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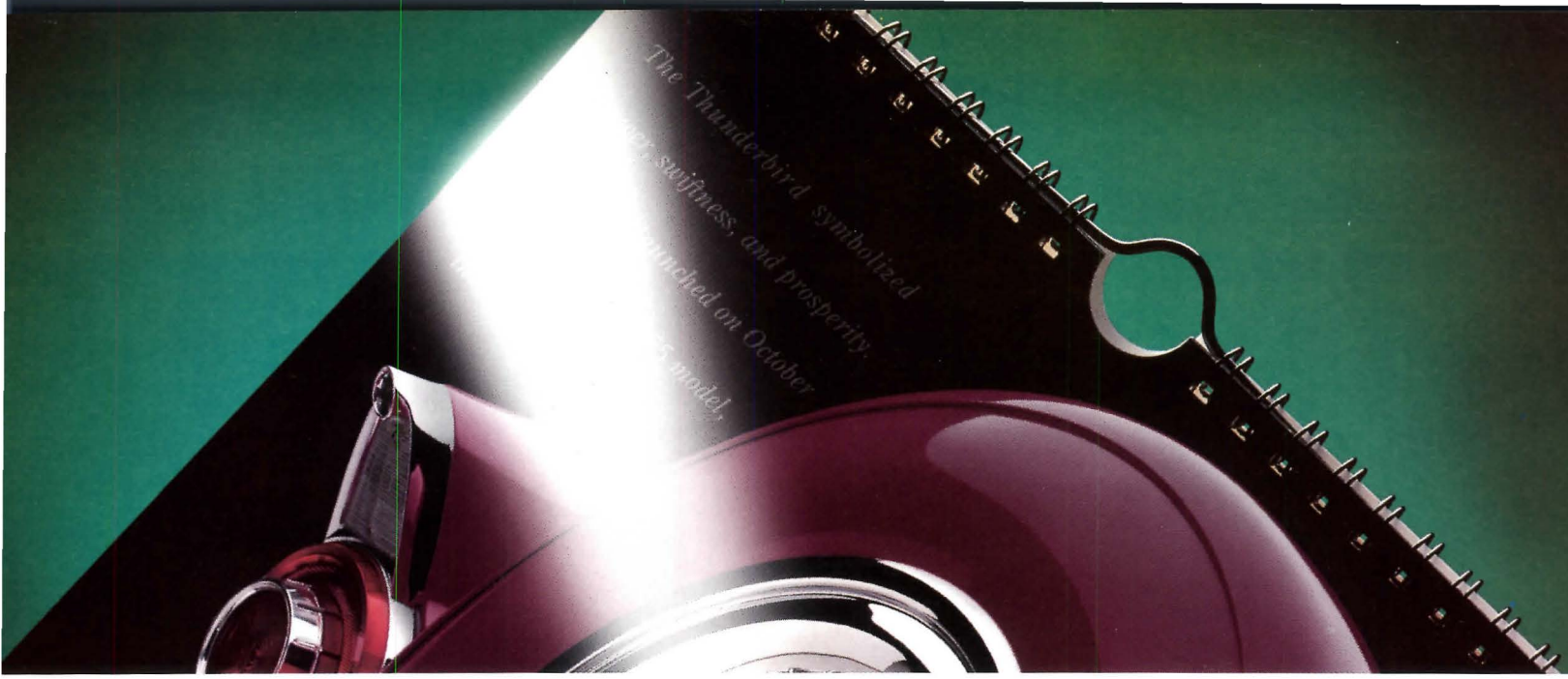

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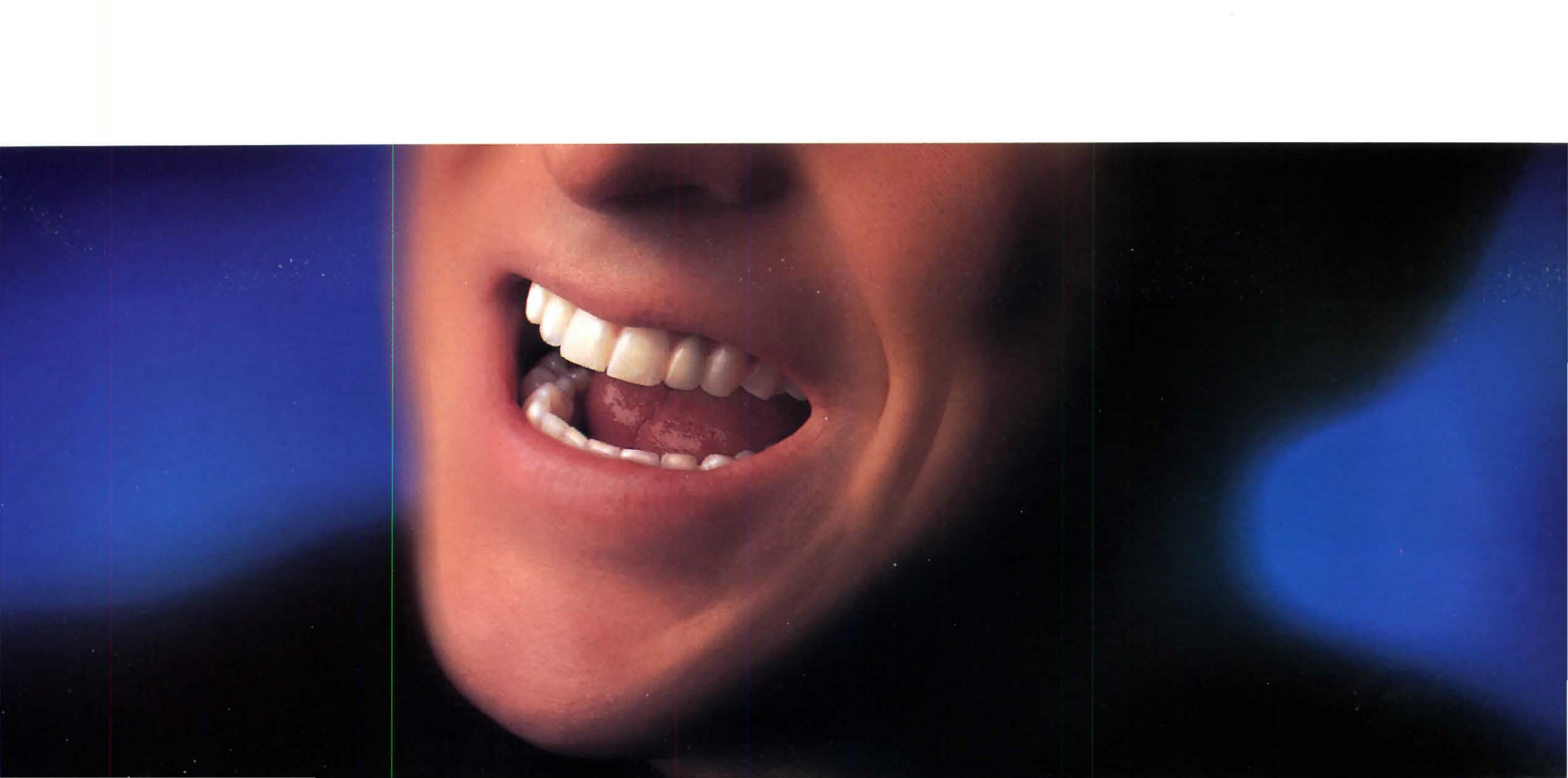

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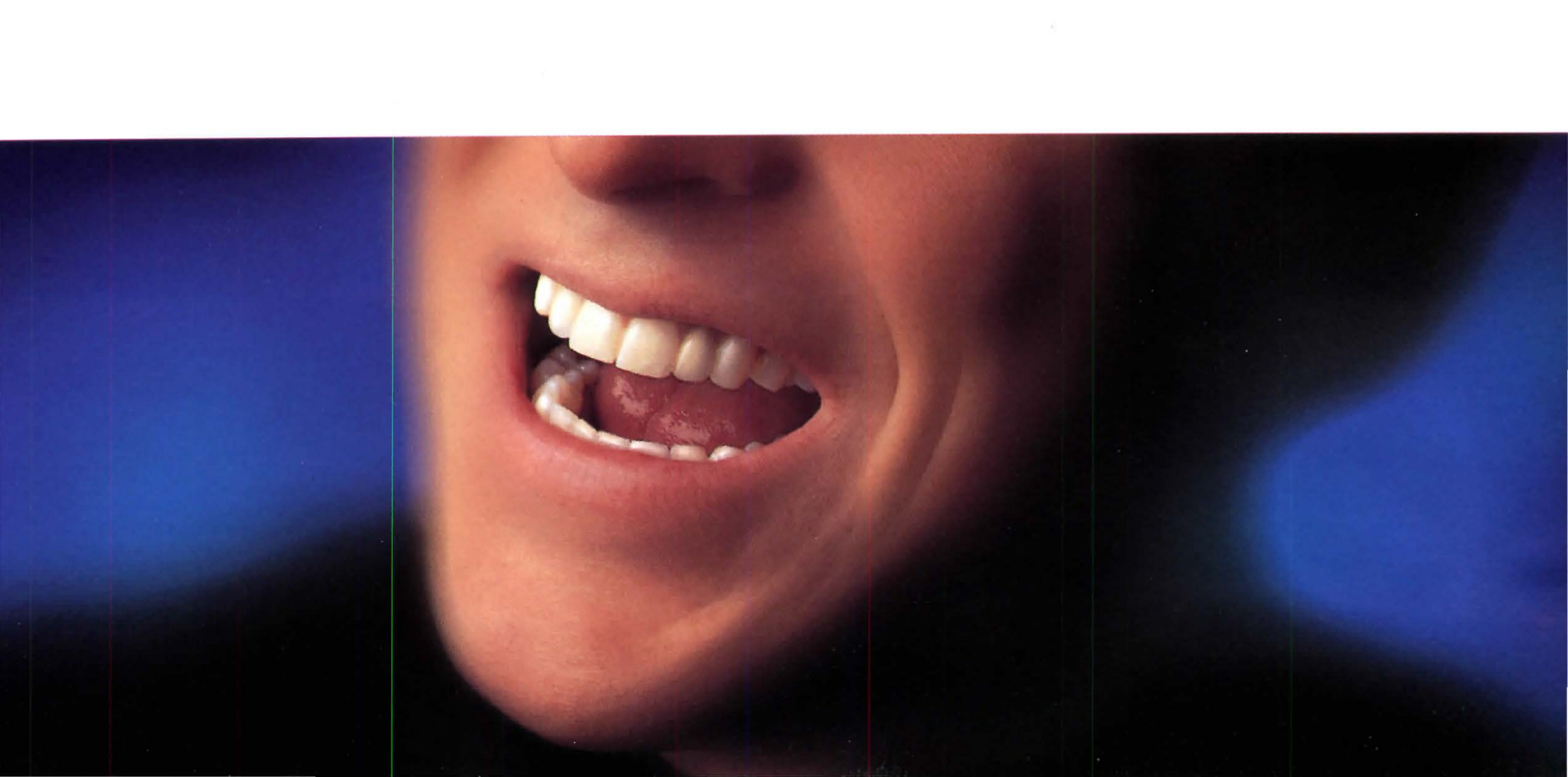

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Design Principal William Pedersen of Kohn Pedersen Fox Associates in the atrium of the World Bank. Photograph by Mary Noble Ours.

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Kohn Pedersen Fox Associates, New York City.
Photograph by Lisa Quinones.

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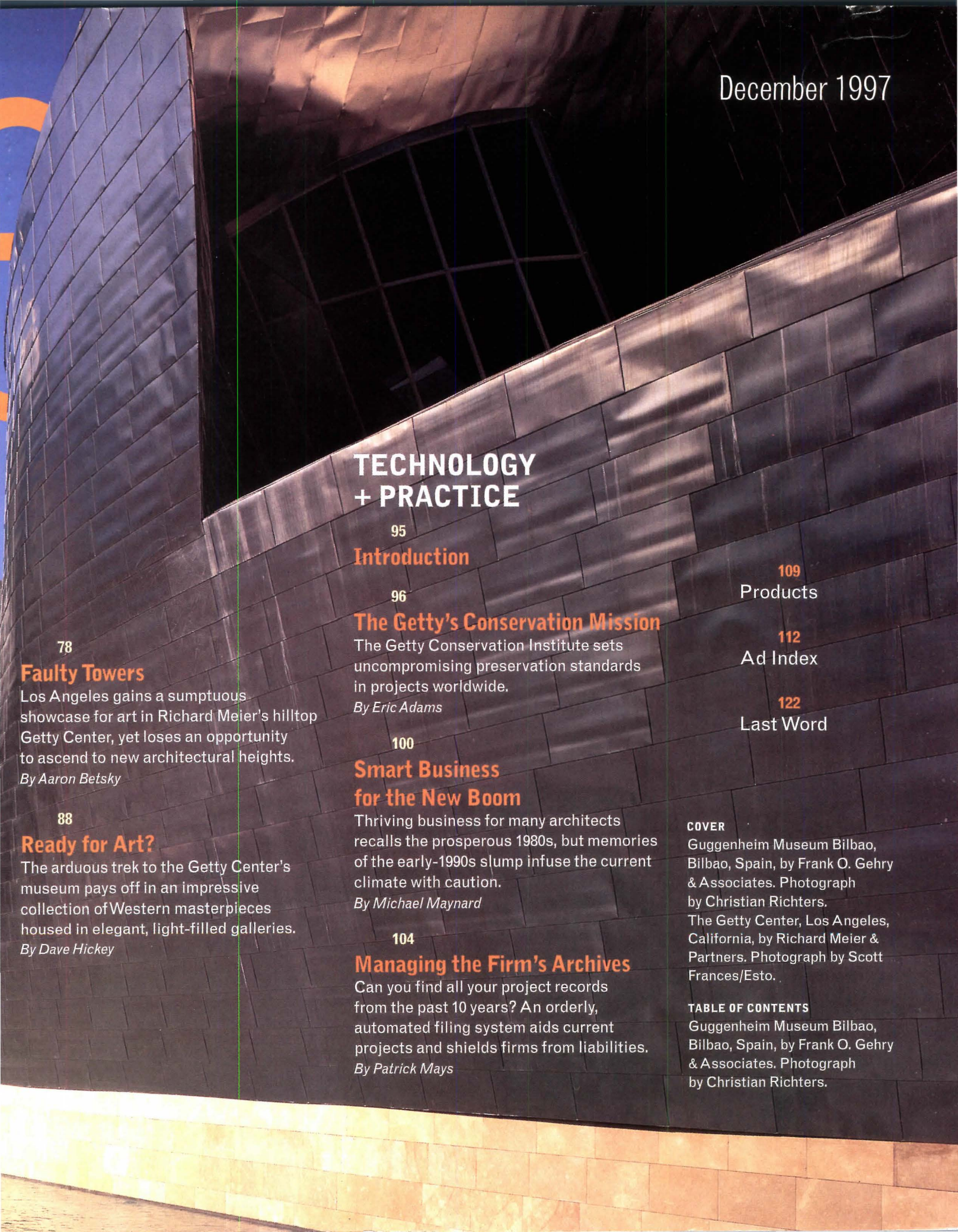

COVER
Guggenheim Museum Bilbao, Bilbao, Spain, by Frank O. Gehry & Associates. Photograph by Christian Richters.
The Getty Center, Los Angeles, California, by Richard Meier & Partners. Photograph by Scott Frances/Esto.

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Guggenheim Museum Bilbao, Bilbao, Spain, by Frank O. Gehry & Associates. Photograph by Christian Richters.

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A Declaration of Independence

No longer the magazine of the AIA, Architecture embarks on a new direction.

When in the course of human events it becomes necessary for one magazine to dissolve the political bands which have connected it, the magazine should declare its independence. And so it should be self-evident that, with this issue, *Architecture* is no longer the official magazine of the American Institute of Architects and has adopted a new editorial outlook.

Our new life, liberty, and happiness are most visibly represented by our spirited graphics, the work of designer J. Abbott Miller, whose firm, Design/Writing/Research, has won many awards, including a Chrysler Award for Innovation in Design.

Inaugurating our independence in this issue are the winners of the Progressive Architecture Awards and Awards for Architectural Research. These honors celebrate design innovation and investigative analysis—the very pursuits this magazine hopes to champion month after month.

When our parent company, BPI Communications, bought *Progressive Architecture*, many not only bemoaned the loss of a magazine, but of architecture's conscience. *P/A* scrutinized many of the profession's weaknesses with refreshing candor. Inspired by *P/A*'s legacy, this redesigned issue of *Architecture* ushers in a more vibrant editorial slant. We'll tackle similarly challenging issues, with more in-depth reporting on practice, technology, education, and design.

We won't abandon our coverage of major buildings, however, but will continue to show the latest work by trailblazing designers. We also aim to discover new talent and showcase projects from a broad cross-section of architects from the U.S. and overseas.

And, while criticism has always been incorporated in our editorials and our Protest column, we will raise the level of debate throughout the magazine and make it more apparent through our fresh graphics and new departments.

As a discipline, architecture celebrates people: those who create buildings, those who inhabit them. With this issue, we introduce a new department devoted to interviews with the leaders of the profession, and those who influence it from the outside. We also plan to emphasize firm culture, telling how successful architects market their skills, design their projects, and manage their businesses.

Preservation and urban design are disciplines no firm can afford to ignore. While this magazine will continue to concentrate on new buildings, two new departments, Preservation Technology and City, will present the latest renovation techniques and urban developments.

Architecture is being rapidly transformed by new methods of practice and project delivery. Analyzing how these changes influence firms—for better or worse—will be a mainstay of every issue. From contracts to construction management, we'll examine the latest perspectives on practice.

Like a building, a magazine changes over time—elements and spaces are ripped down, added onto, cleaned up, and lived in. We aren't tearing out our foundations, but expanding our structure to offer you more useful, interesting, and provocative reading. With our freedom from the AIA comes more responsibility to our readers. We don't pledge our lives and fortunes, as the signers of the original Declaration of Independence did, but we do promise to uphold the best in architecture.

Deborah K. Dietsch

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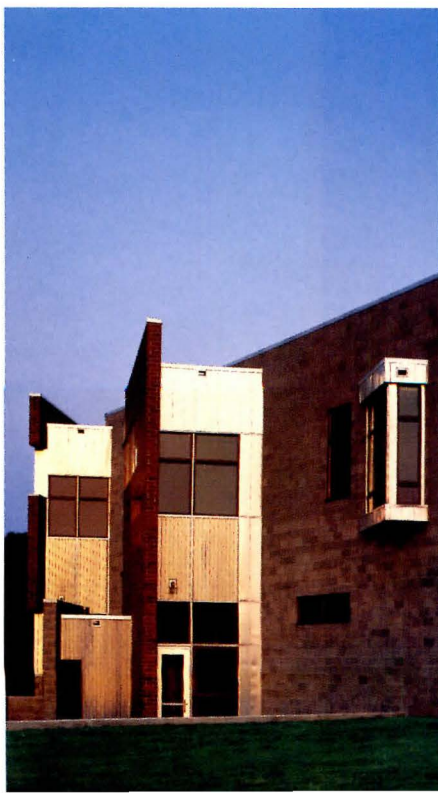

Center for Energy and Environmental Education
University of Northern Iowa

Norfolk revises urban mall

The recent article on Norfolk's MacArthur Center (*Architecture*, October 1996, page 67) contains incorrect drawings and factual inaccuracies. The pictured design of Dillard's department store was a preliminary scheme presented for the first—and only—time by Dillard's architects in a public working session on June 26, 1996. This scheme was not accepted at its initial review. Based on comments received from the Norfolk Planning Commission, the Design Review Committee, and our consultants, the architects submitted another design—inspired by the former City Hall building—that responds to the civic character of its site. We can only conclude that the publication of an outdated and irrelevant image at the time when current drawings were offered intentionally misrepresents the project.

Revised scheme of MacArthur Center by Yves P. Rathle of Studio Yves.

MacArthur Center will not be a "vast, windowless mall," as the caption in your article claims, but instead will open to the city through nine streetside entrances. The most important of the center's facades will open to the Granby District with sidewalk cafés and shopfronts on the ground floor, and outdoor dining terraces on the third floor.

Ray Gindroz of UDA Architects is not leading the design effort for MacArthur, as your article implies, nor is UDA Architects one of the design architects. UDA is, in fact, one of three consultants working on behalf of the city to find the best ways to connect MacArthur Center to its context. Nearly three years ago, the city retained both Jonathan Barnett and UDA to prepare design guidelines for the center.

Paul D. Fraim, Mayor
Henry V. Shriver, Chairman,
Norfolk Design Review Committee
Norfolk, Virginia

EDITOR'S NOTE: AIA Hampton Roads President Patrick Masterson, the author of the article, and Associate Editor Reed Kroloff attempted to obtain updated images of MacArthur Center, but city officials refused to release them. The article explicitly states that the depicted design is a proposed scheme. An October 15 article in *The Virginian-Pilot*, however, indicates that one of the building's most criticized features is unlikely to change. It states that although Dillard's corner facade "has been enlivened with five recesses that appear to be windows, they will not offer views into the store."

Belluschi Blues

In your article about museum renovation in your November issue (pages 169-173), I was disturbed by your characterization of Pietro Belluschi as the designer of the Clark Art Institute. It does a grave injustice to the role of The Architects Collaborative in the project.

I do not wish to detract from Belluschi's stature as a great architect and designer. We enjoyed collaborating together on the project as associate architects, and his sensitive eye was critical on a number of issues. However, the majority of the design was developed in the office of The Architects Collaborative under my direction.

Norman C. Fletcher
Fletcher Harkness Cohen Moneyhun
Boston, Massachusetts

AIA's School Spirit

We were pleased to see your November 1996 editorial on the need for architect involvement in upgrading our nation's school buildings (page 15). We also believe actions speak louder than words, and hope the following ongoing AIA initiatives will further federal legislation to provide federal support for new school construction and renovation projects.

With the June 1996 release of the General Accounting Office report outlining dilapidated conditions in our nation's schools, the AIA Federal Affairs Department began working with U.S. Senator Carol Moseley-Braun (D-Ill) and U.S. Representative Nita Lowey (D-NY) and their staffs to implement a comprehensive legislative strategy for the renovation and upgrade of existing school facilities. In July, 1996 AIA President Raymond G. Post, Jr., sent a letter to the White House expressing the Institute's support for modernizing our nation's schools.

With the onset of the 105th Congress in 1997, the AIA plans to promote the National School Infrastructure Act as one of the cornerstones of its legislative agenda. In this era of budget constraints, we support the concept of cooperative federal/state funding methods that emphasize federal support rather than federal control over school districts requesting assistance. As Senator Moseley-Braun has so eloquently stated, there should not be such inelastic and fragile funding for something as important as maintaining our nation's schools.

If students are to meet the challenges of the 21st century, they must have an infrastructure that enhances the learning environment. Knowledge and creativity cannot be spawned in dilapidated conditions. The AIA believes architects can make invaluable contributions to renovating our schools and intends to be a major proponent of this issue in the months ahead.

Stuart Binstock
Vice President, Federal Affairs
American Institute of Architects
Washington, D.C.

CORRECTIONS

Thomas Schaller drew the illustration on the top of page 43 in our October 1996 issue.

In "But What Does It *Mean*?" by Stephen Kliment (*Architecture*, November 1996, pages 71-73), *People* magazine's Fog index hovered around 12 years of education required, not age 12.

Hartman-Cox Architects is the associate architect for the renovation of the Kennedy Center Concert Hall in Washington, D.C. (*Architecture*, November 1996, page 177). The rendering of the hall was created by Interface Multimedia.

Innovation on display

June 16-19, 1997
Conference

June 17-19, 1997
Exhibit

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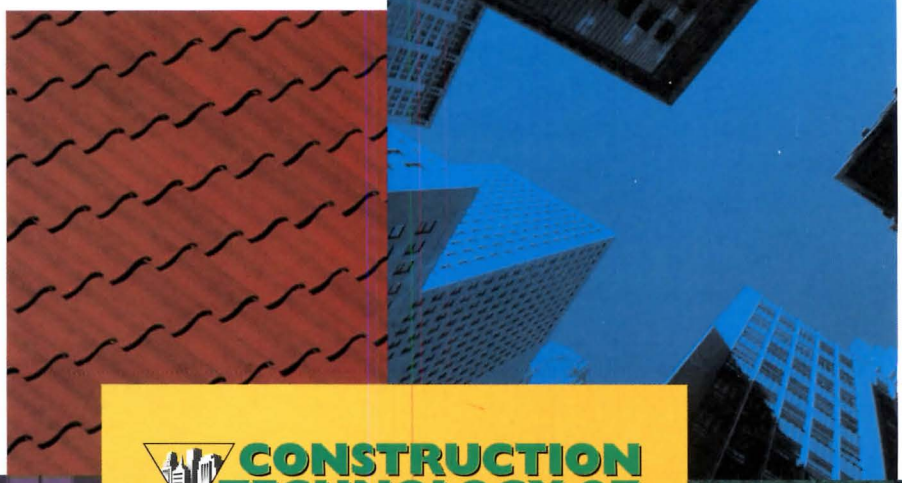

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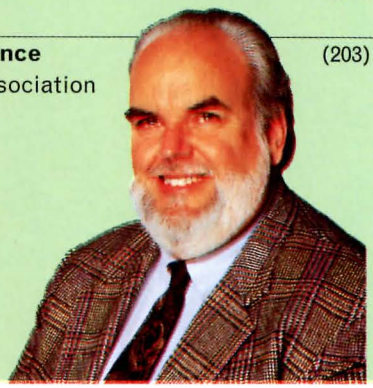
exhibitions

city	dates	exhibition	contact
Los Angeles	through February 2	**Paradise Cage: Kiki Smith and Coop Himmelblau** at the Museum of Contemporary Art	(213) 626-6222
	February 23-May 11	**Exiles and Emigrés: The Flight of European Artists from Hitler** at the Los Angeles County Museum of Art	(213) 857-6000
Miami	through June 30	**Art and Design in the Modern Age: Selections from the Wolfsonian Collection** at the Wolfsonian Museum	(305) 531-1001
New York	through February 2	**A House for an Art Lover: Charles Rennie Mackintosh's Masterpiece** at the New York School of Interior Design	(212) 472-1500
	through February 16	**Charles Rennie Mackintosh** at the Metropolitan Museum of Art	(212) 535-7710
Santa Barbara	through February 2	**The Furniture of R.M. Schindler** at the University Art Museum, University of California, Santa Barbara	(805) 893-2951
San Francisco	through February 25	**Souvenirs of Savings: Miniature BankBuildings from the Collection of Ace Architects** at the San Francisco Museum of Modern Art	(415) 357-4000

A 1938 Gio Ponti chair at Miami's Wolfsonian

conferences

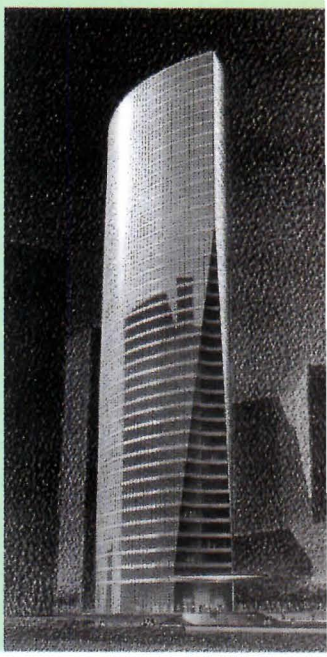
city	dates	conference	contact
Atlanta	April 20-22	**Restoration '97**	(508) 664-6455
Charleston	March 6-8	**Facility Management in Historic Properties**	(202) 626-7482
	March 9-13	**Making Cities Livable**	(408) 626-9080
Denver	March 6-8	**The Client Connection**	(202) 626-7482
Houston	January 24-27	**The Builder's Show** sponsored by the National Association of Home Builders	(202) 861-2191
Los Angeles	March 19-20	**WestWeek 97, Celebrating European Design** sponsored by the Pacific Design Center	(310) 657-0800 ext. 311
Orlando	February 8-10	**Home automation show and conference** sponsored by the Home Automation Association	(203) 840-5658



Architect Donald F. Evans, keynote speaker at the Home Automation Show in Orlando

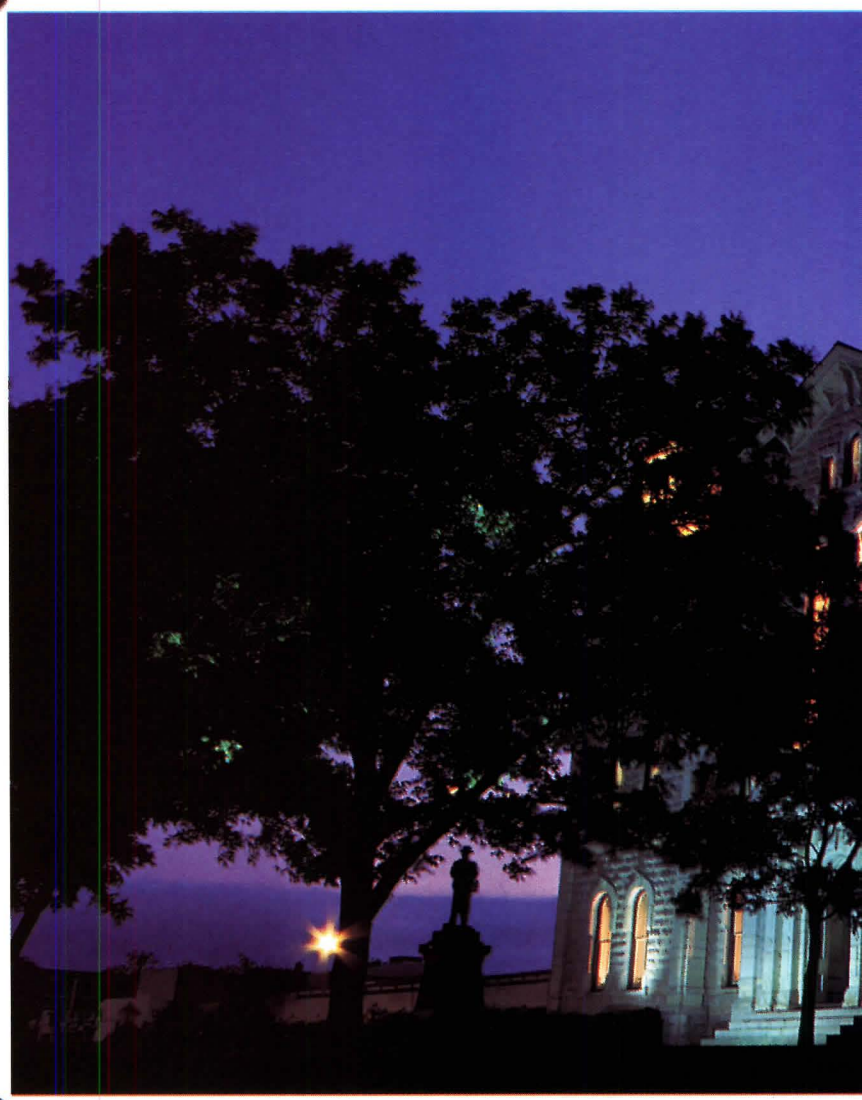
competitions

competition	deadline	contact
Architecture in Perspective Competition, sponsored by the American Society of Architectural Perspectivists	January 17	(617) 951-1433 ext. 225
James Beard Foundation Awards for restaurant design and graphics	January 31	(212) 627-2090
Wall Street Cultural Exchange Competition, sponsored by the Van Alen Institute	January 31	(212) 924-7000
Student Design Competition sponsored by ACSA and Otis Elevator	March 7 (registration)	(202) 785-2324
Davids Island, New York, Competition sponsored by the College of New Rochelle	April 1	(914) 654-5423



Last year's Architecture in Perspective winner, Paul Stevenson Oles's rendering of Henry Cobb's tower in Paris

WHEN IT CAME TO RENOVATING THIS HISTORIC COURTHOUSE, EVEN THE



In 1964, The Parker County Courthouse in Weatherford, Texas was designated a Texas Historic Landmark. And thus began the slow, methodical process of restoring it. First to receive attention was the structure's limestone stonework. Later, the roof was replaced. Then came the windows, which proved to be one of the most challenging aspects of the project.

The Historical Survey Committee mandates that if nothing remains of a historic building's original windows, the new ones must be faithful reproductions, right down to the last detail. Since the courthouse's original wood windows had been replaced by aluminum ones some years back, that meant that all 105 of the new windows had to be virtually identical to those made and installed over a century ago.

Bids were sought, but only two manufacturers felt qualified to respond. One of them, Marvin Windows & Doors, had actually been recommended by a company that was asked to bid but declined.

Though underbid by the other finalist, Marvin's figures were based on building the largest windows with structural muntin bars to withstand the winds that buffeted the building's hilltop site. Intrigued, the architect asked each company to build a sample window. One look at the prototypes and the job was immediately awarded to Marvin.

For the next several weeks, Marvin's architectural department busied itself recreating the past. Working from turn-of-the-century photographs

COMPETITION RULED IN OUR FAVOR.

of the courthouse and measurements of the actual openings, they designed the round tops, double hungs, circles and checkrail units that play such an integral role in the building's design. As for the largest of them, not only were they built to withstand the high wind requirements, Marvin delivered them factory-mulled to further simplify installation.

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AIA Honors Meier

On December 5, 1996, the American Institute of Architects' Board of Directors named **Richard Meier** as the 1997 AIA Gold Medalist. Meier is the 54th architect to receive this honor since 1907. A 12-time national AIA Honor Award winner, Meier was awarded the Royal Gold Medal from the Royal Institute of British Architects in 1989 and the Pritzker Prize for Architecture in 1984.

LUCA VIGNELLI

Richard Meier wins this year's AIA Gold Medal.

The AIA Board honored New York-based **R.M. Kliment & Frances Halsband** with this year's Architecture Firm Award, citing its "quiet, persuasive architecture." The Board conferred the AIA's 25-Year Award, to **Louis I. Kahn**'s Phillips Exeter Academy Library (1972).

RTKL Associates Chairman **Harold L. Adams** is the recipient of this year's Edward C. Kemper Award for service to the AIA and the profession. Adams is chairman of the 52-member AIA Large Firm Roundtable, a group he organized in 1984.

Alan Y. Taniguchi, former head of the Rice University and University of Texas schools of architecture, received the Whitney Young Award for social responsibility. While a member of the National Architectural Accreditation Board, Taniguchi was instrumental in helping black schools gain accreditation; as a member of the AIA Task Force on Equal Opportunity and Social Responsibility, he helped establish the AIA/ Ford Foundation Scholarship Program for minority students.

This year's Thomas Jefferson Award for Public Architecture recognizes **John Tarantino**, chief architect of the Metropolitan Transit Authority in New York; **Hunter Morrison**, director of the Cleveland City Planning Commission; and **Richard Kahan**, founder and president of the Urban Assembly in New York.

The AIA's national Honor Awards recognize 28 projects this year—13 in architecture, 10 for interiors, and five in urban design. Architect Steven Ehrlich is the biggest winner, garnering three awards for projects built in his home state of California. Honors also go to Tod Williams and Billie Tsien for their Neurosciences Institute in San Diego (*Architecture*, March 1996, pages 82-93), and Rafael Viñoly Architects for the interiors of the Tokyo International Forum (*Architecture*, October 1996, pages 110-135). *N.C.*

Oklahoma City

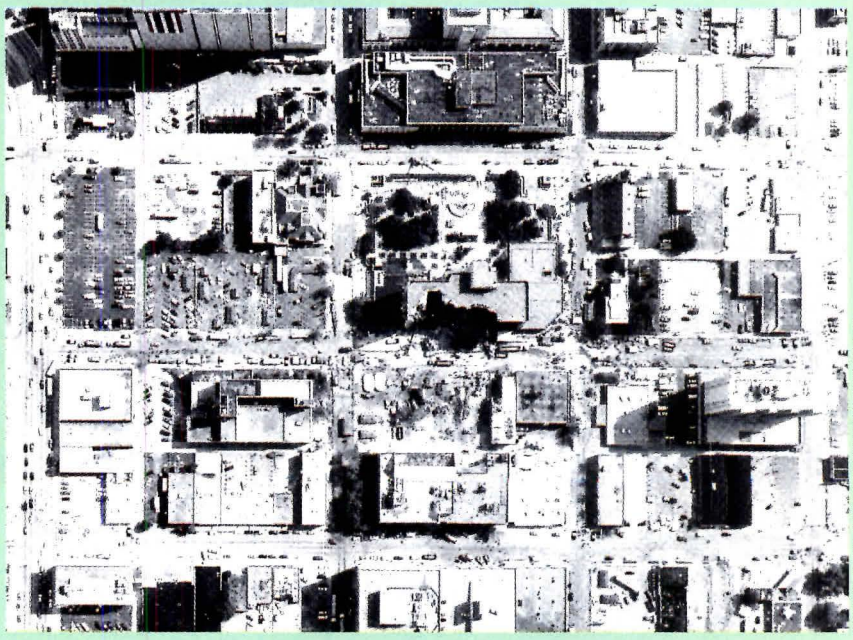
Plans New Federal Building and Memorial

Two recently announced initiatives promise to rejuvenate downtown Oklahoma City, devastated by the April 19, 1995, bombing of the Alfred P. Murrah Federal Building. The Oklahoma City Memorial Foundation is holding an international competition for the design of a memorial on the building's site, and the General Services Administration (GSA) has solicited proposals for a new government complex to replace the Murrah building on a new site to the north. The initiatives stem from two charettes held in the wake of the bombing by the National Endowment for the Arts and the Urban Land Institute to address planning and development in the city.

The 3-acre memorial site will cover the original footprint of the Murrah building, as well as most of the block to its north. The project calls for a monument inscribed with the victims' names, a public plaza, and a memorial center to be housed in an existing historic building on the northern edge of the site. Entries in the competition, which is open to the public, are due March 11. A shortlist of three to five finalists will be announced April 19; the winner will be named July 3. The finalists and winner will be chosen by separate committees, both made up of survivors, victims' families, and design professionals. Contact (800) 491-3822 for more information.

Last October, as part of the Design Excellence program, the GSA invited architects to submit qualifications for the $22 million office complex that will replace the Murrah building. Rather than recreate the Modernist building on the same site, as James Loftis, the architect of the original building proposed, the GSA plans to distribute the 244,000-square-foot federal office complex in low-rise buildings that will straddle two blocks just north of the new memorial.

At least eight federal agencies will be housed in this new downtown campus, which GSA Chief Architect Edward Feiner hopes will "relate to the surrounding community." A shortlist was announced last month, comprising Dworsky Associates, Elliott + Associates Architects, Kallmann McKinnell & Wood Architects, Ross Barney + Jankowski, and Tigerman McCurry Architects. The GSA plans to select the architect by April, and complete the project by the year 2001. N.C.



THE CITY OF OKLAHOMA CITY PLANNING DEPARTMENT

Aerial view of Oklahoma City showing Murrah Federal Building (center) after 1995 bombing

Serra to Schwartz

ALAN L. WARD

New plaza landscape incorporates grassy domes, curvilinear seating, and superattenuated light poles.

Jacob Javits Plaza in Lower Manhattan was the site of Richard Serra's controversial *Tilted Arc*, a 14-foot-high sculpture that blockaded the plaza in front of a 1967 federal office tower and made few concessions to comfort. Serra fought growing public pressure to have the piece removed; in 1987, the artist lost a legal battle against the General Services Administration, which sponsored the project, and *Tilted Arc* was dismantled and stored.

Now a new park, designed by landscape architect Martha Schwartz, has opened in front of the Jacob Javits building, and it promises to be more user-friendly. *Untilted*, as Schwartz calls the park, pokes fun at the Olmstedian landscapes of New York City, where, Schwartz claims, "exploration in landscape architecture receives little support."

The Boston-based landscape architect transforms recognizable park elements into street furniture gone mad: straight green benches become Day-Glo circles and curls; standard light poles are elongated, purposefully pulled out of proportion; grass is shaped into cute sculptural mounds, as unlike the broad lawns of Central Park as they can be. Bright orange trash baskets and ice-blue water fountains complete the ensemble, so that Javits Plaza evokes the ghost of Olmsted—exorcised. "After *Tilted Arc*," sighs Schwartz, "I just wanted to give people a nice place to have lunch." *H.L.*

Wright and Mies Go Public

Two Chicago architectural icons—Frank Lloyd Wright's Robie House and Ludwig Mies van der Rohe's Farnsworth House—will soon be restored and opened to the public. Next month, the National Trust for Historic Preservation and the Frank Lloyd Wright Home and Studio Foundation will assume stewardship of the Robie House (1909), owned since 1963 by the University of Chicago. The restoration is scheduled to begin in 2001.

Peter Palumbo, the British owner of Mies van der Rohe's Farnsworth House (1950), located in the Chicago suburb of Plano, intends to open the house as a museum in May. A welcome center, museum, and sculpture garden are planned, designed partly by Mies van der Rohe's grandson, Dirk Lohan. N.C.

JON MILLER © HEDRICH BLESSING

Farnsworth House

IN BRIEF

Cities continue to prescribe sports complexes for lagging downtowns. Last November, Houston voters approved a $465 million referendum that allows **HOK Sports Facilities Group** to implement its design for a 42,000-seat, retractable-roof baseball stadium for the Astros. The referendum included $200 million in renovations to the Astrodome, which HOK Sport will upgrade.

Last March, Cincinnati voters approved a $550 million sales tax increase to pay for two new stadiums. Now, the Bengals and the Reds are fighting over the same location on the Ohio River, west of the landmark Roebling suspension bridge. **NBBJ** has been hired to design the Bengals stadium; while no architect has been named for the Reds, the team is considering a renovation of Cinergy Field, its current home east of the bridge. The City of Cincinnati and Hamilton County have hired Pittsburgh-based **Urban Design Associates**, to help choose sites for the stadiums and masterplan the waterfront to include an aquarium and history museum.

FOAAD FARAH

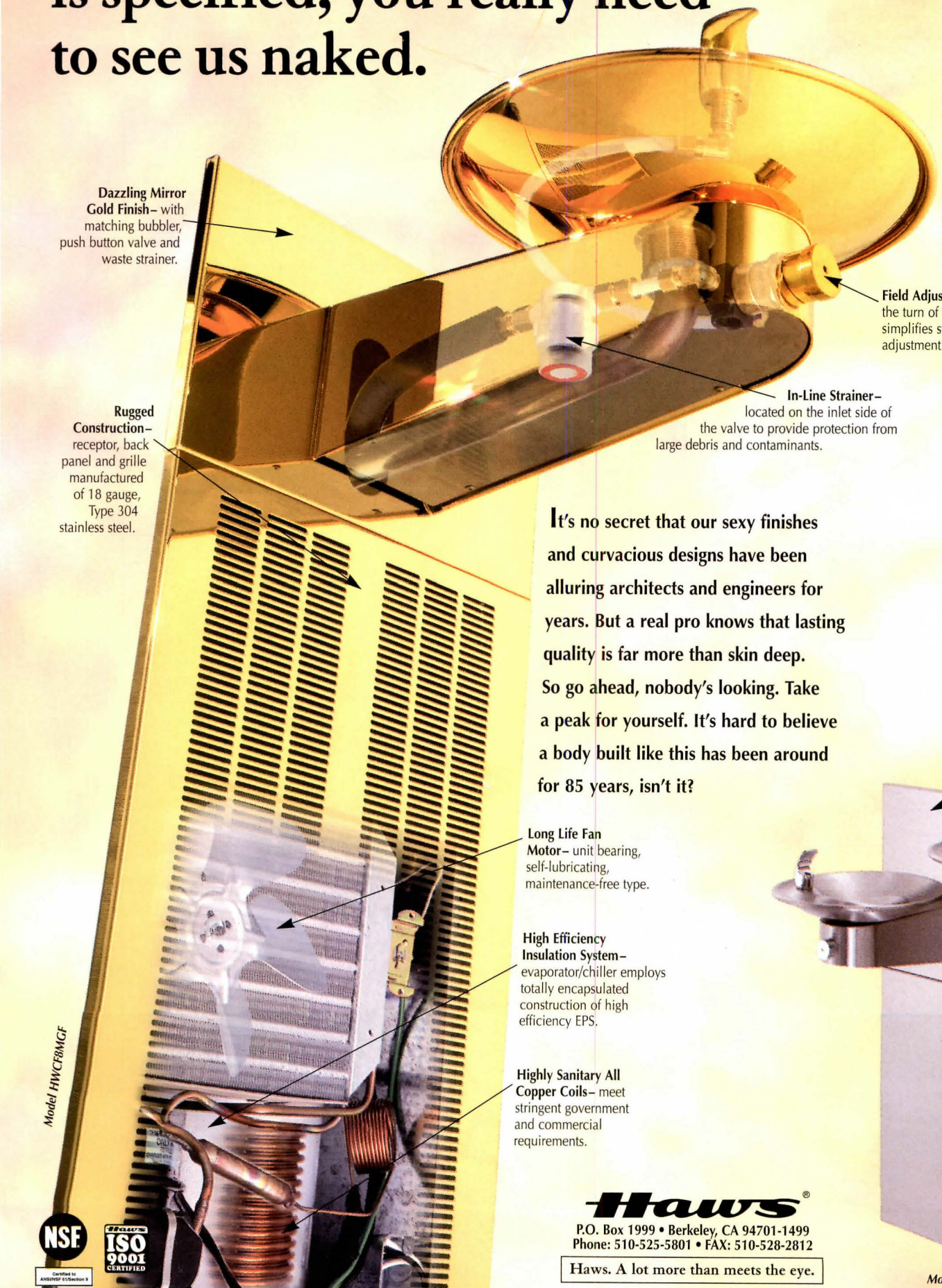
Model of Colburn School's main hall

In Los Angeles, a new arts district is burgeoning along Grand Avenue, where the Colburn School of Performing Arts, designed by **Hardy Holzman Pfeiffer Associates**, will be constructed next to **Arata Isozaki**'s Museum of Contemporary Art, and across the street from the site of **Frank O. Gehry**'s stalled Disney Concert Hall. In nearby Griffith Park, **Zimmer Gunsul Frasca Partnership** is developing a master plan to renovate the historic Greek Theater.

Up the coast in San Francisco, a new home for the Asian Art Museum will be designed by Italian architect **Gae Aulenti**. Famous for her transformation of a turn-of-the-century Parisian train station into the Musée d'Orsay (1986), Aulenti will renovate the old San Francisco Main Public Library on

(continued on page 31)

To appreciate why Haws is specified, you really need to see us naked.



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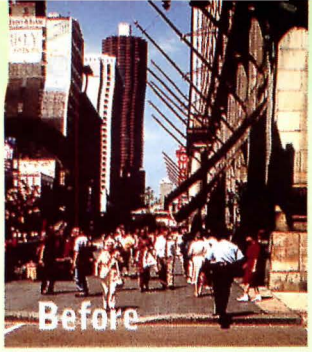
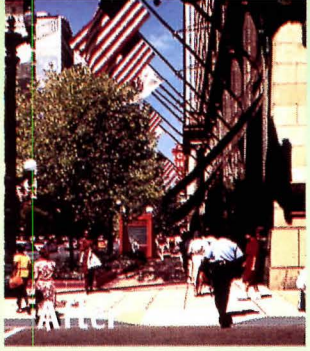




State Street, that Great Street

A stretch of Chicago's State Street, closed since 1979 to all vehicles but city buses, reopened to traffic and pedestrians in November after a mile-long overhaul by Skidmore Owings & Merrill (SOM). More than just a facelift, SOM's new roadway, sidewalks, lampposts, subway entrances, street signs, trees, and planters have transformed the nine blocks between Congress Parkway and the Harold Washington Library into a bustling shopper's avenue. These are the blocks that include such landmarks of Chicago architecture as Daniel Burnham's Marshall Field store and Reliance building, Louis Sullivan's Schlesinger and Mayer store, Holabird and Root's Boston Store, and William Le Baron Jenney's Siegel Cooper store.

SOM's new fixtures exude a Beaux-Arts elegance, designed to recall the era when these buildings were young, and State Street was the liveliest shopping street in the country, and perhaps the world. Although some visitors might long for a touch of Miesian reticence, at least SOM did not create a fantasy yesteryear. The architects took pains, where possible, to bring back the real thing: the lampposts are replicas of the original Graham, Anderson, Probst & White luminaires that graced the avenue in its heyday.

This is State Street's fourth iteration this century. Mayor Richard M. Daley, gambling that the most recent restoration would return State Street's retail heritage, spearheaded this $23 million project by supplementing $12 million in ISTEA money with city funds. Whether the gamble pays off remains to be seen, but if it fails, it will not be because of the architecture. H.L.

New Steel Framing Code

Architects who want to switch from traditional wood residential framing to steel may soon be able to do so without an engineer's seal of approval. Effective January 1, the International Code Council (ICC)—a model code organization established by the Building Officials and Code Administrators (BOCA), the International Conference of Building Officials (ICBO), and the Southern Building Conference International (SBCI)—dropped the requirement that documents for one- and two-family houses framed in steel be stamped by an engineer. Instead, architects need only follow standard details and dimension tables and charts available early this year from BOCA, ICBO, and SBCI. The new code was developed by the American Iron and Steel Institute and the National Association of Home Builders (NAHB) Research Center, with funding from the U.S. Department of Housing and Urban Development.

The code change is a victory for proponents of steel-framed houses, who first promoted steel as an alternative to high-priced lumber in the early 1990s. Since then, steel's popularity has waxed and waned according to fluctuations in lumber costs. But the high added cost of engineering steel structures has negated any savings over wood, and steel-framed houses have remained a rarity: Last year, just 1 to 2 percent of the 1.2 million new houses in the U.S. were constructed in steel, according to NAHB.

Because the ICC is a model code organization, the modification is only a prescriptive measure; states and localities will decide for themselves whether to update their codes to reflect the ICC's model. *R.A.B.*

Miniature Monuments

David Weingarten of Ace Architects and retailer Margaret Majua have been amassing a collection of more than 2,500 piggy banks, models, and souvenirs of major landmarks for the past 12 years. Now 100 of their miniature monuments are on view at the San Francisco Museum of Modern Art. "Souvenirs of Savings: Miniature Bank Buildings from the Collection of Ace Architects," is on view through February 25. N.C.

HARRY N. ABRAMS PUBLISHERS

(continued from page 29)

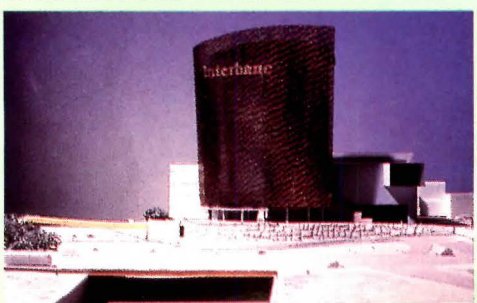
Marshall Square to house the Asian Art Museum. She will collaborate with the San Francisco office of **HOK** and local architects **LDA** and **Robert B. Wong.**

The California College of Arts and Crafts plans to expand into a 1951 **Skidmore, Owings & Merrill** Greyhound bus depot, to be renovated by local firm **Tanner Leddy Maytum Stacy Architects.**

On the East Coast, landscape architect and University of Pennsylvania Professor **James Corner** has won an international competition for a waterfront park in Greenport, New York. His project was selected from over 500 entries, 80 of which are on view at the Van Alen Institute in New York City through January 31.

The decision is still pending on which of the six shortlisted architects will be selected to design the Modern Art Museum of Fort Worth on an 11-acre site adjacent to **Louis Kahn**'s Kimbell Art Museum. In the running are Japanese maestros **Tadao Ando** and **Arata Isozaki**, museum designer **Richard Gluckman**, Houston's **Carlos Jimenez**, **Ricardo Legorreta** of Mexico, and D.C.-based **David Schwarz**, architect of the 2,000-seat Performing Arts Fort Worth concert hall and Fort Worth Public Library. The shortlisted architects will submit designs in April.

Hollein and Persivale's Peruvian tower



After a six-week trial in state district court, the City of Denver lost its $15 million lawsuit in late November against architect **C.W. Fentress, J.H. Bradburn & Associates**, designer of the $5 billion Denver International Airport. City officials claimed that the architect's design errors cost the city $32.5 million. Fentress's lawyer countered that the architect completed the project on time and under budget, but that the design of the airport's notorious automated baggage handling system required millions of dollars in change orders, producing cost overruns.

Construction of **Hans Hollein**'s 252,000-square-foot headquarters for Interbank Corporation has begun in Lima, Peru. The project, to be completed in 1999, is being undertaken with architect **Jaime Persivale.**

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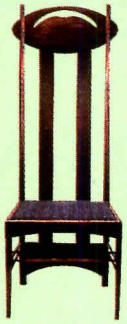
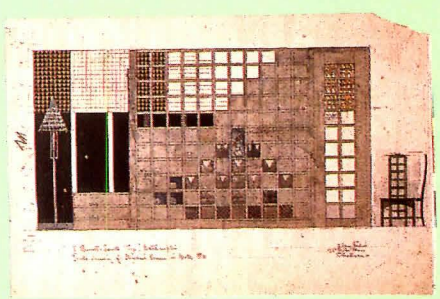


A major retrospective of the work of Charles Rennie Mackintosh showcases the Scottish architect's decorative arts but downplays his buildings.

The largest survey of the work of Charles Rennie Mackintosh ever mounted in this country is now on display at the Metropolitan Museum of Art in New York until February 16. The exhibit, a version of a more comprehensive show mounted in Glasgow last May, is scheduled to travel to Chicago's Art Institute (March 29-June 22) and the Los Angeles County Museum of Art (August 3-October 12). The Metropolitan exhibit's text states that "American audiences have never before had an opportunity to fully examine Mackintosh's work." But since curators Pamela Robertson of the the Hunterian Art Gallery at the University of Glasgow, and J. Stewart Johnson, consultant for design and architecture at the

Mackintosh in Manhattan



High-backed chair, 1898-1899 (top); bedroom washstand, 1904 (above); drawing of Derngate staircase, 1915 (right)

Met, focus primarily on the decorative work of this important Scottish architect, that opportunity continues to elude Americans.

This criticism does not diminish the quality of the more than 250 items on view. The architectural models, sketchbooks, watercolors, posters, recreated interior, furniture, and other objects comprise a sizable exhibition for any museum. Unfortunately, the Met show is divided into two parts on different floors—separated by hallways, stairs, sales areas, and galleries for other exhibits. The dislocation of the final 31 objects, including clocks, stencils, and drawings, on the lower floor diminishes their importance and relationship to the projects for which they were designed.

In Glasgow, Mackintosh's buildings are just down the block—the Willow Tea Rooms—or around the corner—the Glasgow School of Art. Because of these unique circumstances, it was possible to make architecture the focus of that show, a sound decision since Mackintosh was first and foremost an architect. At the Met, although building models are displayed, they are deployed as objects in their own right, unrelated to the architect's contemporaneous buildings. Videos portray Hill House, the Glasgow School of Art, and the Scottish School, but they fail to capture the full impact of Mackintosh's architectural sensibility. The emphasis on his decorative arts is not all bad. The installation of the 1901 Ingram Street Ladies Luncheon Room, designed by the architect with his wife, Margaret Macdonald Mackintosh, looks better in New York than it did in Glasgow. Its white interior is juxtaposed against a photomural of a Glasgow street, sooted as in Mackintosh's day.

Scholars who once regarded Mackintosh as merely a decorator or a watercolorist have begun to acknowledge the significance of his multidisciplinary vision to Modern architecture. The show at the Met conveys only part of that vision. *Malcolm Holzman*

Malcolm Holzman is a partner of Hardy Holzman Pfeiffer.

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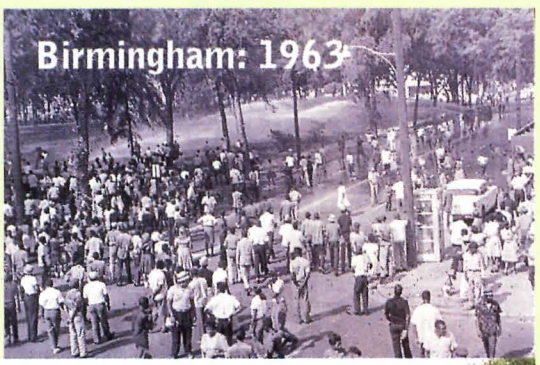
Educating America's Mayors

This magazine confers a special award to an intensive workshop that teaches politicians how to improve their cities through design.

