, Van Gogh, Picasso, and Matisse. The goal of the project is not only to increase exhibition and archive space, but also to develop the site into a vibrant cultural quarter.

The 1-million-square-foot project calls for the restoration of the institution's 1912 Beaux-Arts home designed by Roman Klein, along with the reinvention of Pushkin-owned, 19th-century buildings surrounding the facility. The intent is to unify the structures so they "read more clearly as an entity," explains Spencer de Grey, head of design at the U.K.-based firm. "It's a whole raft of design interventions intended to link the complex together without destroying the inherent character of the historic buildings."

Additionally, the project entails converting roadways to landscaped pedestrian zones, and constructing four new buildings to house a gallery, library, cinema, and an administrative center. The plan also adds two new underground circulation routes for pedestrians, which will link various buildings and serve as exhibition space. In this way, the architects aim to create a true all-weather facility.

The Pushkin is scheduled to close for construction in 2009, and reopen in 2012—just in time for its centennial celebration.

Tim McKeough

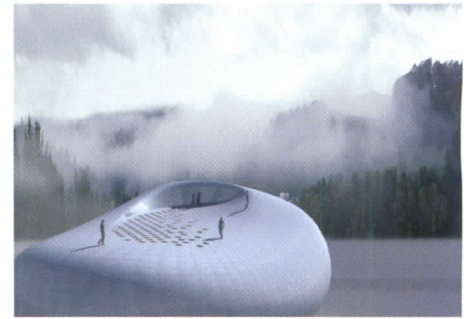
Studio Pei-Zhu creates a work of art

While the devastating Sichuan earthquake in May left a large portion of Western China in ruins, some building projects there are pushing forward. One such project is the Art Museum of Yue Minjun (right), designed by Beijing-based Studio Pei-Zhu, a 2007 Design Vanguard winner [RECORD, January 2007, page 68].

Located near the Qingcheng Mountains and adjacent to the Shimeng River in Sichuan Province, the 10,700-square-foot museum will house the work of Yue Minjun, a contemporary artist known for his repetitive images of large, smiling figures. It will be one of 10 new

museums on the same site, each dedicated to the work of an influential Chinese artist. The complex, which is being developed by the local government, is the brainchild of Lu Peng, an art professor.

The Yue Minjun museum will contain exhibition space and a small artist's studio. According to Pei Zhu, one of the firm's principals, a river rock he picked up one day inspired the building's form—a large, oblong sphere. "Everything is based on the natural stone, which has a very strong relationship with the creek and the mountain and nature," he explains. On the exterior, curvilinear



walls will be clad in highly polished zinc, a soft metal that gives the building a futuristic look yet blends in with the natural surroundings. It's a striking departure from another recent project designed by the firm for the 2008 Summer Olympics: Digital Beijing, a control center whose facade resembles computer circuitry.

Work is already under way on the art museum. Site preparation began earlier this year, and the building is scheduled to be completed in early 2009. *Andrew Yang*

UFO museum has close encounter of the CAD kind



In designing a new home for the International UFO Museum and Research Center, in Roswell, New Mexico, Kevin Schopfer, AIA, a principal of Ahearn-Schopfer Associates, sought to arouse curiosity.

Although his 18,000-square-foot, one-story building (left) features a rectangular footprint and mostly rectilinear concrete volumes, a warped plane cantos from the west elevation and soars nearly 90 feet above the main entry. This surface, which will likely be gel-coated fiberglass, folds over on itself, while a cone-shaped tunnel—symbolizing a cosmic wormhole—connects the top and bottom facets. "The concept is that this is a found object

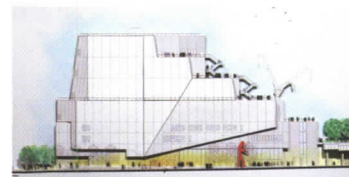
emerging from a file cabinet, kind of like information hidden in a drawer somewhere," Schopfer explains, referring to the purported government cover-up of extraterrestrial evidence. "It's meant to grab your attention and question what it is."

The museum is now raising \$15 million for construction of the project and hopes to break ground in early 2009. Cambridge Seven Associates is designing the exhibits. *James Murdock*

Piano's design for Whitney branch revealed

Since 1985, the Whitney Museum of American Art has presented three separate expansion plans for its 42-year-old, Marcel Breuer-designed home in Upper Manhattan—all of which have fizzled. Once again, the institution is trying to increase its square footage, with hopes that an entirely new strategy will make the fourth time a charm.

In late April, the museum debuted Renzo Piano's scheme for a new satellite building in the city's Meatpacking District. The unveiling



comes less than two years after it purchased the downtown site.

The 50,000-square-foot facility (above) features five terraced floors situated above an all-glass lobby. The building will increase the museum's capacity to exhibit its permanent col-

lection, and will offer events that its headquarters cannot accommodate.


The Whitney's director, Adam Weinberg, says the project also allows the museum to return to its "downtown roots," and adds that the pale cantilevered form of Piano's design reflects "the roughness and simplicity" of nearby warehouses and cobblestone streets.

A community board approved Piano's plan in June, and the city is currently reviewing it. *Alec Appelbaum*

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Dozens of ceramic rods were removed from the brise-soleil that covers The New York Times Building

On July 9, just hours after the third person in five weeks attempted to scale the Manhattan skyscraper (below). The action was taken as a safety measure to prevent daredevils from mounting the 52-story tower, designed by Renzo Piano Building Workshop (RPBW) with FXFOWLE [RECORD, February 2008, page 94]. When the tower opened in late 2007, critics marveled at the sunscreen's 3-inch-diameter ceramic rods, intended to capture heat and lower the building's interior temperature while still allowing sunlight to pass through the glass curtain wall. But the ladderlike screen has enticed so-called urban climbers. "We decided to remove a limited number of rods in the lower part," explains Bernard Plattner, a partner at RPBW. "This is the only immediate possible way to reduce accessibility." *Alanna Malone*



Santiago Calatrava's design for a transit hub at the World Trade Center site in New York

has been scaled back. On July 1, shortly after revealing that construction projects at Ground Zero were behind schedule and over budget, the Port Authority of New York and New Jersey said it was cutting out a signature element of Calatrava's elliptical-shaped building: the hydraulic system that would allow its ribbed steel wings to open and close. Calatrava wasn't surprised by the announcement. A statement released by his firm said they are working with the developer to ensure the project is built, and the recent modification "is just the latest example of many changes we have recommended to accomplish that goal." *Sam Lubell*

On July 7, the World Monuments Fund announced the winner of its first Modernism Prize,

a new prong in its two-year-old Modernism at Risk campaign, cosponsored by Knoll. Winfried Brenne and Franz Jaschke, partners of Brenne Gesellschaft von Architekten, received the award for their restoration of the ADGB Trade Union School (1930) in Bernau, Germany. The 12-acre, yellow-brick complex (right) was designed by Hannes Meyer, who served a controversial stint as director of the Bauhaus, and his colleague Hans Wittwer. The trade school operated the facility for only three years before the Nazi party claimed it for training purposes. After World War II, the East German Trade Union Federation took over the complex. Its survival was unknown to Western historians until the fall of the Berlin Wall in 1989. *David Sokol*



Earlier this year, it looked like Atlanta's Buckhead Library (1989) would soon be relegated

to books about 20th-century architecture. The Deconstructivist-style building (left), designed by Mack Scogin Merrill Elam (MSME) Architects, sits on two acres in the midst of a \$1.5 billion, mixed-use project now under construction. The developer offered to buy the county-owned library property for \$25 million, with an eye toward razing the building.

His plan was embraced by some and loathed by others. Opponents circulated a petition, and more than a hundred people turned out for a library board meeting. In March, the county commissioners voted to reject the developer's bid. Still, the building's fate is not entirely secure. The land was donated in the 1940s for use as a library, but the deed does not explicitly restrict its use in perpetuity. The library also is in need of upgrades. "The building is a little tired," says Bruce McEvoy, president of AIA Atlanta.

The episode illustrates the threats facing modern architecture, much of which is too new to qualify for protection. The issue is particularly relevant to cities like Atlanta, says MSME principal Merrill Elam, AIA. "In a city as young and growing as this," she explains, "you're apt to have buildings that are not actually very old being taken down for other development." She knows firsthand: Another building designed by her firm and completed in 1989, Turner Village at Emory University, recently was demolished to make way for a new, mixed-use project. *Ted Bowen*



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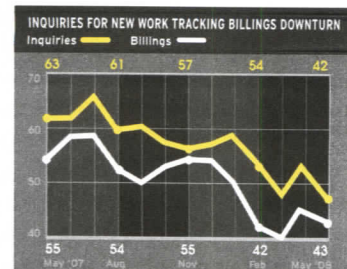
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The Architectural Billings Index slipped to 43.4 in

May, down two points from April. In addition, inquiries dropped to 46.5, the lowest point in the ABI's 13-year history. A number above 50 indicates an increase, and below 50, a decrease. The American Institute of Architects (AIA), which compiles the index based on surveys sent to 300 mainly commercial architects, says it doesn't expect billings to rise in upcoming months. And in fact, its recently released Consensus Construction Forecast—a semiannual report—projects that commercial and industrial activity will be down 1.9 percent this year, followed by a 6.7 percent drop in 2009. “The one bit of good news,” says AIA chief economist Kermit Baker, “is that this contraction in activity is likely to be considerably milder than the construction recessions of the early 1990s and earlier this decade.”
Jenna M. McKnight



In a surprise joint announcement, Autodesk and Bentley Systems, the two leading—and rival—vendors of design and analysis software, say they have agreed to exchange their software libraries and support each other's application programming interface tools. The plan was unveiled on July 8 and could mark a historic leap forward for building information modeling. In an effort to reduce interoperability issues, the two companies have pledged to share the information needed to improve a user's ability to read, write, and submit files across the different vendor formats. Jay Bhatt, senior vice president of Autodesk AEC Solutions, says the rapid globalization of the industry has necessitated this type of cooperation. “Teams are working differently than they were,” he says. “BIM has become a true driver in the industry.”
Tom Sawyer

It was a longtime dream of producer/director Michael Selditch and screenwriter Stan

Bertheaud to tie together the professions of film and architecture. Both men are trained as architects and met two decades ago in California while teaching studio at Woodbury University. After years of discussion, they are finally bringing their vision to the screen. On August 20, the Sundance Channel will begin airing *Architecture School*, a six-part reality TV series about students who are helping rebuild post-Katrina New Orleans.

The show focuses on 12 students (below) in Tulane University's design-build program, URBANbuild, as they conceptualize and construct a 1,200-square-foot house for a low-income family. “Students are



learning how to rebuild a city one house at a time, by building pieces of a neighborhood from the ground up,” says URBANbuild director Byron Mouton, AIA.

And by presenting their work on television, non-architects can learn about the often-grueling creative process. In an early episode, for instance, students endure a pin-up critique and late-night hours. As Bertheaud explains, “Clients think architects simply draw up a scheme.”
Liz Martin

The Philadelphia chapter of the American Institute of Architects recently opened the doors

to its new Center for Architecture. The organization formerly was housed in a leased space several blocks away. The new facility, which is located in a century-old factory near the city's downtown convention center, provides the growing chapter more space for offices, meetings, exhibitions, and its popular bookstore. One of the most noticeable advantages is a storefront, which gives the center a public face. “We had outgrown our old space,” says John Claypool, AIA Philadelphia executive director. “The new center gives us a facility to accommodate our ongoing work, and a place where design can be a conversation not only between architects, but with the broader community.”
John Gendall

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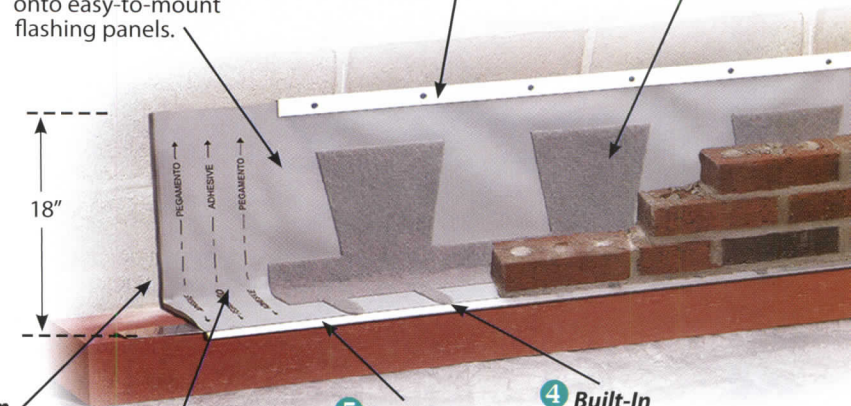
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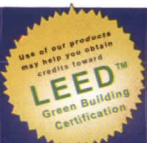
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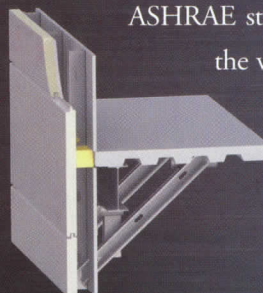
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With a museum under its belt and a full plate of work, the Los Angeles-based firm why doesn't have cause for doubt, but still keeps questioning. Also not in doubt about their work are two Chicago-based architecture graduates whose firm, Spirit of Space, translates architectural space into film. Check out archrecord2 online to meet more talented young designers in Design, Work, Live, and Talk. ONLINE: What's your favorite architecturally significant movie? Respond at construction.com/community/forums.aspx.

Design

WHY: It's a rhetorical question



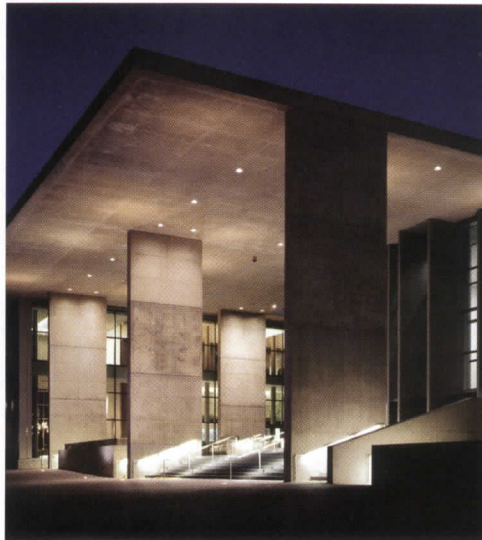
Growing up in Thailand, Kulapat Yantrasast's (seated far right in photo left) first impression of American architecture wasn't very good. Bangkok's watered-down, imported U.S. buildings

and its cocky U.S.-schooled local architects made him think America was a land of yuppies and mediocre design.

But after working here for several years and starting the Culver City architecture firm why (workshop Hakomori Yantrasast) with Yo-ichiro Hakomori (seated third from right in photo above) in 2004, Yantrasast sees things much differently. He's discovered a great range of architecture in the U.S.—including plenty of excellent work to counteract the bad—and he sees America mostly as a land of openness and possibility (although he is still surprised by how slow the country has been to embrace Modern architecture). The U.S. has been good to both partners. Since founding their firm, they have built a major art museum in Michigan, and have secured an impressive mix of commissions in the U.S. and Asia.

Hakomori was born in Tokyo, grew up in Boston and Seattle, studied architecture at UCLA, and got a Ph.D. in engineering at the University of Tokyo. He then worked for Frank Israel, Koning Eizenberg, and Arthur Erickson, and taught architecture at USC. Yantrasast studied at Bangkok's Chulalongkorn University and received his master's and Ph.D. degrees in architecture at the University of Tokyo, where he met Hakomori in 1991. He then went to work for Tadao Ando for seven years, on projects such as the Foundation Francois Pinault for Contemporary Art in Paris, the Calder Museum in Philadelphia, the Clark Art Institute in Williamstown, Massachusetts, and the Modern Art Museum of Fort Worth, Texas.

Yantrasast's directing role on the Fort Worth project helped the firm land its first major commission, for the Grand Rapids Art Museum (GRAM). In 2004, that organization was about to



Grand Rapids Art Museum, Grand Rapids, 2007

The 125,000-square-foot museum occupies one city block. Its exhibition spaces, floating canopies, pavilions, and pockets of nature make it both grand and humanly accessible.



Wakasa, Osaka, Japan, 2006

This 3,000-square-foot home for a family of four is located in the suburbs of Osaka. Each member of the family has his or her own living area, consisting of a room and a courtyard. The layout allows indoor/outdoor integration.





Royal/T, Culver City, Calif., 2007
Inspired by the meido kissa (maid café) phenomena of Tokyo, this 10,000-square-foot café/art gallery/retail space showcases its owner's collection of Japanese art.

part ways with its architect and was scrambling for a replacement. Its director, who had

visited the Fort Worth Modern, was inspired by its simple poetry, and decided to select wHY to design the new museum.

The 125,000-square-foot GRAM, which opened in October 2007, is a three-story structure composed of huge concrete slabs that form an E-shaped plan, allowing natural light to penetrate throughout, and reaching like “fingers” into Maya Lin’s elliptical park on the site. The building’s thermal mass, louvered windows, and recycled materials all contributed to its becoming the first LEED Gold museum in the U.S. (not an easy task for a building type where temperature and light control are vital).

The firm’s other work displays a similar tendency toward Minimalist design, exposed materials, architectural clarity, and unexpected innovation in plan, rather than in shape, the two point out. “To us, architecture is about experience more than form,” says Yantrasast.

Both architects are heavily involved in design, yet Yantrasast develops more of the inspiration and Hakamori is more involved with the building side

of things. Neither have any interest in their firm being pegged as part of the L.A. architecture crowd, preferring to look at styles around the world and, more important, individual building sites, for inspiration. The success of this approach is evident when you enter the firm’s 14-member office in Culver City, which is bursting at the seams from all the new work. Meanwhile, the two partners have no intention of becoming complacent. They named their firm wHY because they want to keep questioning and searching. And why not? *Sam Lubell*

Art Bridge, North Hollywood, 2009

This pedestrian bridge, built mostly from debris salvaged from the Los Angeles River, will become both a product and a reflection of Los Angeles and its history.



For additional photos and projects by wHY, visit architecturalrecord.com/archrecord2/.

Work

Spirit of Space: Elusive design caught on video



When Neil Frankel, FAIA, says, “I think you’ve got something here,” you should probably listen. That’s what happened four years ago to Adam Goss (near left) and Red Mike (far left) of Chicago-based Spirit of Space. The two young architects-in-

training were attending the Wisconsin-Milwaukee’s Fitz-Hugh Scott Endowed Chair in Design Excellence program abroad at the University of Politecnico di Milano in Milan, Italy, when they came up with the idea to veer away from the straight-and-narrow path to architectural careers and do something unconventional: Start a multimedia design consulting firm that made films about architecture. “We went to Neil with this idea for a business and he agreed that it could add value to the profession,” says Mike. “We decided to take a stand, to liberate ourselves from the usual paths young architects take.”

At the time, filmmaking had become as important a part of the pair’s architectural education as modeling or designing had. Goss, who also currently teaches a film and architecture course at the School of the Art Institute of Chicago, was finishing up his undergraduate degree and had chosen an independent study topic for the Milan program that centered around the relationship between architecture and film. He knew how to use a camera and editing software and helped Mike, who was working on his M.Arch. degree, document his design process. “We both saw how the camera can capture and convey the emotions involved in spaces,” says Goss.

Watch any of the films posted on Spirit of Space’s Web site (spiritofspace.com), especially the featured SOS Children’s Village by Studio Gang



On location at the Bauhaus Universitätsbibliothek in Weimar, Germany (above). Spirit of Space’s film for Studio Gang Architects shows the intimacy of stage life at their Starlight Theatre in Rockford, Illinois (below).



notes, “We can capture the design process and program better and quicker than someone coming in cold.” Will the two ever go back to designing buildings? “No way,” says Goss. “We’re excited about what we’re doing and with the way video is becoming more and more accessible to everyone. We know we’ve really got something here.” *Ingrid Spencer*

For films by Spirit of Space, go to architecturalrecord.com/archrecord2/.

Architects, and you’ll see what Goss means. With original musical sound tracks, all written by Ryan Clark, the 2-to-10-minute pieces are evocative and often touching and memorable. Most of the team’s clients are architects, but they’re not limiting their services. “We’ve worked for contractors, architects, schools,” says Mike. “Depending on the project, we’ll take anywhere from one to four months to complete a film,” says Goss. “We really want to capture the soul of a space. It’s hard, because we’re seeking to find and

visually demonstrate something that doesn’t exist.”

While most of their work has been for local architecture firms, Goss and Mike are ready to branch out, offering their services to clients, well, anywhere. “Architecture doesn’t exist unless someone experiences it,” says Mike. Goss adds, “While a film isn’t better than going to the site, it can visually convey a lot about the project. We’re trained to understand architecture.” He

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A failure to communicate leads to other failures

Critique

By Robert Campbell, FAIA

Years ago, in Washington, D.C., I had dinner with Peter Blake. Peter was at that time teaching architecture at Catholic University. But he was best known as a journalist—a former editor of *Architectural Forum* and the founding editor of *Architecture Plus*, two of the best architecture magazines of the 20th century.

Peter also wrote books, and books were the subject of our dinner. He spoke of a famous series of articles in *The New Yorker* by Berton Roueche, called “Annals of Medicine.” Each was a medical detective story. A patient would come down with some bizarre symptom and doctors would work to trace the cause the way detectives trace the perpetrator of a crime. Why not, mused Peter, a book like that about architecture?

Think of the famous Hancock Tower case in Boston as a medical problem. Here was a building with a mysterious skin disease. Its 10,000 mirror-glass cladding panels were cracking and failing. Nobody knew the cause. Maybe the foundations were settling? Maybe the building’s rhomboid shape created pockets of high winds? Maybe the slender tower was waving back and forth too much?

It was years before the cause was finally isolated, as a defective design by glass supplier Libby Owens Ford. (The Hancock’s “doctors”—the forensic engineers—also determined that the building was in danger of falling over, but that was an unre-

lated medical problem.)

Peter suggested that the two of us should collaborate on an *Annals of Architecture*, starting with the Hancock. Alas, we never got around to doing it. But I still think it was a good idea.

So here’s a late-inning shot at one such annal. Once again, we’re talking about a case of architectural skin disease. For a long time, nobody could diagnose the problem. By the time the experts did, they decided that the best solution would be to kill the patient—the building—and start over. That’s the “cure” that’s now about to be implemented.

The building is Werner Otto Hall at Harvard. It is a three-story addition at the rear of the university’s famous Fogg Art Museum. Otto houses Harvard’s Busch Reisinger Museum, which houses a major collection of

Germanic art, mostly of the 20th century. Indoors, it’s a delightful set of galleries. Outside, it’s a rotting mess.

Otto opened in 1991. Today, 17 years later, its exterior walls have deteriorated so badly that Harvard says the only way to repair them would be to take them off entirely and start over.

Yet this disaster was created by the best and the brightest. The client was Harvard, or more specifically, its Faculty of Arts and Sciences. The architect was the firm Gwathmey Siegel, known for its superb 1992 addition to another museum, the Guggenheim in New York, among other buildings. The general contractor was Walsh Brothers, a Boston firm now in its fourth generation that has long been regarded as one of the region’s best.



Otto was much praised when it opened. It was a clean example of Modernism, bold but not so bold as to upstage the more celebrated Carpenter Center next door, by Le Corbusier. Inside, it offered a series of small galleries that flowed into

one another in unexpected ways.

Thus, it’s hard to believe that today the entire building—not just the wall, the whole thing—is slated to be completely demolished and removed. New construction will engulf Otto’s former site. The new work will be part of a major addition to the

Harvard plans to tear down Werner Otto Hall (left and above), an addition to the Fogg Museum, rather than repair its exterior walls.



Contributing editor Robert Campbell, FAIA, is the Pulitzer Prize-winning architecture critic of *The Boston Globe*.

Critique

museum, being designed by Pritzker Prize-winning Italian architect Renzo Piano, due to open in 2013.

When you talk to Harvard's facilities managers, they try to draw your attention away from Otto's sick wall by claiming that Otto just didn't fit in with plans for a new, larger museum, so it had to go anyway. But Harvard also admits, when pressed, that the exterior wall was probably incurable.

So what happened? What's the diagnosis? To put it simply, the guys who worried about the museum's art were not the guys who worried about the weather. It was a classic failure of communication. We'll call them the art guys and the weather guys.

The art guys, applying a conventional standard, decided that Otto's interior should be kept at a temperature of 70 degrees, with 50 percent humidity. Those numbers would be best, they believed, for the health of the artworks.

Not only that, but the museum curators and conservators asked that the interior be pressurized, like the fuselage of an airplane. They didn't want cold, dry Cambridge, winter air slipping in and damaging the precious art. If there were going to be any air leaks through the exterior wall, the curators wanted to be sure the air would leak out of the building, *not into it*. The museum owned world-class stuff, including what may be my favorite Harvard treasure, a fantastic self-portrait by Max Beckmann standing in a tuxedo and holding a cigar, an image of hollow and doomed sophistication.

Making new demands

It's important to understand that this kind of sophisticated climate control was still fairly new at the time Otto was designed. Art conservators were making demands that *neither the world of architects nor the world of engineers and contractors* had quite caught up with.

Okay, that's the art guys' story. The weather guys—the architect, his engineering consultants, and the



builder—created pretty much the kind of wall they'd always built. Its primary purpose was not to nurture the art but to keep out the weather. They built a cavity wall, a sandwich of materials including a vapor barrier. They finished Otto's exterior in porcelain enamel panels, thin limestone panels, and glass windows. They finished the interior in ordinary drywall.

Several things went wrong: The pressurized interior air naturally tended to leak out through the wall. You can think of the building as a big machine for the purpose of pumping moist indoor air into the cavity. When it got there in winter months, of course it condensed. The condensation sometimes froze. The wall began to rust and rot. There were times when it was soaked through.

Most of the people I talked to blame the vapor barrier. They say it was mislocated, or that it failed. Architect Charles Gwathmey is one. He believes his wall design was not to blame and suggests other possibilities. "Somebody must have cut holes in the vapor barrier after it was installed," Gwathmey says. "Maybe a subcontractor installing plumbing or telephone connections."

Vapor barriers do, in fact, get punctured. Andy Sebor is a Connecticut mechanical engineer who is a recognized expert in this

Curators at the Busch Reisinger Museum wanted the galleries to have pressurized air, as well as be controlled for both temperature and humidity.

field. He says failures of this kind are common in art museums of Otto's vintage. He notes that at the Davis Museum at Wellesley, a building by another Pritzker-winning architect, Rafael Moneo, the curators themselves caused problems. They ruptured the vapor barrier by drilling holes to hang artworks.

"You have to keep

the vapor barrier away from the owner's drill bit," says Sebor wryly.

Sebor says that both construction methods and curatorial demands were changing in the years leading up to the Otto. "We engineers let architects and curators go off on their own," he says. "There was a lot of wishful thinking." Architects today, says Sebor, are more sophisticated, especially in cold climates.

The role of a barrier

But all the talk about vapor barriers misses some of the point. The purpose of a vapor barrier, pace Gwathmey, is not to prevent moist air from penetrating the wall. It is to prevent water molecules in that air—not the air itself—from diffusing through the barrier. It doesn't matter if there are a few holes. The barrier will still retard molecular diffusion.

The bigger problem comes when the moist air itself penetrates the cavity. Besides the vapor barrier, which usually won't prevent that, there must be an air barrier, which must have no leaks and must be strong enough not to be ruptured. The two barriers can be combined into one, or they can be separate.

I realize that many RECORD readers are going to know more than I do about this problem, so I'll merely rec-

ommend the best source I found. This is an article, "Condensation in the Building Envelope," by Vincent Cammalleri of the engineering firm Simpson Gumpertz & Heger (SGH). It's on the AIA Web site: http://www.aia.org/SiteObjects/files/bsci_cammalleri.pdf. SGH won't name its clients, but clearly the firm is seldom lacking in museums that need help.

There are a couple of other lessons to be learned from Otto. One is that long-term institutions like Harvard should build durably, as they did in the past. They're shortsighted when they indulge in the cost-cutting that's common in the commercial world. At Otto, the exterior metal panels were connected to the framing structure by galvanized ties, which quickly rusted from the moisture. They should have been stainless steel.

Another lesson is always to ask where standards come from. Indoor humidity of 50 per cent is an arbitrary number, one that may not be right for cold climates like that of Cambridge, with its frequent freeze-thaw cycles.

Finally, of course, the art guys and the weather guys should be sure they're on the same page, that neither is doing something that will sabotage the work of the other.

Otto's health was never restored. Nothing worked quite right. The interior never made it up to the desired 50 percent humidity because of the leakage. Even the windows didn't work. They lacked thermal breaks, meaning they, too, could become sources of condensation. (That problem was Band-Aided with heated electrical tape.)

Harvard sued the architect and the contractor in 1996. As usual in such legal matters, neither side will talk for the record. But word on the street is that the parties split the cost of repairs—repairs that proved, in the end, not to make any difference. ■

ONLINE: Should Harvard repair the building or tear it down? Respond at architecturalrecord.com/community/critique/.

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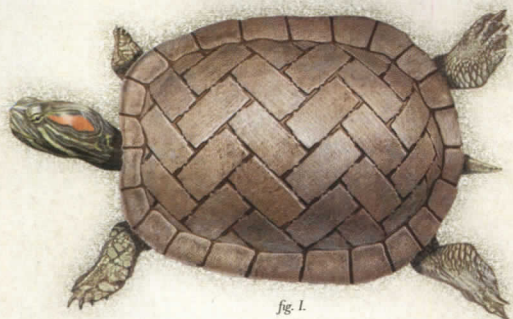


fig. I.
AQUA-BRIC
[herringbone pattern]

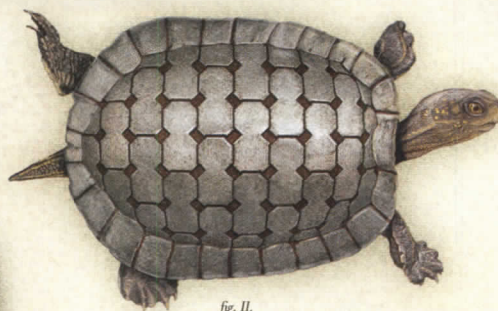


fig. II.
ECO-STONE
[runner pattern]



fig. III.
AQUA-BRIC
[runner pattern]

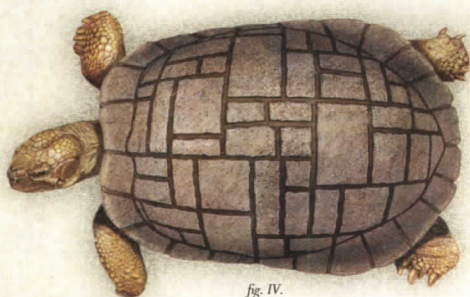


fig. IV.
SUBTERRA
[herringbone pattern]



fig. V.
TURFSTONE
[stack bond pattern]

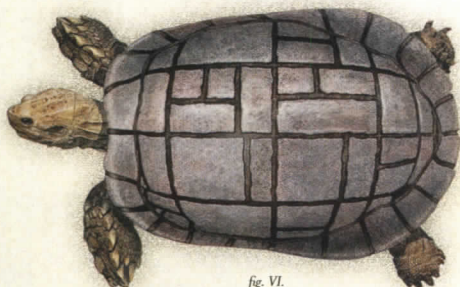


fig. VI.
SUBTERRA
[stack bond pattern]

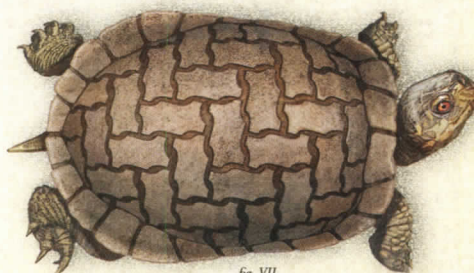


fig. VII.
AQUA-BRIC LOC
[herringbone pattern]

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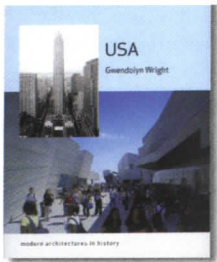

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Modernism and its discontents: various histories

Books

USA: Modern Architectures in History, by Gwendolyn Wright. London: Reaktion Books, 2008, 272 pages, \$30.



Finding coherent meaning in the thrillingly diverse sweep of modern American architectural history is no easy task. Gwendolyn Wright has taken on the assignment with vigor. Although much of her material is familiar to students of the period, Wright relocates it within an often-refreshing cultural context.

An example is the author's welcome reminder that the 1932 Museum of Modern Art show, *Modern Architecture*, was not the seminal event many historians have made it out to be. Wright is also effective in rehabilitating many architects, such as Albert Kahn and Frederick Kiesler, who were leaders in their day, but have been sidelined by the standard reading of Modernism as a seamless narrative of major designers and their most famous works.

But as with any revisiting of well-trodden ground, there is a temptation to "correct" earlier interpretations, even if the strain of the effort shows. Indeed, Wright—who teaches at Columbia—betrays traces of ideology not unlike those she condemns in Henry-Russell Hitchcock and Philip Johnson when

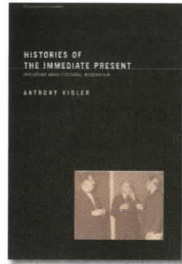
they were thumping for Mies van der Rohe at the expense of "lesser" talents in "the International Style." For instance, in Wright's earnestly populist analysis, the housing advocate Catherine Bauer gets billing comparable to such architects as Eero Saarinen and Paul Rudolph.

Wright strives to raise our awareness of the social, political, and economic influences on modern American architecture, but she also celebrates aesthetic excellence. That excellence, however, is almost always the work of individuals, who—for better and worse—are most often supported by the very institutions of power and wealth that Wright disdains (think Mies and Seagram, Saarinen and GM).

It's hard to have it both ways. Reconciling high art and social responsibility in architecture is a persistent challenge. Wright is handicapped in her attempt by a reluctance to admit how rarely they coincide. *Carter Wiseman*

Histories of the Immediate Present: Inventing Architectural Modernism, by Anthony Vidler. Cambridge: MIT Press, 2008, 232 pages, \$23.

"One should rate higher the biographer who ... proffers a new picture of a personality, and an era" These words of architectural historian Emil Kaufmann are quoted by Anthony Vidler in *Histories of the Immediate Present*, a book which itself proffers a new picture not only of Kaufmann, but of a brace of the most significant architectural critics



of the past century, in context with their era and its architecture.

The central figures in this group portrait are Kaufmann, Colin Rowe, Reyner Banham, and Manfredo Tafuri; also appearing are Rudolf Wittkower, Nicholas Pevsner, and an honor roll of 20th-century architects, all of them engaged in a battle royale for the future of Modernism.

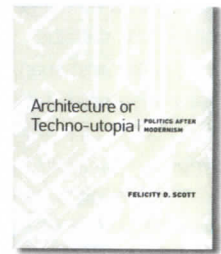
It is, for Vidler, an "avowedly personal" history: as a pupil of Colin Rowe, a student in the early 1960s at the height of Banham's influence, and a colleague of Tafuri. The only one with whom Vidler is not immediately connected would appear to be Kaufmann, though it is to Kaufmann that Vidler has devoted a qualified rehabilitation. Kaufmann's historical advocacy of Modernist practice appears first in the book, pitted, in a sense, against the last combatant, the antioperative Tafuri. The result is a nuanced reappraisal of both.

