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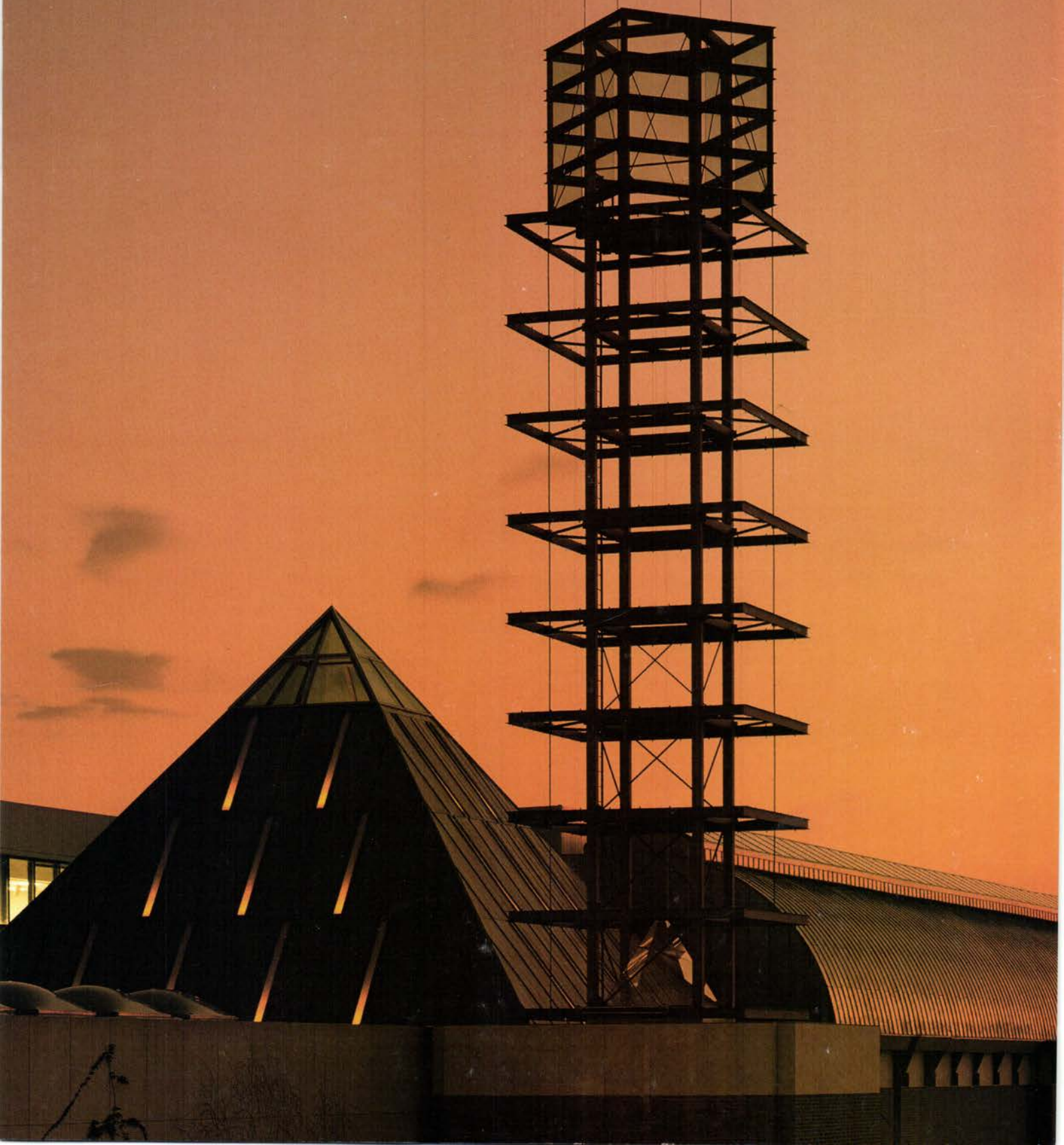

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The Politics of Design

Efforts to improve federal design and architecture are slowly moving ahead.

When a group of 26 design professionals met with Christopher Hyland, deputy political director of President Clinton's transition team, last November in Little Rock, they had high hopes that the new administration would recognize the economic benefits of design. America could return to the forefront of economic competitiveness, they maintained, if designers, manufacturers, and investors would collaborate to create better products; if our cities were restored; and if design standards were developed to encourage greater public participation in society.

A year later, these ideas are still being discussed. Slowly, politics and design are inching toward a closer, more amicable relationship. A large share of the credit for this dialogue goes to the Design Arts Program (DAP) of the National Endowment for the Arts (NEA). Following the lead of the Little Rock conference, DAP organized several conferences and pilot programs to boost design awareness within the federal government.

In June, DAP held a workshop to develop further the Little Rock proposal for a U.S. Design Council and Office of Federal Design Quality. The council would be modeled on the 100 design councils established around the world that serve as national resources for business and industry. The Office of Federal Design Quality would ensure that every government agency follows high standards for graphics, architecture, and interior design. The recommendations from the workshop will be forwarded to the White House for consideration and, hopefully, endorsement.

The Design Arts Program is also working to elevate the quality of federal architecture, particularly with the U.S. General Services Administration (GSA), to streamline its contracting and procurement procedures so that the best architects are commissioned to produce their best work. As a step toward this goal, the GSA recently held its first peer reviews of two federal courthouse projects, inviting well-known private-sector architects to comment on designs by Ellerbe Becket/Abend Singleton and Richard Meier.

Meanwhile, the administration is stepping up its efforts to advertise its advocacy of the arts: In October, designated as Arts and Humanities Month, Clinton hosted two events to salute recipients of the National Medal of Arts and other cultural awards and appears to be willing to present the 1992 Presidential Awards for Design Excellence at the White House this fall. Although the design award winners were selected during the last administration, President Bush never held the ceremony, fearing fallout from the culture wars waged over controversial NEA grants.

Clinton's appointment of actress Jane Alexander to head the NEA is another good omen that the climate for the arts and design is improving. Suffering from a lack of leadership in recent years, the NEA needs to chart a more politically savvy direction. During her confirmation hearings last month, Alexander indicated that she may take a tougher stand toward Congress: "The arts should not be used as a political football by those on the far right or the far left," she stated. "I cannot promise that under my chairmanship the arts will be free of controversy. I can, however, assure Congress that I will ensure that grants are given for the highest degree of artistic merit and excellence."

Whether Alexander can follow in the footsteps of former NEA chair Nancy Hanks and become a strong proponent for the arts remains to be seen. But this country's investment in design must go beyond conference proceedings and pilot programs. As the leader of the only federally mandated agency to promote the arts throughout the country, Alexander must ensure that President Clinton keeps design in the forefront of his national agenda.

Deborah K. Dietsch

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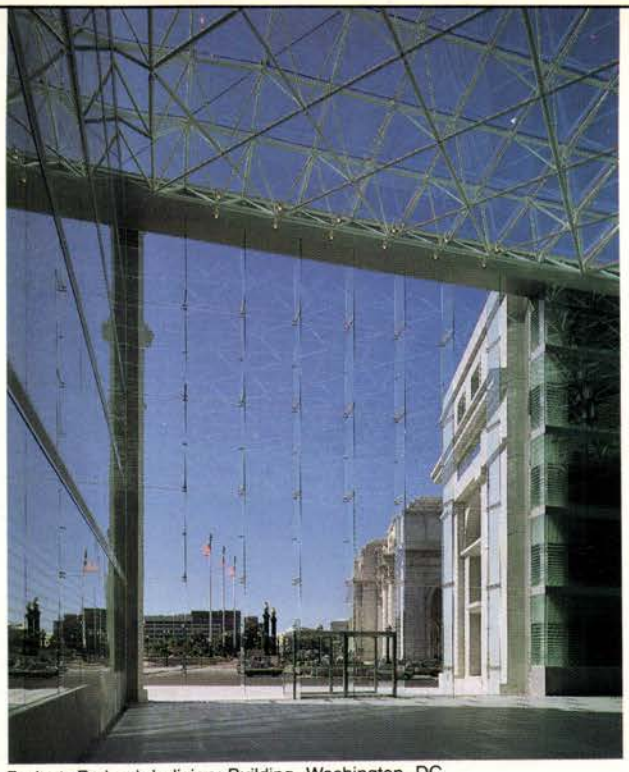

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Letters

Transit-oriented dilemmas

The travel plazas featured in "Regional Roadsides" (August 1993, pages 66-71) bear no relation to their sites, other than being parallel to the thruway. As a student taught to investigate the site before designing a structure, it disturbs me that you would feature buildings that perpetuate site insensitivity.

David C. Doucette, AIAS
Boston, Massachusetts

"Los Angeles Builds on Transportation" (August 1993, pages 93-99) concentrates on possible growth in Los Angeles without making proper reference to the larger context in which these case studies were undertaken. The likelihood of implementation is never broached. The drawings are pretty; the ideas are good; but their connection to reality, slight. Joint development in Los Angeles is stalled, not by a lack of architects with design ability, but because there is minimal growth going on.

Carlton Davis, AIA
The Tanzmann Associates
Los Angeles, California

Hadid under fire

I read the September issue anticipating the article on the German fire station ("Zaha Hadid," pages 68-73). Since I have worked on numerous fire stations in the U.S., I hoped to gain another point of view on the building type. But Hadid's fire station is described in terms of tapered forms and illusions to speed. Although the observation that the ceiling planes detach from the walls and appear to float is poetic, I would prefer to know how the circulation problem was resolved. And why were the photos nearly absent of anything that would help establish scale? Also, the plans on page 70 are wonderful compositions but they do not help me understand the project.

Although the art of architecture is important, our projects need to be more than highway sculpture.

James F. Gallagher, AIA
Fayetteville, Arizona

While Zaha Hadid may be enjoying a spate of trendiness in Japan and Europe, one can only imagine her sculptured, slicing walls covered with graffiti in any American city. Only in Walt Disney World could one of her buildings survive intact in our country.

Raul Rosas, AIA
New York, New York

Cosmopolitan congratulation

Congratulations on the international content of ARCHITECTURE's September 1993 issue. A recognition that creative architecture exists beyond that done by American firms is a major step toward positioning ARCHITECTURE as a publication of international dimensions. In this format, ARCHITECTURE magazine becomes a major information and educational resource of far greater benefit to its readers.

Donald J. Hackl, FAIA
Loebl Schlossman and Hackl
Chicago, Illinois

Correction

Credits for the New York State Thruway travel plazas were omitted from our August 1993 issue (pages 66-71). A full listing of credits appears on page 154.

throughout California. "Mack's buildings are evidence that he is aware of his Modern California antecedents," notes Paolo Polledri, MOMA's curator of architecture and design, who organized the show.

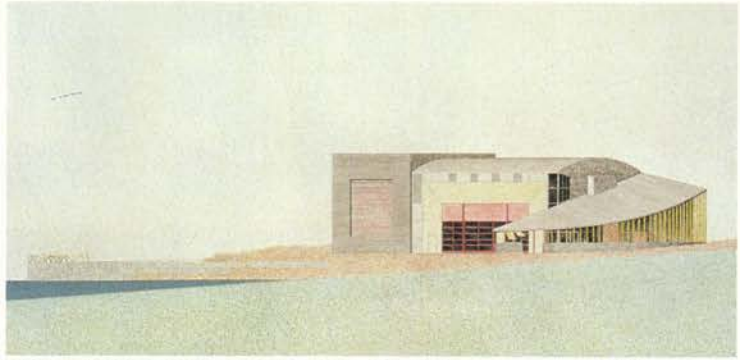
In 1978, Mack formed a six-year partnership with Andrew Batey and began designing Napa Valley villas. Mack's Austrian severity and Batey's lyricism combined to create small-scale buildings of extraordinary power and beauty, noted for their treatment of topographical elements, contextual materials, and unadorned planar forms.

Since 1984, when he opened his own firm, Mack has retained the simple, rough forms of his "new primitivism," but his work has become more abstract and colorful. His architecture focuses on the basic elements of planar, concrete or stucco, walls; broken by punched window openings, trellises, and arcades; enlivened by beautifully modulated primary colors. This vocabulary is exemplified by a series of Bay Area houses completed in the mid-1980s, as captured by the graphic images of the exhibition.

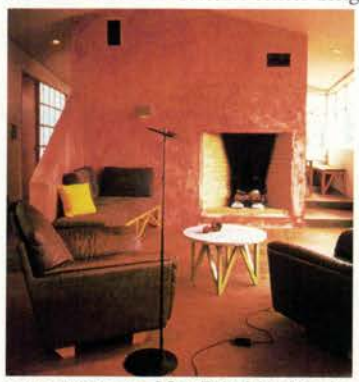
"Mack is best at setting a stage," observes the show's curator, Paolo Polledri. "He minimizes extraneous trims and decorations, and lets the materials speak for themselves." Mack adds that he derives his ideas for Bay Area houses from places with a similar climate, such as Spain or Mexico.

Large-scale projects in the MOMA exhibition include the Kashii District Housing scheme in Fukuoka, Japan; a proposed cultural center at San Francisco's Candlestick Park; and unbuilt competition entries in Berlin and Napa Valley. The exhibit is compact and elegantly displayed, featuring fine photography by Richard Barnes. Mack's midcareer retrospective charts the unique trajectory of his own tradition—a marriage of cool Modern forms and warm Western color.—*John Ellis*

John Ellis is a senior associate in the San Francisco firm of Anshen + Allen.



CANDLESTICK PARK: Cultural center designed with Hargreaves and Hollis.



GERHARDT HOUSE: Neo-Primitive interior.

GERHARDT HOUSE: Stuccoed simplicity.

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Herman Miles Trucking Inc., El Paso, Texas, 8,500 sq. ft.;
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Nashville Holds Arena Design Competition

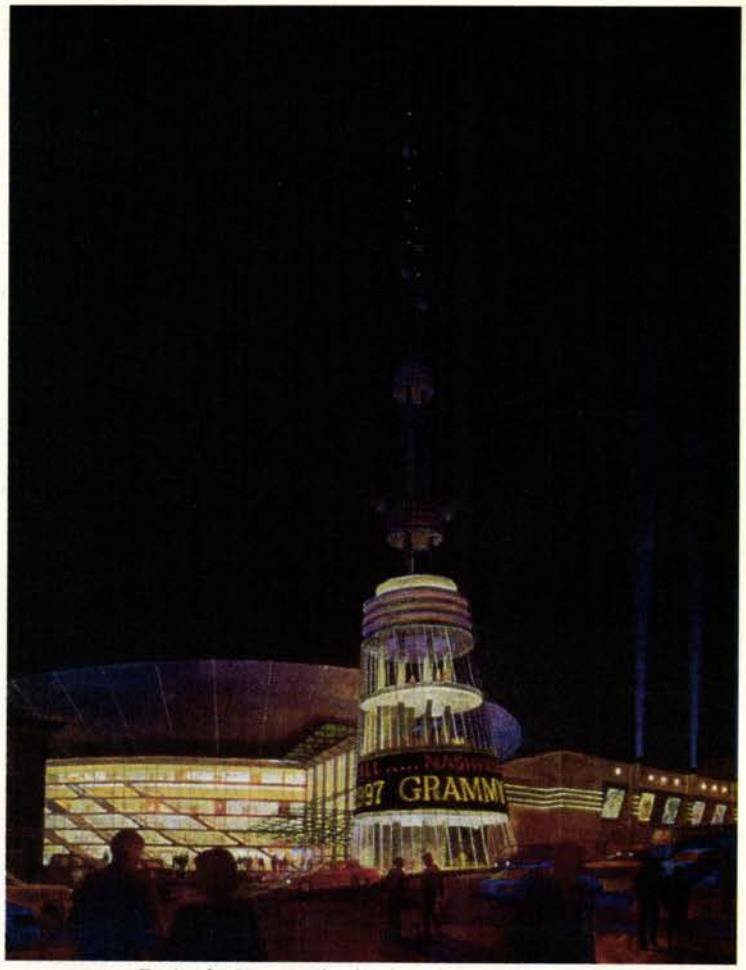
In sponsoring a design competition for a new $88 million sports arena this September, Nashville Mayor Phil Bredesen hoped his city would gain an urban symbol like the Gateway Arch in St. Louis. But none of the designs in the competition turned out to be so boldly expressive as Eero Saarinen's catenary curve.

The Nashville arena competition limited entries to Tennessee firms, which teamed up with big-name partners. Winners Hart Freeland Roberts (HFR) paired with Hellmuth, Obata & Kassabaum (HOK) to design a curve-roofed arena that will host music and sports events and, unlike other proposals, will keep adjacent Fifth Avenue South open to traffic.

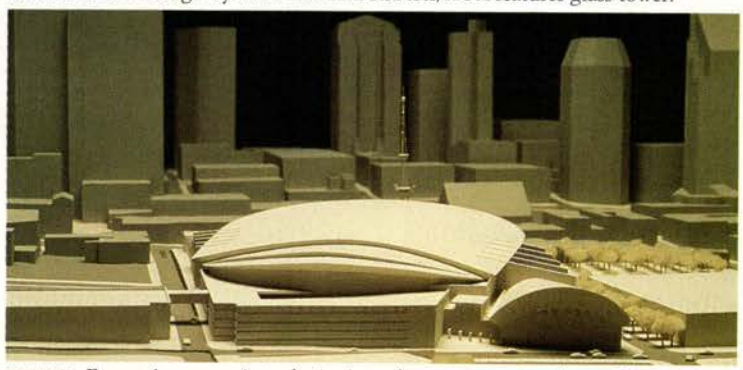
Hickerson Fowlkes Architects, with Orr/Houk & Associates Architects of Nashville and HKS of Dallas, submitted a design topped by a roof of intersecting curved planes, which resembles a deflated Sydney Opera House. Gobbell Hays Partners, with Rosser International of Atlanta, devised a striking wedge-shaped arena with louvers on top that give the look of an electric appliance. Everton Oglesby Askew Architects, with Ellerbe Becket of Kansas City, suggested a circular arena with a slanted roof, accompanied by a futuristic 600-foot tower intended as an icon of the communications age. Finally, Earl Swensson Associates, with Gresham, Smith & Partners and HNTB of Kansas City, proposed an awkward, monumental band shell. To its credit, however, the team proposed the only master plan to encompass the waterfront four blocks away.

All the runners-up seriously explored the dynamics between the new arena and Nashville's downtown, observes jury chair Hugh Hardy of Hardy Holzman Pfeiffer Associates: "They pushed the idea that there's a future for this city." The jury also included country singer Vince Gill; basketball player Anthony Mason of the New York Knicks; Merrill Elam, principal of Scogin Elam Bray Architects; Bill Lacy, president of the State University of New York at Purchase; and D. Scott Jones, vice president of John Portman & Associates.

Construction of the new 20,000-seat Nashville arena and companion buildings is scheduled to start next spring and will take two years to complete.—*Bradford McKee*

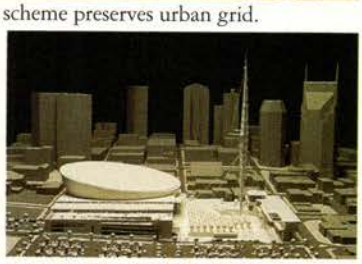


WINNING ENTRY: Design by Hart Freeland Roberts/HOK features glass tower.

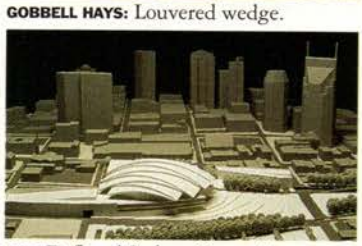


HFR/HOK: Entertainment-oriented winning scheme preserves urban grid.

GOBBELL HAYS: Louvered wedge.

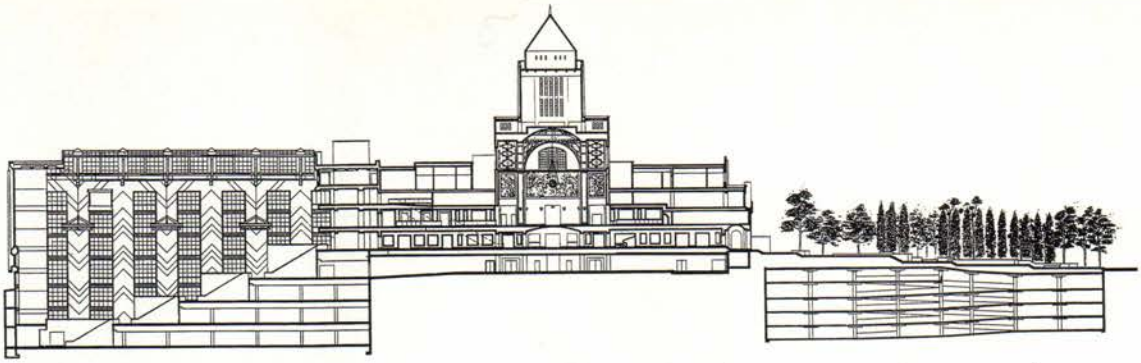


EOA/ELLERBE: Futuristic tower.



HFA: Deflated Sydney Opera House.

ESA: Oversized band shell.



EAST-WEST SECTION: Addition (left) more than doubles area of library without dominating original structure (right).

LOS ANGELES CENTRAL LIBRARY: Addition attempts to harmonize with Goodhue's 1926 landmark (right).

ATRIUM: Four levels underground.

Central Library and Convention Center Open in Los Angeles

Two major public projects in downtown Los Angeles, officially inaugurated this month and last, represent the culmination of the local public-private initiative that has, in the past 20 years, attempted to revive the city's once-derelict urban core. The $214 million Central Library renovation and expansion, inaugurated in early October, and the $500 million expansion of the Los Angeles Convention Center, opening in mid-November, are both pivotal projects in the strategy for downtown Los Angeles' long-term revival.

The library, situated at the foot of Bunker Hill, adds a vital social amenity to the downtown commercial district now dominated by high-rise office towers. The convention center, located in the southwest corner of the central business district, at the junction between the Santa Monica and Harbor freeways, was planned to upgrade the rundown South Park section, while providing Los Angeles with a major convention facility capable of competing with Orange County rivals.

The Central Library expansion, designed by Hardy Holzman Pfeiffer Associates, adds a new 330,000-square-foot east wing to Bertram Grosvenor Goodhue's monumental 1926 original. In order not to overwhelm Goodhue's 210,000-square-foot concrete iconic structure, four of the addition's eight stories are buried underground.

The new wing is organized around a long, narrow glass-roofed atrium. Entered from the street level of the original building, the atrium rises four floors above street level and plunges down a series of escalators four floors below ground, where it is flanked on both sides by stacks and reading rooms visible through floor-to-ceiling glass walls. Above ground, stacks are limited to the south side of the long, open space. North of the atrium, flanking Fifth Street, are a new Children's Courtyard and 250-seat auditorium.

Housed in the 1926 library building are areas devoted to rare books, children's books, and film and video collections, among other popular programs. The interior of the old building has been freshly painted, and its murals and decorative ceilings have been cleaned of grime and fire damage. Lost lighting fixtures have been replaced with reproductions, and the reading rooms have been outfitted with new furniture that picks up the character of the originals in a contemporary style.

The library's new east wing, designed principally by Norman Pfeiffer, is, in the architect's own words, a compromise. After an earlier proposal was rejected by the city's Cultural Affairs Commission, on the grounds that it was too bulky and assertive, Pfeiffer attempted to harmonize his design with Goodhue's eccentric Modernist Beaux-Arts structure. "Our current scheme is a less radical and more traditional approach," Pfeiffer explains. However, the product of this compromise hardly measures up to Goodhue's bold original: Its massing is confused, and its facade lacks resolve. Old and new form neither a unified whole nor an obvious contrast.

The effect of the library's design on its urban surroundings is even more unfortunate. The library's renovation and expansion was financed by a complex deal based on the transfer

TOWER: Beacon for complex.

ATRIUM: Geometric steel framework.

CONCOURSE: Clerestory and trusses.

JEFF GOLDBERG PHOTOS

LOS ANGELES CONVENTION CENTER: Expansion by Pei Cobb Freed & Partners with Gruen Associates.

of air rights from the library to three adjoining commercial sites. This arrangement has generated a trio of oversized high-rise office towers, which overwhelms the library and radically reduces its importance as an historic landmark.

To the south of the library, a new 2.5 million-square-foot expansion designed by Pei Cobb Freed & Partners and Gruen Associates has been added to the 22-year-old, 1.5 million-square-foot Los Angeles Convention Center located across Pico Boulevard. The two sections are linked by a two-story conference center bridging the boulevard. Twin glass-and-steel towers housing the lobby areas serve as "beacons" for the complex. Underground parking is provided for 6,000 cars. With its expansion, the Los Angeles Convention Center is now among the 10 largest in the United States.

As an act of street architecture, the Los Angeles Convention Center is remarkably graceful for a building of such size. The seminautical elements of pipe railings enclosing the exposed fire escape stairs, round steel beams supporting entry canopies, and tall glass lobby towers shaped like ship smokestacks give the Figueroa Street facade the air of an ocean liner.

But the urban implications of the convention center spell disaster. Under the right of eminent domain, the 63-acre convention site was cleared of housing accommodating 1,500 low-income residents, who have been relocated elsewhere in the city. Funded by the sale of tax-exempt bonds, plus funds from the Community Redevelopment Agency, the convention center hopes to generate $500 million a year in revenues, while sparking the revival of one of downtown's long-desolate corners.

However, both hopes seem unlikely to be fulfilled. A major hotel planned for a site across Figueroa Street from the convention center has failed to find an operator willing to risk a financial commitment to a district long notorious for its high levels of crime and poverty. The lack of an adjacent hotel means that convention center visitors will have to be shuttled back and forth in buses from uptown hotels—a major inconvenience. In effect, the convention center will seem besieged in a somewhat hostile urban environment that offers no outside attractions.

The drawbacks of both the Central Library and the convention center reflect the lack of a coherent urban design vision for downtown Los Angeles. It is a tribute to the city that its downtown has been revived; it's a pity this revival lacks social and visual sophistication.—*Leon Whiteson*

Details

Fashion designer Gianni Versace has commissioned **Hawrylewicz-Robertson Architecture & Design** of Miami Beach to expand and preserve the 1930 Casa Casuarina apartment building in Miami's South Beach, but has demolished the adjacent landmark Revere Hotel. Architect **José Rafael Moneo** was awarded the Arnold W. Brunner Memorial Prize by the American Academy of Arts and Letters. **Elliott + Associates Architects** of Oklahoma City is renovating the 1936 Oklahoma City Hall and master planning a 10-acre site for the American Homing Pigeon Institute. **Weinstein Associates Architects** of Washington, D.C., has been commissioned to design 225 units of low- and moderate-income housing in Washington's Capitol Hill district for the Ellen Wilson Community Development Corporation. **John Hejduk**, dean of architecture at Cooper Union, was among six winners of the inaugural Chrysler Innovation in Design Award. The McConnell Foundation, a local-minded philanthropy in Redding, California, has selected **NBBJ** of Seattle to design its new headquarters. **Kaplan/McLaughlin/Diaz** of San Francisco is designing the 400,000-square-foot Harborview Medical Center in Seattle, billed as the largest hospital on the West Coast. **Johannes Van Tilburg & Partners** of Santa Monica, California, has been commissioned to design 978 units of family student housing for the University of California at Los Angeles. **Harry Porter** has resigned as dean of the School of Architecture at the University of Virginia. California State University, San Marcos, has retained architect **Robbins Combs Jorgensen Christopher** of Irvine to update its campus master plan. **William P. Bruder Architect** of Phoenix has been signed on to design the Teton County Library in Jackson, Wyoming. **Spillis Candela & Partners** of Miami was awarded the commission for a new U.S. courthouse in Jacksonville, Florida. **Romaldo Giurgola** of **Mitchell/Giurgola Architects** will receive the 1993 Wyck-Strickland Award this month. **Norman Jaffe**, 61, a New York City architect known for his residential designs, died August 19 in a drowning accident off Long Island. Author and urban planner **Frederick Gutheim**, 85, died October 2 in Washington, D.C.

Mark Mack Exhibition in San Francisco

Like Austrian emigré architects before him—Rudolph Schindler and Richard Neutra—Mark Mack has evolved into a genuine California architect. After training in Vienna, Mack came to the United States in 1973 and launched his American career in New York by working for Emilio Ambasz on an exhibition of works by Mexican architect Luis Barragán at the Museum of Modern Art. Mack then moved to San Francisco the next year.

An exhibition of Mack's work—drawings, models, photographs, and furniture installed according to his own design—is now on view at the Museum of Modern Art in San Francisco through January 23. Encapsulating Mack's career to date, the exhibition shows how the 44-year-old architect has built upon his European training and developed a regionally sensitive esthetic for houses and small-scale projects

KASHII HOUSING: Colorful, flexible units in Fukuoka, Japan.

Events

November 15
Deadline for the 98th Rome Prize fellowship, an annual competition hosted by the American Academy in Rome. Contact: (212) 751-7200.

November 15
Submission deadline for San Jose Veterans Memorial Design Competition. Contact: (408) 277-2789.

November 17-19
The Boston Society of Architects and the New England building industry host Build Boston '93 in the World Trade Center in Boston. Contact: Beth Torrey, (617) 439-5019.

November 18-21
Design: Contributing to the Quality of Healthcare, a symposium held by the National Symposium on Healthcare Design, in Chicago. Contact: (510) 370-0345.

November 30
Single-Family New Construction, a design and technology competition sponsored by the City of Winston-Salem. Contact: (919) 727-8597.

December 1
Entry deadline for traveling fellowships in architectural design and technology, sponsored by the National Institute for Architectural Education. Contact: (212) 924-7000.

December 1-3
Construct Canada '93, a conference and exposition for construction professionals, sponsored by the Toronto Construction Association. Contact: (416) 869-1156.

December 3
Registration and submission deadline for Public Space in the New American City/Atlanta 1996, an urban design competition sponsored by the Architecture Society of Atlanta and the Corporation for Olympic Development in Atlanta. Contact: (404) 723-7210.

December 3-February 27, 1994
Arata Isozaki: Works in Architecture, an exhibition commemorating the opening of the Brooklyn Museum's west wing. Contact: Sally Williams, (718) 638-5000.

December 6-8
Restoration '93, a conference and trade show at the Hynes Convention Center in Boston. Contact: (617) 933-9699.

December 9-11
Secure and Livable Communities: Crime Prevention Through Environmental Design, a conference sponsored by the National Institute of Justice, U.S. Department of Justice and presented by the Joint Research Council of the American Institute of Architects and the Association of Collegiate Schools of Architecture. Contact: (202) 785-5912.

December 10
National Endowment for the Arts application deadline for Design Arts project grants for organizations. Contact: (202) 682-5437.

December 10-12
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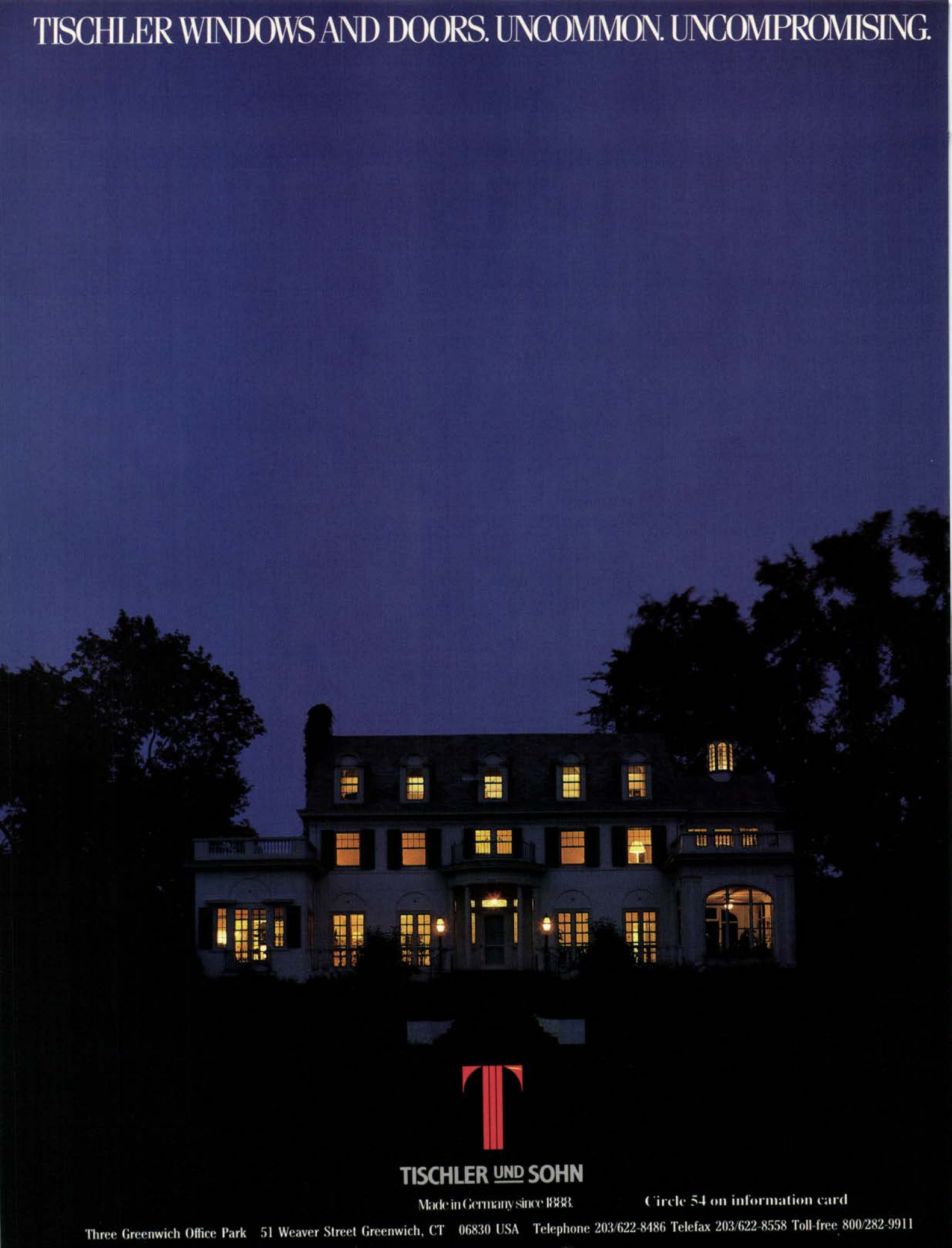

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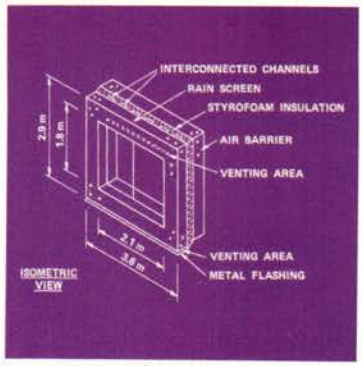


ENVELOPE: Regulates lateral pressures.

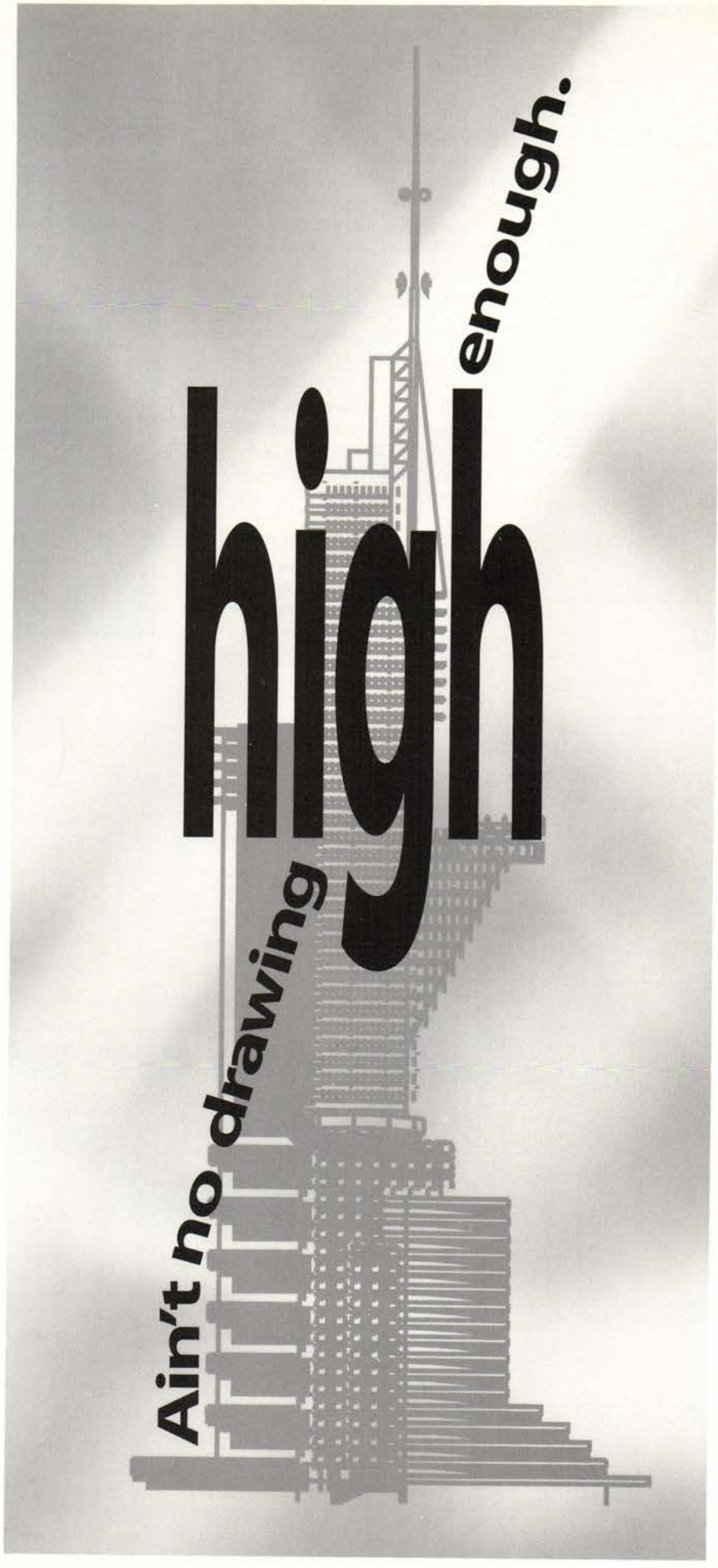
Canadian Researchers Study Building Envelope

In September, building scientists in Canada announced that they plan to issue design guidelines next fall for an advanced building envelope. Based on studies currently being conducted by Public Works Canada, the University of Western Ontario, and several other Canadian institutions, the guidelines aim to prevent moisture seepage and related damage in masonry, metal or glass curtain walls, precast concrete, and exterior insulation and finish systems.

The main problem with current envelope design, researchers say, has been its inability to equalize sudden wind pressure across a building's face with the lower pressure of the cavity between a building's inner and outer volumes. Lower interior pressure results in moisture being sucked into the wall units and a host of other climate-related problems in buildings. Building experts have recognized for 30 years how to stop capillary suction of moisture by evening the lateral pressures around the cladding, but they have not yet determined the correct size of the cavity and the vents, and the placement of closures.

Several concurrent studies of building dynamics by Canadian experts are expected to provide the numbers for better envelope design: How pressure-equalizing rainscreen (PER) walls behave under the stresses of on-site applications, and the parts of buildings most vulnerable to variable damage will be analyzed. These findings will be summarized into a practice guide for PER-wall design.