"If we could institute a program aimed at increasing mayors' sophistication and interest in urban design, we could have a substantial impact on the quality of American cities." Mayor Joseph P. Riley of Charleston, South Carolina, wrote these words to his friend, architect and planner Jaquelin Robertson, in 1985. Based on the realization that mayors affect development in their cities, Riley sought to teach them how to be urban designers. He hoped to impart such lessons as the importance of scale, contextualism, and preserving open space and natural features to encourage politicians to make their cities more livable.

Riley realized his dream when the Mayors' Institute on City Design, funded by the National Endowment for the Arts (NEA), held its first meeting at the University of Virginia (UVA) in Charlottesville, Virginia, in 1986. "Designed by a politician, UVA was a uniquely inspirational environment," recalls Robertson, then dean of UVA's School of Architecture. At that meeting, mayors from Norwalk, Connecticut; Binghamton, New York; Modesto, California; St. Paul, Minnesota; and Charlottesville, Virginia, met for three days with Robertson and Riley, as well as sociologist Nathan Glazer; NEA Design Arts Program Director Adele Chatfield-Taylor; NEA Chairman Francis S.M. Hodsoll; architect Leon Krier; and critic Robert Campbell. The group established a format for the national institutes: Twice a year, a small group of eight to 10 mayors from large and small cities in different regions of the country are invited, all expenses paid. Each mayor is required to present, in person (without staff assistance), his or her city's most critical urban design problem. A team of noted design consultants—urban designers, architects, landscape architects, and critics—critiques the problem, offering recommendations and solutions. Mayors are required to attend the program's full two-and-a half days (no late arrivals, no early departures) and are not permitted to bring, or substitute, their staffs. No press are invited, and no audience, eliminating any cause for sound bites or grandstanding.



COURTESY OF GROVER & HARRISON

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After critiquing the mayors' specific design problems, the consultants give presentations about general urban design problems they've tackled. "The beauty of the program," notes planner and author Jonathan Barnett, a frequent consultant, "is that it removes the mayors from their hierarchical environment, where they are used to giving orders, and sends them back to

school." Evenings include presentations and speeches, often by political figures associated with design, and catered dinners in architecturally attractive settings—a chance for mayors to socialize with design consultants in an inspirational environment. As Mayor Riley puts it, the program "should be not only interesting, but also fun."

The Mayors' Institute met twice a year at the University of Virginia until 1990, when, to reach a wider audience of smaller city mayors, the NEA added four regional institutes, held at campuses around the nation. Now, in the decade since the first meeting, more than 300 mayors representing 259 cities have participated in the Mayors' Institute.

Discussion addresses design problems in the inner city, the suburbs, or dramatically exurban regions. Albuquerque Mayor Martin Chavez wanted to develop a 378-acre site for the International Balloon Festival—a important nine-day money-maker for the city—as a year-round public amenity. Mayor Emanuel Cleaver II hoped to enliven a dreary civic mall, soon to be anchored by a new federal courthouse, in the heart of Kansas City. Mayor William Heydt of Allentown, Pennsylvania, wanted to revive an ailing pedestrian mall that was covered by a system of smoky-gray plastic canopies.

At the sessions, design consultants confer thoughtful, hands-on advice, sometimes quite candidly. "Rip those canopies down—today!" landscape architect Martha Schwartz told Mayor Heydt at last fall's session. Many mayors return home supercharged to tackle their design problems with new strategies and ideas: "The Mayors' Institute was the single most professionally rewarding experience I've had as mayor," relates Albuquerque Mayor Chavez, "I came away from it inspired." Chavez explains that the design consultants were "highly specific, unrestrained, and forceful. They recommended that we not think small—not even on a global scale, but on a galactic scale! They challenged me to think large, and that's a message I brought home to Albuquerque."

Mayors tour New Orleans's French Quarter with design consultants.

SOUTHERN LIGHTS PHOTOGRAPHY

SOUTHERN LIGHTS PHOTOGRAPHY

NEA's Samina Quraeshi and Charleston Mayor Joseph Riley

That "make no little plans" philosophy also inspired Cincinnati Mayor Roxanne Qualls, who presented a problem familiar to mayors with major-league sports teams. Forced to share a 1970s-style open-air stadium, both the Cincinnati Reds and the Bengals were threatening to leave town. Citizens had just passed a tax levy to fund two new stadiums; the problem Mayor Qualls presented was where to put them. Both teams wanted the same riverfront site, with access to parking, downtown, and dramatic views of a Roebling-designed suspension bridge. Other projects— a new aquarium, IMAX theater, riverfront, and a national Museum for the Underground Railroad—were all planned for Cincinnati, and traffic planners were examining moving an expressway that blocks downtown from the waterfront. "The Mayor came back to the city with the realization that many independent things were happening to the riverfront without the benefit of an overall plan," notes Cincinnati City Architect Robert Richardson.

The city promptly hired Pittsburgh architect and planner Urban Design Associates to master plan the waterfront, and recommend two stadium sites. "The Institute made the mayor sensitive to scale, to view corridors, but most importantly to the importance of a broad, long-range plan for the riverfront. She's a lot more design-oriented after that meeting," Richardson adds.

Other cities have had similar successes. The civic face of Ft. Myers, Florida, has changed dramatically since Mayor Wilbur Smith III attended the Mayors' Institute in 1990. A new convention center has helped revive the waterfront, and Mayor Smith played an important role in design reviews for a new federal courthouse in his city. In Birmingham, Alabama, Mayor Richard Arrington was inspired by the Institute to shape his city's Civil Rights District, whose renovated public parks and new museum have become a national symbol of African-Americans' struggles against discrimination.

The Institute's work doesn't end when a mayor flies home. Former Mayor Joan Darrah returned to Stockton, California, from a 1994 regional Institute in San Antonio with the awareness that, to develop a historic waterfront near downtown, she needed community involvement. Unsure how to get it, she invited NEA Director of Design Samina Quraeshi to address civic leaders and the city council; Quraeshi dredged up private funding to visit

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Stockton and advise civic leaders on the importance of community-based charettes and how to conduct them. She played a similar role for Mayor Chavez of Albuquerque and Mayor Ronald Norick of Oklahoma City, organizing community charettes to involve citizens in planning reconstruction after the April 19, 1995, bombing of the Alfred P. Murrah federal building. And the Institute is now planning follow-up sessions with mayors' staffs, offering strategies for implementing the ideas that have fired up their bosses.

Unfortunately for the hundreds of mayors who've yet to attend, the Institute appears to be on ever-shakier ground as NEA funding is radically reduced. "The Republicans said if they won control of the Congress in 1996 they would abolish the NEA," notes former Mayors' Institute Executive Director Christine Saum. "I don't see any reason not to take them at their word."

Last year, funding cuts forced the Institute to move from its unique setting at UVA to the Harvard Graduate School of Design, which offers classrooms and its faculty, but doesn't contribute to the $50,000 cost of every session. (The money pays for the mayors' travel, food, and lodging; a briefing book documenting each mayor's design problem and background of all participants; and staff travel expenses. Design consultants are also paid nominally.)

Although funding for the two national institutes is secure through 1997, regional institutes are struggling for private monies. And some of the Institute's founders worry that the lean, direct advice delivered candidly by experts to people who can make substantive changes in cities will disappear under Harvard's sponsorship. "As soon as it is taken over by a university, the school is obligated to digest it as one of its branches," complains Robertson. If Harvard opens sessions to students, or uses the Institute to get grants for its own faculty, "that will be antithetical to its purpose" of uniting policymakers with designers in a one-on-one setting. However, Quraeshi maintains that under the leadership of Chair Jane Alexander, "the Endowment is reinventing itself by crafting new partnerships that will define art and culture across the nation. The Mayors' Institute is a most dynamic integration of arts and politics—a stellar example of how the Endowment should work. I believe its future to be quite sound."

The Mayors' Institute on City Design is precisely the type of program that should be consistent with federal downsizing. As power shifts to the states and localities, the government should bear the responsibility for teaching them to use it effectively. Detractors complain that $50,000 is a lot to spend on a program that only reaches 10 mayors—and 10 cities—at a time. But 10 cities that average 300,000 people each equals 3 million—all ultimately living in better places. In the words of Stockton's Mayor Darrah, "Mayors don't know how design enhances quality of life. They come off the street. They need to be educated, and the Institute really does that." *Heidi Landecker*

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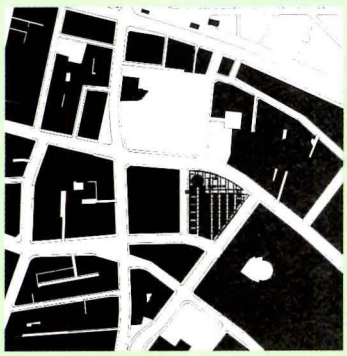
Hayward Place, Boston
Thomas Phifer and Partners

A glass-clad, multiuse high-rise in downtown Boston is the first commission for New York City-based architect Thomas Phifer. Formerly a design partner of Richard Meier & Partners, 43-year-old Phifer opened his own office last September after securing the commission from developer E. Peter Krulewitch of Kingston Hayward Associates.



The 230,000-square-foot complex is located on Washington Street, one block from Boston Common. Thirty-four stories of apartments rise above a seven-story base housing retail, restaurants, offices, a culinary school, a ceramics school, and a sports center. This lower block is fronted by a curving, west-facing atrium. A rotunda at the south end of the atrium houses stairs and elevators and aligns with the Common to the west.

While at Meier's office, Phifer developed an interest in green design, manifested in his scheme for a new federal courthouse in Phoenix, Arizona, a 1996 Progressive Architecture award winner. The courthouse features a climate-control system that relies on evaporative cooling rather than heat exchange (*Architecture*, May 1996, pages 118-121).

In his Boston tower, Phifer has again taken pains to include environmentally sensitive elements: The north facade incorporates insulated glass; the glass curtain wall on the southern facade is double-layered to create a solar heat pocket in winter. In summer, vents at the top and bottom of each window allow the circulation of cooling air between the layers of glass. The facades are proportioned according to the golden section, and are enlivened by subtly shifting floor plates and clear glass curtain walls. Construction begins later this year, with completion scheduled in 1999. *Ned Cramer*

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Wedge-shaped Hayward Place is located in commercial and retail district east of Boston Common (top). Balconies (right) offer views of Common to west. Atrium at tower's base follows curve of street.

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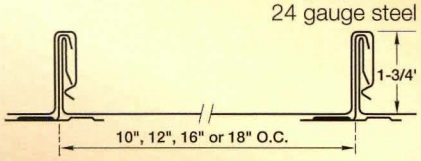

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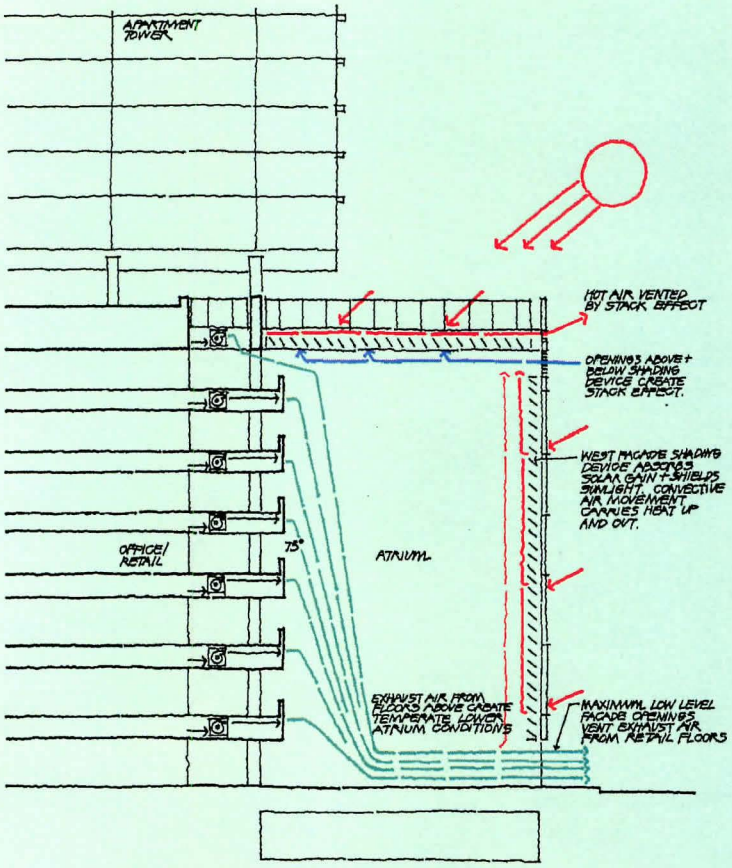
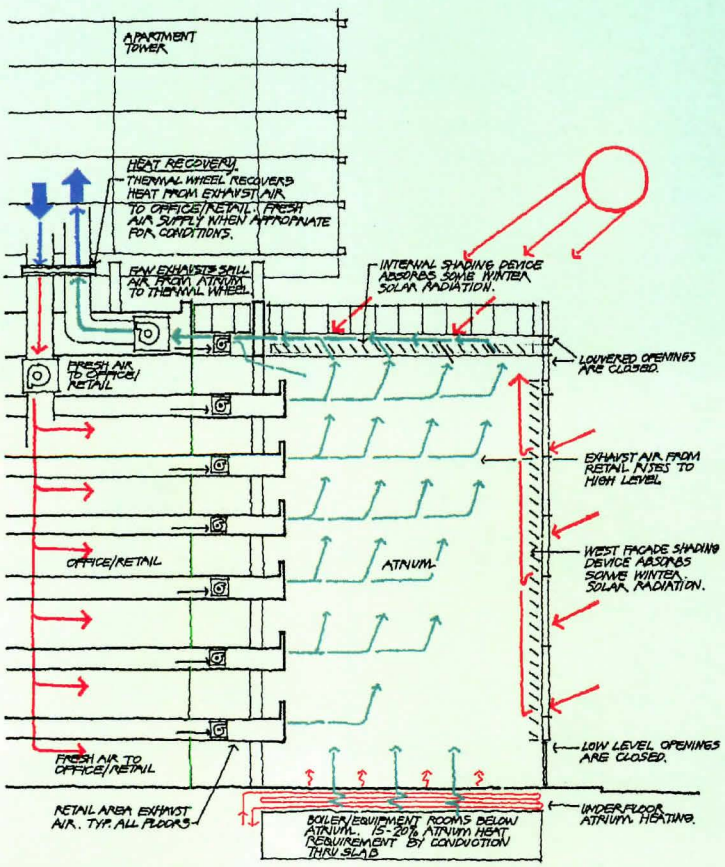
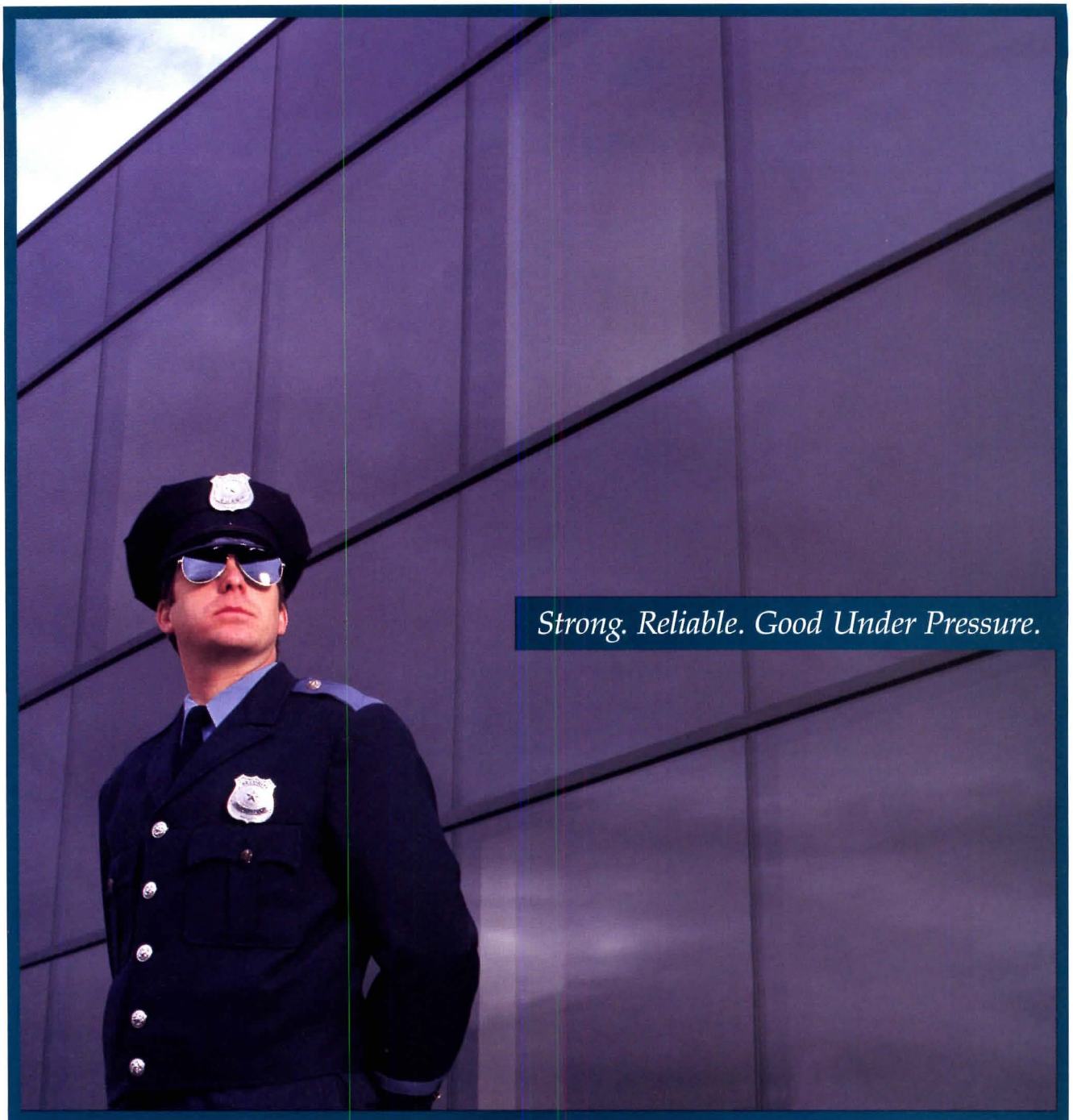


Climate-control system of atrium reflects Phifer's environmental interests. In warmer months, the bottom 20 feet of the atrium's glass facade retract into the ground. The opening, inspired by vertically sliding windows of Ludwig Mies van der Rohe's Tugendhat House in Czechoslovakia (1930), is designed to draw cool air from adjacent offices and stores. Louvers on roof and west facade shield the atrium from sun. Hot air collected between glass and louvers is vented out at the top of the atrium.



Radiant heat from boiler and equipment rooms, located beneath the atrium, provides 15 to 20 percent of heat necessary to warm atrium in winter. Exhaust from offices and stores is drawn up through atrium to thermal wheel that captures heat for reuse. Tower facades are proportioned according to the golden section.

JOCK POTTLE/ESTO



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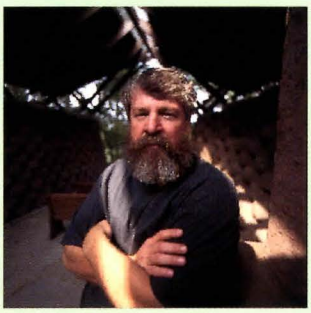


MARK GOOCH PHOTOS

The Rural Studio of Auburn University's College of Architecture, Design, and Construction was founded in 1992 by architect and professor Samuel Mockbee to extend the study of architecture into a socially responsible context. Every quarter, 15 students abandon their TV sets, their dorm rooms on Auburn's main campus, and their preconceived notions about rural poverty to live and work in the impoverished Black Belt of western Alabama. Working with the local Department of Human Resources, they design and build houses and other small-scale projects for the most destitute citizens of Hale County. The Rural Studio is the first recipient of Architecture*'s scholarship, funded by the proceeds from the Progressive Architecture Awards dinner held this month.*

Mockbee's Mission

Samuel Mockbee explains his vision for the Auburn Rural Studio, first recipient of Architecture's annual scholarship.

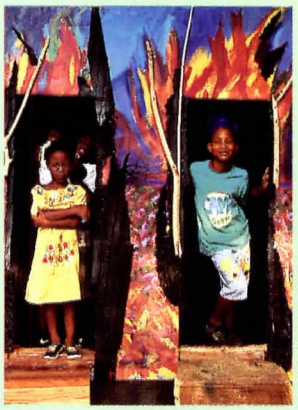
Architecture: How did the Rural Studio get started?
Samuel Mockbee: The idea actually goes back to the Progressive Architecture Awards. I'd won a P/A design award in 1987 for houses for three families in Madison County, Mississippi. We never got those funded, so we put them back in the drawer. But through that process I learned that architects can participate in low-income housing that's really worthy of being called architecture.

Then I was asked to teach at Clemson as a visiting critic and went over to Genoa, Italy, for two weeks to teach in their graduate program. Students live in a villa for a semester and they do sketches and a design problem. So when I returned to Auburn, I told Dennis "D.K." Ruth, the department head, that we ought to set up a program where we could build houses and small projects. We could take an antebellum house and turn it into the Center for the Study of Southern Architecture, or something like that.

What was your goal?
The main goal was to get involved in the community. We wanted students to get some real-world experience. Alabama Power Foundation gave us $215,000 and the Jessie Ball DuPont Fund of Jacksonville gave us $75,000 to last from 1993 to 1998. This funding is supplemented by the school, which contributes my salary.

What does all that pay for?
Rent, utilities, housekeeping, travel. We first moved into an 1850s house in Greensboro that was part of a nursing home, which was sold in the summer of 1995. The new owners were worried about liability, so we had to abandon the house and move back to the Auburn campus from January 1996 through the spring. Then *The New York Times* did a real nice article on the Rural Studio. A lady whose mother owns a house in Greensboro read the article, called us up, and gave us this house last fall.

How do you pay for the houses that the students build?
Basically, it's a labor of love and an act of charity by the students, but each project depends on the financial circumstances of the client. For instance, clients such as the Bryants and the Harrises are both physically handicapped elderly couples with only small financial help from the government. They have never lived in, nor could they ever afford to live in, a decent house.



TIMOTHY HURSLEY PHOTOS

They're considered ineligible for any private or government program that should come to their assistance. Their houses are acts of charity made possible by donations and grant money. Of course, Auburn University is also financially supporting the program by providing faculty and staff assistance.

Other houses and projects are financed by the client, with the students providing the design and labor, and the client providing the materials. In the case of the projects carried out with the Hale County Department of Human Resources, that agency provides us with a small amount for the purchase of materials, and then the students are able to complete the projects. Without the aid of the students, these projects would go undone.

Where are the students from?
Most are from Alabama, Georgia, and Florida. This semester, one is from Chicago and one from Dallas.

Have African-American students participated?
Two or three. That's probably true for most architecture programs. We've had a hard time recruiting African-Americans. One reason is that the Tuskegee Institute is right next to Auburn.

What do the students get from the Rural Studio that they don't get anywhere else?
It lifts the mystique of going onto a construction site and building something that's been in your imagination and then on paper. It's more than just drawings; it's about people. I don't spoon-feed my students; I don't give them the answers. I'm just there to encourage them, to see what it's like to build these things that they design. The students meet with Teresa Costanzo, director of the Hale County Department of Human Resources, and the community—they pick the clients. Then they have to go to the lumber store and order the lumber and the materials to get it done. By designing and building these projects, the students can see that they have a direct impact on the community. Also, they have to deal with people other than architects. So many of us graduate and go to work for architects, and we just do what these architects tell us to do. We have very few skills in dealing with the public and working for the common good.

Where does your social conscience come from?
I can't imagine anyone not having concerns for the poor. You hate

to see a child neglected and abused, and we have neglected and abused our children in American society. We play political games around it while children suffer. I don't know what happened to fighting rural poverty. It got swept under the rug.

How does working with the poor affect the students?
I don't think they realize how many generations have come down from slavery to sharecropping to the welfare system. They don't realize how difficult that is to change. But I don't push the political stuff so much. I'm hoping that through being exposed to poverty, something will sink in. These poor people are nice, normal people. They don't have a clue as to how to get out of poverty. By working with them, I'm hoping the students won't be so harsh on people, so quick to make a decision without understanding what's happening all over the state.

Do you consider yourself a regionalist?
I'm probably much more of a contemporary Modernist than anyone gives me credit for. I'll take a regionalist form and make a Modernist twist on it. That's what I try to have my students do. When you look at the Cook house, you say, "That looks like a barn or outbuilding." But then your second take is to see that it's fresh. It's not literal. Actually, I'm an opportunist, not a regionalist. I'm trying to apply my abilities to the opportunities I'm given.

Have you been criticized for experimenting on the poor?
Yeah, I always get that from somebody who says we're taking advantage of them, mostly abstract opinions from the audiences where I give talks. We're not doing anything we shouldn't be doing, and we're doing a hell of a lot more than most.

What would you like to see happen next at the Rural Studio?
I would like to see more rural or urban studios in places like Africa, the Philippines, or on Indian reservations. To teach students critically about the world, they need to be out in the world. An architectural studio needs to be subversive. What I mean by that is that it can't just address the current social, economic, and political structures. We have to challenge the status quo in order to allow for a better future.

House for Shepard and Alberta Bryant in Mason's Bend, Alabama, was designed and constructed by the Auburn Rural Studio in 1994.

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The new Great Lakes Science Center in Cleveland, Ohio, designed by **E. Verner Johnson & Associates** of Cambridge, Massachusetts, is intended to inspire children with a sense of wonder about science, technology, and the natural world. But the $55 million building looks like it doesn't know what it wants to be when it grows up. It's a hyperactive jumble that never jells into a coherent whole.

The museum's south end is dominated by the ungainly, metal-paneled dome of an Imax theater, which bears a striking resemblance to Darth Vader's helmet. The center consists of a glassy, 100-foot-high atrium that slices through the midsection of the building from the main entrance to a northeast promenade facing North Coast Harbor and Lake Erie. The north end houses exhibits in a series of staggered, squarish pavilions and terraces that have a jagged, sawtooth look.

Chaos in Cleveland

A new science museum devalues a massive investment on the city's lakefront.

Johnson, who has designed scores of museums around the world over his 35-year career, attempts to unify these disparate parts by wrapping the science center's concrete structural frame with pale gray painted aluminum panels and a granite veneer. But the slim granite panels, which look like cardboard from a distance, are applied erratically. The disorderly impression they convey is underscored by rectangular windows of oddly varying sizes, which punch through the facades without apparent rhyme or reason.

The 165,000-square-foot science center, which opened last July, is the newest addition to a budding culture and entertainment district on Cleveland's downtown lakefront, modeled after Baltimore's Inner Harbor. Cleveland's version boasts I.M. Pei's Rock and Roll Hall of Fame and Museum and a $65 million rail line in an effort to shore up downtown as a center of culture, entertainment, and tourism.

But while the city aimed for star architecture in its rock hall, it settled for less with the science center. The building's main accomplishment is to make its rock hall look more powerful. Pei's building, for all its functional shortcomings as a museum, is an excellent environmental sculpture. Johnson's building works better internally as a museum. But it's an architectural dud. Rather than evoke the rational spirit of science, it looks like a demonstration of chaos theory. *Steven Litt*

1. New expanded multiline text object has automatic word wrap and flexible text alignment.
2. Easy to change the style attributes of individual text characters such as color, height, obliquing angle.
3. New text style dialog (DDSTYLE) gives more access to create, edit, and set text styles.
4. Easier to underline and overscore text.
5. Easier to edit text with integrated, dialog-based text editor.
6. Cut, copy and paste in the MTEXT editor.
7. Object grips can be used to modify the width of paragraphs.
8. AutoCAD text now supports True-Type and PostScript® Type 1 fonts.
9. Spell Checker includes standard and custom dictionaries.
22. You can suppress the first or second dimension line.
23. Baseline and Continue dimensioning have been streamlined.
24. Baseline and Continue dimensioning work on angular dimensions.
25. DDIM dialog box allows preview prior to input and improves access to properties.
26. Dimensioning better follows industry and international standards, including ANSI, ISO, and JIS.
27. Dimension styles are more flexible and easier to create.
28. Override feature allows you to change properties on a per-dimension basis.
29. Geometric tolerancing creates and edits tolerance control frames automatically.
43. The ability to create and use custom linetypes with text and shapes.
44. Assign linetype scale factors per object (versus per drawing).
45. ISO Compliance of linetypes.
46. DDMODIFY has been dramatically improved.
47. Direct Distance Entry eliminates laborious coordinate keyboard entry; allows you to move the mouse in desired direction and enter a single distance value.
48. Object snap now snaps to extended intersections.
49. Running object snap dialog box is now transparent.
50. New Apparent Intersection snaps to display intersections regardless of the object's UCS.
63. Boundary edges don't need to physically cross the objects you wish to Extend.
64. Grab all visible objects as boundary edges by hitting enter at the first EXTEND prompt.
65. Lengthen or shorten a line or arc to a specific length with the new LENGTHEN command.
66. New overlay option in the Xref command avoids circular references.
67. The Xref command now searches the AutoCAD path to find referenced drawings.
68. Purge your drawing at any time.
69. Easy to create construction lines that extend infinitely in both directions (XLINE).
70. Easy to create construction lines that extend infinitely in one direction (RAY).
85. Solid profiling commanc allow you to convert 3D to 7 (SOLPROF/SOLDRAW/SOLVIE
86. Create regions.
87. Extrude along a path cur
88. Determine mass proper of a model.
89. Fillet and chamfer soli
90. Faster solid model processor and smaller model sizes than AME.®
91. Control the display c tessellation lines (isolines).
92. Import and export ACIS fil
93. Translate AME models in R13 solids.
94. Rendering is faster and eas
95. New colored spotlight
96. Phong shading support highlights from colored light source.
97. Material Library and Edit included.

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10. Easily import a TXT file.
11. Create stacked fractions for better readability.
12. Single-line MTEXT editor for DOS users.
13. Map slower fonts to faster ones (FONTMAP).
14. Fill in text fonts (TEXTFILL).
15. Font Substitution during file open simplifies drawing transfer and font changes (FONTALT).
16. Move, rotate, erase, copy, mirror, stretch, or scale each text object.
17. Automatically stack fractions in dimensions.
18. Inferred linear dimensioning automatically distinguishes between horizontal and vertical dimensions and repositions text.
19. Creating dimensions requires fewer steps.
20. Dimension Style Families allow you to define dimension type differences within one dimension style.
21. Continued dimensioning works on ordinate dimensions.
30. Easier to modify dimensions.
31. Dimensioning has its own units settings.
32. Create splined leader lines.
33. Create multiple lines of text in leaders.
34. Automatic island detection finds a complete boundary with one pick.
35. Associative hatching automatically updates hatch to modified boundaries.
36. The restructured BHatch dialog box is simpler and faster to use.
37. Drive the BHATCH command from the command prompt if desired to run scripts.
38. Create a hatch boundary manually on the fly.
39. Easily edit hatch properties without redrafting the hatch.
40. New ISO compliant hatch patterns included.
41. Load linetypes from within the Layer dialog box.
42. Visual representation of linetypes for selection before loading.
51. New FROM object snap can reference a point from within a command.
52. Object Cycling insures that you select the correct object every time.
53. Improved Fillet command can be used to cap parallel lines.
54. Fillet between a line and a polyline.
55. Fillet without trimming the existing geometry.
56. Fillet that doesn't cancel when you miss the object.
57. Chamfer by length and angle.
58. Chamfer without trimming the existing geometry.
59. UCS restrictions are gone for fillet and chamfer commands.
60. Trim using cutting edges that don't physically cross the objects to trim (implied edge).
61. Cutting edges don't need to be on the same UCS as the objects you're trimming.
62. Grab all visible objects as cutting edges by hitting enter at the first TRIM prompt (two less steps).
71. Group objects together by name with object grouping (GROUP).
72. Draw multiple parallel lines using a variety of linetypes and colors (MLINE).
73. Intersection clean-up for multiple parallel lines simplifies wall creation.
74. Save multiple MLINE styles for quick access.
75. Fill in parallel lines with a different color (MLINE).
76. True geometric Ellipses.
77. Snap to the center or quadrants of an ellipse.
78. Create elliptical arcs.
79. Create NURB splines.
80. Specific editing commands for greater control of new splines.
81. Explode blocks with varying X and Y scale factors.
82. Solid modeling included in base AutoCAD.
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84. Perform Boolean operations on solids and regions (union, intersect, subtract).
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100. Render to file with imag only; supports over a dozen new file formats.
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102. Standard Toolbar contai icons for high-usage drawin management and drawing editor navigation functions.
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104. Toolbars can float or be docked.
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106. Easy to understand icor with tool tips.
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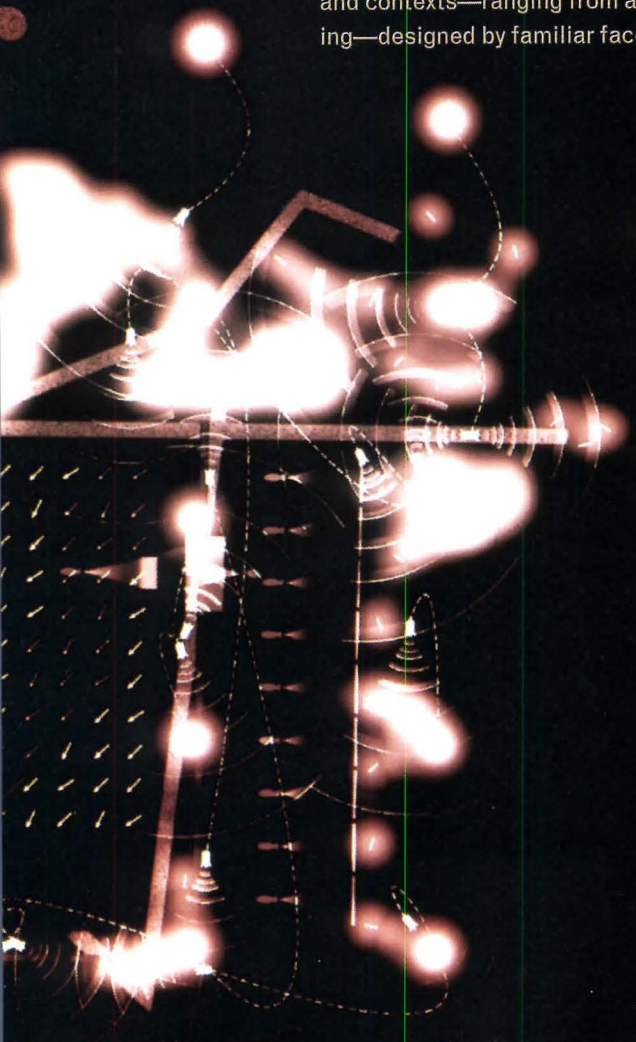
PROGRESSIVE ARCHITECTURE AWARDS

Last year's purchase of *Progressive Architecture* by *Architecture's* publisher, BPI Communications, left many architects wondering about the fate of the venerable *P/A* Awards program—a 43-year tradition of design excellence in unbuilt projects. Fear not: *Architecture* is continuing *P/A's* legacy.

In September 1996, we held our first jury. Sarah Graham, Laurie Hawkinson, Enrique Norten, Antoine Predock, and William Rawn met at the National Building Museum in Washington, D.C., to review this year's 450 entries. After two days of critical discussion and debate, the jury conferred four awards and 15 citations. Their choices recognize the continuity and transformation of late 20th-century Modernism through diverse programs and contexts—ranging from a rural museum to affordable inner-city housing—designed by familiar faces and fresh talent.



AWARDS FOR ARCHITECTURAL RESEARCH

In addition to design innovation, this year's awards coverage extends to architectural research. Last year, *Architecture* and the American Institute for Architectural Research collaborated to sponsor an awards program for outstanding research in architecture and urban design. Jurors Sherry Ahrentzen, William Mitchell, and Martha Welborne met in Washington, D.C., last August and selected three award winners and three studies worthy of honorable mention from 57 entries. We hope this research, addressing healthcare environments and computer applications, will serve as a valuable resource for the profession.

PROGRESSIVE ARCHITECTURE AWARDS

Why does Morphosis win Progressive Architecture Awards, year after year? From 1987 to 1996, the Santa Monica, California, firm, now under Thom Mayne's direction, collected 10 P/A awards. This year, Morphosis did it again. After meeting at the National Building Museum in September, our five jurors honored Morphosis with three more awards.

The outcome of their decision came as a surprise to jurors Sarah Graham, Laurie Hawkinson, Enrique Norten, Antoine Predock, and William Rawn. The winning projects by Morphosis not only addressed a variety of building scales, locales, and programs, but were packaged differently from one another. No one suspected they came from the same architect. The jurors unanimously agreed that the firm's California high school, multiuse complex for an Austrian city, and Korean tower represented the best of the 450 entries submitted to this year's program.

"Thom Mayne is an extremely gifted architect, and he hasn't had the opportunity to build as many buildings as he should have," maintains Hawkinson. "The firm is known for their drawings, which explain their conceptual ideas clearly." Graham adds that the diversity of Morphosis's presentations "shows how sophisticated they are. When, as a juror, you see multiple entries by the same hand, you eliminate them." Adds Predock, "When I learned that these three diverse projects were by the same architect, my first reaction was that I wished that these awards could be shared more broadly. But the Morphosis schemes simply had a level of quality, intensity, and daring that clearly set them apart."

The jury also honored Steven Holl with an award for his museum in Norway, admiring it as "Modern, but curiously indigenous," according to Rawn. As with the Morphosis projects, the vote for the Holl museum was unanimous. "It's a singularly artistic work," notes Predock.

These four awards and 15 citations exemplify what the jury looked for in this year's submissions: "Serious risk-taking," according to Norten. Explains Hawkinson, "The work should take me somewhere that I haven't been before."

Summing up this year's winners, the jurors concluded:

Norten: From what we've selected, I can see that Modern architecture is maturing after many years of ambivalence — Postmodernism, Deconstructivism, all of that. We agreed to select the very rational projects, those in the good tradition of Modernism. They reopen the vocabulary of this century.

Graham: These projects all look forward — and while there's no agreement on what "forward" means, they aren't looking backward; they're not nostalgic. I'm very excited about that.

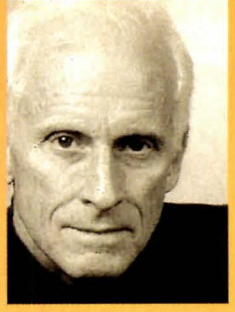
Hawkinson: These projects say that Modernism hasn't been exhausted, that it is being reevaluated in terms of today's culture.

Predock: The winning projects are loaded with ideas, but not at the expense of tectonic development.

Rawn: The winning schemes have such a clear point of view; they represent a rigor and discipline that is refreshing. We avoided projects that focused on self-conscious trendiness, newness for newness's sake. Instead, the projects reflect the serious thinking and formmaking that matches the best of this Modernist century. And many represent a Modernism that connects with setting, whether urban or rural.

MICHAEL ANDERSON PHOTOS

LAURIE HAWKINSON
cofounded Smith-Miller + Hawkinson in 1983 after practicing with other firms for several years. She studied architecture at the Cooper Union in New York City, and holds a master of fine arts from the University of California at Berkeley. Her firm was awarded a national AIA Award in 1987 for the Pardo house, in East Hampton, New York; several other projects, including a mixed-use building in Seoul, Korea, and the North Carolina Museum of Art Amphitheater and Outdoor Cinema have received New York State AIA Awards. Hawkinson is an associate professor at the Graduate School of Architecture, Preservation, and Planning at Columbia University and has lectured at universities throughout the U.S.



ANTOINE PREDOCK
founded his practice, Antoine Predock, Architect, in 1967. His work has received numerous local and national awards, including a national AIA Honor Award in 1990 and Progressive Architecture Awards in 1990, 1985, and 1984. Educated at Columbia University, Predock was a Rome Prize Fellow in 1985. He has held distinguished professorships at Clemson University and the University of Maryland, and served as visiting professor at the Southern California Institute of Architecture, Harvard University, and Arizona State University. Predock has served on numerous juries in the past, including those for the Rome Prize and the national AIA Awards.

ENRIQUE NORTEN
holds degrees in architecture from the Ibero-american University in Mexico City and from Cornell University. In 1986, he opened Taller de Enrique Norten Arquitectos (TEN Architects). The firm received the Architecture Prize from Mexico's National Fund for the Arts in 1990 and the Latin American Grand Award at the Buenos Aires Biennial in 1993, as well as awards at the Mexican Biennial in 1991, 1993, and 1995. Norten has served as visiting professor at the Southern California Institute of Architecture, Rice, Columbia, Cornell and Harvard universities. He will join the University of Michigan architecture faculty this month as the Emil Lorch Professor of Architecture.

SARAH GRAHAM
is a partner of Angelil/Graham Architecture, based in Los Angeles and Zurich. She studied architecture at the Harvard University Graduate School of Design and the Federal Polytechnic of Switzerland. Graham has served as visiting critic at Harvard, the University of Southern California, the Rhode Island School of Design, and the Boston Architectural Center. Her firm has received awards for urban design, such as an AIA California Honor Award for Esslingen Town Center in Switzerland, and numerous awards for energy efficient schemes incorporating photovoltaics. Graham received a Progressive Architecture Furniture Competition Citation in 1986.

WILLIAM L. RAWN
founded William Rawn Associates in Boston, Massachusetts, in 1983. Educated in architecture at the Massachusetts Institute of Technology, Rawn also holds a law degree from Harvard University. He has served as a visiting professor in urban planning and design at the Harvard Graduate School of Design and as an instructor in the department of architecture at MIT. Prior to becoming an architect, Rawn was assistant chancellor for physical planning at the University of Massachusetts's Boston campus. His firm has won many awards for architecture, including four national AIA Honor Awards and a Progressive Architecture Citation for the West Main Street plan for Charlottesville, Virginia.

HYPO ALPE-ADRIA CENTER

Morphosis

PROJECT: Hypo Alpe-Adria Center, Klagenfurt, Austria

SITE: The 33,000-square-meter site, currently a cornfield, lies between a dense urban area to the south along a major roadway, and a low-density suburban region to the north, which is slated for eventual urban development.

PROGRAM: Approximately 10,000 square meters of office space for a commercial bank, and 16,000 square meters of mixed commercial and residential space, including a public events center and underground parking.

SOLUTION: In this large-scale urban development, the architect addresses the complex geometries of the surrounding context with broad formal gestures. For example, a pair of intersecting housing blocks and pedestrian streets at the core of the complex extends the axes of two streets to the north and east of the site.

At the more suburban north end of the site, two- and three-story commercial and residential blocks are designed as freestanding buildings grouped around an elliptical open space inscribed in the block. At the southern end, the five-story Hypobank office block, events center, and commercial space ring the edge of the trapezoidal site, responding to the higher density of the city toward the south and reinforcing the existing street edge. Inside this commercial zone, a smaller elliptical courtyard between the office block and the events center creates a buffer between the commercial and residential zones of the complex.

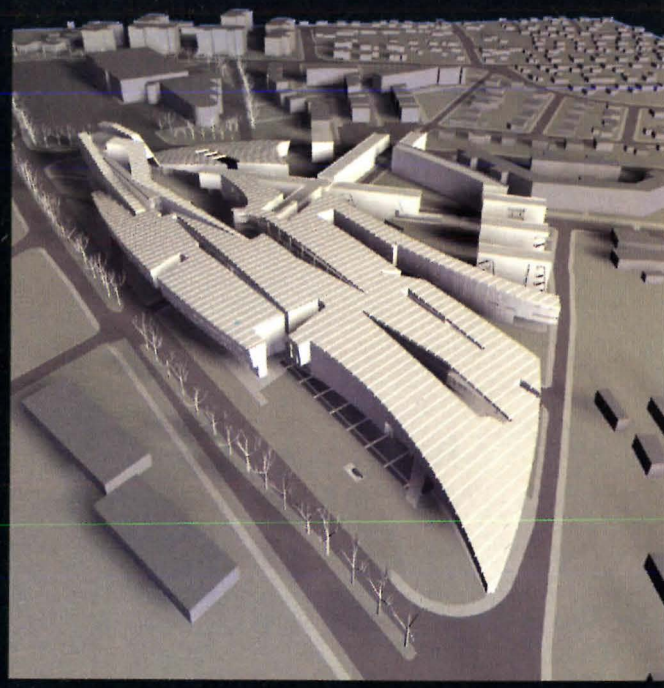
At the southwest corner of the site, the bank is lifted above the ground to create a covered plaza that marks the building's principal entrance. The plaza leads to an atrium extending the full height of the chamfered five-story block, which towers above the irregular, low roofscape and anchors the site's most public corner. Along the south facade, a cantilevered canopy provides a covered drop-off zone for cars and buses. The varied palette of glass, metal panels, and perforated metal scrims differentiates the various components of the complex.

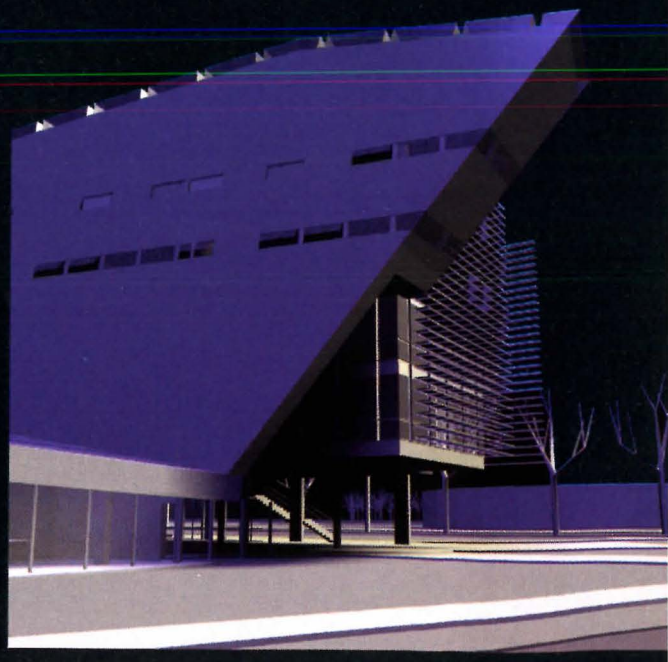
Diagram of site geometry

HAWKINSON: *This building is almost an urban project. I know it's just a building, but it affects the urban fabric in a way that doesn't just contrapose something next to it, but tries to sneak in between and have a relationship to it in a very different way than we've seen before.*

GRAHAM: *I completely agree. It's multiprogrammed space, but it manages not to seem so large.*

NORTEN: *I totally like it. It takes a part of the city that would definitely change after this is done. It's really looking into the future.*



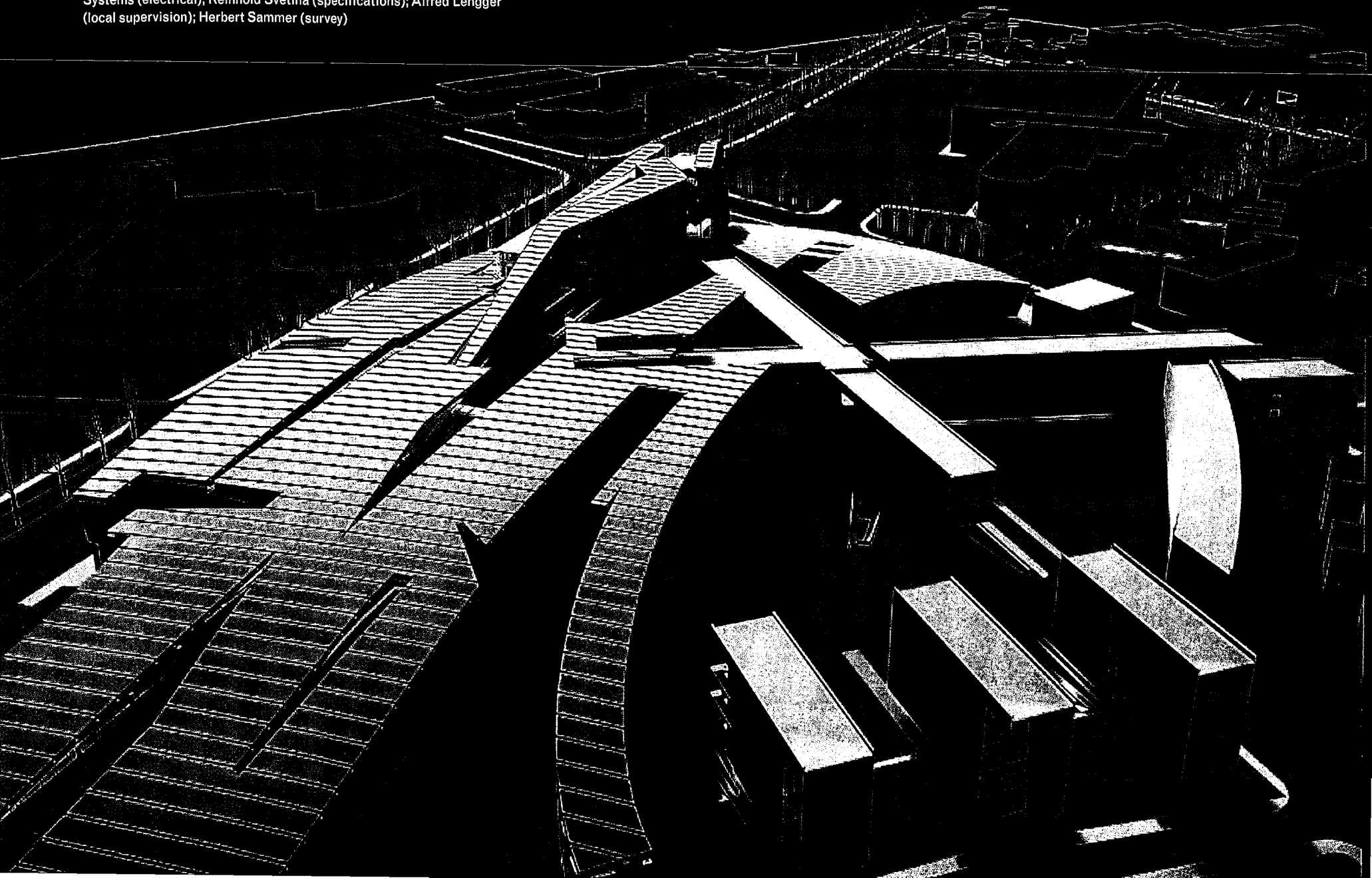


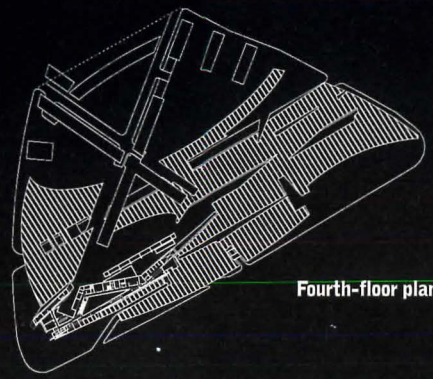
TOP: Model view from southeast
ABOVE: Model view of western edge of office building
BELOW: Model view from northeast showing commercial (foreground, left) and housing blocks (right)

ARCHITECT: Morphosis, Santa Monica, California—Thom Mayne (principal), John E. Enright (project architect), Michael Folwell, David Grant, Martin Krammer, Fabian Kremkus, Eugene Lee, Thomas Lenzen, Brian Parish, David Plotkin, Janice Shimizu, Stephen Slaughter, Ingo Waegner, Oliver Winkler (project team)

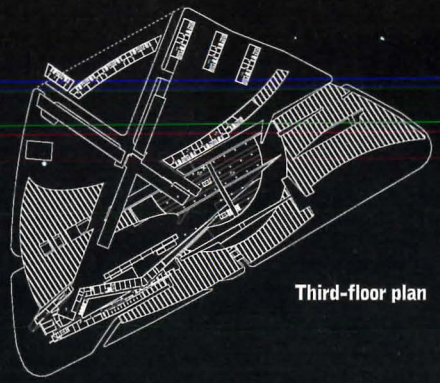
CLIENT: Kärtner Landes and Hypothenkenbank AG, Klagenfurt, Austria—Wolfgang Kulterer (director), Erwin Sucher (deputy director)

ENGINEERS: Baumeister Consultants; Aichholzer/Gelbmann (structural); Haustechnik Engineering (mechanical); Technical Office of Electrical Systems (electrical); Reinhold Svetina (specifications); Alfred Lengger (local supervision); Herbert Sammer (survey)

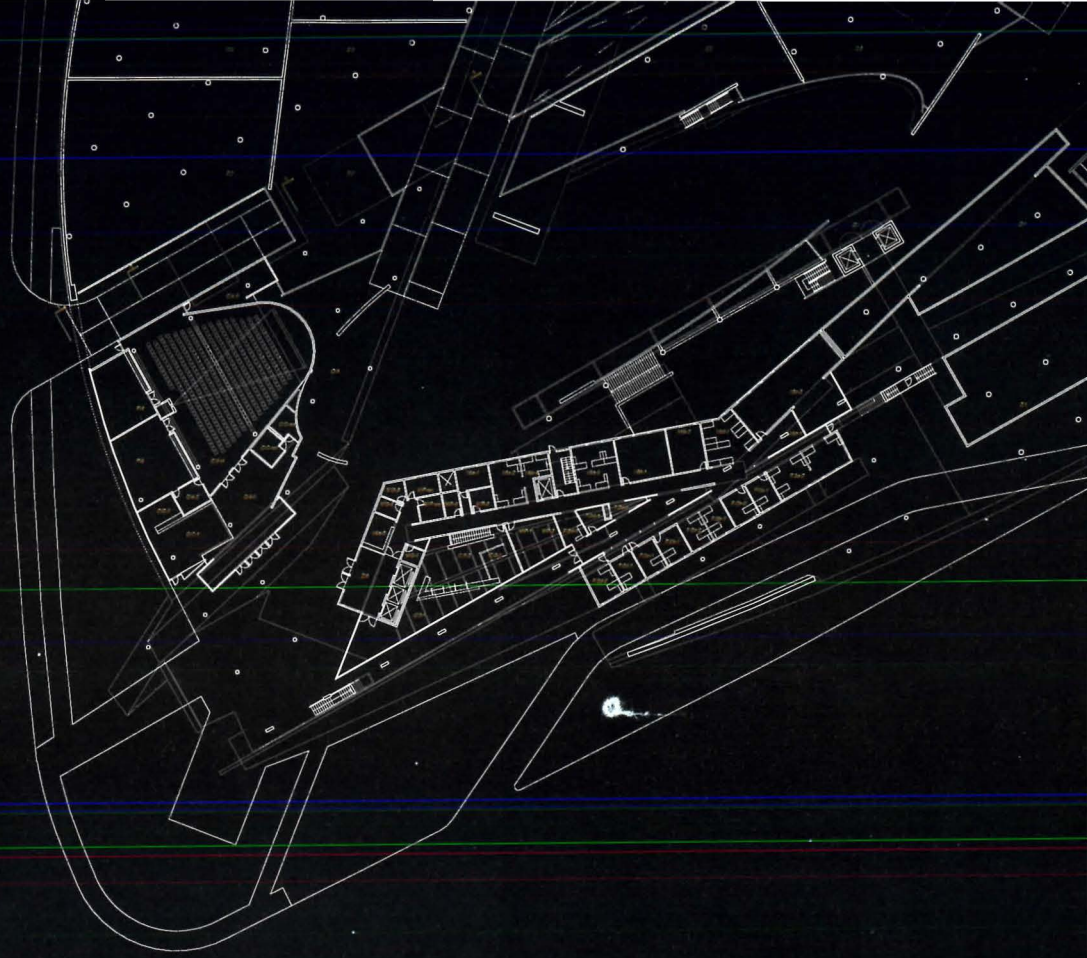




Fourth-floor plan

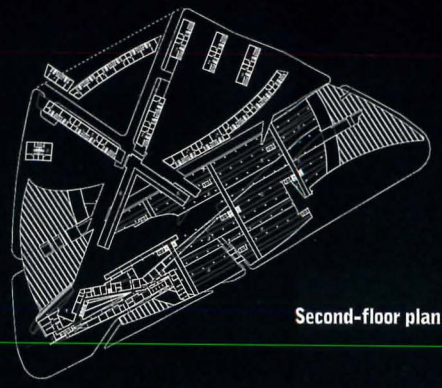


Third-floor plan

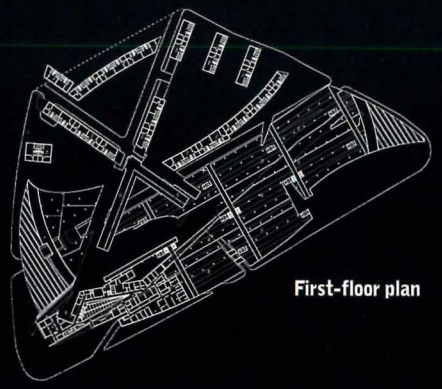


Ground-floor plan of events center (left), office block (center), and commercial space (right)

South elevation



Second-floor plan

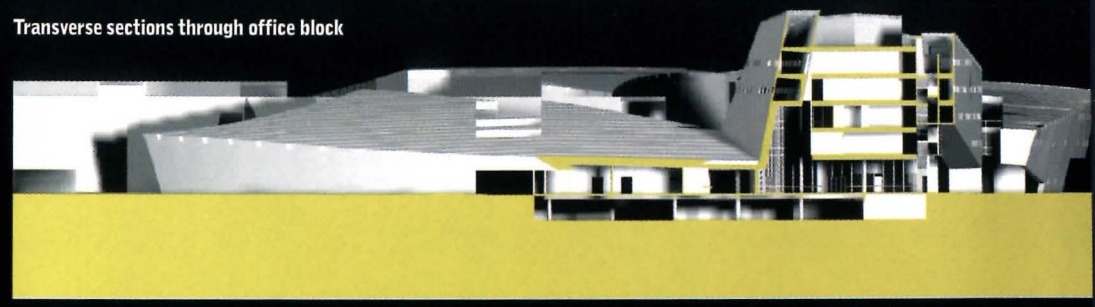


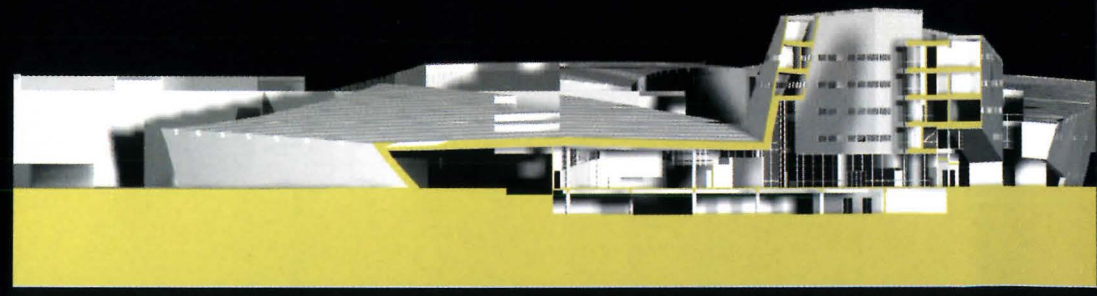
First-floor plan

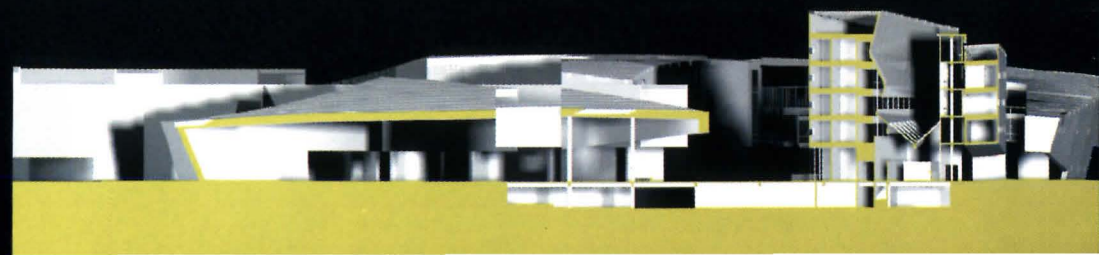
RAWN: *Somehow the roof form breaks down the scale of the project, organizing a very big building to fit into a setting that cannot conventionally sustain such a large structure. I find this to be a very powerful solution to the problem of the "extra large" building.*

PREDOCK: *This is building as urban topography. It evokes tectonic plates. It would be more successful if the roof-plane displacement resulted from ground-plane displacement.*

Transverse sections through office block







SUN TOWER
Morphosis

PROJECT: Sun Tower, Seoul, Korea

SITE: A 3,600-square-foot lot in downtown Seoul, surrounded by two-story commercial buildings. The property is in an area heavily traveled by pedestrians, near Ewha University, Korea's largest women's university. Twenty-five percent of the site is zoned for open space.

