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LETTERS & EVENTS

NEA debate continues

The great art and architecture which has inspired generations has invariably been of noble and idealistic character. Although there are antiquities which are erotic and/or grotesque, these are generally viewed as curiosities whose value is primarily archaeological.

Depictions that insult the religious and philosophical convictions of others are not beneficial to anyone. We believe that such "artistic expression" results from meanness and depravity, and should not be supported by public funds.

Adelaide A. Thulin
Frederick A. Thulin, Jr., AIA
Applied Design Associates
Mount Prospect, Illinois

Robert Dorsey thinks the arts will prosper without government subsidy (September, 1990, page 20). He says "Almost every human activity prospers when government disengages itself. Let it happen to the arts." I would like to remind Mr. Dorsey of the prosperity of our nation's defense industry, agribusiness, and education industry (of which Mr. Dorsey is part) which cannot survive on private donations alone.

Art is a part of the local economy and involves a wide range of jobs apart from the actual artist, such as art suppliers, piano tuners, and even architects who construct galleries and concert halls. Why are Americans so keen on welfare for the rich (e.g. the defense industry) and so angry about a few crumbs for the arts? I'd much rather have my tax dollars go for crucifixes and urine than for rape and murder in Central America.

Charles Bedard
Cambridge, Massachusetts

Indoor health

I was pleased to read about the creation of AIA's Environmental Resource Guide (August, 1990, page 17). I would, however, like to direct attention to some of the existing research on "healthy buildings" and their design criteria.

The state of Washington, as an example, is implementing a multifaceted approach to mitigating indoor air pollutant concentrations. It's particularly interesting that many of the most effective techniques require additional planning by the building owner, but very little, if any, additional cost.

Building design and ventilation modifications together improve overall indoor air quality, but the problem is best solved through source control—what is introduced into the indoor environment. The list of possible offenders is seemingly innocuous, ranging from household solvents to office machines. Some of these products have already been scrutinized for potentially irritating or even hazardous emissions.

Cooperation between architectural designers and manufacturers is essential to meet future standards. Efforts to identify and characterize indoor pollutants and their sources support such endeavors.

Laura L. Knight
Air Quality Sciences, Inc.
Atlanta, Georgia

Rebalancing the scales

Your article "Balancing the Budget" (August, 1990, page 113) should have been a good source for potential users to evaluate software they might implement; however, in at least one case it was not.

I am familiar with Clerk of the Works by Samsara, Ltd., and the article concluded with a list of six "other problems" with the program that were simply incorrect. The first "problem" was that due dates for consultants cannot be edited. This is not true. When entering a consultant's invoice, Clerk offers a default payment date 30 days from the invoice, but the cursor stops on this payment date cell, giving the user the opportunity to enter any date he chooses. In response to its other "problems," Clerk can provide up-to-the-minute aged receivables and payables reports, handle consultant fees disbursed to a separate account, and provide cash disbursement journals in the form of check registers.

Kurt Kramer
K-Square Consulting
Chicago, Illinois

Corrections

The project architect for the Dakin Building (August, page 92) is DES Architects of Redwood City, California; the design architect is The Munselle/Brown Partnership.

Hasbrouck Peterson Associates served as restoration architect for the Wright-designed Dana-Thomas House (October, page 27). Will Hasbrouck, FAIA, also served as historic consultant for the Romeo and Juliet Windmill.

November 13-16: Short courses "Restoration and Rehabilitation of Historic Houses" and "Preservation of Historic Terra Cotta" offered by the National Preservation Institute, Washington, D.C. Contact: National Building Museum (202) 393-0038.

November 14-16: Build Boston '90, design and construction industry convention at the World Trade Center in Boston. Contact: (617) 951-1433.

Through November 16: "Samuel Yellin's Metalwork at Yale," an exhibition at the Yale School of Architecture, New Haven, Connecticut. Contact: (203) 432-2289.

December 4-6: AEC Expo East 1990 at the Javits Convention Center in New York City. Contact: Expoconsul International (609) 987-9400.

December 13: The National Roofing Contractors Association one-day conference on "Roof Problem Analysis and Roofing Options" in Washington, D.C. Contact: NRCA (708) 299-9070.

Through December 28: An exhibition of the work of architect Franco Albini and his studio, at the National Institute for Architectural Education, New York City. Contact: NIAE (212) 924-7000.

December 31: Deadline for submissions to the 1990 Great American Facades Design Competition, sponsored by the American Architectural Manufacturer's Association. Contact: Jan Hockett, AAMA (708) 699-7310.

January 4: Submissions deadline for the first stage of the Civic Center Design Competition of the City of Rancho Mirage, California. Contact: William H. Liskamm, FAIA (415) 453-3966.

January 4: Entry deadline for the Brick in Architecture Awards Program, sponsored by the Brick Institute of America and the AIA. Contact: BIA (703) 620-0010.

January 18: Registration deadline for the competition to design a holocaust memorial for downtown Boston. Contact: New England Holocaust Memorial Committee (617) 338-2191.

Through February 24: "Mondo Materialis," an exhibition of collage panels organized by the Steelcase Design Partnership. At the Cooper-Hewitt Museum, New York City. Contact: (212) 860-6868.

NEWS

TWO OCTAGONS RESTORED ▪ AFFORDABLE HOUSING FORUM ▪ NEW JAPANESE ARCHITECTS

PETER AARON / ESTO

A dutifully restored Ellis Island (above) opened its doors to the public on September 10.

Ellis Island Reopens as Museum

WHATEVER IT EVOKES IN MYTH AND MEMory, Ellis Island is certainly the Golden Door of redesign. As both architecture and history, this island of sighs and ruins has become the season's most lavish architectural restoration.

For $160 million, the adaptive reuse project by Beyer Blinder Belle of New York City and Notter Finegold + Alexander of Boston, Massachusetts, has transformed the 220,000-square-foot way station for 12 million newcomers into an immaculate Museum of Immigration for their descendants. What was once crowded and stained with time and use is now clean and conscientiously reattired. Open, agreeable, often intelligent, it is hard to fault the architects' purpose and program. Yet for all the sentimentality of its publicity, for all the recollections and collections, Ellis Island—the architectural re-creation—is a dry-eyed place.

At Ellis Island Museum of Immigration, a glass canopy (above) recalls original awning that directed newcomers inside.

This does not mean that the architecture of Ellis's made over main building is too slick. These architects are too sophisticated to create some theme park on the huddled masses. The renovation of the exterior's brick and stone facade and copper roof, designed by Boring & Tilton in 1900, is adept, deferential. The old pile of a Beaux-Arts building glows robustly, refurbished with an amazing retention of age. The site retains its graceful sycamores and incorporates a new terrace. A wraparound stone wall is edged with a copper plate inscribed with immigrants' names; it overlooks the sea beyond the island.

Inside the modernized vault of the building, the issues of what to save, what to scour, what to recreate, must have been mind-bending, even for such practiced preservation architects as Notter Finegold + Alexander. Add to that the National Park Service's strictures to document and display the architecture of Ellis Island to a self-conscious fare-thee-well: a black band on the floor marking the old building; six (count them) models of Ellis Island through the decades, not to mention a welter of displays on immigration. Should one expect emotion, too?

The three most prominent and publicized new architectural features of this massive undertaking are its staircase of sighs, its canopy, and its terrace. Given Ellis's long period of use as a port of entry (1900-1924), the Park Service and the architects confronted the tough issue of which era to depict. Honesty is in; fabrication à la Williamsburg is out. The year chosen was 1918, when the massive wave of immigration peaked. But how do you deal with the defunct staircase that symbolized the lock on the Golden Door? Once a virtual stairmaster—Ellis's "60-second medical test" to insure the stamina of the new arrivals—the original staircase had vanished. To create it afresh was dishonest by current preservation notions. To ignore it was to reject history. But, alas, the redesigned concrete-and-steel staircase looks stiff and perfunctory.

The architects did better with the entrance canopy, a glass and steel structure recalling the original cloth awning that directed the immigrants inside. Although the

Continued on page 24

AIA BRIEFS

The AIA is spearheading a coalition to examine the use of the Surface Transportation Act's Highway Trust Fund, which is up for reauthorization in Congress early next year. The Surface Transportation Act commits federal funding to highways and mass transit, and to related matters such as highway landscaping and billboard control.

The fund, estimated to be upwards of $6 billion, has been used primarily to finance the building of interstate highways. Now that this system is nearly complete, the Highway Trust Fund must be restructured in a way that improves and maintains the system, and redirects funds toward enhancing long-neglected, highway-related areas.

In July, the AIA hosted a symposium, involving more than 30 groups, to discuss the opportunities presented to architects, landscape architects, planners, historic preservationists, and environmental organizations by the reallocation of the fund. Based on the meeting, members of the group are drafting legislation that would allow states the flexibility to choose the type of highway funding they need.

The proposed legislation would link transportation more closely to land use; develop a scenic highways program that heeds the historic resources of local communities; reform the Highway Beautification Act to end the proliferation of billboards along federal highways; and examine alternative modes of transportation.

The suggestions were submitted in October to Senator Patrick Moynihan, Hon. AIA (D-NY), chairman of the Senate Subcommittee on Environment and Public Works, and Congressman Norm Mineta (D-CA), chairman of the House Subcommittee on Surface Transportation. Both subcommittees have begun work on reauthorizing the highway fund. For more information contact Ann Looper, AIA's assistant director, Governmental Affairs, (202) 626-7404.

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NEWS

DETAILS

Schwartz/Silver Architects of Boston is expanding the Salem, Massachusetts, Peabody Museum and renovating Weld Hall, an older wing of the museum. The two additions comprise 24,000 square feet of space, and will form a new Asian Wing, at a cost of $4.7 million.

Two historic Boston landmarks dating from the 1700s, Faneuil Hall and the Old State House, are undergoing extensive rehabilitation by the local firm Goody, Clancy & Associates. Completion of both buildings is expected by 1992, coinciding with the 500th anniversary celebration of Christopher Columbus's discovery of America.

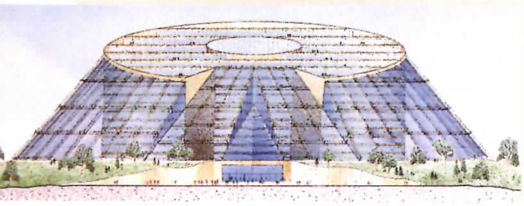
The historic City Post Office, located near Union Station in Washington, D.C., is being renovated and expanded by Shalom Baranes Associates to encompass 1.6 million square feet of office, retail, and parking, in addition to its use as a postal facility.

Phoenix City Hall, built in 1929, is undergoing a $1.8 million restoration by the local firm Orcutt/Winslow Partnership. Closed since 1988, the 1930s-era southwestern-style building will reopen this summer.

Graham Gund Architects of Boston, in association with William, Tazwell & Associates, Norfolk, Virginia, are renovating and designing an addition to the Norfolk Opera Company's 1942 limestone theater.

The New York office of HOK Architects traveled to Moscow in September to advise Soviet officials on the design, operation, and financing of the first AIDS hospital in the U.S.S.R.

New York architect Emilio Ambasz is designing the Worldbridge Centre, a 1,000-acre business and cultural complex in Middle River, Maryland. The project will focus on the Pacific World Trade & Investment Center, a 600,000-square-foot office complex (below), characterized by a steeped cylindrical front and glass apron enclosure.



Ellis Island from page 21

slope of the handicap ramp beneath it detracts from the grand gesture of the entrance, the canopy is an attractive token that Ellis is Ellis 1990, not 1890, and may even add to the Beaux-Arts grandeur of the arrival.

The third feature, the terrace, is replete with preservation-cum-architecture issues. Should additions blend or contrast with the original? The Ellis terrace addition takes a middle ground, neither blending nor contrasting. Though it functions well as a perch off the cafeteria, it neither connects nor rejects the past emphatically enough.

Ellis-as-museum offers a pleasant sojourn, but something seems missing. Beyond the charming collection of vintage baggage in the echoing entry hall, the exhibits and building fail to cohere. The massive Registry Room seems more void than haunted chamber. Weaving in and out of the exhibits on the restoration, visiting the photographs of the ruins of the building, poking out their ancestry on the computer, tourists appear baffled. They cluster around the few Park Service guides, seeking a rudder through this mammoth landing place, where the sense of history has been stripped too bare.

As architectural preservation, Ellis was an epic eight years in the rehabilitation. The effort shows in its elaborate new mechanical systems and well-wrought refurbishing. But perhaps something less heroic and more poignant has been lost. The human epic, within flaking paint and crumbling walls, might have been preserved with a neglected room or two along with the restored monument. Whatever the reason, few shadows fill these spaces: for all the celebration and scrubbing—or perhaps because of them—the ghosts are gone. —JANE HOLTZ KAY

Jane Holtz Kay is the architecture critic for The Nation.

Church versus State

SINCE ST. BARTHOLOMEW'S EPISCOPAL Church in Manhattan (right) was designated a landmark in 1967, churches across the nation have waged battles against preservationists over property. The issue concerns development: inner city churches seek to capitalize on their commercial surroundings by selling off prime real estate. Preservationists at landmarks agencies, on the other hand, want important older buildings protected. The issue has gone to the courts, and, on September 12, New York State's Second Circuit Court of Appeals upheld St. Bartholomew's landmark designation. Church officials plan to appeal the decision to the Supreme Court.

WALTER SMALLING

In the mid-1980s, New York City's powerful Landmarks Preservation Commission turned down three applications from St. Bartholomew's Church for permission to demolish its Community House (right in photo) to make way for a high-rise office building. Church officials took the matter to the courts, their lawyers arguing that the church's landmark status interferes with the its religious freedom by limiting its ability to provide services. They also contend that the landmark designation constitutes the taking of property, and that the church should receive financial compensation.

The September decision represents the second court case that St. Bart's has lost, but in Seattle, Washington, a similar case recently had the opposite outcome. First Covenant Church challenged its landmark designation last March, and the state's Supreme Court decided in its favor, rendering churches exempt from landmark status in the state of Washington.

On the same day that St. Bart's landmark status was affirmed, Washington State's Supreme Court refused to reconsider its First Covenant decision. Andrea Ferster, assistant counsel to the National Trust for Historic Preservation says, "The First Covenant decision is in direct conflict with the New York courts, making it more likely for the U.S. Supreme Court to review one of the cases."

—H.L.

NEWS

Two Octagons Undergo Restoration

ON CHRISTMAS EVE IN 1814, JAMES MADISON signed the Treaty of Ghent in The Octagon House in Washington, D.C. The treaty legally ended America's last war with the British, which was the only war during which the nation's capital has been under siege by foreign troops. Apparently unphased by political events, former president Thomas Jefferson built a wing of offices onto his plantation retreat in Virginia during the same year. "Architecture is my delight," Jefferson had written, "and putting up and pulling down one of my favorite amusements."

Today, both the president's retreat, known as Poplar Forest, and the Octagon, one of the most authentic examples of Federal-style architecture, are undergoing extensive restoration. "The projects are very different," says Jack Waite, whose Albany, New York, firm Mesick Cohen Waite has been appointed consulting restoration architect for both houses. The Octagon was a private city residence, commissioned by Colonel John Tayloe in 1798 and designed by William Thornton, the architect of the Capitol, to fit an odd angle of land a few blocks away from James Hoban's White House. It was completed in 1801, five years before Jefferson began his rural retreat on a 4,000-acre parcel 200 miles south of Washington, D.C.

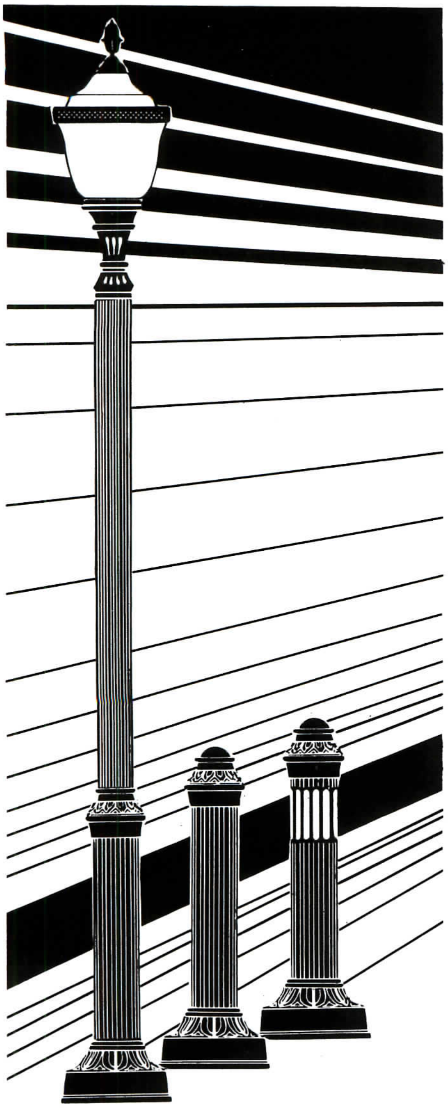
Jefferson's home was truly an octagon; the Octagon, despite its name, is an irregular hexagon with a round bay projection at the front facade. Poplar Forest suffered a serious fire in 1845, and subsequent renovations eliminated much of the home's original details and changed Jefferson's plan. The Octagon, on the other hand, has survived with only a few modifications for almost two centuries. Mesick Cohen Waite's analysis will help preservationists decide which elements, if any, will be restored. At the Octagon, that decision has been made, and restoration to the 1818-1828 period of occupancy by its original owner is under way.

Continued on page 32

New technologies are employed to restore the Octagon (below), AIA's architectural museum in Washington, D. C. The building's curved bay at the front facade, which houses round rooms on all three floors, probably gave the building its name, since it is supported by an octagonal framework. Coade stone column capitals (detail below) at the portico were restored in 1986.

JOE VIESTI

JOE VIESTI



NEWS

Octagons *from page 28*

The Octagon housed Tayloe, his wife, Ann, and their 15 children. It resisted the plundering of the British, but not the permutations wrought by several later inhabitants, including the AIA, which in the 1960s removed the original floors and supplanted them with concrete that they might better support its staff. (The building was purchased by the AIA in 1902 and served as its headquarters until 1949.) Such structural changes were normal procedure for rehabbing old buildings in the '60s, and they helped preserve the Octagon for its current use as an architectural gallery. However, the interior received frequent coats of paint—"38 layers" preservation coordinator Lonnie Hovey laments—which obscured intricate composition ornament and Coade stone fireplace decoration. Today's high-tech restoration efforts include ultraviolet examinations of the Coade stone to determine the extent of gold leaf under the paint, and meticulous experiments to determine how to dissolve paint in other areas without harming the composition ornament. Whatever processes are used for the restoration will be completely reversible. "The science of preservation has matured in the last 50 years," Hovey explains. "If, 20 years from now, conservators find a way to do it better, we want that to be possible."

Preservationists working at Jefferson's Poplar Forest will take a similar approach to restoration, although they are dealing with a building that has sustained numerous structural changes since its construction. As Jefferson's most mature work of architecture, the house contained many innovations for its time, including a large skylight built directly above the central square dining room. At the the north and south end of the house are Palladian porticos, each with Tuscan columns. The south portico terminated an arched arcade and enclosed a ground level entrance to the house, made possible by the removal of earth. The octagonal house therefore appeared to be a one-story residence from the front, but offered the convenience of a lower level entrance at the rear. The earth that was removed from the south side created berms on the either side of the house, designed to obstruct the view of matched octagonal outhouses in the distance.

Many of these exterior elements remain intact, but following the 1845 fire, an attic was added and all the windows were lowered. Restoration coordinator Travis C. McDonald, Jr., says the "architectural archeology" inside the house has also uncovered a fireplace in a bedroom on the south side, which had been covered up for 145 years. It contains evidence of original elements that will help restore the home's other 14 fireplaces. "What we have," McDonald explains, "is an interpretation of Jefferson's construction as well as his architectural design. They don't have that at Monticello, since that is an intact building. Here, we can see how walls are put together and how trim is attached to walls. This is a great way to educate the public about historic buildings, even beyond Jefferson."

Restoration architects at Poplar Forest (above), Thomas Jefferson's country retreat in Bedford County, Virginia, are writing an historic structures report to determine what elements from the 1806 building are original.

Surprisingly, some of the earliest damage sustained by Poplar Forest was less the result of age than of the whims of the architect. Jack Waite relates how Jefferson, as ambassador to France in 1785, was impressed by roofs of tin, a material unknown for that purpose in the United States. Jefferson built tin roofs at Poplar Forest and at the University of Virginia, and he was quite proud of them. At Jefferson's plantation, the roofs held up until 1826. The former president, then 83, was ill at Monticello when he received a letter from his grandson, Francis Eppes, relating that the president-cum-architect's prized roofs had developed leaks in "100 places." Jefferson died at his Charlottesville residence shortly thereafter, never having responded to the letter, which "may have hastened his death," Waite contends.

Waite's task as advisor to McDonald and architectural conservator Andrew L. Ladygo is to help determine what is original in the Poplar Forest house and outbuildings, and outline ways to preserve them for the future. The resulting historic structures report, to be completed next fall, will determine the length, breadth, and cost of the restoration process. —H.L.

NEWS

Design for Housing Forum

ALTHOUGH MORE AND MORE ARCHITECTS are becoming involved in the field of affordable housing, there is still a wide difference in design quality of most housing for low- and moderate-income families and market-rate units. But two Washington-based organizations, the National Endowment for the Arts (NEA) and the American Architectural Foundation (AAF), which is the AIA's educational arm, have launched a series of regional "Design for Housing" forums that could help eliminate some of the barriers to good design in affordable housing.

The first conference, held in Baltimore in September, brought together nearly three dozen architects, bankers, non-profit developers, public officials, residents of publicly-subsidized housing, and others for three days of roundtable discussions on a wide range of housing topics. A second forum will be held in early December in Los Angeles, and others will take place next year in the Midwest and Southeast.

In Raleigh, North Carolina, affordable housing designed as detached bungalows (above) by Gale Associates, Charleston, South Carolina.

The NEA and AAF are holding the conferences as part of a "Design for Housing" program that was launched last year. "We're not looking for answers," said program director Susan Hyatt. "We're looking for a process by which people involved in low-income housing can understand each other better, the constraints they're under, and see the opportunities that exist for well-designed, low-income housing.

During the three days of presentations and discussions in Baltimore, one recurring issue was the difficulty of balancing short-term cost-savings in housing construction versus design for long-term livability.

Some participants argued that the need for affordable housing is so great and federal funding so limited that construction must proceed even though many affordable houses are small and lack amenities that market-rate houses have. But others said planners must take a long-range view and make even the lowest-priced housing as livable as possible.

"I'm afraid we will be building the slums of tomorrow if money is always the bottom line," said Brooklyn-based architect Laurie Maurer, chair of the AIA's Affordable Housing Task Force. "If the end is to serve in a human way, not just a practical way, the bottom line has to be raised up."

One possible way to cut costs without scrimping on design, claimed some participants, is not to shrink standard two- or three-bedroom units but to explore ways of providing non-traditional housing to accommodate non-traditional households. Among the options discussed were: single-room occupancy (SRO) housing; intergenerational housing; modular housing; mixed-income housing; "live-work" housing; the Danish model of "cohousing;" and recycling of older buildings for historic preservation and low-income tax credits.

One public official, Delaware State Housing Authority Director Martha Harris, cautioned that architects should not treat residents of affordable housing as guinea pigs for their own design ideas. Because public acceptance is usually needed in the form of federal funding and other approvals, she said, designing low-income housing "should not be an experiment. It should not be like studying laboratory rats."

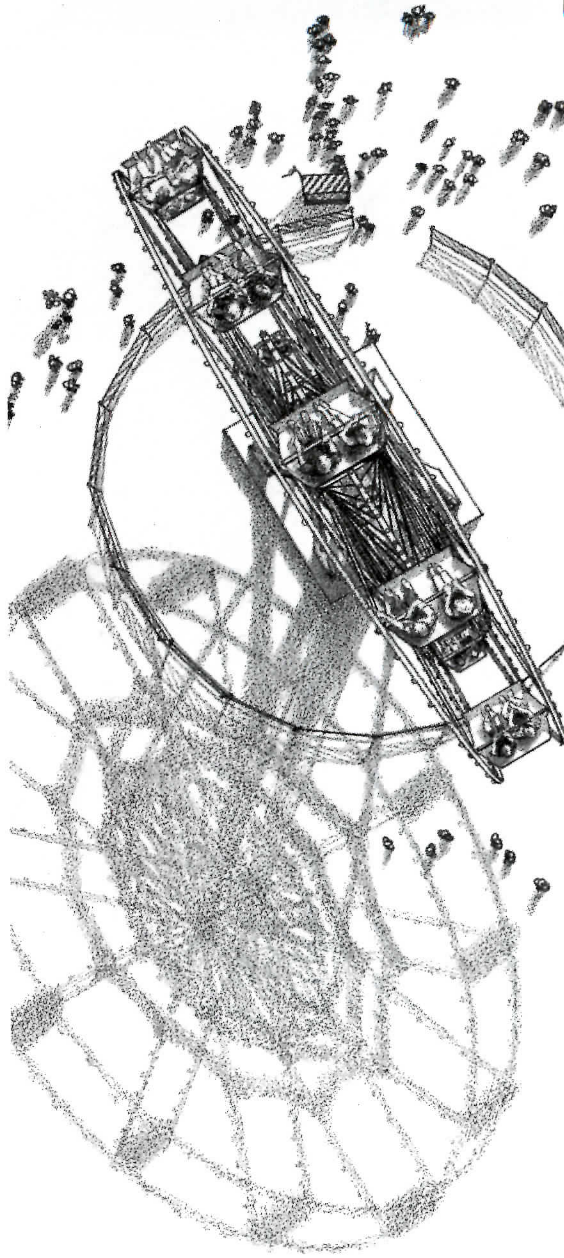
But Philadelphia architect Bob Thomas said some innovation is necessary for any creative thinking about design. "It's not a matter of solving the low income housing problem, but of solving the housing problem for everyone."

"Good design is good business, and that's the way we have to sell it," said Gary Brooks, executive director of the Housing Assistance Corporation in Baltimore.

The NEA allocated $150,000 to cover the cost of meeting space, meals, and participants' expenses at the forums, and the AAF is providing staff support and coordination. Admission is by invitation only, and participants are selected based on their involvement with affordable housing. Hyatt, who can be reached at (202) 626-7469, hopes to extend the program to a second year: "We want to see the conversations continue."

—EDWARD GUNTS

Edward Gunts is the architecture critic of the Baltimore Sun.

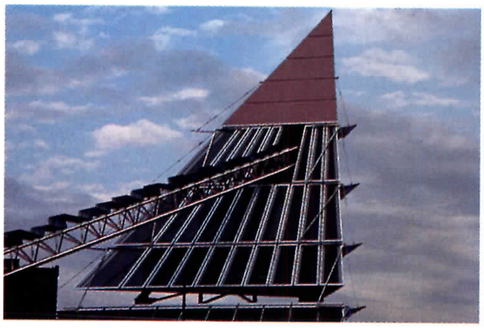


Japan's New Generation of Architects

SHIGERO OHNO

UPON ENTERING "EMERGING JAPANESE Architects of the 1990s," an exhibit on view at Columbia University's Wallach Art Gallery, the first impression is aural, not visual; an instrumental sound track of the type familiar from 1960s sitcom spy series and 1980s fashion show runways. Stridently upbeat, it accompanies the flash and whir of a slick six-monitor slide show set up in a back room, which juxtaposes images of the people and streets of urban Japan with the completed works of six architectural firms. Clearly, the continuous tumbling of images is meant to capture the frenetic pace and character of congested, contemporary Japan. But it also sums up the spirit of this group of young architects: sophisticated, stylized, impressively talented, and savvy to the tenor of their culture.

Atsushi Kitagawara, whose apartment building and theater complex were featured in "Emerging Japanese Architects of the 1990s," completed the Edoken Main Office building (left and below) in Tokyo in 1989.



MANABU MUNEISHI

Curated by Jackie Kestenbaum, an architectural historian and Columbia doctoral candidate, the show profiles the work of six firms whose principals are mostly under the age of 40: Kiyoshi Sey Takeyama/Amorphe; Norihiko Dan; Hiroyuki Wakabayashi; Hisashi Hara; Atsushi Kitagawara; and Workshop, comprising Michio Kinoshita, Koh Kitayama, and Akio Yachida. According to Kestenbaum, these are the stars of the "fourth" generation of postwar architects, all of whom came of age in a country of unprecedented prosperity.

The first generation of Japan's architects, explains Kestenbaum, was epitomized by Kenzo Tange, whose work reveals a masterly blend of both Western and foreign influences. The second generation was characterized by the Metabolists such as Fumihiko Maki, Arata Isozaki, and Kisho Kurokawa, who filled in the country's infrastructure; and the third by Tadao Ando, Toyo Ito, and Takefumi Aida, who concentrate on designing small, private houses.

The fourth generation, inheritors of a re-

Continued on page 40

Niijima Glass Art Center (above), located on Niijima Island, Tokyo, was designed by Norihiko Dan. The combined studio and exhibition space was established to promote recognition of indigenous glass art.

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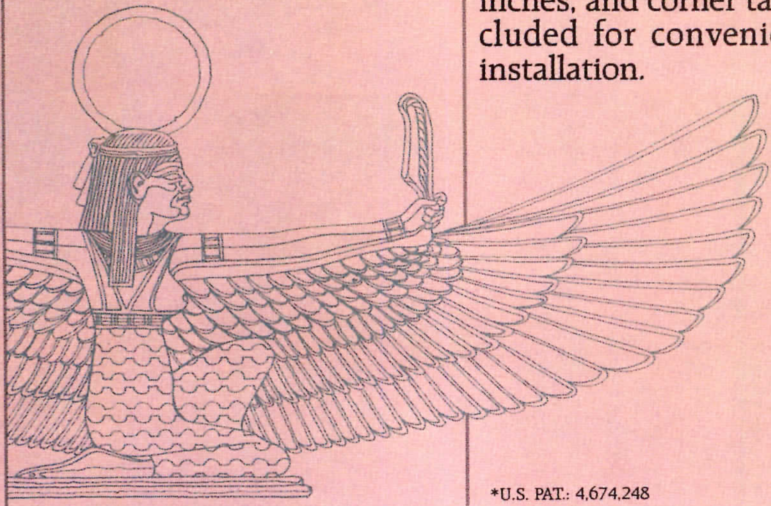

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Japan *from page 38*

constructed country, exults in boldly idiosyncratic forms that draw on imagery from traditional and imported sources. Unlike the older generations, the new generation is not charged with the task of creating architectural symbols to revive a Japan destroyed by war. This change in domestic stability has created an atmosphere that is both liberating and restricting for the younger architects, who adroitly blend geometry with innovative technology; classical Japanese architecture with imported Modernism. And while Hiroyuki Wakabayashi, with his "Life Inn Kyoto," a private senior citizens' residence, engages the public domain, almost all the other exhibited projects are preoccupied with the private realm, designed to satisfy a newly affluent culture eager to display its wealth. In fact, several of the architects—including Atsushi Kitagawara in his "Metroca," a 12-unit apartment building for graphic designers, artists, and photographers in Shibuya, Tokyo; and Kinoshita, Kitayama, and Yachida in their Tokyo Kaisen Market, a 24-hour fish market and restaurant—create structures that seem to occupy their own worlds, intentionally distanced from their surroundings no matter how urban their settings. This otherworldly quality is particularly manifest in Kitagawara's models: boxlike constructions that contain natural and architectural materials such as feathers, butterflies, mirrors, and slabs of wood, all exactingly arranged in minimalist compositions.

Still, as Kestenbaum points out, the scale and purpose of these projects was shaped as much by economics as by esthetics. "In Japan, land is very expensive and lots are very small," she explains. In addition, large-scale commissions such as museums, libraries, or universities are still the province of older architects, thus restricting this generation—for the moment—to less sizable commissions like bars, shopping centers, hotels, and private homes. Still, they are "blessed," says Kestenbaum. "They have had opportunities to build that colleagues in other countries might only dream about."

"Emerging Japanese Architects of the 1990s," at the Wallach Art Gallery until November 3rd, will be on view at the Canadian Center for Architecture from April 15 to June 30, 1991. ■

—Victoria Geibel

Victoria Geibel is a New York-based freelance writer.

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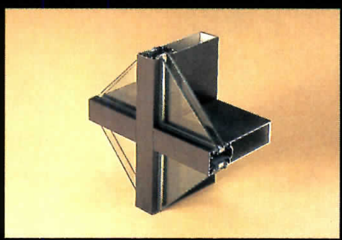

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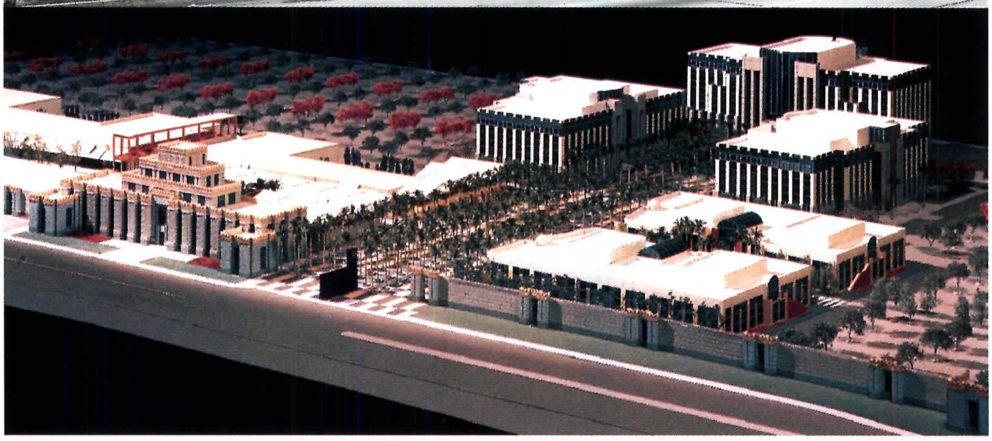

THE 1929 FORMER UNIROYAL TIRE BUILDING (top right) is located in the City of Commerce, six miles east of downtown Los Angeles. The office building and manufacturing plant were originally designed to resemble a 1,700-foot-long, Assyrian walled city, complete with battlements, turrets, and two-story-high bas-relief panels depicting warrior kings. The building was one of the first in L.A. to be constructed of structural, poured-in-place concrete. Closed in 1978, the City of Commerce bought the property in 1983. In 1987, the city accepted the architects' joint-development offer with the Trammell Crow Company, which called for reusing the original administration building as a factory outlet mall, and adding 750,000 square feet to the complex. Phase one, comprising 75 percent of the project, is scheduled for completion in December, and consists of the 140,000-square-foot mall, restaurants, office space, hotel, and a public plaza (bottom right).

Oregon Museum of Science and Industry
Portland, Oregon
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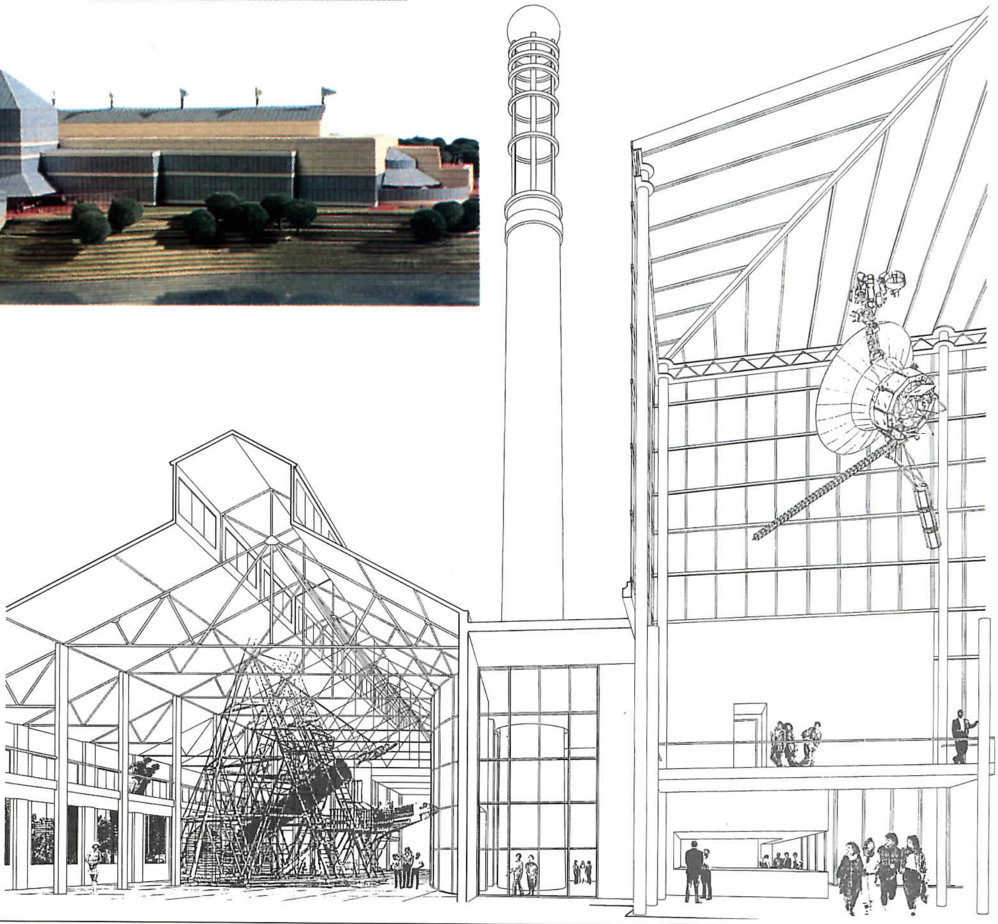
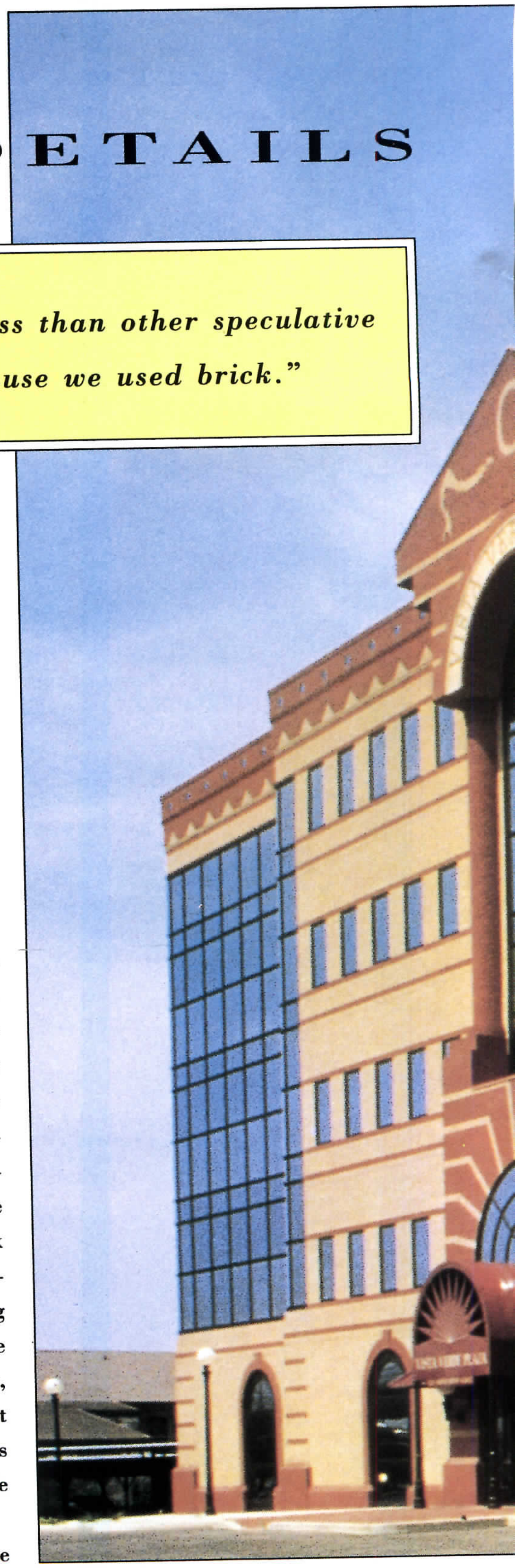
THE PORTLAND GENERAL ELECTRIC COMpany gave the museum an 18-acre parcel located on the southeastern bank of the Willamette River. Instructed by the museum to reuse the existing industrial warehouses which face downtown, the architects designed 224,000 square feet of exhibition spaces, planetarium, theater, support areas, and restaurants (above). A steel-framed, transparent spine (right) will connect the main structure to major exhibits and other functions on two levels, and is distinguished by a reused smoke stack. The project is scheduled for completion in June, 1992.



STRUCTURAL DETAILS



"This building came in at $10 to $15 a square foot less than other speculative buildings in San Antonio. This was possible because we used brick."

The popularity of Postmodern and Neotraditional buildings has fueled a rising demand for decorative and structural ornamentation on all types of buildings.

The design flexibility of brick allows architects to satisfy this demand by incorporating a myriad of brick details into their designs—from structural, recessed arches to multi-hued and patterned walls. Attention to details such as these help architects sell imaginative designs to clients without breaking their budgets.

Also, the availability of skilled brick masons throughout the U.S. makes even intricate details feasible. From a five-story structural arch to an undulating wall—if you can see it in your mind, you can build it with brick. To demonstrate this point, we offer a gallery of projects from diverse locations around the country.

Take a look at the garland etched in brick that tops a spectacular five-story brick arch. These are just two focal points of the new Vista Verde Plaza office building near San Antonio's historic Cattleman Square. The arch is no conceit. It's a real, load-bearing span, part of an intricate, two-tone brick design. As one of many brick details, it enlivens a style the designer calls "creative traditional," a step beyond Postmodern that harkens back to the well-proportioned detail of historic buildings.

COVER PHOTO BY ROBERT PETTUS

Expensive to duplicate? "No," claims Austin architect Clovis Heimsath, FAIA: "This building came in at $43 a square foot. That's at least $10 to $15 a square foot less than other speculative office buildings in San Antonio."

"It was possible to do because we used brick." He adds with a laugh, "It *had* to be brick to pass approval by the city's historic commission and redevelopment agency."

The $3-million project combines old and new with triumphant results. Heimsath originally planned to use plaster elements in the cornice. "But when our mason started to work out the details, he said it would be less expensive to construct a true structural arch, with load-bearing brick all the way down to the base of the columns." To create the brick garland, Heimsath recalled some decorative designs from an old brick building he had admired in Bastrop, Texas. He sketched the cornice of the old structure, then enlarged the detail to a scale that would allow it to be "read" by drivers on Interstate 35, which fronts Vista Verde Plaza.

Another challenge was to integrate the brick with the facade portions made of SS-8 Guardian reflective glass. "The brick bands had to line up with the mullions of the glass curtain wall," says Ben Heimsath, a designer in his father's firm. "We went through several rounds of trial and error. Finally we scaled down the curtain wall. Special window frames continue the horizontal patterns of the brick."

Heimsath saved time and money by using oversize three-inch bricks. The units measuring 2-5/8 x 3-1/8 x 8-5/8 are

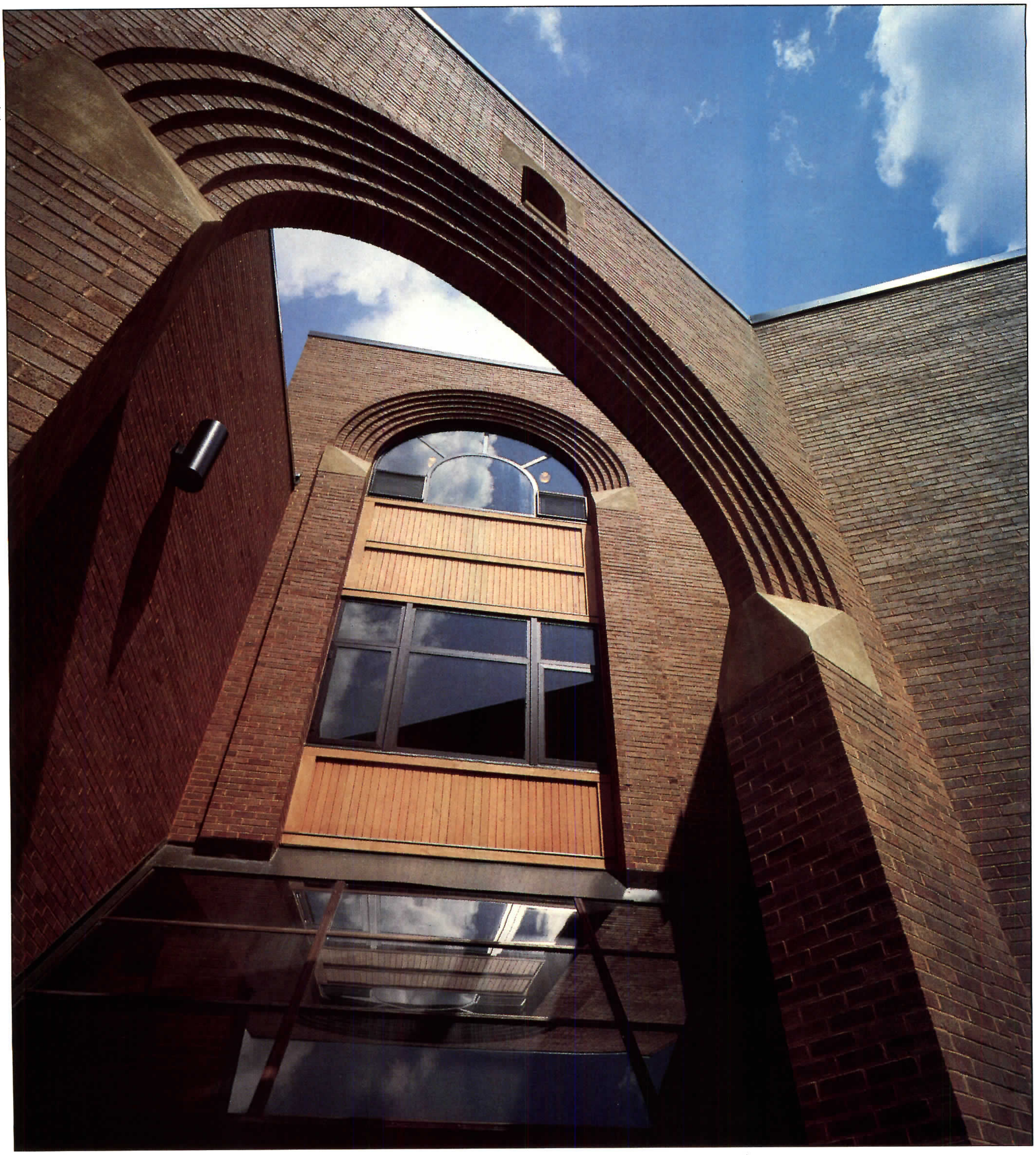

MARYANN HEIMSATH

ABOVE: CLOVIS HEIMSATH, FAIA, MELDED SPECTACULAR FIVE-STORY LOAD-BEARING BRICK ARCH WITH GLASS FACADE. COVER: ST. JOSEPH'S HOSPITAL WEST IN LAKE ST. LOUIS MISSOURI, BY ARCHITECTS JONESMAYER, INC. OF ST. LOUIS

narrower and about an inch longer than modular bricks. The larger size reduced the number of units needed and saved on labor costs. Specified were 148,000 tan sandface bricks and 37,000 in the red accent color, a velour-faced brick.

