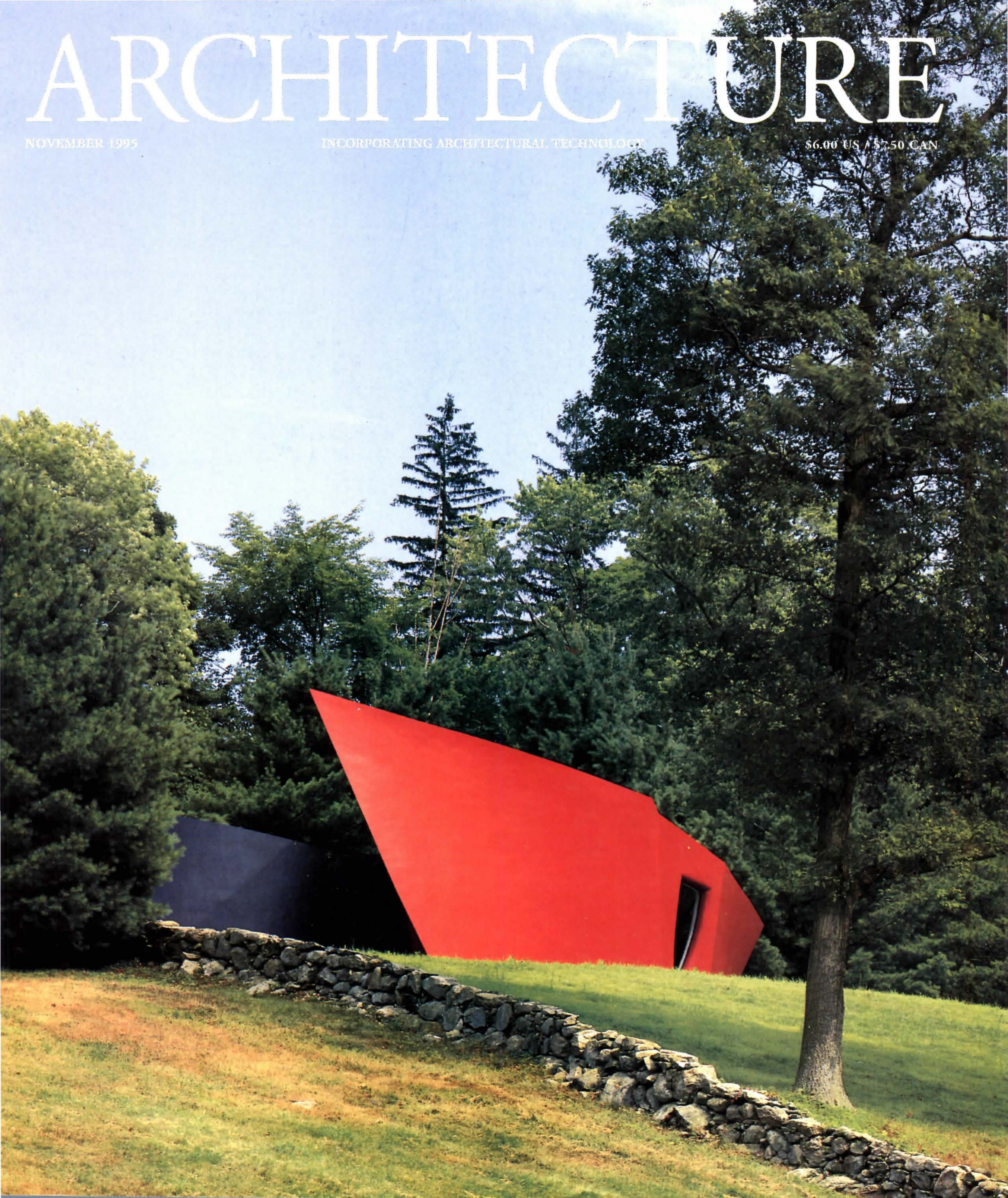
ARCHITECTURE®

NOVEMBER 1995 INCORPORATING ARCHITECTURAL TECHNOLOGY $6.00 US / $7.50 CAN



"The innovations you expect…

NEW ULTIMA™ RH90®:

Smoother, quieter… even a more durable surface!

- *500% more durable* than other popular fine-textured ceilings
- Especially good for areas requiring frequent plenum access… quiet… high-humidity resistance

CHRISTIAN RICHTERS

Preservation Needs Better Architecture

Appreciating our Modern past could improve design standards for renovating and expanding old buildings.

Modernity and preservation? The combination seems unlikely, if not downright heretical. After all, one embraces progress, the other the past. But reconciling the two is the challenge now facing preservationists. Buildings from the 1950s, '60s, and '70s have aged to the point that once-scorned Modern structures are now considered sacred landmarks. The Whitney Museum of American Art in New York, for example, announced in September that it would preserve its Marcel-Breuer-designed 1966 building and expand its galleries into neighboring brownstones (page 23, this issue). This decision reverses the museum's hotly contested 1984 proposal to bury the Breuer building under Michael Graves's suffocating mantle of Postmodernism.

But how many postwar buildings are worth saving? Breuer's urbane cube is an exception. Most are dreary boxes whose banality is matched only by the destructive power they wielded over our cities, replacing historic neighborhoods and structures with anti-urban, curtain-walled monotony. Ironically, preservationists are now racing to save the very buildings that fueled their movement.

However, just as Modernism in the 1960s was a catalyst for preservation, its own passage into historical status could lead to better preservation policies. The heady decades following World War II asked architects to reject the notion of the past as something precious. Preservation has often swung too far in the opposite direction, fetishizing even the most mundane architecture simply because it was old, rather than truly significant.

By understanding the progressive spirit of the Modern era, preservationists could begin to encourage inventive new design within historic buildings, districts, and cities, rather than continue the bland contextualism and replication that passes for "sympathetic" intervention today. One has only to look at the glass mansard and cocoon designed by the Dutch architect Mecanoo atop an Italianate block in Budapest (above) to understand how experimental design energizes old buildings through contrast. It is difficult to imagine preservationists in this country sanctioning such juxtapositions.

For too long, preservationists and architects have stubbornly remained on opposite sides of the old-versus-new debate. They collaborate only rarely, but when they do, places are often better for it. Such collaborations should be encouraged. Review boards and other preservation groups would benefit from the participation of architects when deciding the fate of historic buildings, and might even be persuaded to prevent the pastiche of meticulously restored facades affixed to contemporary structures.

Twenty years ago, such a collaboration produced Venturi and Rauch's "ghost" structure in Philadelphia. This steel-framed abstraction of Ben Franklin's original residence allows imagination to fill the space between past and present. Projects like this one prove that modernity and preservation need not be adversaries, but can be allies in preserving and interpreting our past.

Deborah K. Dietsch


Model 3150
(with custom tile insets)
Haws. Unleaded fuel only.
ENVIRONMENTALLY SAFE DRINKING FOUNTAINS
Specifying Haws, now makes even better sense. Because our drinking fountains and electric drinking fountains are all lead-free and exceed the requirements of the Safe Drinking Water Act. You get the hottest selection, coolest designs, and the satisfaction of knowing you've done a good deed for your fellow occupants of the planet Earth. Haws. Because everyone has a thirst for life.
Haws®
Drinking Fountains • Water Coolers
P.O. Box 1999 • Berkeley, CA • 94701
(510) 525-5801 • FAX: 510-528-2812
Haws ISO 9001 CERTIFIED
Model 008A
Circle 52 on information card
Model 1108

Letters

Critical illumination

Your review of the new acorn-head streetlights in New York's Grand Central and 34th Street districts (ARCHITECTURE, August 1995, page 39) focuses on the daytime image of the fixtures and is silent on the quality of light they produce.

The old cobra heads, while providing adequate street illumination, afflict the eye with an uncomfortable glare and cast a color-distorting glow on their surroundings. Light is thrown harshly, with little regard for pedestrian needs. Its uneven distribution causes bright and dark zones, creating viewer discomfort as well as the perception that some areas are less safe than others.

The arms of the new acorn-head fixtures, on the other hand, arch over the sidewalk, thus shedding more light onto pedestrian traffic paths. At night, a cold white glow replaces the harsh yellow glare, with superior color rendition and a more even illumination. The fixture is contemporary in detail while alluding in form to a rich tradition.

Our intent was to create a visually appealing and psychologically reassuring image by day as well as by night, thus helping achieve the clients' goal of recreating midtown Manhattan as a friendlier place, a business neighborhood of memorable spirit and urbanity.

If M. Lindsay Bierman prefers to retain the image of Manhattan as a "streamlined Deco metropolis...(of) monochromatic soot-tinged buildings," he is entitled to his opinion. Judging from the fact that not one but two business improvement districts chose the new fixture as their signature, quite a number of others seem to disagree.

Richard Renfro
Fisher Marantz Renfro Stone
New York City

Principles, not trends

I would like to respond to William Patrick's letter (ARCHITECTURE, September 1995, page 19) in which he states that my work is trendy and that I have improperly taken inspiration from Frank Lloyd Wright.

I have drawn from the sculptural qualities of Wright's early houses for my first residential designs, including the Dutchess County house (ARCHITECTURE, May 1995, pages 76-77), as well as from the work of other architects such as Gunnar Asplund, Charles Voysey, Philip Webb and William Morris, John Calvin Stevens, and McKim Mead & White. I am surprised that my derivation from the work of these architects could be considered trendy in 1995.

To those architects who struggle to adhere to their personal esthetic convictions despite the economic hardships of practice, I offer this: Do not let the dogma and egotism of some in the academic world inhibit you from designing according to the principles with which you are most comfortable. I have found that professional publications like ARCHITECTURE will provide, without stylistic prejudice, the forum to express your ideas.

Dennis W. Wedlick, AIA
New York City

Events

Exhibitions

CHICAGO. "Paolo Soleri: 25th Anniversary of Arcosanti," through December 17 at The Athenaeum. Contact: (312) 251-0175.

MONTREAL. "Photography in the Heroic Age of Construction," through January 14, 1996, at the Canadian Center for Architecture. Contact: (514) 939-7000.

NEW YORK. "A.W.N. Pugin, Master of Gothic Revival," November 9-February 25, 1996, at the Bard Graduate Center. Contact: (212) 501-3000.

WASHINGTON, D.C. "The Dome: Symbol of American Democracy," through April 14, 1996, at the National Building Museum. Contact: (202) 272-2448.

"'We Will Be Back': Oklahoma City Rebuilds," November 17-March 17, 1996, at the National Building Museum.

Conferences

BERLIN. Renewable energies in architecture, March 26-29, 1996. Contact: 011-49-89-720-1232.

CINCINNATI. "Composites Rebuild America," Composite Institute's annual conference, February 5-7. Contact: (212) 351-5410.

CLEARWATER BEACH, FLORIDA. "Thermal Performance of the Exterior Envelopes of Buildings," December 4-8. Contact: (615) 575-4346.

HARTFORD. "The Edge of Town" symposium, November 6-9 at the University of Hartford. Contact: (203) 768-5282.

NEW ORLEANS. "Masonry Expo '96," January 27-29, 1996. Contact: (703) 713-1900.

NEW YORK. "Design Education for the Real World," November 18, at the New York Design Center. Contact: (212) 722-5546 ext. 400.

SAN DIEGO. Symposium on healthcare design, November 16-19, sponsored by Center for Health Design. Contact: (510) 370-0345.

National Alzheimer's design assistance workshop, January 28-29, 1996, sponsored by Institute on Aging & Environment. Contact: (414) 229-2991.

Competitions

Tucker Architectural Awards for innovative use of stone, sponsored by the Building Stone Institute. Submissions due **December 10.** Contact: (914) 232-5725.

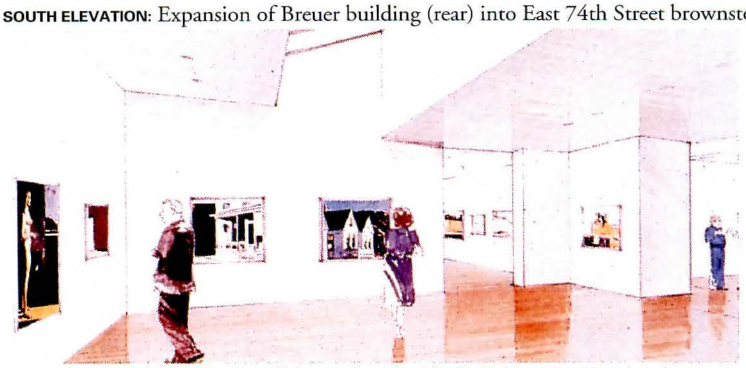
James Beard Restaurant Design Awards. Entries due **January 31, 1996.** Contact: (212) 627-2090.

Ecology Design Awards for contract and residential interiors, sponsored by Wilkhahn. Submissions due **February 1, 1996.** Contact: (800) 249-5441.

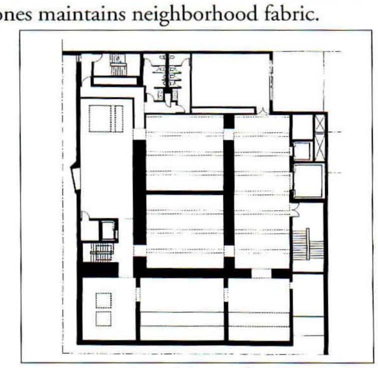

Ultimate Quality.
GROHE

News

SOUTH ELEVATION: Expansion of Breuer building (rear) into East 74th Street brownstones maintains neighborhood fabric.



GALLERIES: Top-level terrace will be enclosed with skylights in coffered ceiling.



FIFTH FLOOR PLAN: New galleries.

Whitney Museum Announces Expansion

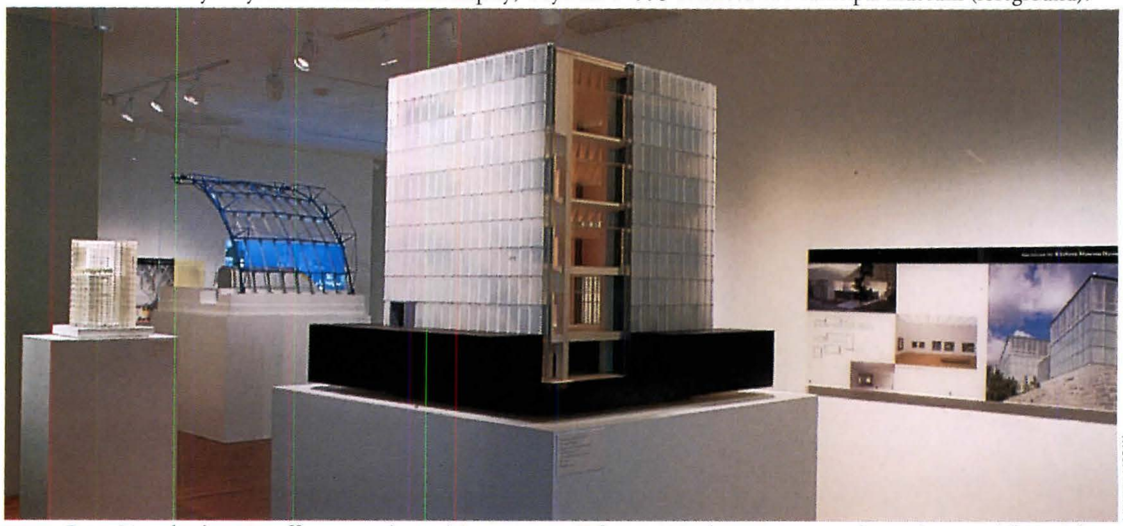
The last time New York's Whitney Museum of American Art announced plans to expand, the idea was met with hostility from arts groups and preservationists. The 1985 proposal by Michael Graves would have razed the adjacent block and wrapped Marcel Breuer's stepped Modern cube in Postmodern drag.

Now, the Whitney plans to preserve the very brownstones that Graves's contentious scheme would have destroyed. A proposed $14 million expansion, designed by Richard Gluckman Architects of New York and unveiled in September, will renovate Breuer's granite-clad landmark on Madison Avenue into new galleries for the Whitney's permanent collection. Offices and a new library will be housed in adjacent brownstones on East 74th Street.

Gluckman, architect of the Andy Warhol Museum, has built his reputation on gallery design that is subtly supportive of the artworks. At the Whitney, he will enclose the top-floor terrace of the Breuer building to hold new galleries, the museum's first for its own collection. To create 13-foot-high gallery spaces, given the 11-foot floor-to-ceiling height, the architect will run ductwork through the walls and expose the original structural system above.

Graves proposed to subsume the Breuer building into his whole, but Gluckman will not alter the 1966 building's facades. Whitney Chairman Leonard Lauder calls Gluckman's modest reuse scheme "a solution for the 1990s."—*B.A.M.*

MOMA: Wood-and-acrylic cylinder contains video display; Toyo Ito's 1993 Shimosuwa Municipal museum (foreground).



MOMA: Peter Zumthor's 1991 office tower (center) incorporates 7-foot cavities between matte-glass ceilings and floor slab.

New York and Pittsburgh Exhibitions Examine Computer's Influence

A pair of recently opened exhibitions of contemporary architecture have much in common. "Light Construction," on view until January 2, 1996, at New York's Museum of Modern Art (MoMA), and "Monolithic Architecture," on view until February 11, 1996, at the Heinz Architectural Center of the Carnegie Museum of Art in Pittsburgh, each acknowledge computer technology's challenging influence.

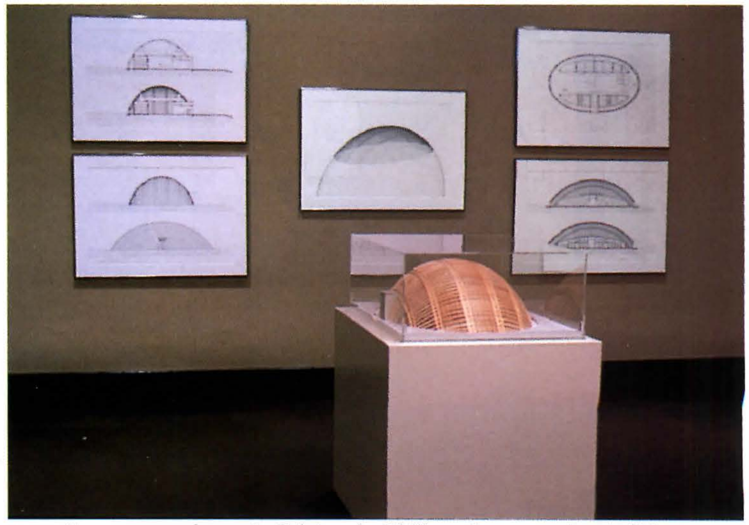
The MoMA show, curated by Terence Riley, and the Heinz exhibit, guest-curated by Rodolfo Machado and Rodolphe el-Khoury, focus on two kinds of lightness: translucence as an architectural component, and the application of contemporary building materials in a manner that makes them appear intangible, almost weightless. Many of the structures in both exhibitions are sheathed in semitransparent glass, plastic, metal mesh, or thin alabaster that allow penetration of light, but unlike plate glass, possess myriad esthetic properties.

Stylistic consistency is the hallmark of MoMA's "Light Construction." Much of the work recalls the visionary projects of such early Modernists as Ludwig Mies van der Rohe and Pierre Chareau. In contrast, every project in "Monolithic Architecture" possesses a formal and structural language of its own. Some look like familiar objects of industrial design swelled to giant proportions—immense hairdryers or huge Ferraris. Others appear rooted in the languages of Mies or Le Corbusier. Postwar architecture influences a few, as do such fashionable critical positions as deconstruction and fragmentation. Whatever their provenance, the buildings on view at the Heinz are remarkable, unforgettable, often poetic objects in space that disregard scale, conceal program while secretly serving it, and deny the vernacular and regional to become contextually singular.

The two exhibitions, unfortunately, are not comparable in quality. MoMA Curator Riley's basic theoretical position is that a new architectural sensibility is emerging from the computerized manipulation of building surfaces in quest of luminous evanescence. It is well supported in such works as the Waterloo International Terminal in London, by Nicholas Grimshaw & Partners; the Helsinki Museum of Contemporary Art, by Steven Holl; and the Shimosuwa Municipal Museum in Japan, by Toyo Ito.

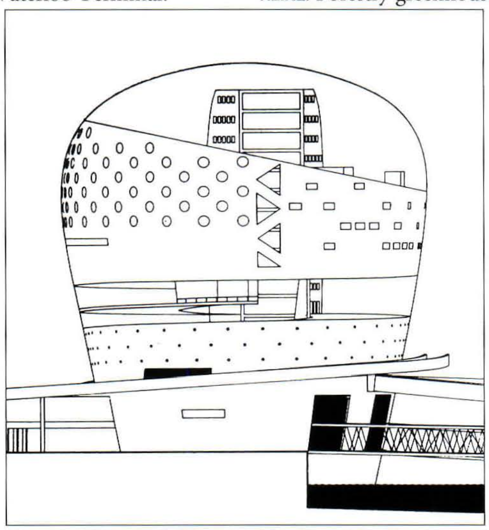
MICHAEL MORAN

MOMA: Mock-up of Grimshaw's steel-framed roof over Waterloo Terminal.

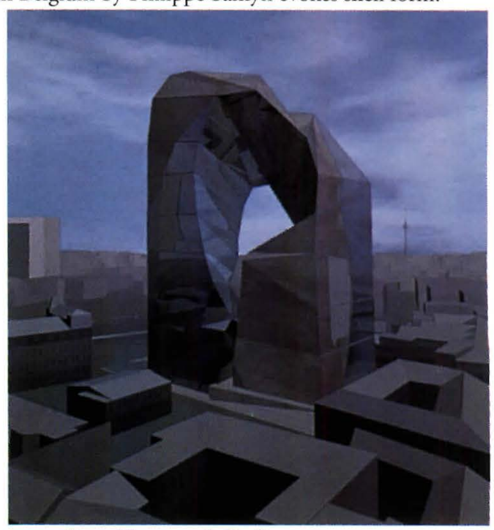


HEINZ: Forestry greenhouse in Belgium by Philippe Samyn evokes shell form.

HEINZ: Philippe Starck's office tower in Osaka.



HEINZ: Belgium Sea Terminal by Rem Koolhaas.



HEINZ: Peter Eisenman's Berlin tower.

However, Riley's choices do not consistently uphold his theme. The 34 built and unbuilt projects, representing 10 countries, incorporate a broad range of building types, scales, and technologies. A number of works appear heavy, opaque, or uninspired by the formal possibilities of the computer. Many of Riley's Mies-influenced choices, for example, are simple boxes easily drawn by T-square and triangle. Furthermore, the show crowds too many photographs, models and drawings into the available space.

"Monolithic Architecture" evinces no such lapse in thematic rigor: the show is original in conception and abundantly clear in execution. Consisting of nine projects, the exhibition includes conventional model forms, superb computer-generated presentations, and working drawings. Like "Light Construction," it demonstrates the contemporary importance of weightlessness, luminescence, and intangibility, and the role of computer-aided design in achieving it. But it does so in the service of a bold, nonconformist idea.

Machado and el-Khoury's critical analysis of a relatively new architectural phenomenon is a genuinely fresh and imaginative curatorial act. The monolith, as the curators define it, is a massive structure conceived as a single, unified visual force, colossal in effect, but it is metaphorical rather than descriptive. Monoliths appear solid, yet are voids into which a multitude of functions are inserted. They are encased in radically contoured, continuous yet visually penetrable skins that admit daylight and glow incandescently at night.

Examples on view include unbuilt work by Peter Eisenman, Rem Koolhaas, and Jean Nouvel. These architects are not well known for their monolithic works; such projects are isolated, atypical creations of most firms. Also on display are a port terminal for Yokohama by Farshid Moussavi and Alejandro Zaera-Polo (ARCHITECTURE, September 1995, page 43); a cultural center by Rafael Moneo; a greenhouse by Philippe Samyn; an office tower by Philippe Starck; a house by Simon Ungers and Tom Kinslow; and a control tower by Jacques Herzog and Pierre de Meuron.

Machado and el-Khoury point out that today's monolithic architecture would never have emerged without computer technology's power to achieve extraordinary figural complexity in design and construction. "Architects are asked all the time to do dumb boxes," Machado asserts. "We hope our show will help stimulate them to make the most of the computer's ability to draw and govern the fabrication of smooth, faceted, or folded surfaces, and complex double curvatures. This could lead to better boxes, better wrappings." Nevertheless, given the anomaly and sheer brilliance its creation requires, Machado and el-Khoury do not foresee monolithic architecture becoming a widely accepted style, nor do they wish to be "accomplices in trend-making."

The MoMA exhibit, on the other hand, has no such reservations. The most interesting works at "Light Construction" foretell a trend in which computers ultimately drive design. However, many of Riley's choices declare that early rectilinear Modernism, enhanced by light, contemporary materials and sophisticated structure has become chic again.—*Mildred F. Schmertz*

PERIOD ROOM: Authentic details recreate a 1724 English salon.

Philadelphia Museum Renovates Galleries

In September, the Philadelphia Museum of Art unveiled the most significant remodeling effort in its history, the third phase of a three-year effort to upgrade its permanent galleries. Under the direction of architect Jackson & Ryan of Houston, Texas, more than 80 galleries were reconfigured, repainted, and where appropriate, installed with new lighting. The $12 million effort allows the museum to display its extensive pre-20th-century collections much more comprehensively and in chronological order. Employing period settings to place decorative artworks in their representative historical contexts, the new galleries recreate a Romanesque cloister, a Gothic chapel, and French Renaissance and English salons. Wherever possible, the Beaux-Arts Classicism of the original 1928 museum, designed by Horace Trumbauer and Zantzinger, Borie, and Medary, was maintained.—*Reed Kroloff*

Cooperstown Museum Expands Underground

Architect Hugh Hardy typifies his recently opened expansion of the Fenimore House Museum in Cooperstown, New York, as "self-effacing." In fact, the addition to the New York State Historical Association practically disappears beneath terraces extending out from the 1932 Neo-Georgian mansion, designed by Harry St. Clair Zogbaum.

A grand double staircase connects two levels of newly renovated galleries in the house to the underground addition. An auditorium, study center, exhibit spaces, and support facilities surround the central subterranean hall—a 70-foot-long space lined with columns of solid Casota stone. The 18,000-square-foot galleries accommodate a 700-piece collection of Native American art donated by Eugene and Clare Thaw in 1992. Hardy's design serves as an abstract, understated backdrop to the artworks on display.—*Ned Cramer*

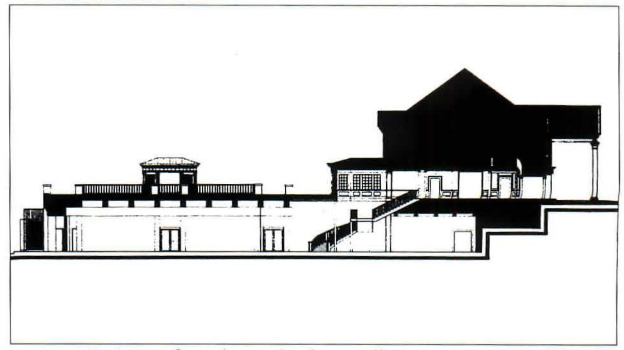
EVELYN HOFER

TERRACES: Addition is tucked into hillside.

SECTION: Galleries housed under terrace.

EVELYN HOFER

EXHIBITION HALL: Supported by stone columns.



SECTION: Staircase from house leads to galleries.

PUNCTURED ROOF: Cubism meets Japan.

Hejduk's Spiritual Quest at Cooper Union

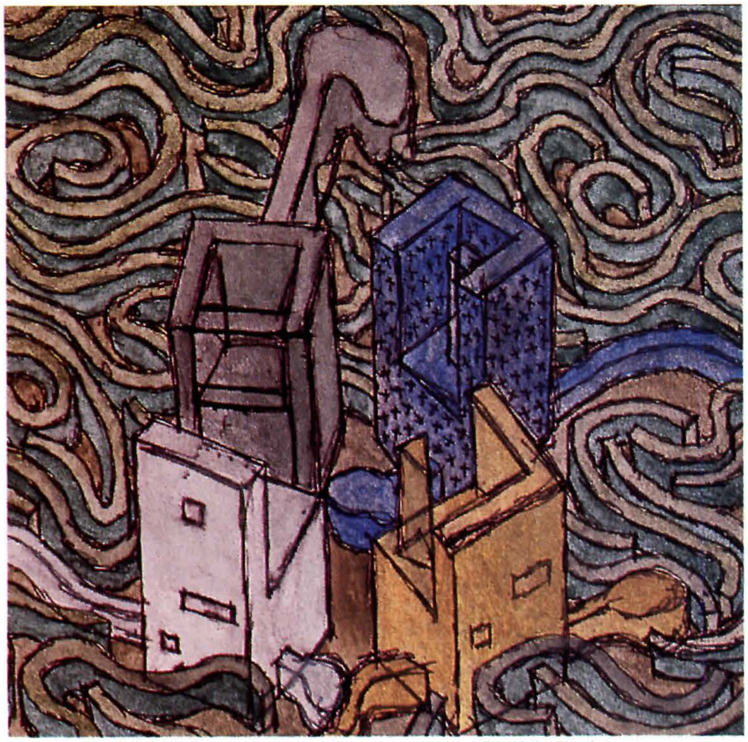
New York City architect John Hejduk, dean of Cooper Union's School of Architecture for 31 years, has assembled 61 new projects into a book titled *Adjusting Foundations*, published last month by Monacelli Press. The kaleidoscopic watercolors from the book, as well as photographs and models of Hejduk's built projects and follies, were exhibited at the school's upper level gallery from September 28 to October 19.

The poems, narratives, and paintings recall—or adjust—the mythological foundations of Hejduk's earlier work by expanding upon his religious allegories, which were published two years ago in *Soundings* after he nearly died of cancer.

Now, however, Hejduk has abandoned his macabre, monochromatic meditations for exuberant compositions of pattern and form, inspired as much by the architect's recent discovery of Japanese ukiyo-e paintings as by his emulation of Impressionist and Cubist works. The new projects transform familiar Christian symbols into architectural shapes and structures, as if to shelter the human soul from the invasion of a culture in which, as Hejduk laments, "everything is fast, quick, and thoughtless."

Varied proposals for houses, for example, attempt to bridge the chasm between heaven and hell: in one case, the house forms an altar above a maze, which represents the search for the way to heaven from the divergent paths and temptations of a complex, yet orderly, world. Less subtle is Hejduk's "Red Cathedral," which stands saturated in Christ's blood between a stream, symbol of baptismal rebirth, and a wheat field, breadstuff of the Eucharist.

Hejduk considers all his new work to be a radical statement against the empty formalities of his contemporaries, but he acknowledges the cross borne by all who practice: "There's so much for architects to learn. That anyone survives is a minor miracle."—*M. Lindsay Bierman*



HOUSE IN THE MAZE: Altar is sheltered by structures within labyrinth.

RED CATHEDRAL AND CRÈCHE OF ANGELS: Christian symbols take architectural form.

Chicago's Arts Club Unveils New Building

The Arts Club of Chicago has finally unveiled the design for its new home. Until March, the club was housed in an elegant Mies van der Rohe interior (ARCHITECTURE, December 1994, page 37) within a tower demolished in June and replaced by a mediocre shopping and multiplex cinema complex on North Michigan Avenue.

The architectural selection committee, comprising James N. Wood, director and president of the Art Institute of Chicago; Carter Manny, Jr., architect and director emeritus of The Graham Foundation; and Myron Goldsmith, architect, engineer, and professor at the Illinois Institute of Technology, selected John Vinci of Vinci/Hamp Architects from among 40 Chicago architects vying for the prestigious commission. Vinci's brick clubhouse promises to extend the contentious debate sparked by the destruction of the Mies interior.

When the Arts Club hired Mies to design its quarters in 1951, the Modern master had built only a handful of structures in this country, and the choice reflected the club's enlightened patronage of the avant-garde. Now, by commissioning an architect known more for historic preservation than for design innovation, the club has turned its back on that tradition.

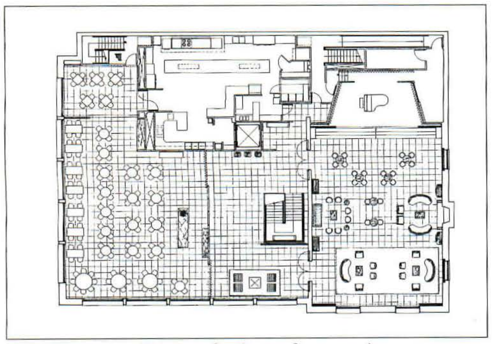
"I tried to keep the spirit of the old Club alive in this plan, since the members would have much preferred to stay in the previous quarters," explains Vinci, who describes the opportunity to design the new Club as the chance of a lifetime.

The architect's scheme, however, evidences a timidity that is a poor commentary on the influence of Mies van der Rohe on Chicago architects in the 1990s. His design combines the most banal aspects of 1950s Modernism with the worst impulses of 1980s historicism.

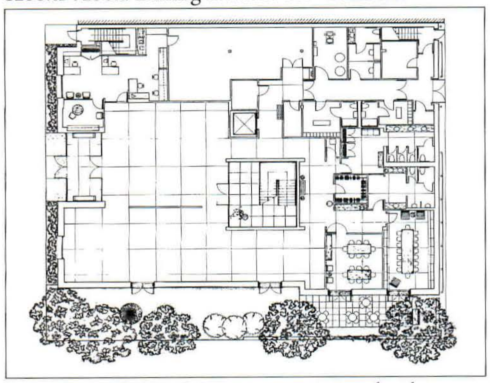
The new clubhouse will be built at the corner of Ontario and St. Clair streets, two blocks east of the old location. Vinci has produced a two-story scheme, with gallery spaces on the first floor and dining and entertainment facilities above. The levels are linked by the famous Mies stairs, saved from the wrecker's ball only to be imprisoned within a brick-and-glass container, which recreates the awkward entry sequence of the 1950 tower that previously housed the club.

The proposed lumpen, boxy clubhouse is accented by poorly proportioned windows, which seem to deliberately recall the unfortunate fenestration of the preceding speculative office building. A tall brick wall protecting a garden and patio meets the street on the building's western exposure, a gesture seemingly inspired by Mies's residential designs but hardly appropriate for this downtown location. What is obviously intended by Vinci to be a paean to Mies is instead a laughable parody.—*Edward Keegan*

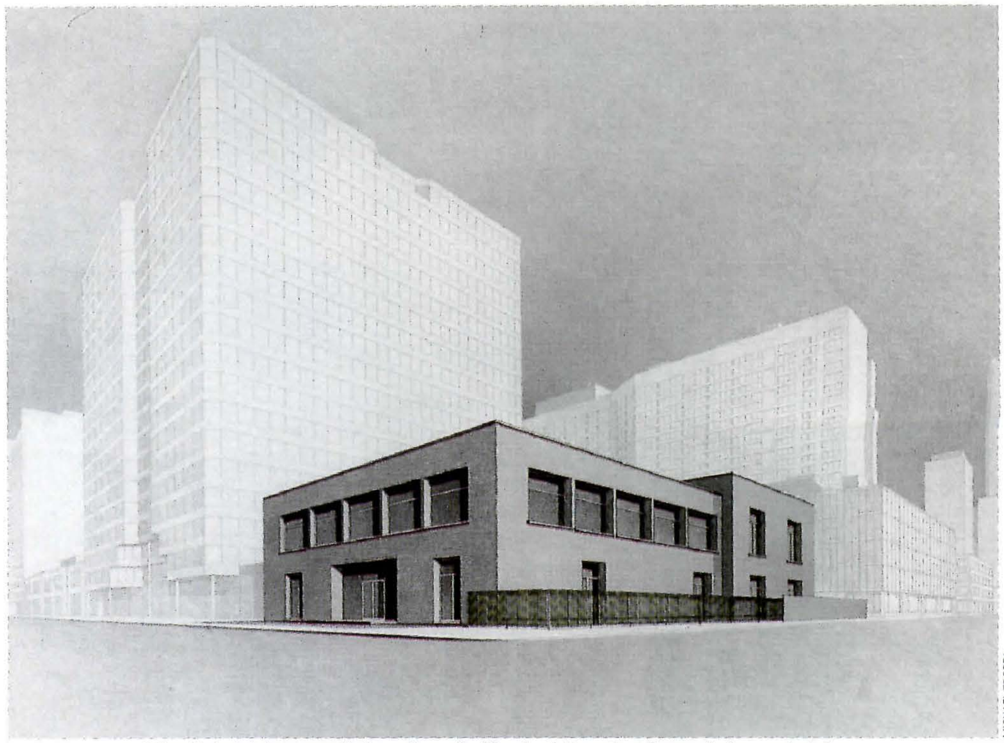
Chicago architect Edward Keegan is a member of the Arts Club.



SECOND FLOOR: Dining facilities for members.

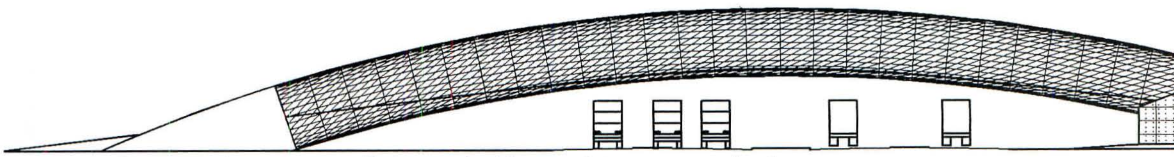


FIRST FLOOR: Original Mies stair connects levels.



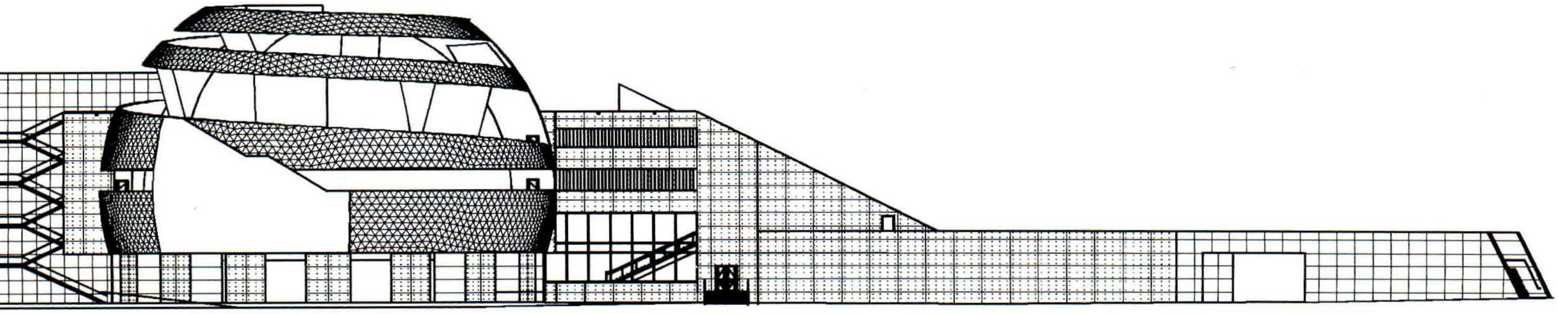
MICHAEL TROPEA

NEW ARTS CLUB: Vinci's brick box recalls banality of office building that formerly housed club.