Yet in a methodological sleight-of-hand, Vidler departs from the expectations of a strictly biographical history and runs a current of theoretical inquiry across the accounts of the individual figures. His question: What role should, or can, the historian play in the making of architecture today?

Without foreclosing alternate

solutions, *Histories of the Immediate Present* proposes an intriguingly open-ended way forward, and it merits the highest compliment that can be given a work of history: It makes the reader want to be a historian, too. *Ian Volner*

Architecture or Techno-Utopia: Politics After Modernism, by Felicity D. Scott. Cambridge: MIT Press, 2007, 328 pages, \$30.



Architecture and Techno-Utopia is a title rife with associations: to Manfredo Tafuri's *Progetto e Utopia*; to the same author's "Design and Technological Utopia" from *Italy: The New Domestic Landscape*; and to Le Corbusier's final chapter for *Vers une Architecture*, "Architecture or Revolution." This last one posits a dilemma, presenting architecture as a technocratic antidote and necessary alternative to radical social change. Felicity Scott's exhilarating first book literally destabilizes this condition, reactivating and exacerbating the dialogic tension between architectural innovation and political engagement, serving notice to practitioners and historians alike that the game is once again afoot.

Scott's investigation comprises a series of broadsides directed at several key sites in Modernist and

Postmodernist discourse: the Marxist architectural criticism of Meyer Shapiro in the 1930s; Buckminster Fuller's technological enthusiasms and their adoption and transformation by '60s counterculture; the role of Emilio Ambasz at MoMA; the provocateur collective Ant Farm; and recent developments in Lower Manhattan. Each essay can stand on its own merits, but Scott's disparate approach adduces, if not quite a thesis, a coherent effect. Alternate histories of Postmodernism suggest new "lines of flight" for design and theory, without becoming unmoored from a rigorous critique.

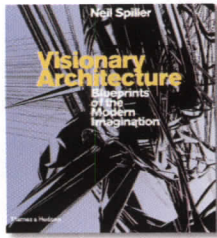
There are victims, however, of Scott's rigor, which takes on a rather Jacobin aspect. Robert Venturi's essay "Silent-White-Majority Architecture" is obviously satire, since the notion of a "Nixonian" style is ridiculous. In any case, Venturi and Scott Brown's subject was the city, while Felicity Scott's is the posturban, deterritorialized environment of the desert and the drop-out. A lack of feeling for the dynamism of urban space also colors her reading of the work of Rem Koolhaas.

But it is the plugged-in, networked-out architect of today who has most to fear, and to learn, from Scott's book. It is, to borrow a figure from one of the author's own essays, as much project as projectile, and it is aimed at the very heart of contemporary practice. *I.V.*

Visionary Architecture: Blueprints of the Modern Imagination, by Neil Spiller.

New York: Thames and Hudson, 2007, 271 pages, \$40.

The oddly appropriate touchstone of Neil Spiller's *Visionary Architecture* turns out to be the vexing and hallucinatory Renaissance text, *Hypnerotomachia Poliphili*, by Brother Francesco Colonna. Spiller refers to the 15th-century dream narrative early and often, and his story takes on much of the same



extravagant unreality, a jumble of architectural caprices, theory for kicks, and pure fantasy.

The book purports to be a definitive account of visionary architecture of the past 100 years—"visionary" here defined as anything unbuilt, unbuildable, or at least notionally impractical. Spiller moves crabwise through the 20th century—in one chapter he lurches from Kiesler to Nieuwenhuys, feints to Marcos Novak, then back to Cedric Price—and breaks his historical analyses with profiles of contemporary architects. These have a doubtful relation to the chapters they addend, and in predominance are Spiller's own colleagues from London's Architectural Association.

But more troublesome than the book's organization are its gaffes: Neither Edmund Husserl nor Martin Heidegger was a member of the Frankfurt School. It will not do to impugn Guy Debord with a "nihilistic world-view." And the glossary is riddled with inaccuracies. In this willfully fantastic retelling of recent architectural history, Spiller seems less historian than science fiction writer.

Fantasy might be the singular virtue of *Visionary Architecture*. The book brings together architects whose names do not customarily appear on the same marquee. To follow Peter Eisenman with Lebbeus Woods, however tenuous the connection, requires a kind of irreverence and daring natural to Spiller's wildly Modern imagination, which sees machines in Piranesi and cybernetic auguries in the work of Jean d'Alembert.

By visionary architecture Spiller really means a strain of hyper-Modernism born of Surrealism, techno-radicalism, and conceptual rigor. But given the disparate strategies of critique and deconstruction that have characterized architecture

since the late 1960s, isolating this strain requires a more meticulous treatment than Spiller gives it here. *Visionary Architecture* is best taken as a work of speculative archaeology, an eccentric tour through the architecture of the far-out. *I.V.*

Far From Equilibrium: Essays on Technology and Design Culture.

Sanford Kwinter. Actar, 224 pages, \$33.

Architectural theorist and writer Sanford Kwinter notes that you can't have creativity without instability; the latter is a condition for the former. This book bounces us around the unstable landscape of a society overtaken by technology, in a world where we comfort ourselves with the notion that we know what we're doing.

Many of the essays in the book appeared in *ANY*, the avant-garde publication edited by Cynthia Davidson (who edited this volume as well). Kwinter writes broadly. An essay on the unappreciated genius of Buckminster Fuller (with the catchy title "Fuller Themselves") is followed by an essay on structural form-



making. A piece on the political implications of cyberspace takes us to the next frontier, nanotechnology. A 13-year-old bit on the pitfalls of the New York Five, titled "What's Eating Charles Gwathmey (and his Generation)," is garnished with a wonderful retake on the famous photo of 1930s architects dressed up as their buildings, with Graves, Gwathmey, Eisenman, and Meier donning their own creations. Some of the reprinted essays are followed with contemporary pieces that are literally folded into the older works as gatefolds, which allow Kwinter to footnote the earlier rumination with a new material.

The images are striking: The first photo in the book is a panorama

of the interior of Donald Rumsfeld's plane in Saudi Arabia, complete with a smugly smiling Rummy in the front row. Compare this to a photo of the lone figure of Bucky Fuller in the vast space of the deck of an aircraft carrier. *Michael J. Crosbie*

Who Says What Architecture Is?

by Eric Owen Moss. Los Angeles: SCI-Arc Press, 2007, 98 pages, \$23.



Philip Johnson referred to Los Angeles-based architect Eric Owen Moss as a "jeweler of joinery." In Moss's latest book, his flair for connecting gems is apparent. He draws upon philosophers such as Wittgenstein, Kant, Nietzsche, and Kierkegaard; writers like Tolstoy, Kafka, and Ovid; and psychologist Carl Jung to weave together a clutch of essays. The majority are from Moss's introductions of visiting lecturers at SCI-Arc, where he serves as director.

Moss's articles are heavily weighted to the architecture of Los Angeles and the philosophy of SCI-Arc, but he sets the stage for a broader application: "The real strength here is in the prospect of idiosyncrasy [Los Angeles] has to offer its own future, and as an alternative model to the world," he writes.

Moss interlaces philosophy and psychology, history and sociology to explore the inquiry posed by the title. He suggests that as a discipline becomes a subject that is taught and learned, rather than explored and questioned, "it becomes: less impulse, more method; less instinct, more system; less overrule the rule, more ruled; and in the end, a doctrine." Perhaps it is the many questions raised that make this concertina-bound book an intriguing read, although the question posed in the title remains unanswered. *Rebecca Ward*



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Revisiting Buckminster Fuller at the Whitney

Exhibitions

By William Hanley

Buckminster Fuller: Starting with the Universe. *Cocurated by K. Michael Hays and Dana Miller. At the Whitney Museum of American Art, New York City, through September 21, 2008.*

"You can't put a door in a dome," Phillip Johnson famously said to illustrate his contention that Buckminster Fuller was not an architect, or even fundamentally interested in architecture. That sentiment bears out in the current Whitney Museum exhibition, which spans six-decades of Fuller's innovations and ideas. Models of residences and sketches of interiors join plans for floating cloud cities and one of the few built Dymaxion cars—a three-wheeled black teardrop parked in the museum's lobby—in a show that exudes a frenetic techno-futurism unbounded by strictly architectural concerns.

The exhibition begins with a series of drawings from the 1920s, when Fuller had left Harvard without graduating and had begun to lay the groundwork for his later career. In the 1930s, his work, now under the brand Dymaxion (a combination of dynamic, maximum, and ion), began to gain recognition, and a model for his Dymaxion House, a live-in aluminum umbrella, appeared in the inaugural exhibition of the Museum of Modern Art's new building on 53rd Street in New York in 1939. A decade later, Fuller continued to mix with the art world, teaching at Black Mountain College in North Carolina. There, he developed his first geodesic dome, the structure that would make him famous. By

the 1960s, the dome aesthetic became shorthand for an optimistic and humanitarian—if technocratic—future. It earned Fuller a place in popular culture—somewhere between an incomprehensible crackpot and a genius emissary from a utopian future—where he remained until his death in 1983.

As curated by K. Michael Hays, adjunct curator of architecture at the Whitney, and Dana Miller, an associate curator at the museum, the exhibition paints Fuller as a polymath and a visionary. In a recent conversation, Hays and Miller emphasized that despite

never quite being in synch with the practice of architecture, Fuller's body of work has immense value for contemporary architects and is ripe for rediscovery.

William Hanley: What guiding vision of Fuller do you want to convey in the exhibition, and how is it reflected in the show's composition?

K. Michael Hays: We were very concerned not to make it a design fair or science fair, which is a way that Fuller has been treated. I'm not even sure that the engineering dimension of Fuller is among the most interesting anymore. To me, Fuller was a philosopher, a poet, a performance artist more than he

Clockwise from right: Fuller's 1934 Dymaxion Car; a model of his U.S. Pavilion for the 1967 Montreal Expo; and a paperboard version of a geodesic dome.



Exhibitions

was an engineer. He uses architecture, visual models, and images to think, and he thinks like an architect in images and in form, but it's really more the ideas and not the *problem solving and engineering* that interested us.

Dana Miller: In that sense, we weren't really looking for finished drawings and realized projects, but the ideas being worked out in his archive, in his journals, and in the sketches that show him really working though his ideas and developing them on paper.

MH: The geometrical models that are throughout the show are models of how the world works for him. When we see toothpicks and glue or string and rods, he saw forces, he saw vectors, he saw movement, and he saw that when you mess with one part of the system, it ripples thought the whole. That was the geodesic structure for him. It was the closed system that is the earth itself.

WH: *Do you think the exhibition challenges received ideas about Fuller?*

MH: Books on Fuller have partitioned sections of his career off in a way that his archive defeats because

Models of Fuller's concepts include the floating Triton City, 1967 (middle at right); Tensegrity Mask, 1959 (top at right); and a collection of numerous studies in tensegrity (below).

Fuller himself refused to make disciplinary specializations and refused to think, "This is science, this is design, and this is poetry." For him, issues of transportation, communication, distribution of resources, all of these were related in a system that was held together by the earth—the earth as both an object and an ecosystem.

DM: But it's a closed system. That's the important thing. There were a finite set of resources, and it behooved us to try to use these resources as efficiently as possible. The notion of doing more with less is really important, and much of his design is based on this notion of efficiencies that are present in nature, looking at nature's patterns and geometries, and using those to create his own structures. Therefore, taking best advantage of the finite resources within our closed system.

WH: *Why do you think that resonates today?*

MH: Architects who were formed



intellectually in the 1970s and '80s were taught to mistrust totalities. But I think now, partly with a kind of open-mindedness and partly with new technologies and new conceptual tools, we can again understand that complexity does not indicate just

randomness, but it can be an index of totalities and connectedness.

DM: Right now, we're almost past this moment of extreme cynicism and jadedness, and someone like Fuller feels fresh and alive again. It's also interesting because he was having these ideas about efficiency in the '20s, but now there is this growing consciousness about global warming and the environment, and the question is, are we too late? Should we have been paying attention to Fuller years ago?

WH: *What do you want contemporary architects to glean from the exhibition?*

MH: Maybe one lesson for contemporary architecture would be to think in terms of performance as well as form or look. Practicing architects should also walk away from the show with a sense of Fuller's generosity of mind and willingness to see things anew. They should mistrust convention, mistrust habit, and always look at the larger picture in terms of the responsibility and consequences of intervention and construction. ■



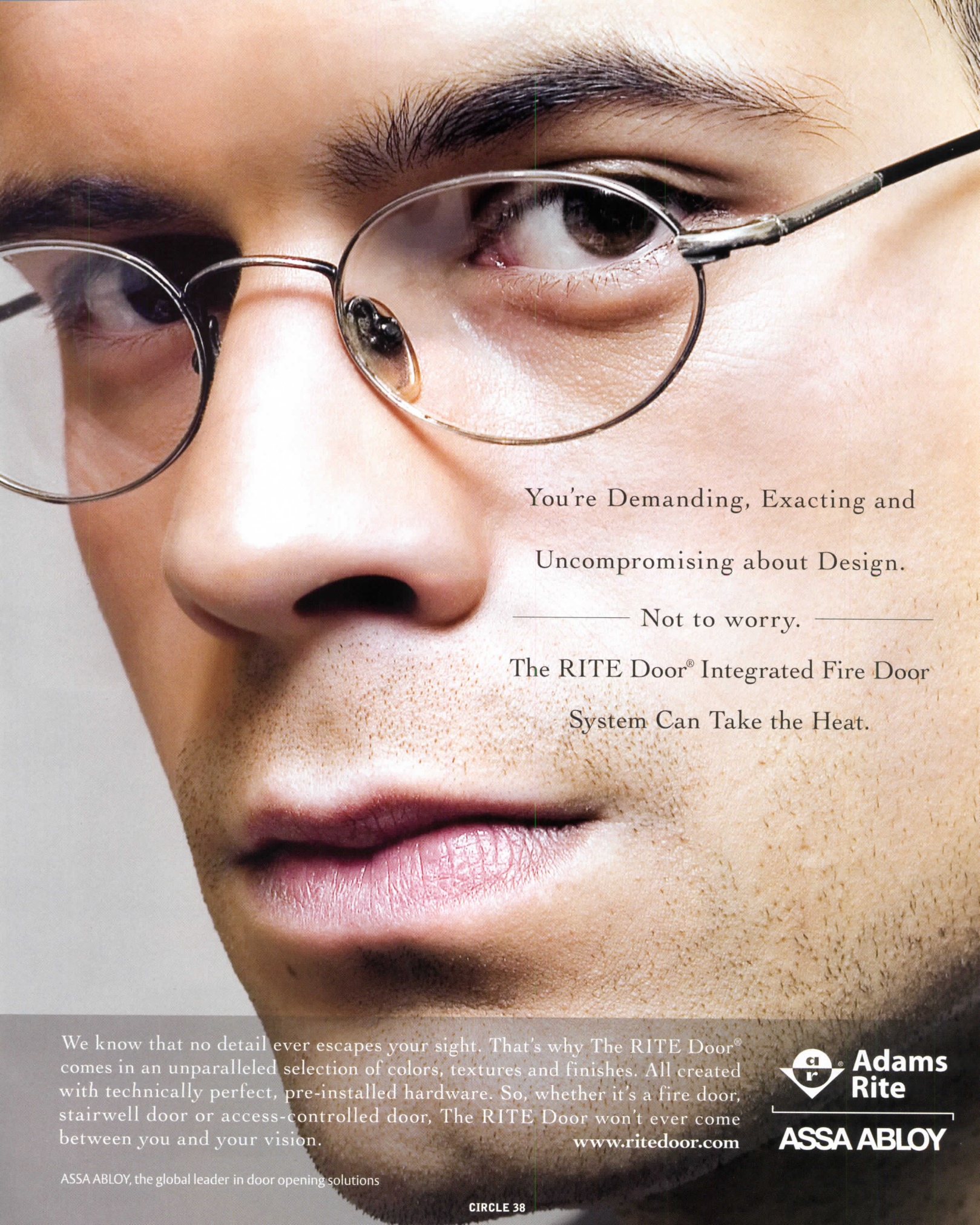


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Making the most of your firm's Millennials

Practice Matters

By B.J. Novitsky

In the 1960s, "the generation gap" became shorthand for the differences between those born during the baby boom and their parents who had lived through the Great Depression and World War II. Then, the puzzling differences between young and old gave a new generation of Americans the label "X." Now, "Boomers" and "Gen Xers" are scratching their heads at the newcomers, the "Millennials." These young people were born after 1980, and are posing challenges to and suggesting opportunities for their employers now that they are entering the workforce.

What makes Millennials tick and how to integrate them into the workplace has been intensively researched. One landmark study is *Generations at Work*, by Ron Zemke, Claire Raines, and Bob Filipczak (McGraw-Hill, 1999). By examining the influences and characteristics of workers of all ages, these researchers seek strategies for improving communications and management techniques.

When compared statistically with older generations, Millennials are well educated, technologically adept, outgoing, flexible, eager to learn, and adventuresome. But they also tend to be coddled by their parents and may be quick to express an opinion without knowing all the facts. They are impatient with the less-exciting aspects of project production, and are willing to jump to new job opportunities if they feel

B.J. Novitski writes about architectural practice and sustainability. She can be reached at bjn@efn.org.

their careers aren't progressing fast enough. Knowing these tendencies can be helpful for firm managers as they begin to recruit Millennials.

Gensler and Perkins+Will are two firms that have already experienced these challenges and opportunities with large numbers of young employees. At the AIA Convention in May 2008, Meg Brown, human resources director and principal of Perkins+Will, and Cliff Moser, AIA, vice president of Cadforce, presented "Tethered Millennials," a seminar on hiring, training, and retaining young workers. They offered numerous suggestions for tapping the strengths and coping with the weaknesses of these recruits. For instance, they advise using a variety of digital media for teaching. Podcasts and Web-based multimedia capture the interest of Millennials better than conventional manuals. Also, Millennials work best with a structured process, clearly stated goals, defined assignments, and lots of daily coaching and feedback.

One important characteristic that eases the generational integration, say Brown and Moser, is the Millennials' experience and skill in collaboration. This fits well with their willingness to seek advice from their elders. A multigenerational team can work smoothly if everyone recognizes the strengths that others bring to the table. Elders provide the wisdom, while youngsters explain the technology. Because building information technology (BIM) is increasingly accepted as essential in architectural practice, the contribution of those just now finishing

professional education can be substantial. Brown notes that young people, even though they have been slow to pursue licensing, have been enthusiastic about LEED accreditation. They understand the urgency for sustainable design, and they are also eager to work for social causes.

Kate Kirkpatrick, Gensler principal and marketing director, has studied generational differences through staff surveys. One such survey revealed that young people are more likely to welcome transfers to other offices, even overseas. So recruiters and managers have begun promoting mobility as a benefit. In addition, says Kirkpatrick, "Gensler's research uncovered an interesting paradox about learning." In a white paper titled "Strategies for the Intergenerational Workplace," she and coauthors Steve Martin and Sandi Warneke wrote: "The older generations complain that the younger 'they know it all,' while the younger lament the older generation's unavailability or perceived lack of interest in teaching. Providing more interactive environments would help people see that there are learners looking for teachers and vice versa. The right office planning approach and giving staff collaboration and gathering places can allow for mentoring and the transference of knowledge from generation to generation."

Gensler is increasingly providing training materials in digital form, such as blogs, wikis, and podcasts. Importantly, the young people are asked for their advice in setting up digital communications media. In addition, many young people are tak-



ing the initiative, despite having grown up in relatively structured, protected environments. Kirkpatrick says, "Gensler Rising Professionals is a group started in our Washington, D.C., office by three enterprising young women, to specialize in the interests and needs of under-30 professionals. They have made a real impact on how we support professional development, engage in community service, give back to the profession, and connect socially." For instance, their "Roving Culture" program gets designers out of the office, into the city, to create cultural, sports, and other events. They also bring students into the office for a day of career coaching and portfolio critiques.

There is a large talent pool ready to contribute to the architecture profession if they are given opportunities and guidance. Meg Brown concludes, "Failure to influence the Millennials will lead us into perpetually spiraling costs to acquire talent, while paying the price in lower productivity, reduced employee commitment, and higher-than-necessary attrition." On the other hand, managing the growth and harnessing the talents of this generation can help improve a firm's technical proficiency and sustainable design expertise. ■



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Trade Show Review Las Vegas • Lightfair

Alternating between the East and West Coasts, LightFair International, North America's annual lighting industry event, this year found itself in Las Vegas showcasing a vast array of luminaires, daylighting products, and control devices. It returns to New York City from May 5 to 7, 2009. *Josephine Minutillo*

1 Never at a loss Bodine's

BSL23C emergency LED driver provides lighting at a LED load up to 3.1 watts during loss of normal AC power. The Bodine Company, Collierville, Tenn. www.bodine.com CIRCLE 200



2 Lighting from your laptop

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3 The fight for daylight The new Solatube 750 DS optical dome captures more natural light based on the incidence angles of daylight. Its first public installation is in the Beijing Olympics' gymnasium for judo and taekwondo competitions. Solatube, Vista, Calif. www.solatube.com CIRCLE 202



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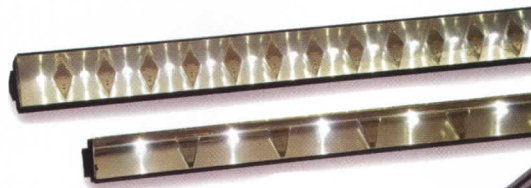
4 Retrofit made easy The Re LED lamp and driver components serve as direct LED replacements for a linear fluorescent lamp and ballast system. Bartco Lighting, Huntington Beach, Calif. www.reledsystem.com CIRCLE 203



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5 Stay cool GE's LED Refrigerated Display Lighting System offers full dimming control and motion sensing. In contrast to fluorescents, LED systems perform at optimal levels in cold temperatures and without risk of breaking glass or mercury leaks. GE, Valley View, Ohio. www.gelighting.com CIRCLE 204

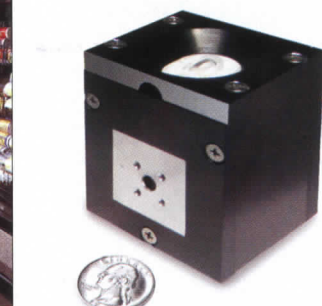


6 Industrial strength The Constellation LED Low Bay luminaire provides a maintenance-free, energy-efficient alternative to metal-halide or high-pressure-sodium light fixtures. Albeo Technologies, Boulder, Colo. www.albeotech.com CIRCLE 205



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7 Packed with power The LIFI STA 40-01 lamp is only 1/2" inch long but provides 22,000 lumens and 30,000 hours of life for street, area, architectural, and industrial lighting. Luxim, Sunnyvale, Calif. www.luxim.com CIRCLE 206



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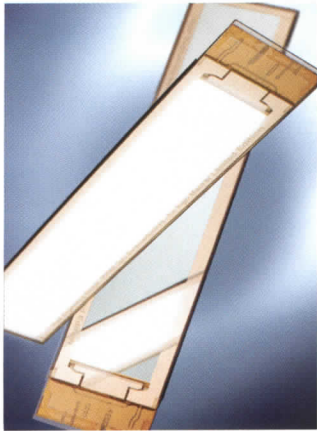
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Product View



Osram Opto Semiconductor's tile-size OLED modules (top). Ingo Mauer's one-of-a-kind Flying Future pendant (top right), and his limited edition Early Future table luminaire (right).



By Linda C. Lentz

Celebrated for his avant-garde approach to illumination, Munich-based lighting designer Ingo Mauer was tapped by Osram Opto Semiconductors to develop an actual fixture using the company's pioneering OLED (organic light-emitting diode) technology. The *raison d'être*: to realize OLED's full potential as a decorative design element and functional source of light.

Typically found in small displays, such as those on cell phones, OLEDs differ from LEDs in that they are not a series of light points, but a uniform light-generating surface. Mauer, a proponent of the exposed technique in his designs, embraced OLEDs, which are well suited to this stylistic approach. The collaboration resulted in a limited edition table luminaire and one-of-a-kind pendant, dubbed *Early Future* and *Flying Future*, respectively, which flaunt the inherent characteristics of the individual tile-size OLED modules in dynamic configurations. Encased in sealed glass, each is rotatable within its metal framework. "In the off state, they are highly reflective," says Mauer. When on, they assume what he describes as a watercolor, or "aquarelle" effect, imparting a soft white light that is warm but not too warm. Of the collaboration, Mauer notes, "We play the creative part, but can only talk about what we could do. It is really all about the technology." Ingo Mauer GmbH, Munich, Germany. www.ingo-mauer.com **CIRCLE 207**

Ingo Mauer and Osram ally for a visionary OLED

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Snapshot



Appearing as a mere sliver from certain angles, the 769-square-foot building houses two apartments and the owner's henna-hair-treatment salon.



By Naomi R. Pollock, AIA

In Tokyo, where land can be prohibitively expensive and empty lots hard to find, few people feel sentimental about old houses. But cherry trees are another matter entirely. Though Tokyo designer Jo Nagasaka of Schemata Architecture Office and his client considered rebuilding her 30-year-old house located in a quiet residential enclave, they opted for new construction instead. While the client's primary residence is out in the suburbs, the two-story, Japanese-style wood house built by her father was past its prime and did not satisfy her requirements for a city pied-a-terre. What the client needed was a three-story building housing her private living quarters on the top floor, a rental apartment on the ground floor, and her henna-hair-treatment salon in the middle—a remarkably dense program by Western standards, but not unusual in Japan. What she wanted was a home where, unlike in the existing house, she could look out at the cherry tree next door.

Sixty-three degrees of separation in Tokyo

Snapshot

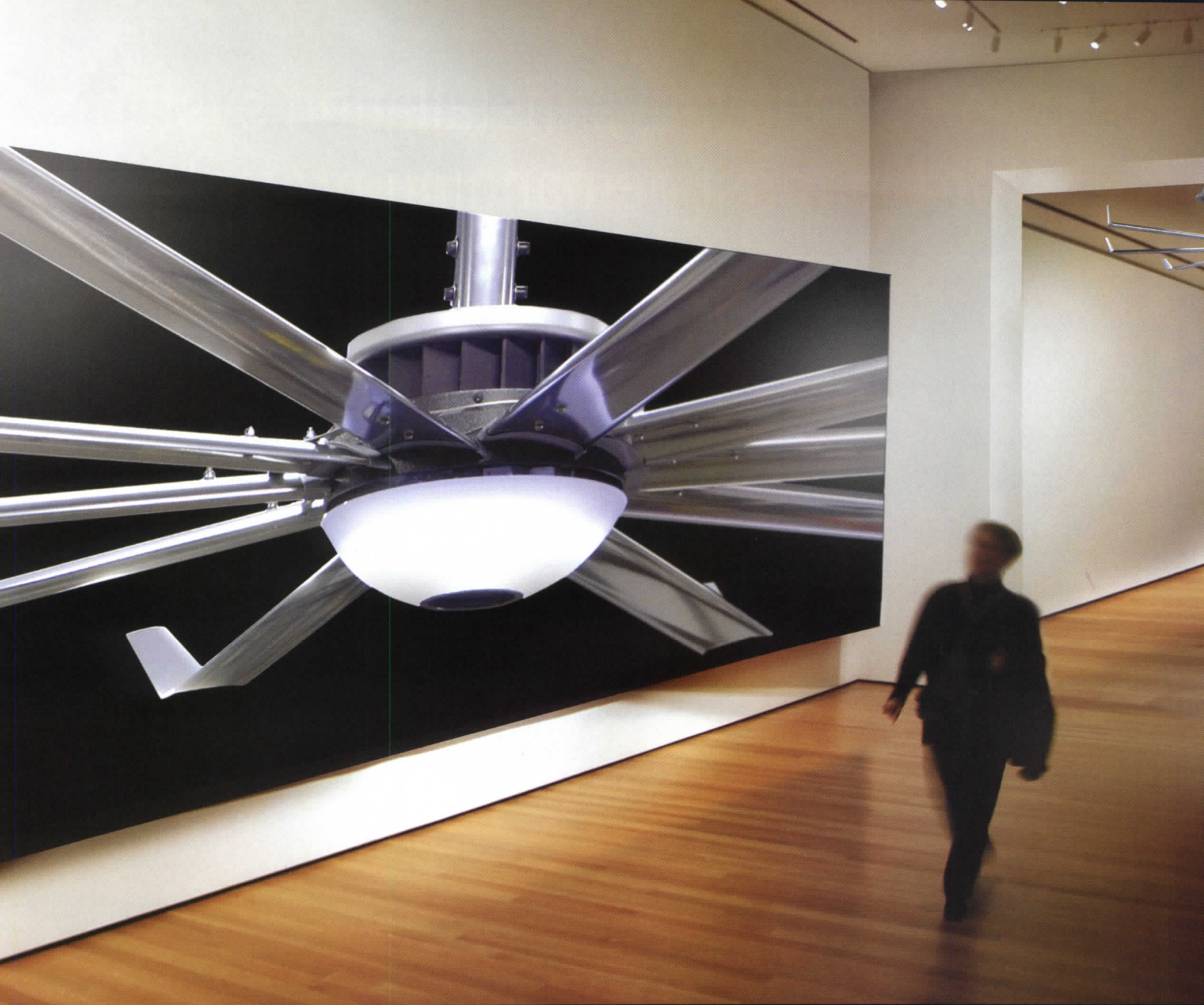
The architect designed and angled the house to take in views of the neighboring cherry tree, which flowers for a few days each spring. Minimal finishes and furnishings help maximize limited interior space.



Filling the plot to capacity, Nagasaka started by creating a conceptual concrete box. In response to the site's stringent setback and shadow-casting restrictions, the architect then lopped off the corners of his idealized volume, converting the simple rectangle into a more complex, faceted form. Turning its back on the neighboring buildings hugging the property, the house's exterior is mostly concrete. But the architect faced two of the cut surfaces, one in front and one in back, with sheets of glass. Angled for picture-perfect views of the cherry tree's delicate, pink flowers that bloom for a few fleeting days each spring, the front facade is set at 63 degrees from the street—hence the house's moniker: the 63.02° House.

As a result of Nagasaka's design process, the house's narrow, street-facing wall measures a mere 7 feet across. Though these dramatic proportions are eye-catching, this wall is neither the principal facade nor the location of the front door. Two entrances, placed perpendicularly to one another, are removed from the street and lead to the tenant and owner units, respectively. To maximize the interior space, the architect kept the concrete exposed and other finish materials to a bare minimum. But the 769-square-foot house is not entirely devoid of detail, either. A trained furniture designer, Nagasaka created clever, built-in devices to save precious inches, such as tiny steel shelves, each one just big enough to display a bottle of hair coloring, or the collapsible wood table which, when not in use, hangs on the wall like an abstract work of art.

Like everywhere else in Tokyo, the neighboring buildings are bound to come down sooner or later. But even when they do, Nagasaka is betting that the venerated cherry tree will remain standing and the 63.02° House will be able to hang on to its magnificent, flower-filled view. ■



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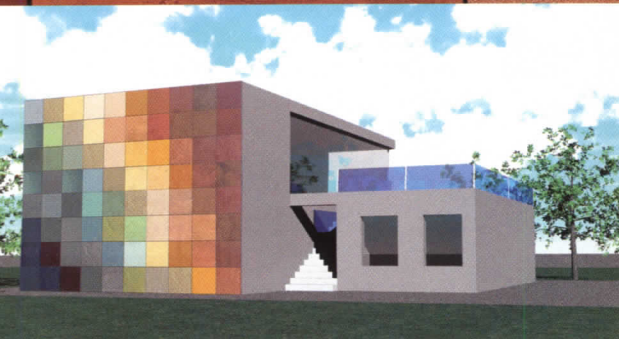
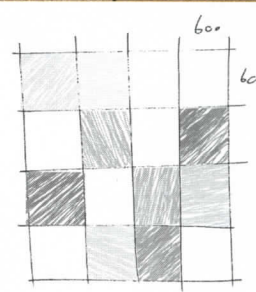
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Abstract Incarnations of Place

Portraits by Amy Archer

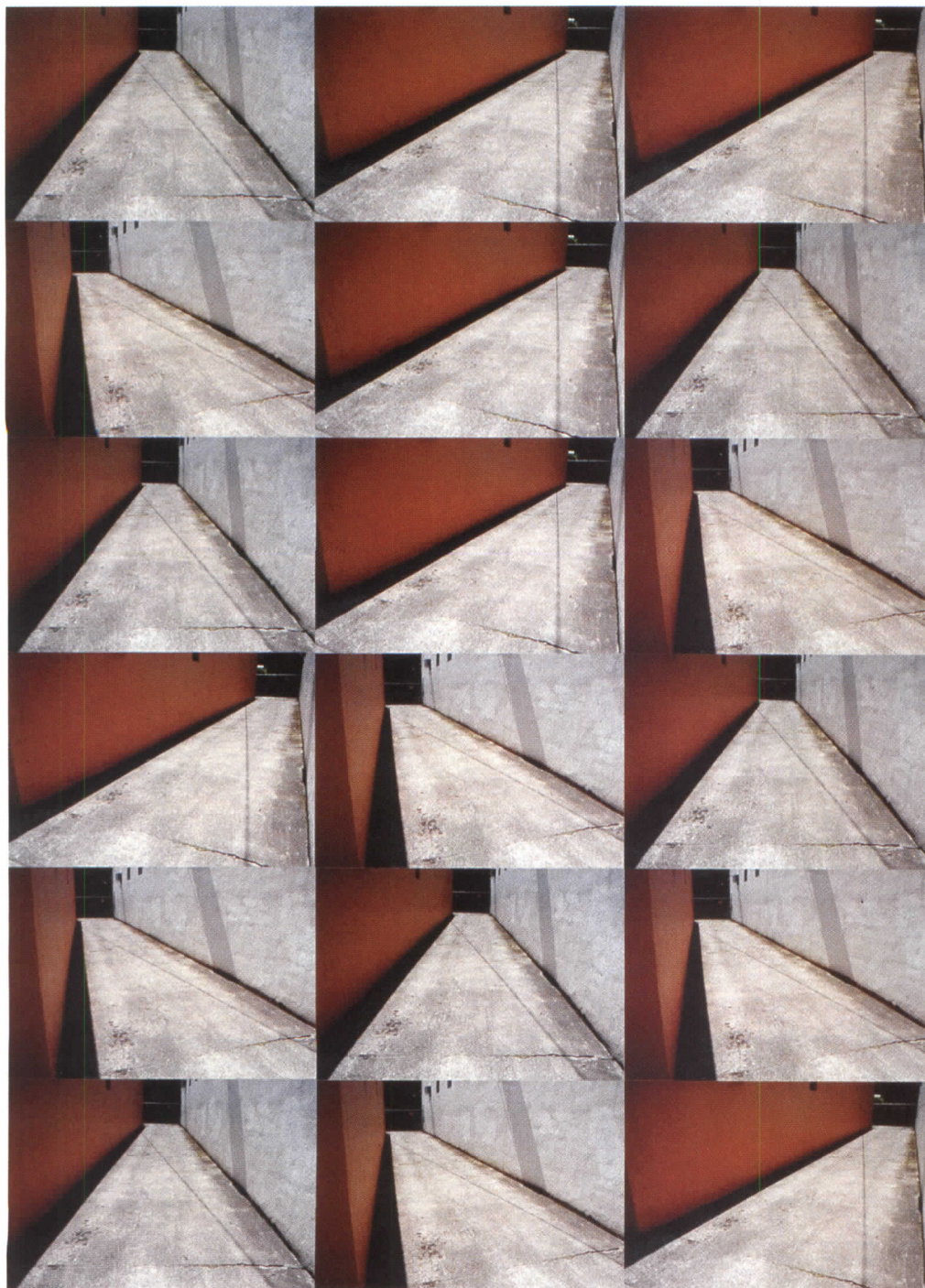
By Suzanne Stephens

The large-scale composite photographic artworks Amy Archer creates rely on repetition and manipulation of scale to arrive at her compelling, abstract portraits of particular places. “Ordinary images became extraordinary by creating a pattern,” says the New York–based artist. She fabricates these works by arranging a series of photographs she has taken of a particular location as modules on a white museum board.

