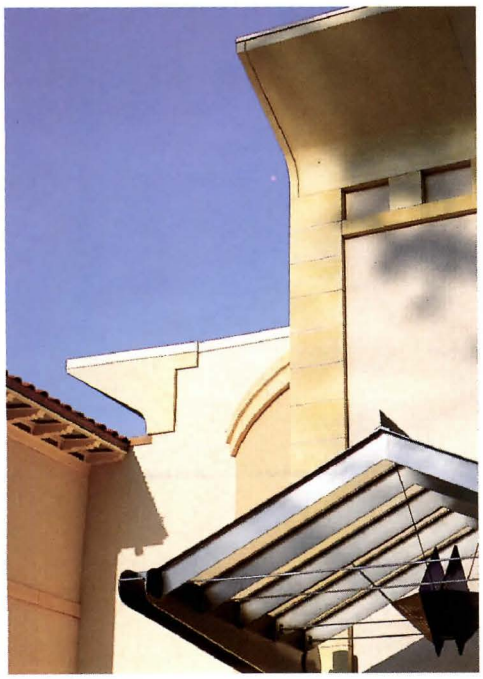
ARCHITECTURE

NOVEMBER 1991



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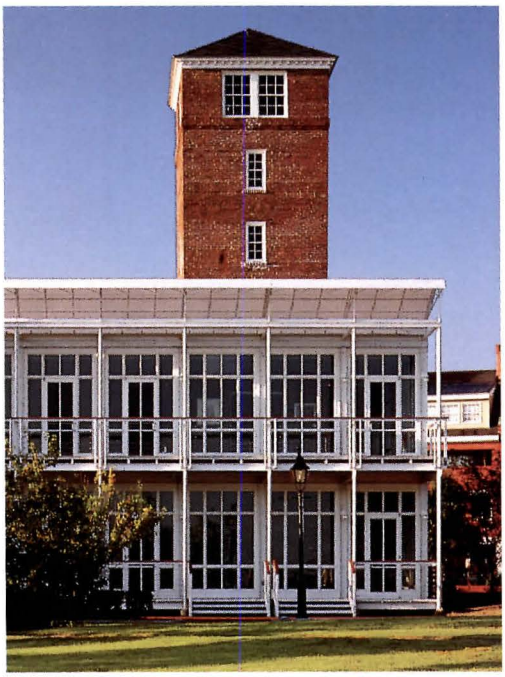

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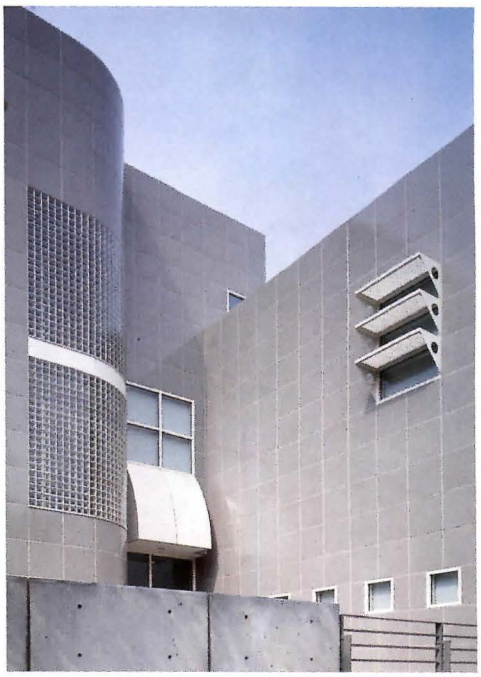

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DESIGN

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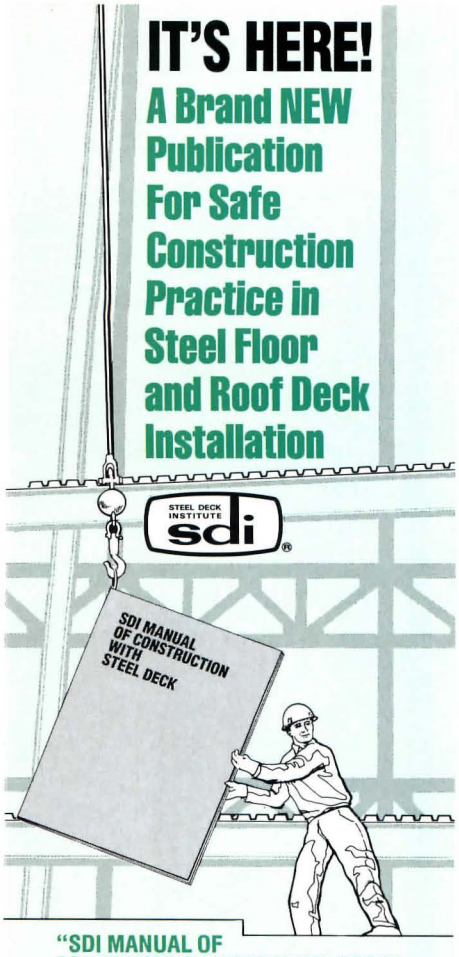

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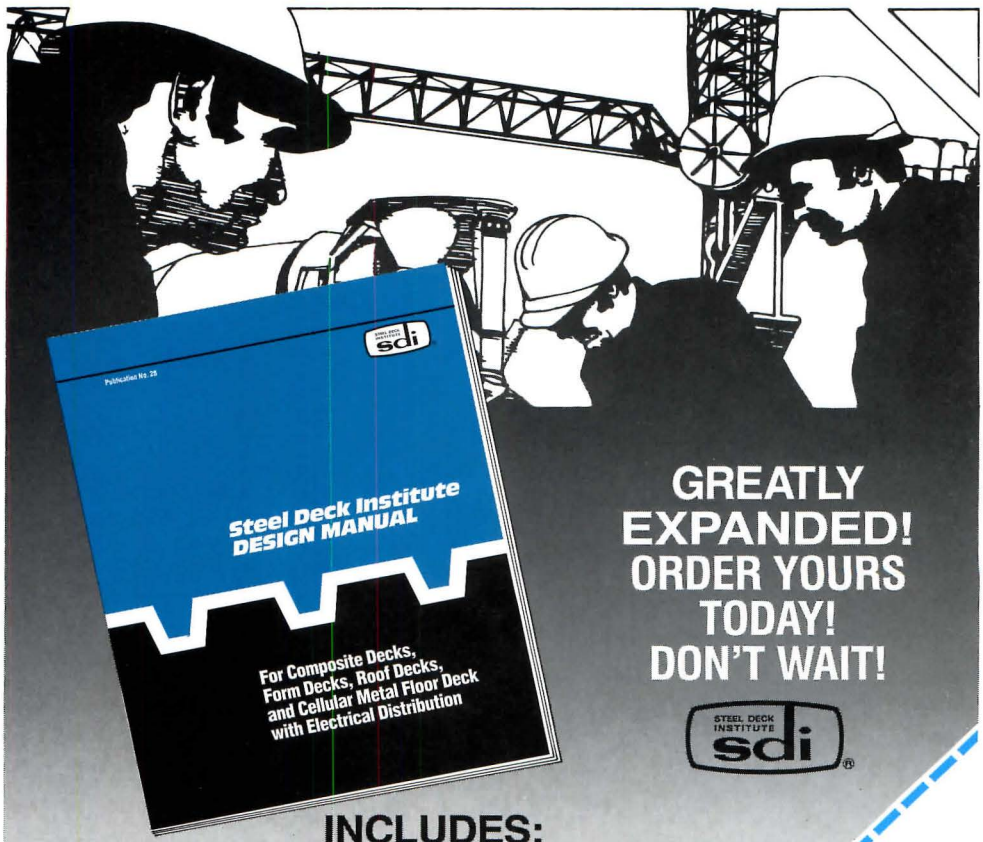

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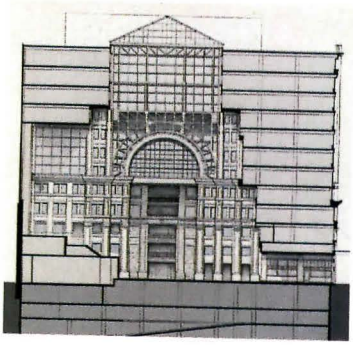

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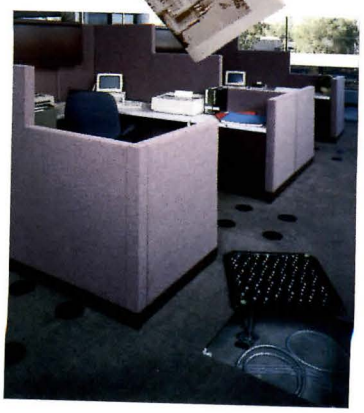

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DEPARTMENTS

COVER: Seamen's Church Institute Headquarters, New York City, designed by James Stewart Polshek and Partners. Photograph by Jeff Goldberg/Esto

NEXT MONTH'S ISSUE:
Edge cities
Stone finishes
Copyrighting designs
Customizing computer systems

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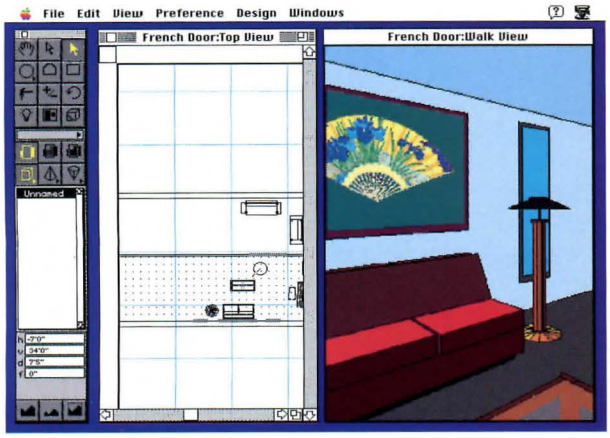

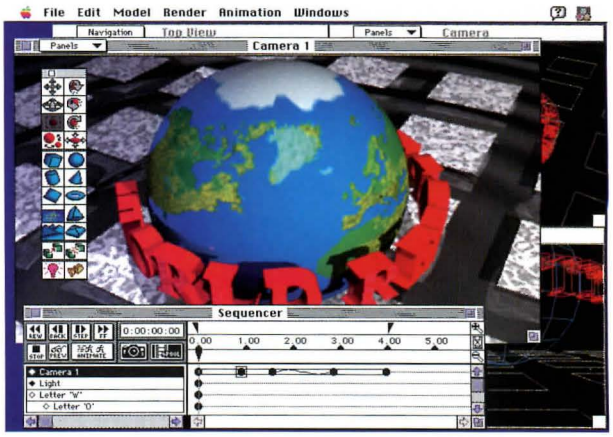

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Liftslab failure

I note in the September issue (page 87) that the failure of the L'Ambiance Plaza liftslab in Bridgeport, Connecticut, is attributed to the "wedges" improperly supporting the liftslab collars at the columns. We spent more than a year and a half on the failure analysis for this project, with our first efforts spent on analyzing the shear collar, wedges, and lifting devices. We found in all cases that the shear collars and wedge supports, as detailed, had an adequate factor of safety.

However, our studies and field investigations revealed other areas where factors of safety were less than half those required. For example, slab connections to the shear walls resisting earth pressure were not made in accordance with the drawings. This weak condition was exacerbated by saturated, undrained earth behind the basement walls as well as the fact that plastic slope protection sheets were not removed when the back fill was placed. In addition, prestress tendons were located in the top of the concrete slabs in front of the elevator shaft when they should have been located in the bottom. As a result, cracks in the bottom of the slab occurred in this location at all levels. Our analysis has indicated that this could have caused a failure condition at the interior column in front of the elevator shaft, but the National Bureau of Standards study did not address these conditions.

I believe the court settled this case early to alleviate pain and suffering of relatives of the dead workers. Unfortunately, it effectively stopped further investigation and/or analytic work that may have determined the exact cause of failure.

Louis A. North
Consulting Engineer
Hammonton, New Jersey

Perplexing wall

Your September cover story on Antoine Predock's Mandell Weiss Forum (pages 48-53) is a good example of the current trend in architecture: works that confuse, annoy, and demoralize the user. Like Richard Serra's spiteful "Tilted Arc" sculpture in New York City, which split a public plaza with its rusting, ominous bulk, so many current buildings seem intended to intimidate and perplex. In the Predock building, one has to search for the entrance, only to mount a banal ramp up to a cold, grey mausoleum of a theater. Where does this contempt for the public come from? Deep thinkers among us say that the frustrated, confused times we live in bring forth frustrating, confusing architecture. I would suggest that these times beg for works of beauty, clarity, and appropriateness more than ever.

Stephen Lesser, AIA
Westport, Connecticut

Advocating CADD

Please tell me it isn't so! Fay Jones, FAIA, AIA Gold Medalist, widely admired, quoted in your August issue (pages 97-99) as expressing his reluctance to "trade [traditional methods] for something unknown?" Is this the attitude that helped him to create some of the more dramatic and innovative designs of the 20th century? Because his designs are "highly crafted" does that mean that he cannot touch a tool that might benefit him? Maybe his designs should be built by hand. After all, electric saws, drills, and routers were once disturbing traditional methods.

Computer-aided design and drafting is not for every architect, but I am offended by those without the spirit to at least explore the technology and push forward into the unknown. Did the T-square have this much trouble being accepted?

John W. Moore, AIA
Boston, Massachusetts

Corrections

The Intergraph Automation Software referenced in September 1991 (page 118) is ModelView, not DesignReview.

Several participants were omitted from the Great American Pyramid project in Memphis, Tennessee (August 1991, pages 102-103), including Venable & Associates, associate architects; Design Trust International, pyramid concept; Walter P. Moore, structural engineer.

Consultants for the $5.5 million Fairfield Center for Creative Arts (September 1991, pages 64-69) included Charles M. Salter Associates, acoustics, and Theater Projects Consultants, theater.

Bokal, Kelly-Markham Architects should have been credited as associate architect of the Del Mar Community Center (September 1991, page 39).

November 12-15: First international Design for Extreme Environments assembly in Houston. Contact: (713) 749-1181.

November 14-17: Fourth Healthcare Design Symposium in Boston, Massachusetts, sponsored by the National Symposium on Healthcare Design. Contact: (415) 370-0345.

November 16-19: The 68th annual conference of the Council for Educational City Planners International in Atlanta. Contact: (614) 442 1811.

November 16-17: The University of California, San Diego will present "Converging Lines: Architecture Beyond Boundaries," a forum on the relationship between architecture and related arts. Contact: (619) 534-5303.

November 19: "Dialogue and Debate: Conversations about Landscape Architecture," a series of public conversations at the Harvard University Graduate School of Design. Contact: GSD (617) 495-2573.

November 19-21: A/E/C Expo at the Jacob Javits Convention Center, New York City. Contact: (609) 987-9400.

November 20-22: Build Boston, in conjunction with Building Globally, the first annual symposium on new international markets. Contact: Richard Fitzgerald (617) 951-1433 x221.

November 26-December 1: AIAS annual forum in Miami, Florida, including lectures, panel discussions, and workshops on architectural education and practice. Contact: Richard Jones (305) 665-0529.

December 6-January 1992: "Historic and Architectural Treasures in National Parks" exhibition at the National Building Museum in Washington, D.C. Contact: Donna Anderson, (202) 272-3606.

January 14-March 3: "House as Design Laboratory" weekly lecture series at Smithsonian Institution in Washington, D.C., moderated by Deborah K. Dietsch, ARCHITECTURE Editor-in-chief. Eight of America's most recognized architects will discuss how their residential projects helped develop their overall esthetic. Contact: (202) 357-3030.

NEWS

Media Museum ▪ Ando Exhibition ▪ Restoring State Capitols ▪ Minority Architect's Convention

Getty Center Design Unveiled in Los Angeles

ON THE SAME OCTOBER 9 MORNING THAT Christo's 1,760 yellow umbrellas were unfurled along Interstate 5 in California's Tejon Pass, a more permanent and ambitious landscape intervention was announced to the art world in a white tent high above the San Diego Freeway in Los Angeles. There, on a 124-acre hilltop construction site in the exclusive Brentwood district, the world's wealthiest art institution revealed Richard Meier's design for the Getty Center.

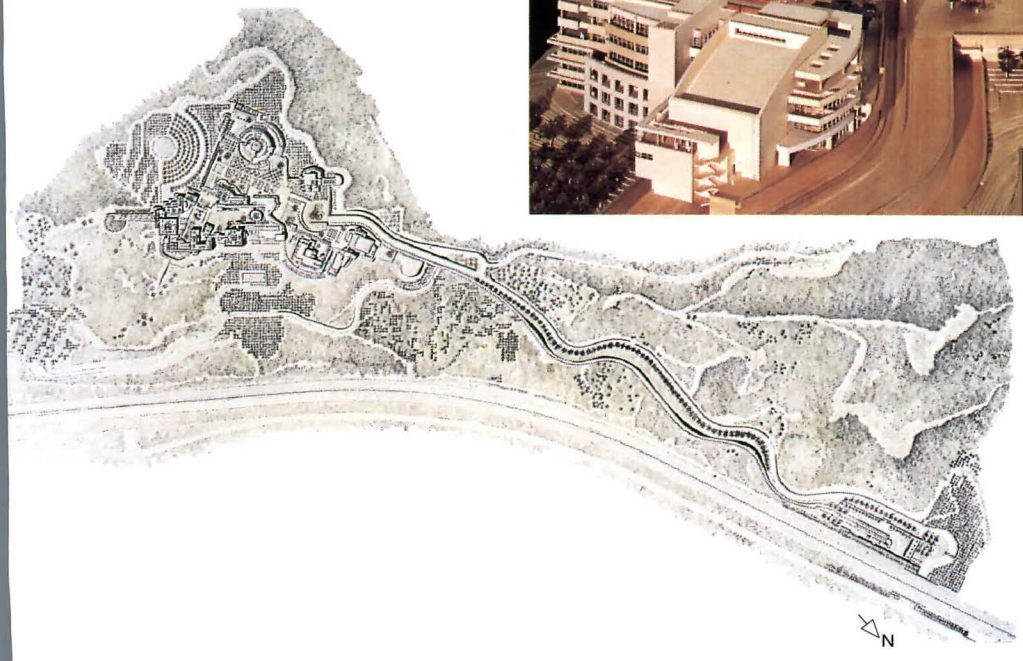
In Meier's estimation, the 940,000-square-foot project, now seven years in the making, is "the architectural commission of the century." While his assertion is debatable, given such earlier monumental projects as Rockefeller Center and the U.N. Headquarters, it is likely the costliest and most prestigious assignment in the high-profile world of art museums. Announced as a $100 million undertaking in 1983, its direct construction cost is now estimated at $360 million, suggesting a total price tag of about $500 million once the costs of land, sitework, furnishings, and professional fees are added.

The Getty Center is far more than a museum. It will embrace seven separate entities, of which the J. Paul Getty Museum will be the most prominent. The museum will be broken down into intimately connected "pavilions," and the passage between them will permit distant views and include a terrace where refreshments will be available. Museum director John Walsh promises "This is going to be a museum that people will find very hard to tear themselves away from, and a place that you will want to return to often."

Other structures will house the J. Paul Getty Trust, Conservation Institute, Grants Program, Art History Information Program, Center for Education in the Arts, and the Getty Center for the History of Art and the Humanities. The latter is the Getty's research and scholarship arm, and will be headquartered in a circular building that contrasts strongly with the rest of the complex. Kurt Forster, head of the Center for the History of Art and the Humanities, describes Meier's building as "a spiral of research" (referring to a ramp like that of Atlanta's High Museum) and "a structure of the mind."

The Getty Center's ensemble of interconnected and highly articulated structures seems to have little precedent anywhere, but a couple of loose California comparisons can be drawn. Like William Randolph Hearst's fantastic castle at San Simeon, the Getty is an autonomous construction that dominates a rugged landscape. (Most of the 710-acre

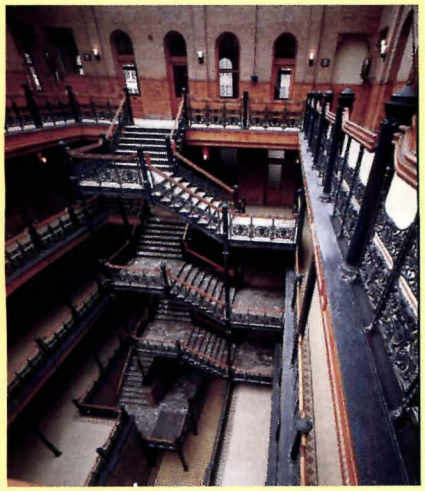
TOM BONNER



Richard Meier's design for the Getty Center arts complex covers 124 acres on a hilltop site (left). To keep the campus free of vehicular traffic, the sprawling complex (above) will be reached by a tramway that deposits visitors at the museum entrance (top in photo).

DETAILS

Gwathmey Siegel & Associates has been commissioned to renovate Johnson/Burgee's 700,000-square-foot AT&T Building into Sony Entertainment's headquarters. Gwathmey Siegel also won a competition to convert 200,000 square feet within Manhattan's 1913 B. Altman's department store into a new science, business, and industry research library. Finalists included Beyer Blinder Belle and James Stewart Polshek and Partners. Swanke Hayden Connell Architects is restoring the 17th-century Old Dutch Church in North Tarrytown, New York, immortalized in Washington Irving's *The Legend of Sleepy Hollow*. New York architects Faruk Yorgancioglu and Kaya Arikoglu were selected as one of five winning teams from a field of 686 entries to revitalize the historic urban center of Samarkland in the Soviet province of Uzbek. Sponsored by U.S.S.R. Union of Architects, The Aga Khan Trust, and the Uzbek Union of Architects, the international design competition was the first held in the Soviet Union since 1934. In Los Angeles, Howard Needles Tammen & Bergendoff has been selected to renovate the 68-year-old Memorial Coliseum. In downtown Los Angeles, George Wyman's 1893 Bradbury Building (below) recently re-opened after a comprehensive restoration by the local firm Levin & Associates.

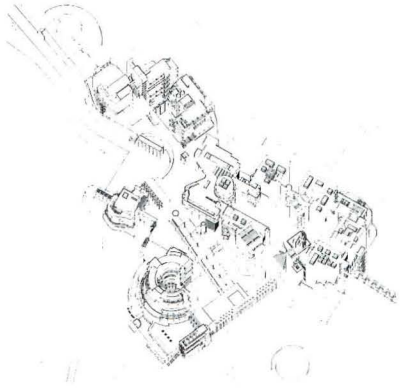


JULIUS SCHULMAN

Getty Design Unveiled *continued from page 21*

property will remain untouched). And like San Simeon, the complex is an immense monument to art and to a legendary entrepreneur's ability to amass wealth.

Visualizing the act of being whisked uphill from the parking garage to the center by cable tramway, one press conference observer remarked, "It's just like Disneyland." The correspondence runs even deeper, for like the Magic Kingdom, the Getty Center is an auto-free zone that is organized as a series of distinct domains, punctuated by places offering food and drink, and connected by public pedestrian spaces at grade and invisible service tunnels below.



But unlike San Simeon or Disneyland, the Getty Center makes no concessions to historic or popular imagery. It is a pure, Modernist design that will not surprise followers of Meier's past work. When the New York practitioner was named the Getty's architect, there was some concern that his trademark style would be inappropriate for an institution that has no Modern art, and at least one Getty official gave informal assurances that this would not be a typical Meier building. In one respect, this prediction has proved true: the museum galleries will contain elements such as natural top-lighting, framed openings, and picture rails that are new to Meier's vocabulary. The exterior and nonmuseum interiors of the Center, however, will be rendered in Meier's customary Neo-Corbusian mode, leavened by mild references to Louis Kahn and Postmodernism. The museum will be sheathed in travertine, an uncharacteristic material for Meier, while the other structures will be clad in the architect's familiar palette of enameled steel panels and glass.

In its sheer size, rigorous geometry, and level of detail, this design is undoubtedly impressive; but its complexity runs a risk of overwhelming its users. One journalist likened it to all the recently completed art museums in Germany brought together on one small site. Formally, the Getty reflects a conservative, ambitious, and increasingly cosmopolitan Los Angeles taking its place on the world stage, but not a Los Angeles attuned to its own innovative architectural traditions. Nor does it promise to blend effortlessly with its mountainous setting, despite Meier's deft use of shifted grids ostensibly derived from the site's topography. Its rigidly gridded pattern of 4,000 new trees seems imposed on a deeply and irregularly convoluted site.

Upon its completion in 1996, however, design enthusiasts will surely find this architectural tour de force a place of great fascination. And 1.25 million annual museumgoers will welcome the opportunity to encounter the Getty's near-legendary treasures in such an ample and luxurious setting.

—JOHN PASTIER

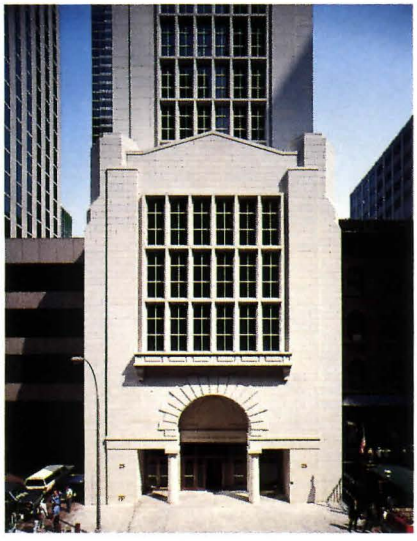
John Pastier is a Los Angeles-based architecture writer and planning consultant.

GAFF DANIELS PHOTOS

The Getty Museum (above center) will be partially sheathed in travertine, an uncharacteristic material for Meier. Curvilinear forms will announce the Center for the History of Art and the Humanities (above). The two facilities will be connected by a loggia that cuts through central gardens (above and bottom right in site plan).

Museum of Television and Radio Opens in New York

THE SPIRIT OF THE LATE WILLIAM S. PALEY, founding father of CBS, infuses New York's Museum of Television and Radio, which opened on September 12. Formerly called the Museum of Broadcasting (Paley started it in 1975 in a converted office building), the new museum is housed in a 17-story, limestone-clad tower by John Burgee Architects with Philip Johnson, design consultant.



NORMAN McGRATH PHOTOS

Generously endowed through Paley's will, the museum's mission is to collect and preserve television and radio programs and make them available to the public. The 72,000-square-foot building houses a 200-seat theater, a 90-seat theater, a lounge for radio listening, two 45-seat screening rooms, and three small galleries for changing exhibitions of artifacts and documents related to television and radio. The museum's heart is a spacious library filled with 50 computer stations that offer visitors access to the museum's collection.

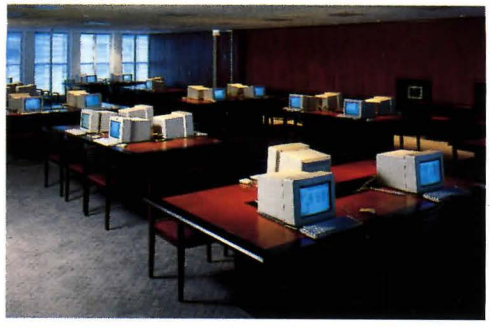
All of this sophisticated state-of-the-art technology resides behind a stately, conservatively designed facade that sits between the historic 21 Club, one of Paley's favorite restaurants, and Eero Saarinen's black granite headquarters for CBS, Paley's singular contribution to high-style Modernism. The new museum's expanses of gridded windows and its bold, uninterrupted verticality reveal its allegiance to Modernism, while the building also alludes to historical architecture. The main elevation on 52nd Street features a two-story arch, recalling the architects' corporate headquarters for AT&T, which is trimmed with exclamatory voussoirs and keystone. Public facilities are housed in the building's first six floors, which rise straight from the sidewalk and culminate in a Classical pediment and turrets. Set back from the street, the office tower also ends in turrets. The overall effect suggests an urban-scale Collegiate Gothic dormitory.

Johnson and Burgee's traditionalism is in keeping with Paley's desire to give high-culture cachet to the medium of television. This makes for an ironic reversal of architectural history, given Johnson's seminal involvement with New York City's Museum of Modern Art, which rejected architectural conservatism as a means of cultural legitimacy.

Inside the museum, the upscale, reserved spaces offer no allusions to the domestic decor of the living rooms in which we watch TV. Nor is there the industrial ambience associated with the soundstages in which television shows are produced. Only the main theater, with its ceiling edged in marquee lights, conjures up a bit of show-biz razzle-dazzle. Instead, wood-paneled walls, floor-to-ceiling metal doors, gray carpeting, and chairs by Mies van der Rohe evoke images of a mid-1960s corporate boardroom. The gallery has the feeling of an English baronial hall, with wainscoting and lattice-decorated ceiling, while the marble-clad lobby renders the museum's most important public space a mausoleumlike solemnity. The spirit of William S. Paley rests assured at the new Museum of Television and Radio.

—DONALD ALBRECHT

Donald Albrecht is a curator at the American Museum of the Moving Image in New York City.



Behind the Collegiate Gothic facade of the six-story museum (top) is an electronic library (above) of TV and radio shows.

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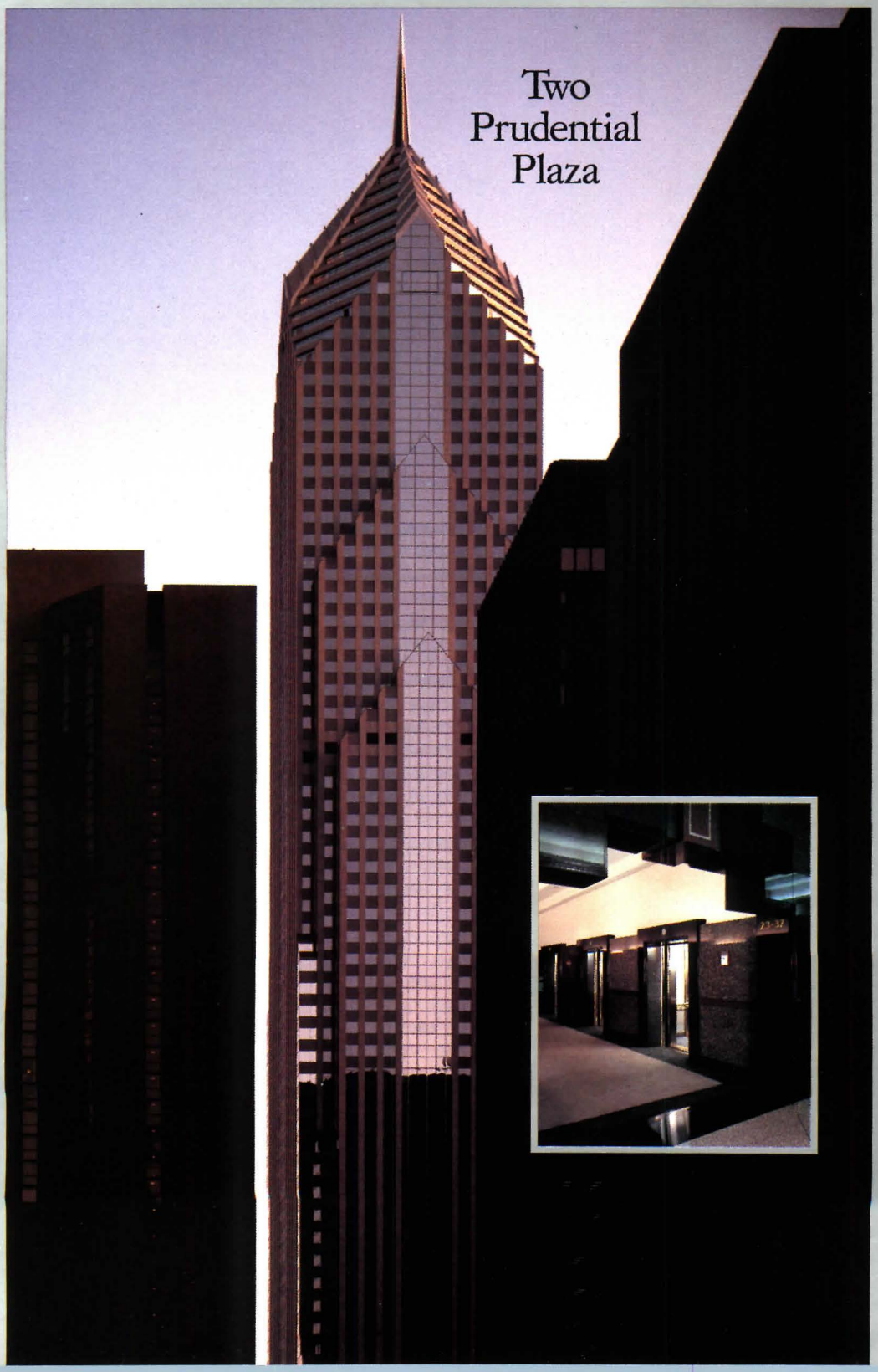

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NEWS

Ando Exhibition Opens at MoMA

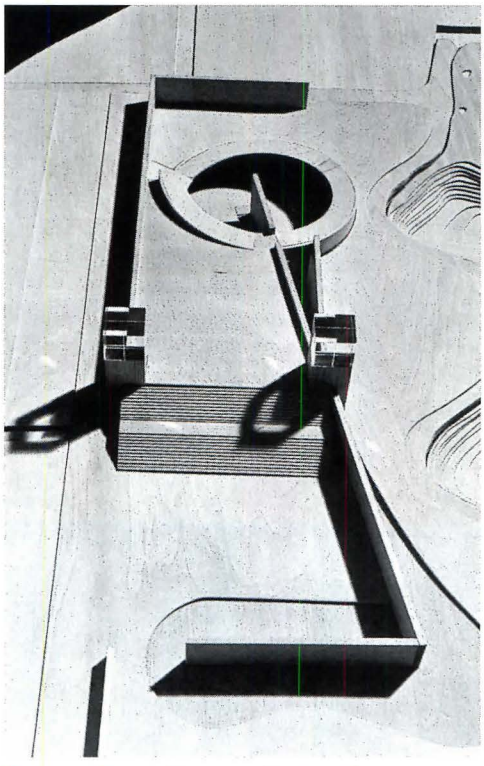
TADAO ANDO IS AN ARCHITECT'S ARCHITECT. Though he lacks formal training and is not well known to the American public, the 50-year-old Japanese architect from Osaka is nevertheless a cult figure in the American architectural community. An exhibit of his work, at New York City's Museum of Modern Art through December 31, dramatically demonstrates why; for those who decry the shallowness of Postmodernism and the incoherence of Deconstructivism, his reinforced-concrete masses return to a clarity of line and contour. Modernism is back.

Ando knows just how far to go: where to slice through mass with a void, how to mold space and manipulate light and shadow in the best tradition of Le Corbusier, Kahn, and Japanese architecture. A stunning example is his Church of the Light, in Ibaraki, Osaka, where a crosslike slot in a concrete wall luminously squeezes daylight into the austere interior. The timeless geometries that underlie Ando's design are particularly poetic when inscribed as concrete traces on the earth, as seen in his Forest of Tombs Museum in Kumamoto, now under construction.

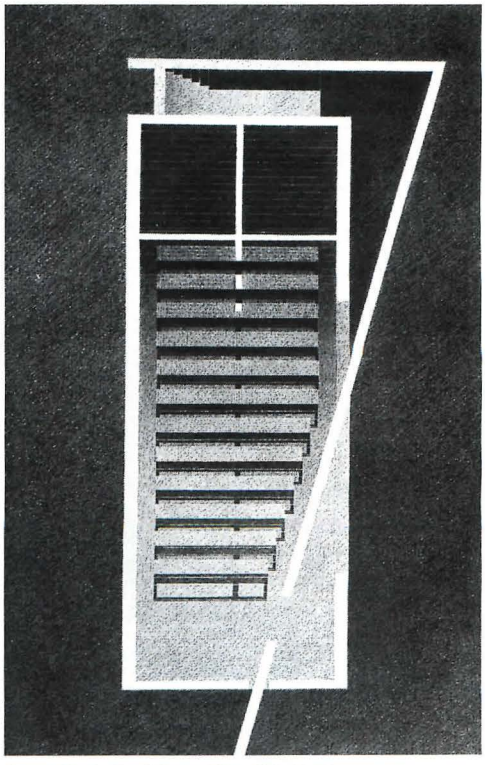
The sense of proportion that shapes his crafted, rational forms and the earth and water around them offers a powerful, visual, and kinesthetic experience. Ando's work is also an architecture of ritual: the procession through the Water Temple at Higashiura-cho, Hyogo, currently under construction, calls for climbing a hill on a path of white sand, walking between two concrete walls, descending a staircase down into the center of a lotus pond, and finally arriving at a subterranean circular sanctuary.