MOSI BRIDGE: Connects science museum (facing page) with new sciences magnet school.

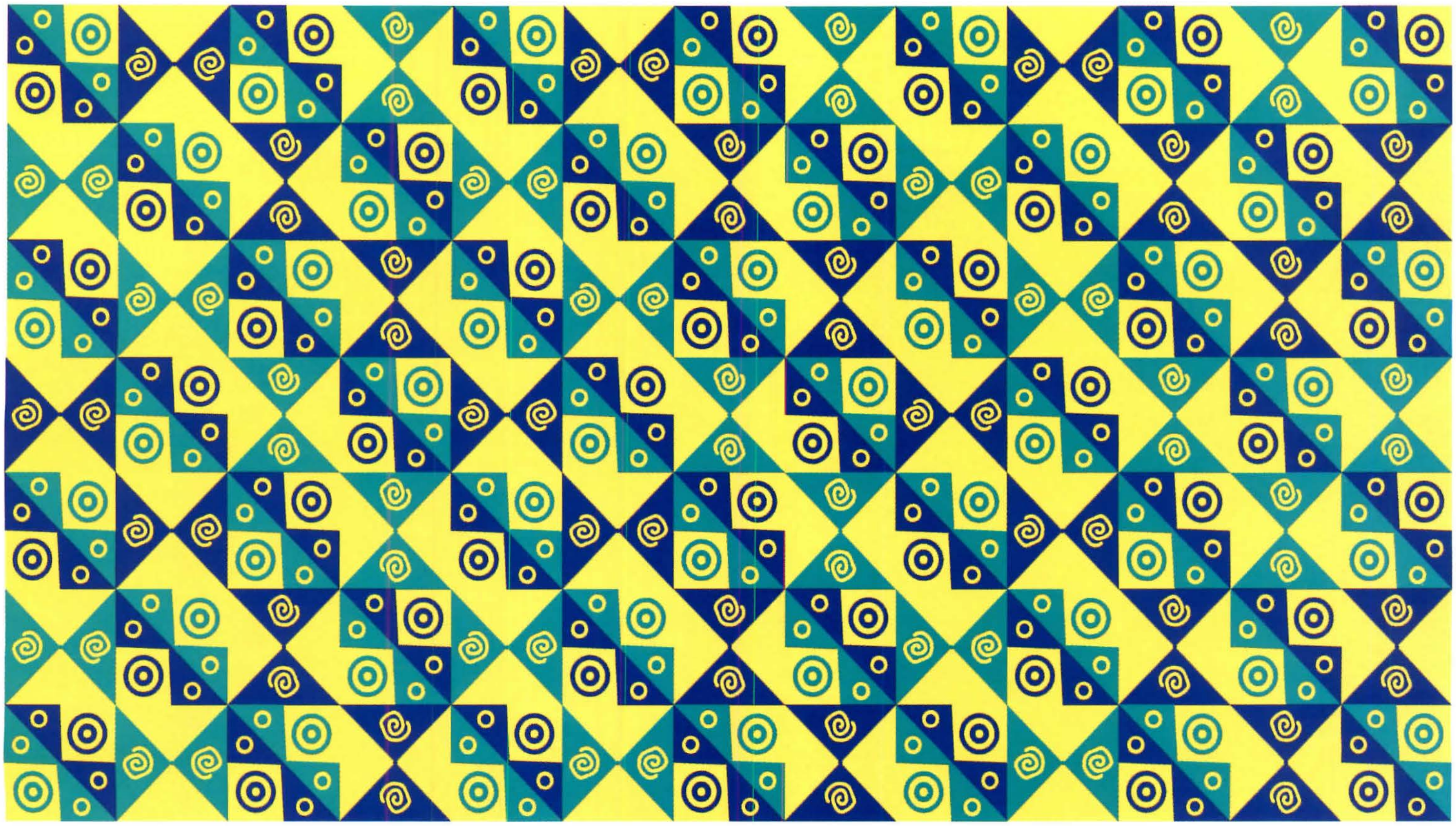
New commissions
A new pedestrian bridge, designed by **Robbins, Bell & Kreher** (above), will connect **Antoine Predock's** addition to Tampa's Museum of Science and Industry (pages 84-93, this issue) with a proposed elementary school on the University of South Florida campus. The National Institutes of Health (NIH) has named the finalists shortlisted to design its new 850,000-square-foot Clinical Research Center Complex in Bethesda, Maryland: **Cesar Pelli & Associates; Kallmann McKinnell & Wood; Kohn Pedersen Fox Associates** with **Hansen Lind Meyer; Renzo Piano Building Workshop; Venturi, Scott Brown**; and **Zimmer Gunsul Frasca Partnership**. NIH will announce its final decision in December. Portland, Maine-based **Winton Scott Architects** is designing a 15,300-square-foot library in Freeport, Maine. Architect **Turner Brooks** of Burlington, Vermont, has won a competition to design a 3,200-square-foot annex to the historic Palmer House in Stonington, Connecticut. The addition to the 1852 home of the Antarctica explorer will house a library and archives. **Gwathmey Siegel & Associates** has been awarded a $75 million mixed-use development in downtown Columbus, across from the new Ohio Center of Science and Industry designed by **Arata Isozaki Atelier. Steven Holl** has been chosen over **Leers Weinzapfel, Smith-Miller + Hawkinson**, and **Pasanella + Klein Stolzman + Berg** to design



an addition to the University of Virginia School of Architecture's Campbell Hall. **Duarte Bryant** of Seattle and BOORA of Portland have been chosen over **Moshe Safdie, Barton Myers Associates, Callison**, KMD, and **Dagit Saylor** to design a $20 million university center for Seattle University. **Bohlin Cywinski Jackson** is designing two $50 million marine science buildings on the University of Washington campus. **Lake/Flato** is developing a master plan for the Texas State Cemetery near the state capitol in Austin. **RoTo Architects** is developing a master plan for the Sicangu Indian Tribe's Sinte Gleska University in South Dakota. **Tigerman McCurry** is designing a community health center for the Oneida Indians in Wisconsin and an affordable housing complex in Carbondale, Colorado. **Rem Koolhaas** and **Peter Eisenman** have been chosen to design buildings on a diplomatic campus in Geneva being planned by **Massimiliano Fuksas** of Rome.

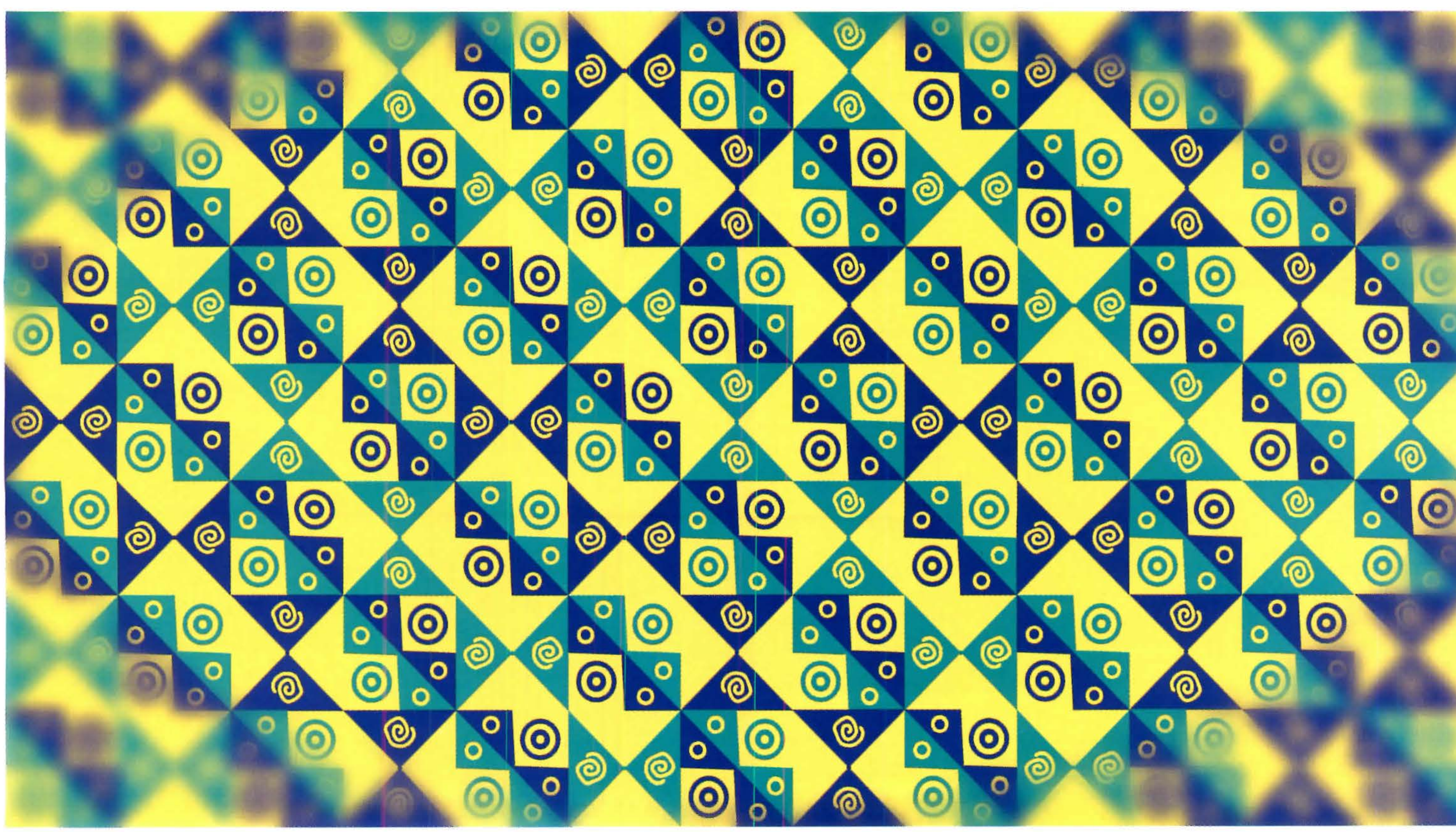
Medals and awards

Architecture got a boost from the White House last month when President Bill Clinton presented **James Ingo Freed** with the National Medal of Arts and **David Macaulay**, author of *Pyramid* and *Cathedral*, with the Charles Frankel Prize. **Moshe Safdie** has been awarded this year's Royal Architectural Institute of Canada's Gold Medal. **William L. Rawn** of Boston has received the Louis Sullivan Award for Architecture, a $25,000 prize awarded by the International Union of Bricklayers and Allied Craftsmen. **Elliott + Associates** of Oklahoma City has won an Industrial Design Society of America/*Business Week* Gold Award for the ESEO Federal Credit Union. The Waterfront Center paid tribute to three projects last month with its 1995 Honor Awards: the Deer Island Pumping Station by **Tsoi/Kobus & Associates**; the Birmingham, England, waterfront; and **Beyer Blinder Belle's** New York State Canal Recreationway Plan.

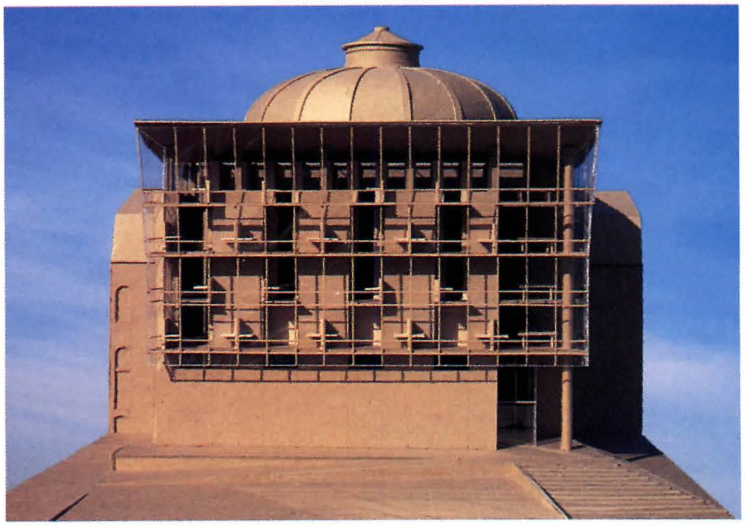


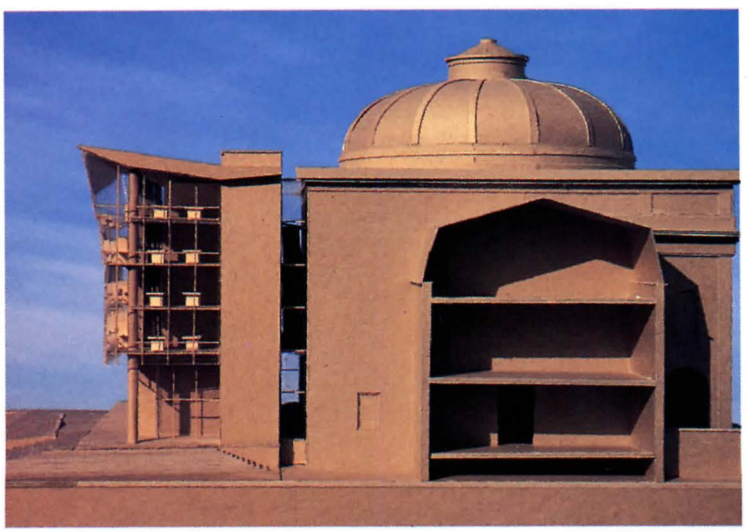
Our Monitor

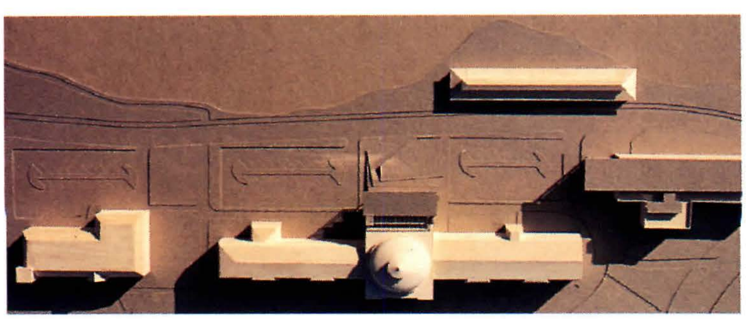
Their Monitor



An addition to Cornell University is based on memories of student days.







Sibley Hall Addition
Cornell University
Ithaca, New York
Schwartz/Silver Architects

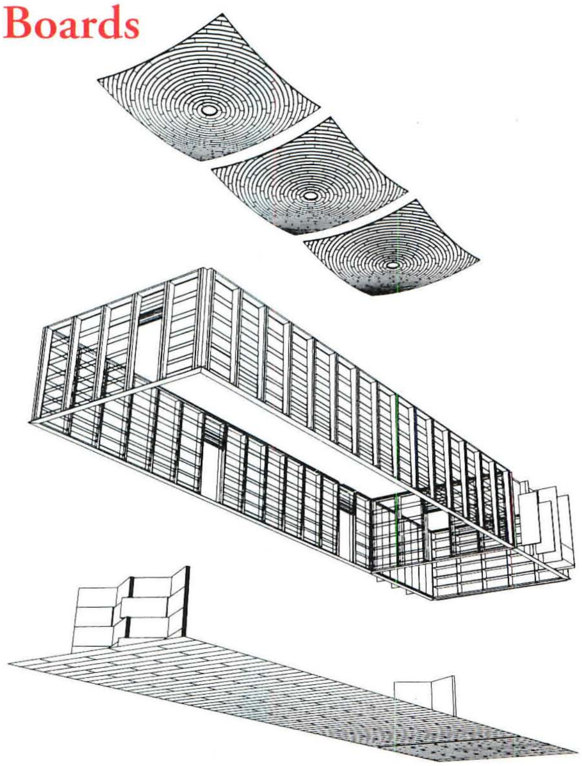
Cornell University alumnus Warren Schwartz of Schwartz/Silver Architects based the concept for his addition to Sibley Hall (1871-1902) on his first impression of the Beaux-Arts building in 1961, his freshman year. "The building glowed, you could see people moving around and its exposed trusses," Schwartz remembers, adding, "It looked like an open industrial shed, not the Second Empire-style landmark that it is."

The Schwartz/Silver addition, scheduled to begin construction in 1997, is one element of a four-building expansion by the firm for Cornell's College of Architecture, Art, and Planning, involving 166,500 square feet of renovation and 27,000 square feet of additions. The Sibley Hall project will add 14,000 square feet onto the 88,000-square-foot Fine Arts Library and will house an art gallery, auditorium, stacks, and generous reading areas.

The proposed concrete-and-glass addition projects from the back of the building, facing a 200-foot-deep gorge which separates the residential and academic sides of the Cornell campus. Schwartz organized the addition around a limestone-clad core to contain the 200-seat auditorium at basement level, the art gallery at ground level, and stacks on the four floors above. This core is separated from its older, domed neighbor by a glazed circulation space.

Schwartz's early impression of Sibley Hall is most clearly expressed in the outer steel-and-glass layer which will enclose study carrels at the addition's perimeter. At night, the glazed volume with its tilted roof will light up the campus, recalling the architect's impression of Sibley Hall as a luminous, structural container of activity.—*Ned Cramer*

On the Boards



Inter-Faith Hall of Prayer
Northeastern University
Boston, Massachusetts
Office dA, Designer

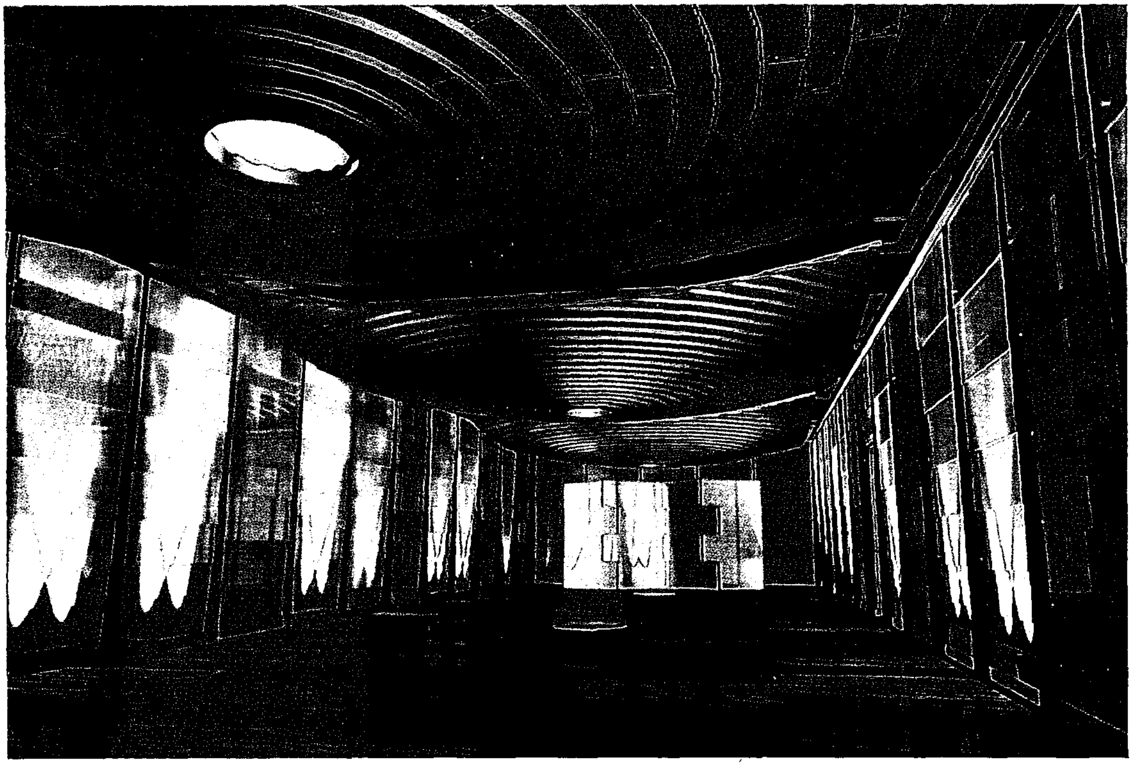
A rapidly diversifying student body, faculty, and staff has led Boston's Northeastern University to renovate its chapel into a truly nondenominational place of worship. Located on the second floor of the university's student center, the new Inter-Faith Hall of Prayer, designed by the young local firm Office dA, will replace Christianity-based pews, altar, and pulpit with a more flexible and evocative environment.

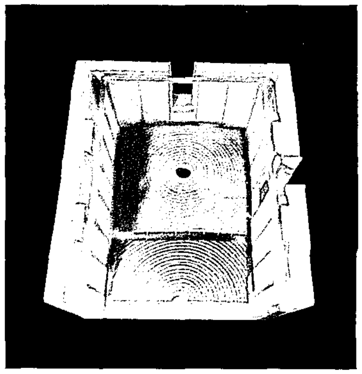
Originally contracted only to paint and recarpet the space, Office dA persuaded the university that the prayer hall was inappropriately appointed for nondenominational worship and required more extensive remodeling. The firm was able to turn the site's physical limitations into assets through its conception of the chapel as an "enigmatically luminous box in the darkest core of the building," according to Principal Nader Tehrani. Low ceiling heights precluded the characteristic loftiness of religious and ceremonial spaces, so Tehrani capped the room with three inverted brushed-aluminum domes, allowing for linear and centralized spatial configurations.

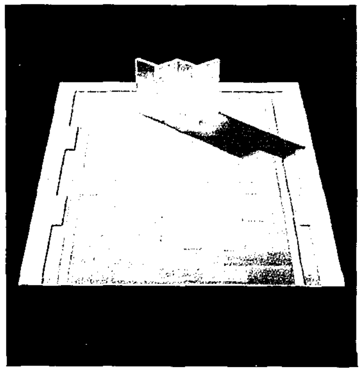
Since the chapel is completely isolated from natural light, the designer screened the walls with a plywood-supported, frosted-glass curtain wall lit from behind. Treated like drapes or blinds hanging to the floor, the panes of glass slide upward to reveal the entrances.

Office dA subdivided the rectangular, 60-foot-long room into two areas: a large meeting area, and a smaller space reserved for storing the various fixtures and accessories required by different faiths.

The functional distribution reflects the university's desire to exclude permanent typological and iconographic elements from the nondenominational space: furniture or accessories are brought in as needed. The project is slated for completion next summer.—*N.C.*







On the Boards

Santa Monica College Library
Santa Monica, California
Steven Ehrlich Architects

Steven Ehrlich's addition to the Santa Monica College (SMC) library will be a new centerpiece of the California community college's campus. The library expansion is a critical initial element of a projected master plan, providing a strong architectural symbol for the college on the south side of its main quadrangle. Most importantly, the project will add 30,000 square feet of study space to a library so crowded that students are often forced to study on the floor, or even in elevators. It will also rectify damage to the older structure wrought by the 1994 Northridge earthquake.

The original 50,000-square-foot facility, designed by the local firm DMJM in the late 1970s, will be reserved for the library's book stacks, while the extension will house a new entrance, circulation area, public reading rooms, and group study areas. Ehrlich extended the axis of the older, closed concrete structure through his open, glazed new wing, and out to the quadrangle.

A double-height rotunda, capped by outdoor and indoor reading spaces with 360-degree views of the campus, defines the main entrance. The rotunda is flanked by a pair of glazed reading areas with dramatically sloping copper roofs. The reading areas are elevated on terraced berms that provide outdoor gathering places for the students.

Two courtyards nested between the old and new wings of the library offer additional, more intimate study areas, which will be landscaped with indigenous plants. Such attention to recreational and study spaces demonstrates the administration's commitment to creating a more congenial learning environment for students.

The extension's sculptural form will also bring a much-needed architectural presence to the campus. The terraced berms, sheltering copper roofs, and expansive windows "present a friendly edge to the future quadrangle," Ehrlich maintains. And to SMC President Richard Moore, the sloping copper roofs of Ehrlich's scheme closely resemble a bird, prompting him to fondly refer to the addition as the Eagle.

The master plan, financed by a $23 million local bond, was developed by the community college's administration to include the library, a new science complex, and other additions to the campus. Los Angeles-based architect Anshen + Allen, in association with John Mason Caldwell & Associates of Marina del Ray, was selected by the planning committee to design the science center.

Proposals for the library extension were solicited from a shortlist of Los Angeles architects that included Ehrlich, Keating Mann Jernigan Rottet with ROTOndi, as well as Frederick Fisher. Ehrlich's experience with campus design, notably his $15 million Sony Music Campus in Santa Monica, made him an attractive choice for the Santa Monica College Library addition, which is tentatively scheduled to begin construction in 1997.—*N.C.*

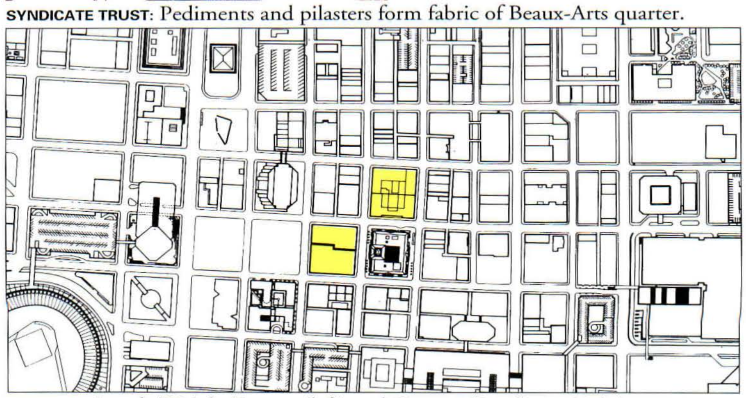
Protest

Parking lots take precedence over preservation in St. Louis as nearly a dozen historic Beaux-Arts buildings in the city's downtown core are threatened by demolition.

ARCADE/WRIGHT: Articulated bays.

SYNDICATE TRUST: Solid street wall.

SYNDICATE TRUST: Pediments and pilasters form fabric of Beaux-Arts quarter.



SITE PLAN: Arcade/Wright/Brown (left) and Century/Syndicate (right).

Historic Blocks to be Razed in St. Louis

Eleven turn-of-the-century edifices are in jeopardy in St. Louis, Missouri. Demolition is pending for two entire blocks next to the landmarked post office—for parking.

Under threat are the 1896 Century and 1907 Syndicate Trust buildings, joined in 1912 to house the city's first department store; the 1906 Wright building, designated a city landmark in 1979 for its rich stone detailing; and the 1918 Arcade, the best surviving example of Gothic Revival architecture in the region. These masonry structures define a dense pocket of downtown left over from the city's early years.

The Conlon Group, owner of the Century/Syndicate Trust building, has twice been denied demolition permits, but is now suing the city in circuit court. The owner originally secured a permit to put parking in the lower part of the building, with offices above. That plan proved structurally infeasible, and Conlon insists that the building is altogether unsound. The city's Heritage and Urban Design Commission disputes this allegation, maintaining that the building could still hold offices and stores. And permits are pending to tear down the Arcade/Wright block, whose New York owner, P.D. Associates, has left the windows of the building wide open and its ornate interiors exposed to the elements.

While this threat appears to be a preservation problem, the real trouble in St. Louis is its planning. The city's planners and Mayor Freeman Bosley, Jr., have recently rushed to install a second stadium, a bigger convention center, and riverfront casinos. But instead of selling out downtown to transient tourism and parking lots, they could turn St. Louis's remaining Beaux-Arts quarter into a lively historic neighborhood.—*Bradford McKee*

Electronic Preservation

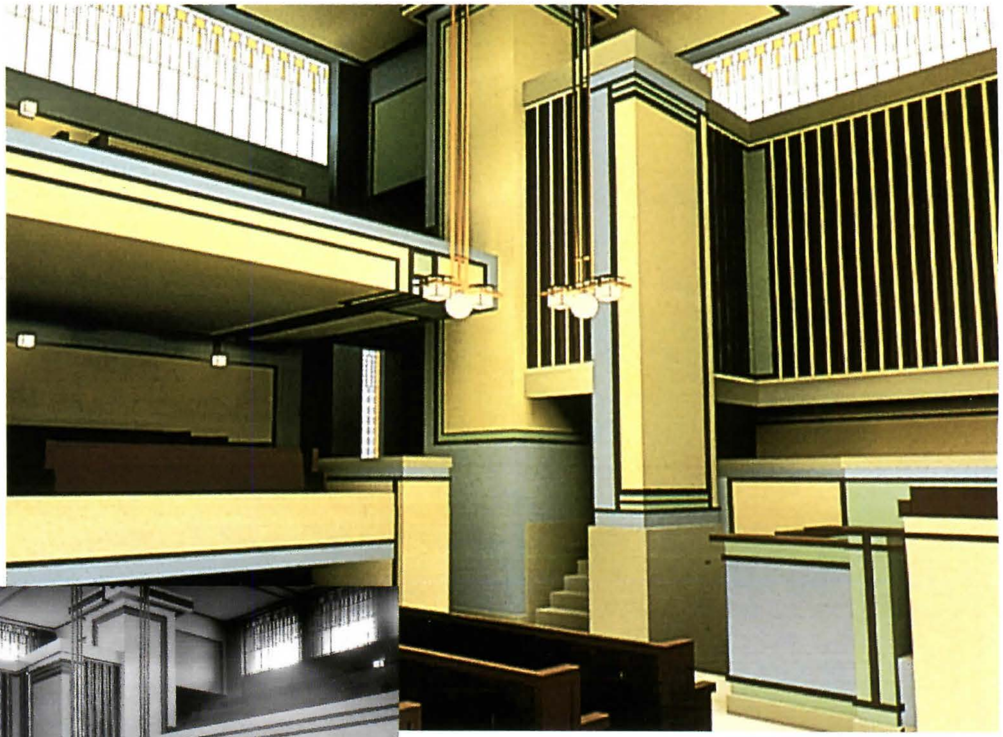
Computerized interpretations of history must support, not subsume, the authentic object.

RIGHT: Software from Lightscape Technologies models lighting in Frank Lloyd Wright's Unity Temple. BOTTOM RIGHT: Photograph of Unity Temple shows actual conditions.

The dilemmas of preservation—how far to intervene, how much to interpret—can now be addressed through electronic representations. Three-dimensional modeling software programs allow architects to explore different avenues of intervention, and their effects, before physically altering historic buildings. Electronic supplements to historic sites, such as virtual-reality walk-throughs and multimedia exhibits, have become indispensable, and sometimes controversial, interpretive aids for visitors.

However, technology's place in preservation has more problematic implications: if electronic representations allow historic buildings to be preserved for posterity, with greater authenticity than restoration, why preserve the original building at all?

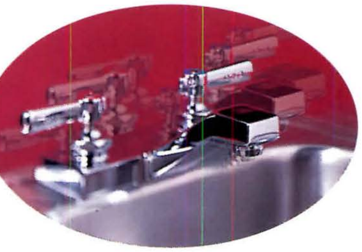
Technology can play a supporting role in interpreting the past, with beneficial results. The ruins of the famous 12th-century Furness Abbey in the English county of Cumbria, for example, are being studied using an extensive computer model based on site evidence, historical illustrations and descriptions, and on historians' knowledge of Cistercian architecture. With this model, architectural historians and representatives of the National Trust, the English public agency responsible for preservation, are now able to explore the electronically reconstructed abbey from all angles.



WAYNE ANDREWS / ESTO

A recommendation from people who take leaks pretty seriously.

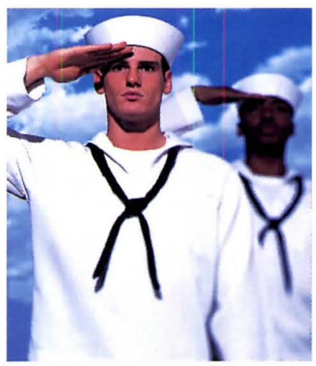
¶ When a U.S. aircraft carrier leaves port, the crew has a lot on their minds. Will the weather hold? Will the enemies attack? And if we do have to fire the big guns, will the faucets leak? At Chicago Faucets we're proud to say that thanks to us, our boys in blue have one less thing to worry about. ¶ That's because naval aircraft carriers are equipped throughout with our faucets. You see, Chicago faucets have been proven to withstand the rattle of waves crashing, guns going off, even the occasional plane landing, without a single drip, dribble or leak. ¶ In the American spirit of competition, several companies' faucets were tested. Only one did our country proud.



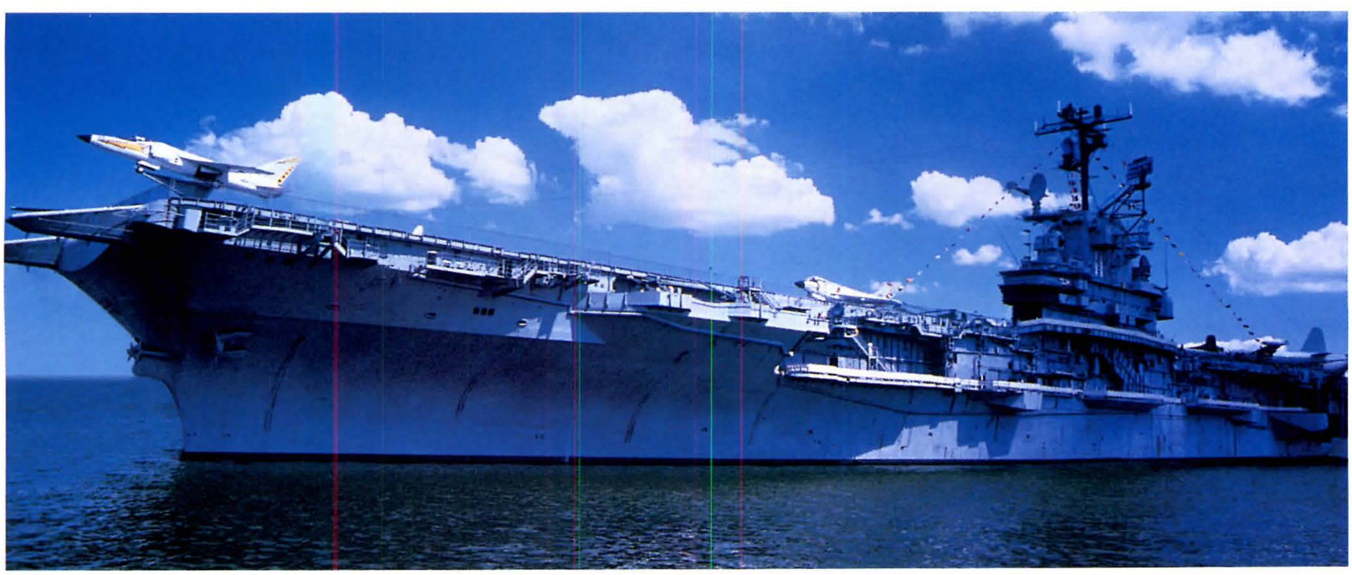
You can shake it, but you can't break it.

Not only did the Chicago faucet remain stable, but it was the only one tested that couldn't be eroded by the salty sea air. Of course, we weren't surprised. We've always known that our patented cartridge, designed to close with the water's pressure, is truly an American original. ¶ Isn't it nice to know that because of Chicago Faucets, our military is just a little more prepared? Not to mention our citizens. After all, a faucet that can stand up to government testing ought to be able to survive any abuse the average civilian can inflict. So go ahead, put your Chicago faucet to the test, we're confident it will pass muster.

CHICAGO FAUCETS



There's no place in the armed forces for drips.



THE CHICAGO FAUCET COMPANY 2100 SOUTH CLEARWATER DRIVE DES PLAINES, ILLINOIS 60018-5999 PHONE 708-803-5000 FAX 708-298-3101

Circle 76 on information card

In actual restoration work, computer simulations allow different paint colors and finishes, lighting, or materials to be analyzed prior to installation. For instance, software developed by Lightscape Technologies of California allowed lighting fixtures and light levels to be manipulated in the interior of Frank Lloyd Wright's 1907 Unity Temple in Oak Park, Illinois. Such preliminary evaluations can be critical when assessing the frequently adverse effects of contemporary lighting installed in historic interiors.

The clash comes between those who want to interpret history using only the site, and those wishing to convey ideas through technology. The two can be complementary, but one should not exist without the other: the site must remain the reality check against overzealous interpretation.

Dresden's 18th-century Frauenkirche is currently being rebuilt with the help of IBM hardware and software. The church, destroyed during the Allied bombing in 1945, was first modeled on computer using historical documentation and architectural fragments scattered on the site, preparation that provided invaluable data for coordinating the design and reconstruction process. Here, computer images served not only to portray the building as it once was, but also to provide detailed information about clearances of intersecting architectural elements and size requirements for stone blocks.

For the reconstruction of London's Globe Theater as Shakespeare knew it, technology has been enlisted to educate and entertain visitors. Sun MicroSystems has helped to produce a virtual-reality walk-through that allows a visitor, wearing a headset, to stand onstage and experience what it was actually like to play the part of Romeo or Juliet during the 16th century. The virtual actor "sees" both a copy of the script and other actors playing their roles. (It is unclear whether virtual stage fright is included.) INFOBYTE, a computer company funded by the Italian utility ENEL, has recently developed a similar virtual-reality model of St. Peter's Cathedral in Rome. The program allows users to electronically view not only the present-day interior from different and often otherwise inaccessible angles, but the building's predecessor, Constantine's basilica, as well.

But computer-enhanced historical aids can also cause preservation conflicts, as a recent controversy in Atlanta surrounding the Martin Luther King, Jr. Center for Nonviolent Social Change illustrates. Although no one disputed the need to preserve certain buildings, such as King's birthplace or the Ebenezer Baptist Church where he preached, conflict erupted over who should interpret King's legacy—and to what extent that interpretation should incorporate technology. The dispute focused on a site across from King's birthplace, on which the National Park Service, having secured the land from the city, wanted to construct a visitors' center. But the King Center wanted the site for a highly interactive museum about King and his role in the civil rights movement, a scheme so commercialized that a local editor called it "I Have a Dreamland."