After Archer photographed a clump of birches near Astoria, Oregon, she laid the photos on their sides, so that the trunks were horizontal. *The Birches* is now being digitally printed as a 9-by-3-foot-long horizontal mural for an installation in The Harrison, a new apartment building designed by Robert A.M. Stern Architects on the Upper West Side.

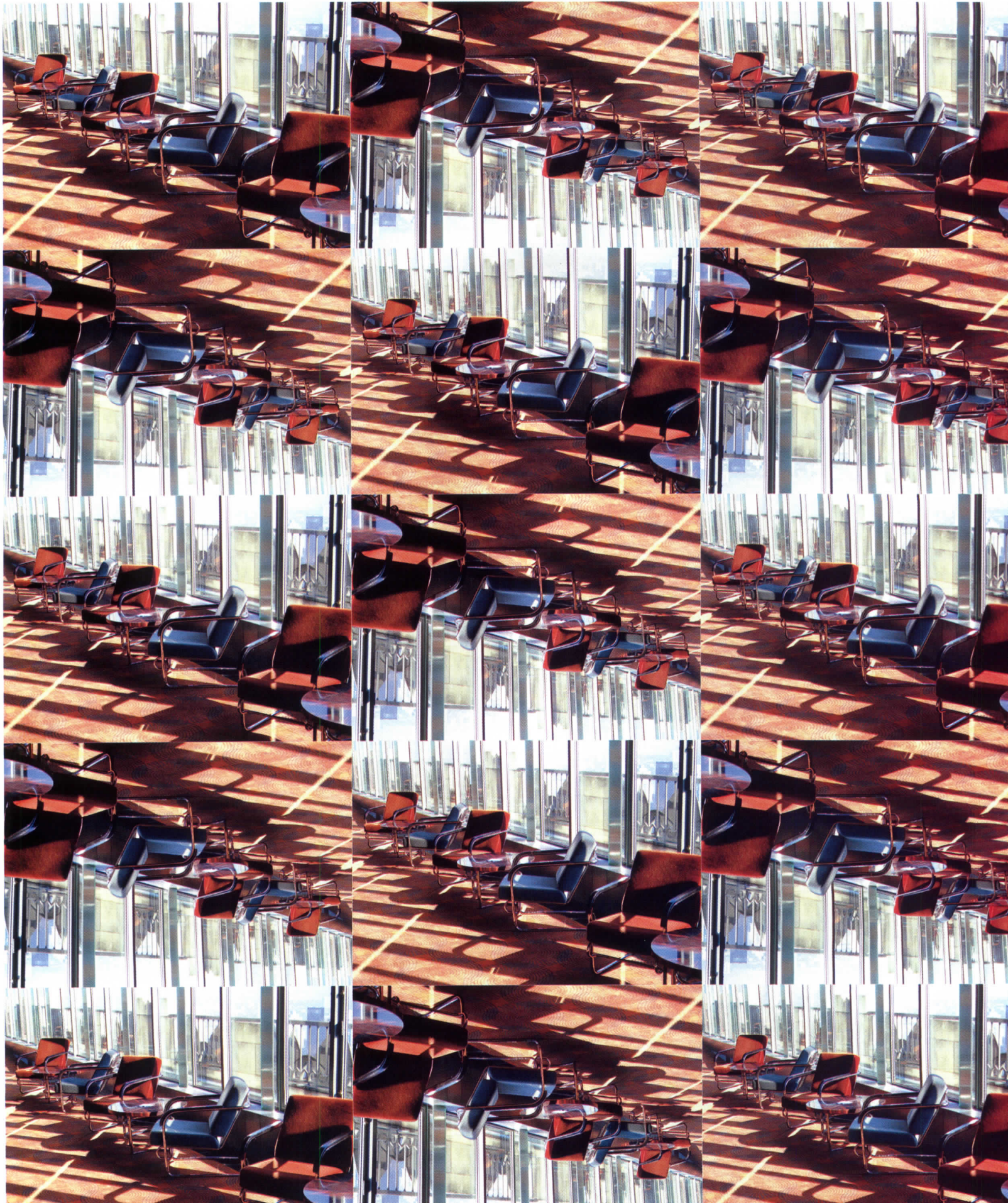
For another composite work, Archer took photos on a car ferry in Port Townsend, Washington, focusing on the different textures and colors of the rusty tray that pulls cars onto the dock, juxtaposed with the patterns of the water. She then bookmached the images to form ovals, noting, “I didn’t quite expect to see an African pattern develop from photos of a car ferry.”

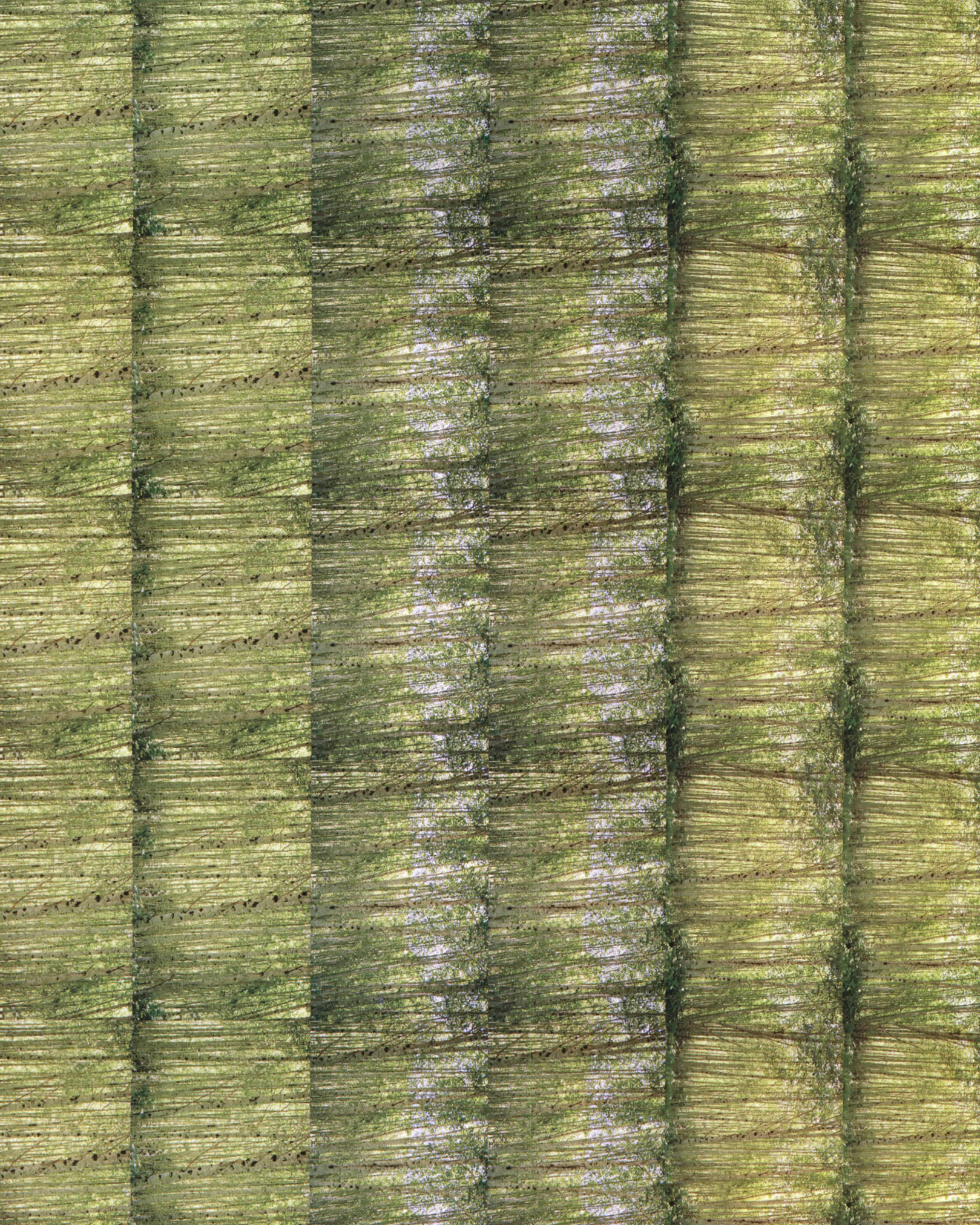
Among Archer’s “incarnations” of place, as she calls them, is Rem Koolhaas’s Seattle Public Library [RECORD, July 2004, page 88]. The hyperscale pattern of the grass in the carpet designed by Petra Blaisse of *Inside/Out*, Amsterdam, contrasts with the vertiginous view of escalators and visitors in photos taken from an elevated vantage point. “The patterns create a sense of intrigue and add a new dimension to the original perception,” Archer aptly notes about the surreal result.



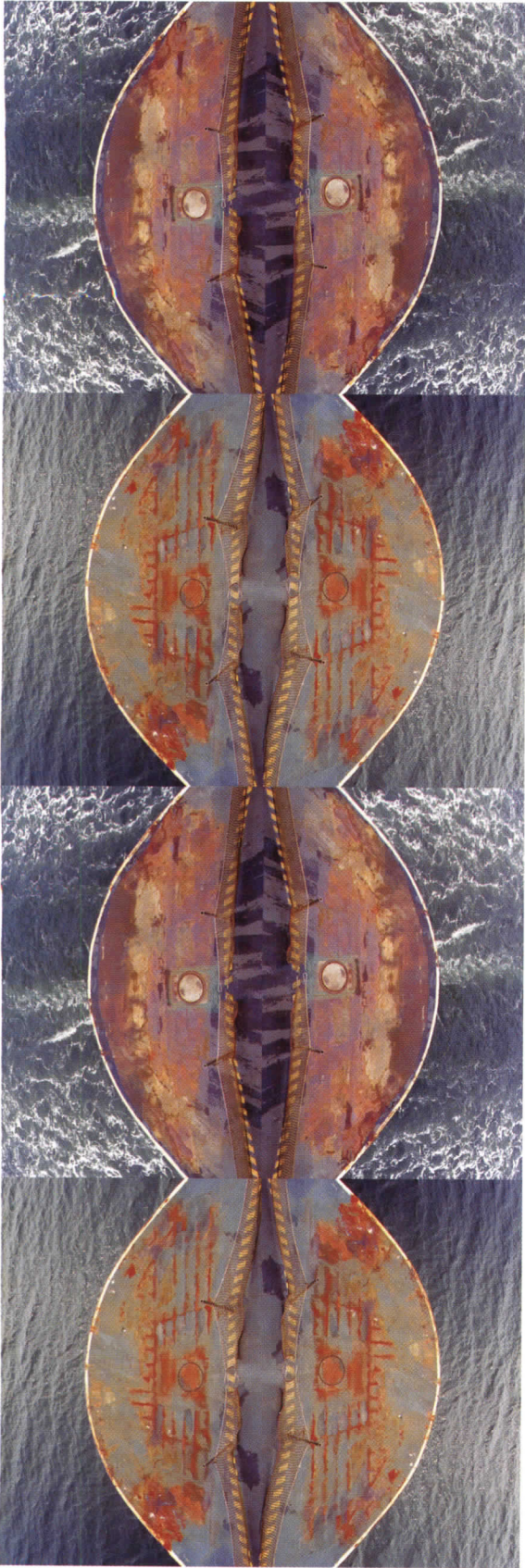
ALLEY WAY, Portland, Oregon, 2005, 21 x 15 inches (detail)

RAINBOW ROOM, New York City, 2005, 46 x 40 inches (detail)



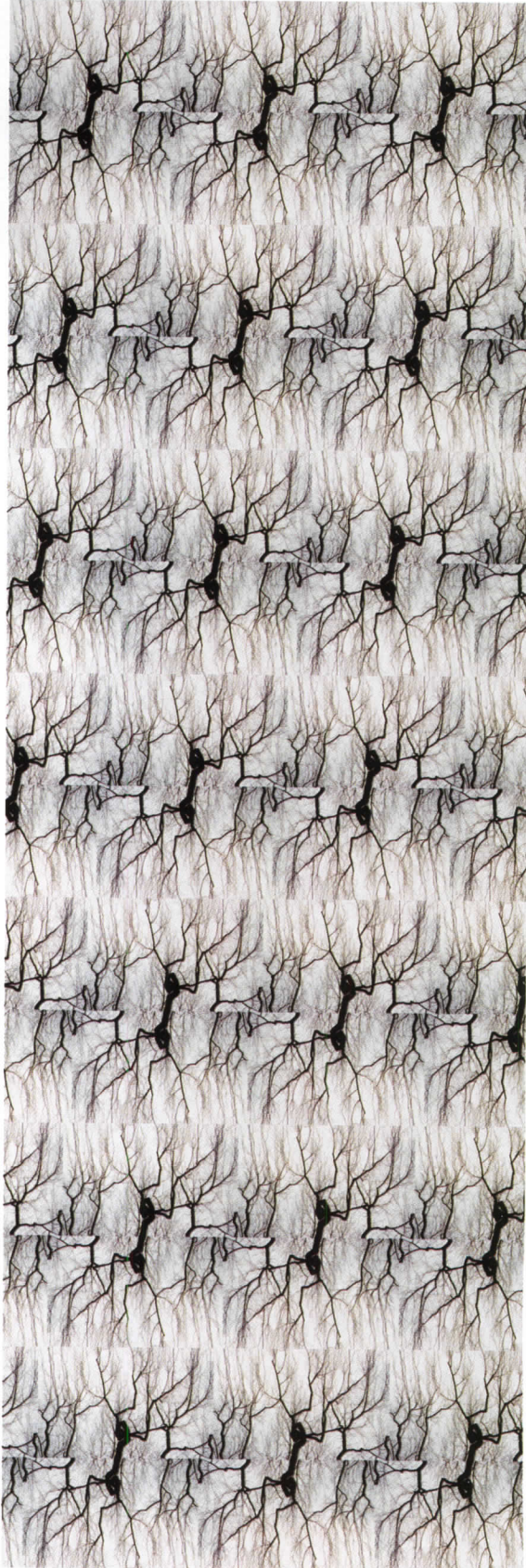






CAR FERRY, Port Townsend, Washington, 2006, 20 x 28 inches (detail)

TREE KNOT, Portland, Oregon, 2005, 63 x 19.5 inches (detail)





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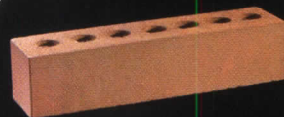
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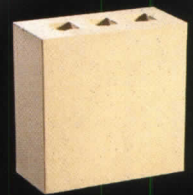
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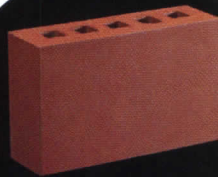
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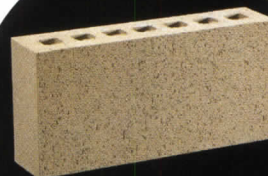
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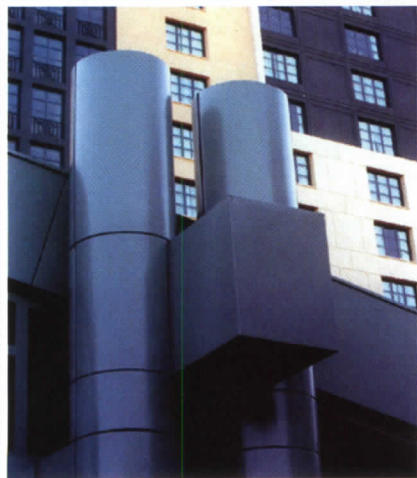
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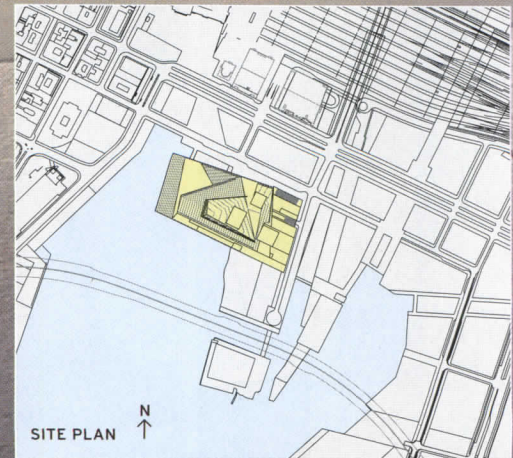
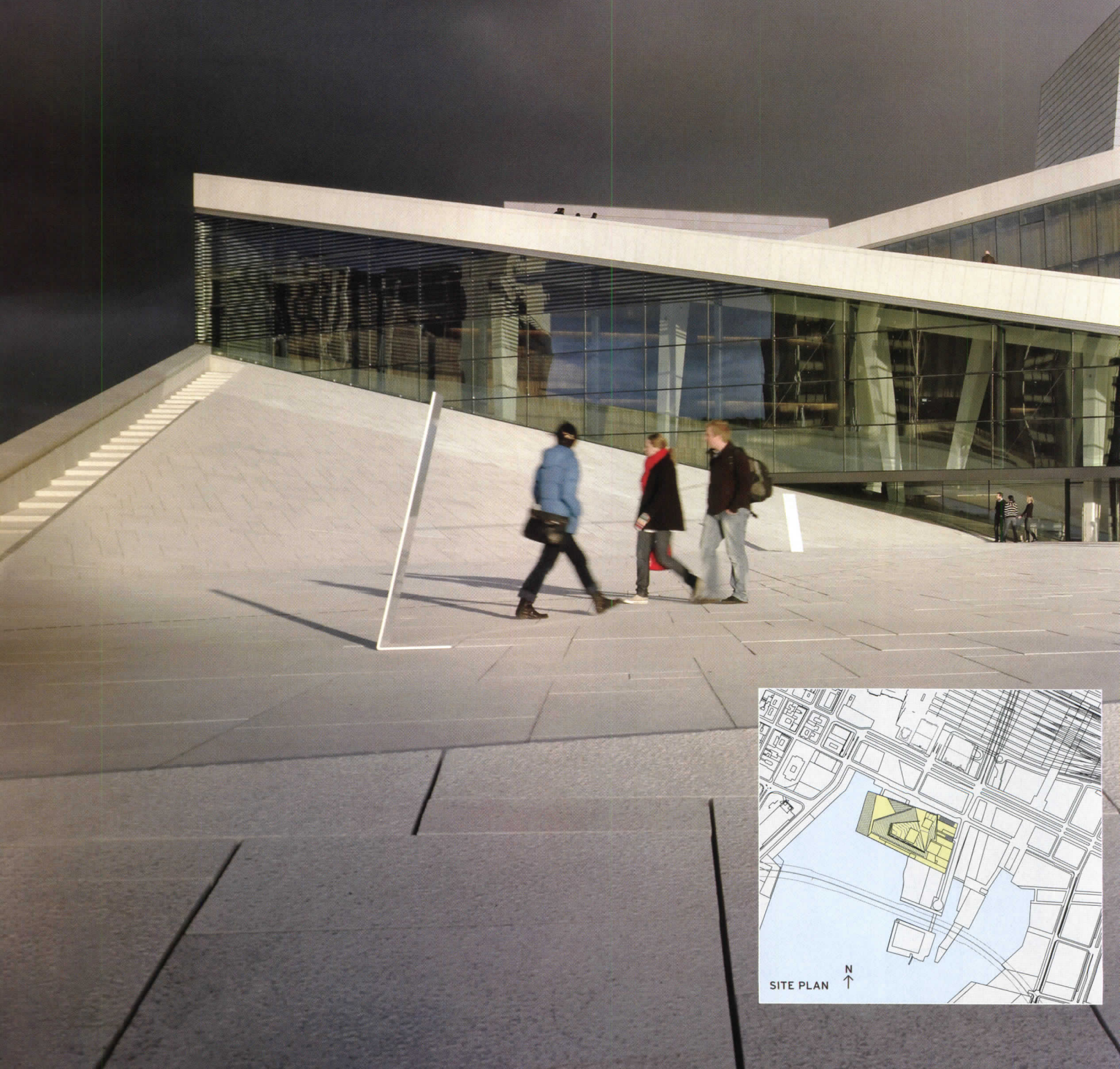



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CIRCLE 46

Snøhetta heightens experiential and
theatrical moments in its design
for the **NATIONAL OPERA
OF NORWAY** in Oslo





From the harbor side, visitors can enter the lobby of the opera house at the ground plane or walk upward to the plaza level of the \$775 million structure, which opened in April.

By Peter MacKeith

From afar, Snøhetta's National Opera House for the Norwegian Opera & Ballet appears like a marble-and-glass iceberg floating in the eastern Oslo harbor of Bjørvika. The building brings to mind typological and urbanistic features of other, similar structures, from the grand staircase and sense of public areas of Charles Garnier's Paris Opera House (now Palais Garnier) in Paris (1875), to Jorn Utzon's iconic soaring forms and civic plazas of the Sydney Opera House (1963–73) in Australia, and even the Foreign Office's Yokohama Terminal roofscape [RECORD, November 2002, page 142] in Japan. Closer to home, Alvar Aalto's Finlandia Hall in Helsinki (1971) and Henning Larsen's static harborfront Copenhagen Opera House (2005) prompt further comparisons.

Snøhetta's opera house makes the most of experiential quali-

Peter MacKeith is associate dean of the Sam Fox School of Design & Visual Arts at Washington University in St. Louis.

ties, as seen by Oslo residents frequently strolling across the dramatically sloped planes of its marbled roofscape. While fitting well into the low hills of its surrounding landscape on the Oslo Fjord, and already an invigorating urban presence in the quickly redeveloping Bjørvika district, the new opera house effectively symbolizes the creative aspirations of its occupants from the worlds of ballet and opera.

Not surprisingly, it took 10 years to plan, fund, and build the \$750 million, 415,410-square-foot structure. In 2000, an international competition attracted 240 entries worldwide—the largest number ever

Project: *The National Opera House, Oslo, Norway*

Owner: *The Norwegian Ministry of Church and Cultural Affairs*

Architect: *Snøhetta—Craig Dykers,*

Tarald Lundevall, Kjetil Traedal Thorsen, contributing partners

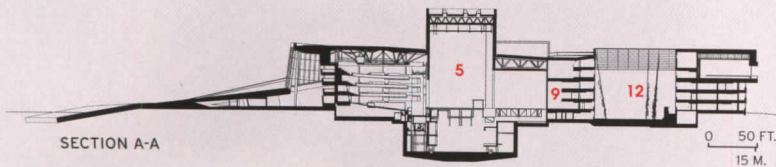
Consultants: *Reinertsen Engineering (structural); Arup Acoustics and Brekke Strand Akustikk (acoustical)*

for an open Norwegian competition. Therefore, Snøhetta's selection was by no means predictable, despite the firm's obvious national allegiances, knowledge of the site, and location of its office in Oslo.

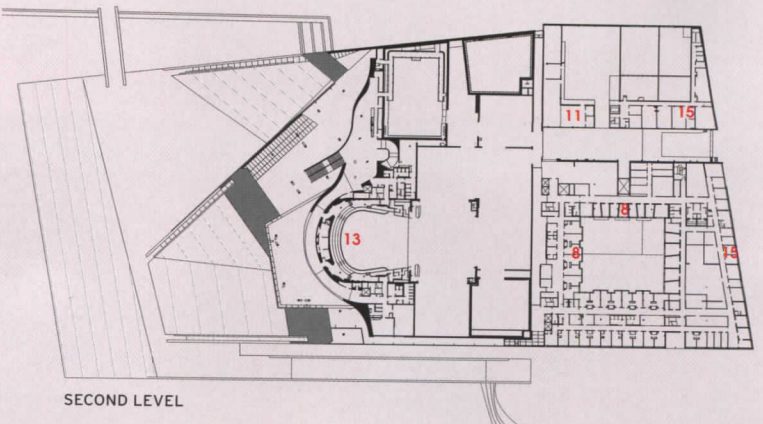
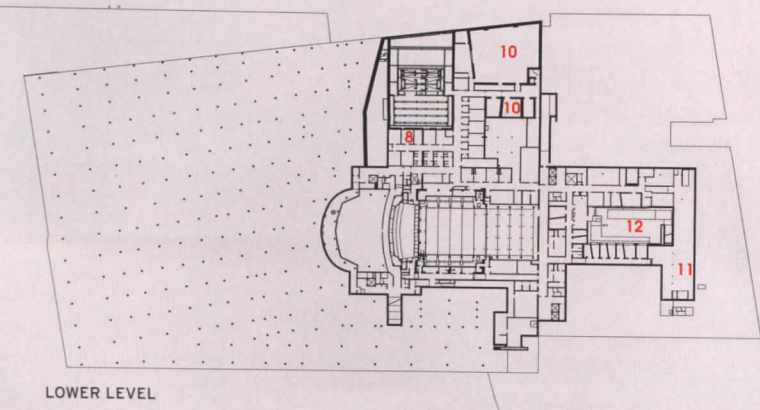
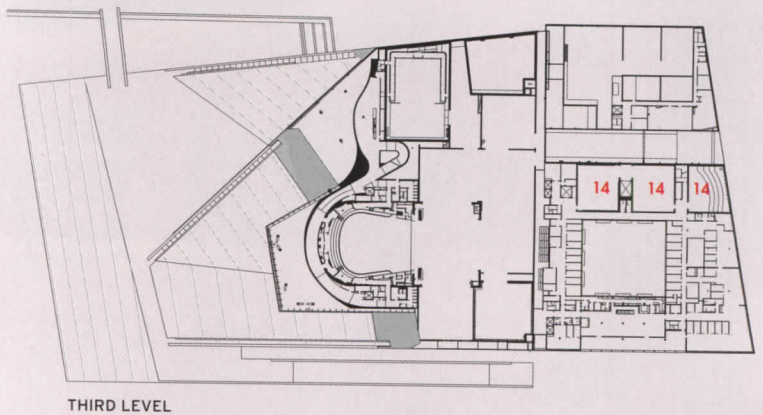
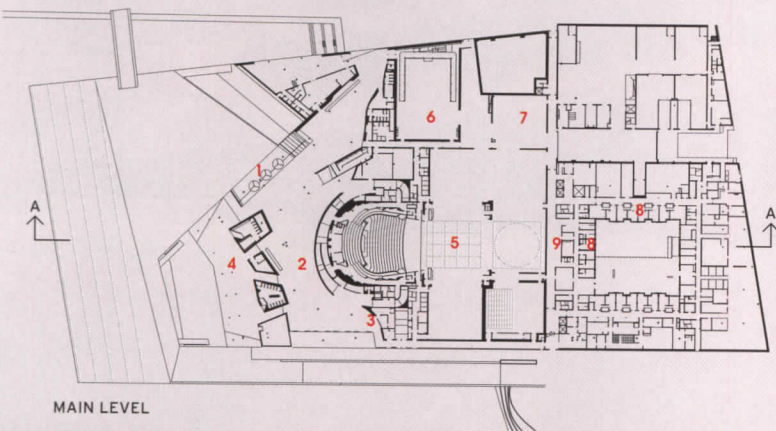
As Snøhetta principal Craig Dykers maintains, the opera house is intended to be a monument of distinctly contemporary Norwegian character, one that actively engages both occupants and visitors on urbanistic and architectural levels. "It is a social monument," he says, "a holistic experience where the memory of the object includes the journey as much as the destination." In architectural terms, its civic aims are achieved through a highly intelligent resolution of conservative theater design, pragmatic *spatial programming*, a minimal palette of materials—and provocative external forms.

The Norwegian Opera's director, Bjorn Simensen, wanted the new opera house to equal the best opera theaters in the world, providing necessary spaces for any scale of performance on its three stages. He also preferred the main theater to employ the traditional horseshoe plan. In addition, the

opera house needed to accommodate not only opera and ballet performers but room for 600 employees in staging areas, workshops, rehearsal halls, and a ballet academy, not to mention administrative offices. Snøhetta arranged the auditoriums (and their attendant side and back stages) to be served by a broad internal service boulevard, labeled the "opera street," and function as the major backstage thoroughfare as well as an effective fire and acoustic barrier. A battery of advanced staging technology—16 elevators, a rotating stage, side stages, and a background stage—surrounds the 1,360-seat main stage and the secondary stage, a flexible performance/events space seating 440. (A third theater is a black box that seats 190.) The programmatic separation is further indicated by the simpler orthogonal geometries of these rear volumes, and their more conventional facade treatments of aluminum panels and glazed openings. Despite the density of programmed interior space, however, Snøhetta's design provides extensive natural light throughout these areas—most surprisingly, a large, open-air garden courtyard at the very center of areas serving staff and performers.



- | | | |
|------------------|-------------------------|---------------------|
| 1. Main entrance | 6. Second stage | 11. Technical room |
| 2. Lobby | 7. Assembly hall | 12. Courtyard |
| 3. Café | 8. Dressing rooms | 13. First balcony |
| 4. Cloakroom | 9. Opera street | 14. Opera rehearsal |
| 5. Main stage | 10. Orchestra rehearsal | 15. Offices |



The warped surface planes of the opera house's decks and walkways connect visitors with the city and the water (top and bottom left). Through the glass wall, pedes-

trians can glimpse the canted concrete columns of the lobby. From the southwest terrace (bottom right), esplanades lead up to a roof terrace or down to the water.



PHOTOGRAPHY: © CHRISTIAN RICHTERS (PRECEDING SPREAD AND TOP AND BOTTOM LEFT); ROLAND HALBE (BOTTOM RIGHT)

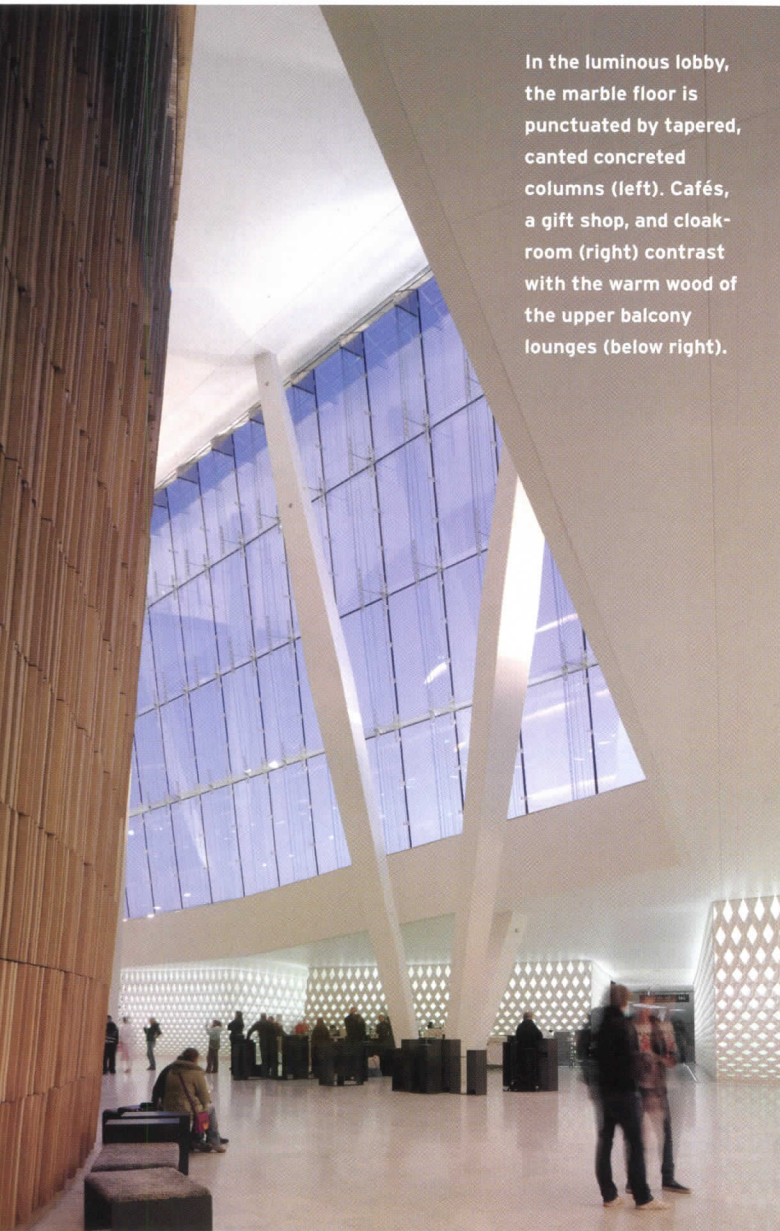
Such pragmatic and social exigencies prompted Snøhetta to make a dramatic, bravura gesture with a dynamic, continuous ground plane and roof surface. This tilting, split, and sloped artificial landscape is at once both an open, multilevel plaza and a hovering shelter. The main stage's fly tower, clad in artistically patterned aluminum panels, rises powerfully above this dominant horizontal plane. Covering the house's gestural forms is an astounding jigsaw puzzle of substantially dimensioned cut stone composed of 36,000 computer-designed and -arranged marble and granite pieces. The white marble gives way to green Norwegian granite at and below the water line of the harbor. The careful positioning of the stone joints, along with a range of surface textures, low ridges, and striations, addresses the necessities of ice and snow buildup and consequent water drainage.

As one arrives at the National Opera from the central city proper by a bridge leading across a narrow canal, the marble ground/roof plane directs both movement and vision forward. A split and splay of the surface

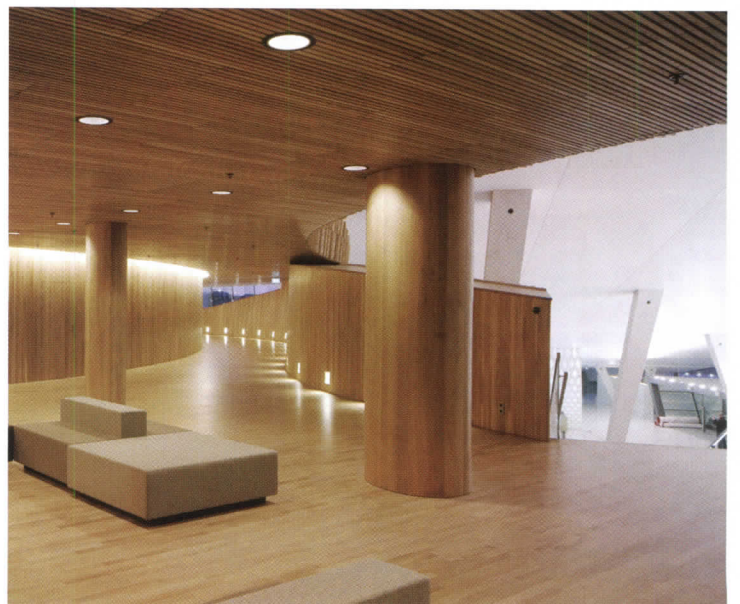
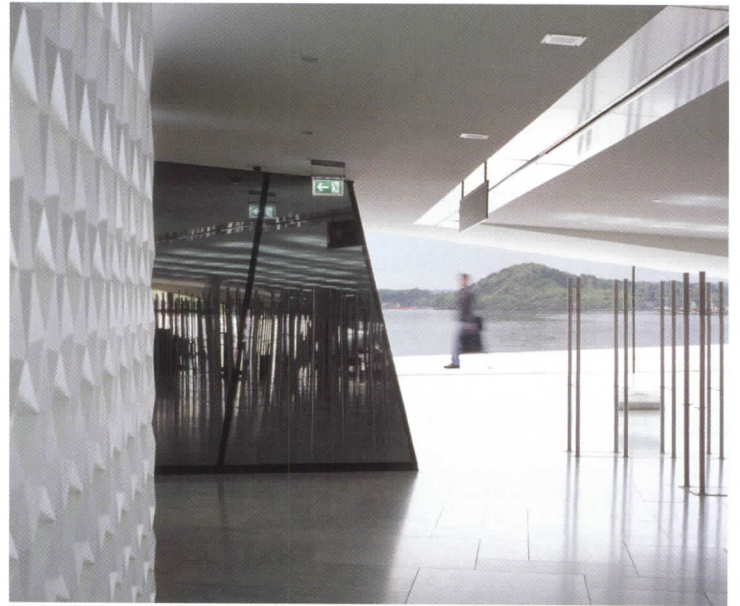
reveals a glazed entrance facade, and farther upward, the surface opens again to project the glass volume of the lobby forward. The glazing systems (including an expansive, "green" PVC-film south wall) have been detailed to minimize panel point fastenings and support structures, a reductive approach pursued with ceiling systems and other surfaces as well. The intricate marble floor of the lobby is punctuated by tapered, concrete columns canting agilely to support the ceiling above. Cafés, a gift shop, cloakroom, and restrooms (the latter artfully clad in a geometric weave designed by Olafur Eliasson) fill out the spaces.