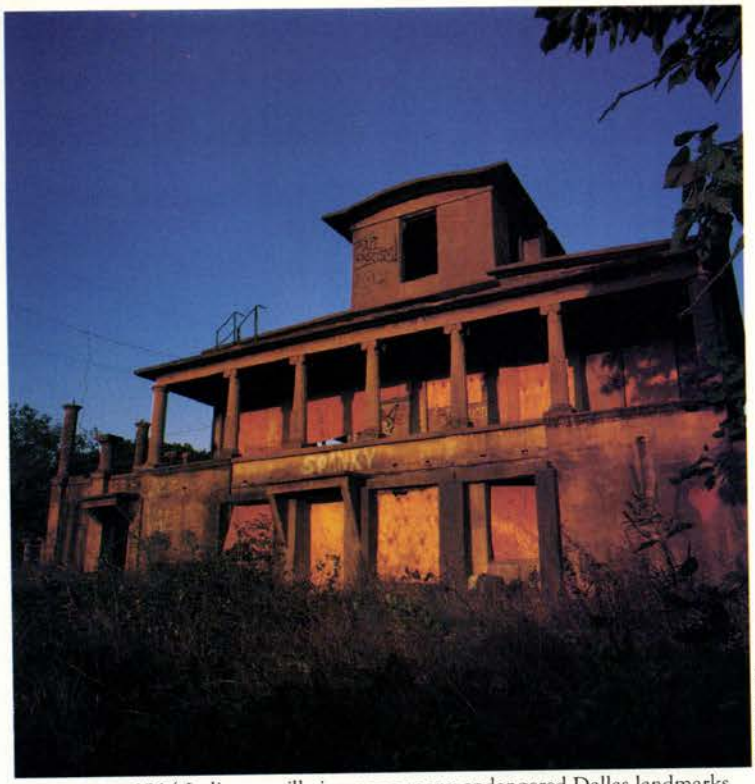
When their research is completed at the end of 1994, the Canadian building specialists plan to unveil generic designs for a "compartmentalized" cladding system that is impermeable to moisture and adapts more readily to sudden bursts of wind pressure.—*B.M.*



Dallas Neighborhoods Face Wrecker's Ball

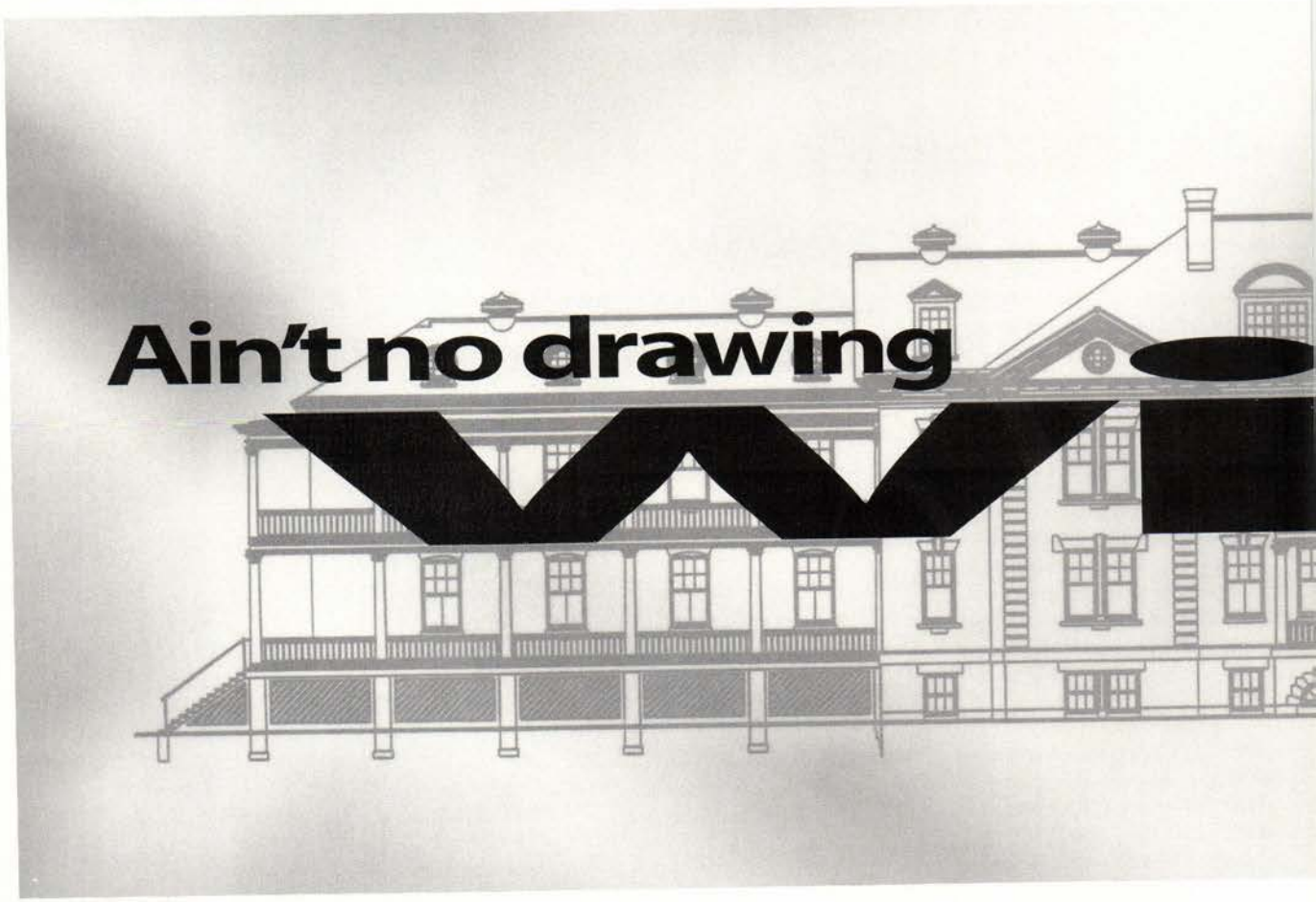
Most "freedmen's" towns in the Dallas area, to which slaves flocked in the 1860s after emancipation, have been demolished by subsequent development. One historic African-American enclave remains—the 10th Street neighborhood, now in danger of demolition. It joins seven other historically significant parts of Dallas that are also threatened by the wrecker's ball: Alcalde Street-Crockett School area; Colonial Hill; Wheatley Place; Peak's Suburban; Queen City; Edgewood Place; and the Dallas Land and Loan Addition. These neighborhoods were established in the 1870s, when railroads first came to Dallas. Their growth continued into the 1920s, and they survived the demolition and rebuilding boom of the 1980s.

Though some of the neighborhoods are nearly in ruins, their architectural significance is unmatched in the Dallas area. Stylistically, the



JOAN SHEAHAN

EADS STREET: 1914 Italianate villa is among many endangered Dallas landmarks.



houses range from ornate Neoclassical, Italianate, and Victorian to Prairie Style and Arts and Crafts.

The Dallas city government considers the largely dilapidated dwellings in the 10th Street community "urban nuisances," which they indeed have become, affirms local architect Norman Alston, president of the preservation group Dallas Neighbors. Abandoned, boarded-over residences have been converted into crack houses, Alston explains. But, the architect argues, if the city hopes to restore life near its empty downtown, razing the neighborhoods would be the wrong approach. Bulldozing a vacant house may be wiser than letting drug dealers operate in it, he maintains, "but demolition is not better than retaining the existing house and having young families keep it up."

Alston continues to obtain wrecking-ball reprieves for the 10th Street neighborhood from the municipal Urban Rehabilitation Standards Board, which demolishes derelict structures, while a separate city office, the Department of Housing and Neighborhood Services, works in support of Dallas Neighbors' bid to save the houses.

Dallas Neighbors is not prescribing upscale gentrification for the 350 houses of the 10th Street neighborhood, but is launching a revolving loan fund to help low-income homebuyers return to the neighborhood. The National Trust for Historic Preservation, which placed the eight Dallas neighborhoods on its list of endangered historic sites for the second consecutive year, has given the Dallas Neighbors a grant of $100,000 toward establishing the revolving fund. The local group is negotiating with a bank to provide additional funds so it can start lending with a kitty of $300,000.

In contrast, the city has a $13 million budget to knock down the houses. By mid-November, Alston says, "we're expecting to pull this off. We'll have the money in place to start making a difference."—*B.M.*

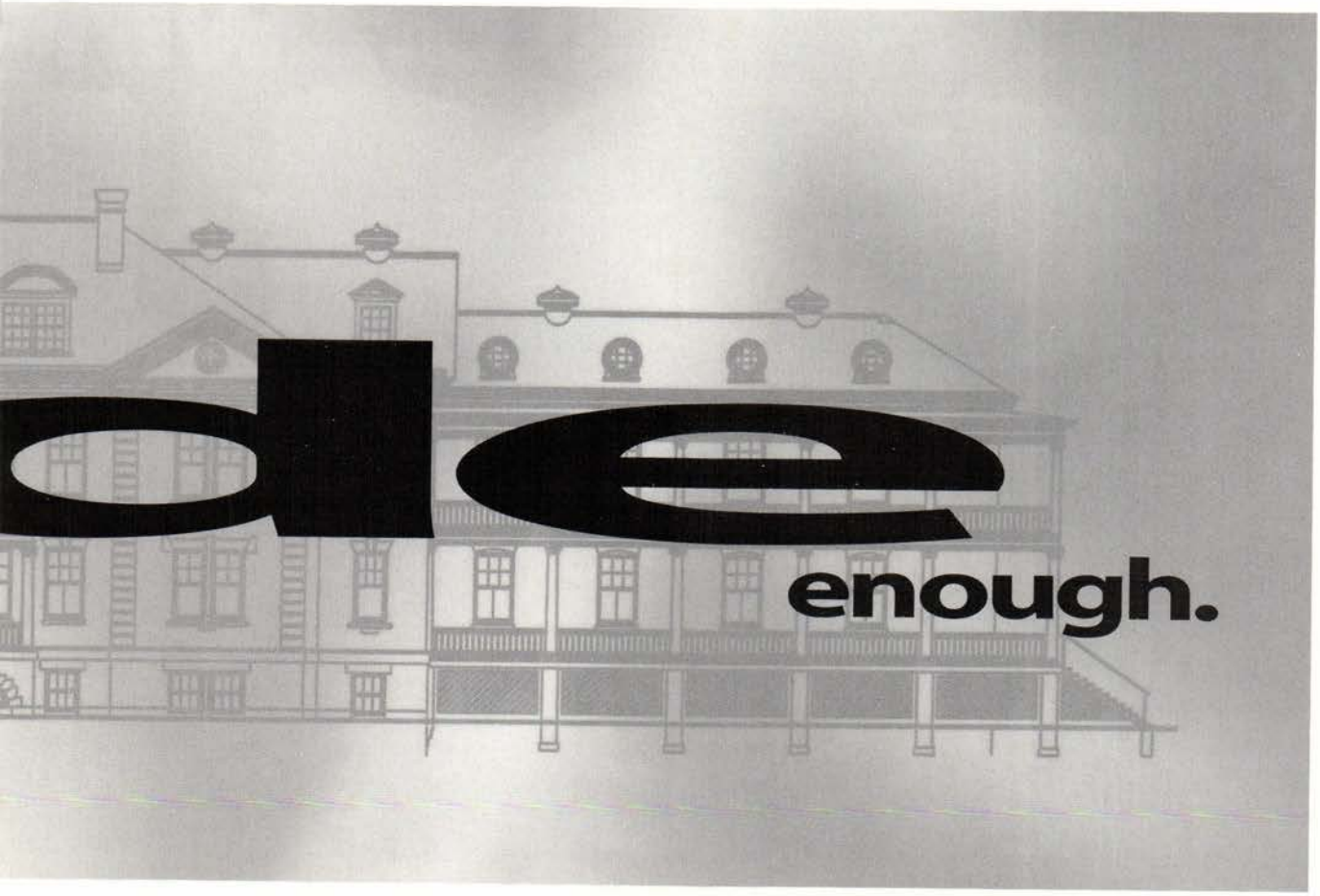
PEAK'S SUBURBAN: 1915 Prairie Style.

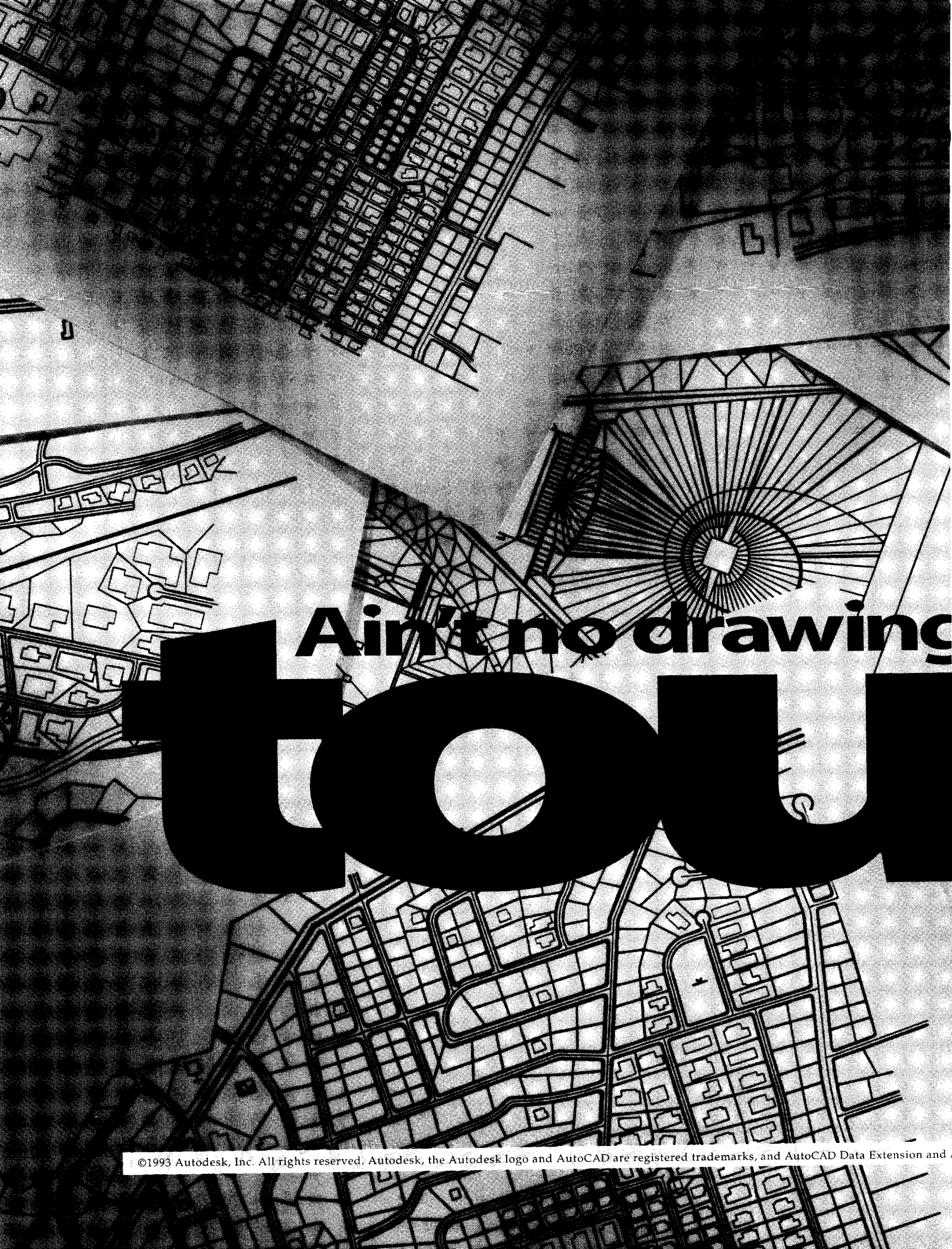
COLBY STREET: 1915 Shotgun.

WORTH STREET: 1915 Neoclassical.

WHEATLEY PLACE: 1925 Arts and Crafts.

JOAN SHEAHAN PHOTOS





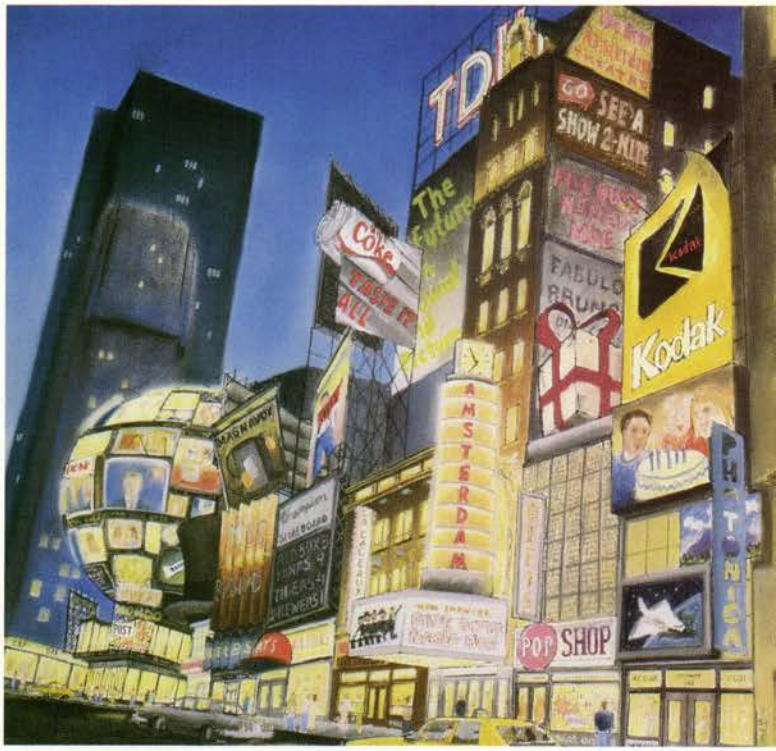
On the Boards

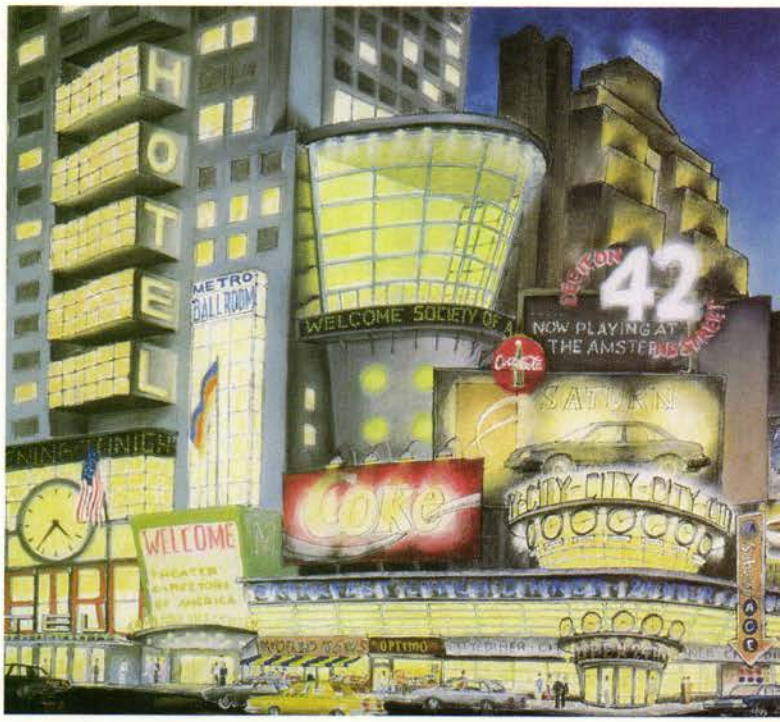
42nd Street Redevelopment
New York City
Robert A. M. Stern Architects

Evoking images of old Broadway musicals, Robert A. M. Stern's scheme for New York's 42nd Street adjoining Times Square proposes short-term development of the famous street between 7th and 8th avenues. Previous plans for the area called for the construction of four colossal office towers, designed by Philip Johnson and John Burgee in 1989, as well as the restoration of historic theaters and the construction of a new convention hotel and merchandise mart. The initial $2.5 billion redevelopment plan, however, has been postponed indefinitely, due primarily to New York's sluggish real estate market.

In conjunction with Tibor Kalman of the design firm M & Co., Stern developed design guidelines for the area, rather than specific architectural solutions. "Our purpose," asserts Stern, "is not to turn Times Square into a gentrified theme park or a refined office complex." Instead, he suggests continuing the Times Square vernacular of rooftop billboards and marquees and expanding the area's blend of theaters, offices, shops, and restaurants. "The seemingly unplanned texture and rhythm of 42nd Street must be directed by an overall plan," Stern explains.

Proposed uses on 42nd Street near 7th Avenue (above left) include restaurants, ticket agencies, and currency exchanges. Further west on 42nd Street, the planners suggest entertainment venues (top right), while shops and hotels are proposed at the intersection of 42nd Street and 8th Avenue (right). The City of New York has already committed $35 million to acquire a 1.3-acre site on 8th Avenue between 42nd and 43rd streets. Stern's plan will be implemented over the next 15 years—*Raul A. Barreneche*





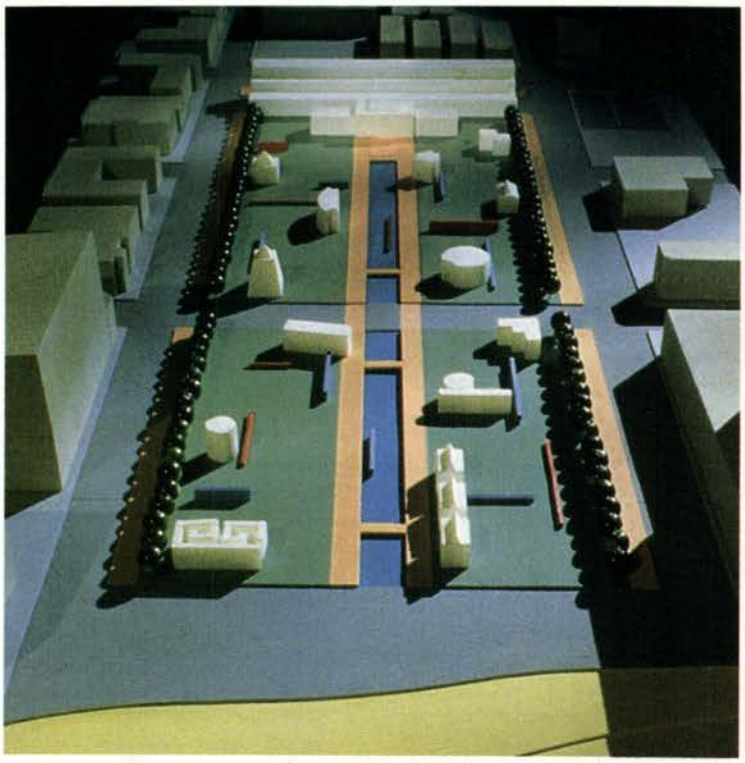
Bass Museum of Art
Miami Beach, Florida
Arata Isozaki & Associates
with Spillis Candela & Partners

Japanese architect Arata Isozaki was selected to renovate and expand Miami Beach's Bass Museum, following a competition involving 14 internationally recognized firms. Isozaki's scheme was selected over proposals by Michael Graves; Venturi, Scott Brown and Associates; Cesar Pelli & Associates; Eisenman Architects; Arquitectonica; Antoine Predock Architect; and Robert A. M. Stern Architects, among others. The competition follows a master plan and program devised by Hardy Holzman Pfeiffer Associates in 1988.

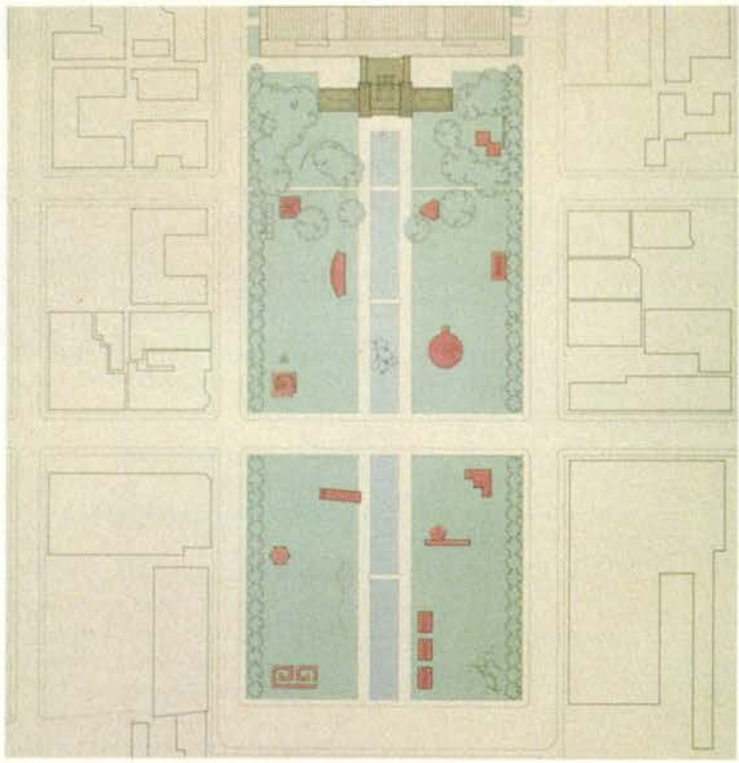
Isozaki's scheme calls for renovating the interior of the existing 15,500-square-foot museum—an historic Art Deco structure—and constructing 80,000 square feet of new exhibition, retail, classroom, and auditorium space behind the 1930 original. A new linear, concrete structure will step down toward the existing building, providing a planar backdrop to the rough limestone facade of the Art Deco museum. The 1930 structure will house the museum's permanent collection of 15th- to 17th-century art, while the new addition will provide galleries for contemporary art and changing exhibitions.

Isozaki will collaborate with landscape architect Martha Schwartz to transform an adjoining park, which stretches to the Atlantic Ocean, into a sculpture garden. Organized around a central pool, the garden will contain site-specific installations by a number of contemporary artists, including Richard Serra and Claes Oldenburg.

As executive architect and engineer for the $18 million project, Miami-based Spillis Candela & Partners will provide construction documents and local support, in association with Miami architects Frankel & Associates and Bernard Zyscovich. Project funds are being raised through city, state, and private contributions. The first phase of construction is scheduled for completion by 1995.—*R.A.B.*



AXIAL GARDEN: Contemporary sculpture will be sited along a central fountain.



SITE PLAN: Sculpture court extends from original museum to Atlantic Ocean.

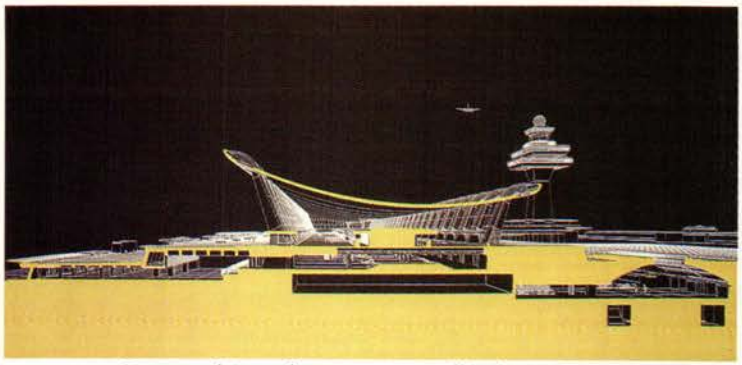
DULLES ORIGINAL: Saarinen's 1962 terminal.

NEW ADDITION: SOM extends wings to east and west.

Dulles Airport Expansion
Washington, D.C.
Skidmore, Owings & Merrill

The New York office of Skidmore, Owings & Merrill (SOM) is carrying out Eero Saarinen's original expansion plan for Dulles International Airport outside Washington, D.C. Saarinen's 1962 scheme—the first U.S. airport built specifically for jet air travel—was designed to accommodate 8 million passengers annually and allowed for a future terminal addition to handle up to 14 million; currently, the 1962 building handles 11 million travelers. Saarinen's master plan was revised in 1985 by HOK, with Peat, Marwick, Mitchell, and Burns & McDonnell, which recommended constructing a new midfield concourse and the expansion of the main terminal according to the original design.

SOM will renovate the existing terminal and add two 320-foot-long wings to the building's east and west sides as Saarinen intended, increasing the terminal's length from 600 feet to 1,240 feet. The original structural engineers, Ammann & Whitney, are collaborating with SOM to replicate the terminal's distinctive concrete structure and ensure a matching appearance between new construction and the original structure.



SITE SECTION: Baggage claim and transit system will be located below terminal.

AIRPORT EXPANSION: Modified master plan includes satellite midfield concourses.

Since its opening in 1962, numerous adaptations to the terminal—including increased security measures and new concessions—have detracted from Saarinen's original concept for flexible ticket kiosks punctuating the terminal hall's large volume. SOM's renovation and expansion will alleviate congestion in the main hall and re-create the grand open space envisioned by Saarinen. New ticket counters will be housed on the main level; security checkpoints, connections to a new airport transit system, and other public amenities will be located below grade. The adjoining access roadways will also be expanded to accommodate increased vehicular traffic, and a future transit station will connect the airport with Washington's underground Metro transit system.

Although Saarinen's 31-year-old terminal is not listed on the National Register of Historic Places, its architectural significance prompted the Virginia State Historic Preservation Office to participate in the design process. The state agency is ensuring that the integrity of the existing terminal is maintained and that details originally developed by Saarinen—including materials, color schemes, and signage—are carried through in the expansion. According to Metropolitan Washington Airports Authority architect Richard Turner, "The result will be a technologically state-of-the-art airport that still resembles Saarinen's design."

The $109 million project is being funded primarily by the sale of public bonds issued by the Metropolitan Washington Airports Authority. Construction is underway, and terminal expansion will be completed in 1996; roadway improvements will be finished by 1997.—*R.A.B.*

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Reinventing Slopopolis

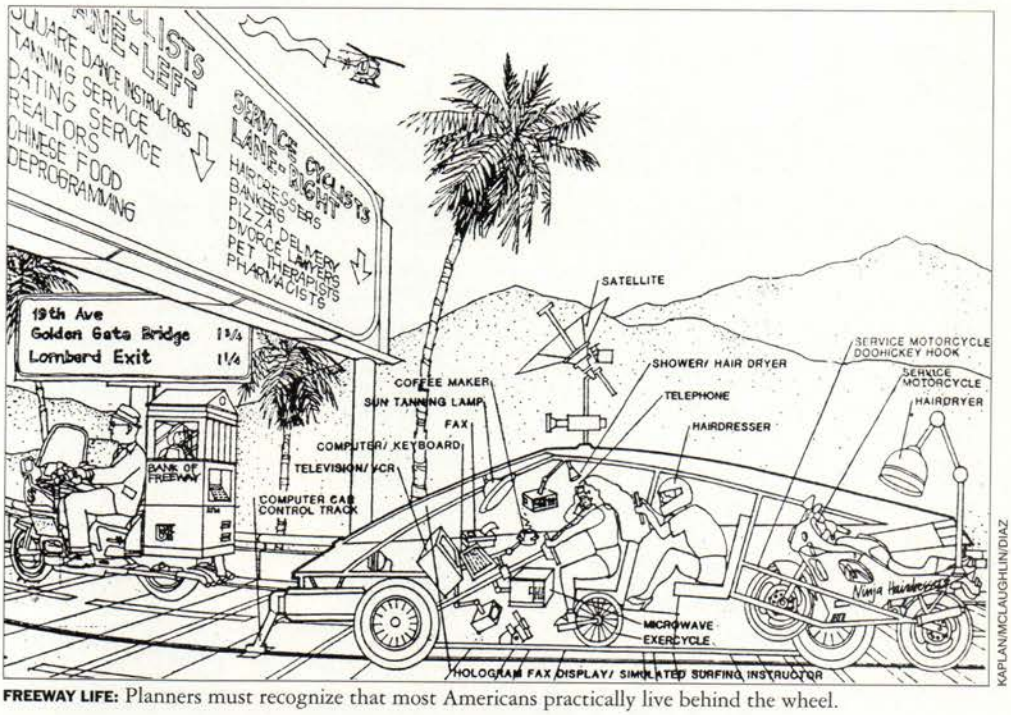
New zoning and regional cooperation must be developed to rein in roadside sprawl.

Fashionable critics often refer to the sprawl that typifies modern suburban developments as "edge cities." In fact, if there are any edges, they are ragged, torn, and soiled. They do not resemble what we have historically known as cities. Rather, they are disorganized and disjointed slurries, better named "Slopopolis." These places have no centers, no boundaries, and no sense of definition. The symbolic, unifying spaces of these new settlements are not the great waterways, parks, boulevards, and monumental buildings that define New York City, Chicago, and Philadelphia. Instead, the shared public experience in Slopopolis is the neon jumble and garish signage of the roadside strip—sleazebelts, not greenbelts. The environment sends a message not unlike that of MTV: Life is episodic, disjointed, and disconnected.

The planning challenge of the 1990s is to rectify this burgeoning mess. Appallingly, popular recognition of the problem is hard to come by. The startlingly uncritical book, *Edge Cities* by Joel Garreau (ARCHITECTURE, December 1991, pages 45-47, 114-115), actually celebrates these communities. It recognizes their present disorganization but does not see Slopopolis as a serious issue and suggests that the American ability to "work things out" will take care of everything. It won't. We need new theories and new leadership. Our planners have traditionally been politicians, who tend to see ahead 3 years at most. We need urban plans for 50 years and beyond. Citizens led by architects must take responsibility for leadership.

The general public does not comprehend the scope of the crisis. The activists, environmentalists, idealistic public transport advocates, and their allies are admirable, but they are committed to about as many myths and legends about Slopopolis as the inhabitants of a medieval monastery were to images of their supposedly flat world. They idealize forms of urbanism that resemble Paris in 1700, with the addition of federally funded streetcars.

If modern planning is to succeed, it must first face the realities of new ways of living.



FREEWAY LIFE: Planners must recognize that most Americans practically live behind the wheel.

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Suburbanization, the single-family house, and travel by car is not only the preferred American way of life, it is becoming an economic necessity as well. It is much cheaper for the middle class to live in suburbia. Yet, planning ideologues talk of "24-hour downtowns" and "diverse" urban neighborhoods. They talk about transport, not travel, with citizens carried along in an object that somebody else is driving—preferably on tracks—like some form of cattle car. Planners are writing a mythical morality play titled "Streetcars of Desire" and trying to make us all buy tickets (ARCHITECTURE, August 1993, pages 54-65). It plays to empty houses—or empty light-rail vehicles. For public transit to work well, densities must exist in both housing and commercial destinations that are much greater than the typical suburb. Creating such densities must happen at the same time as transit planning. Only with the greatest caution should scarce public funds be allocated to the most expensive and inflexible systems, such as rail.

Another set of myths is being propagated about "pedestrian cities" in which residents will stroll to shop and work in intimate "centers." The paradigm is the tiny resort hamlet of Seaside, Florida. It has little relevance to the realities of everyday modern life, which demands residents shop at the large scale of the Wal-Mart, with weekly excursions to fill a car to the brim. Employment is sought wherever jobs occur—usually miles away.

Create coherent centers

Architects must reinvent the center of the traditional American city at a scale that makes modern sense. Historically, the center formed a coherent fabric that comprised the key symbols of our culture: park (village square), culture (library), government (town hall), religion (church), retail (mom-and-pop store), service (doctor/dentist), communication (railroad station), and education (school). These symbols remain the popular ideal—the America of Norman Rockwell or of such movies as "Back to the Future" or "E.T." Today, in the sleezebelts of Slopopolis, you can't even find the library. We must reinvent the old centers. However, retail must be larger than it once was. The minimal Wal-Mart is now one acre of store, with three acres of parking. The new centers will require a minimum of 100,000-200,000 square feet of retail buildings and parking for 1,000-2,000 cars. This square footage doesn't even include cultural and civic buildings, hotels, and offices that enliven the mix.

Don't worry about another set of mythic modern city planning mantras that are chanted regularly—in honor of the "24-hour city." The concept is that office, retail, and housing are mutually self-supporting and need to be cheek-by-jowl to create "vitality." This simply isn't necessary or even practical anymore. Office workers don't pick up a loaf of bread on the way home. They get in their cars and shop once a week at the supermarket. Due to the large scale of modern office development, it is often difficult to mix office and retail. Sacrifice the office in favor of the library, the auditorium, and the city hall.

Eliminate the sleazebelts

The depressing strips of roadside junk—the car dealerships, lumberyards, and short-order joints that create the basic, disjointed visual experience that we call community—must be eliminated. Concentrated retail centers can absorb and isolate this low-density visual litter, so that it no longer dominates the American public's visual experience. Commercial uses should not be allowed to sprawl along the roadway or compete for the most outlandish sign. Rather, they can be clustered and surrounded by landscaped boundaries. Don't worry; the retailers will come, wherever there are customers.

The secret is zoning and a reconsideration of the economic policies that have driven it. At present, every governmental jurisdiction lusts after the jobs and taxes that retail brings. This tax-based approach leads to willy-nilly strip zoning for retail and commercial development along every possible roadway, and the resulting public landscape of neon-encrusted, junk buildings surrounded by vast parking lots.

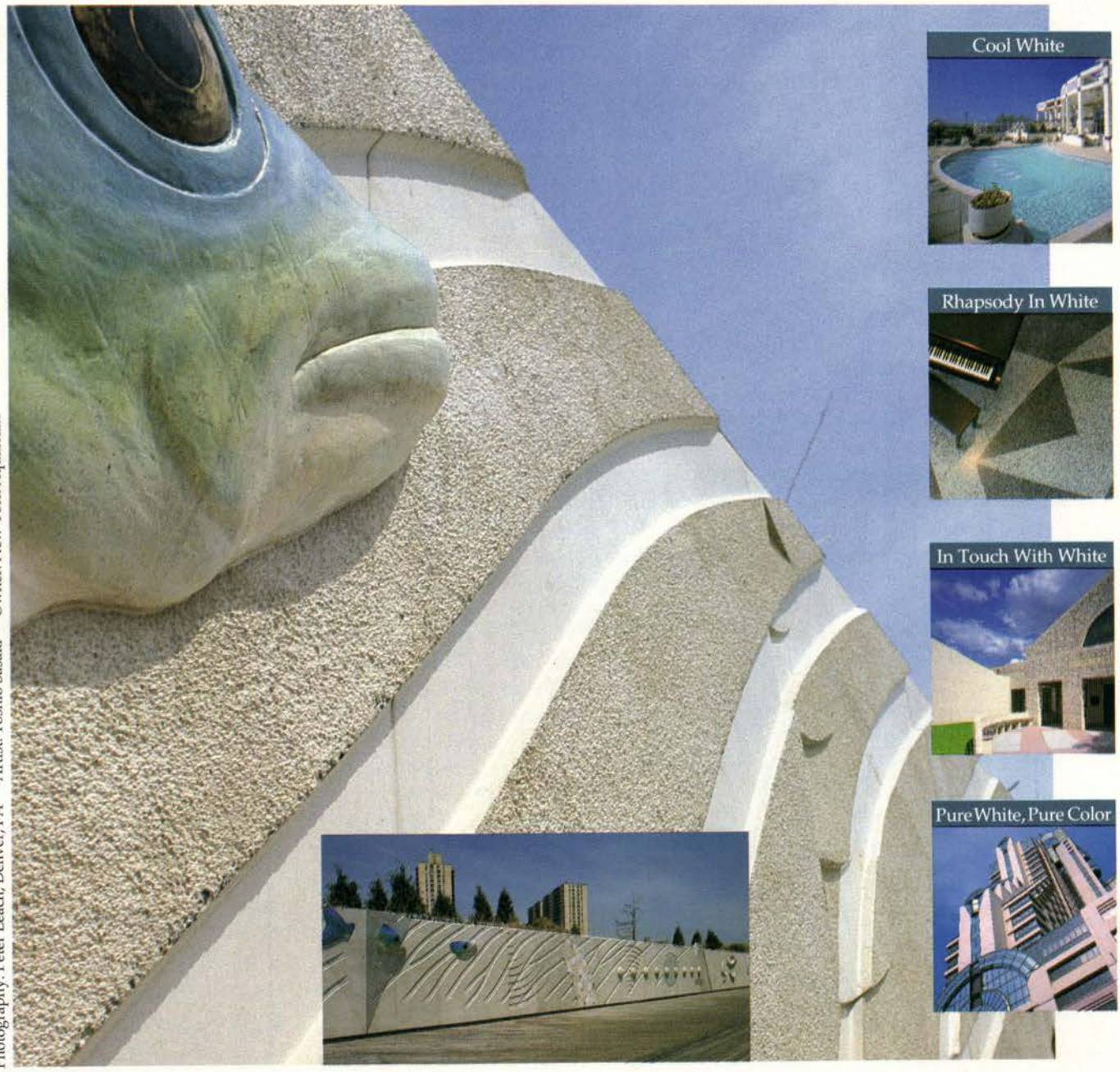
Draw up treaties, not regional plans

Achieving this change will call for new forms of regional cooperation. The first answer is economic treaties. Traditional regional planning seldom, if ever, works because it usually tries to do too much. It attempts to plan everything—to the point where consensus and action both become difficult. Critical regional issues must be addressed by asking the following two questions:

Where do the major greenbelt areas go? Financing is the key stumbling block. A new generation of zoning policies and entitlement fees can solve this problem.