Phrases such as "visitors' center" and "interactive exhibits" evoke different images of

interpretation: one static and conventional, the other "virtual" and innovative. The King Center controversy, which ended in the compromise of a yet-to-be-developed high-tech interpretive center, exemplifies the clash between those who want to interpret history using a site as the primary tool and those who wish to convey philosophies and ideas through technology. The two can be complementary, but one should not exist without the other—the site must remain the reality check against overzealous interpretation.

In some cases, these electronic interpretive tools may be inappropriate for emotional reasons. Survivors' testimonies shown in taped interviews at the United States Holocaust Museum persuasively convey the extent of the atrocities, but could be tragically out of place at the actual sites of concentration camps. The vast expanse of an untouched Holocaust site such as Auschwitz-Birkenau, with its pastoral setting and scattered building fragments, is far more haunting than any interpretive device can ever render it.

Interpretation, then, is what is at stake in our increasing reliance on electronic representations. Actual reconstructions are still only representations of the past, and have always been shaped by idealized perceptions. Colonial Williamsburg, for instance, has little to do with the reality and hardships of colonial times: it is very much the product of a commercially appealing, idealized version of life in an American colony. Williamsburg's restoration began in the 1930s and continues to evolve as cultural perceptions and preservation philosophies change, and more original, on-site evidence comes to light.

But theme-park-like interpretations can make the real object or building seem dull. Past interpretive techniques include introducing more "real" aspects of life into a village, building, or object, ranging from plant material appropriate to the period and geographic location, to people reenacting daily tasks. Such animation further obscures the authentic from the reconstructed. In recent focus groups sponsored by Colonial Williamsburg, participants were shown images from Williamsburg and a Disneylike theme park and asked which appeared authentic and which appeared fake. Their responses to both sets of images were similar, indicating that the experience of a theme park, particularly one with historical overtones, has come to appear distinctly real to us. Such a result raises the specter that interpretive and interactive technologies may further eliminate the distinctions between what is real, what is restored, and what is artificial.

When preserving buildings, virtual reality may provide a better and philosophically more acceptable solution to remembering the past than does saving only an original facade as a partial front, or designing a new building with a Neo-Georgian facade, all in the name of contextualism. New software offers us the ability to demolish original buildings, and yet

The experience of a theme park, particularly one with historical overtones, has come to appear distinctly real to us. Such a result raises the specter that interactive technologies may further eliminate the distinctions between what is real, what is restored, and what is artificial.

SURETEST™

FIRE PROTECTION SYSTEM

NEW

New Patented Rolling Fire Door Protection System from Raynor Allows Frequent Testing without Specially Trained Personnel and Tools....Huge $$$ Savings!

Factory Mutual studies report that nearly 20% of rolling steel fire doors do not close properly when tested*. This can lead to the loss of life and extensive property damage in the event of a fire. Now, Raynor introduces the latest innovation in rolling fire door design....the SureTest™ Fire Protection System with the new FeatherLite™ Counterbalance System. Raynor SureTest™ Fire Doors can be tested and reset from the floor without specially trained personnel and tools. Safety. Reduced Operating Cost. Convenience. Peace-of-Mind. Don't invite problems. Choose the Raynor SureTest™ Fire Protection System.

* *Copies of Factory Mutual tests available upon request.*

For a Free VHS Tape and Literature about the SureTest™ Fire Protection System & FeatherLite™ Service Doors, Call 1-800-4-RAYNOR or FAX 1-800-887-9135.

Circle 80 on information card

retain more than a memory. With computer-aided design, an accurate, three-dimensional model can be created and stored much like conventional measured drawings, before a building is razed. The development of digital photography will further simplify that process. The record will be more complete, and the "experience" of the building will be preserved—even though the artifact, the ultimate touchstone of authenticity, will be lost.

But while multimedia and interactive systems afford new opportunities for "you-were-there" virtual scenarios, this type of pseudorealism must remain supportive and secondary to the original artifact. In fact, the increased capability to visualize and represent the past, and thus edit and clean up its messy remains, places an even greater importance on the original artifact as the final source to which researchers and preservationists can return and reevaluate their interpretations.

Historic buildings can be "restored" to different time periods and yet still be accessible as historic relics. Although the new tools provide more ways to teach us about history, they threaten to distort our perception of the past. In some cases, electronic representations may be used to suggest that the "virtual real" is just as good as—or even better than—our authentic cultural heritage.

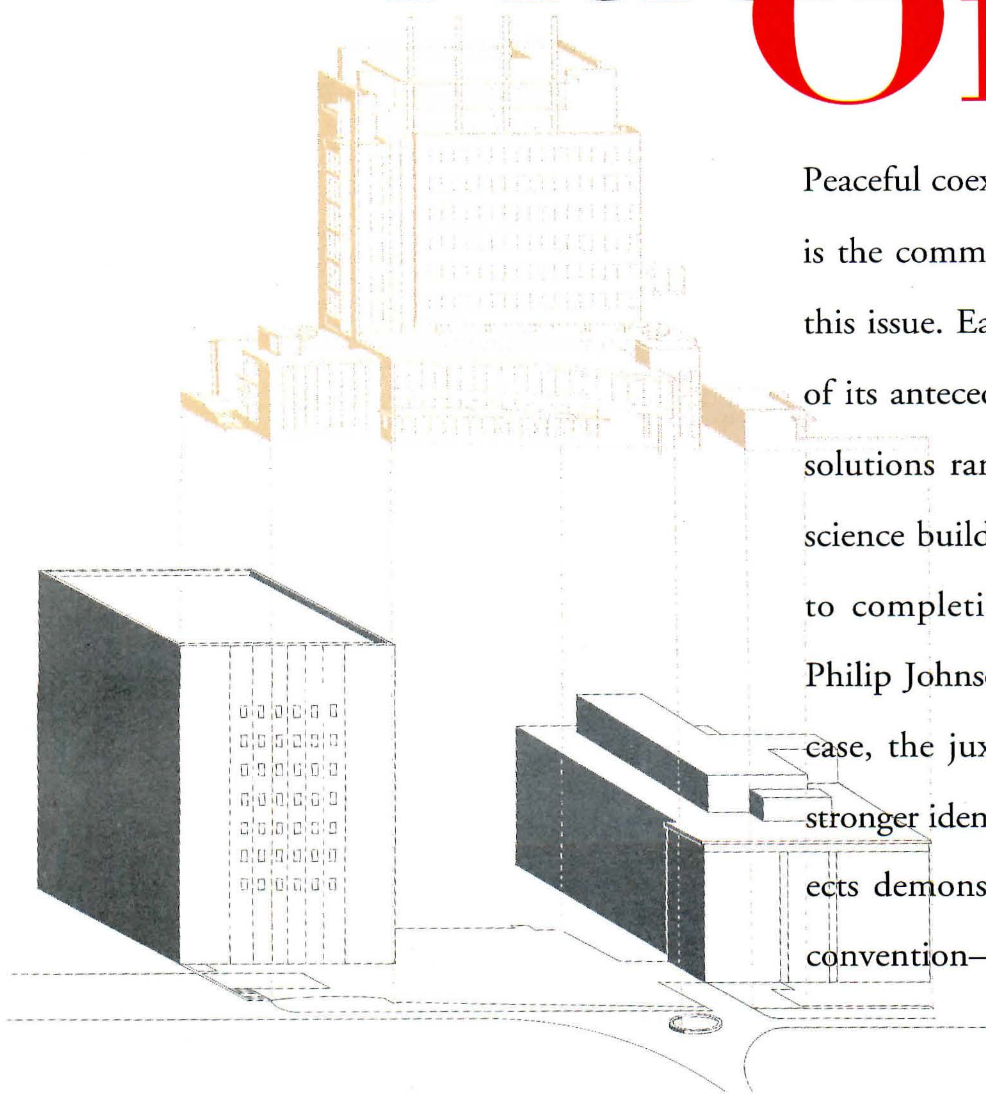
Computer technology's potential to revise history gives rise to the dangerous notion that the cultural and political structures that created our past are better than our present-day institutions. The interpretive opportunities presented by virtual reality and other computer-based multimedia techniques could therefore change our notions of authenticity, and may ultimately alter our perceptions of reality itself. The "virtual real" must support the physical real—it must never become the only representation of the past.—*Theodore H.M. Prudon*

Theodore Prudon, AIA, principal of Swanke Hayden Connell, is currently working on the preservation of the Merritt Parkway bridges.

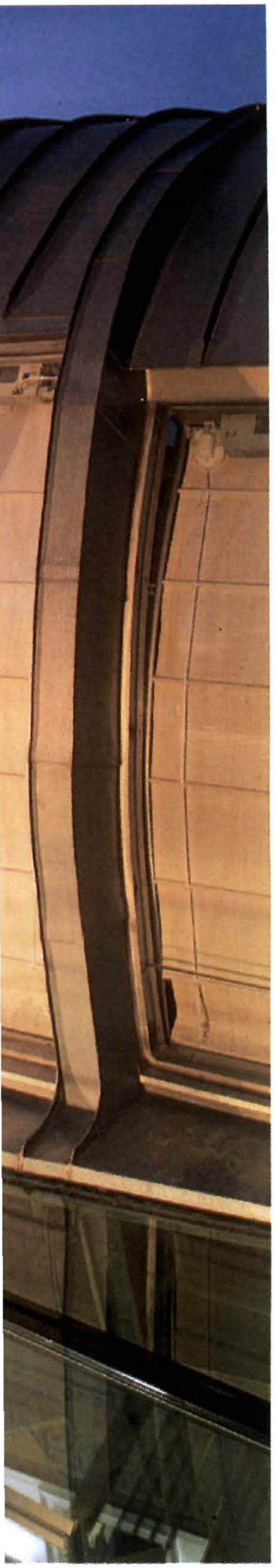
WITH VULCRAFT ON DECK, THIS

The Ballpark at Arlington, home of the Texas Rangers, built with Vulcraft composite deck.

Adding On



Peaceful coexistence, rather than obeisant servitude, is the common theme of the building additions in this issue. Each new insertion respects the integrity of its antecedent yet refuses to hide behind it. The solutions range from uniting a pair of uninspired science buildings with a Modern frontispiece (left), to completing a march through Modernism on Philip Johnson's Connecticut estate (cover). In each case, the juxtaposition of new and old fashions a stronger identity for the host institution. These projects demonstrate that the best renovation respects convention—but thrives on invention.



National-Netherlands Company
Budapest, Hungary
Mecanoo Architects

Corporate Cocoon

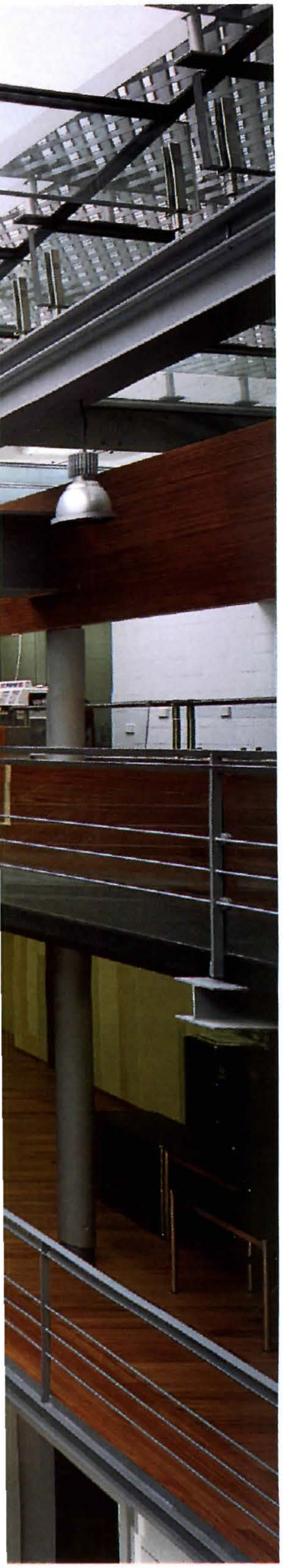
When the Iron Curtain came down in 1989, architects everywhere started to dream. Six years later, few dreams have been realized. Development in Eastern Europe has been slow; the best Western architects are, with few exceptions, conspicuous by their absence; and local planners, fearful of sudden change, have imposed conservative regimes that favor token gestures to history. In this context, the energetic new Budapest headquarters shared by the insurance company National-Netherlands Hungary and International Netherlands Group (ING) Bank, both subsidiaries of the Dutch corporation National-Netherlands Real Estate, is a remarkable event.

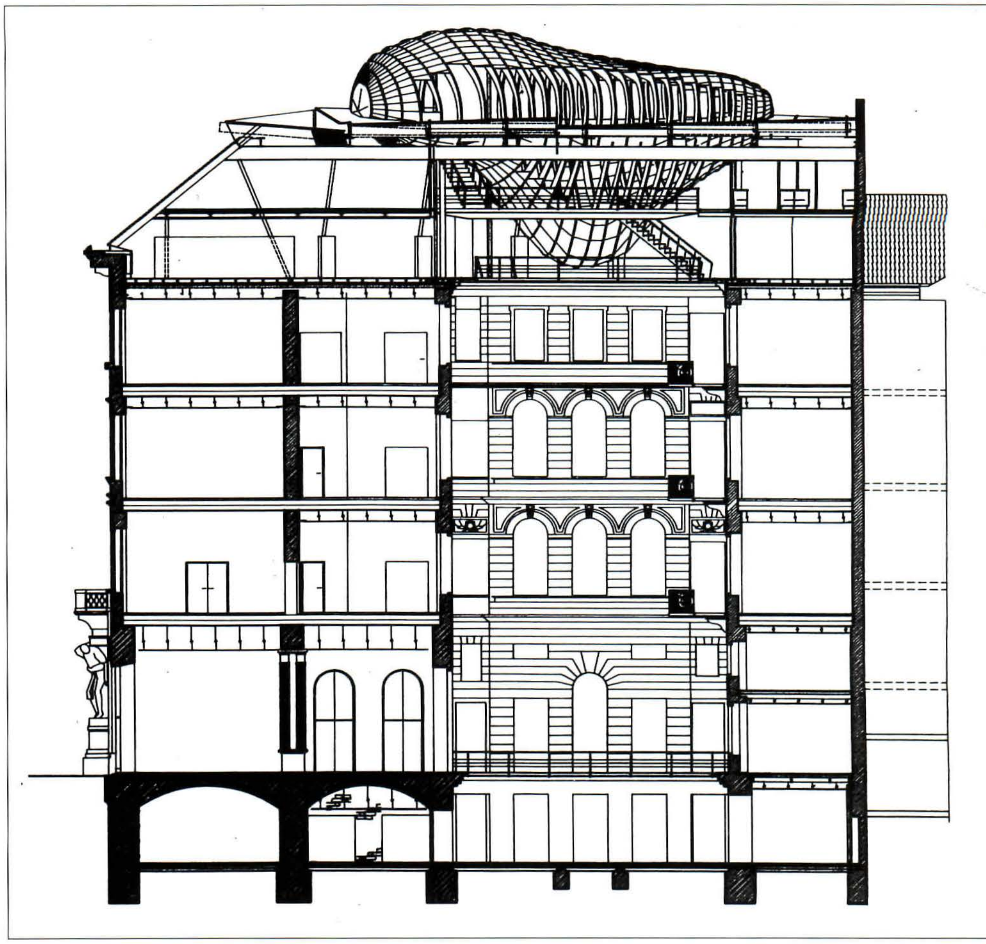
Designed by the young Dutch firm Mecanoo, the offices represent the work of former partner Erick van Egeraat, who has now set up his own practice in Rotterdam. Few of his modifications are evident from outside, except that the Italianate town house into which the new work has been inserted is far sprucer than the still-crumbling fabric of old Budapest. From a distance, van Egeraat's extraordinary blob can be glimpsed on the skyline, but only inside does the design begin to reveal itself.

The 1884 building is of a ubiquitous central European type, the courtyard apartment, and its Italian Renaissance architecture, though robust and handsome, is not exceptional. However, demolition would never have been permitted by city authorities. Van Egeraat's modifications consist of adding two floors of offices at the top, covering the courtyard, and converting the lower floors into

FACING PAGE: Framed in laminated ash with a zinc-and-glass skin, van Egeraat's addition floats on a laminated glass roof.
ABOVE: New mansard roof with cocoonlike boardroom extends above restored 1884 Italianate building in downtown Budapest.

SCAGLIOLA / BRAKKEE





NORTHWEST-SOUTHEAST SECTION

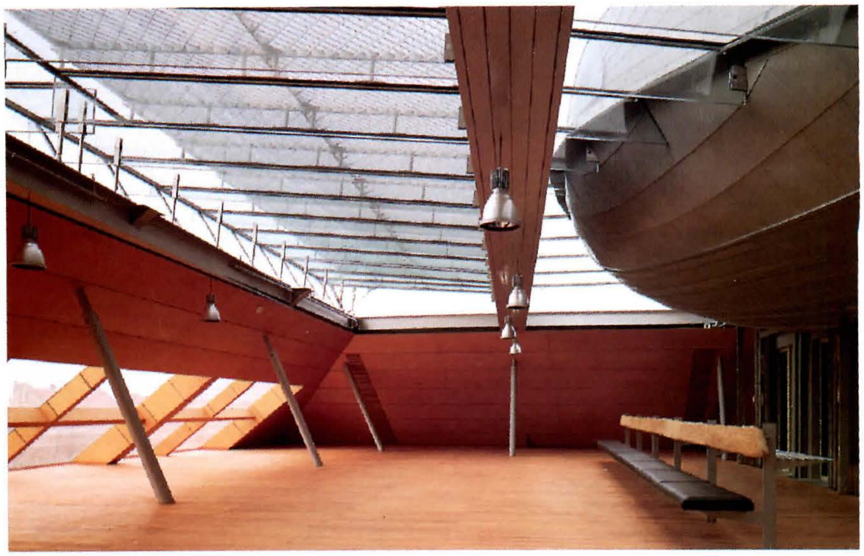
offices. Upon entering, a visitor might notice that the courtyard windows are unglazed, but would be unprepared for the constructional explosion overhead. There, all the orderly proprieties that the old building observes are turned on their heads.

The original building strives to find symmetry and right angles on an irregular site, asserting the simple certainties of loadbearing masonry and Classical hierarchy. Van Egeraat hurls a steel-and-glass bridge across the central void inside at a seemingly random angle and builds a mansard roof whose geometry revels in the skewed angles of the building's envelope. There is solid where you'd expect void, lightness where you'd expect mass. Elements float, fly, and hover, but never seem to come to earth. The most gravity-defying of them all is a section of roof that wraps around itself to form a cave in the air—a cocoon that thinks it can fly. With this amorphous shape, which penetrates the glass roof and therefore belongs both inside and out, the architect introduces yet more ambiguity.

First stone, then eventually glass, stairs lead to the offices created by the roof extension, where the space is only a little less hectic than the ground floor has led one to suspect. In the middle of it all is the cocoon, which is half-suspended, half-built-up from the framed steel structure that transfixes it and supports the glass roof. Van Egeraat conceived this object as an Airstream mobile home, a piece of sleek modernity floating above the old building, but as the curved volume softened and became more irregular, it began to be known as the Whale.

Inside this blob, the atmosphere changes again. Its lower level contains a lounge for mental relaxation and its upper level, a boardroom; the two floors are reached by separate staircases. Both rooms recover the serenity that van Egeraat seems elsewhere at such pains to destroy. Angularity gives way to curves, and contrasts merge into unifying devices. While the lounge is a dark, womblike little space, the boardroom is bright and daylit, with an inspiring view of Budapest's domes, chimneys, and

FACING PAGE, TOP: Grid of steel beams supports cocoon and roof. **FACING PAGE, BOTTOM:** Original stone staircase becomes steel and glass on fourth floor. **SECTION:** Van Egeraat added top two floors and roof-level boardroom to existing masonry structure.



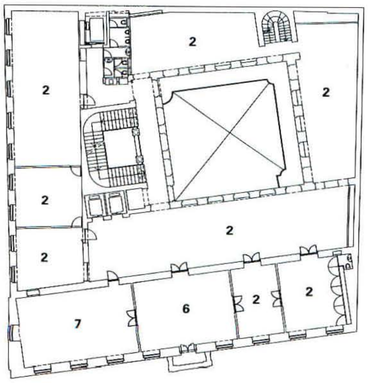
spires. Its laminated timber ribs are another surprise, contrasting with the steel-and-glass elevator to combine the natural and the mechanical.

All this might look like willful self-expression, a case of an architect imposing his ego on an historic building and its hapless users. But van Egeraat's intervention is not as irrational as it seems. While there is no special reason that few of the roof's glass sheets are perfectly rectangular, the architect's free-thinking approach enhances the functional office floors with daylight and spatial discovery.

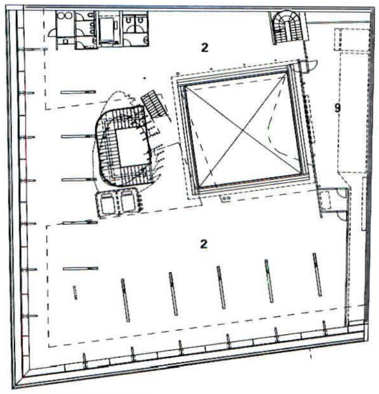
Most importantly, the design heightens qualities latent in the program. The restored lower floors are reserved for ING Bank and are accordingly sober in character; the new upper floors and playful cocoon correspond to the more energetic world inhabited by the insurance company. By exposing rather than suppressing these differences, and adding more contradictions, van Egeraat has created an invigorating building with none of the stultifying blandness that is the curse of office architecture all over the world.—*Rowan Moore*

Rowan Moore is editor of Blueprint *in London.*

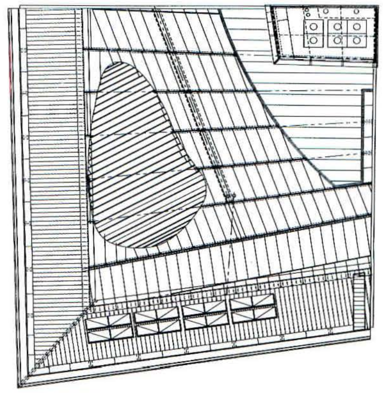
FACING PAGE: Cocoon's base hovers above central stairwell; stainless steel posts support mansard roof. **TOP:** Lunchroom on attic mezzanine floor is daylit by skylight and mansard windows. **ABOVE:** Boardroom is framed in ash ribs with fabric panels.



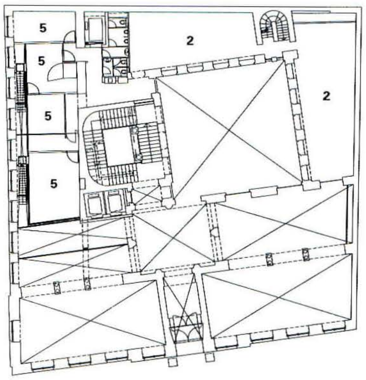
SECOND FLOOR PLAN



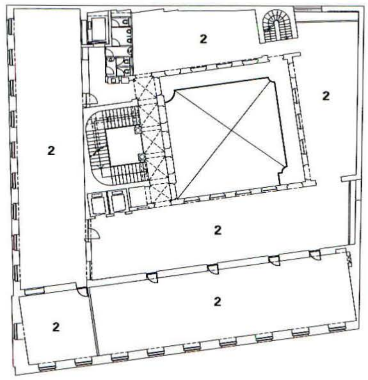
ATTIC FLOOR PLAN



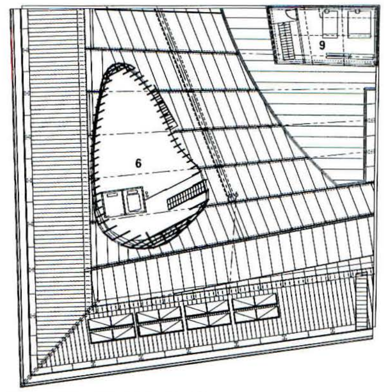
ROOF PLAN



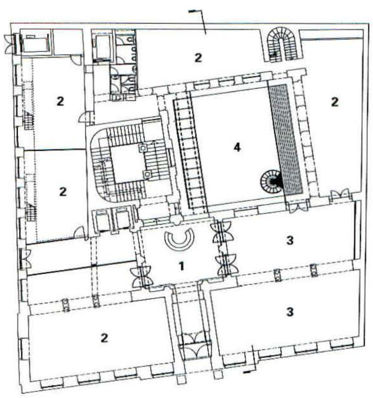
MEZZANINE FLOOR PLAN



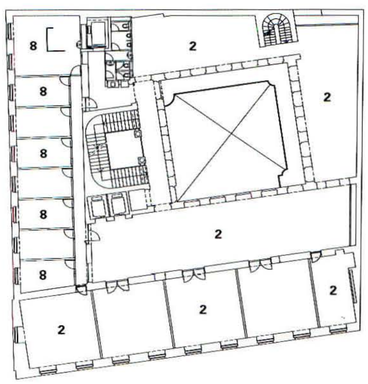
FOURTH FLOOR PLAN



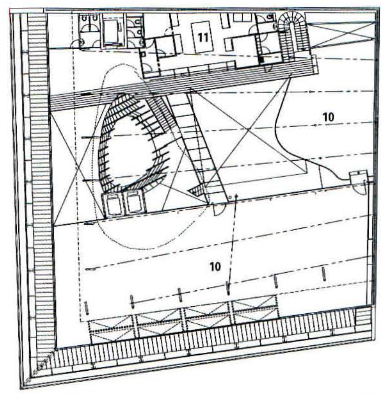
BOARDROOM FLOOR PLAN



FIRST FLOOR PLAN



THIRD FLOOR PLAN



ATTIC MEZZANINE FLOOR PLAN 20'/6m

PLANS: Bank occupies ground to fourth floors; insurance company's offices begin at attic addition.
FACING PAGE, TOP: Steel structure of table echoes wood-framed ceiling.
FACING PAGE, BOTTOM: Cocoon's lower level is reserved for mental relaxation.

NATIONAL-NETHERLANDS COMPANY
BUDAPEST, HUNGARY

ARCHITECT: Erick van Egeraat Associated Architects with Savany & Partners—Erick van Egeraat, Tibor Gall (project architects); Maartje Lammers (assistant architect); Astrid Huwald, Gabor Kruppa, Janos Tiba, Stephen Moylan, William Richards, Ineke Dubbeldam, Ard Buijsen, Miranda Nieboer, Harry Boxelaar, Axel Koschany, Tamara Klassen (project team)

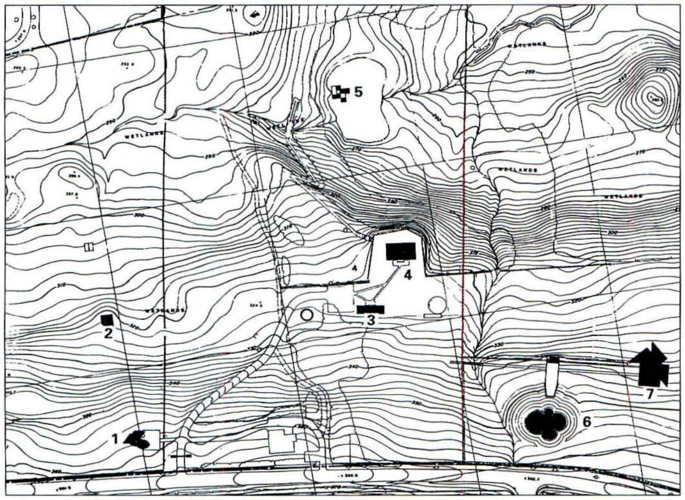
ENGINEERS: ABT Adviesburo voor Bouwtechniek (structural); Ketel Raadgevend Ingenieurs (mechanical/electrical)
COST ESTIMATOR: Munk Dunstones
GENERAL CONTRACTOR: CFE Hungary Epitöipara
COST: $6.38 million
PHOTOGRAPHY: Christian Richters, except as noted

1 LOBBY
2 OFFICE
3 BANKING HALL
4 OPEN TO BELOW
5 TECHNICAL ROOM
6 BOARDROOM
7 DEALING ROOM
8 MEETING ROOM
9 MECHANICAL
10 LUNCH ROOM
11 KITCHEN

SCAGLIOLA / BRAKKEE PHOTOS

The Gatehouse
New Canaan, Connecticut
Philip Johnson, Architect

Philip's Folly



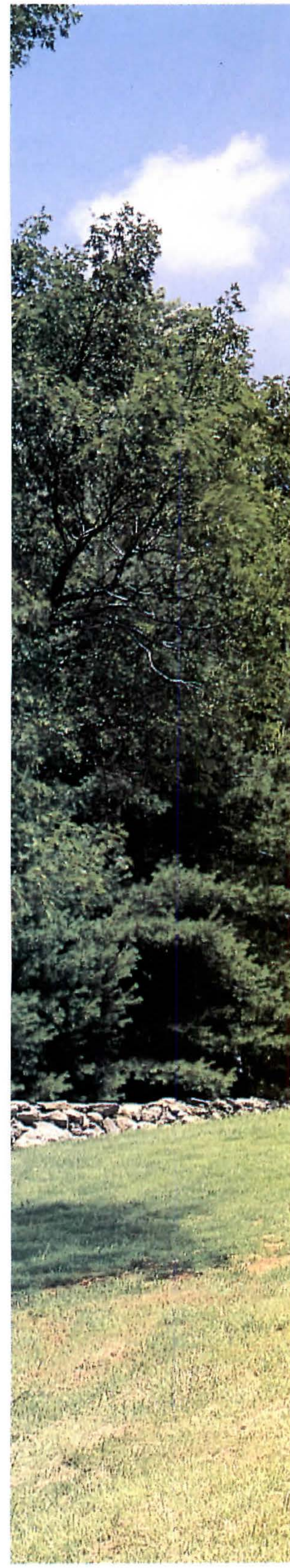
SITE PLAN 150'/45m

Philip Johnson has been designing his New Canaan, Connecticut, estate for nearly 50 years. Beginning with the Glass House (1949), Johnson has treated his 40 acres as a laboratory for his continuing architectural experiments. Eight follies act as a timeline of postwar architecture, marking Modernism's transformations. In addition to the Glass House, they include the Guest House (1950), lakeside Pavilion (1962), underground Painting Gallery (1965), multilevel Sculpture Gallery (1970), turreted Study (1980), chain-link Ghost House (1984), and Lincoln Kirstein Tower (1988).

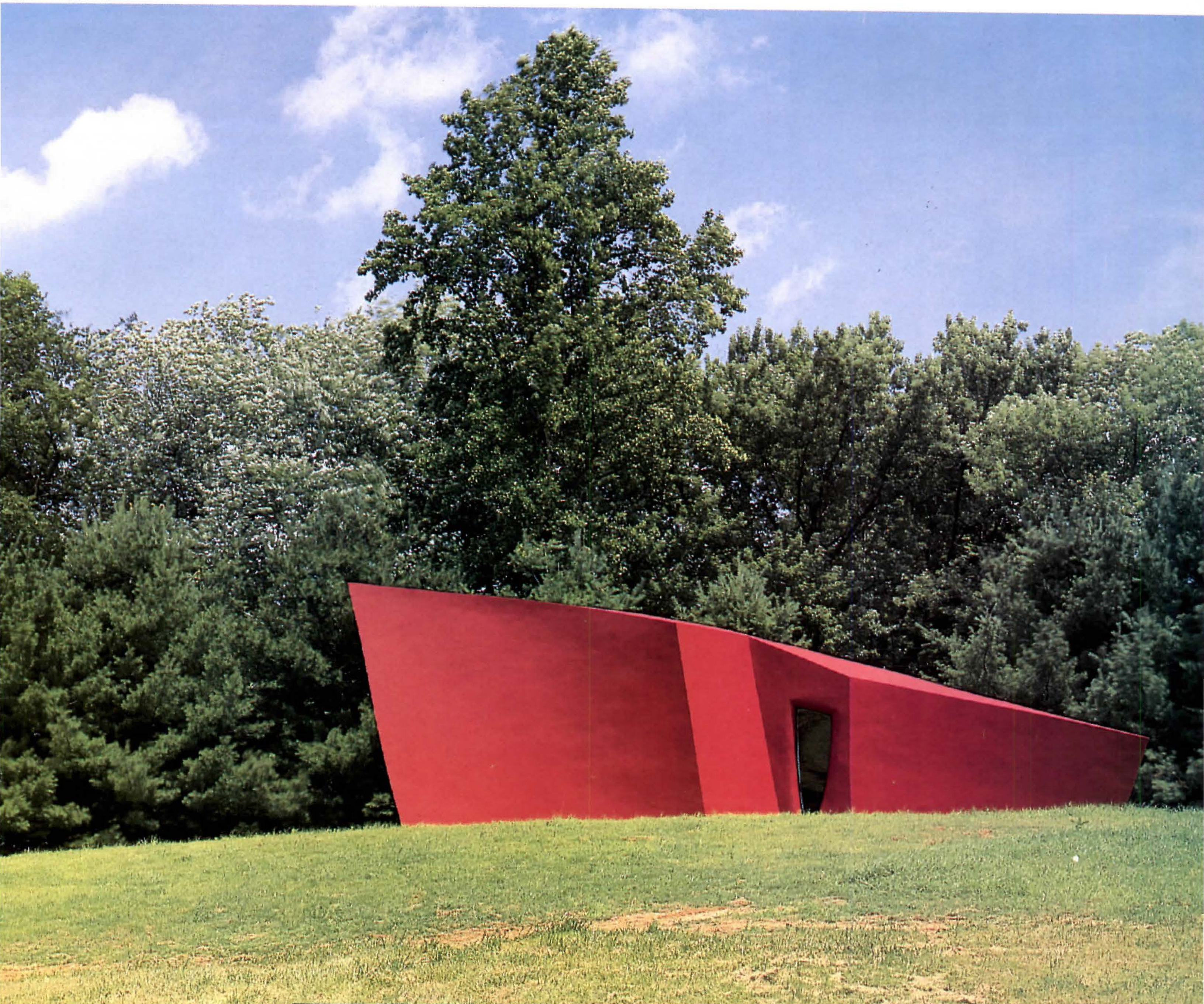
This summer, the 89-year-old architect unveiled his ninth experiment, which he claims will be his last addition to the New Canaan property. Painted lipstick-red and black, this insouciant, inhabitable sculpture marks a clear departure from its more somber precursors. "It's red because red barns are universal in the Connecticut countryside," Johnson says, "The shapes do all the work." All angles and curves, the folly's knife-edged walls jut up to form a ship's prow, pointing the structure toward the center of the property. Officially, the architect calls the building the Gatehouse, and unofficially, the Monster. "It looks so alive," he explains with an impish grin, "I pat it every morning."

Placed just inside the estate's entrance, the three-room structure will serve as an orientation center for the property, which will be owned by the National Trust for Historic Preservation after Johnson dies. Rather than allow visitors to drive directly onto the estate, located in an exclusive residential area, the Trust plans to direct them to the historical society in downtown New Canaan. From there, small groups will travel by van to the new Gatehouse, where they will view a video on Johnson before touring his collection.

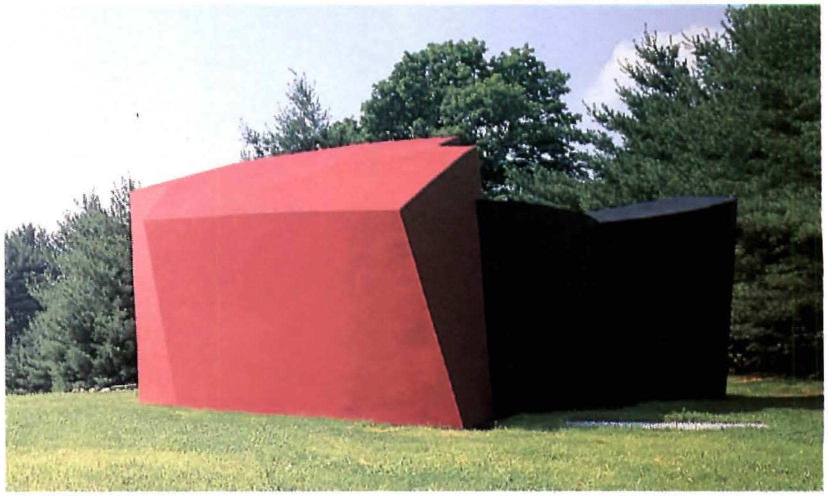
The new building is entered through a glass door recessed into a curved depression under the prow, which resembles a thumbprint pressed into the concrete. Like all the structures added after the Glass House, the Gatehouse appears solid, allowing



SITE PLAN: Estate includes Gatehouse (1), Study (2), Guest House (3), Glass House (4), Pavilion (5), Painting (6) and Sculpture (7) *galleries.* **FACING PAGE:** Monster's only window faces Study. **FACING PAGE, BOTTOM:** Glass House is still property's best building.



EZRA STOLLER / ESTO



the transparent Miesian pavilion to remain the deserved focal point of the estate.

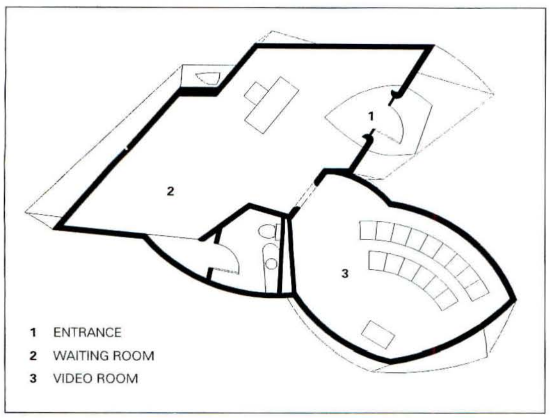
The folly's twisted, bent form is "constructed like a swimming pool," explains Johnson. An Italian system of steel mesh over insulation, reinforced with rebar at the corners, is sprayed with concrete and finished in waterproof acrylic.

While the Gatehouse's shell is taut and inscrutable, its interior opens up into a myriad of slanting angles. The only flat surface is the floor, which is dotted with recessed fixtures that cast dramatic shadows within the cavelike rooms. To the left of the main waiting room, an opening shaped like a shark's fin leads to the video screening room. To the right, the building's lone window frames a view of the whitewashed Study. Nine feet high in its lowest reaches, 21 feet high at its prow, the interior is at once spatially exhilarating and spooky: Ronchamp Chapel meets the Cabinet of Dr. Caligari.