The museum installation, which immerses the visitor in an architectonic simulation of Ando's own design principles, illuminates what is disturbing about this presentation (it is the last in a series funded by Gerald D. Hines Interests, and is jointly sponsored by Yoshida Kogyo K.K.).

By focusing on only 10 projects that explore Ando's concern with nature, the show's organizer, Stuart Wrede, director of the Department of Architecture and Design, serves up a small portion of his rich oeuvre that can be easily digested by the average gallerygoer. But the emphasis is skewed to the paradisia-



Forest of Tombs Museum, Kumamoto
1989-1991 (under construction)



Church of the Light, Ibaraki, Osaka
1987-1989

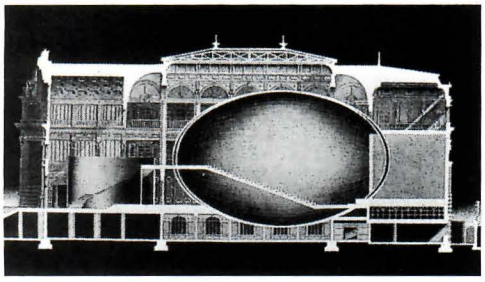
cal and the paradigmatic. Upon entering the mock-concrete portal, a visitor is guided by a 54-foot-long wall angled inward toward the work beyond. Here, models the size of area rugs subdivide the space. Small models are embedded in the white walls like bleached fossils emerging in bas relief from the surface of a cave. Drawings of the projects, some as long as 33 feet and painstakingly executed in blue and gray pencil, form seductive panoramas. Black-and-white photographs offer glimpses of the buildings' reality, and they are accompanied by minimally rendered sections and plans: this show is not where one goes to study architectural details.

Thus, too many buildings appear to be located in green hillsides where there are no commercial strips, neon signs, or the urban effluvia that are typical of Japanese and American cities. The latter world is the real world that Ando works in and rejects. Even Ando's urban buildings that were allowed into the exhibit—such as the large visionary Nakanoshima Project III for Osaka, in which he has inserted a giant egglike space into an old building—illustrate his withdrawal from the messy vitality of everyday life.

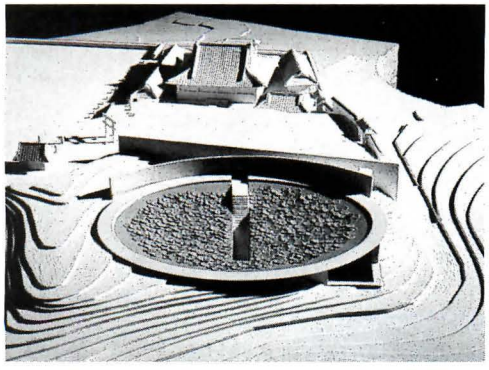
The escapism that pervades the show explains one darker reason why it is mesmerizing. Oh, to live in an ideal world of verdant hills, sparkling lakes, and poured concrete that never stains.

When leaving the Ando exhibit, one is inevitably drawn to the adjacent photography show. In "Pleasures and Terrors of Domestic Comfort," walls are lined with informal photographs, taken by a group of artists, of normal folks at home. The houses are unkempt, beds lie unmade, and clothes are strewn all over the place. In this disheveled, impure world, the people look like slobs. It's a good thing that architects like Ando don't have to design for them. —SUZANNE STEPHENS

Suzanne Stephens is editor of Oculus, *published by the New York City Chapter AIA.*

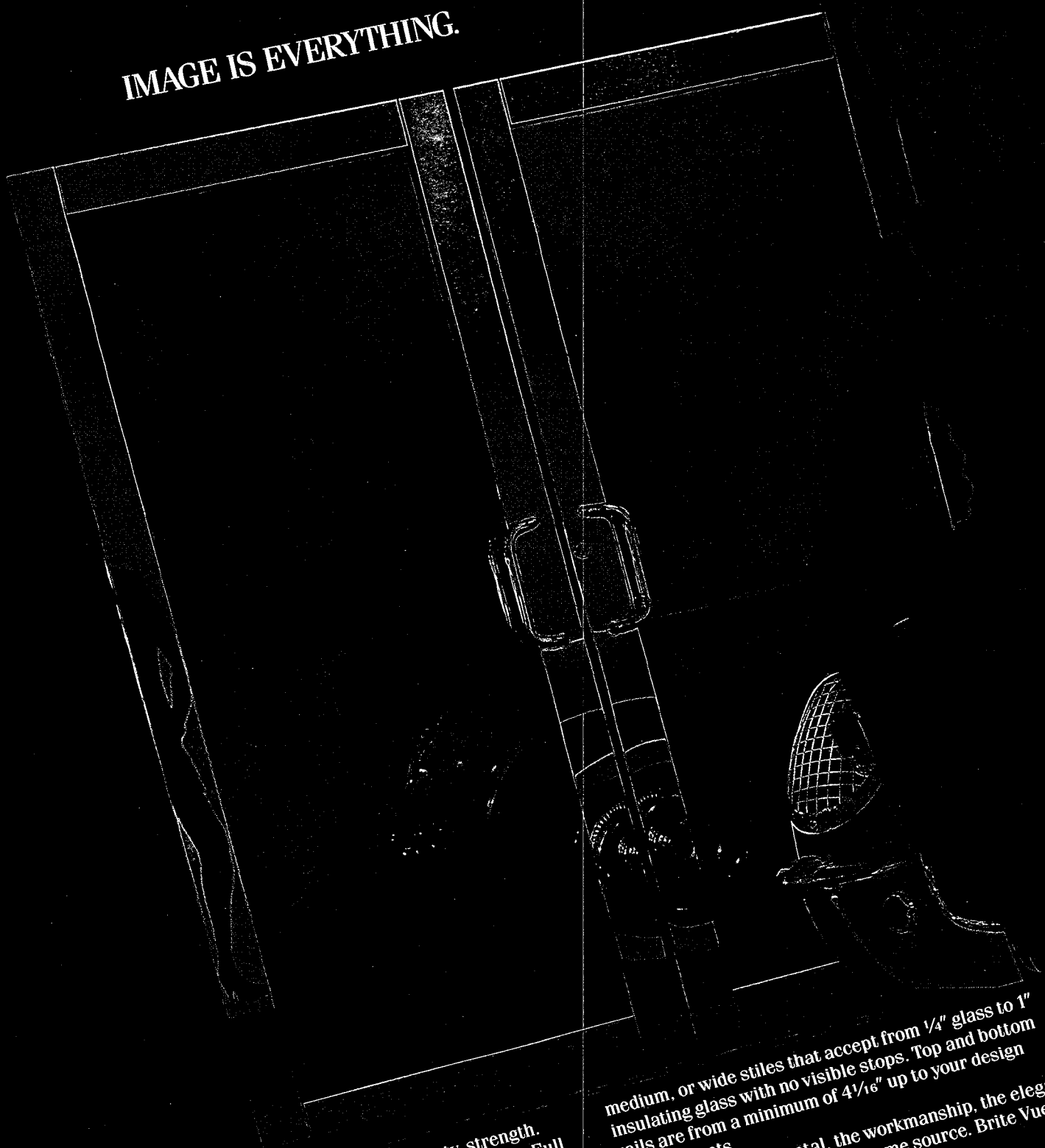


Nakanoshima Project III: Urban Egg/Space Strata, Osaka Project, 1988



Water Temple, Higashiura-cho, Hyogo 1989-1991 (under construction)

IMAGE IS EVERYTHING.



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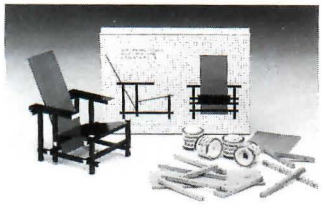

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Restoring State Capitols

Decorative elements throughout Bertram Goodhue's 400-foot State Capitol (above), the tallest structure in Lincoln, Nebraska, include symbols of the state's culture and figures from the history of Western law (below).

NEBRASKA STATE BUILDING DIVISION/SID SPELTS COLLECTION

FOR THREE DAYS IN EARLY OCTOBER, 90 AIA members representing the Institute's Committees on Historic Resources and Public Architecture convened in Lincoln, Nebraska, to tour the state capitol and hold a daylong symposium examining strategies for the preservation of state capitols. Capitol conservation efforts nationwide reflect a new interest on the part of state officials and citizens to restore this uniquely American building type, which has evolved alongside our political system. "It is history, not architectural style, that shapes the course of state capitol forms," maintained historian and symposium moderator William Seale in his opening remarks.

Presentations throughout the day illuminated challenges inherent in preserving a capitol's historic authenticity while adapting it to meet functional demands. Architect William Dikis of Des Moines, Iowa, outlined a master plan that respects Alfred Piquenard's Iowa Capitol campus, built in 1884; the scheme calls for the removal of 900 surface parking stalls and the creation of a 125,000-square-foot underground expansion. Robert Loversidge recounted a two-year design effort, led by his Columbus-based firm Schooley Caldwell Associates, for a 7,200-square-foot addition to the 1861 Ohio Statehouse. Now under construction, the glass, stone, and bronze atrium will link the statehouse to the adjacent Senate Annex and provide a public gathering space.

Brief case histories of specific restoration efforts highlighted the question of compromise in the face of historical accuracy. While Cass Gilbert's dome for the 1932 West Vir-

ROGER BRUHN

ginia Capitol had included painted elements, Paul Marshall, a Charleston, West Virginia, architect, gilded its entire surface in gold leaf to ease maintenance. Preservation architect Michael Mills of Princeton, New Jersey, advised listeners to resist the temptation to add lighting fixtures by trusting original design intentions. His firm, Short and Ford and Partners, recently repaired and restored historic scones, torchères, and chandeliers as part of a newly completed, 15-year preservation project in New Jersey's 1792 statehouse.

Inside the Nebraska Capitol, Bahr Vermeer & Haecker Architects of Lincoln recently renovated 80,000 square feet of office spaces and legislative hearing rooms (above).

In some states, architects do not have the luxury of focusing on original features. Faced with the potential of seismic damage to Oregon's 1938 Classical Revival Capitol, architect Alfred Staehli of Portland helped structural engineers devise a retrofit schedule for unreinforced masonry and terra-cotta tile. "Our primary intention was not to save the building, but to save human life," he explained.

Nebraska's state capitol, completed in 1932, has remained structurally sound since its masonry walls and copper roofing were repaired in the late 1960s. The original interiors have suffered only minor modification. These facts, combined with the support of state officials and a lack of competition for state preservation funds, has allowed Robert Ripley, the capitol's restoration manager, to "dote on detail." During his presentation and a subsequent tour of Bertram Goodhue's masterpiece, Ripley described efforts to restore original furniture, carpeting, and hardware. The building's first major interior upgrade, recently completed, includes an electrical distribution system installed in unused telephone raceways, and renovated hearing rooms and office spaces. —K.S.

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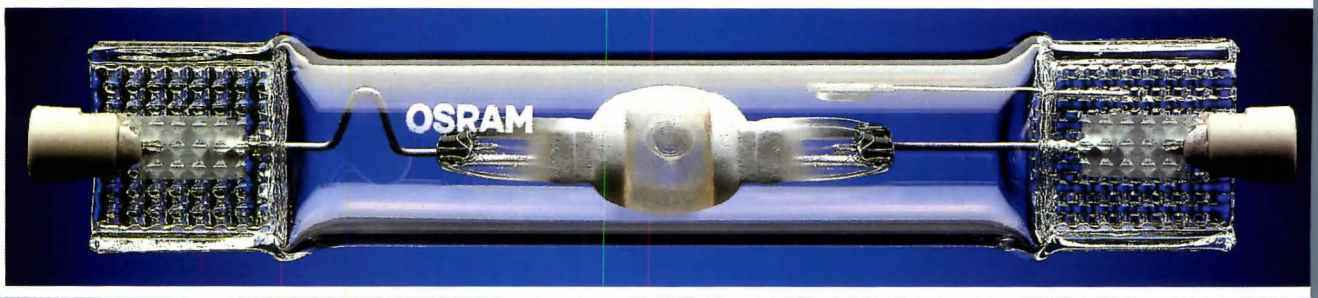

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America's Endangered Landmarks

LOCATED ON NORTH STATE STREET IN THE heart of Chicago's Loop, one of the nation's oldest surviving skyscrapers stands largely vacant. John Wellborn Root and Charles Atwood's 1895 **Reliance Building**, a 15-story commercial-style structure suffers from neglect; its glazed terra-cotta skin displays damaged and missing panels while interior finishes remain in poor condition. Recently, Chicago's planning department rekindled hopes for an estimated $12 million restoration of the landmark. During the summer, planning officer Rafael Rios-Rodriguez devised a financing package that will help the city purchase the privately owned site and turn it over to a new tenant for renovation. According to Rios-Rodriguez, "Almost no maintenance or interior work has been done since the building was first completed," leaving most of the original mahogany and marble features on upper floors intact.

Since 1985, 18.6 acres of woodland less than ½ mile from **Walden Pond** have been threatened with commercial development. Boston Properties plans to construct 148,000 square feet of offices and a 500-car parking garage on the Concord, Massachusetts, site. Fear of losing the privately owned 2,680-acre setting that inspired Henry David Thoreau's writings has incited environmental conservationists, scholars, and musicians to fight development of the woods surrounding the pond.

In 1989, local Thoreauvians initiated a lawsuit, forcing Boston Properties to postpone construction for two years. Last year, rock musician Don Henley founded the Walden Woods Project to raise money to purchase unprotected parcels of Walden Woods and turn them into public lands. In September the project proposed exchanging a slightly larger parcel of land in the general vicinity, plus an undisclosed amount of cash, for the site. Boston Properties President Ed Linde turned down the offer, maintaining it was not equivalent to the developer's $8 million asking price.

Finding some success on another front, Henley's group has persuaded a local developer, Philip DeNormandie, to sell his 25-acre lot in lieu of constructing a 139-unit condo-

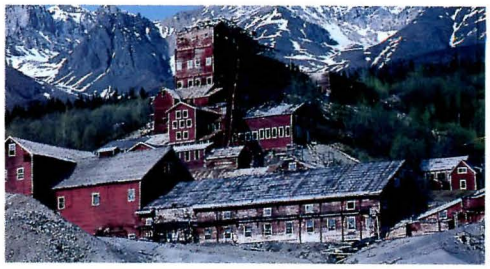
Reliance Building, Chicago, Illinois

minium complex. But to meet DeNormandie's $3.5 million price tag, the project must still raise $1 million by year's end.

According to Detroit officials, **Tiger Stadium**'s seasons are numbered. Built in 1912, the concrete-and-steel baseball park provides an intimate setting for 54,000 fans. Supported by columns, the upper spectator deck rests directly above ground-level stands to provide seating closer to the field than in any other major league ballpark. County officials maintain, however, that in order to accommodate team demands and visitor needs, the city must build a new facility. A recent, voluntary study by BEI, a local architectural and engineering firm, failed to reveal structural deficiencies in the ballpark. Similarly, an onsite inspection by four members of the AIA Detroit Chapter did not indicate irreparable damage. Yet the local AIA chapter supports building a new structure, contending that Tiger Stadium lacks sufficient circulation and public amenities. "Due to the stadium's obsolescence," states Jerry Shea, chapter president, "it will be extremely difficult to bring it up to code." Shea fears unforeseen problems could make a restoration effort cost-prohibitive. The chapter recommends locating a new stadium downtown, but the team prefers a residential area north of the existing stadium, citing the need for controlled parking and increased accessibility.

Meanwhile, Detroit residents and Tiger Stadium Fan Club members are far from giving up hope of keeping the 79-year-old original ballpark intact. In January 1990, local architects John and Judy Davids unveiled a $26 million restoration scheme that includes 180,000 square feet of added facilities, including 73 luxury suites to seat 1,200 fans. The Davids, among others, fear the economic decline of Detroit's Corktown neighborhood, which relies on the 81 games per year for part of its livelihood. Residents and Tiger fans plan to fight the city's estimated $200 million facility by putting the issue to a vote on the next city ballot.

Kennecott Mines, in Alaska's Wrangell-St. Elias National Park and Preserve, features the deserted mill, mine camps, and tramway system of an early 20th-century copper mining station. Since 1938, when copper imports began flooding the U.S. market, the town has remained vacant. None of the privately owned, wood-framed structures have been maintained, leaving them prey to harsh weather and vandals. Cited by the National Trust for Historic Preservation and the National Park Service as one of America's most endangered historic places, Kennecott Mines recently received $200,000 in state aid for an emergency restoration effort, which includes reinforcing the walls and rebuilding the roof of the 14-story mill. —K.S.



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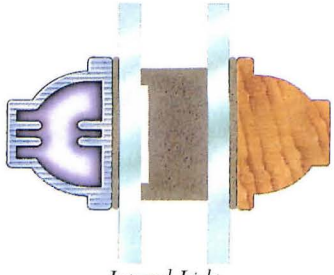

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NOMA Convention Held in Atlanta

DESPITE THE PALL CAST OVER THE PROFESsion by the current recession, William Stanley III, AIA, has heard enough negativism. Stanley, who currently serves as the president of the National Organization of Minority Architects (NOMA), advocated positive solutions to very real problems during the organization's 20th annual convention, held October 3-6 on its leader's home turf—Atlanta.

The convention selected three themes—empowerment, visibility, and education—as keys to changing the minority architect's status within the profession; a different theme defined each day's agenda. One obvious method of empowerment lay in the act of gathering together; the approximately 600 members of NOMA are scattered across the country, and the convention provided fellowship and reinforcement to isolated minority members. Another path to empowerment lay in formal discussion. The title of the convention's first forum, "Where Have All the Commissions Gone?" summed up a world of concerns. According to the participants, not only do traditional clients lack money for new projects, but churches, universities, and school boards, which have provided the bulk of architectural commissions for minority firms, are reaching beyond their own communities.

What are the hopeful signs promised by President Stanley? Potential solutions may come from the political arena, in which architects are pushing for greater leverage in an era of diminishing affirmative action, and from private clients. Representatives from Georgia Pacific, BellSouth Communications, and IBM joined a panel to discuss corporate markets and expectations.

Other corporations, including Walt Disney Communications, the Portman Companies, and Coca-Cola, helped underscore the convention's second goal: education. Rather than spend corporate sponsors' dollars for social events during the convention, Stanley used donated funds to pay for university students from across the United States to come to the convention. Andrew Chin, an assistant professor at Florida A&M University, for example, was accompanied by a large contingent. According to Chin, his students were there because they sought a "place" within the architectural community as much as they sought jobs. As active practitioners debated their future in Auburn Avenue's Odd Fellows hall, an early black-designed building, the minority students caucused upstairs.

The absence of available black role models within the profession was a paramount concern. Students were eager to meet New York City architect Jack Travis, the model for Spike Lee's protagonist in *Jungle Fever*, who captivated the group with his discussion of a forthcoming book on contemporary African American architects. Gennelle Anderson, a practicing architect in Washington, D.C., offered her own experience as a model for others

as she described writing and publishing a work on the African ancestry of certain American building types.

Novice and veteran architects discovered their own rich past in Atlanta. An exhibition on black architects, mounted by Vincent McKenzie at Atlanta University, traced their history from the first practitioner, John Lankford (the architect of Washington, D.C.'s 1901 Pythian Building, among others), to the husband-and-wife team of Bill Stanley and Ivenue Love-Stanley. In addition, two firms were presented with NOMA's first-place Design Excellence Award: Wendell Campbell Associates of Chicago for a private residence in Downers Grove, Illinois; and Sulton Campbell Britt Owens & Associates, Washington, D.C., for the West Baltimore Medical Center.

Events revolved around Atlanta's historic Sweet Auburn district, which is crucial to African American history; it's the site of the first black-owned bank in the Federal Reserve and the birthplace and burial site of the Reverend Dr. Martin Luther King, Jr. Sunday's wrap-up session witnessed a church service at Ebenezer Baptist Church, where Dr. King preached his first and last sermons, followed by a tour of his shrine that was led by its architect, Max Bond.

BARRY RUSTIN

The Price Residence (above), designed by Wendell Campbell Associates of Chicago, was one of two projects to receive NOMA's Design Excellence Award.

The positive feeling that Bill Stanley sought to foster pervaded the convention in a way that would have been difficult at AIA's much larger and more diverse annual convention. According to Harold Williams, a NOMA founder, the group grew out of a black caucus that was organized at the 1971 AIA convention. Although many NOMA members are also members of AIA, the term "country club organization" cropped up more than once in conversation. Williams summed up the minority architects' attitude in Atlanta: "I pay my dues to AIA, but I work for NOMA." ■

—ROBERT A. IVY, JR.

Houses at White Point Gardens, Charleston, SC

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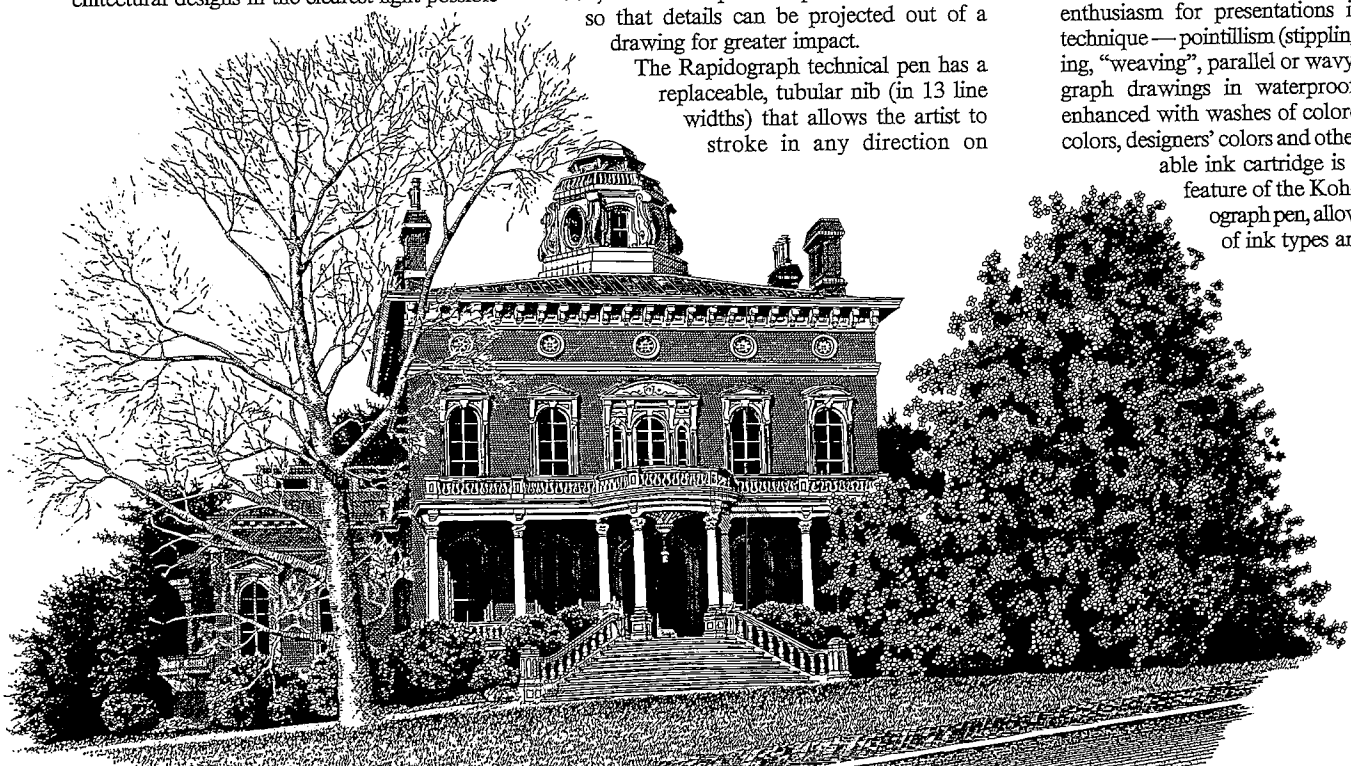

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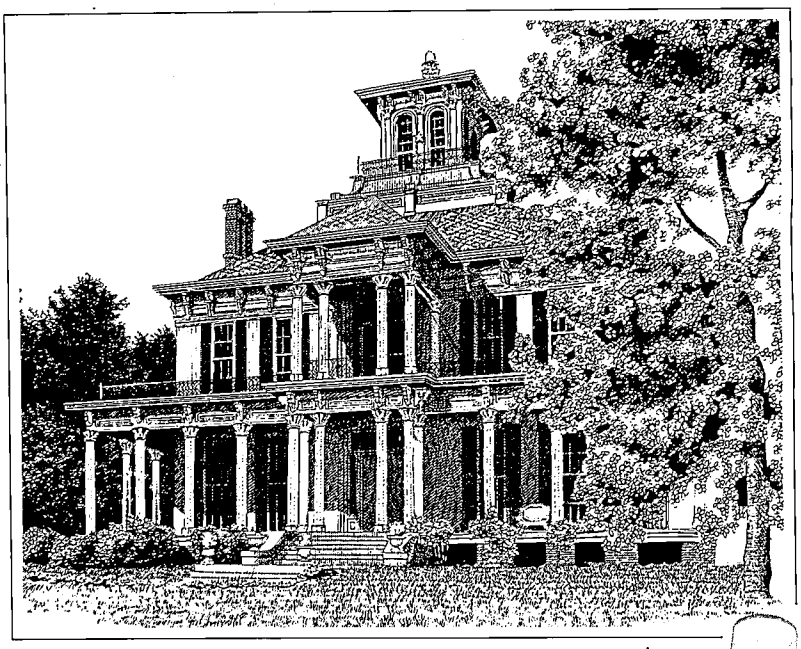

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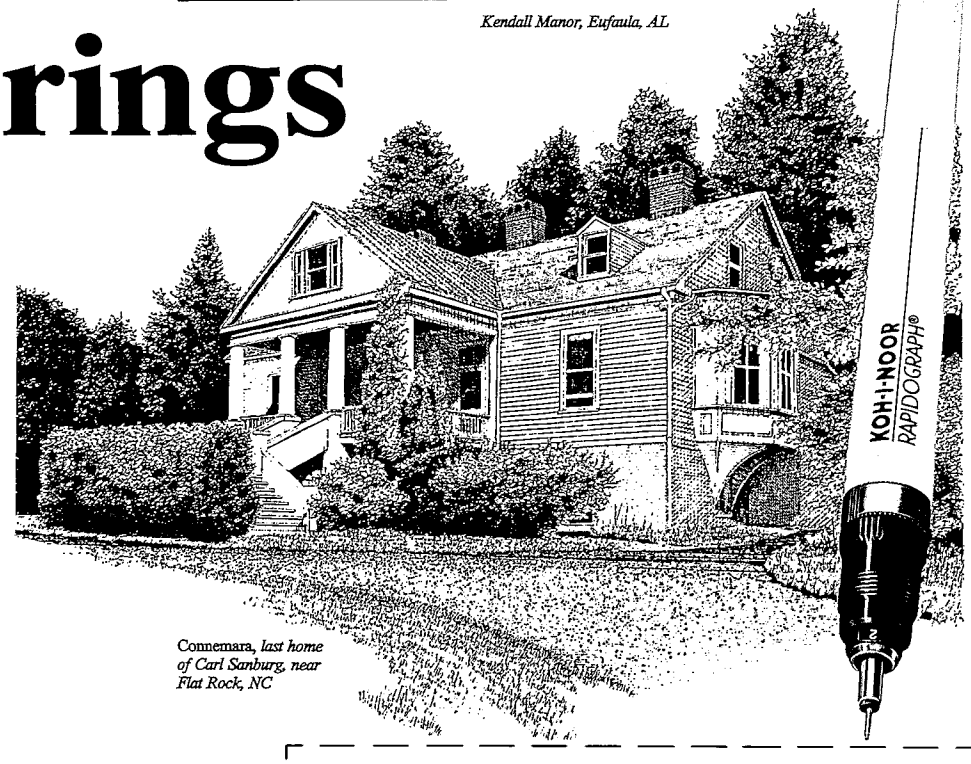
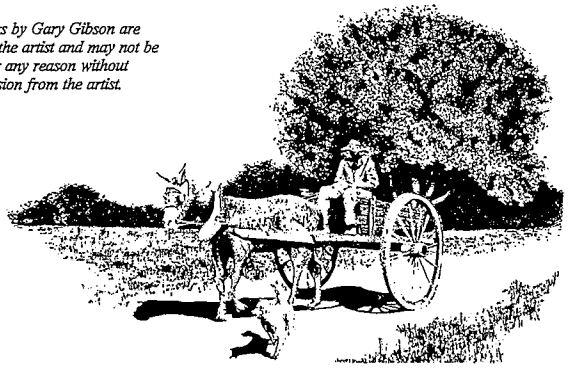


Connemara, *last home of Carl Sanburg, near Flat Rock, NC*



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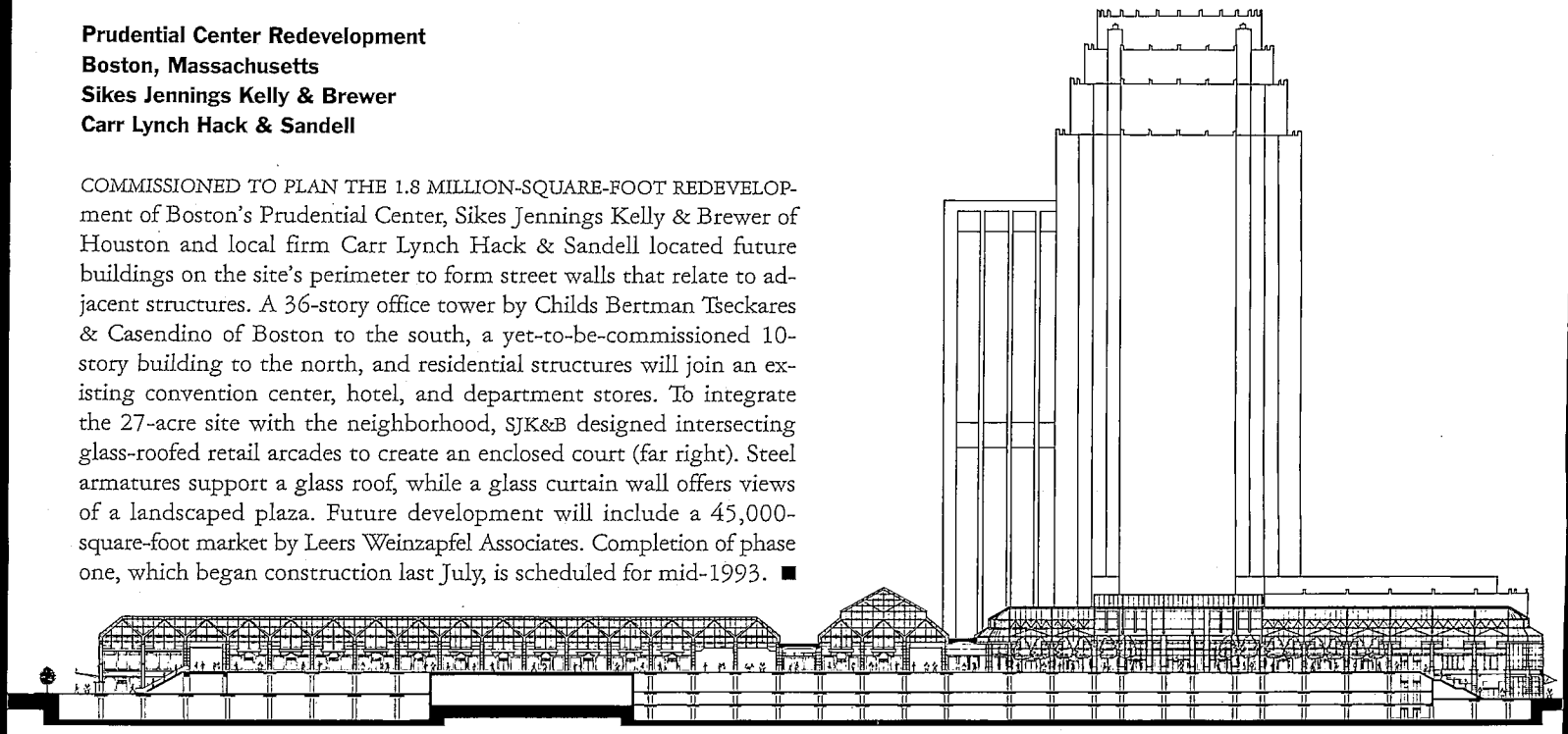
Sikes Jennings Kelly & Brewer
Carr Lynch Hack & Sandell

COMMISSIONED TO PLAN THE 1.8 MILLION-SQUARE-FOOT REDEVELOPment of Boston's Prudential Center, Sikes Jennings Kelly & Brewer of Houston and local firm Carr Lynch Hack & Sandell located future buildings on the site's perimeter to form street walls that relate to adjacent structures. A 36-story office tower by Childs Bertman Tseckares & Casendino of Boston to the south, a yet-to-be-commissioned 10-story building to the north, and residential structures will join an existing convention center, hotel, and department stores. To integrate the 27-acre site with the neighborhood, SJK&B designed intersecting glass-roofed retail arcades to create an enclosed court (far right). Steel armatures support a glass roof, while a glass curtain wall offers views of a landscaped plaza. Future development will include a 45,000-square-foot market by Leers Weinzapfel Associates. Completion of phase one, which began construction last July, is scheduled for mid-1993. ■



Renovating America's Landmarks

A HEALTHY RESPECT FOR THE PAST COMBINED with optimism for the future are necessary ingredients for successfully renewing historic buildings, according to the architects whose projects are featured in this issue. They choose not to replicate the past but to complement history with thoroughly contemporary designs, which not only distinguish the original landmark, but improve its surroundings as well.

At Harvard University, Gwathmey Siegel & Associates mediated between the Neo-Georgian Fogg Museum and Le Corbusier's Carpenter Center, with a crisply outlined wing (right) that strengthens connections between the existing buildings and the surrounding campus. In lower Manhattan's South Street Seaport Historic District, James Stewart Polshek and Partners not only saved a landmark row house, but spruced up the streetscape with the brick-faced headquarters of the Seamen's Church Institute, appropriately topped by nautically inspired forms. Further up the Atlantic Coast in the historic town of Newburyport, Massachusetts, Schwartz/Silver Architects also alluded to nautical imagery in transforming an abandoned firehouse on the Merrimack River into a community arts center. In Tulsa, Oklahoma, the local firm Urban Design Group added a 75,000-square-foot wing to Villa Philbrook an eclectic mansion that has served as the city's art museum for 50 years. While the architects echoed the massing and detailing of the 1928 landmark in front, they added a greenhouselike structure in back to frame the museum's historic formal gardens. For a state judicial complex in St. Paul, The Leonard Parker Associates retained a 1915 building as the centerpiece of a 150,000-square-foot Neoclassical expansion which is oriented to the Cass Gilbert-designed capitol.

PAUL WARCHOL

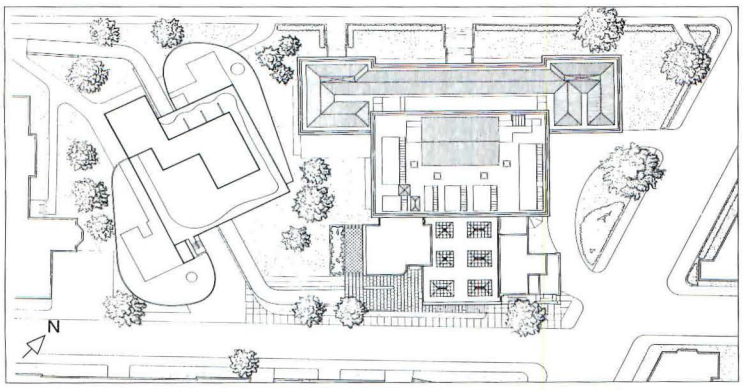
Harvard University's Werner Otto Hall, designed by Gwathmey Siegel & Associates.

