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MARCH 1996

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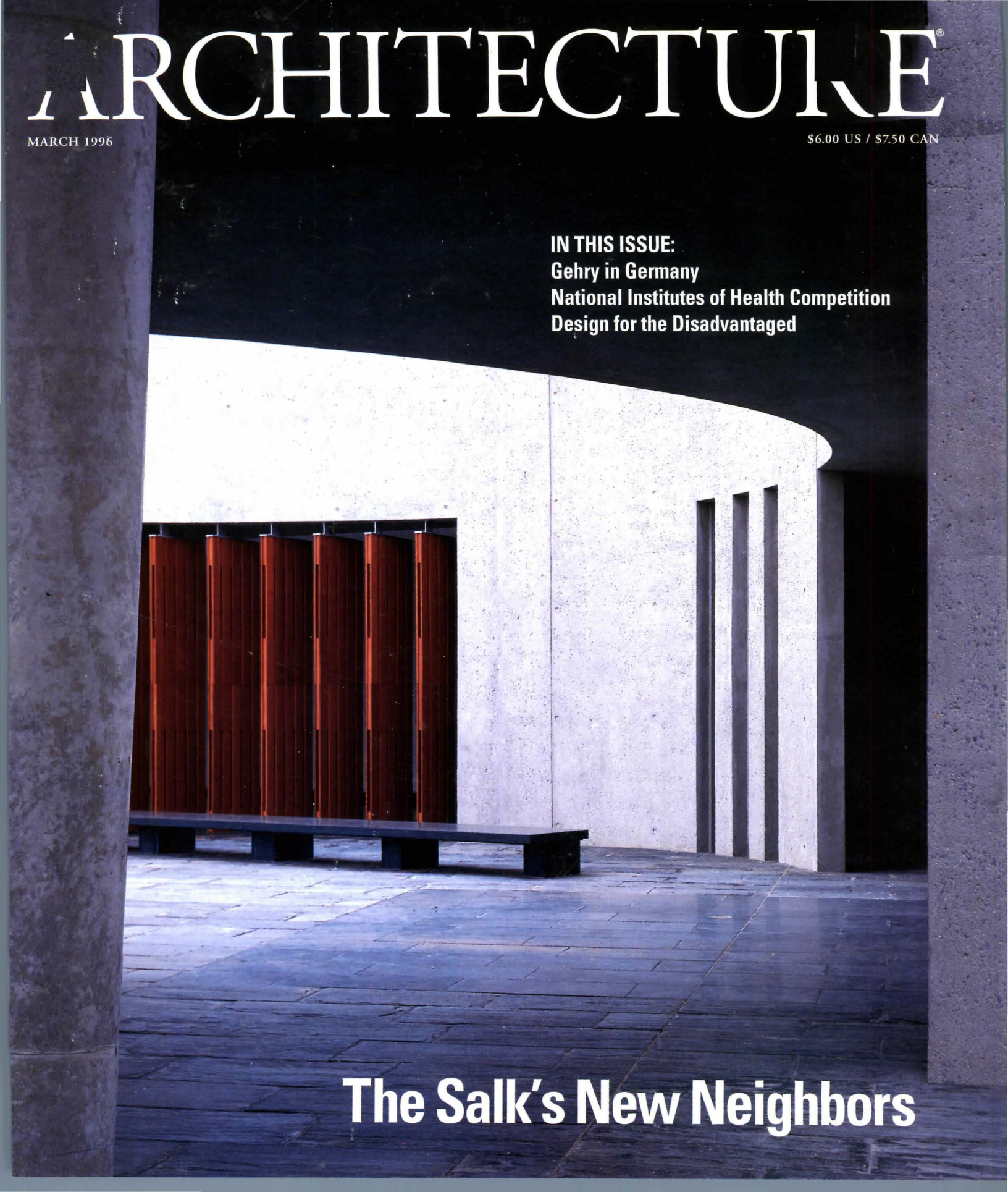

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Sustainable Design Gains Political Clout

A report from a Presidential council recommends that architects play a bigger role in shaping public policy.

Sustainable design is finally gaining a foothold in the federal agenda. For the past three years, President Clinton's Council on Sustainable Development has been preparing a new government policy on the environment that recognizes the importance of ecologically sound architecture and planning. The findings of the council were issued last month in "Sustainable America: A New Consensus," a report that will undoubtedly serve as President Clinton's environmental platform during his reelection campaign.

The council's 186-page report outlines a national environmental strategy that benefits business without rolling back the ecological progress made over the past 25 years. The group studied new incentives to curb pollution and population growth, and more importantly for architects, economical ways of using existing infrastructure, energy, water, materials, and land to create sustainable buildings and communities.

What is remarkable about "Sustainable America" is that it represents a consensus among longtime environmentalists and their industrialist foes. Only with the imprimatur of a Presidential council could the likes of the Sierra Club, the Nature Conservancy, and the Environmental Defense Fund sit at the same table with CEOs from oil, paper, and chemical companies such as the Chevron Corporation, Georgia-Pacific Corporation, and Dow Chemical.

Community-based design is so important to improving our economic and social vitality, both sides agree, that they devoted an entire chapter to the subject in their seven-part report. "The built environment is a critical factor in shaping the quality of life," begins the chapter called "Strengthening Communities." And it continues, "Design and architecture play an important role in facilitating or discouraging human interaction."

Council members drew upon the ideas of more than 250 architects and planners, including William McDonough, Susan Maxman, Robert Berkebile, Peter Calthorpe, and Elizabeth Plater-Zyberk. Their report cites successful case studies of cities reinvigorated by architect-citizen planning, from tiny Pattonsburg, Missouri, relocated after the 1993 floods, to revitalized Chattanooga, Tennessee, and Cleveland, Ohio, once the most polluted cities in America.

The council concludes that communities should develop their own strategies for sustainable design. State and federal governments should offer incentives to encourage collaborative regional planning and community growth management, so that sprawl is decreased and open space conserved. Government should work with architects and the construction industry to make zoning and building codes more environmentally attuned. Buildings should be designed or renovated to improve indoor air quality, energy efficiency, and social interaction. Neighborhoods and landscapes should be preserved, and tax incentives restored for the rehabilitation of historic properties.

In short, these recommendations are the very issues long advocated by the architecture profession. The Council on Sustainable Development's report is significant because it moves green design from a debate among architects to a debate among all Americans. And the national discussion about these issues promises to continue next month, when the council's Sustainable Communities Task Force issues its own report on the long-term environmental health of America's communities. As these recent findings make clear, architects are finally helping to shape public policy. Now it is up to Congress—and voters—to listen.

Deborah K. Dietsch

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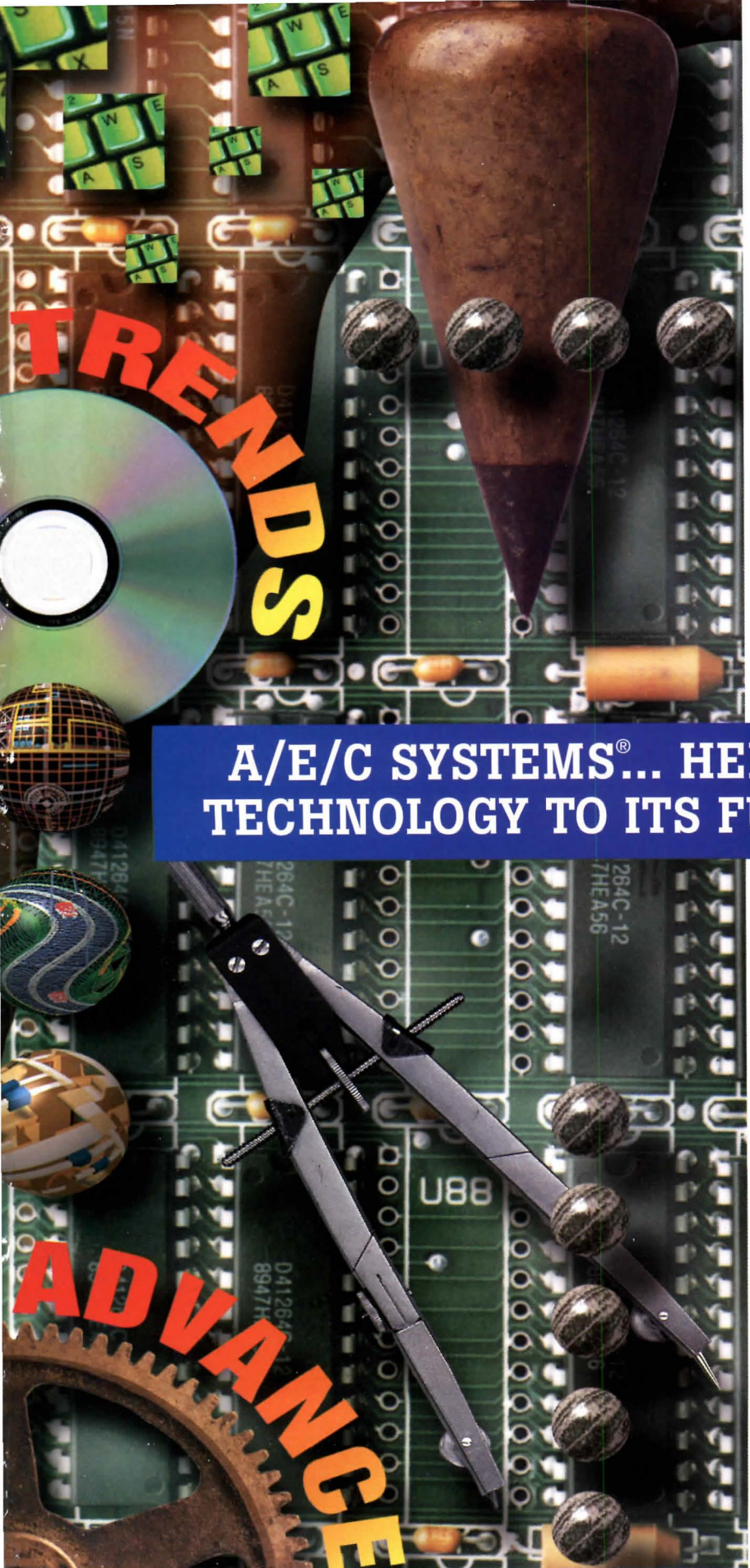

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Letters

Federal design debate

There is no question that the General Services Administration should invest in good architecture. However, your suggestion that a central clearing house give out federal design commissions (ARCHITECTURE, January 1996, page 15) is a proven disaster by your article "Federal Design Excellence."

Should all corporate, healthcare, and educational architecture be doled out by a single agency? Our ability to find opportunity and diversity in architecture is due to the vast numbers of clients, each pursuing their individual needs in ways that demand many different services from firms of all types and sizes.

Let's encourage the government to stimulate the design profession, and think of ways that it can hire architects on realistic and challenging budgets. Let's give more work to the great architects of tomorrow by keeping the opportunities open.

David A. Souers, AIA
Optimus Architecture
Rhinebeck, New York

Bravo for taking on the behemoth of federal architecture. Not so bravo for titling your feature "Federal Design Excellence." With few exceptions, this vast panorama of new work is a parade of mediocrity or worse. Our great pioneers Jefferson, Richardson, Sullivan, Wright, Saarinen, and Kahn must all be rolling in their graves at this betrayal of true excellence in the diversity, dignity, innovation, and humanity of their architectural response to democracy.

It may be premature to judge the significance of this unprecedented volume of federal building based on your necessarily quick look at each project, but criticisms abound. Many display vestiges of clichés from the recent past, and most of all, the projects show lack of study, reflecting the process priorities of commercialism—accept the first scheme, market it, and get it out fast.

You also applaud the new GSA policy of fostering regionalism. With minor exceptions, these federal buildings could be Anywhere, USA, just like stereotyped high-rises and strips, differing only in their architectural vanities. I can't agree with you in calling this the "Golden Age of Federal Architecture," unless you mean money.

A. Richard Williams, FAIA
College of Architecture
University of Arizona
Tucson, Arizona

Courthouse criticisms

As the seatbelt goes on and we brace ourselves for the magazine shuffle, is your January 1996 choice of cover art indicative of things to come? In my opinion, Pei Cobb Freed's sadly retro Boston courthouse (Richardson okay, but Stirling?) is light-years behind Richard Meier's masterful original for Islip, New York.

Roy Harlow, AIA
Stamford, Connecticut

From 1935 to 1937, I was employed as junior draftsman in the office of George M. Malcolm, across the street from the White Plains County Courthouse. For most of the years since, I have

watched with awe and respect the magnificent buildings that Skidmore, Owings & Merrill (SOM) have produced throughout the world. In some ways they have outranked Mies van der Rohe, Le Corbusier, Eero Saarinen, and Philip Johnson (before he broke his pediment) with more body and fitness.

Now, having seen what SOM has provided for the new White Plains courthouse (January 1996, page 70), I wish they had just sandblasted the old one. The new building is a graceless throwback to the 1920s, with only the sad excuse of contextualism. Please, tell me it's a joke.
Edmond Pachner, AIA
Kensington, Maryland

Selection committee criteria

"Federal Review" (January 1996, pages 123-127) states that the process of selecting the firm of Hartman-Cox for the Corpus Christi project was flawed because the judges forced their own preferences. As part of the committee that selected the firm, I am aware this assertion is inaccurate. Our peer excellence consultant, Roger Shluntz, advised the committee that any of our three finalists would do a fine job. One of those firms was Hartman-Cox, which was the independent choice of the committee as a whole, not only the judges.

Furthermore, Ford, Powell & Carson was respected by all of the committee as one of the premiere architectural firms in the nation and our region. Had that firm been selected to design our courthouse, I have no doubt that it would have designed a handsome, functional building of which our community could be proud.
Hayden W. Head, Jr.
U.S. District Judge
Corpus Christi, Texas

As the project manager for the Corpus Christi, Texas, courthouse, I must correct an inaccuracy in your article "Federal Review." The judges involved with the project did not drive the selection of Hartman-Cox, in association with Wilson Kullman McCord; the decision was reached by the entire panel.
Dennis Miller
Fee Developer Division, GSA Region 7
Fort Worth, Texas

Houston's disservice

Your shallow critique of "Designing for Change" (December 1995, page 25) was a singularly ill-conceived disservice to the dozens of practitioners in Houston who donated more than a million dollars' worth of time to produce a broad range of practical ideas for potential redevelopment of downtown.

Your attempt to reduce this exemplary community service effort by AIA Houston to a two-paragraph critique of architectural stylistic nuances and "knee-jerk" Postmodernism is to miss the point entirely. Many of your readers might have preferred a more meaningful description of our efforts to provide affordable housing close to one's work, safer inner-city neighborhoods, pedestrian alternatives to vehicle-dominated 20th-century life, and a resurgent richness of urban fabric. If you choose to sit in the stands and critique the players on the field, we expect you to exhibit a better understanding of the game.
David H. Watkins, AIA
President, AIA Houston
Houston, Texas

Corrections

James G. Garrison was partner-in-charge of design and principal codesigner of Inventure Place (ARCHITECTURE, December 1995, pages 60-69) with James Stewart Polshek of Polshek and Partners.

Although Bohlin Cywinski Jackson was interviewed for the federal courthouse in Erie, Pennsylvania (January 1996, pages 60-63), the commission was awarded to Kingsland Scott Bauer Havekotte of Pittsburgh and Dan Peter Kopple & Associates of Philadelphia.

Thomas W. Schaller, AIA, created the illustrations of RTKL International's ambassadorial residences in Bangkok and Kuwait (January 1996, page 117).

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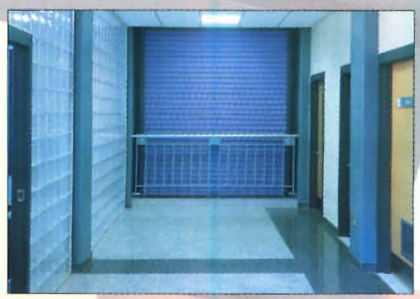

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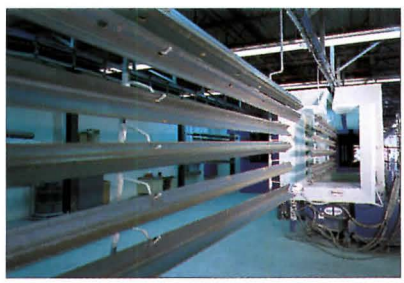

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Events

Exhibitions

CHICAGO. "The Chicago and Midwest Villa," through April 30 at the Chicago Athenaeum. Contact: (312) 251-0175.

KANSAS CITY. "Putt-Modernism," architectural miniature golf course, through April 21 at the Kemper Museum. Contact: (816) 753-5784.

NEW YORK. "Recent New York Public Architecture," through May 2 at the Alexander Hamilton Custom House. Contact: (212) 683-0023.

"Pull of Beauty," architectural hardware, through March 30 at StoreFront for Art and Architecture. Contact: (212) 431-5795.

Conferences

BOSTON. "Building Energy," March 4-6, sponsored by Northeast Sustainable Energy Association. Contact: (413) 774-6051.

CHICAGO. American Society of Civil Engineers Structures Congress, April 15-18. Contact: (800) 548-2723.

CLEVELAND. Commercial and industrial lighting, April 29-May 3, sponsored by GE Lighting. Contact: (800) 255-1200.

DENVER. American Concrete Institute convention, March 14-19. Contact: (313) 532-2600.

MIAMI. International Tile & Stone Exposition, April 24-27. Contact: (800) 881-9400.

PRAGUE. International Architectural Forum, May 1-3. Contact: 49-2-21-925-7932 by fax.

LOS ANGELES. "Eco Expo," green business conference, April 10-12. Contact: (818) 906-2700.

WILLIAMSBURG. Virginia Design Forum, March 22-23, sponsored by the Virginia Society AIA. Contact: (804) 644-3041.

Competitions

"Universal Design," sponsored by the National Endowment for the Arts. Submission deadline **April 1**. Contact: (301) 770-7890.

The Burnham Prize competition, sponsored by the Arts Club of Chicago. Registration deadline **April 1**. Contact: (708) 940-9600.

Governors Island military base conversion, sponsored by the Van Alen Institute. Submissions due **April 2**. Contact: (212) 366-5836 by fax.

James Marston Fitch Charitable Trust architectural research grants. Deadline **May 1**. Contact: (212) 777-7800.

American Society of Landscape Architects annual awards. Deadline **May 3**. Contact: (202) 686-2752.

Houston historical marker competition. Submissions due **May 30**. Contact: (713) 524-6297.

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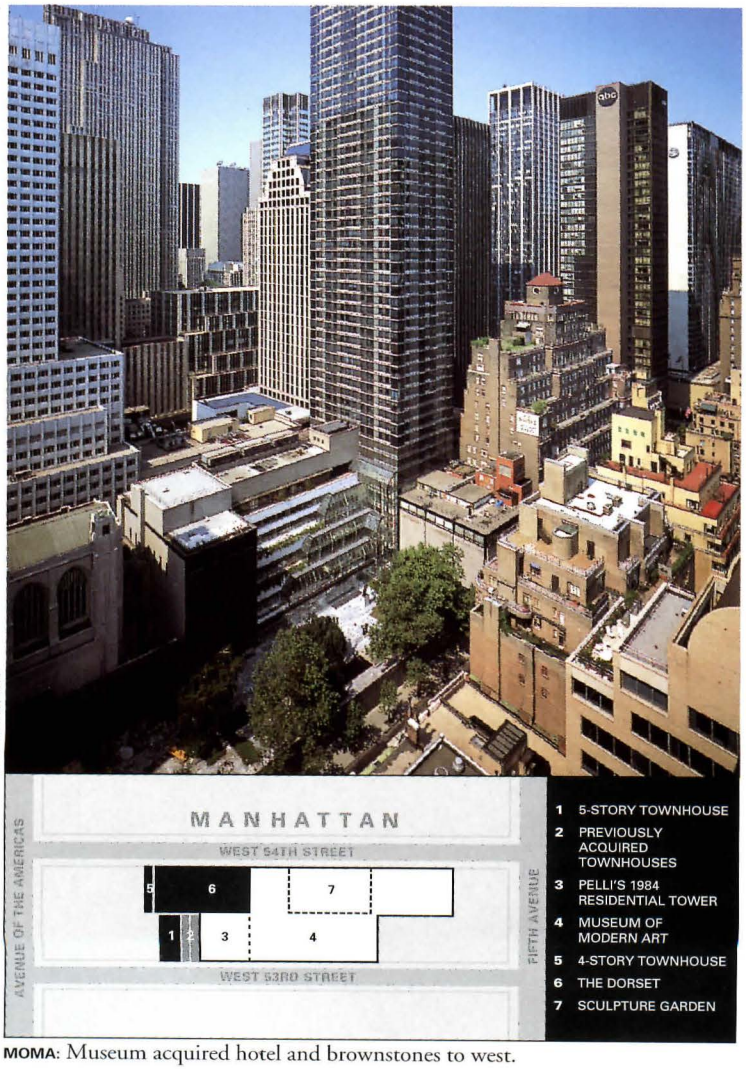
News

Museum of Modern Art Plans Expansion

Last month, after three years of negotiations, New York's Museum of Modern Art (MoMA) spent $50 million to buy three neighbors—the 19-story Dorset Hotel and two brownstones—from the estate of New York developer Sol Goldman. The museum plans to expand into these sites, but a strategy to integrate the acquired buildings is as many as five years away, claims Glenn D. Lowry, MoMA's new director. Lowry joined the staff last July after five years as director of the Art Gallery of Ontario, during which time he oversaw the museum's $58 million renovation and expansion (ARCHITECTURE, November 1993, pages 58-69).



MOMA: Museum acquired hotel and brownstones to west.

The 1920s Dorset Hotel, which MoMA may reclad, is situated at the west end of the museum's sculpture garden. The decision to preserve or demolish the newly acquired four-story townhouse beside the Dorset and the five-story townhouse behind the hotel has not been made.

Combined, the new property adds 250,000 square feet to the museum's current 350,000-square-foot holdings. On curators' wish lists are large, high-ceilinged galleries, since MoMA's modest 14-foot-high galleries can't accommodate large-scale works, and skylit exhibition spaces. Expanded archives and library facilities are also being considered.

MoMA's original glass-and-white-marble facility, designed by Philip L. Goodwin and Edward Durell Stone, has been significantly expanded twice since its 1939 completion. In 1964, Philip Johnson added a new east wing of gallery space, expanded the sculpture garden, and built a stair tower to improve the museum's circulation.

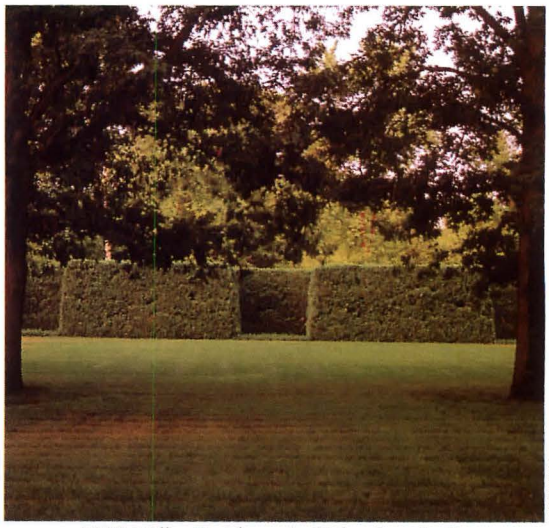
The 1964 stair tower was removed by Cesar Pelli & Associates 20 years later and replaced with a glass-clad escalator bank on the southern perimeter of the sculpture garden. Pelli doubled the gallery space and designed a 54-story residential tower to the west of the museum's 1939 building.—*Ann C. Sullivan*

Progressive Architecture Awards Published in May

The winners of the 43rd Annual Progressive Architecture Awards program will be published in ARCHITECTURE's May 1996 issue. These awards were originally slated for publication in the January 1996 issue of *P/A*. ARCHITECTURE plans to continue the P/A Awards program in the future; jurors and a publication date for the 1997 awards will be announced later this spring.

AARON KILEY

INSTALLATION: Kiley views drawings in workshop-style exhibit.



AARON KILEY

GARDEN: 1955 Miller Residence in Columbus, Indiana.

AARON KILEY

DETAIL: National Museum of Korea competition drawing.

CERVIN ROBINSON

PLAZA: Grid of trees for Harry Wolf's Tampa tower.

Kiley Retrospective at New York's Urban Center

One of my favorite buildings in New York City is Kevin Roche John Dinkeloo & Associates' Ford Foundation (1967). With lush, tropical greenery at its core, this tower in the park becomes a park in the tower—an internalized, man-made paradise. But as many times as I've contemplated its design, I've never once recognized the authorship of the greenery itself. Its presence seems totally natural, as if Roche simply built around it.

So I felt properly edified to learn from the Architectural League of New York's recent exhibition, on display at the Urban Center through March 7, that credit for the Ford's urban jungle belongs to the crafty veteran of landscape architecture, Daniel Urban Kiley. My oversight—or perhaps ignorance—speaks to the thanklessness of landscape architecture.

But in a career that has regularly intersected with the likes of Louis Kahn, I.M. Pei, and Richard Meier, Kiley is actually one of the few landscape architects of his generation to transcend the anonymity of their trade. Living since 1950 in Charlotte, Vermont, the 84-year-old designer is still called in for projects around the world, delivering strict, disciplined work that rarely veers from the Modernist ethos.

The Architectural League does a solid job of illuminating his career. With a range of photographs, plans, and original sketches, it is laid out workshop-style, laying bare the design process and giving a voyeuristic sensation of snooping in an architect's studio. From the projects displayed, it is clear why so many great architects have sought out Kiley. He is unusually adept at staying out of their way, at not competing for attention with the architecture itself.

Kiley's formal language is spare and unselfconscious almost to a fault, which makes his work difficult to capture on film—and even more difficult to present in an exhibition. A case in point is the Henry Moore sculpture garden he designed for the Nelson-Atkins Museum of Art in Kansas City. Kiley's clean, pristine spaces, which defer generously to the sculpture and museum, come off as *dull*, straightjacketed formality—Modernism by the numbers.

There are many beautiful moments in "The Work of Daniel Urban Kiley," but I sense that it is all too easy to walk out without being properly awed by his prodigious talents.—*Hugo Lindgren*

MICHAEL ROGOL

REICH AT MOMA: Model of houses by Reich and Mies; photo of beer exhibit in Barcelona (center).

MICHAEL ROGOL

FURNITURE: Recreated garden table and dining chair.

COURTESY OF MOMA

COURTESY OF MOMA

BERLIN EXPO: Houses by Reich (left) and Mies (right).

BERLIN EXPO: Reich exhibits timber in raw form.

MICHAEL ROGOL

INSTALLATION: Floor linoleum recalls Reich designs.

Lilly Reich in Her Own Right at MoMA

Designer of buildings, interiors, exhibitions, furniture, fabrics, and fashions, Lilly Reich (1885-1947) was a prolific pioneer of the Modern movement. Reich's accomplishments, however, are virtually unknown, at best a footnote to Mies van der Rohe, with whom she collaborated in the late 1920s and '30s. Now, at last, they can appreciated through an exhibition devoted to the German designer, on view through May 7 at the Museum of Modern Art in New York.

Organized by Matilda McQuaid, associate curator of MoMA's Department of Architecture and Design, "Lilly Reich, Designer and Architect" grew out of the cataloging of 900 Reich drawings and photographs acquired by the museum in 1968 as part of its Mies van der Rohe archive. The exhibition showcases 75 of these works to draw attention to Reich's most significant contribution to Modernism—exhibition design.

From the sensuously draped Silk and Velvet Café (1927) to the ethereal glass tubes of the German People-German Work exhibit (1934), Reich's architectonic installations celebrated building materials and products for their intrinsic formal properties. Many of her displays were radically minimalist, presaging the art of the 1960s: Rows of beer bottles in the 1929 Barcelona exposition foreshadow the Pop Art of Andy Warhol, and raw planks of wood in Berlin's 1931 German Building Exposition portend the floor sculptures of Carl Andre.

The 1931 exhibition marked Reich's debut as an architect. She designed two model apartments and a single-story house, which was attached by a wall to a house designed by Mies. A model of the paired houses, specially commissioned by MoMA, shows how Reich treated walls as furniture in contrast to Mies' floating planes.

McQuaid, however, steers clear of comparing Reich to Mies and fittingly celebrates Reich in her own right. Reich began her career long before collaborating with Mies and always maintained an independent studio, stamping her drawings "Atelier L. Reich." (The exhibition catalog provides a fascinating biography of Reich, who remained in Germany during the Nazi regime and tried to resuscitate the German Werkbund after the war.)

What is missing from the MoMA exhibition is evidence of the German designer's renowned sensitivity to color and texture. All of the surviving photos and drawings of her work are in black and white, and McQuaid provides only hints of color in the exhibition's linoleum floor and reproductions of a leather-covered dining chair and a garden table. The result is a show that is responsibly documentary, but dry. One wishes some of Reich's bold displays of fabrics and glass had been recreated to provide a three-dimensional sense of her work.

"Lilly Reich" is important for exposing not only the work of this designer, but the role of exhibitions in the evolution of Modernism. Through installations in Europe, Reich promoted Modernist ideas about architecture and building products to the trades and public, and may have influenced a wider audience than many of her male colleagues.—*Deborah K. Dietsch*

Government Honors Transportation Designs

Department of Transportation recognizes notable highways, bridges, and train stations.

The passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 generated $151 billion in government funding for transportation initiatives. While ISTEA-funded projects have had more than their fair share of pitfalls (ARCHITECTURE, October 1995, page 26), some notable designs have been realized as a result. The best ISTEA-funded projects and other transportation initiatives since 1989 were recognized through the Design for Transportation National Awards Program of the U.S. Department of Transportation (DOT).

Design for Transportation is one of several design award initiatives that the National Endowment for the Arts has administered for federal agencies such as the General Services Administration. Inaugurated in 1981, the DOT awards program was abandoned until last year. U.S. Secretary of Transportation Federico Peña revived it, explaining that "because our infrastructure has such a profound impact on our lives, it is essential that projects be well designed in every respect."

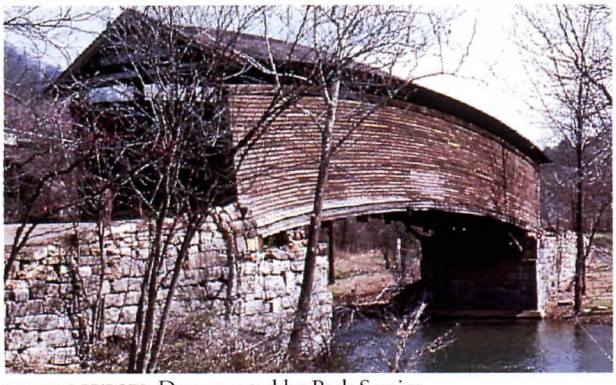
A jury of 14 designers, chaired by Denise Scott Brown and including architect David Lee and engineer Satoshi Oishi, selected 11 projects to receive honor awards and 26 projects to receive merit awards. While the jurors were impressed with the quality and civic-mindedness of the 300 submissions, they decried the lack of creativity and site specificity among airport designs.

Honor awards recognized the environmentally sensitive replacement of a two-lane road with a four-lane divided highway along Interstate 70 in Glenwood Canyon, Colorado; C.W. Fentress J.H. Bradburn and Associates' Denver International Airport, with its tensile roof and innovative operations systems; the renovation and revitalization of the 1934 Art Moderne 30th Street Station in Philadelphia; Cooper, Robertson & Partners and NBBJ's transformation of 100-year-old industrial buildings into a transportation center on the outskirts of Charleston, South Carolina; and the development of San Francisco's South Embarcadero waterfront into a promenade and transit corridor on the site of a freeway destroyed during the 1989 earthquake.

Other honor award winners were the National Park Service's Historic Bridges Program, which documents landmark bridges; urban design guidelines for the Hudson River waterfront in New Jersey; the Figg Engineering Group's Double Arch Bridge of the Natchez Trace Parkway; Richter Associates' modular steel bus stops in Corpus Christi, Texas; Skidmore, Owings & Merrill and Zimmer Gunsul Frasca Partnership's 660-foot-long pedestrian bridge linking two hospitals in Portland, Oregon; and the Metropolitan Transportation Authority's graphics and art programs for the New York area. DOT Secretary Peña presented the awards on February 29 at the National Building Museum in Washington, D.C.—*Ned Cramer*

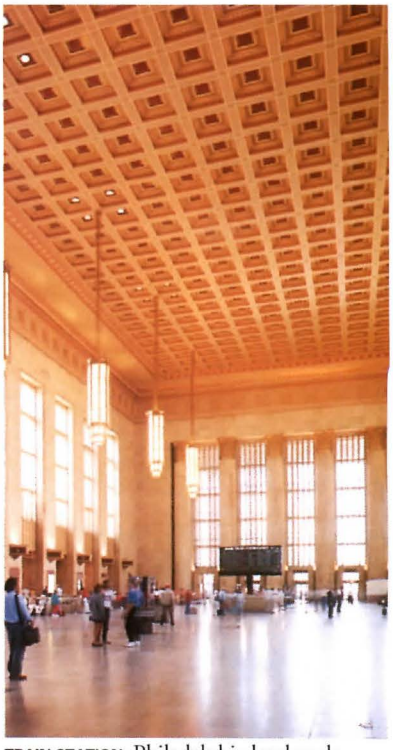
R. GOLDING

VISITORS' CENTER: Charleston renovation.



HISTORIC BRIDGES: Documented by Park Service.

BUS STOPS: Corpus Christi's modular units.



TRAIN STATION: Philadelphia landmark.

RICHARD BROWN

FOR SALE: Britain's Baroque naval college, designed by Wren and Hawksmoor.

Royal Naval College up for sale

It's difficult to name a more significant British landmark than the Royal Naval College in Greenwich, yet that magnificent Baroque ensemble by Christopher Wren and Nicholas Hawksmoor has been put up for sale by Britain's Secretary of State for Defense. Priceless patrimony to one is a white elephant to another, so the current occupants, the Royal Naval Staff College and the Joint Services Defense College, are moving to cheaper accommodations in 1997, making way for some richer tenant, the government hopes.

Known as England's answer to Versailles, the college campus was commissioned by royal couple William and Mary as a seamen's hospital in 1696. Its buildings were converted to a naval school in the late 1800s.

"It is hard to think of another country in which such an important complex could come up for sale," remarks Jonathan Glancey, architecture critic of *The Independent,* who is leading a campaign against the sale. The secretary's offer represents the latest in a long series of privatizations—or privations—wrought by the British government on everything from national rail service to the royal yacht.

The site should give pause to any profit-oriented developer, as it is subject to restrictions dealing with architecture, archeology, conservation, and flooding. But the government's actions to date suggest that law is no obstacle, proven by its move to override a 125-year-old statute prohibiting all but maritime occupancy at the college. Glancey suggests the college be considered as one of the sites for the Millennium

Festival, using National Lottery funds to keep the complex in public hands. It will take just such a vision to save the site, that or a change in government.—*Daralice D. Boles*

Healthcare Research Awards
ARCHITECTURE and AIA Research are cosponsoring an awards program for health facilities research. This year's program will recognize recently completed academic or applied research in healthcare design, with a focus on innovative design investigations. Award winners will be published in the "Health Facilities Research Review" by the AIA. Projects meriting special recognition will receive citations in the review and be published in ARCHITECTURE. For more information, contact AIA Research: (202) 879-7750.

PSFS building to become hotel
The Philadelphia Savings Fund Society (PSFS) office building, a landmark of American Modernism, is expected to have a new life as a 600-room Hyatt Hotel. The building's fate has been uncertain since 1992, when its main tenant, Meritor Savings Bank, parent of the PSFS, went into default. Designed by George Howe and William Lescaze in 1930, the historic skyscraper occupies a prime hotel location just two blocks away from the new Philadelphia Convention Center.

"It works perfectly as a hotel," claims Arthur Jones, principal of Bower Lewis Thrower Architects, the firm in charge of renovation. Jones reports that the renowned banking floor, one level above Market Street, will become a ballroom; the Art Deco penthouse boardroom will be retained for meeting spaces; and the slender, 33-story shaft will house guest rooms. A four-story addition containing service facilities and public space will be constructed on a vacant lot to the south.

A debate may be brewing over the historic exterior, whose windows will be restored or replaced. "It's a preservation project, so the facade will be kept intact," Jones says, "but we haven't resolved how to deal with the signage." He is quick to point out, however, that "Hyatt" has nearly the same number of letters as "PSFS."—*Donald Prowler*

Moving on
Roger W. Johnson announced his resignation as Administrator of the General Services Administration, effective March 1. A former Republican, Johnson has switched his membership to the Democratic Party. He will participate in Clinton's electoral campaign in his home state of California.

In the wake of her December 1995 departure from her post as director of the Cranbrook Academy of Art, **Susana Torre** has filed suit against the Bloomfield Hills, Michigan, school. In her suit, Torre alleges that Cranbrook President Lillian Bauder failed to support her against hostile faculty claims and fired her without warning. Cranbrook representatives declined to comment.

Howard Weiss, senior vice president for marketing and human resources at **Anshen + Allen,** resigned in February. Weiss cites the organizational changes at the firm (ARCHITECTURE, February 1996, page 27) as a reason for his departure. The architect has accepted a position as a principal of NBBJ's San Francisco office, headed by former Anshen + Allen partner **Jack MacAllister**.

Obituaries
Architect and critic **Julius Posener** died January 29 in Berlin at the age of 91. Posener was a historian of Berlin architecture, biographer of Expressionist architect Hans Poelzig, and writer for the seminal 1930s journal *L'Architecture d'Aujourd'hui.*

Ted Happold, head of the New York architectural engineering firm FTL/Happold, died in Bath, England, on January 12 at the age of 65. Until 1976, Happold was a partner at Ove Arup & Partners, and the lead engineer for the Georges Pompidou Center in Paris.

George J. "Pete" Wimberly, founding principal of Wimberly Allison Tong & Goo in Honolulu, died December 30 at the age of 80.

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News

Hardware show at StoreFront

"The Pull of Beauty" exhibition at StoreFront for Art and Architecture in New York City features hardware you'll never find in catalogs (below). The show's curators, artist Kiki Smith and critic Victoria Milne, have assembled a collection of historic, contemporary, and specially commissioned pieces that document the changing esthetics of hardware. Contributing artists and designers include Martin Puryear, Joel Fisher, Richard Tuttle, Constantin Boym, and Laurene Leon. The exhibition will be on view through March 30.

Feminist competition

Over 3,000 women gathered in Washington this February for the first National Feminist Exposition. To promote awareness of the relationships between gender and the built environment, the expo's sponsor, the Feminist Majority Foundation, organized an architecture competition for students called "Visualize Our Feminist Future."

First prize went to University of Oregon student Janna Beth Vaughn for a self-sufficient housing community; second prize was awarded to SciArc graduate student Candace Vanderhoff for a woman poet's live/work space; third prize was given to University of Illinois graduate students Shalini Agrawal, Melissa Neel, Loree Sandler, and Cindy Sherwyn for a renovation of the Jane Addams Homes, a public housing complex in Chicago.

Honors

J. Max Bond, Jr., partner of Davis, Brody, and Associates, New York, has been inducted into the American Academy of Arts and Sciences. Bond, who has spearheaded development of the firm's overseas practice, served for six years as dean of architecture at City College of New York. In 1969, he founded Bond Ryder and Associates, whose designs include the Martin Luther King, Jr., Center for Nonviolent Social Change in Atlanta.

Denise Scott Brown has been awarded the Topaz Medallion for Excellence in Architectural Education by AIA and the Association of Collegiate Schools of Architecture.

Stanley Saitowitz joined fellow Bay Area luminaries, such as actor Nicolas Cage, writer Isabel Allende, and composer John Adams, to be honored at the first annual Arts Achievement Awards, sponsored by *San Francisco Focus* and vodka manufacturer Stolichnaya.

Governor Parris H. Glendening presented RTKL Chairman **Harold Adams** with the Governor's Award for expanding international commerce in Maryland.

From brain trust to builder

The MacArthur Foundation has teamed with Miami developer De Guardiola to generate a new town south of Jupiter, Florida. Dubbed Abacoa, the 2,050-acre site being designed by Andres Duany and Elizabeth Plater-Zyberk, Arquitectonica, Spain Llanes, and HOK Sport focuses on a new college campus and a training facility for the Atlanta Braves and Montreal Expos. The town will include 880 acres devoted to 6,073 units of low- to high-density housing modeled on Addison Mizner's 1925 Mizner Park in Boca Raton, Florida.

Italian opera house burns

La Fenice, the 204-year-old opera house in Venice, was gutted by fire January 29. While the theater's Neoclassical shell remains standing, the elaborate interior is entirely lost. Estimates for its reconstruction range from $62 to $310 million. The Italian government has pledged $12.5 million towards reconstruction; opera star Luciano Pavarotti plans to hold a concert in St. Mark's Square to raise funds for rebuilding.

FAUCET: Beth Katleman's "Fantasie."

DOOR HANDLE: Tom Joyce's forged steel.

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PETER VANDERWARKER

BOSTON CITY HALL: Fate uncertain.

Will Boston sell off City Hall?

As the U.S. District Court in Boston plans its move from Post Office Square to Pei Cobb Freed & Partners' new Fan Pier courthouse in 1998 (ARCHITECTURE, January 1996, page 83), Mayor Thomas M. Menino has his eye on the soon-to-be-vacant district courthouse as Boston's new city hall. The Art Deco building desperately needs renovation, but boasts a prime location and enough space to consolidate the municipal government offices under one roof. The Mayor met with the now-departed head of the General Services Administration (GSA), Roger W. Johnson, in January to discuss the possible takeover of the Post Office Square courthouse by the city.

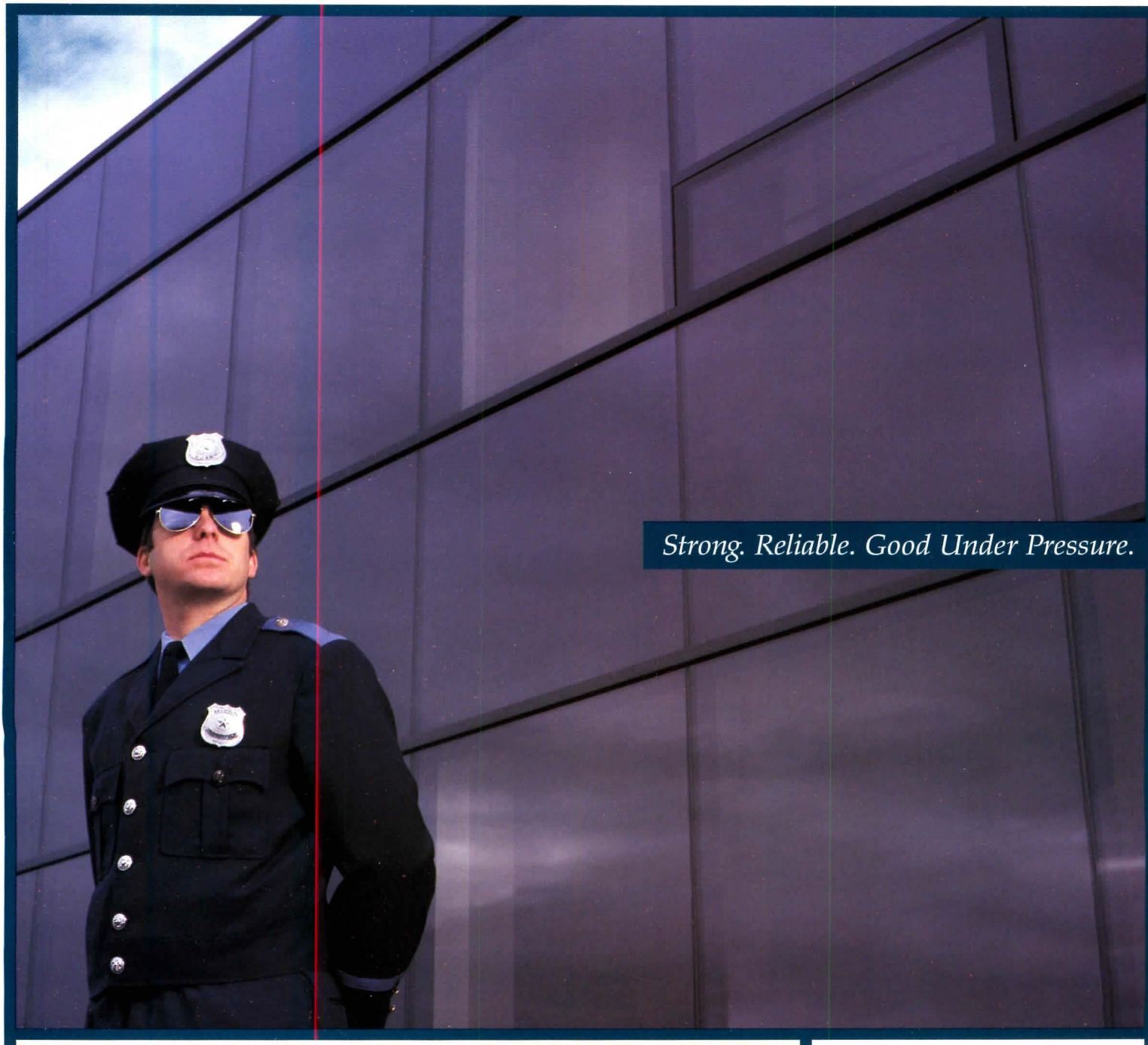
Such a plan would evacuate Boston's current city hall, the 1968 Brutalist landmark designed by Kallmann McKinnell & Wood Architects. In fact, the Mayor is considering selling off the building, which has long been considered a functional liability, particularly since it is too small to house every municipal department. The GSA has yet to decide the fate of the Post Office Square courthouse.

Meanwhile, Boston has approved the first of several planned improvements for the barren plaza in front of the city hall: a garden conceived by cellist Yo-Yo Ma in the spirit of J.S. Bach's Cello Suite No. 1 and designed by Wellesley, Massachusetts, landscape architect Julie M. Messervy. The garden will surround three sides of the John F. Kennedy Federal Building, located to the north of City Hall Plaza and across the street from Stanley Saitowitz's New England Holocaust Memorial.

American Center for sale

Yet another landmark building is leaving the hands of its original owners. After a 19-month occupancy, the American Center in Paris has been forced by lack of funds to put its Frank Gehry-designed home up for sale. The Center, which depends largely upon private donations, has already spent the bulk of the $42 million, raised from the sale of its original Left Bank home, on the new building. Little money is left to meet the Center's roughly $6 million annual operating budget.

The 65-year-old cultural institution plans to continue to provide a forum for Franco-American cultural exchange in Paris by using the proceeds from the sale of the Gehry building to establish an endowment, and by seeking more modest accommodations. Zoning dictates that the Gehry building remain a cultural institution, however, and no buyer has been found.



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GIANTS STADIUM: HOK by the Bay.

Sports expansions

The sports arena boom continues across the country. **HOK Sports Facilities Group** of Kansas City is designing the 10,500-seat hockey arena for the 2002 Olympics in Salt Lake City, Utah, to be completed in 1997. Cincinnati wants a new pair of waterfront arenas, and has commissioned **HOK Sport** and **Michael Graves** to complete a preliminary study. **HOK Sport** is also designing a 42,000-seat bayside baseball stadium for the San Francisco Giants, scheduled for completion in 2000. **NBBJ** has been named as architect of the Seattle Mariners arena.