But the high, illuminated volume of the lobby is only the backdrop for the primary architectural performer: the immense, curving, three-story wall surrounding the main stage performance hall. The wall, like an oak-battened ship's hull moored within a marble-and-glass dry-dock, contrasts well with the horizontal dynamic of the brighter, cooler, and sharper materials on the exterior.

The texture, color, and warmth of oak resonates throughout

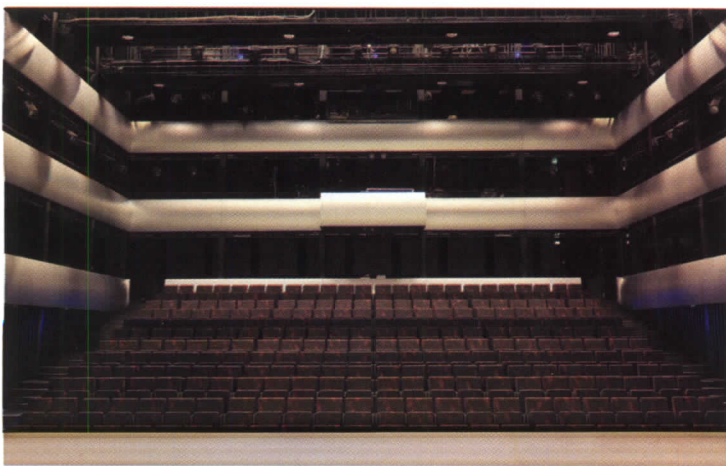
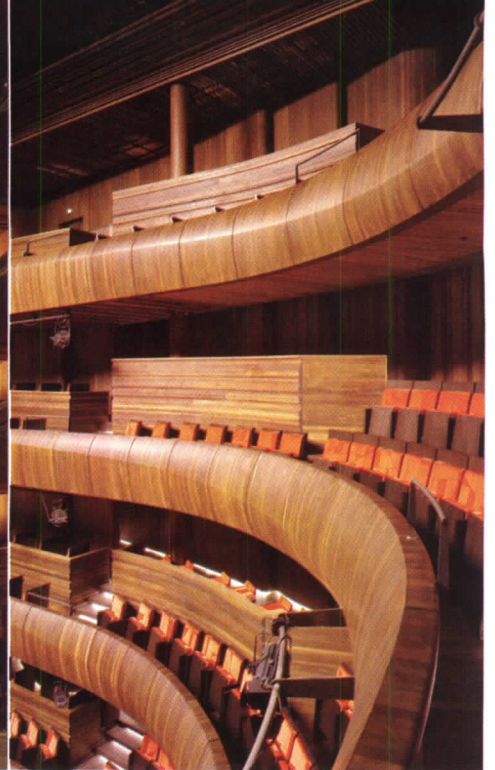


In the luminous lobby, the marble floor is punctuated by tapered, canted concreted columns (left). Cafés, a gift shop, and cloakroom (right) contrast with the warm wood of the upper balcony lounges (below right).



The oak wall (right) wrapping around the auditorium and the access corridors is configured by bands of preassembled panels of varying dimensioned battens.





The main auditorium, with 1,360 seats (above), features crafted oak throughout, including the balustrades (top right). A second theater accommodates 400 (left). The architects arranged classrooms and rehearsal spaces around a courtyard to get more daylight into these back-of-the-house spaces (right).



the main theater interior—and indeed, provides acoustical qualities. Oak elements are stained, jointed, and hand-shaped into acoustically sensitive balustrades surrounding the horseshoe rows of red upholstered seats. The darkened atmosphere mutes the “visual” noise of technical lighting, sound projection, and ventilation. A final reference to the natural world hovers overhead in the 23-foot-diameter disc of the glass chandelier in the ceiling.

Beyond its interior spaces, the National Opera of Norway has had an evident impact upon the city’s consciousness, and upon its everyday life. Dykers asserts that Snøhetta’s intentions were to “revive the city of imagination in Oslo. The people that scale the roof or pass through the lobby or dangle their feet in the fjord—we hope they will attain a sense of ownership, not only of the building, but also of the contents within.”

Societal and cultural ambitions aside, the design attempts to achieve more phenomenal transformations. The internal world of any theater axiomatically aspires to a sense of magic—but for Dykers, ascending the opera house’s sloped roof surface is meant to activate an equally

essential “threshold of perception.” Indeed, on the roof, the kinesthetic experience is palpable as one walks from the main entrance plaza, first east and north upward facing the nearby hills, and then pausing at an intermediate plateau, only to turn back again to ascend farther to the west, to the crest of the roof. Suddenly, the slope and height of the roof erase all signs of the horizon and gravity; there is only one view toward the sky. The effect, as many have said at the moment, is transporting, “as if your feet momentarily leave the ground.” ■

SOURCES

Glass facades and interior:

Skandinaviska Glassystem

Marble: *Campolonghi Italia*

Carpentry and furniture: *Bosvik;*
Djupevag Batbyggeri

Theater seats:


Chandelier (main auditorium):

Hadeland Glassverk

Electrical systems: *Siemens*

Sound and image systems: *YIT*
Building Systems

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The upper terrace of computer-cut marble almost seems to be the top of an iceberg, not the surface of a concrete-and-steel structure that houses three stages.



Saitowitz used strong geometric forms to give the synagogue a presence on the street (opposite), then created spatial tension by ushering visitors into an entry court between the two main volumes (this page) and up a stair to a plaza level.

Stanley Saitowitz choreographs a spiritual journey for congregants at **BETH SHOLOM SYNAGOGUE** in San Francisco



By Sarah Amelar

Getting from the sidewalk into the main sanctuary of Beth Sholom synagogue, in San Francisco, is hardly a matter of opening a front door and entering. Passing through a sequence of courtyards, rising a flight of stairs, turning, and turning again, congregants become engaged in a winding journey inward, gradually leaving the everyday realm and ultimately reaching protected sacred space.

From 14th Avenue, the boulevard to the east, the synagogue appears as two contrasting volumes: a monumental concrete bowl (really, a half-cylinder), balanced atop a single-story plinth, and a decisively grounded, nearly cubic form, similar in scale but sheathed in zinc-coated steel with glass. A set of simple glass doors offers entry, but just on the other side of the threshold, you find yourself outdoors again, where you pass between the bowl, hovering to the left, and the rectilinear volume, to the right. By the time you've ascended a grand outdoor stair and wended your way through the courtyards, you finally arrive in the main sanctuary, within the half-cylinder. From inside, the sanctuary's man-made surroundings vanish from sight—all you can see of the outside world are the sun's rays and the heavens above, revealed through narrow skylights.

"Here, in the city, one is distracted by the works of humans—cars, supermarkets, Victorian [houses]," explains Stanley Saitowitz, who recently

A former RECORD senior editor, Sarah Amelar writes about architecture and design.

completed the temple. "But the experience of standing at the edge of the ocean or seeing only the stars is far more infinite and spiritual." As is the view, he suggests, of a pure "slice of sky."

Carving out sacred space in the thick of a metropolis was essential to Saitowitz, who criticizes the congregation's previous building on the same site. "There, you entered directly from the street, and right away, you were either in or out," he recalls. "It lacked communal areas where people could linger and decompress, especially after services." The older structure's nave configuration was, he adds, "inappropriately churchlike and ill-suited to the liturgy." Perhaps most offensively, the ark, which houses the torah—the holiest spot in a synagogue—stood in the wrong place, at the nave's west end, instead of against the east wall, in accordance with ancient tradition.

The chance to reenvision Beth Sholom came when the original 1920s building, which weathered multiple renovations, was found unsuitable for the needed seismic retrofit. Demolition of all but the wing housing the synagogue school ultimately followed, freeing up this 22,000-square-foot corner parcel, in a low-rise residential neighborhood, where a handful of

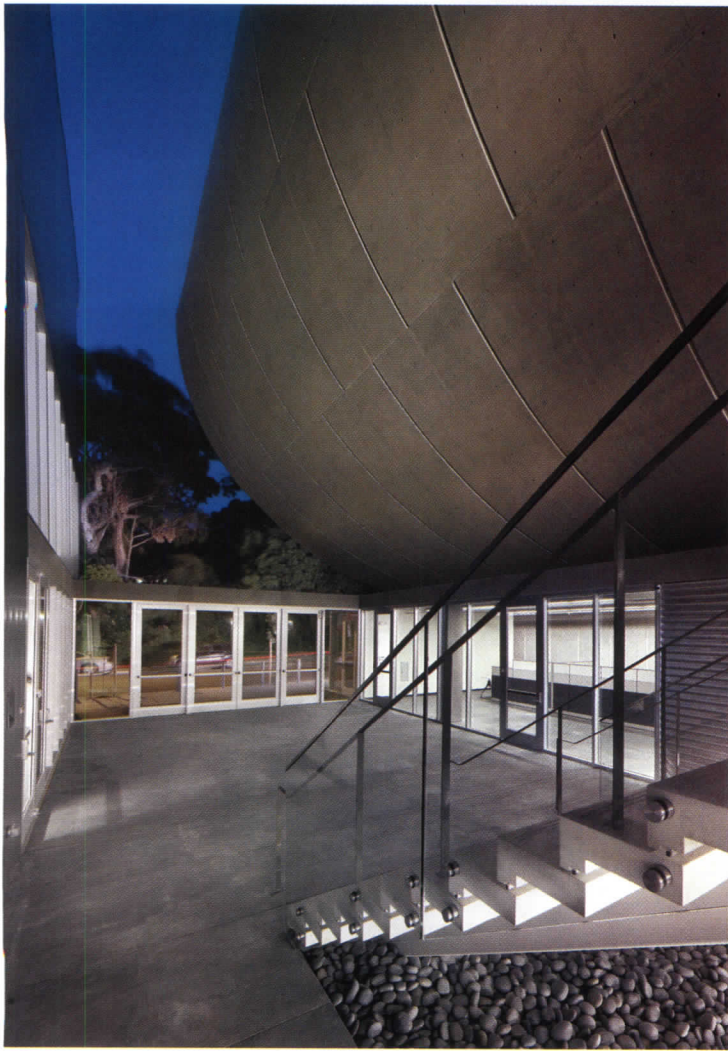
Project: Congregation Beth Sholom Synagogue, San Francisco

Architect: Stanley Saitowitz/Natoma Architects—Stanley Saitowitz, Neil Kaye, Markus Bischoff, John Winder,

Derrick Chan

Engineers: Forell/Elsesser (structural); Fumsey Engineers (mechanical)

General contractor: Overaa Construction



The entry court (left) provides spillover space for a number of areas on the first floor. A narrow garden courtyard brings daylight into a meditation room (below).

religious structures have punctuated the built rhythm for decades.

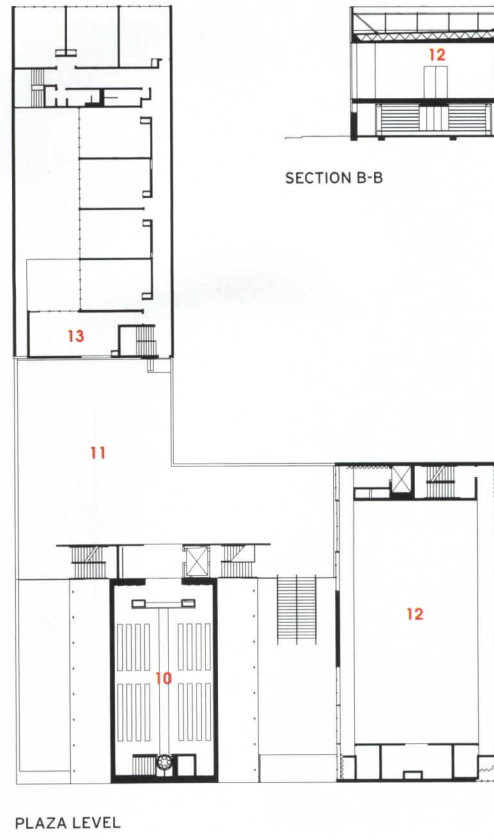
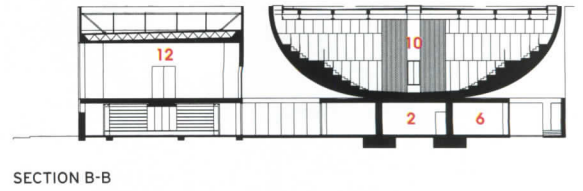
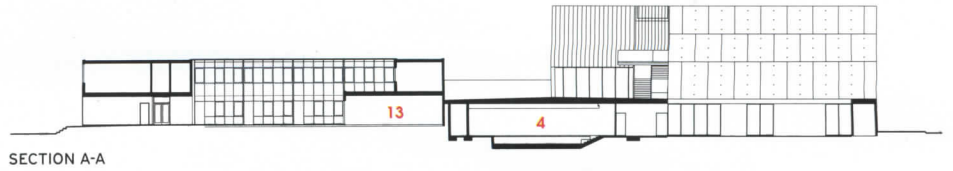
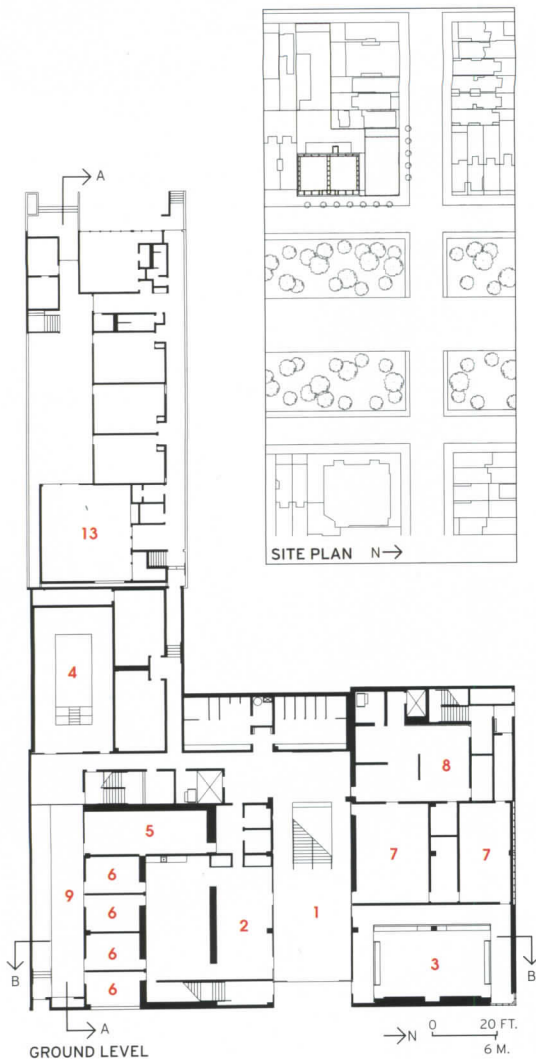
Unlike its predecessor, Saitowitz's new temple, a 24,000-square-foot compound with its large-scale circle-vs-square geometry, has an imposing, modern presence in the neighborhood—a bold juxtaposition even as its height matches the surrounding, fine-scaled Victorian houses. Beth Sholom's opaque, windowless, semiround sanctuary, touching no adjacencies, plays against its luminous, cubelike volume, which anchors the corner and houses a chapel, library, meeting and meditation spaces at grade, with a second-story hall for receptions, such as weddings and bar mitzvahs.

In some respects, the new Beth Sholom has markedly different public and private personas. Though Saitowitz built it to the lot lines, he chose not to max out the parcel, but instead to create a cloistered realm at the site's interior with a variety of indoor, outdoor, and transitional spaces. Just inside the glass front doors, the entry court serves as a publicly visible mingling spot. (It is also the outdoor "lobby" to all ground-floor functions, including the administrative offices, tucked into the plinth beneath the sanctuary.) Yet a second courtyard, at the top of the grand outdoor stair, is completely hidden from the street. With direct access to both the sanctuary and social hall (as well as the existing school wing), this plaza becomes the protected extension of these focal spaces, sometimes serving as an open-air terrace for receptions, other times as an unprogrammed zone where people can linger, and perhaps in autumn as the semisecluded site of the *succoth*, or harvest hut.

Though Beth Sholom appears objectlike, even iconic, from the exterior, Saitowitz says he actually designed it from the inside out—in the spirit of ancient Hebraic architecture—deriving its forms from the anticipated human activity and rituals. A key source of inspiration was the 1st-century synagogue at the fortress of Masada, near the Dead Sea. From it, the architects adopted a tiered configuration, centered on the *bimah* (the podium where the torah is read)—a decisive departure from the frontal, linear scheme that has dominated modern synagogue design. To Saitowitz, a unified space-in-the-round seemed ideally suited to Beth Sholom's Conservative liturgy, where the congregation forms a singular communal entity, in contrast to the gender-segregating (and often spatially fragmenting) practices of Orthodox Judaism.

Lined with two facing tiers of steeply raked seating, the sanctuary's 5,550-square-foot vessel "engages gravity as an ally," Saitowitz has poetically written. With most congregants entering at the lowest point (although exterior stairs allow people to slip in at higher levels), the room "fills like a cup," he continues, "maintaining an intimate fullness, even when not packed [to capacity with 700 worshippers]. Its walls are people. The roof floats over this cup, connected to the walls with light."

Here, Saitowitz engages daylight as his prime adornment, eschewing representational imagery. (Although the Second Commandment prohibits iconography, or idolatry, violations have occasionally crept into modern synagogues, including Beth Sholom's earlier building.) A long,



1. *Entry courtyard*
2. *Reception*
3. *Chapel*
4. *Library*
5. *Meditation*
6. *Office*
7. *Meeting*
8. *Kitchen*
9. *Garden courtyard*
10. *Sanctuary*
11. *Plaza*
12. *Social hall*
13. *Existing*



A plaza, one level above grade, offers access to the sanctuary in the half-cylinder-shaped volume and a place for people to gather after services.



Saitowitz likens the main sanctuary (above) to the bowl of a wine glass that fills with congregants from the bottom up. Skylights around the perimeter of the space make daylight an important element in the room. A small chapel on the ground floor (left) incorporates stained glass from the synagogue's old building.



narrow skylight bisects the flat roof above the sanctuary, revealing the slice of sky and leading the eye to the “eternal light” suspended over the ark. The winding route up from the street enabled the designer to orient the ark correctly, against the east wall. And the roof appears to float because skylights along its perimeter free it visually from the interior walls. As the sun crosses the sky, the openings above the east wall animate it with a constantly changing “shadow *menorah*,” an abstract evocation of the candelabrum that has long symbolized Judaism. Inside and out, the sanctuary’s 20-inch-thick shell is exposed: poured-in-place concrete with integral pigment reminiscent of Jerusalem’s golden stone. Textured with acoustically staggered planes, the shell’s interior surfaces accentuate the play of light and shadow.

While meeting seismic codes, Saitowitz says, the engineering was more innovative in the cantilevered bowl—with its complex forces and combination of posttensioned and regular steel reinforcing—than in the foundations. “Essentially, the temple was designed like a wine glass,” he explains, “with loads resolved down its stem.” The decision to raise that wine glass’s bowl a story above grade came from the desire to remove the sanctuary from the mundane, from the commotion of street life.

Though Saitowitz—who has just completed another temple in La Jolla, California—was determined to follow the rigors of ancient prototypical synagogues, his design also acknowledges Beth Sholom’s less purist history. Just past the front door, the small chapel for daily prayer, set within the zinc-clad volume, reuses elements from the earlier building. With a

nod to that provenance, he expresses the chapel as a box within a box. While mindful of the Second Commandment proscription, the architect agreed to install in this room the highly figurative (and definitely church-like) stained-glass windows from old Beth Sholom. (Because the donor families still belong to the congregation, he explains, he recognized a need to honor the enduring “sentimental attachment” to these windows.)

Like the box within a box, the character of Beth Sholom—particularly its sacred spaces—remains partially hidden by design, never fully revealed or obvious from the outside. Yet this is an architecture that offers glimpses. When the complex was under construction, locals playfully likened the sanctuary’s formwork to a skateboarder’s half-pipe. Though far more serious in its mission, the finished building still conveys a sense of energy and vitality. But with its great, round-bottomed cup, balanced almost miraculously on end, Beth Sholom will be brought to life, most of all, by the people who fill it. ■

SOURCES

Metal cladding: *AEP Span*

Glass curtain wall: *Progress Glass*

Steel windows, doors, and sliding doors: *Kawneer*

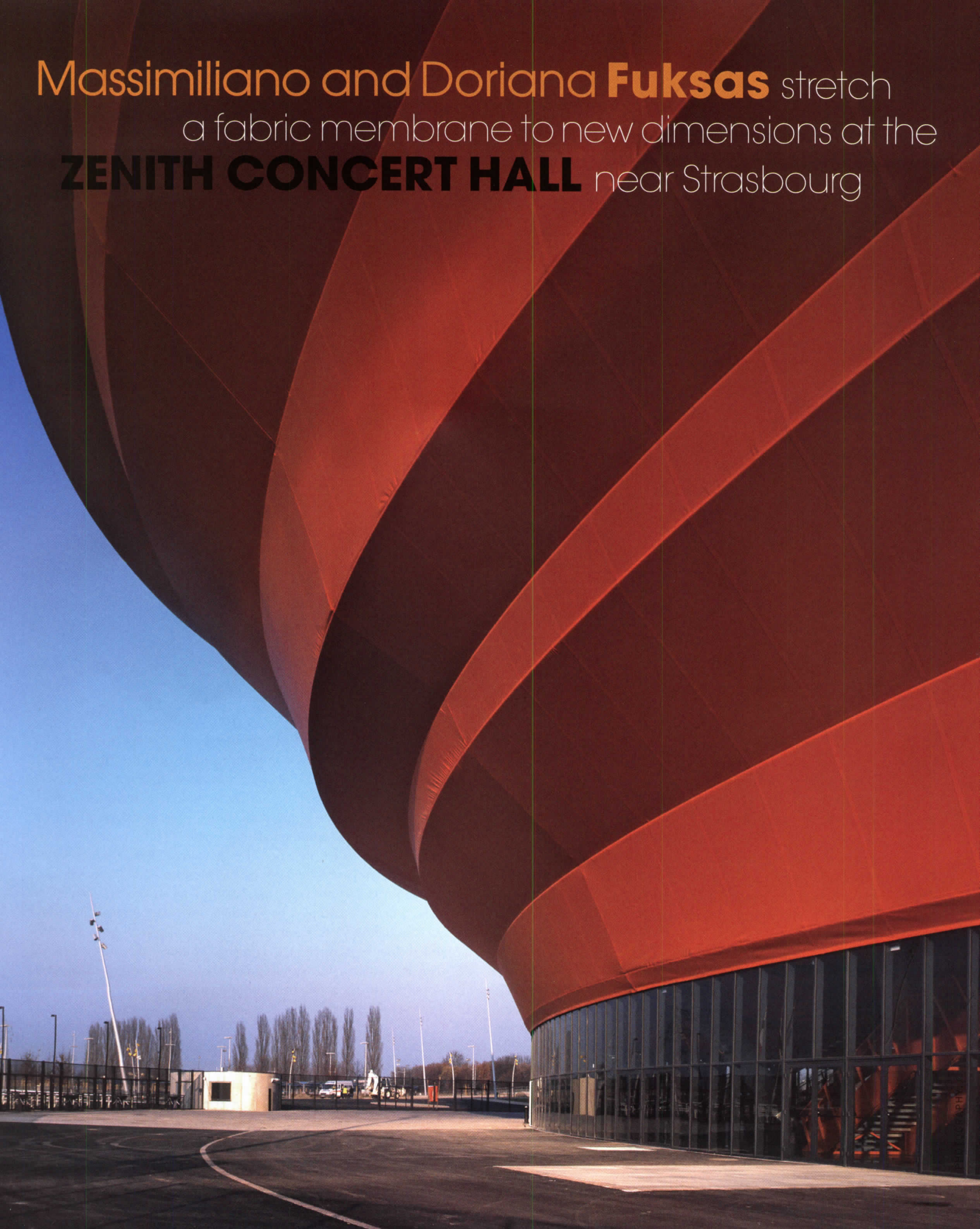
Acoustical ceiling: *Hunter Douglas*

Acoustical panels: *NineWood Acoustical*

Interior ambient lighting: *Gammalux*

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Massimiliano and Doriana **Fuksas** stretch
a fabric membrane to new dimensions at the
ZENITH CONCERT HALL near Strasbourg





By Suzanne Stephens

It is striking to discover the unabashedly futuristic architecture of spectacle of the Zenith concert halls cropping up on the outskirts of French towns and cities often best known for the soaring spires of their Gothic cathedrals. The nation's effusive embrace of modernity and mass culture does indeed generate unexpected juxtapositions with the architectural artifacts of its past. This pronounced disconnect between the contemporary concert hall and the medieval church may be unintentional, but it seems to underscore France's desire both to acknowledge its historic patrimony and establish a critical distance from it. Bernard Tschumi compellingly emphasized the dichotomy between the two cultures with his concert hall in Rouen [RECORD, June 2001, page 102], whose 13th-century cathedral provided a mesmerizing subject for the Impressionist painter Claude Monet. While Tschumi refined his concert hall design with different materials for the Zenith in Limoges [RECORD, January 2008, page 120], Massimiliano and Doriana Fuksas further accentuate and celebrate the schism between the two time periods and architectural types with their own Zenith music hall outside Strasbourg. Their colorfully jaunty design offers a cheeky correlative to the late-13th-century Gothic cathedral, famous for a delicate vertical structure that inspired encomia from both Goethe and Laugier.

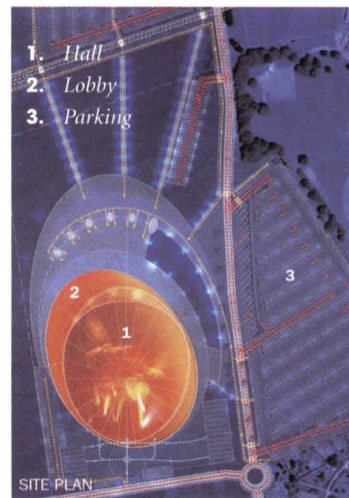
With its intended use for pop musical concerts, sporting events, and variety performances, Zenith's architecture is geared to the distractions of a society of spectacle, to use Guy Debord's famous term, obviously a far cry from the religiously focused culture of long-ago France. Yet one could argue that some of these music halls are at least as

The elliptical structure, clad in a translucent membrane of fiberglass and silicone, projects over the lobby to form an abstract entrance canopy (above and opposite).

structurally adventurous as their Gothic predecessors, even if it is up to anyone's guess exactly how long they will last.

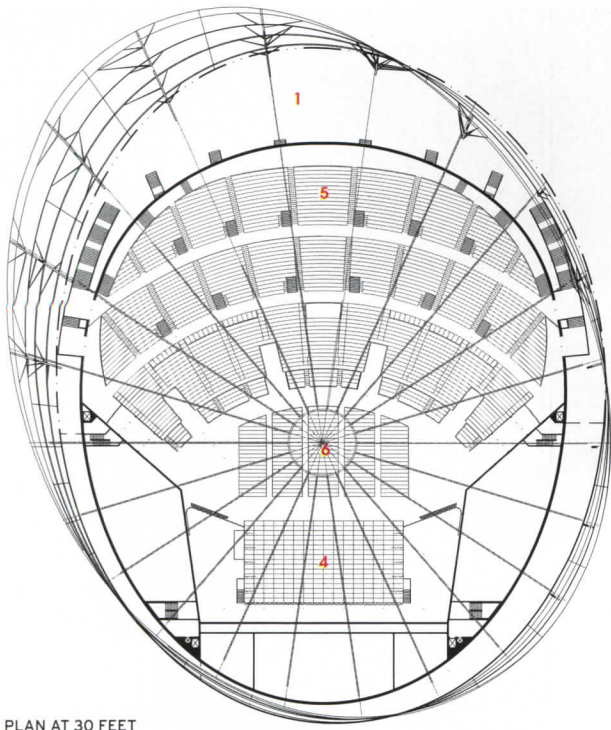
Spawned by the French Ministry of Culture in conjunction with the city or regional governments, Zenith concert halls first appeared in 1984, with one by Chaix & Morel at Parc de la Villette in Paris. At this moment, 16 Zeniths have cropped up, and the Fuksases are currently completing another in Amiens—also a noteworthy cathedral town.

With the Zenith near Strasbourg, the architects needed to accommodate 10,000 visitors on a 64-acre site that is being developed as an exposition park. In so doing, the Fuksases sought a dynamism in the form that is based on layered and rotated ellipsoidal steel rings and a poured-in-place-concrete structure wrapped in a vibrantly pumpkin-hued membrane of fiberglass and silicone. The Fuksases designed the steel rings as a series of



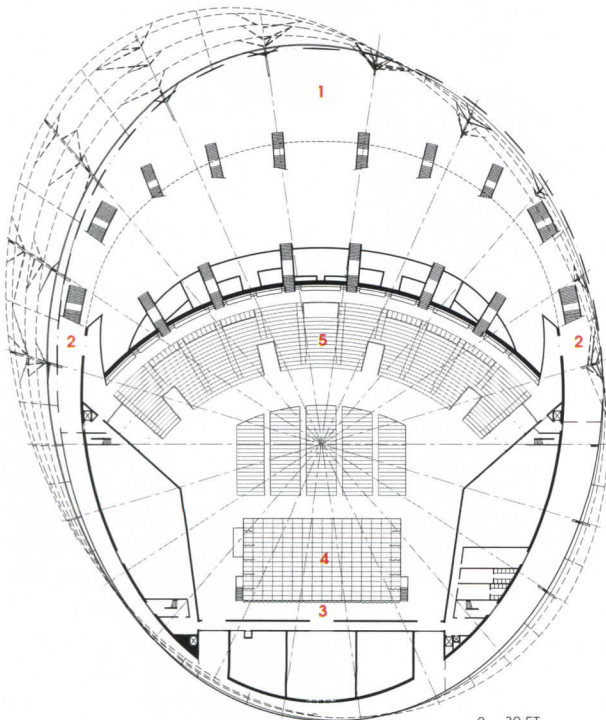
Project: Zenith de Strasbourg, Eckbolsheim, France
Architect: Massimiliano and Doriana Fuksas, principals; Julian Therme, project manager; Michele d'Arcangelo, project architect

Client: Communauté urbaine de Strasbourg/Société d'Aménagement et d'Équipement de la Région de Strasbourg
Engineer: BETOM Ingenierie (concrete); Simon & Christiansen, Jacob et Christiansen (structural)



PLAN AT 30 FEET

- | | |
|---------------------------|----------------|
| 1. Lobby | 4. Stage |
| 2. Entrance to auditorium | 5. Seating |
| 3. Backstage | 6. Ceiling hub |



PLAN AT 10 FEET

0 30 FT.
0 9 M.

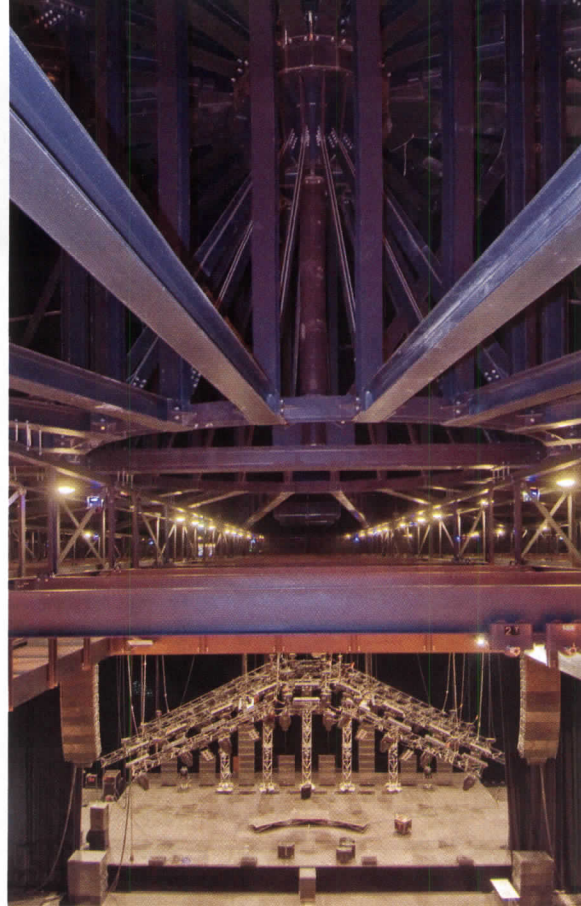
In the entrance lobby (right), canted steel columns with braces secure the membrane to the elliptical rings. Open riser stairs take visitors into the poured-in-place-concrete auditorium.



PHOTOGRAPHY: © MORENO MAGGI (THIS SPREAD)



The muscular steel structure of the hall contrasts dramatically with the delicacy of the membrane on the ground level (right), as well as the roof (far right). Here, steel trusses meet at a central hub like spokes on a bicycle wheel.



shifted and overlapping ellipses, creating a dynamic form outside and bold spaces within. The translucent orange envelope, which glows like a large jack-o'-lantern at night, is stretched over five steel rings that encircle the elliptical concrete core enclosing the auditorium. "The tension between the lightweight membrane and the heavy steel-and-concrete structure represents an intentional dualism," says Massimiliano Fuksas, whose design for the Milan Trade Fair [RECORD, August 2005, page 92], with its undulating glass canopy over a steel armature, explored this notion, albeit with lighter, more attenuated framing members.

On the north side of the building, the overlapping ellipses form the lobby area: Here, large, canted steel columns, arrayed around the reinforced-concrete hall, plus intermediate braces, support the tubular elliptical rings. On the south side of the structure, where the space narrows, the braces alone connect the rings to the concrete core.