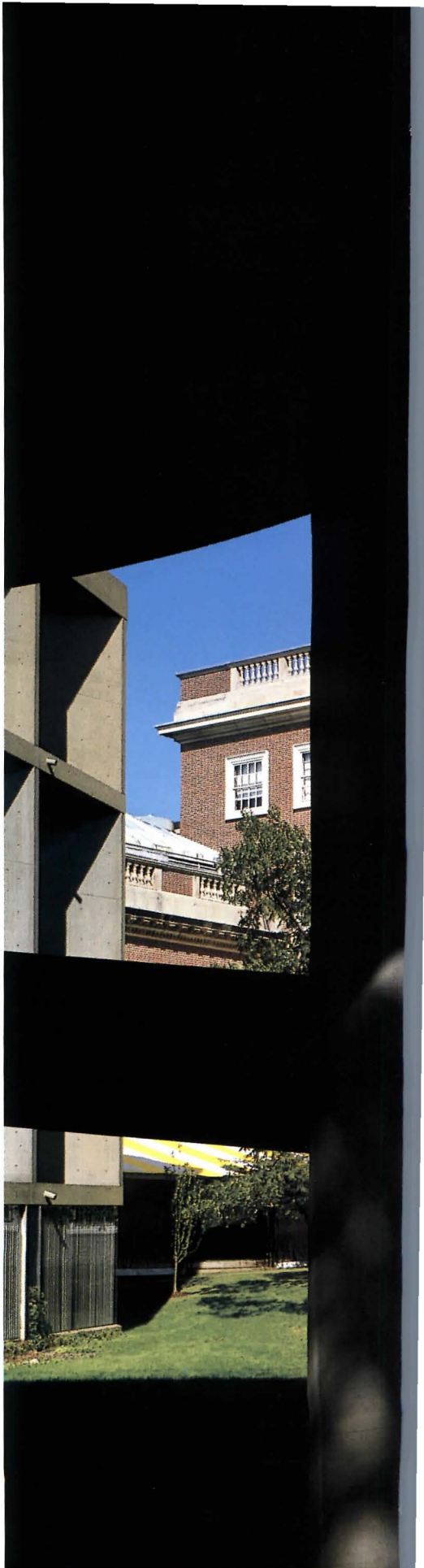
For architects involved in such renovations, our technology and practice section offers practical advice, from working with local preservation commissions to choosing appropriate materials for replacing historic architectural elements. A trio of case studies shows how some firms are building over landmarks with structurally ingenious solutions, and an article on a technical services branch of the National Park Service reveals the preservation resources of this public institution, which celebrates its 75th anniversary this year. ■

MODERN MEDIATOR

"I NEVER WANTED A JOB SO BADLY, BECAUSE I KNEW THAT WE were right for it," says Charles Gwathmey of Gwathmey Siegel & Associates' commission to design Werner Otto Hall, a new addition to the 1927 Fogg Museum on the eastern edge of the Harvard University campus. Gwathmey's zeal for the project grew out of his admiration for Le Corbusier, whose only building in North America—the 1963 Carpenter Center for the Visual Arts—stands next door. Gwathmey believes the center is "one of the great Modern buildings for the lessons it teaches." Among the Carpenter's lessons is how a structure of dynamic, sculptural form can be inserted into a context of Neo-Georgian buildings while remaining connected to the street, a feat that it achieves through a curving ramp that slices through the building.

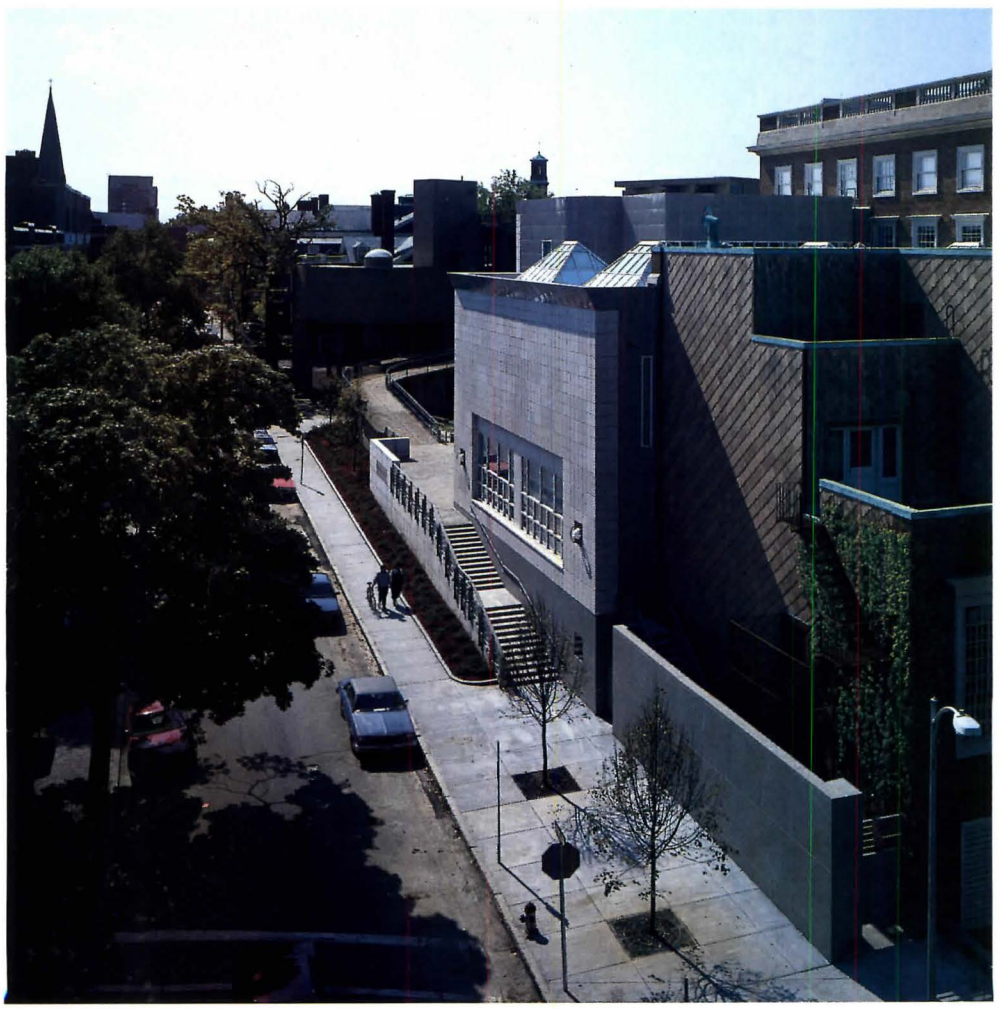
Instead of competing with the Carpenter Center, Gwathmey formally mediated between the Modern landmark and the Neo-Georgian museum. Werner Otto Hall is comprised of two wings to the east of the Fogg: a two-story volume fronting Prescott Street and a south-facing, three-story block oriented toward the Carpenter Center that strengthens the line of buildings which frame Le Corbusier's curved composition. Gwathmey's other con-





Sited east of brick-clad Fogg Museum (site plan), south wing of Werner Otto Hall (facing page) harmonizes with the materials of Le Corbusier's Carpenter Center and terminates its ramp.

Werner Otto Hall
Harvard University
Cambridge, Massachusetts
Gwathmey Siegel & Associates, Architects



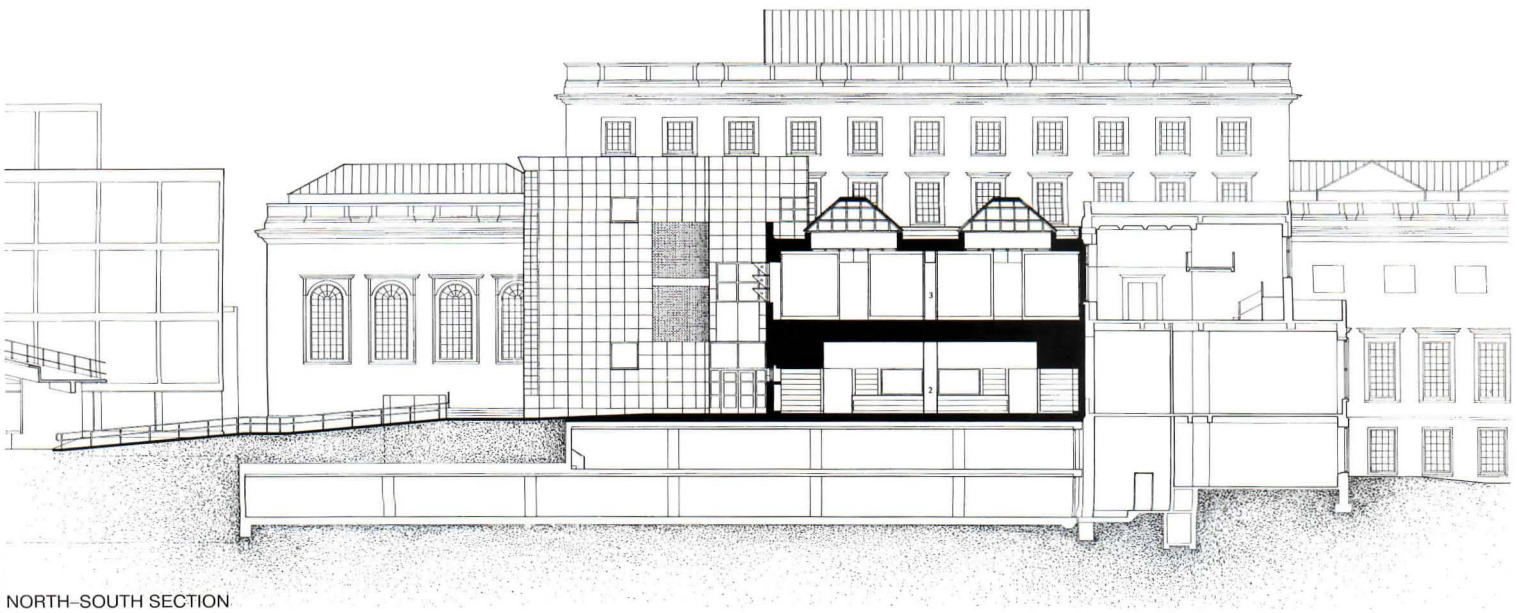
textual considerations included building upon a subterranean library designed by Jose Luis Sert, which dictated his addition's column spacing, and extending Corbusier's ramp, which never reached grade as intended. No longer a passage to nowhere, the ramp now leads from the main campus, through the Carpenter Center, to the new front door of Harvard's Fine Arts Library within Gwathmey Siegel's addition, and down a flight of steps to Prescott Street.

The program of Werner Otto Hall posed as many challenges as its site. As an expansion of the university's fine arts library and a new home for the Busch-Reisinger Museum, the addition serves two masters. Within 14,500 square feet, Gwathmey Siegel was required to provide reading rooms and offices for the library, and galleries, study room, curatorial offices, and storage for the museum's permanent collection of Central and Northern European paintings, prints, drawings, photographs, sculpture, and porcelain, which was formerly housed off campus.

Gwathmey conceptualized the exterior as a solid, limestone-clad block, precisely gridded with 15-inch squares, which he "carved" away to reveal porcelain, metal-clad surfaces of 30-inch-square panels. The neutral material palette of the new hall defers to both the Fogg and Carpenter, yet the addition clearly maintains an identity all its own. Although subtly referring to architectural elements of the Neo-Georgian museum, the addition's south facade amplifies differences between old and new: while the Fogg's limestone-framed windows protrude from the facade, openings in the new addition are recessed; while the Fogg's south wall of windows reads primarily as a void, the addition's south wall appears as a solid; while the older structure's windows are patterned with a grid of muntins, the addition's elevations are delineated with an incised grid. Like the Fogg, Werner Otto Hall is topped by a cornice, which is abstractly rendered in metal; in profile, it appears to reach over the top of the limestone facade and clamp it in place.

Inside the new addition, the ground floor is devoted to the library's reading rooms and offices, accessible only from Prescott Street. Previously, the library could only be entered

New entrance to Harvard's Fine Arts Library is located at juncture between Otto Hall's three- and two-story wings (top left). Carpenter Center's ramp (left) leads to a plaza over underground book stacks (facing page) and staircase on east elevation of addition.



NORTH–SOUTH SECTION

Third-floor study area in south wing (bottom left and plans, facing page) overlooks roofscape of skylights (left) that tops Busch-Reisinger galleries. Fine Arts Library reading room (facing page) is furnished with Gwathmey Siegel-designed tables.

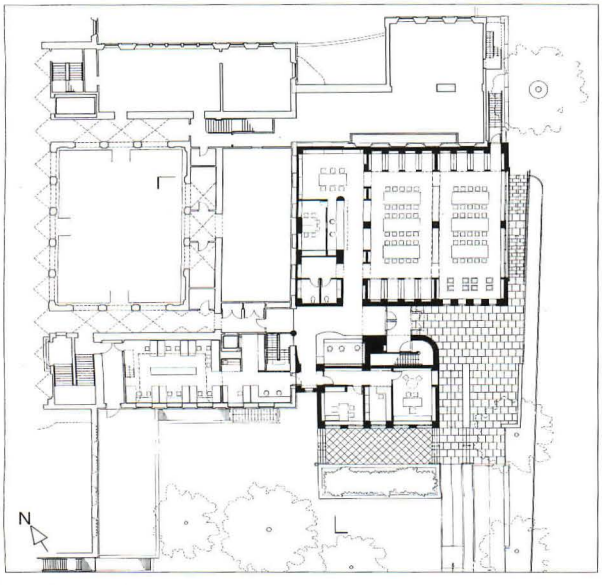
through the Fogg, posing security problems at night when the museum was closed and the library remained open. With its high ceilings, tall windows, and visible reference stacks, the new reading room conveys the stature associated with such spaces.

The Fogg Museum, on the other hand, conveys the schizophrenia of its Neo-Georgian exterior and Neo-Renaissance interior, which were designed in 1925 by Shepley Bulfinch & Abbott. The entrance to the Busch-Reisinger is located on the second floor of the Fogg, which is difficult for visitors to find. As a result, Gwathmey announced the new museum with a pair of glass and steel doors, through which a large window on the hall's east facade can be glimpsed.

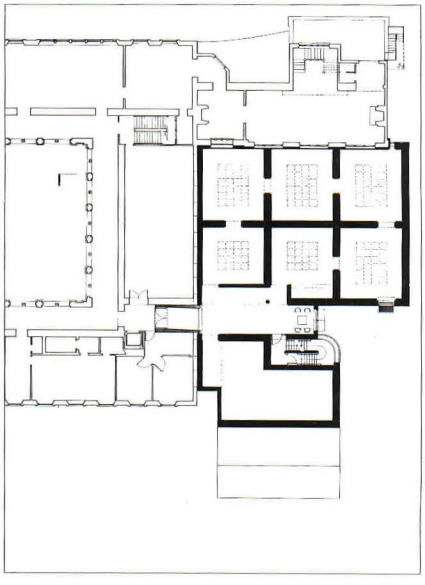
As on the exterior, Gwathmey established a separate identity for the Busch-Reisinger Museum by crisply detailing the galleries in light ash woodwork, making it unlike any other space in the Fogg. Curator Peter Nisbet explains that he sought roomlike galleries for the museum's permanent collection to view the artworks in chronological order. The resulting six exhibition spaces, arranged as an enfilade, are similar in plan, but no two are alike. One is entered at the southwest corner and exited through a portal on the opposite wall; another is entered and exited on a central axis; a third is entered in the middle and exited from a corner. Two galleries feature windows—one placed on axis with the Carpenter Center's ramp; the other, a narrow slit, facing north—while another gallery is fitted with an alcove for large artworks. An L-shaped space to the south of the permanent collection incorporates a movable partition for temporary exhibits.

Gwathmey underscored the distinctive character of each room by framing the archways in ash and layering the floorboards in concentric patterns. Even the thresholds between the galleries are fastidiously detailed to mark the passage from one room to another: here, the darkest, dense-grained ash has been applied, framed by darker boards. The white plaster walls, completely framed in ash, protrude from the woodwork, which gives them the appearance of floating in the galleries.

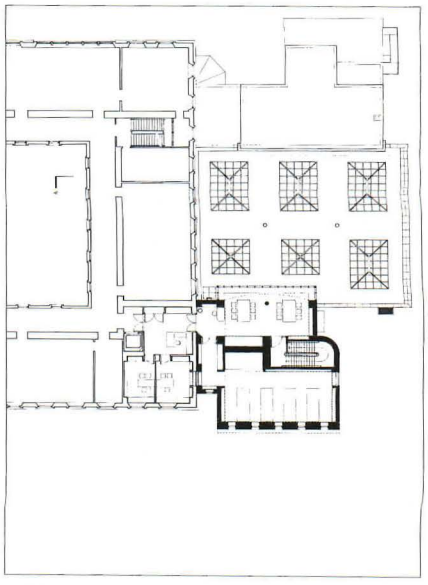
The center of each gallery is punctuated by a pyramidal skylight. Viewed from the



FIRST FLOOR



SECOND FLOOR



THIRD FLOOR

From the Fogg, the Busch-Reisinger Museum is entered through glass doors under a wood-paneled soffit (facing page). Galleries are arranged as an enfilade (below left), finished in ash woodwork (above left), and illuminated by skylights.

study center on the third floor, these skylights suggest a rooftop sculpture garden, and convey a mystical quality at night when lit from the rooms below. While the exterior glazing is clear with a low-E coating, the interior glass is laminated with an ultraviolet-filter interlayer. "The pyramid shapes mitigate water infiltration," notes associate-in-charge Bruce Donnally, "and provide a cavity for light to bounce around in before entering the galleries, assuring even distribution of that daylight."

Faceted acrylic laylights in the gallery ceilings further refract daylight. Natural light levels are controlled by aluminum louvers above the laylights, whose apertures are adjusted by a photocell in each skylight (the same louver system is installed in the new wing of the National Gallery in London). Fluorescent fixtures above the laylights, activated by the photocells, provide additional illumination on overcast days.

Modestly sculpted, Harvard's newly housed Busch-Reisinger Museum offers an appropriate counterpoint to the abstraction of Le Corbusier's Carpenter Center and the dry revivalism of the Fogg Museum. Gwathmey Siegel has designed a distinctive identity for the addition with restraint and rigor. "What I learned the most through this project,"observes Gwathmey, "is how to design a building that supports the context, but has its own presence."

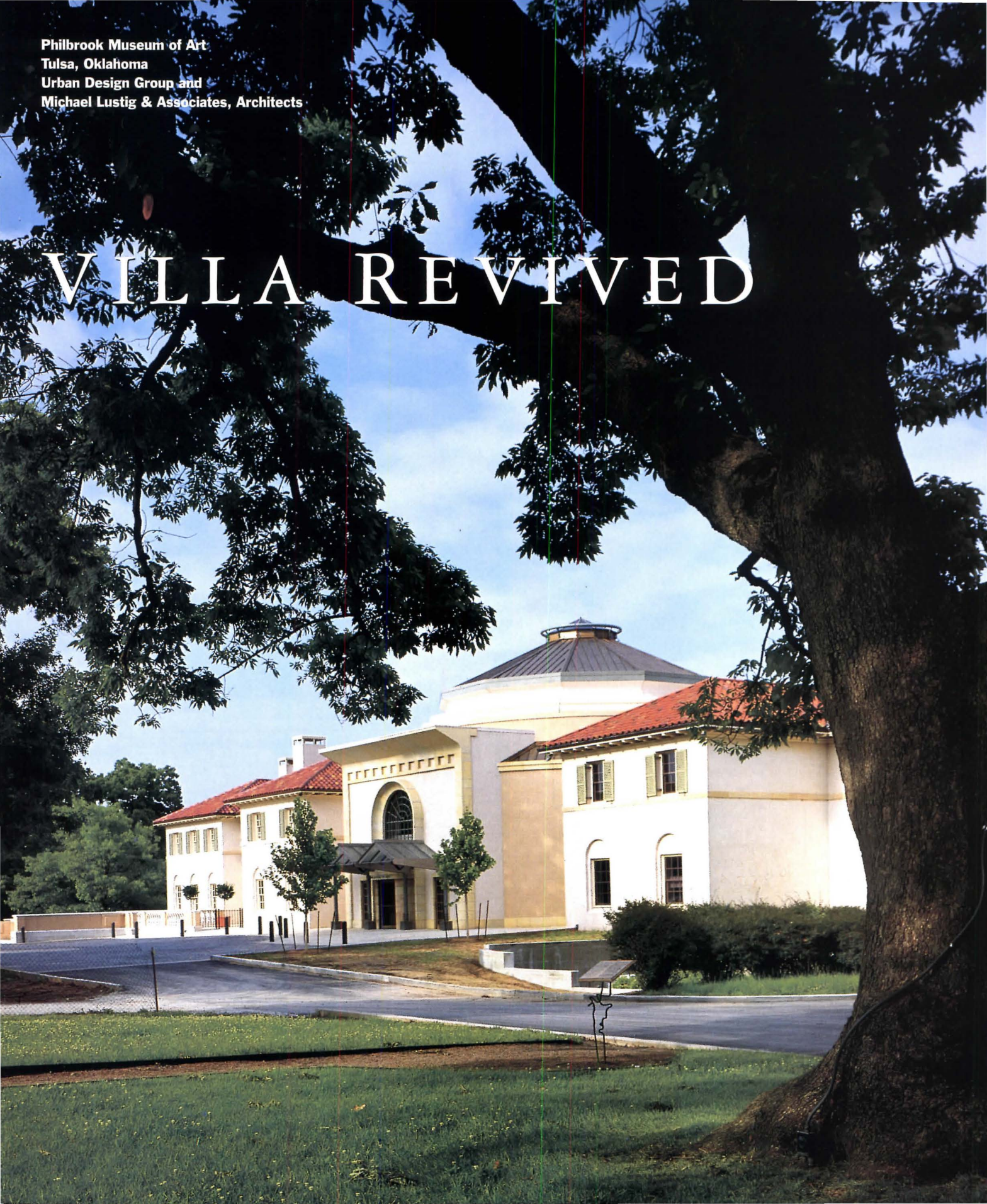
Like its neighbors and the art within its galleries, Werner Otto Hall speaks of its time with strong convictions. ■

—MICHAEL J. CROSBIE

WERNER OTTO HALL
HARVARD UNIVERSITY
CAMBRIDGE, MASSACHUSETTS

ARCHITECTS: Gwathmey Siegel & Associates, New York City—Charles Gwathmey, Robert Siegel (partners); Bruce Donnally (associate-in-charge); Samuel Anderson, Johannes Kastner (project architects)
ENGINEERS: Severud Associates Consulting Engineers (structural); Bard, Rao & Athanas Consulting Engineers (mechanical)
LIGHTING CONSULTANTS: Jerry Kugler Associates
CONSTRUCTION MANAGER: Walsh Brothers
CONSTRUCTION COST: $5 million
PHOTOGRAPHER: Paul Warchol


EXIT



Philbrook Museum of Art
Tulsa, Oklahoma
Urban Design Group and
Michael Lustig & Associates, Architects

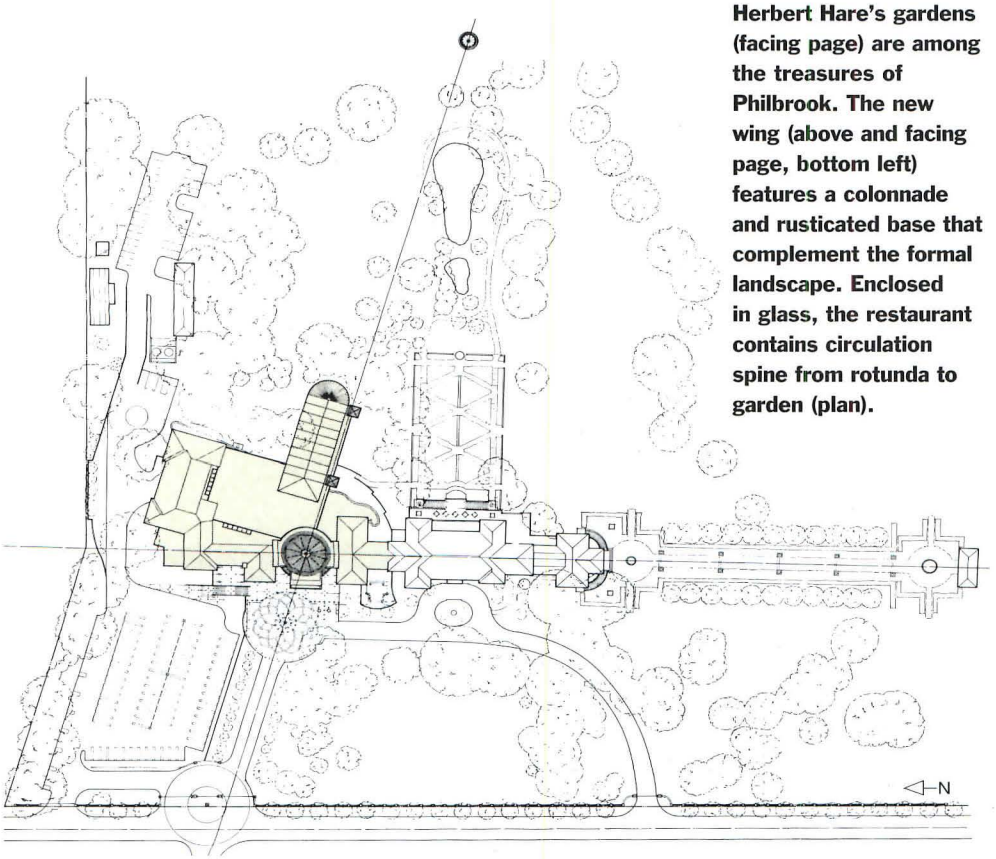
VILLA REVIVED

IF PALLADIO HAD BEEN AN OKIE, HE MIGHT HAVE CREATED SOMEthing like Villa Philbrook—26 rooms, surrounded by loggias, terraces and formal gardens, and stuffed with Italian Renaissance art. Designed by Kansas City architect Edward Buehler Delk, the Tulsa estate was completed in 1928 for oilman Waite Phillips and his wife Genevieve. Adept at all the popular period styles, Delk combined bits of Palladio with borrowings from other continental sources and a dusting of frontier bravura in the form of a barbecue pit and campfire circle. The result is an accomplished synthesis of past and present, subdued and mannerly on the outside, playful and mildly eccentric inside.

The Phillips occupied the villa until 1938, then left it and most of its contents to the city of Tulsa. It was Oklahoma's first general art museum, and over the years proved so popular that it virtually wore out. Visitors jostled one another along narrow corridors and stairways, frequently stumbling into offices and storage rooms in search of a triptych. Eventually, the museum school, central to Philbrook's civic mission, had to be converted into galleries. The lack of suitable exhibition space cost the museum major traveling exhibits—no small loss considering that the nearest general art museum is 265 miles away in Dallas.

So four years ago the Philbrook embarked on a $28 million capital campaign that included $10 million for a 75,000-square-foot wing and a restored villa, and commissioned the Urban Design Group of Tulsa, assisted by Michael Lustig & Associates of Chicago. The team designed a new wing with a split personality, deferring to the two-story villa in front, playing off it more boldly in back, where the site falls away to accommodate four levels.

The addition to Villa Philbrook (facing page) respects the materials and massing of Edward Buehler Delk's 1928 building (top). *The central rotunda* is placed on axis with original entrance gate (left).

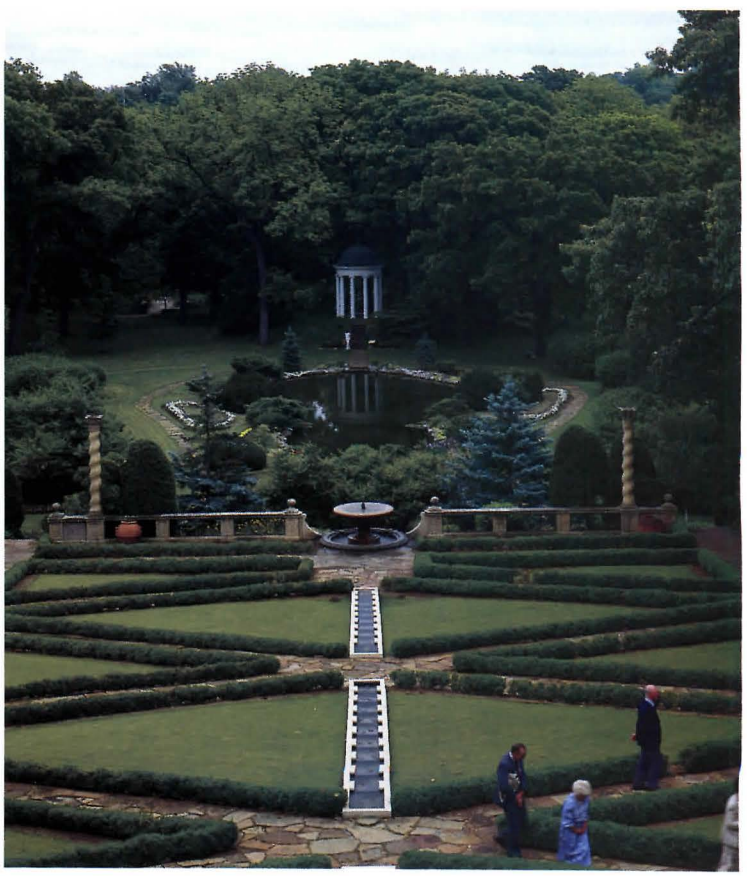


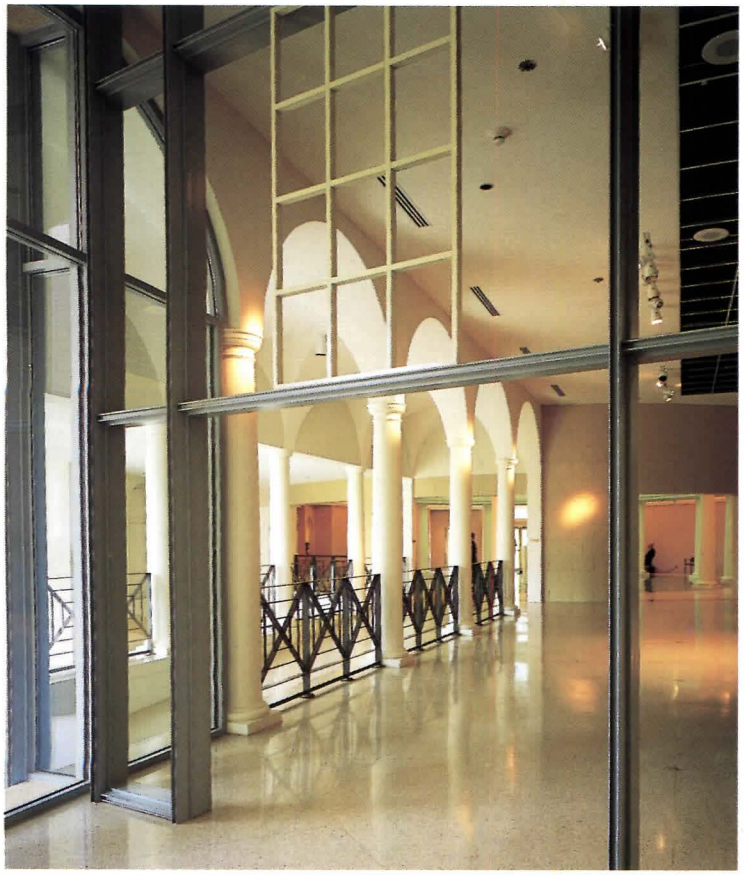
Herbert Hare's gardens (facing page) are among the treasures of Philbrook. The new wing (above and facing page, bottom left) features a colonnade and rusticated base that complement the formal landscape. Enclosed in glass, the restaurant contains circulation spine from rotunda to garden (plan).

On the public side, the architects followed Delk's lead, demolishing several mediocre additions to the villa and reproducing not only the existing building's massing and cornice line, but its shutters, soffit details, and stone trim. Even the two-level parking garage was partially buried to avoid upstaging the original facade.

Old and new meet in a rotunda, which aligns with the original front gate as well as a tempietto in the formal garden. The resulting axis is thus both a planning device and a metaphor for the integration of building and landscape. The rotunda, with its intricately patterned ceiling and floor, serves as the ceremonial heart of the museum. Like its predecessors, the Classical space raises expectations before visitors peel off to the gift shop, gallery, offices, auditorium, and restaurant. A new passageway leads back to the villa, which now houses an important collection of Native American artifacts as well as the Renaissance paintings collected by the Phillips.

Yet compared to the rotunda, these other spaces seem anti-climactic. The temporary exhibition gallery is a simple black box, rotated slightly to identify it as a new space, but it lacks architectural distinction. A well-proportioned, 250-seat auditorium, designed



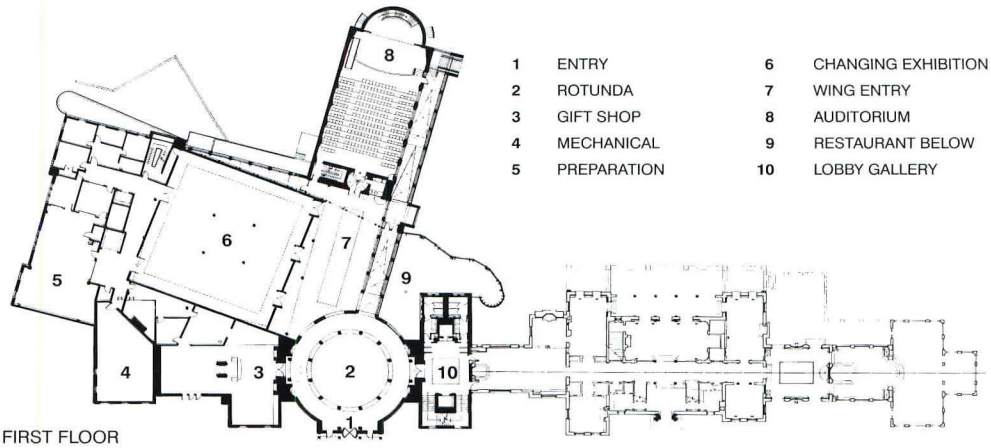


by Michael Lustig, terminates the new wing, but its details are surprisingly slipshod. The ceiling, for example, is covered with black acoustical scrim instead of wood or plaster. A tight budget clearly affected these decisions, but it doesn't excuse the bumpy transition from rotunda to adjacent spaces.

Herbert Hare's 1920s gardens are among the treasures of the Philbrook, and the architects worked hard not to overwhelm them. The auditorium wing contains a fanciful colonnade that mimics the villa, while its base, housing the library and studios for the museum school, is rusticated in a more loosely interpreted Renaissance style.

