

APRIL 1990 ■ SIX DOLLARS

ARCHITECTURE

INCORPORATING ARCHITECTURAL TECHNOLOGY





EDITOR'S PAGE

THE PRESIDENT AND THE PRINCE



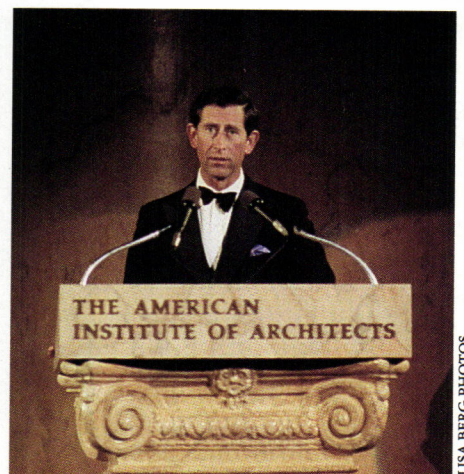
AIA'S ACCENT ON ARCHITECTURE CELEBRATION, INTENDED TO increase public awareness of architecture's importance, encompassed panel discussions, an exhibition, a gala dinner, and even the participation of a president and a prince. On February 22, President Bush presented the AIA gold medal to Fay Jones, the first time since 1933 that a U.S. President had awarded such honor to an architect. Sitting in the Roosevelt Room of the White House, I listened to Bush extol the virtues of American architecture. "Its rich variety of styles and regional differences is as diverse and as dynamic as the American people themselves," he said. Later that day, I heard Britain's Prince Charles address 1,200 dinner guests at the National Building Museum, advocating "a framework of restraint," urging architects to apply "the timeless lessons of the past."

The Prince might well learn a valuable lesson from the President's remarks. For in advocating architectural nostalgia, the future king shuns the diversity and innovation praised by Bush. The Prince yearns for buildings that imitate the past, but in doing so, he promotes a narrow view of design that is as potentially destructive as the "carbuncles" he abhors. And while his call for more community involvement in planning our cities is admirable, the Prince assumes that the public possesses his own singular vision of architecture as anti-Modernist and retroactive. In fact, as British architect Richard Rogers pointed out in a London *Times* article last year, tourists not only flock to Europe's historic monuments but to contemporary landmarks as well. Rogers' own high-tech design for the Centre Pompidou, for example, has been visited by 70 million people over the past decade, more than the combined total of visitors to the Eiffel Tower and the Louvre. Clearly, the public wants more choice in its architecture, not less. At the White House, Bush noted that "the spirit of our country can be seen in our architecture." In the U.S., that vital spirit—and architecture—must continue to remain democratic. ■

—DEBORAH K. DIETSCH



During Accent on Architecture, President Bush presented the AIA gold medal to Fay Jones in the Roosevelt Room of the White House.



In addressing a crowd of 1,200 at the National Building Museum, Britain's Prince Charles cited urbanist Lewis Mumford in arguing for human-scaled architecture based on traditions of the past.

LISA BERG PHOTOS

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LETTERS & EVENTS

Specs on CD

I would like to point out an omission in the otherwise excellent and informative article "Software for Specifications" in the January 1990 issue. Architects, especially those involved in federal and military projects, should also be aware of the availability of Construction Criteria Base (CCB), a compact disc computer-assisted specifications system produced by the National Institute of Building Sciences.

The CCB disc holds about 250,000 pages of information including: the complete, approved texts of the NAVFAC, Corps of Engineers, NASA, and Department of Veterans Affairs guide specifications and manuals; regulations and other criteria from federal agencies such as the Department of Energy, OSHA, FAA, and EPA; referenced standards from the federal and private sectors; and other proprietary information such as the BOCA National Codes Series.

*Earle W. Kennett
Director of CCB Programs
National Institute of Building Sciences
Washington, D.C.*

Mom and Apple Pie

I wanted to comment on your editorial, "Sylvester Damianos, Humanist" (February 1990). While the platitudes of "dealing with education, social commitment, public outreach and membership participation" are well-taken, they present the familiar motherhood-and-apple-pie statements characteristic of our profession for the last two decades. While the intent to act in partnership with HUD is admirable, the solutions to the problems of affordable housing are not based in finding "innovative design solutions." The solutions are rooted in finding innovative approaches to financing, developing, and constructing affordable housing.

If the AIA is truly committed to participating in meaningful approaches to solving the housing crisis, it must first convince practitioners to push themselves away from their drawing boards and become active in the corporate boardrooms and political arenas where the power and influence for change can be affected.

*Ken Lerch
Vice President
Management Design
San Francisco, California*

Prince Pro and Con

Thank you for publishing Sanford M. Nelson's review of *A Vision of Britain*. It tells the whole story exceptionally well and removes the stigma of arrogance engendered by the vitriolic attacks by some self-serving critics on a most courageous and honest sentiment. Who better than a future king of England to point out the Emperor's new clothes? If the education of architects included more subjects on older building technologies, and how to deal with existing properties, they would not be so quick to denigrate what went before in favor of their own "expression."

*Gersil N. Kay
Chairman, Preservation Techniques
Philadelphia, Pennsylvania*

It was noted with more than a little sadness that the AIA selected Prince Charles as its principal speaker at the recent Accent on Architecture gala. It does appear that the selection of such an irrelevant ornament to address the AIA represents not only a failure to perceive the real mission of the organization, but even a disdain for the working architects who still look to the AIA for the preservation of the clarity of that mission.

It may be elitism to wish that we always aim for the stars, but if those "stars" are only pop stars of the entertainment and society pages, then we, too, will have joined the stampede back to a new cultural Dark Ages.

My real hope in writing this is to forestall the selection of Roseanne Barr as next year's speaker laureate.

*Carol A. Marcus, AIA
Sonoma, California*

Corrections

The Military Women's Memorial projects (January, page 28) should have been reversed: the "spiral" scheme is by Gregory Galford and Maria Antonis; the "Beaux Arts" scheme is by Stephen Siegle and Margaret Derwent.

The local architect for the Fine Arts Studio at UC Irvine (January, page 68) is the Lee/Naegle Partnership, not the S.W.A. Group.

Architecture One is the lead architect for the Hayden Library and associate architect for the College of Architecture and Environmental Design at Arizona State University (January, pages 95-96).

April 10-12: LightFair, International Lighting Exposition and Conference, to be held at the New York Hilton and Towers. Contact: LightFair, 240 Peachtree Street, NW, Suite 2200, Atlanta, Georgia, 30303. (404) 220-2215.

April 26-27: "Specifix," annual symposium on architecture and commercial interior design at the Washington Design Center, Washington, D.C. Contact: (202) 479-4227.

April 26-28: The Commonwealth of Pennsylvania's 12th Annual Conference on Historic Preservation in Scranton. Contact: Susan Shearer, The Preservation Fund of Pennsylvania, 2470 Kissel Hill Road, Lancaster, Pennsylvania, 17601. (717) 569-2243.

April 28-29: The Des Moines Art Center will conduct a symposium entitled "New Museum Architecture and Contemporary Art." Contact: Edmundson Art Foundation, Inc., 4700 Grand Avenue, Des Moines, Iowa, 50312. (515) 277-4405.

May 1: Deadline for nominations for National Preservation Honor Awards. Contact: Honor Awards Program Coordinator, National Trust for Historic Preservation, 1785 Massachusetts Avenue, NW, Washington, D.C., 20036. (202) 673-4165.

May 18: Deadline for registration to enter the architectural design competition being held by the City and County of Mobile, Alabama. Entrants will submit designs for a combined City and County building with an approximate project budget of \$40 million. Contact: Mobile City-County Building Design Competition, P. O. Box 40471, Mobile, Alabama, 36640.

May 19: The 1990 "Wright Plus" Housewalk, featuring 10 architecturally significant homes in the area of Oak Park, Illinois. Contact: The Frank Lloyd Wright Home and Studio Foundation, 951 Chicago Avenue, Oak Park, Illinois, 60302. (708) 848-1976.

May 19-22: "Pushing the Limits," the National Convention and Design Exposition of the American Institute of Architects, to be held in Houston, Texas. Contact: AIA (202) 626-7395.

NEWS

WASHINGTON WATCH ■ KAHN AT YALE ■ WRIGHT DONE WRONG ■ WOMEN AND ARCHITECTURE

Accent on Architecture Gets Royal Treatment



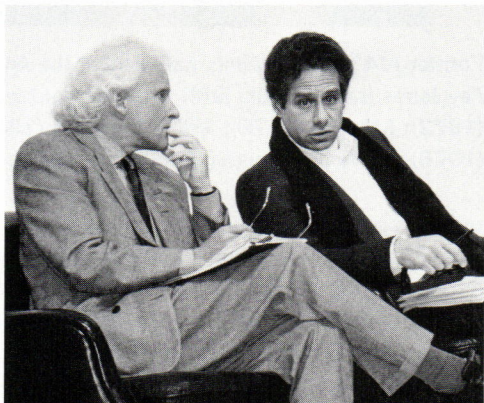
IF THE SUCCESS OF ACCENT ON ARCHITECTURE CAN BE measured in terms of its coverage on national television, the event was a definite hit. Each of the three television networks profiled gold medalist Fay Jones; critic Robert Campbell and AIA President Sylvester Damianos talked about design on ABC's "Good Morning

America;" and the movie stars attending the gala dinner made a brief appearance on "Entertainment Tonight."

A five-day event, Accent on Architecture was established by the AIA to celebrate design excellence and to stimulate discussion about architecture. However, a concurrent seminar sponsored by the Smithsonian Institution provided the most lively forum for architects to vent their disagreements, frustrations, or empathies with Prince Charles's "Ten Commandments" of architecture. Stanley Tigerman moderated the panel, with his usual wit and wisdom, and managed to get in a few controversial comments. The seven panelists included Arne Bystrom, Joseph Escherick, Hugh Newell Jacobsen, Eric Owen Moss, Antoine Predock, and Robert A.M. Stern.

After outlining the Prince's ten principles, Tigerman criticized the AIA's selection of His Royal Highness as Accent's invited guest. "The Prince's views are not benign. Important architects are losing work as a result of his influence," said Tigerman.

On the Prince's insistence on using ma-



PHIL BUJAKOWSKI

Antoine Predock (left) and Eric Owen Moss (right) opposed Prince Charles's views on contemporary architecture at the Smithsonian's "Dilemmas in Design."



LISA BERG

Prince Charles was accompanied by AIA President Sylvester Damianos (left) at the opening of the Octagon Museum's exhibition "Sir Christopher Wren and the Legacy of St. Paul's Cathedral." The Prince also previewed models on exhibition in the AIA's headquarters, including proposals for London's Paternoster Square. He discussed the Wren exhibition with gold medalist Fay Jones (above center) and American Architectural Foundation President Norman Koonce (above right).

AIA BRIEFS

The San Francisco Chapter of the AIA is a key player in an embroiling debate over rebuilding the Embarcadero Freeway in San Francisco, closed after its collapse during the earthquake last October. The chapter reviewed and reissued a report that updates a 1986 Embarcadero Plan, which received an AIA Citation for Excellence in Urban Design. The plan calls for removing the freeway structure and replacing it with a waterfront boulevard and rail transit system linking the Bay Bridge to the northern San Francisco waterfront. Opinion at a public hearing held Feb. 16 was divided, and Mayor Art Agnos's unexpected suggestion of building a sunken expressway created further controversy. A decision will be reached the end of this month.

The AIA's oldest national committee celebrated its 100th anniversary in February. The Committee on Historic Resources marked the occasion in Washington, D.C., with a conference probing the architect's role in historic preservation. Conference speakers urged architects to be more involved in local preservation efforts. "The preservation movement is predominantly one of laymen," pointed out historian James Marston Fitch. "Architects might think of themselves as the ones qualified to lead the movement, but they aren't doing it." Participants agreed that historic preservation must be sensitive to original materials and design intent, while additions must be sympathetic to landmarks, but of their own time. Revitalization of areas through adaptive use of landmark buildings is a lesson well learned by architects over the past 10 years. "We must find the right fit between old and new; once we have found that, we have found a building's soul," said George Notter Jr., FAIA. A compilation of conference papers (publication R880) is available from the AIA national bookstore.



DETAILS

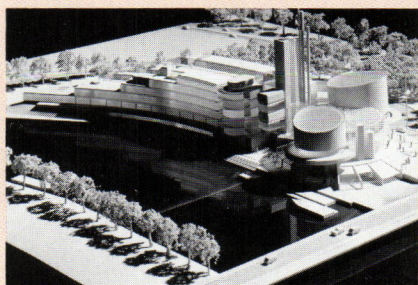
Succumbing to seven months of intense, and, at times, bitter criticism, the trustees of the Kimbell Art Museum announced February 27 that they were "postponing indefinitely" all plans to expand the museum. Director Edmund Pillsbury ruled out construction of a separate pavilion or underground annex, two alternatives suggested by critics of the original expansion proposal. Pillsbury expressed confidence in the Kimbell's ability to continue its ambitious exhibitions and educational programs without additional gallery space.

Mack Scogin, principal of Atlanta-based Scogin Elam and Bray Architects, has been appointed chairman of the department of architecture at Harvard University's Graduate School of Design. He will assume his new position July 1.

Charles Correa has won the 1990 International Union of Architects (UIA) Gold Medal, the highest honor the UIA bestows, in recognition of outstanding realizations and distinguished service to man and society.

Fred Stitt, editor and publisher of the newsletter *Guidelines*, and Louis Marines, past Executive Vice President of the AIA, are opening a graduate school of architecture in San Francisco this fall. San Francisco architect Donald MacDonald will be the director of the first graduate design studio.

The Richard Rogers Partnership won the competition for the new Court of Human Rights Building in Strasbourg, France (below). The building, due to be completed in 1992, will provide over 200,000 square feet of courtroom space, along with barrister's chambers, archives, a library, offices, and public meeting rooms.



BERG / SMALLING PHOTOS

Former AIA gold medalists gathered at the Accent awards gala to honor this year's recipient, Fay Jones (second from left). Previous gold medalists include, from left, Pietro Belluschi (1972); I.M. Pei (1979); Arthur Erickson (1986); and Joseph Esherick (1989). Philip Johnson (1978) and Kenzo Tange (1966) were unable to attend the presentation.

materials appropriate to the place, Predock said: "That is sometimes difficult. Now I have an office in Los Angeles, I don't know what LA is made of." Jacobsen addressed the Prince's call for citizen participation and community review boards. "I don't mind design review boards, as long as the members have read something besides *Architectural Digest*."

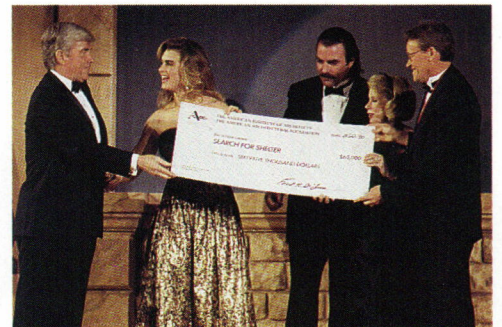
Moss and Stern were the most outspoken panelists. Not surprisingly, Stern was the most sympathetic to the views of the Prince, saying that architecture should be "the mark of human order on the earth" not "a record in permanent forms of the discordant aspects of our societies." Questioning the Prince's Eurocentrist views, Moss said: "The language of royalty now masquerades as the language of social welfare." He later asked: "Why is it that the only buildings the Prince likes are the ones built for the church and royalty?" Stern's and Moss's polemics soon regressed into a battle of wits about religion, literature, psychology, and politics. When Stern told Moss his reference to Freudian analysis was passé, Moss quipped: "If psychoanalysis is out of date, what the hell is classicism?"

A second Accent seminar examined the issue of "real" architecture. This panel was moderated by writer Richard Guy Wilson and included gold medalists Arthur Erickson and Joseph Esherick, and Pritzker prize winner Kevin Roche. The question quickly turned to one of what is perceived as "good" architecture. Leading the discussion, Esherick said "good" architecture is based on preference and selection, conveying a larger sense of reality and possibility. He urged architects to reject "tried and true" designs of the past. Erickson noted wryly that the question of "good" architecture wouldn't arise in the rest of the world, but only in the U.S., where a single deeply-rooted tradition is lacking. "Good architecture is difficult, and great architecture is rare, but as a rule architecture must always be of its time to be true," the Canadian architect claimed. Roche agreed with Esherick that the architect's primary role is to serve the society and community. "Architecture's origins are in the social arts, and architecture in a democratic society must serve the community as client, and the people at large," he said.

In response to the problems of homelessness, architecture students, educators, and practitioners participated in a day-long design workshop for a project to provide housing and social services in Washington, D.C.

The program climaxed with a gala dinner and speech by Prince Charles. An outspoken critic of Modern architecture, the Prince lauded gold medalist Fay Jones, saying his buildings "speak of poetry of architecture in harmony with their natural surroundings."

—LYNN NESMITH AND AMY GRAY LIGHT



HUD Secretary Jack Kemp (left), accompanied by Brooke Shields, Tom Selleck, and Joan Rivers, presents a check for \$65,000 to Blake Chambliss (right) for the AIA Search for Shelter program.

Private/Public Partnership

THE HARVARD UNIVERSITY GRADUATE School of Design and the John F. Kennedy School of Government held a colloquium on privatization and the federal government February 27 at the United States Botanic Garden Conservatory in Washington, D.C., to explain private development of federal buildings. The event focused on the first example of this private/public arrangement: a federal judicial office building to be located next to Union Station, a commission recently awarded to Edward Larabee Barnes/John M.Y. Lee Architects of New York City.

Senator Daniel Patrick Moynihan (D-N.Y.), one of the chief sponsors of the 1985 legislation authorizing the building, outlined the benefits of the privatization legislation. He pointed out that financing and constructing federal government buildings by developers is a way of off-setting the deficit. In this arrangement, it seems everybody wins. Private developers get the opportunity

to erect buildings in the public interest, and the government gets its projects completed on-time and on-budget. The developed buildings are leased to the feds for 30 years, and then turned over to them without additional charge, sparing precious tax dollars. These lease-to-ownership agreements are establishing a program for the future, not only in Washington, D.C., but for federal buildings in other cities such as New York, Chicago, and Seattle.

As the first concrete example of this new private-public initiative, the judiciary building (above right) will house support facilities and provide adjunct space for the Supreme Court. It is to be built on the east side of Pennsylvania Avenue next to Union Station, set on an 11-acre site provided by the government. The building will be the second-largest government structure ever built, comprising 3.1 million square feet. Boston Properties of New York City will finance and build the Barnes-designed building, which will face Columbus Circle in front of the train station.

—A.G.L.

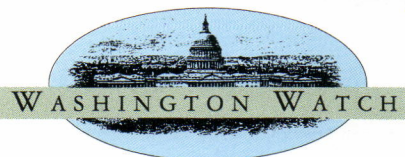


The Barnes-designed judicial building is scheduled for completion in July 1992.

Grassroots' Minorities

DESPITE THE FACT ONLY SEVEN OF US were sitting at the table during a meeting of the AIA's Grassroots Minority Resources Committee (MRC), most of the minorities were represented—a black, hispanic, Asian, and an American Indian architect—and a few women. The goals of the MRC are to increase minority participation and influence within the profession, and to educate the minority communities about architects and the value of quality design. Committee Chair William Bates, AIA, of Pennsylvania said although 6.4 percent of AIA members are minority architects, many more minority practitioners are not AIA members because in the past there has been little incentive to join. Ways in which the AIA can attract new members and help support minority professionals were the main topics discussed during the informal round-table. Three case studies from the San Francisco, Los Angeles, and fledgling New York Chapter/MRC committees were presented in an attempt to explore how other chapters are addressing these issues. Solutions ranged from publishing newsletters featuring one minority architect in each issue to collecting an archive of projects. The archive would document the work of minority professionals who are successful, and the opportunities available to them in the profession.

—A.G.L.

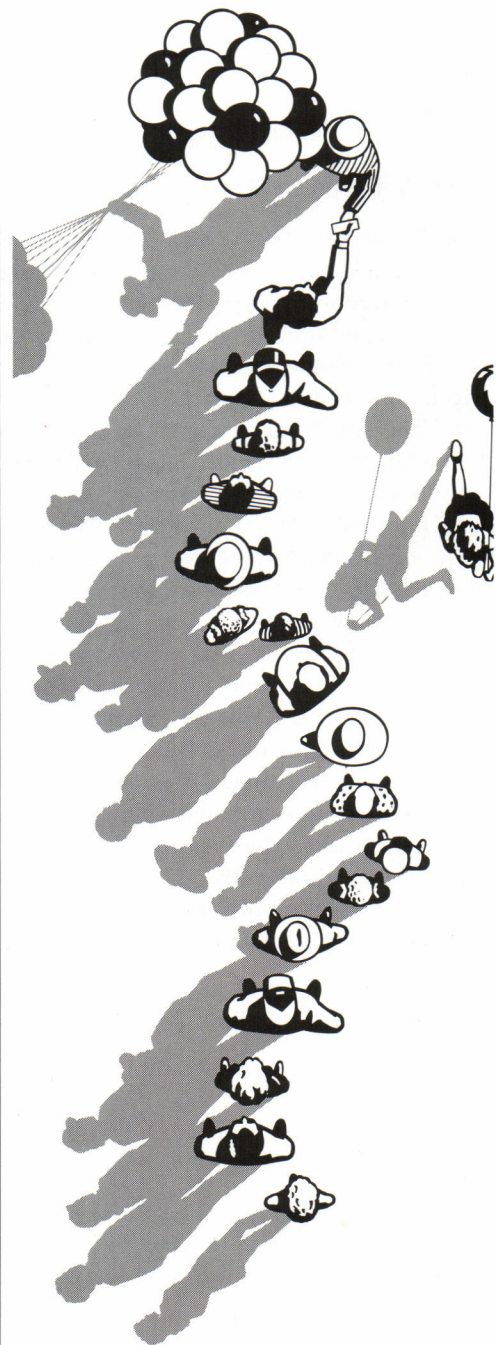


WASHINGTON WATCH

New Appointments to Fine Arts Commission

President Bush has appointed Washington lawyer and architectural preservationist Robert Peck and former assistant chief of staff Joan Abrahamson to four-year terms on the Fine Arts Commission.

The commission is responsible for approving the location and design of memorials and additions to the District's park system, as well as public and private buildings in or near the city's monumental core, Rock Creek Park, and Georgetown.



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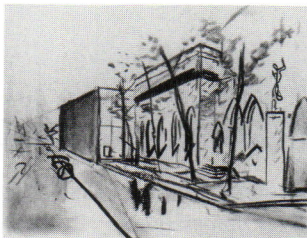
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Kahn Returns to Yale

MEASURED BY THE ATTENTION HE HAS RECEIVED LATELY, Louis Kahn remains one of the most influential architects on the contemporary scene, even 16 years after his death. Kahn's visibility will increase even more over the next few years, with a major exhibition of the architect's work planned to open in Philadelphia and Los Angeles in late 1991. As a prelude to this retrospective, "The Art Museums of Louis I. Kahn," held at the architect's own Yale University Art Gallery in New Haven last month, examined the Yale gallery, the Kimbell Art Museum in Fort Worth, the Yale Center for British Art, and an uncompleted project to house the Menil Collection in Houston.

Why a show devoted exclusively to art museums? Organizer Michael P. Mezzatesta, director of the Duke University Museum of Art, explains that Kahn's museums are archetypal. Since the Yale Gallery opened in 1953, says Mezzatesta, "hardly an art museum has been built that has not been affected by one of Louis Kahn's three." The exhibition focused on the architect's design process rather than his formal presentation or working drawings. Kahn's ideas were expressed in his bold parti sketches, the smudged-out mistakes, the initial flashes of an idea subsequently refined and re-refined until the architect was sure that he had arrived at a true, rigorous solution. For example, the evolution of the Kim-



bell's skylighting was also outlined, from the architect's first attempt to bring daylight into the gallery spaces to the final vaults.

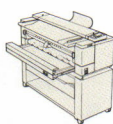
As Kahn's sketches attest, he was a very hands-on designer, and liked to work through problems of lighting or "service spaces" with nothing more than ink, charcoal, and yellow tracing paper. No detail was too small to merit the master's attention. A combined section, elevation, and plan of the Yale Art Gallery's garden, for example, included Kahn's handwritten specifications for plantings and pavers.

The exhibition is especially satisfying for its immediacy. By going through the show, one is using Kahn's architecture exactly as he intended. The curators arranged the exhibition using the flexible "pogo-panel" walls Kahn designed for gallery use, and they keyed the lighting as Kahn intended—spots of illumination in an elegant, dark, and weighty atmosphere.

"The Art Museums of Louis I. Kahn" will open at the Kimbell Art Museum this month and will run to June 17. The exhibition will then travel to the San Francisco Museum of Modern Art where the drawings will be displayed from July 19 to September 16.

—STEVE BODOW

Steve Bodow is an architectural historian working in New York City.

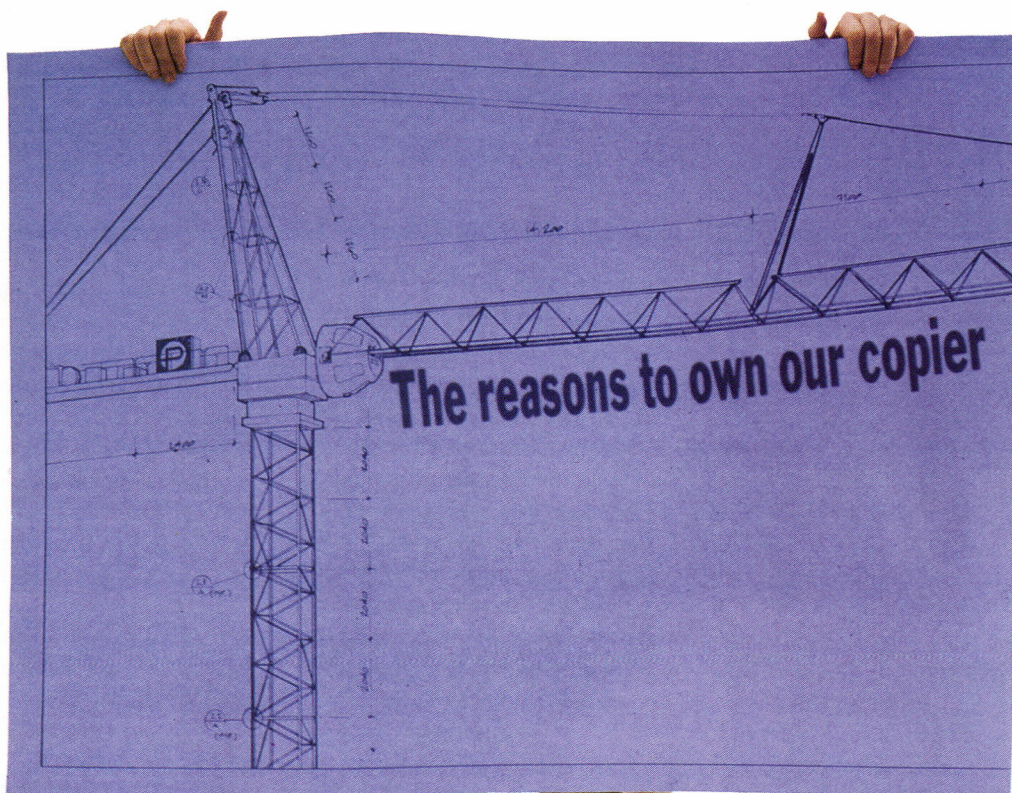


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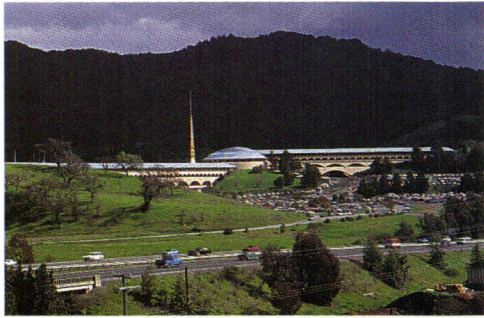
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Wright Done Wrong

ANOTHER FRANK LLOYD WRIGHT MASTERPIECE IS IN danger of suffering from an unsympathetic addition. The landmark in question is Wright's Marin County Civic Center, a sculptural structure that hugs the landscape along Highway 101 just beyond the Golden Gate Bridge near San Francisco.

The controversy started as an economic issue over a new jail and only later turned to a question of design. In 1988, county voters rejected to finance a \$30-million jail with sales tax. The rejected proposal was a scheme by Hellmuth, Obata & Kassabaum of San Francisco for a partially underground facility next to the Civic Center, but hardly visible at a distance. The county is under a court order to improve prison conditions, and it must begin construction on a new jail before September or forfeit \$10 million in state funding. In November 1989, HOK released a revised de-



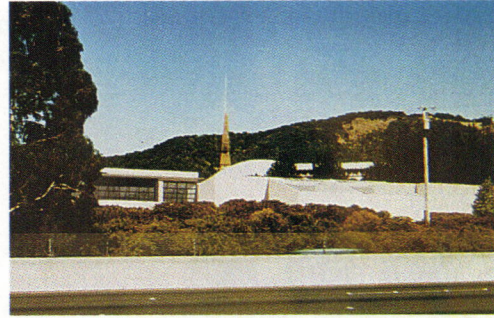
The Marin County Civic Center hugs the highway along Highway 101 (left). HOK's proposed addition (right) would greatly obstruct views of the Center along the scenic route.

sign for a 186-cell jail between Wright's original building and Highway 101. The new structure is nearly a tenth of a mile long, rising 15 feet above earthen embankments, topped with a gravel roof and exposed mechanical equipment.

A citizens group formed to oppose this unsympathetic addition, and in early February, the Marin County Board of Supervisors agreed to consider alternative plans. In addition to the two HOK proposals, a third concept is under consideration. Aaron Green, a San Francisco architect who worked on the original Civic Center, has proposed renovating the original Wright jail cells and building a smaller addition.

Meanwhile, the proposal is on hold. San Francisco architect David Weingarten, a member of Preserve Our Civic Center, said the citizens group will continue to press for an appropriate addition and alternative sites.

—L.N.



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The San Diego conference began with an exhibition of projects (above) by 35 women architects and designers.

Women and Architecture

IN FEBRUARY, OVER 120 WOMEN (AND A few men), primarily architects, held a conference to explore their work, ideas, and the issue of women in architecture. The three-day conference in San Diego was the third annual state-wide conference organized by enthusiastic volunteers from three California organizations: Women in Architecture (San Diego), the Organization of Women Architects and Design Professionals (San Francisco Bay area), and the Association for Women in Architecture (Los Angeles). This year, the national AIA Women in Architecture Com-

mittee and regional liaisons attended the conference and held their meeting the following two days.

The conference began with a celebration and an exhibit of work by 35 women architects and designers, ranging from residential projects and interiors to major renovations, institutional, and commercial buildings. Most of the projects shown are built in California, but designs proposed reach as far as Japan. Bobbie Sue Hood, AIA, of Hood/Miller Associates in San Francisco, presented an overview of major projects by several Bay Area women architects and the attitudes that contribute to their success.

The first day of the conference was devoted to a symposium of work and ideas presented by L. Jane Hastings, FAIA, of The Hastings Group Architects, Seattle; Cynthia Weese, AIA, of Weese Langley Weese Architects, Chicago; and Ines Elskop of 1100 Architects, New York City. Forces as diverse as Pacific Northwest vernacular architecture, societal change, and spatial experiences inform their work.

Workshops on the last day of the conference addressed enhanced credibility, marketing, establishing a firm, political action, and controversial issues of feminism's relationship to architecture. A feminist approach to living, as well as to architecture, was addressed by Agnes V. Gal, the workshop coordinator, who stated: "Feminism is spiritual transition, a politics of being in which a change of consciousness is integrated with modes of living. Increased sense of self-valuing and the unlearning of rivalry and competition between women are the first steps." The conference stressed that architects, male or female, cannot isolate a building's image from its purpose, location, details, and spirit.

Most importantly, the long-term goal of the organizations attending the conference was realized in creating a statewide organization for women in architecture. California Women in Architecture's primary purpose is the creation of a professional lobbying arm to focus on issues such as affirmative action, parental leave, child care, and pay equity.

For further information regarding California Women in Architecture, contact President Karen VanDorn at (415) 548-6209. For information on next year's conference in San Francisco, call (415) 550-6051. ■

—ANNE ZIMMERMAN, AIA

Anne Zimmerman is an associate with Siegel Diamond Architects in Los Angeles.