New commissions

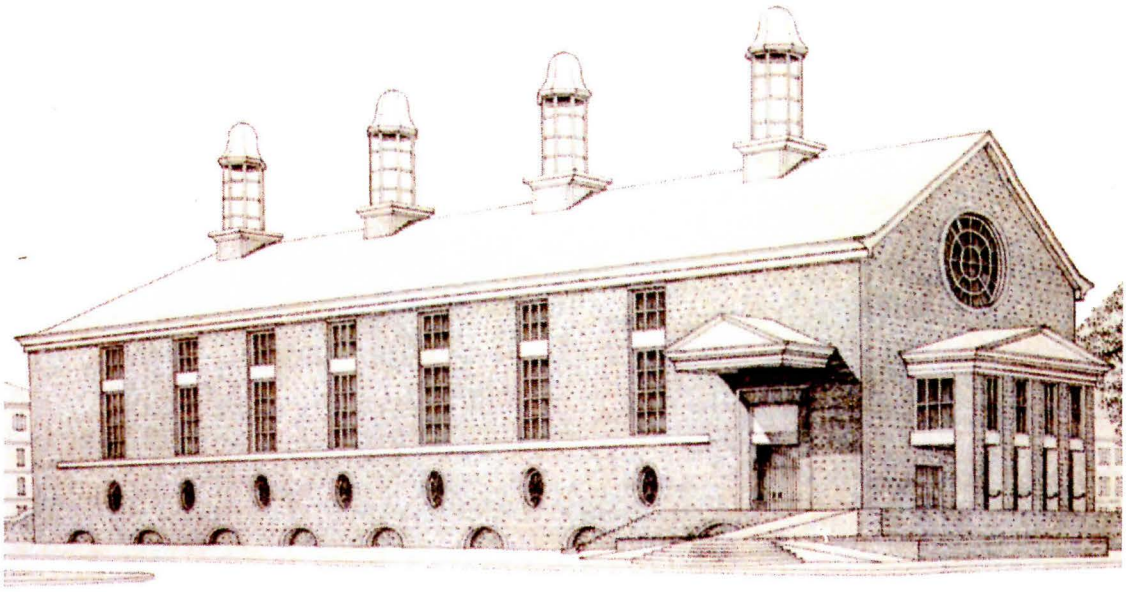
H.H. Richardson's 1879 Ames Memorial Library in North Easton, Massachusetts, is gaining a new addition by **Venturi, Scott Brown and Associates**. In Kansas City, Missouri, **Ehrenkrantz & Eckstut** and **Keyes Condon Florance** are transforming Union Station into a science center. **SERA Architects** of Portland, Oregon, is restoring and seismically upgrading the city's 84,000-square-foot city hall. **Hodgetts + Fung** is designing Microsoft's 7,800-square-foot pavilion for an L.A. electronics expo to be held in May, and is also renovating and expanding a student center for the San Francisco Art Institute. **Cambridge Seven** has been selected to design a combined aquarium and ecological facility in Massena, New York, replacing New Orleans architect **Eskew & Filson**, which completed preliminary designs in 1989. **Norman Foster and Partners** has won a competition for a 215,000-square-foot office and retail media center in Hamburg, Germany.

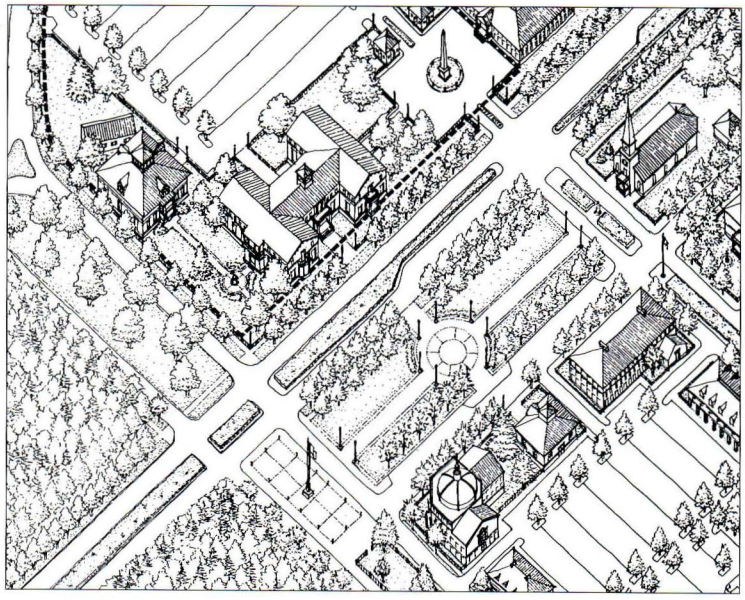
Which building material would

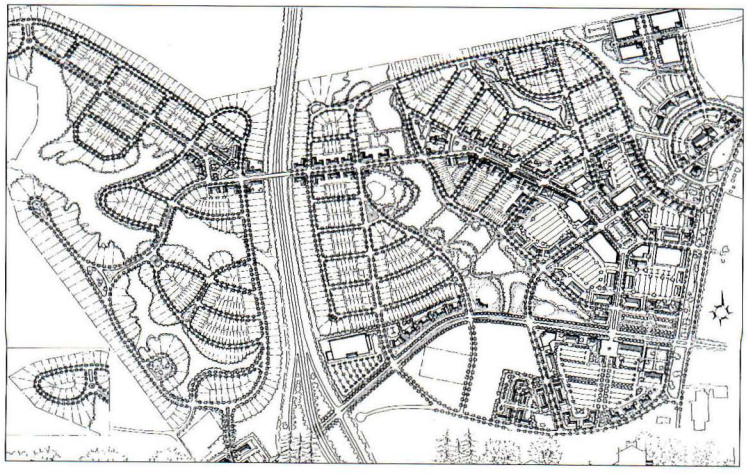
Once upon a time there were three little pigs. (Great-grandchildren of th ones you used to know.) Each trotted off into the world to build his hom and fortune. The first two pigs thought only of themselves and little of our plane and chose to build with steel and concrete. They didn't care that it took nine time more energy to make a steel stud than a wood stud. Or that concrete productio leaves five times more solid waste than wood.

Meanwhile, the third and wisest pig chose to build with a renewabl building material—wood. Just knowing wood was replenished made him feel good

On the Boards







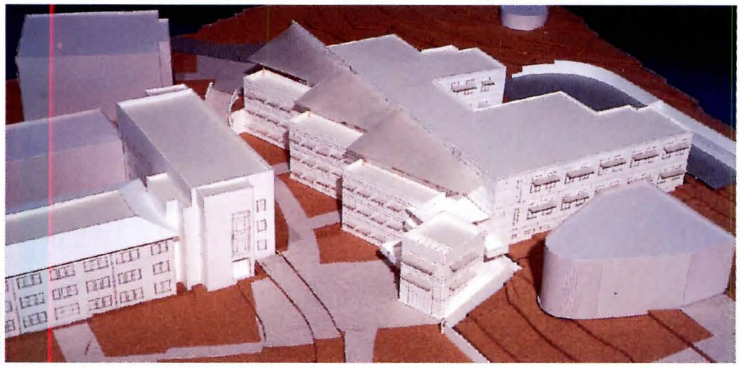
Williamsburg Courthouse
Jorge Hernandez and Francis Lyn
Williamsburg Town Plan
Michel Dionne, Paul Milana, and Christopher Stienon

Seeking to create a true urban center for a place protected from urbanity for 200 years, officials of Williamsburg, Virginia, held a two-pronged competition last November for a new city and county courthouse and a new town plan. The 600-acre site, soon to be bisected by a major highway, lies a mile southeast of the city's restored Colonial village and its adjacent commercial strip.

New York City architects Michel Dionne, Paul Milana, and Christopher Stienon applied a New Urbanist strategy in their winning plan (bottom), which arranges commercial, civic, and residential precincts around a protected wetland. A new civic center (center), located to the southeast, will include Miami architects Jorge Hernandez and Francis Lyn's Neo-Colonial courthouse (top).

The plan's 2,000 residential units are arranged as apartments, townhouses, or single-family houses. Larger single-family lots are located along major streets, with smaller lots along sidestreets. Preserved wetlands—including the habitat of an endangered orchid—and pocket parks provide common open spaces for the community. Construction of the courthouse, the first phase of the civic center, is expected to begin in late summer.—*Heidi Landecker*

On the Boards



FOAAD FARAH

University of California, San Diego, expands its La Jolla campus with new laboratories.

Ritter Hall
University of California, San Diego
La Jolla, California
Hardy Holzman Pfeiffer Associates

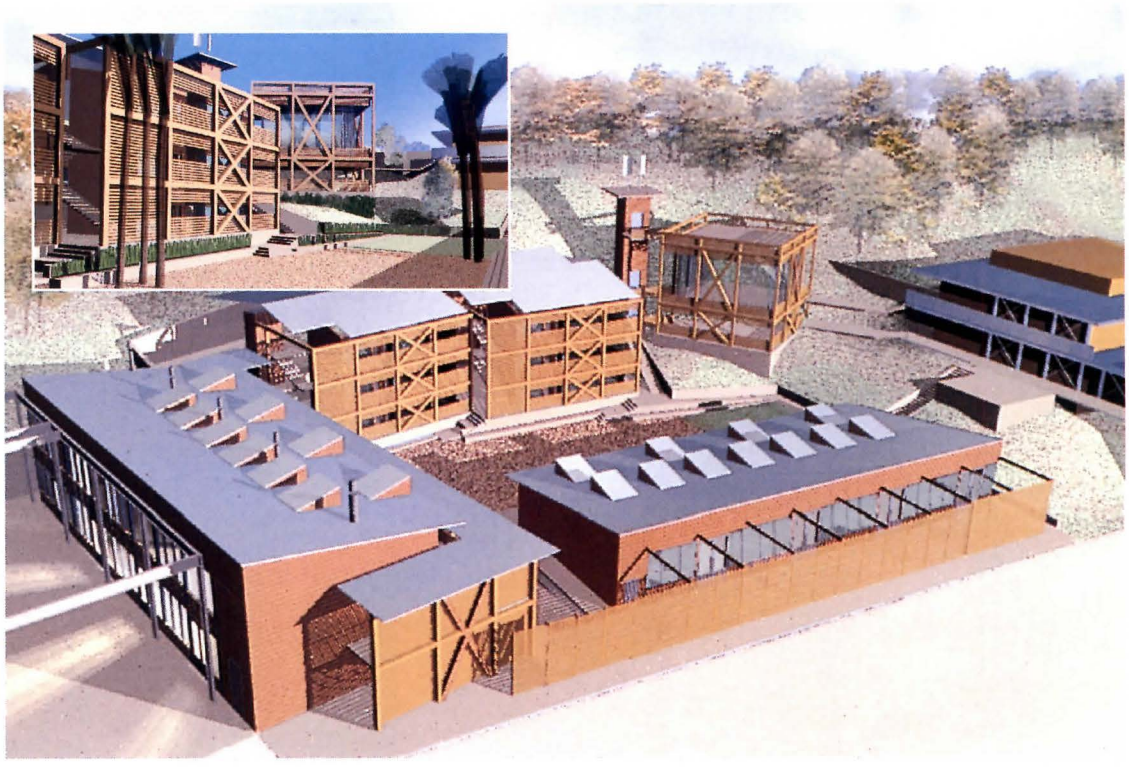
After an extensive master planning process undertaken with Rob Wellington Quigley and Wallace Roberts & Todd, the Scripps Institution of Oceanography at University of California, San Diego (UCSD) has commissioned four new buildings for its La Jolla campus. Hardy Holzman Pfeiffer Associates (HHPA) is renovating Irving and Louis Gill's 50,000-square-foot 1931 Ritter Hall and adding a 20,000-square-foot frontispiece.

A 1959 structure will be demolished to make way for HHPA's building, which will house offices, conference rooms, archival storage, and laboratories. The original U-shaped laboratory wing will be linked by an atrium to low-scaled offices; a projecting conference room overlooks a main campus quadrangle. Construction is scheduled to begin in July 1996.—*N.C.*

W.M. Keck Foundation Center
for Ocean Atmosphere Research
University of California, San Diego
La Jolla, California
Barton Myers Associates

The Keck Foundation Center for UCSD's Scripps Institution, north of HHPA-renovated Ritter Hall (facing page), is designed by Barton Myers Associates as a trio of buildings grouped around a central courtyard. On the east side of the complex, a three-story office block is organized around skylit atria; lab wings to the north and west face equipment-testing yards. The three buildings, wrapped by timber arcades, will be clad in wood shingles; roofs will be covered with lead-coated copper. The complex is scheduled to begin construction this fall.

A meeting house and observation platform will link the complex with a lab being designed by Siegel Diamond. Barton Myers is also designing a stadium for Scripps, to be completed for the Institution's centennial in 2005.—*N.C.*



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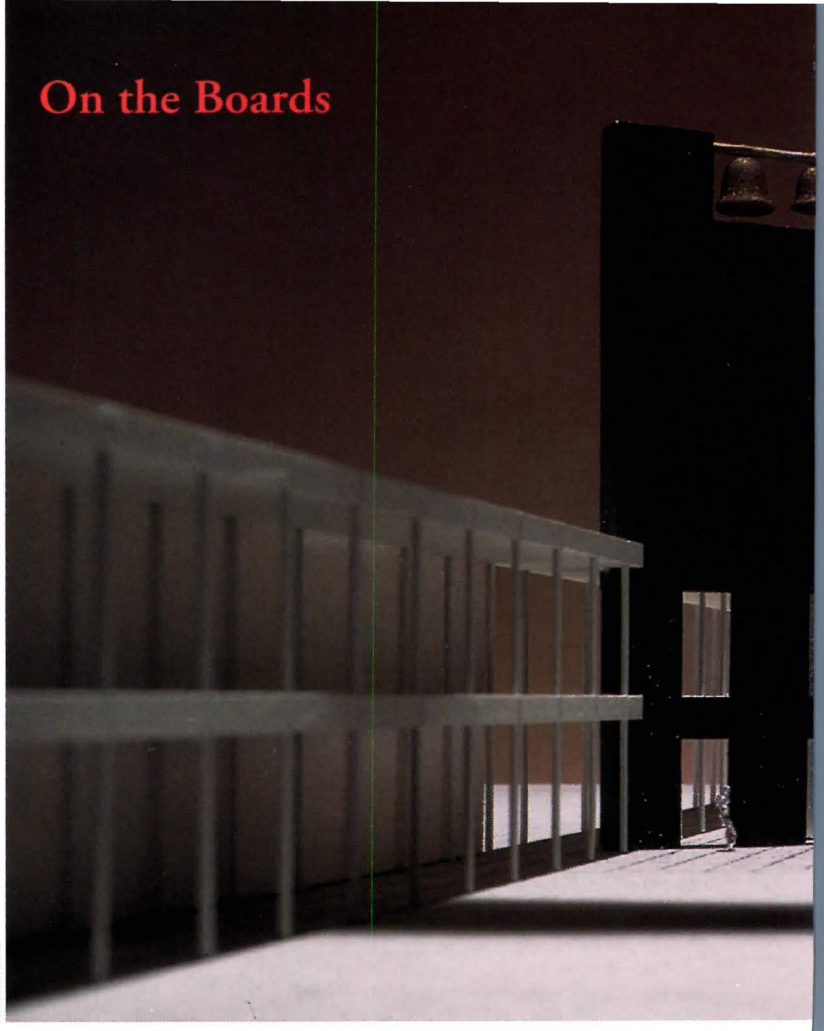
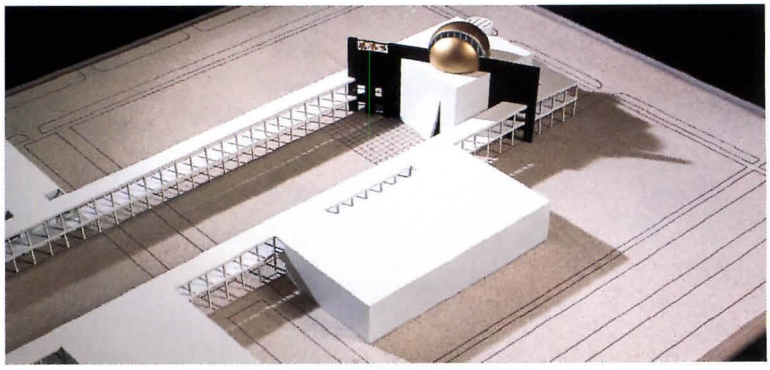
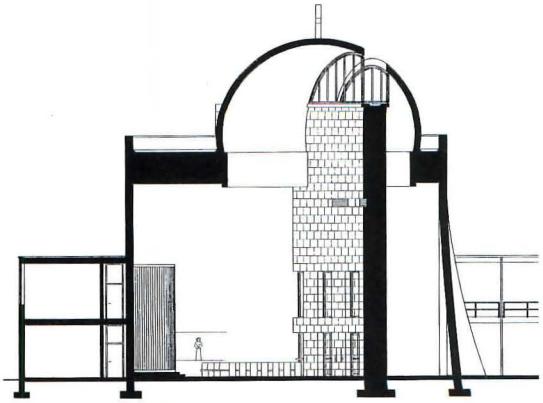
On the Boards

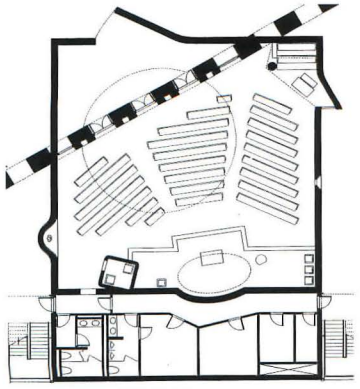


RICHARD PAYNE

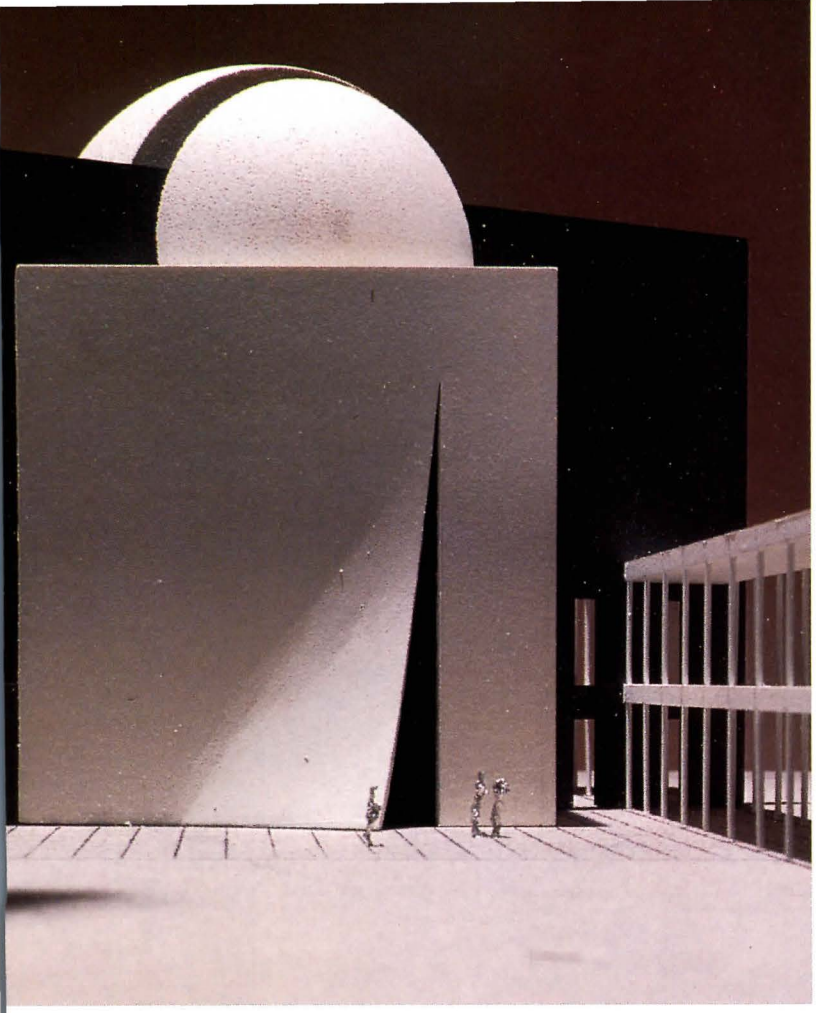




SOUTH-NORTH SECTION



MAIN FLOOR PLAN



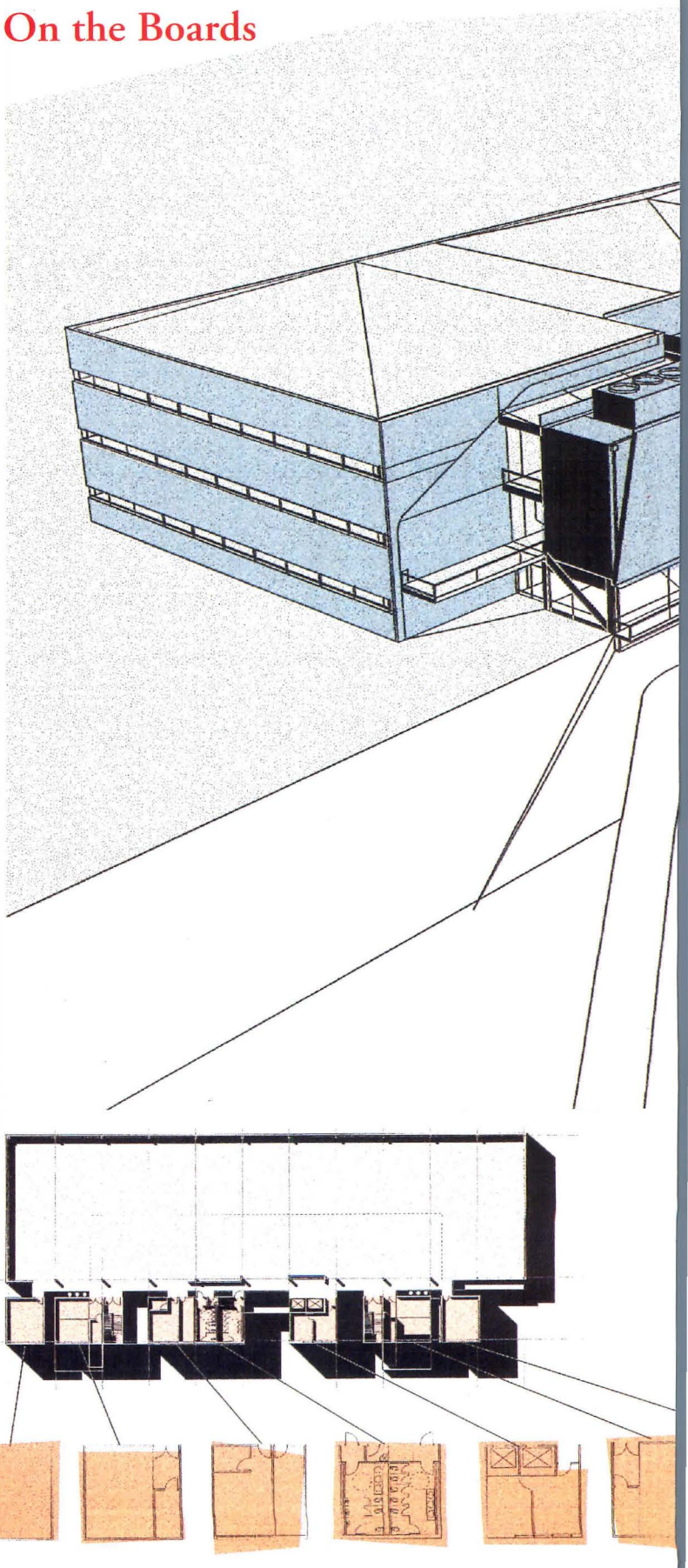
St. Basil Chapel
University of St. Thomas
Houston, Texas
Philip Johnson, Ritchie & Fiore Architects
in association with John Manley and Merriman Holt Architects

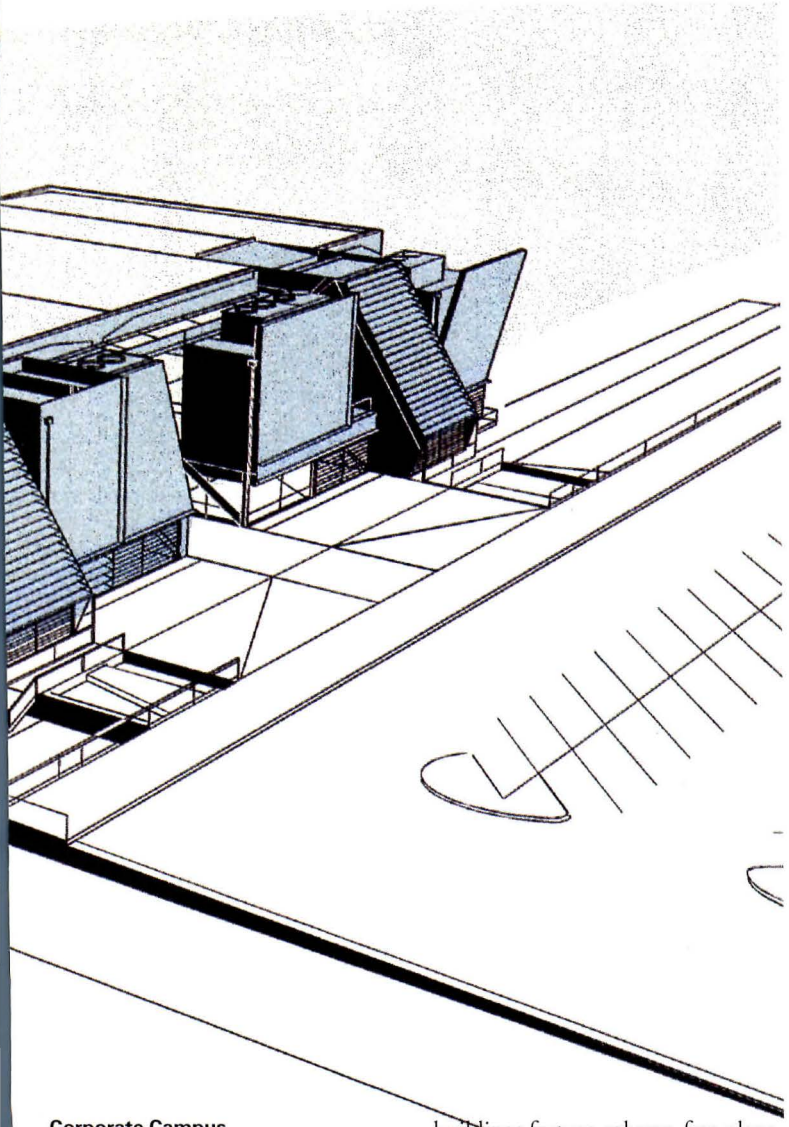
In yet another change to his game (ARCHITECTURE, November 1995, pages 74-78), Philip Johnson is adding a new chapel to the campus he designed in 1957 for the University of St. Thomas. Johnson's original work for St. Thomas, his first major commission in Houston, comprises a University of Virginia-inspired quadrangle rendered in a Miesian vocabulary of steel and glass. The architect refers to Jefferson in the quadrangle's axial plan and the two-story arcade that ties the buildings together.

The original plan was only partially completed, however, leaving the north end open. Johnson now returns to St. Thomas to terminate his axis and complete the quadrangle, certifying Houston's claim to the nation's richest collection of Johnsonia, including the St. Thomas campus and corporate office towers for Pennzoil (1976), Republic Bank (1983), and Transco (1983).

St. Basil Chapel adds a wink and a nudge to Johnson's earlier nod to Jefferson. The octogenarian architect boxes a rotunda within a 60-foot-high cubic volume, which is surmounted by a dome and sliced by an arcaded, diagonal black granite wall. Johnson's contrapuntal gesture is calculated to startle, even irritate, but it also informs through its juxtaposition: order is a temporal, fragile imposition on the disorder of eternity.

The stucco-clad building is entered through a gap in its southern face revealed as the wall sweeps back like a curtain flap. The modest nave focuses on lighting effects provided by episodic openings in the otherwise closed form, including skylights over the altar and a slot behind the organ. Construction of the $3.5 million, 6,800-square-foot building, which will seat up to 260, begins this spring and will be completed in March 1997.—*Reed Kroloff*





Corporate Campus
Philadelphia, Pennsylvania
The Hillier Group

San Francisco architect Wes Jones signed on last September as director of design for The Hillier Group's Philadelphia office. The first offspring of the marriage between Hillier, the nation's fourth-largest architecture firm, and Jones, renowned for his technologically inspired work with Holt Hinshaw Pfau Jones, is a six-building campus for a telecommunications company outside Philadelphia. The structural prototype is a boxy, speculative office building with modular appendages. The complex represents Jones's largest project to date and his first East Coast endeavor.

Hillier's master plan organizes five 3-story, 90,000-square-foot steel-framed buildings around a central courtyard and shared support facility. The corrugated-metal-clad base buildings feature column-free plans in order to accommodate flexible arrangements of cubicle-style workstations, laboratory benches, and manufacturing areas.

Angular volumes containing conference rooms, stair towers, elevator shafts, and services will project from one face of each building. These interchangeable modules will be clad in insulated metal panels like the buildings that anchor them.

The project is proceeding on a fast-track schedule fueled by last month's deregulation of U.S. telecommunications laws, which has telephone, cable television, and utility companies jockeying for position in a newly open market. Hillier's client is optimistic yet cautious: the campus plan allows for expansion, and the modules can also be changed to suit the needs of independent tenants if required. The first buildings will be occupied in the fall of 1997.—*A.C.S.*

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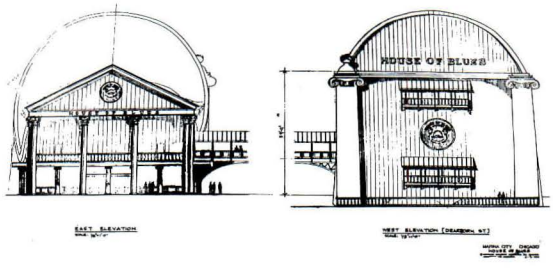
Chicago architect delivers Neoclassical slap on the Modern face of his own design.

MARINA CITY REVAMPED: Translucent cone will house restaurant; teardrop shelters entrance to existing condominiums.

THEATER: Goldberg's original abstract, lead-sheathed form.



TEMPLE FRONTS: Theater will undergo Classical facelift.

Maligning Marina City's Modernism

Octogenarian Chicago architect Bertrand Goldberg, who studied under Mies van der Rohe at the Bauhaus in Dessau and Berlin, is best known for the twin towers of Marina City on the banks of the Chicago River. The corncob-shaped concrete structures are just one part of what was hailed as the first mixed-use downtown development in the United States. Completed in 1964, they are joined by an underground arcade to a saddle-shaped theater, a 4-story commercial structure, a 10-story office block, and a riverside marina.

The Marina City complex is a series of tough buildings designed for a tough city. Their design logic is guided by innovative concrete structural concepts and by Goldberg's sculptural form-making, characterized by a dogged adherence to strong, sometimes ungainly, forms.

Now, a redevelopment of the complex's base threatens to trivialize the heroic towers by wedding a grotesque rendition of a Neoclassical temple front to the abstract, lead-sheathed theater. That a generally recognized Modern landmark could be forced to undergo such an inappropriate facelift might not be surprising given Chicago's recent destruction of Mies van der Rohe's noted Arts Club of Chicago interior (ARCHITECTURE, November 1995, pages 30-31).

But the most unbelievable part is that the designer of this offensive appendage is Marina City's original architect—Bertrand Goldberg, who contends improbably that the new facade reflects "the history of opera houses throughout the world."

The renovated theater will accommodate the House of Blues, one of a growing chain of celebrity-owned nightclubs that entertains its largely upscale, baby-boomer patrons with live music. Other components of the renovation include a 400-room hotel, a new marina facility, and a reconfigured riverwalk along the Chicago River. The proposal's best idea is to transform a dreary parking lot into a landscaped plaza animated by two translucent "tents," housing a new restaurant and escalators to an existing apartment building. At least the tents' funky forms and eccentric composition are sympathetic to Goldberg's original design.

The structural expressionism so clearly articulated in the original Marina City buildings rightly deserves to be maintained without a pastiche of tacked-on Classicism. Goldberg has failed to learn an essential lesson of Postmodernism: mixed use is good, mixed metaphor is bad.—*Edward Keegan*

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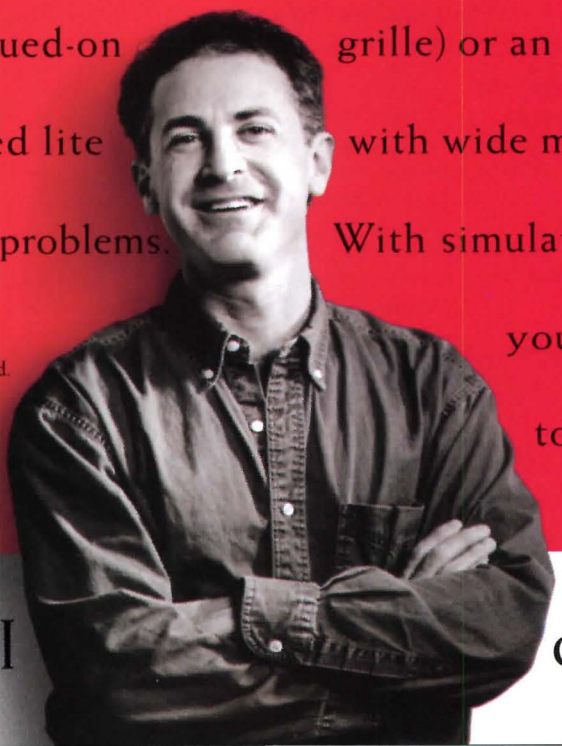

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Urban Waterfronts Revive Our Cities

More than festival marketplaces and tourist attractions, urban waterfronts are rebuilding city centers around the world.

Today's urban waterfront is strikingly different from the "festival marketplace" stereotype perpetuated by both reporters and architecture critics. In *Newsweek,* for instance, a story titled "Rough Sailing on the Waterfront" was not about waterfront development at all, but about faltering, 1980s-style retail-boutiques-with-food-courts such as Richmond's Sixth Street Marketplace, which is not even located on a river. Along the same lines, critic Ellen Posner writes in *The Atlantic Monthly,* "Waterfronts everywhere are being covered with large, upscale residential and commercial structures, with ironically named, extremely boring 'festival marketplaces' and, more and more, with huge aquariums."

The fact is, there are only perhaps 50 festival marketplaces located on bodies of water nationwide, and no more than a dozen or so of the major aquariums built since 1980 are on waterfronts. Yet we are given the impression that both are proliferating everywhere. Never mind that aquariums exert a powerful educational impact, that they represent civic investments of millions of dollars each, or that the festival marketplace formula became passé in the mid-1980s.

While critics focus on these glitzy installations, North American communities have been proceeding with major waterfront transformations that include everything from parks to stadiums to apartments. From Ketchikan, Alaska, to Kalamazoo, Michigan; from Conway, South Carolina, to Cincinnati, Ohio; from Kingston, Ontario, to Kingston, New York, thousands of major waterfront projects have been successfully planned and executed.

Downtown catalysts

There are plans for such projects in every part of the continent, on every body of water associated with a city or town, along rivers, canals, lakes, bays, and streams, even dry riverbeds. Generally, these undertakings are unknown outside their own jurisdiction or their state—even when they are as ambitious as creating a lake in Tempe, Arizona.

With the thousands of communities involved, the waterfront redevelopment phenomenon is a great urban success story. And since communities everywhere were born beside water bodies, today's waterfront revival is usually linked with the revival of the traditional historic downtown—an effect that is enjoying far more success than is credited, for all of the well-known problems of downtowns. However, this success does not mean each venture is economically, socially, or esthetically a knockout; it simply shows that a major community effort has taken hold in our downtowns, often against the current tide of suburban development.

The waterfront redevelopment phenomenon represents a historic shift of resources away from the transportation-related and industrial functions that have dominated port cities since the turn of the century, toward more varied, public uses today. What was once sealed off and forgotten territory has now become desirable, due largely to the massive federal water cleanup effort begun in earnest under the Clean Water Act of 1970. As water bodies are perceived to be cleaner, the existence of nearby fallow land, available at relatively low cost and usually without relocation of either residents or businesses, spells obvious opportunity.

From mixed-use to museums

A wide variety of productive uses has gradually replaced obsolete and abandoned waterfront lands and piers. Residences and condominiums range from upscale developments like Washington Harbour in Washington, D.C., to mixed-income housing at The Pointe at St. Joe in South Bend, Indiana. Waterfront office buildings have been constructed, including NationsBank's Florida headquarters in Tampa and the Quaker Tower on the Chicago River. Cultural facilities, such as aquariums in Chattanooga, Tennessee; Monterey, California;

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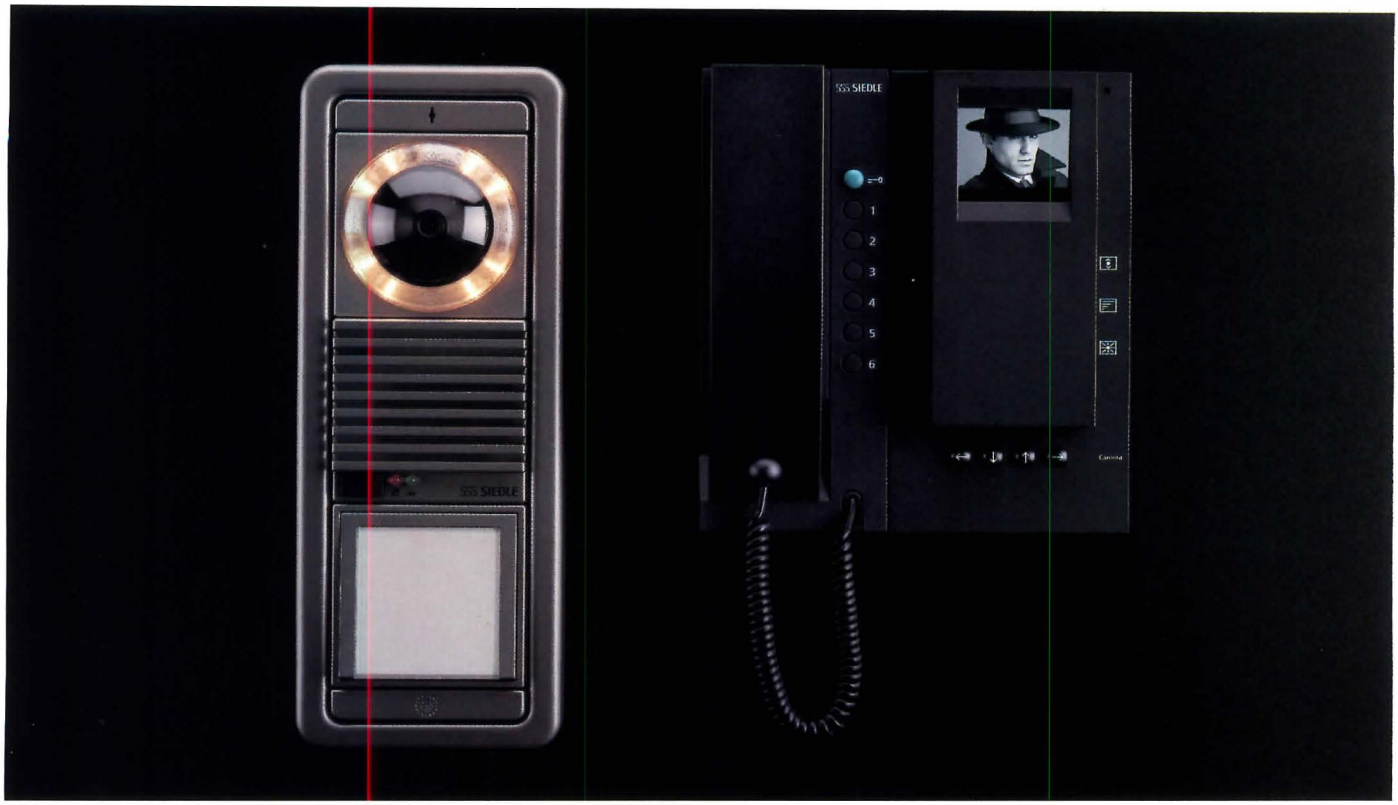

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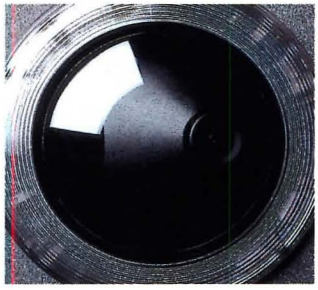

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and Newport, Oregon, join concert venues in Detroit's Chene Park, Cincinnati's Bicentennial Park, and the Lake Harriet Bandshell in Minneapolis, Minnesota.

Museums have also been built on waterfronts, such as the Texas Seaport Museum in Galveston and the Virginia Air and Space Center in Hampton. Public art has been designed for waterfronts from Battery Park City, New York, to Grand Rapids, Michigan. Mixed-use projects run the gamut from the industrially inspired Granville Island in Vancouver and LaClede's Landing in St. Louis to the restored Historic Properties of Halifax, Nova Scotia.

Adaptively reused factories, warehouses, and rail facilities feature everything from mixed-use with housing (at Queen's Quay in Toronto) to shops and restaurants (Brown's Wharf at Baltimore's Fells Point) to civic facilities (the old Union Depot in Davenport, Iowa). New industrial installations are also a major feature in the development of a number of waterfronts, as with the outstanding design of the Coastal Cement Terminal and Offices in Boston and Fisherman's Terminal in Seattle.

New recreational and open spaces abound, such as dramatic Liberty State Park in New Jersey across from lower Manhattan, or the handsome Waterfront Park near the Battery in Charleston, South Carolina. Marinas expand along lakes, rivers, and bays to meet a growing boating population: boat sales were up 22 percent in 1995 over the previous year, which in turn represented a 25 percent gain over 1993.

The emphasis is on public spaces, not commercial imagery. In fact, the recreational public realm along late-20th-century waterfronts may be regarded as equal to the City Beautiful or Works Progress Administration contributions of earlier times.

Waterfronts worldwide

Waterfront redevelopment is decidedly a global phenomenon. Japan, for example, has established the Waterfront Revitalization Research Center in Tokyo, with a staff of 30 and an annual budget of $10 million. Supported by the Ministry of Transportation, the Center in 1993 counted 63 Japanese cities with major waterfront developments. In Osaka alone, a development firm identified 107 individual sites with waterfront projects under way; 65 of these added up to $120 billion of investment.

A survey of the United Kingdom by the Urban and Economic Development Group in London examined 90 waterfront projects in 1989, 70 percent of which involved 10 acres or more. Waterfront development is occurring in traditional European cities on the Continent as well. Along the Seine in Paris are Parc Citroen at the site of a former automobile plant, the new National Library on an old railyard, and Parc de la Villette at a former stockyard in the eastern part of the city. Major waterfront projects also exist in Hamburg, Amsterdam, Manchester, Birmingham, and Barcelona.

Architectural opportunities

In other words, urban waterfronts represent trillions of dollars of investment and, incidentally, some of the most striking architectural opportunities of the day. A number of waterfront redevelopment undertakings are truly huge: Cardiff Bay, Wales, involves 2,700 acres; Teleport City in Tokyo, now well under construction on landfill in Tokyo Bay, comprises 1,107 acres; Japan's Minato Mirai 21 project, also under construction, covers 460 acres in Yokohama; Puerto Madero in Buenos Aires, involving the restoration of 16 huge warehouses, occupies 420 acres. Near Rotterdam's central business district, the Kop von Zuid development is situated on 308 acres of former industrial and shipping lands. Darling Harbour in Sydney, Australia, represents an overhaul of 148 acres of abandoned railyard.

Other notable waterfront projects are not necessarily big in size, but have had huge im-

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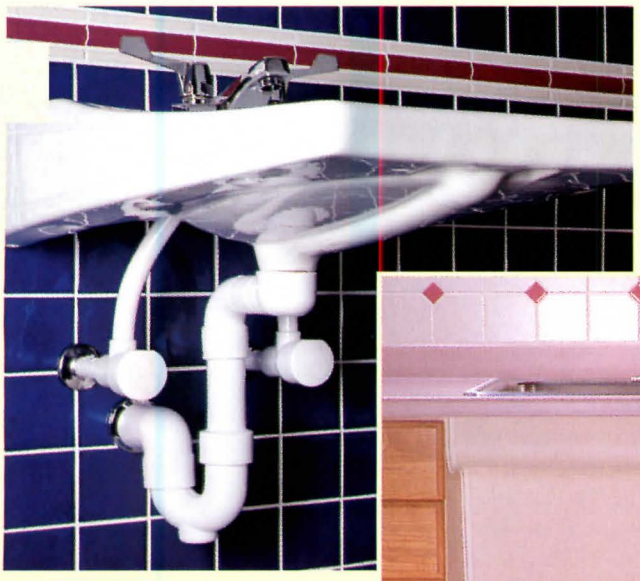

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pacts on improving communities. In the U.S., the River Relocation Project in Providence, Rhode Island, is the focal point of a city center makeover (ARCHITECTURE, January 1996, page 33). Abroad, Oslo's Aker Brygge mixed-use project beside the city hall has transformed a former shipyard by combining restored buildings and sparkling new construction. The Docks of Marseille, a warehouse restoration, is a major reuse of former port buildings as offices and shops. On the Kuching waterfront in Malaysia, a stretch along the Sarawak River near the city center, once totally deteriorated, has been reshaped into a lovely landscaped promenade and city square. The Southgate mixed-use project in Melbourne, Australia, has made the south bank of the Yarra River newly popular.

Public participation

The urban waterfront transformation has a dark side—the major loss of blue-collar industrial jobs at factories, warehouses, transportation industries, and ports. This phenomenon represents the current major social problem of industrialized countries as work continues to shift to lower-wage countries in Asia and Latin America. In one sense, the urban waterfront phenomenon can be seen as building on the distress caused by industrial dislocation, a partial response by cities to the decline in jobs.

There are other lessons to be learned from waterfront revitalization, nowadays fed by its own success stories. One is to resist copying what has succeeded elsewhere, and instead to be true to the history of each place. Another is to insist on hard-nosed economic analysis and never rely on wishful thinking—the kind that led to the failure of an ambitious luxury hotel and festival marketplace on Toledo's waterfront in the 1980s.

A third lesson is to involve the public directly in preparing plans and designs, not just in meaningless hearings or token "visioning" sessions that leave all the decision making to architects, planners, and other design professionals. Few places in a community will evoke as much emotion as the waterfront: better to invite public debate at the beginning than face hostile neighbors later. Participatory planning is enjoying a comeback after its popularity during the 1960s; recent examples of communities employing a citizen-based planning effort range from East Boston, Massachusetts, to Hudson, Wisconsin, and Oakland, California.

The failure of the popular press to recognize what's occurring on waterfronts and city centers today reflects this country's general antiurban emphasis. The American tradition, going back to Thomas Jefferson, is suspicious of cities. Thanks to our lack of urban concern—now that half the population lives in suburbs—there exists a general impression that most cities have died anyway. It was a surprise for many during the 1995 World Series to see that downtown Cleveland still possesses vitality.

In a more urban-oriented society, waterfronts would be heralded as a great story of ingenuity, perseverance, overcoming odds, entrepreneurial risk-taking, and imagination. After all, the cultural heritage of our country doesn't lie in the suburbs, even those like Kentlands, Maryland, developed under the aegis of the popular New Urbanism. The repository of our rich cultural heritage rests in the cities—the Pittsburghs, Oaklands, Louisvilles, Galvestons, Shreveports, and Rock Islands of America.