The restaurant, overlooking the sculpture garden, is wrapped by an undulating glass wall like a greenhouse. It is a thoroughly Modern element, uninfluenced by Delk except for metal grilles patterned after the window panes of the villa. These grilles translate the scale and texture of the original building into contemporary terms, and offer a paradigm for the entire project. Apart from lapses in material detailing, the addition is a thoughtful and sensitive piece of work that brings old and new together without compromise. Philbrook is a villa with a future. ■

—*David Dillon*



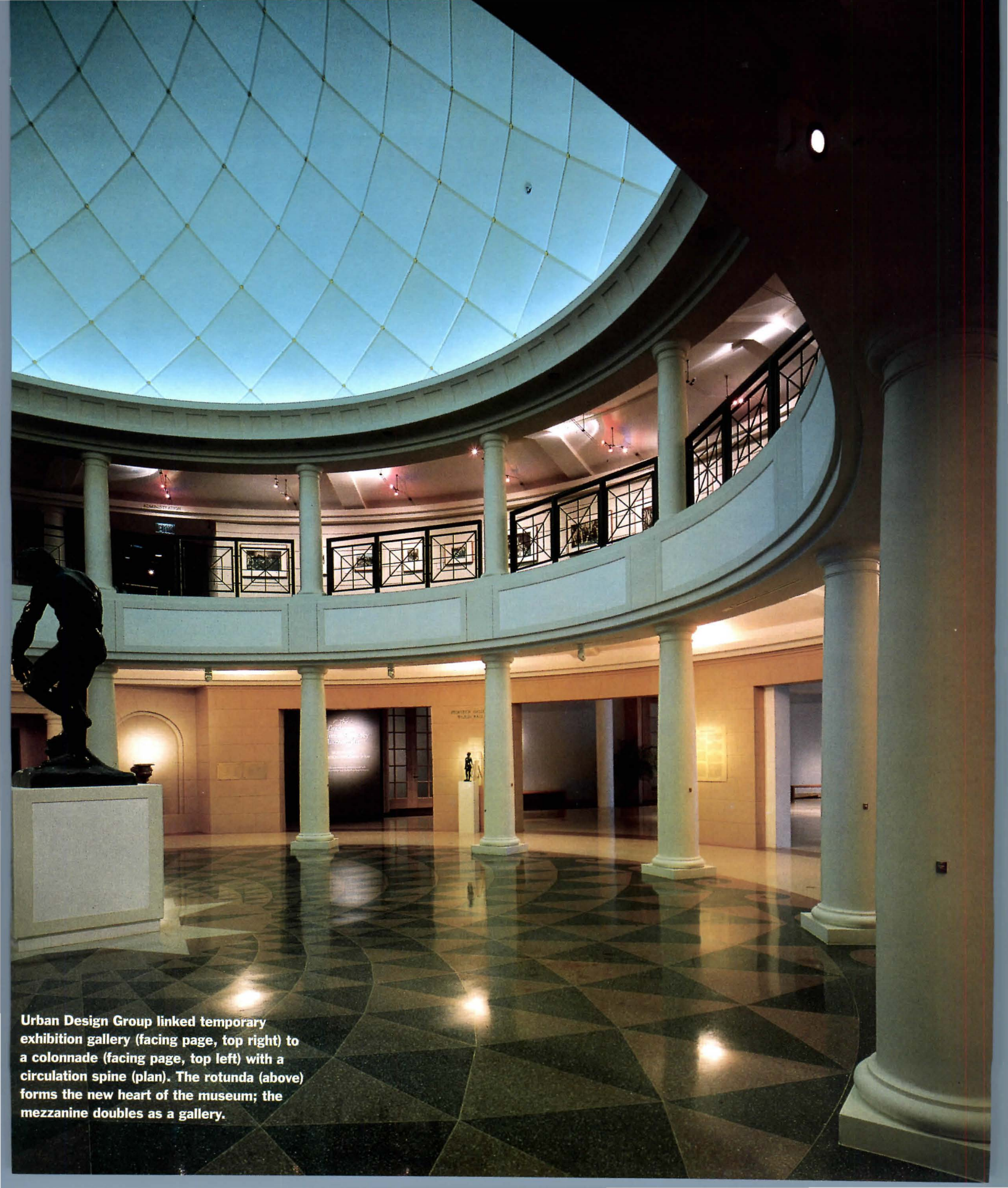
1	ENTRY	6	CHANGING EXHIBITION
2	ROTUNDA	7	WING ENTRY
3	GIFT SHOP	8	AUDITORIUM
4	MECHANICAL	9	RESTAURANT BELOW
5	PREPARATION	10	LOBBY GALLERY

FIRST FLOOR

PHILBROOK MUSEUM OF ART
TULSA, OKLAHOMA

ARCHITECTS: Urban Design Group, Tulsa, Oklahoma—John Novack (principal); Jack McSorley (project manager); Ray Kahl (project coordinator); Jim Turner, Greg Ward, Leisa McNulty (project architects); John Foster, Mike Goleski, Randy Hull, Pat Keith, Mike Schmitz, Carson Smith (project team); Cheryl Morris, Sandy MacLeod (interior designers): Michael Lustig & Associates, Chicago, Illinois—Michael Lustig (principal); Atul Karkhanis (project architect); Samuel Essefa, Steven Gorski, Chaya Lao (project team)

ENGINEERS: Solnok/Geurin (structural); Smith & Boucher (mechanical, fire protection); Phillips & Bacon (electrical, lighting, fire detection); Tulsa Engineering & Planning (civil); Chapman/Ducibella Associates (security); Deshazo Starek & Tang (traffic); Talaske-Joiner Group (acoustical)
CONSULTANTS: J. Patrick Manhart (landscape); Chilton Design Group (graphics); Mulhauser/McCleary (food service); Quintessence Audio (audio visual); ORM Consultants (estimating)
GENERAL CONTRACTOR: Flintco Construction
PHOTOGRAPHER: Greg Hursley

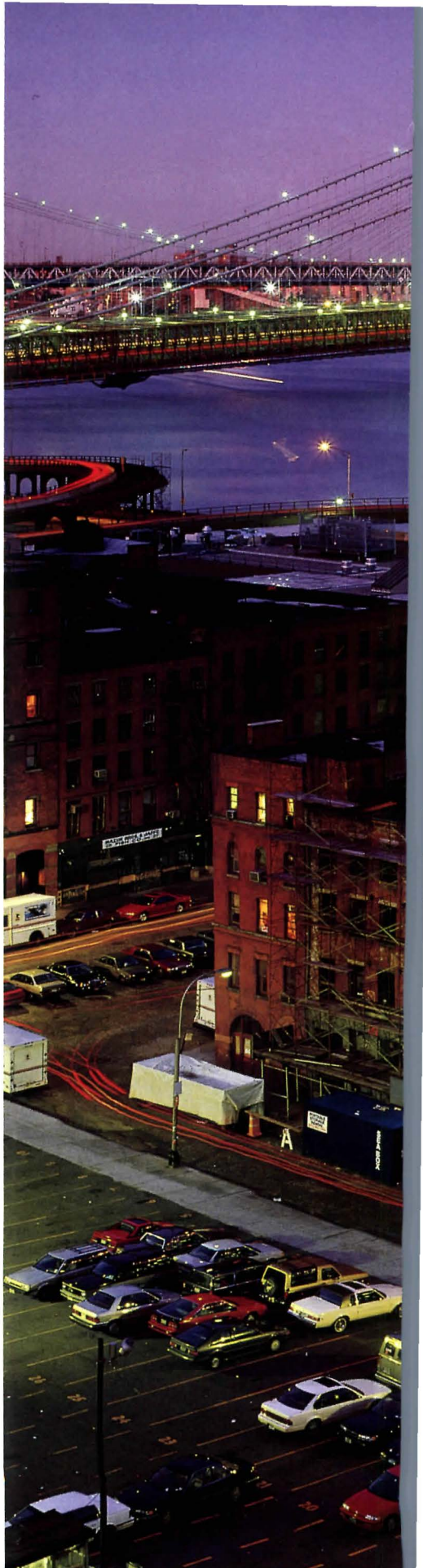


Urban Design Group linked temporary exhibition gallery (facing page, top right) to a colonnade (facing page, top left) with a circulation spine (plan). The rotunda (above) forms the new heart of the museum; the mezzanine doubles as a gallery.

SAILORS' DELIGHT

LOWER MANHATTAN'S EVOLUTION FROM PORT TO FINANCIAL center has created a hybrid architectural landscape of decaying 18th- and 19th-century buildings and sleek, Modern skyscrapers that confounds easy rules about preservation. When the Seamen's Church Institute abandoned its prestigious address on the Battery in 1985 to make way for an office tower, the maritime benevolent association decided to relocate to a site within the South Street Seaport Historic District. The mid-block parcel was partially occupied by a late 18th-century brick structure cherished by preservationists for several Colonial features, notably a small quoined service entrance to a yard passage, a pentimento of the vanished building patterns of New Amsterdam. Retaining this former ship chandlery of Peter Schermerhorn, a prosperous New York merchant and landowner, and respecting its roofline were primary conditions set by the New York City Landmarks Preservation Commission. In turning to James Stewart Polshek and Partners, architects with impressive laurels in innovative local preservation projects—among them Carnegie Hall, the Urban Center, and the U.S. Customs House—the Seamen's Institute ruled out an easy historical pastiche, opting instead for a complex design that engineers a meeting of historic and contemporary idioms. Polshek's institute is at once sensitive to the museological reverence of the nearby Seaport museum and the no-nonsense functionalism of life aboard ship.

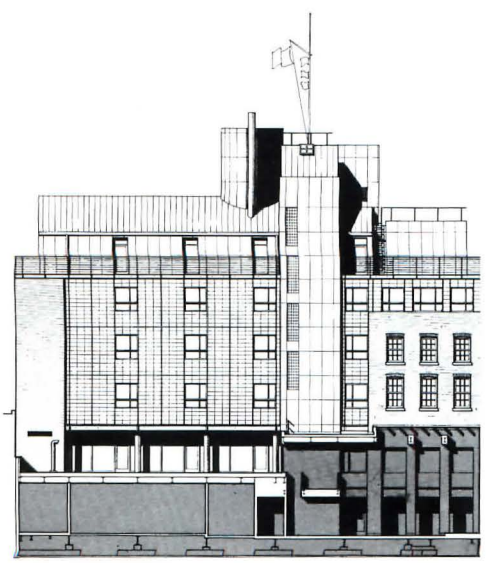
Behind adjacent old and new brick facades, the architects have housed the Seafarer's Club, meeting rooms, offices, and state-of-the-art classrooms for computerized nautical training, as well as ground-floor retail space. Polshek designed the institute with the tightness of naval architecture; he characterizes his building as a modern ship docked at a 19th-century pier. The architect pursued this image to weave a dialogue between a new brick wall, which continues the streetscape of the adjacent commercial structure, and the porcelain-enameled steel panels of the upper stories,

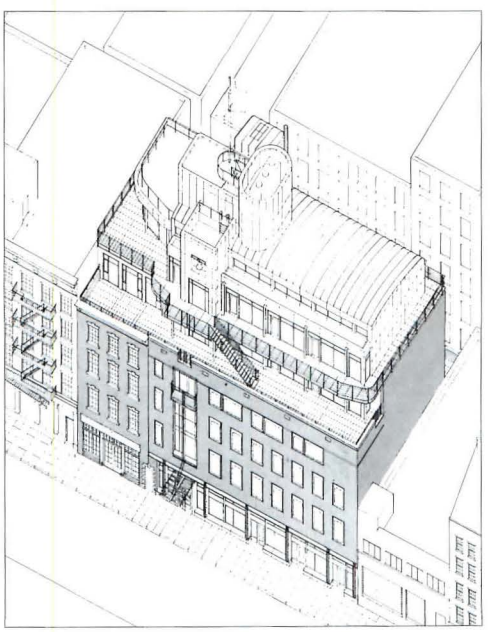


Inserted into the South Street Seaport Historic District, Seamen's Institute (facing page) houses complex spaces behind 18th-century landmark to the north (top) and a newly created facade.

Seamen's Church Institute Headquarters
New York City
James Stewart Polshek and Partners

Institute's brick facade (facing page and axonometric) aligns with height of historic neighbor; rear facade, facing narrow backcourt (below left and elevation), is clad in fiberglass and aluminum panels.





which emerge like the decks and stacks of an ocean liner, to reveal the scale of the institutional spaces behind. This machined roofscape, whose volumetric composition contrasts with the planar masonry of the street facade, houses a large meeting room open to views in all directions as well as mechanical systems—boiler, cooling tower, elevator machinery—that have been forced to the roof by the site's high water table. These nautical metaphors, which have been a leitmotif of Modern functionalism from Le Corbusier's villas of the 1920s to the early work of Richard Meier, are invested at long last with an actual function.

Although the client would have preferred a blurring of distinctions between old and new to achieve a more monumental facade, Polshek cultivated a richer streetscape, establishing a subtle dialogue between the building's existing Georgian bays and the asymmetrical fenestration of its Modern continuation. The pair are tied by a dialogue between centuries and materials: mullioned, sashed windows give way to plate-glass openings designed to echo portholes; a bracketed cornice is continued in the line of a parapet capped by an ornamental I-beam; and the 19th-century shopfront of cast-iron columns and granite lintel is reinterpreted in the elegance of modern structural steel. The only unresolved issue is, ironically enough, the old "Dutch" door; it appears now to be a ghost awkwardly caught between two facades. A vertical slice over the entrance boldly announces the institution behind: entrance canopy, jutting third-floor balcony/deck, ship's bell, and mast are aligned to tie these picturesque gestures into a tight composition.

In section, the ship metaphor is taken much beyond the detailing of pipe railings and stairs to organize services and circulation. The floors are literally treated as if they were trays or decks anchored by a central stack, with views out to heavily fenestrated curtain walls. Circulation crisscrosses from interior to exterior, moving outward from the core, where a double-height space is opened up to connect upper office floors to exterior staircases; the stairs open the roof to visitors and to spectacular views of the East River, Brooklyn Bridge, and Lower Manhattan. A long corridor "galley," which runs parallel to

Interior circulation recalls elements and organization on board ship: industrial railings (bottom left), open staircases (facing page), and galleylike corridors (below left) that contain displays of collections in vitrines.

the street facade on each floor, is marked by a dropped ceiling for mechanicals and a line of structural pilotis. In this tightly packed section, individual spaces are treated as on a ship with contrasting decors, from the paneled library to the exquisitely lighted chapel, which is demarcated by an understated asymmetrical vault.

One of the finest features of the building is reserved for few eyes: a rear facade constructed of translucent fiberglass, redolent at once of an industrial warehouse esthetic and the refined simplicity of Japanese architecture. Clearly recalling Pierre Chareau's Maison de Verre, the curtain wall provides a filtered luminosity throughout the building.

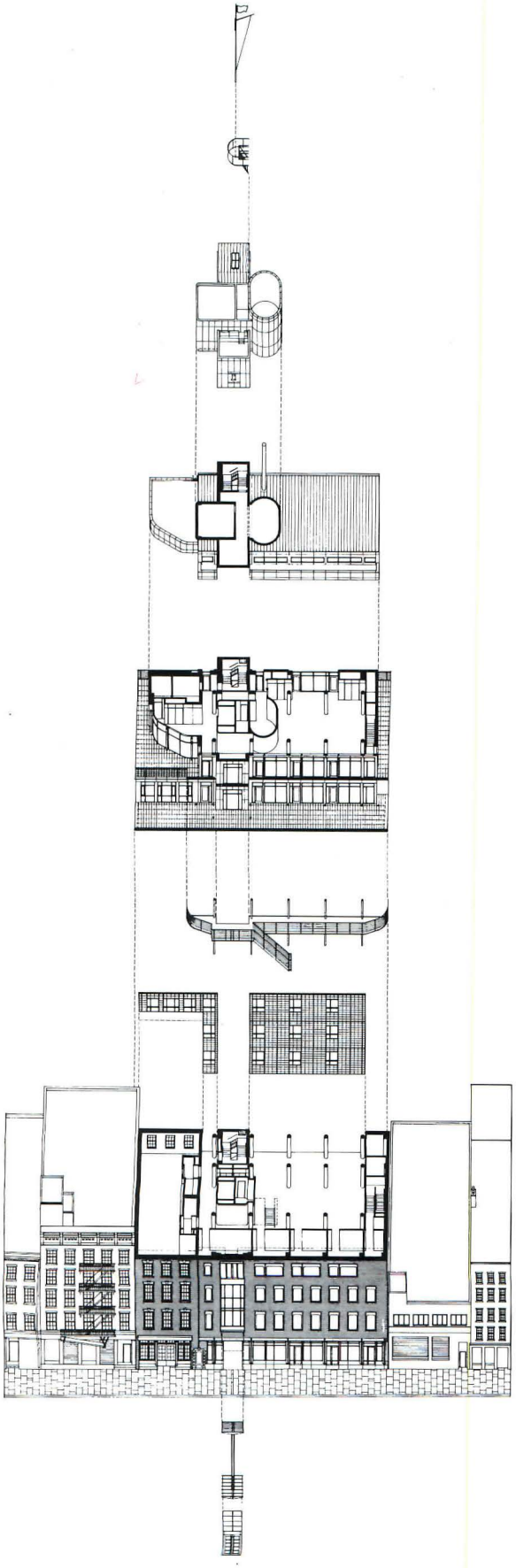
While retaining the tradition of Modern architecture, Polshek solves practical space needs for his sailor clients and avoids creating a cheap copy of an historical structure that could have overwhelmed their memories of sea adventures with nostalgia. Moreover, the architect establishes a dialogue between the streetscape and skyline, celebrating not only Manhattan's lost building traditions but the lost romance of her bustling port. In Polshek's design, the visual warehouse of Modern elements merges almost seamlessly with the remnants of a New York culture that had a more palpable contact with the sea. ■

—Barry Bergdoll

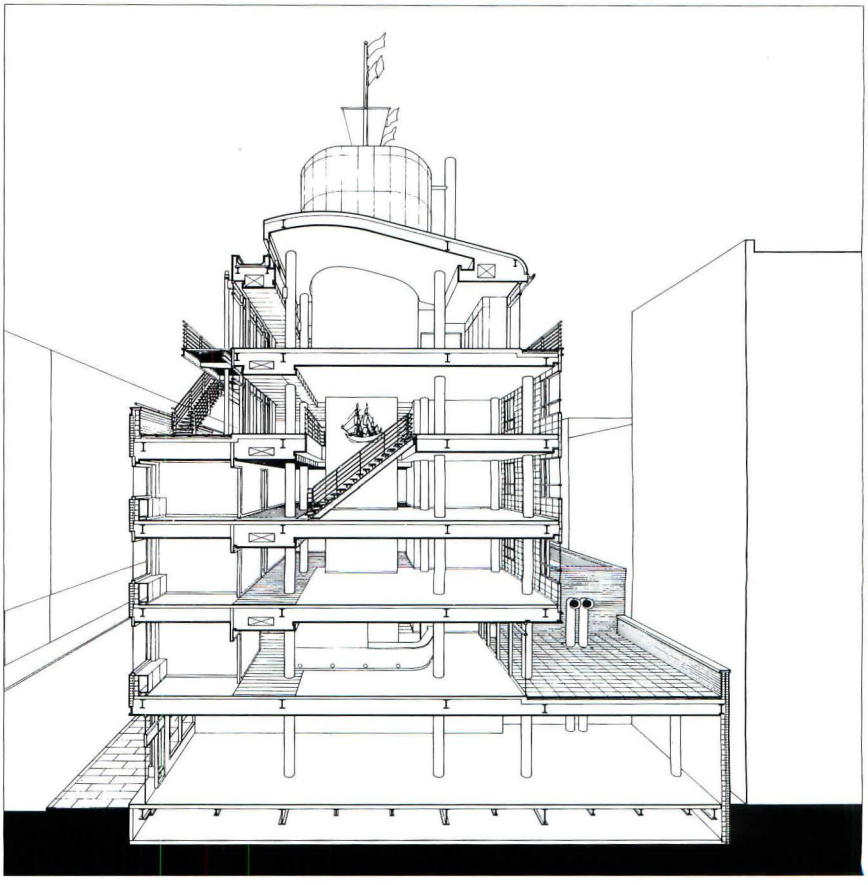
Barry Bergdoll is an associate professor of art history at Columbia University.

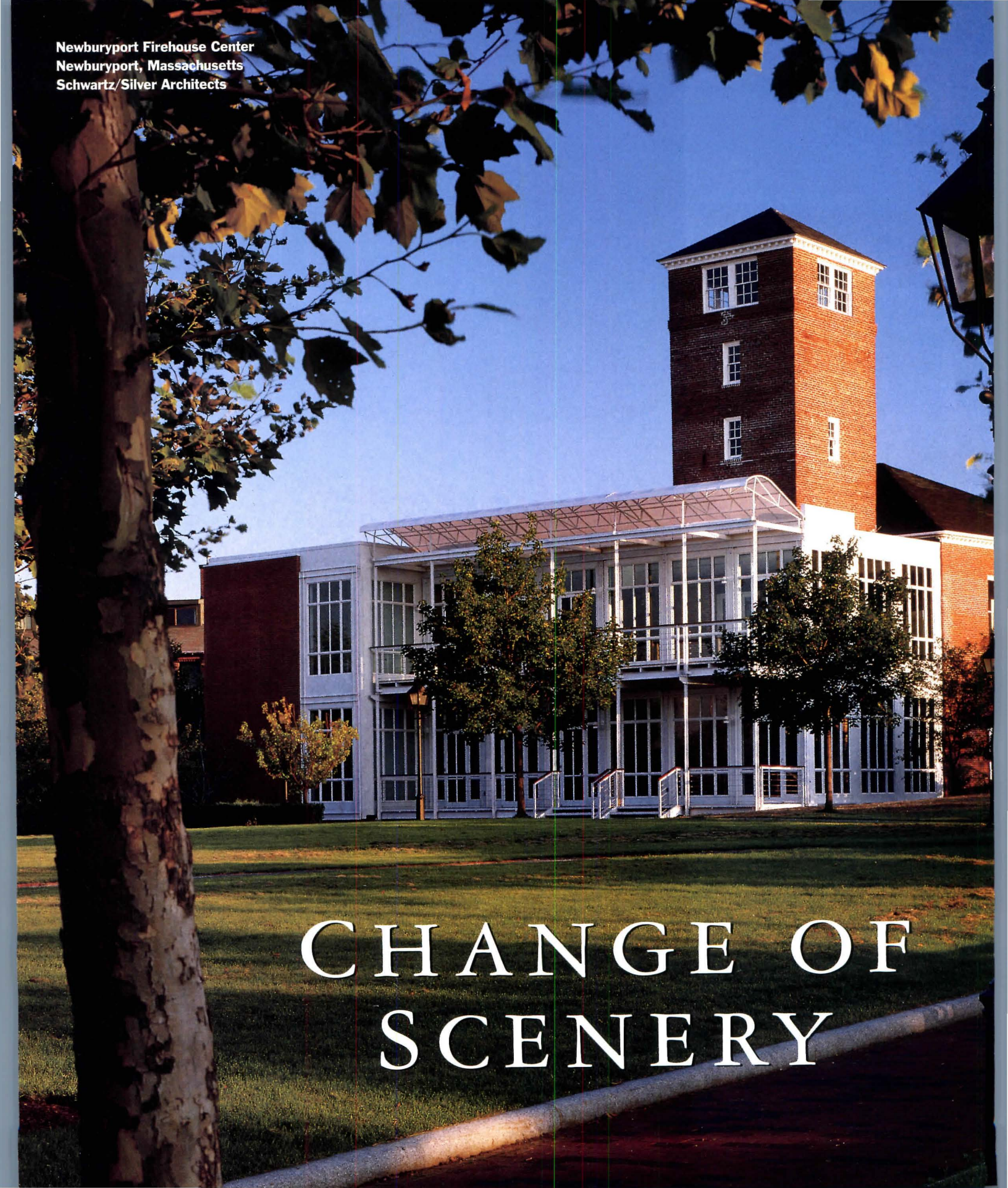
SEAMEN'S CHURCH INSTITUTE HEADQUARTERS
NEW YORK CITY

OWNER: Seamen's Church Institute
ARCHITECT: James Stewart Polshek and Partners, New York City—Timothy Hartung (partner-in-charge); James Stewart Polshek (design principal); Richard Olcott (design associate); Sara Elizabeth Caples (project manager); Peter Talbot (project architect); James Sinks (job captain); Marla Appelbaum, Jihyon Kim, Thomas Koloski, Kevin McClurkan, Ron Milewicz, Charmian Place, Shawn Rickenbacker (design team)
ENGINEERS: Robert Silman Associates (structural); John Altieri Consulting Engineers (mechanical/electrical); Raamor Associates (soils)
CONSULTANTS: Cline, Bettridge, Bernstein Lighting (lighting); Shen Milsom & Wilke (acoustics); H Plus (graphics)
GENERAL CONTRACTOR: F.J. Sciame Company
PHOTOGRAPHER: Jeff Goldberg/Esto



Within a densely packed section (bottom), spaces are animated by contrasting qualities of light: luminous in rooftop meeting hall (below and drawings); filtered chiaroscuro in ground-floor chapel (facing page).



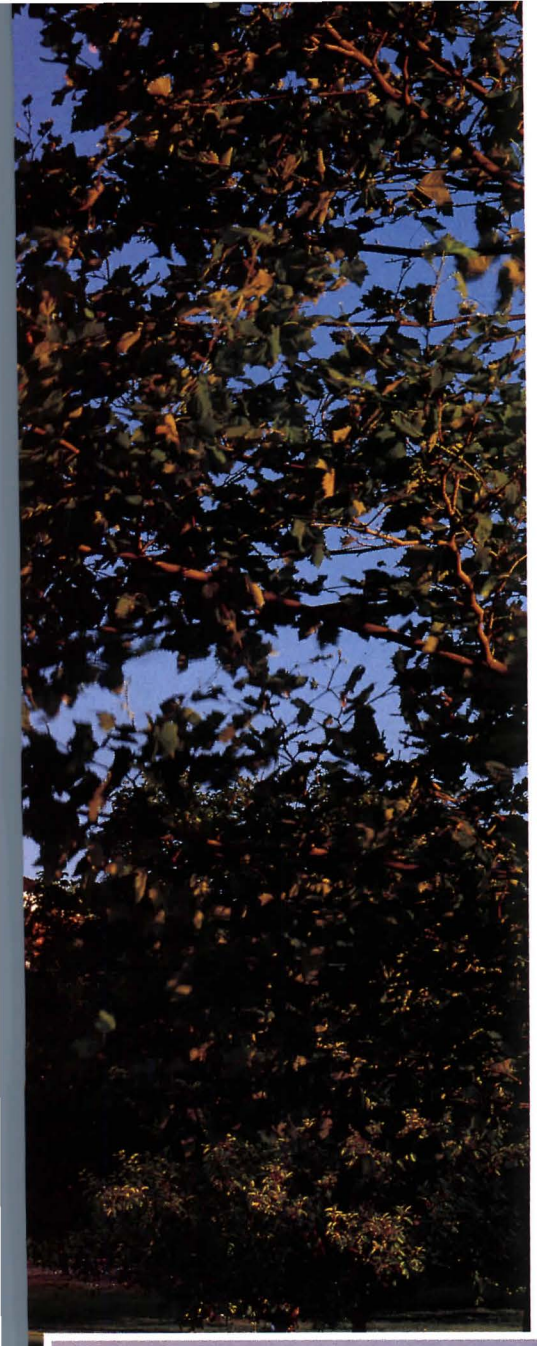


Newburyport Firehouse Center
Newburyport, Massachusetts
Schwartz/Silver Architects

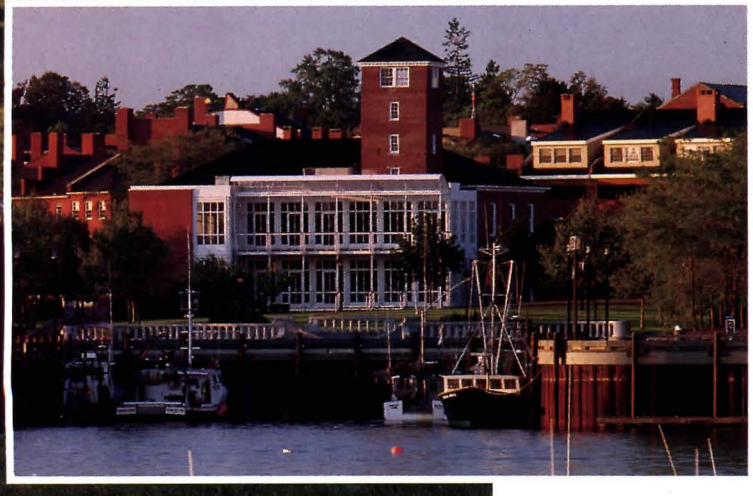
CHANGE OF SCENERY

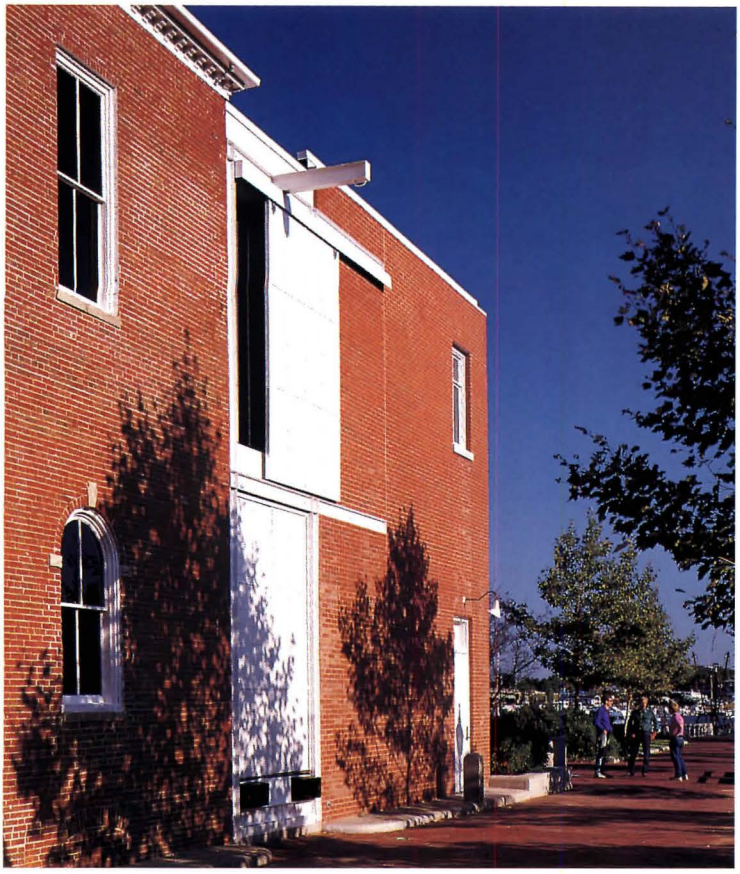
IMITATION MAY BE THE SINCEREST FORM OF FLATTERY, BUT Schwartz/Silver Architects proves that when adding to a landmark, contradiction is an equally effective compliment. In 1987, the Boston firm was commissioned to convert an abandoned fire station in the heart of Newburyport's historic Market Square into a performing arts center that also houses a gallery for local artists, a visitor's center, and a restaurant. "The challenge was to adapt the physical limitations of the building to these new uses rather than attempt to recapture a single period in the building's history," recalls principal-in-charge Robert J. Miklos. Accordingly, the architects accentuated selective original architectural details and augmented the firehouse with a decidedly different 6,500-square-foot glass and steel addition facing a waterfront park.

Located along the Merrimack River in northeastern Massachusetts, Newburyport was founded in the 17th century as a shipbuilding center. After a devastating fire in 1811, the downtown was rebuilt into an architecturally cohesive core, comprised mostly of three-story masonry buildings. The town continued as a viable seaport until the mid-19th century when maritime industries fell into decline. In the 1960s, the town received an influx of federal urban renewal monies. Eschewing proposals for massive demolition, local citizens' groups called for preserving the city's historic commercial core. This approach paid off—the Newburyport Market Square historic district was presented a national AIA honor award in 1980, cited by the jury as "one of the few and best examples of district restoration."



Facing the Merrimack River (below left) and a new city park (below right), Schwartz/Silver's steel and glass addition to the 1823 firehouse (top right) wraps around an existing hose tower (facing page).





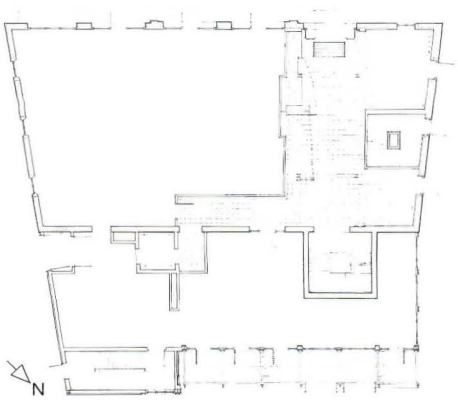
Confronted with this tradition of preservation, some architects might have proposed a more literal historical addition to Newburyport's 1823 Federal-style firehouse. But, as Miklos points out, "the building had housed a mix of constantly changing public and commercial functions, and we thought it would be appropriate to reflect the uses and transformation the building had undergone." In fact, the building's most prominent feature—a 65-foot-high masonry hose tower—was added in the 1930s.

Although Schwartz/Silver was given the freedom to explore a contemporary idiom, community design guidelines dictated brick along the east elevation. Zoning and budgetary constraints called for the new addition to be built on the foundation of an undistinguished masonry wing, constructed in the 1930s, which was demolished when construction began on the Schwartz/Silver scheme.

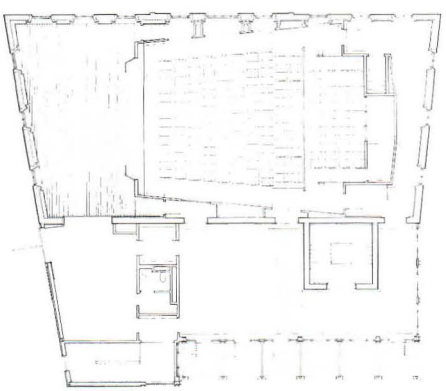
Along this northern elevation, Schwartz/Silver wrapped the original structure with a highly articulated, two-story, greenhouselike extension that echoes the historic building's massing and vertical proportions of its windows. With commanding views to the river, the white steel and glass structure evokes a host of nautical images with its curving, fabric-covered canopy, stainless steel cable railings, and wooden decking. The building's glass-front restaurant and theater lobby are inserted into the new porch—an arrangement made possible by housing the kitchen and stage support within a section of new brick along the east facade and by tucking a fire stair in the northeast corner.

Inside, the architects again played new against old, revealing the existing exterior wall every time the brick container was penetrated. A new structural system of four metal columns supporting the theater's rear seats interrupts the main lobby and a simply detailed stairway of steel rises up through the fire tower. New steel lintels in the load-bearing masonry walls are painted black. On the second level, a 196-seat contemporary theater floats within the historic shell. By opening up the ceiling to the underside of the roof, the architects made the auditorium almost as high as it is deep. The insertion of a new floor provides a significant slope for seating that is reflected in the ceiling of the ground-floor restaurant, while the stepped rear gallery gives the illusion of a balcony.

To improve the acoustics, the architects exposed an elaborate system of existing wooden trusses and maintained the hipped



FIRST FLOOR



SECOND FLOOR

On the east facade (facing page, top left), the architects inserted a barn door fitted with a block and tackle for lifting stage props. Renovated hose tower juts above the addition (above). Upper-level porch (facing page, bottom left) provides space for the theater lobby, while ground-floor portico houses restaurant (facing page, top right).

roof at either end of the theater. Behind the stage, windows are left exposed but incorporate a removable system of drapes as a flexible backdrop for performances. Angled walls line the auditorium, penetrated to reveal the restored woodwork of the original windows along the southern elevation, which are fitted with retractable shades. As a bow to traditional theater design, the architects installed a heavily patterned carpet on the aisles and reconditioned plywood theater seats with new plush wool velour upholstery.