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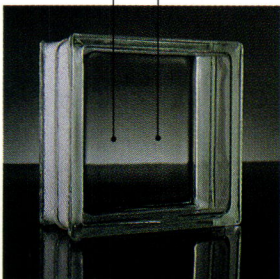
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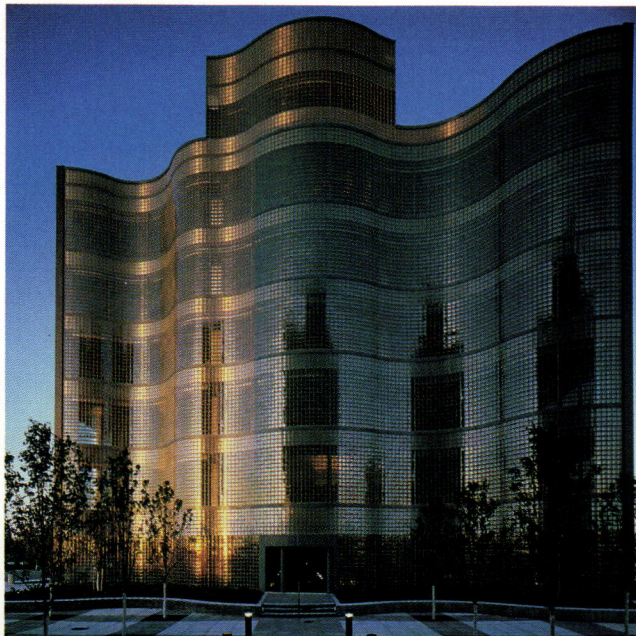
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But what you can't see is how practical those good looks really are.

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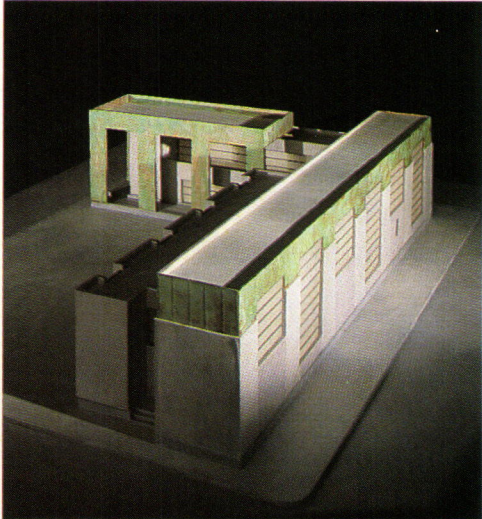
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TEXAS PROJECTS



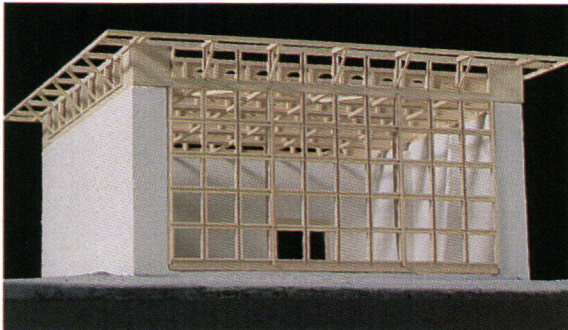
PAUL HESTER

Office Building
Beaumont, Texas
Pope Sherman Architects
The Wittenberg Partnership

TO BE COMPLETED THIS FALL, A 13,000-square-foot stucco building (above), is designed for a law office as a joint venture between Houston firms, Pope Sherman Architects and the Wittenberg Partnership. Located one block from the Jefferson County Courthouse, the once vital site is now run down, and the architects did not want to create an urban fragment conspicuously out of place. Their solution was to design an L-shaped building on the lot with an internal courtyard. Visitors enter the long wing of the street-facing building from parking located in back of the property or from the front sidewalk. A double-height reception hall overlooks the street and frames a view of the courthouse. The first floor contains filing and word-processing areas, and a conference room adjacent to the reception area. Directly above and accessible from the entry, an open stair and balcony lead to four suites on the second floor, each containing an office for a lawyer, a legal assistant, and an investigator, as well as a workroom. The north-facing wing overlooks the court and contains open space for associates on the ground level and a second-floor library and lounge. A large copper-sheathed canopy connects the second floor to the courtyard via a covered balcony. On the first floor, this balcony acts as a porch sheltering the walk from the parking area.

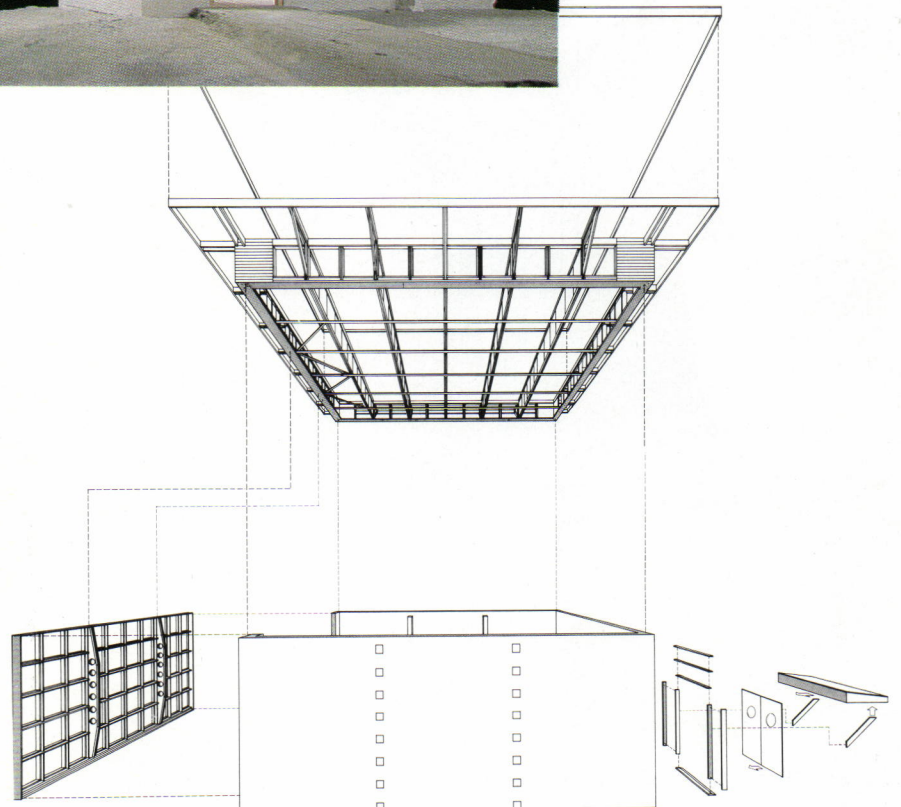
Calibration Building for Anadrill Schlumberger
Sugarland, Texas
Cisneros Underhill

THE COMPUTER CALIBRATION FACILITY (BELOW), IN THE DESIGN STAGE AND scheduled for construction, is a complicated design, because the building cannot contain any metal—no steel framing, no copper flashing, no reinforcing in concrete, and no magnetic elements such as nails, screws, ducts, or conduits. The reason for this restriction is that the 1,300-square-foot building will house sensitive calibration tools that collect geological data through electromagnetic waves. Twelve-foot-long, 8-inch-diameter instruments are swung into various positions, so ample spaces with high ceilings were required.



MICHAEL UNDERHILL PHOTOS

Another requirement was plenty of light for the engineers, resulting in a large gridded window in the north elevation. For the sake of economy, concrete, concrete block, wood, and glass were used. The roof structure relies on five wood vierendeel trusses formed by cutting holes out of plywood. HVAC equipment and electrical junction boxes are housed in a structure 30 feet away from the sensitive calibration areas. The building is designed as a prototype for other manufacturing facilities.



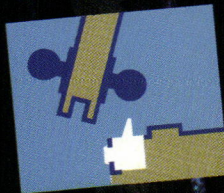
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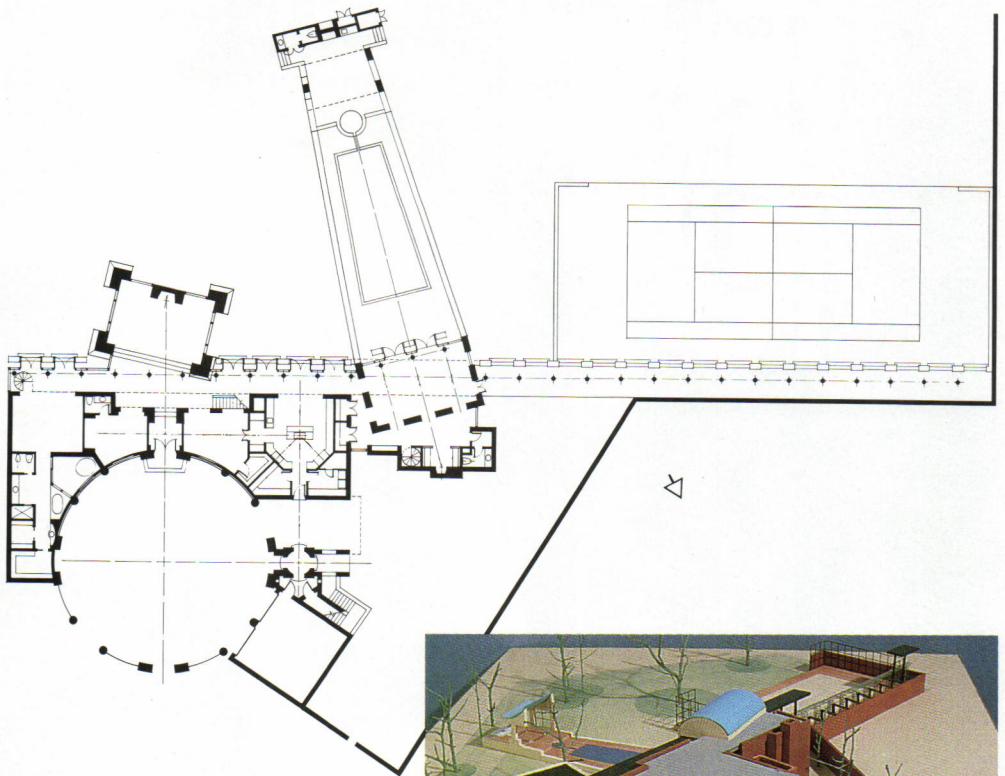
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TEXAS PROJECTS



Rothwell House
Houston, Texas
Taft Architects

TAFT ARCHITECTS' LATEST HOUSE (ABOVE) FOCUSES ON A LONG COLONNADE that spans the width of the 1.8-acre site and serves as an armature for discrete architectural elements. This circulation spine distinguishes the public front of the house and the private domain of the garden. To the north, a two-story orthogonal brick mass contains support functions, and to the south is the client's personal quarters, distinguished by three "great rooms" oriented to different views of the garden. Contrasting materials of brick and stucco define the various elements of the spatial composition. The house is expected to be completed in 1991.

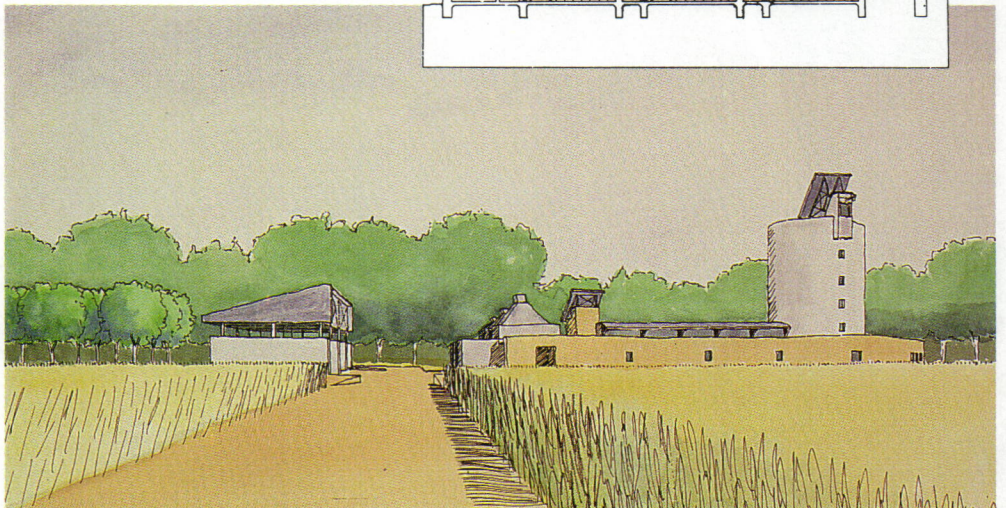
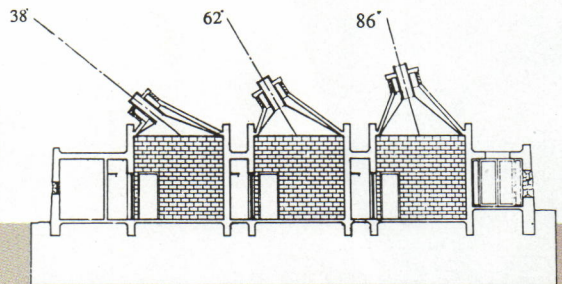


Silo House
Wharton, Texas
Labarthe Rogers Architects

THE CLIENT FOR THIS PROJECT REQUESTED THE YOUNG HOUSTON FIRM incorporate a century-old concrete grain silo into the plans for a 3,250 square-foot farm house. The result is a structure that appears to grow in response to the site, and elements of earth and sky. The 40- by 70-foot cylinder silo/master bedroom, (right), is penetrated by an exterior stair that leads to a roof deck. Another stairway leads from the remains of a concrete cistern, converted into a kiln, to a cellar below the bedroom.

In contrast to the private spaces, living areas are open, with continuous, shaded, south-facing glass oriented towards a woods on the 30,000-acre ranch. Light monitors in the roof (top right), serve as thermal chimneys and solar collectors in the subsidiary bedrooms. Primary materials for the house are corrugated metal, sheet metal, wood trusses, and concrete block.

—A.G.L.

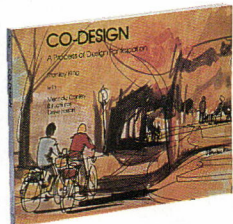


BOOKS

Co-Design: A Process of Design Participation

Stanley King, et al. (Van Nostrand Reinhold, \$27.95)

THE COMMUNITY DESIGN MOVEMENT burst upon the architectural scene in the



mid-1960s as an iconoclastic alternative to the established precepts of Modernism, much like Crosby, Stills and Nash must have seemed to rock and roll. But architecture moves more slowly than the music business, and the full effects of community design are yet to be felt.

The powerful idea in the free-thinking '60s that some kind of wisdom might actually reside in "the people" had, of course, little to do with the way architecture and planning had been conducted. The popular ideal of the architect at the time was Ayn Rand's master builder, Howard Roark, an uncommunicative genius disdainful of any but his own personal architectural vision.

With the social awakening of the 1960s, however, the personal visions of architects began to be of less interest than the public's own needs and aspirations. Whole communities began to rise up against insensitive development proposals. This startling phenomenon had its start in community revolts at People's Park in Berkeley, and at Columbia University—a fervor heightened, no doubt, by the fine 1968 spring weather and grievances against the Vietnam War.

Emboldened by these signs of upheaval, a few architects began to harnessing the newfound energy of the people in positive ways. Some, like Lawrence Halprin and Jim Burns, approached the task in the warm glow of West Coast mellowspeak. David Lewis, true to his adopted Pittsburgh roots, was happier in the boiler room, where he could work with neighborhoods to fire up the furnace of urban development.

All these ideas were encouraged by the architectural intelligentsia of the time, notably Jane Jacobs, muse of the new people-based view of architecture, and Robert Venturi, whose work legitimized an esthetic that

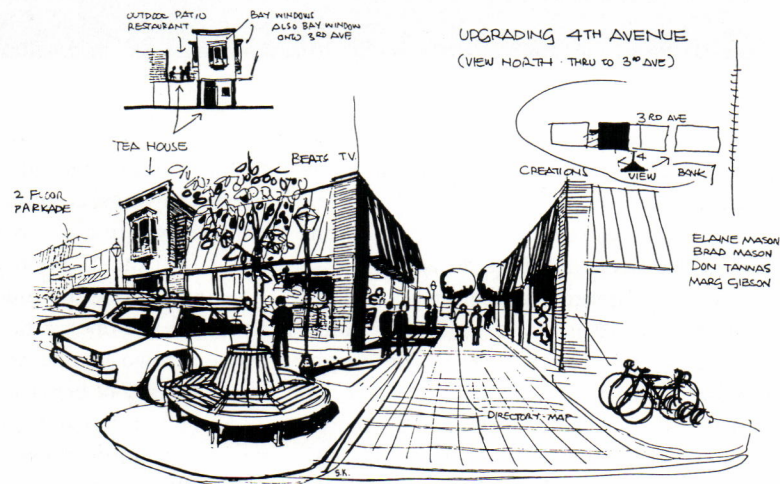
was able to accommodate, and even enjoy, the unpredictable nature of human experience. The result was that, to an increasing number of practitioners, Modernism seemed like a straitjacket and the free-wheeling "popular" architecture of Postmodernism was born. What people said they wanted was not the mausoleums of Modernism, but houses, neighborhoods, and public buildings with character—buildings with connections to history. Since then, of course, the problem has been the vulgarization of that laudable mandate by an all-too-easy Architecture of Ersatz from which the intelligentsia, quite understandably, is turning away in droves.

Whatever the future of Postmodernism, the genie of citizen participation has been forever let out of the bottle. People have grown accustomed to having a say in their environment, and they've become sophisticated about the ways and means architecture is accomplished. Most American cities now have powerful neighborhood groups, and many have amassed an impressive track record of influencing, even stopping, development. The consumer movement has become an especially powerful force, generally far outstripping the architectural community in political know-how. If architects are to remain effective, we are going to have to continue and even improve the dialogue with people that was begun in the 1960s.

Over the last 20 years, considerable progress has been made developing the tools that architects can use now to interact with the public. Many architects now recognize the importance of involving citizens before putting pencil to paper. A few firms have experimented with the formation of design committees, steering committees, and storefront offices, and have even employed mass

media as a vehicle for involving the public in interactive exchanges.

It is now time that the mounting pile of information about interactive design techniques be compiled and made available to professionals. Architects and urban designers without this interactive capability quite simply may become dinosaurs in what is increasingly a competitive marketplace—one populated by clients who will not accept being held at arm's length. This subject has received the benefit of an occasional article or book, but nowhere the attention it deserves. Unfortunately, *Co-Design*, by Stanley King with Merinda Conley, Bill Latimer, and Drew Ferrari, does not correct this omission. It only leaves us enjoying a few tidbits scattered among a smorgasbord of information.



Co-Design describes community workshops and offers sketching tips (above) to engage the public through a commonly understood language.

The book begins well enough with an introduction to the concept of interactive design aimed, it would seem, at the uninitiated professional. It then launches into a technical inventory of sketching tips that subsumes fully one third of the book, no doubt leaving the reader thoroughly puzzled. The message behind the drawing section, however, is a good one. It says that "co-design" communication skills run counter to the conventional wisdom of professional practice, where the plan almost always is developed first. Instead, *Co-Design*, a title combining the words "community," "cooperative," and "collaborative," calls for three-dimensional visualization early on in the pro-



© 1990 CYRO Industries

cess to engage workshop participants by means of a commonly understood language.

An all-too-short section near the beginning of the book describes an actual workshop without bringing to life the possibilities of interactive design. Site walks, for example, are described with none of the insight brought to the task a number of years ago by Lawrence Halprin when he brilliantly connected the concept of a site walk with the idea of a musical score.

The final third of *Co-Design* consists mostly of case studies. They come together as a repetitive chorus and not as a serious attempt to develop new ideas or to impart information—except for the final case, in which architect Merinda Conley leads an architectural facilitation study for course credit that includes Stanley King and his class of third-year environmental studies students at the University of Victoria. It is here that the book's most comprehensive documentation of a "co-design" workshop can be found, and the results are surprising.

The case study documents a design process that turns out to have been more conventional than one might have expected, given the message of the book. It begins not with a visualization phase of perspective drawings but with that most ordinary of

planners' tools: the bubble diagram. Subsequent drawings, in order of their execution, apparently, are a site plan, a building plan, and a section. It is only then that Conley goes on to draw the much vaunted perspectives and she does it not in the midst of an excited crowd, as one would have hoped, but in the privacy of her studio.

King notes that Conley's drawing skills were an absolute necessity for the success of the workshop and that one student who began the program dropped out "in the face of the demanding tasks of visualization." This comment underscores the irony of this well-intentioned book. While urging the use of interactive workshops, the book makes that laudable goal seem virtually unachievable by its narrow focus on graphic skills possessed by only a few. How much more helpful it would have been had *Co-Design* offered an interactive process that requires nothing more for success than the normal skills of most architects, thereby paving the way for what the public really wants: enfranchisement into the once arcane business of shaping the built environment.

—CHAD FLOYD, AIA

Chad Floyd practices with Centerbrook Architects in Essex, Connecticut.

Trammell Crow, Master Builder

Robert Sobel (John Wiley & Sons, \$19.95)

TRAMMELL CROW IS A FASCINATING fellow, but you'd never know it from reading Robert Sobel's biography. With all the literary flair of a certified public accountant, Sobel takes us from deal to deal, partnership to partnership, explaining statistically how the Trammell Crow Company grew to be the largest private real estate developer in America (last year it boasted \$1.6 billion in new projects), without offering much insight into the man who built the empire.

Some of the book's failings are Crow's. This is an authorized biography, commissioned and paid for by the subject. Several other writers were hired and fired before Sobel came along with presumably the right mixture of diligence and complaisance to do the job.

The book is consistently flattering, totally one-sided, and consequently a disservice both to Crow and his achievements. We see him only as he wants to be seen, which is as a humble, loyal, hard-working boss, infinitely forgiving, generous to a fault. There is evidence that much of this is true. But there is another side to Trammell Crow—as most of his competitors will confirm—a

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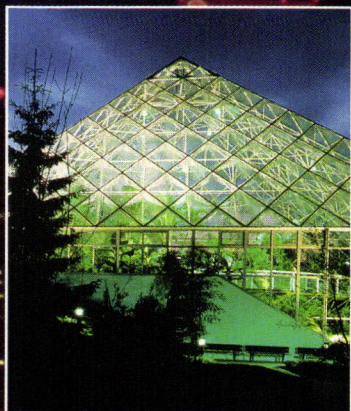
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tough-minded wheeler dealer, a lease buster, a bit of a bully, the kind of guy who throws the keys to a troubled property on the table and dares the bank to foreclose.

If Lyndon Johnson had been a real estate developer, he probably would have operated like Trammell Crow. Both grew up dirt poor in Texas, and despite rising eventually onto the national and international scene, continued to view the world in terms of deals and personal loyalties. A man's word is his bond; a bear hug is as good as a contract.

Crow studied accounting at night school, got his basic business training in the Navy, and when World War II ended, started building warehouses in Dallas. They were slightly cheaper and more attractive than the competition's, and soon Crow couldn't build them fast enough.

Recognizing a need for regional furniture, clothing, and gift marts, he started work on the Dallas Market Center, now one of the largest concentrations of wholesale showrooms in the world. He subsequently branched out into apartments, shopping centers, hotels, and office buildings, including Embarcadero Center, and several other mammoth projects with architect/developer John Portman.

In all of these ventures, Crow operated

more like a wildcatter than a conventional developer, sprinting from deal to deal, leveraged to the max, yet propelled by unflagging confidence in post-war America and his own intuitive genius. Headquarters was his hip pocket, and the Trammell Crow Company was a web of intertwined partnerships—hundreds at any one time—that only a cabalist could unravel.

This brand of Wild West entrepreneurship, astonishingly successful in the 1950s and '60s, nearly brought the Crow Company down in the mid-70s. Caught with too much raw land and too few buyers, Crow and his partners were forced to sell off \$100 million in choice real estate. The company survived—and Sobel's book is quite revealing on this episode—but in a more centralized and hierarchic form than one Crow would have been comfortable with. Gradually he extricated himself from daily operations and turned the company over to a cadre of MBA whiz kids, who have since expanded it dramatically.

Crow remains an intriguing post-war American developer, "a raw land boy" who is most comfortable in the wide open spaces of the Southwest. He's never had the broader urban vision of William Zeckendorf, nor the esthetic sophistication of his Hous-

ton counterpart, Gerald Hines. Hines also started out building warehouses, but unlike Crow, he soon discovered that good design is good business.

Sobel's claims to the contrary, Crow has shown little serious interest in architecture. "Turn a building over to an architect and he'll ruin it on you," he once told me in an interview. He prefers to design his own buildings, and consequently has sought out amiable hacks willing to draw up the boss's ideas for a handling fee. The few good architects who worked for him, including Harwell Hamilton Harris, soon quit in frustration. Build 'em quick, cheap, and to the market—that has been the Trammell Crow way. The company's two most distinguished buildings—Texas Commerce Tower and Trammell Crow Center, both in Dallas—were developed by his son, Harlan.

Instead of a full portrait, complete with dramatic highlights and delicate shadings, *Trammell Crow, Master Builder* provides only a home-movie version of a remarkable career. Crow deserves better; at the same time, that fuller portrait is unlikely to appear until the subject is no longer around to edit and co-produce his life's story.

—DAVID DILLON

Continued on page 137

N E O C O N[®] 2 2



The Merchandise Mart Chicago June 12-15 1990

ABOUT THIS ISSUE

URBAN REFINEMENTS

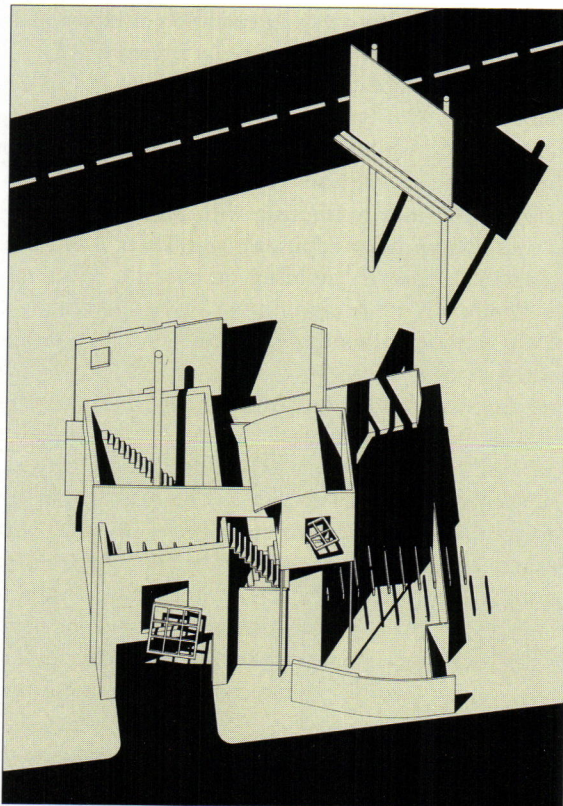
NEXT MONTH, FROM MAY 19TH to the 22nd, the AIA will hold its national convention in Houston. To acquaint our readers with recent developments in the host city, we begin this issue with an overview of Houston's slow recovery from the oil bust of the 1980s. As contributing editor David Dillon points out, the city's eroded economic base has forced local architects to expand the scope of their practices and undertake commissions in other parts of the country in order to survive. A firm that exemplifies this diversification is CRSS, a \$617 million-a-year company profiled in our technology & practice section. The multi-disciplinary firm owes its continuing growth to "squatting" with its clients, a participatory technique applied to architectural design, as well as the firm's more recent activities in engineering and the power industry.

In planning for the 1990s, Houston has begun investigating ways of upgrading its sprawling metropolis, from building civic amenities to considering zoning for the first time. We offer evidence of the city's new design sensibility through a feature on a new downtown park and a portfolio of projects by young Houston architects.

Houston's growing interest in improving its urban environment is echoed in cities across the country. In the second half of our design section, we examine the current state of urban design and its application to suburban "outcities," and reveal how Miami

architects, Andres Duany and Elizabeth Plater-Zyberk, are changing the face of the American townscape by instituting new architectural codes. Other projects in this issue explore the relationship of individual buildings to the peculiarities of their context.

Whether responding to the iconography of a Texas highway, as the Wittenberg Partnership's Finnell House demonstrates (below), or the urban grid of Manhattan, as illustrated by SOM's Worldwide Plaza, architects are seriously considering American urbanism as a catalyst for positive change. ■



The Wittenberg Partnership's Finnell House, Houston.



RICHARD PAYNE

SESQUICENTENNIAL PARK

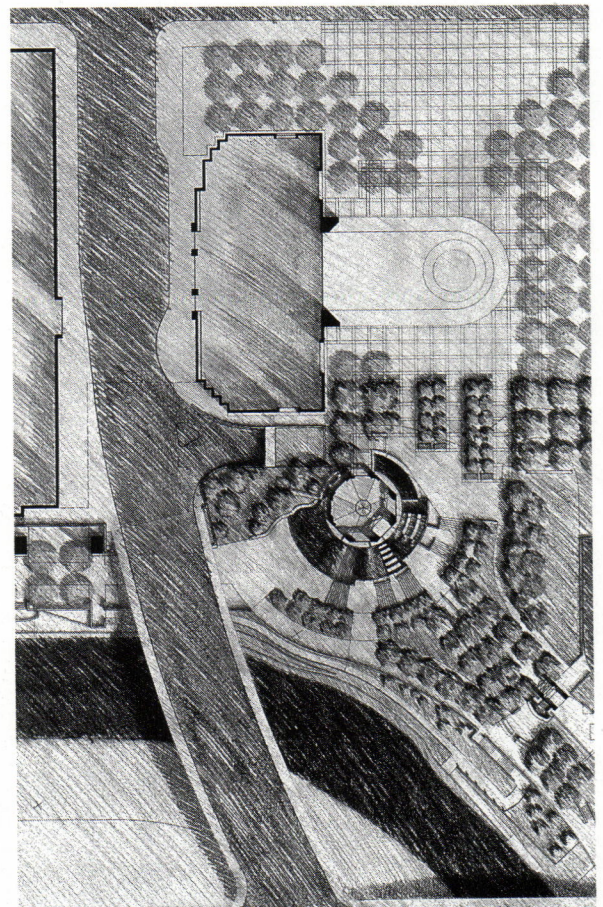
Houston, Texas

Lying in the shadow of one of America's most ponderous concert halls, Sesquicentennial Park is an unusual civic amenity in downtown Houston. The project grew out of a 1985 design competition for a public park on Buffalo Bayou, next to the new Wortham Theater Center (site plan). The program called for a series of civic and recreational spaces that would connect the city's cultural district with the bayou, while also commemorating the history of Houston and Texas.

From five finalists, the jurors selected a design by Team HOU, a trio of University of Houston architecture students. The team's proposal combined a plaza and pavilions with a lawn, formal gardens, and waterfalls (facing page, top), all arranged on 9.6 acres. But because of ballooning construction costs, the project had to be broken into two phases, the first covering 2.2 acres and costing \$4.6 million. Phase II is to be completed by mid-1992 at a cost of \$8 million, and will include a grassy amphitheater, gardens, and seven tall pylons to illuminate a walkway beneath the Wortham's daunting west facade.

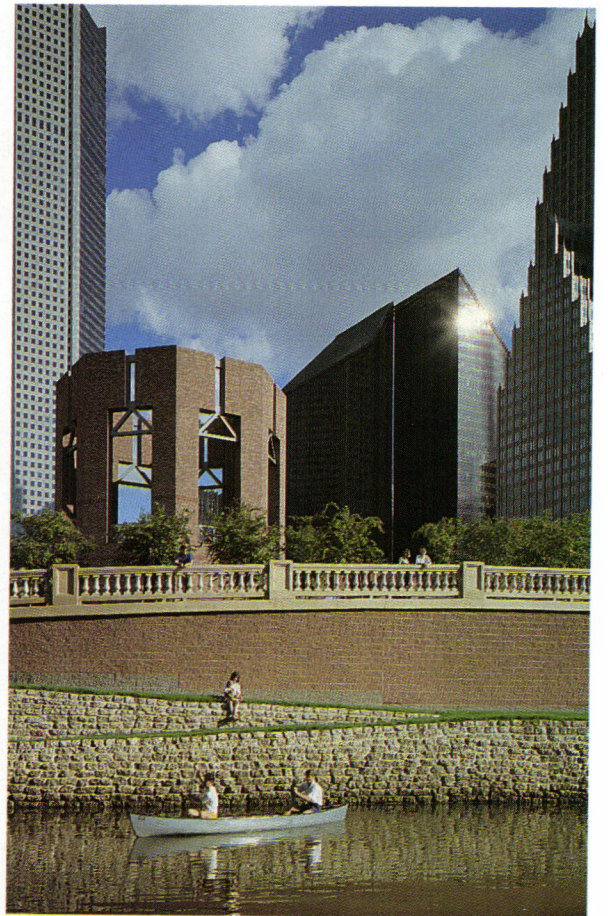
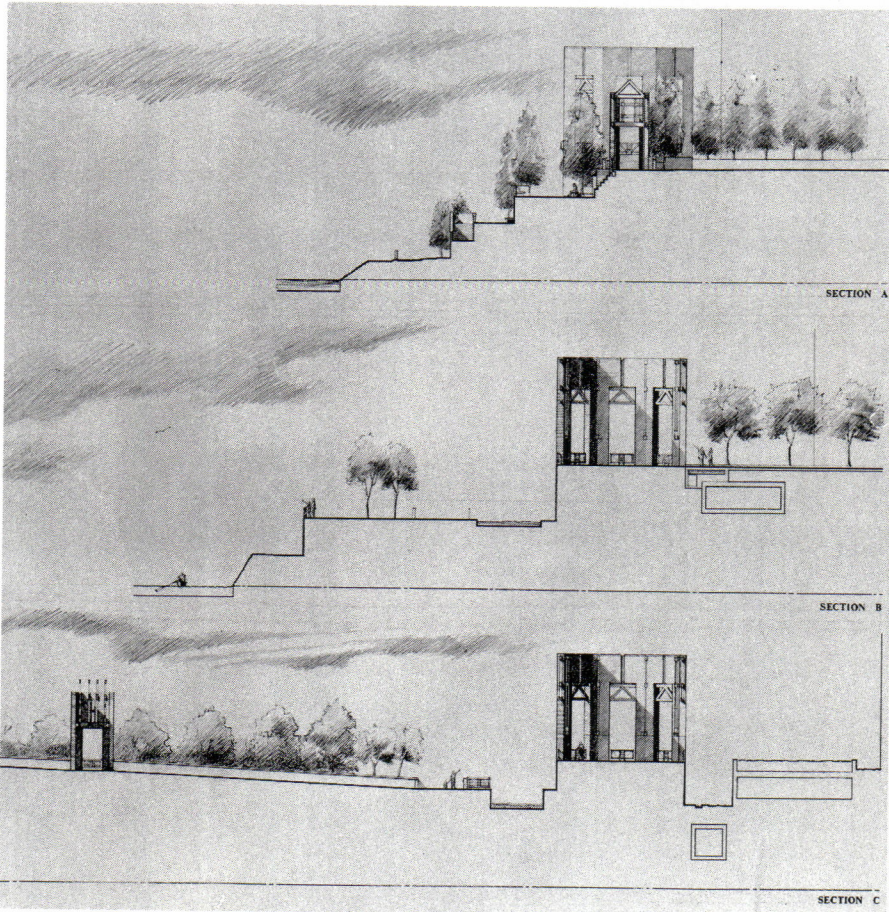
Spatially, Sesquicentennial Park integrates the tight urban grid of Wortham plaza with the undulating edge of the bayou, with stairways and waterfalls connecting the levels. Yet the brick applied to the plaza and pavilions (above) is too similar to the Wortham's elevations to be compelling. And the concrete balustrade running the length of the lower walkway is a heavy-handed interpretation of the decorative railing on the Preston Avenue bridge (facing page, bottom right).