PROGRAM: A high-profile mixed-use building to serve as international corporate headquarters for a sportswear manufacturer. Retail fills five levels of the building (including two in the basement), while corporate offices occupy the penthouse.

SOLUTION: The client requested a youthful image for this building, and the architect responded with a dynamic form wrapped in two skins. The first is the steel and glass envelope of the building itself. The second is a perforated steel screen intended to suggest clothing and fabric at the scale of architecture. The secondary skin is attached as a backlit panel system intended to transform the building into a large billboard at night. At the center of the building, a 12-by-4-meter wedge-shaped space forms a courtyard. Vertical circulation faces the court to maximize visual activity. The penthouse corporate office is marked by dramatic rooftop sculptural forms.

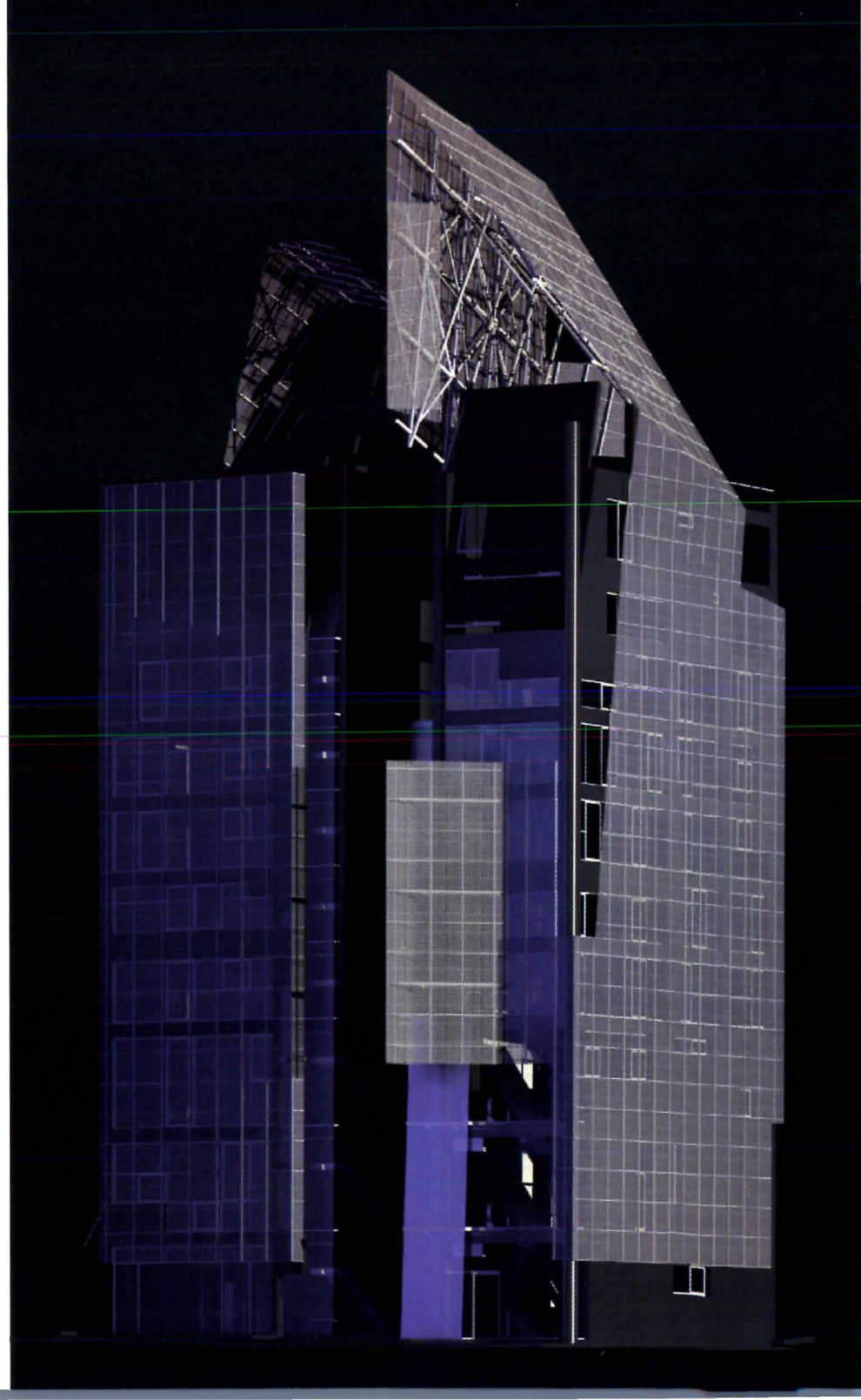
ABOVE: Diagram of unfolded steel screen
RIGHT: Model view of northeast corner

PREDOCK: *The intentional manipulation of light actually enhances the ambiguity of where skin stops and inner body starts. They've thought about this for both night and day.*

RAWN: *There's real rigor to the complexity. It's not a gratuitous complexity.*

GRAHAM: *The rigor begins with a conceptual idea, which we all can clearly understand: creating a fabric for a building about fabric. It then follows all the way into exploring space.*

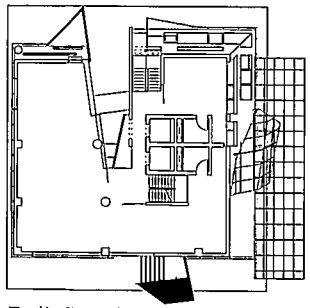
NORTEN: *There is also an exploration of materiality—different conditions of materiality—that has a lot to do with the tectonics of architecture.*



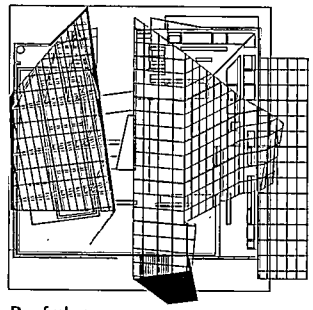
HAWKINSON: *The building's cladding is conceptually linked to clothing and fabric. The way the pattern is used in fabric occurs in the plan. Then this second skin wraps around, actually folds around the building, like a piece of clothing.*

PREDOCK: *There are many projects that have an exoskeletal cladding that generally articulates the big form of the building. This one is worn like a garment. And it seems culturally specific. It has the feeling of an Asian pattern, of woven fabric, and it also alludes to bamboo scaffolding. It's an exoskeletal condition that has a life of its own.*

NORTEN: *It's interesting that the layering of different degrees of transparency creates this unique perception of space both from interior to exterior, and from exterior to interior. I think it looks into a new way of understanding space.*

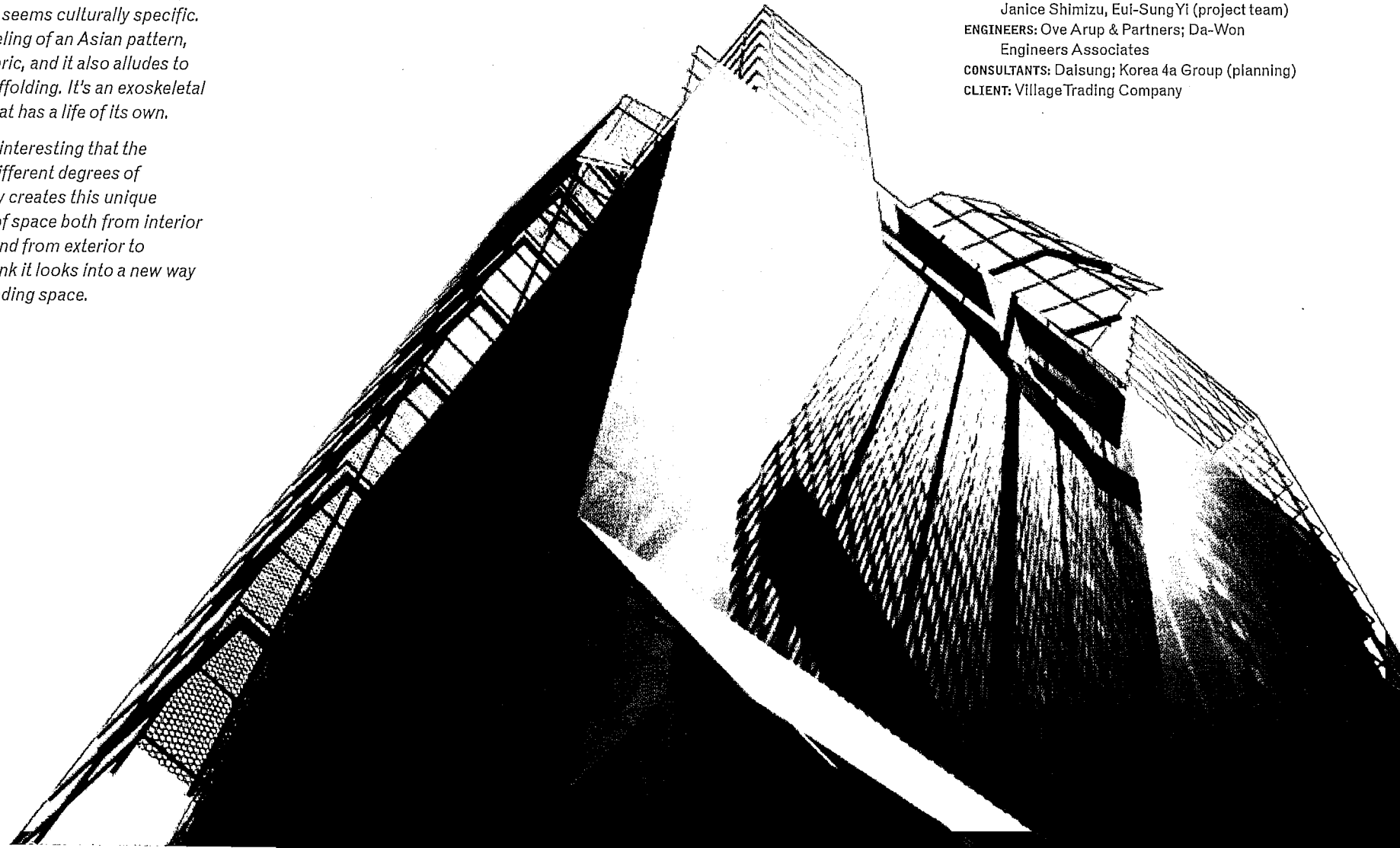


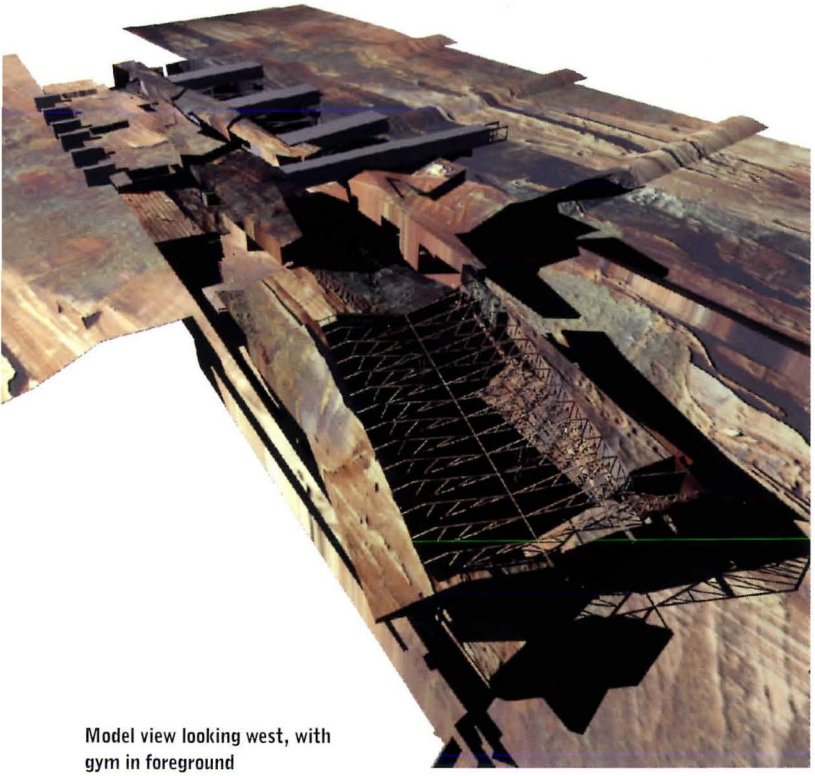
Tenth-floor plan



Roof plan

ARCHITECT: Morphosis, Santa Monica, California—Thom Mayne (principal), Eul-Ho Suh (project manager), Mark Briggs, Neil Crawford, David Grant, Kim Groves, Towan Kim, Duks Koschitz, Kyung Hwa Lee, Kristina Loock, Janice Shimizu, Eui-Sung Yi (project team)
ENGINEERS: Ove Arup & Partners; Da-Won Engineers Associates
CONSULTANTS: Daisung; Korea 4a Group (planning)
CLIENT: Village Trading Company





Model view looking west, with gym in foreground

DIAMOND RANCH HIGH SCHOOL

Morphosis

PROJECT: Diamond Ranch High School, Diamond Bar, California

SITE: Seventy-two acres of rolling, steeply graded, grassy terrain overlooking Pomona, California. Existing slopes vary from 1:1 to 5:1, with a drop across the site of 380 feet. The site is surrounded by a landscape of oak trees and native grasses. Local cut and fill regulations did not allow moving materials from the site or importing materials to it. Resulting slopes were limited to 2:1.

PROGRAM: A 150,000-square-foot public school for grades nine through 12 with 50 classrooms/labs, a gymnasium, library, cafeteria, administrative offices, and parking for 770 automobiles.

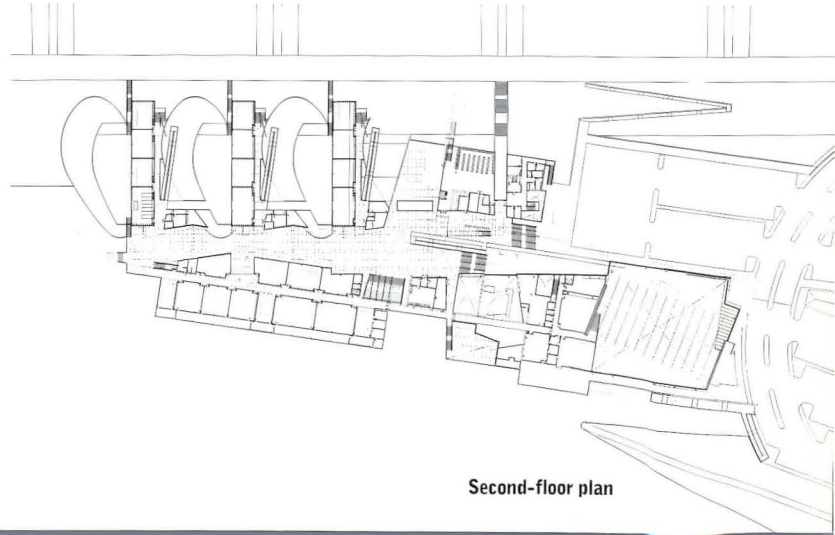
SOLUTION: A complex marriage of landscape design and architecture, the Diamond Ranch school slices into and down the hilly terrain of its site. The stepped building and its assemblage of playing fields (three soccer, one football, two baseball, seven tennis courts, eight basketball courts, and four volleyball courts) create local environments for the various activities of the school. For instance, the wings housing classrooms for the 9th and 10th graders are extended to form exterior courts. Other parts of the building create roof terraces for viewing outdoor performances and athletic events. The building's jagged edges and undulating rooflines echo the powerful landscape surrounding the school.

Remarkably, despite its intensive program, the school, its playing fields, and parking utilize only half the available site. The school building is constructed of steel-braced frames, concrete decking, and cast-in-place retaining walls. Exterior surfaces are concrete or sheet metal, with interiors of painted gypsum board.

NORTEN: *I am intrigued by the transformation of the topography—how the building transforms the landscape and becomes part of it.*

RAWN: *The topography becomes functional; it becomes the playing fields.*

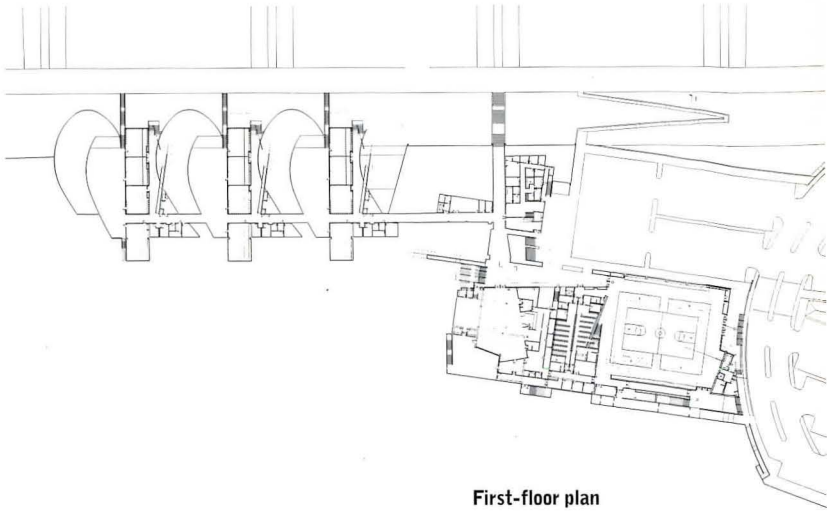
PREDOCK: *Exactly, and they are directly related to the building.*



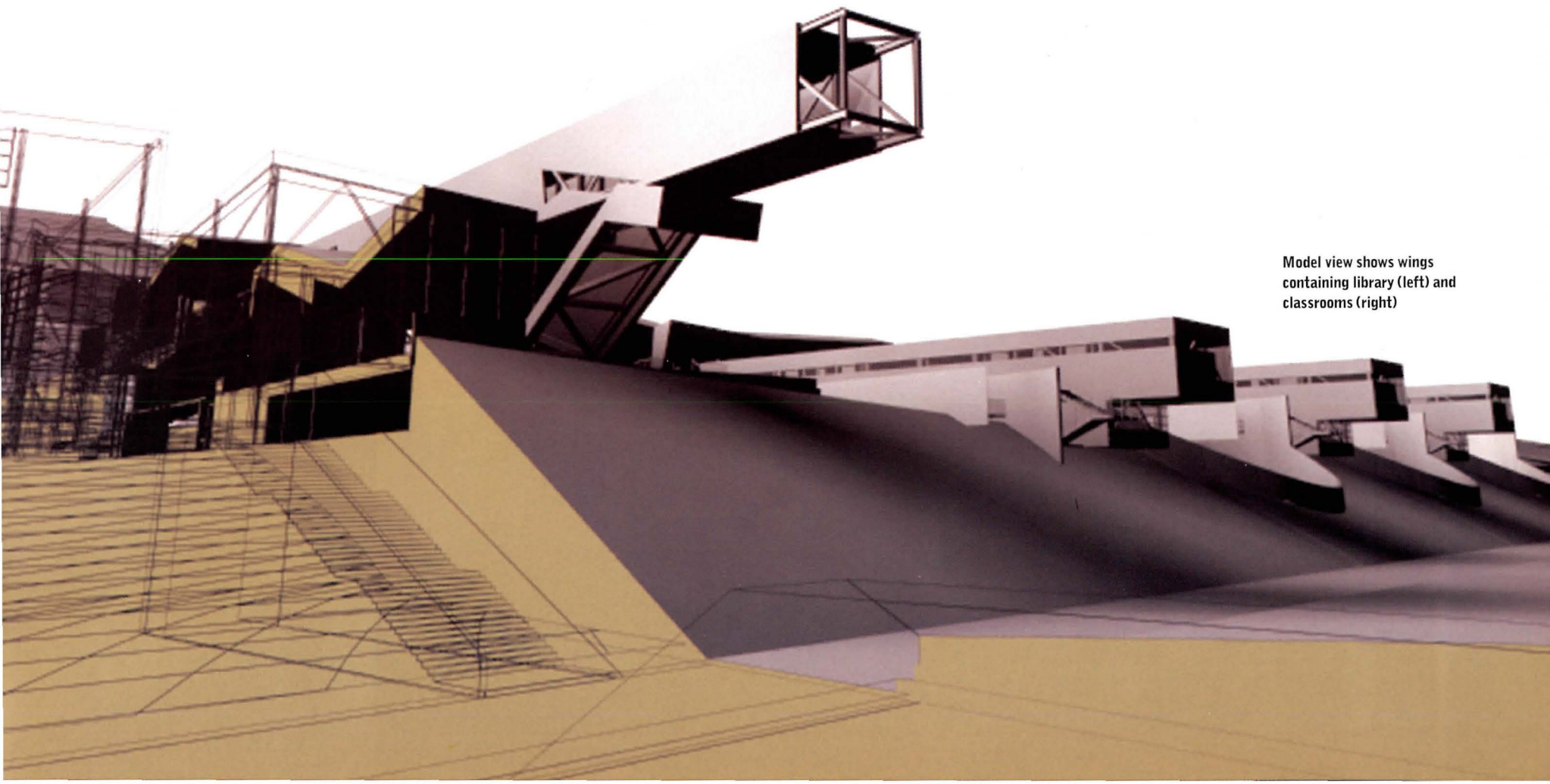
Second-floor plan

HAWKINSON: *I grew up very near this site, and I would love to see something like this built there.*

GRAHAM: *There is an immense amount of work here, an immense amount of investigation. It is done with great rigor. The original idea, which has to do with the building being integrated with the landscape, is tested over and over again with great energy.*



First-floor plan



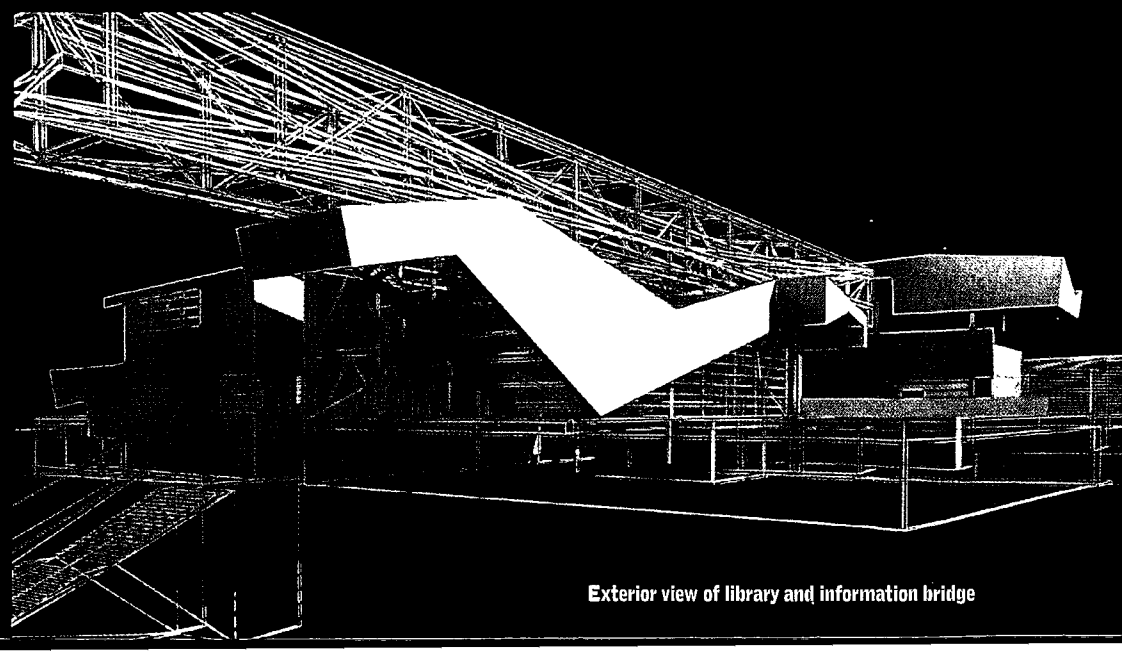
Model view shows wings containing library (left) and classrooms (right)

View of library and information bridge

DESIGN ARCHITECT: Morphosis, Santa Monica, California—Thom Mayne (principal), John E. Enright (project architect), Cameron Crockett, David Grant, Janice Shimizu, Patrick Tighe (project team), Sarah Allan, Kasper Baumeister, John Bencher, Frank Brodbeck, Takashi Ehira, Magdalena Glen, Ivar Gudmunson, Martin Krammer, Ming Lee, Francisco Mouzo, Christopher Payne, Kinga Racon, Andrea Schaller, Craig Shimahara, Mark Sich, Eui-Sung Yi (project assistants)

PREDOCK: *I think of the word "topology." It's a topological set of moves here. The level ground plane in the geologic sense has been distorted over millennia, and this building extends that. I take this model and the drawings very literally, in terms of their colors and textures, and to me, the building's got to be executed this way. There's an airplanelike quality that seems appropriate in Southern California. There are camouflage sections in there, sections that are clearly separated as geometric pieces that are unambiguous, like the bars.*

RAWN: *This project is serious, rigorous, and rational, with great complexity.*



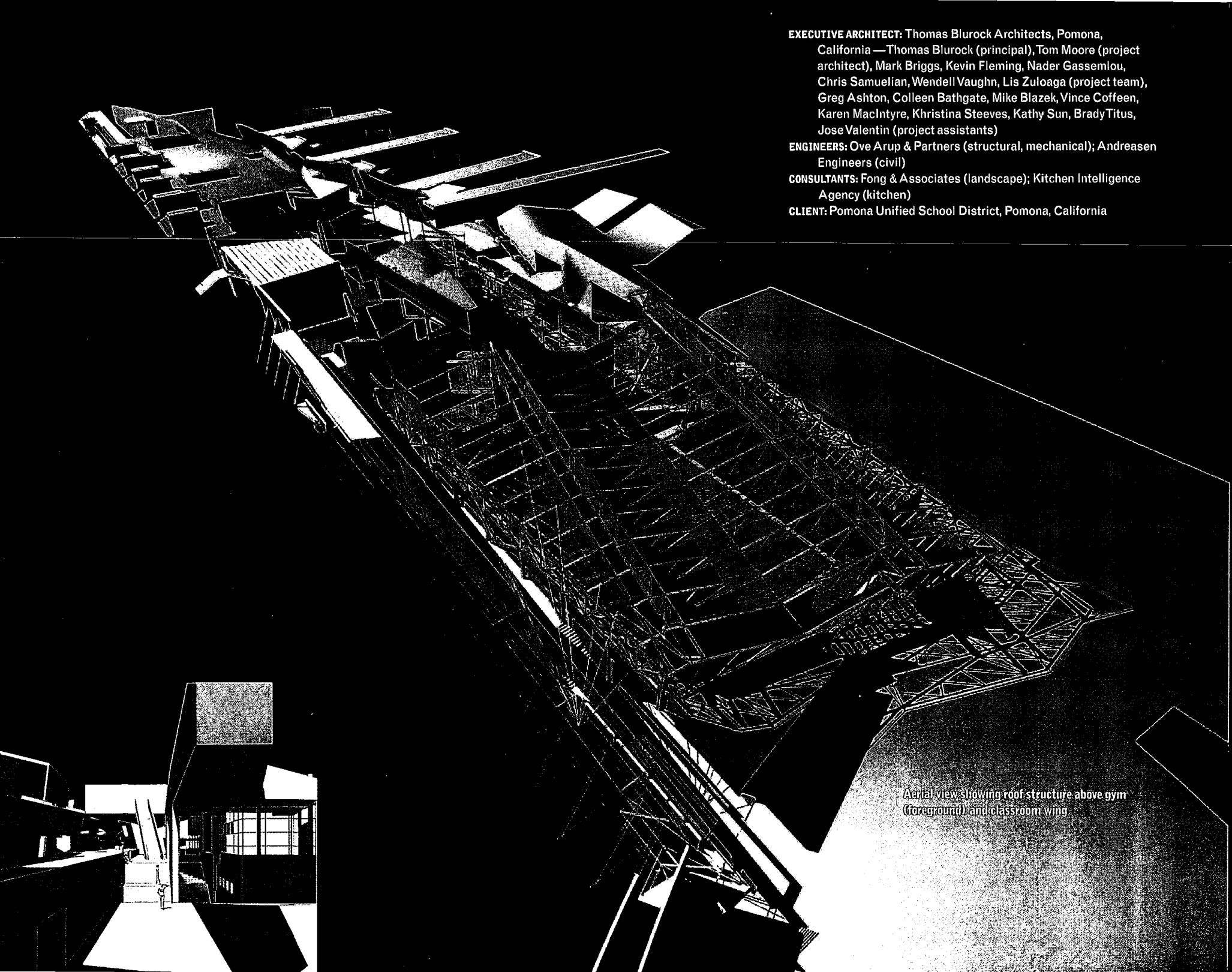
Exterior view of library and information bridge

EXECUTIVE ARCHITECT: Thomas Blurock Architects, Pomona, California—Thomas Blurock (principal), Tom Moore (project architect), Mark Briggs, Kevin Fleming, Nader Gassemlou, Chris Samuelian, Wendell Vaughn, Lis Zuloaga (project team), Greg Ashton, Colleen Bathgate, Mike Blazek, Vince Coffeen, Karen MacIntyre, Khristina Steeves, Kathy Sun, Brady Titus, Jose Valentin (project assistants)

ENGINEERS: Ove Arup & Partners (structural, mechanical); Andreasen Engineers (civil)

CONSULTANTS: Fong & Associates (landscape); Kitchen Intelligence Agency (kitchen)

CLIENT: Pomona Unified School District, Pomona, California



Aerial view showing roof structure above gym (foreground) and classroom wing

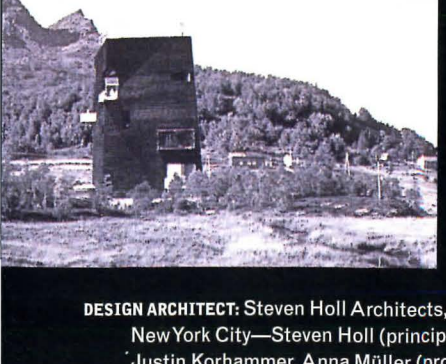
KNUT HAMSUN MUSEUM
Steven Holl Architects

PROJECT: Knut Hamsun Museum, Hamarøy, Norway

SITE: A small parcel on Knut Hamsun's ancestral farm in Hamarøy, Norway. The gently rolling landscape lies in a valley above the Arctic Circle, against a range of mountains to the west and an inlet to the southeast. Visitors will park to the northeast and approach the building across a grassy landscape.

PROGRAM: A 5,400-square-foot museum dedicated to Knut Hamsun, one of Norway's most celebrated 20th-century writers who won the Nobel Prize for Literature in 1920. The building comprises 2,700 square feet of exhibition space, a library and reading room, café, 700-square-foot auditorium, roof garden, and viewing terraces.

SOLUTION: Structured as a tower rising out of a valley, the museum is intended to embody Hamsun's description of himself as a "battleground of invisible forces." Thus, the 23-meter-tall concrete structure is pierced with irregular openings that play light across the white-painted concrete interiors in apparently random patterns. Two balconies, one clad in wood, the other in glass, project from the tower as specific references to events in Hamsun's literature. They also afford views of the author's homeland. The museum responds to context with its tar-covered wood exterior sheathing, a nod to local stave churches. Further, the building's distinctive grass top is a contemporary interpretation of Norwegian sod roofs.

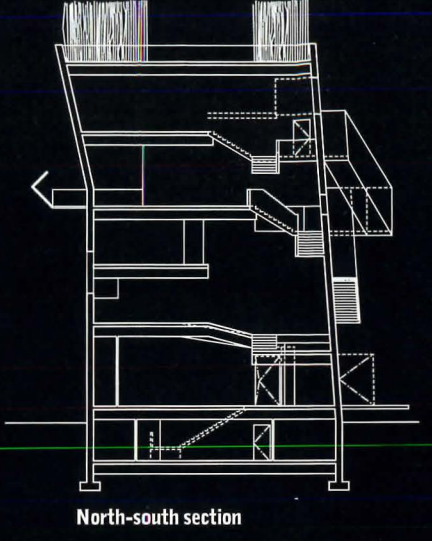


DESIGN ARCHITECT: Steven Holl Architects, New York City—Steven Holl (principal), Justin Korhammer, Anna Müller (project architects), Audra Tuskes (project team)
ASSOCIATE ARCHITECT: Askim and Lantto, Oslo, Norway—Niels Marius Askim, Lars Lantto (principals)
CLIENT: Hamsunsenteret A/S

HAWKINSON: *This scheme is interesting because it's Modern, but also curiously indigenous—the color of the wood, the cladding. The building is rendered as an object, but it feels as though it belongs in this place.*

NORTEN: *What intrigues me is how it achieves simplicity, and at the same time has a very rich experiential condition.*

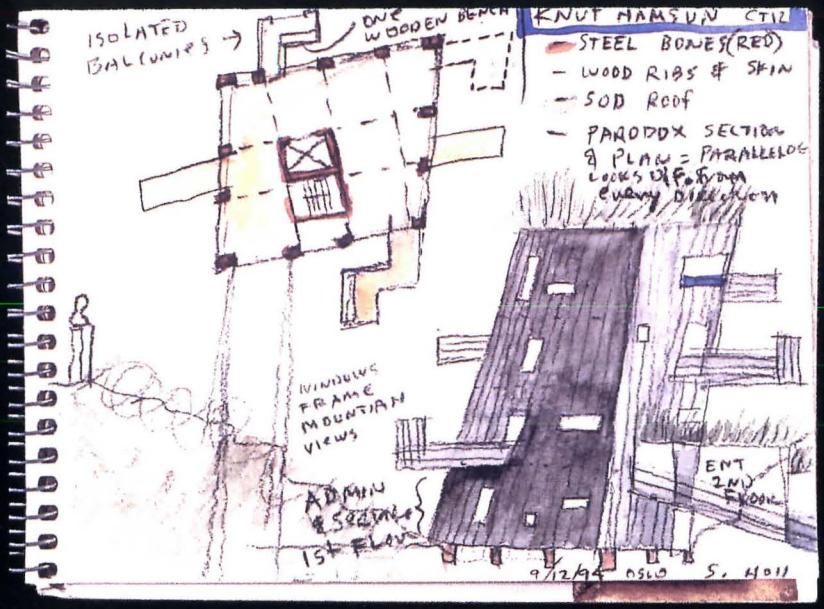
GRAHAM: *And in doing that, it's reversed what we often see, which is banal or simple interior experiences, with all the expression on the outside. It's an absolutely cool volume, simple and reduced. But the power of the experience is on the interior.*



North-south section

Second-floor plan

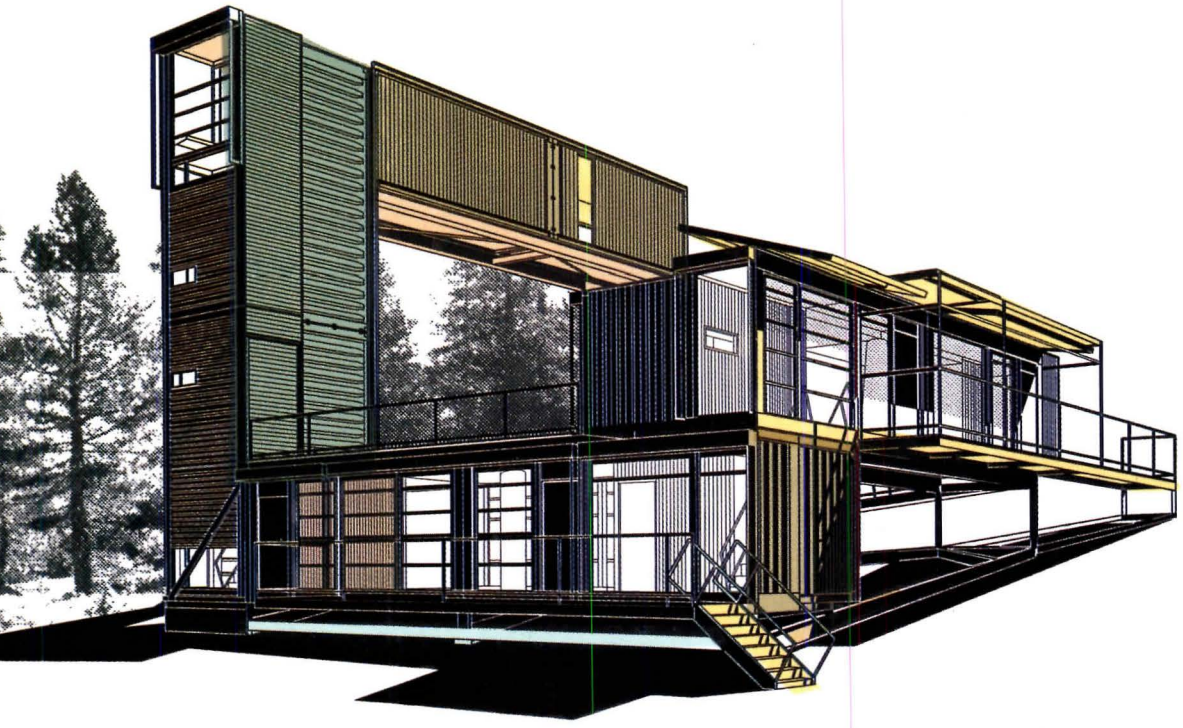
First-floor plan



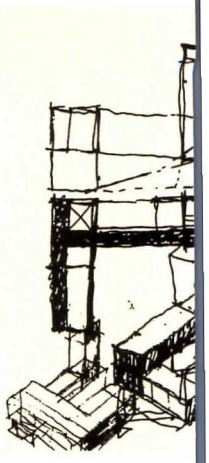
Watercolor sketch of trapezoidal plan and volume

RAWN: *The austerity is the vernacular of the Arctic Circle. So this project is an abstraction of the vernacular, and yet it is direct at the same time.*

PREDOCK: *It's a singular artistic work. It also embodies what I've always seen as a Scandinavian quality: a kind of maverick, idiosyncratic quality of slight distortion. I think of Ingmar Bergman movies. There are so many levels of engagement, and I think it comes from the site, yet its site-specificity has nothing to do with anything literal. It has a brooding quality.*



View from north of Meadow's Edge House



HIGH SIERRAS CABINS

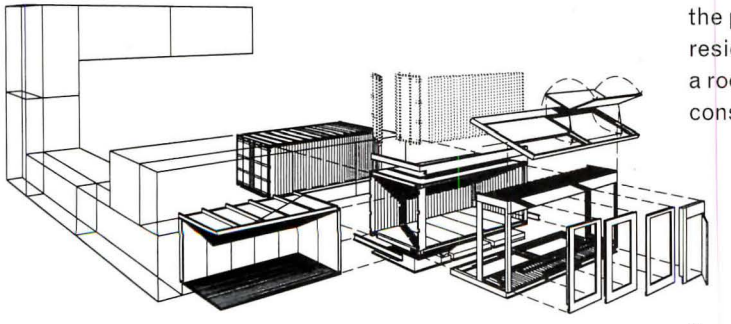
Jones, Partners: Architecture

PROJECT: High Sierras Cabins, Hope Valley, California

SITE: Three hundred sixty isolated acres in the High Sierra mountains, bordered on all sides by federal land that cannot be developed. The parcel includes both forests and meadows, bisected by a low ridge running north to south.

PROGRAM: Cabins, outbuildings, and assorted guest quarters for two Stanford University professors who teach optics, and their colleagues and students.

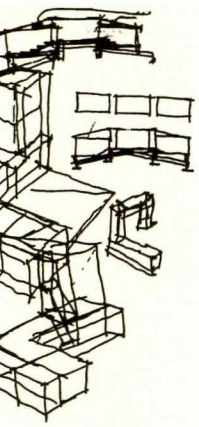
SOLUTION: Two separate cabins are proposed, reflecting the professors' differing attitudes toward the land. One cabin will reside on the edge of a forest overlooking a meadow, the other atop a rock outcropping commanding the meadow. The houses will be constructed of standard, 20-foot-long steel shipping containers, modified off-site to accommodate glazing, plumbing, electricity and other residential requirements. The containers will be trucked to the Sierras, then airlifted onto the site and assembled into houses. Additional modules can be added later if desired. The design employs mostly end-to-end connections between each module to maintain their linear character. At least three single-room guest houses, complete with self-contained water and waste systems, will be deposited around the site on skid mounts so they can be easily moved.



ARCHITECTS: *Jones, Partners:* Architecture, San Francisco—Wes Jones (principal), Bernard Chang, Michael Gough, Doug Jackson, Robert Shepherd, Jean Young-Jones (design team)

ENGINEER: Jack Laws (structural)

CLIENTS: Lambertus Hesselink and Denise Krol



RAWN: *I think these drawings are exactly the same as Paul Rudolph's from the 1950s and 1960s. He did these same things—piling modules on in various ways—but in urban situations. I worry that this presentation is seducing us into thinking it is more significant than it actually is.*

NORTEN: *The spaces are good, the use of materials is interesting. I'm a little more dubious about the theoretical starting point.*

GRAHAM: *The container is what's important.*

PREDOCK: *I agree with Bill. This is territory where people have already been.*

HAWKINSON: *This scheme is attempting to utilize found industrial pieces in a new way. Certainly this approach has economic value, but I think it's more innovative than just that.*

NORTEN: *It's also interesting in its use of the landscape, particularly on the edge of the woods. It takes this right angle and reaches straight down to attach to the landscape.*

Front view of mobile guest hut

PRIVATE LIBRARY

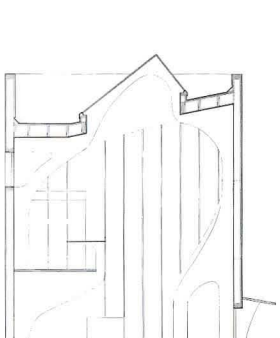
Bade/Stageberg Architects

PROJECT: Private Library, Lake Pepin, Wisconsin

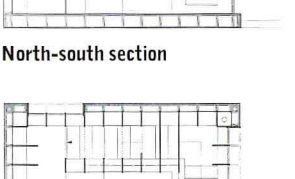
SITE: A wooded bluff in Wisconsin overlooking Lake Pepin, a wide section of the Mississippi River, to the west; rolling farmland to the east; a meadow to the north; and a private house to the south.

PROGRAM: A library pavilion for a writer on her rural estate. Separated from the main house, the library is intended to offer a secluded, contemplative environment for reading, writing, and study, as well as storage for a collection of books. The main level comprises 216 square feet; the mezzanine adds 74 square feet.

SOLUTION: Reflecting the client's interest in medieval culture, the architects drew upon illuminated manuscripts as a design metaphor for this diminutive building. The 12-foot-long-by-16-foot-wide-by-25-foot-high structure is a vertical counterpoint to its flat site. It is framed in 2-by-6 timbers with shiplap wood siding on the exterior and plywood sheathing on the interior. The interior edge of each 2-by-6 is cut with a continuous dado into which plywood fins are inserted. These fins form the vertical support for bookshelves, and reinforce resistance to eccentric building loads on the larger structure. This exposed structure and colored glass windows imbue the interior with a Gothic character.



North-south section



Mezzanine-level plan

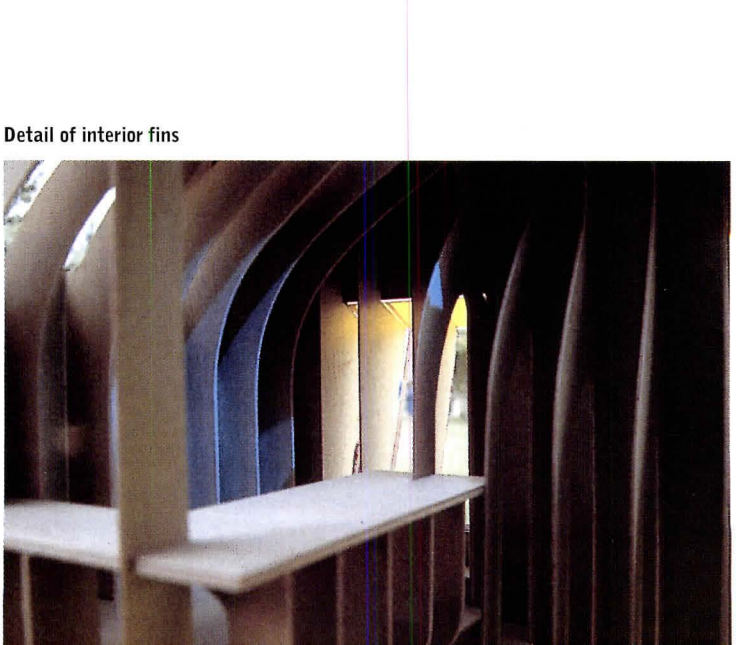
First-floor plan

NORTEN: *I think this is a solution that works on many levels. There's the simplicity of the building form, combined with the complexity of the interior. The books become yet another layer. It's not a one-liner.*

GRAHAM: *We're seeing it here in an empty condition, so we see only the starkness of the exterior. I can imagine these spines—these ribs that are structure—as bookcases beginning to be filled.*

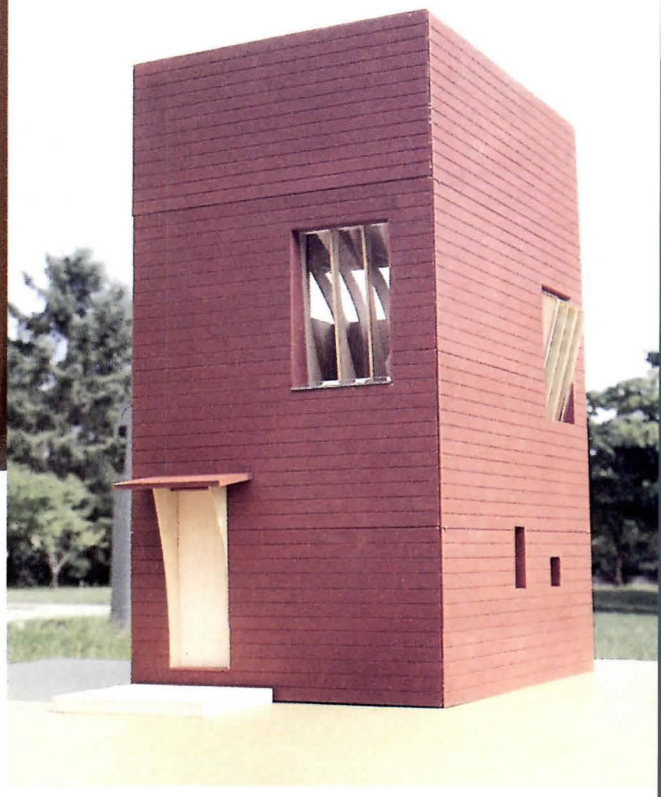
HAWKINSON: *Its success depends on it being filled with books. Without the books, it's a little bit like being swallowed by a whale, because the curvilinear verticality is overwhelming.*

Detail of interior fins



Model view of interior

ARCHITECTS: Bade/Stageberg Architects, Brooklyn, New York—Timothy Bade, Jane Stageberg (principals)
ENGINEER: Meyer Borgman Johnson—Jack Meyer (structural)
CLIENT: Susan Allen Toth



Model showing south elevation

PREDOCK: *The notion of this scheme is that there's a building made of books that you carve space out of. The indeterminacy—in terms of how many books there will be—is intriguing.*

RAWN: *I can imagine it completely full, where the materials of the interior are books and book spines, period. Imagine being in there—the sensuality of the book, the smell. It's tactile. What a great contrast to all the talk about digitizing.*

SINTE GLESKA UNIVERSITY

RoTo Architects

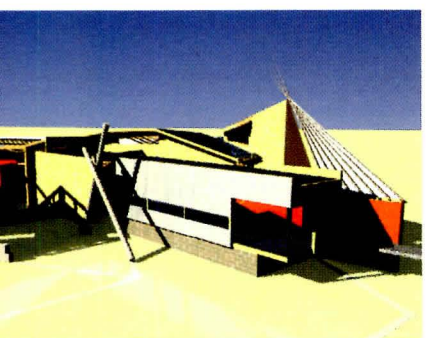
PROJECT: Sinte Gleska University, Antelope, South Dakota

SITE: One-square-mile campus at the edge of a reservoir outside Mission, South Dakota, a small town in south central South Dakota, 30 miles north of the Nebraska border. The site includes a 19th-century mission boarding school where Native Americans were sent for education and Anglicization.

PROGRAM: A master plan and several classroom buildings for the country's only Native American university, which serves about 700 students of the Sicangu Lakota tribe.

SOLUTION: Because the Lakota culture is based upon the relationship of the earth, sun, and stars, the architects conceived the entire campus as an earth-based observatory from which to observe the stars. And since circles are important to Native American culture, the master plan inscribes a circle with a 600-foot radius, its center defined by the intersection of an historically important path and a geological feature. Imaginary radii of the circle are drawn from the center point to geologic outcroppings of the surrounding Black Hills. To give the buildings greater significance to the Lakota students, they are placed along these radii in a modern-day version of Lakota site analysis.

This unusual urban design project includes not only designing and constructing a new campus, but also incorporating the buildings into the university's hands-on curriculum. The school's immediate need for a large multiuse student center is the first phase of the project. Students are involved in the design and construction of the student center as a primer for how architects and students will work together in designing and constructing the 1-square-mile complex. Since all buildings are to be constructed on an extremely tight budget, the architects incorporated existing materials and structures wherever possible. Building techniques such as rammed earth and straw bale construction, as well as log building and traditional framing, will be explored with the students in the construction of other buildings on the university campus.