Throughout the new Firehouse Center, Schwartz/Silver emphasized the architectural evolution of the building rather than treating the early 19th-century structure as a pristine artifact. The architects' approach is befitting, since the simple brick volume was repeatedly altered to serve changing community needs from its origins as a public market to the Newburyport Lyceum, a forum for local orators such as Ralph Waldo Emerson and Daniel Webster. In the old firestation's latest incarnation as a center for the arts, Schwartz/Silver has developed a strong architectural dialogue between old and new, illustrating that the most appropriate preservation acknowledges the changing process of design. ■

—Lynn Nesmith

NEWBURYPORT FIREHOUSE CENTER
NEWBURYPORT, MASSACHUSETTS

CLIENT: City of Newburyport and Society for the Development of Arts and Humanities of Greater Newburyport
ARCHITECT: Schwartz/Silver Architects, Boston, Massachusetts—Robert J. Miklos (principal-in-charge); Randolph Meiklejohn (project architect); Rania Matar, Elise Gispan, David Stern (design team); James McQueen (specifications)
ENGINEERS: LeMessurier Consultants (structural); Fitzemeyer & Tocci (mechanical); McCarron, Hufnagle & Bent (electrical)
CONSULTANTS: Robert Long (theater); Cavanaugh Tocci Associates (acoustical); Preservation Technology Associates (historical)
GENERAL CONTRACTOR: Castagna Construction Corporation (phase I); P&H General Contractors (phases II and III)
COST: $1.75 million—$105/square foot
PHOTOGRAPHER: Jeff Goldberg/Esto

EAST–WEST SECTION

Entrance lobby terminates in a stairway tucked within the hose tower (facing page, top) and supplements the gallery space (facing page, bottom). The theater (above) provides an appropriate setting for the community's diverse performances. A new second floor (section) provides a significant slope for theater seating.

Minnesota Judicial Center
St. Paul, Minnesota
The Leonard Parker Associates

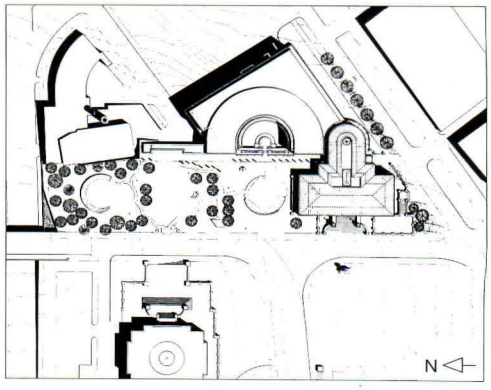
COURTING HISTORY

IN 1904, ARCHITECT CASS GILBERT PROPOSED THAT THE LEGISLATIVE and judicial functions of Minnesota's government be housed in two buildings flanking his newly completed State Capitol in St. Paul. The legislature eventually appropriated money for a judiciary building on a site southeast of the capitol, down the slope of the fan-shaped Capitol Mall, that would be shared by the state's historical society. A Classical granite building designed by a local architect, C.H. Johnston, was built on the site in 1915, but the state's supreme court justices opted for a courtroom in the capitol instead, and the historical society occupied the new structure alone. Politics and budgetary problems intervened, and it wasn't until October 1990 that the Minnesota Judicial Center, housing the state supreme court, the appellate court, a law library, the state court administrator, and related judicial functions finally opened its doors.

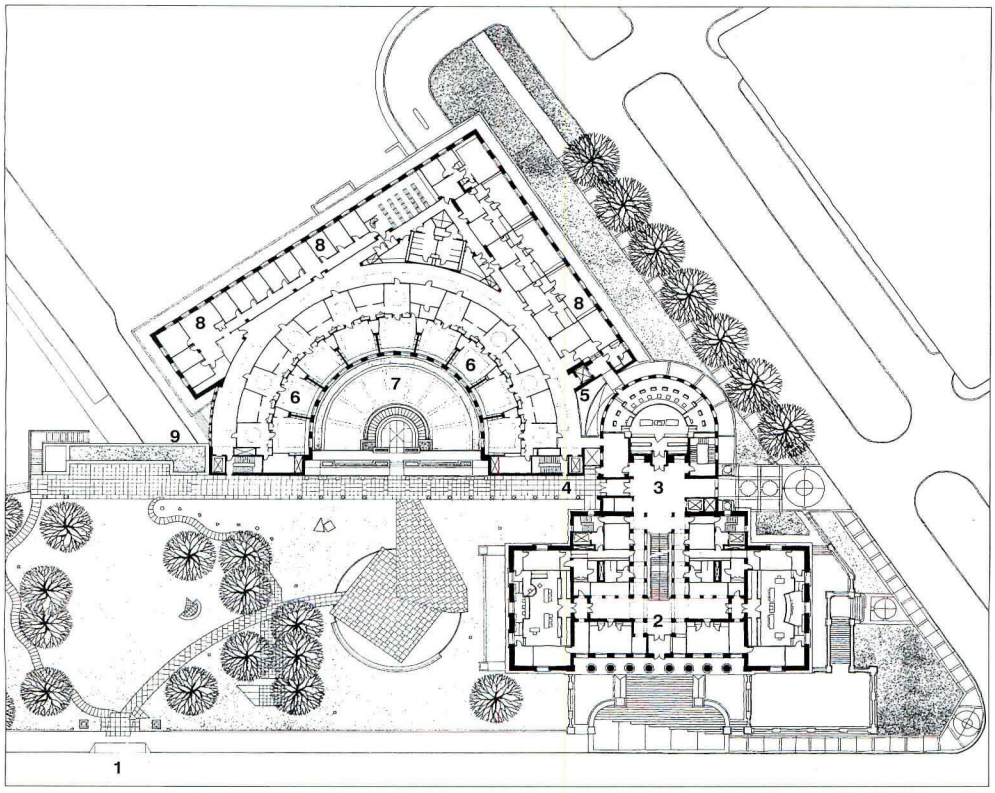
The new judicial complex, comprising the historical society building (the historians are moving elsewhere) and a 150,000-square-foot addition, is designed by The Leonard Parker Associates of Minneapolis. Parker approached the new complex by retaining the 1915 building, which defers to Gilbert's eclectic, domed capitol, and creating a similarly reticent addition. Since the Minnesota judiciary required more than twice the space of the existing structure, this was no easy task. A more egotistical architect might have seized the opportunity to create an elaborate design statement, but Parker treated the former historical society as the centerpiece of his expansion, which he oriented to the odd geometry of its site.

Within the northeastern wing of the judicial center, the architect carved a crescent that faces westward toward the capitol, and then set the five-story volume back from the Capitol Mall to align with an adjacent boulevard. The 1915 building and crescent wing embrace a large public plaza that forms a landscaped link to the capitol on the west, abutting an access road to the north. From the east bay of the existing structure, Parker projected a rounded volume, which in plan appears as an apse to the nave of the 1915 historical society building. Although the apse and crescent increase the original structure's square footage by almost 75 percent, when viewed from the eastern

GEORGE HEINRICH



Existing 1915 building (right in photo above), apse (top and facing page), and crescent wing (above) comprise the Minnesota Judicial Center, which faces Cass Gilbert's capitol (bottom in site plan).



FIRST FLOOR

1	PLAZA ENTRANCE	4	SECONDARY ENTRANCE	7	SUNKEN COURTYARD
2	MAIN PUBLIC ENTRANCE	5	WINTER GARDEN	8	STAFF OFFICES
3	*APSE*	6	JUSTICES' OFFICES	9	PLAZA WALL

steps of the capitol, they appear to recede from the columned facade of the older building. In 1993, when the entire project is completed, the renovated 1915 building will serve as the Minnesota Judicial Center's main public component, with a grand entrance hall, a monumental stair, and a stained-glass skylight created by local artists.

Within the crescent wing lie the private judicial functions—the justices' chambers, law library, and robing room—where adjudicators of the law engage in private thought or philosophical discourse, away from the public eye. Symbolically linking the public and private elements of the building—and, more abstractly, of the legal system—are the courtrooms. Attached due east of the original building, they are stacked on three levels within the apsidal volume. "The configuration of the courts is special," Parker explains, "just as the crescent form of the justices' chambers is distinct—higher in mass than the supportive functions of the courts."

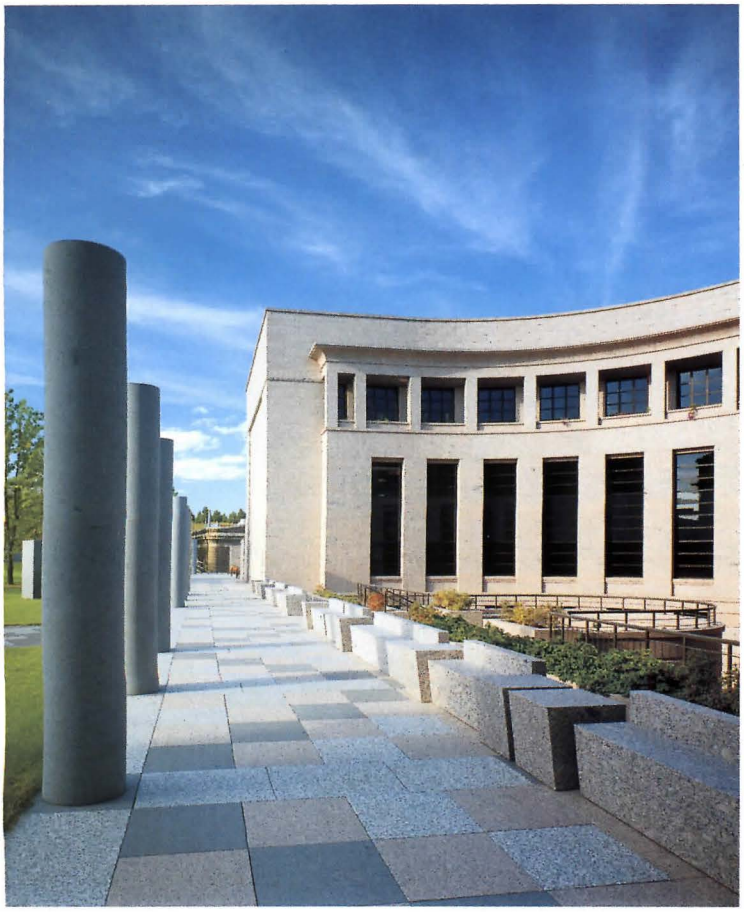
The architect also contends that the apse and crescent are complementary building blocks, "the yin and yang of the structure." In the oddly configured pocket between these blocks, Parker has resourcefully planted a 900-square-foot winter garden, an oasis of green beyond which only judges and staff may enter the crescent wing.

Parker's finesse at blending a historical building with a contemporary wing can best be seen when viewing the building's southeastern elevation, where the curve of the apse attaches seamlessly to the 1915 building. The apse, in turn, fits snugly into the southeast facade of the crescent wing, where a series of abstract columns—Classical imagery reduced to Modern form—designate the law library at ground level. The same rose-beige granite, quarried about 80 miles from St. Paul near Cold Spring, Minnesota, clads the original building and addition, and melds the distinct volumes into a cohesive whole.

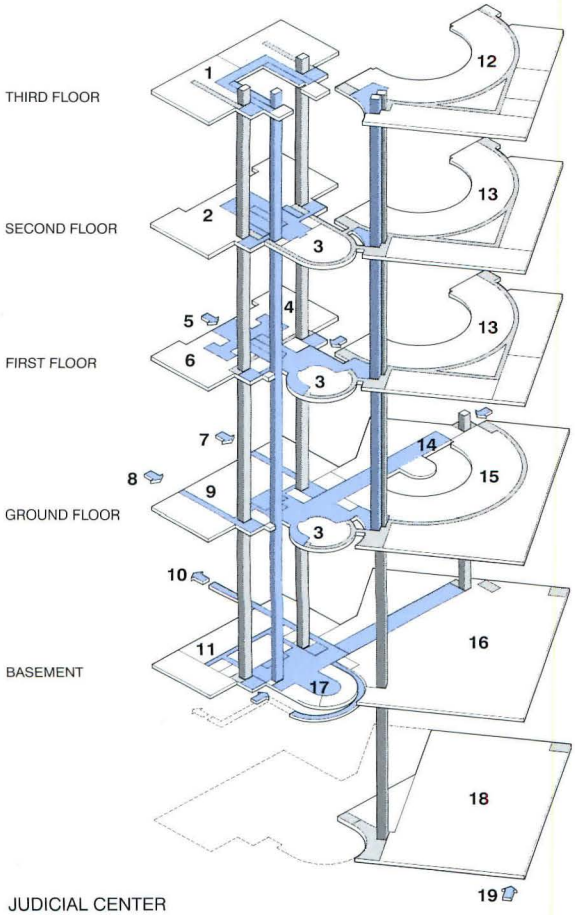
The most striking amenity of the Minnesota Judicial Center is a 1.2-acre public plaza, which Parker turned over to Rhode Island artist Richard Fleischner. The artist,

Public plaza (top left and bottom left in plan) extends north from crescent wing and existing building. Intricate granite paving forms a patchwork design; plaza includes a sunken courtyard below crescent (facing page, top). Row of columns (facing page) suggests a Modern translation of a Classical pergola in plaza adjacent to crescent (facing page, bottom right).

GEORGE HEINRICH



GEORGE HEINRICH



1 TAX/WORKMEN'S COMPENSATION COURTS
2 CLERK/APPELLATE COURT
3 COURTROOMS
4 TAX COURT HEARING ROOM
5 MAIN ENTRANCE
6 WORKMEN'S COMPENSATION COURT OF APPEALS
7 PRIVATE ENTRANCE
8 PUBLIC ENTRANCE
9 QUASI-JUDICIAL BOARD
10 TUNNEL TO STATE CAPITOL
11 FILE STORAGE/CLERK OF COURT
12 SUPREME COURT OFFICES
13 APPELLATE COURT OFFICES
14 CAFETERIA
15 ADMINISTRATION
16 LAW LIBRARY
17 CONFERENCE CENTER
18 STAFF PARKING (PUBLIC PARKING BELOW)
19 JUDICIAL ENTRY

PRIVATE CIRCULATION
PUBLIC CIRCULATION

JUDICIAL CENTER

who won a competition held by the state for the design, dramatically revised the architect's original formal composition. Parker, as an adviser to the competition's jury, supported Fleischner's abstract concept over the opposition of some conservative jurors. "He gave it life," Parker admits.

Beginning with Classical ideas and forms, the artist metaphorically updated them in ways that complement the hard granite building with an inviting softness. Where a more formal approach would have positioned a pergola, Fleischner's freestanding columns merely suggest a pergola, and where a Classical amphitheater might have been surrounded by stone, Fleischner placed a grove of trees. Instead of granite benches, he specified bronze and teak. An 80-foot-long, 9-foot-high wall, inscribed with quotations from the Minnesota state constitution, extends north of the crescent wing.

The wall was designated in Parker's original scheme, but Fleischner punctuated it with five windows, giving the wall depth. On the piazza and walkway, the artist designed paving with an intricate inlay of geometric shapes that creates a patchwork quilt in 11 different shades of stone. Geometric sculptures—including a sphere, cube, pyramid, and cone—echo the shapes in the granite inlay, providing a progression of changes in scale from the street to the building.

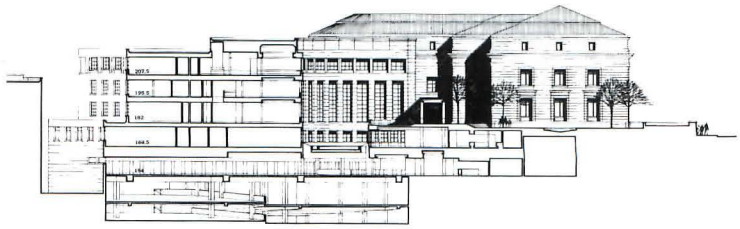
Cass Gilbert, whose turn-of-the-century plan for the Capitol Mall in his home state has finally been realized, eschewed the nascent Modernism of his time in favor of the Classical idiom. Given their progressive reputation, Minnesotans are perhaps fortunate that Gilbert, who went on to become the architect of the United States Supreme Court in Washington, never designed a judicial building for St. Paul. Instead, they are graced with Leonard Parker's flawless synthesis of old and new, a fitting setting in which to uphold the state's liberal traditions. ■

—HEIDI LANDECKER

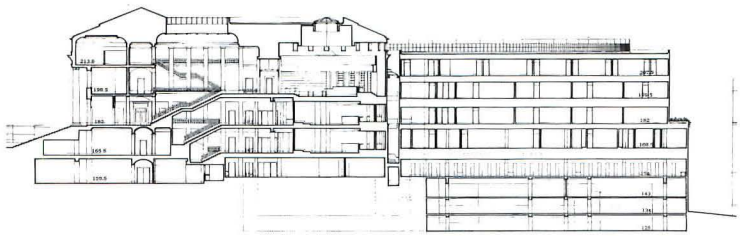
Winter garden between crescent and apse is lit by clerestories, skylights, and windows (facing page). Tall window (facing page, center) looks out onto existing building—a glimpse of history through a contemporary frame. Walkways lead to justices' chambers and courtrooms (top). Granite exterior wall of apse forms interior wall of atrium (above left, schematic, and facing page), an immediately recognizable element to orient visitors within the 241,000-square-foot building.


EXIT

FARSHID ASSASSI

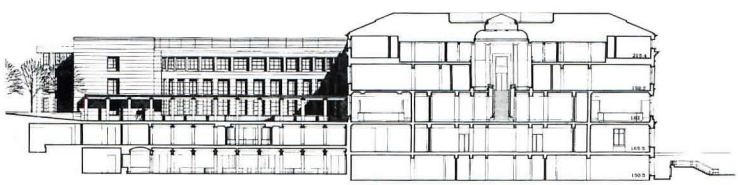


NORTH SECTION



SOUTH SECTION

FARSHID ASSASSI



WEST SECTION

MINNESOTA JUDICIAL CENTER
ST. PAUL, MINNESOTA

ARCHITECTS: The Leonard Parker Associates, Minneapolis, Minnesota—Leonard Parker (principal-in-charge); Gary Mahaffey (project manager); Ray Greco (project architect); Andrejs Cers (project designer); Steven Huh (production director)
ENGINEERS: Bakke Kopp Ballou & McFarlin (structural); Ericksen Ellision & Associates (mechanical/electrical)
CONSULTANTS: Space Management Consultants, Inc. (courts); Charles Wood & Associates (landscape architect); Mark Vosbeek Design (interior design); Van Hemert Associates (food service); Kvernstoen Kehl (acoustics); Ted Jage & Associates (cost estimating)
ARTISTS: Richard Fleischner, assisted by Lane Myer (plaza); Michael Pilla & Pat Benning (staircase skylight)
CONTRACTOR: Bor-Son Construction (building); Sheehy Construction (plaza)
PHOTOGRAPHY: Christian Korab, except as noted

The state supreme court holds sessions in the top-floor courtroom (this page). Windows are glazed with 1 1/4-inch-thick translucent marble to reduce glare in east-facing rooms. Reception area of 240,000-volume law library (facing page, top) echoes curve of courtyard above it, onto which cafeteria (facing page, bottom) opens.

"Carolyn's been w

Gordon Chong is the owner of Gordon H. Chong + Associates, a 45-person architectural practice located in San Francisco, California. He is president of the San Francisco Chapter of the AIA for 1991, and has been a director of the California Council of the AIA and president of Asian American Architects and Engineers.

Carolyn Isseks is vice president of Dealey, Renton & Associates, an independent insurance agency based in Oakland, California. She has represented DPIC's unique insurance program of education and loss prevention services for over thirteen years. She is also a member of the Professional Liability Agents Network (PLAN), a nationwide group that specializes in serving the risk management needs of design professionals.

Carolyn and Gordon met in 1977. "I was new and he was new," she says, "and we sort of grew together." Perhaps all clients don't take advantage of Carolyn's brand of thorough service, but Gordon does. "He's cautious," she says. "He tends to call us before he starts a project or gets into certain areas. He might say, 'We're thinking about a joint venture with another firm. How will that impact our insurance?' Then our contract analyst and I work together to give him some advice on short and long-term consequences."

On the account management side, Carolyn doesn't just wait for the renewal quote to come in. She's on the phone with DPIC—dealing with the underwriters, pointing out her clients' strengths, negotiating for the terms she needs. And she's persuasive.

"I expect a high quality of service for him—I want to be as professional as Gordon is. He emphasizes high standards in serving his clients. And we feel the same way." Carolyn also works hard to keep Gordon H. Chong + Associates informed about the many premium reduction opportunities available from the DPIC program.

Carolyn has a master's degree in education and began her working life as a teacher. The teacher in her still comes out when she's conducting a workshop panel on liability issues for one of the Bay Area AIA chapters or a brownbag seminar for one of her clients. "I love to see the light bulb go on in someone's head," she says. "The 'oh, now I know what you're talking about.' I think that's what I like about this job: I'm always teaching and getting close to people who, I think, appreciate what I have to tell them. They all have the same interests—they want to better their practice in a professional way."

INFO

TECHNOLOGY & PRACTICE

Preservation Technology Conference in New Orleans

AMID THE TECHNICAL SEMINARS THAT WERE offered at the Association for Preservation Technology's annual conference held in New Orleans this past September, an unexpected theme emerged: the struggle between preservationists and environmentalists over conflicting priorities and the competition between the groups for funding. William Murtagh, former vice president of the National Trust for Historic Preservation, set the stage in his keynote address. While applauding the acceptance of preservation ideals within the city planning process, he pointed out that preservationists have been unable to muster the same widespread popularity currently enjoyed by environmentalists. In addition, Murtagh encouraged the primarily Eurocentric preservation movement to embrace this country's cultural diversity.

In a seminar entitled "Ecology, Preservation, and Industry," Martin Segger, art history professor at the University of Victoria, suggested that recent attempts to save our natural heritage are modeled on earlier efforts to save our built legacy. He argued that the older movement—preservation—may now be able to learn from the younger one. Segger explained that the two movements are compatible in their emphasis on "reduction, reuse, and recycling," but conflict over preservationists' reliance on environmentally damaging chemicals in restoring buildings.

The Cabildo, New Orleans, before 1988 fire.

Property damage resulting from natural causes was the subject of discussion in a session called "Disaster Management." Architect William Robert Brockway of Baton Rouge documented, for example, the havoc that hurricanes have wreacked on historic districts. Arguing that inadequate attention has been paid to hurricane-proof design, Brockway called for the implementation of an interstate commission to develop building standards for hurricanes as sophisticated as those already established for earthquakes.

Other seminars addressed materials, preventive maintenance, computer technology, preservation education, and the impact of tourism on historic buildings. Participants were guided through the French Quarter to examine decorative ironwork, elaborate plaster details, and the ongoing restoration of the Cabildo (above left), built as Louisiana's Spanish colonial capitol in 1799. —N.B.S.

Restoration Techniques at the Octagon

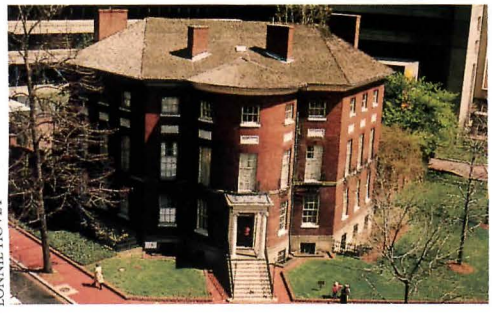
EVER SINCE THE AIA PURCHASED THE OCTAgon in 1902 for its national headquarters, the Washington, D.C., landmark has been looked upon by American architects as a symbol of their involvement in preservation. Now under restoration (previous efforts were conducted in 1902, 1954, and 1968) by the American Architectural Foundation (AAF), the former residence, built in 1802, is a showcase of new building conservation methods.

Restoration architect Mesick Cohen Waite Architects of Albany, New York, is overseeing experimental techniques for restoring the exterior, such as repairing the original brick jack arches over the windows by injecting epoxies and consolidants into the damaged masonry. AAF hopes to have the entire exterior rehabilitated by next summer to coincide with the foundation's 50th anniversary.

Inside, the architects are employing ultraviolet light to locate traces of wallpaper residue. Microscopic samples of paint and stain finishes are being analyzed under polarized light to replicate original colors from the chemical composition of their pigments. And plastered surfaces are being slightly heated with spotlights to detect the presence of any gold leafing on infrared film images. Depending on available funds, interior restoration based on the results of this testing is scheduled to continue through 1994.

Using the Octagon as a case study, the AAF is sponsoring a symposium series on building conservation methods. Proceedings of the first symposium, which was held last February, on how to prepare a historic structures report are available this month. Investigative restoration techniques will be the topic of the next symposium this February. For further information on the Octagon and related events, call: (202) 638-3221. ■

—M.S.H.



LONNIE HOVEY

The Octagon (far left) is currently undergoing its fourth major restoration since its completion in 1802. Mesick Cohen Waite Architects is overseeing *new techniques to restore* original interior finishes (center left) and preserve exterior brickwork (left).

Some architects ar
joist system. And they'

No architect wants to hear that he's over budget, or that a client has called back complaining about squeaky floors. In both cases, silence is preferable.

So listen closely: If you've been specifying solid sawn joists and beams, there's a way to keep costs under control and design a better floor at the same time.

Specify engineered I-Joists and Gang-Lam® laminated veneer lumber beams from Louisiana-Pacific.

L-P's engineered wood products are longer and stronger than solid sawn lumber, so it takes fewer of them to do the same job. Floors and roofs framed with L-P I-Joists can usually be spaced 24" o.c., as compared to 16" o.c. for solid sawn lumber. All told, the savings on material, nails, glue, and labor could add up to as much as 36%.

And the finished product is a stiff, quiet, predictable floor.

Landmark Approvals

Working with local preservation commissions requires patience and design flexibility.

WHEN A LANDMARK BUILDING OR DISTRICT is successfully preserved, credit usually goes to the architects, entrepreneurs, and public officials most prominently involved. Not widely understood, however, is the role that municipal landmark commissions play in the process. Such local agencies are legally empowered to survey and research buildings and districts to establish their esthetic, historic, and cultural importance; to designate them as official landmarks if worthy; and finally to regulate attempts to alter or develop buildings through a review process which, if favorable, results in the issuance of various types of building permits.

Long before October 1966, the month President Lyndon B. Johnson signed the National Historic Preservation Act into law, historic zoning districts existed in Charleston, Boston, New Orleans, and other American cities. Municipal regulatory bodies already functioned in some places. The New York City Landmarks Preservation Commission, for example, was launched in 1965, one year before the act was passed. Such endeavors helped lay the groundwork for the act which, for the first time, established a preservation partnership at federal, state, and local levels, and fostered financial incentives for developers and public agencies to support and

Completed in 1940, Washington, D.C.'s Greyhound Bus Terminal was an important Art Deco landmark (top left) until an unsympathetic "modernization" in 1976 (center left). Keyes Condon Florance's first scheme included an attached office building (bottom left), and was rejected by preservationists. The firm later won approval for a design that features a deeply set back facade (below).

RICHARD STRINER

RICHARD STRINER

ED CASTLE

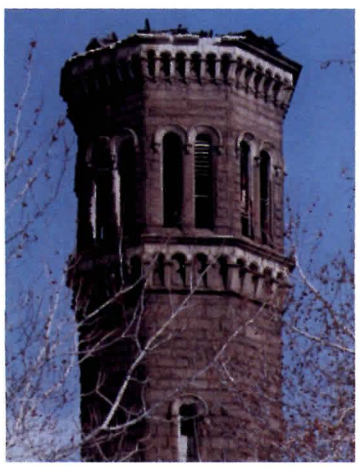
cooperate with preservationists. Since passage of the act, every state and territory prepares statewide surveys and makes preservation plans. Boise, Idaho, has a historic preservation commission, as do Boseman, Montana; Omaha, Nebraska; Rome, New York; Grand Forks, North Dakota; and Lander, Wyoming. Such small commissions may have a staff of one, but they are out there, protecting their region's architectural heritage. And the number of private and volunteer preservation organizations throughout the country is estimated at 2,000, some of which privately endow projects they feel are worthy of preservation.

Architects and owner/developers with a proposal that is under review by a commission with strong regulatory powers soon learn that to obtain a certificate of appropriateness requires persistence. This preliminary approval is granted by a majority vote of a commission based on a finding that the architect's or owner's proposal is esthetically, historically, and culturally in keeping with the affected landmark. In other words, architects must follow a commission's guidelines and regulations. This control can govern every aspect of a preservation project, from review of the basic design through to the contract document stage, including scrutiny of shop drawings for such design and technical considerations as window replacement. Each phase of the work requires commission sign-offs, without which work cannot proceed. The state also has the power to regulate when its own or federal funding is involved, and if not pleased, the state will not pay for completion of the work.

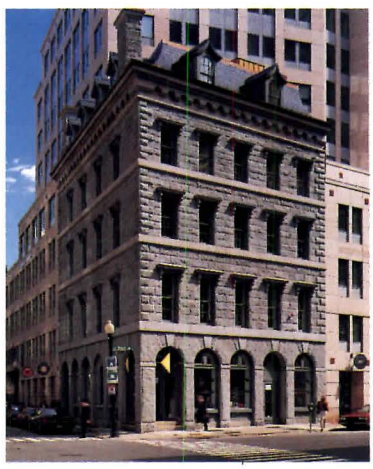
A commission's approval process is often very elaborate, becoming even more so when additional state and federal controls are required. And local preservation groups not only bring pressure to save landmarks, but after designation continue to influence what happens to them. A brief look at four successful projects—two in Washington, D.C., the third opening in Chicago early next year, and the fourth completed in New York City last year—reveals the complexity of the approval process.

In downtown Washington, D.C., the former Greyhound Bus Terminal, an important Art Deco landmark of the 1940s, is now connected to an office building but from most angles it appears to stand free and clear of the new 12-story commercial structure. The terminal has been preserved almost in its entirety, inside and out, except for adjustments where the waiting room passes under the office building. In the former waiting room, which now serves as the office building's main entrance lobby, historic moldings and lighting fixtures have been authentically reproduced from archival drawings. This preservation effort was hard won, achieved through the District of Columbia's Historic Preservation Review Board (HPRB) and preservation groups that included the National Trust, the Art Deco Society of Washington, the D.C. Preservation League, and the Committee of 100 of the Federal City.

Back in 1976, Art Deco was generally considered not only old fashioned, but just plain ugly. That year, the bus terminal, still in use, was encased with asbestos-cement and



The Water Tower in High Bridge Park (above) in upper Manhattan was significantly damaged by fire in 1984. Although the water tower was removed from service in 1949, it was designated a landmark in 1967 by the New York City Landmarks Preservation Commission. Had the tower not been landmarked, it is unlikely that the ornate belfry would have been replaced (right) in 1990. The commission cited architects William A. Hall Partnership for the restoration's high level of *craftsmanship*.



One of the few granite stone mercantile/warehouse buildings to survive the Boston fire of 1873, this 1853 landmark structure was renovated by architect Dennis C. Rieske as the new headquarters for the Boston Society of Architects (above). Purchased at a foreclosure sale, the structure required extensive rehabilitation for which the Boston Landmarks Commission set the standard. The BLC regulated the reconstruction of the mansard roof and gutter system, window replacement, shop front elevations, masonry cleaning techniques, and the paint scheme.

Constructed in 1910, the reinforced concrete structure on historic Benefit Street was the first automobile garage in Providence, Rhode Island (top). Converting the garage into a studio for the Rhode Island School of Design, architects Washburn, Nelson Associates consulted with the Rhode Island Historical Preservation Commission, designing new industrial windows (above) to match the configuration and detail of the originals.

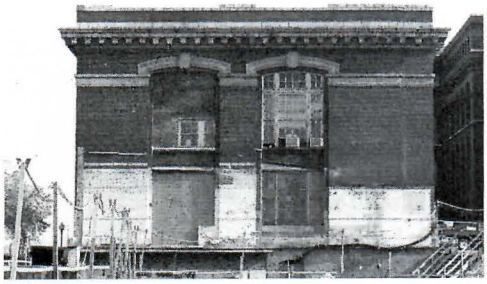
sheet-metal panels, a gratuitous "modernization" deemed appropriate for the Bicentennial. By 1987, however, the voices of Art Deco preservationists had grown sufficiently loud to encourage the HPRB to declare that hidden within the awkward crate was an elegant period piece that deserved to be added to the list of protected historic buildings, thereby giving it landmark status.

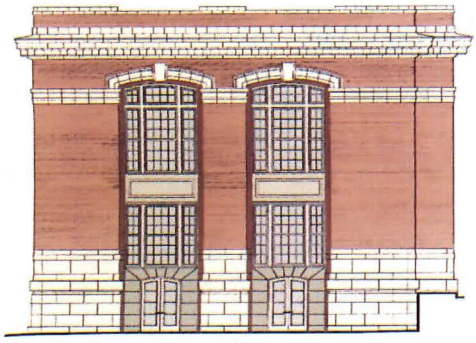
The terminal closed forever in 1987. Its site and adjacent property, situated in the path of Washington's expanding business district, were ripe for development. Taken together, they comprised a full city block, zoned with an FAR of 10 to allow complete coverage by a 12-story building of approximately 500,000 square feet. Early in the process of assessing developer submissions, however, it became clear that the preservation community did not intend the landmarked terminal to be subsumed within an overwhelming 12-story box. Activists strongly opposed proposals submitted by several developers that would have saved little more than a slice of the principal facade.

The first design proposed by Manulife Real Estate, a Toronto developer, and architect Keyes Condon Florance, comprised the full FAR and was, from the exterior, just such a box. An immense arch, centered within the curtain wall of the main facade, dominated the terminal like a giant proscenium framing a very shallow stage set. The terminal's original waiting room was to be saved as the office lobby. The latter gesture, however, hardly satisfied local preservationists. Principal Colden Florance recalls that when KCF followed the usual practice of trying to get preservation community approval through an informal preview of the scheme before the official review by HPRB, the maneuver backfired. "The preservationists were horrified," he reports. At the first big meeting, HPRB, concurring with the preservationists, shot down the proposal, this time for good, since by law the agency has final approval of the appropriateness of elements added to the District's landmarks.

Knowing that the only way to preserve the terminal was to develop its site, the heads of three preservation groups—Richard Striner of the Art Deco Society, Richard Longstreth from the Committee of 100, and Patricia Wilson from the D.C. Preservation League—formed a task force to confer with owners on a way to proceed. Architect Florance reports that "these activists brought the same impressive strength that they used to kill our first scheme to help develop and put through our second proposal." After working together for several months, it became clear to all the players that the site could not be built to its full FAR of 10. To more generously reveal the terminal, the building was reduced by 50,000 square feet to an FAR of 8.9, allowing a deep setback. Manulife was willing to sustain somewhat reduced rental income to secure a design that would receive unanimous approval by HPRB.

Not every successfully preserved and recycled landmark has such direct community action to thank. The Greyhound Bus Terminal saga is more lively than typical. Most historic buildings are saved and recycled into new uses as the result of enlightened public





The Bureau of Engraving and Printing's 1905 Annex III (top), in Washington, D.C., is being converted to house support functions for Pei Cobb Freed & Partners' Holocaust Memorial Museum, now under construction on the adjoining site. Preservation architects Notter Finegold + Alexander's restoration and repair (above) required approval of the Advisory Council on Historic Preservation, the State Historic Preservation Office, and the GSA.

Although derelict when Brooklyn's Clinton Hill was designated a historic district in 1981, the Vendome apartment building (top) was covered by landmark law and several proposals to demolish the 1887 building led to community uproar. After restoration funding was secured, New York architect/developer Stephen B. Jacobs preserved the terra-cotta band at the cornice and reconstructed the pressed metal bays (above).

A local landmark in a designated historic district, this turn-of-the-century house (top) in Charlotte, North Carolina, was badly deteriorated when purchased by local architect David Furman. The architect added a new wing scaled and detailed in the style of the earlier structure (above), a sympathetic scheme that the Charlotte Historic District Commission heralded as a precedent for restoration in the neighborhood.

laws and policy, imaginatively and consistently applied. Take, for example, another Washington landmark, Annex III (or Auditors West Outbuilding), which was built in 1905 to house the expanding operations of the U.S. Bureau of Engraving and Printing; it is now being renovated as the United States Holocaust Memorial Museum Center for Education and Public Programs. Annex III's reincarnation began with the Public Buildings Cooperative Use Act of 1976. This federal legislation enables agencies such as the General Services Administration (GSA) to evaluate ways in which obsolete federal buildings can be recycled for public use. The Holocaust Memorial Museum itself, now under construction on the adjoining site, was conceived as a place for contemplation and reflection in generous, evocative space. Little room was left for offices, collections storage, and support services. Annex III, on the western edge of the Auditors Main Building site and almost contiguous to the northern facade of the Holocaust Museum, was found by the GSA to be the ideal location for these functions.