Where does the intense commercial zoning, most particularly retail, go? Regional economic treaties to share entitlement fees and sales and property taxes would be the

THE RIGHT WHITE



Photography: Peter Leach, Denver, PA Artist: Toshio Sasaki Owner: New York Aquarium

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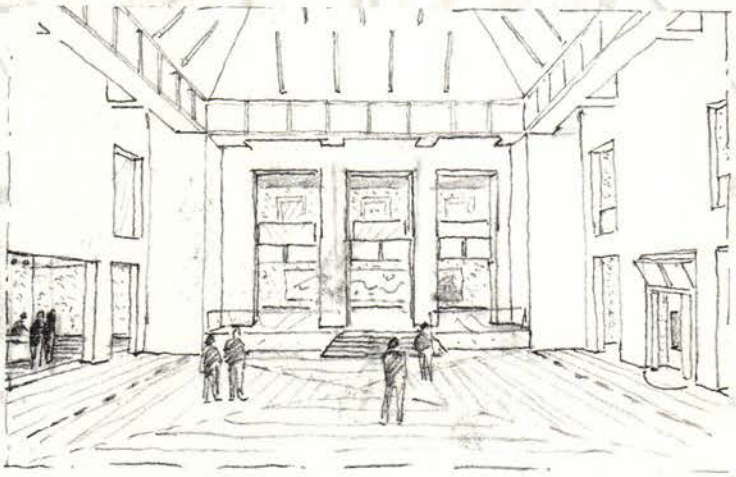
Contemporary architecture is interwoven into historic fabric without compromising the past.

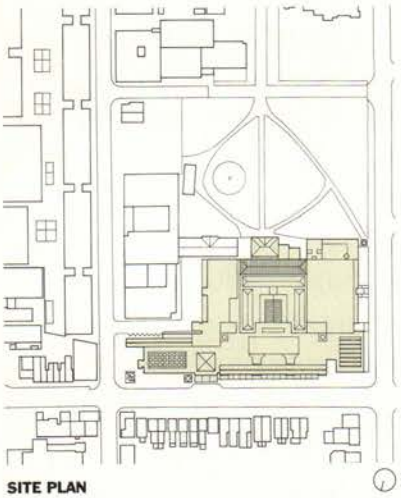
Our annual issue on renovations and additions reveals the capacity of new architecture to transform historic structures into compelling icons for cultural institutions. The most convincing example is Barton Myers' addition to the vast Art Gallery of Ontario (sketches below). Myers reconciles two centuries of construction on a downtown Toronto site, establishing a memorable image for one of the 10 largest galleries in North America. Renovating interiors to house a broad range of exhibitions amidst venerable surroundings can be a formidable task. Florance Eichbaum Esocoff King designed a forceful setting for the National Postal Museum, in Washington, D.C., which succeeds as a material complement to the existing lobby of a Beaux-Arts landmark. Canadian architects LeMoyne Lapointe Magne, too, poignantly juxtapose modern materials against antique masonry, manifested in their bold rehabilitation of an historic market hall and custom house in Montreal. In Brooklyn, Smith-Miller + Hawkinson create a flexible interior for the Rotunda Gallery that is potent enough to serve as the new hallmark of this emerging institution, which recently moved from an historic public building to an office tower storefront. On a smaller scale of interventions, Machado and Silvetti faced the familiar challenge of rehabilitating an industrial building into offices and a residence: Their elegant entrance canopy demonstrates how even a banal warehouse can be elevated with minimal means.



Art Gallery of Ontario
Toronto, Canada
Barton Myers Associates and
Kuwabara Payne McKenna
Blumberg Architects

ARS CIVITAS

MAXWELL MACKENZIE



SITE PLAN

TOP: View from McCaul Street along the Dundas Street facade reveals the Henry Moore Sculpture Center (left) designed by Parkin Partnership.
SITE PLAN: Art Gallery of Ontario abuts historic Grange Park (top).
FACING PAGE: Barton Myers transformed northern elevation with steel-framed, 105-foot-tall tower; pyramid-roofed entrance hall; and barrel-vaulted contemporary galleries. CN Tower, world's tallest freestanding structure, is visible in the background.

It was the only museum in the world where the grand staircase led to the washrooms in the basement. It was the prefab concrete box, so the joke went, that the nearby brick police station came in. Worse, by the mid-1980s, it was a higgledy-piggledy agglomeration of galleries, spanning nearly two centuries of architecture.

The hodgepodge evolution of Toronto's Art Gallery of Ontario (AGO) led the institution to launch a competition to renovate and expand its aging facility in 1986. The $58 million (Canadian) project was awarded to the Los Angeles firm Barton Myers Associates, then based in Toronto. The commission was completed in a joint venture with Toronto's Kuwabara Payne McKenna Blumberg Architects (KPMB) and opened this year. Twenty existing galleries were renovated, and 30 new ones were added to create 483,000 square feet, propelling the AGO into the ranks of the 10 largest galleries in North America.

The AGO expansion, however, is as much about urbanism as architecture. Toronto exemplifies a feeling of *civitas* like no other North American city; its residents never fled the urban core for the suburbs as did their Yankee counterparts. The decision to locate SkyDome, the famed sports stadium, in the downtown theater district typifies the local attitude toward the city. "People here really are preoccupied with urban design issues as public debate, such as infill and alignment, and building to the street edge," maintains KPMB Partner Thomas Payne.

The context surrounding the AGO challenged Myers with a variety of neighborhood building types and architectural styles. To the south stands Toronto's oldest remaining brick house, the classically proportioned 1817 Grange. On the north and principal side, the AGO fronts Dundas Street, with its Victorian brick houses. Chinatown's busy mix of low-rise buildings stretches along Beverley Street to the west. The eastern boundary, McCaul Street, comprises condominiums and the Ontario College of Art.

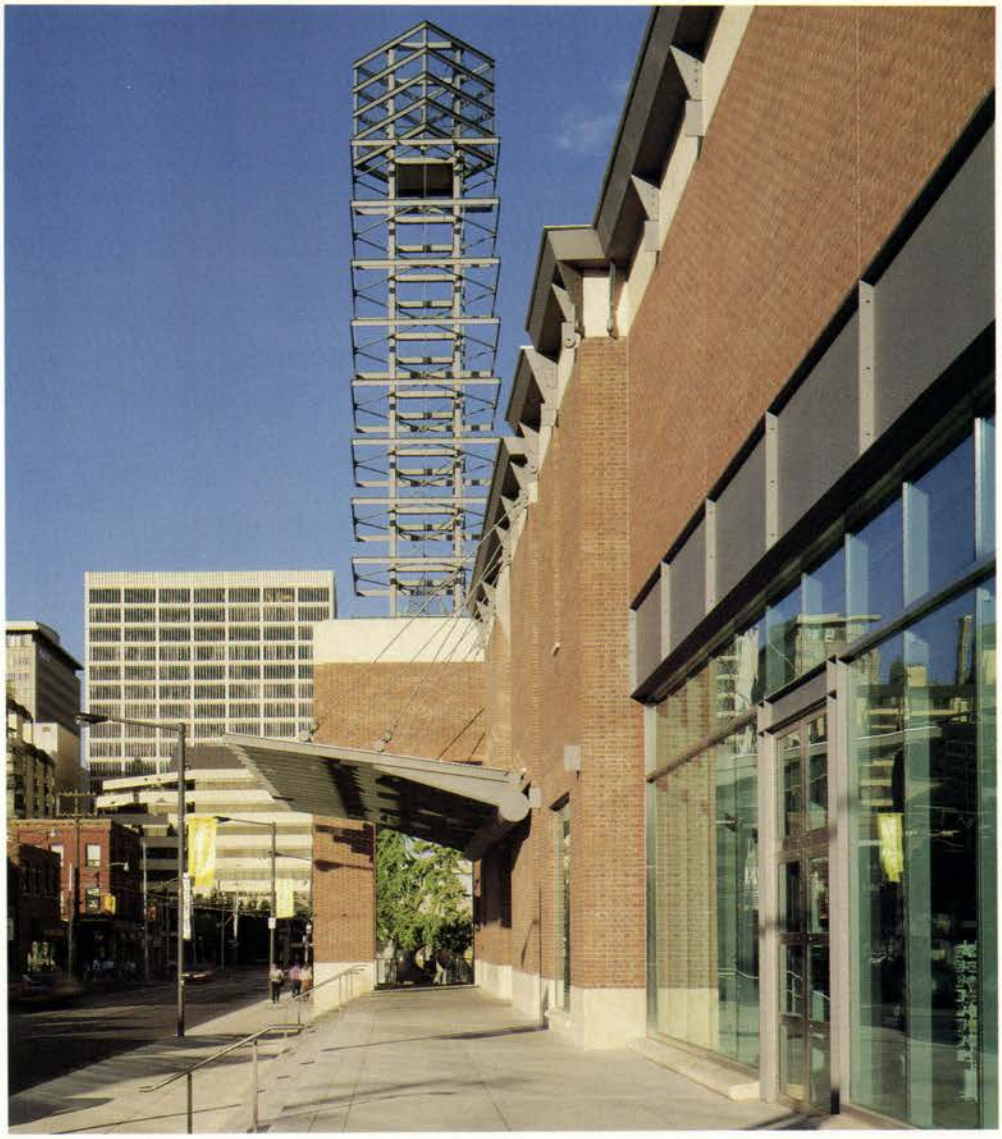
Accordingly, Barton Myers took his cues from these surroundings and gave each side a distinct elevation. He devised a north facade that relates to the row houses as well as to the life on the street, while asserting an institutional presence. The peaked roofs of the surrounding town houses determined the facade's 40-foot-high cornice line; their material suggested the AGO's brick construction. The new north elevation offers a glazed facade with chromed doors. Myers had designed a long canopy affording protection from rain. Unfortunately, funding constraints permitted only a section of the canopy over the entrance to be built. Lacking this mediating element to bring the facade down to human scale, the elevation seems rather naked and bleak.

On the northeast side of the museum, Myers borrowed the 19th-century Ontario tradition of bestowing towers on major public buildings by erecting a skeletal, 105-foot-tall tower. Not merely an esthetic element balancing the horizontal expanse of the facade, the Muzzo Di Luca Tower offers a place from which to hang banners, visible from a distance. Together, the tower, the dramatic pyramid over the entrance hall, and the long barrel-vaulted roof along Dundas Street create a monumental composition, providing the AGO with a strong urban presence.

The south facade presented the challenge of balancing the two-story, brick Grange house with the high-tech, glass-and-steel roof of the Tanenbaum Atrium and the Chalmers Wing, a new five-story library and administration addition flanking the Grange. With contextual sensitivity, the massing of the addition respects the Grange's cornice line; the floors above that datum are set back and treated as roof elements. The base echoes the Grange's Flemish-bond brick cladding, window openings, and period style, with a Postmodernist, *oeil-de-boeuf* window under a shallow-vaulted roof.

Myers views the AGO's heterogeneous nature as a virtue: "One can promenade at the AGO through 600 years of art and nearly 200

RIGHT: Entrance canopy will eventually extend along entire facade; tower will be clad with wire-mesh panels.
BOTTOM RIGHT: Brick bays and steel cornice on north facade relate to scale of adjacent town houses.



years of architecture. It all hangs together like the disparate pieces of a city." Those pieces start at the Grange, which in 1913 became the museum's first permanent home. In 1918, three rooms designed by Toronto-based Darling and Pearson were built north of the Grange. In 1925, the architects added the Walker Sculpture Court, with galleries on three sides, a print gallery upstairs, and a new forecourt on Dundas Street. In 1933, the firm added two more galleries, later demolished to make way for expansions by Toronto's Parkin Partnership.

The first, completed in 1968, wrapped Darling and Pearson's Beaux-Arts structure and provided new exhibition space, including the Henry Moore Sculpture Center, the world's largest repository of the British sculptor's work. The second stage, completed in 1977, pushed out to the property line on Beverley Street. However, Parkin's Modernist additions turned their back not only on the historic Grange, but also on Dundas Street, where a service-entry moat separated the sidewalk from the facade.

With Parkin out of the picture, planning resumed in 1982, specifying galleries for Inuit and contemporary art; an indoor sculpture court; a new prints-and-drawings center; a new library; new storage vaults; and expanded workshops, offices, and retail spaces. Responding to the AGO's accretions, Myers likens his planning approach to "finding an old town and giving it order." Explains Myers, "The AGO is so big it's almost like a city, so planning takes an urbanist approach. The Walker Court and some of the great rooms function like breaks or pubic squares in a high-density, middle-rise scheme."

Having lost its forecourt in the course of Parkin's interventions, Myers saw little need to retain the museum's north-west axis, linking the entry to the 1925 Walker Court. He shifted the entrance from the center line of Walker Court and moved it east along Dundas Street. Although the north-south axis now zigzags, moving the entry closer to the subway enabled Myers to take advantage of a large, well-proportioned space where he was free to make a grand entrance hall. Also, this location puts visitors closer to the main elevator and the ramp to the Moore Gallery. This decision established a major circulation corridor from east to west and a new, north-south spatial hierarchy, comprising three courtyards and three dense layers of gallery spaces.

As a result, the visitor experiences an alternating rhythm of soaring and compressive spaces, from the pyramid-topped George Weston Hall to the galleries, through the Walker Court to more galleries and the Tannenbaum Atrium leading to the low-ceilinged Grange. The frontal layer centers around Weston Hall, where the visitor is introduced to the galleries above and straight ahead, the information desk, and retail. "I wanted to design a great hall like an English manor house," notes Myers. To enhance that feeling, the architect proposed a large fireplace for the hall, following the example of his performing arts center in Cerritos, California (ARCHITECTURE, May 1993, pages 74-81), that was eventually eliminated.

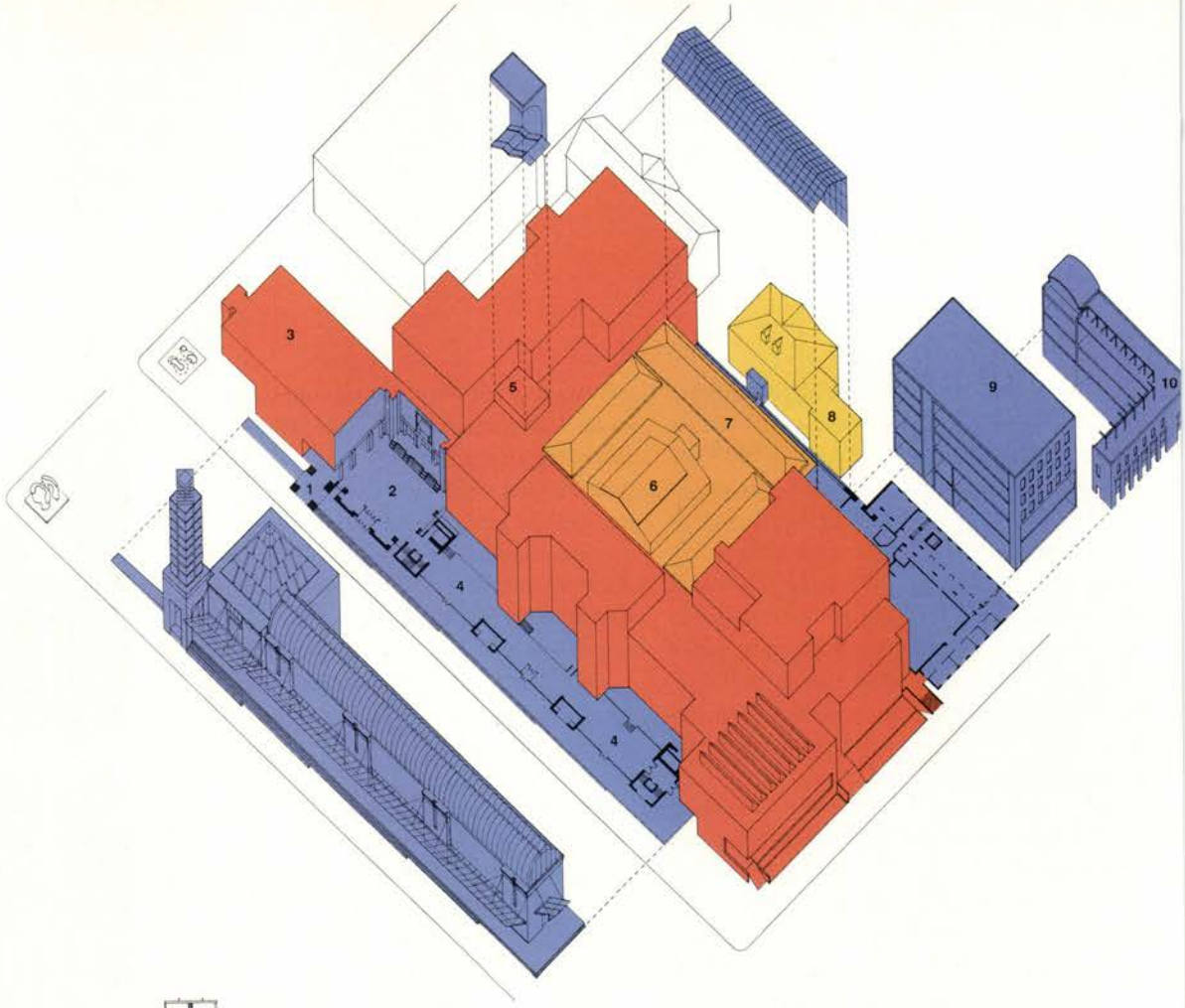
Myers also made the reception area feel more open by punching windows into two second-floor walls overlooking the entry. The glazed portal opposite the entrance features one of the AGO's crown jewels, Henry Moore's original plaster cast for *Draped Seated Woman*, serving not only as a focal point, but also to highlight the treasure trove within. The dramatic, pyramidal roof of the hall evokes Egyptian architecture not only in its form but also in the glazed slots that admit daylight. The pyramid was one of several geometric forms considered: Viewed from the street, a dome would have clashed with the barrel-vaulted facade, while an octagon wouldn't look as strong. So far, the space lacks sparkle—literally, as Myers did not get theatrical lighting he specified.

Past the Walker Court, one enters the Joey and Toby Tanenbaum Sculpture Atrium—30 feet wide, 156 feet long, and 42

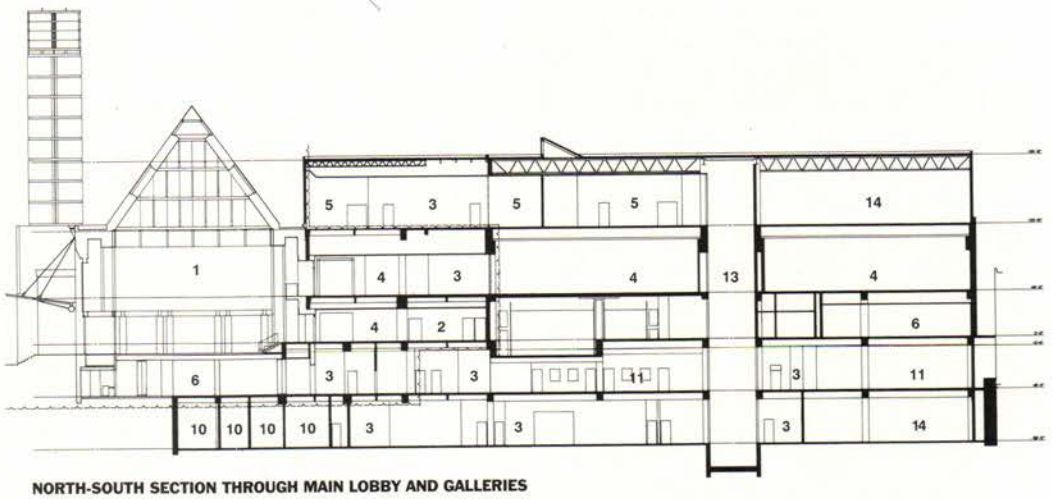
TOP: New, glazed roof links Georgian-style 1817 Grange with 1918 Darling and Pearson Beaux-Arts addition to create the Tanenbaum Atrium.
ABOVE: Myers' southern addition, the Chalmers Wing, houses library, prints-and-drawings center, and sculpture terrace. New volume echoes cornice line, fenestration, and Flemish-bond brick of historic Grange (right).

1 MUZZO DI LUCA TOWER
2 MAIN LOBBY/WESTON HALL
3 MOORE CENTER
4 RETAIL
5 MAIN STAIRCASE
6 WALKER COURT
7 TANENBAUM ATRIUM
8 THE GRANGE
9 ADMINISTRATIVE OFFICES
10 RESEARCH LIBRARY/ARCHIVES

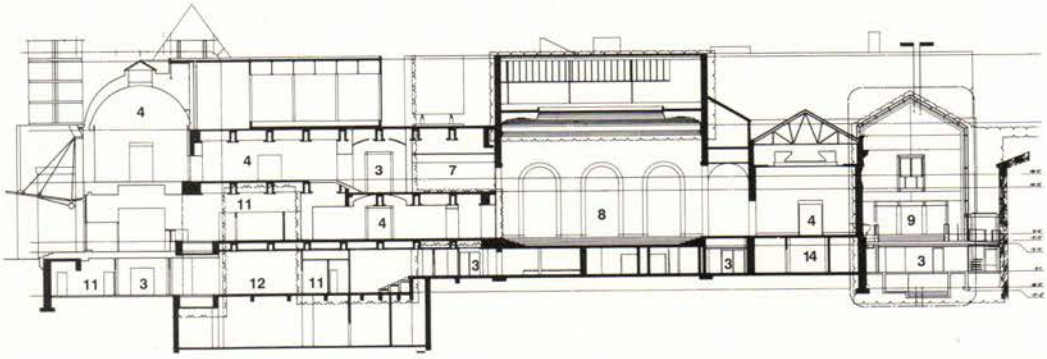
1817
1920
1960-1970
1993



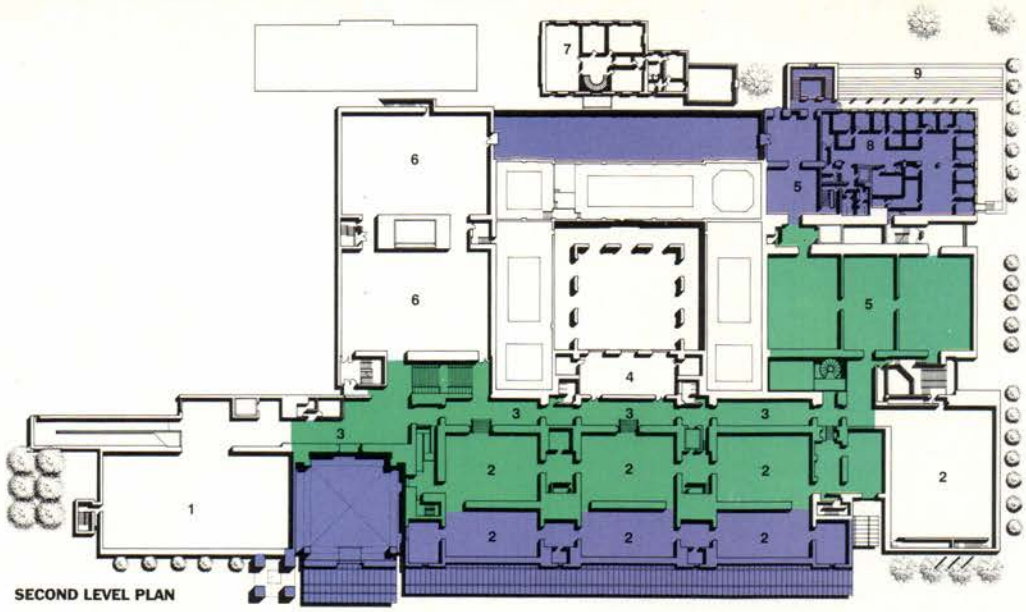
1 MAIN LOBBY
2 STAIR LOBBY
3 CORRIDOR
4 GALLERY
5 STUDIO
6 DINING ROOM
7 MEMBERS' LOUNGE
8 WALKER COURT
9 TANENBAUM ATRIUM
10 PHOTOGRAPHY WORKROOM
11 WORKROOM
12 STORAGE
13 ELEVATOR
14 MECHANICAL



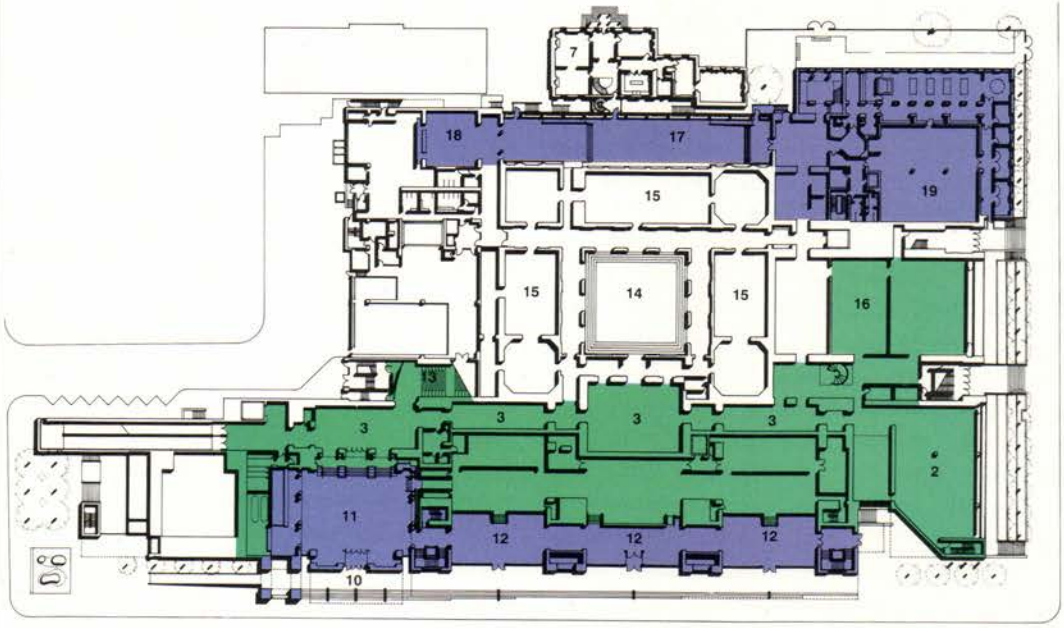
NORTH-SOUTH SECTION THROUGH MAIN LOBBY AND GALLERIES



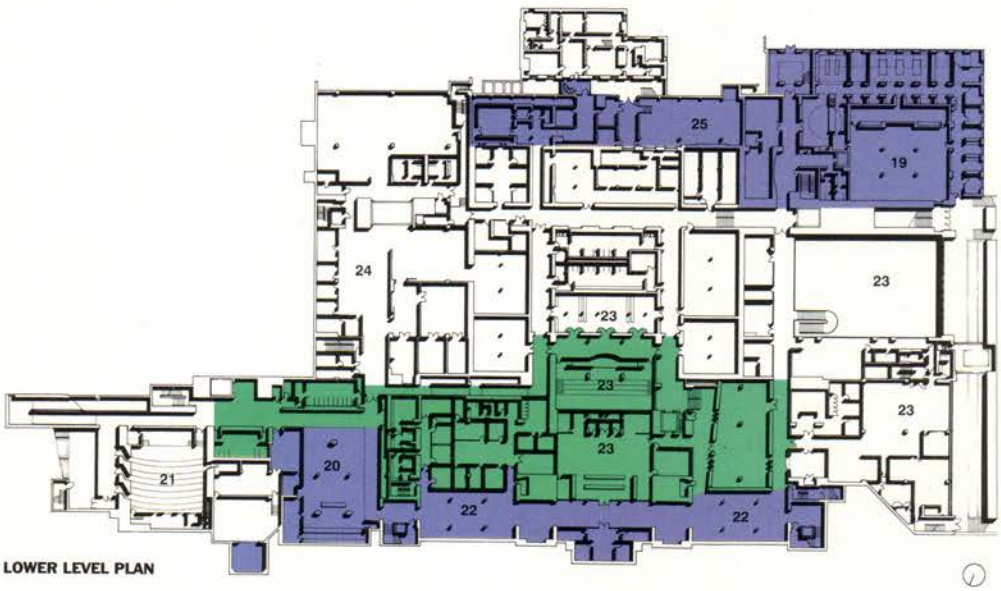
NORTH-SOUTH SECTION THROUGH WALKER COURT AND SCULPTURE ATRIUM



SECOND LEVEL PLAN



GROUND LEVEL PLAN



LOWER LEVEL PLAN

1 MOORE CENTER
2 CONTEMPORARY GALLERIES
3 EAST-WEST SPINE GALLERIES
4 MEMBERS' LOUNGE
5 CANADIAN GALLERIES
6 TRAVELING EXHIBITS
7 THE GRANGE
8 ADMINISTRATIVE OFFICES
9 SCULPTURE TERRACE
10 MAIN ENTRANCE
11 LOBBY
12 RETAIL
13 MAIN STAIRCASE
14 WALKER COURT
15 OLD MASTERS GALLERIES
16 PRINTS/DRAWINGS
17 SCULPTURE ATRIUM
18 RESTAURANT
19 RESEARCH LIBRARY/ARCHIVES
20 DINING ROOM
21 AUDITORIUM
22 CONCOURSE
23 GALLERY SCHOOL
24 TECHNICAL SERVICES
25 MECHANICAL

ADDITIONS
RENOVATIONS

FACING PAGE, AXONOMETRIC: Myers added tower, entrance hall, and contemporary galleries to the north; central stair in former lightwell; and sculpture atrium and library/administration wing to the south.
SECTIONS: Galleries incorporate Parkin's large-span structural system (top). Soaring public spaces alternate with lower ceilinged galleries (bottom).
PLANS: Myers created a grand entrance hall to the east and new east-west enfilade. On second floor, barrel-vaulted contemporary galleries occupy space previously assigned to offices, which were moved to addition at rear.

MAXWELL MACKENZIE PHOTOS

TOP: Visitors enter building through George Weston Hall and proceed into galleries under portico (right). Floor is finished in concrete and limestone.
ABOVE: Paired, pewter-finished columns support steel beam with triglyph-like stiffeners in steel channels.
FACING PAGE: Soft daylight seeps through glazed slots in pyramidal roof.

feet to the peak of the roof—formed by glazing the space between the Grange and the limestone wall of Darling and Pearson's 1918 gallery. Entering the atrium is a surprising, satisfying moment, full of natural light. With its previously unappreciated Renaissance Revival detailing, the limestone wall lends a sense of scale to the large space. Indeed, the court is one of Toronto's great spaces; its bar/restaurant, an instant hot spot.

Even with nearly 60 percent more exhibition space than the Parkin incarnation, the newly expanded AGO is more spatially coherent and easier to navigate. Through an enfilade of galleries, the visitor enjoys long vistas while walking along the east-west spine, as well as glimpses into the Wood Gallery and Old Masters Gallery. But the vertical circulation system does not work as well: One never knows where to look for the stairs. To be fair, Myers' original competition scheme included a grand staircase in Weston Hall, which the client vetoed on grounds that it would limit the hall's flexibility for entertainment or fundraising events. Instead, Myers inserted the main staircase into a Parkin-designed lightwell, a cramped solution at best.

In the Parkin-designed wings, Myers incorporated existing structural elements, developing a crude Kahnian system of served and servant zones, which lent itself to an alternating series of large and small galleries. Remarks Myers, "We basically projected the Parkin span"—a generous, 60-foot, column-free space. Prefab concrete T-beams ran across Parkin's gallery ceilings, imparting the feeling of an industrial space. Myers skim-coated the Ts with plaster and installed new lighting. Now, the Ts form the axis of some new vaulted gallery spaces; in other instances, they serve as a new coffered ceiling. "We made the deep structure of the 1970s sing again," remarks Payne.

Generally, Parkin Partnership's galleries were Miesian, universal spaces with temporary partitions. In contrast, Myers gave each gallery a distinctive identity, with a unique materials and color palette geared to the art. For instance, the new Canadian galleries, on the upper level, are residential in scale. One such gallery, painted red, is hung after the fashion of a 19th-century mansion's salon, with paintings carpeting the walls.

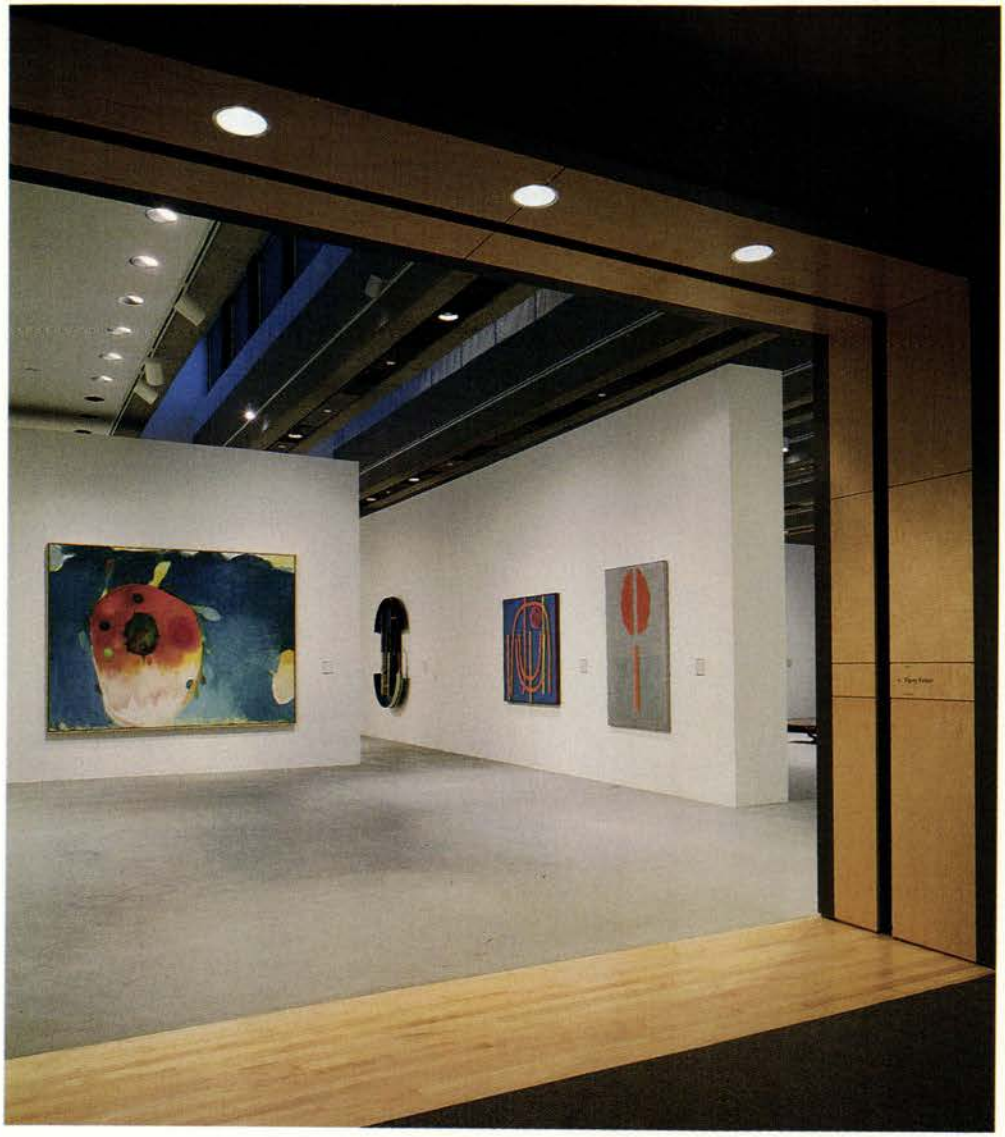
Out of a second-floor space previously occupied—one is tempted to say "wasted"—by offices, the architects carved out three splendidly airy contemporary galleries. They are proportioned in a 2-to-1 plan relationship—a double square (60 feet by 30 feet)—with a full, semicircular vault; a skylight runs the length of the ridge. "I wanted a 20-foot-high wall and to have the shadows on the cornices disappear," explains Myers, "so these three galleries at the AGO are the finest anywhere today. Even at night, you get very even light over the whole wall."

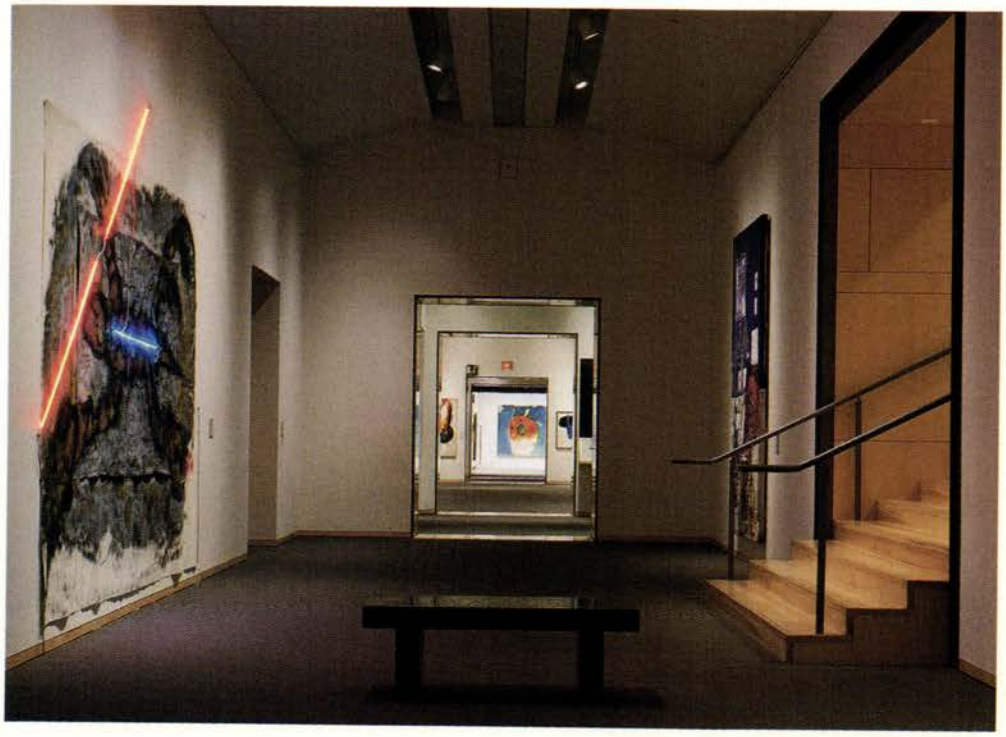
Those visitors who are looking for a unified whole, an underlying esthetic gestalt, to the revamped AGO will be disappointed. In accommodating two centuries of building campaigns, the Myers' scheme remains a collection of stylistically unrelated rooms. The arrangement of small galleries and soaring spaces makes for exhilarating moments, comparable to exploring winding medieval streets and suddenly chancing upon a wide-open square. The variety of room scale also promotes a feeling of intimacy that prevents the architecture from overwhelming the art. More importantly, the newly renovated AGO is a neighborhood gallery, albeit on a grand scale, celebrating its urban context by complementing surrounding structures and styles.