The unorthodox form of the building represents Johnson's current fascination with non-Euclidean geometries. "It's emotional and antirational," he maintains of his new post-Burgee direction. Like his best work, the twisted little building shows off the architect's peripatetic interest in history. It is inspired by the computer-generated forms of Frank Gehry and Peter Eisenman, German Expressionism, and the sculptural collages of Frank Stella. Clearly evident, too, is a link to the colorful dynamism of Zaha Hadi, whose drawings were shown in "Deconstructivist Architecture," which Johnson curated in 1988 at the Museum of Modern Art.

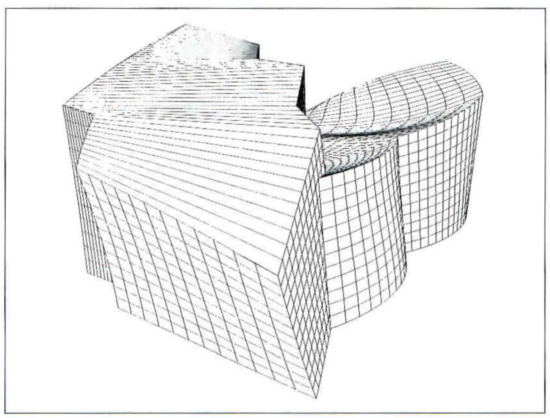
The Monster, however, is domesticated. It is a tame, small-scale version of the current avant-garde and breaks no new ground. Its real significance is its place within the remarkable historical ensemble begun with the Glass House. From the strictures of the International Style to the freedom of non-Euclidean forms, the New Canaan estate encapsulates Johnson's chameleonlike ability to cast off old ideas for new ones. The Gatehouse brings the estate's Modernism-in-miniature up to the present, completing Johnson's architectural autobiography with a colorful exclamation point.

FACING PAGE: Visitors enter Gatehouse under 21-foot-high prow. **TOP:** Constructed of steel mesh sprayed with concrete, folly's waiting area is painted red; video and rest rooms are black. **ABOVE:** Taut abstraction renders exterior almost scaleless.



FLOOR PLAN

6'/1.8m



For visitors, the property provides the rare opportunity to experience a collection of buildings designed by one architect over nearly five decades. Moreover, tours will be accompanied by Johnson's taped narration, a unique offering in the interpretation of historic houses. Though seemingly at odds with its purpose, the disorienting Gatehouse provides a perfect orientation to this mercurial architect and his shifting views.—*Deborah K. Dietsch*

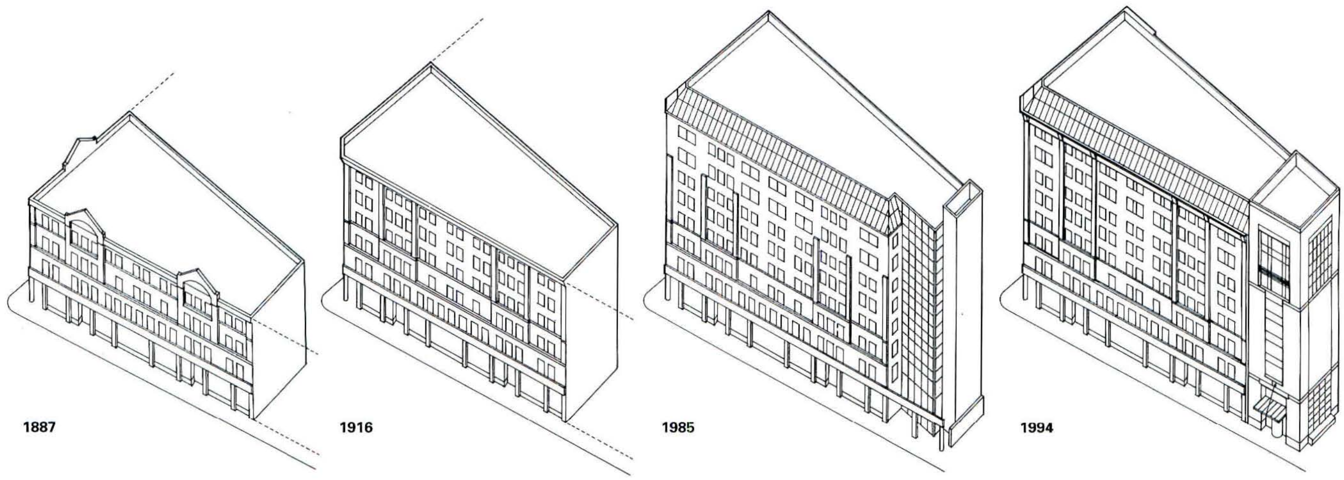
THE GATEHOUSE
NEW CANAAN, CONNECTICUT

ARCHITECT: Philip Johnson, Architect, New York City—Philip Johnson (principal); John Manley (senior designer); David Harrison (project architect)
ENGINEER: Ysrael A. Seinuk (structural)
CONSULTANT: Claude Engle (lighting)
GENERAL CONTRACTOR: Louis Lee Company
COST: Withheld at owner's request
PHOTOGRAPHY: Michael Moran, except as noted

TOP: Glass entrance door is recessed into curved surround with granite sill. **PLAN AND DRAWING:** Design of Gatehouse was computer-modeled to work out dimensions. **FACING PAGE:** Angular main space is lit by one window, entrance, and floor fixtures.

Combined Jewish Philanthropies Headquarters
Boston, Massachusetts
Leers Weinzapfel Associates

Urban Heart

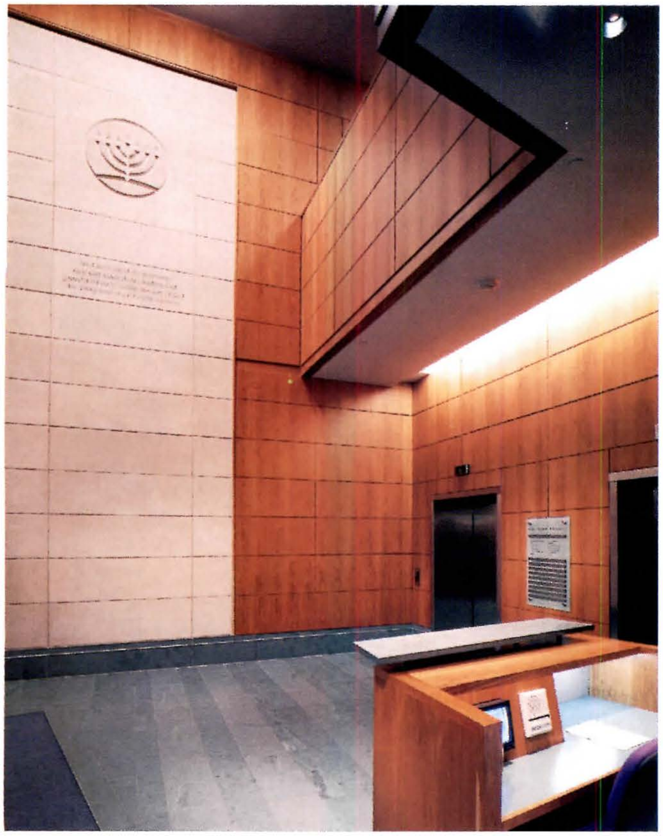


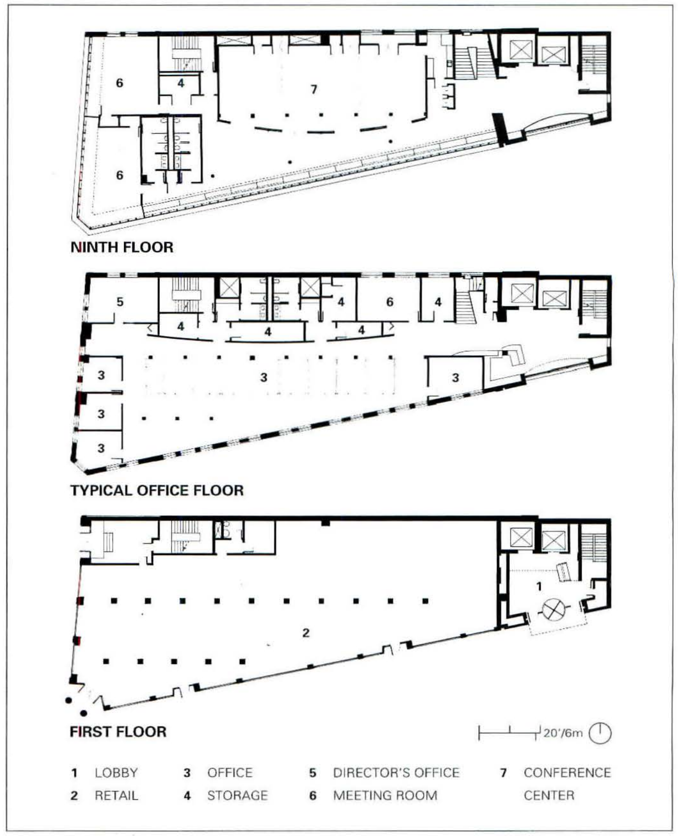
Originally established to offer free educational and employment services to Jewish immigrants, Boston's 100-year-old Combined Jewish Philanthropies (CJP) could have followed its constituency to the suburbs. The charity had outgrown its downtown headquarters, and its leaders, who include some of the city's most influential developers, briefly considered a new suburban site with ample parking. But for an agency that describes its mission as following, in the words of God's mandate to Abraham, "the way of righteousness and justice," remaining part of the downtown economy was a natural decision.

In 1993, CJP purchased a nine-story brick wedge of an office building within Boston's cheek-by-jowl financial district. Leers Weinzapfel Associates, a local firm known for contextual urban design (ARCHITECTURE, February 1994, pages 48-53) was commissioned to renovate the 1887 building, which had been enlarged by two floors in 1916 and three more in 1985. A warren of partitions and jerry-built offices, the building required space planning for comfort and habitability as well as refurbishing for code compliance. More importantly, CJP wanted its headquarters to exhibit an urban identity that reflected its commitment to helping Boston's needy, regardless of religion.

Principal Andrea Leers and Associate Joe Pryse addressed this charge by unifying the building's main facades and anchoring its east end with a dignified stair, elevator, and lobby tower. The original structure's hodgepodge of floors resembled a triple-decker sandwich; to integrate them, the architects extended the building's 1916 piers to the top and added a metal cornice. They reproportioned windows in the newer additions to match those in the oldest part, and repointed three strata of different brick in mortar of a single unifying color. Where the north side of the building exhibited a raw, austere party wall, they crafted a new facade, penetrated by windows, that echoes the south side's bays and storefronts.

DRAWINGS: Chronology shows stories added in 1916 and 1985; Leers Weinzapfel revamped east and north facades and entrance tower. **FACING PAGE, LEFT:** Base of tower defines park. **FACING PAGE, RIGHT:** New tower houses lobby, elevator, and stair.





Leers and her team reserved their boldest gesture for the narrower and more public end of the wedge, where they widened a 1985 entrance and elevator tower to create more lobby space on every floor. With this stately tower, the building avoids the spec-office mold of its neighbors, evoking instead the decorous character of a library or university. At the tower's top, broad windows overlook the noisy thoroughfare; at street level, limestone panels are inscribed with words from an ancient prayer: "Charity, blessing, compassion, life, and peace." Because the tower's eastern facade defines an existing vest-pocket park, the architects carefully detailed its parkside brick facade to give the tiny plaza a more commanding civic presence.

Leers and Pryse dealt with the interior's numerous columns and 6,000-square-foot trapezoidal floor plate by bracketing open-plan offices with enclosed offices at the east and west ends. On floors two through eight, they gathered mechanical equipment and services behind a curved maple wall along the windowless northern side. The ninth floor is designed as a large, 100-seat conference center whose movable partitions allow the open space to be divided into three seminar rooms.

CJP's gift to Boston lies in the decision to keep workers downtown, contributing to the economic strength and street life of the harbor city. But with the assistance of architect Leers Weinzapfel, the charity has accomplished even more: its new headquarters successfully preserves the financial district's historic character, defines a public square, and establishes an ennobling presence in the heart of the city.—*Heidi Landecker*

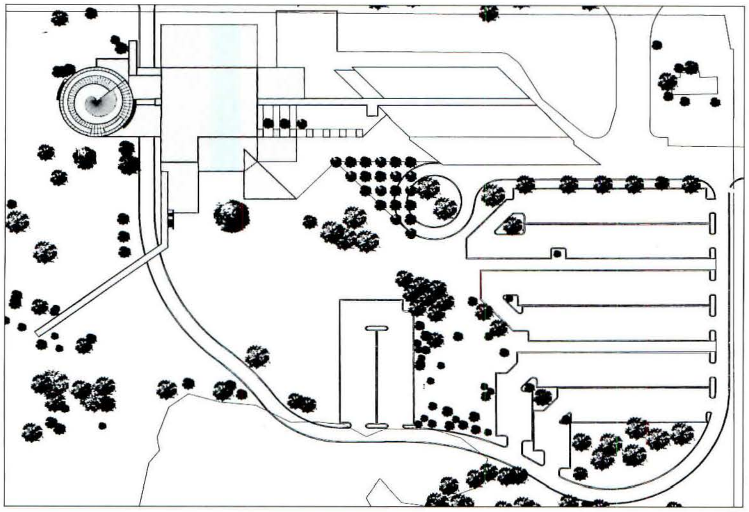
COMBINED JEWISH PHILANTHROPIES HEADQUARTERS
BOSTON, MASSACHUSETTS

ARCHITECT: Leers Weinzapfel Associates, Boston—Andrea P. Leers (principal-in-charge); Jane Weinzapfel (consulting principal); Joe Pryse (project manager); Brad Johnson, Stephanie Mashek (project architects); Ellen Altman, Mark Armstrong, Lisa Schmidt (project team)
ENGINEERS: Weidlinger Associates (structural); TMP Consulting Engineers (mechanical); Letendre Consultants (electrical)
CONSULTANTS: Dithmer Krabbendan (interiors); Coco Raynes (graphics); Cavanaugh Tocci Associates (acoustics); Preservation Technology Associates (historic preservation)
GENERAL CONTRACTOR: George B.H. Macomber
COST: $6.38 million
PHOTOGRAPHY: Steve Rosenthal

ABOVE: Mezzanine overlooks small cherry-paneled lobby with slate floor; limestone panel will be etched with donors' names. **FACING PAGE:** Conference-room doors fold to offer openness or privacy. **FACING PAGE, BOTTOM:** Maple wall conceals services.

Museum of Science and Industry
Tampa, Florida
Antoine Predock Architect with Robbins Bell Kreher Architects

Sculptural Sequence



SITE PLAN

80'/24m

Tampa's Museum of Science and Industry (MOSI) looks like a lost prop from a science-fiction epic: part transparent Tinkertoy and part gleaming white solid, both appended to a glassy sphere. It is an appropriate image for a museum that in July opened its major expansion with an exhibition of the technology derived from television's classic sci-fi program "Star Trek." The new building, Antoine Predock's first major commission in the Southeast, more than triples the museum's original facility, which was completed in 1982 by the Tampa-based firm of Rowe Architects.

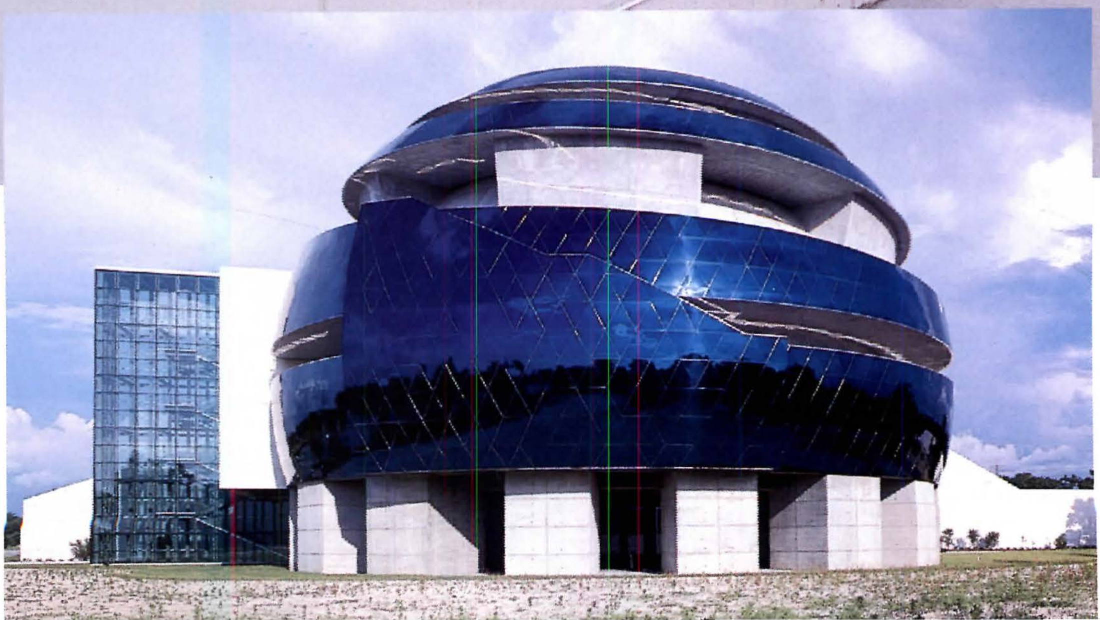
Rowe's award-winning design is a post-oil-crisis essay in energy efficiency that houses most of its exhibits in passively cooled and heated, semiexternal spaces. The striking building synthesizes agricultural archetypes, Modern structural exhibitionism, and contemporary ecology, embodying the museum's environmentally and socially conscious spirit.

Fourteen years ago, the Rowe building helped make MOSI an instant, unmitigated success as an institution, outstripping all projections for attendance and income. Located in suburban north Tampa, the 65,000-square-foot building unfortunately was unable to keep up with the crowds, falling victim to its own popularity. Its passive energy systems proved insufficient for the comfort of many visitors, everyday maintenance was too expensive, and exhibit flexibility was rapidly overwhelmed by the sheer number of people. By 1990, MOSI's board of directors began planning for more space—and this time it would be air-conditioned, fully enclosed, and expandable.

Although the museum had outgrown both the concept and the execution of the 1982 building, the original structure remained well liked and influential. Most importantly, the positive experience with Rowe Architects had convinced the institution's authorities that significant architecture was a significant part of its success. Rather than start from scratch, MOSI's directors raised $35 million for an addition to the original building. A national

SITE PLAN: Predock's addition extends 1982 building to west; wetlands abut MOSI to south. **FACING PAGE, TOP:** Cored dome houses Omnimax theater. **FACING PAGE, BOTTOM:** Sloping forms provide visual link between addition (right) and original (left).

GEORGE COTT



search was undertaken to secure "a world-class architectural monument for Tampa, something that would keep us on the leading edge," as MOSI President Wit Ostrenko describes the ambitious criteria with which the board evaluated designs for the proposed new museum. After an extensive review of qualifications, involving such distinguished offices as Richard Meier, Frank Gehry (with Rowe), and Cambridge Seven, Antoine Predock Architect, in association with Tampa-based Robbins, Bell & Kreher Architects, was selected to complete an addition of 135,000 square feet.

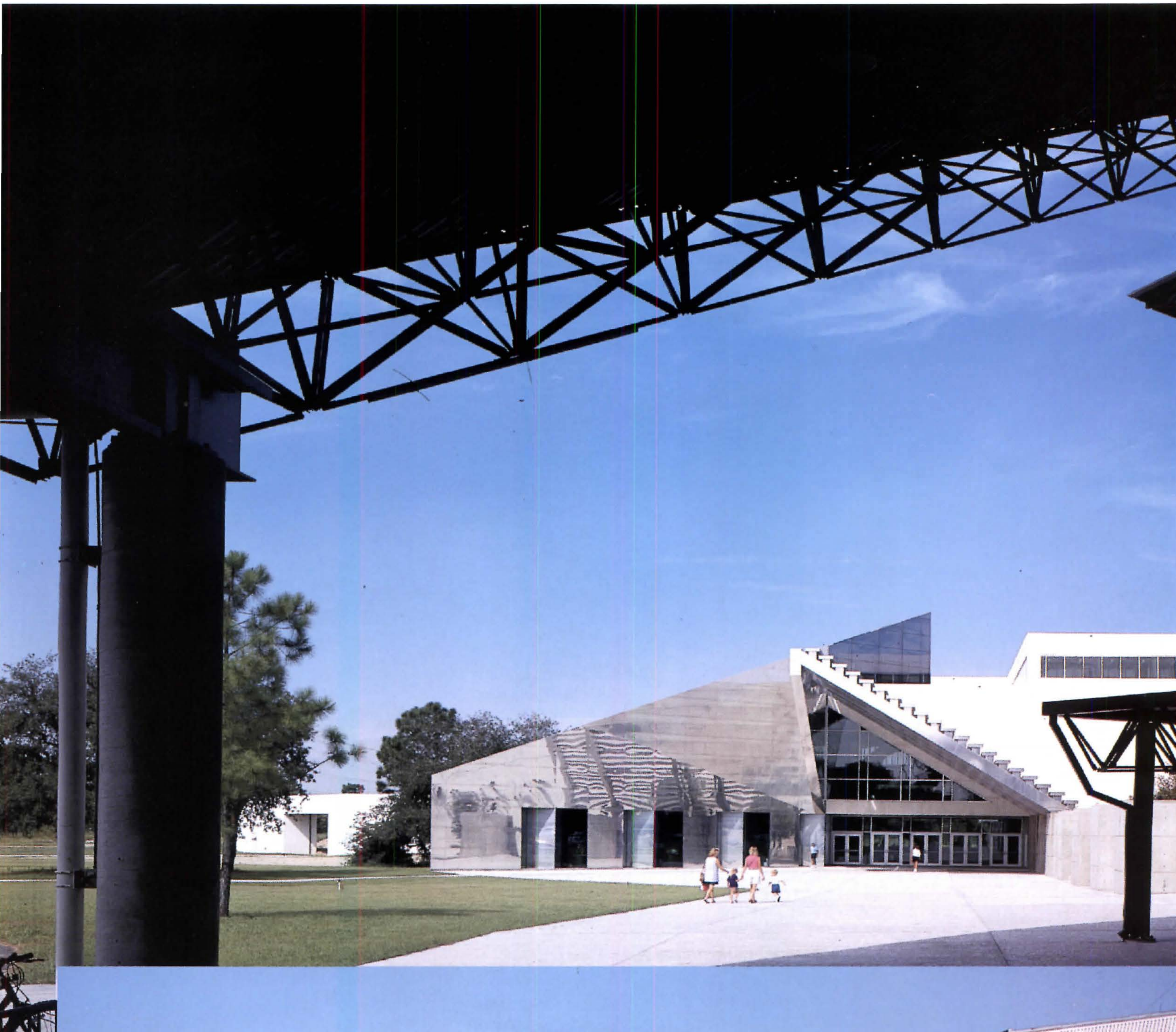
Located on a grassy site across from the University of South Florida, Predock's addition draws on the physical form of Rowe's building to establish kinship. Most vivid is the massive aluminum-wrapped entrance pergola, a stair-stepped, broken shed jutting dramatically toward the original museum's rakish split canopy. That split becomes the center of alignment for Predock's addition, which he culminates in the floating exclamation point of a spherical Omnimax theater.

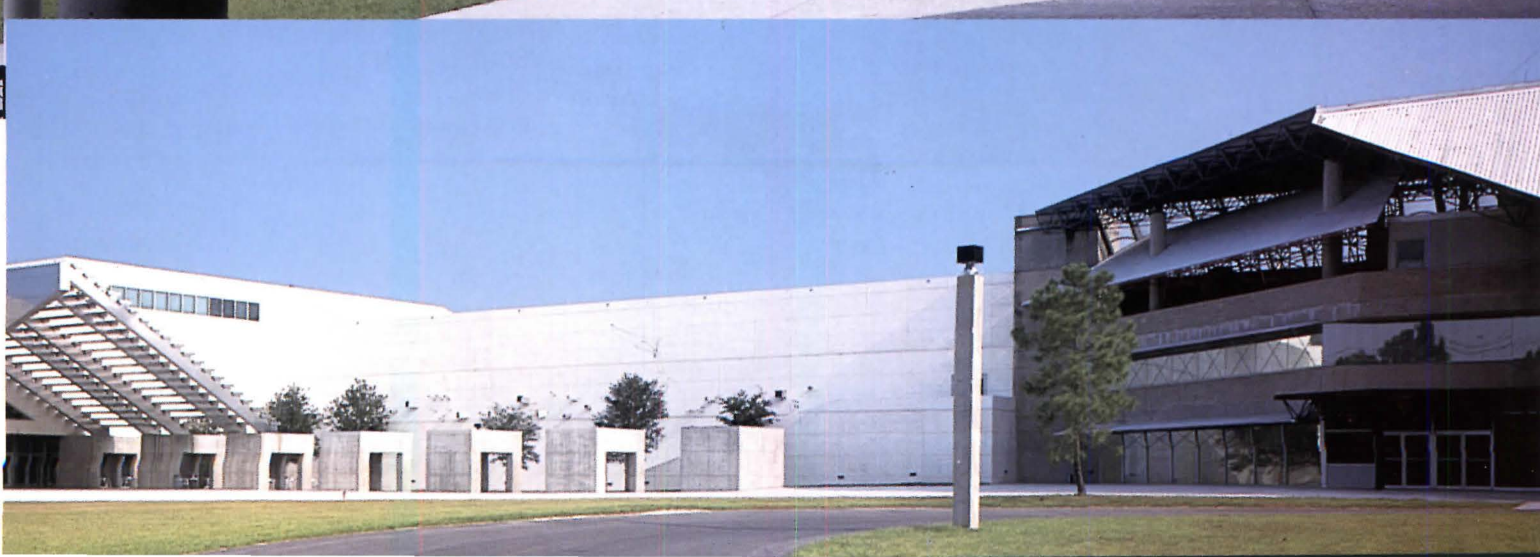
Predock also recalls Rowe's extended porch in his sloping exterior walls and metal detailing. Particularly striking is the recycled, polished aluminum in which he wraps both the pergola and adjoining gift shop. The metal has a machined, industrial quality, a clean formality that appropriately bespeaks the ceremony of arrival.

The Rowe inheritance, however, is not a trust fund, and the Predock/Robbins, Bell & Kreher addition quickly establishes itself as MOSI's dominant offspring. "There is an experiential link to Rowe's assemblage, yet also a purposeful duality," Predock asserts. While the earlier building is a lightweight, tectonically expressive kit-of-parts, Predock's new structure is a solid, sculptured mass of concrete. The original museum hovers storklike above the marshy ground. Predock's sinks like a turtle below the surface, raising only its steely blue head to survey the territory.

These distinctions reflect a profoundly different understanding of Florida's physical and architectural context. Predock's environmental responsiveness is grounded in a more phenomenological interpretation of site variables than is his predecessor's: Rowe's building is climate-centered, Predock's more concerned with reading the land. "There is a tectonic way to achieve the light 'Florida' building. Rowe's does that," explains Predock.

FACING PAGE, TOP: Pedestrian walkway connects museum to nature trails. **FACING PAGE, BOTTOM:** Theater is clad in stainless steel panels. **ABOVE:** Predock choreographed visitors to drive under museum, then circle back through wetlands to parking lot.





"Then there is the attitude of lightening a building, making it perceptually transparent. Ours does that."

The new museum is literally lightened by being rendered in shades of white, silver, and reflective blue, at once both gauzy and sparkling—concrete evocations of the Gulf of Mexico's sand, water, and sky. The entrance dematerializes in its skin of shiny aluminum and slotted shadows cast by the pergola, a shimmering cascade of light. White architectural concrete pushes in and around, forming a bright nimbus in a landscape of green. Predock picks up the grassy site and drags it up one side of his addition, effectively halving its mass from the north. He slices through the building's lobby and circulation core with glazing, offering visitors carefully calibrated contact with the surrounding landscape while appearing to break down the mass even further.

its truncated pyramidal forms, great sweeps of concrete, and bulbous Omnimax theater. Predock's chopping, colliding, sculptural vistas often seem as if they are taking form before our eyes, yet have somehow always been there—an enigmatic duality that provides a satisfying architectural analogue to the processes of natural science and industry.

Other Predock trademarks are also manifest in the Tampa museum, notably his fascination with procession, or the "choreographic imperative," as the architect calls it. Visitors drive onto the site from a boulevard of strip malls that gives way momentarily to a greensward containing the University of South Florida on one side and the museum on the other. They enter MOSI through the building's neck, which connects the Omnimax theater to the exhibit halls, and proceed through a glassy

Predock engages that landscape in other ways to moderate his building. MOSI sits hard against a wetlands preserve carved out of surrounding suburbia. The new building walls the site off from the boulevard to its north, then extends a long, elegant arm out to the edge of the wetlands. This graceful linkage—a classic Predock device—camouflages the addition's overall mass by offering a distracting, disarming gesture to the landscape.

Predock's architecture has always been Corbusian in its fascination with Platonic solids, inspired by the Modernist's definition of architecture as the "masterful...play of volumes in light." The New Mexico architect typically alchemizes Le Corbusier's inheritance through his embrace of the West's staggering landscapes, and MOSI is no exception, with

area that permits glimpses into the museum and a full view of the outdoor theater space located beneath the dome. Once through the neck, drivers pass under a pedestrian bridge leading to the trailheads at the periphery of the adjacent wetlands. They then meander through the wetlands, finally bursting forth from the woods to view the full length of the museum, a millennial sculpture poised at the edge of the primeval landscape through which they have just traveled.

This vintage Predock journey is echoed by the twisting, unstructured circulation path within his building. Rendered in a grid of construction-grade concrete with architectural concrete infill panels, the interiors are mostly black-box spaces designed to accommodate playful, overscaled exhibits. Predock

FACING PAGE, TOP: Entrance canopy recalls geometry of Rowe Architects' shed. **FACING PAGE, BOTTOM:** Predock extended architectural concrete-faced corridor to original building (right). **ABOVE:** Cubic concrete pavilions provide shaded seating areas.

stacks them in open-ended trays overlooking a four-story atrium. The atrium also serves as lobby, circulation core, and view tower, a centralizing block of light anchoring an otherwise dark and pleasantly mysterious network of pathways and exhibit rooms.

The museum's exterior is dominated by the Omnimax theater, a cool blue, glittering stainless steel ball plugged into the western end of the complex. Predock's sphere appears to unravel as a spiraling ramp slopes upward and through it to a top-mounted viewing platform, a sort of deconstructing of the Geode at the City of Science and Industry in Paris's Parc de la Villette. The slicing also reveals that the inner shell of the theater and its skin are separate membranes.

The spiral coring of the orb is an educational explication of architectural tectonics, but it fails to disguise the fact that this end of the building seems awkward and overscaled. Set against the jagged jostling between the other forms of the addition, the unraveling sphere seems lost, spinning away in its own orbit. The sense of isolation is only enhanced by the contrast of its machinelike color and materials. The theater may be a Platonic solid, but its detached mien and desiccated mass isolate it from the rest of the composition.

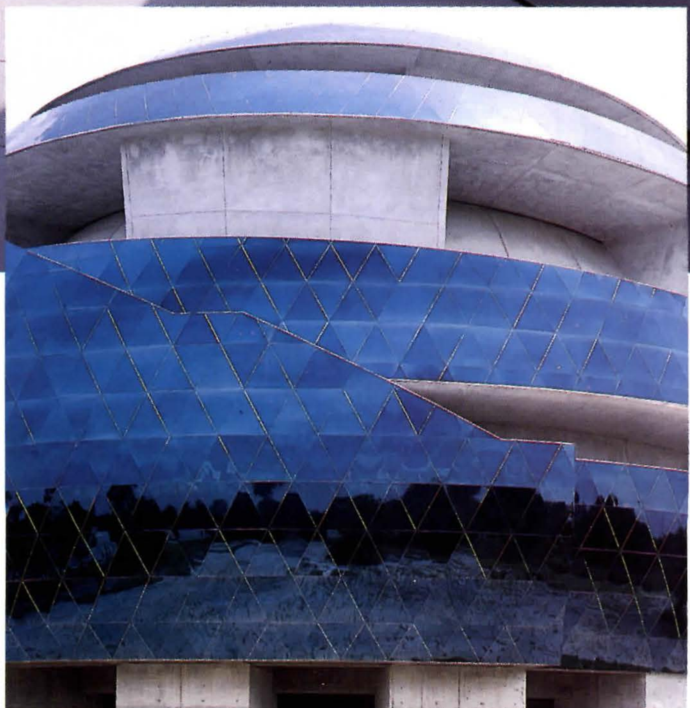
The slicing away of the dome is an interesting, singular concept, and as such is emblematic of MOSI's shortcomings. Despite many superb moments, such as the carefully choreographed procession, powerful entrance elevation, and sensuous juxtaposition of materials, the parts seem greater than the whole. The extended concrete gallery that connects the new and old buildings—intriguingly long and delightfully narrow, speckled with light from its inventive telescopic openings—terminates in a blank wall. The exciting decision to include a branch library in the museum is compromised by an underdeveloped space that seems more an afterthought than an integral part of the program.

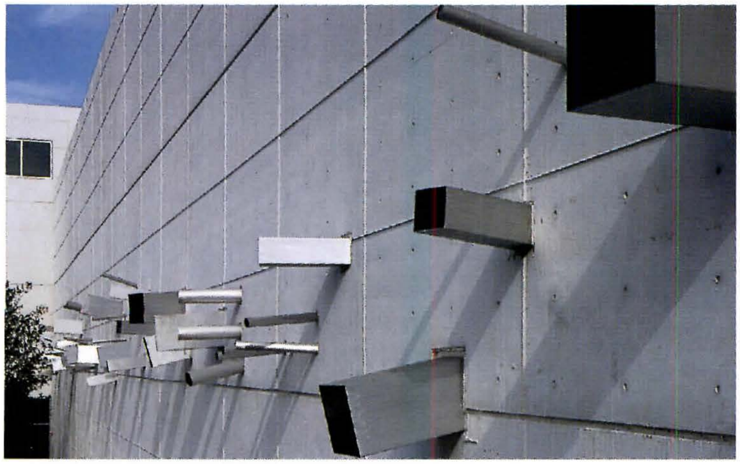
Finally, Predock seems out of his element in the flattened passivity of the central Florida landscape. His esthetic thrives on cataclysm and transcendence, whether in the jumbled concatenations of the city or the majestic immutability of the West. MOSI's suburban site offered the architect few such contextual reference points against which to position his design. As a result, the addition lacks the regionally inspired coherence for which Predock is so justifiably renowned.—*Reed Kroloff*

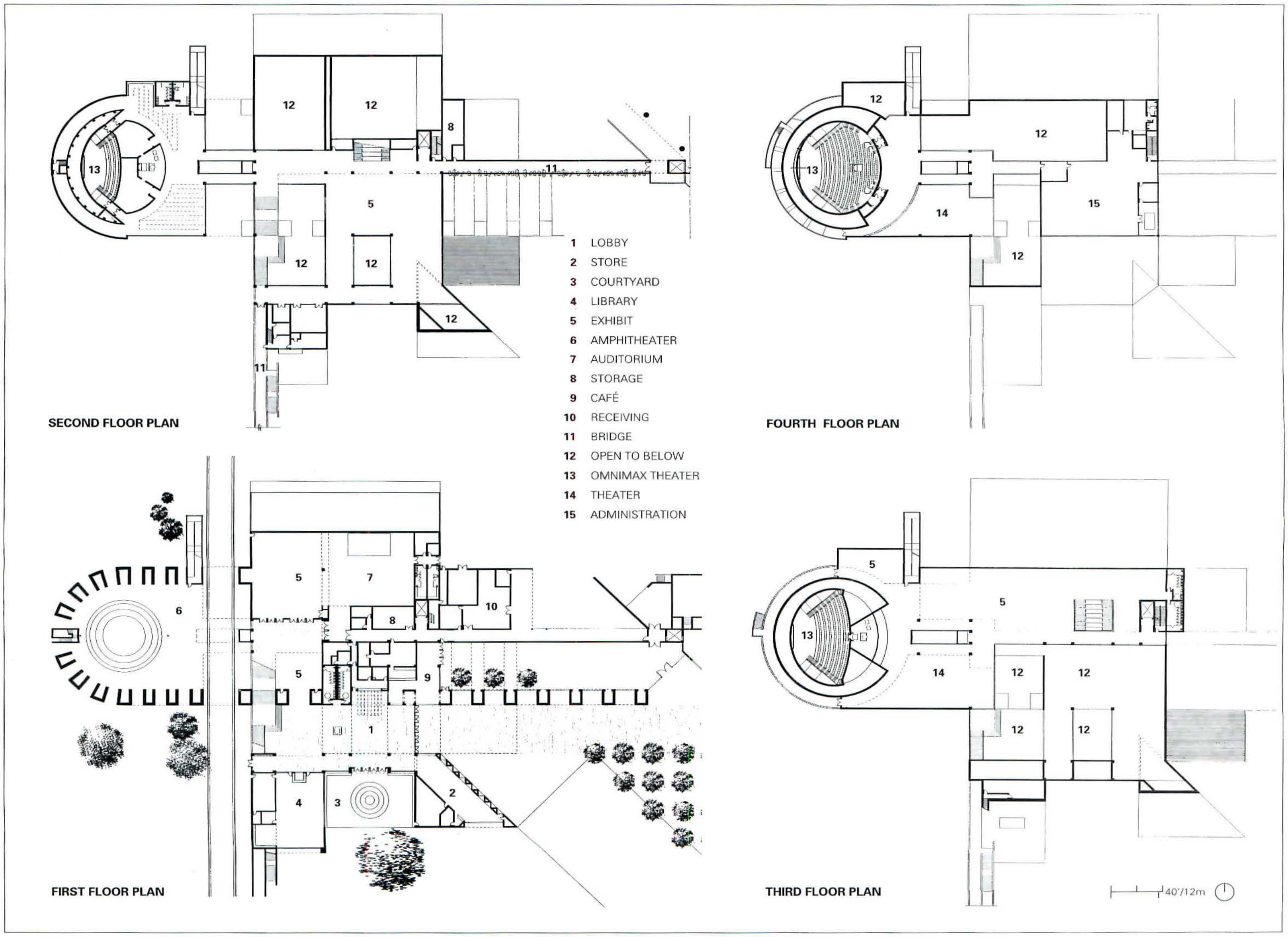
MUSEUM OF SCIENCE AND INDUSTRY
TAMPA, FLORIDA

ARCHITECT: Antoine Predock Architect—Antoine Predock (principal-in-charge); Derek Payne (associate-in-charge); Geoffrey Beebe (associate); Rebecca Ingram (project manager); A. Santiesteban, M. Donahue, D. Fisher, P. Gonzales, C.A. Idoine, D. Mishler, G. Newlands, S. Bald, T. Nichols, K. Howe, K. Osborn, C. Romero, D. Waldrip (project team)
ASSOCIATE ARCHITECT: Robbins, Bell & Kreher—Chris Bell, Eric Kreher (principals); William Dobson, Ann Robbins, Gary Jacquette (project team)
LANDSCAPE ARCHITECT: Heidt & Associates
ENGINEERS: Paulus Sokolowski & Sartor (structural); R. Douglas Stone (electrical/mechanical); Heidt & Assoc. (civil)
CONSULTANTS: Bertram Y. Kenzey, Jr. (acoustics); Pat Finelli, Richard Couldrey (theater); A. Zahner (metal)
GENERAL CONTRACTOR: Batson-Cook
PHOTOGRAPHER: Timothy Hursley, except as noted

ABOVE: Entrance canopy and museum gift shop (left) are wrapped in polished, recycled aluminum. **FACING PAGE, TOP:** Dome's spiral walkway offers views of Tampa. **FACING PAGE, BOTTOM:** Stainless steel panels are hung from steel substructure of dome.

