ARCHITECTURE

SEPTEMBER 1991

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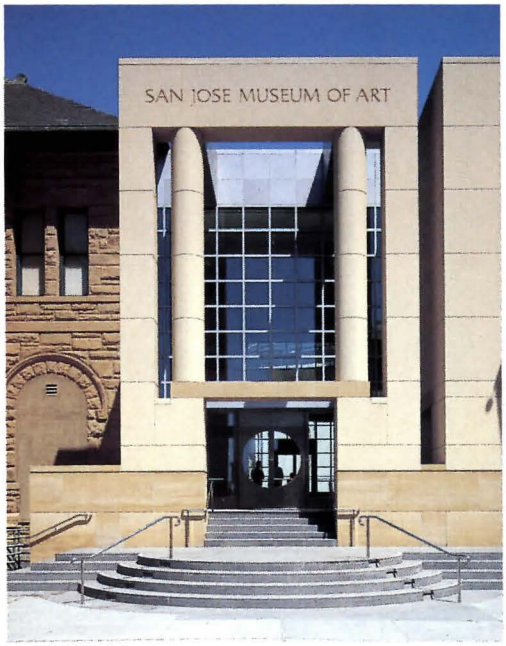

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DESIGN

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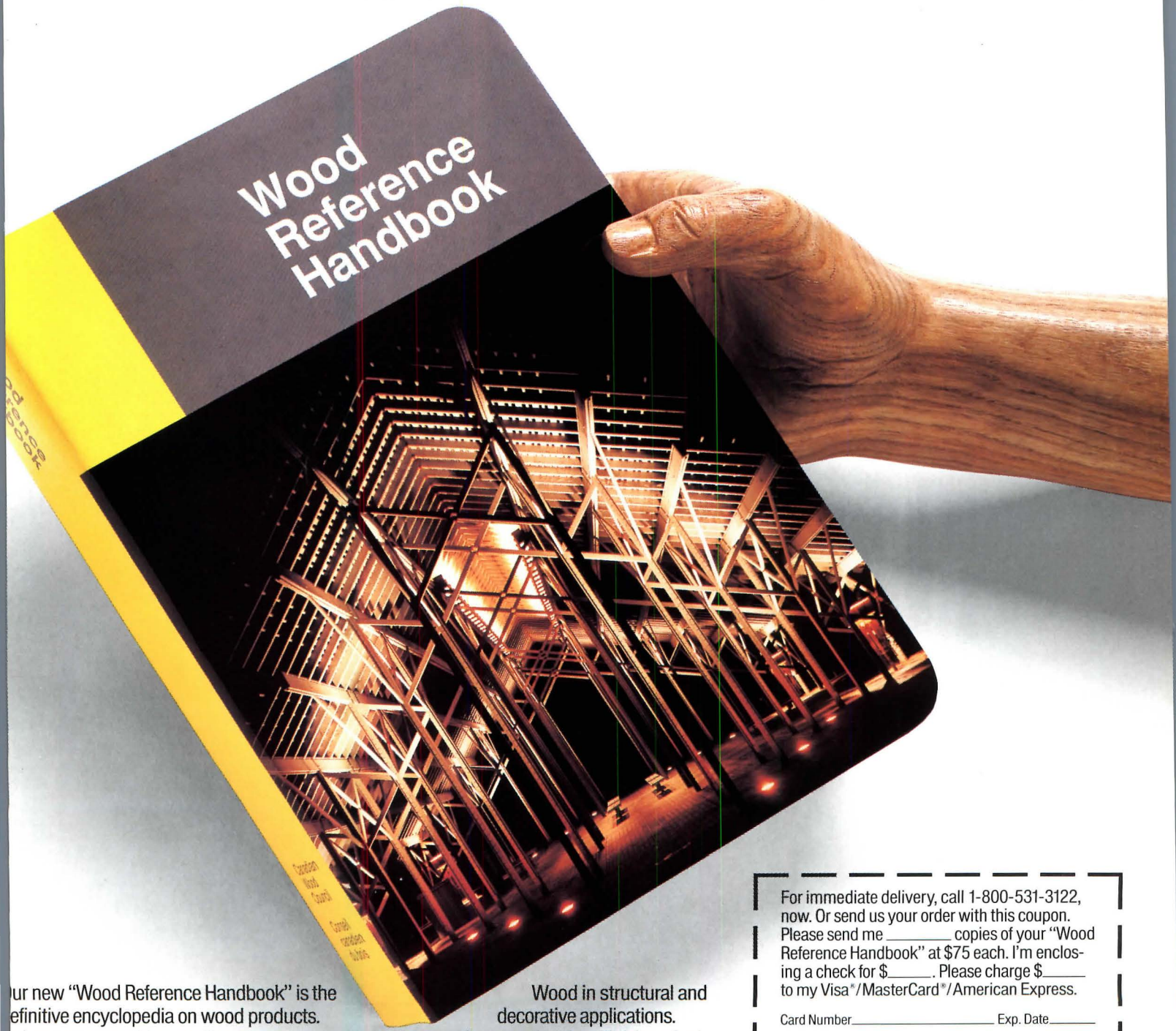

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TECHNOLOGY & PRACTICE

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DEPARTMENTS

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COVER: Mandell Weiss Forum, La Jolla, California, designed by Antoine Predock Architect (page 48). Photograph by David Hewitt/Anne Garrison

NEXT MONTH'S ISSUE:
Women in architecture
What do architects really earn?
Plastics and prefabricated components
Project management software

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WHAT

Surviving Hard Times

FROM BOSTON TO LOS ANGELES, ARCHITECTS CONTINUE TO SUFFER THE consequences of the recession, underscored by the results of our reader survey (pages 91-94). But the economic slump offers practitioners the opportunity to plan for a brighter future. Now is the time for firms to take stock of their abilities, revise methods of practice, and set new strategies for growth.

Outside consultants and the AIA can help. This month, for example, the Boston Society of Architects is coming to the aid of its beleaguered members by offering a new consulting service designed to improve architects' marketing capabilities. Individual firms will meet with a Boston-based marketing expert to identify practice strengths and establish priorities for targeting new clients and commissions. "The first to be laid off in a firm is the marketing staff," points out BSA Executive Director Richard Fitzgerald. "But marketing is precisely what that firm needs to be doing during a recession. Our service is designed to help those small firms who can't afford to hire a full-time marketer."

Architects can improve their outlook without the benefit of such services by accenting the positive: determine their firm's best attributes and how those skills can be translated to another building type, clientele, or geographic location. Other pointers from the experts include sharpening techniques for client interviews, attending seminars to gain new skills, and redesigning firm brochures. Current clients should be given special attention, relationships with old ones should be renewed, and new contacts should be carefully cultivated.

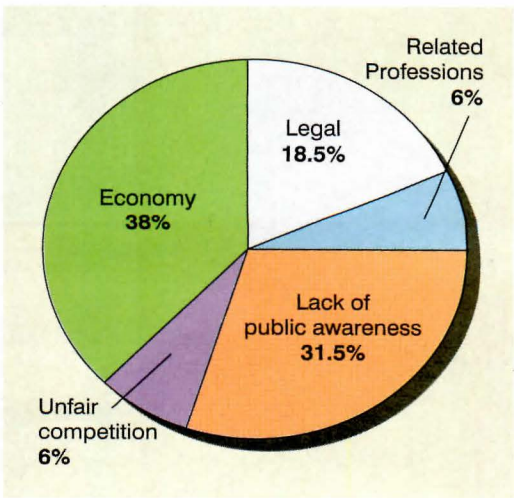
In working on current projects, architects should make sure service and delivery are top priorities. Jobs should be handled in the most cost-effective way to ward off competitors whose designs may be equally appealing to the client. Office procedures and staff organization should be fine-tuned. And, just in case economic conditions don't improve, as some of our readers predict (chart at right), a plan should be developed for future staff cut-backs if necessary.

According to our readers, skills in marketing and finance—the business side of architecture—promise to be even more valuable in the future. Use these tough times to regroup your resources. Take action. ■

—DEBORAH K. DIETSCH

According to our reader survey, the economy and a low level of public awareness were rated as the greatest threats to future practice (below), underscoring the need for architects to hone their financial and marketing skills.

What are the major threats to the profession today?



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LETTERS & EVENTS

Computer-generated Cop-out

After reading your June "On the Boards" feature, I was angered, disgusted, and saddened. Peter Eisenman's proposal for Rebstockpark (page 49) is nothing but a computer-generated, intellectual cop-out. It is devoid of feeling and soul, is downright ugly, and, if built, will do nothing to better the human condition.

The project will, as does most current architecture, negatively affect those that come in contact with it. Establishing a project with folded grids, jammed into a given site with computer modeling, then superimposing this over three typologies, simply put, is wrong. Real architecture nourishes the spirit, does not need verbal rationalization to explain and justify itself, and is felt and understood even by the masses. It also ages well.

This profession must learn to feel again and stop listening to the elitist intellectuals drone on and on with verbiage in an effort to justify garbage. Architects will not earn respect from the community until they provide structures and space that add to the human condition rather than assault it. It is not easy. It seems much easier to whine about our position, fees, and liability, while fiddling with a computer and bathing in the slop it spits out.

Andrew Peklo III, AIA
Peklo Design Group
Woodbury, Connecticut

Call For Social Activism

I am disturbed that ARCHITECTURE so frequently publishes new, large, and costly healthcare and medically related projects (July 1991). Facilities for healing the sick and dying, pharmaceuticals research, and rehabilitating the physically handicapped, like apple pie and motherhood, are good and necessary things for us to construct and to provide. It is ridiculous to build sophisticated pediatric care facilities for crack babies, while at the same time failing to provide even rudimentary housing, healthcare, or good food for their mothers. We seem willing to construct custodial care housing for the aged and institutions for crippled veterans, but devote so little effort to lobbying for, funding, or constructing facilities for daycare, head start, affordable housing, public transportation systems, and worn-out neighborhood rehabilitation. These projects, which are the most difficult to solve, are under-publicized and under-funded.

Must we go on designing better elevator call buttons for wheelchair occupants, and more beautiful, ergonomically correct lever handles, in order that our affluent society can be more comfortable when they visit their hospital for the latest procedure? When should we ask how people become patients in the first place, and which of us has the greatest need? When and if we do, we might find ourselves uncomfortable with our failure to be social activists instead of governmental and institutional establishment toadies.

I am cheered however, by the accession of a woman, honored for her work on a simple Girl Scout camp project, to the presidency of AIA. It suggests the possibility of a long-awaited and necessary change in our tone and our priorities.

R.J. Reynolds
The Reynolds Group
Haddonfield, New Jersey

Environmental Response

Your May issue is refreshing and full of valuable information. I think it should be mandatory reading for everyone associated with the building industry, reprinted on recycled paper. It was good to see Pliny Fisk's "overlay" method mentioned—every planning board in the world should be required to know what that's all about. And it was even good to see the "Mickey Mouse" cover of the June issue acting as comic relief.

Richard Deven III, AIA
Center Sandwich, New Hampshire

Congratulations! Your May article "Materials Alternative" (pages 113-118) represents one of the more important aspects of today's building business. The concept that there is a price to pay for all the materials and methods used in producing a building should be at the forefront of every architect's conscience. I applaud ARCHITECTURE for publishing this article and implore you to support and publish the AIA Environmental Resource Guide. I also suggest that your publication encourage your advertisers, where appropriate, to include statements or descriptions of the environmental safety and resource efficiency of their products.

David Goldstein, AIA
David Goldstein Architect
Solvang, California

September 10: Deadline for entries for the 6th annual Women in Architecture exhibit. Contact: (617) 491-5662.
September 11-October 31: "Women's Work: Architecture + Design," an exhibition of work presented by the AIA–San Francisco Chapter. Contact: Leslie Carey (415) 362-6020.
September 20-22: "Perception Versus Reality: What's Possible for the '90s" annual convention in Bermuda, sponsored by the New York State Association of Architects and the AIA. Contact: (518) 449-3334.
October 1: Deadline for entries for the 4th Annual New Jersey Monthly Designs of the Year competition. Contact: Barbara Flanagan (201) 644-3348.
October 9-13: 16th Annual Design Management Conference on Cape Cod will focus on management leadership programs. Contact: (617) 338-6380.
October 10-12: Ninth Annual Conference on urban waterfront planning, in Washington, D.C. Contact: Susan Kirk or Ginny Murphy (202) 337-0356.
Through October 13: An exhibition of projects by Steven Holl and Martha Schwartz at the Henry Art Gallery in Seattle. Contact: (206) 543-2281.
October 14-21: "Old Havana...and More," the first in a series of seminars on restoration and preservation in Cuba. Contact: (212) 242-0559.
October 17-18: Third Annual Housing Society Trust Conference, "Fulfilling the Promise of Mixed-Income Housing," in Boston. Contact: Jeffrey Loustau (617) 328-3100.
October 18-20: "ACADIA 1991: Reality and Virtual Reality," sponsored by the School of Architecture at UCLA. Contact: (201) 596-3012 or 3020.
October 25: Submission deadline for Urban Follies design competition, sponsored by Urban Design Forum/Denver Partnership. Contact: Urban Design Forum, 938 Bannock Street, Suite 239, Denver, Colorado 80204.
October 26-27: A symposium on Louis Kahn and Dhaka, sponsored by MIT's Aga Khan Program for Islamic Architecture, in Cambridge. Contact: Alexandra Kuropas (617) 253-1400.