The fireproof membrane of fiberglass with a silicone coating on both sides is composed of 40 pieces of fabric, with each seam of the panel electrically welded, then bracketed and bolted to the ring. Intermediary cables further hold the membrane in place and create the sharp creases in the profile. The roof structure is composed of 22 steel trusses, which radiate from a central hub to the concrete walls of the auditorium and from which catwalks are suspended. Included in that arrangement is a continuous cross beam that spans through the hub from one concrete wall to another.

The large auditorium is perfunctory in design—except for the orange chairs—but can shift in size, depending on the crowd, with the benefit of black curtains and retractable seating. Walls, lined with panels filled with wool, give the auditorium acoustical isolation. Trucks roll onto the rear of the stage, and more scenery and lighting can be moved along catwalks high above the seating.

The layering and rotating of the elliptical rings of the steel

structure creates a singular object in the landscape that resembles a large "autonomous sculpture," in the words of the architects. Yet the building still qualifies as autonomous architecture. This architecture derives its formal conditions from internal requirements of construction and program rather than from any external stylistic givens, which Anthony Vidler, in his new book, *Histories of the Immediate Present: Inventing Architectural Modernism*, argues is intrinsic to Modernism.

It may appear ironic that the architecture of Strasbourg's Zenith accords with such a serious precondition while still providing a hall for spectacles meant to appeal to a popular mass audience. In his book *La Société du Spectacle* (1967) and the film of the same name (1973), Guy Debord protested the desacralization of culture resulting from burgeoning capitalism and materialism in the post-World War II years. The Zenith venues, geared to the bourgeois audience, would no doubt have sent a frisson through Debord's very intellectual being. Nevertheless, the experimentation in materials and structure that Zeniths such as Strasbourg represent are interesting on a level that has little to do with mass distractions. They are experiments that could reveal certain technical truths, including how long tensile membrane structures or polycarbonate panels (Zenith Limoges) last, or how well they work for their perhaps limited programmatic lives. While, to be sure, they may not offer lasting contributions to the country's patrimony, they do constitute partial steps in taking its architecture to the next Strasbourg Cathedral. ■

SOURCES

Textile membrane enclosure:
Atex 5000

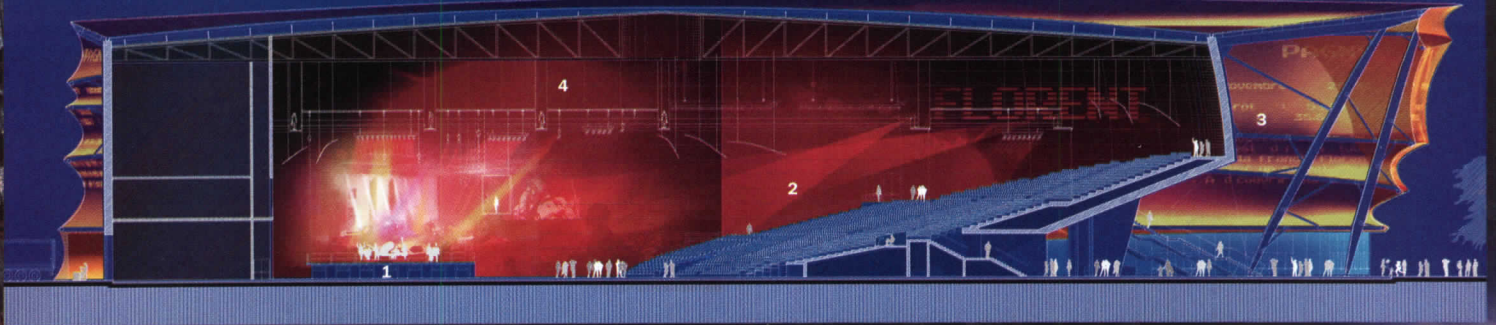
Steel: Z&M Zwahlen & Mayr

Lighting: SBP

Seating: Grosfillex

ONLINE: To rate this project, go to architecturalrecord.com/projects/.

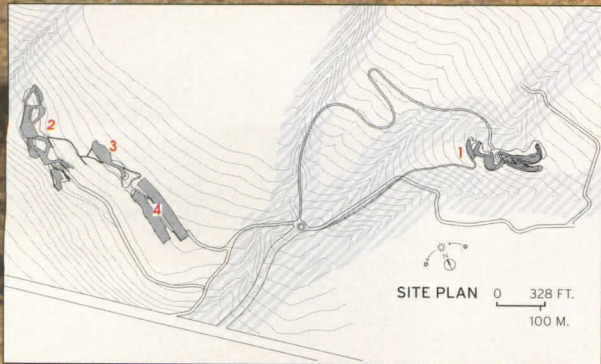
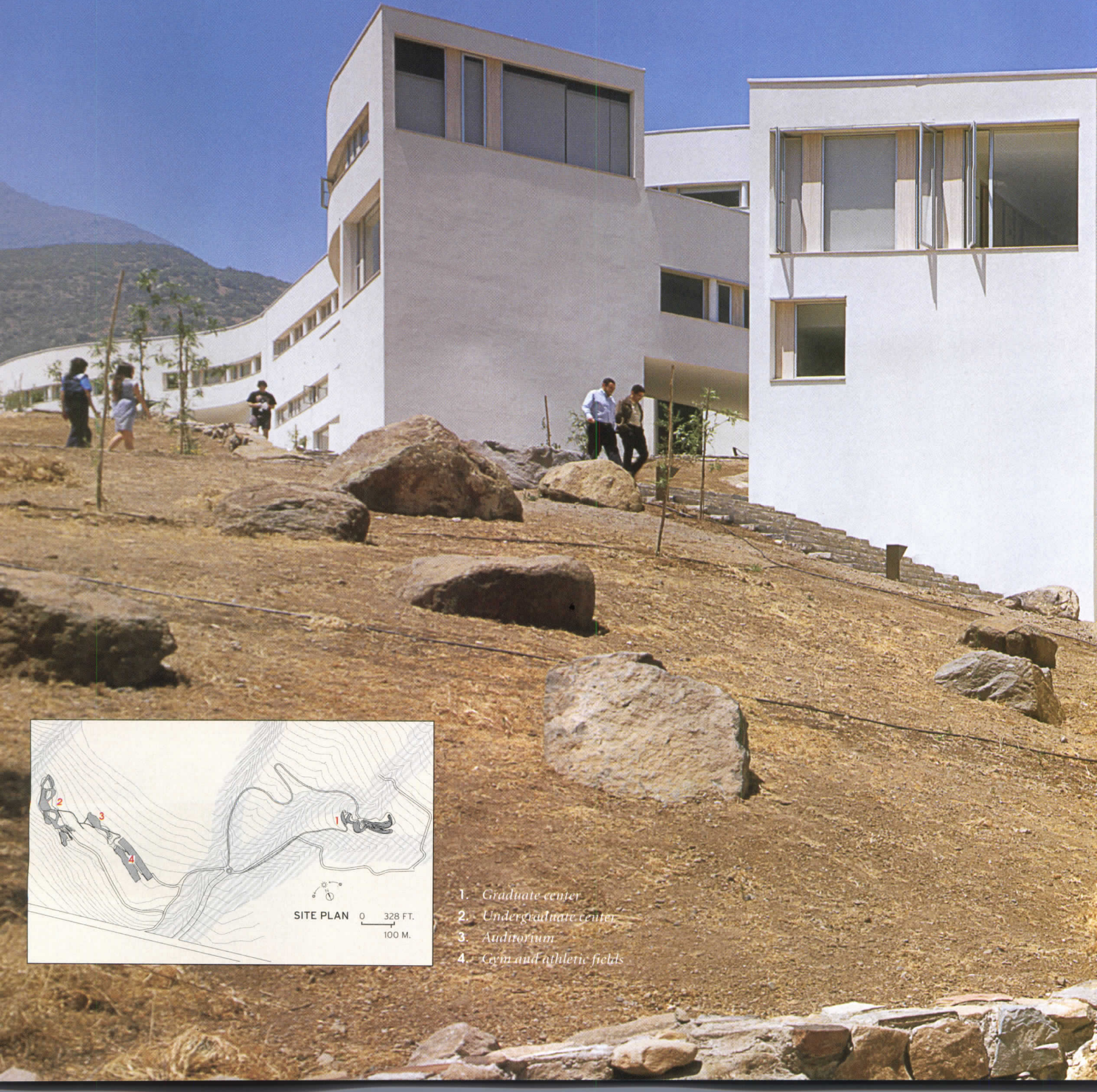
1. Stage
2. Seating
3. Lobby
4. Catwalks



The seating in the main hall is both fixed and flexible, with black acoustic panels of wool lining the rear concrete wall. Catwalks allow changes of scenery and lighting.



José Cruz Ovalle's latest building for an expanding private university makes the most of a rugged but spectacular site overlooking Chile's capital city.



1. Graduate center
2. Undergraduate center
3. Auditorium
4. Gym and athletic fields

In the foothills of the Andes, José Cruz Ovalle
builds a boldly sculptural center for graduate
study at **ADOLFO IBÁÑEZ UNIVERSITY**



By Jeannette Plaut

From its perch in the foothills of the Andes, the new graduate center on the Peñalolén campus of Adolfo Ibáñez University overlooks Chile's capital city of Santiago. The rugged and steeply sloping terrain, and the majestic mountains, quite naturally provided the architect, Santiago-based José Cruz Ovalle, with his inspiration.

"The site indicated the way to approach the exterior," explains Cruz, who conceived the reinforced-concrete building as several sculptural volumes emerging from a series of terraced patios. Ramps unfurl like ribbons from the sinuous, stuccoed exterior walls, providing paths from the terraces to the interior. On the upper levels, bridgelike portions of the building connect the various volumes, framing views of both the mountains and the city.

The 118,000-square-foot building is the latest addition to the 55-year-old, private university's newest campus (the school also has another Santiago-area campus and two more locations in the coastal

*Jeannette Plaut, an architect and teacher in Santiago, Chile, is the architecture editor of *Ambientes* magazine and director of the book publisher *Constructo*.*

Project: Graduate Center, Adolfo Ibáñez University, Santiago, Chile

Owner: Fundación Adolfo Ibáñez

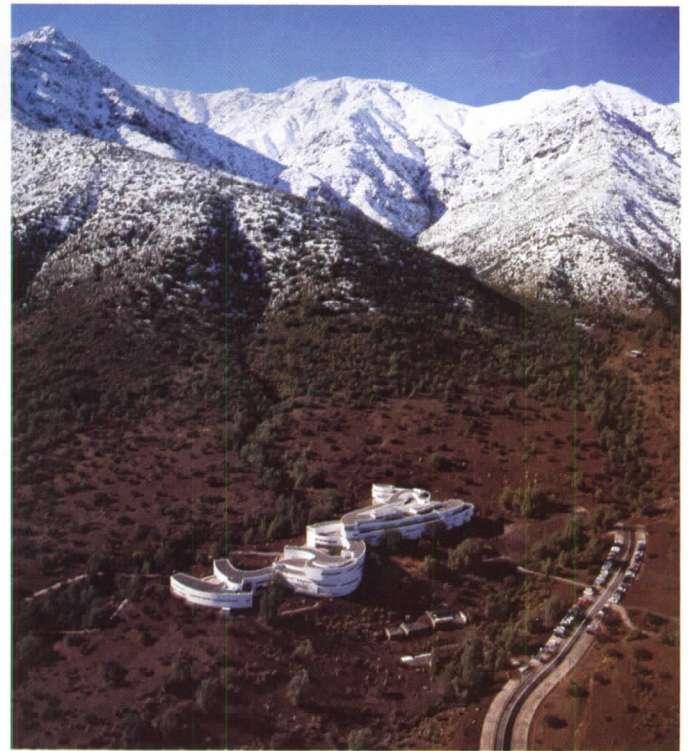
Architect: José Cruz Ovalle and

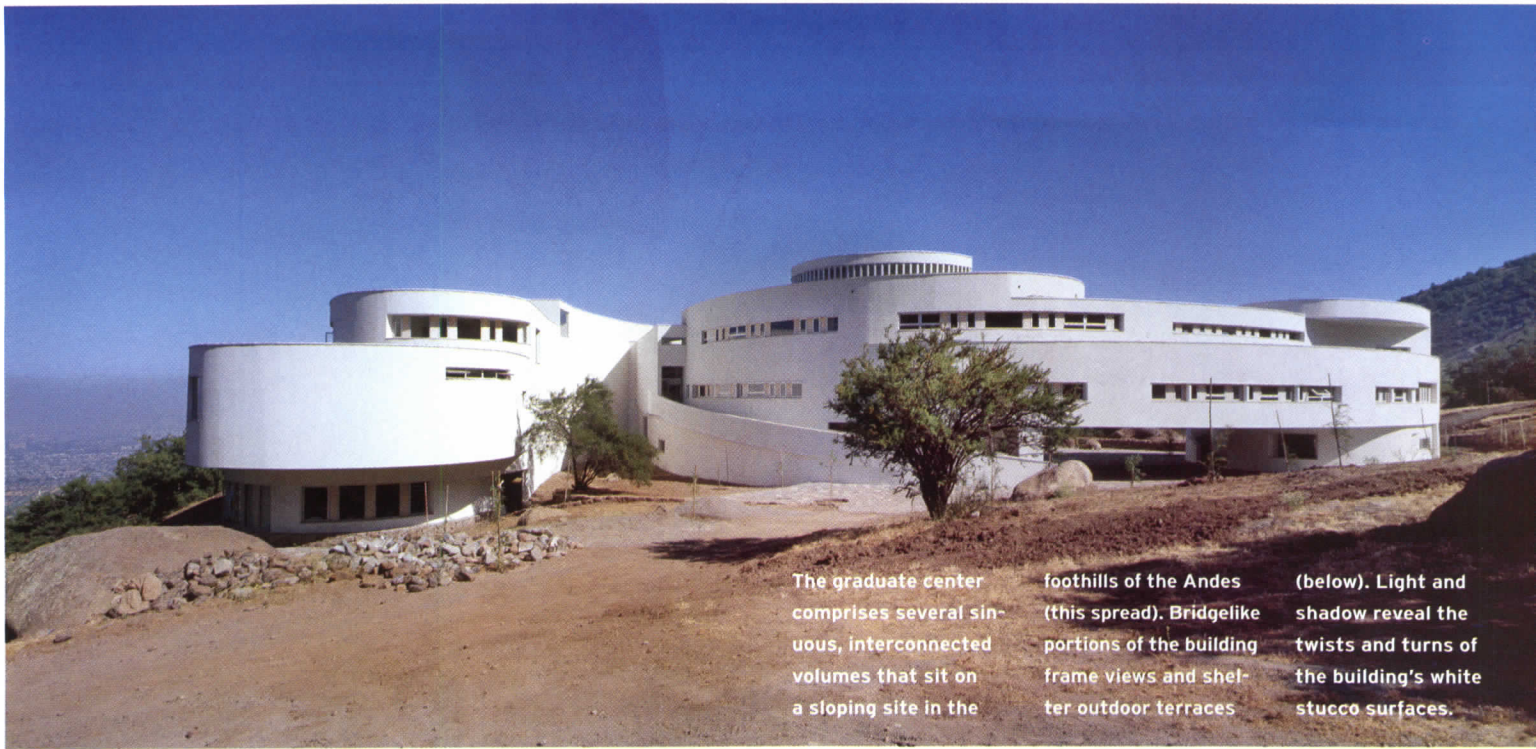
Partners; José Cruz Ovalle, Ana Turell,

Juan Purcell, Hernán Cruz,
project team

Engineer: B&B Ingeniería

General contractor: CYPCO
Constructora





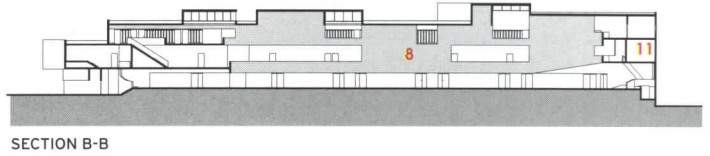
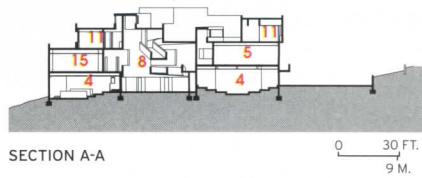
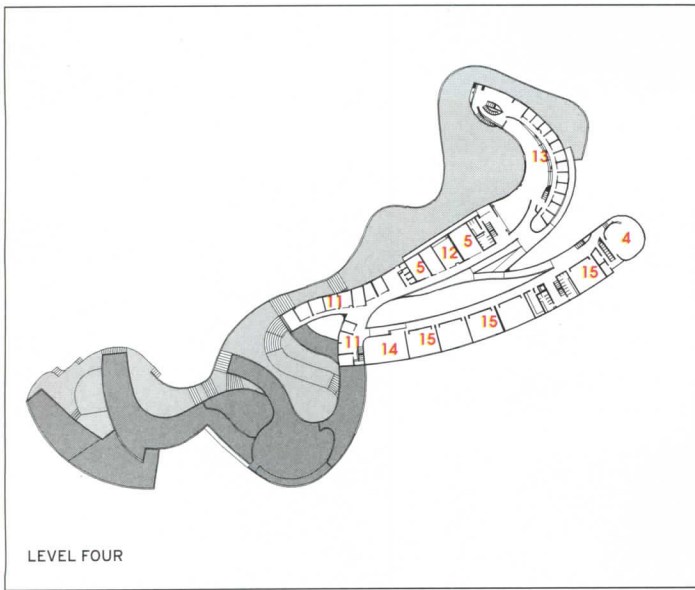
The graduate center comprises several sinuous, interconnected volumes that sit on a sloping site in the foothills of the Andes (this spread). Bridgelike portions of the building frame views and shelter outdoor terraces (below). Light and shadow reveal the twists and turns of the building's white stucco surfaces.



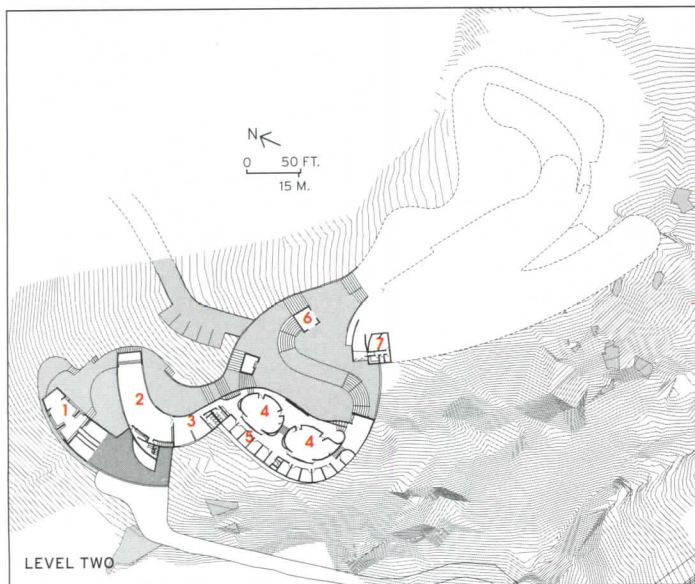
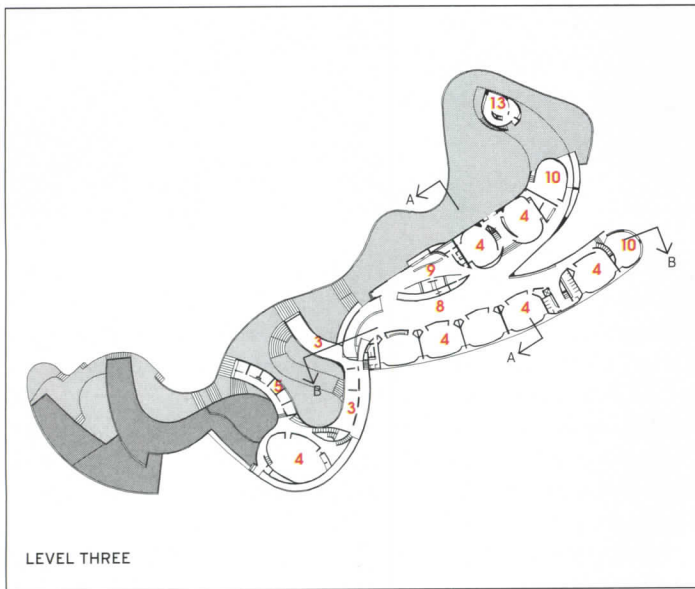
The building is organized around a multilevel, skylit atrium with curving and crisscrossing ramps (this page and opposite). The overlap-

ping vertical and horizontal circulation routes provide occupants with several paths for traveling from one point to another.





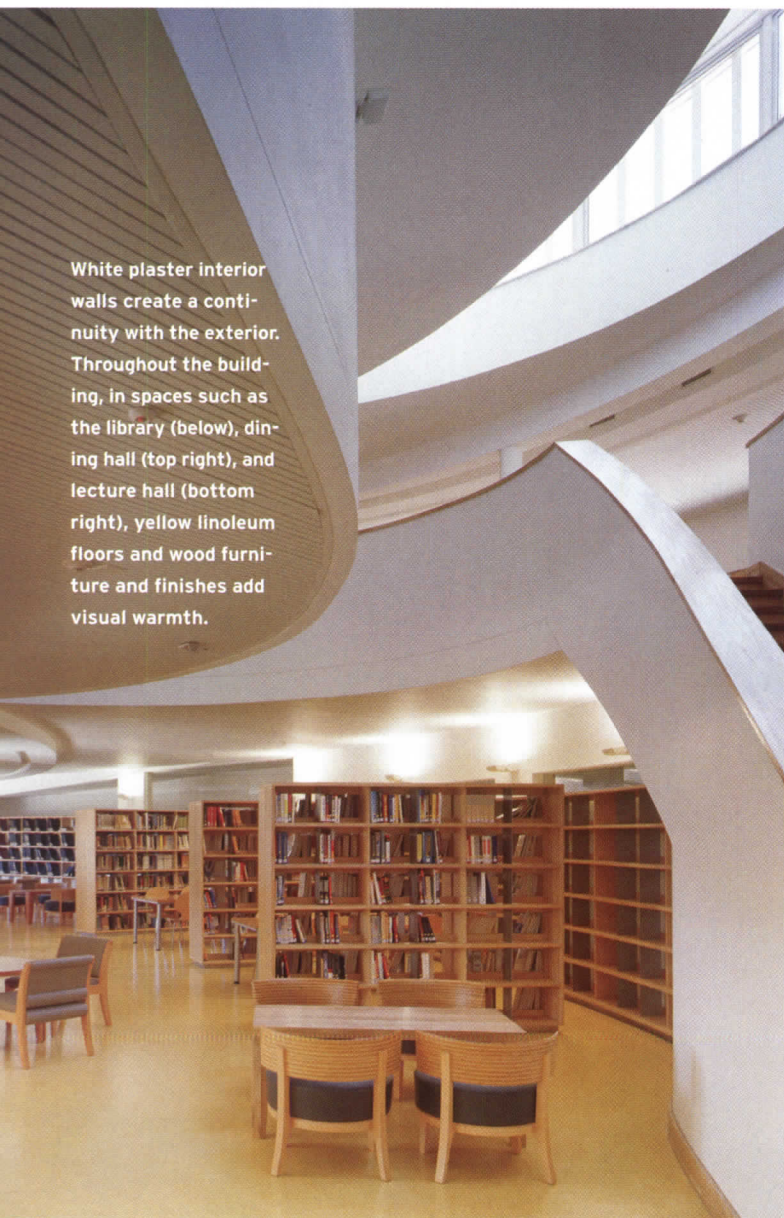
- | | | |
|------------------------|-------------------|-----------------------|
| 1. Student dining hall | 6. Coffee shop | 11. Faculty office |
| 2. Faculty dining hall | 7. Security | 12. Faculty lounge |
| 3. Lounge | 8. Atrium | 13. Library |
| 4. Lecture hall | 9. Administration | 14. Computer lab |
| 5. Study room | 10. Meeting room | 15. General classroom |



province of Valparaíso). Development at Peñalolén, about 6 miles to the east of downtown Santiago, began in 2000 with the construction of an undergraduate center and athletic facilities, followed by an auditorium, all designed by Cruz and completed in 2005.

The graduate center, which opened in the spring of 2007, is just over half a mile to the east of the earlier buildings and at a slightly higher elevation. It sits on a curved slope that projects from two flanking depressions populated with acacia trees. Inside, the programmatic components, which include lecture halls, a library, and faculty offices, are arranged around a multilevel skylit atrium and are connected with curving and crisscrossing ramps.

The soft plastered surfaces of the suspended circulation network can be appreciated as sculptural elements, Cruz points out. In addition, the multiple routes provide occupants with choices and foster chance encounters between faculty and students. In the graduate center, as in nature, “there are many ways to travel from one point to another,” says the architect, describing the atrium as a “continuous space” that is “never homogeneous.” The paths that run through it have “twists, turns, and size variations,” and lead occupants from dimly lit spaces to more brightly illuminated ones.



White plaster interior walls create a continuity with the exterior. Throughout the building, in spaces such as the library (below), dining hall (top right), and lecture hall (bottom right), yellow linoleum floors and wood furniture and finishes add visual warmth.



The circulation and organizational strategy is repeated in the library, which stretches over three floors. Here, as in the building as a whole, the various levels are tied together with bowl-like stairs and ramps that provide both a visual and physical connection among individual spaces.

Cruz describes his approach toward design as a “gathering of all that nature is willing to give as a starting point for construction” rather than an attempt to dominate the landscape. In keeping with this philosophy, the architect tried to minimize disruption of the existing terrain and vegetation, and called for the planting of native trees, shrubs, and grasses, chosen for their ability to thrive without irrigation. He took full advantage of the site’s natural resources, orienting the building and its operable windows to capitalize on prevailing winds from the south, making use of the mechanical cooling system unnecessary, except on the hottest days of the year. Cruz also positioned the structure to make the most of sunlight for interior illumination. Even the most inward-focused spaces incorporate daylight. The lecture halls, for example, admit indirect sunlight through slitlike windows placed to avoid glare and distracting reflections on presentation screens.

Sunlight is not only important on the graduate center’s interior. It also plays a key role outside. The play of light on the sensuous white surfaces helps make the building look like a graceful giant on the slope of the mountainside. The sculptural exterior, says Cruz, “receives infinite tones of sunlight and various degrees of shade, revealing a constant sense of ever-changing lightness.” ■

SOURCES

Concrete: Premix S.A.

Roofing: Firestone

Windows: KBE

Lighting: Rolec


Elevators: Kone

Wood doors: Ingelam

Office furniture: Empresas

Fernando Mayer

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Ramps unfurl like ribbons from the building's exterior walls, providing vantage points for taking in views of downtown Santiago and the majestic surrounding landscape.



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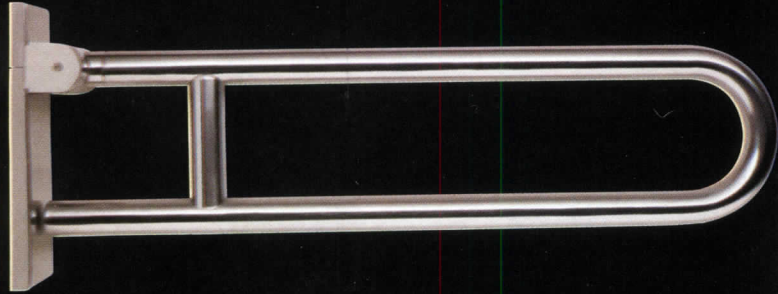
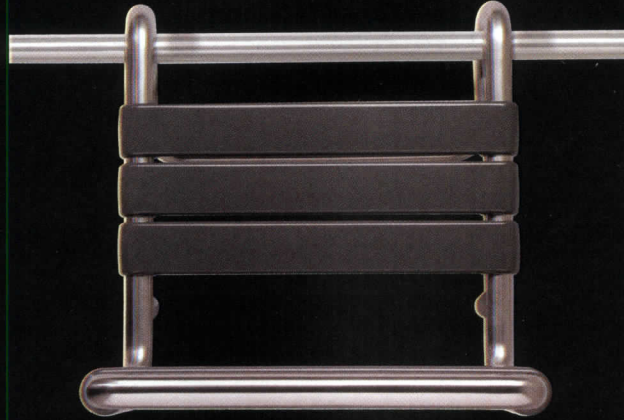


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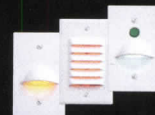
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FLEX AND FLOW

Hospital owners know that spalike environments mean shorter, more healing hospital stays, and flexible and expandable facilities are essential for growing communities. Enter the architects.

By Ingrid Spencer



BANNER GATEWAY

Gilbert, Arizona

NBBJ takes an aesthetic cue from the Arizona desert and creates an oasislike hospital prepared to expand with the community.



COMMUNITY HOSPITAL

Monterey, California

HOK adds seamlessly to a 1962 Edward Durell Stone hospital on the Pacific coast while enhancing the original's connection to nature.



UW CANCER CENTER

Johnson Creek, Wisconsin

OWP/P designs a rural, high-tech cancer center that nurtures patients with soft-palette interiors, natural light, and an easy flow.

Have you been in a hospital lately? If so, you were probably too preoccupied to notice if the facility had ample natural light, a soft palette of natural materials, water features, clean, modern lines, and an easy flow (did you or did you not get lost on your way to the cafeteria and nearly run over by techs pushing large blinking machines?). But if, subconsciously, you found yourself calmer than expected, perhaps you were in a facility built or renovated within the past few years. Aging facilities, new developments in technology and medical science, burgeoning suburban communities, a senescent population of baby boomers, and research about how smart systems and design can affect a hospital's bottom line and patient outcomes has given hospital owners and operators the impetus to make health care design a top priority.

"The evolution of care parallels the need for customer experience," says Randy Guillot, design principal of OWP/P and lead on the UW Cancer Center Johnson Creek. "Health care is coming along at light speed right now in terms of where the corporate and retail worlds were recently."

Also like retail is the franchise model of hospital design, exemplified in NBBJ's design for Banner Gateway, in Gilbert, Arizona. Gateway uses a snap-together configuration to make expansion for this growing community a priority, as well as a spalike atmosphere to enhance patients' experience.

The patient experience is key to another much-talked-about design philosophy—evidence-based design—touted by the Center for Health Design. The philosophy is based on the realization that design can change systems and processes that directly affect patient outcomes. In the UW Cancer Center, for example, patients are only one turn from their destination, on a path lined with calming, natural materials.

Natural elements such as stone, water, and wood—or at least reproductions of such materials—are a big part of HOK's scheme for the addition to Edward Durell Stone's Community Hospital in Monterey, California. In keeping with Stone's original goal, the architects succeeded in integrating the huge expansion with the surrounding landscape and, as in the earlier facility, not making it feel like a hospital.

According to a recent report by the National Association of Children's Hospitals and Related Institutions in partnership with the Center for Health Design, based on a scientific review of 320 evidence-based design studies that apply to the field of pediatrics, the physical environment of health care settings directly affects the clinical, physiological, psychosocial, and safety outcomes among patients and families. Though that report focused on pediatrics, aren't we all as vulnerable as children when faced with a hospital stay? ■

One: BANNER GATEWAY

Gilbert, Arizona

NBBJ takes an aesthetic cue from the Arizona desert and creates an oasislike hospital prepared to expand with the community.

By Stephen Sharpe

Architect: NBBJ—Mackenzie Skene, partner in charge; Stanley Palmer III, AIA, project architect; Scott Dunlap, Brian Uyesugi, lead designers; Chris Larson, lead interior designer; Richard Lee, lead medical architect; Patricia Powers, AIA, Charles Martin, AIA, Kathleen Oshiro, David Huang, Christopher Hong, Alexandra Lara, Steve Bettge, Donald Schuman, Robert Smith, C. Henry Liu, project team; Melanie Taylor, Ken Roepe, lighting designers

Associate architect: Orcutt/Winslow

Client: Banner Health

General contractor:

McCarthy Construction

Consultants: TMAD Taylor & Gaines (mechanical, electrical, plumbing); Paul Koehler & Associates (structural); EPS Group (civil); PD/Saurey Associates, Chris Winters and Associates (landscape); A20 Food Service Design

Size: 379,000 square feet

Cost: \$122,236,000

Completion date: September 2007

SOURCES

Roofing: Johns Manville

Windows: Walters & Wolf (aluminum)

Glass: Viracon

Lighting: Rambusch; Hydrel; Erco; Insight; Io Lighting; Zumtobel; RSA Lighting; Bega; Bruck

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Designed for flexibility, the hospital will shift with the area's changing needs.

The completion of Banner Gateway Medical Center last September provided the growing community of Gilbert, Arizona, with what the NBBJ design team calls the “next-generation hospital.” Despite the tinge of marketing fluff, the phrase aptly describes an advanced facility dedicated to healing and nurturing robust health. *Autogenesis* was the term the team coined to describe the scheme's flexibility and expandability. With floor-to-ceiling windows in public spaces and maintenance activity all but sequestered from patients' view, Banner Gateway lives up to the promotional hyperbole. Already, less than a year after opening, the hospital's staff has twice reconfigured the interior layout for

Stephen Sharpe is the editor of Texas Architect, based in Austin, Texas.

admissions into the emergency department (entry point for 65 percent of all hospital patients). And, probably sooner than later, Gilbert's rapid growth will test the design's expansion capability to accommodate more than triple the number of private rooms, from 165 to 536.

Program

The design intent was “all about flow,” says Gateway facilities director Roy Tuttle, referring to the logistical movement of staff, patients, and the material necessary to sustain 24/7 hospital services. Critical to the long-term expansion strategy is the “plug and play” aspect of the design, whereby all mechanical systems are embedded along two edges of the diagnostic block, the larger of the 380,000-square-foot complex's two main components.



1. Main medical center
2. Future expansion
3. Facilities plant
4. Modular office buildings

Also important to the development of the project, according to NBBJ partner Mackenzie Skene, was providing the community of Gilbert with a facility designed to recall the more hospitable attributes of the Sonoran Desert. Skene says the design team chose the theme of a desert oasis to imbue the medical center with a resortlike tranquility, where patients and their families would find comforting distractions during their time in the hospital.

Solution

To satisfy their aesthetic objectives, Skene says, the designers looked to “regional specific influences” when selecting materials and cosmetic accoutrements to support the oasis motif. The dramatic centerpiece at the entry is a “waterfall” rendered in a fritted-glass curtain wall that appears



The hospital is oriented to reduce solar heat gain and create large areas of shade. The palette, comprising 22 different types of concrete masonry units and horizontal panels of prepatinated Cor-Ten steel, took cues from the surrounding desert.

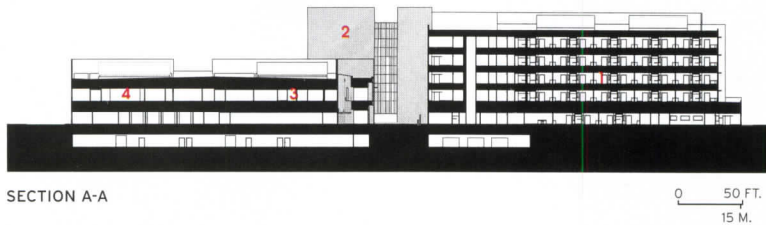


The hospital has a centralized circulation system arranged along an interconnecting hallway or “spine” (left). Garden spaces with water features stretch along the facility’s spine to create inside/outside connections and peaceful places for reflection (below and opposite).

to emanate three stories above the main lobby. The metaphor is expressed more literally at ground level, where water circulates through a man-made streambed. More water meanders between the virtual cliffs of the hospital’s diagnostic block and the adjacent patient tower, which are rendered in a variety of materials that mimic the range of texture and color found in the local terrain. The serenity of the outdoor space is exceeded only by the chapel, tucked into a corner of the courtyard, with walls that look as if they float above the ground plane.