Melding tradition with technology was also vital at Huntington Point Business Park, a 50,000-square-foot office building in Shelton, Connecticut. "The client told us to design whatever we wanted," said Marvin Michalsen, AIA,

(C) ROBERT PERRON

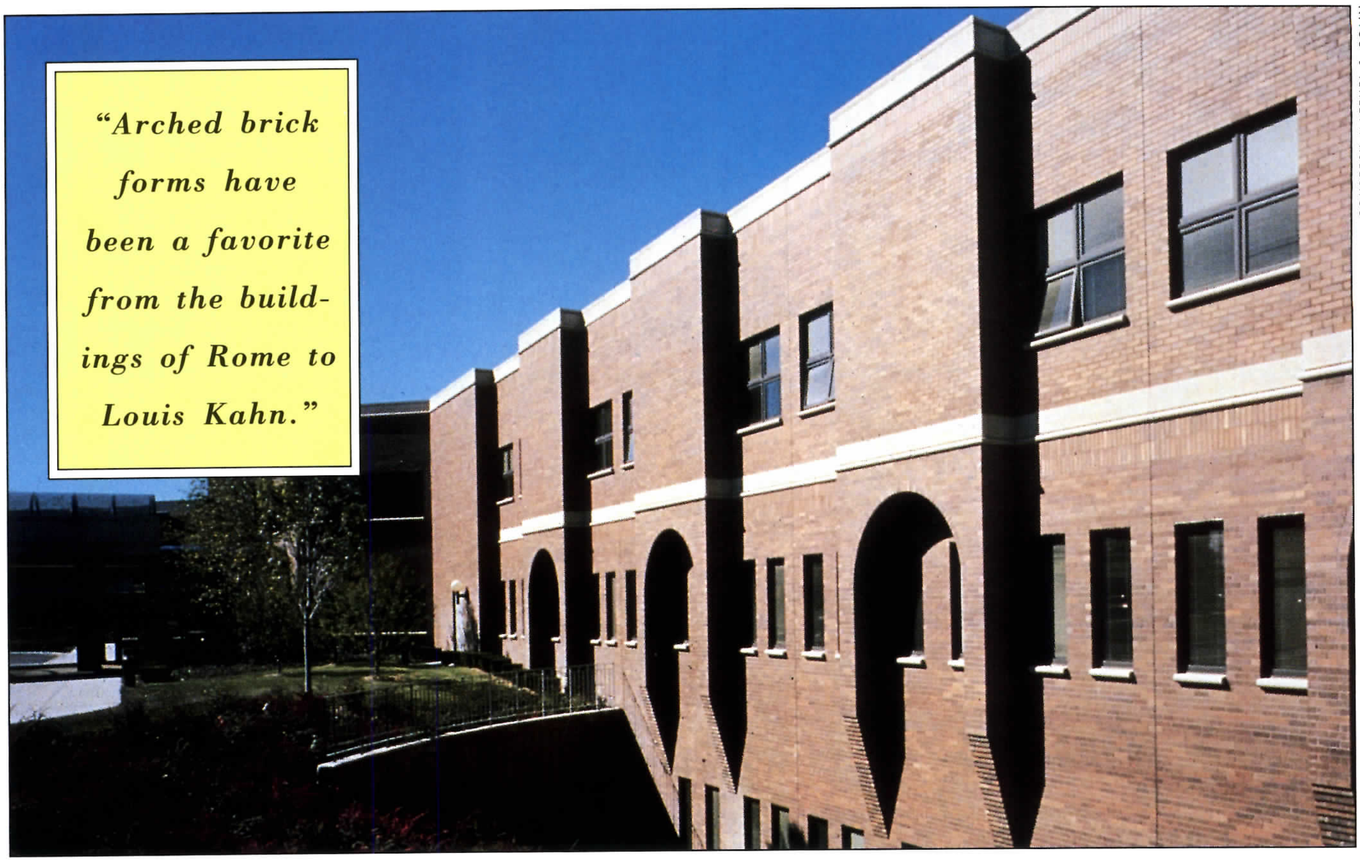


ABOVE: EYE-BENDING ARCH AT HUNTINGTON POINT BUSINESS PARK. FACING PAGE: PROJECTING ARCHES AT MORRIS HOSPITAL RECALL EARLY CHICAGO ARCHITECTURE.

of New Haven's Johnson & Michalsen Architects. "Arched brick forms have always been a favorite of mine, from the buildings of Imperial Rome to those of Louis Kahn."

Using 90,000 units of tan-hued modular wire-cut brick, Michalsen designed a series of eye-bending arches that complement an existing 1920s building on the site. "We also colored the mortar to blend with the earth tones of the brick," he says.

All the brick is non-load-bearing veneer backed up with metal studs. "The challenge was to make this thin brick veneer look thick like traditional masonry." So Michalsen designed projecting brick piers with corbelled, nested arches that create shadow and depth. To simplify quality control, all the arches were designed at the same 10-foot diameter. Masons working on the project were able to apply traditional skills, such as building the arches from centered wood forms and fashioning triangular mortar



“Arched brick forms have been a favorite from the buildings of Rome to Louis Kahn.”

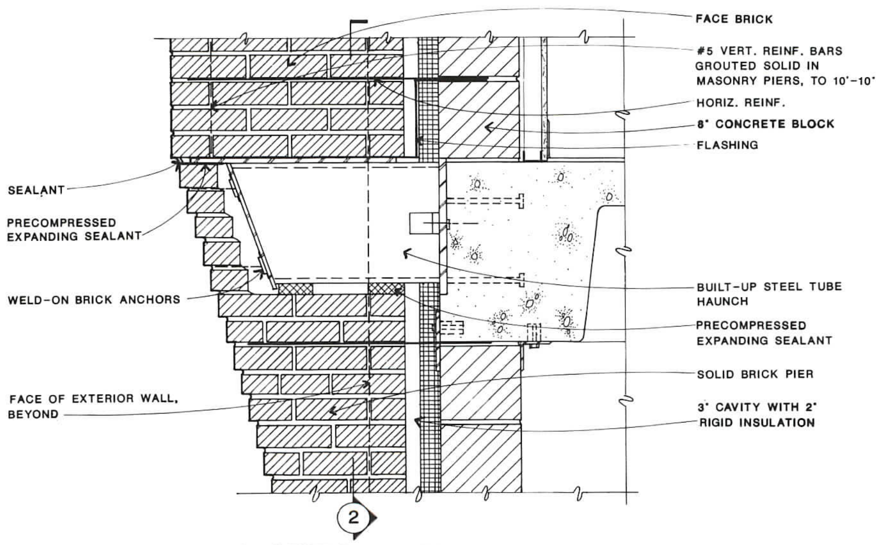
COURTESY MATTHEI & COLIN

joints to fashion the curve, eliminating the cost of adding special shaped bricks.

Community groups sometimes object to the expansion of hospitals in their neighborhoods. But, according to architects Matthei & Colin Associates of Chicago, the residents of Morris, Illinois, welcomed the $5.9-million, 40,000-square-foot Morris Hospital expansion because of its de-emphasis on an institutional appearance.

The architects selected brick for a “warm and inviting” appearance that the clients viewed as essential for competing in today’s health care market. Inspired by the muscular masonry buildings of turn-of-the-century Chicago, Matthei & Colin architects designed a series of projecting arches that articulate the wardrobe areas of patient rooms on the second floor. Tubular steel brackets concealed within this corbelled masonry provide extra support. For the 135-degree corners, the supplier custom-cut some of the 117,000 modular bricks. ◆

PROJECTING ARCH DRAWING/COURTESY MATTHEI & COLIN



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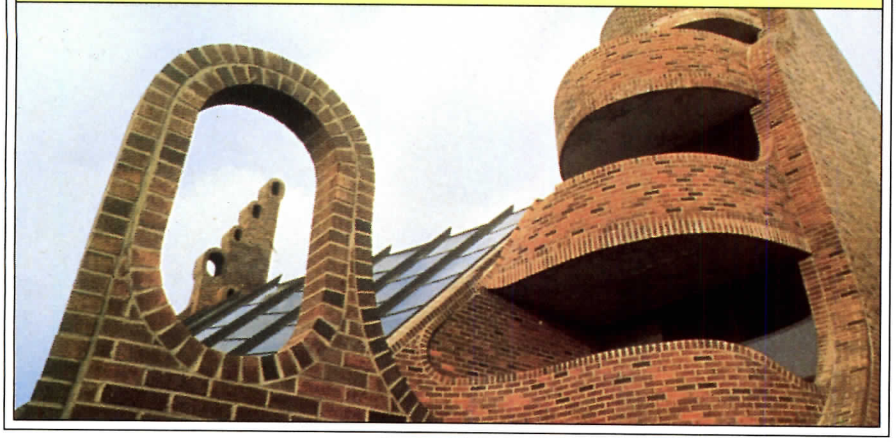
SPECIAL ADVERTISING SUPPLEMENT

SCULPTING

"The church challenged the skill of the masons. The building demonstrates the fluidity with which brick can be used as a sculpting tool."



Canadian architect Douglas Cardinal will tell you that what looks like brick sculpting in his buildings is not really sculpting, but "traveling." "I 'travel' every brick," says the designer of the acclaimed Museum of Civilization in Ottawa. "That means the mason takes the handle of his trowel and knocks each brick a little askew so the corner sticks out." The idea is to create a curve while preserving the brick's rugged visual texture. "It looks like a smooth curve. The shadow has a texture, a glint, like the tweed on a Harris tweed jacket when the sun hits it."

A member of the Blackfoot Indian tribe and a trained medicine man, Cardinal is no stranger to such improvised methods. Yet he is a highly successful contemporary architect who may be the foremost exponent of the organic tradition of Modernism. In the process he has set industry standards for innovation with brick. He has also reconnected the practice of architecture with craftsmanship. Often leaving the boards and CAD screens behind to work with artisans on site, Cardinal calls himself as much a "master-builder" as an architect.

The major medium for his artistry has been brick. Cardinal first applied it with notable results with his design for St. Mary's Church in Red Deer, Alberta. "The priest wanted the church to announce through its sculptural forms that it is a Catholic church." Next, Cardinal wanted to relate the church to nature—the rolling hills of Alberta and the forms carved in the land by the Red Deer River. "I wanted the building to relate to the land itself." Brick was the essential material to forge the result he compares to a "catacomb" that exudes a "rough-hewn monastic look." The floors and sanctuary furnishes are also brick, enhancing an interior acoustically suited to "speaking and music."

Working with a local brick manufacturer, Cardinal mixed clays and custom-fired an order of bricks in a modern tunnel kiln. "I wanted to use a beehive kiln, but they were obsolete." The effect he sought was somewhat primitive: "We stacked the brick unconventionally in the kiln so there would be uneven temperature, generating hot spots and cold spots, creating variety in color. I wanted a rough quality that made the brick look like it was sculpted by human hands." At the time, technicians were "horrified," recalls Cardinal. But the project's success prompted larger-scale production of variegated brick.

Despite their almost eggshell-thin appearance, the brick walls of St. Mary's Church are actually several feet thick. That's partly because Cardinal reintroduced the idea of using brick as forms, as the Romans did. "Brick has been used ingeniously to serve as the formwork for the exterior walls," he explains. "Two wythes of brick that taper toward the top were first laid in five-foot layers." Light aggregate concrete was poured between the wythes and reinforced. "Thus the cost of formwork was saved."

He instructed his masons to lay up the curves by eye or by simply using a flexible steel rod. The sinuous forms of the walls would prove very forgiving to any miscalculations, he told his masons. To create the oval apertures near the cornice line, the artisans employed small plywood templates.

"The sculptural forms of the church challenged the skill of the masons," he says. "Every brick had to be carved to shape at the intricate junctions between parapets and walls. The building demonstrates the fluidity with which brick can be used as a sculpting tool."

The project was controversial at the time it was built. Some critics wondered if a Gothic or more traditional style wasn't more appropriate for a church. Since Red Deer is his birthplace, Cardinal was par-

LEFT AND ABOVE: ORGANIC DETAIL AND PROFILE OF ST. MARY'S CHURCH. BELOW LEFT: ARCHITECT'S GREENHOUSE-LIKE HOME USES THIN BRICK.

ticularly sensitive to these comments. But time has borne out the wisdom of his decision to pursue a dramatic design in brick. "The church's dedication turned into a great celebration," he says, "and St. Mary's wound up something of a tourist attraction." Again, innovation was rewarded.

A more personal work still is Cardinal's own home, a 10,000-square-foot bermed structure near Stony Plain, 30 miles west of Edmonton, Alberta. A work-in-progress, the house features a three-story atrium that provides solar heat and light for living and studio areas. "It's like a pit greenhouse," Cardinal says.

"Brick can be used this way, but you probably have never done it this way. That does not mean it cannot be done."

The interior walls are scalloped into elaborate shapes from standard-issue brick. "Even the ceilings are brick," he says. "I wanted the texture of the material throughout. Thin brick are used to surface the ceilings and some are used on the floors, but the walls are regular modular brick. The columns are all brick—inside and out." The distinctive brick chimneys rising from the roof acquire an almost-human quality, "like sentinels," he says.

How did he develop such facility with brick? Cardinal says he is merely tapping into an ancient craft. "This has been done all along in the history of architecture," he says. "The Syrians, 4,000 years ago, used masonry in curves. And the Romans built all their curved baths using brick as a form.

"Why not take this fantastic history and use it today? What happens is that the masons are very happy to work on the job. I don't have to worry about quality control. Sometimes I'll turn rough ideas over to a mason. Sometimes I'll sketch a detail to show a mason how to build one curve into another. Sometimes they'll come up with a better idea than me!" In fact, Cardinal seems to inspire everyone around him to achieve higher levels of craftsmanship. Says Satish Rao, a project manager in Cardinal's firm, "If he wants to make a brick curve or make brick hang upside-down, he consults with the industry and incorporates their suggestions into his detailing. Then he goes to the brick masons and says, 'The material can be used in this manner, but you probably have never done it this way before. That does not mean it cannot be done.'" ◆

COLOR DETAILS

ANDREW D. LAUTMAN

"Brick is an economical way of adding a quality image. We developed a 'tapestry.'"

Thanks to the architect's canny and colorful use of brick, the idea of play permeates the new Fredda Turner Durham Children's Museum in Midland, Texas.

Architect Lawrence Holdren Connolly centered his design on an octagonal tower laced with rowlocks, headers, soldiers, half-shiners, running bond, Flemish bond, and just about any other brick pattern or course imaginable.

Connolly combined 50,000 red-blend bricks and 44,000 tan-blend bricks with a shining checkerboard plaza that infuses the museum with a festive quality. His design fools the eye into seeing more colors than are there.

Despite the challenge, "The choice was obvious for a durable, low-maintenance exterior wall," he adds. The red and tan brick also helped color-coordinate the new 10,000-square-foot building to the other brick buildings of the Museum of the Southwest, built between 1934 and 1987.

The design not only allowed the museum to "sell" bricks at $100 each to raise funds for the museum, but it spurred the creation of a game for visitors to play. "The treasure hunt" sends kids off looking for headers and stretchers, diamond patterns, and cornerstones. In the process, they learn about architecture and construction details. Notes Connolly, "An added benefit was the unexpected opportunity for some educational entertainment."

LEFT: TAPESTRY OF BRICK ON WESTPORT HOUSE APARTMENTS IN KANSAS CITY. RIGHT: BRICK BECOMES A GAME AT DURHAM CHILDREN'S MUSEUM.

RUBIN STUDIO

The alliance of thick, load-bearing masonry walls with brick veneer held utility costs to 40 percent below estimates for a similar-size building. Connolly says that the client is as pleased with the energy-efficiency as the esthetics.

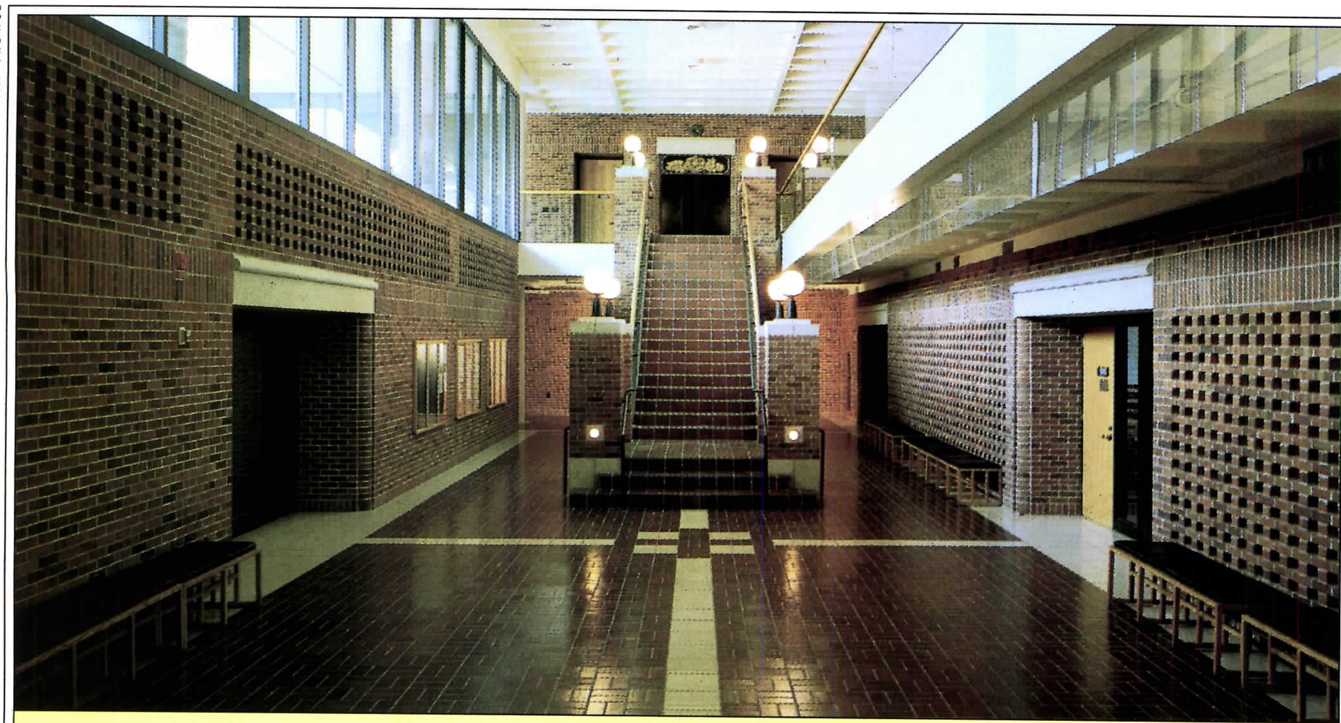
Brick in vibrant colors helped erase public-housing stigma *from the* Westport House Apartments in Kansas City, Missouri. This 90-unit high-rise residence for the elderly was built under a tight budget. Despite that constraint, Kansas City architects Abend Singleton Associates, Inc., were determined to create a lively, playful environment that looked and felt like a luxurious building. "The key to that strategy was brick," says Stephen N. Abend, FAIA. "Brick is an economical way of adding a quality image that we could afford. We developed a tapestry over the building. As a result, the residents feel very proud of the project."

The tapestry included five "murals" in brick layered on the facade. A graceful band of cream-colored glazed brick complements an adjacent community center's masonry belt line and garlands. Blue-glazed brick accents the building's height and fenestration. A checkerboard of red- and cream-glazed brick highlights the entrance. As the building rises, red-glazed brick offsets red brick in a velour finish, creating a ziggurat pattern on the facade. Depending on the sun and the angle of viewing, this pattern is either iridescent or invisible. Light-green glazed bricks chart the upward progression of this illusionary "tower." All these effects were achieved with standard 8-by-8 brick modules.

Adds Abend, "These elements helped the neighborhood too, which was in decline, but now has come back." ◆

DECORATIVE DETAILS

PHILIP PROWSE



"Brick provided a durable, maintenance-free building envelope."

The architects had a choice: White or red? The University of Missouri is split between an older "red" campus built of brick and a newer "white" campus featuring precast concrete. The site for a new Missouri Law School was poised between the old and new campus areas.

Leonard Parker Associates went for the red with accents that relate to the white. The result is a tour de force of brick that required as many as 24 masons laying 350,000 bricks in a profusion of special columns, corners, jambs, soldier coursing, and bonds.

Says Ray D. Greco, AIA, "Brick provided a durable, maintenance-free building envelope, aesthetically blending with the existing red campus. Constructing the building took precise layout and craftsmanship. Sixteen special shapes, in addition to modular brick, were designed and used."

For example, special radius profile brick were used to face cast-in-place concrete columns. Dovetail slots allowed for the installation of masonry anchors. The supplier provided both custom-built and sand-finish modular units in blended colors of orange, red, and brown, a hue, "similar to a Harvard red," says Greco. "The radius-profile brick shapes provide the greatest impact to the design," he says. "The detail in itself gives the building a very distinctive corner treatment."

The building is also notable for the amount of brick used on the interior. The architects consulted with an acoustical engineer to develop interior brick panels that would muffle sounds outside of classrooms. The $14.9-million, 141,000-square-foot building has been well received on the campus. Dale Whitman, former Dean of the School of Law, praised the architect for "demonstrating creativity and sensitivity to the needs of his client."

On Sunday mornings, the light seeps in softly through a glass cross etched in brick. The dappled light reminds parishioners of the United Methodist Church in New Canaan, Connecticut, that the harsh sun once made their services a bit of an ordeal. The problem: a picture window that allowed parishioners to admire nature also admitted excessive glare and heat.

New Canaan architect Richard Bergmann, AIA, solved the quandary by replacing the picture window with the dramatic glass cross. It is part of a $500,000 addition he designed for the church. Like the best esthetic measures, this one is all the more pleasing because it works on a practical level.

Bergmann's choice of brick was dictated by a need to match the original 1957 church. He believes it is the right choice in

BRICK INSIDE (ABOVE LEFT) AND OUT (ABOVE RIGHT) CREATED A LINK BETWEEN "WHITE" AND "RED" CAMPUS AREAS.

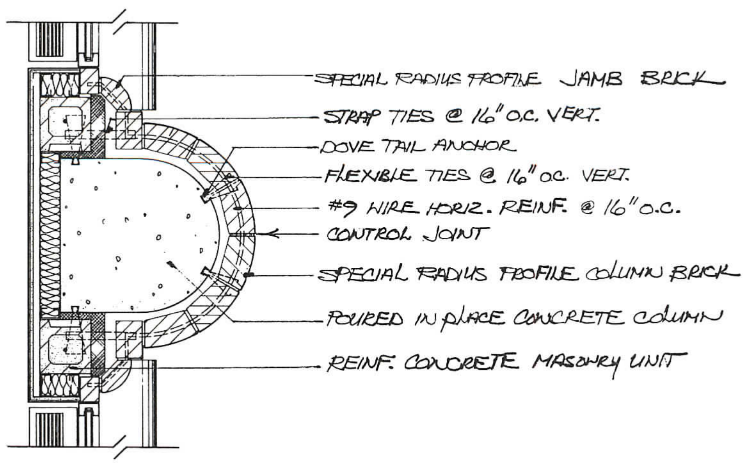
PHILIP PROWSE

any case, "since brick has great durability, which is important for a church. The congregation doesn't have money for maintenance," he says.

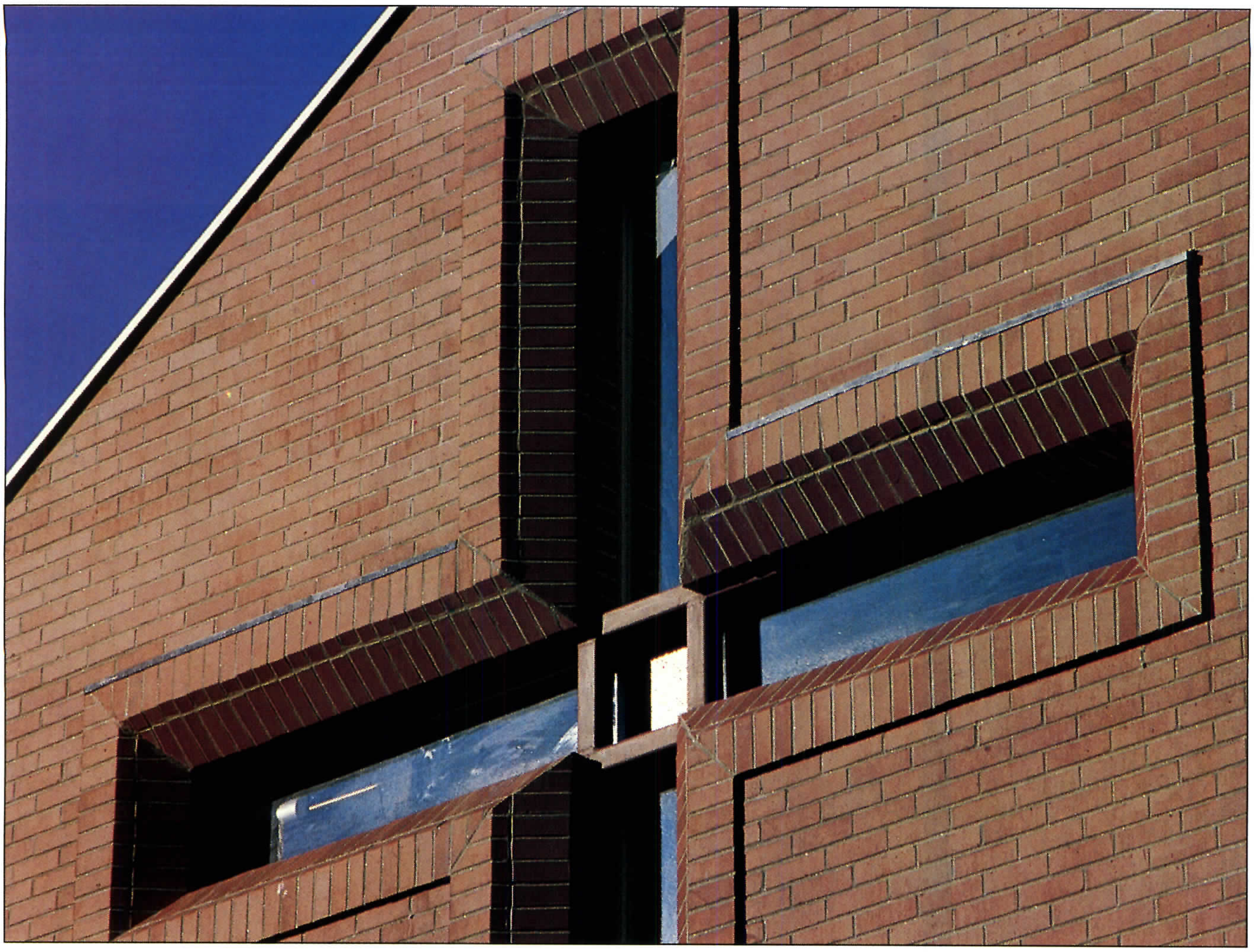
He continues, "Our new addition was relatively small, so we wanted to give it some strength compared to the larger buildings behind it. Our challenge was to create enough detail to give it some character.

"It was also challenging to design that cross. It's supported by a hollow square of three-inch galvanized steel tubing that supports concrete beams to which the brick is pinned."

ANCHORING DETAIL COURTESY THE LEONARD PARKER ASSOCIATES



RICHARD BERGMANN

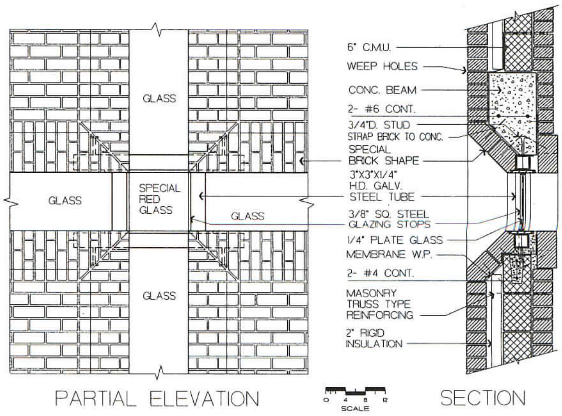


While the cross is clearly the focus of the church, other more subtle brick details make the project work as a composition. For example, the bricks in a band of soldier coursing were turned 45 degrees to give a toothed appearance that creates light and shadow on the facade. This depth allows the 1,200-square-foot addition to stand out against the older and larger three-story building in the background. "We required the mason to make his coursing very accurate, so there would be no cut brick that would look awkward," says Bergmann. He adds, "I was pleased with the craftsmanship. Most masons rise to a challenging task."

Architect John C. Clements, AIA, of the Houston firm Cannady, Jackson and Ryan, agrees that talented masons were readily available when he assembled a team to build the four-story, 84,000-square-foot Eunice and James L. West Library at Texas Wesleyan University, Fort Worth.

The raw material was a modular brick, buff-colored to match existing Texas-style buildings on the campus. Following plans by Cannady, Jackson and Ryan, the masons shaped a pleasing array of arches, courses, and corbelled detail. "The arches were actually laid up, usually without a form, the way it's been done for 2,000 years." He hastens to add that the concrete-reinforced walls are not load-bearing. However, the brick veneer was selected to withstand the area's intense wind, heat, and even tornadoes. The $6.3-million building has stood up to the worst

CROSS DETAIL COURTESY RICHARD BERGMANN, AIA



ABOVE: BRICK-AND-GLASS CROSS SOLVED PROBLEMS AT UNITED METHODIST CHURCH. RIGHT: BRICK ARCH MADE THE "OLD WAY" AT WEST LIBRARY.

nature could offer with no problem.

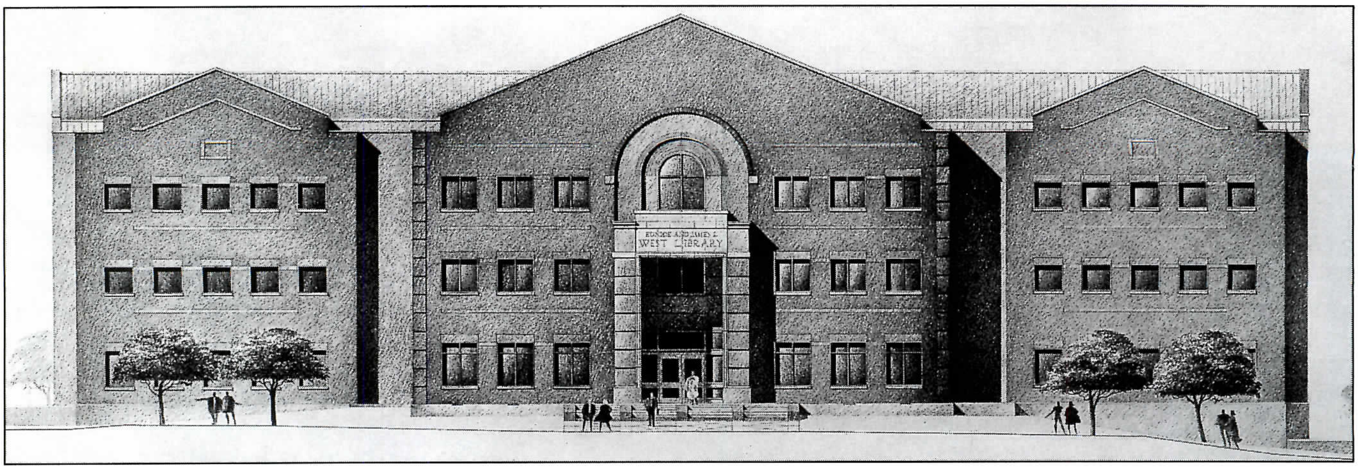
The Serbian Orthodox congregation in Fair Oaks, California, thought they would have to import talent from Yugoslavia to build a new church. Dating back to the 14th century, their church-building tradition fuses Byzantine-style elements such as domes, pendentives, vaulted ceilings, and herringbone patterns with the highest level of masonry generally associated with Old World craftsmanship.

However, much closer to home than Eastern Europe, they discovered that Sacramento architect Nicholas Puketza could do the job using modular brick and local contractors. And he did it on a tight $900,000 budget that allowed the congregation to burn their mortgage within four years.

After touring similar structures in San Francisco with church leaders, Puketza studied some of the details from texts on Serbian Byzantine churches. He was amazed. "The old-time Serbs liked to manipulate the brick," he says. "Watching the masons work would have been like watching 'brick gymnastics' being performed—a team of gymnasts each doing incredible, different things all at once."

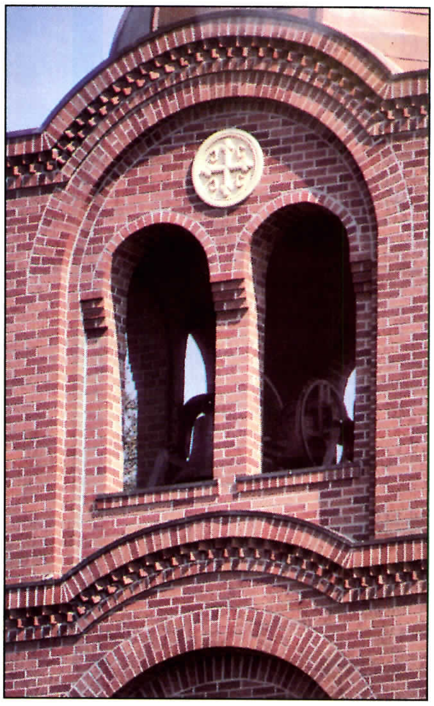
Working with mason Rick Smith of San Diego, Puketza devised his own brick gymnastics, which included 70 points on the facade in which the perimeter wall turns either 45 degrees or 90 degrees, a central dome with 12 windows surrounded by a scalloped edge, and arches recessed within arches.

He forged this award-winning church from common wire-cut brick in a mixture of



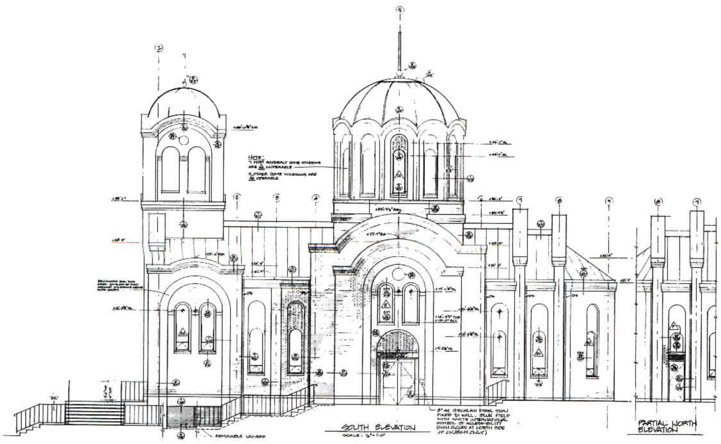
COURTESY CANNADY, JACKSON & RYAN

BOB VAN NOY



GYMNASTICS IN BRICK: FACADE AND DETAILS OF THE AWARD-WINNING SERBIAN ORTHODOX CHURCH, FAIR OAKS, CALIFORNIA.

COURTESY NICHOLAS PUKETZA



two colors. Many of the details were worked out on site. Despite the improvisation, not a single brick was cut to fit. "Any time the plane of the wall turns the corner, it turns on a brick module radius," says Puketza. "It just shows you the versatility of what you can do with brick." ◆

ALL IN THE DETAILS

Sometimes it's the details you don't see that make a project successful. In addition to the innovative examples featured in this supplement, there are a host of unseen details that are critical to ensure low maintenance and long life for any brick masonry building.

Three "invisible" detail areas to which architects should pay special attention are flashing, expansion joints, and parapets.

Flashing provides the main defense against moisture that has penetrated the exterior wythe. It is essential in a drainage-wall system and recommended for even a barrier-wall system. Flashing should be placed at wall bases, window sills, heads of openings, spandrels, shelf angles, and tops of walls or virtually any place where the continuity of a wall is interrupted.

Flashing should be attached to the backup and extend through the exterior wythe to form a drip (fig. 1). Do not end through-wall flashing behind the exterior face of a wall. However, flashing may be cut flush with the wall for cosmetic reasons. Over and under wall openings, where flashing is not continuous, the ends should be extended beyond jamb lines on both sides. Form a dam by turning up flashing several inches at each end into the head joint.

Brick masonry expands with temperature and over time with moisture. Expansion joints in brick masonry permit building materials to move with no damage to the wall. A well-built expansion joint permits this movement while maintaining a seal against water. An optional compressible pad (fig. 2) is placed at the back of the joint. A backer rod and elastic sealant are placed at the front of the joint. Spacing and placement depend on the geometry of the building. Typically, expansion joints are located in long walls, offsets, and recesses, or near parapets, corners, and shelf angles. Cracking in the brick is often a result of failing to use expansion joints properly.

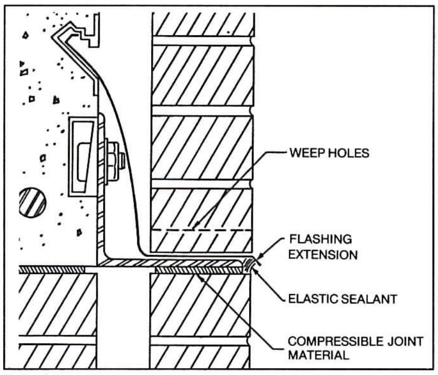


FIG. 1

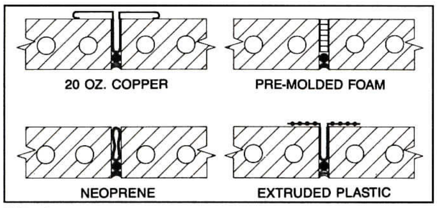


FIG. 2

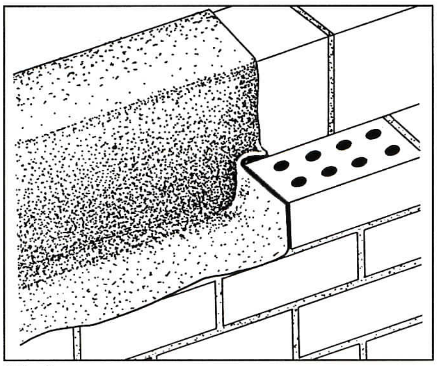


FIG. 3

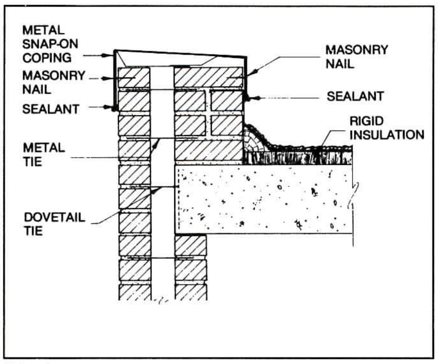


FIG. 4

FIG. 1 AND FIG. 3: DETAIL OF PROPER FLASHING ATTACHMENT AND EXTENSION. FIG. 2: EXPANSION JOINT WITH COMPRESSIBLE PAD ALLOWS FOR TEMPERATURE AND MOISTURE CHANGES. FIG. 4: EFFECTIVE PARAPET DESIGN WITH COPING.

The most difficult detail of all may be a parapet. Compared to the wall below, a parapet endures extremes of temperature and moisture. Also, parapets lack deadload masonry that help resist movement. Proper flashing and expansion joints are critical.

Parapets should have a cap or coping. Copings can be made from stone, precast concrete, metal, or brick. There should be through-wall flashing beneath the coping. Anchors or dowels that penetrate the flashing should be sealed with a mastic material. Flashing and counterflashing should be applied at the roof juncture. Be sure to carry all vertical expansion joints in walls through the parapet wall.

Working with brick sometimes requires a little patience, but the reward is an enduring and esthetic product.

RESOURCES FOR ARCHITECTS

The Brick Institute of America (BIA) makes available to architects the following publications:

- Technical Notes on Brick Construction
- Case Studies on Brick Masonry Construction
- Principles of Brick Masonry
- ASTM Standard Specifications for Brick, Mortar, and Applicable Testing Methods for Units.

Some of the professional services offered to architects from BIA include plan review and site inspection. These services, conducted by qualified BIA engineers, must be made by request of the brick manufacturer. For a complete catalog and list of services available to architects, contact: The Brick Institute of America, 11490 Commerce Park Drive, Suite 300, Reston, VA 22091, (703) 620-0010.

ABOUT THIS ISSUE

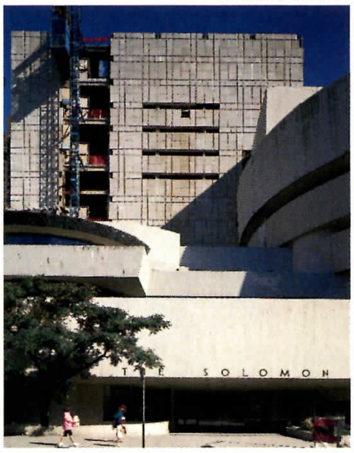
Adding New to Old

ARCHITECTS ADDING ONTO A BUILDING CAN replicate the existing architecture, echo its proportions and materials through a contemporary idiom, or contradict the original with opposing forms and palette. Expanding the Solomon R. Guggenheim Museum, for example, Gwathmey Siegel & Associates countered Frank Lloyd Wright's design with a bold, cantilevered tower, but pressure from the community sent them back to studying Wright's own proposals for a more modest annex. The Portland, Oregon, firm Zimmer Gunsul Frasca Partnership, on the other hand, took a more conciliatory approach in expanding a Pietro Belluschi-designed library at Reed College by echoing its proportions and materials to create a new campus center. In projecting a masonry bay window from the original entrance of the library, however, the firm was historically faithful in replicating the Collegiate Gothic vocabulary of the 1930 structure. Both these approaches indicate the broad range of so-called "sympathetic" design and architects' increased involvement in historic preservation.

STRODE ECKERT

Adding a new bay to the Hauser Library at Reed College (above), Zimmer Gunsul Frasca mirrored the Neo-Gothic proportions of Pietro Belluschi's original.

MICHAEL MORAN



Frank Lloyd Wright's proposed annex for his Solomon R. Guggenheim Museum provided the basis for Gwathmey Siegel & Associates' addition (above).

Our issue examines other solutions to problems of expanding and reusing both Modern and older buildings. In Oklahoma City, HTB Architects' new offices engender sensitive massing and sight lines to synchronize a turn-of-the-century church with a contemporary headquarters. Thomas & Booziotis and Chartier Newton, architects for a new wing of Paul Cret's School of Architecture at the University of Texas, created a more traditional blend, borrowing materials and details from the older structure. In Atlanta, on the other hand, Nix Mann & Associates gave a 1950s office building a new lease on life, with skylit rooms and an exposed structural system. And Koetter, Kim & Associates reveals the results of an in-house charette for the most coveted and complex of preservation commissions: adding onto the firm's own design for a Cambridge, Massachusetts, insurance agency.

We conclude our design section with an addition to a corporate new town in Texas. A hotel designed by Mexican architect Ricardo Legorreta gives new meaning to regionalism by extending the rich color palette and planar forms he previously established in the architecture of Solana.

This month's technology and practice section expands our preservation coverage by discussing such topics as asbestos removal, early curtain wall repair, and modifications that should be incorporated in contract language for preservation work. We close with two elements of successful marketing—applying for government commissions and creating video walk-throughs to help clients visualize both proposed additions and new buildings. ■

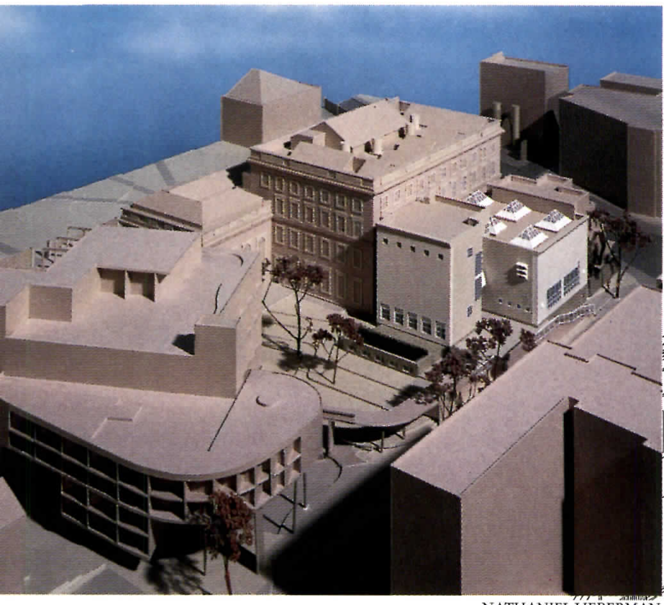
Renewing Our

THE AMERICAN PRESERVATION MOVEMENT, traditionally associated with saving 19th- and early 20th-century structures, has recently grown to include the restoration and expansion of Modern buildings. With the antihistoricist architecture of Frank Lloyd Wright, Walter Gropius, Louis Kahn, and others rapidly becoming history—and with a renewed interest in both Modernism and preservation—many architects are finding a major source of work in renovating and expanding pre- and postwar structures explicitly designed to rebel against architecture's past.