In 1989, the United Nations declared Toronto the world's most ethnically diverse city, with more than 80 ethnic groups among its 3.5 million inhabitants speaking more than 100 languages. Considering how happily the AGO's new, old, and not-so-old parts coexist, the architecture certainly captures the spirit of the place. —*David Lasker*

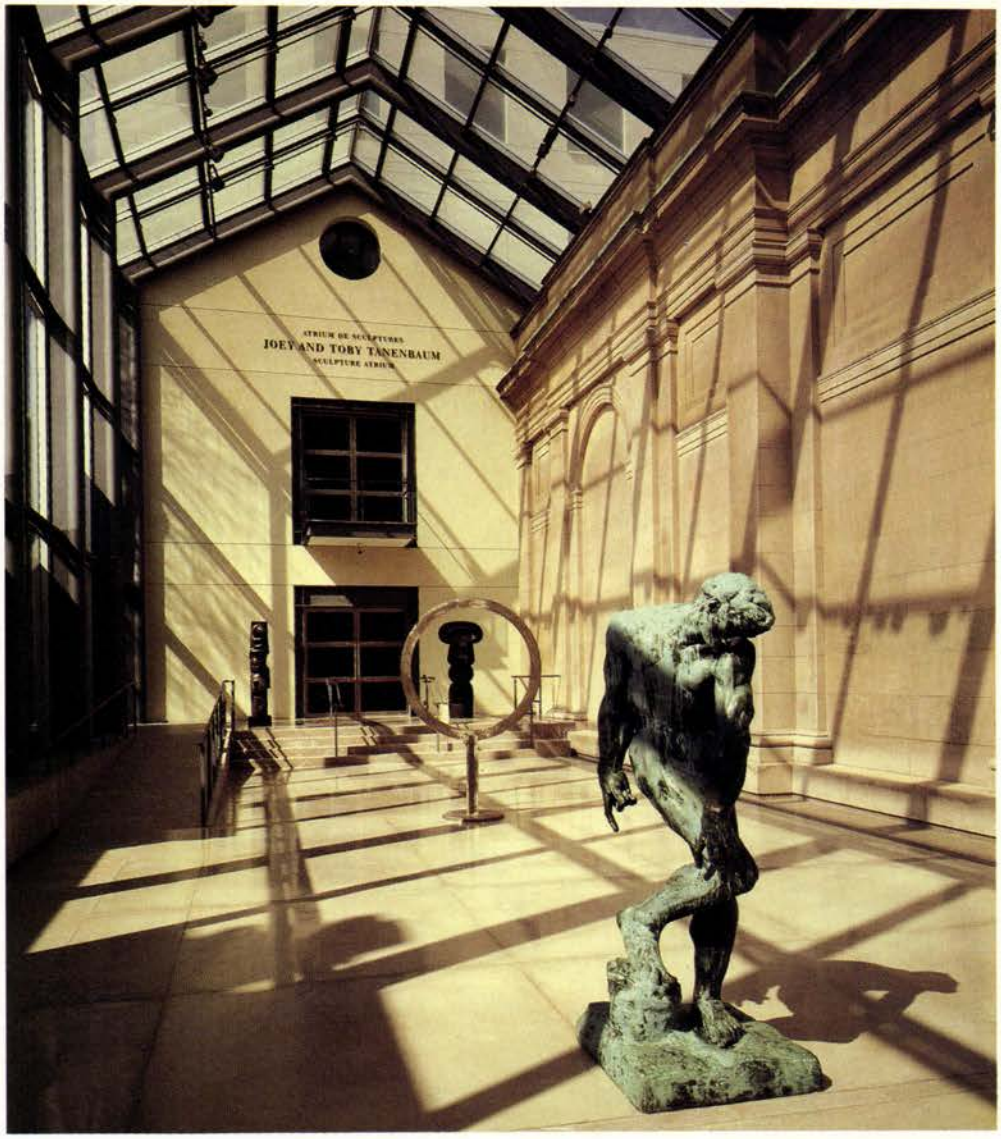
David Lasker is fashion and design editor of Toronto's Globe and Mail.


ONE CLIMATE





FACING PAGE: Barrel-vaulted contemporary galleries on second floor feature cornice- and shadow-free walls.
ABOVE LEFT: Existing gallery by Parkin Partnership and Myers' northern wing are linked by maple-paneled door jambs, which conceal services.
BOTTOM LEFT: View along main east-west spine reveals gallery enfilade.
TOP: Old Masters Gallery in 1918 building by Darling and Pearson was restored to its original glory.
ABOVE: In renovated gallery for contemporary art and sculpture, existing precast concrete T-beams are skim-coated with plaster. Metal diffusers were added between beams; cove lighting was installed within recesses.



RIGHT: Exterior wall of Darling and Pearson's 1918 gallery now serves as north wall for new sculpture atrium.
BOTTOM RIGHT: Renaissance Revival detailing in limestone wall of 1918 building lends a sense of scale to new Tanenbaum Sculpture Atrium. The classically proportioned 1817 Grange lies beyond glazed wall at right.
FACING PAGE: Atrium's limestone wall is illuminated at night.

ART GALLERY OF ONTARIO
TORONTO, CANADA

ARCHITECT: Barton Myers Associates, Los Angeles—Barton Myers (principal-in-charge); John Dale (associate-in-charge); Scott Profeta, Jennifer Schab, Michael Murdock, Randy Wagner, Ashkan Sepassi, Carolyn Ovaitt, Wendell Galt (design team)
ASSOCIATE ARCHITECT: Kuwabara Payne McKenna Blumberg Architects, Toronto, Canada—Thomas Payne (partner-in-charge); Chris Couso, Cal Smith (associates-in-charge); Fred Allin, Adrian Blackwell, Vince Catalli, Michael Epp, Siamak Hariri, Ian Izukawa, Luigi LaRocca, Andrea MacElwes, Drew Mandel, Goran Milosevic, Yusuke Obuchi, Dimitri Pereklitas, Mike Poitras, David Poloway, Suzanne Powadiak, Andres Quin, Ronald Renters, Jerry Rubin, Marc Simmons, Jennifer Turner (project team)
ENGINEERS: M.S. Yolles & Partners (structural); JSA Energy Analysts (mechanical); Carinci Burt Rogers Engineering (electrical)
CONSULTANTS: Rolf Jensen & Associates (fire/safety); Gabriel/Design (lighting); A.J. Vermeulen (surveying)
GENERAL CONTRACTOR: Vanbots Construction
COST: $58 million (Canadian)
PHOTOGRAPHER: Steven Evans, except as noted

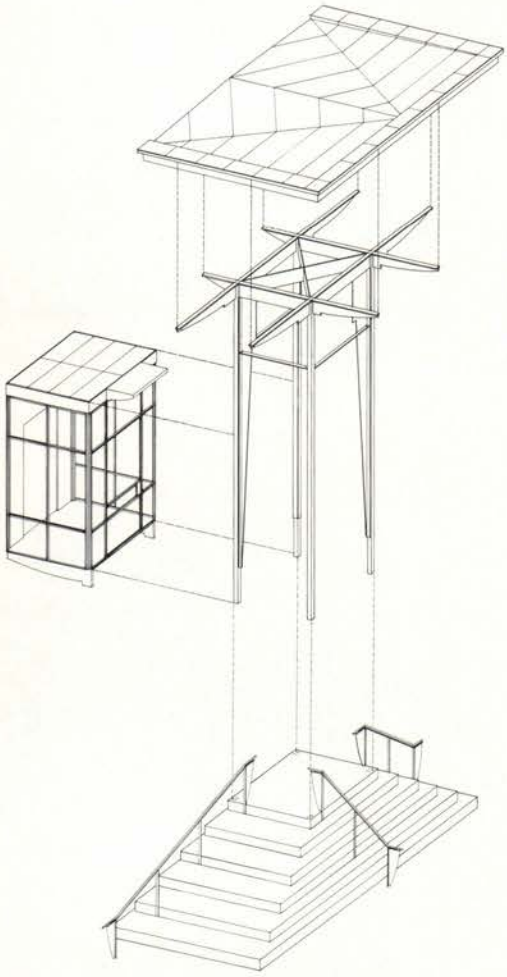

JOEY AND TOBY TANENBAUM

STREET SMART

Offices and Residence
Cambridge, Massachusetts
Machado and Silvetti Associates

ANTON GRASSL PHOTOS

THESE PAGES: Machado and Silvetti Associates' converted 1920s warehouse is surrounded by parking lots and industrial buildings in Cambridgeport.
LEFT: Architects added concrete stair, steel canopy, and glass vestibule to mark new entrance. Height of canopy corresponds to cornice of neighboring building. New steel balcony on top floor centralizes facade.



Sidney Street crosses an isolated pocket of vacant lots and industrial buildings in Cambridgeport, an area as surreal and forlorn as a painting by Edward Hopper. This gritty district of Cambridge, Massachusetts, grew in the 1920s amidst residential areas to the north and east, the Charles River to the west, and the Massachusetts Institute of Technology (MIT) to the south.

In the mid-1980s, MIT spurred gentrification of the area with research and development buildings at the north end of Sidney Street. The university's plans, however, for future expansion in the neighborhood have not driven away local industry. A pipe and fittings company, for example, still operates out of a 1920s building on the west side of the street. On the next block south, local architects Machado and Silvetti draw from local industrial vernacular in their conversion of an ashen, three-story warehouse into offices and a residence. The architects modified the building with minimal means: Their addition of a steel canopy and balcony is nobly restrained, clear, and precise. No shards of glass jut from the roof; no tilting planes conceal the old facade; no twisted extrusion of steel disrupts the continuity of the street.

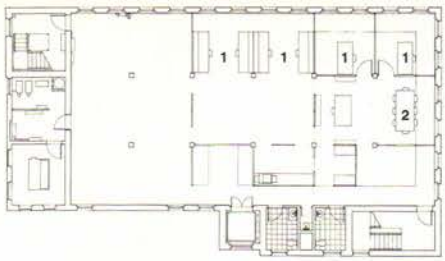
Before work began on the interior, the architects improved the building's facade, which is set back 20 feet from the street. A new steel canopy not only calls attention to the converted warehouse, but also establishes a strong foothold in the patchy urban context. Like the building itself, the canopy is designed as a freestanding object, set atop a podiumlike stair and pulled six feet away from the front door; a glazed, bridgelike vestibule spans the gap between old and new. "The vestibule is docked against the facade, not slapped onto it," notes project architect Peter Lofgren. Slender steel columns support the canopy's planar roof, which picks up the cornice line of the neighboring building.

The facade of the 1920s warehouse provided a drab, but inoffensive, backdrop, which the architects punctuated with a large window on the top floor. This new opening and projection impose order, hierarchy, and rhythm upon an otherwise nonhierarchical, seven-bay facade. "We used architecture to transform the vernacular," explains Principal Rodolfo Machado. The architects replaced all of the windows that had been bricked over on the various levels and painted the exterior walls pale gray; the subtle shade of pale yellow on the vertical plane of the balcony contrasts the new addition against the old facade. "Gray exaggerates the industrial image of the building," Lofgren observes. "We applied color to the balcony in the way one retouches a black-and-white photograph."

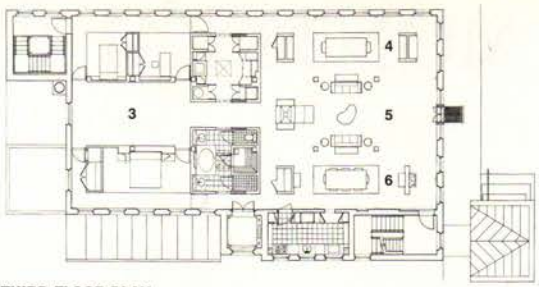
The interior, like the exterior, is monochromatic, similarly evocative of black-and-white photography. Machado and Silvetti gutted each of the four levels, leaving the timber structure and perimeter bearing walls intact. An office for the owners is located in the basement; rentable office space occupies the first two levels; and the owners live in a new loft apartment on the top floor.

The design of the owners' loft combines the spatial qualities of a free plan with the hierarchies of a central axis. Two square service rooms, which house a bathroom and dressing room, separate the living area in the front from a bedroom in the back. Machado and Silvetti mark the boundary between public and private with a steel-clad, freestanding fireplace in the living room, located on axis with the front exterior balcony. This axis continues behind the fireplace, through a gallery, and into the bedroom. With each addition, the architects keep the mass away from the perimeter bearing wall. "We never obscure the existing structure," notes Lofgren. "We simply pull away from it."

The interior is somewhat cold, like the exterior, but sympathetic to the local industrial surroundings. Appropriately, the eye is directed to the hearth and the mirror above the fireplace, where the reflected streetscape outside the front balcony window imitates a Hopper painting. —*M. Lindsay Bierman*



BASEMENT LEVEL PLAN



THIRD FLOOR PLAN

1 OFFICE
2 CONFERENCE
3 BEDROOM
4 LIBRARY
5 LIVING
6 DINING

FACING PAGE, TOP: Steel and glass vestibule is cantilevered from concrete podium. Lead-coated copper sheathes edges and underside of steel-supported canopy and vestibule roof.
FACING PAGE, BOTTOM: Entrance addition extends existing building to property line. Vestibule forms bridge between building and canopy.
PLANS: Service zone extends along south side of existing warehouse. Rectangular apartment is divided by objectlike square rooms. Additions are pulled away from perimeter.
LEFT: Steel-clad fireplace marks central axis in apartment. Original timber columns define center of living room.
BOTTOM, LEFT: Freestanding partition in southeast corner of living area divides dining room from entrance.
BOTTOM, RIGHT: View from side of steel-clad fireplace reveals alignment of freestanding partitions, which are pulled away from perimeter of living room to allow storage in back.

OFFICES AND RESIDENCE
CAMBRIDGE, MASSACHUSETTS

ARCHITECT: Machado and Silvetti Associates, Boston—Rodolfo Machado, Jorge Silvetti (designers); Peter Lofgren (project architect); Carlos Apricio, Paul Hanley, Michael Chin (design team)
ENGINEER: John Born (structural)
COST: Withheld at owners' request
PHOTOGRAPHER: Paul Warchol, except as noted

Old Custom House
Bonsecours Market
Montreal, Canada
LeMoyne Lapointe Magne, Architect

MONTREAL REVIVAL

BOTTOM: The 156-year-old Custom House now houses a gift shop and exhibits for Montreal's museum of archaeology and history.
FACING PAGE: LeMoyne Lapointe Magne created a three-story great room in the 1881 section of the Custom House, revealing original limestone walls.

Renovations by Montreal architects LeMoyne Lapointe Magne raise no questions about which architectural elements are new and which are old. Since the firm's determinedly up-to-date addition to the 1906 McCord Museum of Canadian History (ARCHITECTURE, *August 1992, pages 74-77), the 20-person firm has gained a reputation for forthright, contemporary interventions that flatter but never imitate their 19th-century hosts. Metals and glass are meticulously crafted and confidently juxtaposed against timeworn stone, brick, and mortar. Such new details are not always initially welcomed by clients, however. "The process of restoring a building is very strategic," contends 40-year-old Partner Robert Magne. "It requires not only selling the scheme to the client, but getting it through design review." Magne's strategy is to reveal the concept first, then wait until the moment is right to spring the details. "When you realize that, at the McCord, slate floors were considered too contemporary, it shows the extremes of our sensibilities and those of our clients."*

Yet the assertive esthetic of LeMoyne Lapointe Magne has clearly served the practice well in the long run. The McCord Museum has been highly praised, surely adding to the ease with which the firm won commissions for renovating the 19th-century Custom House and Bonsecours Market (following pages) in Old Montreal, the city's historic quarter. "You have to be tenacious," Magne admits, "but in the end, we have shown that contemporary details can succeed in an old context."

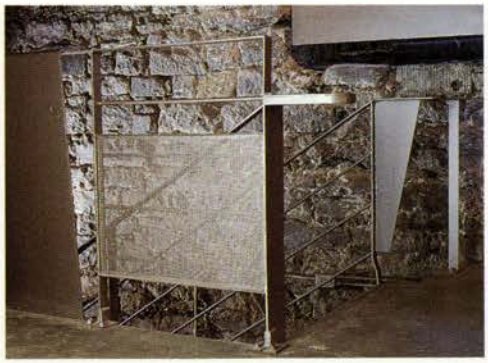
CUSTOMIZED HISTORY

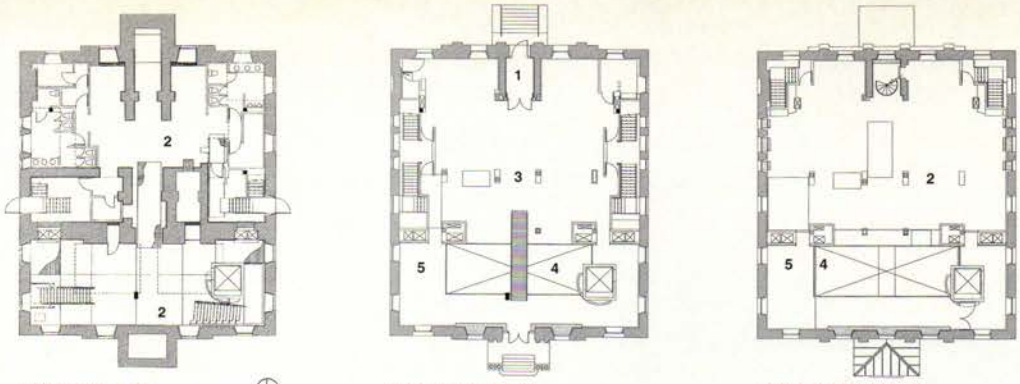
Montreal's Old Custom House, completed in 1837, was designed by a 25-year-old architect, John Ostell, who later gained fame for his Notre Dame basilica a few blocks away. A symmetrical, Neoclassical composition, the 6,000-square-foot building was constructed during a period of expansion and activity in the port. In 1881, its south facade was dismantled and moved 25 feet closer to the St. Lawrence River, creating a 3,000-square-foot addition. But by 1919, the Custom House had outgrown even this turn-of-the-century renovation, and a stately new building was constructed on another site, several blocks away. The Old Custom House was eventually relegated to federal offices, and in 1974, its interior was renovated according to the preservation strategy of the day: Concrete floors replaced the aging masonry structure's wooden beams.

Today, the Custom House accommodates a gift shop and exhibits for the Pointe à Callière, a museum of archaeology and local history. Situated obliquely across Place Royale from the new museum's primary exhibits building, designed by Montreal architect Dan Hanganu, the Custom House straddles one end of a vast archaeological crypt. In an excavation that stretches beneath the Place Royale to the basement of Hanganu's building, strata of Montreal's history, including an Iroquois settlement, are revealed. Most visitors now enter the renovated Custom House from the crypt, after they have toured the underground exhibits, which include LeMoyne Lapointe Magne's excavations of the Custom House foundations.

In restructuring the Custom House as part of the new museum complex, the architects chose to play up the 1881 addition to the south of the building's original 1837 block. They cut back its two 1970s-era concrete floors to the point where the facade of the 1837 building once stood, leaving the southern section of the building open from cellar to roof. This 55-foot-high great room exposes the Custom House's original limestone walls, deep windows, and wooden roof beams, essentially employing the archaeology of the building to tell its own story. Cleaning the stone foundation and inserting concrete where original wooden beams had rotted away, LeMoyne Lapointe Magne created a cavernlike cellar, adjacent to the crypt, that houses an exhibit on the building's history. In the upper stories of the 1837 section of the building, conventional, gypsumboard-walled rooms accommodate the gift shop on the first floor, and permanent exhibits on the second.

Explains designer Michel Lapointe, "The 1881 front of the building relates to the character of the port, while the 1837 rear of the building, which faces the city, is more civilized." Indeed, a new elevator shaft in the three-story great room is designed to abstractly recall a ship's smokestack, or the obsolete grain elevators that line Montreal's riverfront. First- and second-level mezzanines encircle the void, allowing a visitor to gaze





BASEMENT PLAN

FIRST FLOOR PLAN

SECOND FLOOR PLAN

1 ENTRANCE
2 EXHIBITS
3 GIFT SHOP
4 GREAT ROOM
5 MEZZANINE

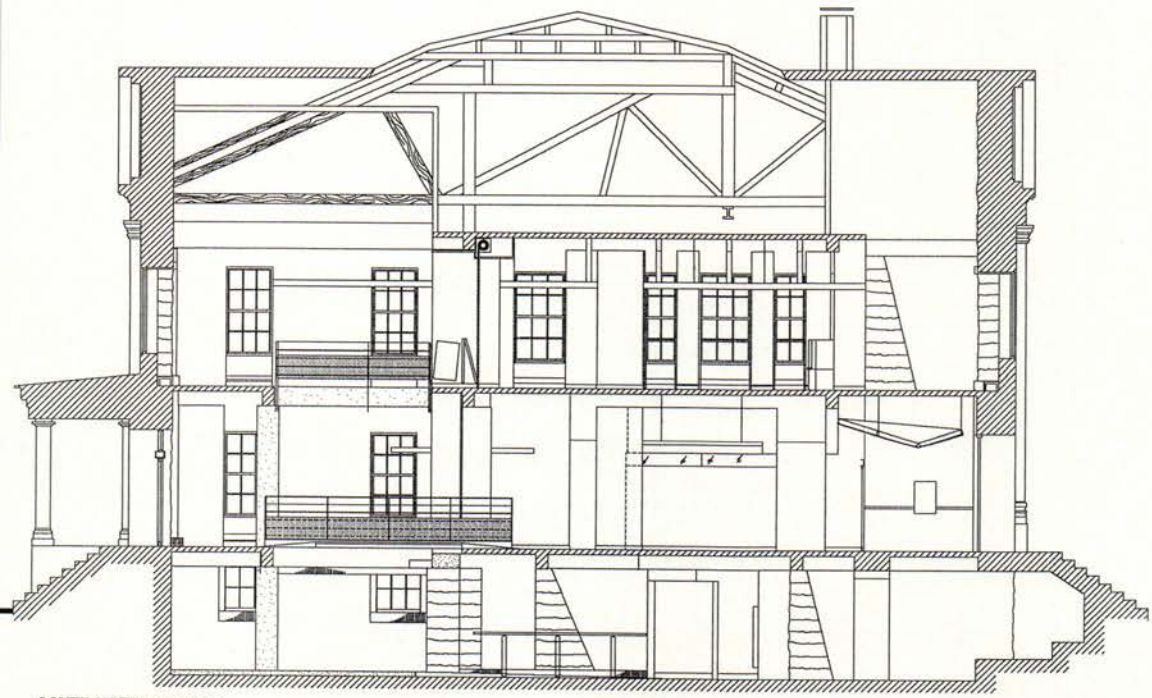
up to the wooden beams of the original roof, down into the cellar of exhibits below, or out toward the St. Lawrence River.

Steel stairs, railings, and walkways are carefully crafted with a state-of-the-art quality that belies their antediluvian surroundings. Perforated metal has been applied to railings and walls, screening mammoth mechanical ducts that ascend to the roof. On the second floor, old and new are knit together in a graceful spiral staircase, rendered in contemporary steel, that evokes the twisting iron fire and entrance stairs of 19th-century Montreal apartment houses. A perforated-metal stair allows a visitor to step up to the deeply recessed windows in the exhibit area, and graceful bronze window railings protect a viewing platform where visitors can observe the street below. This imaginative metal assembly inspired the museum's exhibit designers to create an interactive window pane on history: Visitors to the Old Custom House exhibits can press a button on the window pane that lights up a view of the street as it would have appeared in the Victorian era.

LeMoyne Lapointe Magne's original assignment was to renovate the Custom House for exhibits, a task the architects accomplished with great finesse at the McCord Museum. But the Pointe à Callière changed the program for the building's first level to a gift shop after construction had already begun. The expressed architecture of the 1881 section thus seems an odd appendage to the gift shop—the three-story great room, its original stone and beams exposed, might have made more sense as part of an exhibit on the archaeology of the building. Similarly, exhibit designers for the second floor might have incorporated the mezzanines into their display. However, Montrealers are beginning to understand that LeMoyne Lapointe Magne's renovations never follow pat, expected solutions. With artful finesse, the firm has once again breathed new life into a relic of Montreal's past. *—Heidi Landecker*

OLD CUSTOM HOUSE
MONTREAL, CANADA

ARCHITECT: LeMoyne Lapointe Magne, Montreal, Canada—Michel Lapointe (principal-in-charge); Frederic Dubé, Daniel Carriere, Susan Ross, Daniel Houle (design team)
ENGINEERS: Nicolet Chartrand Knoll (structural); Liboiron Roy Caron & Associates (mechanical/electrical)
GENERAL CONTRACTOR: Construction Canvar
COST: $1.1 million
PHOTOGRAPHER: Michel Brunelle



SOUTH-NORTH SECTION

FACING PAGE, LEFT: Spiral stair recalls curving Montreal fire escapes.
FACING PAGE, CENTER AND RIGHT: Contemporary steel railings and stairs are juxtaposed against such historical materials as brick and limestone.
PLANS: Three-story void surrounded by mezzanines on the first and second floor opens up the 1881 section of the building from cellar to roof. Basement houses exhibition on the building.
SECTION: Gift shop is sandwiched between exhibits in basement and second level of Custom House.


Information

MODERN MARKET

In the middle of the last century, when life in Montreal revolved around the city's port on the St. Lawrence River, the grandest building in the British-ruled, French-inhabited district was unquestionably the Neoclassical Bonsecours Market. The 13,000-square-foot palatial marketplace, built of Quebec limestone in 1847, stretches for 600 feet along Montreal's main riverfront thoroughfare. Housing stalls for selling produce, meat, fish, and fowl on its lowest level, the domed market accommodated city administration offices and barracks and drill halls for Montreal's armed militia on its upper floors. The great hall of Bonsecours Market, located in its west wing, served as a public gathering place, a center for political conventions, society balls, and lectures.

But as the city's urban core moved up Mount Royal and away from the river in the 20th century, Bonsecours Market's civic role diminished. A new city hall, constructed at the turn of the century, left the regal market building empty until the city converted it to municipal offices in the 1960s. Retaining the limestone facades, the '60s renovators eviscerated the market's historic interior, adding a slab of concrete floor to replace a wooden second story. For 30 years, this grand civic building remained closed to the public.

In the late 1980s, however, Montreal undertook a vast building program designed to give the city a face-lift for its 350th anniversary celebration last year. The Society for the Development and Preservation of Old Montreal (known by its French acronym, SIMPA) hired LeMoyne Lapointe Magne to conduct the first phase of renovations that would return the Bonsecours Market to the public. Resolutely Modernist in their approach to historic buildings, LeMoyne Lapointe Magne aimed to evoke the soul of the 19th-century hall while employing fresh, contemporary interventions to meet 21st-century codes.

The city's mandate to the architects called for a Bonsecours Market that would adapt

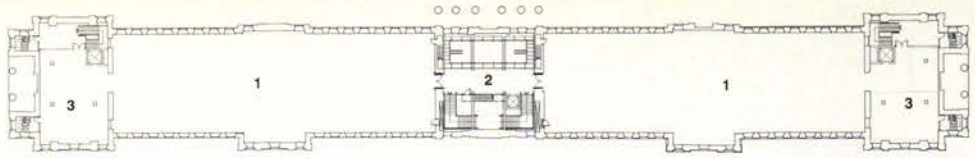
FACING PAGE: By removing concrete floors inserted in 1970s, the architects created two-story entrance hall.
BOTTOM LEFT: Palatial Bonsecours Market, one of Montreal's best-known buildings, dominates city's old port.
BOTTOM RIGHT: Lobby is enlivened by steel railings and slate-covered stairs.

BOTTOM LEFT: Glass and steel railings and exposed concrete beams dominate mezzanine overlooking lobby.
BOTTOM RIGHT: Louvred enclosure surrounds industrial-style staircase leading to rooftop mechanical systems.

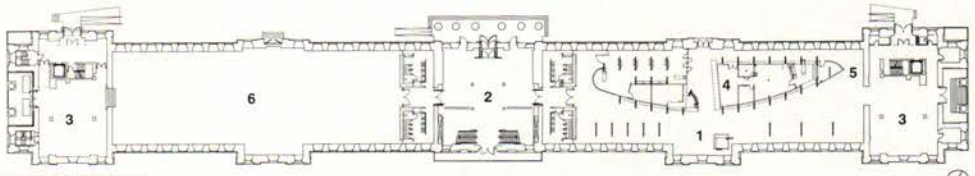
to changing municipal needs. Old Montreal is in a state of transition, occupied largely by souvenir shops, restaurants, and the occasional '70s-style leather vendor. Acknowledging the old quarter's state of flux, the city wanted to give the venerable building a core of public services—new lobby, rest rooms, handicapped access, fire exits, and mechanical upgrades—and render its two long wings as exhibition space, with the possibility of future commercial development. Initially outfitted as the information hub for the anniversary festival, the exhibition galleries and a banquet hall in the long wings can now be rented from the city.

The firm's renovations address the ground floor, accessible from narrow St. Paul Street, in the heart of Old Montreal, and the floor above. (The lower level, once the busy market, now houses the city's computers and so far remains unchanged.) A modest budget meant retaining most of the 30-year-old concrete floor and sealing a layer of asbestos covering the original vaulted ceiling. Attempting to retrieve the great hall's spacious character, the architects cut away part of the concrete floor at the building's St. Paul Street entrance, reviving access through the original large wooden doors and creating a lofty two-story reception area at the building's heart. While this two-story space recalls the original domed entrance to the building, its vocabulary of slate floors, polished limestone walls, steel and glass stairs, and painted steel doors is clearly up-to-date. The original dome of the entry remains blocked by a mechanical level that was inserted in the '60s.

Partner Robert Magne and chief designer Michel Lapointe take an honest approach to renovation: Cutting away half of the 30-year-old concrete floor at the northwest-facing St. Paul Street entrance to Bonsecours Market, they exposed and retained the floor's concrete support beams, as if to reveal a record of the building's architectural changes. Flanked by a new service core, this lobby gives way to a



SECOND FLOOR PLAN



FIRST FLOOR PLAN

1 EXHIBIT HALL
2 LOBBY
3 OFFICE
4 GIFT SHOP
5 CAFE
6 BANQUET HALL

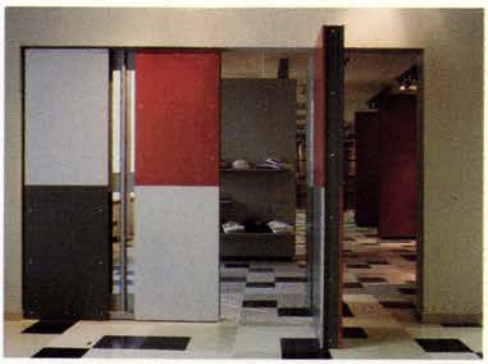
200-foot-long banquet hall to the west and a 200-foot-long exhibition hall to the east. At the rear of the lobby, symmetrical stairs of slate, steel, and glass rise to the second level, where two more long exhibition rooms are entered through magnetic-lock stainless steel doors that contrast sharply with exposed 19th-century stone walls. A galvanized industrial stair leads up to the mechanical floor inserted beneath the dome, where HVAC systems were upgraded to accommodate three times as many occupants as a municipal office building. The stair is enclosed within metal louvers for security and candor: LeMoyne and Lapointe don't believe in disguising their work. "We needed to get up there," Magne imparts, "so we built a stair."

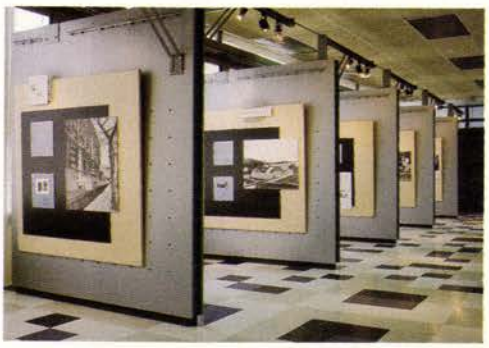
SIMPA has numerous grand plans for the Bonsecours Market, including restoring the interior of the dome and inserting a restaurant, bookstore, or observation tower for public appeal. As for the rest of the building, visionary Montrealers foresee a festival marketplace on the order of Boston's Quincy Market, with a theater and cultural center on the floors above. That vision seems not unlike a return to the days of busy market stalls, society balls, and lectures. For the present, however, Old Montreal lacks the commercial and residential bases to support such a vigorous market, although a few businesses, including LeMoyne Lapointe Magne, have moved their offices into the historic limestone quarter. The next phase of the Bonsecours' development clearly depends upon the success of the city's tourist venues, which include a nearby riverfront promenade, also completed last year for the anniversary, and a casino to be housed in the French pavilion on the former Expo '67 grounds.

The Bonsecours Market may thus have to wait till the next century for a full revival, but in its current incarnation, the architects have restored the building to the public with a vigorous preservation model, without resorting to copy-cat pastiche. —*H.L.*

BONSECOURS MARKET
MONTREAL, CANADA

ARCHITECT: LeMoyne Lapointe Magne, Montreal, Canada—Michel Lapointe (principal-in-charge); Jean-Michel Colonnier, Daniel Carriere, Daniel Houle (design team)
ENGINEERS: Les Consultants Geniplus (structural); Dufresne Farley Brillon (mechanical/electrical)
GENERAL CONTRACTOR: Construction Gesmo
COST: $2.5 million
PHOTOGRAPHER: Michel Brunelle





FAR LEFT: In east wing of first-floor exhibit hall, perforated metal curves to enclose a gift shop.
LEFT: Pivoting doors lead to gift shop.
BOTTOM, FAR LEFT: Gift shop incorporates shelving in metal enclosure.
BOTTOM LEFT: In east wing, steel bracket-supported exhibition panels can be moved along rails.

Rotunda Gallery
New York City
Smith-Miller + Hawkinson, Architect

IN THE SWING

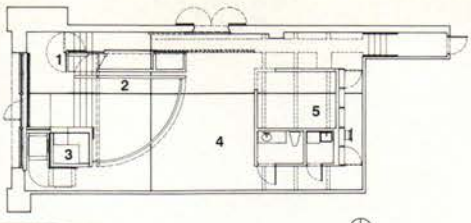
Brooklyn's Rotunda Gallery engages its visitors in a seductive game of high-style hide-and-seek. Designed by Manhattan architects Henry Smith-Miller and Laurie Hawkinson, its cubist collage of layered form and space comes alive with the movement of a two-story pivoting partition. Motion transforms the 1,600-square-foot gallery into spaces of different sizes, shapes, and functions while constantly altering the perceptions of the viewer swept up in its swing. It's a strategy of instability that seeks to dispel the permanence of the gallery, suggesting, as Smith-Miller explains, "artifacts are important, not architecture."

Showcasing artifacts sparked the founding of the Brooklyn-based gallery, now housed in a storefront at the base of a new office building. Despite the cultural exodus of Manhattan artists who fled to Brooklyn in search of cheap housing and studio space in the 1970s, the outer borough remained *terra incognita* to critics, curators, and dealers until 1981, when the nonprofit Fund for the Borough of Brooklyn started a small gallery in the rotunda of Borough Hall. Twelve years and 400 artists later, the new Rotunda Gallery opened in January. Director Janet Riker describes Brooklyn's latest bridge to Manhattan as a venue for lectures, performances, and daily educational programs as well as six exhibitions per year. A wide range of media will be shown—from paintings, drawings, and prints to sculpture, photography, site-specific installations, and video programs.

The Rotunda Gallery's social agenda reflects the evolving demographics of New York's art community, while the functional design of Smith-Miller + Hawkinson's well-oiled machine for exhibiting offers tremendous flexibility. When the two-story wall is opened, it sits out of the path of visitors who enter the loftlike gallery directly. Architectural drama intensifies when the wall starts to pivot, thrusting itself into the gallery along a steel arc embedded in the concrete floor. The repositioned wall obscures the visi-

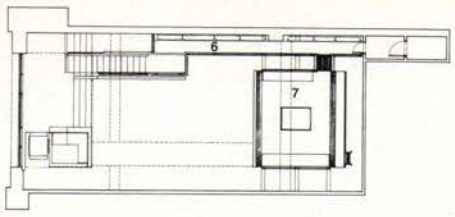
THESE PAGES: View from street-level entry reveals two-story pivoting wall and stair leading to balcony and office mezzanine. Wall has hinged extension which closes access to stair.
FACING PAGE, BOTTOM: Mechanically expressive fasteners and articulated intersections characterize details.
INSET LEFT: Rotunda Gallery is housed within a Brooklyn Heights storefront.
BELOW: Neo-Corbusian stair juxtaposes balustrades of rough concrete and translucent plexiglass panels.

PLANS: First floor corridor and overhead bridge link entry, gallery, service core, and office mezzanine.
THESE PAGES: Fifteen-foot-tall wall pivots toward concrete stairway. Suspended panels of maple-framed canvas provide movable display walls.
INSET BOTTOM: Steel arc serves as inscribed notation of wall's movement.
FACING PAGE, TOP: Pivoting wall creates wedged-shaped spaces.
FACING PAGE, DRAWING: Balcony functions as secondary exhibition gallery and passage to office mezzanine.

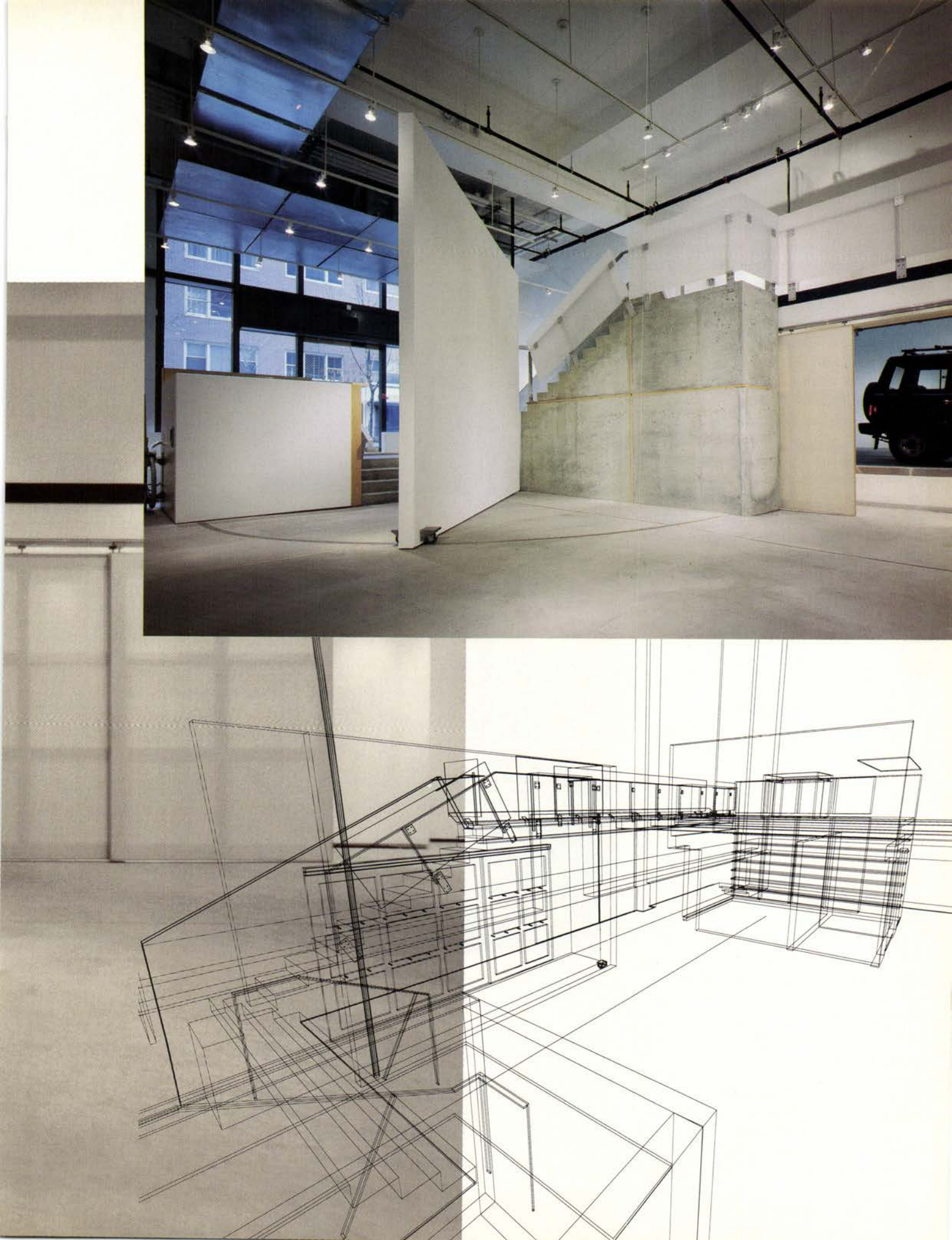


FIRST FLOOR PLAN

1 STAIRCASE
2 PIVOTING WALL
3 RECEPTION DESK
4 PRIMARY GALLERY
5 SECONDARY GALLERY
6 BRIDGE
7 OFFICE LOFT



MEZZANINE PLAN



tor's view; the gallery's perspective shifts, and triangular wedges of space unfold. Closing the wall excludes vision and prohibits direct access from the street. The frustrated visitor is forced to approach the main space along two alternate paths: A corridor leads obliquely to the gallery; a bridge suspended above offers startling aerial advantage.

