

ARCHITECTURAL RECORD

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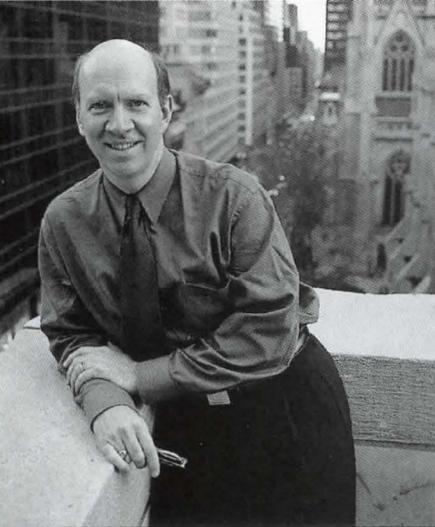
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Editorial

By Robert Ivy, FAIA

Rhinebeck. Hyde Park. The names conjure up the vast corridor of the Hudson River, America's Rhine, once lined with the prideful chateaus of our native aristocracy. Two houses, perched on the high bluff dropping to the waterway, have tales to tell and provoke questions about where, how, and why we build.

History permeates the first house, Springwood, Franklin Roosevelt's beloved homeplace at Hyde Park. Filled with personal memorabilia, furnishings, and fabrics, this iconic house is redolent with the odors and textures of real life. We can imagine the visiting George VI and Queen Elizabeth perched on the parlor chairs, waiting for their famous picnic luncheon; or Sara Delano Roosevelt, the matriarch, retiring to her bedroom so near her son Franklin, in what appears to us to be claustrophobic proximity. No wonder Eleanor treasured the privacy of Val-Kill cottage. History springs to life through visiting the physical artifacts.

Just down the road, the 50-room Frederick Vanderbilt mansion rears up with concentrated power. Designed by McKim, Mead and White, set in a magnificent Olmsted park, this proud palace designed for the head of the New York Central Railroad sums up its moment, 1898, with supreme confidence. Imported marble, bronze fittings, and carved woods all contribute to the air of voluptuous luxe in a house for a family of two persons that cost \$660,000 at the time—a princely sum for a prince of commerce.

Although both Springwood and the Vanderbilt mansion at Hyde Park share certain symmetrical, formal characteristics, the two diverge in radical ways. The Roosevelt home began life as an 1867 farmhouse that evolved in the traditional American manner. First, FDR's father, James Roosevelt, enclosed and enlarged the residence; in 1915, the future President and his mother added wings for servants and himself, raised the roof for his growing brood of children, and lent a Georgian air to the place. Beneath the apparent grandeur, however, lies the rambling, simpler framework.

The Vanderbilt place, by contrast, could sport a coronet. A mega-house, it was built at one quick leap, furnished with Stanford White's help in

the prevailing taste of the time (Savonnerie carpets, gilt, and green marble), and occupied only part of the year. Its contemporary kin are the sprawling McMansions we architects are designing where the weather is cool and the bugs don't bite—in Aspen or the Hamptons.

Yet the Vanderbilt house, for all its grandeur, seems tomblike, its rooms as still and vacant as Versailles. Why? The family that resided there, and the social and economic system that supported them, has vanished; Mrs. Astor's Four Hundred have traded in their ballgowns for blue jeans. Tempus fugit. Unlike Springwood, this hermetic structure could not easily be transformed to other purposes. Ultimately, the Vanderbilts' heir, Margaret Van Alen, donated the house to the government. No one could think of another purpose for such a massive relic.

While we are drawn to the masterful siting at Vanderbilt, and the evocative vistas of lawn and brook, the finesse of its details, and the craft and "taste" displayed, contemporary perspective inevitably colors our perception. Viewed through the lens of our democratic culture, it is difficult to imagine the ponderous, labor-intensive civilization that required legions of servants and a concentrated, studied hierarchy. A building that represented the height of what Edith Wharton and Ogden Codman, Jr., called "the demand for style" seems cool to the touch.

There is no moral implied here, no assertion of right or wrong. Hovering like summer smoke around this upriver idyll are only questions, but ones that can be asked by architects repeatedly, for all kinds of design. For whom are you building? For what purpose? What longevity do you foresee for this structure? How does this design relate to the present moment? To the landscape? Can it, or should it, be capable of transformation and change? Does this house, or this project, have a future? What will be its legacy?



*Washington Hall, center stage for theatre and cultural events at Notre Dame
Built in 1881, this modern Gothic structure was named by Father Sorin
himself, Notre Dame's founder, in honor of his great hero, George Washington*



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Letters

El Mundo Confundido

Thanks for recognizing the controversy in LA over *El Nuevo Mundo* exhibit [May 2000, page 432]. I believe Camilo Vergara does not understand the complexity of people's criticism. He assumes that people want to see Latinos represented as "successful" and then describes this in superficial terms, "as doctors and lawyers in SUVs."

Latinos in Los Angeles do not fear being represented, but fear being misrepresented. The show demonstrates how the mainstream press selects a particular subculture to represent an entire race in America.

Vergara's work is hypocritical. He says he is not depicting the Latino community "as loud, vulgar and tacky," yet many Latinos find *El Nuevo Mundo* offensive. The show has mobilized the Latino community against it and made Latinos think about how they are being represented in museums. As my friend put it: Racism is tricky to approach out loud but easily felt when exercised. There is nothing new in *El Nuevo Mundo*.

—James Rojas
Los Angeles

Mentoring matters

Peer mentoring is now as important as traditional master/apprentice mentoring and training, not only because of increased time constraints on principals, but because many supervisory personnel "walk through their offices and don't understand what's going on" ["The State of the Profession," JUNE 2000, page 88]. In the 1999 AIA National Survey on Internship, only 31 percent of offices were found to have an organized intern program, and only 48 percent of interns reported having a professional mentor. Again, time constraints are only a partial explanation for these statistics.

The fact is, the experience of

emerging architects today is significantly different from the early experiences of most veteran practitioners. As your article pointed out, architectural practice is changing at a frenetic pace, and many of the skills needed to succeed in tomorrow's design community will be quite different than those which serve today's practitioners well.

As a result, mentoring of young architects, by young architects, is crucial. Just over a year ago, we started a simple E-mail newsletter directed at interns and young architects, called ArchVoices (<http://www.egroups.com/group/archvoices>).

We currently have over 1,000 subscribers and recently submitted a grant application to the AIA College of Fellows to develop ArchVoices into an on-line venue for peer mentoring. A partnership with the College of Fellows would make perfect sense, as traditional mentoring will remain important, and the college has a history of involvement with young and emerging architects.

Your article on the state of the profession was timely and accurate, at least in its assessment of the state of young professionals. We hope ARCHITECTURAL RECORD will continue to assess, recommend, and be active in these issues.

—John Cary Jr., Assoc. AIA
1999–2000 AIAS National VP
—Casius H. Pealer, Assoc. AIA
1999–2000 AIA Intern/Associate Committee

Work exchange

The May 2000 editorial urged hands-on work at a construction site—"something every architect should experience." The other side of the coin, of course, is to invite the construction industry into our design offices. If we can be allowed to sweat with their jackhammers, surely they can be invited to our

boards. Any one-way crossing of traditional boundaries seems like slumming to me. Wouldn't a two-way exchange be better?

—William B. Rose
Champaign, Ill.

Fashion and fame

The July Critique by Neil Denari [Page 59] has unexpectedly hit on a very important issue. At a time when the buzz around Matthew Barney's chemistry-meets-couture extravaganzas was reaching fever pitch, I had the opportunity to speak with a young artist who was enjoying his 15 minutes. The man was charming enough to proprietors of hip Lower East Side, NYC galleries, and was becoming known somewhat in those circles. Noticing a striking similarity to Paul Klee in his paintings, I asked him if he'd ever seen the abstract expressionist's work. He'd not. He told me, "I don't like to cloud my vision by going to museums and galleries." It was obvious. The result of his work was little more than a rehashing of ideas that had been explored and concluded some 50 years earlier. I found myself getting angry that this person was selling paintings. They were mindlessly selfish and egotistical pieces that did nothing for the art world into which he was attempting to break.

In addition to expressing themselves as honestly as possible, architects have a responsibility, proportional to their public visibility, to contribute to the artistic community at large. Whether this means finding uncommon solutions for changing social arrangements, increasing the medium's available vocabulary by exploring new uses of materials and technology, or merely presenting our work in a light that makes it more appealing to previously ambivalent users, is unimportant. But more questions should be posed than

answered about our evolving perceptions of space. All art forms evolve, and it is this evolution that makes the time in which we live our own, and creates a legacy of which we may be proud upon retiring.

Those unaware of the current state of not only architecture but of all the arts, will be unprepared to fulfill this obligation.

—Ryan Witte
Via E-mail

Corrections

In "Hands-on Architecture," [May 2000, page 24] the Jersey Devil program in Mexico is six years old, not three. Mark Zweig was incorrectly cited as Martin Zweig in "The State of the Profession" [June 2000, page 89]. Missing from the Swiss Re article [June 2000, page 144] was the biography of author Akiko Busch. She is the author of six books and writes about architecture and design. In "Block 89" [June 2000, page 150], the Wisconsin State Capitol was designed by George B. Post and Sons of New York. Pfau Architecture was the architect and SKS Investments was the developer of 475 Brannan Street [June 2000, page 162]. In "Technology Tools for Marketing" [June 2000, page 196], the image was wrongly identified as three projects by DBB; the projects shown were the North Shore Center for the Performing Arts in Skokie, Ill., designed by Graham Gund Architects. In Product Briefs [July 2000, page 241], the phone number for Inova Furniture is 212/932-1446. In the May Lighting section [page 349], the stand was incorrectly ascribed to I Guzzini Illuminazione SpA instead of Reggiani SpA Illuminazione.

Letters may be E-mailed by clicking **Letters** on our Web site at www.architecturalrecord.com, or send letters directly to rivy@mcgraw-hill.com.

ONE MORE TRY: SOM'S COLUMBUS CENTER SCHEME LESS BOXY, LESS DECO, MORE TRANSPARENT



SOM's latest design for Columbus Center

The latest scheme for the \$1.7 billion Columbus Center project in New York City was unveiled June 28. Mayor Rudolph Giuliani, who spoke at the unveiling, says after seeing this design he "liked it immediately."

Columbus Center, designed by Skidmore, Owings & Merrill (SOM), will be a 2.7-million-square-foot complex on Columbus Circle at the southwest corner of Central Park. Columbus Center's latest plan includes two 55-story trapezoidal towers atop a seven-story base that curves along the traffic circle. The program will

include space for AOL Time Warner headquarters, studios for CNN, the home of Jazz at Lincoln Center, more than 500,000 square feet of retail, a five-star mandarin Oriental Hotel, and 200 condominiums.

The complex, which remains subject to design review by the City Planning Commission through the design-development stage, is scheduled for completion in 2003. David Childs, FAIA, principal at SOM in New York, says the myriad factors in this high-profile project did not dilute the final design. "It's one of those wonderfully complicated urban problems today," Childs says. "This one, by far, is the most complicated that I've been part of. It's a testament to the creativity and perseverance of many people."

Within the SOM-designed building, different architects will handle specific components: Rafael

Viñoly is the architect for Jazz at Lincoln Center, Brennan Beer Gorman is designing the hotel, Elkus/Manfredi will complete the retail space, and HLW International is the architect for AOL Time Warner. A metal-and-glass screen on the top floors of the building's base by artist Jamie Carpenter will allow layers of transparency for the Jazz at Lincoln Center theater space.

This is the fifth plan for the site. Earlier schemes date back to Moshe Safdie's 1985 set of prism towers, which met with public backlash. SOM's subsequent designs—a 1988 proposal similar to 1930s apartment towers and a 1998 Art Deco-inspired complex—were considered too retro. Earlier this year, SOM released a version with boxy towers parallel to the street.

John E. Czarnecki, ASSOC. AIA

ART AND SPIRITUALITY CONVERGE IN RESTORED ROTHKO CHAPEL

The Rothko Chapel, where art and spirituality converge in uniquely modern ways, reopened June 17 after an 18-month, \$1.8 million restoration.

The chapel, commissioned by John and Dominique de Menil, was designed by Philip Johnson and completed in 1971 by Howard Barnstone and Eugene Aubry after Johnson and the artist had a bitter falling out. "The great architect bowed out to the great artist," was Dominique de Menil's tactful description of the split.

A windowless brick octagon with a central skylight, the Rothko

Chapel exudes a remarkable serenity that seems to come from deep inside the paintings. Mark Rothko's dark, monumental paintings, created specifically for the building, were removed and sent to conservators while their intimate but increasingly unstable setting was repaired. The paintings' muted surfaces offer no explosion of color and line, no religious imagery, no obvious narrative—nothing except a somber stillness that expresses Rothko's search for order and unity in his art and life.

Rothko died in 1970. In the years that followed, the sodden Houston climate took its toll on his chapel. The roof leaked, exterior walls began to crack and slump, and humidity and ultraviolet light damaged the paintings. The remarkable Rothko legacy would be

lost if a restoration effort were not undertaken.

Under the direction of Houston architect James McReynolds and Ove Arup & Partners of London, engineers for the nearby Menil Collection and Cy Twombly Gallery, the problems have been corrected. New concrete piers were driven 55 feet into the ground to stabilize the chapel. A new skylight, with a smaller, snuggler baffle, provides softer and more even light for the paintings, which now hang on gray gypsum walls that simulate raw concrete. The ceiling was lowered several feet, and exterior doors were enlarged so that the large paintings could be transported in and out easily. Previously, they



Inside the Rothko Chapel

had to be hoisted by crane through the central skylight. The foyer has been enclosed by glass partitions that funnel moisture into a new ventilation system, rather than allowing it to flow freely across the paintings.

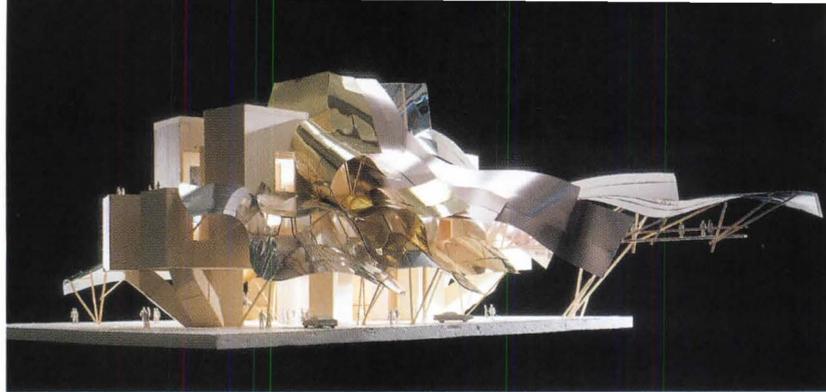
The physical changes are subtle and leave the serenity of the chapel undisturbed. As one perceptive visitor noted, the Rothko Chapel, "is a place not to think but to unthink." *David Dillon*

WWW Can't wait until the September issue for architectural news? For up-to-date headlines each weekday, click on **News** at www.architecturalrecord.com

WINERIES IN SPAIN AND CANADA TO BE VINTAGE GEHRY

Elciego, in the Rioja region of Spain, is bound to become a destination for architects visiting the Guggenheim Museum in nearby Bilbao.

The first winery by Frank O. Gehry, FAIA, the Marques de Riscal Winery, will be completed in Elciego in 2003. The 35,520-square-foot building will house a conference facility, restaurant, exhibit space, a wine-tasting room, and guest rooms for visitors. Materials will include Spanish stone, glass, and double-



Drink up. The Marques de Riscal Winery in Elciego, Spain, by Frank Gehry.

sided titanium panels of silver, gold, and rosy pink. The building will not include wine-making facilities, which already exist at the vineyard. Gehry may be commissioned to design a second small building for additional guest rooms.

Gehry's second winery will be his first completed building in his home country, Canada. Currently in

the initial design stages, the winery for Le Clos Jordan will be built in the Niagara Peninsula region of southern Ontario, near Niagara Falls. The Gehry design will include full wine-making facilities.

Le Clos Jordan is a Franco-Canadian partnership between Boisset, La Famille des Grands Vins of France, and Vincor International

of Ontario. The first Le Clos Jordan vintage is expected in 2005.

"We look forward to his interpretation of a new age winery inspired by wine-making traditions of many centuries," says Jean-Charles Boisset, vice president of Boisset. "Having a great visionary partici-

pate in the planning of our *domaine* is an extraordinary opportunity."

Gehry says of the Canadian winemakers, "I am extremely impressed with my clients' passion for their product, and their desire for the very best in quality."

Gehry, a native of Toronto, moved to Los Angeles in 1947. JEC

MIND THE BRIDGE, PLEASE BREAK STEP



The Millennium Bridge, the highly anticipated London footbridge over the Thames, opened to great fanfare, vibrated uncomfortably, and was closed the same weekend. While steps will be taken to absorb reverberation, a reopening date has not been set.

Designed by Foster and Partners with engineers Ove Arup and Associates, the \$28 million, 1,050-foot-long bridge crosses the Thames at the new Tate Museum of Modern Art. On its June 10 opening, pedestrians felt the aluminum-and-steel bridge sway and bounce. Officials closed the bridge June 12, after more than 150,000 people crossed it that first weekend. Both Arup and Foster offices confirmed the reopening is months, not weeks, away.

The *Times* of London reported that, due to construction delays, there was not time to test the bridge before opening, except in simulated

wind tunnel tests. Final sections of the bridge deck were placed only five days before opening.

Engineers determined that pedestrians increasingly walking in step, a phenomenon called synchronized resonance, made the bridge wobble. As motion increased, pedestrians instinctively walked in step with the movement to keep balance, increasing the lateral sway.

According to Arup's office, tests are being conducted to re-create the June 10 conditions in two ways. First, groups are walking in step across the bridge to replicate the movement. Second, a machine called a grandstand shaker that tests the impact of stadium crowds is being used to determine the exact impact of various forces and loads. Once tests are completed, dampers, which act as shock absorbers, will likely be installed, according to Arup's office.

The Millennium Bridge is not the first British millennium project to have problems. The London Eye Ferris wheel closed New Year's Eve when it jammed. A June 13 letter to the *Times* asked, "Sir, Has anything designed to celebrate the year 2000 worked properly yet?" JEC

AIA SUBMITS COMMENTS ON ADA REVISIONS Requirements of the Americans with Disabilities Act (ADA) of 1990 and the Architectural Barriers Act (ABA) of 1968 may gain greater clarity, but the process will take some time.

The American Institute of Architects (AIA) was one of more than 2,500 entities that submitted comments to the Access Board on the proposed updated facility guidelines under the ADA and ABA. The guidelines, published in November 1999, were open to public comment through May 15, 2000, and cover only new construction and alterations.

The ADA Accessibility Guidelines (ADAAG) cover construction in the private and public sectors. ABA guidelines apply to buildings owned by the federal government or those receiving federal funds. Guidelines will be updated to achieve greater clarity and reflect technological advances in the built environment.

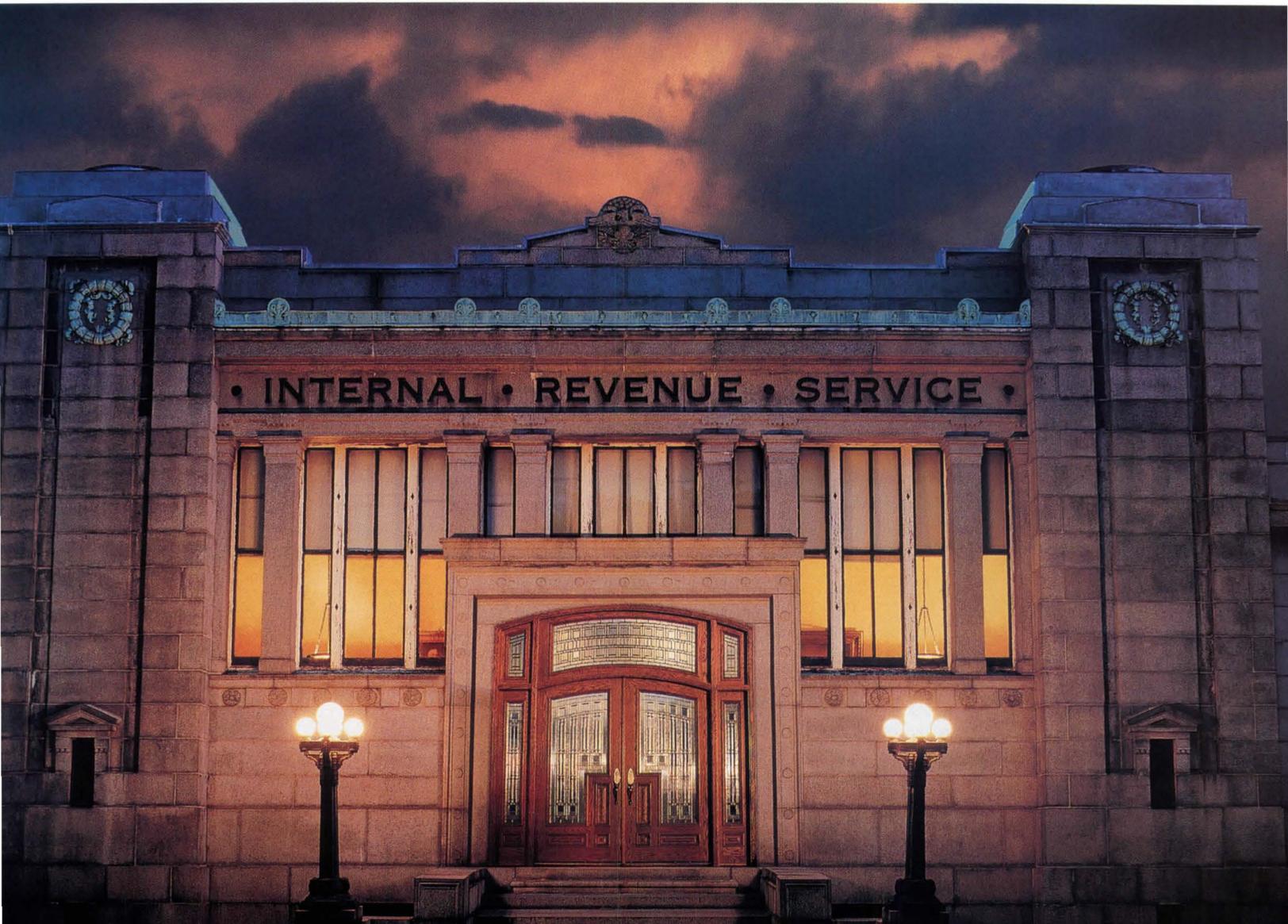
The Access Board, an independent federal agency responsible for built environment accessibility guidelines under the ADA and ABA, is analyzing all comments and revising the regulatory assessment based on the comments. The revised guidelines will be submitted to the Office of Management and Budget (OMB) for review and clearance, likely in late 2001. Final guidelines will be published in the Federal Register when cleared by OMB. The U.S. Departments of Justice and Transportation maintain standards for facilities under the ADA and must adopt the updated requirements to make them enforceable.

While the AIA's 59 pages of comments are comprehensive and thorough, three-fourths of the comments received at the Access Board were from individuals. Comments from trade and professional organization constituted only nine percent of the total.

In June, a statement from the AIA called for "greater clarity and certainty" from the Justice Department in enforcing existing ADA requirements. The National Council of Disability issued a report that same month calling federal enforcement agencies "overly cautious, reactive, and lacking any coherent and unifying national strategy."

Visit www.e-architect.com/gov/ada/ to read the full text of the AIA comments and www.access-board.gov for more information. JEC

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CIRCLE 15 ON INQUIRY CARD

CONSTRUCTION BEGINS ON JAPAN'S LARGEST PRIVATE DEVELOPMENT

Construction began in April for Tokyo's Roppongi Hills, Japan's largest private development project ever. Occupying a 27-acre site at the edge of one of the city's most popular entertainment districts, the estimated \$2.5 billion project is being built by Tokyo developer Mori Building Company. When completed in spring 2003, the new construction is expected to transform a quiet



Roppongi Hills development (above) includes a 54-story curvilinear tower by KPF and Fumihiko Maki's TV Asahi Broadcasting Center (top).

residential neighborhood into a gleaming new urban center.

The project will be divided into three zones. Facing Roppongi Street, a major pedestrian and vehicular artery, and linked to subway lines, Zone A will comprise the development's main entrance and include a shop-lined station plaza. Dominated by a 54-story curvilinear office tower, Zone B will be the

heart of Roppongi Hills. Kohn Pedersen Fox Associates PC are design consultants for the office building. The five-story Mori Art Center, on top of the office tower, will house galleries, educational facilities, a restaurant, and an observation deck overlooking the city. Gluckman Mayner Architects is the design consultant for the art center, which will have its own transparent, conical entry pavilion on the ground floor connecting directly to the main exhibition space via bridges with elevators. In addition to a hotel and theater, Zone B also will include TV Asahi's Broadcasting Center designed by Fumihiko Maki. The glass-enclosed, eight-story building will house studios at its core and offices on its perimeter.

Zone C, the development's residential component, will include four apartment buildings of a total of 840 units for approximately 2,000 people, ranging from studios to four-bedroom units. Commercial spaces on the ground floor of all buildings will be designed by the Jerde Partnership International.

A multilevel circulation system spanning the site's 55-foot change in elevation will also tie the zones together. While automobile traffic within Roppongi Hills will be limited, a network of pedestrian walkways will wind through the site, incorporating a skylit Galleria, public parks, and other open areas as well as the reconstructed Mouri estate pond and garden that had once occupied a portion of the site. The newly constructed Main Street, lined with shops and punctuated by three courtyards, will link the development to the surrounding neighborhood. The rerouting of existing roads and underground parking for 2,500 cars will ease site access and improve driving conditions in the surrounding area.

Though this project will raise the neighborhood's population density, Minoru Mori of Mori Building Company expects it to reduce commutes and increase quality of living with more open space and public amenities. *Naomi Pollock, AIA*



FOSTER'S GREAT COURT AT BRITISH MUSEUM NEAR COMPLETION

The Great Court project for London's British Museum by Foster and Partners will open this December. The \$150 million project will provide some much-needed breathing room for the museum's 6.5 million annual visitors. It will also update the institution's educational and public-amenity needs.

The building is signature Norman Foster in a number of ways. First, the new roof covering the court consists of 65,500 square feet of glass supported by four miles of steel. Also, the project has a strong civic aspiration and will increase the museum's public space by approximately 50 percent. The solution is seductively simple—one can imagine the initial sketches emerging on a paper napkin.

The scheme reinstates the original court, built in 1852 but thereafter occupied by various storage requirements of the British Library. The departure of the library to its new St. Pancras building designed by Colin St. John Wilson freed the space for redevelopment.

Clearing away the clutter from the court reveals the circular shape of the British Museum's Reading Room. Now a pair of staircases encircle the Reading Room, leading to an elliptical mezzanine level. A Millennium Gallery, as well as bookshops, restaurants, and cafes will be on the mezzanine.



The British Museum's Great Court will be under a glass enclosure around the circular Reading Room.

A lower level will include an education center with new galleries for ethnography and two auditoria, one seating 350 and the other 150.

The Great Court will be open to the public for extended hours, creating a major new public space in London. It will be part of a new heritage route through the city extending from St. Pancras to the South Bank.

The high-tech roof assures us that the museum has sought something that is clearly representative of our era. As cutting-edge as the approach may be, it almost literally preserves the character of what was already there, including the museum's ionic portico entrance. The British Museum has opted to add an essentially transparent layer to its building's history. *Laura Iloniemi*



“Beautiful buildings are...
works of art using the
best technology.”

Frank Lloyd Wright



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CIRCLE 16 ON INQUIRY CARD

NOTED ARCHITECTS, AUTHOR REMEMBERED

The recent deaths of individuals at the forefront of architectural practice, education, and theory will be felt worldwide.

Enric Miralles

Spanish architect Enric Miralles died on July 3 at age 45. He was diagnosed with a brain tumor last March



Miralles

and was recovering from surgery in the Barcelona resort Sant Feliu de Codines when he died. Miralles acquired an international reputation at an early age for his work, which broke with the generally understated tone of Spanish architecture to introduce a highly personal and complex formal vocabulary.

In a tribute published in the Spanish national newspaper *El País*, former teacher Rafael Moneo wrote, "His architectonic world was vibrant and intense, agitated, and exuberant. His works speak eloquently of his personal generosity, in their continuous scattering of elements, recognizing no limits or frontiers."

Mexican architect Enrique Norten said of Miralles: "He was a great man, a good and loyal friend, and a wonderful architect."

Miralles was working on his first international commissions this year, including the Utrecht Town Hall in the Netherlands and the Scottish Parliament in Edinburgh, both under construction, and the Venice School of Architecture. Among his best-known works are the Archery Range for the 1992 Barcelona Olympics [August 1992, page 98], the National Gymnastics Center in Alicante, Spain [August 1994, page 52], and the Morella Boarding School.

Miralles graduated from the Barcelona School of Architecture and received a doctoral degree from Columbia. He apprenticed in the studio of Albert Viaplana and Helio Piñón, and had a role in that studio's design of the 1983 Plaza at Sants, a seminal work in Barcelona's urban revival. Miralles was buried in one of his most celebrated works, the 1995 Igualada Cemetery outside Barcelona, where the precast walls of niches, scattered across a hillside, merge into the landscape. *David Cohn*

Christian Norberg-Schulz

An important architectural theorist who helped define the phenomenon of place, Norwegian Christian Norberg-Schulz died on March 28 at age 73. Although he died months ago, the loss of this influential thinker had yet to be reported widely in the architectural press.

Norberg-Schulz published more than 30 books, translated into several languages. He was editor of the Norwegian architecture journal *Byggekunst* from 1963 to 1978, and



Norberg-Schulz

co-director of *Lotus International*.

An expert in the European Modern Movement, Norberg-Schulz had a distinguished teaching career as professor of architecture and dean at the Oslo School of

Architecture. His seminal 1963 book *Intentions in Architecture* sought "meaning" in architecture by implementing linguistics, Gestalt psychology, and phenomenology. This comprehensive theory elevated his status as an architectural theoretician. Norberg-Schulz was an honorary fellow of the Royal Institute of British Architects and a recipient of the Gold Medal of the Académie d'Architecture.

"Christian will stand as one of the foremost authors on architecture of the 20th century. He was an authentic architectural philosopher and a giant in his field," says Peter Pran, AIA, design principal with NBBJ in Seattle and a friend of Norberg-Schulz for more than 30 years. "He gave architecture a language." *JEC*

Louis E. Fry, Sr., FAIA

A practitioner and educator who was instrumental in training many African-American architects, Louis E. Fry, Sr., FAIA, died June 10 at age 97. A practicing architect in Washington, D.C., Fry was a founding member of the National Organization of Minority Architects and former chair of architecture departments at Tuskegee and Lincoln Universities. As the first architecture professor at Tuskegee, Fry initiated the architecture curriculum there in 1935. In association with Paul Rudolph, Fry designed the Tuskegee Chapel at Tuskegee University. A professor at Howard from 1947 to 1972, he designed that university's Douglass Hall and Founder's Library.



Fry

He earned an M.Arch from the Harvard Graduate School of Design (GSD) in 1945. The GSD held a dinner in his honor, planned before his death, at the National Building Museum in Washington, D.C. on June 16. The dinner was a kickoff for a campaign to raise minority student scholarship funds at the GSD. *JEC*



JOHN HEJDUK, former dean of the Irwin S. Chanin School of Architecture at the Cooper Union in New York City, died of cancer on July 3 at age 71. Hejduk was an influential practitioner, writer, and educator. Much of his work consisted of theoretical projects, including many sketches and personal narratives. A sketch for *Cathedral*, 1996, is included here.

Hejduk attended Cooper Union in the late 1940s, began teaching at the school in 1964, became chair of the school's architecture department in 1965, and was dean of the school from 1975 until his retirement this spring. Prominent former students include Shigeru Ban, Elizabeth Diller, Daniel Libeskind, and Toshiko Mori.

While teaching at the University of Texas at Austin in the mid-1950s, Hejduk, along with Colin Rowe and others, was part of the educator group known as the Texas Rangers. In 1972 Hejduk's work was featured with that of Peter Eisenman, Michael Graves, Charles Gwathmey, and Richard Meier in the book *Five Architects*, edited by Colin Rowe, and the five became known at that period as "The New York Five" or "The Whites" for their fascination in pure form.

Hejduk published 21 books, including *Architectures in Love*, *Mask of Medusa*, and *Pewter Wings*, *Golden Horns*, *Stone Veils*. His built work includes a civic center in Santiago de Compostela, Spain, that will be completed this year. His redesign for the interior of the Foundation Building at Cooper Union, creating a laboratory for the study of architecture, produced a number of transitional spaces that allowed for growth and change over time.

Diller, partner of Diller+Scofidio in New York City, says, "Hejduk not only introduced an interdisciplinary approach to architectural education, he pioneered new teaching methods that engaged architecture as a creative and intellectual endeavor. His pedagogy impassioned three decades of students, many of whom became teachers who proceeded to disseminate his approach."

Diane Lewis, also a former student of Hejduk, has taught at Cooper Union since 1982. She notes the rigorous architectural dialogue that Hejduk nurtured at Cooper Union. "He was one of the most important figures in the tradition of intellectual freedom in New York City," Lewis says. "The atmosphere he generated will survive and evolve." *JEC*



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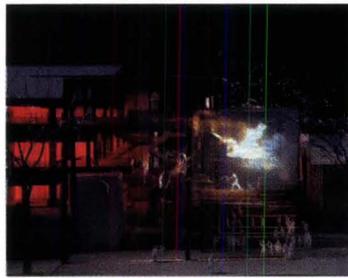
Record News

RENOVATED MCCAW HALL TO BLUR BOUNDARIES OF PERFORMER, AUDIENCE

Proposed renovations to Seattle's cultural quarter, Seattle Center, will explode the boundaries of the traditional theater box.

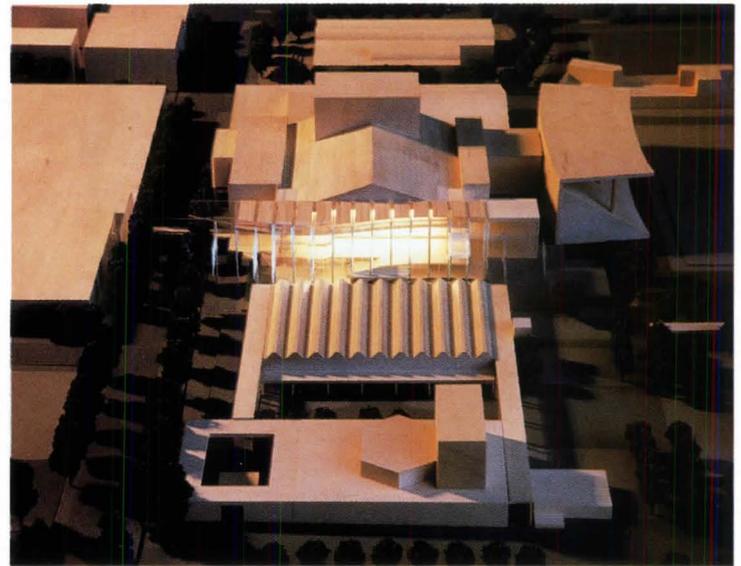
The centerpiece of the district will be the renovated 2,900-seat Marion Oliver McCaw Hall at Seattle Center, formerly the Seattle Opera House. McCaw Hall will house the Seattle Opera and Pacific Northwest Ballet, in addition to various public and private civic organizations and regional performance groups. The \$125 million renovation of the 280,000-square-foot performance hall is designed by Seattle's LMN Architects, with theatrical designer Robert Israel of Los Angeles and landscape architect Gustafson Partners of Seattle. The performance hall is scheduled to reopen in spring 2003.

The renovation includes removal of the brick sheath from the 1927 structure, saving the auditorium within, as well as new mechanical and electrical systems.



The renovated Marion Oliver McCaw Hall, home to the Seattle Opera and Pacific Northwest Ballet, will reopen in spring 2003. The \$125 million project by LMN Architects includes metal fabric panels, or scrims, that will act as projection screens and structural elements at the entrance. Performance images can be projected on the scrims.

The LMN proposal includes a processional/recessional space to be framed by metal fabric panels, or scrims, that will overlap interior and exterior space at the entrance. The scrims will serve as both projection screens and spatial structure. Events within the hall may be presented live, future events may be promoted, or artist-created imagery may be displayed in this transitional zone. Images of dance and opera will flicker overhead, and the hall will appear



transparent with an intended ambiguity between active performers and passive onlookers. Scrim panels will extend across Mercer Street to a nearby parking garage and pedestrian bridge.

Landscape design by Gustafson Partners will enhance the campuslike surroundings, a remnant of the 1962 World's Fair. The entry plaza, serpentine glass lobby wall, and field of scrims will link to the area surrounding the Space Needle and Gehry's new

Experience Music Project building to the south. A series of hedged green rooms and terraces will grace the transitional zone between building and landscape.

The urban edge of the campus, with an ensemble of buildings huddled along the north edge, will be modified in a districtwide plan utilizing variations in lighting and ambient sound installations. The combined effect will help transform the district's nighttime experience. *Gavin Keeney*

NEW URBANIST WAY CONTINUES TO FLOURISH With 1,300 participants at the eighth Congress of the New Urbanism (CNU), June 15–18, including politicians, developers, planners, architects, and urban designers, the New Urbanist Way of urban development appears to continue to flourish.

Choosing Portland, Ore., as a venue highlighted the wider horizons that New Urbanists seeks to embrace, including regional governance and urban-growth boundaries—strategies that were pioneered in Oregon and are increasingly being proposed in other American cities as a means to rein in suburban sprawl.

Various panels proposed New Urbanist principles to invigorate older cities and declining inner-ring suburbs by refitting them with town centers and walkable streetscapes. Andres Duany, a CNU co-founder and its most pugnacious defender, offered a new method to diagram how the carefully crafted neighbor-



hoods of New Urbanism can add up to a city. In his diagram, a section line, which he calls a transect, is drawn from an urban high-density core of specialized downtown businesses through mixed-used neighborhoods of lower density, to the urban edge, where a picturesque, semirural scale feathers the urban edge into the natural landscape.

How compelling this ordering can be remains to be seen. But the congress also took on intriguing issues raised by Portland's planning and recent growth (above): Do growth boundaries drive up

home prices? Though the debate was spirited, the answer seemed to be that growth boundaries are not the only factor. Will well-organized neighborhood groups accept infill development of higher density? Here again, the picture was mixed. Infill remains a red flag in many communities: It can be costly, and its benefits can seem abstract, say some congress participants. Sensitive design, others say, wins over competing factions and familiarity increasingly brings acceptance. *James S. Russell, AIA*



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CIRCLE 18 ON INQUIRY CARD

Record News

HUNGARIAN COPYRIGHT LAW PUT TO TEST BY STADIUM ARCHITECT

A Budapest architecture firm is putting Hungary's new copyright law to its first test involving protection of architectural works.

Közti Rt, the firm that designed the Budapest Sportcsarnok in the late 1970s, claims it has a legal right to take part in the reconstruction of Hungary's largest sports facility, which was ravaged by fire last December.

The law, which went into effect last year and extends copyright protection to original buildings, stipulates that the owner of a building is obligated to consult with the original designer and reach an agreement on any proposed changes. It does not,

however, obligate an owner to commission the same architect to redesign a building.

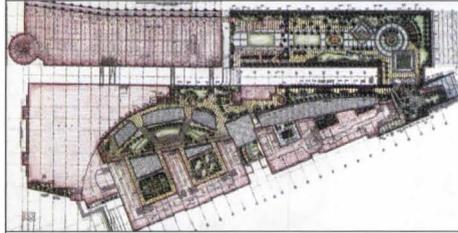
"Because of our copyright, we have the right to make a plan for the new building," says László Smaraglay of Közti Rt.

The Hungarian government, which owns the Sportcsarnok, is currently considering two options. It could reconstruct the facility implementing the existing structure, or demolish it and build a completely new complex. Architect István Kiss, who designed the Sportcsarnok and has since retired from Közti, says the structure is still sound and believes the facility can be restored.

The Sportcsarnok, which could accommodate up to 12,500 people, was devastated by fire on December 15, 1999. The intense heat inside the building buckled and collapsed the 86,000-square-foot double-deck steel-domed roof. Damage to the structure was estimated at approximately \$23.9 million. *Carl Kovac*

The Sportcsarnok in Budapest was damaged by a fire in December, 1999. Közti Rt, the firm that designed the stadium in the late 1970s, claims it has a legal right under copyright law to take part in the reconstruction.

ROOF GARDEN ACTS AS NATURAL AIR CONDITIONER



In the gardens, shoppers and workers can stroll, jog along a rubber-surfaced running track, or just relax on one of the benches bordering the numerous stone walkways and admire the

The largest multiuse complex of its kind in Central Europe has gone underground. Sections of three top levels of the \$200 million WestEnd City Center in Budapest are now covered by tons of soil nurturing hundreds of trees and thousands of shrubs and flowers.

Designed by the Budapest landscape and environmental planning studio Land-A Kft, the rooftop garden (above), completed in May, covers approximately 4.5 acres of the 12.4-acre complex adjacent to the Hungarian capital's Nyugati (Western) Railway Station. The garden cost is estimated at \$2.2 million to \$2.9 million.

WestEnd City Center consists of four separate buildings housing a market, a multiplex cinema, specialty shops, office space, a Hilton Hotel, and indoor parking facilities for 1,700 vehicles.

flowers, fountains, and sculptures that adorn the park. The gardens can also accommodate up to 4,000 people at open-air concerts, folk dance shows, art exhibitions, and other cultural events. The three-foot-deep soil acts as a natural air conditioner, decreasing the temperature inside the complex by as much as 37 degrees Fahrenheit.

"Demand for rooftop gardens has been gradually increasing since the late 1950s, from the beginning of modern mammoth construction projects worldwide," says Gábor Karádi, vice president of the Hungarian division of the International Green Roof Developers Association. "Here, regulations in the building code say that a certain percent of any development has to be used as green space. A roof garden can save valuable ground space." *Carl Kovac*



UNIVERSITY OF TEXAS AT AUSTIN HEADED TOWARD CONSERVATIVE APPROACH FOR BLANTON The architectural advisory committee of the Jack S. Blanton Museum of Art at the University of Texas at Austin announced on July 17 the seven architectural firms selected to interview for the museum project. The selection was made from a list of 31 firms that submitted responses to a request for proposals. Now that Herzog & de Meuron is no longer the firm that will design the \$70 million museum, the University of Texas appears to be headed toward a more conservative design approach.

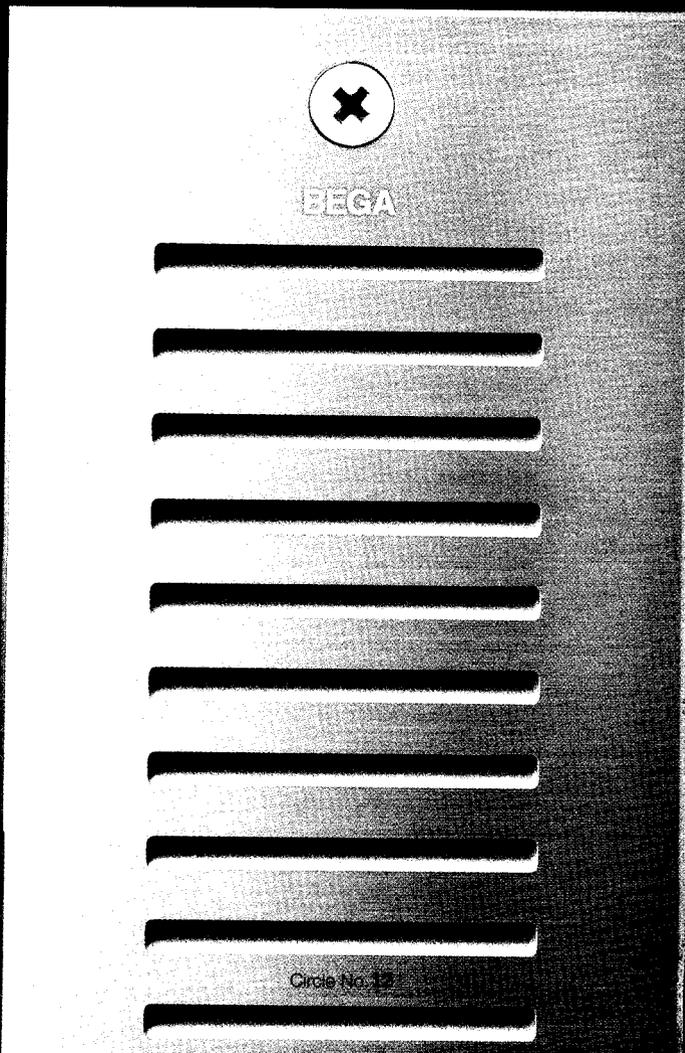
The seven firms are: Hammond Beeby Rupert Ainge Inc. of Chicago; Hartman-Cox Architects/Carter & Burgess Inc. of Washington, D.C. and Fort Worth; Kallmann McKinnell & Wood Architects, Inc. of Boston; Michael Graves & Associates Inc. of Princeton, N.J.; Navarro Baldeweg Asociados, S.L. of Madrid; Overland Partners Inc. of San Antonio; and Porphyrios Associates of London. The firms will be interviewed August 16 and 17, and the search committee will then narrow the field to three to five firms.

Herzog & de Meuron resigned after a disagreement with the university board of regents. Lawrence Speck, who had guided the selection process, then resigned as dean of the University of Texas School of Architecture in protest of the university's handling of the situation. *JEC*

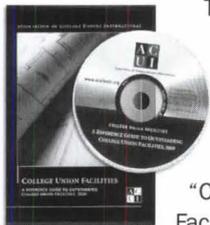
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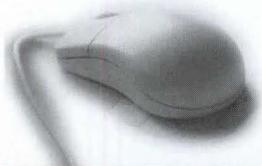
The Association of College Unions International (www.acuiweb.org) has released a new CD-ROM, "College Union Facilities: A Reference Guide to

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This CD-ROM was developed using the model developed for the book *College Union Facilities* (1990). The CD-ROM is available to ACUI member firms for \$100 and nonmembers for \$150. Members can purchase the CD-ROM and the 206-page 1990 book for \$150. That is a value of \$250 and gives you detailed information on 39 outstanding college union facilities.

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CIRCLE 20 ON INQUIRY CARD

Record News

LANDSCAPE IN AUSTRALIA: GENTLE, THOUGHTFUL DESIGN

While many of the 73 competition designs for a "Place for the People" in Canberra's parliamentary zone were monumental, requiring extensive excavation, the winning scheme is a gentle, thoughtful design which, according to the jury report, "cuts and forms the landscape" instead of instigating a major building program. On July 4 the jury announced the winning landscape plan by Sydney architects Durbach Block in association with Schaffer Barnsley and Harald Straatveit. Construction of the landscape will begin in spring 2001, with completion planned for later that year.

The 130,000-square-foot space, for national rallies, concerts, ceremonies, and exhibitions, is situated at the bottom of the slope from Parliament House at the edge of Lake Burley Griffin—named after Walter Burley Griffin, original masterplanner for Australia's capital city. The design begins in the

lake itself. Submerged but close to the surface is a large convex stainless-steel sculpture to reflect light, brightening the water in its vicinity. Up the slope is a 300-foot-wide crescent-shaped amphitheater with broad grass steps on either side. A stretched fabric ceiling can be tensioned above, and a grove of seven white birch trees (in the shape of the Southern Cross) will also provide shade. Beyond the trees is a large lawn, like a balcony, for bigger meetings. Through its center is a 480-foot landscaped ramp, picking up Griffin's



A sketch illustrates the open green leading to the amphitheater.

land axis and, at its end, a pond, spilling back into two rills on either side of the ramp. A restaurant will be tucked under the amphitheater's curve, and a spiral, three-level building is planned to its east. *Anne Susskind*



JEFFERSON LIBRARY TO HOUSE THIRD PRESIDENT'S PAPERS

The Jefferson Library at Kenwood, outside of Charlottesville, Va., is designed by Hartman-Cox Architects of Washington, D.C. Construction will begin in August, with completion scheduled for fall 2001.

The \$5 million building (left) will house the third president's papers and letters, as well as other related books and documentation of the history of Monticello. It will also

eventually include an electronic archive that will be available on the Internet. The Kenwood Estate, within a mile of Monticello, is part of the Jefferson Memorial Foundation. The new library will be open to scholars of Jefferson or of his period, according to Jim Horn, director of the International Center for Studies. Upon request, it will also be open to the general public.

The 15,000-square-foot building will include a reading library, conference rooms, and offices. It will have painted white brick, to match existing buildings on the site, and a slate roof. A glass bay wall will illuminate the two-story reading room and a skylight will brighten the main entrance.

Hartman-Cox also designed the Alderman Library on the University of Virginia's Charlottesville campus. *Ellen Sands*

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Record News

LIBESKIND NAMED AS ARCHITECT OF DENVER ART MUSEUM ADDITION

Denver mayor Wellington Webb announced July 13 that architect Daniel Libeskind will design a \$62.5 million, 146,000-square-foot addition to the Denver Art Museum. The new wing will include galleries and exhibition space that will double the size of the existing museum—a gray, fortresslike building completed in 1971 by Italian Modernist Gio Ponti. Libeskind was on a short list for the project with Arata Isozaki of Tokyo and Thom Mayne of Los Angeles.

Jennifer Moulton, Denver's planning director and chair of the selection committee, says Libeskind was chosen, in part, to uphold the Ponti building's "tradition of controversy." She hopes Libeskind's

addition, to be complete in 2004, will put Denver on the architectural map. "Denver has moments of wonderful architecture," she says, "but as a city, we don't have a tradition like Chicago, New York, or even San Francisco. We see this selection as a statement about Denver that says we are risk takers."

Libeskind was born in Poland and became an American citizen in 1965. Speaking from his office in Berlin, he says he looks forward to "the challenge of building something that will be memorable and dramatic and important. As someone who emigrated from Poland, who moved on a boat to New York and has been given the opportunity to become an American, this to me represents the American dream."

Other museum projects under way by Libeskind include the Imperial War Museum-North near Manchester, England (opening 2002), an extension to London's Victoria and Albert Museum (2005), and the San Francisco Jewish Museum (2002). *David Hill*



Libeskind (left) has designed the Imperial War Museum-North (middle), and an addition to London's Victoria and Albert Museum (right).

LIBESKIND SPEAKS OF REINVENTING SPACE IN HIS PROJECTS

Architects who took a stab at redefining space included Daniel Libeskind at the fifth Jerusalem Seminar in Architecture: "Reinventing Space: Beyond the Boundaries of the Twentieth Century," held June 11–22. Libeskind spoke at the event with Wolf Prix, Robert A.M. Stern, Kenneth Yeang, Enrique Norten, Carmi Pinos, and Bernard Tschumi, with a response from Charles Jencks.

Libeskind, who chaired the biennial seminar, spoke of the void, representing the Holocaust, at the center of his Jewish Museum in Berlin, and of the building's sloping planes that fall toward the void, "disorienting people [with regard to] what they know [and forcing them] to explore."

For the Imperial War Museum-North near Manchester, England, Libeskind's challenge was to transmit the urgency of conflict, suggesting that "the Earth is not stable and is possibly extinguishable." To this end, he says he "took the crust of the Earth, shattered it into shards and reassembled it." The museum's entire floor is curved. Libeskind says, "It is a space that will show the fatality of gravitational pull." *Esther Hecht*

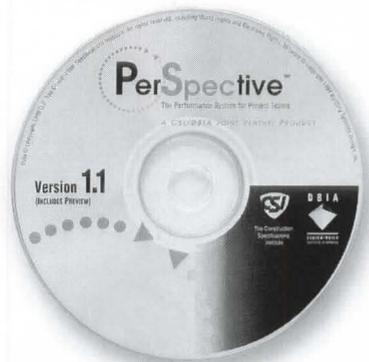
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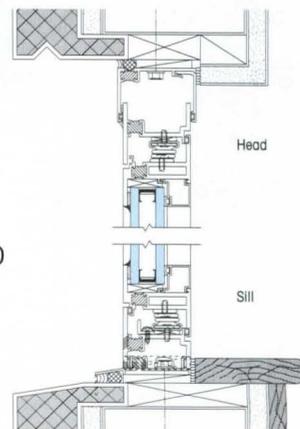
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News Briefs

French garden includes "strange zone" Architect Stan Allen and landscape architect James Corner won a competition to design a courtyard landscape for the French Embassy in New York. The garden will be in a long, narrow courtyard between the offices of the French Embassy Cultural Services, formerly the Payne Whitney House, and the New York University Institute of Fine Arts, formerly the Duke Mansion, on Fifth Avenue between 78th and 79th Streets. An exhibit of the competition models will be on display at the French Embassy Cultural Services Gallery through September 1.

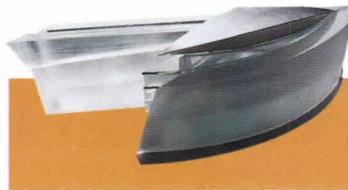
The landscape by Allen and Corner features tilted metal sur-

faces that will be lit from below, as well as trees, chairs, and lanterns. The space has three distinct zones: a media grove along Fifth Avenue, an event area in the middle, and a "strange zone," or an ambient, quiet area, in the rear of the space.

View from the "strange zone" at French Embassy



NBBJ designs Oslo Hotel and Conference Center NBBJ of Seattle and Signatur Architects of Norway are collaborating to design the 500-room Oslo Hotel and International Conference Center. Located on the Oslo waterfront, the complex features a sculpturally glazed massing that responds to sailing and the prominent site jutting into the water. NBBJ's team includes Peter Pran, AIA, design principal, Joey Myers, and Dorm Anderson, FAIA. Construction starts in early 2002, with completion in early 2004.



Oslo Hotel and Convention Center

Pei returns for addition to Everson Museum I.M. Pei, who has retired from full-time practice, will complete the schematic design for an addition to his first museum project—the Everson Museum of Art in Syracuse, N.Y. Pei, 83, completed the original reinforced concrete Everson building in 1968 as part of Syracuse's downtown revitalization. Pei Partnership Architects will complete a schematic design in September for a 25,000-square-foot addition to the 50,000-square-foot museum. The addition, with a budget of \$6–7 million, will include new exhibi-

tion galleries, studios, and classrooms for educational art programs, and an enhanced community space for visitors. Pei Partnership Architects will also assist the museum as it restores the original building.

2000 Architectural Record/Business Week Awards jury meets Jurors for the 2000 Architectural Record/Business Week Awards met May 16–17 to review portfolios of this year's entrants. The 10-person jury, including three business executives and seven architects, selected 10 winning entries out of 21 semifinalists in July. Winners will be published in the October issue of ARCHITECTURAL RECORD, and will be honored in a November 17 ceremony at the National Building Museum in Washington, D.C.



Jurors Julie Anixter and Robin Ellerthorpe, FAIA

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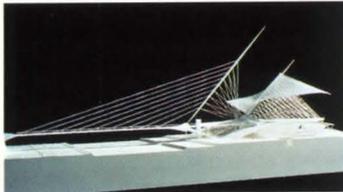
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CIRCLE 24 ON INQUIRY CARD

News Briefs

Opening date set for Calatrava's Milwaukee Art Museum addition

The Milwaukee Art Museum has announced its addition by Santiago Calatrava will open May 4, 2001. The museum's park and gardens along Lake Michigan, designed by landscape architect Dan Kiley, will open in fall 2001. The \$75 million addition was originally planned to open in January 2000, but project complications and delays pushed the date to December 2000, and eventually into 2001.



Milwaukee Art Museum addition

Arquitectonica's Times Square Hotel goes up

Construction has begun on one of the last major developments of the new Times Square in New York City. A project launch ceremony July 11 announced the official construction start for the Westin New York at Times Square, designed by Arquitectonica of Miami. The 858-room, 45-story hotel will be located at the corner of Eighth Avenue at 43rd Street, at the western edge of the 42nd Street redevelopment area.

Developed and owned by Tishman Realty and Construction Co., the 667,000-square-foot hotel will be completed in late 2002.

The hotel will feature a seven-story atrium, beginning on the building's ninth floor. Two interlocking prisms, one concave and one convex, will compose the 532-foot tower massing.



Westin Times Square

Richard Rogers wins Praemium Imperiale

British architect Richard Rogers was named a recipient of the 12th Praemium Imperiale, awarded by the Japan Art Association, on July 11. Awards are given to artists in the fields of painting, sculpture, architecture, music, and theater/film for their lifetime achievement. The Japan Art Association is a foundation governed by His Imperial Highness Prince Hitachi. Winners each receive 15 million yen (\$138,000).



Newseum part of \$250 million D.C. development

Yet another museum is planned for Washington, D.C. The Freedom Forum, a nonpartisan private foundation, announced July 11 that it plans a new home for

its museum of news, Newseum, to be located on Pennsylvania Avenue across from the National Gallery of Art and the Canadian Embassy. The \$250 million development would include the museum, as well as retail, residential, and a conference center.

The Freedom Forum has offered the District of Columbia \$100 million for the site—the largest offer ever made for a site in the district. The city's department of employment services, currently on the site, plans to relocate. The \$100 million offer includes a \$25 million grant for low- and middle-income housing which, if the deal is completed this year, the city may locate at its discretion. An architect has not been named, and a development time frame has not been announced.

The original Newseum has attracted more than 1.5 million visitors since it opened in 1997 in Arlington, Va.



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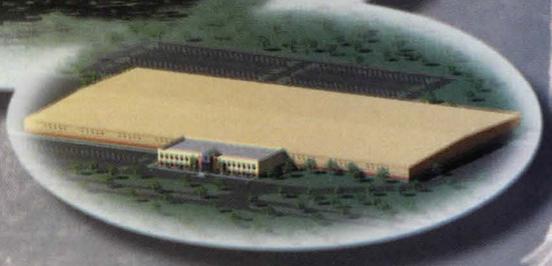
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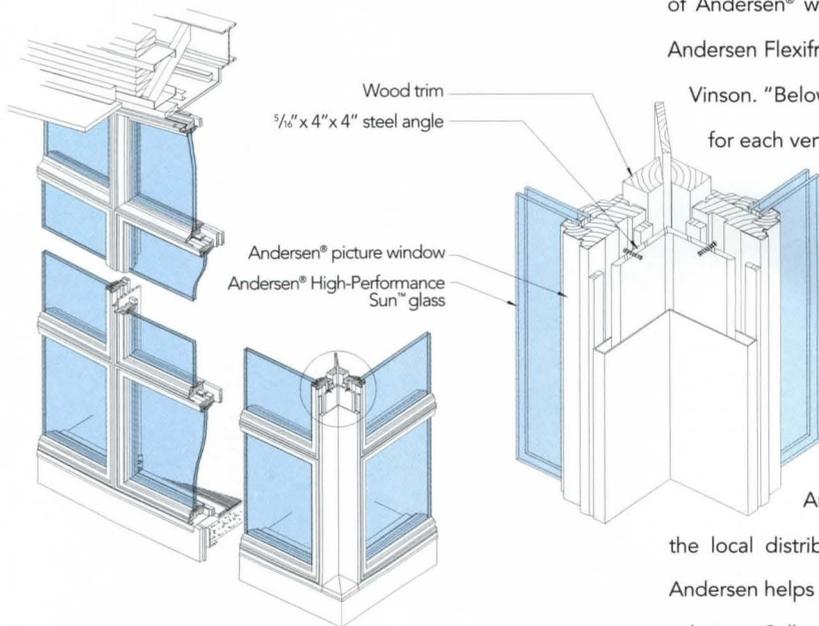
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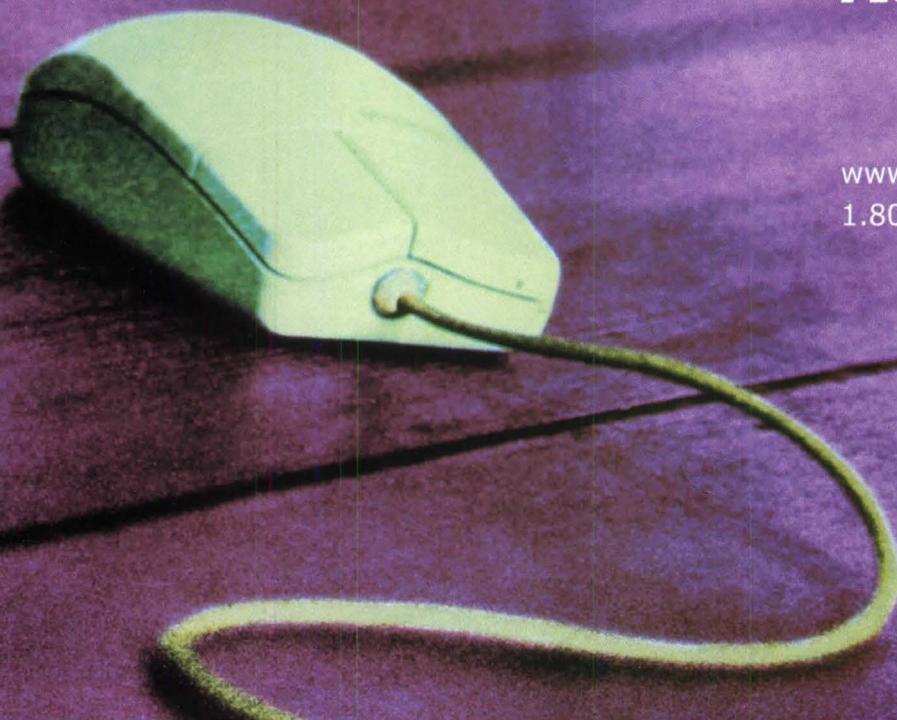


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After the war: The ancient city of Dubrovnik comes back

Correspondent's File

By Bette Hammel

Jutting out from the Dinaric Mountains into the clear blue Adriatic, the ancient walled city of Dubrovnik, Croatia, renowned for centuries for the beauty of its medieval architecture, is close to complete recovery from the ravages of civil war a decade ago. "Nearly 75 percent of the restoration process is over," says Vjekoslav Vierda, director of the Institute for the Restoration of Dubrovnik. The painstaking rehabilitation process has clearly succeeded in reviving the city's architectural reputation as a world heritage site.

Devastation

Entering the Old City for the first time, the average tourist would barely notice where damage occurred during the bombardment of the city by Serbian and Montenegrin forces of the Yugoslav National Army in the autumn of 1991. Croatia had just declared its independence from Yugoslavia that summer. When heavy mortar and artillery fire first struck that October, local residents were taken by complete surprise. The subsequent eight-month assault devastated the Old City. Nine 17th-century palaces were gutted, 60 percent of the tiled roofs were destroyed, the city was left in flames. In total, 2,000 shells struck, hitting 68 percent of the Old City's 824 buildings. "The city looked like Casablanca after World War II," says Vierda. The thick limestone walls (80 feet high and 20 feet wide in some places), which completely encircle the city like

protective arms, staved off 314 direct hits with only minor damage.

Architect Matko Vatma, president of the Architectural Association of Croatia in Dubrovnik and head of the firm Gradevinar-Quelin, says, "Even during the war, we didn't believe we would be destroyed, but it was done." Previously, Vatma had been an architectural conservator for a governmental agency.

UNESCO sent representatives from its Paris-based cultural arm to help save the city, but to no avail. Other European countries, outraged by the attacks, then offered technical support in a massive restoration effort. "With them, we found a methodology," said Vatma. From the French, for example, they learned a new technique of cleaning stone by laser.