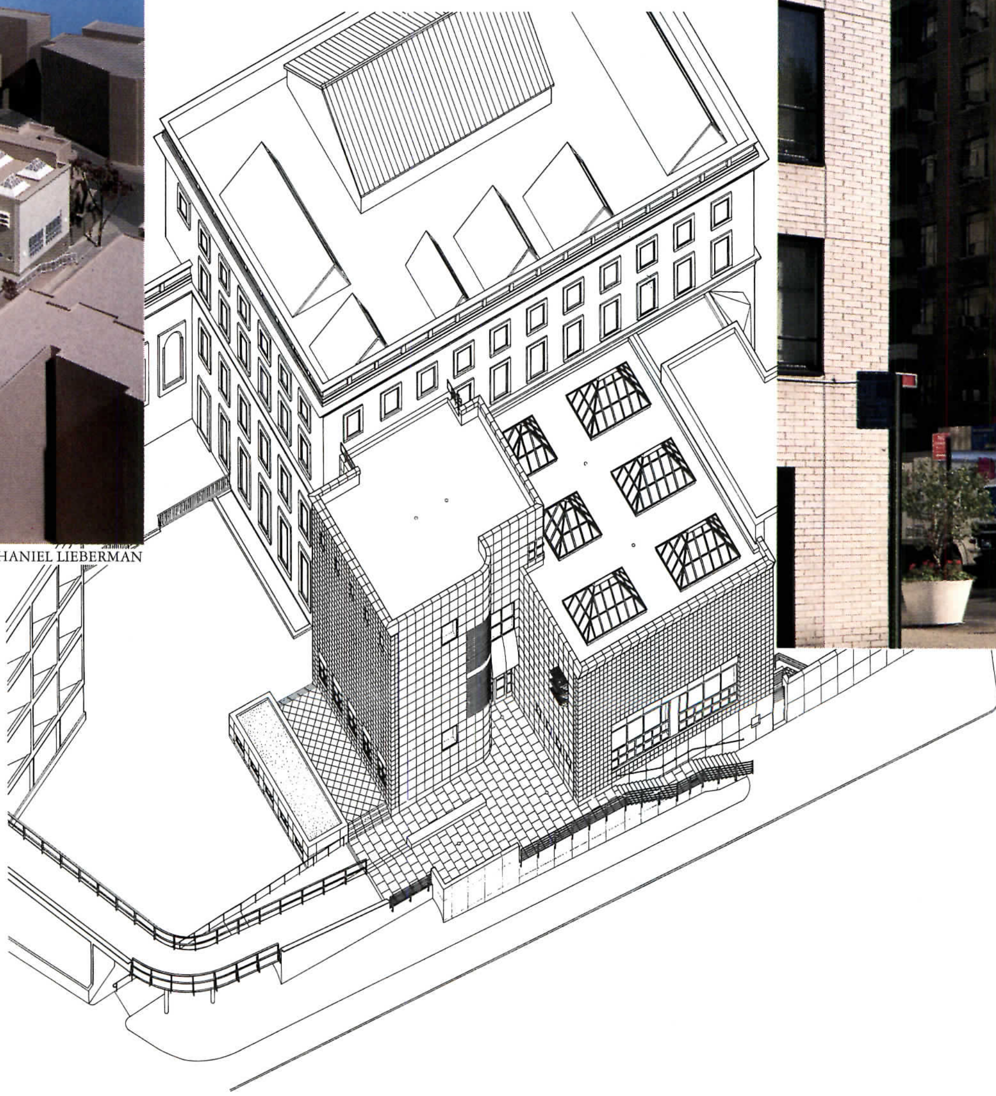
Where this preservation comprises adaptive reuse, the Modernists themselves would not have minded. They embraced the evolutionist philosophies of their time, and stressed the adaptation of buildings to the then-new environment of the machine age. For Le Corbusier, Frank Lloyd Wright, and their followers, the way to the future was definitely not through the past, and exacting restoration and copying of earlier European architectural precedents was

Solomon R. Guggenheim Museum
New York City
Gwathmey Siegel & Associates

For the new limestone-clad, 11-story tower now under construction (facing page), Gwathmey Siegel studied Wright's designs, "reconfirmed the original intent, and anchored the Guggenheim urbanistically," maintains Charles Gwathmey. Unlike the firm's Fogg Museum addition (below), the expansion of Wright's landmark aroused controversy. The revised scheme is smaller, more restrained, and devoid of a cantilevered volume that critics faulted as competing with Wright's design. It is due to open in the fall of 1991.



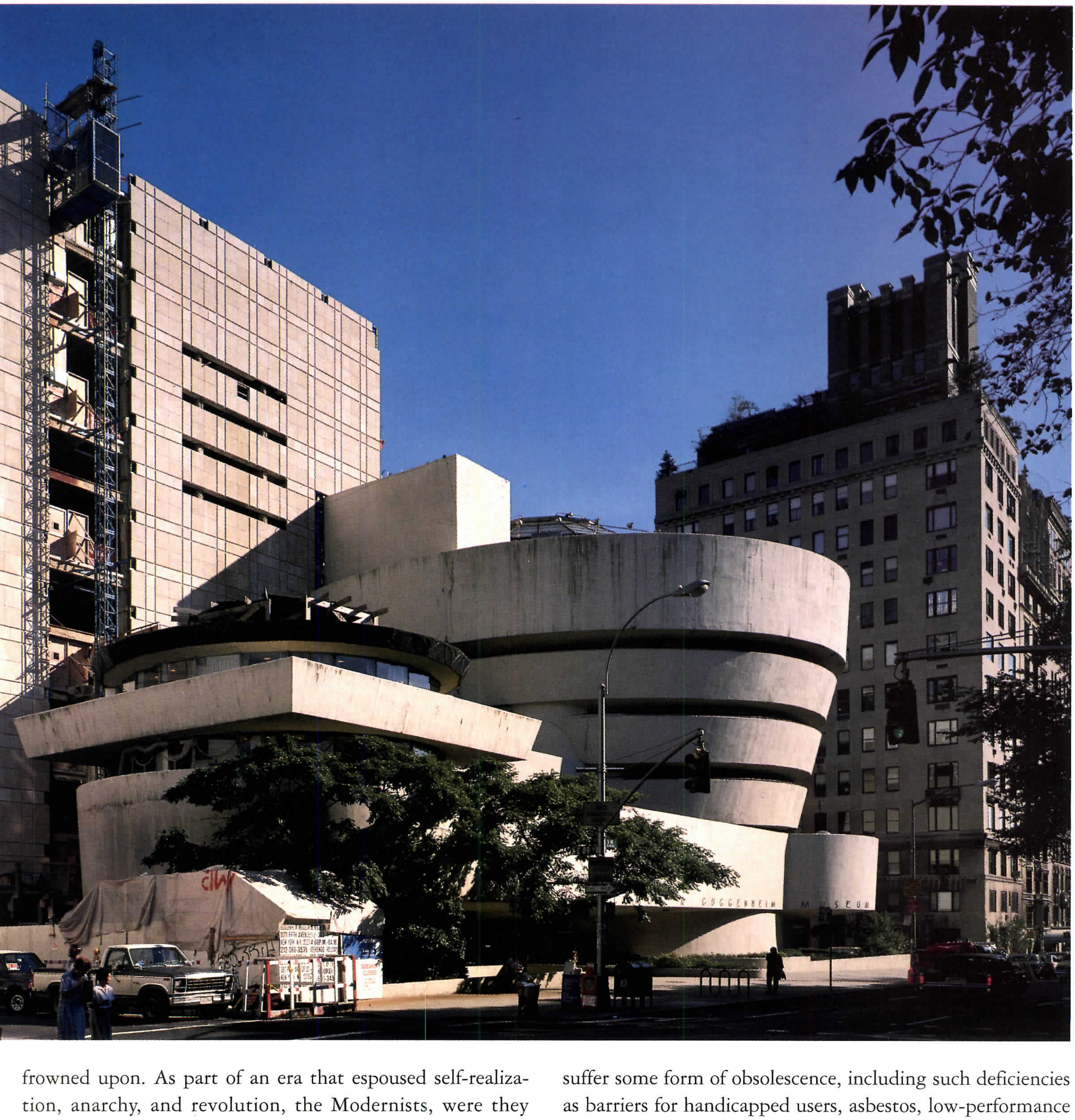
NATHANIEL LIEBERMAN



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

The three-story addition to the Fogg Museum (right) will house new galleries, archives, and a fine arts library. Scheduled to open next fall, the 14,500-square-foot building extends the ramp of Le Corbusier's Carpenter Center. Its materials and proportions are intended to mediate between the Fogg and Carpenter.

Modern Legacy



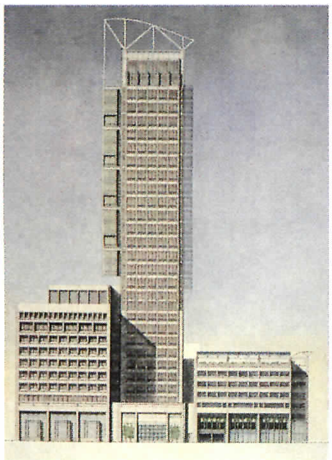
MICHAEL MORAN

frowned upon. As part of an era that espoused self-realization, anarchy, and revolution, the Modernists, were they alive today, would probably accept what time has wrought upon their buildings. Retrofitting for contemporary uses might even meet with their approval.

Today's corporations, museums, and public agencies have outgrown many Modern landmarks, not to mention the run-of-the-mill buildings the movement spawned in the 1950s and '60s. Most of these 25- to 40-year-old buildings suffer some form of obsolescence, including such deficiencies as barriers for handicapped users, asbestos, low-performance glazing, deteriorated roofing, and insufficient floor-to-floor heights for ducts and cables. Museums built during the postwar building boom are insufficiently daylit and inadequately organized for crowds of visitors who demand specialized spaces for public events, dining, and shopping. Schools built during the baby boom of the 1950s and '60s need to be adapted for new teaching methods and for

100 East Pratt Street
Baltimore, Maryland
Skidmore, Owings & Merrill/Washington, D.C.

SOM's 26-story tower addition (right) to Pietro Belluschi's 1966 office block for IBM (below right) attempts to "be sensitive to the original while expressing more recent ideas about architecture," according to design partner Craig Hartman. Adding a five-story, 1,000-car garage as well (left in drawing below), the new structure echoes and adjusts Belluschi's fenestration and cladding to sympathize with adjacent towers, and a rooftop canopy adds an evocative image to the skyline (far right). To enliven the street, the expansion adds first-floor commercial space.



CLARE C. CHAPMAN

more diverse community uses. Laboratories require retrofitting for sophisticated new technologies. And most of the institutional buildings that need to be upgraded can't wait for a sunnier economic climate; delays in construction ultimately cost too much.

In cities across the nation, banal office buildings from the 1950s and '60s are being reskinned, rehabbed, and gussied up at street level. As vacancy rates skyrocket, design is becoming an important marketing tool in the competition for tenants. Since most postwar buildings are already at the maximum allowable size for zoning, tearing down and replacing even the ugliest structure isn't economical, especially with strapped loan institutions giving preference to existing buildings over more costly and risky new projects. Furthermore, the anti-urban quality of many postwar buildings has prompted such renovations as Childs Bertman Tseckares & Casendino's scheme for Boston's 1950s Prudential Center. The Cambridge-based firm is attempting to tie the building back to the city by "reorienting the back door into a major front entrance, and adding a new tower," explains Richard Bertman. Skidmore, Owings & Merrill's Washington, D.C., office is similarly adding a slim tower and parking garage to Pietro Belluschi's nine-story IBM building in downtown Baltimore, designed in 1966. SOM partner Craig Hartman wanted to "relate the tower to the Late Modern pencil buildings of the Inner Harbor, but give it more interest than the usual box." Hartman topped the roof with exposed structural steel trusses and deferred to the Belluschi original in his structural expression, material palette, and fenestration.

Other architects renovating and expanding Modern-era buildings take advantage of existing construction for its economic and practical appeal, and in doing so dominate the original. Hardy Holzman Pfeiffer's 1986 addition to the Los Angeles County Art Museum, for example, dominates William Pereira's 1965 clunker. Mitchell/Giurgola & Associates' 1984 addition to the Anchorage Historical and Fine Arts Museum was intended to give an everyday 1960s building a "distinguished civic presence," says partner Steven Goldberg. He adds, "Because it was three times larger, the new architecture used the existing building as background elements." In a slightly tongue-in-cheek maneuver, Hartman Cox Architects' 1988 addition to the Chrysler Museum in Norfolk, Virginia, screens a Brutalist, 1960s addition without demolishing it, "just in case someone, someday, decides it's valuable," explains George Hartman.

For its recently announced design of the World Bank headquarters in Washington, D.C. (ARCHITECTURE, June, 1990, page 38), Kohn Pedersen Fox Associates incorporated a pair of boxy volumes from the 1960s to give a sense of historical continuity to their competition-winning scheme. There is unintended irony, of course, in transforming Modern architecture intended as freestanding, foreground objects into background buildings. William Pedersen explains that KPF also employed the existing buildings on the World Bank site as a conceptual springboard for the firm's new design: "We thought the Modernist language the only appropriate one for the new building, because it's the only one all nations, including Third World countries, share."

Compared to renewing such postwar buildings, working with Modern masterpieces is like walking through land mines, as evidenced by the controversies attending Michael Graves' 1985 proposal—and its amendments—to expand the Whitney Museum of American Art, and Romaldo Giurgola's 1989 scheme for the Kimbell Art Museum. While Graves' scheme was criticized for being too different from Breuer's original, Giurgola's addition was trounced for "copying" Kahn. Although Graves' and Giurgola's designs approach the task from diametrically opposite approaches, both are on hold; stalled, in part, by the public perception that the Whitney and Kimbell are self-contained masterpieces. "That precludes addition or subtraction," in the words of Michael Graves. He compares the Modernist attitude to "the history of architecture from the 4th century B.C. to the turn of this century, which suggests that additions and subtractions are the way architecture is made." Think of all the architects who worked on Rome as a continuous work of design, he points out. "Only the Modernists," Graves concludes, "placed buildings before the city."

How then to explain the approval of Gwathmey Siegel & Associates' addition to Frank Lloyd Wright's Solomon R. Guggenheim Museum? One reason is that Gwathmey Siegel's scheme could be accused neither of competing with nor copying Wright's masterpiece, especially after the architects shrank the size and assertiveness of their original proposal. Unlike the Whitney, the Guggenheim addition was not rigorously reviewed by the New York Landmarks Preservation Commission, because when the expansion was being appraised in the mid-1980s, the museum was less than the obligatory age of 30 to be considered an official city landmark. (The Guggenheim has since been designated a landmark). Moreover, while Graves' proposed expansion to the Whitney required destroying four townhouses and was opposed by neighborhood groups, Gwathmey Siegel's addition required replacing only a mediocre building to the east of the museum, designed by Wright's disciples.

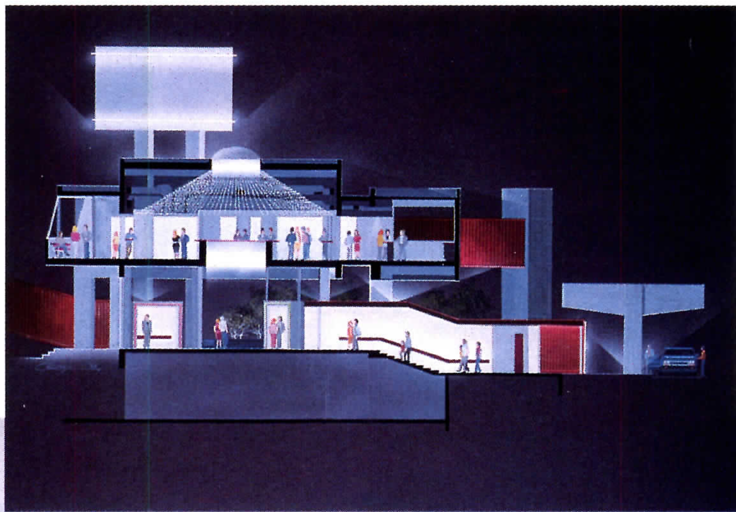
How do architects design additions to distinguished Modern buildings by living architects, especially if those buildings are flawed? One answer lies in the renewal scheme for the idiosyncratic, Tinker Toy-like assemblage that John Johansen originally designed as the Mummers Theater in Oklahoma City. The community group calling itself the Mummers disbanded following its first (1970-71) season in the new building, which was finally closed and partially boarded up in 1987. Shortly afterward, the building was rescued through acquisition by the Arts Council of Oklahoma City, which sponsored its renovation and conversion into an arts center.

Resembling a mechanistic kit-of-parts, Stage Center, as it is now called, is regarded by locals as unfriendly and inappropriate to its surroundings. Renovation architect Rand Elliott, principal of the Oklahoma City-based firm, Elliott + Associates, reaffirmed the negative perception of the theater from an informal telephone survey he conducted. As part of his approach to refurbishing the building, he included consultations with Johansen, and he tried to both sharpen and tame the building's image "while bringing it into the 1990s," he explains. Elliott's modifications include exterior lighting to underscore the building's extraterrestrial appearance at night, and such practical elements as a porte cochère at the main entrance and string canopies in public areas, which are intended to improve orientation and acoustics.

Similar to Johansen's Mummers Theater, Harvard's Harkness Graduate Center Commons resembles many Modern buildings in its reputation for functional problems rather than design innovations. In developing a rehab scheme for the building, designed in 1950 by The Architects Collaborative under Gropius, renovation architect Robert Olson of Robert Olson + Associates, Boston, began by trying to understand the ideas both of TAC in the late 1940s and of today's users, many of whom regard the building as "austere and cold," according to the *Harvard Crimson*. While restoring the consistency and clarity of the building's open plan, Olson regrouped its free standing interior spaces to accommodate current uses and provide increased accessibility for the handicapped.

Olson says he tried to proceed as "Gropius might have done if he were still alive," an idea that is key to a deft renewal of Modern buildings. The preferred approach, most Modern preservationists agree, is to design not in the style of the original architect, but as the original architect would today. ■

—ANDREA OPPENHEIMER DEAN



Stage Center
Oklahoma City
Elliott + Associates

The Oklahoma City firm's renovation of John Johansen's Tinker-Toy-like assemblage (bottom) upgrades the 1970 theater's mechanical systems, energy efficiency, and site orientation. New outdoor lighting (top left), interior design elements (center left), handicapped access, and concessions areas are intended to make the building more appealing to local users while maintaining Johansen's esthetic. The project will begin construction in early 1991.

BALTHAZAR KORAB

Hauser Library
Reed College
Portland, Oregon
Zimmer Gunsul Frasca Partnership

Role Model

ADDING ONTO A BUILDING REGARDED WITH affection and admiration is a task fraught with peril—witness Michael Graves's troubles with the Whitney Museum expansion. For Robert Frasca of Zimmer Gunsul Frasca in Portland, Oregon, extending a new wing to Reed College's Hauser Library had a further complication: the original building was designed by his mentor, Pietro Belluschi.

"Obviously, you think about it," says Frasca of his relationship with Belluschi, which dates back to the 1950s when Frasca was a student at M.I.T., where Belluschi was dean of architecture. "The building was the first designed by Pietro once the baton had been passed to him by {former employer} A. E. Doyle, and significant in its role in the architectural history of this region. To me, it was important that the integrity of the original building, completed in 1930, remain." The result is a structure that meets the complex program of the modern-day college and respects its predecessor. The addition shows deference, but not contrition.

Reed College was founded in 1911 on a 40-acre tract of farmland on the southeastern edge of Portland. The school has stayed small, and still has only 1,200 students. Yet Reed boasts a superb academic program that has produced more Rhodes Scholars (30) than any liberal arts college in the nation. In this rigorous intellectual atmosphere, the college library has exceptional prominence. "The library here gets the most intense use that I've seen," says Reed president James Powell. "It's not only the intellectual base of the student body, but it's also the social base." At Reed, the library is open—and used—until 2:30 a.m.

The gravity of the library's mission was reflected in the lengthy list of functions presented to Frasca. The new building was to be nearly twice the size of the adjacent Belluschi-designed library. It was to consolidate specialized libraries scattered around the campus, house the math and art history departments and related classrooms, and contain a student computer center along with language and music labs. Finally, it would include a 1,400-square-foot art gallery capable of handling small but important travelling collections. And all these functions had to be included on a $5 million budget.

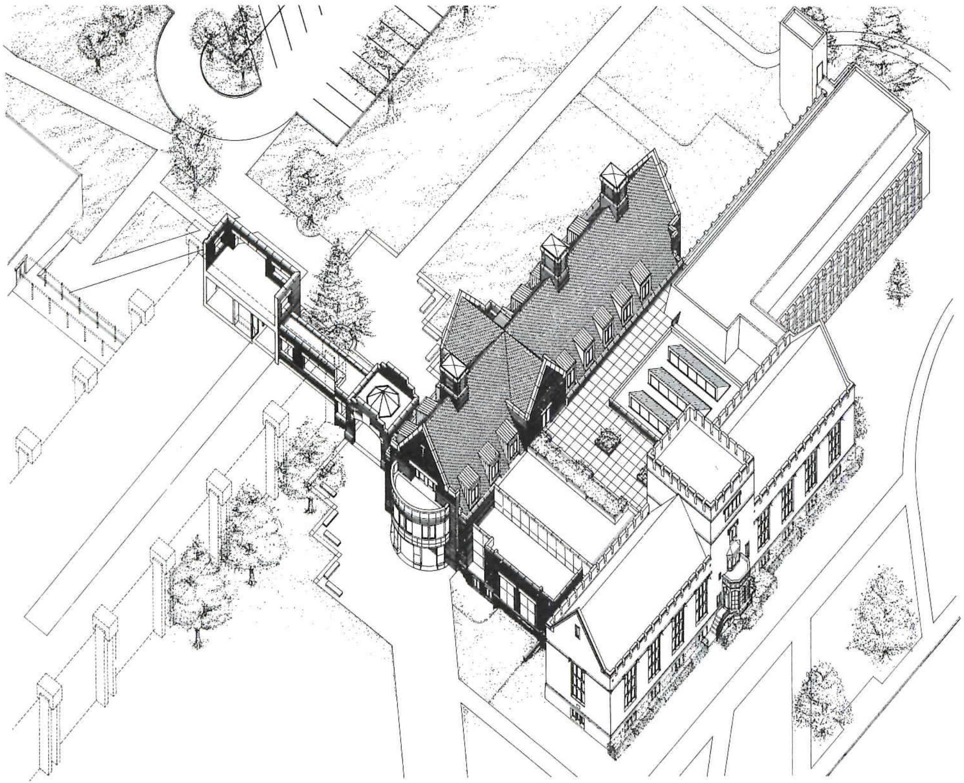
Frasca decided early on that he would complement the Belluschi building and its Modern 1963 addition designed by Harry Weese, instead of adding a competing architectural statement. "It's a small campus and very fragile," says Frasca. "The challenge was to accommodate new functions without violating the integrity of the existing buildings. I tried to stand back and let that which has worked well continue to work."

The library is in some ways less an addition than an entirely new building, simply—albeit carefully—joined to an older building. The addition bows to the 1930 building in its materials and massing, but also goes its own way. It creates, for instance, an entirely new library entrance to the north. And a monumental archway bridging the gap between the library and the neighboring 1959 SOM-designed biology building is intended to address the slow migration of the campus center to the east, opposite the old library's entrance.

For security reasons, the new library's interior consists of three separate envelopes, one each for the library, art gallery, and offices and classrooms. They share a common entrance through a large vestibule that doubles as a student lounge. A stairway contained in the projecting exterior bay on the eastern elevation bypasses the stacks to lead to the upper-floor offices, and benches at each landing create spaces for conversation or informal reading. Beyond the entrance from the lounge to the library, a corridor permits entry to either the main reading room or the gallery.

The psychic center of the Hauser Library is its reading room. Reached from a low corridor that leads past the main circulation desk, the three-story room exudes sudden and pleasant architectural drama. Previously a forlorn "courtyard" cut off from the sun by the old library and several small additions, the room is now capped with a series of gently curved skylights, which offer views of the original library's ivy-covered walls and crenellated tower. Frasca maintained the exposed brick on the Belluschi building's east-

ZGF's gabled addition is proportioned to echo the 1930 library (bottom) and punctuated by concrete bays that anchor the north (facing page) and east (below) facades.



ern facade, complete with gargoyles, to define the triple-height room.

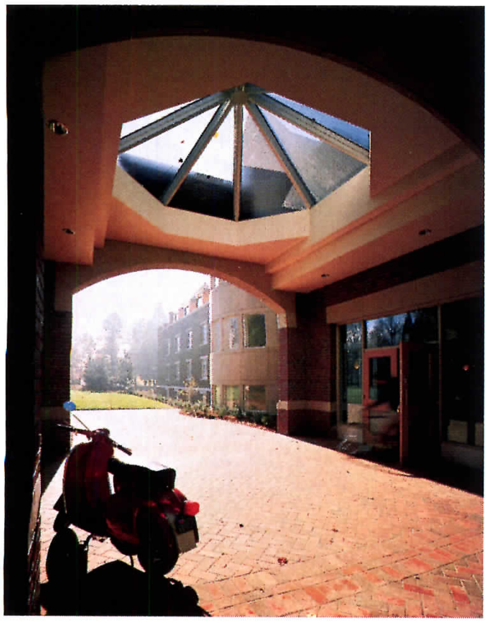
On the upper floors, the building's diverse program haunts its spatial integrity. The library's security envelope lies within the public office and classroom spaces, resulting in a labyrinthine plan and corridors that end in locked doors. Two below-grade floors contain computer and language labs, archives, and mechanical spaces. On these levels, the building has a distinctly subterranean feel, a trade-off Frasca was willing to accept in exchange for reducing above-ground bulk.

In addition to adding 42,000 square feet of space, ZGF spruced up the Belluschi library with new carpeting, paint, and lighting fixtures. The original entrance was sealed off and terminated with a new bay window designed to sympathize with Belluschi's Collegiate Gothic vocabulary. The architects took advantage of leftover space at the junction between old and new to insert a cozy, two-story reading lounge that is immensely popular with students.

After a year in the new building, Reed's library staff and faculty say it is serviceable and comfortable. The students were a harder sell. Despite a reputation for radicalism, they cherished the Collegiate Gothic style of the Belluschi building, which is now functionally subservient to the Hauser Library. Nevertheless, senior study carrels in the new wing have become so popular they must be apportioned by lottery. "Some of the students have told me what they feel is special about the library, which for me is very rewarding," says Frasca. "They're the ones who understand the building better than anyone, because they use it so much." ■

—DOUGLAS GANTENBEIN

Douglas Gantenbein is a freelance writer based in Seattle, Washington.



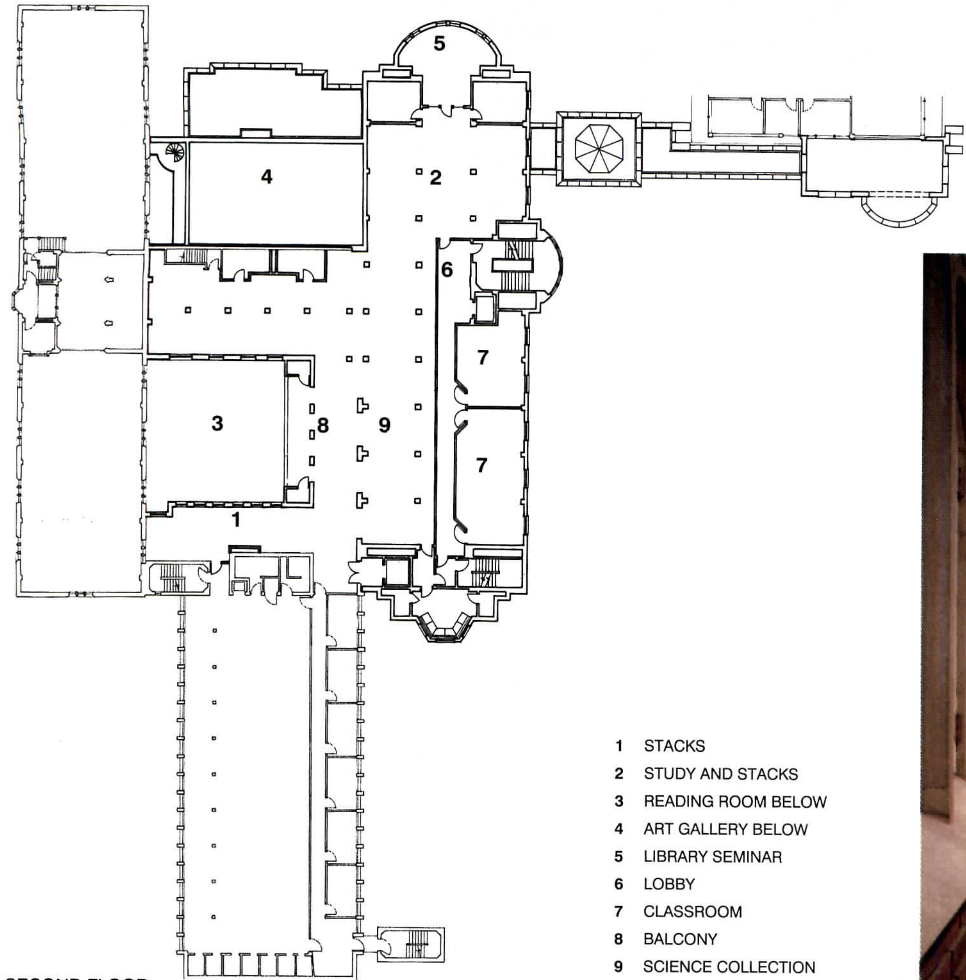
HAUSER LIBRARY
REED COLLEGE
PORTLAND, OREGON

ARCHITECTS: Zimmer Gunsul Frasca Partnership, Portland, Oregon—Robert J. Frasca (partner-in-charge and principal designer); Brooks Gunsul (principal technical designer); Larry S. Bruton (project designer); Brainard Joy Gannett (project manager); Harold Kerns (project architect); Kathryn Krygier, Renee D. Kajimoto, Ronald P. Gronowski, Lee F. Kilbourn, Kelly D. Davis, William C. Tripp, Steve Adams, Susan E. Kerns, Terri J. Johnson, Jan Eckelman
ENGINEERS: KPFF (structural, civil); Carson, Bekooy, Gulick & Associates, Inc. (mechanical, electrical)
LANDSCAPE ARCHITECTS: John Warner & Associates, in joint venture with Ceccacci Associates
INTERIOR DESIGN: ZGF Interiors
GRAPHICS/SIGNAGE: Studio Mayer-Reed
CONTRACTOR: P&C Construction Company
COST: $5 million
PHOTOGRAPHER: Strode Eckert, except as noted

Copper-clad dormers and chimneys housing mechanical equipment (facing page, top) sympathize with the Belluschi-designed library (below). A skylighted arch (facing page, bottom left) provides the threshold to the library (section below) and a ZGF-designed lounge in the adjacent biology building (facing page, bottom right).

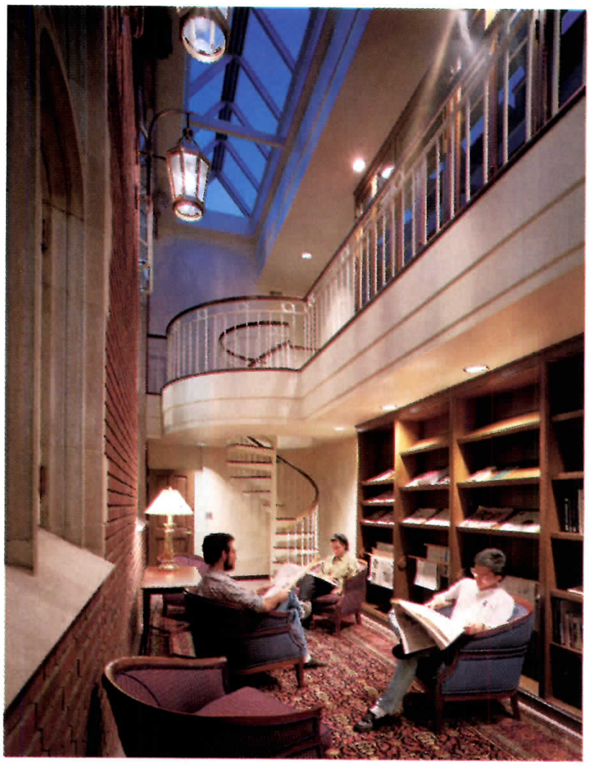
TIMOTHY HURSLEY

SECTION LOOKING NORTH

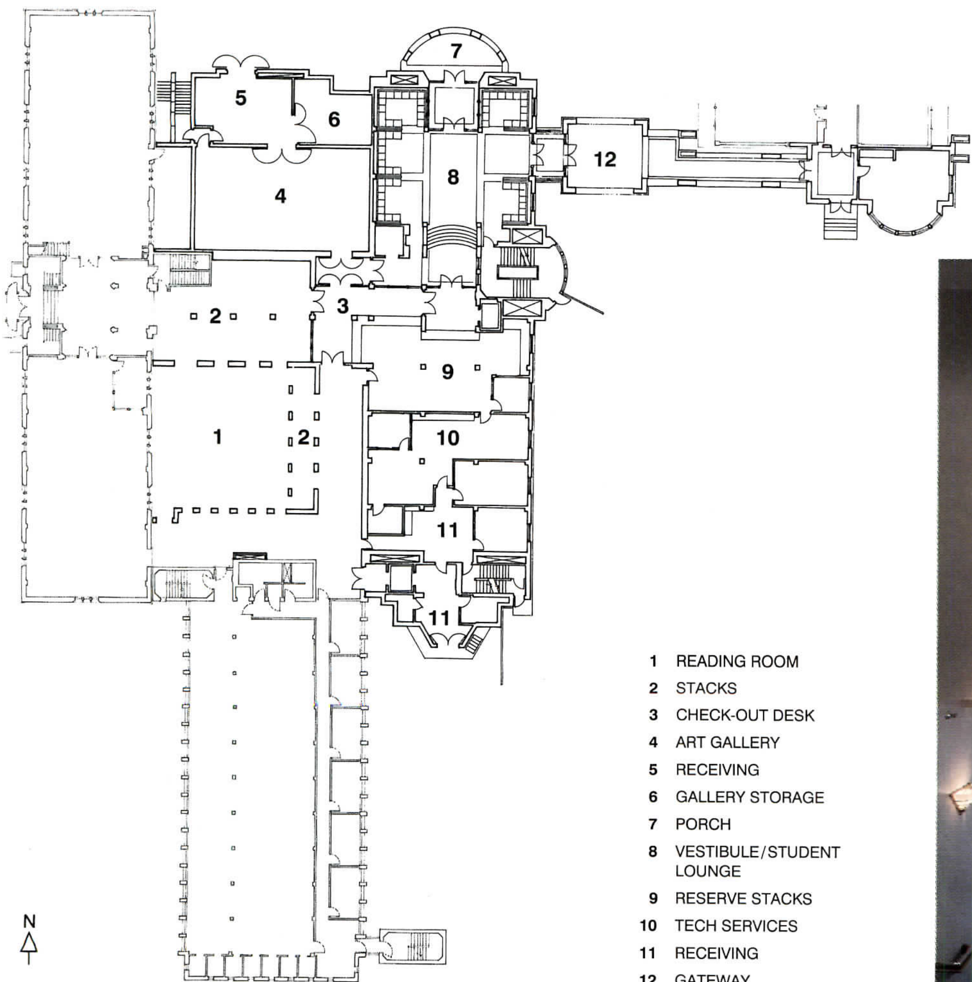


1 STACKS
2 STUDY AND STACKS
3 READING ROOM BELOW
4 ART GALLERY BELOW
5 LIBRARY SEMINAR
6 LOBBY
7 CLASSROOM
8 BALCONY
9 SCIENCE COLLECTION

SECOND FLOOR



ZGF extended the addition east of the 1930 structure (plans) and incorporated an original exterior wall in the main library (facing page) and smaller reading room (above). A stairwell with bay windows and seating (below) connects the library to upper level classrooms.



1 READING ROOM
2 STACKS
3 CHECK-OUT DESK
4 ART GALLERY
5 RECEIVING
6 GALLERY STORAGE
7 PORCH
8 VESTIBULE/STUDENT LOUNGE
9 RESERVE STACKS
10 TECH SERVICES
11 RECEIVING
12 GATEWAY

GROUND FLOOR


BIOLOGICAL BULLETIN
The Botanical Review

Piedmont Health Center
Atlanta, Georgia
Nix Mann & Associates, Architects

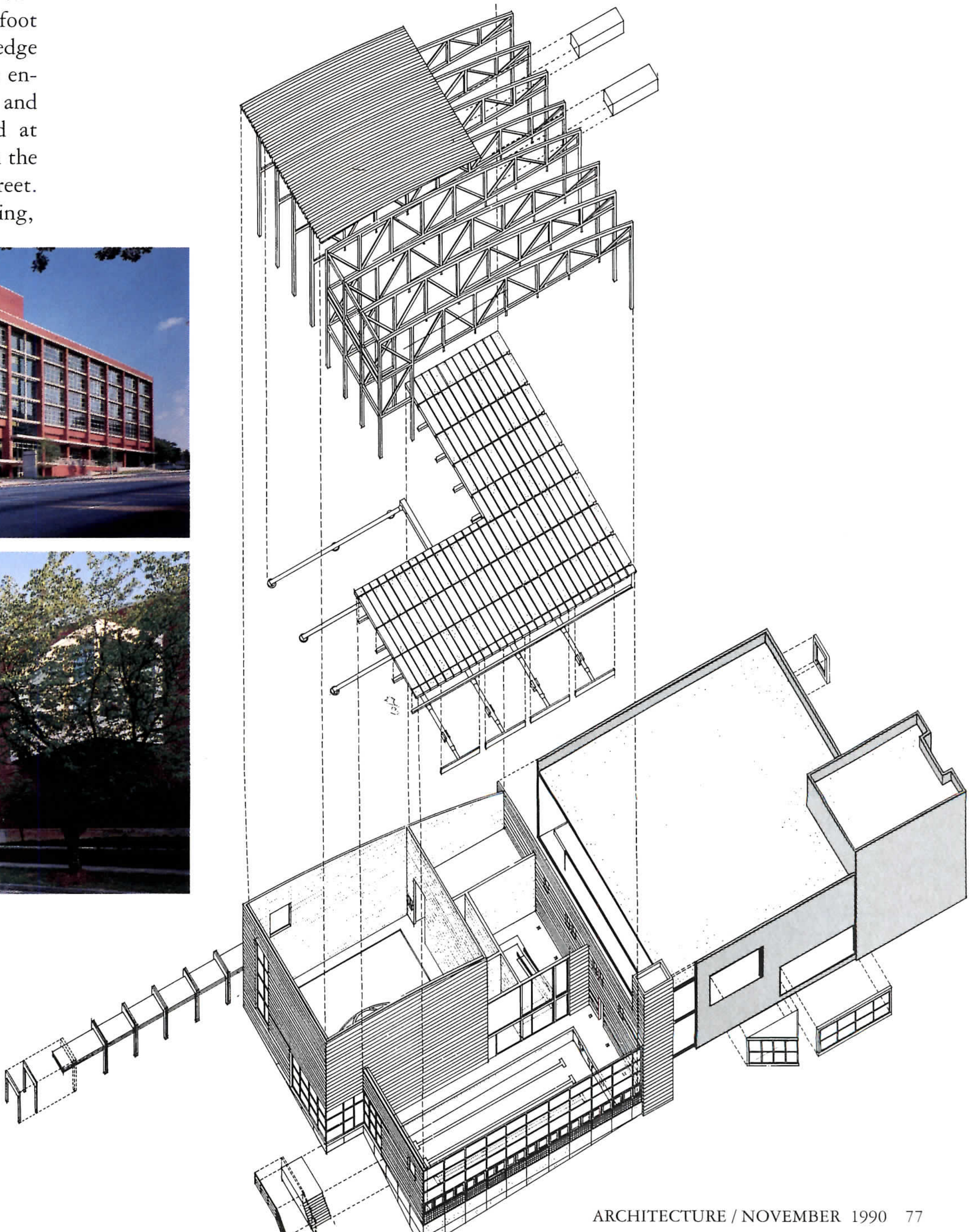
Structural Fitness

A MODEST 1953 OFFICE BUILDING HARDLY seems the most exciting candidate for adaptive reuse, but such a structure provides the cornerstone for Piedmont Hospital's office building and rehabilitation and fitness center. On the corner of a tight urban site in uptown Atlanta, Nix Mann & Associates extended a six-story tower and an 11,000-square-foot volume from the former headquarters of an air-conditioning manufacturer. Capitalizing on the low scale and detailing of the original 22,000-square-foot building, which most recently housed hospital administrative functions, the architects created distinct identities for the hospital's two new wings.

Across Peachtree Road from Piedmont Hospital and connected to it by an underground tunnel, the 80,000-square-foot medical office building on the western edge of the site features a simple brick facade enlivened by an expansive window system and horizontal precast sills. When lighted at night, a slender atrium rising up through the building creates a lantern facing the street. Respecting the scale of the existing building, the architects set the tower atop a two-story base. Although the main entry of the new tower is located at ground level, the sloping site allowed Nix Mann to create a retail promenade that originates at grade at the southwest corner, providing a secondary entrance into the second story. A continuation of this circulation path leads through a reception area to the juncture of old and new.

Though the architects put an austere face toward Atlanta's main street, they lightened up the building's profile where it turns the corner. "Piedmont's hospital administration can be very conservative," says project designer Barbara Crum, "but once we got off Peachtree, they let us go crazy."

Flexing their design muscles, the architects exposed the health club's structural system to create a more contemporary image. They isolated the steel structure from corrosive chlorine gases in the natatorium by extending curved steel trusses outside the building envelope. Hollow precast planks are hung from the trusses and form the ceiling over the swimming pool and therapeutic whirlpool. For the gymnasium, Nix Mann raised the roof, continued the exposed structure indoors, and hung acoustical panels from the ceiling between structural members. Along the fitness center's east facade, structural columns stand flush against the interior wall of the gymnasium, while outside



The exposed structure (axonometric, right) of the fitness center (facing page, foreground) is a counterpoint to the office tower and hospital complex beyond (facing page, background). The new tower and restored 1953 building present a serious face to the street (top), while the glassy north facade offers a more playful demeanor (above).

the pool the structural system projects to encompass a walkway.

In contrast to the dark red brick of the medical office tower, the architect clad the fitness center addition in concrete block with horizontal brick banding in a color similar to the limestone trim of the original building. The north facade is virtually transparent, comprising glass block, operable windows, and bands of rectangular glazing. To relieve the interiors of the windowless 1953 building, the architects opened up the upper level with a projecting triangular bay and punched out a large rectangular window to illuminate the ground floor aerobics room.

Inside the fitness center, the architects created two circulation routes to separate the building's different users—outpatients enrolled in physical and occupational therapy programs and yuppies who work out in the health club. Rehab programs are housed on the second level of the renovated section to allow patients easy access from the medical tower. Fitness functions are grouped on the first floor, and health club members enter from the on-grade parking lot along the east and south side of the building through a separate door marked by a steel canopy.

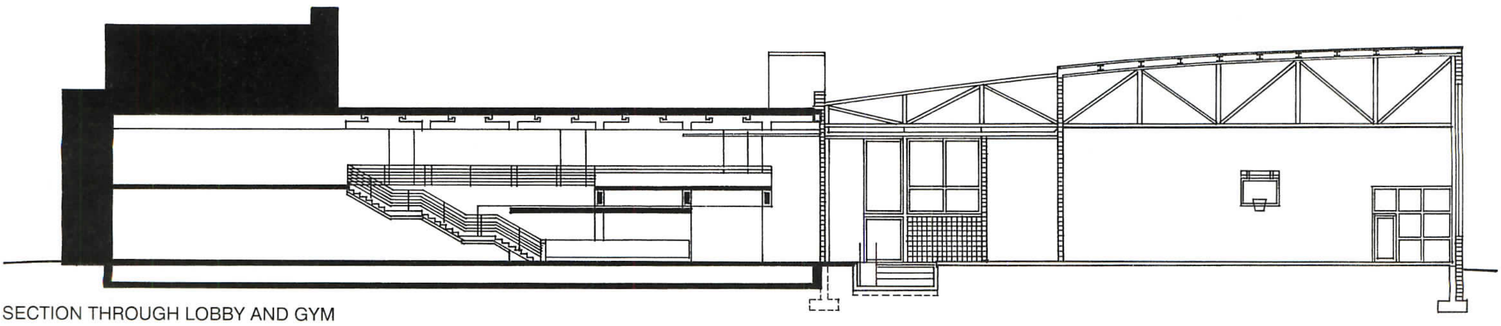
For hospitals searching for additional sources of revenue, Nix Mann's energetic combination of medical offices, health club, and rehabilitation center might prove to be just what the doctor ordered. ■

—LYNN NESMITH

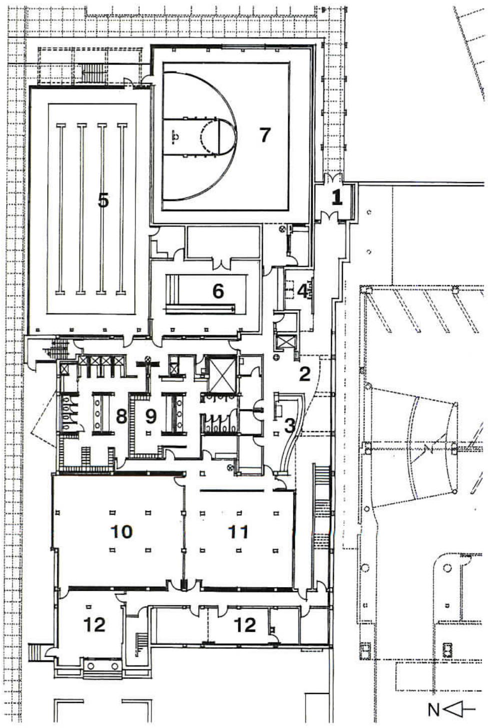
The gymnasium, tucked inside the boxy volume of the new fitness center (top), is flooded with natural light from a large window that turns a corner and a tall narrow opening that extends beyond the structural frame (facing page, top). A secondary entrance (top and above) is nestled within the steel structure that extends outside the pool (facing page, bottom). First floor plan (facing page) shows health club functions.