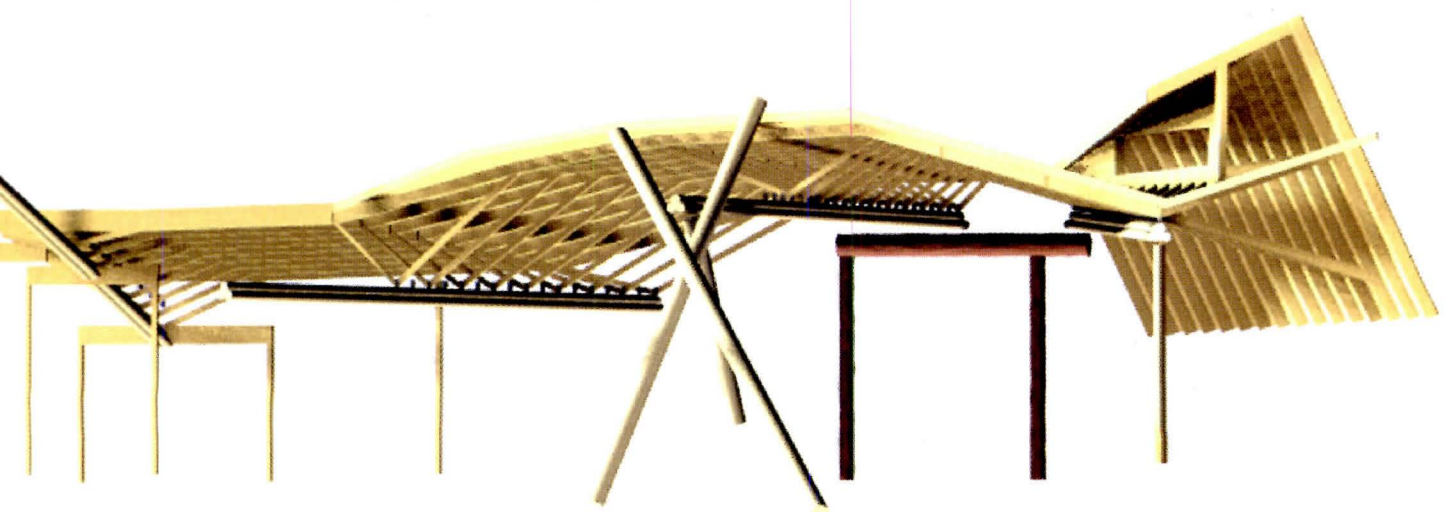
Models of roof structure (above and below), which will crown addition to existing building

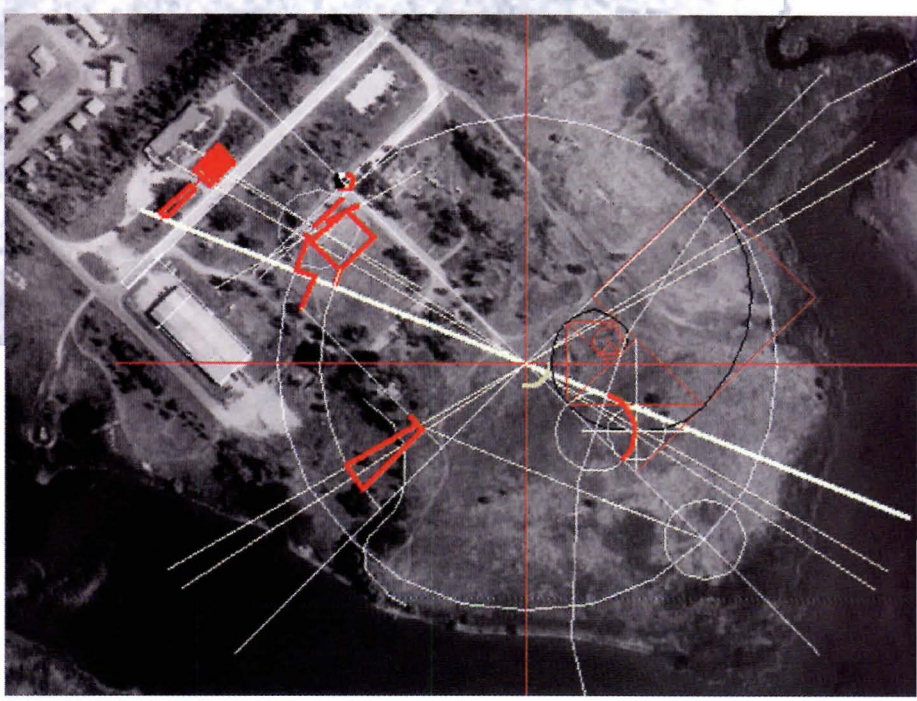
HAWKINSON: *I like the way they're addressing urban design from a completely different set of foundations. Rather than the formal strategies which we've seen before, they're using different information than is traditionally used. Native American culture is applied to generate strategies about placemaking.*

NORTEN: *And they draw from those traditions, but apply them in a very contemporary manner. They don't remain in the past. It's not nostalgic.*

RAWN: *I don't see a strong connection between the ideas elegantly presented in these beautiful photographs and the ultimate plan.*

PREDOCK: *We all know what a typical campus master plan is—connect the dots or design connections with walkways—that's one way that it's done. But they are starting with a completely different agenda, a completely different structure to generate how you might locate pieces or objects or buildings in relation to each other.*





Site plan of campus

GRAHAM: *I'm delighted to see a new strategy for thinking about an urban design project, and I agree that the starting point is terrific. But if you look at the final plan, the interventions are very, very minor. We have to be a little careful of seductive drawings. But at the same time, in the urban design category, we generally got absolutely unseductive drawings. I want to applaud a vision and a hand here, even though I'm not entirely sure what the product is.*

HAWKINSON: *There's this expected response to master-planning, but they're attempting to reset the terms of that response by using what they have at hand.*

ARCHITECT: RoTo Architects, Los Angeles—Michael Rotondi, Clark Stevens (principals), Jim Bassett, Kenneth Kim, Brian Reiff, Michael Volk (collaborators), Noah Bilken, Bader Kassim, Jin Kim, James Malloch Taylor (project team)
ENGINEERS: Ove Arup & Partners (structural, mechanical, electrical); Joseph Perazzelli (structural); MB&A (mechanical); Dakota Roadway Consultants (civil)
CONSULTANTS: ANC/Specifications (specifications); Adamson Associates (cost estimating); Rosebud Sioux Reservation community (research)
CLIENT: Sinte Gleska University/Lannan Foundation

CITATION

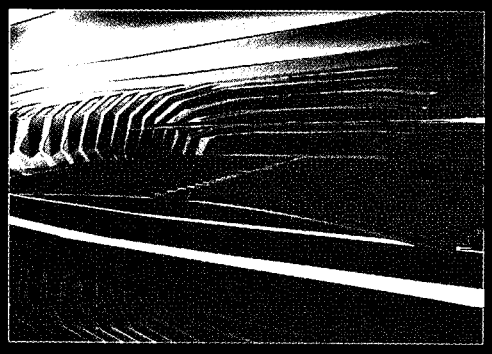
KOREAN PRESBYTERIAN CHURCH OF NEW YORK

Garofalo Architects, Greg Lynn FORM, and Michael McInturf Architects

PROJECT: Korean Presbyterian Church of New York, New York City

SITE: A 190,000-square-foot parcel located 3 miles east of Manhattan, in a dilapidated industrial area of Queens. The southern edge of the site is bordered by the Long Island Railroad, through which more than 800 trains pass daily. The Sunnyside Rail Yards are adjacent to the east. The parcel is surrounded by 1930s and 1940s industrial buildings, many of which are abandoned.

PROGRAM: The conversion of two abandoned warehouses into a 135,000-square-foot church and community center. The complex houses a 2,500-person sanctuary with a 200-person choir, a 600-person wedding chapel, an 800-seat cafeteria, 80 ten-person classrooms, five multipurpose meeting rooms, a library, exhibition hall, and support facilities.



Computer model of church interior

SOLUTION: The new church is an adaptive reuse and addition to the Art Deco-style Knickerbocker Laundry factory (1932). This largely empty warehouse on two 44,000-square-foot levels is to be renovated into classrooms on the lower level and a cafeteria, wedding chapel, and offices above. The new sanctuary rests on the roof of the existing factory, which was originally built in anticipation of adding more floors. An S-shaped lobby/circulation spine punches through the complex, and shifts the entrance from the west to the south. The new sections of the building are clad primarily in metal panels and standing-seam metal sheathing, except for internal circulation cores, which are rendered in stucco.

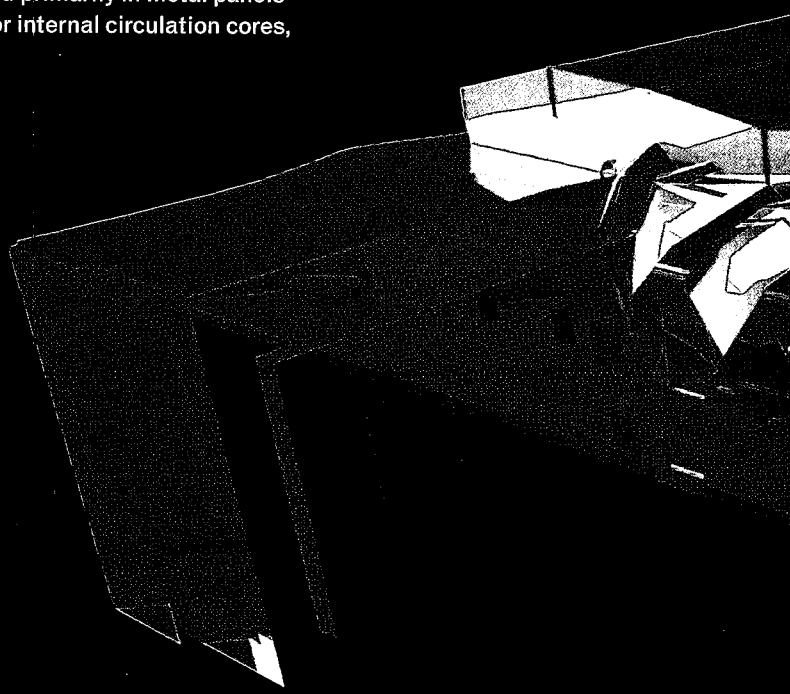
NORTEN: *I find it interesting for many reasons. It breaks many of the traditions of large churches, like symmetry for instance.*

GRAHAM: *It has an intriguing plan.*

HAWKINSON: *The addition is not particularly polite to what exists, but it's not always appropriate to be polite to the host building. One can instead use the host building as a foil rather than something that you are working seamlessly within. Here, the extreme change in program called for a radical transformation.*

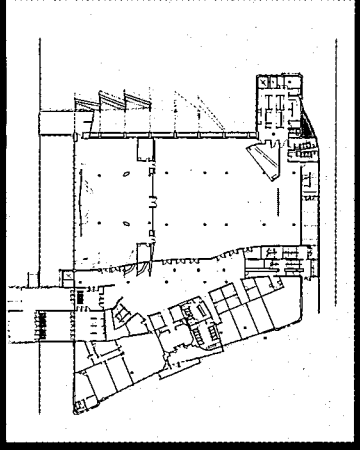
RAWN: *Seamless is the important word here.*

HAWKINSON: *The way it engages the systems that are already in place is great. It really challenges the question of beauty; it's almost ugly.*

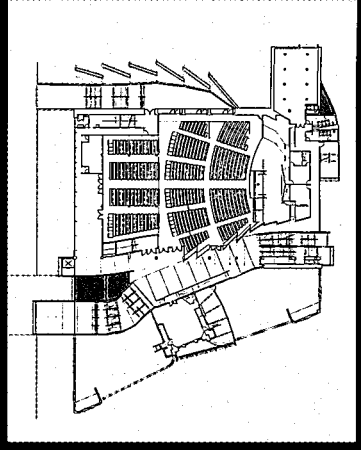


Computer model viewed from north

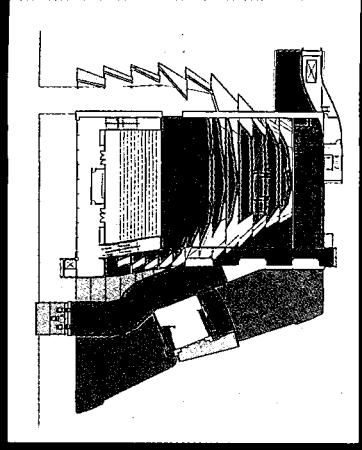
CITATION



First-floor plan



Second-floor plan



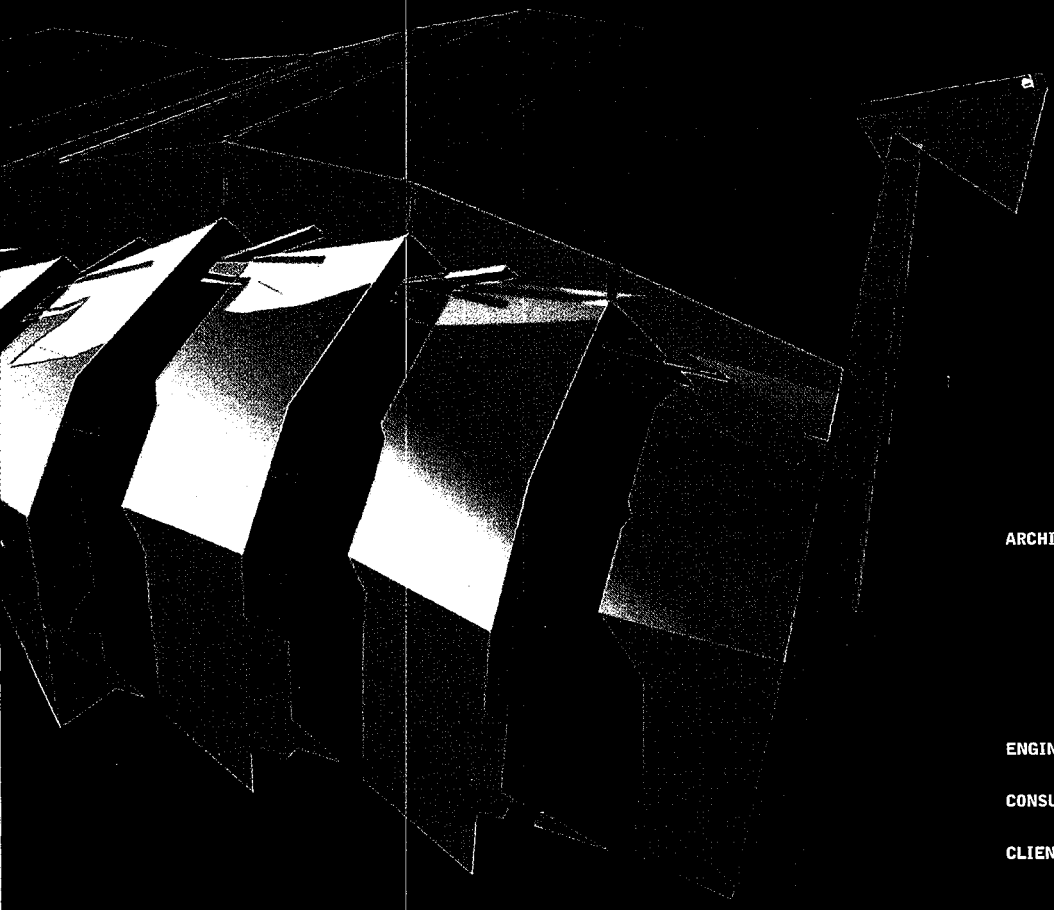
Mezzanine plan

PREDOCK: *The existing building is completely incorporated, absorbed. It feels like a systemic thing; there is a vagueness about where the new starts and the old stops. It has a nice Godzilla meets Bambi quality—there is a feeling that an alien has come from without and invaded the building.*

GRAHAM: *It's not very tectonic.*

HAWKINSON: *Who says a church needs to be tectonic?*

NORTEN: *So many of the buildings we see of this type are so traditional. The few that try to challenge tradition, like this one, become even more important.*

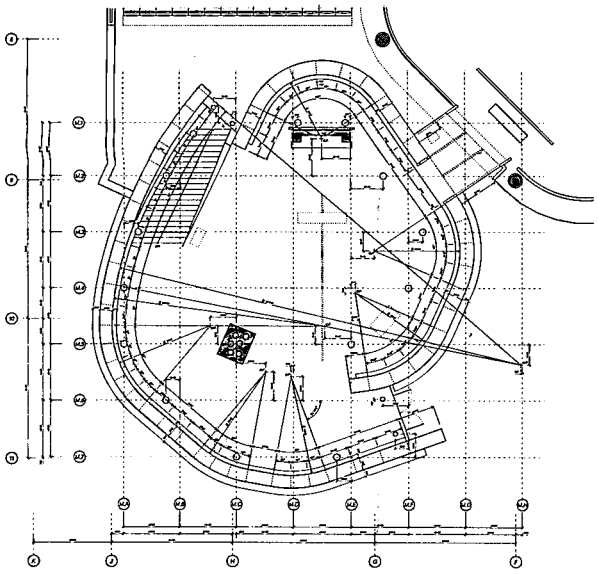


ARCHITECTS: Garofalo Architects, Chicago; Greg Lynn FORM, Hoboken, New Jersey; Michael McInturf Architects, Cincinnati, Ohio—Douglas Garofalo, Greg Lynn, Michael McInturf (principals), Gregg Pasquarelli (project manager), Philip Anzalone, Daniel Cantwell, Chris Goode, Ellen Grimes, Donald Hearn, Kimberly Holden, Matt Jogan, Steven Rapanos, Min Kyu Whang (project team)

ENGINEERS: FTL/Happold (structural); Lazlo Bodak Engineer (mechanical); Raamot Associates (soil)

CONSULTANTS: Architext (specifications); Montrose Surveying (survey)

CLIENT: Korean Presbyterian Church of New York—Joon Kyu Whang (owner's representative)



Ground-floor plan

RAWN: *The pavilion has the strength with which to anchor these tall buildings, which really need a focal point. They are utterly generic. But the pavilion has these wonderful curving, intersecting walls.*

NORTEN: *It's one of those things that you would really enjoy, and be surprised by, when you find it in the city. You would suddenly come out in the middle of an open space, and the pavilion would make a very beautiful, small landmark.*

RAWN: *It's a very special project in a city of anonymous buildings.*

CITATION

RODIN PAVILION
Kohn Pedersen Fox Associates

PROJECT: Rodin Pavilion at Samsung Center, Seoul, Korea

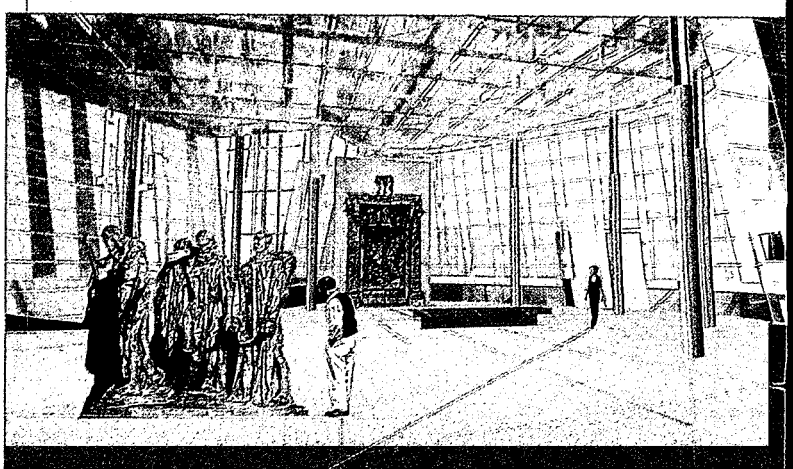
SITE: The building occupies a plaza among existing 30-story office buildings along Taepyung-Ro, a tree-lined boulevard in downtown Seoul. The South Gate, a culturally significant historic entrance to the city, is located directly to the south.

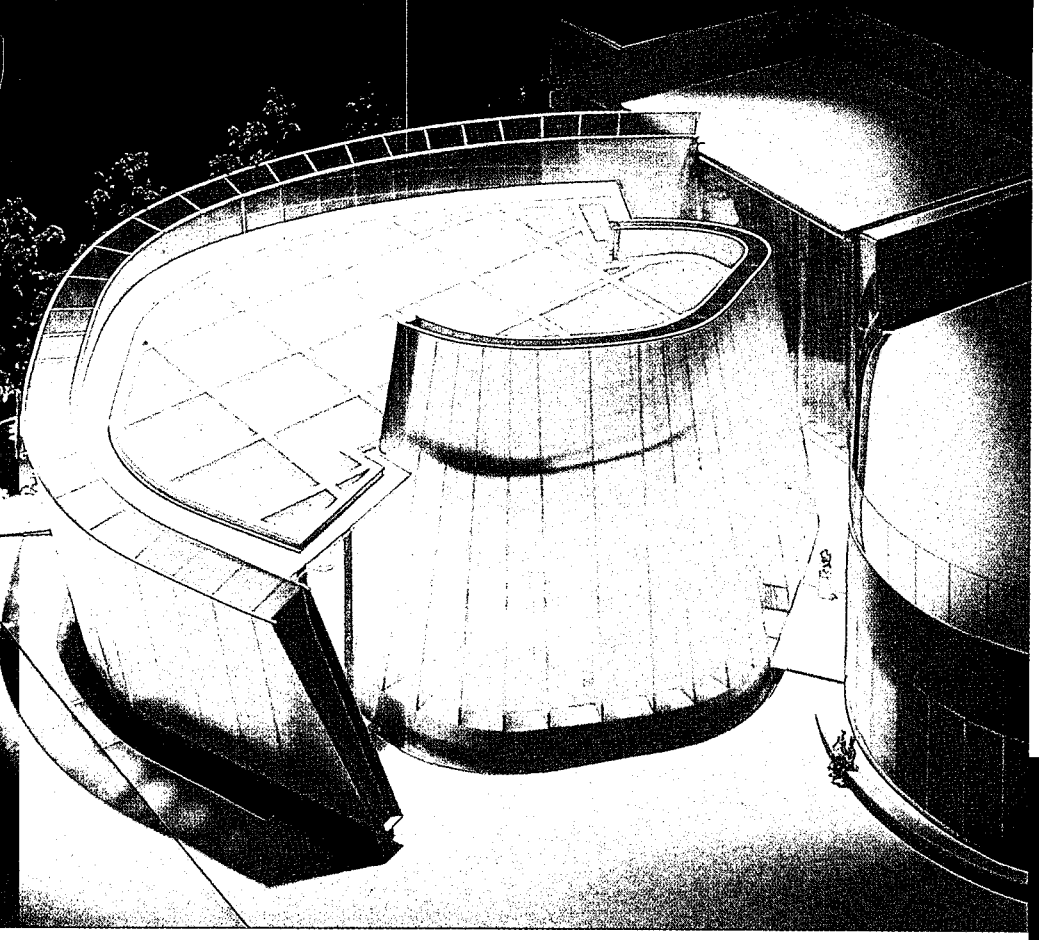
PROGRAM: A 5,000-square-foot pavilion for the display of two bronze sculptures by Auguste Rodin: "The Gates of Hell" and "The Burghers of Calais."

SOLUTION: The pavilion is part of The Rodin Museum for the Samsung Cultural Foundation and will occupy the southeast corner of a plaza at Samsung Center, a complex comprising the existing Samsung Life Insurance Building and Samsung headquarters, and a third office building designed by a Korean firm and currently under construction. Designed as the entrance to the 12,000-square-foot museum, the pavilion is also a permanent gallery housing the two most important pieces in the collection. It is created by two curving glass walls that almost meet, connected by a glass roof.

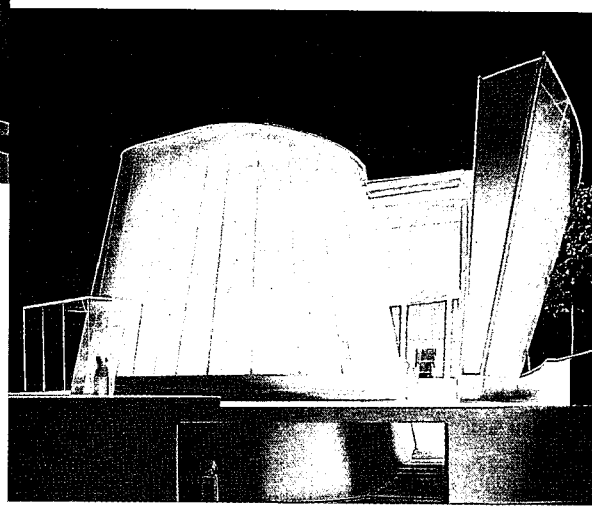
Two layers of glass, sandblasted and acid-etched to varying degrees of translucence, comprise the pavilion's double walls, which are affixed to structural glass fins by cast stainless steel prongs. The self-supporting walls are unified by a glass-panel roof atop stainless steel trusses and glass structural beams on stainless steel columns. The intention was to create an all-glass structure sheltered from the heavily polluted environment of downtown Seoul and still offer the sense of being outside.

Computer rendering of exhibit hall interior looking west





Model view from northeast



Model view from northwest

GRAHAM: *It attempts to be a purely sculptural building that is housing clearly famous sculptures. It has its own simple but rich sculptural form.*

NORTEN: *Simple and strong.*

HAWKINSON: *I agree with you. It would be a pleasure to find these qualities in an urban environment.*

RAWN: *It's the nonmateriality of the architecture that makes it very strong. Its translucence makes it somehow transcend the other buildings. It will be a landmark.*

PREDOCK: *As an urban piece, it isn't about solidity versus transparency, but about the suggestion of transparency. There is a feeling of a monumental presence, yet it is dissolving—it's a dissolving monumentality.*

ARCHITECT: Kohn Pedersen Fox Associates—William Pedersen (design partner), Kevin Kennon (senior associate design partner), Greg Clement (managing partner), Luke Fox, Marianne Kwok (designers), Vladimir Balla, John Locke, Michael Marcolini, Cordula Roser, Trent Tesch (project team)

ENGINEERS: Ove Arup & Partners (structural); Cosentini Associates (mechanical)

CONSULTANTS: James Carpenter Design Associates, Tripyramid Structures, John Depp (glass wall); Thomas Thompson Lighting Design (lighting); Cerami & Associates (acoustics); Entek (maintenance); Gary Haven Smith Studio (stone floor); Rolland/Towers, LLC (landscape); Trish Flemming (conceptual design model); Awad Architectural Models (modelmaker); Jock Pottle/Esto (model photographer); Windtunnel Imaging and Animation—Sean Daly (color rendering); Dan Cornish Productions and Luke Fox (black and white rendering)

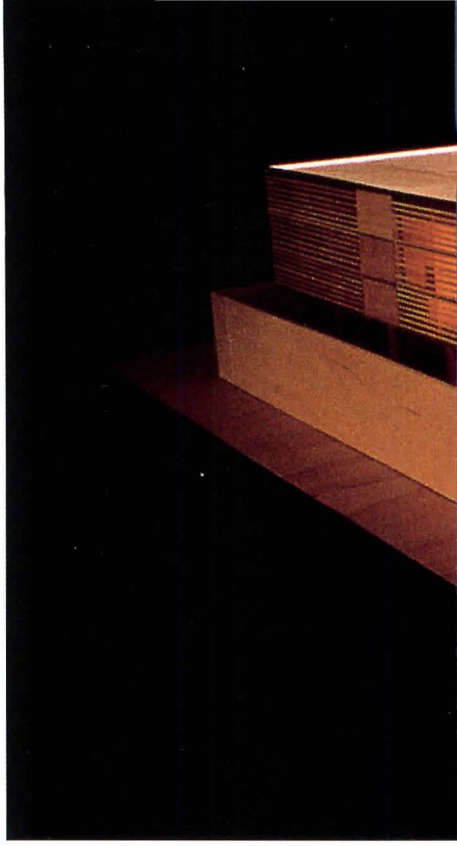
CHILD/ECHOLS HOUSE
Oliver + Ray Architects

PROJECT: Child/Echols House, City of Bellaire, Texas

SITE: Bellaire, a postwar suburb of Houston, is built of simple one-story ranch-style houses of 1,500 to 2,000 square feet. A dense tree canopy and deep setbacks contribute to the town's suburban character, desirable today for its proximity to downtown. Nearly a third of the neighborhood's original houses recently have been renovated or replaced. The prevailing character of these new houses is gargantuan red brick Colonial, often occupying two lots.

PROGRAM: A three-bedroom house with two offices for a married couple who work at home, and their two school-age children.

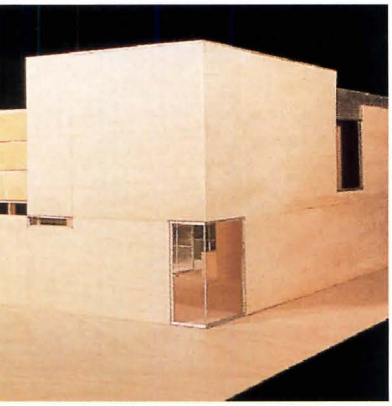
SOLUTION: The architects were asked to replace the family's existing ranch house to meet their growing needs, and to design a new building that would retain the spirit of the postwar neighborhood. They studied 1950s California Case Study houses, which extend the interior of the house into outdoor rooms, traditional Texas "dogtrot" houses, and trailers. The low, rectangular forms of these precedents are incorporated into a two-story house with a courtyard, pool, and carport. The house is divided into two main volumes, one containing living areas, the other, a pair of second-floor offices raised on pilotis. Living room, kitchen, and family room occupy the first floor of the west block, with substantial glazed areas opening onto garden and patio. Bedrooms are located on the second story. The pilotis supporting the second-story offices in the east wing create an open volume on the ground level that serves as both carport and covered entertainment area. Brick, wood siding, and screened porches evoke the original vernacular of the neighborhood: the first story, including the wall around the courtyard and carport, is brick; second story comprises wood cladding and screened windows, protected by wooden louvers.



Model view showing courtyard at front

ARCHITECT: Oliver + Ray Architects, Houston—Douglas E. Oliver, James L. Ray, Kevin Rice (project team)

CLIENTS: Jane Child and Jim Echols



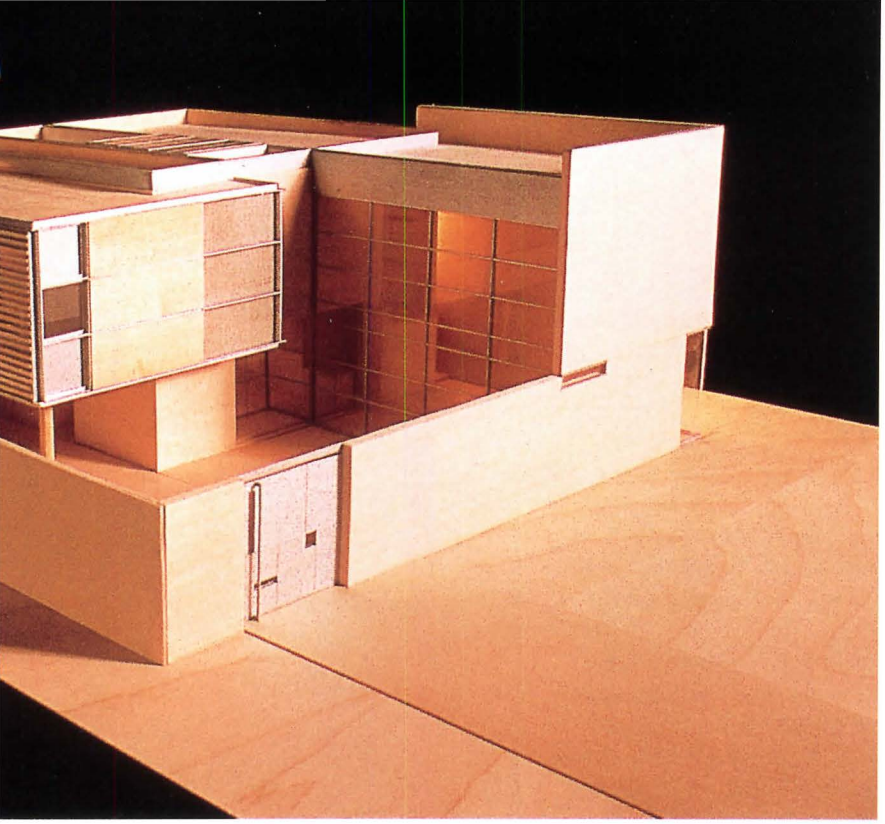
Detail view of northwest corner

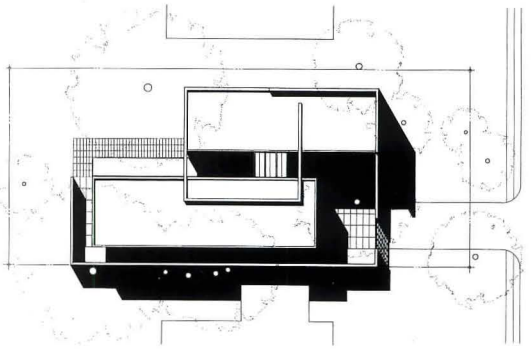
GRAHAM: *The plan resolution of this house is very sophisticated.*

HAWKINSON: *I like its tectonic clarity from the very beginning—an openness and a simplicity allowing people to live in a space that's not overwhelmingly formal.*

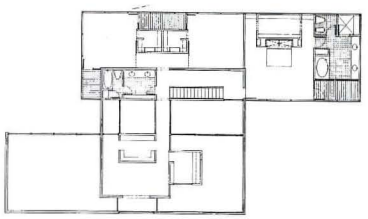
RAWN: *It builds upon mobile homes and ranch houses, but in a fresh, contemporary vocabulary.*

PREDOCK: *The plan is good, the structure is clear, and the use of materials is very strong.*

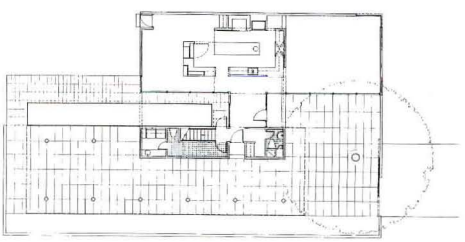




Roof plan



Second-floor plan

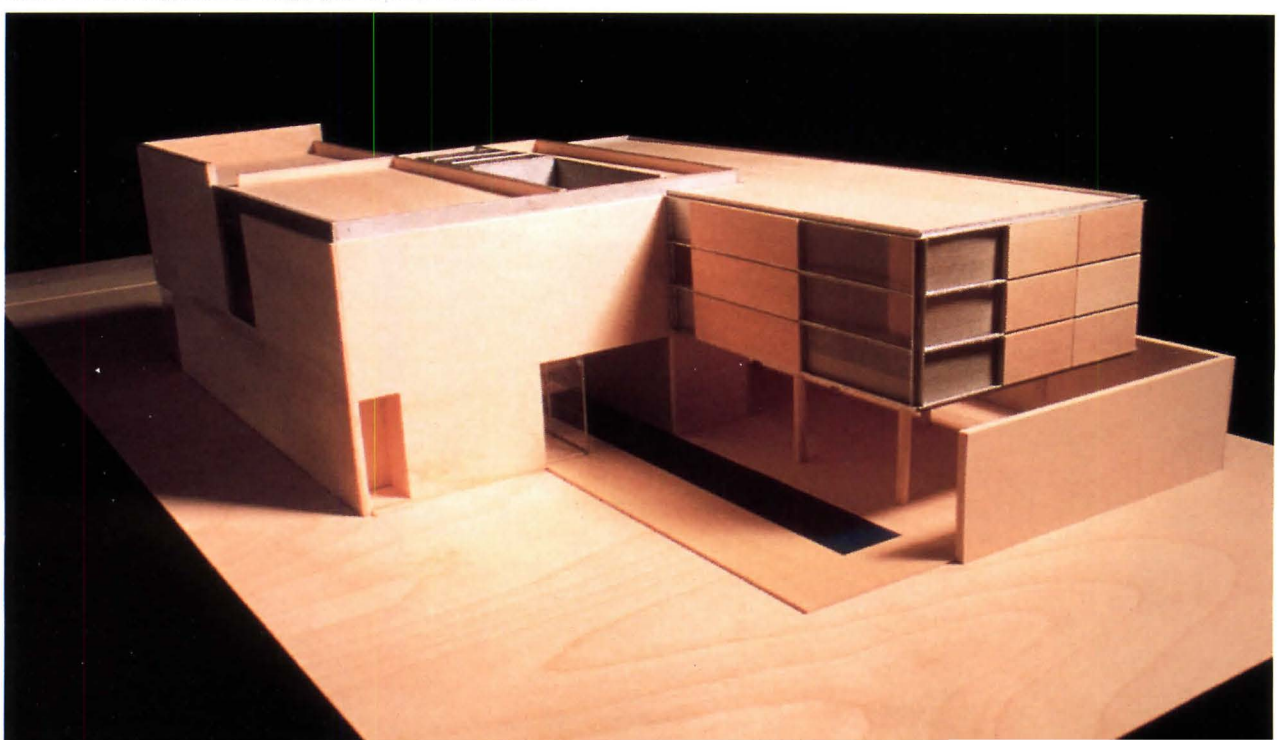


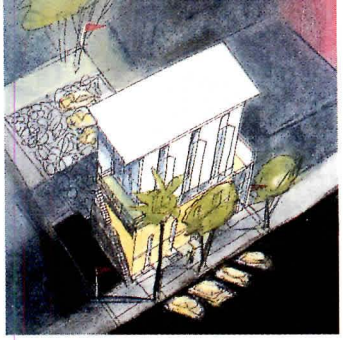
First-floor plan

NORTEN: *It's geometrically very rational, but at the same time, there is this overlap of multiple bars that is very complex.*

GRAHAM: *I think it's very interesting because even though it is a simple bar, these geometries are employed as circulation and as ways of dividing up the landscape through outdoor dining, pool, and garden.*

Model view of living/bedroom wing (right) at south end of house





THE MERRIMAC BUILDING
Smith & Others

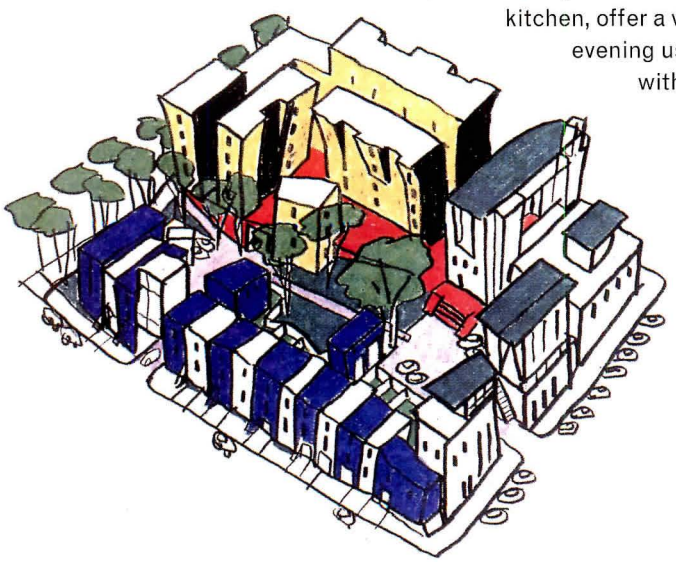
PROJECT: The Merrimac Building, San Diego

SITE: A 6,693-square-foot parcel of a 200-by-300-foot block in the Little Italy section of San Diego, containing existing developed parking lots.

PROGRAM: Four units of affordable housing, designed as an entry to a competition for a demonstration housing block, sponsored by the San Diego Redevelopment Agency. Ten suites, each comprising live/work space, bathroom, and kitchen, are designed to house between 12 and 14 individuals, depending upon how tenants decide to use the private areas. Square footages of individual suites vary, ranging from 400 to 600 square feet. There are five parking spaces on-site, and eight on the street.

SOLUTION: Rather than designing typical four-story, double-loaded corridor apartment buildings over parking, the architects propose a new prototype and show how it produces greater land value. They call their project the Merrimac, referring to the Civil War battleship, and illustrate how it defeats a more conventional subsidized housing model in the battle to produce higher land values for developers. An unconventional arrangement of living spaces, called "suites," achieve lower-than-usual-density housing at low cost to developers.

These loftlike spaces within a three-story volume eliminate high-cost elements typical of California housing. For example, parking at grade eliminates costly security of surveyed garages and elevators. By eschewing space-consuming corridors, the architects create living spaces with operable windows and cross ventilation. Their creatively arranged suites, each of which incorporates a live/work space, private bath, and kitchen, offer a variety of time-sharing day and evening uses and allow spacious rooms with high ceilings and plenty of daylight. In this prototype, the architects point out, 100 percent of the space is rentable, creating a more efficient building for the owner. For speed of construction and to avoid maintenance costs, the buildings will be constructed with a masonry base and light-gauge metal siding.

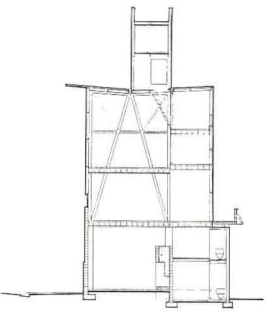


RAWN: *Millions of traditional housing projects are on the ground. I've done a lot of them; everybody has. This project was developed to say, "Hey, these were all the reasons you shouldn't do it the old way."*

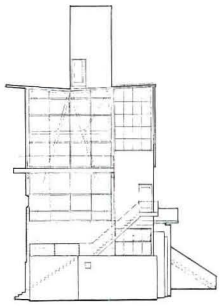
PREDOCK: *What attracts me to this project is that someone is thinking about strategies to defray costs and create subsidies for affordable housing.*

HAWKINSON: *It is trying to bring a different model to this problem. It's like Irving Gill's housing in Los Angeles, where there's the central court with housing around the perimeter. Here, the court is surrounded by joint projects.*

GRAHAM: *The idea of putting housing on the land rather than on top of an underground parking structure to improve the quality of the housing both economically and physically is quite wonderful. I can well imagine working in the three-story loft. Moreover, this housing includes a vertical space—which happens so rarely. Is that new? No. Is it earth-shattering? No. Is it good? Yes.*



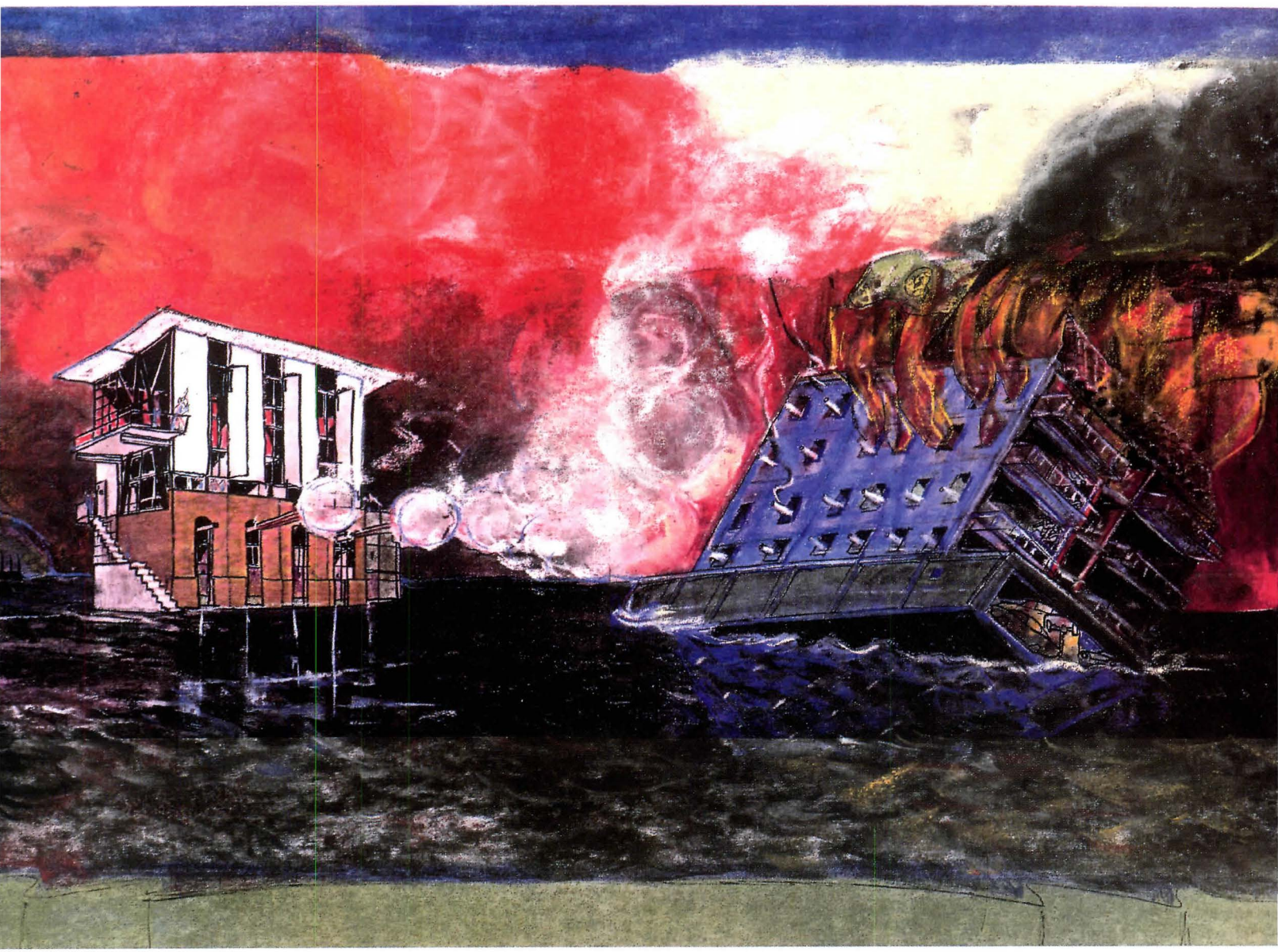
South-north section



East elevation

HAWKINSON: *This scheme is inventive programmatically, with a number of unconventional living arrangements. Its spatial inventions are rarely seen in inner-city housing. I think this is a pretty strong proposal. Rather than just building the two party walls, which a conventional scheme does, this design actually attempts to break up the plan and elevation into other strategies.*

RAWN: *It's taking a very strong stand about urban housing.*



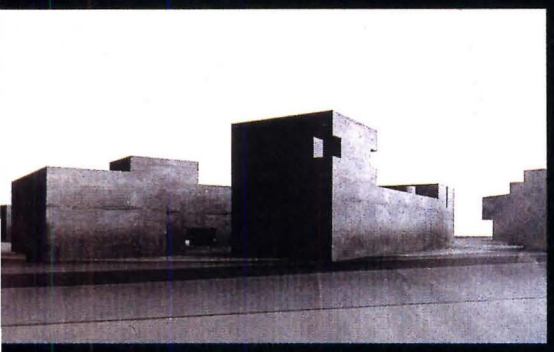
ARCHITECT: Smith & Others, San Diego—Ted Smith, Lloyd Russell (design team)
LANDSCAPE ARCHITECT: Spurlock Poirier
ENGINEERS: Armando Paez (structural); Jerry Haynal (mechanical)
CONSULTANT: Kathy McCormick (materials, interiors)
CLIENT: Centre City Development Corporation

MUSEUM OF THE CITY
Steven Holl Architects

PROJECT: Museum of the City, Cassino, Italy

SITE: Located 120 kilometers south of Rome in a mountainous region, the city of Cassino was heavily bombed in World War II and hastily rebuilt after the war. A new cultural and historical museum will be sited in the Appenine foothills on land that currently serves as a fairground. The museum frames a town square with new housing blocks to the north and southeast, and a new theater to the east. It is sited to take in views of Monte Cassino, a 6th-century monastery that was destroyed by Allied bombers and rebuilt.

PROGRAM: The 12,000-square-foot museum will include permanent and changing exhibitions devoted to the history of Cassino and to contemporary art. The two-story building will house seven galleries devoted to the city's pre-Roman history, Roman civilization, the Medieval era, destruction during World War II and reconstruction, contemporary art, and changing exhibits on art and culture. Artifacts from Cassino's monastery, an icon of the city, will be housed in a special gallery. Offices, a café, storage, a museum store, and other support spaces will be incorporated.



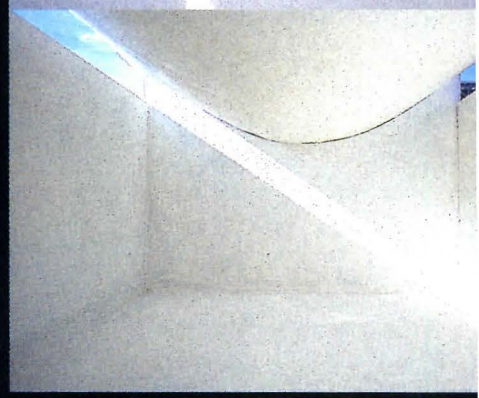
Model view showing south elevation

SOLUTION: The architect designed a linear, two-story building, V-shaped in plan, embracing a courtyard. A rectangular wing pointing north off the V's northernmost leg houses a café on the ground floor and a gallery above. The building, to be clad in local stone, appears as a solid facade without windows from the ground level. Light enters the galleries through a variety of skylights, cuts, and apertures, some in the roof and walls, others appearing as notches cut out of the corners. At the building's southernmost point, a double-height gallery offers views toward the Monte Cassino monastery.

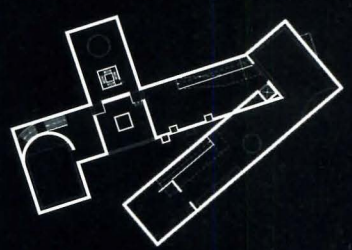
Holl treats the galleries as laboratories for analyzing the different qualities of daylight as it changes throughout the day. Sunlight is manipulated by variously shaped apertures placed in different locations along the walls and ceilings of galleries.

ARCHITECT: Steven Holl Architects, New York City—Steven Holl (principal), Paola Iacucci (project architect), Cory Clarke, Michael Hoffman, *Bradford Kelley, Jan Liesegang* (project team)

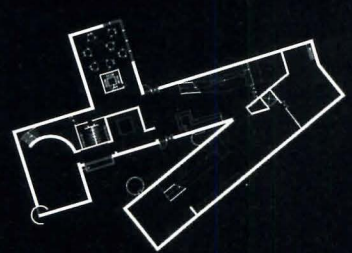
CLIENT: City of Cassino, Italy



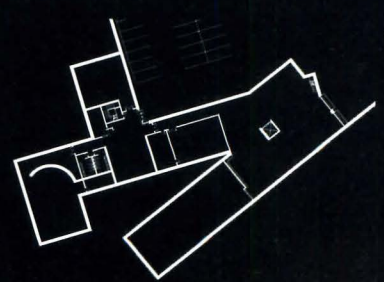
Interior studies of gallery lighting at different times of da



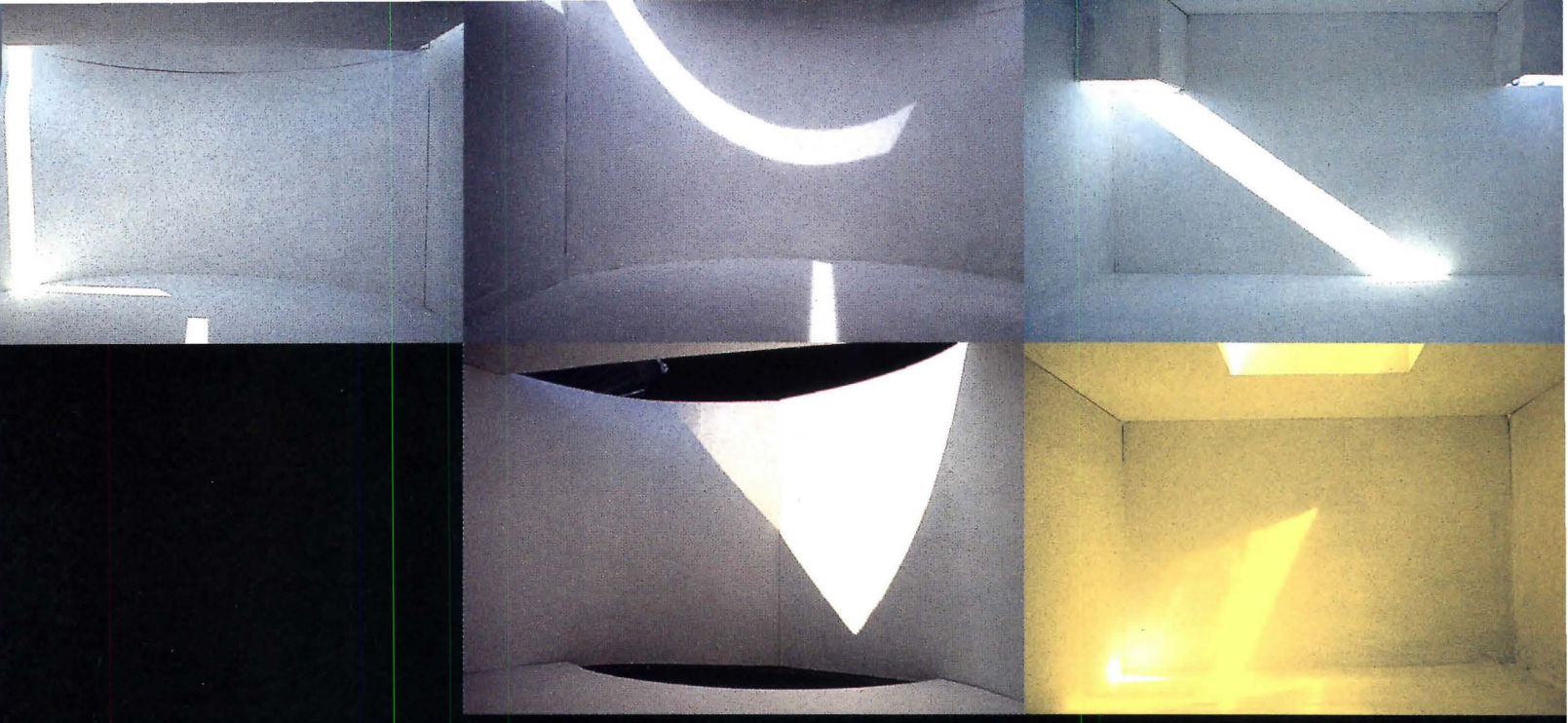
Level 2 plan



Level 1 plan



Basement plan



GRAHAM: *I like the light. And I like the simplicity of the exterior where there are no apertures other than the doors.*

HAWKINSON: *This project recalls Carlo Scarpa, but it's also reminiscent of James Turrell.*

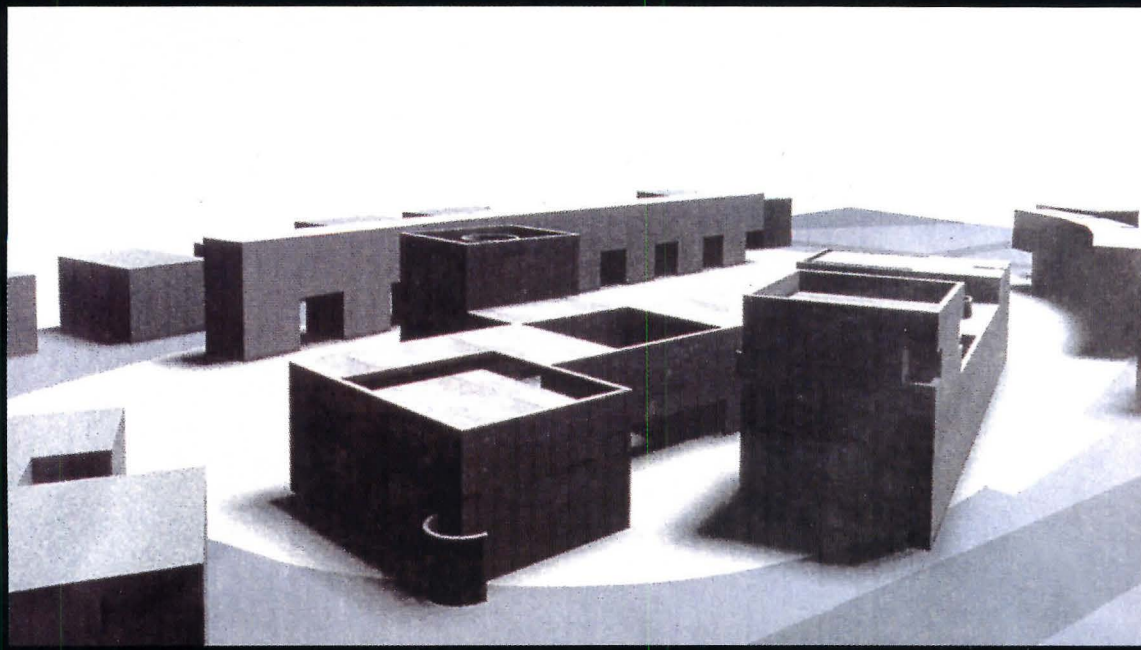
PREDOCK: *The progression of the different openings evokes a journey through light.*

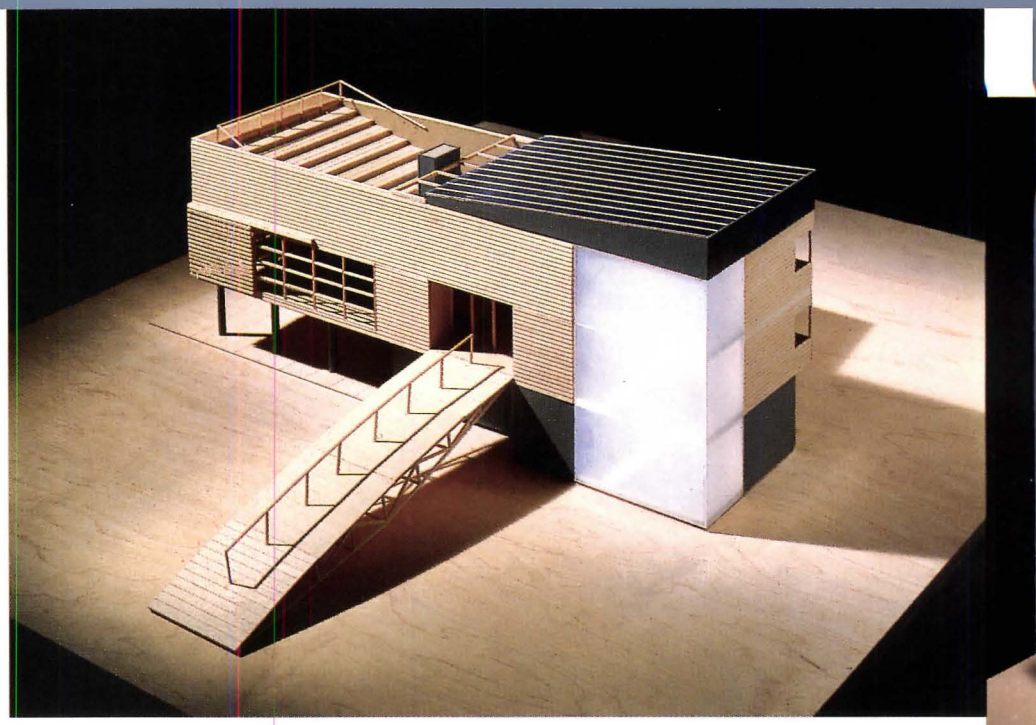
RAWN: *He has also studied light over different times of the day.*

HAWKINSON: *Its plan is similar to that of Alvaro Siza's Center for Contemporary Galician Art in Santiago de Compostela, Spain—it's similarly sited on the edge of a park.*

NORTEN: *This is a building that has great possibilities. I think it's way above average. It's not excessive. It's simple.*

Model view from south





Model view from northeast

MATCHBOX HOUSE
Richard Gluckman Architects

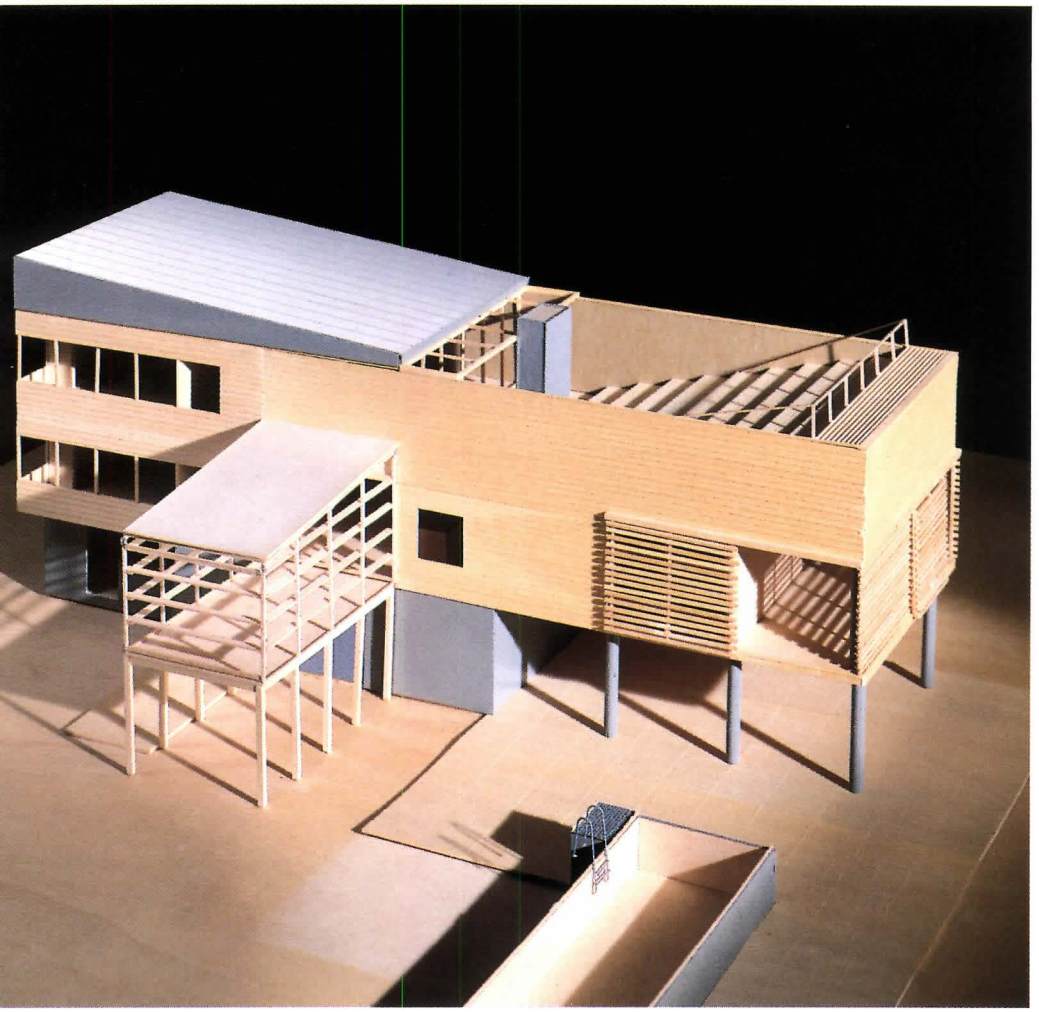
PROJECT: Matchbox House, Orient, New York

SITE: One-and-a-half acres of flat former farmland adjacent to a marsh at the easternmost tip of Long Island. Protected natural areas lie to the east and west; houses occupy lots to the north and south. Views to the south beyond the wetlands give way to Hallock's Bay. Environmental guidelines protecting wetlands require that main living levels be 10 feet above mean high water.