Crossing the drawbridge that leads through the Pile Gates into old Dubrovnik is like entering ancient history, in the times of the Roman emperors, seafaring Venetians, and Marco Polo (born on the nearby island of Korcula). Passing under the massive walls, visitors step down into a city built entirely of pale, cream-colored stone with a glorious patina. This famous limestone has graced the White House in Washington, D.C., and comes from the islands of Korcula and Brac, where it is still quarried. Even the streets and plazas are paved with blocks of the stone. Guides still point out the remnants of bullet holes in the pavement. Since the city evolved as a medieval aristocratic republic from the 12th to 19th centuries and suffered through dev-

astating earthquakes, it bears the mark of several architectural styles, including Italian Renaissance, Gothic, and Baroque. Vatma calls the city structure essentially 13th century medieval.

Ancient city on the sea

For more than a thousand years, the port of Dubrovnik provided the last protected haven along the Adriatic's eastern coast, for ships at sea and travelers to Greece, Turkey, and the Holy Land. South of Dubrovnik, the islands disappear (there are 1,200 along the Dalmatian coast), and sailors then face the open sea. Over the centuries, many different maritime and sovereign powers left their architectural influences on the city—the Byzantines, Saracens, Venetians, Hungarians, as well as the Roman, Ottoman, Hapsburg, and Napoleonic

Empires. Yet for 800 years, Dubrovnik managed to stay out of wars, even when it was taken over by the Venetians in 1205.

In 1667 a catastrophic earthquake severely damaged most of the medieval buildings. The city rebuilt itself, this time incorporating Gothic and Baroque styles of architecture. It was not until 1979 that another major earthquake hit. Again the same regulations governing restoration were immediately launched. As always, the main goal was to remain faithful to each building's original character. Successful restoration policies led UNESCO to list Dubrovnik in its world heritage sites of 1979, ranking the city as one of Europe's top three cultural monuments.

Time for help and healing

No bombs or gunfire had hit Dubrovnik until the fatal fall of

A brickyard near Zagreb produced the tile closest to the city's original colors.



Bette Hammel is a freelance journalist specializing in architecture.

Correspondent's File

1991, when Serb and Montenegrin forces attacked the city. To handle the restoration process, the Institute for the Restoration of Dubrovnik (already established by law) began working with an Expert Advisory Commission comprised of restoration experts from Croatia, other international preservationists (two nominated by UNESCO), and architects such as a professor from Rome University and the chief inspector of Notre Dame in Paris.

It was a painstaking effort from the start. Fortunately for the restorers, Dubrovnik already had an abundance of archival material preserved. Following the 1979 earthquake, surveys were taken collecting technical documentation of structural conditions, roof beams, interior damages, and so on. Conservation guidelines were also issued, spelling out requirements for work on historic buildings. The guidelines proved immensely valuable to

were the old pre-industrial type of tiles in a wide range of colors, from light ochre to rosy red tones.

Local contractor Marko Kovacevic, president of GP Dubrovnik, whose firm was involved in the reconstruction after the 1979 earthquake, is the major contractor for the current restoration work. He explained that it is very hard to get the original handmade tiles. Called *kupa*, the tiles came from the village of Kupari, near Dubrovnik, and were made by kneading the clay like dough for about five days until it turned the color honey. Then the tiles were shaped to the curve on a man's thigh before being baked slowly. Although the contractor and others had to turn to mass production, abandoning the traditional method

CROATIANS, HARD HIT BY A DEPRESSED ECONOMY, HOPE TOURISM WILL INCREASE.

the Advisory Commission as they developed a master plan for Dubrovnik's restoration. How to begin the overwhelming task? A priority list was set up by the Institute for the Restoration of Dubrovnik, based on UNESCO'S list: the city walls, oldest harbor, 684 buildings including the 11th-century fort, the 1386 Franciscan monastery, the granary, and third oldest synagogue in Europe.

The local committee, however, saw its first priority following the devastation as the reconstruction of the tile roofs. "These were people's houses. Our point of view was to rebuild them so people could return from the hotels where they had been living. We had to prevent any further damage from rain and weather as fast as possible," said Vierda. Matching the color of Dubrovnik's original tile, however, turned out to be a problem. These

was a matter of some dispute. Eventually, they found a brickyard near Zagreb, in northern Croatia, that makes tile closest to the Dubrovnik color. Today, as tourists walk atop the the old walls, marveling at the sights of the Adriatic and the splendid city, the tile roofs appear like something out of an Old Master painting—some honey-colored and brownish, some burnished to a deeper red, a few still unrepaired. Admittedly, the new redder titles stand out because of their uniformity.

One of the largest problems for the contractors, according to Vierda, was transporting restoration materials within the Old City, where cars are prohibited and there is simply no room for big trucks. The G.P. Dubrovnik firm used ships for that purpose. "We have expertise at rebuilding from the sea," said



The restoration's plan mandated the use of traditional techniques and materials wherever feasible. Some materials, such as the local white stone used (above right), were more costly than labor.



Kovacevic, showing a photo of a huge platform mounted on the deck of a seagoing vessel. Labor costs were not the problem here; materials and transportation were. Only natural materials were used in the restoration—stone, wood, and tile, no stucco. The area's beautiful white stone is the most expensive to build with, says the contractor.

Repairing major stone buildings that were famous for their sculptural facades required specially trained stoneworkers from the international community.

Stoneworkers helped repair the Sponza and Rector's Palace, St. Blaise's Church and the cathedral. Although tourists still will find scaffolding around the city and certain facades in need of cleaning, they can stroll down smooth pavement on the Placa (Dubrovnik's pedestrian promenade), relax in the cafes drinking delicious Croatian wines and hardly notice the many rehabilitated buildings.

Financing the restoration has been a problem all along. Initially, UNESCO gave nearly half a million dollars but now gives technical support only, according to Vierda. Nearly 80 percent of the budget comes from the government of Croatia. Financial support from the World Monetary Fund ended last year. Now there are mostly contributions from

individuals and organizations, says Vierda. He expects that in future years there will be more local sources of funding and that eventually Dubrovnik will return to a form of visitors' taxation. Vierda predicts that reconstruction will be finished in the next two years.

Meanwhile, Croatians, hard hit by a depressed economy, hope that tourism will make a comeback. At G.B. Dubrovnik the company is down to 300 employees, compared to 1,500 in previous times; this despite the fact that they have much work to do on the infrastructure, the new marinas, the hotels, and the ongoing repair of the tile roofs. The infusion of much-needed tourists' currency will help greatly. And there are positive signs. Architect Matko says, "This is the first year that Dubrovnik is alive again. It's safe, no problem."

Slowly, tourists are drifting back. In small numbers so far, they are touring restored palaces and churches, learning how residents convert their tall, narrow stone houses into contemporary living spaces, and marveling at vistas from the city's ancient walls. Thanks to the restorers, Dubrovnik can once again claim Lord Byron's poetic description as the "Pearl of the Adriatic." ■



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CIRCLE 29 ON INQUIRY CARD

Firms go fishing in unproven waters to find new work

Practice Matters

By Elizabeth Harrison Kubany

At first glance, Colorado's Ocean Journey (COJ) does not seem so special. Located in Denver, it is one of many new aquariums built in this country during the past few years. What is interesting about COJ is that it was built at all. According to Rich von Lührte, FAIA, principal of Denver-based RNL Design, "In late 1992, when the client went out with the RFP for Colorado's Ocean Journey, there was no community support for this project. Nobody believed it was real."

But the clients presented themselves as an organization with considerable clout, making major presentations to the media and politicians to demonstrate their commitment to the project. The principals of RNL Design were intrigued. They teamed with another local firm, Anderson Mason Dale, to form an entity called Odyssea. Despite the fact that several large national firms had expressed interest, they won the project in February 1993, because, says von Lührte, of the client's desire to work with a local team.

Be careful what you wish for
As von Lührte explains, "We didn't know what we had won until we won it. We realized shortly afterward that the client had no money, no staff, no organizational structure, and no real plan for getting this done." This laundry list of problems did not deter von Lührte and his partners. "We are a successful firm but we are not nationally known. Our attitude is that when somebody brings us an opportunity,

we have to grab it because another one like it might not come along again. We felt that we should try to help them light a fire and demonstrate the project's viability."

So Odyssea decided to proceed with the project. Between February 1993, when Odyssea was officially selected for the project, and February 1997, when a \$30 million municipal bond sale was approved, Odyssea worked for a fraction of a fee. Von Lührte says, "We structured the fee so we could help them develop the project quickly and for a minimal amount of money."

To start the process, Odyssea held workshops. Exhibit designers, curators, and aquarium owners were brought in to help the design team determine the project's shape. These workshops would typically last a week and would generate "a ton of material." The consultants were not hired in the traditional manner, but were paid for their time and expertise. By using this brainstorming approach, Odyssea was able to work through the schematic design phase very quickly for a reduced fee. Says von Lührte, "This was a very lean strategic group. On an ordinary project, this process would take close to a year and cost hundreds of thousands of dollars. We did it in less than six months for a fraction of that."

Odyssea and the client also decided to treat COJ as a design-build project (which had rarely been done before on an aquarium because of the sophistication of the

systems necessary to this building type) and brought the contractor—Hensel Phelps Construction—on immediately, which was crucial to the realization of COJ. Among the advantages of using design-build was the ability to arrive at a guar-



A joint-venture of two firms accepted business risks to get Colorado's Ocean Journey project built.

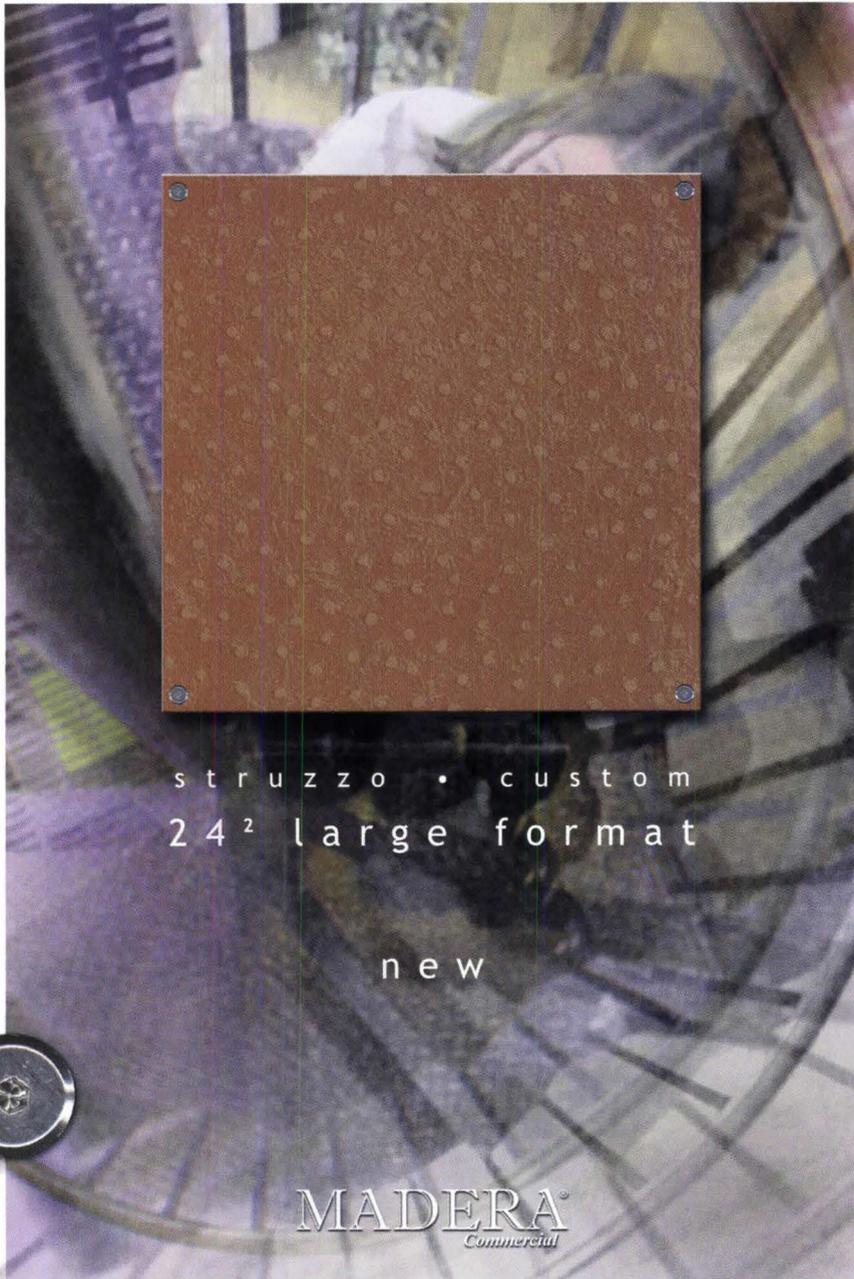
anteed maximum price very early in the process so that the structured bond sale could be held.

Moreover, Hensel Phelps was willing to front some of the initial costs while corporate sponsors and other donors were being sought, paying for the site acquisition and architectural team's fee—albeit a nominal one—for its schematic design concept.

Still, Odyssea allowed deferred payments at several points in the design development and schematic design phases to allow contributions to catch up with expenditures. Once the bond sale was approved in February 1997, everyone was paid promptly and in full, in accordance with an AIA contract, and this practice continued throughout the remainder of the project.

Odyssea invested four years of nurturing into COJ without knowing if the project would happen or if they would be the architect. But the most immediate risk was that there would be no project at all. Moreover, because the architectural team did not have a contract until the bond sale was approved, it was always possible that Odyssea would have gone through programming and design, yet not be chosen for the final contract. "In my opinion," says von Lührte, "there was never any question that we would be the architect. We had an agreement. Of course, agreements can be broken. But we gained the respect of the client with our hands-on support." The risk was also a calculated one. Von Lührte contends that "from the beginning, this project had the potential to be very high profile, and of national significance. We felt it was worthy of our time and money. We have grown because we have taken that attitude with other projects as well, including the Living Planet Aquarium in Salt Lake City, which had similar financial problems.

Clearly, this kind of high-risk exercise is not for everyone. Still, Von Lührte feels there is a lesson for the profession. "Architects can take a leadership role in projects. The architect can be the one to make a \$90 million project real." Odyssea has just been asked by COJ to do concept work for phase two of the project, because the aquarium significantly exceeded its expected attendance in its first year. ■



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CIRCLE 30 ON INQUIRY CARD

Sprawl has turned the world inside out. Landscape architects may be the ones to civilize it

Critique

By Suzannah Lessard

The most confounding aspect of sprawl is not that it turns the American Dream into a nightmare, or that it generates traffic congestion that only increases as more roads are built, but rather that sprawl dissolves the distinction between city and country. That archetypal difference, laid down over the centuries, so profoundly configures our view of the world and our sense of the meaning of landscape that its dissolution leaves us at a loss. We don't know how to make sense out of this new landscape without boundaries.

A mere 50 years of experience with sprawl hasn't loosened the hold over our imaginations of that older inherited template of town surrounded by country. Indeed, as we try to make sense of sprawl—as we try to civilize it—the best that we are able to do is to try to corral it in a way that mimics the old template. We create old-fashioned towns out of whole cloth, towns that suggest that they are surrounded by country even if they are really surrounded by sprawl, and are, in fact, a part of sprawl. Or we set up boundaries around cities beyond which we make development difficult in order to protect the farmland, thus keeping the idea of a city surrounded by country intact. Laudable as these efforts are, they fly in the face of reality.

Suzannah Lessard, author of The Architect of Desire: Beauty and Danger in the Stanford White Family, is working on a book about sprawl. She lives in Washington, D.C.

Even more devastating to the distinction between town and country is that sprawl, in its latest permutation, is no longer necessarily contingent on cities at all. Edge cities can spring up in the middle of nowhere, as the countryside used to be called. Suburbia need no longer be subordinate to urban centers as its name implies but is becoming self-sustaining. It is technology, of course, that permits this: because of electronic communications and the Internet, businesses have been freed of the need to be near one another, and residential development follows. One of the most bewildering shifts brought about by the technological revolution is the dissolution of geography as the foundation of community.

The physical result of this shift is splotchy archipelagoes of sprawl that break out without relation to cities and then reach toward one other, eventually making islands of the countryside rather than the other way around. Not only does it blur the distinction between city and country, but it eventually inverts the older landscape. Our culture—our literature, our art, perhaps even our music—teaches us to see the composition of the landscape as one in which the works of man are cradled in a vast natural world. Behind this is a picture of the medieval hill town—Assisi set like a jewel in the pastoral landscape of Umbria that extends like an ocean to the horizon. The radical nature of sprawl is that, fully unfolded, it gives us bits of Umbria surrounded by Assisi.

Our concept of wilderness,

too, is turned inside out. Wilderness has always been what lies beyond the pastoral landscape, desolate through most of our cultural history, romantic in the last couple of centuries, but always beyond. In the radical recomposition of landscape in the age of sprawl, though, whatever wilderness might

widest extremity of the natural world, that is the frontier where the civilizing has to begin.

How is this to take place? For most of the 50 years in which sprawl has turned our landscape inside out, we have been passive, as if numbed by a strange kind of helplessness that has amounted to a



Who's cradling whom? A view of New York City's Central Park.

exist is really a kind of sanctuary and in that sense the least wild thing. It's the built world, proliferating madly, that is the wild thing in this picture. The heart of the jungle, in a certain way, is to be found in the depths of the mall or the subdivision cul-de-sac, which is to say, in ourselves. To the degree that we don't understand or govern sprawl, we do not know or govern ourselves. In a world in which we are the irresponsible stewards of nature it is our own nature, rather than the

massive abdication. The reversing of this situation—the civilizing of sprawl—will involve all of the arts, as this endeavor goes beyond issues of architecture and planning. A critical part of that effort will be learning to see the landscape of sprawl in a way that is free of old preconceptions. But where the actual implementation is concerned, it will not necessarily be architecture, or even planning, that will lead the way. Indeed, the record to date suggests that it will not be. Perhaps

Critique

better equipped to come to grips with these compositional issues is the field of landscape architecture.

That profession is well positioned to address the radical reconfiguration of landscape by sprawl. To borrow a term from the field of painting, it's as if what was once "negative space"—the natural world—became the subject, while that which was the subject—the built world—became the "negative space." In other words, under these new conditions, the natural world in a certain way has become more meaningful than the built world. Environmentalists see the world in this way, but in doing so they tend to blank out the value of the built world altogether. It's landscape architects who look at both the built world and the natural world, and explore the interaction between the two. For this deeply relational profession, no

shift in focus would be necessary in taking on the major issues presented by sprawl.

Further, almost everyone who grapples with the problem of sprawl agrees that we must think regionally. The reasons have to do with political boundaries, economic health, and social configurations, as well as environmental concerns and the need to preserve open space. But for the landscape architect, regional thinking has always been fundamental. This goes back to the founder of the profession, Frederick Law Olmsted, the first regionalist, whose largest vision consisted of interconnected open spaces.

Another asset of landscape architects is their extensive experience dealing with sprawl. While the architectural establishment has ignored suburbia in the last half century, landscape architects have been busily doing work there, for both business and residential clients. It is the design profession that has been immersed in the new landscape since it first started appearing.

Landscape architects are environmentalists who relate to the built world and designers whose primary object is the natural world. They have both the practical experience and the spiritual sensitivity to look over a region and select the natural configuration of open space around which the built world could arrange itself.

Might it not make the most sense to start rethinking sprawl in this way—to take the most logical and natural configuration of open space while allowing the built world to fall into place around it, in whatever way the free market determined, from McMansions to new urbanist towns? For where the built world is concerned we need a maximum of experiment and invention until pleasing, meaningful architectural and planning forms are discovered. Might that not be most likely to happen if we allow open space, which has become precious and sanctuary-like in this new world, to anchor our new landscape in the way our towns once did. Or, put

another way, to allow open space to be the center in the way the village green once was, with the town falling into felicitous patterns around it: in a certain way this is a similar proposal though on a much larger scale.

We tend to think of sprawl as a kind of mistake, as a landscape that is too banal to have a deep meaning. But in fact our landscapes are profound reflections of the periods in which they appear. It is no accident that, during the century in which we became capable of destroying our world, a landscape appeared in which the works of man have come to frame the natural world rather than the other way around. We have no choice but to accept both developments. Figuring out how to make sense of the inside-out landscape is not just a matter of planning, or making our world prettier. It is to engage with the evolutionary truths of our time. It is to create a landscape that reflects the facts of our existence. It is to bring a civilizing consciousness onto our wildest frontier. ■



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CIRCLE 31 ON INQUIRY



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Never swim alone: MoMA and P.S. 1 throw an urban beach party with designer dunes

Exhibitions

By Clifford A. Pearson

The architects at SHoP/Sharples Holden Pasquarelli aren't afraid of rolling up their khakis and getting their feet wet, and a lot of New Yorkers are happily splashing in their wake. What's bringing them together is the firm's temporary "dunescape," commissioned by P.S. 1

Contemporary Art Center and the Museum of Modern Art, and installed in the courtyard of P.S. 1 in Queens. The project is the first in a series of five summer installations to be designed by young architects this year and over the next four years.

"It's an urban beach," explains Gregg Pasquarelli, one of SHoP's five partners. "We identified five programmatic events—cabana, beach chair, umbrella, boogie board, and surf—and injected them into the design, causing it to bend and grow to accommodate various spatial configurations."

Made from 6,000 2-by-2 cedar boards ranging in length from 8 to 12 feet and bolted together, the dunescape rolls, twists, and slides to create places to sit, wade, lounge, tan, climb, and change from trousers into trunks. Water runs down the side into an 18-inch-deep pool that snakes along one edge, while a second pool anchors another part of the composition. Surfaces tilt and roll, shifting from roof to wall to bench to boardwalk. Umbrellas dot the artificial landscape, and 14-foot-tall steel poles spray cooling mist into the air.

"We wanted to show how a single surface can mutate into each of the functions," says Pasquarelli. While the boogie board is incorpo-

rated metaphorically in the kinetic assemblage of cedar planks, the umbrella, cabana, beach chair, and surf are more literally found in the overhangs, tunnel-like interior, undulating surfaces, and pools. "The idea was to blend surface and structure, to dissolve boundaries and create a thickened space that expresses architectural technique rather than form."

The project also "blurs the distinction between architecture and landscape," says Terence Riley, MoMA's curator of architecture and design, who was on the jury that selected SHoP from a list of 20 young firms recommended by editors of architecture magazines and deans of architecture schools. What most impressed Riley and many of the other jurors, he recalls, was the SHoP architects' "direct sense of taking an idea into built form. There was an ease of transition from idea to construction."

The way SHoP made that transition, however, was unconventional. Instead of working from plans, elevations, and sections, the firm developed 3-D computer drawings, which they nicknamed "CAT scans," and used them as construction documents. The unusual process included printing out color-coded drawings to a large size (28 by 15 feet), laying them out on the site,

and using them as templates for the actual structure. A team of eight architects and architecture students cut the cedar boards and bolted them together in a few weeks, working within a total budget of \$50,000.

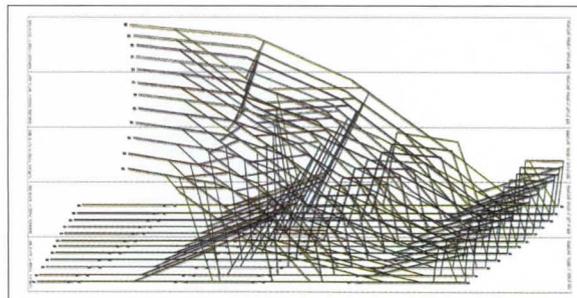
"We're interested in the translation from the digital to the actual," states Pasquarelli. "We want to build

the same way we draw."

For all the highbrow talk, the project itself is remarkably tactile and direct. The mist in the air and wooden slats underfoot immediately kick up memories of warm summer days on the beach. Add to that the distinctive smell of cedar and you get a quick trip to the Jersey shore



More than 6,000 cedar planks were used to build the dunescape in the courtyard of P.S. 1 (above). "CAT scan" drawings (right) were printed at jumbo size, laid out on the site, and used as templates for the actual structure.



Exhibitions

A snaking bench and changing rooms are included inside the structure (right). The undulating surfaces of the dunescape accommodate a variety of human interactions, from lounging in chairs to sitting, walking, and sunbathing directly on the wood (below left and right).



Credits: Christopher Sharples, William Sharples, Coren Sharples, Kimberly Holden, Gregg Pasquarelli, principals; Jonathan Mallie, Richard Garber, Kensuke Watanabe, project team; Jonathan Mallie, Jonathan Baker, Roberto Biaggi, Aaron Campbell, Keith Kaseman, Kris Lawson, Michael Nusso, Jamie Pallazolo, fabrication team

without leaving New York City. "It's a pretty rigorous theoretical project, but it's totally accessible to everyone," says Pasquarelli. "Everyone from 4-year-olds to 80-year-olds gets it." Indeed, a visit to the site shows kids splashing in the water, Manhattan fashionistas checking out the changing rooms tucked underneath the highest portion of the wiggling structure, and bebies of healthy bodies in various stages of undress.

"From the very beginning we worked on the idea of the body in contact with the architecture," says Pasquarelli. "This is a project that looks best when it's occupied. The more skin the better."

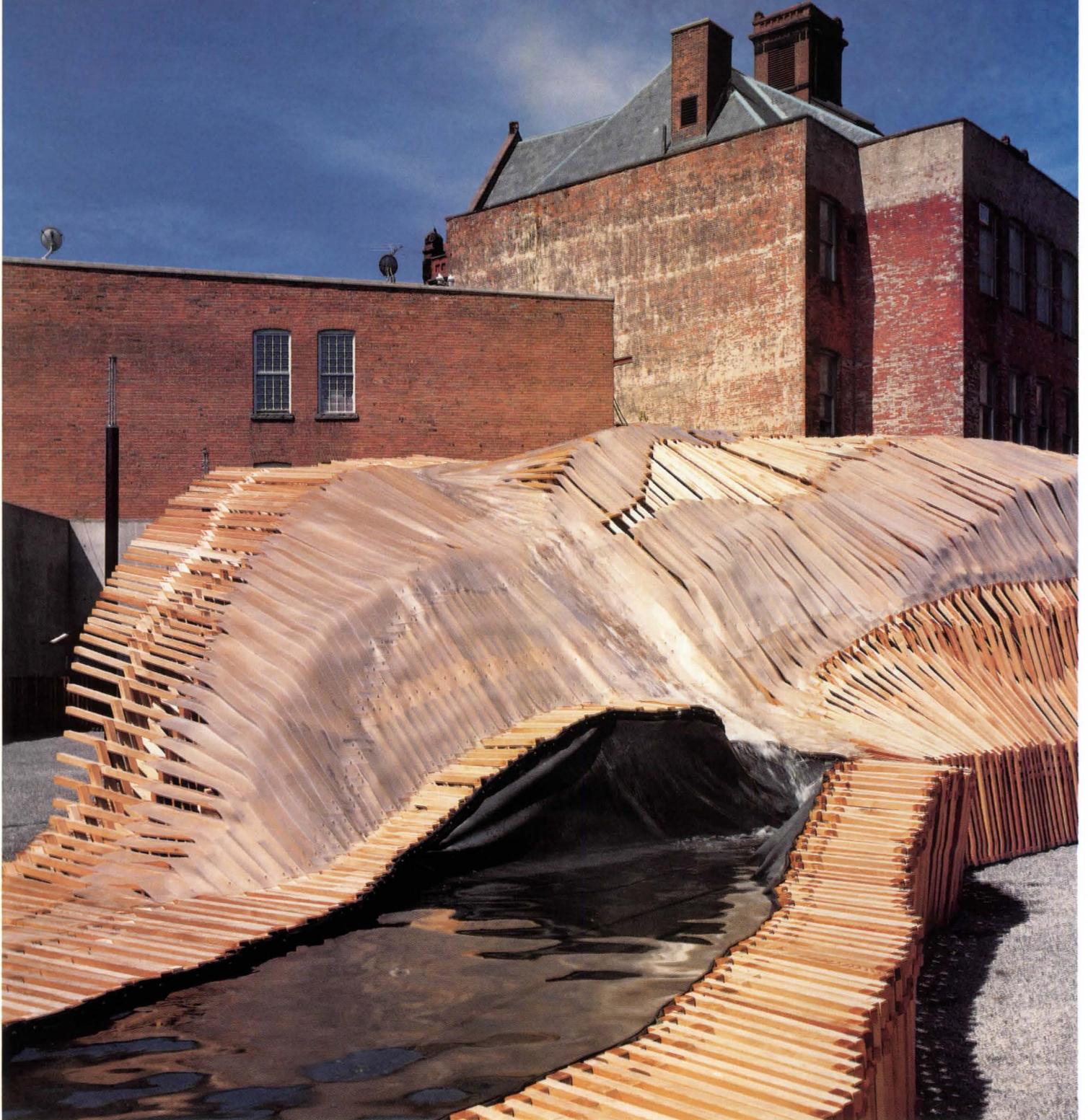
Skin happens to be a recurring theme in the work of SHoP. The firm is best known for its design for the forthcoming Museum of Sex in Manhattan. Wrapped in sensual layers of transparent, translucent, and opaque glass, the building will explore notions of voyeurism and exhibitionism in architecture. The firm is also working on a 200,000-square-foot shopping mall in Queens and two mid-rise apartment buildings.

Comprised of two married couples (William and Coren Sharples and Kimberly Holden and Pasquarelli), plus William Sharples' twin, Christopher, the firm is a family affair. Pasquarelli and Holden had worked for Greg Lynn before joining the Sharpleses, who started their firm in 1994.

A quick and cheap job, the dunescape has been a

hit with the public and the press. "We see small projects like this as research," says Pasquarelli. "It's part of our effort to invent new ways of drawing and building." Though small, the project required the architects to buy up all the cedar board to be found in the area. "I'm sure there are a lot of unbuilt decks in the Hamptons this year due to us." ■

The blob that ate Queens:
the 12,000-square-foot
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Snapshot



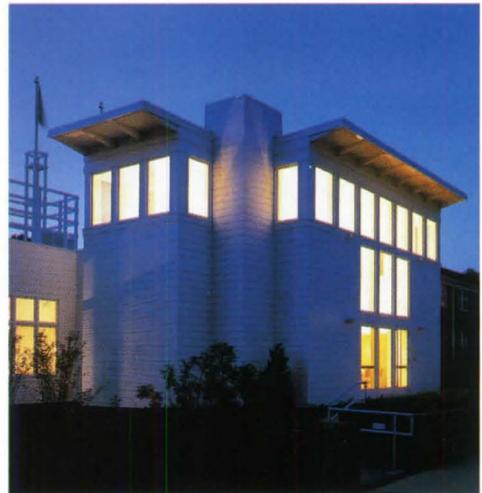
By Elizabeth Harrison Kubany

How do you create a small, single-story infill building in a banal setting and imbue it with a sense of importance? When faced with this problem, New York City-based architect James Gauer looked to the man who once called himself “the greatest architect in the world.” According to Gauer, Frank Lloyd Wright is a good precedent when designing a small building that needs a sense of monumentality.

Gauer knew that the Lakeside Community Center in Woodbury, N.J., had to be, like Wright's Unity Temple in Oak Park, Ill., simultaneously organic, so as not to overpower the suburban development in which it is located, and strong, so it would be noticed among hundreds of two-story garden apartments. The program for the Lakeside Community Center called for a simple, single-story building including a rental office, laundry, kitchen, toilets, lounge, and community room. Gauer's challenge was to make a little building feel larger and more civic. “I had to do something interesting and eye-catching so the project would read as a public building,” he says. “Otherwise, it would

A community center that's majestically domestic

Snapshot



Investing a small single-story structure (above) with enough monumentality to read as a public building was a challenge. With 20-foot ceilings and oversize clerestory windows, the community room (left) accomplishes this in a scheme that evokes Wright's Unity Temple.

disappear into the endless sea of apartment houses.”

Gauer used several tricks to make the building stand out. First, he massed the building as four distinct pieces: a low rectangular bar linking the adjacent buildings and containing most of the program; two towers that conceal mechanical equipment, create height, and mark the main entry; and the community room, rendered as a freestanding object, with articulated corners and projecting bays. The heights of these buildings vary from 8 to 20 feet to express the hierarchy of the spaces. He made the community room—the most important element in the program—double height so it would stand above the neighboring buildings. All of these pieces are clad with white shiplap siding that contrasts sharply with the red brick of the adjacent buildings.

Still, Gauer was careful to connect the new community center to its context. He situated all the pieces of his building on a plinth—red brick outside and red-tinted concrete inside—that acts as a visual link to the adjacent brick buildings. Moreover, while the white siding distinguishes the community center, it still relates to the existing gable ends of the brick housing. Despite the need to distinguish the community center from its surroundings, Gauer says, “I do believe in contextualism.” The result is a building that defies its surroundings without denying them. It is a simple building that stands proud with its subtle monumentality. ■

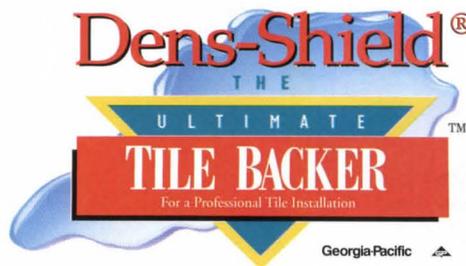
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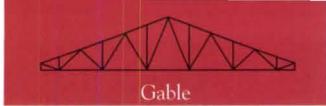
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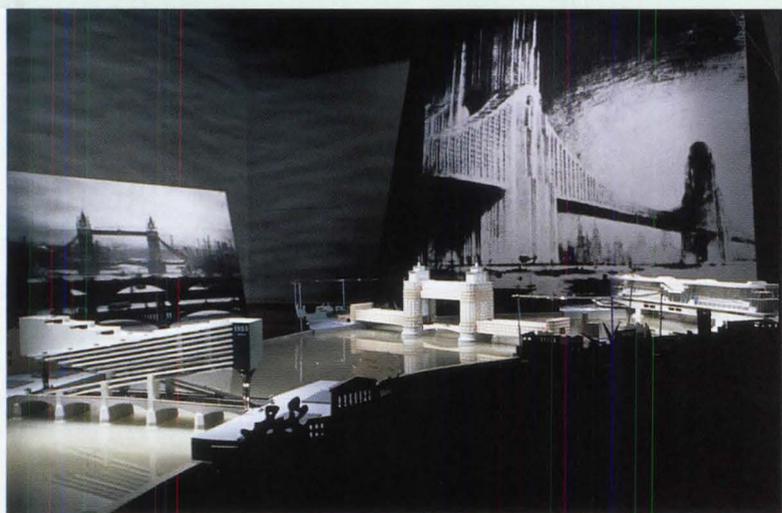
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CIRCLE 36 ON INQUIRY CARD

Drawing a crowd to architectural exhibitions

The numbers say it all. And they are remarkable. What is luring the public? Installation design provides one important clue.



1

1. *Living Bridges*, The Royal Academy of Arts, London, 1996
2. *The Triumph of the Baroque: Architecture in Europe 1600–1750*, National Gallery of Art, Washington, D.C., 2000
- 3, 4. Exhibit of Renzo Piano's work, Centre Georges-Pompidou, Paris, 1999.



2



3

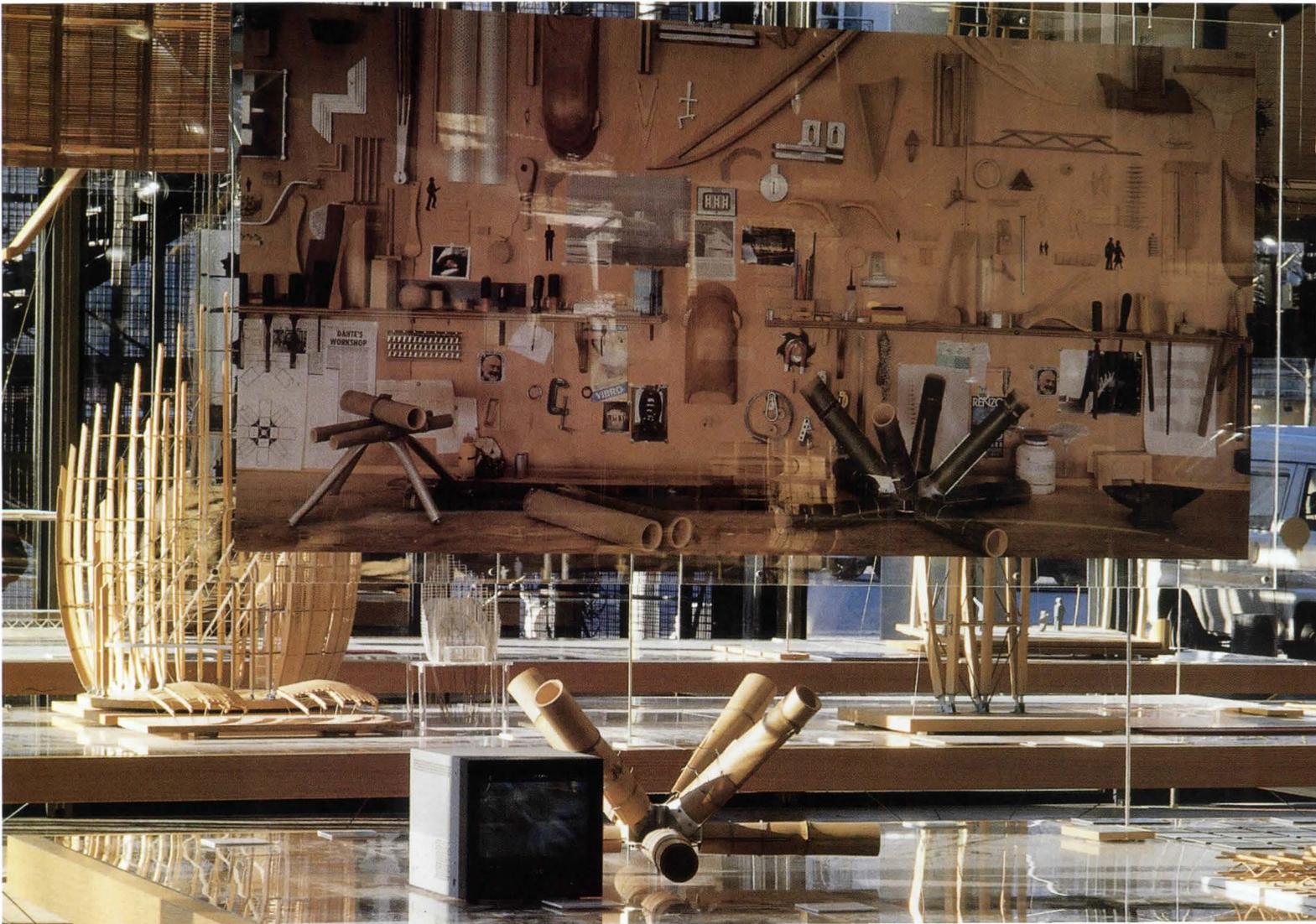
Museum directors sense it. Curators have noticed it. For the last five years or so the general museum-going public has been increasingly drawn to architectural exhibitions. Attendance at the National Building Museum in Washington this year is likely to total around half a million people—an increase of about 40 percent over 1999. Susan Henshaw Jones, president of the National Building Museum, reports that three shows currently on view—*The White House in Miniature*; *Frank Lloyd Wright: Windows of the Darwin D. Martin House*; and *See the U.S.A.: Automobile Travel and the American Landscape*—are the most heavily attended exhibitions in the museum's 15-year history. To accommodate the increased number of visitors (70 percent of whom have no direct connection to the architectural or design and building professions), the museum doubled its exhibition space over the last three years. Attendance is up all over.

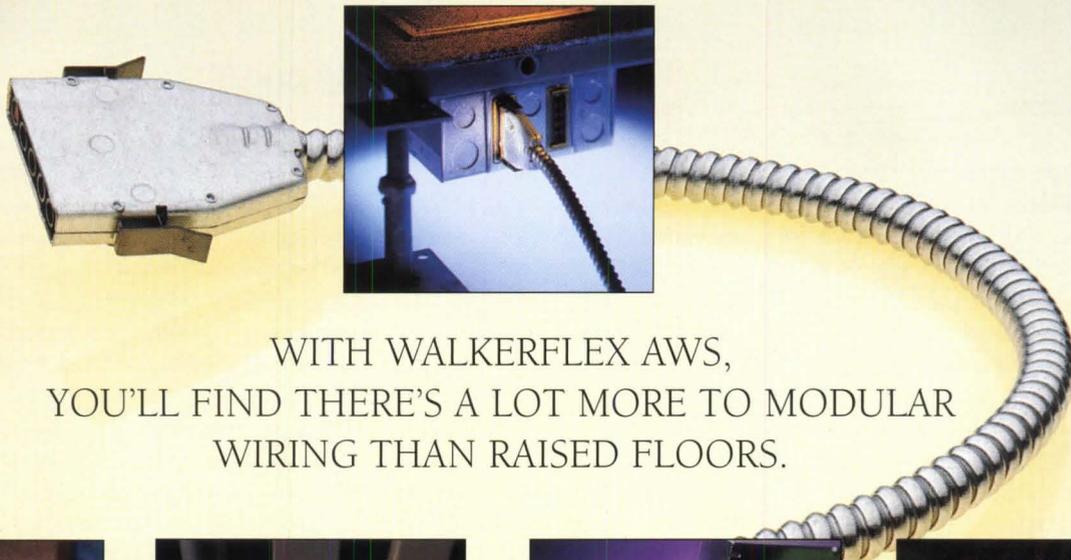
• In New York, 445,000 people visited the Museum of Modern Art's retrospective on the work of Alvar Aalto (1998) during its 14-week run. MoMA's *The Un-private House* (1999), featuring the work of contem-

porary architects, many of them young and not widely known to the public, attracted 219,000 people in the same amount of time; the exhibition also garnered significant media attention and, more important, created a palpable "buzz" around town.

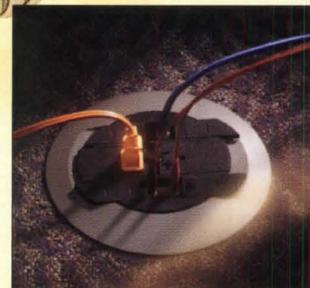
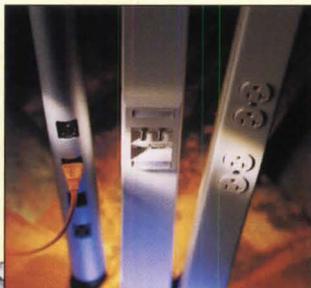
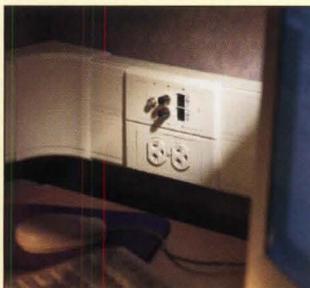
• In Chicago, *At the End of the Century: One Hundred Years of Architecture* was the most heavily attended show held at the Museum of Contemporary Art's new building (designed by Josef Paul Kleihues and opened in 1996), attracting 71,300 people over a 10-week run from December 1999 to February of this year. Having previously traveled to Germany, Mexico, and Japan, the exhibition now promises to be a record setter at MoCA in L.A., where it will soon complete a 24-week stint.

• At the Royal Academy of Arts in London, a 12-week-long exhibition, *Living Bridges: The Inhabited Bridge, Past, Present and Future* (1996–97), was attended by over 113,400 people (with a daily attendance of around 1,350), becoming the most heavily visited architectural exhibition ever held in the United Kingdom. And in recent years the permanent architectural collection at the Centre Georges-Pompidou in Paris has

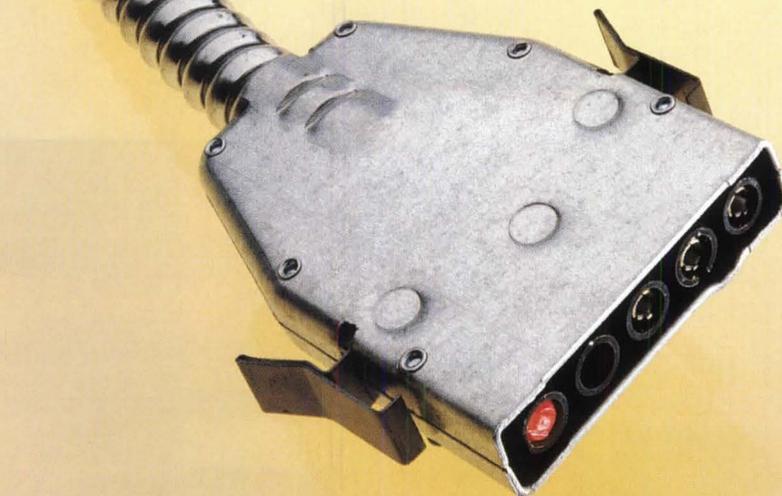




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frequently drawn more visitors than the museum's permanent art collection. Additionally, new museums and galleries exclusively dedicated to exhibiting architecture have been established in France, Germany, Switzerland, Denmark, and the Netherlands.

What accounts for this recent popularity of architectural exhibitions? Massive media attention has granted "star" status to certain architects. But while museum directors and curators often disagree on what is stimulating current interest, they do agree on at least one point: mounting a successful architectural show is tough. The essential nature of architecture cannot be conveyed in an exhibition format, and absent the "real thing," the situation is worsened by the general public's shaky understanding of the architectural design process.

Given these drawbacks, it is noteworthy that a number of well-attended recent shows share certain features. One is the use of reproductions of walls, rooms, or complete buildings, at actual or reduced scales. MaryAnne Stevens, collections secretary and senior curator at the Royal Academy of Arts in London, notes that the R.A.'s room reconstructions for exhibitions on Tadao Ando (1998) and Sir John Soane (1999) proved to be particularly successful in drawing the public.

Scale models also tend to be crowd-pleasers. A current exhibition, *The Triumph of the Baroque: Architecture in Europe 1600-1750*, at the National Gallery of Art in Washington, D.C., featuring 27 architectural models, is a case in point. In the first six weeks, around 185,000 people visited the exhibition, located in a corridor gallery. Surprisingly, the show's average daily attendance of 4,307 was far in excess of 3,367 for *The Impressionists at Argenteuil*, also at the National Gallery.

Film, video, and computer-generated images can go a long

way toward sparking interest and are thus becoming an increasingly significant part of architectural installations. Max Protetch, a New York art dealer who has mounted numerous shows on architecture, argues that MoMA's *The Un-private House* installation "might have been better than the work displayed. The presentation was just so sophisticated that the whole exhibition was a pleasure to experience. You could sense immediately how much the public enjoyed it." Alain Guiheux, a curator of the architectural collection of the Centre Georges-Pompidou, notes that in an upcoming exhibition, the work of Jean Nouvel will be presented exclusively through video images and slide projections, without the aid of any traditional drawings or models.

An installation should "be persuasive, startling, and seductive," according to Aaron Betsky, curator of architecture, design, and digital projects at the San Francisco Museum of Modern Art. "Most architectural exhibitions bore me," he bluntly adds. "They are so often ponderous and uninteresting." Suzanne Stephens, special correspondent to RECORD, states, "The installation must itself form a great space—an architectonic setting that's enlightening as well as enjoyable to be in."

Nicholas Olsberg, chief curator at the Canadian Centre for Architecture in Montreal, feels it is critical that exhibition-goers actively experience the space they are in, responding to an invitation to move into the center of a room, and "not merely walk along the walls, progressing through the show in a linear fashion." To create this spatial dynamic, a number of museums hire architects to design the installations, as the Royal Academy did with Piers Gough, for the Sir John Soane exhibition [November 1999, page 37]. MaryAnne Stevens points out that hiring architects to design architectural exhibitions is standard



1

1. *The Un-Private House*, MoMA, New York City, 1999
2. *At the End of the Century: One Hundred Years of Architecture*, MoCA at Geffen Contemporary, Los Angeles, 2000
3. *Carlo Scarpa Architect: Intervening with History*, Canadian Centre for Architecture, Montreal, 1999



2



3

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CIRCLE 38 ON INQUIRY CARD

practice at the R.A.—as it is with many museums.

Often curators try to make the installation evocative of the work being shown. Terence Riley, chief curator at the MoMA's Department of Architecture and Design and himself an architect, attempted such in 1994 with *O.M.A. at MoMA: Rem Koolhaas and the Place of Public Architecture*. In order to suggest the exploration of urban issues lying at the core of Koolhaas' work, Riley used illuminated panels similar to those seen in bus shelters. Additionally, Riley mounted large-scale drawings directly to the wall—like billboards—rather than framing them like traditional art objects.

One popular approach to the design of monographic exhibitions is to have the featured architect create the installation. Sometimes the results can be dazzling, as many thought was the case with Renzo Piano's recent exhibition of his own work at the Centre Georges-Pompidou. Complete with binders of conceptual drawings and notebooks, the multilayered exhibition attempted to provide the viewer with insight directly into the architect's design process. The Piano show seems to be in accordance with the concept articulated by Nicholas Olsberg that a monographic show "should not be merely to say someone was a great architect. Rather, it should be something far more fundamental. The exhibition should tell us: this is what an architect does; this is what an architect thinks about; this is the process through which an architect's thoughts are developed and ultimately get realized as buildings."

Project for a New Guggenheim Museum in New York City, a show currently on view at the Solomon R. Guggenheim Museum, was designed by museum staff and constitutes an interesting case study for today's architectural exhibitions. The exhibition, which occupies a

double-height white-walled gallery in the museum's addition (1992), designed by Gwathmey Siegel, is reached primarily by a passageway leading from the ramp of the Frank Lloyd Wright building.

In its first 12 weeks, the exhibition was visited by approximately 223,600 people. Yet few of the visitors interviewed had made the trip to the museum for the express purpose of seeing the Gehry show. Once at the museum, however, many commented that, having seen images of the museum in Bilbao, they were curious about what was planned for New York. Others noted an interest in Frank Gehry's work in general. Some stumbled upon the exhibition or glimpsed it from the ramp.

Upon entering the gallery, a visitor encounters wall text describing the project's history, and finds the exhibition is divided into six sections—"Inspiration," "Program," "Process," "Precedent," "Site Impact," and "Project"—presented on the gallery walls in a clockwise fashion. The first image the visitor confronts is a larger-than-life image of Frank Lloyd Wright illustrating "Inspiration." "Program" is then presented in a mural-like, 50-section grid, with panels containing visual images, text, and quotations from sources as disparate as Wright, Rem Koolhaas, and André Malraux. "Process" details the project's phases in photographs, text panels, and models.

"Precedent" is composed of a large blown-up photograph of the Guggenheim in Bilbao, upon which are written adulatory quotations about the building's significance. A poetically shot video of the museum, about five minutes long, runs continuously, accompanied by lyrical, modern music. Additionally, a freestanding model of the museum occupies a key portion of the gallery's open space. The section "Site Impact" compares the completed museum in Bilbao with the pro-



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Project for a New Guggenheim Museum, New York City, Guggenheim Museum, New York City, 2000. Exhibition is divided into six sections—pictured here are 1 Inspiration; 2 Site Impact; 3 Program

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posed museum in lower Manhattan, and also presents a freestanding site model for the New York project in the gallery's central space. The exhibition concludes with the "Project" section, consisting of floor plans and a model, approximately 8 by 12 feet, of the proposed museum. The impressive, "grand finale" model of the proposed Guggenheim in New York terminates the room-long axis originating at the gallery's main entrance.

Most visitors circulate through the grid freely, deviating from the suggested path. Some quickly survey the room and leave, but many stay about 15 to 20 minutes, or longer. Most of the museum-goers interviewed enjoyed the exhibition. An architect from New Jersey found the Guggenheim New York model to be "mesmerizing," stating that the scale was very important because "you can really lean in there and get a sense of what it would be like to walk around and occupy the building." Others commented that they enjoyed being in the gallery space, and several who were not in the architectural profession noted that the installation looked like what they imagined an architect's office, or a studio in an architecture school, to be.

Despite such positive reactions, some people found aspects of the exhibition confusing or insufficient. Basic points failed to come across. For example, a security guard noted that many people thought the proposal had already been realized and asked where they could go to see it. Many people said they would like to see more text, but paradoxically some of those same people commented that they had not read all of the text that had been provided. One student commented that the overall tone of the exhibition "smacks of marketing, not architectural history" and the music "wafting through the room reminds me

of being in Prada Sport." Indeed, the exhibition does seem to have an aspect of marketing, or at least constituency building; many of the comments written into the guest log stated support for the project but did not address the exhibition itself.

Opinions vary widely about the overall effect of recent architectural exhibitions on the museum-going public in general. Michael Sorkin is skeptical as to whether exhibitions are nurturing what he calls "a sensitized client culture." He contends that for many Americans, Home Depot, with its "post-Pompidou parti of an encyclopedic array of objects deployed within a undifferentiated grid," constitutes a kind of architecture museum. Bob Vila, Sorkin hypothesizes, "may well be as influential as any architectural curator."

Nicholas Olsberg also questions the impact of architectural exhibitions. "More people may be attending architectural exhibitions today," he states, "but architectural literacy among the literate class is no better than it was 15 years ago, and not nearly as high as it was 25 to 30 years ago. Noting that historically, architectural exhibitions were like trade shows that allowed architects to see and discuss each other's work, Olsberg goes as far as to ask, "Should we be exhibiting architecture to the public at all?"

A few of the effects of recent architectural exhibitions are clear and quantifiable. The traveling exhibition *The Work of Charles and Ray Eames: A Legacy of Invention* (1997–2000) generated greater name recognition for the late couple among the general public, higher prices for their work in the auction market, and greater demand for their mass-produced furniture and fabrics.

Exhibitions also can affect public (continued on page 238)



1

1. Stay Cool! Air Conditioning America, National Building Museum, Washington, D.C., 2000
2, 3. John Soane Architect, The Royal Academy of Arts, London, 1999



2



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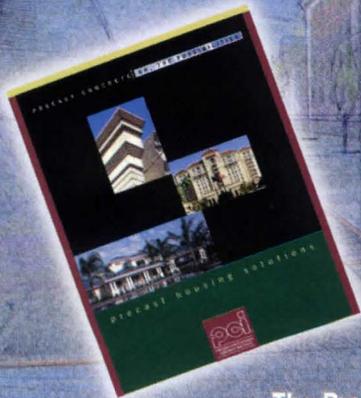
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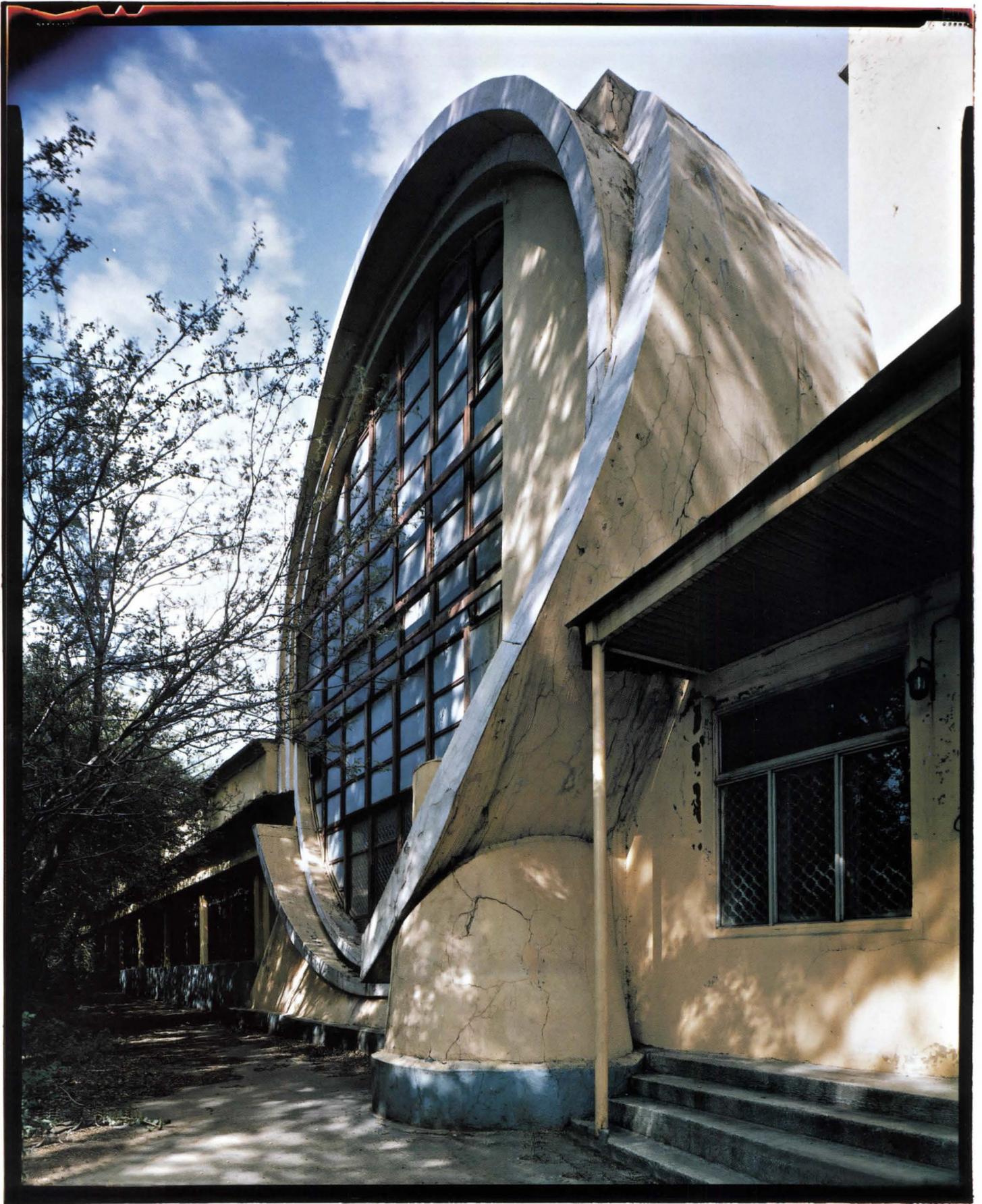
by Richard Pare

During my first visit to Russia in 1993 I discovered buildings illustrating a wealth of Modernist ideas designed immediately after the Russian Revolution. Although I was familiar with the most famous structures of this period, I began to realize that other important buildings were virtually unknown in the West. Many of them represent a level of architectural expression that is far deeper than what one might imagine, considering the slender resources available at the time. In fact, many of the buildings that employ a strong Modernist vocabulary were constructed using centuries-old methods: chopped straw served as insulation, and partition walls were constructed from rough-sawn timber covered with lath and plaster. The radical architecture of this new age fell out of favor after only one decade. With the ascent of Stalin in 1932, it was deliberately pushed into obscurity, replaced by Soviet Neoclassicism, which dominated until the collapse of the Soviet Union. Little maintenance was done on any but the most politically prominent buildings during this period. As a result, in many cases it is still possible to see the purity of expression and the remarkable vigor of Modernist thought as it was at the time of the buildings' construction. But many are now in such a precarious state that it is no longer possible for them to survive. Others are barely recognizable. The condition of others is preserved by those who live in them and do what they can to arrest the depredations of the Russian winters. I took the photographs shown here over the course of seven extended journeys, from the Baltic to the Black Sea and from Moscow to the Urals, in search of the forgotten Modernist legacy of these years.

*Richard Pare studied photography at the Art Institute of Chicago and was awarded an M.F.A. in 1973. He was appointed curator of the Canadian Centre for Architecture in 1974 and remains a consultant to the collection. He is the author of several books, including *The Colours of Light: The Architecture of Tadao Ando*. The work represented here is from his forthcoming book on Soviet Modernism. He wishes to acknowledge the support of the Ministry of Culture of the Russian Federation and the Canadian Centre for Architecture for assistance with the project.*



Above: The south facade of the Lenin Mausoleum by Schusev was completed in 1931. The highly polished granite facade reflects the towers of the Moscow Kremlin and the building that was until recently the Lenin Museum.



Above: Melnikov and Schukov's truck garage for Mossovet, Moscow, 1926–29, remains one of the most original buildings of the period. It continues to operate as a garage and spare-parts dealership.

Below: Roof of the Udarnik movie theater by Iofan, Moscow, 1928–31.

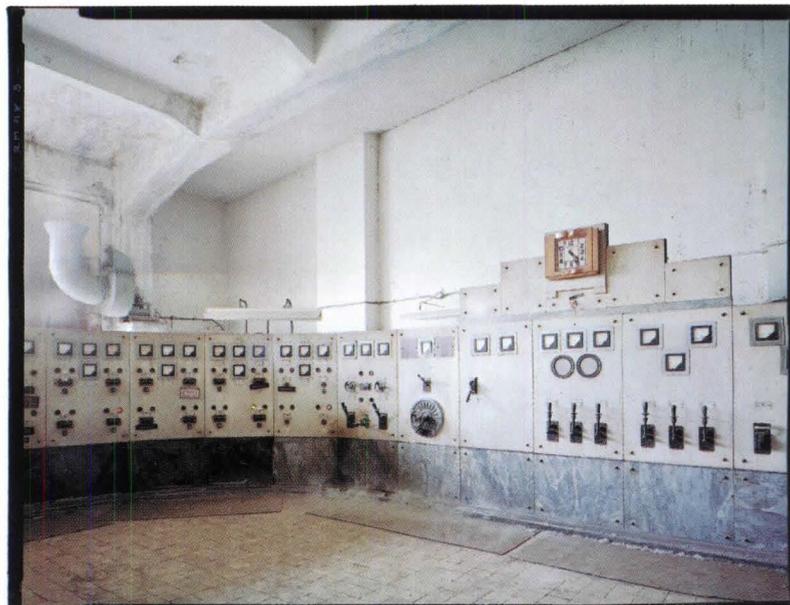


The roof of this movie theater was photographed from the window of an apartment belonging to the widow of an important atomic scientist. The building that houses the theater is part of the great complex across the river from the Kremlin. Originally built for the party elite, it is still considered an address of status.

Below: Switchboard for the Red Flag Textile Factory powerhouse by Erich Mendelsohn, St. Petersburg, 1926.

The factory continues to operate with most of the original machinery in place. The powerhouse (see exterior photo, page 83) was originally fueled by coal but was later converted to oil. It operates only when the factory has orders, which are now scarce.

Originally, the whole factory was designed by Mendelsohn, but only the powerhouse was realized.





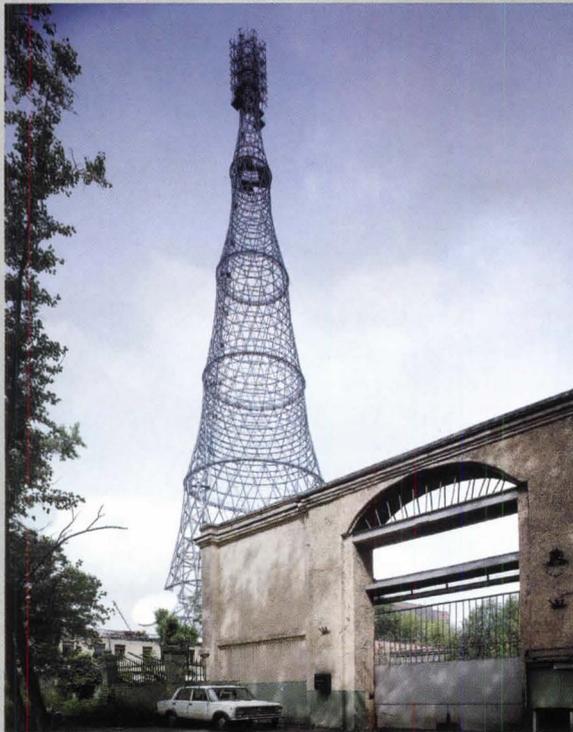
Now in an extreme state of disrepair, the dormitory building is undergoing a period of uncertainty. Three years ago the accommodation wing was completely gutted as if for renovation, but no work has been done, and with the windows missing the effects of the weather are hastening deterioration.