The urban waterfront remains an exciting frontier, an opportunity for the architectural profession to take the lead in making a public case for reinventing our city centers as environmentally necessary, socially responsible, and culturally imperative places.—*Ann Breen and Dick Rigby*

Ann Breen and Dick Rigby are cofounders of the Waterfront Center in Washington, D.C., and the authors of The New Waterfront: A Worldwide Urban Success Story, *to be published by Thames and Hudson this fall.*

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The Salk's New Neighbors

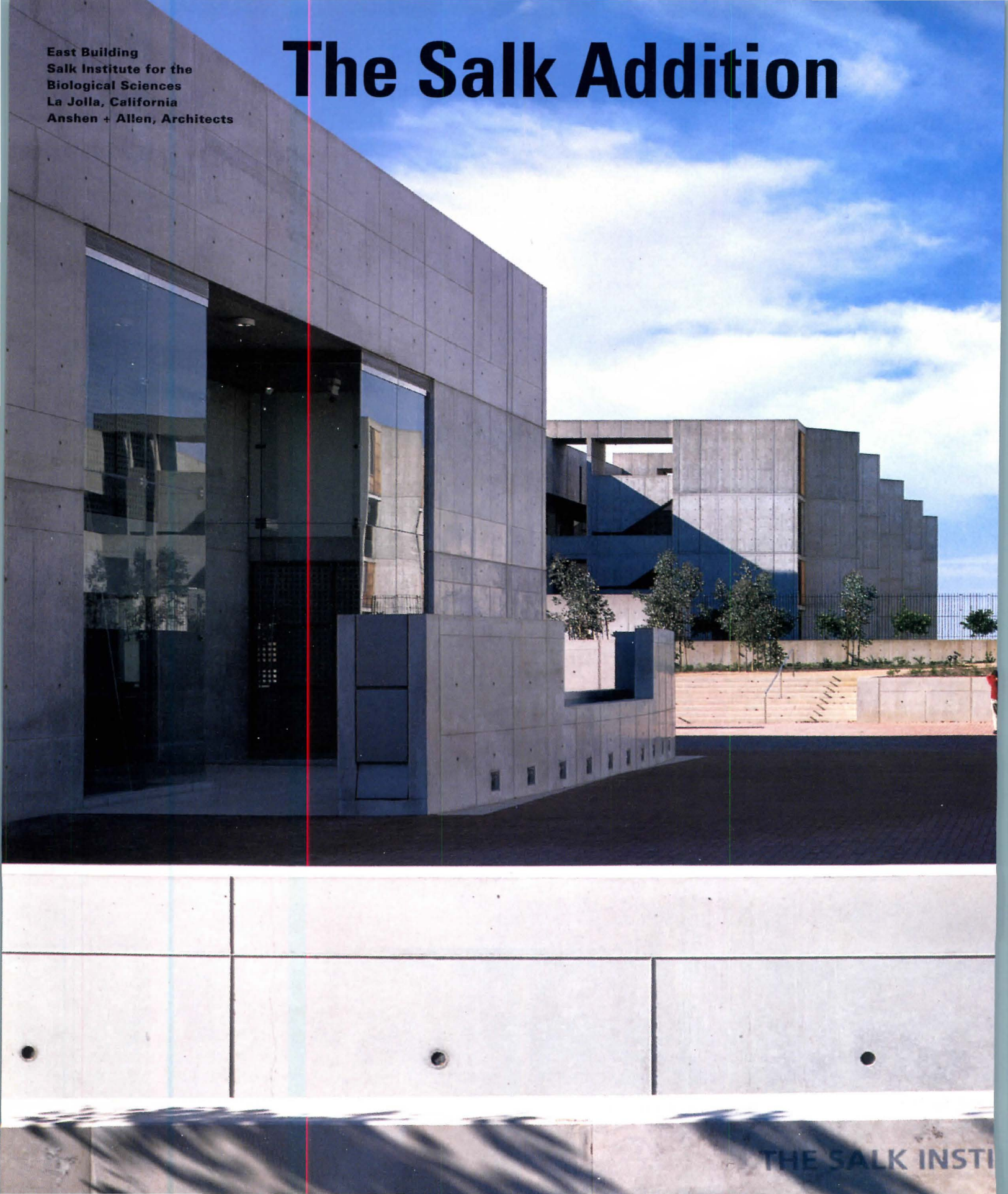
Scientists and architects are natural allies: both thrive on a combination of the practical and the visionary, gambling millions of dollars on risky designs. The most famous team paired two brilliant iconoclasts—Jonas Salk, inventor of the polio vaccine, and architect Louis Kahn—in a match that can never be reprised. Kahn's Salk Institute (1965) casts a long shadow over subsequent laboratory designs, in particular over Anshen + Allen's addition to the Salk (above), which defers too decorously to the monumental original.

Less than a mile away, architects Tod Williams and Billie Tsien worked with Nobel laureate Gerald Edelman to design the new Neurosciences Institute. This small research facility successfully distills the brain's evolutionary nature into a scientific monastery that encourages multiple interpretations.

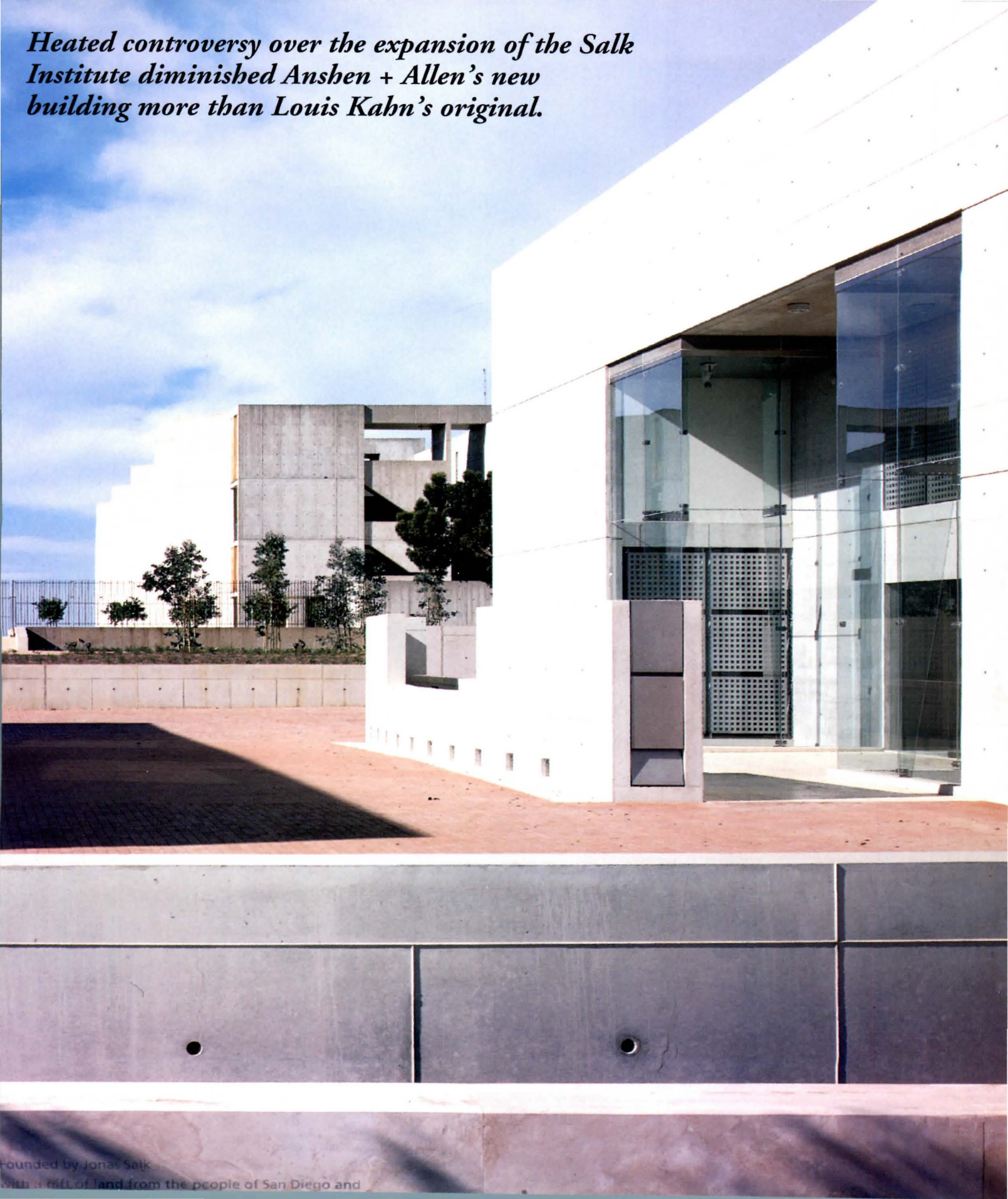
Architects and scientists have collaborated in other locations to build on the Salk's legacy. In Pittsburgh, Bohlin Cywinski Jackson's latest addition to a technology park demonstrates Carnegie Mellon University's commitment to research and urban revitalization. Frank Gehry's headquarters for a German electric company, meanwhile, fulfills science's civic responsibility by transforming the building into a demonstration of energy-saving devices. For science, like architecture, is concerned not only with meeting the needs of the present, but anticipating the demands of the future.

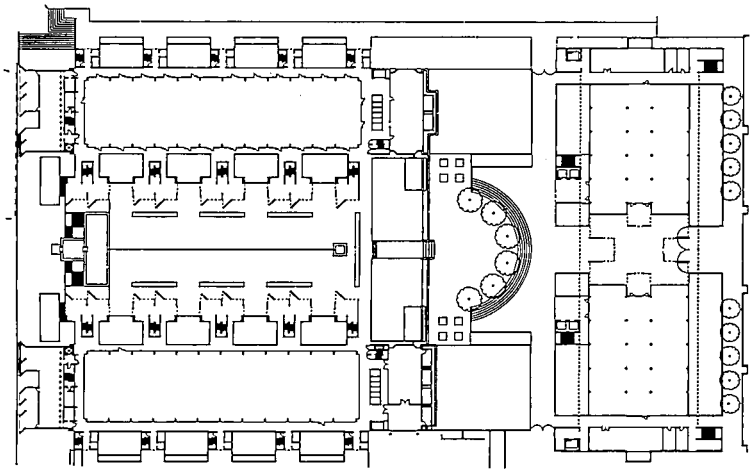
The Salk Addition

East Building
Salk Institute for the
Biological Sciences
La Jolla, California
Anshen + Allen, Architects

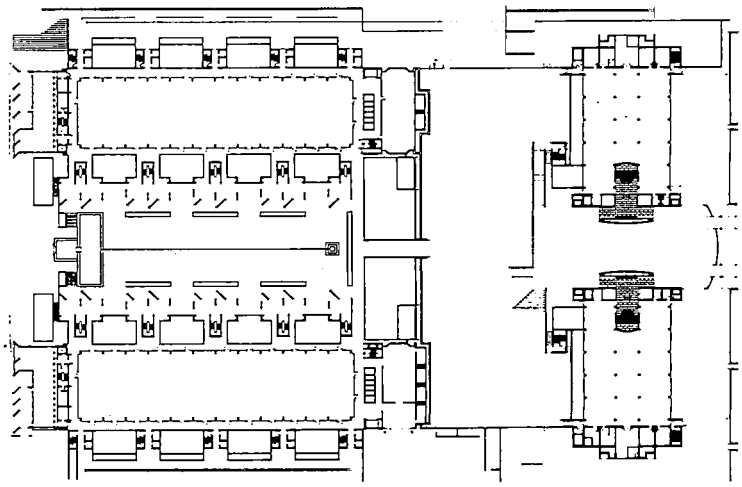


Heated controversy over the expansion of the Salk Institute diminished Anshen + Allen's new building more than Louis Kahn's original.

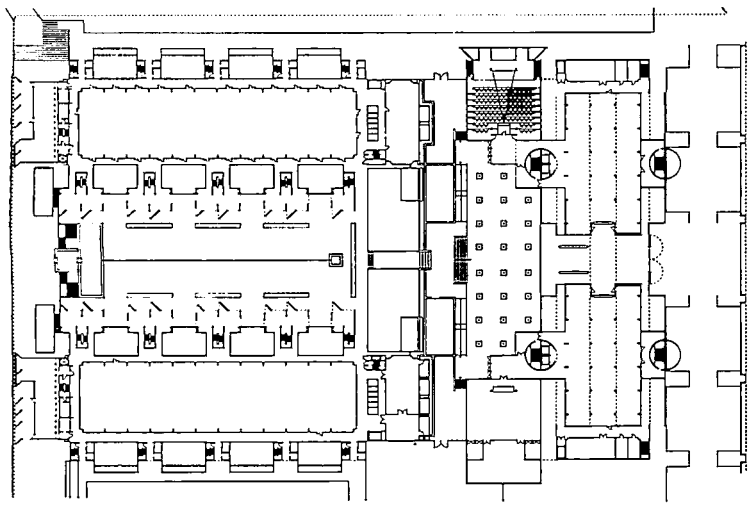




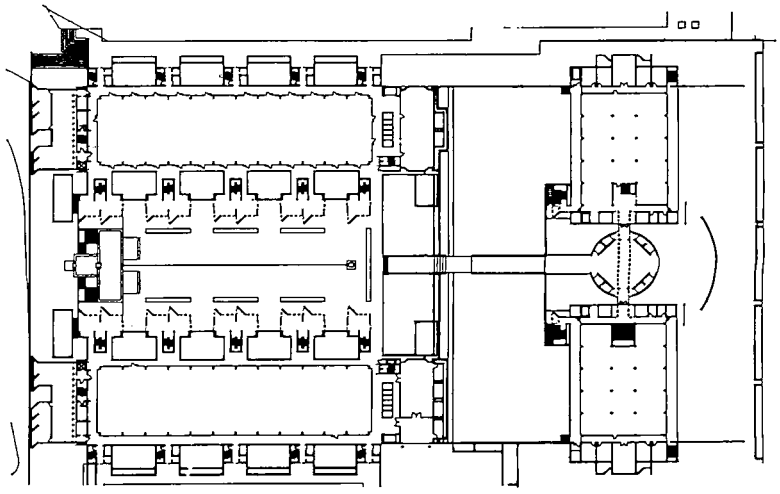
THIRD SCHEME – JANUARY 1990



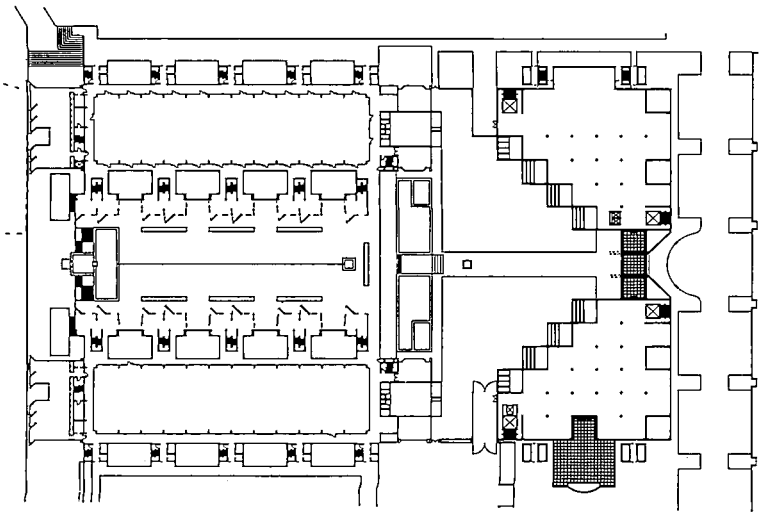
FINAL SCHEME – OCTOBER 1992



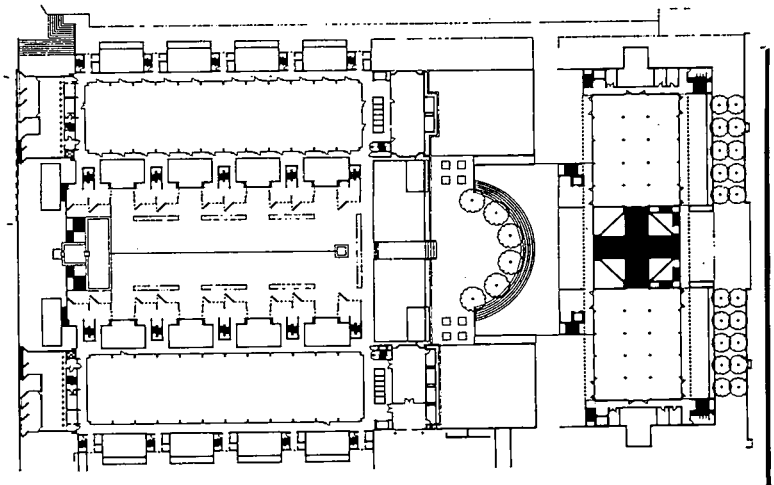
SECOND SCHEME – NOVEMBER 1989



FIFTH SCHEME – DECEMBER 1990



FIRST SCHEME – JANUARY 1989



FOURTH SCHEME – JANUARY 1990

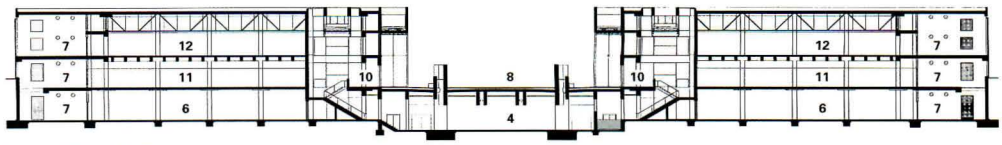
120'/36m

When Louis Kahn asked Luis Barragán how to landscape the open area between the two laboratory structures at the Salk Institute for the Biological Sciences (1965), the Mexican architect walked over to one building, touched its concrete, and corrected Kahn's question at its premise. The space should not be a garden at all, Barragán concluded from its smooth, urbane surface, but a plaza paved in stone cut by a channel of water.

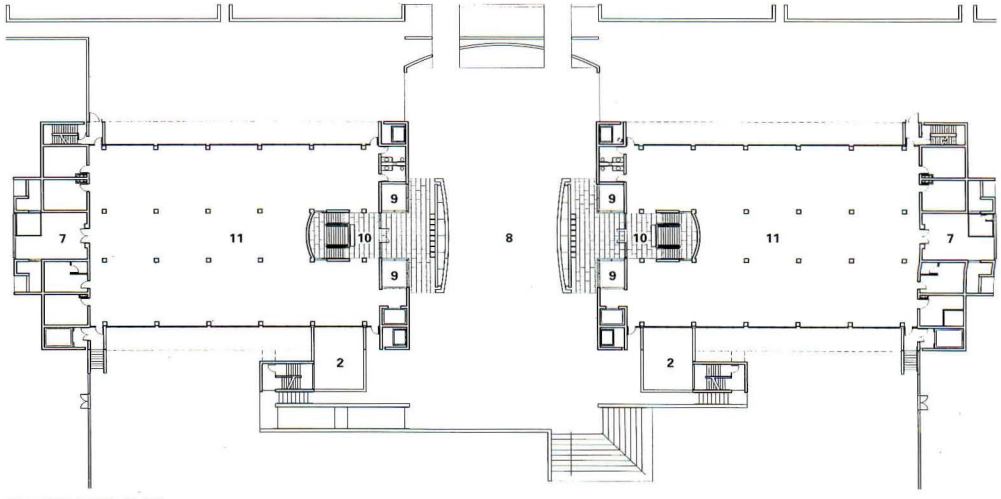
The rest is architectural history: a square surfaced in travertine with a rivulet channeled straight down the middle to the Pacific. The parallel five-story buildings, with windows angled toward the view, frame the plaza, sky, and vista with what seems a blank, serrated facade that directs perspective to a vanishing point just above the lip of the stream as it virtually pours into the Pacific. Kahn's design applies the venerable Renaissance device of viewing nature through a man-made frame, but it also anticipated land art by many years, grafting earth, sea, and sky.

The animated debate about the recently completed addition to the Salk by Anshen + Allen pivoted on the issue of a "sacred" grove of eucalyptus trees east of the plaza that both screened a parking lot and offered tantalizing uphill paths which heightened the experience of approach. Though Kahn considered the grove an entry room to the court, his drawings, including a site plan filed with the San Diego Planning Department, suggested he did not plan any such grove. Jonas Salk, the client who actively husbanded the original design to its final form, recalled that the trees were happenstantially planted over the years by a caretaker as a way of filling a drainage ditch. Saving the grove rather than building the addition, then, was not a matter of respecting the original plan but of conserving a serendipity that had evolved over time.

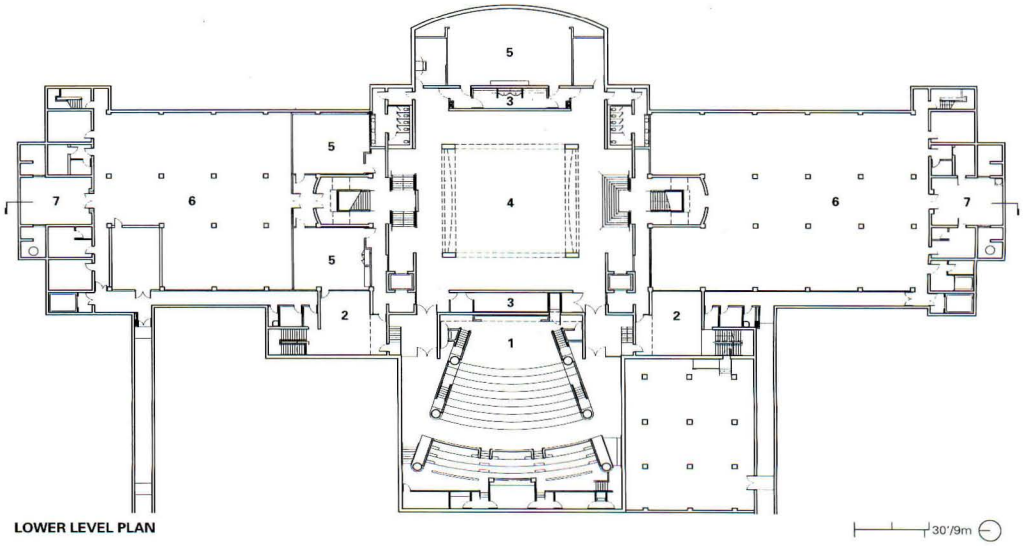
It can actually be argued, with Barragán, that the very materiality of Kahn's masterpiece urbanized the whole precinct, and that maintaining the grove was not the only way to reinforce the essential nature of the building. In the site plan that Kahn filed, dotted lines indicated that what became the site of the grove was to be reserved for future buildings: the unstructured experience of walking through the grove could justifiably be replaced with a structured one emanating from a new building. The sun's rising at the east end of his plaza and setting at the west end—Kahn wanted his complex to court the sun—could happen just as well over a designed hardscape as over landscape.



SOUTH-NORTH SECTION



GROUND LEVEL PLAN



LOWER LEVEL PLAN

1 AUDITORIUM
2 LIGHT COURT
3 FOOD SERVICE
4 FOYER
5 MEETING ROOM
6 LABORATORY SUPPORT
7 SERVICE
8 ENTRY COURT
9 LIGHT WELL
10 LOBBY
11 DRY LABORATORY
12 LABORATORY

PREVIOUS PAGES: Axial view of Kahn's Salk Institute is framed by addition.
FACING PAGE: Iterations of Anshen + Allen design show how addition moved progressively farther east, and auditorium was centralized below grade. Court stayed on axis.
SECTION: North and south wings of addition are linked below grade by reception hall for auditorium.
PLANS: Columns are paired down center of lab floors (top plan) to provide wide service corridors for equipment.

TOP: Upper floor of east facade of south wing is clad in stainless steel screens.
ABOVE: Labs' 117-foot-long glass walls open onto outdoor "streets" for informal scientific socializing.
FACING PAGE, TOP: From Kahn's plaza, view west beyond former eucalyptus grove shows undefined area between old Salk and new buildings.
FACING PAGE, BOTTOM: North end of north wing is clad in mill-finish, glass-bead-blasted stainless steel.

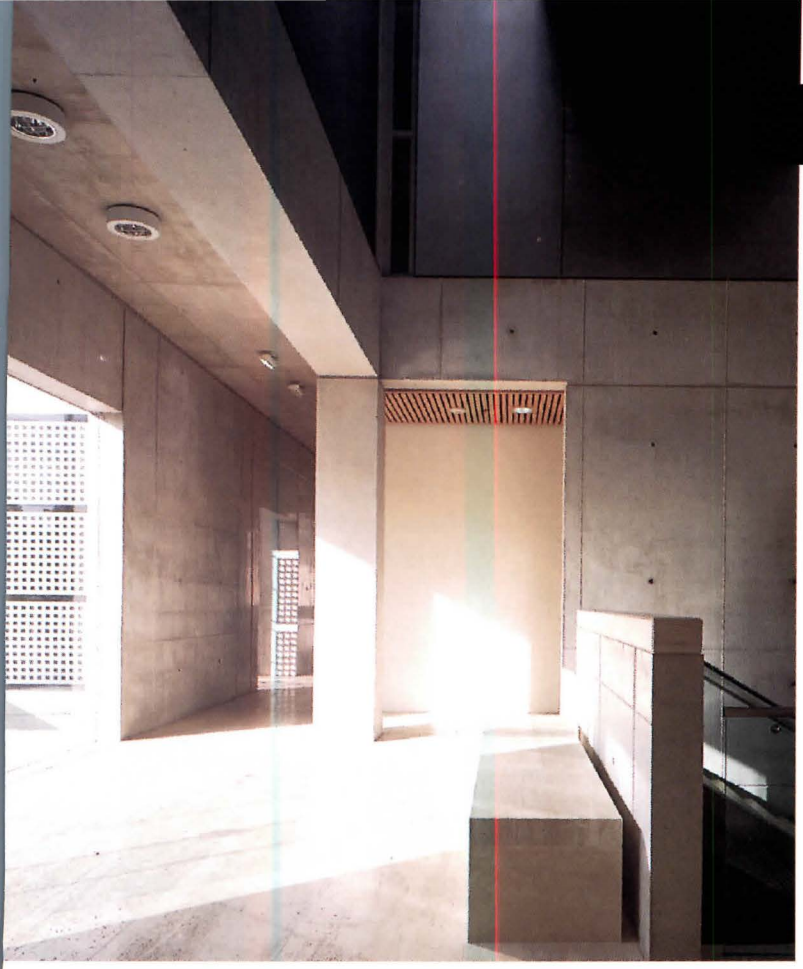
A looming question for Anshen + Allen in designing the East Building's new labs and administration spaces, then, was not simply how to accommodate the 110,000 square feet of program, but how to relate the addition to the parent building so that the approach builds to a climax at Kahn's acropolis. A related issue made obvious by the debates was whether design of any integrity was possible in an overheated atmosphere in which the community of opinion—however well intended—is a driving agent of compromise. In many ways, the fury surrounding the design proved counterproductive to its goal.

The addition designed by David Rinehart and John MacAllister of the Los Angeles office of Anshen + Allen is a highly literate, modestly scaled building that refers and defers to Kahn's in mass, orientation, and language. The two architects, who worked with Kahn on the original Salk, extend the axis of Kahn's plaza east to bisect their own building into halves that form a new plaza. The structures accommodate labs on the second floor, dry labs (without plumbing) on the ground floor, and below-grade spaces conceived originally for storage that may now be used as laboratory support. An auditorium is also located below grade, off a large reception and exhibition hall that joins the two wings underground.

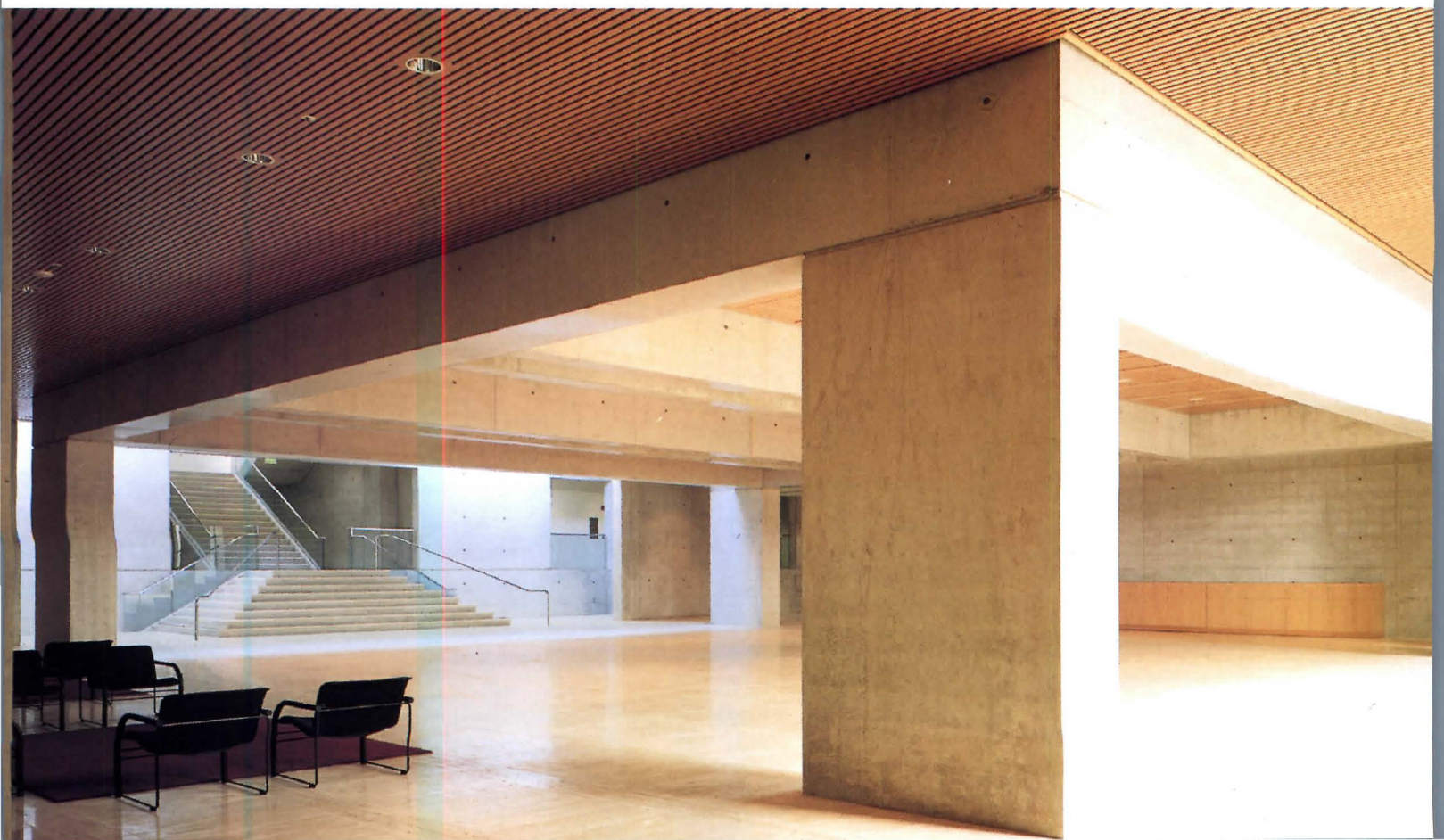
The long east and west facades are so restrained and respectful that they verge on blandness. The glory of the twin structures is the pair of facades that face one another. Here, shaping a new north-south axis that crosses the east-west axis extended from Kahn's plaza, Rinehart and MacAllister create an urban precinct of facades bonded by their mirror image. The facades speak Kahn's monumentalizing language of elemental forms substantiated by elemental materials, and their grip across the plaza is magnetizing.

Surrounded by a massive frame built in concrete stirred to recipes that have improved on Kahn's, walls of articulated structural glass with buttressing fins open to an entrance and staircase designed with the primary geometries that gave Kahn's buildings such a sense of gravity. Like Kahn, the two architects emphasize the static, rather archaic, character of their forms to imply permanence, and the ideal forms are crisply realized with masterful detailing. The palette of materials and colors is controlled within a light, limited range—travertine, concrete, and stainless steel; beige, soft gray, and blond.

The promenade from the two buildings to Kahn's acropolis is a more problematic design. Anshen + Allen and Salk responded to




EXIT



the criticism first by downscaling the size of the original project and then by placing it farther away from Kahn's complex. They leave enough space for a strip of eucalyptus, although the strip is barren of trees down the middle, where the shallow underground auditorium prevents deep planting.

Neither treescape nor hardscape, the space between their plaza and Kahn's emerges as a conceptually muddled demilitarized zone that establishes no link between original and newcomer. In its unshaped openness there is a spatial bleed that fails to take the eye from the lower to the upper plaza with any conviction: The rise drops the ball, giving away the surprise at the top without replacing the eucalyptus grove with a different structured idea (the Spanish Steps or the Propylea suggest themselves as alternative paradigms for a "built" approach). This middle ground then loses what Lawrence Halprin calls its "upward pull" and substitutes no other force.

Heeding other criticism, Rinehart and MacAllister eliminated both a bridge connecting their bifurcated building and an entry rotunda originally proposed for the middle of the plaza. Unfortunately, the loss of the bridging elements now allows an unobstructed view into a decidedly anticlimactic parking lot to the east, hardly a worthy pole to the Pacific vista that Kahn's buildings frame. The removal of the proposed rotunda also eliminated the point from which the axis up to Kahn's complex emanated. No longer is there a marker for the intersection of Kahn's east-west axis and Rinehart and MacAllister's north-south axis: the two axes cross without acknowledgment.

The great challenge of the commission was how to design the encounter between Kahn's court and the new ground. But the controversy not only humbled a plan that had merit, it also tolerated and even encouraged prosaic, do-little possibilities while proscribing any ventures with potential to soar. Design-shy from so many pouncing critics, no one, probably not even Kahn himself, could possibly propose meeting Kahn on his own terms or taking him further into his own realm—for example, by developing directions revealed through the recent work of earth, light, and space artists such as Dennis Oppenheim, Richard Long, and James Turrell.

Kahn was prescient in the way he designed the sky, earth, and ocean by manipulating the void. The fundamental design problem was not so much the new complex as a building, but how the building shaped its own open space and the space leading to

FACING PAGE, TOP LEFT AND RIGHT: Addition's interior entrance leads to skylit double staircase. Floor is paved in travertine; ceiling is finished in anigré.
FACING PAGE, BOTTOM: Underground atrium, used as reception area for lecture hall, links south and north wings of new building.
ABOVE: Entrance to East Building is enclosed by tempered, 1-inch-thick plate-glass walls, fastened by brushed stainless steel fittings, that act as clerestory windows to lower level.

SALK EAST BUILDING
LA JOLLA, CALIFORNIA

ARCHITECT: Anshen + Allen, Architects, Los Angeles—John E. MacAllister (principal-in-charge); David Rinehart (design principal); Thomas Chessum (project director); Jay Hughey (project architect for design); David McCarroll (project manager for construction); Pam Birkel, John Hersey, Ramon Klein, Kim Smith, William Tetrick, Alek Zarifian (project team)

LANDSCAPE ARCHITECTS: Sherr & Wagner Landscape Architects; Kawasaki Theilacker Ueno + Associates
ENGINEERS: Ove Arup & Partners California (structural/mechanical/electrical); Barrett Consulting Group (civil)
CONSULTANTS: Earl Walls Associates (laboratories); Carmen Nordsten Igonda Design (interiors); Debra Nichols Design (signage); Cermack Peterka Petersen (air movement); Rabourn Associates (conference center); Grenald Associates (lighting); Arup Acoustics (acoustics/vibration); Rolf Jensen & Associates (code compliance); Heery Program Management (project management)
GENERAL CONTRACTOR: McCarthy Brothers Company
COST: $21 million
PHOTOGRAPHER: Timothy Hursley

Kahn's worldly and otherworldly plateau. Rinehart and MacAllister leave their emptiness relatively unarticulated. It loses focus, failing to telegraph any message up the hill.

Kahn's buildings not only frame the sky, they also thrust the space out toward the horizon. The buildings created by Rinehart and MacAllister may extend Kahn's axiality east, but they do not cast the space as a vector as Kahn did; their buildings do not drive it to any goal in the near or distant landscape. The massing of the buildings, for example, does not tighten toward the west to "force" perspective landward, and the windows do not angle west to create a view that reciprocates Kahn's seaward view.

Furthermore, the twinned buildings are too low, too far apart, and too settled in the ground to carve out and compose a piece of the sky. Their void is lax. Besides providing serviceable labs and meeting spaces, the point of the commission was less about designing objects in the landscape than about shaping emptiness into meanings related to landscape and what might be called Kahn's ether.

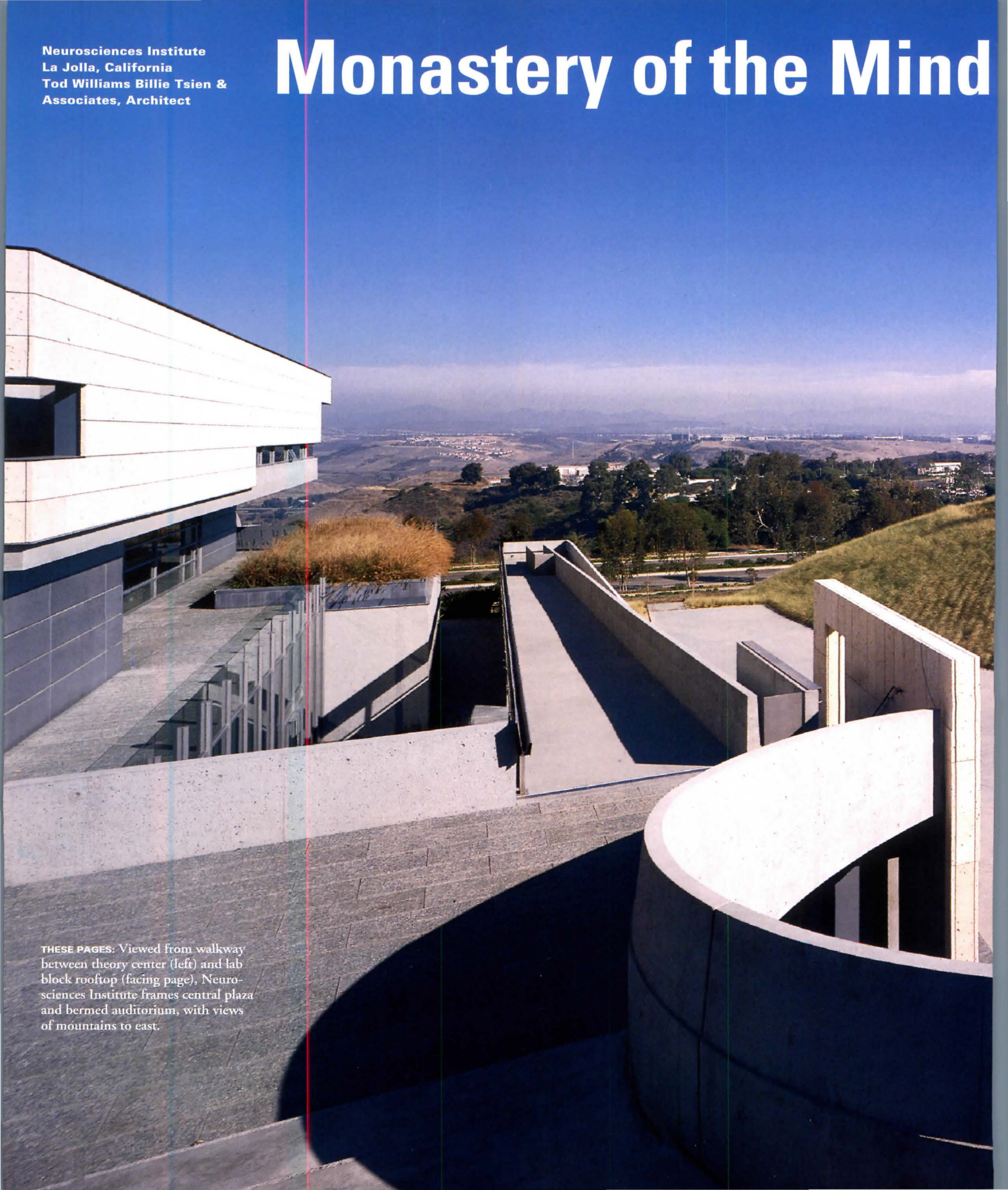
Uprooting the stand of eucalyptus weakened the plateau and the sequence through it, but it did not necessarily have to. The idea of creating a structured sequence up to the plaza was pointedly identified by Salk but not really legitimized during the debates, and unfortunately Rinehart and MacAllister understandably avoid stepping into the no-man's-land with a commanding design. The rise is really barren because it became so radioactively controversial: Designers, keep off the slope; fear to tread.

Whether through lack of insight on both the part of Kahn preservationists and Anshen + Allen, or from fear of further accusations of esthetic trespass, the open spaces that pivot the Salk site, transferring the focus from lower to higher ground, effectively remain undesigned in the new addition. They do not harness the tensions that, in Kahn's epiphany, bind earth, sky, and sea in such sweeping magnificence.—*Joseph Giovannini*

TOP LEFT: Exterior staircase connects once and future eucalyptus garden to second-floor labs' exterior corridor and to basement conference room.
ABOVE LEFT: Basement meeting room looks out into landscaped, below-grade courtyard.
FACING PAGE, TOP LEFT: Corridor off basement reception hall leads to auditorium. Concrete of exterior is carried through to interior.
FACING PAGE, ABOVE RIGHT: Frederic De Hoffman Auditorium can accommodate audience of 300.
FACING PAGE, BOTTOM: Paneled in anigré, lecture hall has side walls that baffle noise from access corridors leading from front of auditorium.

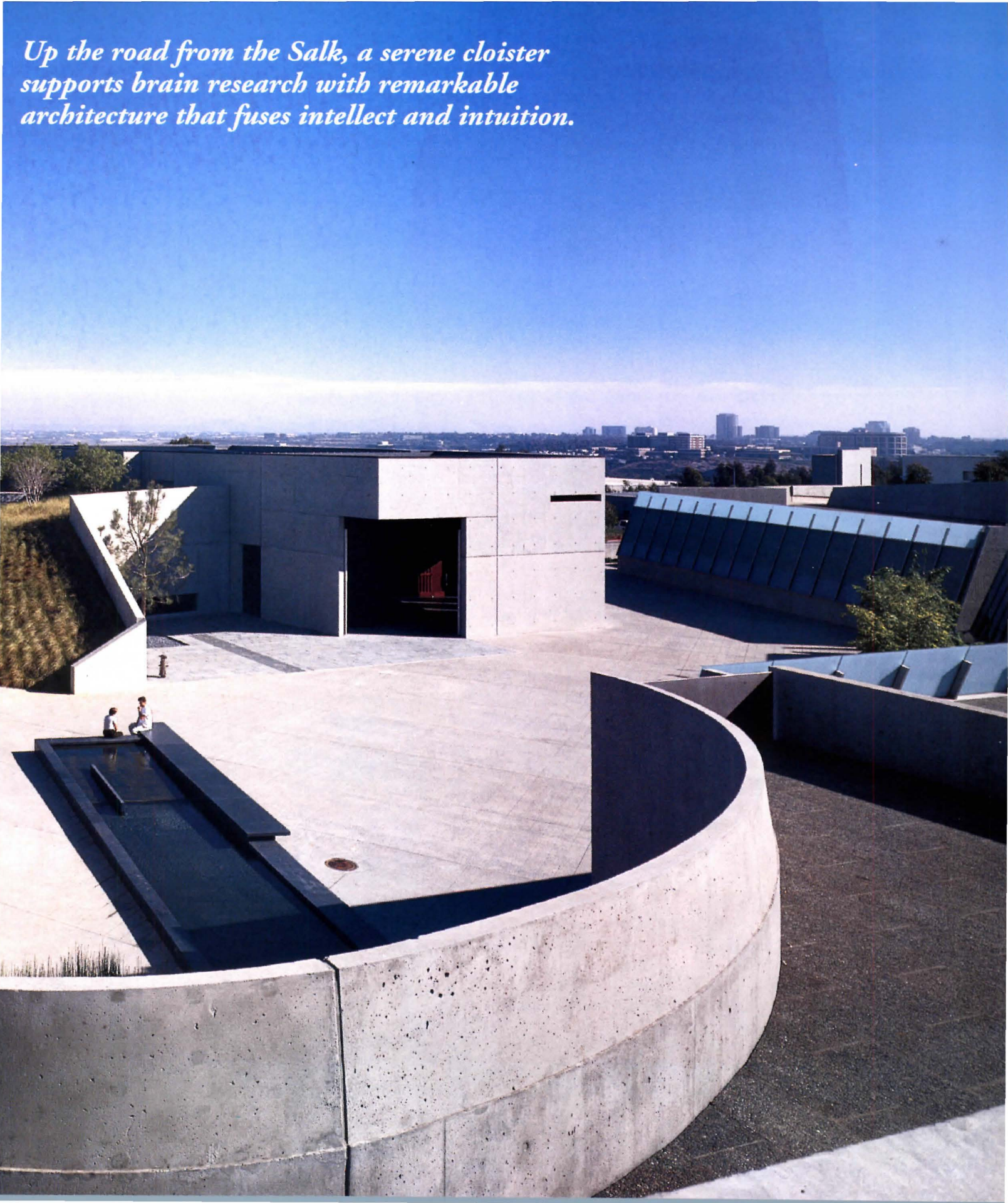
Neurosciences Institute
La Jolla, California
Tod Williams Billie Tsien & Associates, Architect

Monastery of the Mind



THESE PAGES: Viewed from walkway between theory center (left) and lab block rooftop (facing page), Neurosciences Institute frames central plaza and bermed auditorium, with views of mountains to east.

Up the road from the Salk, a serene cloister supports brain research with remarkable architecture that fuses intellect and intuition.



Scientists at the Neurosciences Institute in La Jolla, California, study how we perceive, imagine, learn, and remember. Since last fall, this journey into the brain's cognitive and emotive workings has been conducted within an intimate cloister of buildings designed by Tod Williams Billie Tsien & Associates to encourage experimentation and discovery.

Formerly housed on the Rockefeller University campus in New York City, the Neurosciences Institute moved to La Jolla five years ago at the invitation of the Scripps Research Institute. Scripps provided significant funding for the construction of the new complex and now leases it to the independent organization. The new buildings are nestled into a hillside across from the Scripps campus on North Torrey Pines Road, and connected to their neighbor by a tunnel. More importantly for architects, they are located less than a mile from the Salk Institute for Biological Sciences designed by Louis Kahn.