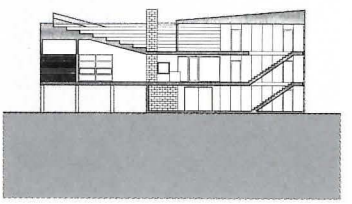
PROGRAM: Weekend house for a professional family of four who require three bedrooms and a studio/play area.

SOLUTION: A 3,000-square-foot house for a sailing family is designed to overlook marshes and bays to the southeast, and to take advantage of prevailing winds from the southwest. Arranged as a long rectangular volume running southeast-northwest, the house incorporates a car park and one bedroom on the ground floor, topped by main living areas on the second story. The volume is interrupted by a 44-foot-long axial ramp, comprising Douglas fir planks over a steel structure, leading to the main entrance. The ramp, designed for access to the main entrance on the second level and for drying sails, recalls the ramp leading to Palladio's Villa Emo (1560), which was used for threshing wheat. The axis created by the ramp continues to the southwest as a screened porch off the dining area. On the third level, a studio opens onto a roof deck that steps up in 2-foot increments to the sky. This stepped terrace is Gluckman's homage to Giuseppe Terragni's Malaparte house in Capri or James Turrell's manipulation of the horizon line in his landscape artworks. Cedar louvers will shade an open porch at the south end of the building from the sun; translucent plastic panels allow light to penetrate an elegant stair at the northeast corner. Inexpensive aluminum storefront glazing will include operable windows to take advantage of winds off the bay.

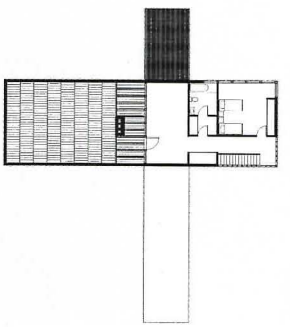
ARCHITECT: Richard Gluckman Architects—Richard Gluckman (principal), Sarah Dunn, Srdan Jovanic Weiss, Michael McClure, Patrick O'Brien (project team)
CONSULTANT: Jock Pottle/Esto (model photographer)
CLIENTS: Richard Gluckman and Tiffany Bell



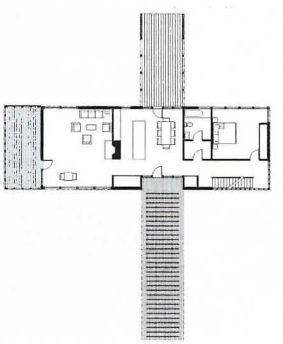
Model view from southwest



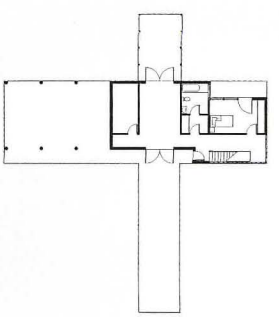
South-north section



Third-floor plan



Second-floor plan



First-floor plan

HAWKINSON: *For me, the design is compelling because of the really light entry piece. It's a very modest house, in a place where the ground is kind of tentative. It feels as if it could sit very comfortably on that delicate site.*

NORTEN: *I like the house because it's simple. It's very tectonic and material, and has an economy of expression that intrigues me. Even the use of the roof as an outdoor terrace and viewing platform is very economical. It uses everything.*

RAWN: *For me, it's the simplicity of the rectangular volume, and the intersection of this ramp, which becomes the screened porch. It's an economy of means that is very satisfying.*

GRAHAM: *I'm not particularly taken with the plan. I don't think it's nearly as open as one would hope from looking at it as an object, but because it was made with tectonic elements to begin with, we immediately have a good reading.*

PREDOCK: *I like that the roof terrace is lodged within the envelope, protected and sheltered from the wind.*

NORTEN: *The plan is perfect. The condition of the material makes it seem a very hard shell, yet totally open. The space is not defined by the object, but by the outside. It's structured very correctly. It's a very mature, simple piece of architecture. I like it enormously.*

ALLEGHENY RIVERFRONT PARK

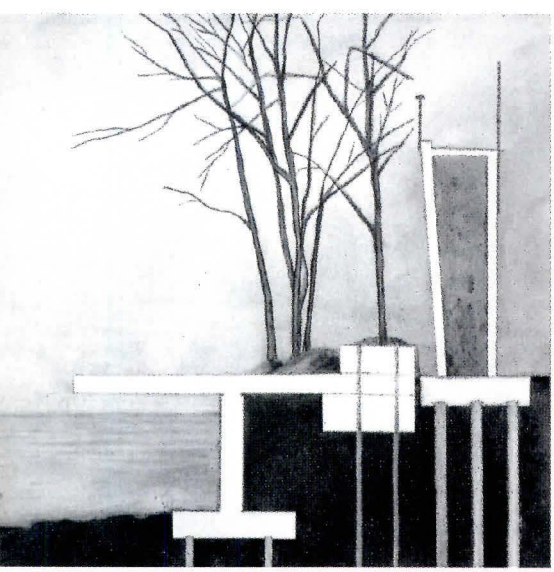
Michael Van Valkenburgh Associates

PROJECT: Allegheny Riverfront Park, Pittsburgh, Pennsylvania

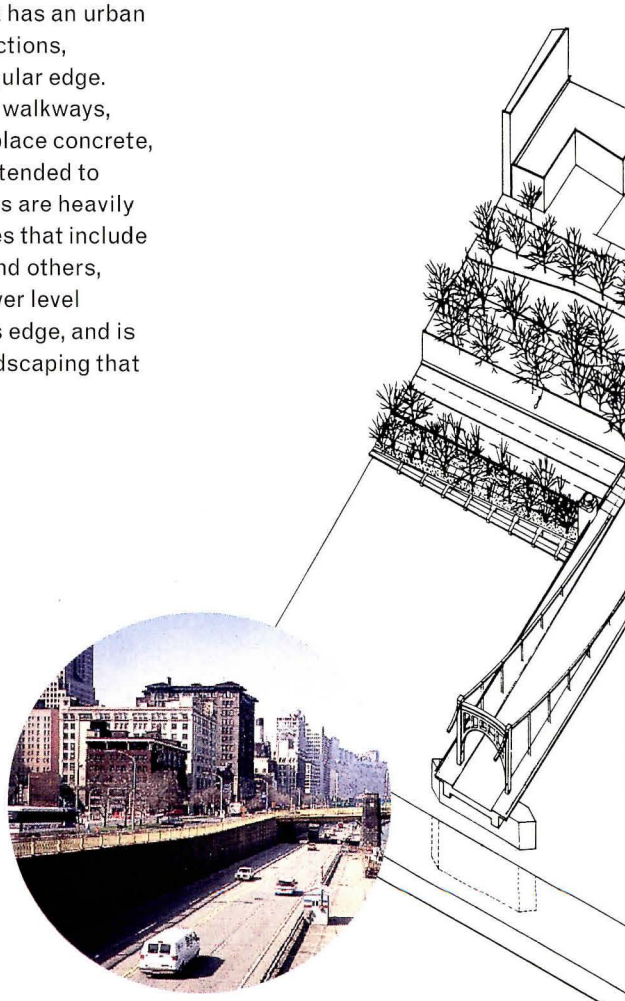
SITE: A 100-by-4,000-foot strip of landfill bounded by the Allegheny River to the north, Pittsburgh's downtown to the south, the elevated Fort Wayne Railroad Bridge to the east, and Point State Park on the west, at the confluence of the Allegheny and Monongahela rivers. The site is split into two terraces, one located approximately 3 feet above the Allegheny incorporating a parking pier and a four-lane highway, and the other 20 feet above the river and including part of a street, which will be moved closer to the city. The lower section of the site is susceptible to seasonal flooding.

PROGRAM: A linear park intended to reconnect the citizens of Pittsburgh with the riverfront and encourage residential development in the adjacent downtown area.

SOLUTION: Due to the 20-foot sectional grade change between the river and the city, plus the presence of two roadways, the park is divided into two linear parts, one along the edge of the water and one along the edge of the downtown. The upper park has an urban character with ordered edges and sections, while the lower park features an irregular edge. The two are connected by ramps and walkways, including two 350-foot-long, cast-in-place concrete, ADA-compliant wheelchair ramps, intended to form a grand civic gesture. Both parks are heavily landscaped with canopy-forming trees that include red maples, sycamores, river birch, and others, as well as planters and vines. The lower level cantilevers 16 feet out over the river's edge, and is designed with infrastructure and landscaping that can withstand significant flooding.



Section through lower park ramp



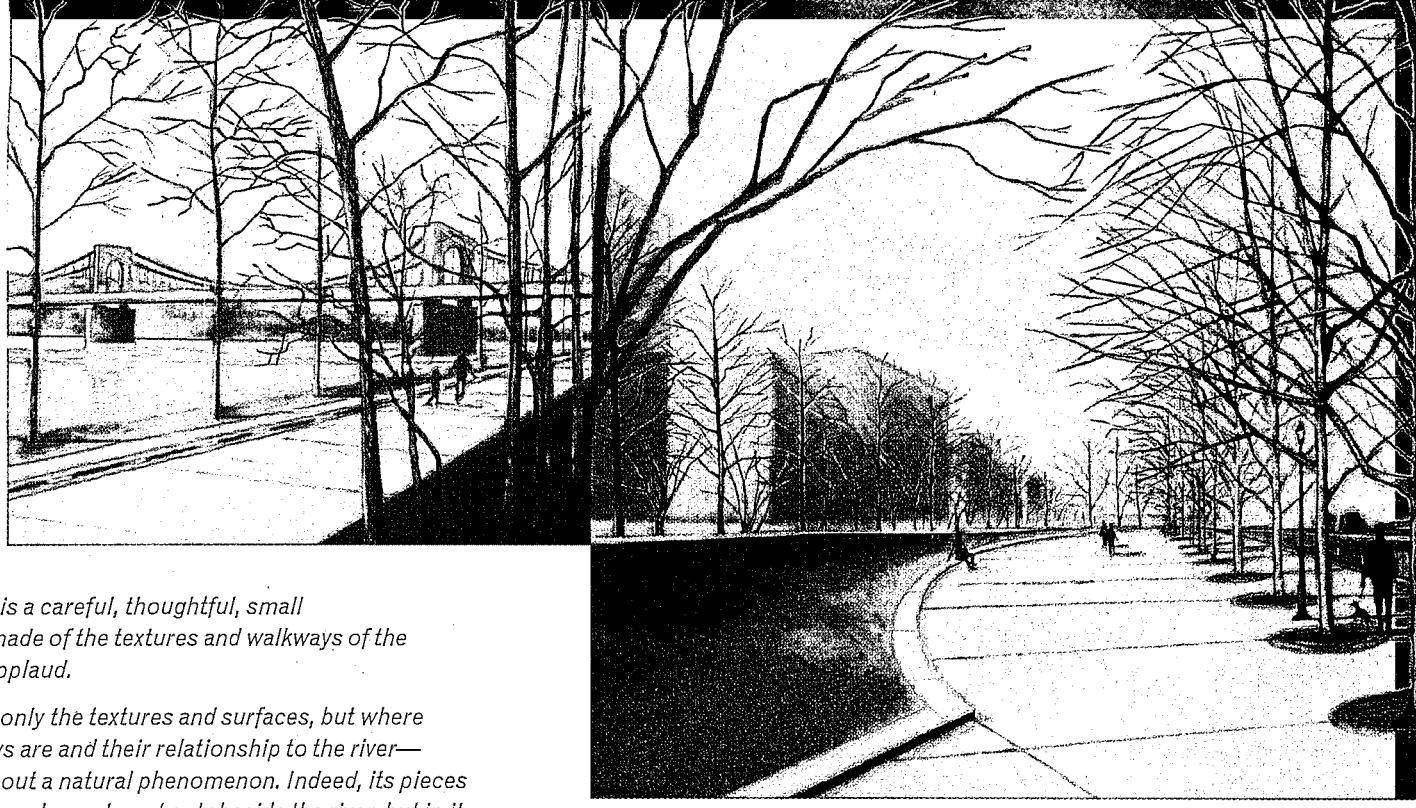
LANDSCAPE ARCHITECT: Michael Van Valkenburgh Associates, Cambridge, Massachusetts—Michael Van Valkenburgh (principal-in-charge), Matthew Urbanski (project designer), Laura Solano (project manager)

ARTISTS: Ann Hamilton, Michael Mercil

ENGINEERS: Ove Arup & Partners (lead engineer); Frederic R. Harris, Inc. (civil); GAI Consultants, Inc. (geotechnical)

CONSULTANTS: Inter-Fluve (riverbank restoration, hydrology); Phillip J. Craul (soil scientist); A.M. Fogarty & Associates (cost estimator); Accessibility Development Associates (ADA design review); BTI Consultants (surveyors); UDA Architects (urban design); Dennis Hornick (illustrator); Chuck Mayer (model photographer)

CLIENT: The Pittsburgh Cultural Trust—Ellen Still (project manager)



Views of lower tier (above left) and upper tier (above) of park

GRAHAM: *This is a careful, thoughtful, small intervention made of the textures and walkways of the city, which I applaud.*

RAWN: *It's not only the textures and surfaces, but where these walkways are and their relationship to the river—which is all about a natural phenomenon. Indeed, its pieces feel like they are elements not only beside the river, but in it.*

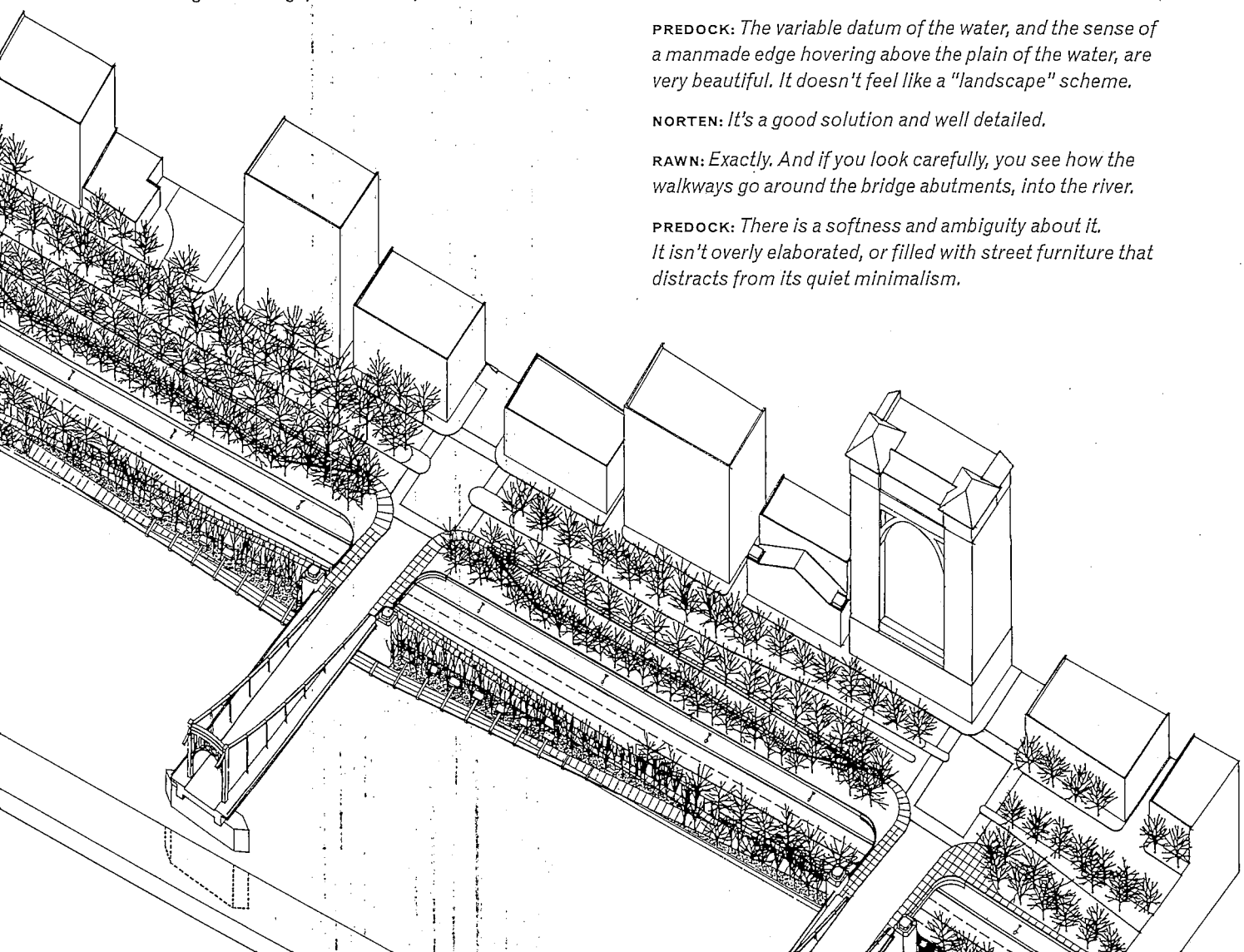
HAWKINSON: *It's about a mediation of the city and the river, rather than making a hard edge, as it was before.*

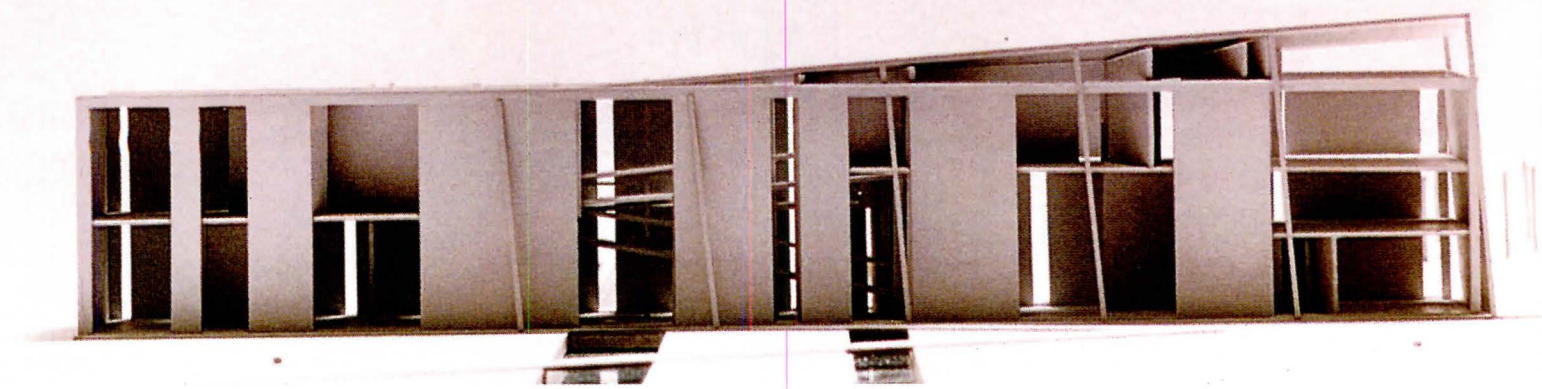
PREDOCK: *The variable datum of the water, and the sense of a manmade edge hovering above the plain of the water, are very beautiful. It doesn't feel like a "landscape" scheme.*

NORTEN: *It's a good solution and well detailed.*

RAWN: *Exactly. And if you look carefully, you see how the walkways go around the bridge abutments, into the river.*

PREDOCK: *There is a softness and ambiguity about it. It isn't overly elaborated, or filled with street furniture that distracts from its quiet minimalism.*





Model views showing north elevation (above) and west elevation (facing page)

SYRIAN PROTOTYPE HOUSE
Hemingway + Associates

PROJECT: Syrian Prototype House, Yafoor, Syria

SITE: A former orchard, the 280-foot-square parcel is located in the agrarian village of Yafoor to the southwest of Damascus, Syria. The site is fairly flat with a view of mountains to the northwest.

PROGRAM: A prototype for a 4,500-square-foot single-family house to serve as a model for upscale housing development in Syria.

SOLUTION: The house, a steel-frame and concrete-block structure, is arranged as a linear bar whose north facade is sliced by vertical windows affording views of nearby mountains. The two-story bar was chosen as a neutral structure that would allow the architects to design windows that represent the cultural populations of Syria as bars on a graph. An overhanging roof along this elevation is designed to recall a tent, reflecting the once-nomadic cultures that make up the Syrian population. Supported by steel columns, this canopy shelters arriving residents and visitors. A glazed door leads to an entrance hall positioned slightly off-center of the bar. The south elevation, with narrow windows, remains a more impermeable shield against the sun.

Inside, the first level is devoted to a kitchen and an open living/entertainment area. A lap pool intersects the bar, running through the house from east to west. A ramp leads to a master bedroom and library at a mezzanine level and a second story of private bedrooms and guest quarters.

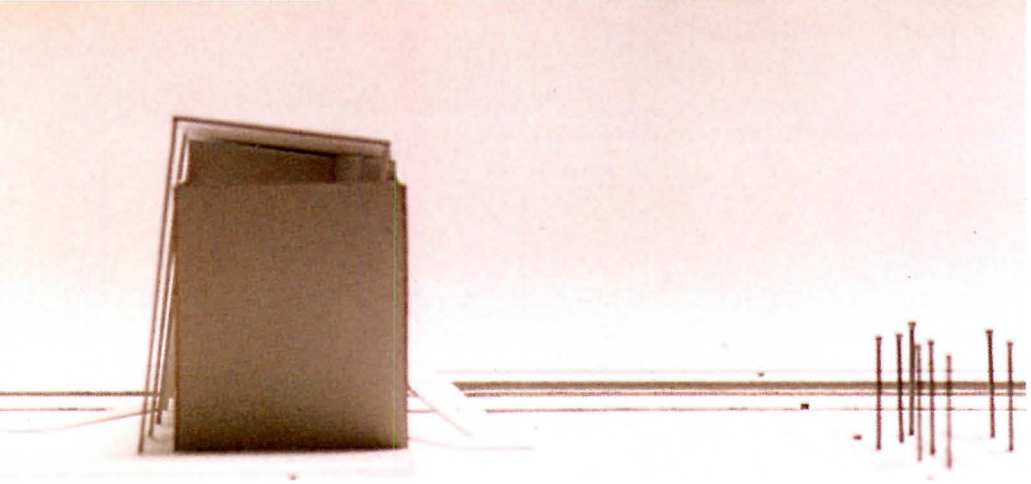
NORTEN: *It's a very simple form geometrically, very clearly understood, and rationally structured. At the same time, this overlap of the complex ramp geometry creates a highly spatial experience.*

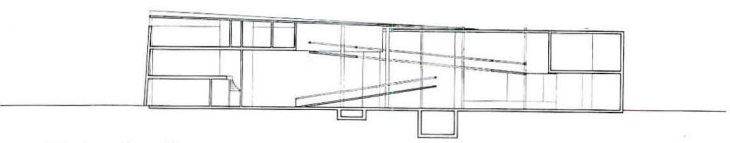
HAWKINSON: *Even though the house is a simple bar, the geometries of the outdoor dining, pool, lap pool, and garden are used to divide up the landscape. They're foils for the bar.*

RAWN: *What appears to be initially just the bar floating in the landscape is in fact complex—both structurally and metaphorically. One could say that the site plan, the building plan, and the material are all about the relationship of these angled shapes with the bar.*

GRAHAM: *They're working the ground to become an integrated part of the building.*

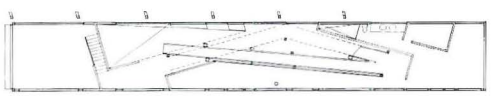
PREDOCK: *It's elegant and has an interestingly airy, brittle expression of desert iconography. The south wall, however, isn't convincing as a thermal storage shield.*



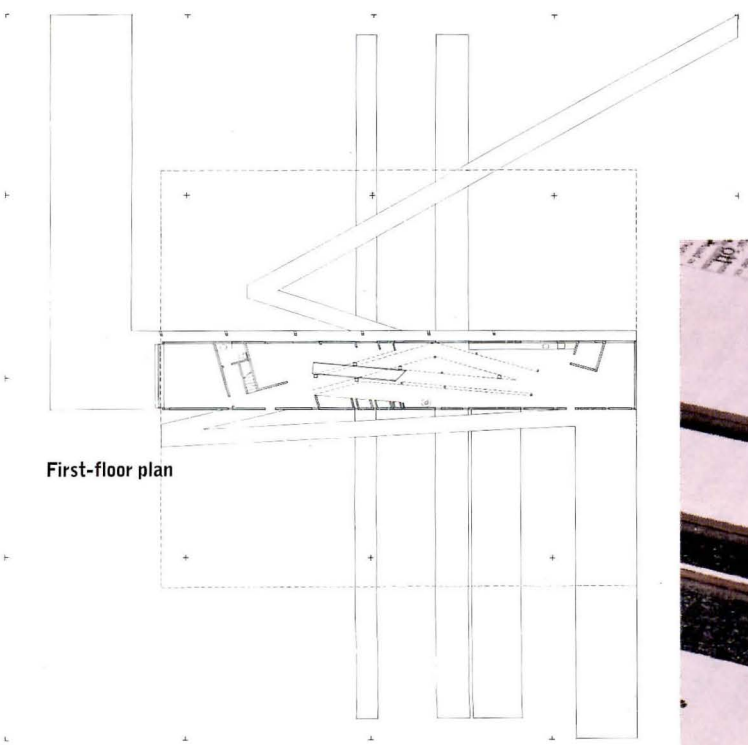


West-east section

Second-floor plan



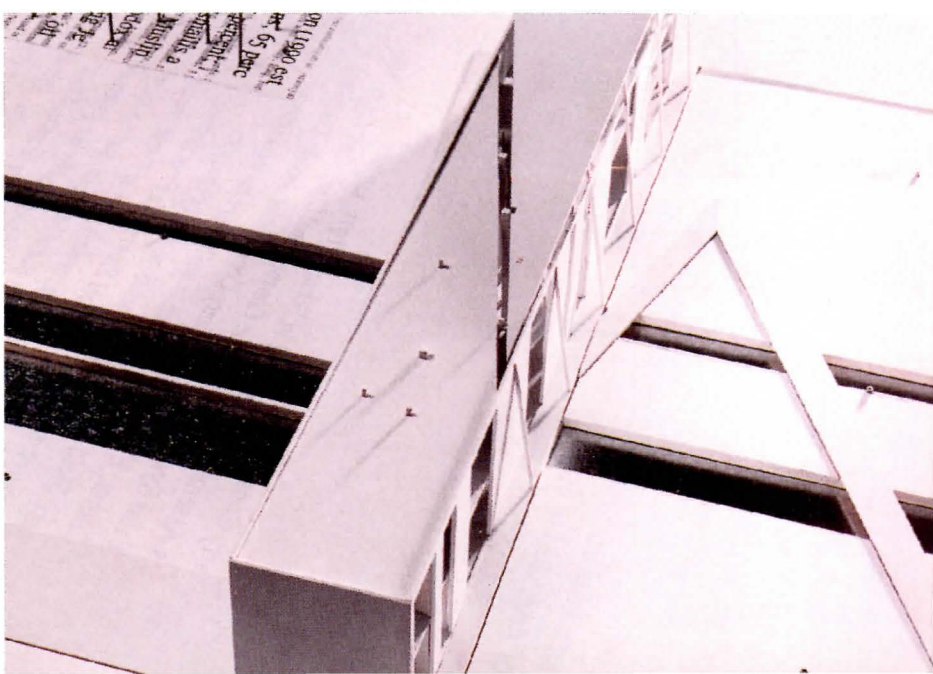
Mezzanine plan



First-floor plan

ARCHITECT: Hemingway + Associates, San Francisco—Erik M. Hemingway (principal-in-charge), Yumi Klecker, Kerry Nolan, Allison Warren, Mark Wilson (project team), Emilia Auning, Geoff Brown (project assistants)
CONSULTANT: Robb Scharetg (model photographer)
CLIENT: Wael Hamzeh

Aerial view of model



LE FRESNOY CENTER FOR ART AND MEDIA

Bernard Tschumi Architects

PROJECT: Le Fresnoy Center for Art and Media, Tourcoing, France

SITE: The flat, urban tract covers 8,000 square meters alongside a highway and canal, surrounded by a mix of industrial and residential development.

PROGRAM: A new contemporary arts complex, including a school, film studio, production laboratories, and exhibition halls, to be created within a battery of abandoned sheds that once formed a 1920s recreational complex.

SOLUTION: The arts center is to be housed within four rehabilitated sheds, and will be expanded around these structures into a new complex, covered by a massive metal shell. The shell is open on all sides except the north, which is clad in a bowed curtain wall. An open south facade is fronted by a monumental public stair, and a long-span corrugated steel roof is punched with oblong openings sheathed in transparent polycarbonate to admit sunlight. The large space between the old tile roofs of the compound and the new steel roof will hold all mechanical systems and metal catwalks suspended across the void to connect the various activity areas.

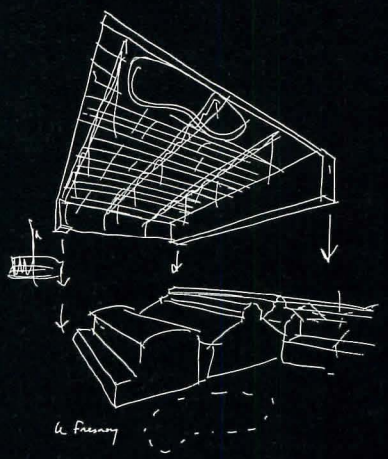
NORTEN: *It seems to invent a new world based on movement and change within an existing shell.*

RAWN: *They're just putting a shed over the site.*

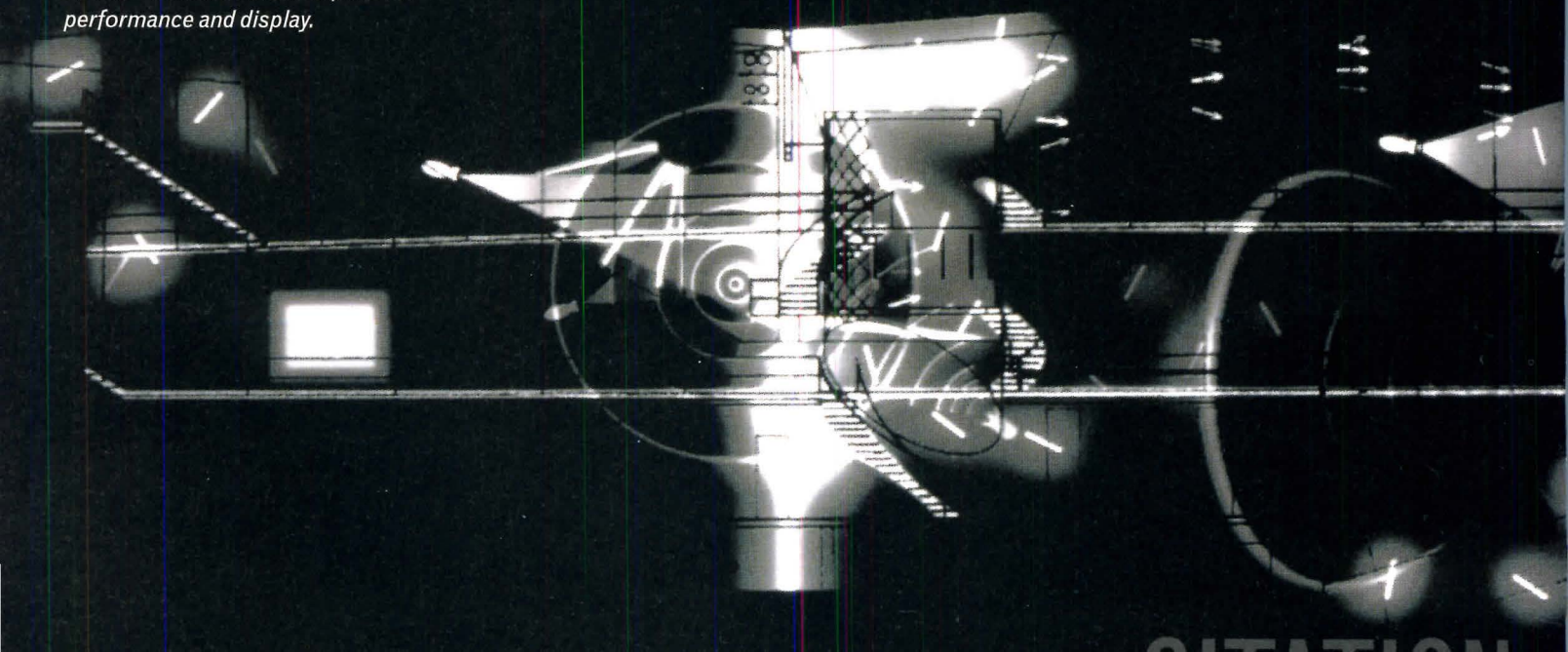
HAWKINSON: *It's more than a shed.*

NORTEN: *It transforms everything inside. I think that's quite interesting, because the original building sticks out like a retrofit. I find it quite appealing.*

HAWKINSON: *The ramps are not just circulation connections; they're programmatic as well. Imagine how activities would play out on these walkways. There is a notion about events—because this is a space for performance and display.*



Sketch of roof structure over existing sheds



RAWN: *The details of the intervention—its structure, its catwalks—have a magic which is exciting for the new, yet strengthens the old.*

GRAHAM: *I agree. It's more than just the shed taking over. On the other hand, it appears to get very complicated with all of the various elements. The big roof is a bit too fashionable. I had trouble finding the clarity.*

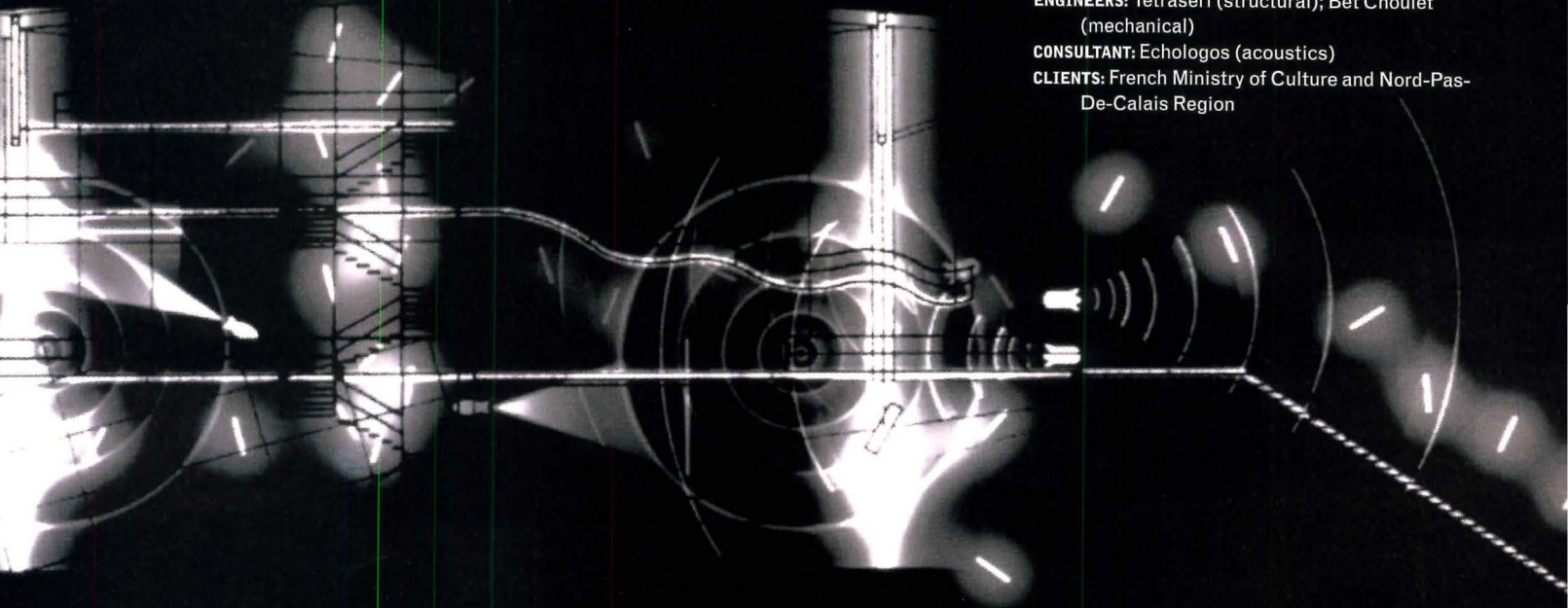
HAWKINSON: *The roof is obviously required, but it also becomes a new ground—something pieces hang from and are attached to. The section almost seems developed from top to bottom, rather than the other way around.*

PREDOCK: *The roof is almost disengaged at times. It is big enough in scope and area to really define or dissociate one's perception of the building from the sky—it establishes an alternate sky. And then one gets the surprise of the apertures.*

Computer rendering showing view of performance and exhibit spaces from terrace

ARCHITECT: Bernard Tschumi Architects, New York City—Bernard Tschumi (principal), Yannis Aesopos, Véronique Descharrières, Henning Ehrhardt, Jean-François Erhel, Douglas Gauthier, François Gillet, Mark Haukos, Tom Kowlaski, Eric Liftin, Robert Moric, Sheri Olson, Jordan Parnass, Tsuto Sakamoto, Jim Sullivan, Vincent Thevenon, Robert Young (project team)
ENGINEERS: Tetraserf (structural); Bet Choulet (mechanical)
CONSULTANT: Echologos (acoustics)
CLIENTS: French Ministry of Culture and Nord-Pas-De-Calais Region

Section through complex displays lighting intensities



VILLA UNTITLED
Kramer E. Woodard Architects

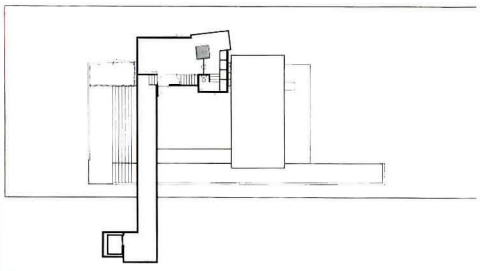
PROJECT: Villa Untitled, Albuquerque, New Mexico

SITE: A 17,300-square-foot industrial warehouse in downtown Albuquerque, surrounded by a mix of single-family houses and light industrial and retail buildings.

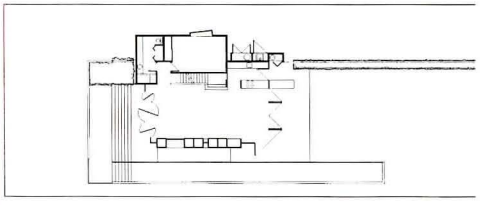
PROGRAM: A 7,000-square-foot, steel-framed addition containing living quarters, office space, and a lap pool will be supported on the warehouse roof.

SOLUTION: The new rooftop addition will be reached from the street by an elevator tower, which opens onto an opaque bridge leading to the entrance. The bridge's interior, illuminated by a thin band of overhead light, will double as an art gallery, and joins the house to form an L shape at its opaque upper floor, which holds a conference room. The transparent lower-floor living area opens onto the rooftop terrace, which is inspired by traditional New Mexican courtyards. A slender lap pool extends out along the terrace from beneath the bridge, in counterpoint to the cube-shaped main mass of the addition.

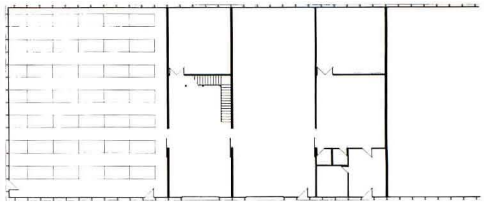
Existing site



Second-level plan



First-level plan



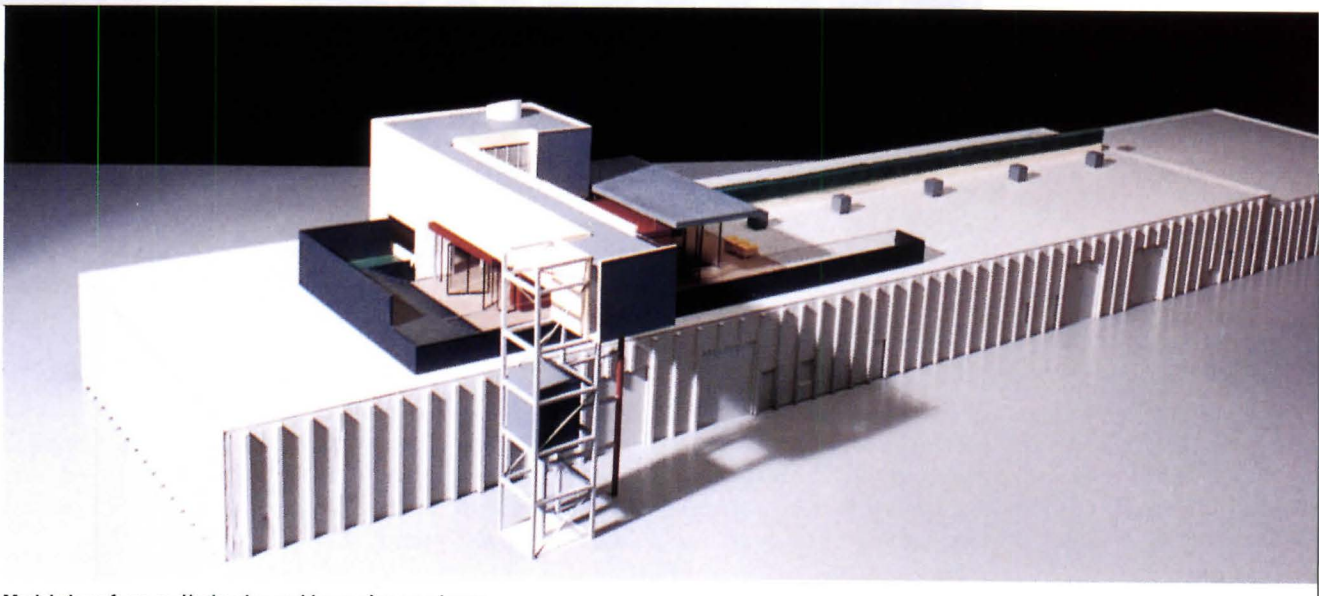
Ground-floor plan

GRAHAM: *I'm extremely fascinated by Albuquerque's warehouses, and this is proposing to bring housing into those warehouses in a manner that is not vernacular, which is something we see in the Southwest ad nauseum. But in a very industrial way, this project is absolutely contextual because it fits in with that neighborhood. It could enliven the entire roofscape of the neighborhood. What a great strategy for a densification of these types of cities.*

RAWN: *I am also for it. Here is another infill approach, maybe a little bizarre at first. But imagine an old industrial sector of a low-rise city—a western city in this case—dominated by such an intervention. It could be wonderful, and is worthy of serious thought.*

NORTEN: *A very interesting condition to build on a rooftop. The roof of the existing becomes the ground of the new.*

PREDOCK: *I think it's a very severe rationale.*



Model views from south showing residence atop warehouse

HAWKINSON: *It's interesting to bring this other scale into the warehouse district in a way that is readable.*

PREDOCK: *In these light industrial areas of Albuquerque, there is a new datum created by the consistent roof planes—which are repetitive enough to suggest an alternate topography. This villa is an invasion of that plane, recognizing the manmade realm, and then laying claim to the new datum.*

HAWKINSON: *It challenges preconceptions about retrofitting the live-work condition into an industrial district.*

NORTEN: *It's a very good solution.*

ARCHITECT: Kramer E. Woodard Architects, Albuquerque, New Mexico—Kramer E. Woodard (principal), Joseph Andrade, Stuart Blakely, Kameron Cheney, Robert Faucett, Naama Ferstenfeld, Peter Girzone, Lisa Henry, James Horn, Natalie Kolsch, Clark Myers, Pavan Stephenson, Sergio Verrillo (project team)
ENGINEERS: George Bradley III, Chavez-Grieves (structural)
CONSULTANT: Teva Hesse (landscape)
CLIENT: Untitled Fine Arts Service—R.J. Bailie (president), Cynthia Bailie (vice president)

HOUSING PROTOTYPES, EAST CAMBRIDGE AND ATLANTIC CITY

Brian Healy Architects

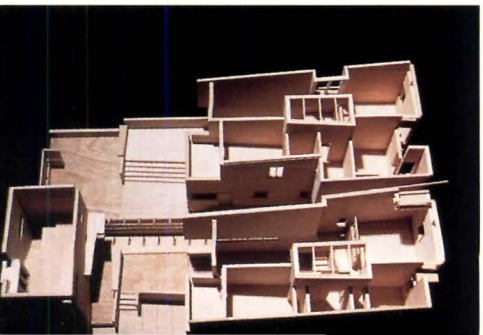
PROJECT: Housing Prototypes, East Cambridge, Massachusetts, and Atlantic City, New Jersey

SITE: Approximately 120 open lots in East Cambridge, Massachusetts, and Atlantic City, New Jersey. The properties are in established residential communities composed primarily of wood-framed houses on narrow lots.

PROGRAM: Housing prototypes intended to spur redevelopment and home ownership in deteriorating neighborhoods of the chosen cities. The proposed housing includes 1,340-square-foot single-family units, 1,265-square-foot single-family units with a detached 480-square-foot flat, and two-family units of 1,245 square feet and 1,352 square feet on each side. The buildings are wood-framed with plywood and cement-board sheathing on the exterior, and gypsum board interiors. The allocated construction budget is $85-$90 per square foot, not including site work or utility hookups.

SOLUTION: The East Cambridge and Atlantic City neighborhoods for which these houses are proposed share a similar urban morphology of deep, narrow lots. Many are now empty, leading to economic destabilization. This proposal attempts to ameliorate the deterioration by offering affordable housing alternatives that can be built incrementally, one lot at a time. The different house plans share similar detailing, materials, and plan elements in an effort to contain costs. The units attempt to maintain a balance between the public and private realms of urban life. The houses shelter rear and side yards, but maintain a connection to the street through alleyways that double as light wells.

Model of single-family unit with flat



HAWKINSON: *The architect took this as a very serious investigation of the quality of the living units, which should be a lot of what housing is about. This is a strong proposal.*

NORTEN: *It's both serious and professional.*

RAWN: *Here is an infill pattern with an impressive street edge, but more importantly, with an equally powerful middle-of-the-block solution.*

NORTEN: *It's almost a classical solution for the urban texture.*

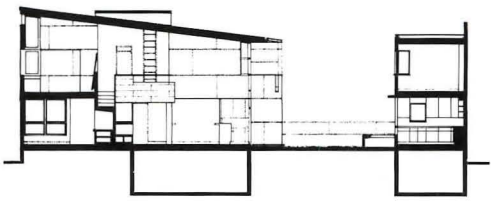
GRAHAM: *These houses are not attempting to be groundbreakers in terms of the new and the different, but instead are quite well designed, substantial housing, for which there is a real need.*

HAWKINSON: *These units could work. The architect ingeniously seeks ways to reconfigure circulation, edges, and overlaps of the row condition to create more interesting, rich spatial conditions.*

GRAHAM: *The layout is absolutely clear. It's done with energy. They are not overly complex, but are still sophisticated.*

NORTEN: *I think the spatial quality is strong too, and very urban.*

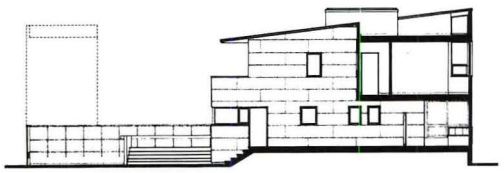
Single-family unit with flat



Section

Street elevation

Single-family unit



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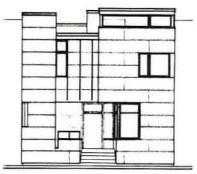
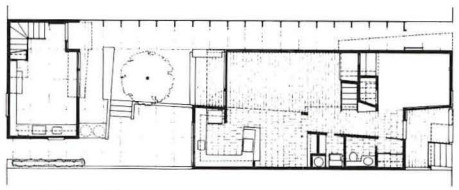
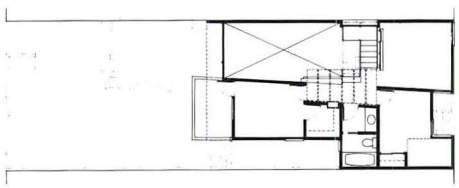


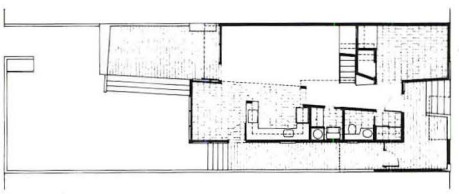
Street elevation



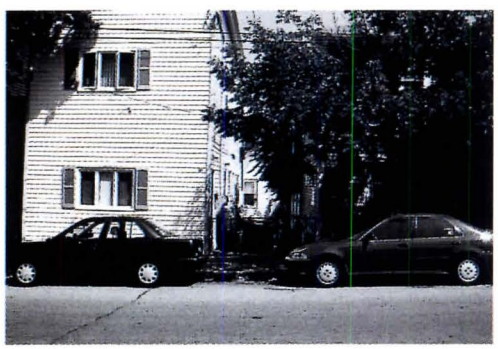
Ground-floor plan



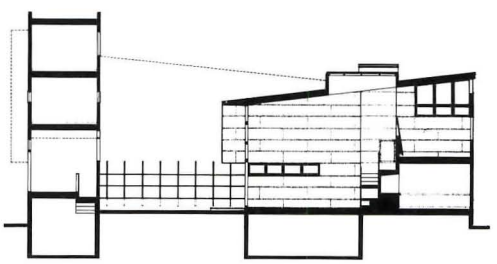
Upper-level floor plan



Ground-floor plan



Two-family unit



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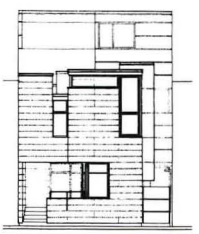
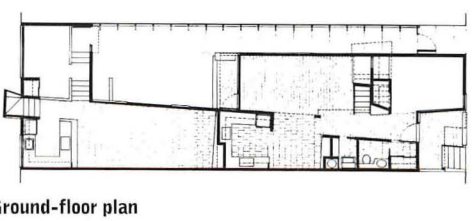


Street elevation



Ground-floor plan

ARCHITECT: Brian Healy Architects, Cambridge, Massachusetts—Brian Healy (principal), Craig Scott (project architect), Andrew Burges, Maiya Dos, Francisco Gutierrez, Lisa Iwamoto, Michael Ryan, Karen Tehve (project team)

CLIENT: Intercontinental Builders Corporation, Brighton, Massachusetts—Edward Nardi

O/K APARTMENTS
Kolatan/Mac Donald Studio

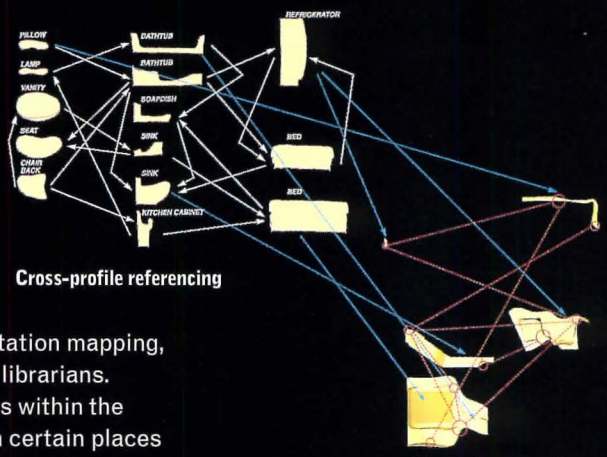
PROJECT: O/K Apartments, New York City

SITE: Two contiguous one-bedroom apartments with northern, eastern, and western exposures within a building on the Upper West Side of Manhattan.