To meet the client’s ambitious construction schedule of erecting the project in only 28 months, the team consolidated mechanical systems in vertical stacks along two edges of the diagnostic wing. In addition to simplifying construction, the strategy ensured the required flexibility by establishing a utilitarian grid from which future phases will extend. Flexibility is further enhanced by locating the central plant away from the main buildings on the 60-acre site. Skene credits general contractor McCarthy for rising to the challenge of a fast-track project that required craftsmanship and swift adaptability.

1. Patient rooms
2. Intervention waiting
3. Imaging
4. Pre-/post-op



Commentary

The appealingly simple snap-together configuration of Banner Gateway grew from a previous hospital NBBJ designed for client Banner Health in Phoenix. That facility, Banner Estrella [RECORD, October 2006, page 138], led to NBBJ’s development of Gateway as Banner’s first “franchise model” that could be adapted for various locales. The project in Gilbert, while an apparent success, may not represent a rigorous test for its potential reiterations because the site offered the best of scenarios—abundant land for on-site surface parking, immediate access to the regional freeway system, and a flourishing middle-class community that had no hospital until September 2007. Inspired by nature’s transformative power and the best of site conditions, NBBJ made the most of a good thing—more than filling the need for Gilbert’s 200,000-plus residents. ■



SECOND FLOOR

- | | | |
|-------------------|--------------------------|------------------|
| 1. Main entry | 8. Chapel | 15. Staff |
| 2. OB entry | 9. Canyon | 16. Intervention |
| 3. Lobby | 10. Birthing | 17. Pre-/post-op |
| 4. Registration | 11. Central plant | 18. ICU waiting |
| 5. Emergency | 12. Facilities office | 19. ICU |
| 6. Administration | 13. Intervention waiting | 20. Patient beds |
| 7. Dining | 14. Imaging | |



Two: COMMUNITY HOSPITAL

Monterey, California

HOK adds seamlessly to a 1962 Edward Durrell Stone hospital on the Pacific coast, enhancing the original building's connection to nature.

By Sam Lubell

Architect: HOK—William Roger, AIA, project director; Ernest Cirangle, AIA, Paul Nagashima, AIA, project designers; Paul Morgan, AIA, project manager/architect; Barbara Ostroff, project interior designer

Client: Community Hospital Foundation

Consultants: KPFF (structural); Syska Hennessy, List Engineering (mechanical); Silverman & Light (electrical); Whitson Engineers (civil); Bellinger Foster Steinmetz (landscape)

Size: 290,000 square feet

Cost: \$170 million

Completion date: South Pavilion: October 2006; Forest Pavilion: February 2007; projected renovation: 2010

SOURCES

GFRC wall panels: Dura Art Stone

Single-ply roofing: GenFlex

Windows: Curries (steel); Kawneer (aluminum)

Wall coverings: Maharam

Resilient flooring: Forbo Linoleum; VCT; Altro

Office furniture and nurses' stations: Herman Miller Ethospace
Waiting area furniture: Maguire; Knoll

Upholstery: Knoll; Maharam; Glant

Paints and stains: Sherwin Williams

ONLINE: Rate this project and access additional sources at architecturalrecord.com/bts/.

Despite their amazing advances, most hospitals today still fail to make patients feel relaxed, or at times even human. One visionary hospital that long ago challenged that shortcoming is a midcentury masterpiece by Edward Durrell Stone: The Community Hospital of the Monterey Peninsula, or as it is fondly called by locals, CHOMP.

Stone's Wrightian, ornamented-white-concrete Modernist structure, with its focus on natural light and views of the surrounding landscape of Monterey Pines overlooking the Pacific, was completed in 1962. The low-lying, orthogonal-planned complex has landscaped courtyards, a central fountain court, overhanging roof planes for shade, single-occupancy rooms with large windows overlooking the landscape, and large skylights, all bucking the then-emerging trend of new hospital towers and focusing on context rather than maximizing interior space. The hospital has undergone several small interventions and expansions, but almost 50 years after its opening, it needed a major update in size and technology. Following an extensive interview process, the hospital's board chose HOK's Los Angeles office for the

Former RECORD news editor Sam Lubell is the editor of The Architect's Newspaper, California edition. He is the author of Paris 2000+ and London 2000+ (Monacelli Press, 2007, 2008).

task, asking the firm to maintain the character of the original design, which patients and the community have come to cherish.

Program

HOK's \$170 million addition to the hospital consists of about 200,000 square feet of new construction and 90,000 square feet of renovated space.

New spaces are complete, while the renovations will continue until 2010. Three-story additions include the Forest Pavilion, a new patient wing projecting north on the site of the hospital's former rose garden; the South Pavilion, a new diagnostic and treatment wing (containing a new ICU, emergency departments, cath labs, and imaging) to the south, on the site of the former doctors' parking lot and support structures; and a new, three-level underground parking-garage area, nicknamed the "garage mahal," under the renovated and expanded main entrance area. Existing spaces undergoing renovation include the hospital's cafeteria, imaging facilities, cath labs, administrative offices, a meditation room, a new cardiopulmonary department, a rehab gym, and service



CHOMP's sprawling new pavilions are completely integrated into the hospital's original design.

and support spaces.

The firm's major challenge was maintaining the Zen-like peacefulness and iconic design of a complex that has become a fixture in the community while carrying out such an extensive enlargement and modernization and adhering to the incredibly strict regulations of the Office of Statewide Health Planning and Development (OSHPD).

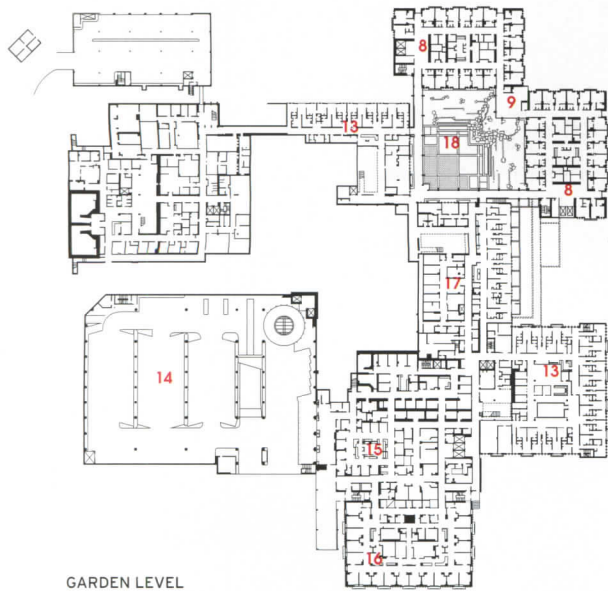
Solution

The new complex is most notable for how it blends in. While updated with the latest technologies, the plan, massing, and scale of the new buildings are almost identical to those of the original buildings. To add space without altering the horizontal nature of the complex, the firm excavated one to two levels

The firm re-created the hospital's unique ornamentation by making a fiberglass mold of its radiating square motif (a form that evokes both ancient Greek

decoration and the plan of the complex itself) and using it on the new building's poured-in-place-concrete and glass-fiber-reinforced-concrete panel walls.



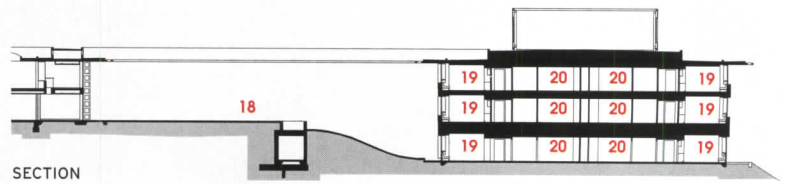


GARDEN LEVEL



MAIN FLOOR

0 50 FT.
15 M.



SECTION

1. Entry plaza
2. Fountain court
3. Operating rooms
4. Prep/recovery/PACU
5. Imaging
6. Cardiac cath labs
7. Nuclear medicine
8. New acute-care wing
9. Day room
10. Fountain Court Café
11. Main pharmacy
12. Medical records
13. Existing hospital
14. Parking garage
15. Emergency
16. ICU/CCU
17. Cardiopulmonary
18. Healing Garden
19. Patient rooms
20. Core

Views to the Healing Garden create a calming atmosphere (below). Where possible, patient rooms have large exterior windows with garden or forest views (bottom two).



down on both ends of the hospital, aligning the new buildings with the old. Maintaining low ceiling heights while fitting new HVAC and electrical systems also required innovative rerouting. Main ducts skip the building's middle level, which is instead fed via smaller branch ducts from the other floors.

Meanwhile, the original building's focus on the natural environment is not only maintained, but even enhanced. The most conspicuous example is the Forest Pavilion's large "Healing Garden," a courtyard north of the existing complex, located on Stone's original diagonal axis of open space. Other important nods to the outdoors include hallways that almost always end with floor-to-ceiling windows. These light-filled corridors are warmed with real cherry wood or cherry-grained plastic laminate accents on doors, desks, and some walls. New rooms are spacious and bright, with large windows, full-height wardrobes, and cozy niches. The Forest Pavilion also contains large corner common rooms for visitors on each level, taking advantage of views of its new courtyard.

The more technically geared South Pavilion is softened with open hallway layouts and glazed alcoves, which let patients feel less claustrophobic and allow nurses to view multiple rooms at once.

Commentary

Sublimating their artistic impulses to the greater good of the project was at first challenging, say the architects. But after getting to know and love Stone's innovative hospital, it became easy. The endeavor, says design principal Ernest Cirangle, was "a little less about ego and a little more about place making."

The result is a complex that seamlessly upholds Stone's original goal: not to feel like a hospital at all. Even unnatural elements like the re-created rocks outside and fake wood inside are done with a careful attention to detail. Thus, the overhauled hospital continues to give people the one thing that all the medicine in the world can't: dignity. ■



The Healing Garden slopes downward at its north end to allow natural light into lower rooms. It features a waterfall made from an array of large foam "rocks" that are

covered in cementitious material shaped by a local artist; a paved sitting area; mosaic tiles, also designed by a local artist; and a vast array of lush plants.

Three: UW CANCER CENTER

Johnson Creek, Wisconsin

OWP/P designs a rural, high-tech cancer center that nurtures patients with soft-palette interiors, natural light, and an easy flow.

By Christopher Hudson

Architect: OWP/P—Randy Guillot, AIA, design principal; Jim Mladucky, AIA, project director; Troy Hoggard, AIA, project designer; Scott Nelson, AIA, programmer; Geoff Walters, AIA, Mike Yoshimura, AIA, technical coordinators; Scott Lay, Elizabeth Werner, project architects

Client: UW Health, Fort Atkinson Health System, Watertown Memorial Hospital

Consultants: Graef, Anhalt, Schloemer & Associates (structural); Affiliated Engineers (mechanical/electrical); CG Schmidt Construction (general contractor)

Size: 14,300 square feet

Cost: \$3.28 million

Completion date: October 2005

SOURCES

Tile: Crossville Strong (porcelain); American Olean (glass); Armstrong (vinyl/ceiling); Johnsonite (rubber base); Forbo (linoleum); Interface (carpet)

Lighting: Douglas Lighting Controls; Capri; Omega Revelation; Lucifer; Visa; Scott Architectural Lighting; Focal Point; Ledalite; Concealite; Lithonia

Case goods: Knoll

Seating: Haworth; Nemschoff; Brandrud; Adden; La-Z-Boy; Westin-Nielsen; Sauder; Intensa

ONLINE: Rate this project and access additional sources at architecturalrecord.com/bts/.

Light-filled contemporary architecture and leading-edge medical care are not usually associated with rural health care facilities. Clinics serving rural populations are more likely to be bland modular buildings that competently provide the basics at low cost but offer little in the way of vibrant, nurturing spaces for patients and staff. Which prompts the question: Do the economics of health care delivery necessitate this cookie-cutter, one-set-of-options-fits-all approach?

Not always, say those responsible for the 14,300-square-foot UW Cancer Center Johnson Creek, in Johnson Creek, Wisconsin, a quiet community located between Madison and Milwaukee on I-94. The owners—UW Health, Fort HealthCare, and the nearby Watertown Memorial Hospital—achieved something far greater by joining forces (and resources) and asking the Chicago office of OWP/P to design a signature building, one that would elevate the center's profile and, most important, foster the best possible experience for patients in very difficult circumstances. The result uses natural light, visual connections to the landscape, and form to create that gentle uplift.

Program

OWP/P project director Jim Mladucky, AIA, credits UW Cancer Center director Lynda Persico and

Christopher Hudson is the editor of Architecture Minnesota magazine.

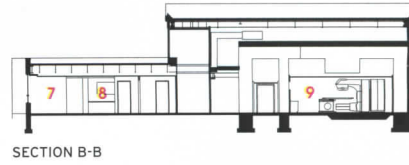
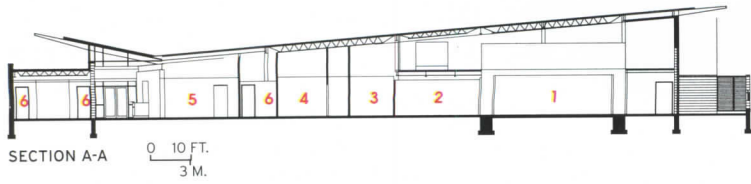


UW Cancer Center's plethora of windows allow for visual connections to its wooded site, as do meandering paths around the facility.

her colleagues with having a “very clear vision of how they wanted the building to function, how the flow of patients was going to work, and how staff would interact with patients.” To offset the intimidation the elderly and the very ill might feel in a high-tech, clinical environment, the center's state-of-the-art diagnostic and treatment areas—including a linear accelerator, a device for high-energy radiation therapy that must be housed in an ultra-thick concrete vault—needed to be exceedingly easy to find and navigate. And while the clients wanted that inviting, noninstitutional feel to extend to all aspects of the building, they also sought a bold design that would attract and retain top talent and reflect the 21st-century medical care inside.

Solution

The project's defining feature, an asymmetrical butterfly roof that dramatically expresses the building's steel frame at both ends, is both a practical and metaphorical response to the program. The “wing” at the east end of the building rises to create a clerestory above the entrance, lobby/check-in desk, and waiting area. The other, much-longer roof deck lifts at a shallower angle to accommodate the height of the linear accelerator vault and hide the mechanical systems in a plenum along the north (front) side of the building and, on the south side, bring light into the center's wide central corridor through another clerestory. For patients accustomed to radiation and oncology departments in institutional basement



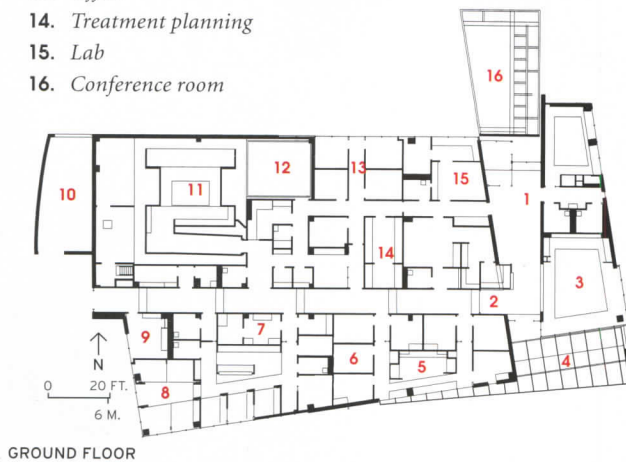
- | | | |
|--------------------------------|------------------------------|------------------------------|
| 1. <i>Linear accelerator</i> | 4. <i>Hoteling office</i> | 7. <i>Infusion bays</i> |
| 2. <i>CT/scan simulator</i> | 5. <i>Lab and blood draw</i> | 8. <i>Nurse workstations</i> |
| 3. <i>CT/scan control room</i> | 6. <i>Bathrooms</i> | 9. <i>Electrical room</i> |

South-facing clerestory windows top the split-face concrete-block wall in the lobby and waiting area (this page) and provide an open, pleasant entrance to the clinic. The wall runs inside to outside.





- 1. Entry
- 2. Reception
- 3. Waiting area
- 4. Terrace
- 5. Team work area
- 6. Exam rooms
- 7. Medication rooms
- 8. Infusion bays
- 9. Lounge
- 10. Mechanical
- 11. Linear accelerator
- 12. CT/scan simulator
- 13. Office
- 14. Treatment planning
- 15. Lab
- 16. Conference room



Seen by night (above left), the building's ample glazing suggests the abundance of light that floods patient rooms (above) and chemotherapy infusion bay areas (below) by day. There are smaller bays for private or semiprivate treatment, and one larger group area.

settings, the interior light and volume afforded by the roof angles are nothing short of a small miracle.

"The formal side of things is always a negotiation as you go through the process," says OWP/P design principal Randy Guillot, AIA. "What we always applauded [the clients] for was understanding the connection between form and experience in the building. It's a very small project, but it was one for which the aspirations were always much larger."

OWP/P's other important move was to fan a second rectangular floor plate out from the first like a playing card. This back piece of the building, home to exam rooms, chemotherapy infusion bays, and a staff lounge, tucks into a wooded hill and has a low, flat roof to allow for the south-facing clerestory above. The expanse of glass lining the chemotherapy area has treated patients and their families to many a dancing crane and feeding deer, says Persico. Some patients have even received treatment outdoors, on the back patio.

Thanks to an efficient plan—the patient areas lie on *one side of the* corridor, staff areas and the linear accelerator on the other—patients are only one simple turn from their destination. And the path is lined with calming materials: A split-face concrete-block wall approximating natural stone anchors the lobby and waiting area (and continues outside to join the redbrick exterior); the lofty lobby and corridor feature a tongue-and-groove cedar ceiling; and maple and anagray cabinetry and trim round out a soothing color palette.


Commentary

Natural light and landscape views enhance the interior of any building, but these life-affirming elements become even more important in a cancer-care context. Walking through the UW Cancer Center Johnson Creek and observing patients going about their treatment in a humane environment, one can't help but hope that health care leaders have taken notice of this small facility and the partnership that made it possible. ■





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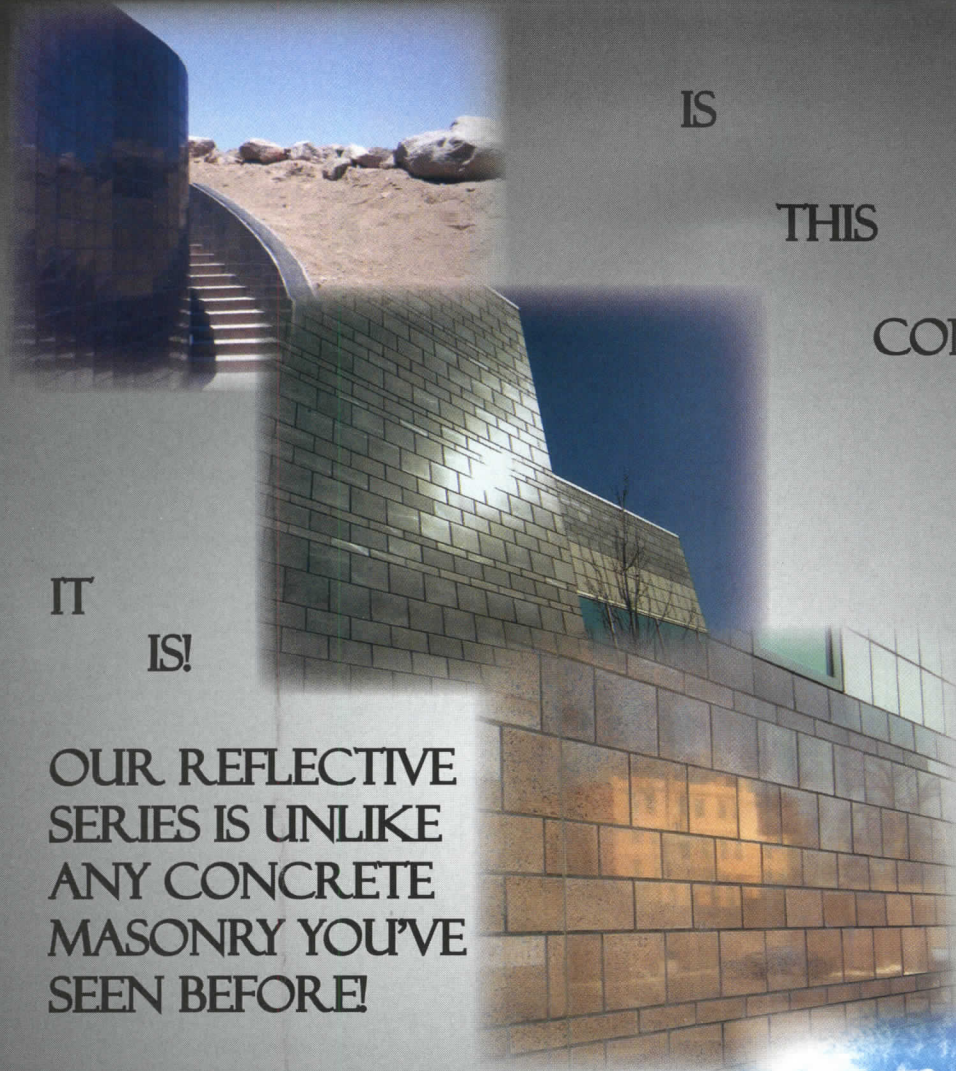
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INNOVATIVE STRATEGIES IMPROVE AIR QUALITY INSIDE HEALTH CARE FACILITIES SO THAT PATIENTS DON'T END UP SICKER THAN WHEN THEY ARRIVED

By Josephine Minutillo

When we think of Sick Building Syndrome, the first context that comes to mind for most of us as the cause of the coughing, discomfort, and irritation usually associated with it is a hermetically sealed, over-air-conditioned high-rise office building. The last place you would expect to encounter it is in a building meant for healing. Yet hospital occupants, patients and staff included, are just as likely to fall victim to building-related illness as office workers. In fact, a recent study by the National Institute for Occupational Safety and Health shows that, outside of the manufacturing sector, work-related asthma rates are higher among those employed in the health care industry than in any other group of workers.

When it comes to the indoor environment of health care facilities, the chief concern doctors have for their patients remains infection control, especially since weakened immune systems are more susceptible to contagions. Estimates from the Institute of Medicine indicate that nosocomial infections—those contracted by a patient while under medical care—account for more deaths annually in the United States than motor vehicle accidents. While there is little design professionals can do to prevent hospital-acquired infection that results from human error—improper sterilization, for instance—architects and engineers are putting into practice inventive measures to improve the indoor air quality (IAQ) of health care facilities and reduce the risk of airborne ailments.

There are a number of indoor air pollutants that contribute to poor IAQ and the spread of airborne disease. These include biological contaminants such as molds and bacteria, and combustion pollutants like carbon monoxide and toxic particles. Even the building itself is a factor, since toxic substances emitted from building materials and furnishings degrade IAQ. This off-gassing, as it is known, is a by-product of such pervasive materials as paint, varnishes, carpet, flooring, insulation, adhesives, and particleboard. The harmful volatile organic compounds (VOCs) that are emitted from these materials can have adverse short- and long-term health effects. One of the easiest and most cost-effective approaches to improving IAQ is eliminating individual sources of pollution. It has become common practice today in the design of health care facilities to utilize natural materials—linoleum flooring, cotton insulation, undyed wool carpet, among others—as well as products with low or no VOCs. Additionally, more and more hospitals are switching to nontoxic cleaning products.



The need to vent

While source control is a straightforward first step toward improving IAQ, ensuring proper ventilation is an obvious, if not more formidable, task. Several recent health care projects make enhanced ventilation a design priority. At Dell Children's Medical Center of Central Texas in Austin, Ohio-based architecture firm Karlsberger brought the outside in by incorporating six courtyards—all open to the sky, and all but one enclosed on all sides by building walls—that serve as air intakes for the hospital's innovative mechanical system.

Replete with flora representing the various ecosystems found within central Texas, as well as numerous water features, the courtyards—referred to as the “lungs” of the building—provide the interiors with clean, oxygenated air from an extremely controlled environment. “In the old children's hospital, they complained that they could detect a faint smell of lawn-mower exhaust in the operating room when the lawn was being mowed,” recalls

Joe Kuspan, AIA, principal at Karlsberger. The new arrangement avoids such scenarios: Within the courtyards, a couple of which are inaccessible, there is no lawn maintenance (the few small patches of grass are artificial), or trucks pulling into a loading dock spewing fumes. Throughout the hospital campus—located on a former municipal airport site—smoking is prohibited, and this is strictly enforced in the courtyards that are open to patients, visitors, and staff for physical therapy activities and outdoor dining.

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 credit, turn to page 138 and follow the instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Describe indoor air quality concerns in health care facilities.
2. Discuss factors that contribute to poor indoor air quality.
3. Describe methods for improving indoor air quality in health care facilities.



Dell's entrance tower acts as a landmark (opposite). The courtyards, most of which are accessible, serve as air intakes for the building (left and below).

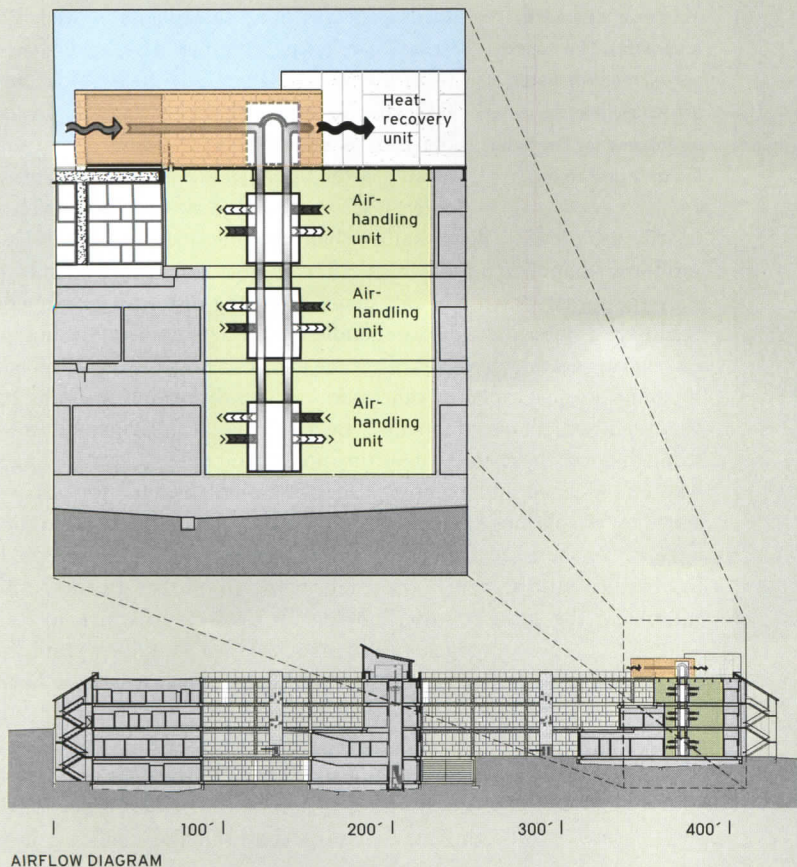
Locating the air intakes at these courtyards provides other advantages as well. With Texas's sweltering summer days, taking air in from the roof, as is typically done, would mean filling the building with super-heated air. Instead, the roof is equipped with heat-recovery units located at the upper elevation of the courtyards, above a series of stacked *air handlers*, which are distributed on each floor. Rather than utilizing a single, consolidated, rooftop air-handling unit—which can be as large as a transit bus and typically pushes air down through shafts over long distances—Karlsberger “right-sized” these individual air handlers for specific zones of the hospital, each having varying needs. “While some parts of a hospital are like an office building,” Kuspan explains, “other parts, such as the operating rooms, have very stringent air requirements.” By reducing the distance air travels through ducts, the chances of picking up dirt and other particles along the way were lessened, and maintenance made easier. The setup was also well-suited for establishing smoke zones, a fire-safety requirement for hospitals.

At the same time that plans for Dell were being developed, the local utility, Austin Energy—noted for being among the greenest public utilities in the country—was looking for projects in which to locate cogeneration plants. With a \$1 million grant from the Department of Energy, Dell and Austin Energy established an on-site combined cooling heating power (CCHP) plant that utilizes state-of-the-art natural-gas-fired turbines. The CCHP is 75 percent more efficient and releases fewer carbon dioxide emissions than burning coal at a distant power plant.

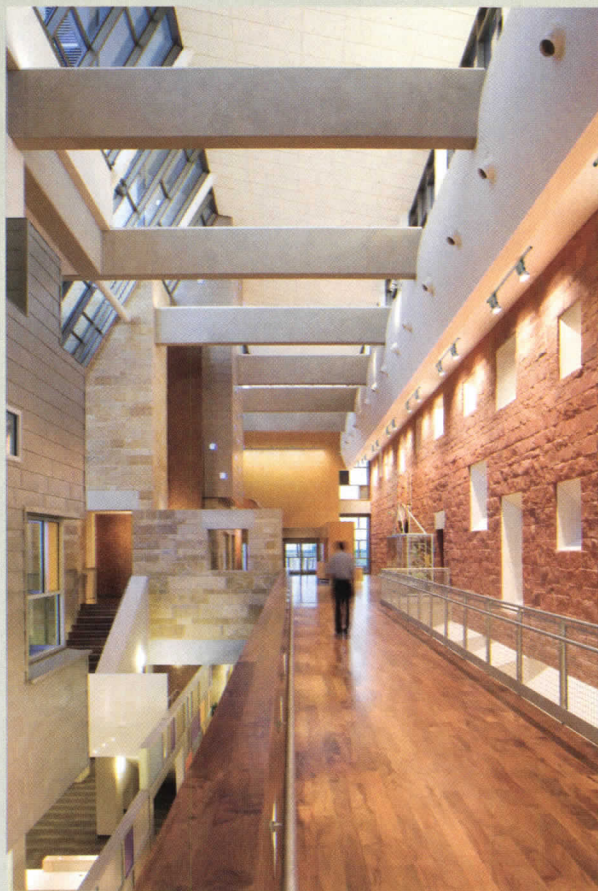
Other low-polluting elements were used in the hospital's interiors. These include low-VOC paints and adhesives and linoleum flooring, which requires only soap and water cleanup rather than the continuous waxing and stripping that is often done to sheet vinyl and vinyl composition tile, the most common hospital floor finishes. Even the pest



Part of a New Urbanist development, Dell sits on a 32-acre parcel on the brownfield site of a former municipal airport (above).



Instead of a single unit, air-handling units at Dell are distributed on each floor (above). Local materials appear throughout the building. A wall of red sandstone, adjacent to a bridge of indigenous mesquite wood, is used for way-finding purposes (right).



control is chemical free. "I've never walked into a new building before that didn't have that new-building smell," says Kuspan. "There's no odor whatsoever because of the materials we used."

Measures to improve IAQ were only part of Karlsberger's overall effort to make Dell among the most sustainable and efficient hospitals in the country. The new building was designed as the first acute-care facility to achieve platinum-level LEED certification. "Our business is helping kids get and stay healthy," says Robert Bonar, Dell's president and C.E.O. "How could we look the public in the eye and tell them such if we knew

"BUILDING HEALTHY, SUSTAINABLE BUILDING IS THE RIGHT THING TO DO FOR OUR KIDS WHO COME HERE FOR CARE."

that we had just filled the building with materials that are off-gassing formaldehyde and other harmful products? Building healthy, sustainable buildings is the right thing to do for our kids who come here for care."

Architects at Perkins+Will had that same mindset when they designed a new 54,000-square-foot facility for New York Foundling. The primary mandate of the agency, founded as a home for abandoned chil-

dren in 1869, is to ensure the health and well-being of the children of New York City. In their new mixed-use building, scheduled to break ground this summer, a charter school will share space with an outpatient clinic for neighborhood children and their families. "The project presents unique opportunities for health care design, in particular with socially based, initiative-driven organizations like Foundling," says Peter Syrett, AIA, Perkins+Will associate principal and designer. "The building really should be a manifestation of its values and role in the community, so we approached it as a design team that way."

The building's location in the Mott Haven section of the South Bronx presented a number of challenges, as well as opportunities, for the designers to align Foundling's mission with the architecture. With one of the highest asthma rates in the city, air quality both inside and outside the building became a design focus. According to the Mott Haven Longwood Community Asthma Partnership, a sister project of Foundling, the Bronx has almost twice the childhood asthma death rates of the city as a whole. A study by the New York City Department of Health and Mental Hygiene concurs, pointing out that the asthma hospitalization rate for that neighborhood of the South Bronx in particular is higher than that of the entire city.

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Foundling's location adjacent to a major highway poses air-quality concerns because of excessive car exhaust (below). Nevertheless, the new building will feature operable windows. A large vegetative wall and rooftop gardens on various floors of the building are also planned (left).



Foundling's team did not want the new building to contribute to the asthma burden, but rather aid the overall health of the community and be a catalyst for change in the local environment—one whose overall air quality has been degraded due to the presence of light industry and the heavily trafficked Major Deegan Expressway, which is immediately adjacent to Foundling's site.

To that end, the combustion-free building will not be a point source of pollution in the community—the new facility relies on a ground-source heat pump rather than a furnace. Its bore field contains three wells 1,500 feet deep; electricity is used to temper the ground water for both heating and cooling purposes. On the exterior, the design also calls for a large vegetative wall and two intensive roof gardens, as well as gardens both inside and out. These elements are meant to act as biofilters in a similar fashion as the flora in the courtyards at Dell Children's hospital.

Turning their attention inside, the designers relied on the Environmental Protection Agency's list of asthma triggers to determine which substances to avoid. While the list includes items such as cigarette smoke and mold, it also includes 17 chemical compounds that are common components in construction and building materials, which in addition to VOCs and formaldehyde, include styrene, isonates, and

aerosols. "Wherever possible, we are going to avoid their use in the building so that the indoor environment doesn't trigger an asthmatic episode, or, in the long run, contribute to the eventual onset of asthma for someone," Syrett explains. "What goes into a building has a direct impact on the health and well-being of its occupants."