PIEDMONT HEALTH CENTER
ATLANTA, GEORGIA

ARCHITECTS: Nix, Mann & Associates, Architects, Atlanta, Georgia—Lewis Nix (partner-in-charge); Barbara Crum (project manager and project designer/fitness center); Manuel Cadrecha (project designer/office building); Rick Sellers (job captain/office building); Betsey Sears (job captain/fitness center); Dawn Mixon, Jones Lindgren (design team)
LANDSCAPE ARCHITECTS: Daughtery Anderson
ENGINEERS: Sedki & Russ (structural); Newcomb & Boyd (mechanical and electrical); Laubman Reed (civil)
GENERAL CONTRACTOR: BCB, Inc.
COST: $10.5 million—$117/square foot (tower) $2.3 million—$70/square foot (fitness center)
PHOTOGRAPHER: Timothy Hursley/The Arkansas Office, except as noted



SECTION THROUGH LOBBY AND GYM



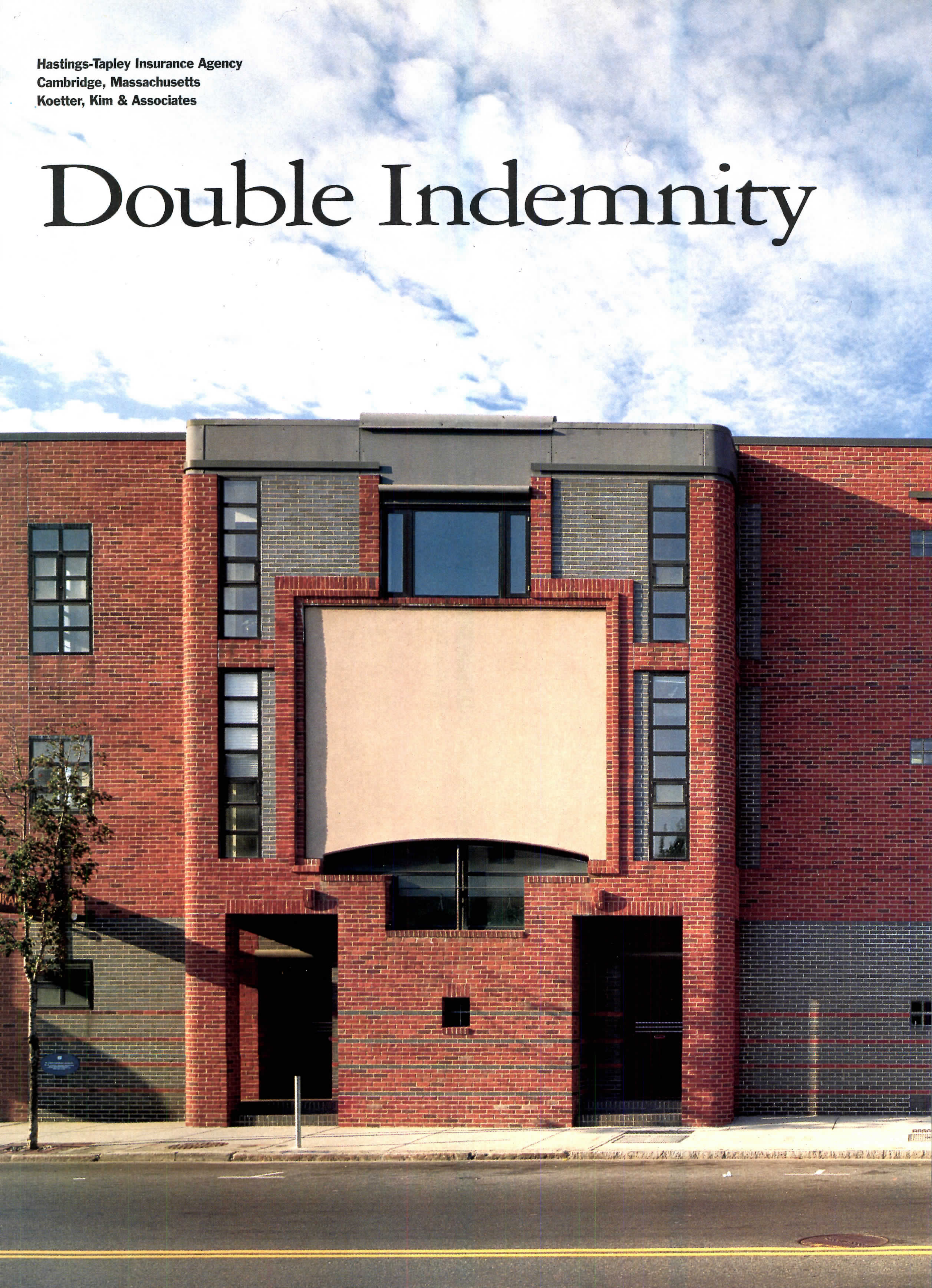
FIRST FLOOR

1 CLUB ENTRY
2 LOBBY
3 RECEPTION
4 VENDING
5 LAP POOL
6 ARTHRITIS POOL
7 GYMNASIUM
8 WOMEN'S LOCKERS
9 MEN'S LOCKERS
10 AEROBICS
11 CIRCUIT TRAINING
12 CLASSROOMS

JACK GARDNER

Hastings-Tapley Insurance Agency
Cambridge, Massachusetts
Koetter, Kim & Associates

Double Indemnity



NOT MANY ARCHITECTS HAVE THE OPPORtunity to add to, or even enhance, their own buildings. But Koetter, Kim & Associates was recently commissioned to extend a three-story office building the firm had designed as an addition to an existing structure. Completed in 1983, Koetter, Kim's initial, 12,000-square-foot space housed the Hastings-Tapley Insurance Agency in Cambridge, expanding a 14-year-old single-story office building that had itself been built upon the foundations of a 19th-century church.

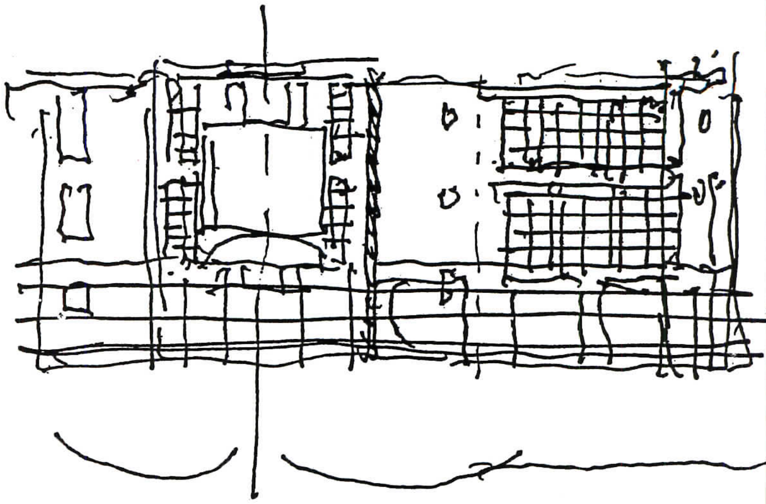
"The ghost of the church plan," as Susie Kim describes it, influenced the tripartite division of the Hastings-Tapley front facade. It was a composition that, reflecting upon it now, Kim finds too stable. In the newest addition, she sought something less self-conscious with more complexity. So she handed the project over to her associates as a sketch problem. The prize for the winning entry would be design credit for the project. "The entries ranged from duplication of what we had—figural buildings—to buildings that were essentially 'tails' to the original 'head,'" says Kim.

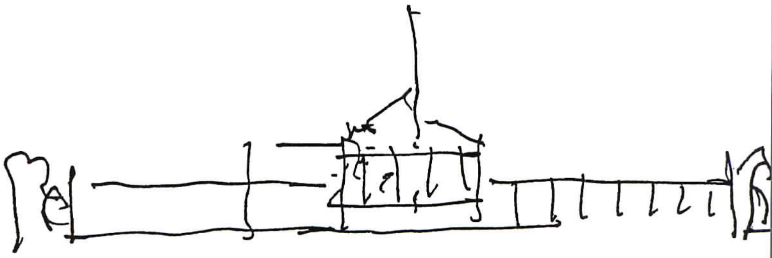
Sharing a busy commercial street with banks, insurance companies, and other three-story office buildings, the addition might have had its own "face" to compete with the original—an example of what Kim calls the "head/head scheme." John Reed, an associate who works in the firm's London office, produced the design that seemed closest to what Kim wanted—something Modern in spirit, while knocking the original building off kilter. "The scheme that won is not clearly a head or a tail; it has another figure to it," Kim adds. "We went with a scheme that took a new direction. It looks as though it is pulling the original building."

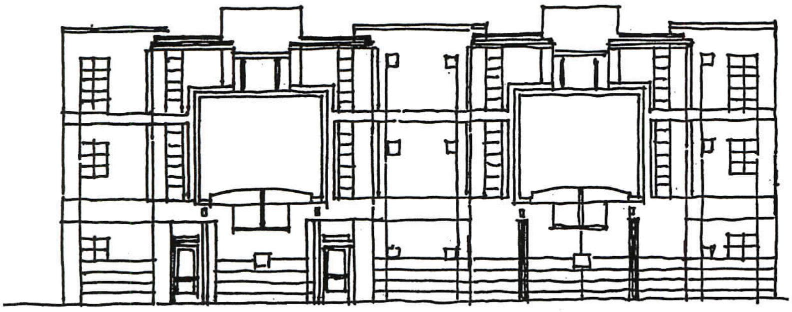
John Reed, whose winning design was completed in January, says the original Hastings-Tapley building was "very frontal" and therefore a difficult one to add on to. Its location along one of Cambridge's widest, most heavily travelled streets means that it is often viewed from a passing vehicle: "Perspective is important," Reed explains. "You always see this building from the edge, as if you're travelling past in a car and view it out of the corner of your eye." That notion generated the idea that the building's facade, which the ar-

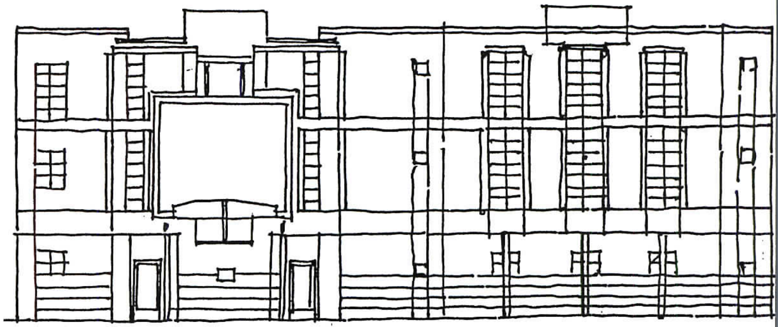
Expanding upon Koetter, Kim's tripartite, 1983 office building (left in photo), the new addition (right in photo) appears to stretch the original's "too stable" facade to create an irregular, cubist composition.

Hastings-Tapley Insurance Agency is located on a busy street in Cambridge (above), where views of it are often from an angle. Inspired by the perspective of the passing motorist, the architects derived the concept of "stretching" the original, 1983 structure and elongating its layers of glass, brick and steel. Project designer John Reed says that his scheme (top right sketch) suggests the beginning of a symmetrical design, like that of a Palladian villa (sketch at right). Any future building would be added to the left of the "temple" front.

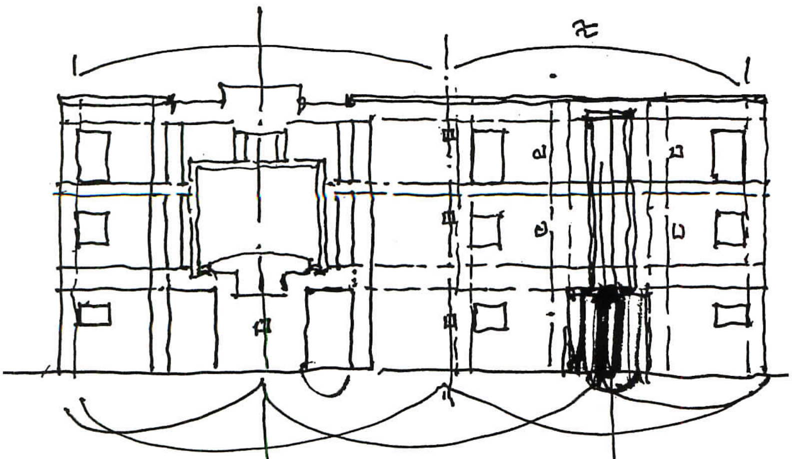


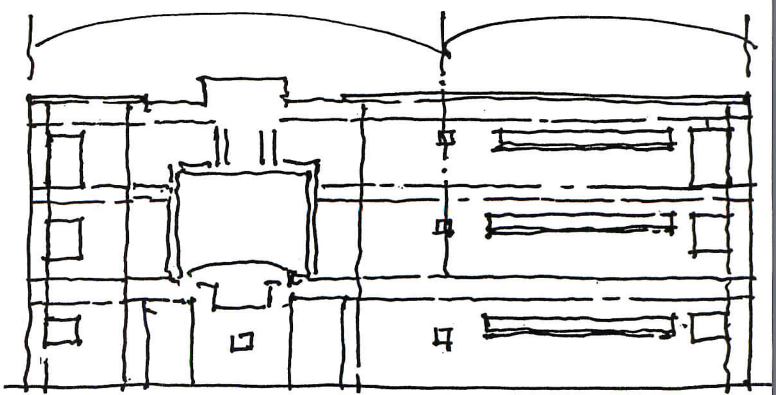






The firm's in-house charette generated a series of designs, including schemes by Kent Knight (above) and Mark Chen (below). Alternatives comprised "head/head"—figural additions that competed with the original (above and below left)— or "head/tail"—additions that seemed to be merely appended to the original without a life of their own (above and below right). The winning design both extended Koetter, Kim's original office building and provided its own identity. Interior expanses of glass are broken to cut down on sunlight in computer rooms (facing page, bottom left). A red steel pipe column (facing page, bottom right) terminates the horizontal bands of windows, brick, and steel. Metal bands on the exterior are composed of steel angles, some of which support long expanses of glass.





chitects view as a layer of brick, a layer of glass, and a layer of steel, could be pulled and "stretched." The stretching ends at a red vertical pipe column, and is followed by a reiteration of original elements.

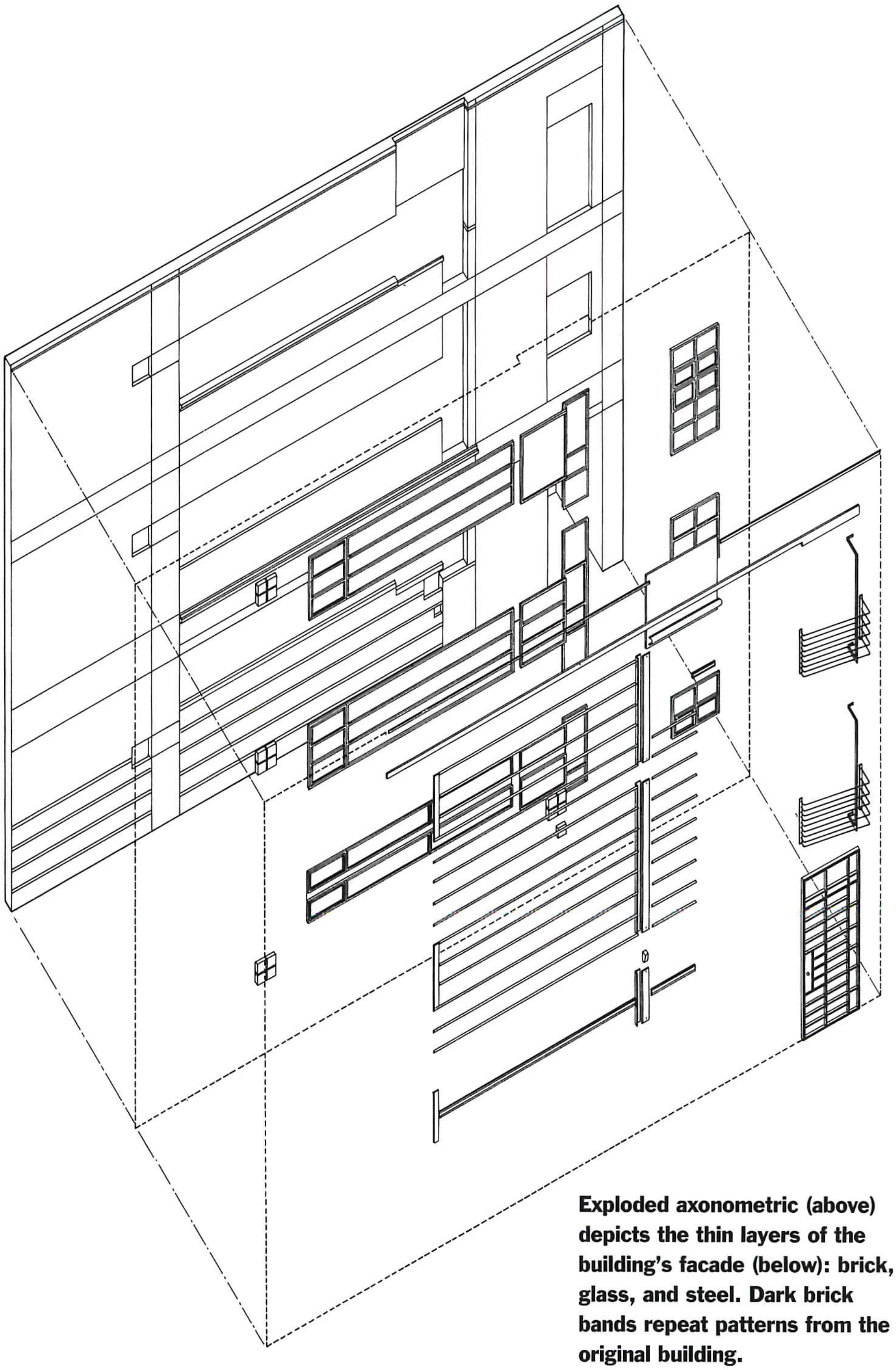
The addition, which doubles the size of Koetter, Kim's first project, consumes and incorporates the original's right flank. A thin, windowless, vertical element acts as a transition between old and new (although it's part of the old). "We don't like to be obvious, we like to counter a concept," notes Kim. Because the original Hastings-Tapley building was often referred to as an Art Deco structure, the firm sought to challenge that concept with a building that Kim calls fundamentally Modern, but lighter—"more Mozart than Beethoven."

The addition retains the taut brick skin of the original building, and its streamlined composition makes the brick wrapper appear even tighter. Thin metal bands emphasize the new structure's horizontality, and a change within the new addition from ribbons of glass and brick to the vertical windows and door create what Kim describes as a "Picasso" facade—one that makes the building appear as a collage of front and side elevations. "The addition is unpredictable," observes Kim. "It's like a caboose on a train, pulling the engine backward." ■

—MICHAEL J. CROSBIE

HASTINGS-TAPLEY
INSURANCE AGENCY
CAMBRIDGE, MASSACHUSETTS

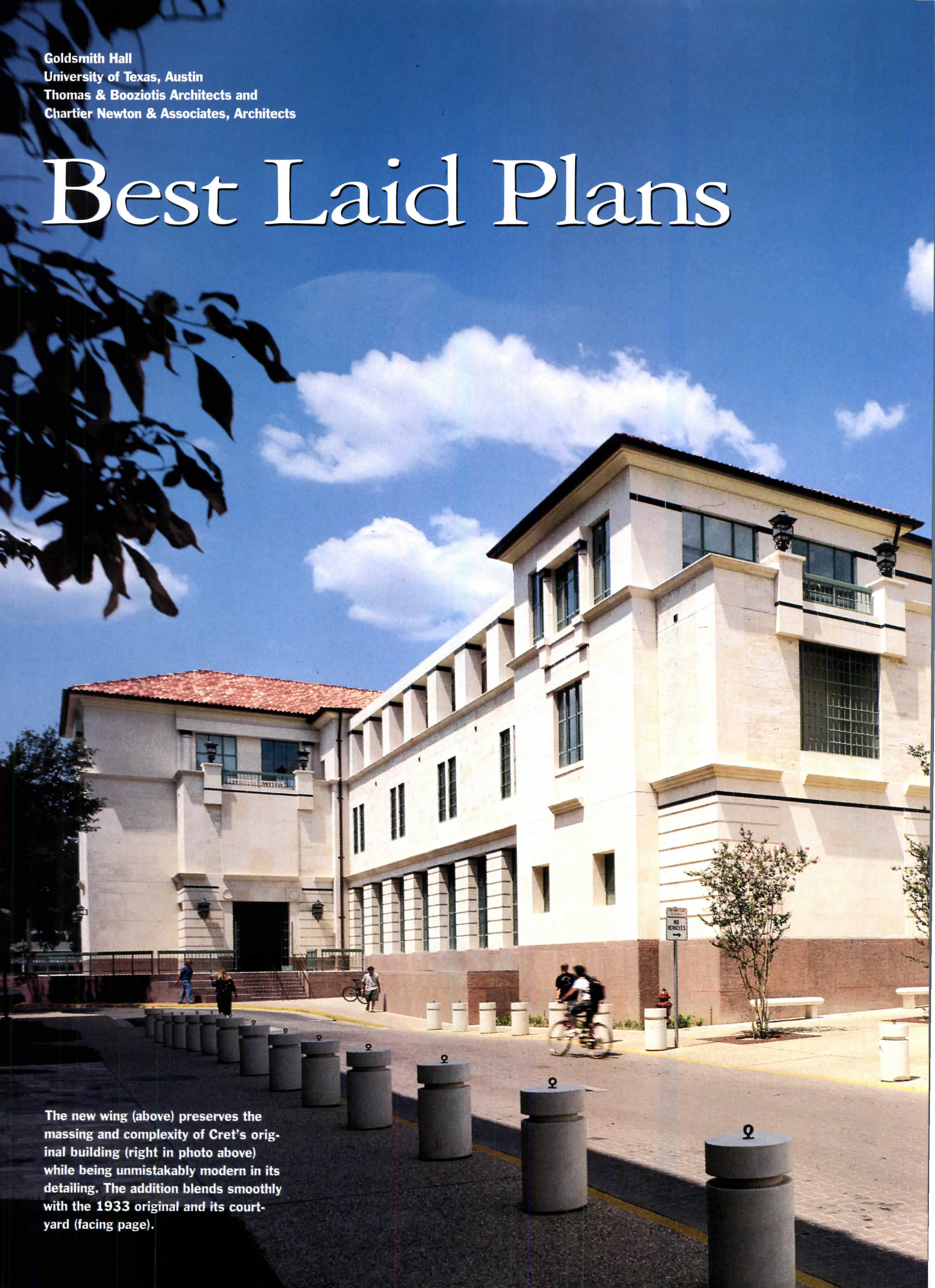
ARCHITECT: Koetter, Kim & Associates, Boston, Massachusetts—Susie Kim (principal-in-charge); John Reed (project designer); Edgar Adams (project architect/job captain)
ENGINEERS: Lim Consultants, Inc. (structural); Edward J. McAlarney, Inc. (mechanical and electrical); McPhail Associates, Inc. (civil)
CONSULTANTS: Schweppe Lighting Design, Inc. (lighting)
GENERAL CONTRACTOR: Metric Corporation
PHOTOGRAPHER: Eduard Hueber



Exploded axonometric (above) depicts the thin layers of the building's facade (below): brick, glass, and steel. Dark brick bands repeat patterns from the original building.

Goldsmith Hall
University of Texas, Austin
Thomas & Booziotis Architects and
Chartier Newton & Associates, Architects

Best Laid Plans



The new wing (above) preserves the massing and complexity of Cret's original building (right in photo above) while being unmistakably modern in its detailing. The addition blends smoothly with the 1933 original and its courtyard (facing page).

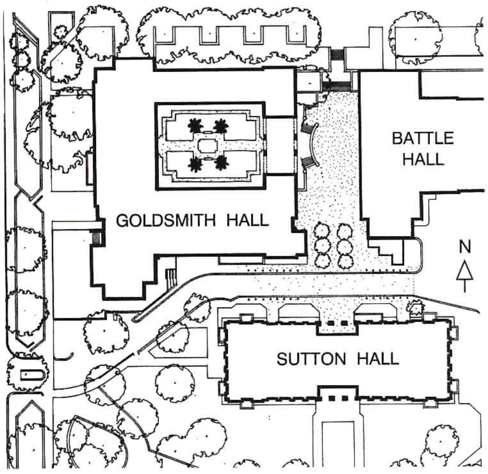
THE RENOVATION OF GOLDSMITH HALL AT the University of Texas at Austin took so long that the plans themselves were on the verge of becoming historical artifacts. Ten years after Thomas & Booziotis of Dallas and Chartier Newton & Associates of Austin started working on the project, architecture students and faculty finally moved into handsomely refurbished quarters on the main mall of the campus.

Goldsmith Hall was designed in 1933 by Paul Cret, one of many buildings he produced while serving as the university's consulting architect. Battle Hall and Sutton Hall, the two School of Architecture buildings that flank Goldsmith, were designed by his predecessor, Cass Gilbert. Together they form a quiet Mediterranean-style enclave in a bustling urban setting, articulated in a common language of limestone, terra cotta, and red tile that Gilbert once called "modified Spanish Renaissance." Goldsmith Hall even has a courtyard with four tall palm trees, reportedly planned by the young Louis Kahn while he was working for Cret.

The three buildings were designed for a compact, intimate campus that began to disappear in the 1960s and '70s as the university embarked on a major expansion. Grandstanding buildings popped up everywhere to skew the vision of Cret's master plan. As enrollment in the architecture school climbed to nearly 700, there was suddenly too little space for studios, classrooms, and social activity. Some studios and offices had to be crammed into an empty elementary school, several blocks away. But a proposal to construct a new architecture complex off campus was rejected by the faculty because architecture belonged at the campus center. Teaching in distinguished buildings by distinguished architects, they maintained, was preferable to relocating the department in the academic suburbs.

As a result, in 1978 the two Texas firms were hired to renovate Sutton Hall (that work was completed in 1982) and then Goldsmith Hall. The collapse of the oil market, coupled with new funding priorities within the university, delayed the start of construction on Goldsmith Hall until May of 1986; it reopened in the fall of 1988. "We always believed it would happen," says Bill Booziotis. "It was just a matter of waiting until the university coffers filled up again."

To add 28,500 square feet to a building that was already boxed in, and to do it without violating the original building, required a deft touch and considerable self-effacement. Booziotis's initial design, however, was nearly as large as the original building. "And it was just awful," the architect adds. "We couldn't



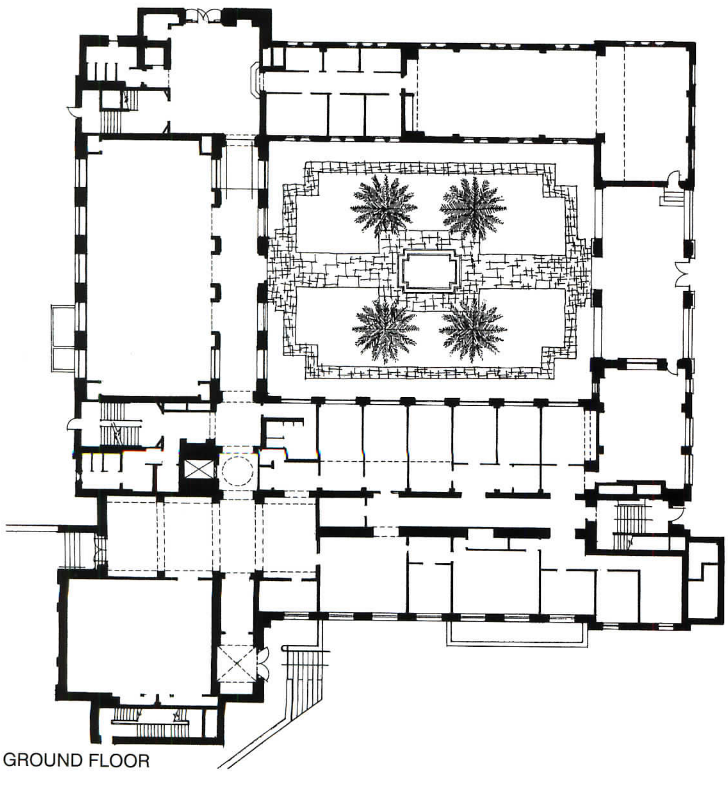
get the massing and the details right at that scale. We told everyone that the building had to be smaller. Fortunately, *the school* agreed." This arrangement permitted new studios to be located directly across the corridor from those in the original building, and also allowed a setback on the top floor out of deference to Sutton Hall.

The architects revised their design to focus on a four-story wing on the south side, facing Sutton Hall and separated from the original building by a 12-foot-wide corridor. They located faculty offices on the top and bottom floors, and sandwiched studios in between.

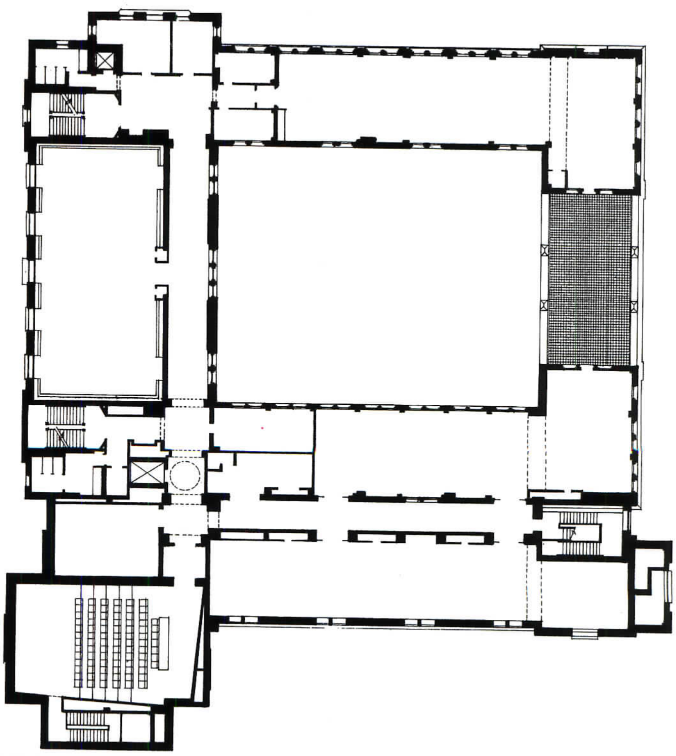
The new wing measures 38 feet wide by 182 feet long, and blends almost seamlessly with Cret's building. Booziotis preserved the massing and the complexity of the original facade while working in an unmistakably contemporary idiom. He matched the original building's creamy Texas limestone, for example, yet inverted the proportions of rough and smooth surfaces to distinguish new from old. He maintained Cret's cornice line, but also split it at several points in a familiar Postmodern gesture. He introduced sloping sills, minimalist medallions, and a slender black slate band to further demarcate new from old. To prevent the addition from overpowering Sutton Hall, he added a loggia on the top floor and a row of large, deep-set windows at the base.

"We made it clear to the architects that we wanted a very respectful, well-behaved addition," explains Dean Hal Box. "We wanted it to look as if it had been designed by Cret, yet to be modern as well. That's precisely what we got."

Inside, the major challenge was installing



GROUND FLOOR



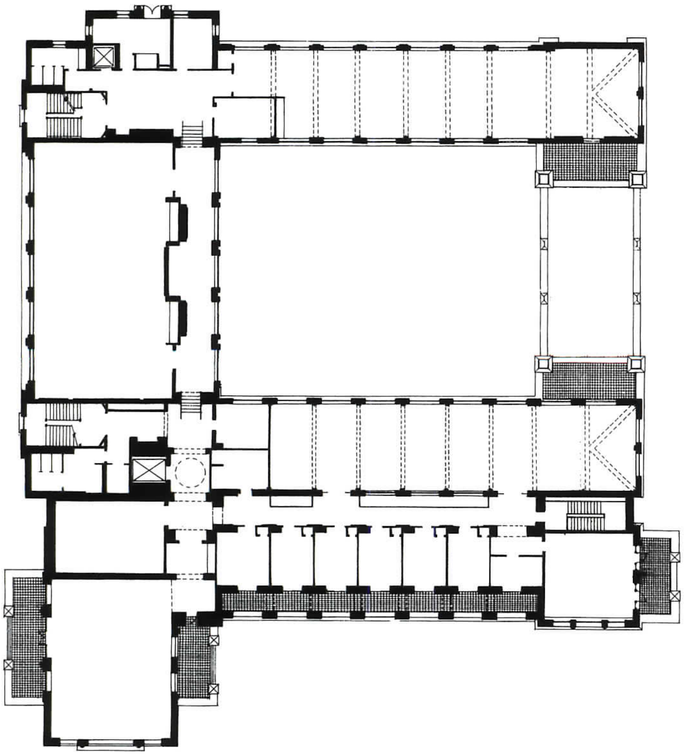
SECOND FLOOR

new air-conditioning and sprinkler systems without destroying the character of the building. The architects solved the problem by inserting vertical chases in walls and discreetly lowering ceilings and raising floors to accommodate ducts and wiring. A massive air intake on the east facade is artfully disguised as a grilled window.

In addition to offices and studios, the renovated Goldsmith Hall contains a new exhibition gallery on the first floor, complete with arched windows and beamed ceilings. Previously, all exhibitions were held in a grand but inflexible space in Battle Hall. The new gallery provides a showcase for student and faculty work, as well as for travelling exhibitions that might otherwise bypass the school. The new building includes a large jury room, an impressive conference room opening onto Cret's courtyard, and a student reading room on the top floor, with a mural designed by Charles Moore, who teaches at the school.

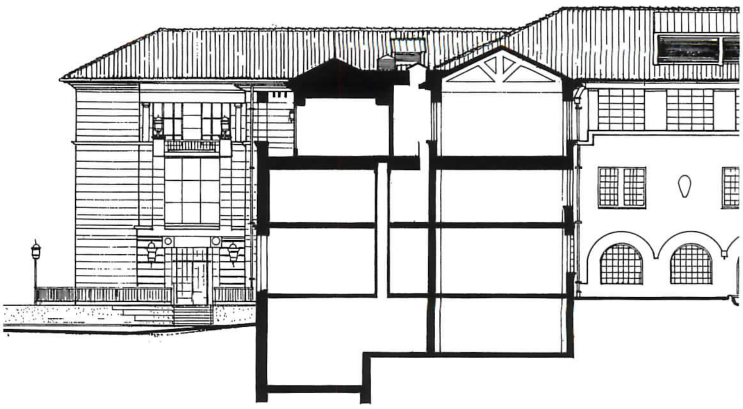
Whenever possible, Booziotis restored or replicated decorative details from Cret's building. The south exterior wall of the existing building became an interior wall of the addition, its windows enlarged into doors and other details carried over into the new spaces. Ornamental metalwork on windows and doors repeats the pattern found in Cret's loggia. The black slate band that appears throughout the building is adapted from a fireplace detail in the original structure's old tower room. The ornamental lanterns were designed by Thomas & Booziotis in the spirit of the original building rather than from a specific precedent.

Not every part of the addition, however, is

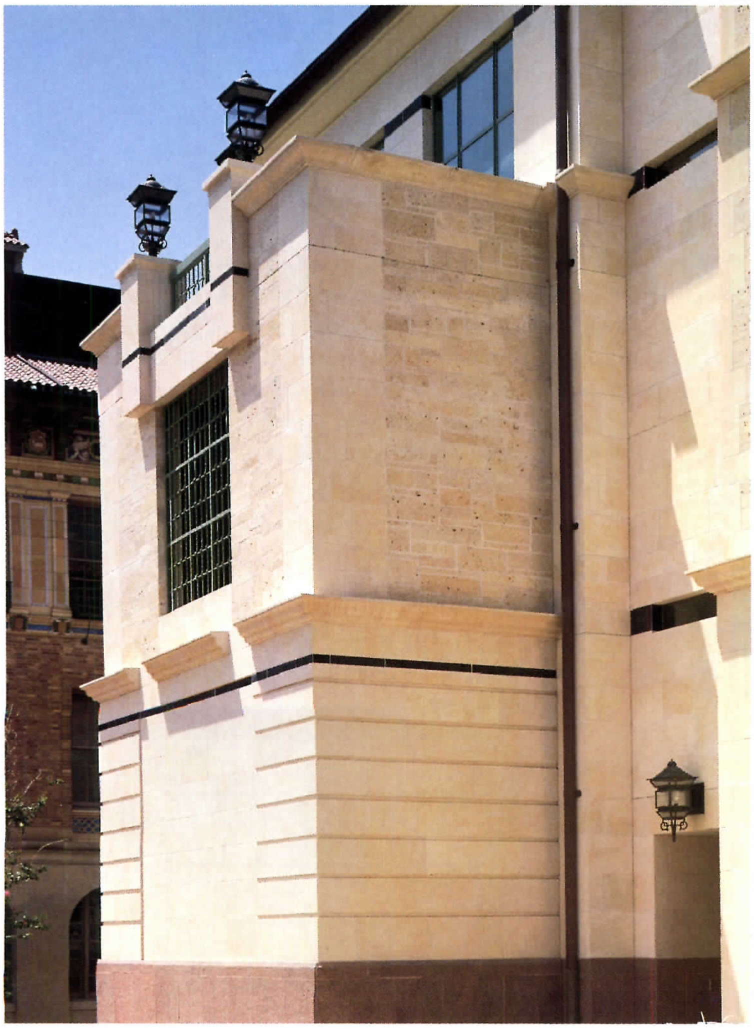


THIRD FLOOR

The architecture school insisted on a well-behaved addition to Goldsmith Hall that combined traditional materials with modern details, such as sloping sills and broken cornices (above). The architects added a loggia on the top floor and deep-set windows at the ground level (facing page, top) to avoid overpowering Sutton Hall next door. The addition contains 28,500 square feet, distributed over four levels (plans), with the original Cret-designed building connected to the addition by a 12-foot corridor (section).



SECTION LOOKING WEST



The interiors incorporate Cret's exterior wall and much of his detailing (top right). A conference room, with table designed by Richard Dodge (bottom right), is among the new interior spaces; the third-floor loggia creates an equally intimate outdoor space (facing page, top left). Details in the addition are adaptations of Cret's, including railings and window frames (facing page, top and bottom right). The main air intake was skillfully disguised as a grilled window (facing page, bottom left).

successful. The original library was converted into a studio, to rather gloomy effect. And the raised platform at the southwest corner looks like what it is—a roof covering the workshop below. But the overall effect is skillful and deferential, qualities that are hardly axiomatic at the University of Texas, where even die-hard contextualists like O'Neil Ford were induced to architectural bombast.

Now that Goldsmith Hall is finished, the next step is to link it more efficiently to Battle Hall, which houses the architecture library and the drawings collection. At the moment, the path between the buildings is interrupted by the West Hall office building, a characterless bunker designed in the early 1960s by John Staub. Plans calls for a new entrance leading from the courtyard through the basement to Cass Gilbert's grand central staircase in Battle Hall. The courtyard, indifferently renovated in conjunction with Goldsmith Hall, may eventually be transformed into an inviting public space.

When all of this is completed—and nobody dares to speculate when that might be—the University of Texas will have restored an exquisite architectural island in the middle of a sprawling and fragmented campus. The School of Architecture confirms Cret's grand vision and also offers a paradigm for the students who occupy it. ■

—David Dillon

GOLDSMITH HALL
UNIVERSITY OF TEXAS, AUSTIN

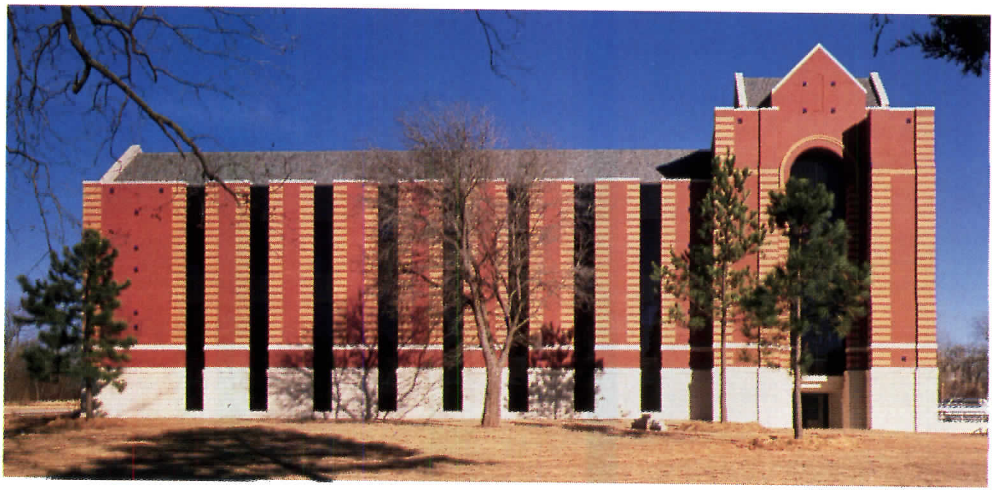
ARCHITECTS: Thomas & Booziotis Architects, Dallas, Texas, and Chartier Newton & Associates, Architects, Austin, Texas—Bill Booziotis (partner-in-charge); Chartier Newton (partner-in-association); Donald W. Roberts (project architect); Lexa M. Acker (project manager for the University of Texas); Richard Dodge (associate dean, School of Architecture)
LANDSCAPE ARCHITECT: Chartier Newton
ENGINEERS: Brockette-Davis-Drake, Inc. (structural); Smith-Duncan & Associates (mechanical and electrical)
CONSULTANTS: Variable Acoustics Corporation
GENERAL CONTRACTOR: J. A. Jones Construction Co.
COST: $8.9 million
PHOTOGRAPHER: R. Greg Hursley

Church Revival

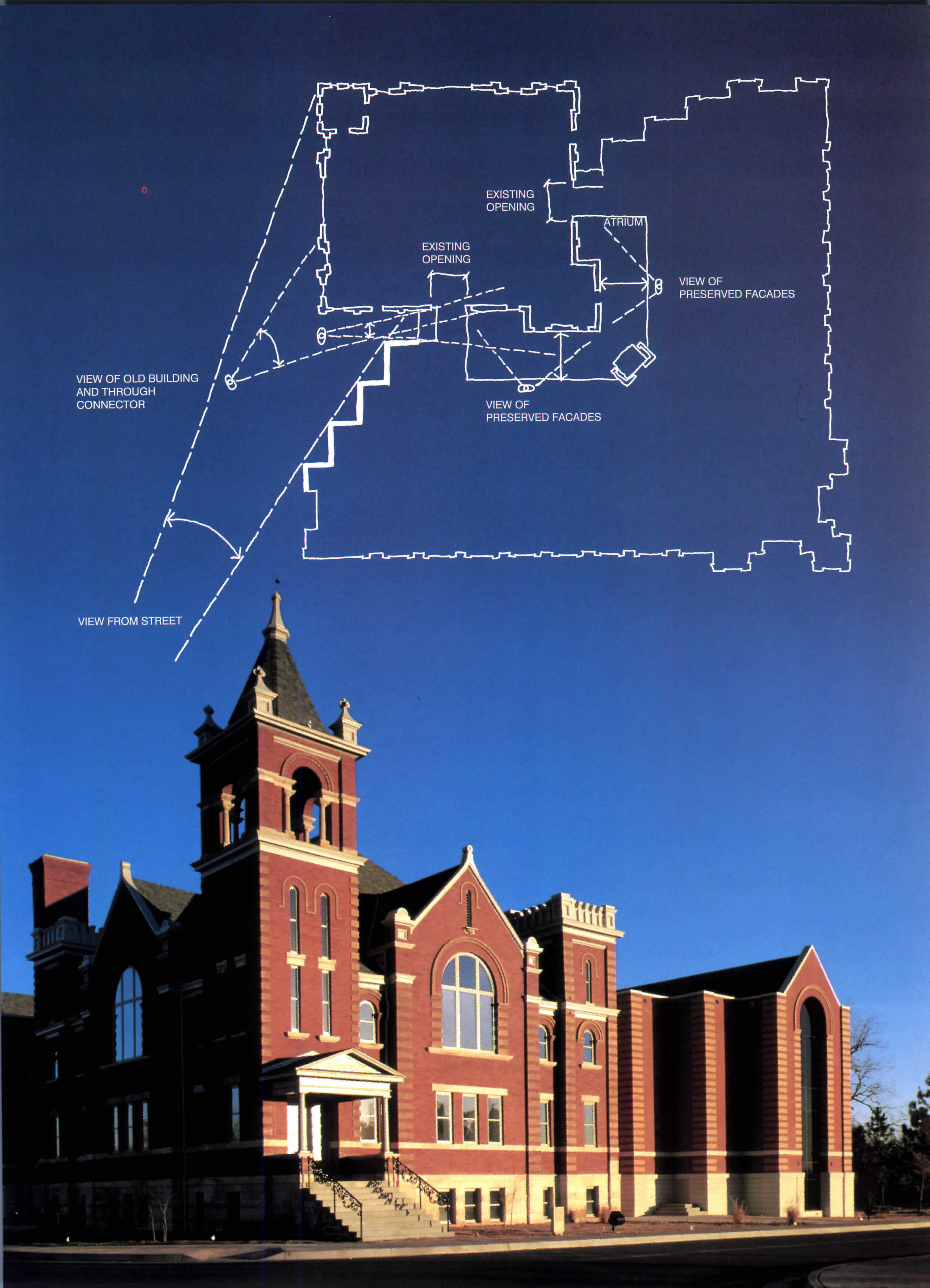
PREVIOUSLY THE SOCIAL HUB OF THE ONCE-fashionable Harrison Walnut suburb of Oklahoma City, the Maywood Presbyterian Church stood vacant for ten years before HTB, Inc., realized its redevelopment potential. The multidisciplinary firm was searching for a site for its new headquarters, and the historic property met the architects' exacting requirements: the location is readily accessible from any part of town; is adjacent to potential clients; and the firm was able to negotiate a development contract on surrounding land for future use. More importantly, however, the church could be renovated to illustrate HTB's practice of wedding contemporary design with older structures. HTB chairman Rex Ball, FAIA, believes that the resulting building "achieves our desire to separate the firm from our competitors by conveying our pioneering spirit—both physically and symbolically."

The focal point of the new headquarters is the 1907 church, positioned in the center of an L-shaped addition that secures the ornate Romanesque Revival structure much like a jewel in a sleek, new setting. Although the three-story, 23,000-square-foot addition is more than three times larger than the original 7,000-square-foot church, the older structure visually dominates the headquarters. This illusion was created by designer Larry Keller, AIA, who stepped the addition back from the historic building. Keller says he originally considered extending separate wings to the east and west of the church, but found them too overpowering for the older structure. Instead, he echoed the gabled volumes of the church with austere forms that sympathize with the scale and materials of the existing building without duplication. Buff and red brick match the old building, and concrete horizontal banding continues the original ashlar block of the church.

A black glass atrium connecting the two buildings visually separates new from old, providing a sense that the addition never physically touches the church. Instead of mullioned windows, the new building is punctuated by slots of glass, simplifying its mass and further accentuating the ornateness of the church. "We didn't want to fight the fenestration of the church, because to do so would result in a Disneyland effect," Keller explains.