Above: Gymnasium of the Tkachei Street Secondary School, by G. Simonov, St. Petersburg, 1927–29. Still used as a school, the building remains essentially unaltered both on the exterior and inside. The balcony overlooks the football grounds.

Doctors' Building apartment complex (opposite right) at 17 Bolshaia Zhitomirskaia St., Kiev. Designed by P. Aleshin, 1928–30. This building epitomizes the softer Modernist language of the architects of the Ukrainian school. The architect's son continues to live in the building.

The proofing floor of a four-story circular bakery (below) is remarkably efficient in its design. The dough is mixed on the top floor and "proofed," or left to rise, on the third, using heat from the ovens on the second. The finished bread is distributed to the city from the first floor. The bakery is still in use today.



Above: Shabolovka Radio Tower by Schukov, Moscow, 1922. This transmitter, the herald of the Revolution, is still a prominent landmark on the Moscow skyline, and continues in its original function. Its airy elegance is exhilarating: From a low, circular foundation, it appears to spring out of the ground and ascend helical spirals.





Above: Doctors' Building apartment complex by P. Aleshin, Kiev, 1928.

Below: Red Flag Textile Factory powerhouse by Erich Mendelsohn, St. Petersburg, 1926. The building stands in a quiet part of the city and has an almost maritime quality. The large chimney is not shown in the original model of the project.



Below: Bakery, architect unknown, Moscow, 1928.



Below: Cultural Center of the Proletariat district, now the Zil Club by A., L., and V. Vesnin, Moscow, 1931–37.



The spiral stairway leads to the observatory on the roof of the main block of the Cultural Center of the Proletariat district. Cast in one concrete pour, it has great sculptural presence and seems to float above the floor slab. It is one of the last buildings in Russia constructed in an uncompromisingly Modernist aesthetic.

The Zil automobile factory is one of the largest production facilities ever built in Moscow. It remained a showplace throughout the Communist era and was therefore kept in good condition.



Above: Zil automobile factory at 23 Avtozavodskaia Street by Popov, Muravev, and Zlatolinskii, Moscow, 1928–33.

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Polshek & Partners: A firm and its universe

Describing his firm, James Stewart Polshek, FAIA, repeatedly emphasizes the second word in its name—partnership. Like the dean he used to be, he carefully points to the talented faculty members who are his six partners: Joseph Fleischer, FAIA, Timothy Hartung, FAIA, Duncan Hazard, AIA, Richard Olcott, FAIA, Susan Rodriguez, AIA, Todd Schliemann, AIA. Indeed, Polshek has employed an academic model rather than a corporate one in shaping his practice. The primary motive is not profit, but to maximize internal debate and dialogue with clients. And after 37 years in practice, Polshek is looking to ensure a smooth transition to the next generation, one that will continue after he exits the stage. Before that happens, though, the firm is working on some important commissions, including the Clinton Presidential Library in Little Rock; the Oklahoma City Civic Center Music Hall, Oklahoma City; and Scandinavia House, New York City.

The following interview was conducted in June by editor-in-chief Robert Ivy with all seven partners. Selected comments by Polshek are published here, and the entire interview with remarks from all of the partners can be found online at: www.architecturalrecord.com

ARCHITECTURAL RECORD: What is your view of the architect's role and how does your practice relate to that vision?

JAMES STEWART POLSHEK: It's a topic that consumes many of my waking hours. There has been a tendency to view the architect as a kind of *bella figura*—an art figure, a controller of things, even though that has patently not been the case.

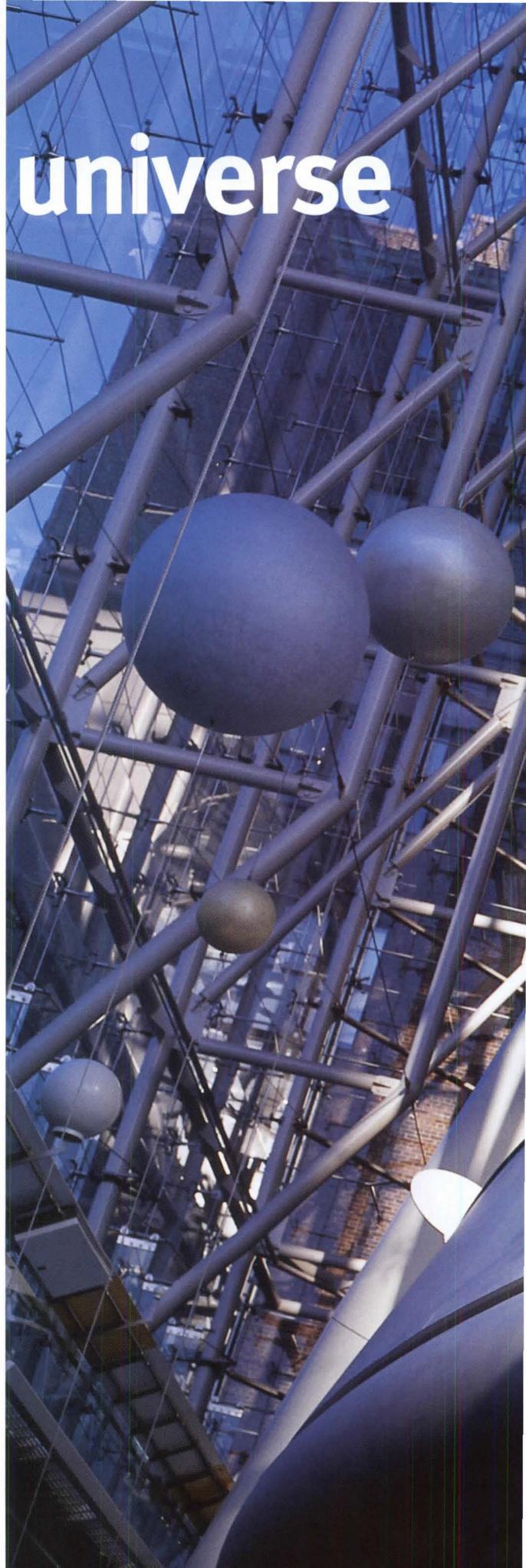
And I have, for reasons too complex or psychologically devious to go into, always felt that the central weakness of this profession is, in fact, that insistence. I've gone through these "master builder" phases early on in [my career in] Japan, where I had a singular authority to make all decisions. What goes along with that is a kind of swaggering macho ego. I've never been very comfortable doing that or being in the limelight—up to and including the recent barrage of publicity over the Rose Center at the Museum of Natural History.

AR: Tell us about the projects you pursue, your role in design, and how that has evolved.

JSP: I have long been committed to the proposition that continuity in a practice is valuable. It requires a collaborationist ethic, which is what this practice has been building up to for a long time. We have been aggressively noncorporate, which has led us to seek highly visible, ethical commissions, i.e., nonprofit clients in health, education, culture, and government.

[I wish to create] an office culture that will endure, based on understanding the principles of design and how to exercise them. If you can't do that, then you're not going to enter the pearly gates at this office. Many have come here who are overly ambitious or excessively

PHOTOGRAPHY: © ANDRE SOUROUJON





Left to right:

**Joe Fleischer, FAIA; Duncan R. Hazard, AIA;
Timothy P. Hartung, FAIA; Richard M. Olcott, FAIA;
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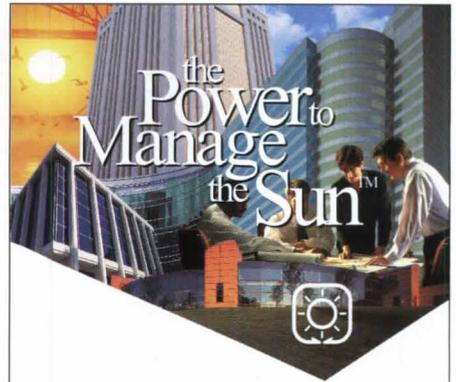


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focused on their own imprint—they don't last very long; the culture tends to eject them.

A long time ago I was that culture, but now that is no longer the case; it's broadened. It can be tense when the principal, who's been practicing under his own name for 40 years, becomes slightly obsessed with the fear of being marginalized. In most cases, when the principal goes the whole place goes—I would hate to see that happen here.

AR: *How actively are you engaged in the process?*

JSP: I am very attached to quite a few projects in the office, not closely to some, and hardly at all to at least half a dozen. I mean I watch them, I kibitz, I critique even, but we critique together in a group. Increasingly, I work at influencing the maintenance of this culture so that it does not become excessively profit-oriented or allow egos to get out of control.

At the same time, we wish to keep the place feisty and vital. And I think probably we have succeeded in doing just that. A question fre-

A QUESTION FREQUENTLY ASKED IS "HOW CAN YOU DO ALL THAT WONDERFUL WORK?" THE ANSWER IS, "EASY, I DON'T."

quently asked of me is "how can you do all that wonderful work?" The answer is, "Easy, I don't," which I don't mind admitting. The question of who's a better designer is moot.

AR: *How does your firm excel?*

JSP: Our practice today has to do with the redefinition of our architecture. That sounds very grand, I know, and I don't want to be immodest making the claim. It's not a huge leap, but it does require a different attitude and, in a sense, denies the business basis for the profession. Replication doesn't work, and replication leads to huge efficiencies, profits, and expendability. I don't mean replication of building type so much as a methodology.

[For example,] if you do all commercial office buildings, you can really turn them out. It is the adoption of the artist's mantle, the wearing of the cloak of the magician, which once accepted by the critical observer, acts to give that architect license [to create] a system of mass production—a methodology of mass production. That is, you tweak a product a little bit each time, but it's still an automobile, with head and tail lights. It may have fins one year but not the next—it's basically the same product. That is mass production.

AR: *How do you handle this natural, businesslike tendency?*

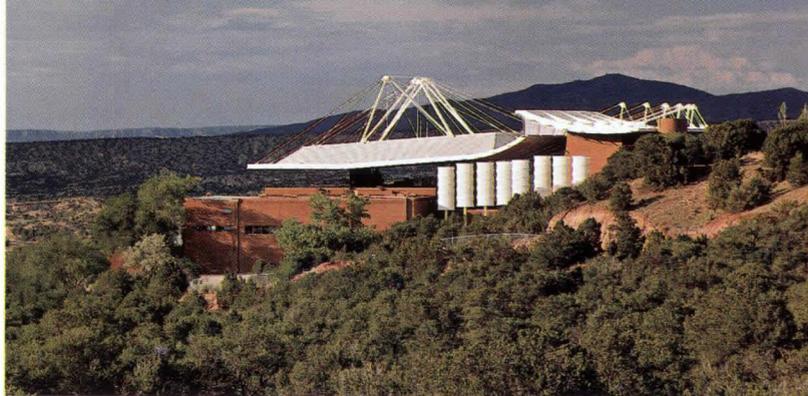
JSP: I act within this office to see that that doesn't happen, which is really flying in the face of the logic and benefits of predictability. But it also creates a climate unhampered by that methodology.

AR: *How do you find and foster the kind of employee so necessary to this understanding and trust that you describe?*

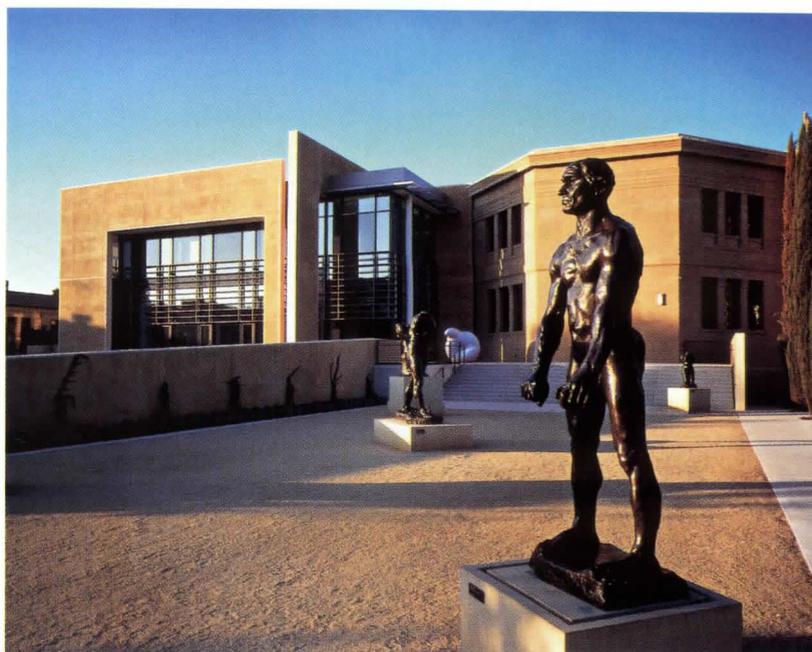
JSP: There's a huge amount of personal trust, which is really fundamental to this kind of organization because we're doing so many stressful things—not just around design, but management, personnel, and so forth. [Trust] removes much of the fear of the future, [which creates an] openness about security and the direction of the place; [employees relax and that] has kept them here.

AR: *Tell us about your relationship with higher education.*

JSP: It's been an indirect influence. I was dean for 15 years at Columbia



Santa Fe Opera Theatre, Santa Fe, N. Mex. (top and center); Iris and B. Gerald Cantor Center for Visual Arts, Stanford University, Palo Alto, Calif. (bottom)





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and taught before [that] at Cooper [Union] and Yale. I've always had a huge respect for teaching and the necessity for a professional office to nurture the next generation, the next, and the next. We create an atmosphere that is closer to academic than professional; a lot of the vigor of this place comes from that. I've always encouraged people in the office to teach, and a lot do.

AR: *The norm today seems to be more business-centric. You've articulated something about ethical principles that is not often stated.*

JSP: I see architecture as first a public service and then, if along the way it can occasionally rise to an art form, it's a social art form. Now all of a sudden the Rose Center has gotten tons of publicity. You know, [people] just

IF YOU THINK YOU KNOW WHAT YOU'RE GOING TO GET WITH US, YOU'RE NOT GOING TO GET IT. IF YOU WANT AN ART PIECE, WE'RE NOT THE RIGHT [FIRM].

lose all perspective, they don't realize there were 40 people in the office [who contributed to] this complex thing.

When somebody builds a Saturn rocket, which involves probably thousands of technicians, there's never a single maker; in architecture there's always a single maker. I think that's ego gratifying but ultimately very destructive to the work. With the extraordinary success of the economic system, it increasingly rewards those who attain individual celebrity.

AR: *Tell me about the character of your office. Who is the right client for you?*

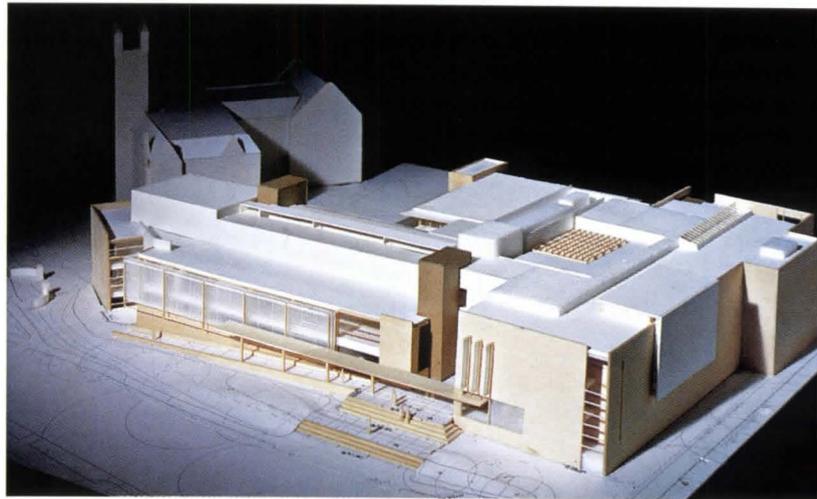
JSP: I think we are selected because the chemistry is right. There are clients who want a big name with a predictable result—they don't want us. The reputation of this office, for better or worse, is not always being the easiest to work with, because we will put a different idea on the table. There are clients who don't want that at all, especially developers.

My emphases are more social, more political, occasionally excessively more holier-than-thou. I can massage and push and critique and design, and I do it in a kind of informal way. Sometimes we do it all together, as we talk about what we're going to accept.

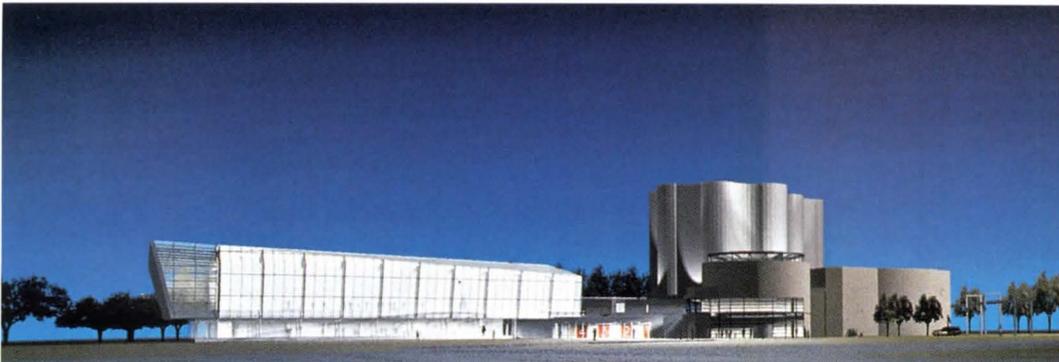
So the Clinton Presidential Library [in Little Rock] is a very radical departure from any presidential library that's ever existed in anybody's remotest memory. I have been working with Richard Olcott on the library, where in a sense we're copilots. On other projects, I'd characterize myself as being in the tower, you know, not even in the airplane. Somebody else is flying.



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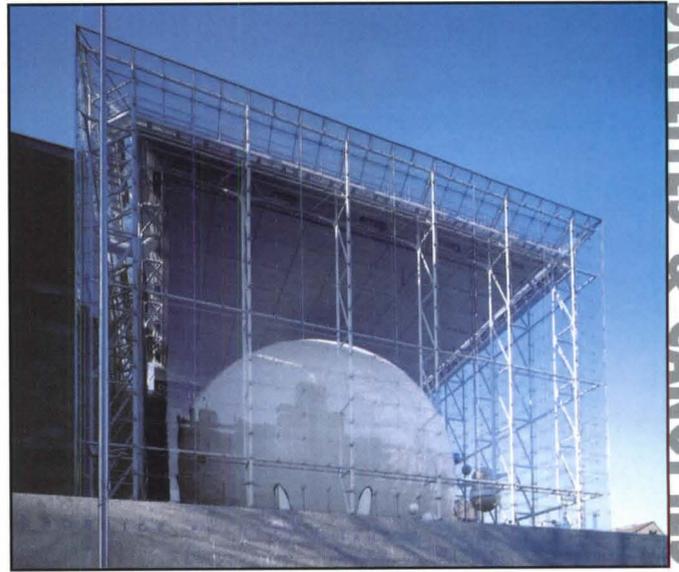


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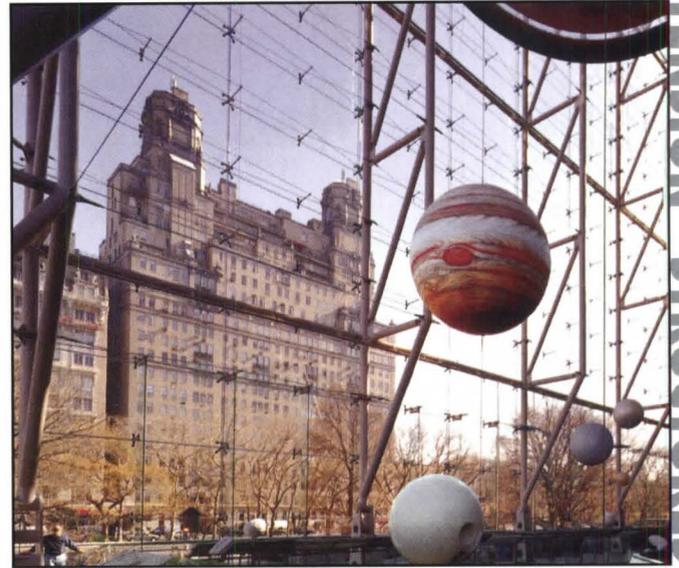
1. Scandinavia House, New York City; 2. Smith College Fine Arts Complex, Northampton, Mass.; 3. New York Hall of Science Expansion, Queens

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AR: How do you acquire work and what about growth of the firm?

JSP: A lot of it's over the transom and from reputation; at this juncture, I'd say very little [from marketing]. I think in 40 years I've had a potential client to dinner at my house once—25 years ago. I don't play golf [nor do] the other partners. Our social or family lives are not mixed up with our professional lives at all.

AR: How big do you want to be?

JSP: [We are] trying to come to grips with growth. [Controlling] a 130- or 140-person firm isn't the same as a 70-person firm.

You asked about why people come to this firm to begin with and why they stay. Making money has never been very important, and not

MAKING MONEY HAS NEVER BEEN VERY IMPORTANT, AND NOT BECAUSE WE'RE INDEPENDENTLY WEALTHY.

because we're independently wealthy. Oh, they're all concerned, they have families, and we all have to live, but it's not a driving issue.

We're doing very well, and if we chose to have a more normative management structure, then we would grow to 200 people very quickly. The partners and I don't want that; in fact, quite the contrary.

AR: Where does the shakedown occur between you and the right client—let's say the client that wants the signature architect with the identifiable style?

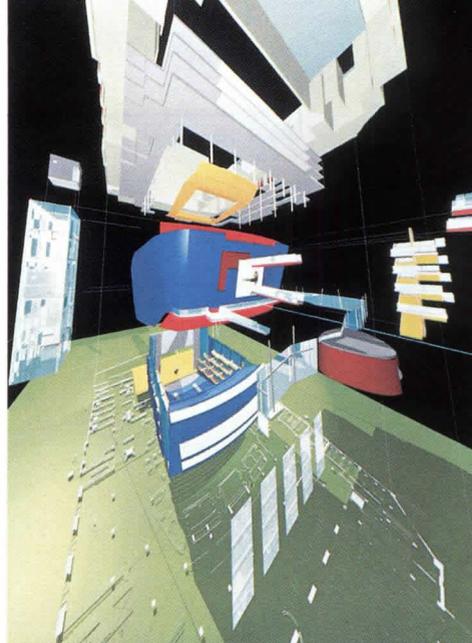
JSP: I make it very clear, if you think you know what you're going to get with us, you're not going to get it. If you want an art piece, we're not the right [firm].

The Houston Museum of Fine Arts is a kind of museum that tends to look for architects who are the "flavor of the month." I know it sounds pejorative, and it is to a certain extent. They're looking for an architect who is well known and will attract money from donors. But the university art museum looks for an architect who will have the patience to deal with a diverse faculty, administration and alumni. So from money to ideas. And that's very, very different.

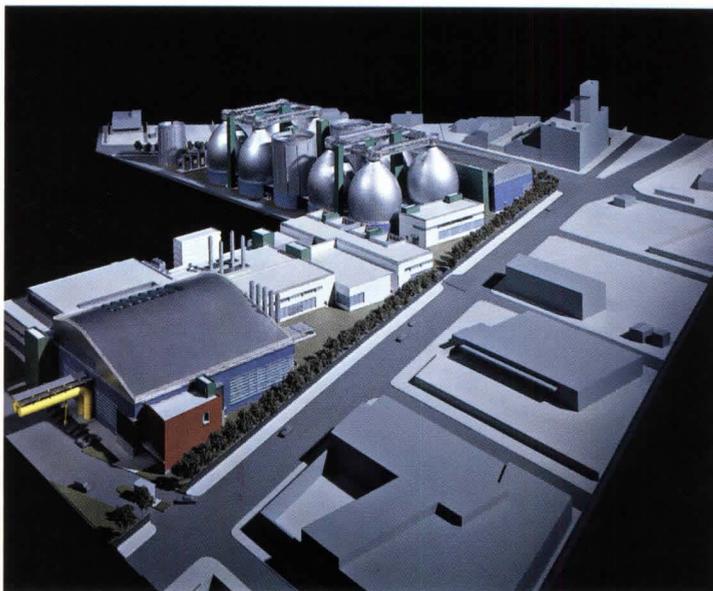
AR: In your own personal professional development, what firms or individuals had a strong influence on you?

JSP: Well, of course, Lou Kahn was my teacher, and I think his work, his attitudes, his radicalism, not his artistry, have had a very long and profound influence. I've said it so much, you force me to say it again: the two major historical influences [on me] have been the Cistercian architecture in the late Middle Ages, which is without named architects; and the pre-Meiji great garden designers of Japan, also with anonymous authorship. Renzo Piano's workshop is maybe, among all of us here, a working contemporary office closest to an ideal model. I can think of no contemporary American practitioners, other than very young ones that I look at carefully. But I think it is an interesting question. ■

WWW For the complete transcript of this interview, including conversation with the firm's six other partners, go to www.architecturalrecord.com. Also on the site: Rose Center construction information and drawings, as well as related historic material from ARCHITECTURAL RECORD's archives.



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4. Oklahoma City Civic Center Music Hall, Oklahoma City;
5. Newtown Creek Wastewater Treatment Plant, Polshok Partnership Architects/Greeley and Hansen, Hazen and Sawyer P.C., Malcolm Pirnie, a joint venture; 6. Zankel Hall, Carnegie Hall, New York City



6

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Polshek Partnership brings the stars to
the masses in the new
ROSE CENTER FOR EARTH AND SPACE

PROJECTS



The \$210 million Rose Center includes the new Hayden Planetarium in its great sphere and a terrace (under construction in photo) designed by Kathryn Gustafson.





By Clifford A. Pearson

Time and space are the essence of the universe. Capturing them in glass and steel is as tricky as getting a quark to sit still for a portrait. So in their design of the Frederick Phineas and Sandra Priest Rose Center for Earth and Space, the architects at the Polshek Partnership boiled architecture down to Platonic forms—a cube and a sphere—then froze it in the lightest and most transparent materials. The result is a building immediately recognizable as an icon, but one that seems ready to float away or, at times, almost disappear. By combining the grand with the ethereal, the Rose Center achieves a sense of timelessness that hints at the mysteries of the cosmos.

James Stewart Polshek, FAIA, likes to describe the work of his firm (see page 88) as an “architecture of interpretation.” The phrase implies a degree of engagement—between architect and client and between building and users—that invites multiple responses. The approach seems just right for an institution devoted to making science accessible to the lay public and to children in particular.

As built, the Rose Center is both new and familiar. The giant metal sphere—87 feet in diameter—calls to mind the dome of the sky, the old Hayden planetarium, the earth, and heavenly objects. The clear-glass cube that encases the great orb alludes to the infinite universe.

“The structure had to make a statement about the museum,” says Ellen Futter, president of the American Museum of Natural History (AMNH), the parent institution of the Rose Center. “What it does is de-brick science and make it visible from the street. That transparency goes to the heart of our mission,” explains Futter. As important as the message is the building’s ability to attract attention. “It’s visually captivating as soon as you spot it,” boasts Futter. “And when you go inside, it fulfills all of your anticipation.”

A brief history of the (Rose Center) universe

Shortly after Futter became president of AMNH in 1993, she realized that the much-loved but long-neglected Hayden Planetarium needed a major renovation. The redbrick and copper-domed building, erected in 1936 as an addition to an institution that hadn’t stopped growing since opening in 1877, was in poor repair. It had decades-old exhibits and the whiff of a loopy uncle’s attic. Attendance had dropped by half between 1976 and 1993. Generations of New Yorkers had visited the planetarium on school trips and remembered it fondly, but little more than nostalgia, it seemed, kept them coming.

“When I saw the planetarium in 1993,” says Polshek, “I said, ‘What a dump!’” But he realized that the condition of the planetarium was only part of the problem; equally troublesome was its poor integration with the rest of the museum. So Futter asked Polshek to develop a master plan for the first floor of the entire museum, making the planetarium part of a more cohesive flow of exhibit halls within the institution. What began as a renovation project grew in scope as Polshek and his partner Todd Schliemann, AIA, spent time interviewing all of the

Project: Frederick Phineas and Sandra Priest Rose Center for Earth and Space, New York City

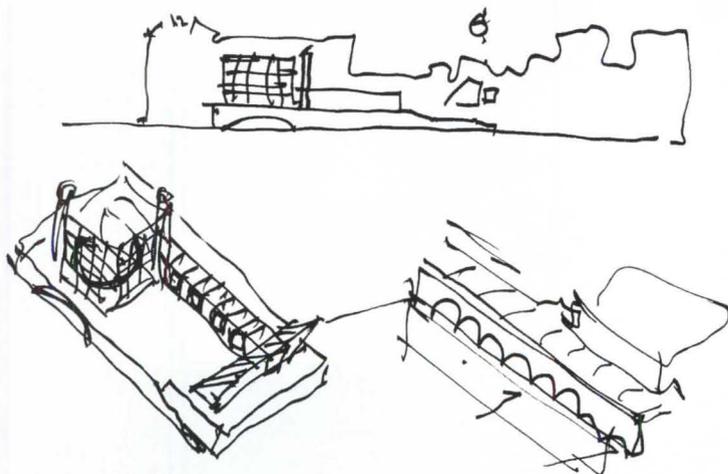
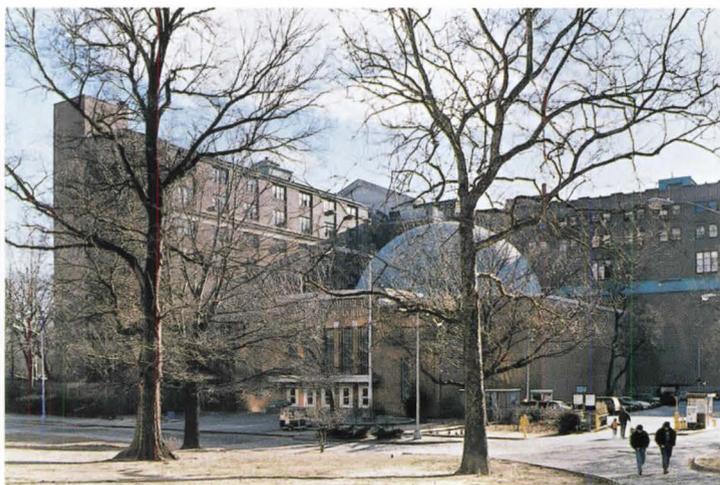
Architect: Polshek Partnership—James Stewart Polshek, FAIA, Todd H. Schliemann, AIA, principals; Joseph Fleischer, FAIA, partner-in-charge; Tyler Donaldson, AIA, associate-in-charge; David Wallace, AIA, design

associate; Kala Somvanshi, AIA, project architect

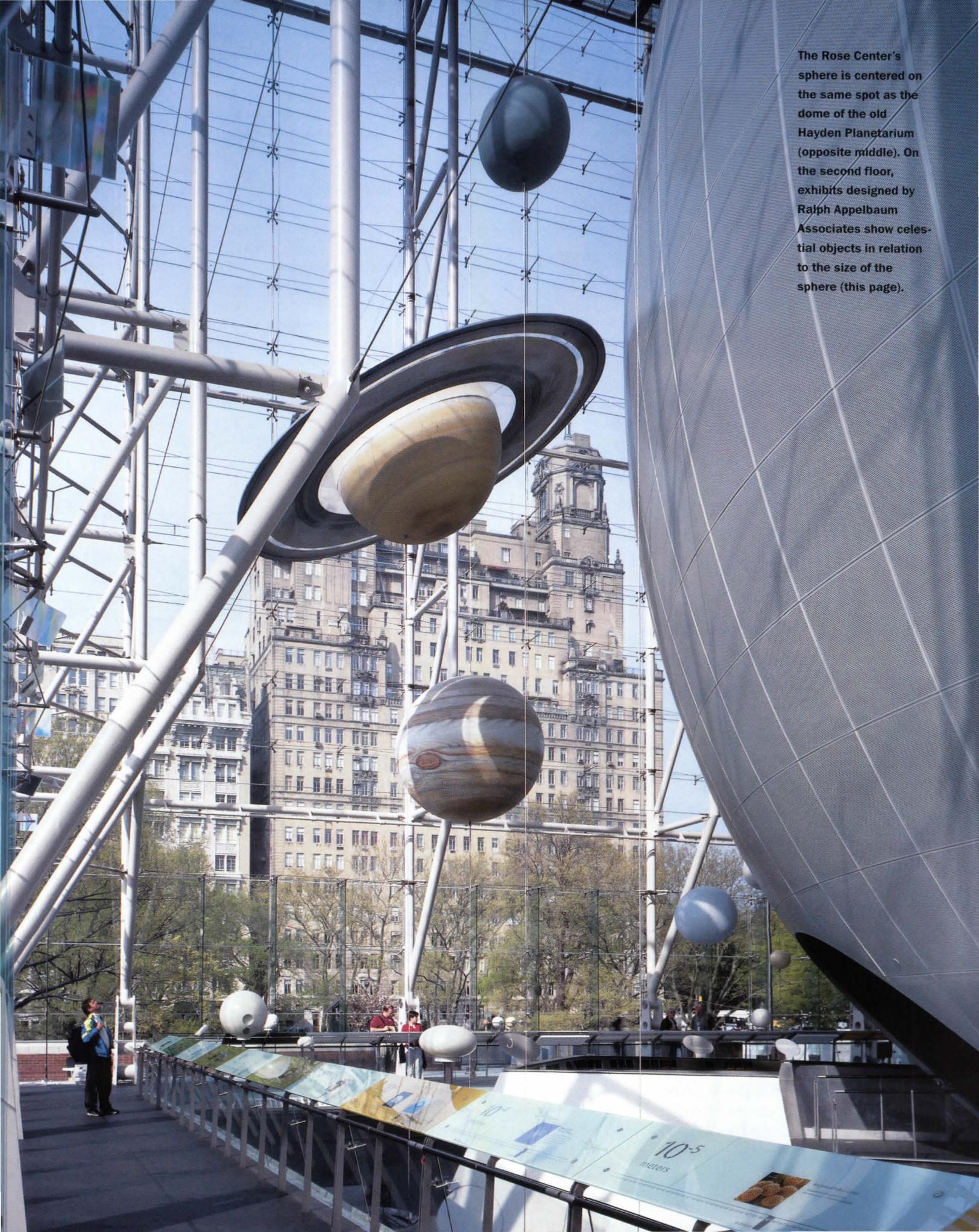
Engineers: Weidlinger (structural); Altieri Sebor Wieber (MEP)

Consultants: Ralph Appelbaum Associates (exhibits); Fisher Marantz Stone (lighting); Shen Milson & Wilke (acoustical)

Construction Manager: Morse Diesel

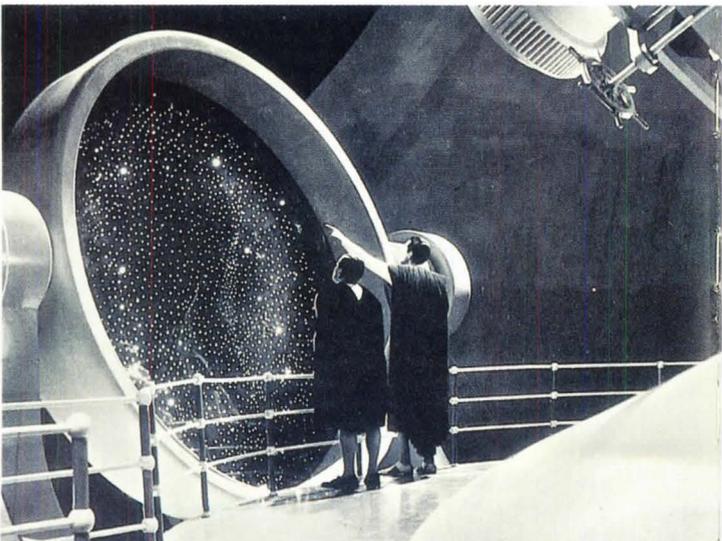
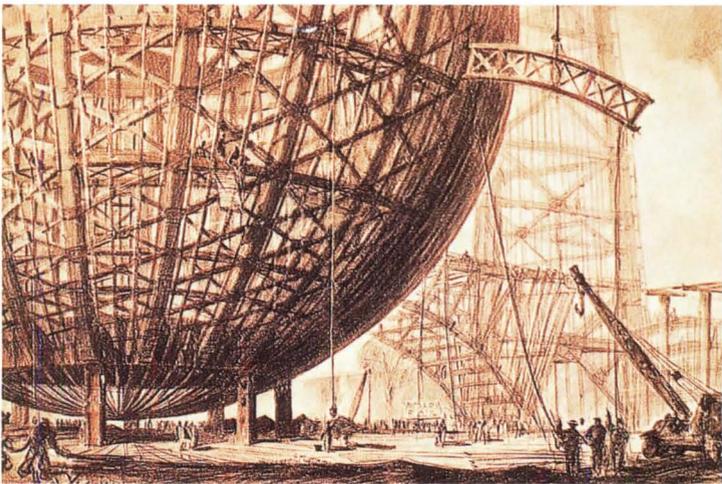
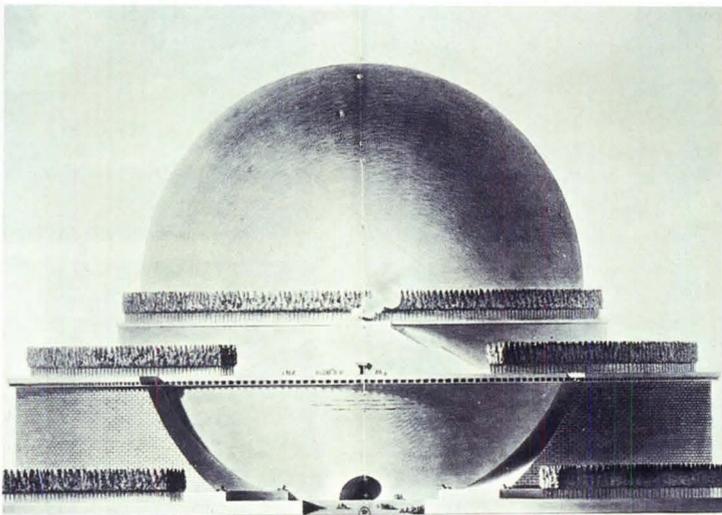


Sketches show how the project fits within the confines of the museum and how it relates to a new terrace defined on one side by an enclosed porch.



The Rose Center's sphere is centered on the same spot as the dome of the old Hayden Planetarium (opposite middle). On the second floor, exhibits designed by Ralph Appelbaum Associates show celestial objects in relation to the size of the sphere (this page).

10^{-5}
meters



Visual precedents for the Rose Center include Boullée's unbuilt cenotaph for Isaac Newton dating from 1784 (top), Wallace Harrison's Perisphere from the

1939 New York World's Fair (shown in a Hugh Ferriss rendering, middle), and science-fiction films such as H.G. Wells's *Things to Come* from 1936 (above).

museum's department heads. When asked by the museum's board of directors to think beyond the original limits of the project, Polshek and Schliemann took the existing planetarium's hemispheric dome and drew it as a full sphere. Then they placed it within a great box, combining two Platonic forms to create a powerful and immediately recognizable icon. Futter and her board loved the scheme.

"At first, we thought we could save the old dome and just add a new bottom half to it," recalls Polshek, who was intrigued by the idea of a part-new, part-old construction. But the 1936 structure, one of the oldest surviving thin-shell reinforced-concrete domes in the U.S., was not in great shape and saving it would have constrained plans for a state-of-the-art planetarium. "The old facility couldn't portray our new knowledge of the universe, nor could it accommodate the technology we now have to communicate what we've learned," explains Futter. Although Polshek had taken his own children on visits to the Hayden Planetarium years before and had fond memories of the building, he says he didn't hesitate to tear it down. "We have an obligation to create the landmarks of the future."

The project drew considerable opposition—from preservationists and neighborhood groups. The architects accommodated these people in many small ways—preserving trees on the north side of the building, for example, and incorporating a new dog run off 81st Street—and in a few big ways—such as working within the footprint of the old planetarium and occupying no extra parkland. In its favor, the project would include a new entrance on Columbus Avenue and a grand terrace

POLSHEK SAYS HE DIDN'T WANT "TO PRETEND THIS WAS AN EXTENSION OF A 19TH-CENTURY BUILDING."

west of the glass cube, features that would help connect AMNH to its neighborhood. The terrace would sit on top of a new parking structure, which would have two of its three levels tucked below grade.

The portion of the parking structure above grade would be clad in red brick to blend with many of the surrounding buildings, and the Rose Center's granite base would feature an arched entrance recalling the museum's original entry on 77th Street, but the rest of the project would be proudly modern in attitude and materials. The crisp lines of its glass cube, the exposed steel trusses, the otherworldly lighting of its interior would clearly set the Rose Center apart from the rest of the museum. There would be no doubt where the old ended and the new began. "We didn't feel it was appropriate to pretend this was an extension of a 19th-century building, especially in this age of Internet technology and forward-looking science," states Polshek. The New York City Landmarks Preservation Commission agreed and approved the project unanimously.

Where the ideas came from

While designing a planetarium and space center for the 21st century, Polshek and Schliemann weren't afraid of looking for historic precedents. The most obvious ancestor was Étienne-Louis Boullée's famous design for a cenotaph to Isaac Newton. Several times bigger than the Rose Center, Boullée's unbuilt memorial, designed in 1784, was a great masonry sphere bubbling up from a tiered cylindrical base. According to Polshek, the Newton cenotaph was "more of a metaphorical precedent than a literal one" for the Rose Center. More important to the current scheme were science-fiction images from films and books and Wallace K. Harrison's futuristic design of the Perisphere at the 1939 New York World's Fair, says Polshek. "These had the energy and spatial sensibility that we wanted to capture," explains the architect.

As a monumental glass addition to a Neoclassical landmark, the

Visitors take an elevator to the third floor and cross a bridge to enter the Hayden Planetarium's new Space Theater.

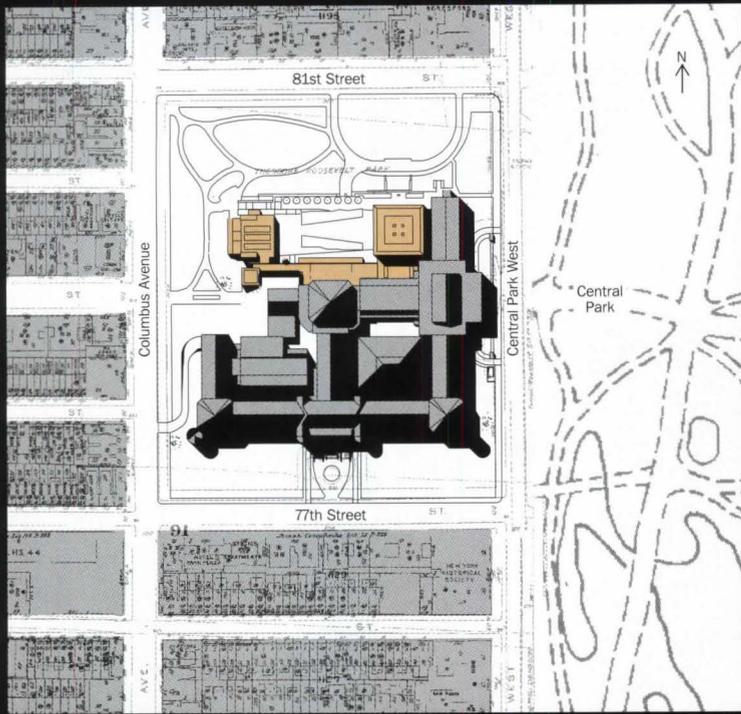




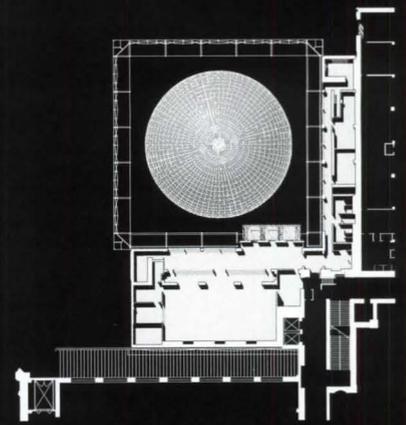
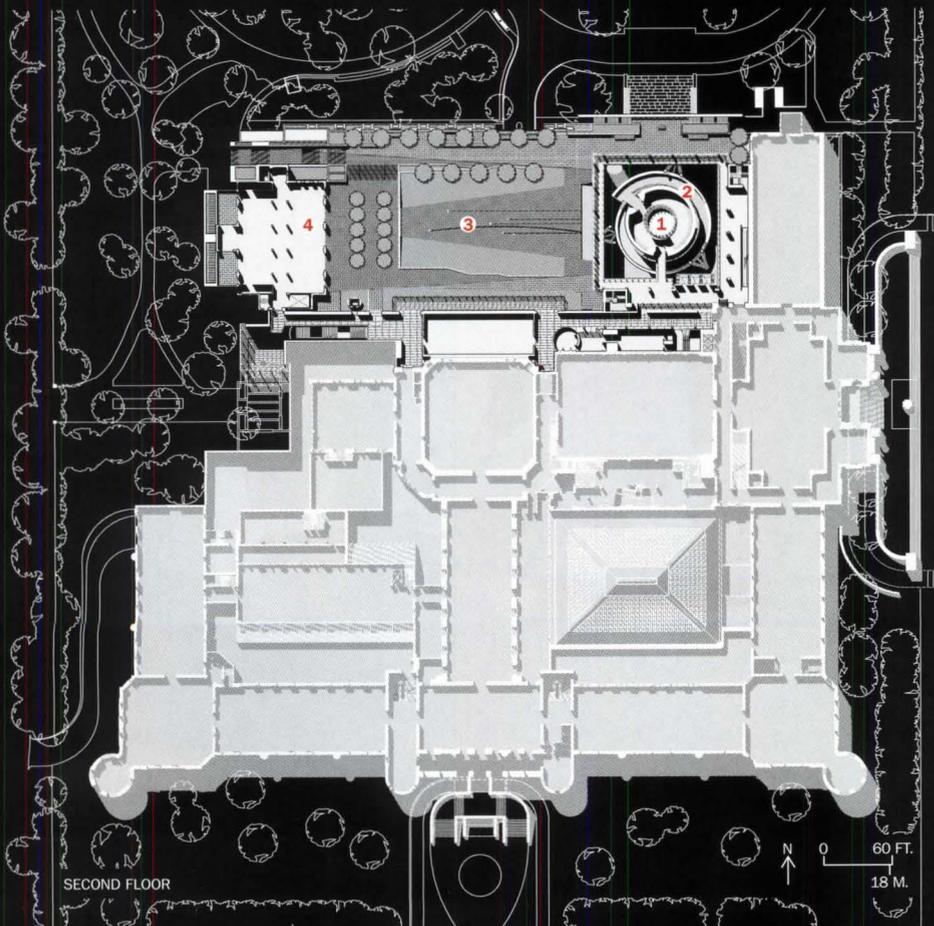


Ralph Appelbaum Associates designed the exhibits in the Hall of the Universe, below the sphere, to be a social, parklike space. Exhibits are pulled to the periphery to keep

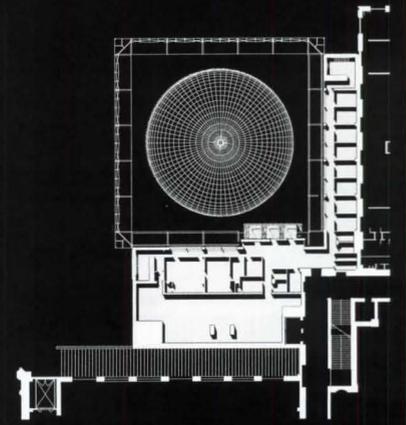
the space as open as possible. "We used light to tell the story of the universe," explains Appelbaum, who even used laser-cut and laser-etched stainless steel for the exhibits.



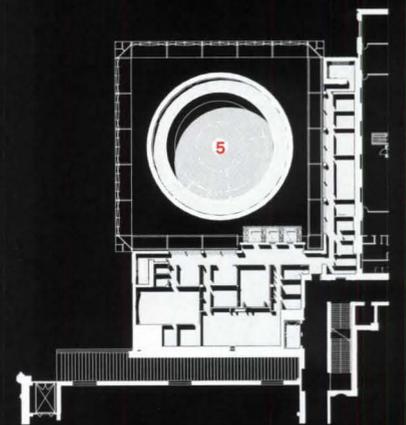
1. Big Bang Theater
2. Cosmic Pathway
3. Terrace
4. Cafeteria
5. Space Theater



SIXTH FLOOR

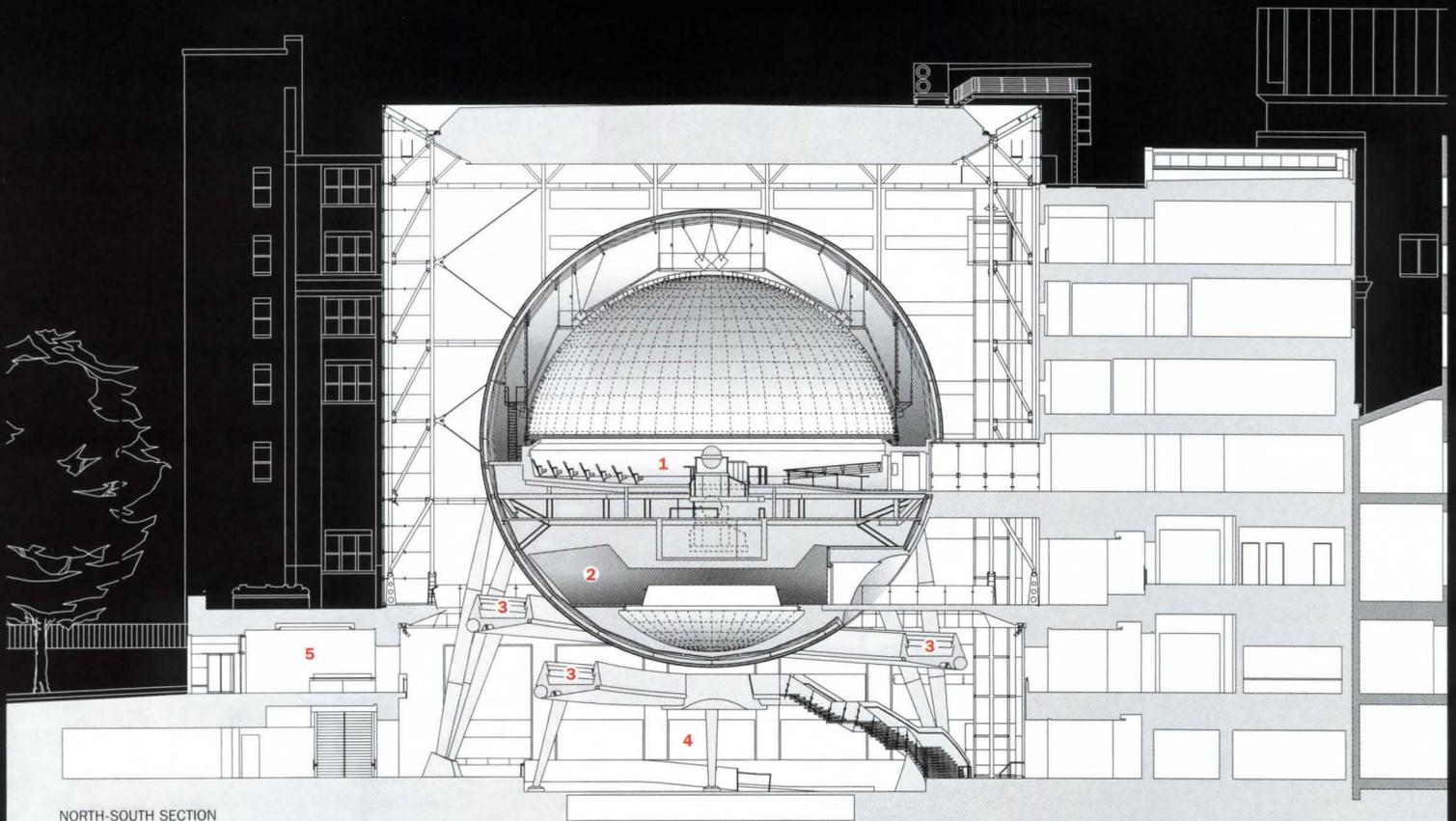


FIFTH FLOOR



FOURTH FLOOR

The Rose Center encompasses a total of 335,000 gross square feet and helps anchor the north corner of the American Museum of Natural History.

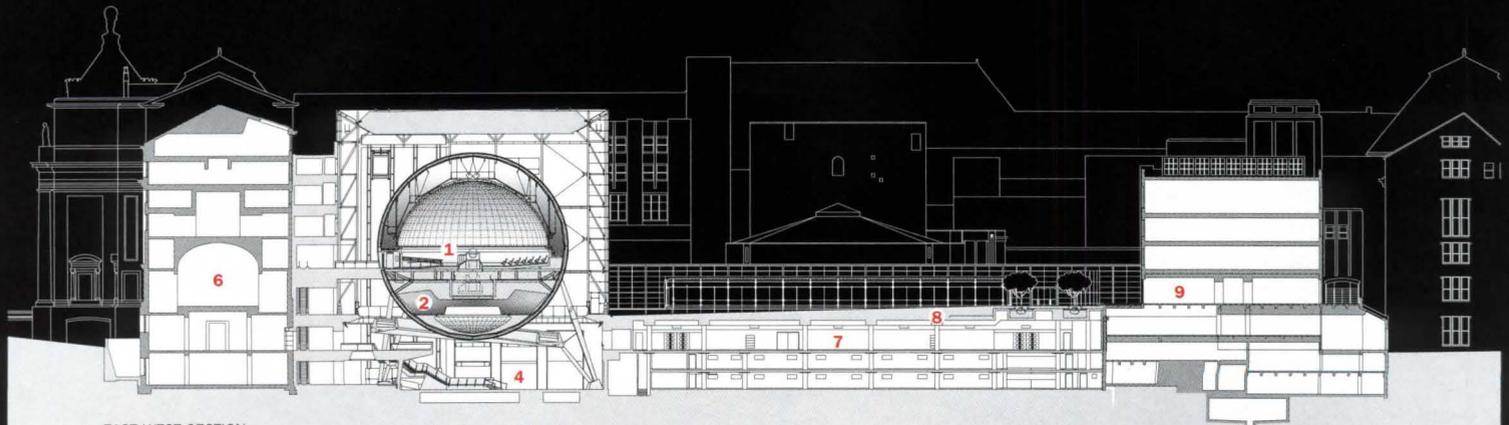


NORTH-SOUTH SECTION

- | | |
|--------------------------------|--------------------------------|
| 1. <i>Space Theater</i> | 6. <i>Hall of Planet Earth</i> |
| 2. <i>Big Bang Theater</i> | 7. <i>Parking</i> |
| 3. <i>Cosmic Pathway</i> | 8. <i>Terrace</i> |
| 4. <i>Hall of the Universe</i> | 9. <i>Cafeteria</i> |
| 5. <i>81st Street entry</i> | |

In addition to the Rose Center, Polshek designed a three-level parking structure west of the glass cube, a glass-and-steel porch running along a terrace

on top of the garage, and a new entrance on Columbus Avenue. The firm also converted an old power building into a cafe with conservation studios above.



EAST-WEST SECTION

Rose Center is comparable to I.M. Pei's pyramid at the Louvre in Paris. Both are Platonic forms executed in ethereal modern fashion, and they fit in with their heavy masonry neighbors by cloaking themselves in crystalline veils. Like Pei's pyramid, the Rose Center's glass cube changes character with the light, going from cool object to mysterious void to inviting tent. Repeat visits are required to get a full sense of its personality.

Much of the Rose Center's impact depends on its remarkably transparent enclosure. For the cube's curtain wall, the architects specified single-pane, monolithic glass, whose low iron content eliminates most of the green hue normally found in commercial glass. The 10½-by-5-foot sheets of glass are held in place by stainless-steel "spider" fittings, so no mullions are needed and the vertical plane appears almost seamless. The glass curtain is supported by a system of tubular steel wall trusses braced by high-strength, stainless-steel rod rigging. To heighten the sense of a crystal box, the architects moved support elements away from the corners and pulled the roof back from the perimeter of the cube. Daylight streams in at the edges and through a narrow skylight wrapping around the top makes the enclosure visually disappear, explains Schliemann.

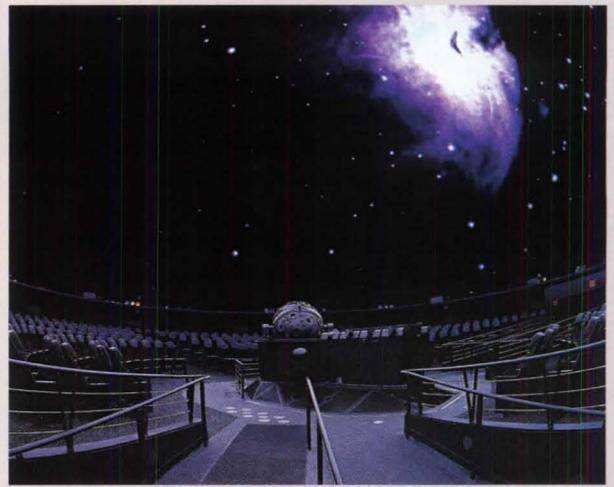
How to make an enormous globe levitate

Floating within the 120-by-120-foot cube, the metal sphere houses a new Hayden Planetarium in its upper hemisphere and a Big Bang display in its lower portion. The sphere, which is made of curving steel ribs clad with 2,474 perforated aluminum panels, rests on three clusters of tapered steel legs that attach to a series of trusses running around its equator. "We positioned the legs so they're out of the visitors' frame of reference," says Schliemann. "As a result, the sphere seems to be self-supporting."

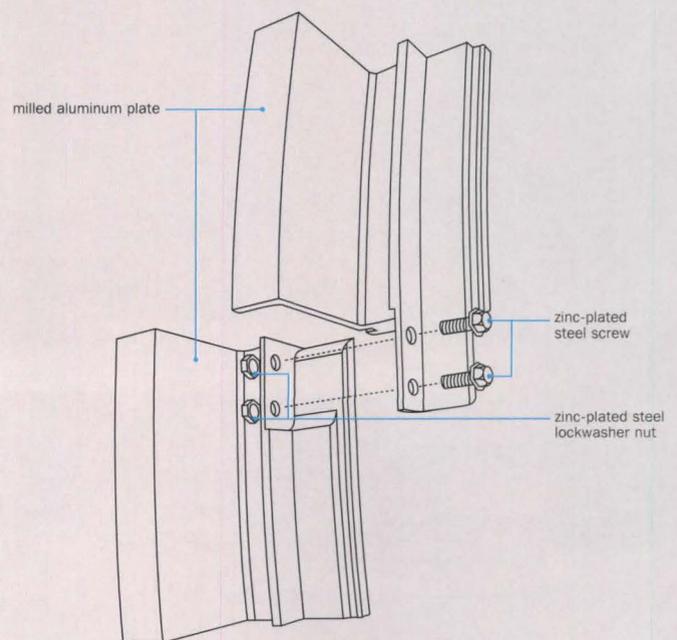
More than just a device to grab attention, the sphere helps bring scientific concepts to life. One of its important functions, for example, is to convey the varying scales of objects in the universe. So visitors walking along a gallery one level above the entry floor can compare a series of small objects to the giant planetarium sphere and get an idea of the size of the earth in relation to the sun or one star in relation to another. "When Jim Polshek showed us plans for his sphere, we immediately realized we could use it—not just to house exhibits but to communicate science," says Neil deGrasse Tyson, an astrophysicist who is the director of the Hayden Planetarium. "It's a marriage of architecture and science. It's the universe as the architect's muse."

Spiraling around the lower portion of the sphere is a 360-foot-long, 8-foot-wide ramp that takes visitors from the Big Bang show down one level to the entry floor. Called the Heilbrunn Cosmic Pathway, the ramp has exhibits that tell the 13-billion-year history of the universe from the Big Bang to the present day. Each step takes a visitor 75 million years down the timeline, with mankind's time on earth represented by the width of a human hair at the end of the path. The ramp is cantilevered from a 30-inch-wide steel torsion tube wrapping around the sphere, supported by five angled columns spread 90 feet apart. Because the ramp spirals inward and downward simultaneously, structuring the complex geometry proved difficult, says Schliemann.

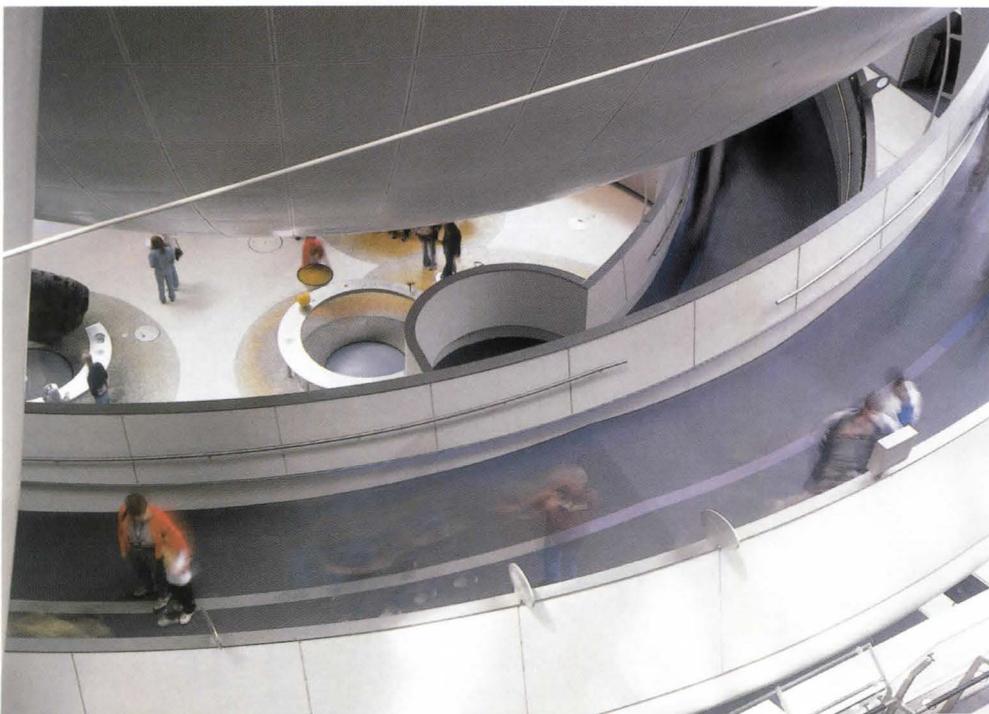
The Rose Center's exhibits, designed by Ralph Appelbaum Associates, work with the architecture to draw visitors through the great spaces. Appelbaum, who also designed the exhibits in AMNH's refurbished halls of dinosaurs and planet earth, says he used light "to tell the story." Not only are interiors bathed in daylight—in contrast to the dark, inward-focused rooms of the rest of the museum—but light (in the form of lasers) was used to etch words and images onto the exhibits' stainless-steel panels. In the Hall of the Universe, the main exhibition area under the sphere, Appelbaum pulled displays on planets, the sun, stars, galaxies,



THE ROSE CENTER'S SPHERE is clad with 2,474 perforated, light-gauge metal panels fabricated by Los Angeles-based Ceilings Plus. The planetarium's sphere was the company's first attempt to manufacture panels curved in two axes simultaneously. More than 150 sheets of detailed CAD drawings, plus many fabrication and erection drawings, were shipped to the architect's office, then converted to CAD/CAM files that were used to control equipment that cut and perforated the aluminum. The perforations—estimated by the manufacturer to be 5,599,663 holes one-sixteenth of an inch thick—occupy 30 percent of the surface area of the panels. The panels, which were gently stretch-formed into spherical segments, include a nonwoven acoustical fabric applied in the factory to their inside surface. This fabric layer helps absorb noise so visitors inside the sphere can enjoy the new space show (above). For more information on the digital technology involved in the Rose Center's creation, see *Digital Architect* on page 177. *Rita Catinella*



SPHERE PANEL AXONOMETRIC



The 360-foot-long, 8-foot-wide Cosmic Pathway (left) includes exhibits that tell the 13-billion-year history of the universe. In the Hall of the Universe, fixed exhibits that explain basic elements of the universe are combined with a large electronic wall (left in photo above) that supplies constantly updated information and images.

and the universe to the periphery of the space to keep it uncluttered.