PROGRAM: The clients intend to use this 1,700-square-foot apartment as a corporate residence and entertainment space. The two separate apartments had to be connected, yet remain semi-independent, so that two separate parties of guests might occupy the apartment at the same time.

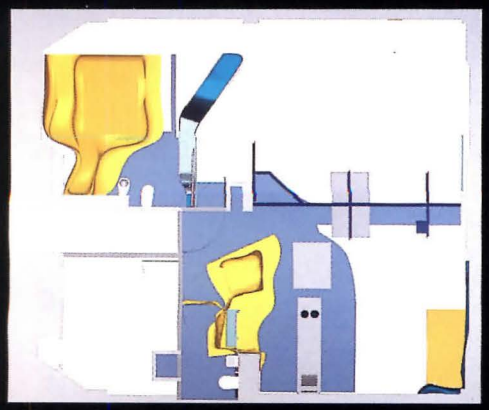
SOLUTION: The architects are exploring ways to use the computer to derive new forms and strategies for conceptualizing the design of interior spaces. Because computer modeling software generates pieces that are three-dimensional, spaces can be thought of as continuous surfaces. Therefore, rather than dealing with the apartment as a container for furniture, the architects asked: Does an interior have to be a space with objects floating in it, or could it be a topography? In this apartment, the surfaces are programmed to sponsor "landscapes," rather than furniture and appliances. For instance, the landscape of the bed, a molded fiberglass form, becomes the surface of the bathtub. Similarly, a wall that encloses a shower also forms a barrier between the bathroom and the kitchen.

The architects liken their approach to co-citation mapping, an archival indexing system familiar to scholars and librarians. Co-citation mapping is a metaphor for the way pieces within the apartment are connected in certain places to others, creating a web. If one piece is modified, another piece is inadvertently changed as well.



Cross-profile referencing

Co-citation mapping



Apartment plan

Computer model showing kitchen (left) and aluminum closet (right)

NORTEN: *So is the design the pieces, or is the design the apartment?*

RAWN: *It could be both.*

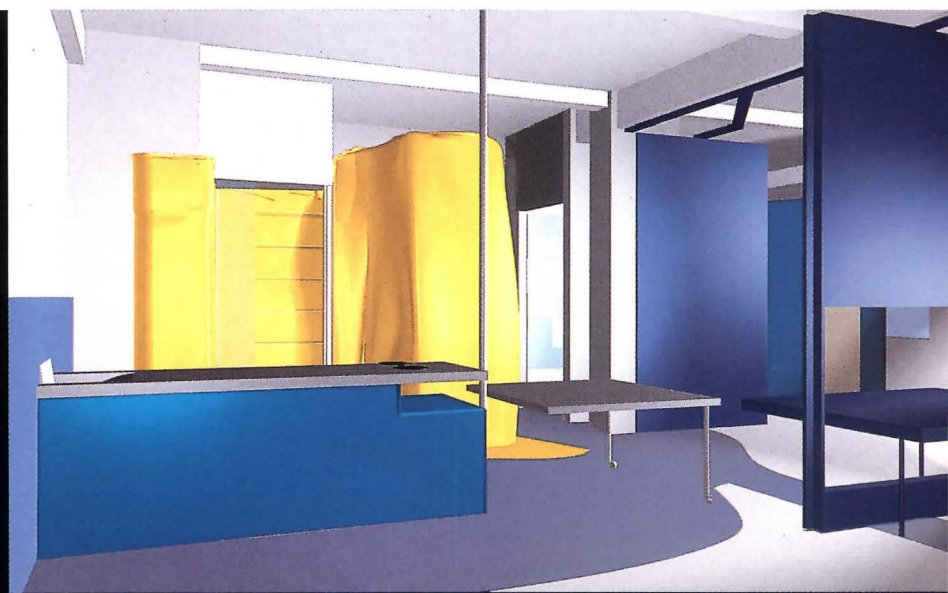
GRAHAM: *I find it attractive, but I don't know if it's extraordinary.*

NORTEN: *We've seen a lot of New York loft interiors—basically all along the same line—this one seems like a new approach.*

HAWKINSON: *As an architect in New York City, you're often given this problem of combining two apartments. And they've dealt with it on a level of furniture that becomes more than furniture. The furniture becomes a kind of landscape. It becomes architectural, almost in—even beyond—the way the Eameses did.*

GRAHAM: *Other than its sinuous shapes, I don't think it's new. I don't think it's research. I think it's a good interior project.*

PREDOCK: *This is an intriguingly open-ended extrapolation of electronic mapping. However, the relationships to the apartment perimeter tend to conventionalize the site web. It could have been more in violation topographically.*



Computer model of kitchen

ARCHITECT: Kolatan/MacDonald Architects, New York City—Sulan Kolatan, William MacDonald (principals), Rebecca Carpenter, Natasha Cunningham, Steve Doub, Matt Hollis, Philip Palmgren, Erich Schonenberger, Patrick Walsh, (design team)
ENGINEER: Ove Arup & Partners (structural)
CLIENTS: Beatrix Ost and Ludwig Kuttner

AWARDS FOR ARCHITECTURAL RESEARCH

This year marks the inauguration of a new research awards program sponsored by *Architecture* and the American Institute for Architectural Research. The goal of this competition is to recognize outstanding architecture and urban design studies and to publicize such work as a resource for the profession.

Entries were submitted in one of three broad categories: Energy and Sustainable Design, Behavioral and Social Science, and Technology and Materials. The projects were judged by Martha Welborne, associate partner of the Los Angeles office of Skidmore, Owings & Merrill; William J. Mitchell, dean of the School of Architecture and Planning at the Massachusetts Institute of Technology; and Sherry Ahrentzen, professor of architecture at the University of Wisconsin-Milwaukee. The jury awarded six projects from 57 entries, conferring three awards and three honorable mentions.

The winning projects range in budget from a modest $10,000 study of the gardens of four California healthcare facilities, to a five-year, $1.75 million government-sponsored research program culminating in a book and software package for designing energy efficient buildings. Jurors paid close attention to these funding disparities among the research projects: They considered the intellectual contribution of each project relative to its budget to ensure that large and small programs were given equal opportunity, regardless of their cost and duration.

The jurors also considered the originality and overall excellence of the research; its applicability beyond a single building or case study to contribute to the profession at large; its usefulness to architects; and the intellectual rigor and thorough documentation of each entry. This last point proved key in narrowing down the field of entries. In several instances, the jury chose not to award strong projects because of a lack of careful research methods and rigorous documentation of the process. Otherwise, juror Sherry Ahrentzen pointed out, "it would be giving an award for the product and not for the research that led to it." Throughout the evaluation process, the jurors repeatedly attempted to define the role and meaning of research within architecture, as reflected by the following comments:

Welborne: Many of the submissions were simply not research. There were many pro bono urban design studies and some studio projects.

Ahrentzen: Some just didn't push the edge in terms of advancing architectural knowledge or practice; many were just programming or planning studies. It's difficult to say that some of these things aren't research, because everybody has a different definition of what that is. But many don't show a level of sophisticated inquiry, and they weren't intended to try to advance the state of knowledge.

Welborne: The winners asked a core question and arrived at significant results using a credible methodology to get there.

Ahrentzen: Many of these architects are very competent at what they do, but it's pretty much traditional, pragmatic research that's applied to a particular programming or planning project. They don't really extend architectural expertise. And some of the projects that were more solid in terms of the research didn't have provocative ideas. I think there are some good ideas out there that aren't being followed through.

Mitchell: For something to qualify as research, there needs to be some reasonably significant addition to architectural knowledge. One of the things that distinguishes the winners from most of the other submissions is the formulation of a good question, which is difficult to do.

Welborne: The profession doesn't have a tradition of research, even though architects do research all the time on detailing or construction methods, for example. There's a lot going on, but it's not being thought of as research or promoted in that way, and we're not capturing it.

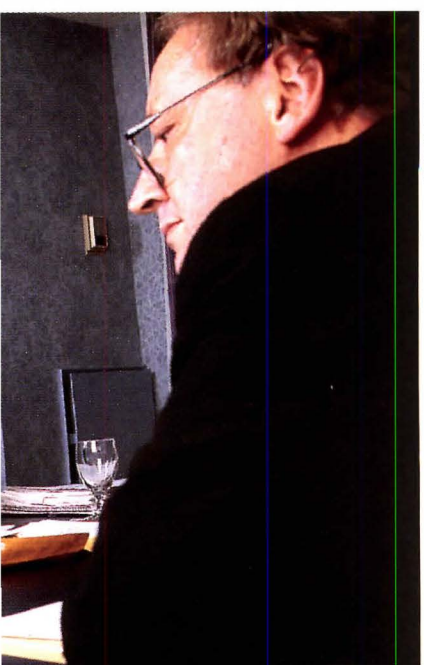
Ahrentzen: Is it because there's not a lot of research funding available? Architecture doesn't have the kind of funding available in engineering or other fields.

Mitchell: To improve the level of architectural research, there needs to be more money. We also have to put forward really good examples of first-rate research. Architects have a responsibility to learn to do research because most architects don't have much research training.

MARTHA WELBORNE
is an associate partner of Skidmore, Owings & Merrill (SOM) and managing director of the firm's Los Angeles office. Previously, Welborne was a principal at Sasaki Associates in Boston and worked for SOM's Boston and Chicago offices. She has lectured at numerous universities throughout the country, including the Massachusetts Institute of Technology, Harvard University, and the University of Pennsylvania. Welborne is a former chair of the AIA's Regional and Urban Design Committee, and is currently a member of the policy board of the American Institute for Architectural Research. Welborne holds a bachelor of architecture degree from the University of Notre Dame and master's degrees in architecture and city planning from MIT.

WILLIAM J. MITCHELL
is the dean of the School of Architecture and Planning at the Massachusetts Institute of Technology in Cambridge, Massachusetts, where he is also a professor of architecture and media arts and sciences. Before assuming his position at MIT, Mitchell taught at Harvard University, the University of California, Los Angeles' Graduate School of Architecture and Urban Design, and Cambridge University, and held visiting positions at universities in the U.S. and Australia. His most recent books are *City of Bits* (MIT Press, 1995) and *Digital Design Media* (Van Nostrand Reinhold, 1991). Mitchell holds a bachelor of architecture degree from the University of Melbourne, Australia; a master of environmental design degree from Yale University; and a master of arts degree from Cambridge University.

SHERRY AHRENTZEN
is a professor in the Department of Architecture at the University of Wisconsin-Milwaukee, where she researches new housing types for social and economic diversity. Presently, Ahrentzen is associate editor for book reviews for the *Journal of Architectural and Planning Research.* She is a past chair of the Association of Collegiate Schools of Architecture Women's Issues Task Force and a past member of the Environmental Design Research Association's board of directors. Ahrentzen holds a bachelor of arts degree in psychology from the University of California, San Diego, and a doctorate in social ecology from the University of California, Irvine.



MICHAEL ANDERSON PHOTOS

AWARD

Computer Graphics for Modeling and Rendering Weathered Materials

Funded by the National Science Foundation, this research project culminated in new techniques for computer modeling of the weathering of building materials. It graphically shows effects that most architectural rendering software can't model: tarnishing, bleaching, or corrosion on materials such as copper and stone.

Researchers from the Massachusetts Institute of Technology analyzed the chemical processes that cause weathering and soiling, patination of metals, and stains produced by flowing water on stone and other materials. They then created mathematical models of water flow and patination processes and translated these models into formats legible to computer rendering programs. The submission includes high-resolution computer images showing before and after conditions of water stains, effluorescence, and patination on buildings and statues.

With the techniques developed by this research, architects will be able to visualize how a material will age and look in the future, or, conversely, how a historic building looked when it was first completed. In addition to analyzing general weathering of materials, designers will be able to model the effects of specific conditions on a building, such as water flow caused by clogged gutters.

WELBORNE: *I was very impressed by the foundation of the study. It's very thorough and well documented.*

MITCHELL: *It's a very elegantly formulated, intelligent study. What's particularly interesting about this research to architects is that it's a really serious effort to make the simulations as accurate and predictive as possible. There's still a long way to go, but it promises to be an extraordinarily effective and useful tool. And it's a completely original idea—it's never been done in computer graphics until now.*

AHRENTZEN: *I think it would also be a valuable tool for historic preservation, working backward to see what a building may originally have looked like.*

PRINCIPAL RESEARCHERS/AUTHORS: Julie Dorsey (project director), Pat Hanrahan and Han Pedersen (researchers), Massachusetts Institute of Technology, Cambridge, Massachusetts

COMPUTER MODELING: Jeffery Feldgoise

CLIENT: National Science Foundation

Computer model of copper Buddha simulates tarnishing and development of patina over time

Passive Solar Strategies and ENERGY-10 Software

AWARD

The goal of this energy conservation program is to create easily accessible tools for integrating daylighting, passive solar design strategies, and energy efficient materials into the design of commercial, institutional, and residential buildings. The program was undertaken by a partnership of the Passive Solar Industries Council; the National Renewable Energy Laboratory; Lawrence Berkeley National Laboratory; and the Berkeley Solar Group, with support from the U.S. Department of Energy's Office of Building Technology, State and Community Programs. The researchers created a handbook, *Passive Solar Strategies*, and a computer program, ENERGY-10, that allow architects and engineers to integrate energy efficient elements into the traditional design process without cumbersome data.

The handbook provides an overview of passive solar buildings and information about the specific strategies analyzed by ENERGY-10 software, and shows how to apply them using the software. With ENERGY-10, users tap into the computer by indicating the type of building (choosing from nine default types), its geographic location, square footage, type of HVAC system, number of stories, and utility rates for the area in which the building is located.

The program takes this data and creates an abstract reference building through which the user can test 16 specific energy efficient strategies, including insulation, natural ventilation, solar water heating, and energy efficient lighting. The software generates graphs that allow the architect to evaluate the energy performance of a proposed design. The user can continually modify and refine the level of detailed data used as the design progresses.

Passive Solar Strategies *and ENERGY-10 are available by contacting the Passive Solar Industries Council, 1511 K Street, NW, Suite 600, Washington, D.C. 20005, (202) 628-7400.*

MITCHELL: *This is a very serious, thorough, and thoughtful effort that takes a very large, complex body of knowledge about low-energy and passive solar buildings, and integrates that knowledge into basic computer software that can be used at the early stages of design. There was serious thought given to what kind of information you can actually use early in the design process, and what kinds of things it's realistic for the designer to know and input into a program. They've been successful in producing a useful design tool, as opposed to a simulation tool.*

AHRENTZEN: *It's also a tool for people to conduct their own research, and that is something really worthy.*

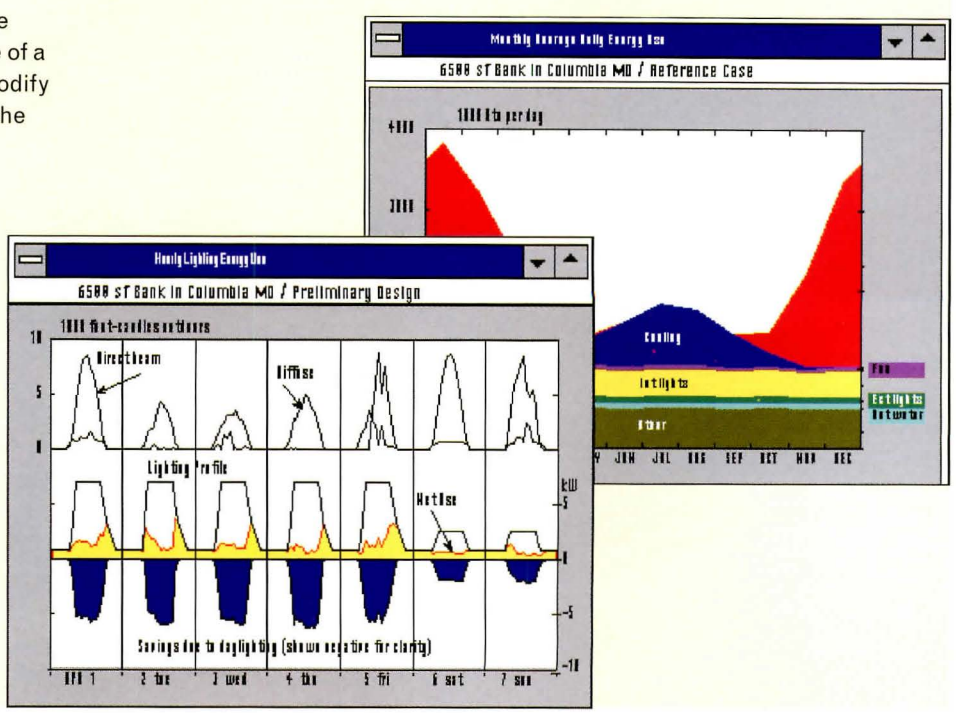
WELBORNE: *The researchers need to take it to the next level and package it better to make it more attractive for the designers to use.*

MITCHELL: *They really neglected the interface design. It could be much more elegant, and I hope in future incarnations, it might be.*

PRINCIPAL RESEARCHERS/AUTHORS: William Bobenhausen, Robert Erwin, Michael Nicklas, Donald Prowler, Adrian Tuluca, Passive Solar Industries Council, Washington, D.C.; Mary-Margaret Jenior, U.S. Department of Energy, Washington D.C.; J. Douglas Balcomb, National Renewable Energy Laboratory, Washington, D.C.

CLIENT: U.S. Department of Energy, Washington, D.C.

Software charts project energy performance of proposed buildings, including hourly lighting energy use (bottom left) and monthly average daily energy use (below)



AWARD

Contemporary Environments for People with Dementia

Sufferers of Alzheimer's disease require healthcare environments carefully tailored to their illness, which differs from other types of dementia. This project, funded by the Chicago-based Retirement Research Foundation, documents the design of 20 American, Canadian, and Australian facilities for Alzheimer's patients and their caregivers. The research culminated in the book, *Contemporary Environments for People with Dementia* (Johns Hopkins University Press, 1993).

Each case study evaluates how specific architectural elements, including floor plans, affect patients, and summarizes a particular facility's therapeutic goals, development philosophy, and patient/staff ratios. The studies also rate the variety of activity spaces, availability of outdoor spaces, and quality of circulation paths, and the organization and density of residential areas in each care facility. The book concludes with recommended design approaches for future facilities based on findings from the case studies.

AHRENTZEN: *This project addresses a timely problem. It uses a lot of different but very rigorous methods; it starts with a set of well-founded criteria and also interviews and builds on them. It doesn't make prescriptive design recommendations, but looks at prototypes and analyzes them carefully.*

MITCHELL: *The book makes very intelligent recommendations you can work with right away. There's very clear documentation of the foundations of these strategies.*

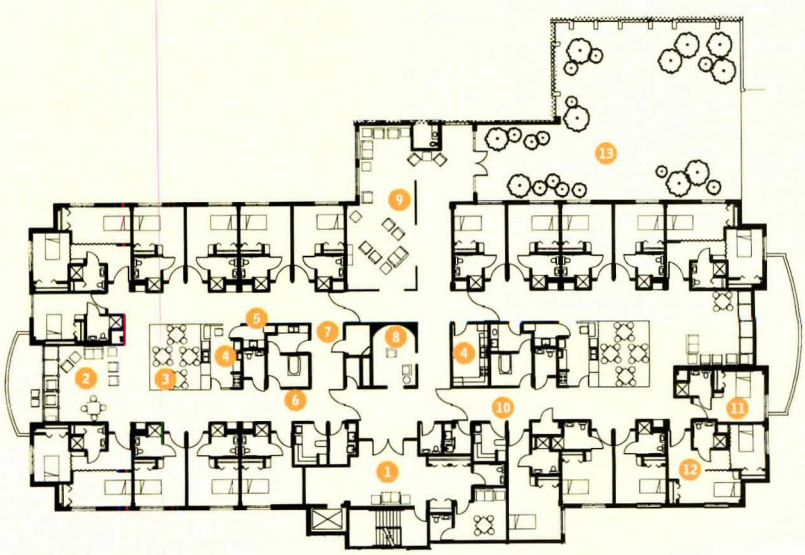
WELBORNE: *This is a creative, solid piece of research with a very thorough methodology. The book is a practical tool to have if you're designing an Alzheimer's care facility, because the building type is unknown to many architects.*

PRINCIPAL RESEARCHERS/AUTHORS: Uriel Cohen and Kristen Day, School of Architecture & Urban Planning, University of Wisconsin-Milwaukee

CLIENT: Retirement Research Foundation, Chicago, Illinois

Cedar Acres in Janesville, Wisconsin

Contemporary Environments for People with Dementia *is available from the Johns Hopkins University Press, 2715 North Charles Street, Baltimore, Maryland 21218. (800) 537-5487*



Plan of the Helen Bader Center, a group house for 24 Alzheimer's patients at the Milwaukee Jewish Home, designed by Kahler Slater Architects

Augmented Reality in Architectural Construction

The primary goal of this research, an interdisciplinary effort funded by the National Science Foundation's Gateway Engineering Education Coalition and the Office of Naval Research, was to develop a tutorial on how to erect a space frame, utilizing "augmented reality" technology. This technology superimposes virtual-reality visualization techniques onto a real-world setting: Users of the augmented reality system wear computer headsets that superimpose visual information and sound onto their field of view.

The research team—composed of students of architecture, mechanical engineering, and computer science as well as architecture and computer science faculty—designed and built an augmented reality environment in which to erect a full-scale space frame. Sound and virtual three-dimensional images tell users which structural member to place and how to insert it into the space frame. With a bar code reader, the user can verify the correct identification and placement of each part.

The successful application of this technology to real-life job sites could replace erection and fabrication drawings and ensure accurate construction by showing workers how to assemble pieces. It could also be utilized as a tutorial for training construction workers and as a means of carrying out on-site inspections. To be used on real job sites, however, the researchers warn that augmented reality systems must become wireless systems, offering wider fields of view with more accurate controls covering larger distances than the prototype. While this project was tailored to the construction of space frames, the researchers hope to expand the technique to address other structural systems.

MITCHELL: *What I liked about this project was the enormous energy and spirit put into it. It's clearly a team of mostly students, not experienced researchers, who were able to put together, on a very low budget and in a short time frame, a very convincing and provocative demonstration of the potential of this technology. Augmented reality has been explored before in the medical field, but this group intelligently figured out the potential use of it in construction and created an impressive prototype.*

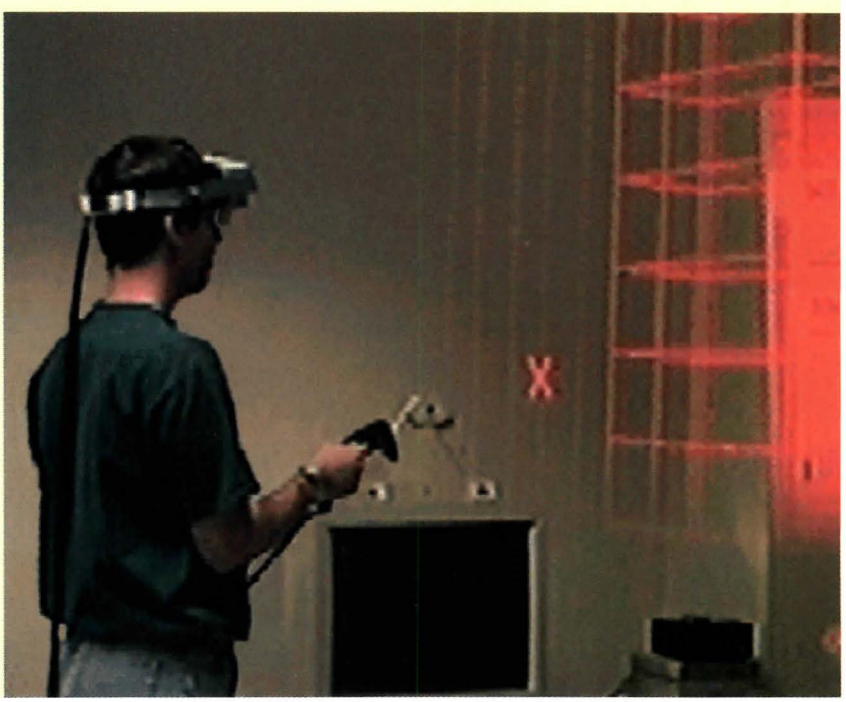
WELBORNE: *I think the technology still has a long way to go, and its implementation would take quite a bit of thought. The notion of construction workers actually using this is far from reality right now.*

AHRENTZEN: *The team members should be commended for undertaking this kind of inquiry. They put a lot of time and effort into researching something that is still years down the road, instead of completing a short-term study.*

PRINCIPAL RESEARCHERS/AUTHORS: Columbia University, New York City—Anthony C. Webster, Graduate School of Architecture, Planning and Preservation; Steven K. Feiner, Department of Computer Science; William Massie, Graduate School of Architecture, Planning and Preservation (faculty members); Blair MacIntyre, Department of Computer Science (graduate student); Rod Freeman, Jenny Wu (undergraduate student team)

CLIENT: National Science Foundation, Gateway Engineering Coalition, Drexel University, Philadelphia, Pennsylvania; Office of Naval Research, Arlington, Virginia

HONORABLE MENTION



Computer headset and bar code reader enable users to simulate construction of space frame

HONORABLE MENTION

Pedestrian/Vehicular Network Design

This report applies formulas developed in operations research to an architectural setting. The researchers utilized two mathematical models called state-dependent queues and finite capacity queuing network models, which predict the flow and rate of pedestrians moving within a building or vehicles traveling on a road based on the density of people or cars.

The research team applied these mathematical operations to a proposed medical office building on a regional hospital campus in Massachusetts. The team's goal was to analyze how the pedestrian and vehicular traffic flow throughout the existing campus would be affected by the proposed new building, and how patient traffic could be most efficiently routed within the new facility.

The researchers examined existing pedestrian and vehicular traffic patterns and flow rates (the number of people in transit, their destination, and travel time) by surveying the facility's users, conducting walk-throughs of the site, and deriving statistical information from the hospital's information system. Applying this data to algorithmic functions, the team subsequently developed two- and three-dimensional computer models documenting the flow of pedestrian and vehicular traffic for the proposed building design, and derived an optimal layout of circulation paths.

The team compared the two models and suggested a redesign of the building's proposed circulation paths. Based on the research findings, the architect of the hospital ultimately reconfigured the layout of circulation corridors for more efficient traffic flow.

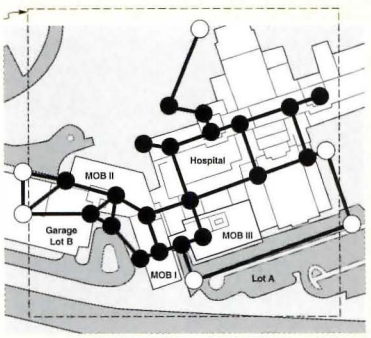
AHRENTZEN: *You can see the potential for this research to be used in airports and other building types, not just in hospitals and medical centers.*

WELBORNE: *It's cross-disciplinary in every sense of the word.*

MITCHELL: *The concept is not new; it's widely used in traffic studies, computer networks, and factories, but it's been ignored by the architectural profession. To bring it to an architectural problem is very interesting.*

PRINCIPAL RESEARCHERS/AUTHORS:
J. MacGregor Smith and M. Blakey Smith, Amherst, Massachusetts

CLIENT: Newton-Wellesley Hospital, Newton, Massachusetts



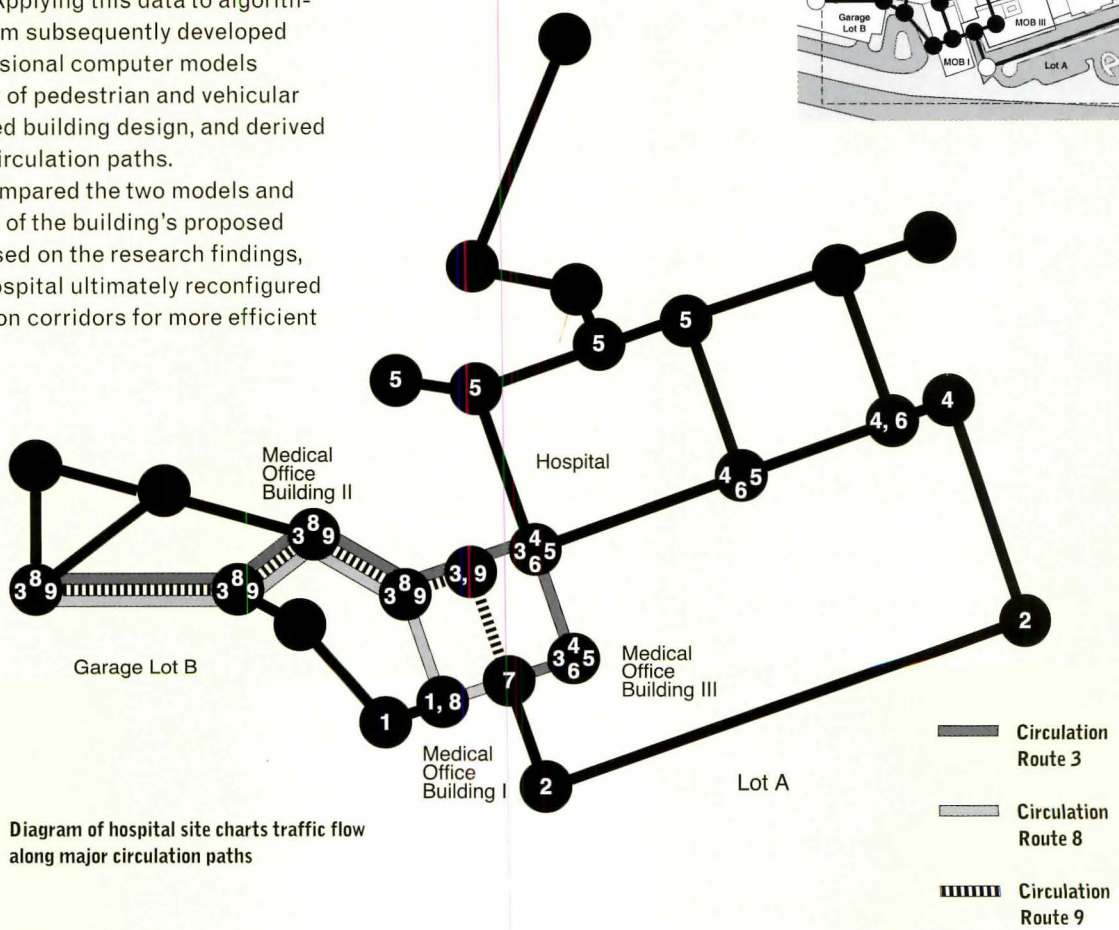


Diagram of hospital site charts traffic flow along major circulation paths

Gardens in Healthcare Facilities

HONORABLE MENTION

Commissioned by the Martinez, California-based Center for Health Design, this report examines the potential health benefits of outdoor spaces at medical facilities. It presents in-depth case studies of four hospitals in the San Francisco Bay area and limited investigations of 14 other sites in northern California and England. Researchers cataloged the advantages and disadvantages of plazas and gardens in existing facilities; presented empirical data about the potential health benefits of landscaped spaces in these facilities; and recommended design strategies for new gardens and parks.

In each case study, the research team documented physical features of the design, such as circulation and orientation, enclosure and views, microclimates within the garden, and opportunities for privacy or social interaction, and also charted behavioral observations such as the activities of users, their gender and age, and patterns of use.

Interviewers also asked what users liked about the space and what effects they thought it had on their emotional state; what physical features of gardens they linked to emotional well-being; what impediments there were to using the gardens; and how they would suggest improving the design. The responses were grouped primarily according to whether the outdoor space caused a rise in users' energy levels (feeling stronger or rejuvenated after visiting the garden), or a drop in energy (feeling calmer or more relaxed). Some users reported that the outdoor areas enabled them to think more clearly or generated a sense of spiritual well-being.

The study concludes that exterior environments in healthcare facilities create quiet alternatives to the high-stress environment of a hospital, and that there are discernible emotional benefits to such outdoor spaces. The report includes recommendations for site planning, wayfinding, plantings, seating, policy, and maintenance.

For further information, contact: The Center for Health Design, 4550 Alhambra Way, Martinez, California 94553, (510) 370-0345.

WELBORNE: *I like this study because it addresses the fundamental problem of linking architecture and landscape, which many architects rarely understand. It stresses that the exterior environment is as important as the interior environment.*

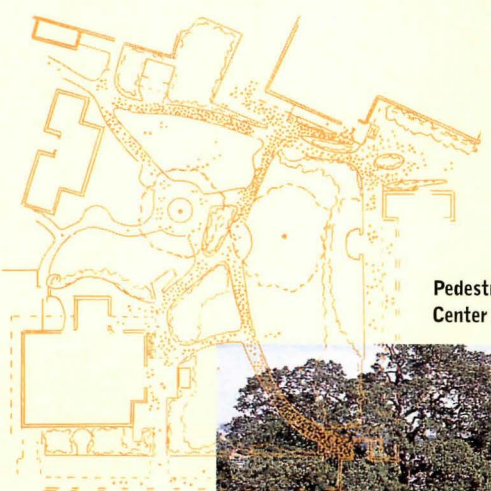
AHRENTZEN: *This is more of an exploratory study than a definitive one, since they only present four case studies in one area of the country. But I think it's a good, solid foundation on which others can build. It gives designers and even hospital facility managers some valuable information.*

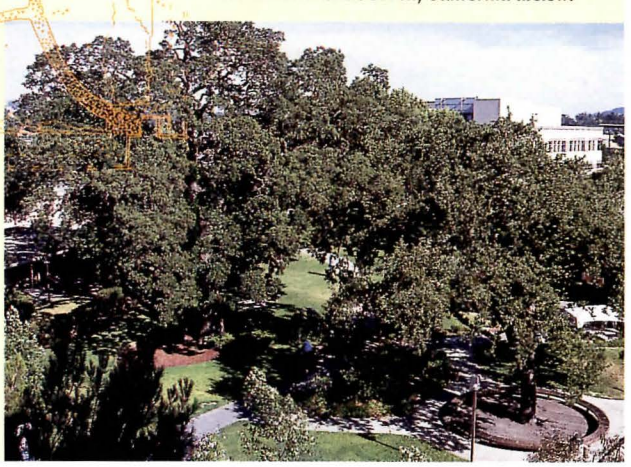
MITCHELL: *I think it's important to realize that a great deal of applied research in the design fields, by necessity, is done very quickly and at very low cost. I think we should commend a limited project like this, that produces very useful information within the constraints.*

AHRENTZEN: *I think it breaks some new ground, even though it relies extensively on interviews.*

PRINCIPAL RESEARCHERS/AUTHORS: Marni Barnes and Clare Marcus, Deva Landscaping, Palo Alto, California

CLIENT: Center for Health Design, Martinez, California





Pedestrian patterns (left) of Kaiser Medical Center in Walnut Creek, California (below)

WE CATER OVE
GET-TOGETHERS

Herman Miles Trucking Inc., El Paso, Texas, 8,500 sq. ft.;
Architect: Joe M. James, AIA; Structural Engineer: Pedro Herrera; General Contractor: Balboa Enterprises, Inc.; Steel Fabricator: Area Iron & Steel

Technology and Practice

Curtain wall upgrades, computerized exams, cast-iron transplants, and surprising market shifts paint a picture of change in practice and preservation.

Practice

Promising Trends and Dead Ends

Architects are finding work in construction markets after years in the dumps. But what sectors offer the most work? And how long can this surge last?

Technology

Customizing the Curtain Wall

Three projects show a range of approaches for shaping off-the-shelf curtain wall systems into expressive structural assemblies.

Computers

The New Registration Exam

Architects can't hide from the electronic revolution, especially since the gate to the profession is now computer-operated.

Preservation Technology

Cast Iron Reconfigured

A historic cast-iron facade is taken out of mothballs, tailored to a new site, and stitched with new details to wrap Baltimore's newest museum.

Practice

Promising Trends and Dead Ends

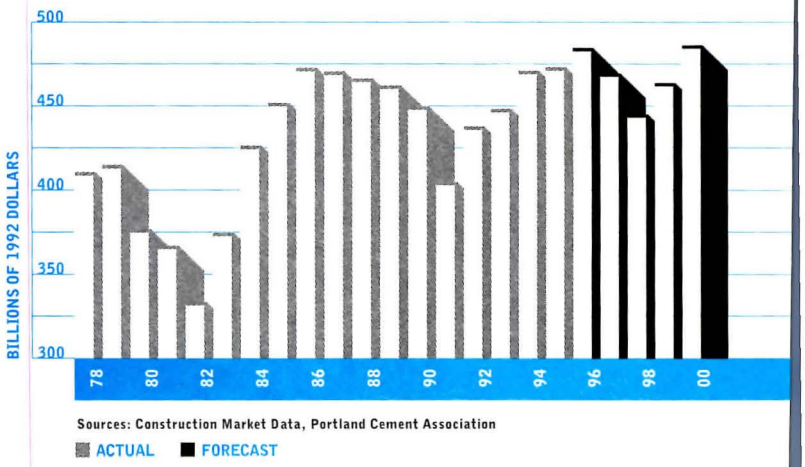
This year, the public sector beckons with sustained growth while retail and healthcare clients remain shy. For commercial development, a surprise is in store.

By Bradford McKee

This year promises to be a breeze for architects. At least, 1997 will be a good year for architects who make flexibility, in terms of location and markets, their mission. After a refreshingly strong '96, when the economy grew at about 4 percent and construction spending rose 6 percent, economists expect construction volume to grow (which implies design services as well) by 3 to 4 percent. Although this growth rate is one-half to one-third what it was in the early months of 1992, '93, and '94, the good news is that this year's construction volume will hold well above those days.

Forecasters widely predict that U.S. economic growth will hover around 2 percent in 1997. Inflation is the only foreseeable factor that could upset continued gradual expansion. The current growth rate has proved incredibly inflation-resistant, despite low unemployment, which tends to boost wages, increase demand for goods and, in turn, push up producer and consumer prices.

Market watchers have been bracing for the Federal Reserve Board to raise interest rates—which would drag down construction financing—but it appears that the Fed's increase in long-term rates early last year preemptively cooled the threat of dramatic price increases in recent quarters.



Construction volume runs high, despite drops

Fastest-growing sectors are safe

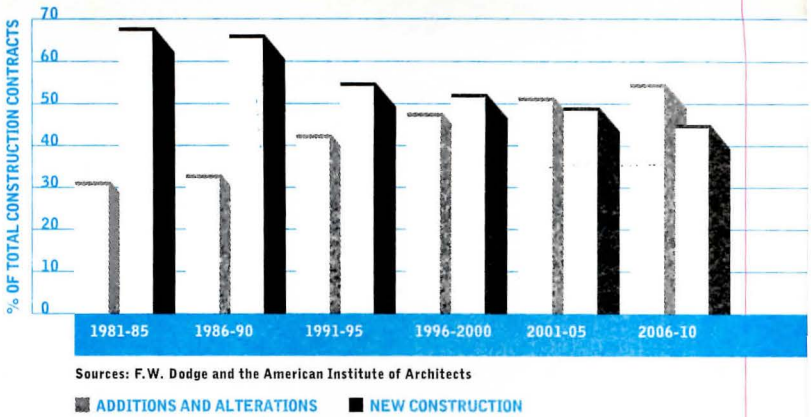
For architects and others in construction-related fields, the current growth cycle is particularly strong and steady. While construction spending as a percentage of gross domestic product has dropped from 12 percent in the late 1960s to 7 percent last year, today's construction market is dominated by public and institutional projects, which aren't particularly sensitive to changes in interest rates. This means that if interest rates suddenly rise, the fastest-growing sectors are safe, which should prevent the 20 to 30 percent drops in activity of past cycles.

Within this cycle, however, there are mini-movements playing out that architects should watch closely. Several markets, such as industrial, retail, and healthcare, seem to be in an indefinite funk. Still other sectors, such as public and civic buildings, appear irrepressibly upbeat. And certain surprises are in store for 1997, namely the sooner-than-expected rebound of the commercial office market. An all-out recession seems highly unlikely. The only common thread among the major building markets is that additions and alterations to buildings are expected to outstrip new construction in terms of dollar-volume over the next decade.

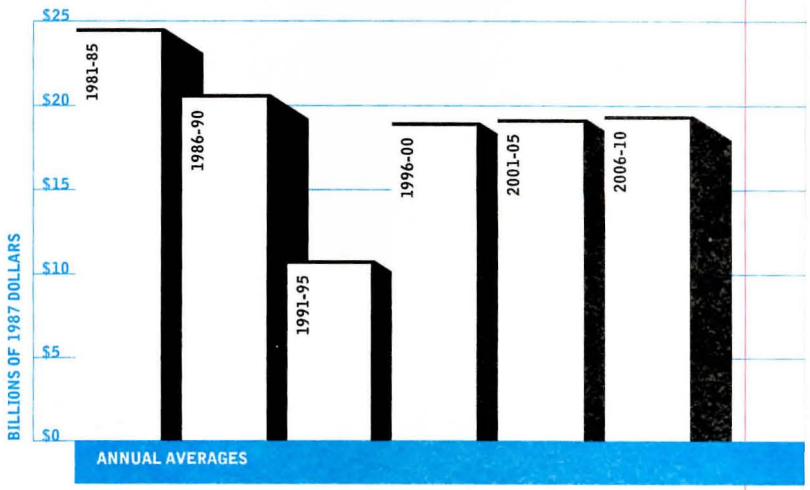
In the short run, individual sectors are being swayed by forces peculiar to each. Based on observations and forecasts by economists and industry analysts, the following outlook for major building markets charts the most promising prospects for the year, followed by markets that appear to be stagnant or shrinking:

Housing construction may slip somewhat, but will stay strong. New housing will not spring up in 1997 like it did in the 1980s—indeed, housing starts will drop 7 percent this year, a "moderate decline," predicts David F. Seiders, chief economist at the National Association of Home Builders (NAHB) in Washington, D.C. Yet, residential spending should stay at or near record-high levels. While housing starts are down in the long run, the average unit cost has increased as buyers order bigger houses and more amenities. Single-family housing will show the biggest drop, minus 7.5 percent, but that part of the market will still outstrip multifamily housing opportunities, which seem to be dropping off as the number of 20- to 29-year-olds decreases. NAHB expects multifamily housing starts to fall 6.8 percent, after gaining 8 percentage points last year. But a lot of this year's slack in new construction should be offset by higher spending on residential remodeling and repair.

Commercial construction also looks relatively rosy, which market analysts didn't expect until at least 2000. Office construction is expected to rise 12 percent in 1997, with the greatest increase in the build-to-suit arena. The reason? A big office-market adjustment has occurred since the 1980s hangover in speculative construction. The national vacancy rate is down to 13 percent, after reaching 20 percent in 1991. And a few cities, such as Charlotte, Salt Lake City, San Francisco, and Seattle have commercial vacancy rates down near 6 percent. Available space is being leased four times faster than new space is being built.



Rehabs are set to surpass new construction



Office market recovers sooner than expected

Building owners are finally seeing increases in operating income, reports Mark Hurwitz, executive vice president of the Building Owners and Managers Association in Washington. And corporate clients are seeing the highest investor profits since 1986. Most new office building is in suburbia, but it's getting more expensive since local governments are making developers build infrastructure along with new commercial centers.

Commercial clients want flexible space these days, with an emphasis on shared offices and meeting areas over private warrens. Also in demand are multimedia facilities, computer rooms, and corporate libraries. People come and go from offices more often: Many offices aren't full during a typical work day, and investors are carefully watching the trend toward telecommuting—most popular in high-tech and insurance firms—and also tenant companies' increasing use of independent contractors, which could drive down the baseline volume of office space the country needs in the future.

Government spending increases

Practically leading the way in the construction economy are public and civic buildings. The average government office building in the U.S. is 31 years old, compared to 19 years old in the private sector. Fortunately, no state is currently running a deficit, reports the National Council of State Legislatures, so budget woes won't block construction plans. Growth in 1997 construction is expected to slow to 2 percent, from 3 percent growth last year, according to F.W. Dodge forecasters.

Budgets for federal buildings are fortified by a 21 percent increase in the General Services Administration's 1997 appropriation passed by Congress. Also, the federal Intermodal Surface Transportation Enhancement Act (ISTEA) is fully funded through this year at $3.5 billion, which has enabled localities to suggest the design of their own transporation improvements, and has also involved more architects in designing for transit. The budget for the U.S. Department of Transportation, however, is up for reauthorization in Congress this session, which means future ISTEA funds could swing higher or lower, depending on the political climate.

Prisons and other detention facilities show the fastest growth of any building type. The nation's prisons are running at about 30 percent over capacity, and crowding is expected to continue as harsher sentencing, particularly for drug offenses, drives the inmate census higher. Correctional facilities currently represent 70 percent of all public construction spending. The 1994 federal crime bill provides $7.9 billion over five years to states to fight crime; most of the money is earmarked for new detention centers.

Schools are rapidly multiplying as districts nationwide replace outdated or technically deficient buildings. The current surge in the school-age population isn't expected to peak until 2006, and 30 percent of U.S. schools are more than 50 years old.

Mid-range retail lags

Meanwhile, certain bread-and-butter markets for architects appear to be stagnant or shrinking. Retail is a business operating on very slim profit margins, maintains Bruce van Kleeck, vice president of the National Retail Federation in Washington. Retail construction is expected to show a 13 percent drop in 1996, with a negligible 2 percent gain this year. The industry is growing briskly at either end of the price spectrum, but mid-priced retailers have filed a record number of bankruptcies in the past two years. Construction is expected to be

strongest among big-box superstores such as Wal-Mart and Price Club, and also among higher-end stores such as Nordstrom, Neiman-Marcus, and Saks Fifth Avenue—all of which are planning expansions. Most large department store chains such as Federated and May Company have completed recent restructurings. Two dark clouds loom over retail, however. Shopping by catalog or on the Internet is increasingly popular, and consumer debt is rising at twice the rate of retail sales, which could lead to a large number of personal bankruptcies that would swiftly dampen growth in this sector.

Growth in high-tech

Following retail's economic ripple, warehouse and distribution facilities will rise in construction volume by 4 percent, to 177 million square feet, after sliding downward by about 8 percent last year. Much of retail's relative holding power is due to leaner inventories, as companies switch to quicker turnover in supplies from manufacturers, which reduces the need for new warehouse space. New warehouses are often designed to meet the needs of greater bulk stored in a smaller net area, which requires bigger docks and space to house automation.

Manufacturing construction gained in 1995, but dipped sharply again in 1996, analysts note. Manufacturers are learning to produce more in less space. And the U.S. dollar has been somewhat weak overseas lately, discouraging exports and, in turn, stalling plans for new construction. Nonetheless, growth is expected in the semiconductor-related industries—which means intense activity near high-tech hubs such as Austin, San Jose, and Portland. The aircraft industry is also expanding, which in turn feeds the growth of its suppliers.

Industrial firms, however, are less attracted to big new plant investments than they were a decade ago because of a big loss in property values, observes Hugh F. Kelly, economic research director at Landauer Associates, a corporate real estate consulting firm. "The institutional *investment* community shows great nervousness about investing in real estate," especially with the Dow Jones Industrial Average breaking 6,500 points last year, Kelly remarks, because the opportunity to see future gains is slim.

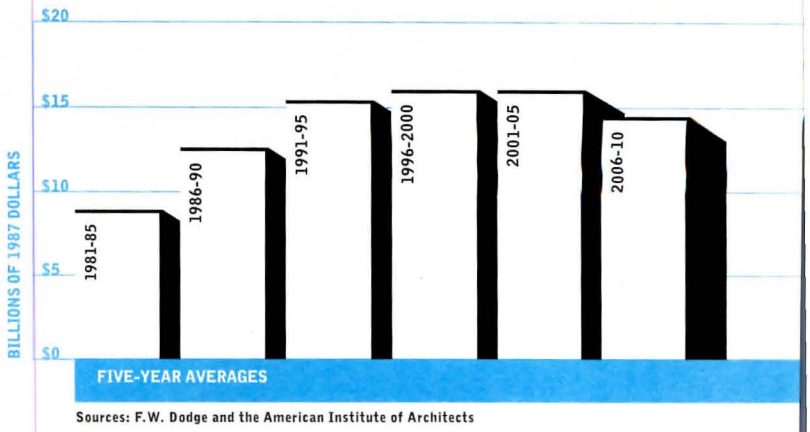
Corporations are trying to control inventory and limit plant expansions, using their own cash to finance new growth rather than borrowing from banks. Nevertheless, banks are "very interested in doing deals" to help high-growth companies build new plants, says economist Alan M. Gayle, senior vice president of Capitoline Investment Services in Richmond, Virginia.

The prognosis is not great in healthcare construction, which is down 30 percent from five years ago. The shock of the Clinton administration's proposed healthcare system overhaul, which froze nearly all plans for new facilities, has resulted in widespread mergers among healthcare companies. And the tidal shift to managed care is emptying hospital beds by rationing services. However, residential elder care is offsetting a massive slowdown in the healthcare economy as the senior population grows rapidly.

Overall, market performance will vary regionally. The strongest development growth is seen in the Southeast, in cities such as Atlanta and Charlotte in particular, and the West, especially in Seattle, Salt Lake City, and Denver.

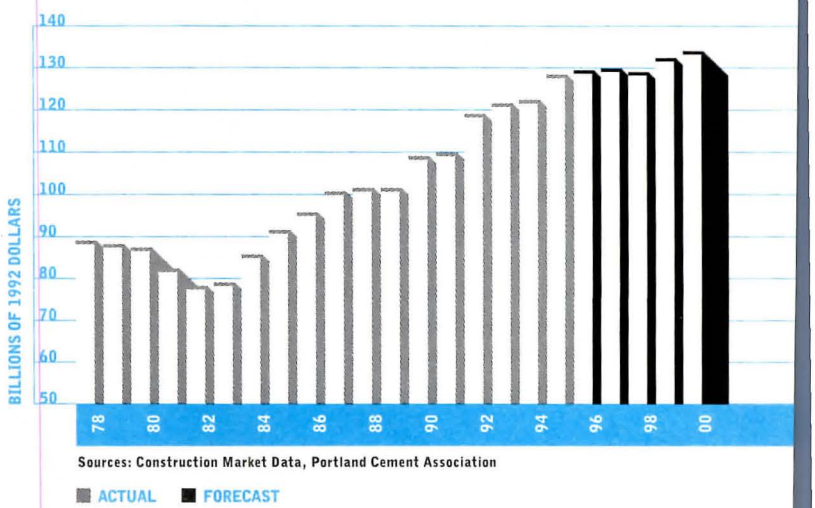
Growth is better modulated

Considering the harrowing downturn of 1990-91, this year could be one of the more stable in recent memory if architects are able to juggle several markets while still showing expertise in specific building types. Construction growth is better modulated to keep up with demand than in past recoveries. In the 69 months since the last recession, construction volume has grown 20 percent, compared to 40 percent growth at this stage of the '80s recovery. "This is both a curse and a blessing," remarks Bill Toal, chief economist at the Portland Cement Association in Skokie, Illinois: "We all want strong gains in construction, "but not at the expense *of overbuilding.*"



Sources: F.W. Dodge and the American Institute of Architects

Schools will proliferate for the next decade



Sources: Construction Market Data, Portland Cement Association

Healthy public-sector budgets fuel building

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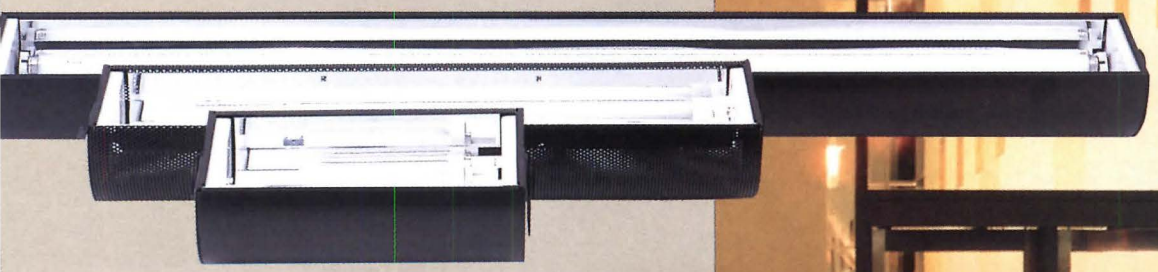


SPI

Technology

Customizing the Curtain Wall

From stock systems to new connection details, architects redefine the envelope.

By Ann C. Sullivan

Curtain walls prevent water infiltration, ensure airtightness, withstand wind loads and seismic forces, control solar heat gain, and provide adequate fire stops. More than just weather-tight garb, however, these non-loadbearing enclosures define a building's facade. Manufacturers offer catalogs full of systems with proven structural and thermal track records, but architects relish the opportunity to reinvent the envelope.

Sometimes a curtain wall is an architect's most substantial design outlet. In the case of the Manhattan headquarters for luxury leather goods company Louis Vuitton and wine and spirits giant Moët Hennessy, business depends on identity. French architect Christian de Portzamparc responded to this challenge with a multicolored, multilayered glass facade, which will be illuminated at night by neon lights outlining its irregular planes.

Curtain wall consultant R.A. Heintges Architects Consultants worked to develop framing details that accommodate planar changes while minimizing the number of custom extrusions required. The anchors embedded in the floor slabs must enable fast, simple installation of the prefabricated panels because the narrow site is difficult to access and provides no storage facilities.

Connections like these represent the most vulnerable components of a curtain wall. They must frame glazing panels, anchor a wall system to a structure, and transfer loads from an envelope to a frame. If poorly designed, these connections are a principal cause of curtain wall failures. Yet, it's in their design that architects take the most creative liberties. Visionary engineers and progressive manufacturers are essential to a curtain wall's structural success.

Increasingly, architects are aiming for the all-glass curtain in curtain walls, minimizing framing members through slender mullions and delicate fittings. An extreme example is the earth and space center enclosure at the American Museum of Natural History in New York, designed by Polshek and Partners Architects. To be completed in late 1999, this 95-foot-high, all-glass box is allegedly this country's first large-scale, entirely tension-supported, suspended glass curtain wall design. It is 90.2 percent transparent, calculates Senior Designer David Wallance. Only 9.8 percent of the enclosure is obscured by steel framing, glass bolts, and silicone joints.

Inspired by the pioneering 1985 Museum of Science and Industry in Paris, the New York museum's slender tensioned members are the work of design consultant and manufacturer TriPyramid Structures Incorporated. This Concord, Massachusetts-based company got its start in high-end yacht rigging and has seen a tremendous growth in architectural demand for its products.

Such architect-manufacturer collaborations are not restricted to custom applications. At Mississippi State University, Foil Wyatt Architects worked with EFCO Corporation, a curtain wall manufacturer based in Monett, Missouri, to spruce up its off-the-shelf curtain wall system for a new athletics administration building. The curtain wall incorporates stainless steel cables and steel frames to accommodate large glass expanses without enlarging the wall's slender profile. The rigging solution was so economically and esthetically successful that EFCO plans to pursue similar collaborations with architects.

John H. Bryan, Sr. Athletics Administration Building Mississippi State University

Starkville, Mississippi

A large, curved glass expanse at Mississippi State University's new athletics administration building required beefing up the structural members of EFCO Corporation's standard Series 5600 curtain wall system. But Foil Wyatt Architects wanted to avoid tacking steel onto the reinforced aluminum framing.

Instead, to preserve the mullions' slender profiles, the architect and the manufacturer devised a system of stainless steel cabling and trusswork to reinforce the double-height, 127-foot-long, curved facade.