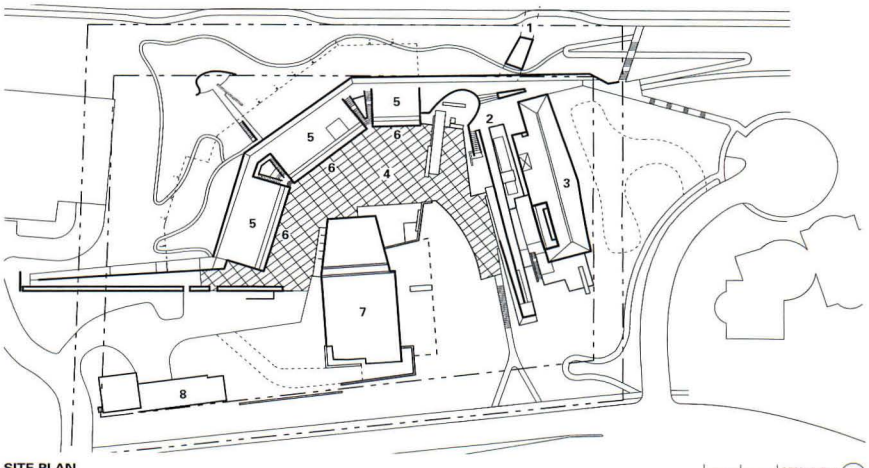
"We knew we needed to contend with the Salk," admits Principal Tod Williams, "but we obviously didn't want to copy it." Like Kahn, the New York architects sought to create a "scientific monastery" for up to 50 visiting researchers and permanent support staff. However, they rejected the symmetry and frontality of Kahn's design, characterized by Principal Billie Tsien as "oppressive," in favor of more reticent, site-specific architecture conducive to social interaction.

This idea was also shared by the architects' visionary client, Gerald Edelman, the 66-year-old founder and director of the Neurosciences Institute. A fellow of the Salk from 1973 to 1985, Edelman is intimately familiar with Kahn's paired lab blocks. "The Salk is a triumph of monumental architecture," he maintains, "but I didn't want to capture that quality. I wanted a sense of commitment to excellence and artistic vision."

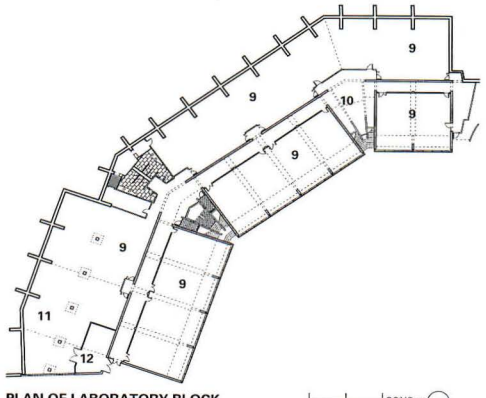
Edelman found that commitment in Williams and Tsien, whose reputation for spare forms enriched by material detail has

PREVIOUS PAGES: Theory center (left page) is clad in fossilized limestone; curved courtyard (top right) is framed in redwood slats. Plaza (bottom right) incorporates stand of bamboo in front of laboratories.
FACING PAGE, TOP: Lab block's glazed panels, sandblasted on top, form parapet to rooftop terrace.
FACING PAGE, BOTTOM LEFT AND RIGHT: Slot between staircases of lab wings is filled by lounge with serpentine window seat.
TOP: Labs offer views of plaza through laminated glass.
SITE PLAN: Theory center (right) and labs (top and left) frame plaza and auditorium (bottom).

MICHAEL MORAN

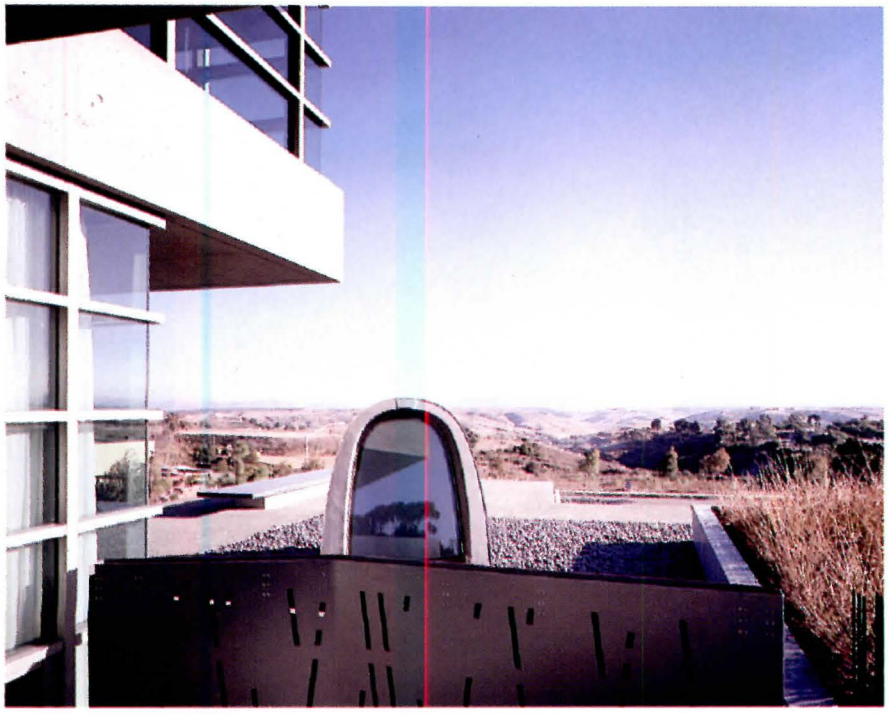


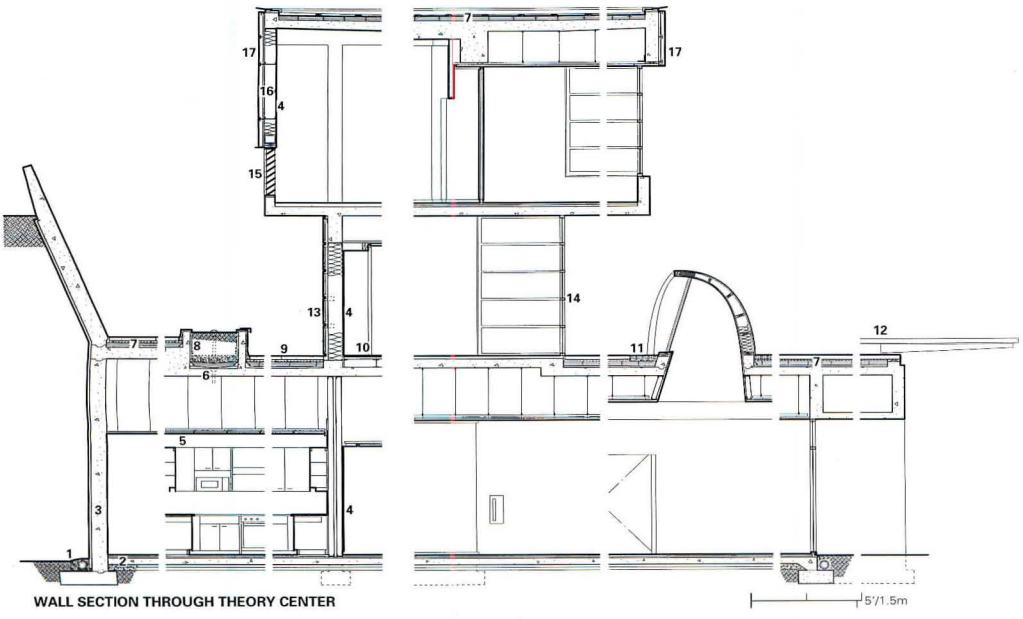
SITE PLAN



PLAN OF LABORATORY BLOCK

1 TUNNEL FROM SCRIPPS CAMPUS
2 WALKWAY
3 THEORY CENTER
4 PLAZA
5 ROOF TERRACE
6 LABORATORY BLOCK
7 AUDITORIUM
8 MECHANICAL PLANT
9 LABORATORY
10 CONFERENCE ROOM
11 MECHANICAL ROOM
12 ELECTRICAL ROOM





WALL SECTION THROUGH THEORY CENTER

1 PERFORATED FOUNDATION DRAINPIPE
2 CONCRETE SLAB
3 CAST-IN-PLACE CONCRETE WALL
4 GYPSUM WALLBOARD
5 ACOUSTIC ALUMINUM CEILING PANELS
6 WATERPROOF MEMBRANE
7 RIGID INSULATION
8 CONCRETE PLANTER BOX
9 PRECAST-CONCRETE PAVERS
10 RAISED STEEL ACCESS FLOORING
11 STONE GRAVEL
12 STONE SLAB WITH STAINLESS STEEL BRACKET
13 STAINLESS STEEL PANELS
14 STAINLESS-STEEL-CLAD ALUMINUM AND GLASS CURTAIN WALL
15 ALUMINUM EXHAUST LOUVER
16 METAL STUD WALL
17 FOSSIL STONE

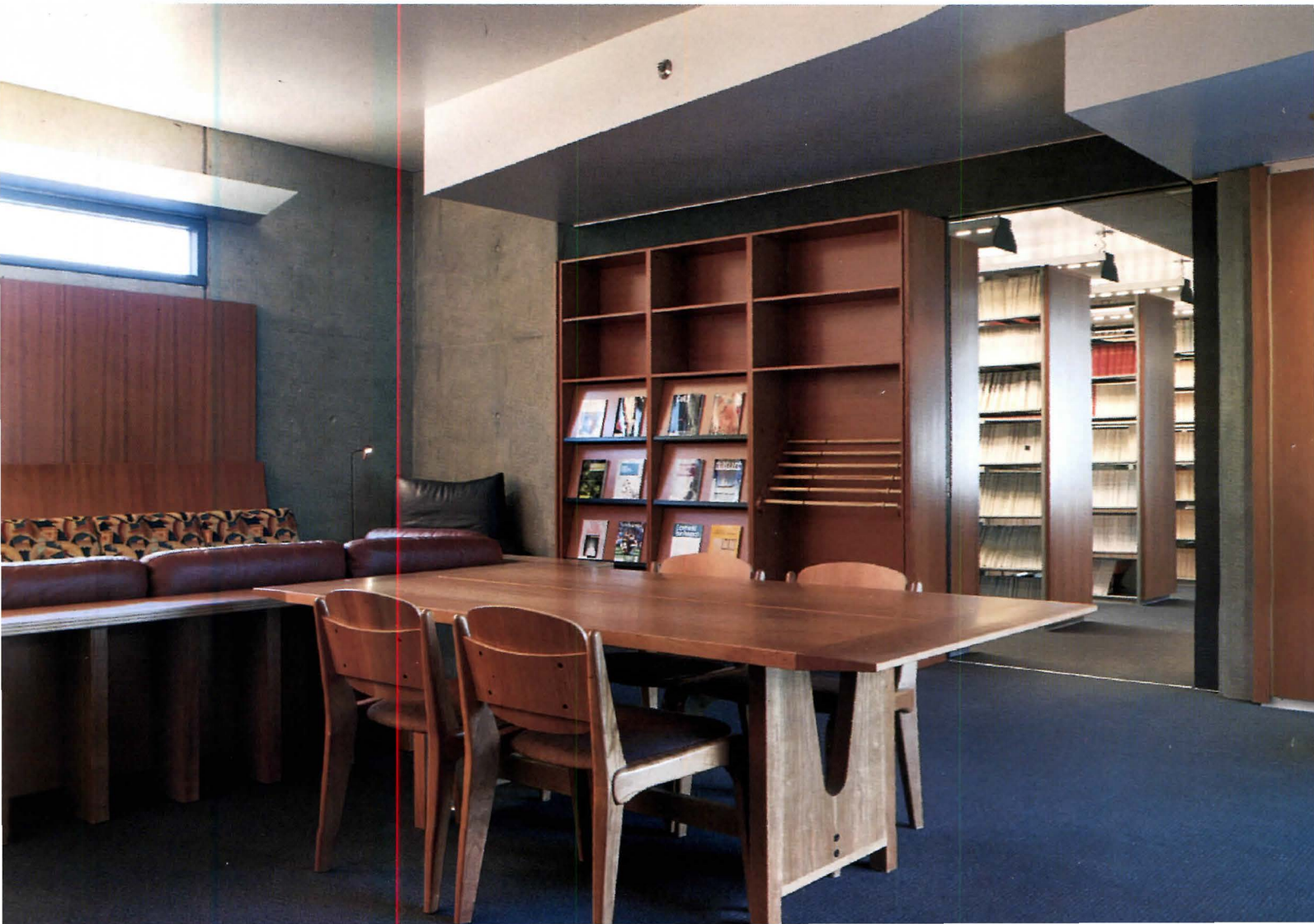
won them bigger commissions in recent years, including a major overhaul of the Phoenix Art Museum. "There is something terribly resonant and original about their work," asserts the Nobel Prize-winning scientist, who might well be referring to his own pioneering research. Edelman believes that the brain does not work by instruction like a computer, but develops by natural selection—a Darwinian "evolutionary jungle." Over time, he has shown, certain brain signals are favored over others, then strengthened and adapted to satisfy a physical or psychological need.

Williams and Tsien, working with local architect Joseph Wong Design Associates of San Diego, have created a variegated ensemble that underscores Edelman's evolutionary thinking. They divided the 56,000-square-foot complex into three buildings sunken into the landscape and barely noticeable from the street. There is no single way of experiencing the entire precinct; instead, portions of the buildings are revealed from walkways, balconies, staircases, and ramps descending into a central courtyard.

Each structure is segmented into distinctive parts with their own formal logic. One element may assume several functions: a window doubles as a wall, then becomes a roof parapet and a guardrail along a terrace. Different materials are overlapped to conceal and reveal; the same material is finished in alternative ways, polished, honed, or sandblasted, to highlight its mutable properties. Like the brain, the architecture of the Neurosciences Institute constantly shifts according to individual perception and patterns of use.

Of the three buildings, the most prominent is a long, horizontal 18,000-square-foot volume, called the theory center, that defines the site's northern boundary. Clad in light-colored fossilized limestone on the upper stories, it is an ivory tower turned on its side. The top two floors house offices for the Institute's theoretical scientists and administrative staff. The offices are cantilevered over a glass base

ABOVE LEFT AND SECTION: Terne-coated steel-covered light monitor projects from balcony in theory center.
FACING PAGE, TOP: View from east shows rear facade of auditorium (left), promenade from plaza (center), and cantilevered theory center (right).
FACING PAGE, BOTTOM: Horizontal massing and corner mullions of theory building recall work of Richard Neutra. Glass-clad base contains dining room, library, and conference room.



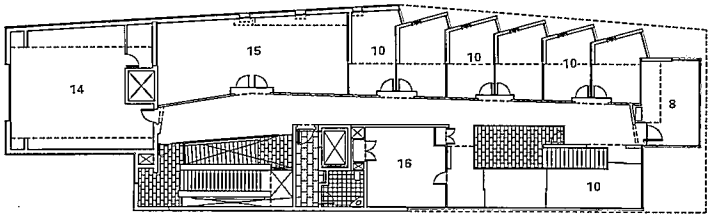
containing a dining room, library, and meeting rooms shared by the Institute's resident and visiting fellows.

To the west, labs for empirical, hands-on scientists, who work at laboratory benches and in equipment rooms, are grounded in a wide U-shaped structure. This 26,000-square-foot building assumes a more recessive character than its neighbor. Bermed into the hillside, its exposed east face is framed in steel mullions and angled planes of glass that extend to form a parapet along a roof terrace. The lab block's glassy length is interrupted by two staircases inserted in the joints where the structure bends. They connect the terrace to the plaza below.

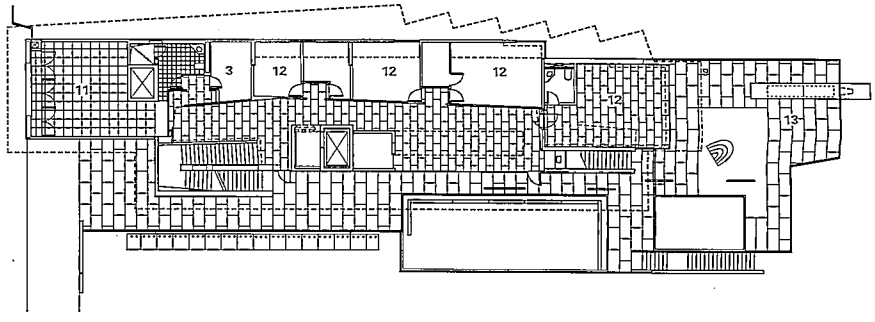
The center of the plaza is occupied by a 352-seat auditorium, used for research presentations and symposia as well as chamber music recitals. Edelman, a classical violinist, views music as an integral part of the Institute's humanist culture. He fought for the best acoustics possible, and Williams and Tsien, in collaboration with acoustician Cyril Harris, accordingly developed the 10,000-square-foot building into a premier concert hall. They devised a system of faceted, sound-dispersing plaster panels to clad the walls and ceiling that echoes the asymmetrical geometries found throughout their design.

Williams and Tsien essentially treat the Institute's buildings as a backdrop to its real heart, the paved central plaza where scientists meet informally to share information. "The space between the buildings is the foundation of our design," Williams asserts. Inevitably, this outdoor space invites comparison to the Salk's courtyard. But where Kahn's symmetrically framed, elevated court is directed outward to the Pacific Ocean, Williams and Tsien's introspective, sunken plaza offers inland views toward the San Jacinto and Santa Rosa mountains to the east. The Salk's central space, tracing the axis from land to ocean, projects a timeless universality, while the Neurosciences Institute's irregular court posits a temporal site specificity.

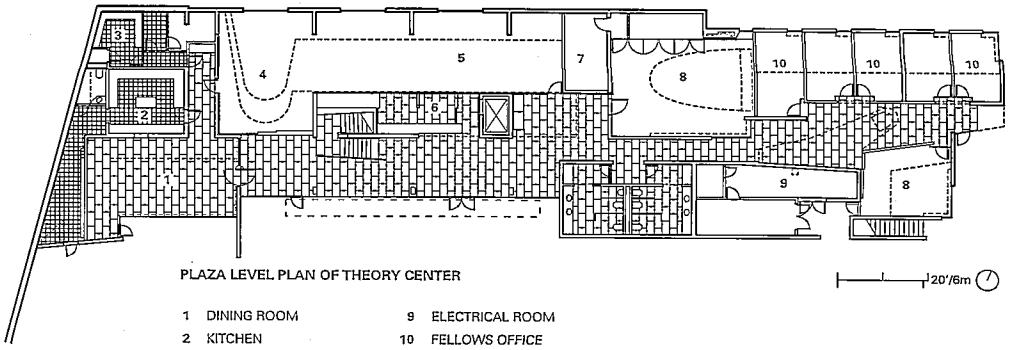
FACING PAGE, TOP: Billie Tsien designed dining room tapestry, woven by V'soske, as an abstract landscape of moss-covered rocks.
FACING PAGE, BOTTOM: Library is furnished with cherry tables and chairs designed by Williams and Tsien.
ABOVE RIGHT: Inaccessible balcony outside Director Gerald Edelman's office is enlivened by sculptural light monitor and diving board (left) to nowhere.



TOP LEVEL PLAN OF THEORY CENTER



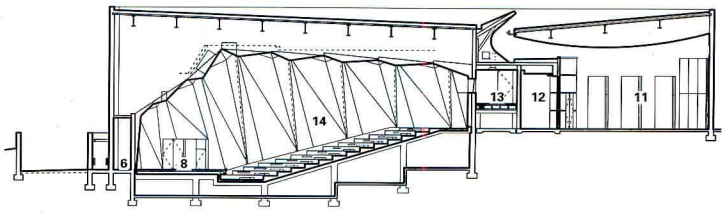
TERRACE LEVEL PLAN OF THEORY CENTER



PLAN OF THEORY CENTER

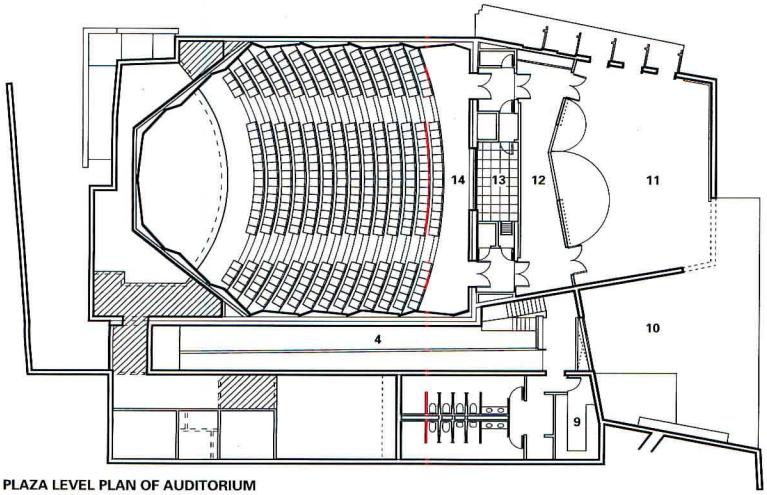
20'/6m

1 DINING ROOM
2 KITCHEN
3 STORAGE
4 READING ROOM
5 LIBRARY
6 RECEPTION
7 PROJECTION ROOM
8 CONFERENCE ROOM
9 ELECTRICAL ROOM
10 FELLOWS OFFICE
11 COMPUTER ROOM
12 ADMINISTRATIVE OFFICE
13 ROOF TERRACE
14 MECHANICAL ROOM
15 EXPERIMENTAL ROOM
16 GRAPHICS ROOM

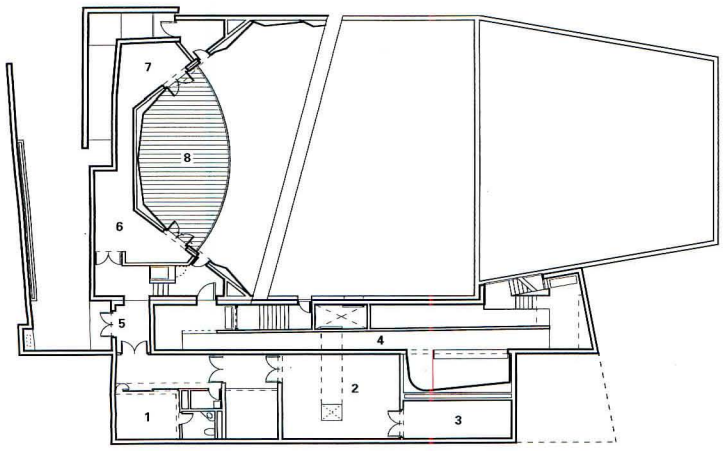


SECTION THROUGH AUDITORIUM

18'/5.4m



PLAZA LEVEL PLAN OF AUDITORIUM



LOWER LEVEL PLAN OF AUDITORIUM

18'/5.4m

1 DRESSING ROOM
2 MECHANICAL ROOM
3 ELECTRICAL ROOM
4 CIRCULATION RAMP
5 SERVICE ENTRY
6 BACKSTAGE
7 PIANO STORAGE
8 STAGE
9 KITCHEN
10 PLAZA
11 LOGGIA
12 LOBBY
13 PROJECTION ROOM
14 AUDITORIUM

NEUROSCIENCES INSTITUTE
LA JOLLA, CALIFORNIA

ARCHITECT: Tod Williams Billie Tsien and Associates, Architects, New York City—Tod Williams, Billie Tsien (principals-in-charge); David van Handel (project architect); Erika Hinrichs, Matthew Baird, Betty Chen, Chris McVoy, Peter Burns, Brett Ettinger, Yoshiko Sato (design team); Peter Arnold, Martin Finio, Johannes Kaeferstein, Matthew Pickner, Marwan Al-Sayed, Vivian Wang (assistants)
ASSOCIATE ARCHITECT: Joseph Wong Design Associates, San Diego—Joseph Wong (principal); Herbert Shear (project architect); Charles Forte (project manager); William Kelly (specifications)
LANDSCAPE ARCHITECT: Burton Associates
ENGINEERS: Severud Associates (structural); Tsuchiyama, Kaino & Gibson (mechanical); Randall Lamb Associates (electrical); Ambrosino, DePinto & Schmieder (consulting); RBF/Sholders and Sanford (civil)
CONSULTANTS: Dr. Cyril M. Harris (acoustics); Klepper Marshall King (audiovisuals); McKay Conant Brook (acoustics/audiovisuals); AI Associates (labs)
GENERAL CONTRACTOR: Ninteman Construction Co.
PHOTOGRAPHER: Timothy Hursley, except as noted

Williams and Tsien underscore the nonfigural character of their plaza by subdividing it into smaller courtyards. A circular recess with redwood slats connects the theory center's dining room to the labs. A loggia with a gently sloping light scoop fronts the auditorium. A water court is inserted under one of the lab block's exterior staircases. The architects further articulate the plaza with changes in paving materials and episodic landscaping: pools filled with water and rocks, stands of bamboo and equisetum, and a lone torrey pine imbue the meandering space with the tranquility of a Japanese garden.

The Neurosciences Institute's affinities with the Salk are most apparent in its materials. Concrete forms are sheathed in Texas fossilized limestone with redwood accents, a variation on the Salk's travertine and teak. This palette is humanized with meticulously crafted, idiosyncratic elements that are the firm's trademark—a mysterious slab of stone cantilevered from a balcony, concrete spouts cast from drinking glasses, redwood door pulls carved to fit the hand.

If there is a weakness to this project, it is that every element is worked and reworked, resulting in a preciousness that detracts from the architects' serene spaces. More attention should have been paid to the rear elevations of the auditorium and mechanical plant, which present a blank face to the east.

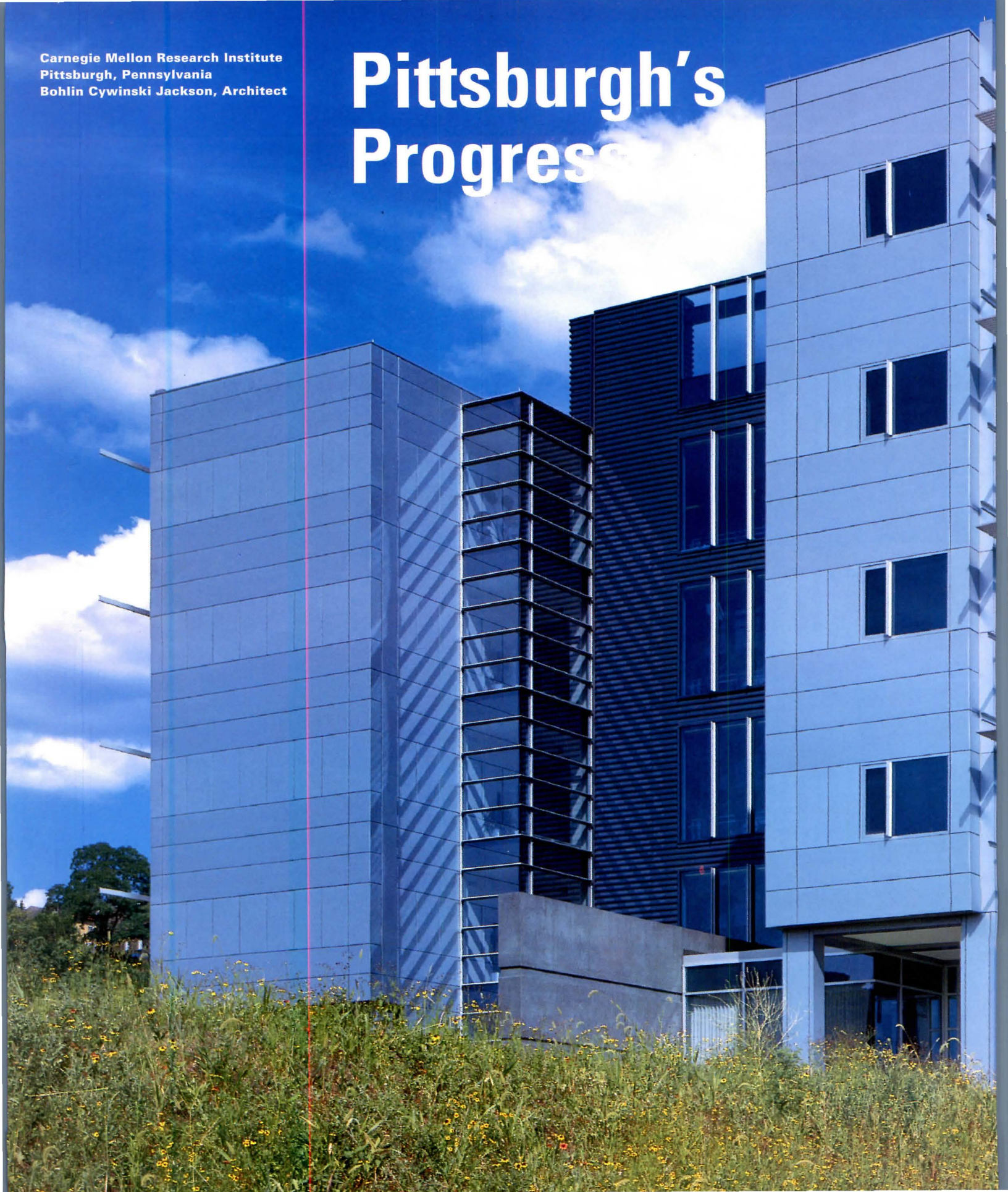
Ironically, the refinements that distinguish the Institute, whose researchers use the latest in computer equipment, were drawn by hand. Construction documents comprised over 100 sheets of drawings with hundreds of details added to the set.

This intensive design process ultimately led the architects to a finely grained abstraction that meets not only the Institute's needs, but its aspirations. The Neurosciences Institute is clearly Tod Williams and Billie Tsien's best work to date. Expressive of the intuitive and intellectual, this remarkable architecture of humanism profits art and science alike.—*Deborah K. Dietsch*

PLANS: Plaza is occupied by a 352-seat auditorium for lectures and chamber music concerts. Services and greenroom occupy north-facing perimeter.
SECTION: Faceted auditorium is entered through loggia framed by curving soffit.
FACING PAGE, TOP LEFT: Auditorium's cut-out corner leads to loggia and redwood-framed entrance.
FACING PAGE, TOP RIGHT: Curved plaster ceiling scoops daylight into serpentine-paved loggia.
FACING PAGE, BOTTOM: Walls and ceiling are faceted in hard, reflective plaster to disperse sound. Lighting is provided by lamps mounted above ceiling that illuminate acrylic pipes inserted between the panels.

Carnegie Mellon Research Institute
Pittsburgh, Pennsylvania
Bohlin Cywinski Jackson, Architect

Pittsburgh's Progres



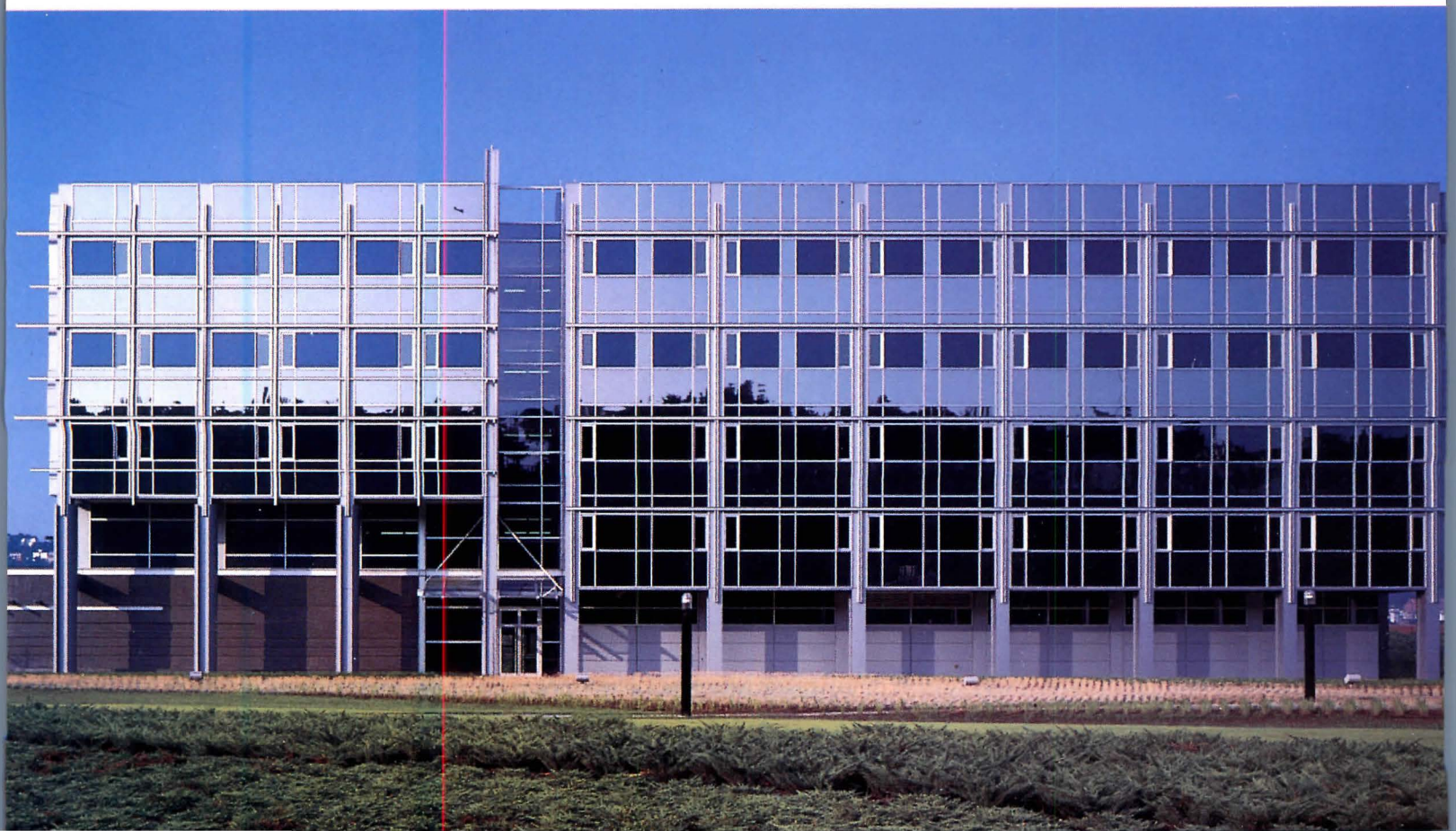
A city's economic future takes shape in a laboratory built on the remains of its industrial past.

Pittsburgh is moving rapidly from its dirty, low-tech past of manufacturing and steel mills to a cleaner, high-tech future of service industries and biomedical research. The Pittsburgh Technology Center is the symbol of that vision, a seven-building research park of prestigious Carnegie Mellon University (CMU) and University of Pittsburgh laboratories and their private-sector counterparts. Sited along the Monongahela River, the Tech Center rests on a narrow piece of land that once supported one of the world's largest steel-rolling mills.

Carnegie Mellon Research Institute (CMRI) is the third major building on the site, and the most emblematic of the Center's goals. It reflects the recent trend in higher education to attract funding through public and private sponsorship of applied research: in short, academics for hire. CMRI gathers the university's formerly dispersed applied research programs into one facility, including biotechnology, robotics, and materials science. However, that mix will change according to the funding and research priorities of business and government, CMU's two principal clients. As a result, the program called for a 90,000-square-foot building characterized by flexibility. "The university even asked us to consider the possibility that CMRI might not be the ultimate tenant," recalls Project Manager Robert Pfaffmann.

Bohlin Cywinski Jackson's response to this assignment is an elegant volume whose gleaming glass-and-aluminum skin suggests

THESE PAGES: Carnegie Mellon Research Institute sits atop former steel mill's 6-foot-thick foundation and overlooks Monongahela River to south.



high technology without requiring the funds necessary to achieve it, a modest subterfuge appropriate for a structure whose spartan budget belies its symbolic importance. Using standard curtain wall systems, the architect developed a rich pattern of reflective and transparent surfaces, overlaid with a grid of raised mullions and sunscreens, that creates a field of regular but complex geometries—simple analogues of the tightly controlled research processes occurring within.

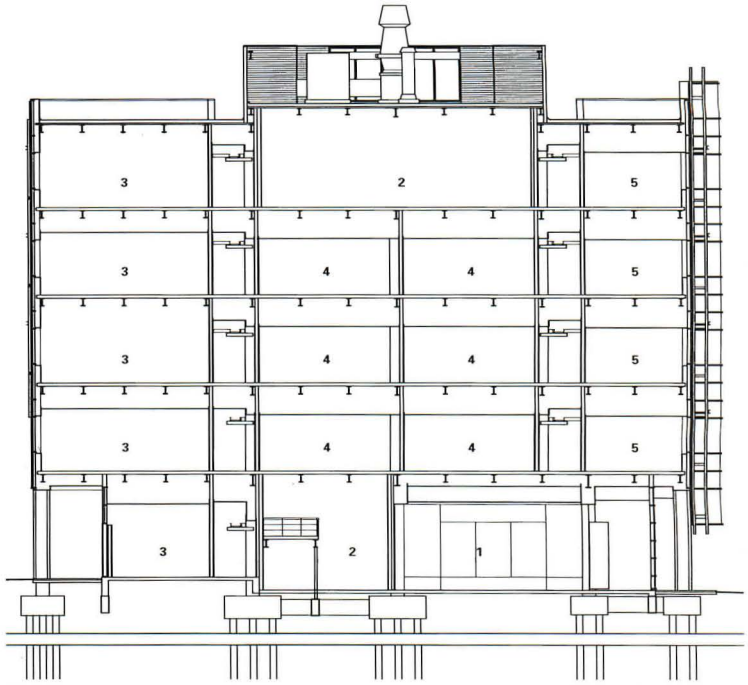
As with most buildings that wear their arguments on their skin, success hinges upon the legibility and consistency of the language articulated in the sheathing systems. Bohlin Cywinski Jackson's cladding grids are straightforward and easy to comprehend, yet the building is never dull. The skin is active, intriguing, and rich enough to reward careful contemplation. What look like polished aluminum panels surrounding the north-facing windows are actually reflective glass planes. The glazing itself is not the continuous surface it first appears to be, but a gathering of ever so slightly separated vertical strips, knit together with light aluminum coursings.

The simple slab form of the building reveals itself on closer inspection to be a bundled collection of sliding planes. Viewed along its transverse axis, CMRI forms a pair of aluminum-wrapped volumes encasing two vertical slots of horizontally mullioned glass that hold a dark blue core of ribbed siding.

In the most delightful and pointed gesture of the project, the architect lifts the sunscreens off the southern face of the building and allows them to run beyond its east and west ends. This disembodied skeletal grid becomes a literal extended summary of the building's proportional, structural, and sectional properties. It also delicately suggests the facility's indeterminate character, which discourages fixed interpretations.

The planes also summarize Bohlin Cywinski Jackson's parti: CMRI is a sandwich of fixed and flexible spaces within clearly demarcated spatial blocks. The north and south volumes house dry labs (without plumbing) and offices respectively, and bracket double-loaded, end-glazed corridors enclosing a central core of fixed wet labs and services.

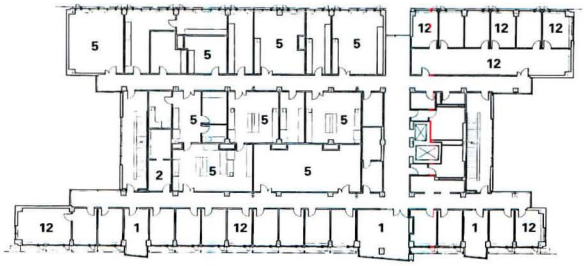
The bands of circulation space are cut perpendicularly by hallways that lead to conference rooms projecting from the building along the river side. These meeting rooms cant slightly toward downtown views, breaking the regularity of the facade patterns. They do not, however, substitute for informal public spaces, which the building's upper



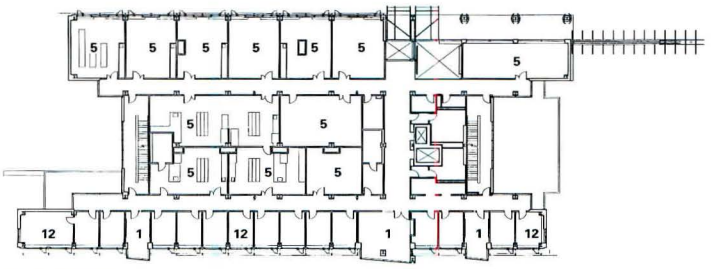
NORTHEAST-SOUTHWEST SECTION

1 MULTIPURPOSE ROOM
2 MECHANICAL ROOM
3 DRY LABORATORY
4 WET LABORATORY
5 OFFICE

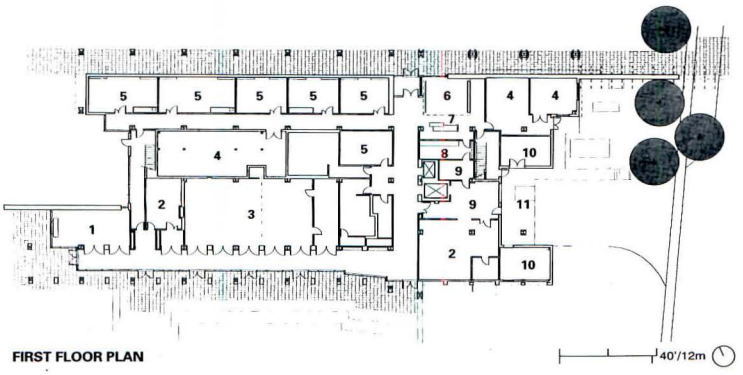
FACING PAGE, TOP: Projecting conference rooms break regularity of south facade.
FACING PAGE, BOTTOM: Concrete slab and columns mark entrance (left).
TOP AND SECTION: West elevation indicates tripartite building program of dry labs, wet labs, mechanical services, and offices (left to right).



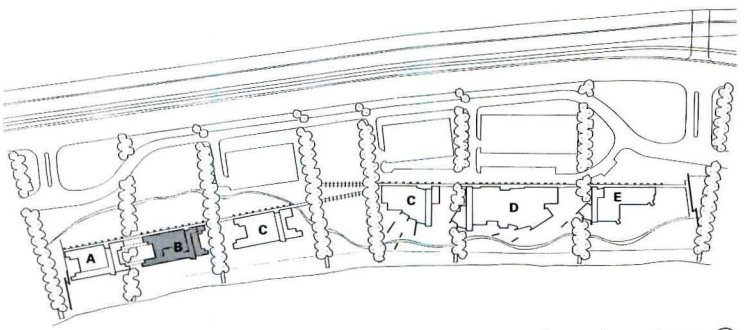
THIRD FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN



SITE PLAN

SITE PLAN: Hedgerows define building sites between river and highway.
PLANS: Labs' structural module, measuring 22 by 26 feet, and offices' 22-by-14-foot module are designed for easy westward expansion.
FACING PAGE, TOP: Interior finishes of wood, steel, aluminum, and concrete continue exterior grid patterns.
FACING PAGE, BOTTOM LEFT: Reconfigurable dry labs are daylit.
FACING PAGE, BOTTOM RIGHT: *Lobby is* double-height volume.

A FUTURE ADDITION TO CARNEGIE MELLON RESEARCH INSTITUTE
B CARNEGIE MELLON RESEARCH INSTITUTE
C FUTURE BUILDING
D ARISTECH CHEMICAL CORPORATION (IN DESIGN)
E CENTER FOR BIOTECHNOLOGY AND BIOENGINEERING, UNIVERSITY OF PITTSBURGH

1 CONFERENCE
2 STORAGE
3 MULTIPURPOSE
4 MECHANICAL
5 LABORATORY
6 LOBBY
7 RECEPTION
8 SECURITY
9 RECEIVING
10 SERVICE
11 LOADING DOCK
12 OFFICE

floors lack in any significant form beyond hallways. Although the corridors are comfortably wide, they are still only corridors, without places to sit or relax outside the labs.

Nevertheless, the diagram is simple and functional. It also neatly reinforces the Tech Center site plan worked out at the inception of the project nearly a decade ago by a design team headed by Hanna/Olin and including Peter Eisenman, Jaquelin Robertson, and Bohlin Cywinski Jackson. That plan sets Tech Center buildings parallel to the river and highway that band the narrow site, and intersects them with perpendicular hedgerows that demarcate individual building pads.

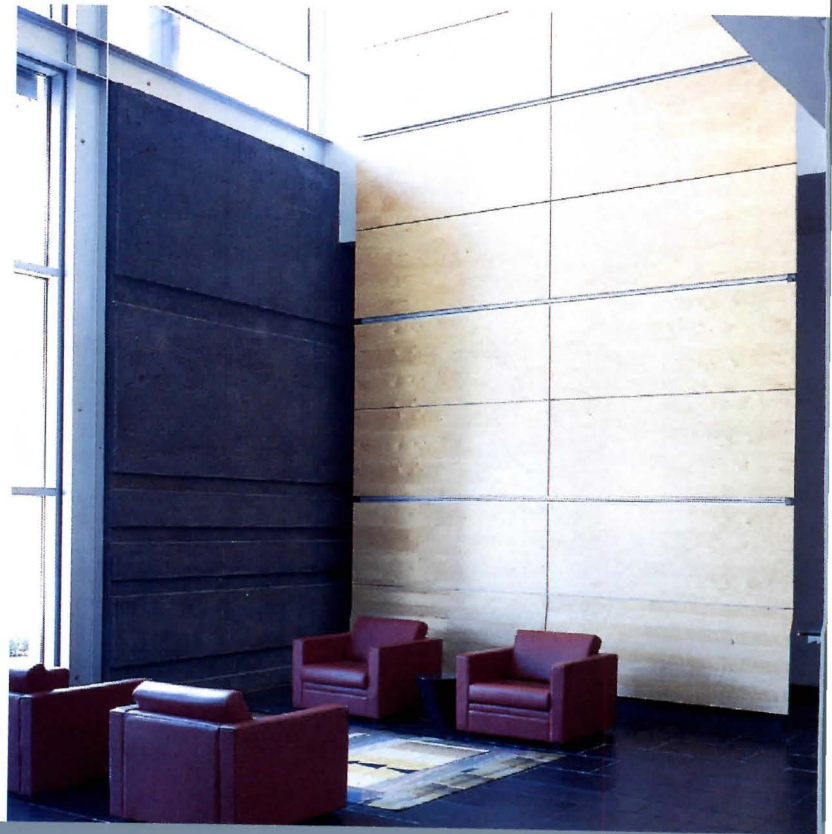
CMRI clearly builds on Bohlin Cywinski Jackson's earlier work, which encompasses CMRI's Tech Center neighbor to the east, the Center for Biotechnology and Bioengineering (ARCHITECTURE, March 1994, pages 76-81), and CMRI's Software Engineering Institute. All three distill complicated programs into rational plans and rely on carefully articulated materials and detailing to establish an architectural presence. At CMRI, this attention is visible in the hyper-extended sunshading, the fins added to curtain wall joints, and an aluminum cladding system that quietly shifts color and texture with each functional change in the building. This strategy may not be original, but it pays dividends where restricted budgets preclude more dramatic architectural flourishes.

Finally, Bohlin Cywinski Jackson's science-related body of work reflects a subtle yet significant understanding of context. Technology, the genie with the power to provide or punish, is central to the identity of Pittsburgh. The tight, elegant control of the buildings suggests that the city is ready to invoke the genie again, but this time with a firm grip on the lamp.—*Reed Kroloff*

CARNEGIE MELLON RESEARCH INSTITUTE
PITTSBURGH TECHNOLOGY CENTER
PITTSBURGH, PENNSYLVANIA

ARCHITECT: Bohlin Cywinski Jackson, Pittsburgh—Jon C. Jackson (principal-in-charge); Peter Q. Bohlin (design principal); Robert S. Pfaffmann (project manager); Charles J. Cwenar, Natalie Gentile Wetmore, Karl A. Backus, Stephanie Jacobs, Gregory R. Mottola, Maria Kearns Wyant, Erik Hokanson, Michael Maiese, Peter von der Leith (project team)
ENGINEERS: Dotter Engineering (structural); RCF Engineering (mechanical); Hornfeck Engineering (electrical)
CONSULTANTS: O'Brien Kreitzburg (construction manager); Arena (cost estimating)
GENERAL CONTRACTOR: Mosites Construction
COST: $12.3 million
PHOTOGRAPHER: Karl A. Backus


EXIT



Minden-Ravensberg Electric Company Communication and Technology Center
Bad Oeynhausen, Germany
Frank O. Gehry & Associates, Architect

Energetic Assemblage

A civic-minded German electric company's headquarters by Frank Gehry demonstrates how to save energy without sacrificing architectural power.