The northwest facade (above) showcases a 1907 church by downplaying the massive addition (right), whose stepped volume (facing page) was fixed by studying sight lines (plan).


EXISTING
OPENING
ATRIUM
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VIEW OF
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VIEW OF OLD BUILDING
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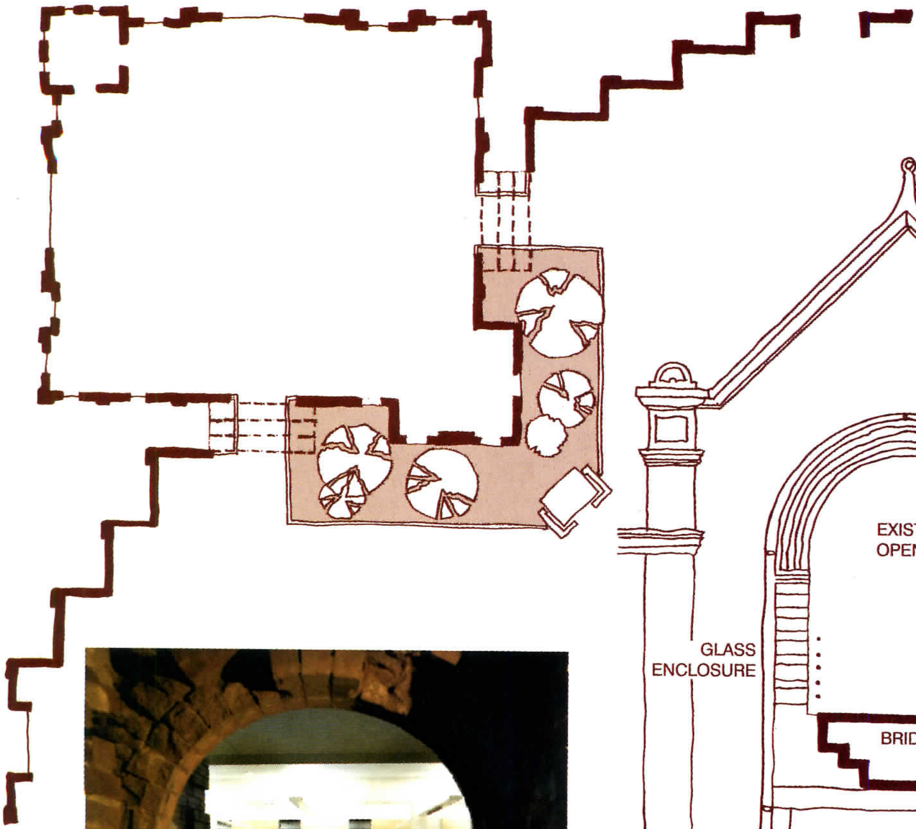
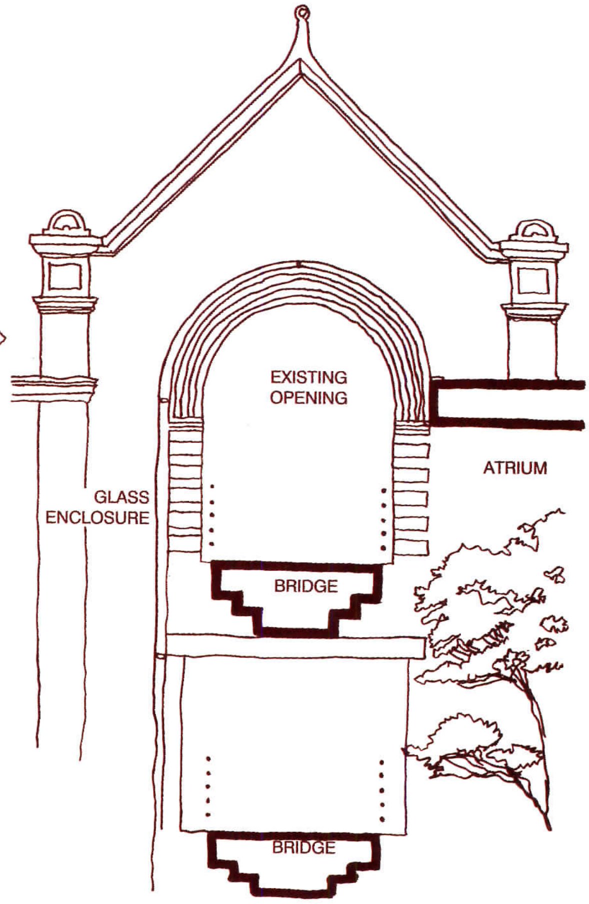
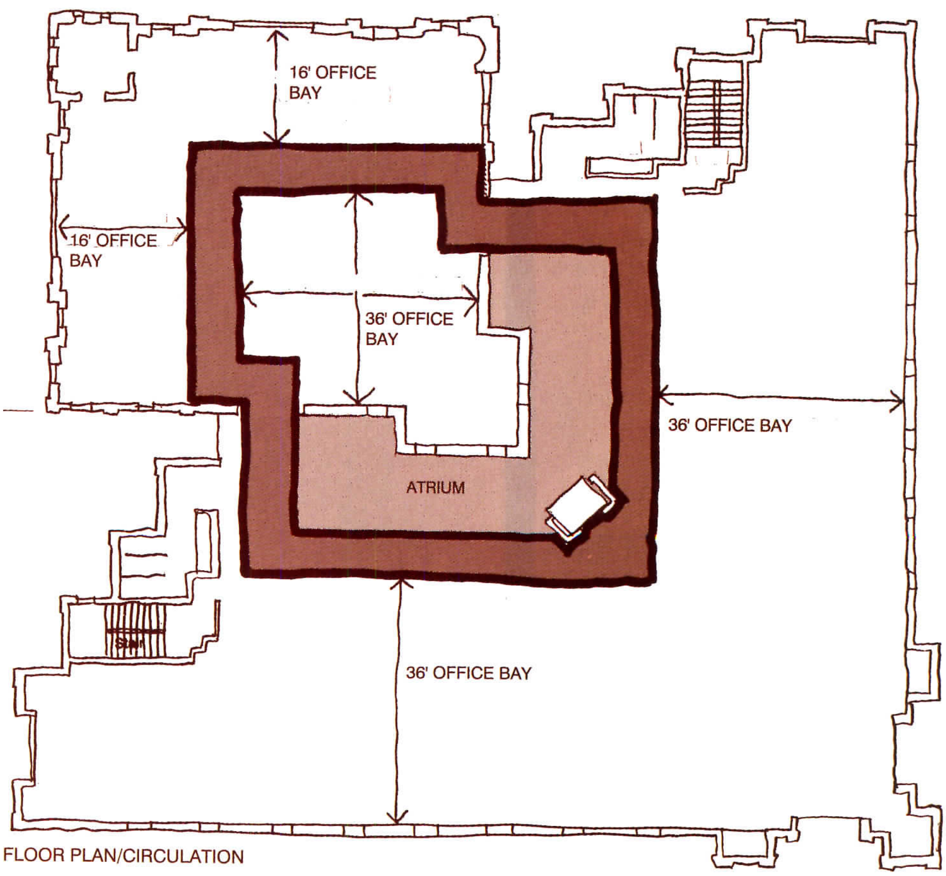
VIEW FROM STREET





TRANSPARENT ENCLOSURE SECTION

Sketches show first floor circulation (below) and upper level bridges (top left) that unite old and new. The addition's circulation path (bottom), is centered around a skylit walkway on upper floors (photo, facing page). Larry Keller designed the interior fenestration (top photo) to resemble the arched openings of the exterior (section left and sketch, facing page). On the third floor, an abstract mural depicting a surreal sky graces a cathedral ceiling to create an eerie effect (bottom left).



FLOOR PLAN/CIRCULATION

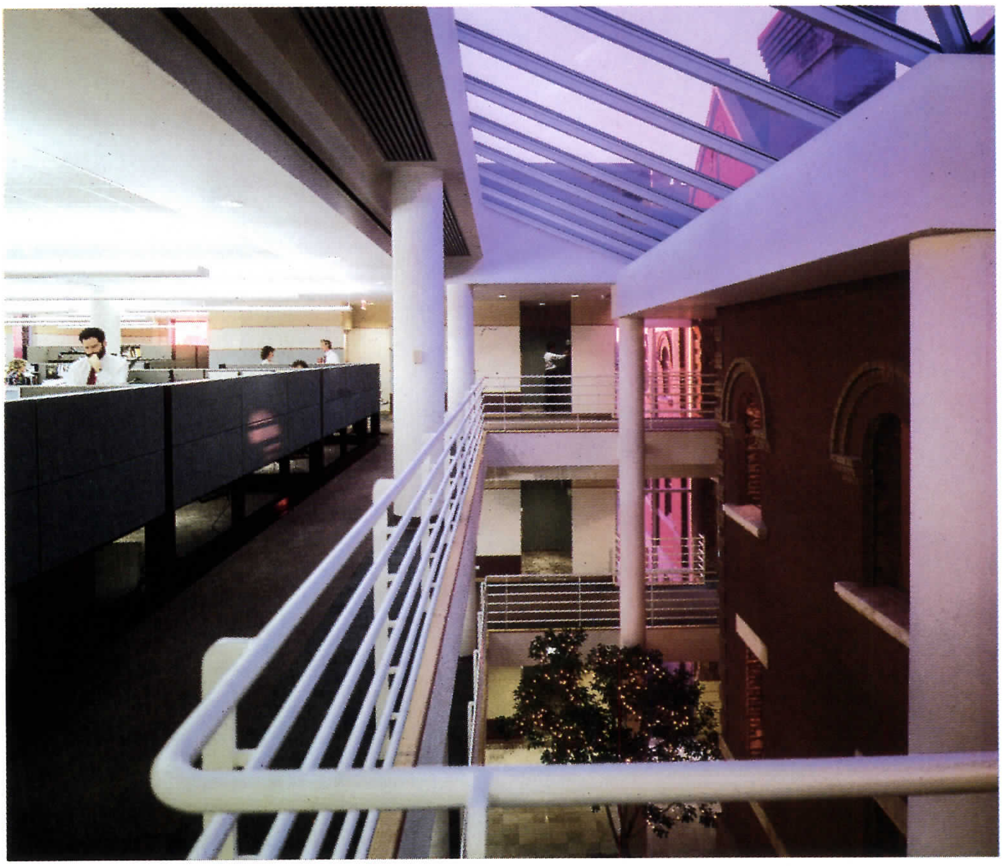
The new addition is entered from the parking lot and below ground level, so that existing floors did not have to be altered. A gabled tower at the entrance houses HVAC equipment and piping, and recalls the profile of the church.

Within the interior, Keller wrapped the new addition around the former baptistery wall, which contains a glass elevator that opens to face the adapted interiors of the church. A three-story, skylit atrium provides a transitional public zone between the old and the new structures, enclosing the former southern exterior of the original 1907 building. The architect created the concept of a ruin within a Modern building by sharply contrasting the old brick and cement infill of the former church exterior with the new skylit atrium, painted walls, pipe railings, and marble floors.

The main floor contains conference rooms, library, reception rooms, and a vending area. Offices are located on two levels, with engineering and support services on the second floor and architecture and executive offices on the third level. Private offices for upper management are housed within the old structure, and perimeter walls remain rough in contrast to new gypsum board partitions. Open drafting areas feature easily configured work stations encouraging employee interaction. These spaces are treated informally, with interchangeable furnishings and without built-in casework. Four-foot panels around each workstation repeat the horizontal banding of the interior walls and emphasize the railings around the open corridors flanking the atrium. Balconies on the upper floors project into the atrium to provide a nearly unobstructed view of the old church.

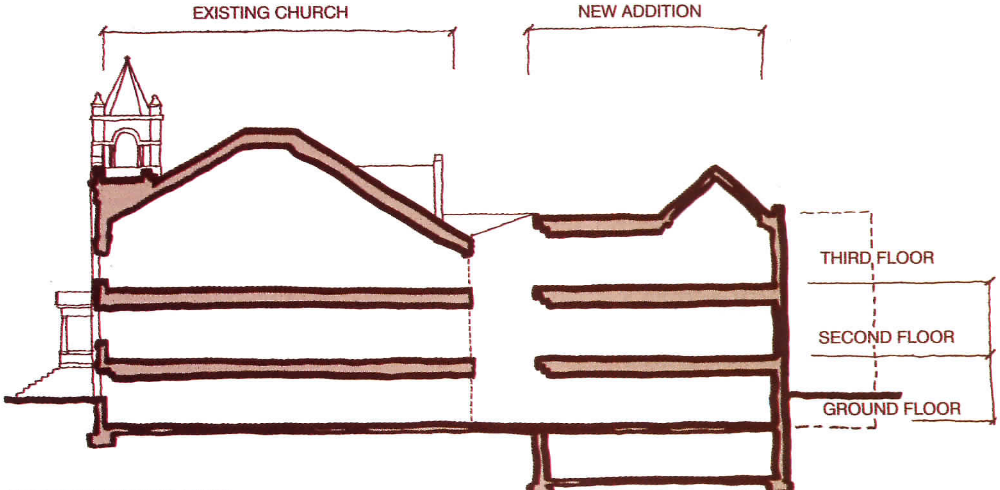
The headquarters' success is evident in the growing number of events—often as many as three—held there each week. Embracing both the building's new and old character, they range from chamber of commerce meetings to wedding receptions. ■

—AMY GRAY LIGHT



STILES CIRCLE CORPORATE HEADQUARTERS
OKLAHOMA CITY, OKLAHOMA

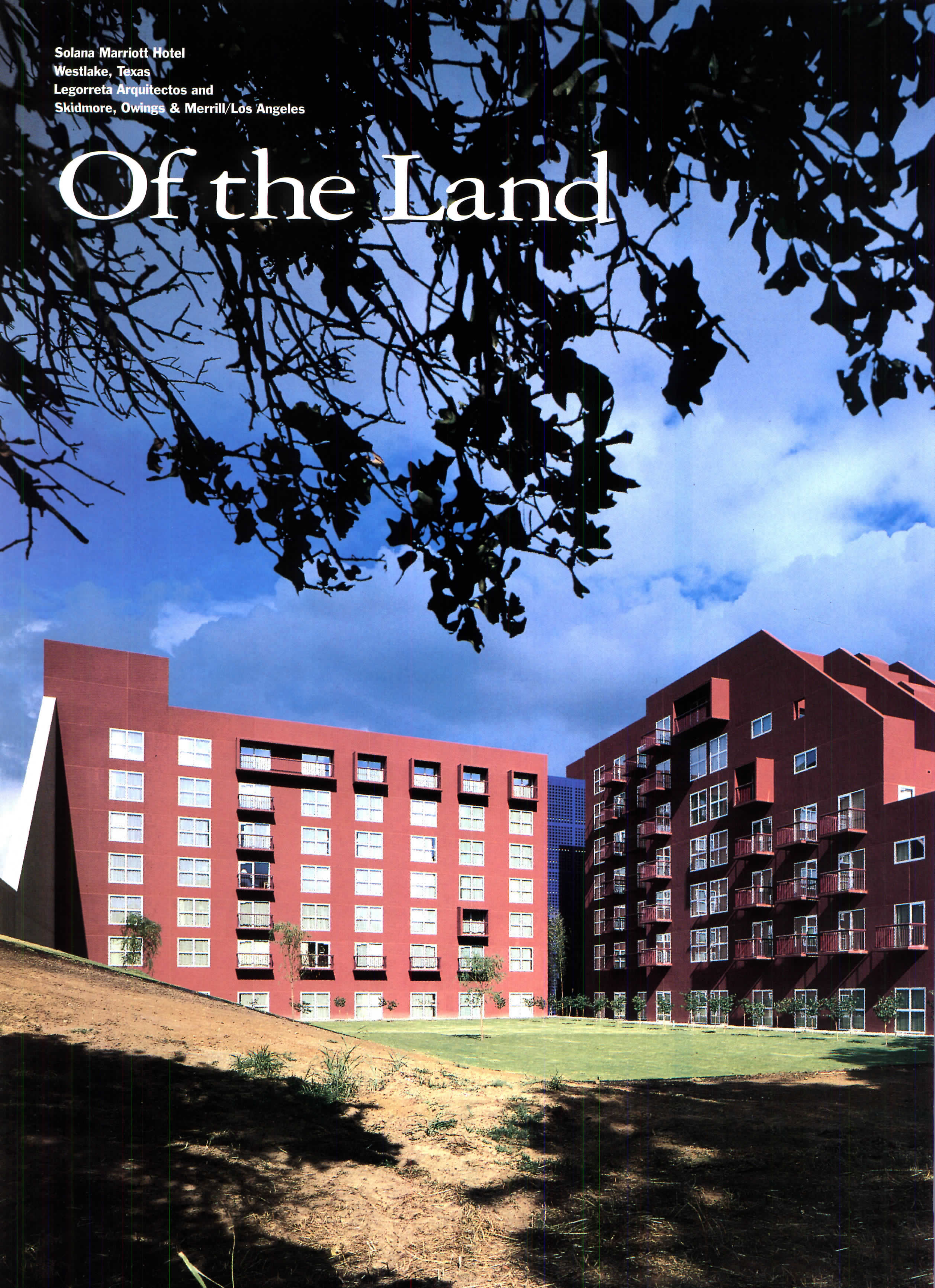
ARCHITECT: HTB, Inc., Oklahoma City, Oklahoma—Domby Zinn (client representative); Leonard Ball (project developer); Rex Ball, FAIA (principal-in-charge); Larry Keller, AIA (corporate director of design); Ed Riley, AIA, Lauren Fite (interior design team)
ENGINEER: HTB, Inc., Keith Hinchey, PE (chief structural engineer)
CONTRACTOR: Yordi Construction Company
COST: $2.5 million
PHOTOGRAPHER: R. Greg Hursley



SECTION LOOKING EAST

Solana Marriott Hotel
Westlake, Texas
Legorreta Arquitectos and
Skidmore, Owings & Merrill/Los Angeles

Of the Land



ON A PRAIRIE TEN MILES NORTH OF THE DALLAS/FORT WORTH AIRport sits the new Solana Marriott Hotel, miles from shopping malls, movie theaters, and other standard traveler diversions. Rooms offer views toward meadows, groves of post oaks, and an occasional water tower peeping over the horizon. Guests who arrive looking for a quiet change of pace, however, may get more than they bargained for.

The Marriott is the latest addition to Solana, a 900-acre office park located in the towns of Southlake and Westlake. Developer Maguire Thomas Partners of Los Angeles describes the project as a corporate villa, a place in the country for business, where land is as important as architecture. Only 10 percent of the site will be built upon, with 150 acres replanted in wildflowers and native grasses. Buildings cannot exceed five stories and must be sited to be viewed across a landscape, rather than as freestanding objects.

The Marriott is the work of Mexican architect Ricardo Legorreta, who also designed the office buildings and retail area of the Village Center, and a Marketing and Technical Support Center for IBM, Solana's codeveloper and principal tenant. Like the neighboring structures, the Marriott is blocky and low-slung, with broad, flat walls, large, square windows, and bursts of intense desert colors ranging from cadmium yellow to oxblood red. The front facade is crisp and urban, a piece of the town square, while the back breaks out in wings and stair-stepping balconies, like a Mayan temple in the jungle.

Although the Marriott looks massive and dense from the outside, it seems almost transparent inside because of Legorreta's skill in capturing the landscape. He placed large, square windows in the lobby and at the ends of corridors, rows of narrow, slotted windows along hallways leading to rooms, and small, shadowbox openings that offer surprising glimpses of blue-walled bamboo gardens and magenta sunscreens. Elevator lobbies and hallways, usually kissed off by hotel architects as hopeless, are pleasant spaces because of Legorreta's deft handling of Texas light. Even the public telephone alcove has a large picture window with views of the forest. Complementing the light is an explosion of color—intense, rich, startling, and memorable.

Legorreta designed the Solana Marriott (left) as a dense sculptural form set into the landscape like a pre-Columbian temple. The hotel is located adjacent to Solana's Village Center shops, office buildings, and landscaped plaza (below).

Most people don't know what goes on at Solana, but they remember the fuchsia columns and the cobalt blue walls. Using the

same bright colors inside and out only intensifies those impressions.

As the hotel was being constructed, residents of a nearby sepia-toned enclave threatened to sue IBM unless Legorreta grayed his palette, as though that were possible. Color has always been a starting point for him, as it was for his mentor Luis Barragan. "I do not say that I will make a wall and paint it red," Legorreta once explained. "I say I will make something red and maybe it will be a wall." His colors, found in the native wildflowers that cover the site, are absolutely right for Solana. Local protests that the colors are "not Texan" only illustrate how shallow conventional notions of regionalism can be.

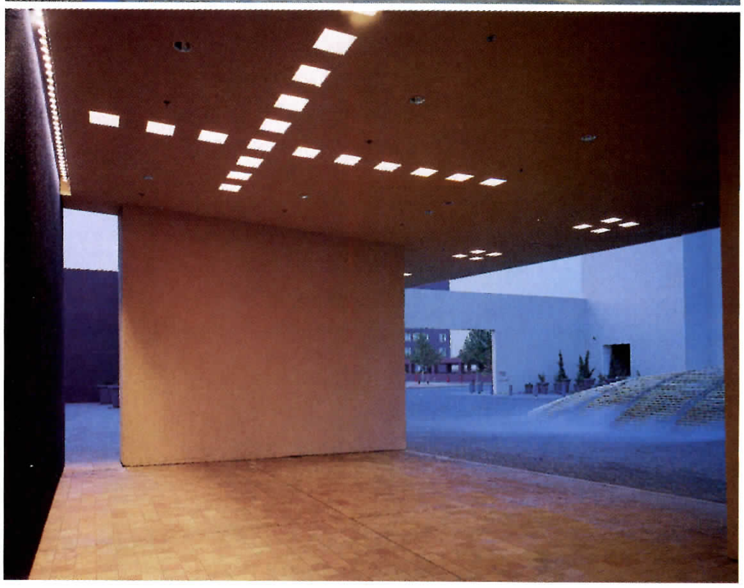
To compensate for the isolated location of the hotel, Legorreta introduced diversions of his own, including reflecting pools, misting fountains, sunscreens, and landscaped plazas. Finding the front door to the hotel, however, is somewhat tricky, thanks to Legorreta's fondness for jamming the orthogonal compasses of his tenants. In plan, the Marriott looks like a maze of surprising angles and eccentric spaces, in which nothing lines up or makes sense. In collaboration with Skidmore, Owings & Merrill/Los Angeles for the building's interior, Legorreta discarded the traditional grand lobby in favor of a sequence of discrete spaces that, like episodes in a mystery novel, reveal their meaning slowly and only after investigation. Arriving guests are confronted by a slanting green marble wall that leads from the front door to a reception desk, past a circular, skylit room that turns out to be a cocktail lounge.

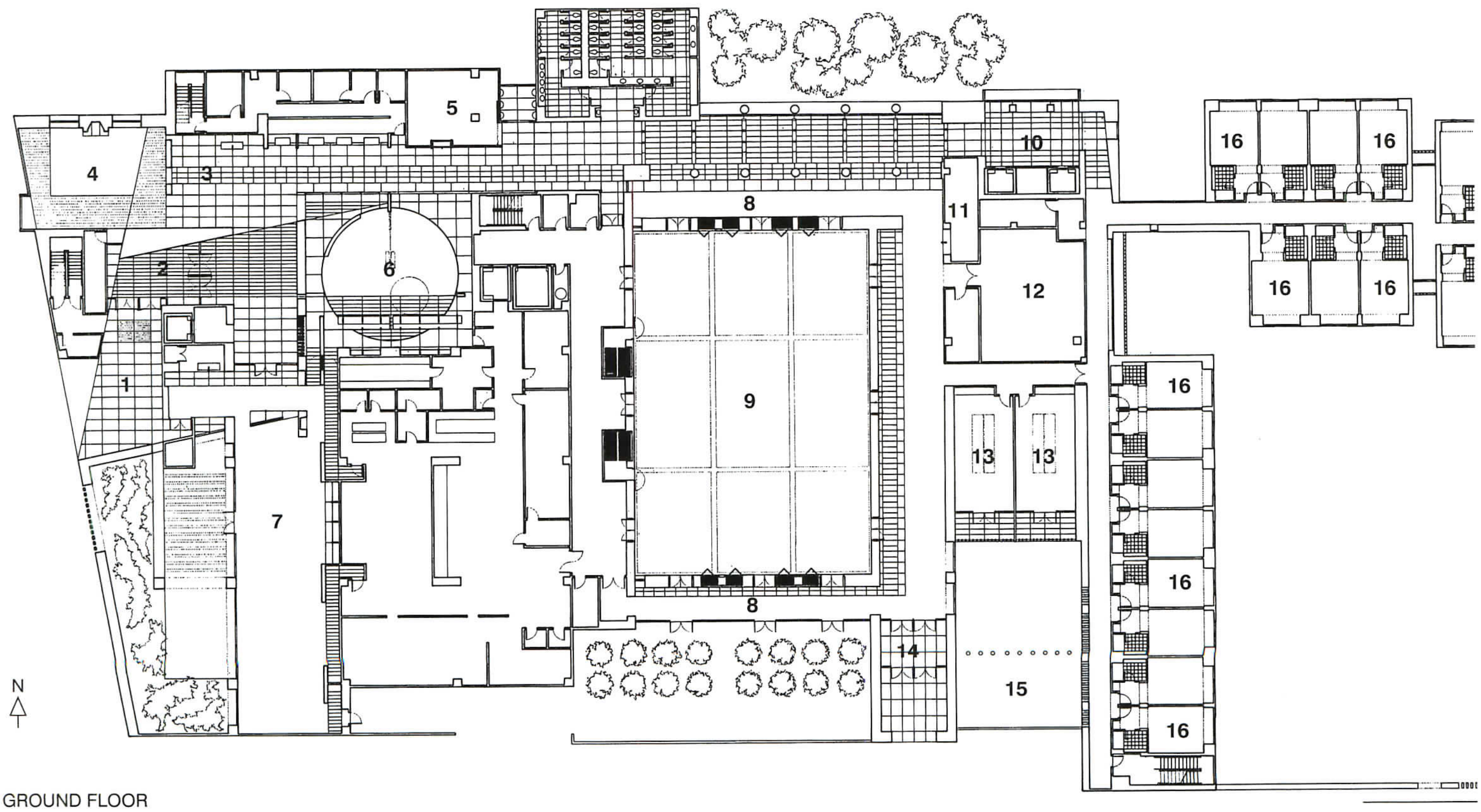
The lobby is actually two spaces: a simple reception area with sofas and high-backed chairs, and a larger living room containing a fireplace, grand piano, and three tall rectangular windows that simultaneously frame the landscape and pull it inside. They are separated by a simple partition with a square window that lines up with another window at the far end of the main corridor. A restaurant is tucked into an adjacent wing—a secluded space with its own outdoor patio. The lounge, on the other hand, is grander than most old-fashioned lobbies. The ceiling is topped by a skylit, asymmetrical cone that visually shifts the center of gravity of the entire room. Below, a light fixture on the end of an I-beam thrusts into the space like an industrial version of a bowsprit. Each wall is a different texture and color. While hardly an intimate or cozy space, the lounge is comfortable and consistently provocative.

Lauren Rottet, former head of SOM's interior design studio (she and partner Rick Keating recently left the firm's Los Angeles office to start their own practice), describes the hotel interiors as informal. Compared with the dark, bankerish interiors of most Marriotts, they are; heavy moldings and dense overlays of materials are nowhere to be seen. But the interiors are also highly stylized, a cerebral counterpoint to Legorreta's more visceral designs. With their framed views and concatenation of columns, vaults, freestanding walls, and other architectural fragments, the spaces reveal the influence of modish Deconstructivism as well as earlier experiments by Robert Irwin and other minimalist artists.

The Solana Marriott contains only 200 rooms, and will serve mainly IBM and the other corporations that will eventually move to the development. A proposed new wing will add another 100 rooms and give the exterior patios and courtyards greater definition. Even then, the hotel will remain an intimate and unconventional business hotel, a reward for

The massiveness of the exterior is relieved by bursts of intense and surprising color (top right and facing page, top) and by the presence of stunning individual artifacts, such as landscape architect Peter Walker's enigmatic misting fountain (facing page, bottom). Even the utilitarian porte cochère contains surprises (right and bottom right). The lobby consists of a simple reception area and a grander living room (following pages, top left) linked by a dramatic wall of green marble (following pages, top and bottom right).





GROUND FLOOR

1 PORTE COCHÈRE
2 VESTIBULE
3 FRONT DESK
4 LIVING ROOM
5 GIFT SHOP
6 LOUNGE/BAR
7 RESTAURANT
8 PREFUNCTION
9 BALLROOM
10 ELEVATOR LOBBY
11 COAT ROOM
12 STORAGE
13 BOARDROOM
14 VILLAGE CENTER ENTRY
15 WATER GARDEN
16 GUESTROOM

travelers going out of their way.

And so it should be. When developer Robert Maguire assembled his architects and planners six years ago, he made it clear that they were not designing another new town or suburban office park. For better or worse, they were all going into the country to make art, and would draw as much from that rural context as possible in the 1980s.

The participants responded by jettisoning a lot of conventional baggage. IBM, typically a white shirt, salute-when-you-speak corporation, became a partner in a project that looks more like a Caribbean resort than a suburban office development. Marriott Corporation shook itself out of its leather and mahogany mode. The individual designers (Ricardo Legorreta, Mitchell/Giurgola, Peter Walker/Martha Schwartz, and Barton Myers) threw themselves into a collaborative maelstrom ("a tag-team match" one of them called it) that bruised some egos, but generated fresh and stimulating work from all the architects and landscape architects.

One of the innovative features of the development is a gateway marked by magenta and yellow pylons that both welcomes and tames the automobile. The architects persuaded the balky Texas Highway Department to allow them to incorporate overpasses and off-ramps as part of a series of landscaped outdoor rooms, with fountains and flowering shrubs, that create a dramatic sense of arrival in the middle of nowhere.

Those who drive through to the IBM headquarters find another surprise. Two long, low parking garages with arcades and double rows of trees create a baroque forecourt for the office complex. Instead of being appended crudely to the backs of buildings, the garages have been arranged to make public spaces. Both features should be studied by every office park developer in the country.

Meanwhile, Maguire Thomas Partners is still trying to attract additional corporate tenants to Solana, and has reportedly missed several because it was unwilling to sell its land or compromise its design guidelines. That's a big gamble in a flat real estate market, but Robert Maguire has said from the beginning that he is prepared to hold out for tenants who share his long-range goals. The new Solana Marriott demonstrates that waiting pays off. ■

—David Dillon

Instead of a grand central lobby, the architects created a series of discrete interior spaces that unfold like episodes in a mystery novel. These include a cocktail lounge with a 40-foot beehive ceiling (facing page, top), a vaulted corridor that terminates with a dramatic, square window (facing page, bottom), and a hotel reception area illuminated with floor-to-ceiling picture windows (top left). The Solana Marriott's interiors celebrate low axial views onto the landscape, both across the lobby (center left) and along corridors (bottom left), intensified by an abundance of natural light.

SOLANA MARRIOTT
WESTLAKE, TEXAS

CLIENT: Maguire Thomas Partners and IBM
DESIGN ARCHITECTS: Legorreta Arquitectos, Mexico City, Mexico—Ricardo Legorreta (principal-in-charge); Max Betancourt (project architect)
INTERIOR ARCHITECTS: Skidmore, Owings & Merrill, Los Angeles, California—Richard Keating (partner-in-charge); Lauren Rottet (director of interiors); Michael Mann, George Metzger (project managers); Katherine Millan (senior interior designer); Michelle Marks, Drew White, Cory Ticktin, Bruce Stewart, Elizabeth Guthrie (design team)
EXECUTIVE ARCHITECTS: Leason Pomeroy Associates, Irvine, California—Leason F. Pomeroy III (partner-in-charge); Steve Kendrick and Greg McCants (project managers)
LANDSCAPE ARCHITECT: Peter Walker & Partners
ENGINEERS: CBM Engineers (structural); BLUM Consulting (mechanical and electrical); Carter & Burgess, Inc. (civil)
GRAPHICS: Skidmore, Owings & Merrill/San Francisco, California—Debra Nichols (principal)
GENERAL CONTRACTOR: HCB Contractors
PHOTOGRAPHER: Peter Aaron/Esto


EXIT

Circle 66 on information card

Saving Face

PRESERVATION:
CURTAIN WALL RESTORATION

Repairing early cladding systems requires an understanding of their construction methods and materials.

WHILE CONTEMPORARY CLADDING SYSTEMS are clearly understood, the origins and development of curtain wall technology are less familiar. With restoration work of these early curtain walls now being undertaken by firms across the country, it is important to develop an understanding of the terminology as well as the technology.

The technological concepts that formed the basis for early curtain walls of metal and glass were established by the end of the 19th century. The first generation of skyscrapers, however, was primarily clad in masonry—particularly terra cotta. In these early masonry towers, the structural frame remained incorporated into the exterior wall, although the cladding was supported on the frame independently, providing the "hung" characteristics of later metal and glass curtain walls. The turn-of-the-century preference for masonry was most likely driven by an ongoing concern for fireproofing. Vestiges of this concern are evident in the metal and glass walls constructed directly after World War II, wherein glass spandrel panels were frequently backed by masonry block walls.

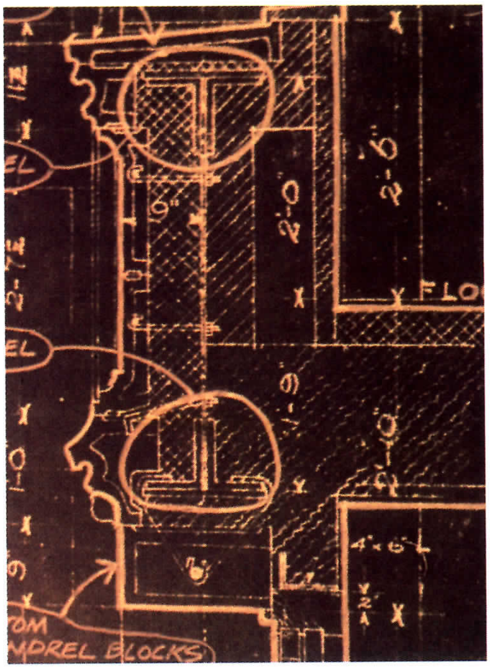
This first generation of masonry-clad high-rise buildings is still evident in many downtowns. Examples range from D. H. Burnham & Company's 1895 Reliance Building in Chicago to the Cass Gilbert-designed Woolworth Building (1911-1913) in New York City. Glazed areas reached substantial dimensions in some of these early skyscrapers, as is evident in the McClurg Building in Chicago, designed by Holabird and Roche in 1899. While this building is often described as featuring one of the earliest curtain walls, the steel structural columns remain incorporated in the exterior wall masonry.

Glass and metal cladding in the second half of the 19th century found application mostly in low-rise structures such as the cast-iron fronts of commercial and industrial buildings. In the U.S., early commercial structures such as the recently restored Boley Building in Kansas City, designed in 1908 by Louis Curtiss, or the Hallidie Building in San Francisco, designed in 1917 by Willis Polk, exhibit a structural frame well set back from the glass and metal exterior wall. Glass and metal curtain walls did not, however, reach maturity until the 1940s and 1950s. The esthetic requirements of the Modern movement and the desire to simplify the construction process by eliminating the "wet trades" led to the abandonment of the earlier masonry curtain walls. Furthermore, industrial growth during World War II subsequently provided the necessary technology, manufacturing

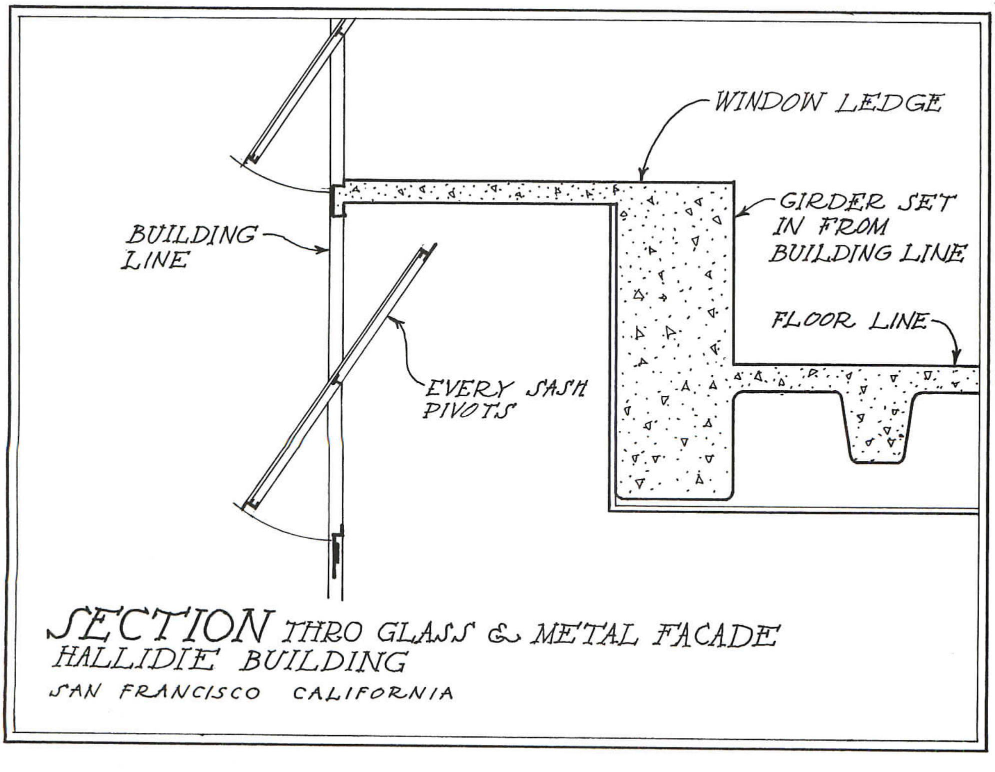
PETER MAUSS / ESTO

Woolworth Building, 1913
New York City
Cass Gilbert

No relief joints were provided in the curtain wall of the Woolworth Building; terra cotta was supported directly on structural steel and backed with common brick. In the spandrel sections (far right), deterioration and subsequent cracking occurred because of corroded anchors and supporting steel. Since masonry was tightly packed against steel (right), only minimal corrosion was sufficient to cause cracking. In addition, the inadequate detailing of the window sill allowed moisture to penetrate through the joints at the top of the sill to the steel directly below. Not only was it necessary to replace the cracked sill units, but a full through-flashing was installed to protect the top flange of the steel beam.



RUSSELL ABRAHAM



capability, and marketing to make the technological developments possible.

Post-World War II curtain walls are represented by many well known architectural landmarks. The recently restored Equitable Building in Portland, Oregon, designed by Pietro Belluschi in 1948, is considered one of the earliest postwar curtain walls. Lever House, designed in 1952 by Skidmore, Owings & Merrill, and the 1954 Seagram Building by Ludwig Mies van der Rohe and Philip Johnson are other famous examples.

Typical construction

EARLY MASONRY CLADDINGS SHARE A number of distinct construction principles. Masonry was generally supported on a structural frame on a floor-to-floor basis by secondary structural members. However, proper shelf angles and expansion joints were not provided. The exterior wall had a thickness of 12 to 24 inches, consisting of a facing material and a backup system. The most common facing materials—terra cotta or glazed brick—were applied either separately or in combination. Common brick or structural clay block was connected to the facing by mechanical means such as metal anchors and keying of masonry units. Metal fasteners were painted or galvanized, and strips of flashing protected structural steel lintels or supports. The whole system relied on its redundancy for structural rigidity and watertightness. Glazed portions of these early curtain walls consisted of operable windows of substantial size, usually double hung, constructed of steel or Kalamein.

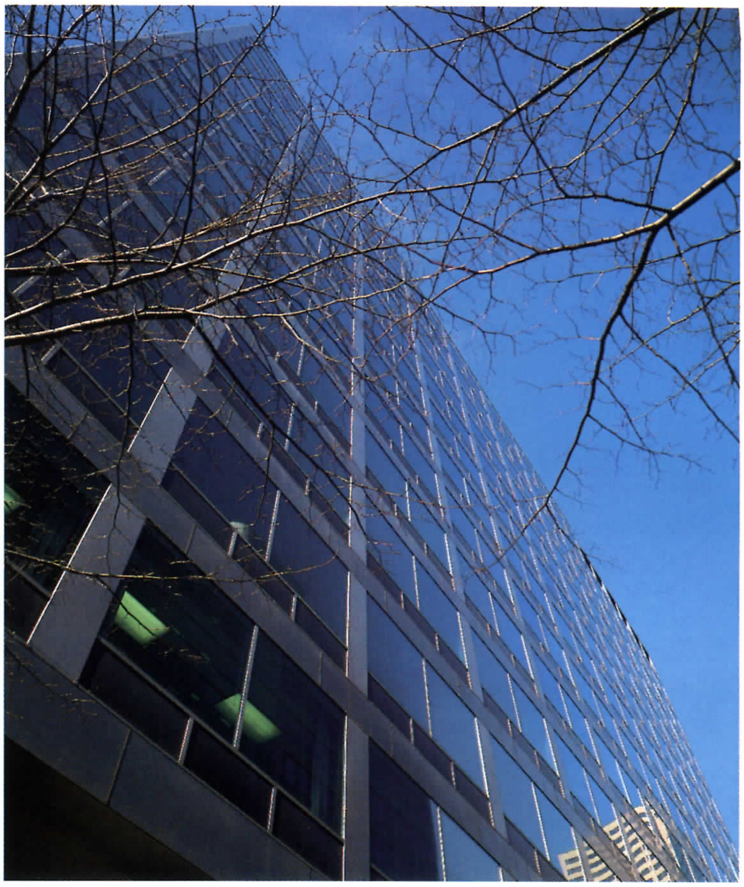
Pre-World War II claddings of metal and glass were generally assembled from industrial steel window systems, as in the Hallidie Building, or from a combination of cast-iron members and traditional window sashes, as in the Boley Building. As a result, these systems were limited in their spans of glass, and their inherent rigidity was sufficient to require no special measures for stiffening. The curtain wall systems constructed after 1945 generally fall within two types: either a panel or a grid system (also known as a "stick" system), differing in fabrication and installation methods.

Unlike earlier masonry claddings, curtain

Hallidie Building, 1917
San Francisco, California
Willis Polk

As an example of early curtain wall construction, the Hallidie Building (top left) offered maximum glazed areas and optimization of open floor area. The exterior wall is cantilevered out from a reinforced concrete frame by as much as three feet. The wall itself is constructed from a four-foot square, single-glazed steel industrial sash, with horizontally pivoted sections (left).

ED HERSHBERGER



ED HERSHBERGER

Commonwealth Building, 1948
Portland, Oregon
Pietro Belluschi

Originally known as the Equitable Building, the structure's curtain wall consists of insulated glass and aluminum panels mounted directly on a concrete frame and held in place by $2^{1}/_{2}$-by-$1^{1}/_{2}$-inch steel angles. Uninsulated spandrel panels and fasciae are constructed of $^{1}/_{4}$-inch cast aluminum and $^{1}/_{8}$-inch steel aluminum. Soderstrom Architects of Portland recently restored the lobby and inspection of the curtain wall revealed some cracked and broken glazing units that were replaced with similar glass.

walls of the 1940s and 1950s were often highly experimental in design. New, untested materials and systems were utilized. Typically, frames were constructed of steel, stainless steel, aluminum, or bronze. The transparent glass sections of these curtain walls featured both single and insulated glazing, while the opaque sections were made of colored wired glass, sheet metal (usually with some form of insulation, including porcelain enameled sheets), and stone.

During this period, jointing materials were also the subject of experimentation. Available caulkings and sealants were not always satisfactory since they had a lifespan of only three to five years. Newly developed sealants in the 1940s included polysulphides (also known as Thiokol) and gaskets of PVC or neoprene.

The design of the curtain wall system itself evolved through a great many variations. Most systems, called "face-sealed," were based on the principle of keeping moisture out altogether. The system relied on the wall being completely watertight with little or no water penetration. To control moisture infiltration and condensation, weepholes and flashing were provided at spandrel level. The principle of the so-called rainscreen, in which a cavity wall is employed to resist wind-driven rain, provided a primary and secondary system for preventing water entry. In addition, most of the earlier systems had little or no provision for separating the inside and outside of the metal mullions—no thermal breaks—to prevent internal condensation.

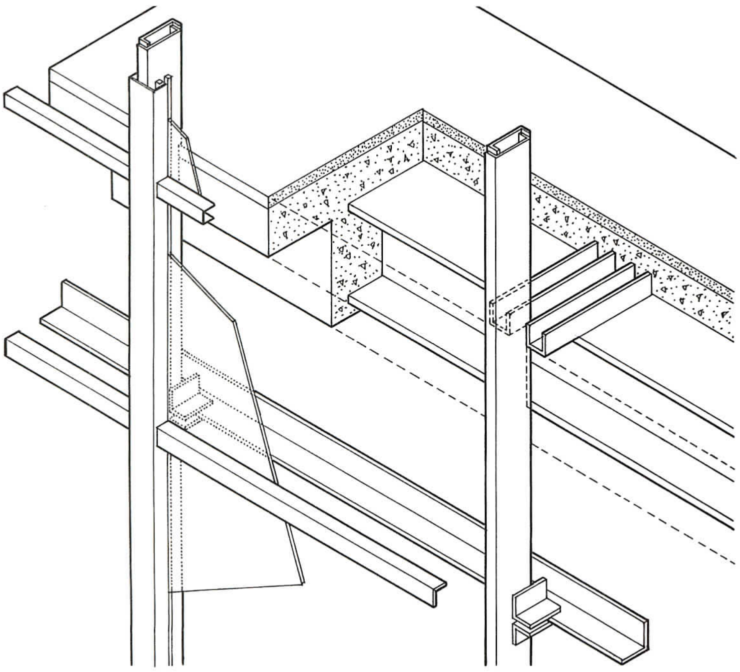
The structural requirements of curtain walls had to be quite different than those of earlier masonry claddings. While masonry claddings were inherently rigid, metal and glass walls required stiff mullions to eliminate unnecessary flexing or bending of the facade. Mullions were designed as either distinct vertical or horizontal elements on the exterior of the wall, or concealed behind the cladding. Rail or panel units were anchored to the structural system by concrete and steel, or by a system of steel connectors, clips, or brackets that allowed for adjustment due to structural shifts. Such mechanical fasteners allowed the curtain wall to be independent from the structural frame, thereby further shortening construction time. In addition, concrete block walls were frequently constructed behind opaque spandrel sections of the wall to meet fire codes.