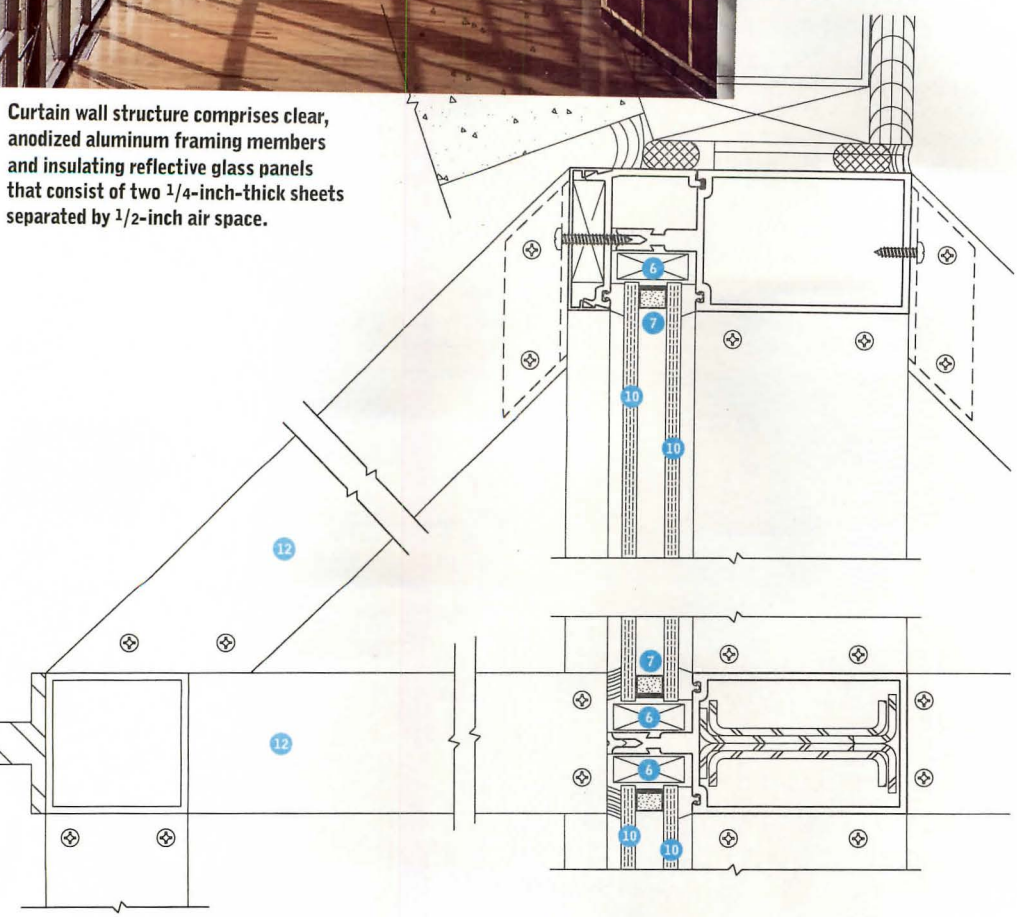
Positioned 12 feet above ground level, 3-foot-deep aluminum frames are bolted to the interior and exterior mullions of the wall. Stainless steel cables tensioned to 5,000 pounds stretch from floor to ceiling outside the steel frames.

ARCHITECT: Foil Wyatt Architects
MANUFACTURER: EFCO Corporation
CURTAIN WALL ERECTOR: American Glass Company

1. Chemically adhered 3/8-inch-diameter anchor in concrete
2. Silicone sealant
3. 1/4-inch-thick gusset plate
4. 1/4-inch-diameter stainless steel bolts
5. Aluminum pressure plate
6. 4-inch-long EPDM glass-setting block
7. 1/2-in
8. Stainle
9. 1/2-inch steel cab
10. 1/4-inch-glass pan
11. 1/4-inch-t
12. Aluminum

Curtain wall structure comprises clear, anodized aluminum framing members and insulating reflective glass panels that consist of two 1/4-inch-thick sheets separated by 1/2-inch air space.

nautical supp... gusset plate at head and ... wall.



Plan detail at truss terminus

Supplemental steel cables and frames maintain 5 3/4-inch-deep aluminum framing members.

NAME

HENRY JOHNSTON

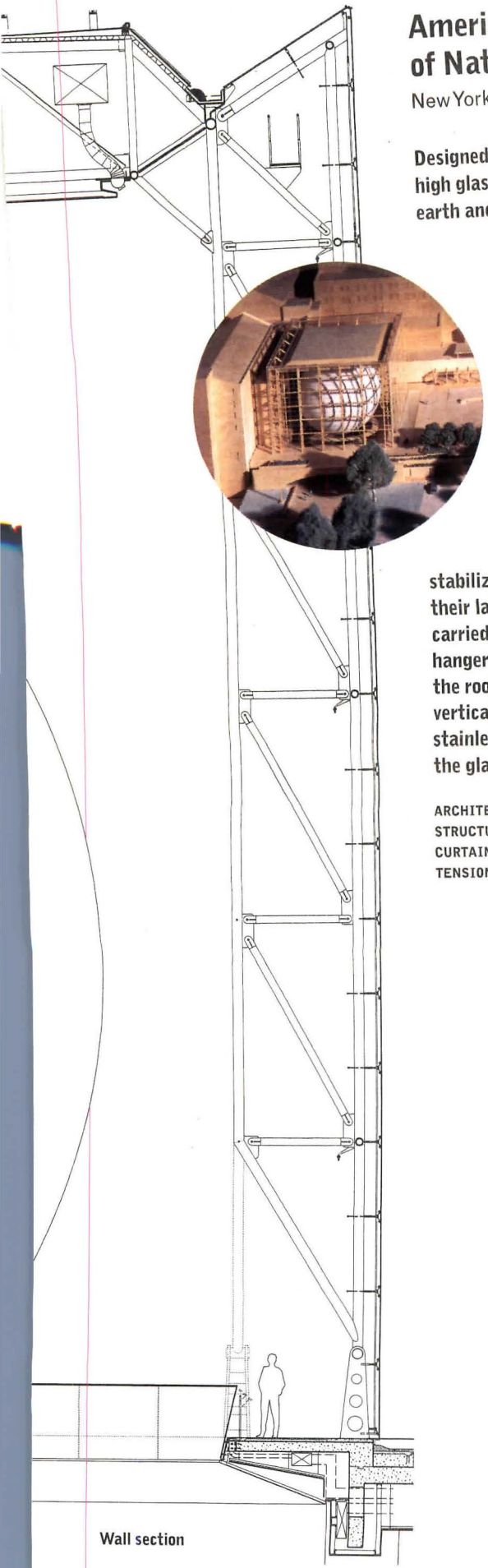
American Museum of Natural History

New York City

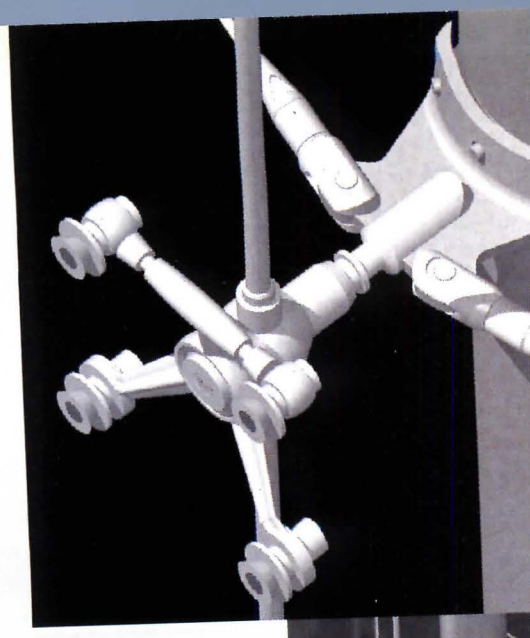
Designed for maximum transparency, a 95-foot-high glass box will envelop the new spherical earth and space center, designed by Polshek and Partners Architects, for the American Museum of Natural History. Entirely tension-supported, the curtain wall consists of 1/2-inch-thick tempered glass panels separated by 1/2-inch silicone sealant joints and supported by a web of thick steel tubes, slender rods, and clawlike, stainless steel fittings.

The enclosure's primary structure is a tubular steel truss composed of 6- and 8-inch-diameter members. Individually pretensioned horizontal trusses positioned at 5-foot intervals stabilize vertical truss members and increase their lateral resistance. The weight of the glass is carried by 3/4-inch-diameter stainless steel hanger rods that extend from the ground level to the roof. Steel brackets bolted to the primary vertical truss members connect the rods and stainless steel 4-point spider fittings, which hold the glass panels together.

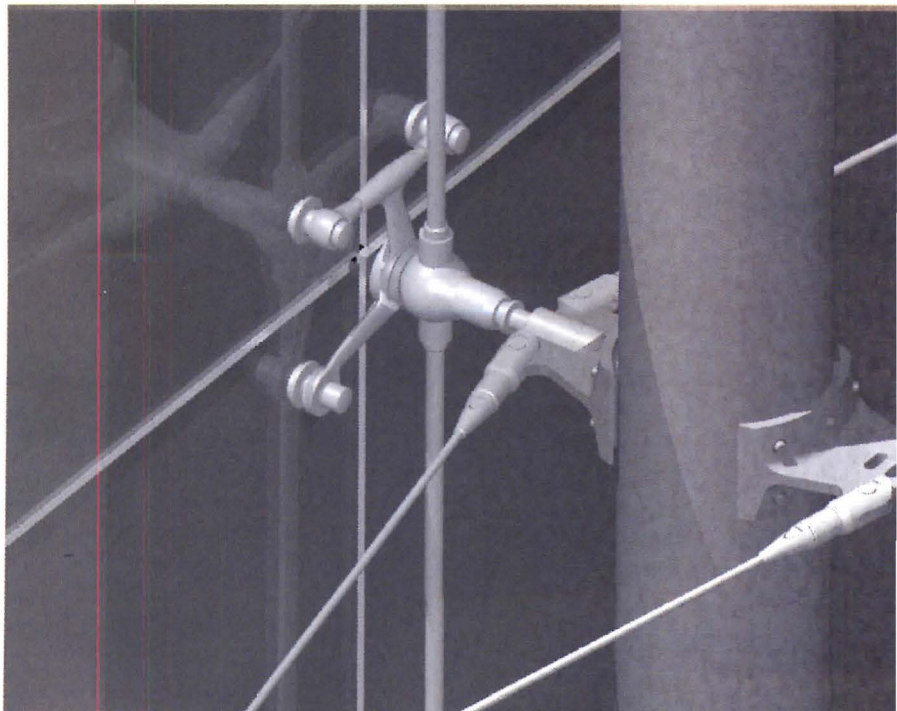
ARCHITECT: Polshek and Partners Architects
STRUCTURAL ENGINEER: Weidlinger Associates
CURTAIN WALL CONSULTANT: Heitmann & Associates
TENSION TRUSS MANUFACTURER: TriPyramid Structures



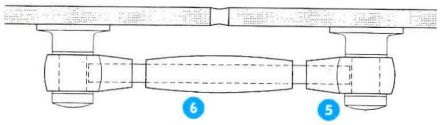
Wall section



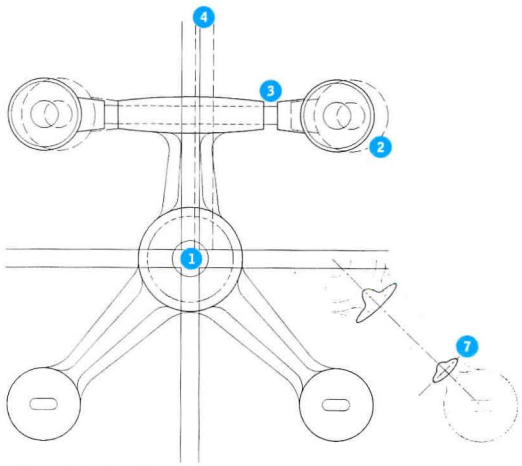
Steel brackets bolted to vertical tubular members receive horizontal truss components, which consist of high-strength tension rods and machined clevis connections for adjustment and pretensioning.



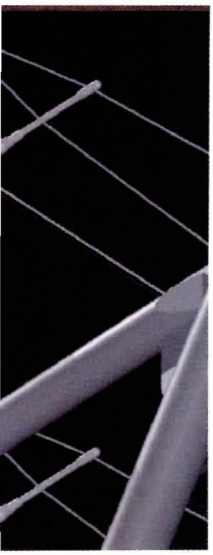
1. Dead load lug with slotted hole for glass drilling tolerance
2. Wind load lug with oversized hole for glass drilling tolerance
3. Machined stainless steel rod threaded to wind load lug, free to travel with glass displacement
4. Line of glass displacement due to building drift under maximum wind load
5. Flush, countersunk, machined stainless steel glass bolt
6. Cast stainless steel sleeve drilled to receive rod
7. Rib profile of spider arm



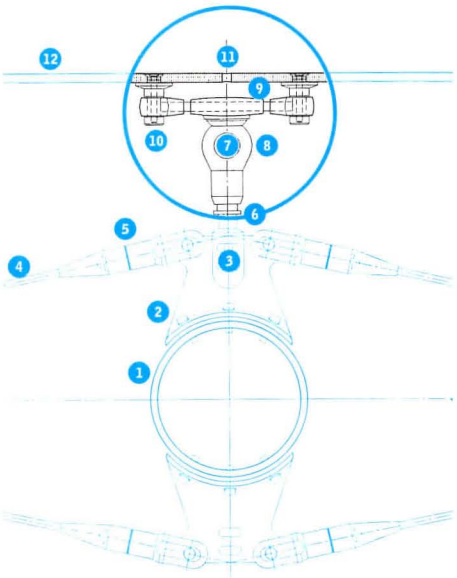
Plan of spider fitting



Elevation of spider fitting



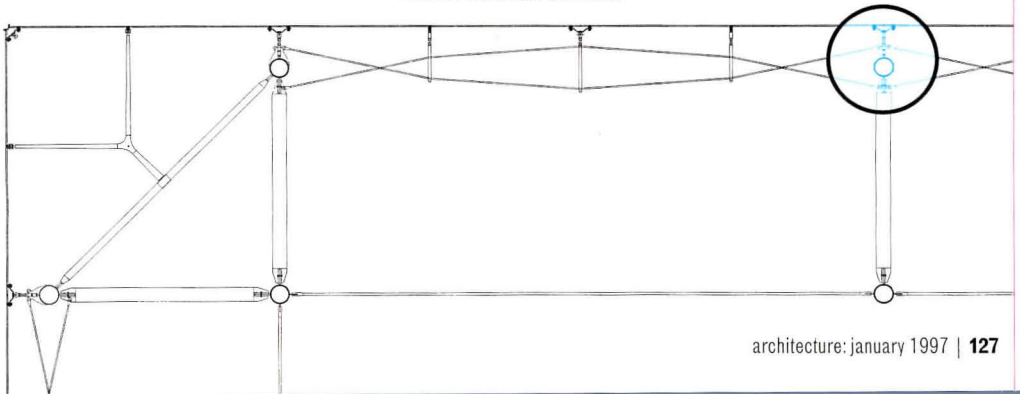
1. 8-inch-diameter painted steel pipe vertical chord of truss
2. Cast stainless steel bracket with vertically slotted holes for adjustment
3. Slotted connection for adjustment for tolerance in structural steel parallel to plane of glass
4. 3/8-inch high-strength stainless steel wind truss tension rod
5. Machined stainless steel clevis connection for adjustment and pretensioning
6. Concealed threaded adjustment for tolerence in structural steel perpendicular to the plane of glass
7. 3/4-inch-diameter stainless steel dead load hanger rod
8. Machined stainless steel node
9. Four point cast stainless steel spider fitting
10. Flush countersunk machined stainless steel glass bolt
11. 1/2-inch silicone sealant joint
12. 1/2-inch clear monolithic tempered glass



Plan of curtain wall assembly

Plan of enclosure at corner

Stainless steel struts reinforce corner to counter tensile force of horizontal trusses.



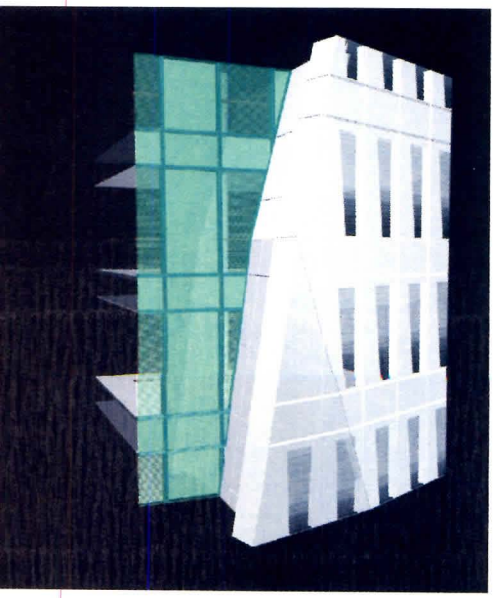
LVMH Tower

New York City

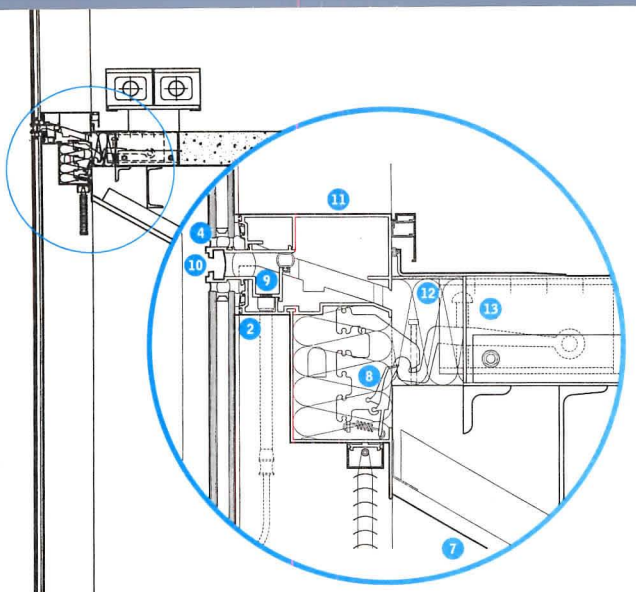
The North American headquarters for LVMH Moët Hennessy Louis Vuitton is sandwiched on a slender site in midtown Manhattan. The 65-foot-wide facade layers, folds, and angles glass planes to distinguish individual sections, including a blue, gemlike volume positioned at the 11th floor that architect Christian de Portzamparc calls the "heart of the flower," and the "magic room," a transparent conference room at the top of the 23-story tower.

Because the restrictive urban site prohibits field assembly, the 40,500-square-foot curtain wall will be entirely prefabricated in units that measure 5 feet wide and 12 feet high or 13 feet, 4 inches high. Adjustable anchors fixed to the edge of the floor slabs facilitate rapid installation and accommodate seismic and wind-induced movement of the building frame in all directions.

DESIGN ARCHITECT: Atelier Christian de Portzamparc
ARCHITECT OF RECORD: Hillier/Eggers Architects
CURTAIN WALL CONSULTANT: R.A. Heintges Architects Consultants
CURTAIN WALL MANUFACTURER: GlassAlum International Corporation



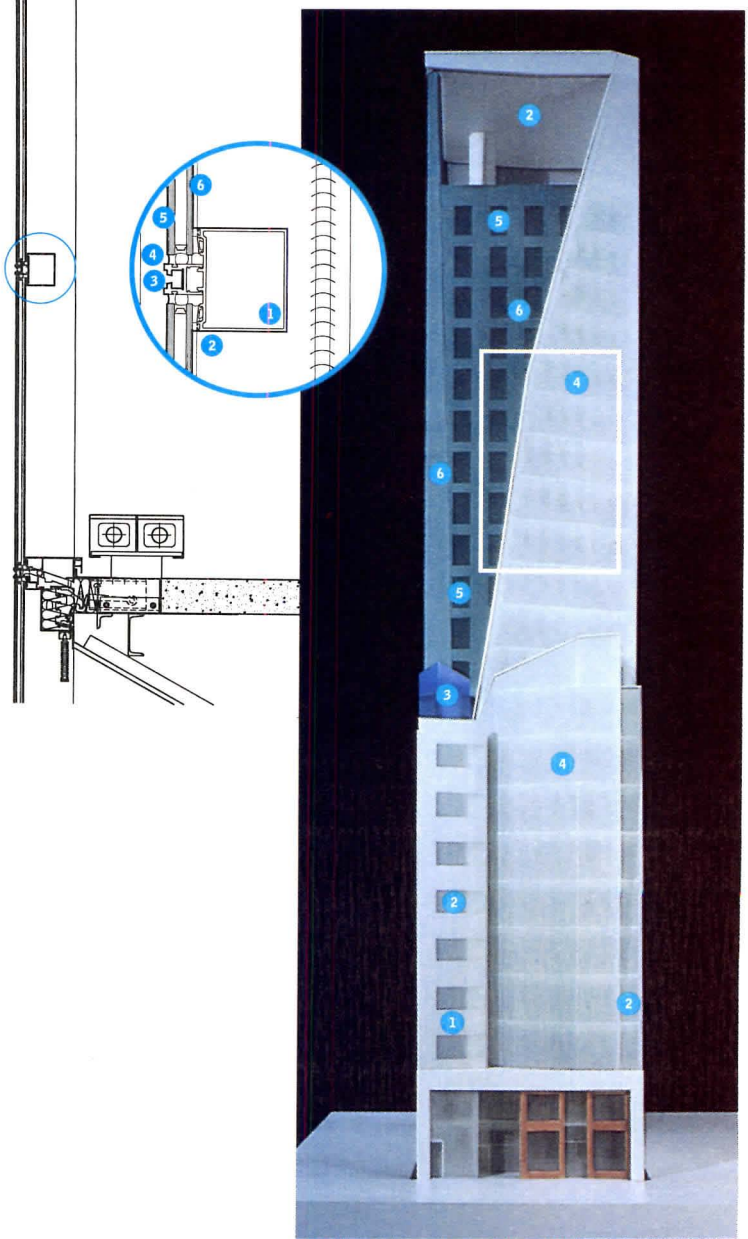
Floor-to-floor glass requires additional perimeter sprinklers and tempered glass.



Typical insulated glass unit consists of 5/16-inch-thick outer sheet and 1/4-inch-thick inner sheet, heat strengthened or fully tempered as required, and separated by 1/2-inch air space.

Details

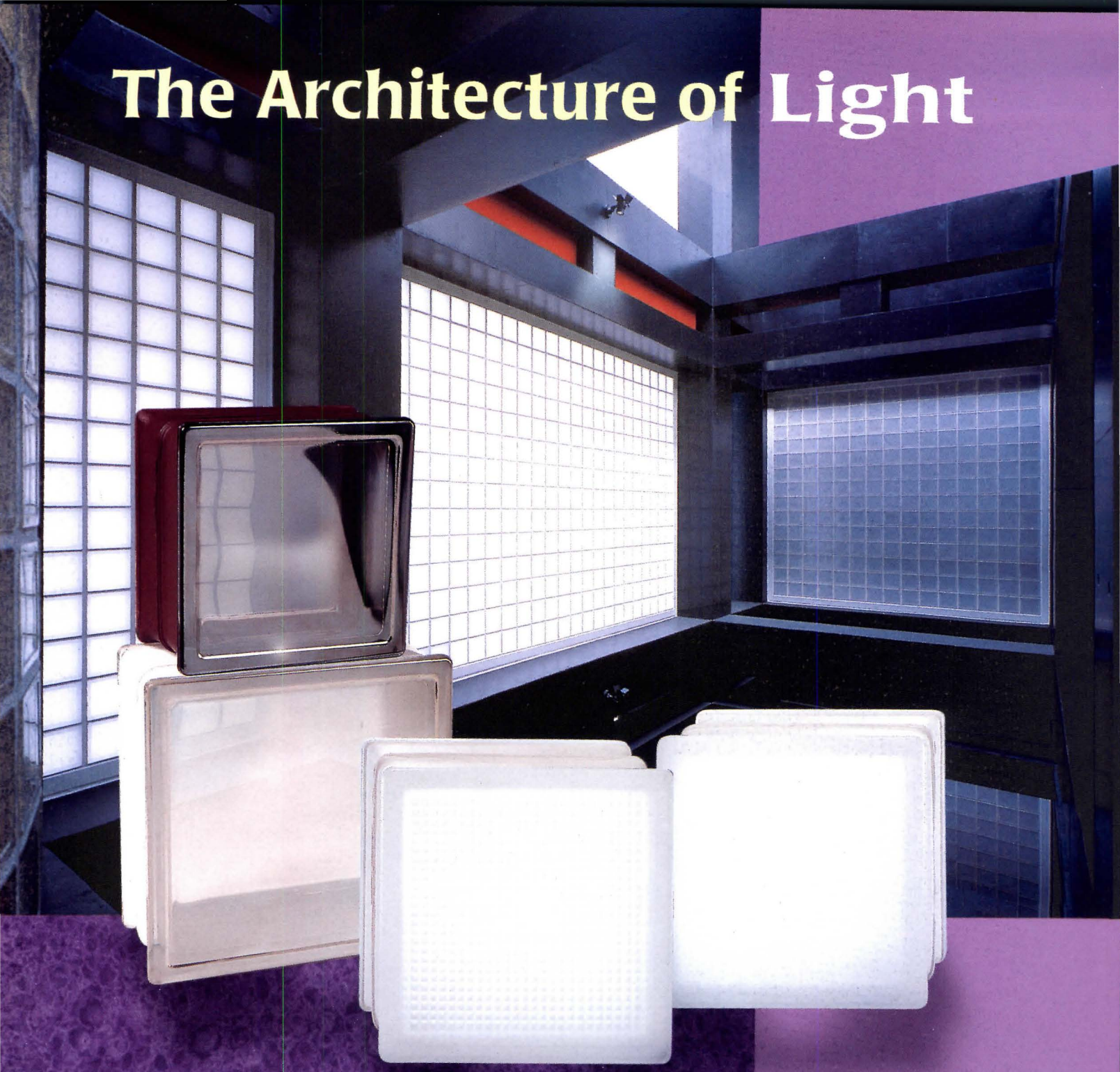
1. Extruded aluminum rail
2. Structural silicone
3. Extruded aluminum fin
4. *Silicone sealant*
5. 5/16-inch outer glass panel
6. 1/4-inch inner glass panel
7. Gypsum board soffit
8. Extruded aluminum frame hook
9. Extruded aluminum subsill
10. Dynamic stack joint
11. Extruded aluminum sill
12. Mineral fiber insulation
13. Aluminum anchor insert



Facade

1. 5/16-inch clear spandrel panel of translucent, sandblasted glass; metal shadow box behind glass
2. 5/16-inch heat-strengthened, clear outer glass panel; 1/4-inch clear inner glass panel with low-e coating
3. 1/4-inch heat-strengthened, blue-tinted outer glass panel; 1/4-inch clear inner glass panel with low-e coating
4. 5/16-inch heat-strengthened, low-iron outer glass panel with translucent, sandblasted pattern; 1/4-inch fully tempered, clear inner glass panel
5. 5/16-inch heat-strengthened, green outer glass panel with white ceramic frit dot pattern; 1/4-inch clear inner glass panel with low-e coating
6. 5/16-inch heat-strengthened, monolithic green spandrel glass with white ceramic frit dot pattern; metal shadow box behind glass

The Architecture of Light



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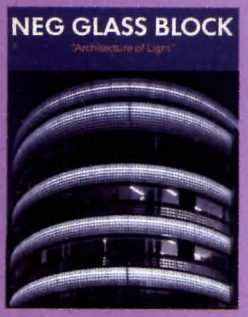


NEG

Circle 144 on information card

Computers

The New Registration Exam

Starting next month, wannabe architects will cast off pencils and paper for computer terminals and icons. How user-friendly is this new test?

By Nancy B. Solomon

Big changes are coming to the Architect Registration Examination. Next month, candidates will no longer have to wait for the scheduled week of examinations and sit with hundreds of others for four consecutive days to take all nine divisions of the exam. Never again will they blacken boxes marked A, B, C, or D, with no. 2 pencils. Nor will a prospective architect ever panic as the sound of ripping trace first rivets through the great hall's desperate silence, indicating that some time-efficient candidate has read the program for the building design exam and has begun to sketch. After decades of pencil-and-paper testing, the exam has become computerized. And in the process, much about the test has changed, from its length and types of questions to schedule and location.

The new exam, like its predecessor, has been developed by the Washington, D.C.-based National Council of Architectural Registration Boards (NCARB) and its Canadian counterpart, the Committee of Canadian Architectural Councils (CCAC), in Ottawa. The two nonprofit organizations decided to automate the professional licensing exam based on research conducted by Princeton-based Educational Testing Service (ETS) in the mid-1980s. The study revealed that computer technology and new, sophisticated testing formats generate a more comprehensive and efficient exam that more accurately measures a candidate's ability in a shorter period of time than traditional methods. In addition, the automated exam allows for more frequent and flexible testing opportunities, a more relaxed testing environment, faster score reporting, and greater test security.

Variable test length

Like the most recent paper-and-pencil version, the computerized exam will contain nine divisions. Six are made up of multiple-choice questions: Pre-Design, General Structures, *Lateral Forces*, Mechanical & Electrical Systems, Materials and Methods, and Construction Documents and Services. Three contain problems that must be solved graphically: Site Planning, Building Planning, and Building Technology.

Although the format of the multiple-choice questions is the same, the new computerized rendition will be structured much differently. In the past, all candidates had to answer a fixed number of questions within each division, typical of a traditional linear test. Now, prospective architects may answer a different number of questions, depending on their abilities, in what is called a Computerized Mastery Test (CMT). This type of test, which was developed by ETS, is divided into smaller sections that pose questions representative of the full scope of the division. Each section is designed to be the same length and average difficulty as all others in that division. All divisions have 25 questions per section except for Lateral Forces, which has 15.

All candidates begin a division by taking a base test, consisting of two sections, which the computer then scores. If the candidate has clearly passed or failed the base test, the division exam is over. If his or her performance falls within an ambiguous

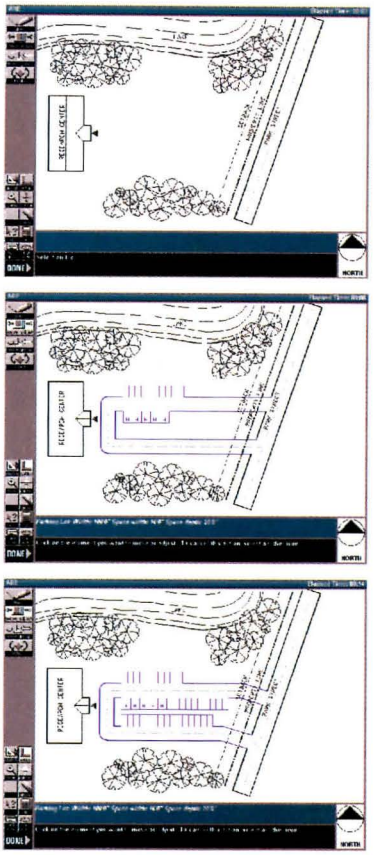
zone, the computer presents the candidate with another test section and then regrades. After the base test and no more than three additional sections are scored, a definitive pass or fail is determined by the computer.

More accurate methods

The CMT format is designed to clearly separate those candidates who pass from those who fail, avoiding a murky middle ground around the so-called cut point that often exists in other test formats. It can make these clear distinctions because of the quality of its questions, all of which have been pretested in either previous paper or computerized exams. Included in the tests are only those questions that are of average difficulty, cannot be easily solved by guessing, and discriminate well between those who have passed and those who have failed previous exams. Embedded within each base test are 10 additional pretest questions that do not count toward a candidate's score but will be evaluated for possible use in future tests.

The Architect Registration Exam has long included two divisions that require graphic solutions: Building Design and Site Design. For many years Building Design was presented as one building design problem that had to be solved in 12 hours, requiring candidates to produce two floor plans, one section, and one or two elevations. Although many architect hopefuls assumed that the old 12-hour paper-and-pencil building design exam was meant to measure their ability to design good buildings, it was actually developed to assess their ability to prevent life-safety problems. To more accurately and directly measure these issues, exam developers divided the single building design problem into a series of smaller, more specific vignettes in 1994.

The graphic portions of the computer exam continue this format. The Building Planning division will consist of three vignettes: Block Diagram, Schematic Design, and Interior Layout. The Building Technology division will include six



Sequential development of a solution to a hypothetical parking vignette from the Site Planning division. Work screen at top shows candidate's given parameters.

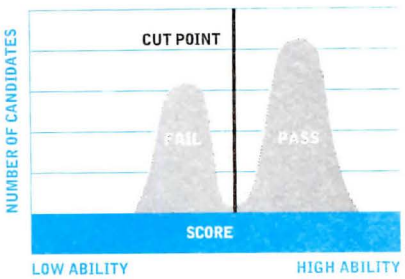
vignettes: Building Section, Roof Plan, Structural Layout, Mechanical and Electrical Plan, Accessibility (Ramp), and Stair Design. And Site Planning will have six vignettes: Site Design, Site Zoning, Parking, Site Analysis, Site Section, and Site Grading.

Like the multiple-choice questions, the graphic vignettes are graded by computer. A scoring algorithm analyzes each and every decision made by the candidate for each task within a vignette, determining whether it is acceptable, indeterminant, or unacceptable. For example, to determine whether or not a candidate can position a toilet in a bathroom planning vignette, an acceptable mark is given for placing the back of the fixture within 3 inches of a plumbing wall, an inconclusive mark for placing it either 1 inch to the wall or 3 to 6 inches away, and an unacceptable for all other positions. Similar criteria would be established for the relationship between the center line of the toilet and a side wall, and for front clearance. Each decision is weighted by importance. The computer then tallies up the weighted marks for this and all other measurable tasks—such as the placement of a sink and bathtub—to determine if the candidate has passed that particular vignette.

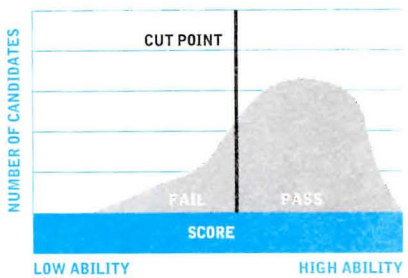
Year-round testing

The timing of the test can be tailored to a candidate's needs. Once deemed eligible by their respective states' registration boards, candidates can contact NCARB or any one of 212 computer-based test centers administered in the U.S. and Canada by Baltimore-based Sylvan Learning Systems to schedule a convenient time, year-round, to take one or more divisions of the exam. For security purposes, candidates take different versions of the same tests.

Candidates scheduled for the graphic divisions are sent a Windows-based disk or CD-ROM that contains a basic tutorial describing the drawing tools plus a series of practice vignettes for all three graphic divi-

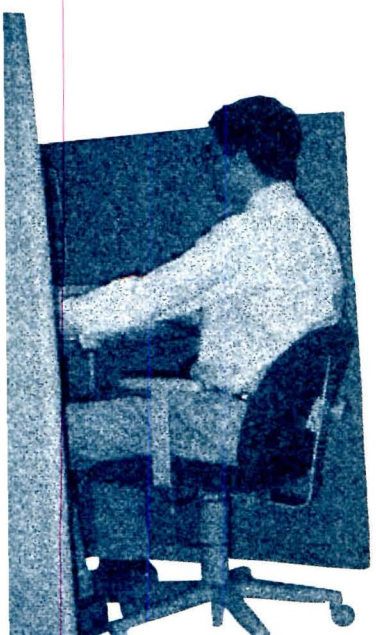


Computerized mastery test



Fixed length paper-and-pencil test

Low dip at cut point in CMT (top) indicates it discriminates between passing and failing candidates better than pencil-and-paper test (above).



sions. The same tutorial—but not the sample vignettes—will be available for review at the center before taking the actual exam.

The new exam assumes no previous computer experience. In fact, the tutorial begins by explaining how to click and drag various icons on a screen with a mouse. Manipulation of a mouse is virtually all that is required for the entire exam, multiple-choice and graphic divisions alike. The only exception to this is the space bar, which reveals vignette directions, program, appropriate codes, and reference drawings as required. Exam developers created a generic set of instructions to operate the drafting routines, rather than select one proprietary CAD software, so as not to favor those candidates with a particular expertise.

Mouse-driven operations

In the graphic division, the mouse operates various tools displayed in a vertical menu bar within the left margin of the work screen. The software offers tools for every conceivable function—drawing lines and polygons; measuring distances, areas, and angles; rotating spaces; erasing; and zooming in on details; to name a few.

Some of these automated features clearly reduce the administrative burdens of the exam. For example, in the Schematic Design vignette, activation of the drawing tool will generate a list of program spaces on the screen. The candidate clicks a particular space—for example, office 1—and indicates whether this is to be rectangular or L-shaped. The room list then disappears so the candidate can locate the room on plan. With a click of the mouse, the room is automatically labeled office 1. The next time the drawing tool is activated, office 1 will appear grayed out on the program list, reminding the candidate that this room has already been placed. In this way, candidates are not likely to forget part of the program—a serious error in the old pencil-and-paper exam. And they need not use up precious time for labeling.

The number and function of tools at the top of the vertical menu bar vary among vignettes, although some of the names are the same—a point of possible confusion, especially for a nervous test taker. All candidates, therefore, would be wise to study the tutorial and practice vignettes carefully before coming to the exam to fully understand the capability available for each type of problem.

In addition, several field testers familiar with more refined proprietary CAD packages complained about the cumbersome nature of the exam's software. For example, to rotate one or more objects in some vignettes, a candidate must click on the rotate command, click on the elements in question, and then click on the command a second time before tugging on a temporary guideline positioned at the centroid of the objects. Fortunately, continuous notes at the bottom of the screen remind a candidate how to apply the tool currently in use and give the status of a highlighted object on the plan.

Room for improvement

The computer controls may need a little tweaking. And the setting for the new test has certainly lost the aura of the old paper-and-pencil exam, which required the grand halls of major convention centers and universities to accommodate throngs of anxious candidates. The new exam is typically administered to no more than a handful of people, if that many, in a nondescript suite tucked within a suburban office park. Nonetheless, the computerized exam focuses more sharply on the technical subjects it was always meant to test while reducing the amount of time a candidate is diverted by drafting and "bookkeeping" tasks. The test itself will be put to the test on February 24, 1997, when candidates sit down to take the first computerized exam.

For more information about the computerized exam, call the National Council of Architectural Registration Boards at (202) 783-6500.

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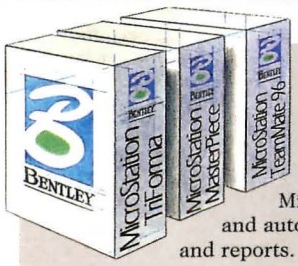

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Preservation Technology

Cast Iron Reconfigured

A warehouse facade is salvaged, reshaped, and refurbished to enclose galleries for a Baltimore museum.

By Edward Gunts

The ornate facade of the Morton K. Blaustein City Life Exhibition Center is crafted from hundreds of cast-iron pieces salvaged from a local warehouse built in 1869, when Baltimore was the self-proclaimed "Cast Iron Capital of the World." Carefully dismantled and stored after the warehouse was razed in 1977, the parts range from giant fluted columns to tiny acanthus leaves. The five-bay facade was not simply reconstructed in its original form, however, but folded to fit into its site as the centerpiece of a five-museum complex devoted to Baltimore history.

The four-story, 30,000-square-foot exhibition center houses flexible galleries dedicated to the social and cultural history of Baltimore. (Nearby attractions include a restored 1821 mansion, a replica of an 1840 worker's rowhouse, the Center for Urban Archaeology, and a shot tower where cannonballs were made for the War of 1812.) With its dramatic cast-iron facade, however, the City Life Exhibition Center is also a case study in how to save historic landmarks that cannot remain in their original locations, and demonstrates how history museums can use architecture to help tell their story. As an authentic remnant of Baltimore's architectural heritage—made in Baltimore and representing a trade that flourished in the city—the cast-iron facade turned out to be the perfect frontispiece for an institution that celebrates local culture.

Built on the eastern edge of downtown Baltimore, the $5.8 million exhibition center contains three levels of galleries and one level of meeting space. Memory-triggering artifacts include a reconstructed White Tower coffee shop, a collection of vintage neon signs, and neighborhood relics such as painted window screens, Formstone, and white marble steps.

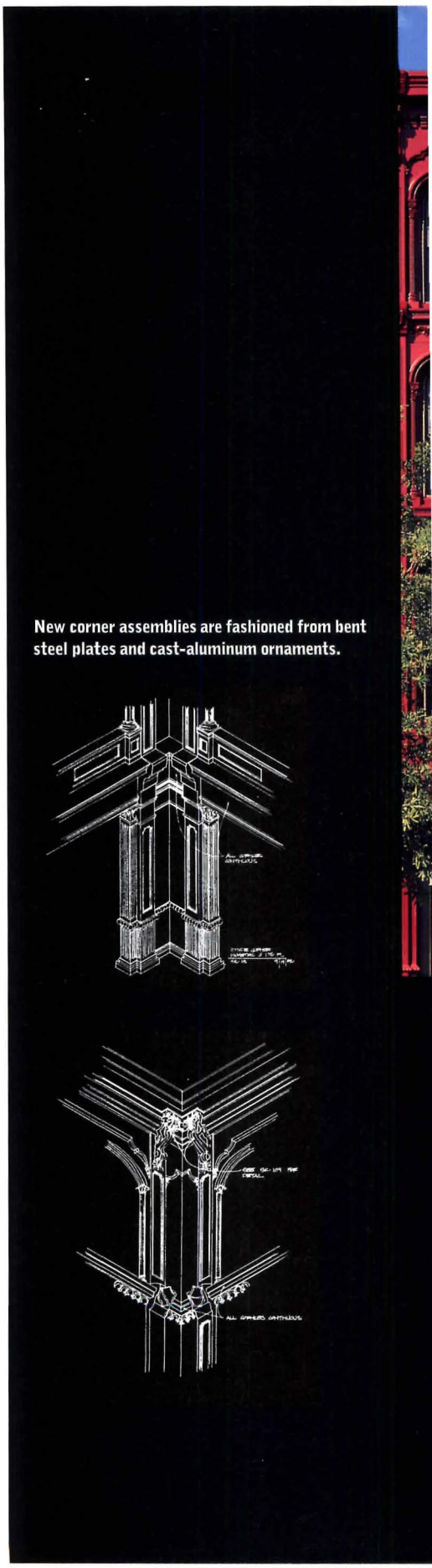
The cast-iron facade was salvaged from the G. Fava Fruit Company Building, one of hundreds of 19th-century buildings that were razed in downtown Baltimore to make way for redevelopment. The job of incorporating the cast-iron artifact into the new exhibition center fell to Peterson and Brickbauer, a highly respected local firm that has always worked in a Modernist tradition. The museum also hired Historical Arts and Castings of Salt Lake City to restore the facade and fabricate new pieces. Ziger/Snead Architects of Baltimore worked with Peterson and Brickbauer during construction.

From the start, the architects were concerned that the five-bay facade, 58 feet high and 128 feet long, would overwhelm the smaller buildings nearby. So instead of re-erecting it in one plane as it was built originally, they reconfigured it as three stepped bays, each measuring roughly 24 feet wide, to decrease the apparent scale of the new building while creating a scenographic closure to the museum complex.

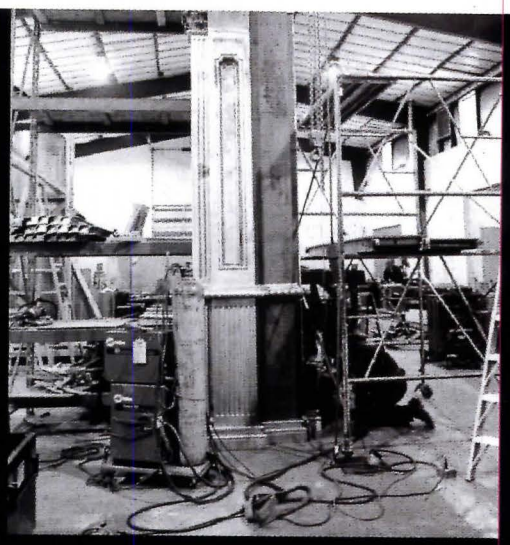
To prepare the dismantled facade for reconstruction, contractors sent the cast-iron pieces by train to Historical Arts and Castings in Salt Lake City. There, the specialists took inventory; inspected each piece for flaws, fractures, and breaks to determine which ones were usable; cleaned and sandblasted the salvageable pieces to remove rust and old paint; and painted them with a zinc-rich primer in preparation for shipment to the construction site back in Baltimore. Once in the field, the pieces were touched up with primer, caulked, and finished in a coat of paint. "A cast-iron facade is like an Erector Set," notes Robert Baird, vice president of Historical Arts and Castings. "Our whole philosophy was reusing everything that was salvageable."

One of the most impressive aspects of the reconstruction is the artful way in which the original cast iron is supplemented by new replacement pieces. Since only 30 to 40 percent of the original pieces could be recycled, Peterson and Brickbauer designed new components to replace those that had been lost or broken over the years. From measurements of the pieces that survived, the architects generated computer drawings for the replacement pieces.

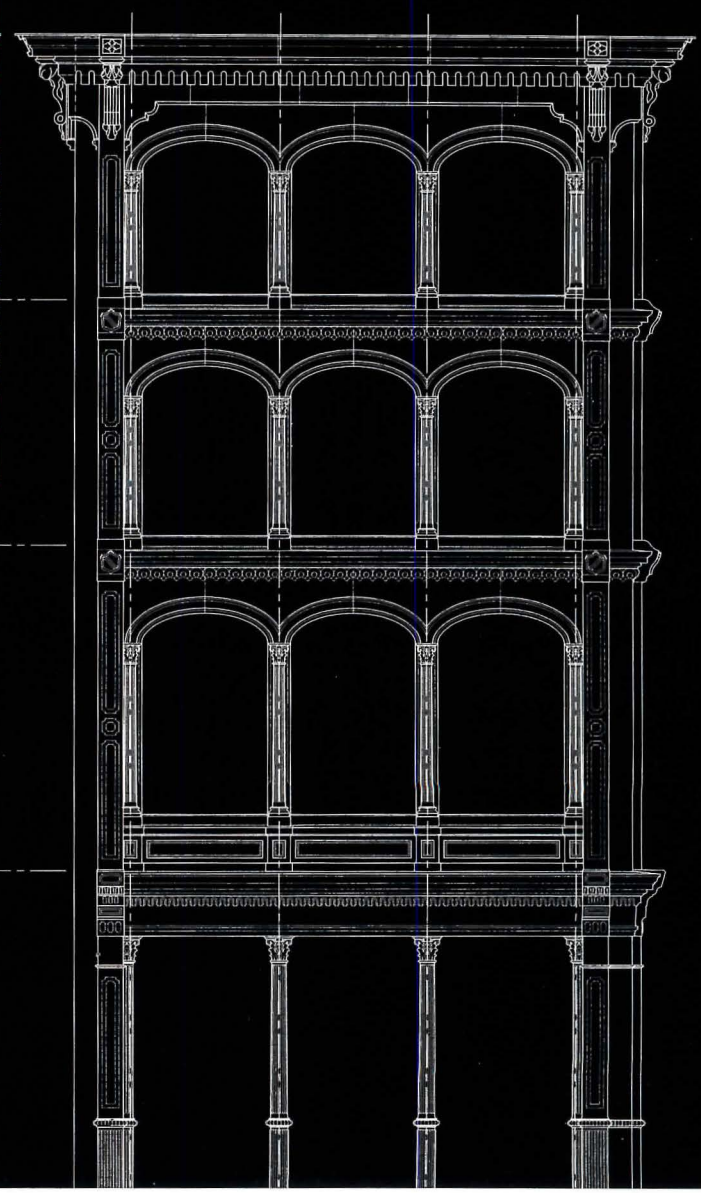
From those drawings, they created wood and plastic patterns, and cast the new pieces in aluminum by a traditional process



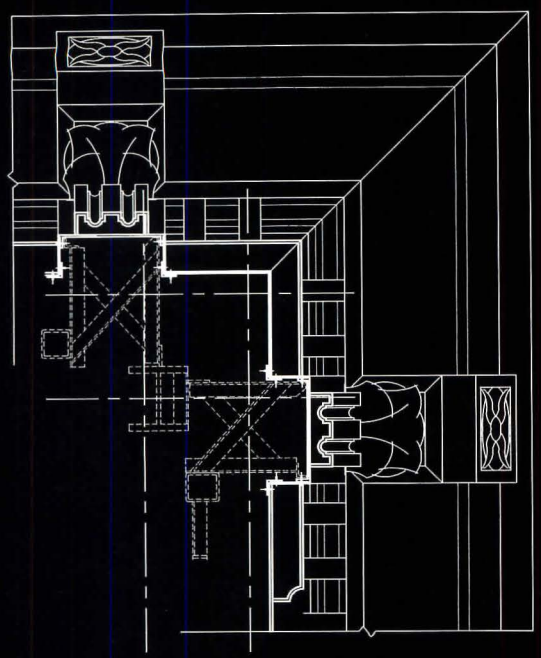
New corner assemblies are fashioned from bent steel plates and cast-aluminum ornaments.

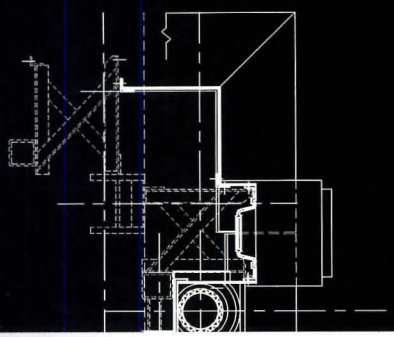


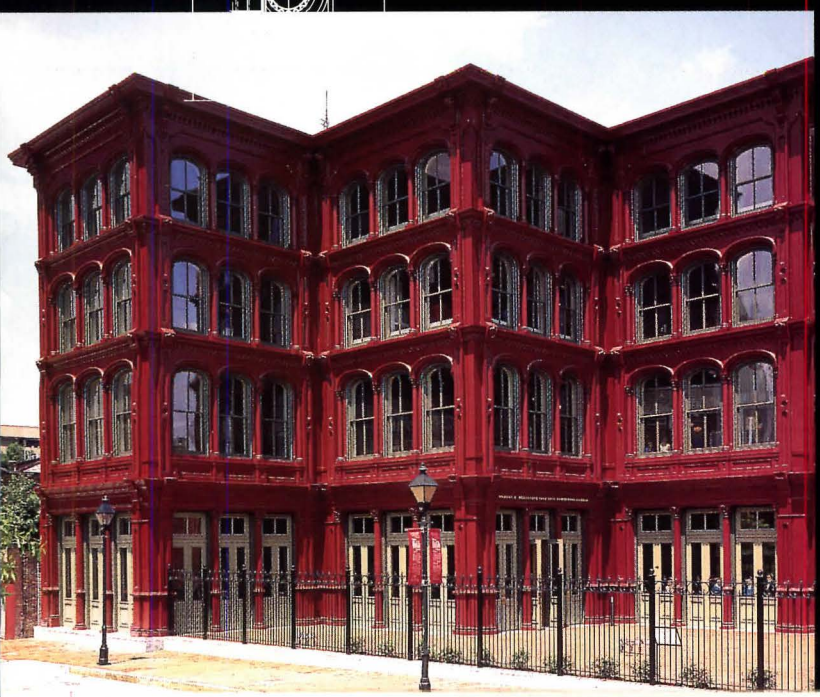
New facade elements were cast by Historical Arts and Castings in Salt Lake City.

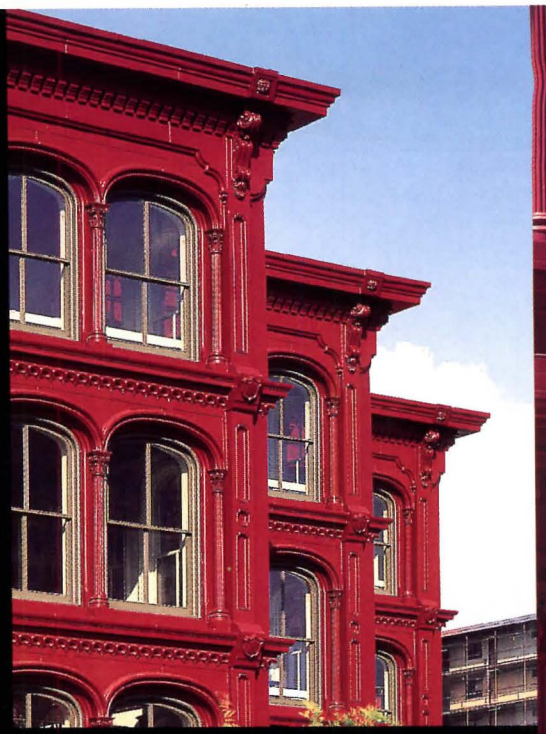


Five-bay, cast-iron facade of 1869 G. Fava Fruit Company Building (below) was reassembled into stepped configuration (above).



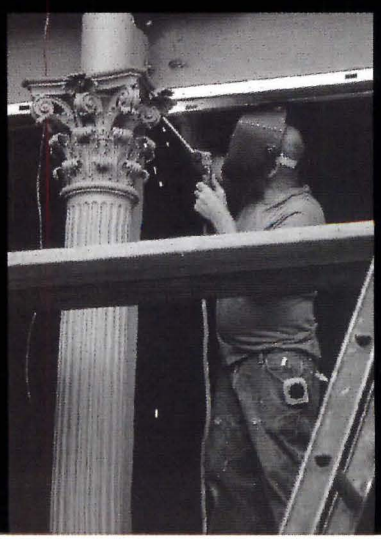




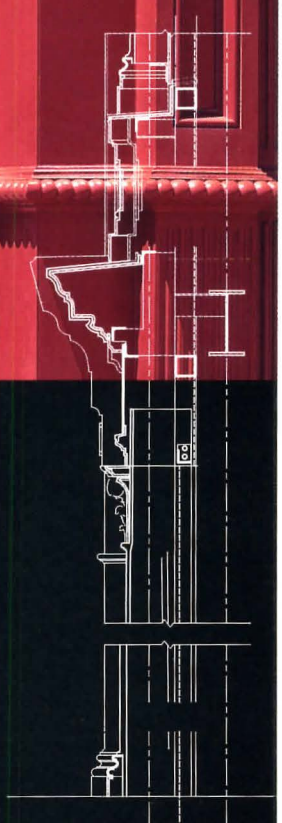


Historic cast-iron facade is reconfigured to enclose stepped volume on narrow site. Industrial-grade epoxy paint conceals intersection of original cast-iron and new cast-aluminum components.

Steel fabricator welds column to steel armature of new building.



New cast-aluminum spandrel panels between first and second floors raise ground-floor ceiling height to 16 feet to accommodate interior installations and traveling exhibitions.



Sections (right) reveal cast-iron and cast-aluminum ornament fastened with stainless steel clips and welded to self-supporting steel armature

in which hot metal is poured into sand and bentonite molds, which are removed after the metal cools.