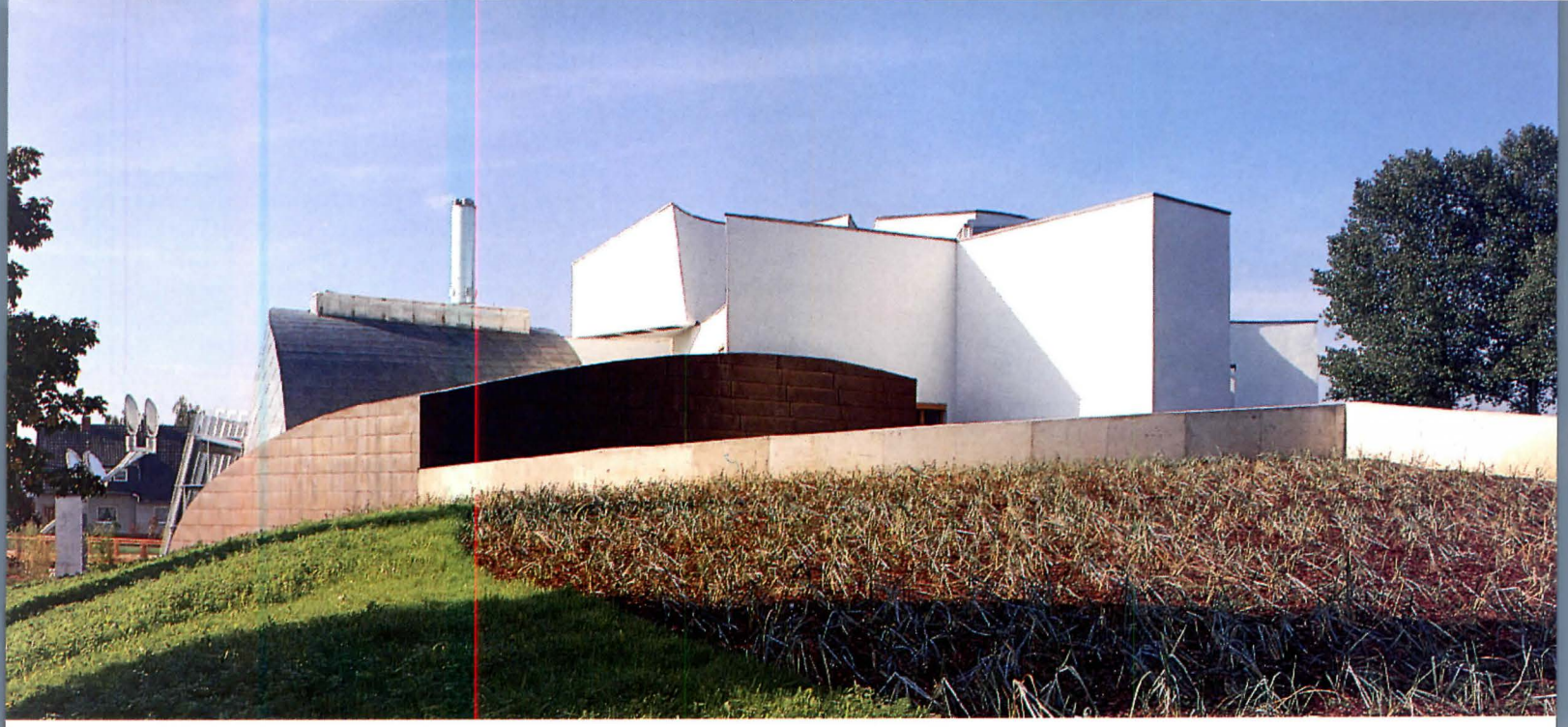
Despite its seemingly irrational forms, the new Communication and Technology Center for the Minden-Ravensberg Electric Company (MREC), a power company in northwest Germany, respects its surroundings. The new building is located right on the edge of Bad Oeynhausen, an old spa town, on a site that is unremarkable and somewhat schizophrenic in character. A busy highway defines its eastern boundary, while the landscape of the Werre valley and the Wiehew Mountains offers pleasant views to the north and west. This location is large enough to allow a relatively small new building to be treated as an isolated rural villa.

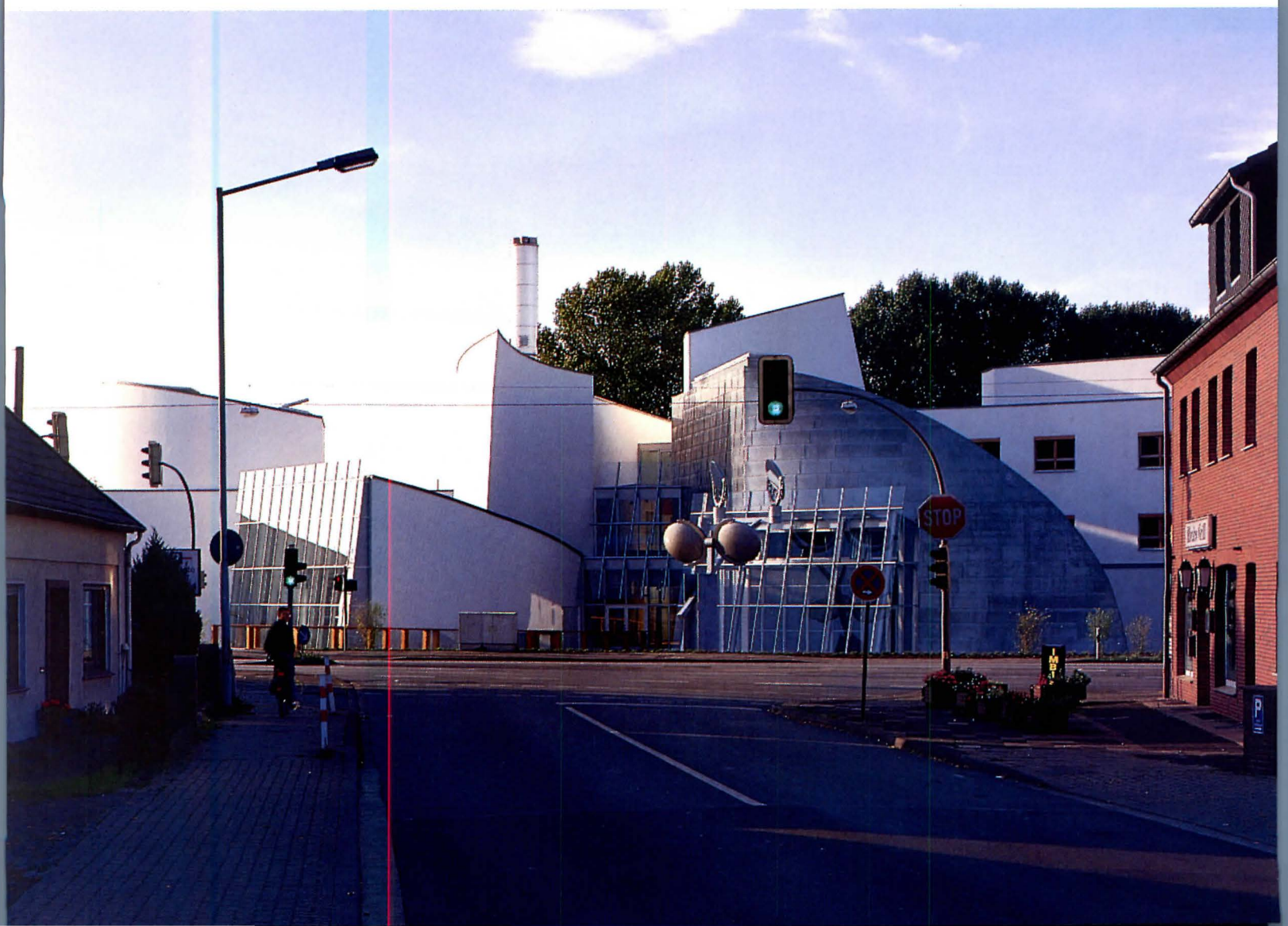
In designing the technology center, architect Frank Gehry wisely rejected this option. Instead, his building sidles up to the town and engages its neighbors in polite, but not too polite, architectural conversation.

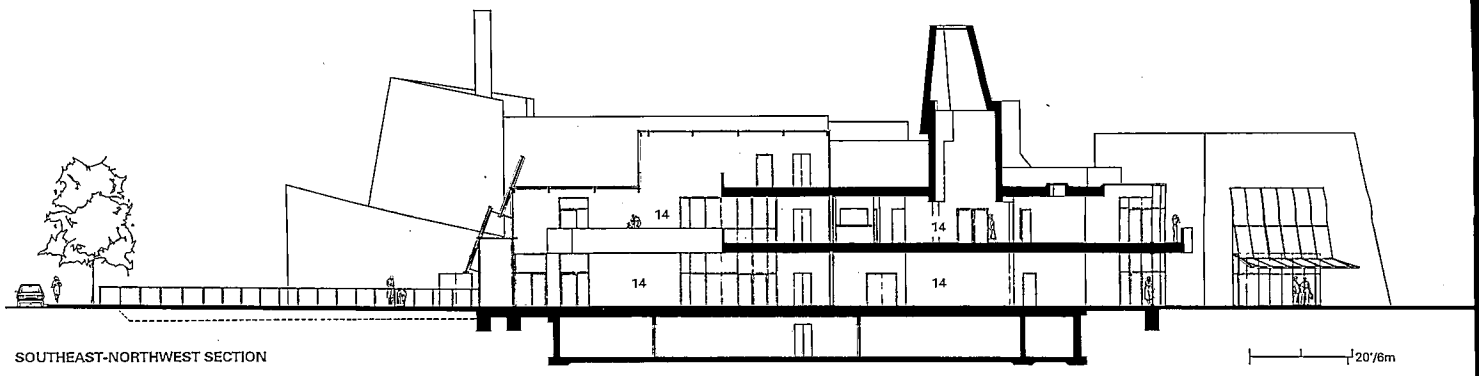
Most of the surrounding buildings are small or medium-size boxes with typically German, steeply sloping hipped and gabled roofs. Gehry treats these "Monopoly" houses as the formal raw material of his composition, a sprawling assemblage of vaguely houselike forms distorted and inflected to respond to individual function and orientation, but without any abstract controlling geometry. Gehry's volumes are simply imaginative interpretations of the existing objects in the landscape: some forms are metal-clad like cars, while others appear to be part of the ground on which the buildings stand.

The new Communication and Technology Center is part of an overall plan to update MREC's public image. MREC engineers have long conducted small-scale campaigns to educate the public about renewable resources and energy conservation, including manning kiosks in local towns to demonstrate photovoltaics, discuss wind and solar energy, or simply urge listeners to replace their old refrigerators with better insulated, more efficient models. But the company had never considered architecture as the medium to convey its ideas of energy and art, and its

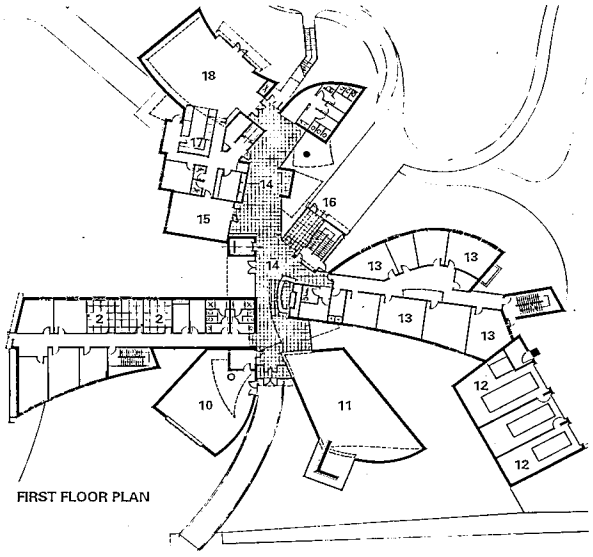
THESE PAGES: Curved office wing (facing page) and zinc-clad dining room and auditorium (below) are separated by two-story glazed internal street (center). Projecting staircase (right) leads to upper level of internal street.



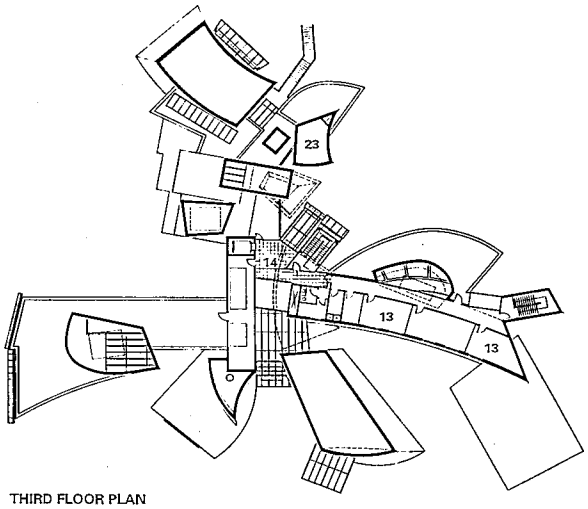

STOP



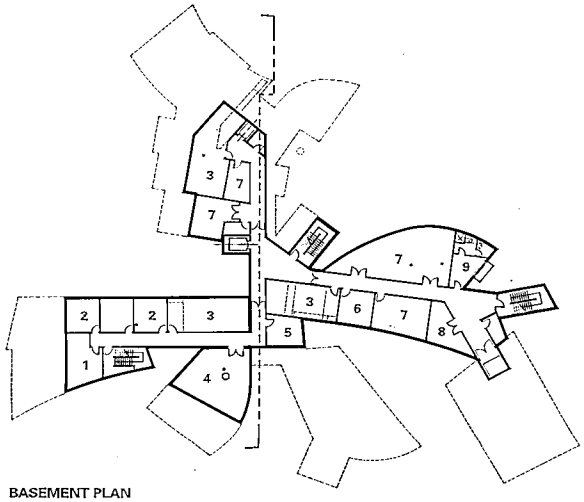
SOUTHEAST-NORTHWEST SECTION



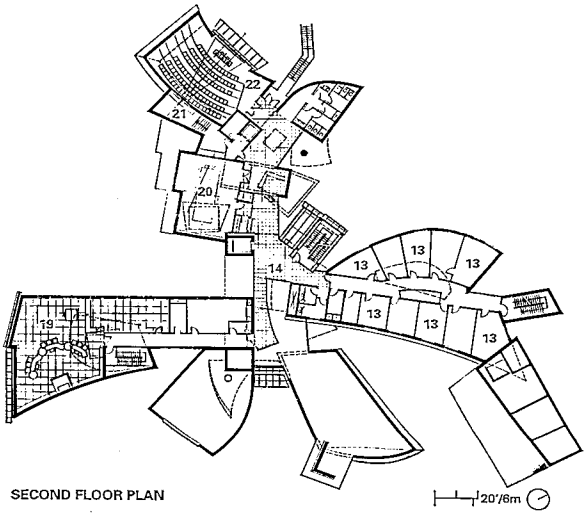
FIRST FLOOR PLAN



THIRD FLOOR PLAN



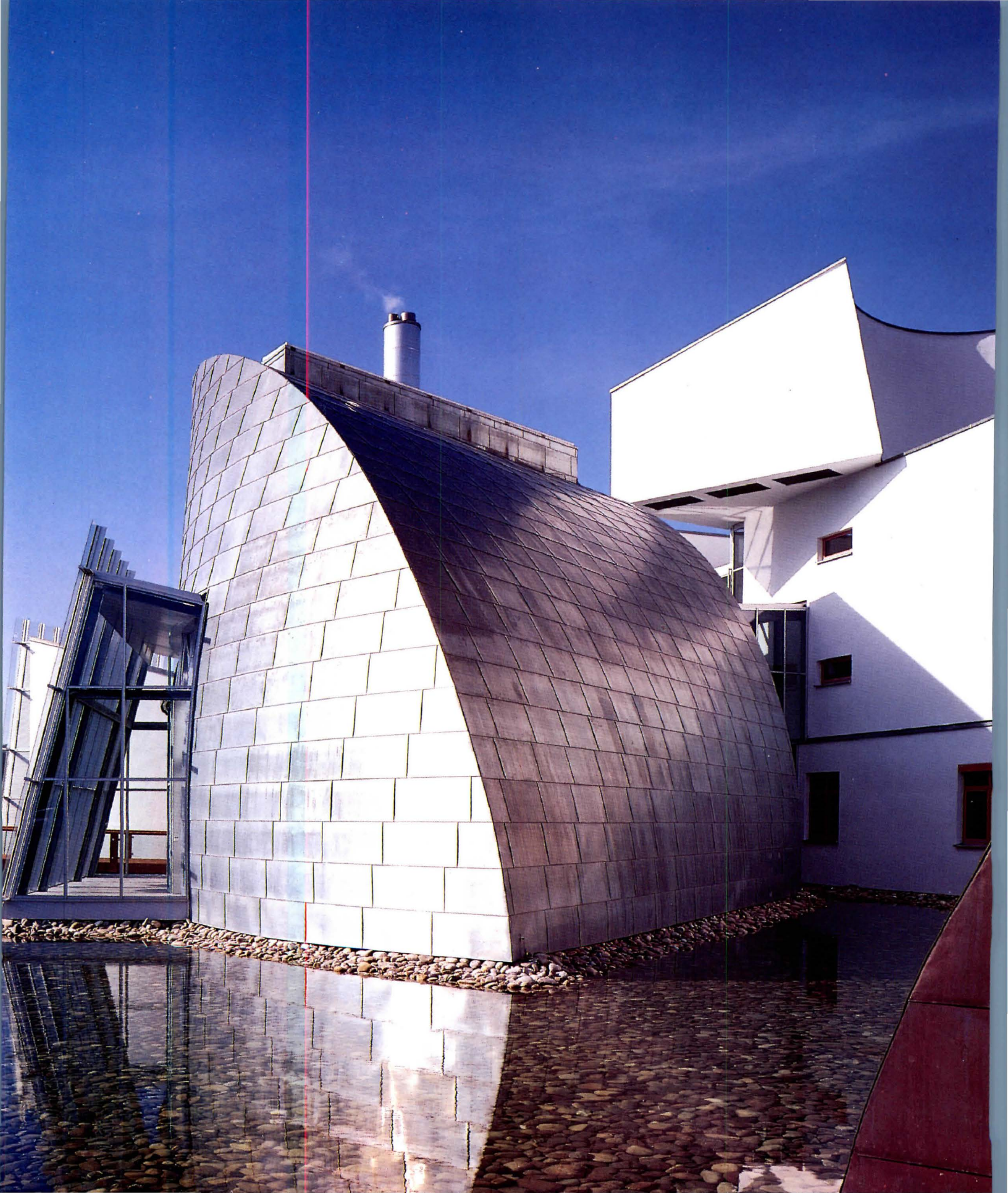
BASEMENT PLAN



SECOND FLOOR PLAN

1	TELECOMMUNICATIONS ROOM	12	GARAGE
2	PROCESSORS	13	OFFICE
3	VENTILATION ROOM	14	LOBBY/INTERNAL STREET
4	ENERGY SUPPLY ROOM	15	PRIVATE DINING ROOM
5	EMERGENCY BATTERY ROOM	16	MAIN ENTRANCE
6	METER ROOM	17	KITCHEN
7	STORAGE ROOM	18	CAFETERIA
8	WASTE ROOM	19	NETWORK CONTROL ROOM
9	PERSONNEL ROOM	20	CONFERENCE ROOM
10	ENERGY SUPPLY CENTER	21	PROJECTION ROOM
11	EXHIBITION SPACE	22	AUDITORIUM
		23	RAIN WATER STORAGE

FACING PAGE, TOP: Copper-clad garage is half hidden behind earth berm.
FACING PAGE, BOTTOM: Main entrance on east side is flanked by energy supply center (left) and exhibition hall (right).
SECTION: Main entrance is accessible from road via curving bridge over small lake (left). Gathering space in front of conference wing is daylit by chimneylike light monitor.
PLANS: Three wings house network control center (left), offices (right), and communal areas (top).



operations were for the most part housed in bland, conventional buildings. That is, until MREC Business Director Manfred Rigotti happened to visit Gehry's Vitra Design Museum in Weil am Rhein.

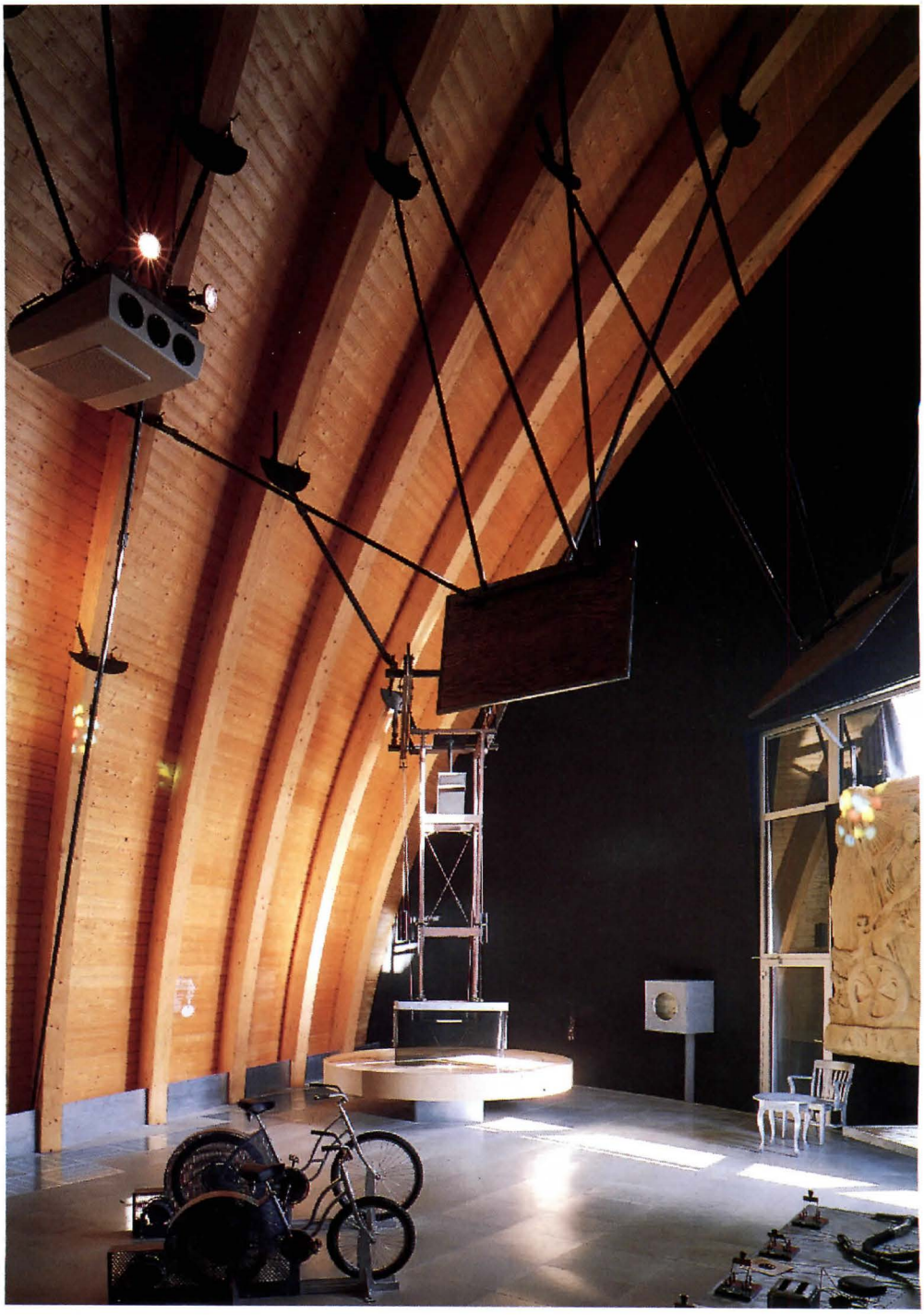
According to Project Architect Randall Stout, the erudite Rigotti was so taken with Gehry's marriage of light and sculptural form that no other architects were considered. "Rigotti likes to use the phrase *panta rhei*—all things are in flux," Stout explains. "He looks at art and architecture and music and science as being different, equal parts of one thing." Gehry's fluid interpretations of function and landscape were in agreement with Rigotti's conception of a headquarters that would itself be an exhibit, not simply a container for MREC's renewable-resource displays.

The complex accommodates four main functions: a network control center for regional power distribution; an office wing for managers, accountants, and the like; a small conference center with hospitality and catering facilities, including a staff dining room; and an exhibition hall for the various working models of energy use and conservation, which were designed by Los Angeles architects Craig Hodgetts and Ming Fung.

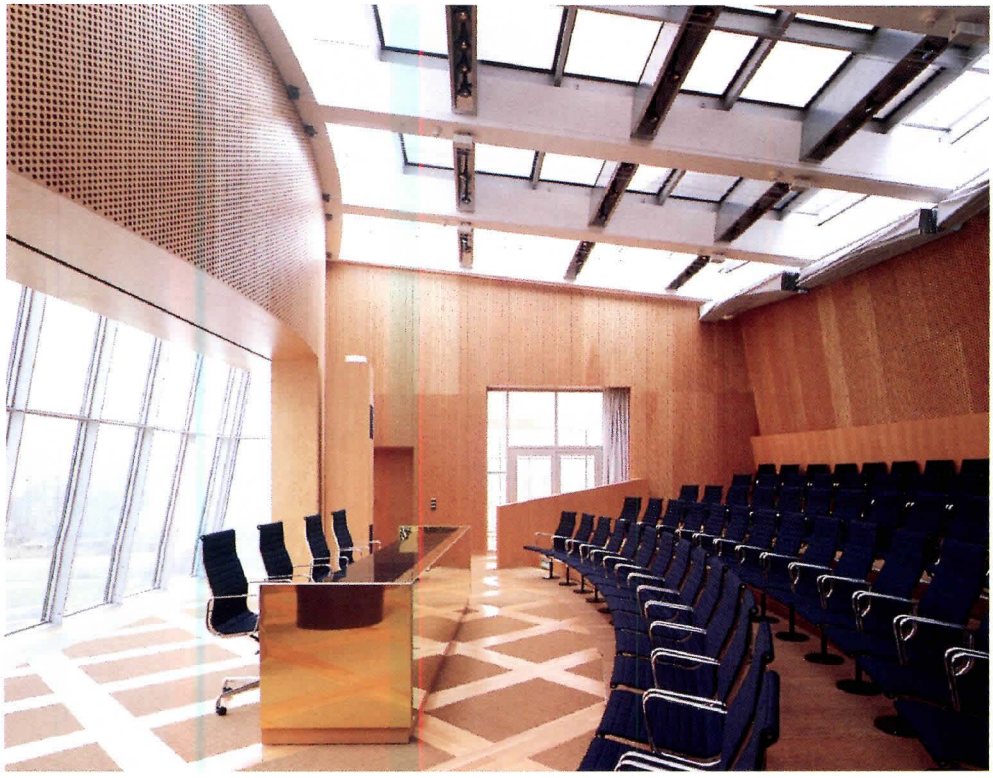
These territories are linked by a two-level internal street that connects the public entrance, accessible by a curved wooden bridge over a small lake, to the staff entrance from the parking lot on the north side of the building. The conference center is located at the back of the site, where it has the benefit of views over the river valley, and the control center and the office wing are placed parallel to the main street to create an urban edge.

Three "house" forms, almost freestanding, lie between the urban edge and the road: the energy center, with machinery clearly visible from the outside; the curved-roof exhibition hall; and a copper-clad garage that seems to grow out of an earth berm.

The plan is perfectly logical and sensible in its disposition on the site, and some of the individual forms are carefully molded to fit



FACING PAGE: Sloped window projects from zinc-clad exhibition hall. Small lake separates building from road. **ABOVE:** Exhibition hall is framed in laminated timber beams and features displays of energy generation and distribution principles designed by Craig Hodgetts and Ming Fung.



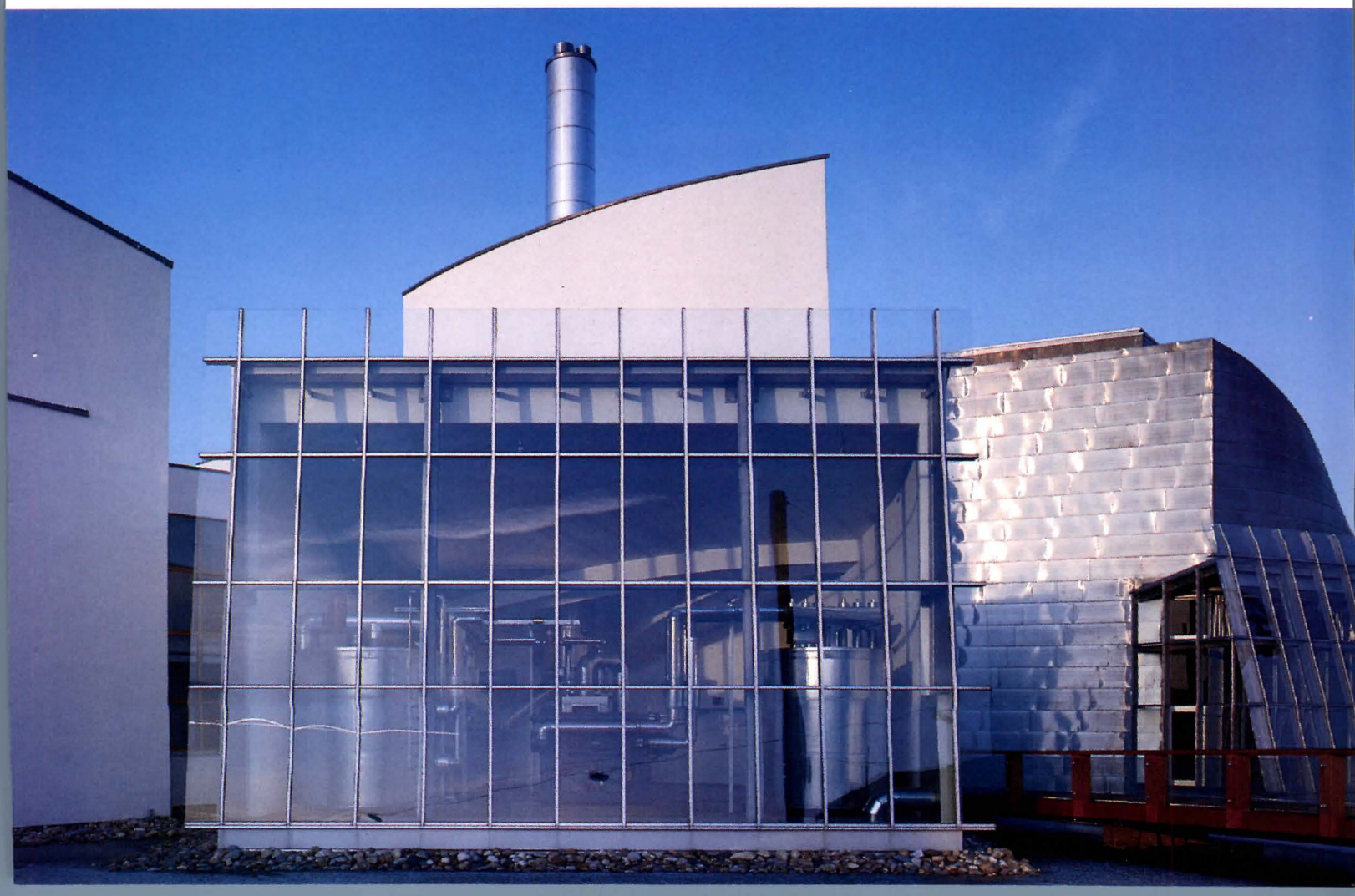
TOP: Seating in auditorium faces large window (left) framing view over Werre valley to Wiehew Mountains.
ABOVE: Combined heat and power plant inside energy supply center will serve neighboring buildings in future.
FACING PAGE, TOP: Fire exit leads from upper level of internal street near dining room and auditorium.
FACING PAGE, BOTTOM: Glazed energy center faces road and exposes machinery to public view. Wooden bridge (right) leads to entrance.

their functions. For example, the two-story block that houses the dining room on the ground floor and a conference room above forms a slightly curved oblong with a single large window at each level, placed almost symmetrically and precisely angled to frame the view of the distant hills to the north.

Elsewhere, the relationship between form and function is much looser. The two-story "street" is the most important space in the building. Most architects would have given it a regular plan and a consistent section, perhaps with a linear roof of its own, but Gehry simply lets it wander between, through, and under the seemingly random collection of forms, creating a space that is more like a sequence of rooms than a corridor.

Materials are chosen for their sensual, rather than their structural, qualities and are usually left in their raw state. Stucco, glass, zinc, and copper predominate on the exterior; various kinds of wood line the interior spaces. The structure throughout is of poured, reinforced concrete and not visibly expressed, except for the internally exposed timber beams supporting the exhibition hall's curved roof. This approach is rooted in a well-established craft tradition of concrete work in the area. German building regulations, which require structural elements to be insulated on the outside, effectively rule out externally exposed concrete. Nor is Gehry much interested in concepts like structural "honesty"; concrete allows him great freedom in form- and space-making.

Given MREC's desire to practice what it preaches, it is not surprising that the building incorporates various energy-saving features. Photovoltaic cells and passive solar collection devices are not uncommon in buildings around the region, but MREC's new center is unusual for its integration of several such systems. The south-facing wall of the network control center is a trombe wall—a sandwich of external glass and internal concrete with a filling of transparent insulation. Heat from the sun is gathered and stored in



ABOVE: Main entrance leads to east-west internal street; different areas are unified by gridded wood floor infilled with sisal matting. Clear glass skylight creates effect of external space.
FACING PAGE: Internal street on second floor reveals corridor's sidelit and toplit rooms.

MINDEN-RAVENSBERG ELECTRIC COMPANY COMMUNICATION AND TECHNOLOGY CENTER
BAD OEYNHAUSEN, GERMANY

ARCHITECT: Frank O. Gehry & Associates, Santa Monica—Frank O. Gehry (design principal); Jim Glymph (project principal); Randall Stout (project architect); Vince Snyder, Michael Maltzan (project designers); Tomaso Bradshaw, Jonathan Davis, Matthias Seufert, Todd Spiegel, Hiroshi Tokumaru, Laurence Tighe, Tim Williams (project team)
ASSOCIATE ARCHITECT: Hartwig Rullkötter, Herford, Germany

the heavy concrete wall during the day and radiated back to the interior during the night. Trombe walls are not usually effective in office buildings that are only occupied during the day, but the network control center is operational around the clock.

In the kitchen, a roof-mounted solar collector is used to preheat water for washing dishes. As much as 80 percent of the building's electricity for power and lighting is provided by an array of photovoltaic cells mounted above the glass roof of the auditorium. The remainder of the electrical power is generated by a combined heat and power plant housed in the energy center on the east side of the building facing the road. Waste heat from the generator is recycled to warm the building, with enough left over to export to neighboring buildings in the future.

Gehry would have preferred these energy-saving aspects of the design to have been expressed more clearly. "We tried to let the energy question generate the form," he explains, "but we failed. In this sense, the building does not have the clarity we would have liked." During the design development, it seemed that the use of wind power might justify the invention of new and unexpected forms, but the site turned out to be too sheltered for this to be a practical proposition. Instead, the MREC building's houselike forms are reflections of neighboring structures, with the energy-saving devices essentially acting as bolt-on accessories.

The accessories do in fact greatly improve the energy efficiency of the building. More importantly, they represent the application of principles propounded by working models in the exhibition hall. Not just an administrative and control center, the building acts as a demonstration piece for the benefit of visiting customers and the general public. Its domestic scale and relaxed, playful forms successfully project the image of a friendly, socially responsible company, a benevolent economic force in the region, and a good neighbor to Bad Oeynhausen.—*Colin Davies*

ENGINEERS: John A. Martin, Jr., Albert Grage (structural); G. Reschke (mechanical); R. Ruttenkroger (electrical)
CONSULTANTS: Nancy Power & Associates (landscape); LAM Partners (lighting); Hodgetts & Fung (exhibits); Bruce Mau Design (graphics)
PHOTOGRAPHER: Christian Richters

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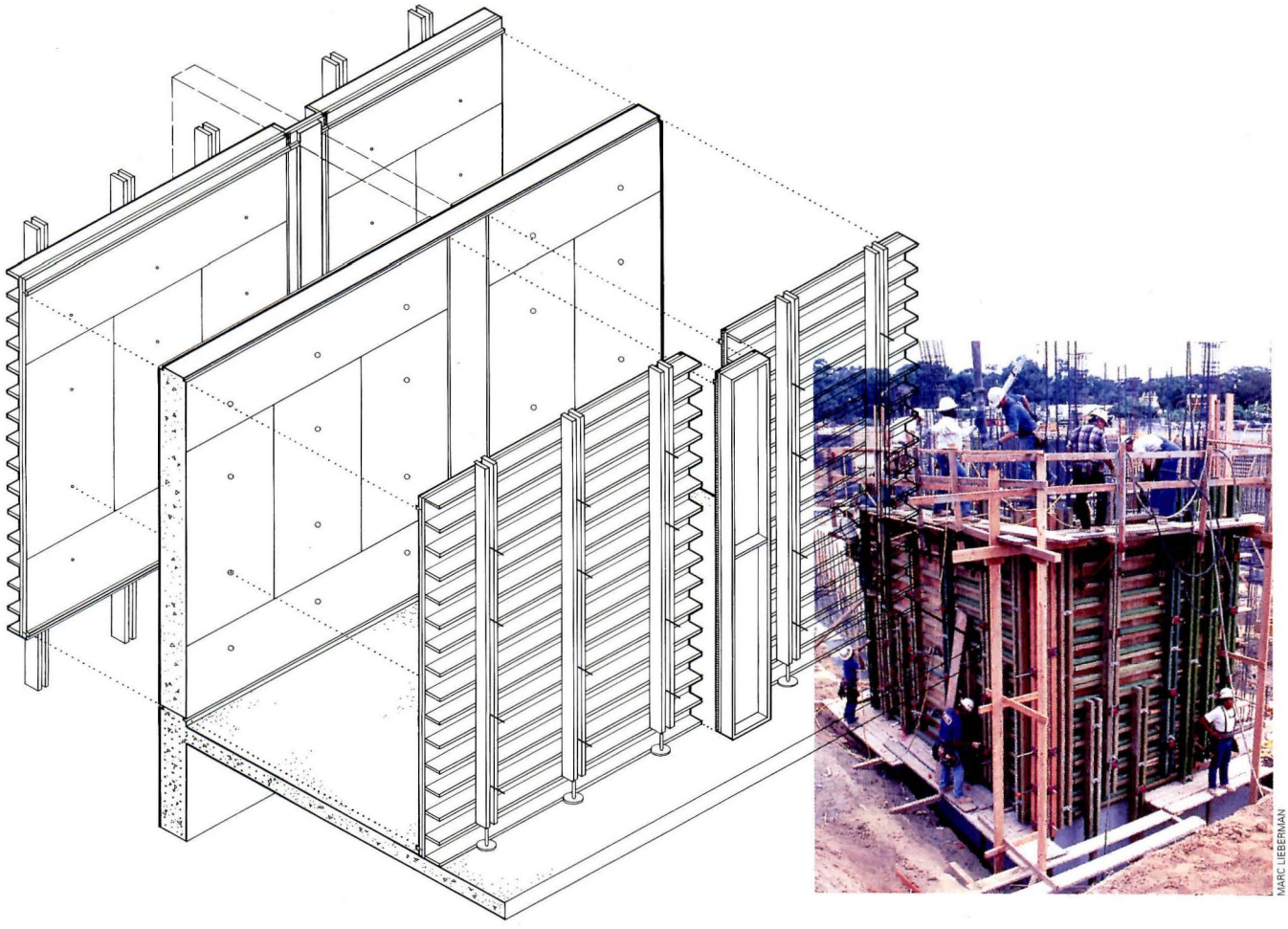
Technology & Practice



MARC LIEBERMAN

The new addition to Louis Kahn's landmark Salk Institute for the Biological Sciences inspired more than controversy. Architect Anshen + Allen and structural engineer Ove Arup & Partners took advantage of new technology for the addition's cast-in-place concrete construction, such as fast-curing cement, strong form ties, and reusable plastic-lined formwork (above).

A competition to expand the clinical research facility at the National Institutes of Health campus in Bethesda, Maryland, also inspired debate—in this case over the architect selection process. We examine the results of the process, which challenged competitors to prepare exacting designs in four weeks on a $50,000 stipend, with minimal client interaction.

Staircases, a pedestrian necessity in most houses, can be elevated beyond mere circulation routes. Even on a tight budget, an elegant, carefully detailed staircase can enliven a neutral passage, as Mark McInturff demonstrates in a trio of house renovations near Washington, D.C.

Similar low-cost design innovations are humanizing the latest wave of housing for impoverished Americans. Architects are improving housing for single mothers, migrant workers, people with AIDS, and homeless families through neighborhood-sensitive planning and inventive architectural forms.

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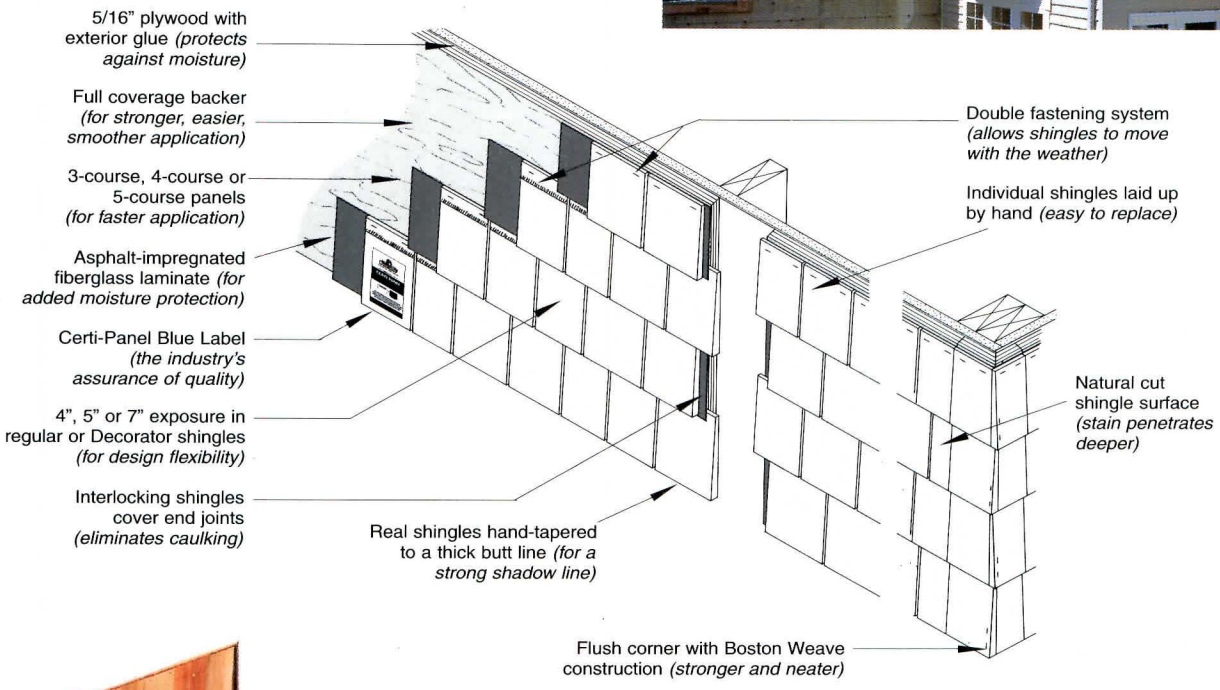

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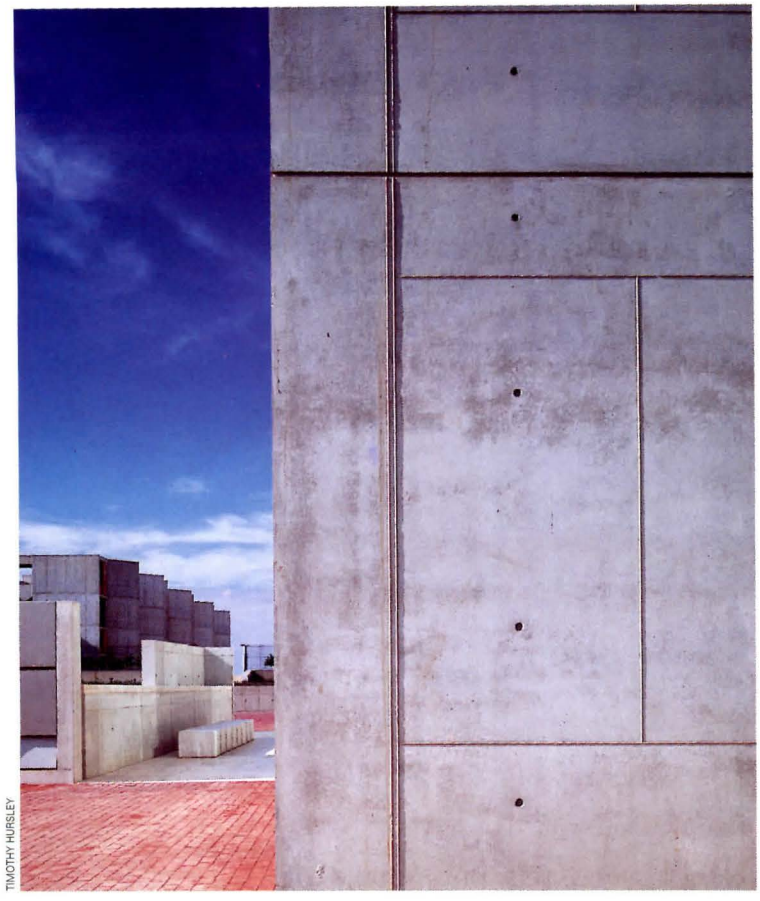


TIMOTHY HURSLEY

Concrete Controversy at the Salk

Anshen + Allen's design is not the only aspect of the Salk addition to spark debate.