Because Annex III and the Auditors Main Building are federal buildings listed on the National Register of Historic Places, the restoration architect, Notter Finegold+ Alexander, required approvals from the Advisory Council on Historic Preservation, the State Historic Preservation Office (SHPO), and the GSA. George Notter reports that "this was a rather complicated process requiring that a formal presentation be made through the SHPO to the Advisory Council, with the GSA as presenter." The key decision the three agencies had to make for Annex III was whether or not the new entrance in the south facade of the building, facing the Holocaust Museum across a plaza, would have an adverse effect. "The new entrance is, of course, a hole in the historic fabric," Notter points out, "and usually a hole is considered an adverse effect. But this time, everybody liked it."

Although the Commission on Chicago Landmarks' lack of sufficient regulatory powers is a matter of great concern to preservationists, the agency has nevertheless overseen to good effect the restoration and recycling of city landmarks. The latest example is the Rookery in the heart of the Loop. Designed in 1886-87 by John Wellborn Root of Burnham and Root, in a style influenced by Richardsonian Romanesque, the 11-story office building was completed in 1888. The lobby and glazed interior light court of this masterwork were significantly altered by Frank Lloyd Wright between 1905 and 1907, with later Art Moderne remodeling in the lobby by William Drummond.

The Rookery's present owner, the Baldwin Development Company, working with architect T. Gunny Harboe of the Chicago firm McClier Corporation, is preserving and restoring the structure while upgrading it to meet today's class-A office building standard. The power over the process held by the Commission on Chicago Landmarks is vested in the agency's obligation to sign off on all permit applications. The commission also coordinates its approvals with those of the State Historic Preservation Office (SHPO), the agency in every state that administers federal

WAYNE CABLE

Located in Chicago's Loop, Burnham and Root's 11-story Rookery (above) was completed in 1888. The exterior reflects the influence of H.H. Richardson, whose now demolished Marshall Field Warehouse was constructed at the same time. Designated a landmark in 1972 by the Commission on Chicago Landmarks, the Rookery is undergoing a comprehensive restoration by architect *T. Gunny Harboe of the McClier Corporation.*

The Rookery's original interior lighting as designed by John Wellburn Root (top) was significantly modified by Frank Lloyd Wright from 1905-1907 (above). Root's decorative metal electroliers on either side of the grand stairway were replaced with planters by Wright, who also installed pendant fixtures (above). Chicago's preservation commission was instrumental in determining the period to which the interior should be restored.

Root's magnificent iron and glass roof was covered with tar in the 1940s (top). The restoration of the original roof involved stripping many coats of paint before repainting the cast-iron structure white (above), cleaning more than 5,000 small pieces of glass, and recaulking the panes with glazing putty. A new skylight was added to protect the historic details. Wright's additions are being completely refurbished.

tax credits for preservation.

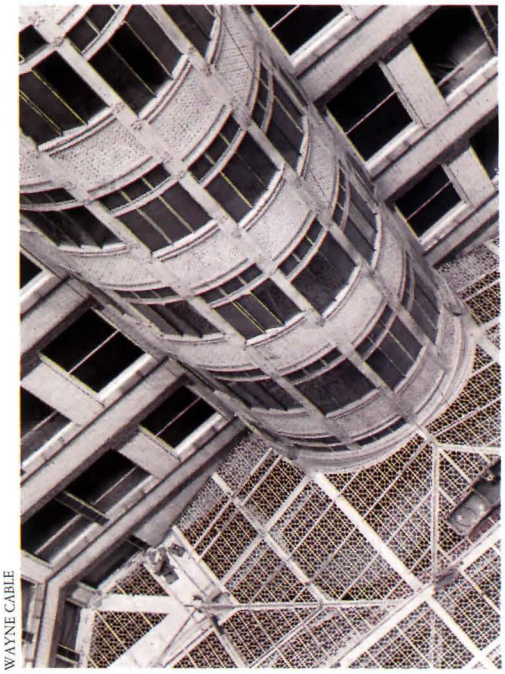
The nine-person commission's deliberations included a crucial judgment concerning the light court. Whose design should be preserved and restored—Root's or Wright's? Wright, disregarding Root's elegant cast-iron columns, encased them in marble. What might seem a further depredation, at least in the eyes of a Root partisan, was Wright's removal of the pair of splendid decorative metal electroliers on either side of the grand staircase, which he replaced with octagonal stone pedestals and planters. This issue might, in some other city, have split the preservation intelligentsia into two sets of placard-carrying advocates of one master or the other and fostered acerbic debate among the commissioners themselves. But the preservation dilemma was settled with little or no conflict in Chicago. The commission concluded that preserving and replacing original Wright was more feasible than reconstituting decayed or vanished building fabric designed by Root, but intact features designed by Root should also be restored. The architects responded with a careful restoration of Wright's additions. Root's marvelous glass and iron roof, covered with tar since the 1940s, has been rebuilt and cleaned to once again illuminate the court, protected by a new skylight that was added to the top of the building. In working with the commissioners and staff, architect Harboe confesses that his firm got along with them because "we weren't trying to weasel out of anything. As preservationists, we want to do the best we can. We got involved with the commission early, and learned what the constraints were and what was important to them. Our dealings were friendly, not adversarial."

Landmarked buildings or districts may rapidly deteriorate when their economic use comes to an end and no new function is found. As a result, the long-term usefulness of landmarking is often questioned. A landmarked project, however, always has a better chance than one not so designated to attract the funding needed for historically correct preservation and restoration. For example, New York City's Water Tower in High Bridge Park, overlooking the Harlem River at 174th Street, was landmarked by the New York City Landmarks Preservation Commission in 1967, two years after the commission itself was founded. The tower had been removed from service in the Croton water system 18 years earlier. It remained in good condition with virtually no upkeep until 1984, when a fire set by a homeless man who lived in the belfry destroyed the timber framing of the roof. Alex Herrera, director of preservation for the New York City Landmarks Preservation Commission, notes that "were the tower not a landmark, the Department of General Services (DGS), under no obligation to replace its ornate pinnacle with a historically correct replica, would simply have sealed the structure with a flat roof." Instead, the agency engaged the William A. Hall Partnership as architect of the building's complete restoration. "Furthermore," Herrera adds, "the tower's local landmark status made it easier for the DGS to assemble funding, including an Environmental Quality Bond administered by the New York State

Root designed copper-plated, cast-iron column covers that were revealed during restoration (above). The incised marble encasements are Wright's design, and are being replaced throughout. The commission concluded that preserving the Wright interior was more feasible than re-creating the Root details that had been destroyed, even though the Root column covers might be considered more compatible with the delicate roof structure.

WAYNE CABLE

Throughout the renovation, the layering of Root's and Wright's craft is revealed (above). Wright's touches included modifications to the lobby, marble sheathing, and chandeliers. Root's highly articulated stair and mezzanine railings, which remained intact, are now carefully restored. In describing his work, Root spoke of the "grace of detail, or in delicacy of parts, or in occasional touches of fancy or even whimsicalness."



WAYNE CABLE

The light court extends nine stories above the original Root skylight (above). Enhanced by an oriel stair, the walls are veneered with glazed white tiles and terra-cotta ornament. The white tiles were chosen by Root to reflect more light into the offices, and from the light court through his glass ceiling to the floor below. Innovative for its time, the Rookery is a significant building deserving of the exacting restoration spearheaded by McClier.

Office of Parks, Recreation, and Historic Preservation." Twenty-three years had to pass before the tower could be restored to its original beauty, but had it not been designated a landmark, it would have been lost. Successful preservation looks far into the future at the same time as it delves back into the past.

While the foregoing accounts of successful landmark preservation outcomes give insight into the difficulties of the process, they do not offer a reliable "how-to" for architects venturing into preservation. Because landmark commissions throughout the United States vary in size, ratio of professional to lay commissioners, and regulatory powers, it is unrealistic to propose a universal set of guidelines that would enable architects across the country to secure approval from preservation commissions with a minimum of returns to the drawing board. No other large U.S. city, for example, can boast a landmarks commission as well constituted as New York's. The commission consists of 11 members and is required by law to include three architects, one landscape architect or planner, one architectural historian, one realtor, and five laypersons. All five boroughs must have at least one representative on the commission. (The staff, after the current citywide budget cuts, has been reduced by 30 percent to 64.) One recently completed project intensely reviewed by the New York City Landmarks Preservation Commission is the Seamen's Church Institute in New York City's South Street Seaport Historic District (pages 66-73). As architect James Stewart Polshek recalls, "The extremely detailed drawings that accompanied our presentation to the landmarks commission made it relatively easy for both agency staff and commissioners to grapple with specific issues. Mullionless windows, use of color, and the marriage of a Modernist idiom to a historic blockpoint were well documented and understood."

Most architects who have had experience working with landmark commissions agree that it is best to bill their clients on an hourly basis for all design and technical work subject to regulation, for it is risky to estimate in advance how many revisions the entire process might take. KCF's Colden Florance reports that the major design revisions to the Greyhound Bus Terminal project added 7.5 percent to the 15 percent of the total fee normally charged for the schematic phase as a result of review by preservationists and the D.C. Historic Preservation Review Board.

For all architects hoping to survive and benefit from commission review, New York City Landmarks Preservation Commission staff preservationist Laura Alaimo offers strong advice. "Even before preliminary design begins, architects should obtain copies of the landmark agency's technical or design guidelines and follow them," she points out. "A good rule is to look to the commissioners for advice and assistance, being careful to take a nonadversarial stance. Find out in advance from the staff what is typically approved; whether, for example, the commission allows washing masonry walls with chemicals but forbids sandblasting. A commission will help architects think through the project in advance and work through the details before starting construction, thereby reducing surprises leading to unforeseen costs." Patience and resilience on the part of architects help too, along with a client willing to pay the inevitable premium for preservation's long-term benefits. ■

—MILDRED F. SCHMERTZ

Mildred F. Schmertz is a former member of the New York City Landmarks Preservation Commission.

Spanning History

Architects rely on structural ingenuity to top landmarks with new additions.

WHEN IS THE LINE BETWEEN PRESERVATION and alteration crossed? For architects involved in urban renovation, it is increasingly drawn and constructed above the cornice line. The lack of available lots in many historic downtowns is forcing developers and owners to build over landmarks, often within the air rights of adjacent properties. Such structural gymnastics are practical for expanding and converting outdated but historically significant buildings into new, economically viable facilities.

In Times Square, the New York firm Fox and Fowle Architects took advantage of leased air rights and a temporary increase in zoning height regulations to design a new hotel that bridges over the Palace Theater (pages 108-109). The architects not only preserved the historic theater but met additional zoning regulations that require 120-foot-tall "supersigns" in keeping with the honky-tonk character of Times Square. Leased air rights also recently proved advantageous to Cesar Pelli, who flanked Carnegie Hall with a slender new office tower (ARCHITECTURE, June 1991, pages 66-71). In Washington, D.C., a 130-foot maximum building height regulation has led architects to capitalize on the allowable density of every downtown site, including designated landmarks, as evidenced by Shalom Baranes's Homer Building renovation (pages 110-111).

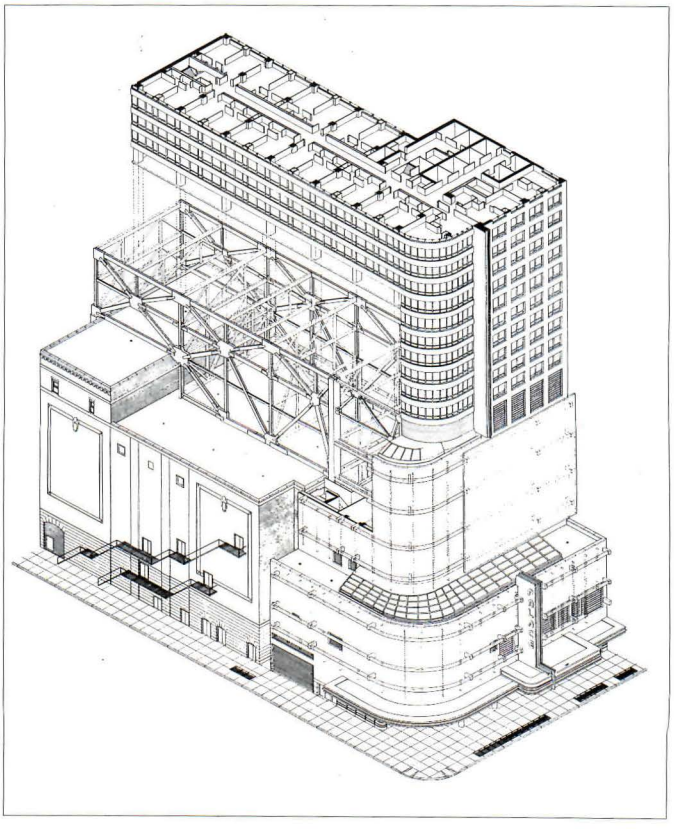
However, such measures are not unique to historic buildings in older cities on the East Coast. RTKL's Tower City in Cleveland (pages 112-113) and Skidmore, Owings & Merrill's Exchange House in London (ARCHITECTURE, September 1990, pages 109-112) prove the value of building over a major transportation hub, despite the structural hurdles of bridging over functioning train tracks.

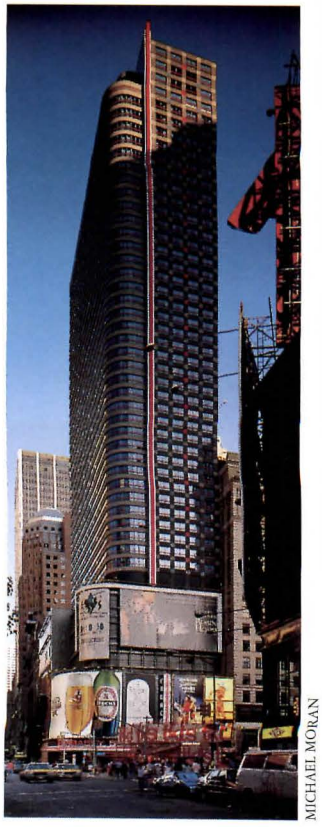
In designing such vertical additions, architects must not only respect the massing and articulation of the adjacent landmark, they must carefully consider the condition of the existing structure and foundation, which may be ill-suited for newly imposed loads. Experienced practitioners recommend steel and composite members to form the framework for the long spans needed to sidestep the preserved structure. Such members can be designed to minimize their impact when threaded through historic building fabric. Concrete floor plates can also prove valuable in squeezing a greater number of stories within restricted building envelopes, since they consume the least depth between floors.

Architects are often faced with additional problems, such as the need to maneuver around a facility that must remain in operation during construction, and they must scrutinize a structural system not only for its loading capabilities but for its ease of assembly. Such buildings over buildings can be resolved with sophisticated engineering techniques. In some cases, like the Homer Building, alterations and additions may also serve to complete the grand intentions left unfulfilled by architects of the past.

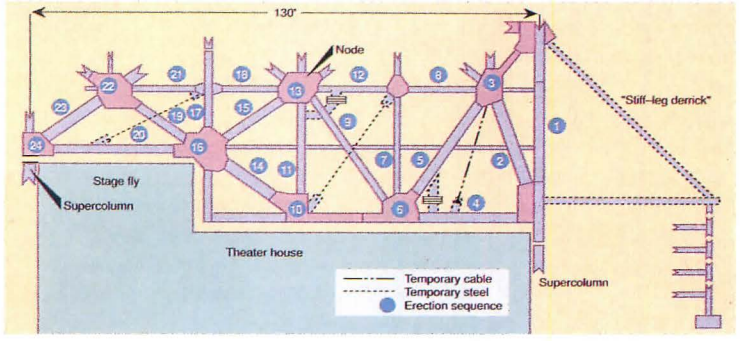
—MARC S. HARRIMAN

Leased air rights and a massive concrete-and-steel composite truss (below left) enabled Fox and Fowle to design a new 44-story hotel over New York City's landmark Palace Theater (below right).





MICHAEL MORAN



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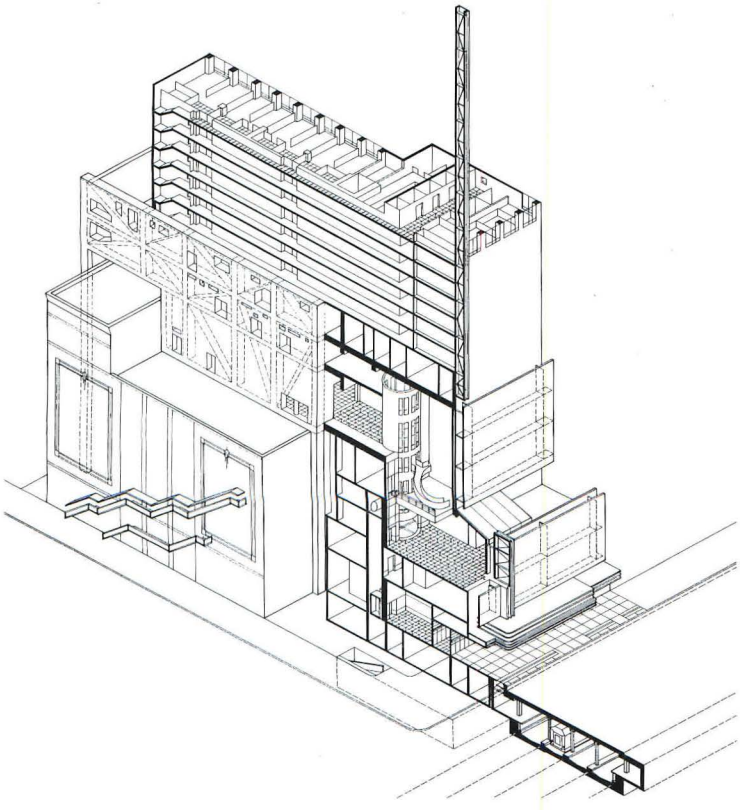
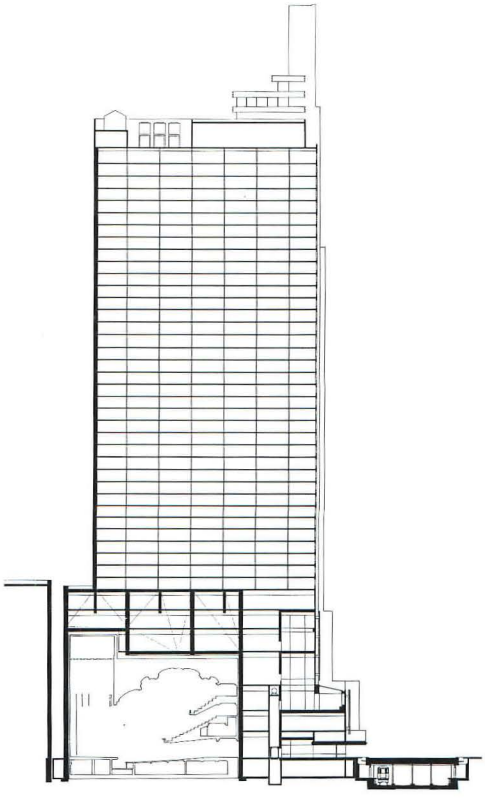




Construction of the hotel over the theater (top left and above) depended on the sequencing and temporary bracing of structural trusses (center left). Upper-floor loads are transferred from trusses to four columns straddling the theater (sections this page and plans facing page).

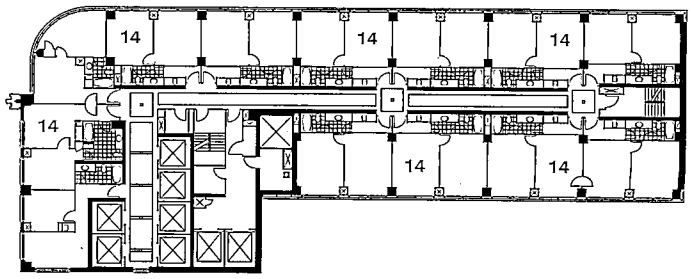
Embassy Suites Hotel
New York City
Fox and Fowle Architects

THE INTERIOR OF THE PALACE THEATER, completed in 1913, was designated a landmark by the New York City Landmarks Preservation Commission in 1987. Last October, the Palace was joined with a new 44-story, 460-suite hotel that rises above the theater's five stories at the southeast corner of Broadway and 47th Street.

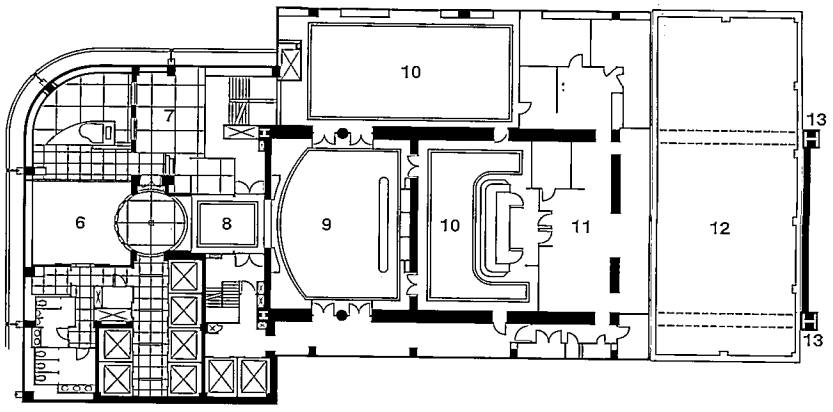
Because of the scarcity of open building sites in midtown Manhattan, the theater's owners leased the air rights above the landmarked portions of the five-story theater to Silverstein Properties. The owner then purchased and razed three low-rise commercial buildings to the west of the theater to create an 80-by-100-foot lot fronting Broadway for the new tower.

To accommodate the new hotel within such a restricted site and maintain the historic integrity of the landmark, Fox and Fowle supported 39 stories of the 500-foot-tall hotel over the theater with two 130-foot-long, concrete-encased steel bridge trusses and a network of 17 crossbeams. Since the north side of the theater is built to the edge of the property line, the trusses were designed by structural engineers DeSimone Chaplin & Dobrin and Associates to span the theater lengthwise, east to west. A narrow, 12-foot-wide alley to the rear of the theater, which serves as a secondary exit, also had to be maintained. Therefore, the weight of the 36-story concrete structure and its supporting truss was transferred to the ground at only four points by 145-foot-tall, concrete-and-steel "supercolumns" that flank the front and rear of the theater.

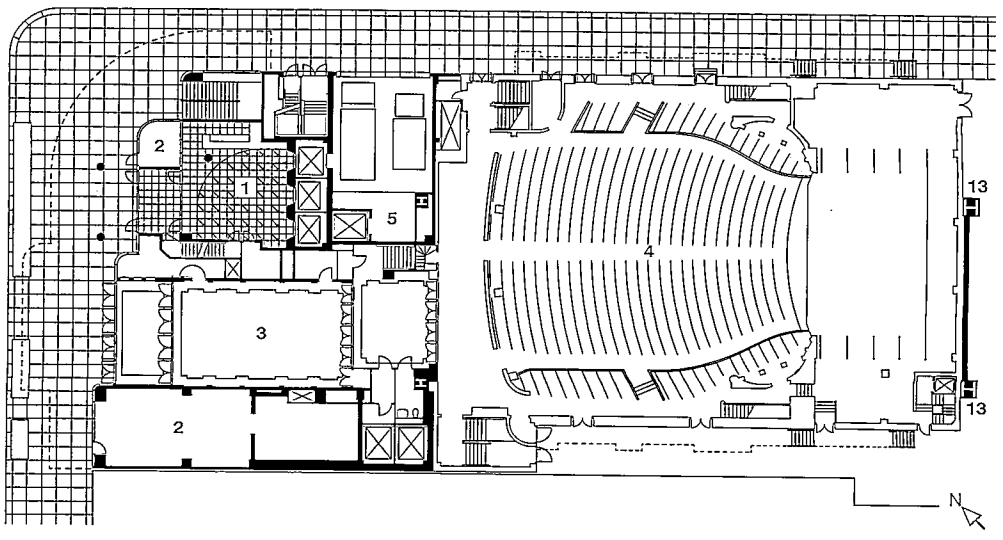
To prevent damaging the theater roof and 1,700-seat auditorium, the construction of the truss was carefully orchestrated in advance of its assembly. As individual members were joined from the front to the rear of the stage house, they were temporarily suspended from a derrick by steel cables and braces, allowing the truss to be cantilevered over the theater without touching it, and then attached to the supercolumns at the rear of the landmark. Between the 57-foot-deep bridge trusses, three stories were created to house dining areas, conference rooms, and other public facilities. These spaces adjoin the new entrance lobbies on Broadway for both the theater and the hotel, which replace the original lobby of one of the buildings demolished on the site.



TYPICAL FLOOR PLAN – FLOORS 8-43



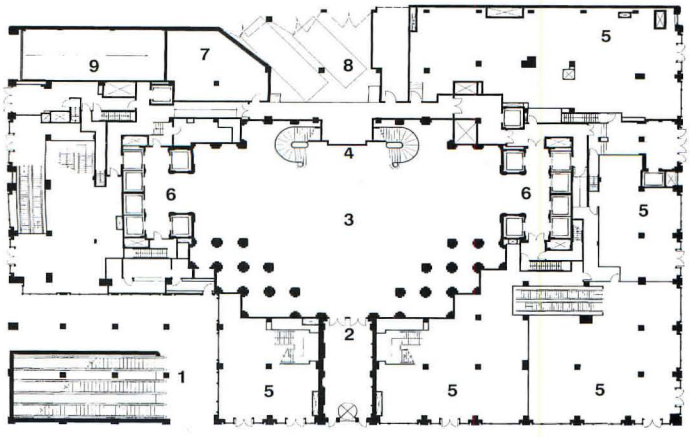
FIFTH FLOOR PLAN



GROUND FLOOR PLAN

1 HOTEL ENTRANCE/LOBBY
2 RETAIL
3 THEATER LOBBY
4 EXISTING THEATER
5 LOADING DOCK
6 ATRIUM
7 PIANO BAR
8 LOBBY
9 BAR
10 DINING ROOMS
11 KITCHEN
12 ORIGINAL THEATER ROOF
13 SUPERCOLUMNS
14 HOTEL ROOMS

DAVID PATTERSON / CAROL HIGHSMITH



1 SUBWAY ENTRANCE
2 RESTORED LOBBY
3 NEW ATRIUM
4 GRAND STAIRCASE
5 RETAIL
6 ELEVATORS
7 MECHANICAL ROOM
8 LOADING DOCK
9 GARAGE ENTRANCE

GROUND FLOOR PLAN

Homer Building
Washington, D.C.
Shalom Baranes Associates

ALTHOUGH THE HOMER BUILDING STOOD four stories tall when completed in 1915, architect Appleton P. Clarke had always envisioned raising the commercial structure to nine levels and the maximum allowable height of 130 feet, a zoning regulation that is still in effect in Washington, D.C. Clarke, however, never saw the second phase of the building completed; the owners went bankrupt in 1926, leaving columns designed to support five additional floors poking through the roof untouched for more than five decades. But the landmark building once again became a candidate for expansion in the 1980s, as the need for additional office space in the heart of Washington's rejuvenated commercial core accelerated (ARCHITECTURE, April 1991, pages 55-57).

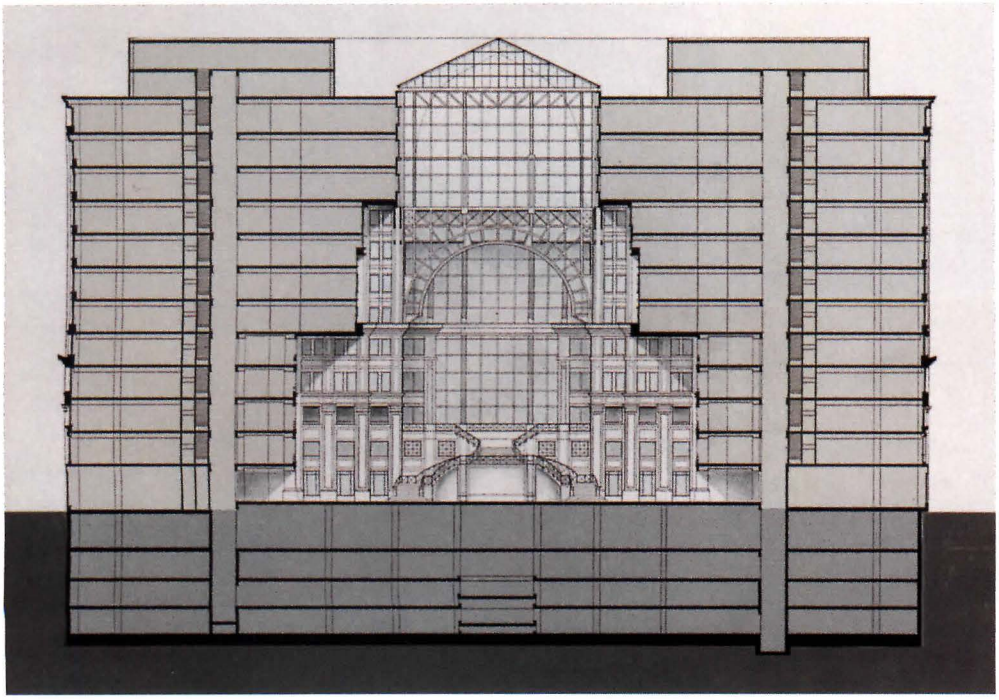
Working with the city's historic preservation review board, local architect Shalom Baranes preserved the original terra-cotta-clad facades and reconstructed the lobby of the Homer Building as the landmark's principal historic features. To create a new atrium and lower existing ceiling heights to allow for a total of 12 floors within the restricted height, rather than the originally planned nine, Baranes replaced the building's original steel structure and interior with a reinforced-concrete frame based on a column grid that reflects the preserved exterior pilaster bays of the existing structure.

The added loads of the new floor levels and the excavation for a three-level underground parking garage required underpinning and tying the northwest corner of the building's foundation wall to the retaining wall of an adjacent underground subway station entrance. Baranes also extended a 12-story addition on an adjacent lot to the east of the existing structure to create a total of more than 600,000 square feet of office and retail space, expanding the original size of the building nearly five times.

The addition behind and above the original building encloses a monumental daylighted atrium that tapers inward near its top. Punctuated with glazed openings in the roof and east wall, the stepped section of this central space posed further structural challenges. To avoid obstructing the east window wall, structural engineer James Madison Cutts suspended the top four floors from rooftop steel girders that span the atrium's 60-foot-wide pyramidal skylight.

DAVID PATTERSON / CAROL HIGHSMITH

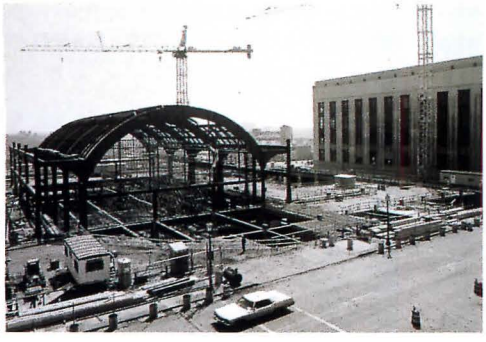
DAVID PATTERSON / CAROL HIGHSMITH



When completed in 1915, the Homer Building stood four stories tall (facing page, top). Based on a modified version of original plans for a higher addition, Shalom Baranes added eight more floors and a 12-story rear wing (facing page, center). The building's northwest corner is supported by a foundation wall shared with a street-level entrance to a subway station (facing page, plan). To provide the atrium with an unobstructed eastern-facing window wall (top left), the architects suspended the top four stories (top right) from a 60-foot-long girder at the penthouse level (section).

SCOTT MC DONALD / HEDRICH-BLESSING

BILL SCHUEMANN



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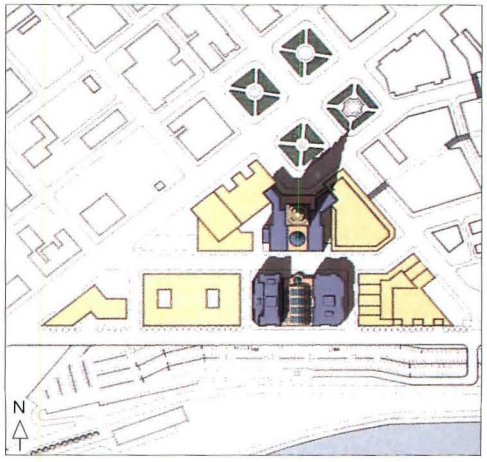


SITE PLAN

RTKL's pair of 12-story towers (top) were built on the foundations of an unfinished railroad station (center left and bottom left). The new towers complete a master plan for the 12-acre site, built entirely over train tracks (site plan above).

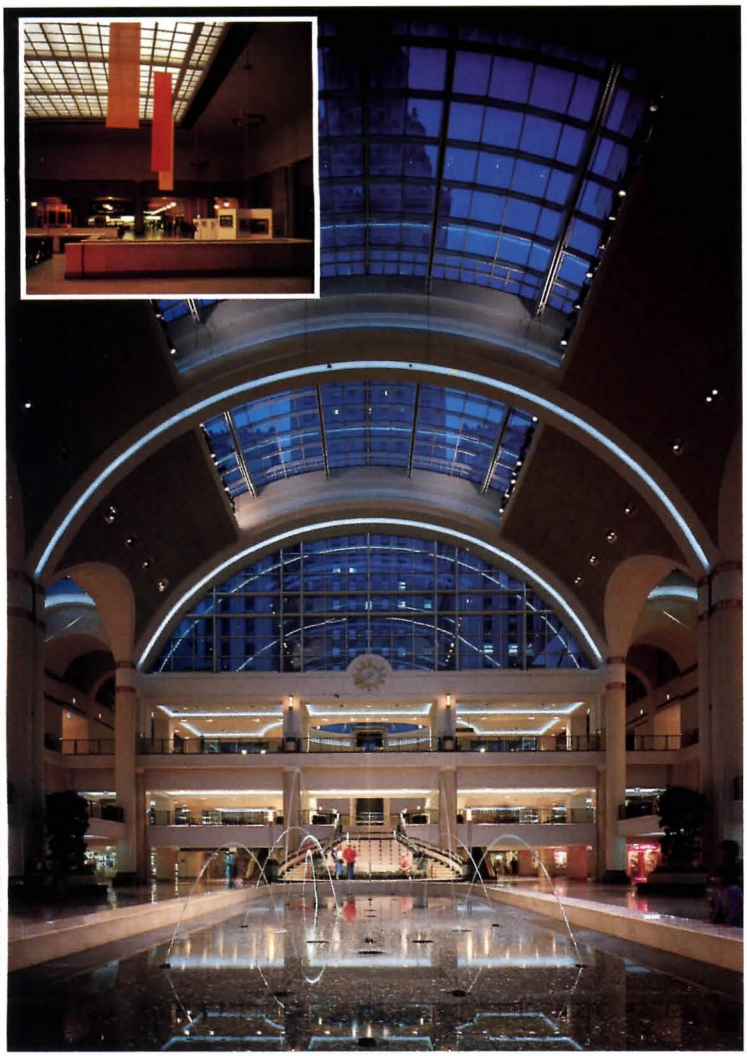
Tower City Center
Cleveland, Ohio
RTKL Associates, Dallas

THE MASTER PLAN FOR DOWNTOWN CLEVELAND's 12-acre Tower City Center, at the intersection of three roads that are built entirely over train tracks, was derailed after the stock market crashed in 1929. Until the 1980s, Cleveland's declining downtown left the landmark 52-story Terminal Tower office building, one of the tallest structures in the city, standing above a largely neglected, deteriorating, and incomplete underground railroad station. Continuous rail service (with a direct line to the airport) and the financial success of a 1 million-square-foot department store on the lot, however, offered the city potential for redevelopment.

After a decade of planning and construction, a pair of 12-story towers housing a 207-room hotel and 350,000 square feet of office space was completed this year on top of the foundations for two buildings never constructed. The two new structures designed by RTKL, which flank the train station at the southern end of the site, are built atop an existing 21-by-42-foot grid of column bays originally designed to accommodate the width of the train tracks below.