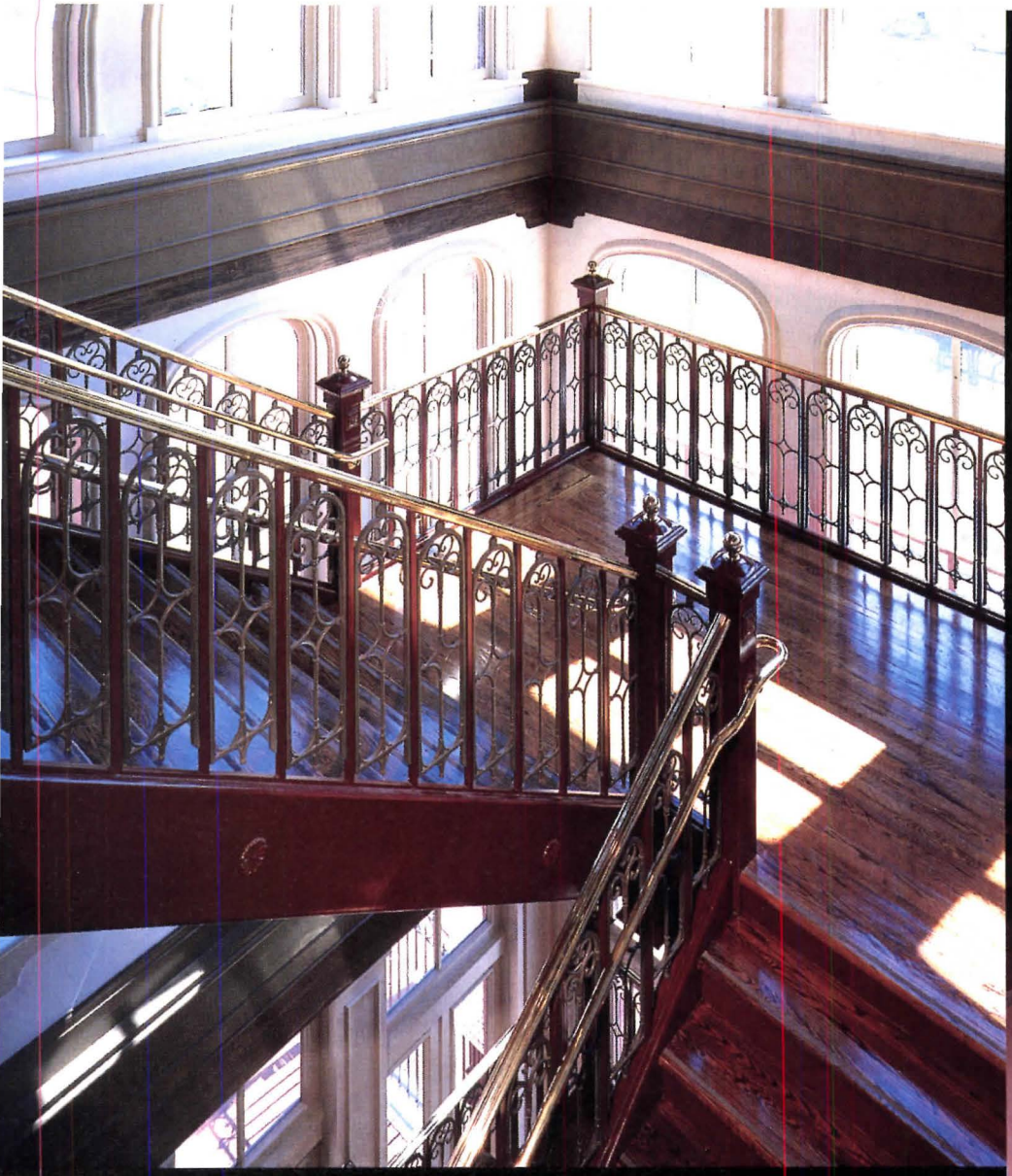
As part of the process, the architects designed new plates to join the corners of the stepped-back facade, which weren't part of the flat-fronted warehouse. "We had to think the way the original craftsmen did and figure out the details," architect Charles Brickbauer explains. To save money, the new corner pieces were fashioned from cast aluminum rather than cast iron, and old and new are painted one color so no one can tell the difference.

Both old and new pieces were tied laterally to a steel frame, designed to be self-supporting. Affixed to the frame by stainless steel fasteners, the cast-iron and cast-aluminum pieces were separated where necessary by a Teflon membrane that prevents rusting and allows the different metals to expand and contract at their own rates. The only way to tell what is aluminum and what is iron is to hold a magnet up to each piece. If it sticks, it's iron; if it doesn't, it's aluminum.

Although cast-iron buildings often were painted to resemble stone, Peterson and Brickbauer chose an industrial-grade epoxy paint in a striking shade of barn red. They wanted a color close in hue to the center's brick side walls so the building appears as a unified whole.

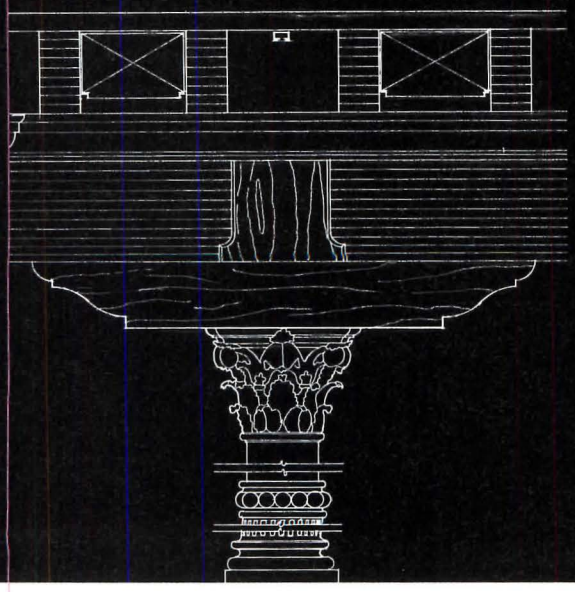
Behind the cast-iron facade, both the structure and the interior reinterpret the original Fava building. The basic structure is perimeter bearing walls, with steel interior columns. The floor is made of laminated wood beams, laminated wood joists, and tongue and groove planks. Window openings were determined by the exterior cast-iron members, and floor-to-ceiling heights range from to 17 feet on the first two levels to 9 feet on the top level. Interior steel columns are encased in cast-aluminum bases and topped with Corinthian capitals that echo the exterior details. They support heavy timber beams and joists, dimensioned to conceal lighting and mechanical equipment.

According to museum administrators, the reconstruction marks the first time that a 19th-century cast-iron facade has been dismantled, put in storage, and then attached to a contemporary building in another location. The result is a three-dimensional billboard for history, a work of architecture that not only calls attention to the museum but gives passersby a preview of what's inside.

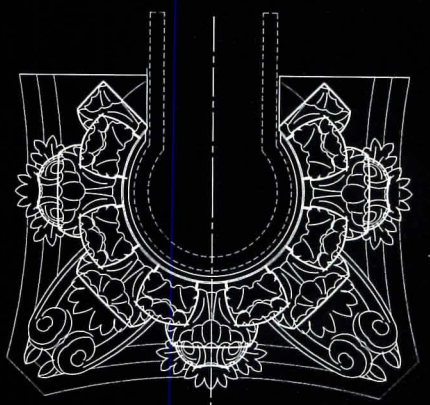


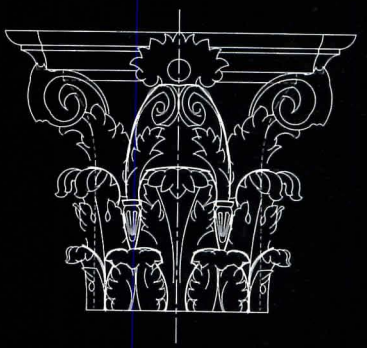
Grand staircase incorporates cast-aluminum balustrade fabricated by Baltimore ironworker Paul Peranio.

Interior steel columns are encased by cast-aluminum wainscoting and Corinthian capitals. They are topped by heavy timber beams and joists to recall detailing of a Venetian palazzo and exposed wood structure of original warehouse. Beams measuring 13 inches wide by 24 inches deep conceal lighting, electrical wiring, sprinklers, and ductwork between members.



Baltimore's last surviving White Tower coffee shop was dismantled and donated to the City Life Exhibition Center, where the restaurant's metal-paneled structure stands re-erected on the second floor.





New aluminum capitals were cast in sand and bentonite molds in Salt Lake City and shipped to Baltimore site.

ARCHITECTS: Peterson and Brickbauer; Ziger/Snead
ENGINEERS: Whitney, Bailey, Cox, & Magnani (civil/structural); Century Engineering (mechanical/electrical)
CONSTRUCTION MANAGER: Struever Brothers Eccles & Rouse, Paul Webster (project manager)
CONSULTANTS: Historical Arts & Castings (cast-iron facade restoration); Richard C. Schaefer (perspective renderings)
PHOTOGRAPHER: Maxwell Mackenzie

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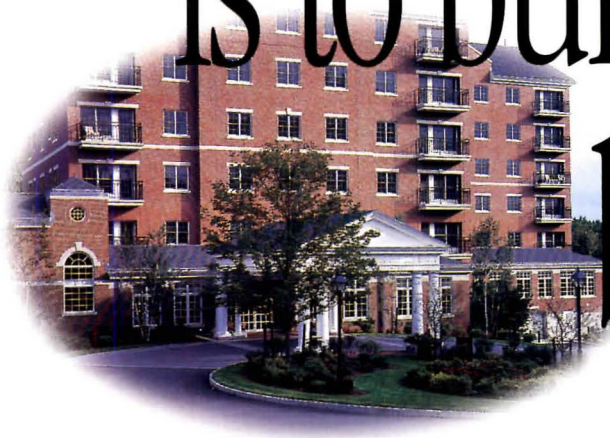

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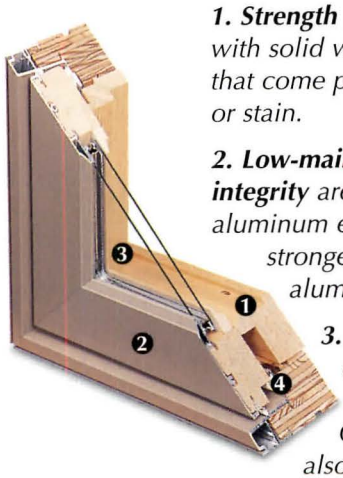

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***4. Air and water infiltration are virtually eliminated** with high-performance weatherstripping.*

***Years of trouble-free performance and effortless operation** are ensured with high-quality hardware.*

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ARCHITECTURE'S LITERATURE PORTFOLIO

The Literature offered on these pages (with rare exception) are free for the asking. Simply fill out one of the postage paid reader service cards located elsewhere in this issue, circle the appropriate numbers and drop it in the mail.

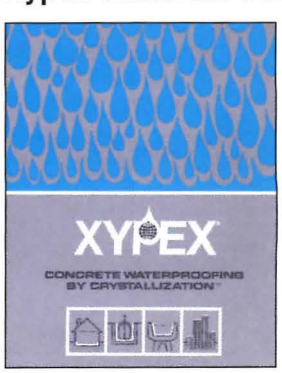
Buckingham-Virginia Slate

Buckingham-Virginia Slate has been sheltering America for over two centuries. As a roofing material, it is prized for its high mica content, natural cleft and texture, as well as its non-fading and distinctive handmade quality. Because of it's permanence and natural beauty, Buckingham-Virginia Slate was specified by Thomas Jefferson in the 1800's and remains today the roofing choice of eminent architects. For information call 1-800-235-8921, or write Buckingham-Virginia Slate Corp., P.O. Box 8, Arvonia, VA 23004.
Circle 14.

Raymond Enkeboll Designs

Raymond Enkeboll Designs. Manufactures an extensive array of Architectural elements carved in solid woods. A Color Product Catalog with over 400 elements, shows a selection of capitals, corbels, moldings, onlays, panels, etc. A Design Portfolio illustrates product use in Kitchens, Baths, Bars, Mantels, Libraries & more. Stocked in Maple and Red Oak, available for immediate delivery. Catalog set - $20. Visa/MC welcome. Complimentary brochures available. Raymond Enkeboll Designs, 16506 Avalon Blvd. Carson, CA 90746. Phone: (310) 532-1400, Fax: (310) 532-2042.
Circle 18.

Xypex Chemical Corporation



Concrete waterproofing by crystalization. Although applied as a slurry coating, Xypex is a chemical treatment which waterproofs by penetrating the concrete with a crystalline formation which 'plugs' the pores of the structure preventing water seepage. Xypex is ideal for use on the 'inside' of wet underground structures. Xypex Chemical Corporation, 604-273-5265.
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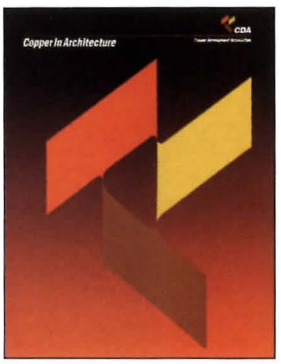
Copper Development Association



The Copper in Architecture Handbook. More information than ever assembled before on the copper metals in architecture and building construction. Contains designs, details and specifications in hard copy and on CAD diskettes. Provides abundant, practical information on physical and mechanical properties, historical applications. Includes maintenance procedures, copper product sources, fabricator and installer lists. Copper Development Association Handbook: $85.00. Disks (4): $40.00. Copper Development Association; 260 Madison Avenue, New York, NY 10016, 800-CDA-DATA 212-251-7200.
Circle 16.

Openings

TOTAL DOOR®: THE OPENINGS® Solution—TOTAL DOOR® is a fire rated door assembly that includes all hardware. Pairs do not require coordinators, vertical rods, astragals, flush bolts or floor strikes. Will retrofit to any frame. Meets all codes and ADA. Wood and metal faces available to 3 hours. Lifetime limited warranty on locks and panics.
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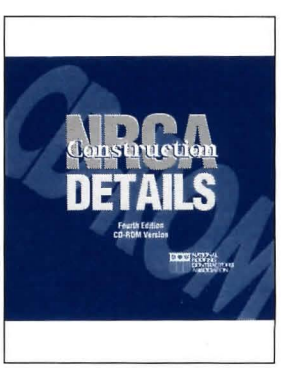
NRCA



NRCA Construction Details on CD-ROM. This disk contains more than 300 built-up roofing, modified bitumen, thermoplastic, thermoset, architectural and structural metal, sprayed polyurethane foam, and waterproofing construction details. With compatible CADD software, you can modify the details for your specific projects. The disk contains both drawing .DWG and drawing exchange .DXF files for use with AutoCad and other CADD software.
Circle 24.

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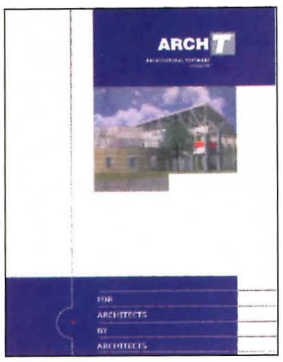
Circle 150 on information card

Ketiv Technologies, Inc.



ArchT® Architectural Software For AutoCAD®—Ketiv Technologies, Inc. (Portland, OR) announces ArchT architectural software for architects using AutoCAD Release 13. ArchT provides 2D architectural documents with the flexibility to get 3D models, reports and rendered images. ArchT includes an extensive link to Timberline Corporation's Precision Estimating™ series. ArchT leads the field in architectural technology, productivity, and ease-of-use.
Circle 26.

Certainteed Corporation

New Cedar Impressions® Half-Round Shingles from Certainteed—Molded directly from hand selected cedar, both Cedar Impressions® Half-Round and Perfection shingles offer new flexibility for traditional and imaginative designs. Low Maintenance with high-performance features ensure easy installation, guaranteed durability, and industry-leading performance —withstanding windload pressures equal to 180 mph. Call 800-233-8990.
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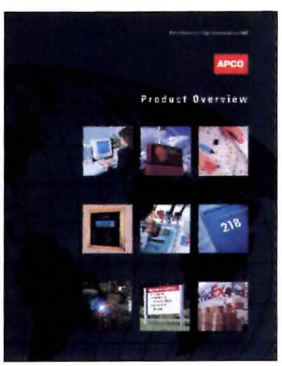
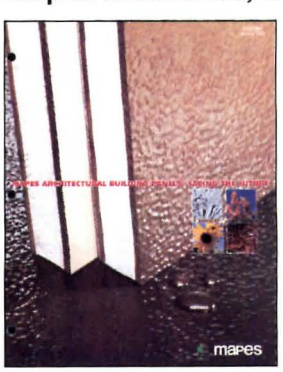
APCO



As a leader in the sign industry for 30 years, APCO offers the expertise required to meet a variety of wayfinding and identification needs. Our commitment to excellence and product innovation has yielded a diverse product line including interior and exterior sign systems, displays, directories, ADA compliant signs, and desktop sign-making software. Professional services such as Sign Planning, ADA Consultation, Project Management, and Factory Installation are also available. APCO, 388 Grant Street, SE, Atlanta, GA 30312: (404) 688-9000.
Circle 34.

Mapes Industries, Inc.

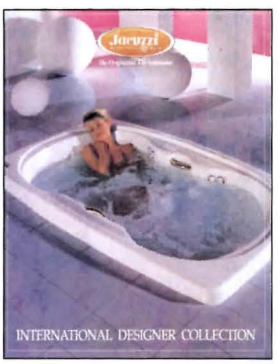


LAMINATED METAL PANELS—Mapes Industries manufactures a complete line of laminated metal faced panels. Applications include window retrofit, curtainwall infill, soffits, and veneer applications. All architectural finishes are available including porcelain on aluminum with a 25 year finish warranty. Panel thickness ranges from 1/4" up to 4" with R-values up to 27.00. For a free catalog, sample and Design Guide, please call 800-228-2391 or Fax 800-737-6756.
Circle 38.

New Alta Shelving by BTJ/Scania

Scania of Sweden now presents the smartest new shelving for offices and libraries: ALTA. Designed in Sweden by Bengt Weberg. Butcher block ends with stripe accents to match your palette. Fax, e-mail or call for a brochure. FAX 800-747-6740, e-mail scania@aol.com, phone 1-800-3SCANIA.
Circle 28.

Jacuzzi Whirlpool Bath



JACUZZI WHIRLPOOL BATH—presents The 1996 International Designer Collection of whirlpool baths, faucetry and The J-Dream™ Family of shower systems. This full-color catalog features beautifully styled products, integrating the most innovative luxury features. For more information please call 1-800-678-6889. *Catalog free of charge.*
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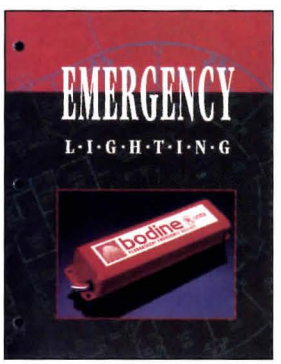
Bodine Company



Emergency Lighting—Unobtrusive emergency lighting. The Bodine Company's manufactures a complete line of tubular and compact fluorescent emergency ballasts for a variety of fluorescent fixtures. Products exceed NEC and LSC requirements, and are available for most commercial, industrial and institutional applications. Ideal for retrofit, modernization and new construction. The Bodine Company, Inc., 236 Mt. Pleasant Road, P.O. Box 460, Collierville, TN 38027-0460 (800) 223-5728 http://www.bodine.com/
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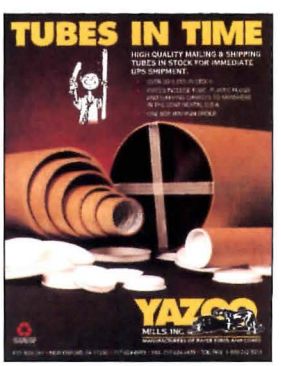
YAZOO MILLS, Inc.



TUBES IN TIME—Need a mailing tube fast for your blue prints, mylar or vellum tracings? Need storage tubes to organize your office? We have mailing and storage tubes in the length and quality you need. Factory direct and immediate shipment. Packed in cartons with end plugs in over 30 sizes. Minimum order is one carton. Call Yazoo Mills, 305 Commerce Street, New Oxford, PA 17350 (800-242-5216.)
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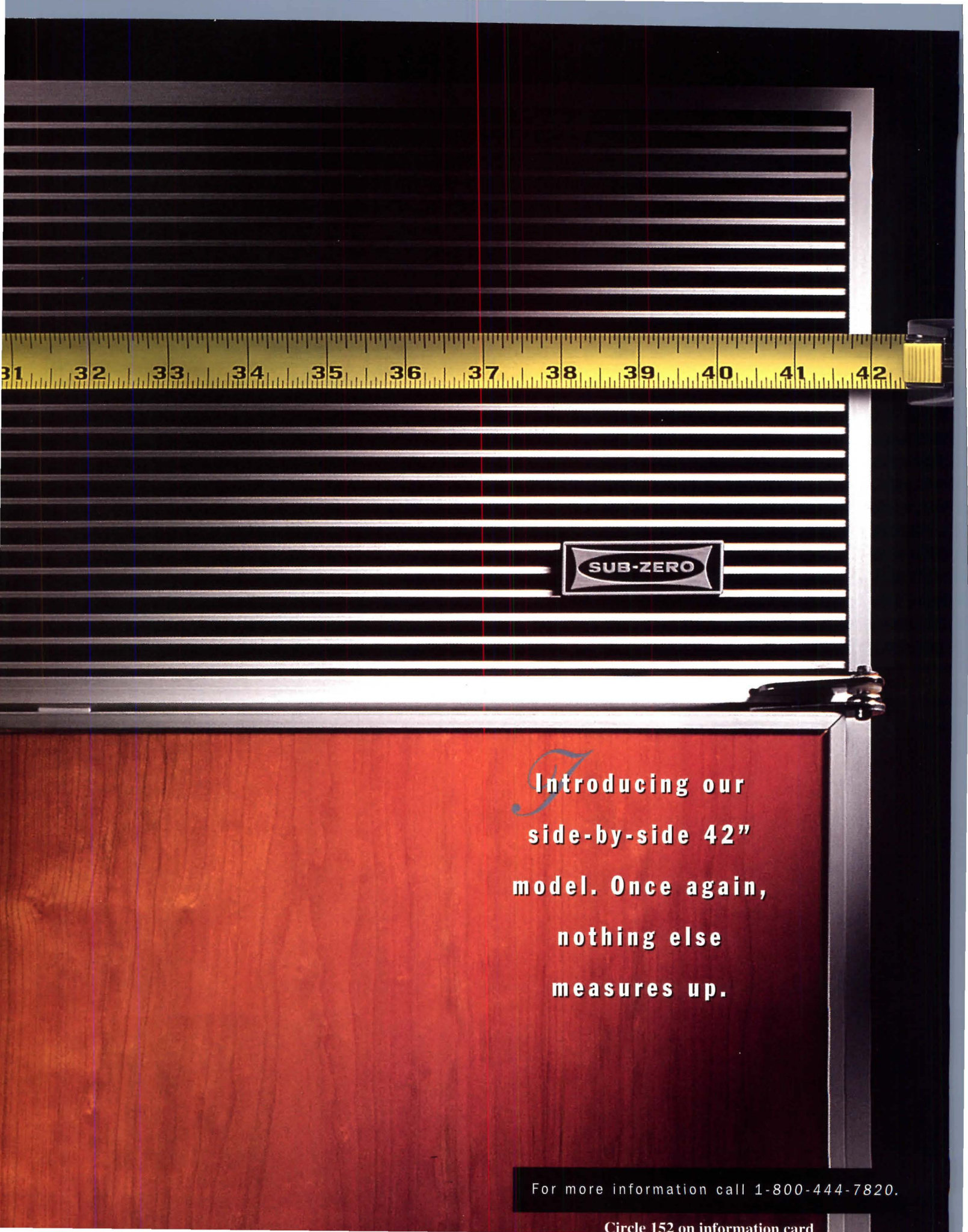
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SUB-ZERO
Introducing our
side-by-side 42"
model. Once again,
nothing else
measures up.
For more information call 1-800-444-7820.
Circle 152 on information card

Heat-N-Glo

Three-Sided Fireplace for Unlimited Installations—Heat-N-Glo introduces model Pier TR, a three-sided direct vent fireplace that can be terminated vertically or horizontally to accommodate nearly any application. The Pier TR is perfect as a room divider, bar, end of counter or a wide variety of creative installation possibilities. As with all Heat-N-Glo fireplaces, the Pier TR can be operated by remote control for the ultimate in convenience.
Circle 42.

Invisible Structures, Inc.

Grasspave² new rolls are sold in nine sizes for fast easy installation 10 m^2 (108 sf) to 125 m^2 (1346 sf). This 100% recycled plastic ring and grid system is a substitute for asphalt surfacing allowing real grass for parking lots, fire lanes, pedestrian areas. Grass low-traffic pavement is very strong, stable, and porous. CADD disks call 800-233-1510 or http://www.grasspave.com
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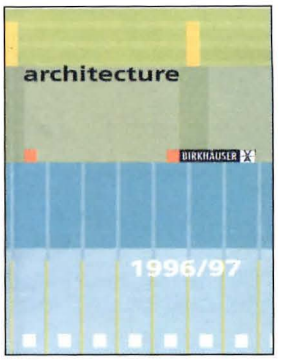
FYPON, Inc. is the manufacturer of over 3,500 millwork products. Made in the exclusive Molded Millwork® process, they will not rot and are virtually maintenance free. Products include: Entrance Features, Balustrade Systems, Moldings, and much more. There is a line of Polymer/Steel Columns and Posts with "the strength of steel and the durability of polymer."™ Auto CAD® users . . . send for your FREE FYPON CAD™. Call or write FYPON, Inc., 22 W. PA Ave, Stewarttstown, PA 17363, 1-800-537-5349.
Circle 50.

Hoover Treated Wood Products

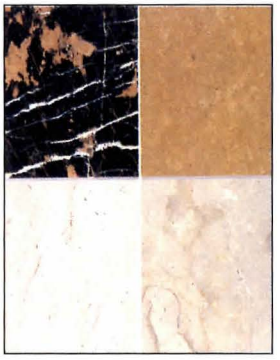
Fire Retardants and Preservatives—New 12-page Sweet's catalog features *Pyro-Guard*® interior type fire retardant lumber and plywood for roof systems and other interior structural uses; *Exterior Fire-X*® FRT lumber and plywood for decks, balconies, siding and other exterior uses; and CCA/*KDAT* preservative treated lumber and plywood that's Kiln Dried After Treatment, from Hoover Treated Wood Products Inc., the USA's largest producer of fire retardant treated wood.
Circle 54.

Birkhäuser



Birkhäuser features new beautifully illustrated and produced monographs including:
Richard Meier - Details
The Le Corbusier Guides
Josef Paul Kleihues
Building in Wood
Philip Johnson (Studio Paperback)
For our free catalog call
1-800-515-2475.
Circle 44.

Stone Design, Inc.



Stone Design, Inc., an importer of high-quality marble, granite, limestone and slate, is now offering its "Egyptian Series" of marbles. In addition to these unique stones, we also offer over 100 other stones, available in tiles, slabs and cut-to-size. Sample kits are also available for your library. 800/424-1332.
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Melton Classics, Inc.

Melton Classics, Inc. proudly introduces *maintenance-free* **MarbleTex™** synthetic stone balustrades and columns with integral color. Other fine products from Melton Classics include:
- Classic™ Redwood Columns
- Hardwood™ Stain Grade Columns
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For more information, see our Sweet's Catalog (06400Mel),
Call 800-963-3060 or Fax 770-962-6988.
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Metropolitan Ceramics

America's Indoor-Outdoor Ceramic Tile® Metropolitan quarry is the floor covering of choice for demanding applications. Available in three sizes and a number of blendable colors, for a variety of pattern options—Metropolitan is ideal for installations where there can be no compromise of looks or durability. For our latest catalog and distributor list call 1-800-325-3945.
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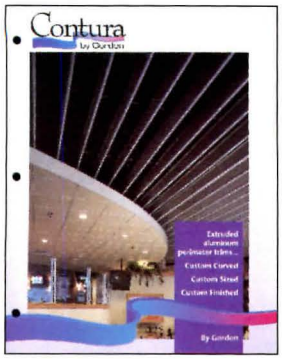

EXTRUDED ALUMINUM PERIMETER TRIMS—Designed to create a perimeter within or below a ceiling area. Contura can be used with ceiling grid, beam systems, panels and lighting to accentuate or isolate a ceiling area. Available in 2", 4", 6", 8", 12" and 16" inch widths. For more infoirmation and a complete product manual, call 1-800-747-8954 or fax 1-800-877-8746.
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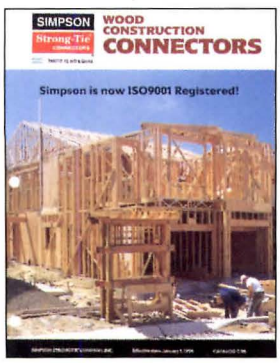
Columbia Cascade Company

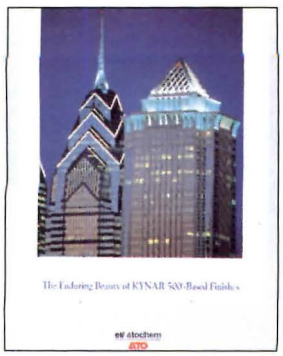
TimberForm® Willow™ Site Furniture—This unique family of coordinated street and mall furnishings from Columbia Cascade Company includes benches, backless seats, settees, chairs, litter containers, plus an ash receptacle and planter. Features all-steel welded construction with Schedule 40 pipe frames and round rod willows. Powder coated in your choice of over 170 designer colors. Patents are pending. Twelve other design families from traditional through contemporary are also offerred. For specifier catalogs call 1-800/547-1940 ext. 778 or fax us at 503/223-4530.
Circle 62.

Simpson Strong-Tie Company



Twelve new products are introduced in Strong-Tie's "97 catalog, *Wood Construction Connectors*. A necessary reference for structural engineers, building officials, and architects, the catalog includes updated specifications, load charts, application drawings, and building code acceptance—plus information on holdown anchorage design, and available custom hanger options. Simpson Strong-Tie Company is now ISO9001 Registered. For a copy of the 1997 catalog (C-97), write Simpson Strong-Tie Company, PO Box 10789, Pleasanton, CA 94588
Circle 66.

Elf Atochem North America, Inc.



KYNAR 500® THE BIG DOG IN METAL COATINGS—KYNAR 500® resin-based finishes are the standard by which all metal coatings are judged. Thirty years of proven performance ensure its superior weatherability. KYNAR 500 resin-based finishes provide excellent color retention, chalk resistance and gloss retention. No other finish can protect metal as well. Ask For It By Name—KYNAR 500 resin-based finishes.
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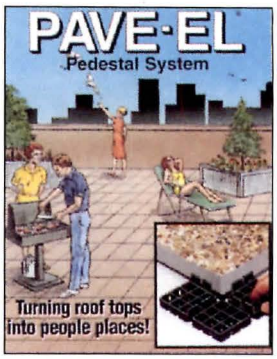
Envirospec, Inc.



Turn your roof tops into people places! New literature *shows a better way* to transform a roof into a patio, terrace, balcony, walk-way, plaza podium, promenade, or just plain roof deck, using the Pave-El Pedestal System. Designed to elevate, level, and space paver stones for drainage in any weather. Pave-El reliably *protects roof, paver-stone, membrane and insulation.* ENVIROSPEC, INC., Ellicott Station Box 119, Buffalo, NY 14205, Phone (716) 689-8548, Fax (716) 689-7309.
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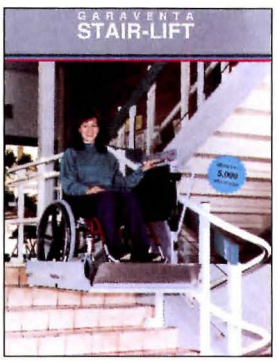
Garaventa (Canada) Ltd.



Unlimited access to innovative designs—Specifically designed to withstand the rigors of public use. Garaventa Stair-Lift is ideal for a variety of indoor and outdoor applications. With thousands of lifts installed around the world, Garaventa is the number one choice in stairway access. Call for your free *information package* today. **1-800-663-6556.** Garaventa—your accessibility experts.
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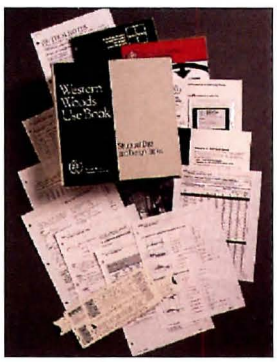
Western Wood Products Association



1996 Western Woods Use Book—Now you can buy the 1996 Western Woods Use Book for just $60. It's compatible with all model building codes and comes with software to aid in design of columns and beams. Also incorporates the latest changes in design, has updated column and beam tables and comes in a handy binder that makes future updates easy.
Circle 68.

Smoke Guard Corporation

Elevators doors can now comply as a "tight fitting smoke and draft control assembly". The Smoke Guard System provides a virtually airtight seal without interference with the elevator hoistway door. The Smoke Guard System is ideal where space is tight and where cost, usable area, and aesthetics are important design considerations. For information and a free video call 208-383-3789.
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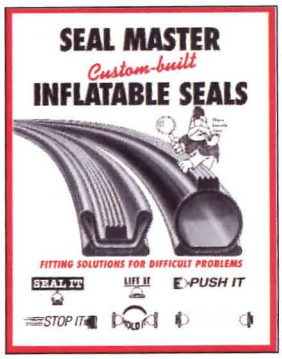
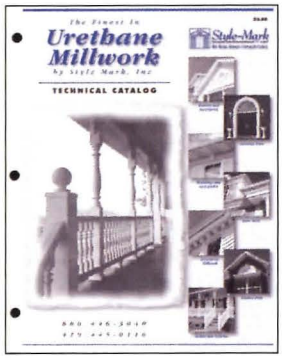
Seal Master Corporation



SEAL MASTER INFLATABLE SEALS—New six-page brochure shows typical inflatable seal construction, configurations, retaining systems and air connections. Custom designed seals offer solutions where gaps exist in sealing weather, liquid, noise, hot/cold, light/dark, pressure, EMI, RFI, radiation, contaminants, dust, pastes, pellets and powders. Inflatable seals are used virtually anywhere a positive seal is needed between two opposing surfaces. Design assistance available. Seal Master Corp., 368 Martinel Dr, Kent, OH 44240, (330) 673-8410, Fax (330) 673-8242.
Circle 74.

Style-Mark Inc.



1997 looks to be a very exciting year for Style-Mark with the addition of hundreds of new products highlighted with a NEW symbol throughout our expanded Technical Catalog. More Balustrade sizes and designs, new entrance trim products and many more interior decorative products are just a few. We have also expanded our installation guidelines to help you understand how to install Style-Mark Urethane Millwork easily in various building applications.
Circle 78.

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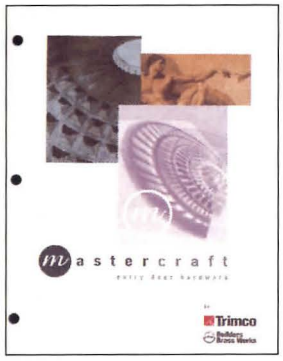

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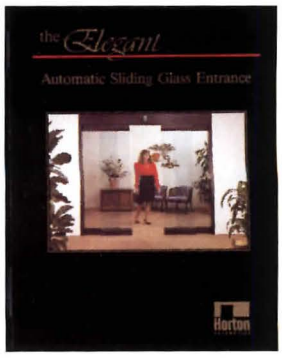

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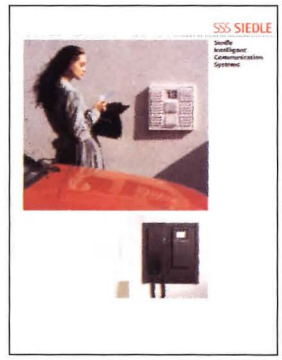

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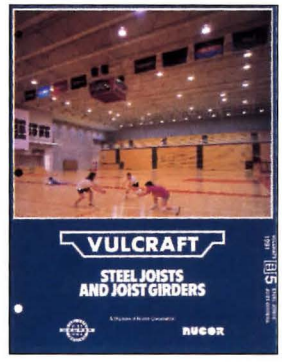

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ISSUE DATES	CLOSING DATES
April 1997	February 26, 1997
July 1997	May 26 1997
October 1997	August 26, 1997
January 1998	November 26, 1997

ad index

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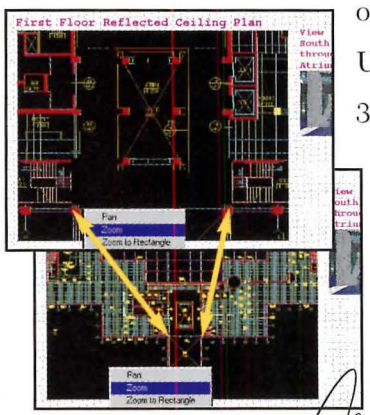

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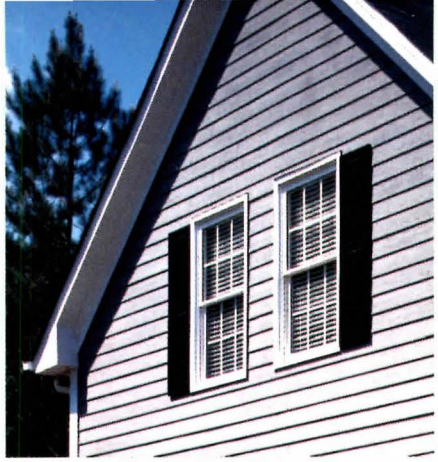
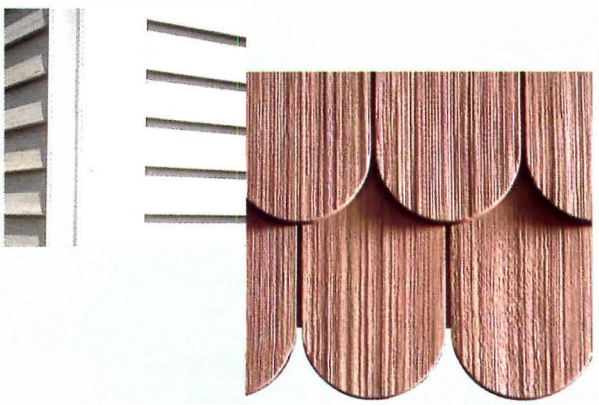


Fiber-Cement Cladding
James Hardie Building Products combines Portland cement, ground sand, cellulose fiber, and water to create fiber-cement, a material that can be worked like wood and has inherent insulating and fire-proofing properties. The Mission Viejo, California-based company manufactures three types of cladding in fiber-cement: Hardiplank lap siding (pictured), Hardipanel vertical siding, and Hardisoffit panels. The lap siding is available in four finishes: smooth, wood-grain, channeled, and wood-grain with a channel; siding panels measure 12 feet long, and from 6 to 12 inches wide. *Circle 296 on information card*

Vinyl Siding Award
Portfolio HP vinyl siding and 5- and 3½-inch box-post window surrounds from Wolverine were specified by architect Wells Woodburn O'Neil in designing the Briarwood Clubhouse in Ankeny, Iowa. This Des Moines-based firm is the grand prize winner of Wolverine Vinyl Siding's 1996 Finish First design competition, held last fall. The architect grouped several volumes to resemble farm outbuildings and incorporated an existing grain elevator. Part of Wolverine's Restoration Collection, the Portfolio HP siding is a 4½-inch clapboard-style cladding. *Circle 297 on information card*

Residential Cladding

New fiber-cement and vinyl siding simulates wood clapboard and shingles.



Vinyl Corner Post
Certainteed has expanded its line of decorative vinyl trim with a new 6-inch-wide corner post (far left). The post is manufactured in white and is available in 20-foot lengths. Also new from Certainteed is its Cedar Impressions Half-Round Shingles (left), a line that resembles semicircular cedar siding. The 34-inch double-course panels are cast directly from cedar shingles and are available in seven shades of tan, cream, and gray. *Circle 298 on information card*

Wood-Grain Siding
Northern Forest is a new, pattern-colored vinyl siding from Gentek Building Products. Not only is Northern Forest cast with a wood-grain texture, its color simulates the random hues of wood. The siding is available in 7 colors and several profiles, including Dutch lap and clapboard. Gentek also manufactures matching trim. Individual siding panels measure roughly 12 feet by 10 inches. *Circle 299 on information card*

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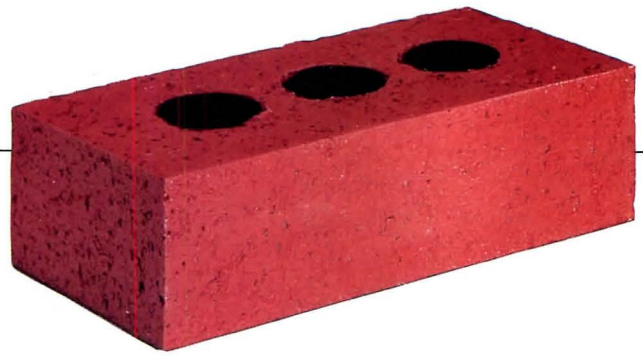

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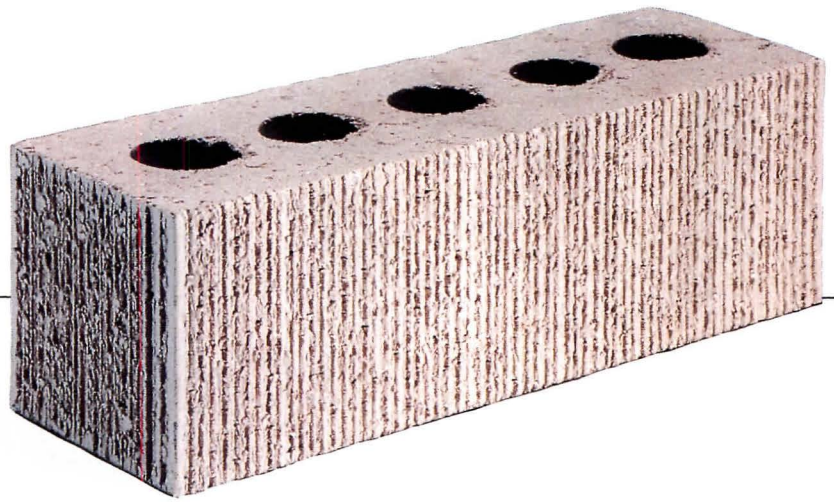

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Reinforced Vinyl Siding
Charter Oak vinyl siding from Alside employs the "TriBeam" reinforcement system, a polyvinyl chloride (PVC) band fused to the back of each 9-inch-wide and 12-foot-long unit. The oak-grained siding is manufactured in 12 colors, with a 3/4-inch butt edge that creates deep shadow lines. Two styles are available: 4 1/2-inch clapboard, and a bevel-edged 4 1/2-inch Dutch lap. *Circle 291 on information card*

Strand Board Siding
In response to recent criticisms about the durability of its overlaid oriented strand board siding, Louisiana Pacific has made several improvements: It coats the product in an antitermite and fungus preservative, incorporates supplementary adhesives between the siding face and substrate, adds a coat of primer, and improves the edge sealers. Additionally, Louisiana Pacific now requires the use of acrylic latex paint on its strand board siding as protection against moisture. *Circle 292 on information card*

Gloss-Finished Siding
The Autumnwood collection from Heartland Building Products is a wood-grain vinyl siding product. The siding is available in six profiles: double 4-inch, double 5-inch, double 4-inch Dutch lap, double 5-inch Dutch lap, beaded 6 1/2-inch, and triple 3-inch. Autumnwood is manufactured in 10 colors, with a low-gloss finish. *Circle 293 on information card*

New Siding Colors
Siding manufacturer Nailite International has expanded two of its lines of vinyl siding with new colors. The Perfection-Plus Cedar siding line now includes three new shades, and the Hand-Split Shake line now includes four new colors in shades from gray to off-white. Both lines include an extensive selection of accessories, such as corner posts and J-channels.
Circle 294 on information card

Wood-Grain Siding
Harbor Ridge is the latest vinyl siding line from ABT Building Products. The low-gloss, wood-grain siding is available in six colors. Harbor Ridge is manufactured in double 4-inch, double 5-inch, T3, double 4-inch Dutch lap, double 4 1/2-inch Dutch lap, and double 5-inch Dutch lap profiles. ABT Building Products also produces a related line of trims and accessories.
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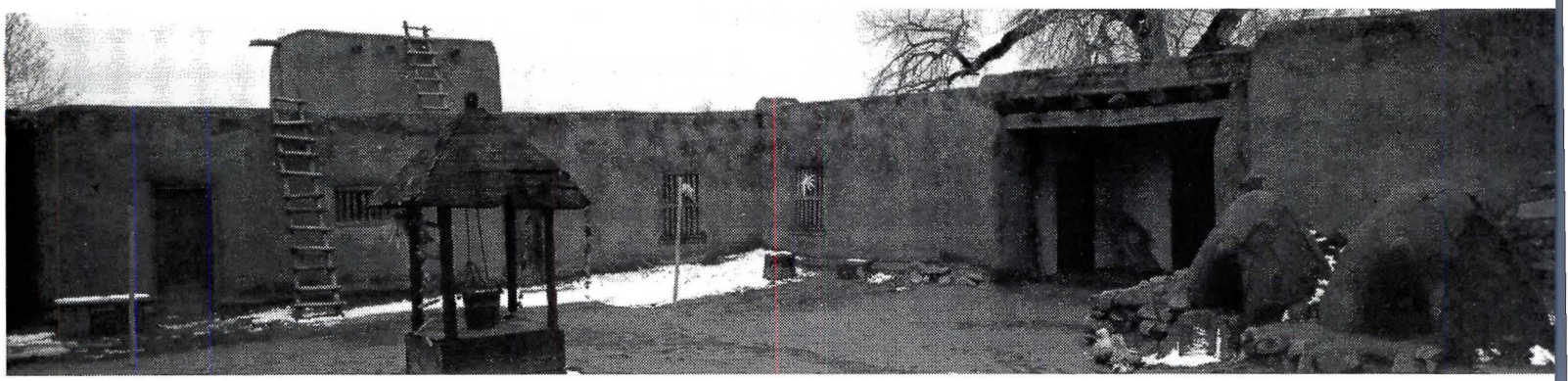

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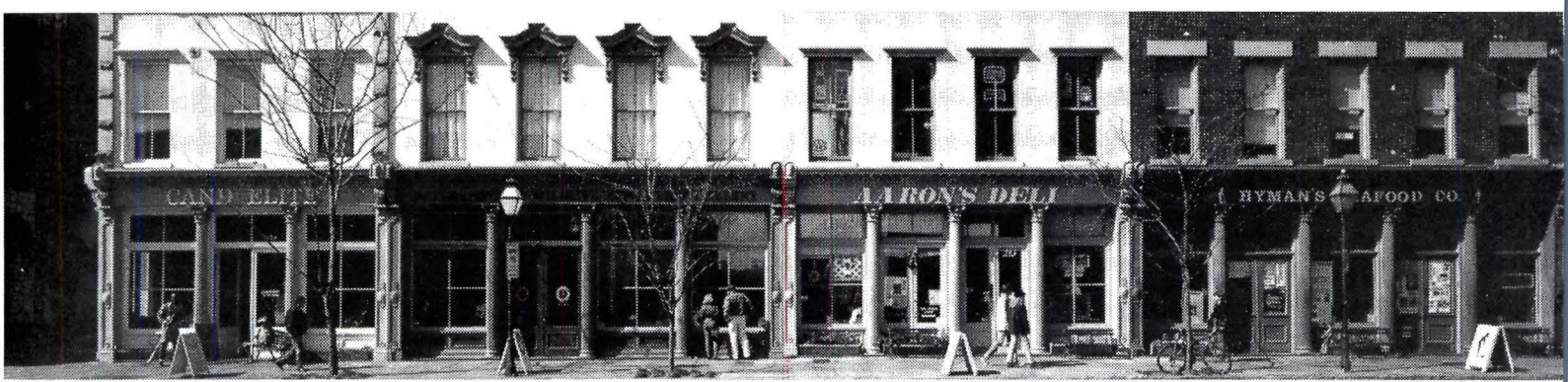

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Circle 160 on information card

Intervention

Why have architects adopted this pretentious term for their designs?

Architects are no longer content to describe what they do as "designing" or "building." Instead, they lead interventions, a word borrowed from more vigorous, authoritative professions. "It has an almost medical ring to it," asserts University of Texas professor Michael Benedikt, "like an architectural surgery." The term is also fraught with martial overtones. Architects don't simply design apartments in the city—they command "urban interventions."

Architects are always intervening these days—particularly on campus. "I think the word came out of the schools," remarks New York architect Billie Tsien. "Sit in on any Ivy League design jury and within 10 minutes, someone is intervening somewhere." Benedikt traces the term to French philosopher Jacques Derrida, who introduces intervention in his seminal compendium, *Margins of Philosophy* (University of Chicago Press, 1982). "However," Benedikt notes, "as used by the French, intervention usually has a much milder meaning than we imply in architecture, closer to, say, 'make a contribution.' "

In English, the word has several definitions. According to *Merriam-Webster's Collegiate Dictionary*, the second definition of intervene is "to appear as an irrelevant or extraneous feature or circumstance." On that note, Tsien offers a hypothesis: "Architects often feel as if they are 'the other,' outsiders in the world of everyone else. Intervention takes you into their world." However, most architects use intervention more in the spirit of the dictionary's fifth definition: "to interfere, usually by force or threat of force ... especially to compel or prevent an action or to maintain or alter a condition." These are spirited words to describe a profession that prides itself on the contextual.

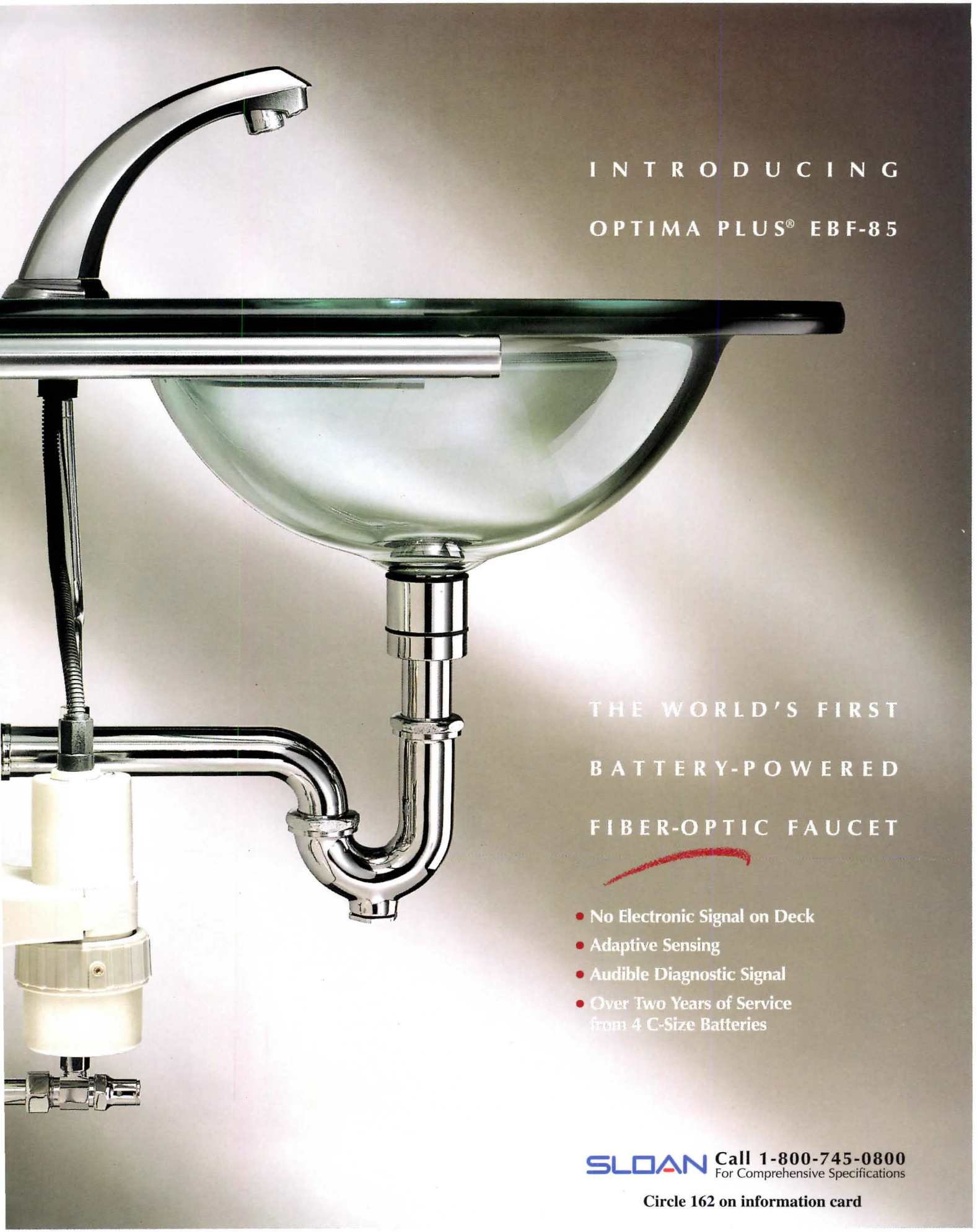
Applied this way, intervention describes a new building's contrast, sometimes discordant, with its surroundings. Chicago architect Carol Ross Barney calls an angled wall in her office, designed to slice diagonally across the Inland Steel building's Modernist grid, an intervention that "goes against the grain of what was there before." And Phoenix architect Michael Underhill earnestly describes his proposed dining pavilions for Arizona State University in Tempe as "interventions into the urban condition of the campus," which reach beyond contextualism to "a more critical response to the environment." Los Angeles architect and 1996 Progressive Architecture Awards juror Sarah Graham notes that intervention "implies an active, rather than passive, response to context." Indeed, as they reviewed the P/A competition entries, the jurors invoked the term intervention at least 25 times.

Power is the subtext here. Architects' embrace of intervention is classic appropriation: if you don't have something you want, claim its language or symbols and people may believe you've got it. Architects, frustrated by their declining role in shaping the built environment, have appropriated the language of power. Any builder can build. Any interior decorator can claim to design. But to intervene? It sounds so heroic, so gutsy.

With its nostalgic, Modernist master-builder connotations, however, the heady terminology falls out of step with contemporary practice. Architects are no longer the absolute masters of their domain. They share turf with a host of consorts, from contractors to value engineers, who threaten the profession's status quo.

Rather than paint themselves as last action heroes, however—an image even Arnold Schwarzenegger couldn't sell—architects should drop the jargon and return to basic language.

People understand that architects design, that some also build, and that the products of their work may be houses, museums, schools, hospitals, civic centers, shopping malls, theaters, or offices—real places for real people, not interventions. *Reed Kroloff*



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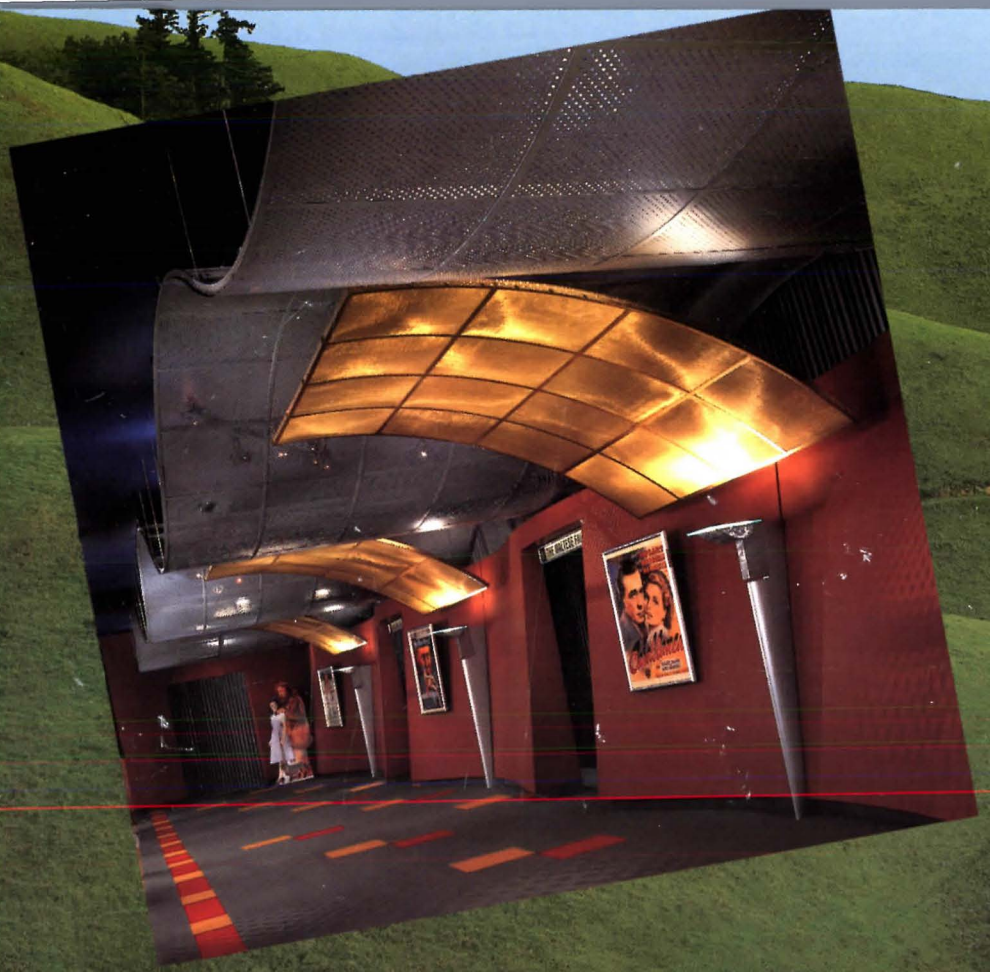

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