Team HOU described Sesquicentennial Park as a "mixing spot" for all Houston, but so far it is used mainly for pre-concert gatherings and programmed events. (Skateboarders love the ramps.) If Phase I of Sesquicentennial Park is not as refined as it might have been, it still marks a step forward for a city that historically has ignored urban design.





PAUL HESTER PHOTOS



posed beams and trusses that follow the pyramid roof line. Connecting the interior spaces of the two pavilions is the tower, which rises through the house as a open and airy unifying element.

Local building codes dictate all houses must be elevated for protection from hurricanes, which regularly hit this vulnerable barrier island. Accordingly, Appel used traditional wood timbers braced with Y-members, another reference to the beach house vernacular of the South. To celebrate this detailing, she placed the main street entry to the house within the notched portion of the billboard supported by this double-height structural member.

The materials of the house are ordinary and inexpensive—shiplap wooden siding, cedar shakes, and red asphalt roof shingles. They are finished in pastel colors to recall beach traditions.

The interior finishes are simple yet carefully crafted. Wooden floors and walls are stained white. Furnishings are comfortable and relaxed. In every room, the architect placed large windows, some with miniature built-in benches. The Caldwells served as their own general contractor and completed much of interior themselves, and their personal attention to detail is evident.

This house is a serious exercise in architecture, but it also reflects the very personal relationship of the players involved in the collaboration. "You couldn't have asked for a better client," said Appel, "but I must admit, sometime I'd like the opportunity of exchanging 'house for Mother' stories with Robert Venturi."

—LYNN NESMITH



CALDWELL BEACH HOUSE
GALVESTON ISLAND, TEXAS

ARCHITECT: Natalye Appel Architects, Houston, Texas—

Natalye Appel (principal-in-charge);

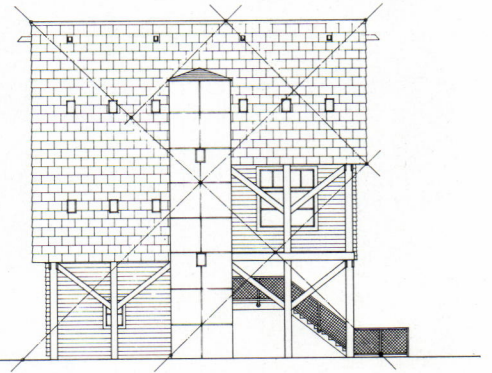
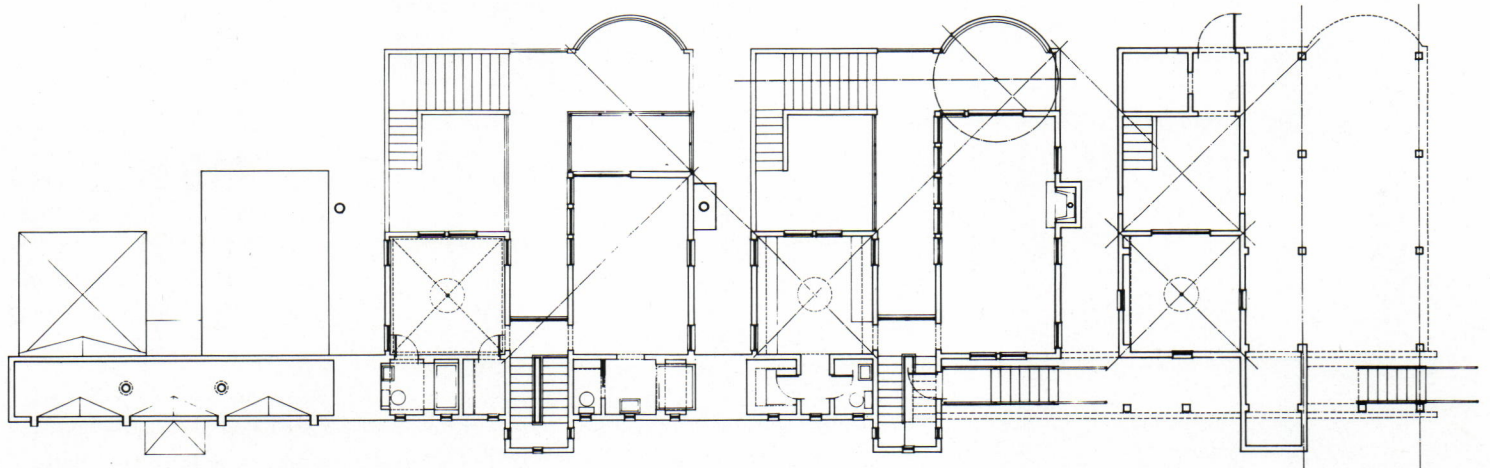
Victoria Christensen (presentation assistant)

STRUCTURAL ENGINEER: Cunningham Engineering Company

GENERAL CONTRACTOR: Owner

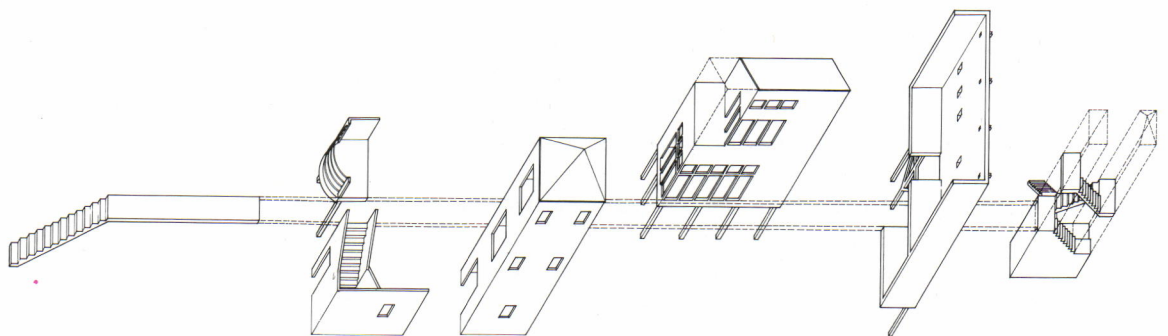
COST: \$45/square foot; \$70,000 total

PHOTOGRAPHER: Paul Hester





Expansive windows from floor to ceiling flood the living room with natural light and provide dramatic views to the gulf (facing page). Along the west elevation, the building steps down with spaces oriented toward the beach (above). The volumes of the two pavilions frame the central axis of the house—a boardwalk to the sea (left). The exploded axonometric (below) reveals how the spaces of the house play off this ceremonial pathway.



Housing Court

THE COURT AT MUSEUMS GATE FRONTS A 250-FOOT STRIP OF Montrose Boulevard in Houston's museum district, an area where pedestrian activity resists the city's worship of the automobile. Architect Josiah Baker set out to create within the 70,000-square-foot residential complex the comfortable scale of courtyard housing in San Francisco that would attract young professionals. Wrapping 48 units around three linked courtyards and an entry, Museums Gate presses outward to fill one city block. Three-story units line the main court, with two-story units stacked on one-story flats around a pair of minor courts: the north court is filled with additional residential units, the south court punctuated by a pool and lounge area. Each unit has at least two exterior walls and some form of exterior private space: a roof-top terrace on upper levels or a patio at ground level.

Museums Gate rises up from a parking garage podium carved five feet below grade to minimize the height of the project in a neighborhood marked by one- to three-story structures. The garage is still the building's main entrance, despite its pedestrian intentions, and residents exit the garage elevator into the main courtyard. The architect's articulation of the exterior surfaces bears the influence of James Stirling and Michael Wilford, under whom Baker studied at Rice University. Elevations are rendered in two shades of rose-colored brick, broken up by regular bands of Texas limestone, and punctuated by square windows and glass block, placed symmetrically around the entrance axis. "The void is as important as the solid," says Baker. "In designing the exterior envelope, I wanted to create as much individuality and interest as possible." From a distance, the resulting figure-ground study reads as one plane, partially because brick and mortar are nearly the same color. But when viewed from the sidewalk, the walls reveal pronounced recesses for stair towers and private balconies, and a subtly effective nine-inch extrusion of darker brick veneer beyond the face of the lighter brick above.

A product of late 1980s speculation in Texas, Museums Gate introduces a varied housing model to central Houston. Its influence, cut short until now by scarce venture money, may soon be felt as a middle-income alternative to creeping suburbia in this recovering city. ■

—RAY DON TILLEY

Ray Don Tilley is the art director/associate editor of Texas Architect.

COURT AT MUSEUMS GATE HOUSTON, TEXAS

ARCHITECT: Josiah R. Baker, design architect for Compendium/A Design Systems Corporation, Houston, Texas—Charles F. Moore (chairman); Josiah R. Baker (project designer); L. Philip Schawe (project architect); Robert L. Civitello, Thomas Figgins, Randall J. Lore, Michael J. Malone, Syn Thanapura, Russell Zeidner (project team)

LANDSCAPE ARCHITECTS: Herbert Pickworth & Associates; McDugald Steele Landscape Architects & Contractors

ENGINEERS: Martin, Cagley & Conti (structural); Fred R. Holste & Associates (electrical); Walter P. Moore & Associates (civil)

PHOTOGRAPHER: Robert Miller, except as noted



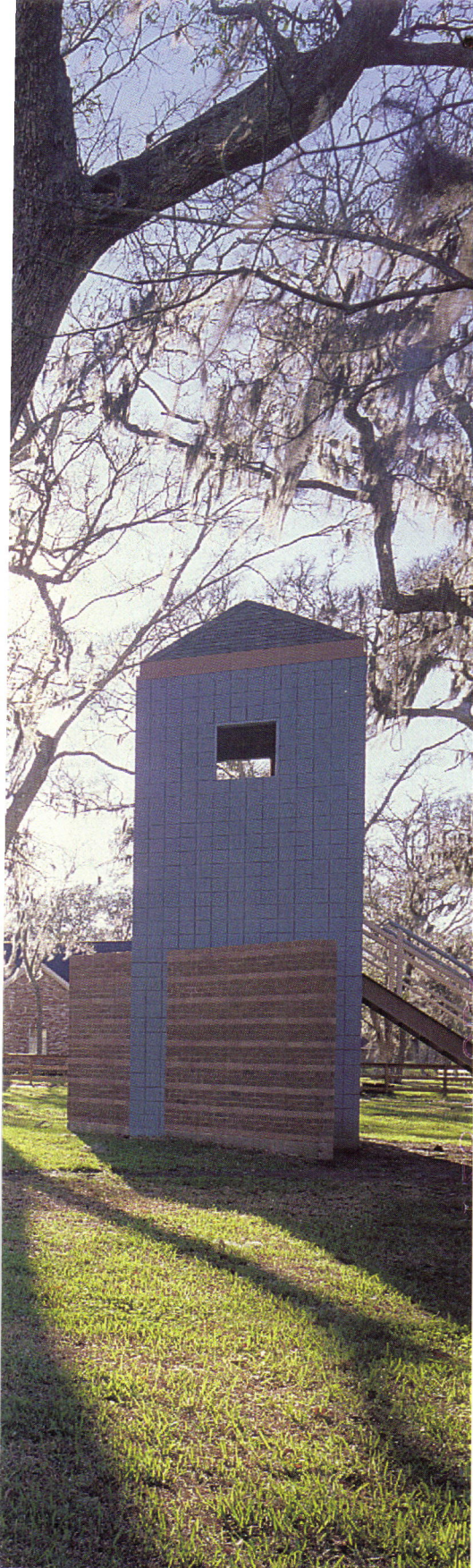
Josiah Baker arranged the densely packed residences around three courtyards (site plan). The main court (facing page, top) is connected to a swimming pool to the south (above) and a north court by narrow, landscaped passageways (facing page, right). Live oaks buffer the entry facade (facing page, bottom) from street traffic.



PAUL HESTER



The Gilliland house with its juxtaposition of gabled forms is a contemporary variation of a farm house estate (above). The functions of the house are spread out and contained in a series of pavilions. Their angled arrangement creates a peaceful and protected backyard. The tower, a folly turned into a children's playhouse, is clad in polished blue tile, the same tile used to give the house its accents of color. Three rows of freestanding columns define the parent's wing (far left, above), the family room (center, above), and the children's wing (right, above). The more austere street facade's most prominent feature is a 30-foot-high entry tower (far right) and a 12-foot-tall rock placed in a circular garden.



Western Roots

HISTORICALLY, THE EXPANSIVE LAND OF Texas offered great opportunities and challenges to its settlers. It is that simple, poetic force that governed the design of the Gilliland House. Architect Peter Jay Zweig, a former New Yorker who has practiced in Houston for the last ten years, created a rambling prairie villa for a couple and their two young children.

Two years earlier, Zweig designed Gilliland's medical office in Lake Jackson, a 8.7-acre professional office park, consisting of six individual buildings clustered around a man-made lake to create a village setting. Zweig refined this assemblage of forms into an appropriate domestic scale for Gilliland's 4,000-square-foot house.

Coined "The Homestead" by the architect, the house is sited on a two-acre lot in a residential neighborhood adjacent to a small lake and river. Once you turn off the main road and pass under a rustic Texan ranch gate, a narrow road winds through an enclave of eclectic houses that were built with

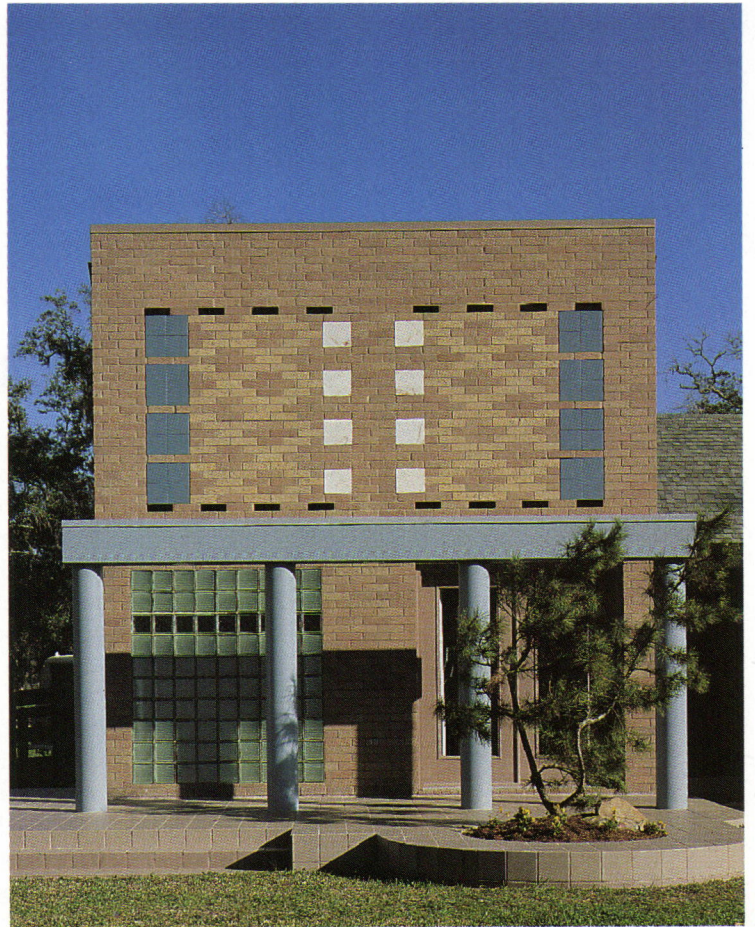
individual attention over the last 35 years. Within this bucolic setting, the Gilliland house seems just as rooted as the numerous live oaks trees draped with Spanish moss that dot the landscape.

Zweig divided the house into separate pavilions like a farmhouse estate with accretionary outbuildings. Fronting the street, the house projects a relatively somber facade. Around back, however, the brick building comes alive. This side of the ensemble is not unlike Wild West encampments, where wagon trains formed a circle at night: the outward perimeter serves as a fortress; the interior a lively and protected compound.

Zweig activated the rear enclosure of the Gilliland house with varied roof lines, setbacks, and three rows of freestanding columns to create a layered facade. The architect played with these abstracted forms without fussy or overwrought results, and created a series of false fronts, avoiding the trappings of such an obvious Western cliché.

A projecting bay with a gable roof,





which houses a breakfast nook, introduces a smaller scaled element to counterbalance the gabled pavilion containing the family room. Brick paved patios extend from each of the main pavilion-like structures. Zweig's accent mark and visual counterpoint to the house is its two-story tower. Clad in blue tile and crowned with a pyramid roof, the architect's folly turned into a well-received playhouse for the children.

The two wings of the house are separated by a glazed 30-foot-high tower entry, with the master bedroom and the children's bedrooms located at opposite ends of a main circulation axis running the length of the building. The living spaces spin off this axis diminishing its formal parti and creating a sense of surprise.

The family room is set two steps down off the central corridor, and is not organized around the hearth but a large custom-designed cabinet containing—what else—an oversized television. The fireplace, a beautifully crafted object against a window, is located in a small study across the hallway.

The Gillilands are native Texans, and like all good Texans they take pride in their heritage and the land. They asked for a house that was rural and informal, yet nonetheless impressive. In responding to the challenge of creating a contemporary Texas regionalism, Zweig designed a rural estate that synthesizes the past and present, technical invention, and a sense of place. ■

—L.N.

The garden tower is placed directly on axis with the gabled roof entry pavilion (above left). Glass block in the wall facing the street provides visual privacy, and the same tile pavers are used indoors and out. The flat elevation of the parents' master bedroom suite is highly articulated with decorative brick (above right), the same pattern applied on the north elevation of the children's wing. The study is open yet intimately scaled (facing page, top left). The polished black stone hearth is framed by a large window that opens into a private courtyard along the front of the house. Placed in one of the structure's gabled pavilions, the family room (facing page, top right) is wrapped with windows and doors opening onto a paved patio in the protected back yard. The plan (facing page) illustrates the unifying linear axis between the house's subdued front and active rear.

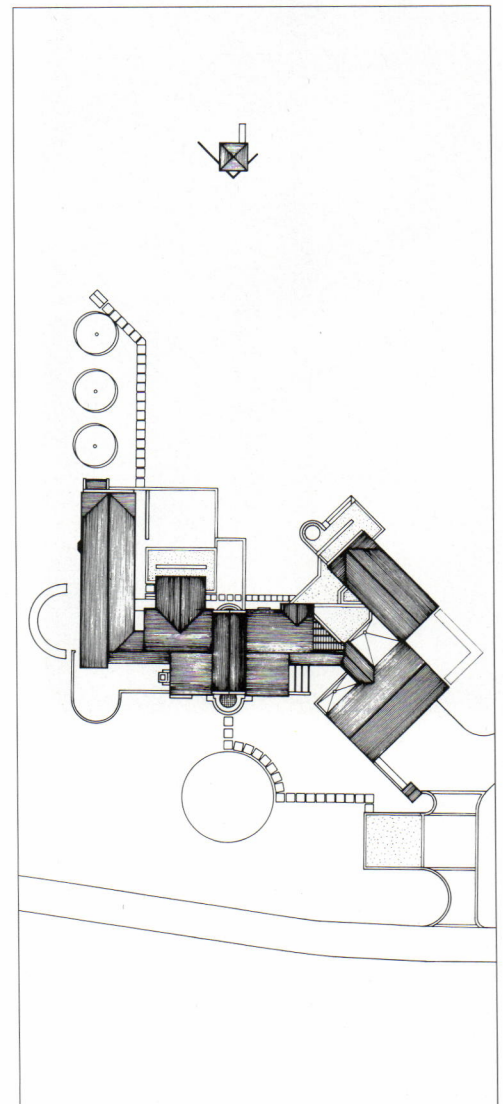
**GILLILAND HOUSE
LAKE JACKSON, TEXAS**

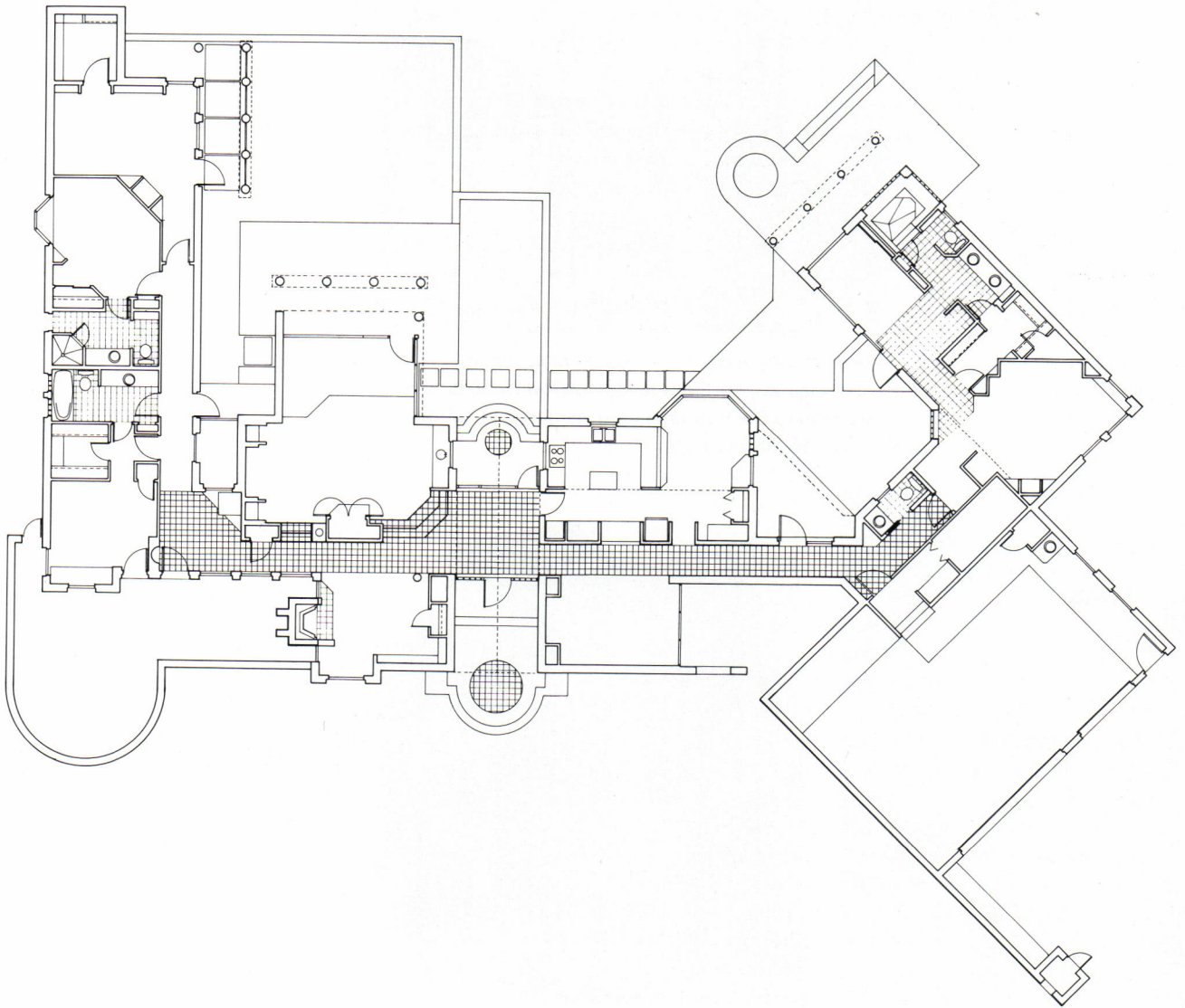
ARCHITECT: Peter Jay Zweig Architects, Houston, Texas—Peter Jay Zweig (design principal); Karen Barratt, James Lee, Su Nguyen, Hai-Long Yong (design team)

LANDSCAPE ARCHITECT: Howard Nau, Caplinger's Landscape

CONTRACTOR/ENGINEER: John Russell Construction, Inc.

PHOTOGRAPHER: Paul Hester







Loosely framed from the road by a stand of mature pine trees (top), St. Mary's Episcopal Church presents changing compositions that focus around the acutely angled crossing of a main axis and a secondary axis (above and plan) derived from skewed site boundaries. The crossing frames the entry (facing page, top) and focuses a shaft of light over the altar (facing page, center). Ductwork and lighting tracks suspended from the sanctuary ceiling complement the random but comfortable arrangement of seating areas (facing page, bottom).

Shifted Crossing

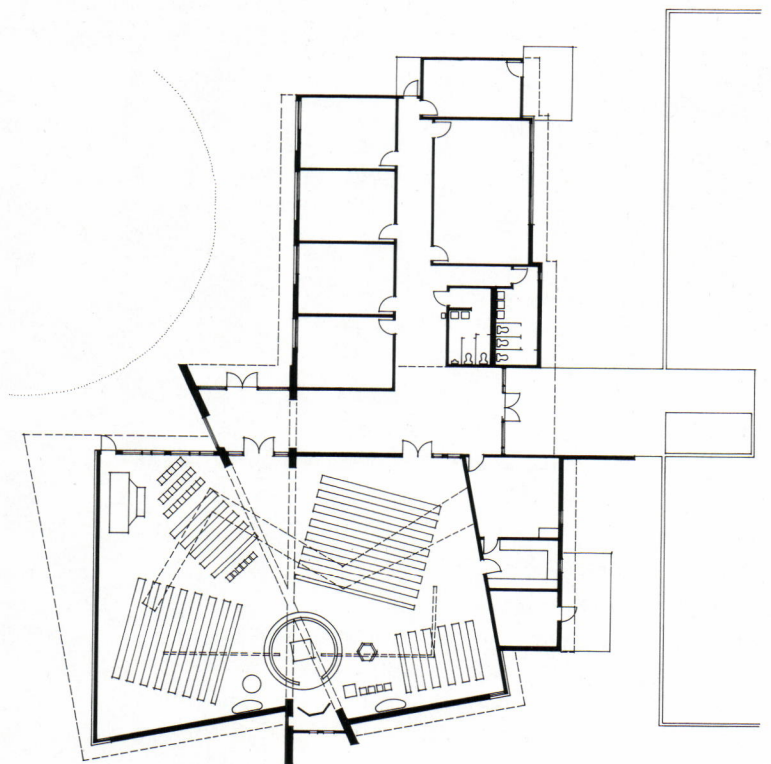
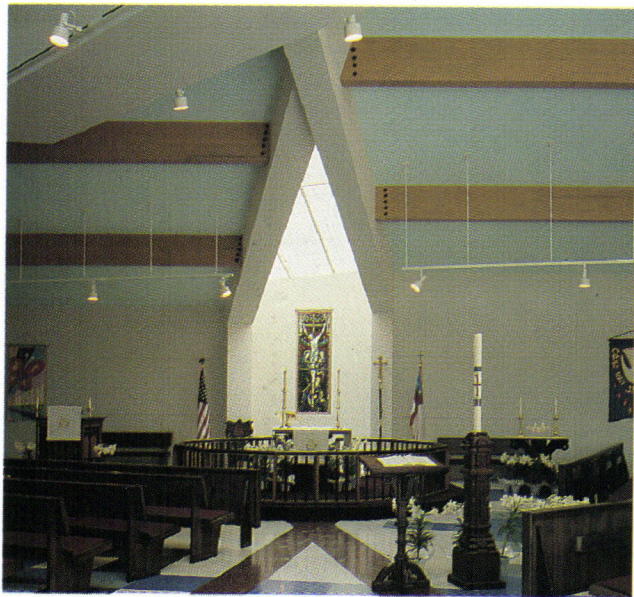
DESPITE ITS ANGULAR COMPLEXITY, ST. MARY'S EPISCOPAL Church is at heart a simple building. Architect Gerald Moorhead nestled the church against a stand of pine trees on a corner site in Cypress, a satellite community northwest of Houston. The church's form grows out of the perpendicular axes of the two main walls. This crossing divides the plan into functional quadrants: two for the sanctuary, one for a cluster of six classrooms, and another for a courtyard whose borders will be defined by future building.

Moorhead created St. Mary's formal dynamism using the "old Modernist ploy of literal and phenomenal transparencies," he says. The architect inserted a second axis through the sanctuary, twisted from the main axis to match an 11-degree splay in the site's boundaries. Walls protrude from both sides of the sanctuary to emphasize the axial crossing, their lines connected inside by laminated pine beams that interrupt the ceiling plane to admit light through translucent fiberglass panels. Four rectangular blocks of seating, intended to appear randomly placed, bring more parishioners to the front than would be possible in a regular fan-shaped arrangement.

Outside, the building reads as floating, variously sloped roof planes perched atop walls that recede. This restrained character is interrupted by a brightly stuccoed entry elevation and roadside facade, which is rendered in stepped brick, outlined against an upper stucco wall by a minimally protruding ledge.

Moorhead's shifting visual composition hints at his respect for Scandinavian architects Alvar Aalto and Gunnar Asplund, and the confidence of 20 years of practice, half of it in the office of nationally recognized church designer Charles Tapley, FAIA, of Houston. Moorhead's interpretation of St. Mary's lofty vision embodies the aspirations of a new congregation with humble means. ■

—RAY DON TILLEY



ST. MARY'S EPISCOPAL CHURCH
CYPRESS, TEXAS

ARCHITECT: Gerald Moorhead, AIA, with Gregory L. Harper Architect
 ENGINEERS: Cunningham Engineering Co. (structural); Olive Engineers (mechanical, electrical, and plumbing); David M. Y. Millikan (civil)
 PHOTOGRAPHER: Gerald Moorhead



MISSION BAY

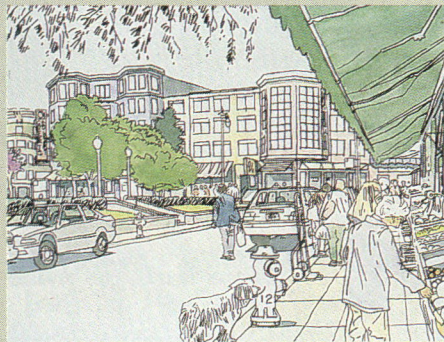
San Francisco, California

Skidmore, Owings & Merrill / San Francisco

A decade of consecutive schemes for San Francisco's Mission Bay (preceding page) reflects changes in thinking about large-scale urban design since 1979, says John Kriken, planning partner at SOM/San Francisco, which drafted the latest proposal for the area. Prevailing attitudes have evolved from the design being determined by a program, to focusing on the site, to concentrating on the larger context.

The first plan by John Carl Warnecke proposed intensive development of office towers, hotels, and housing to create a "second city" adjoining the South of Market District and along the waterfront. But the scheme ignored the waterfront itself. The second proposal, by I.M. Pei & Partners/Wallace Roberts Todd, "introduced Baroque elements and a large water feature that made the project more attractive, but continued to pose itself as an isolated second downtown," says Kriken. The third scheme, the work of the San Francisco City Planning Department and a design team led by EDAW/San Francisco, rejected "Manhattanization" in favor of developing a new "neighborhood" that extends the scale and character of the adjoining South of Market district. The city's plan proposed parks and open space, including recreational use of the waterfront.

As part of its final negotiations with the City, Mission Bay developer Santa Fe Pacific Realty retained SOM to strengthen the city's plan and make it work. SOM focused on streets and open space, design guidelines for buildings, and identifying



landmarks. The SOM plan uses public open space as a legible, connective, and place-making element and adds variety to the city's plan by breaking down the scale of residential areas into smaller, more diverse parcels and differentiating between retail streets, park edges, waterfront, and Embarcadero edge.