Standing under the sphere, visitors get fragmented views through the Rose Center and out to Beaux-Art apartment buildings across the street. The great mass of the planetarium sphere and planets hanging from the ceiling seem to deform the cubic volume and create a sense of animation that makes science come alive.

A virtual trip to the cosmos

The featured attraction is still the planetarium show. But what was simply an illuminated projection of the night sky on a domed ceiling at the old Hayden Planetarium is now a sophisticated, multimedia Space Show that employs a battery of projectors, computer graphics that render parts of the universe in three dimensions, and a network of speakers that can move sounds around the 432-seat theater. Narrated by Tom Hanks, the show takes visitors on a journey beyond the sky seen from earth and out into the nether reaches of space. The perforated aluminum dome on which the show is projected is attached to a steel lattice hung from the great sphere. Between the sphere and the dome is a 5-foot-wide space for catwalks and equipment.

Circulation into, out of, and through the Rose Center was critical to the project's success, says Polshek. Instead of being an isolated "stepchild" to the rest of the museum, the planetarium today is part of a seamless flow leading directly into the Hall of Planet Earth and then to the Hall of Biodiversity. The new entrance on Columbus Avenue to the west helps integrate the museum with its Upper West Side neighborhood, as will the new terrace and the enclosed glass porch running along the south side of the terrace. Inside the Rose Center, vertical circulation plays an important role in shaping the visitor's experience. Although there are many ways to move through the facility and explore the different exhibits, most visitors first go down to the lower level, wander around the Hall of the Universe, then ride an elevator up to the third floor for the Space Show. After their virtual trip to the cosmos, visitors walk down to the lower portion of the sphere where they learn about the Big Bang theory, then take the spiraling ramp down to the entry level.

The project has elicited raves from the critics. Herbert Muschamp, of the *New York Times*, wrote, "What we see on approaching the Rose Center may well be the finest example of glass curtain wall construction ever realized in the United States." In the *New Yorker*, Paul Goldberger said, "By the standards of New York, where cultural daring is usually cut off at the knees, this may be the most important building of the decade." And Blair Kamin in the *Chicago Tribune* called the Rose Center "an architectural big bang that ought to explode forever the outdated theory that modernism is incapable of making civic monuments."

Embraced by opinion makers and the masses, the Rose Center is taking its place as a New York landmark. According to Polshek, the city provided the right soil for it. "This project could only have happened in a great metropolis," states Polshek. As the museum's Futter put it, "This is an enormously significant symbol of New York. It's rekindled a sense of optimism and excitement about building in New York City." ■

Sources

Steel-pipe truss system: Chicago Ornamental Iron Co.

Tension structure: TriPyramid

Metal-and-glass curtain wall: Pilkington, W & W Glass Systems

Brick cladding: Glen-Gery Brick

Prepatinated copper panels: Revere Copper Products

Copper rain screen: Pohl

Interior ambient lighting: Edison

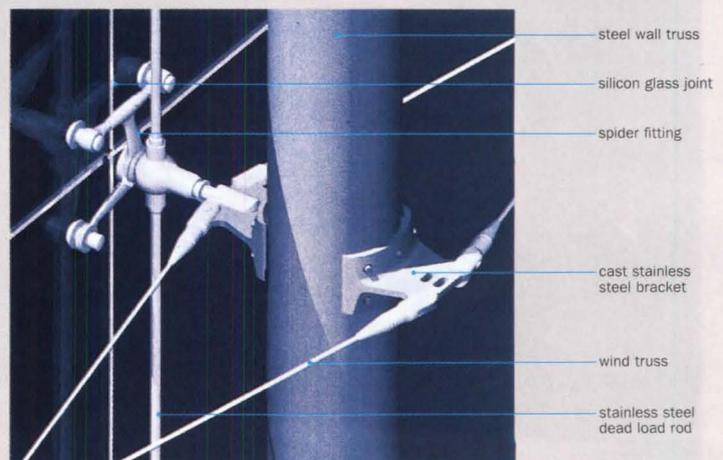
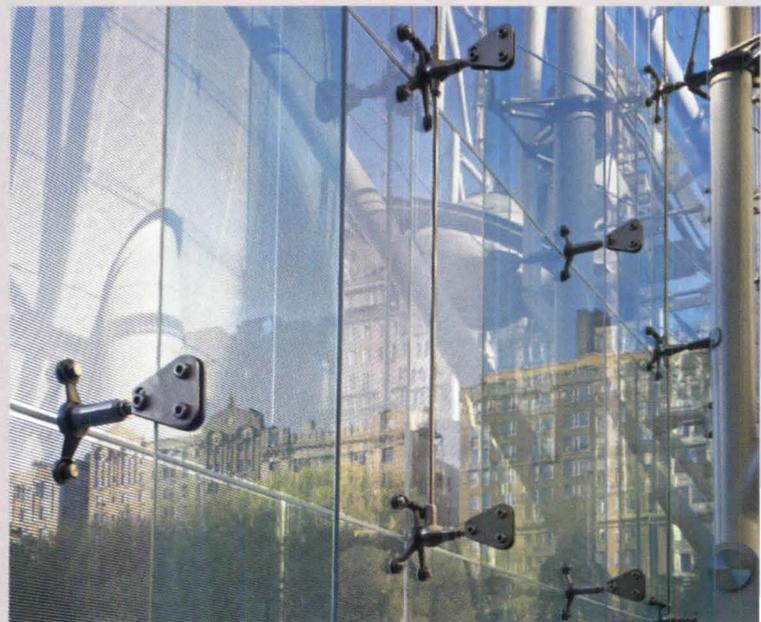
Price Lighting; Forum Lighting

Downlights: Bega; National

WWW For more drawings, photos, and technical information about the Rose Center, as well as a complete list of and links to the people and projects involved, go to **Projects** at:

www.architecturalrecord.com

THE 95-FOOT-HIGH GLASS CUBE, one of the Rose Center's hallmarks, features 30,000 square feet of custom-designed curtain wall made of extremely clear "water white" glass. The 10½-by-5-foot sheets of half-inch-thick, monolithic, low-iron glass are held in place by stainless-steel "spider" fittings, so no mullions are needed. Instead of being broken up into panes, the glass wall is interrupted only by half-inch-thick clear silicon glass joints. The transparent wall is supported by a system of 6- and 8-inch tubular steel wall trusses braced by high-strength stainless-steel rod rigging and steel-cable wind trusses that the architects call "fish" trusses because of their shape. Each piece of glass is supported separately by the tension rigging, so if one piece breaks, the integrity of the wall is not threatened. The truss-and-tension-rigging system allows the glass walls to move as much as three-quarters of an inch off the vertical in either direction. On the west side of the cube, the glass has a 50 percent pale frit on it to reduce the impact of the sun. C.A.P.



The project's glass enclosure allows startling vistas of sci-fi architecture and Beaux-Arts apartment houses, connecting the Rose Center with the city around it.



The entrance facade of St. Jean Vianney (opposite, bottom) gives the church the appearance of a traditional cathedral, with a nave and side aisles. The luminous octagon within

surprises visitors. Bronze assemblies divide the huge glass walls of the octagon (this page), keeping rain off the glass and diffusing harsh sunlight.



Trahan Architects uses sun-warmed concrete to create a place for faith to flourish in Baton Rouge: **ST. JEAN VIANNEY** Catholic Church

By Christine Kreyling

The 1970s suburb five miles east of downtown Baton Rouge—a world-o-Wal-Marts, McDonald's, and strip malls—is an unlikely locale for high architectural drama. The more immediate context is equally unpromising. A bland brick school, library, athletic facilities, and administration offices on the 10-acre Paris campus have all the curb appeal of the typical branch bank. But within this “geography of nowhere” Trahan Architects has made a “somewhere” for the Roman Catholic parish of St. Jean Vianney.

The austere facade of the church seems to step outside suburbia—and history—entirely. A shallow forecourt and a series of gently rising steps lead to a pair of 14-foot bronze doors within a chamfered concrete frame. This entrance is surrounded by walls and an elliptical pediment of more concrete blocks. The horizontal profile of each solid block emphasizes stability while establishing the basic module for the entire structure. Largely unadorned concrete planes express the architects' feeling for the solidity of the wall as a timeless component of monumental architecture.

The tripartite division of the facade implies that what lies behind is a basilica, whose nave and side aisles have been the norm for Catholic houses of worship since Constantine turned Christian. But inside, the Trahan firm revived an even older architectural tradition.

Passing through the concrete narthex into the body of St. Jean Vianney, we find, not a long aisle and high altar, but a luminous ring—a

Christine Kreyling is a freelance writer who serves as the architecture and urban planning critic for the Nashville Scene. Kreyling co-authored and co-edited the book Classical Nashville in 1996.

Project: St. Jean Vianney Catholic Church, Baton Rouge, La.

Client: Saint Jean Vianney Parish—Diocese of Baton Rouge

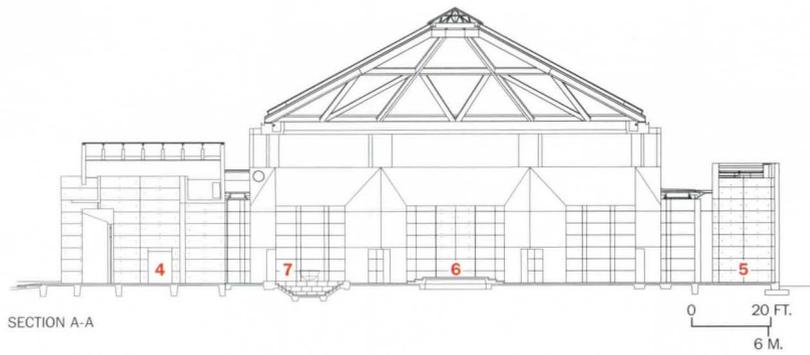
Architect: Trahan Architects — Victor F. Trahan, III, AIA, design principal; Richard Simonton, AIA, project architect

Associate Architect: Brad Davis, project designer

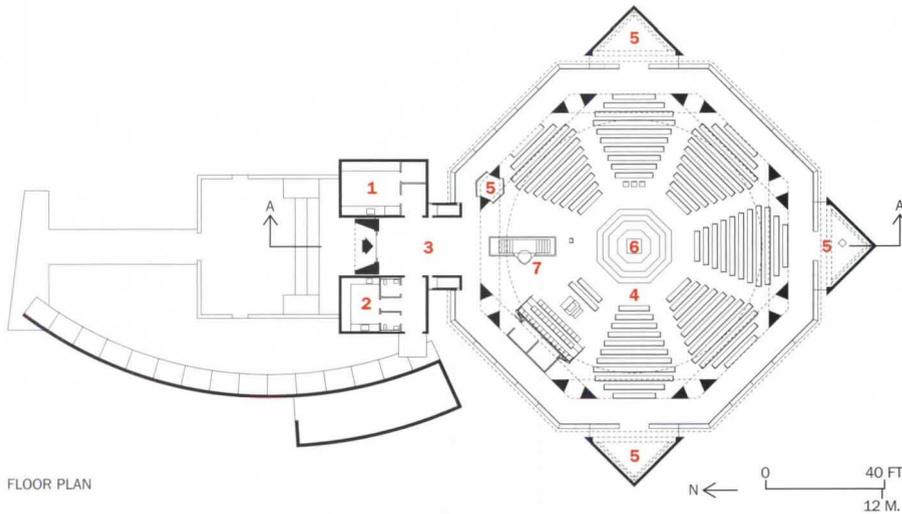
Engineers: Schrenk & Peterson Consulting Engineers; Associated Design Group

Consultants: Marchita Mauck, Ph.D. (liturgical); Richard Boner (acoustical); Donald Kaufman (color)





1. Sacresty
2. Narthex
3. Workroom
4. Sanctuary
5. Chapels
6. Altar
7. Baptismal pool



The church uses sunlight to dramatic effect. Strategically placed sidelights form hyphens between the piers and the concrete walls of the chapel, allowing natural light to dramatically illuminate religious sculptures (below). All indirect lights are completely concealed from view (opposite).

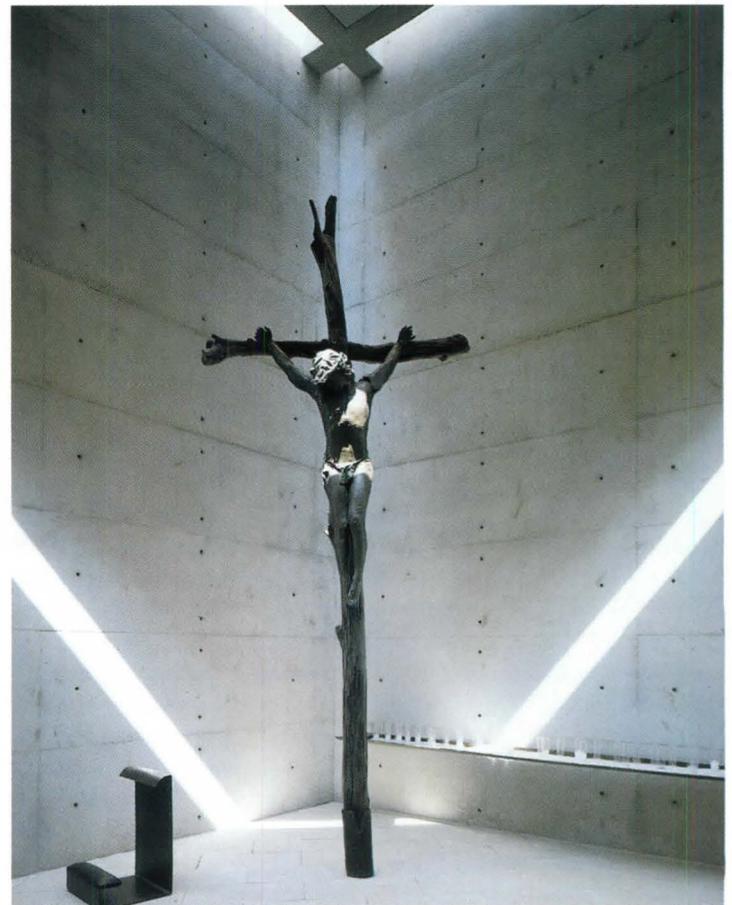
1,600-square-foot octagon of glass punctuated at the cardinal points by triangular concrete chapels. Massive, triangular concrete piers divide the ambulatory from the central gathering space. The transition from darkness into light is as theatrical as the passage from the Pantheon's typical Roman porch into the cosmic sphere of the temple proper. A square bronze altar table rests dead center under an oculus. Under that same oculus, traditional baptismal practices take place in the immersion pool (covered with a metal grille for safety when not in use) and the baptismal bowl, or "sugar kettle"—a name that goes back to the days when kettles from Louisiana sugar plantations were used in church ceremonies.

Pastor Donald Blanchard didn't request ancient allusions when he commissioned Trahan Architects to design a church with a 1,000-seat capacity, with a budget of under \$3 million, for his growing parish. The reverend's goal was to give architectural expression to Catholic liturgical reforms of the 1960s.

"Father Blanchard gave us only three rules," recalls principal architect Victor "Trey" Trahan. "The plan had to realize the liturgy established by Vatican II, natural light had to be integral to the design, and we could use any materials except concrete. Guess we did two out of three," Trahan laughs.

Priest and architects toured the country to see how recent Catholic architecture had answered the Second Vatican Council's call for new churches to "form a complete and organic unity, clearly expressive of the unity of the holy people . . . and configured so that the assembly experiences itself as a face-to-face community," rather than a passive flock watching an altar-railed priest celebrate Mass from a distance.

"We found churches which responded to Vatican II reforms only partially, with weak, fan-shaped gathering spaces," Trahan says. Such

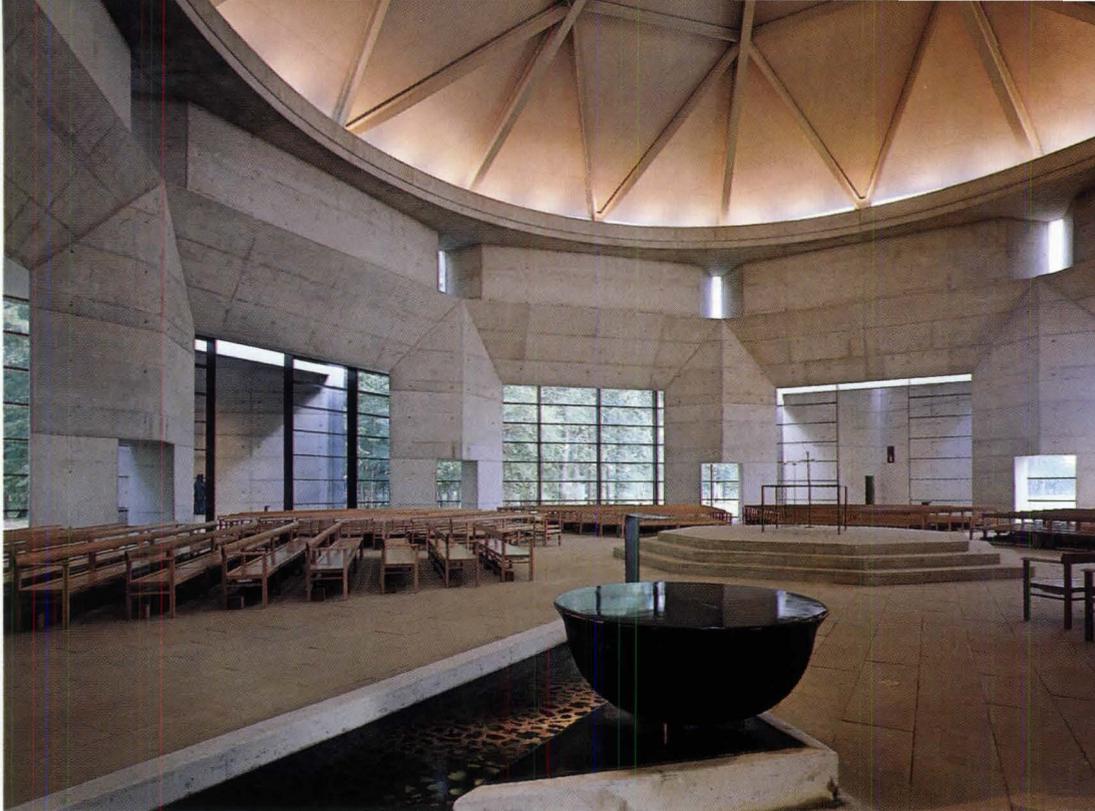






The exterior of the bronze entrance doors (this page, left), designed by sculptor Max DeMoss, are encrusted with thousands of images of items and symbols significant to the congregation. They provide an impressive entrance to the monumental space.





St. Jean Vianney's baptismal font (left and opposite) recalls a traditional Louisiana sugar kettle used on sugar plantations and for church services. Water flows from the kettle into the pool, where baptism by immersion—a symbol of purification—takes place. For safety purposes a decorative grille covers the pool when it is not in use.

SCULPTED BRONZE DOORS

In most Catholic churches, figurative imagery has a didactic purpose. The bronze doors of the Baptistry in Florence, for example, feature scenes from the Old Testament, crafted to teach the lessons of the Bible to the 15th-century faithful. The doors of the church of St. Jean Vianney, on the other hand, immortalize the lives of the faithful themselves.

Designed by sculptor Max DeMoss, who is also responsible for the church's tabernacle and statuary, the doors are encrusted with wedding rings and rosaries, eyeglasses and knitting needles, the footprint of a baby and the hands of the pastor and the church's architects, among thou-

sands of images. Members of the congregation, asked by Father Blanchard to bring objects personally sacred to them to the church parking lot one weekend, waited for hours to press their icons into trays of clay. DeMoss then took the clay back to his studio in Hemet, Calif., where he laid out the images and cast them into 24 bronze panels which he assembled into doors.

"The idea was to create a portal that leads from the physical to the spiritual," Blanchard explained in a 1998 interview with Baton Rouge art critic Ann Price. "You leave the physical things at the door, which is the threshold into this spiritual space."

THE FIRM: TRAHAN ARCHITECTS

In creating a Roman Catholic church with a central plan, Trahan Architects accomplished what many a Renaissance architect—Leonardo, Bramante, Michelangelo—sketched but few put on the ground. Making his-

tory is an audacious role for a firm whose members have little of their own. The median age of the 12-person studio is under 30. Babies making buildings.

That youthful profile is the deliber- (continued on page 240)

designs compromise the intimacy of the congregational space with the need for a processional path for sacraments such as communions and confirmations, marriages, and funerals.

Trahan team architect Brad Davis reminded Blanchard that the central plan of many early Christian and Byzantine churches was an appropriate form for a liturgy that sought to revive the early Christians' experience of the Mass as an intimate gathering of comrades. The design team set up 1,000 chairs on the building site, placed plywood at the center to stand for the altar platform, and located statues where the chapels would be, to allow parishioners to physically experience a centralized ground plan. The mock-up demonstrated "that we could get 1,000 people in only 11 rows," Davis says. The architects satisfied processional needs by drawing a plan for a sacramental axis—baptismal pool, ambo (or pulpit where gospel is read), altar, and tabernacle for the communion bread—through the center of the octagon.

Trahan ultimately posed a clear choice to Blanchard: a traditional cruciform church, which establishes a hierarchy of spaces, or a central plan. Blanchard made the decision to avoid hierarchy.

Once over the hurdle of the central plan, the architects had to convince Blanchard to pour his church in concrete.

Other churches the architects had surveyed "seemed cluttered, full of distractions" from the spirituality they were trying to foster, Trahan says. "We wanted to use the strength of the mate- (continued on page 240)

Sources

Door hardware: Blumcraft (locks, closers, hinges and exit devices)

Built-up roofing: Firestone Building Products

Roofing: Rheinzink (metal panels)

Skylights: Super Sky Products

Entrance doors: Blumcraft

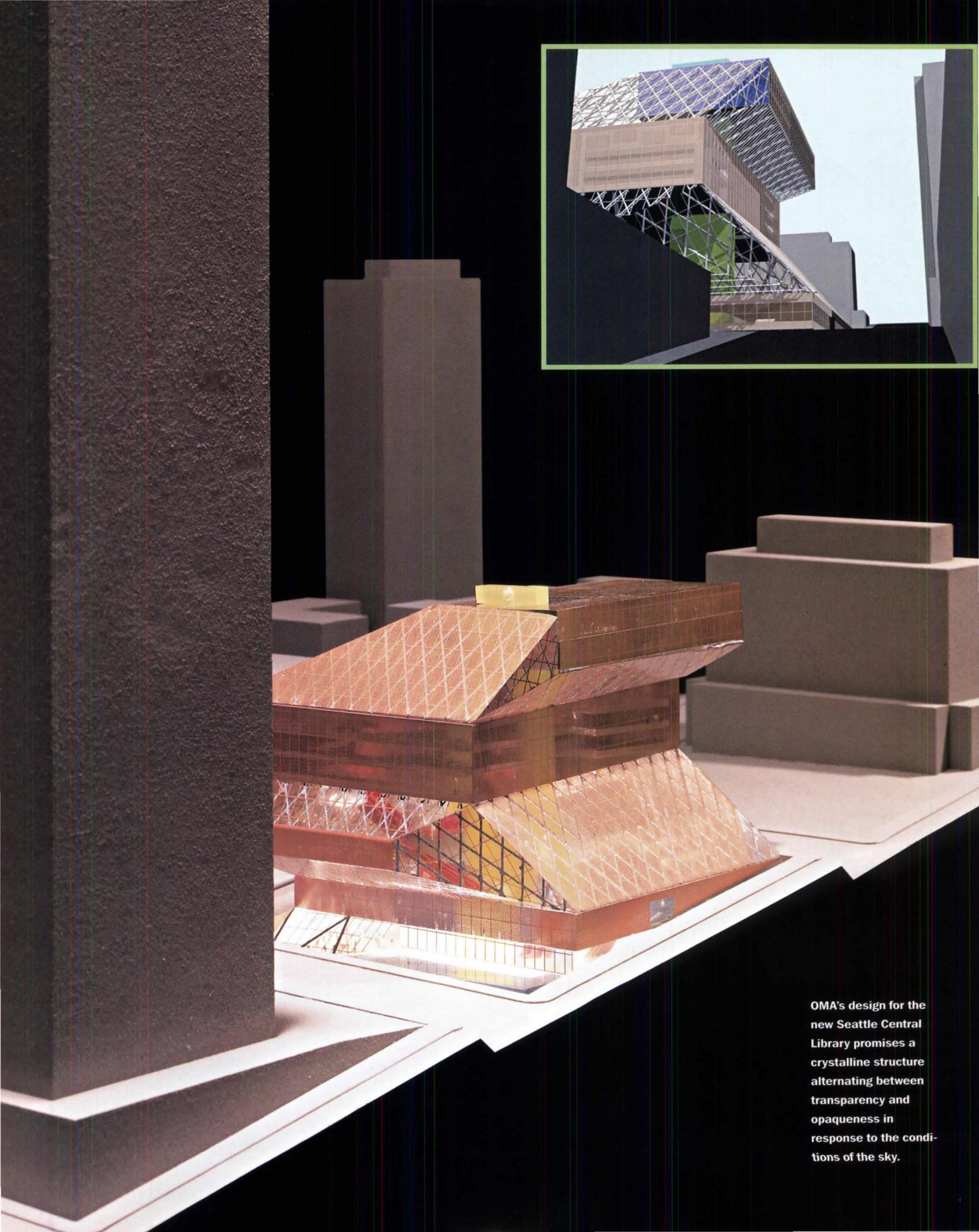
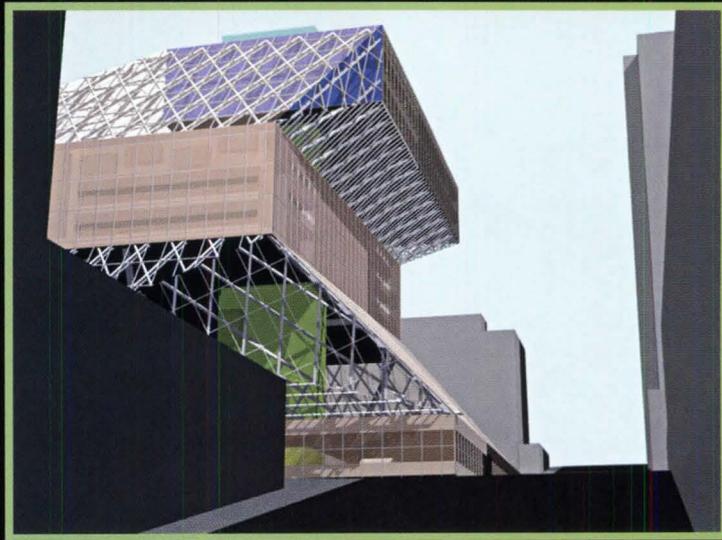
Furnishings: California Artist (altar, reconciliation screen and prayer

kneelers); Benchworks (pews)

Lighting: Elliptipar (interior); Prescolite (lighting system); Brandhurst (exit signs); Kim (exterior)

WWW For more information on the people and products involved in this project, go to **Projects** at: www.architecturalrecord.com





OMA's design for the new Seattle Central Library promises a crystalline structure alternating between transparency and opaqueness in response to the conditions of the sky.

How Seattle learned to stop worrying and love Rem Koolhaas' plans for a new **CENTRAL LIBRARY**

By Sheri Olson, AIA

Rem Koolhaas is a phenom here in Seattle; presentations of his plans for the new \$159 million Central Library draw standing-room-only crowds; front-page articles and editorials regularly analyze everything from his Pritzker Prize to his Prada wardrobe; people stop him on the street to discuss the library's crystalline steel-and-glass design. Although there are detractors—some have dubbed the library “a cheese grater”—the project has achieved a surprising level of acceptance within an architecturally conservative community. The cyber-elite is wowed by its high-tech zeitgeist, while Koolhaas' talent for listening to suggestions from public workshops, the design commission, and library staff has swayed the process-loving populace.

The road to Koolhaas' success was paved by city librarian Deborah L. Jacobs' genius for consensus building. Single-handedly she reversed public opinion on a previously rejected \$196 million bond measure, securing the largest chunk of tax money for libraries in U.S. history. Solicitous of diverse opinions, Jacobs bristles at attacks on the project, publicly accusing one local columnist of deliberately misconstruing the facts. Jacobs makes a point of discussing the Central Library at each of the branch library meetings she attends several nights a week. “Once people get how OMA's design works, it excites the heck out of them,” says Jacobs. She is as warm and fuzzy as Koolhaas is intimidating, and they make an unlikely but formidable pair with a facility for rallying support around a radical—and risky—public work.

Jacobs set the library's course with a streamlined and open selection process. “It sets a gold standard for selection processes,” says Rick Sundberg, faia, head of the design commission. The library board, aided by a citizen's advisory panel, chose five finalists from a pool of 29 international applicants. When Foster & Partners and Cesar Pelli balked at an uncompensated 48-hour charrette, three firms remained—the Office for Metropolitan Architecture (OMA), Rotterdam (in joint venture with LMN Architects, Seattle); Steven Holl, New York; and ZGF, Portland. Overwhelmed by the turnout, the organizers were forced to change venues several times over the course of the three-day presentations to accommodate the growing audience lined up to see Holl and Koolhaas go head-to-head.

Sheri Olson, AIA, is Record's Seattle-based contributing editor and the author of the forthcoming Miller/Hull Partnership (Princeton Architectural Press, spring 2001).



PROJECTS

The commission was Holl's to lose. A Washington native and the designer of Seattle University's St. Ignatius chapel, he was considered the local favorite and endorsed by the Seattle Times. But the library board came back from a whirlwind European tour impressed by OMA's skill with inexpensive materials and its ability to stay within budget. In the end, the board's decision was not based on the bottom line: “OMA's spaces were fun and interesting to be in,” says library board president Betty Jane Narver.

Koolhaas' design links Seattle's challenges to those faced by other cities today. He casts the library at the vortex of the two most dramatic changes in modern life over the last decade: the erosion of the public realm and the explosion of new technologies. “The city used to be free. Now you have to pay for it,” he says. In this unrelenting commercial environment, Koolhaas believes libraries have unwisely positioned themselves as the last moral stronghold, essentially pitting books against computer chips. “The modern library, especially in a cyber-city such as Seattle, must transform itself into an information storehouse aggressively orchestrating the coexistence of all available technologies,” says Koolhaas.

During a three-month study of the relationship between digital information and books, OMA called on local giants (Microsoft, Amazon.com, and Teledesic, among others) that have a knack for predicting the future and, more important, for generating new wealth: Seattle

Project: *Central Library, Seattle*
Architect: OMA—Rem Koolhaas, partner in charge; Laura Gilmore, Bjarke Ingels, Antti Lassila, Anna Little, Joshua Ramus, Joao Ribeiro, Natasha Sandmeier, project team

Associate Architect: LMN—Jim Brown, Adam Hunter, Damien McBride, John Nesholm, Robert Zimmer
Engineer: Ove Arup—Cecil Balmond, Anders Carroll, Chris Carroll, Alistair Guthrie, Stephen Jolly, Atila Zegiolu

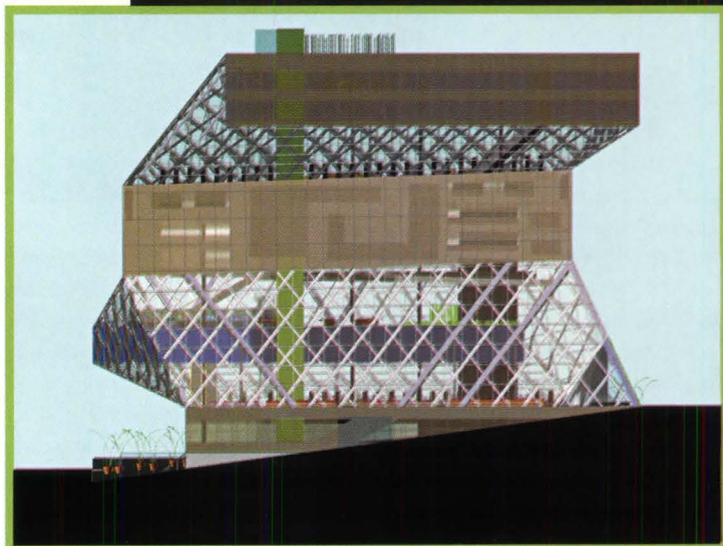
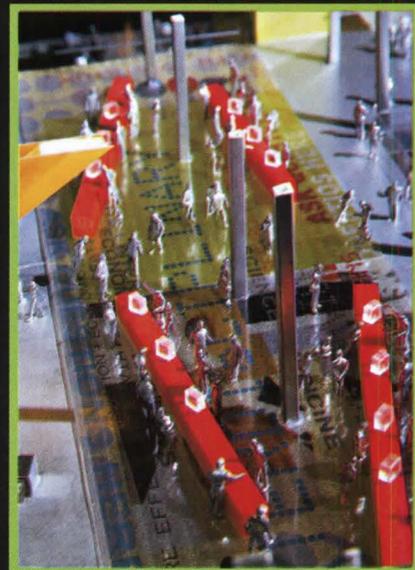
has an estimated 10,000 millionaires—more per capita than any other U.S. city according to a special report by National Public Radio. Drawn by Koolhaas' avant-garde aura, a new breed of philanthropists has embraced the library as a particularly hip cause, while shunning many other nonprofits. "Rem sparked an interest with the young tech community; there's a contingent that comes to every event," says Jacobs. The presence on the library board of former Microsoft CFO Greg Maffei, one of the most admired tech-executives in the country, signifies a high level of acceptance within the dot-com community. When Bill and Melinda Gates gave \$20 million to the library, they encouraged others to make generous contributions. An additional \$24 million poured in from corporations, private foundations, and individuals, allowing the library foundation to increase its private fund-raising goal from \$40 to \$60 million.

Conceptually, the library design doesn't break new ground for OMA—Koolhaas' fascination with the superposition of programs goes back to his 1978 *Delirious New York*—but its enigmatic form was enough to shock a lunchtime audience that turned out last December to see the schematic design. Blocks of floors slip and slide almost 50 feet out of vertical alignment inside a diamond-patterned mesh woven by I beams and steel tubes. Cloaked by a continuous glass curtain wall, the structural skin minimizes the presence of trusses and columns on the interior and unifies the shifting shape.

Working with eye-popping graphics by his long-time collaborator Bruce Mau, Koolhaas built a case for the faceted form by detailing how it would address the twin challenges faced by libraries today: the unpredictable proliferation of new technologies and the multiplication of its social obligations. OMA's strategy divides the 335,000-square-foot project into distinct spatial compartments equipped to meet technological or social needs while preventing the encroachment of one upon the another. "By combining like with like, five platforms have been identified and articulated, each housing a programmatic cluster," explains Koolhaas. Because every platform is designed for a unique purpose (parking, staff area, assembly, books, offices), they vary in size and opacity. Alternating between these five floating boxes spaced over the library's eleven floors are four open public spaces (kid's area, living room, mixing chamber, and reading room) where patrons can meet, search the Web, or sit and read.

The project will replace the dilapidated library that was built in 1959 on a steep, one-block site downtown. One entrance to the new library will be on the downhill side of the site, through an obliquely angled portico along Fourth Avenue. The first in-between space, sandwiched between a 177-space parking garage below and the staff platform above, is a children's library—minus the "condescending attitude," says Koolhaas. Sharing the first level is a 275-seat auditorium visible from the street, the multilingual collection, and a circulation area for adults.

The uphill entrance, off Fifth Avenue, opens into the main lobby and what OMA envisions as a living room for the city. Islands of Persian rugs and cushy couches will float on an electronic billboard floor juxtaposing classic definitions of comfort with the hyper-modern. With lights underneath transparent panels on pedestal flooring, this "billboard" will communicate library events to patrons with changing colors or graphics.



"ONCE PEOPLE GET HOW OMA'S DESIGN WORKS, IT EXCITES THE HECK OUT OF THEM," SAYS LIBRARIAN DEBORAH JACOBS.



Blocks of floors shift toward views and light inside a diamond-patterned mesh woven by I-beams and steel tubes cloaked in a glass curtain wall. Alternating

between five platforms (each devoted to a specific programmatic cluster) are four open spaces where patrons can meet, search the Web, or read.



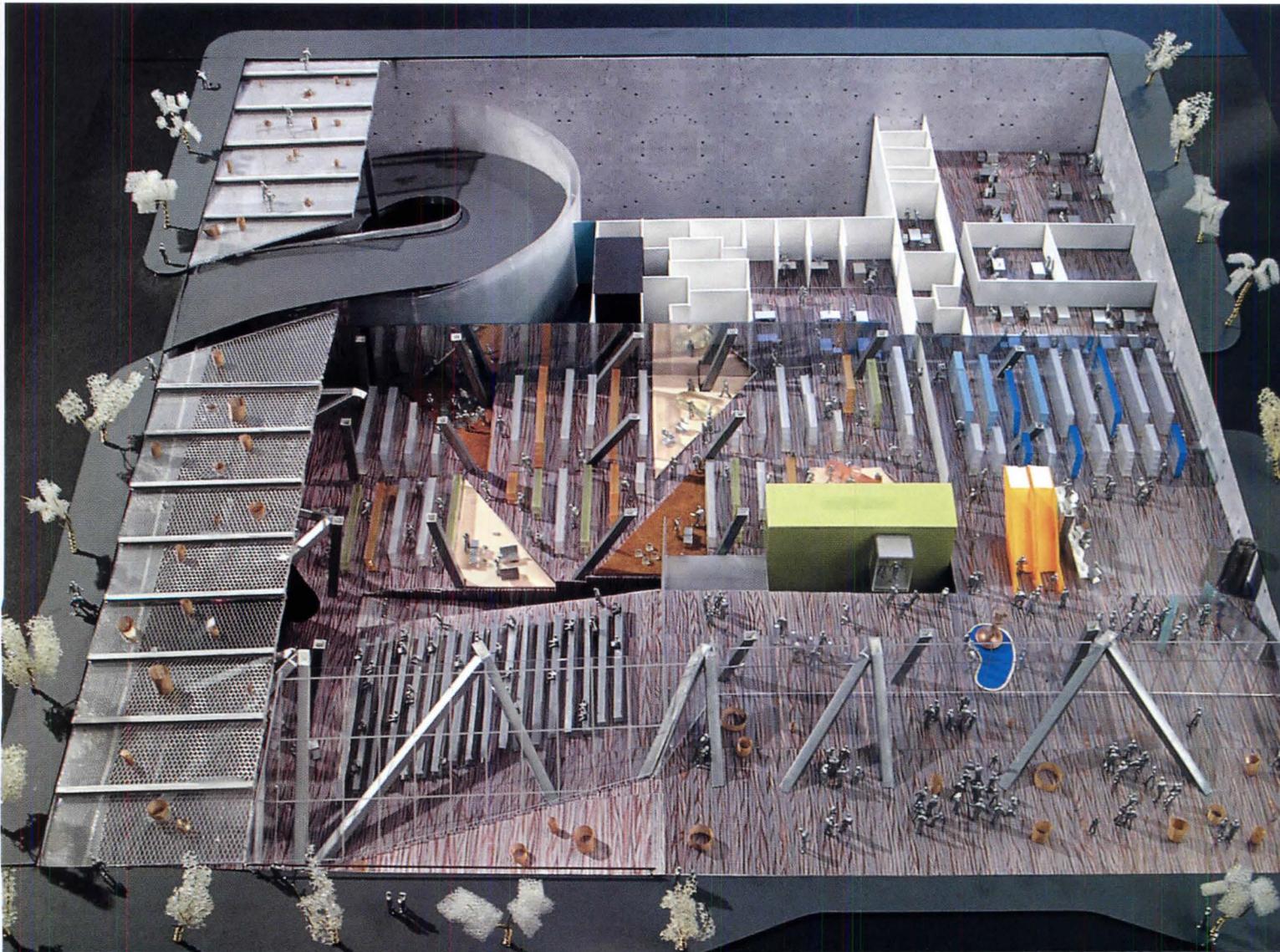
The curtain wall is set back, while the structure continues out to the property line, defining an obliquely angled entry portico.

Above the living room, on the fourth level, the assembly platform will contain technology training rooms and multipurpose meeting spaces. The next in-between space, the “mixing chamber,” is on a fifth-level mezzanine, overlooking the living room below. It will be a “trading floor” for information, consolidating all the reference resources. “In traditional libraries there is a complex trajectory to find the right librarian, so we concentrated them at a central point,” explains Koolhaas.

Directly above the mixing chamber is the library’s most innovative feature—a square spiral of books from 0 to 999 in Dewey Decimal order over four levels. Unlike most libraries, which are forced to split collections arbitrarily on separate floors, the ramp allows a continuous flow of books and random moments of discovery. At the top landing on

the ninth level, the last grand public space offers a vast main reading room with a glass roof angled down toward Puget Sound. Above it, under a freshly mowed roof of grass, are two levels of administrative offices circling a rectangular atrium that penetrates the building top to bottom with an 11-story volume of open space.

In context, the library’s shifting blocks of floors allow it to be fine-



tuned to the site's light, views, and 30-foot change in grade. Awash in a sea of gray orthogonal office buildings and parking garages, the design promises a complex structure alternating between transparency and opaqueness in response to the condition of the sky. In Koolhaas' mind, though, the library's real context lies over a mile away, with Frank O. Gehry's Experience Music Project: "The library's angular facets, with the folds of Gehry's project, form a plausible bracketing of Seattle's new modernity."

In a city infamous for its lengthy and contentious public-review process, the library has faced an unusual level of scrutiny—most of it at the invitation of politically savvy Jacobs. "We want everyone to have an opportunity to comment and be involved," she explains. In addition to informal open houses where the public circles the model and mingles with Koolhaas, OMA/LMN conducted a series of workshops with 11 library user groups and 37 different library staff groups. The library's Web site (www.spl.org) gets 30,000 hits a day, spreading the word with regularly updated information on everything from the cost estimate to the Design Commission's comments on the project. While the design did not change dramatically from the December to May public presentations, the hot points—reduced space for books, transparent floors, and a slide down into the children's library—were either modified or discussed by Koolhaas.

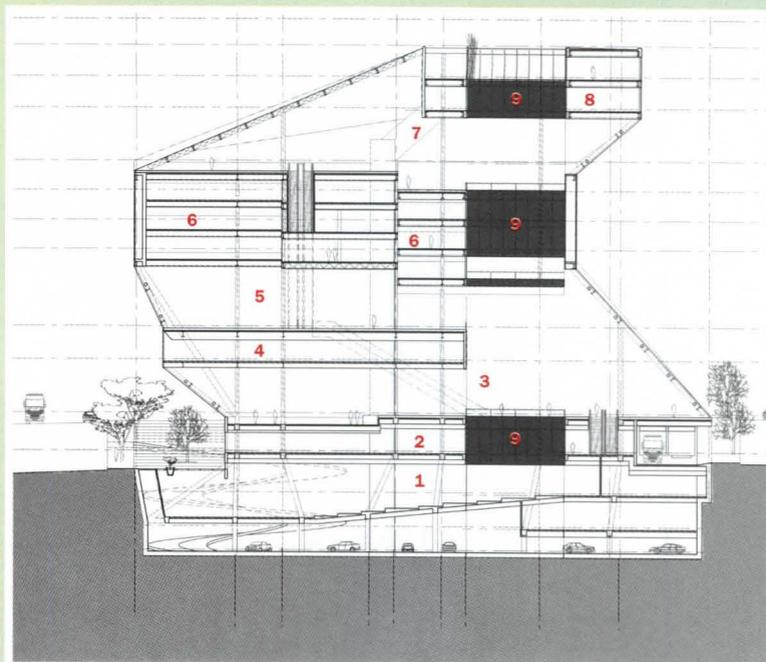
Local news coverage and editorials have generally been more positive than negative, with some memorable exceptions. Wrote one columnist, whose story was picked up later by the international news wire service: "I have a fantasy that Rem Koolhaas will wake up one morning and realize—oops!—I've designed the ugliest library in the world." Shrugging off his role in urban mythmaking while simultaneously pro-

“WITH OTHER PROJECTS THERE NEVER SEEMS TO BE TIME FOR INPUT, BUT THE LIBRARY HAS A GENUINE RHYTHM OF PROPOSAL-REACTION-COUNTERPROPOSAL.”

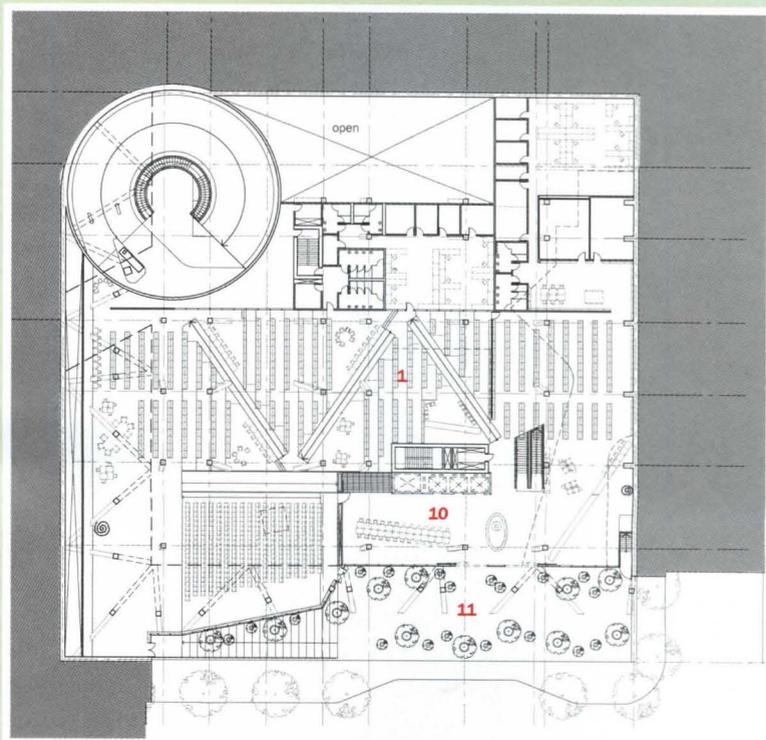
jecting a copy of the article two stories high behind him at a public presentation, Koolhaas quipped, "We like criticism; architecture is born in confrontation." The negative press may provide a welcome foothold in the atmosphere of consensus between the Library Board, Design Commission, and OMA. "The Design Commission has been uncharacteristically positive," says Sundberg, who attributes it to a combination of Koolhaas' charisma and his methodical way of presenting the design that makes it seem plausible, if not inevitable.

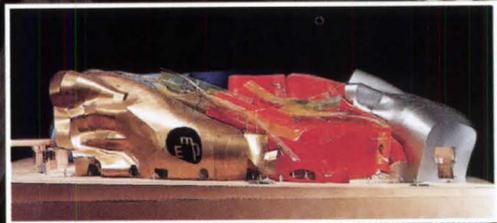
One wise decision was to involve the public early in the process—the concept was first presented barely six weeks into schematic design. "With other projects there never seems to be time for input, but the library has a genuine rhythm of proposal-reaction-counterproposal," says David Brewster, director of Seattle's Town Hall Cultural Center. By contrast, Seattle's new *City Hall*, which is being designed by Peter Bohlin, faia, of Bohlin Cywinski Jackson Architects in Wilkes-Barre, has incurred ill will due to a public process that appears less open to study and comment during design.

There still may be bumps ahead for the library if it goes over budget during construction (scheduled to begin in January and be completed in 2003) or proves difficult or expensive to maintain. Brewster, who remembers the initially warm reception Venturi Scott Brown's 1991 Seattle Art Museum received before the backlash set in, wonders if the library is doomed to the same xenophobic fate. "Seattleites can be very agreeable at first to prevent hard feelings, but it all comes out later on after the newness wears off," he forewarns. Until then, the honeymoon is not over. ■



- | | |
|-----------------------------------|--------------------|
| 1. Kids/multi-lingual | 6. Stacks |
| 2. Staff | 7. Reading room |
| 3. "Living room" | 8. Administration |
| 4. Meeting | 9. Atrium |
| 5. "Mixing chamber"/
reference | 10. Lobby |
| | 11. Entrance plaza |





The geometric complexities of the exterior (model) "went just about to the limits of constructability," says EMP's Paul Zumwalt. During construction the spiderweb tubular armatures and subframing (by A. Zahner Sheet Metals) of what would become a gold-clad volume hung over the Monorail train tracks.

A marriage of money, technology, youth culture, and glitz, **THE EXPERIENCE MUSIC PROJECT** is Frank O. Gehry's paeon to rock 'n' roll rebellion.

By James S. Russell, AIA

At the base of the Space Needle in Seattle, the spectacular form that rose over a 36-month construction period alternately fascinated, baffled, and repelled onlookers. First steel ribs appeared, undulating in what seemed impossibly tight curves. Later, spiky metal branches sprouted from the structure. They looked poised to engulf the Monorail train (like the Needle, an artifact of the city's 1962 World's Fair) that passes through the site. As bright metal panels began to appear, sidewalk critics compared the emerging rippling and curving structure with a rock musician's inner ear or an open-heart surgery gone awry. What it all became is the Experience Music Project (EMP), an Internet-age tribute to rock 'n' roll.

The EMP is the brainchild of Paul Allen, who developed an obsession with rock 'n' roll through the music of Seattle native Jimi Hendrix. Allen, with William Gates, cofounded Microsoft. Among the world's richest men, he serves on Microsoft's board while managing an eclectic array of businesses, investments, and charities. EMP was inspired as an homage to Hendrix.

But Allen's involvement in rock 'n' roll and cutting-edge computer technology hatched a more ambitious idea. EMP could use technology "to set new standards for museums," Allen says. It could help people make their own music. Today, EMP's agenda is no less than to "celebrate and explore creativity and innovation" through rock 'n' roll, so Allen unleashed extraordinary creative forces in the making of EMP. The design, construction, and display technology went to the outer limits of what is possible to build today.

Although the project would eventually house 25,000 square feet of exhibition space, the program Allen handed Gehry was far from the museum norm. It included Sky Church, dreamed up by Hendrix before his death, conceived as a place where anyone could gather to make and listen to music. Allen took Hendrix's idea one step further: He asked that it be transformable by the most advanced lighting and sound effects. Artist's Journey, a thrill ride, would use flight-simulator technology with theatrical, lighting, audio, and computer-animation effects to physically take the visitor inside music. Sound Lab would appeal to the rock-star wannabe with its computer-driven tutorials designed to help patrons improve their technique or

produce their own first halting chords. Extroverts would be offered an opportunity to "perform" in a studio with lights, fake fog, and a virtual audience to scream in adulation.

Aside from housing these disparate dreams, Gehry was charged with making a building to embody the rock 'n' roll ethos of rebellion, as self-contradictory as that sounds in an *(text continued on page 134)*

Project: Experience Music Project, Seattle

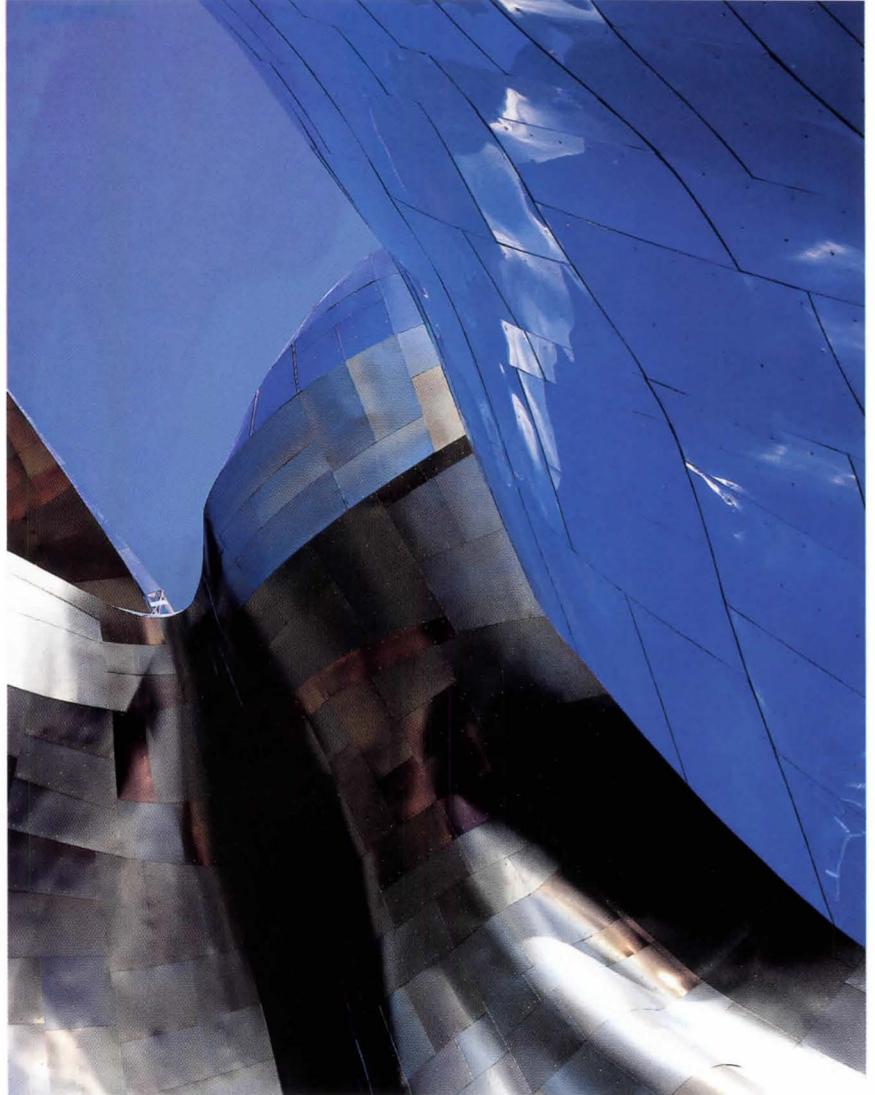
Architect: Frank O. Gehry and Associates—Frank O. Gehry, James Glymph, Craig Webb, Terry Bell, George Metzger, Laurence Tighe

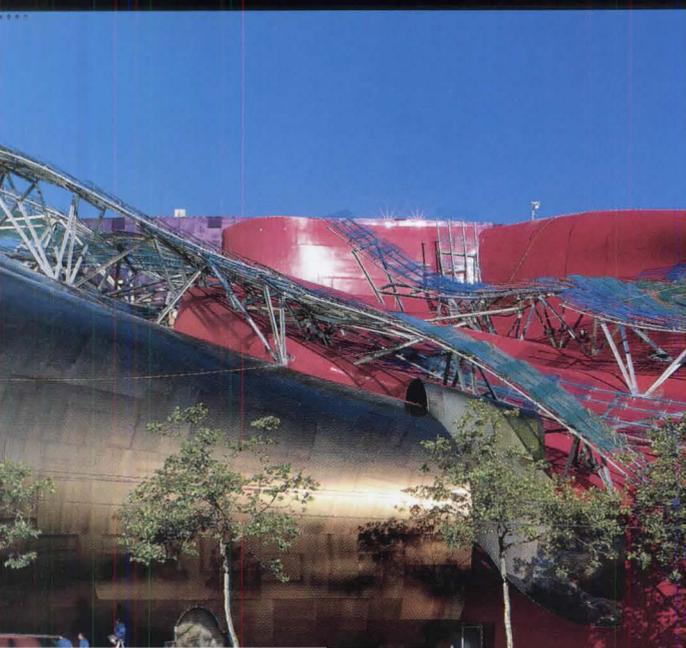
Associate/Exhibit Architect:

Loschky Marquardt & Nesholm

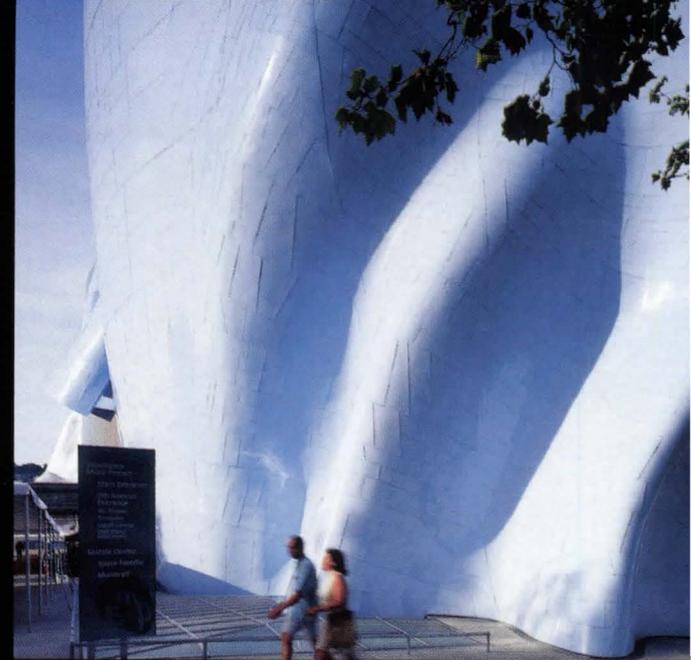
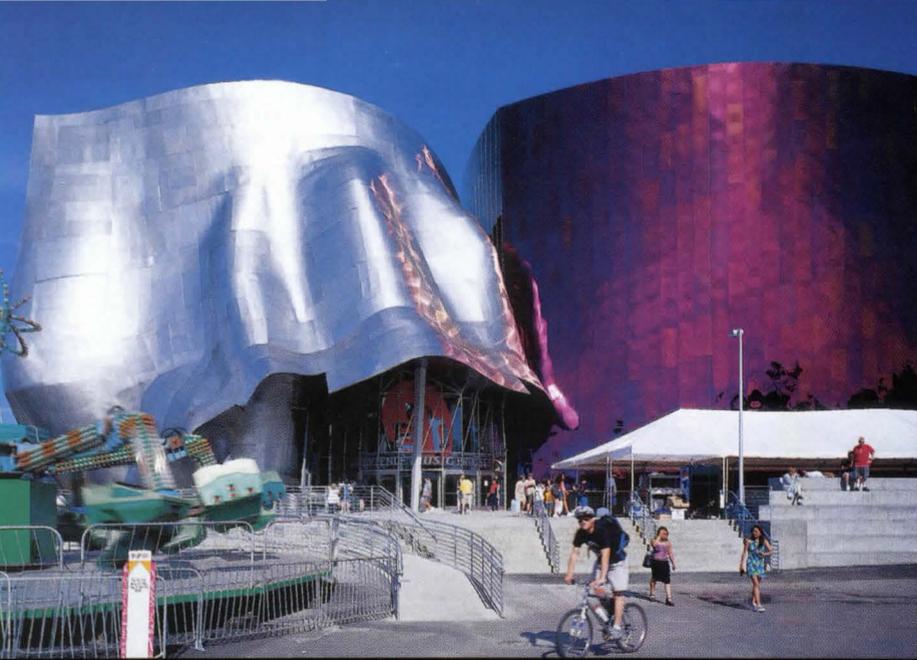
Engineers: Skilling Ward Magnusson Barkshire (structural); Sparling (electrical); Jaffe Holden Scarbrough, Cerami Associates (acoustical)

Sky Church designers: The Floating Company

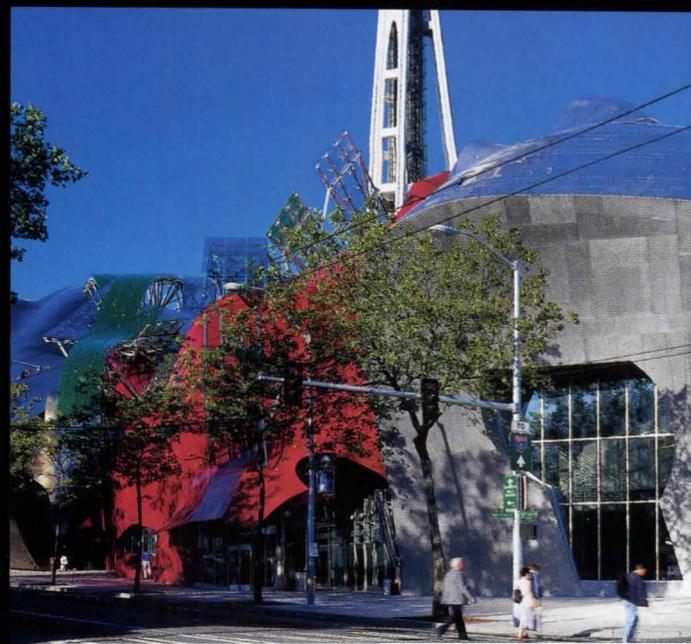




As built, EMP is rich in architectural incident. Gehry was inspired by the futuristic imagery (1962 style) of this former World's Fair site, including the **Space Needle** (from which the top left photo was shot) and **Monorail**. He also took into account the colorful **Fun Forest**, an adjacent small amusement park. EMP's colors derive from rock 'n' roll imagery: gold from a Les Paul–designed Gibson guitar, red from a Fender Stratocaster owned by Eric Clapton, aqua from another Stratocaster, purple for Jimi Hendrix's song "Purple Haze." Images clockwise from above: Sky Church, skinned in polished stainless steel that has been dipped in an acid bath to attain its **gold-to-purple iridescence**, retains a blocklike form, though eased by soft curves. Its compositional centrality is little visible in the final building. The **aqua-painted walls** enclosing the Artist's Journey thrill ride roll wavelike into a rounded roof and flutter into soft pleats where the monorail passes through. At



the northern end of the building, the skirts of a **silver-toned volume** (paneled in matte stainless steel) billow outward to reveal the west entrance facing the Fun Forest. It takes on a Pillsbury Doughboy shape (turning tawny in the late-day sun) as it bulges benignly over an auto dropoff. At the corner of Fifth Avenue, a squiggly keyhole opens into the store. An entrance is just to the left. Between these compositionally calm bookends, a **splatter of bright-red metal** (enameled aluminum panels) rides atop a **matte-gold-tinted volume** (bead-blasted, gold-tinted stainless steel), which rears up like a tidal wave ready to break over the monorail tracks. (This form has already been dubbed the Madonna, for the veil-like folds of its metal-panel "drapery.") "There are no two pieces alike," says William Zahner. Waning light along the city-facing Fifth Avenue elevation picks up **clear, blue- and green-tinted glass**—giant flailing "guitar strings" supported by spidery legs that spring from the roof.





METAL PANELS

A. Zahner Company developed software to derive roof-panel shapes from the seemingly random pattern Gehry's firm had modeled in 3-D (opposite bottom). The program "flattened" each sheet (some double curved) and drove fabrication equipment, which cut, drilled attachment holes, and attached sheets to units of about 10 feet square.

ARMATURES

Units lock flush into each other with hidden connections. They clamp to a 5-inch-diameter pipe system that in turn connect to 6- or 8-inch-diameter pedestals which are anchored to structural steel. An additional subframe of metal strips supports highly articulated areas (left).

WATERPROOFING/ INSULATION

Cold-applied urethane waterproofing was sprayed over foamed-on insulation.