NEWS

Legorreta Museum and Library ▪ Urban Policy in Prague ▪ New Urban Design Commissions ▪ Cathedral Competition

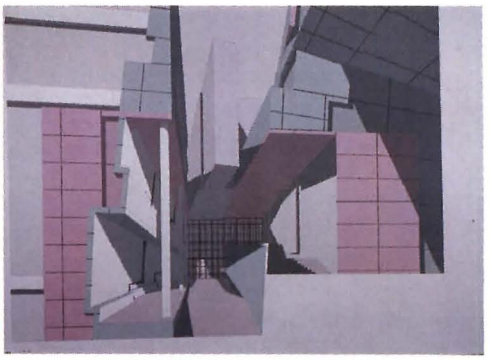
American Architects at Venice Biennale

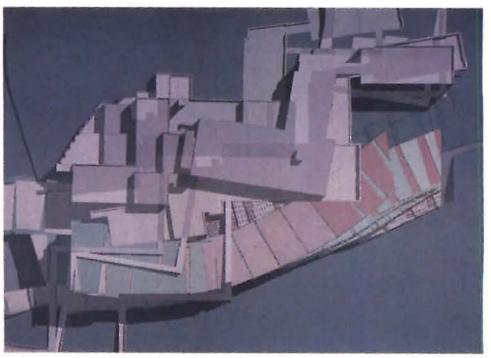
THIS MONTH, PETER EISENMAN OF NEW YORK AND FRANK GEHRY OF LOS Angeles join more than 1,000 architects representing 30 nations at the Venice Biennale's fifth international exhibition of architecture. United States pavilion commissioner Philip Johnson invited Eisenman and Gehry to represent the American delegation, asserting, "I don't know any more successful or cutting-edge architects in this country than these two."

Within the Jeffersonian United States pavilion in Venice, each architect will display one project in separate wings. For Eisenman, who exhibited work at the first architecture Biennale in 1978 and again in 1985, the fifth international show is a chance to present his $27 million addition to the University of Cincinnati's College of Design, Architecture, Art, and Planning, breaking ground in May 1992. His installation includes airbrushed plans, sections, and elevations, and a series of silk-screened drawings of the project by New York printmaker John Nichols. It also includes a 22-foot-long, 1/4-inch-scale model of the 144-square-foot addition, and an 8-foot-long, 1/2-inch-scale detail of the entrance and 350-seat auditorium.

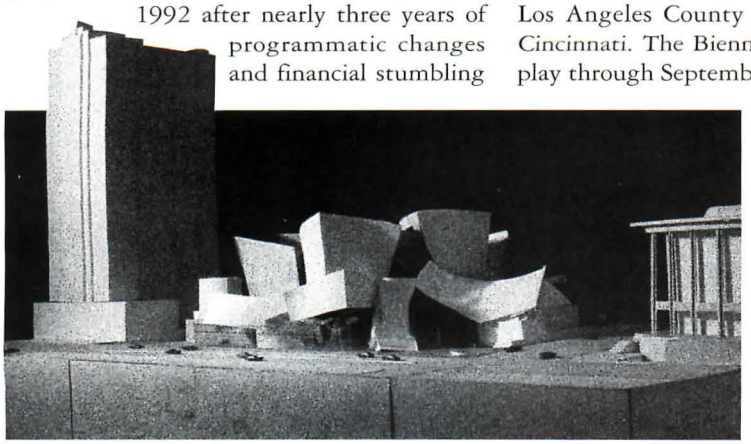
Across the pavilion, Frank Gehry unveils his latest version of the 200,000-square-foot Disney Concert Hall for the Los Angeles Philharmonic Orchestra. Construction of the project is scheduled to begin in January 1992 after nearly three years of programmatic changes and financial stumbling blocks. The concert hall is the largest and most complex project Gehry has undertaken, says managing principal Robert Hale, making it the "natural choice" for the exhibition. In Gehry's first gallery, 150 study models illustrate the acoustic sophistication of the performance hall. The second gallery displays a 15-by-28-foot limestone mockup of a section of the building's exterior, models of the site and concert hall interior, along with plans, sections, elevations, and computer-generated perspectives and axonometric drawings.

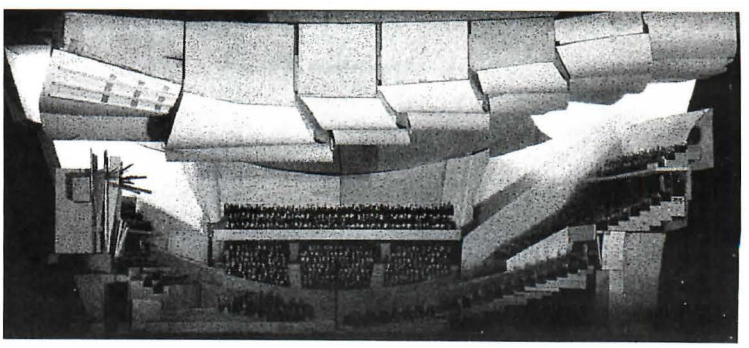
The absence of U.S. government funding this year forced the Americans to solicit private sponsorship from the Knoll Group, The Solomon R. Guggenheim Foundation, and the architects' clients—the Music Center of Los Angeles County and the University of Cincinnati. The Biennale exhibits are on display through September. —KAREN SALMON





Peter Eisenman's scheme for the University of Cincinnati's new school of design, architecture, art, and planning (above left) responds to site contours with variegated, overlapping volumes (above). In section (top), roofs and walls tilt in different directions, establishing a sense of movement within the multipurpose hall that joins old and new. Frank Gehry's limestone-clad Disney Concert Hall is inspired by ship sails (bottom left). Visitors pass through a glass curtain wall along Grand Avenue in Los Angeles to enter the performance space (bottom right).





DETAILS

Alan Balfour, dean of the Rice University School of Architecture, was elected to chair the Architectural Association in London and is currently undergoing contract negotiations. Skidmore, Owings & Merrill has appointed design partner David Childs as the firm's first chairperson in its 55-year history. Fifty-year-old Childs will serve in the new position for two years. The Taliesin Preservation Commission of Wisconsin selected Robert Burley of the Burley Partnership in Fayston, Vermont, to restore Frank Lloyd Wright's home and studio in Spring Green. Senior architect, planner, and vice president of Taliesin Associated Architects, William Wesley Peters, died in Madison, Wisconsin, on July 17. The landmark B. Altman & Company department store building, occupying a city block in mid-Manhattan, will be converted to 600,000 square feet of showrooms for the contract and residential design industry by New York firms Hardy Holzman Pfeiffer Associates and Emery Roth & Sons Architects, and will open in mid-1993. Following a 13-month selection process, Gunnar Birkerts of Birmingham, Michigan, was chosen to design the $6 million Kemper Museum of Contemporary Art and Design of the Kansas City Art Institute. Brooke Astor is this year's recipient of the World Monuments Fund's Hadrian Award for her leadership in the preservation of art and architecture. The Monterey Bay Aquarium in California chose J.T. Nakaoka Associates Architects of Los Angeles to design 6,000 square feet of shops to fit within the existing facility and a future retail expansion. Forty-seven-year-old Michael Kalil, a designer who worked for the National Aeronautics and Space Administration on inhabitable space modules, died on July 2. In July, Harvard University approved a 19,500-square-foot design for the Harvard-Radcliffe Hillel by Moshe Safdie and Associates of Somerville, Massachusetts. Construction is scheduled to begin next summer.

Legorreta's Projects Bridge Two Countries

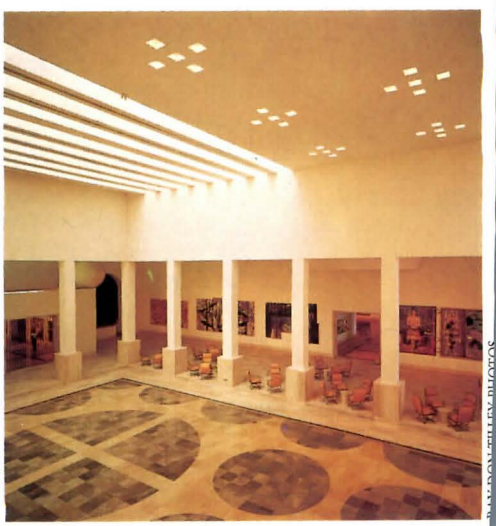
LIKE HIS CHILDREN'S DISCOVERY MUSEUM IN San Jose (pages 58-63), architect Ricardo Legorreta's latest cultural projects in Mexico and Texas are conceived as forward-looking urban landmarks. The Museo de Arte Contemporaneo (MARCO), at 100,000 square feet the largest contemporary art museum in Mexico, opened June 28 in Monterrey. Two weeks later, 300 miles to the north, a Legorreta-led design team won the commission for San Antonio's main library. Amid talk of free-trade agreements between the two countries, Legorreta's buildings hold promise for bridging the United States and Mexico through architecture.

In Monterrey, a manufacturing center of 2.3 million people (second in size only to Mexico City), the provincial governor and local business leaders conceived MARCO as a symbol of cultural rebirth in a city with a foundering industrial base. Legorreta was hired to design a museum that would "begin the 21st century in Monterrey," according to museum director Fernando Trevino Lozano.

The square, two-story museum presses against the edges of its downtown site, with a southeast entry plaza that embraces the 40-block Macroplaza, the city's 400-year-old cathedral, and a pylon designed by Luis Barragan. A central court of moving water, visible and audible from vantage points throughout the building, anchors the 50,000 square feet of exhibition space in 14 galleries. Bright, often colorful light wells, and windows that frame views of the neighboring cathedral and nearby mountain peaks, pace the gallery sequence. MARCO's evocative geometry, color, and light complement but do not overpower the forceful art housed within.