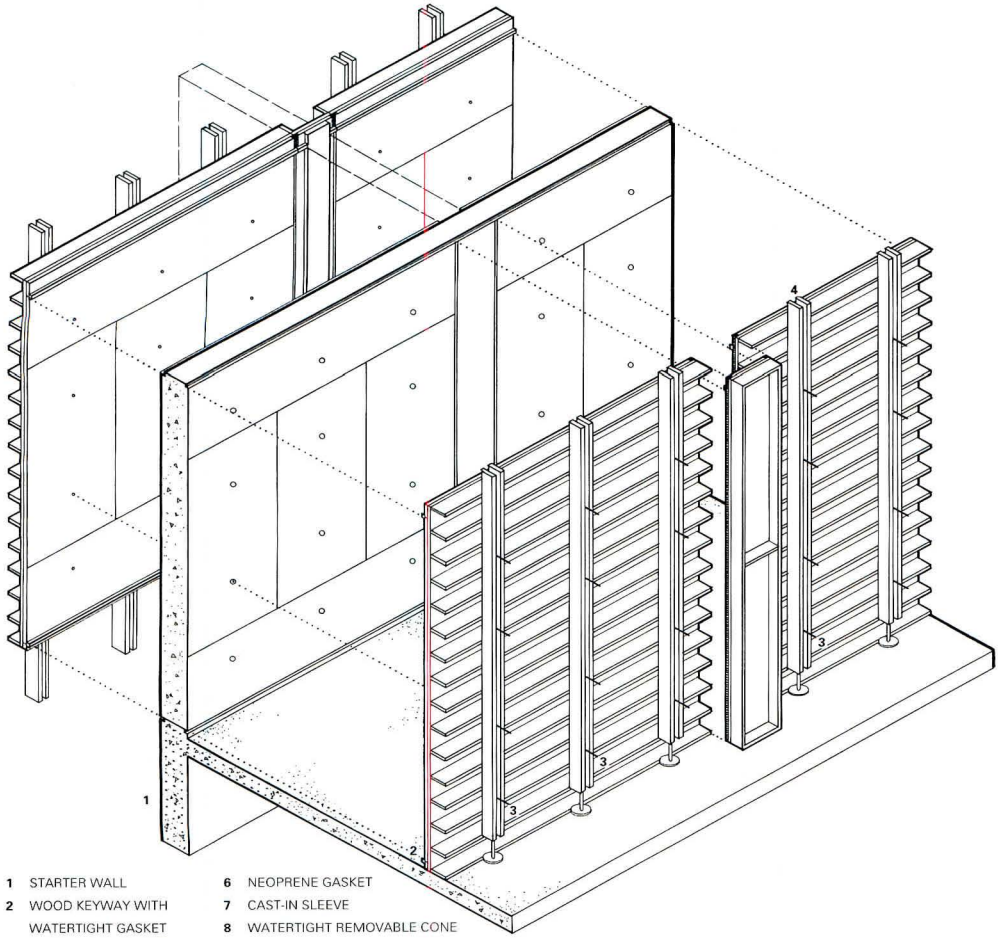
Few buildings have stirred up such debate among architects as the new addition to the iconic Salk Institute for Biological Studies (1965) designed by Louis Kahn (pages 72-81, this issue). Even the process behind its concrete construction has resulted in controversy: to the chagrin of architect Anshen + Allen, the Institute is seeking a patent for the concrete mix and construction techniques developed for the new East Building.

The Institute is now marketing a set of specifications and consulting services under the title "MIRASTONE Process," promising architects the ability to recreate the color, reflective finish, and crisp detailing of the new building's poured-in-place concrete. Anshen + Allen Project Architect Thomas Chessum finds the idea "ludicrous," pointing out, "How can you patent craftsmanship and the accumulated knowledge and skill of a team of architects, engineers, and contractors?"

Structural engineer Donna A. Clandening of Ove Arup & Partners agrees with Chessum's skepticism: "The aggregates we used in the concrete are all found locally in California. It'll be hard to duplicate the effect without the exact same recipe."

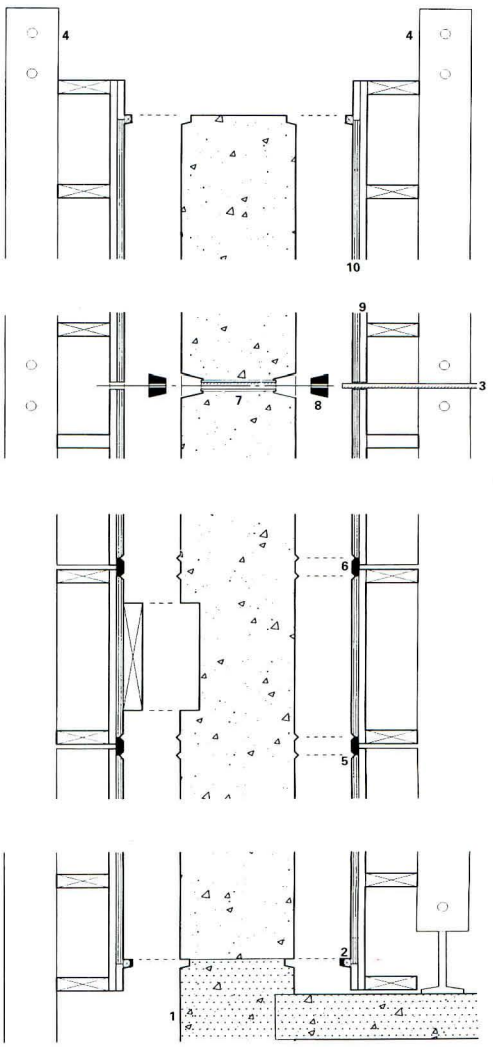
Patent notwithstanding, what remains indisputable is Anshen + Allen's skillful interpretation of the Salk's original concrete construction through efficient new formwork and finishing techniques. To explore concrete's

ABOVE LEFT: Exposed joints and form-tie holes of Salk addition's concrete panels draw on detailing of original 1964 building (left, background).



1 STARTER WALL
2 WOOD KEYWAY WITH WATERTIGHT GASKET
3 HIGH-STRENGTH FORM TIE
4 FORM WALER SYSTEM
5 BEVELED EDGE OF FORM SHEET
6 NEOPRENE GASKET
7 CAST-IN SLEEVE
8 WATERTIGHT REMOVABLE CONE
9 BASE PLYWOOD FORM SHEET
10 POLYETHYLENE-FACED PLYWOOD INNER FORM SHEET

AXONOMETRIC OF FORMWORK AND WALL



SECTION OF FORMWORK AND WALL 6"/15.24cm

structural and expressive potential, Kahn pushed the limits of poured-in-place construction in his design, experimenting with color additives and pozzolan admixtures and treating the formwork with a polyurethane resin to ensure the consistency of the concrete's finish. The polyurethene coating allowed the contractor to reuse forms for several pours.

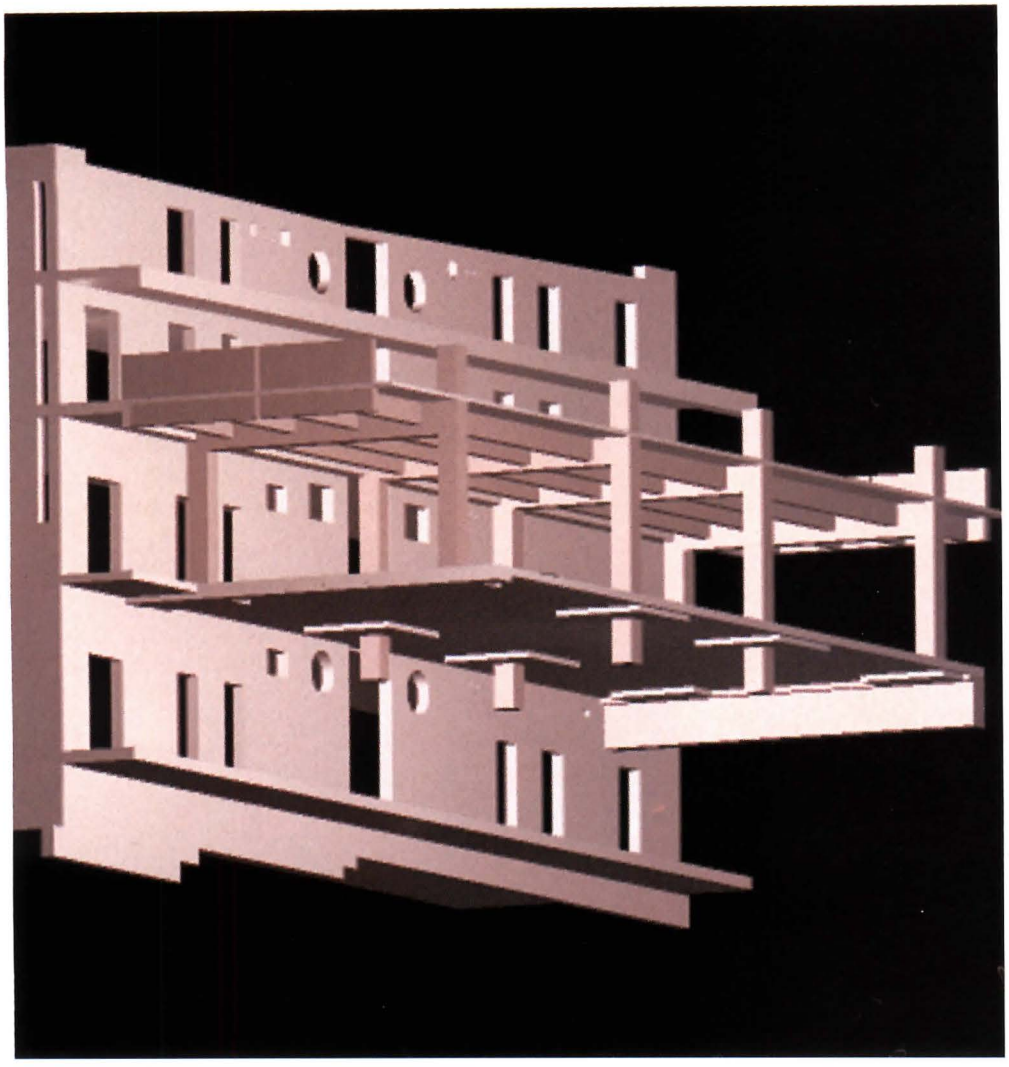
The architecture of the original Salk is articulated by its construction. Exposed concrete panels dominate the labs' minimal palette of travertine, stainless steel, and teak. The surface of the plywood formwork lends the panels a slightly rough texture, embellished only by the exposed form-tie holes and beveled formwork joints. "The joints and holes are a physical answer to assembly methods, as well as ornament," explains Project Architect David Rinehart, who worked on the design of the original Salk.

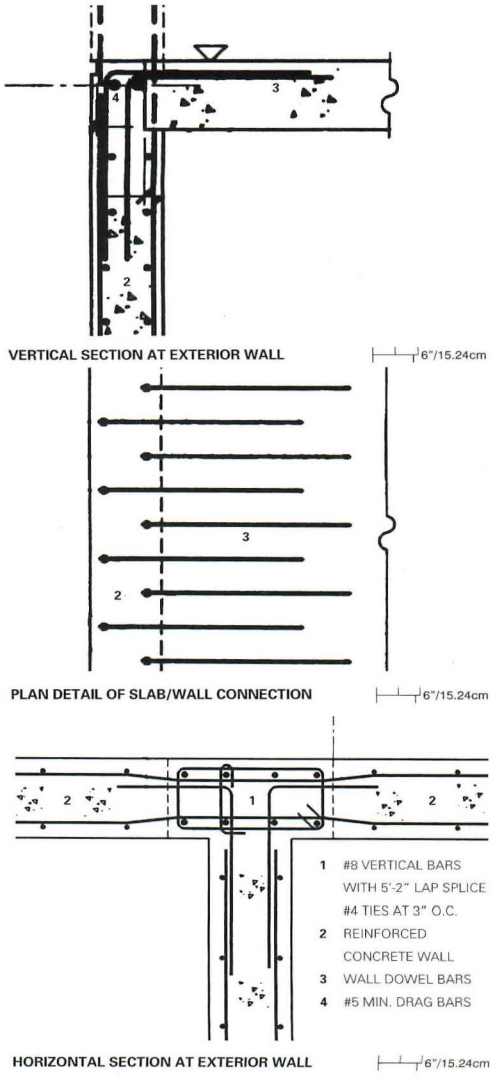
Kahn and structural engineer August E. Komendant developed a system of 9-foot-deep concrete Vierendeel frames spanning 65 feet across each of the laboratory floors. The huge, post-tensioned frames allowed column-free lab spaces, while accommodating the building's complex mechanical systems between their webs. Kahn, however, was constrained by the technology of his time; concrete formulas and formwork systems were weaker than those available today, for example, and limited the detailing of panels.

In designing the new concrete addition, Rinehart and Principal Jack MacAllister emphasized preserving a continuity with the original construction, while differentiating the color and texture of the two buildings. Improvements in formwork technology allowed the architect to increase the size of pours relative to the original building and to double the spacing between form ties.

The original concrete formula has been continually adapted over the past three decades in numerous Anshen + Allen projects, including the Molecular Sciences Building at the University of California, Los Angeles (ARCHITECTURE, March 1994, pages 58-67), and the Engineering Sciences Building at the University of California, Riverside (ARCHITECTURE, April 1995, page 129). "Each time, we learn new techniques," Chessum observes, "but every project brings us back full circle to the Salk concrete of 30 years ago."

In specifying the precise mix of concrete, the architects needed to control the material's color and consistency between pours. The mix also required good workability and a setting time slow enough to allow surface air or rock pockets to be smoothed out, since holes could not be patched nor imperfections sandblasted away once the concrete set. The team tested over 15 different concrete mixes and created roughly 40 full-scale, 10-by-6-foot mock-up panels to evaluate the concrete's color, consistency, and detailing, as well as various formwork techniques.



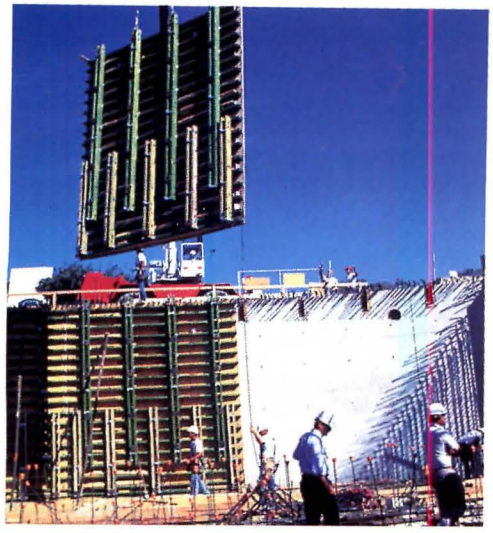


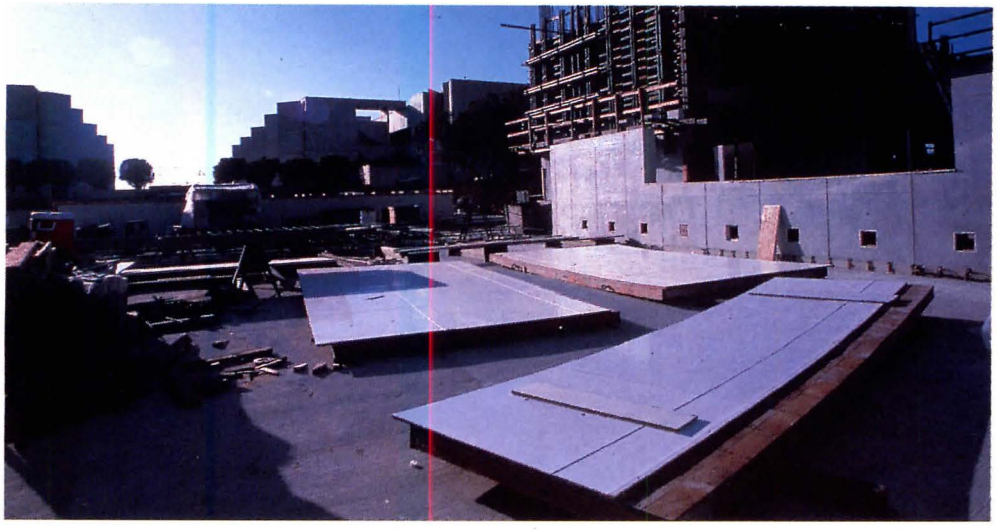
Anshen + Allen finally selected a high-early-strength Type 3 portland cement, primarily because its pure white color provided a clear contrast to the original Salk. This type of cement allowed the concrete to achieve its design strength of 4,000 psi in just a week, instead of the 28 days required for standard concrete mixes. The rapid setting time meant formwork could be removed sooner, but such an early set time reduced its workability and minimized opportunities to correct surface imperfections. Normally, a retarding admixture—typically a natural pozzolan cement or fly ash—is combined with the concrete to slow its setting time and improve workability. But because chemical products often cause inconsistencies between batches, they were not used in the building's construction.

Instead, a diatomaceous-earth-based filler was specified to make the concrete mixture more fluid and increase its workability. Diatomaceous earth, mined along the California coast near Santa Barbara, contains millions of microscopic silica fossils called diatoms. When ground, the fossilized diatoms create a powder even finer than sand which adds a slightly pinkish hue to the concrete. "This natural mix gave us consistent results, making it easy to duplicate the same concrete composition," explains Chessum.

The construction of the concrete shell is one of the most significant developments of the Salk addition. The panels range in width from 8 to 16 feet and vary in height from 14 to 18 feet. The formwork used to cast these panels is composed of two layers of standard $^{5}/_{8}$-inch-thick plywood, with $^{1}/_{10}$-inch-thick polyethylene sheets laminated onto the inner surfaces (axonometric, facing page). These plastic sheets, which impart a marblelike exterior finish to the concrete, offer a number of advantages. They prevent sugars in the plywood forms from seeping into the wet concrete and weakening the mix, and also

FACING PAGE, AXONOMETRIC: Formwork assembly is lined with $^{1}/_{10}$-inch-thick polyethylene sheets and reinforced with laminated wood studs.
FACING PAGE, SECTION: Conical rubber gaskets inserted into form-tie openings in concrete wall prevent corrosion.
ABOVE LEFT: Computer diagram shows drop panels above columns supporting first-floor slab and ribbed joist system in second-floor structure.
TOP DETAIL: Section shows rebar connection between exterior wall and floor slab; additional concrete cover protects rebars from corrosive salt air.
CENTER DETAIL: Steel dowels are embedded in concrete floor slab and wall to increase seismic resistance.
ABOVE DETAIL: Steel confinement ties increase lateral stability.





MARC LIEBERMAN PHOTOS

allow the forms to be removed from the set concrete without release agents, a feat virtually unheard of for poured-in-place construction. "It's a real benefit, because release agents can cause problems with the concrete's finish," notes Chessum.

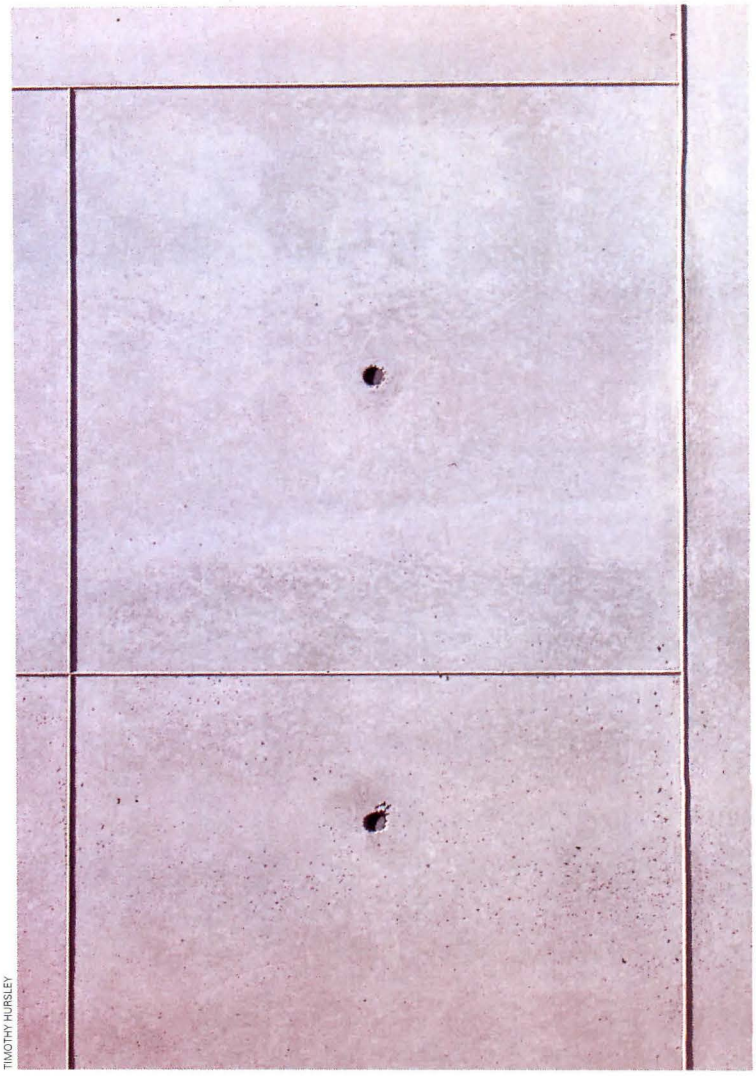
Perhaps the formwork's biggest advantage is that it can be reused to cast up to 25 wall panels, allowing a tremendous economy of materials and reducing the construction time to just 26 months. After each pour, the forms are simply hosed off with a soap solution and water. "Roughly 200,000 square feet of concrete wall surface were cast with only 8,000 square feet of formwork," reports Rinehart. Recasting the concrete with the same forms also ensures a consistent reflective finish among panels, a difficult task given traditional construction methods.

To minimize deflections in the formwork and resist hydrostatic pressure exerted on the plywood during pours, 4-by-6 laminated veneer lumber studs were nailed to the outside of the forms. Wedge-shaped neoprene strips treated with a polyethylene finish were applied to the edges of the forms to keep them watertight. As in Kahn's original, the new rubber strips join the edges of individual plywood panels, creating V-shaped relief lines that break the panels down into 4-by-8-foot rectangular modules. "When sunlight strikes the edges of the concrete bevels, it creates silver highlights," adds Rinehart.

The form ties that join the layers of formwork together while the concrete hardens were inserted through PVC sleeves embedded in the wall. Conical rubber plugs capping the form-tie holes were installed to prevent water from leaking into the cavity.

While the appearance of the East Building's concrete was important, the material also had to meet demanding structural requirements. These requirements, however, turned out to be sympathetic: "Everything that makes better architectural concrete also has structural advantages," explains Ove Arup's Clandening. For example, to achieve a uniform finish, the concrete is vibrated to increase consolidation, and its compressive strength therefore increases as well. The smaller, 1/2-inch-diameter aggregate selected by the architect eliminates the rock pockets typical of larger aggregates that can diminish the concrete's structural capacity. Smaller aggregate also ensured that the wet concrete would sufficiently cover the densely packed rebars. "Since this is a shear wall building," Clandening elaborates, "there's a lot of rebar congestion in some areas, especially at the ends of walls and at beam-column connections."

The building's structural concrete floor systems were tailored according to requirements for stiffness. The most sensitive lab equipment, requiring maximum stiffening against vibration, was placed in the basement level atop a 5-inch-thick concrete slab on



TIMOTHY HURSLEY

grade. At the second-floor offices, which do not require vibration isolation, Ove Arup & Partners specified a standard 8 1/2-inch-thick floor slab with 6-inch-thick drop panels at column connections. The relatively thin dimension of the slab helped maximize floor-to-ceiling heights, a necessity given a local restriction limiting the building's overall height. A ribbed joist structure was installed at the third floor, which houses laboratories, for increased stiffness. The structure is composed of a 4 1/2-inch-thick slab supported by 26-inch-deep joists spaced roughly 5 feet, 3 inches on center. The roof, meanwhile, is a simple 9-inch-thick slab supported on beams.

The various structural floor systems all tie into concrete shear walls at the north and south ends of each of the twin lab buildings. These shear walls act as the primary lateral system for seismic bracing. Placing services within these concrete cores maintains the building's flexibility, since interior partition walls have no seismic resistance and can be moved. The drawback of such a system, however, is that openings in core walls for ducts had to be carefully planned, since cutting additional holes will affect the overall seismic strength of the building. "We spent a lot of time coordinating the placement of services," recalls Clandening. "If you have to drill a hole into the core, you could remove a lot of rebar."

According to Chessum, the innovations developed for the Salk addition have already developed a stellar reputation within the construction industry. And despite differing opinions on the validity of a patented construction process, the Salk's Facility Manager Thomas Harkenrider reports a barrage of inquiries by prospective clients from Asia to the Caribbean. As Harkenrider notes, the interest in the process is "a compliment to the quality construction" of the Salk and its new addition.—*Raul A. Barreneche*

FACING PAGE, TOP LEFT: Polyethylene lining on plywood formwork gives marblelike finish to concrete walls.
FACING PAGE, TOP CENTER: Customized formwork was created to cast curved basement retaining wall.
FACING PAGE, TOP RIGHT: While concrete hardened, hydrostatic pressure on formwork was regulated with clamps.
FACING PAGE, ABOVE LEFT: Up to 25 walls were cast with reusable forms.
FACING PAGE, ABOVE RIGHT: Full-scale panel mock-ups were used to test finishing and detailing techniques.
ABOVE LEFT: Plastic sheets lining formwork impart reflective finish to walls.
ABOVE: Cone-shaped rubber gaskets prevent leaks in form-tie holes. Beveled edges in panels were created with neoprene gaskets applied to formwork.

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1. Salwasser, H., MacCleary, D., and Snellgrove, T., "New Perspectives on Managing the U.S. National Forest System"; Report to the North American Forestry Commission *Sixteenth* Session, 1992, USDA Forest Service, Washington, D.C. 2. USDA Forest Service, RPA Timber Assessment Update, 1993. 3. Hoch, Peter, Wood Science Laboratory, "Wood vs. Non-wood Materials in US Residential Construction: Some Energy-Related International Implications" Working Paper #36, October 1991, for the Center for International Trade in Forest Products, University of Washington.

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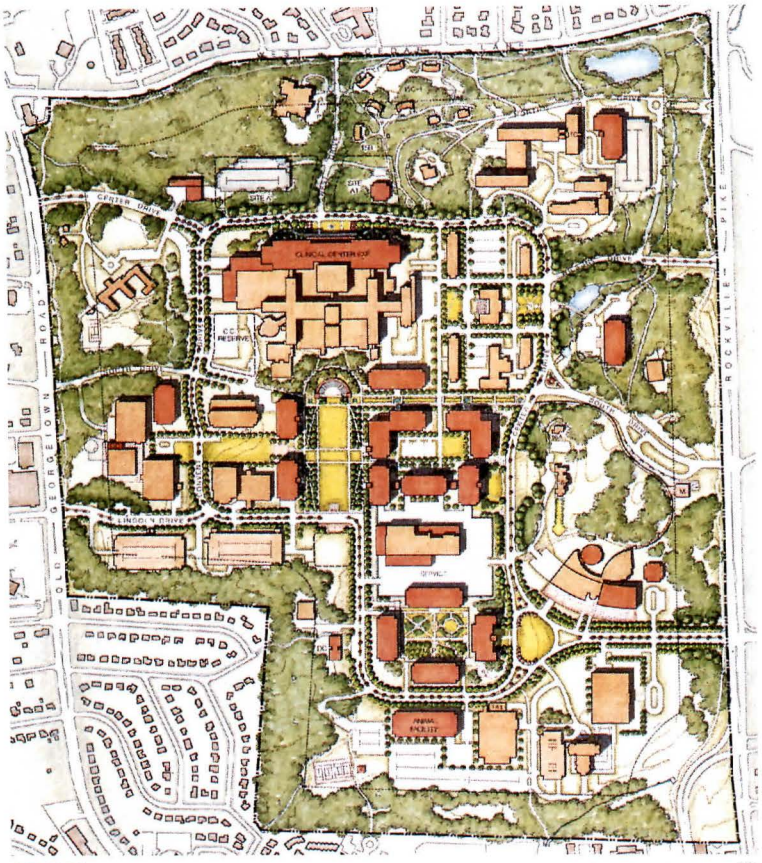


SITE PLAN

NIH's Newest Experiment

The National Institutes of Health selects an architect to expand its Clinical Center through a design competition.

The gospel of the General Services Administration's Design Excellence Program is finally winning converts in other federal agencies. Last fall, the National Institutes of Health (NIH), the government's nerve center for biomedical research, staged a landmark competition to design a $380 million clinical research center on its 322-acre wooded campus in Bethesda, Maryland. The proposed 850,000-square-foot facility will be part hospital and part laboratory, a high-tech hybrid for the next century. "It's going to be an important center," asserts John I. Gallin, NIH's associate director of clinical research, "not just for the NIH, but for the country and the whole biomedical community."

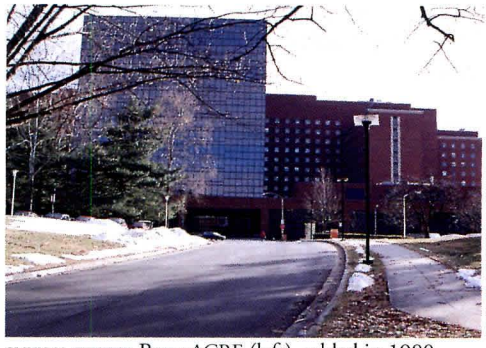
The plan is to place 250 inpatient beds and 100 outpatient stations right next to clinical research labs and treatment areas. The new building will adjoin and replace outdated, overcrowded space within the NIH Clinical Center's 19-story building, the tallest on campus. Completed in 1952, the brick-clad tower known as Building 10 sprouts the Ambulatory Care Research Facility (ACRF), a 1 million-square-foot glazed box nicknamed the "flash cube." Together, the two buildings make up the 3 million-square-foot Clinical Center Complex, the nucleus of the NIH campus.

Staked out on 45 acres in 1935 under President Franklin D. Roosevelt, the grounds originally comprised three Georgian-style buildings arrayed around a quadrangle. Today, 70 buildings are informally scattered over the

TOP LEFT: Campus master plan shows placement of proposed addition to north of clinical complex (top).

NEOGEORGIAN QUAD: Original 1938 building.

CLINICAL CENTER: Brick tower completed in 1952.



DAVID KELLY PHOTOS

CLINICAL CENTER: Boxy ACRF (left), added in 1980.

rolling, tree-lined landscape set within a suburban residential neighborhood. New buildings must conform to a 1993 master plan devised by local architects Oudens and Knoop with Keyes Condon Florance.

Architect Walter Armstrong of NIH's Division of Engineering Services fashioned an unusual protocol for awarding this enormous project, adopting the two-stage Design Excellence selection process piloted at the GSA by Chief Architect Edward Feiner in 1994. The NIH was able to select its architect outside the writ of the federal Brooks Act by signing a contract with Boston Properties, a private developer that has realized projects for other government agencies, to package financing, conduct the competition, and oversee design and construction.

The competition turned out to be like a large-scale laboratory experiment. It left some contenders doubting the efficacy of the GSA's newfangled selection process for such a technically sophisticated building. "The program is a very poor substitute for face-to-face conversation," laments one shortlisted candidate. "And when an agency hires a project developer who says, 'Please don't speak with the client,' you can guess they don't have a real interest in architecture."

Twenty-nine firms responded to the *Commerce Business Daily* solicitation last July. All were screened by a team of NIH architects and engineers, Boston Properties senior vice presidents Robert Burke and E. Mitchell Norville, and a group of professional advisors: the GSA's Feiner; Deborah Dietsch, editor-in-chief of ARCHITECTURE; Roger Montgomery, former dean of architecture at the University of California, Berkeley; and Jules Levine, associate vice president of health sciences at the University of Virginia.

The initial screening evaluated each firm's past design performance and philosophy, as well as the lead designer's portfolio. A few emerging firms such as Morphosis were considered, but the panel concluded that less-established firms could not handle the project's programmatic and technical complexity.

The preliminary group was winnowed to a shortlist of six candidates: Kohn Pedersen Fox (KPF) with Hansen Lind Meyer; Kallmann McKinnell & Wood Architects (KMW); Cesar Pelli & Associates; Renzo Piano Building Workshop; Venturi, Scott Brown and Associates (VSBA) with Payette Associates; and Zimmer Gunsul Frasca Partnership (ZGF).

The shortlisted firms were given a stipend of $50,000 and four weeks to assemble teams, devise a scheme, and prepare presentation boards. The presentations were publicly exhibited at NIH, where staff were encouraged to comment. The competitors were evaluated on the basis of team organization and design, each half of the total score.

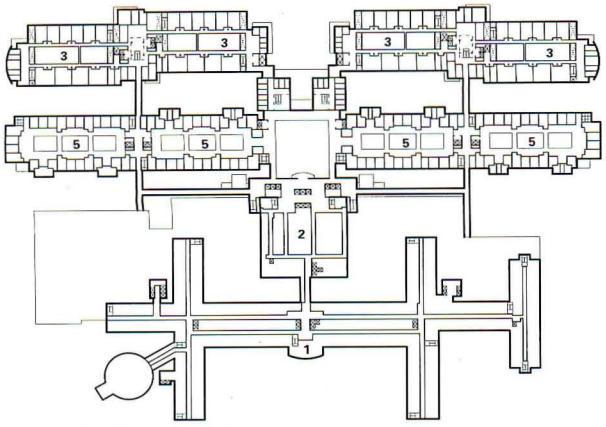
Each team was interviewed and rated by Boston Properties and a panel of NIH personnel: John Gallin, associate director of clinical research; Michael Gottesman, deputy director of intramural research; Gregory Curt, clinical director of the National Cancer Institute; and Robert Nussenblatt, scientific director of the National Eye Institute; as well as Project Manager Walter Armstrong; George Williams, director of special projects; and Janet Hedetniemi, the agency's community liaison. Nonvoting advisors Feiner, Dietsch, and Montgomery also attended.

Program criteria stipulated 11-by-33-foot lab modules, maximum 400-foot distances from patient units to laboratories, 18-foot floor-to-ceiling heights (incorporating interstitial floors), flexible spaces and infrastructure, efficient stacking, and clear circulation. Schemes were also rated for esthetics and contextual response. Because the new building will mediate between the campus and surrounding neighborhood, scale became a key factor. "Our master plan was carefully crafted with community involvement," explains Hedetniemi. "We were concerned about visual impact and the need for openness and accessibility to our community."

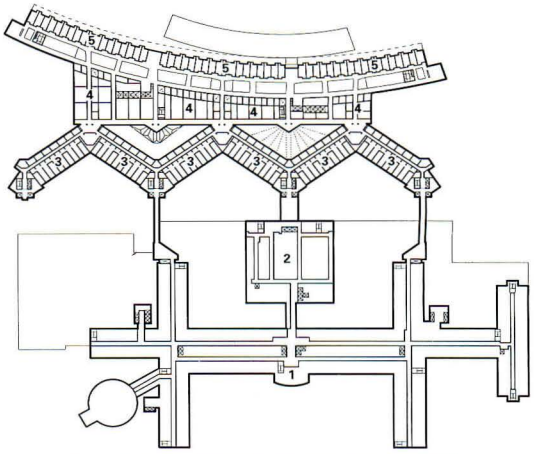
Most firms, however, proposed monumental massing and expansive footprints that appeared more like a hospital than a campus building. The two firms rated highest, ZGF and KMW, were reinterviewed by the panel and by NIH Director and Nobel laureate Harold Varmus. ZGF won the competition based on its past experience, team of consultants, and a design scaled appropriately to the campus and flexible enough to accommodate future needs. "We preferred modest over monumental," explains Gottesman.

In contrast, Pelli, ranked last overall, proposed a 170-foot-high curved wall fronting the wooded campus entrance. Piano, who assembled an impressive team and wowed the panel with an eloquent, persuasive argument, presented a similarly monumental scheme. The panel appreciated KPF's striking plan, which would have relocated the axial entrance to the complex and integrated natural elements—vegetation and daylight—into the clinical realm, but it had the largest footprint and was deemed functionally inefficient. The approach by VSBA/Payette was judged the most efficient, but its brick elevations struck the panel as reminiscent of public housing.

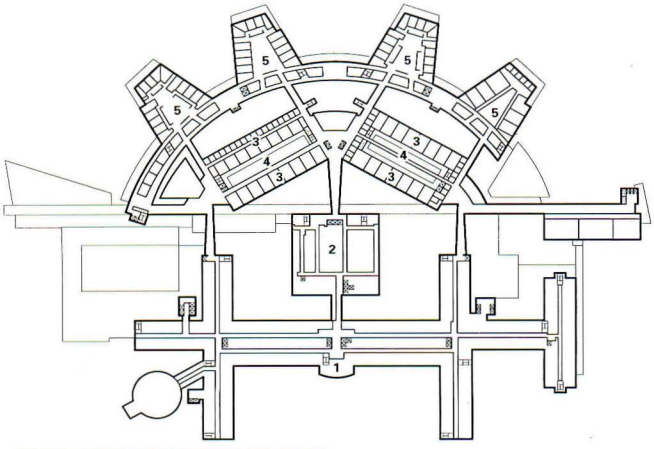
While the NIH competition yielded a provocative range of results, questions were raised over whether this type of competition was well suited to such a complex project. The design teams were given general program information, afforded minimal interaction with the client, and were thus left to devise sketchy responses. Most of the architects construed NIH's quest for a pace-setting, landmark facility—akin to Louis Kahn's Salk Institute—as a call for a monumental building rather than a recessive campus structure. Yet "the building could have been high-rise or low-rise; the client didn't know what it wanted," reports the GSA's Feiner. "Only when the proposals were made could the NIH see what the ramifications would be. But all the architects had the same information: the site is no mystery."—*Bradford McKee*



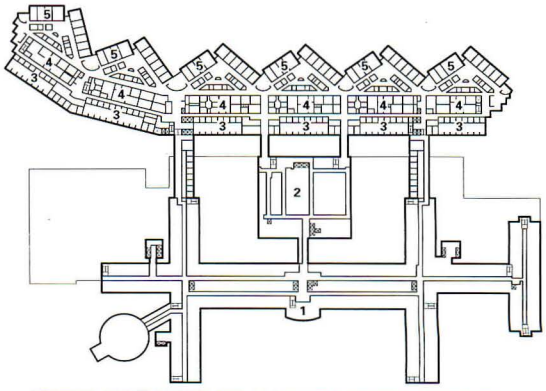
ZIMMER GUNSUL FRASCA PARTNERSHIP



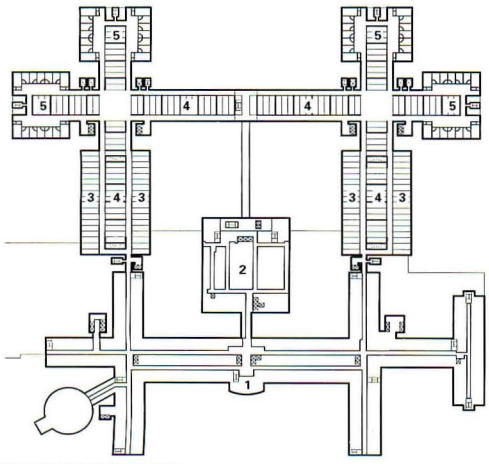
KALLMANN MCKINNELL & WOOD/SKIDMORE, OWINGS & MERRILL



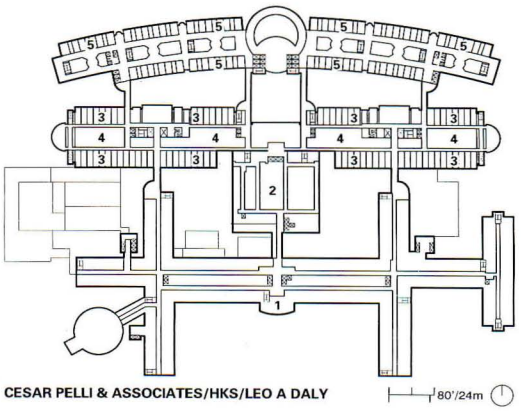
KOHN PEDERSEN FOX/HANSEN LIND MEYER



VENTURI, SCOTT BROWN AND ASSOCIATES/PAYETTE ASSOCIATES

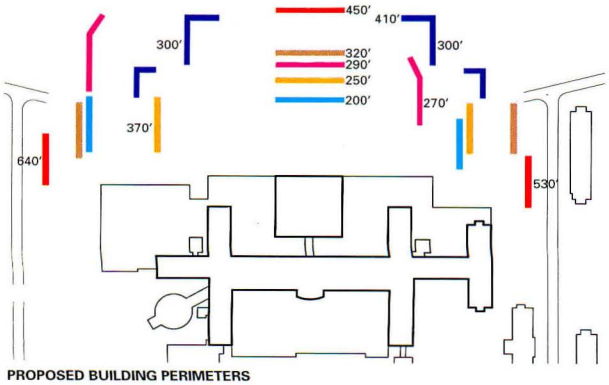


RENZO PIANO BUILDING WORKSHOP

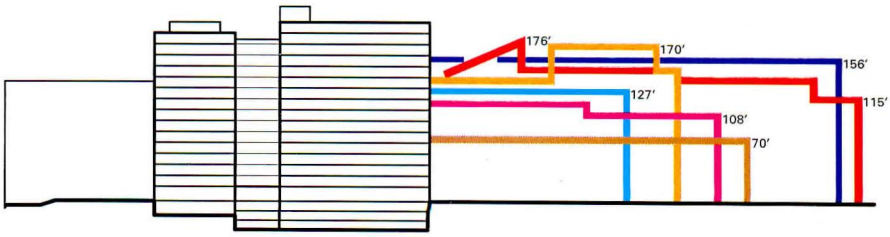


CESAR PELLI & ASSOCIATES/HKS/LEO A DALY

1 CLINICAL CENTER (BUILDING 10)
2 AMBULATORY CARE RESEARCH FACILITY
3 LAB BLOCK
4 SUPPORT AREA
5 PATIENT CARE UNITS

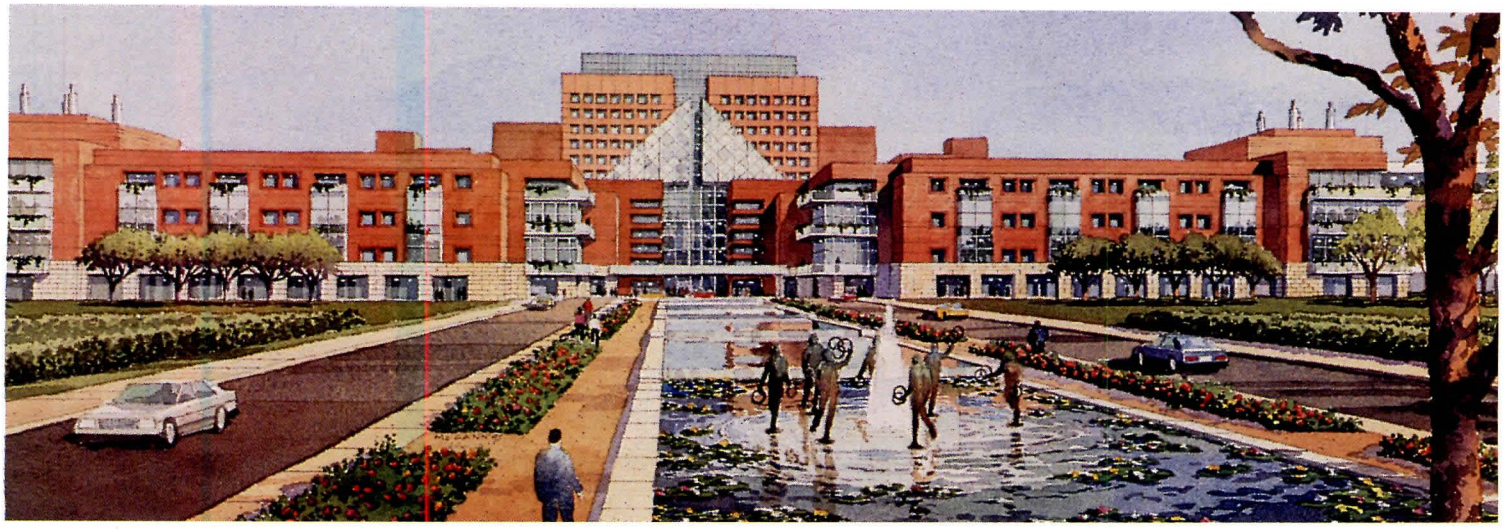


PROPOSED BUILDING PERIMETERS



PROPOSED BUILDING HEIGHTS

ZGF
KMW
VSB
PIANO
PELLI
KPF



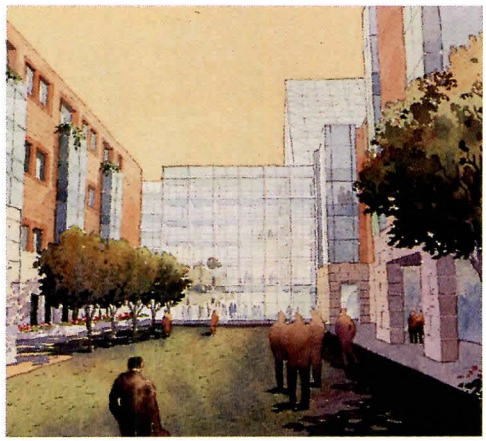
ZIMMER GUNSUL FRASCA PARTNERSHIP
Design Ranking: 1
Technical Ranking: 1
Final Ranking: 1

Zimmer Gunsul Frasca's quiet, four-story complex mediates between the 19-story Clinical Center Complex and one-story structures at the campus edge. The widest and lowest of the proposed schemes, ZGF's brick buildings, paired around courtyards, blend with the Clinical Center tower, the original NIH quadrangle, and surrounding neighborhoods. "The building fits like a glove on the campus," asserts Project Manager Walter Armstrong.

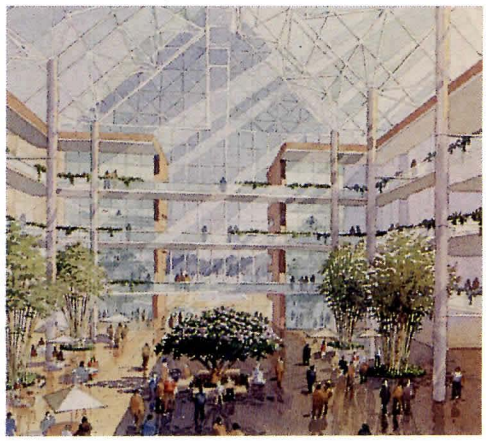
The scheme comprises two parallel east-west wings flanking the main circulation and interaction space. The blocks are arranged to house either labs or patient-care units. "I liked the design because it was so flexible—we could put a lab in a patient room or a patient in a lab space," remarks Associate Director of Clinical Research John Gallin.

Within the patient blocks, 10 flexible patient-care units hold 35 beds each, while nursing stations serve modular 5- to 10-bed clusters. Top floors of each patient wing contain solariums and outdoor terraces, and pedestrian bridges on the eastern and western ends connect to the complex.

The selection panel liked how the architects proposed to wrap the existing glass-clad Ambulatory Care Research Facility in brick, with a new core of elevators and lobby. The new glass pediment crowning the atrium was deemed ungainly, but during the interview, ZGF noted that it could be replaced by a drum, barrel vault, or cone.