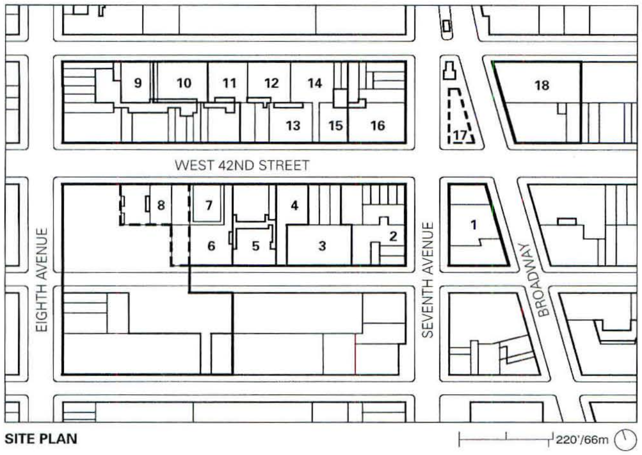






TOP LEFT AND RIGHT: Metal "view tubes" light passageway between addition and original. **PLANS**: Central spine connects new theater (left) and galleries (right) to 1982 building. ***FACING PAGE, TOP***: *Staircase leads to galleries stacked around four-story lobby.* **FACING PAGE, BOTTOM**: Lobby offers views into exhibits and of wetlands outside.

Times Square Revival



SITE PLAN

1. STREET-LEVEL RETAIL AND RESTAURANTS UNDER CONSTRUCTION; FOX & FOWLE ARCHITECTS, THOMPSON & WOOD. COMPLETION DECEMBER 1995.
2. RENOVATION OF NORTHWEST CORNER FOR 20,000-SQUARE-FOOT DISNEY STORE; FOX & FOWLE ARCHITECTS, THOMPSON & WOOD. COMPLETION 1996. STRUCTURES ON SOUTHERN EDGE TO BE DEMOLISHED FOR PARKING LOT.
3. NEW AMSTERDAM THEATER (1903) UNDER RENOVATION BY HARDY HOLZMAN PFEIFFER FOR DISNEY. COMPLETION 1997.
4. CANDLER BUILDING (1914) TO RETAIN COMMERCIAL USE.
5. HARRIS THEATER (1914) PLANNED AS PART OF AMC THEATERS/MADAME TUSSAUD'S WAX MUSEUM ENTERTAINMENT COMPLEX. COMPLETION 1998.
6. LIBERTY THEATER (1904) PLANNED AS PART OF AMC/TUSSAUD'S ENTERTAINMENT COMPLEX. COMPLETION 1998.
7. EMPIRE THEATER (1913) PLANNED AS PART OF AMC/TUSSAUD'S ENTERTAINMENT COMPLEX. COMPLETION 1998.
8. BLIGHTED COMMERCIAL SITES PLANNED AS PART OF AMC/TUSSAUD'S ENTERTAINMENT COMPLEX. COMPLETION 1998.
9. TISHMAN/WALT DISNEY HOTEL COMPLEX DESIGNED BY ARQUITECTONICA. COMPLETION 1998.
10. CARTER HOTEL TO RETAIN CURRENT RESIDENTIAL USE.
11. SELWYN THEATER (1918), REUSE PROPOSALS PENDING.
12. APOLLO THEATER (1920) PLANNED AS PART OF LIVENT ENTERTAINMENT COMPLEX. COMPLETION 1997.
13. TIMES SQUARE THEATER (1920) PLANNED AS POSSIBLE HEADQUARTERS FOR MTV NETWORK; LEASE PENDING.
14. LYRIC THEATER (1903) PLANNED AS PART OF LIVENT ENTERTAINMENT COMPLEX. COMPLETION 1997.
15. VICTORY THEATER (1901) TO REOPEN DECEMBER 1995.
16. STREET-LEVEL RENOVATION UNDER WAY FOR RETAIL; FOX & FOWLE, THOMPSON & WOOD. COMPLETION NOVEMBER 1995.
17. ONE TIMES SQUARE BUILDING; ORIGINALLY TIMES TOWER, DESIGNED BY EIDLITZ & MACKENZIE (1904).
18. STREET-LEVEL RENOVATION UNDER WAY FOR RETAIL. FOX & FOWLE; THOMPSON & WOOD. COMPLETION THIS MONTH.

The curtain is rising once again on New York's Times Square. After 15 years of false starts, a set of high-stakes development deals finally crystallized last summer on the honky-tonk stretch of West 42nd Street between Broadway and Eighth Avenue. Most prominent is a Walt Disney-sponsored scheme for a 47-story, $300 million hotel designed by Arquitectonica, on the current site of the Times Square Adult Shopping Center. Next month brings the grand reopening of the Victory Theater—42nd Street's first pornographic movie house—restored by Hardy Holzman Pfeiffer Associates with live theater for young audiences. And new tenants are lining up on the block to take over the Times Square, Apollo, Lyric, Empire, Selwyn, Harris, Liberty, and New Amsterdam theaters.

The success of Times Square's second act rides on a combination of Disney magic and New York taxpayers' money. To date, Disney has placed its imprimatur on the hotel venture, a $34 million renovation of the New Amsterdam, and a 20,000-square-foot Disney retail store opening next fall. Given this sponsorship, 42nd Street's future seems safely grounded in family-oriented live theater, especially as Madame Tussaud's of London, Livent of Canada, and even MTV may follow Disney onto the block.

But in renovating Times Square, the tension between its vaudevillian past and high-tech future provokes questions about the area's character, not to mention cost. What is the best way to preserve a street whose essence is as much about garish signs and lights as it is about architecture? Is it best to plan a place whose visual grammar arises from commercial chaos? And what is it worth to reopen this shuttered block anyway?

Times Square's theater strip has been largely boarded up for five years, since the city-and-state-run Urban Development Corporation (UDC) committed $290 million—most of it developers' money—condemning

THOMPSON AND WOOD, INC.

FACING PAGE: Thompson & Wood's streetscape plan translates new signage requirements for 42nd Street. **FACING PAGE, BOTTOM:** Arquitectonica's proposed hotel complex steps up in scale with 4-story podium (foreground), 10-story volume of Disney units, and 47-story hotel tower.

ARQUITECTONICA

1 2 3 4 5

ADDISON THOMPSON

and seizing properties in order to close down Times Square's sex industry and its allied trades. The UDC's overarching plan is to eradicate vice on 42nd Street and supplant it with live, legitimate theater, harking back to the district's historical origins.

Built by impresarios like Oscar Hammerstein and the brothers Edgar and Arch Selwyn between 1900 and 1920, 42nd Street's theaters fast became the world's capital of live entertainment. But by the 1930s, when little money was left to pay actors, each theater surrendered to showing burlesque or films. The district grew steadily seedier after World War II, when people stopped traveling to Manhattan's heart to see a movie, preferring to watch television in the suburbs instead. Times Square could not compete with mass culture. In the 1960s, its pinball emporia, penny arcades, and dime museums yielded to porn shops, peep shows, and prostitutes. By 1987, with five crimes per day on 42nd Street, Times Square had become a net drain on New York's economy.

Originally, 42nd Street's theaters were going to be restored as part of a deal to build four office towers, designed by Philip Johnson and John Burgee Architects, at the intersection of 42nd Street, Seventh Avenue, and Broadway—the "crossroads of the world." According to the 1980 deal struck between the UDC and the developer, a joint venture of Park Tower Realty and the Prudential Insurance Company, taxes paid by the tenants of the 4 million-square-foot office complex would be set aside for theater renovations in exchange for the transfer of the theaters' collective air rights to the tower sites.

However, the New York real estate market crashed before anybody could build anything. The UDC had to face reality—an overbuilt Midtown with vacancy rates at 17 percent in 1992—and needed a better way to redevelop the theaters and a new plan for the tower sites. In 1992, the agency decided to change direction. Control of the theater properties was turned over to a new independent body, called the New 42nd Street ("the New 42"), which today holds 99-year leases on every theater except the Harris (reportedly in the works) and enforces strict preservation guidelines when commissioning their reuse.

The second pivotal event in the rebirth of Times Square was the UDC's persuasion of Park Tower and Prudential in 1992 to stop focusing on their economically improbable tower plan, and chip in another $30 million

6 7 8 9 10 11

MICHAEL MORAN PHOTOS; MUSEUM OF THE CITY OF NEW YORK; ADDISON THOMPSON; MUSEUM OF THE CITY OF NEW YORK

to pursue interim development of the tower sites. This sum would be in addition to the $241 million the developers paid the UDC to condemn the sites in the first place: the check, dated April 1990, still proudly hangs on the UDC's office wall.

"The developers were over a barrel," UDC President Rebecca Robertson recalls. "We [the UDC] could take all the property and their $241 million would be completely lost. So they agreed to put $30 million into renovating these tower sites. Then we could continue with the rest of this plan and promise that this very key corner of 42nd, Seventh, and Broadway, because it links to the ever-reviving Times Square, would be lively and fun."

New retail, restaurant, and entertainment tenants are crucial to filling this void. But chain stores like The Gap and Banana Republic cannot be trusted to treat 42nd Street's singular streetscape judiciously, or so the UDC thought. In 1993, the agency commissioned architect Robert A.M. Stern and graphic designer Tibor Kallmann of the firm M and Company, to devise standards for the size, scale, and placement of signage on 42nd Street's theater-block frontage. "Best damn thing we ever did," Robertson insists. Stern describes these guidelines as "unplanning" and likens them to the informality of an English garden. "The secret," Stern contends, "is that whereas most guidelines are based on a negative, 'Thou shalt not,' ours are built on a positive: 'Thou shalt...have a minimum standard of brightness.'"

Stern's streetscape criteria are part of the resoundingly critical backlash against Park Tower and Prudential's original scheme for

North Side of West 42nd Street

1. 42nd Street's western end is site of proposed Tishman/Disney hotel by Arquitectonica.
2. Blighted storefronts condemned for hotel construction contain artists' studios.
3. Selwyn Theater (1918), designed by George Keister, remains uncommissioned for future use.
4. Selwyn's Beaux-Arts interiors remain intact, though Reginald Marsh murals have been lost.
5. Guidelines call for removing Times Square Theater marquee and restoring colonnaded facade.
6. Apollo Theater (1920) by DeRosa and Pereira holds Palladian interior restored in 1979.
7. Victory Theater facade under restoration.
8, 9. Victory interior, before restoration.
10. Original facade of Victory, circa 1901.
11. Rialto Building is undergoing street-level renovation; upper floors will remain vacant.

1

3

4

DAVID LAMB

2

the overscaled Johnson/Burgee towers. "They appear to be a free-spirited, unrestrained commercialism," notes Bruce Fowle of Fox & Fowle Architects, the firm in charge of renovating all four tower blocks for Park Tower and Prudential, adding that if the guidelines weren't there, most developers could care less about street frontage.

Other architects working on 42nd Street projects argue that Stern's guidelines amount to little more than urban taxidermy. "Let the future prevail," is the mantra of architect Jane Thompson of Cambridge's Thompson & Wood Architects. Thompson & Wood, working in collaboration with Fox & Fowle Architects, reinterpreted the streetscape guidelines for Park Tower and Prudential's new street-level retail tenants on 42nd Street. "Stern is just totally sentimental," gripes Thompson, whose own firm has designed its share of festival markets. "His guidelines are nostalgia in a Disneyesque mode."

Stern's connection to Disney is a close one. A member of Disney's board of directors, the New York architect recently designed Disney CEO Michael Eisner's office, shaped like the hat of the Sorcerer's Apprentice, at the company's Stern-designed Burbank headquarters. And in 1994, Stern's office wrote guidelines for the hotel competition held this year at Times Square's western edge. The competition was won in May by the Tishman Urban Development Corporation and Disney, with their Arquitectonica tower, beating out schemes by architects Zaha Hadid and Michael Graves.

Few onlookers expected the outcome of the hotel competition to be about architecture first and foremost: in fact, most suspected Graves's comparatively staid scheme would win because its developer had the money to break ground right away. However, Tishman Dream Team Associates, as the winner calls itself, took the prize, and the name may be apt for now, because all Tishman has produced is a letter of intent to develop the site with a hotel, and Disney is only a nominal tenant. There still is no lease with the UDC, and 42nd Street's future is hanging in the balance.

The Tishman/Disney lease must be finalized with New York, because it is the keystone supporting much of what else transpired in this summer's sweaty negotiations on 42nd Street. Disney played hardball in the talks, leveraging its name to win $26 million in state loans at a generous 3 percent, which, with $8 million of Disney's own money, will pay for restoration of the New Amsterdam Theater, amid cries of corporate welfare.

5

6

8

MICHAEL MORAN PHOTOS

7

ADDISON THOMPSON

9

ADDISON THOMPSON

In mid-1994, the Disney Development Company agreed to renovate the New Amsterdam—if the UDC could attract two other major tenants to the block. The UDC raced to secure the companion deals, because as Virginia's governor learned from Disney's ill-fated history theme park proposed near a Civil War battlefield—the entertainment giant has backed off before.

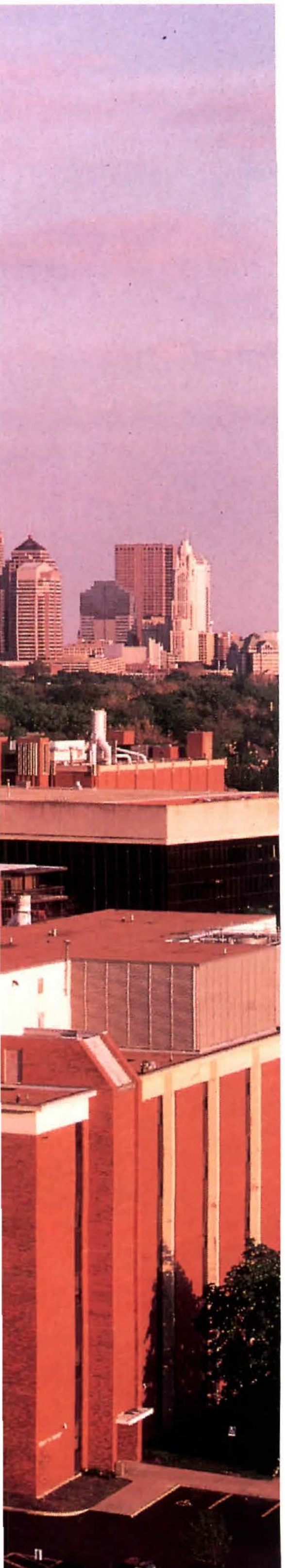
Disney's plans for the New Amsterdam firmed up in July, when American Multi-Cinema (AMC) Theaters, a key distributor of Disney's films, and Madame Tussaud's of waxwork fame announced plans for a 335,000-square-foot retail and entertainment center within the joined shells of the Empire, Liberty, and Harris theaters. And Livent of Canada has retained architects Beyer Blinder Belle of New York to merge the Apollo and Lyric theaters across the street.

By January 1, 2000, the block haunted by Hammerstein and the Selwyns will offer up Disney movies, Disney musicals, Disney paraphernalia, and Madame Tussaud's "audioanimatronic" wax exhibits. The program for the street looks forward, but its armature of facades and signs is oddly restrained by history: 20th-century burlesque meets 21st-century virtual reality.

The new plans for 42nd Street and adjacent blocks fall firmly in line with what's happening in city centers nationwide: the building of entertainment-driven magnets in order to lure middle-class suburbanites back downtown. If cities are willing to rebuild, the message seems to be, they'd better be ready for "destination" architecture. Mass culture killed Times Square, and now mass culture is bringing it back—only in a tightly controlled package.—*Bradford McKee*

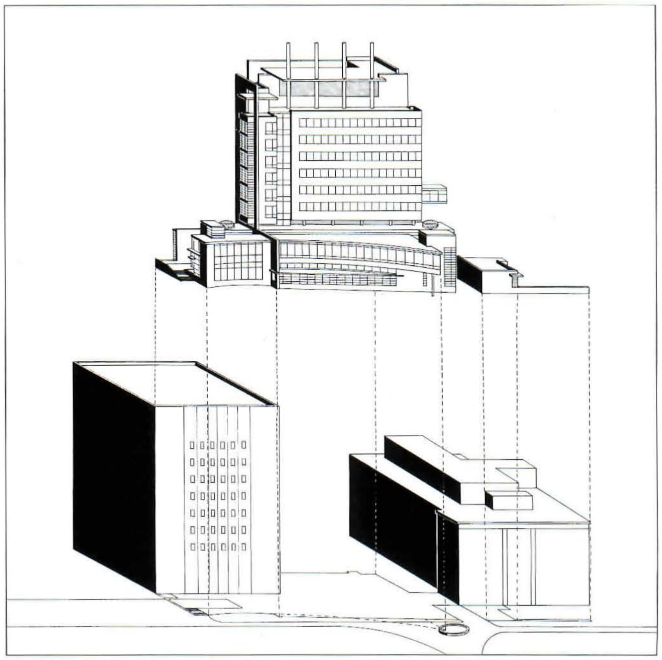
South Side of West 42nd Street

1. New signage armatures and Disney retail store under construction at crossroads-of-the-world site: 42nd Street, Seventh Avenue, and Broadway.
2. Original men's smoking lounge of New Amsterdam displays enchanted-garden imagery.
3. New Amsterdam Theater is under renovation by Walt Disney for live performances.
4. Harris Theater (1914) awaits takeover by city.
5. Property condemned and painted with Dr. Seuss cartoon as part of 1993 UDC-sponsored art project.
6. Liberty Theater (1904) planned as AMC/Tussaud's venue. Marquee masks original flat-arch facade.
7. Preservation guidelines call for restoration of Liberty's wood proscenium and stage curtain.
8. Degraded Empire Theatre (1913), will be incorporated into AMC/Tussaud's complex.
9. New entertainment complex will restore Empire's crumbling, ornate plaster dome.



Vernal G. Riffe Jr. Building
Ohio State University
Columbus, Ohio
Perkins & Will, Architect

Collegiate Modern

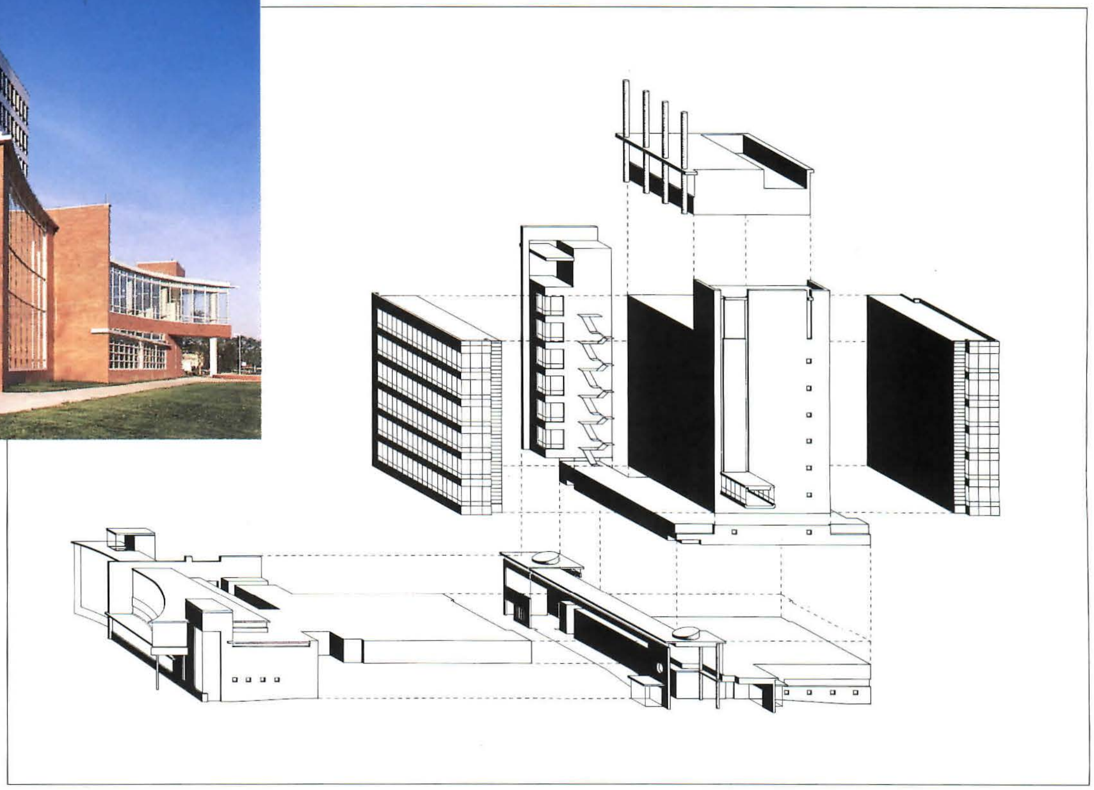


The new Vernal G. Riffe Jr. Building at Ohio State University (OSU) in Columbus deserves a hearty Buckeye cheer. The $17.5 million lab, office, and library complex, designed by Ralph E. Johnson of Chicago's Perkins & Will with Burgess & Niple of Columbus, shows how a single structure can turn the ragged edge of a giant university into a vibrant campus gateway.

The Riffe (rhymes with life) Building is a laboratory and research facility located at the western flank of the OSU campus. Previously, the area was a poorly defined zone of medical and research buildings bordered by vast parking lots, lawns, highway, and the Olentangy River. The addition joins two nondescript, multistory colleges, both built in the 1970s and designed in a generic Modernist style best described as punitive in spirit. The windowless east and west facades of the 10-story College of Biological Sciences appeared particularly intimidating. On this unpromising foundation, Johnson designed a new facility that hides the worst blemishes of the two earlier buildings and subsumes them into a larger whole, which the new structure dominates. Internally, the buildings share a 30-foot-high lobby and a ground-level work area packed with costly, high-tech research equipment.

The resulting complex strongly defines the western side of the campus and constitutes a commanding new presence on the south side of a large athletic field, which extends north to the OSU football stadium. Despite its relatively small size—10 stories and 128,000 square feet—the Riffe Building squarely addresses the massive stadium with a spirit of feisty assertiveness.

FACING PAGE AND ABOVE: Ohio State University's new Vernal G. Riffe Jr. Building unifies College of Biological Sciences (left) and College of Pharmacology (right) on the southern edge of an athletic field, which extends north to the football stadium.



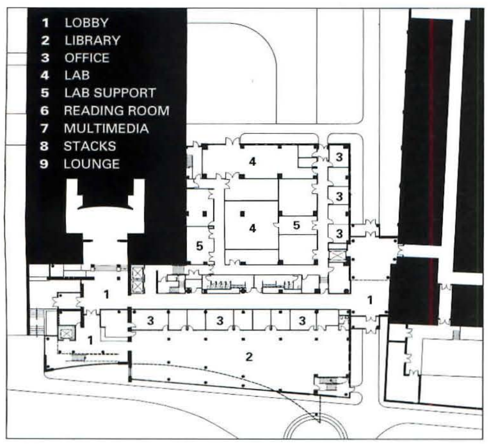
Johnson's composition evokes the early Modernism of Walter Gropius and Willem Dudok, with its interlocking red brick slabs, bands of metal and glass, and four slender ventilation stacks reaching skyward like proud symbols of high-tech industry. Each programmatic component—laboratories, offices, conference rooms, and library—is richly articulated and crisply distinct, yet the whole is fused in an image full of dynamic tension.

From the sidewalk, the most prominent feature is the curving prow of the library's second floor, which shoots out from the main facade in a concave arc. The curve, derived from the stadium's seating bowl, rockets the eye toward two distant dormitory towers. It's a dramatic gesture, more Baroque in spirit than strictly Modernist, showing how Johnson strove to make his building engage the campus.

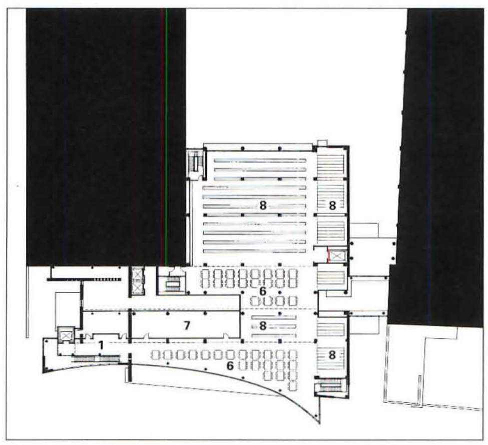
Inside the main entrance, an airy atrium joins the new building with the earlier structures like an internal street. The atrium bisects part of the library above, allowing Johnson to wrap reading rooms around it and to pour borrowed light into study areas far from the front facade. Unfortunately, users seem less interested in the stunning views than in cramming in as much equipment as they can. Shortly before the fall semester began, students and professors had already piled equipment on work surfaces, blocking some of the sweeping vistas Johnson worked so hard to create.

The crowding may indicate that the square footage in laboratories and offices is insufficient. Another problem encountered is that discussion areas, stacked in a dramatic tower jutting from the facade, are located off main internal paths and

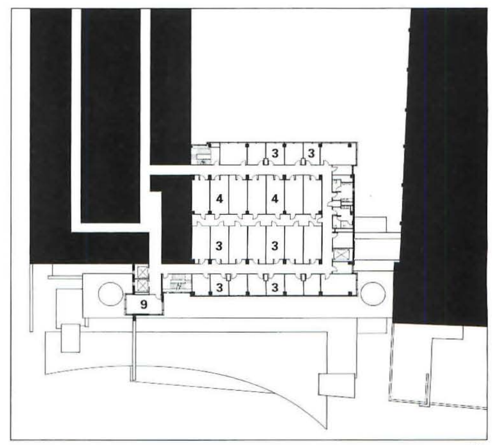
FACING PAGE AND DRAWING: Perkins & Will articulated new OSU laboratories in painted, glass-paneled tower; library in curved frontispiece; and meeting rooms and stair in narrow tower (left). **TOP LEFT:** Building steps down in volume to entrance court.



FIRST FLOOR PLAN



SECOND FLOOR PLAN



TYPICAL LAB FLOOR PLAN

40'/12m

hence may not encourage the casual exchange of ideas that was intended. However, these difficulties are more than outweighed by the high quality of Johnson's design. A crucial decision was the choice to orient the building north toward the stadium, rather than south toward a rough-edged service corridor for the health center, to address a heavily used pedestrian path. As a result, a large water main had to be moved in order to give the Riffe Building adequate breathing space. Fortunately, the university agreed to perform surgery on its infrastructure to make room for this handsome new player on the OSU campus.—*Steven Litt*

Cleveland-based Steven Litt is the architecture critic of The Plain Dealer.

VERNAL G. RIFFE JR. BUILDING
OHIO STATE UNIVERSITY
COLUMBUS, OHIO

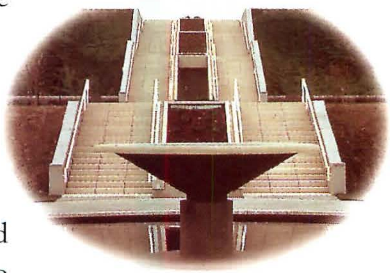
ARCHITECT: Perkins & Will, Chicago—C. William Brubaker (managing principal); Ralph E. Johnson (design principal); L. Chester Turner (project manager); Curt Finfrock (senior designer); Joseph Chronister (senior architect); Thomas Mozina (project designer); Jerry Clubb (lab planner); Julie Evans, Henry Lee, George Witaszek (project team)
ARCHITECT OF RECORD: Burgess & Niple, Columbus, Ohio—Jerry Keltch (principal-in-charge); John Fisk (project manager); James A. Butz (project architect); Rick Hurni, Dellos Morrison, Dena R. Triana, Dean Yuricich (project team)
ENGINEERS: Lewis E. Linzell (structural); W.E. Monks (mechanical/electrical); Foster Engineers (civil)
COST: $17.6 million
PHOTOGRAPHY: Nick Merrick/Hedrich Blessing

PLANS: Main entrance (left) leads to internal street linking three buildings. **TOP LEFT:** Glazed lobby exposes library. **TOP RIGHT:** Curved reading room faces heart of OSU campus. **FACING PAGE:** New lobby is veneered in local brick to match older buildings.


Biologic

Open Spaces Come Alive With Terra-Pavers

Turn those ho-hum roof and plaza decks into more usable contemporary spaces.



Precast concrete pavers from Wausau Tile can transform those outdoor areas and provide protection for roof and deck structures, too. Use Terra-Pavers for new construction or easy renovation of failing roof decks. Pavers install on-grade or with the patented Terra-System One® elevated system for sloped and level surfaces.

Choose pavers from a variety of styles, colors, and surfaces. Then add the finishing touches with matching precast accessories: treads, risers, planters, benches, or your own custom design.

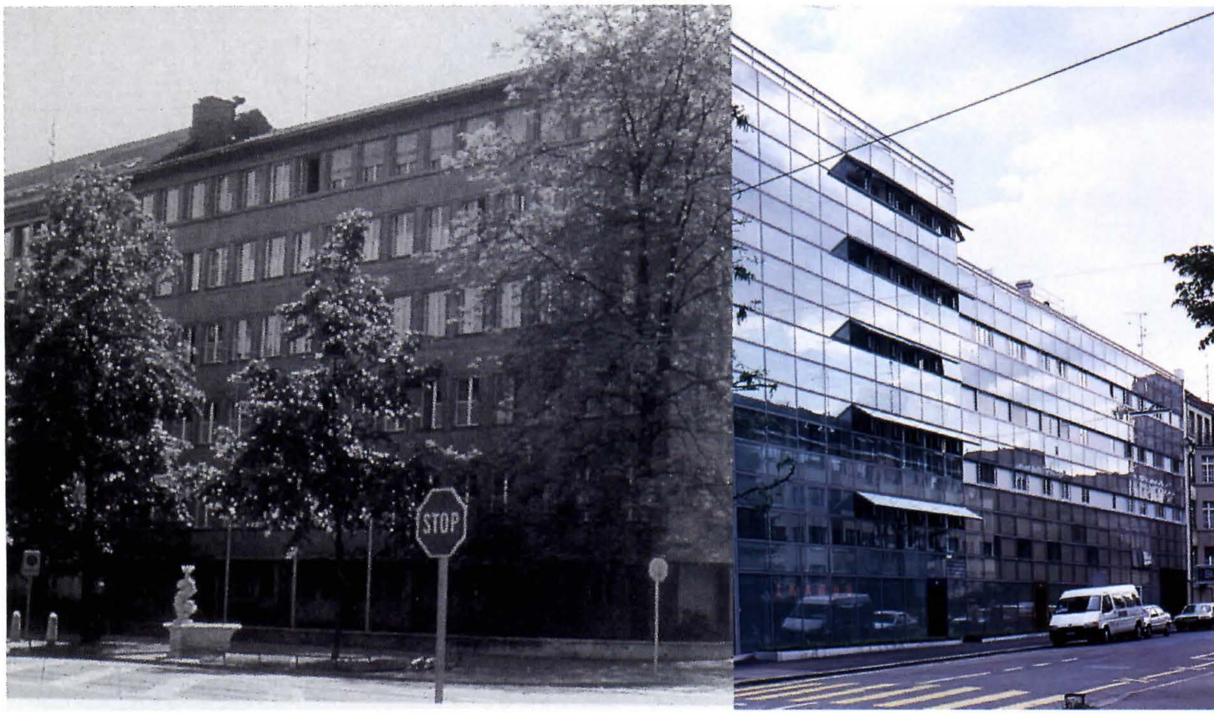
Find out more about the industry's finest complete paving and roofing systems. Contact customer service for samples, specifications, literature, and technical assistance. We'll help you make those open spaces come alive.

Terra Paving Products

Division of Wausau Tile, Inc.
PO Box 1520 Wausau, WI 54402-1520
(800) 388-8728 (715) 359-3121 (715) 355-4627 FAX

Circle 86 on information card

Technology & Practice



RUEDI WALTI

Expanding our discussion of additions and renovations, this month's Technology & Practice section focuses on how modern materials and techniques are reinvigorating buildings of the past. A feature on recladding early curtain walls, including Herzog & de Meuron's glassy, panelized shroud over a 1950s office block in Basel, Switzerland (above), shows the ways in which deteriorated curtain walls of postwar office towers are being updated. Architects must decide between rehabilitating or replacing these aging skins, with an eye to improving weathertightness and energy efficiency.

The preservation of historic wood and metal windows calls for a similar decision-making process. When considering whether to repair or to replace, architects must keep in mind authenticity as well as performance and cost.

Replicating historic ornament and creating unorthodox new geometries is now made easier with computer-aided manufacturing. Electronic drawings can be adapted by the manufacturer's shop to craft everything from decorative grillework to concrete cladding, all with exacting precision.

More traditional elements are on display in our residential feature this month. They, too, revive a 1950s building: a bungalow for an Asian-born violinist is harmonized by abstracted Japanese wood detailing and musical motifs.

As postwar office towers deteriorate, their curtain walls are increasingly being replaced, cosmetically improved, and structurally upgraded.

Recladding Modern Buildings

EZRA STOLLER / ESTO

Once gleaming monuments to commerce, the Modern office towers of the 1950s and 1960s are now aging, their paneled exteriors worn down by wind, rain, and rust. Preserving these structures often calls for replacing their curtain walls with new systems to boost weathertightness and reduce energy consumption. However, such upgrades involve high demolition and installation costs and may threaten the historic integrity of the original design. No building exemplifies this dilemma better than Lever House in New York City.

Completed when curtain wall detailing was in its infancy, Skidmore, Owings & Merrill's 1951 high-rise helped define an era of corporate design in the United States. Today, the landmark's exterior is badly deteriorated due to sealant failure, water infiltration, and the resultant oxidation and expansion of internal framing members. Its single-glazed envelope, primitive compared to contemporary multiglazed, pressure-equalized enclosures, is pockmarked by broken glass panels, deformed stainless steel cover caps, and rusted framing members. Stopgap measures, which include replacing 40 to 50 percent of the glass panes and cover caps, are largely cosmetic: requiring annual repair costs of more than $200,000, they do not address the diminished integrity of the curtain wall's internal structure.

The fate of Lever House is symptomatic of early curtain wall constructions, characterized by uninsulated, single-seal stick systems comprising vertical mullions, horizontal rails, spandrel panels, and window units assembled in the field and weakened by air and water infiltration. Many of these curtain walls did not incorporate weep systems to divert water to the exterior, and also predated silicone-based sealants, which greatly improve adhesion properties.

Today's prefabricated framed units offer more consistent thermal performance. Pressure-equalized thermal-cavity designs, such as rain-screen systems, simplify panel installation and eliminate the need for joint gaskets or silicone seals. Not only are they more durable and weathertight, they are smarter—linked to a computer, components may be programmed to anticipate and respond to changing environmental conditions, improving energy efficiency. No longer a passive barrier to rain and air, the exterior envelope now plays an active role in building systems management.

Despite the new technological advances, the decision to reclad is clouded by the high costs of demolition, disposal, and the materials required to reskin a high-rise's vast surfaces. Add the scheduling nightmare of working on an occupied building—or the cost of relocating tenants—and recladding's esthetic and performance benefits are often outweighed by practical concerns.

As long as framing members can be salvaged, it often makes more economic sense for owners to undertake a facelift rather than an entire curtain wall replacement. For the Rehabilitation Institute of Chicago, for example, Lohan Associates developed a window unit prototype designed to improve weather protection and energy conservation without requiring the architect to strip the entire facade. Placed within the original steel framing of the 20-story high-rise's facades, the preglazed units retain the building's original character while greatly improving thermal performance, reports Principal Lawrence Weldon.

When an upgraded image is the main incentive to reclad, an affordable alternative is to renovate only the top and base of the building—the areas visible on the skyline and from the street. New product development focuses on decorative additions to enhance appearance without placing a burden on the building's structure.

Lightweight composite materials, available in large sizes, allow architects to clad directly over existing spandrel panels, thus eliminating removal expenses. Fastened to the building's structural frame, these systems include thin stone veneers or aluminum sheets bonded to a honeycomb core, and thin panels of glass-fiber-reinforced precast concrete, which duplicate the appearance of conventional precast but weigh much less.

The high costs of recladding are more easily justified when they expand

JOSE LOPEZ / NYT PICTURES

Murphy/Jahn is converting a 1968 office building in Brussels, Belgium, into new headquarters for the European Union (left and below). The firm will remove the precast-concrete-and-glass curtain wall, extend the structure to the street, and add a new curved volume between the wings. With floor-to-ceiling glazing and structural glass mullions, the new curtain wall's transparency will open up the tightly modular bays.

or structurally upgrade an existing building. For example, Philip Johnson, Ritchie & Fiore Architects, in association with CK Architect, is converting the 45-story Gulf and Western Building at Columbus Circle in New York City (left) from offices to a hotel, which will include luxury apartments for developer Donald Trump.