Three previously disparate city transit lines were shifted and consolidated directly to the north of the original station, beneath a new grand entry stair capped by a glazed dome that provides centralized access to train platforms servicing more than 120,000 passengers daily. The architects converted the existing terminal concourse between the two towers into a three-story, 380,000-square-foot retail mall by removing the floor over a lower, formerly concealed service level and covering the resulting promenade with a new barrel-vaulted roof.

Since the load-bearing walls of the two towers were built upon columns supporting the original roof, the architects shortened the span of new glass-and-steel roof to limit the differential in settlement potentially created by the additional weight of both structures on the original foundation. Instead, the roof is supported on two new rows of columns inserted within the retail mall's existing colonnade. The old storefronts were removed, restored, and then reinstalled. Further north, the architects punched another new, 60-foot-diameter dome through the existing three-story base of the Terminal Tower, introducing daylight to a renovated four-story office court. ■



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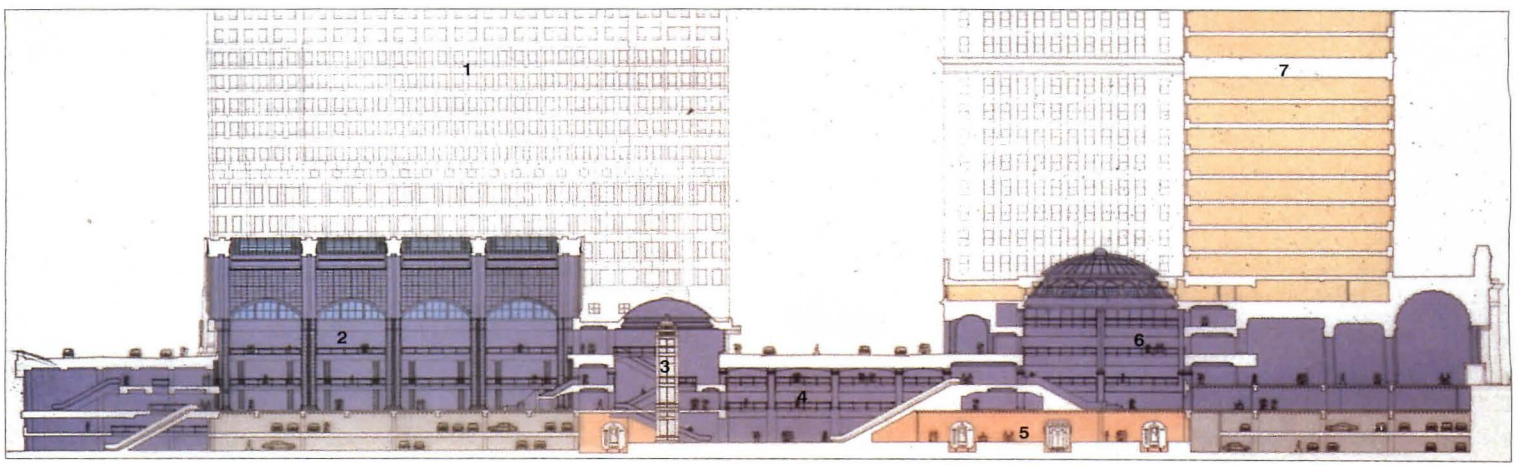
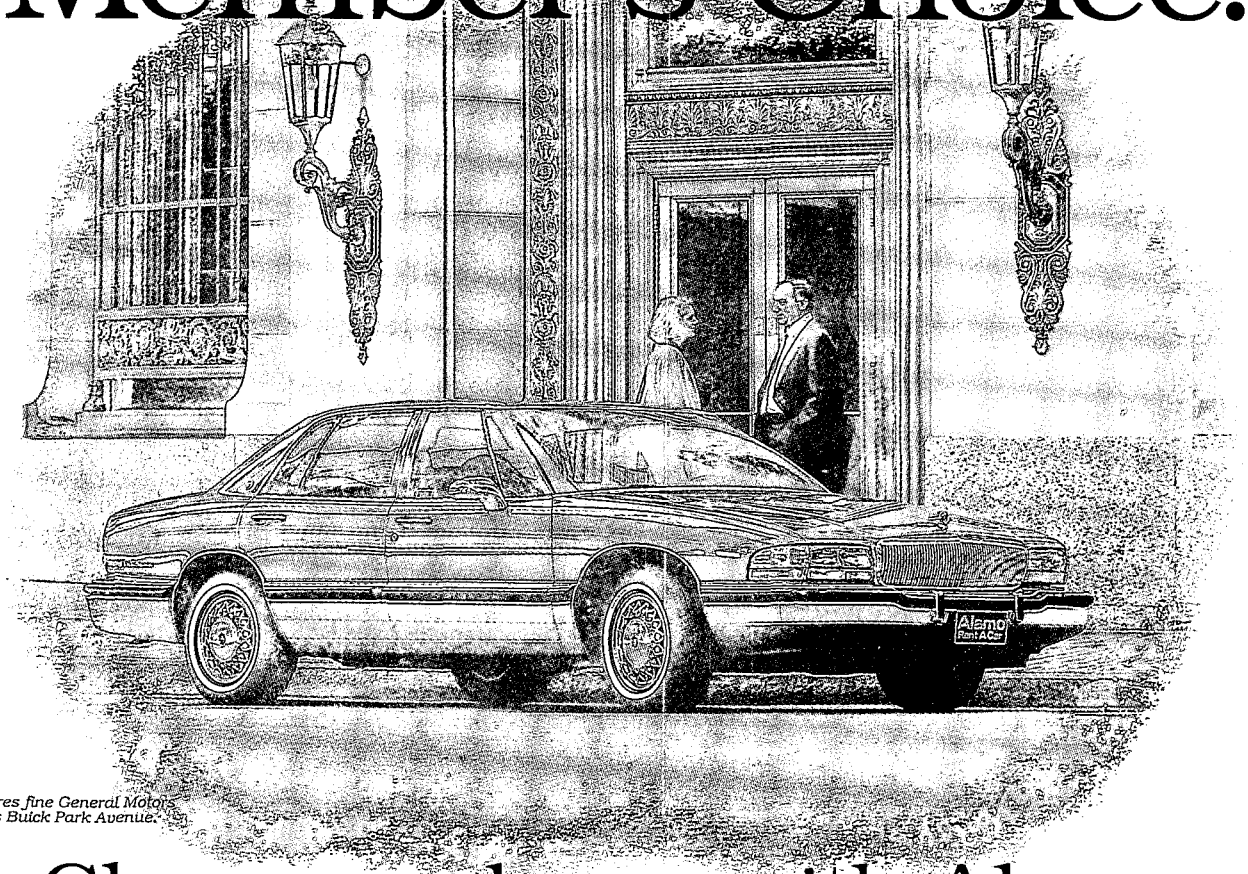


NORTH–SOUTH SECTION THROUGH COMPLEX

1 NEW HOTEL
2 RENOVATED RETAIL MALL
3 NEW STATION ENTRANCE
4 RENOVATED CONCOURSE
5 RAPID TRANSIT STATION PLATFORM
6 NEW DAYLIGHTED OFFICE COURT
7 TERMINAL TOWER

The original train station and concourse (insets, top) are now open to a former service level (top left and right), creating a three-story retail mall. The entire complex is enclosed with a new vaulted roof and two daylighted domes (section).

Member's Choice.



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Replacement Alternatives

A guide to specifying original materials and new substitutes.

OVER THE PAST TWO DECADES, A VARIETY OF alternatives have been developed that substitute for a broad range of historical materials, including terra-cotta, marble, and cast iron. While new materials may not match the existing ones exactly, they frequently allow a poorly designed detail to be replaced with a more weathertight solution, or provide a less expensive and more durable alternative to the original. During the 1960s, for example, when new terra-cotta became scarce, blocks of failed terra-cotta cladding were intermittently replaced with granite or limestone—the very materials they had been designed to imitate. Preservationists, however, still consider the ideal restoration to be a process that includes a historic building's original materials and methods of construction. Knowing when to specify substitute materials and when to reproduce the original requires an examination of the original period, conditions, and methods of fabrication.

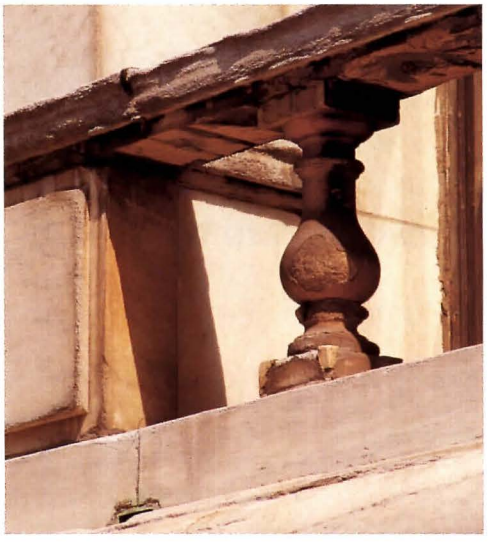
Researching original materials

TO DETERMINE A COURSE OF ACTION FOR REplacing historic materials, architects should begin by reviewing the "Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings" prepared by the National Park Service (pages 125-128). As the guidelines point out, not all of the materials in a building may be of equal historic significance. For example, an unusual application or treatment of one material may be essential to an understanding of local history at the time of the building's construction, such as the fire sprinklers that were added to cast-iron columns and frames in Baltimore after the Great Fire of 1904.

Other significant elements may indicate technological developments, such as milled lumber or machine-made nails, or unique craftsmanship, such as wood framing and its method of joinery. Still other materials may be considered integral to the design of a building, such as glass panels in an International Style building or stained glass in a religious structure.

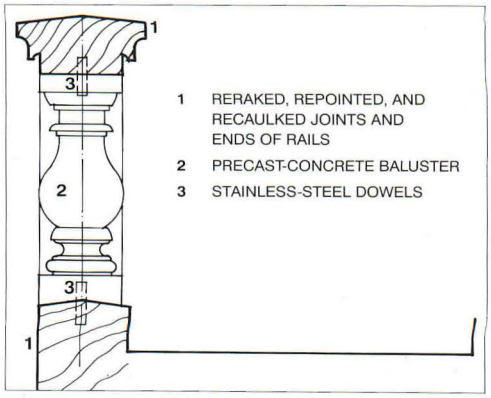
National Park Service guidelines encour-

MICHAEL MORAN PHOTOS



New York Public Library, 1911
New York City
Carrere and Hastings, Architects

The balusters of the library's facade that overlooks Fifth Avenue (above and top left) were missing or decayed due to the effects of acid rain, which had chemically altered the original marble. The damaged and missing balusters (left) were replicated in precast concrete, which is a less expensive alternative to reproducing marble balusters on a lathe. The concrete replacements (bottom left and section) were cast from a rubber mold and are visually similar to the original marble. Unfortunately, after only seven years the precast-concrete balustrades are now beginning to streak because of water runoff.



BALUSTRADE SECTION

age repairing damaged, historically significant architectural features with the same material as the original element. But this approach may not always be technically or economically feasible. As a result, historic architectural elements are frequently replaced with contemporary materials, and local preservation commissions are becoming more receptive to their use (pages 97-102). Architects should keep in mind, however, that substitute materials should be applied on a limited basis—only when they match the appearance and general properties of the historic material and will not damage the surrounding original fabric. Fortunately, building product manufacturers now offer numerous materials from which to choose. Popular replacement materials include glass-fiber-reinforced plastic (GFRP) for cornices, glass-fiber-reinforced concrete (GFRC) for ashlar blocks, glass-fiber-reinforced gypsum (GFRG) for plaster moldings, and precast concrete for coping stones. Other replacement products include synthetic coatings, consolidants, epoxies, and sheet metal.

Such substitute replacement materials have progressed from stop-gap measures to become architectural materials in their own right. For example, during the 1970s, GFRP and epoxies were borrowed by architectural conservators from the marine industry in their early attempts at preserving wooden structures. Epoxies are now widely used to repair historic windows, and GFRP replaces masonry cornices and deteriorated cast iron in all types of buildings. The building industry has developed performance standards and use-specific applications for these materials, transforming what were once fledgling alternatives chosen for economy into state-of-the-art engineered products.

Original versus substitute materials

TO DETERMINE THE AVAILABILITY OF AN original material, architects should first identify the composition of the historic element and locate the source of its manufacture. Most local tradespeople and vendors are familiar with indigenous building materials and can provide the necessary information. Manufacturers' associations employ technical specialists who can recommend historical literature on a particular material, as well as experts who can provide data on its chemical and physical properties. For architects, this information can help them to locate a current source of the material and to develop guidelines for selecting and specifying replacements.

Having located a source for the original material, architects must compare the cost of producing it with the cost of a substitute. The manufacture of stone carvings and terra-cotta, for example, is on the rise because of the increased demand for these crafted materials in restoration projects. The cost, however, may still be prohibitive; hand-carving stone and hand-molding terra-cotta are as labor-intensive today as they were 100 years ago. Although the stone industry now uses computerized planing machines, and terra-cotta manufacturers take advantage of extruded clay and ram-pressed products, these methods are usually reserved for large-scale reproduction of identical pieces. In both cases, manufacturing lead time may exceed one year because of the customized nature of production.

An architect also needs to consider the number of elements that need to be replaced. If a project requires only a few replacements, every effort should be made to reproduce the material in kind to ensure physical and chemical compatibility, thermal properties, and visual compatibility, such as color, reflectance, and weathering characteristics. But if a project calls for a large-scale replacement of elements, perhaps because of an inherent problem in the original design and construction of the building, then a more economical substitute may be considered.

In specifying manufactured replacement elements, architects should visit the plant to review testing procedures and mock-ups to assure consistent and timely production. Manufacturing lead time for substitute materials may be as long as the lead time required to produce original materials—which can exceed one year.

Often GFRP, GFRC, and precast-concrete replacements, for example, are more cost-effective if manufactured on a large scale. During the early stages of production, architects should visit the manufacturing plant to review testing procedures and mock-ups to ensure consistent and timely production.

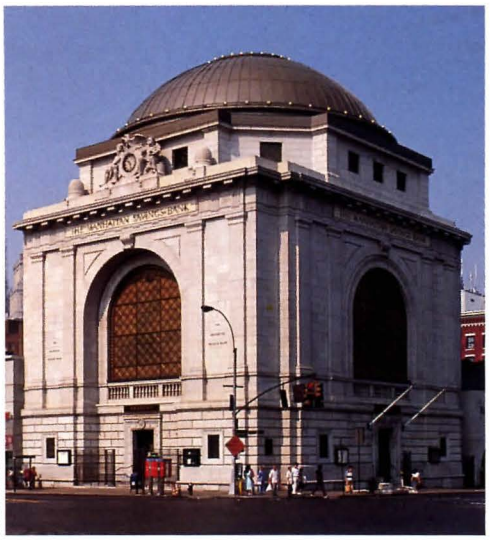
A knowledge of original construction methods is also helpful. An original material that has load-bearing properties and is integral to the structural system of a building should be replaced with a material having at least the same compressive strength. On the other hand, a historic material such as stone may have been applied in both load-bearing (ashlar blocks, for example) and non-load-bearing (suspended cornices) capacities; thus replacing it with materials of identical strength in all locations on the facade is unnecessary. For non-load-bearing masonry applications, for example, materials such as GFRP or GFRC may be substituted. Where blocks are load-bearing, alternative materials such as precast concrete may be specified. In large-scale projects, the installation costs of heavy masonry materials may exceed those of lightweight, non-load-bearing substitutes. For example, in restoring the 1916 Equitable Building in New York City, the original terra-cotta cornice was replaced by fiberglass from a swing scaffolding, and the GFRP could be stored on the roof.

In selecting replacement materials, architects should also consider the type of decay at work on the building. On one hand, a delicate material such as marble, composed of calcium carbonate, is subject to sulfate attack from acid rain and other atmospheric pollution and often requires a substitute material that will not be as vulnerable to dissolution. On the other hand, durability may not be the main reason for selecting a substitute material if visual consistency between the old and new is a primary projectwide consideration. For example, precast concrete, although susceptible to acid rain, is an appropriate substitute for marble because it most closely matches marble's appearance. Whenever there is a preponderance of one historic material—such as rows of balusters or ashlar blocks in a wall—the need for visual compatibility, rain or shine, becomes a primary consideration in selecting substitute materials. A porous material, such as precast concrete, appears dark when wet, in contrast to glazed terra-cotta, which sheds water and tends to retain its shading when wet.

The selection of replacement materials must also take into account building code requirements. Fire codes, for example, vary according to local jurisdictions and may have different criteria for materials with a high rate of flame spread, such as GFRP. And while the fire resistance of polyester resins, for example, can be boosted with oxides and paraffin, the application of a lacquer coating may be required to prevent the resin from yellowing with exposure to ultraviolet light.

Manhattan Savings Bank
(Formerly Citizens Savings Bank, 1922)
New York City
Clarence W. Brazer, Architect

The steel-framed dome of the bank (right and center) was reroofed two years ago because of leaks through its terra-cotta-clad concrete slab (below left, center left, and section). After unsuccessful attempts at sealing the existing tile with a waterproof coating, a batten-seamed aluminum roof with a baked-enamel finish was installed (below right). Replicating the original surface with new tile was not pursued because reproducing the roof's different tile types would have been too costly. Water leakage has not been a problem since the roof was replaced.



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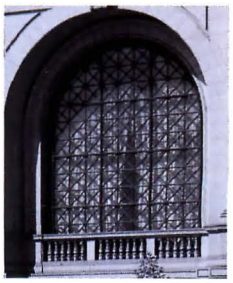

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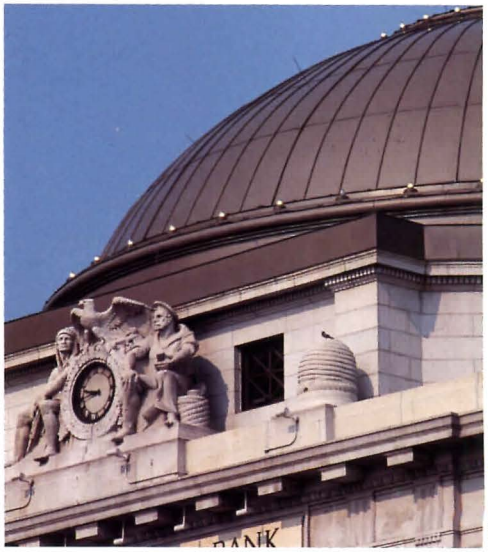
The original steel-framed windows (above left) had to be protected from wind and water damage because the bank faces an open traffic plaza near the East River. Instead of removing the existing steel frames, GFRP panels replicating the original muntin and mullion profiles were installed to protect the windows (above right).



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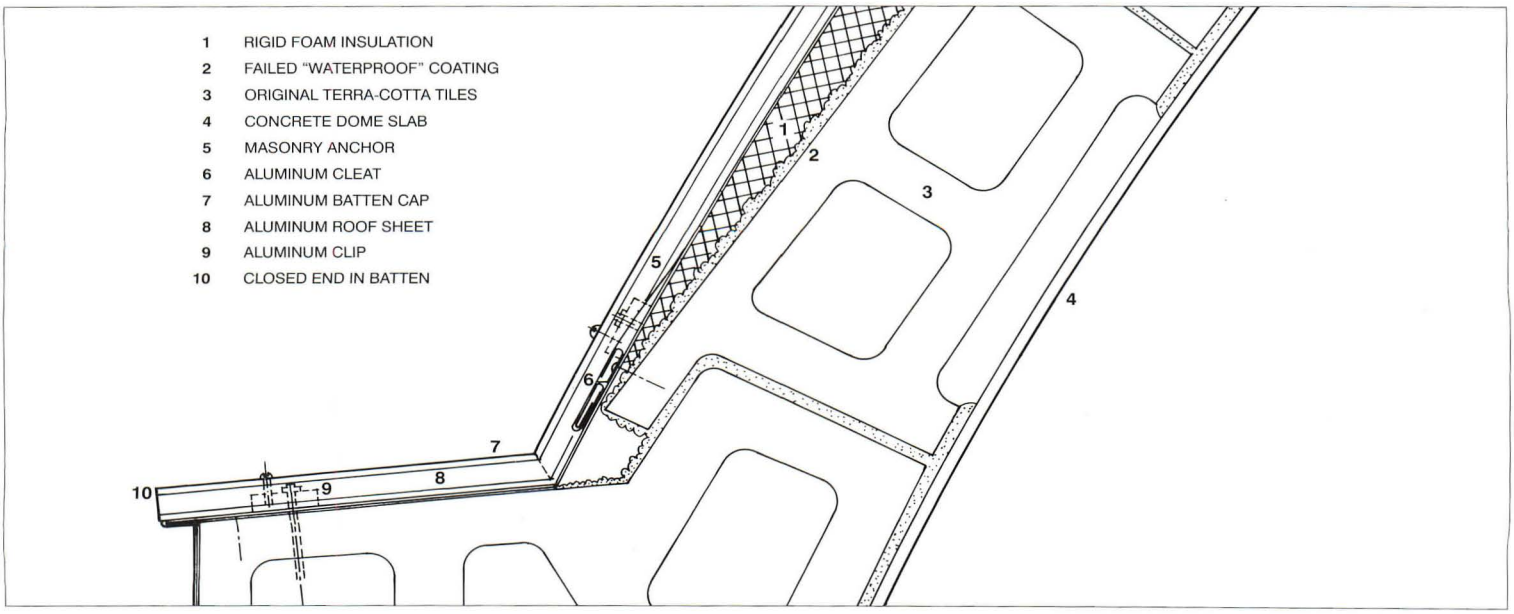


DOME SECTION

Materials maintenance

THE MAINTENANCE OF A SUBSTITUTE MATERIAL varies with its composition, exposure, and detailing. Over the past two decades, the building industry has gained experience in determining the causes of some material failures, such as delamination of fiberglass due to wicking of water through exposed strands and freeze-thaw-cycle damage in precast concrete caused by insufficient air entrainment. Manufacturers have also sought to control product failures through quality-control programs that mandate visual inspections at the plant, as well as laboratory testing for compliance with physical and chemical parameters. But the long-term maintenance of these new building products is just beginning to be addressed. Manufacturers have created products to preserve contemporary building materials, such as coatings for GFRC, that are not maintenance-free. Coatings and consolidants require reapplication over varying periods of time, depending upon their composition, because they disintegrate or chemically react with the atmosphere.

The preservation projects shown on these pages—which were undertaken by Ehrenkrantz and Eckstut Architects and Stonehill and Taylor, Architects (Manhattan Savings Bank)—were completed over the past seven years. They incorporate examples of typical replacement materials and provide useful information regarding the weathering characteristics of such substitute materials. The seven-year-old precast-concrete balusters that front the New York Public Library are beginning to streak due to water runoff. The two-year-old acrylic-based coating on Temple Rodef Shalom's decorative terra-cotta remains stable without evidence of spalling or chalking, and the lead-coated copper roof caps on the terra-cotta buttress have successfully kept out rainwater. The two-year-old dome on the Manhattan Savings Bank has prevented water leakage, and its fiberglass-clad windows continue to resist wind and water. For architects involved in preservation, such case studies are valuable tools when considering replacement materials for future projects. Demonstrating how building materials weather and decay, they not only point to new ways of preserving and maintaining historic structures, but offer clues to designing weathertight and durable new buildings. ■

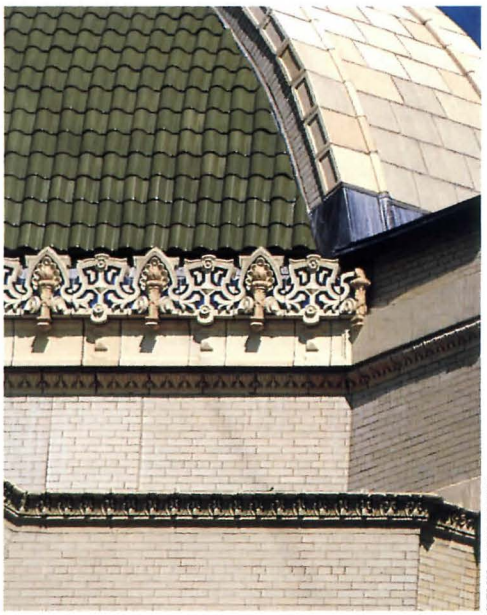
—KATE BURNS OTTAVINO

Kate Burns Ottavino is director of preservation for Ehrenkrantz and Eckstut Architects in New York City.

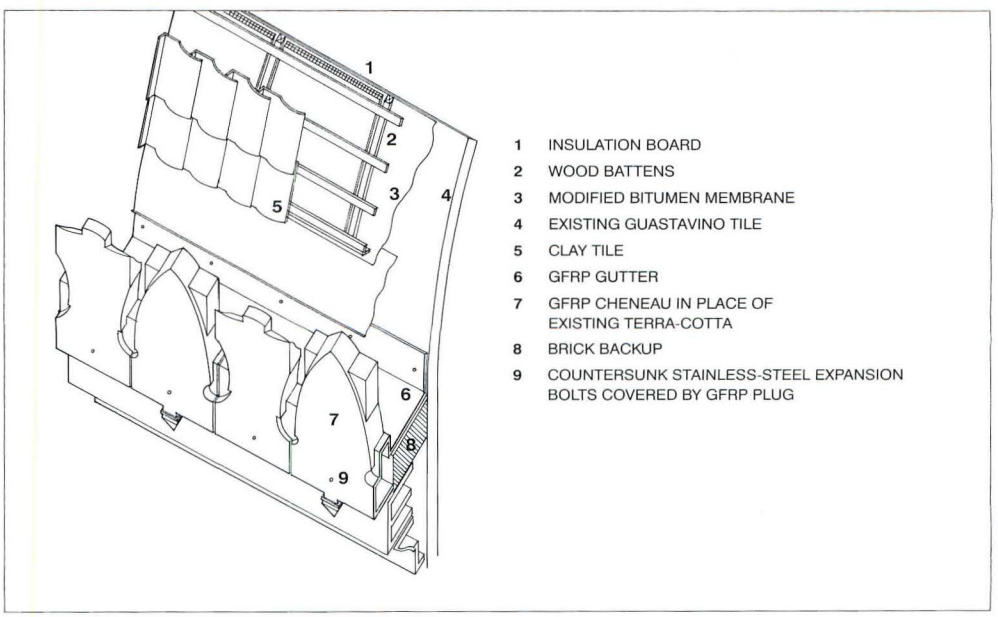
DENIS GLEN KUHN

Temple Rodef Shalom, 1908
Pittsburgh, Pennsylvania
Palmer and Hornbostel, Architects

Excessive water penetration due to poor detailing encouraged deterioration of a polychrome glaze that was originally applied to the cheneau and other terra-cotta elements (below left). Although preservationists considered replacing the terra-cotta with GFRP (axonometric), they finally opted to preserve as much of the original material as possible by applying a tinted polymer coating. Lead-coated copper flashing was installed above the terra-cotta buttresses (below) to prevent water penetration.



DENIS GLEN KUHN



GUTTER AND CHENEAU (ALTERNATIVE SOLUTION)

Preservation Resource

The National Park Service offers advice in restoring historic structures.

WHEN THE NEW YORK CITY FIRM BEYER Blinder Belle was commissioned to renovate two apartment houses within the Grand Concourse Historic District of the Bronx, the architects were told to rip out plaster and marble in the lobbies and replace them with gypsum wallboard. Associate architect Page Cowley, however, convinced the client that the historic character of the lobbies' original materials could be repaired and retained according to methods outlined by the Technical Preservation Services (TPS) branch of the National Park Service. Upon learning that the contractors could handle these specialized techniques and the resulting tax credits would cover the cost of additional labor, the client agreed that the buildings should be returned to their original state.

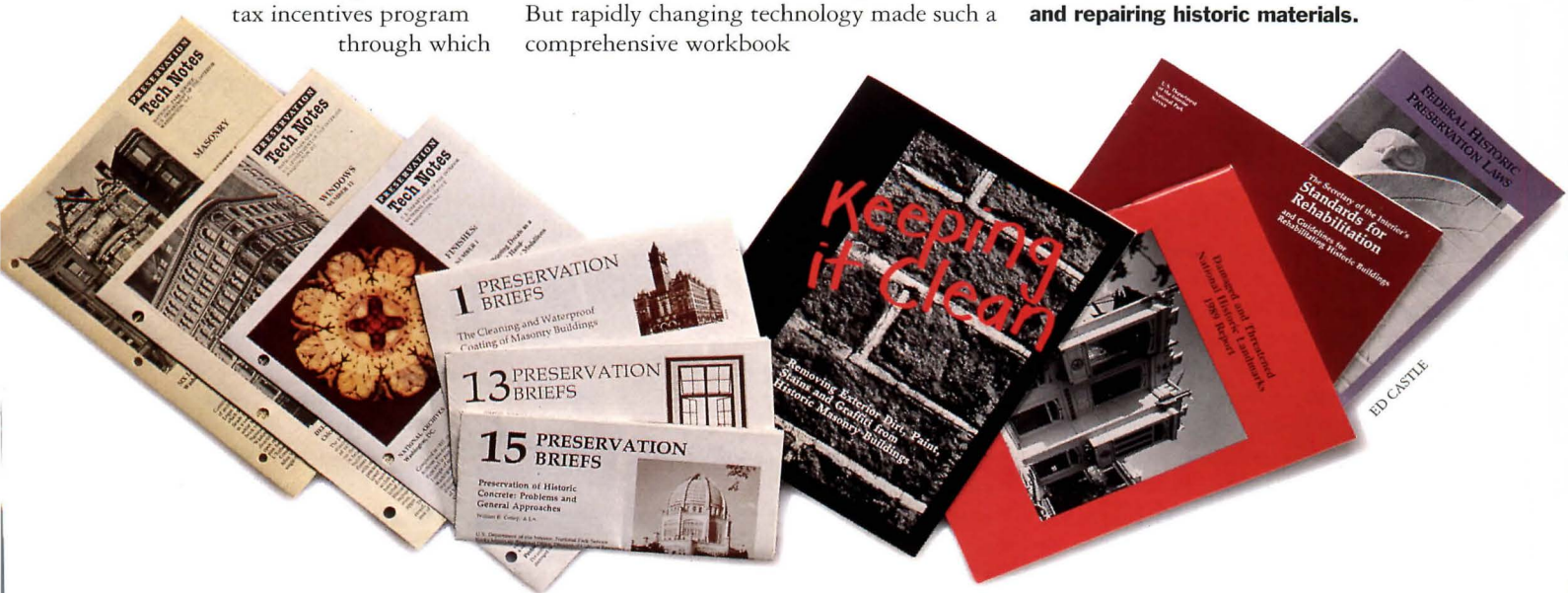
Such preservation success stories have become increasingly common across the country. Established in 1973, TPS has become a valuable resource in giving architects practical solutions to the technical problems of saving historic buildings. Technical education through literature and training, however, is only one of its mandates. The TPS staff also establishes standards and guidelines for preservation, monitors the status of designated landmarks, and administers the preservation tax incentives program through which building owners reap tax credits for renovations carried out according to federally sanctioned methods.

The activities of the TPS are a direct consequence of the National Historic Preservation Act, passed by Congress in 1966. This seminal legislation and its subsequent amendments strengthened the federal government's commitment to the country's cultural resources. Many of the act's provisions are administered by the Cultural Resources Programs of the National Park Service, an arm of the U.S. Department of Interior. TPS is a branch of the Preservation Assistance Division within the Cultural Resources Programs.

The philosophical underpinning of TPS's technical development and review process is the "Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings"—a list of 10 standards and interpretive text that some practitioners respectfully refer to as the "10 commandments" of preservation. Projects must comply with these standards to receive tax abatements through the preservation tax incentives program.

When it was established 18 years ago, the Park Service's technical office intended to create a definitive handbook on preservation. But rapidly changing technology made such a comprehensive workbook

National Park Service's Technical Preservation Services in Washington, D.C., publishes a wide range of documents (below) addressing both the philosophical and technical aspects of preservation for architects, building owners, and contractors. The literature, often written by outside preservation experts, incorporates well-tested methods of saving and repairing historic materials.



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untenable. Instead, individual pamphlets were developed by the office to disseminate technical information quickly to building owners, architects, and others involved in historic preservation. Called Preservation Briefs, the first of these booklets was issued in 1975. Since then, 27 Briefs have been written, four of which were issued this fall. Each publication typically provides the historical background of a material, specific guidelines for its repair, and a bibliography.

A second pamphlet series, called Preservation Tech Notes, began in 1984. Organized around case studies, Tech Notes are more specific than Briefs and emphasize practical solutions and innovative techniques. TPS prepares other publications as well, including technical reports, preservation case studies, and reading lists on selected topics.

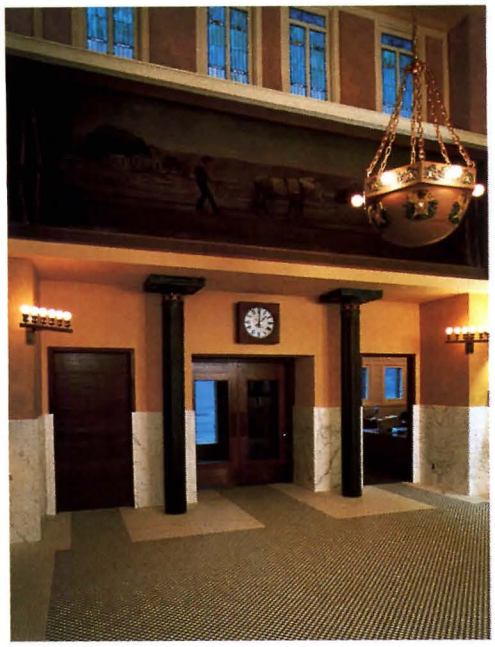
Practicing architects familiar with these publications are consistently impressed with the clarity and accuracy of the documents. Architect Wilbert R. Hasbrouck of Hasbrouck Peterson Zimoch Sirirattumrong in Chicago notes, "To do restoration architecture, you have to understand the technology of often obsolete and archaic materials. TPS studies materials like adobe, lead, or metals for years and then drafts a technical paper that will go through the hands of a dozen skilled people to get it just right. Their recommendations become part of the bible of building restoration."

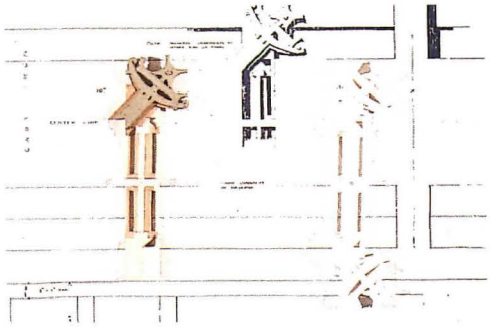
Those architects trained in preservation take advantage of the literature to keep abreast of new technologies, refresh their memories on more obscure materials, and educate clients, contractors, and members of the design team. Less experienced architects find the publications a sound introduction to the principles of preservation, helping them to ask the right questions and seek out qualified professionals for further assistance. The literature, however, is not a substitute for formal training in historic preservation.

TPS selects topics to be highlighted by the literature largely as a result of recurring problems that they witness in tax incentive projects and frequent inquiries on a particular subject. "For years," explains H. Ward Jandl, chief of TPS, "it was windows, so we started developing technical information on windows. Then architects said we needed something on log structures, so we're writing a Brief on them now." Today's pressing issues include accessibility and the "mothballing" of buildings to prevent historic properties from deteriorating while they are waiting to be restored. Architects should notify TPS of techni-

Technical Preservation Services typically does not undertake its own restoration projects. An exception is Arlington House (top) in Arlington, Virginia, which is being restored to its Civil War-era condition. In preparing an upcoming publication on slate, TPS sought to add to its research on the material by restoring the mansion's Virginia slate roof (above center). A step between the portico roof and main roof is flashed with lead-coated copper (above). On either side of the level change, strips of rubber membrane and rosin paper are installed below layers of roofing felt and slate. The rosin prevents the rubber from chemically interacting with the asphalt-impregnated felt.