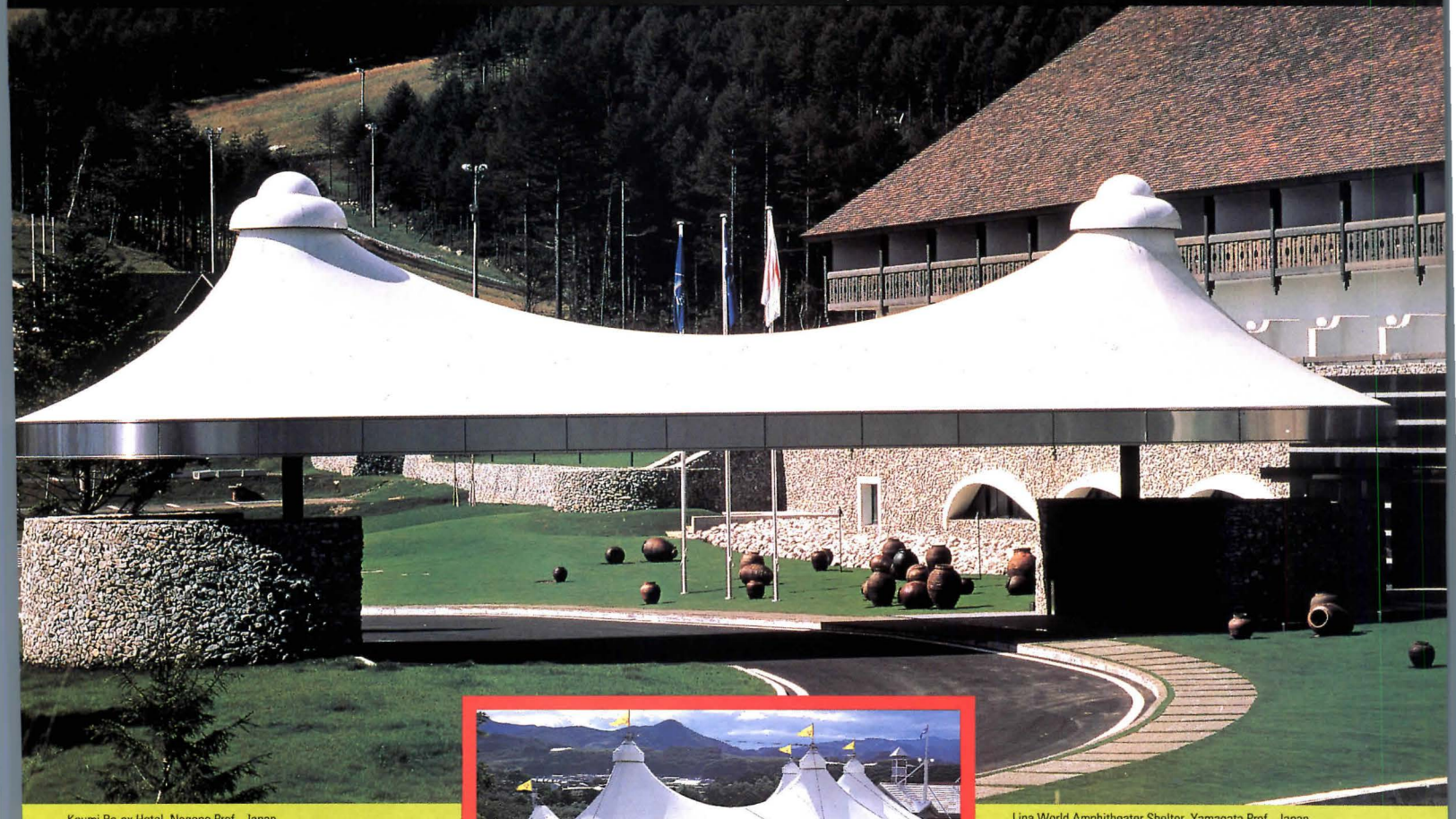
In San Antonio, the $42 million library is designed with similar urban sensitivity. Legorreta won the commission on July 12, in a competition that included design teams such

Continued on page 24

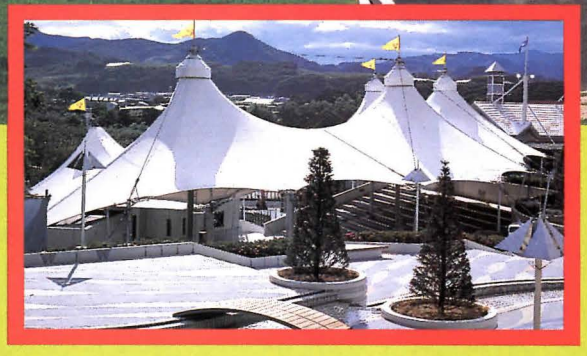


Legorreta's new museum, MARCO (above), fills a downtown block next to Monterrey's Macroplaza, cathedral, and Barragan-designed pylon (below left). A suspended pylon (bottom left) marks the information desk amid intense strips of daylight. All galleries open onto a flooded central court (below).

HARMONY



Koumi Re-ex Hotel, Nagano Pref., Japan
Architects: Kenchiku Keikaku Architect & Associates



Lina World Amphitheater Shelter, Yamagata Pref., Japan
Architects: Toshio Homma & Associates

A clean-lined porte-cochère echos the natural landscape

This handsome tensioned membrane structure clearly signals "carriage entrance" in a fresh way at this luxury hotel. Matching the architect's vision, the design repeats semicircular stone walls while the structure's two peaks recall the surrounding natural landscape. Overall, the structure has a light, floating effect.

This light, non-intrusive quality of tensioned membrane structures appeals to architects. Their curved shapes seem more in tune with nature, able to serve as constrasts to the rigid geometric lines of most buildings. The nearly infinite variety of membrane shapes make them ideal for amphitheaters, as in the smaller illustration above. Equally useful on level or steeper slopes, they convey a festive, light-hearted feeling we associate with entertainment.

If you would like more information on membrane structures like these, please write or call us. Helios Industries, Inc., the International Operations Division of Taiyo Kogyo Corporation is a world leader in the design and utilization of fabric membrane structures. Our expertise is ready and available to help you.

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Legorreta Projects *continued from page 22*

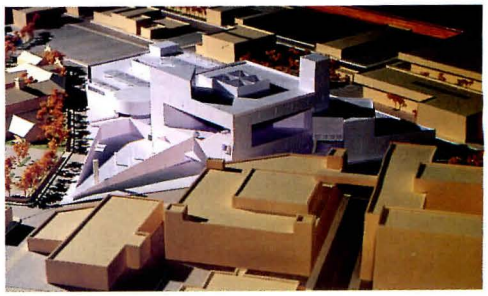
as JonesKell Architects and Reitzer Cruz Architects of San Antonio; Rehler Vaughn Beaty & Koone of San Antonio and Hammond Beeby & Babka of Chicago; and Saldana & Associates of San Antonio and CRSS Architects of Houston. Designed by Legorreta with local firms Johnson Dempsey & Associates and Davis Sprinkle Architect, the 175,000-square-foot library will stand six stories tall at downtown's northern edge. Twice as large as MARCO, its parti springs from the same nine-square plan and central void. A public gallery and meeting space replace the flooded central court; book stacks take the place of galleries.

Echoing his scheme for MARCO, Legorreta skillfully ties the library to its surroundings. The complex will integrate an existing parking garage, while plazas will engage a neighboring public space to the west and the Southwest Craft Center and San Antonio River to the east. Massing of the building and its interlocking nine-story second phase will match the scale of adjacent hospital and office buildings. But refinement is needed in the library's response to Romana Plaza, a narrow public park that meets the site's northeast corner. As designed, the building presents an imposing, 30-foot-high blank wall toward the park; and a planned clock tower in the park is too massive and sketchily detailed. However, as development of the design continues, Legorreta may overcome such challenges.

In both these projects, Legorreta's abstracted Mexican forms and bold space-making find mixed success. In Monterrey, the museum's walled edges meet the street to anchor the building to its dense urban fabric. But in San Antonio, with its modestly scaled, active streetfronts, such a bold, Mexican gesture may not create a civic presence, even amid a strong Hispanic culture. And the library's abstract volumes will likely suffer in lightweight-steel construction. On MARCO's load-bearing concrete-block walls, stucco is successfully applied as unbroken planes of color. But in Legorreta's American projects, such as the IBM Solana complex outside Dallas, required expansion joints distract from the stuccoed effect like scratches in a record album.

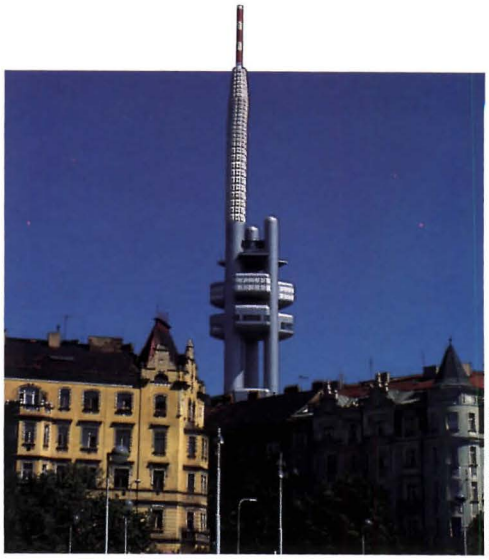
With a completion date to be set, the San Antonio library eventually may achieve the symbolic power captured by MARCO. But the pragmatics of translating Mexican forms and ideals into U.S. construction will challenge the success of Legorreta's bold, site-specific architecture and its bicultural relevance.

—RAY DON TILLEY



The San Antonio Library (above), like the much smaller MARCO, is organized around a central atrium, but its taller mass is carved away to create numerous sheltered terraces.

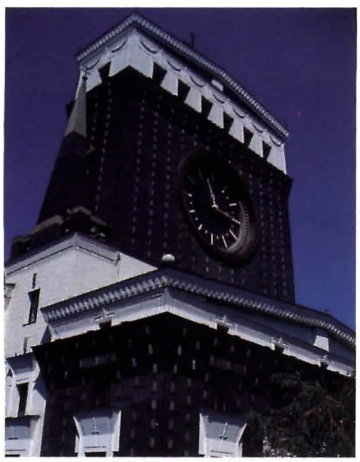
Prague Conference Addresses Urban Policy



STEVE ZIGER PHOTOS

Sited on the Vltava River (top left), Prague offers landmarks such as 1913 Cubist apartments (below center), Joze Plecnik-designed Sacred Heart Church (bottom left), and new television broadcasting tower (above) in residential neighborhood.

HAVING SURVIVED TWO WORLD WARS UNscathed, Prague is an architectural treasure chest, filled with jewels ranging from Gothic cathedrals to Art Nouveau hotels and Cubist houses. Czechoslovakia has long taken measures to preserve the capital city's cultural and historic resources; in 1954 the government established the State Institute for the Reconstruction of Historic Towns and Monuments (SURPMO) and began a survey of Prague's buildings, which it continually updates. This June, SURPMO and the Chief Architect's Office of Prague joined forces with The Johns Hopkins University's Institute for Policy Studies at a five-day conference in Prague to discuss urban issues confronting Czechoslovakia as a result of its 1989 "velvet revolution." The event was part of Hopkins's International Urban Fellows Program, which brings urban specialists from around the world to study at its Baltimore campus, and then convenes each year in an overseas location for a conference on the urban policies of the host city.



Conference participants included 80 fellows from 21 countries, who toured Prague's landmarks and Communist-era buildings, and attended lectures on topics ranging from economic reform in Poland to historic preservation in Romania. They also met in sessions to identify major lessons of Western urban policy that could be applied to Czechoslovakia and other Eastern European countries. The workshops were divided according to participants' areas of expertise: historic preservation, housing, environmental conservation, economic development, and regional and local self-government. Recommendations from these workshops were summarized in a "Prague Declaration," a set of guidelines that will form a basis of discussion for workshops held this fall in Central and Eastern Europe.

Debate in the workshops revealed the varied backgrounds of the attendees, who drew upon experiences in their own countries to advise their Czech counterparts. An architecture professor from the University of Venice, Italy, warned of the pitfalls of gentrification and tourism, while a Paris-based economic development consultant encouraged Czechs to embrace the market forces of a capitalist society in developing preservation projects. Participants agreed that Czechoslovakia and other Eastern European countries possess the cultural awareness and technical expertise required for successful restoration projects. But they urged their Czech colleagues to develop new approaches to preservation so that the remarkable heritage of Prague will survive in the face of market pressures. Symbolically issued on July 4, the Prague Declaration emphasized the need for democratic reforms at the local level, public participation in preservation, continued government involvement in urban policy, and increased educational opportunities.

Restoration and new construction remain limited in Prague, even though the need for hotels, conference facilities, and housing is clearly apparent from a single visit to the city. Given Czechoslovakia's newly formed government, shaky economy, and the need for outside capital to spur development, the theoretical, rather than practical, slant of the conference appropriately captured the local climate. For now, at least, American architects are well advised to look to Prague for past treasures, rather than for future opportunities. —DEBORAH K. DIETSCH

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New Urban Design Commissions

ON JULY 29, A REVISED MASTER PLAN WAS presented to the New York City Council by **Skidmore, Owings & Merrill/New York** for the eastern portion of the 57-acre Penn Yards site between West 59th and 72nd streets (ARCHITECTURE, August 1991, page 21). Design of a riverside park on the site is contingent upon the results of a city-led environmental impact study and public approval. On August 2, a 14-member steering committee selected **Venturi, Scott Brown & Associates** to develop a master plan for Denver's downtown cultural complex that includes the existing Colorado Historical Society and Burnham Hoyt's 1950s public library. The team of New York-based **Weiss/Manfredi Architects** and **Peterson/Littenberg Architects** was selected over **Cooper Robertson & Partners**, **Ehrenkrantz & Eckstut Architects**, and **The Delta Group**, among others, by the New York City Council to develop a master plan for a 1/2-mile-square area encompassing downtown Flushing, Queens. The team will examine pedestrian routes, traffic patterns, and site linkage to Manhattan. The Boston firm **Carr, Lynch, Hack and Sandell** won an international competition in mid-July for the design of a two-mile urban riverfront development in Perth, Australia. In addition to waterside parks and playing fields, the firm's scheme includes a nature preserve, urban forest, beach, and crescent-shaped promenade. **McLarand, Vasquez & Partners** of Costa Mesa, California, won a competition in late June to design the 600,000-square-foot headquarters for the Los Angeles Rapid Transit District (below). The 32-story office facility and plaza is part of the first phase of a 52-acre surface transportation center, led by the Catellus Development Corporation. In late July, Catellus selected **Cooper Robertson & Partners** of New York to design a second project: a 6-acre mixed-use commercial development on San Diego's waterfront. —K.S.