Another trigger the architects hope to avoid is dust, both during construction and within the finished building. The building's design calls for minimal overhangs, ledges, and exposed piping so that there is

"WHAT GOES INTO A BUILDING HAS A DIRECT IMPACT ON THE HEALTH AND WELL-BEING OF ITS OCCUPANTS."

less opportunity for dust to accumulate and become a respiratory irritant. In accordance with what is becoming standard practice at most health care facility construction sites, air locks and walk-off mats will be used during construction of Foundling. Additionally, ducts will be capped and sealed as work progresses so that dust doesn't settle inside and get spewed out once the mechanical system is fired up. That system uses a HEPA filter with a MERV rating of 14—among the highest avail-

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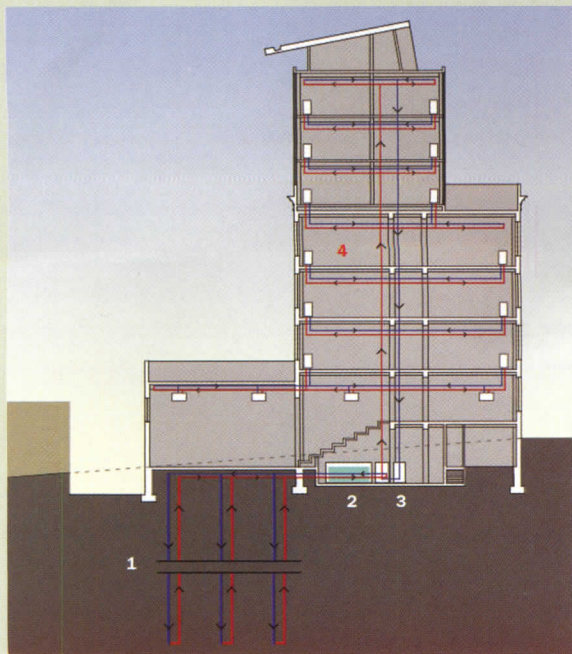


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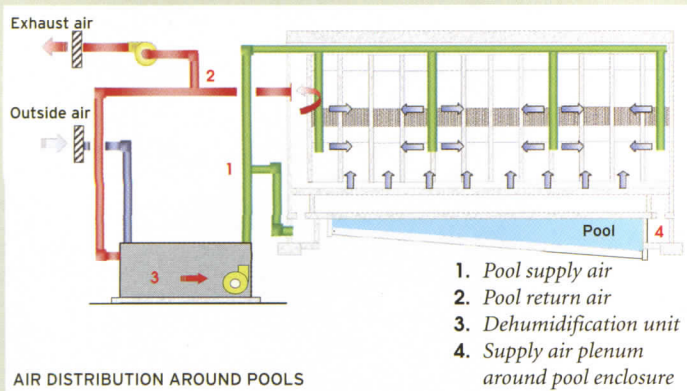
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1. Bore holes, 1,500 feet deep
2. State change—storage
3. Heat pumps
4. Distribution system



Relying on a ground-source heat pump, Foundling's new facility is a combustion-free building (far left). Chemical-free building materials and interior finishes were selected over products that may include asthma triggers. Foundling also has a nonwax-finish protocol for the floors, choosing polished concrete and linoleum (near left). The pool enclosure at the Dan Abraham Healthy Living Center features underfloor air distribution (below).



1. Pool supply air
2. Pool return air
3. Dehumidification unit
4. Supply air plenum around pool enclosure



able, and commonly employed in hospitals.

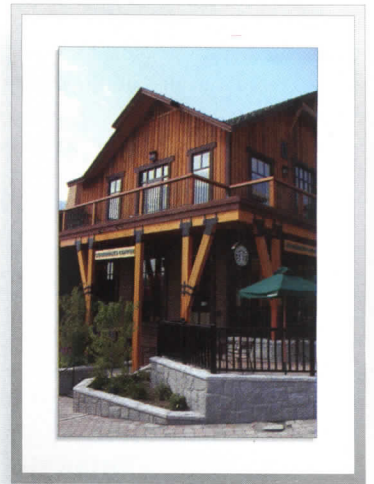
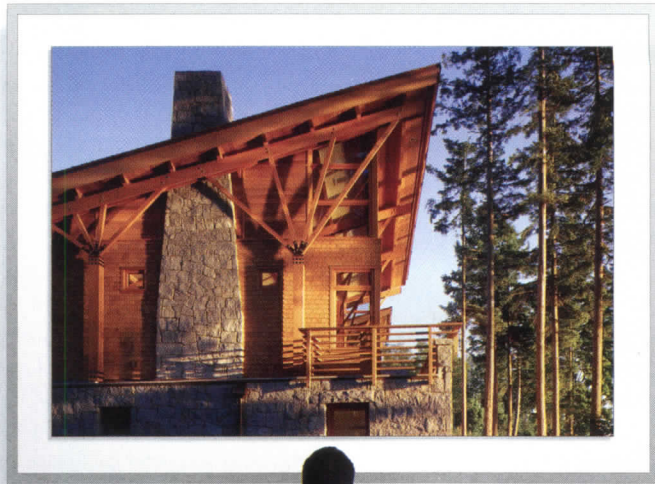
One thing Foundling does that most hospitals do not do is incorporate operable windows. While opening a window to let in the fresh air is usually a no-brainer for improving IAQ, in Foundling's case, the poor air quality outside led the architects to weigh this decision quite heavily. "In the end, we still think it's important for people to be able to open windows," Syrett says. "And we thought about the building in a longer trajectory. It is our hope that the point-source pollution will become less of a problem in the future, which is something to consider when you're designing for a 50-year building. One of the biggest issues with hospitals and other hard-core health care environments is sealing people in."

While some older hospitals have retained their operable windows, you would be hard-pressed to find new hospital buildings in the U.S. that feature them. "Health care providers worry about infection control above almost everything else," explains Walt Vernon, principal at Mazzetti & Associates. "There are documented instances of airborne transmission of pathogens from one space to another in buildings that use natural ventilation." But after becoming frustrated with the current paradigm of hospital design, Vernon, a cocordinator for the *Green Guide for Health Care* (available for download at www.gghc.org), began to

research how natural ventilation and displacement-ventilation systems would affect IAQ in a health care setting.

Even though these systems are commonly used in hospitals outside the U.S., the practice here is to stick with what you know. "There's a lot of science behind the use of overhead mixing systems," adds Vernon. "We don't have the same kind of data today on displacement systems." But Vernon is trying to change that. He has teamed up with Oakland-based health care giant Kaiser Permanente to test displacement ventilation in one-bed hospital rooms. In displacement ventilation, cooler supply air is introduced at a low velocity at the floor level, displacing the warmer room air and creating a zone of fresh, cool air at the occupied level. Heated, contaminated air rises to the ceiling and is exhausted out. (The trend in hospitals is toward single-bed design, and it is believed that displacement ventilation will work more effectively in that scenario.)

In the meantime, displacement ventilation is being used in facilities that do not deal with acute-care needs. (It is worth noting that Dell Children's hospital utilizes underfloor air distribution in its nonclinical, administrative areas.) The new Dan Abraham Healthy Living Center at the Mayo Clinic in Rochester, Minnesota, was designed by BWBR Architects and PSA-Dewberry around an approach to wellness that emphasizes



■ WESTERN RED CEDAR

ARCHITECTURAL

Design Awards 2008

The Western Red Cedar Lumber Association (WRCLA) together with the Cedar Shake & Shingle Bureau (CSSB) are presenting the first "Western Red Cedar Architectural Design Awards" recognizing innovative design using nature's ultimate building material. Winners will be selected by a jury of renowned architects Jim Cutler, Martin Finio and Ellen Watts. Awards will be presented May 1, 2009 at a special awards event to be held in conjunction with the AIA National Convention April 30 - May 2, 2009 in San Francisco.

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Two large air-handling units serve the main program spaces of the building, while a third, separate unit was designed strictly for the pool enclosure. This unit keeps the pool area under negative pressure so

“HEALTH CARE PROJECTS CURRENTLY REPRESENT A VERY SMALL PERCENTAGE OF TOTAL LEED PROJECTS.”

that air is drawn into it, preventing chlorine odors from escaping into adjacent spaces. “In considering patron comfort and health, the ultimate goal was to eliminate chlorine odors in this area,” explains Mike Morris, of LKPB Engineers.

Conditioned air is delivered around the perimeter of the pool via an underground concrete air plenum. This allows the conditioned air

to evenly and slowly rise into the pool enclosure, minimizing the chill to a wet swimmer walking around the pool. The even distribution also helps prevent chloramines from collecting on the pool deck. A UV-light treatment system is located in the pool recirculation piping to break down the chemical properties of chloramines, helping to eliminate the amount of chloramines in the water, and ultimately, in the air.

The design of health care facilities has traditionally focused on patient health and safety. Recent projects are proving that there is no better way to do this than by designing healthy buildings. “Health care projects currently represent a very small percentage of total LEED projects,” cites Adele Houghton, AIA. But Houghton, the *Green Guide for Health Care* project manager, also points out that that number has grown significantly since the launch of the guide’s *Version 2.0* in November 2004. And the number is expected to continue to climb as the country experiences the largest health care construction boom in more than half a century. ■

For this story and other continuing education stories, or to take the quiz online at no charge, go to continuingeducation.construction.com/.



AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- ◆ Read the article “Design Professionals Follow the Physician’s Precept: ‘First, Do No Harm’” using the learning objectives provided.
- ◆ Complete the questions below, then fill in your answers on the next page.
- ◆ Fill out and submit the AIA/CES education reporting form on the next page or take the test online at continuingeducation.construction.com/ to receive one AIA learning unit.

QUESTIONS

1. What is the chief concern doctors have for patients regarding the indoor environment in health care facilities?
 - a. physical contact with bedding
 - b. slippery floors
 - c. infection control
 - d. moisture and mold
2. What are nosocomial infections?
 - a. insignificant infections
 - b. stubborn infections
 - c. infections that do not respond to antibiotics
 - d. infections contracted while under medical care
3. Individual sources of pollution are being eliminated in all except which method?
 - a. using plastic coatings on finishes
 - b. using natural materials
 - c. using materials with low VOCs
 - d. using nontoxic cleaning products
4. By sizing individual air-handling units, all except which is accomplished?
 - a. the distance air travels through ducts is reduced
 - b. chances of picking up dirt and other particles is lessened
 - c. maintenance is made easier
 - d. smoking areas are created
5. Which method is being used to prevent New York Foundling from being a source of pollution?
 - a. a large vegetative wall
 - b. walk-off mats
 - c. intensive roof gardens
 - d. a ground-source heat pump
6. How are the interiors of Dell Children’s hospital provided with clean, oxygenated air?
 - a. from rooftop air intake
 - b. from ecosystem courtyards
 - c. from perimeter air intake
 - d. from underground air intake
7. Which ventilation system is most commonly used in hospitals?
 - a. displacement ventilation
 - b. natural ventilation
 - c. overhead mixing ventilation
 - d. personal ventilation
8. Which of the following does not act as a biofilter?
 - a. the vegetative wall at New York Foundling
 - b. the courtyard flora at Dell Children’s hospital
 - c. the roof gardens at New York Foundling
 - d. the courtyard water features at Dell Children’s hospital
9. The theory behind displacement ventilation is which?
 - a. cool contaminated air rises
 - b. warm contaminated air rises
 - c. cool fresh air rises
 - d. warm air is introduced at the floor level
10. Which of the following harmful by-products is incorrectly paired with its source?
 - a. carbon dioxide and coal combustion
 - b. VOCs and paint
 - c. formaldehyde and linoleum
 - d. exhaust fumes and car traffic

Program title: "Design Professionals Follow the Physician's Precept: 'First, Do No Harm,' " Architectural Record (08/08, page 130).

O88EDIT1

AIA/CES Credit: By reading this article and successfully completing the exam, you can earn one AIA/CES LU hour of health, safety, and welfare credit. (Valid for credit through August 2010.)

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| 3. a | b | c | d | 8. a | b | c | d |
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Tech Briefs

BAM's Next Wave: A forward-looking institution updates its own look with a nod to the past



Since the 1970s, Hugh Hardy's work for the Brooklyn Academy of Music (BAM) has run the gamut, spanning new cinemas and a café for the experimental film and performing arts venue to, most recently, a faithful restoration of the 1908 facade of its historic Peter Jay Sharp Building. But one job was left unfinished: "We needed to install a permanent entrance canopy," says Hardy, FAIA, the principal of New York-based H³ Hardy Collaboration Architecture.

Oddly, the building, an eclectic Beaux-Arts gem, wasn't designed with such a shelter. To create one, Hardy looked to period photographs of the arcing, tripartite canopy (since replaced) of Manhattan's Lyceum Theater, completed in 1903 by BAM's original architects, Herts and Tallant. But with the blessing of New York City's Landmarks Preservation

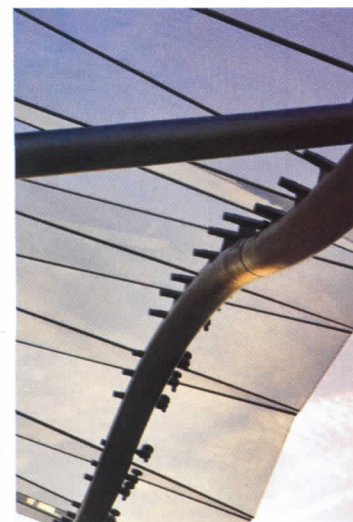
Commission, Hardy forsook the precedent's heavy cast iron in favor of a seemingly weightless, undulating glass ribbon that would "allow you to look up and see BAM's fabulous facade," he says, "while offering the rhythm you'd expect of what is a very contemporary, progressive place."

Therein lay the challenge: To form a faceted, sinusoidal wave made as light and transparent as possible, the design called for 65 triangular panes of 1-inch-thick, laminated and tempered, low-iron glass. Each pane, measuring 19 feet long, 4 feet at the widest, and weighing 500 pounds, would be held in tension, aligned head-to-toe. Each would also have to resist vertical, lateral, and rotational loads, not to mention the possibility of breakage. Taking eight years to complete and mocked-up at full scale in a Brooklyn warehouse before being

installed over 16 weeks on-site, the 132-foot-long canopy would use structural glass "at the then limit of glass fabrication capability," says H³ project manager Jonathan Strauss.

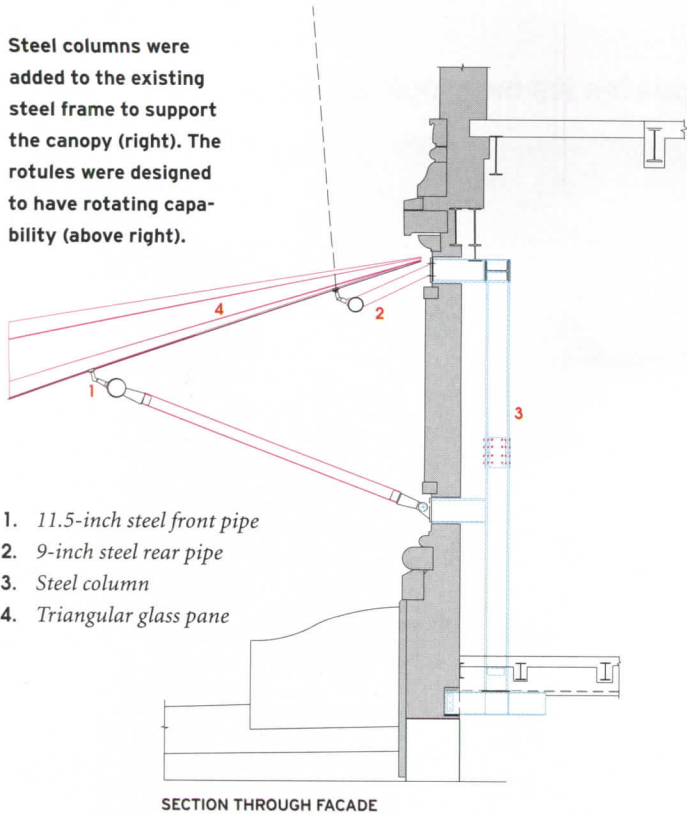
The firm's solution rested, rather literally, on two parallel, 9- and 11.5-inch-diameter, stainless-steel pipes that define the canopy's curvature. To support them, a total of six columns—one on either side of BAM's five entry bays—were added to the building's existing steel frame and reinforced by lateral beams. From each column, a bracket punches through the facade to connect to the undulating rear pipe, on which custom-made, stainless-steel *rotules*—so named from the French word for kneecap, which they resemble—bolt each glass pane in place. The *rotules* repeat on the second, front pipe, which is supported by

The 132-foot-long canopy spans the facade's five entry bays (above). Glass panels are aligned head-to-toe. In between, joints are closed with silicone to keep water out (below).



Tech Briefs

Steel columns were added to the existing steel frame to support the canopy (right). The rotules were designed to have rotating capability (above right).



SECTION THROUGH FACADE

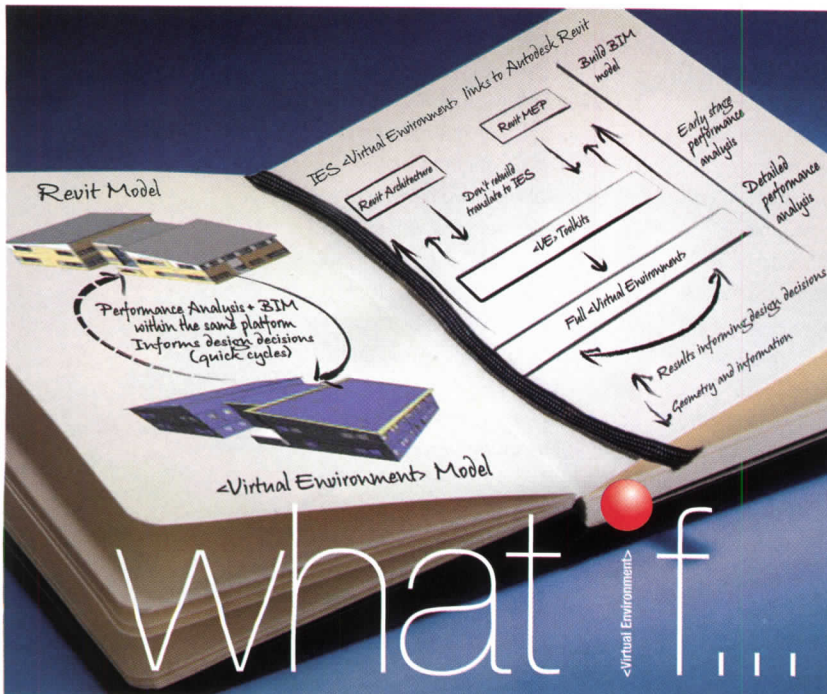
1. 11.5-inch steel front pipe
2. 9-inch steel rear pipe
3. Steel column
4. Triangular glass pane

diagonals running back to the new building columns.

It's an elegant setup that brought no shortage of grief. Among the endless redesigns, complicated calculations fine-tuned the canopy's geometry to accommodate nearly identical (hence, more easily fabricated) glass panels. The front tube was hinged to allow for some give while, at the rotules, specially designed washers act as springs. "They're like shock absorbers that build in flexibility," says Michael Ludvik, an associate at Dewhurst

Macfarlane & Partners, the project's engineer. "Let's say someone shoots a gun at the glass and it breaks catastrophically," Ludvik adds, citing a worst-case scenario. "The tension load will be redistributed to the adjacent panels."

Still, there were much likelier threats to consider—namely, bird droppings. And Hardy's response? A custom-designed oval frit pattern applied to the glass. "I think it will succeed in masking anything the birds have in mind," he says. *Aric Chen*



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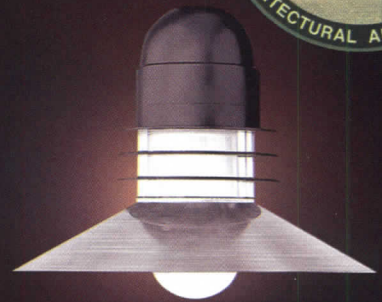
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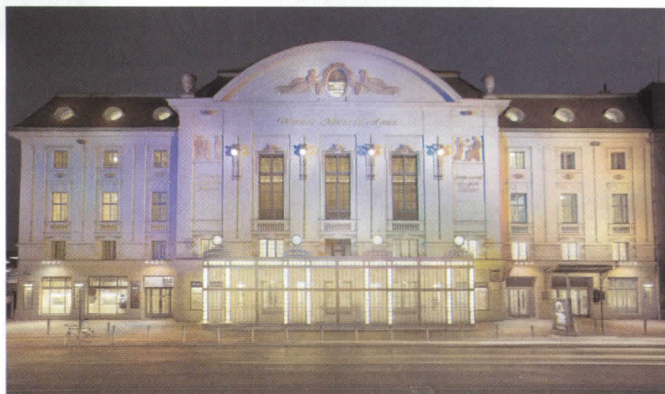
Lighting public spaces

Vienna citizens greeted the completion of the Wiener Konzerthaus in 1913 with astonishment: In only two years, architects Ferdinand Fellner and Hermann Helmer had realized their eclectic historicist vision for a palace of entertainment. Nearly a century later, the transformation of the concert hall took a lot longer to plan and execute. From 1998 to 2001, the building underwent an extensive renovation and underground expansion, and illuminating the entrance elevation and adjacent Lothringerstrasse sidewalk required an additional four years of research and implementation.

Vienna-based lighting designer Victoria Coeln, though, made it worth the wait. Since its debut in September 2007, Coeln's scheme has played with our perception of color by revealing white light's chromatic parts. When viewed head-on, the facade appears almost white, yet slightly blurred. On closer inspection, the source of the blurring reveals itself: Each intricate line of the facade casts shadows in multiple directions and colors.

Coeln calls this installation of imperfectly blended colors a *chromotope*, a self-coined term based on the Greek words for color and space. She has devoted her career to the concept. "These colored shadows are interactive with the architecture," Coeln explains. "Everyone knows a beam of white light is really all different colors. By layering all these colors, it appears white until a material interference produces layers of component shadows."

Her chromotopes are inspired by László Moholy-Nagy's research in color photography, and in that spirit, Coeln says she splits white light into its component colors and then adjusts them. Yet her process for doing so is more high-tech than Bauhaus masters could have imagined. Five street-lamp poles facing the concert hall hold 68 LED luminaires with dichroic filters as well as missile-shaped housing for metal-halide lamps capped in hand-etched, seven-layer dichroic filters that replace the luminaires' preexisting gobos. Coeln determined the colors of the individual diodes and filters by building a variety of mock-ups and archiving the results in Photoshop. "I cannot tune the light if I keep the colors together," she says.



Victoria Coeln projects a "chromotope" onto the Wiener Konzerthaus.

"Tune" is an appropriate word for the Wiener Konzerthaus facade. "Light and music are both immaterial, but are mediums that can touch you," Coeln says. Her installation heightens the senses, preparing concertgoers for the experience that awaits them inside.

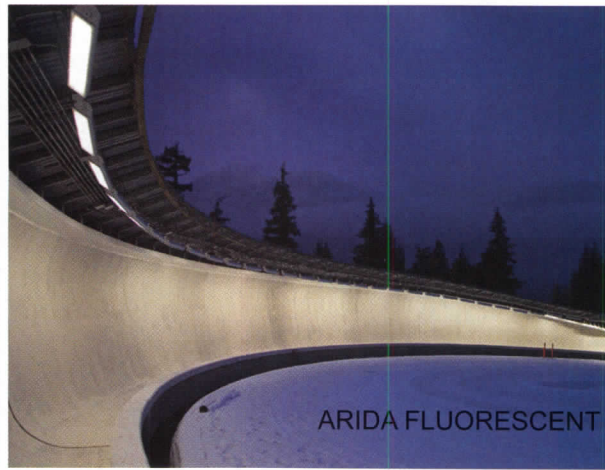
Not everyone can afford a concert ticket, so Coeln made sure she entertained people outside the building. She explains, "I don't want to have art relegated to unaffordable places, or where people may be intimidated by art. It's important for me to bring it into the public, in a way that doesn't threaten viewers." To achieve that aim, a series of metal-halide luminaires with dichroic filters on either side of the Konzerthaus marquee project chromotopes onto the Lothringerstrasse sidewalk below. Step into that light and your shadows will vibrate in multiple layers and colors. "It shows how the light touches us directly in our souls," Coeln says.

The projects featured in this month's Lighting section all work in the public realm but culminate in moments of personal resonance. Elliott + Associates' design for the Underground in Oklahoma City, for example, resurrects underused pedestrian tunnels by saturating pathways in electric colors that banish the network's seedier reputation. In Teura, Spain, b720 Arquitectos illuminated the ground of the Plaza del Torico to remind citizens of the historic cisterns that lay beneath the square. And in Amsterdam, the city shut off its streetlights in June so that artist Ryoji Ikeda could reinterpret different public spaces in a series of temporary illuminations. All of these sensitive projects elevate lighting design to art. Or as Coeln says, "The goal is to aim deeper into the human experience." *David Sokol*

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Beneath a cluster of bank buildings, the Underground is illuminated in dollar-bill green (top). In a neighborhood of energy companies, yellow light creeps up the entry stair of the pedestrian-tunnel network (bottom).

Color guides Elliott + Associates' vivid makeover of the **Underground**

By David Sokol

Oklahoma City is experiencing a second wind. Having transformed its river from a trickling Army Corps of Engineers drainage ditch into a series of connected lakes that are scullers' paradises, the Midwestern capital is enjoying an urban renaissance. Now its do-over is moving underground with the reopening of its Conncourse system of pedestrian tunnels, reimagined as a sequence of magnificently saturated zones of color by Elliott + Associates Architects.

The Conncourse—originally named for a local banker, Jack Conn, who helped conceive the system in the early 1970s—has been redubbed the Underground. Construction of the network actually dates to 1931, when William Skirvin won city approval to build a subterranean connection between his eponymous hotel and office towers, but it was Conn who con-

vinced the city to expand the link into a whole network with just over a mile of tunnels. Wind originally drove the city underground. “If you spend any time on the streets of Oklahoma City, your tie stands straight out. It’s blowing 30 miles an hour, constantly,” explains architect Rand Elliott, FAIA.

The Conncourse never featured the shops and services found in other enclosed urban walkways, such as the underground system of Montreal or Minneapolis’s Skywalks, since it is a 12-by-8-foot conduit used almost exclusively for pedestrian circulation. But many city residents faulted the tunnels for removing people, their business, and dynamism from the streets and downtown in general. In reality, the Conncourse, dank and improperly maintained, turned off potential users, and received



David Sokol is a New York-based writer and a regular contributor to RECORD.



less and less attention over the years. When Downtown Oklahoma City Incorporated (DOCI) issued a request for proposals to renovate 3,700 linear feet of the tunnels in 2002, “many people said we should fill them with concrete,” Elliott notes. Eery mercury-vapor lamps illuminated ripped carpeting patched by duct tape, supergraphics left over from the 1970s, and a jerry-built tangle of electrical wiring.

Elliott says that during DOCI’s architect-selection process, his team did not present a specific vision for revamping the Conncourse. Rather, “I think our passion and excitement came through.” So did the general notion that the tunnels should be better illuminated, “because it was the least expensive thing we could do with the highest amount of impact.” In addition, Elliott and project architect Michael Hoffner, AIA, say they were keenly aware of infrastructural limitations. “It was all poured-in-place concrete, so the electrical outlets and junction boxes literally were in fixed positions. Talking with residents, we had heard that

A yellow hall symbolizes the energy-company offices above ground (left), while the occasional color combination (above) piques pedestrians’ interest.

the Conncourse was scary; it was dark; it was damp. All the creature comforts were missing. The challenge was taking the existing conditions and making something exciting out of them.”

While collecting people’s impressions of the Conncourse, the architects learned from security guards that users would get lost frequently. So they determined to use color as a navigational tool. “The color of each section represents the particular function of the downtown area above it,” Hoffner explains. Where there are clusters of federal and municipal buildings, the Underground is bathed in American-flag blue and red. Yellow represents the offices of the energy companies overhead, green stands for banking, and fuchsia means hospitality.

The design team kept its scheme of “galleries” as simple as possible. It tucked the old network’s haphazard array of wiring into channels fashioned from pre-engineered metal gutters. And to create the project’s memorable atmosphere, it used a common theatrical application: T8s set in polycarbonate sleeves with dyed polyester film bouncing intense color off white walls and ceilings and gray carpeting. It installed the fluorescent tubes in various configurations depending on the positions of electrical outlets.

Although the design of the Underground may look simple, the

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architects have given users plenty to contemplate. Trios of convex security mirrors, lined vertically, punctuate the galleries. In one hallway, yellow and blue combine along one side so that they overlap and appear white on the opposite wall, about which Elliott says, "There's a little bit of alchemy here." Exhibitions of historic photographs also punctuate monotonous stretches. "We want to immerse people in different experiences. Like window shopping in Manhattan, you can find yourself walking six blocks and not realizing it." For those who may become distracted by the additional programming—or for pedestrians who prefer to navigate by maps and cardinal directions rather than landmarks—the architects distinguished each "portal" between color zones by a panel featuring a map, compass points, and a list of nearby above-ground buildings in minimal DINEngschrift type.

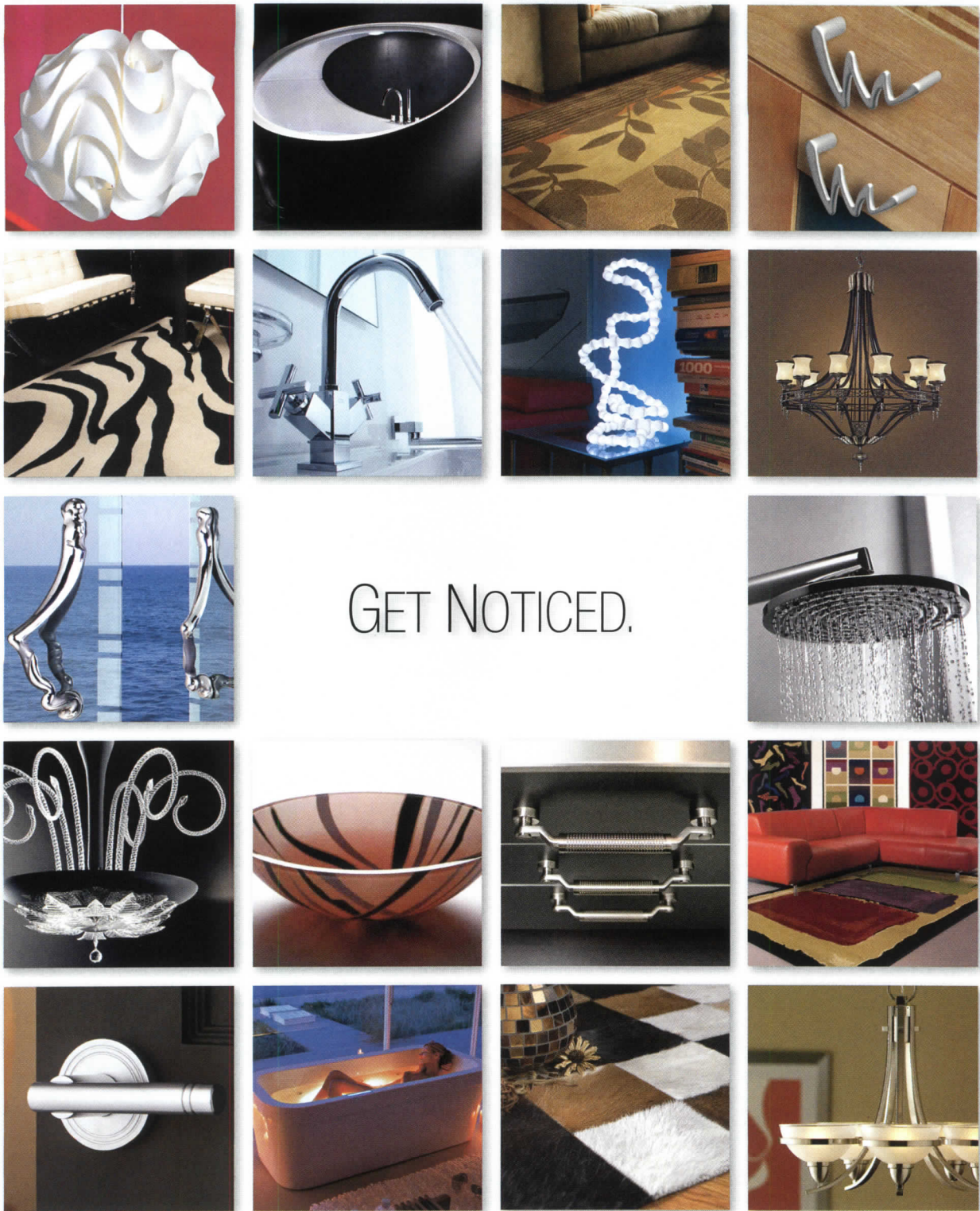
Since its makeover, the Underground has been embraced by a range of people beckoned by the colorful glow creeping up stairwells and reaching the sidewalks. Now exercisers take their daily walks in the tunnels and teachers bring their students to the photography exhibitions. While Elliott says the project encapsulates his firm's longstanding interest

Security mirrors mark the threshold of a corridor (above). Way-finding text is located in the "portals" that separate one colored hallway from the next (right).

in banal, auxiliary, or interstitial spaces that other architects overlook, he adds that the Underground offers an equally important symbol for Oklahoma City. "We are mis-typcast as poor, dumb Okies, and that's really not true at all. There's a great sense of pioneering spirit here, and the Underground represents all that energy coming forth." ■

Project: *Underground, Oklahoma City*
Architect: *Elliott + Associates Architects—Rand Elliott, FAIA, principal in charge; Michael Hoffner, AIA, project architect; Joseph Williams, Assoc. AIA, project team member*
M/e/p engineer: *PSA Consulting Engineers*

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The Plaza del Torico in Teruel, Spain, surrounds a historic fountain and is framed by buildings representing a variety of architectural styles.

b720 Arquitectos' redesign of the time-faded Plaza del Torico is light on its feet

By Jen Renzi

Tucked away in a sleepy corner of northeast Spain, the town of Teruel has long been a tourist destination for buffs of medieval architecture and history. Peppared with 12th-century bell towers distinguished by Mudéjar-style brickwork, Teruel earned a World Heritage site designation in 1986. Even so, the municipality is more interested in charting new architectural traditions than embalming its past. In 2003, for example, David Chipperfield and Barcelona's b720 Arquitectos won a competition to design a passageway through an ancient stone wall separating the train station from a picturesque promenade, and the progressive results—all Cor-Ten steel and severe lines—garnered industry awards as well as a place in the 2006 exhibition *On-Site: New Architecture in Spain* at the Museum of



Jen Renzi is a freelance writer based in New York and formerly a senior editor at House & Garden and Interior Design magazines.

Modern Art in New York. “The project transformed that part of town,” explains Fermín Vázquez, principal of b720 Arquitectos. “It also exposed the local government to the potential of Modernism to accentuate the historic fabric and to be an asset in its own right.”

So a few years later, when planning to rehabilitate Plaza del Torico, an elegant square in the heart of the historic district, the city asked Vázquez to propose a plan that would modernize the paving and lighting systems as well as the overall aesthetic. “Just removing the old systems and updating the pavers would have been a good solution, because the square is so picturesque. But to their credit, the clients were insistent about adding a contemporary intervention,” he says.