A sizable proportion of space—over 25 acres—will be devoted to public, community, and cultural facilities; nearly 70 percent of the buildable area will be devoted to 5,000 market-rate and 3,000 subsidized housing units, to be designed by different architects. More than 72 acres will be defined by parks, wetlands, recreation areas, and there will be more than two miles of public shoreline. Employment for 20,000 people will be available in service, research and development, office, and light industrial jobs, and no part of Mission Bay will be more than a few minutes' walk from any other. Construction is expected to begin in 1991, pending approval by public referendum.

provide a measure of insurance against brush, new buildings at war with their environment. They are, in part, a bequest of the environmental and historic preservation movements, which substituted an emphasis on the pragmatic, restrained, and humane for Modernism's belief in the theoretic, universal, and heroic. The new insistence on neighborhood design input and review is a legacy of 1960s and '70s advocacy planning—an offspring, in turn, of the civil rights movement.

Together, these changes have broadened architecture's purview and made every architect a potential urban designer. One indicator of increased interest in urban design is that "architecture schools routinely include urban design problems, which they didn't 10 years ago," says urban designer Jonathan Barnett. An informal survey by the Institute for Urban Design shows there has been an increase from 31 to 38 urban design programs in the U.S. since 1985. The number of urban planning programs, on the other hand, has remained unchanged, according to Evelyn Martin of the American Planning Association. (The main difference between urban design and urban planning is that planners' work stops short of three-dimensional design.)

The shift toward a kinder, gentler approach to rebuilding cities has strengthened the role of landscape architects: the sole practitioners of urban design other than architects. Increasingly, architects view their art as making spaces rather than objects, "which is the ultimate landscape point of view," says David Childs of Skidmore, Owings & Merrill's New York office. As the fragility of the natural environment has become more apparent and the need to protect it more important, environmental zoning has become a battle cry. This zoning is a direct consequence of the growing stature of landscape architecture, according to Barnett.

Better and more landscaping is also a matter of good economic sense. Nothing can do more for a building project at less cost than planting a mature stand of trees, a cluster of shrubs, or flowering plants. As a result, landscape architects are increasingly involved in urban design. EDAW of Washington, D.C., for example, is working on a master plan for Disney that binds and weaves together a number of projects by renowned international architects at Marne-la-Vallée in France. And architects and urban planners are beginning to design landscapes. An example is Cooper, Robertson + Partners' quilt-like scheme of 24 gardens for Battery Park City in lower Manhattan.

More enlightened urban design is being spurred by greater collaboration between the design professions. Traffic engineers, landscape architects, and planners are all think-

DOWNTOWN NORFOLK

Norfolk, Virginia
UDA Architects

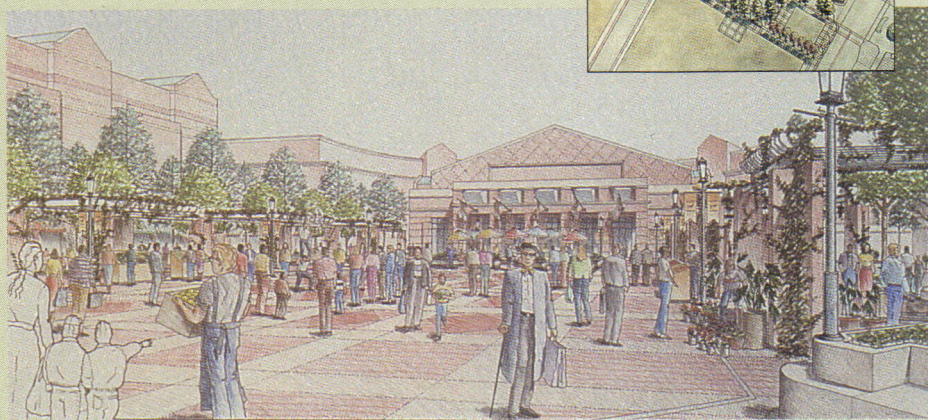
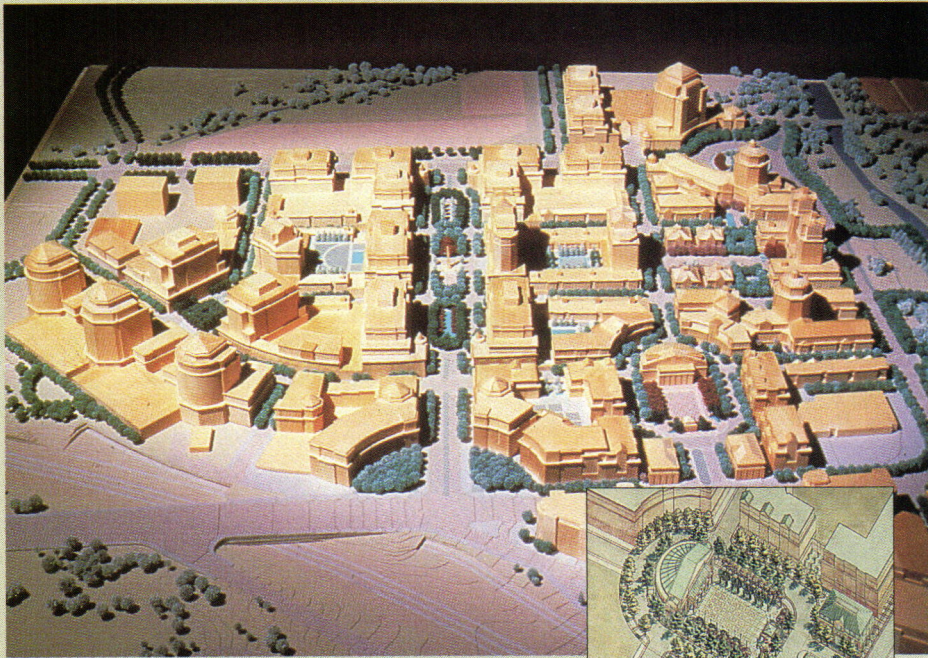
The Norfolk 2000 plan “continues Norfolk’s successful tradition of using physical planning as a primary tool for economic development,” according to its developers. The proposal updates a series of master plans dating back to 1956 that transformed Norfolk, providing improved access, an upgraded street system, and new waterfront and Main Street development.

The plan, created by UDA Architects in conjunction with development consultant Philip Hammer and urban design consultant Jonathan Barnett, addresses the city’s economic deficits by attracting visitors and tourists, and expanding retail, housing, and cultural activities. Among UDA’s assumptions is that strategically located new building projects will support future growth and will spawn new development in a synergistic fashion.

The plan uses a system of boulevards and public open spaces to give the city new clarity and a framework for growth. It calls for completion of Norfolk’s pattern of landscaped boulevards, which will create a network of open spaces tying together new and existing parks. The proposal provides for diversion of traffic via a new bypass; ties regional highways to the downtown boulevard system; and completes two new tunnels linked to the highway system. Norfolk 2000 also reorganizes the downtown transportation system into a hierarchy of expressway, boulevard, and local streets to divide the central city into four diverse, multi-use core districts and three varied, downtown edge districts. The plan aims to coordinate large and small projects with public investments.

The planners and the city expect that by the year 2000, Norfolk will have completed a National Maritime Center, serving as the centerpiece of the harbor; a Main Street hotel/conference center (scheduled to begin construction in May 1990), forming a focal point to a continuous pedestrian path linking the harbor and downtown; an expansion of the Waterside Festival Marketplace begun in 1989; and an extension of the north-south commercial Granby Street with a new hotel and retail infill. Waterside Drive, near the water’s edge, will become Norfolk’s grand boulevard linking all parts of downtown, which will also include a new mixed-use “village” of historic and new infill buildings. The authors of Norfolk 2000 further project that new highway links connecting downtown to growth areas in all directions will make center city Norfolk the “bull’s-eye” of a booming trade area.





CARR NORFOLK SOUTHERN PROJECT

Alexandria, Virginia

Cooper, Robertson + Partners, Architects

Cooper, Robertson + Partners' scheme for a new mixed-use district on the edge of Alexandria, Virginia, aspires to become a model for developing "bypassed" areas adjacent to old downtowns.

On the forlorn 75-acre site, the architects propose creating an urbane city over a 20-year period. It will include 378,000 square feet of street-facing stores, a hotel, 4.2 million square feet of offices, 1,800 residential units, and a new federal courthouse.

Among the architects' challenges is to integrate different scales and building heights—from three-story townhouses to larger apartments and bulky, 20-story office towers. Cooper, Robertson's plan incorporates a traditional urban grid, emphasizing continuous street walls, and three parks resembling village greens. It provides a comfortable scale for pedestrians by limiting street-side building heights to seven stories with higher setbacks.

Fifty-five percent of the total site is devoted to green space.

Stringent design guidelines prescribe the number, heights, mass, setbacks, locations, and uses of buildings and materials (a preponderance of red brick, stone trim, and ornamental details in stone, metal, glass, or wood). The architects' hope is to create a harmonious yet lively environment. In many ways, the plan resembles Battery Park City, authored by the firm (then Alexander Cooper Associates) a decade ago. In Alexandria, however, no such powerful public agency as the Battery Park City Authority exists to build the infrastructure and oversee the implementation. The developer is asking the city to share such powers in exchange for public infrastructure and expected fiscal and social benefits. Demolition on the existing strip shopping center is expected to begin in summer 1990, pending site plan approval by the City of Alexandria.

ing like designers, says Jaquelin Robertson of Cooper, Robertson + Partners. The increasingly common, interdisciplinary approach is embodied, for instance, in the work of Ehrenkrantz, Eckstut & Whitelaw, in whose New York office architects, industrial and interior designers, graphic artists, and others work side by side with urban designers. Stanton Eckstut explains, "We don't see a break between large scale planning and making color selections. McKim Mead & White were designing campus plans while they were decorating interiors."

The problem with our cities today is less the fault of urban design than lack of government funds and commitment, which have left ghettos surrounding newly-scrubbed-looking downtowns more impoverished and despairing than ever. Government is also less welcome than in the past. "There is a broad mistrust of big government and big plans," says Ann Ferebee, Director of the Institute for Urban Design in New York City. To fill the vacuum, there has been a massive increase in private involvement, either in concert with government, or alone. Marilyn Taylor, an SOM/New York planning partner, estimates that 90 percent of her office's urban design work is for the private sector. "To establish value, developers as well as architects have had to look at the larger context," contends Taylor. A consequence of so-called privatization, according to Richard Bender, former dean of the school of environmental studies at the University of California, Berkeley, is that development has in turn become increasingly consumer-oriented.

Although government is initiating fewer projects, "in some ways, it is more of a presence than ever," explains Alexander Cooper of Cooper, Robertson + Partners. Cooper tells, for example, how his firm's scheme for Trump City in Manhattan, which is still being evaluated, was shaped by review processes, and how it took three years and 6,000 written words to produce an acceptable environmental impact statement. He says: "We're designing through a much denser sieve as a result. It's a positive thing."

Another recent change in urban design is a tendency for arts and entertainment centers to become anchors for new downtown and urban waterfront projects, as exemplified in Norfolk, Virginia (page 77), St. Louis, Pittsburgh, and Fort Worth. Usually, these arts complexes are combined with retail. "It allows affluent people," says Bender, "to go to the museum and shop."

"One of the hottest things happening in urban areas is in bypassed locations," maintains Barnett, referring to sites previously cut off from downtown and therefore underdeveloped, or outlying deteriorated areas, even whole cities. Barnett is working on by-

passed areas for the cities of Norfolk, Cleveland, Pittsburgh, Kansas City, and Charleston, for which he works as urban design advisor. These cities and others, he explains, are using urban design to create resources and boost their economies, while some, like Norfolk, are "reinventing themselves."

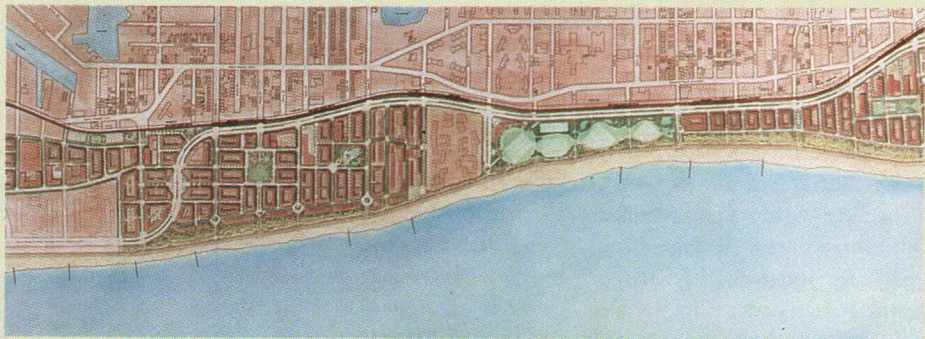
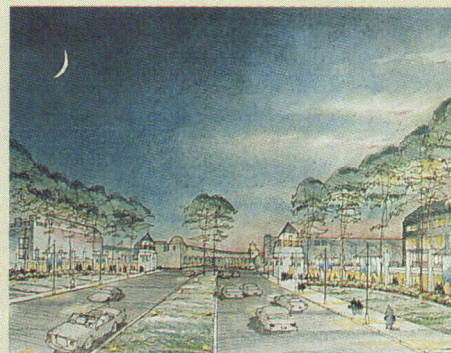
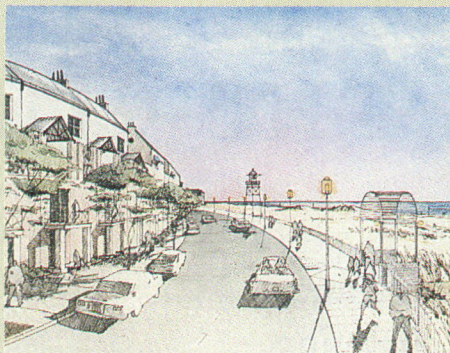
"Projects are becoming larger and more complex," adds Jane Thompson, vice president of Benjamin Thompson & Associates. Among her firm's new projects is the refurbishment of a 50-block area around New York's Grand Central station. But even such giant efforts are governed not by grandiose urban renewal-type ideas, but by a "small is beautiful" ethic, as expressed by Roberta Gratz in *The Living City: Thinking Small in a Big Way*. Gratz writes, "Successful cities have competed on their own urban terms...restoring what's left of the city's time-tested fabric, weaving the new to fit the pattern of the old and evolving as cities always have evolved."

In his 1985 book *Cities and People*, Mark Girouard concluded that the U.S. might well become Los Angelesized—dispersed and suburbanized in a pseudo-citified way. Paradoxically, while Los Angeles is developing a concentrated, high-rise downtown, America is decentralizing faster than anytime in its history. Vast mixed-use developments have been staked out around thruway intersections on the fringes of cities, in existing uptowns, and are creeping further into the countryside. They have sprung up as new technologies have made working outside downtown increasingly practicable, and workplaces have followed their CEOs, the retail, and service trades to the suburbs. These new fringe cities are America's and urban design's latest frontier.

Unlike frontier towns, the new "out-cities" have no center, no beginning, no end, no connections, no community life, nor public realm. Neither city nor country, the new cities have no government and are virtually impossible to police or service. Essentially, they are outlaws. As historian Robert Fishman writes, they form megalopoli based on time rather than space: "Families create their own 'cities' out of the destinations they can reach traveling by car in a reasonable length of time." Although they are conceptually empty, the new suburban cities account for the bulk of new U.S. construction. They are usually comprised of isolated buildings marooned in a sea of cars. Often they are vast. Tyson's Corner, Virginia, for example, has more office space than Richmond or downtown Miami, yet it is only one of 13 suburban cities in the Washington, D.C., metropolitan area.

The new cities have sprung up so recently and rapidly that most of us barely

Continued on page 147



ARVERNE

New York City

Ehrenkrantz, Eckstut & Whitelaw

The Liebman Melting Partnership

Vollmer Associates, Architects

Another "bypassed" site, Arverne began as a posh, prewar ocean resort community. Today, it is an isolated urban renewal area, sandwiched between the Atlantic Ocean and a highway in Queens. The 308-acre site is also the largest tract of land owned by New York City and will be developed over the next 10 years as a new, market-rate residential community (construction is slated to begin in mid-1991). It will take its cues from the nearby traditional neighborhoods and its beachfront location.

The scheme for Arverne uses open space to divide the site into distinct neighborhoods. Most of the 10,000 market-rate housing units—intended for middle-income residents—will be four-story townhouses, some of which will be reached via landscaped courtyards raised over one level of parking to encourage

neighborliness and promote physical security. There will also be some mid-rise apartments, and shopping will be scattered throughout the neighborhoods.

To meet a relatively modest budget, the architects are considering industrialized, modular units assembled at the site. The developer will be providing a firehouse and may also provide public schools, with some of the income from the sale of the land to the developer subsidizing low-income housing elsewhere within New York City's boundaries.

Nearly 50 acres of parks, both inland and along Arverne's two miles of beachfront, and a lushly landscaped, broad boulevard, will set the tone for Arverne by "incorporating the beachfront setting and the neighborhood traditions of the borough of Queens," says principal Stanton Eckstut.

BREAKING THE CODE

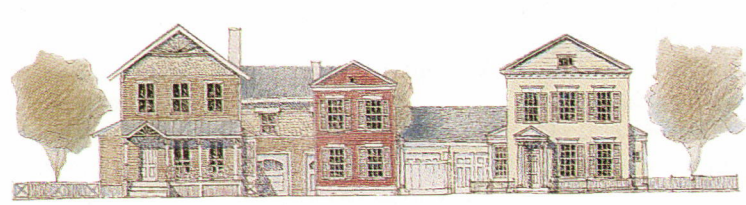
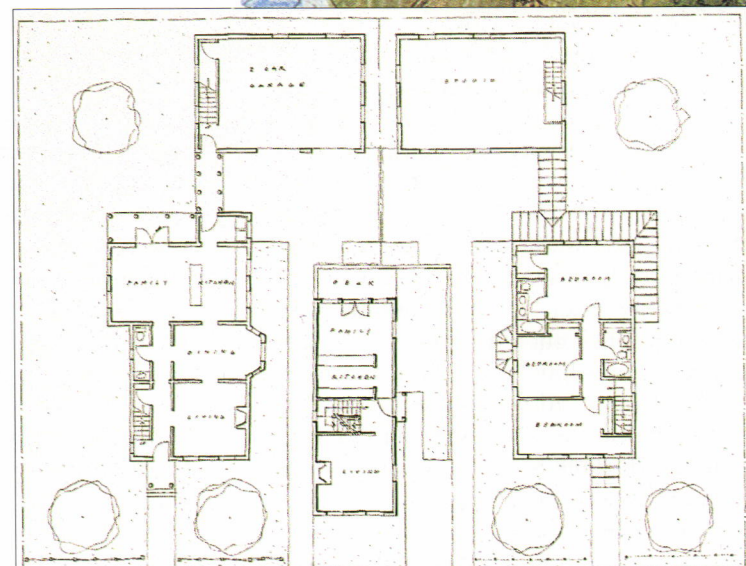
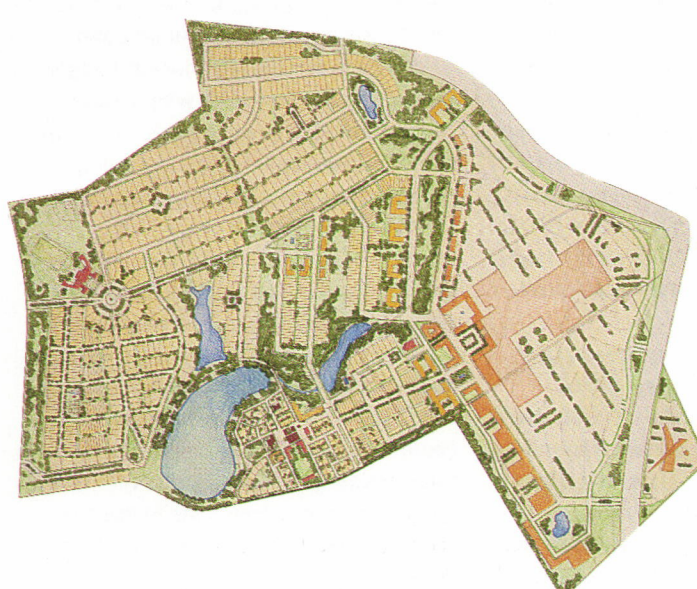
Offering small-town alternatives to suburban sprawl, Andres Duany and Elizabeth Plater-Zyberk are changing the way America is planned.

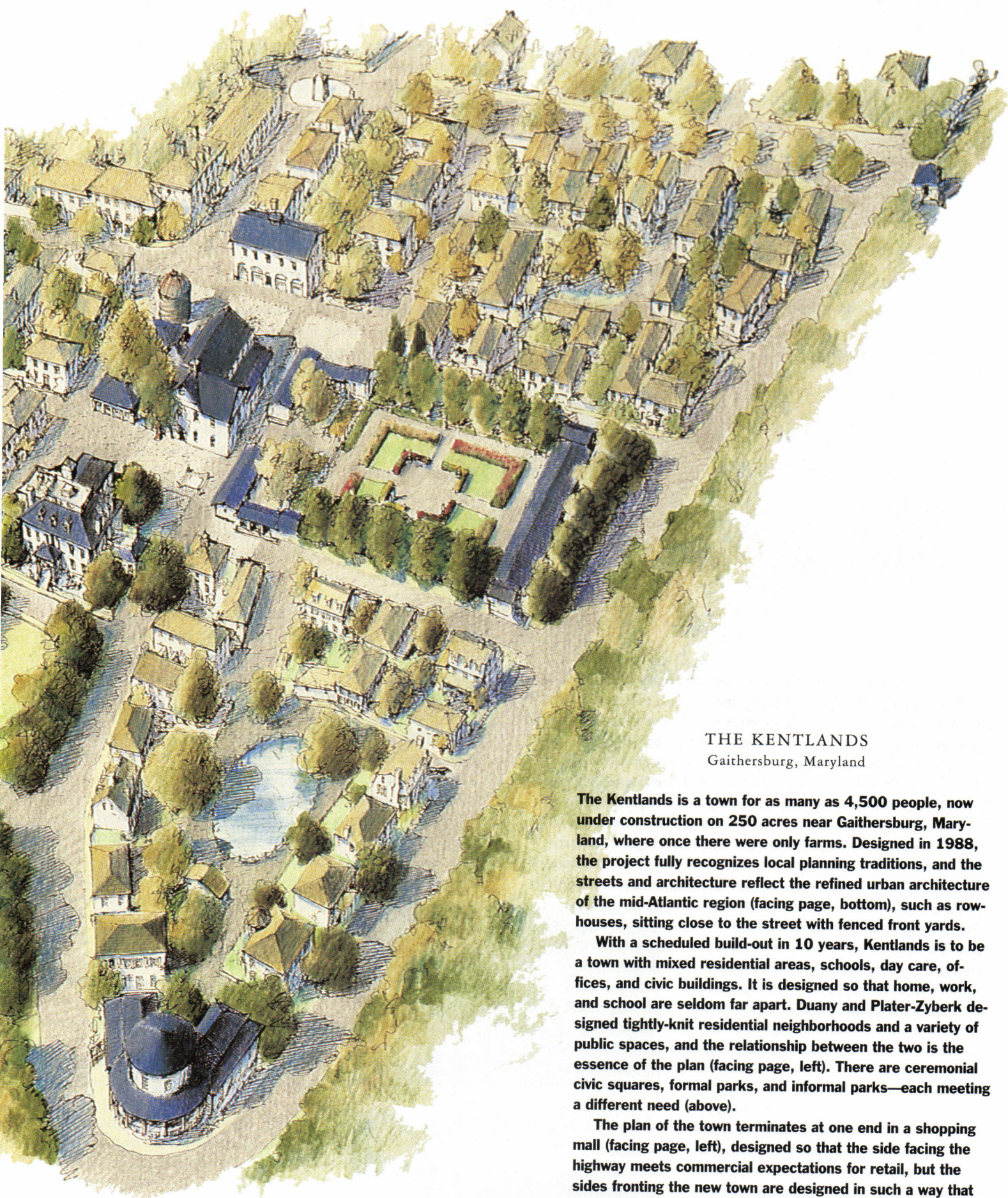
THE 1980s WILL BE REMEMBERED FOR BIG PLANS, BIG developments, and signature architecture, but already the 1990s are resonating to different ideals. More humane environments, neighborhoods designed for the pedestrian as well as the car, are becoming the new yardsticks, thanks to architects Andres Duany and Elizabeth Plater-Zyberk. As husband and wife principals of the 25-person, Miami-based firm that bears their name and the acronym DPZ, they are altering the fundamental principles of planning and building in this country by rewriting the codes that govern our towns and suburbs.

The first indication of the architects' ideals was the master plan for the Florida resort, Seaside, designed in 1979 according to a code based on the most prized places in America: Nantucket, Savannah, Winter Park, Georgetown, Charleston. With its picket fences, front porches, alleys, and playgrounds, Seaside encourages people to walk and socialize within a comfortable and familiar small-town setting.

The formula for Seaside brought the firm credibility and some prize clients, most notably Britain's Prince Charles, who praised Duany and Plater-Zyberk in his best-selling book *A Vision of Britain*. The Prince asked them to write the code for his utopian village of Poundbury in Somerset, England, and design a master plan for the small beach development in Florida where His Royal Highness is building his first vacation home in America—a place to stay each winter when he plays polo in Palm Beach.

DPZ's projects for the Prince are among the 30 new towns and suburbs across America, with 12 now under construction, masterminded by the firm. In his current lecture on suburban living (available on videotape from his office), Duany articulates the firm's dis-



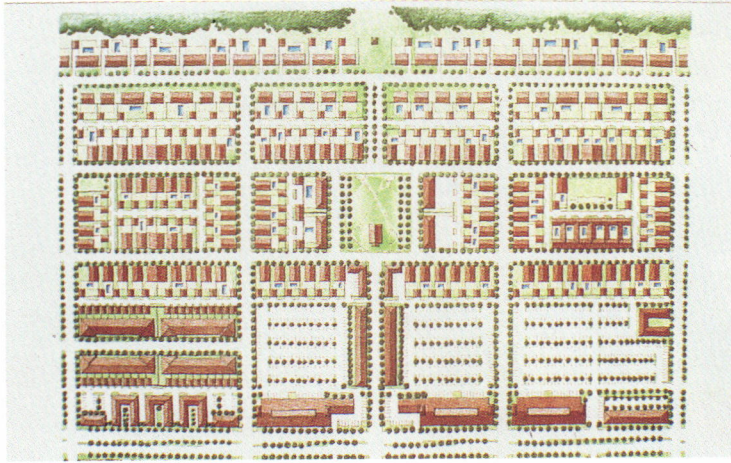
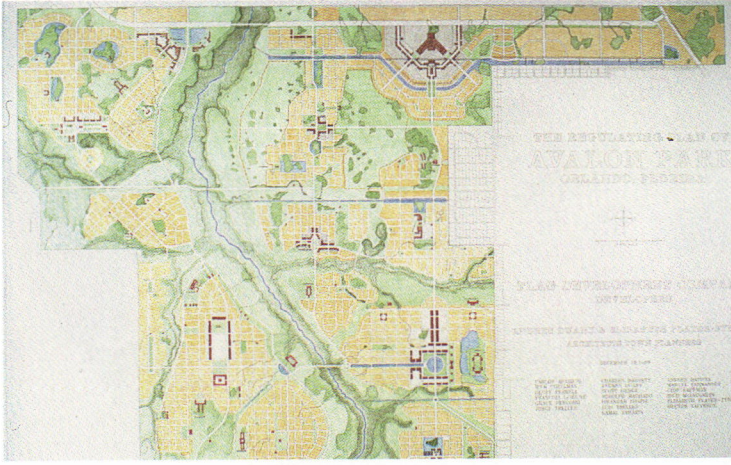


THE KENTLANDS
Gaithersburg, Maryland

The Kentlands is a town for as many as 4,500 people, now under construction on 250 acres near Gaithersburg, Maryland, where once there were only farms. Designed in 1988, the project fully recognizes local planning traditions, and the streets and architecture reflect the refined urban architecture of the mid-Atlantic region (facing page, bottom), such as row-houses, sitting close to the street with fenced front yards.

With a scheduled build-out in 10 years, Kentlands is to be a town with mixed residential areas, schools, day care, offices, and civic buildings. It is designed so that home, work, and school are seldom far apart. Duany and Plater-Zyberk designed tightly-knit residential neighborhoods and a variety of public spaces, and the relationship between the two is the essence of the plan (facing page, left). There are ceremonial civic squares, formal parks, and informal parks—each meeting a different need (above).

The plan of the town terminates at one end in a shopping mall (facing page, left), designed so that the side facing the highway meets commercial expectations for retail, but the sides fronting the new town are designed in such a way that pedestrians can enter off the main street. Duany and Plater-Zyberk even designed the parking lot so that it could be more than merely a typical sea of cars, parcelled in such a way that it could be developed later for offices or apartments as the town evolves.

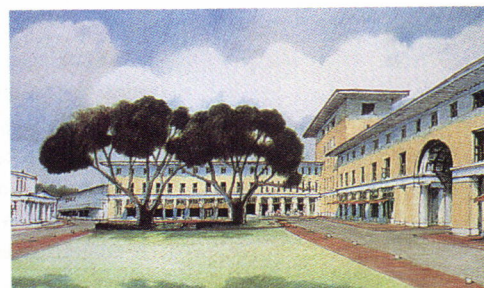
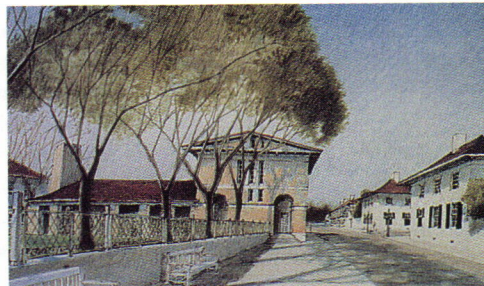


AVALON PARK
Orlando, Florida

Sprawling across a 9,400-acre parcel east and south of Orlando, Avalon Park is filled with lakes and protected species. It is a sensitive development that puts ecological concerns first, including tying all the wetlands into a comprehensive system of wildlife corridors (top).

The plan includes six villages and four towns, each divided into three or four villages, accommodating 25,000 dwellings. Each neighborhood has a town square with a bus stop and a day care center within five minutes walking distance to the majority of houses, while the six villages each contain dwellings, office buildings, shops, and sites reserved for community institutions. The four towns are specialized: one contains a concentration of retail; another a majority of cultural and educational institutions; a third is devoted to resort and recreation-oriented buildings; and the fourth comprises more elegant office buildings. Each of the towns and villages was executed by a different planner, following rules laid out by DPZ. These towns and villages are surrounded by greenbelts, with each neighborhood bordered by a shared main street on one side and a portion of the greenbelt on two sides (right).

Among recent Orlando developments, Avalon Park is the first to respect the Jeffersonian square-mile grid. Roads along the grid lines unite its various towns. DPZ plotted the lots based on the English rod system of 16-foot increments. A single rod marks the minimum width of a townhouse, and lots may be joined in various combinations to accommodate the 13 other building types common to the current development market.



trust of traffic engineers and zoning regulators. "These bureaucrats have made traditional plans illegal, to the detriment of the human habitat," he claims, citing such details as road widths, landscaping, traffic patterns, parking configurations, and roof lines which have changed over the years for the worse, diluting the quality of American lives. "Actually, there is quite a lot to be said for cities that have no codes," he points out. "For example, Houston, which virtually has no codes, doesn't look any worse than Miami, which has extraordinary codes and administrations. So the model is all wrong."

Duany and Plater-Zyberk maintain that unless we dramatically reverse the way we build suburbs, we will be an alienated populace sitting alone in congested traffic breathing poisoned air. "The environmental movement in the '80s focused attention on the wetlands, saving trees, flora, and fauna. We forgot about people," Duany explains. "In the '90s we must turn our efforts to making the planet a place on which people can survive." In building cities, the architects say, there are two essential ingredients: design and policy. On the policy side, existing methods of planning, and the rules that govern it, are actually contributing to this problem, not solving it. "Our work is aimed at changing the policies by writing new codes and regulations that towns and cities must abide by in legal implementation."