Intercultural Architecture: The Philosophy of Symbiosis
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$900 leather cased portfolio with 100 sheets. Text in German and English. 100 color illustrations, 25″×16″. ISBN 1-55835-038-1. October

The American House: Design for Living
1990 Housing Review
Contains 100 award-winning projects selected by the AIA Architecture for Housing Competition. The beautiful photographs and informative descriptions illustrate the profession's outstanding contributions to American architecture in the area of residential design.
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Architectural Details from the Early Twentieth Century
Philip G. Knobloch, AIA
A visual sourcebook of 100 unusually fine drawings containing over 300 construction details of the era. It will inspire architects, engineers, and preservationists that apply designs of the time to old or new structures.
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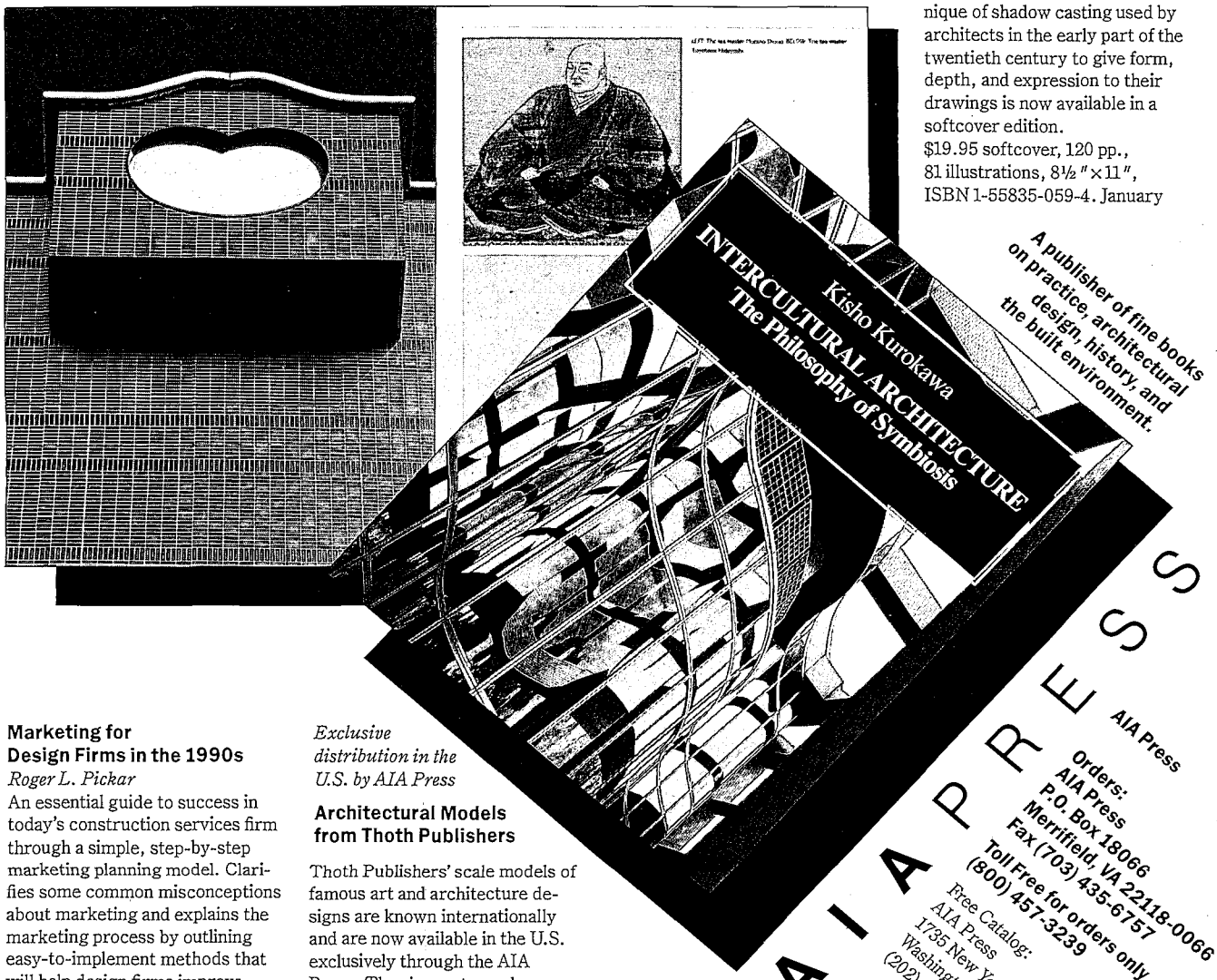

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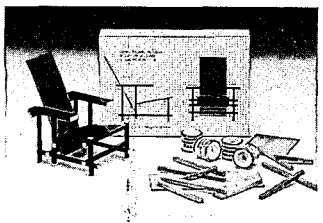

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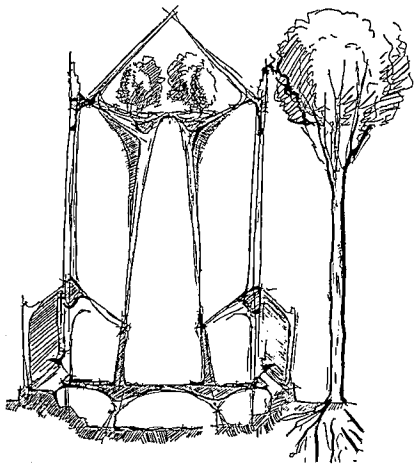
Ecological Sanctuary

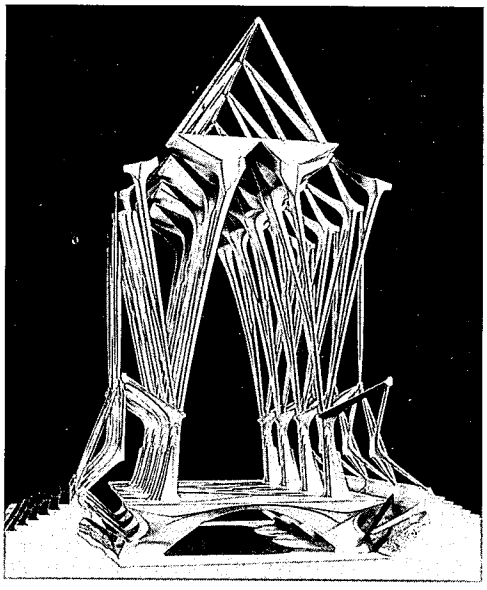
NEARLY 100 YEARS AFTER THE BOSTON FIRM Heins & LaFarge won the commission to design St. John the Divine in upper Manhattan, the vast Gothic cathedral remains unfinished: the two west towers are one-third their final height, suspension rods reveal a stunted attempt to construct the north transept, and the south transept remains unbuilt. In an effort to expedite completion of the church, the cathedral held a design competition for the south transept and a 100,000-square-foot "bioshelter." The indoor ecosystem will be used to promote ecological education and research, while attempting to reduce the cathedral's reliance upon fossil fuels.

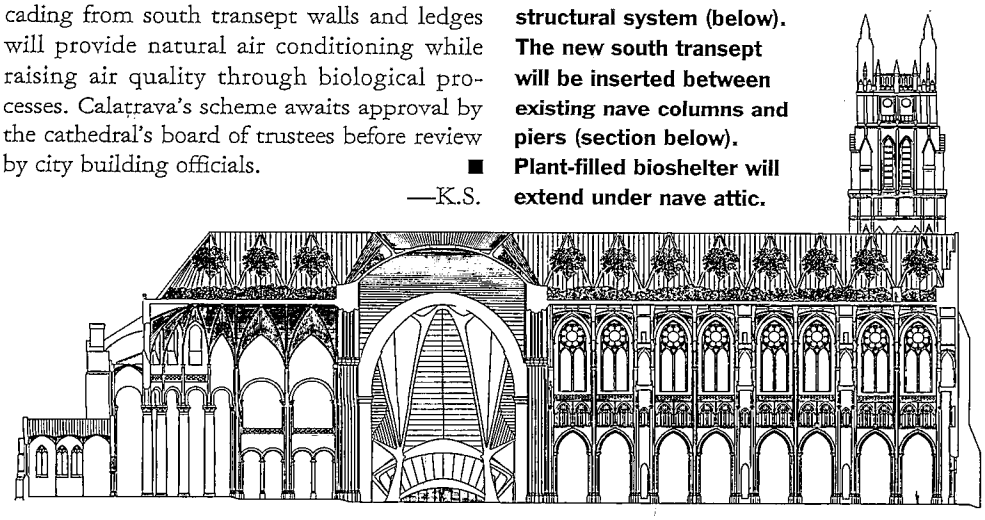
According to competition juror Philip Johnson, "there wasn't a moment's discussion" over the judges' selection in June of a scheme by Santiago Calatrava of Paris. Selected from 65 entrants, semi-finalists included Tadao Ando, Antoine Predock, Holt Hinshaw Pfau Jones, David Sellers, and Keenen/Riley. Speaking for the jury, Johnson noted that Calatrava was the only entrant who successfully incorporated Modern form into a Gothic structure.

The Spanish-born architect's organically-inspired columns, ribs, and crossmembers will be constructed of cast steel and stone. The entire structure will support enclosed, publicly accessible gardens along the nave and transept, 160-feet from ground-level, and a glass roof that reveals a green cross from aerial view. Currently, Calatrava is collaborating with biologists to incorporate ecologically engineered water and air filtration systems into the design. Mosses and vines cascading from south transept walls and ledges will provide natural air conditioning while raising air quality through biological processes. Calatrava's scheme awaits approval by the cathedral's board of trustees before review by city building officials. ■

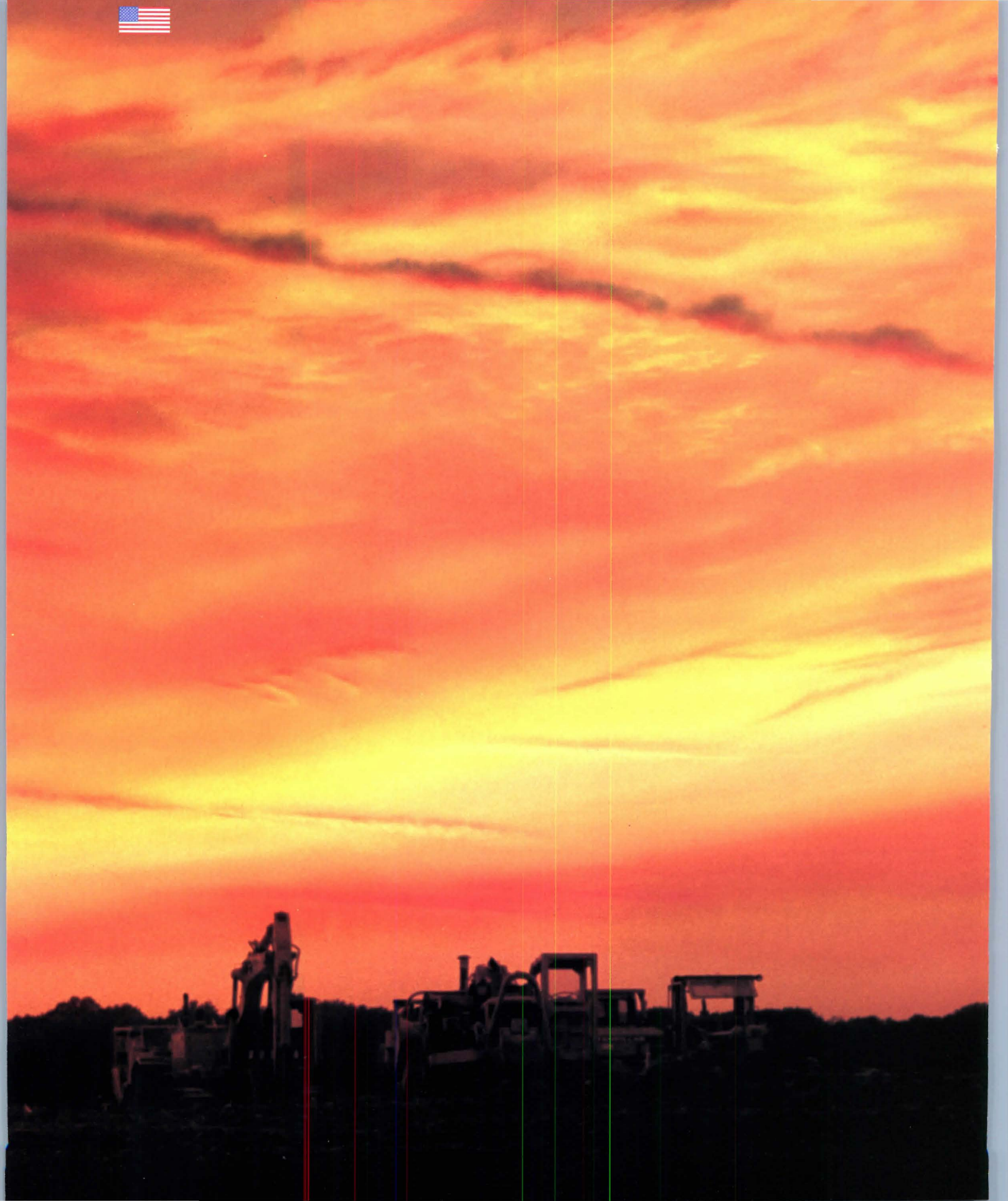
—K.S.