Dating back to 1719, the Old Gaol in York, Maine (top) is sited on a cliff and suffered from water infiltration that resulted in standing water in the basement, decay of exterior clapboard, and damaged windowsills (above center) with split wood and peeling paint. Ann Beha Associates of Boston was retained to reroute drainage patterns and undertake necessary building repairs. To preserve historic fabric and minimize project costs, principal Pamela Hawkes restored the existing windows and sills by impregnating the damaged wood with epoxy (above, before painting), a process publicized through TPS literature and now an accepted practice among preservation architects.





Designed by Louis Sullivan in 1911, People's Savings Bank in Cedar Rapids, Iowa, underwent several additions and alterations since 1945 before being restored this year (top) by the Chicago firm Hasbrouck Peterson Zimoch Sirirattumrong. The lobby of the bank, now called Norwest Bank, was reconstructed with bricks recovered from an original wall hidden by an addition. A detailed paint analysis was undertaken, and columns and ironwork were replaced (above center) after the ornament was studied in model (above). The unobtrusive installation of new mechanical, electrical, and computer systems complied with the "Secretary of the Interior's Standards for Historic Preservation Projects."

cal problems they repeatedly face in repairing historic buildings or of good solutions they have developed. The staff is also seeking successful examples of enhanced accessibility.

In addition to publications, TPS develops training programs on preservation techniques for architects, often in conjunction with other organizations. For example, 500 people attended a three-day conference in Boston in 1986 on historic windows. A traveling exhibit that was originally developed for the meeting recently closed at the National Building Museum in Washington, D.C., and will reopen at the New York State Museum in Albany in March 1992. In 1988, TPS sponsored a conference on historic interiors in Philadelphia, which drew 1,200 participants. TPS organizes smaller workshops throughout the country on topics such as outdoor monuments, maintenance of landscapes, architectural cast iron, and seismic retrofit. Currently, the office is exploring videotapes as another medium to disseminate information.

Although open to new technologies, TPS staff is very careful in recommending particular processes. Architect Sharon Park suggests that new methods be thoroughly tested over a long period, in some cases up to 20 years, before they are applied to historically significant buildings. She and Jandl warn architects about the dangers of newly introduced "wonder" products. Jandl illustrates his point with an early example: "When introduced at the turn of the century, terra-cotta was to be the miracle product that never needed maintenance. Today, there are horrendous problems with terra-cotta, ranging from cracking to structural failures."

Jandl foresees more preservation complications as 20th-century buildings become eligible for landmark status. While architects have a basic understanding of traditional materials, they are unfamiliar with specialty products of the past. As an example, Jandl refers to the New Jersey Statehouse Annex, whose interior walls are covered with a product called Zenitherm. "Few architects today have ever heard of Zenitherm," he exclaims. "It probably came in and went out in the 1920s." After some research, TPS staff discovered that Zenitherm contains asbestos. "For the generation coming after us," Jandl concludes, "there are going to be some incredible preservation challenges."

For more information on publications (page 128), training programs, or specific preservation techniques, contact Technical Preservation Services, at (202) 343-9578. ■

—NANCY B. SOLOMON

Frank Lloyd Wright's 1904 Dana/Thomas House (top) was purchased by the State of Illinois in 1983 and converted into a house museum by Hasbrouck Peterson Zimoch Sirirattumrong in 1990. Finishes posed the greatest technical challenges to the restoration architects. Layers of paint had to be carefully removed from both exterior and interior wall surfaces, and the original finishing technique—known as scumbling—had to be reproduced. The exterior plaster frieze (above center) was re-created by casting a new *mold (above). Though the architects conducted* their own research, they referred to the Park Service's recommendations as a guide to restoration techniques.

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Preservation of Historic Concrete: Problems and General Approaches. William B. Coney. *Preservation Briefs No. 15, Washington, D.C.: GPO, 1987.*

Masonry

The Cleaning and Waterproof Coating of Masonry Buildings. Robert C. Mack.
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Dangers of Abrasive Cleaning to Historic Buildings. Anne E. Grimmer.
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Baird M. Smith.
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The Preservation of Historic Adobe Buildings.
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Gerald A. Sleater.
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Metals in America's Historic Buildings: Uses and Preservation Treatments.
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Preservation Assistance Division, National Park Service, Washington, D.C.: NTIS, 1980.

Wood & Plastics

Epoxies for Wood Repairs in Historic Buildings.
Morgan W. Phillips and Dr. Judith E. Selwyn.
Preservation Assistance Division, National Park Service, Washington, D.C.: NTIS, 1978.

Thermal & Moisture Protection

Conserving Energy in Historic Buildings.
Baird M. Smith.
Preservation Briefs No. 3, Washington, D.C.: GPO, 1980.

The Repair and Replacement of Historic Wooden Shingle Roofs. Sharon C. Park.
Preservation Briefs No. 19, Washington, D.C.: GPO, 1989.

Roofing for Historic Buildings.
Preservation Briefs No. 4, Washington, D.C.: GPO, 1978.

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The Preservation of Historic Pigmented Structural Glass (Vitrolite and Carrara Glass).
Preservation Briefs No. 12, Washington, D.C.: GPO, 1984.

The Repair and Thermal Upgrading of Historic Steel Windows. Sharon C. Park.
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Retrofitting for Computers

Computers in the workplace increase spatial demands on older buildings.

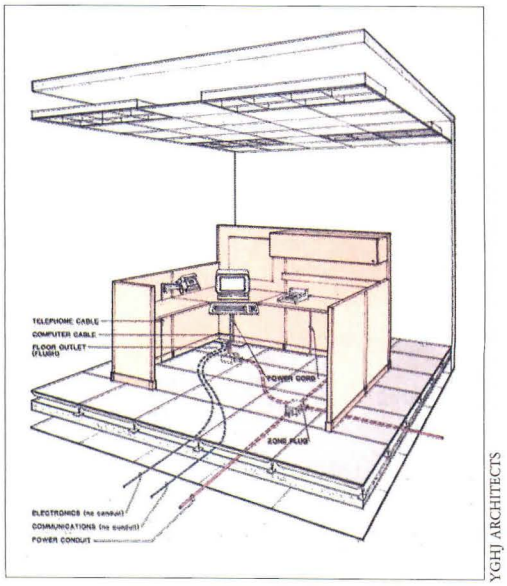
A CENTURY AGO, BUILDINGS WERE TORN apart, disfigured, rebuilt, and refinished to accommodate two revolutionary technologies: electric lighting and indoor plumbing. Builders and architects were called upon to incorporate these new "circulatory systems" into structures designed for a simpler era. To its credit, the construction industry quickly learned to take these systems for granted. But now, as clients become increasingly dependent upon computers, architects are being challenged to retrofit even relatively new buildings to accommodate another technology. They must find a place to conceal (or glorify) the new cabling while ensuring flexibility for future changes.

These issues are not new, and many retrofitting problems and solutions have been absorbed into the mainstream of design thinking. And although desktop computers are more numerous, they are also smaller and less intrusive than their power-gobbling, space-consuming mainframe predecessors.

Nevertheless, it's important to keep retrofitting concerns at the forefront of design consciousness, because electronic issues have architectural implications. So contends Piero Patri, FAIA, of the San Francisco/Los Angeles design firm Whisler-Patri. "We're talking about a watershed in the way buildings function," he explains. "From the time of the cave, buildings have been passive structures. Now, sensors and sophisticated controls are making them active. You can't simply relegate electronic issues to engineers."

Arteries for the cabling circulatory systems have become so large, for example, they play a major role in defining the structure, layout, and materials in new buildings. Even more nettlesome is the task of shoehorning cables into older buildings. Fortunately, many cable management strategies exist, including flat wire, exposed wiring, and concealment within floors, ceilings, and furniture.

Layout strategies must also be considered carefully. For example, in most existing buildings, power enters at the ground floor, with vertical risers gradually narrowing as they ascend. But with new rooftop microwave and satellite dishes that deliver data downward, risers are required that are larger at the top than at the bottom. Therefore, existing spaces for vertical distribution of data cabling may prove inadequate.



YGHJ ARCHITECTS

Underfloor wiring (above) provides office workstation flexibility, with access to wiring through raised floor panels like those from USG Interiors (below). Architects Tsoi/Kobus & Associates of Cambridge designed accessible desk-height cable trays (below, left) for laboratories at Harvard's Medical School.

Architects should study historic buildings closely to discover interstitial spaces for concealing wiring. In older buildings, there may be existing cavities in floors, walls, and closets.

Computer networks can create a tangle of "spaghetti" wiring because they must connect not only to a central source but also to other networks. The spatial demands of cabling may be further complicated by a need to separate wiring systems from each other to avoid interference and by a need for better grounding than is required by safety codes. Although network cabling can often piggyback on existing telephone lines, the combined quantity of power, voice, and telecommunications cabling usually requires some degree of special accommodation.

One common strategy to handle an increased bulk of wiring is to conceal it under the floor. Access floors, such as those manufactured by Tate and USG Interiors, raise the floor level from as little as six inches to more than two feet, also serving HVAC ducts and pipes, if necessary. These floors require a generous floor-to-ceiling clearance and ramping modules to allow for changes in floor elevation within a building. They are convenient for cabling that must be adjusted frequently, and though initially expensive, may prove less costly than frequent renovations.

The Starfair Corporation of Charlotte, North Carolina, offers an alternative cable-concealment option with its loosely laid carpet tile system called Officeflor. The low-profile tiles raise the floor height by only three inches, yet allow space for office wiring and electrical conduit.

Another option for concealed wiring, when conduit and ductwork are not required and the existing floor is dry and intact, is under-carpet flat wire. This type of wire can be laid directly on the floor and covered with standard carpet tiles for access. More cost-efficient than raised floors, flat wire can also be installed with less disruption to ongoing office work; but the connectors rise above the floor plane and must be located with care.

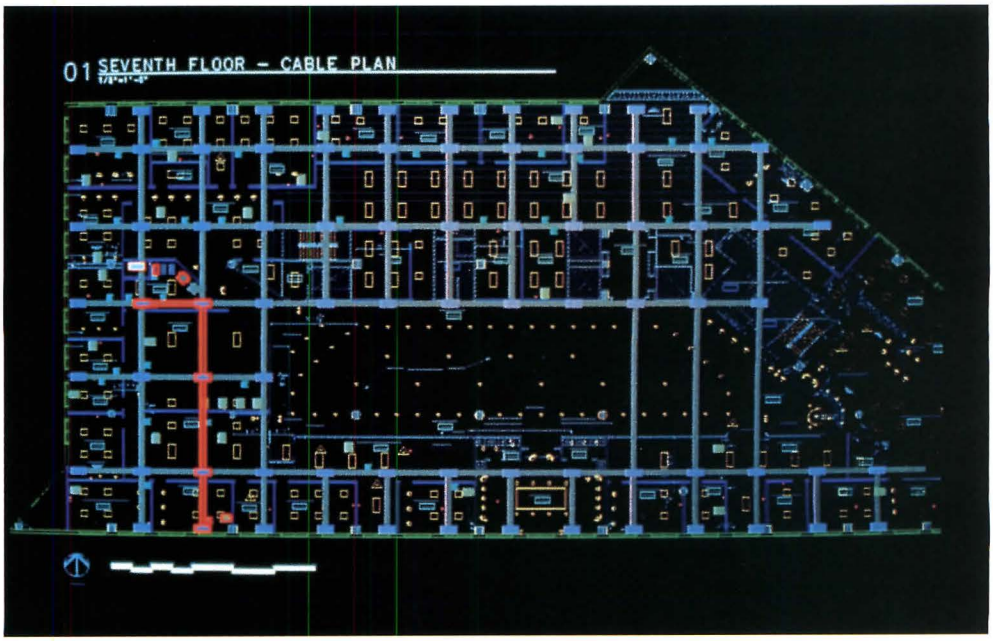
Integration of cabling within furniture also offers flexibility. Manufacturers such as Steelcase, Haworth, and Herman Miller provide built-in raceways with power- and data-access points at a variety of locations. This seemingly ideal cable management solution, however, can sometimes be undermined by external forces. In Chicago, for example, conduit is usually added to the exterior of systems furniture because of electrical union requirements, negating the benefit and flexibility of systems furniture. If clients want to move their workstations, they need to call in an electrician to reconfigure the conduit and redo the wiring.

Computers in historic buildings

RETROFITTING HISTORIC LANDMARKS POSES more difficulties if the original materials must be preserved or if construction drawings do not exist. Some solutions are suggested by Gersil Kay, chair of Building Conservation International and author of *Mechanical/Electrical Systems for Historic Buildings*, forthcoming from McGraw-Hill. She recommends that architects study a building closely to discover interstitial spaces—the existing cavities in floors, walls, baseboards, and ceilings in which it is possible to conceal wiring without compromising architectural integrity. To find these spaces, exploratory demolition may be necessary.

Syska & Hennessy engineer Salvatore Farruggia has worked on several historic retrofitting projects in New York. "The key is to get to know the structure," he says. "After you have lived with it for a while, you'll find lots of places to run mechanical piping and conduit. Look for those obscure closets, and tuck wiring into moldings." He cites an example of generous turn-of-the-century perimeter and interior chases that once housed relatively bulky cast-iron plumbing and piping and can now hold electrical wiring and today's smaller mechanical piping. Farruggia admits that finding these interstitial spaces can be very time-consuming in the beginning, but saves time and money later on. "A contractor who knows exactly what to expect

Callison Partnership relied on Context systems by Steelcase to conceal computer cabling at Boeing Employees' Credit Union in Tukwila, Washington (below). Isicad's Command cable management software (below, right) allows facility managers to coordinate CADD drawings with wiring requirements and installation.



New software helps a facility manager design wiring layout changes, estimate costs, determine optimum cabling pathways, and locate problems within networked systems.

won't add a 20 to 30 percent contingency factor onto the job cost."

New York architect Rafael Viñoly, for example, found usable spaces under the floor when he converted a former meat-packing plant into a design studio with a high density of computer workstations. He cut trenches with removable covers into the existing wood floor to carry the cabling, and can now relocate workstations along the length of the trenches to allow for changes in staff size.

Ironically, many of the accommodations being made today may one day be obsolete. Wireless network systems that operate at infrared, microwave, or spread-spectrum frequencies are being tested and perfected. For now, these systems are more expensive than cabling and may pose performance and security problems. Some frequencies require approval from the Federal Communications Commission (FCC), causing additional expense and delay. Consequently, wireless systems are usually considered only in extreme cases—in heavy industrial environments or where workstations must be mobile, for example.

In the renovated offices of engineering firm Skilling Ward Magnusson Barkshire, designed by Seattle-based Wyatt Architects, conduit was encased in colorful tubing and run directly down from the ceiling (below left). Ceiling tiles were removed to reveal HVAC and electrical systems (below right).

As long as wiring continues to be required for power and telephone, it seems unlikely that wireless networking will become commonplace. But Apple Computer has applied to the FCC to allocate a bandwidth for intrabuilding communications that could be available without a license. If such networks become commonplace, historic buildings will benefit most from the reduced size of required cabling arteries.

Cable management software

ONE REASON THAT CABLES PRESENT SUCH A bulky presence in buildings is that maintenance workers often leave behind the old wiring when they install new systems. Some CADD companies now offer cable management software for handling this problem. For example, the Command software from Isicad describes a building's computer and telecommunications infrastructure in a database that combines circuit records, tray capacities, and connectivity data with the CADD drawings of floor plans and equipment layouts. The software helps a facility manager design layout changes, estimate costs, determine optimum cabling pathways, and locate problems within networked systems.

This kind of software is indispensable for technology-intensive buildings, according to Command user Ken Hall, of the Portland, Oregon-based architecture firm Yost/Grube/Hall/Johnson (YGHJ). "Without a software system to manage rapidly changing assemblies of recent technologies," Hall says, "building owners lose control and experience 'cable chaos.' We've seen facilities abandoned because there is so much excess wire under the floor that the access panels no longer lie flat on the support pedestals."

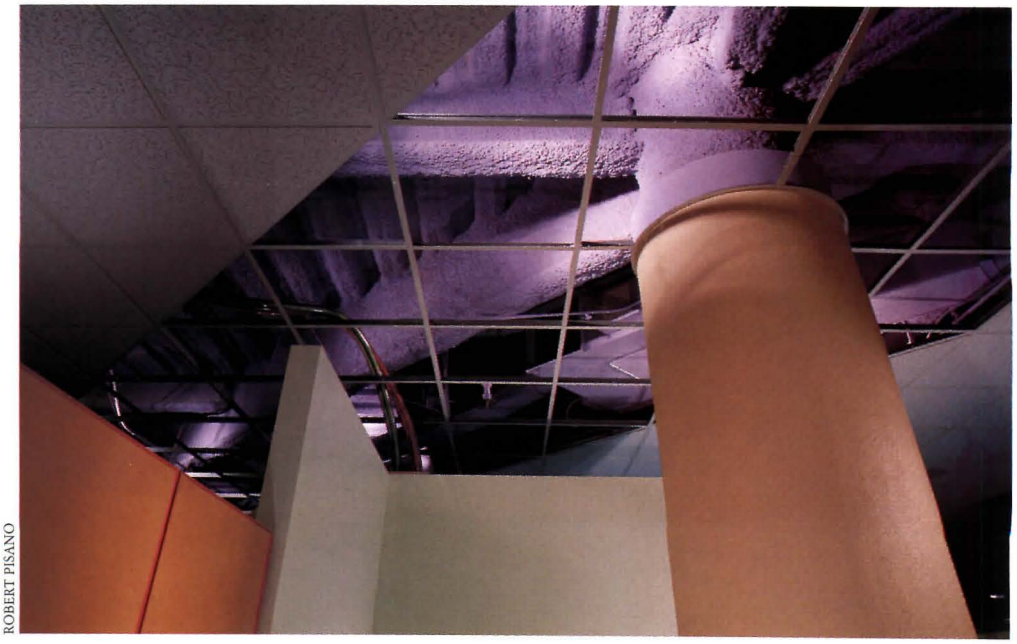
Avoiding future retrofitting

CHANGING TECHNOLOGY HAS ALREADY driven several power and light systems into extinction in this century, and some current retrofitting projects involve buildings that are less than five years old. What can architects do to prevent new computer-intensive buildings from facing the same problems in the year 2000 that older buildings are up against today?

YGHJ principal Roger Yost sums up his firm's approach. "The life cycle of many of today's office technologies is about three years," he explains, "and companies are reorganizing at an accelerated rate. One strategy for dealing with this unknown is to provide space for equipment and distribution that far exceeds the current requirements." Whether in existing buildings retrofitted for today's computer-intensive workplace or in new buildings designed to anticipate unknown future technologies, these vertical and horizontal cable pathways will increasingly demand prominence among design considerations. ■

—B.J. NOVITSKI

ROBERT PISANO



ROBERT PISANO

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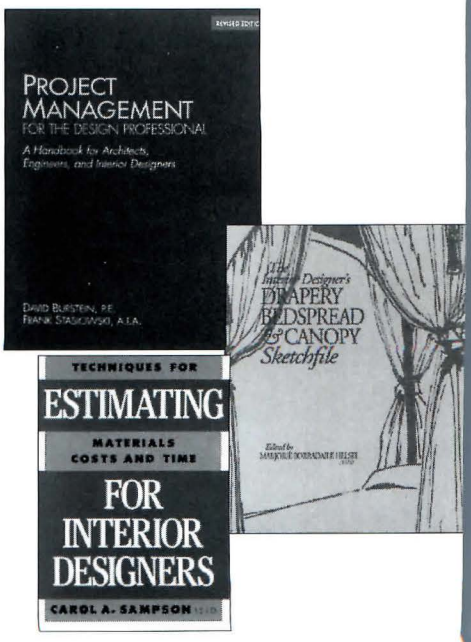

Preserving the Past

New products rejuvenate old buildings.

ARCHITECTS FACE A WIDE RANGE OF OPTIONS WHEN REPLACING AND repairing historic architectural elements. Depending upon the condition of the building, scope of the project, and budget, architects may opt for original or closely related materials. Selecting from a range of manufacturers, they can copy missing or damaged elements of 19th-century facades using cast iron and galvanized metal, or replace 20th-century steel window casements with aluminum frames. Over the past three decades, synthetic materials such as fiberglass-reinforced polymer have joined the list of replacement materials for nonstructural applications of stone, iron, and wood. Currently, manufacturers offer extensive selections of synthetic moldings, balusters, and door- and window-framing systems, in addition to customized components. Responding to preservationists, who advocate the use of original materials in historic restoration, some manufacturers continue to replicate stone, metal, and wood cornices, balusters, moldings, and columns that demonstrate greater longevity than their synthetic counterparts.

—KAREN SALMON

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1. Scalamandre introduces Fusina ceiling paper, inspired by a coffered ceiling in a 1901 Newport, Rhode Island, mansion. Circle 401 on information card.

2. Robertson Iron re-creates cast-iron elements for historic restoration and new projects. Circle 402 on information card.

3. EFCO manufactures the custom 590 window series, which replicates steel casements from the 1920s through the 1950s. Circle 403 on information card.

4. Made of high-density polymer, Fypon's Molded Millwork is intended to resist natural decay. Circle 404 on information card.

5. D.C. Kerckhoff creates cast-stone balusters and other architectural elements. Circle 405 on information card.

6. The Temple of Winds Ionic column by Chadsworth can be specified in a range of wood species and dimensions. Circle 406 on information card.

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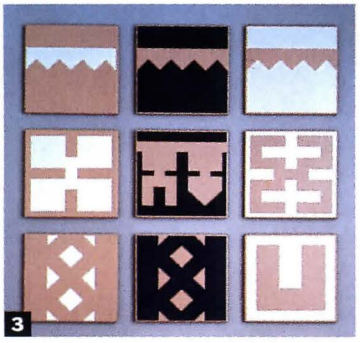
Ceramic Tile

American manufacturers look to Italian designs.

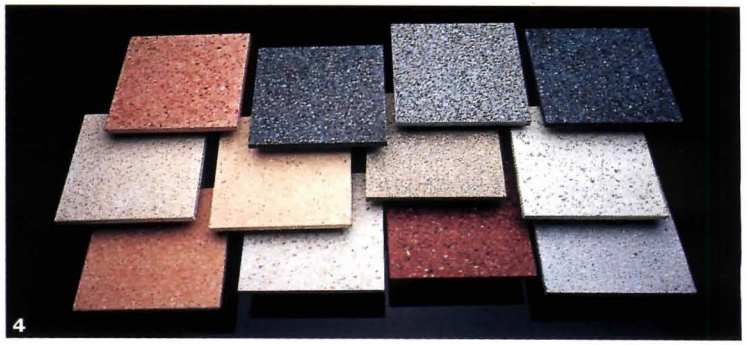
AMERICAN TILE MANUFACTURERS HAVE LONG LOOKED TO ITALY FOR trends in ceramic design. Each fall, products introduced at the Cersaie tile and bath show in Bologna, Italy, set design precedents that are echoed in the American marketplace. Within the past few years, for example, U.S. companies have begun promoting larger tile sizes for floor and wall installation, a practice that first appeared in Italy nearly a decade ago. Italian tile makers create bolder patterns and brighter colors than do their American counterparts, but many Italian companies also create subtle styles in pastels and earthtones to cater to traditional tastes. Nearly 400 Italian tile companies distribute their products worldwide, thereby broadening the American palette. The popularity of tile in this country varies according to region. A range of styles has long been part of the Southwestern vernacular, while patternless, neutral, or pastel-colored tile is especially popular in the Northeast due to its perceived permanence. In recent years, Americans have been installing more tile in entryways, patios, and dining rooms, in addition to kitchens and bathrooms. —K.S.

1. The Meredith Collection offers handcrafted accent tiles in 13 high- or low-gloss glazes for indoor and outdoor applications. Circle 407 on information card.

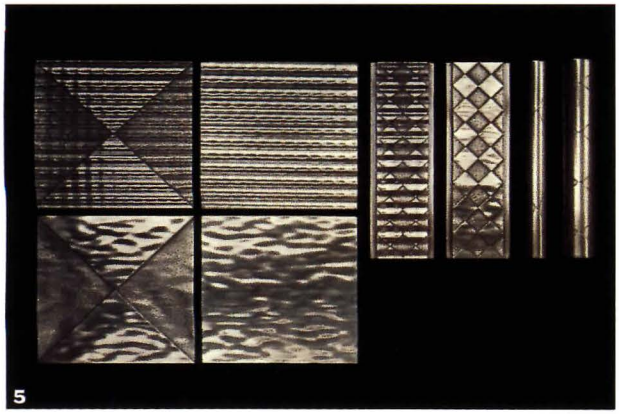
2. Part of the Williamsburg Collection, Summitville Tiles' Macaroni series depicts 15 Colonial figures. Circle 408 on information card.



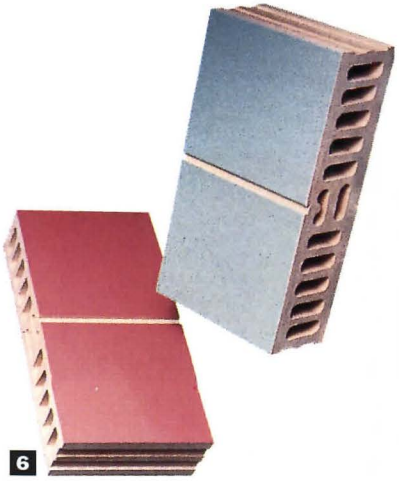
3. Hastings Tile imports Bardelli's Scritture ceramic pieces, which reinterpret historical Italian symbols. Circle 409 on information card.



4. Quiligotti manufactures precast terrazzo tile in custom and standard colors for commercial applications. Circle 410 on information card.



5. Intaglio produces Questech indoor wall tiles from a cast-metal composite of copper, bronze, or pewter combined with ceramic and a special polymer. Circle 411 on information card.



6. Stark Ceramics' 16-by-8-inch Centerscore masonry units incorporate a glazed ceramic surface in a range of colors for interior or exterior wall surfaces. Circle 412 on information card.

Circle 132 on information card

Tough Tiles

Science inspires new surface applications.

DUE TO TECHNOLOGICAL ADVANCES IN THE TILE INDUSTRY, ARCHITECTS now have the benefit of increased flexibility when specifying tiled surfaces. Over the last decade, manufacturers have found ways to create thinner, flatter, and more dimensionally stable ceramic and porcelain tiles. As a result, companies have begun producing tile in larger sizes. Floors and countertops finished in 24-inch-square tiles (as opposed to traditional 4 1/2-inch-square pieces) display fewer grout joints and require less installation time. Using advanced machinery and techniques, companies now have the ability to construct more accurately sized tiles. Setting and grouting materials have evolved alongside the tile industry to accommodate the new materials and sizes. Techniques that use latex-modified, quick-setting mortars and organic adhesives have superseded traditional mudbed/cement installations in many applications. New glues make it possible to apply tile directly to wood, while the installation of 1/2-inch-thick concrete panels over plywood creates additional surface options for ceramic patterns. The bonding strength of new adhesives allows architects to install wall tiles from floor to ceiling instead of ending at the conventional handrail height. High-quality glazes coupled with durable construction have made tile more suitable for high-traffic and exterior surfaces. ■

—K.S.

1. Available in 8-by-8-inch or 12-by-12-inch tiles and a range of colors, Laufen International's Jewels series is finished with a semigloss surface to reduce slippage. Circle 413 on information card.

2. A 9-minute 35mm film entitled "In Partnership with the Imagination" features the colors and textures of surfacing materials manufactured by the Endicott Clay Products Company and Endicott Tile Limited. Circle 414 on information card.

3. Buchtal USA manufactures 2-foot-by-2-foot tiles and a 1-foot-long, custom nose piece for countertops to reduce the number of grout joints. The 5/16-inch-thick Keraion is available in glossy or matte finishes. Circle 415 on information card.

4. The Stoneware Tile Company uses recycled glass to create a color palette for Traffic Tile, a line of glass-bonded, unglazed ceramic tile for commercial applications. The company recycles tile scraps to manufacture a line of glazed pavers. Circle 416 on information card.

5. Ceramica Vaccari created Travertini porcelain tiles in two natural shades and a variety of sizes to emulate the look of travertine while resisting water absorption and dirt accumulation. Additional Vaccari lines display slate- and granitelike finishes. Circle 417 on information card.

6. American Olean's Sure Step red quarry tiles for commercial kitchens, serving lines, and exterior walkways provide a raised, textured surface for traction. The 6-by-6-inch tile resists staining through low moisture absorption. Circle 418 on information card.

OPTIMA®

R Family Place, Morris, Illinois

Tadich Grill, San Francisco, California

Mount Sinai Hospital Medical Center, Chicago, Illinois

Chinn's Crab House, Wheeling, Illinois

Tropicana Hotel & Casino, Atlantic City, New Jersey

O'Hare International Airport, Chicago, Illinois

Absolutely no touching!

It's the latest trend in restrooms across the country. And it's all because of a revolutionary new line of electronic plumbing products from Sloan Valve Company.

Sloan OPTIMA® systems use electronic sensor technology to eliminate typical washroom worries. Fixture operation is on-demand and automatic—not left to user discretion. And the total "no-hands" restroom concept offers some very real advantages for today's buildings.

OPTIMA systems reduce water and energy usage—up to 43% in some applications. Daily maintenance requirements are reduced, too. And then there's sanitation. "Touchless" operation means users enjoy the highest level of sanitation possible.

OPTIMA systems meet building code requirements and install easily in new and retrofit applications. The line includes faucets, soap dispensers, faucet/soap dispenser combinations, flushometers, hand dryers, shower heads and more.

Find out more about why there's "Absolutely no touching" in a growing number of buildings around the country. Ask your Sloan representative for the complete story on Sloan OPTIMA systems. Or write us.

SLOAN

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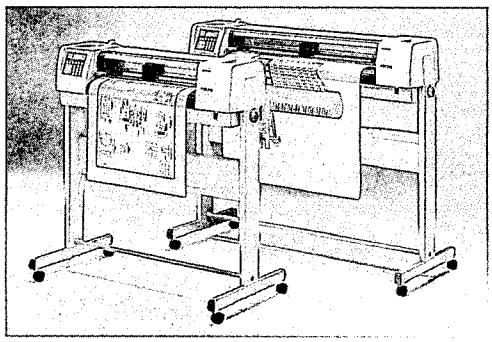
10500 SEYMOUR AVENUE • FRANKLIN PARK, IL 60131

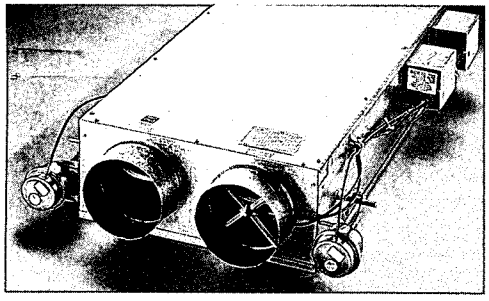
Circle 134 on information card



Fast Plotter

MUTOH AMERICA'S XP-SERIES OF PENCIL/PEN plotters (above) evaluates vector length and angle, then determines the most efficient number of vectors to be read, sorted, and plotted. As a result, the plotter engages in fewer pen movements, decreases paper wear, and reduces plot time.

Circle 419 on information card.



Improved Circulation

INTENDED FOR BUILDINGS WITH SPACE LIMItations, Titus's MDV Mixxmaster (above) is a dual duct VAV terminal that combines hot and cold air streams with a purported blending efficiency of 95 percent at the duct terminal discharge. The duct's damper and casing is designed to minimize leakage. Titus also offers a line of seven ceiling diffusers compatible with existing manufacturer's ceiling suspension systems. The Narrow Tee line includes Modu-Bloc, a diffuser that allows an existing ceiling tile to be inserted onto its face; the Omni-NT diffuser which emits air in a 360-degree pattern; the TMS-NT round neck diffuser commonly used for VAV systems; the TDC-NT diffuser with a louvered face allowing it to vary air volume; the ML-NT diffuser which allows changes in air volume and direction; the TBD-80-NT diffuser for perimeter applications; and perforated diffusers for a flush fit.

Circle 420 on information card.

Joint Improvements

SCHLUTER SYSTEMS MANUFACTURES EXtruded metal and PVC trims, expansion joints, transition pieces, and a variety of waterproof membranes for the ceramic tile and marble industry. Reno trims provide a transition element between ceramic or marble surfacing and carpet. The symmetrically shaped, extruded Rondec Profiles components protect tiled surfaces from damage as well as deterioration caused by weather or chemicals. According to the manufacturer, the Schluter Joining Profile creates a watertight, flexible joint for showers and baths.

Circle 421 on information card.

Space-frame System

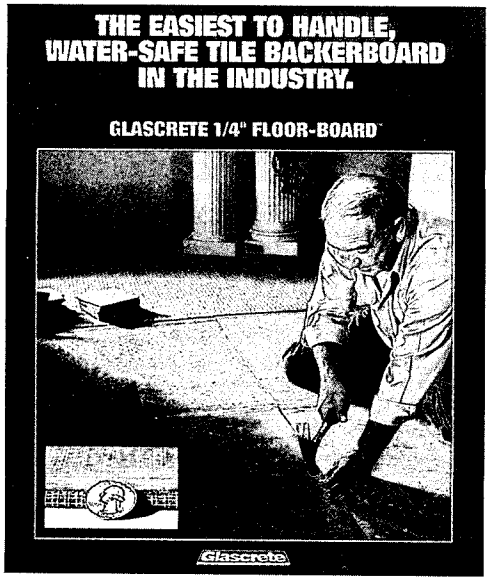
MERO STRUCTURES ANNOUNCES THE MD-Mero Deck, a modular space-frame system comprised of preassembled pyramids. Demonstrating concealed fasteners and a selection of module sizes, the system is intended to combine esthetics with quick installation.

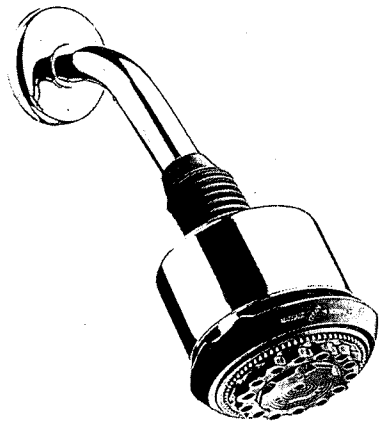
Circle 422 on information card.

Ceramic Underlayment

GLASCRETE OFFERS A FOUR-PAGE COLOR BROchure (below) on Floor-Board, its 1/4-inch-thick underlay material for ceramic tile countertop and floor installations. Floor-Board is a lightweight concrete substrate that earned a CTI "heavy industrial" rating. Joints between boards require latex-modified mortar only, thus eliminating the need for taping.

Circle 423 on information card.





Bath Hardware

MANUFACTURER OF HARDWARE AND ACCESsories for the bathroom, Hansgrohe introduces the Clubmaster shower head (above) which offers three settings: normal spray, soft spray, and massage spray. The illuminated, wall-mounted Comtess de Luxe makeup and shaving mirror provides slight magnification. Hansgrohe also offers an unlighted model.

Circle 424 on information card

Steel Joist Directory

THE STEEL JOIST INSTITUTE INTRODUCES *Technical Digest no. 3*, a 34-page review of steel joists available for flat roofs and their structural behavior when subjected to water accumulation and additional loads. The guide focuses on two framing conditions: joists resting on flexular members at right angles to the joists and spanning between columns; and joists resting on stiff supports. The Steel Joist Institute, a nonprofit organization comprised of steel joist manufacturers, works to set and maintain standards for the industry while conducting research on steel joists and girders.

Circle 425 on information card.

Improving Communications

DUKANE, A MANUFACTURER OF COMMUNIcations systems for institutional, industrial, and commercial facilities, introduces ProCare 90, a staff register and message system for healthcare facilities. ProCare 90 determines a staff member's location in a facility and delivers messages. The system can be accessed from within a building or from the outside through normal telephone lines.

Circle 426 on information card.

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