Smith-Miller + Hawkinson squeezed the exhibition bridge and office mezzanine within the 19-foot-tall storefront by exposing the required mechanical ducts, sprinkler pipes, and light tracks without a suspended ceiling. The architects hung the light tracks on an upward slope to give the incoming visitor a forced perspective that makes the space seem more expansive, and it's due to such tenacious efforts that the mechanical assemblage exudes a Mondrian-like sense of order.

Flexibility is further achieved by gallery elements that perform multiple functions. A secondary gallery, for example, serves as a space for the intimate display of small work or the presentation of video programs. Sliding wall panels, suspended from the underside of the bridge, provide display surfaces, screen performances, and close off storage areas. The method of constructing the panels, canvas stretched over frames of white maple, evokes the painter's craft and adds soft, translucent counterpoint to the gallery's raw concrete.

Another multitalented element is the maple strip inserted in the concrete stair wall. It permits attachment of displays, while its placement at 65 inches above the floor marks the optimal mounting line for art as prescribed by Alfred H. Barr, Jr., the founding director of New York's Museum of Modern Art. "Every detail and every choice," Smith-Miller asserts, "has to do with exhibition design and the history of exhibition practice."

Smith-Miller and Hawkinson are no strangers to the history of Modern architecture. A recent house designed by the pair for a Hollywood filmmaker rose literally and metaphorically on top of a 1956 residence designed by a Richard Neutra disciple, and a wing-shaped canopy for a USAir ticket counter at LaGuardia Airport restores Saarinen-esque bravado to pedestrian transportation design. But the Rotunda Gallery is the architects' most accomplished work. Drawing on sources as diverse as Pierre Chareau for the movable wall, Louis Kahn for the palette of raw concrete and delicate wood, and Carlo Scarpa for the virtuosity of exposed details, Smith-Miller + Hawkinson's latest design succeeds best by swinging from Modernism's past into the future. *—Donald Albrecht*

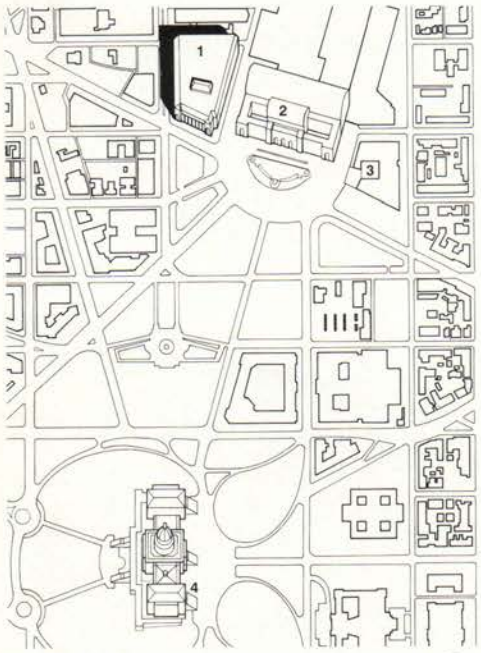
ROTUNDA GALLERY
NEW YORK CITY

ARCHITECT: Smith-Miller + Hawkinson, New York City—Henry Smith-Miller, Laurie Hawkinson (principals-in-charge); Starling Keene, Randy Goya, Charles Renfro, Stephanie Tran (design team)
CONSULTANT: Silvia Kolbowski (graphic design)
GENERAL CONTRACTOR: Kennedy Construction
PHOTOGRAPHER: Paul Warchol

THESE PAGES: View from bridge shows details of aluminum grille (left) at junction of office mezzanine floor and wall. Plastic strip (right) doubles as foot guard and display shelf.
FACING PAGE, INSET: Metal hardware connects balustrade to stair.
ABOVE: Office mezzanine with built-in desks houses staff of three.
BELOW: Swinging wall closes off informal auditorium space and serves as a screen for presentations.

National Postal Museum
Washington, D.C.
Florance Eichbaum Esocoff King Architects

POSTAL MODERN



SITE PLAN

1 POST OFFICE
2 UNION STATION
3 JUDICIARY BUILDING
4 U.S. CAPITOL

TOP: To reach the Postal Museum, visitors enter southeast corner of restored Post Office, designed by Daniel Burnham and completed in 1914.
SITE PLAN: Post Office occupies four-acre block west of Union Station (top), and north of Capitol (bottom).
FACING PAGE: Shalom Baranes Associates reconstructed the ceiling, console tables, postal windows, and lighting in the Burnham-designed lobby.

An unexpected array of postal-related artifacts comprises the Smithsonian's third most valuable collection, from love letters to the preserved corpse of a dog named Owney, who traveled 143,000 miles on mail trains. More haunting than Owney's remains, however, are those of the Washington City Post Office, designed by Chicago architect Daniel Burnham and completed in 1914. Although customers no longer mail letters at the bronze-framed windows in Burnham's lobby, they still cross its marble floors to enter the new National Postal Museum. Designed by Washington, DC-based Florance Eichbaum Esocoff King, the museum showcases U.S. postal history, the art of letter writing, and the lore of philately.

The National Postal Museum occupies 75,000 square feet of the 1.2 million-square-foot, Beaux-Arts Post Office, the second of three buildings Burnham envisioned at the northern edge of Capitol Hill. The first was Union Station to the east, an appropriately triumphal gateway to Congress, built in 1908; the third was never realized, unless one accepts the impoverished Classicism of the new Federal Judiciary Building (ARCHITECTURE, February 1993, pages 38-47), on the other side of the station, as worthy progeny.

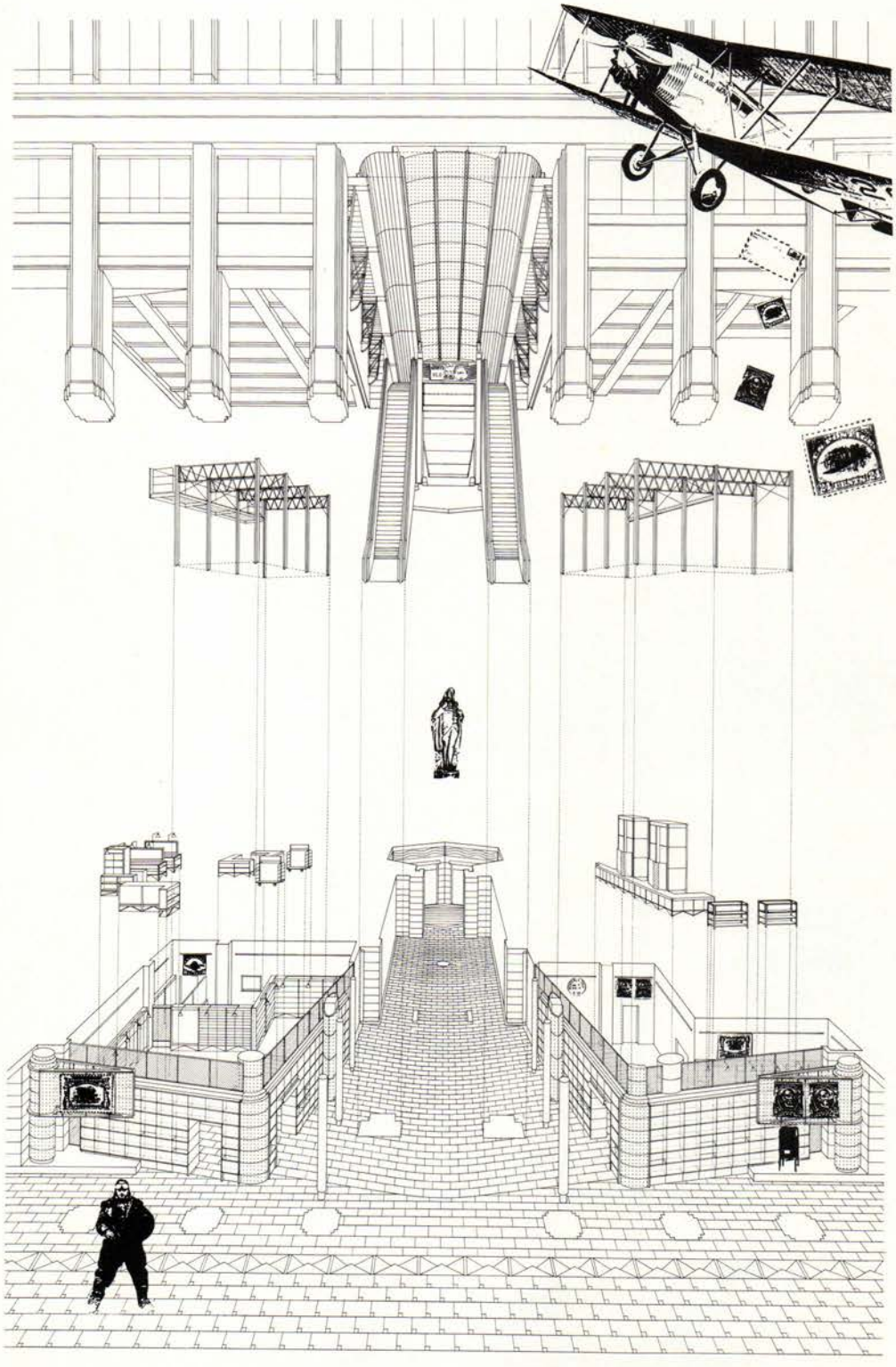
Together, Burnham's Post Office and train station comprised a vast industrial complex, a great machine to distribute parcels and passengers. Behind his white granite, trabeated facades, the architect concealed a network of train tracks, mechanical equipment, sorting rooms, and offices, all of which sharply contrasted with a grand sequence of public rooms. In the early 1950s, the Postal Service "modernized" its 10,000-square-foot lobby with a predictably discordant array of contemporary adornments, including the popular choice of plastic laminates to resurface the marble floors and countertops. Even worse, the insertion of a lower, concrete ceiling destroyed Burnham's robust coffering, and the marble torcheres were replaced by fluorescent lighting. Union Station, in the meantime, was left to crumble until 1981, when Congress authorized its full restoration. Seven years later the station reopened, painstakingly reborn, with work underway to transform the Post Office next door.

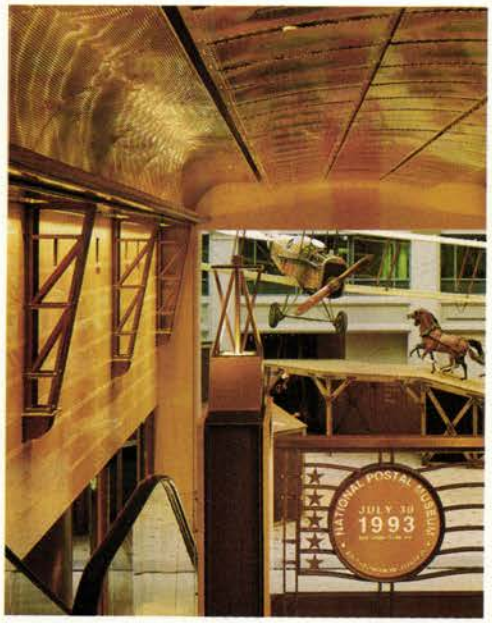
The revival of Union Station spurred commercial development in the surrounding neighborhood, including plans to convert the industrial areas of Burnham's Post Office to public use. In 1986, the Postal Service closed the building, relocated its mail facilities to a Maryland suburb, and sponsored a competition to redevelop the site. A consortium of developers and Washington, DC-based architect Shalom Baranes Associates submitted the winning proposal, with space for a museum, hotel, offices, retail, and another post office, though one decidedly more modest than Burnham's. In 1991, the Smithsonian commissioned Florance Eichbaum Esocoff King (FEEK) to design the museum, encased deep within the 1914 Post Office.

FEEK distills a vast legacy of philatelic and industrial images into the concentrated sequence from the street to the museum. "In Washington, one is often plunged into exhibits without an appropriate transition," explains FEEK Principal Colden Florance. To reach the new Postal Museum on the lower level, visitors enter the old post office on the main floor and pass through Burnham's magnificent lobby. Here, Shalom Baranes ripped out the 1950s renovations and meticulously reconstructed the original room, undaunted by missing pieces. Only 10 of the original ceiling coffers remained; these were recast in plaster, with air supply vents hidden around the rosettes. The architects faithfully redesigned the chandeliers and marble furniture from early photographs, reinterpreted the marble torcheres in bronze, and reconstructed half of the 26 existing postal windows.

Amazingly, Baranes shoehorned 450,000 square feet of new office space into Burnham's 750,000-square-foot structure. A new mezzanine now extends over the entire second floor, formerly a 26-foot-high mail room;


EXIT





HEDRICH-BLESSING

FACING PAGE: Marble panels clad upper wall of escalator hall. Metal brackets, perforated-metal cove, and scalloped edges of silkscreened steel panels are painted to look like bronze. Statue of Ben Franklin marks intersection of hallways leading to new post office, philatelic library, and education center.
PERSPECTIVE: Storefronts angle out toward atrium. Design of retail displays and framework draws from mail handling and distribution equipment.
TOP: New marble columns in foyer define threshold to escalator landing.
ABOVE: Cancellation mark generated baluster detail. Light fixtures and brackets recall rural towers used by postal pilots to drop mail.


MUSEUM SHOP

another floor stretches between the eaves of the roof; and five office floors are stacked within the original 1.4-acre courtyard. Light penetrates these spaces through a 7,500-square-foot atrium, now the central exhibition space of the Smithsonian's latest museum.

To connect Burnham's lobby to the new atrium, FEEK designed an escalator hall that resonates the drama of a grand staircase and the polish of a machine. From the main-level landing, one overlooks the atrium below, on axis, right into the propeller of a 1924 DeHavilland biplane. "Burnham represented the Postal Service as both a federal institution and a pioneer of technology," notes FEEK Principal Russell Perry. "We chose to exaggerate those competing identities." The architects conceived the new interior as a material complement to Burnham's heavy masonry. Tawny, thin, and metallic, the escalator hall looks like the early railroad cars used to deliver mail. New architecture merges with old to form a continuous, expressive whole, without replicating existing motifs. In FEEK's design, the recall of historic precedent amounts to a clever translation of cancellation marks into steel grilles, and envelopes into a pattern of marble tiles across the atrium floor.

FEEK, like Burnham, juxtaposes monumental veneer and industrial core, albeit on a considerably smaller scale. Approaching the escalators from the upper level, a thin edge of marble cladding, supported by metal channels, is visible on the piers that flank the landing. On the underside of the escalators, bronze acorn nuts fasten strips of metal to sheets of engine-turned stainless steel. In the lower half of the room, where the binlike, glass and metal facades of the museum shops cant outward to each side, the architects reveal the bottom edge of the steel frame that secures marble panels to the wall above. Metal brackets support a perforated-steel cove along the top of this wall, where concealed light sources reflect the room's golden hues. A grid of steel panels, each scalloped at the edge and silkscreened with the famous 1901 Empire Express upside-down stamp, hangs from the ceiling to form the interior profile of a train.

The interplay of public facade and back-of-house operations culminates in the stores that flank the escalators. Mail sorting and distribution equipment, which post office customers rarely see, generated the lighting and floor displays; the overhead wire mesh and rugged, ground-face concrete block walls exaggerate the rawboned industrial character. "We saw each of the retail spaces as a literal extension of the exhibition experience," notes Perry. In the Stamp Shop, visitors view collectible stamps in trays, which emerge from 13-foot-high retrieval files clad in engine-turned stainless steel and transparent acrylic panels.

To house the museum's collection, FEEK organized an inner layer of unadorned galleries around the perimeter of the atrium. "The escalator hall and shops refer in an abstract way to the contents of the exhibitions," Perry adds. "When visitors leave, they understand the architectural intention." In the outer layer, FEEK designed a maze of rooms for the museum's back-of-house operations. These include a philatelic library, which, due to expected budget constraints, is less exalted than one would expect of the largest research center of its kind in the world. Visitors can still mail letters in the building; on the lower level, Shalom Baranes designed a contemporary interpretation of the original post office, accessible from the museum and the street.

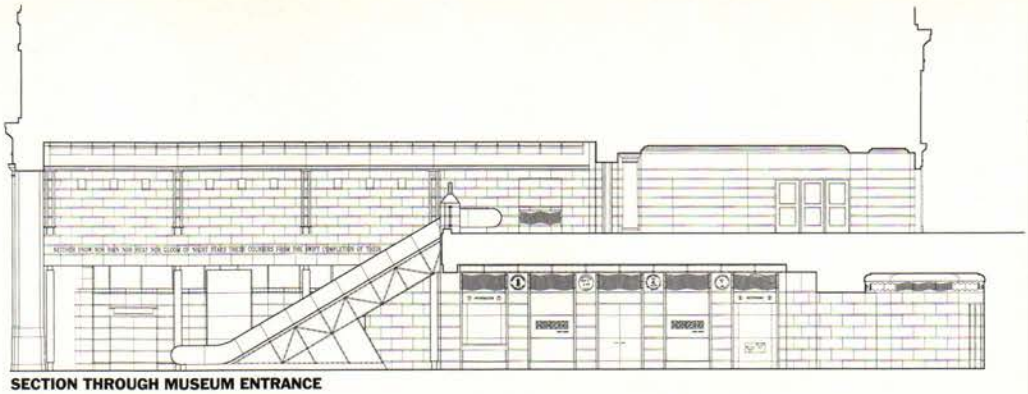
The conversion of Burnham's Post Office reveals the power of real estate developers, for better or worse, to determine the fate of the public realm. In this case, Washington-based Hines Interests applied expertise gained during the 1980s speculative boom to help the federal government. Acting as an agent for the U.S. Postal Service, Hines masterminded the project, from financing and market analysis to the selection of architects, contractors, and tenants. As a result, the Washington City Post Office joins Union Station as a model of adaptive reuse, without compromising Burnham's grand intentions. —*M. Lindsay Bierman*

FACING PAGE: Rectangular openings in marble wall evoke high observation ports used to supervise postal sorting rooms. Perforated-metal screen conceals existing structural column.
TOP: View into atrium shows new office floors inserted into courtyard of old Post Office. Airplanes hang from steel trusses that support glass roof.
ABOVE: International mailboxes stand against wall of museum store. Perforated-metal screen was designed for exhibition-related signage.

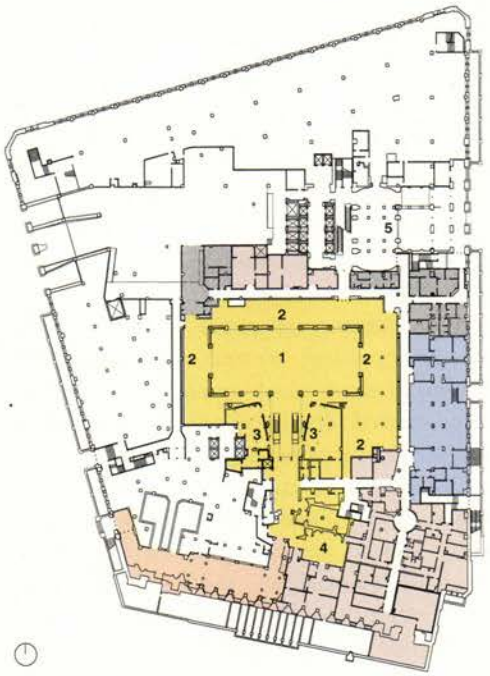
MUSEUM SECTION: New foyer off existing lobby orients visitors to escalator hall. Lobby beneath landing leads to library and administration. Lower level foyer (right) opens to new post office.
PLANS: Visitors pass through existing south-facing public rooms (first floor plan, right), enter new apsidal foyer from center of lobby, and descend escalator to museum atrium. Lower level plan shows galleries around atrium (center), new post office (bottom left), and office lobby (upper right).
BUILDING SECTIONS: New atrium daylights office floors and central museum exhibition. New restaurant will occupy former south-facing mail room (bottom section, far right).
FACING PAGE: In museum store, glass and bronze-colored metal shopfront (left) resembles sorting bins and mail boxes. Postal conveyor systems inspired ornamental catwalk.

NATIONAL POSTAL MUSEUM
WASHINGTON, D.C.

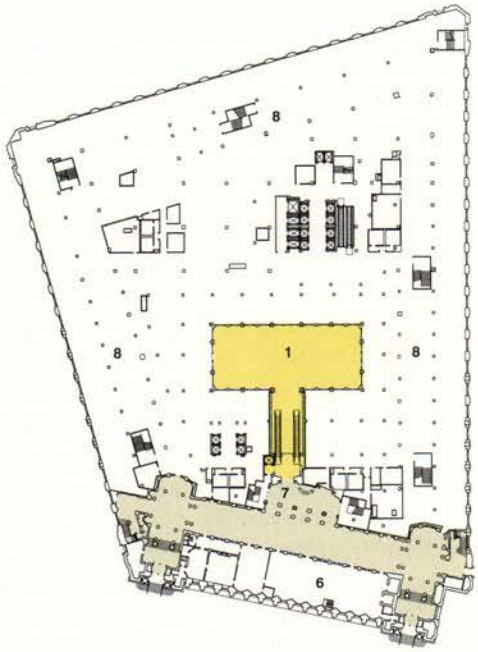
ARCHITECTS: Florance Eichbaum Esocoff King Architects, Washington, D.C.—Colden Florance (design principal); Russell Perry (management principal); Elizabeth Donovan Long, David Greenbaum (project designers); Steven Cohen (job captain); C. Andrew Rollman, Elizabeth Beliveau, Craig Bennett, Richard Deane (design team)
ENGINEERS: KCE Structural Engineers (structural); GHT Limited (mechanical/electrical/plumbing)
CONSULTANTS: Claude R. Engle Lighting Consultants (lighting); Cerami and Associates (acoustics); Heller & Metzger (specifications); Comsul (telecommunications); SAKO & Associates (security); Miles Fridberg Molinaroli (exhibits); Douglas/Gallagher Group (graphics); Ferguson Engineering (safety)
GENERAL CONTRACTOR: A.S. McGaughan Company
COST: Withheld at owner's request
PHOTOGRAPHER: Maxwell Mackenzie, except as noted



SECTION THROUGH MUSEUM ENTRANCE



LOWER LEVEL PLAN



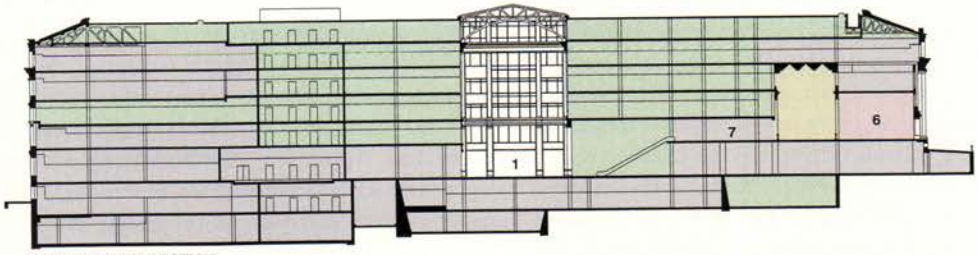
FIRST FLOOR PLAN

- POSTAL MUSEUM PUBLIC AREAS
- NEW POST OFFICE
- PHILATELIC LIBRARY
- ADMINISTRATION/COLLECTIONS
- BUILDING SERVICES
- HISTORIC LOBBY

1 ATRIUM
2 GALLERY
3 MUSEUM STORE
4 EDUCATION CENTER
5 OFFICE LOBBY
6 RETAIL
7 MUSEUM ENTRANCE
8 OFFICE

EAST-WEST SECTION

- RESTORED
- REHABILITATED
- GUTTED/ REDESIGNED
- NEW INFILL



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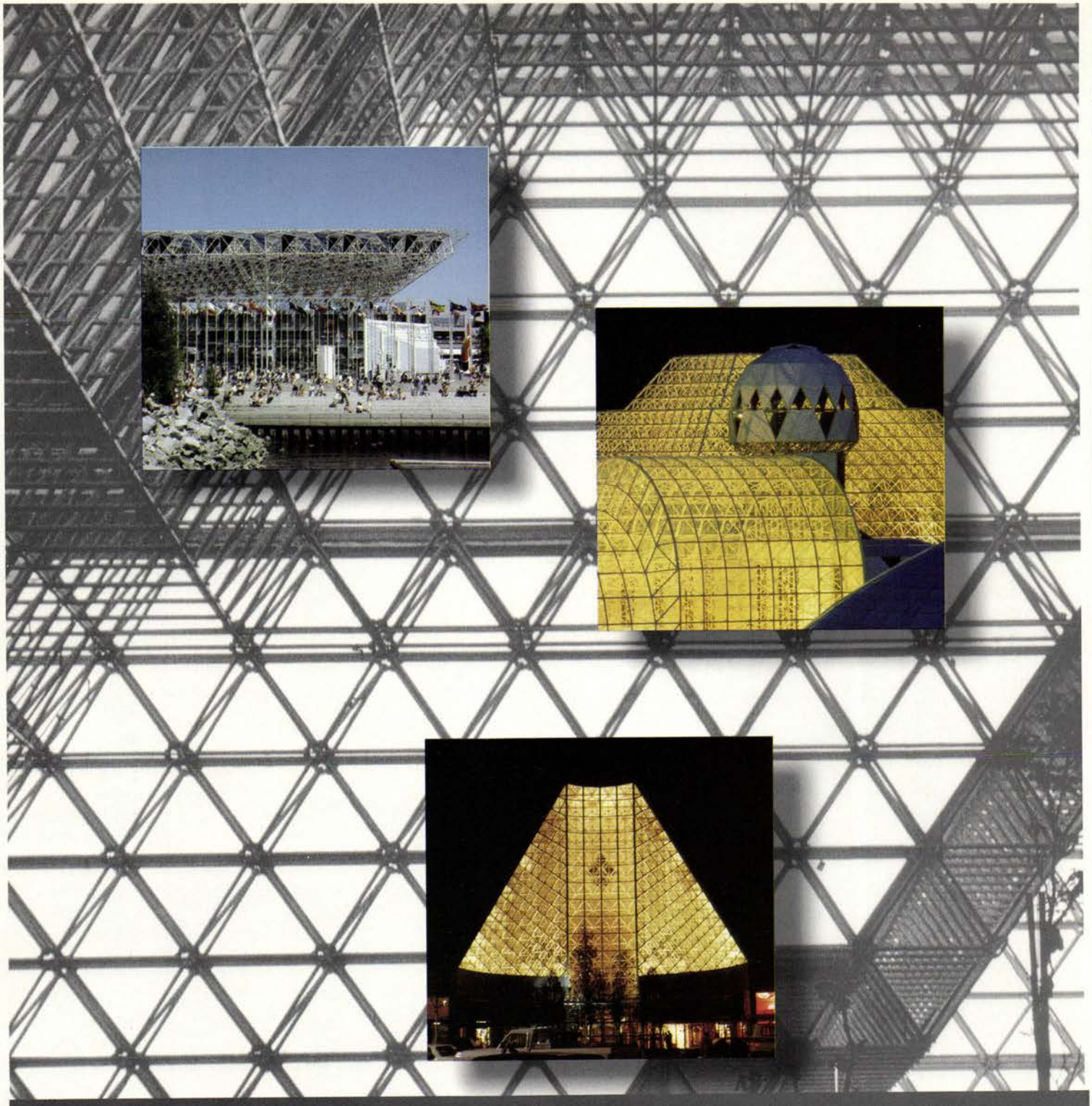

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Circle 78 on information card

Technology & Practice

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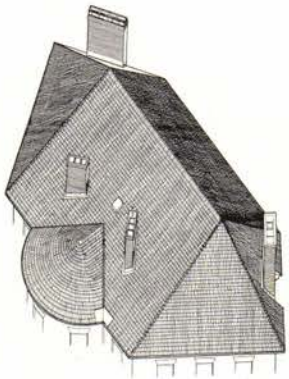

This month's Technology and Practice section examines the latest methods for preserving historic buildings through new technology. The ongoing restoration of the Octagon at the AIA headquarters in Washington, D.C., exemplifies these advances in conservation techniques. An article on this landmark Federal-style 1801 house reveals how the mistakes of past restorations are being corrected with a more sensitive approach to building materials that ensures the historical accuracy of architectural changes.

Computer-aided technology is also playing an increasingly important role in historic preservation, as evidenced by the recent addition to New York City's Jewish Museum. Computer automation enabled Modernist architect Kevin Roche to replicate with laser precision the moldings, crockets, and spires of the museum's Neo-Gothic limestone exterior. The centuries-old craft of stone carving has been made more affordable and efficient through this application of computer technology.

One of the greatest preservation challenges facing architects is finding ways to incorporate 20th-century technology into historic interiors without damaging original details. A case study of a Broadway theater renovation highlights how removable elements transformed a Neo-Gothic auditorium into an intimate setting for television talk-show host David Letterman without damaging its landmark interior. James Stewart Polshek and Partners not only restored the theater's ornamented spaces to their original grandeur, but also incorporated mechanical, acoustical, and communications systems required for a sound stage.

A growing preservation problem is repairing new building systems, such as the stuccolike exterior insulation and finish systems (EIFS) now commonly applied to building facades throughout the country. An article explaining how to avoid joint failures in EIFS outlines the proper installation and detailing of these systems, which were introduced in the United States only 20 years ago.

Architects have been quick to respond to the latest technological developments and incorporate them into techniques for preserving historic buildings. Medieval construction methods have even been reinvented by computer automation, allowing precise re-creations of historic structures. These tools are enabling architects to preserve the architecture of the past with an eye to the future.

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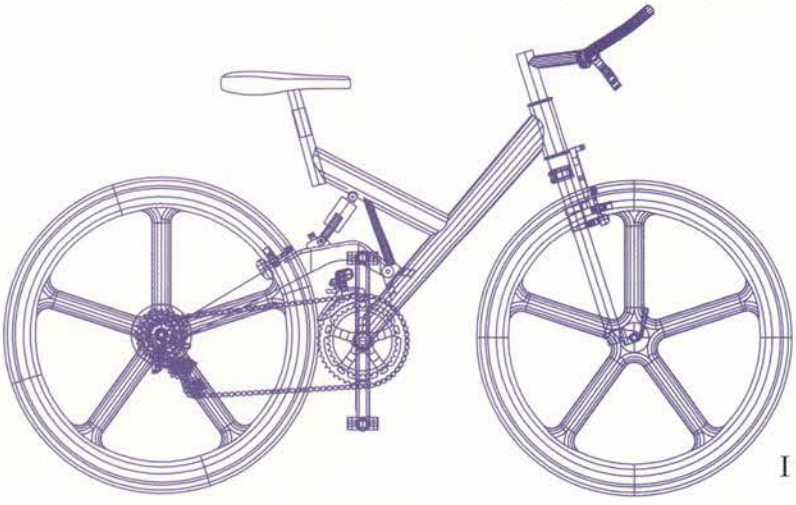

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Leaning Tower of Pisa Begins to Be Stabilized

According to calculations by Paolo Napoli, an engineering professor at Torino Polytechnic, the Leaning Tower of Pisa is predicted to fall over between 2030 and 2040. In a race against its inevitable demise, engineers began reinforcing the base of the tower last summer.

This latest preservation effort follows a number of strategies proposed since the 1960s, when the Italian Ministry of Public Works formed an international commission to halt the tower's continuing southward tilt. In 1975, a competition was held to find ways to shore up the tower, but ended without a decision on how to proceed. Shortly thereafter, city officials stopped the pumping of water from nearby wells, finding that it caused the Pisa Tower to tilt further.

Other complex preservation strategies proposed in 1988 (drawings below) called for temporarily supporting the tower by a pair of steel braces until hydraulic jacks could be embedded around the foundation to prevent further eccentric shifting. If that strategy failed, an underpinning structure of steel micropiles connected to brackets was to anchor the tower underground, transferring its load.

Last summer, a team of Italian engineers began implementing a simpler stabilization plan, suggested by Napoli, which applies a vertical force on the northern edge of the tower's base, opposite its tilt. The stabilization team excavated down to the footings of the building and then poured concrete and lead shot into the foundation to counterweight the upended base. In three months, the engineers have managed to reverse the tower's position by 0.3 degrees, according to results unveiled at the International Association for Bridge and Structural Engineering Conference in September.

The 12th-century architect Bonanno Pisano is popularly credited with designing the Tower of Pisa, but recent research shows the original architect may have been a designer named Diotisalvi. The tower's construction began in 1173, but it started to lean when it was just four floors high, and further work was stopped in 1178. However, the architect Giovanni di Simone resumed construction in 1272, and the tower's topmost loggia was completed in 1278. By then, the differential settlement of soil and sandy silt by 30 centimeters had caused the tower to tilt to a more obvious degree. Nonetheless, architect Tommaso d'Andrea began building the tower's bell cell in 1360 and finished it 10 years later.

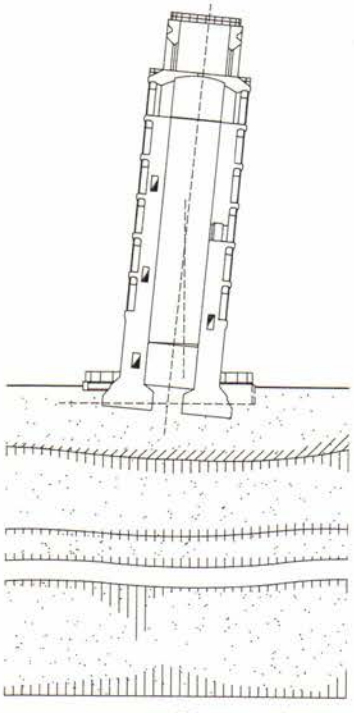
In 1945, the rate of the tower's inclination was about 3 seconds per year; by 1990 it had accelerated to 6 seconds annually. Furthermore, a second peril—equally as threatening as the tower's notorious tilt—was discovered: The cobble masonry at the southern edge was under such high compression that it could cause the structure's imminent failure.

Structural assessment of the tower was undertaken in 1991 by a team led by Giorgio Macchi, dean of engineering at the University of Pavia, which included advanced numerical modeling of the tower's loads and stresses. The team discovered huge cavities within the tower's internal masonry and found weaknesses in the tower's innermost support. Macchi's evaluation also analyzed 27 large recesses in the first-level loggia, which held scaffolding during the tower's construction. The researchers discovered that the marble stones of the tower's facing were not secured, increasing local stresses which could produce buckling of the walls.

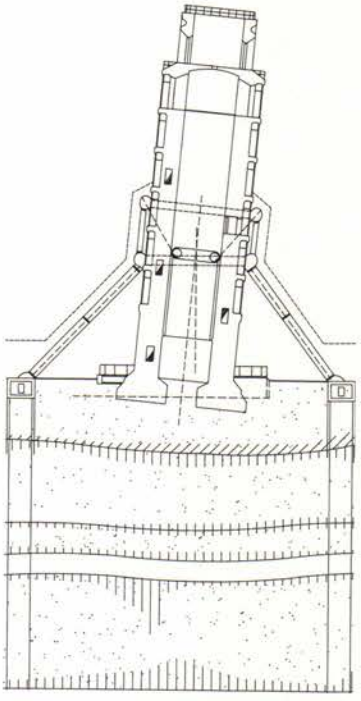
Thus, before the work to stabilize the area around the foundation could begin, engineers had to secure the tower's elevation. In June 1992, VSL International, an engineering firm in Bern, Switzerland, encircled the tower's elevation with temporary hoop tendons to prestress the tower's masonry at the first-level loggia, where stresses were greatest. Following a set of rigid guidelines to ensure both the continued safety and beauty of the Pisa Tower, a number of seven-wire strands were installed and anchored in place while the tower is being stabilized at its base.—*Bradford McKee*

DAVID BALL

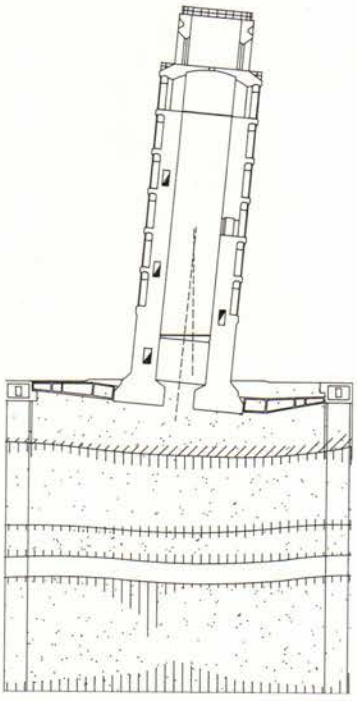
PISA TOWER: Reinforcement underway.



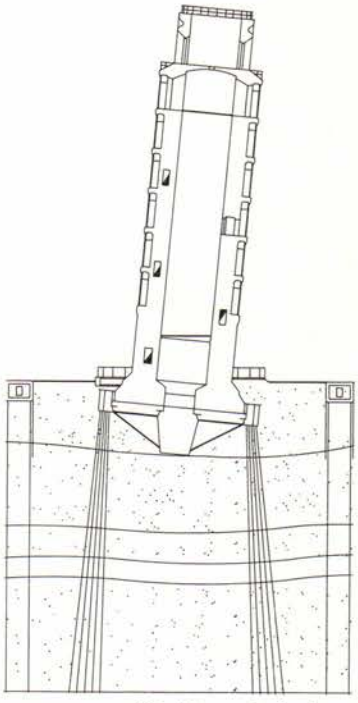
EXISTING CONDITION: Uneven settlement.



BRACING: Abandoned for base work.



HYDRAULIC JACKS: Would counter tilt.



UNDERPINNING: Would transfer load.

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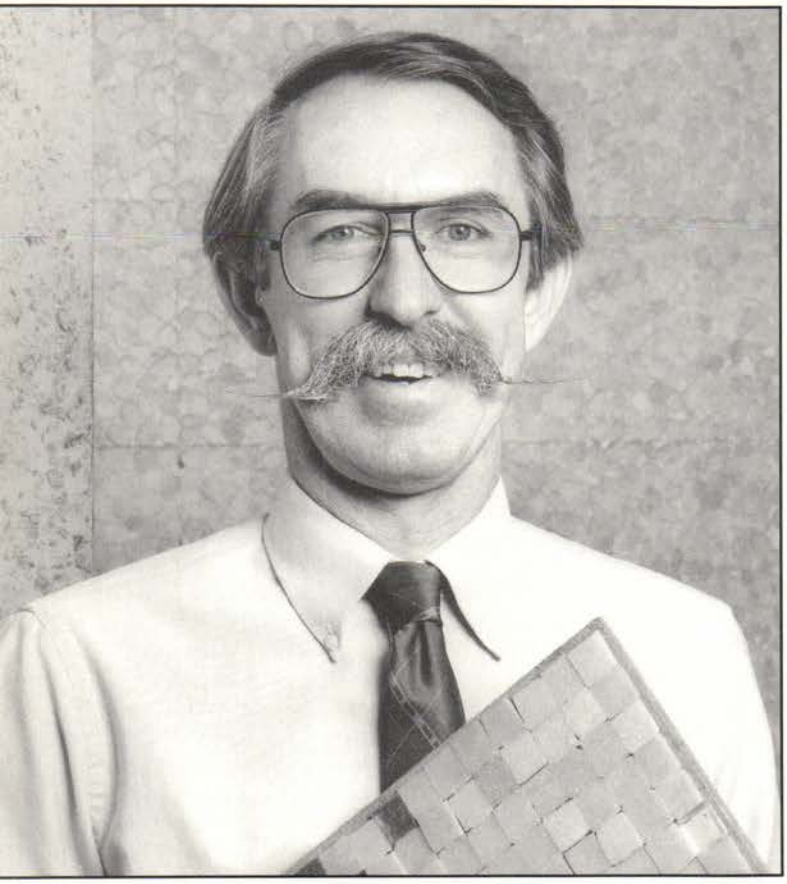

Tom Zartl is principal of Heaton/Zartl & Associates, a 44-year-old architectural firm based in Pasadena, California. He has been president of the Pasadena and Foothill chapter of the AIA and is a director of the California Council of the AIA. We value our relationship with his firm and appreciate his willingness to talk to you about us.