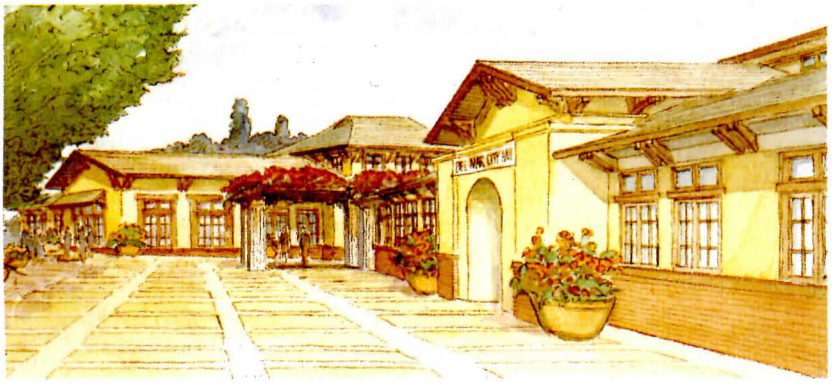




Calatrava's sketch for New York's Cathedral Church of St. John the Divine reveals relationship between a tree (top) and the architect's reinforced-stone structural system (below). The new south transept will be inserted between existing nave columns and piers (section below). Plant-filled bioshelter will extend under nave attic.



San Diego Area Developments

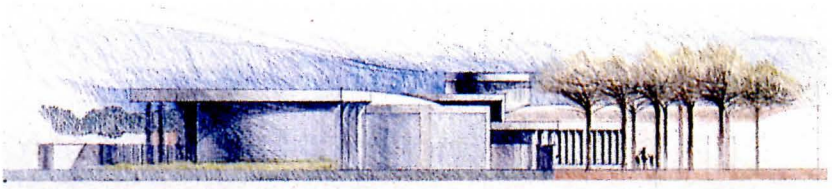


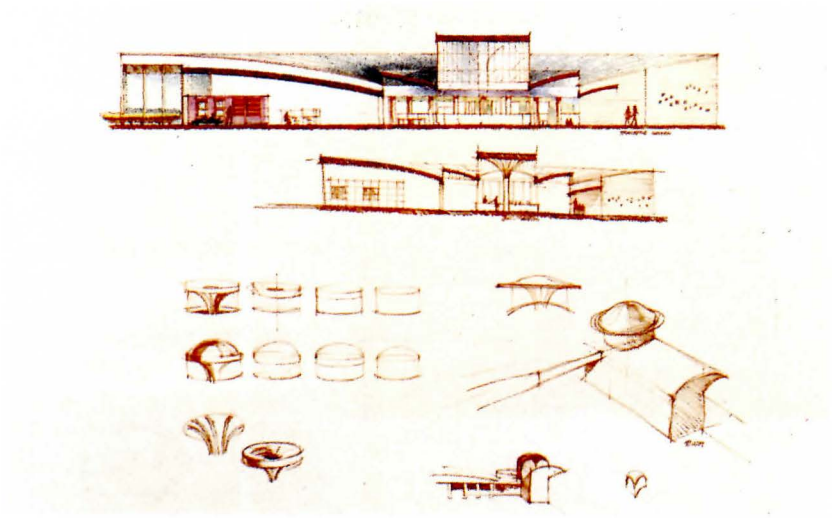
Del Mar Community Center
Del Mar, California
Robert A.M. Stern, Architect

NEW YORK ARCHITECT ROBERT A.M. STERN, whose most recent California project is a police station in Pasadena, has designed a $6 million community center for Del Mar, north of San Diego. Adhering to the modest scale of nearby buildings, Stern's 29,000-square-foot design was inspired by Bernard Maybeck's architecture and Craftsman Style bungalows. The civic center's three buildings—city hall, library, and meeting hall—are jostled off the city's grid in a dynamic plan, with a broad, central plaza as their focal point. An entrance portico and low corner tower, and the separate mass of the library with Maybeck-like detailing, faces the coastal highway. The warm, residential effect of the buildings is heightened by cedar-shingled roofs, wood-framed windows, vine-covered pergolas, brick, plaster, and cast stone. The city approved Stern's design in June, is developing a financing plan, and hopes to put the project to a public vote next spring.

Branch Library
Pacific Beach, California
Manuel Oncina, Architect

THE CITY OF SAN DIEGO IS DEVELOPING A reputation for well-designed public libraries. Among those in the pipeline is a $1.9 million, 12,500-square-foot branch in Pacific Beach, designed by San Diego architect Manuel Oncina (top right). The spiraling form suits the coastal site, a few miles north of San Diego. In plan, the building consists of a semicircular wing housing books, a long narrow office block, and a community meeting room. From a circulation hub between the wings (section, right), book stacks radiate like spokes, flanked by reading areas near the windows. Oncina's building addresses the changing role of libraries; no longer just for storing books, these buildings are becoming vital neighborhood social centers. An entry plaza provides a place for social events and casual meetings. If state funding is approved this fall, ground will be broken for the library next year. —DIRK SUTRO





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Imagination and well-laid plans can go right out the window during a power failure. Mood lighting, functional lighting, energy efficiencies: when the power goes out, so does the practical power of the best modern home designs. Perhaps that is why so many residential clients are inquiring about emergency power generators. Architects who have taken notice are discovering a new source of inspiration, and a great deal of enthusiasm from their clients.

Permanently-installed home standby electric generators used to be cost prohibitive. Now they're more efficient, easier to install, and about half the price. As the cost comes down, homeowners are discovering a vital need in emergency electrical power.

It is estimated that the average American home depends on electricity for more than one hundred electrical devices.

Even a short interruption in utility power can cause a great deal of discomfort and inconvenience. An extended power failure accompanied by storms or severe temperatures can cause flooded basements, structural damage, financial hardship. Well pumps, furnaces, air-conditioners, sump pumps, lights, stoves and refrigerators all depend on electricity to keep homes safe and secure.

Many knowledgeable analysts forecast long-term blackouts and rolling brownouts to be common during the next ten years.

Electric utilities are already overburdened. To further complicate the problem, new power plant construction has been all but prohibited because of high costs and environmental concerns. Precious few new utilities projects are in the planning stages. And no new nuclear power plants are even being discussed.

Homeowners do not appear to be ready to accept the situation. More and more homeowners are advancing toward greater energy self-sufficiency.

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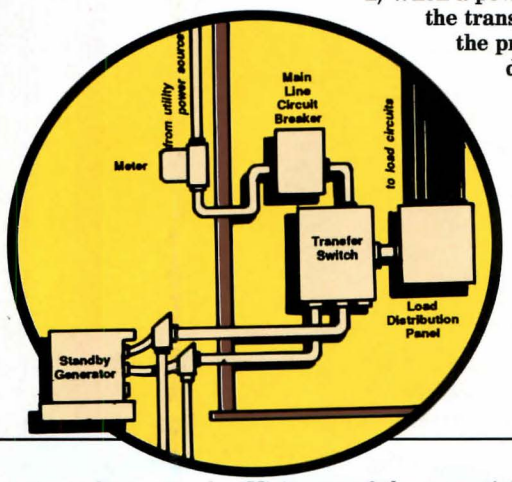

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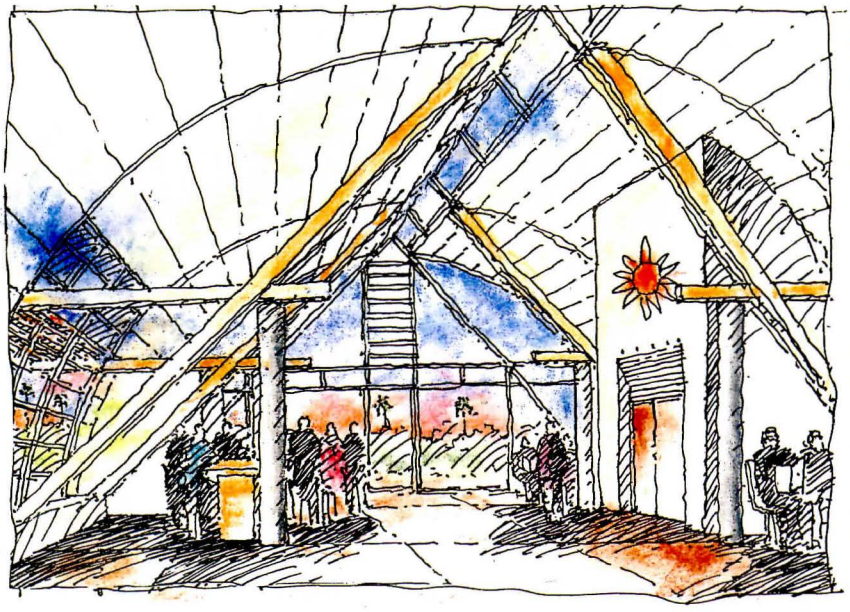
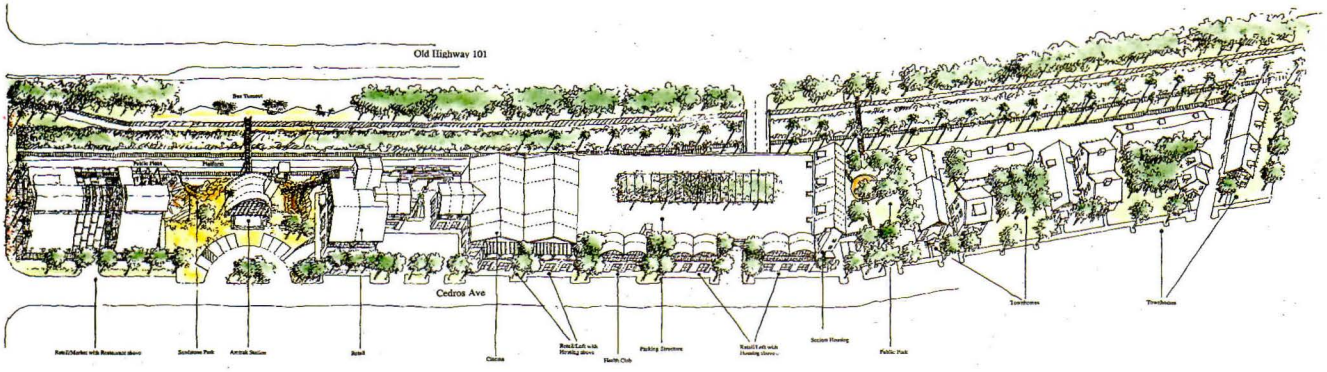


Solana Station
Solana Beach, California
Rob Wellington Quigley, Architect

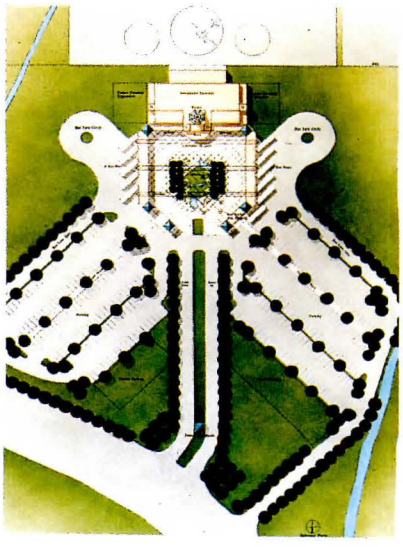
LAST FALL, AFTER AGREEING TO JOINTLY DEvelop their adjacent properties, the North County Transit District and developer Tom Hollander and Partners held four public charettes to determine a program and schematics for a mixed-use project on the resulting 10-acre site. Quigley translated the public's input into a vaulted rail station (left), reminiscent of nearby World War II Quonset huts; a public plaza; a 900-space parking garage; restaurants; low-income SRO housing; artists' studios; apartments; and an exposed metal and wood-framed retail complex inspired by local agricultural sheds (left in site plan, below). The $20 million project will break ground in late 1992.