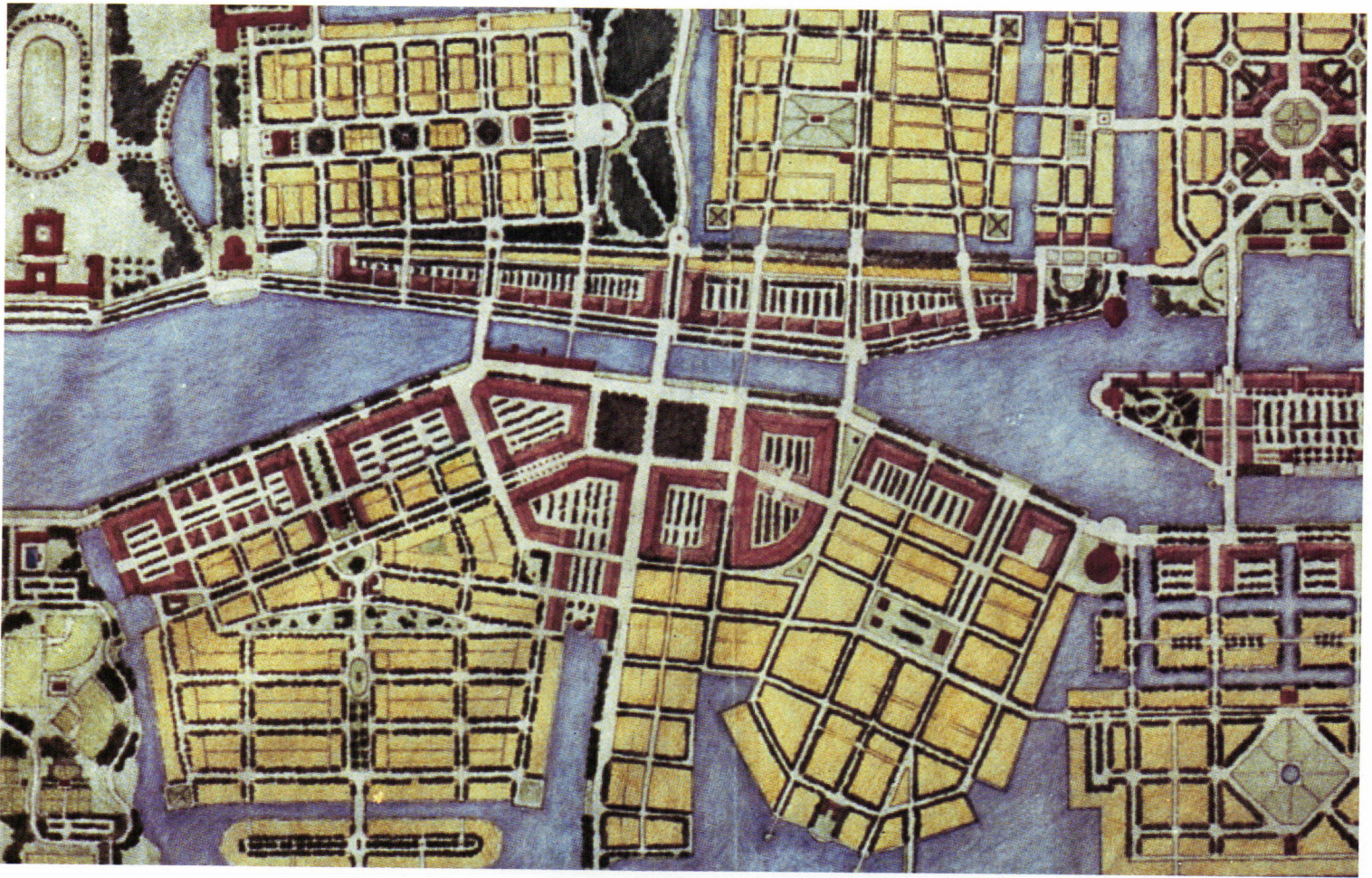
The projects DPZ has undertaken since Seaside have grown in complexity and scale, ranging in size from 60 to 3,500 acres. They are now at work on Playa Vista, a 900-acre urban development in Los Angeles designed with a consortium of architects; Blount Springs, a 3,500-acre town north of Birmingham, Alabama, involving the building of a new dam; and Avalon Park outside of Orlando, which will include 25,000 people living on 10,000 environmentally sensitive acres, including wetlands and a river. In addition, DPZ has a growing practice in urban redesign and recently completed downtown plans for an expanding town (Stuart, Florida) and a contracting city (Trenton, New Jersey), the latter with the Liebman Melting Partnership.

Duany and Plater-Zyberk intensely study each plan and research every possible aspect of a place—regional history, vernacular architectural styles, and local customs. For every project, the architects hold at least one charette lasting three to five days, involving developers, architects, planners, engineers, historians, and local residents. Typically, DPZ writes a detailed development code, analyzes building types, then draws up a set of architectural guidelines and leaves the design to others, in order to promote stylistic diversity.

Some motifs continue throughout DPZ's work. Each neighborhood in a new development is designed so that families can live with only one car. This architectural credo and social tool leads, inevitably, to easier, more unified lives. Shops, schools, day care centers, playgrounds, even offices are within walking distance. Streets

are given careful attention, from the width of a sidewalk to a curb radius. Says Duany: "If it feels like a highway, people will drive. For any city to have pedestrian life, the streets have to be in balance, people have to be able to cross them, and cars have to be able to move. But if cars are given precedence, people don't cross."

In planning their new towns, Duany and Plater-Zyberk began to confront one great reality of everyday suburban life: the shopping mall. "The most important aspect of the center of town is the commercial district. People are shopping in malls and strip centers, so we have studied their functions and determined their essential qualities," says Plater-Zyberk. Again, another reality: people need to drive to the supermarket. To make shopping at least a more esthetic experience, if not a more pleasant one, DPZ has



WELLINGTON
Palm Beach County, Florida

begun to design modified strip centers where the big grocery stores and drug stores retain their parking out front, but the little stores—hairdressers, card shops, travel agencies—do not. Rather, the small shops enclose the parking. “In America we design parking lots that will be parking lots forever, but people hate walking past parking lots, and they love walking past buildings,” says Duany. “Just because we have so many automobiles and such huge parking lots, we have completely abandoned even the desire to do something decent with them. We try to make parking lots better by landscaping them, but that’s a purely ornamental method. If you think parking lots have to be automatically horrible, you should remember that the parking lots of Europe are often beautiful old squares.”

DPZ’s plans focus on civic space—town squares, public buildings, schoolyards, shops—based on the idea of permanence. “We believe history is long,” says Duany. It is characteristic for Duany and Plater-Zyberk to exhort the developers of Avalon Park to build a plaza that would rival the Place de la Concorde in Paris. “It is not too great an aspiration,” he says. “Paris had fewer resources, and France was a poorer nation when they built their great monuments.”

There is an urgency to the architects’ message. Their conviction in altering current urban planning methods assumes truly passionate dimensions. “All the energy that we put into all this growth is going to be the heritage of misery,” warns Duany. “If we’re not careful, we are going to be remembered as the generation that destroyed America.” ■

—BETH DUNLOP

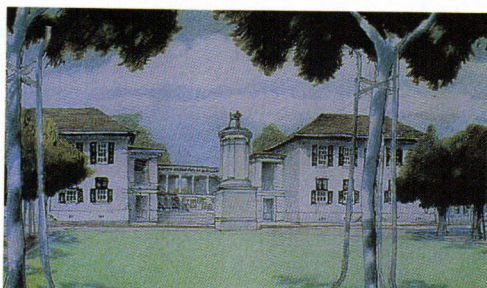
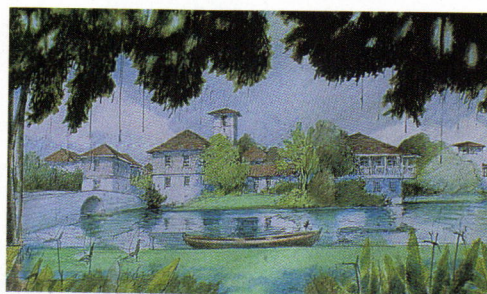
Beth Dunlop is the architecture critic of the Miami Herald.

Planned for the westernmost end of Palm Beach County, the 1,500-acre town of Wellington is attached to a typical 1970s development that bears the same name. But where the first Wellington has curved roads that end in cul-de-sacs and essentially no urban hierarchy, DPZ’s plan is compact, with gridded and structured roads.

The town of Wellington will be of significant size: it is two-and-a-half square miles with nine neighborhoods structured around a lake, each designed by a different young South Florida architect for 400 to 500 families (above). The architecture throughout draws on the Mediterranean traditions of South Florida, with pale stucco buildings designed in a restrained fashion (below). The commercial edges of

each neighborhood enfront a lakeside boulevard while “greenbelt” canals, which take advantage of the high water table in the region, provide public amenities.

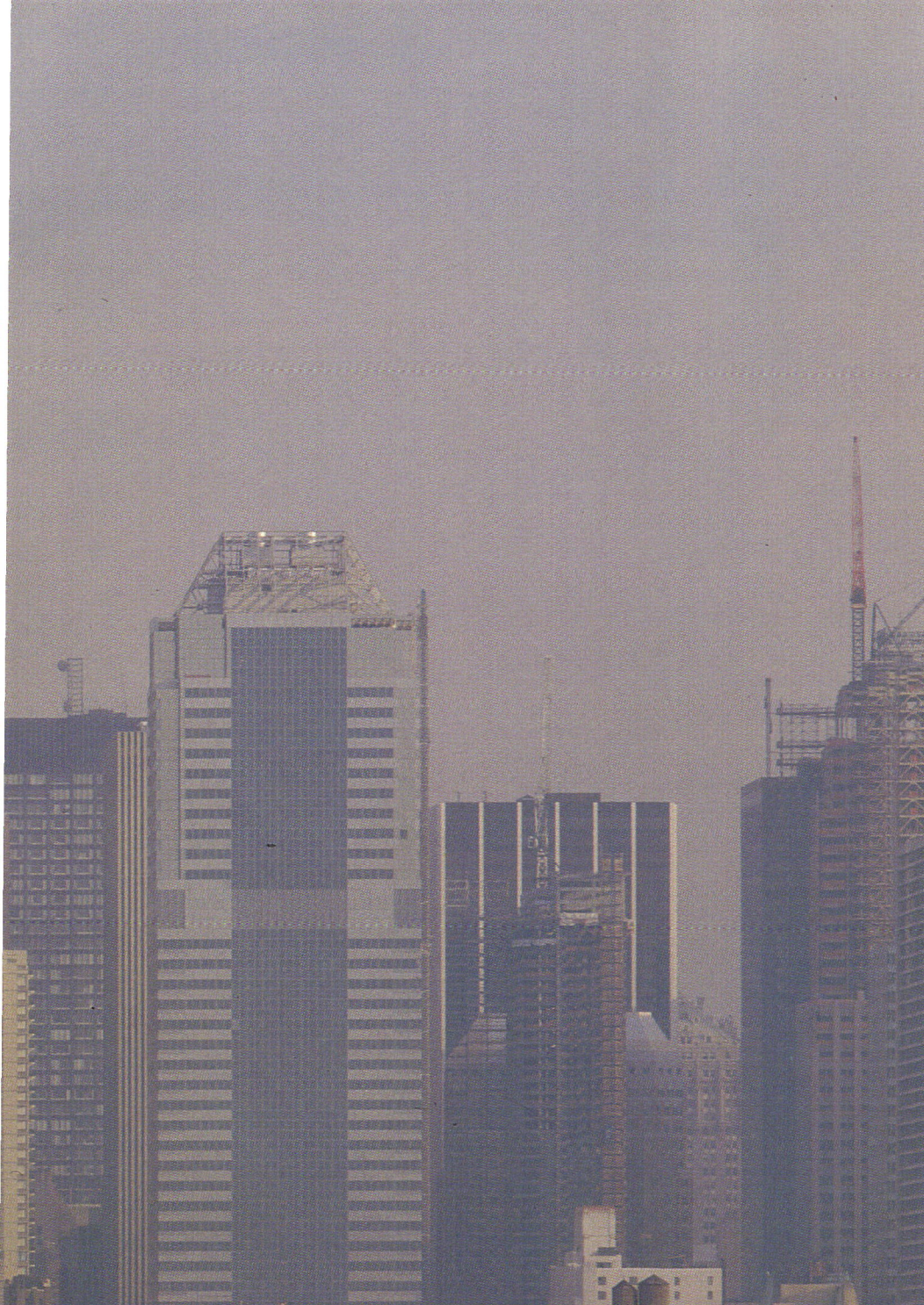
In each neighborhood, specific lots are reserved for corner stores and restaurants. These commercial spaces are designed to be no more than five minutes’ walking distance from the outermost houses. Bus stops will eventually be located at these neighborhood squares linking the new community to the first Wellington. Larger parcels are reserved between neighborhoods for three schools and a community college. Other sites within the neighborhoods are reserved for civic buildings. Of the 4,300 units planned for Wellington, 3,300 are designed as individual residences, with the remaining to be townhouses and apartments located above shops and offices.



Worldwide Plaza
New York City, New York
Skidmore, Owings & Merrill/New York

U R B A N C I V I L I T Y





IN LAND-STARVED MANHATTAN, THE site chosen for Worldwide Plaza was one in a million. It was, first of all, huge and vacant—a 160,000-square-foot block stretching from 8th to 9th Avenue between West 49th and 50th Streets owned by a single development company, led by the Zeckendorf Company. Located between Times Square and Central Park (just three blocks from Rockefeller Center), the site was right in the path of Midtown's westward commercial development. But its site in the Clinton neighborhood, a cohesive but tawdry middle- and working-class neighborhood of tenements known as Hell's Kitchen, made Worldwide Plaza less than magnetic for pinstripe businesses looking to relocate. Nor were Clinton's residents likely to approve major changes in their neighborhood. Since 1968, when McKim Mead & White's Madison Square Garden was demolished, they had feared the gentrification and ruination of their neighborhood by large-scale development.

Developer Zeckendorf's choice of architect to masterplan the sensitive site and design its commercial and retail components may have seemed odd at first, since David Childs of Skidmore, Owings & Merrill had no track record in New York. When he was commissioned in 1987, Childs had just arrived to head SOM's New York office after spending virtually all his professional life building Skidmore's Washington office,

A new presence on the skyline (left), Worldwide Plaza's street elevation (below) rises no higher than six stories to fit the Clinton neighborhood.





KINGSTON
FINE SELECTION
APARTMENTS
STORES
321-6710

RENTAL OFFICE
321-6710

known mainly for its planning and urban design work. Childs had made his mark working with Nathaniel Owings on Washington's Pennsylvania Avenue Plan, its Constitution Gardens, and the Mall. Childs absorbed Owings's emphasis on urban design, along with the tendency of Washington architects to accommodate their buildings to existing conditions, paying special attention to historic buildings. As Childs's buildings for Washington became increasingly historicist, he learned, "that style is unimportant, that you can do honor to the basic rhythms of a city in a number of different ways." The attitudes developed in Washington suited New York's architectural climate and the design tasks posed by Worldwide Plaza.

As models for the complex, Childs looked to some of Manhattan's most renowned, classically derived skyscrapers. With its two differently-sized towers, a huge and lively mid-block plaza, its theaters, and two restaurants to draw crowds, Worldwide consciously echoes Rockefeller Center. Like the old New York Life building on Madison Avenue by Cass Gilbert, Childs's office tower steps back from its rectangular base to form a relatively slender, square tower. And like the Chrysler Building, Worldwide is topped by a gleaming crown that acts as logo and symbol from afar. A triangular copper hat housing mechanical systems, Worldwide's top is pierced by a row of holes for air exchange that appear to be puffing clouds of smoke or vapors when illuminated at night.

Most important, perhaps, the complex is a good and courteous neighbor at street level, reinforcing the street wall, keeping its base to six stories on the side streets and seven on the avenues, and pulling its towers back into the site to make them virtually imperceptible from the street. The base is detailed in granite, marble, and precast concrete finished to look like limestone. There is a dignified yet friendly cadence of banded stone, bay openings, tasteful light standards, and sidewalk saplings. Four curvilinear entrances lead to an oval, two-story, vaulted stoa lined with shops and services. It is the complex's most elegant space, mediating between the street and lobby, from which escalators rise to the second-story elevator core.

But Worldwide is no Rockefeller Center, nor is it a Chrysler building. The budget was too stingy, the floor plates too generous. Because Childs's commission to design the office tower was contingent on his shaving 15 percent off the usual \$115 per square foot, the architect

used his budget mainly for the building's base, plaza, and top. The setback masonry shaft, though as slender as Childs could make it, would have benefited from further slimming, from the darker color brick he had originally chosen to emphasize vertical coursing, and from window mullions that were eliminated for budgetary reasons.

As developer, Zeckendorf offered a package of public, neighborhood improvements to obtain a special zoning permit for larger than usual floor plans to help offset \$100 million land costs, entice tenants, and reassure Clinton's wary residents. In addition to the plaza with ample seating, restaurants, and mature Sycamore trees, these enhancements included re-opening and redesigning two subway entrances on 8th Avenue and rehabilitating 132 low- and moderate-income apartments in nearby buildings. The zoning variance allowed the 47-story tower to comprise 1.5 million square feet of office space, with 60,000-square-foot lower floors. The upper levels, set back after the 22nd story, each have 30,000 square feet, and the offices have splendid views, especially of Central Park and the Hudson River.

Even before it was finished, Worldwide Plaza gained instant respectability when the prestigious advertising firm of Ogilvy & Mather leased 40 percent of the office space, or 630,000 square feet, just on the basis of the design. Shortly thereafter, the reputable law firm of Cravath, Swaine & Moore became the second largest tenant, and others followed.

The residential portion of the complex, designed by Frank Williams & Associates, follows the street line on 9th Avenue, 48th and 49th Streets with seven- and six-story brick bases. The too light color underscores the bland personality of the facades and sets them apart from more lively and articulate neighboring tenements. But especially for New Yorkers working in the commercial towers, Worldwide's streetside walk-ups, its maisonettes with courtyard roof gardens, and its 38-story apartment tower seem like highly civilized, appealing places to live.

In fact, Worldwide's greatest contribution is to show that even very large, big city projects can revive urban civility rather than extinguishing it. Though a tight budget kept Worldwide Plaza from consistent design excellence, as a sensitive urban design achievement, it bodes well for Childs' additional new projects for New York. There are already seven, on the boards or in construction. ■

—ANDREA OPPENHEIMER DEAN



The complex steps up from six-story street walls to the 38-story residential and 49-story office tower (facing page), which is entered on 8th Avenue (above left). The housing focuses on a courtyard (above right).

**WORLDWIDE PLAZA
NEW YORK CITY**

ARCHITECT: Skidmore, Owings & Merrill, New York—David Childs, partner-in-charge; Leon Moed, administration partner; Warren Mathison and Donald Leonard, project managers; James Bodnar, senior designer; Edmund A. Narbutas, senior technical coordinator; Suzanne Smith and Orest Krawciw, technical coordinators

ASSOCIATE ARCHITECTS: Frank Williams & Associates, Architects (residential complex)

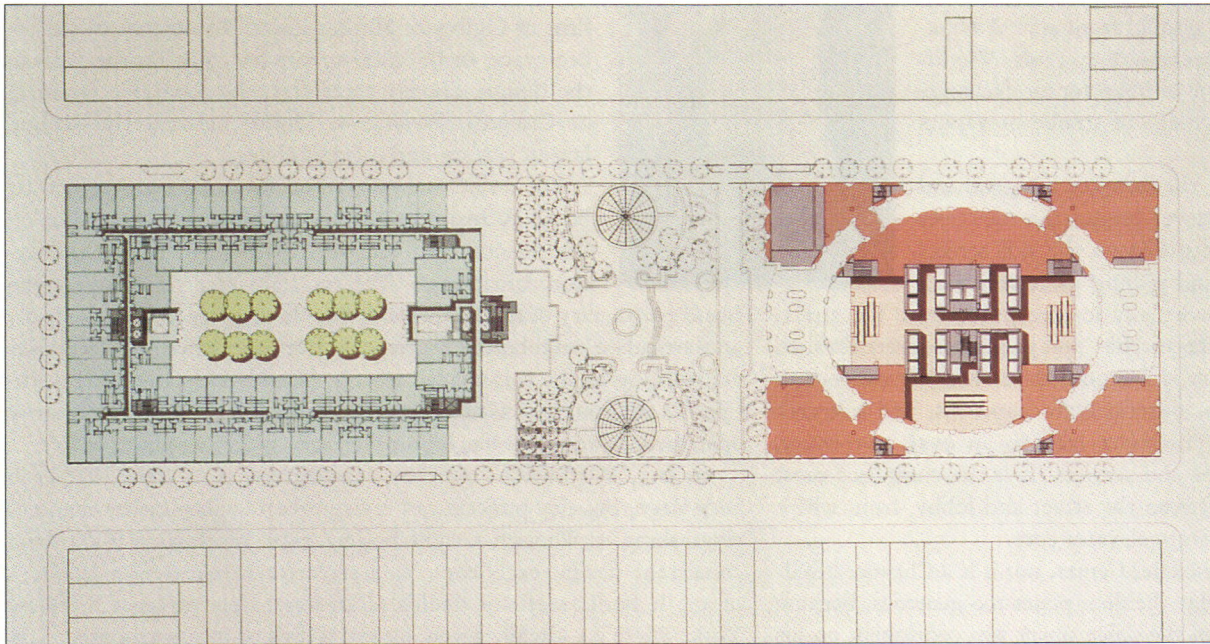
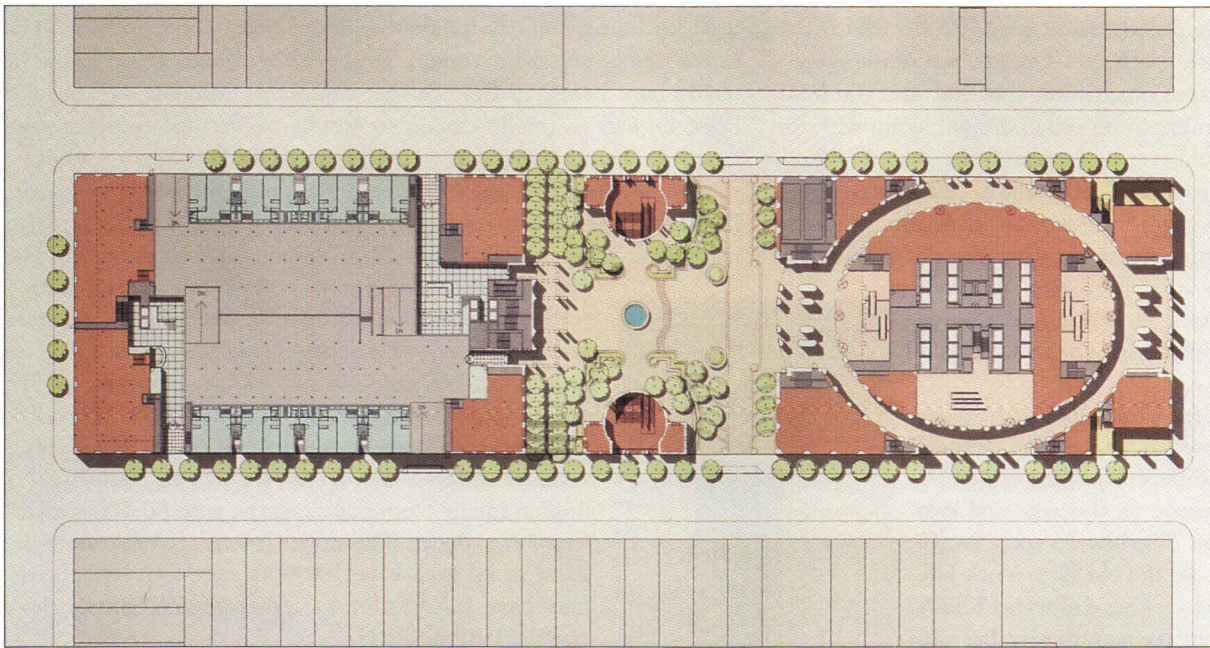
LANDSCAPE ARCHITECTS: The SWA Group

ENGINEERS: Robert A. Halvorsen and Gary Steficek (structural); Cosentini Associates (mechanical/electrical)

LIGHTING CONSULTANT: Jules Fisher & Paul Marantz Inc., Lighting

GENERAL CONTRACTOR: HRH Construction

PHOTOGRAPHER: Jeff Goldberg/ESTO



The mid-block plaza (above left and plans) features twin restaurants and Baroque garden forms (above right), while an elegant, oval stoa wraps the ground floor of the office tower (facing page).



Monogram. It eases the task of building a custom kitchen.

It has been said that when you start on a kitchen, you can only be sure of one thing. If anything *can* go wrong, it will. One of the more irritating



Across the Grain

A university building offers lessons in detailing wood.

THIS IS AN ALUMNI HOUSE, NOT AN ALUMNI CENTER, INSISTS Bernard M. Wharton when speaking of his firm's recently completed building at the University of Connecticut. "The tricky thing about the design was that it had to be residential in feeling and imagery, and also fit into an academic environment." In keeping with this concept, Shope Reno Wharton Associates of Greenwich, Connecticut, elected to design, detail, and construct the 12,000-square-foot alumni house in wood, both inside and out. The facility houses the University of Connecticut's alumni association, and its primary function is to accommodate administrative duties as well as meetings and social gatherings when former students come back to visit.

To avoid the problems associated with expansion and contraction of solid woods, the architects employed a flat panel system of construction for the building's intricate interior stair. Detailing the wood finishes involved a lot of "pre-thinking" before pencil touched paper, according to Wharton, and the firm's construction documents allowed little room for improvisation at the mill or on the site. The system for the alumni house involved applied moldings attached to painted plywood. Moldings were coated with high-gloss paint to highlight their detail and give them visual "oomph," Wharton says. "We achieved contrast through a high-gloss enamel, which gives the trim definition and depth—you can see your face in the reflective gloss of the paint surface," he points out, adding, "the woodwork was painted on site with this particular building. Normally, we would have everything pre-painted in the shop."

Wood also imparts human scale and a natural, familiar feeling to the distinctive elements that give the building its personality. For instance, a wood cupola brings light into the deep structure, gives the building a symbolic and physical center, and evokes the New England roots of the campus. The cupola has been so well-received that the university has adopted it as a new logo.

The request for a New England residential appearance led to a design in wood, both outside (below) and inside (bottom).



H. DURSTON SAYLOR PHOTOS

Likewise, the handsomely detailed wood stair, with its paneling and heavy newel posts, contributes to the centering of the building, while underscoring Yankee building traditions.

Before undertaking a project in wood, Wharton points out that his firm offers suggestions to clients as to the types of woods and finishes appropriate for a particular application. "We have built full-scale mockups on a number of occasions. And if we don't build them, we draw elements at full scale to see how the connections work and to visual-

ize how the scale will work within the space," the architect explains. "We have a carpentry shop in our office, so we can build the samples ourselves, even before the mill-worker gets hold of the drawings. It's not unusual for us to build a door, drawer, or panel detail during the working drawing phase."

Wood selection may depend in part on availability, although in many locales, architects may have some trouble finding good dimensional softwood. Typically, finished hardwoods—such as oak, maple, walnut, or

even the more exotic black walnut—are more easily obtained. Care is also necessary in choosing hardwood stock. "We will go out and handpick the planks, whether they are intended for a floor, a veneer, or whatever," says Wharton. "With a veneer, for instance, you have to get the proper book matching. You have to choose it yourself if you want to be successful, because if you rely on the judgment of others—even the cabinetmaker's—sometimes you can be disappointed with the results."

Along with handpicking of materials, care must be given to careful detailing, from structural framing to decorative moldings. Shope Reno Wharton is careful to detail framing plans precisely, down to the type of wood used for the studs. The architects believe that controlling the rough carpentry will avoid problems that can be transmitted through the entire job. "When you get to the point of attaching shop-built paneling, and you're off by a quarter of an inch, it throws everything off," says Wharton.

When the project involves a large amount of wood, as did the alumni house, two hobgoblins of detailing appear: building settlement, and the differential movement between materials. The first component to show noticeable effects is the finish. For this reason, Wharton recommends that hardwood panels be painted before they are installed to avoid the telltale brown line that will appear if a panel shifts around. As for floors, planks that are laid too tightly during cool, dry weather can swell into a rippled nightmare when the weather gets warm and humid.

When the job reaches the inspection stage, it's time for the architect to be especially critical. Wharton terms his firm's work process "finicky," especially because of the interrelated nature of a project's surfaces, planes, and walls.

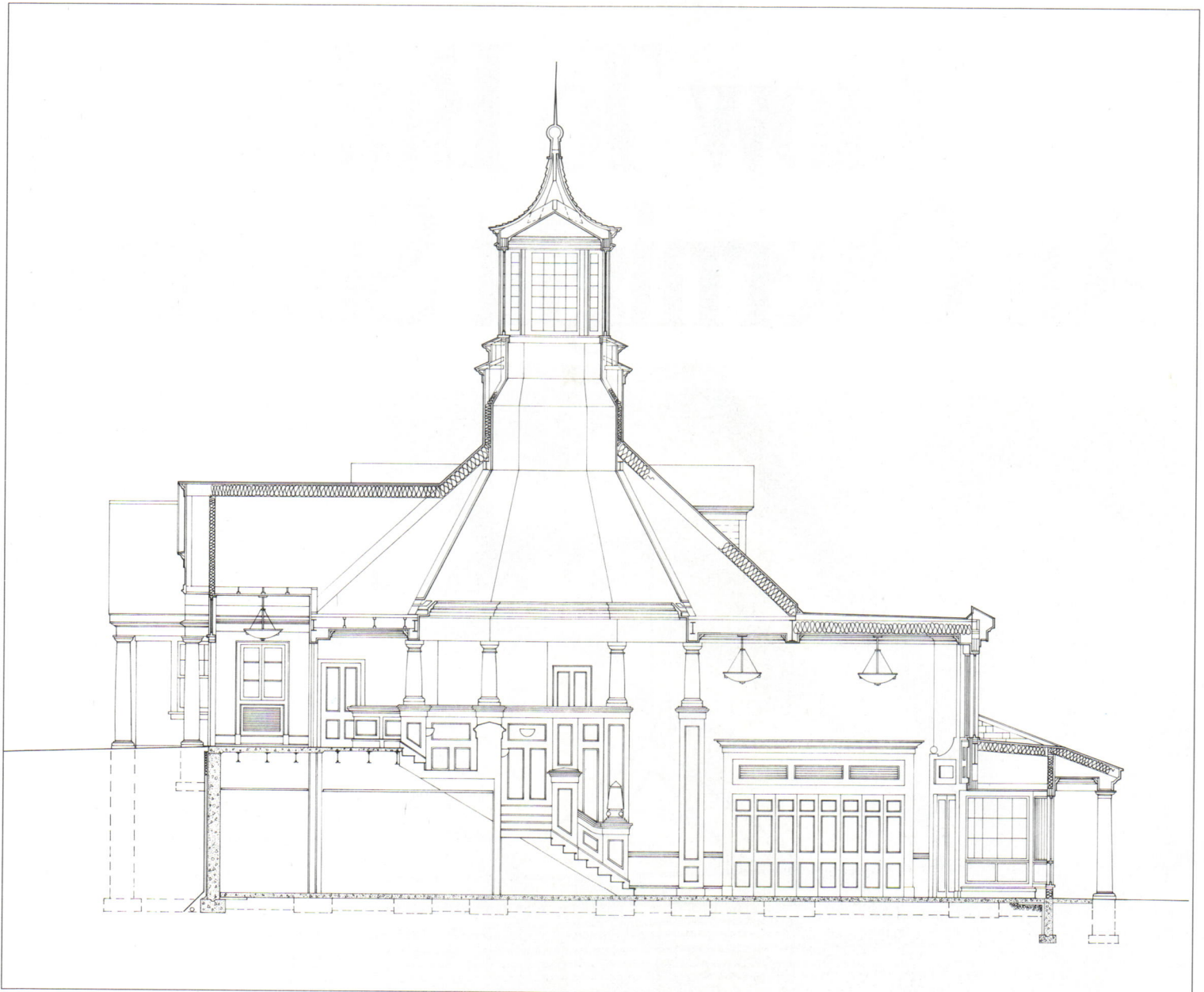
The success of a project, of course, is as dependent on the craftspeople executing the work as it is on the materials and the design. Wharton always reminds clients that they do not have to accept the lowest bidder, and his firm will not accept a job without a hand in the bidding, negotiations, and observation phases of the project. "We won't just hand over drawings for people to build themselves," Wharton says. "There is no doubt that proper use of wood is regionally dependent," he adds, "and for exterior applications, one must consider the effects of climate on durability. On the interior, it may be a matter of regional style, just as Colonial influence in New England survives because of the lasting attractiveness of wood in old buildings. Like a fine wine, it gets better with age." ■

—DOUGLAS E. GORDON AND
M. STEPHANIE STUBBS



A grand staircase, paneled in painted plywood, performs as sculptural furniture and doubles as additional seating for large gatherings (above). Natural light streaming through the cupola (below right) dramatically shades and shadows the circulation hub (below left).





Working drawings display the intricacy and care that went into Shope Reno Wharton's wood detailing. Section (above) includes the clerestory cupola, which has become the university's new logo. Wall panels were painted glossy white to stress depth of detailing. Details below indicate molding attachment (below left), a steel-centered wood column (below center), and flat paneling and decorative newel posts (below right).