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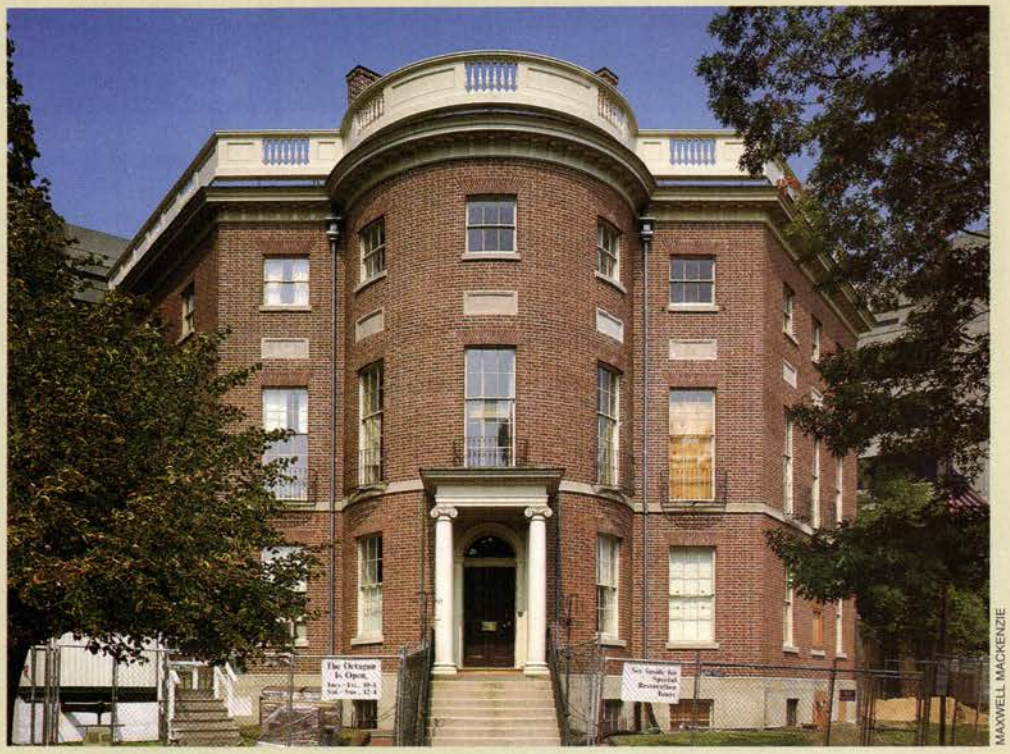
Octagon's Progress

An historically accurate restoration of a landmark resolves past problems.



MAXWELL MACKENZIE

ABOVE RIGHT: When completed in early 1994, the Octagon will boast repointed brick, a new roof, and structural repairs.

For the fourth time in its nearly 200-year history, the Octagon in Washington, D.C., is undergoing an extensive restoration. Throughout almost a century of AIA ownership, the 1801 landmark has mirrored the profession's changing attitudes toward historic preservation and showcased the latest in building conservation techniques. Restoration architect Mesick Cohen Waite Architects of Albany, New York, which earlier this year installed a new roofing system at Thomas Jefferson's Monticello (ARCHITECTURE, April 1993, pages 104-109), is supervising the Octagon's latest transformation. The firm intends to correct the problems resulting from past renovations, restoring the brick house to its original elegance.

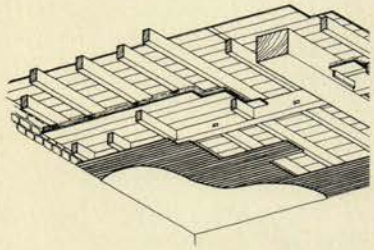
Designed by William Thornton, first Architect of the U.S. Capitol, the Octagon was commissioned by wealthy Virginian John Tayloe III as a winter residence and built between 1799 and 1801. By the end of the 19th century, the stately house had deteriorated into squalid tenement apartments. The AIA rented the Octagon as its new headquarters in 1898, later purchasing the property from the Tayloe family for $30,000. The organization soon recognized the house as a noteworthy example of Federal architecture and elected to restore the historic structure under the leadership of Charles F. McKim of McKim, Mead, and White.

Only minor repairs were made during the AIA's initial years at the Octagon. The first comprehensive restoration—involving the replacement of sagging second-story floor joists and steel bracing of the main staircase—did not begin until 1954. Further repairs, begun in 1969, were required for the Octagon's conversion to a museum. Such modern necessities as air-conditioning were added, and new cedar roofing shingles were installed.

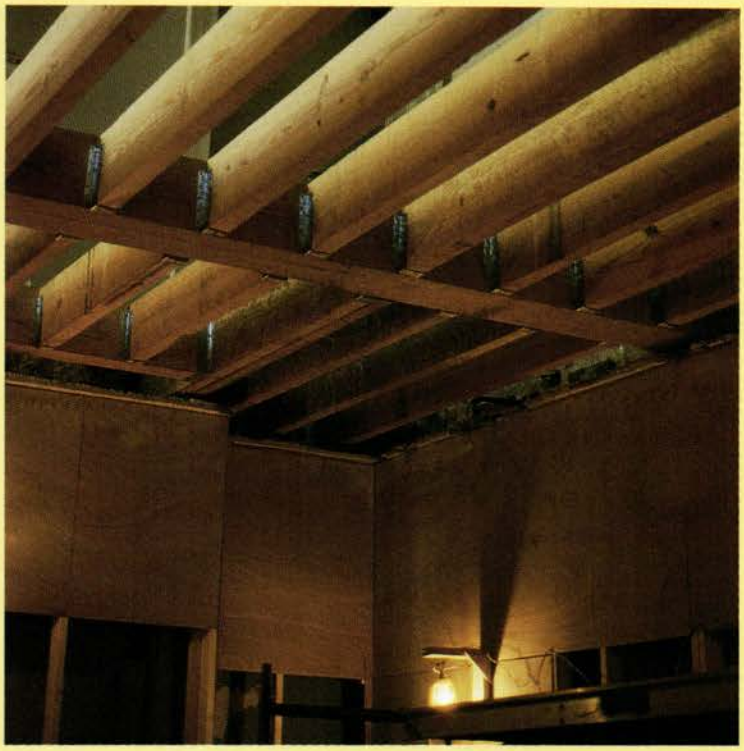
The current restoration of the Octagon by Mesick Cohen Waite Architects, with on-site assistance by Preservation Coordinator Lonnie J. Hovey, focuses on a more responsible stewardship of the building. The restoration team began by thoroughly researching the building's history, including an analysis of all previous restorations, to ensure the historical accuracy of architectural changes. Upgrading the Octagon's exterior called for restoring the roof and repointing the brick, an effort that was completed in March. Reconstruction of the interior structure began this January and is expected to be finished in 1994.

While corporate donors, foundations, and manufacturers have donated significant funds to the $4.6 million restoration, the majority of contributions have been made by architects. Their support stems from the significance of the Octagon to the profession. As Principal John G. Waite explains, "The Octagon not only represents the AIA's interest in preserving significant examples of American architecture, but also reflects its transformation into an influential association. This historic house has since become a symbol of the architectural profession in the United States."—*Raul A. Barreneche*

Floors



ABOVE: Original framing members were connected by mortise-and-tenon joints, with floorboards nailed directly to the joists.
TOP RIGHT: To support the second floor, Mesick Cohen Waite installed solid pine joists, framed into 1,200-pound summer beams.
ABOVE LEFT: Mesick Cohen Waite removed the 1954 steel frame along the second-floor walls.
ABOVE RIGHT: New wood members were inserted into original joist pockets in perimeter walls.

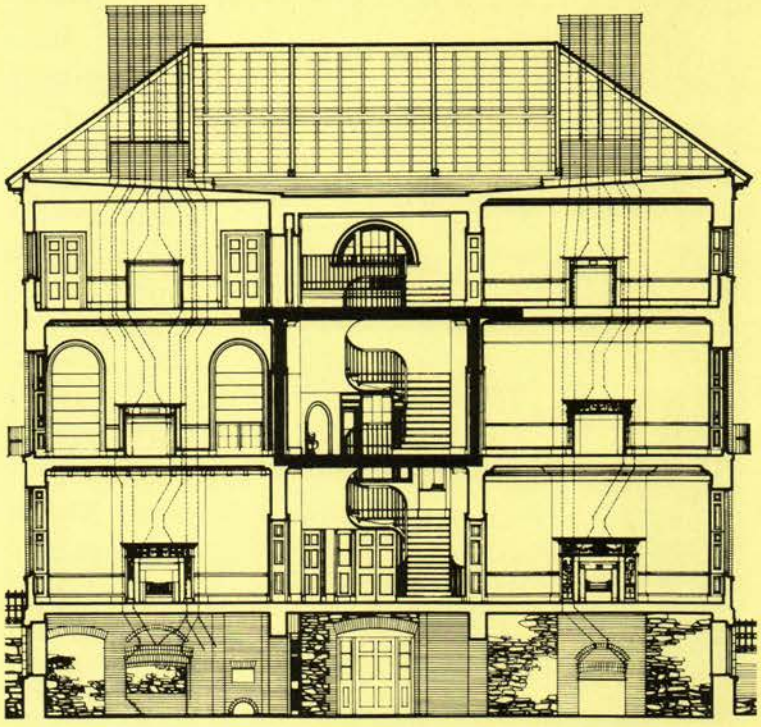


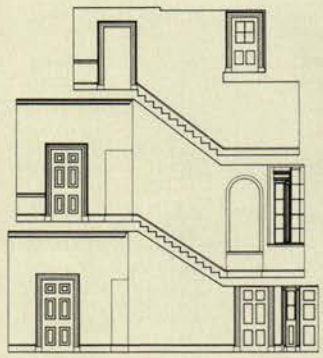
Although the 1954 repairs to the Octagon were intended to correct structural problems, they eventually caused more damage to the aging landmark. Architect William Thornton's original framing consisted of pine joists framed directly into the exterior loadbearing brick walls. The members were connected by hand-tooled, mortise-and-tenon joints, which allowed the framing to expand and contract independently of the masonry walls.

The 1954 restoration, under the direction of architect Milton Grigg of Charlottesville, Virginia, replaced the original second-floor framing with a steel frame and concrete floor decks. The steel frame acted as a rigid diaphragm, preventing the floor and masonry walls from contracting and expanding together. As a result, the brick walls cracked under stresses from the inflexible steel structure.

During the 1969 restoration, the third-floor wood framing was also replaced with a steel structure. This system did not create a rigid diaphragm; instead, steel beams were spaced 8 feet on center and covered with wood decking. The scheme effectively replaced the floor without causing structural damage to the brick walls.

During the current restoration, Mesick Cohen Waite considered replacing the framing with laminated wood joists, but finally selected a more sympathetic joist system of long-leaf pine supported by summer beams—the wooden equivalent of steel girders. Now connected by modern galvanized steel joist hangers, the framing achieves the intended flexibility of the original 19th-century structure. Whenever possible, the new members were framed directly into the original joist pockets in the brick walls.





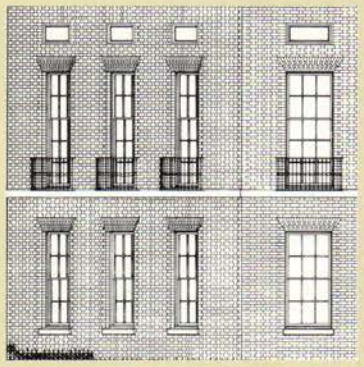
ABOVE: The original structure supporting the main staircase was undersized, causing second- and third-floor landings to sag.
TOP LEFT: Mesick Cohen Waite replaced the 1954 structural alterations to the stairs and hung the second-floor landing from a steel beam located under the third floor.
ABOVE LEFT: The 1,200-pound summer beams were hoisted through a window and installed to support the second-floor joists.
ABOVE RIGHT: Although the original second-floor joists were framed into a summer beam, Mesick Cohen Waite installed two new wooden beams perpendicular to the joists.

Thornton's original wood structure for supporting the Octagon's main staircase was severely undersized, and as a result, the stairs and landings eventually sagged 2 1/2 inches from their original position. The 1954 renovation dramatically altered the structural support of the stairs: Steel beams were inserted under each floor for reinforcement and framed into columns concealed behind the staircase walls. The columns did not align with the masonry basement walls, so a steel transfer beam was inserted beneath the first floor to redirect the column load. The steel, however, damaged the masonry walls and required lowering the basement ceiling 14 inches to conceal the increased depth of the steel beam.

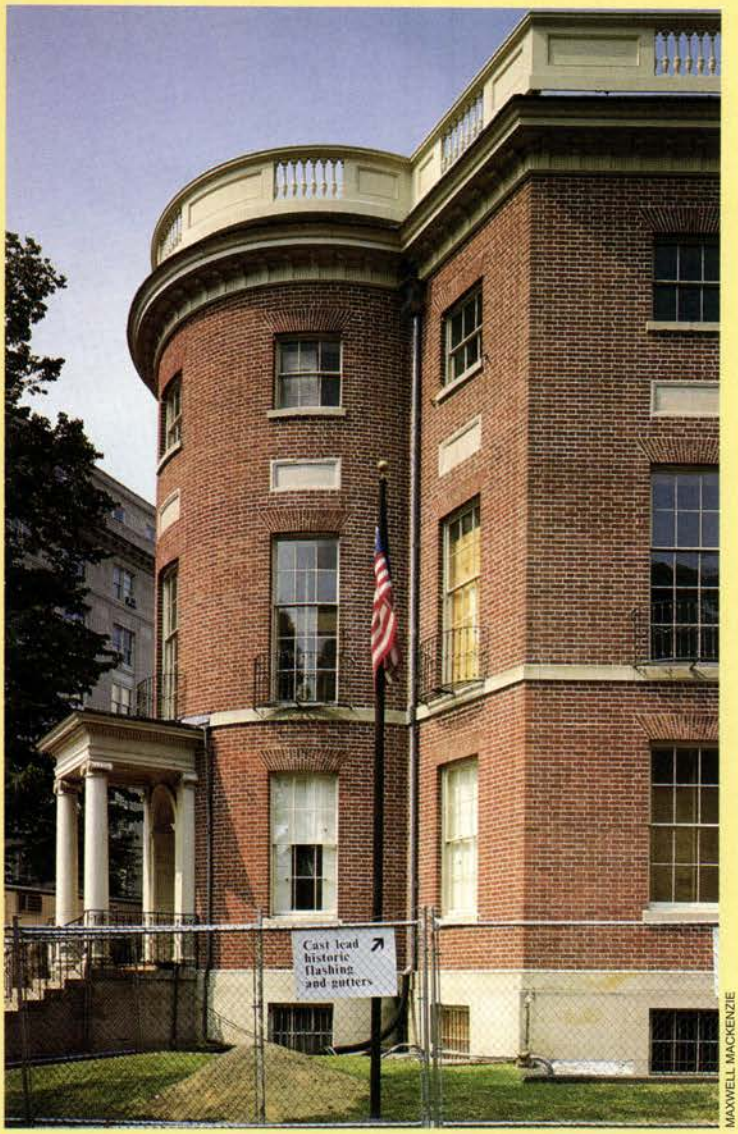
Mesick Cohen Waite installed a longer steel beam—supported by the existing loadbearing masonry walls—under the third-floor landing. The 1950s second-floor columns were retained, but those on the first floor were removed. As a result, the second-floor landing is no longer supported by columns below, but hung from the new beam above. The architects removed the steel beam below the first floor and strengthened the four existing wood joists, which had been cut to accommodate ductwork. The newly inserted structure allows the original ceiling height of the basement to be reestablished, permitting an accurate reconstruction of the below-grade space.

According to Lonnie J. Hovey, the American Architectural Foundation received $200,000 from the Getty Grant Program to partially fund the project, which comprised an analysis of existing conditions, removal of the old steel, and installation of the new structure.

Brick



ABOVE: The front facade's brick is detailed in a Flemish-bond pattern; the less elaborate rear facade comprises common-bond brickwork.
ABOVE RIGHT: Joints in the jack arches above the windows were raked out and replaced with a lime-based mortar, which closely matches the original composition.



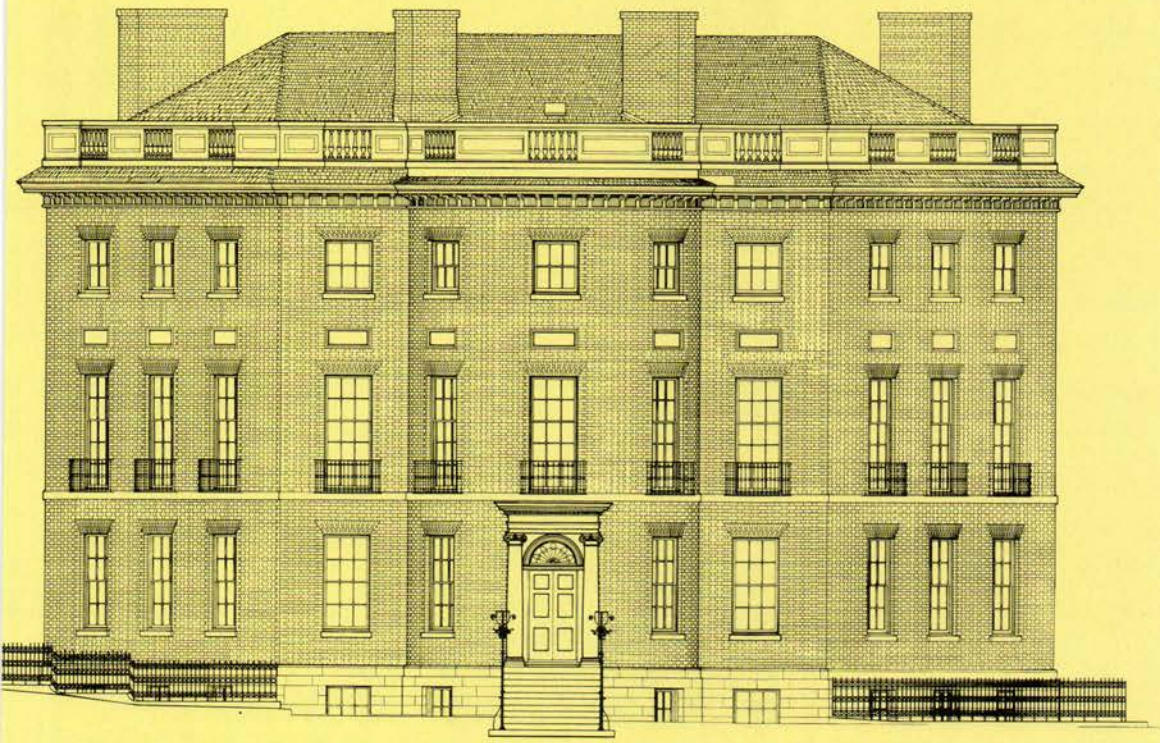
MAXWELL MACKENZIE

General contractor Tidewater Restoration, of Fredericksburg, Virginia, completed the extensive restoration of the Octagon's brick exterior: repairing the jack arches over the windows; cleaning the facades; reconstructing the chimneys; and repointing the exterior brick. The first work to be undertaken was the repair of the jack arches, which began in 1990. The American Architectural Foundation received $10,000 from the Getty Grant Program to study the arches and determine an appropriate method for repairing the bulging, cracking, and falling bricks.

Mesick Cohen Waite discovered that in past restorations of the jack arches, the bricks that replaced the damaged originals were of a different color. In addition, the new bricks were set in a hard, gray Portland cement-based mortar, not the softer, original lime paste. While the arches were supported with wood framing, the existing joints were raked out and the arches raised to a level position using screw-jacks. Cracked bricks were individually repaired with epoxy or replaced with matching, original bricks found in the Octagon's attic; the joints were replaced with a compatible mortar, and the supports were removed.

To clean the Octagon's brick exteriors, RAMCO Technology—the Hartford, Connecticut, firm responsible for the recent exterior cleaning of the White House—applied specially formulated solvents to remove surface pollutants. Care was taken to maintain a relatively low pressure, under 300 psi, when cleaning the brick, to prevent additional damage.

Once the exteriors were cleaned, the Octagon's four chimneys were repaired or reconstructed. The front chimneys—which had been



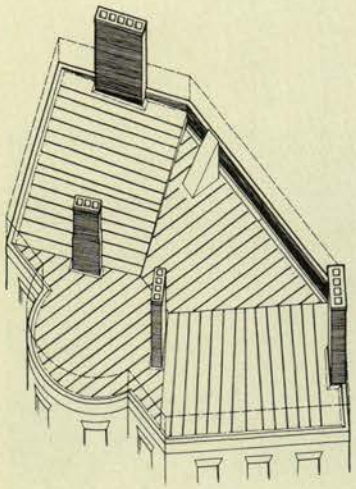
TOP: Workers removed the existing mortar with pneumatic chisels, but retooled the joints by hand.
ABOVE: The latest repointing of the Octagon's brick exteriors replaced incompatible materials with mortar matching the original.
ELEVATION: Joints on the front facade range from 1/16 inch to 1/4 inch; joints on the rear facade measure up to 1 inch.

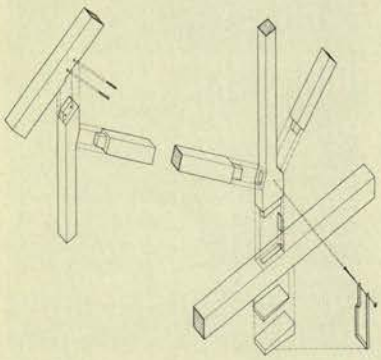
blown over in storms or struck by lightning—were rebuilt at least once in the building's history. The previous reconstructions, however, combined new and old bricks set into a hard, cementitious mortar. Workers on the current project dismantled the front two chimneys and rebuilt them with new bricks manufactured by Old Carolina Brick Company of Salisbury, North Carolina. The bricks are identical in size, color, and texture to the 19th-century originals. Reproduction brick was also used to restore one rear chimney to its original height.

The brick facades were repointed following the chimney reconstruction. In the past, the exteriors had been repointed and repaired at least six times with bricks and mortar different from the original materials. As a result, the facades were pointed in a haphazard combination of mortars of various ages and composition. The more recent, cement-based mortar was actually harder than the old bricks, and the hard mortar was unable to absorb the stress of the internal steel frame. Consequently, the bricks cracked under the force of the structure. Tests were performed to determine the composition of the mortars and how to remove them without damaging the original brick.

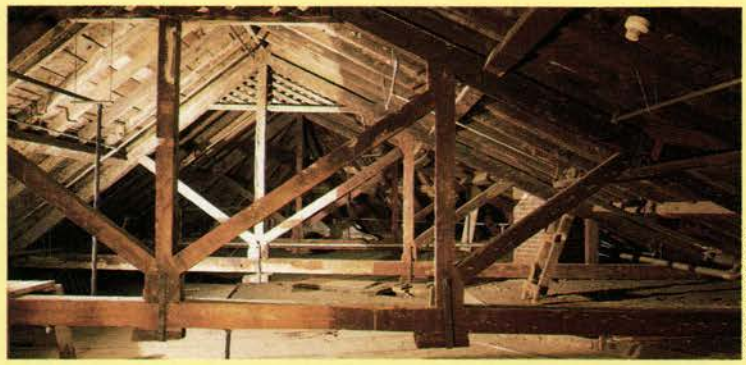
To rake out the joints, workers used hand-held pneumatic chisels originally developed for the stone-carving industry. The tools were fitted with custom-manufactured chisel points matching the size of the Octagon's joints, which ranged from 1/16 inch to 1/4 inch on the front facade, to almost 1 inch along the less ornate back elevation. In some areas of the back facade, the hard Portland cement joints were removed by rotary saws.

Roof





MAXWELL MACKENZIE



MAXWELL MACKENZIE

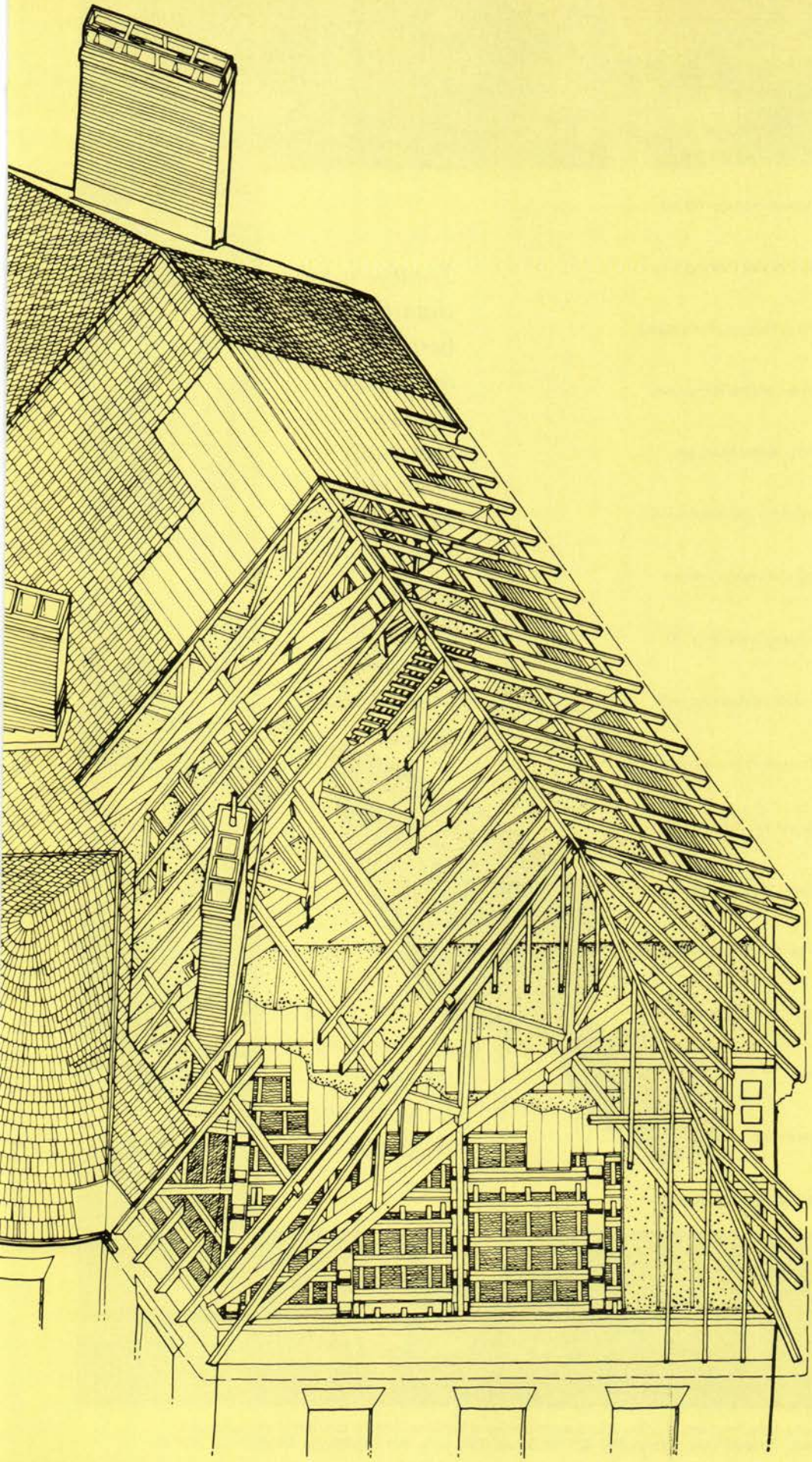
TOP: The Octagon's original roof drained water from slightly sloping planes into a lead-lined gutter.
ABOVE: A hipped roof supported by wooden Howe trusses was added over the original flat roof in 1817.
TOP RIGHT: The newly restored roof accurately re-creates the early 19th-century appearance.
CENTER RIGHT: Original flat roof has been preserved under trusses of the existing hipped roof and now serves as an attic floor.
ABOVE LEFT: The roof was clad with shingles milled from centuries-old cypress logs.
ABOVE RIGHT: Mesick Cohen Waite reconstructed wood balustrade, which was removed in the 1850s.
FACING PAGE: Assembly of original hipped roof reveals Howe trusses covered with heart pine sheathing and hand-planed cypress shingles.

Like many early 19th-century houses, the Octagon's first roof comprised a series of slightly sloping planes that drained water into a lead-lined gutter along a rear parapet. The roof was originally constructed of two layers of wood planks, covered with a water-repellent, tar-impregnated canvas. Due to rapid weathering of the canvas covering, the original roof failed within 20 years of its construction.

Between 1815 and 1817, local architect George Hadfield, who had worked with Thornton on the first U.S. Capitol, designed and built a more suitable hipped roof to replace the failed original. The brick parapet was removed to allow the installation of new trusses, and a wood balustrade took its place, although it deteriorated by the 1850s and was removed. Wooden Howe trusses—assembled with mortise-and-tenon joints bound together by iron straps—were simply installed over the old roof, which became an attic floor. As a result, the original roof has been preserved and is one of the few of its kind still in existence.

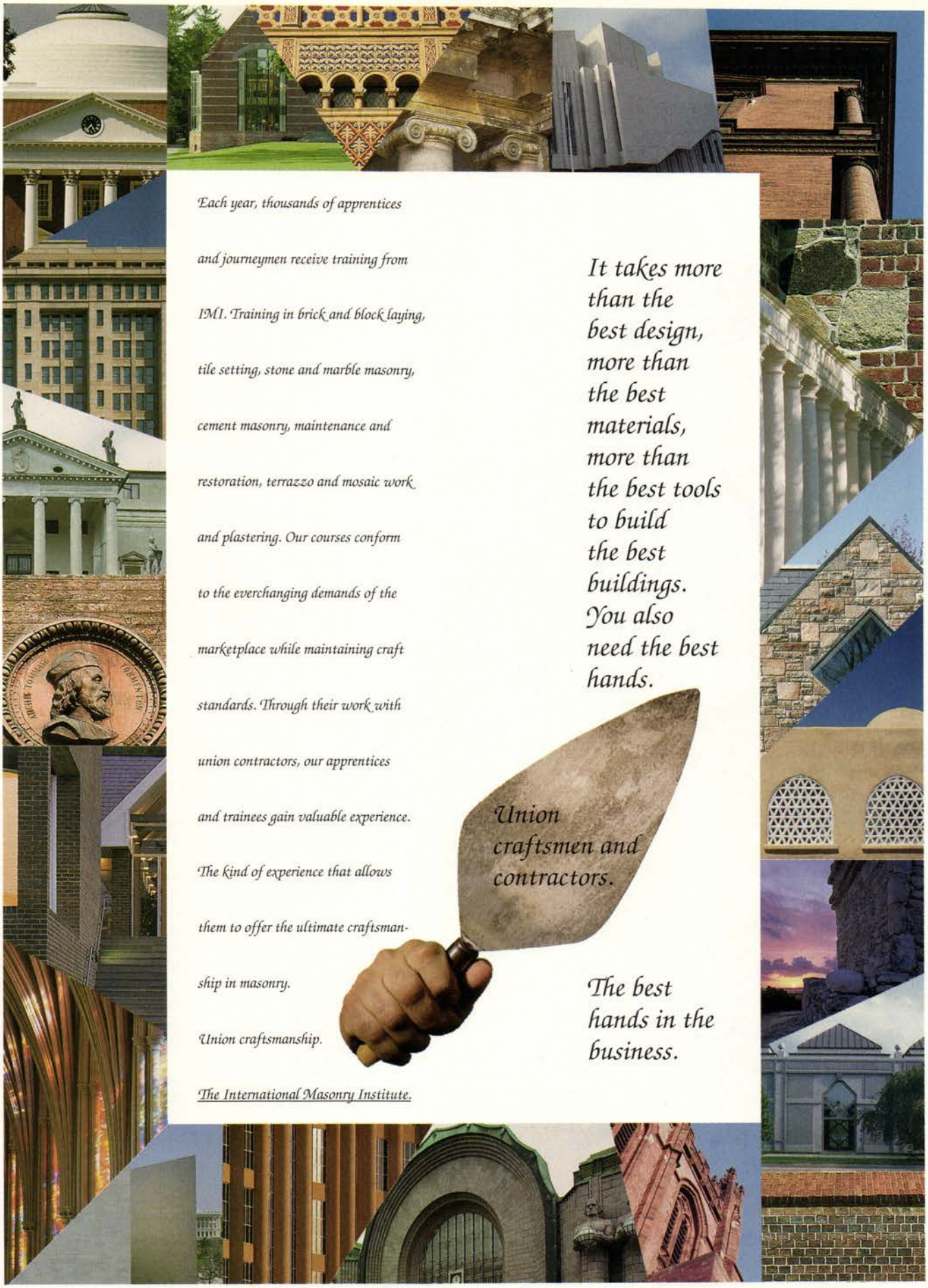
The new hipped roof was initially covered with cypress shingles, which were later concealed by a standing-seam metal roof in the 1870s and replaced by cedar shingles in 1969. Mesick Cohen Waite elected to preserve the flat roof where it now stands and repair the newer hipped roof. The firm also re-created the wood balustrade, which accurately represents the Octagon's appearance during the Tayloes' occupancy.

The new shingles were cut from old-growth cypress, which has become an increasingly rare commodity. They were milled from dredged up "sinkers," centuries-old cypress logs preserved in several Deep South riverbeds.



THE OCTAGON RESTORATION
WASHINGTON, D.C.

ARCHITECT: Mesick Cohen Waite, Albany, New York—John G. Waite (partner-in-charge); Michael Curcio (project manager); Douglas G. Bucher, Alan Cerny, Mark R. Dahl, William G. Foulks, Lan Mei Wang (design team)
ENGINEERS: James Madison Cutts (structural); Landmark Facilities Group (mechanical); Quantum Engineering (electrical/plumbing)
GENERAL CONTRACTOR: Tidewater Restoration
COST: $4.6 million



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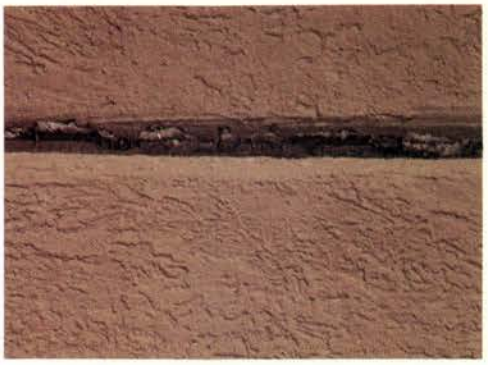


Repairing Synthetic Stucco Joints

Properly installed sealants ensure durability of exterior insulation and finish systems.

ABOVE LEFT: Reinforcing mesh exposed in sealant joints wicks moisture and provides a poor substrate.
ABOVE RIGHT: The repaired sealant joint should be adhered only to the base coat, and not to the finish coat.

Introduced in the United States about 20 years ago, exterior insulation and finish systems (EIFS) have enjoyed increasing popularity as a versatile and economical cladding for new construction and for renovation of existing buildings. The most widely used form of EIFS is a polymer-based, synthetic stucco applied as a reinforced base and finish coat over rigid thermal insulation board. The apparent simplicity and previously successful performance of EIFS in Europe, however, belied the subtle complexities introduced by their predominant application in this country over nonmasonry substrates. Our understanding of exterior insulation and finish system behavior and the development of improved details and application procedures, in fact, have been driven by field experience with maintenance and repairs.

Joint failures

EIF systems are designed to act as moisture barriers and do not incorporate a drainage cavity for penetrated moisture. Without such redundancy, sealant joints become a critical element in the cladding's success or failure. In the desert Southwest where rainfall is infrequent, EIFS can often tolerate some degree of sealant failure without excessive damage. But in areas where frequent or extended periods of rain or damp cold are common, the systems have little tolerance for moisture. The Canadian experience indeed has been so negative that the City of Vancouver has placed limitations on the use of EIFS until a committee of design professionals, building officials, and industry experts can make recommendations for improving the quality of detailing and installation.

Sealant joints are installed in EIFS at the floor lines of wood frame buildings, at locations where dissimilar substrates are bridged, at building expansion joints, at changes in wall height, at penetrations, where the system abuts other materials, and wherever necessary to accommodate building movement. Joints are generally not required at window and door openings if they are properly cut and reinforced. Corners should be cut from a single piece of insulation board because the alignment of board joints with the corners of openings will cause cracking. Insulation board joints also should not align with joints in the sheathing boards for the same reason.

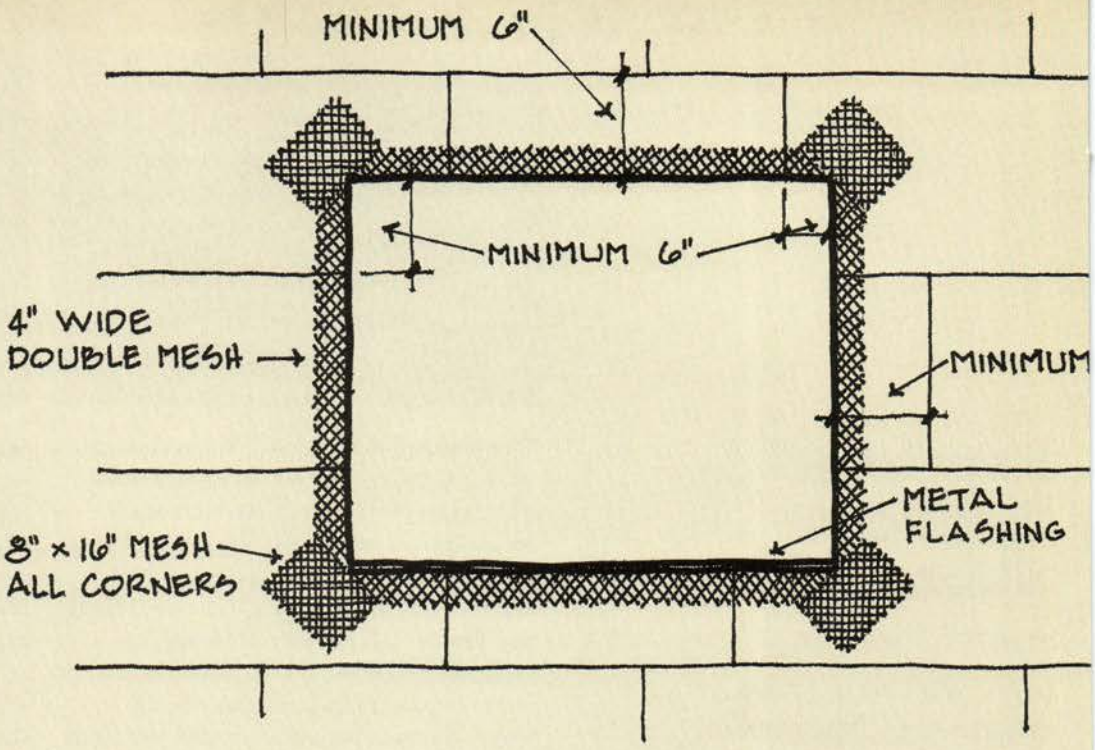
Decorative grooves called "esthetic" joints are sometimes used either to delineate color changes, or to provide convenient stopping places for applicator crews. Cracking is less likely to occur at these locations when the grooves are rounded rather than V-shaped, and when they do not align with joints in the substrate sheathing. The insulation board thickness also should be maintained at not less than 3/4 inch at the base of the joint.