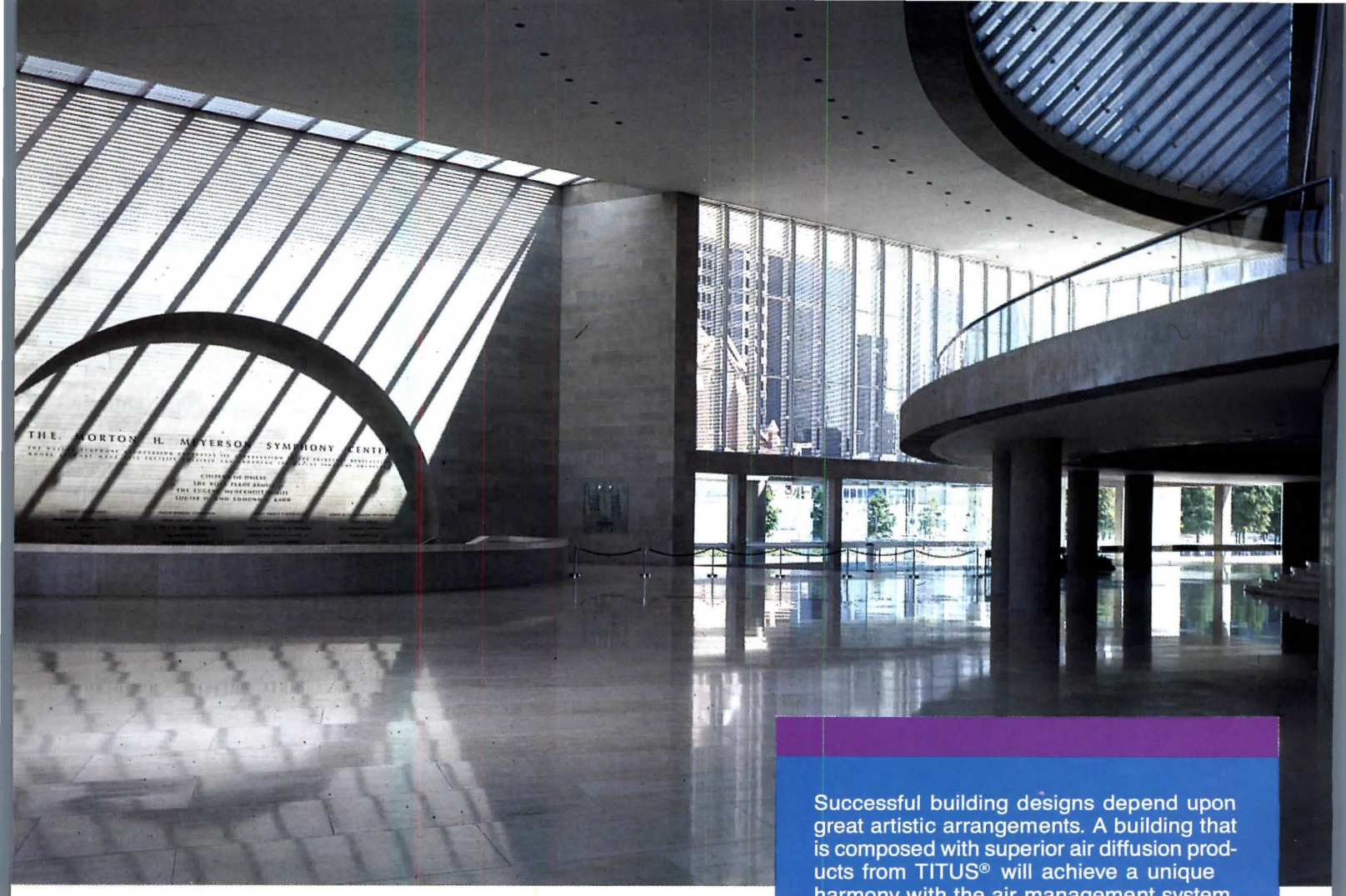


Visalia Intermodal Terminal
Visalia, California
The Ratcliff Architects

LOCATED HALFWAY BETWEEN FRESNO AND Bakersfield, the 8.5-acre airplane and bus facility is designed to differentiate vehicular and pedestrian traffic. A tree-lined driveway (far right) leads to a garden "oasis" in the forecourt of a 16,000-square-foot terminal. Metal-roofed pavilions mark a pedestrian arcade (right), which serves as a parking bay for buses while visually increasing the mass of the building. Estimated to serve 51,000 bus passengers and 25,000 airline passengers annually, the $2.8 million facility will begin construction in the fall of 1993. ■

—KAREN SALMON





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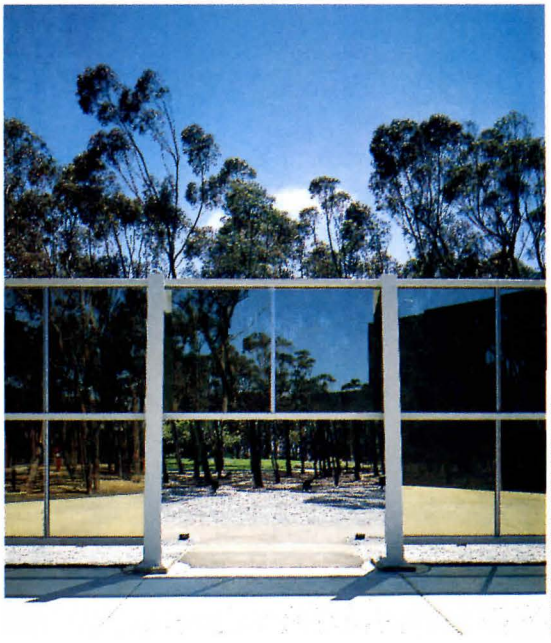
California Civic Pride

IN 1937, GERTRUDE STEIN WROTE OF OAKland, "There is no there there," and the stereotype has persisted in California ever since. But today, cities throughout the nation's most populous state are attempting to establish cohesive civic identities through new public amenities. Featured in this issue are projects in five diverse communities around the state that illustrate this renewed sense of civic pride. In Southern California, Antoine Predock's 400-seat Mandell Weiss Forum responds to two masters, the La Jolla Playhouse and the drama department of the University of California, San Diego, marrying the architect's artistic bravado and the functional demands of a working theater. In a tough Los Angeles neighborhood, local architect Steven Ehrlich, in collaboration with artist Ed Moses, humanizes a vandalproof community recreational center through unconventional forms and patterned elevations. Farther north in California, Mexican architect Ricardo Legorreta and the San Francisco office of Skidmore, Owings & Merrill are revitalizing San Jose's downtown core with a pair of strategically placed museums. Likewise, in the town of Fairfield, ELS/Elbasani & Logan creates a new level of architectural drama in a community theater that promises to catalyze future development. In the San Francisco suburb of Pleasant Hill, Charles Moore teamed up with Urban Innovations Group and Fisher-Friedman Associates to give the residents an inviting city hall that symbolizes community aspirations, rather than monumentalizing municipal government.



DAVID HEWITT / ANNE GARRISON

Detail of Mandell Weiss Forum by Antoine Predock.

A sense of civic identity need not be permanent, as our technology section points out in the detailing of a demountable, fabric-covered orchestra shell for summer performances in New York City. An article on videos for architects shows how hardware and software technology can be used to create animated walkthroughs of their buildings, and an in-depth look at design/build discusses the various ways these ventures can be structured.

Finally, we summarize the results of our April readers' survey, which takes a look at what architects from Boston to Honolulu think about the economy, the future of the profession, and one another. Of overriding concern to many is the encroachment of related disciplines on the business of architecture, and the litigious climate that has practitioners watching their backs. Our readers' consensus, however, is that good architecture is evident in every part of the country, and that the best design is carried out with a civic conscience. ■

Mandell Weiss Forum
La Jolla, California
Antoine Predock Architect

Supporting Role

IN THE LAST FEW YEARS, ANTOINE PREDOCK has increasingly designed outside the Southwest axis where he established a reputation for respecting and transforming local idioms (ARCHITECTURE, August 1991, pages 58-63). Yet his first completed building for the University of California (he has commissions on four of its campuses) is not treated as a star turn, or an opportunity to break out in a new or astonishing direction. Designed for the La Jolla Playhouse and the University of California, San Diego's Department of Theater, the Mandell Weiss Forum is a modest, program-driven, site-sensitive structure. Above all, Predock explains, "it is, like any technical building, an instrument."

The new theater is constructed at the southern edge of the UCSD campus in La Jolla, across from the Mandell Weiss Theater, completed in the early 1980s. Predock's design anticipates the presence of a third structure that will create a de facto theater district for the university. The 31,800-square-foot building is not especially obvious from the road that leads into this part of campus, even with the freestanding, reflective-glass wall that runs along the approach to its major entrance. Its configuration and siting introduce new coherence to an area that previously had been disjointed.

Formerly a parking lot, the site is buffered by eucalyptus trees, and Predock took advantage of the existing landscape. In the forecourt, he spread a carpet of fine gravel, anticipating that guests "would filter across the landscape in a random fashion, as if approaching the theater through a clearing in a forest." A code-required concrete path, however, had to be inserted close to the building.

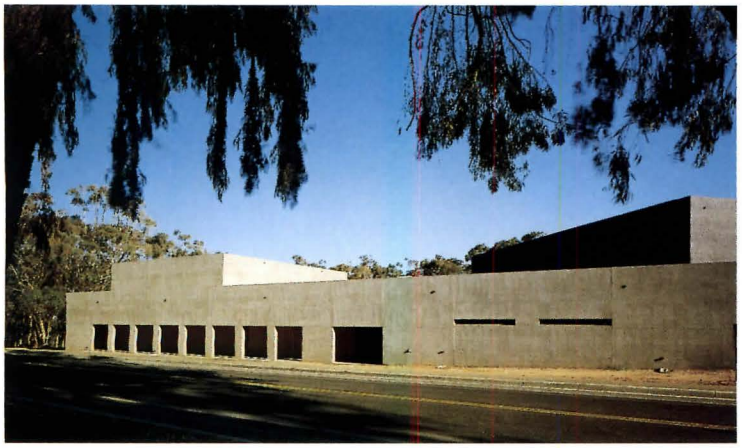
Like a curtain, the 270-foot-long, 13-foot-high mirrored wall shields the theater, showcased in a curved volume that interlocks a rectangular, angled wing containing rehearsal space, dressing rooms, and "green room." Both volumes are covered in different shades of gray stucco, hand-troweled with a sandy texture to enhance the shadows of nearby trees. Taking advantage of La Jolla's mild climate, Predock economically turned outdoor areas into public gathering spaces and oriented them to views of the surroundings.

TIMOTHY HURSLEY

TIMOTHY HURSLEY

The theater's freestanding, 270-foot-long reflective-glass wall (above and facing page) is tinted a shade that Predock refers to as "warm silver," and is supported by a painted steel and natural aluminum armature. Depending on the balance of light, the wall may be at once translucent and reflective.

TIMOTHY HURSLEY



TIMOTHY HURSLEY

Square-columned colonnade (above) provides a protected path for actors on their way to the rehearsal space, while an opening to the west (top and facing page, left in photo) invites pedestrians to walk through the complex rather than around it. Slender horizontal windows (above, right in photo) bring daylight into dressing rooms.