Cladding investigations

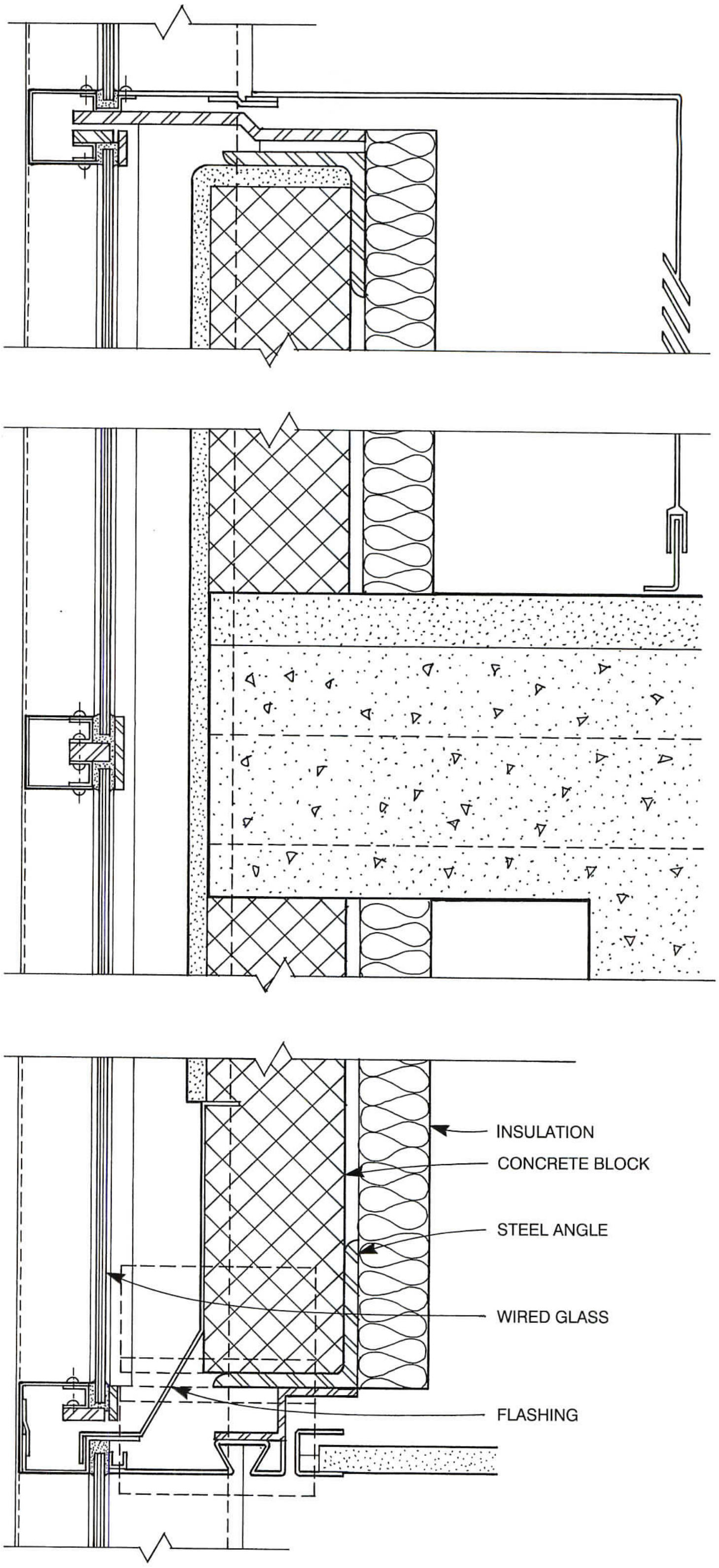
INVESTIGATIONS OF THE FAILURE OF EARLY curtain walls require a thorough study of surviving documentation as the first step in developing a comprehensive understanding of the problem. A detailed site investigation is the next step, to record conditions of the wall exterior for later retrieval and study. Failure of different components or materials should be noted. Generally, this will involve all signs of displacement, cracking, breaking of units and elements, or the opening of joints. Failures of particular elements, such as sealants, caulking, or pointing materials, should also be recorded. Documentation can be made both photographically and graphically. In addition to an exterior survey, interior conditions should be reviewed and all signs of failure or moisture infiltration should be included for correlation to outside conditions.

Where questions arise about specific causes or origins of the failures, additional investigations may be required to arrive at a proper assessment. These studies consist of two basic types: removal of selected sections to expose subsurface or otherwise concealed conditions; and testing of specific characteristics of materials and systems, including water and air infiltration and excessive pressures on the building skin. Specific materials should be removed for a more detailed analysis and assessment in the laboratory. The method of testing depends on the type of construction and failures to be investigated. All this information is necessary to assess the observed conditions and to arrive at effective

EZRO STOLLER / ESTO



DETAIL OF STEEL GRID



VERTICAL SECTION THROUGH SPANDREL SHOWING BACKUP WALL DETAIL

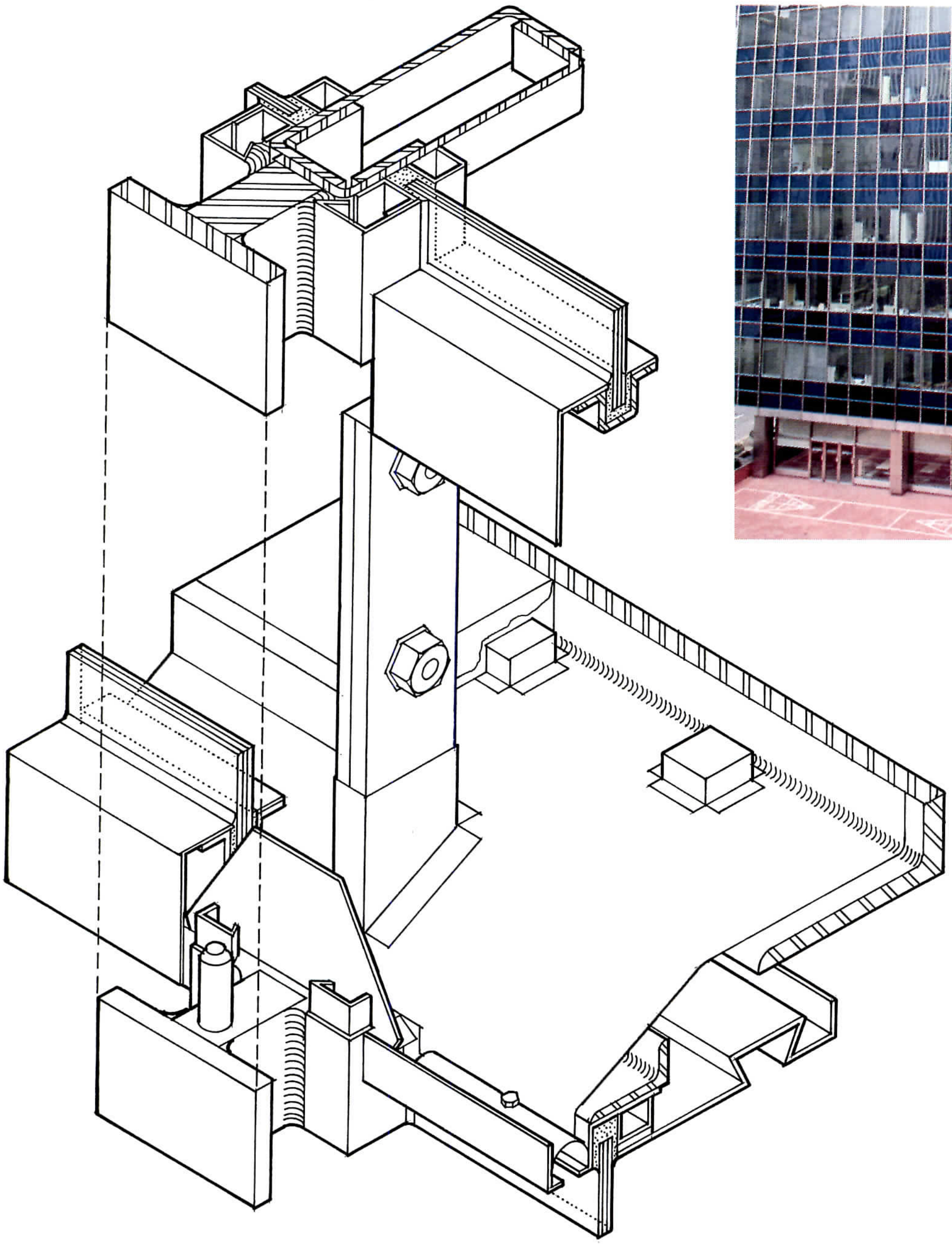
and cost-efficient repair solutions.

Once completed, the investigation should determine the specific causes of curtain wall failures. These failures may be attributed to a number of basic causes, including: movement, moisture infiltration, joint and sealant systems, and finishes.

External forces

MOVEMENT, PARTICULARLY WHERE THE structure is restrained, is a major cause of curtain wall failure. Structural movement can be caused by wind loading, substantial temperature changes, deflections of the structure itself, or excessive corrosion. Early masonry claddings were especially susceptible to movement because of the brittle nature of the masonry and the general lack of expansion joints. Masonry that is integrated into the structure and restrained by supporting members may develop vertical cracking or dislocation of wall sections because of extensive temperature differentials.

In addition to thermal stresses, fired clay materials like terra cotta expand because of moisture absorption. If the material is restrained, the expansion may cause considerable buildup of pressures in the exterior wall. The absence of expansion provisions will result in problems similar to those caused by temperature expansion. Where these stresses caused by both thermal and moisture expansion combine, the effects are even more severe and can result in cracking and failure of the individual units. Early terra cotta claddings, such as those used in the



DETAIL OF CURTAIN WALL

BARBARA KAARS

Lever House, 1952
New York City
Skidmore, Owings & Merrill

Lever House (facing page) provided the basis for a generation of curtain walls across the country. A vertical grid of double steel channels (facing page, bottom left) is secured between two steel sections welded to the top flange of the steel spandrel beam. The spandrel is faced with wired glass (facing page, right), in front of a backup wall of concrete block. The curtain wall is insulated on the inside face; the exterior is vented and flashed to drain out water. Extensive use of steel reinforcement and connectors (left) makes the wall susceptible to corrosion by moisture—particularly at the spandrel level where vertical mullions are attached to steel beams. Buildup of corrosion constricts the movement of the glass, causing breakage. As a result, some panels had to be replaced, as seen in the color variation of the spandrels (above).

Woolworth Building and in other skyscrapers of the period, have been known to experience such severe stress buildups.

The effect of wind loading on masonry cladding is usually minimal. Provided the structure itself is sufficiently rigid, masonry will not experience any significant movement or flexing because of its weight and thickness. The only wind-related damage may be wind-driven rain penetrating the structure, particularly at the window perimeters.

In buildings with metal and glass curtain walls, the effects of wind loading can be more severe. Early metal and glass enclosures have little or no expansion provisions, and because of their limited height, inadequate provisions originally did not present a major problem. However, a window wall that is insufficiently rigid will experience continuous flexing. This bending may cause breaking and failure of window seals and glazing systems. At worst, it may cause the entire wall to fail structurally.

Moisture infiltration

THE INFILTRATION OF MOISTURE IS ONE OF the major causes of failure in any sort of exterior cladding system. However, the causes and the impact of the failure will vary depending on the type of system. In most instances, moisture infiltration will be the result of the failure of joint or sealant systems.

Water entering early masonry facades may directly affect structural safety by corroding embedded metal anchors and supporting steel. The rusted metal will initially cause the facade masonry material to split and crack, allowing more moisture to enter; when sufficiently advanced, serious structural failures may occur. In addition, saturation of the masonry may eventually lead to further damage from freezing and thawing, and to coating failures.

In some instances, serious damage may have occurred on the exterior even before interior finishes are affected. But when moisture penetration is noticed on interior finishes, the curtain wall failure can usually be explored before major structural damage occurs. Moisture entering the wall system may also affect the thermal performance of the spandrel panels by soaking the insulation.

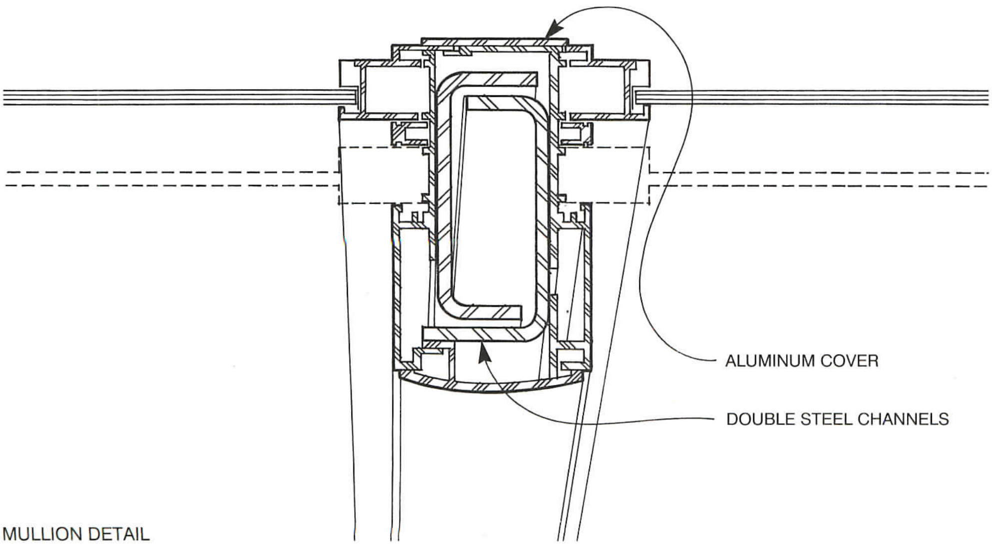
Condensation is not commonly a problem in masonry claddings because of the thickness and thermal capacity of the wall. However, condensation may have serious effects on metal and glass curtain walls. Condensation may occur inside the wall system due to mullions that lack thermal breaks, are insufficiently insulated, or are single-glazed.

Failure of joint systems is the most common cause of moisture infiltration. In early masonry cladding, both mortar joints and joints around openings are at risk. Joint failure is most severe and immediate in metal and glass curtain walls. Early caulkings, sealants, or gaskets are particularly susceptible. The very nature of the materials—once predicted

EZRA STOLLER / ESTO PHOTOS

U.N. Secretariat, 1947-1950
New York City
Wallace Harrison and Max Abramovitz

Designed in consultation with a board of international architects, the curtain wall of the United Nations Secretariat (above) is composed of structural steel channels as stiffening elements for vertical mullions, covered by aluminum sections (below). In addition, stiffening is provided by the introduction of aluminum sections that are either expressed on the exterior or recessed into the interior. This type of application is typical for later curtain wall designs when aluminum became the preferred metal. Like the design of Lever House, a block wall at the spandrel level was constructed behind the tempered, wired glass sections of the curtain wall. Unlike Lever House, however, the building features operable, double-hung windows of insulated glass (right).



MULLION DETAIL

to last as long as 50 years—makes them highly vulnerable to deterioration caused by temperature changes and ultraviolet light. Even a minimal failure will have far-reaching effects because of the lack of redundancy in most of the designs.

Finishes

EARLY MASONRY-CLAD EXTERIORS GENERally show signs of age in their accumulation of soil and dirt, even though cleaning these surfaces is a well accepted practice. In glazed brick or terra cotta claddings, the glaze may fail and scale off as a result of entrapped moisture and subsequent freezing and thawing. Preventing moisture penetration is the best way to deter further glaze deterioration.

Exposed metal mullions and opaque spandrel panels may show deterioration of their original finishes. The damage will depend on the metals, but will usually result from dirt accumulation and the resulting abrasions of the surface finish. Early stainless steel is relatively unaffected by atmospheric conditions and is easy to restore. Anodized aluminum finishes and porcelain enamel panels are more obviously affected, since the anodized surfaces may become etched and pitted by contaminants or improper cleaning. Porcelain enamel panels may develop rust on the steel substrate, causing the porcelain finish to fail. Ironically, the initial cause of damage is often caused by impact during repairs.

Panel repair and replacement

REPAIR OF EARLY CURTAIN WALL SYSTEMS can be divided into several categories following deterioration patterns. However, any repair must be combined with continued maintenance of the outside walls. In masonry-clad buildings, failed panels can be easily repaired or replaced. Where the existing panels can be salvaged, additional anchoring and ties may be necessary.

Where the panels cannot be retained, new units must be installed, and original materials or cast stone units are preferable. Depending on the configuration and structural function of the broken panels, substitute materials such as glass-fiber reinforced plastics or concrete, as well as metals, are commonly used. Special anchoring and support systems will also have to be designed, and weathering or performance characteristics must be considered carefully.

Before broken units are replaced, the underlying cause of the failure has to be corrected. Where failures are caused by corrosion of support or anchoring, the metals must be exposed and the rust removed. Where corrosion is too far advanced, the metal may have to be reinforced or replaced.

High stresses also need to be reduced before any other repairs are undertaken—

Continued on page 114

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Curtain walls *from page 110*

particularly in cases where excessive stress contributed to the curtain wall failure. By making regularly spaced horizontal cuts in the masonry joints to the full depth of the cladding units, most of the pressure can be removed. The resulting cuts can be subsequently repointed with an appropriate mortar.

In metal and glass curtain walls, individual units are much more likely to fail. The metal will not break or crack, but distortion can affect the wall's weathertightness. Where this failure is the result of excessive flexing, reinforcement may be required.

Repairing joint systems

MOISTURE INFILTRATION IN MASONRY WALLS can be easily prevented by repointing masonry units on a regular basis. Where the damage is due to cracks or insufficient protection of horizontal surfaces, proper caulking or installation of additional flashing will offer adequate solutions.

In metal and glass curtain walls, moisture infiltration is a common occurrence and can usually be traced back to a failure in the joint systems. Partial dismantling of the wall to expose the sealant systems may be necessary to expose the failed sections; however, the precise approach will depend on the system used. A careful, ongoing repair program is the most effective deterrent.

Repairing finishes

TO REPAIR GLAZED MASONRY SURFACES, A localized application of a contemporary coating system is usually sufficient. Recoating the complete surface is ineffective and is likely to add additional and unnecessary maintenance. Original metal surfaces can also be restored. Anodized aluminum can be refinished by removing accumulated dirt and applying a clear finish. Painting such finishes is often ineffective—paint has only a limited lifespan and has to be part of an ongoing maintenance operation. Porcelain enamel must be spot-repaired by removing corrosion and applying an appropriate coating. As in the case of other glazed surfaces, complete coating of porcelain enamel is not usually necessary. Stainless steel surfaces can be repaired simply by rebuffing affected panels.

Maintenance procedures

ONGOING MAINTENANCE IS CRUCIAL TO THE continued life of curtain walls. Too often, curtain wall failures are more the result of deferred work than any design or material flaws. It costs more to correct failures than to implement a maintenance procedure, which should consist of detailed records, regular inspections, and maintenance schedules.

Upon completion of a substantial repair project, data and records of construction should be compiled in a logical format to facilitate future retrieval. This data should include as-built drawings, specifications, cut sheets, and product information. Records of project costs can be used in the future for preparing estimates of repairs.

Periodic inspections are necessary to assess building conditions on an ongoing basis. The inspection should occur at regular intervals, and should follow a prescribed format. In addition, a maintenance schedule can be developed to track associated repair costs, which ultimately become an invaluable tool in budgeting for future work. By developing a comprehensive maintenance plan, the initial architectural investment can be protected so that a building's value can be extended well into the future. ■

—THEODORE H.M. PRUDON

Theodore Prudon, Ph.D., AIA, is the director of preservation at Swanke Hayden Connell in New York and teaches at Columbia University.

TECHNOLOGY & PRACTICE

Documenting History

PRESERVATION:
CONTRACTS

Restoring historic buildings requires expanded services and a closer look at compensation and liability.

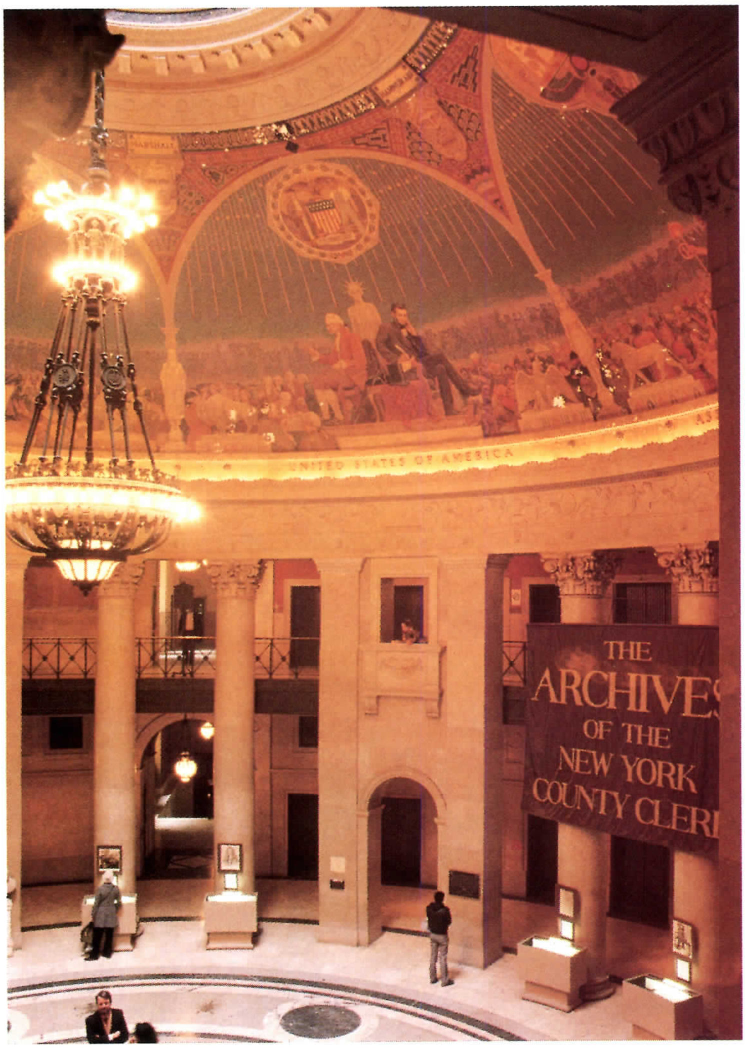
In restoring the New York County Courthouse (below), Wank Adams Slavin Associates (WASA) was responsible for coordinating specialized trades for services, including stained glass (below center), ornamental metalwork fabrication, and marble cleaning.

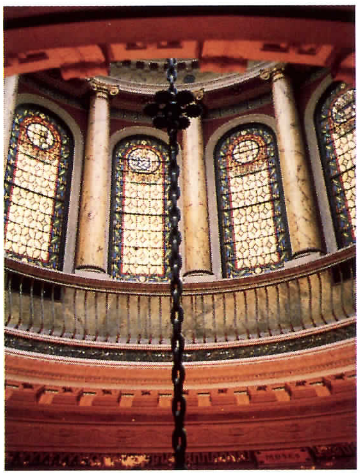
INCREASED ATTENTION TO RENOVATION, preservation, restoration, and adaptive reuse projects over the past decade has changed the built environment and influenced the practice of architecture. A commission or proposal for altering an historic building requires special procedures that are not part of the standard process of designing a new project. With increased demand for preservation-related services, architectural firms have added or developed specialized in-house staff members experienced in dealing with historic structures. But even if the practitioner is well-versed in the complete services necessary to assess the skills and effort required for restoration and rehabilitation projects, the owners of such buildings are not always aware of the architect's responsibilities.

A new type of client

THE BOOM OF RESTORATION PROJECTS IN the 1980s, encouraged by local and federal tax incentives, helped prove the economic viability of preserving historic buildings. But with that awareness, the motivation for improving existing buildings shifted from accurate restoration or preservation (initiated primarily by institutions such as the National Park Service) to reviving old buildings for a purely commercial advantage, as a more economic alternative to new construction.

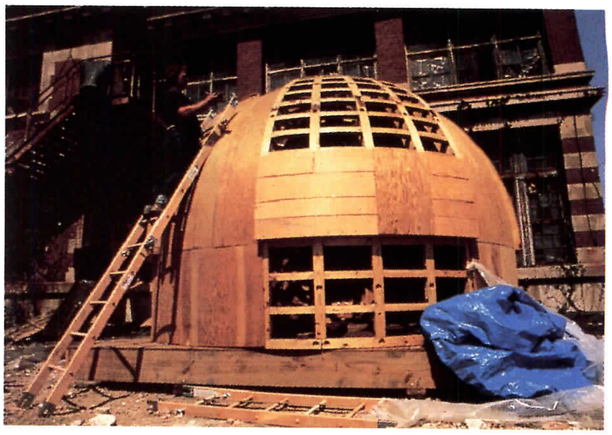
Page Cowley, director of historic preservation with Beyer Blinder Belle, notes that since the end of the 1970s, the firm has witnessed the emergence of corporate clients, for whom development of existing buildings was limited until tax incentives aided their





WASA supervised the restoration of Tiffany chandeliers (above right), bronze-framed windows, and decorative painting by art conservators, including testing for cleaning procedures (below).

PETER AARON / ESTO



In addition to designing improvements, restoration work demands on-site presence to record existing conditions and determine what elements can be salvaged and what must be replaced. For the four towers atop the main building at Ellis Island (left), the architects decided that the wooden framework could be repaired (above), but the copper cladding would have to be replicated.

rehabilitation. The public's increased concern for and appreciation of historically significant structures was an additional incentive, and tourists were drawn to such redeveloped buildings as Union Station in Washington, D.C., Faneuil Hall in Boston, and Ghirardelli Square in San Franscico.

But a client uninitiated in the design and construction process, or an owner experienced only in developing a new property, may often have misconceptions as to the architect's services and responsibilities for preservation projects. As more becomes known about the physical condition and construction of an historic building, it may be necessary to expand an architect's services during the project's development. The role of the architect must be defined with the understanding that, if circumstances change, the contract includes provisions with contingencies for adjusting fees. Unless identified and established before performing the work, additional services may cause a misunderstanding between architect and client, making later compensation difficult.

Defining services

THE MOST COMMON FORM OF AGREEMENT between an owner and an architect is the AIA contract document B141, which outlines five phases of architectural services: schematic design; design development; construction documents; bidding and negotiation; and construction contract administration. In the standard contract, typical design services provided by an architectural firm are bracketed by predesign and construction duties that are frequently the responsibilities of the owner and contractor. Preservation projects, however, require expanded on-site presence, and more frequent coordination with contractors. Such sitework is also important in resolving unforeseen circumstances due to hidden conditions of existing construction.

The design and documentation phases of service for a typical restoration project are also more extensive than for a comparatively sized, newly designed project. George M. Notter, Jr., principal of Notter Finegold + Alexander, the firm that collaborated with Beyer Blinder Belle to restore and adapt Ellis Island (page 21) relates, "All good architecture, old or new, has a special quality. In new buildings, the architect can create it; in old buildings the architect must discover it. The additional dimension lies in evaluating existing systems."

Expanded role

ONE OF THE FIRST STEPS IN DEFINING THE architect's role within a preservation project is to initiate an historic structures report, which traces the evolution of building modifications through original documentation and existing drawings. The physical condition of an existing structure must also be evaluated to determine what is to remain and define a preliminary scope of work. Contractors may rely on this report to understand construction methods and material composition that differ from contemporary techniques. An architect dealing with an existing structure from the time of initial testing may be responsible for determining the amount of testing necessary and for directing a contractor in the location and number of exploratory probes. All of this predesign work is an additional phase of preservation planning that should be addressed in the contract.

"The need has developed for establishing guidelines for preservation contracts," observes Gerald R. Farquhar, a consulting attorney with the Victor O. Schinnerer Company, the insurance firm commended by the AIA that specializes in architectural and liability issues. Currently, however, there is no specific language for preservation contracts within the AIA's standard forms of agreement. Therefore, provisions outlining services become all the more essential, and a clear understanding of exactly what work is expected must be developed between owner, contractor, and architect.

Standard provisions do exist, however, for defining supplemental services, or those that are considered to be beyond the average range usually provided by the architectural profession. Many of the services essential to the success of a preservation project are described in AIA's contract document B161 and its companion B162. Services such as outlining methods and documenting mock-ups and materials studies, including review of test results, often become a part of preservation. Quantity surveys and detailed cost estimates, which in new buildings are usually left to the contractor, become the responsibility of the architect, since the architect's judgment is required to decide what part of the historic structure remains, what is to be restored, and what is to be replaced.

As Kate Ottavino, an associate of the New York firm Ehrenkrantz, Eckstut & Whitelaw points out, the lack of consistency in construction and material sizes requires experimentation in recreating building elements through mock-ups and molds. The number of molds and sample details needed for study and testing is variable, depending on the amount of unfamiliar or inconsistent elements encountered. Mock-ups can demand additional services in several phases of the project, from design and documentation of details and materials to be replicated, to administration and monitoring their construction, to analysis of the results.

Architects may also be expected to coordinate the pricing and contracting for mock-ups. Since the amount of materials salvaged, removed, restored, and replaced can effect cost, quantity surveys of the project to determine the basis for bidding and negotiation may be added tasks of the architect. Due to unforeseen conditions, contracts should have provisions for adjusting sums by providing for unit pricing rather than a fixed price. But added contingencies and allowances may require more continuous development of detailed construction cost estimates during all phases, to monitor expenditures so that a project is completed within the budget.

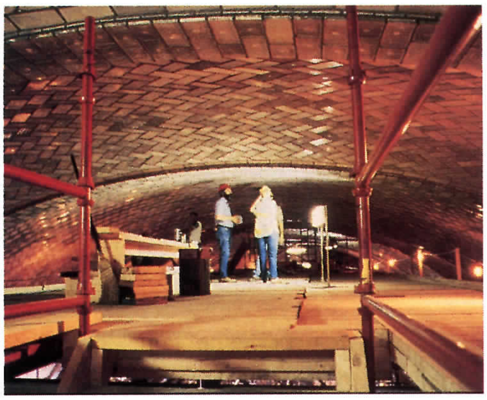
Contract drawings and specifications

BEYOND THE EXPANDED ROLE OF THE ARchitect, services typically provided by a practitioner are also more extensive. Original drawings are not always available, and changes to the structure over time are often not recorded, so there may be no accurate "as-built" record. John Belle adds that there is often "surprisingly little information on the drawings that do exist." He attributes the lack of documentation to the architect's close relationship to building construction in the past, similar to the role the current preservation architect must assume.

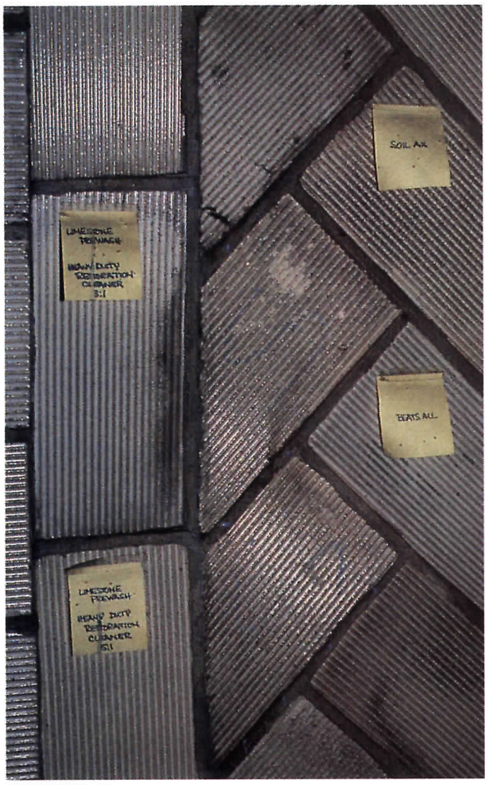
With the need to address every surface in a preservation project, a complete set of drawings for an existing structure is more extensive than for a new building of equivalent size. A set of "as-builts" recording the existing condition before modifications requires an additional set of drawings. The lack of uniformity in material sizes and composition requires more extensive documentation. Standard construction details are often not applicable to an historic structure.

The scope of work, defining the location and quantity of preservation services to be performed, must be identified so that contractors may determine accurate costs in bidding on a project. For example, repointing 1,000 linear feet of brick grouped on one wall differs in terms of time and expense from performing the equivalent quantity of repointing in sections throughout the same building.

For specifications detailing rehabilitation and restoration of historic properties, Cowley explains that "to simply state 'match existing' just isn't good enough." To establish a standard, preservation architects often need to research previous construction methods and material composition. As Chicago architect John Vinci notes: "You cannot go to Sweets catalogs for historic product information." Specifying without a manufacturer's warranty or performance history presents greater risks in assuring consistency and quality of preservation work. Restoration requires more extensive observation and description of re-created elements, in addition to careful examination of sample submittals, to ensure the desired results.



NICK CERRULI



In preserving Ellis Island, Beyer Blinder Belle and Notter Finegold + Alexander provided a full range of services, from restoring original elements to adapting spaces for new uses such as a museum, theaters, and restaurants. The architects began the project by compiling information into a 12-volume historic structures report detailing existing conditions and recording the development of building alterations. Not all information pertaining to the original structure, however, could be determined. Since the composition of the plaster was unknown, materials research was necessary to test its existing compostion and re-create its formula. Duplicating existing construction also involved creating molds (top right). Each of the more than 28,000 Guastavino tiles used to construct the barrel-vaulted Registry Room within the main building (below) had to be inspected by the architects (top left) to determine their condition and judge which would be removed. Testing to determine the most appropriate cleaning materials also required monitoring and review (left).

Contract Guidelines

Architects often have increased responsibilities for design and construction services when preserving or adapting historic structures, compared to designing new buildings. For negotiating preservation contracts, defining services and including contingencies are essential to limit liability and ensure adequate compensation. The following issues should be addressed in forming a contract agreement for preservation projects:

- **Ensure complete preliminary testing has been conducted to determine the scope of work, and define responsibility for the accuracy and the amount of testing.**

- **Make sure the owner understands that the preliminary testing can reduce, but not eliminate, hidden conditions.**

- **If an architect is expected to coordinate consultants and craftsmen (whose work is beyond their control), identify who is responsible for their results.**

- **Prevent misunderstandings between owner and architect: explicitly state what services are expected, and define the scope of each service. An understanding of the architect's role will provide an objective basis to modify the original agreement due to changing circumstances.**

- **Supplementary services should be addressed and agreed upon before any service is performed. Otherwise, negotiations for additional compensation may be compromised.**

- **If the scope of additional services cannot be established until enacted, fees for the architect based on time and expense should be agreed upon until the value of such services can be better defined.**

- **Frequently underbudgeted in new construction, an architect's on-site supervision is crucial in preservation projects, from the initial analysis of existing conditions until the finished execution of the plans in the field. Additional fees for time and expenses will be required in all phases of work, not just during construction.**

- **Once field work has begun, discovering hidden conditions in an existing structure is inevitable. Provisions in the contract, such as allowances for unforeseen construction costs in addition to the projected budget, are essential to ensure that adequate funds exist to complete the project.**

Bidding and negotiations

"FINDING SEVERAL CRAFTSMEN WHO ARE qualified to bid and available to perform specialized restoration services can be difficult," laments Bruce Popkin, associate with the New York firm Wank Adams Slavin Associates. Steps must be taken to ensure that the work is performed by those who are qualified. For privately funded projects, the opportunity to prequalify bidders exists by establishing requirements for apprenticeships, guild memberships, and a history of previous similar work. Architects may also be required to review the qualifications of subcontractors hired, to guarantee that they, too, are sufficiently trained. But creating guidelines and reviewing qualifications to ensure competency requires additional time.

The majority of publicly funded projects must be open to bidding by contractors without previous experience in preservation. In such cases, an architect must produce more precise, detailed descriptions of procedures to allow those contractors lacking expertise to perform unfamiliar tasks.

Expanded liability

THE ARCHITECT'S ROLE OF COORDINATOR and the need for more expanded on-site presence creates the greatest risk for assuming additional liability. AIA's standard contracts have reduced responsibility for construction means and methods, in part by redefining the architect's on-site presence from supervision to observation. When involved in the restoration of historic structures, if the architect needs to increase recommendations regarding techniques and sequence of construction, contracts that specifically limit the architect's involvement leave liability for such services inadequately addressed.

An architect is often called upon to resolve unforeseen conditions. Frequent consultation with contractors in resolving conflicts encountered in the field is essential, since routing of plumbing, ducts, electrical wires, and the addition of sprinklers and fire alarms (the location of which is more discretionary in new construction) to conform to codes can damage or alter portions of the building that are to be preserved.

An architect must be conversant in each of the contractor's disciplines, yet cannot be expected to be an expert in the execution of the work. "Restoration services are not a part of traditional design. They require precise, specialized technical knowledge outside the training of architects," explains John Belle. Responsibility for a contractor's results, however, may lie within the architect's legal accountability.

Tackling preservation projects can be a challenging and rewarding endeavor. Budget limitations must be weighed with obligations and regulations to restore an historic structure to its original condition. An architect's guidance to owner and contractor in deciding cost and construction alternatives is an essential component of a successful preservation or adaptive reuse project. With an expanded role, however, there is increased liability. As Theodore Prudon, associate principal of Swanke Hayden Connell Architects remarks, "Preservation projects are riddled with unknowns until chisel is put to stone." ■

—MARC S. HARRIMAN

BARBARA KAARS

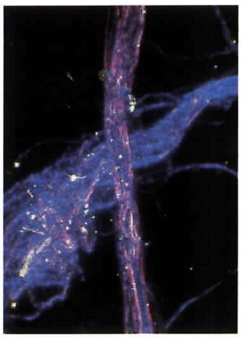
BARBARA KAARS

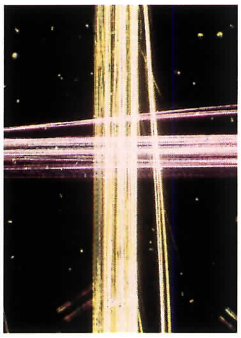
To restore the exterior of the Fifth Avenue Presbyterian Church in New York City (above left), Swanke Hayden Connell Architects first surveyed the visual and technical effects of removing a previously applied coating to the brownstone. Once the owner and architects had agreed upon an acceptable removal procedure, a separate contract was negotiated for defining the scope of documenting and supervising the work (above right).

Up in the Air

PRESERVATION:
ASBESTOS REMOVAL

Recent studies and changes in insurance coverage reflect a new outlook on asbestos and its removal.





COURTESY McCRONE INSTITUTE

Controversy has arisen over a recent report suggesting that exposure to serpentine asbestos (above left) is less dangerous than exposure to the straighter fibers of amphibole asbestos (above right). Depending on the condition of the asbestos, its removal (below) may not be the most appropriate measure.

GAMMA LIAISON

TO REMOVE OR NOT TO REMOVE ASBESTOS, that is the question. But what is the answer? While some well-publicized scientific reports may be clouding the issue, a recently published booklet from the Environmental Protection Agency (EPA) clarifies the agency's position for the building owner. At the same time, recent changes in some insurance policies extend the architect's latitude in handling the problem.

As noted in ARCHITECTURE (May, 1990, page 32), findings published by the Harvard University Energy and Environment Policy Center (EEPC) and in *The New England Journal of Medicine* and *Science* magazine indicate that low-level exposure to asbestos in buildings is not the health hazard that the public has come to believe. Recent studies suggest, in fact, that the incorrect removal of asbestos exposes building occupants, maintenance staff, and poorly protected abatement workers to greater amounts of fiber than if the asbestos were left in place.

ASBESTOS FACT ONE

Although asbestos *is* hazardous, the risk of asbestos-related disease depends upon exposure to airborne asbestos fibers.

In other words, an individual must breathe asbestos fibers in order to incur any chance of developing an asbestos-related disease. How many fibers a person must breathe to develop disease is uncertain. However, at very low exposure levels, the risk may be negligible or zero.

SOURCE: EPA

Researchers distinguish between six types of naturally occurring fibrous substances known as asbestos. Chrysotile (representing about 95 percent of the asbestos already in place in the U.S. today) is a serpentine mineral characterized by curly, pliable fibers. The other five types are classified as amphiboles, a group of complex silicate minerals that produce fibers which, in contrast, are sharp and needlelike. There is some evidence that exposure to chrysotile asbestos is less likely to induce lung disease than is exposure to the amphibole form, perhaps because the serpentine mineral's curved fibers do not become lodged in the lungs as easily.

However, many in the scientific community remain skeptical. Scientists attending the National Asbestos Conference in San Antonio in early 1990 and a New York conference sponsored by Collegium Ramazzini (a society of environmental and occupational health scientists) in June disputed the recent reports. For these scientists, all asbestos should be considered equally dangerous. Dr. Laura Welch of George Washington University Hospital, who presented her study of the risk of asbestos exposure for sheet-metal workers, was one of many who were critical of the controversial study that was reported in *Science*. "It was an annoying article," comments Welch, "It was very manipulative of data."

Interestingly, while the two scientific camps disagree on the dangers of low-level exposure to the general public, they both concur that a prudent approach to asbestos management is to leave undisturbed and undamaged asbestos alone, surveying it on a regular basis to confirm that it has remained undisturbed. The push to remove it immediately—due, at least in part, to the fears of the general public—appears to be unwarranted.

Fortunately, this view parallels the current recommendations by the EPA, which is one

During preservation of the Adriance Memorial Library in Poughkeepsie, New York (top), architects Einhorn, Yaffee, Prescott minimized damage to the asbestos-containing plaster ceiling. In repairing water damage from roof leakage, the architects first isolated a portion of the ceiling that was damaged (second from top). Only the damaged portion was removed, leaving support for the replacement plaster (center photos). Eventually, the repaired ceiling will look exactly like the original (bottom).

of several governmental bodies regulating asbestos. The agency's new document, *Managing Asbestos in Place—A Building Owner's Guide to Operations and Maintenance Programs for Asbestos-Containing Materials*, is known informally as the "green book." This manual is a companion to—rather than a substitute for—the EPA's 1985 booklet entitled *Guidance for Controlling Asbestos-Containing Materials in Buildings* (the "purple book"). The new booklet does not address the recent scientific controversies, which the EPA plans to review at a future date, but instead it attempts to clarify EPA's policy in light of a number of misconceptions.

Christian Rice, director of special projects in EPA's Communication Offices, stresses that it has been the agency's long-standing recommendation to maintain asbestos in place whenever possible, but he admits that the complexities of the issue have confused the public. "We know they have been receiving mixed messages," Rice acknowledges.

EPA has included what it calls the "five facts" in the green book, in the hope that they will help calm the unwarranted fears that a number of people seem to have about the mere presence of asbestos in their buildings. The publication of these facts is also intended to discourage the spontaneous decisions by some building owners to remove all asbestos-containing material regardless of its condition.

Risks and recommendations

INTACT, UNDISTURBED ASBESTOS IS NOT A health risk. However, damaged or "friable" asbestos is. Asbestos is friable when it can be easily crumbled by hand, thereby releasing its fibers. The EPA has estimated that 700,000 public and commercial buildings in the U.S. contain some friable asbestos.

From early in the century until the 1970s, asbestos was widely used without question in various applications, including insulation, fireproofing, acoustical treatment, ceiling tiles, floor tiles, and decorative elements (see chart, facing page). The connection between the inhalation of its tiny fibers and various types of lung disease was suspected in Britain in the early 1900s, but became public knowledge in the United States only in the early 1970s. Those at greatest risk were workers in asbestos-related industries: miners, millers, fabricators, and installers of asbestos. A number of regulations by the EPA, the Occupational Safety and Health Administration (OSHA) and other governmental bodies on the federal, state, and local level have been enacted since the 1970s to prevent workers from being exposed to large quantities of asbestos fibers (occupational exposure) and, to a lesser extent, protect the public from low-level exposure (non-occupational exposure).

The federal government has set 1997 as the year when almost all new asbestos-containing materials (ACM) will be banned from this country, but it does not require the removal of existing, undisturbed ACM unless the building is undergoing a major renovation or is being demolished. Under the 1986 Asbestos Hazard Emergency Response Act (AHERA), all public and private elementary and secondary schools must be surveyed for asbestos; administrators must establish a plan for management if it is found. Though not required by law, this kind of management plan is recommended for all buildings.

The owner of a building with ACM must consider a number of issues when deciding how to address this unwanted material, including the amount, location, and condition of the asbestos, as well as the building use and future renovation plans. The green book recommends that ACM in poor condition and in accessible areas should be abated either by "encapsulation (covering the ACM with a sealant to prevent fiber release), enclosure (placing an air-tight barrier around the ACM), encasement (covering the ACM with a hard-setting sealing material), repair, or removal." Asbestos in good condition and away from the public can remain, as long as it is periodically observed through an operations and maintenance program.

A building owner should weigh the costs of various asbestos-management options: immediate removal, phased removal plus operations and maintenance, or continual operations and maintenance until demolition (when removal will be required by law). As the green book notes, "Owners may find it more cost-effective to continue a well-supervised and managed operations and maintenance program than to incur the costs of immediate, large-scale removal. In addition to the direct costs of removal, related costs include finding a temporary location for occupants, moving the occupants, and restor-

ASBESTOS FACT TWO

Based upon available data, the average airborne asbestos levels in buildings seem to be very low. Accordingly, the health risk to most building occupants also appears to be very low.

A 1987 EPA study found asbestos air levels in a small segment of federal buildings to be essentially the same as levels outside these buildings. Based on that limited data, most building occupants (i.e., those unlikely to disturb asbestos-containing materials) appear to face only a very slight risk, if any, of developing an asbestos-related disease.

ASBESTOS FACT THREE

Removal is often *not* a building owner's best course of action to reduce asbestos exposure. In fact, improper removal can create a dangerous situation where none previously existed.

By their nature, asbestos removals tend to elevate the airborne level of asbestos fibers. Unless all safeguards are properly applied, a removal operation can actually increase, rather than decrease, the risk of asbestos-related disease.

ing the building after asbestos removal."

Operations and maintenance programs require an ongoing commitment. The building owner must designate an asbestos program manager who is properly trained to monitor all asbestos-related activities. To avoid unintentional damage to the ACM, no work should be done in the building without this individual's approval. All building occupants should be informed of the ACM location and instructed not to disturb it. The ACM should be regularly surveyed and handled in such a way as to minimize the amount of fiber released. Appropriate respirators should be available and used by custodians and maintenance workers as necessary.