SHOTCRETE

A 5-inch-thick layer of shotcrete was sprayed over steel reinforcement (middle opposite) and a wire mesh that was stretched between structural steel ribs (top right). An additional layer of fabric prevented blow-through. The shotcrete makes the structure rigid and locks it together.

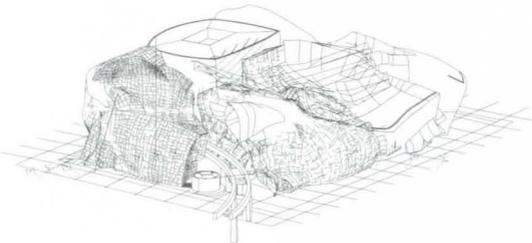
STEEL FRAME

Steel fabricator Columbia Wire & Iron (CWI) added computer capability to derive steel shapes from Gehry's 3-D model and robotically cut plates for the steel-rib webs. Flanges were bent, then rolled on.

Paul Zumwalt, the design and construction manager for EMP, describes some key challenges. "We held the finalization of the steel design as long as possible, but finally had to freeze it. Gehry's office continued to refine the most complex elements because they were framed onto the pipe armatures [bottom] that were attached to pedestals [below] that went through the waterproofing, insulation, and shotcrete to attach to the ribs [right]. At the most extreme point, the armatures cantilever 28 feet from the ribs [opposite]. . . . Tolerances? The shotcrete is five inches thick but could only vary by one-eighth of an inch. Frank [Gehry] says no one will ever do this again."



**"THIS BUILDING IS BUILT TO
A 100-YEAR STANDARD."
—PAUL ZUMWALT, EMP**





**"IF YOU HAD TO DO IT MANUALLY
YOU WOULD NEVER BE ABLE
TO BUILD THIS BUILDING."**

— CRAIG WEBB, FRANK O. GEHRY & ASSOCIATES

**“WE TRIED TO EXPRESS MUSIC
THAT COMES FROM A
TOTALLY UNEXPECTED PLACE
AND CHANGES YOU.” —FRANK GEHRY**



Experience Music Project *continued from page 127*

institutional setting. His sculpturally driven formmaking was bound to take this project far from the buttoned-down corporate quality of I. M. Pei's Rock 'n' Roll Hall of Fame, in Cleveland [November 1995, page 82]. Gehry credits his project designers, Jim Glymph and Craig Webb, with helping him "get the music into my gut." He told a group of Seattle area architects at the project's opening that Webb and Glymph had both played in bands. "They inhaled and everything," he added. The designers played around with scavenged guitar parts, deriving the exterior's candy colors from Allen's guitar collection.

From blocks to swoops to waves

Early sketches from 1996 suggest boulderlike blobs gathered around a higher central form and fissured by a spaghetti of tendrils. Wavelike horizontal shapes recall Bilbao. Gehry tried to gather all the functions within a single structure, but some of the space had to be placed to the south of the elevated track of the monorail, which slices across about one-fourth of the site. Gehry and his associates quickly moved to develop the design in model form. Early on, they shaped a skylighted fissure, reflecting a developing internal "street" linking Fifth Avenue with the Seattle Center, the former World's Fair site, which has become a parklike precinct housing some of the city's key recreational and cultural venues. A later permutation

shows a blocky, high, central volume (this would become Sky Church), with subsidiary blocks tethered to it by a membrane of skylights. Because Allen reacted favorably to the "swoopy" forms Gehry was trying out on other projects, Gehry introduced the softly, rippling forms that became the building's unique design signature.

"It is one of the first projects in which we began to explore color in a big way for its painterly effect," explains Webb. Various explorations included how the roof would warp or fissure to create the transition from one color to the next. "The building plays with different levels of reflectance and transparency," says Webb. "The gold stainless steel was glass-bead-blasted to a matte finish, but it still has some reflectivity. The purple, which is mirrored, reflects the clouds or the ground because of its curved shape. We blended the colors through the use of the glass ribbons, which superimpose blue, green, and clear glass over the



Computers actuate auto picks on this sculpture created by the artist Trimpin.

opaque red and gold panels." The project, by advancing computer-aided manufacturing processes, "made A. Zahner an entirely different company," says William Zahner, whose company fabricated the metal panels.



Exhibits layer sound and video clips over an eclectic range of artifacts.



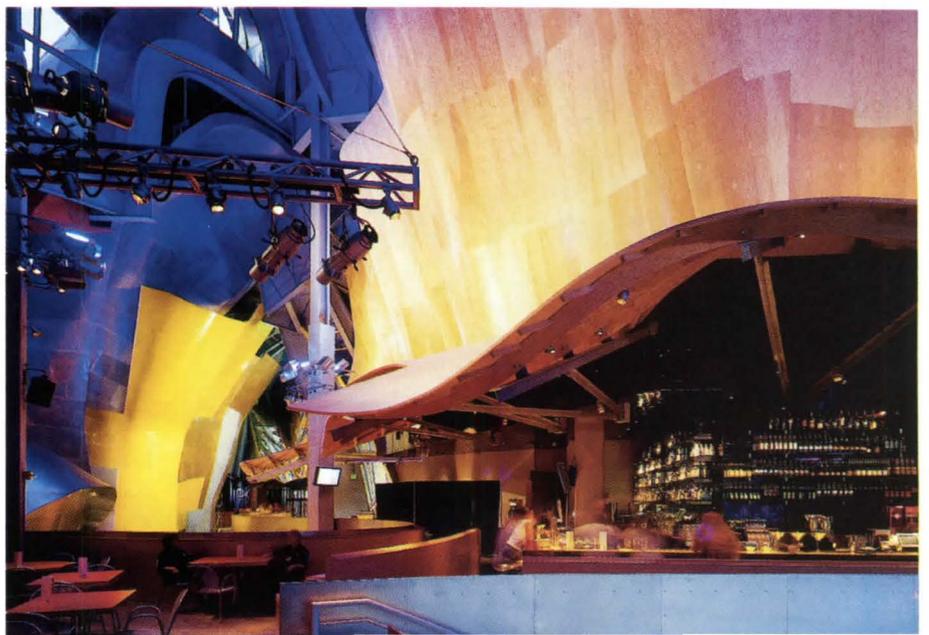
Northwest Passage, an exhibit area devoted to local music traditions, slips between the fireproofed steel ribs of Gehry's structure.

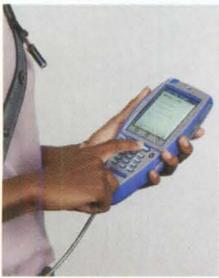
As built, the building is jaw-droppingly spectacular, yet baffling. The shapes and colors don't connote the entrance, respond obviously to the context, or tell the passerby about what goes on inside. Even the celebrated Bilbao Guggenheim Museum slouches in a recognizable relationship to the Nervion River, its central, towerlike elements symbolizing the atrium gathering space within. "It purposefully goes against the hierarchical quality of Bilbao," explained Gehry in an interview. "It's about rock 'n' roll. It needed to be messier."

Gehry credits Allen and his sister Jody Patton (who is EMP's executive director) for letting him take this project into uncharted artistic realms. Even Gehry admits this was risky artistically: the fast-moving and disposable nature of popular music has always seemed to have little in common with such a fixed form as architecture. But he cannot readily explain how the finished forms could be so specific, yet so uninformative in conventional terms. "I play by a very rigid set of rules," he says. "But I don't know how to explain them to you." Webb can't explain them either. "After 12 or 13 years together, we've developed a very abbreviated and shorthand way of working and it's not very verbal. We may say such and such is like what [painter Robert] Rauschenberg was doing in that particular painting. It evokes a visual or sculptural idea that we all know about."



A ceiling sculpture of polished stainless-steel greets visitors to the main lobby (above). Because the surface shows every flaw, it was one of the most difficult to fabricate. Skylights offer a peek-aboo view to the Space Needle. (right).





The Museum Exhibit Guide accesses sound clips tied to displays.

Interior's digital domain

Gehry only worked on the interior's public areas; most of the rest, largely designed by others, is intended to change frequently and readily. Much more the domain of specialized exhibit and attraction designers, the interior houses dozens of "interactives"—the catchall term for the technology that helps immerse the visitor in the Experience. Displays mix an eclectic range of artifacts—publicity photos, posters, 45 rpm singles, costumes, vintage radios, a whole gallery of guitars—with video and sound clips (many exactly restored). "The subject matter is

sound," explains Ann Frank Farrington, director of exhibits. Thus specially designed speakers offer music keyed to displays. Move a few feet to a new exhibit and you enter a new sound domain. The touch-screen computer devices that have become ubiquitous in modern museums here feature an unusually beautiful, rich, and easy-to-navigate interface. (You can slide an on-screen "magnifying glass" across lyrics scribbled by Jimi Hendrix and see them set in type, for example.) Computer-driven technology was also lavished on the most interactive attraction, Sound Lab. The Artist's Journey thrill ride not only makes use of digital animation effects (grafting Funk master James Brown's current face onto the more lithe body of an impersonator), but also of theatrical drops and lighting, orchestrated by architects Forma Design and Cunningham Group.

Does it all add up?

EMP's marriage of money (\$100 million for the building, \$140 million for exhibits, technology and installations), gee-whiz interactive technology, splashy architecture, youth culture, and entertainment glitz, would seem

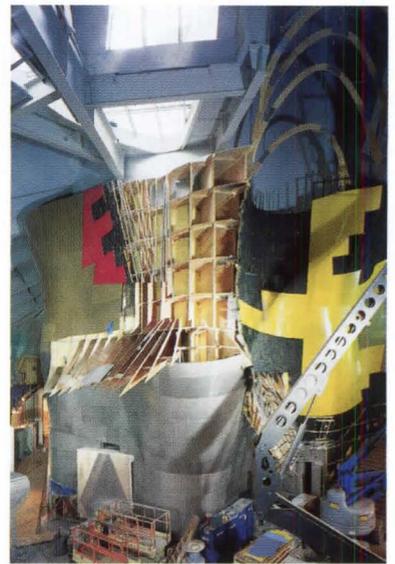


Unique lighting effects can be created in Sky Church by lighting the structure behind the 70-by 40-foot LED screen, the screen itself, or a scrim in front of it.

to perfectly sum up the spirit of this turn-of-the-millennium moment. And yet this undeniably spectacular project evokes powerfully mixed emotions. At once it panders to a taste for bright and glittery "edutainment," while conserving a popular-culture legacy that is very close to people's hearts. At its best it makes today's technology visceral and pleasurable in a way no desktop computer or Internet chat room ever will. At its worst, the technology seems to get in the way of the fundamental experience of the music. If James Brown's music alone can't make you "get the funk," the elaborate effects deployed by Artist's Journey, mind-boggling in cost and sophistication, aren't going to do the trick.

Seattleites, in general, have not yet warmed to Gehry's architecture. To a degree, this is because it bears no relationship to the low-octane contextualism that too often enervates the local scene. But EMP is harder to love than other Gehry projects. The entrances, in sensible but not obvious locations, are played down. The colors imply a coding (say, to interior function) that isn't intended. And yet, you can't take your eyes off EMP; it offers a bone-chilling excitement that nothing virtual can do. Its rippling sensuousness may fail to convert confirmed traditionalists, but those who don't insist on 100 percent legibility will be endlessly rewarded in the examination of its bumps and whorls. (The architects revel in the numerous metaphors people invent for it—whether pejorative or not—because they indicate that the building fascinates people enough that they engage with it).

What seems most to dampen enthusiasm for EMP is that it deploys enormous resources to an unneeded task. Only a few doubt that popular music is a creative endeavor that enriches our lives; there's no paucity of aspirants to rock 'n' roll stardom. On a video that runs in a temporary exhibit, Allen says with some hubris: "If you can inspire people's creativity by giving them a taste of it, it will all be worthwhile." Strangely, Allen accomplishes this purpose not so much in the Project's contents or purpose, but in its execution. The very formidability of EMP's material presence—paradoxically the product of today's ultra-abstract, ethereal technology—as well as the way it uses such other creative endeavors as lighting, acoustical design, graphics (interactive and otherwise), and product design, makes a powerful advertisement for the validity of creativity per se. And creativity gets too little due in a national culture that has a tough time seeing it as anything but a frill. ■



Construction of some interior elements was "paperless," with computer details going directly to fabrication.

Sources

Roof sculpture: *Permasteelisa*
Metal skin: *A. Zahner Company*
Structural steel: *Columbia Wire and Iron*

Exhibit fabrication: *Maltbie Assoc.*
Waterproofing: *American Hydrrotech*
Show audio/video/lighting:

Soundelux Showworks/Candela
Raised Access Floor: *Interface*
Video: *Sony*

WWW For more information and a summary of technical innovation at EMP, go to **Projects** at: www.architecturalrecord.com



A curving, multicolored wall guides visitors from the upper level, where the Fun Forest entrance and ticketing

lobby is, to the lower level retail area and Fifth Avenue entrance. A wood-canopied bar overlooks the action.

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1.

Claremont, Calif.

The Smith Campus Center at Pomona College, by Robert A.M. Stern Architects, addresses multiple uses while serving as a social hub.



2.

New Orleans

Perkins & Will designs a dormitory complex at Tulane University that combines public and private domains.



3.

Santa Monica, Calif.

Rebuilding after an earthquake, Santa Monica College funds an expansive Science Center by Anshen + Allen.



4.

Brunswick, Maine

William Rawn Associates designs new residence halls at Bowdoin College that will help to define a new quad.

By Andrea Oppenheimer Dean

As the educational role of the Internet and distance learning gain greater prominence, colleges and universities are competing to build a countervailing sense of community and institutional loyalty. To that end, new academic buildings are designed to foster face-to-face socializing in settings that invigorate the campus.

Although academia is increasingly intent on preserving the character of existing campuses when adding new buildings, the notion of context has become problematic, observes Ralph Johnson, FAIA, architect for Perkins & Will, of the Mayer Residences at Tulane. Johnson asks, “Is context just the old buildings? Do you have to be historic to be contextual? Do you ignore the ugly ’70s tower?”

Creating spaces where serendipity can occur has become especially important as schools search for ways to energize teaching. Peter Stazicker, FAIA, Anshen+Allen’s designer of Santa Monica College’s new science building, says that students now routinely move from a large lecture to small group discussions to individual laboratory work and then back to discussion groups. This new educational mode has engendered “a new dynamic in a university building,” he says.

There is a heightened recognition that much learning and creative interaction takes place informally, in unprogrammed places and through chance encounters. Now social spaces—particularly scattered, informal ones where faculty and students meet—are no longer seen as expansion-program luxuries. The watchword for new college classrooms is flexibility. Spaces must permit people and furniture to move around. Paradoxically, the information technology that permits instructors and students with laptops to project and exchange information electronically—and off-site participants to tune in—requires a fixed position. Reconciling this need for both flexibility and fixedness is key.

Student housing today must compete amenity-wise with off-campus options. Hence the music room and fully wired student rooms at Tulane. And dorms at Bowdoin encourage a rich communal life by offering suites of rooms along corridors broad enough for hanging out. Meanwhile, fully loaded campus centers have replaced traditional student unions. Such multipurpose hubs now often contain varied social vectors: a food court, recreation facilities, art gallery, theater, and postal center.

Cost remains a concern regardless of an institution’s building endowment. With some classrooms in California, for example, running \$200 a square foot, architects must be assiduous in understanding costs to justify design features to today’s savvy college boards. Successfully layered complexity, it seems, is the final test in today’s academic buildings. ■

Smith Campus Center Pomona College, Claremont, Calif.

I

ROBERT A.M. STERN ARCHITECTS DESIGNS AN ACTIVITIES COMPLEX THAT ANCHORS A CAMPUS AND REINFORCES ITS CACHE OF HISTORIC BUILDINGS.

By Susan Doubilet

Architect: Robert A.M. Stern Architects—Robert A.M. Stern, FAIA, principal architect; Graham S. Wyatt, AIA, project partner; Adam Anuszkiewicz, project architect; Diane Scott, project architect; John Cays, senior assistant; Kyo Bannai, Rebecca Laubach, Tonia Long, Lenore Passavanti, assistants; Damion Phillips, Christopher Powell, Cynthia Smith, interiors; Robert Ermerins, landscape associate

Client: Pomona College

Consultants: Syska & Hennessy Engineers (MEFPF), Nabih Youssef & Associates (structural), PSOMAS and Associates (civil), Carter, Romanek, Inc. (landscape), Integrated Lighting Design (lighting), Charles Salter and Associates (acoustical)

Size: 58,000 square feet (new construction); 9,000 square feet (ballroom renovation)

Cost: \$14.8 million

Sources

Roofing: U.S. Tile

Lighting: Luminary Tools

Concrete floors: L.M. Scofield Co.

Fixed seating: Irwin Seating Co.

Conveyance: Dover Elevators

WWW For more information on the people and products involved in this project, go to **Projects** at www.architecturalrecord.com

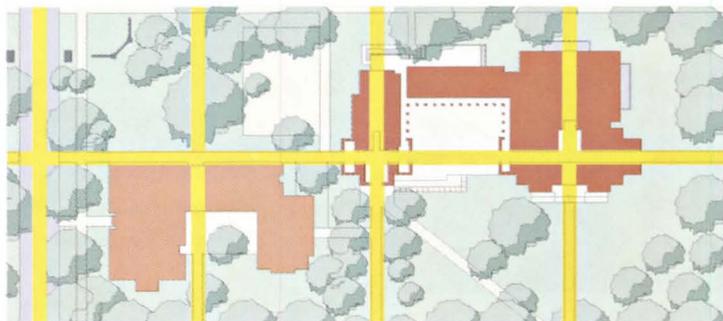
Program

In 1991, when Peter Stanley first arrived in Claremont, Calif., to assume the role of Pomona College president, he sensed a problem on the campus. As in many typical southern California communities, people retreated to the periphery after hours, leaving a void at the center. “The college has an extraordinarily diverse student population,” Stanley says, “but back then, people didn’t mingle except in classrooms.”

To solve this problem, Stanley and the college trustees decided to demolish the existing bunkerlike student union building and construct a new campus center. To draw staff, faculty, and visitors, as well as students, the complex was programmed to meet a broad variety of functions.

Many of the college’s buildings date from the early decades of the 20th century, including structures by architect Myron Hunt (the classical Bridges Hall of Music, known as Little Bridges) and by Sumner Spaulding, whose work has a Spanish cast. These structures were sited following a 1913 campus master plan prepared by Hunt. The plan, based on Beaux-Arts methods, set out a strict grid governing building axes, entrances, and pathways. It also subscribed to Thomas Jefferson’s ideal of

Susan Doubilet’s most recent book is European House Now (Universe/Rizzoli). She also co-authored American House Now and Private Architecture.



an “academic village” with a central lawn, called the Marston Quadrangle, flanked by pavilions.

Desiring a state-of-the-art facility that would look “as if it had always been there,” the college administration selected Robert A.M. Stern Architects, a firm experienced in designing academic buildings and renowned for dressing them appropriately and contextually.

Solutions/Intentions

“I don’t buy the idea that today, with the Internet, college campuses are outmoded,” says Stern associ-

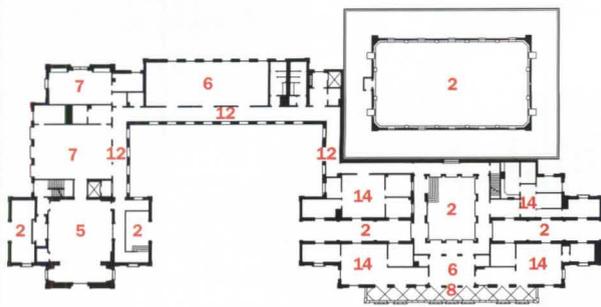
ate Graham Wyatt, AIA. “Now more than ever, students need to be drawn out to share social and cultural experiences.”

To create a heightened sense of community, the architects designed the new multiuse facility as three two-story pavilions built around a south-facing courtyard. The western pavilion features a 200-seat theater below grade and a college store and mail center on the ground floor. The northern pavilion has both a snack bar and a table-service restaurant. And the eastern pavilion houses a large “living room” plus a two-story

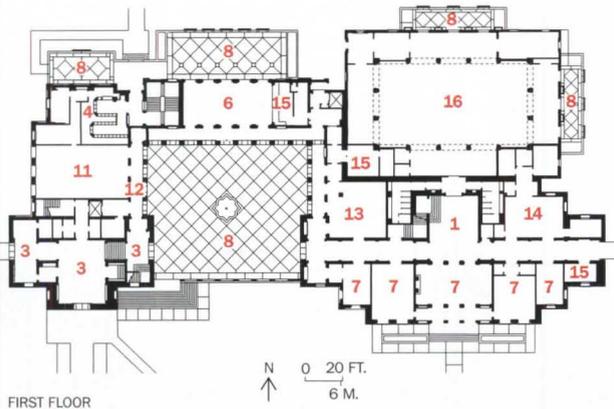


The south-facing courtyard is framed on three sides by three two-story pavilions (opposite and this page). Besides functioning as a circulation hub between wings, the courtyard serves as a social gathering spot throughout the day and evening. The architectural style of the complex—Spanish Colonial in feeling—relates well to existing campus buildings.





SECOND FLOOR



FIRST FLOOR

1. Forum
2. Open to below
3. Lobby
4. Post office
5. Conference room
6. Recreation room
7. Meeting room
8. Terrace
9. TV lounge
10. Pub
11. Co-op
12. Loggia
13. Cafe
14. Offices
15. Kitchen
16. Renovated existing ballroom

“forum” that serves as anteroom for the existing Edmunds Ballroom, which is surrounded by the new building. On the loftlike second level, much of the space is allocated to meeting rooms and offices that can be reconfigured as administrative needs change.

Wyatt talks with excitement about the significance of the site within the master plan. “Stanley discerned the lack of a compelling center on the campus, but he didn’t quite realize the spectacular opportunity afforded by the last available site on the central quadrant. We were able to incorporate three axes into the center.”

The style of the new pavilions, with a spare Spanish sensibility, fits into the campus seamlessly. Roofs are pitched, with tiles produced by the same manufacturer as those cladding the existing buildings. The ground-floor colonnades present a flattened Moorish profile, while the pilasters on both floors are Doric. The two-story entrance rotunda fronting the western pavilion is designed to respond in dignity and scale to Little Bridges, which faces it across the landscaped quadrangle.

The center is easily accessible, with entry from any side, at a number of points. Stairs and corridors are roofed but open-air, framing views of the central courtyard, campus, and two-story “forum.”

As with the college’s earliest buildings, the walls of the Stern structure are board-formed poured concrete, an expensive feature the architects urged the college to incorporate. “It meets and surpasses current earthquake requirements,” says Stern. “And it ‘breathes,’ as the roofs over the open-air circulation spaces shade the windows of the air-conditioned rooms behind them.”

Commentary

The south-facing courtyard was the most glaring (literally and figuratively) problem of the center, until Stanley added four potted trees. “The courtyard badly needed softening as well as shading,” he explains. ■

The double-height forum (left, top) is a public antechamber serving the existing ballroom, which was renovated by Stern. The well-appointed lounge (left, below) was designed as a student “living room,” with glass-paneled doors allowing passersby a glimpse into the gathering place.



Metal banisters and railings, custom chandeliers, exposed wood beams, and finely detailed masonry impart a spare Spanish Colonial sensibility to the public forum of this new building.



Mayer Residences

Tulane University, New Orleans

2

PERKINS & WILL BLENDS TRADITION AND MODERNITY IN A RESIDENCE HALL THAT OFFERS PRIVACY AND PLACES FOR SOCIALIZING.

By Deborah Snoonian, PE

Architect, interior designer:

Perkins & Will—Ralph E. Johnson, FAIA, design principal; Joseph Chronister, project manager; Nicola Casciato, project designer; Keith Kreinik, Kimberly Brown, John O'Neil, project team

Associate architects: Lyons & Hudson Architects

Client: Tulane University

Consultants: Perkins & Will (structural, mechanical, electrical, plumbing engineer); Morphy Makofsky (civic engineering); Joe Karr & Associates (landscape architect); Hanbury Evans Newill Vlattas & Co. (programming); Linbeck Construction (general contractor)

Size: 95,000 square feet

Cost: Not available

Sources

Metal: Pac-Clad

Aluminum: U.S. Aluminum Corp.

Glass: Colonial Glass

Suspension grid: Donn DX

Wood doors: Weyerhaeuser

Cabinetry, millwork: Gulf Coast Millwork

Acoustical ceilings: Omni Auratone

Resilient flooring: Tarkett

Elevators: Schindler Elevator Corp.

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Program

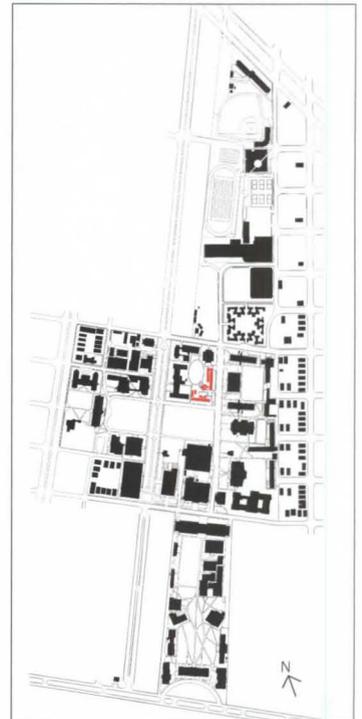
Directly across from the student center on Tulane University's busiest street, McAlister Drive, the Mayer Residences have become a place to live for students who prefer privacy without forsaking a lively social atmosphere. Two neatly streamlined, four-story buildings have replaced a lifeless, three-story dormitory block from the 1950s. Although the nearest buildings are 1950s International Style concrete and stucco structures, those sited in the nearby Newcomb Quadrangle are of Georgian brick dating from 1910. Among the challenges faced by Ralph Johnson, FAIA, Perkins & Will design director, was mediating between the two styles.

The university's campus-planning steering committee also charged the architect to be "responsive to the particularities of our climate and place," recalls committee member John P. Klingman, Tulane professor of architecture. The university wanted the new buildings to meld interior and outside spaces via balconies, patios, and terraces, in keeping with the New Orleans aesthetic. Other goals were to ensure both student privacy and sociability, and to integrate study areas with service spaces such as

laundry rooms and housekeeping supply areas.

Solutions/Intentions

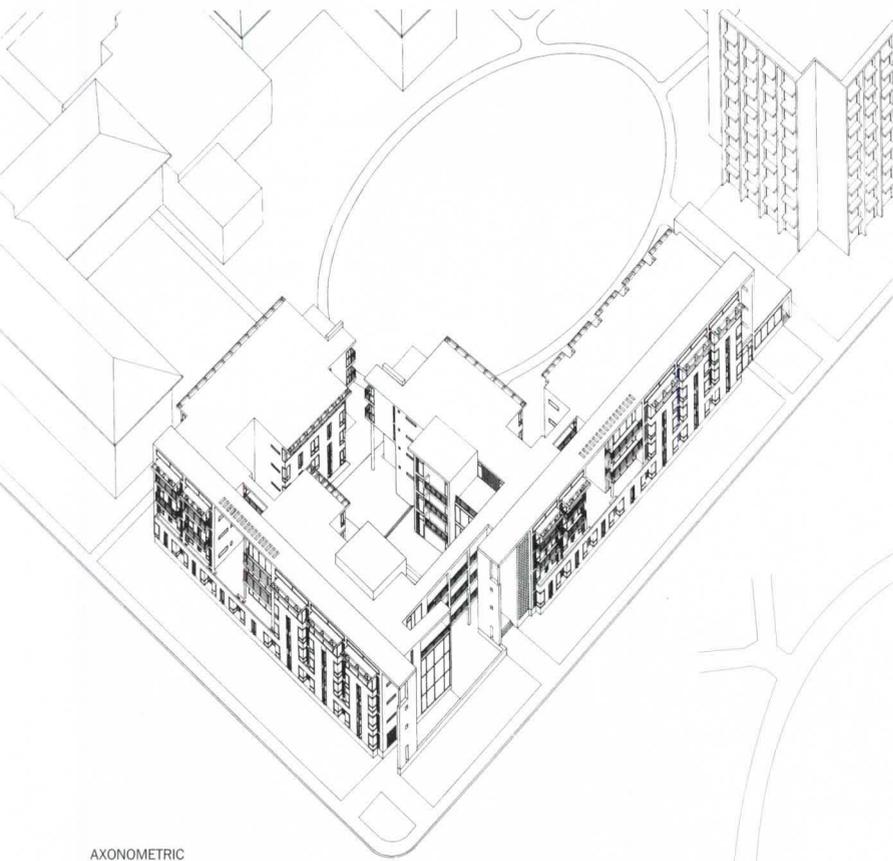
The residences' clean facades of brick and stucco are intended to unite Tulane's traditional and modern styles by respecting both and offending neither. "We didn't want to simply design nostalgic architecture," says Johnson. "We aimed to create a modernist transformation of traditional architecture." By articulating the facades, the architect broke down the buildings' mass while endowing them with enough presence to anchor the corner, continue the quadrangle's strong definition, and stand up to the large outdoor space. A street-level cyberlounge and specialty-food shop, open to neighborhood residents as well as students,



Deborah Snoonian is an engineer and freelance writer based in Washington, D.C.

The streetside elevation is massed to create a sense of privacy and stylistic kinship with campus buildings (opposite), while living spaces at the core (this page) open onto courtyards.





AXONOMETRIC

The Mayer Residences capitalize on the corner site by wrapping an L-shaped plan around an oval court, which serves as an extension to the main quadrangle (this page). A cafe at street level engages the community.

Inspired by traditional elements of the city's rich vernacular architecture, the complex incorporates balconies, overhangs, terraces, and sweeping lawns—erasing the boundaries between in- and outdoor living (opposite).

1. Cafe
2. Laundry/vending
3. Study
4. Recreation lounge
5. Entry lounge
6. Music room
7. Lounge/kitchenette
8. Typical single room
9. Typical double room
10. Courtyard



FIRST FLOOR





Window walls with clerestories and glass blocks flood bedrooms and study areas with daylight (left and below). These elements also vary the architectural geometry, an improvement on the “stacked box” housing the structure replaced.

invites foot traffic from McAlister Drive and activates the corner, an opportunity missed by the old dormitory design.

The project incorporates traditional aspects of New Orleans single-family home design: a courtyard, walkways, and many terraces and patios create a strong link between outdoors and interiors. Cut-out areas through the second, third, and fourth floors allow breezes to ventilate the buildings and enter the courtyard, “which is really important in New Orleans’ hot, humid climate,” says Klingman. Weather permitting, the balconies, terraces, and courtyard bustle with activity.

Single- and double-occupancy rooms are arranged in suites, each with its own laundry room, kitchen, vending machines, study area, and lounge; no more than two rooms share a bathroom. While ensuring the new housing’s 248 residents ample privacy, the architects focused on creating a variety of public spaces: Outdoor pedestrian bridges on each floor connect the two buildings, corridors are kept short, outdoor walkways connect suites, and multiple balconies and terraces—plus an entry courtyard—allow students to mingle outdoors. “The design gets students out of their rooms and into the common areas,” agrees Robert Stickney, Tulane project manager during construction.

Throughout the residences there is ample natural light. During the day, students can work at tables alongside large windows in study areas. Even humble laundry rooms have plate-glass walls, giv-

ing residents courtyard views as they fluff and fold and study.

Commentary

The layering of the multi-leveled terraces, the strongly expressed windows, and the contrast between brick and stucco elements give the Mayer Residences a striking visual resonance. The project’s success comes in part from a design that looks to the future while borrowing the best elements of the past, honoring the local context.

Viewed up close, however, portions of the building lack a certain refinement in their workmanship. The design details of the windows and facades, though well intentioned, were challenging to execute tidily during construction. As a result, water intrusion around the windows has become an occasional nuisance during periods of heavy rainfall, prompting repairs after the complex opened. As with any project built in New Orleans, keeping out moisture and encouraging air circulation are of tantamount importance. On the plus side, the project’s siting and thoughtful placement of galleries and balconies allow air to flow through and around the buildings during even the most humid summer weather.

Tulane students traditionally love to live off campus, as New Orleans, of course, offers housing options rich in character. The popularity of the Mayer Residences illustrates the payoffs reaped by designing housing that engages the neighborhood and provides students with a sense of community without compromising space for solitude. This dormitory is not just a place to live—but also a place that lives. ■



Balancing public and private areas, the residence hall features recreation rooms open to sun and sky via curtain walls and balconies off every dormitory floor, to be used for study breaks or people-watching.



Science Center

Santa Monica College, Calif.

3

ANSHEN+ALLEN LA BUILDS A SCIENCE CENTER THAT UNIFIES A CAMPUS AND PROVIDES A GATHERING PLACE FOR A COMMUTING STUDENT BODY.

By Lisa Findley

Architect: Anshen+ Allen LA—Sarah Dennison, AIA, principal-in-charge; Dennis McFadden, AIA, design principal; Andrew Labov, AIA, project designer; Kelly Locke, project architect; Michael Fernandez, Frank Mihelcic, Richard Wilcox, design team; Eduardo Martinez, construction administrator

Client: Santa Monica College

Consultants: Katharine Spitz Associates (landscape); Ove Arup & Partners (lighting, audiovisual, acoustics, telecommunications, SMEP engineering); Earl Walls Associates (laboratory planning)

Size: 99,200 gross square feet

Cost: \$24 million (including central plant)

Sources

Steel frame: Maya Steel

Curtain wall, entry doors, skylights: U.S. Aluminum

Doors: Security Metal Products, Buell

Windows: AMS Metals, Security Metal Products

Roofing: Centria, GAF

Cement plaster: Synergy

Composite aluminum panels: Reynobond

Hardware: Folger Adams

Ceilings: U.S. Gypsum

Conveyance: Dover

WWW For more information on the people and products involved in this project, go to **Projects** at www.architecturalrecord.com

Program

When the 1994 Northridge earthquake struck, Anshen+Allen, Los Angeles, was finishing design for an addition to the Science Center at Santa Monica College. The existing building was badly damaged and because FEMA funds became available, the 27,000-student community college asked the architects to design an entirely new building. The \$24 million, \$250-per-square-foot new building, while occupying the same site, would be nearly 50 percent larger than the damaged structure. The challenge was to gracefully insert 99,000 square feet of computer and science labs, lecture halls, classrooms, and faculty offices along one edge of a campus quadrangle.

Solutions/Intentions

To avoid creating an overscaled monster with a warren of dark double-loaded corridors, Anshen+Allen LA divided the building into two long, narrow parallel bars with a courtyard in between. The bar that follows the edge of the campus quad is a sympathetically scaled two stories with ground-floor classrooms and second-story faculty offices. The building is naturally ventilated with operable windows and heat chimneys that circulate air through the rooms. At the

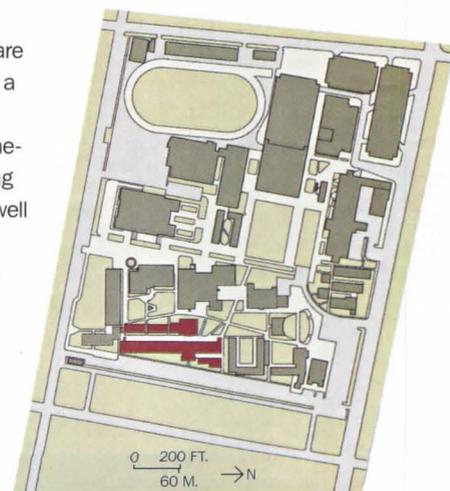
Lisa Findley, AIA, an Oakland-based architect and writer, teaches at the California College of Arts and Crafts.



end of the classroom/office bar, beyond the corner of the quad, are air-conditioned lecture halls and a computer lab.

The three-story, state-of-the-art laboratory building runs along the back of the site, stretching well past the shared courtyard. The benign climate of Santa Monica allowed the architects to place entries to the science labs and preparation rooms along single-loaded balcony walkways that overlook the courtyard.

The 200-foot-long courtyard is a pleasant space incorporating plantings and benches. It operates as an informal lobby for the building by visually or physically connecting to almost all the facilities of the building. Access to the courtyard from the quad side is through a series of identical breezeways cut through





Benches and plantings provide a hospitable spot for studying between lab sessions at the science center (this page). Balcony walkways and covered stairwells direct student circulation on the perimeter of the building (opposite).

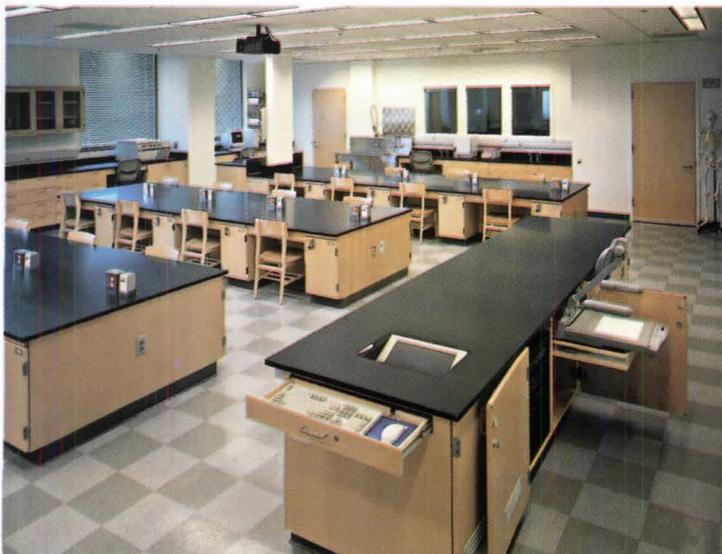


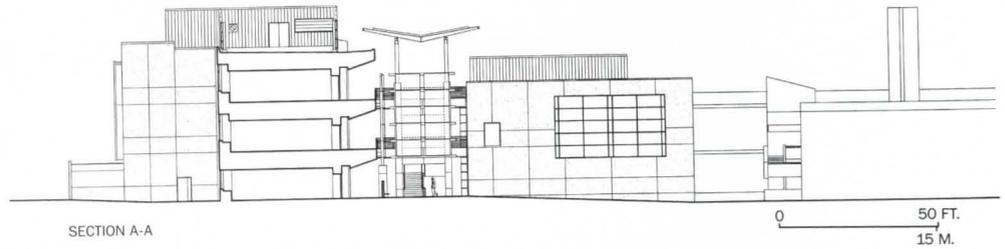
the classroom building. The courtyard is enclosed by other campus buildings on one end and open on the other, where it slides past the end of the classroom bar and faces a small lawn and sculpture garden. Stairways empty directly into each end of the courtyard, reinforcing the notion that the space serves as a community meeting place.

Creating a sense of community was indeed a priority, given the incoherence of the rest of campus and the transient nature of the commuting student population. The campus feels more like a typical California high school packed with undifferentiated classroom buildings than an American college campus, where buildings often have a distinct character and presence. To underscore the notion of the Center as a gathering place, the architects placed a large metal overhang, forming a kind of shaded porch, between the building edge and the open quad. The courtyard of the Science Center achieves a strong sense of identity by suggesting a community within a community.

Commentary

Entry into the Science Center is always casual. There is no place at the complex that might be called a front door. The breezeways that allow entry from the quad into the courtyard and classrooms, while brightly painted, are faceless corridors. The building's lack of hierarchy fits the





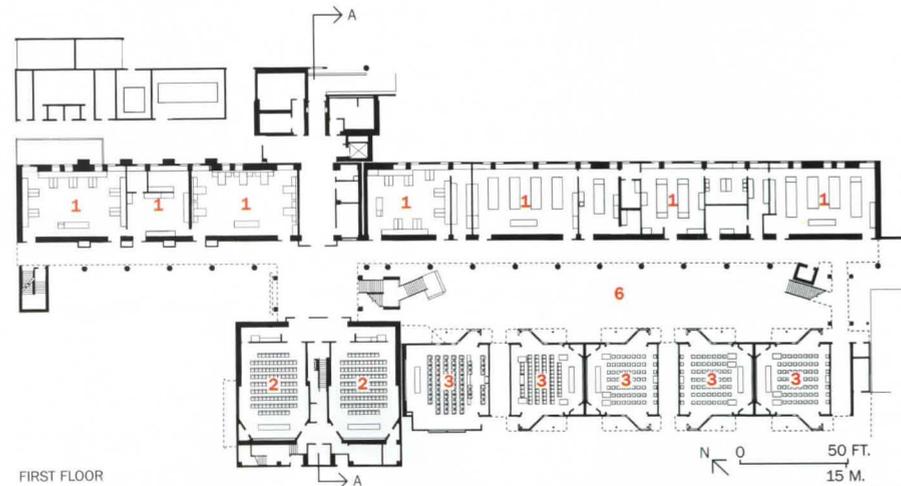
casual feeling of the campus but tends to scatter the students, compromising some of the potential for community. All of the public spaces are long and linear, inviting movement, yet there are few secluded spaces for studying between classes or talking quietly with a friend.

Each of the two long edges of the courtyard has a different character. Along the classroom/office bar, metal sash windows dominate the wall. To reduce the potential for noise from the courtyard, the designers placed plantings adjacent to the building edge, preventing activity beside the windows. By contrast, the laboratory edge of the courtyard has no windows, but welcomes circulation right up to the building's edge. The walkway balconies have carefully detailed handrails and regularly spaced screens of stainless-steel mesh that establish a vertical rhythm to break up the endless horizontal run. This mesh also composes an edge of irregularly spaced door openings. Finally, shifting light conditions on the screens change their reflectivity, shadow patterns, and transparency.

The monumental braced steel frame of the building is only noticeable as diagonal steel members across an occasional window opening; it serves as a subtle reminder that the new structure is seismically safer than its predecessor. This assurance adds to the satisfaction and delight of faculty and students with this thoughtful, well-detailed project. ■



SECOND FLOOR



FIRST FLOOR

Steel mesh screens along handrails (above) and steel roof overhangs (opposite, top) are among the custom-finished details. The structure is 50 percent larger than the one it replaced, with updated labs (opposite, below).

1. Laboratory
2. Lecture hall
3. Classroom
4. Computer lab
5. Faculty office
6. Courtyard of the sciences

Howard and Stowe Halls

Bowdoin College, Brunswick, Maine

4

WILLIAM RAWN ASSOCIATES DESIGNS TWO DORMITORIES THAT SERVE AS A LINK BETWEEN HALLOWED HALLS AND SITES FOR FUTURE GROWTH.

By Elizabeth Arcuri

Architect: William Rawn Associates—William Rawn III, FAIA, principal; Clifford Gayley, AIA, associate principal/project architect; Victoria Beach, John Upton, Lindsay Crawford, Randy Whinnery, Sean Wang, project team

Client: Bowdoin College

Consultants: Carol R. Johnson Associates (landscape)

Engineers: LeMessurier Consultants (structural); TMP Consulting Engineers (mechanical)

Size: 40,000 gross square feet

Cost: \$4 million (construction)

Sources

Exterior cladding: Morin Brick

Concrete: Northern Design Precast

Load-bearing walls, precast plank floors: Strescon Ltd.

Roofing: Maine Roofing Services

Windows: Traco

Ceilings: USG

Wood flooring: Kaswell & Co.

Conveyance: Otis Elevator Company

WWW For more information on the people and products involved in this project, go to **Projects** at www.architecturalrecord.com

Program

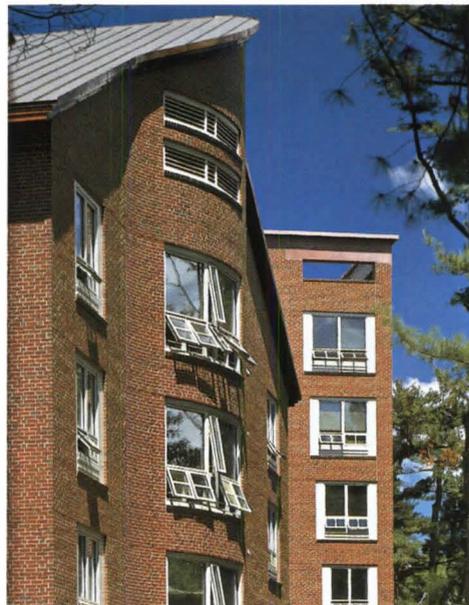
Bowdoin College's wooded campus occupies an enviable location in coastal Brunswick, Maine. The 200-acre campus evolved in two main stages: Colonial-to-late-Victorian-style buildings rose from 1820 to 1900 around a quad. The second burst of construction, from the 1920s through the '60s, produced buildings that were stylistically diverse but nearly all small-scale, clad in red brick, and low in profile. William Rawn, FAIA, designer of the campus' first new residence halls in three decades, calls the historic campus "elegantly integrated."

Solutions/Intentions

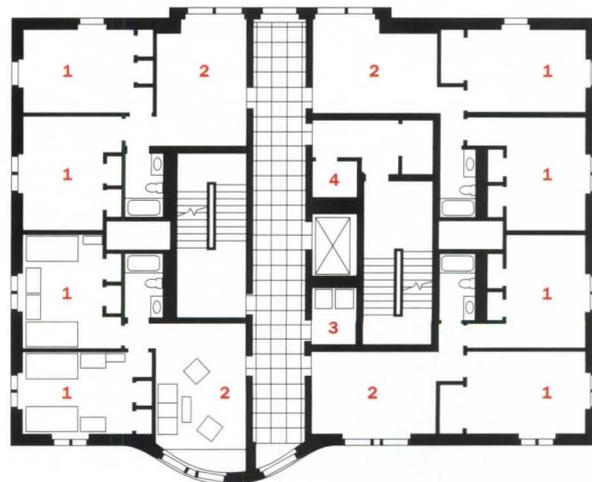
In shaping the new \$5 million dormitory complex, Rawn sought to fit the project into the texture of the campus while creating an initial link to a proposed second quad. A crucial design requirement was to encourage student interaction.

Between the completion of the residential Coles Tower in 1965 and Stowe and Howard Halls in 1996, life at Bowdoin was in flux. In response to student requests for more varied housing options, the college built off-campus apartments and converted single-family houses for student use. Bowdoin increased its enrollment by moving from a men's to a coed institution, fine-tuning its curriculum, and recruiting

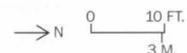
Elizabeth Arcuri is a facilities programmer and lives in New York City.



Two side-by-side dorm buildings, with distinctive yet complementary facades (left), create a massing that defines one border of a new quad. Entries at each corner of Stowe Hall (opposite) facilitate student access while orienting the structure toward all directions within the campus.



HOWARD HALL
SECOND, THIRD, AND FOURTH FLOOR PLAN



- 1. Bedroom
- 2. Living room
- 3. Laundry
- 4. Housekeeping



aggressively. By the early 1990s, the student body had nearly doubled, to 1,400 (and is projected to reach 1,550 by decade's end), sharpening the need for additional housing. "It was a pivotal time to initiate a movement to bring students back to campus," says Bowdoin president Robert Edwards, who supported the idea of developing a residence hall with an emphasis on community.

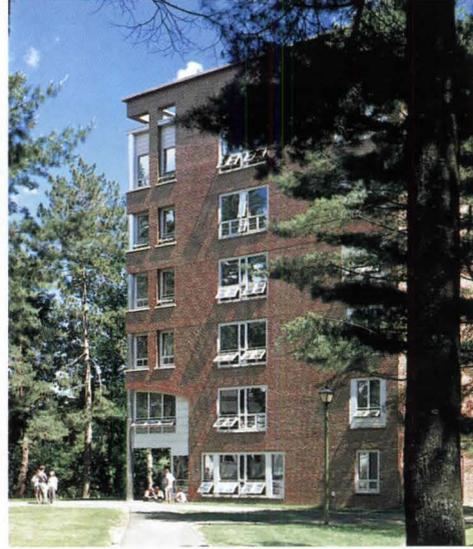
The project guidelines required the new dormitory site to serve as a link between the historic quad and the athletic fields, and to define the first edge of what will become a new south quad. Practical concerns dictated a building site on the eastern edge of the existing quad. To further define the border of the new quad, the architects chose to construct two dorm structures with distinct forms to underscore their different roles.

The four-story Howard Hall is a long, gable-ended structure. A vertical "ripple" effect, created by ground-to-gable bays, presents an expressive facade to pedestrians.

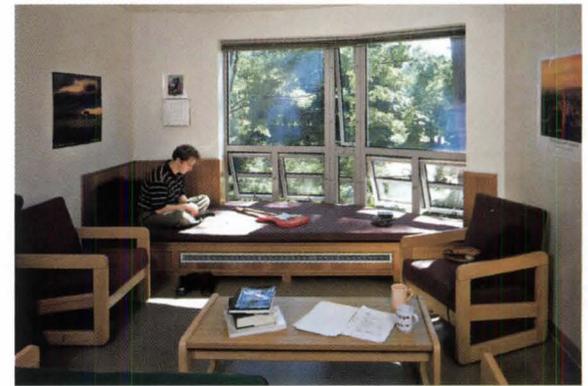
Alternatively, the cubic form of six-story Stowe Hall is rotated to act as a beacon addressing many directions simultaneously. The visual focus of an entry at each corner, together with large windows that allow for natural ventilation and daylight, gives the building eight faces: four diagonal and four orthogonal.

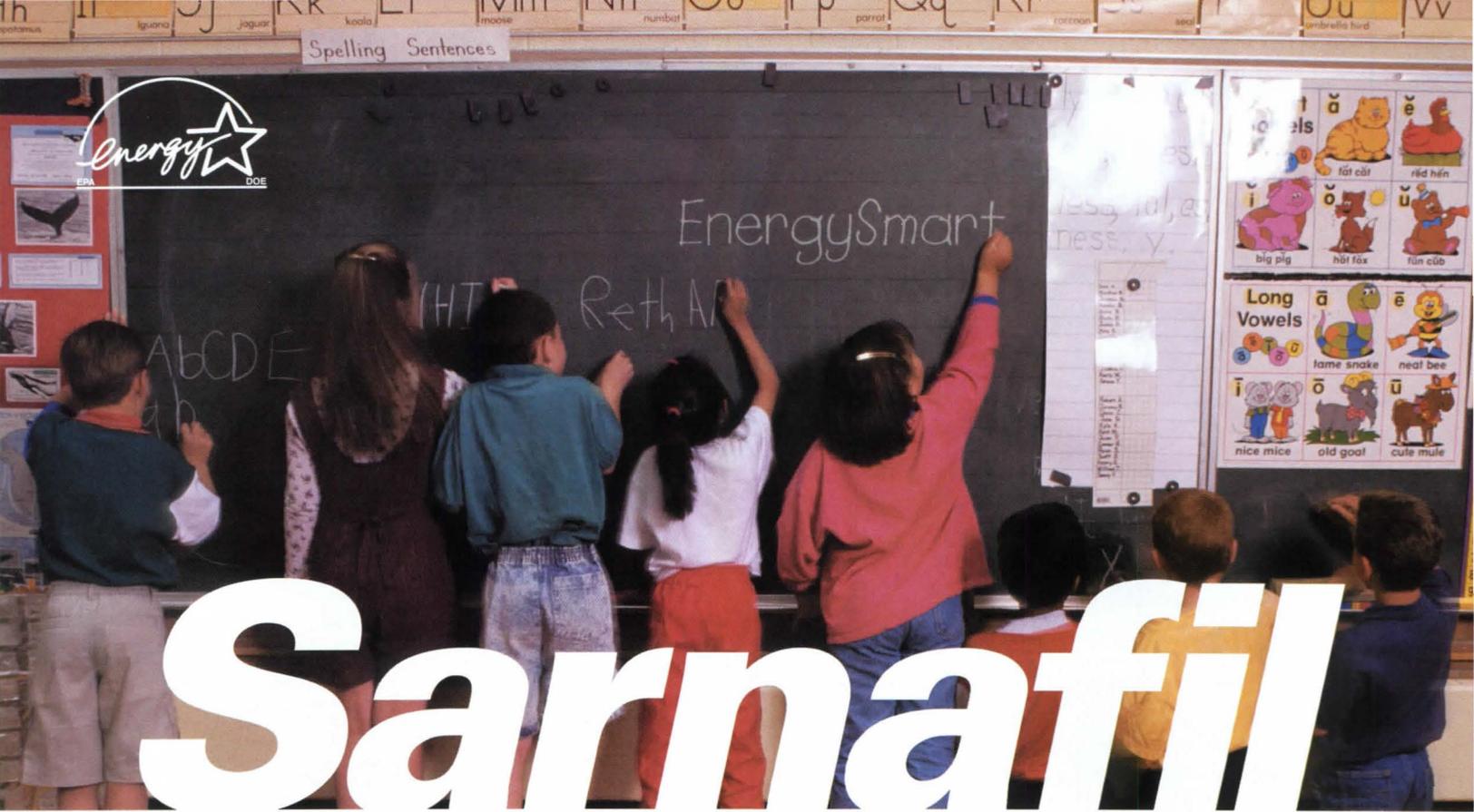
Commentary

The two buildings form a knuckle between the main quad and the edge of the new quad, and permit a range of future build-out options. Both residences also foster a sense of coeducational community. Instead of a first-floor sitting room, a small dining area and kitchen can be used for study groups by day and snacking and socializing by night. Suites, composed of double rooms that share a living area and bathroom, face one another on wide corridors running the width of the building. Unless doors are shut, students can see from one suite into the next. The corridors' extra girth encourages sociability. ■



The six-level Stowe Hall (left) is two stories taller than Howard Hall, whose gables evoke rural New England farm buildings. Wide windows allow daylight into study spaces (below). Glass partitions and wide doorways impart a sense of openness. (bottom).





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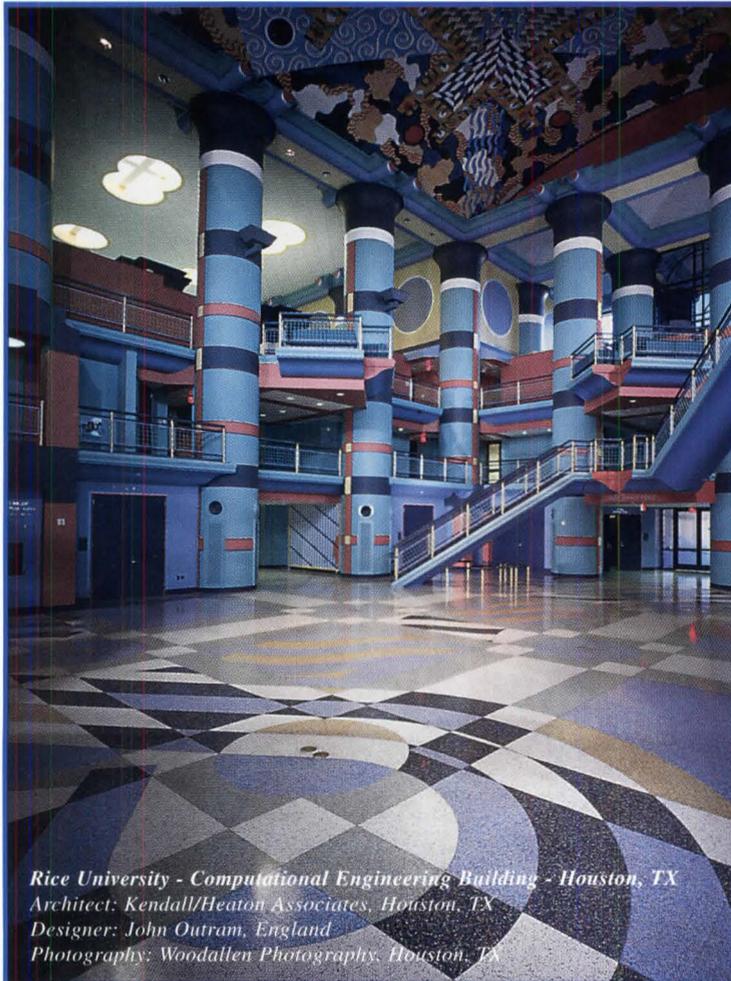
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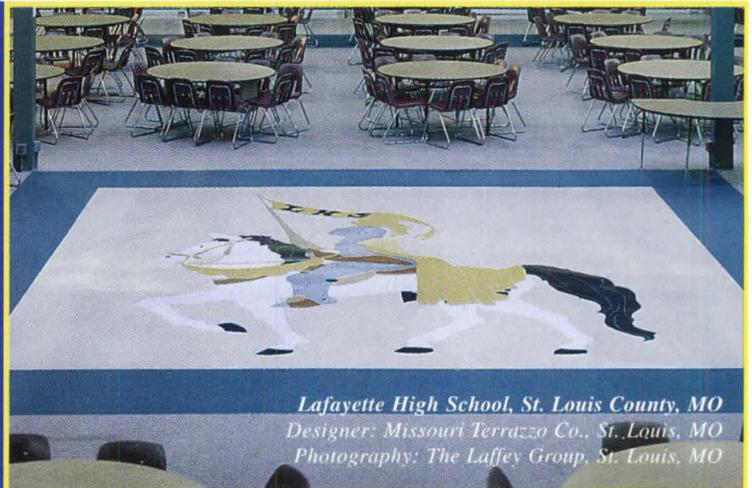
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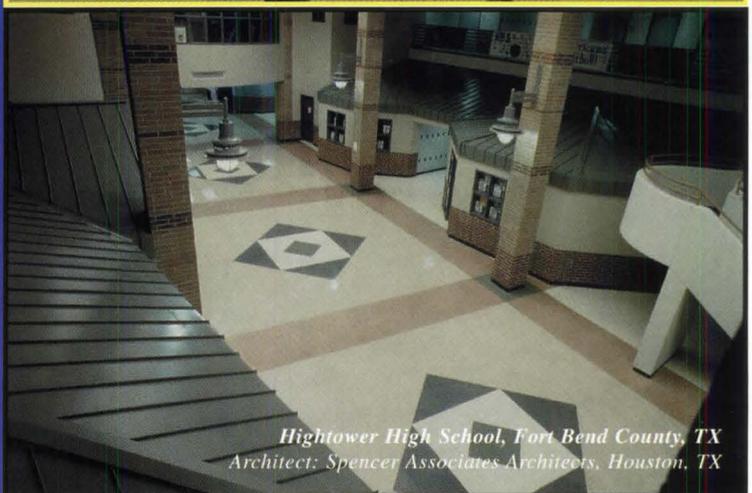
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Sleuthing out building failures

“THINGS FALL APART,” SAID YATES, BUT THERE ARE WAYS FOR ARCHITECTS TO MAKE BUILDINGS STAY TOGETHER—OR AT LEAST TO MINIMIZE THE PROBLEMS WHEN THEY DON’T.

By Deborah Snoonian, P.E.

It is the destiny of the man-made environment to vanish,” say Mario Salvadori, a former professor of civil engineering, and Matthys Levy, an engineer and principal of Weidlinger Associates in New York City, in the introduction to their book *Why Buildings Fall Down* (W.W. Norton & Co., 1992). Buildings are born, live, and die, the authors contend, just as all organisms do. Some, like the pyramids and the Pantheon, live on for a long time. Others die while still young.

Every architect who hears about a profound building failure recalls the lessons learned in architecture school during structural theory and ethics classes. Most designers have seen photos or read reports about the famous failures in recent history—the collapsed roofs of the Hartford Civic Center Arena in Hartford, Conn., and the Kemper Memorial Arena in Kansas City, Mo.; the shower of glass panels and other problems with the Hancock Tower in Boston, and, most disturbing of all, the collapse of the pedestrian bridges in the atrium of the Hyatt Regency, also in Kansas City. As one architect says, “I still have nightmares about those buildings, and about them being mine.”

As with any early death, buildings that fail dramatically, or even quietly, invite shock and grief, as well as questions and investigations. The latter are the purview of forensic investigators who, by training, may be



The roof of the Hartford Arena collapsed in January 1978 under the weight of a heavy snowfall.

architects, engineers, HVAC specialists, building inspectors, or anyone involved in the design, construction, or maintenance of buildings. By virtue of experience, forensic experts are the Sherlock Holmeses of the built environment.

What fails most?

Building failures include everything from the dramatic collapses to the nagging, persistent problems—windows that leak, cracks in the cladding, poorly functioning HVAC systems, and malfunctioning roofs. These small failures are far more common than the crisis collapses that make headlines. “The majority of forensic problems are not spectacular in nature,” notes engineer Lewis L. Zickel, who has investigated building failures for more than 25 years.

Statistics on the most common types of failures are hard to come by. One useful way to measure the frequency of failures of building components is to review claims made against architects. According to a 1996 study by DPIC, a provider of professional liability insurance for the design community, roofs, predictably, were the single element most often involved in claims against architects within recent years. Ten percent of the 3,700 claims reviewed involved roof problems, followed by walls (9 percent), HVAC (7 percent), and floors (6 percent).

Although architects aren’t typically liable for mechanical failures of elevators and escalators, forensics experts say that these failures are

CONTINUING EDUCATION



Use the following learning objectives to focus your study while reading this month’s ARCHITECTURAL RECORD/AIA Continuing Education article. To receive credit, turn to page 170 and follow the instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. List the major causes of building failures.
2. Explain how the science of building forensics determines the cause of failure or collapse.
3. Describe what steps architects can take to reduce the risk of building failures.

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vexatious because they're so visible. "If a hotel elevator breaks down, everyone in the building knows it," explains David Odom, vice president of the building services group at CH2M Hill in Orlando.

The reasons for the failures are as diverse as the failures themselves. "It's seldom that one problem alone causes a failure," says Jack Stecich, a forensic investigator with Wiss, Janney, Elstner Associates in Chicago. The DPIC study enumerated the causes for each failed building component, all of which can be grouped under a few simple headings: faulty design, poor design management, failed communications, incomplete construction documents, equipment or material performance problems, and inferior workmanship. Poor building maintenance is also cited as a major cause for failure.

Many low-consequence building failures, particularly material failures, remain "below the radar" of design firms. Paint that peels prematurely or tiles that lift from their substrate are typically handled by facility maintenance staff and are not failures per se. Herein, however, lies an important lesson for many architects. "Owners, who pay the maintenance bills, have more knowledge about how buildings and building products perform than just about anyone else on a project. But architects rarely ask them

how their buildings perform once they're off the site," Odom says. "No one gets sued over the niggling maintenance issues. Instead, you get an unhappy owner and a design firm that often doesn't know enough about their past projects and problems not to make the same mistakes again."

MANY BUILDING FAILURES ARE OF LOW CONSEQUENCE AND REMAIN BELOW THE RADAR OF DESIGN FIRMS.

Some owners—and even some architectural firms, particularly those involved in facilities management—track their building problems internally to focus their efforts on ensuring quality design and construction in the future.

Enter the forensic staff

When there are significant problems with a building, the owners are the ones who generally call in the forensic experts. There are no set rules governing how their investigations are conducted, but the initial tasks for each project are generally the same. Investigators start with a painstaking archaeological examination of the rubble, as well as the portions that remain standing, sifting through for clues to the building's demise. This might include taking core samples of existing walls, monitoring cracks for movement, videotaping the various building elements, and mapping the extent and location of the damage. They are also likely to examine CAD drawings and construction documents.

The forensic team documents site conditions through photographs, videos, and written logs. They interview building occupants, maintenance staff, witnesses, or anyone who might have insight into what



Four people died after an explosion at the 22-story Ronan Point Tower, near London, in 1968.

FAMOUS BUILDING FAILURES IN HISTORY

Greek Mausoleum of Halicarnassus, Greece

Built in 352 B.C., the structure was destroyed by an earthquake in the 1300s. The pile of rubble became a quarry supplying stone to the Knights of St. John. Some of the sculpture it contained was recovered and shipped to the British Museum in 1856.

The Pharos of Alexandria, Egypt

One of the Seven Wonders of the World, the 350-foot-high Pharos, or lighthouse, was built about 280 B.C. It was destroyed by an earthquake in the 1200s.

Binishell Domes, Australia

Developed in the 1960s, architect Dante Bini's technique was to lay concrete over a balloon of plastic fabric. Two of these domes, both over Australian schools, failed when the complex construction method was not followed scrupulously.