Scheduled to open in 1997, the renovation offers the chance to reinforce the existing building's shear wall construction to stabilize chronic wind sway. Monochromatic, bronze-tinted glass will shape the windows, spandrel panels, and V-shaped column enclosures, replacing the late-1960s building's column covers of white marble and painted sheet metal.

As curtain wall systems become more sophisticated and standards for energy efficiency grow more stringent, the postwar high-rises that populate our cities will become functionally obsolete. Increasingly versatile and less expensive alternatives to recladding older buildings must continue to be developed.—*Ann C. Sullivan*

Double Skin

Swiss Insurance Company Headquarters
Basel, Switzerland
Herzog & de Meuron Architects

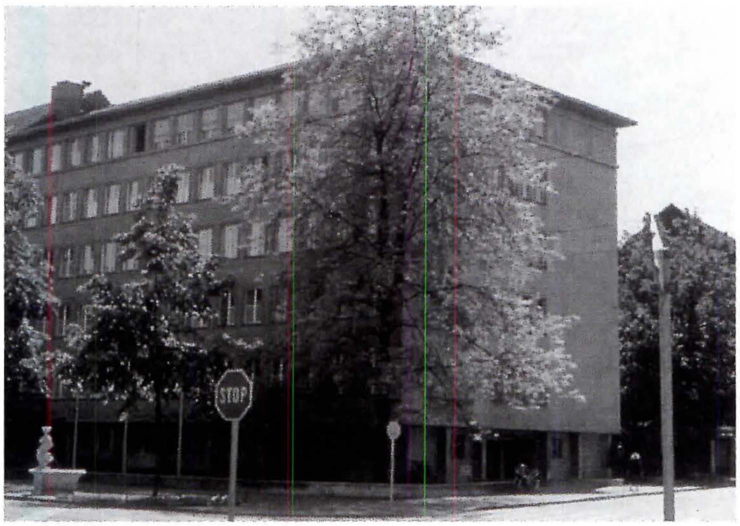
Herzog & de Meuron's new headquarters for a Swiss insurance company in Basel, Switzerland, adopts an unusual method of preserving a 1950s curtain wall. It encloses the six-story, sandstone-clad structure in an intricate skin of prismatic glass and computerized heat sensors, retaining the building's original facade while improving its thermal performance.

On the east, the new facade is mounted directly onto the old structural frame. Vertical aluminum members anchored to concrete slabs support bands of new glazing on each level, separated from the original skin by 4 inches.

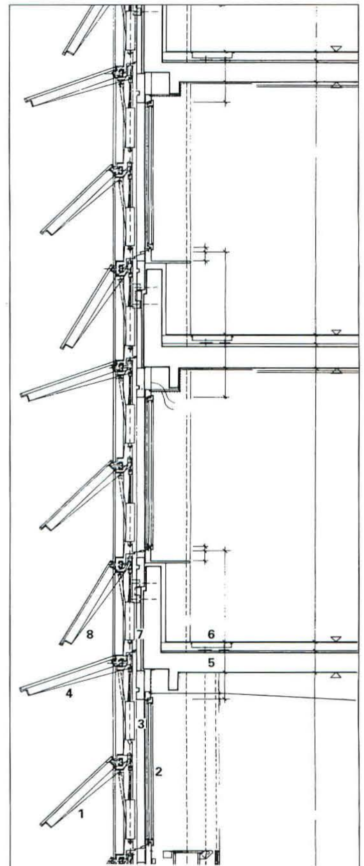
Clear insulating panels, operated with individually controlled motors, are positioned at eye level beyond the manually operated original windows. Above, computer-controlled, insulated prismatic glass units adjust to solar angles and refract direct rays. At the parapet, silk-screened glass panels are linked to a computerized heat detector that signals individual panels to open and close according to the air temperature between the two skins. In summer, the windows are opened to cool the stone facade; they remain closed in winter to build up a tempered air cavity between the two facades.

The new glass enclosure extends 10 feet beyond the east face before turning the corner, creating an inhabitable triangular void filled by a new café. An existing bas-relief sculpture on the north facade is visible within this volume. On the end of this facade, Herzog & de Meuron added a new wing with conference rooms and apartments.

At the junction of old and new wings, the architect's palette changes, but the structural framework and esthetic remain consistent. The five-story, concrete-framed extension is clad in glass and aluminum panels, organized in horizontal bands.



RUEDI WALTI



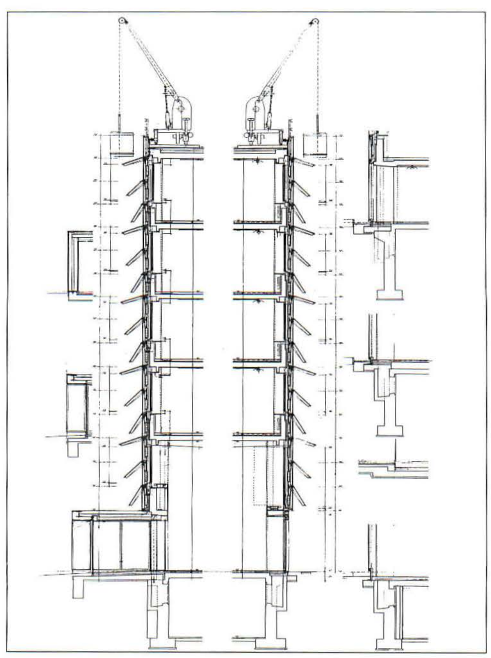
1 INSULATING GLASS PANEL
2 ORIGINAL OPERABLE WINDOW
3 NEW CONTROL MECHANISM
4 PRISMATIC GLASS PANEL
5 EXISTING CONCRETE SLAB
6 ELECTRICAL FLOOR CONDUIT
7 EXISTING SANDSTONE CURTAIN WALL
8 SILK-SCREENED GLASS PANEL

CURTAIN WALL SECTION 2.75'/84cm

The original 1950s sandstone facade remains intact behind a new skin of operable windows designed to improve thermal performance. A 4-inch gap between old and new walls traps warm air during winter, when windows are closed. In summer, the new panels open to release warm air and cool the stone surfaces.

Herzog & de Meuron deliberately extended the new skin beyond the northeast corner of the existing structure to differentiate old and new enclosures. Bas-relief sculpture depicting Daedalus and Icarus is visible behind the sophisticated glass facade.

RUEDI WALTI PHOTOS



CURTAIN WALL SECTION 10.5'/3.2m

Structural Upgrade

Mutual of America Headquarters
New York City
Swanke Hayden Connell Architects

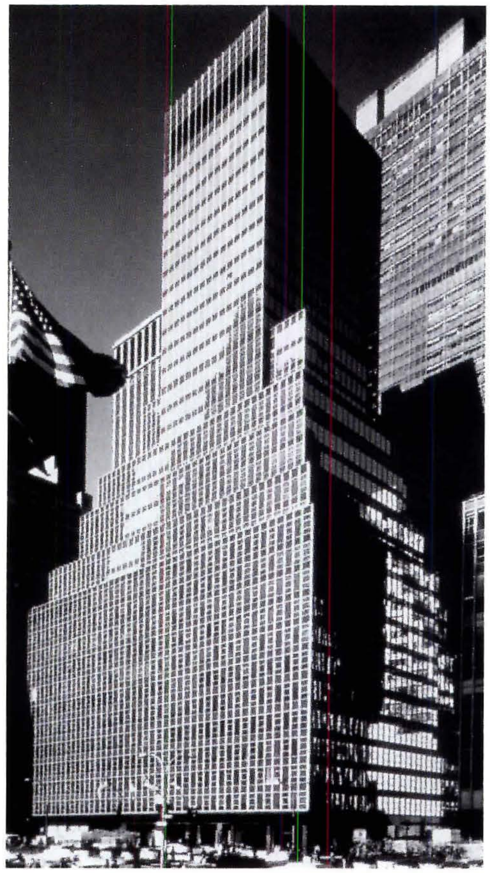
Swanke Hayden Connell Architects removed the former ITT Building's 1962 curtain wall, reinforced and expanded the original structural steel core, and reclad the tower in granite and aluminum panels and stainless steel decorative members.

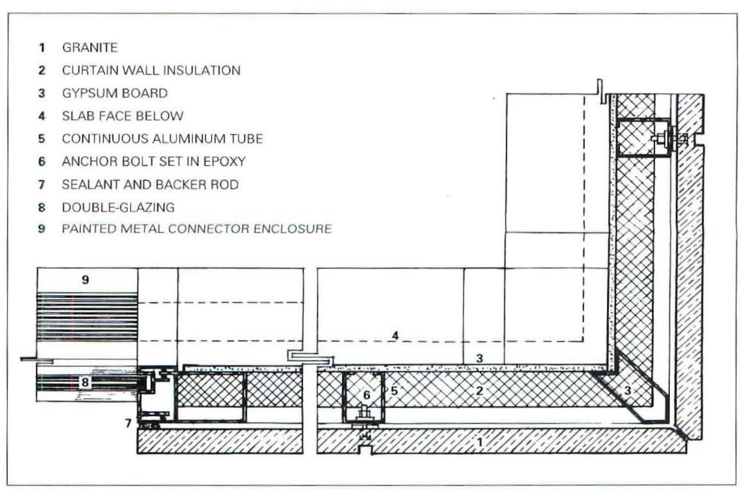
In 1993, Swanke Hayden Connell was commissioned to overhaul the former ITT Building at 320 Park Avenue in New York City, a classic early-1960s Modern office high-rise, for the new headquarters of Mutual of America. In addition to designing a new curtain wall, the architect modified the building's structural steel core; enlarged the sections that flank the tower's slender centerpiece; removed asbestos, spray-applied as fireproofing to the structural steel frame; and replaced mechanical, electrical, and fire-protection systems.

Swanke Hayden Connell removed the tower's dark, single-seal curtain wall system of anodized-aluminum framing members, clear glass spandrel panels with opaque backing panels, and single-glazed, operable vision panels. Mirror film attached to the vision glass was cracked and peeling, and the anodized finish and gaskets had deteriorated.

The new corporate headquarters is clad in gray-tinted, double-glazed vision and spandrel panels with extruded aluminum mullions. Granite panels enclose the base from ground level to the first setback; above, painted aluminum panels flank a central glazed section which recalls the sheer glass expanse of the original tower's exterior envelope.

The decision to reconstruct instead of raze the 1962 building, designed by Emery Roth & Sons, was primarily influenced by New York City zoning regulations. Renovation preserved 50 percent more office space than current zoning restrictions would allow if a new structure were to be erected. In addition, a bill was passed in 1992 that froze real estate assessments for eight years on office towers south of 96th Street that undergo modernization. These two incentives made renovation an even more attractive decision for Mutual of America, despite the $75 million price tag.

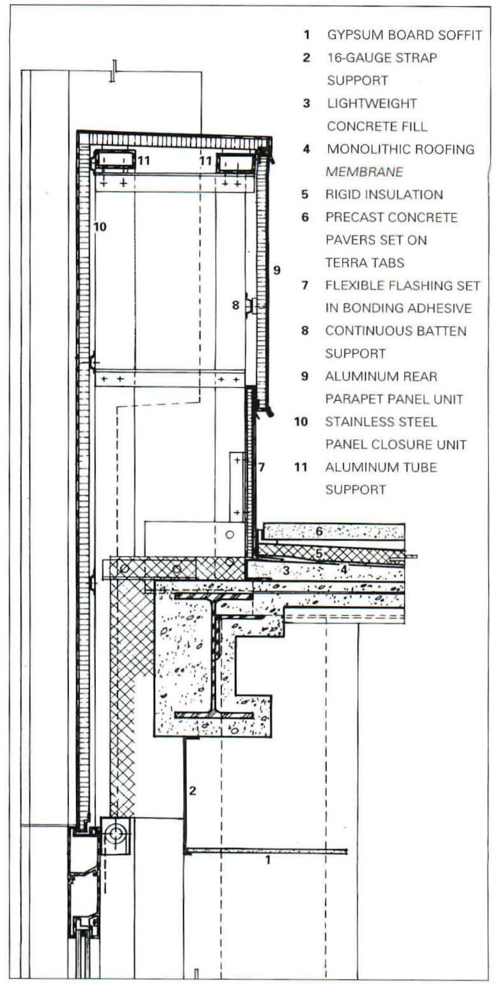




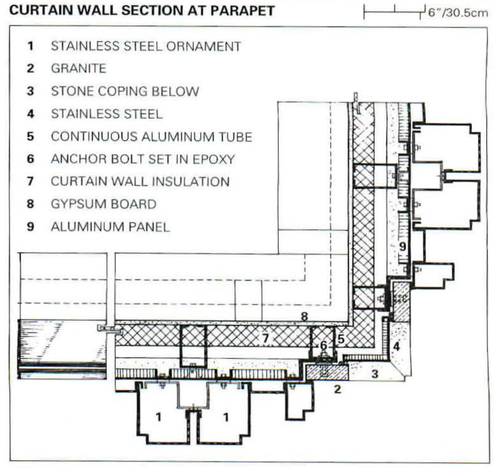
DETAIL PLAN OF CORNER

JAMES D'ADDIO PHOTOS

Extruded aluminum mullions articulate the double-glazed curtain wall. Continuous stainless steel decorative members bolted to aluminum panels stretch skyward, culminating in a 52-foot-high steel mast. Stainless steel finials cap each horizontal level. Granite panels, fastened to aluminum supports with steel anchor bolts, enclose lower levels, giving way to painted metal cladding on upper floors.



CURTAIN WALL SECTION AT PARAPET



DETAIL PLAN OF CORNER

Curtain Wall Replacement

American Chemical Society Headquarters
Washington, D.C.
Hickok Warner Fox Architects

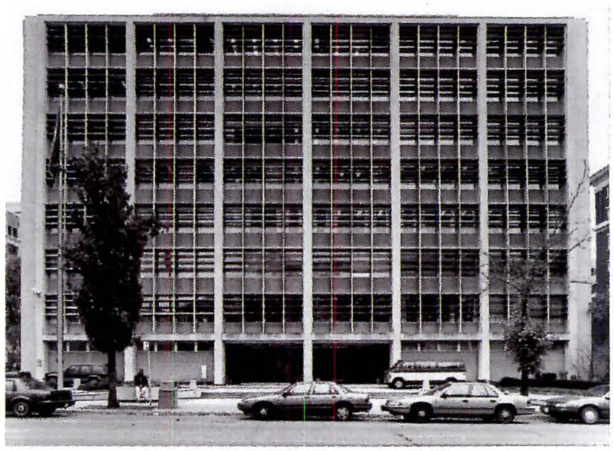
Hickok Warner Fox's renovation of the American Chemical Society (ACS) headquarters in Washington, D.C., began by upgrading the mechanical systems and grew to encompass a complete exterior and interior remodeling.

The 1960 building, designed by Faulkner, Kingsbury, and Stenhouse, was clad in exposed-aggregate, precast-concrete spandrel panels; limestone-clad columns; and clear, operable vision glass. The aluminum louvers that projected from the glazing were the original building's most memorable feature. Designed to rotate according to the angle of the sun on gigantic chain-link circuits stretching the height of the facade, the louvers never worked properly and contributed to the ineffectiveness of the building's heating and cooling systems.

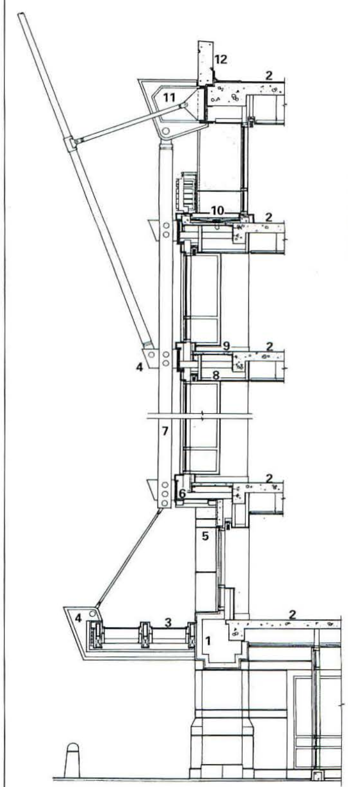
The architect removed the glazing and louvers one bay at a time and replaced the rigid, uniform grid of the old facade with a clearly articulated base, middle, and top. The street elevation centers on four five-story bays of stainless steel, glass, and aluminum, visually framed by precast concrete panels on the sides and the granite-veneered base.

The new bays hang from fixed steel-plate brackets, which are attached to an enormous steel channel at the cornice, and are stabilized by stainless-steel-clad structural members running the height of the facade. Steel struts at each floor anchor the vertical members to the existing floor slabs. Lightweight concrete decks bridge the gap between the new bays, which project 2 feet from the original perimeter, and the existing floor slabs.

Old precast spandrel panels were left in place to reduce both demolition time and cost in the tight nine-month construction schedule. New precast panels on the base incorporate timesaving factory-set 1 1/4-inch-thick granite facing.



ANICE HOACHLANDER PHOTOS



1 PRECAST CONCRETE SECTION WITH STONE FACING
2 EXISTING CONCRETE SLAB
3 TEMPERED-GLASS PANEL
4 STAINLESS STEEL SUPPORT BRACKET
5 PRECAST CONCRETE PANEL WITH STONE FACING
6 STAINLESS STEEL, ANODIZED-ALUMINUM CLADDING
7 CONTINUOUS STAINLESS STEEL STRUCTURAL TUBE
8 STRUCTURAL STEEL STRUT
9 CONCRETE SLAB ON METAL DECK
10 CONCRETE PAVERS OVER WATERPROOF MEMBRANE
11 STAINLESS STEEL PLATE HANGING BRACKET
12 PRECAST CONCRETE PARAPET

SECTION OF WALL 6'/1.8m

Projecting metal bays replace a 1960 curtain wall of concrete and aluminum. The new bays are supported by continuous structural steel tubes that connect at the roof to steel-plate brackets fixed to a steel cornice. Steel struts extending from each floor are bolted to the existing concrete slabs and welded to steel tubes. New lightweight concrete slabs over a metal deck extend the old slabs out to the bays. A 4-ton, stainless steel and tempered glass entrance canopy hangs beneath the bays.

West Hollywood City Hall
West Hollywood, California
Ellerbe Becket, Architect

The first permanent municipal offices for the 11-year-old city of West Hollywood have been fashioned from a nondescript, steel-framed 1961 commercial office building. Mehrdad Yazdani, formerly a design principal of Ellerbe Becket's Los Angeles office and now at Dworsky Associates, renovated the building to reflect the progressive image sought by the young city. Completed this summer, the makeover comprises a new facade, a structural upgrade for seismic requirements, and interior remodeling.

The building's single-glazed, aluminum-paneled curtain wall system was structurally sound but unattractive. Yazdani stripped the north and south facades to their skeletal steel frame and installed tinted vision glass and translucent spandrel glass. Framed in anodized aluminum, this two-story midsection projects from the northeast corner of the original rectangular box above a recessed ground floor. Structural framing supporting a three-story, glazed entrance is also anodized aluminum, complementing a painted steel canopy on the roof.

With the exception of the northeast corner, the east and west shear walls remain intact, but were refinished in bright red, blue, and yellow Venetian plaster, a semigloss coating that suggests marble, yet is only as thick as a layer of paint.

Demolition of the original facades was already under way when the Northridge earthquake struck in January 1994. Although the building did not suffer major structural damage, the architect decided to incorporate a moment frame, composed of steel beams placed between the existing steel columns and reinforcing plates welded to the columns, into the renovation. This seismic upgrade exceeds current code requirements, but it enables the city to operate an emergency operations center during future disasters.

RICHARD SETTLE PHOTOS

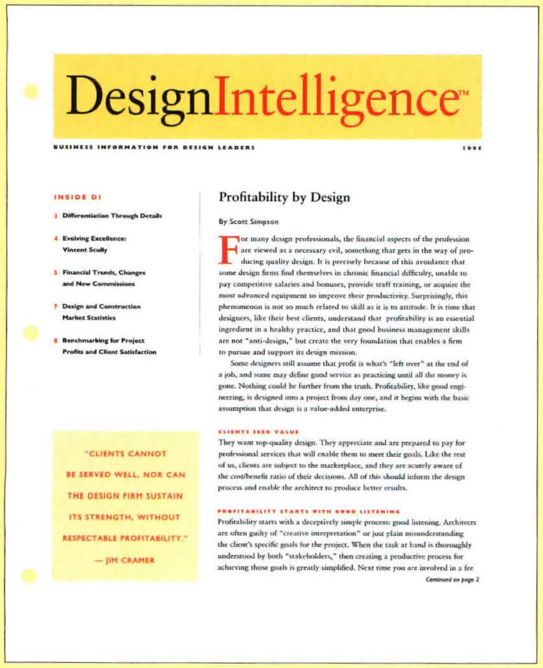
RICHARD J. LEVY

West Hollywood's new City Hall relies on colorful cladding and playful shapes to animate a lifeless office building. Mehrdad Yazdani carved away the three-story structure's northeast corner and inserted an angular, blue-green-tinted, glazed volume, crowned by a curved steel canopy. Copper insets are interspersed among the north facade's glass panels.

ADVANCING THE ARCHITECT'S COMPETITIVE EDGE 24 TIMES A YEAR

Design

Intelligence



DesignIntelligence™

BUSINESS INFORMATION FOR DESIGN LEADERS 1995

INSIDE DI

3 Differentiation Through Details

4 Evolving Excellence: Vincent Scully

5 Financial Trends, Changes and New Commissions

7 Design and Construction Market Statistics

8 Benchmarking for Project Profits and Client Satisfaction

Profitability by Design

By Scott Simpson

For many design professionals, the financial aspects of the profession are viewed as a necessary evil, something that gets in the way of producing quality design. It is precisely because of this avoidance that some design firms find themselves in chronic financial difficulty, unable to pay competitive salaries and bonuses, provide staff training, or acquire the most advanced equipment to improve their productivity. Surprisingly, this phenomenon is not so much related to skill as it is to attitude. It is time that designers, like their best clients, understand that profitability is an essential ingredient in a healthy practice, and that good business management skills are not "anti-design," but create the very foundation that enables a firm to pursue and support its design mission.

Some designers still assume that profit is what's "left over" at the end of a job, and some may define good service as practicing until all the money is gone. Nothing could be further from the truth. Profitability, like good engineering, is designed into a project from day one, and it begins with the basic assumption that design is a value-added enterprise.

"CLIENTS CANNOT BE SERVED WELL, NOR CAN THE DESIGN FIRM SUSTAIN ITS STRENGTH, WITHOUT RESPECTABLE PROFITABILITY." — JIM CRAMER

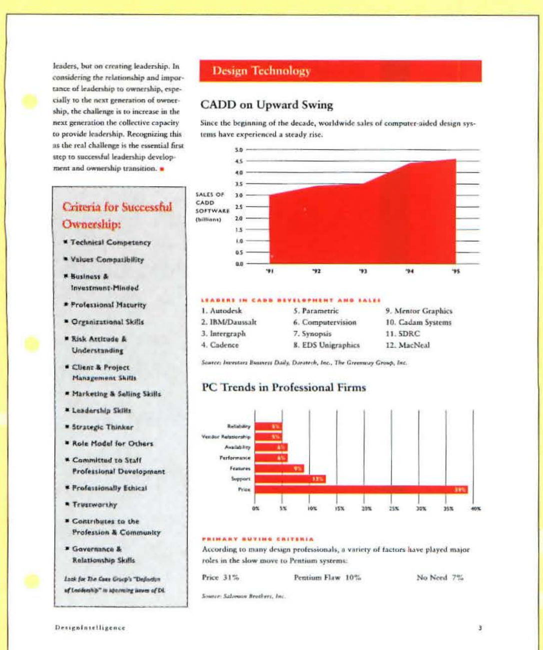
CLIENTS SEEK VALUE

They want top-quality design. They appreciate and are prepared to pay for professional services that will enable them to meet their goals. Like the rest of us, clients are subject to the marketplace, and they are acutely aware of the cost/benefit ratio of their decisions. All of this should inform the design process and enable the architect to produce better results.

PROFITABILITY STARTS WITH GOOD LISTENING

Profitability starts with a deceptively simple process: good listening. Architects are often guilty of "creative interpretation" or just plain misunderstanding the client's specific goals for the project. When the task at hand is thoroughly understood by both "stakeholders," then creating a productive process for achieving those goals is greatly simplified. Next time you are involved in a fee

Continued on page 2



leaders, but on creating leadership. In considering the relationship and importance of leadership to ownership, especially to the next generation of ownership, the challenge is to increase in the next generation the collective capacity to provide leadership. Recognizing this as the real challenge is the essential first step to successful leadership development and ownership transition. ■

Criteria for Successful Ownership:

- Technical Competency
- Values Compatibility
- Business & Investment-Minded
- Professional Maturity
- Organizational Skills
- Risk Attitude & Understanding
- Client & Project Management Skills
- Marketing & Selling Skills
- Leadership Skills
- Strategic Thinker
- Role Model for Others
- Committed to Staff Professional Development
- Professionally Ethical
- Trustworthy
- Contributes to the Profession & Community
- Governance & Relationship Skills

Look for The Coxe Group's "Definition of Leadership" in upcoming issues of DI.

Design Technology

CADD on Upward Swing

Since the beginning of the decade, worldwide sales of computer-aided design systems have experienced a steady rise.

LEADERS IN CADD DEVELOPMENT AND SALES

1. Autodesk	5. Parametric	9. Mentor Graphics
2. IBM/Daussalt	6. Computervision	10. Cadam Systems
3. Intergraph	7. Synopsis	11. SDRC
4. Cadence	8. EDS Unigraphics	12. MacNeal

Source: Investors Business Daily, Daratech, Inc., The Greenway Group, Inc.

PC Trends in Professional Firms

PRIMARY BUYING CRITERIA

According to many design professionals, a variety of factors have played major roles in the slow move to Pentium systems:

Price 31% Pentium Flaw 10% No Need 7%

Source: Salomon Brothers, Inc.

DesignIntelligence 3

When clients talk about your firm, they're really talking about you and your leadership. *DesignIntelligence* is a newsletter that presents new management ideas and insights that help you grow.

Each issue of *DI* features insights and knowledge on the issues that impact the design business environment, the art of management, effective leadership, economic and political wisdom, and the implications of change.

MORE GROWTH AND CHALLENGING CHANGES AHEAD

Our articles address issues like increasing profitability, effective ownership transitions, million-dollar marketing strategies, successful firm mergers, and secrets of today's most fulfilled design leaders. And there is much more.

Each issue of *DI* will become an indispensable resource for you. Messages are written by leading consultants and design mentors from education, practice, and corporate life. The Coxe Group, Inc., one of the nation's premier management consulting firms, regularly provides features and case studies. The Greenway Group, Inc., strategic and turnaround management consultants, contribute their new research and methods leading the way to profits and growth.

TAKE CONTROL OF DESIGN TECHNOLOGY

There are forces of change rapidly altering professional practice. With *DesignIntelligence* as your partner, you'll profit from our experience and active involvement in the technological revolution. Even the most educated principal is too often uninformed outside a certain (and sometimes narrow) range of design and management subjects. Each issue of *DI* uncovers new and relevant information on technology and its changing implications. If you are seeking facts that will keep you ahead of the times, you will find insightful information in every issue of *DI*.

DI delivers a new kind of information on the evolving role of technology. We report on changes in CADD technical developments, and offer insights on new software programs and wireless technology. All in all, this section of *DI* will help you make decisions on capital expenditures and will help you to understand the winning experience of "best of class firms." In short, *DesignIntelligence* will become a valued strategic partner and talent scout.

Asian Harmonics

An addition to a 1950s bungalow combines Japanese detailing with musical motifs.

When a Japanese-born concert violinist and music professor decided to renovate and expand a 1950s bungalow in Connecticut, she charged Centerbrook Architects with combining elements of Japanese architecture, musical symbols, and the local Yankee vernacular. The results draw on traditional Japanese and New England farm construction and incorporate obvious symbols of the client's craft.

Centerbrook Principal James Childress began by stitching together the rambling plan of the low-slung house, which has been expanded twice over the past 35 years. Childress demolished an existing porch on the east side, relocated the entrance to open into the living room at the plan's center, and reconfigured the old entry hall and dining room into a study. A new wooden deck and a low fieldstone planter wall define the entrance from the driveway and provide privacy from the adjoining road.

At the house's west end, the architect transformed the former family room and an old screened porch into a light-filled dining area that opens onto the new stepped wooden deck. He removed the existing vinyl siding on the exterior and installed cedar planks finished in a clear stain.

Inside, Childress adapted traditional Japanese construction techniques to the house's decidedly American context. "We poured over hundreds of books on Japanese house building," he recalls. "But we wanted to keep the lines even cleaner and simpler, and we tried to incorporate materials readily available in local lumberyards, to keep costs down and also make the house more appropriate to its setting."

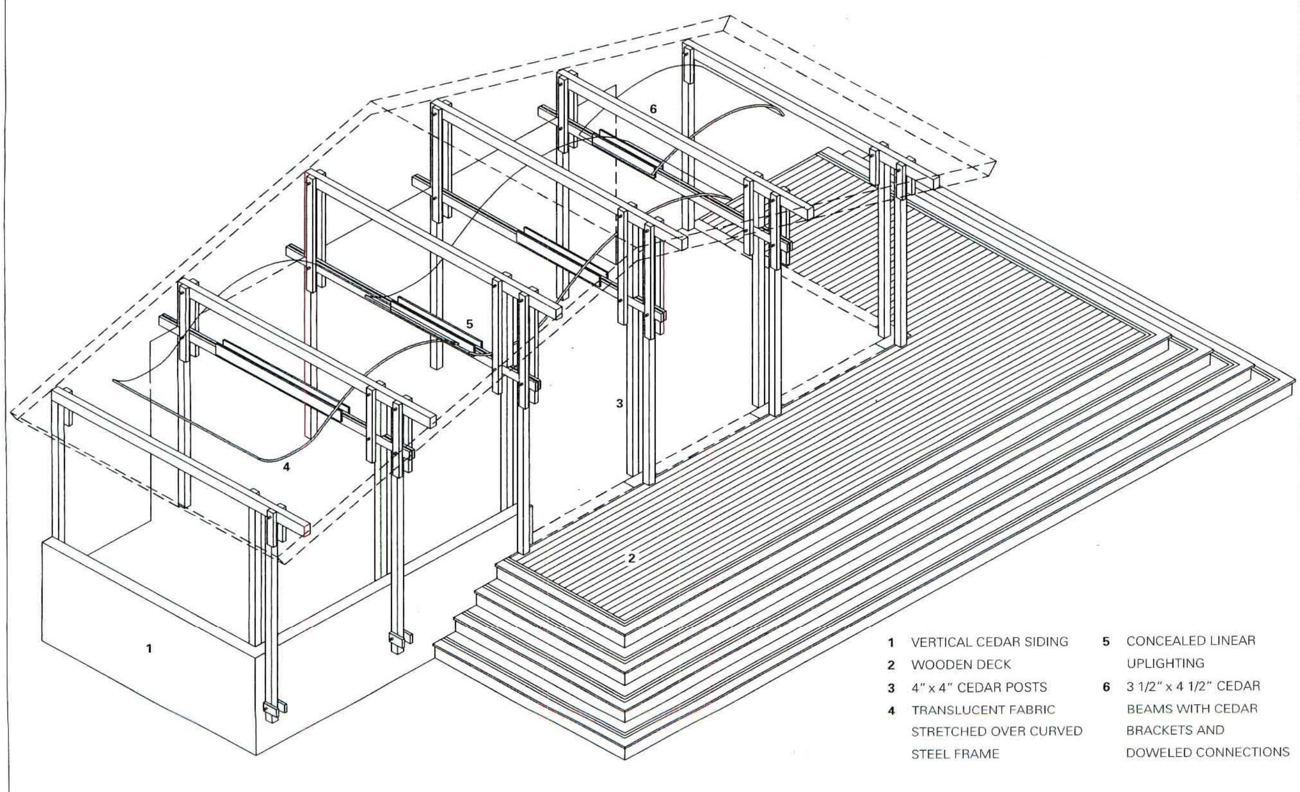
The client, for example, wanted shoji screens as interior doors. But teaching local craftspeople to build the Japanese partitions would be both difficult and expensive—and the client's dogs would likely shred the fragile rice-paper screens. Instead, Childress selected standard pocket-door frames and hardware, within which he sandwiched sheets of translucent rice paper between two panes of glass.

In the renovated dining area, he removed the existing ceiling and trusses and inserted naturally finished cedar posts and beams to support the roof. The elegant, sparsely detailed wooden assembly distills traditional Japanese construction: small wood pegs tie the delicate beams and columns together, like the wooden keys of a violin.

Childress inscribed other musical motifs throughout the interior. The kitchen counter, for example, is shaped in plan like a sliced violin, and above the dining room's wooden structure, steel-framed fabric canopies recall the instrument's sensuous curves. The translucent fabric panels, which are bolted to the ceiling with stainless steel rods, both diffuse light from uplights mounted to the timber beams and softly filter light from ceiling-mounted fixtures.

At a recent party in the house, the client's musician friends were impressed less by the tectonic qualities of the canopies than by the improved acoustics they create. In addition to meeting the architect's goal of meshing musical motifs with a Japanese vernacular, the fabric panels soften the hard sound bounced from ceilings, exposed hardwood floors, and drywall finishes.—*Raul A. Barreneche*

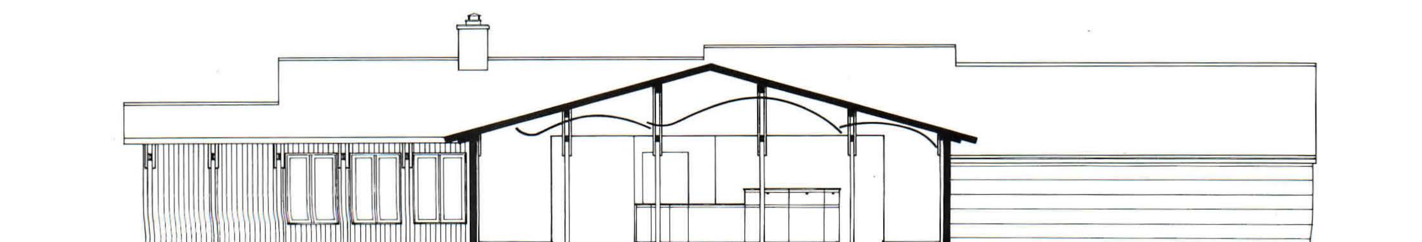
ABOVE: Centerbrook renovated bungalow's west-facing screened porch and family room into light-filled dining pavilion and added stepped wooden deck. Vinyl siding was replaced with cedar planks; new cedar posts and beams support original roof.



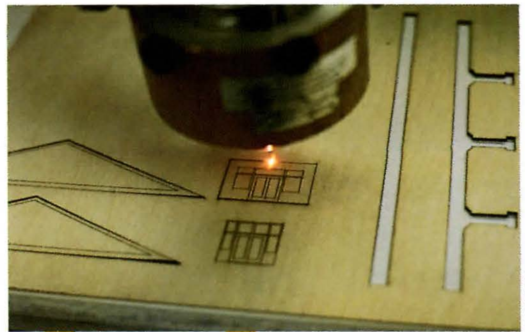
TOP: Faceted kitchen counter (left) and fabric-covered, steel-framed canopies above dining table echo violin profiles.
AXONOMETRIC: Recalling traditional Japanese construction, new pin-joined cedar posts and beams support original roof.
FACING PAGE, TOP: Fabric canopies diffuse light from ceiling-mounted fixtures and windows while doubling as acoustical panels.
FACING PAGE, SECTION: Bungalow's new dining room is positioned between bedroom wing (left) and study (right).

ERLE RESIDENCE
GUILFORD, CONNECTICUT

ARCHITECT: Centerbrook Architects and Planners, Essex, Connecticut —James C. Childress (principal-in-charge); Paul Shainberg, Christopher Arelt (design team)
GENERAL CONTRACTOR: Triangle Builders
PHOTOGRAPHY: Jeff Goldberg/Esto



NORTH-SOUTH SECTION



LASER TIME

Computer-Aided Manufacturing

LASERTECH

From the desktop to the building site, computers easily translate design concepts into precise construction.

From plastic keyboards to aluminum car axles, many consumer products are not only designed on but manufactured by computers. Known as computer-aided design/computer-aided manufacturing (CAD/CAM), this technique streamlines the traditional design-construction process. Forward-thinking architects are now capitalizing on this technology to produce highly detailed building designs and unconventional geometric forms at reasonable costs.

Essentially, CAD/CAM refers to any system in which electronic data encoded in a computer drawing is transferred to the fabrication process. One of the simplest and most common CAD/CAM applications in architectural practice is the slicing and scoring of foam-core sheets by a computer-driven laser cutter to make a model (top right). Going one step further, robotic machinery can be set up in a fabricator's shop to cut small-scale components for an actual building (above).

Virtually any manufacturing process or tool can be guided by a computer. For example, flat sheets can be cut with saws, lasers, water jets, or flame; three-dimensional solids can be carved with multiaxis milling equipment; and pipes can be reshaped with bending machines.

The architect's computer file, which is produced with a CAD software package, does not literally run the tool. Instead, the file must be reviewed by the fabricator, cleaned up to remove extraneous lines or notes, adjusted to conform to the specific fabrication process, and translated into a series of simple instructions that the machine will understand.

The code is then fed into a controller, or central processing unit, attached to the machine. This automated procedure, called computer numerical control, yields precise, intricate details, often for a fraction of the expense and time required by traditional construction methods. Once the initial plan and setup are established, multiple units can be produced at minimal additional cost.

But CAD/CAM means more than the fabrication of repetitive elements. In the field of architecture, where each final product is unique, CAM also facilitates a more complex, dynamic process in which sophisticated three-dimensional computer models of projects are made available to contractors and their subs as informational tools to clarify fabrication, whether by traditional or robotic techniques. With such software, the architect can document complex, irregular shapes and generate more detailed construction documents for the fabricator. As a result, the practitioner not only broadens creative opportunities, but also streamlines the construction process while maintaining stronger control over design.

Few architects, however, are acquainted with CAD/CAM technology. "Architects are often behind the trades in terms of the best way to accomplish things," laments Donna Clare of Cohos Evamy Partners in Edmonton, Alberta. Clare was first exposed to laser technology when her firm designed an ornamental Christmas tree for a local fundraising event. She worked closely with the fabricators, modifying two prototypes before the final version was cut.