Since the insulation board itself does not provide a suitable substrate for sealant adhesion, the board edges have traditionally been covered with the EIFS laminae, which consist of a base coat, reinforcing mesh, and a finish coat. A common mode of failure in these joints, however, has been softening and delamination of the finish coat to which the sealant was adhered. Most EIFS finish coats are water-based materials that have a tendency to reemulsify with prolonged exposure to moisture. Moisture can be absorbed into the joint through the pores of the adjacent finish or may condense from water vapor passing through the system. Open cell backer rods, which were once commonly used in EIFS sealant joints, also act as a sponge to hold trapped moisture. As the finish coat on the sides of the joint surfaces softens, the pull of the sealant against it causes separation from the base coat, and moisture penetrates, leading eventually to delamination of the paper face of the gypsum sheathing and deterioration of its core.

Joint repairs

Most of the current EIFS sealant repairs being made are to joints constructed in this manner. The sealant bead pulls easily from the failed joint area, bringing most of the finish

EIFS sealant joints need not align with the edges of properly reinforced openings.



ABOVE: Proper placement of reinforcing mesh at openings—such as doors, ducts, and windows—will prevent cracking and moisture penetration.
FACING PAGE, LEFT: Back-wrapping encases the edge of the insulation board in reinforcing mesh and base coat.
FACING PAGE, RIGHT: Board edges can also be protected with plastic J-molds overlapped with reinforcing mesh.

coat with it. Any remaining finish coat on the sides of the joint substrates must also be removed to assure good adhesion of the replacement sealant. The grinding tools that are normally employed to clean joint substrates are generally too abrasive for EIFS repairs and are difficult to use without damaging the underlying base coat. Wherever the reinforcing mesh is inadvertently exposed by the grinding operation, it must be patched with base coat material to prevent wicking moisture into the EIF system.

Patrick Gorman, president of Gorman Moisture Protection in El Paso, Texas, as well as a past president of the Sealant, Waterproofing, and Restoration Institute (SWRI), prefers that his crews remove any latent finish coat from the joint surfaces by hand with a scalloped utility knife. This method avoids the mechanical damage the grinders can cause, as well as the melting of laminae and insulation board by frictional heat buildup. Solvent cleaners should not be used to remove traces of finish coat material because the chemical vapors penetrate through the base coat and dissolve the polystyrene insulation board.

If moisture damage is extensive at the joints, or if the repair process damages the joint, the insulation board may have to be cut away and replaced. When the insulation does have to be replaced, the joint should be constructed by one of two methods currently recommended for the construction of sealant joints in new installations.

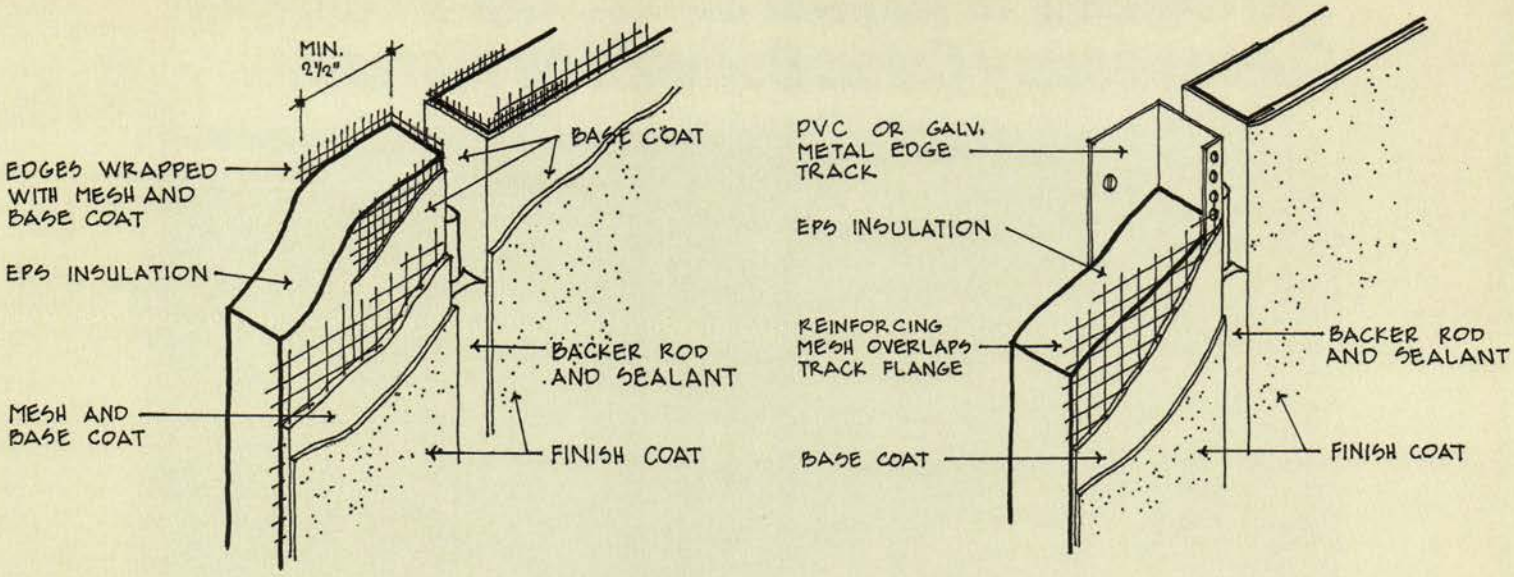
Back-wrapping

The first method is called "back-wrapping." The base coat and a fine-gauge fiberglass reinforcing mesh are used to form the joint surfaces, providing a durable substrate for the sealant that is less sensitive to moisture than the finish coat. The mesh must be pulled tight around the insulation board edges and should extend onto the front and back faces a minimum of 2 1/2 inches.

After embedding in the base coat material, this mesh is overlapped on the exposed face of the wall with a layer of standard EIFS reinforcing mesh and base coat. The new finish coat can then be blended into the adjacent existing finish, carefully matching both color and texture. A backer rod is then placed at the proper depth; a sealant is applied; and the joint is tooled to a watertight, concave configuration.

Joint accessories

A second method of joint construction employs plastic J-molds applied at the insulation board edges. The front flange of the molding is perforated to provide a mechanical interlock with the base coat, and the reinforcing mesh must overlap the flange. Metal edge moldings are unsatisfactory because of differences in the rate of thermal expansion and contraction between the metal and the EIF system coating. Even the plastic accessories can be somewhat problematic. They can cause cracking along the edge of the molding if the coating is thin. However, if



the coating thickness is increased, the plastic accessories can cause a slight lump. This method of repair, though, does provide a durable surface for sealant adhesion and makes future maintenance and replacement easier. Sealant manufacturers should be consulted as to the need for and proper type of primer required for maximum adhesion.

A third alternative, suggested by Gorman, incorporates a surface-applied bridge or "band-aid" sealant joint, which spans the top of the opening across a bond breaker tape and is adhered to the surface on either side. Although this method is less labor-intensive and, therefore, is less expensive, it still relies on adhesion to the porous finish coat, which can absorb moisture and delaminate.

Industry recommendations

The repair or replacement of sealant joints in EIF systems is difficult and expensive, and experts have yet to reach a consensus as to the best method of accomplishing a weathertight seal. Since the popularity of EIFS is partially based on its economy, expensive maintenance and repair problems can make the system much less attractive to building owners. Properly installed sealant joints may in fact be the single most important element in ensuring durability of the system.

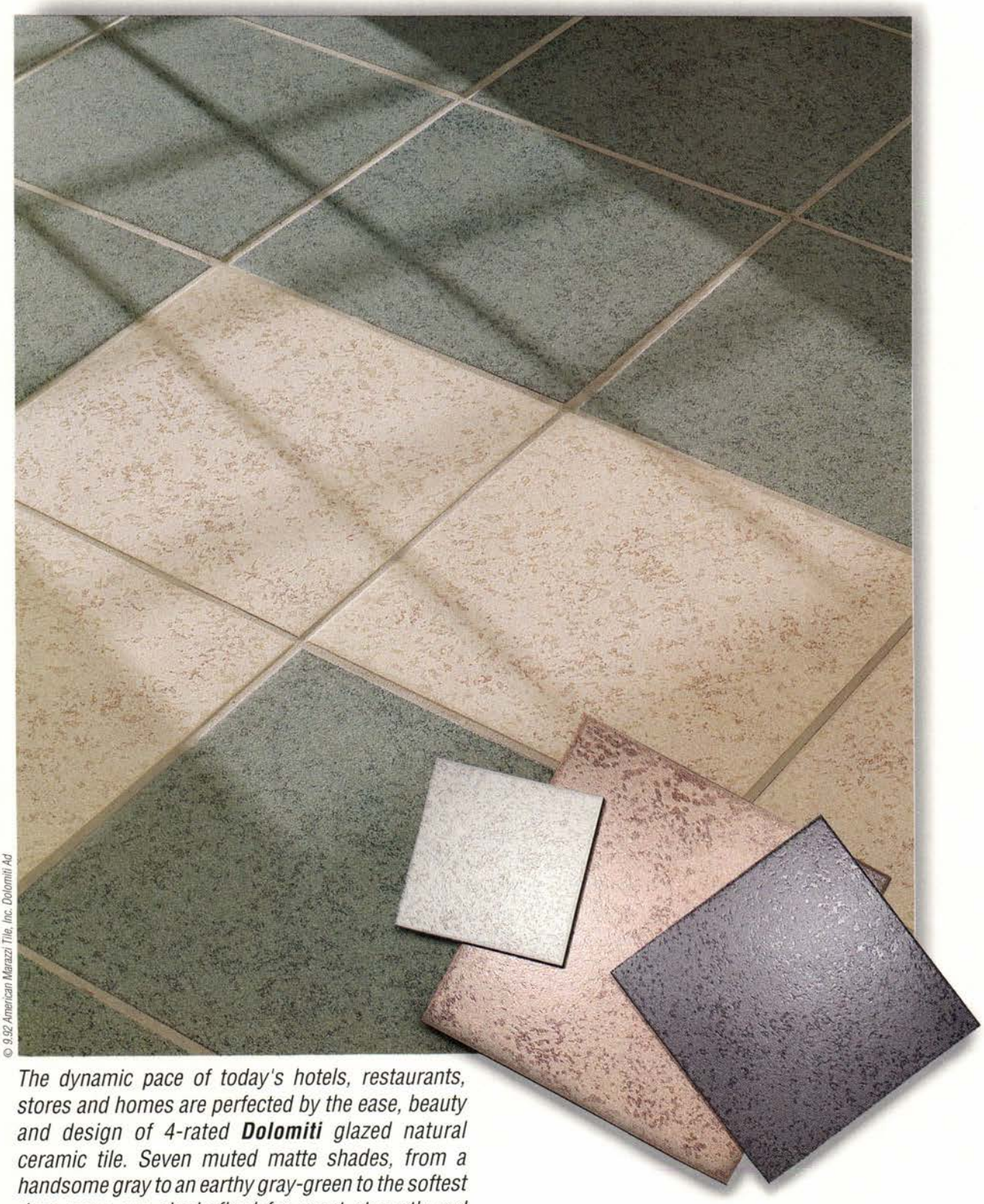
Most exterior insulation and finish system manufacturers now recommend that sealant joints be back-wrapped with base coat and reinforcing mesh only, while the finish coat is held back at the wall surface. As an added safety factor, fiberglass-faced gypsum sheathing, cementitious sheathing board, or masonry substrates are recommended instead of standard paper-faced gypsumboard. Closed cell backer rods or closed skin/open cell rods should be used in EIFS sealant joints, and low modulus silicone sealants are generally believed to place the least stress on the joint, even at low temperatures. Sealant joints should also be configured to provide the proper width-to-depth ratio.

Ongoing failure investigations and experimental field repair programs may soon provide better solutions to such maintenance problems. In the meantime, architects should provide adequate detailing of sealant joints, secure the EIFS manufacturer's approval of sealant joint details, specify that only manufacturer-approved EIFS applicators be allowed to perform the work, and that sealant applicators be trained professionals.

Some architects specify that a manufacturer's technical representative visit the job site before or during installation, and some EIF system manufacturers require job-site visits prior to issuing any warranties. A preinstallation inspection will allow the manufacturer to approve the substrate, make recommendations, and review installation requirements with the applicator. For warranty work, a final inspection may also be required by the EIF system manufacturer. —*Christine Beall*

Christine Beall is an architect and consultant based in Columbus, Texas.

The Honesty of Natural Stone. The Serenity of Contemporary Color: Dolomiti by Marazzi.



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Computer-Aided Gothic

New tools help Kevin Roche replicate stone ornamentation with exacting detail.

MICHAEL MORAN

ABOVE: The newly reopened Jewish Museum is now entered on East 92nd Street, through the original front door of the Warburg Mansion.
TOP LEFT: The 1963 List Building adjoining the Neo-Gothic Warburg Mansion added gallery space and a sculpture court on Fifth Avenue.
TOP RIGHT: Roche Dinkeloo's addition fills in the sculpture court and seamlessly continues the mansion's weathered, 85-year-old limestone facade.

How could a self-avowed Modernist re-create Gothic Revival spires and gargoyles so faithful to those of a 1908 mansion that the visitor can scarcely tell the difference between the original and its addition? So asked architects and critics this summer, when New York City's Jewish Museum unveiled its $36 million restoration and expansion by AIA Gold Medalist Kevin Roche. The skill with which Roche has reconstructed masonry ornament is a significant accomplishment, offering an inspiring reinvention of a centuries-old craft.

Museum expansion

Roche Dinkeloo's addition to the Jewish Museum is the culmination of a long search for larger exhibition space, offices, and educational facilities. In 1945, Frieda Schiff Warburg, widow of noted philanthropist Felix Warburg, donated the family's 1908 Fifth Avenue mansion to house the museum. In 1963, the museum expanded into the Modern List Building, which also provided an auditorium. By the 1980s, the museum had outgrown both buildings. Anne Scher, the museum's director of public relations, recalls quarters so cramped that staff members shared desks on rotating schedules.

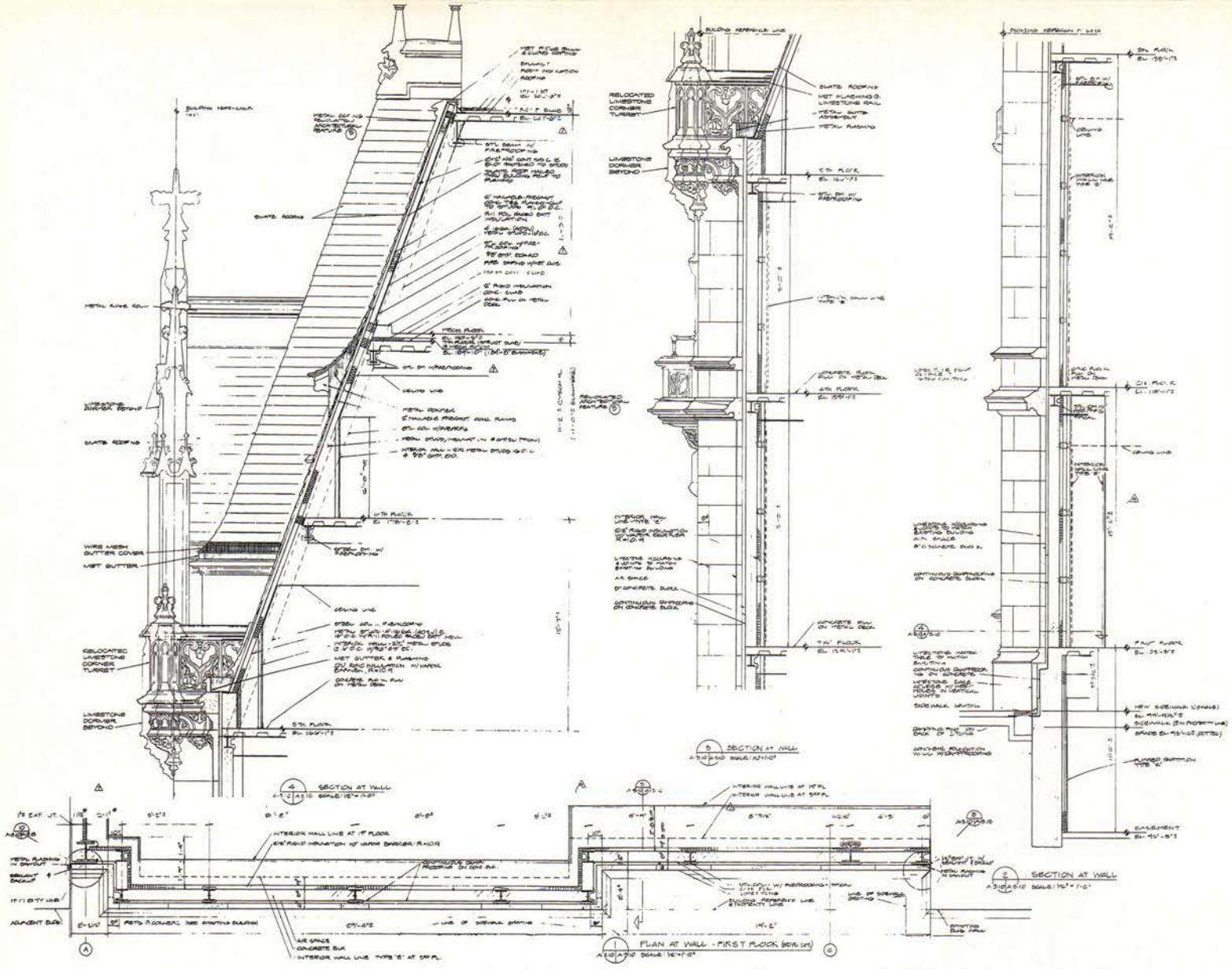
For its next expansion, the museum interviewed a number of architects before finally commissioning Kevin Roche John Dinkeloo and Associates of New Haven, Connecticut, in 1985. "Initially," explains Roche, "the museum was going to start afresh on a separate site, with a new building. We were retained with that in mind." After evaluating a number of sites, both architect and client recognized the importance of the mansion and chose not to relocate the museum.

Preliminary schemes called for the insertion of a new sliver building next to the original museum. Roche, however, chose to preserve the museum's identity, which was clearly tied to the mansion. Expanding the museum therefore meant expanding the Warburg building—quite literally. So Roche addressed the problem as if the original architect, Charles Prendergast H. Gilbert, had been asked to enlarge the mansion.

Seamless integration

The new 30,000-square-foot infill structure occupies the former sculpture court to the north of the mansion. It is structurally connected to both the load-bearing masonry Warburg Mansion and the steel-and-concrete List Building. Roche carefully integrated his interior volumes to create a singular, unified building wrapped in a continuous facade. Both inside and out, seams between old and new are almost invisible. "We wanted to design the new structure as an extension of the whole building, not just of the facade," explains project architect James Owens.

The two new bays added to the west-facing Fifth Avenue elevation of the Warburg Mansion disrupt the original building's overall symmetry and emphasize the symmetrical south facade as the museum's main entrance. Roche recessed the first bay to the north of the mansion to establish subtly the edge between old and new construction. Architectural elements, from window moldings to crockets and spires, are literal, exact replications of their counterparts in the existing building; some, including a large dormer and fragments of the cornice, were actually relocated from the Warburg Mansion's formerly freestanding north facade, following an agreement with the New York City Landmarks Preservation Commission. The commission mandated that details removed from the Warburg's facades during construction of



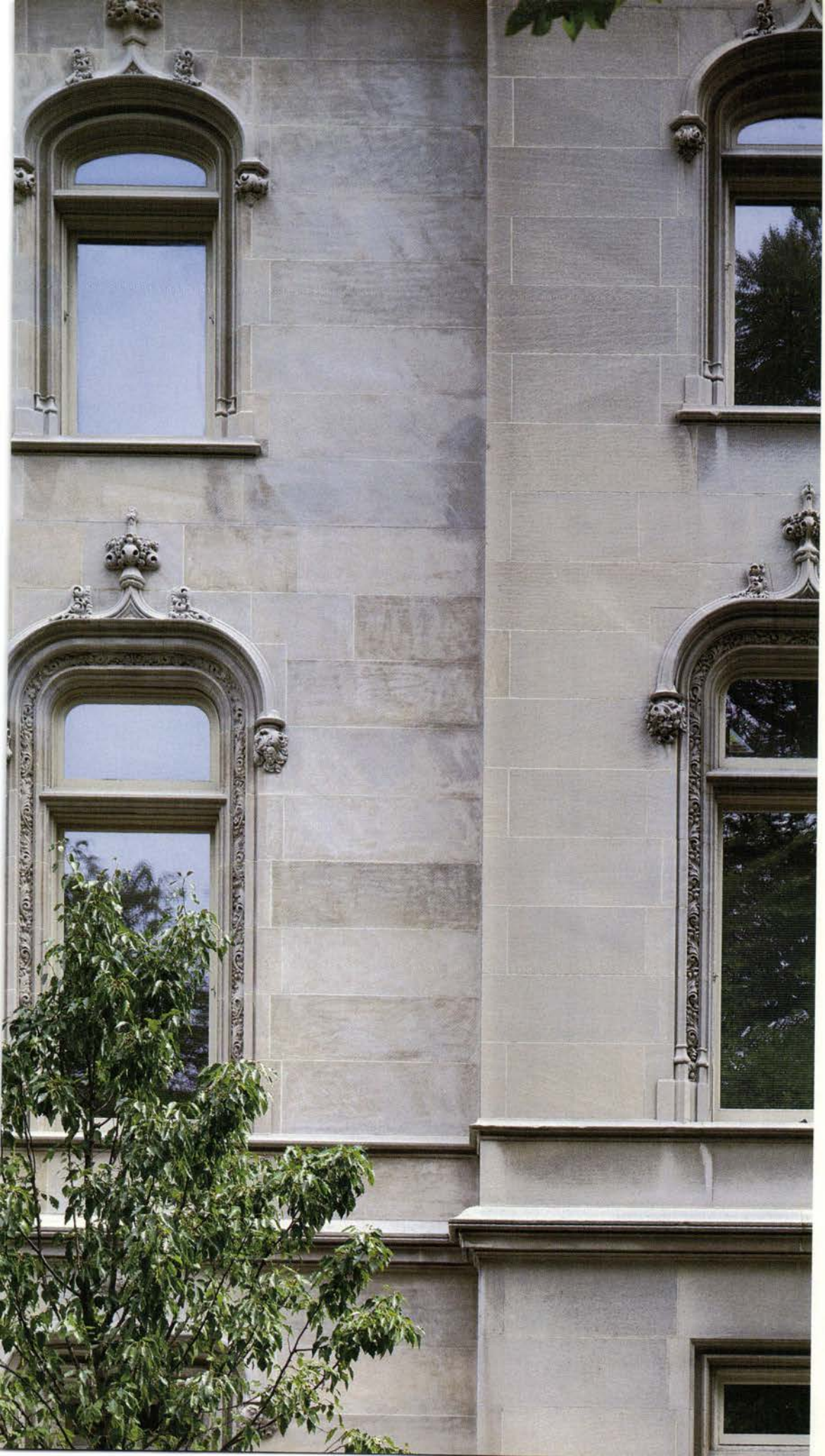
the Roche addition be incorporated whenever possible in the new building. Roche also matched the surface texture of the new limestone elements to that of the 85-year-old originals. This painstaking process involved chiseling the finished stone to replicate the effects of weathering on the original; stone carvers labored for months to achieve the architect's exacting standards. The result is a seamless continuation of the Gothic-inspired building, where differences between new and old are difficult to discern.

Computerized craft

Roche's toughest challenge was finding the technology and craftspeople to execute his design. While the client and the contractor sought the lowest bidder, the architect wanted the means to replicate exactly the original stone's color and texture; New York's Cathedral Stoneworks provided both. The company was retained to supply, fabricate, and engineer the facade stone and to consult with the architect on construction methods. Under the direction of General Partner David Teitelbaum, Cathedral Stoneworks located the same Indiana quarry that supplied the limestone for the original mansion. Teitelbaum recalls scouring the site—where stone was quarried to clad such landmarks as the Empire State Building, Rockefeller Center, and the Cathedral of St. John the Divine—until he found the original excavation site for the Warburg Mansion. Such careful attention to materials ensured a close match between old and new.

To replicate the intricate detailing and ornament of the Warburg facade, workers typically molded cornices and figures on site to create plaster casts, which the stone carvers later used as models. Moreover, optical laser scanning was introduced to re-create some of the more elaborate details. With this method, digital cameras survey the surface of three-dimensional stone pieces, bouncing laser light from the objects back to a scanner. The computerized data is then translated into exact measurements and relayed to a computer-aided manufacturing (CAM) system, which controls the precise maneuvers of automated saws. Guided by this information, stonecutting saws carve—in three dimensions—an exact replica of the original object from a block of rough-cut stone.

The system—a unique blend of new technology and ancient craft—makes stone carving a significantly faster and more affordable restoration process. To program the system, designers create CAD drawings for individual stone sections or details. The files, which may be sent from remote locations via modem, are then coded onto toolpath tapes that drive the robotic stonecutting saws. These automated, hydraulic machines profile raw stone blocks of up to 15 tons, completing approximately 80 percent of the carving; stoneworkers later embellish and refine the pieces by hand. What once took carvers two weeks to handcraft can now be finished in 30 minutes,

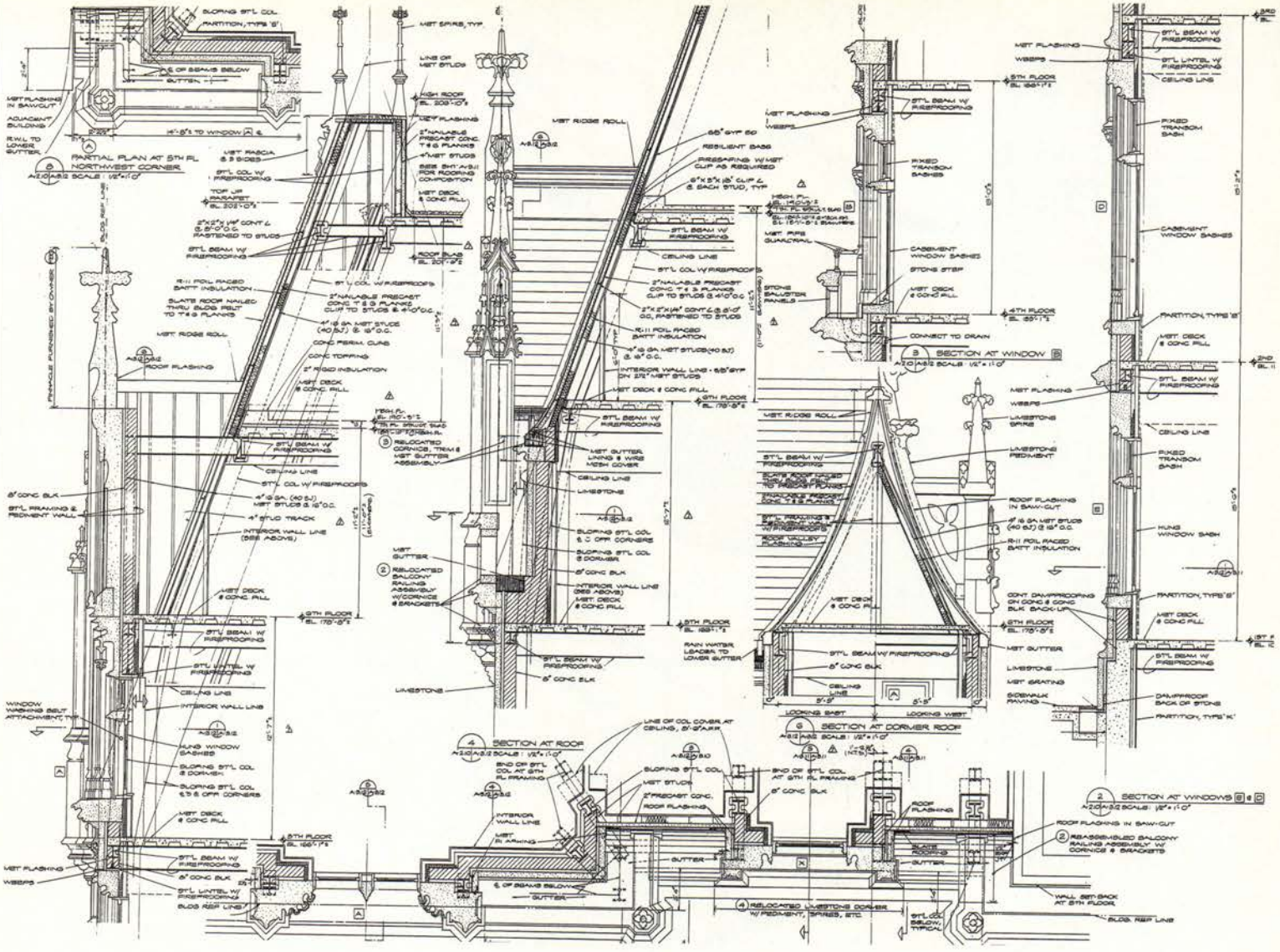


MICHAEL MORAN/ PHOTOS

FACING PAGE: The carved stone facade of the Roche addition is supported by a steel frame with concrete floor plates.
LEFT: The bay of the new addition (left) is almost indistinguishable from the 85-year-old original (right).
TOP: Workers hand-chiseled the surface of the new limestone to simulate the effects of weathering on the original.
CENTER: As required by the New York City Landmarks Preservation Commission, a balcony removed from the Warburg Mansion's rear facade was reinstalled on the Fifth Avenue elevation of Roche Dinkeloo's addition.
ABOVE: The preservation commission also required that new window moldings exactly match the originals.

TOP: Stone blocks for the Roche addition were carved with computer-automated saws, but final details were added manually by stone carvers.
CENTER: Limestone was fabricated in sections, then attached to the steel-frame structure much like curtain wall.
ABOVE: Many of the original facade's details were precisely re-created using innovative computer technology.
RIGHT: New elaborate roof line (left) is punctuated by replicas of the original limestone dormers and spires (right).
FACING PAGE: New mansard roofs were constructed of steel frames covered by precast concrete planks, onto which slate shingles were nailed.

MICHAEL MORAN



allowing the artisans to spend more time on intricate detailing. Maintains Cathedral Stonework's Clerk of the Works Alan Bird, "A project like the Jewish Museum could have happened without the use of computers, but it would have taken years longer and would have cost twice as much."

Wall connections

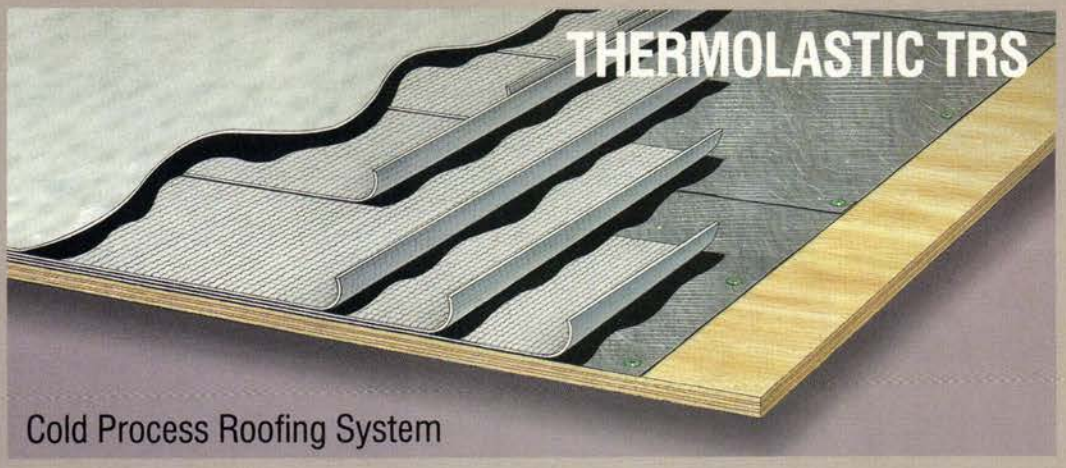
Once fabricated, the individual stone sections were applied to the structure of the new addition much like a curtain wall. While the original Warburg Mansion was a predominantly load-bearing masonry structure, with some steel framing, the List addition and the new Roche addition were framed entirely in steel, with concrete floor plates and concrete block infill walls. The Bedford, Indiana, firm of Kluesner Engineering consulted with both Tishman Construction and Cathedral Stoneworks and detailed the connections between the stone facing and the structural frame. For this complex project, over 50 types of stainless steel angles and plates were specified to fasten the stone sections. In some instances, the angles function like shelves to hold a particular stone segment; in others, steel connectors are slotted directly into the stone. The connecting angle or plate is typically fastened to the concrete block infill wall with expansion bolts and then grouted. But when these surface-to-frame connections occur at a structural member, the steel plates are welded directly to the beam or column.

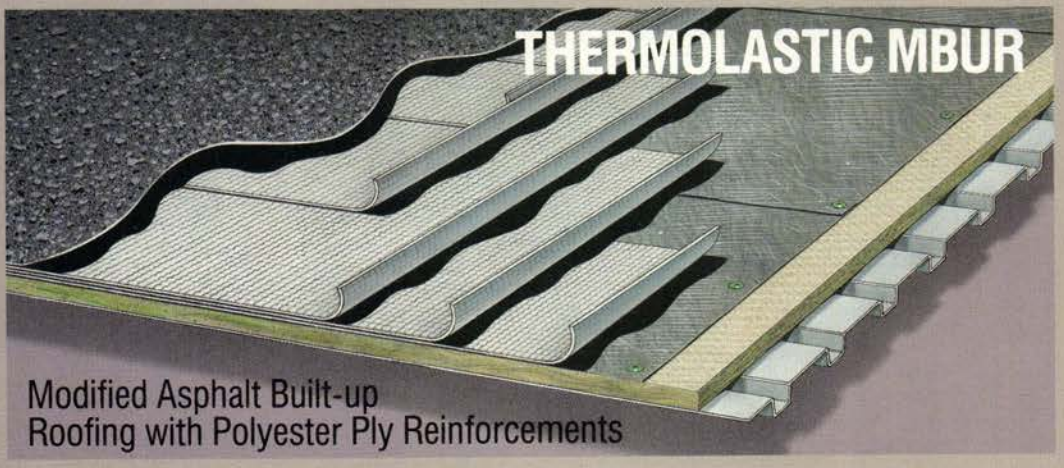
Precisely cutting the stone was crucial, as the joints between sections measure a mere 1/4-inch wide, but this accuracy was easily achieved with the CAD/CAM system. According to Teitelbaum, the computers ensure fabrication with micromillimeter accuracy—a far cry from the days of handcarving, when workers would often mount stones only to find enormous gaps between pieces. Once hung on the facade, the narrow joints of the new stone veneer were filled with a standard mortar to which limestone dust was added. The dust—collected from carving the facade stones—imparted a unified color to the entire facade, matching stone and mortar.

Inspiring model

The latest addition to the Jewish Museum has already inspired architects, whether or not they are preservationists, to consider stone a viable building material. Advances in computer technology have clearly made stone carving more affordable for preservation projects. Deteriorated stone that would have been removed is now being restored—in such diverse projects as the renovation of New York's Grand Central Station, and academic buildings at Johns Hopkins University and Boston College. While these developments hardly suggest a boom in the construction of stone buildings, Cathedral Stoneworks' Alan Bird is optimistic about automated stonecutting's future. "Computer technology," he says, "is the fuel that will keep our medieval craft alive."—*Raul A. Barreneche*

PROVEN PERFORMERS





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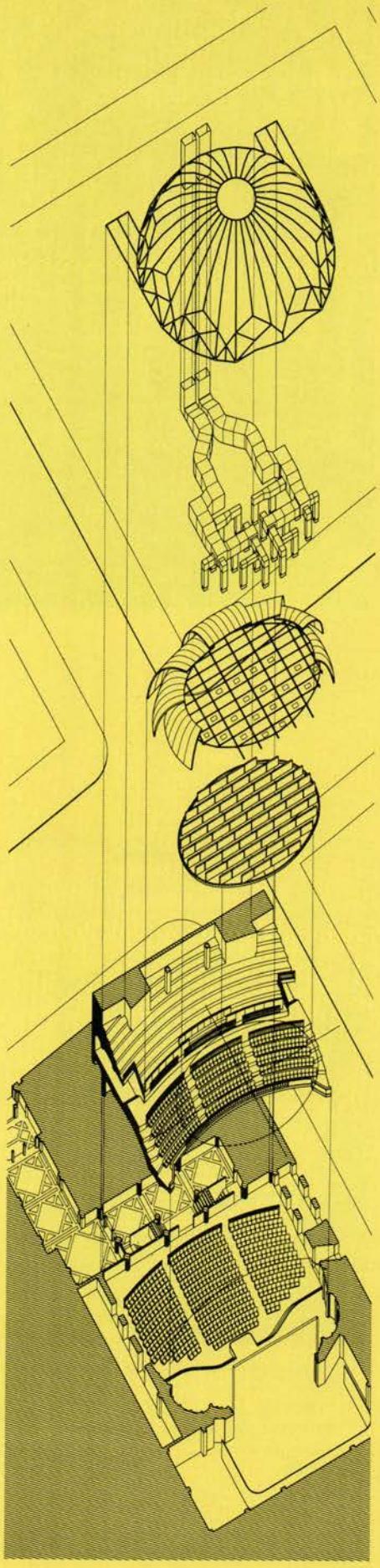
Adapted for Television

Historic Broadway theater is adapted into a TV studio through removable elements.

ABOVE: The Ed Sullivan Theater's landmark interior was revamped to keep late-night television host David Letterman in New York City.
RIGHT: James Stewart Polshek and Partners created a more intimate room within the theater from layers of removable elements that can be eventually dismantled, leaving the historic interior undamaged.



The show must go on, and no one knows it as well as the architect who had less than five months to transform a badly deteriorated, 66-year-old theater into a showcase for late-night television talk show host David Letterman. In renovating the Ed Sullivan Theater in Manhattan for CBS, James Stewart Polshek and Partners faced a dual, seemingly conflicting, challenge.

The architect not only had to satisfy the quirky Letterman, who was accustomed to performing in a much smaller and colder television studio, but also the New York City Landmarks Preservation Commission, which oversees alterations to the theater interior since designating it an historic landmark in 1988. An agreement with the commission required CBS to restore the theater's original features and guarantee that any changes made to the theater could be reversed.

The solution developed by Polshek called for suspending a smaller, modern room within the Neo-Gothic theater. "The challenge was to make this huge space feel intimate," explains principal designer Richard M. Olcott. The architect reoriented the space by hanging an elliptical light fixture and equipment grid at the front of the theater, below the landmark's original five-story ribbed dome, and reduced the auditorium's size by hanging acoustical baffles at the rear.

CBS bought the Broadway theater in late February to keep "Late Show With David Letterman" in New York City after Letterman announced he was considering a move to Los Angeles in the wake of transferring his show from NBC to CBS. Initial meetings between the television network, architects, contractors, and city officials began immediately; construction began in April.

Gothic grandeur

Built by Arthur Hammerstein in 1927 as a tribute to his father, opera producer Oscar Hammerstein I, the theater resembles a Gothic cathedral, with a ceiling composed of foliate-covered ribs that rise to form a vaulted dome. It was designed by Herbert J. Krapp, the New York City theater district's most prolific architect. Gothic motifs of ornamental plaster line the walls, and clustered columns with foliated capitals support the proscenium arch. On either side of these columns, four-story-high apses outlined by Gothic tracery originally contained 10 stained-glass panels portraying scenes from the senior Hammerstein's operas.

Although much of the landmark's original interior detail survived intact, the building

BELOW: Before restoration, the theater's north wall displayed scars from glue when acoustical tile was removed.
RIGHT: Gothic plaster tracery between dome ribs was restored, along with 70 percent of decorative plaster.
PLANS: New elliptical light fixture is suspended over seating (left); removable equipment grid and baffles (right) were added near ceiling to increase intimacy.
FACING PAGE: Restored north wall is visible below equipment suspended from new structural pipe grid.