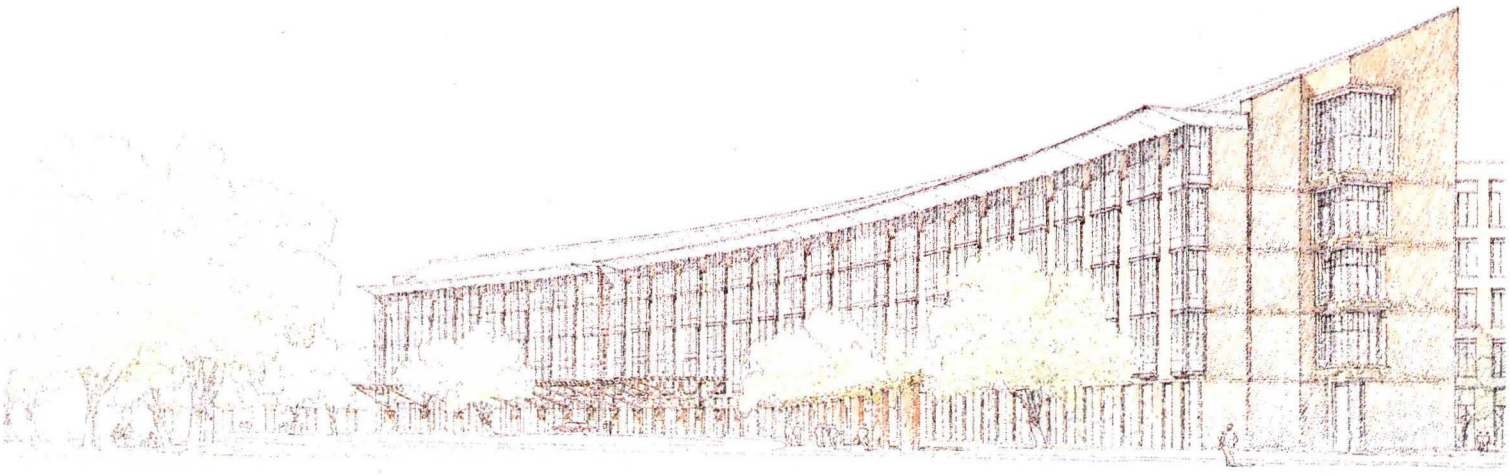


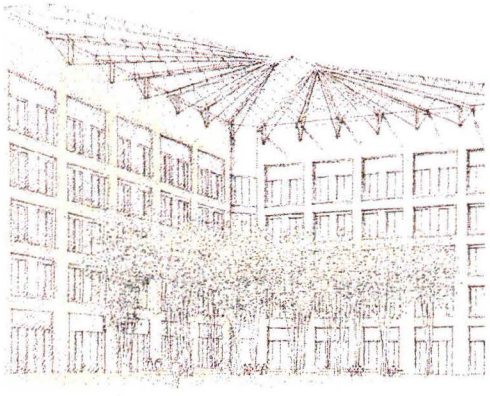
COURTYARD



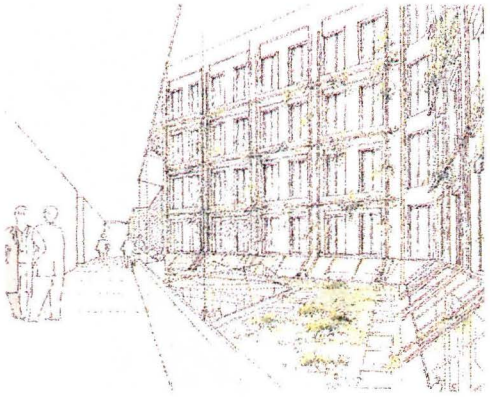
COURTYARD ATRIUM

FLOOR PLAN VARIATIONS

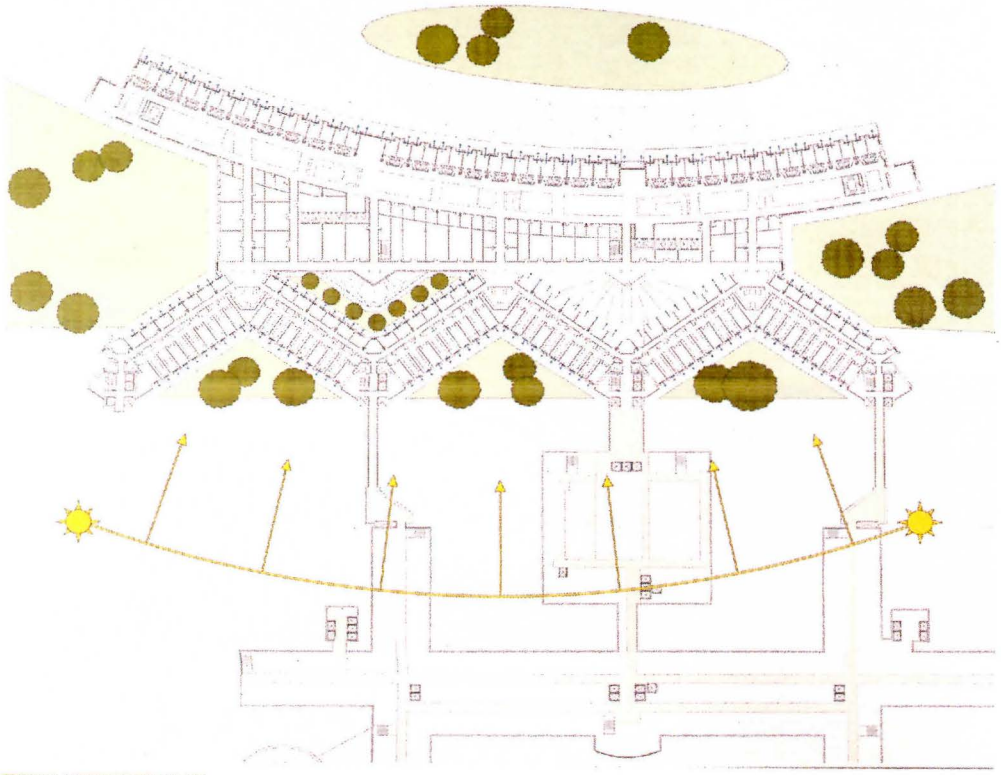




ATRIUM



GARDEN ATRIUM



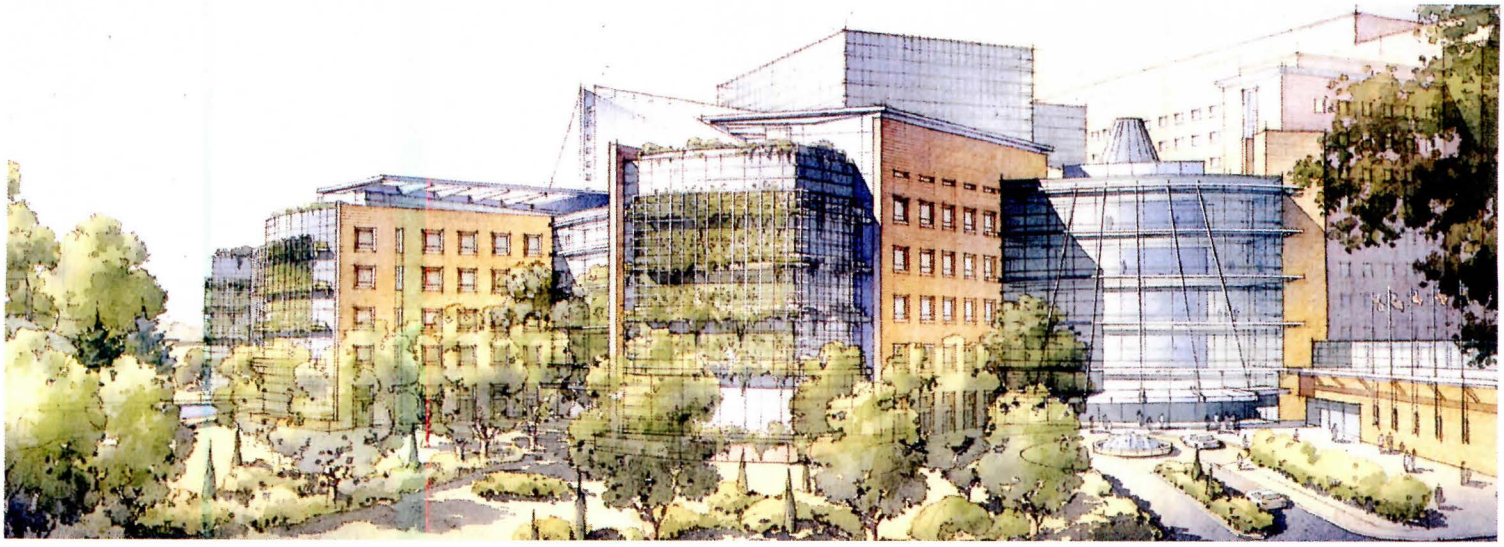
TYPICAL UPPER FLOOR PLAN

KALLMANN MCKINNELL & WOOD
SKIDMORE, OWINGS & MERRILL
Design Ranking: 2
Technical Ranking: 4 (tie)
Final Ranking: 2

After Kallmann, McKinnell & Wood (KMW) was selected as a finalist, the Boston firm teamed up with SOM's New York office for its healthcare expertise. Although SOM is better known for its design than its healthcare work, Principal Michael McKinnell maintains that KMW simply wished to team up with a firm equally strong in design and documentation.

This duality, however, is reflected in the team's submission. The gently curving patient-care volume to the north is not fully integrated with the zigzagging lab block to the south. The labs reveal KMW's rigorous planning, but the transitional space between patient rooms and labs drew criticism for creating a large, awkward zone.

Panel members appreciated the generous bay windows of the patient rooms fronting the wooded NIH grounds; the plan to incorporate landscaped courtyards inside; the building's moderate scale; and the brick frontispiece topped by an overhanging copper cornice. The concave figure of the building promises to draw in visitors rather than push them away. As McKinnell affirms, "This should be an accepting and caring building, not a monument." The NIH's Deputy *Director of Intramural Research* Michael Gottesman recalls that McKinnell recognized "there are few social needs higher than building a research hospital. He clearly understood what was essential."



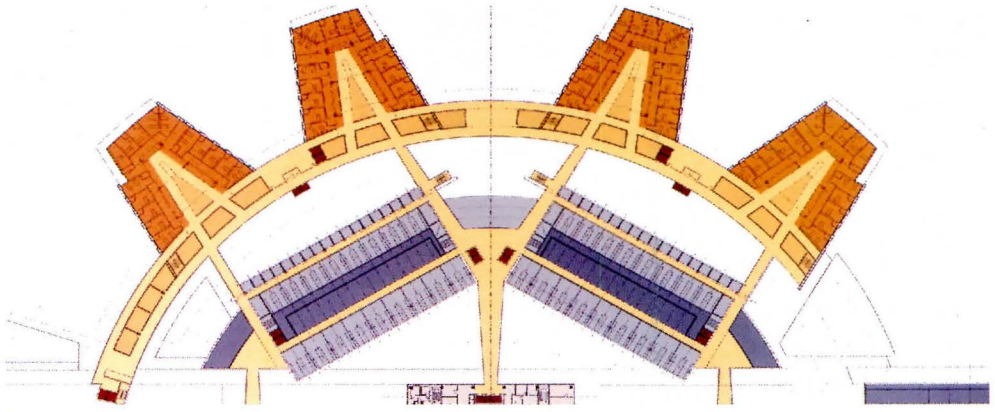
KOHN PEDERSEN FOX
HANSEN LIND MEYER
Design Ranking: 3
Technical Ranking: 4 (tie)
Final Ranking: 3

The NIH competition represents Kohn Pedersen Fox's first foray into laboratories. As a result, the New York firm teamed up with Hansen Lind Meyer, a firm experienced in research facilities. Their scheme was in many ways the most radical of the six, inspiring the strongest reactions both for and against it.

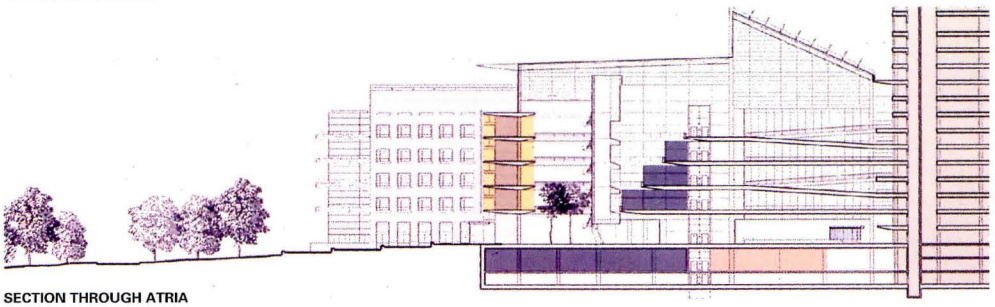
A quartet of large radial patient-care units pushes forth assertively into the landscape from a curving spine that is connected on the south to two lab blocks, each rotated 30 degrees from Building 10's east-west axis. The strong, figural plan "leapt off the boards," recalls Project Manager Walter Armstrong.

The selection panel praised the natural elements—daylight, vegetation, and water—introduced to the complex, and appreciated the way Principal William Pedersen sketched his ideas during his presentation. But KPF's inexperience with labs and healthcare design was evident in the rigid geometries of patient-care modules and the impractical configuration of nursing stations.

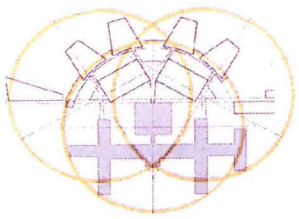
Moreover, the panel was concerned that splitting up the facility into multiple bays would raise the cost of construction above that of a more unified complex. The scientists felt that housing the clinical facility in several such modules might isolate researchers from one another, contrary to the idea of creating a single scientific community within the new complex.



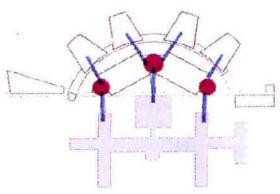
TYPICAL FLOOR PLAN



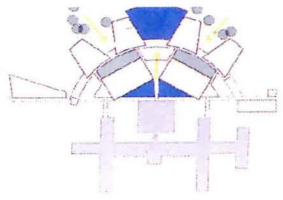
SECTION THROUGH ATRIA



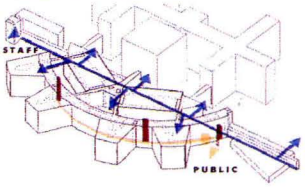
TRAVEL DISTANCES



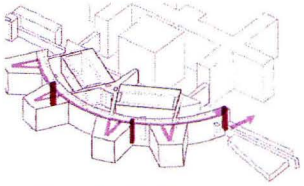
INTERACTION SPACES



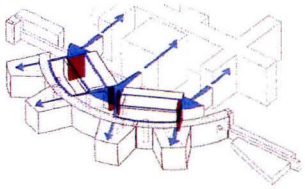
NATURE



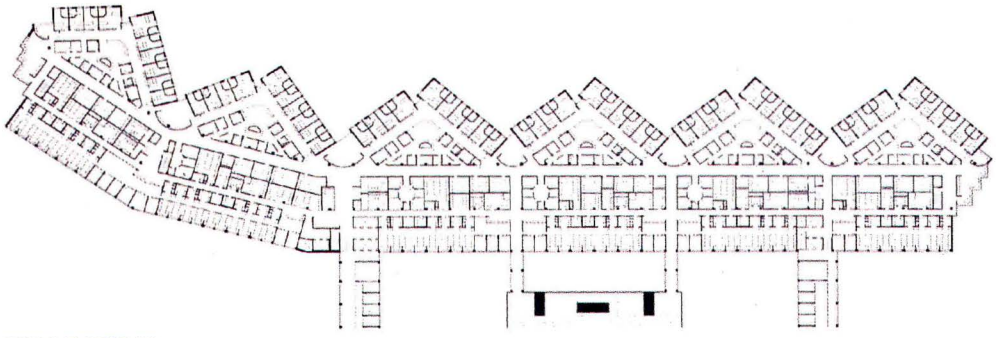
PUBLIC AND STAFF CIRCULATION



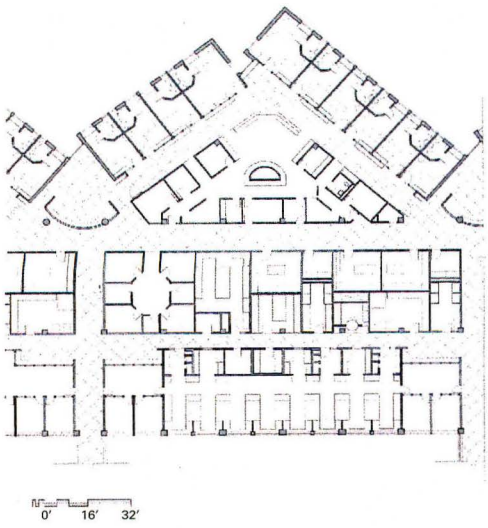
INPATIENT CIRCULATION



RESEARCH CIRCULATION



TYPICAL FLOOR PLAN



PLAN OF 12-BED PATIENT UNIT

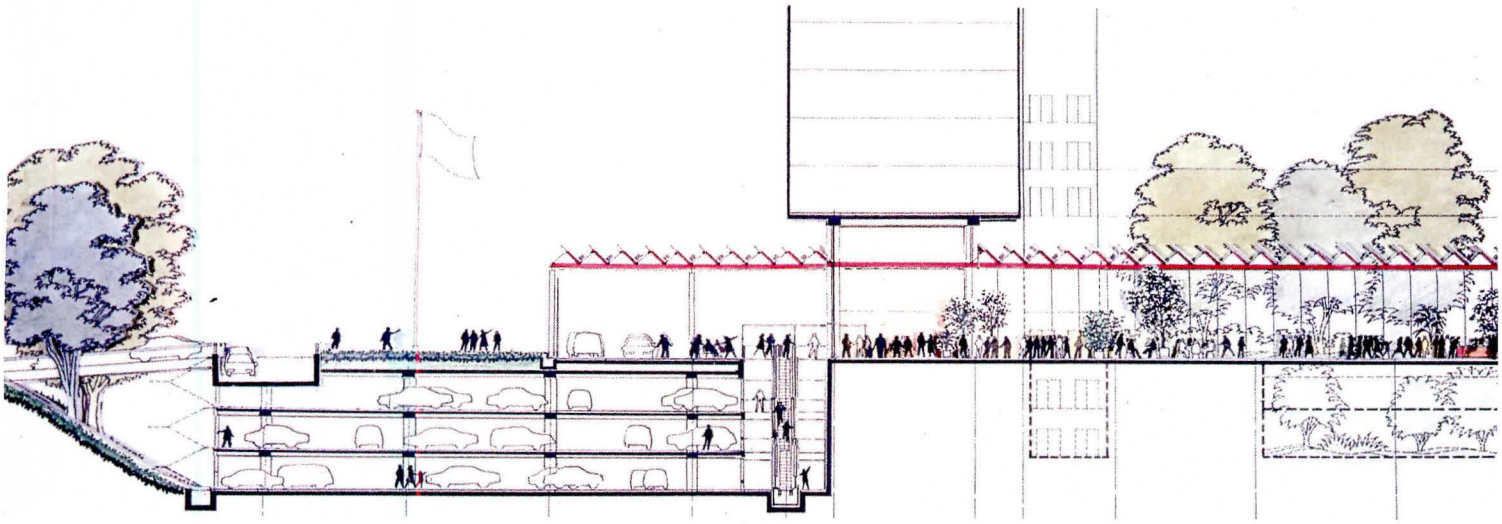
PUBLIC CONCOURSE

VENTURI, SCOTT BROWN AND ASSOCIATES
PAYETTE ASSOCIATES
Design Ranking: 5
Technical Ranking: 3
Final Ranking: 4

Venturi, Scott Brown and Associates (VSBA) and Payette Associates have long collaborated on laboratories, and their expertise was clearly evident in their efficient design for NIH. The selection panel discounted the building chiefly on esthetic grounds: its serrated brick facade, which looked more "repetitive than rhythmic," reminded several scientists of public housing projects. Nonetheless, "it's the most workmanlike" of all the schemes, concludes Armstrong. "You could go out and build it tomorrow."

Extending from Building 10's north and south wings, the addition directly adjoins the ACRF's north side. Within the six floors, patient bays face north and labs face south. Every floor contains two 36-bed patient-care units, organized as six bays of 12-bed clusters, and each cluster backs up to a single laboratory module. Patient units and labs share common circulation spaces; the lab zone contains an additional support corridor.

The panel maintained that the design concept emphasizes corridors *over spaces for social interaction*, which were listed as a priority in the program. However, lounges inserted between the health-care bays with views of the campus provide respite areas for patients and their families.



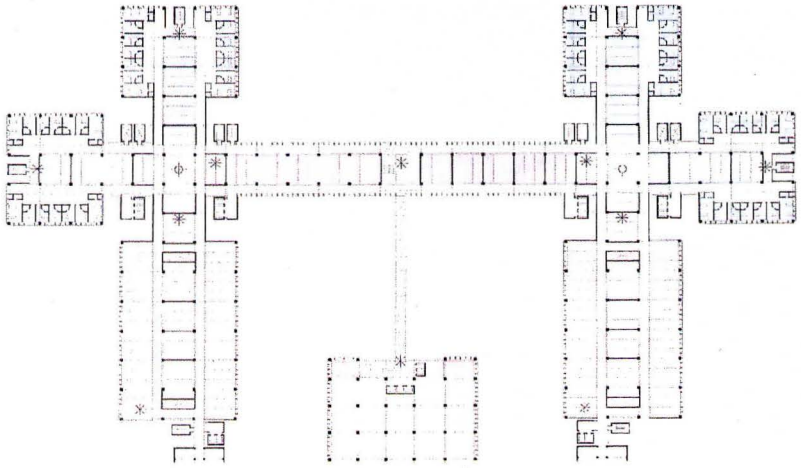
RENZO PIANO BUILDING WORKSHOP
Design Ranking: 4
Technical Ranking: 6
Final Ranking: 5

Renzo Piano unabashedly proposed a monumental 12-story companion to the existing Clinical Center. "We tried to replicate the DNA of Building 10," Piano explains, describing his plan to extend the 1952 building's east and west wings. The Italian architect designed his new complex to the same scale as Building 10, echoing the original building's massing with an H-shaped block of labs and patient-care rooms.

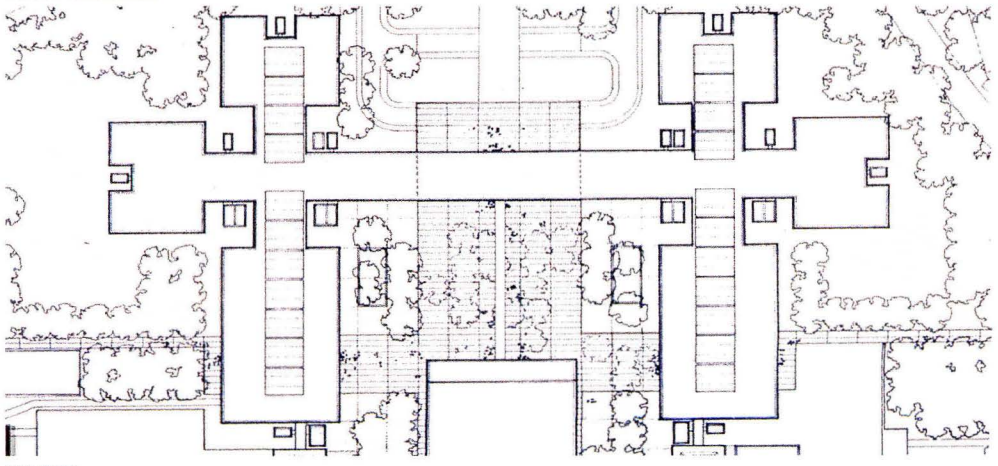
Patient units are paired around each north terminus, allowing four 18-bed units per floor. Unlike most of the competition's schemes, in which patient rooms face exclusively north, Piano's patient rooms are oriented in all directions, while lab blocks face east and west.

A central plaza extends under the new and existing buildings to underscore a new campus axis suggested by NIH's current master plan. Piano's proposal permits future expansion with plans to augment patient blocks with identical units located to the north, east, and west.

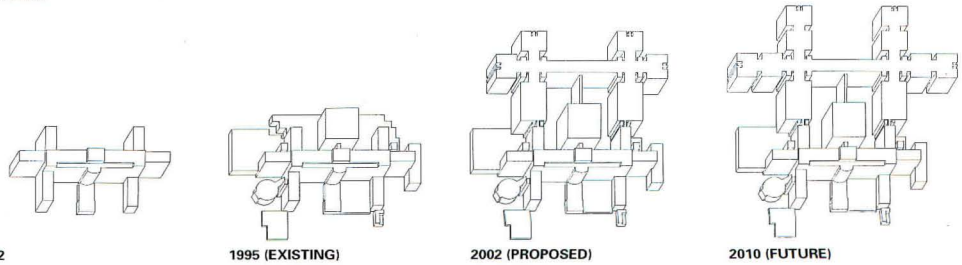
The large scale of Piano's proposal and his process approach to architecture, however, ultimately lost him support. Explains Gregory Curt, clinical director of the National Cancer Institute, "He imagined the grandest of schemes, and his concept of looking at the campus as a 'small city' was right on." Although the panel responded enthusiastically to the poetics of Piano's proposal, the scientists were not seduced by the monumentality of his idea.



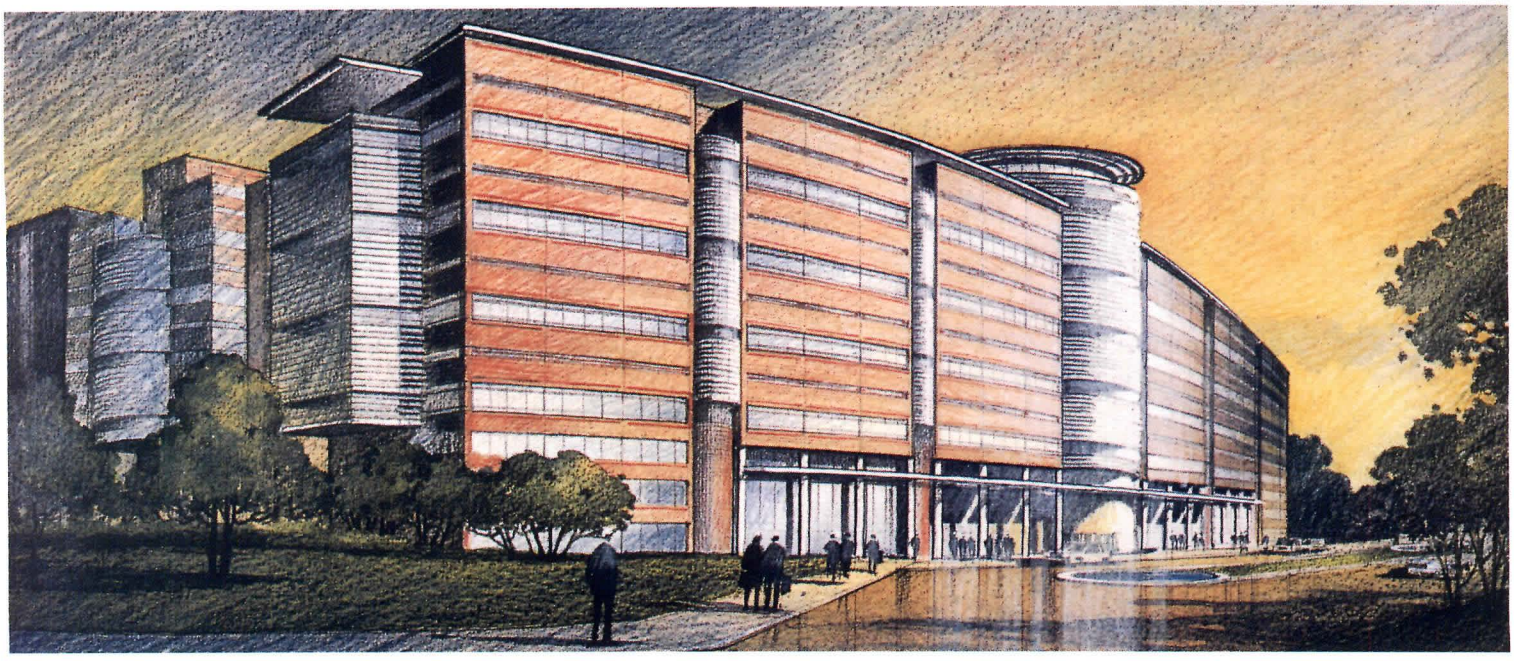
TYPICAL FLOOR PLAN

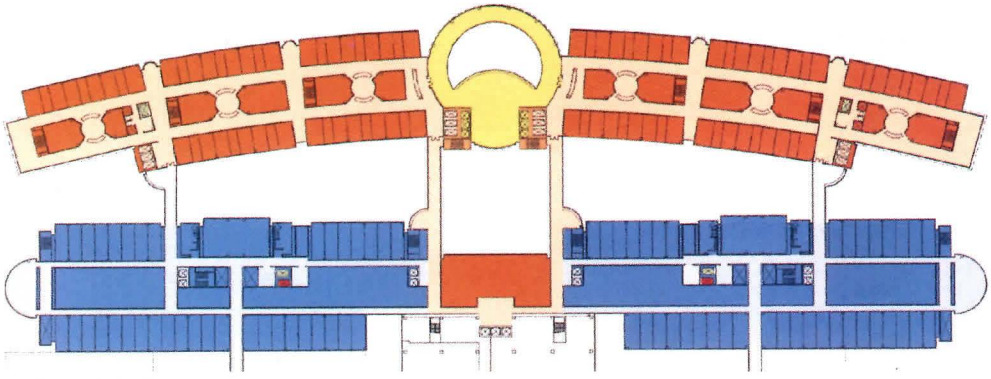


SITE PLAN

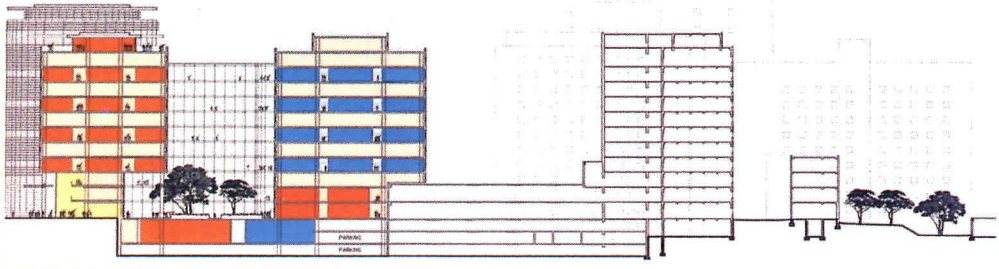


1952 | 1995 (EXISTING) | 2002 (PROPOSED) | 2010 (FUTURE)

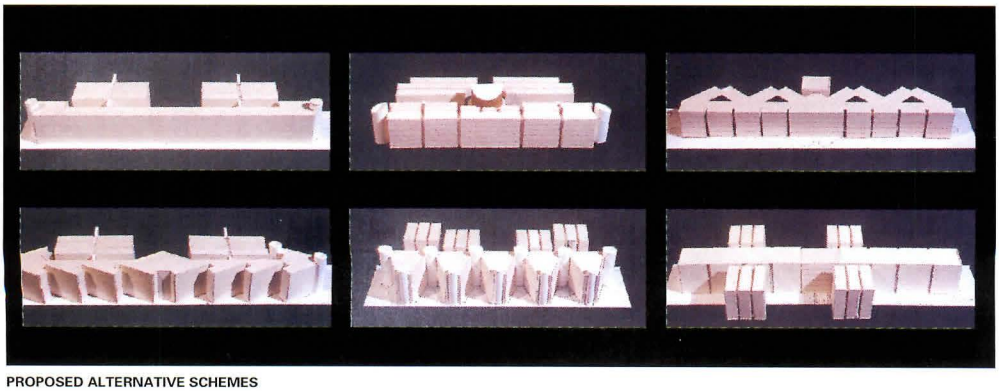




TYPICAL FLOOR PLAN



SECTION THROUGH TYPICAL PATIENT-CARE AND LAB WINGS



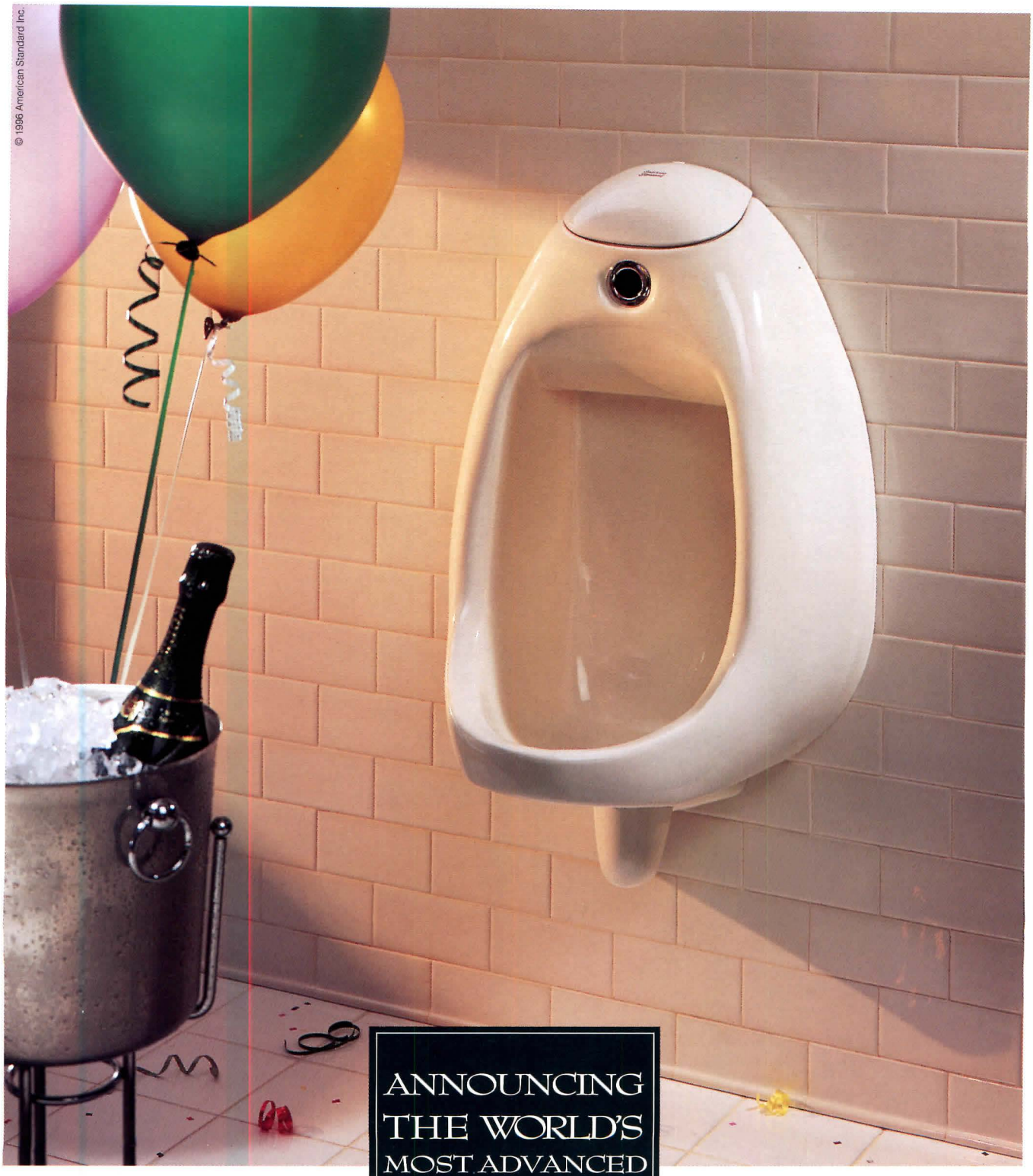
PROPOSED ALTERNATIVE SCHEMES

CESAR PELLI & ASSOCIATES
HKS/LEO A DALY
Design Ranking: 6
Technical Ranking: 2
Final Ranking: 6

The Pelli team's scheme suffered as much from its unconvincing presentation as from its large-scale parti. Pelli emphasized "process over image," and presented more siting and massing alternatives than competitors did. But the architect chose to focus on the least attractive of them: a monolith that struck the jury as the Great Wall of China—a barrier rather than a gateway to the campus.

The long, curved patient-care wing faces north and flanks a cylindrical circulation core. Across a courtyard to the south, the lab modules and support spaces are housed in a separate block abutting the ACRF, which connects to the patient-care units via glazed bridges. Labs and patient-care areas are placed at levels 4, 6, 8, and 10 between interstitial floors, to align with existing floors within the ACRF block. A large interior public court between patient and lab wings extends a north-south axis to an auditorium on Building 10's south side.

Pelli likens his building to a "tough machine" of great efficiency. To humanize its face, the architect presented examples of the variegated brick detailing typical of his recent projects, but even such meticulous craftsmanship was unlikely to soften the edifice's scale, which the jury deemed too monumental.



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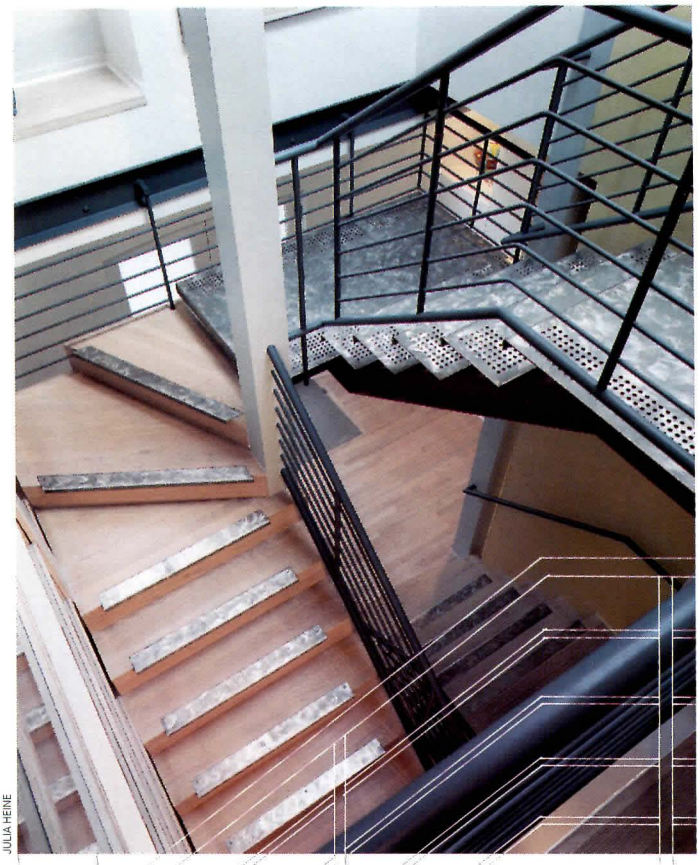


JULIA HEINE

Tectonic Steps

Staircases detailed with common materials express the interplay of structure and light.

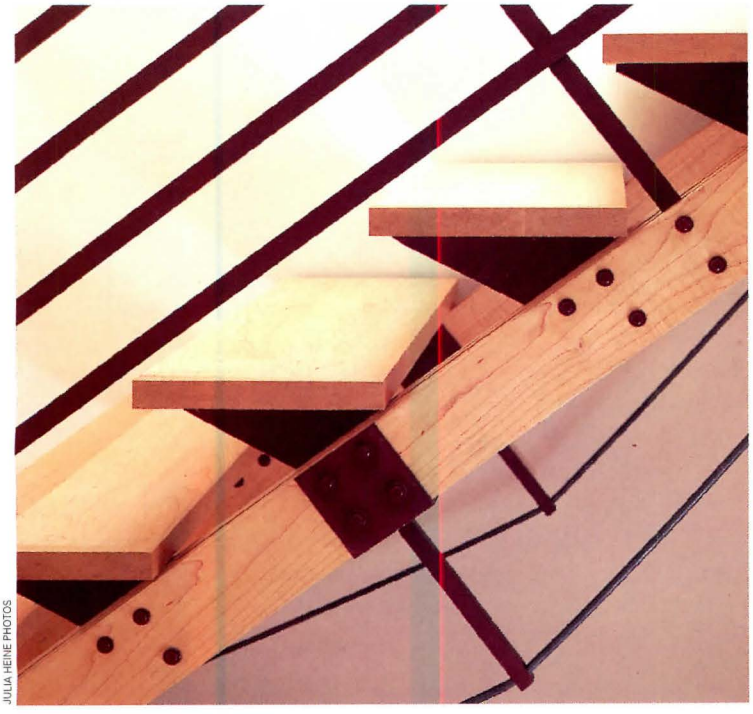
Mark McInturff is an architect who has learned that a carefully articulated staircase can activate a static space. In designing houses, McInturff focuses on detailing a stair, he explains, because it is the place in a building "where the plan and section can be experienced simultaneously." His justification is straightforward: "Spend a little more money on a stair and it becomes a focal point."

The principal of a four-person firm based in suburban Washington, D.C., McInturff details his stairs to be lightweight and structurally expressive. In a departure from typical closed-carriage staircases, his designs often exploit open risers to allow light to pass through the flights. Each piece of hardware is further distinguished through a variety of materials.

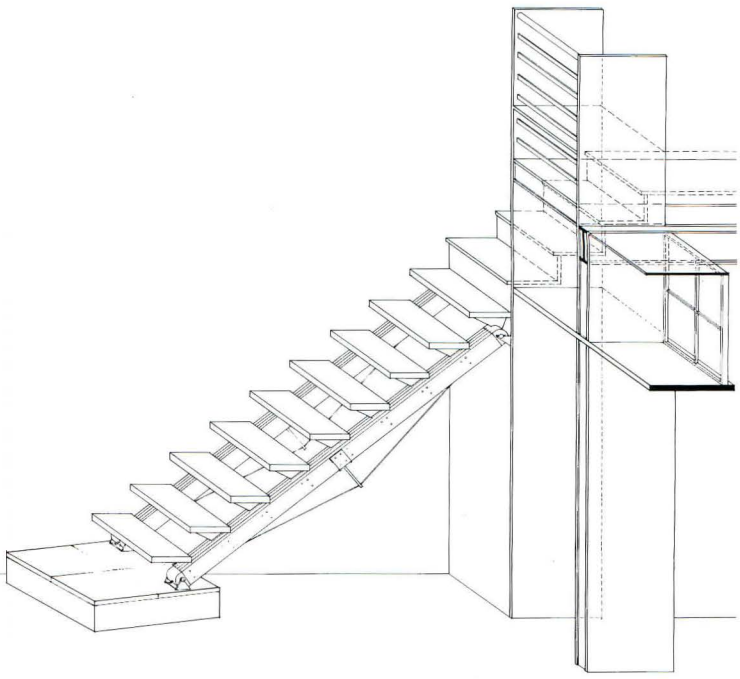
To contain costs, McInturff applies stock materials in inventive ways. Tension cables and turnbuckles from a marine supply store allowed him to reduce the size of the steel stringers in a 3,000-square-foot house in Chevy Chase, Maryland. He also salvages portions of existing stairs and dresses them up with new handrails or nosing. In expanding a 1950s house in Washington, D.C., for example, the firm kept the existing wooden stair intact and suspended a new steel run from above to accommodate a raised ceiling height (above left).

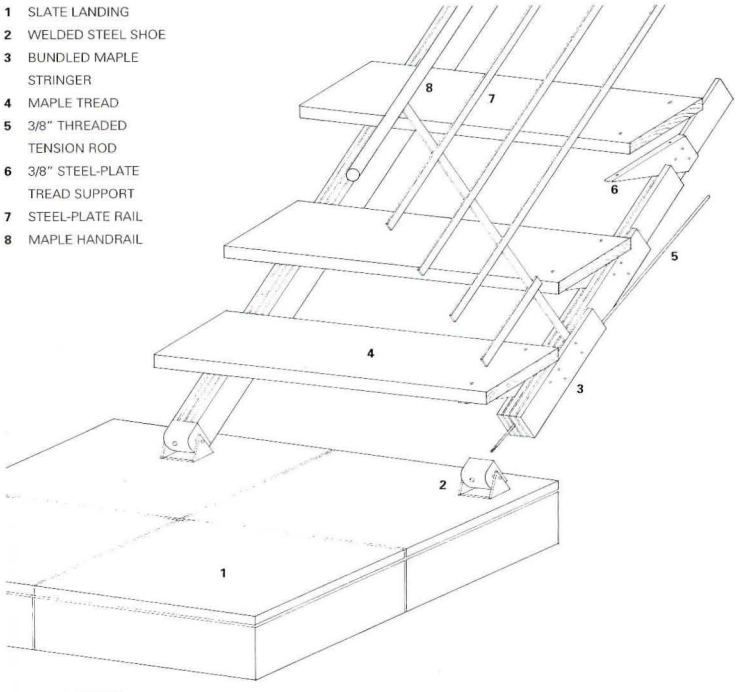
By tying old to new, "the stair becomes a summary of what's happening elsewhere in the building," McInturff explains, adding that when value engineering threatens other custom finishes, the stair remains relatively invulnerable because "you can't take it out."—*Ann C. Sullivan*

ABOVE LEFT: Brushed-steel nosing marries existing wood stair to metal extension in renovation of 1950s house in Washington, D.C., by McInturff Architects.



JULIA HEINE PHOTOS





1 SLATE LANDING
2 WELDED STEEL SHOE
3 BUNDLED MAPLE STRINGER
4 MAPLE TREAD
5 3/8" THREADED TENSION ROD
6 3/8" STEEL-PLATE TREAD SUPPORT
7 STEEL-PLATE RAIL
8 MAPLE HANDRAIL

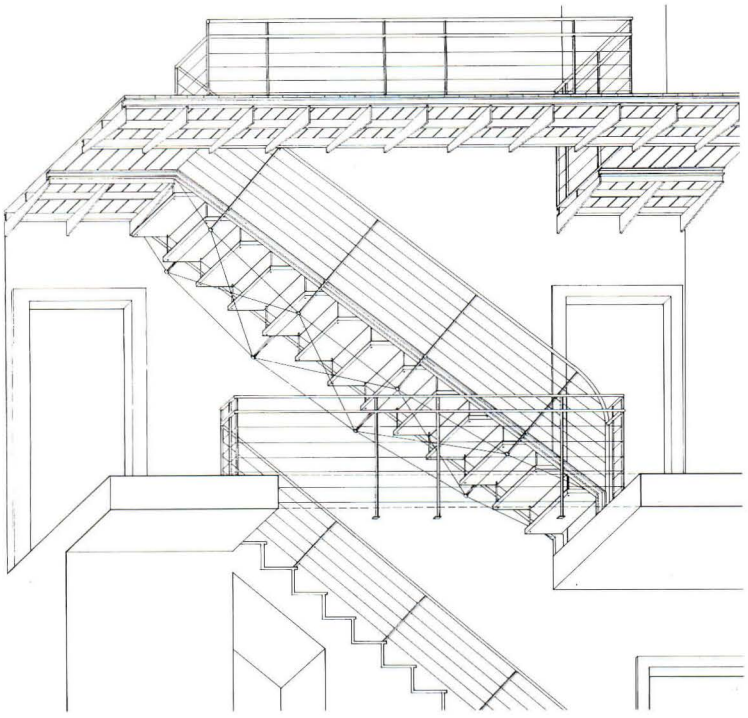
LANDING DETAIL

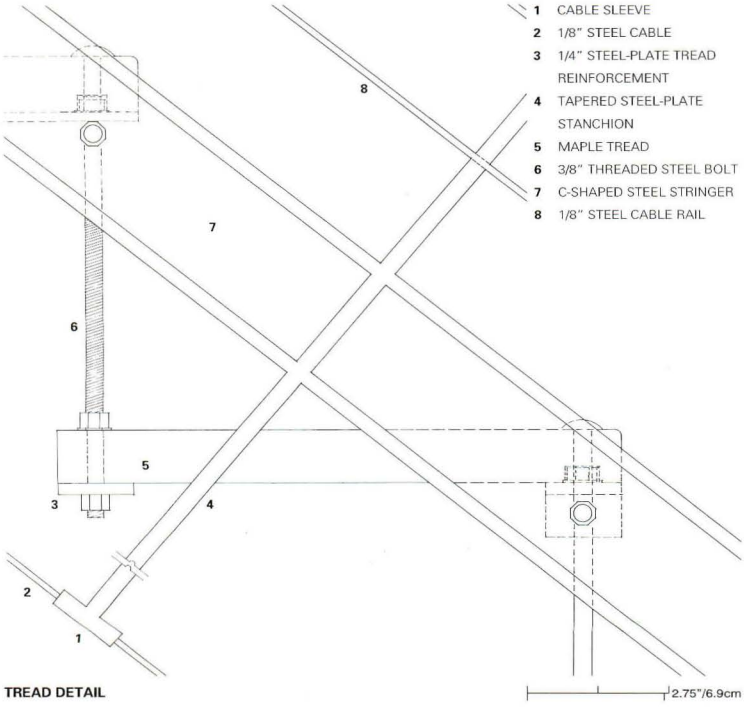
Hutner House
Chevy Chase, Maryland

Mark McInturff likens this single-run stair to a gangplank—a portable bridge that extends from a ship's deck to solid ground. The self-supporting, wood-and-steel stair leads to a new second floor in the architect's expansion of a single-level 1950s house. It relies on load-bearing walls only for balance and, like a gangplank, could be lifted intact out of its welded metal shoes and carried to a different location. A raised black slate podium at the bottom of the hinged flight emphasizes its designated landing site.