C.W. Post College Dome Auditorium, Brookville, N.Y.

Built in 1970, this shallow dome on the campus of Long Island University collapsed under heavy snow and ice cover in 1978. No one was hurt. Faulty design was the culprit.

Kemper Memorial Arena, Kansas City, Mo.

Home to two Kansas City sports teams and the location of the 1979 AIA National Convention, the arena was built in 1973 but collapsed during heavy winds and rain in 1979. Miraculously, no lives were lost. No single cause was found for the accident.

Hyatt Regency Hotel, Kansas City, Mo.

Two crowded walkways in the newly built hotel collapsed in July 1981, killing 114 and injuring almost 200. It remains the deadliest structural failure in U.S. history. Analysis found that the walkways had not been built as they were originally designed.

Pier 34, Philadelphia, Penn.

The 91-year-old pier, which held a popular nightclub, collapsed in May 2000. Three people died and 31 were injured. An inspection three days before the accident revealed structural deficiencies that indicated the pier was in danger of collapse.



An aerial view shows a frighteningly thorough collapse of the C.W. Post Dome.

CASE STUDY

Neglect of a fragile ceiling

The Temple B'nai Jeshurun in New York City, built in 1917, was modeled after the Alhambra Palace in Spain: Hundreds of plaster stalactites hung from an ornate ceiling. In the early 1990s, construction began on a perimeter catwalk between the ceiling and the structural roof from which the ceiling hung. The catwalk was about one-quarter complete when a section of the decorative ceiling collapsed. No one was injured, but construction was halted to investigate what happened.

Zickel was called in to examine the collapse. "Right over the collapsed area there were two wooden planks laid down on the ceiling suspension system," he says. "I suspected the contractors were walking on the suspension system, which was not designed to handle this kind of load."

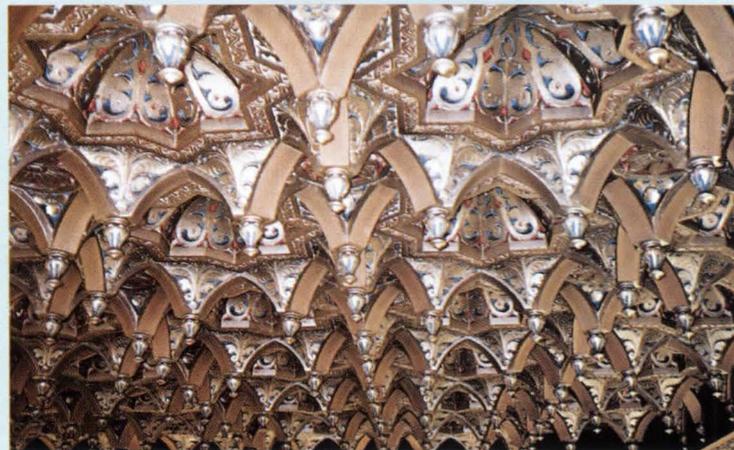
Attorneys wanted to know if ceiling damage already existed before the collapse, so Zickel and another investigator spent two months on scaffolding 45 feet in the air, taking photographs and mapping every break and crack in the plaster. "I bought a cervical collar and wore it backwards so that it supported my head when looking up," Zickel recalls.

When they plotted the cracks on a print of the ceiling, they found

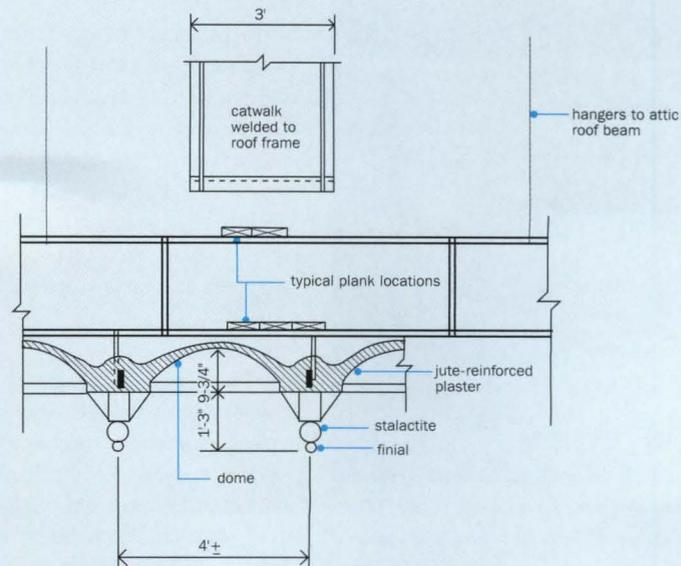
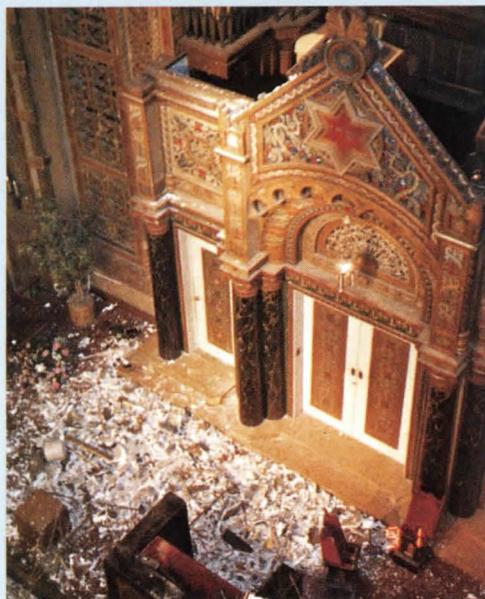


the major areas of damage were in the locus of the planks. It became clear the collapse was indeed caused by the contractor's actions.

The stalactite-hung ceiling was ultimately dismantled. The contractor's insurer covered the cost of constructing a new ceiling, and the architect who designed the catwalk was not sued. This seems to be a simple case of contractor negligence, but, says Zickel, "There were no warnings on the design drawings or plans and specifications not to walk on the ceiling suspension system during construction. That was the architect's oversight. It may have seemed obvious not to do it, but the historic nature of the ceiling warranted a formal warning." D.S.



The fanciful, Moorish-style ceiling of the Temple B'nai Jeshurun was divided into small domes ringed by stalactites (above). A section of the decorative ceiling gave way when construction workers walked on the suspended ceiling (below).



CEILING SUSPENSION SYSTEM

CASE STUDY

Trouble in the tropics

In 1995 the U.S. Army's Community and Family Support Center completed construction of a 12-story tower addition to the Hale Koa Hotel Armed Forces Recreation Center on Waikiki Beach in Honolulu. Almost immediately after opening, the new tower had moisture problems. Mold and mildew grew behind wall coverings, for example, leading to guest complaints.

"We examined the moisture problems and tested and evaluated the performance of the HVAC system," says David Odom, vice president of the building services group at CH2M Hill in Orlando, who did the forensic work. The project team found the hotel's design lacked some of the elements necessary for good performance in Honolulu's hot, humid climate. Specifically, room dehumidifiers weren't powerful enough, the makeup air system was unable to pressurize the building's interior, and an inadvertently misplaced vapor

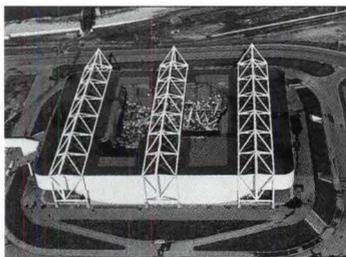


retarder in the wall assembly trapped moisture within the wall cavity. "Individually, these issues were important to the building's overall performance, and in combination their failure produced devastating results in this climate," explains Odom.

"Building problems like this typically have two causes: the inability of the design team to predict future performance of systems

under the full range of conditions they are likely to encounter, and a lack of knowledge or appreciation of how individual building components will work together," he says. In this case, an in-depth analysis of the HVAC system and wall design during the early stages of the hotel design would have revealed potential problems that could have been corrected before the design was complete. *D.S.*

The new 12-story tower at the picturesque Hale Koa Hotel in Honolulu was plagued by moisture problems soon after it opened. It took two years and \$5.1 million for architects CH2M Hill to diagnose and remedy the problems.



Two famous failures: the roof of the Kemper Memorial Arena (top), and the pedestrian bridges in the Hyatt Regency Hotel (above).

The obvious: What architects can do to prevent building failures

Architects, of course, will never fully eliminate the possibility of a failure on their projects. But designers can focus on activities within their control to minimize their risk of liability for failure. The recommendations below are intuitively obvious, but they are easy to overlook in the face of tight submittal deadlines, the pressures of designing quickly and on computers, and with limited budgets. These are essentially reminders of good practice habits.

Materials

Make sure incompatible metals and other materials are not combined, causing interactions such as differing rates of expansion and contraction between the components. Also coordinate design components to avoid incompatibilities between project features such

as doors and walls, mechanical features, landscaping elevations, and other elements.

Risks

Make certain clients understand innovative technologies and materials, how they are used, and risks involved in their use. Allocate appropriate resources for research and use new products judiciously. Be sure the contractors on site are able to install them properly.

Costs

Be realistic about the limitations imposed by the budget and resist the temptation to get too much out of too little.

Practice

Avoid confusion among the different parties involved by taking a leader-

ship role in coordinating design documents and submittals with consultants, contractors, and subs. Cursory "rubber stamp" reviews of submittals and shop drawings practically guarantee problems. Assign complicated design details to experienced designers instead of junior staff. Minimize the use of addenda to submittals, which make projects more difficult to manage.

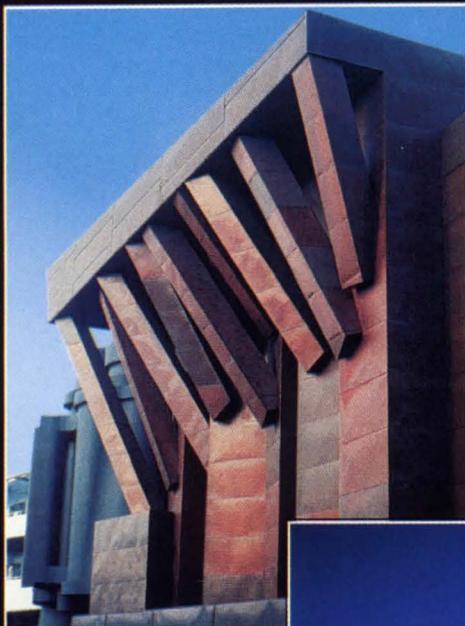
Experience

Learn from past experience and similar projects. Seek input from the client, the design community, and other building owners as to the challenges of the project type.

Life span

Be realistic with owners in assessing how long the building and its materials will last.

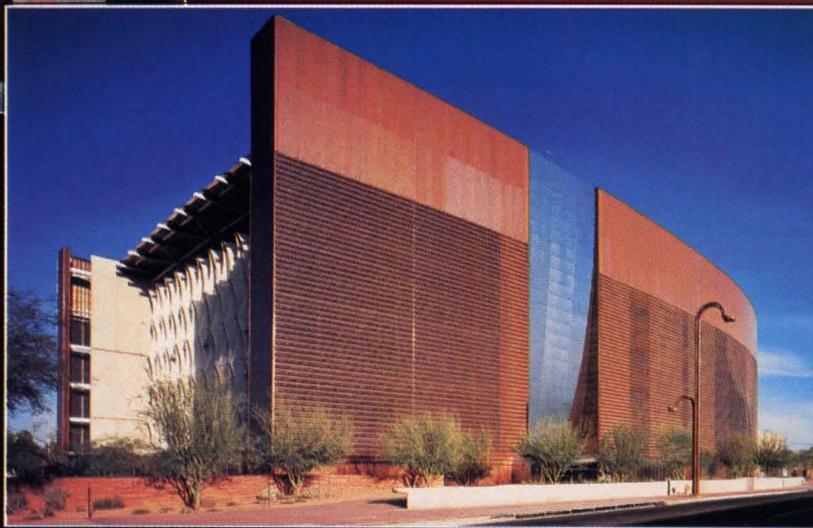
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CASE STUDY

Cladding for the climate

In 1972 the Standard Oil Company, now Amoco Corp., built its headquarters in Chicago; the 80-story skyscraper was the world's fourth tallest structure. The gleaming white Carrara marble cladding was its trademark, a unique feature for a structure so tall.

During a routine inspection in 1979, engineers noticed some premature cracking of the marble. They recommended that the owner monitor the damage and replace the panels when the cracks grew too large.

A subsequent inspection in 1985 showed a significant increase in the number and size of cracks. Inspectors also discovered cladding that bowed as much as one inch out of plane. Tests revealed the 1½-inch-thick marble had become too weak to withstand design wind loads.

"Marble loses strength when it's exposed to thermal cycling," says Jack Stecich, a forensic investigator with Wiss, Janney, Elstner Associates

in Chicago, who worked on the Amoco Tower investigation. "The bonds in the grain break down when it expands in heat; when it contracts in cooler weather, the grains assume a different shape, which will eventually cause cracks to form." The bowing was also due to the thinness and resulting deflection of the steel frame. After investigating several options for correcting the problem, it was agreed that the approximately 43,000 marble panels should be replaced.

While searching for a suitable replacement material, engineers temporarily secured the weakened cladding by tying down each panel with stainless-steel straps. In 1991 the marble was taken off and panels of white granite, with a special surface finish developed to resemble marble, replaced the original cladding. The cost of the replacement was about one-half the original cost of the total structure. *D.S.*

Chicago's Amoco Tower was clad with marble panels that weakened and cracked upon exposure to weather.

caused the failure. Using this information, the team develops possible explanations for the failure; their theories are then evaluated through lab testing of material samples, analysis of building electrical or ventilation systems, and additional site inspection. By analyzing the data in the aggregate, they uncover the most likely reasons for a failure.

When conditions are life threatening, a forensic team's primary goal is to contain the damage, like firefighters who prevent a blaze from spreading to nearby structures. "We work around the clock on emergency projects," says Daniel A. Cuoco, P.E., president of LZA Technology in Manhattan. "The first priorities are getting victims out alive and making sure the structure is stable and isn't a risk to public safety. We worry about collecting evidence afterward." They assist emergency personnel by helping locate areas where victims may be hidden and showing them safe routes through wreckage to reach victims.

Collecting evidence is a crucial exercise in judgment and common sense. "On a collapse site, you can't take every beam and column. But you have to take enough samples in representative locations to get a good

overall picture of the problem," Stecich says. "It's important to collect samples in an organized, systematic way. We usually develop a project-specific nomenclature for labeling each piece of evidence," adds Cuoco.

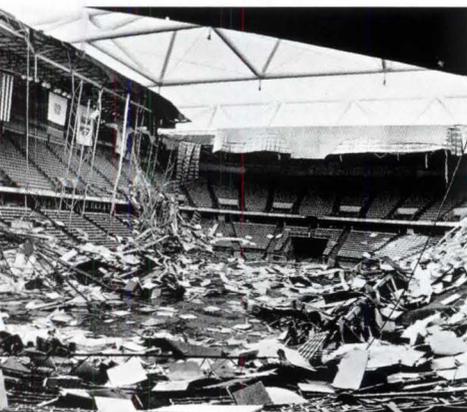
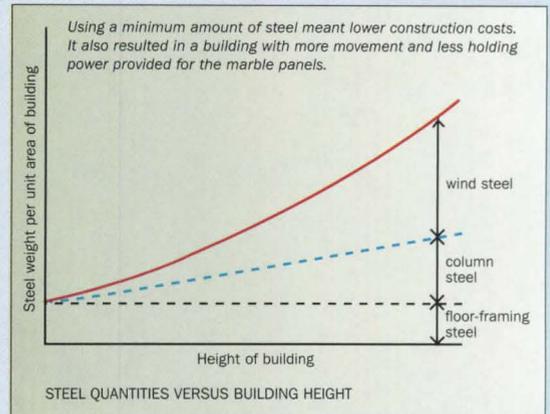
Creating a chain-of-custody for evidence is especially important in failures involving litigation because investigators must be able to trace each piece of evidence to its location on the site. And some evidence is

FIRST PRIORITY IS GETTING PEOPLE OUT AND STABILIZING THE BUILDING. THEN THE SEARCH FOR EVIDENCE BEGINS.

perishable: for instance, fractured metal surfaces must be protected against corrosion, which inhibits the ability to read the surface for clues. "There are microscopic characteristics of a failure surface that will tell you whether the failure was ductile or brittle, or whether fatigue or stress-corrosion cracking was involved," explains Stecich.

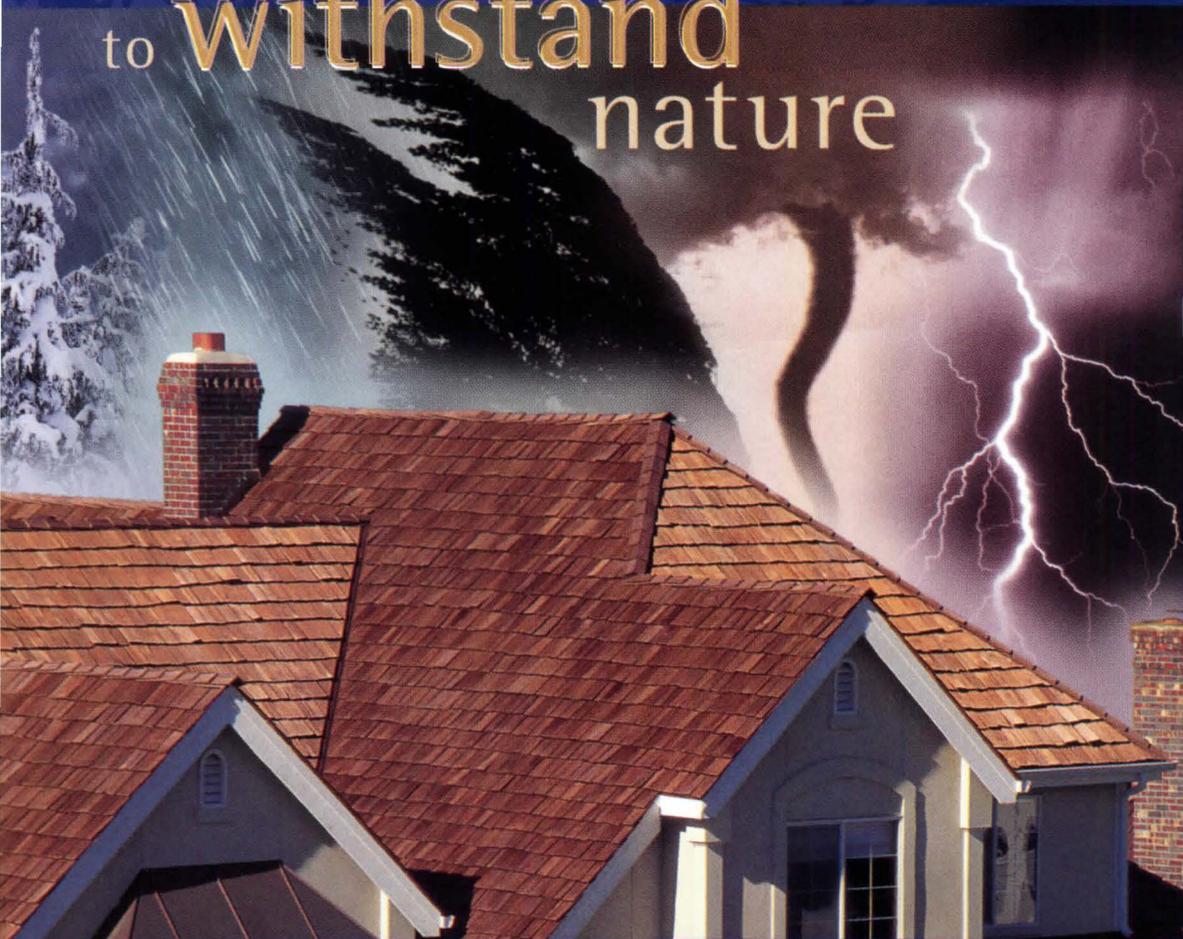
In cases involving litigation, the need for confidentiality and careful tracking and testing of evidence are tantamount and can make or break an investigation. These are skills that can be learned only by working on case after case. "You don't have new college graduates saying they're forensic experts. It takes time to develop the judgment needed for these projects," explains Cuoco.

The National Academy of Forensic Engineers (NAFE) is dedicated to improving the art and science of forensic investigations. Their approximately 400 members have an average of 30 years of professional experience. NAFE publishes a peer-reviewed journal and sponsors seminars during



The view inside the Kemper Memorial Arena after its collapse.

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which members present cases they have investigated. “We teach what the universities don’t teach,” says Marvin Specter, executive director of NAFE. Zickel chairs the Committee for the Dissemination of Failure Information, part of the American Society of Civil Engineer’s Technical Council on Forensic Engineering. Next year, the committee plans to release a series of learning materials on building failures commonly encountered by architects.

Tough solutions

An architect’s job, aside from designing beautiful buildings, is to protect the health, safety, and welfare of the building’s occupants. The question is, how is this job best accomplished?

Building commissioning may be one viable, if partial, solution. Some owners now use a sort of “dry run” that’s typically done to test mechanical and electrical systems before opening a new building. This type of commissioning takes place during the design phase to ensure that

**THE SOLUTION FOR ARCHITECTS IS SIMPLE:
A DEEPER CONSCIOUSNESS OF
HUMAN AND SOCIAL RESPONSIBILITIES.**

buildings are designed for peak performance. The cost of commissioning is high—up to five percent of the contract value for a complex project. But especially on unusual buildings, commissioning saves money on future costs that are unknown and difficult to estimate.

In their book *Why Buildings Fall Down*, Salvadori and Levy conclude that technology alone cannot prevent building failures. “Only a deeper consciousness of our human and social responsibilities can lead to the construction of safer buildings.” These responsibilities are shared by engineers, owners, contractors, and architects. ■



Reflective glass panels on Boston’s Hancock Tower fell during a windstorm.



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INSTRUCTIONS

- ◆ Read the article “Sleuthing Out Building Failures” using the learning objectives provided.
- ◆ Complete the questions below, then check your answers [page 242].
- ◆ Fill out and submit the AIA/CES education reporting form [page 242] or file the form on ARCHITECTURAL RECORD’s Web site at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. What are the most common building failures attributed to architects?

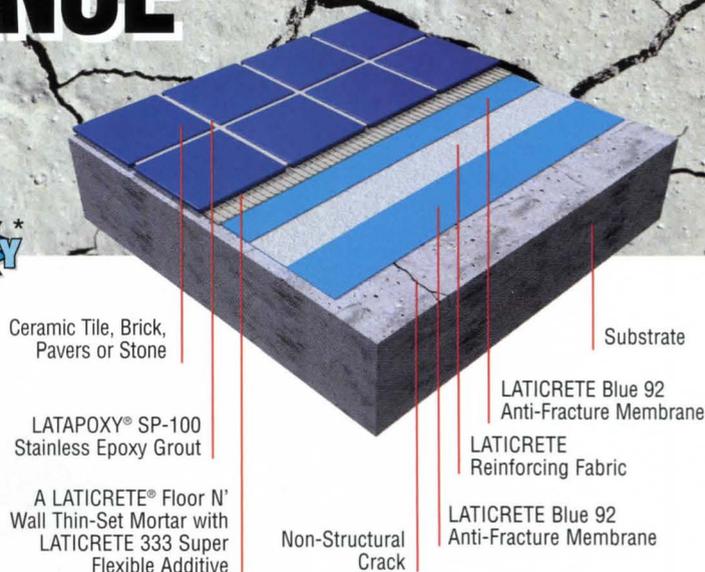
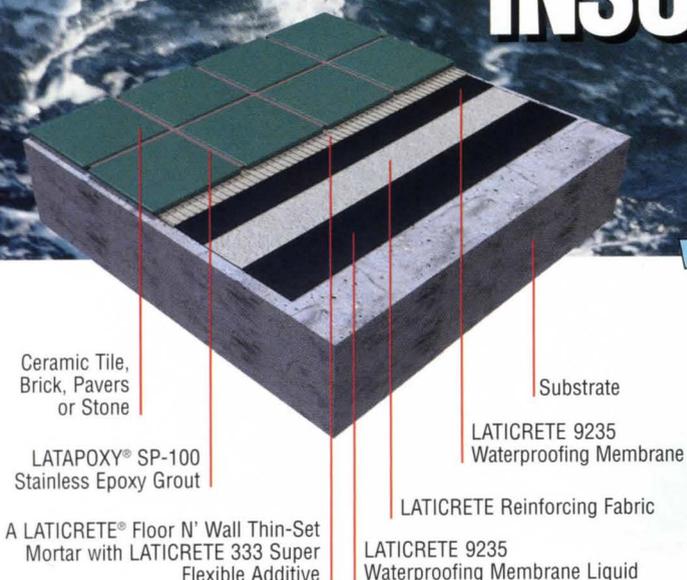
2. How does a building forensic team determine the cause of a building collapse?

3. What is a chain-of-custody and why is it important?

4. How can building commissioning alleviate building failures?

5. What can architects do to avoid their liability for common risks?

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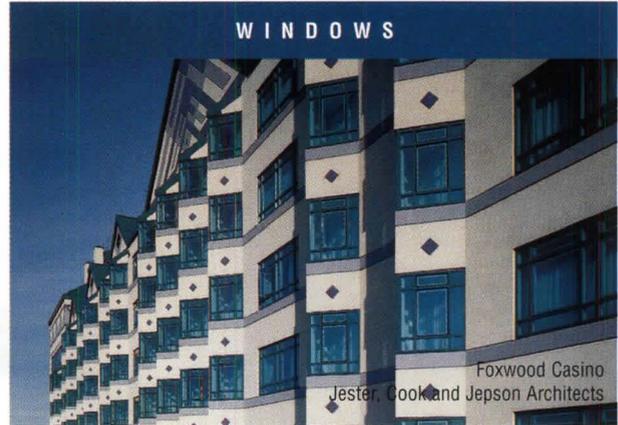
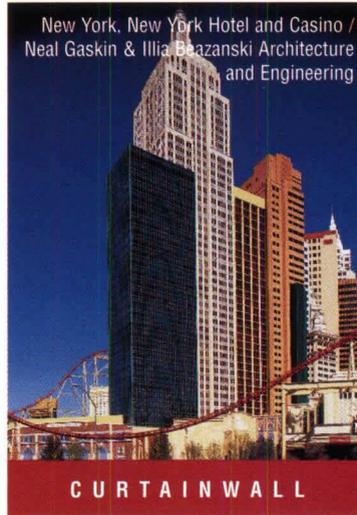
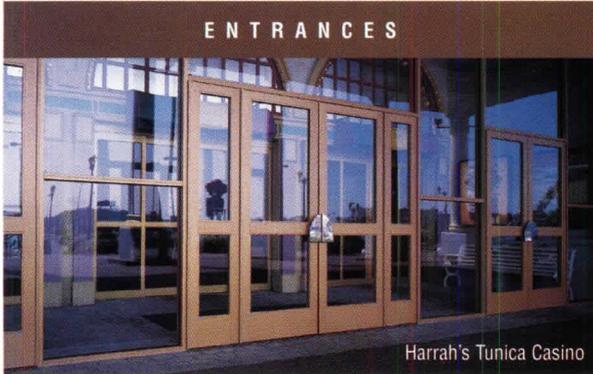
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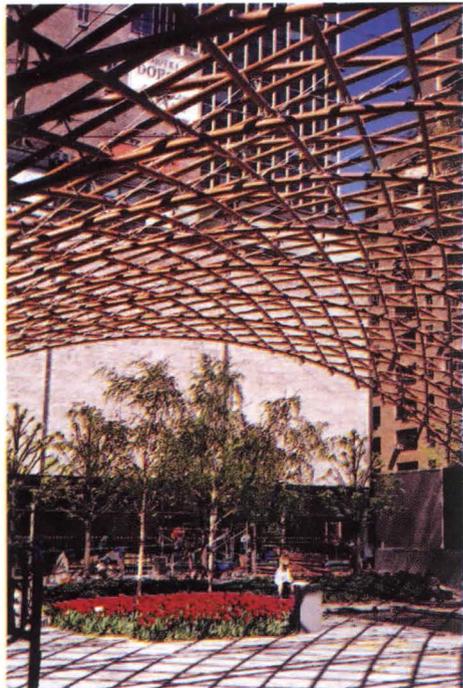
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CIRCLE 54 ON INQUIRY CARD

Tech Briefs

Structures of cardboard, one in New York and one in Germany, show how versatile this material is • Green architecture is honored with AIA awards to 10 “greenest” buildings

CARDBOARD-TUBE CONSTRUCTION HIGHLIGHTED AT MOMA EXHIBIT AND AT EXPO 2000 IN GERMANY



Architect Shigeru Ban's lattice arch creates dappled light in the MoMA sculpture garden.

Cardboard is not customarily thought of as a building material suitable for anything more complex than architectural models. Japanese architect Shigeru Ban, however, uses it in structures as others use wood or steel. Ban likes the material for its aesthetic properties, its recyclability, and the fact that it can be worked much the same as wood. Since the mid-1980s, he has designed housing, garden enclosures, even a church and a library, with hefty cardboard tubes—the kind that carpet and heavy-duty textiles are rolled on—serving as structural support.

Ban's two latest projects are a lattice arch in the sculpture garden at the Museum of Modern Art (MoMA) in New York City and the Japan Pavilion at the International Expo 2000 in Hannover, Germany. Both demonstrate how versatile and substantial this mundane and over-

looked material can be. Cardboard tubes have a life cycle of 5 to 10 years, depending on where and how they are erected, says Andre Chaszar, senior engineer with Buro Happold in New York City. The firm served as structural engineer on both the MoMA and Expo 2000 projects. Cristobal Correa was the project engineer/manager. “Cardboard tubes, generally speaking, are one-tenth as stiff as wood and one-fifth as strong,” says Chaszar. “In some ways, building with them is similar to wood-stud construction. But the scale is larger; most of the tubes used are six

inches and up in diameter and 10 to 20 feet in height.” Also, the relative weakness of the tubes means they must be spaced more closely together than wood framing.

Cardboard tubes are ideal for programs that require flexibility or deployable structures—like the MoMA installation, which was erected in April and will be disassembled this month.

Ban's arch is accomplished with four- to five-inch-diameter, brown-paper tubes that are positioned to allow the material to curve and form the arch—the bending radius of the tubes is not very tight and crimping them weakens the structure. Stainless-steel cables hold the bow.

As with wood, the specifications for the cardboard construction change according to the material's exposure to the elements. The lattice structure is open to the

weather. So the manufacturer of the MoMA arch tubes used a proprietary waterproofing material in the paper to prevent it from softening and losing its strength. Polyurethane topcoats were also applied.

The tubes, which were premanufactured and lowered into place by crane, cover a third of the MoMA sculpture garden. The dappled sunlight beneath the arch makes the garden feel cool and shady and give it a distinctly different character than the balance of the space.

At the Hannover pavilion, a project on which architect and teacher Frei Otto consulted, the 115-foot clear-span, gridshell structure is constructed from a core of paper tubes clad with lightweight paper and polymer-coated polyester membranes. Most of the structure, like all of Ban's cardboard designs, is recyclable or reusable, and no foundations will be left behind after the pavilion is disassembled. “These are structures that do not weigh heavily on the earth in any sense,” says Chaszar.

A clear, polymer-coated polyester membrane in the structure increases the daylight entering the hall. Elsewhere, however, the paper membrane offers a soft quality of light.

The cost of cardboard construction is difficult to assess precisely. “Not enough of this type of construction has been done for standards or benchmarks to exist,” says Chaszar. Generally, the cost is comparable to or less than wood construction.

The raw material is inexpensive (if the tubes are used, they may even be donated by manufacturers), but the majority of cost is in the pro-

cessing of the cardboard—adding coatings and designing a way to lock the tubes together. One technique is to use wood connections that resemble a dowel to which the adjoining tubes are nailed. The tubes can also be linked with custom-designed metal clips.

Building with cardboard is not much different than working with wood, says Chaszar. It is cut with the fine blades normally used in finish carpentry. Fabrication may be done by traditional carpenters or, as in the case of the MoMA structure, by steel erectors.

Wendy Talarico



The MoMA arch began with four- to five-inch diameter tubes (top). These were preassembled and lowered into place by crane. The arch rests on the ground and is tied to the museum wall (bottom).

Tech Briefs

BUILDING SOLUTIONS THAT ENHANCE THE ENVIRONMENT

Members of the AIA Committee on the Environment selected 10 buildings that best protect and enhance the environment. These were picked for their responsible use of materials, daylighting, energy efficiency, and sensitivity to local environmental issues.

Lady Bird Johnson Wildflower Center, Austin, Tex.; **Overland Partners** Accommodating research and education, the center (1) features a 250-seat auditorium, a botanical library, and research labs to educate visitors about native plants and ecological site development. A rainwater system, passive solar design, and recycled materials are used.

Bainbridge Island City Hall, Bainbridge Island, Wash.; **Miller/Hull Partnership** The new city hall (2) efficiently brings five departments, formerly scattered among different buildings, under one roof. Daylighting, natural ventilation, recycled and reused materials, nontoxic finishes, and certified wood provide a healthier and safer indoor environment.

Department of Environmental Protection, Ebensburg, Pa.; **Kulp Boecker Architects** A photovoltaic array and underfloor-supply air distribution boost energy efficiency (3). Modeling software indicates annual energy consumption will be 60 percent better than ASHRAE 90.1 levels.

Phillips Eco-Enterprise Center, Minneapolis; **LHB Engineers & Architects and Sirny Architects** The Phillips Center (4) connects underemployed laborers to employers with ecological businesses. Sustainable elements on the inner-city brownfield site include geo-exchange heating and cooling, daylighting, and salvaged steel, wood, and brick.

Hanover House, Hanover, N.H.; **Energysmiths** Low energy consumption was the top priority in this superinsulated, solar-heated house (5). Special insulated glass, heat-recovery systems, airtight construction methods, water-saving features, and passive solar design also contribute.

C.K. Choi Building for the Institute of Asian Research, University of British Columbia; **Matsuzaki Wright Architects** Salvaged materials include brick, timber beams, doors, and frames. Gray water from the sinks and collected rainwater are used for irrigation. Natural ventilation and daylighting lower energy use.

The Emeryville Resourceful Building Project, Emeryville, Calif.; **Siegel & Strain Architects** This energy-efficient, affordable housing project uses conventional construction. Designers discovered that the cumulative effects of small environmental improvements generate significant results.

New South Jamaica Branch Library, Queens, N.Y.; **Stein White Architects** The library's relationship to the sun drove its architectural form. Automated controls regulate shades, lighting, and ventilation dampers depending on the time of day and on the season. The building also contains recycled products.

McLean Environmental Living and Learning Center, Northland College, Ashland, Wisc. This student-housing complex [July 2000, page 185] includes computers that monitor a wind turbine, solar hot-water system, and photovoltaic panels. Students were involved throughout the design process.

World Resources Institute, Washington, D.C.; **Hellmuth, Obata & Kassabaum** Materials such as bamboo flooring and bio-composites made of wheat, straw, soy, and sunflower seeds are alternatives to conventional, but less environmentally friendly, products.



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5

Digital Architect

Many models make the Rose Center

By Jerry Laiserin, FAIA

Software vendors perennially tout the theoretical advantages of “integrated 3-D models” from which data, linked to intelligent CAD objects, can be extracted for anything from cost and schedule analysis to direct fabrication. Even as this digital nirvana draws closer, reality is proving far messier than CAD theorists would have us believe. Consider, for example, Polshek Partnership’s Rose Center for Earth and Space at the American Museum of Natural History in New York City (pg. 98). At least eight distinct computer models, each describing different attributes of the same building, were created during its design and construction. This assortment of tools required intensive coordination by the entire project team—from architects to fabricators.

Form and structure

“Sketching” software is incompatible with CAD, so architects at Polshek developed initial concepts freehand on paper. But the firm immediately moved schematic designs into 3-D computer models using Microstation CAD software because “drafting by hand is a dying art,” says Todd Schliemann, AIA, design partner. It is faster to model than draw, especially for complex geometry. And a 3-D model can easily be used to generate color-coded plan and section drawings as needed for presentations to review agencies.

Contributing editor Jerry Laiserin, FAIA, provides strategic consulting services to architects and their technology providers.

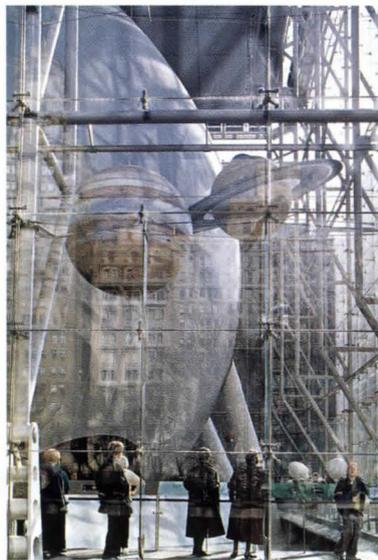
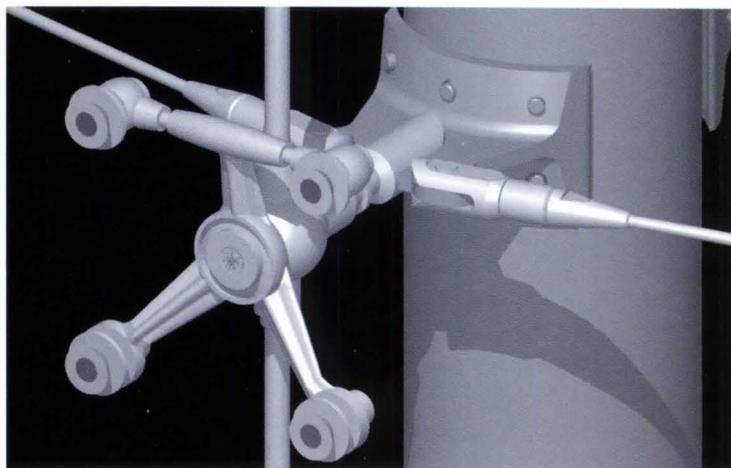
In the Rose Center, structural elements are expressed directly in architectural form. Polshek therefore used computers to design interactively with structural engineers Weidlinger Associates, also of New York. Weidlinger sized members and drew 2-D details in AutoCAD, while Polshek studied the resulting 3-D proportions in Microstation. Since neither firm was directly editing the other’s data, these exchanges were simply a matter of referring to E-mailed copies of CAD files.

Fabrication

Weidlinger initially overnighted final 2-D AutoCAD details to the fabricator, Chicago Ornamental Iron, in Melrose Park, Ill., on floppy disks. E-mail was used later. To better understand geometry and fabrication issues, Chicago Ornamental retained young, computer-savvy architects in-house to create an independent 3-D AutoCAD model, which older, more experienced detailers studied to determine construction methods. The fabricator’s team coordinated with Weidlinger throughout the shop-drawing phase via E-mailed 2-D and 3-D files.

While preassembling major components in the shop, Chicago Ornamental took digital photos and E-mailed them to Weidlinger for feedback. After the components were shipped to New York for assembly, on-site crews addressed assembly questions by E-mailing digital photos from the field to Chicago Ornamental.

Some specialized components, such as stainless-steel spider castings and rod riggings that secure the Rose Center’s glass skin to its



The glazed exterior of the Rose Center (left) is held in place with stainless-steel spider castings and rod riggings modeled by the architect in Microstation Modeler (top). The rod attachment castings (above) were tested by the fabricator to make sure they could withstand building stress.

structural frame, were first modeled by Polshek in Microstation Modeler, a 3-D mechanical design software that complements Microstation, and transmitted via E-mail to TriPyramid of Westford, Mass., for fabrication. TriPyramid recreated the architects’ Microstation models of cast spider fittings in SolidWorks, which drives the casting equipment. Similarly, TriPyramid redrew the machine-cut rod riggings from

scratch in 2-D AutoCAD, referring to dimensions annotated on Polshek’s Microstation drawings.

Such solids “must be rigorously defined in terms of the order of operations in creating the piece,” says TriPyramid partner Michael Mulhern. “We need accuracy to eight decimal places for our computerized cutting machines,” which blindly follow even the slightest irregularity in a drawing. Despite all

Digital Architect

the intermediate steps, Schliemann believes that “the process gave us almost complete control over shape and finish.”

Mechanical engineering

The architects also wanted to eliminate the possibility of condensation on the Rose Center’s single-glazed exterior walls and roof, especially since the unoccupied upper reaches of the space would not be conditioned. Polshek needed a precise understanding of the interrelationships among outside and inside temperatures, air movement, and humidity.

To test the air-distribution scheme developed by the mechanical consultants, the numbers were cranked through a computer modeling technique called computational fluid dynamics. This method enabled the architects and mechanical consultants to reach agreement on the correct airflow design.

Exhibit design

For exhibit designers Ralph Appelbaum Associates of New York City, optimally locating and angling monitor displays and projectors inside a glass box required “identifying the quality of daylight versus the amount of media reflections and washouts,” says project director Melanie Ide. To simulate daylighting effects, Appelbaum Associates created a separate AutoCAD model of the space, using data imported from Polshek’s Microstation model. This included massing of buildings on neighboring streets for shadow casting and reflections, as well as material specifications for interior reflections and contrasts.

Representatives of Lawrence Berkeley National Laboratories in Berkeley, Calif., ran simulations and interpreted the results from a lighting analysis tool called Radiance. This analysis enabled Appelbaum Associates to relocate exhibits out of major solar paths. The designers

also gained a better understanding of how to use color values—darkening portions of the flooring pattern, for example—to decrease reflectivity and improve contrast.

Lighting design

Lighting designers Fisher Marantz Stone of New York City began the design process by scanning a watercolor image sketched by the architects over a computer-gener-

ated way to understand the light behavior and effects.”

Publicity

High-profile projects often require high-end rendered images for fundraising and other publicity purposes. For this, Polshek turned to Dbox, a New York-based digital imaging house. Dbox assembled a 3-D model in Form*Z, derived from Polshek’s fully detailed 2-D CAD

considered.) The various consultants underwent similar computer technology upheavals. All systems, files, and formats had to be coordinated across multiple generations and often incompatible versions. Was it worth the effort?

The answer is mostly yes. Says Michael Mulhern of TriPyramid: “The casting design could not have been done without computers.” Matthys Levy of Weidlinger says his collabo-



This digital rendering of the Hall of the Universe was created by individually rendering chunks of a computer model.

ated 3-D wire frame. “That gave us a reference for what the architects wanted,” says Charles G. Stone.

A copy of the architects’ 3-D Microstation model was saved as a CAD-neutral DXF file and brought into Lightscape visualization software. Fisher Marantz Stone explored numerous schemes with Lightscape and tested them on progressively larger physical mockups, allowing for a step-by-step refinement of the computer model. A Lightscape visualization of the final lighting solution was plugged into the initial scanned watercolor, via PhotoShop, to get the architects’ approval.

Stone uses tools such as Lightscape cautiously. “You’re limited by the luminance of the computer monitor, which is disproportionate to the human perception of brightness,” he says. “The stepping-stone approach, combining Lightscape and physical mockups, is an efficient and accu-

rate way to understand the light behavior and effects.”

files. Polshek, in turn, checked Dbox’s preliminary renderings to identify precise viewpoints for the final images. The model was exported by Dbox into SoftImage software, digitally disassembled into chunks that were rendered individually, then stitched together into a finished image.

Coordination

During the six-year project, Polshek upgraded its Microstation CAD software three times; went through three generations of desktop PCs; upgraded its network infrastructure and converted from NetWare to WindowsNT; implemented a new E-mail system; changed the network filing system; evolved its system for drawing standards and setup; and changed network administrators and CAD managers twice. (The first computer models, from 1994, predate the use of the Web for project collaboration; that option was never

considered.) The various consultants underwent similar computer modeling and communications.” Matthew Bannister of Dbox notes that his company “would not have attempted to render a building this complex without the computer.”

Architect Schliemann says he “used the computer as a tool to manipulate and understand the interstitial space, and to modulate the sequence of spaces—light to dark, compression to expansion.” Melanie Ide of Appelbaum says that computer analysis enabled the client to understand what the space would look like.

Charles Stone has the last word: “The computer was indispensable. It enhanced our ability to imagine.” ■

WWW For a list of the Rose Center’s digital technology vendors go to **Digital Architect** at: www.architecturalrecord.com

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- RECHECK THE CHECKSET ✓
- COORDINATE ELEVATIONS WITH NEW DESIGN ✓
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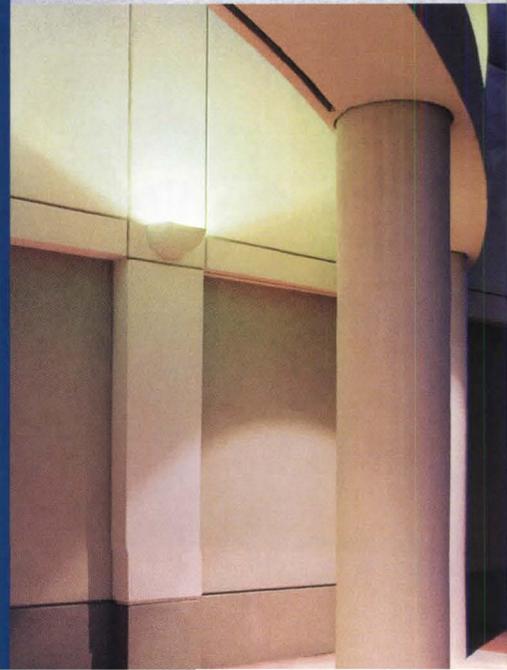


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LIGHTING...

As quickly as you can look at the photographs to the right, you can learn a few practical lessons about lighting. What can you do, for example, to lower the ceiling plane of a space visually without actually lowering the ceiling itself? In a large meeting room at the Ewing and Marion Kauffmann Foundation in Kansas City, Mo., lighting designers Berg/Howland Associates accomplished this by hanging a series of pendants in the room (2). Renee Cooley and Emily Monato, of Cooley Monato Studio, used a similar approach by suspending simple globes from the ceiling of a Crabtree & Evelyn store in the World Trade Center (4). The primary source of light in both spaces—with the exclusion of the clerestories at the Kauffmann Foundation—is not the layer of ornamental light: It is the downlighting in the ceilings above.

A design for the entry of the British Telecom Tower (1), in London, is a study in using light to define surfaces, recesses, and the edges of planes, with simple washes and colored light. The intent of this tour de force, by Lighting Design Partnership principal Lee Prince, was to show visitors that they are entering the domain of a high-energy, technically savvy corporation.

The last lesson is simple, and beautifully illustrated by the illumination of the UBS cone in Stamford, Conn. (3), by Stephen Margulies, director of Cosentini Lighting Design. Obviously, to illuminate a piece of stained glass, you have to decide which side you want to be lighted and place the lighting source on the opposite side. Here, Margulies wanted the exterior of the cone to glow, so he placed the lighting on the inside and aimed it outward. The final portion of this rule is that there must be less ambient light on the side of the object that is to show the light than on the side where the light sources are located.

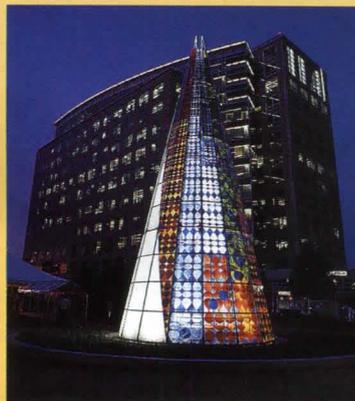
You don't necessarily need to become a lighting designer to improve your understanding of lighting concepts and techniques. All it really requires is that you cultivate a heightened sense of the light that is present when you are observing buildings. Next time you visit a favorite place, remind yourself to try analyzing how the lighting works. What kind of fixtures were chosen by the designer, and what do they do? Does the lighting contribute to your appreciation of the architecture or take away from it, and why? What would you do in the space if you were the lighting designer? *Charles Linn, AIA*



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4

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Lighting Design Partnership

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Berg /Howland Associates

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Creative Uses

Colored swirls of light capture the essence of an upscale retail store on New York's Madison Avenue • An illuminated cone sculpture refines a bank's profile in Connecticut

ITALIAN CLOTHIER MISSONI MAKES A FASHION STATEMENT WITH BOLD STOREFRONT LIGHTING

Calling to mind a mod version of the emperor's new clothes, the street-front windows of the Italian clothier Missoni in New York City have not a stitch of fabric. Light is used exclusively to cloak the flagship store after dark.

To make a bold fashion statement for the fashion house's first U.S. retail store, family scion Luca Missoni approached Anne Militello,

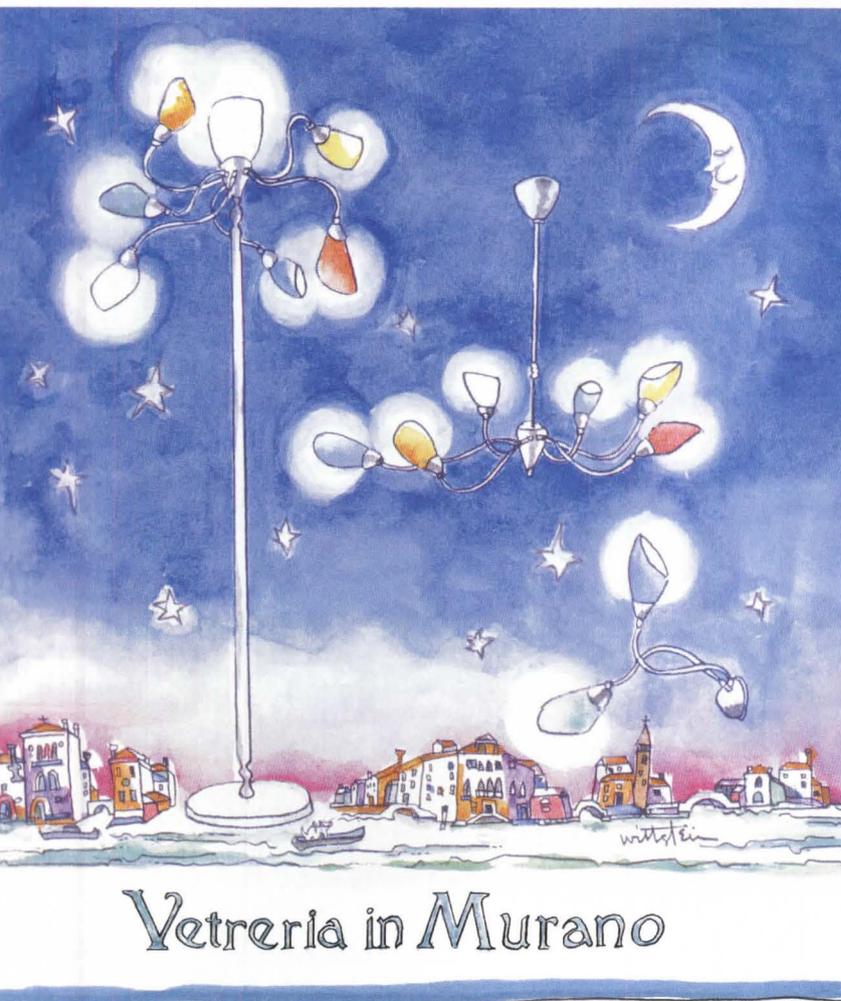
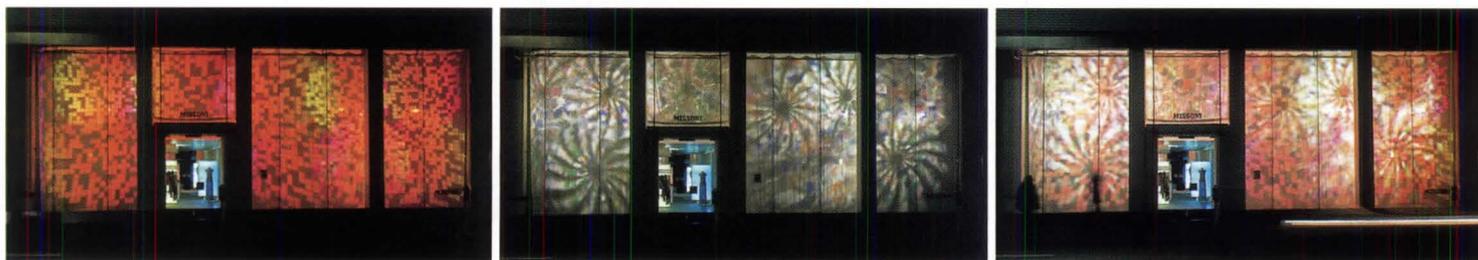
principal of Los Angeles-based Vortex Lighting, to create an artful installation for the Madison Avenue storefront. Militello brought a playful sensibility to the retail location. "The Missonis urged me to create a piece of kinetic art," Militello says. "We decided to cover the glass exposure of the facade with a scrim awash in moving swirls of colored light."

Inspired by the Missoni fashion

designs, the lighting designer abstractly translated the rich colors and textures of the Italian sweaters and textiles into the form of lighting. Collaborating with architect Mateo Thum, Militello hung a white scrim on a motorized, timeclock-controlled track, which covers the 65-foot-long by 22-foot-high glass facade. After the store closes each evening, the scrim closes and the light show begins. Twenty ellipsoidal reflectors mounted on a ledge fronting the store's interior second-story bal-

cony—12 feet back from and above the scrimmed windows—project overlapping patterns created by fixture accessories including gels, gobos, and motorized wheels. Set on a three-minute cycle, the spectacle engages pedestrians walking the avenue or zooming by in taxis. *William Weathersby, Jr.*

To create a streetside spectacle after sundown, lighting designer Anne Militello used automated ellipsoidal reflectors with gobos.



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Creative Uses

A GLOWING GLASS CONE BECOMES A LANDMARK IN STAMFORD, CONN.

British artist Brian Clarke's sculpture for the Swiss Bank (now UBSAG) in Stamford, Conn., is a 46-foot-high cone made of stained glass. It was conceived as a quiet, meditative space which people can enter during the day. When illuminated at night, it becomes a beacon visible to drivers on a nearby interstate highway, passing trains, and pedestrians walking in the downtown district.

The site-specific sculpture is part of Stamford's public art program. The UBS cone is made entirely of glass, supported by a system of structural glass ribs and set within a bed of flowers. The apex is punctured with an opening, defined by glass fins. The project is a complex marriage of ancient stained-

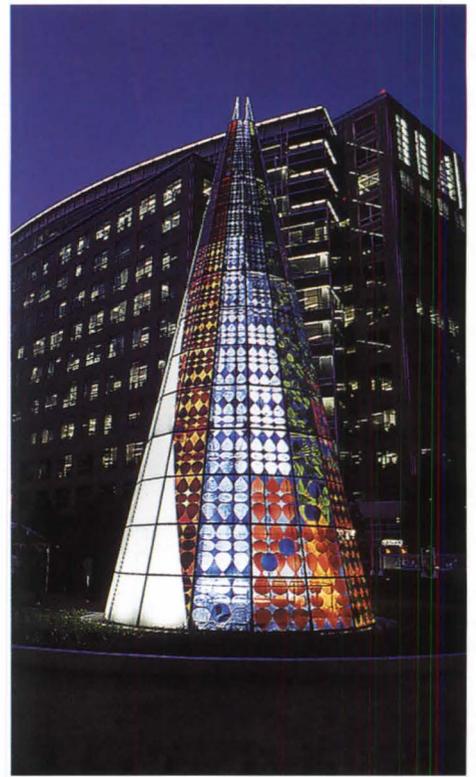
glass techniques and modern technology. Its design and installation was a collaboration between the artist, architects Skidmore, Owings & Merrill, and Cosentini Lighting Design, as well as the team of glassmakers and installers.

"The problem was finding a simple way to light the sculpture that would not detract or intrude upon its interior space in any way," says Stephen Margulies, director of Cosentini Lighting Design. The basic concept was to create a glow from within the cone, and project a beam of light through the opening at the top that would rise into the night sky. The lighting designers worked together with Clarke from the beginning to create a map showing how the 204 glass panels—some transparent, some translucent, others opaque—would glow when illuminated, to help compose and control the cone's nighttime appearance.

To avoid placing anything inside the cone that would obstruct its interior glass surface, all the lighting for the cone was recessed

into the ground. A 4,000-watt Xenon searchlight located in a round concrete well dug into the center of the cone shoots a focused beam of light straight through the sculpture and out of the aperture at the top. It took six men to lower the six-foot-tall, three-foot-diameter fixture into the ground.

Eight adjustable 100-watt metal-halide uplights are mounted on the searchlight well wall and aimed at the upper portion of the cylinder. Four additional in-ground 70-watt metal-halide uplights are focused on the cone's walls to give the artwork a balanced glow. The well is protected by a four-foot-diameter metal grille. *Nayana Currimbhoy*



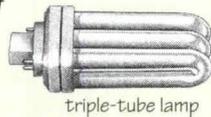
Cosentini Associates illuminated the 46-foot-high, stained-glass UBS cone in Stamford, Conn., from within using a xenon searchlight combined with metal-halide uplights.

38 VARIETIES

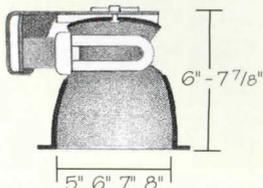
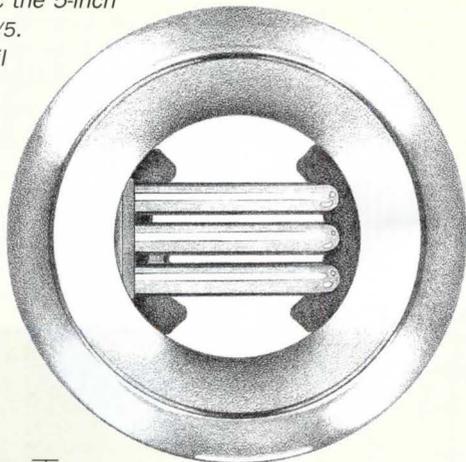
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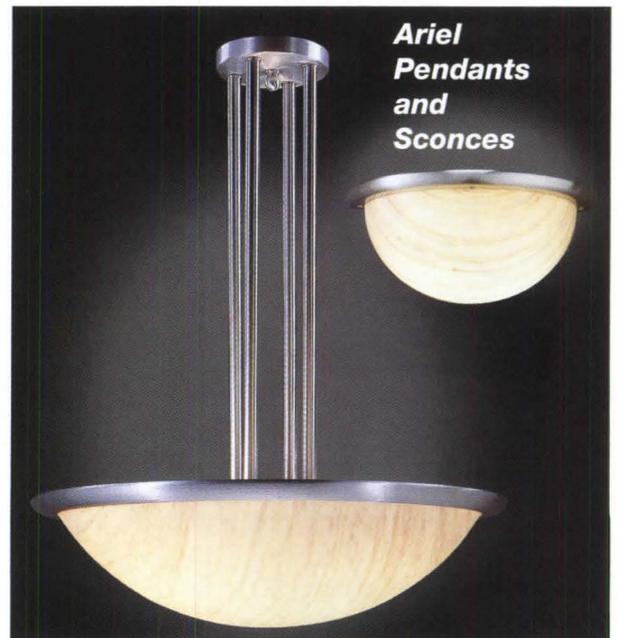
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CIRCLE 64 ON INQUIRY CARD

What's in store: Retail lighting standards focus on consumer psychology and flexible fixture schedules





By William Weathersby, Jr.

When it comes to creating lighting standards for retail environments, “standard doesn’t have to translate into uniformity or an array of only off-the-shelf equipment,” says lighting designer Renee Cooley, principal of Cooley Monato Studio in New York City. Following the trend of custom cabinetry, furnishings, and finishes in high-end stores, retail lighting is increasingly sophisticated and refined, with layers of light helping to shape and transform the environment. “Standards come into play when a retailer wants to maintain a level of consistent quality from location to location, nationally or even internationally,” Cooley says. Consumers begin to feel comfortable and at home within one of their favorite stores, and lighting plays a significant role in achieving that effect.

Although architects, store planners, and clients remain comfortable working with standards and production schedules for furnishings and finishes, retail lighting has sometimes been relegated to a final punch-list add-on item adapted to an individual store’s site. With lighting design partner Emily Monato, Cooley has carved out a niche within their broader portfolio of work mapping out retail lighting standards—from custom fixtures to lightbulb maintenance schedules—for clients including Lancôme, Bergdorf Goodman, Crabtree & Evelyn, and Aveda.

The use of specialty fixtures is what often sets an A-grade, top-of-the-line retailer apart, Cooley notes. At Crabtree & Evelyn’s Burlington, Mass., location, for example, fabric-shaded pendants, custom-designed by the architect, were used for a signature traditional look. Collaborating on a more practical fixture that could be adapted for the client’s varied store locations, however, the design team later opted instead for blown glass globe pendants that house compact fluorescents. “Retailers certainly want products to stand out, but they also want the architectural space to have a life of its own,” Cooley says. Adds Monato, “Retail lighting today is more and more about the environment.”

For some national retail clients with rosters of stores with varied footprints and product lines, Cooley Monato Studio creates three (or more) lighting standards for A, B, and C grade stores—a menu of “illumination à la carte.” The differences in each case (see chart below) are the quality of finishes and materials, the number of total fixtures, and the amount of customizing required. “You establish an overall vocabulary that ties the look of each location to the parent company,” Monato says.

Other shopper-friendly trends the designers have been incorporating into their lighting designs are new advances in lamp technology. “Retail environments lend themselves to experimenting with lighting effects,” Cooley says. Among her recent favorites: triphosphor T5 lamps. “The smaller diameter means it tucks well under a shelf.” ■

MULTI-LOCATION RETAIL LIGHTING STANDARDS

LIGHTING LAYER	“A” STORES	“B” STORES	“C” STORES
ACCENT LIGHTING	RECESSED FIXTURES ONLY, MODEST PROFILE: SMALL APERTURE OR MULTI-HEAD IN RECTILINEAR HOUSING. MIGHT BE FLANGELESS. HIGH COLOR RENDERING SOURCES, PROBABLY HALOGEN OR CERAMIC METAL HALIDE	RECESSED IN CENTER OF SELLING AREAS; TRACK AT PERIMETER & IN WINDOWS; OR TRACK ONLY IN ARCHITECTURAL POCKETS. HIGH COLOR RENDERING SOURCES	TRACK ONLY ON SELLING FLOORS & WINDOWS, SURFACE-MOUNTED OR RECESSED IN UNDERSIDE OF CEILING. HIGH TO VERY GOOD COLOR RENDERING
AMBIENT LIGHTING	ARCHITECTURALLY INTEGRATED SUCH AS A COVE, PERIMETER WALL SLOTS OR A-GRADE DECORATIVE PENDANT OR FEATURE LUMINAIRE	RECESSED DOWNLIGHTS, 6” OR SMALLER APERTURE WITH WIDE DISTRIBUTION, BUT GOOD CUTOFF FOR FILL LIGHTING OR B-GRADE DECORATIVE PENDANT. CONSIDER COMPACT FLUORESCENT SOURCES	RECESSED, LARGER APERTURE COMPACT FLUORESCENTS WITH VERY WIDE DISTRIBUTIONS OR RECESSED FLUORESCENT TROFFERS - 1 X 4’S OR 2 X 2’S
MILLWORK/DISPLAY FIXTURE LIGHTING	INTEGRATED LIGHTING (UNDER-SHELF, BACKLIGHTING, HIGHLIGHTING)	SOME INTEGRATED LIGHTING	NO LIGHTING IN MILLWORK

OTHER ASPECTS OF THE LIGHTING DESIGN TO CONSIDER ARE THE LEVEL OF SPECIAL EFFECTS LIGHTING (INCLUDING COLORED LIGHT), SIGN AND/OR ENTRANCE LIGHTING, DECORATIVE LIGHTING SUCH AS WALL SCONES, AND CONTROLS (DIMMING AND SWITCHING). THESE VARY WIDELY, NOT ONLY AS THEY RELATE TO BUDGETS, BUT ALSO TO STYLE. IN ALL SITUATIONS THE SPECIFICS COULD BE MAPPED.