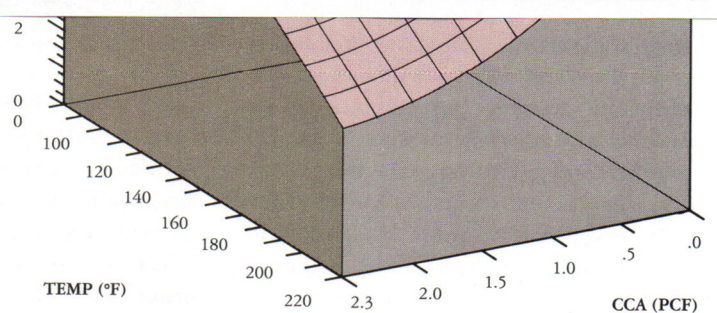
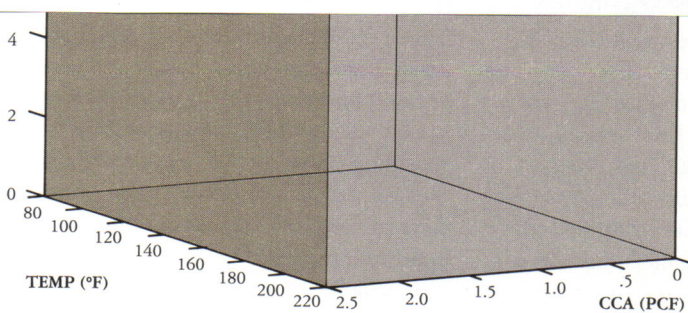
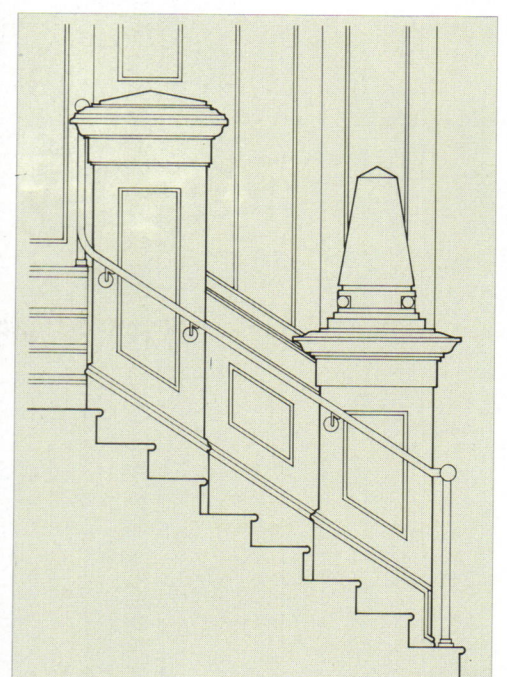
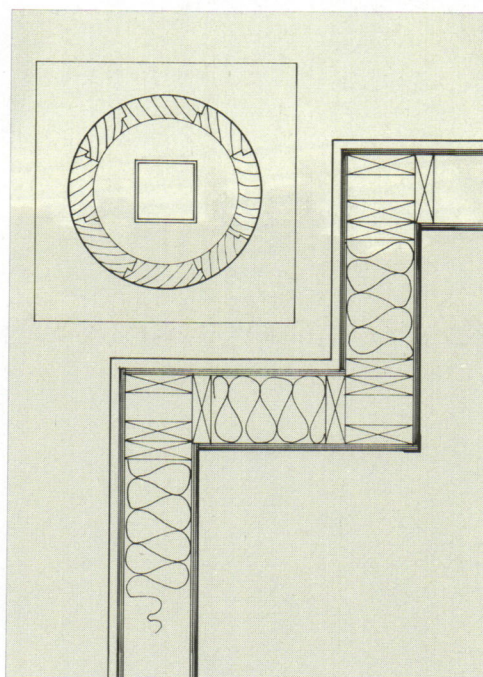
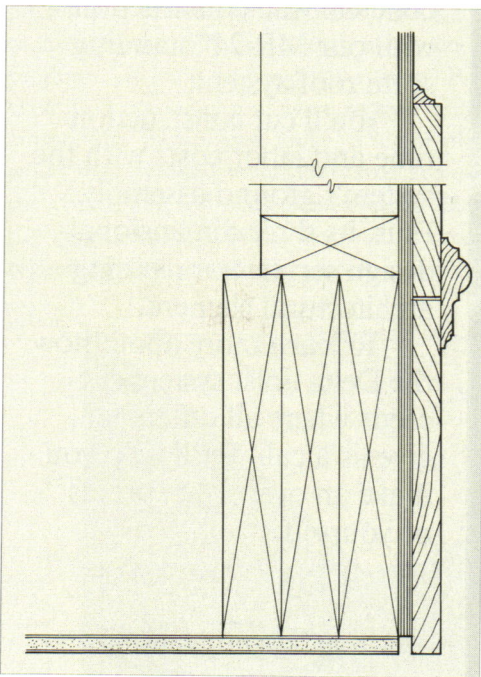


Figure 1 (left) shows the reduction for modulus of rupture (MOR), and Figure 2 (right) indicates the work to maximum load for southern pine exposed to increasing CCA retentions and re-drying temperatures.

How To Build An Overnight Success

Smoke development is rated using the same material parameters as flame spread. However, for fire-retardant treated wood, a smoke development of 450 or less is permitted. If fire-retardant treated wood comes up with a flame-spread rating of 25 and a smoke-developed rating of 25, it can be given a U.L. FR-S classification.

Why are plywood roofs coming apart so quickly, and why only roofs? The most complete information to date has been compiled by the Forest Products Laboratory in Madison, Wisconsin. An article recently published in *Wood and Fiber Science* magazine, coauthored by chemical engineer Susan LeVan and technologist Jerrold Winandy of the Forest Products Lab, reviewed the causes. A large portion of their information was garnered from related studies, including those involving chromated copper arsenate (CCA), a preservative that, like the fire retardants, is acidic. (Fire-retardant treated wood has concentrations of acid 10 to 20 times greater than those found in CCA-treated lumber). The researchers say none of the backup research was conclusive, and they readily admit that some of the conclusions reached are speculative.

Fire-retardants are a double-edged sword because they rely on an acid-catalyzed reaction in order to decrease the temperature at which the wood begins to burn and to increase the residual char weight. However, the presence of those same acids can significantly reduce the strength of the wood through decomposition. "Chemicals used in fire-retardant treatments can be grouped into three classes; inorganic salts, organic salts and organophosphorus compounds. Only the first two are commercially used for wood products," explains LeVan. Salts like mono- and di-ammonium phosphates combine with water to form phosphoric acid, which can cause hydrolysis of the wood (a chemical decomposition that splits a bond and adds molecules of water). The bonds that are attacked are the basic structural components of wood. The acid weakens the "cement" between the wood cells and also attacks the cellulose chains.

The combination of acidic fire-retardant chemicals and elevated temperatures—conditions often found on roofs—increases the rate of acid hydrolysis in plywood. Increases as little as 10 degrees Celsius will often double or triple the rate at which wood degrades. The elevated temperatures, particularly over extended periods of time, will accelerate acid hydrolysis, resulting in reduced strength and stiffness of plywood roof panels. The problem cannot be solved with increased ventilation, because the amount of air flow required is impractically high.

The cyclic nature of the environment can also affect the extent of the degrading pro-

cess. Inorganic salts, the most commonly used fire-retardant chemical, diffuse and move with shifts in the moisture content. This cycling allows the retardant's acidic salts to migrate to new areas, which are in turn degraded.

It is well established that temperature and humidity combined with the fire-retardant chemicals produce effects greater than what would be expected from any of these elements alone. There are other variables, however, that require further study. "We speculate that no differential fire-retardant treatment effects occur between various species, grade, and size," say LeVan and Winandy. The researchers discovered support for their speculations in past studies conducted on clear woods, such as southern pine and Douglas fir as well as an earlier re-

Not all fire retardants are the same. The acidity of a particular treatment will affect the speed and extent of wood degradation.

port completed by Winandy on the effects of various inorganic fire-retardant treatments for Douglas fir and aspen plywood. However, their report admits, "for differences related to size, little technical guidance is found in the literature on fire-retardant treated wood."

Not all fire-retardant treatments are the same, and the acidity of the chosen treatment will affect the speed and extent at which wood degrades. For instance, chromated zinc chloride and aluminum sulfate are highly acidic salts capable of causing significant reductions in strength. Like aspirin, fire-retardants can be buffered, effectively reducing the acidity. However, the buffer must not affect the fire retardants' reactions when exposed to fire or it can cause a real headache.

How great a decrease in strength is at stake? The LeVan/Winandy article reveals that, "...no data exist on the strength of fire-retardant treated materials continuously or periodically exposed to elevated, in-service temperatures. We speculate that the effects of in-service temperature and moisture conditions on the strength of fire-retardant treated wood increase as the temperature and moisture content levels increase."

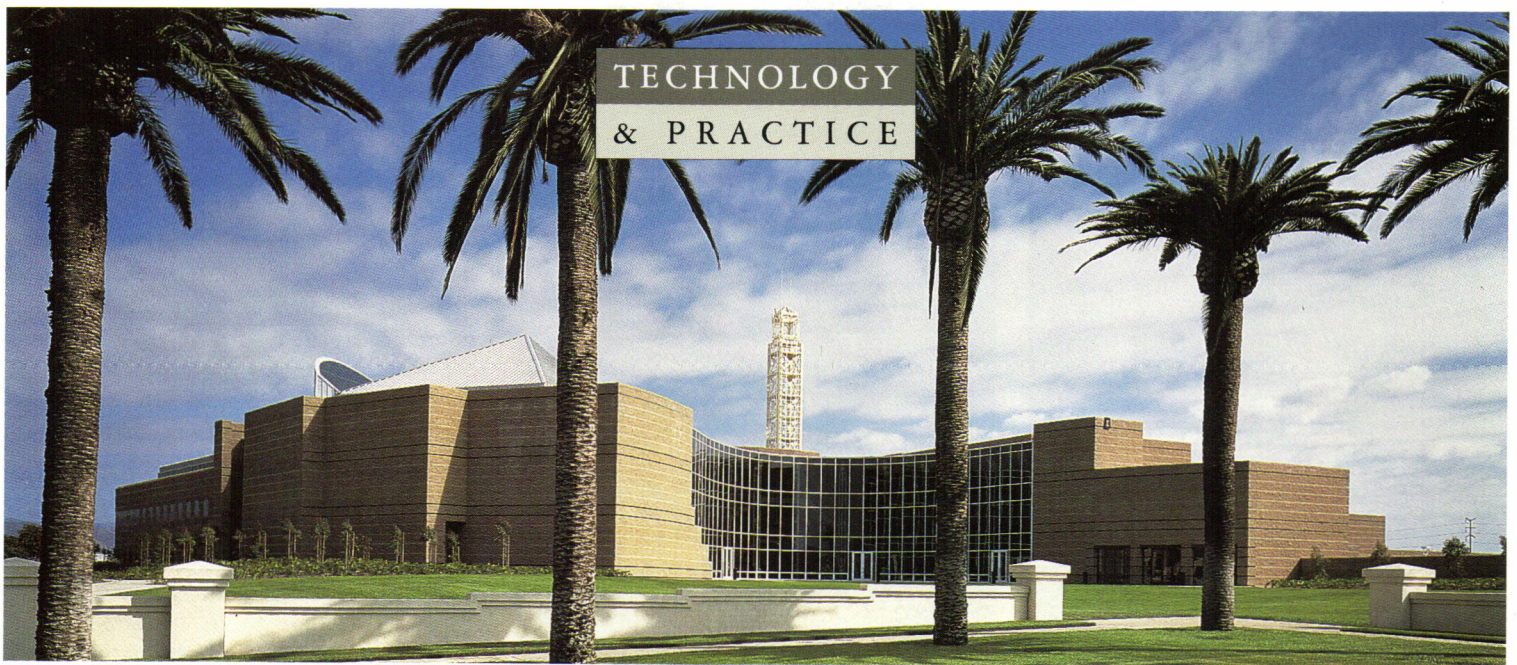
The national building codes have long recognized the effects of fire-retardant treatments on the strength of wood, and the design strength values for fire-retardant treated lumber and plywood is reduced by code. For example, Section 2504 (c)-3 of the Uniform Building Code was recently amended, according to the National Design Specification published by the National Forest Products Association, to include a larger strength reduction for fire-retardant treated wood. The UBC reductions reduce the horizontal shear, compression perpendicular to the grain, and the modulus of elasticity to 90 percent; the extreme fiber bending to 85 percent; and the tension parallel to the grain to 80 percent for lumber pressure-impregnated with fire retardants. Although the research is inconclusive, LeVan and Winandy speculate that fire-retardant treatment has the same effect on plywood as it does on lumber. They plan to publish the results of a study on the effect of fire-retardant chemicals on small clear sections of wood that are heated to 130 and 180 degrees Fahrenheit.

However, until more information is available, architects should be more particular when specifying fire-retardant treated plywood. As Robert Lattanzi, product specialist with Hickson Corporation, a major fire-retardant manufacturer, points out: "There are a lot of new products on the market, but they aren't all the same. So don't use the term 'or equal' when specifying a fire-retardant treated product, and don't allow substitutions. These are not generic products. The terms 'second generation' or even 'third generation' have no technical weight; they are simply advertising words. And have the manufacturer supply you with a copy of the warranty before you specify the product. Read it carefully and if necessary, take the warranty to a lawyer."

Architects also might want to invest in a technical manual published by the National Association of Home Builders (NAHB), titled "Investigations of Problems and Solutions Relating to Fire Retardant Treated Plywood Roof Sheathing." It is available from the technology and codes department of NAHB for \$5.00.

Finally, until more definitive research is forthcoming, you may choose to follow the American Plywood Association's (APA) lead. The APA Board of Trustees adopted a resolution on December 3, 1987, and reaffirmed it again on February 9, 1989. The resolution states; "... the APA has discontinued recommending the use of any fire-retardant-treated structural wood panel until such time as methods and formulations are developed by the treating industry that will assure reliable long-term structural integrity of the treated panels."

—TIMOTHY B. McDONALD



Survival Tactics

A Houston firm stays on top through diversification.

IT IS SINGULARLY APPROPRIATE THAT GIANT CRSS INC. MAKES ITS home in Houston, the city of the future. Throughout its 44 years of business, the firm has forged many firsts and promises to remain at the forefront of business practices in the 1990s. CRSS was the first architecture firm to be listed on the American Stock Exchange in 1971 (it is now listed on the New York Stock Exchange), the first to use computers in its practice, and the first firm in Houston to respond to the city's bleak times—with obviously excellent results—by radically restructuring its base business and adopting a flexible “performance culture.” Last year, the firm grossed a record \$617 million with operating revenues of \$281.2 million and record net earnings of \$13.9 million.

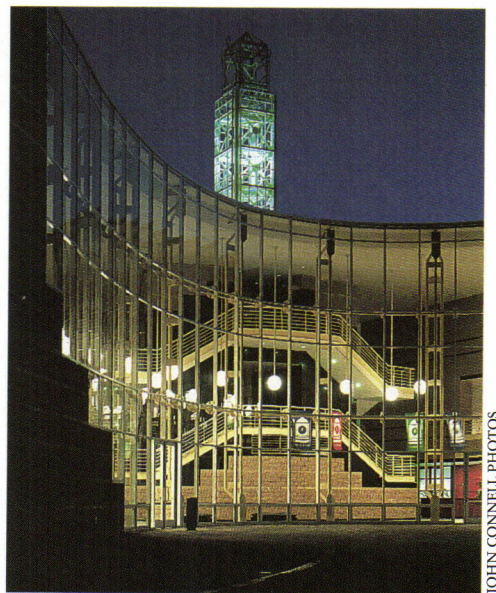
CRSS remains one of the nation's strongest leaders in architecture, engineering, construction, and facilities strategic planning with 3,200 employees and 23 offices across the country, and one in Saudi Arabia. And its most recent diversification ventures should put it right back at the heart of America's power industry.

Facing tighter competition and the cyclical nature of the national and international oil-related building business, Bruce W. Wilkinson, chairman, president, and CEO, and Thomas A. Bullock, FAIA, recently retired chairman of the board and now head of the firm's executive committee, decided to expand its markets outside architecture in 1983 with the purchase of Sirrinc, Inc., a leading engineering firm. They began branching into defense contracting, education, research and development, health care, and the pulp and paper industry. The major

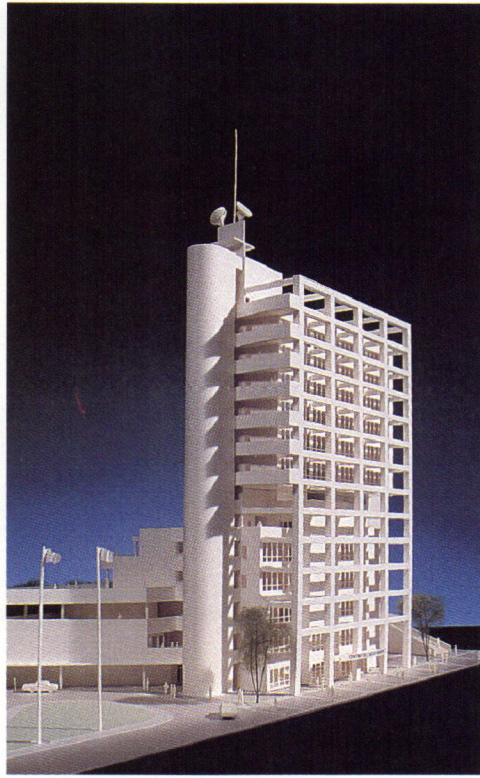
change in business, however, was moving CRSS into the independent power industry by developing, operating, and owning interests in five domestic power and cogeneration projects. But it was the firm's venture into acid rain/pollution control that drew an extra flurry of attention from Wall Street that nearly doubled CRX stock in six months.

In a joint venture with NaTec Resources, CRSS formed NaTec Mines to develop, design, and market products and services for controlling emissions associated with acid rain. Recent tests at large-scale power plants have confirmed the efficiency of sodium bicarbonate (nahcolite) as a reagent in reducing sulphur and nitrogen smokestack emissions (NaTec has also patented a sodium-loaded fly ash disposal method). A year ago, CRSS solidified its investment by broadening its partnership to include Church & Dwight Inc. (producer of Arm & Hammer baking soda), an owner of large nahcolite deposits in Colorado. Assuming Congress passes the Clean Air bill, CRSS will have even more black ink on its balance sheet. Another new business that CRSS began as a reaction to the astounding growth in liability insurance premiums is the firm's profitable insurance operation that includes other corporations as clients.

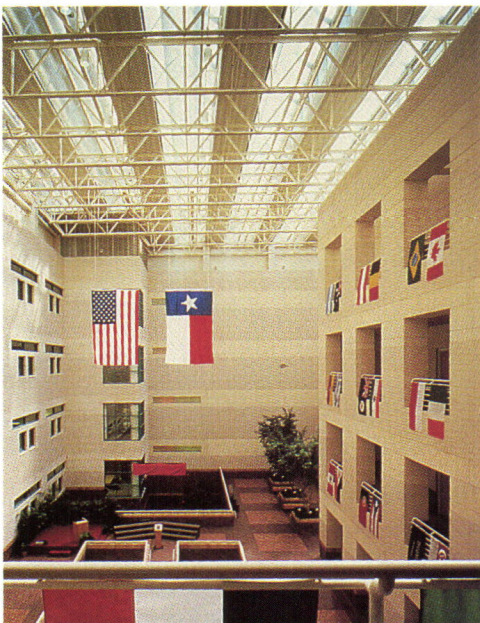
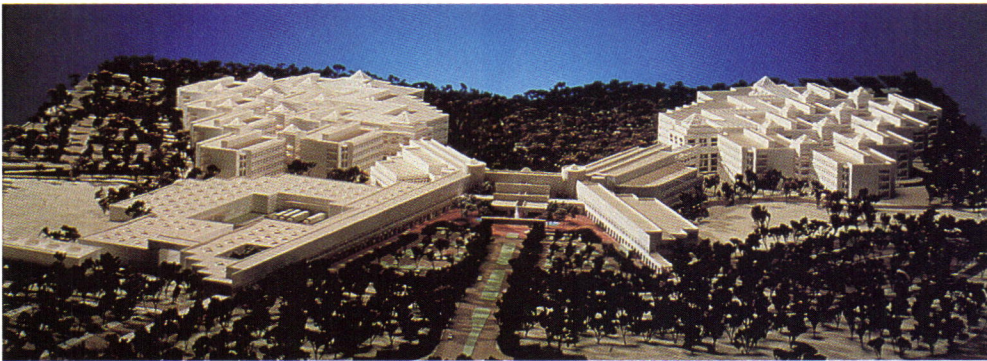
But the story from CRSS is more than smart diversification. It is about participa-



The Irvine City Hall (above), completed in 1988, is the first phase of a 68-acre civic park for Irvine, California. CRSS developed the master planning, architecture, interior architecture, and graphics for the complex.



Currently in design development and scheduled to begin construction early next year, a research building at the Institute of Technology in Monterrey, Mexico, will house academic programs related to the investigation and development of methodologies for the teaching-learning process. CRSS divided the 130,000-square-foot complex into a horizontal structure housing public functions and a tower containing the restricted-access spaces (above left). The apparent physical mass of the tower is enhanced by a detached structural frame (above right), which also serves as a sun screen to the southern exposure.



3M's brand new one-million-square-foot center in Austin, Texas, for high-tech operations (above) is designed by CRSS, using its traditional squatters team programming methods. With "snow" cards taped to the walls and many team meetings, CRSS educated 3M into the ways of problem seeking methods. 3M executives continue to remark on the benefits—and emotional involvement—of seeing their needs heard, analyzed, and visually expressed. As the corporation's first home away from the vast St. Paul, Minnesota, campus, the facility houses "lightning speed" product development according to Tom Peters, who profiled CRSS on his PBS series "Thriving on Chaos." CRSS designed the plant to cut product development cycles drastically, and programmed strategic layouts where technology, engineering, accounting, and marketing departments could conveniently and comfortably interact.

tion, 44 years of listening to clients and rewarding performance—commitments that Tom Peters discovered when he featured CRSS in his PBS television series "Thriving on Chaos." Pensions are out, bonuses generated from 10 percent of pre-tax profits are in (a healthy \$3.98 million last year distributed among 2,200 people). The size of the firm is barely large enough to do the job, yet small enough to avoid layoffs, says Wilkinson, who has trimmed corporate staff to 32. Eighty percent of the staff are "core" employees who have demonstrated prowess, while 20 percent are "flex" people who have two years to prove their abilities.

The roots of CRSS's savvy sense of survival go back to its founders—and their unusual ways of practice. As William Dudley Hunt points out in his introduction to Caudill's 1971 book *Architecture by Team*, the postwar years witnessed a revolution between design and practice. Starting their firm above grocery stores in Austin and College Station, Texas, William W. Caudill, FAIA and John Rowlett, FAIA—later joined by Wallie E. Scott, Jr., FAIA (all three original partners are deceased) and William Peña, FAIA, now retired senior vice president—learned by necessity the practical virtues of teamwork, client input, and the marketing value of documenting thoughts. Caudill's little book *Space for Teaching* snagged the firm its first school project in Blackwell, Oklahoma, in 1948, which garnered national publicity for the first time. That project is also famous as the occasion of the first "squatter" team. Tired of commuting 525 miles to work, Caudill and his partners loaded drafting tables in the back of their car, borrowed a library classroom, and conducted an on-site charrette. During the design process, Caudill tacked up sketches on cards—"snow" cards as they are called today—to analyze the program.

Since then, the firm has run over 1,400 "squatters" sessions on as many projects, proving that on-site meetings are the best technique for engaging clients and solving operational problems. Squatters teams are now divided into programming and design groups. "Design is problem solving, programming is problem seeking," says Peña, who, in the third 1987 edition of *Problem Seeking* carefully spells out the five steps of problem-seeking methods: establish goals, collect and organize facts, uncover and test programmatic concepts, determine the real needs, and state the problem. Published by the AIA Press and co-authored by CRSS senior vice presidents Steven Parshall and Kevin Kelly, the book walks the reader through what must be the most lucid, accessible and usable primer on programming.

Some CRSS architects believe that "snow" cards are the single most effective technique

for promoting client interaction, while others point to the hands-on usefulness of the three-dimensional transparent model for reaching client consensus. Clearly, process at CRSS has always been more important than product to the firm's growth—the reason, no doubt, why thinkers like board member John Naisbitt, author of the best-seller *Megatrends*, are attracted to the firm.

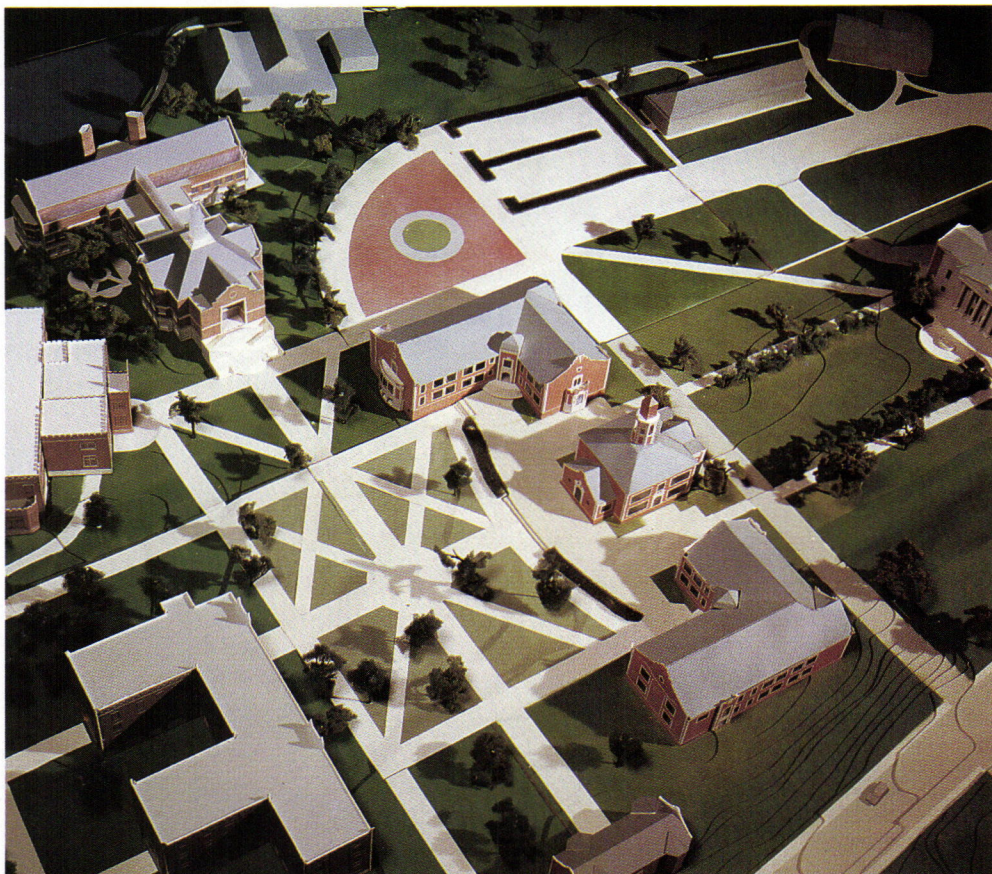
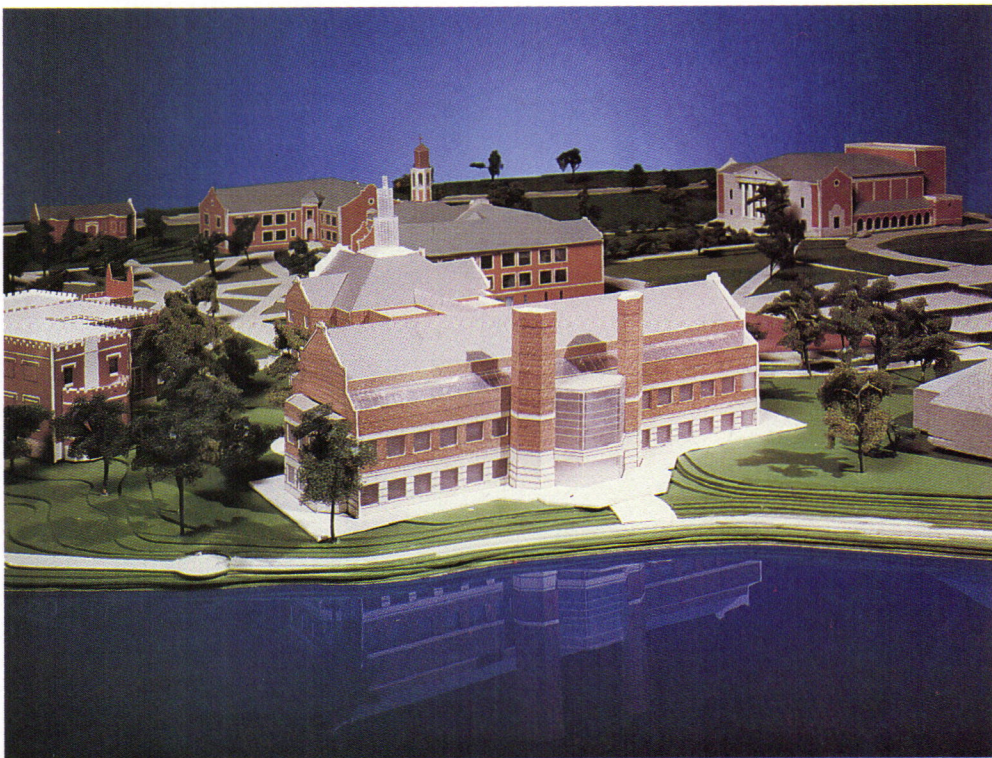
It was rare for a firm that has its roots in architecture to welcome non-architects to its fold back in the 1950s. But Paul Kennon, design principal and dean of architecture of Rice University who died suddenly in January, was mentor to both new architectural graduates and those who were intrigued enough by the profession to want in. CEO Wilkinson and executive vice president Richard Daerr are both trained as lawyers.

To join CRSS as an architect or employee in another field is to learn about problem seeking, "snow" cards, and commitment to listening, and to apply its strategies to many different kinds of problems in myriad areas. Landscape architecture, interiors, engineering, and administration, in addition to the new businesses, have clearly grown and thrived from the discipline. Clients, too, are fascinated. A Toyota product designer credits the process with improving his work, and representatives from Intel, IBM, AT&T's Bell Labs, and Japan's Takenaka Research Institute acknowledge the value of CRSS's methods in simplifying complex problems.

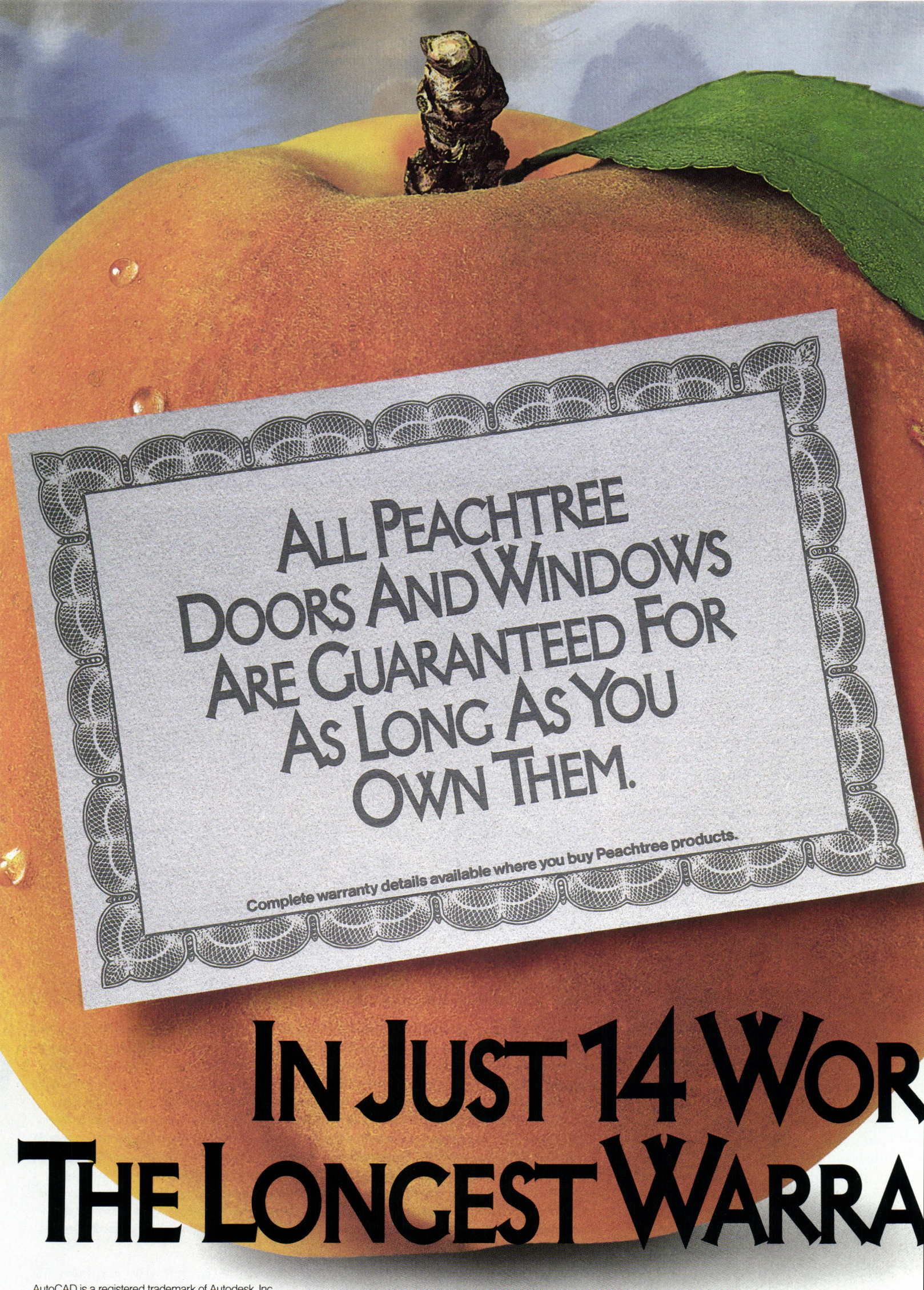
Meanwhile, the Houston giant continues to gather both mega-projects and intriguing design challenges. Prior to Kennon's death, CRSS had reorganized its design discipline into studios. James Wright, James McGregor, and Michael Shirley head the four architectural studios in Houston, while Scott Strasser directs interiors. Large projects, such as the Irvine City Hall and 3M's corporate campus, were followed by the \$50 million U.S. Embassy complex in El Salvador. The firm is program manager for three of the four largest school districts in the U.S., including the \$1 billion-plus building program for Dade County, Florida, public schools, and is embarking on the design and construction of the vast Superconducting Super Collider project near Dallas. CRSS was selected from a field of seven as design architect for the \$36 million Challenger Center for Space Science Education in Washington, D.C., an intriguing memorial/hands-on classroom with flexible exhibit space. "We're not hired for our design skills, but for our thinking," says Wilkinson. The portfolio and performance of CRSS are clearly proof of the firm's cerebral talents. ■

—KARIN TETLOW

Karin Tetlow is a writer on programming, health care, and technology issues.