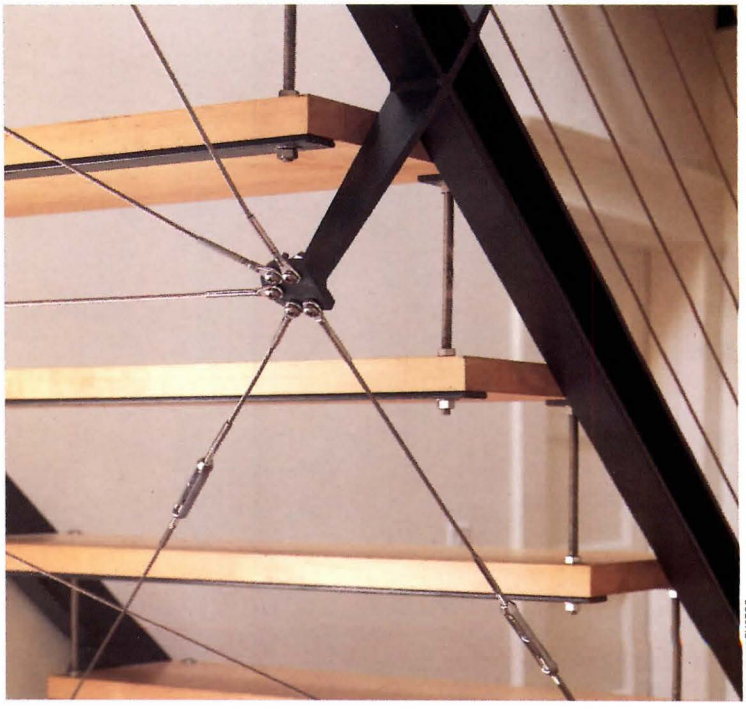
The staircase is constructed of maple stringers, treads, and handrails with steel stanchions, tread supports, and tension rods. Rather than specifying a solid piece of timber, McInturff formed each stringer from four $^{3}/_{4}$-inch-thick, $4^{1}/_{8}$-inch-wide wood planks. A narrow slot between each board accommodates the steel hardware: stanchions protrude from the outside slot, and tread supports slip into the inside pocket. From the center cavity, threaded tension rods extend beneath the stringers to form a triangular frame that increases the stringers' stiffness. Thirty bolts hold the layered assembly together.

TOP LEFT: Steel hardware supports lightweight wood stringers and treads.
ABOVE LEFT: Threaded tension rods form triangular frame beneath stringers to prevent sagging.
AXONOMETRIC: Open-riser stair extends from new landing inserted above existing first-floor closet to slate podium.
DETAIL: Stringer's four planks rest on welded metal shoe.





TREAD DETAIL



JULIA HEINE/PHOTOS

King House
Chevy Chase, Maryland

Solid maple treads set against a backdrop of lightweight, nautically inspired steel cables distinguish a new staircase in another suburban Washington, D.C., renovation by McInturff Architects.

Steel is applied sparingly in this stair, which extends from an existing closed-carriage flight to a new third-floor addition. Two C-shaped steel stringers, which serve as the stair's principal support, are deliberately slender and rely on the stainless steel cables to reduce vibration.

Tapered stanchions protrude 6 and 9 inches below the inside diagonal steel stringer and provide nodes for 1/8-inch cables, which are fastened on site and tensioned with turnbuckles similar to those tensioning the stays of a sailboat's mast. Instead of risers, steel bolts connect the maple treads, allowing sunlight from a rooftop window to illuminate the original staircase.

The new flight terminates at a walkway cantilevered off the north and south walls of the triple-height stair hall. The corridor leads to a new third-floor exercise studio and playroom. Steel brackets spaced 18 inches apart support the walkway, finished in maple like the treads.

TOP: Original stair, new flight, and cantilevered walkway share similar steel stanchions, handrails, and rails.
ABOVE: Steel cables fastened to ends of stanchions are tensioned with turnbuckles from marine supply store.
AXONOMETRIC: Cantilevered steel-and-maple walkway leads to McInturff's third-floor addition.
DETAIL: Steel stringer, stanchions, and handrail assembly was welded off site and installed intact; stair treads are connected by bolts.

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More Than Shelter

Protection from the elements is no longer the only goal for low-income housing. The needs of diverse communities must be met.

Architecture alone can't solve the country's social ills. But it can play a role in reducing the social stigmas linked to housing for low-income and homeless people, some of whom have special needs.

The complexity of issues that must be confronted and resolved before even the smallest project can be built often overshadows a basic component of successful housing: design. Low budgets, neighborhood opposition, and public policy regulations are used as excuses for uninspired architecture, but these factors can be catalysts for inventive design strategies.

Architects, urban designers, and social critics argue that it is inappropriate to "experiment" with housing for impoverished populations. But intelligent planning and formal ingenuity are not frivolous expenditures—they can be the foundation of a better place to live. While there is a dearth of architectural exploration in housing projects, some practitioners are raising the ante, bringing their problem-solving skills and design vision to the housing arena. In the projects that follow, many of which incorporate on-site social services, architecture is used to diminish the marginalization of residents and to surpass the usually low expectations of a poor community.

As of 1993, the number of units for low-income renters in the U.S. stood 4.75 million short of the need, according to the Community Information Exchange's Housing for People with Special Needs (for more information, contact Community Information Exchange, 1029 Vermont Avenue, N.W., Suite 710, Washington, D.C. 20005-3517). And funds for housing projects are increasingly limited. All of the projects shown in this article benefit from some government funding, but current deficit-reducing measures are placing the onus on nonprofit housing developers to cobble together financing from myriad organizations, further complicating their mission.

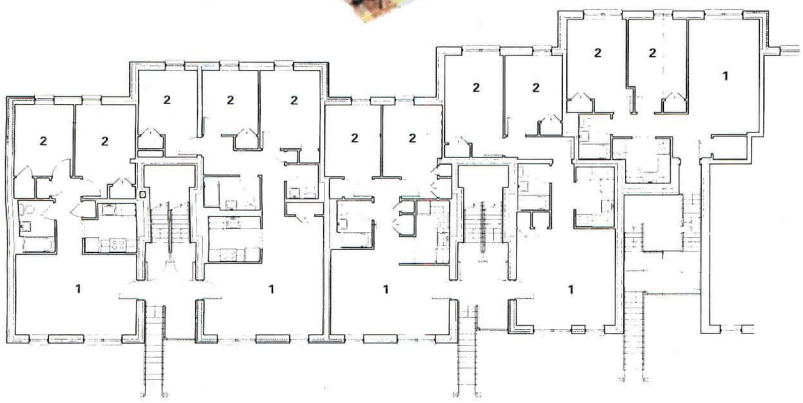
In light of such difficulties, it is all the more encouraging to see a movement afoot, modest as it may be, to provide more than shelter for society's underdogs.—*Abby Bussel*

ABOVE: Public housing in New York City by Becker & Becker Associates is arranged around a courtyard.

Learning from "The Projects"

This 56-unit public housing project for low-income families on New York's Lower East Side was conceived as a prototype, with issues of security, maintenance, and design given the highest priority. The project, by Becker & Becker Associates of New Canaan, Connecticut, attempts to both strengthen the urban fabric and provide a secure, human-scaled environment for residents on nearly a full city block.

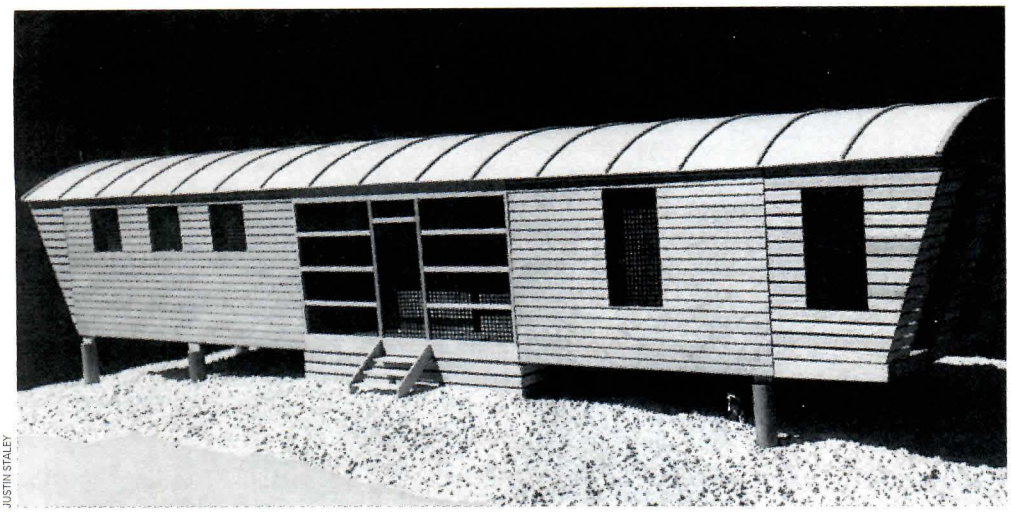
The units are contained in two rows of four-story townhouses, which are connected by covered staircases and are located on the north and south sides of the block. The central building of each row has a monumental gated archway leading to a landscaped courtyard with a community house at one end. Load-bearing brick cavity walls with soldier courses and glazed brick details are designed to reflect the architectural vocabulary of the neighborhood. Scheduled for completion this spring, the housing may be the last of its kind—for a while. HUD, the main funding source of the project, along with the NYC Housing Authority, is facing deep budget cuts and, according to Principal Bruce Becker, has shifted its focus to the rehabilitation of existing housing.



SECOND FLOOR PLAN

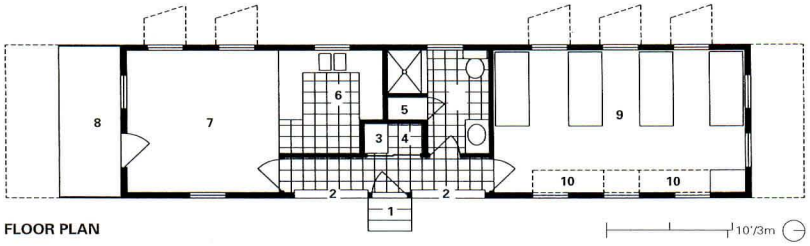
1 LIVING/DINING ROOM
2 BEDROOM

NEW YORK CITY PUBLIC HOUSING BY BECKER & BECKER ASSOCIATES



JUSTIN STALEY

MODEL OF FARMWORKER HOUSING



FLOOR PLAN

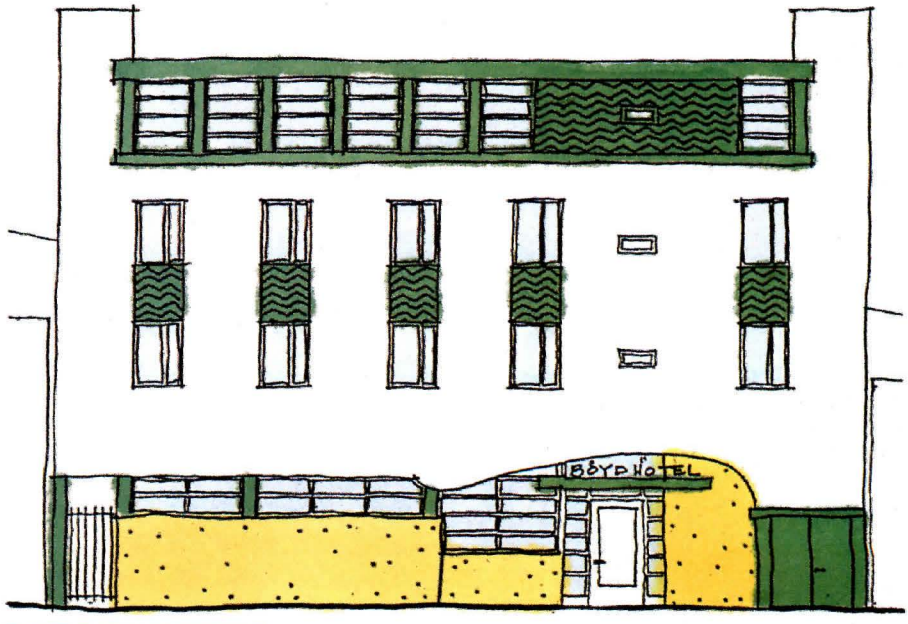
1 ENTRANCE
2 BOOT BENCH & BASKET HANGER
3 DEEP WASHBASIN
4 PRUNING TOOL STORAGE
5 HOT WATER SUPPLY
6 KITCHEN
7 DINING ROOM
8 PORCH
9 BEDROOM
10 CLOTHES STORAGE

Migrant and Proud

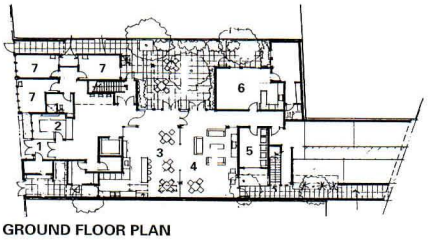
Rural Opportunities, a private nonprofit agency, has initiated a program to improve migrant farmworker housing in Adams County, Pennsylvania. The design of the 730-square-foot, four-person unit (left) is by Bryan Bell of Gettysburg and funded by the National Endowment for the Arts. The construction cost of each manufactured unit ($39,000, delivered) is split between the farmer and the state's Department of Community Affairs. Interviewing the workers, Bell found that most "expressed a pleasure in the work and migratory pattern it requires." He adds that "mobility is not assumed to be a negative and is expressed in the design." The units, which are insulated and have steel siding, are designed for a north-south orientation—like rows of apple and cherry trees. Movable shutters provide shading to the west and can be slid to the side for solar gain in the cooler months of the harvest season. Bell is also working on a different design for the migrant families—a panelized house to be constructed by the owners.

SRO with Roots

Koning Eizenberg Architecture of Santa Monica, California, has a well-earned reputation for the design of finely tuned housing for low-income and homeless people. And the Boyd Hotel (right), a single-room-occupancy (SRO) hotel now under construction on an irregular site in the Skid Row area of downtown Los Angeles, is no exception. Representative of a reemerging alternative to homeless shelters, the quietly restrained building instills a sense of dignity in the residents with architecture that goes beyond the faceless housing these clients are typically offered. The 61-room hotel is the second new SRO designed by the firm for the Skid Row Housing Trust. The architect explains that it "draws on L.A.'s rich tradition of 1930s urban and commercial buildings." The stucco-clad street elevation is animated with ceramic tile at its base and entrance and corrugated metal detailing at its windows. Designated common spaces provide opportunities for interaction among the residents, and passive energy features compensate for lack of air conditioning. The 17,600-square-foot project will be completed this year.



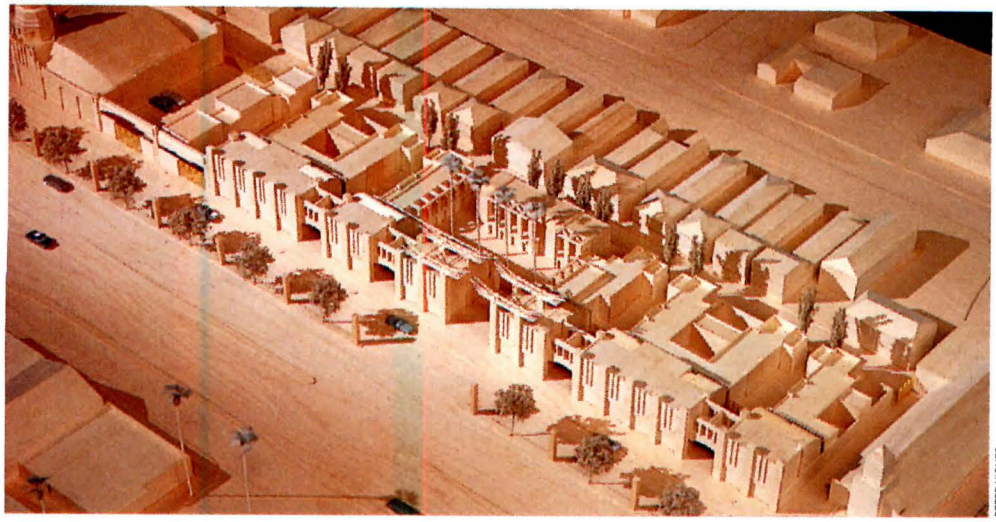
FRONT ELEVATION OF BOYD HOTEL



GROUND FLOOR PLAN

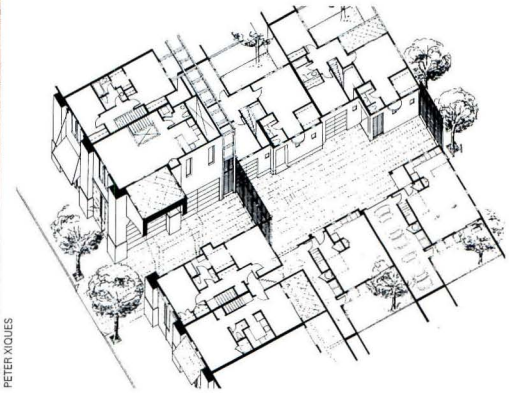
1 ENTRANCE
2 OFFICE
3 DINING ROOM
4 LOUNGE
5 LAUNDRY
6 MANAGER'S APARTMENT
7 RESIDENT'S ROOM

SECOND/THIRD FLOOR PLAN

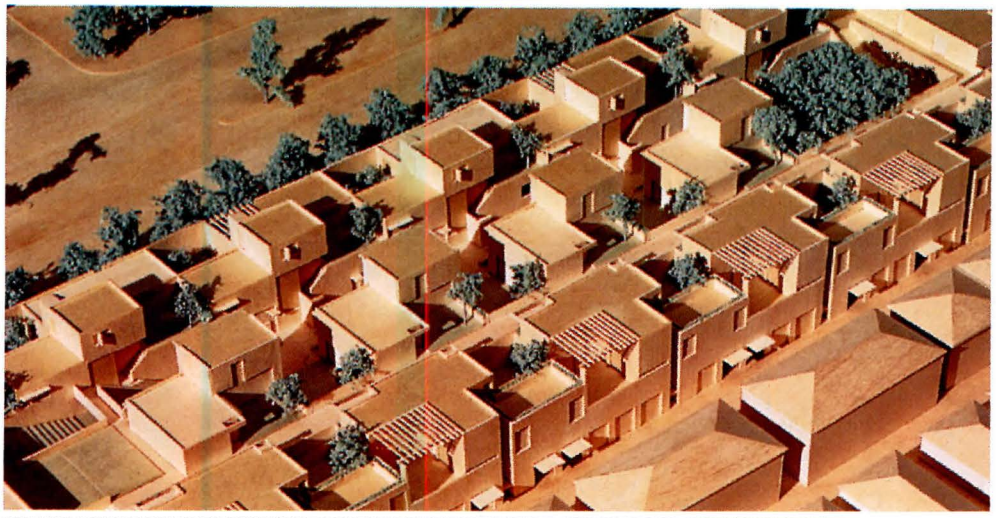


WINNING SCHEME BY SOLOMON ARCHITECTURE AND URBAN DESIGN

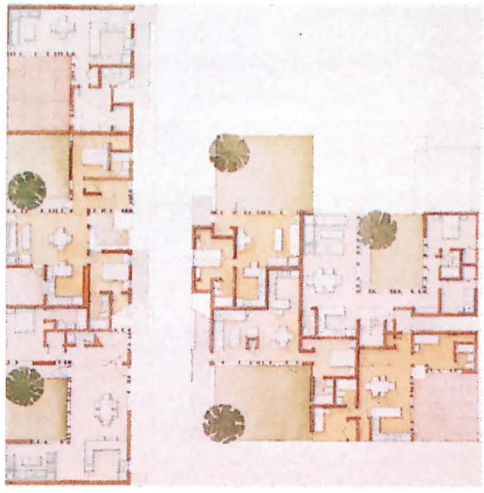
PETER XIQUES



WINNING SCHEME – TYPICAL UNIT CONFIGURATION



FINALIST SCHEME BY ROGER SHERMAN ARCHITECTURE WITH WILLIAM D. WILLIAMS AND JACQUELINE LEAVITT



FINALIST SCHEME – TYPICAL UNIT CONFIGURATION

Shaped by Community Pressure

Housing is generally the prescribed panacea for the revitalization of decrepit urban neighborhoods. Few private developers or lenders are prepared to invest in the commercial projects such areas need, believing the chances for success to be small. A controversial bank-sponsored 130-unit affordable housing competition in South Central Los Angeles epitomizes this dilemma.

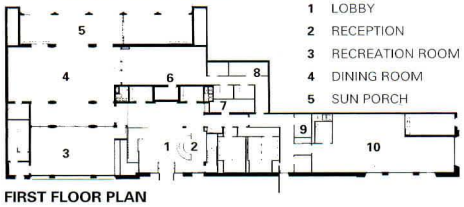
At bank-organized community meetings, residents of Vermont Knolls, a middle-class black enclave near the riot-torn competition site on Vermont Avenue, argued that a commercial project would benefit the community more than additional housing; they also preferred low-density, for-sale homes over low-income apartments. Under pressure, First Interstate Bank renamed the project "mixed-use" and asked the three finalists to adjust their designs. The design-build competition was won by Solomon Architecture and Urban Design of San Francisco in association with John Maloney of Los Angeles and Caleb Development.

The winner and the finalist schemes accommodate the desires of both the bank and the community in different ways. All incorporate a 1930s Art Deco building on the south end of the site. The winning scheme includes 20,000 square feet of commercial incubator space along Vermont Avenue and 35 city-subsidized townhouses for first-time homeowners; large steel rooftop trellises mark the complex's main entrance to an inner courtyard. In Solomon's design, the historic Art Deco structure will house USC's Business Expansion Network, where guidance will be offered to new businesses.

In contrast, the finalist scheme by Roger Sherman Architecture of Santa Monica, with William D. Williams and Jacqueline Leavitt, Executive Architect Pugh Scarpa Kodama, and the Vermont-Slauson Economic Development Corporation, calls for commercial and community spaces and 38 flexible-use lofts. The second finalist scheme came from LR/MPR Architects Los Angeles with the Barker Pacific Group/Catalyst Development.

The competition process was considered suspect by some. Finalist architect Sherman, for one, contends that the bank had both an overt agenda (community concerns) and a covert agenda (economic viability of housing). Even with a winner declared, the project is far from a sure thing. According to reports in the *Los Angeles Times*, local politicians are mired in a debate over a proposed city loan for the purchase of the site and subsidy of the townhouses. While First Interstate intends to provide construction financing and other types of loans for the project, Sherman felt the bank should have gauged community concerns and secured funding for the project prior to the competition.

NEW YORK CITY AIDS HOUSING



FIRST FLOOR PLAN

THIRD-FIFTH FLOOR PLAN

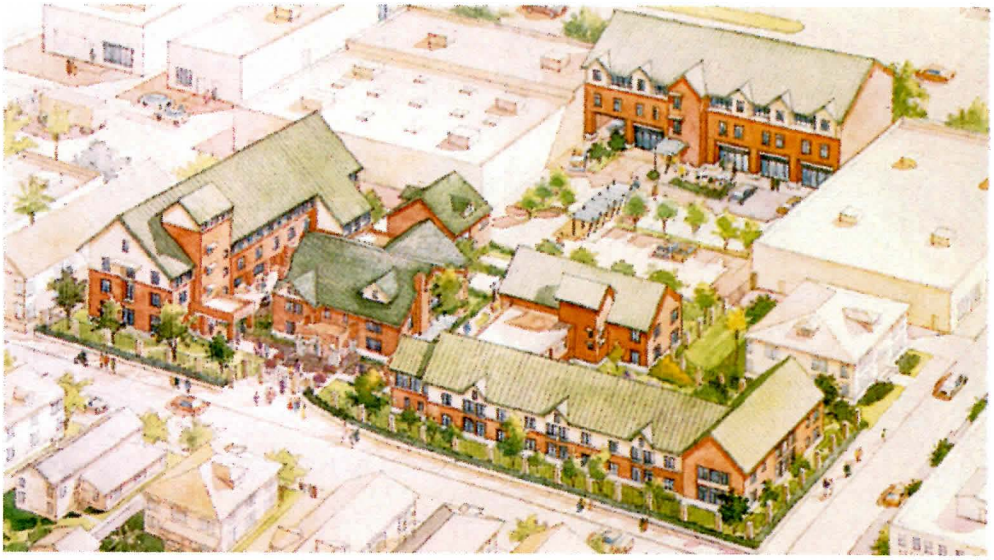
AIDS Housing: An Integrated Approach

Currently more than 10,000 homeless people with AIDS and HIV live in New York City, according to Housing Works, Inc., the nonprofit institution developing a 30-unit residence and treatment center (left) for a site on Manhattan's Lower East Side. Designed by Alan Wanzenberg Architect, the project was developed as a supportive environment to house people with AIDS while encouraging the residents to manage their lives as independently as possible. It also offers a much needed addition to the city's meager supply of AIDS housing: only one permanent residence now exists in the city. In addition to studio apartments, the 34,740-square-foot building will house a 50-person day treatment program. The brick-clad building with terra-cotta detailing is designed to blend into the neighborhood, reducing potential alienation from the community. It is one of five projects of this type funded by the State of New York in fiscal year 1995 with aid from federal and private agencies.

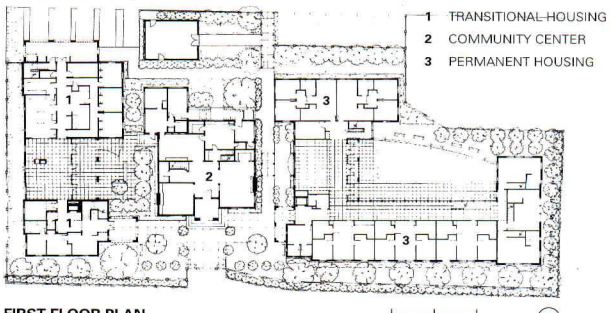
Community for the Homeless

On a site not far from Downtown Los Angeles, the Good Shepherd Center, a program of Catholic Charities of Los Angeles, is preparing to build a campus for homeless women and children called the Women's Village Project (right). Designed by Kirkpatrick Associates Architects in an invited competition, the 53,688-square-foot project is conceived as a prototype for integrated social services. It comprises a transitional residence with 32 one-bedroom units; a permanent residence for disabled women with 16 two-bedroom units; a mixed-use building with 10 permanent housing units, job training facilities, and a retail component; a restored mansion with social services and administrative offices; and a chapel.

Organized around exterior common areas, the campus will provide a protected environment for women and their children. Integrally colored cement plaster in red and buff, gabled roofs, deep eaves, and stone detailing are derived from the site's landmark Victorian mansion. The $10 million project is funded by the church, the city, the federal government, and private donations. It will be built with donated labor and materials and is expected to be completed next year.



GOOD SHEPHERD CENTER



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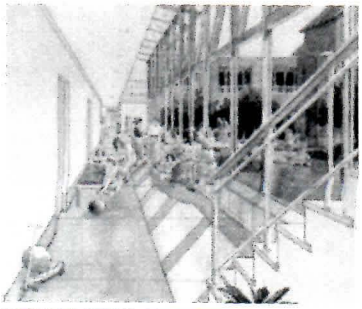

VIEW OF TYPICAL CONNECTIONS

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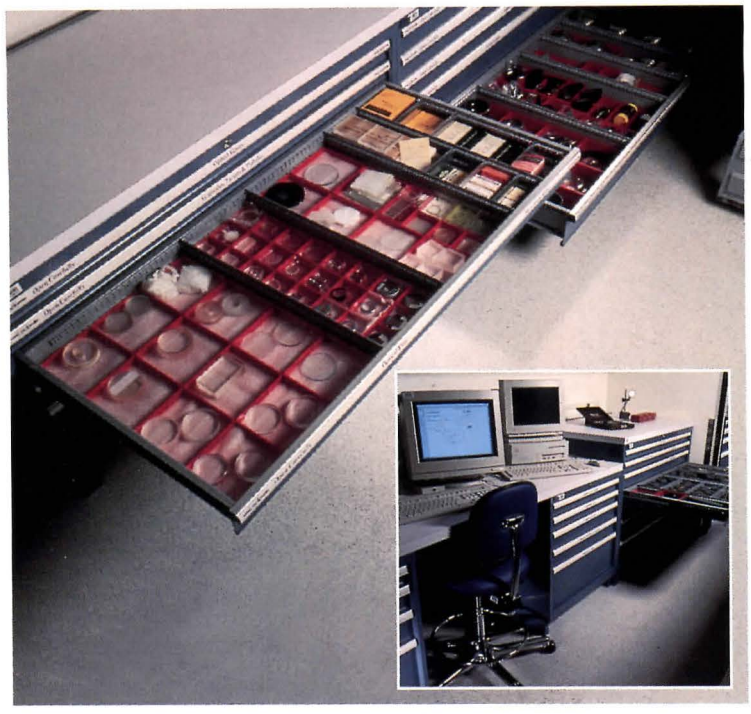
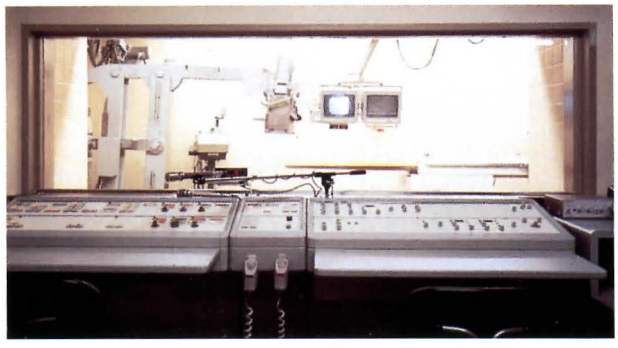
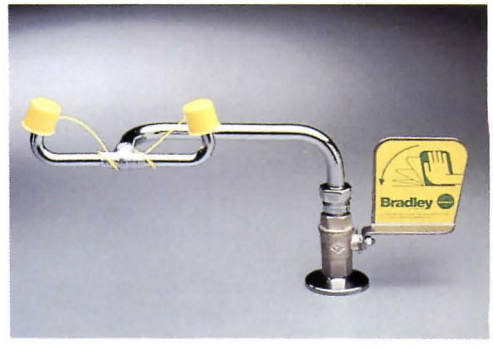






TOP AND INSET: Lista International Corporation's storage cabinets purportedly offer 50 percent more storage capacity than conventional shelving. The modular steel-framed units feature drawers that open one at a time to prevent the cabinet from tipping. The drawers can be compartmentalized with plastic accessory trays, and each compartment can be labeled with a bar code for computerized tracking of contents.
Circle 401 on reader information card.

ABOVE: Technical Glass Products' line of x-ray-shielding lead glass, manufactured by Nippon Electric Glass, offers protection from radiation with a minimum of visual distortion. The glass is cut to order in sizes as large as 48 by 96 inches. Three standard thicknesses are available: the 5/16-inch-thick, 7/16-inch-thick, and 9/16-inch-thick sheets provide radiation protection equivalent to 2-mm-thick, 2.7-mm-thick, and 3.2-mm-thick sheets of lead, respectively. The shielding glass can be laminated to float glass, increasing its impact resistance. Nippon Electric Glass also manufactures glass blocks and tubing for laboratory use.
Circle 402 on reader information card.

TOP RIGHT: Farr's Glide/Pack filter housing can be fitted with two types of Riga-Sorb coconut shell carbon filtration panels to eliminate gases, vapor, and odors from interior spaces. The high-efficiency panel removes 80 percent of ozone, the major outdoor gaseous contaminant, and 71 percent of volatile organic compounds (VOCs) that contaminate indoor air, while the medium-efficiency panel removes 25 percent of ozone and 17 percent of VOCs. Two access doors on either side of the housing are sealed to prevent the infiltration of ambient air. Disposable and reusable panels are available.
Circle 403 on reader information card.

CENTER RIGHT: Kewaunee's Supreme-Air hood expels fumes from laboratories, with bench and walk-in forms available in bypass, variable air volume, and auxiliary air-flow models. The rigid frame construction of the hoods reduces vibration and sound levels; safety features include interior lighting, optional alarms, fire extinguishing systems, and sashes. The hoods' side walls and counters can be lined with epoxy resin, PVC, stainless steel, and other materials. Kewaunee's hoods are compatible with its line of wood and steel laboratory furniture.
Circle 404 on reader information card.

ABOVE: The OSHA-compliant Swing-away emergency eyewash fixture from Bradley Corporation is coated in high-visibility safety yellow. Designed to be mounted directly on countertops, the eyewash swivels 360 degrees to facilitate the cleaning of surrounding surfaces. Gentle streams of water are released at a rate of 0.3 gallons per minute from a pair of spouts when the fixture's handle is pressed. Yellow caps protect the chrome-plated spouts when not in use.
Circle 405 on reader information card.

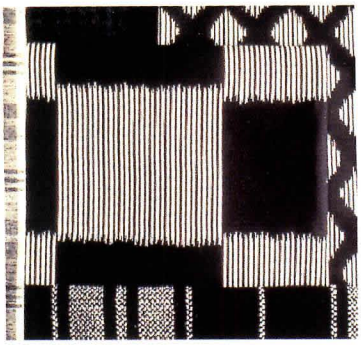
Products

Patterned fabrics will be showcased at WestWeek '96, March 13-15, at the Pacific Design Center in Los Angeles.

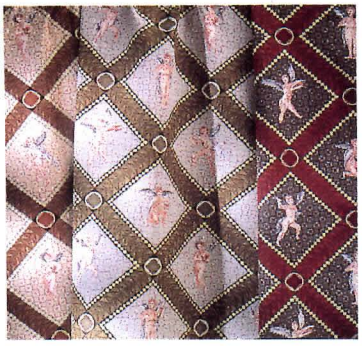
Stacking chair
The Knoll Group's JR Chair, conceived by California designer Joe Ricchio, is an upholstered wood chair with a gently curved rear profile (above). The durable chair features a maple frame constructed with dowels and mortise-and-tenon joinery, and can be stacked three high for storage purposes. Natural, cherry, mahogany, or ebony finishes are available; upholstery options include 115 KnollTextiles fabrics and 15 Spinneybeck leathers.
Circle 406 on information card.

French settee
The Garbo Settee (above) is included in FreWil's new French Architects Series, which is inspired by the work of French designers from the 1930s, '40s, and '50s such as Jean Michel Frank, Jean Royere, and Pierre Chareau. Designed by Garth Alexander Oldershaw, the sofa features a curved front edge and a square back. The settee measures 66 inches long and 36 inches deep, with a seat height of 17 inches and a total height of 32 inches.
Circle 407 on information card.

Geographic carpets
David Oakey of Roman-Oakey Design has developed four new carpet lines for Georgia-based Interface Flooring Systems: City Streets, reminiscent of urban grids; Palisander, patterned after scrolls carved by 18th-century Italian woodworkers; Siena, named for the Italian city; and Amber Waves (above), inspired by the random textures of newly plowed Midwestern fields. Each design is available in 18-inch-square tiles or 6-foot broadloom.
Circle 408 on information card.



Asian-inspired fabrics
The Contrast line from Zimmer + Rohde features 14 compatible black-and-white fabrics with checked, houndstooth, leaf, diamond, zigzag, plaid, and square patterns created by designer Renate Weisz. The 54- to 58-inch-wide fabrics include (above, clockwise from left) Pluma, a cotton-blend plaid; Ossian, a checkerboard chenille; Danida, a reversible cotton; Danko, a textured check; and Dani, a stripe with offset squares.
Circle 409 on information card.



Classical line
The four-piece Treasures of Vesuvius line from Donghia was designed by artist Temmie Levine in homage to the ancient architecture of Pompeii. Three of the fabrics are cotton, including Open the Gate (above), which resembles a coffered ceiling; Roman Menagerie, which mimics a mosaic floor; and vertically striped, frescolike Ladies of the Mysterious Villa. Pavimento, a cotton/wool jacquard, echoes Pompeii's stone-paved streets.
Circle 410 on information card.

Decorative textiles
Tailored for commercial and healthcare installations, the New Tradition Textile Collection from HBF Textiles is inspired by Classical tapestry motifs. Wreaths, flowers, and braided stripes adorn the seven cloths designed by Mary Jo Miller. A woven polyester and rayon blend, Cartouche (above), sets the wreath of Napoleon against a backdrop of pinstripes; a complementary fabric, Insignia, positions fleurs-de-lis and diamonds on a rayon ground.
Circle 411 on information card.

Striped linen
Thirty-three fabrics have been added to Brunschwig & Fils Spring 1996 linen moiré collection. New linen and cotton-blend striped fabrics, including Carlotta (above), Stresa, Paros, and Biarritz, can be coordinated with new plaids Bernini and Calabano. Designed for home or office, the earth-toned stripes and plaids are compatible with an expanded line of solid linens. Brunschwig & Fils also manufactures furniture and wallpaper.
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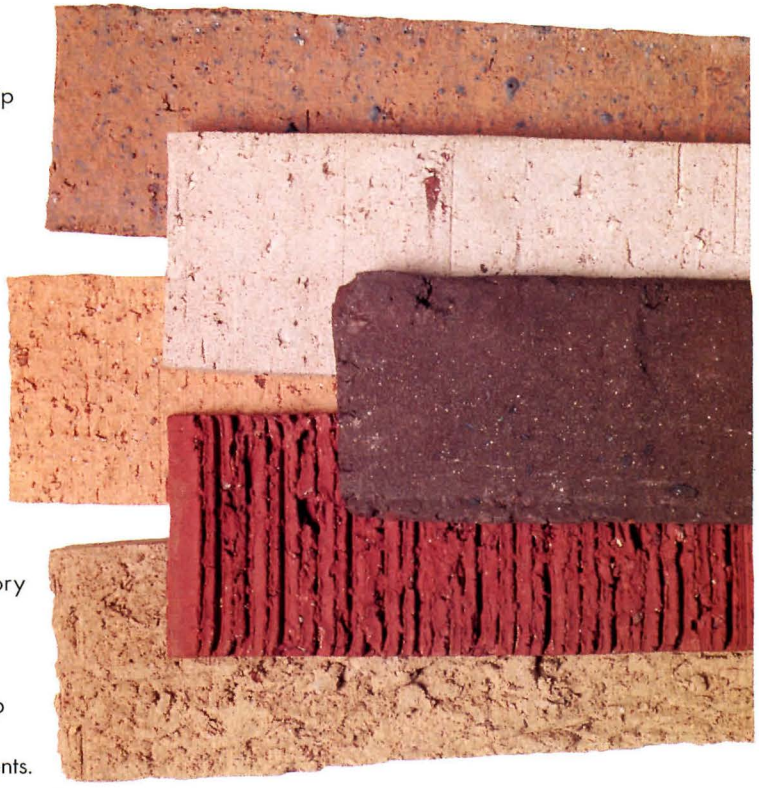

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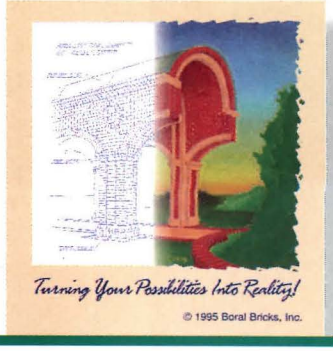

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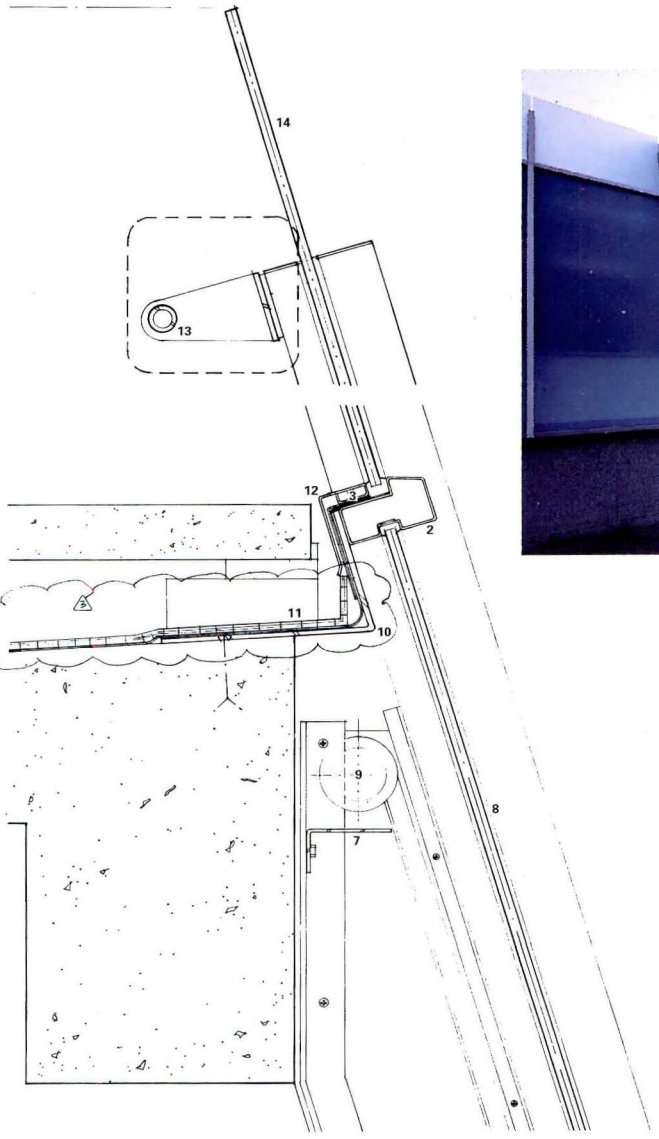
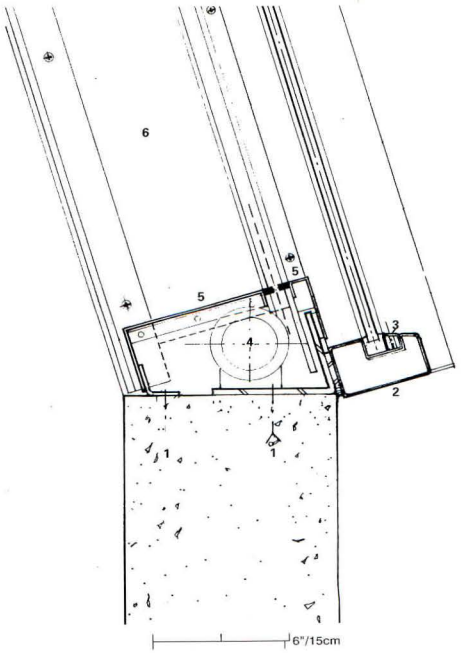
Details

A glass-and-aluminum curtain wall doubles as a roof parapet.



1 COUNTER SUNK EXPOSED BOLTS
2 EXTRUDED ALUMINUM MULLION
3 GLASS STOP
4 3-1/2" DIAMETER SHADE TUBE
5 ALUMINUM COVER PLATE
6 1/4" ALUMINUM PLATE
7 1/8" ALUMINUM ANGLE
8 9/16" LAMINATED GLASS
9 ELECTRIC SHADE MOTOR
10 1/4" STAINLESS STEEL BENT PLATE
11 1/4" ASPHALT BOARD OVER WATERPROOF MEMBRANE
12 STAINLESS STEEL COUNTER FLASHING OVER MEMBRANE
13 2-1/4" STAINLESS STEEL HANDRAIL
14 9/16" TEMPERED GLASS *PARAPET*



SECTION THROUGH LABORATORY WALL

TIMOTHY HURSLEY

Neurosciences Institute
La Jolla, California
Tod Williams Billie Tsien and Associates

Tod Williams Billie Tsien and Associates, in collaboration with Temecula, California-based Apex Curtain Wall Group, designed the laboratories of the Neurosciences Institute (pages 82-93) with a curtain wall that also serves as a parapet. The labs' exterior walls consist of 9/16-inch-thick, green-tinted laminated glass panels and extruded aluminum mullions oriented at an 18-degree angle. Extending from this sloped enclosure, a 9/16-inch-thick tempered glass parapet projects 3 1/2 feet above the roof to form a guardrail for the roof's walkway. A horizontal mullion at roof level between upper and lower glass planes conceals a wall-to-roof connection fabricated from a 1/4-inch-thick bent steel plate section, 1/4-inch-thick asphalt board, and a waterproofing membrane.

Williams and Tsien sandblasted the top portion of the laminated glass window wall to reduce reflections, but left the lowest 3 feet clear so the scientists could look out the windows. The outside faces of the aluminum mullions are clad with glass-bead-blasted 20-gauge stainless steel, a matte-finished metal that complements the nonreflective surface of the glass. The mullions' interior faces are finished in baked-on silicone polyester paint.

The labs incorporate motorized sunshades to reduce solar gain: an aluminum track is mounted on the curtain wall frame, and a motor is concealed behind a bent-plate aluminum cover at the top of the facade.—*Ann C. Sullivan*

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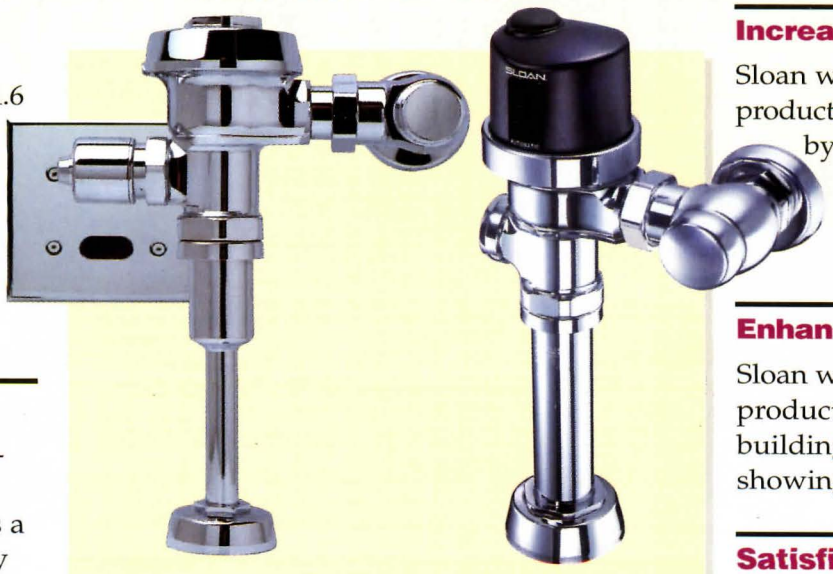

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