All those involved in the renovation of the Adriance Memorial Library in Poughkeepsie, New York, for example, were aware ACM was present. The original 1898 building contained asbestos not only in the sheathing that once wrapped the heating pipes, and which had already been removed, but in the plaster and roof membrane as well. The architecture firm Einhorn Yaffee Prescott in Albany, New York, prepared the construction documents for the renovation before the asbestos was removed. The owner then contracted with Con-Test, Inc., an environmental consulting firm, to survey the asbestos and monitor its removal. Einhorn Yaffee Prescott then worked with the consultants to define the scope of asbestos work. Most of the asbestos was removed before the construction documents for the renovation were sent out to bid.

A call-back arrangement was established with the abatement contractors so that they would return to clean up (at a predetermined price) those areas of the building that could not be addressed until after the mechanical and electrical contractors completed their work. "We tried," explains John Myers, AIA, project architect, "to keep the call-back areas to a minimum." If the asbestos had not been found until after construction began, Myers believes "it would have added hundreds of thousands of dollars to the job—and killed the project completely."

ASBESTOS-CONTAINING MATERIALS FOUND IN BUILDINGS

BUILDING PRODUCT	APPLICATION	% ASBESTOS	DATES OF USE
Surfacing material	SPRAYED- OR TROWELED-ON	1-95	1935-1970
Preformed thermal insulating products	BATTS, BLOCKS AND PIPE COVERINGS:		
	85% magnesia	15	1926-1949
	calcium silicate	6-8	1949-1971
Textiles	BLANKETS (fire)*	100	1910-present
	FELTS:	90-95	1920-present
	blue stripe	80	1920-present
	red stripe	90	1920-present
	green stripe	95	1920-present
	SHEETS	50-95	1920-present
	CORD/ROPE/YARN*	80-100	1920-present
	TUBING	80-85	1920-present
	TAPE/STRIP	90	1920-present
	CURTAINS* (theater, welding)	60-65	1945-present
Cementitious concretelike products	EXTRUSION PANELS:	8	1965-1977
	corrugated	20-45	1930-present
	flat	40-50	1930-present
	flexible	30-50	1930-present
	flexible perforated	30-50	1930-present
	laminated (outer surfaces)	35-50	1930-present
	roof tiles	20-30	1930-present
	CLAPBOARD AND SHINGLES:		
	clapboard	12-15	1944-1945
	siding shingles	12-14	unknown-present
	roofing shingles	20-32	unknown-present
	PIPE	20-15	1935-present
Paper products	CORRUGATED:		
	high temperature	90	1935-present
	moderate temperature	35-70	1910-present
	INDENTED	98	1935-present
	MILLBOARD	80-85	1925-present
Roofing felts	SMOOTH SURFACE	10-15	1910-present
	MINERAL SURFACE	10-15	1910-present
	SHINGLES	1	1971-1974
	PIPELINE	10	1920-present
Asbestos-containing compounds	CAULKING PUTTIES	30	1930-present
	ADHESIVE (cold applied)	5-25	1945-present
	JOINT COMPOUND	—	1945-1975
	ROOFING ASPHALT	5	unknown-present
	MASTICS	5-25	1920-present
	ASPHALT TILE CEMENT	13-25	unknown-present
	ROOF PUTTY	10-25	unknown-present
	PLASTER/STUCCO	2-10	unknown-present
	SPACKLES	3-5	1930-1975
	SEALANTS FIRE/WATER	50-55	1935-present
	CEMENT, INSULATION	20-100	1900-1973
	CEMENT, FINISHING	55	1926-1973
	CEMENT, MAGNESIA	15	1926-1950
Flooring tile and sheet goods	VINYL/ASBESTOS TILE	21	1950-present
	ASPHALT/ASBESTOS TILE	26-33	1920-present
	SHEET GOODS/RESILIENT	30	1950-present
Wallcovering	VINYL WALLPAPER	6-8	unknown-present
Paints and coatings	ROOF COATING	4-7	1900-present
	AIR TIGHT	15	1940-present

*Laboratory aprons, gloves, cord, rope, fire blankets, and curtains may be common in schools.

The information provided in this table is adapted from the 1985 edition of the publication by the Environmental Protection Agency entitled *Guidance for Controlling Asbestos-Containing Materials in Buildings*.

ASBESTOS FACT FOUR

EPA only requires asbestos removal in order to prevent significant public exposure to airborne asbestos fibers during building demolition or renovation activities.

Asbestos removal before the wrecking ball swings into action is appropriate to protect public health. At other times the EPA believes that asbestos removal projects, unless well-designed and properly performed, can actually increase health risk.

Insurance concerns

WHILE THE EPA'S ATTITUDE TOWARD THE dangers and management of asbestos has not changed, there has been some significant rethinking by the insurance industry regarding the architect's role in addressing asbestos. For the first time since 1985, when the insurance industry lost millions of dollars due to asbestos claims and therefore stopped insuring any work involving asbestos, some companies are now relaxing policy exclusions to offer architects limited coverage for asbestos-related projects.

Up until now, architects confronted with existing asbestos in a renovation project had basically two choices: either tackle the problem, running the risk of exposing their firms, and possibly themselves, to liability claims; or walk away from the job and let the owner handle the problem. Generally, architects chose the latter—relinquishing all asbestos-related responsibility rather than participate in work for which the firm was not insured. Such a gap in job management was inevitably accompanied by delays, stop-work orders, and unknown costs to the owner.

A liability committee sponsored jointly by the AIA and the National Society of Professional Engineers (NSPE) has worked for the past two years with Victor O. Schinnerer & Company—underwriters for CNA, the professional liability insurance commended by the AIA—to clarify the roles and risks of architects and engineers regarding asbestos. The three, in turn, met with major European reinsurers—those who insure part of the insurance companies' risk. Prior to these discussions, the reinsurers and insurers did not distinguish architects and engineers from producers, manufacturers, installers, and actual abaters of asbestos and ACM.

"But the architect," explains Christoper R. Clark, AIA, director of AIA's Liability Committee, "could play the role of the 'white knight,' tackling a project at the request of the public to make it safe and useful." Recognizing that the bulk of claims are directed at the producers and manufacturers rather than the design professionals, the reinsurers agreed to the relaxation of the asbestos exclusion for architecture, engineering, landscape architecture, and land surveyor firms.

The exclusion is still part of the contract, but it has been reworded to allow for a number of services associated with asbestos. "While individual policies can differ," explains Gerald W. Farquhar, consulting attorney for Schinnerer, "the new coverage essentially permits the architect to identify, quantify, and recommend procedures for the managing of asbestos." Architects are not covered for specifying asbestos or ACM, nor for actually performing abatement work. Claims due to bodily injury or problems associated with transport, storage, and disposal are also not included. In its spring 1990 letter to policyholders, CNA/Schinnerer stresses "that it is professional liability, and not product liability or contractor liability, that the policy insures. This should help you understand why such things as installation, transportation, or storage of asbestos are not covered."

The architect is now covered for writing the specifications for asbestos abatement methodology—even if done incorrectly—though CNA/Schinnerer nonetheless recommends leaving the methods, means, and sequencing up to the contractor. If the architect does write the specifications, CNA/Schinnerer suggests that they be regulatory in nature—referring to all applicable codes—rather than descriptive of the actual method. The policy covers any claims against the architect due to the negligence of his consultants as well.

"The change in policy," explains Farquhar, "reflects a better understanding on the part of the insurance companies of the role of the architect vis-a-vis asbestos, and the willingness on the part of the insurers to assume a modest risk. It does not reflect in any way the insurance company's perception of the diminution of the asbestos hazard. They were not evaluating based on public health, but rather the risk of claims."

ASBESTOS FACT FIVE

The EPA *does* recommend a proactive, in-place management program whenever asbestos-containing material is discovered.

In-place management does not mean "do nothing." It means having a program to ensure that the day-to-day management of the building is carried out in a manner that minimizes release of asbestos fibers into the air. It also ensures that when asbestos fibers are released, either accidentally or intentionally, proper control and clean-up procedures are implemented.

According to Farquhar, "Reworking of the exclusion required a delicate balance. The insurance companies did not want to reword the policy so as to invite further claims. This is one of the reasons why personal injury is not included. Because the policy is typically retroactive, personal injury could invite suits for actions that occurred years ago, before asbestos safety standards were enacted."

While most states have approved the change, not all companies offer this coverage, so practitioners must check their policies. The coverage is currently offered by CNA/Schinnerer and DPIC Cos., Inc., which insure about 75 percent of the profession.

The change in coverage should not be construed by architects as a requirement that they handle any aspect of asbestos management. CNA/Schinnerer reminds its policyholders that it "provides coverage to support practice, never to dictate practice." As in all aspects of practice, the new coverage assumes that the architect is exercising reasonable care, in accordance with all codes and laws, in addressing a particular project's asbestos problem. It is up to the architect to assess for him or herself the firm's qualifications for undertaking this service. "It's a professional and personal decision on the part of the architect," reminds Clark, "not unlike the judgments required of a recently licensed architect on what he can and cannot do with his limited experience." Architects untrained in asbestos management may choose to include a qualified industrial hygienist as part of a consultant team in order to provide the service in the most competent manner.

In either case, architects with the appropriate experience or consultant can now comfortably incorporate asbestos recommendations within construction documents, thereby offering clients a complete, comprehensive package and bid price. For the first time, the difficult issues can be acknowledged and addressed up front before renovation begins.

Pleased with this recent development, James Anstis, FAIA, a participant of the AIA/NSPE joint committee and a principal of Anstis-Orenstein-Associates Architects and Planners in West Palm Beach, Florida, is nevertheless unaware of anyone who has yet altered his or her practice due to the broader coverage. "It's such a new thing,"notes Anstis. "A lot of folks don't even know about it yet. It will take about a year or so before we see a difference." But, certainly, those architects who had been taking a chance by providing asbestos-related services in the past are breathing a little bit easier now. ■

—NANCY B. SOLOMON

Nancy Solomon is a Washington, D.C.-based architect and freelance writer.

TECHNOLOGY & PRACTICE

Public Appeal

PRACTICE:
GOVERNMENT APPLICATIONS

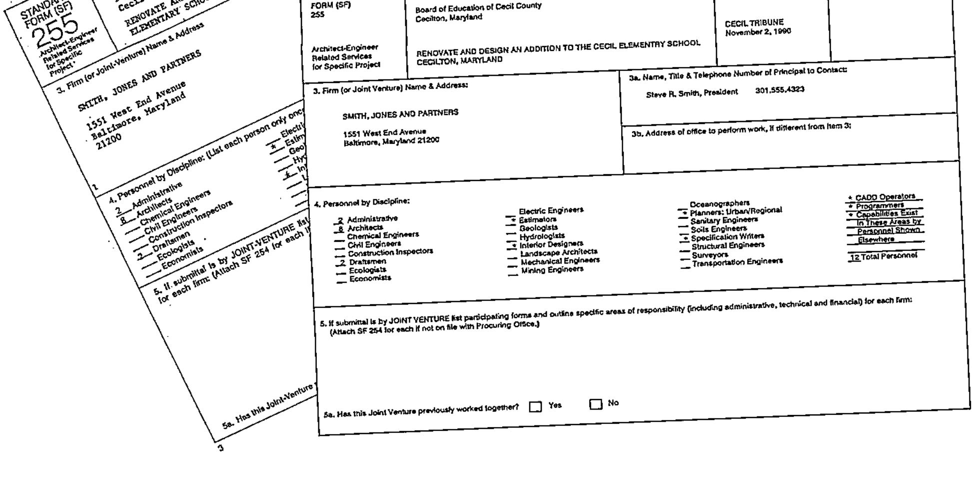
Securing public commissions requires knowledge of the proper procedures and paperwork.

GIVEN PRESENT FLUCTUATIONS IN THE PRIvate sector economy, it is safe to assume that there will continue to be a steady increase in firms pursuing public work. For example, the Chesapeake Division of the United States Navy is reporting that there are 60 to 70 applicants for every project it advertises in the *Commerce Business Daily* (CBD)—the primary publication through which all federal agencies solicit design services.

Fortunately, selection processes for public projects may actually favor new firms. According to James Stewart, director of the General Service Administration's office of design and construction, "We like to bring new firms into the system. Our philosophy is to have 50 percent of our work allocated to repeat firms and 50 percent to new firms. That way we are always upgrading our repeat factors."

Project advertisements generally include the selection criteria, as well as the name and phone number of the contracting officer. Architects who wish to pursue federal or other public projects should set up an appointment with the contracting officer to review the selection process and evaluation criteria, the overall format of the submission, and, if possible, the anticipated number of responses. This is a crucial step in the process, because many agencies permit modifications to the forms, allowing architects to elaborate on significant projects and the experience of key personnel.

Standard government forms 254 and 255 (below) can be generated on a variety of word-processing, graphics, or page-layout computer programs. Producing the forms in-house not only permits the firm to utilize information already on the computer, but it also allows the firm to tailor the proposal to the specific job being pursued.



STANDARD FORM (SF) 255
Architect-Engineer Related Services for Specific Project

1. Project Name/Location for Which Firm Is Filing:
Board of Education of Cecil County
Cecilton, Maryland
RENOVATE AND DESIGN AN ADDITION TO THE CECIL ELEMENTRY SCHOOL
CECILTON, MARYLAND

2a. Commerce Business Daily Announcement Date, if any:
CECIL TRIBUNE
November 2, 1990

2b. Agency Identification Number, if any:

3. Firm (or Joint Venture) Name & Address:
SMITH, JONES AND PARTNERS
1551 West End Avenue
Baltimore, Maryland 21200

3a. Name, Title & Telephone Number of Principal to Contact:
Steve R. Smith, President 301.555.4323

3b. Address of office to perform work, if different from item 3:

4. Personnel by Discipline:
2 Administrative
8 Architects
Chemical Engineers
Civil Engineers
Construction Inspectors
2 Draftsmen
Ecologists
Economists
Electric Engineers
* Estimators
Geologists
Hydrologists
* Interior Designers
Landscape Architects
Mechanical Engineers
Mining Engineers
Oceanographers
* Planners: Urban/Regional
Sanitary Engineers
Soils Engineers
* Specification Writers
Structural Engineers
Surveyors
Transportation Engineers
* CADD Operators
* Programmers
* Capabilities Exist In These Areas by Personnel Shown Elsewhere
12 Total Personnel

5. If submittal is by JOINT VENTURE list participating forms and outline specific areas of responsibility (including administrative, technical and financial) for each firm:
(Attach SF 254 for each if not on file with Procuring Office.)

5a. Has this Joint Venture previously worked together? ☐ Yes ☐ No

Creating forms

TRADITIONALLY, THERE HAS NEVER BEEN any specific format for responding to private requests for proposals (RFPs). But applying for state, city, and federal projects requires filling out standard government forms 254 and 255, which can be tailored to meet the selection criteria of the advertised project. Generating these forms on the computer simplifies the process of keeping a firm's experience up-to-date and adapting information to meet specific requirements.

Cost is an issue in the selection of software for these forms. Given the sophistication of off-the-shelf software available, there is an infinite variety of graphics, word-processing, and page-layout programs that can generate both the 254 and 255 forms. Should that prove difficult, there are also template programs available from a number of manufacturers. Some programs even produce the forms as part of an entire marketing software package that includes mailing lists, systems for tracking proposals, and formats for answering private RFPs.

Whatever word-processing system a firm uses to generate the forms, there should be a "master blank" directory, "master proposal" directory, and individual directories for each page or section. Directories for pages 5, 6, 7, and 8 can be titled "resumes," and comprise vitae of all personnel, with a suffix added to indicate the name of the project. Project descriptions should be saved under the project name. Once the office reaches a level of sophistication in the tailoring of 255s, it would be advantageous to develop master resumes and project descriptions for each targeted market.

Standard form 254

THE 254 FORM SHOULD BE UPDATED ANNUally and contains an overview of the firm's project experience over a five-year period. It is intended to allow firms the opportunity to present yearly statements of qualifications and performance data. The 254 accompanies standard form 255, which is the actual application for the project listed in the CBD, and which emphasizes projects that relate specifically to the work that is sought.

The seven-page form includes three pages of definitions and instructions, and four pages to be filled out by the firm. Page four of the 254 comprises questions 1-9, and is the introductory page. Items 1-7 and Item 9 are administrative, containing firm name, address, and size, and are self-explanatory.

Item 8 requests "personnel by discipline," and small firms should give the question particular attention. All staff members should, of course, be listed according to their primary function and discipline. But if the staff includes individuals with secondary talents in another discipline, supply an asterisk at those disciplines and indicate that these capabilities exist in the firm by personnel indicated elsewhere. For example, experienced draftsmen may also be CADD operators. The form requests that each individual receive only one listing, but many agencies permit listing additional capabilities. Make sure to find out from the agency whether it is permissible to list both skills.

Page five of the form contains Items 10 and 11. Item 10 is "Profile of Firm's Project Experience, Last Five Years" and corresponds to page three of the 254 form, which identifies "profile codes" for specific capabilities. For instance, code 044 is Health Systems Planning; code 043 is HVAC Systems. The firm can list up to 30 different profile codes, including the number of projects and total gross fees for each. Often, small firms fill out only 10 or 15 profile codes, but this is not recommended. Review the profile codes carefully and identify the elements within projects that fit the codes. For instance, a recently completed energy-efficient library renovation for a university could be coded as 060 (Libraries;Museums;Galleries); 089 (Rehabilitation); 055 (Interior Design;Space Planning); 032 (Energy Conservation). However, list only those profile codes which are most representative of the firm's portfolio. Typically, a project can be listed in a number of categories in this section, but caution should be applied in the calculation of total gross fees. If the gross fees for the library project were $200,000, for example, divide the fee and allocate 25 percent to each of the four profile-code categories.

Item 11, "Project Examples, Last 5 Years" begins on page five and continues through page seven. This section allows a firm to present its overall experience. The evaluations board will look at this section to determine whether a firm has previously served in the capacity required by the contract, whether work in progress will be completed in time to permit taking on a new project, and the average cost of projects the firm is accustomed to handling. In Item 11, use the same procedure that was applied to the profile section, identifying projects by name and location, owner's name and address, cost of work, and completion date. It is important to present a comprehensive overview of the firm portfolio.

Standard form 255

FORM 255 PROVIDES THE CONTRACTING agency with data about the firm and the team of consultants it has gathered for the proposed project. The selection of consultants should therefore be given careful attention, since their qualifications will be evaluated along with those of firm employees. Like form 254, form 255 begins with several items that are administrative and straightforward in nature. Items 1-5 are for name, address, phone numbers; Item 6 provides for the identification of consultants; and Item 9 requests names and locations of work the firm is currently performing for government agencies—as well as the percentage of that work that is complete.

Item 7 requires a brief resume of key persons, specialists, and individual consultants anticipated for this project. Applicants should take particular care to stress the entire team's experience and relevant qualifications in this section. "One of the biggest oversights," reports Donna Volkman, chief of the National Park Service's professional services contracts branch, "is that many firms actually fail to include all the disciplines we ask for." This section and the succeeding project descriptions and summary essentially serve as the team's presentation to the contracting agency. Consultants should provide resumes and relevant project descriptions in the specified format. A directory can be set up for consultant information should the firms consistently pursue projects jointly.

Item 8 requires the firm to list 10 projects that are similar to the advertised government project. Item 10 basically represents a team qualifications statement and should be used to stress qualities of the team that can benefit this project.

Tailoring forms

IN MOST CASES, FIRMS ARE ALLOWED TO modify the forms. According to Dale Strait, director of the office of engineering and construction at the Department of General Services for the State of Maryland, "Some firms short-change themselves on the 255, Section 8. The standard form only allows 1-2 inches per project, but we encourage firms not to limit themselves. We do not object to a whole page per project, and firms should identify clearly the features of the project that are similar to the one for which we are soliciting services." Using a full page for each project also allows the applicant to identify the firm's responsibilities clearly, and cross-referencing between resumes and the projects listed in Item 8 is essential.

"Focus your skills in all of your submissions," advises Stewart of the GSA. "Accent those elements of your experience that you do well, versus applying for work in which you have no experience. Use your best judgment and identify your unique resources." In the final analysis, if a firm has interviewed the contract officer, handpicked a dynamic team, and tailored the forms to the best of its abilities—and still doesn't receive the contract, a debriefing interview with the contracting officer is a must. During the interview, the contracting officer will often point out mistakes, and, in some cases, discuss a firm's ranking and the nature of the competition. This postmortem supplies the architect with the ammunition necessary to make the next submission a more convincing proposal. ■

—BROOKE TAYLOR PARKIN

Brooke Taylor Parkin is director of business development with Ziger, Hoopes & Snead Architects in Baltimore, Maryland.

Contracting Officer Interview

An interview with the contracting officer is critical in determining the scope of the project for which a firm is submitting a proposal. During the meeting:

Confirm and review selection criteria identified in announcement.

Identify evaluation process:

- **Who is involved?**
- **Will the proposals be ranked?**
- **Is this the standard agency procedure or does the process vary?**

Clarify selection process:

- **Will the agency negotiate with the top-ranking firm?**
- **If two firms' proposals are closely tied, will there be an interview?**
- **If an interview is conducted, how much does it count toward the final decision?**

Clarify format for the submission:

- **Are computer-generated forms allowed?**
- **Are modifications to Items 7 (resumes) and 8 (project descriptions) permitted?**
- **Is consultant experience (Item 8) permissible, as well as prime experience?**
- **Do projects listed in items 10 and 11 need to be 100 percent completed?**
- **May applicant supplement the proposal with brochures, drawings, and other graphic materials?**

General project questions:

- **Will site visits be allowed?**
- **Is there a program available for review?**
- **Will applicants be permitted to review past technical proposals for general content and format?**

Design in Motion

COMPUTERS:
VIDEO PRESENTATIONS

Integrating video technology with CADD systems is rapidly changing the way architects develop presentations.

ARCHITECTS ARE NOW BEGINNING TO APPLY video technology—motion and still—to study and presentation models of proposed buildings. Of the two, motion video is particularly useful to project a series of images so rapidly that the viewer seems to be moving. The effect is achieved by capturing photographs of a building from a series of vantage points and then projecting them in rapid succession. Still video employs the same capture and projection techniques, but examines only one or very few frames at a time.

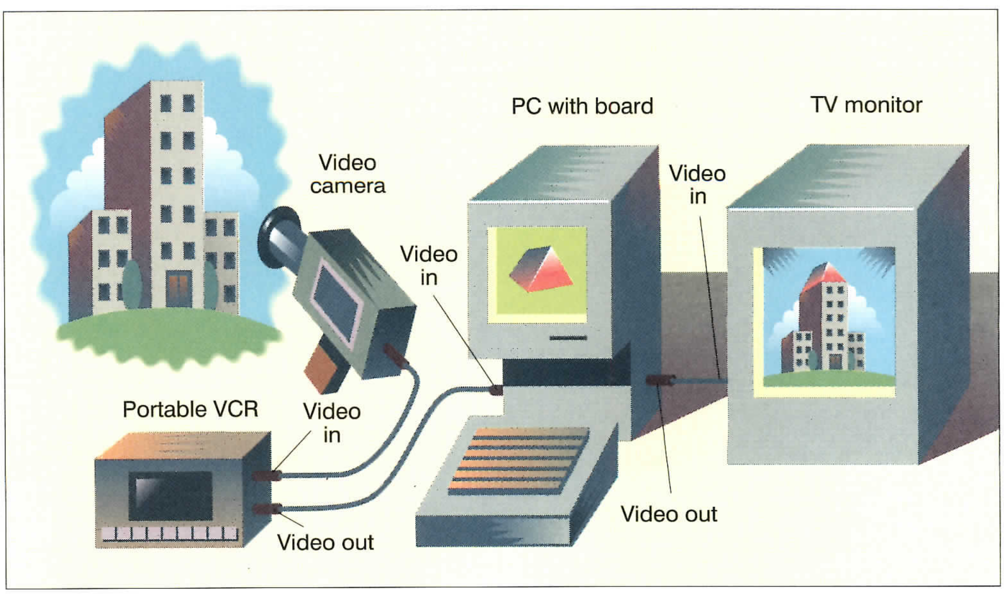
The most common architectural application of video technology is to explain a proposed design to a client, lender, investor, zoning board, tenant, buyer—anyone who needs more information than renderings or construction documents can provide. Motion enables the architect to simulate a walk-through or a fly-by, thus permitting the building to be experienced from virtually an infinite number of vantage points. If the purpose is to study shadow effects for review by a zoning board, on the other hand, the technique may be employed to simulate movement of the sun rather than movement of the viewer.

WAYNE CABLE / CABLE STUDIOS

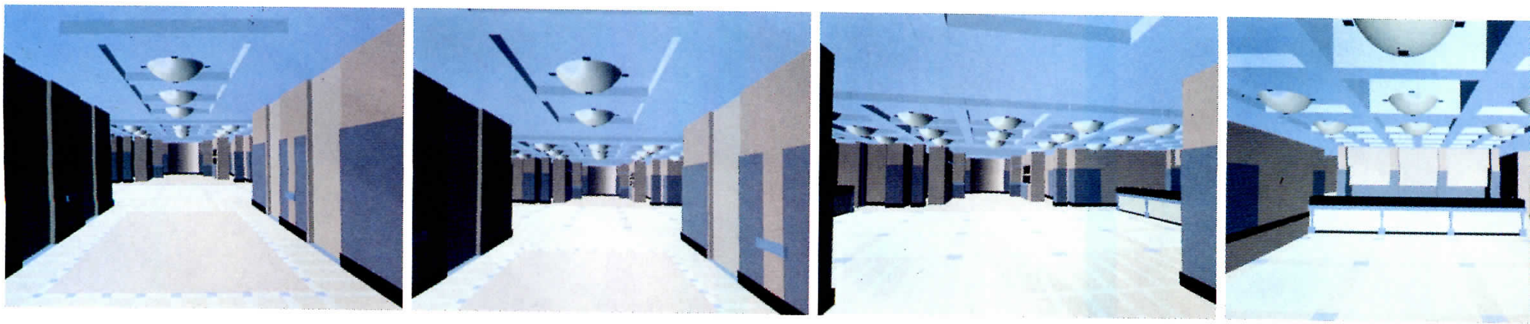
Video history

THE ROOTS OF VIDEO TECHNOLOGY DATE TO the 1930s, with the introduction of cameras that capture images and convert them into electronic signals for viewing on a television set. The camera consists of a lens, an image-setting device, and various electronic circuits. The lens focuses the light onto a charge-coupled device (CCD), and filters on top of the CCD separate the light into colors. The electronic circuits then convert the signals into video format. Television broadcasters in the United States use a format established by the National Television System Committee (NTSC), which specifies the number of horizontal lines, scan rate, signal

Terrill Janssen created a one-minute, computerized video walk-through for F.I. Torchia Associates' Admirals Club at Chicago's O'Hare airport (above). His equipment included (above, left to right): Hewlett-Packard Vectra 486 computer; Nanao 9500 multiscan monitor; Kurta IS/One digitizing tablet; HP 14-inch Video Graphics Color Display (for commands and information); Truevision VIDI/O encoder/decoder box; Truevision ATVista Videographics adapter, Panasonic AG-6750 Time Lapse VCR; Agfa Matrix Multicolor analog film recorder; and a TV monitor. In the future, a single-slot board that drives the computer and creates TV images with a simple video and RCA phono jack may be perfected (right). U.S. Video offers one for $799, but the TV image is still inferior.



PETER HOEY



Eight images from the Admirals Club video walk-through follow the path from the entrance to the flight information display area (above, left to right): looking into the space from the elevator lobby; moving through the lobby; rounding the corner at the end of the lobby, approaching the Skipper's Desk; facing the Skipper's Desk; turning left from Skipper's Desk, looking toward flight information displays; turning left, looking toward telephone carrels; turning right, and proceeding toward flight information displays; arriving at flight information displays.

locking, phase, and color framing.

The videotape itself is a plastic strip covered with particles of iron oxide. The video recorder magnetizes the particles as the tape moves past the recording heads, creating patterns that represent video signals. Unlike film, videotape does not have to be developed and can be played back immediately after recording.

Portable videocassette recorders (VCRs) for the home were developed in the 1970s. By the mid-1980s, video recorders had become small enough that they could be combined with video cameras into devices called camcorders. Still-video cameras were also developed to capture and record video images on magnetic discs, similar to but smaller than the floppy discs used in computers. Another innovation was the videodisc, which looks like a long-playing phonograph record but is capable of storing motion-video images as well as sound. Similar to compact discs (CDs), videodiscs are not readily created at the desktop level, but they have the advantage of longer life since they are not magnetic and they can be controlled more quickly and conveniently than videotape.

Applications

ARCHITECTS BEGAN TAKING ADVANTAGE of video technology in the early 1980s. Large firms such as SOM and HOK have used the technology since the mid-'80s to show cityscapes and the urban context of their buildings. SOM's now famous fly-through of downtown Chicago has been an effective, though expensive, marketing technique.

This technology is now within the range of the small firm, forced to use its minimal marketing dollar in the most efficient manner. Not only are the CADD programs and computers required to build and display electronic models more powerful than they were 10 years ago, they are also much cheaper. Expertise in the form of trained operators is also more readily available. Moreover, the technique of transferring a smooth sequence of computer images to a TV monitor has become relatively simple, requiring only two special pieces of equipment that list for less than $5,000.

The technique involves constructing an electronic model of the proposed building in a 3D CADD program and specifying a path, height of the eye, direction of view, cone of vision, and number of steps. The better CADD programs on the market will follow the sequence. But prior to the latest improvement in the cost and capabilities of video technology, the walk-through sequence has been unsatisfactory for several reasons. In a building of any complexity, each new view may take a minute or more to regenerate, thus destroying the illusion of smooth motion. Some programs permit each new view to be saved after it is generated and played back later in rapid sequence. But the simulation of smooth motion requires the projection of 20 to 30 frames per second, and if the image is only one megabyte in size, the amount of storage space on most hard discs will be exhausted after only a few seconds.

Within the last year, however, manufacturers have begun introducing a single video adapter board that performs three simultaneous functions at desktop prices:

- Driving the computer monitor, which permits normal construction of an electronic model of a proposed building;
- Accepting video input through a jack, allowing a videotaped image of the proposed site to be displayed on the computer screen along with the model. The two images are manipulated to determine the right siting;
- Sending images of the completed walk-through via an output jack to a video recorder.

Television and computer display standards are just different enough to be incompatible—flickering images and an annoying horizontal line runs through the picture on the TV screen when a computer image is transferred directly to television. While acceptable photographs of the computer screen can be made with 35mm cameras or film recorders like the Agfa Matrix Multicolor, videotaping a computer monitor remains unsatisfactory.

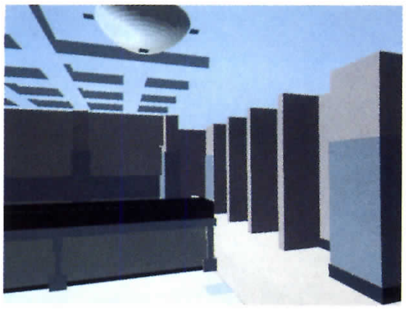
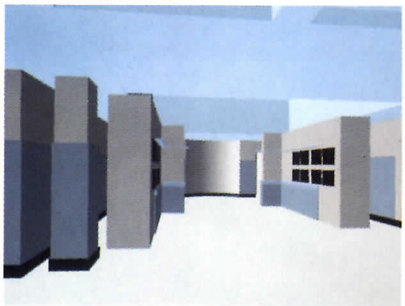
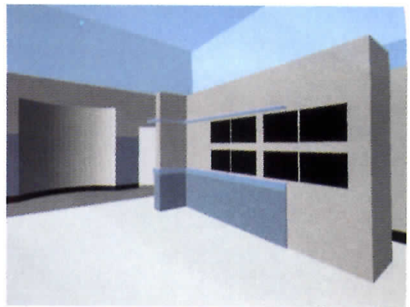
The first hurdle to displaying a computer image on a TV set—converting the computer's RGB (red, green, blue) signal format to NTSC format—is difficult to overcome, but several manufacturers have succeeded at prices below $2,000. Passing the second hurdle costs more because it requires equipment that can advance the videotape one frame at a time as each successive image in a walk-through or fly-by is regenerated by the computer. The equipment must be capable of holding a frame open on the video recorder, generating a shaded image on the computer, transmitting that image to the recorder, advancing one frame, generating the next image on the computer, transmitting it to the recorder, and so on.

Chicago application

F.I. TORCHIA ASSOCIATES, A 20-MEMBER ARchitecture firm in Chicago, took advantage of the power of computer imaging when it commissioned the production of a videotaped walk-through of O'Hare airport's Admirals Club, which is being renovated and expanded for American Airlines. The tape, created by Terrill W. Janssen, president of Architech, a Chicago-based consulting firm, will be used to explain the design to officials at American and, as construction gets under way, to executives using the club. "The club will remain open during construction," reports Donna L. Darrow, manager of the Admirals Club. "Rather than just putting up a sign saying 'pardon our dust,' we want to show people how we're improving the club to serve their needs."

With the videotape, it will also be easier for Darrow and her associates to explain the project to their superiors and others at American Airlines who want be updated as to the progess of the club, but have not been involved in the design process. By the time the project is completed in November, 1991, the club will have grown from 12,000 square feet to 38,000 square feet, including 19 conference rooms.

The tape, which lasts one minute, begins with the view from the elevator lobby. The path then leads into the facility, offering views of the "Skipper's Desk," the flight information display system, the entrance to the

conference rooms, and finally from the center of the main room toward the elevators.

Janssen's equipment included a Vectra 486 Model 330 computer, priced at $16,499 from Hewlett-Packard; the Nth Engine/550, a 3D graphics controller board, for $5,995, by Nth Graphics; the Nth TV Video Converter board for $1,495; the 9500 multiscan monitor from Nanao; the AG-6750, an S-VHS time-lapse videotape recorder, priced at $3,200, from Panasonic; and an old TV monitor from home.

Janssen built the 3D model in Drawbase 5000, a CADD program by Cadworks, and exported it to Autocad so it could be loaded into Hydra Rendering Software. Hydra is supplied free by Nth Graphics with its 550 controller board. The only CADD programs that Hydra supports are Autocad, Versacad, and MicroStation. In Hydra, Janssen refined color assignments, selected camera positions for the walk-through, and set light sources and colors.

Hydra, working with the controller built into the Panasonic 6750, extracts a rendered view of the 3D model and writes it to one frame of the tape. The system then advances the tape one frame, moves the camera position one step into the model, and regenerates the new view. The process continues frame by frame until the end of the walk-through. Janssen specified 15 camera positions and programmed Hydra to move to each new position in 120 steps. This process created 1,800 frames on the tape, replayed on the TV monitor at a rate of 30 per second for a one-minute walk-through.

Generating the tape required 30 hours of computer time, but the process is automatic once programmed into the system. Janssen began the process on a Friday afternoon and had a completed tape when he came to work Monday morning. Saving each completely regenerated view to disc for viewing later would not have been practical, because the model consumed 2.5 megabytes of disc space. The 1,800 views would require a mammoth amount of storage space. That's why he saved the basic model only once on disc and used the power of the computer to generate 1,800 views of that model—one for each frame on the one-minute videotape.

Janssen's time sheets show that he needed 20 hours to build the 3D model, seven hours to make corrections and refinements (especially on colors), and three hours to prepare for videotaping. He said his time could have been cut by five to seven hours if the project had been designed using CADD, but the design and preparation of construction documents had been completed manually.

Since Janssen created his videotape after design was completed, Torchia received the unexpected benefit of electronically field-testing the design. In building the model, Janssen discovered that the ceiling pattern was mirrored in the floor, but not in the Skipper's Desk. Correcting the desk pattern was easily accomplished.

Mary Beth Kennedy, director of interiors for F.I. Torchia Associates, says, "The beauty of videotaping the scheme at the end of the design phase, as opposed to doing it as part of the design process, was that it helped catch inconsistencies and errors that might have been expensive to correct later." To Kennedy, the biggest advantage of the tape was that it permitted the client to understand the sequence of spaces and to view how the various areas of the interior interrelate.

Technology refinements

FAULTS OF THE TAPE INCLUDED SOME ABRUPT movement, basic coloring, and flat lighting. Occasional rendering errors were distracting, and the tape also needs an introduction and a conclusion. As Janssen points out, the tape should be considered a "first draft." A finished draft might include an increase in the number of camera positions. This is because the maximum number of steps between camera positions is 120—not enough for a 90-degree turn. More positions would make the movements smoother, although the tape would be longer.

Hydra is limited to one type of lighting, and the Nth Graphics board is limited to 16 shades of 16 colors. Nth Graphics claims that its software is being developed to provide more realistic lighting options. Rendering errors await corrections from Ithaca Software, which makes the Hoops graphics library licensed by Nth Graphics.

Paul R. Corrigan, AIA, president of Corrigan LoVerde, believes video technology today is at the same stage as CADD 10 years ago. His New York-based computer graphics consulting firm developed a video for Kaempfer Company Investment Builders to help market office space above the Warner Theatre in Washington, D.C. (below). The video captured all the intricate detailing provided on the complete electronic model (bottom right).


For the Grossmont Hospital in Mesa, California, Lennon Associates captured pavers (above right) with a Canon XapShot still-video camera and imported them directly into a model of the proposed building (above). Both images were made directly from the computer model with an Agfa Matrix Multicolor film recorder, rather than by simply photographing the computer screen.

Janssen praises the system's speed and ease of use. He says the cost of the equipment and the time required to learn and use it are practical for desktop use in an architect's office. The tapes are short and easy to show at a client presentation, or to mail around the country as part of a response to a request for proposals.

Janssen plans to refine the model in a new CADD program, Fastcad 3D from Evolution Computing. It incorporates the first DOS-based implementation of RenderMan, a program that generates photo-realistic images. RenderMan offers access to four kinds of lighting, shadows, and a wide variety of surface textures and materials. With the ATVista videographics controller board and VIDI/O Box from Truevision, Janssen will have access to 16 million colors. He also plans to create an opening and closing sequence for the walk-through with the Vista board and Tips, a paint program from Truevision. The Vista board is priced at $4,795, but Truevision has just introduced a similar board, the Targa+ 16/32 for $1,995. Tips is priced at $1,795. Another option would be to enhance the 3D model with Topas Modeler from AT&T. Priced at $2,995, Topas can do texture mapping and reflection mapping.

Frank I. Torchia, AIA, remarks that the videotape of the airline club gives the firm an unprecedented opportunity to explain its design concepts to large numbers of executives passing through Chicago. He also plans to use the tape for presentations to other clients who need to explain their projects to prospective customers, tenants, and buyers. Janssen adds that videotaped walk-throughs provide a good understanding of space and forms, but should not be relied upon to study details of color and texture. Too much detail could overwhelm the processing power of the current generation of personal computers. Nor should architects expect that this technique will give motion to the scene with people, cars, or landscape. That kind of animation is available, but the software is expensive and the creation of realistic movement is difficult to master.

Still-video photography

ONE INEXPENSIVE METHOD OF INCORPORATING lifelike people, cars, and landscape in a 3D model is still-video photography. The images are not as sharp as conventional photography, but they can be captured and inserted quickly into models or other drawings.

Still-video cameras save up to 50 images on two-inch discs, which are reusable. The major manufacturers of still-video cameras are Canon and Sony, with competition from Panasonic and Nikon. The photographs can be shown directly on a TV set or displayed on a computer monitor through a device capable of capturing and converting a video image. Devices that capture video images for display on computer monitors are called image grabbers.

Canon has two models: the XapShot for $499; and the RC-470 for $2,100. The more expensive camera has twice the resolution of the smaller camera. Printed on paper, the quality of an RC-470 image is comparable to a scanned photo up to about four-by-six inches. The leading conversion unit for still-video is the Neotech Image Grabber, at $1,499, from Advent. For color, the Neotech Color Adapter Module ($499) is also required. They permit the photo to be saved in TIFF, PICT, and PostScript formats so it can be merged with other images. The equipment works only with Macintosh computers.

N. Ross Bell, AIA, design principal for the Benham Group, an A/E firm in Oklahoma City, takes advantage of both scanning (ARCHITECTURE, October, 1990, page 101) and still-video techniques for presentations. "A floppy disc from a still-video camera is like a videotape, except with fewer frames," Bell explains. "Its advantage is fewer steps in production. If I need a certain plant for the landscaping, I just go get it with our Canon still-video camera. There is no processing of film and no waiting to see how the pictures came out." Why does he bother scanning photographs? "I usually get better resolution, especially at larger sizes."

Hurrying to render a proposed design for an Oklahoma City office building, Bell overlaid a 3D computer model with people, trees, shrubs, and other vegetation that had been captured as still-video images. At press time, Bell still didn't know if his firm won the design commission, but he doubts that the four firms with which he was competing had time to prepare renderings, which usually require two to three weeks.

Future developments

THE TECHNOLOGY REQUIRED TO DISPLAY A TV image on a computer monitor or a computer image on a TV monitor is deceptively complex. Although the monitors look alike, the signals being generated are quite different. It has been only within the past year that good results from the display of computer images on TV sets have been achieved at affordable costs.

The ultimate goal of video technology research is the creation of a digital format, according to Philip W. Schiller, multimedia specialist for Apple Computer. He cites three applications:

- Desktop video, for presentations combining images captured in video format (which is analog) with images captured in computer format (which is digital);
- Interactive response, in which the tape can display images and sounds as directed by the computer;
- Video filing, which archives information with an index.

Schiller believes that full realization of all those goals is a year away. For example, the search time from beginning to end of a standard videocassette tape is 2.5 minutes,

Continued on page 148

Ordinary paint, after the equivalent of 3,000 hours of 5% salt fog. (AAMA 605.2)

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Circle 144 on information card

Video presentations *from page 144*
which is too long to be usefully interactive.

One of the first manufacturers with a multifunction video board for the PC is U.S. Video. One single-slot board, costing $799, drives the computer monitor, captures incoming video through a simple RCA jack, and displays a computer image on a TV screen through a video-out jack. But the computer-monitor image is distinctly inferior, and the TV image jitters badly.

Raster Technologies has just introduced the ProVideo 32, at $4,295, for the Macintosh. This single board displays a 32-bit color image on a computer monitor, displays live video in a window, and captures single video frames to disc. Overlaid images are handled with a technique called the "weatherman," named for the way TV stations are able to display weather maps as if a forecaster were standing in front of them. The overlaid image can be sent back out to TV or videotape, but a time-lapse tape deck and controller from a company such as Diaquest or BCD is required.

In June, Radius introduced a competing product, the RadiusTV, for $2,795. A related product, the QuickCAD graphics engine, costing $1,495, speeds up the regeneration of vector images 10 to 30 times. This increase in speed makes it much easier to prepare a walk-through tape of a design without tying up the entire computer system for days at a time.

Truevision last summer introduced its NuVista+ video board with one megabyte of RAM, at $2,995. It also offers chroma-keying, the ability to superimpose live video on graphics. This effect is not available on its boards for DOS-based computers.

Virtus, a visualization program not yet available for purchase, employs a technique called "virtual reality." The program runs on the Macintosh and is intended for use by architects. It's not video, but it gives the same effect. The user navigates through a building simply by moving the mouse. The 3D model does not have to be regenerated for each new view. Models shown during demonstrations, however, were quite simple, and the software has not been released for independent evaluation. The anticipated price is less than $1,000.

By combining motion and perspective, video technology is raising the expectations of architects and their clients about the way proposed designs can be presented and explained. Innovative spatial concepts that might have been difficult to clarify now have a better chance of being understood. As both a study and presentation tool, video technology promises to improve the quality of architecture and to encourage the acceptance of good design. ■

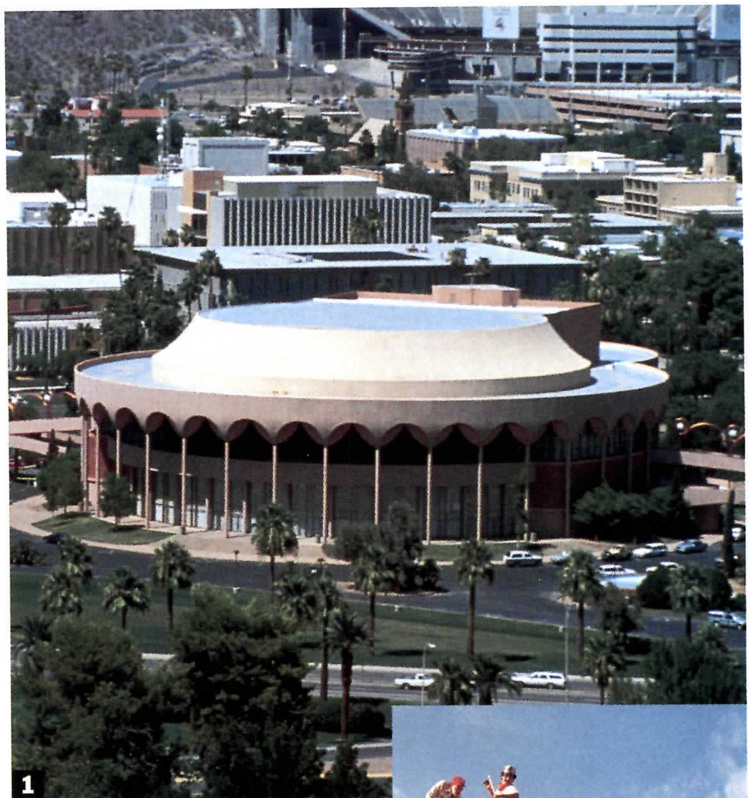
—OLIVER R. WITTE

THE WRIGHT WAY

Restoring a pair of landmark structures.

TWO OF FRANK LLOYD WRIGHT'S LATE BUILDINGS HAVE BEEN RECENTLY repaired with the latest developments in roofing and sealant technologies. The Grady-Gammage Auditorium at Arizona State University in Tempe was re-roofed by Craig Walling, AIA, using a membrane system manufactured by Thermo Materials. The auditorium, built in 1958, is of a circular design with ornate concrete detailing. It blends naturally into the desert environment, in keeping with Wright's concept of organic architecture. The roof is a primary design element, crowned by a flat-topped dome. The transition between the dome and roof is a steep surface that wraps around the building and curves inward. Walling says he chose Thermo Materials' Thermo-Lastic Cold Process because its highly flexible, waterproof membrane and uniform texture disguise lap lines in the underlying membrane, matching the original roof's surface and color.