Architects interested in learning about CAM should consult fabricators who own the tools, or designers in the automotive, aerospace, and furniture fields, industries in which CAD/CAM applications are flourishing. As the projects on the following pages reveal, at least a few architects are heeding this advice to the benefit of their designs—and their clients.—*Nancy B. Solomon*

Douglas MacLeod provided additional research for this article.

Precision-cut Patterns

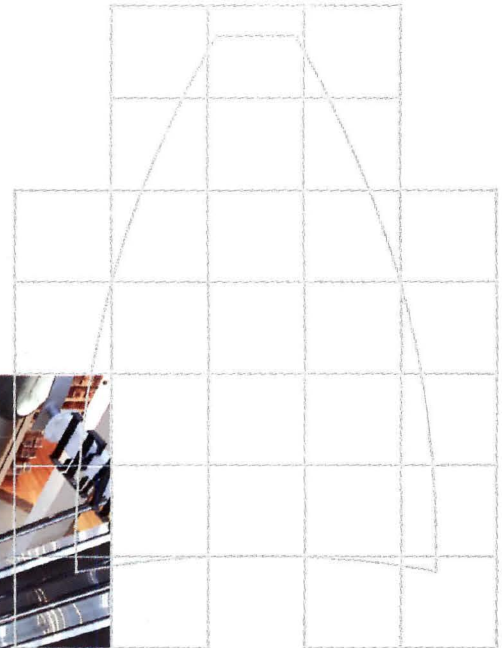
Natick Mall
Natick, Massachusetts
Arrowstreet, Architect

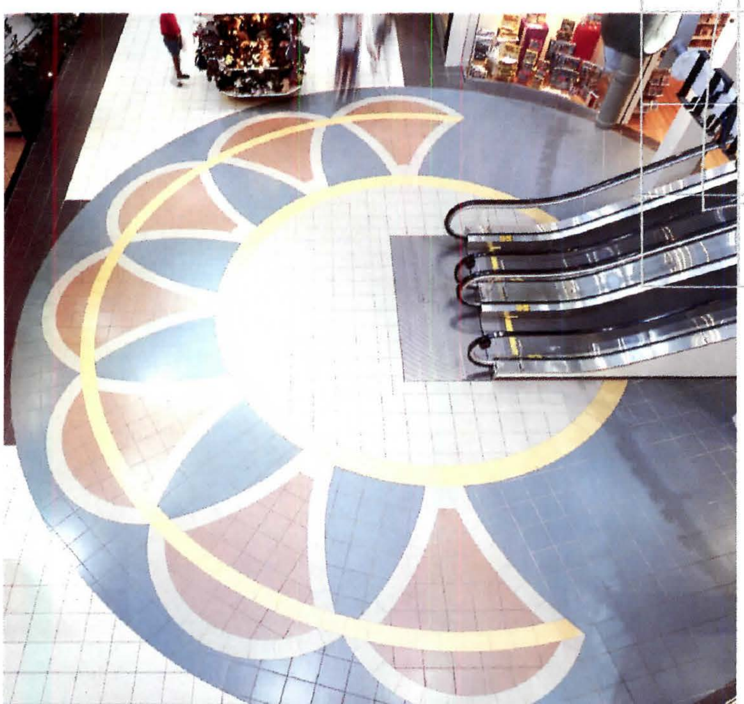
Arrowstreet has relied on CAD for years, but only ventured into the world of CAM for the new Natick Mall. The architect sought to restyle the vintage 1960s shopping center into a Victorian conservatory, complete with skylights, filigree railings, and foliage patterns.

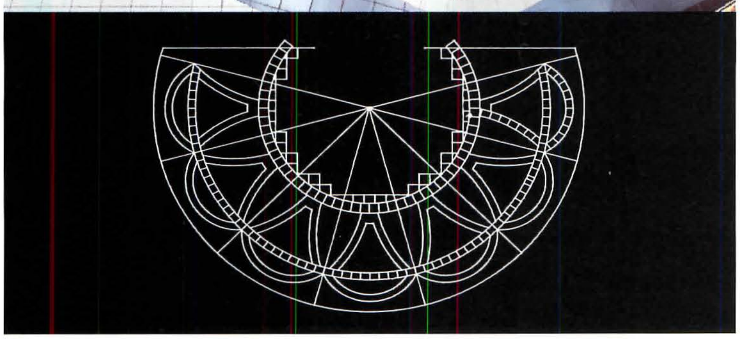
Two types of computer numerical control tools, operated by various subcontractors, produced the mall's highly decorative elements. Laser-beam cutters fashioned the steel railings, steel elevator cage, and aluminum entry panels, and water jets carved out the porcelain tile pattern and brass HVAC grilles. Both tools are accurate, fast, and can handle a range of materials. A laser can cut wood, acrylic, and plastic up to 1-inch thick; aluminum, copper, and brass up to 3/16-inch thick; and stainless steel up to 3/8-inch thick. Its cut line is only .007-inch wide, its speed a function of the particular material, thickness, and pattern. But because the laser burns its way through, it can leave a rough edge that may require additional finishing.

The cutting tool in water-jet technology is created by water pressurized at 55,000 pounds per square inch, forced through a .013-inch-diameter opening, and mixed with an abrasive such as garnet. This knifelike stream can carve ceramic, tile, stone, marble, glass, and metals up to 8-inch thick. A water jet runs a little slower than a laser and, at .04-inch wide, is slightly less precise, but it can cut thicker materials with a smoother finished edge.

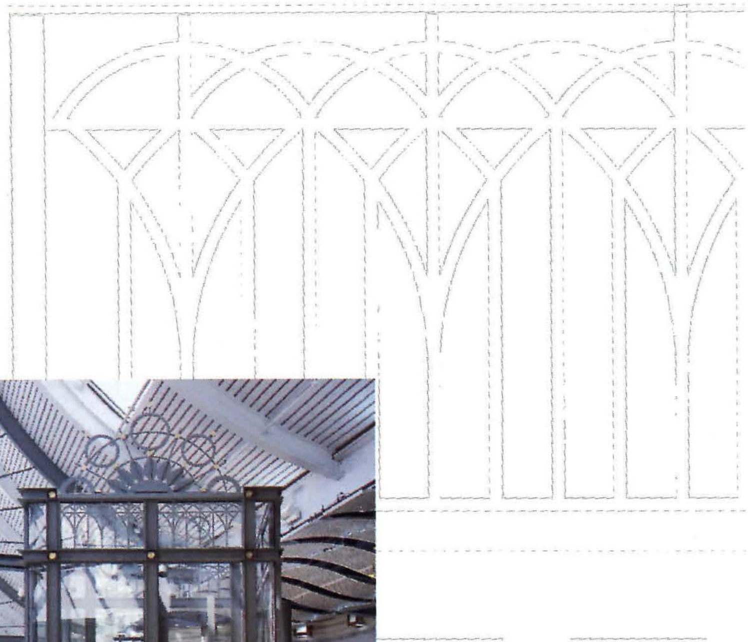
Such machinery gave Arrowstreet freedom to develop elaborate motifs. Associate Patricia Cornelison recalls no limitations on the metal elements, as long as a single panel was not larger than the shop's cutting table. Once the designs were complete in AutoCAD, they were translated into generic DXF files and forwarded on electronic disks to the appropriate subcontractors.

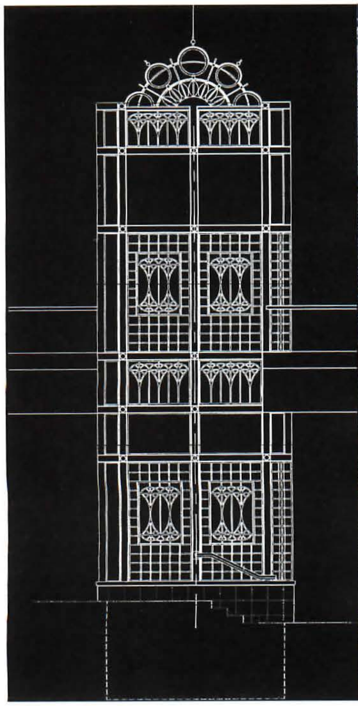






Over 10,000 square feet of porcelain tile flooring was fabricated for the Natick Mall with abrasive water-jet technology by Jet Stream of West Conshohocken, Pennsylvania. Ornate tile patterns at focal points, such as the escalator landing, maintain a 12-inch grid off the generic grid of the background tile field. Working from Arrowstreet's CAD file, Jet Stream divided the curved pattern into incremental pie shapes. Within each wedge, the tiles' parallel lines are all cut according to the same radial angle. The fabricator overlapped a petal segment on

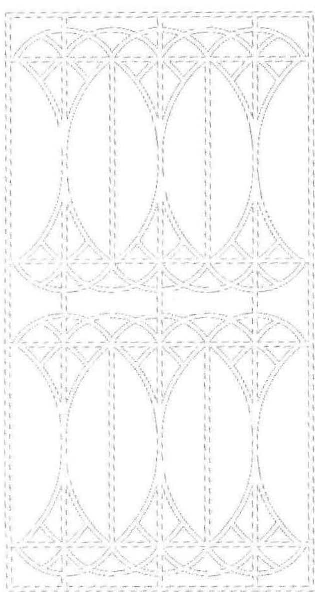


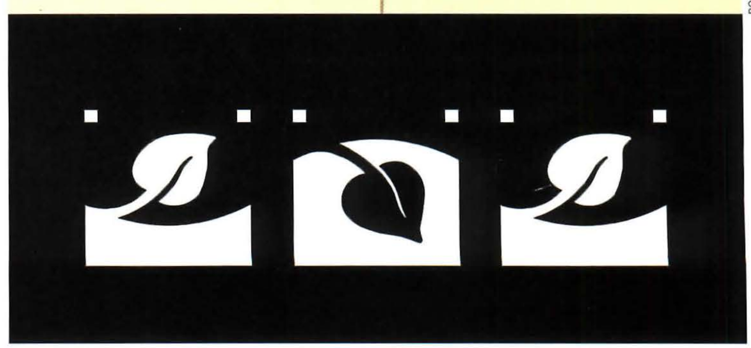


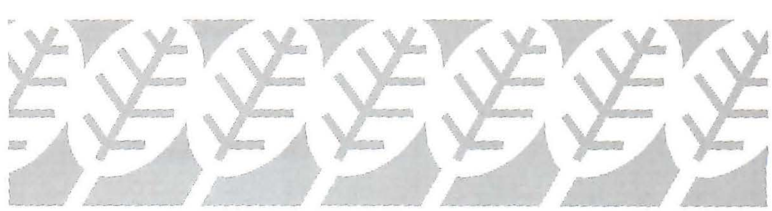
a 12-inch grid to determine the most efficient cutting pattern. This information was then entered into a computer numerical control program, which cut the individual tiles.

With a laser cutter, Capco Steel of Providence crafted elevator cage and railings from $^{3}/_{8}$-inch steel plates. Architectural Accents/Signworks Group of Boston fashioned over 160 brass HVAC grilles with four different leaf patterns by employing water-jet technology. Although Arrowstreet provided the Signworks Group with designs on disk, the fabricator produced full-size drawings for review and refinement. Prototypes were then generated to confirm the fastening method before the entire run of ornamental grilles was produced.

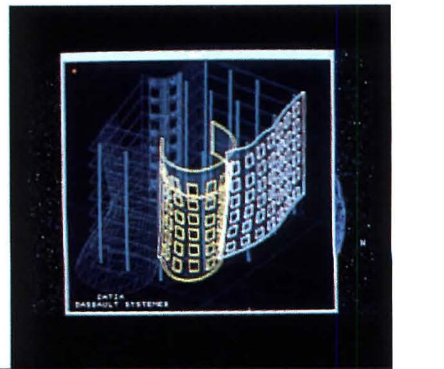
ROBERT E. MIKRUT PHOTOS







Computer-controlled Curvature



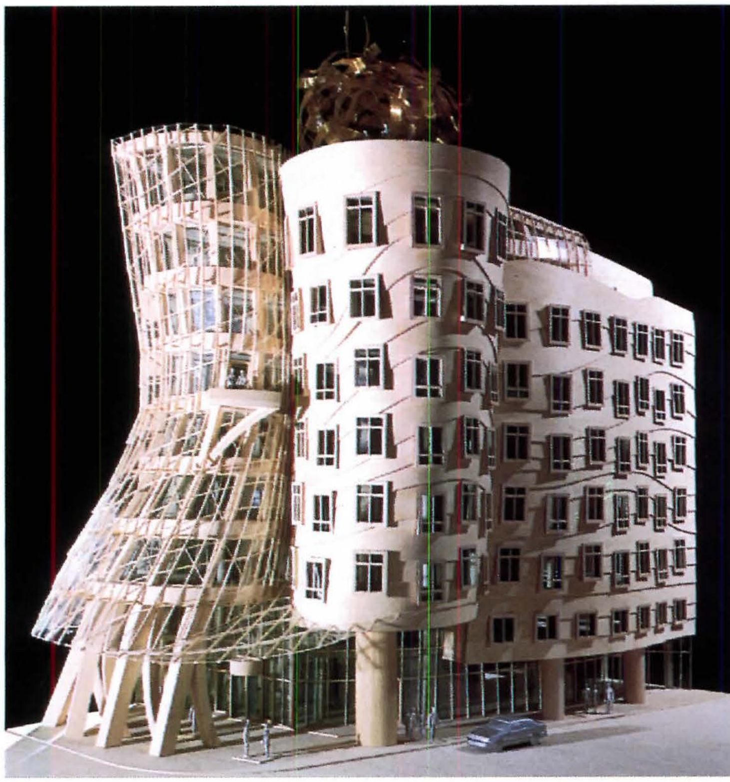
Rasin Office Building
Prague, Czech Republic
Frank O. Gehry & Associates

Since 1990, Frank O. Gehry & Associates has refined the application of sophisticated 3D modeling software—originally developed for the aerospace industries—to the design and construction process. They currently employ the programs Catia, by Dassault, and Parametric Technology's Pro/ENGINEER. Unlike earlier modelers, which typically relied on polygons to approximate an object's surface, this advanced software formulates equations to represent every point exactly.

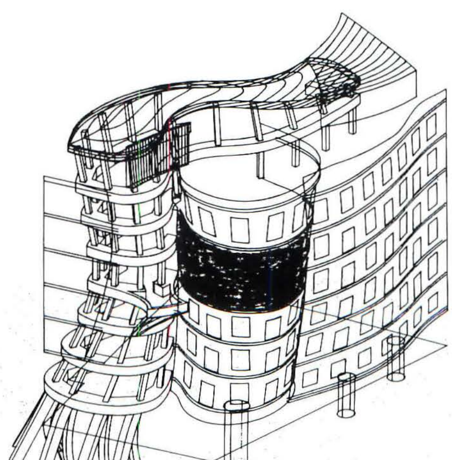
Gehry uses the 3D modelers to document the complex geometries that evolve from his physical massing models. The software directs machinery to produce more detailed models, assists fabricators in developing shop drawings for conventional manufacture, and in some instances, controls the equipment that fabricates building components.

The Rasin building, due to be finished in early 1996, is the firm's most complete 3D-modeled building to date. The exterior wall, made of precast concrete and clad with a shaped insulation-and-plaster system, is known as the Wave because of its staggered windows and undulating striations. The two towers are fondly nicknamed Fred and Ginger by the public. Fred is also formed by precast concrete and clad with insulation and plaster; Ginger sports an angled, glass-and-steel curtain wall.

In addition to assisting the construction team with data from the original Catia model, Gehry provided an AutoCAD 3D translation to local Czech architects for precasting operations and field erection; they in turn developed AutoLisp routines for the general contractor. Gehry also sent the final Catia model to the curtain wall, storefront, and window fabricators, making it possible for the various subs to comprehend—and construct—the highly irregular components of Ginger, Fred, and the Wave.

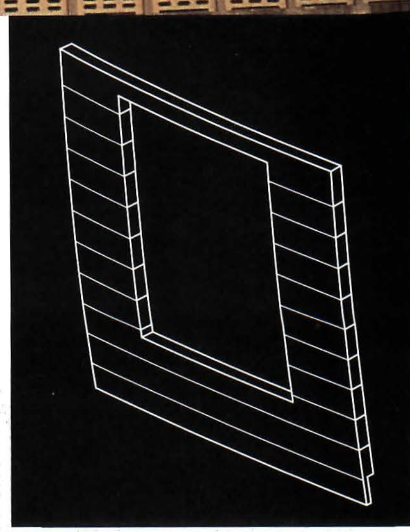


JOSHUA WHITE PHOTOS



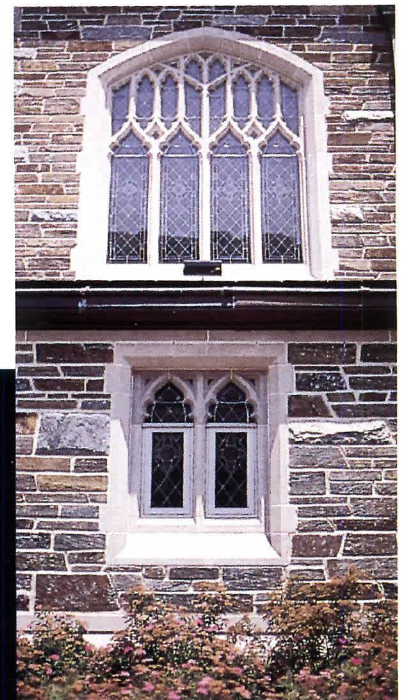
Gehry's sculptural building was designed through detailed physical and computer models. Plaster casts of the two towers served as formal controls for their computer-generated counterparts: virtual models were initially developed by digitizing the plaster replicas' dimensional data. The final physical model was largely built with the help of a three-axis, computer-controlled milling machine.

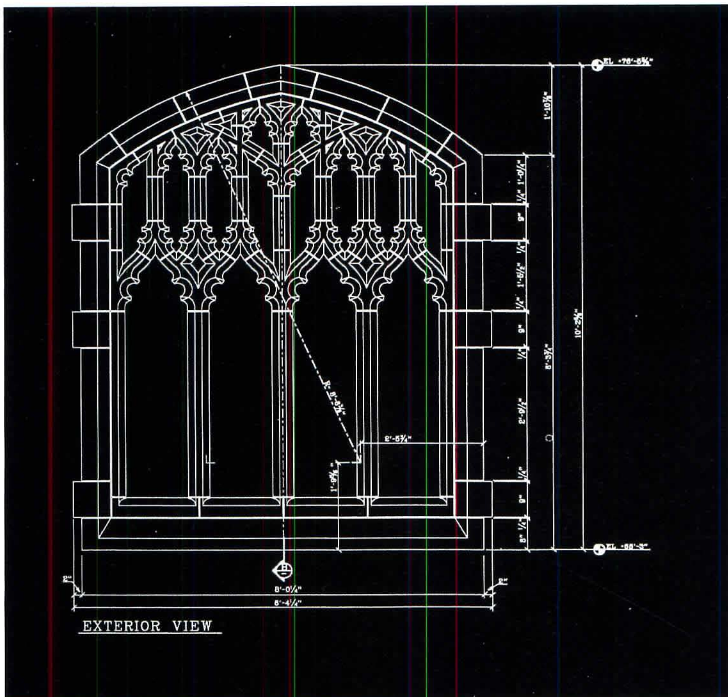
The building's geometries are irrational and nonrepetitive. The angled tower's vertical steel T-members, for example, are curved in two directions and twisted; no two glass panels are the same. Catia drawings and analyses assisted fabricators in meeting these challenges, such as creating reusable formwork for casting the concrete panels. A computer routine sorted the panel geometries into groups of five or six based on their surface curvature. Each group is cast from the same form, which is modified slightly after each pour for the next unique shape. The precast concrete, insulation-and-plaster finish, and metal window were verified in a mock-up panel before construction began.

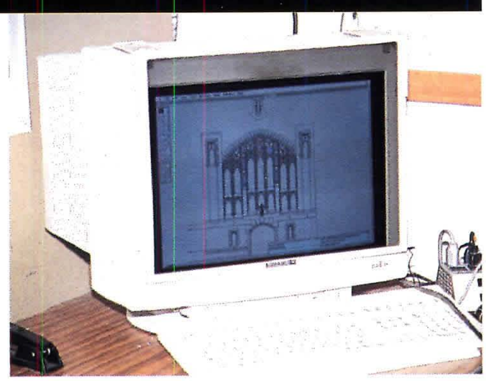


Machine-milled Gothic

Western Presbyterian Church
Washington, D.C.
KressCox Associates, Architect







In 1989, the congregation of the Western Presbyterian Church decided to vacate the original building, built in 1930, and relocate five blocks away. Although the new structure is larger and more modern, its sanctuary recalls the old church's distinctive English Gothic style.

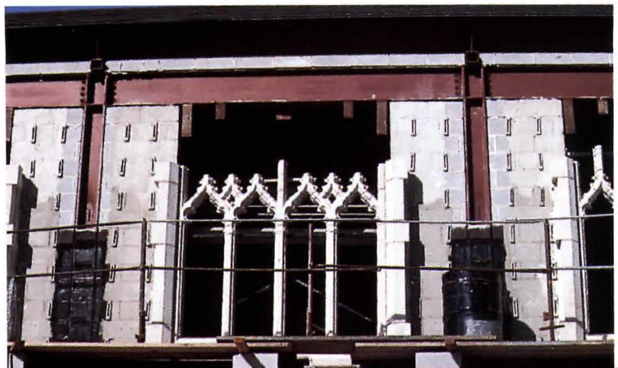
Architect KressCox assumed that much of the mica-schist rubble and limestone for the new sanctuary would come from the original building, scheduled for demolition. However, stone fabricator David Teitelbaum, former president of Cathedral Stoneworks, explained that dismantling, repairing, and resetting the badly weathered stones would be neither cost-effective nor produce high quality. He recommended new stone and showed that the sanctuary's ornate limestone tracery could be rough-cut through CAD/CAM. The rubble stone and simpler limestone trim were cut by hand tools and traditional machinery, respectively.

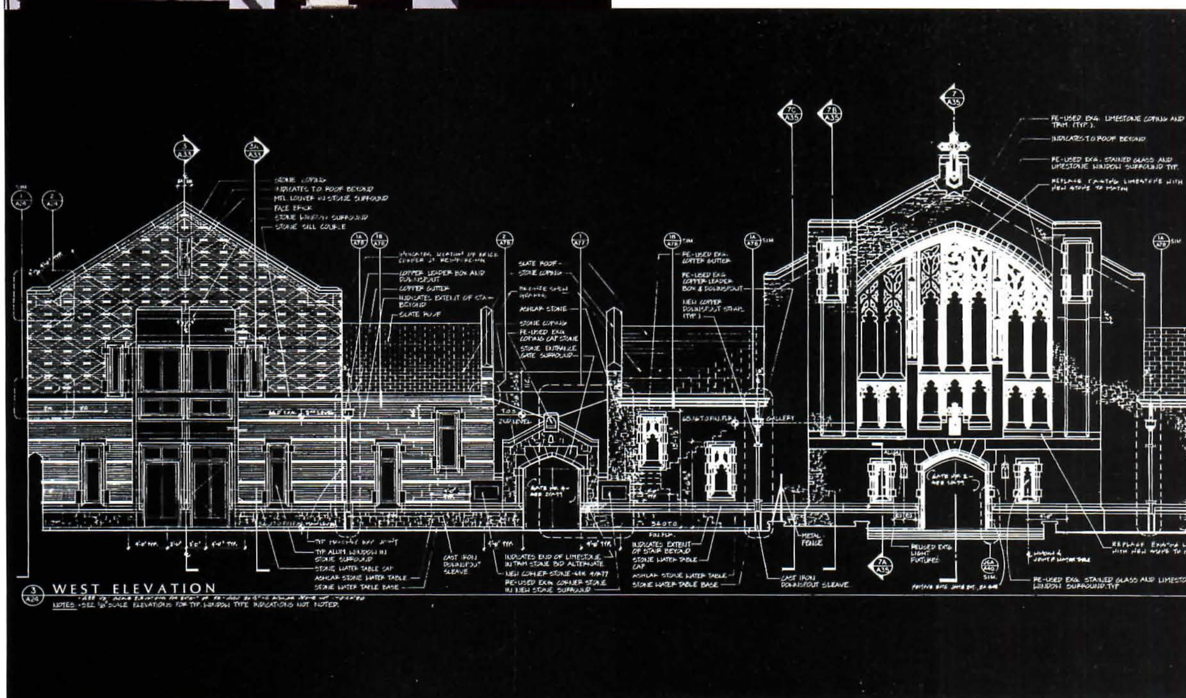
Blocks of Indiana limestone were delivered to Stoneworks' New York City shop, where they were cut into slabs with a standard gang saw, then cut into smaller pieces by a computer-controlled profiling saw and shaped on an automatic milling machine. Once cut roughly to size, the shapes were finished by hand with traditional masonry tools. The fabricators test-assembled the elements of each window in the shop. Alan Byrd, clerk of the works, estimates that out of the nearly 1,000 stone pieces carved for the windows, the cutting was so precise that only one of the stones had to be reshaped.

Teitelbaum believes that architects should communicate on-line with suppliers early in a project to learn a material's limitations during design. Unfortunately, they won't be able to learn from Stoneworks, which ceased operations in April 1994 after construction ended on the Cathedral of St. John the Divine.

Western Presbyterian's new sanctuary closely resembles its predecessor's, with its 30-inch-thick rubble-stone walls, stained glass set within limestone tracery windows, and stained oak millwork inside. Although less ornate, the cladding of the new administrative wings is sympathetic to the main religious space: the same rubble stone forms the base; the walls are clad in four shades of brick that echo the rubble's varied colors; and the window, door, and running trim is made of limestone.

To replicate the rubble and limestone of the old sanctuary, Cathedral Stoneworks first measured the original facade's elements, and with MicroStation software by Bentley Systems, prepared electronic shop drawings for stone fabrication and setting. For those pieces to be cut by computer-controlled machinery, such as the limestone window tracery, the fabricators translated the MicroStation lines and arcs into SmartCAM. This software in turn converted the design information into machine code, which specified directions for automated saws and routers.





MAXWELL MACKENZIE

Fabricator Teitelbaum explains that, while CAD/CAM was cost-effective, timesaving, and helped the shop achieve a high level of consistency among the facade's elements, it still cannot capture the artistic quality of hand-chiseled stone. How much should stone be cut by computer and how much by hand depends on scheduling, craftspeople, and the effect desired.

Repairing Historic Windows

Determining the right way to upgrade sash, frames, and glazing requires balancing authenticity with performance and cost.

Of all the architectural elements to be renovated in an historic building, perhaps none is as problematic as the window. Inappropriate changes to windows can drastically alter a building's appearance, affecting architectural integrity as well as historic significance. The difficulty of renovating historic windows lies in determining what is appropriate to repair, replicate, or replace.

For guidance, architects often refer to the Secretary of the Interior's Standards for Historic Preservation, criteria established in conjunction with the Tax Reform Act of 1976. Urging conservation of original architectural features whenever possible, the standards have served as the preservation equivalent of the Hippocratic oath: in short, "Do no harm." But like doctors, architects working on historic projects are frequently faced with difficult choices, conflicting opinions, untested technologies, ethical dilemmas, uncertain diagnoses, vendor bias, review by nonprofessionals, and the need to control costs. What's an architect to do?

Compromise is frequently the answer, especially in the area of window repair. Fortunately, the window industry has evolved since tax incentives and the energy crisis joined forces in the mid-1970s to encourage window rehabilitation, often with solutions that failed to authentically replicate historic originals. Today, window suppliers offer many more historically accurate products for projects where replacement is the reasonable solution. Many owners—and some architects—still approach preservation projects with a strong bias against retaining historic windows because of cost and energy concerns. But new techniques for repairing and adapting original materials, when paired with considerations of long-term expense and the architectural significance of historic windows, increasingly mean that retaining all or part of the original can be the most cost-effective solution.

It still remains the most desirable. Just as window technology has evolved, so too has understanding of the value of historic windows. More restoration architects are trying to preserve original glass and hardware, as well as frames and sash, to retain the unique character of these features. "Replication is not the same," insists Andrea Gilmore of Building Conservation Associates. "It's like buying reproduction furniture when you could have real antiques." Richard Muckle, a restoration contractor, agrees: "The reason for replacement is absence." Applying storm sash to restored windows, adapting new sash to original frames, or installing insulated glass in the original sash can boost energy efficiency and meet budget constraints.

Current window restoration practice is the study of decision making—of the process of evaluating choices and priorities, of educating and negotiating. The success of a window restoration project derives equally from technical sophistication, availability of skilled craftspeople, and cooperative exchange of information between architects and builders in the project's earliest stages. "Consult with a competent contractor before you go too far," architect Henry Moss, of Bruner/Cott & Associates, advises practitioners. "Doing investigations and mock-ups with someone you trust can really help in understanding what you're getting into."—*Elizabeth Padjen*

Elizabeth Padjen, FAIA, is president of Padjen Architects in Topsfield, Massachusetts, and the Boston Society of Architects.

Recommended Wood Window Conservation Procedures

Procedure	Technique
Sash Restoration	
Remove sash	Label sash with a metal stamp along edge; bag and label hardware. Numbering should correspond to window schedule and building elevations.
Remove paint	Use noncaustic stripper, preferably methylene chloride.
Remove glass	Glass should be salvaged and reglazed wherever possible. Use heat plates to remove compound left after stripping. Scrape glass clean of glazing compound; wash and scrape rabbets clean. Treat with boiled linseed oil prior to glazing.
Assess sash condition	Compare stripped sash to window schedule; adjust scope of work if necessary.
Disassemble sash	Disassemble sash only if necessary. Locate and remove pegs, dowels, or pins which connect stiles to rails at mortise-and-tenon joints. If muntins attached by through-tenons are sliced at their exposed ends and wedged tight, carefully remove wedges prior to removing muntins.
Sash Repair	
Repair sash	Match original wood species or provide dutchmen at deteriorated muntins, stiles, and rails. Perform epoxy consolidation or filling; fill hardware screw holes with glued-in wood plugs. Square sash; glue and dowel stile and rail joints; stabilize muntins in mortises.
Paint sash	Plane or sand surfaces smooth, making sure epoxy repairs are accurate and flush with adjacent wood so that moisture cannot be trapped. Reset glass in an even bed of linseed-oil-based glazing compound; set heavy glass with rubber or wood shims to prevent sliding. Glaze exterior with glazing bead to match rabbet width. Allow compound to set for at least 48 hours. Use sufficient size and quantity of glaziers' points to hold glass in place; preprime all stripped sash with a penetrating sealer. Prime and paint.
Reinstall sash	Install new parting beads where required. Reset interior stops; balance sash. Install weather stripping where specified.
Frame Restoration	
Repair sill	Remove and replace sills only as a last resort, when side jamb ends have failed.
Repair jamb	Repair by epoxy consolidation and filling, and with dutchmen. Provide blocking at weight pocket, jamb to stud. Apply boiled linseed oil to jamb tracks.
Repair brick molding and casing	Remove brick molding for reinstallation; repair casing with epoxy or dutchmen. Repoint masonry at inside-edge juncture with casing; remove old caulking from masonry and brick molding. Reinstall brick molding and provide backer rod and polyurethane caulking at joint.

COURTESY OF MUCKLE & ASSOCIATES

Recommended Metal Window Conservation Procedures

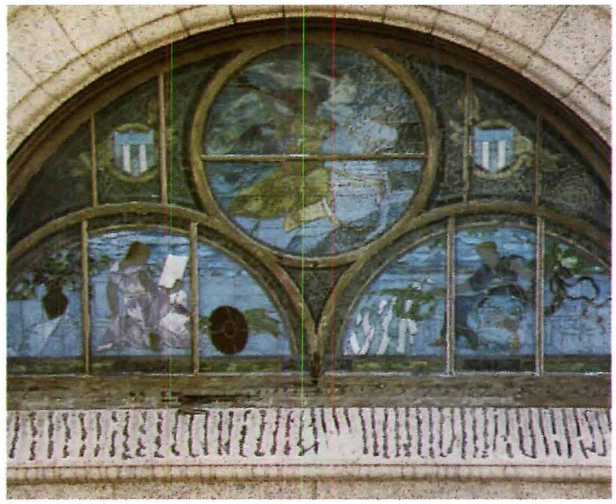
Procedure	Technique
Remove dirt and grease	Maintain and chemically clean with vacuum and bristle brushes to remove dust and dirt, with solvents (denatured alcohol, mineral spirits) and clean cloths to remove grease.
Remove rust and corrosion	For light rust and corrosion, manually and mechanically abrade with wire brushes, steel wool, rotary attachments to electric drill, sanding blocks and disks. Wear safety goggles and masks. Chemically clean with anticorrosive jellies and liquids (phosphoric acid preferred), and clean damp cloths. Protect glass and metal with plastic sheets attached with tape; do not flush with water. Work in ventilated area. For medium rust and corrosion, sandblast with low pressure (80-100 psi) and clean with small grit (#10-#45) or glass peening beads. Pencil blaster gives good control, removes paint and rust: may require environmental compliance. Shield glass and masonry; operator should wear safety gear. For heavy rust and corrosion, remove glass and hardware. Chemically dip. Dip metal sections into chemical tank (phosphoric acid preferred) from several hours to 24 hours. Deep-set rust may remain, but paint will come off. Sandblast at low pressure (80-100 psi) and clean with small grit (#10-#45). Remove or protect glass; prime exposed metal promptly. May require environmental compliance; wear safety gear.
Remove flaking paint	Strip with chemicals suitable for ferrous metals; use clean cloths. Protect glass and masonry; do not flush with water. Provide good ventilation and protection for operator. Mechanically abrade with pneumatic needle gun, chisels, sanding disks.
Align bent, bowed metal sections	Remove glass in affected area. Apply pressure with wooden frame as a brace for cables and winch mechanism. Realignment may take several days. Remove to a workshop. Apply pressure and heat to bend back. Care should be taken that heat does not deform slender sections.
Patch depressions	Apply epoxy and steel filler (plumber's epoxy or autobody patching compound) and sand smooth. Patches should be primed. Weld patches using steel rods and oxyacetylene torch or arc welder. Prime welded sections after grinding connections smooth.
Splice in new metal sections	Cut out decayed sections and weld in new or salvaged sections; torch to cut out bad sections back to 45° joint. Weld in new pieces and grind smooth; prime welded sections after grinding connections smooth.
Prime metal sections	Brush or spray application of at least one coat of anticorrosive primer on bare metal. Zinc-rich primers are generally recommended. Metal should be primed as soon as it is exposed.
Replace missing screws and bolts	Routinely maintain.
Clean, lubricate, or replace hinges	Routinely maintain and clean with solvent suitable for bronze or other hardware-appropriate metal. Use solvents (mineral spirits), bronze wool, and clean cloths.
Replace glass and glazing compounds	Apply through standard methods.
Caulk masonry surrounds	Apply through standard methods with high-quality elastomeric caulking compound for metal.
Repaint metal windows	Spray or brush with at least two coats of paint compatible with anticorrosive primer. Paint should lap the glass about 1/8-inch to form a seal over the glazing compound.

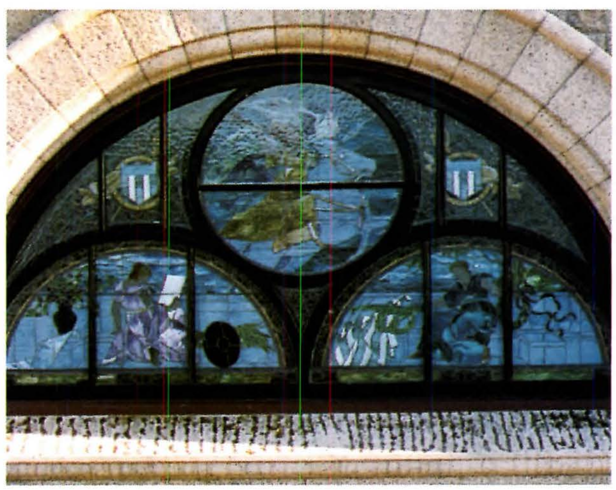
ADAPTED FROM THE NATIONAL PARK SERVICE'S "PRESERVATION BRIEFS: 13"

Wood Restoration

Pollard Memorial Library
Lowell, Massachusetts
McGinley Hart & Associates

Restoring frames and sash may not be enough to maintain the character of historic windows, if the original glass is lost. Repairs to the historic glass of the Pollard Memorial Library included edge-gluing the broken glass with epoxy, resetting stained-glass panels, replacing copper tie wires, resoldering broken lead joints, and adding steel stiffeners to weakened sash.





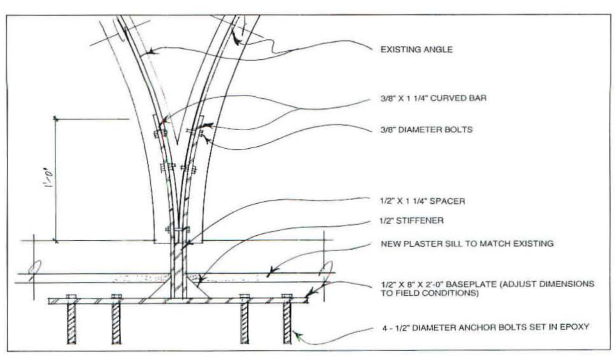
Designed by Boston architect Frederick Stickney, the Pollard Memorial Library was completed in 1893, partly destroyed by fire in 1915, and then rebuilt to retain its original Romanesque appearance. In 1992, the city of Lowell hired McGinley Hart & Associates to repair and restore the building's exterior. Modifications were subject to review by the Lowell Historic Board and the Historic Preservation Commission, a division of the National Park Service.

Most of the 158 wood windows—a mix of fixed sash with circular and radial muntins, curved sash, and 1-over-1 double-hungs—were either original or dated from the 1917 reconstruction, and had suffered from deferred maintenance. Some sash and many sills were deteriorated, although Wendall Kalsow of McGinley Hart notes that the sash condition was far better than in other similar projects, because the deeply set windows were well protected and the sash itself, 2¼-inch instead of the usual 1⅜-inch or 1¾-inch, boasted unusual structural durability.

McGinley Hart determined that the historic sash and frames could be restored. Bid documents included an alternate for interior storm windows, which were ultimately installed in areas of the building more utilitarian in character. Because of cost and concerns about weakening the sash, weather stripping was installed only at the meeting and bottom rails—primary locations for air infiltration. The glazing was also examined, and the historic glass was retained after determining that there was no cost-benefit in replacing it.