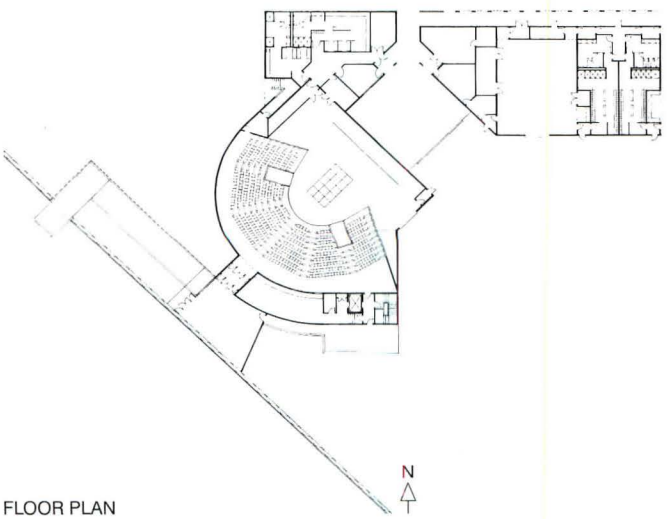
The Mandell Weiss Forum is resonant of theater itself. Mute during the day, much like an empty stage, its courtyards, second-story terrace, and lookout points are bare; the silver-tinted glass of the wall shifts between translucence and opacity with the changing light, and offers subtle ambiguities of spatial depth. On the night of a performance, uplights among the trees and runway lights along the path make the images reflected in the wall—now including those of the audience—sharp and dramatic. The audience threads in a carefully orchestrated procession through an opening in the reflective-glass wall, into the courtyard, up a switchback ramp to the terrace, and then, after a few feet of transitional space between double doors, spills into the theater from above. At intermission, theatergoers take in the views from the terrace, balconies, and courtyard, from which the light-strewn hills are particularly well-framed by a fringe of trees.

UCSD directed its budget for interiors primarily toward technology: lighting, sound, motion control, and video. Predock selected materials, colors, and finishes for the auditorium, and worked with an acoustician and theater consultant to enlarge steel roof trusses into a series of catwalks. The theater, although elegantly composed, is virtually free of architectural statement and absolutely free of ornament.

UCSD has been building ambitiously in recent years, but with more emphasis on functional requirements than on architectural excellence. When the university decided last year to establish an architecture school on this campus, Adele Naude Santos was named dean and is now in the process of hiring faculty. So the Mandell Weiss Forum has opened at an important moment, and may augur well for the future, not only at the university, but also in this part of California. Specific to its purpose and its place, the theater thoughtfully contributes to the UCSD campus and illustrates that architecture is a discipline worth taking seriously. ■

—ELLEN POSNER

Ellen Posner is an architecture critic based in New York City.



FLOOR PLAN

Predock separated performance and support spaces into two interlocking structures (plan): a curved volume contains theater, while the rectangular wing houses dressing rooms, rehearsal space, and green room. Seating (below left) is divided symmetrically into six sections around the thrust stage, affording the director flexibility in blocking. Thirteen-inch seating risers guarantee vertical sightlines. Outside, a terrace wraps around the theater (facing page), offering panoramas of the surrounding hills as well as views of the courtyard. At night, uplights create a whitening effect that makes the eucalyptus trees appear ghostly (top left).

MANDELL WEISS FORUM
UNIVERSITY OF CALIFORNIA, SAN DIEGO

OWNER: University of California, San Diego—M. Boone Hellman (assistant vice chancellor); John Sturla (project manager); Adele Shank (theater arts department chairman)—in participation with the La Jolla Playhouse—Alan Levy (managing director); Des McAnuff (artistic director)
ARCHITECT: Antoine Predock Architect, Albuquerque, New Mexico—Antoine Predock (principal); Geoffrey Beebe, Jorge Burbano, John Fleming, Paul Gonzales, Peter Karsten, David Hrabal (project team)
ENGINEERS: Integrated Structural Design (structural); Simpson Engineering (civil); Merrick + Associates (mechanical/plumbing); Design Engineering Consultants (electrical)
CONSULTANTS: McKay, Conant & Brook (acoustical); Landry & Bogan (theater); Dennis Crampton & Associates, Balis & Company (cost estimators); ONA (landscape); William Kelley (specifications)
GENERAL CONTRACTOR: Kvass Construction—Mike Derouin, Mike Bridge
COST: $4,266,000
PHOTOGRAPHER: David Hewitt/Anne Garrison, except as noted

San Jose Museum of Art Addition
San Jose, California
Skidmore, Owings & Merrill/San Francisco
Robinson, Mills + Williams

Urban Anchor

SAN JOSE, CALIFORNIA, SUFFERED A FATE SIMilar to other mid-sized American cities in the era of urban renewal by bulldozer. During the 1960s, several blocks of the city's core were leveled for parking lots, and it wasn't until the early 1980s that San Jose decided to rebuild its downtown. In 1984, Skidmore, Owings & Merrill/San Francisco developed a master plan for an eight-block sector of the city, known as Silicon Valley Financial Center. The guiding principles of the plan's design, explains SOM partner John Kriken, include a strong emphasis on mixed uses—business, entertainment, cultural, and residential—linked by a series of courtyards, arcades, and promenades. This multiblock development encompasses a public plaza, 3.5-acre park, 544-room hotel, office buildings, and the San Jose Museum of Art, housed in a former Richardsonian Romanesque post office. As author of the financial center's plan, SOM reserved a few key buildings to design: an office tower east of the art museum; and an addition to the museum, located on the northern edge of the redevelopment area.

"The museum expansion was absolutely essential to the downtown redevelopment," says Tom Aidala, an architect with San Jose's Redevelopment Agency, client for the project. "We wanted a building that was comfortable with the old museum; a background building with no heroics. Its function as a piece of architecture was more important within the overall framework of the public plaza than as a single building."

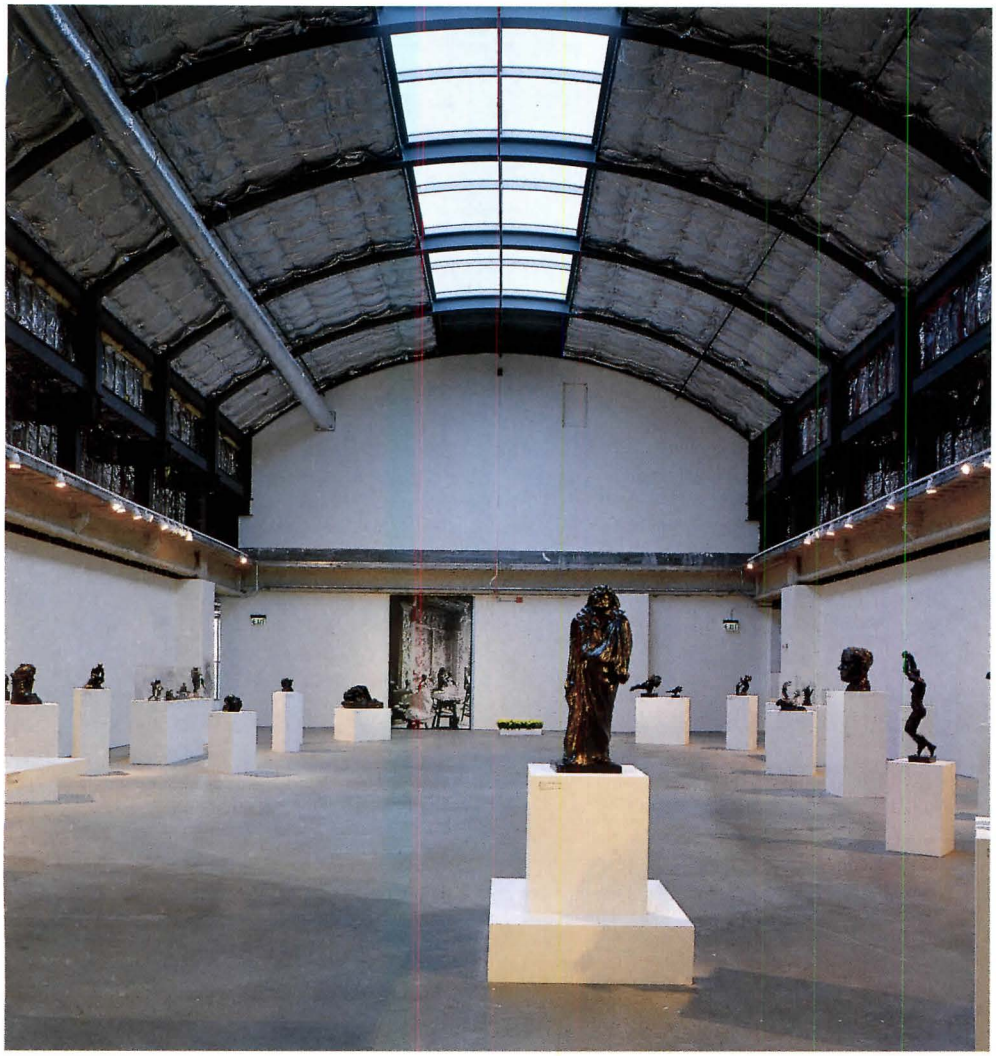
Remarkably, the 45,000-square-foot addition fulfills its mission as an important piece of the financial center's larger vision, without becoming a mere appendage to the former post office. The 1892 building's strong architectural character could easily have been extruded into an historicist addition. But SOM's building exudes its own integrity, referring to the original's sandstone exterior, in a thoroughly contemporary way. The tinted precast concrete upper stories and smooth, Ohio sandstone base, with an open loggia and south-facing facade, give it an appropriately Mediterranean temperament.

"We wanted a building that did not distract from the original museum," maintains SOM project designer Allison Williams, "and created an edge that would be penetrable for people using the plaza." The plaza is the first in a series of public spaces to be built throughout the financial center. It is located to the east of the museum, occupying a pivotal site between the downtown core, the park, San Jose's convention center, Ricardo Legorreta's Children's Discovery Museum to

Museum addition defines the north edge of Silicon Valley Financial Center plaza (facing page, top). Engraved metal disks at parapet are designed as flagpole supports (facing page, bottom). Facing a cathedral across San Fernando Street, the addition's north elevation entices visitors with a view of a second-story sculpture garden (below). Entry to underground parking is located on east side (bottom left).

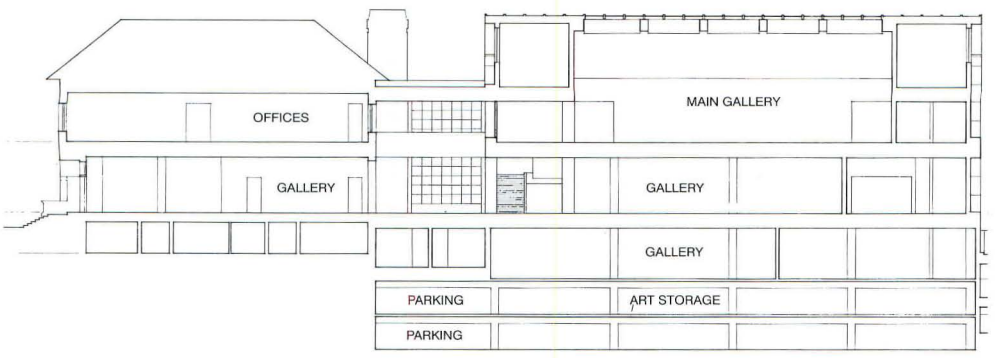

SAN JOSE MUSEUM OF ART

The addition's most dramatic space, yet unfinished, is a second-floor barrel-vaulted main gallery (below) with skylights to filter sunlight from above. This space occupies the center of the addition's basilica plan, and is flanked by smaller galleries to either side (sections, bottom).

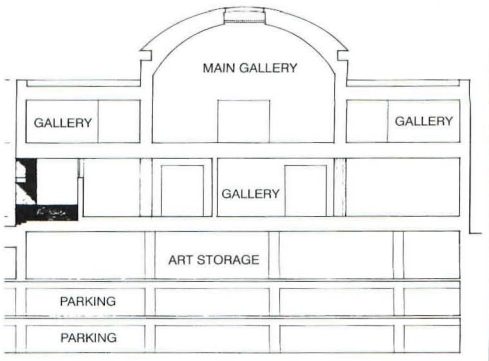


the southwest (pages 58-63), and a residential district and San Jose State University to the northeast. The museum addition defines an edge of this plaza, but encourages pedestrians to amble through it. "We wanted people to use the plaza as a shortcut from their neighborhood to the park," Williams explains. The museum and the adjacent civic space have an informal quality, and the building's loggia and steps are often occupied.