ILLUSTRATION: © LEE GLYNN

LIGHTING POLISHES CRABTREE & EVELYN'S UPDATED STORE IMAGE

Crabtree & Evelyn, purveyor of toiletries and home accessories, recently updated its in-store look to keep pace with growing competition in the retail packaged-goods “pampering” industry. Although it is an American-based company, the retailer’s imagery—from its prim name to its packaging—evoked an old-world apothecary. The company enlisted MR Architecture & Decor to trade in its dark millwork and printed fabrics for lighter materials and airier spaces. At New York City’s World Trade Center, a 1,400-square-foot space with corner frontage on the interior mall was gutted and refitted with fixtures and new vignettes, such as a bathroom environment.

“The lighting leads customers through the store and subtly showcases the products,” says Cooley Monato Studio principal Renee Cooley. Recessed adjustable fixtures fitted with 65-watt, 25-degree-angle MR16 lamps are located at the front of the store’s selling area. The luminaires, with 4-inch apertures and white dye-cast trim, highlight wall displays. “Spread lenses ensure that the pattern of the lightfall is a smooth, subtle, and even wash,” Cooley says.

The ceiling fixtures in the apothecary shelving area use 100-watt A21 lamps fitted into decorative sockets, recessed into a pressed-tin ceiling grid of one-foot squares. The lamps specified are inside-frost silver-bowl units, to provide diffuse illumination.

At the rear of the store, shelving units integrate T5 fluorescents with a 3000K temperature. “The fixtures were engineered to have a minimal profile for showcase lighting,” Cooley says. Additional tracks spotlight displays with MR16 lamps featuring 25-degree beam spreads. White glass globe pendants are a new signature look. The 21-inch-diameter fixtures, with compact fluorescents, are “a modern interpretation of an early-20th-century pharmacy fixture,” Cooley says. ■



Project: Crabtree & Evelyn, World Trade Center, New York City
Lighting designer: Cooley Monato Studio—Renee Cooley, project principal; Yu-Huang (Ray) Chen, Joo Baik, designers
Architect: MR Architecture & Decor—David Mann, AIA, principal; Philipp Mainzer

Sources

Recessed adjustable MR16s: Cooper Lighting
MR16 track fixtures: Lightholier
Shelving T5 fluorescents: Bartco
Custom glass globe pendants with compact fluorescents: MR Architecture & Decor



Display cubicles near the front entry "proscenium" (opposite and previous spread) are lighted with halogens. Custom glass globe pendants housing compact fluorescents (above and left) provide ambient light, while apothecary shelving units feature integrated T5 fluorescent lamps.

AVEDA'S NATURALISTIC ETHOS IS EMPHASIZED BY CLEAN LIGHTING

Promoting its beauty and personal-care products with the marketing tag line "The art and science of pure flower and plant essences," Aveda is a company with nature on its mind. Selling lotions and creams created from natural ingredients, it recently tailored new stand-alone stores to carry through the environmentally friendly ethos.

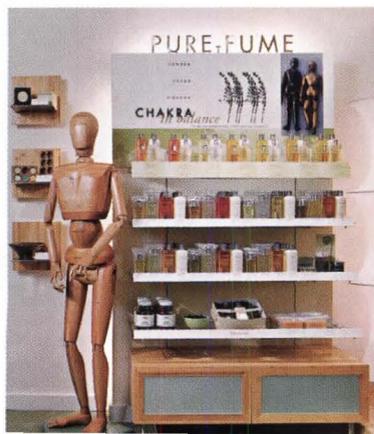
"The executives wanted spaces that were welcoming and helpful to the consumer, as well as environmentally responsible," says Cooley Monato Studio principal Emily Monato. The newest Aveda locations were planned to be cleaner in line, more thoughtfully organized, and more reliant on natural materials than its existing sites.

Working with Gensler architects to create design standards for a roll-out of 46 stores nation-wide, Monato devised lighting that supports the new spalike interior elements of light millwork, stone flooring, recycled glass mosaic tile, glass shelving, and freestanding waterfall walls.

"The architects requested lighting that was largely integrated within the architecture, and they particularly disliked the use of exposed track lighting," Monato recalls. "That fit well with our firm's design philosophy. We do not like to specify applied lighting unless it is particularly appropriate to the overall intent of the design."

To provide consistent ambient illumination throughout the Aveda stores, the design team created a series of freestanding sculptural elements that create bump-out displays along the perimeter walls. For each display unit, Lycra fabric is stretched over a frame of four metal oval rings staggered vertically, creating an amorphous illuminated tower approximately six feet tall. Two linear fluorescents concealed within each tower cast soft illumination upon nearby display shelves and product-demonstration areas.

Two freestanding locations (shown here) demonstrate the



The curved glass corner facade of the Edina, Minn., store (top) creates a beacon of light on the mall. Custom pendants at the cash/wrap station (above) feature shades of pressed-grass paper. Backlighting helps accent products (left).



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CIRCLE 65 ON INQUIRY CARD

versatility of the new standards: Aveda's 1,416-square-foot store at the Southdale Mall in Edina, Minn., and the 1,035-square-foot store in Chestnut Hill, Mass. "The Chestnut Hill store is more rectilinear, with a fairly narrow glass store frontage, compared to Edina, which has a large, curved glass corner site within an atrium mall," Monato says. "However, the interior design elements, including the lighting standards, are the same."

Part of the standard wall-washing fixtures for both stores, recessed ceiling channels accommodate low-voltage MR16 lamps. Additional MR16s accent graphic walls and displays near the front windows.

As Aveda "image makers," pendants at every cash/wrap counter feature shades made from grass-fiber paper laminated onto acrylic liners. (Monato initially investigated fabricating shades from bundles of sticks, but fire codes prevented their use.) Either incandescents or compact fluorescents can be specified in the pendants, depending on the energy codes of the particular state. "Wisconsin was our toughest location, requiring retail lighting to be only 1.1 watt per square foot," Monato says. "For that store, we reconfigured the ceiling plan with compact fluorescents." The beauty of lighting standards is adaptability. ■

Projects: *Aveda, Edina, Minn.; Aveda, Chestnut Hill, Mass.*

Lighting designer: *Cooley Monato Studio—Emily Monato, project principal; Yu-Huang (Ray) Chen*

Architect: *Gensler—David Gomez, Larry Murphy, project managers*

Sources

Surface-mounted track fixtures: *Lightolier*

Low-voltage MR16 accent lights: *Reggiani*

Integrated linear fluorescents: *Bartco*

Decorative pendants: *Luz Lampcraft*

Custom lampholders with fabric shrouds: *Ontario Store Fixture*

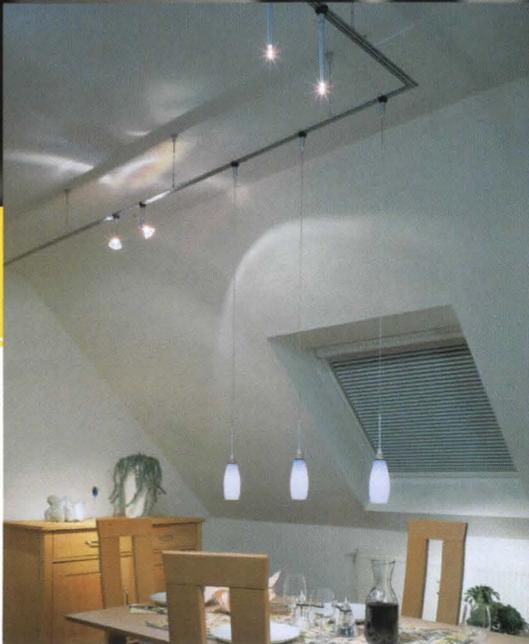
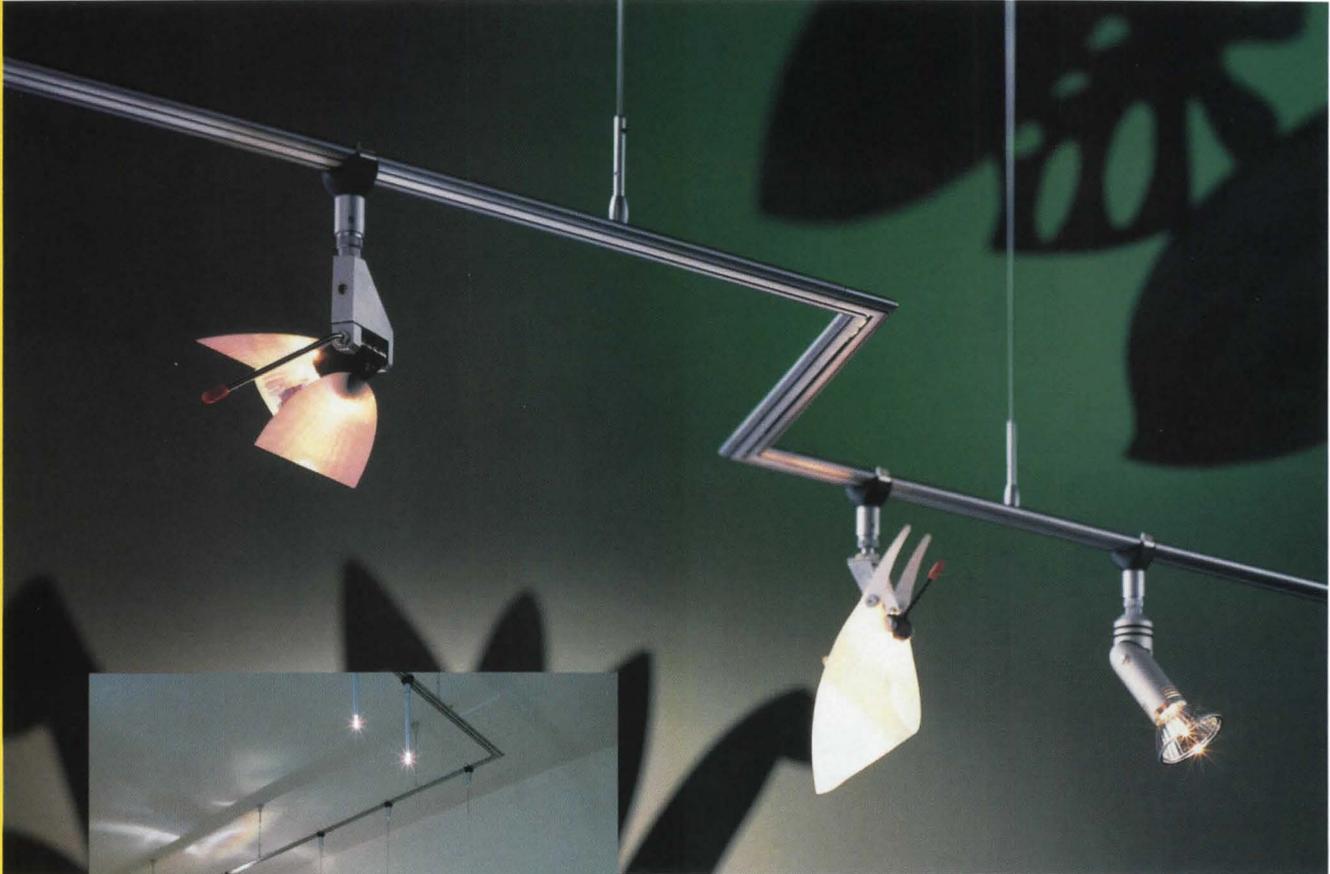
Makeup mirror incandescents: *Aamsco*



The Aveda location in Chestnut Hill, Mass. (this page), is one of the smaller store footprints. Incandescent fixtures provide soft lighting at makeup mirror stations, while fluorescents backlight signage and products displayed on shelves.

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The lighting of the entry of the BT Tower is complex, so several views are shown here. A slot cut into the convex ceiling houses cold-cathode cove lighting used to orient visitors toward the auditorium and conference rooms beyond. Other slots cut

into the ceiling around the piloti columns conceal low-voltage xenon lamp strips that provide a halo around the column tops, while square 18-watt compact fluorescent fixtures, recessed into the curved wall, wash the floor, ceiling, and

columns with additional light. A glass bridge is uplit with fluorescent lamps, wrapped with blue gels, under the glass floor. Important circulation paths are uplit with low-voltage spots recessed into the floors and ceiling (top row and bottom left). The

corridor that joins the auditorium with conference rooms (bottom center) is lit by a cold-cathode cornice light; recessed low-voltage fixtures fitted with MR16 lamps and adjusted to cast a scallop on one wall; and the futuristic K2 fixture, designed by Lee

British Telecom enters the 21st century with space sculpted in light and color by Light & Design

By **Nayana Currimbhoy**

The ground floor of the British Telecom Tower was designed to show off the company's technical prowess for the benefit of the firm's national and international clients. It consists of reception areas, meeting and conference rooms, a cybercafe, theater, and art gallery. The designer, the Diplock Partnership of London, used convex ceilings, curved walls, and changes in floor level to create subtly skewed perspectives. These are enhanced by the lighting, which defines and sculpts the irregular spaces and introduces layers of drama, using shadow and color. "The client wanted to convey the impression that theirs is a modern communications organization engaged in a business of the future," says lighting designer Lee Prince, a partner at Light & Design Associates.

The lighting in the entry is accomplished by layering indirect and direct sources. Indirect lighting in coves defines the separation of major planes in the ceiling and above the prominent wood-and-steel piloti columns. Curving wall planes are further modeled using adjustable low-voltage lighting recessed into the ceiling and floor at important circulation points, so that visitors walk through pools of light. A glass bridge in the entry area is illuminated from below by dimmable T5 fluorescents with blue color filters and unfiltered 4000K CRI T5 lamps. The glowing bridge casts an asymmetric arc of blue light on the adjacent wall and ceiling. A digitally programmable dimming system enables cross fading between the blue-filtered and unfiltered fluorescent lamps. "It's like walking through water," says Prince.

Elsewhere, fixtures left exposed were chosen—or invented—for their futuristic appearance, for example, the cold-blue lights that cantilever from the ceiling in the corridor between the auditorium and conference rooms. Prince designed this fixture and christened it the "K2"—a nod to the Gilbert Scott-designed "K1," the red English telephone booth which Prince admires. The light fixtures consist of "a single-ended lamp source with electronic gear," hints Prince; however, the nature of the technology is still his trade secret.

Designed and illuminated with flair, the space succeeds in creating a hard-edged, science-fiction film-set quality that is not typically seen in the lobby-and-corridor environment. ■

Nayana Currimbhoy is a freelance writer based in New York City and a frequent contributor to RECORD LIGHTING.

Project: British Telecom Tower
Customer Services Centre, London

Interior Designer: The Diplock Partnership

Lighting Designer: Light & Design Associates—Lee Prince, partner-in-charge

Sources:

Downlights: Targetti Sankey

K2 custom lights: Distributed in U.S. by Continental Lighting

Indirect lighting: Wila Lighting

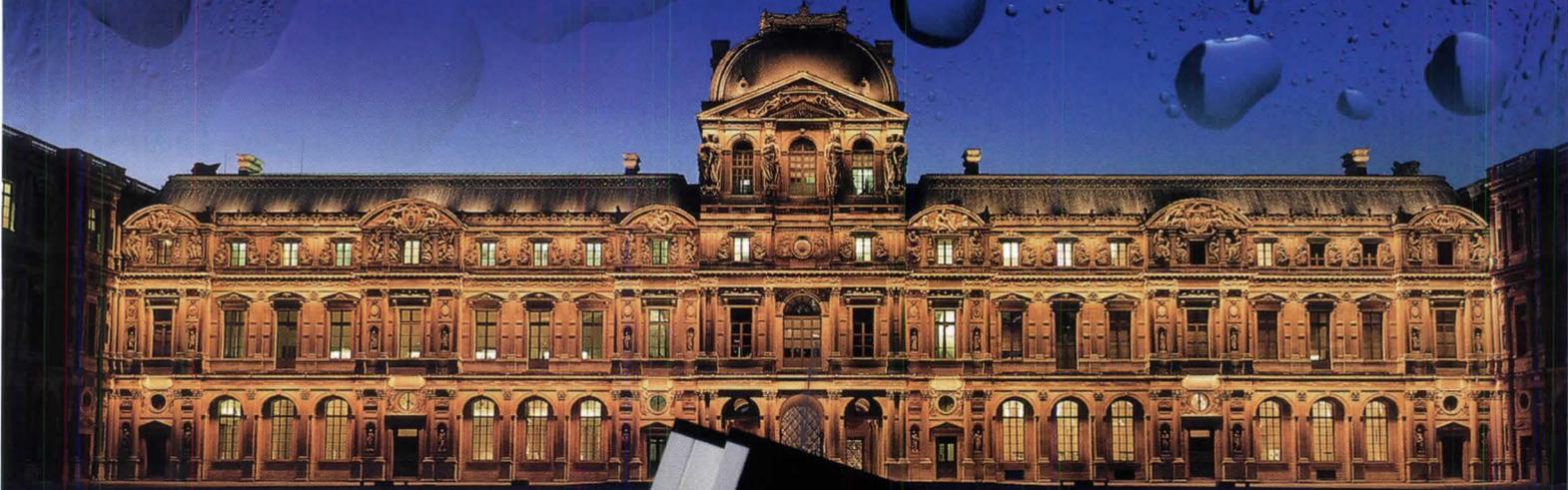
Theater lighting: Erco

PHOTOGRAPHY: © ROB MOORE

Prince. The perimeter of the auditorium (bottom right) is defined by wall sconces incorporating pairs of low-voltage QR111 lamps whose transformers have been remotely mounted. Aisles are marked by recessed uplights.



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CIRCLE 52 ON INQUIRY CARD

Elegant lighting achieved for a foundation headquarters using a minimalist palette

By **Nayana Currimbhoy**

The Ewing and Marion Kauffmann Foundation headquarters in Kansas City, Mo., is a two-story courtyard building situated on the banks of a man-made lake. The philanthropic foundation acquired a vacant, flood-prone site in a residential area of the city and transformed it into a park with pools, bridges, wetlands, and a small island. The 139,000-square-foot building, designed by the Boston firm Kallmann McKinnell & Wood Architects (also responsible for the design of the master plan for the 37-acre site), contains the foundation's offices as well as conference and instructional spaces.

The mission of the foundation is to strengthen communities through communication. As a reference to this idea, the building is organized like a town. Office wings are laid out a grid of neighborhoods, with the circulation route serving as cross streets and avenues, all leading to a central town square that acts as the foundation's conference center. It is used for formal meetings, dinners, exhibitions, and informal break-out sessions;

Nayana Currimbhoy is a New York City-based freelance writer and frequent contributor to RECORD LIGHTING.

a double-height lobby and exhibition space support a variety of activities.

The building is designed to take advantage of its surrounding landscape. Daylight is brought indoors through layers of clerestories, skylights, and extensive perimeter glazing. The lighting, by Berg/Howland Associates, is mostly indirect and diffused, with downlights serving as decorative accents in the public spaces and as functional highlights in the meeting areas and classrooms. "The idea was to create pools of indirect light, which would supplement the daylight, and not draw attention to itself," says Jeffrey T. Berg, AIA. Three-thousand-degree Kelvin fluorescent lamps were used throughout the project.

In the town square, two rows of fluorescent T8 lamps are concealed in ceiling soffits, while compact fluorescent downlights supply

Project: *Ewing and Marion Kauffmann Foundation Headquarters, Kansas City, Mo.*

Architects: *Kallmann McKinnell & Wood Architects*

Lighting Designer: *Berg/Howland Associates*

Electrical Engineer: *Cosentini Associates*





additional ambient light. Decorative pendants suspended in the space provide supplementary light using 18-watt compact fluorescents, which create a second visual ceiling plane. Dimming ballasts give flexibility to the square, which also works as a meeting space and classroom. The two-story lobby, which links the town square with the office wing, is punctured by a row of round skylights. Coves behind each skylight contain 13-watt compact fluorescents mounted on flexible channels to provide additional light. Recessed 32-watt compact fluorescent downlights with decorative glass trim flank the lobby skylights, while a linear concealed cove, behind the pillars, contains two rows of T8 lamps.

In the classrooms and seminar rooms, T8 fluorescent pendant fixtures with perforated housings and parabolic reflectors are equipped with dimming ballasts; additional downlights and wall washers are lamped with 18-watt compact fluorescents; and 90-watt halogen lamps with PAR floods on tracks are used to place accent light on speakers. Motorized translucent and blackout shades can be used to change the amount of daylight admitted to the rooms as needed. The lighting is on a preset dimming system so the settings can be adjusted as the function of the rooms changes. ■

Sources

Linear fluorescent pendants: *Finelite*

Decorative pendants and downlights: *Poulsen*

Recessed downlights: *Omega, Prescolite*

Fluorescent troffers: *Columbia*

Linear fluorescent wall washers:

Neoray

Undercabinet lights: *Daybrite*

Circular cove strips: *Tivoli*

Steplights: *McPhilben*

Track lighting: *LSI*

Signs: *Alkco*



In the town square, (opposite top) decorative pendants have the effect of providing a secondary ceiling plane. In the classrooms (opposite middle and bottom), pendant fluorescents, downlights, and wall washers are on a zoned control system to facilitate audiovisual presentations.





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A C E N T U R Y



All about the new T5 lamps and ballasts

MANUFACTURERS ARE DEVELOPING LOTS OF NEW PRODUCTS FOR THE T5, AND BETTING ON DESIGNER ACCEPTANCE. THE LAMPS AND BALLASTS ARE GREAT BUT STILL TOO EXPENSIVE FOR SOME TASTES.

By Lindsay Audin

The T5 fluorescent lamp/ballast combination offers many interesting and exciting possibilities for both fixture manufacturers and lighting designers. This column looks at the claims and hype so readers will be aware of both its virtues and pitfalls.

The system

The linear T5 lamp is characterized by its slim $\frac{3}{8}$ -inch diameter glass tube—it is less than one-half the diameter of the $\frac{1}{2}$ -inch diameter T12 lamps we grew up with—and appeared first, naturally, in Europe, where designers seem willing to try almost anything new when it comes to lighting. While initial versions had some end-of-lamp-life problems—for example, when lamps burned out, their contacts shorted, causing fixtures to emit smoke—but models of the lamps seem to have overcome such problems. Every lamp and ballast manufacturer of note now offers a line of T5 products, and the number of new fixtures shown at LightFair 2000 in New York this past May indicates that equipment manufacturers are betting the lamp will gain rapid acceptance among architects and lighting designers.

THE T5 LAMP IS CHARACTERIZED BY ITS 5/8-INCH DIAMETER GLASS TUBE.

The linear T5 lamp boasts a color-rendering index (CRI) of 85. T8s can be purchased with CRIs of roughly 75 for 700 series lamps; roughly 85 for the slightly more expensive 800 series lamps, or as high as 95 for specialty lamps, which are much higher in price. The T5 lamp boasts an average of 95 percent of its lumen output over its lifetime. Except for the GE Starcoat series—which claims 95 percent lumen maintenance—most T8s maintain about 80 to 85 percent of their lumens at the end of their standard 20,000 hour lives.

When combined with an electronic ballast, efficacies of 90 to 100 lumens per watt are possible. Standard output four-foot T5 lamps emit the same number of lumens as their T8 and T12 cousins, making them comparable to existing four-foot fluorescent lamps. A wide range of lengths exists—22, 34, 46, and 58 inches—in corresponding wattages of 14, 21, 28 and 35. High-output (HO) lamps are available in 24, 39, 54, and 80 watts, as are circular lamps.

Lindsay Audin is president of Energywiz, an energy and technology consulting firm (www.energywiz.com), and is a regular contributor to RECORD LIGHTING.



With its slim shape, the T5 lamp offers good—and practical—optical control. Among the new designs are Metalux's Aerial (left), a surface-mount direct/indirect and the recessed CircLet by Wila (bottom), which uses a circular T5 lamp.

Major ballast manufacturers are supporting this new system with packages that take full advantage of microelectronics. The cross section of a Magnetek two-lamp T5 ballast, for example, is only $\frac{1}{4}$ inches wide by $\frac{3}{8}$ inch high. One should note that, unlike electronic ballasts for other fluorescent lamps, T5 ballasts vary in dimensions, depending on the number of lamps they serve and even on the manufacturer. Thus, finding proper replacements for ballasts requires some research.

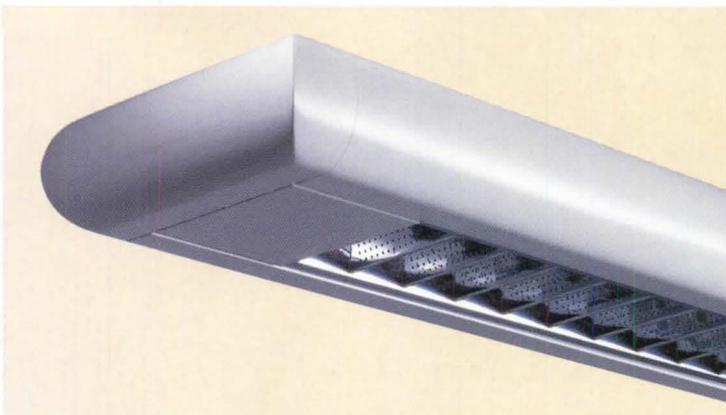
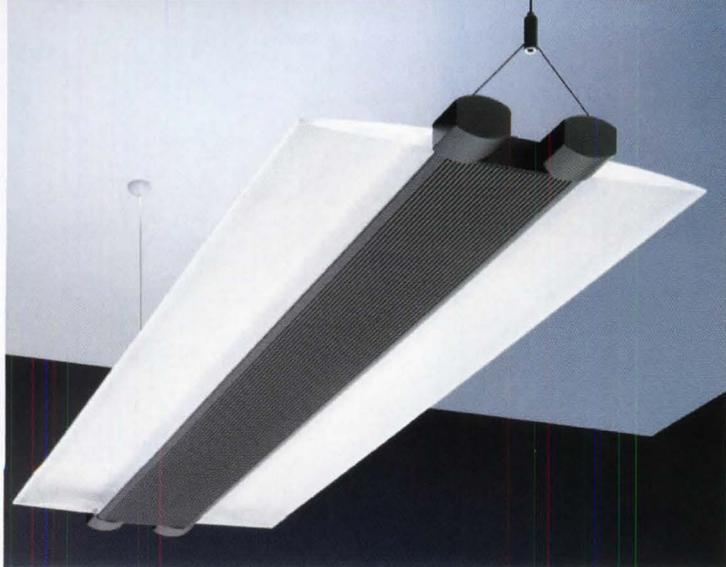
The technical specs for these ballast are generally excellent. Most have total harmonic distortion of 15 percent or less, meaning that they will not create imbalances on a building's electrical lines, which could result in damage to its wiring or transformers, or disrupt equipment that uses power lines to carry control signals. Their power factor is above .95, indicating the devices are very efficient users of electricity. All carry Class A sound ratings, so they are silent for all practical purposes, and the ballasts have advanced circuitry that automatically shuts them off when a lamp expires. A typical T5's ballast factor, the measure of a ballast-lamp system in terms of brightness and electrical efficiency, is an outstanding 1.0. Lutron, MaxLite, and others also offer dimmable units for both the T5 and T5 HO lamp.

Some ballast manufacturers have, however, gone beyond even those admirable specs. Some offer single units that operate on a wide range of voltages—110 to 305 volts, for example—as well as the dual 120/277 voltage configuration typically found in buildings. Poke-in connectors make wiring easy, and some units can accommodate a range of lamp wattages and have dual grounding because they use metal, rather than plastic, casings.



Not your father's fluorescent

Designers should keep in mind that there are subtle differences between T5 lamps and those they are accustomed to using. For example, the efficacy rating of a specific fluorescent light source depends on



A wide range of new T5 designs is available: The Orea from Zumtobel Staff (top), LedaLite's Minuet (above), Osram Sylvania's Pentron T5 lamps and ballasts (right), and Precision Architectural Lighting's T5 cove lamp (below).



keeping a lamp and fixture at a specific temperature: If the temperature deviates, their output will be reduced. The rated operating temperatures for T8, T10, and T12 systems is 77 degrees Fahrenheit, even though these systems seldom run this cool and have lower lumen output as a result. T5 systems are rated at a more realistic 95 degrees Fahrenheit. This higher design temperature is advantageous because manufacturers are using these compact lamps to create smaller fixtures with less surface area to diffuse heat. Thanks to the higher temperature rating of these lamps, few lumens, if any, are lost to heat. On the other hand, pendant-mounted T5 fixtures may have their light output reduced by conditioned air.

A boon to new fixture design

Aside from its improved lighting quality, variety, and efficiency, the major benefit of this new source comes from the photometric improvements possible when used in a properly designed fixture. The closer a light source comes to being an infinitely small point or infinitely thin line, the greater the ability of an optical system to control the source's directional output. Reflective surfaces can be narrower, distribution is more precise, and fixtures can be made smaller without losing these benefits. And opti-

T5 BALLASTS COST AT LEAST TWICE AS T8S, AND DON'T EVEN ASK ABOUT LAMP PRICES. COSTS WILL DROP, BUT SLOWLY.

cal system designers can now do things with reflectors and lenses, such as bouncing light upward and horizontally across the ceiling plane, which were previously less efficient. The HO lamp is so bright it may be possible to use only one fixture where two were required before.

The inevitable downsides

They're really, really bright. Just a quick glance at a bare 5,000-lumen T5 HO lamp leaves a noticeable afterimage in one's eyes. The potential for glare, especially in computer screens, must therefore be carefully considered. One solution is to design rooms where the lamps can never be seen, using coves, indirect pendants, or deep-cell parabolics.

Shorter lamp life. While some ballast manufacturers say their products extend lamp life, so far there is no track record to support these claims. Rated lifetime on the T5 lamp is 20 percent shorter (16,000 instead of 20,000 hours) than for the T8/T12 system.

Cost. Like all new high-tech items, T5 lamps and ballasts are not cheap. T5 ballasts cost at least twice as much as T8 units, and don't even ask about lamp prices. These costs will drop, but slowly. Lamp disposal is also a concern. Few, if any, manufacturers are making a product that can go directly to a landfill. So if you're going to be using T5s soon, count on hiring a lamp disposal company in a few years.

Availability. It is limited for some products. Even though they appear in catalogues, products like the 120-volt dimmable T5 HO ballast are as yet in short supply, although other ballast models seem to be readily available. Even product literature sometimes proves hard to secure. Efforts to get spec sheets on recently promoted fixtures resulted in long delays or answers of "we don't have any" from several manufacturers.

Finding replacement parts in a hurry. Something always breaks, usually during construction, and it may be difficult to replace. Several large electrical vendors interviewed were not yet aware of the linear T5 lamp and ballast, so obviously they don't stock them. Until T5s are installed in many buildings, getting sockets (which are, of course, a different size than for T8 and T12 lamps), will take time. But, these are just growing pains. As always, fixture specifiers, lighting designers, and architects will likely find themselves riding up over the learning curve with this new technology. ■

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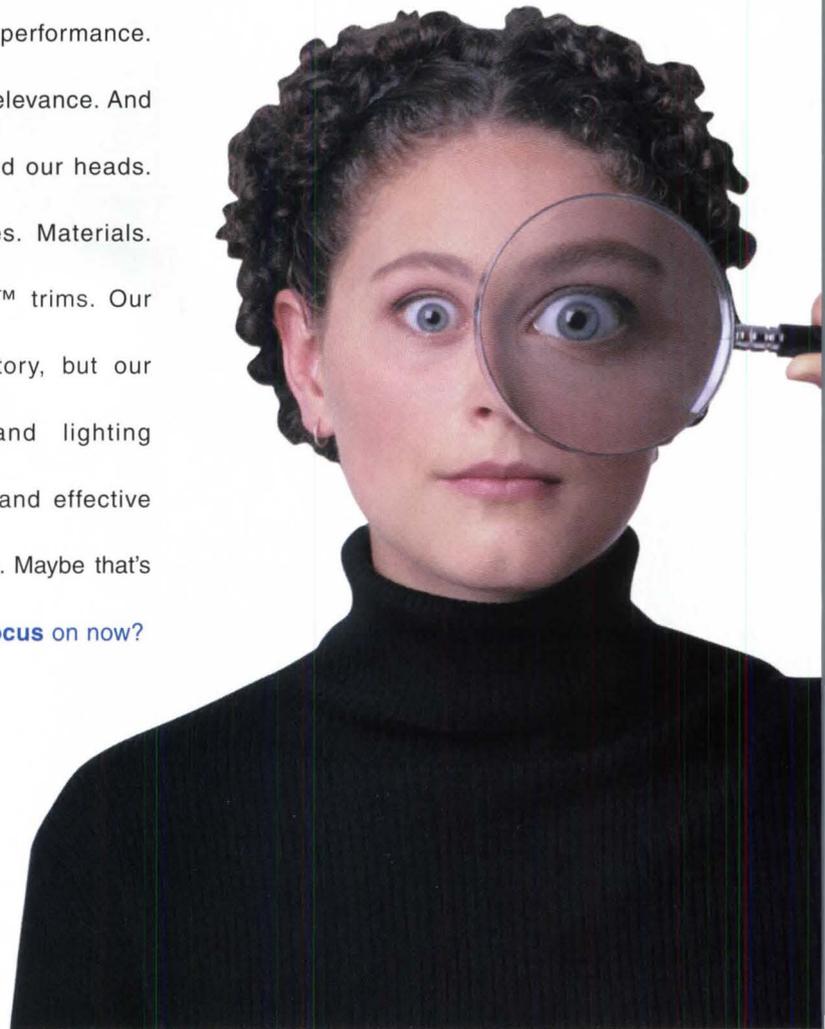
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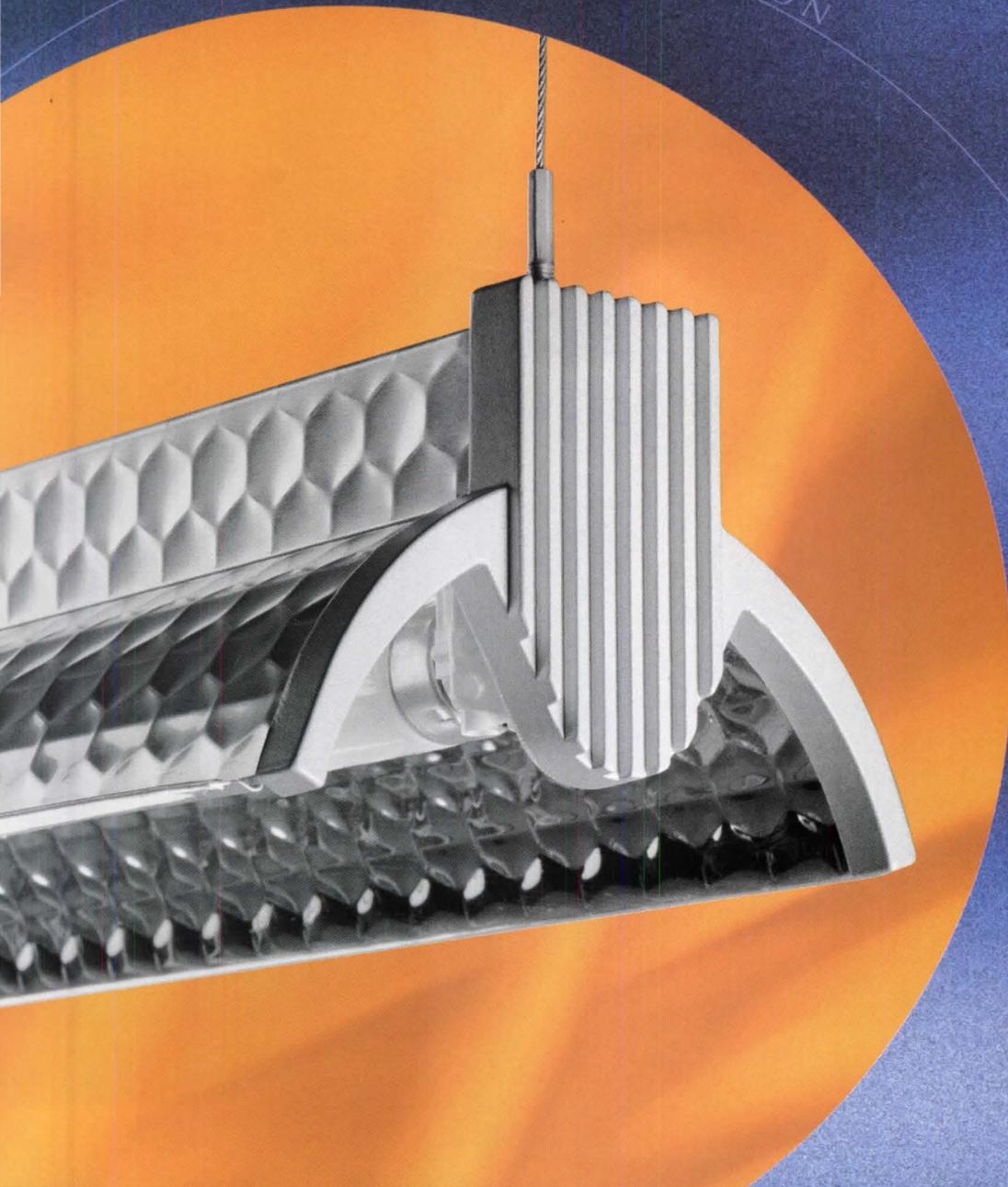


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Lighting Briefs

At the Montreal International Interior Design Show (SIDIM), held in May, lights with a **sculptural theme** had a strong presence. The fixtures below demonstrate the **creativity of the region**. *Rita F. Catinella*

► Good bedside manner

To be used as a side or bed table, the Alice and Lucy lamps from Cedric Sportes Design were created by hand in Montreal. They are made of solid Merisier wood with a natural varnish pigmented dark or light brown. The lamp shade is made of washable vinyl or laminated rice paper with natural pigments. The table lamps can be used in a variety of interiors and are available in two sizes. 514/521-9643. Cedric Sportes Design, Montreal. **CIRCLE 200**



▼ Spools of light

Terzani, part of a micro-exhibition of Italian manufacturers at the show, was established almost 30 years ago as a laboratory for the design of lighted objects with materials such as wrought iron, wood, and Venetian glass. The wires used to create the Bobino pendant shown here resemble spools of thread. 39/055-722021. Terzani spa, Florence, Italy. **CIRCLE 202**



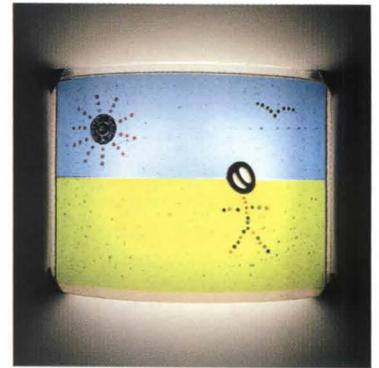
► Lunar landing

The Starburst lamp, designed by George Makris, was displayed at SEDIM in an eerie pool of black-and-white gelatin to create the illusion of the cold, dark surface of a planet illuminated by distant stars. The low-voltage light has 48 arms (each with one 20-watt bulb) and a diameter of 8½ feet; it features a solid brass construction with a hand-brushed nickel finish. The manufacturer, S/E/G, has created custom lights for Bell Canada, Walt Disney World, the Canadian government, and Nike. All lighting systems comply with UL standards. 514/762-9412. S/E/G, Montreal. **CIRCLE 204**



► Refrigerator art

This Dominique at the Beach fixture, from Lumid's Photo Album series of Murano glass sconces, recalls a child's finger painting. It includes Murano's renowned Millefiori cut rods and is fused by Lumid in Montreal. Designed by Dominique Alary, the sconce uses GE 2D Energy Saving Lamps (16 to 38 watts) and is ADA and UL approved. 514/524-2409. Lumid, Montreal. **CIRCLE 201**



◀ Good dose of lighting

Au Courant's award-winning booth at SIDIM displayed pendants and sconces in a sterile, red-and-white hospital-themed booth to demonstrate the versatility of its lamp designs. To complete the mood, booth attendees were cloaked in white lab coats; black-and-white transparencies of the product line were clipped to lightboards like X rays; and the giveaways were realistic medicine bottles filled with candy. 514/733-2050. Au Courant Luminaires, Montreal. **CIRCLE 203**



► Well-preserved lighting

Antoine Laverdière was so inspired by the vintage Tupperware pieces he purchased for less than a dollar at a secondhand store that he began collecting the pieces and developing a method for fitting them together without adhesives or hardware. The result is a new limited-edition collection of hand-made table lamps (above) and pendant lamps (below) that use recycled containers from the 1950s, '60s and '70s. 514/815-3318. Polygone, Montreal. **CIRCLE 205**



Lighting Briefs

► Accessories on the exterior

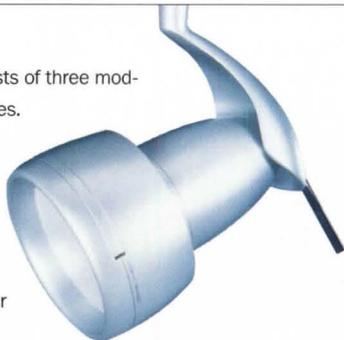
With a wide range of accessories, the eScore from Architectural Area Lighting makes a smooth transition from exterior to interior. In its standard form, the light has a luminous glass square on the front face. Full overlay panels, edge-lit acrylic ribs, and gel color filters are options for the fixture. A lightly diffused lens that



reduces brightness is also available. 714/994-2700. Architectural Area Lighting, La Mirada, Calif. **CIRCLE 206**

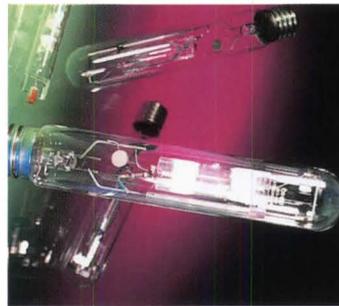
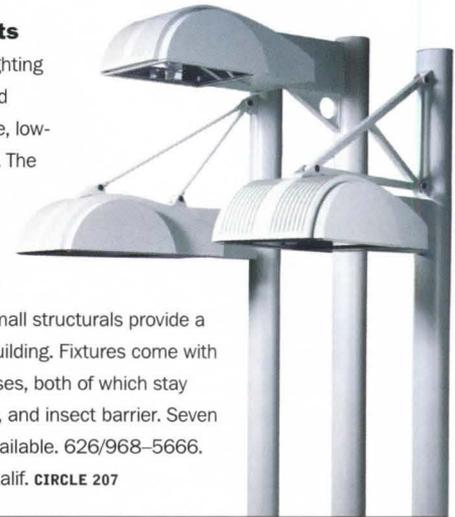
► Rotating and swiveling air

The new AIR collection from FLOS USA consists of three models in different sizes, light sources, and finishes. Designed to be installed on track, ceiling, or walls, the AIR-3 is housed in die-cast aluminum and rotates 355 degrees with a 110-degree aiming adjustment. Aiming is achieved by turning the wand located behind the trackhead. A swivel UV filter holder is incorporated in the front cone assembly. Available in white, black, and silver finishes. 800/939-3567. FLOS USA, Huntington Station, N.Y. **CIRCLE 208**



► Exterior arrangements

Structural lighting from Kim Lighting combines optics, materials, and ergonomics to create glare-free, low-maintenance lighting solutions. The large structural is available in H.I.D. lamp modes to 400 watts, and the small structural is available to 175 watts. When used together, the large and small structurals provide a transition from parking lot to building. Fixtures come with the option of convex or flat lenses, both of which stay sealed, creating a moisture, air, and insect barrier. Seven mounting arrangements are available. 626/968-5666. Kim Lighting, City of Industry, Calif. **CIRCLE 207**



◀ Paint with light

USHIO introduces a 400-watt line of colored metal halide lamps. The lamps feature deep color saturation, eliminating the need for color filters or gels. Applications include stage effects, themed environments, building facades, fountains, shop windows, and landscape lighting. 714/236-8600. USHIO America, Cypress, Calif. **CIRCLE 209**

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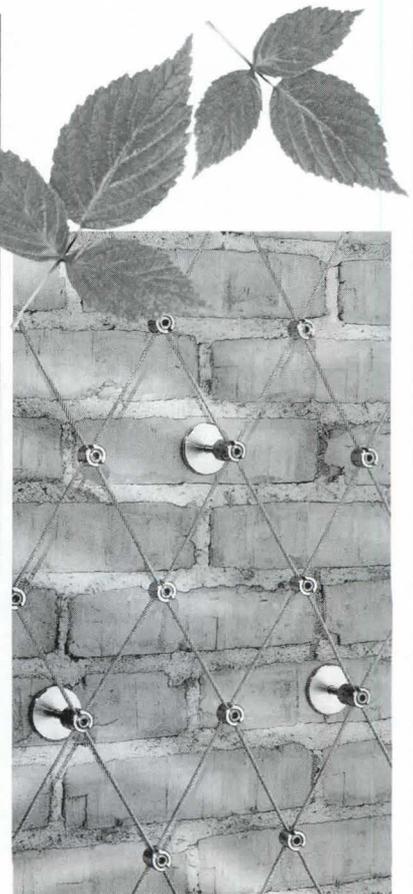
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Lighting Briefs

▼ Glass head, wooden stem

New from Leucos Lighting is a collection of pendants; downlights; ceiling, wall,



table, and floor lamps. Shown is the Sphera T, a table lamp with a satin white blown-glass and mahogany base and stem. The light source is a 1x60- or 1x100-watt incandescent, available with a nickel-plated matte metal frame or polished chrome base and stem.

Also in the collection is Drop, a semi-recessed downlight. The low-voltage (1x50-watt MR16) fixture provides downward light through a poured-glass diffuser. The Drop downlight is available in clear or satin white glass trim. The lighting collection was created by five designers and associates, providing a variety of looks. 732/225-0010. Leucos USA, Edison, N.J. **CIRCLE 210**

► Window of light

The sweeping S curve of the Finestra-Esso wall bracket by Boyd Lighting provides a window of light for commercial and residential interiors. The wall bracket features a white pearl diffuser that provides an evenly illuminated glowing panel. The etched aluminum frame is available in satin aluminum and anodized bronze finishes. The light source is available in incandescent or fluorescent and is ADA compliant. 415/778-4300. Boyd Lighting Co., San Francisco. **CIRCLE 211**



◀ Tanks for the memories

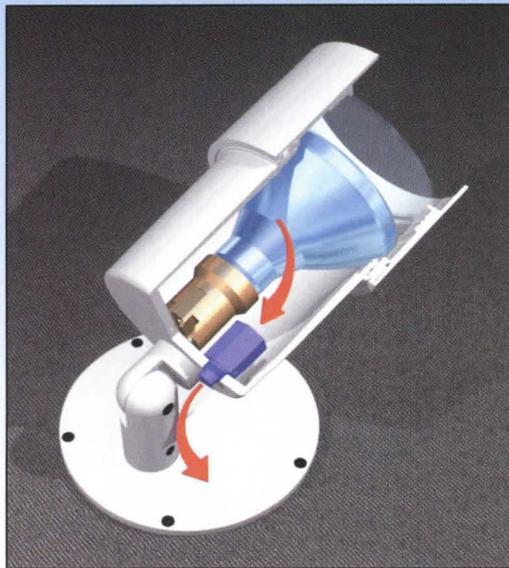
Taking inspiration from the water towers of the New York skyline, Lighttank, from New York Works, becomes a container of light that glows through wood veneer. Designed by Alessandra Dini, Lighttank shines through its base to the surface below. Lighttank is created from various materials, including aluminum, stainless steel, plywood, wood veneer, and polycarbonate. 212/206-0642. New York Works. New York City. **CIRCLE 212**



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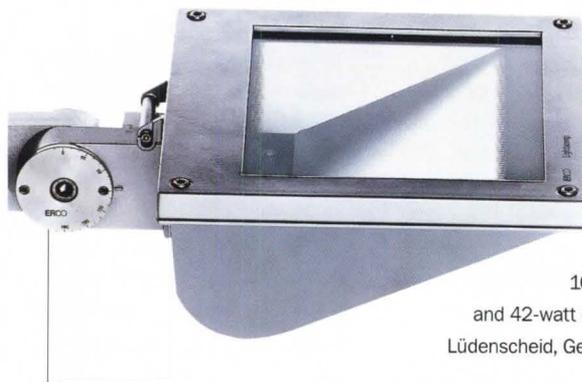
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Lighting Briefs

▼ Lite lights

New high-pressure sodium lamps—the Sylvania Lumalux/Eco, Lumalux Plus/Eco, and the Lumalux Mercury Free/Eco—are interchangeable and have lead-free bases and glass. These components make the lamps lighter and easier to manufacture and dispose. The lamps eliminate the end-of-life cycling characteristics of standard HPS lamps. The line passes the federal TCLP guidelines. 978/777-1900. Osram Sylvania, Danvers, Mass. **CIRCLE 213**



◀ Splash-proof floods

The new Lightscoop floodlight from ERCO is available in three sizes and as a compact wall washer. The adjustable hinge and the wall bracket allow a variety of mounting options. The aluminum housing unit is dust-proof and splash-proof, making it possible to employ Lightscoop in difficult environmental conditions, such as outside or in damp premises. Light sources available are 150- to

1000-watt tungsten halogen lamps, 70-watt metal halide lamps, and 42-watt compact fluorescent lamps. 49/2351-551-345. ERCO, Lüdenscheid, Germany. **CIRCLE 214**

▶ Lighting down the line

Lucifer Lighting Company introduces Basso, its first line voltage downlight with the same small profile as Lucifer's low-voltage fixtures. Four different models are available: fixed, 45-degree adjustable from vertical, and two alternate models for irregular ceiling surfaces. With an aperture slightly over three inches and trim profile less than half an inch thick, Basso's trim is almost invisible against the ceiling plane. The aluminum conical reflector is available in specular aluminum and black alzak. Optional-effects devices include clear, frosted, or spread glass lenses, diffusion lenses, and honeycomb louvers. 210/227-7329. Lucifer Lighting Company, San Antonio. **CIRCLE 215**



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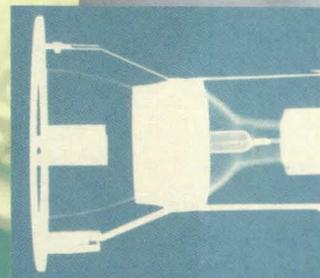
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Calyx



Basso

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Lighting Briefs

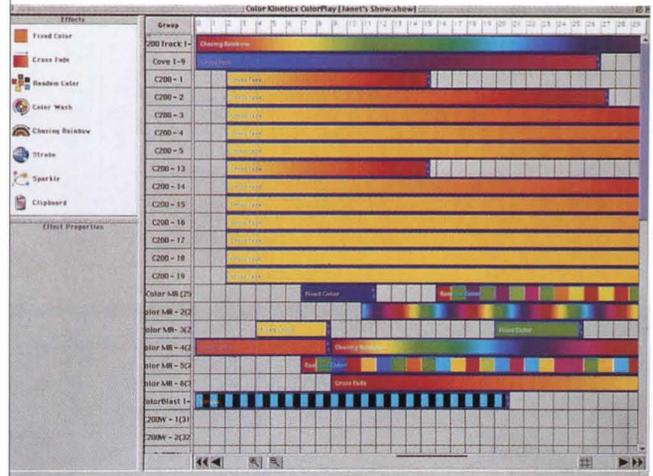
► Pole-mounted lighting

For a range of commercial or landscape lighting applications, Hess America introduces Amalfi wall- and pole-mounted fixtures and bollards. Amalfi fixtures are designed for pathways or perimeters of parks, corporate grounds, upscale retail sites, and other spaces where high-lighting is required. The pole-mounted unit is available in 8.9-foot and 11.8-foot heights. All fixtures are UL listed. 704/471-2211. Hess America, Shelby, N.C. **CIRCLE 216**



▼ Stage your own show

Creating and editing light shows is now easier with ColorPlay, a new lighting-design software package. The software enables first-time users to have light shows running in minutes without the need for technical programming skills or lighting boards. ColorPlay offers drag-and-drop, effects-based design and real-time show preview capabilities. Users map out their installation with icons on a layout grid. With a grouping function, users can set the same effect for multiple lights in an installation. ColorPlay offers up to 16.7 million colors and a library of lighting effects. 617/423-9999. Color Kinetics, Boston. **CIRCLE 217**



◀ Sanded and frosted sconce

A sanded aluminum base and a seamless frosted acrylic shade compose the Grid wall sconce from Neidhardt. The thick shade evenly diffuses a 60-watt mini-candelabra light source, making Grid an application for hallways, entryways, and bathrooms. For use in residential or commercial projects, the fixture is UL listed and ADA compliant. 800/978-8828. Neidhardt Inc., Redwood City, Calif. **CIRCLE 218**



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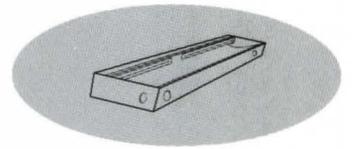
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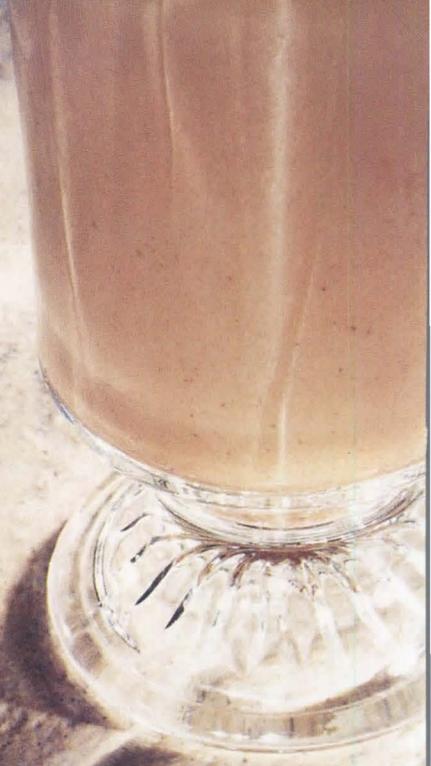
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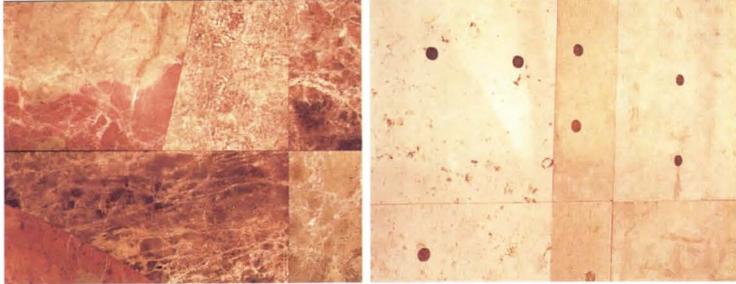
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New Products

At Coverings 2000, the annual international tile and stone exposition held in May, the Tile Council of America announced a 14.9 percent increase in sales for ceramic tile from 1998 to 1999. Trends seen at the show included water-jet-cut edges, stone replications, metallic and iridescent effects, marine designs, and glass tiles. *Rita F. Catinella*



WATER-JET CUTTING AND BRONZE INLAYS HIGHLIGHT NEW ITALIAN STONE TILE COLLECTION

The Kevin Walz Collection for BiMarmi is a group of four designs in stone for the floor or wall available through the importer Ex:Inc. BiMarmi, an Italian stone specialist based in the Puglia region of Italy, uses the latest technology to realize modern interpretations of traditional inlay techniques. Walz's new designs—Bronze Inlay Diced, Planetary Density (top left), Universal Arcs, and Global Marcations (top right)—feature color fields created by water-jet-cut inlaid patterns and resin-filled inlays.

Planetary Density uses the complex patterns innate to Puglia's more ornate earth-toned marbles to form designs with a *marmoseta*, or silk marble, finish that suggests the

elements of the cosmos. Melange and Morato, the two marbles incorporated into the tiles, are exclusive to BiMarmi and come from the same quarry. The tile can be made with "planet" and "universe" patterns in the same or contrasting marbles. There are also 6-by-18 $\frac{3}{4}$ -inch border tiles with arcs that can be used as an accent or to form a pattern field.

Global Marcations uses San Sebastian, Bianco Barmi, and Murgiano, three detailed light-colored stones, to form 18-by-18 $\frac{3}{4}$ -inch tiles with parallel or intersecting arcs incised into the stone and filled with bronze shavings and resin. 212/758-2593. KorQinc, New York City. **CIRCLE 219**

PORCELAIN FLOOR TILES USED TO HONOR AND PROTECT THE NATURAL WORLD

The Eco-Cycle porcelain tile (bottom right), new from Crossville Ceramics, is made by reclaiming and reusing unfired raw materials. More than 95 percent of the taupe-gray mingle tile consists of raw materials generated during the process of manufacturing standard color porcelain tiles.

The new series is available in an 8-by-8-inch size with two surface finishes—unpolished and Cross-Tread with a raised diamond grid pattern. Appropriate for both residential and commercial applications, the Eco-Cycle series costs about half the price of Crossville's standard colors.

A more natural airport

A tribute to Florida's marine environment was created by Tampa-based Kelly Taaffe Design. The designers replaced the existing flooring at the Sarasota Brandenton International Airport with 52,000 square feet of Crossville Porcelain stone tile, of which approximately 40,000 square feet was cut with water-jet technology. The design used the flooring as a tool to provide an aquarium theme that celebrates the area's

beaches and marine life (below). 931/494-2110. Crossville Ceramics Co., Crossville, Tenn. **CIRCLE 220**



HIGHWAY ART RELIEVES DRIVERS FROM BILLBOARD BOREDOM

Drivers coasting down an eight-mile stretch of the newly constructed Pima Highway in Scottsdale, Ariz., will notice a carefully designed tile rendition of the Southwest on the concrete walls and bridges. The highway, which passes through the Pima Indian Reservation, features key elements in the Arizona environment,



including a series of lizards, agave plants, and prickly pear cacti. To apply the tiles, a series of 25-by-30-foot molds were attached to wood frames, echoing the artist's designs, many of which were

three-dimensional. These three-dimensional molds left a recessed area for the tile, which, after it was placed, left a $\frac{1}{4}$ -inch shadow line to be painted a gray-green color.

Hopper Handcrafted Specialty Finishes applied approximately 10,000 tiles in custom-made colors of deep reds, the trademark of the desert hues. The tile, manufactured in Wisconsin, came in

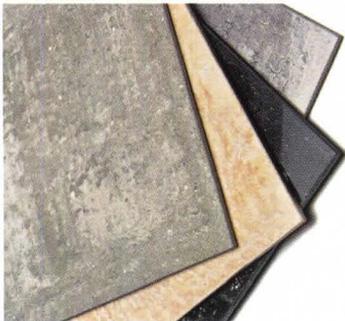
4-by-4-inch, 6-by-6-inch, 8-by-8-inch, and 12-by-12-inch sizes. All were fire-glazed $\frac{3}{8}$ inch thick.