Laurence Technological University in Michigan contacted Akzo Coatings to help restore Wright's Affleck House in Bloomfield Hills, Michigan, which was donated to the College of Architecture and Design in 1978 by the Affleck family. The Usonian house, built in 1941, required extensive refinishing of its exterior. Akzo's coatings were used to refinish all the exposed wood surfaces, including 5,400 square feet of smooth cypress siding. —AMY GRAY LIGHT



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1. The existing roof of the Grady-Gammage Auditorium consisted of a textured coating over an elastomeric asphaltic waterproof membrane, applied over cement plaster on steel lath and framing. The original coating was removed down to the membrane, and Thermo Materials' elastomeric waterproof membrane was installed. The new roof comprises layers of polyester set into a spray application of clay-stabilized, modified asphalt emulsion.

2. A supersealant and mesh-reinforced polyester fabric were then applied, followed by a top coat to flash sharp corners and angles. The finished roof was rendered in the manufacturer's customized prep coating to match the Wright building's color scheme. Thermo Materials. Circle 401 on information card.

3. The landmark Affleck house, located in Bloomfield Hills, is listed among the 50 most significant structures in Michigan. Extensive restoration was required, particularly of the exterior, to return the building to Wright's original design intention.

4. Akzo Coating's Sikens Cetol HLS and Cetol Filler 7 products, incorporating alkyd resins with other chemicals, were applied to the exterior siding to form a durable and waterproof film. Translucent pigments and highly transparent particles in the compounds combine to reflect damaging UV rays from the exposed wood. Akzo Coatings Inc. Circle 402 on information card.

Meet Dean Walker.

Although Dean Walker is an architect who manages the specifications process for Lohan Associates, Inc., a leading architecture/planning/ interior design firm, his first concern is project design. But, as a specifications manager, he knows specifiers need a reliable, complete and up-to-date master specifications system if they are to be effective in their job. That's why Dean and the members of his MASTERSPEC Review Committee examine every MASTERSPEC section to ensure you have the most complete and cost-effective specification system available, one you can count on to cover virtually every type of project. The way Dean figures it, his Review Committee's work makes the MASTERSPEC system more valuable not only to his specifications team, but to every specification professional.

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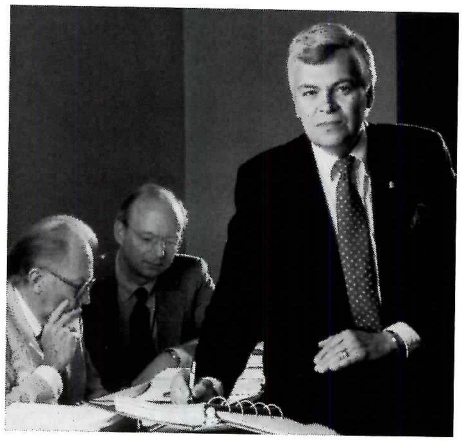

—W. Dean Walker, AIA
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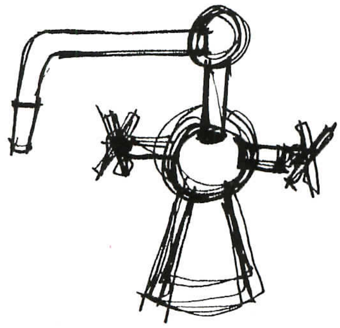
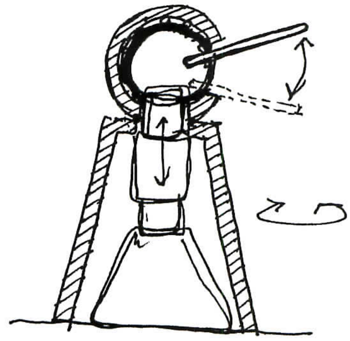
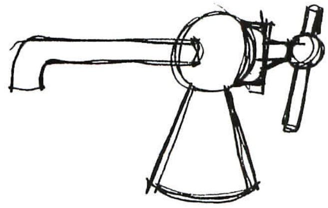
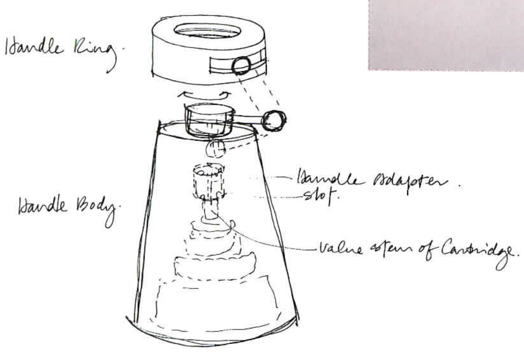
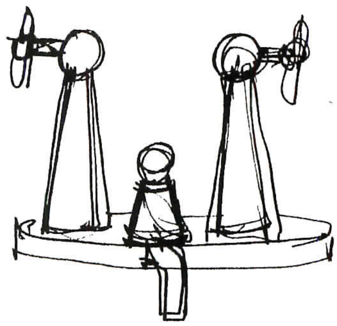
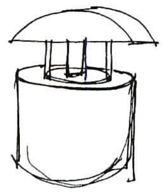


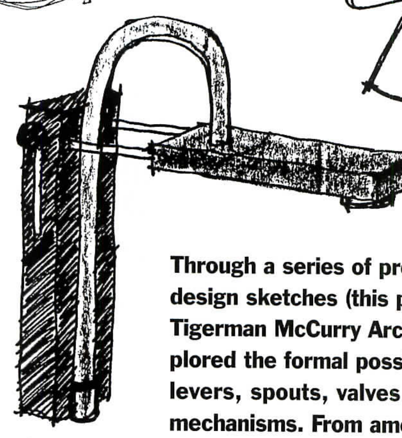












WATER WORKS

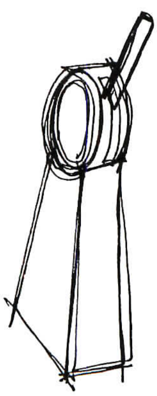
A new series of architect-designed faucets.

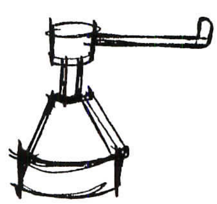
THE CHICAGO FIRM TIGERMAN McCURRY ARCHITECTS RECENTLY designed a new line of faucets for American Standard, drawing upon simple forms to create five interchangeable components. Targeted at upgrading the manufacturer's traditional Heritage faucet line, these fixtures are specified for both commercial and residential uses.

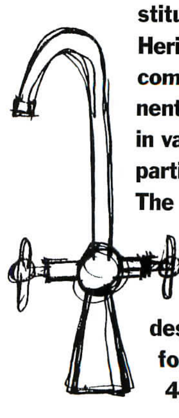
In commissioning the architects, American Standard's objective was to create simple, durable fixtures suiting a wide range of applications. The design guidelines specified that the faucets be easy to operate for the elderly and persons with disabilities; they are operated primarily by levers rather than knobs, which are more difficult to grasp.

Architects Stanley Tigerman and Margaret McCurry, who completed a showroom for American Standard at the International Design Center, New York, earlier this year, pursued designs that would transcend passing styles. They departed from ornate designs predominating the industry and returned to basic geometries. Their faucets are straightforward, efficient, and utilitarian, but also convey elegance and playfulness in levers that suggest Mickey Mouse ears and toy airplane propellers. The architects combined simple squares, rectangles, and circles to develop five building blocks: two spouts and three types of levers. These basic components are mixed and matched in dozens of combinations to create faucets for specific applications.

—RANDALL MASON







Through a series of preliminary design sketches (this page), Tigerman McCurry Architects explored the formal possibilities of levers, spouts, valves, and mechanisms. From among these and other sketches, five essential elements—two spouts and three levers—were chosen to constitute American Standard's new Heritage line of residential and commercial faucets. The components can be mixed and matched in various combinations to fit a particular application (top photo). The faucet sets are manufactured in chrome, brass, and several colors of plastic. The firm is currently working on designing other product lines for American Standard. Circle 415 on information card.

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Circle 120 on information card

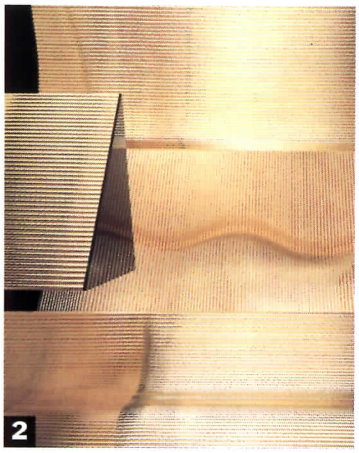
Cover Ups

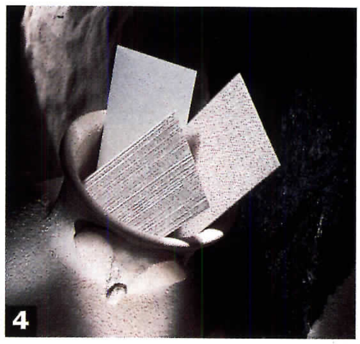
New options for commercial wallcoverings.

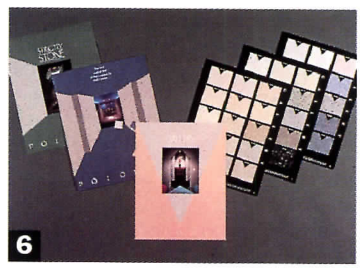
COMMERCIAL APPLICATIONS OF WALLCOVERINGS ARE ON THE RISE, and flexibility is the word that best describes the state of the industry today, according to experts at an American Society of Interior Designers (ASID) conference held in Atlanta in August.

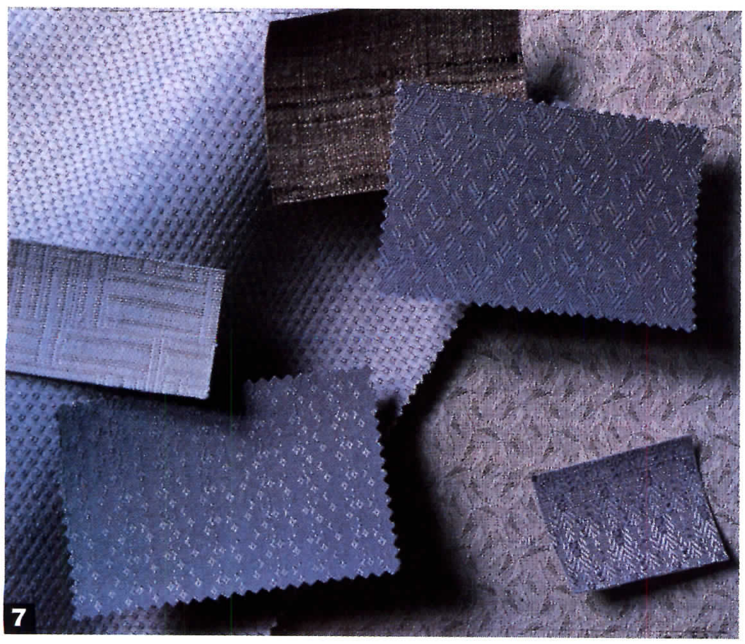
During a contract wallcovering workshop sponsored at the conference by the Wallcovering Manufacturers Association, consultants revealed that wallcovering is now one of the most popular vertical finishes, along with paint. Bruce Foster, senior contract stylist for Columbus Coated Fabrics, Bordon, Inc., says the industry has come a long way in color, pattern, design, and texture over the past few decades, when wallcovering choices were simulated stipples, burlap, or stucco—all in beige.

Of the newer designs available, the freshest looks feature Tex-Mex styles; faux finishes; French accents; reptilian textures; expanded vinyls, damask, silk, moiré, and tapestry; and dark tones often splashed with gold. Due to shortcuts in new technology, manufacturers have reduced the lead time needed to produce a new pattern or collection, to one to three months, depending on the complexity of the design, according to Foster. —A.G.L.









1. Armstrong Industries' Soundsoak 60 and 85 acoustical wall panels feature a random embossed linear fabric available in ten neutral pastel colors. Circle 408 on information card.

2. Forms + Surfaces introduces a reflective and flexible metal panel called Reflections, available in seven finishes and two profiles. Circle 409 on information card.

3. Delicately sculpted friezes from Crown Corporation are reminiscent of historic styles, with Edwardian touches and ornamented garlands. Circle 410 on information card.

4. Vinyl-surfaced Durasan wall panels are now available in three neutral pastel colors, highlighting the trend toward lighter walls. Gold Bond Building Products. Circle 411 on information card.

5. United McGill's acoustical-panel systems and noise-control materials for the wall. Circle 412 on information card.

6. Polomyx seamless, spray-on, multicolor wall finishes, available in a variety of patterns, are for new construction or retrofit. Circle 413 on information card.

7. Silk wallcoverings designed by Hazel Siegel for KnollTextiles include 100 percent silk solids and Jacquard loom-woven fabrics. Knoll International. Circle 414 on information card.

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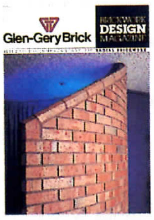

Radial Brickwork

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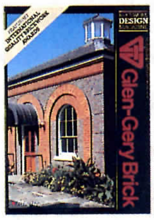
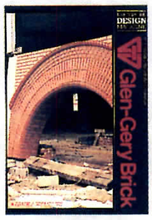
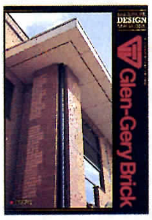


Elegant Arches



Efficient Brick Assemblies



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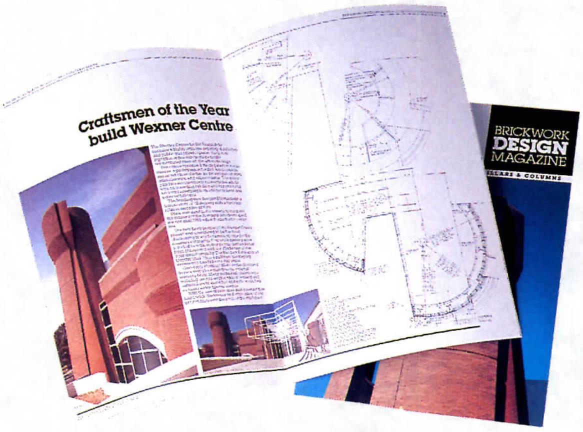

Circle 122 on information card

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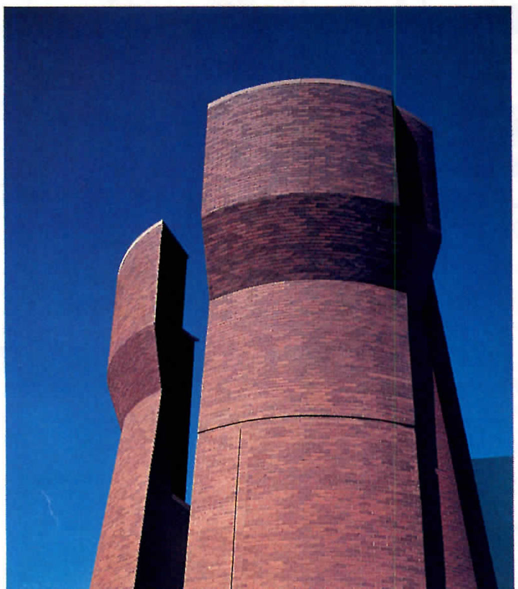

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GROUND COVER

Recent improvements in floorings.

BETTER MANUFACTURING PROCESSES AND TECHNOLOGICAL ADvances in the flooring industry are responsible for the innovative applications available in today's market. For both the residential and contract market, impact- and shock-absorbent systems and backings provide increased durability in carpeting and wood surfaces.

Replaceable carpet tiles and finishes for hardwoods resist subfloor creaking and cracks, while many tiles are glazed with a textured or granular finish for slip- and stain-resistance, to accommodate heavy pedestrian traffic. Resilient, rubber-based tiles and flooring accessories answer the demand for durable, high-traction, low-impact surfaces.

Walter D. Anderson, director of the Resilient Floorcovering Institute, which represents 97 percent of the flooring industry manufacturers, claims that producers of both tile and hardwood flooring are noting an increase in the use of intricate patterns and customized colors, calling attention to the floor as a primary design element. Surveys of color preference indicate that over the next five years, while black remains the ultimate chic, earth tones such as green, warm shades of yellow and gold, and subtle colors such as mauve, will become popular. —A.G.L.

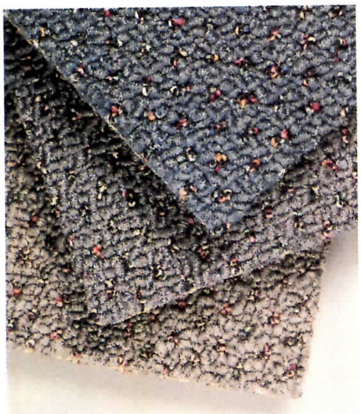
1. Monoceram's Match checkerboard ceramic floor tile in Boston's Black Goose restaurant complements marble-topped tables and the linear configuration of the space. Circle 404 on information card.

2. The Natura Granite series from Florida Tile duplicates the look of granite in 9 colors. Circle 403 on information card.

3. Achievement solid composition tile from Flexco is textured to resemble citrus fruit and resists scratches and heel marks. Circle 405 on information card.

4. Thru-Quartz 1/8-inch gauge, 12-by-12-inch vinyl composition tile features a color and chip pattern that extends through the thickness of the tile. It is offered in 7 colors. Azrock Industries Inc. Circle 406 on information card.

5. Salzburg is a 3/4-inch by 12-by-12-inch prefinished hardwood floor offered in oak with a white finish or cherry in a neutral finish. The flooring can be glued directly to any level, clean, and dry subfloor. Kentucky Wood Floors. Circle 407 on information card.



Commercial carpet

LEES COMMERCIAL CARPET COMPANY developed its Unibond carpet line (above) to withstand rugged pedestrian traffic in areas like airports, schools, hospitals, and shopping malls. Special backing construction is designed to resist edge ravel and delamination. Bioguard antimicrobal protection incorporated into the carpet eliminates bacteria-caused odors. According to the manufacturer, the treatment never has to be reapplied, even after repeated cleaning.

Circle 416 on information card.

Premier series tile

THE PREMIER SERIES IS A NEW addition to Dal-Tile Corporation's Dal-Duraflor line of pavers. The 8-by-8-inch vitreous pavers for high-traffic areas (below) are available in six shades, with matching bullnose and corner. A textured granular surface is designed for slip-resistance,

and the pavers are also reportedly acid-, scratch-, stain-, and frost-resistant.

Circle 417 on information card.

Rubber flooring

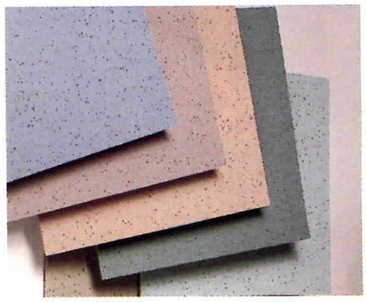
JASON COMMERCIAL FLOORING produces Mirage, a line of rubber flooring that looks like stone. Mirage is available in seven colors, with custom colors available for orders over 5000 square feet.

Circle 418 on information card.

Wood registers with air flow control

GRILL WORKS' WOOD FLOOR registers with fluted dowels incorporate an adjustable metal register below the grille for controlling air flow. The registers are made in a variety of hardwoods, in nine different sizes, and various widths and lengths.

Circle 419 on information card.



Stonetex commercial tile

ARMSTRONG WORLD INDUSTRIES has added six new colors to its line of Stonetex vinyl composition tile (above), bringing the number of contemporary colors in the series to 16. Stonetex is a nondirectional tile in a subtle, speckled pattern, perfect for large, monolithic surfaces. The new colors coordinate with Armstrong's feature tile, wall base, Corlon sheet vinyl, Excelon Imperial Texture tile, and Step-Master slip-resistant tile.

Circle 420 on information card.

CATALOG 15
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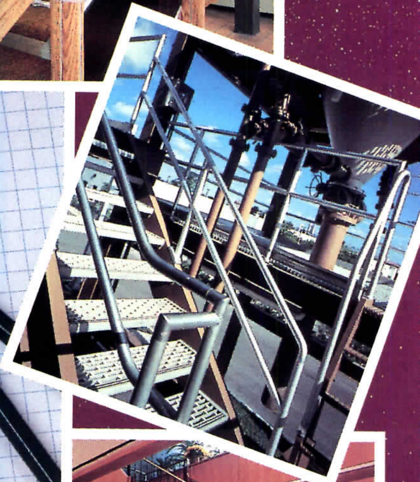

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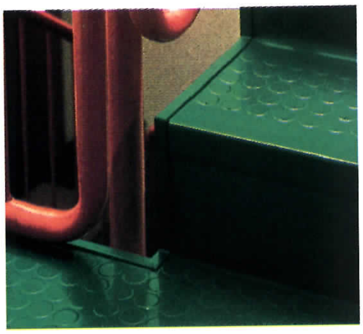


Updated stairtreads

NORA STAIRTREADS (ABOVE) FROM Freudenberg Building Systems, Inc., are available in 20 colors and in several styles, including a model that combines nosing, tread, and riser into one element with rounded pastilles for heavy commercial use, and round or square pastilles for normal traffic. Constructed of durable rubber, the stairtreads are guaranteed with three- and five-year warranties.

Circle 421 on information card.

Vinyl flooring

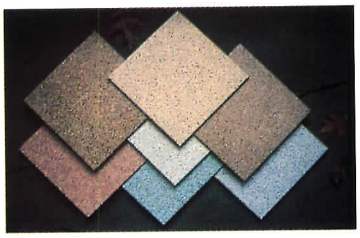
A NEW GRANITE PATTERN IS now part of Vinyl Plastics Inc.'s line of solid vinyl tile flooring. Suggested primarily for commercial applications, the tile (right) is available in seven colors in 12-by-12inch sizes, or a custom installation size of 37-by-37-inches.

Circle 422 on information card.

Entrance mats

THE PEDIGRID/PEDIMAT COMmercial line of entrance mats from The C/S Group now includes 25 designer colors. The aluminum treadrail entrance mats incorporate 100 percent nylon in the carpet treads, which are treated with a stain-resistant finish. Custom logos and graphics may be impregnated into each carpet fiber so they do not wear off.

Circle 423 on information card.



Steel siding

ROLLEX CORPORATION INTROduces a line of residential steel siding in a grainy texture resembling wood. Available in 12 colors, the siding is offered in three styles: double 4-inch horizontal; single 8-inch horizontal; and 12-inch vertical board and batten. The siding can be mixed and matched with the company's aluminum sofitt, fascia, and accessories line.

Circle 424 on information card.

Resilient paving system

CHOSEN BY POPULAR SCIENCE Magazine as one of the 12 best construction products introduced last year, the Softpave rubber-based tile (below) is intended for interior and exterior use. Formulated of urethane binder and high-grade tire tread rubber, the tile is water-permeable and flexible enough to withstand cracking or chipping. The 1-inch-thick tiles are available in 24-inch squares, 12-by-9.5-inch interlocking blocks, and 48-by-10-inch curb fittings. Carlisle Tire & Rubber Company.

Circle 425 on information card.

PRODUCTS

Rubber flooring samples

FREUDENBERG BUILDING SYSTEMS, INC. created a sample board of flooring to show professionals the broad range of patterns, colors, and textures available from its Noraplan line. The board also helps provide accurate color matching of floors and flooring accessories. All Noraplan flooring has a patented, dirt-repellant surface finish, and does not require waxing.

Circle 426 on information card.

More mats

ROPPE RUBBER CORPORATION INTRODUCES a line of rubber and vinyl floor mats to their flooring line. A clear vinyl mat is designed to protect carpeting; a vinyl expanded sponge mat reduces worker fatigue in commercial applications such as banks and retail work areas. A corrugated V-rib matting captures moisture and soil from its surface, and a multi-use mat with corrugations was developed to repel dirt and mud. All styles are offered in a wide range of sizes and colors to fit a variety of applications.

Circle 427 on information card.

Safety treads

PEMKOTE SAFETY TREADS COMBINE STAINless steel, nickel, and aluminum into a metal alloy which is heat-fused to thresholds, stair treads, and floor nosings. The alloy provides a nonskid, corrosion-resistant surface; an economical alternative to stainless steel and cast metal products. Pemko.

Circle 428 on information card.

Storagewall system

JG FURNITURE SYSTEMS, INC. INTRODUCES an integrated office enclosure and storage system with wire-management capability. Arche-type features modular, factory-assembled storage and filing cabinets, office doors, and clerestory glass. All the components are designed to blend with drywall or demountable partitions, or to integrate with another JG system.

Circle 429 on information card.

Heat pump thermostat guide

HONEYWELL'S RESIDENTIAL DIVISION HAS released a free selection guide that details the company's complete line of heat pump thermostats, from standard to premium programmable models. Color-coded charts include descriptions of each model, as well as information on light-emitting diodes (LEDs), system switches, system stages, and changeover and anticipator ranges. Graphs and photographs provide additional information. Honeywell Inc.

Circle 430 on information card.

Wood flooring

THE MARATHON PLANK II LINE OF PREFINished, solid planks from Tarkett, Hardwood Division, North America, features an acrylic polyurethane finish, creating a smooth and lustrous surface. The flooring is available in red and white oak in five colors, and is 3/4-inches thick. Three widths and a beveled edge are offered. *Circle 431 on information card.*

Workplace air cleaner

THE MODEL 836 LOW-PROFILE, NON-ELECtrostatic air cleaner provides continuous air filtration. An adjustable worklight is available as an accessory attachment. Artograph, Inc.
Circle 432 on information card. ■

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EDITOR'S PAGE

Patron of Professional Excellence

ARCHITECTS NOW HAVE THEIR OWN PATRON of professional excellence, who from personal background and experience, understands that practitioners need professional help in these dark days of economic recession. The architectural patron is Richard W. Hobbs, an energetic believer in a hands-on approach to tackling responsibilities as an AIA group vice president. Hobbs came to the institute nine months ago from Seattle, where he practiced architecture for 22 years and was head of the Hobbs Architecture Group. Now one of three architects to hold a key position on the institute's changing staff, he has held various local, regional, and national positions with the AIA.

Designed by Richard Hobbs (right), the periscopes of Seattle's Pier 48 Information and Observation Center (below) demonstrate the architect's ingenuity.

ED CASTLE

STEVE YOUNG

To explain his role at the AIA, Richard Hobbs picks up a pen and enthusiastically starts drawing. "I'm in the design development stage of this job," he says, delineating a diagram of his responsibilities. A look at his record, however, reflects that he has already gone far beyond schematics. One of his major initiatives that he labels Managing Rapid Change is aimed at providing architects with strategies to cope with the economic slump. In August, for example, Hobbs and his staff circulated a questionnaire to a select group of AIA members in an effort to discern future growth projections affecting building type, firm size, and geographic regions. Using the resultant data as a basis for discussion, the AIA, under Hobbs's leadership, held roundtables this fall in Washington, D.C., Wisconsin, and Nebraska to gather even more information about strategic planning, future markets, and financing of construction. (The results will be published in our January, 1991, issue.)

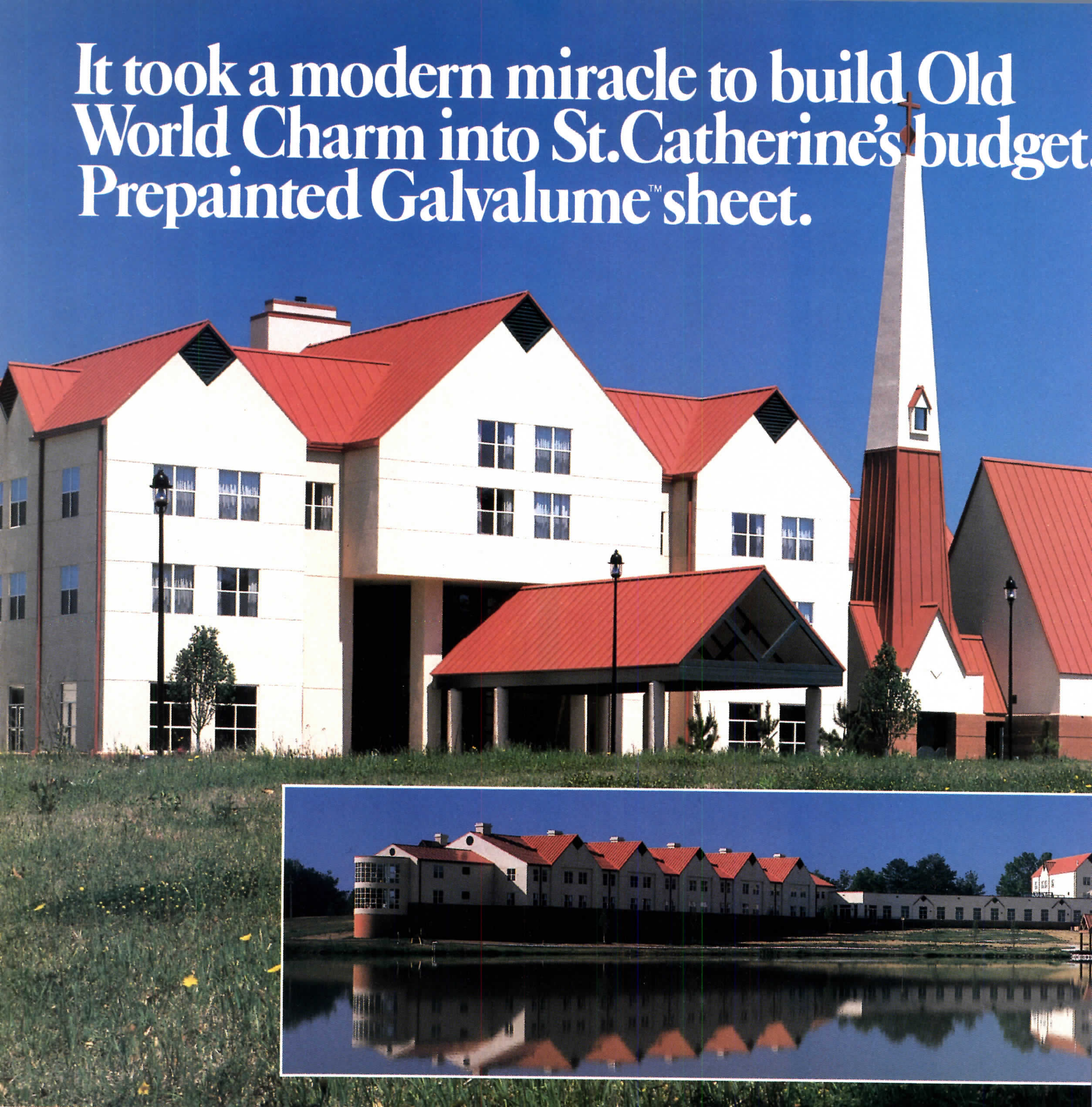
Hobbs has also organized an information network between committee members and architects who practice in those members' region. Hobbs's aim is to persuade more experienced firms to help less experienced firms solve their practice problems. "Architects don't practice alone," Hobbs points out. "They practice in teams. We are taking the same approach in linking all our services."

Hobbs's ongoing design project is restructuring the institute's outreach services—design, practice, documents, education, and professional development—and pulling them together under the title of professional excellence. His long-term goal is to interconnect these programs to provide the ordinary dues-paying member with more useful information about practicing architecture. "The AIA should provide resources that our members aren't able to get for themselves," Hobbs explains. "We can, and should, be a catalyst."

It's still too early to tell whether Richard Hobbs will succeed as a patron of professional excellence in making AIA's services more useful and meaningful to the membership. He obviously needs AIA's overall cooperation and encouragement. But it is already clear that Hobbs's experience with design, practice, and clients is helping him understand the serious concerns of a profession now facing hard times. The challenges are there, but so is Hobbs. ■

—DEBORAH K. DIETSCH

It took a modern miracle to build Old World Charm into St. Catherine's budget. Prepainted Galvalume™ sheet.



Building the architectural charm of Siena, Italy, into St. Catherine's Village in Madison County, Mississippi, took a lot more than just a great design. It required imagination, creativity and a little inspiration.

Working with a limited budget, the owners of the 180-acre St. Catherine's Village lacked the financial resources to give the 400-unit senior citizen residential complex the red clay tile roofs which were so characteristic of Siena.

With a total roof area of 180,000 sq ft, not only were the actual costs of the tiles prohibitive, but the additional reinforcement needed to support the tile construction also weighed heavily against the material's use.

There was one saving grace: Bethlehem Steel's prepainted Galvalume sheet which was fabricated into architectural standing seam panels by AEP·SPAN of Dallas, Texas. The architect noted, "Prepainted Galvalume sheet panels gave us the rich, distinctive look of red clay tiles, at a very affordable cost."

The custom color for the panels was developed to match the Terra Cotta roof tiles of Siena. AEP·SPAN's factory rollformed High-Seam 20 panel incorporates a 1½-in.-high clip rib with

a 20-in.-wide span between ribs. The panels are attached to plywood deck at slopes of 6:12 and 12:12. Because of the steep angles, some 180,000 sq ft of material will be used by the time the second phase of the project is completed. Downspouts were also produced from prepainted Galvalume sheet and were rollformed on the job.

A modern miracle for St. Catherine's Village? Maybe. But there's no doubt that prepainted Galvalume sheet's superior performance satisfied St. Catherine's concern for durability, aesthetic appeal and low maintenance at a very attractive price.

If you would like additional information on the virtues of prepainted Galvalume sheet, give us a call, **1-800-352-5700, Ext. 400.** Or write Bethlehem Steel Corporation, Industry Marketing Division, Bethlehem, PA 18016.

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Circle 13 on information card

LETTERS & EVENTS

Housing efforts

Your July issue focusing on affordable housing was a welcome one. This important problem was brought to attention with interesting text and excellent examples of what can be done. But I was disappointed to see no mention of how the AIA is addressing this problem, beyond our well-known Search for Shelter program.

The 1988 AIA Convention called for the AIA to become more deeply committed to the issue of affordable housing and, as a result, a task force convened in January 1989. This group has worked to make architects more deeply involved in housing issues, and to urge providers of housing to concern themselves with good design.

Task force programs have taken many forms: a workshop on SRO housing; a renewed liaison with HUD; increased legislative testimony; and the development of housing assistance teams modeled on the successful R/UDAT program.

The AIA recognizes that affordable housing is doubtless the single major problem facing this country today, and architects can play a significant role in developing solutions. Without question, the AIA is committed to seeing that architects are strong and effective in our contribution.

Laurie Maurer, FAIA
Chair, AIA Affordable Housing Task Force

Environmental reaction

While I support your call for architects to increase the energy efficiency of their buildings (October, page 15), I find your comments about architectural style versus energy efficiency naive.

A concern for energy efficiency and environmental quality is not confined to a few arbitrary architectural philosophies or styles. Rather, energy and environmental factors can become strong determinants of form. Wise architects know that a concern for energy and the environment is neither a fad nor a style, but good design and good business.

I encourage the architectural profession to reestablish its leadership in the delivery of energy efficient, environmentally sensitive, and occupant-responsive buildings and urban environments.

Michael J. Holtz, AIA
President, Architectural Energy Corporation
Boulder, Colorado

Computer bugs

I should like to express the despair I feel when a publication like yours encourages poor practice with articles such as "Image Builder" (October, page 101). While a number of the applications for scanners and computers listed in the article are encouraged, there is an open-ended suggestiveness in the article that I believe perpetuates the "magic box" image of computers, and tempts professionals with misinformation and misrepresentation.

This profession seems ready to enter into a period of austerity and yet continues to spend significant capital on technologies that often make practice less efficient. Instead of bemoaning the alleged economic hardship to come, we should make every attempt to survive, and yet we continue to perpetuate waste.

Brian J. McFarland, AIA
Bellerose, New York

In "Balancing the Budget" (August, page 113), there are several paragraphs which are untrue and damaging to AEMAS Plus software by Data-Basics.

The article implies that moving through the options can only be done with the arrow keys, and thus is time-consuming and a nuisance. The program is designed to work with the backspace key and space bar. Furthermore, there are quick-move features which allow the user to type where he or she wants to. Using the arrow keys is only one of several options.

Data-Basics software is also noted for its ability to track and record principals' time for various billable and non-billable jobs down to quarter-hour increments. In addition, the annual maintenance fee is not a requirement, but an optional low-cost method through which the user can receive yearly updates.

Arthur K. Divell, Jr.
President, Data-Basics, Inc.
Cleveland, Ohio

Corrections

The McClain Athletic Training Facility (October, page 40) was designed by Bowen Williamson Zimmerman Architects in association with Howard Needles Tammen & Bergendoff.

The photograph of Two Prudential Plaza (October, page 88, top left) should have been credited to Wayne Cable, Cable Studios.

Through August 1991: "General Services Administration Design Awards," an exhibition at the National Building Museum. Contact: NBM (202) 272-2448.
December 7-January 13: "Student Work from the Yale School of Architecture," at the National Building Museum. Contact: NBM (202) 272-2448.
December 7-March 9: An exhibition of drawings and artifacts by Russian architect Iakov Chernikhov, at Columbia University. Contact: David Hinckle (212) 654-3473.
December 12: "ConDoc: The New System for Formatting and Integrating Construction Documentation," an AIA professional development workshop in Crystal City, Virginia. Contact: Brenda Henderson, AIA (202) 626-7357.
December 28: Deadline for entries for the Design Awards Program of the California Council, AIA. Contact: Julie Kniseley, CCAIA (916) 448-9082.
January 12: AIA Women and Architecture 1991 Exhibition and Conference in Chicago. Events include three exhibitions and a one-day conference "Fitting In or Making a Difference." Contact: Jean Barber, AIA (202) 626-7305.
January 15-February 28: "Theaters Under Siege," an exhibition of photographs by Maggie Hopp of theaters threatened by development around Times Square, at the National Institute for Architectural Education, New York City. Contact: NIAE (212) 924-7000.
January 18-21: "Builders Do It Better," the annual convention of the National Association of Home Builders, in Atlanta. Contact: NAHB (202) 822-0420.
January 23-24: Two one-day professional liability seminars conducted by the AIA Liability Committee, with Schinnerer & Company, in Dallas, Texas, and Tucson, Arizona. Contact: Chris Clark, AIA (202) 626-7537.
February 5-8: The annual convention of the National Roofing Contractors Association in Orlando, Florida. Contact: NRCA (708) 299-9070.
March 19-21: AEC Expo West show and conference at the Moscone Convention Center, San Francisco. Contact: Expoconsul International (609) 987-9400.

NEWS

VISIONS OF HOME ▪ LOS ANGELES URBAN DESIGN ▪ ARCHITECTURAL RESEARCH

North Philadelphia R/UDAT

LOCAL RESIDENTS REJOICED RECENTLY WHEN the scaffolding finally came down from around the city's most visual symbol, William Penn atop City Hall, just as Philadelphia announced that bankruptcy was imminent. Although no fewer than five impressive office towers have been added to the skyline, local architecture firms—including Venturi, Scott Brown and Associates, and Curtis Cox Kennerly—are dramatically reducing their staff; and while demolition has made way for Venturi Scott Brown's new concert hall for the Philadelphia Orchestra, the project is still $30 million shy of the $50 million needed to break ground.

But the most stunning contrast between perception and reality was recently made apparent by a group of outsiders, as the city discovered hopeful signs in an area many center-city residents had written off. North Philadelphia was the focus of attention during a visit by a Regional/Urban Design Assistance Team (R/UDAT) from October 18 to 22. The volunteer team of experts investigated the area's problems and opportunities, and made recommendations for changes. The team recognized many of the problems that give North Philadelphia its reputation as the city's roughest and most depressed area, but they also found blossoming community gardens, effective social programs, and a community dedicated to creating a better life.

The five-day visit produced a 50-page blueprint for change. Some of the ideas it contains—such as a train station inspired by the Crystal Palace, a great civic plaza, and a tower of light—are symbols of which to dream. But others suggest focusing cooperation among the area's nearly 900 assistance programs, reuse of abandoned buildings and vacant lots, and cleanup programs that can be implemented more quickly.

"North Philadelphia is a piece of real estate with extraordinary potential," says Charles E. Dagit, Jr., FAIA, president of the Philadelphia Chapter of the AIA. "We've focused a lot of attention in Philadelphia on the suburbs—areas with little or no infrastructure. North Philadelphia has an infrastructure and services in place. It is one of the greatest urban opportunities of the 1990s."

The team assembled for the project, dubbed Crossroads North Philadelphia, was unusual, if not unique, to R/UDAT's 23-year history. Because of the complex nature of the area, it included not only architects, but also urban planners, a sociologist, an economist, a transportation planner, an assistant police chief, and specialists in real estate, youth programs, and neighborhood development.

Whatever else comes of the R/UDAT, the attention it drew to North Philadelphia has educated an entire region about an area largely ignored or misrepresented by the press. WHYY radio and television, Philadelphia's PBS affiliate, covered the event extensively, producing a half-hour documentary on North Philadelphia, broadcasting two town meetings and airing community reaction. These provided an intimate glimpse into the hearts and minds of a community many viewed previously only through the window of a passing car or train.

—PETER DOBRIN

Peter Dobrin is a Philadelphia-based writer.

North Philadelphia (above left), formerly a thriving industrial area, is still served by several major transportation systems. Now an Amtrak station in disrepair, the North Philadelphia train depot (above right) was designed by Theophilus Parsons Chandler, Jr., in 1901.

AIA BRIEFS

The AIA Board of Trustees in August approved the selection of six architects from six nations as 1991 Honorary Fellows, based on the recommendations of the AIA International Relations Committee. Honorary Fellowship is conferred upon foreign citizens of exemplary character who have made notable contributions to the field of architecture and design. It is awarded to the following architects:

Tadao Ando, Osaka, Japan, a self-taught architect and author who won the Gold Medal of Architecture in 1989 from the Academie d' Architecture in Paris. He is currently a visiting professor at Yale and Columbia Universities;

Jozsef Finta, Budapest, Hungary, architect of the Hotel Taverna and the International Trade Center in Budapest, celebrated for his contributions to Modern architecture;

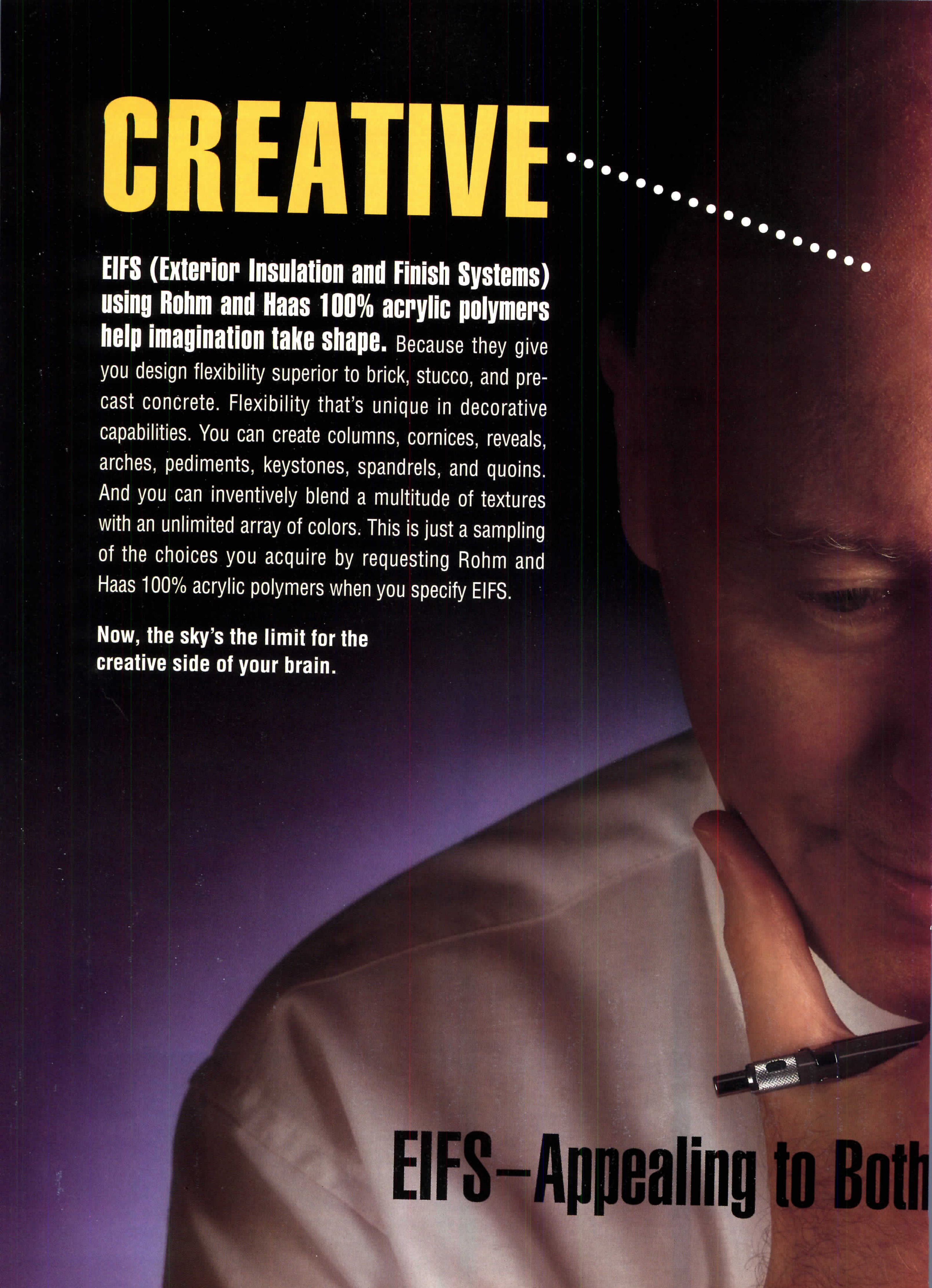
R. David Jackson, Sydney, Australia, former president of the Royal Australian Institute of Architects, and founder of Australia's Careers School Program, which educates high school students about the profession of architecture;

Jens Nielsen, Copenhagen, Denmark, director of design for the Danish State Railway, including the "super ferriers" that transport trains, trucks, cars, and passengers between Jutland and Zealand;

Alexandros Tombazis, Athens, Greece, cited by his nominators for his architectural diversity, solid approach to problem solving, and responsiveness to the implementation of technology in architectural design;

Richard Young, Toronto, Canada, president of the Royal Architectural Institute of Canada, and responsible for Canada's "Architecture in the Year 2000" program, which examines the forces affecting the profession over the next decade.

The new Honorary Fellows will be invested during the 1991 AIA National Convention in Washington, D.C., held from May 18-21.


CREATIVE
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Now, the sky's the limit for the creative side of your brain.
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