The new 45,000-square-foot library for the Culver Military Academy, Culver Girls Academy, and the Culver Summer School in Culver, Indiana, is another fitting example of CRSS programming and design by the squatters method. It is also the last project that Paul Kennon, design principal, shepherded through client approval. Squatters teams gained input from a group consisting of board members, faculty, and students, led by dean and president Ralph Manuel and library expert David Kaser, Ph.D. Exteriors will be clad in brick and limestone (Cathedral Stone Works of New York City, known for their superb work on the Cathedral of St. John the Divine, may craft the stone). Following students' request for comfortable tradition, the plan includes four grand fireplaces on two floors. With room for 100,000 volumes—and expansion space for another 50,000—a rare book section with a dedicated mechanical zone, infrastructure to manage information networks and seminar rooms, the new library will clearly embody state-of-the-art systems and visual integrity that should certainly satisfy the client's request that it last 200 years.



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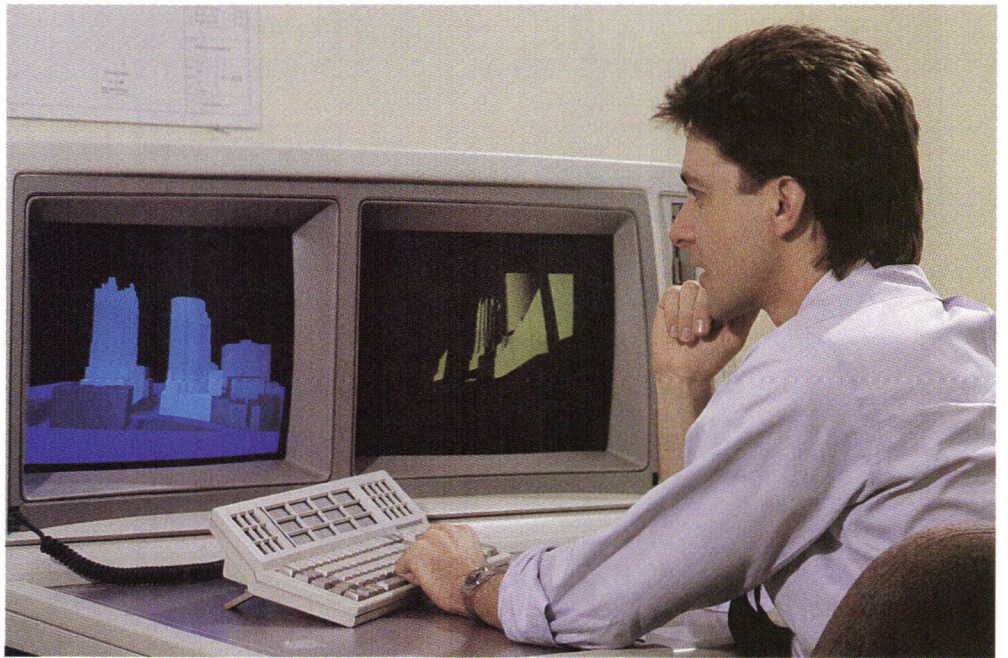
Mini-Micro Merger

Two firms explain the benefits of combining old and new CADD systems.

OVER THE PAST FEW YEARS, THE SPEED AND CAPACITY OF DESKTOP computers for architects has created a new vista of applications even for small firms. Those who once were happy with word processing now have advanced to desktop publishing. Those who settled for computer-aided drafting on PCs are revelling in true computer-aided design, and without the quantum leap in price once necessary to buy a minicomputer. Those firms who paid \$100,000 a seat and more for CADD in the mid-1980s and were frustrated that only a few people in the office could operate the system, are now able to link many workstations to the minicomputer and open CADD to the whole office.

The current potential of computer-aided design is demonstrated by two very different firms that have changed their operations according to new development in CADD technology. Kohn Pedersen Fox Associates, based in New York City, began with an Intergraph minicomputer CADD system in 1987 and now has tied microcomputers and Unix workstations at the firm into the mini-based system. Lord, Aeck & Sargent of Atlanta is the product of a recent merger between an office with broad-based micro-CADD system and one running a powerful mini-CADD system. Their strategy in combining the systems is to have most staff working on the broad-based system while retaining the powerful processing capability of the minicomputer for more specialized tasks.

The definition between a minicomputer and a microcomputer used to be simple. A minicomputer was a metal box, about as big as a medium-sized refrigerator, that was sensitive to temperature and air quality and was hooked up to several terminals with no computing power of their own. Microcomputers, also called personal computers, were recognizable for their small size, low price, and weak computing power relative to the mini systems. With the advent of faster electronic switching and data channeling—made possible with affordable microprocessor chips and data buses—small computers have gained big power. At the same time, mini-computer vendors have begun offering systems comparable to earlier versions, however these newer systems are much smaller in both size and price.



Mark Chaney of Kohn Pedersen Fox Associates at the firm's Intergraph Clipper workstation.

"When I started in 1987 at KPF, the only PC-based CADD system available was not powerful enough for the scope of the projects we were doing," says Tomas Hernandez, Jr., director of computer services for Kohn Pedersen Fox Associates. "If the partners had to make that same decision in 1990, they would have many more options to choose from."

Tony Aeck, AIA, whose Atlanta firm Aeck Associates merged with Lord & Sargent late last year, approached CADD much the same way as KPF, except several years earlier. "In the years since 1979, when Aeck Associates ordered its first Intergraph minicomputer system, we developed deep applications with a fairly sophisticated data base," he says. "Lord & Sargent, which formed in 1985, immediately started down the personal computer route, with many people in the firm proficient with the system. Aeck & Associates was rather narrow and deep while Lord & Sargent was extremely wide. They were able to get a lot more people within the firm using CADD than we could afford to."

By merging the firms' different technologies, "we brought together our systems at a time when the CADD technologies have been merging as well, bringing with it a new level of state-of-the-art," says Hamish Caldwell of Lord, Aeck & Sargent.

The microcomputer-versus-minicomputer decision is no longer an issue for architects buying or expanding systems today because minis and micros can be tied together to work quickly from the same data bases. "We are a client-driven firm and we have significant clients who use certain specific CADD systems," Aeck expounds. "For that reason, we would not like to commit ourselves exclusively to one particular system or vendor."

"If I ever proposed that KPF work only on one platform for all of our firm's departments," Hernandez says, "I probably would have my head handed to me by more than one person. And all justifiably. Everyone here is producing, and we are able to communicate with each other. We've learned not to fight a particular computer that any one person wants, but to work on getting all

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About Face

A guide to the latest specification for brick.

BRICK, LIKE MOST OTHER BUILDING MATERIALS, HAS AN associated standard specification, established by ASTM (formerly the American Society for Testing and Materials) that defines minimum and maximum requirements for proper performance. ASTM is constantly updating its face brick specification, C 216-89, Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale), and unless one compares successive drafts or is directly involved with the committee that has jurisdiction over the standard, it is difficult to stay abreast of changes in the standard.

The following discussion explains the subtleties and relationships that may be unclear in ASTM C 216-89. They are numbered in accordance with the respective sections of that standard specification.

1.0 Scope. Specifiers reference C 216 for facing brick when the appearance of the unit is a consideration. ASTM C 62, Standard Specification for Building Brick, on the other hand, is referenced in most model building codes because these documents are concerned with material performance. Brick under either specification must meet the same physical requirements. However, C 216 has added requirements regarding appearance. Building bricks are to be used where appearance is not of concern. In a project specification, C 216 is the correct document to reference for exposed bricks.

2.0 Referenced Documents. Specification C 216 references four documents, but the most important for architects is ASTM C 67 Methods of Sampling and Testing Brick and Structural Clay Tile, which outlines tests to determine physical properties such as compressive strength, water absorption, saturation coefficient, and more.

3.0 Grades. The two grades of face brick defined in C 216 are Grade SW and Grade MW. The architect decides which to specify based on the brick's exposure combined with the weathering index at a particular site (see Table 1, right). Factors determining the brick's exposure are whether the brick is applied to a vertical surface and whether it is in contact with the earth.

The weathering index is the product of the average number of freezing cycle days in a particular location and the average annual



TOM HLAVATY



MATT WARGO

Brick patterned facades of Northern Crop Science Laboratory (above left), designed by Hammel Green & Abrahamson, and the University of Pennsylvania Clinical Research Building (above right), designed by Venturi, Scott Brown & Associates in association with Payette Associates.

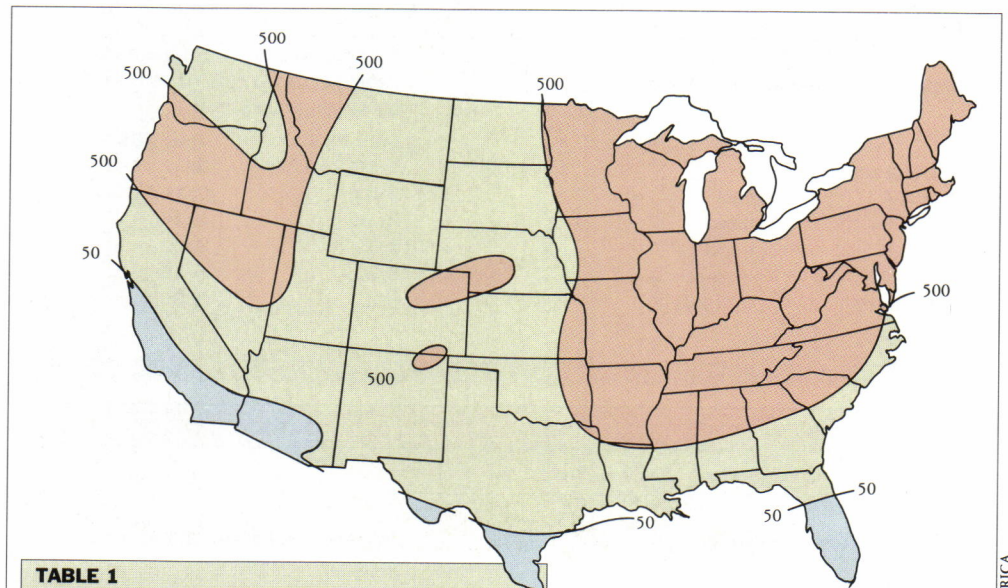


TABLE 1
GRADE REQUIREMENTS FOR FACE EXPOSURE

Exposure	Weathering Index		
In vertical surfaces:			
In contact with earth	MW	SW	SW
Not in contact with earth	MW	SW	SW
In other than vertical surfaces:			
In contact with earth	SW	SW	SW
Not in contact with earth	MW	SW	SW

WEATHERING REGIONS

- NEGLIGIBLE WEATHERING
- MODERATE WEATHERING
- SEVERE WEATHERING

TABLE 2 PHYSICAL REQUIREMENTS

DESIGNATION	AVERAGE OF 5 BRICK		INDIVIDUAL	
	MINIMUM COMPRESSIVE STRENGTH (BRICK FLATWISE) PSI, (MPA) GROSS AREA		MAXIMUM WATER ABSORPTION BY 5-H BOILING %	
GRADE SW	3000 (20.7)	2500 (17.2)	17.0	20.0
GRADE MW	2500 (17.2)	2200 (15.2)	22.0	25.0
MAXIMUM SATURATION COEFFICIENT ^A				
GRADE SW	0.78	0.80		
GRADE MW	0.88	0.90		

^AThe saturation coefficient is the ratio of absorption by 24-h submersion in cold water to that after 5-h submersion in boiling water.

TABLE 3 MAXIMUM PERMISSIBLE EXTENT OF CHIPPAGE FROM THE EDGES AND CORNERS OF FINISHED FACE OR FACES ONTO THE SURFACE

TYPE	PERCENTAGE ALLOWED	CHIPPAGE IN INCHES (MM.) IN FROM	
		EDGE	CORNER
FBX	5% or less	1/8-1/4 (3.2-6.4)	1/4-3/8 (6.4-9.5)
FBS ^B (smooth)	10% or less	1/4-5/16 (6.4-7.9)	3/8-1/2 (9.5-12.7)
FBS ^C (rough)	15% or less	5/16-7/16 (7.9-11.1)	1/2-3/4 (12.7-19.1)
FBX	95 to 100%	0-1/8 (0-3.2)	0-1/4 (0-6.4)
FBS ^B	90-100%	0-1/4 (0-6.4)	0-3/8 (0-9.5)
FBS ^C	85-100%	0-5/16 (0-7.9)	0-1/2 (0-12.7)
FBA		As specified by the purchaser	

TABLE 4 TOLERANCES ON DIMENSIONS

SPECIFIED DIMENSION, INCHES (MM.)	MAXIMUM PERMISSIBLE VARIATION FROM SPECIFIED DIMENSION, PLUS OR MINUS INCHES (MM.)	
	Type FBX	Type FBS
3 (76) and under	1/16 (1.6)	3/32 (2.4)
Over 3-4 (76 to 102), incl	3/32 (2.4)	2/16 (3.2)
Over 4-6 (102 to 152), incl	2/16 (3.2)	3/16 (4.7)
Over 6-8 (152 to 203), incl	5/32 (4.0)	4/16 (6.4)
Over 8-12 (203 to 305), incl	7/32 (5.6)	5/16 (9.5)
Over 12-16 (305 to 406), incl	9/32 (7.1)	3/8 (9.5)

TABLE 5 TOLERANCES ON DISTORTION

MAXIMUM FACE DIMENSION, INCHES (MM.)	MAXIMUM PERMISSIBLE DISTORTION INCHES (MM.)	
	Type FBX	Type FBS
8 (203) and under	1/16 (1.6)	3/32 (2.4)
Over 8-12 (203 to 305), incl	3/32 (2.4)	1/8 (3.2)
Over 12-16 (305 to 406), incl	1/8 (3.2)	5/32 (4.0)

winter rainfall in inches. An explanatory note to the specification defines a freezing cycle day as one during which the air temperature passes through 32 degrees Fahrenheit. (Explanatory notes are not requirements, but are added to the end of the standard to further assist the specifier.) Multiplying freezing cycle days by inches of rain in winter results in values ranging from under 50 to over 500. An area with a designation under 50 falls into the category of "negligible weathering," those between 50 and 500 are classified under "moderate weathering," and an area with a rating over 500 qualifies as a "severe weathering" region.

The map of weathering regions (Table 1) must be used with care because local conditions can greatly influence the weathering index. Further, the terms used to describe the weathering regions can be confused with the letters designating the grades of bricks. Historically, Grade SW and MW may have implied the use of "severe weathering" and "moderate weathering" bricks. However, this rule of thumb no longer applies. Based on the requirements found in Table 1, Grade SW bricks must be used in both severe and moderate weathering regions. The only place that Grade MW bricks can be used is where the weathering index is less than 50, but not always then. (As indicated on the previous page, one must use the map in conjunction with Table 1.) The ASTM committee in charge of this specification is aware of the confusion and is in the process of clarifying it.

4.0 Types. Three types of bricks covered by this specification—Types FBS, FBX, and FBA—establish dimensional tolerances, warpage, and chippage requirements. Most bricks on the market are Type FBS, the general all-purpose face bricks. FBX bricks are more dimensionally accurate and some designers specify FBX because they prefer a more precise look. Type FBA bricks normally have a wider variation in their dimensional tolerances than Type FBS. These bricks are specified when an unusual texture or look is in mind, such as a skintled wall.

With FBA bricks, the designer should have a clear idea of what the wall is to look like and write a tight project specification that describes it. Too often the project specification is loosely described, and problems occur over final appearance of the wall. An approved sample panel can help to describe the intended texture and avoid misunderstandings.

5.0 Physical Properties. All bricks sold must meet the physical requirements outlined in Table 2. These requirements include a minimum compressive strength, a maximum water absorption by five-hour boiling, and a maximum saturation coefficient. The bricks must always meet the minimum com-

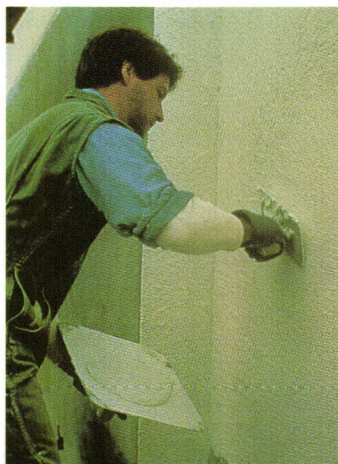
Continued on page 141

EIFS Get Respect

Manufacturers discuss improvements in synthetic stucco-based products.

IT'S TOUGH BEING THE NEW KID ON THE BLOCK, ESPECIALLY when some of the neighbors are thousands of years old. Seen in this light, it's easy to sympathize with the manufacturers of exterior insulation finish systems (EIFS), whose synthetic-stucco-based products, in use in the United States for barely over 20 years, compete against wall systems made of brick, concrete, wood, and metals. EIFS (pronounced "eefs"), a fledgling industry with a trade association formed a scant nine years ago, has experienced the growing pains common in this field, as well as the doubt and suspicion that tends to surround any new building product.

Nevertheless, EIFS over the past two decades have experienced an enormous surge in popularity. Buck Buchanan, vice president of Sto Corporation, defines the industry's growth as occurring in two phases. "The systems of the 1970s introduced the concept of energy conservation using insulation on the outside of a building," he says. "In fact, our company was originally named Sto Energy Conservation." Steven Collins, marketing manager for Dryvit, agrees with Buchanan's assessment. "Insulation placed in blanket form on the outside of a structure has proven to be the most effective method of insulating a structure today. Studies from the National Institute for Standards and Technology, the Oak Ridge National Labo-

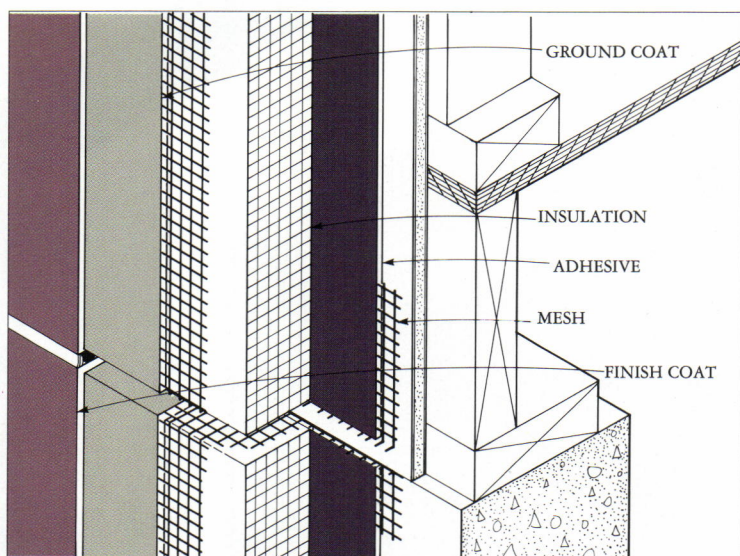
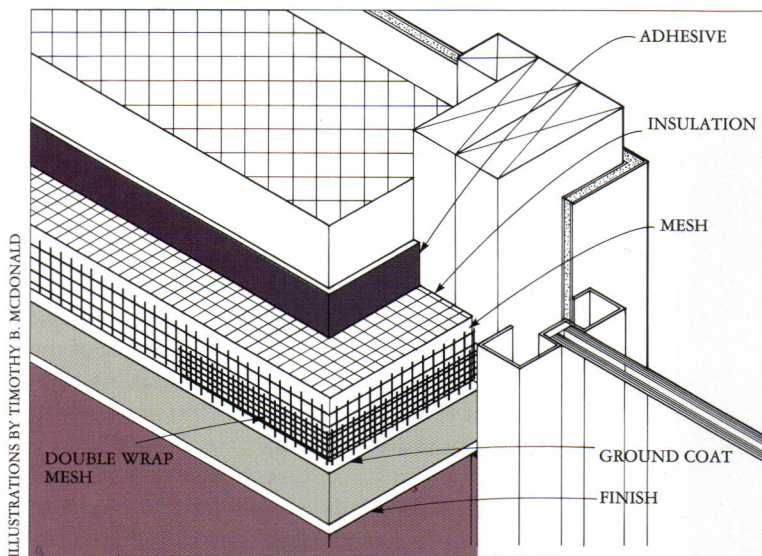


A high-rise building application rendered in a Sto EIFS (above). Craftsman trowels on the finish coat, the last step in an EIFS application (left).

ratories, and a Swedish study on environmental control have come up with the same common denominator: interior thermal mass—exterior insulation—has proven to be 60 to 80 percent more effective than the same insulation placed on the inside of the building." This boom of EIFS as an energy conserving product was reinforced by a concurrent building trend of reusing and refurbishing older structures, an application for which EIFS seem a good match.

The second phase of EIFS popularity, according to Buchanan, grew out of this trend, in a decade that embraced Postmodernism. "Architects and builders found they could be creative by using a wider range of colors, textures, and shapes," he says. "They found they could create sculptural forms with EIFS, 'stone' quoins for example, for a fraction of the cost of stone."

Robert Olson, vice president in charge of sales for Senergy, believes that when the in-



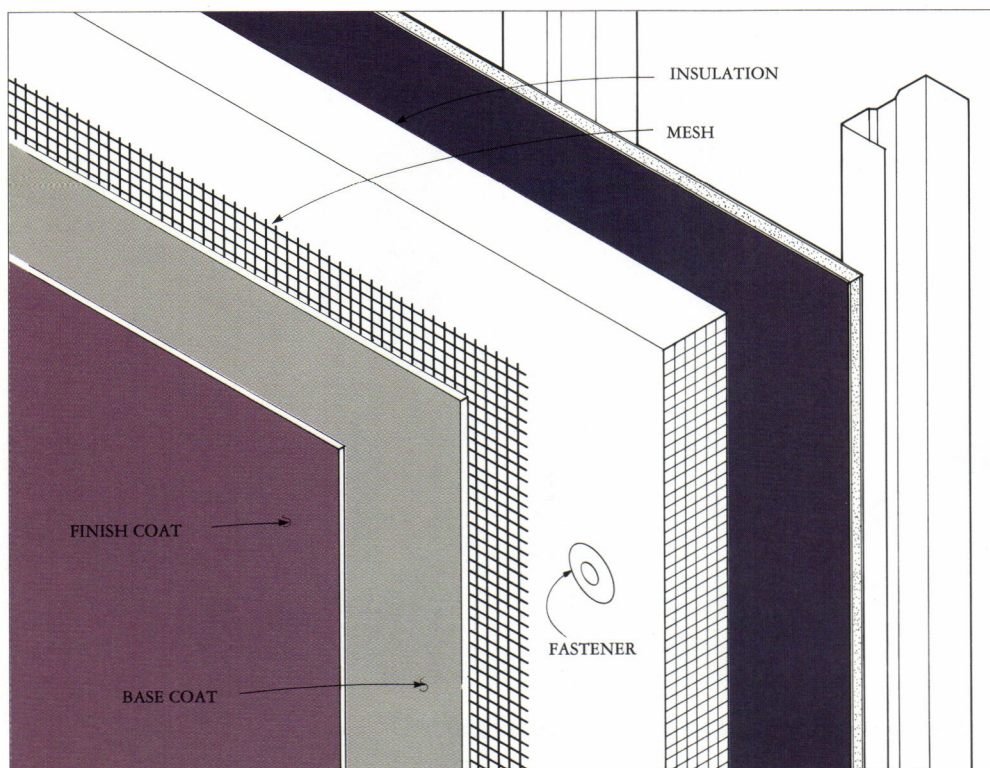
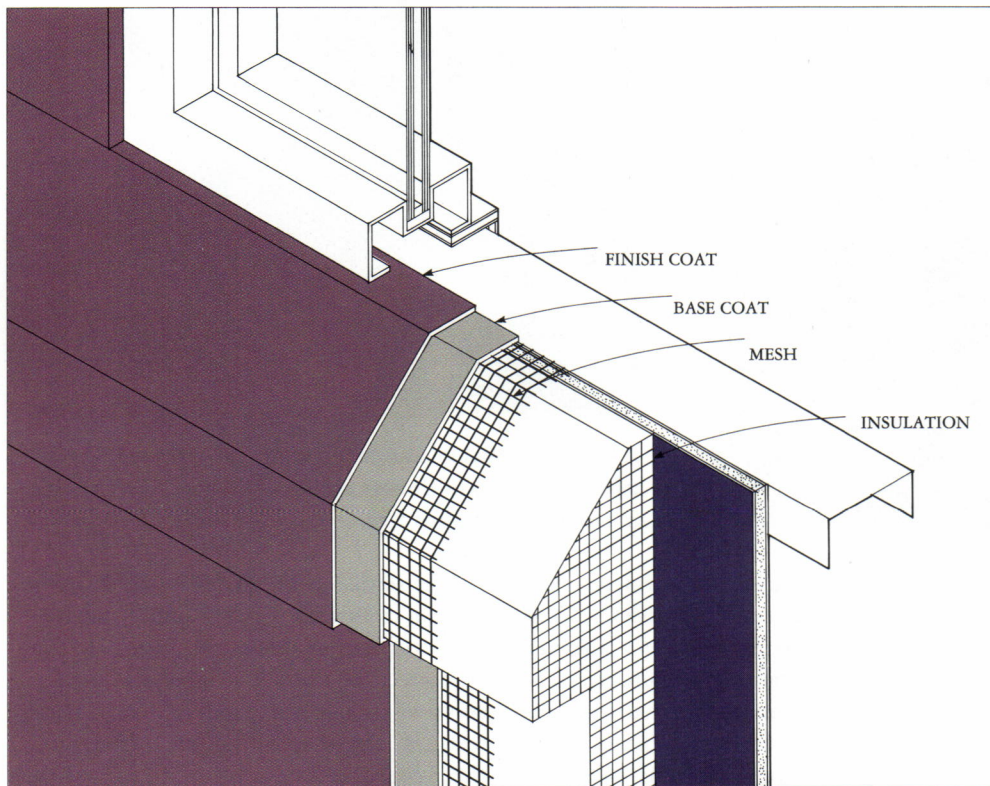
Generic details from Sto include an insulated sill and return (above left) and a framed sill (above right).

ILLUSTRATIONS BY TIMOTHY B. McDONALD

COURTESY OF STO CORPORATION

The Dorothy Day Center in San Francisco, designed by Hardison Komasu Ivelich Tucher, uses a Senergy EIFS (right). Senergy offers both basic types of EIFS: Senerflex is a polymer-based (PB) system (below); Senerthik, a polymer-modified (PM) system, is mechanically fastened in the detail shown (bottom).

COURTESY OF SENERGY



dustry was in its infancy 20 years ago, there just weren't enough success stories for architects to accept the product wholeheartedly. As to why EIFS are so popular now, Olson believes "it has proven itself over the last 20 years in this country."

What has changed?

EIFS HAVE REMAINED RELATIVELY UNCHANGED since they were first introduced. A system still consists of four basic parts: basecoat, insulation, reinforcing mesh, and finish coat (ARCHITECTURE, January 1987, page 110). The industry still divides the systems into two basic categories of polymer-based (the soft stuff) and polymer-modified (the hard stuff), and many manufacturers offer product lines that include both. Olson says, "Although the technology hasn't changed that much, the generic product is better today than it was 10 years ago because the polymer and acrylic manufacturers are constantly coming up with better polymers." Miller adds, "The main improvement of EIFS over the past 10 years is the safety factor and quantifying the systems so that we know that we don't have a fire hazard."

Many of the suspicions about the physical suitability of the product have also dissipated. The manufacturers agree that problems attributed to EIFS are almost invariably due to faulty installation. Buchanan says: "The problem in a lot of cases is that the architect simply writes the specifications and gives them to the general contractor, which may result in unacceptable substitutions to cut costs. Of course, this situation can arise with roofing or many other installation projects. We highly recommend that architects enforce their specifications."

Some of the common installation problems that occur are reinforcing fabric that isn't lapped properly, reinforcing mesh that isn't wrapped or terminated properly, and sealants applied incorrectly that allow water to penetrate the system. An overriding problem is a dearth of trained applicators in some regions of the country. The industry is working fast and furiously to rectify the situation, and many manufacturers will not offer a warranty unless the EIFS are installed by trained applicators.

Manufacturers association

ONE OF THE VEHICLES THROUGH WHICH the problems of exterior insulation finishing systems can be solved is the formation of the Exterior Insulation Manufacturers Association (EIMA), founded in 1981, and which has grown to a membership of over 300 including manufacturers, contractors, and users. EIMA promotes EIFS and works to ensure the model code agencies that theirs are safe, viable products. Toward these ends, the organization has standardized terminology throughout the industry and written

generic specifications, impact tests, and applications instructions. "In standardizing the industry, we are making things a little easier for architects, engineers, and owners to understand our products," says Olson.

EIMA offers manufacturers the advantages of being non-proprietary when promoting and defending EIFS, and offers solidarity for a fledgling building system competing with the established giants. Product testing that may be prohibitively expensive for one manufacturer is within the means of a group of manufacturers, and the more generalized data that result carry more credibility within the industry. EIFS manufacturers are competitive among themselves, but they all see beyond to the larger arena of competition with other cladding materials. EIMA, headquartered in Wakefield, Rhode Island, is currently working with the Association of the Wall and Ceiling Industries International (AWCI) to establish standard curriculum for training EIFS applicators.

Fire concerns

THE MENTION OF FIRE TENDS TO MAKE the EIFS manufacturers hot under the collar, especially in light of the publicity following a 1985 fire in Manchester, New Hampshire. Subsequent research implied that EIFS did not perform as expected and that they were even a fire hazard. Sto Industries, the manufacturer of the EIFS under scrutiny, has filed a civil action suit in Vermont against associations representing brick, prestressed-concrete, and cement manufacturers, and against the researchers involved. The suit alleges antitrust violations, libel and slander, and unfair trade practice. It petitions for compensatory and punitive damages. Sto has requested a jury trial.

"The building that caught fire was a brick building," says Buchanan. "There was an alleyway separating the two buildings, and the flames leaped onto the side of the building with the Sto application. Where the flames hit the wall, the polystyrene behind the finish coat melted although the coating stayed in place. There was no flame spread on the Sto building. And, when the fire was put out, the building was still intact, even at the charred areas. The EIFS job withstood the flames, and interior of the building also was undamaged."