Rehabilitation procedures were described in the window repair schedule and specifications and implemented by Muckle & Associates, a general contractor with extensive restoration experience. The sash were removed and labeled in accordance with the window schedule, and the original hardware was bagged and labeled. A professional stripper then removed the paint using heat plates (although chemical stripping is generally more efficient and causes less breakage) and dissolved the glazing compound with solvent.

The historic glass was removed and cleaned for resetting. Sash and frames were repaired using dutchmen and epoxy consolidation; the hardware screw holes were filled with glued-in wood plugs instead of epoxy, which can be too brittle when screws are reset. The glass was reset in an oil-based glazing compound, which was allowed to set for 48 hours before the sash were primed with a penetrating sealer and then painted.

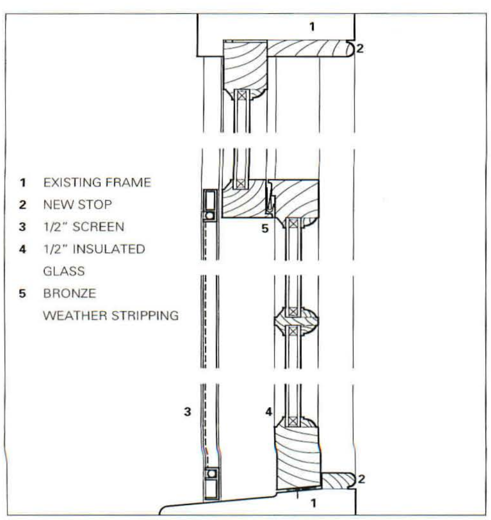


DETAIL OF REPAIRS TO SASH AND FRAME

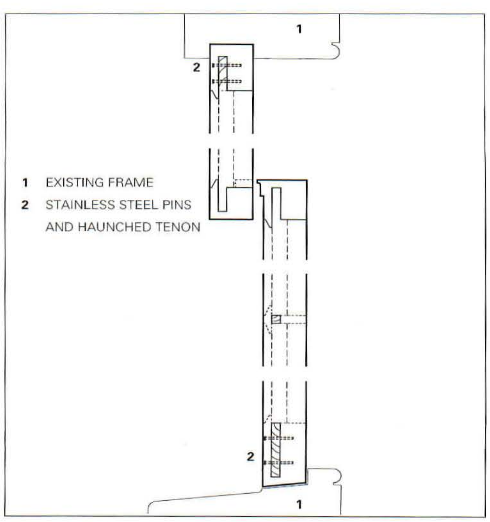
Wood Replacement

Holworthy Hall, Harvard University
Cambridge, Massachusetts
Ann Beha Associates, Architect

The 7/8-inch-wide muntins frequently found in historic windows can be difficult to adapt to insulated glass. "It takes dimensional finesse," according to Peter Scozzari of window subcontractor Cheviot Corporation. "A lot of manufacturers and custom-glass suppliers want to avoid the fine tolerances and the risk of waste and won't give warranties." At Holworthy Hall, the 7/8-inch sight line was maintained, but the 1 1/8-inch overall depth was increased to 1 1/4-inch to accommodate 1/2-inch insulated glass. Although the original glass had been set from the exterior and putty glazed, the new glass (with anodized bronze spacers) was set into a T-shaped muntin bar with interior removable stops, replicating the original muntin profile.



WINDOW SECTION



SASH SECTION

Designed in 1811 by Loammi Baldwin, the father of civil engineering in America, Holworthy Hall was the first of the Harvard dormitories to provide two-bedroom suites with large studies. Located on the northern edge of what is now called the Old Yard, it was recently part of an extensive renovation program of all the Yard buildings, an ongoing project reviewed by the Cambridge Historic Commission.

Fabricated of eastern white pine and set into brick, Holworthy Hall's 12-over-12 windows presented problems typical of many historic wood windows: deteriorated (but repairable) frames, deteriorated sash with loose stile and rail joints, heavy wear-and-tear on the thin muntins, brittle glazing putty, no weather stripping, only marginally effective storm sash, and loose hardware and locks. The building also featured interior wood shutters, used in many early buildings for sun control and heat retention.

Harvard conducted an extensive investigation of window options for all the Old Yard dormitories, including aluminum, aluminum-clad, and various muntin configurations. "Retaining the historic fabric of the Old Yard was important to both the college and the Historic Commission," explains Elizabeth Randall, capital projects manager for Harvard's Faculty of Arts and Sciences, "so we gave strong consideration to retaining the original windows and replacing only the storms to address concerns about energy efficiency."

A subsequent poll of the students living in the dorms, however, revealed that they never used the existing storm windows. The university concluded that double-glazing would be the best choice and secured the Cambridge Historic Commission's approval of true muntins that would replicate the appearance of the originals. Mock-ups were made and approved, becoming part of the Old Yard restoration standards for cleaning, painting, repair, weather stripping, hardware, weights, and chains.

From the outside, the windows closely resemble the originals; the interior appearance is somewhat flatter because of the depth of the insulated glass units. The interior wood shutters have been restored, and half-screens running in baked enamel channels have been installed at the exterior. Although Harvard felt that special glass would be unnecessary in *Holworthy Hall* because the individual lights are relatively small, Bendheim Restoration Glass and low-E laminated glass have been used in other Yard restoration work.

Aluminum Replacement

AT&T Corporate Headquarters
New York City

Development of colored spacers for insulated glass units, custom finishes, true divided lights with shaped muntins, and customized panning profiles have made the aluminum replacement industry more responsive to historic and esthetic concerns.

Built in 1914 by Cyrus L.W. Eidlitz, AT&T's original 17-story tower became the largest telephone central office in the country when it was expanded in 1918 to 24 stories. Later additions by Ralph Walker in 1932 and 1949 brought the Art Deco building to its present size of 1.5 million square feet. Modifications to the building are subject to review by the New York City Landmarks Preservation Commission.

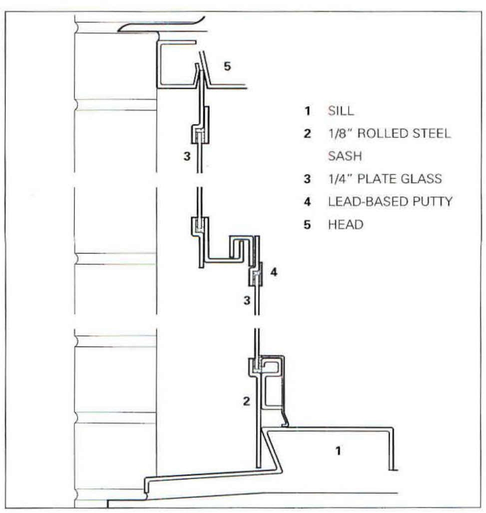
Although nearly all of the existing sash were 6-over-6 double-hung, the building featured two primary window configurations. Windows in the 1914 and 1918 sections were set back in the masonry opening and fabricated of sheet-metal-covered wood with 1 3/4-inch-deep muntin profiles, thus creating strong shadow lines. The later windows were steel, with relatively flat muntins almost flush with the facade. Rust had made the steel windows inoperable, and the sheet-metal-covered wood windows were severely deteriorated due to rot and distortion.

After briefly considering steel replacement windows, the owner determined that aluminum windows with applied muntins would be most cost-effective and provide a good visual match. An insulated glass window with a false muntin grid adhered to the exterior face of the glass was approved; AT&T's preferred solution, a grid applied to both the interior and exterior, was rejected by the Commission because of concerns over the appearance of a double grid separated by the thickness of the insulated glass.

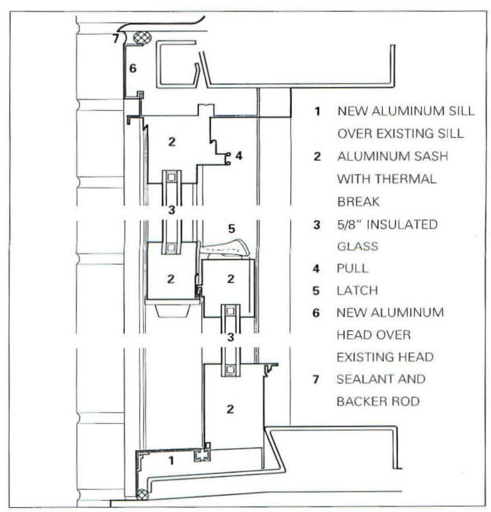
The approved units were installed on three floors, but according to AT&T project manager Ed Zwisler, the muntin grid did not match the historic windows, and from the interior, the adhesive's appearance was unacceptable. Zwisler then turned to EFCO Corporation, a manufacturer who offered to provide windows with true divided lights for the same cost as those with applied muntins. EFCO windows were subsequently installed in two configurations corresponding with the original windows. Extruded exterior stops and brick molding replicate the historic profiles in the 1914 and 1918 structures, and AT&T paid the costs of two new dies required for windows in the 1932 and 1949 additions.

The owner plans to replace the 1,600 windows in phases as it renovates the building, according to a master plan negotiated with the Landmarks Preservation Commission. Seven floors have been completed, and another seven are scheduled for renovation next year.

MICHAEL MORAN PHOTOS



ORIGINAL WINDOW SECTION 2"/5.08cm

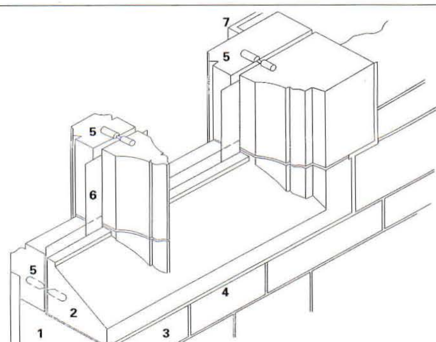


RESTORED WINDOW SECTION 2"/5.08cm

Steel Replacement

Ruttenberg Hall, Yale University
New Haven, Connecticut
Kallmann McKinnell & Wood

Replacing windows may not be enough to correct water damage. At Yale, windows with the most serious perimeter damage were repaired by removing the adjacent limestone and installing lead-coated-copper through-wall flashing. Where water migrated around the frames through the porous limestone, "water stop" flashing was installed at the jambs to conduct water to a sill pan flashing.



1 BRICK RUBBLE BACK-UP
2 LIMESTONE WINDOW SURROUNDS
3 GRANITE AND LIMESTONE CLADDING, 4" TO 8" THICK
4 FLASHING DRIP EDGE
5 CEMENTITIOUS INJECTION GROUT ANCHORS WITH REMOVABLE FILL TUBES
6 LEAD-COATED-COPPER FLASHING
7 GYPSUM BOARD FINISH

DETAIL OF SILL AND JAMB

Designed in 1928 by James Gamble Rogers in the Gothic style, Yale's law school continued the pattern of courtyard development on the campus. The conversion of former dormitory space in Ruttenberg Hall into offices is the first phase of an extensive renovation project led by architect Kallmann McKinnell & Wood with engineer and exterior restoration consultant Simpson Gumpertz & Heger (SGH). The building is not landmarked and is not subject to design review.

The original windows were leaded glass set in steel casements. Both the windows and surrounding walls were deteriorated, but as Russell Davies of SGH explains, "Interior water damage might not be indicative of problems with the window units—it's often due to the conditions around them." Investigations revealed a host of factors: limestone porosity, thermal differentials in the walls, climatic conditions on some exposures, acid rain, heat and moisture trapped by storm windows, and roof leaks.

Proposed solutions included both new and restored casements, restored leaded-glass panels, and new $^{5}/_{8}$-inch insulated glass units (IGUs) with applied muntins or applied lead caming. After a series of glazing mock-ups were installed on site, muntin grids were quickly dismissed because of their less authentic appearance. Restoration of the original work obviously offered the best appearance, but new windows with new IGUs were selected for better performance at lower cost.

Replicating the look of the leaded glass with applied lead caming—lead tape applied to both sides of a light—was then similarly evaluated. Studies were done of the caming placement: at the exterior light, which looked most authentic from the outside, or at the interior light, which looked best from inside and would preserve the new caming longest.

Yale selected interior placement, although it has chosen the exterior alternative in other campus restoration work. Textured, colored mylar film applied to interior surface no. 3 matched the placement of colored glass in the original leaded windows. The original lead "vining," the lines of leading that run diagonally across the lights, was replicated with applied caming.

Window units from three manufacturers were compared. Hope's windows were selected, even though the sight lines were slightly wider than in the originals, which required reconfiguring the leading pattern in both the applied caming of casements and restored transoms.

Products

New columns, balusters, and millwork replicate original Classical elements.

TOP: The entrance portico at Trinity Broadcasting in Texas features exterior columns by NT Hartmann Sanders. Column shafts are available in plain or fluted models; flutes can be either of Doric or Ionic orders. The manufacturer recommends solid-stave or finger-jointed redwood construction for exterior columns. Ponderosa pine, poplar, and mahogany are also available for interior applications. Capital designs, including Greek and Roman Ionic, Greek and Roman Doric, Corinthian, Erechtheum, and Tuscan orders, are composed of a solid, fiber-reinforced plaster. Fiberglass caps, bases, and plinths are available in 14 sizes, in 2-inch increments ranging from 10 to 36 inches in diameter.
Circle 401 on information card.

ABOVE: Fypon offers an extensive selection of more than 3,700 molded millwork details to customize entrances, porches, windows, and ceilings. Components include columns, arches, shutters, and balustrade systems. The manufacturer offers four variations of its standard polymer resin: restructured stone comprised of ground limestone and polyester resin, pigments, and fillers; fiberglass-reinforced plastic; fiberglass-reinforced gypsum for interior use; or a polymer that remains flexible for curved applications. For balustrade systems, a polymer resin is cast around steel pipes to form the balusters, and over vinyl pipes to shape railings and newel posts. Fypon claims the lightweight, durable components are impervious to weather.
Circle 402 on information card.

ABOVE: Dura Art Stone's expanded line of cast-stone balustrades includes six round and square baluster designs, eight cap and base rail combinations, and three pier styles. Each piece is cut, finished, and numbered at the factory and requires no mitering or finishing in the field. For restoration projects, balustrade components may be modified to replicate existing designs. Eighteen standard colors are available; smooth, acid-etched, or lightly sandblasted finishes can be specified.
Circle 403 on information card.

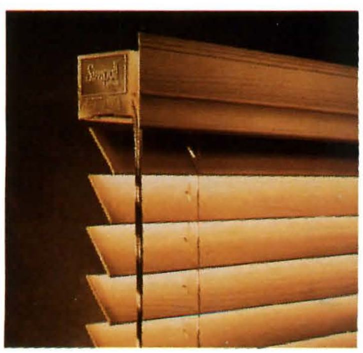
TOP: Readybuilt Products manufactures mantels and vent-free gas and electric fireplaces. Its wooden mantels are handcrafted from poplar, red oak, cherry, mahogany, and other hardwoods; Georgian, Victorian, and Federal styles are among the company's more than 100 designs for mantels, which can be custom-sized.
Circle 404 on information card.

ABOVE: Classic raised paneling from Marietta Millworks replicates custom millwork without the expense. These lightweight panels range from 12 to 18 inches wide; 8-foot-wide sections may be special-ordered. Panels are fastened to furring strips of 1/2-inch drywall, plywood, or wafer board, and molding is applied on top to transform basic drywall construction into custom-milled interiors.
Circle 405 on information card.

Products

Glazed floor tile

Integra (above) is the latest style in the Ultra Pavers glazed floor tile collection from American Olean. The tiles are available in 10 shades of brown, gray, green, and gold, in units 8 or 12 inches square. Color-coordinated wall tiles are also available. Integra is 5/16-inch thick with a cushioned edge, plus bullnosed and cove-base trim and corners.
Circle 406 on information card.

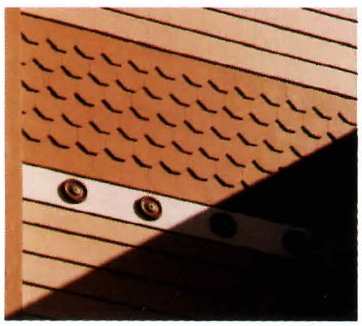


Blinds system

General Clutch's Roll-Ease Continuous Loop System introduces a new locking mechanism for blinds. Blinds can be adjusted by a single pull on the draw cord, without the traditional sideward locking action. The Roll-Ease system has been adopted by major shade manufacturers, including Nanik for its new Simpull 2-inch wood blinds (above).
Circle 407 on information card.

Egg lamp

Achille Castiglioni's Brera (above), designed for Flos, is inspired by Italian Renaissance artist Piero della Francesca's Brera Altarpiece of 1475. The fixture recalls the egg hanging enigmatically over the figures in the Tuscan masterpiece, and is available as a standing lamp, hanging fixture, or wall-mounted sconce. All models are fitted with a standard incandescent bulb.
Circle 408 on information card.

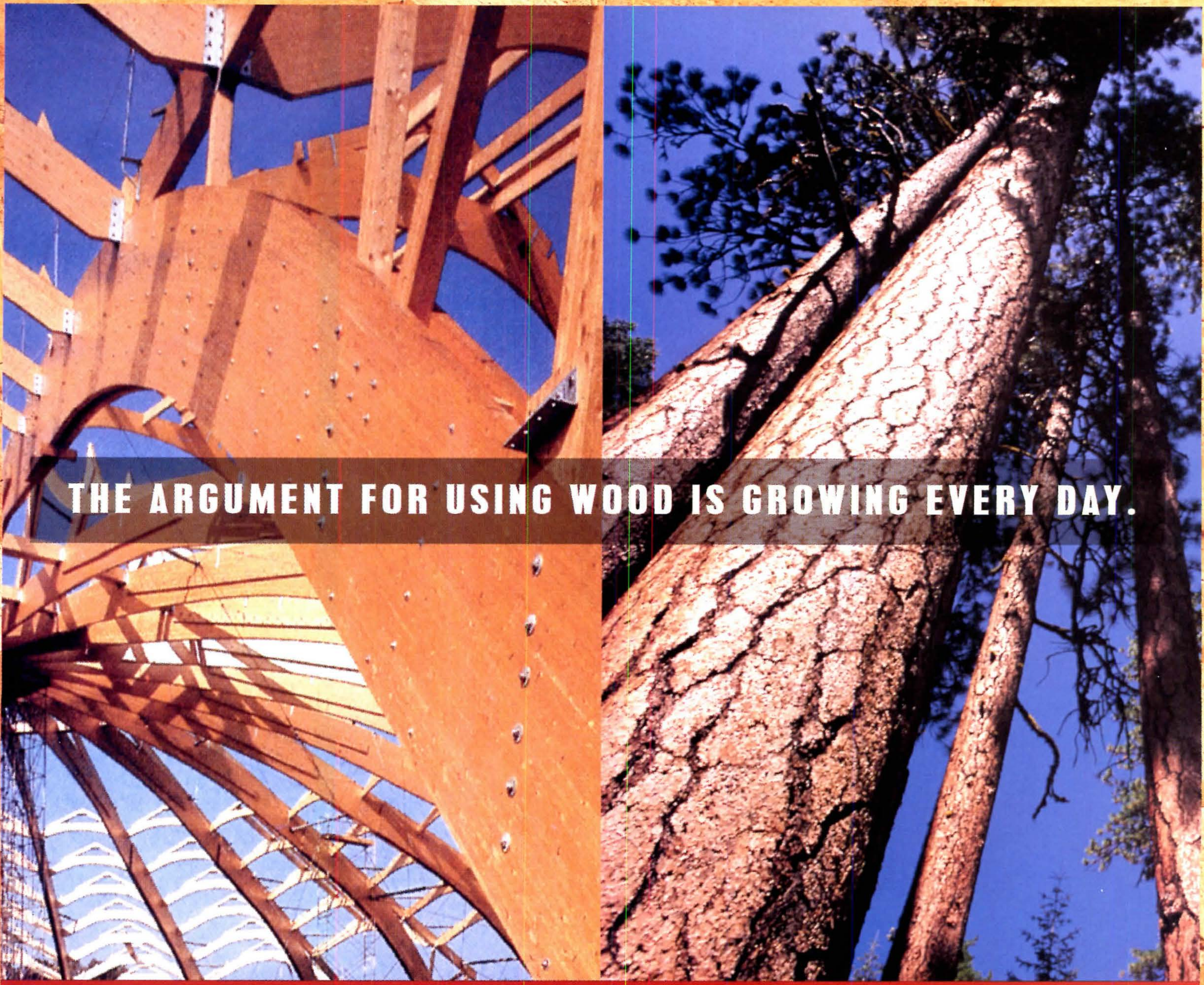


Fiber-cement siding

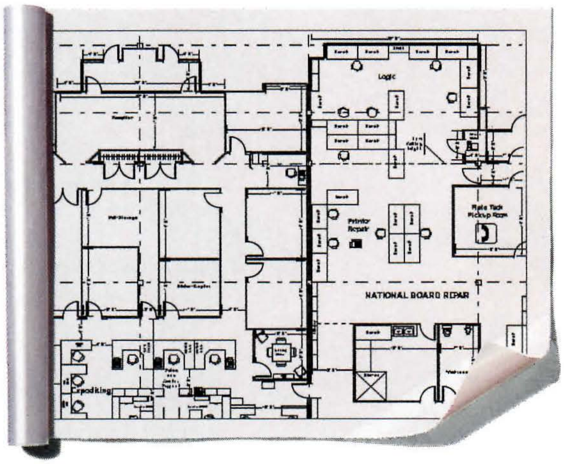
Hardiplank lap boards from James Hardie Building Products purportedly resist rot, splitting, and warping. The fiber-cement siding can be cut into virtually any shape without splintering, allowing for a broad range of custom effects (above). Available in up to 12-foot lengths, the lap-board siding holds paint as effectively as wood does.
Circle 409 on information card.

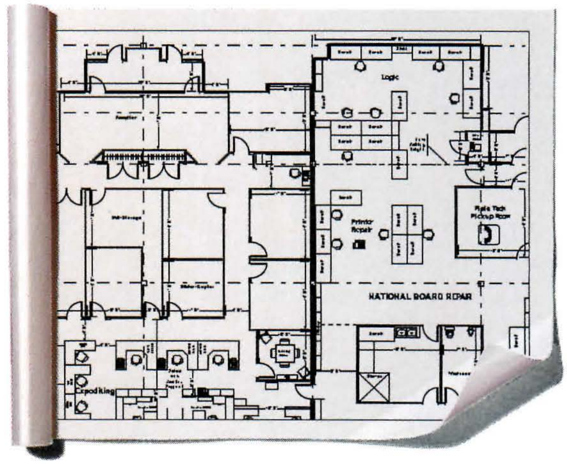
Classical columns

Melton Classics offers the five column orders as prescribed by Italian Renaissance architect Giacomo da Vignola, and are available in matching round, square, or pilaster configurations. Column shafts can be specified in virtually any commercially available wood. Capitals, bases, and plinths are available in loadbearing fiberglass, high-density polyurethane, or redwood.
Circle 410 on information card.


THE ARGUMENT FOR USING WOOD IS GROWING EVERY DAY.

THE BIGGEST DIFFERENCE BETWEEN THESE TWO DRAWINGS IS HOW LONG IT TAKES TO CREATE THEM.





Let's face it. There are times when nothing but high-end CAD software will do. But did you know, with new Visio® Technical 4.0, you can fly through 2D technical drawings and schematics in just a fraction of the time?

INTRODUCING THE MOST EFFICIENT WAY TO DO TECHNICAL DRAWING.

Visio Technical 4.0 is a revolutionary new Windows® program for architects, engineers, designers and others who create or use technical drawings. Unlike complex CAD software, Visio Technical is incredibly easy to learn and use. In an independent study conducted by Usability Sciences, experienced CAD users who had never used Visio before were asked to rate the leading CAD product and Visio in a variety of categories. The result? Visio won in every category, users completed tasks faster using Visio, and eight out of ten CAD users said they'd rather use Visio.

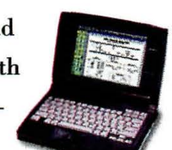
You can print your drawings in any standard size including ANSI A-E and ISO A4-AO.

Designed for Microsoft® Windows® 95

Microsoft® OFFICE Compatible

THE POWER TO SHARE, REVISE AND DISTRIBUTE YOUR DRAWINGS.

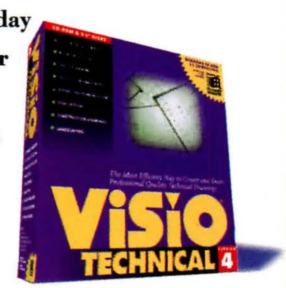
With Visio Technical's new DWG/DXF read and write capabilities you can easily work with existing CAD files and share your Visio drawings with other CAD users. Our leading-edge OLE 2.0 support lets you drag and drop your technical drawings into other Windows applications. Plus, you get both 16- and 32-bit versions in one box, so you not only get software that's been optimized for Windows 3.1 and Windows NT 3.51 — you can take full advantage of Windows 95.



With Visio Technical 4.0, you can create on-site drawings on your laptop.

ORDER VISIO TECHNICAL 4.0 TODAY AND SEE YOUR PRODUCTIVITY SKYROCKET.

Version 4.0 comes with a full 60-day money-back guarantee. To order for just $299 call (800) 24-VISIO, ext. L22 or visit your local reseller. Then, visit us on the web at http://www.visio.com.



For a copy of the Johnson Controls case study, showing how their switch to Visio Technical is saving millions each year, call (800) 24-VISIO.

Last Chance

Did you miss valuable information offered by advertisers in last month's issue of ARCHITECTURE?

The manufacturers listed below were advertisers in last month's issue. They are anxious to provide you with their latest product information and literature for your planning needs. To receive this information, circle the appropriate numbers on the self-addressed, postage-paid response card. For product literature from advertisers in this issue, circle the appropriate numbers shown on the advertisements.

Acme Architectural Walls
Find out more about our customized room walls. *Circle No. 247*

Advance Lifts, Inc.
Send for details on our versatile Advance Superdok. *Circle No. 165*

American Olean Tile
Contact us about our Contract Colorways™ computerized color-coordination system. *Circle No. 185*

American Standard
Send for details on our Innsbruck™ urinal. *Circle No. 197*

AMP, Inc.
Send for information on AMP NETCONNECT Open Cabling Systems. *Circle No. 191*

Andersen Corporation
In today's designs, it's the brand that helps you take value to new heights.

Armstrong World Industries
Get the facts on our new Ultima RH90 ceiling system. *Circle No. 173*

A-T-I
Find out why Alucobond® is always the smart solution. *Circle No. 199*

Bentley Systems
Get your free demo disk of MicroStation PowerDraft. *Circle No. 223*

Bradley Corporation
Send for a free shower design guide and layout book. *Circle No. 201*

Calcomp, Inc.
Send for more information on Techjet™ Color Inkjet Plotters. *Circle No. 211*

Calcomp, Inc.
Send for more information on our Techjet™ supplies. *Circle No. 157*

CNA Insurance
Contact us for information about our A/E Practice Program. *Circle No. 179*

C/S Group
Find out why C/S Acoustical Louvers perform best. *Circle No. 169*

Custom Building Products
Send for more details on our Lifetime Warranty. *Circle No. 245*

Dow Chemical
Send for technical literature on our PMR System and ROOFMATE Insulation. *Circle No. 193*

DuPont Antron
Find out why there's no equal to DuPont Antron® nylon. *Circle No. 195*

DuPont Corian
Get the facts on how Corian® can serve all of your design needs. *Circle No. 203*

Follansbee Steel
TCS®—the most permanent, maintenance-free roofing material available. *Circle No. 229*

Georgia Pacific
Call or write for more information on G-P PrimeTrim. *Circle No. 243*

Hewlett Packard
Send for details on all of our DesignJet plotters. *Circle No. 181*

Kim Lighting
Send for the facts on our Entablature™ outdoor luminaire. *Circle No. 177*

LCN Closers
We offer special controls designed to close fire and smoke barrier doors automatically. *Circle No. 161*

NAAMM
We're your one-stop resource for metal products spec and technical information. *Circle No. 171*

Nixalite of America
Send for information on Nixalite® superior bird control. *Circle No. 153*

Nucor Vulcraft Div.
With our nonstandard joists, you expand your design possibilities. *Circle No. 213*

Oce USA
Contact us for a complete information package on our Oce 7000 copier. *Circle No. 217*

Patina Finishes
Send for our free brochure on our "antique" finishes. *Circle No. 163*

Patio Enclosures, Inc.
Find out why we're the single source for quality sunroom products. *Circle No. 167*

Portland Cement Association
Send today for our latest technical update and list of material suppliers. *Circle No. 187*

Poulsen Lighting
Send for more information on our PH 5 Plus lamp. *Circle No. 249*

Pozzi Window Co.
Call or write for our free catalog. *Circle No. 219*

PPG Industries
Send for details on our Azurlite® glass. *Circle No. 235*

Roppe Corporation
Get the details on our Cerrito Collection. *Circle No. 175*

Schlage Lock Company
Send for information on our new AL-Series standard duty keyed levers. *Circle No. 209*

Schlage Lock Company
Send for more information on our D-Series Levers. *Circle No. 227*

Schuller Roofing Systems
Get details on Phenolic Foam Roof Insulation and possible steel deck corrosion. *Circle No. 155*

Siedle Communication
Get the facts about Siedle Video—New concept, new price. *Circle No. 207*

Sloan Valve Company
Contact us for the facts about our Royal® Flushometer. *Circle No. 215*

Softdesk, Inc.
Get details on Auto-Architect and new Auto-Architect LT. *Circle No. 231*

Spacesaver Corporation.
Get more information on our mobile storage systems. *Circle Nos. 3, 5, 7, 9, 11, 13*

SPI Lighting Inc.
Contact us for more information on our Opera Series. *Circle No. 233*

Technical Glass
For your fire-rated glazing needs, find out about our complete line of products. *Circle No. 189*

Three D Video
Find out more about creating dazzling animated video presentations. *Circle No. 159*

3M Specialty Chemicals
Learn more about TacFast Carpet. *Circle No. 183*

Unicor
Learn more about our wide range of office furniture. *Circle No. 237*

USG Interiors, Inc.
Send for the details on our Acoustone™ ceilings. *Circle No. 251*

Vistawall/Skywall
Send for more information on our line of quality skylights and wall systems. *Circle No. 221*

Wood Products Promo Council
Send for your copy of "Wood is Growing." *Circle No. 205*

Details

Laminated ash ribs and curved glass panels frame a sculptural rooftop addition.

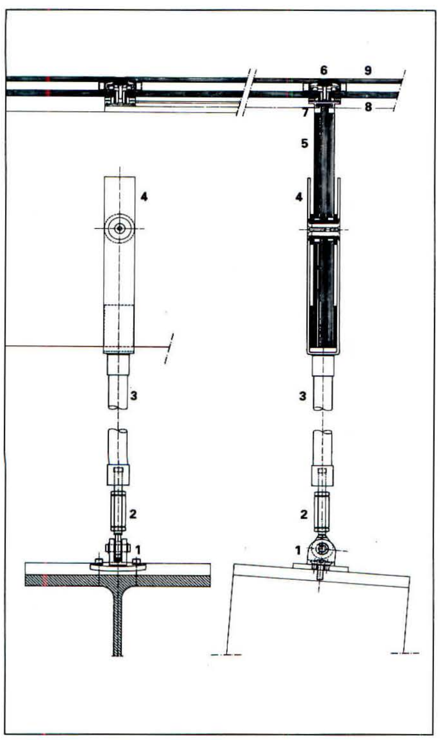
National-Netherlands Company
Budapest, Hungary
Mecanoo Architects

The organic, two-story addition designed by Mecanoo's Erick van Egeraat (pages 66-73) is detailed to appear suspended in its glazed penthouse. Hovering over an 1884 Italianate masonry structure, the cocoonlike volume is supported by a new mansard structure of steel columns and beams.

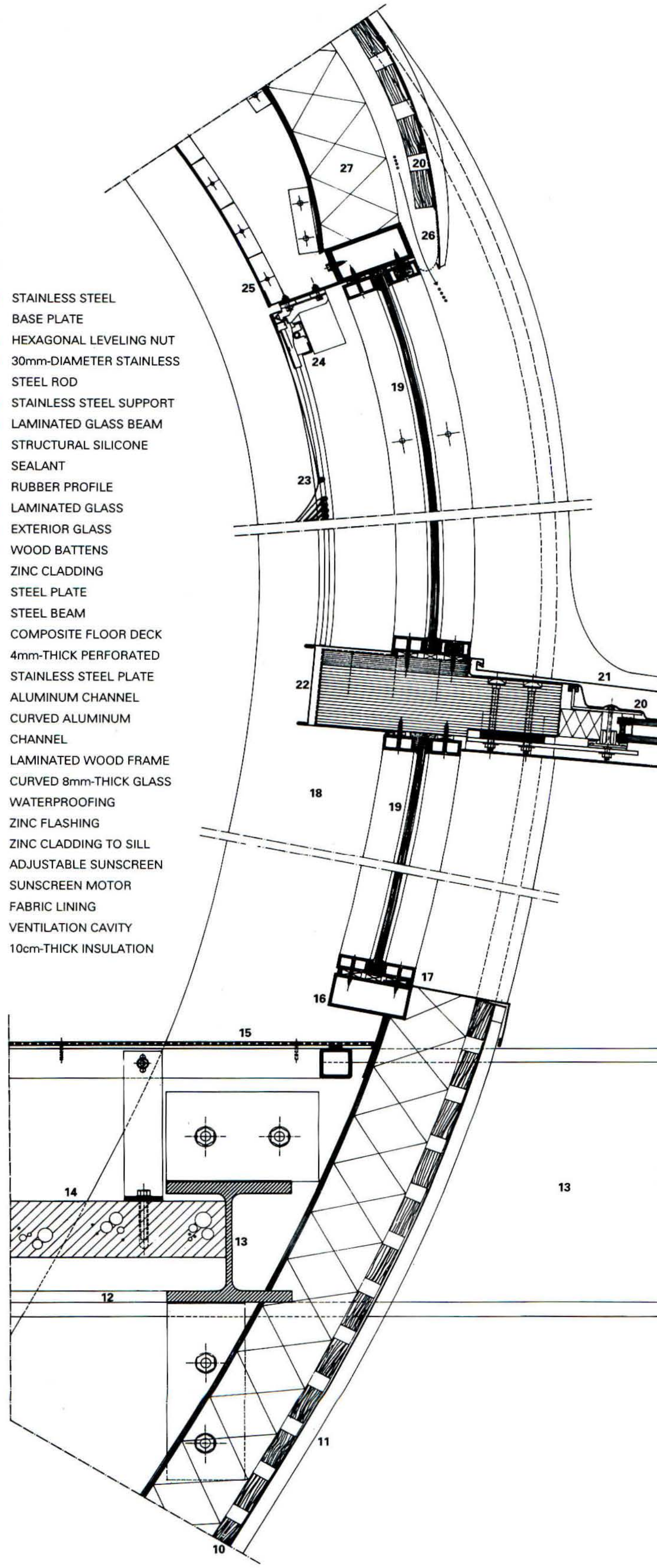
Fastened to the beams are laminated glass joists, inserted into stainless steel sleeves supported by adjustable steel prongs. The joists are composed of three layers of loadbearing, 30-millimeter-thick laminated glass and support an undulating glazed roof of frameless laminated glass panels of varying size and geometry. The panels rest directly on neoprene gaskets atop the joists and are sealed with structural silicone joints.

Recalling a ship's hull, the two-story cocoon is constructed of 26 laminated ash ribs—each with a different profile—hung from the addition's steel structure. The amorphous form is clad in orthogonal wood battens, its exterior is covered in irregularly sized sheets of zinc, and interior panels are finished in linen fabric. Curved glass panels inserted between the ribs admit daylight to the interior.—*R.A.B.*

1. STAINLESS STEEL BASE PLATE
2. HEXAGONAL LEVELING NUT
3. 30mm-DIAMETER STAINLESS STEEL ROD
4. STAINLESS STEEL SUPPORT
5. LAMINATED GLASS BEAM
6. STRUCTURAL SILICONE SEALANT
7. RUBBER PROFILE
8. LAMINATED GLASS
9. EXTERIOR GLASS
10. WOOD BATTENS
11. ZINC CLADDING
12. STEEL PLATE
13. STEEL BEAM
14. COMPOSITE FLOOR DECK
15. 4mm-THICK PERFORATED STAINLESS STEEL PLATE
16. ALUMINUM CHANNEL
17. CURVED ALUMINUM CHANNEL
18. LAMINATED WOOD FRAME
19. CURVED 8mm-THICK GLASS
20. WATERPROOFING
21. ZINC FLASHING
22. ZINC CLADDING TO SILL
23. ADJUSTABLE SUNSCREEN
24. SUNSCREEN MOTOR
25. FABRIC LINING
26. VENTILATION CAVITY
27. 10cm-THICK INSULATION



GLAZED ROOF AND BEAM SECTION 4"/10.2cm



CONFERENCE ROOM WALL SECTION 7"/17.8cm

"Your Wood I Beam™ is going to allow me unsupported spans up to how many feet?"

G-P: Wood I Beam joists have more load-bearing and spanning capabilities than dimensional lumber, so you can design with up to 48′ spans.*..

YOU: *...without cluttering up open space with support columns. It'd be ideal for a great room, a bonus room over a garage, a finished basement.*

G-P: Speaking of basements, Wood I Beams allow higher ceilings because you can pass utilities and duct work through the beams.

YOU: *What about floors? Does it help avoid squeaks?*

G-P: Absolutely. G-P Wood I Beams are built to resist the warping and twisting that create those squeaks.

YOU: *Will I be able to use Wood I Beams if I spec conventional lumber in the flooring system too?*

G-P: Yes–G-P Wood I Beams are compatible with standard dimensional lumber sizes. And you can get long lengths, even up to 60′, for just about any design you can dream up.

YOU: *Of course, I wouldn't know how to design with it after using dimensional lumber for 15 years...*

G-P: We'll help with that, and we can do take-offs for you.

YOU: *Well, anything that expands my design options solves some big problems for me.*

G-P: So–no more questions? Come on, I'm just getting warmed up...

For more information about G-P Wood I Beam joists and headers, call 1-800-BUILD G-P (284-5347), Operator 730. (Ask about G-P Lam® laminated veneer lumber, too.) Or check Sweets Section 06190/GEO.

Solve it with G-P.℠

Georgia-Pacific

*Depending on space, loading and beam size.

Circle 144 on information card