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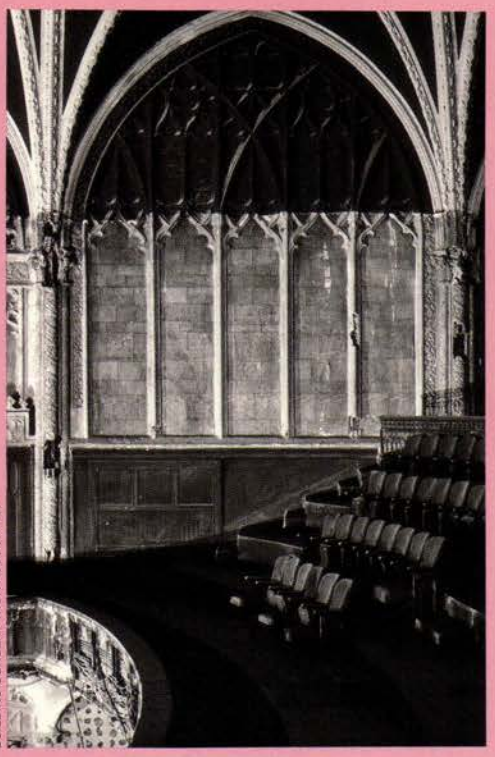

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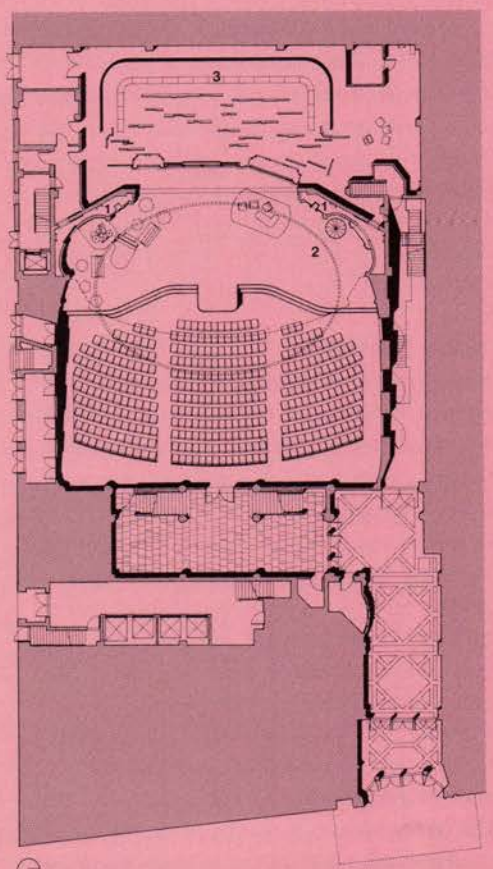
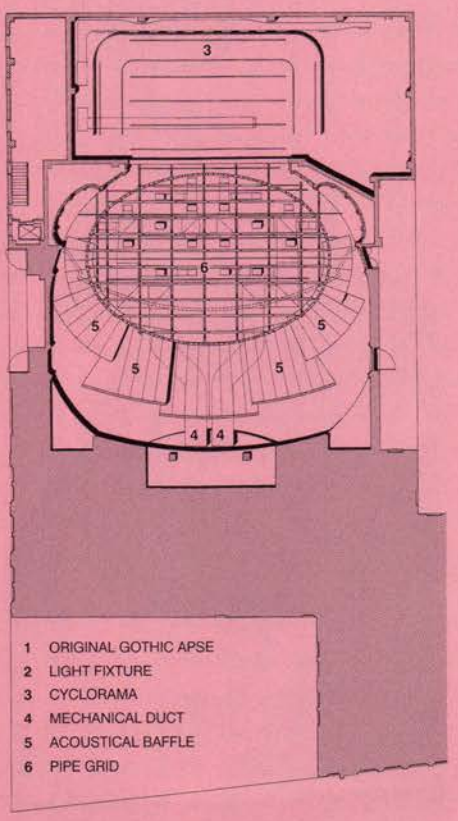


ORCHESTRA LEVEL PLAN



BALCONY LEVEL/REFLECTED CEILING PLAN

underwent many changes after 1931, when the theater was sold at auction after Hammerstein ran into financial difficulties. The theater was transformed into a musical hall and became one of the city's hottest night spots in 1934. Two years later, it was renovated by Modernist William Lescaze as a radio playhouse. In 1949, the building was converted to television use for "The Ed Sullivan Show." For the next 23 years, Sullivan broadcast from the theater, featuring such stars as Elvis Presley and the Beatles. The theater was renamed for Ed Sullivan in 1967.

These renovations and lack of maintenance left the theater in serious need of repair by the time CBS purchased it. Most recently, the Ed Sullivan crew had built a concrete block control room that obscured a third of the orchestra and had covered major stained-glass windows with plywood and linoleum.

CBS agreed to restore the original theater to the preservation commission's standards, working under special 1985 commission guidelines governing the renovation of Broadway theaters that allow changes to be approved at the agency's staff level rather than requiring public hearings. To avoid further damage to the walls and ceilings by piercing them to hang lighting and other equipment, Polshek and his team suspended a 65-by-45-foot structural steel grid composed of 5-inch-diameter pipes above the orchestra from the roof structure. They hung virtually all new equipment from the grid and surrounded the structural supports with a light fixture suspended from a steel pipe ellipse.

Removable elements

One of Letterman's biggest concerns about the theater was its size: The historic auditorium was designed to seat 1,265, while the talk show host was accustomed to working before an audience of about 200. To reduce the apparent number of seats, and to prevent sound from reverberating in the dome above, Polshek created a false rear wall and ceiling with five fabric-covered "sails."

These plywood panels, curved to reflect the rounded form of the theater's original dome, spring from the floor midway up the balcony and are attached to the hanging structural pipe grid at the top. Faced with 6 inches of insulation, the sails obscure several rows of unused balcony seating that will remain in place, but out of sight. Like the steel equipment grid, these panels can be removed without damaging the historic interior.

The sails also hide a massive air-handling system installed to supply chilled air to the


EXIT
EXIT
EXIT
EXIT

RIGHT: Lantern in dome is now obscured from view by mechanical ducts.
SECTION PERSPECTIVE: Acoustical baffles obscure views of massive ducts installed below domed ceiling.
FACING PAGE, TOP: Elliptical light fixture and equipment suspended from new grid are visible from balcony. Apses that formerly contained tall, stained-glass windows now exhibit renderings of the New York City skyline.
FACING PAGE, BOTTOM: Curved, fabric-covered acoustical baffles visually seal off upper half of balcony seating.

JOCK POTTLE/ESTO

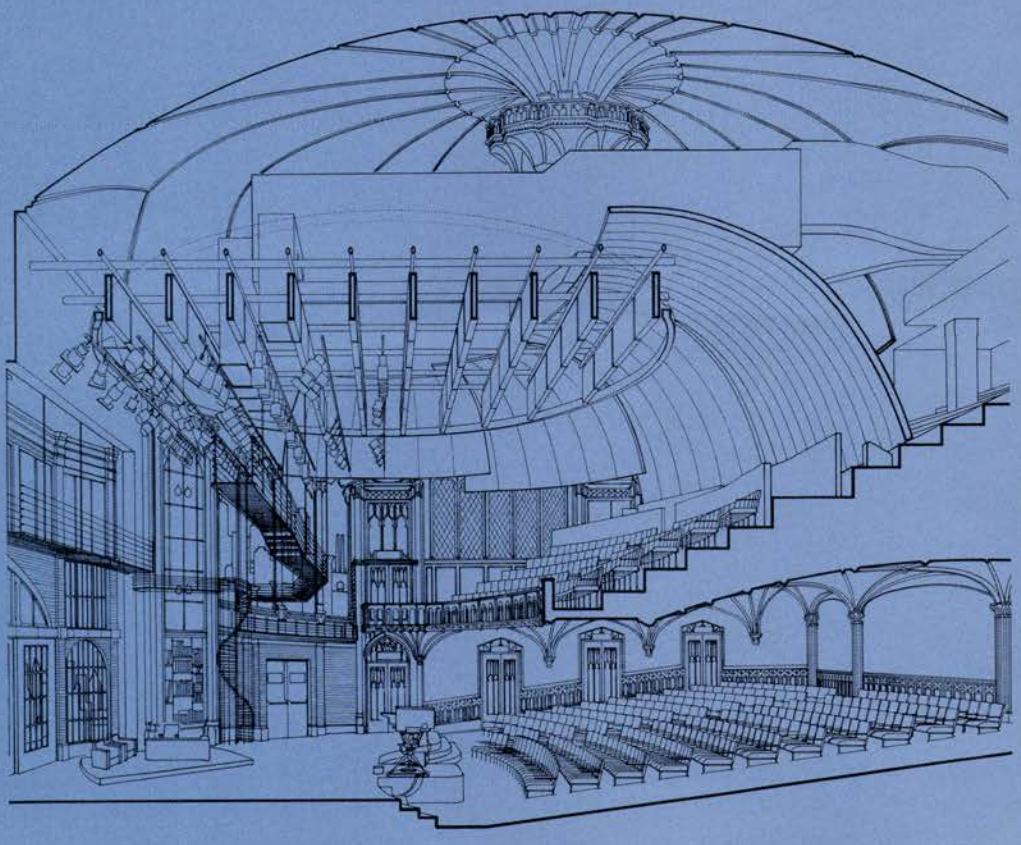
audience. To meet Letterman's requested theater temperature of 62 degrees Fahrenheit throughout the broadcast, engineer Syska & Hennessy specified two air-conditioning units, one on the roof and the other in the basement, to provide the 18,000-square-foot area with 240,000 tons of refrigeration. Two 5-by-5-foot ducts pass from the rear of the theater, behind the sails, across the ceiling, and down through vents located in the structural grid above the audience. Ductwork for the second unit measures roughly 2-by-10 feet and is suspended over the stage among the rigging for Letterman's sets, hidden behind the proscenium arch. All ducts can be removed with minimal disruption to the interior surfaces.

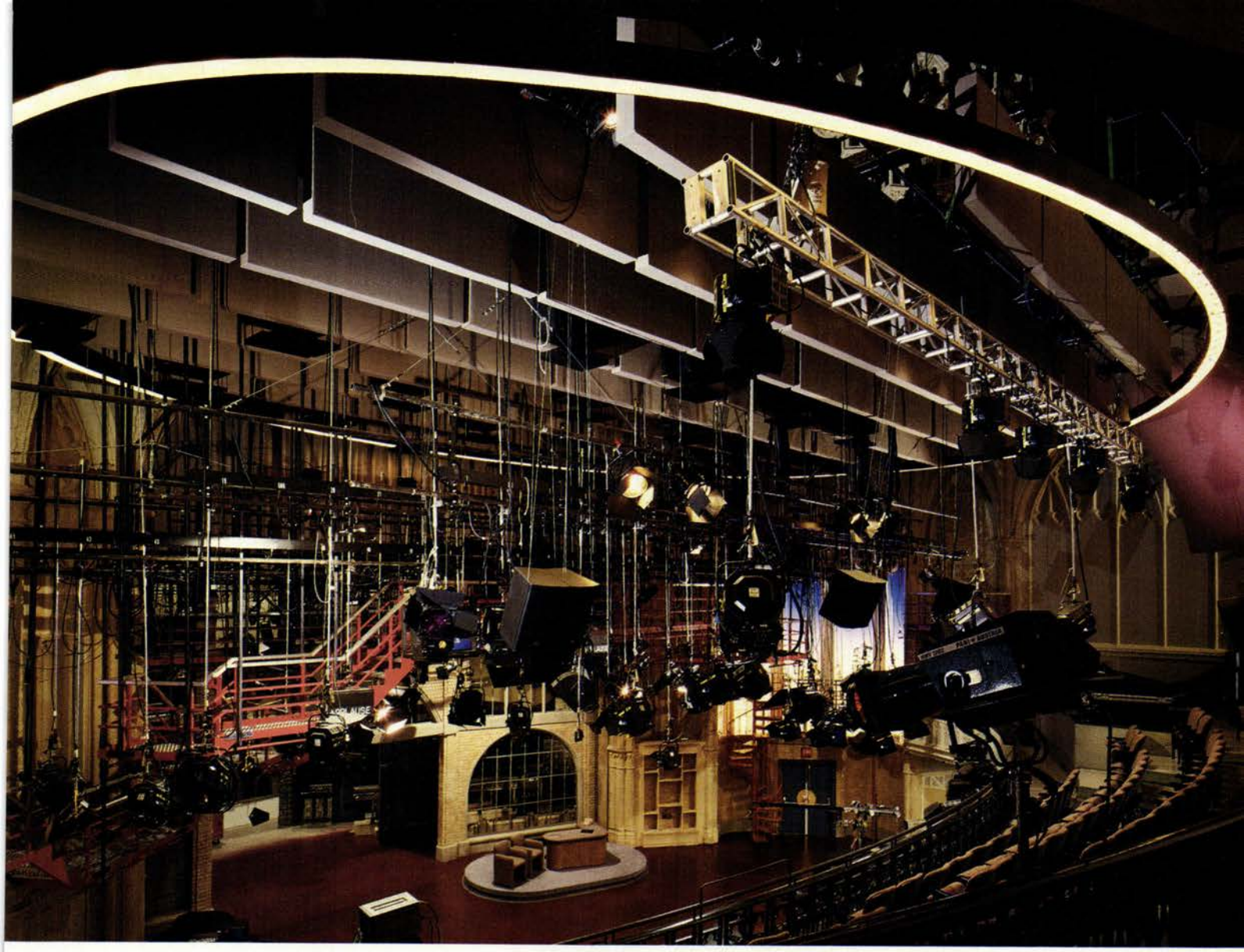
Polshek also designed a series of sound-absorptive baffles, built of plywood and insulation like the sails; each measures 3 feet high and 5 feet long. Ten rows of baffles are hung from the structural steel pipe grid parallel to the stage, creating a false ceiling to help obscure views of the equipment from both the audience and the performers.

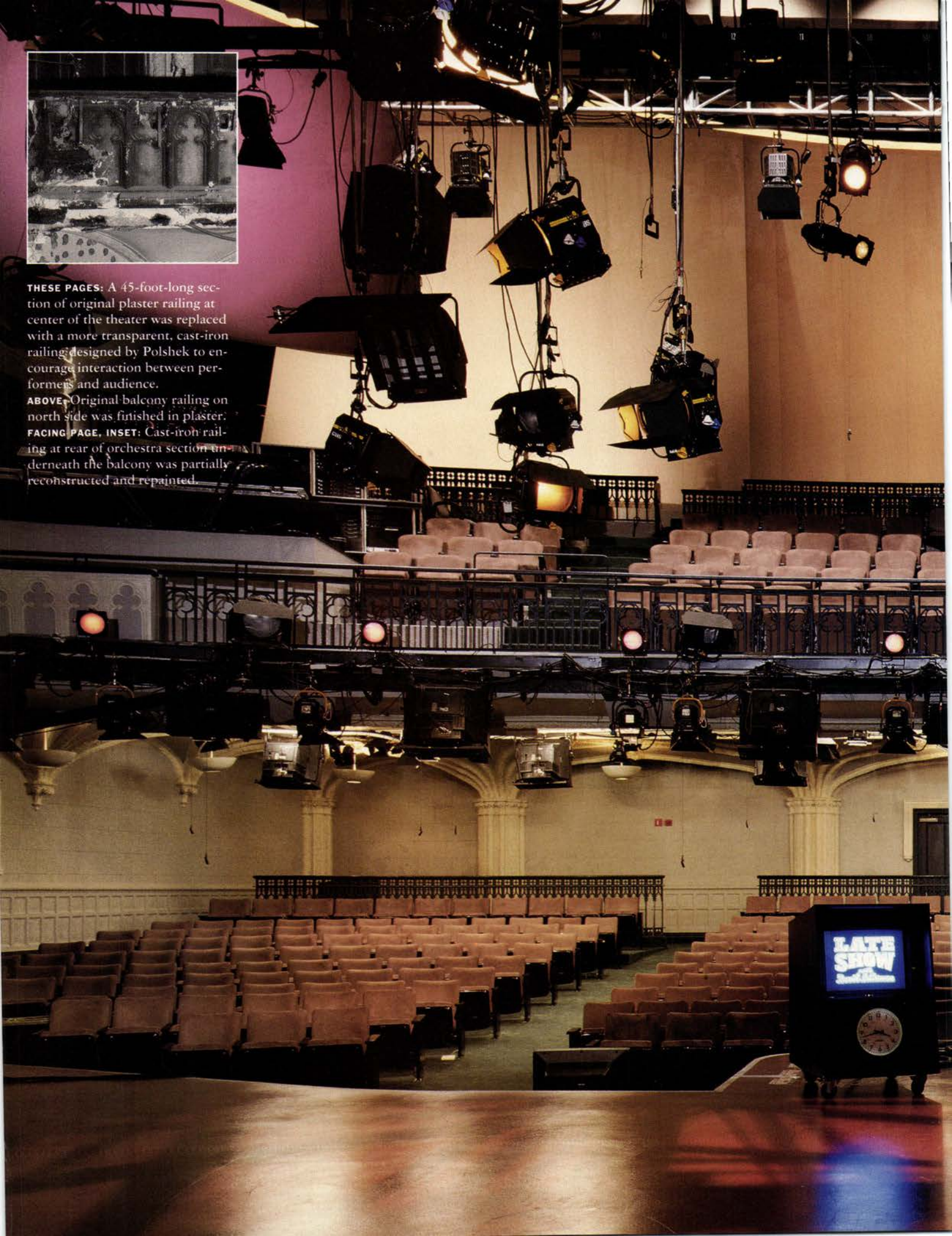
Recasting detail

Another major part of the project was the restoration and fabrication of the theater's extensive plaster ornamentation. According to Alan Barr, president of Queens, New York-based Towne House Restorations, as much as 70 percent of the plaster had to be restored, and 40 percent had to be entirely replaced. To re-create decorative elements, contractors cast molds in areas where the ornament remained intact and duplicated the detail in the shop. The original plasterwork was imperfectly cast to imitate a rough-cut stone surface, and that texture was duplicated in the extensive restoration work.

For architects, the renovation of the Ed Sullivan Theater presents a model of how removable elements can be inserted into an historic landmark without damaging the structure to suit the demanding, high-tech arena of television broadcasting. Although the most prominent elements of the theater seen by television audiences are Letterman's New York City skyline sets, designed by Kathleen Ankers and Charles McCarry, the landmark's restored original historic Gothic apse is clearly visible behind band leader Paul Shaffer during broadcasts. And it is this national exposure of the building that Landmarks Preservation Commission Chair Laurie Beckelman most values. As Beckelman notes, "Think about how many people every night see David Letterman and this historic theater."—*Virginia Kent Dorris*







THESE PAGES: A 45-foot-long section of original plaster railing at center of the theater was replaced with a more transparent, cast-iron railing designed by Polshek to encourage interaction between performers and audience.
ABOVE: Original balcony railing on north side was finished in plaster.
FACING PAGE, INSET: Cast-iron railing at rear of orchestra section underneath the balcony was partially reconstructed and repainted.

ED SULLIVAN THEATER RENOVATION
NEW YORK CITY

ARCHITECT: James Stewart Polshek and Partners, New York City; James Stewart Polshek, Richard Olcott (principal designers); Timothy Hartung (partner-in-charge); Jim Sinks, Kevin McClurkan (project architects); Judi Bauer, Lynn Bright, Minsuk Cho, Denis Dambreville, Eileen Delgado, Francelle Lim, Lois Mate, Craig McIlhenny, Linda McNutt, Kyle Yang (design team)
ENGINEERS: The Cantor Seinuk Group (structural); Syska & Hennessy (mechanical/electrical/plumbing)
CONSULTANTS: Fisher Marantz Renfro Stone (lighting); Shen Milsom & Wilke (acoustics); Meridian Design (studio); HRH Construction (construction management)
COST: Withheld at owner's request
PHOTOGRAPHER: Isaiah Wyner, except as noted

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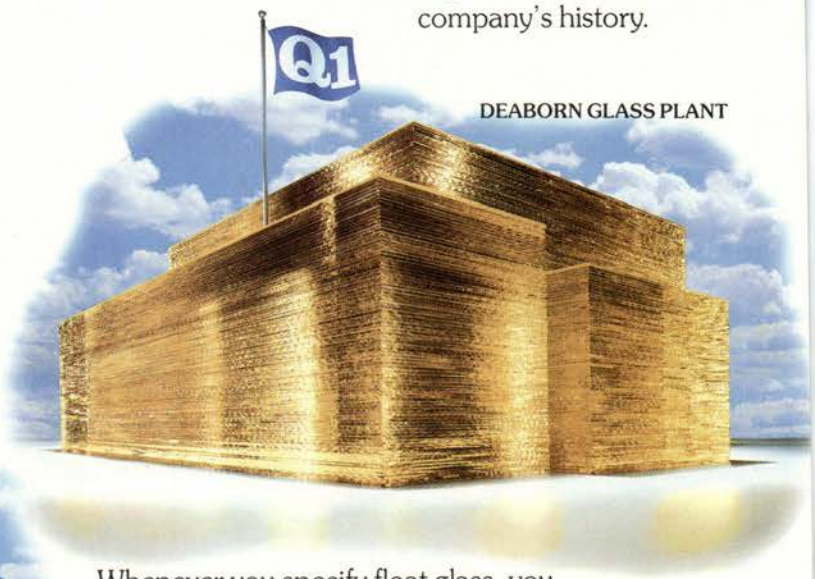

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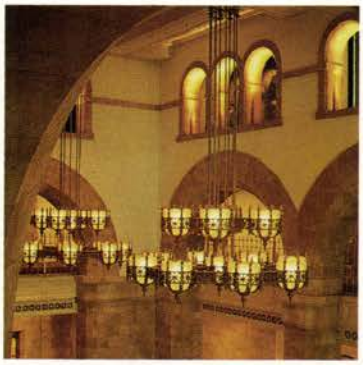
New fixtures replicate historic lighting designs.



TOP: Rambusch Lighting, a manufacturer that has been specializing in the design, restoration, and replication of lighting systems since 1908, was commissioned by Sacred Heart Cathedral of Richmond, Virginia, to restore the cathedral's lighting system. The art metal of the lanterns was cleaned, and 300 watt incandescent lamps were installed to achieve soft, warm illumination. The downlighting system was retrofitted with tungsten halogen lamps for a longer lasting and more energy-efficient lighting system than the original T20 and T24 lamps. An indirect, wall-washing system, also comprised of tungsten halogen lamps, was installed to evenly illuminate the vaults and dome. *Circle 401 on information card.*

ABOVE: Abernethy lighting fixture, offered by Rejuvenation Lamp & Fixture Company, is a reproduction of early 20th-century designs. The fixture incorporates a ceiling canopy spanning 10 inches with four solid-brass decorative arms that extend down 32 inches to cradle the fixture's glass shade. The Renaissance shade measures 21 inches wide and 6 1/2 inches high with an opaque satin-etched finish. Rejuvenation Lamp & Fixture specializes in replicating Victorian and early 20th-century solid-brass and cast-iron lighting. *Circle 402 on information card.*

ABOVE: Jefferson Art Lighting specializes in the preservation and restoration of antique and reproduction lighting fixtures. Recently, the firm replicated 56 gas chandeliers, dating from the late 1870s, in the Michigan State Capitol in Lansing. Terry Jefferson, an historian and principal of Jefferson Art Lighting, created this reproduction from an 1893 historic photograph. Each chandelier measures 12 feet high and averages 105 to 115 pounds. Wall and corridor paintings within the Capitol inspired Anderson's acanthus bouquet design for the fixture's glass shades. The chandeliers are finished in Jefferson's false gilt, a dyed lacquer which creates a gold tint. The fixture's ornamentation is available in solid brass. Among the preservation projects undertaken by Jefferson Art Lighting is the replication of the first electric lighting fixtures in Thomas Edison's Menlo Park Laboratory at the Edison Institute in Dearborn, Michigan. *Circle 403 on information card.*

ABOVE: Historical Arts & Casting designs, manufacturers, and restores ornate metal castings. The chandeliers installed at 800 North Capitol Street in Washington, D.C., comprise two tiers: The first tier includes four glass shades; the second incorporates bands of ornamental metal radiating out from a center shade toward eight additional shades positioned in a design resembling the spokes of a wheel. The Flemish glass shades measure 1 foot, 6 inches in diameter and are nestled in the cast aluminum banding. Each fixture measures 12 feet, 6 inches high by 7 feet, 4 inches wide and is finished in antique bronze. *Circle 404 on information card.*

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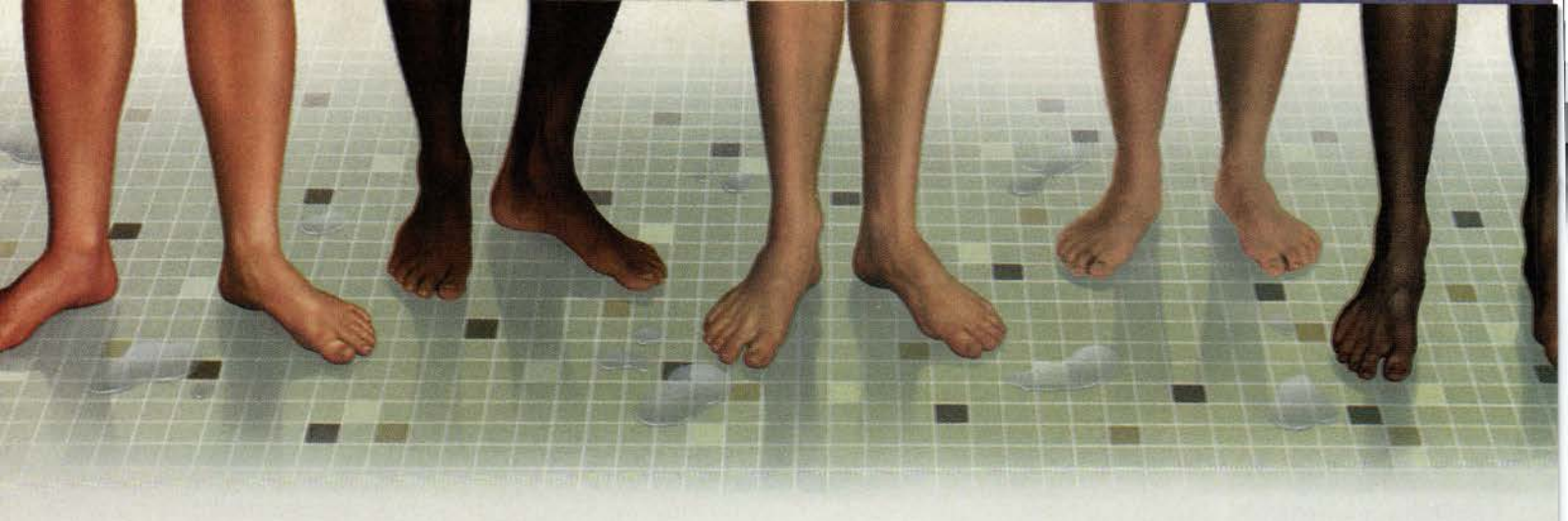
Ornamental carvings
The Decorators Supply Corporation, founded in 1893 to supply the Chicago World's Fair with moldings and embellishments, offers wood-fiber and cast-plaster ornaments (above). Ornamentation includes interior trim, wall, and window decorative leafing; rosettes; and carvings of swags, moldings, medallions, ornate wreaths, floral garlands, and griffins. Decorators Supply has more than 13,000 original carvings, with designs ranging from Colonial fireplace mantels to tiny compositions of acanthus leaves, ivy, and grapes. Ornamental festoons can be steamed and molded to form around curves of columns and chairs.
Circle 405 on information card.

Tiffany lamp reproductions
Old World Art Glass replicates 45 Tiffany shades assembled on fiberglass molds, which serve as blueprints for the construction of the mosaic stained-glass designs. A shade can average 1,000 pieces of glass; each piece is cut by hand from a paper pattern. The glass shapes are wrapped in copper foil tape and crimped over the front and back. These wrapped pieces of glass are positioned in place on a waxed mold. The mosaic design is soldered with a continuous bead of silver, which is patinated to appear weathered and to match the bronze base, which is purported to be an exact Tiffany replica. The shades range from 14 inches to 18 inches in diameter.
Circle 406 on information card.

Geometric medallions
Historic Floors of Oshkosh offers medallions, parquet flooring, and floor borders based on patterns prominent in the late 1800s to 1920s. The geometric laser-cut medallions (above) can be customized for desired thickness and size. Available woods include walnut or red oak, hard maple, Brazilian cherry, mahogany, and purple heart. The flooring is selected of only hardwoods, cut to a 5/16-inch thickness with square cut edges. All oak, maple, walnut, and cherry woods employed are grown in Wisconsin. White oak is quartersawn for stability and appearance. The company manufactures 15 patterns of geometric medallions, 21 floor borders, and 8 parquet patterns.
Circle 407 on information card.

Victorian fixtures
The Antique Hardware Store based in Kintnersville, Pennsylvania, offers a three-armed, 1920s Victorian wall fixture measuring 10 inches high by 9 3/4 inches wide. The fixture features polished and lacquered solid-brass casting with three frosted flame shades available with 2 1/4-inch fittings. Various styles of glass shades can be interchanged. The Antique Hardware Store will customize fixtures to desired specifications. Victorian, Craftsman, and Art Deco lighting designs are offered, as well as bath fixtures, door and cabinet hardware, embossed wallpaper, tin ceiling panels, and floor grilles.
Circle 408 on information card.



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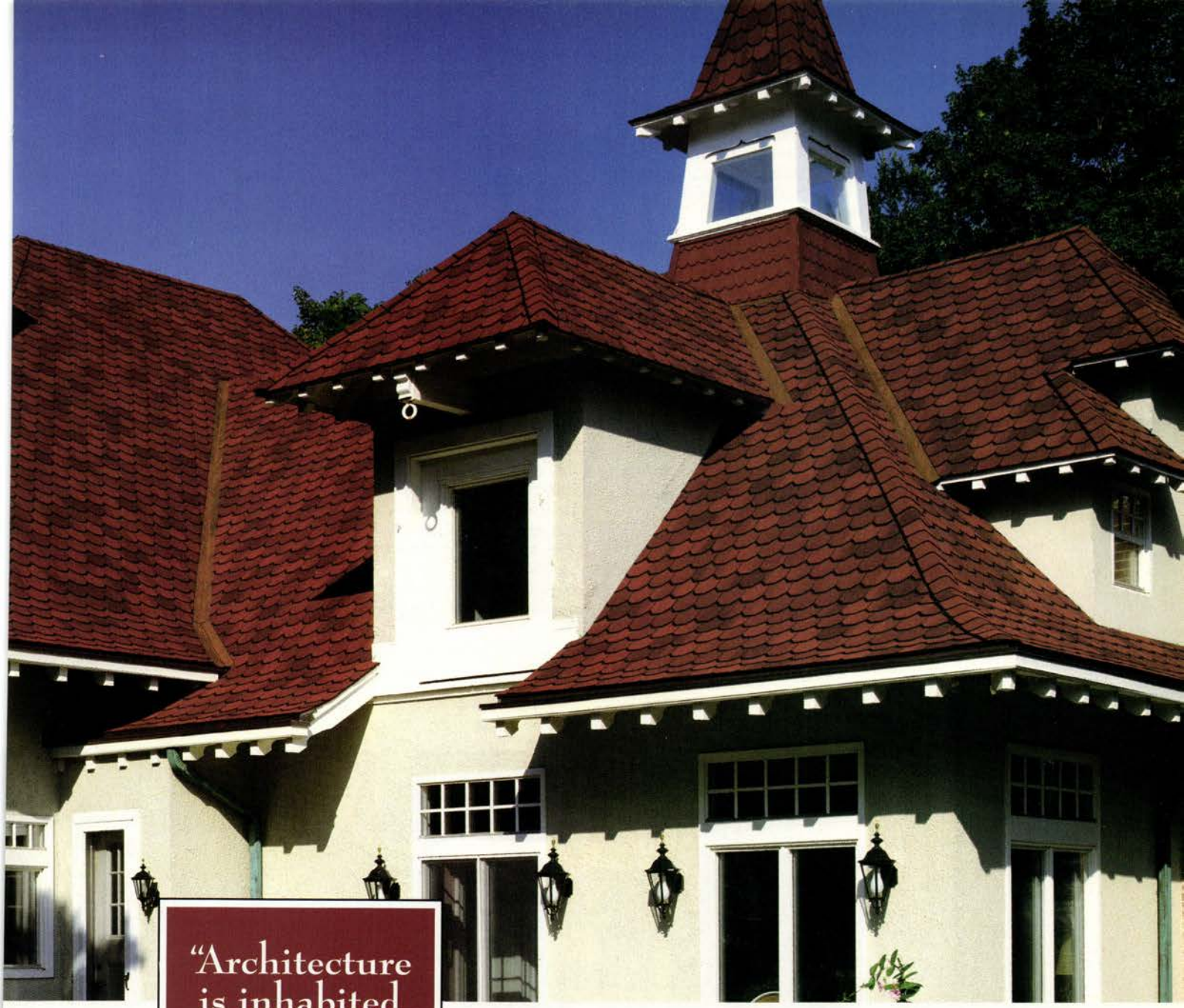

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Project Credits

A team effort created the travel plazas featured in our August issue (pages 66-71).

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SLOATSBURG, NEW YORK

DESIGN ARCHITECT: Beyer Blinder Belle, New York City—John H. Beyer (principal-in-charge); Frederick Bland (design partner); Richard Metsky (project designer); Michael Gilroy (project architect)
ARCHITECT OF RECORD: Lauer-Manguso Architects, Buffalo, New York—Cal Lauer (principal-in-charge); Fassil Zewdou (project architect)
MANAGER: Marriott Corporation—John Burdick (design); Vincent Grasser (construction)
LANDSCAPE ARCHITECT: M. Paul Friedberg & Partners—M. Paul Friedberg, Mark Sullivan, Rick Parisi
ENGINEERS: Siracuse Engineers (structural); Babinsky-Klein (mechanical/electrical/plumbing/fire protection); RBA Group (site/civil); Clough, Harbour & Associates (highway)
CONSULTANTS: Hayden McKay Lighting Design (lighting); Marriott Architecture and Construction Division (cost)
GENERAL CONTRACTOR: Helmer-Cronin
PHOTOGRAPHER: Patricia Bazelon

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ARDSLEY, NEW YORK

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ARCHITECT OF RECORD: Paul Gaiser Architects—Paul Gaiser (principal-in-charge)
MANAGER: Marriott Corporation—Matt Lai, Stuart Orr (design); Steve Parker (construction)
LANDSCAPE ARCHITECT: M. Paul Friedberg & Partners—M. Paul Friedberg, Mark Sullivan, Rick Parisi
ENGINEERS: Tadjer Cohen Edelson (structural); Beling Consultants (mechanical/electrical/plumbing/fire protection); RBA Group (site/civil); Clough, Harbour & Associates (highway)
CONSULTANTS: Hayden McKay Lighting Design (lighting); Marriott Architecture and Construction Division (cost); Zivic & Hurdle Architects (space planning)
GENERAL CONTRACTOR: James A. Jennings
PHOTOGRAPHER: Patricia Bazelon

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ARCHITECT OF RECORD: Paul Gaiser Architects—Paul Gaiser (principal-in-charge)
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LANDSCAPE ARCHITECT: M. Paul Friedberg & Partners—M. Paul Friedberg, Mark Sullivan, Rick Parisi
ENGINEERS: Tadjer Cohen Edelson (structural); Beling Consultants (mechanical/electrical/plumbing/fire protection); RBA Group (site/civil); Clough, Harbour & Associates (highway)
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In designing the limestone exterior of the Union Planters National Bank Headquarters in Memphis, the system meant refraining from detailing many items and conditions that typically we would have specified, such as anchor plate and panel joint locations and connections; panel thickness; and floor plan dimensions of exterior openings and projections.

We transferred this responsibility by providing floor plans, base building profiles and sections, and critical dimensions to a limestone fabricator in order to establish the design parameters. An agreement was then executed with the fabricator to produce shop drawings, submit periodic review sets, and hold collaborative meetings with the team—which culminated in the fabricator producing drawings and specifications that were incorporated into our construction documents package. As detailed and complicated as stone connections can be, this process assisted us in delivering a clear and concise set of documents, which incorporated the fabricator's contributions.

In the end, we believe we improved the quality of construction from both esthetic and technical points of view. Proactive detailing allowed the contractor to establish very accurate cost projections early in the design process, enabled our firm to have a "specialist" more actively involved on the design team, and prevented the typical duplication of drawings from both the architect and fabricator.

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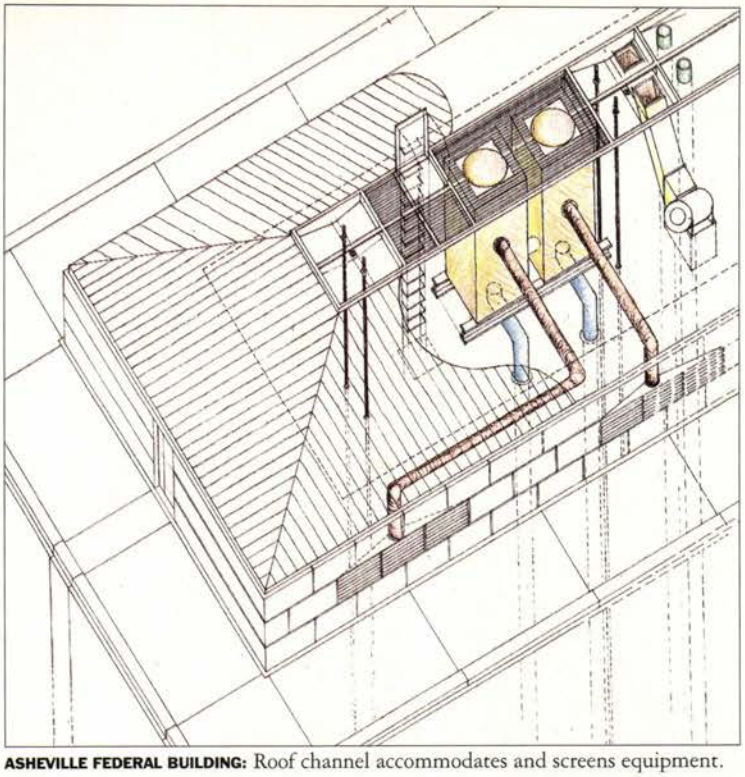

ASHEVILLE FEDERAL BUILDING: Roof channel accommodates and screens equipment.

Roofing

CSI Section 07400

Equipment screening

After carefully designing a sloped roof and parapet with crisp profiles and uninterrupted planar surfaces, an "eleventh-hour" program change or equipment insertion can compromise the design by placing the most hideous vent, pipe, or satellite dish conspicuously in sight. This turn of events does not stem from lack of control, coordination, or system management, but from those unknowns that occur naturally as a project matures—sometimes even after the owner moves in.

In our design for a new 265,000-square-foot, hip-roof Federal Building, in Asheville, North Carolina, the solution was to develop a narrow channel at the roof peak, consisting of a catwalklike surface. We designed this channel to accommodate both current and future elements, for example, cooling towers; elevator equipment control penthouses; vents; perimeter lighting protection; outside air intake; roof fans; smoke purge for atriums, stairs, and elevators; roof access hatches; and telecommunications equipment.

Some portions of the 16-inch-deep channel are solid in order to meet the thermal protection requirements. In this case, a lightweight concrete poured over a preformed metal decking forms a roof surface that is easily penetrated for installation of vent pipes. Other parts of the channel are formed of metal grating, either to allow access to the top of equipment such as the high-velocity smoke evacuation blowers or simply to meet the outside air intake requirements of other HVAC equipment located in the penthouse.

In this particular case, the 8-foot-by-180-foot roof channel allows for the visual screening of equipment, penetrations, and vents, while fostering safe access, easy maintenance, and rapid accommodation of future equipment changes that would adversely affect the design of the roof. Since the completion of the preliminary design, for example, the owner already has changed the specifications for the cooling towers, and we have had to add a number of new gas vents. Because of the flexibility of the roof channel system, those changes have been taken in stride.

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Architects are encouraged to contribute their practical suggestions about specifications and detailing, including drawings, for publication. Send submissions to:
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