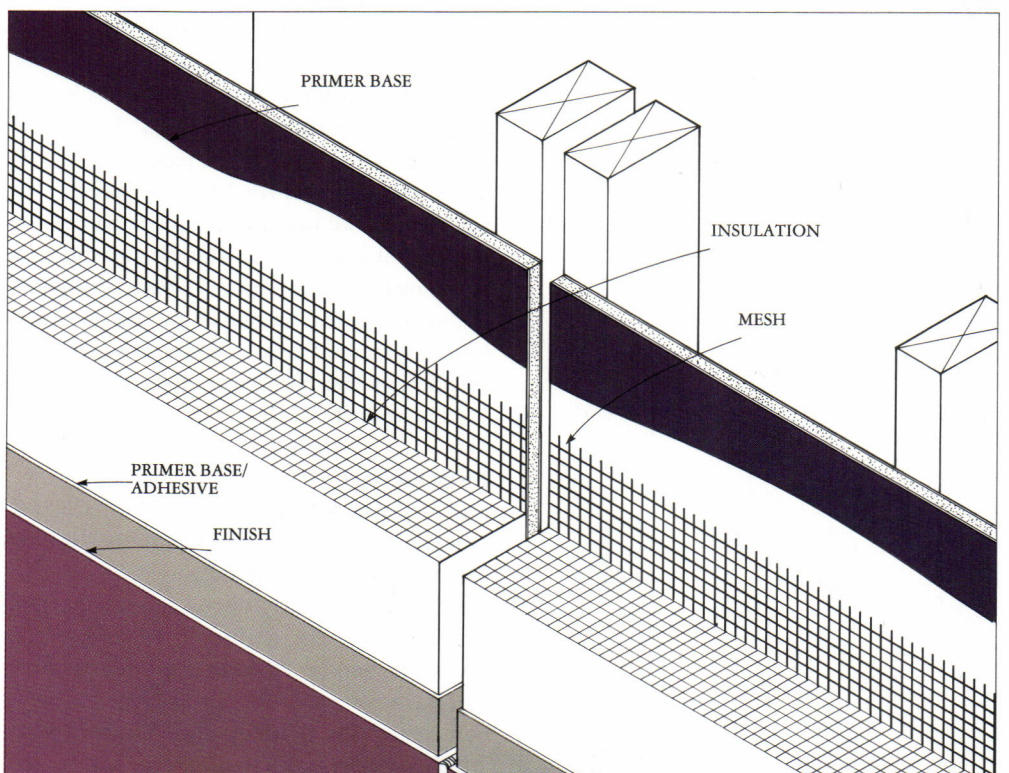
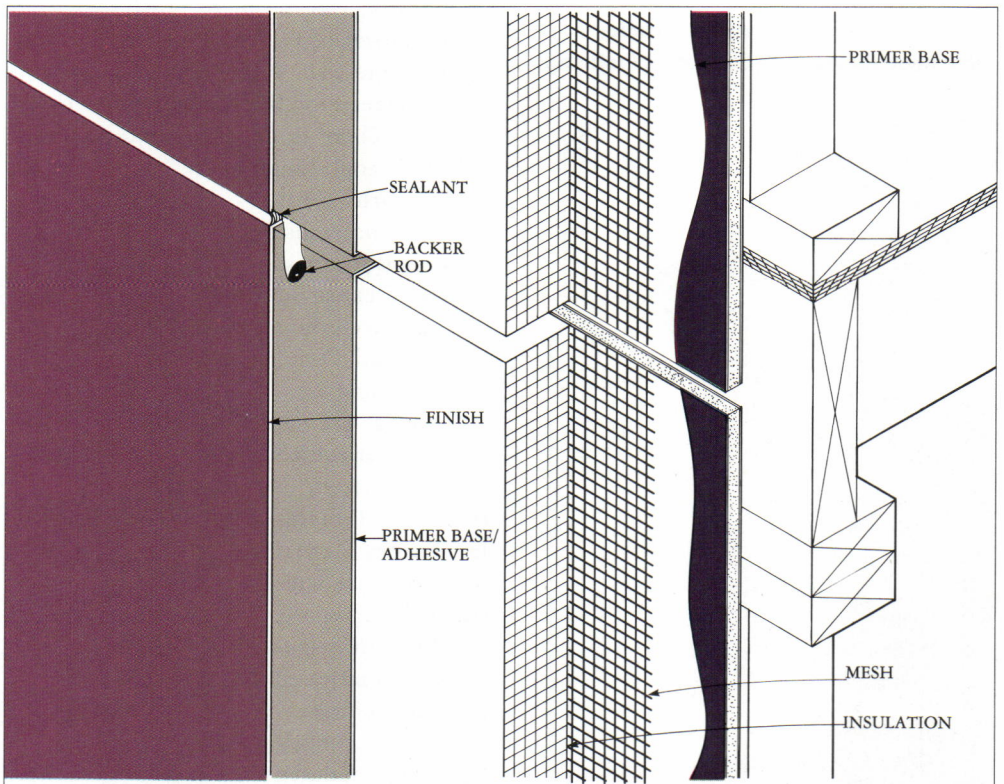
According to Buchanan, the researcher who performed the controversial study was hired by a developer who sells products in direct competition with EIFS. "Some of the materials that he tested were not representative of the materials on the job, nor did the testing follow any established procedures by ASTM or anybody else. Furthermore, the lab where he did the testing denounced any authenticity of the tests," Buchanan says.

Collins maintains; "The position of the industry is that for the 20 years we have



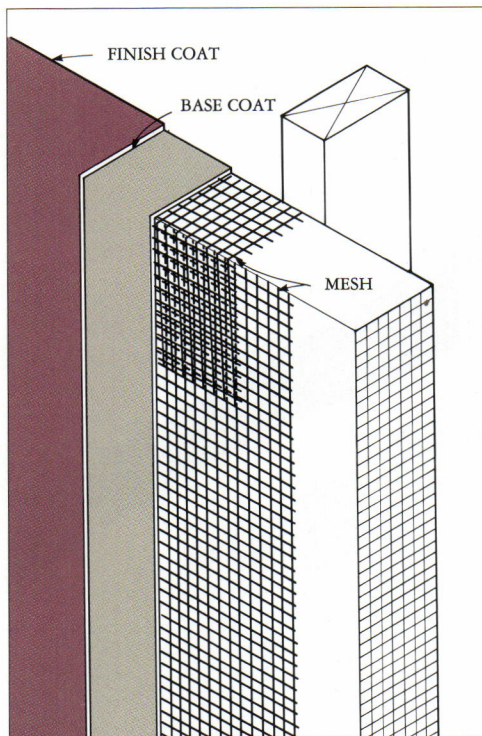
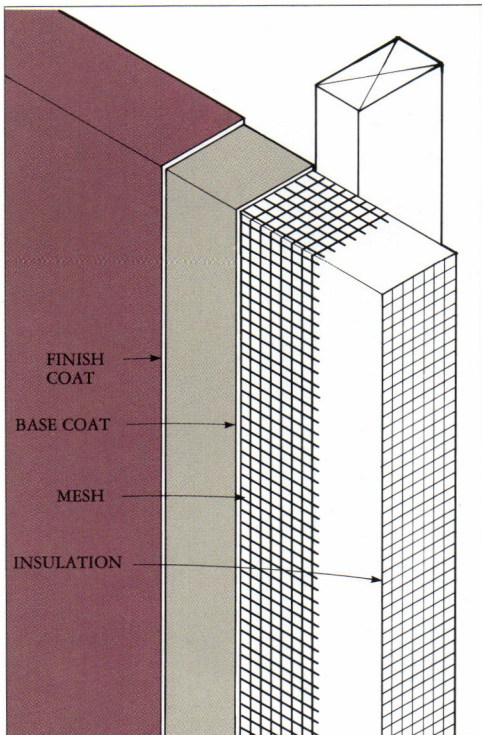
COURTESY OF THORO SYSTEMS

A residential application using EIFS by Thoro (left). Generic details include an expansion joint (below) and wood framing (bottom).





Dryvit's many systems (above) include Outsulation (below) and Exsulation (bottom).



been in existence, we have always claimed to be fire-safe. The millions of dollars spent on testing have supported that position. While the [EIF] systems may burn while exposed to fire, when no longer exposed to fire they self-extinguish. Tests have indicated that these systems do not affect the existing fire rating of any wall system."

Larry Miller, technical representative for Thoro System Products adds: "If you take all the different tests we have to go through to get our code approvals, we have more than proven that EIFS do not contribute to flame spread. The material burns, but it will not contribute to flame spread on its own. The ASTM E119 test, which we've conducted as an industry, was meant to prove that EIFS on the outside of a fire wall do not take away from the fire wall. We've done that on both the polymer-modified and polymer-based systems. There is no documentation that EIFS have contributed to fire."

As with most building materials, moisture is the most common cause of damage, according to Bertrand Deau, president of Parex, a leading French manufacturer of EIFS now marketed in the United States. In Europe, most buildings are constructed of masonry, and EIFS are popular for their increased insulation efficiency, for masonry durability through reduced thermal shock, and for esthetic flexibility and ease of application in remodeling, Deau says. Fire is a highly visible issue in the U.S., he says, but a bigger problem is weather resistance. U.S. applicators prefer a buttery, thin base coat that is quick to apply, and they may not even cover the mesh. "I've heard of people recommending a total base coat and finish coat of 1/16 of an inch," notes Deau. "The base coat is the only weather barrier in an exterior insulation system. For our system, we recommend that the base coat alone be 3/32 to 5/32 of an inch."

Down the road

LAST YEAR'S MAJOR NATURAL DISASTERS, namely Hurricane Hugo and the California earthquake, have offered a testing ground for the most recently discovered attribute of EIFS, namely the ability to withstand the terrors of nature. Although the research results are not officially tallied yet, surveys conducted for Senergy Inc. indicate that EIFS performed particularly well in with-

standing both hurricane-force winds and earthquake-induced ground motion. Their secret is their light weight and inherent flexibility, supported by the fact that EIFS often are installed over flexible structural systems such as metal stud walls.

"An EIF system won't help a building react to seismic jolts," explains structural engineer Walter Briggs, "but the weight of the cladding is one less thing the structural frame has to resist." The supporting structure remains the most significant factor in seismic performance. The performance of an EIFS in a hurricane depends on how well the system is attached to the building. A polymer-modified EIF system can withstand impacts up to 120 pounds per square inch without cracking, and works better than a polymer-based system in warding off flying debris.

Improvement of EIFS seems to be progressing at the components level. Miller sees incorporation of new kinds of backer boards

in the immediate future, including a gypsum board sheathing that incorporates the paper reinforcement for better water protection and a smoother finishing surface. He explains further that the bead board manufacturers are currently exploring ways to impart greater flame resistance to the board.

At the systems level, there may be lessons to be learned abroad. Says Miller;

Last year's natural disasters offered a testing ground for the most recently discovered attribute of EIFS, namely the flexibility with which they withstand the terrors of nature.

"At an EIFS symposium in Europe recently, the systems represented were not just exterior insulated finish systems with the acrylic finish coat, but also systems with metal cladding and wood shakes applied over the insulation. The EIFS industry started in Europe, so they are a little ahead of us, and they are a little more inventive than we are. Another difference is that EIFS are used in Europe predominately in housing construction, and our main market in the United States is commercial. We are just starting to filtrate into residential work on a larger scale."

Once regarded as cheap substitutes or quick fixes, EIFS are finally coming of age. For instance, Michael Graves's highly publicized Swan and Dolphin Hotels at Disney World in Orlando, Florida, is the largest EIFS installation in the U.S. If that doesn't command respect, it should at least capture attention. ■

—DOUGLAS E. GORDON AND
M. STEPHANIE STUBBS

Safety Firsts

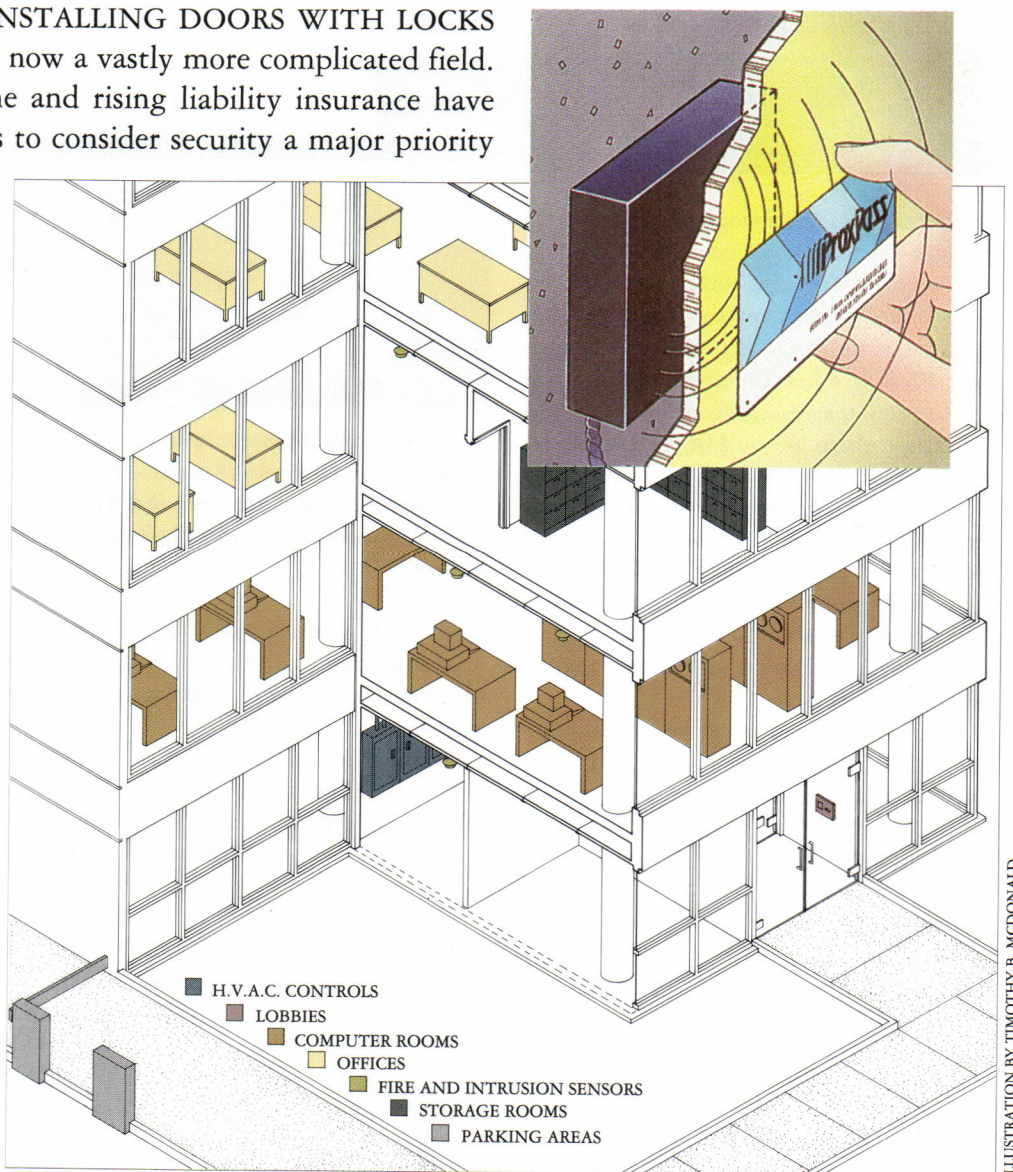
Securing buildings with electronic access control.

ONCE A SIMPLE MATTER OF INSTALLING DOORS WITH LOCKS and keys, security in buildings is now a vastly more complicated field. In the last 10 years, increasing crime and rising liability insurance have forced building owners and architects to consider security a major priority

in the design of new buildings and renovations. Technological changes in the American workplace and the concomitant dependence of businesses on vulnerable computer-based data storage have created an increase in the risk of employee sabotage, especially for high-tech industries. Where once a disgruntled employee might have turned to physical sabotage with fire or explosives, now a few command strokes on a computer erases valuable and irretrievable data easily and nonviolently, but with no less damage to the company.

The same computer technology that has created new risks for businesses and institutions, however, has improved the level of security. Building security goes beyond the simple question of creating physical barriers to one of creating electronic ones. A variety of technological choices are now available to building owners, facility managers, and architects to help them in regulating access to buildings. The new technologies identify people entering a building through electronic devices. Most of these devices use computer-based systems and are linked electronically to door hardware.

Card readers, the most popular electronic barrier devices in the United States, are used widely in hospitals, prisons, financial institutions, hotels, office buildings, universities, and even high schools. "They're like an electronic lock and key," explains William Richardson, a manager of customer service at Schlage Electronics in Santa Clara, California. The lock consists of a microprocessor-based control box and a magnetic impulse collector. The key is a small plastic card bearing a magnetically encoded stripe along one side. To unlock a door, the user manually swipes the card through a slotted panel affixed to a section of the wall adjacent to the door. Some card-reader systems rely on an electronic sensor that picks up signals remotely, at short distances. One need not take the card out of his or her wallet—simply standing by the door activates the lock



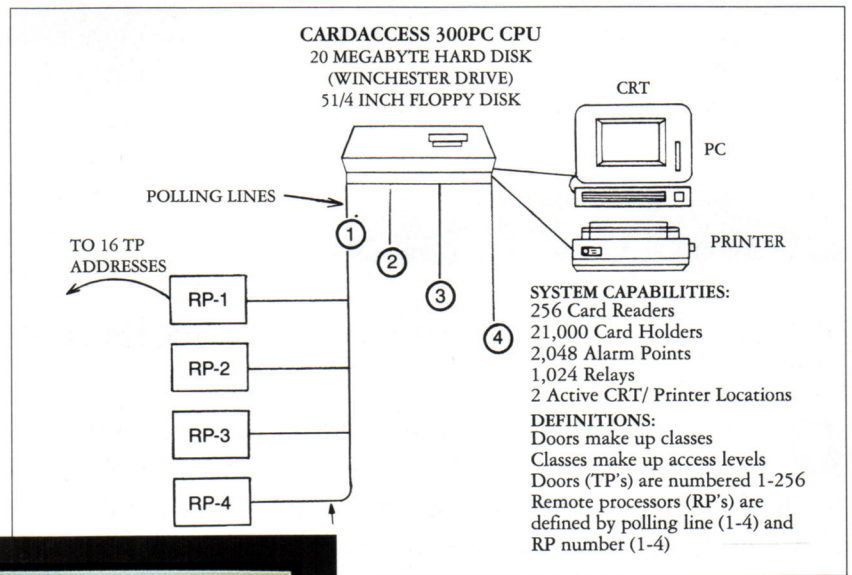
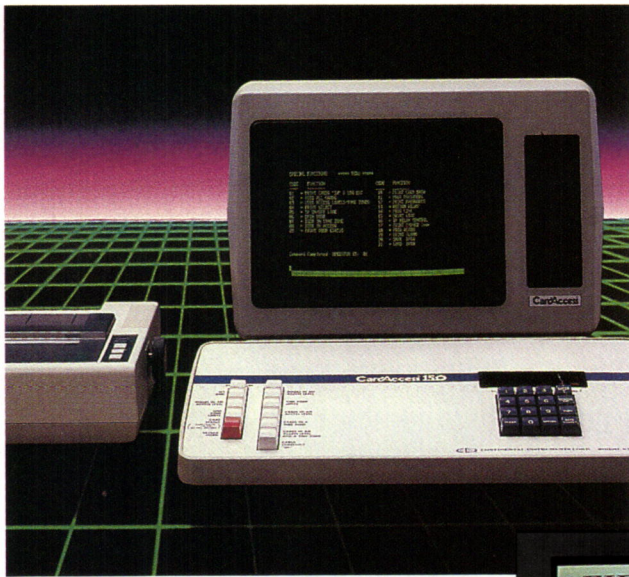
Keycard readers control access to security systems that may be tied to HVAC control and fire sensor systems. Remote-read cards (inset) work from up to two feet away.

mechanism. The same principle also allows the designer the option of concealing the lock mechanism behind gypsum or other wall construction.

Microprocessors in most card reader systems maintain an enormous amount of information, including a record of each card issued and information about the level of access entitled to the card-holder. A luxury hotel, for example, may want an employee to have access to certain zones, like linen closets and administrative offices, but not

food and liquor storage areas. Or an employee may need access to all areas, but only during certain hours. The microprocessor keeps a detailed record of such priorities, and may even keep a log of whose key was used where, and when. The typical employee has no means of copying a key card, and when he or she leaves employment, building security staff can electronically revoke the card immediately by deprogramming the employee's card, greatly reducing the worry of unauthorized access.

ILLUSTRATION BY TIMOTHY B. McDONALD



PHOTOS COURTESY OF CONTINENTAL INDUSTRIES CORP.

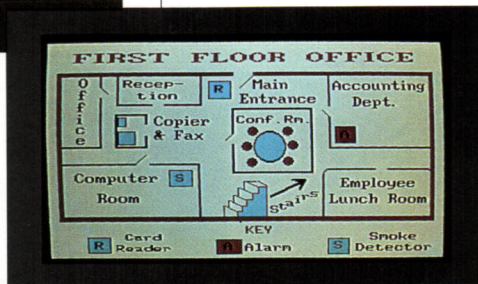
The simplest electronic access system available is an electronic door-mounted combination lock. This non-computer-based system requires users to enter a four-digit number to activate the lock mechanism, and is most effective when the primary concern is simple, economical access control.

Because there are no lost keys to be replaced, or entire locks when keys are stolen, these devices generally are cost-effective over the long run. But because they are not linked to a computer, their capabilities are limited. In some cases, electronic door-mounted combination locks are installed together with card readers as an additional security measure.

Biometric devices, such as retinal scanners and hand geometry analyzers, are available on the market, too. Because the devices are subject to repeated physical contact, however, they tend to carry a stigma in the eyes of contagion-conscious clients.

Depending on the level of security needed, any or all computer-based locking devices may be used in conjunction with a facility's overall security strategy. The first problem in determining what kind of security system is best suited to a particular installation is deciding what needs protecting and from whom,

says Buford Goff, a building security consultant based in Columbia, South Carolina. Are businesses concerned only with preventing non-employees from entering a building, or



An access control system (above right) defines up to 16 levels of access privilege. The central terminal (top, left) features on-screen icons for a user-friendly interface (above).

do they also want to restrict employee access within a building? In restricting access, is personal safety also a concern, such as in hospitals and prisons?

Security issues are not always obvious. For example, until recently, electronic access systems in hospitals were located mainly in

pharmacies to prevent drug theft. An Atlanta hospital, however, found that by restricting access to and within its pediatrics ward, it was able to lower the risk to patients and thereby lower the hospital's liability insurance rates, Goff points out.

Because of the increased cost of access control in new construction and renovation, an architect's time is well spent identifying appropriate levels of security in the

schematic phase for all destinations and pathways within a building. Buildings with only two doors that need controlled access require a less powerful and less costly system

than larger structures containing a hundred such doors. The number of employees and anticipated circulation within the building are other important factors affecting system selection.

For large companies, more advanced systems offer distributed processing capabilities. Relying on a network of intelligent microprocessors, these systems make instantaneous access-control decisions independent of the computer's central processor. This decentralized processing power speeds up system activity, a factor of immense importance when the system is processing thousands of daily transactions or during computer downtime. The more advanced systems can integrate security with other building systems, such as lighting and HVAC. Employees entering after hours can turn on localized systems without activating an entire building, thereby saving energy and money.

With the growing sophistication of electronic access products and the ability to tailor them to highly specific security needs, architects and building owners should incorporate security at the onset of a project, rather than waiting until the design development phase, or, as sometimes is the case with smaller clients, waiting until after the project is constructed.

Locks that can monitor themselves, store that information, and communicate it to people or other systems offer clients a whole new range of capabilities. Integrating an intelligent locking system with other building systems requires taking this expanded potential into account. It also is extremely important to tailor the design of doors and hardware to the appropriate access system. Warns Richardson, "If the doors are poor quality, even the best access system in the world will fail."

—MICHAEL WAGNER

Michael Wagner is a New York-based writer on technology and design.

The first problem in determining what kind of security system is best suited to a particular installation is deciding what needs protecting, and from whom.

PRODUCTS

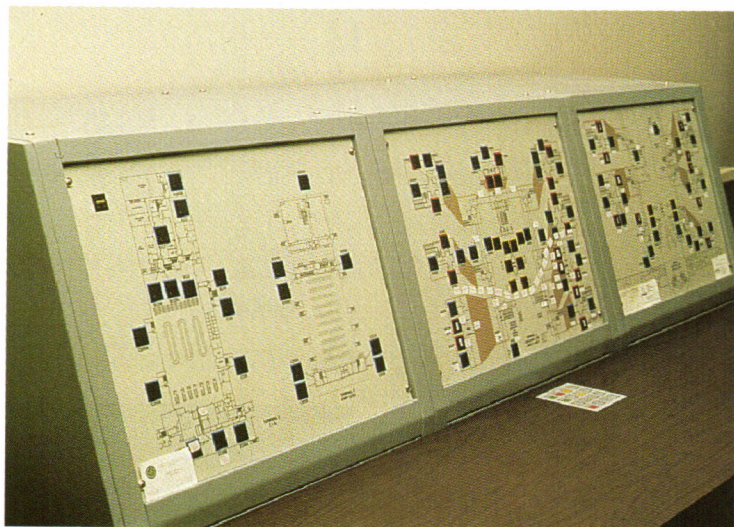
FLIGHT PATH

An airport security system controls circulation.

THE NEW LOS ANGELES AIRPORT (LAX) TERMINAL 2, DESIGNED by the Los Angeles firm Leo A. Daly, has a completely remote-controlled security system, the first of its kind to be installed in an airport terminal. With enclosed areas totalling over 450,000 square feet, the building is part of a \$94-million-dollar new construction and remodeling project undertaken by the LAX Two Corporation. It is designed to accommodate separate traffic levels for boarding and deplaning passengers.

To facilitate the secure egress of plane travelers, the system, based on a Von Duprin 2400 Security System, consists of electrified exit devices, door controls, alarm monitoring, and related controls for fire and life safety. A master console used by U.S. Customs Service personnel provides remote control of doors, making it possible to switch gates instantly from domestic to international configurations. This arrangement channels the flow of deplaning passengers through open or closed doors, either across a main corridor and into the terminal, or down the corridor to passages leading to the foreign immigration service facilities. The security system recognizes new configurations should situations arise requiring new passages during emergencies, and monitors doors that should be inaccessible, sounding an alarm in case of unauthorized entry. It also monitors exit doors for unauthorized egress from the building. A programmable access control system allows personnel access keys that momentarily disengage the alarm to allow entry at some locations, while other doors can be entered only by pressing microprocessor-controlled keypads. Keypad access codes cannot be copied, stolen, or compromised, because a random display pattern and an optical system make it difficult to view the number pattern being entered.

—AMY GRAY LIGHT



Terminal 2 at Los Angeles Airport (top and above) functioned normally during its 40-month multi-phased construction. The security system's remote control console (left), features graphic display showing status of alarm and lock conditions at each location. It is also color-coded to represent secured areas monitored but not controlled. Alarm and delayed access controls permit emergency usage of exit doors (bottom), and are equipped to signal unauthorized entry. Von Duprin, Inc. Circle 401 on information card.



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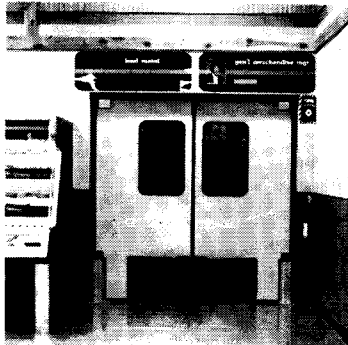
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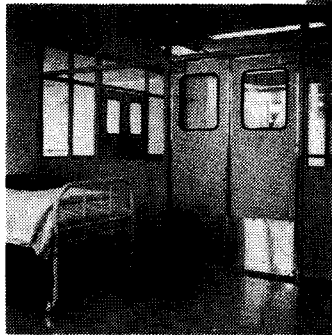
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CADD from page 111

the Mac II, you should look to graphics accelerators on the market now. If you are unhappy with your software today, there are lots of alternatives out there on the high and low end," Aeck maintains. "If you have a micro-CADD system and it works, stick with it," Aeck maintains. "If you need more power, and you can afford to hang your system off a more sophisticated platform, then you still have that option."

In describing the past several years of incredible advancement in CADD, Caldwell points out: "We're living with the history of what we invested in over the last few years. But with cross-platform networking, we are able to leverage our investment in restructuring our existing technologies. Through networking, we can breathe new life into older machines and tie existing equipment together."

Hernandez is not so optimistic in his evaluation of the usefulness of older minicomputers. "The maintenance cost and the limited expansion capability of old mini-CADD systems means you should convert to a Unix or micro-based solution with central servers as soon as possible," he suggests. "The likelihood of software running on an older minicomputer as a current solution is very small. The best software now is written by small companies that run their programs on PCs, Macintoshes, and workstations, not on big machines. The amount of money that you're spending keeping an older machine in an air-conditioned environment is large and the number of people available to run the system is small. Make plans to start phasing out that large piece of equipment."

Aeck points out that his earlier minicomputer experience resulted in a way of thinking related to the costly system. It was so expensive to run and maintain, that it had to be divided among billable hours per year. "With that pressure, including multiple shifts," he says, "we developed a system as to what kind of projects we created on CADD and what kinds we didn't. But with the level of computerization available today, we find we have to get over that mentality. Now we want to draw everything on CADD for data-related reasons, quality control, and quality output."

"What this holds for the future is a vision of computer-aided design beyond that which we know today," says Caldwell. "CADD will become an integral component of an overall computer-assisted process that will not only be used in architectural decision-making, documentation and development, but which will also provide a renewed structural support to the evolution of the profession." ■

—DOUGLAS E. GORDON

City Edge from page 79

knew they were there, or that they might threaten America's physical landscape as we know it, until the first lay article about them appeared in *The Atlantic* magazine just four years ago. In it, Christopher Leinberger and Charles Lockwood called the new outcroppings "urban villages," despite their lack of urbanity or village charm. Subsequent writers have called them "emerging cities," "technoburbs," "edge cities," "suburban cities," to mention just a few monikers. They don't yet have an identity and, so, no name.

With few exceptions, these new cities have not benefited from good design, precisely because they are in the suburbs, which most architects and academics have largely neglected as bourgeois, tacky, and retrograde. The challenge in this type of situation, says Jacquelin Robertson, is to invent a new model larger than the American small town, but smaller than a high-rise city—two urban configurations that Americans have mastered. He adds that the tendency to design broad boulevards and green spaces may resemble European predecessors, but the models are often based on American prototypes such as the New England village, the Southern plantation house, and the cities of Savannah and Williamsburg.

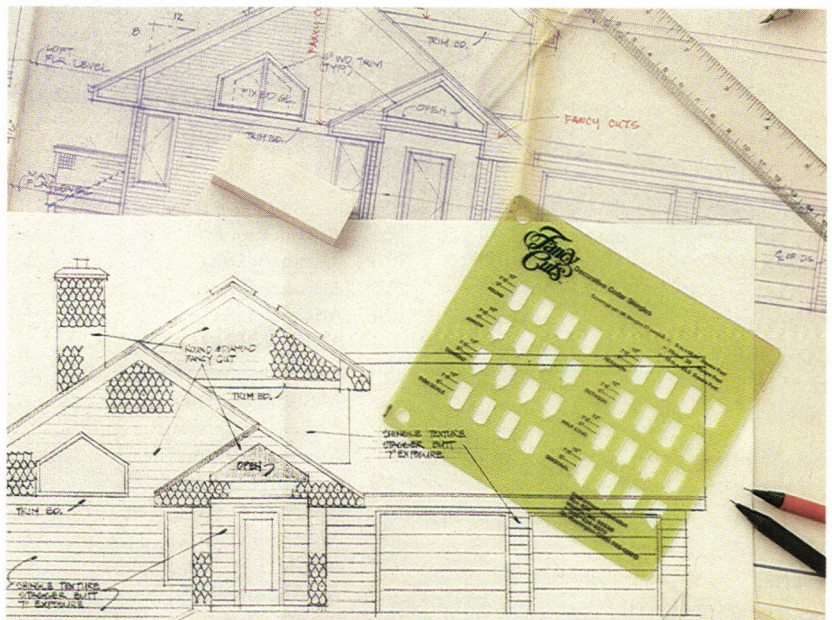
On a number of urban issues, proponents of various suburban solutions agree. Among them is a need for changes in zoning laws, a product of the industrial revolution and the desire of residential neighborhoods to protect themselves from belching factories. As developer Joseph Alfandre, of Rockville, Maryland, says: "Today's codes would prohibit the creation of the city of Annapolis."

A point of agreement among architects and most developers working in edge cities is the need for better, more comprehensive design guidelines. "For developers, guidelines mean predictability and are a selling tool to show they'll behave," says Robertson. The problem is that public agencies don't have the staff or resources to implement or manage guideline enforcement, especially several years down the road.

Finally, virtually all urban designers working on the fringes of cities, like architects working on downtown sites, tend to think small even when solving large scale problems. As Alexander Cooper says: "As a matter of philosophy, we try to reduce what is massive into something intimate; to translate the overwhelming into the underwhelming. We create master plans basically as assemblages of small, digestible ingredients."

In shaping outcities, all urban designers continue to search for a new form. EDAW's Joe Brown defines this as yet unidentified model as "a third identity, neither urban nor suburban, that may yet prove to be one of our society's best inventions." ■

—ANDREA OPPENHEIMER DEAN



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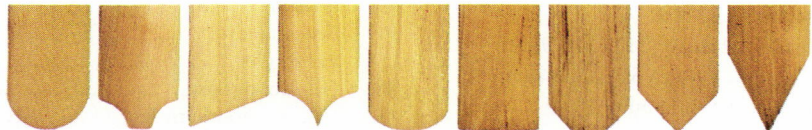
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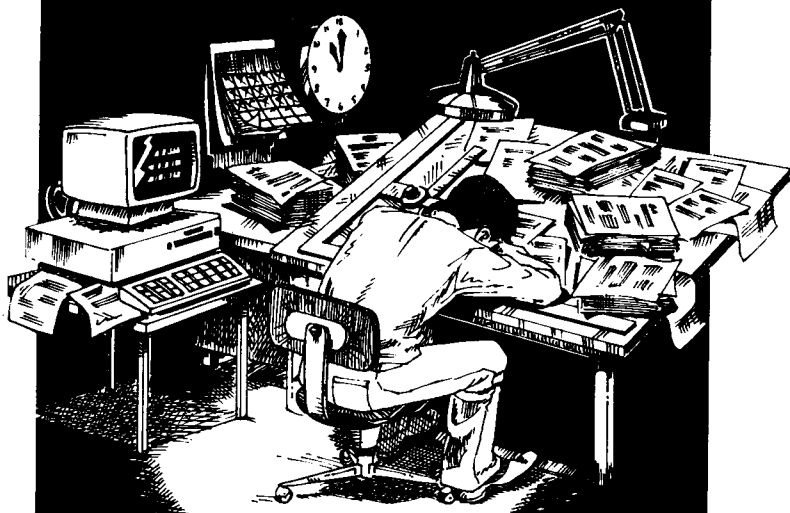
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