Vázquez's design differentiates itself from the age-old charm of the existing square and engages the Art Nouveau facades that appear periodically within the streetscapes. Embedded in the ½-acre triangular plaza around the square's central stone fountain, it is a



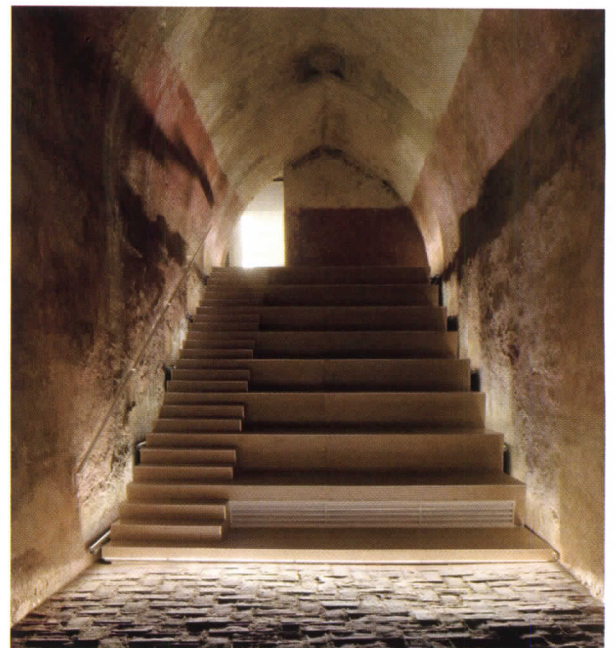
Recessed lighting outlines the covered walkways that ring the plaza (above), while an understated lighting design characterizes the cistern rooms below ground (below).

dynamic installation comprising 1,230 LEDs. Although illuminated only at night, the lights' glass casings catch sunlight during the day, creating a mysterious sparkle underfoot. Arrayed in a scattering of diagonal lines, the luminaires nod to the plaza's past—to a pair of medieval cisterns

“TO THEIR CREDIT, THE CLIENTS WERE INSISTENT ABOUT ADDING A CONTEMPORARY INTERVENTION.”

buried below granite pavers. The lights run in parallel lines above the domed cisterns, telegraphing the presence of the ancient rain-collecting structures, but elsewhere meander like water flowing around an obstacle. “The graphic patterning expresses what’s below,” says Vázquez. “Although modern, the design is quite meaningful to the town’s history.”

b720 partnered with lighting consultant Artec3 to resolve many of the technical details, including how the pavers should be lit. Vázquez explains, “First we considered luminescents, which accumulate light during the day and glow at night, but they fade too quickly. We also debated reflective surfaces, but the client wanted a stronger effect.” LEDs offered reduced maintenance and energy costs with the flexibility to manipulate the light’s intensity and hue (since the lamps are connected by under-





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ABOVE AND BEYOND



CIRCLE 63

A strip of LEDs links galleries in the underground cistern area (right). Glass strips embedded in pavers sparkle in the sunlight (below), while LEDs illuminate them at night (far right).



ground wire to a central computer). “The plaza works like a screen,” says Vázquez. “In principle, you can design any effect you want, and change it often. But we established just a few set schemes apart from white light”—a strategy, he jokes, to keep the mayor from changing colors to celebrate every holiday or local soccer team victory.

The architects hoped to design a modular system of fixtures that would be combined to embed strips of illumination at a variety of lengths in the paving, but manufacturing proved too complicated. They settled for prefabricated luminaires 18 and 30 inches in length that are recessed in basaltic granite pavers and covered with tempered glass. The glass was subject to rigorous testing to ensure durability and watertightness, and the design team analyzed a variety of stones for their ability to withstand extreme temperature swings before settling on the granite.

The designers also used LEDs to illuminate the plaza’s facades, whose styles range from Baroque to Art Nouveau. The key to accentuating their elegance was, counterintuitively, to hit the dimmers. “Many old towns overlight historic structures,” notes Vázquez. Here, multiple headers on each building illuminate in the same direction from top to bottom, washing facades in an even glow. Covered porticos ringing the plaza required a similarly light touch: A streamlined dropped ceiling with a soft band of recessed lighting now traces the plane’s outer edge where there

had been a cacophony of jostling wires and outdated fixtures.

Underground, a 4,410-square-foot network of white-walled corridors now connects the two cisterns, offering gallery space for exhibitions as well as enhanced tourist facilities. Paved in Villalva stone, the subtle scheme highlights the cisterns’ simple, unpretentious beauty with walls that peel away to expose the old brickwork, and a ribbon of LEDs snaking along the floor. “It’s a very clean design,” Vázquez concludes. “The archaeological interest wasn’t tremendous, and we didn’t want to upstage it with bold architecture.” Although b720 leaves a contemporary mark on this space, the deferential design, like its work above ground, shines the spotlight on its predecessor rather than itself. ■

Project: Plaza del Torico, Teruel, Spain

Architect: b720 Arquitectos—
Fermín Vázquez, Agustín Miranda,
Pedro Baltar, Sebastián Khourian,
María Barbeito, Ana Caffaro,
Leyre Ciriza, Ángel Corsino, Pedro
García, Pablo Garrido, Gustavo
Gaudeoso, Guillermo Gutiérrez,

Markus Jacobi, Paulo Moreira,
Magdalena Ostornol, Javier Piedra,
Andrea Rodríguez, Marta Sorribes,
Alessandro Zanchetta

Lighting consultant: Artec3

SOURCES

Luminaires: LightLED; Philips; LDI
Lighting controls: Lutron; Craltech

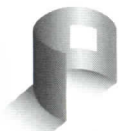


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Japanese artist **Ryoji Ikeda** lights up Amsterdam

The largest work in the Amsterdam installment of *spectra* is Ryoji Ikeda's flamelike light projections on Java Island.

By Robert Such

Although widely known as a composer of electronic music, 42-year-old Japanese artist Ryoji Ikeda began working with light as a medium in the 1990s as a member of the multimedia art group Dumb Type. His previous installations include *spectra* (2004), a brightly illuminated walkway in Eero Saarinen's TWA Terminal, and a corridor pulsating with strobe lights and red lasers called *spectra II* (2002) that has been staged in galleries and elsewhere. In these works, Ikeda challenges spectators with audiovisual stimulation: Intensely bright rooms or dead sound chambers create discomfoting situations as well as a sense of infinity.

Ikeda recently continued his *spectra* series at this year's Dream Amsterdam outdoor arts event in June. With four installations, including a 600-foot-high projection aimed toward the sky and a slash of light on the facade of Kisho Kurokawa's Exhibition Wing for the Van Gogh Museum, the artist continued exploring the themes of his earlier works, but at a much greater scale.

In Amsterdam, Ikeda worked alongside Philip Rose from the London office of lighting design firm Speirs and Major Associates. "Ryoji wanted to use very intense, pure white light in a number of locations in

"PEOPLE HAVE INFINITE POSSIBILITIES TO FEEL, THINK, EXPERIENCE THE INSTALLATIONS ON THEIR OWN."

the city," Rose says. "People would come across them by chance. The intensity of the light would change people's perception of these illuminated elements and provide an unforgettable experience."

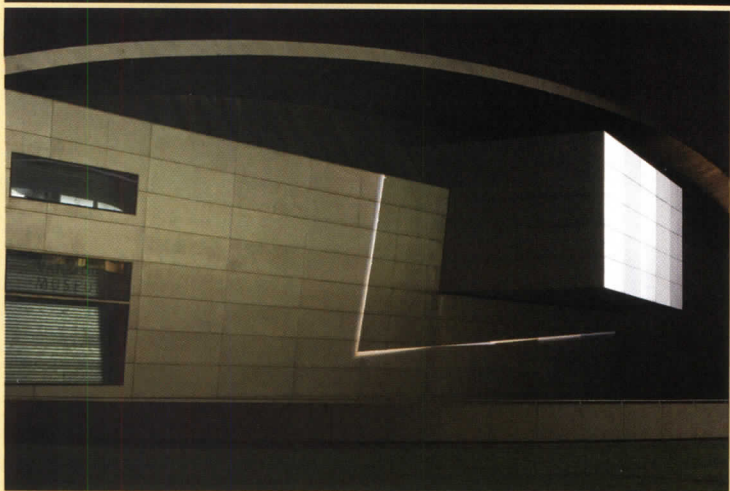
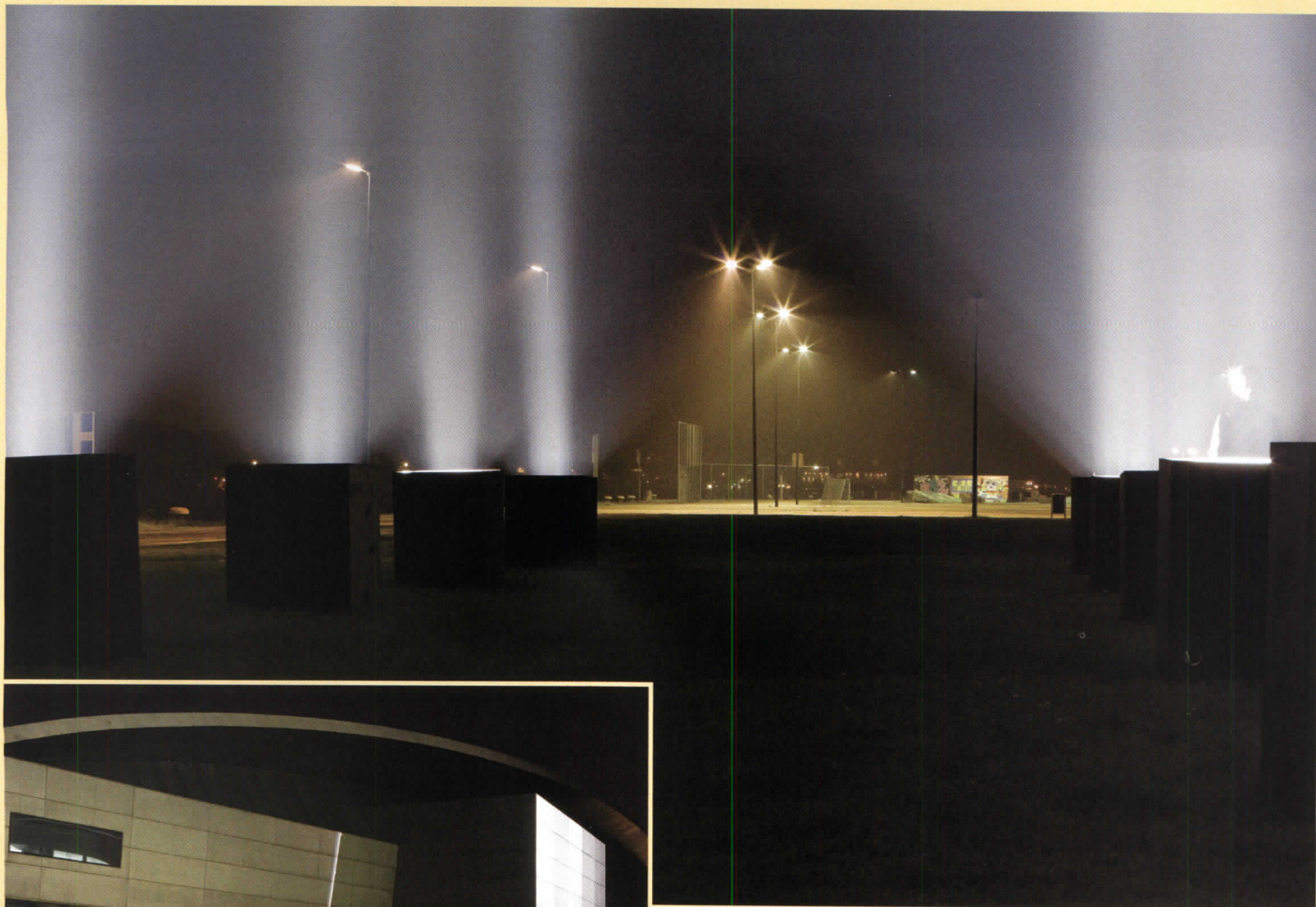
Ikeda picked the four Amsterdam sites while riding around the city on a bicycle. In Vondel Park, he and Rose installed five 2-kilowatt floodlights on the floor of the park's ornate metal Music Pavilion to bathe the surrounding flowerbeds, pond, and trees in an intense white light.

To light Kurokawa's Van Gogh Museum wing, Ikeda and Rose pointed five Robert Juliat projectors in the museum director's office in the main building toward the protruding wall of the wing's boxlike Print Room, painting it in white light. The office was "not directly opposite the illuminated wall," Rose explains. "Therefore, we were framing the wall from an angle. The line you see on the main body of the museum is a result of framing the wall with light. This line helps define the protrusion from the main body of the museum."

In the Westergasfabriek, a 19th-century gasworks turned into a park and cultural center by the landscape architecture firm Gustafson

Freelance journalist and photographer Robert Such writes extensively on architecture, lighting, interior design, and landscape design.





Ikeda's Java Island artwork was staged in a 2.5-acre field and comprised groups of narrow-beam projectors pointing upward (above).

The lights pointed to the Print Room of the Van Gogh Museum's Exhibition Wing were installed in the director's office in the main building (left).

Porter, the designers mounted 68 narrow-beam projectors on the curved inner wall of one of the former brick gasholders. Walking around the water-filled container, visitors were attracted to its rim to discover the source of the intriguing bright light.

Across town on Java Island—a residential neighborhood in the east docklands master-planned by Dutch architect Sjoerd Soeters in the 1990s—Ikeda set up his largest installation on a 2.5-acre field at the western tip of the island. Arranged in a 5-by-5 grid, 25 narrow-beam projectors illuminated the night sky in a flamelike configuration.

Throughout his artistic career, Ikeda has approached his work like a meticulous watchmaker, carefully controlling all of the visual and aural aspects of his ultraminimalist creations. “I really love to control sound and light—*precision* is a keyword for me,” he says. He has been able to do that in galleries, but working outdoors meant that color temperature and brightness were affected by weather, air pollution, hardware limitations, and budget restrictions. In combination with Ikeda's decision to forego his usual audio accompaniment, the results in

Amsterdam were less immersive than his previous interior installations.

And yet Ikeda said he had planned not to influence people's aesthetic response: “If the people don't hear anything from the artist, they have infinite possibilities to feel, think, experience the installations on their own.” Indeed, by not confounding his viewers with vast, dimensionless space, *spectra* asked them to reconsider the city beneath their feet. As Amsterdam prepares to build new parks and other amenities to accommodate notable population growth—70,000 units of housing will be constructed over the next 30 years—Ikeda's interventions inject an intriguing artistic sensibility into spaces that may have succumbed to overuse, and underscore the importance of public space in Amsterdam's continuing evolution. ■

Project: *spectra*, Amsterdam

Artist: Ryoji Ikeda

Lighting consultant: *Speirs and Major Associates—Philip Rose*

SOURCES

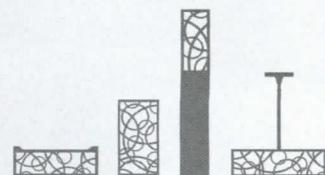
Luminaires: *Philips; Robert Juliat*

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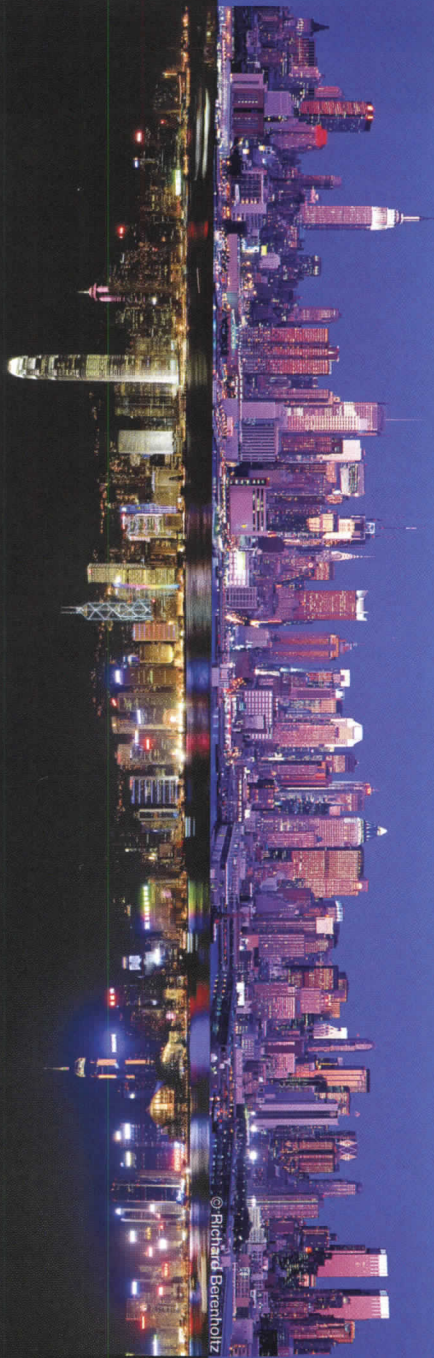
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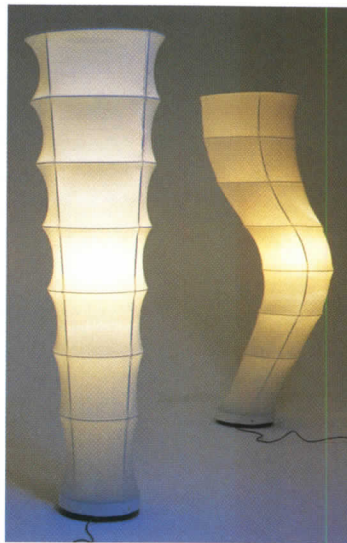
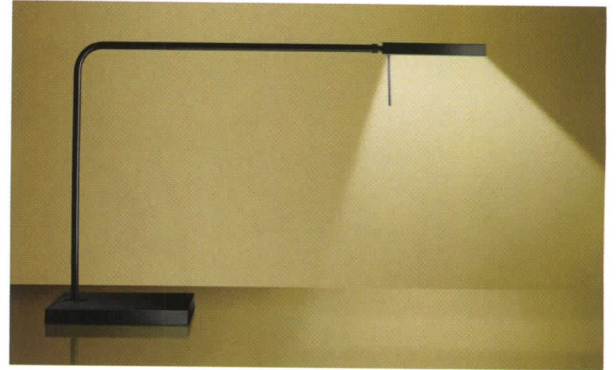
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From chandeliers to computerized lighting systems to the latest energy-efficient desk lamp, this selection of lighting products will suit the aesthetic preferences and functional needs of most any client and installation. *Jennifer Richter*

► The right angle

Offering a generous light span, Ninety, by designer Shawn Littrell for Luxo, will add function, style, and a touch of "green" to any desktop. Said to use 30 percent less energy than comparable models through its four effective LEDs, each consuming a mere 1.4 watts, this task light is available in three sizes: 13 $\frac{3}{16}$ " x 30 $\frac{7}{16}$ ", 16" x 35 $\frac{5}{16}$ ", and panel mount at 4 $\frac{3}{16}$ " x 19 $\frac{7}{16}$ ". Luxo, Elmsford, N.Y. www.luxous.com CIRCLE 208



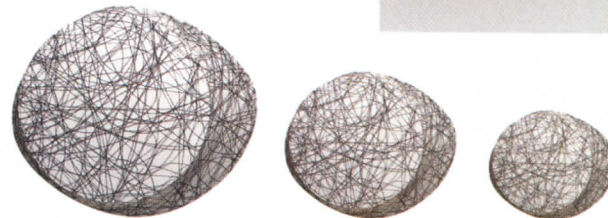
◀ Soft and serpentine

For ambience and a touch of curves, the Tirana Floor Lamp, designed by Josep Aregall for Metalarte, is available in the U.S. exclusively from Hinson Lighting. With a metal frame wrapped in a gossamer cotton-knit fabric, it features an internal, dimmable lamp controlled by a single socket within the shade and is available in either a fixed vertical or fixed curved position. Both options stand proud at 74" high and come in a soft beige for a neutral, airy effect. Hinson & Company, Long Island City, N.Y. www.hinsonlighting.com CIRCLE 209



◀ Piece within a piece

Both downlight and ceiling fixture, the Annex halogen luminaire, with its cone of frosted glass encased in mouth-blown crystal, boasts a geometry that allows for numerous artful settings, such as in bathrooms, kitchens, corridors, and offices. Designed by Uwe Fischer, it ranges in diameter from 5" to 10 $\frac{1}{2}$ ". An optional aluminum reflector can be inserted over the inner core for dramatic effect, directing the light downward and around its base. Serien Lighting, Rodgau, Germany. www.serien.com CIRCLE 210



▲ Eyes play tricks

In a near optical illusion, Wagashi Wires are not created from thousands of wire wrappings as they appear to be, but they are composed of a sublimated printed fabric stretched over a metal structure. The fabric, by photography artist Massimo Gardone, expands the company's original Wagashi line designed by Luca Nichetto. For ceiling or wall, the fluorescent fixtures come in approximate 19", 25", and 37" diameters. Foscarini, Marcon, Italy. www.foscarini.com CIRCLE 211

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Building Materials Outlook

John Mothersole,
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2009 Construction Activity Outlook

Robert Murray,
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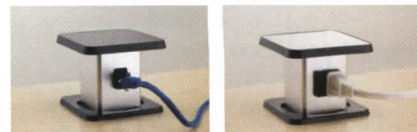
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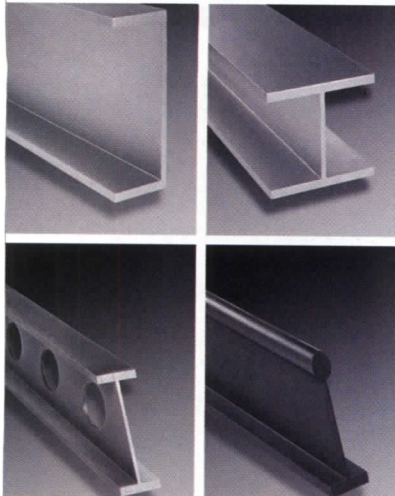
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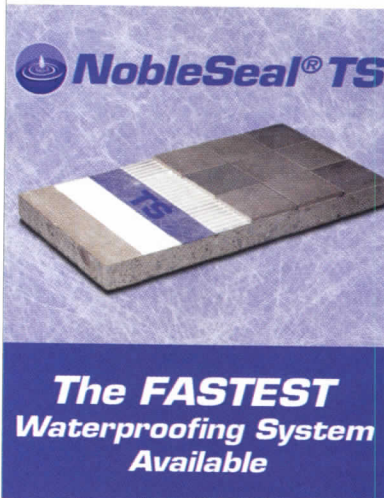


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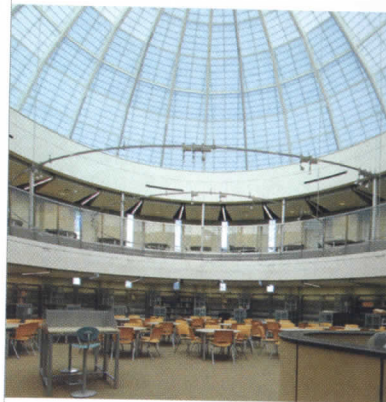
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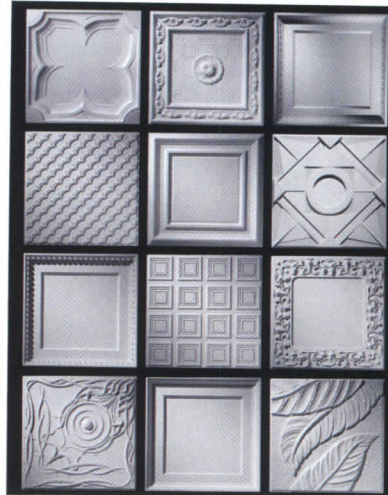


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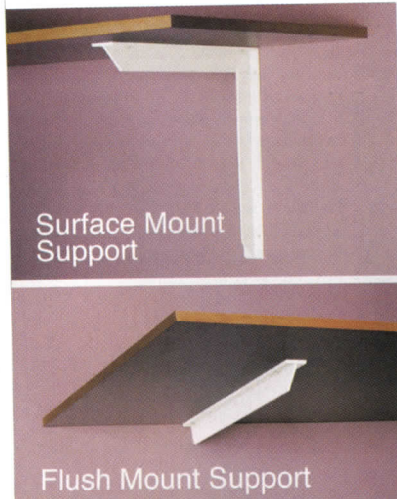


Viva Ceramica Slate

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Counter Support Brackets

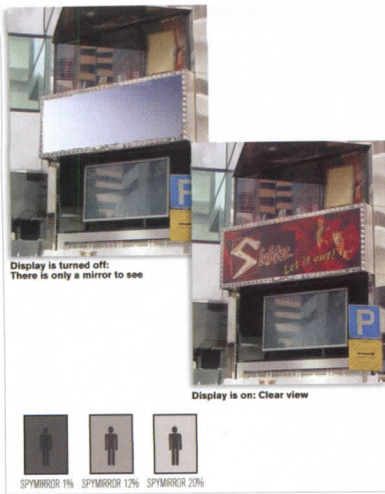


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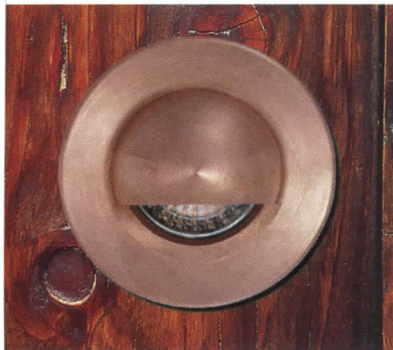


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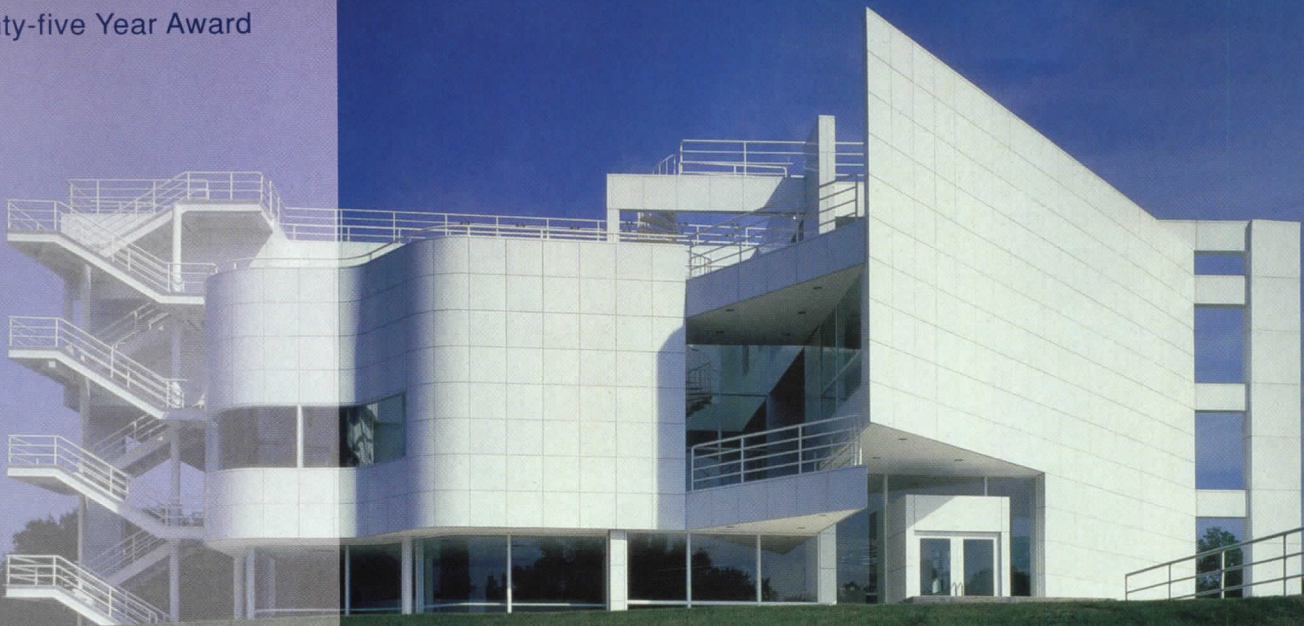
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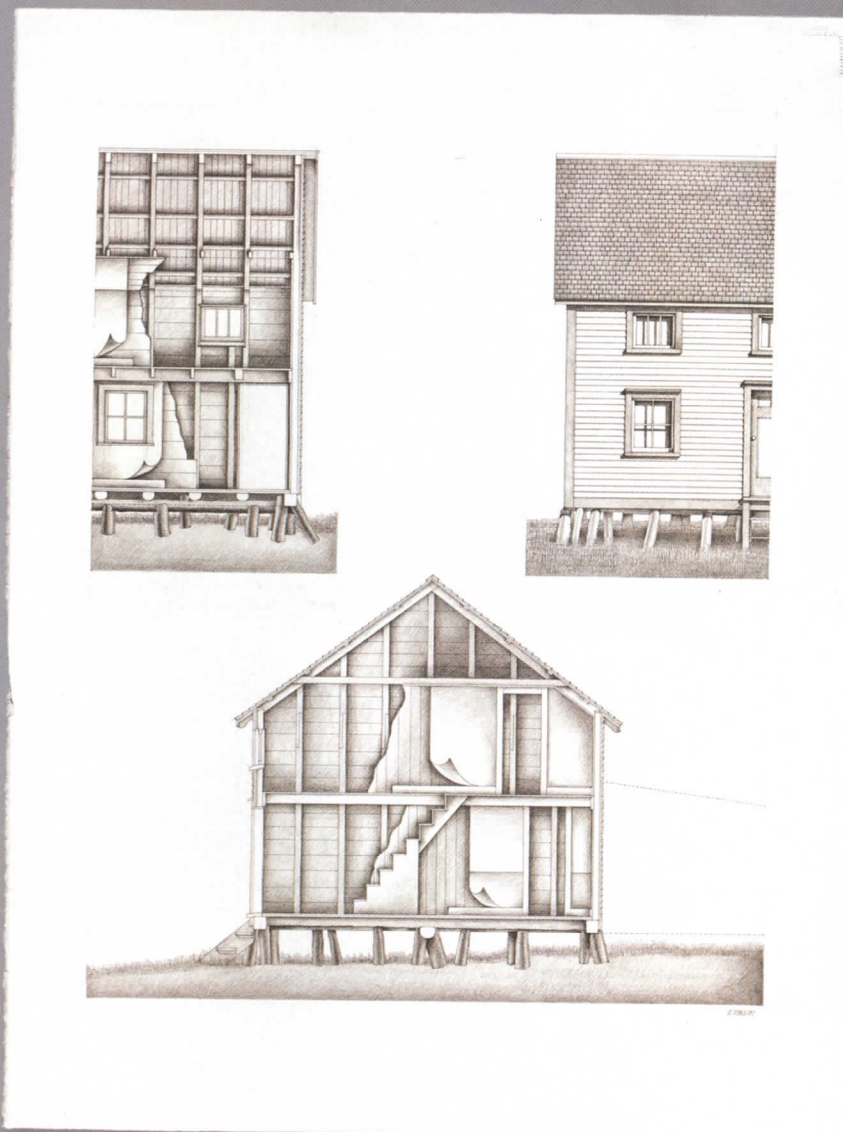
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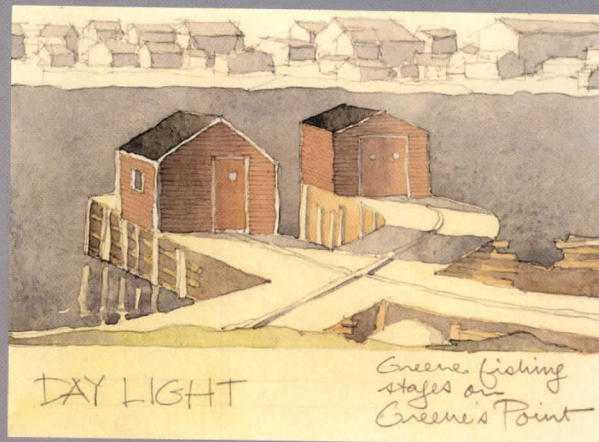
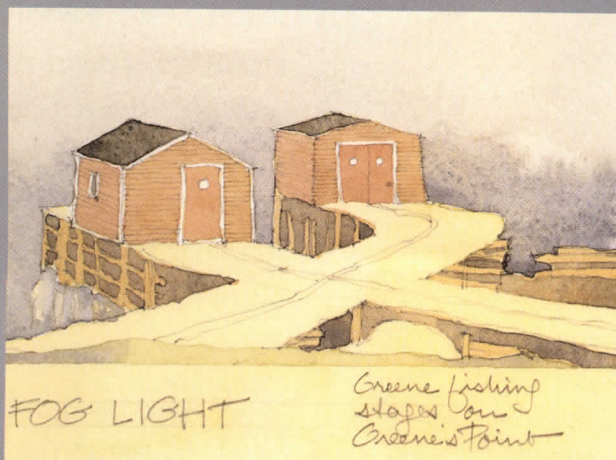


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The Architect's Hand



The Reardon House, Tilting (above), pencil on watercolor paper, 1988. Fishing Stages on Greene's Point, Tilting: Day Light (top right), Fishing Stages on Greene's Point, Tilting: Fog Light (right), watercolor, 2007.

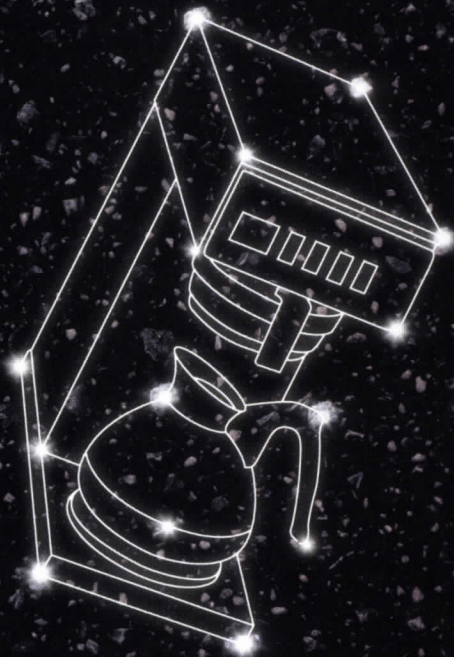


Documenting a Disappearing Landscape

In 1974, when Robert Mellin first arrived in Newfoundland, he recalls observing a sense of things changing, of communities being abandoned, and fearing “many things were bound to disappear in the cultural landscape.” The desire to record these transformations inspired Mellin, an associate professor of architecture at McGill University and a practicing architect, to embark on his present-day research: visual documentation of the small village of Tilting, on Fogo Island, located off the coast of Newfoundland. Mellin began his work on Tilting in 1987, when 500 to 600 residents occupied the community. Now, in 2008, the population is down to 250.

Mellin’s pencil drawings of local architecture display the *analytique* technique, associated with the Ecole des Beaux-Arts, where details are arranged on one sheet of paper. Mellin believes that the details “predominate over customary orthographic drawings” because they require one to look closely at a given structure and encourage a more intimate understanding of relationships. With *The Reardon House* (1988), he wanted to show the plain and austere details typical of a house in Tilting, as illustrated in his book, *Tilting: House Launching, Slide Hauling, Potato Trenching, and Other Tales from a Newfoundland Fishing Village*, first published in 2003 and being released in paperback this September by Princeton Architectural Press.

Although Mellin began to draw in his early teens, he started painting watercolors 10 years after graduating from Pennsylvania State University with a B.Arch. (Mellin now holds four graduate degrees, including a Ph.D. in vernacular architecture from the University of Pennsylvania.) As opposed to his analytique pencil drawings, Mellin considers his watercolors more “casual.” It is his medium of choice for travel sketches. In two paintings of Tilting, *Fishing Stages on Greene’s Point: Day Light* and *Fishing Stages on Greene’s Point: Fog Light*, Mellin studied perspective variations of local fishing huts under different atmospheric conditions. With his aspiration to complete one watercolor a day, Mellin says the practice is “therapeutic, a welcome relief for long hours of digital work.” *Jennifer Richter*



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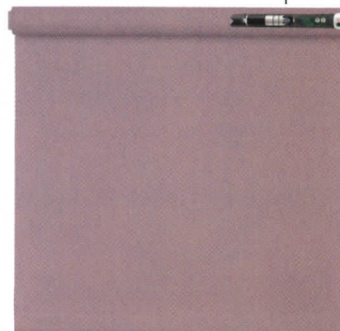
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