Mapei's two-component latex hydraulic mortar, GRANI/RAPID and Ker 318 was used to apply the tile. Because of its low-shrinkage and quick-hydration characteristics, GRANI/RAPID allows tiled surfaces to be ready for light traffic after about three hours and is completely cured after only 24 hours. 800/42-MAPEI. Mapei, Deerfield Beach, Fla. **CIRCLE 221**

New Products

▼ La isla bonita

Available polished or with a satin finish in shades of yellow, blue, gray, or black, nine of the new Islas porcelain tile models are offered in a 16-by-16-inch format, while two are presented in a 13-by-24-inch size. In addition, three new decoratives are available to complement the series. Amalfi and Siena are available as 6-by-12-inch listels and 6-by-6-inch inserts in several shades, and the 3-by-13-inch Espiral listel features a Greco-Roman motif. 877/640-0555. Alcalagres America, Miami. **CIRCLE 222**



▲ Slate for the floor

The Indian Slate series of glazed porcelain tile from Ceramica Sant'Agostino is available in white, black, ivory, garden, orange, gray, and red. The 5/16-inch-thick rustic tile is intended for both interior and exterior use. The tile features a slate-type structure and has a strong shading base. The trim pieces are available in step, top step, top corner step, skirting, and L-piece. The product has PEIV and R9 certification. 212/980-1500. Italian Trade Commission, Ceramic Tile Department, New York City. **CIRCLE 223**



▲ Old-world tile style

Inspired by Venice, Walker Zanger's new Venezia Collection of decorative stone tile includes a variety of tiles, decorative stone borders, decos, and medallions. Designs are etched into antique-finished stone using the pressure of water in a technique called *aquaforze* (literally "hard water"). The result is a detailed design that is then rubbed with a Sienna or Dorato stain to create a two-tone image. Edges of the tiles are distressed, and their surface has a burnished honed finish, adding to the antique look of the tile. The stone used for the decorative tiles is also included in the collection as field tile. 818/504-0235. Walker Zanger, Sun Valley, Calif. **CIRCLE 225**

▼ The weathered look

Tiles from Spain offer earthy colors with pronounced shading in the glaze colorations and new satin effects that re-create the appearance of very old tile that has seen centuries of foot traffic. Coordinating decoratives are offered in a variety of designs and colored mosaics. Keraben offers Astorga, a 16-by-16-inch tile from its Jubileo series of glazed porcelain, and Campiña Barro, a 16-by-16-inch red body floor tile. El Molino offers 13-by-13-inch Azul and Beige tiles, and



Pamesa offers Pizarra, 4-by-4-inch glazed porcelain decoratives. 305/446-4387. Tile of Spain, Miami. **CIRCLE 224**



with gold mosaics, traditional smalti mosaics, and Avventurina, a man-made stone developed in Venice in the 17th century and today manufactured only by Bisazza. The company's showroom in New York City is dominated by its colorful floor, which

▲ Show of color

Bisazza produces glass mosaics for flooring, cladding, and decoration. In addition to the classic 3/16-by-3/16-inch glass-piece mosaics, Bisazza is known for its work

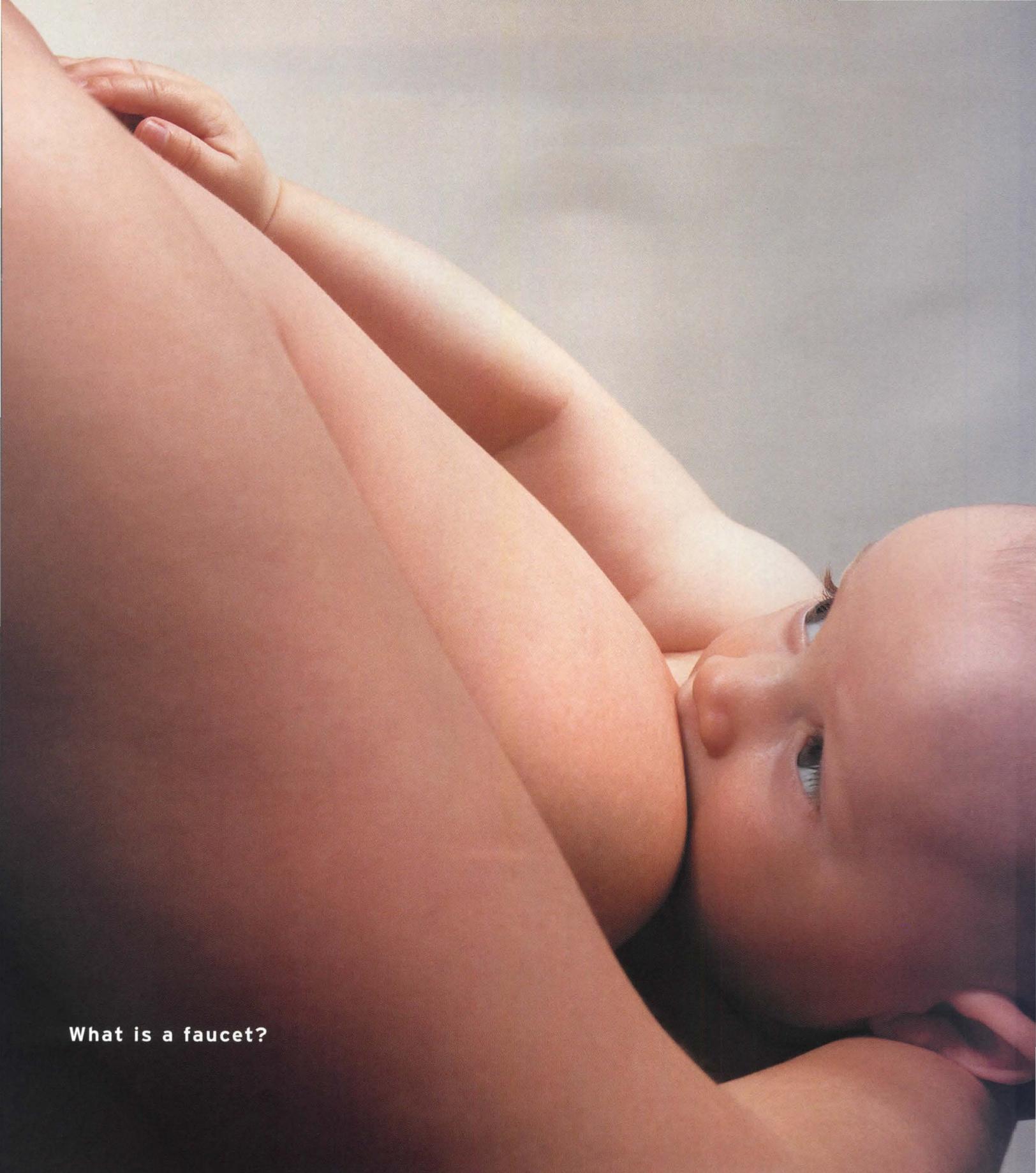
focuses attention on several product lines available from the company, including Opus Romano, Logos, and Avventurina. 212/463-0624. Bisazza North America, New York City. **CIRCLE 226**

▼ Hand-pressed ceramic tiles

Pascale Girardin is a ceramic artist living and working in Quebec. Her work ranges from functional dishware to sculptural lamps and three-dimensional ceramic tiles. The artist has recently created tile work and suspended clay elements for the soon-to-



open Soto Tremblant restaurant in Quebec, designed by Jean-Pierre Viau. The high-end monochromatic hand-pressed and hand-glazed pieces (one square foot costs approximately \$100) come in three thicknesses and range in size from 2 by 2 inches to 2 by 10 inches. 450/227-7585. Pascale Girardin, Quebec. **CIRCLE 227**



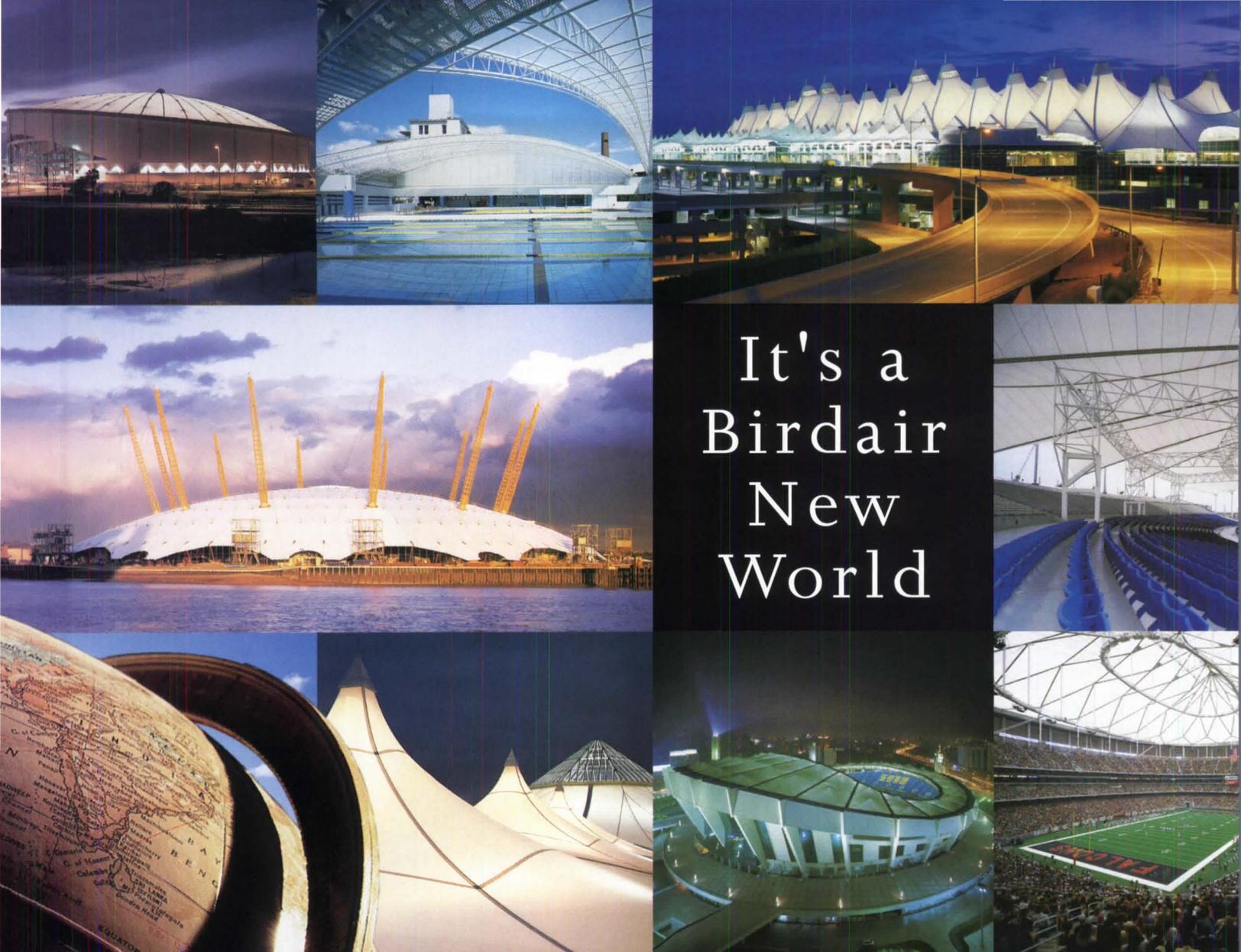
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Products Briefs

▼ Permanent waves

Undulatus, designed by Stanley Jay Friedman, was previewed at the NeoCon trade show last June in Chicago. The lounge seating, supported

by stainless-steel legs, is available in two lengths, 56 and 84 inches. Also from the company is the Elana barstool, designed by Louis Lara. The seating, practical for modern restaurants and bars, features quarter-inch laser-cut steel legs and an upholstered seat. 718/527-3000. Brueton Industries Inc., Springfield Gardens, N.Y. **CIRCLE 228**



▼ The company behind the (really big) wheel

The largest color wheel applied on an architectural facade was recently designed with high-quality Sto plaster and StoColor colors at the Sto AG logistics center in Stuehlinger-Weizen, Germany. The 184-foot-diameter circle, which took two months to design and apply, shows a color range of 96 hues depicted in concentric circles, with a world map at the center. The colors of the wheel were so intense that designers had to wear sunglasses when applying the material. Sto has applied the color wheel for entry into the *Guinness Book of World Records*. 404/346-3666. Sto Design, Atlanta. **CIRCLE 230**



▲ The floors have ears (of corn)

For more than a year, the Interface Research Corporation and the manufacturing and design teams at Interface

have been working on a process that would allow the successful manufacture of floor-covering products from poly(lactic acid) (PLA), a renewable resource derived from corn that is manufactured by Cargill/Dow. Two completely recyclable and biodegradable carpet tile products from the Great Plains collection debuted at NeoCon in June. 770/437-6800. Interface Inc., Atlanta. **CIRCLE 232**



◀ Mosaics with more

Artist Jonathan Mandell uses not only broken ceramic tile, but semiprecious stones, minerals, mirror, marbles, and even petrified wood to create fine-art mosaics depicting both secular and nonsecular subjects. Studio Interior, the 20-by-20-inch piece shown here, was designed by Mandell in 1998. 610/668-9909. Jonathan Mandell, Narberth, Pa. **CIRCLE 229**

► Women take a...stand

The Lady P. urinal is a new concept for women's public bathrooms. With the Lady P., there is no direct contact with the ceramic seat—instead users must face forward and squat slightly (skier fashion)—increasing hygiene, frequency of use, and ease of cleaning. Side dividing walls of half-transparent glass and a swinging door provide privacy but discourage loitering. A pictogram above the paper dispenser shows how to use the urinal. 31/043-350-2456. Sphinx Sanitar B.V., Maastricht, Netherlands. **CIRCLE 231**



▼ Decorative metal panel system

Mural is a colorful modular panel system in anodized aluminum designed by Claude Mauffette for Alutile. The panel system uses an adjustable leveling system and can be used to divide space, hide columns, and cover a variety of interior surfaces. The 16-by-18-inch easy-to-install panels create a freestanding structure that is decorative and nonstructural. Alutile also offers decorative metal panels in 14 different colors and four different models and custom patterns. 418/840-9197. Alutile, Val Bélair, Quebec. **CIRCLE 233**



Product Briefs



▼ Meet me in the park

Washington Square, designed by Brian Kane, supports users in a slightly reclined position to provide comfort for longer periods. Designers can choose from perforated-metal seat inserts with optional intermediate arms or various interior and exterior woods. The bench frame is welded steel tube. Litter receptacles, tablet arms, side tables, and an ash urn attachment complete the group. 800/521-2546. Landscape Forms Inc., Kalamazoo, Mich. **CIRCLE 234**

► Bouncing right back

Atmosphere rubber flooring's high-density composition consists of rubber recycled from post-consumer auto tires, with colored granules of EPDM rubber homogeneously mixed throughout. Atmosphere has few, if any, volatile organic compounds (VOCs) and features 36 multi-color combinations. 877/843-8184. To Market, Southport, Conn. **CIRCLE 235**



► No more beer runs

The Canadian designers at Barfly Beer Fridges rescue old fridges (circa 1940s-'60s), strip and repaint them, re-insulate them, and restore the chrome trimmings. They then add a chromed tap handle and a black-and-chrome drip tray, so clients have a keg (20 or 30 liters) of their favorite beer handy at all times. The fridges, which have been installed in homes, lofts, advertising agencies, and software companies, come in 14 classic car colors such as Mustang Red, Delorian Silver, and Batmobile Black. The fridges can be used to store anything, including food or supplies that need to be kept cold. 416/364-8280. Barfly Beer Fridges, Toronto. **CIRCLE 236**



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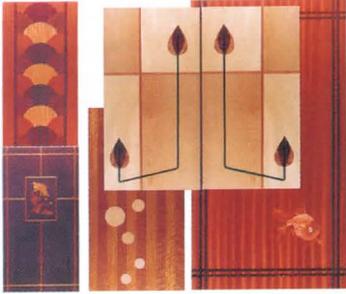
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Product Briefs

► New dimensions in glass and carpet

Constructed of Dupont Antron Legacy nylon, Above the Crowd broadloom and modular tile designs (right) feature three-dimensional depth and texture. The collection has been grouped into three stylistic categories: Simple to a Point has organic patterns; Distinct Edge is geometric and architectural in nature; and Black Tie Optional offers custom-order, large-scale patterns. Also new from Mannington is a commercial flooring option called Ultraglas (far right), kiln-formed 18-by-18-inch embossed glass tiles. The flooring is available in three different textures and 16 colors; it meets or exceeds codes for safety glass to ensure durability. 800/241-2262. Mannington Commercial, Calhoun, Ga. **CIRCLE 238**



▲ Anything but wooden design

Architectural marquetry (the decorative assembly of precious woods) can be used to create a landscape on the walls of a lobby, a company logo in a boardroom, a family crest on a door, or ornamental patterns on wainscoting. E&E Design provides a variety of marquetry services, and designs contemporary inlaid furniture using precious woods. 514/524-8955. E&E Design, Montreal. **CIRCLE 237**



◀ Warm air, cool style

The Eclipse automatic, surface-mounted, warm-air hand dryers from Bobrick are available in drawn-steel white vitreous enamel and bright-polished chrome-plated covers. The vitreous enamel cover provides a mid-price point for budget-sensitive projects, combined with vandal resistance for heavy-use-and-abuse washroom environments, such as schools. The polished, chrome-plated model is ideal for retail, restaurant, and health-care installations. Both feature 115-volt operation and are UL listed. 800/553-1600. Bobrick Washroom Equipment Inc., North Hollywood, Calif. **CIRCLE 239**

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Product Briefs

▼ Cancel those reservations

A New York City showroom has opened for Italian kitchen and bath manufacturer Boffi. The showroom, as well as several of the grand-scale product lines, was designed by Piero Lissoni.

Latina (shown) has a velvety matte finish made of an exclusive, scratch- and fingerprint-resistant, hot-pressed polymeric material. The stainless-steel work top can be fitted to a cherry-wood structure with an oven, waste bin, or a container with doors or drawers. Large units with sliding doors and wall units with roller shutters define storage areas. 212/431-8282. Boffi, New York City. **CIRCLE 240**



boxes, and overhead cabinets. The collection combines diverse materials such as aluminum, glass, Corian, corrugated rubber, and CleatorCoat,

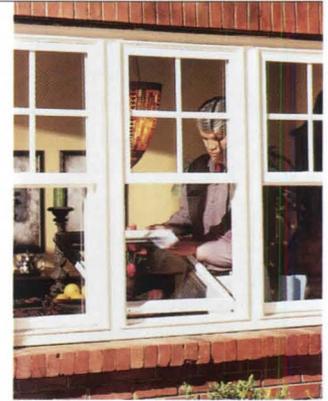
▲ Modern office trends

DotCom is a wood-based collection of integrated storage elements, desks, and work surfaces for private or open-plan offices. Customized configurations may include runoffs, modesty panels, lateral files, single pedestals, wardrobes, open

with a palette of natural woods. DotCom offers easy plug-in access at work-surface height to data, communication, and electrical outlets through aluminum grommets on desks, tables, and credenzas. 858/566-6850. Cleator, San Diego. **CIRCLE 241**

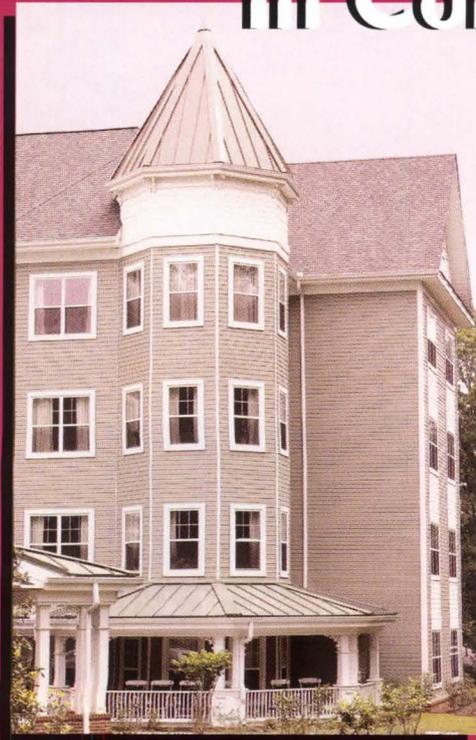
► Double-hung, double-tilt

Milgard's new double-hung, double-tilt window offers the traditional look of wood, while a full-size, flush mount screen keeps insects out when both vents are open. The vinyl windows have a 3½-inch frame depth and one inch overall insulation glass unit. The windows can be closed and locked in a single action. Standard frame colors include white and almond, and matching window grids are available. 800/MILGARD. Milgard Manufacturing Inc., Tacoma. **CIRCLE 242**



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Product Briefs

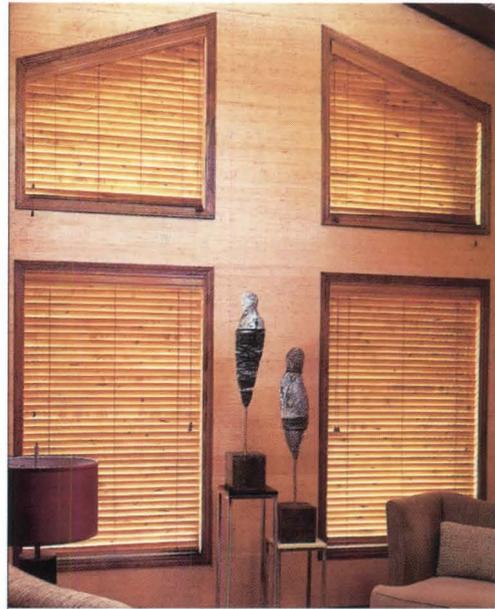
▼ Sexy curves

The Curvatura Elite 3-D ceiling system adds a narrow suspension profile to USG's curved ceiling selections. Available in a variety of shapes, textures, and colors, the system features a narrow $\frac{3}{16}$ -inch profile. Flexible infill panels are available in perforated or unperforated metal, woven wire mesh, and translucent, fiberglass-reinforced plastic. 800/USG-4YOU. USG Corporation, Chicago. **CIRCLE 243**



▲ In good company

The Company guest chair (above), from Steelcase Wood, fuses wood and aluminum with contrasting solid maple legs and aluminum arms. Designed by Kirt Martin of the Steelcase Wood Treehouse Studio, the chair stacks and gangs. Also new from the company is Deck, a line of functional chairs, stools, and tables designed by Brian Kane. 800/333-9939. Steelcase Wood Furniture, Grand Rapids, Mich. **CIRCLE 244**



▲ Residential wooden blinds

The Country Woods collection of blinds from Hunter Douglas includes three product lines of painted or stained hardwoods. Country Woods Select (above) offers three rustic looks and five premium choices in genuine oak, cherry, and maple. Country Woods Reflections simulates the look of shutters with a 2 $\frac{1}{4}$ -inch beveled slat, and Country Woods Classics provides a choice of one- or two-inch slat sizes in a collection of 27 finishes. 800/937-STYLE. Hunter Douglas Window Fashions, Upper Saddle River, N.J. **CIRCLE 245**

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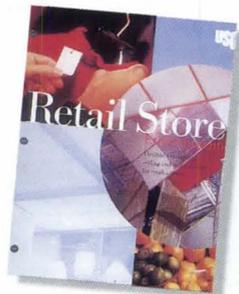
The *Retail Store Environments* brochure, available from USG, gives architects, store planners, and designers detailed information about specific products that have been designed and developed for department stores, mall interior spaces, discount stores, mass merchandisers, grocery and convenience stores, and boutiques. 800/950-3839. USG Corporation, Chicago. **CIRCLE 246**

Lighting CD kit

W.A.C. Lighting has introduced a new kit that includes a CD, catalog, and linear fixture sample. The company offers four track systems, recessed housings and trims, miniature fixtures, surface mounts, decorative pendants, rope lighting, button lights, display lights, and accessories. 800/526-2588. W.A.C. Lighting Co., Garden City, N.Y. **CIRCLE 247**

Partition hinge brochure

Markar Products' new 16-page toilet partition hinge brochure contains a product overview featuring the company's adjustable fasteners and internal spring mechanisms for ADA compliance. Data



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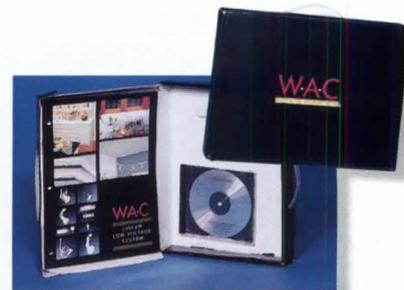
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sheets include photography, 3-D illustrations, technical drawings, and specifications. 800/866-1688. Markar Products Inc., Lancaster, N.Y. **CIRCLE 248**

Acrylic block information

Hy-Lite Products' new kit of literature for builders and remodelers features three separate pull-out brochures inside an informative presentation folder. The kit explains the features and benefits of acrylic block usage both in home and commercial projects. 877/712-4014. Hy-Lite Products Inc., Beaumont, Calif.

CIRCLE 249



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Product Literature

Flooring catalogue

BurkeMercer Flooring Products, a manufacturer of resilient wall base, stair treads, tile, moldings, and a photoluminescent system, is now offering its 2000 products catalogue, sample boards, and moldings chart. 800/447-8442.

BurkeMercer Flooring Products, San Jose, Calif. **CIRCLE 250**

Storefronts and entrances

Tubelite, a supplier of curtain-wall products, storefronts, and entrances, has a new brochure for 2000. Tubelite's line of storefronts and entrances is featured, including its standard and custom entrances, monumental doors, VersaTherm framing, and custom and standard finishes. 800/866-2227.

Tubelite Inc., Reed City, Mich. **CIRCLE 251**

Therapeutic CD

A new interactive CD covers the history of Ultra Baths and provides insight into the Thermo-masseur concept, the benefits of hydro-massage, and full details on the Ultra Baths product line.

800/463-2187. Ultra Baths Inc., Saint-Nicolas, Quebec, Canada. **CIRCLE 252**

Petite CD-ROM

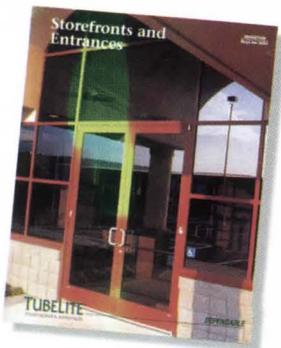
The i-Bulletin, an electronic product-information encyclopedia on a CD-ROM the size of a business card, is available for Leviton Wetguard products—a line of plugs and connectors designed for harsh and wet conditions. The CD-ROM can be run on any desktop or laptop computer. 800/323-8920. Leviton Manufacturing, Little Neck, N.Y. **CIRCLE 253**

Safety manual

The *NRCA Safety Manual* is a comprehensive publication that addresses all roofing-related safety issues and features roofing-specific checklists of safe work practices. 800/323-9545. National Roofing Contractors Association, Rosemont, Ill. **CIRCLE 254**

Southern Pine reference

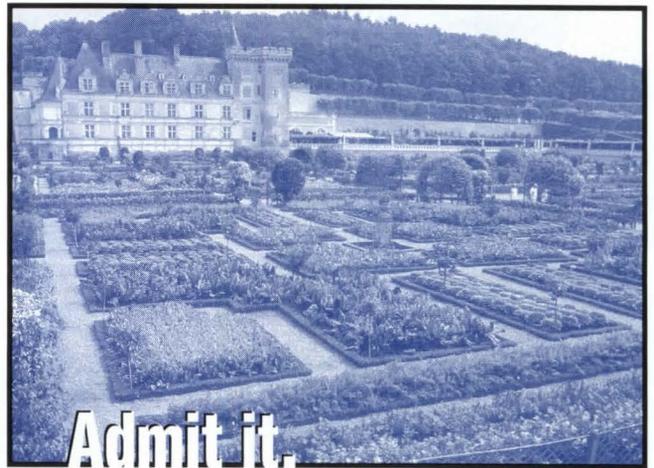
The *Southern Pine Use Guide*, a comprehensive technical reference for specifying and using Southern Pine lumber, has been revised and updated by the Southern Pine Council. The 24-page booklet has grade descriptions, design values, and commonly used span tables. Also included is information on proper lumber storage, sound transmission, and flame spread. 504/443-4464. Southern Pine Council, Kennar, La. **CIRCLE 255**



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Dates & Events

Calendar

Giorgio Morandi Etchings

New York City

Through August 22

Seen in 16 works from the period 1912–1945 is the Italian artist's architectonic formal style. The Museum of Modern Art. 212/708–9400.

Modern Living 1

New York City

Through August 22

Design objects, architectural drawings, and models explore the clarity, efficiency, and hygiene advocated by designers Gerrit Reitveld, Eileen Gray, and others who inspired the course for Modernism. The Museum of Modern Art. 212/708–9400.

Restoration & Renovation

San Antonio

September 7–9

A trade show and conference dedicated to architectural rehabilitation, cultural landscape preservation, and historically inspired construction. Architects earn Quality Level 2 Credits including Health, Safety, & Welfare. 800/982–6247

Promosedia—24th International Chair Exhibition

Udine, Italy

September 9–12

This is the only exhibition in the world dedicated wholly to seating. It is a meeting place for designers and the specialized trade, as well as a source of cultural, industrial, and artistic renewal focused on this basic item of furnishing. +39/0432–745611

At the End of the Century: 100 Years of Architecture

Los Angeles

Through September 24

In 21 parts, this massive international exhibition organized by MOCA surveys countless architectural photographs, scale models, drawings, furnishings, clips, and artifacts. The Museum of Contemporary Art at the Geffen Contemporary. 213/621–2766.

Modern Living 2

New York City

Through September 26

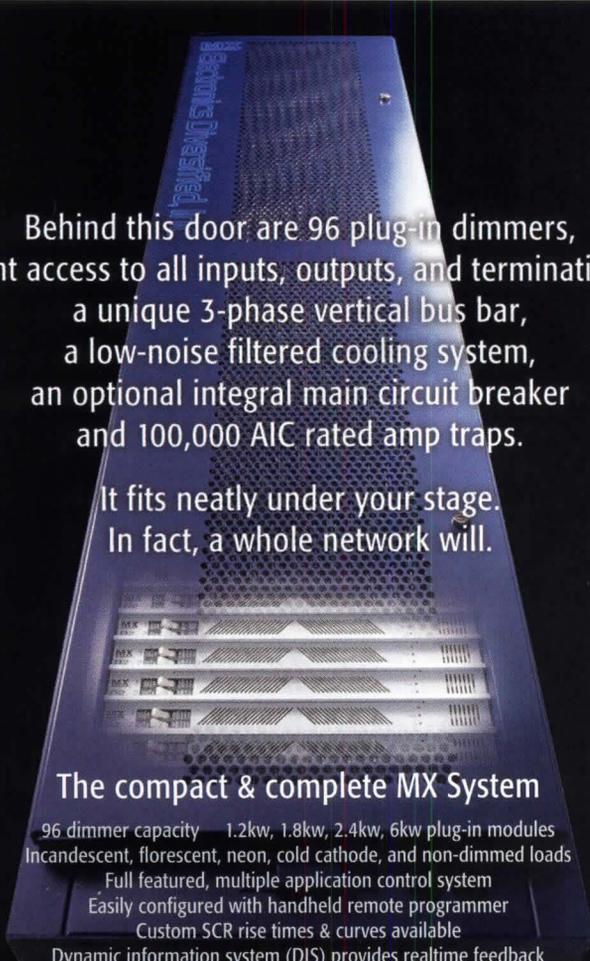
After WWII, figures such as Eames, Nelson, Saarinen, and Aalto adapted industrial technology for the manufacture of rational, functional, and affordable domestic objects on display. The Museum of Modern Art. 212/708–9400.

Specifically 2000

Los Angeles

September 26–28

A conference and exposition for spa-industry executives. The trade show is for spa, hotel, resort, beauty, health-care, and wellness-center executives, and any others related to spa business services. For information on exhibiting, sponsorship opportunities, or show attendance contact Nicole Davis at 212/647–0808.



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Dates & Events

Rail-Volution 2000: The Livable Metropolis, Prospects and Profits Denver

October 4-8

A definitive national conference on the building of livable communities comprises hands-on workshops, case studies of built examples, and moderated panel discussions. Adams Mark Hotel. 800/788-7077.

Preserving the Recent Past II

Philadelphia

October 11-13

Sponsored by the National Park Service, the General Services Administration, the Society of Architectural Historians, DOCOMOMO, and other preservation-minded groups, this weekend of events includes 70 speakers, an exposition, tours, and a curtain wall symposium. Loews Hotel (historic PSFS Building). 202/343-6001.

Aluminum by Design: Jewelry to Jets Pittsburgh

October 28, 2000-February 11, 2001

The first major museum exhibition to explore how aluminum has inspired creativity and

sparked innovation in design, including works by such visionaries as René Lalique, Jean Prouvé, Ludwig Mies van der Rohe, Russell Wright, Charles and Ray Eames, and Gio Ponti. Carnegie Museum of Art. 412/688-8690.

Master Works Philadelphia

Through September 1

Selected from among the Architectural Archives of the University of Pennsylvania's 350 individual collections. Exhibition includes works by Louis I. Kahn, Frank Lloyd Wright, Lawrence Halprin, Venturi, and Le Corbusier. Fisher Fine Arts Library. 215/898-8323.

Reinvigorating Cities: Smart Growth and Choices for Change Washington, D.C.

Through September 6

This looks at how cities of various sizes are working to reestablish themselves as vital and inviting places to live, work, and play. These are stories of revitalizing neighborhoods and downtowns, making places, preserving identity, and building community. National Building Museum. 202/272-3606.

Richard Morris Hunt Fellowship France

Through September 30

This fellowship is awarded to French and American architects pursuing careers in historic preservation. In 2001, an American architect will spend six months in France studying preservation practice related to the documentation, protection and enhancement of French heritage, culture, environment, and resources. 202/626-7511.

Uniting the Useful with the Beautiful: The Architecture of the Arts and Crafts Movement Perry, Iowa

October 19-22

This year the focus of the conference is the architecture of the Arts and Crafts movement along with the designers who created, and are creating, homes and buildings that provide the environment for our lives. Hotel Pattee. 212/889-3580.

Next Generation Sensor Initiative Planning Workshop Pittsburgh

October 31-November 1

The workshop will identify opportunities for collaborative partnerships for new sensor-technology development. Attendance is limited. Sheraton Square Hotel, 412/383-2500.

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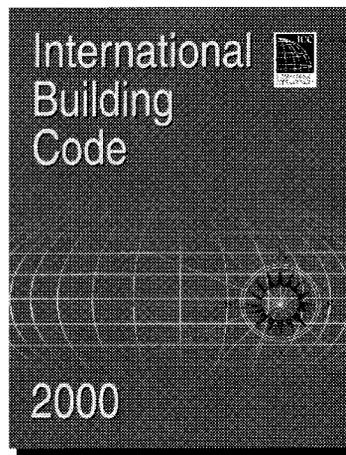
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Dates & Events

Competitions

AIA New York Design Awards 2000

Entry form deadline: September 1

Submission deadline: September 19

The program recognizes the achievements of New York City's architects. Any registered architect practicing in the city may enter, regardless of AIA membership. Award categories—architecture, interiors and projects—are each judged by a separate jury of architects. 212/683-0023.

New School of Business Design Competition

First-stage entry deadline: August 31

The University of South Dakota is sponsoring a two-stage design competition for a new School of Business. Open to registered architects with experience in design and project management at the scale required. The first stage of competition (portfolios/credentials) will be reviewed by a professional jury and selected entrants will be invited to enter the second stage. The selected entrants will submit their requisite proposals for final review by a state building committee and will receive a cash award for their work and travel expenses. The winning entrant will be awarded the commission. 605/677-6101 or www.usd.edu/finadmin/competition/index.htm

Ar+d Award

Deadline for receipt of entries: September 12

This award is for completed work by architects under the age of 45 and aims to recognize new talent worldwide. Submissions are encouraged for all building types, interiors, manufactured products, urban design, landscape, bridges, and temporary structures. There will be a first prize of £5,000. Go to www.arplus.com for more information.

Before + After: The Intentions and Processes of Transformation

Deadline for receipt of entries: October 16

A juried exhibition will present a critical inquiry into architectural interventions and the trends affecting change in the built environment. Two images and supporting process documentation will compare the state of an original condition and the effect of a practical and transformative intervention. \$15 entry fee. 303/443-1945.

Please submit information for the calendar to ingrid_whitehead@mcgraw-hill.com.

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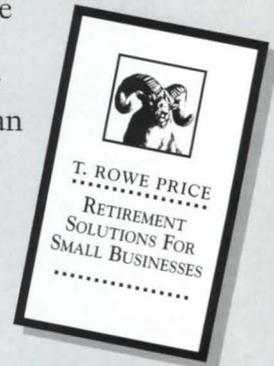
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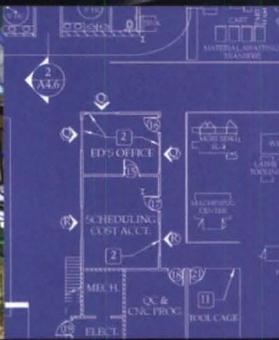
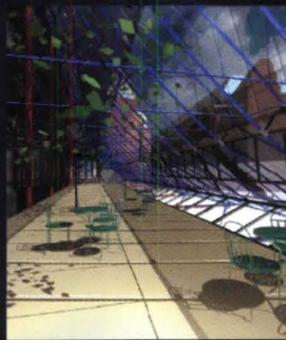
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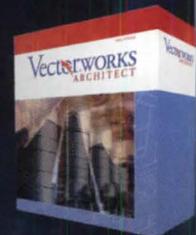
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DRAWING A CROWD *continued from page 75*

building programs. In 1994 the Octagon's widely seen traveling exhibition *The Grand American Avenue* influenced the Chicago Architecture Foundation and the newly formed Glessner House Museum to launch a restoration project for Prairie Avenue. And the winning entry in a competition held by the Royal Academy of Arts in London in conjunction with its exhibition *Living Bridges* is being built.

In terms of the broadest main currents in architectural culture and culture in general, the effects of exhibitions are more difficult to ascertain. Jean-Louis Cohen, an architect and historian who is currently in charge of developing what will be the world's largest architecture museum, the approximately 72,000-square-foot Cité de l'Architecture et du Patrimoine, scheduled to open in Paris in 2003, contends, "It can be documented that exhibitions are capable of raising the expectations of clients. And exhibitions can give citizens at large a certain confidence regarding their own views on architecture."

Will all of the issues and concerns currently swirling around architectural exhibitions soon be buried by the ever-expanding Internet? Indeed, will the Internet make trips to museums largely unnecessary? Terence Riley points out that when it comes to new media, it is important to take the long view. Historically, new media tends not to make existing media obsolete, or even dated, necessarily, but instead increase total participation in a given field. For example, while it is true that the advent of inexpensive magazines cut into the production of books, the total number of books and magazines far exceeds the previous number of books alone. The same situation



1



2

1. *The Work of Charles and Ray Eames: A Legacy of Invention* (1999–2000)

2. *National Design Triennial: Design Culture Now* (2000)

Both at Cooper-Hewitt, National Design Museum, Smithsonian Institution, New York City

exists with regard to film and television, and now promises to apply to the dissemination of architectural information on the Net and in museums and galleries. The public's interest in architecture, at least for the moment, seems to be growing. And this trend may be accelerated by the growth of easily accessible information and imagery. So while in the future, gaining architectural information by computer may constitute a bigger slice of the pie, the pie may be larger as well. ■

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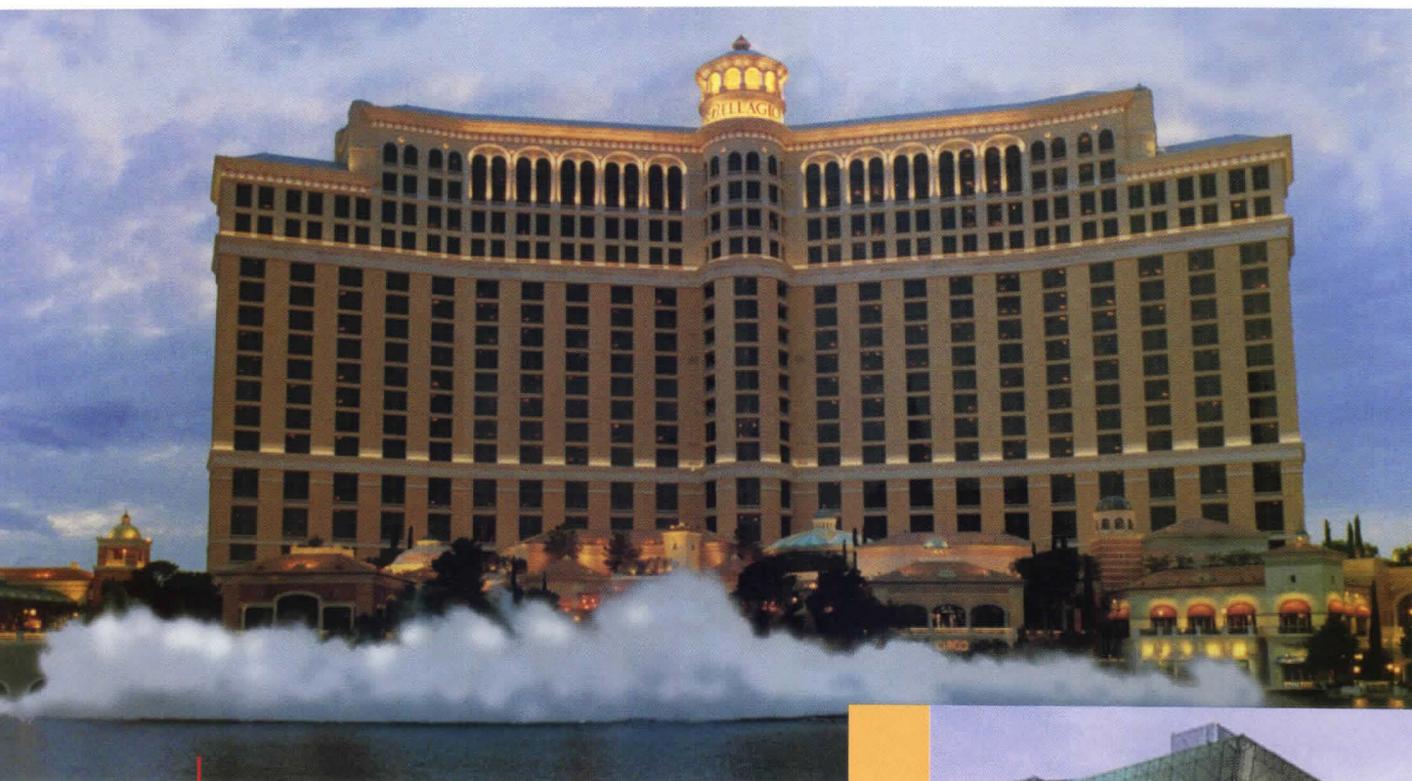
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TRAHAN ARCHITECTS *continued from page 118*

ate choice of president Trey Trahan, 39, who founded the firm in 1990. "We recruit the top graduates from the southeastern architecture schools to avoid the disenchantment that seems inevitable with middle age," he says. "They make up in enthusiasm what they lack in experience, and they're more design-oriented."

"It was the lack of experience that got Trahan Architects the St. Jean Vianney commission. Father Blanchard said he chose us because we hadn't done a church, so we wouldn't bring preconceptions to the project," Trahan recalls.

It took Trahan's team three years to design the church and negotiate how to build it with the contractors. In the process they ate right through their fee and into pro bono territory to

stay within budget. "When the client tells you that he'd like you to design the furnishings but he can't afford to pay you for it, well, we did it because minimalist architecture hinges on every detail," Trahan says. Those details include a slender altar table rather than a sacrificial block, and open-backed pews to maintain the visual transparency of the space. The interior won a 2000 Honor Award from the American Institute of Architects.

Trahan subsidized the lengthy design exploration for the church with profits from previous big-budget medical and sports projects. As he explains, "I try to alternate high design and financial stability every other year, to take a solvent firm to the highest level."

ST. JEAN VIANNEY CHURCH *continued from page 118*

rials themselves as symbols of permanence. We talked about limestone, but of course we couldn't afford solid stone, and we thought stone veneer was essentially dishonest. The next best thing was concrete. Not precast panels, but poured in place, and devoid of frivolous decor."

In response to Blanchard's fear that bare concrete had the wrong associations—industry and interstates—Trahan showed the priest work by Louis Kahn and Tadao Ando. On a visit to Kahn's Kimball Museum in Fort Worth, Blanchard turned to Trahan and said, "I never realized that concrete could be so warm."

Concrete is warmed by the sun's rays. In St. Jean Vianney, it's the constant wash of light from the glass-panel walls, the apertures punched above the piers, the clerestory on which the roof floats, and the central oculus—and the abstract shadows cast by the frieze of surrounding trees—that give the church its sense of transcendence. "In Ando's work, light hitting on an angle bathes concrete like water on skin," Davis says. "We tried for the same effect here."

The ultimate effect at St. Jean Vianney is a modernism that invokes traditional stabilities and is blissfully unconcerned with the symbolisms of the immediate present or the ambiguities of contemporary life. "There's a real spiritual intensity because the design makes you focus on the essentials of the Mass," says building committee member Bill Cress. "The central plan brings you together like a family, against a backdrop of nature. And there are no details to cause your mind to wander. Sometimes less is more." And sometimes, as the gospel says, God is Light. ■

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ANSWERS

Questions appear on page 170. To receive CES credits, fill in the education reporting form below or on our Web site (www.architecturalrecord.com).

1. A provider of professional liability insurance for architects reports that the most common building problems resulting in claims against architects are: roofs (10 percent), walls (9 percent), HVAC (7 percent), and floors (6 percent). Reasons for failures can be grouped under a few headings: faulty design, poor design management, failed communications, incomplete construction documents, equipment or material performance problems, poor building maintenance, and inferior workmanship.

2. The building forensic team documents the site conditions by taking photographs, interviewing witnesses, and sampling materials that are damaged or may have failed. All of these are carefully labeled and coded. From the materials that are gathered, as well as drawings, interviews with members of the AEC team, and others, they develop possible explanations for the failure. Their theories are then evaluated through lab testing of material samples, analysis of the building's systems, and additional site inspection. The data is further examined to determine the most likely reasons for the building failure.

3. A chain-of-custody for evidence is important in failures involving litigation. It helps investigators trace each piece of evidence to its location on the site and determine what was ultimately responsible for the building failure. Quite often this failure goes back to one specific structural element, the shop drawings for that design, the approvals, and the design changes or modifications.

4. Building commissioning is typically done to test mechanical and electrical systems right before opening a new building. Some owners now use commissioning during the design phase to ensure their buildings are designed and constructed for peak performance. It is a sort of trial run given to the building systems to determine if there are any system flaws that need to be adjusted before occupancy.

5. Architects can minimize common liability risks by working with the building owners and other team members to have the structure commissioned—adding up to 5 percent of the contract value for a complex project. Other less costly techniques involve selecting materials carefully to avoid incompatibilities and differing rates of expansion, advising clients of risks, being realistic about costs, taking a leadership role in coordinating design documents, seeking input from past clients and other designers, and being realistic in applying the budget and assessing how long the building and its materials will last.



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— “Sleuthing Out Building Failures” [page 163]

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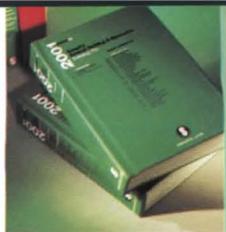
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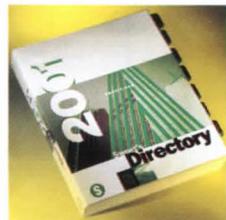
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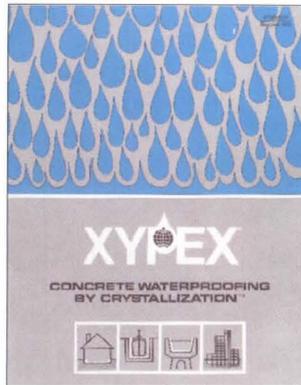


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Openings

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Concrete Waterproofing by Crystallization

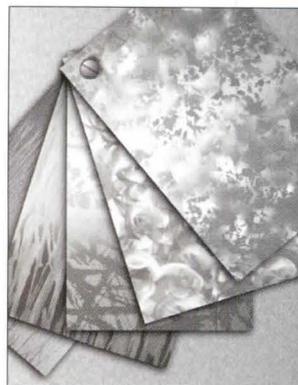


Applied as a slurry coating Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that "plugs" the pores of the structure preventing water seepage. Xypex is ideal for use on the "inside" of wet underground structures.

Xypex Chemical Co.

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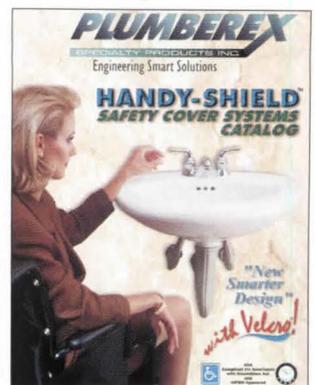


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Plumberex Products, Inc.

CIRCLE 153 ON INQUIRY CARD

Three-Sided Fireplace for Unlimited Installations

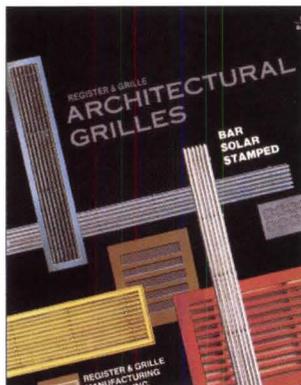


Heat-N-Glo introduces model PIER-TRC, a three-sided direct vent fireplace that can be terminated vertically or horizontally to accommodate nearly any application. The PIER-TRC is perfect as a room divider, bar, end of counter or a wide variety of creative installation possibilities. As with all Heat-N-Glo fireplaces, the PIER-TRC can be operated by remote control for the ultimate in convenience. Call 888-427-3973.

Heat-N-Glo

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Register & Grille Mfg Co.

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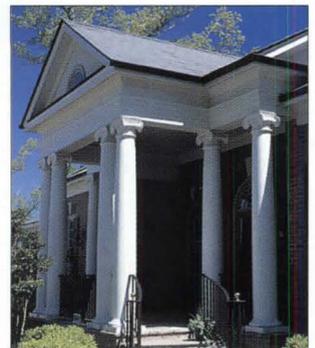


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Hunter Douglas

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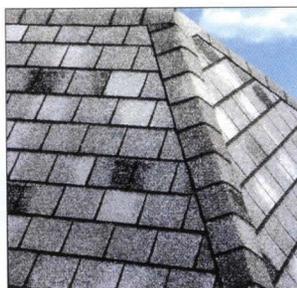


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Gerbert Ltd.

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A/D Fire Protection

CIRCLE 163 ON INQUIRY CARD

Concord Horizon-The Commercial Accessibility Solution

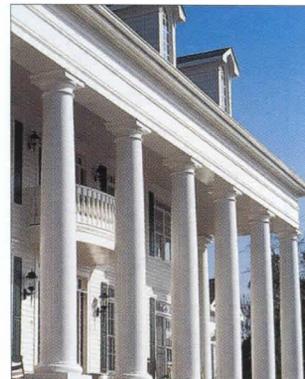


The Horizon is one of Concord's fully enclosed elevators. Its innovative cable hydraulic drive system delivers reliable, quiet & smooth operation while serving two to six stops. The Horizon is the ideal commercial accessibility solution for the physically disabled. Standard features include emergency battery powered door operation & lowering, a slack cable safety device, & emergency cab lighting. For information, please call 800-661-5112 or visit us at www.concordelevator.com

Concord Elevator Inc.

CIRCLE 164 ON INQUIRY CARD

Melton Classics

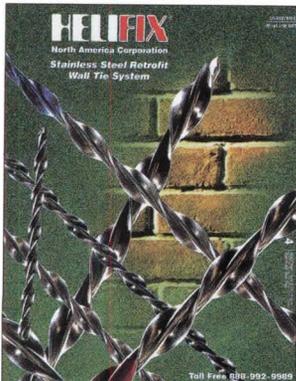


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Melton Classics

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Matrix Composites Inc.

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Interactive Whiteboard

Rear Projection
SMART Board™

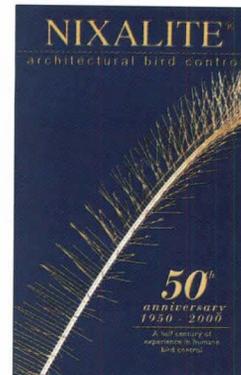


The Rear Projection SMART Board™ is an interactive whiteboard that allows you to control projected Windows® or Macintosh® applications and other multimedia by pressing on the Board's large, touch-sensitive surface. Write over top of applications and your notes are saved for future reference and distribution. Architects and facility designers can request the SMART Product Kit by calling 888-427-6278 or by visiting www.smarttech.com/productkit

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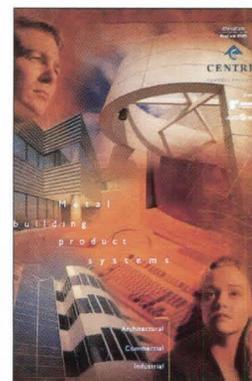


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Wausau Tile

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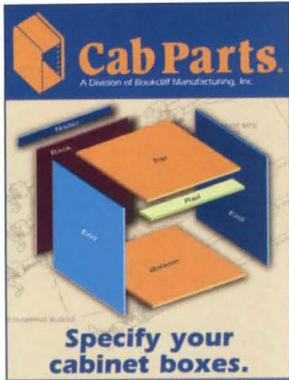


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Gordon, Inc.

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CertainTeed Corporation

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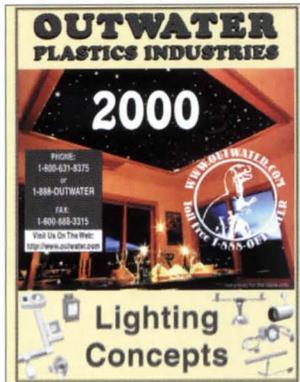


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Outwater Lighting Concepts



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Outwater

CIRCLE 178 ON INQUIRY CARD

Lighting Fixtures

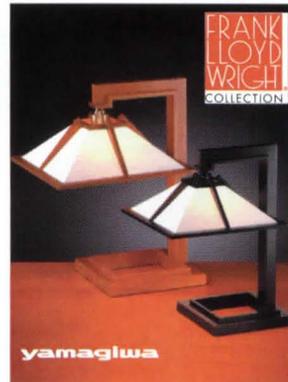


Times Square Lighting's condensed catalog contains our complete line of line and low voltage specification grade lighting fixtures. Numerous mounting options as well as accessories for our fixtures are available. Times Square Lighting, Rte. 9W, Stony Point, NY 10980, 914-947-3034.

Times Square Lighting

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Timeless American Design ©2000 FLLWFDN



Taliesin®-1 Lamp, designed by Frank Lloyd Wright® in 1925. Taliesin®-Mini, adaptation of original design. Available in several finishes. Yamagiwa is the sole licensee of the FLLWFDN authorized to produce lighting. Other types, floor lamps, wall sconces, and pendants available. www.yamagiwausa.com PH: 800-879-8611, 31340 Via Colinas, #106, Westlake Village, CA 91362

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CIRCLE 180 ON INQUIRY CARD

Scala-3



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Charles Loomis, Inc.

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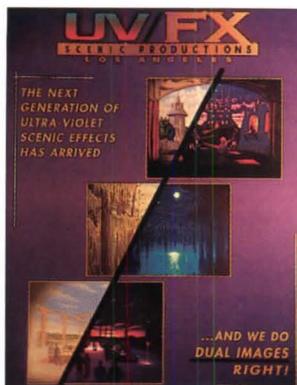


Sun Valley Lighting manufactures an extensive line of Standard & Custom cast aluminum lighting poles & fixtures in all period styles. Our 50 years of design & manufacturing experience provides you with unexcelled product quality. Our staff of designers, engineers, and tool makers are here to assist you. Our in-house foundry assures quality and prompt delivery at competitive costs.

Sun Valley Lighting

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More than 30 years of experience comes together in each Hapco aluminum pole design. The Abingdon, Va., based company is an engineering leader with in-house design analysis and testing facilities. Hapco specializes in conventional and decorative lamp posts and architectural street light poles. Mounting heights range from eight to 45 feet.

Hapco

CIRCLE 184 ON INQUIRY CARD

Xenon Luminaries

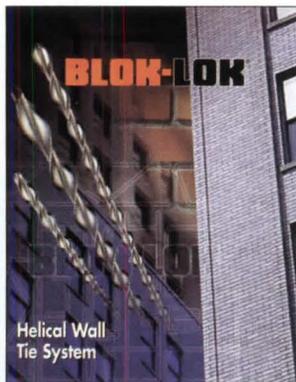


Space Cannon Illumination Inc. introduces the Litehose, the latest in linear lighting technology made of extruded, durable optical-grade acrylic. Available in different diameters and sizes, reflective paints and films are not required. The Focus is an architectural colored luminaire utilizing a 1200w lamp source designed to work with the Litehose or separately. 888-705-1028.

Space Cannon

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**Stainless Steel Helical
Wall Tie System**



Blok-Lok, with over 35 years experience in the design & manufacture of masonry reinforcing and tie systems, provides innovative solutions for the repair & stabilization of defective walls. Blok-Lok offers an economical stainless steel helical wall tie that is driven into position through a properly sized pilot hole, providing a positive connection between wythes, while allowing for differential movement. Call 800-561-3026 or visit our website at www.blok-lok.com

Blok-Lok, Limited

CIRCLE 186 ON INQUIRY CARD

CirClet



Wila Lighting introduces CirClet, a revolutionary multifunctional downlight utilizing the circular T5 lamp. CirClet's modular construction allows integration of speakers, video cameras, accent lights, smoke detectors, and fire sprinklers in the center "free space" of the fixture, which eliminates ceiling congestion. www.wila.com

Wila Lighting, LLC

CIRCLE 187 ON INQUIRY CARD

Boa Two-Circuit Track System



Bruck Lighting, the international leader in innovative low-voltage cable and track systems, introduces Boa, a low-voltage two-circuit track system with dual switching ability. Boa may be suspended or flush mounted, installed vertically or horizontally and is available in chrome or matte chrome. All Bruck Uni-lights fixtures can be utilized with Boa as well as all seven other Bruck track systems. www.brucklighting.com

Bruck Lighting Systems

CIRCLE 188 ON INQUIRY CARD

Doyle Crosby's "Mercury"



Architecturally elegant and ADA compliant, the "Mercury" sconce is a striking source of decorative lighting. The solid brass stem is crowned with a glowing frosted glass chimney or with a fine linen shade for more traditional settings. Finished in polished nickel, polished brass or satin nickel. www.boydlighting.com

Boyd Lighting

CIRCLE 189 ON INQUIRY CARD

University of Arizona

Faculty Positions

The School of Architecture at the University of Arizona invites applications for three tenure-track or visiting positions. The School offers accredited B.Arch. and post-professional M.Arch. degrees that emphasize an ethical approach to the natural and cultural environment and integrate construction and computer laboratories with conventional methods of the design studio. Its setting in the Sonoran Desert provides a unique practical laboratory that can help forge and temper an architectural education conceived and delivered within the aspiration toward a genuine American land ethic - research aesthetic:

The life of the desert lives only by virtue of adapting itself to the conditions of the desert...those things that can live in the desert become stamped after a time with a peculiar desert character. The struggle seems to develop in them special characteristics...more positive, more insistent...

John C. van Dyke, *THE DESERT: Further Studies in Natural Appearances*

Computer Modeling & Architectural Design: Assistant or Associate Professor, depending on qualifications. The successful candidate must be qualified to teach architectural design studio with emphasis on computer analysis and modeling. Additional teaching and research responsibilities will include curriculum development of advanced required and elective computer topics. Fundamental to this position will be an experimental pedagogical approach that engages the computer in the analysis, generation and testing of architectural elements, structure, material properties and environmental determinants of form by means of digital and analog technologies. Requirements: Master of Architecture with demonstrated practical computer expertise and ingenuity. Desirable qualifications: Teaching, practical experience and professional registration.

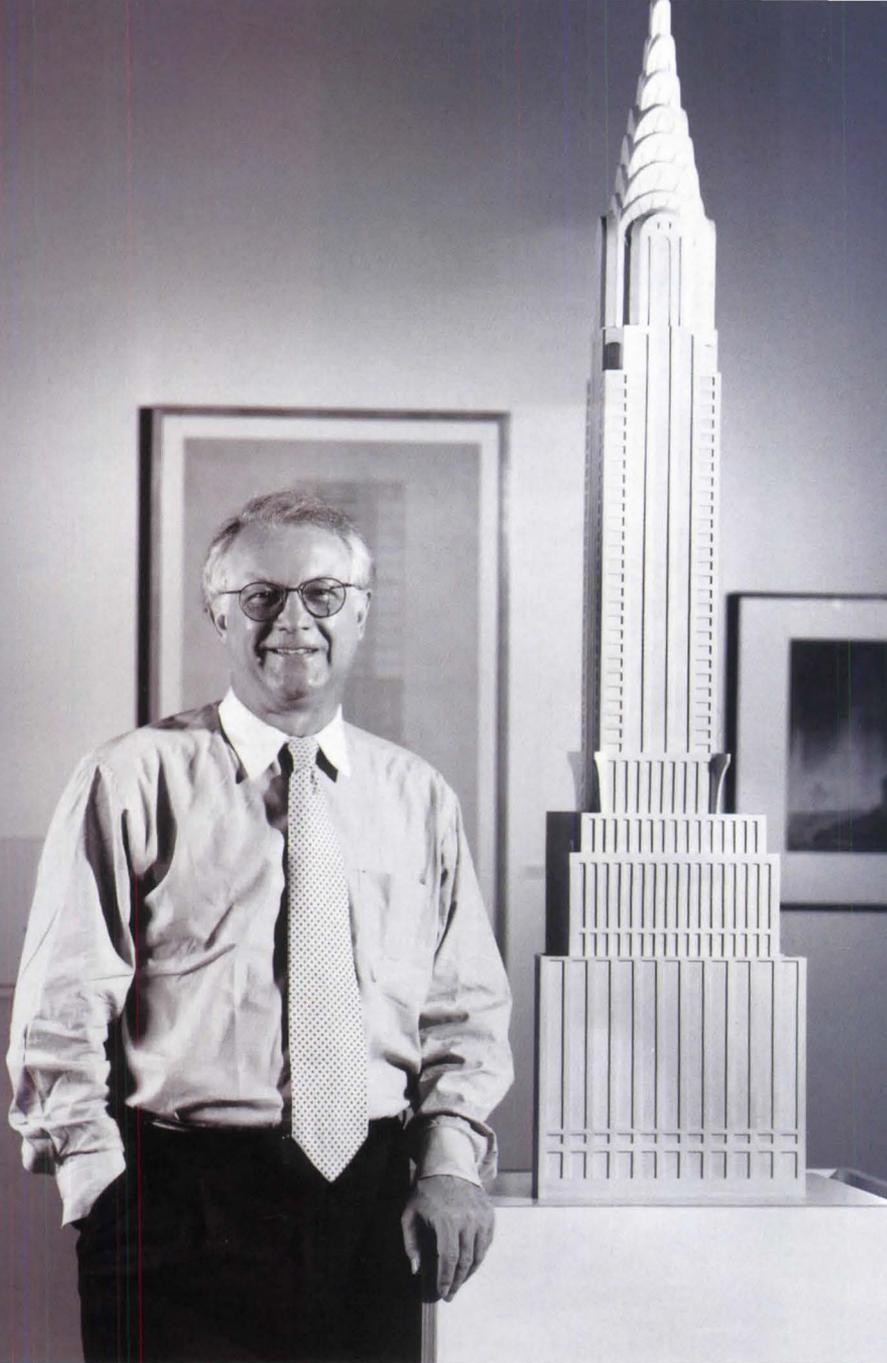
Urban Design & Infrastructure: Assistant or Associate Professor, depending on qualifications. The successful candidate will coordinate and teach a dedicated studio located in downtown Tucson dealing with urban design, infrastructure and architectural design projects. This will require effective interfacing and development of projects with the City of Tucson, county and state governmental agencies, public interest groups and professional associations. Additional teaching and research responsibilities will include curriculum development of required courses in theory and principles of urban design, practical case studies and advanced electives in support of graduate specialization. Requirements: Master of Architecture with specialization in urban design. Desirable qualifications: Demonstrated practical credentials and teaching experience in urban design.

Foundation Studios & Architectural Communication: Assistant Professor. The successful candidate will be dedicated primarily to coordination and teaching in the first year foundation studios intended to develop visual, haptic and cognitive representational logic and communication skills by means of freehand and technical drawing, descriptive geometry and manipulation/fabrication of material objects. Additional teaching and research responsibilities will include curriculum development of required and elective courses in the communications sequence of the curriculum. Periodic teaching of architectural design studios at all levels will be a real possibility. Requirements: Master of Architecture. Desirable qualifications: Teaching and professional experience.

In addition, all candidates for these positions must be able to articulate the ethical and philosophical basis of design, and to pursue interdisciplinary exchanges within the on-going evolution of contemporary architectural education. Candidates must also have a clear direction for their creative endeavors or other avenues for research. Individuals interested in international exchange and scholarship are particularly encouraged to apply.

Qualified applicants must submit a full curriculum vita, a letter of application including statements of pedagogical and research objectives, an abridged (maximum 20 pages) portfolio or sample of scholarly work and a list of three referees (with phone/fax numbers, mailing and e-mail addresses). Send materials to Professor Larry Medlin, Chair of the Search Committee, School of Architecture, CAPLA, The University of Arizona, P.O. Box 210075, Tucson, AZ 85721. Short-listed candidates will be asked to submit a portfolio of work. Review of applications will begin 1 December 2000, and continue until all the positions are filled.

The University of Arizona is an EEO/AA employer-M/W/D/V.



Richard Koshalek: Advocate for architecture and the arts

Interviewed by Elizabeth Harrison Kubany

The arts, and architecture in particular, have a great ally in Richard Koshalek. He began his term as president of the Art Center College of Design in Pasadena, Calif., less than one year ago, and already he is using architecture to change the perception of the school. He has hired Frank Gehry to design a new campus, while Hodgetts and Fung are already at work on a new student center. Before starting at the college, Koshalek was the director of MoCA in Los Angeles, where he worked with Gehry on the design of the Geffen Contemporary (formerly the Temporary Contemporary), commissioned Arata Isozaki to design the permanent building for MoCA, and curated numerous exhibitions on architecture.

Q: *What is your vision for Art Center College of Design?* As president, my role is to set the agenda for the future of the college and to anticipate what will be needed in terms of faculty, curriculum, and physical plant. *So what was your first task?* When I first got to Art Center, I asked students what their primary concern was. They felt that communication was an issue. So we decided to build a student lounge, where information could be exchanged among the different disciplines at the college. We held a charrette with 100 students and hired Hodgetts and Fung to design the building. The students were actively involved. We wanted them to participate in solving a real-life creative problem because that is what they will be doing when they leave school.

You've moved very quickly on this. Why? The world is changing rapidly. We have to keep an eye to the future if we are to maintain our competitive edge.

Are you planning any other major capital projects? We have hired Frank Gehry either to design a new campus for us in downtown Los Angeles adjacent to the Disney Concert Hall or to rethink our existing campus in Pasadena and are now getting ready to approach the board with a decision on which site to build on.

Why Gehry? I felt very strongly that he could design a building that would inspire creative thinking.

Can a building do that? Architecture has that power—without a doubt. The impact of what he will do will change people's perception of this school and set a standard for high quality that will influence our students for years.

And I believe it is our responsibility to set this standard. If you are involved in a cultural institution you have a role to play in the community at large. You have to provide leadership and be involved in the city, how it changes and evolves. In 1988, when I was at MoCA, I organized an architectural design competition in collaboration with the Los Angeles Community Redevelopment Agency for 40

units of affordable housing which were recently constructed in Hollywood in conjunction with the *Blueprints for Modern Living* exhibition. As a museum, we were able to address one of the Los Angeles' major urban problems.

What is your long-term goal for Art Center? We want the campus to be at the center of the dialogue about what happens in the world of design and fine arts internationally—not only in terms of educating students for the future but also being an advocate in the larger world for what we believe in, which is the value of design. I am truly optimistic. ■

Photograph by Bob Seidemann

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