The scale of SOM's addition is key to its success as a hospitable civic monument. "It couldn't be taller than the original museum," recalls Williams, although the three-story structure is designed to accommodate an additional floor, should the need arise. The new building's parapet aligns with the eave of the old museum on the plaza side, the addition's 5-foot-high base matches the height of the older building's rusticated base, and the loggia's openings are proportioned to complement the fenestration of the older building. Where the addition joins the original museum on the south side, a freestanding precast and sandstone portal frames a link of metal and glass, offering a view of the museum lobby and a cathedral to the north. This gesture joins, yet visually separates, the museum and its addition, while creating a north-south cross axis to the addition's strong east-west basilicalike plan. On San Fernando Street, SOM designed a fortresslike elevation with a single visitor entrance—a large porthole punched through the stone skin, with a view of a second-floor sculpture garden.



EAST–WEST SECTION



NORTH–SOUTH SECTION

Entry lobby (below) is tucked behind a metal and glass wall on the south elevation, and joins the new addition to a former exterior wall of the 1892 museum. The lobby offers views onto a ground-level sculpture garden (bottom) and a mezzanine that connects with the main vaulted gallery on the top floor.

The addition's interior, designed by Robinson, Mills + Williams, the architects of San Francisco's Museum of Modern Art, exudes a restraint that complements its exterior. The galleries' white walls are baseless, the maple flooring is light and fine grained, and the granite floors have a honed finish. Many of the gallery interiors remain unfinished due to budget constraints. The lobby, however, is completed. Its west wall, formed by the east exterior wall of the old museum, dominates the space through sheer contrast of its articulated masonry against the neutral background of the lobby. It's as if the old museum became part of the addition's permanent collection.

At a time when cities are making a mad dash for "star" architects to design high-profile cultural centers, San Jose stands out as an encouraging alternative to this trend. The city's museum addition doesn't bolster SOM's downtown revitalization plan by hogging the limelight—its achievement is the result of a fine performance in a supporting role. ■

—MICHAEL J. CROSBIE

SAN JOSE MUSEUM OF ART ADDITION
SAN JOSE, CALIFORNIA

CLIENT: San Jose Redevelopment Agency/ San Jose Museum of Art
ARCHITECTS: Skidmore, Owings & Merrill, San Francisco, California—Marc Goldstein (design partner-in-charge)
INTERIOR ARCHITECTS: Robinson, Mills + Williams, San Francisco, California—C. David Robinson, Harish Shah (principals-in-charge); Alan Kawasaki (project designer); Frederick Wilson (field representative); James Aguila, Harshila Amin, Carl Bialock, Josie Camaclang, Andrea Hanson, Stefan Hastrup, Andrew Potter, Raymond Silverstein, Greg Stewart, Rosalia Ting, Wilbur Weber, Lou Williams (project team)
ENGINEERS: Skidmore, Owings & Merrill (structural, mechanical/electrical)
CONSULTANTS: Horton Lees (exterior lighting); S. Leonard Auerbach and Associates (interior lighting); Michael Manwaring (graphics); Schirmer Engineering (fire protection); Charles M. Salter Associates (acoustics); Adamson Associates (cost); Phil Dollison Associates (security)
CONSTRUCTION MANAGER: CH2M Hill
GENERAL CONTRACTOR: Nibbi Brothers
COST: $14 million
PHOTOGRAPHER: David Hewitt/Anne Garrison

Children's Discovery Museum of San Jose
San Jose, California
Legorreta Architects

Child's Play

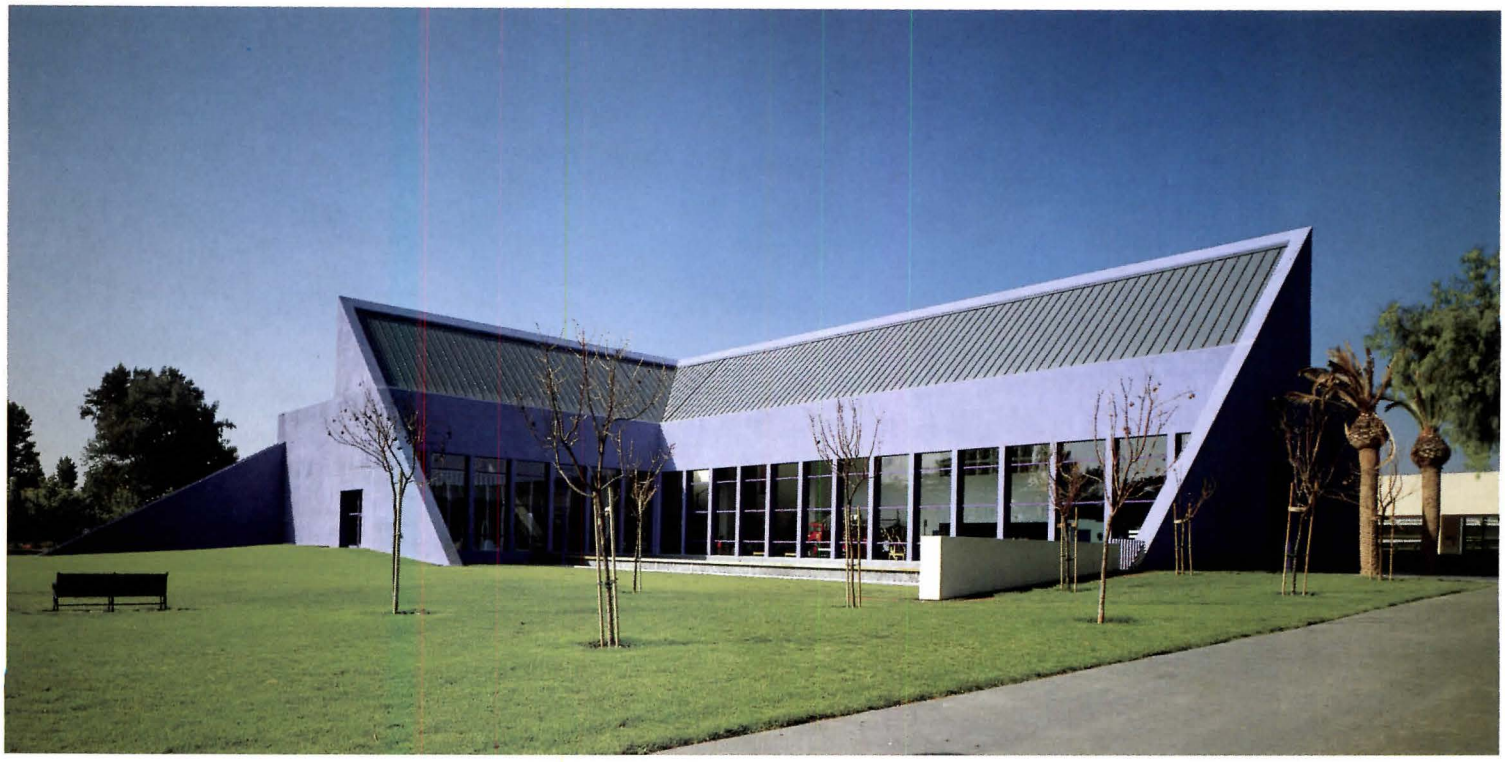
"YOUR BUILDING IS AN INTERESTING color," observed a young visitor on her first visit to the new Children's Discovery Museum in San Jose. "It reminds me of my grandmother's hair." The lavender color of architect Ricardo Legorreta's 47,000-square-foot structure immediately identifies its design as a whimsical place, intended to amuse and entertain children. Its fundamental purpose, however, is serious. Sited at the west edge of downtown, the museum is one of several newly built civic resources in San Jose designed to draw residents and visitors to the city's revitalized core. Designed by Legorreta Architects, the museum is situated in a 3-mile-long park undergoing development next to the Guadalupe River. Adjacent to the museum, Legorreta is now designing a $30 million technology center, which, according to redevelopment officials, will appeal to the curiosity of adults.

The building's exterior is an apt advertisement for its function, combining crisp, angular forms with orthogonal masses that suggest piles of children's building blocks. The windows extend the geometry lesson with simple squares and rectangles, which, aided by thin frames and mullions, read clearly through thick, synthetic stucco walls. The exuberant color of the exterior has become the museum's trademark: the institution's brochures, letterhead, and literature are designed in the same shade of lavender. This color was not, however, Legorreta's first choice—he wanted pink. "The museum and the city felt that pink wasn't appropriate," says project architect Gerardo Alonso. "Kids would identify that color with girls."

The building's forms, shapes, and colors appeal to children, but the design is anything but simple. It possesses the sculptural qualities of many of Legorreta's other buildings, including an emphasis on the wall as an architectural element, through which his work has come to be associated with that of Luis Barragan. The building also evokes the architecture of Legorreta's native Mexico in its massing and small windows, sharp angles, and long flights of exterior stairs that are reminiscent of the ancient stone temples at Teotihuacan and Tula, not far from Legorreta's base in Mexico City.

But the very qualities and complexities that identify this building as signature Legor-

Southeast elevation of the Children's Discovery Museum (above) screens the building's service entrance with a low wall. Looking through entry loggia, buff-colored wall (facing page) defines a forecourt for informal gatherings and directs visitors to the museum's main entrance.



Museum's northern corner cradles a courtyard and pool (above), where glassy walls display the building's contents at night, when the interior is illuminated. Legorreta's sharp angles herald the main entrance on the northwest facade (facing page). The portal leads to a forecourt through which visitors may enter the museum or gift shop.

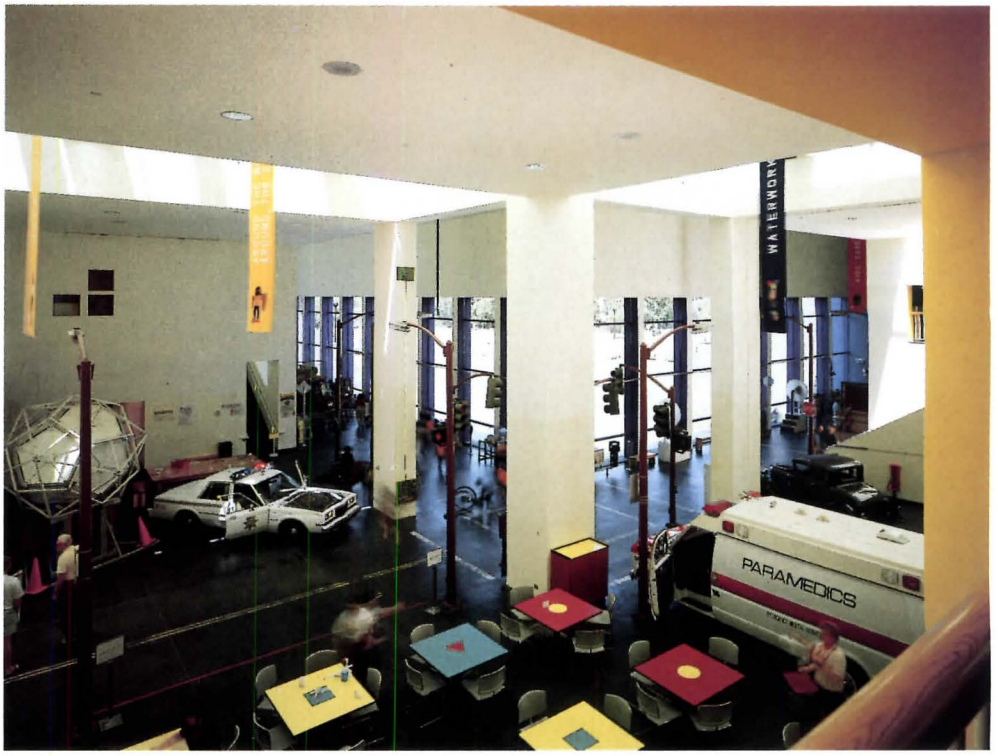
reta are at odds with its function as a museum for children. The angled walls that meet the ground invite young adventurers to scale them, but "do not climb" warnings admonish their attempts. The long, windowless walls of the southwest approach, accessible by public transportation, also create a somewhat forbidding atmosphere. The museum does not advertise its interior along this extended loggia to entice the young visitor inside. Instead, the loggia, which will eventually link the technology center, leads past blank walls to a plaza on the building's northwest side, where one "discovers" the way into the museum through a portal framed by two drought-stricken palm trees. This entry sequence is a bit inscrutable, even for a grown-up. In fact, exterior amenities—including a long, rectangular pool faced by tall windows that reveal the museum's innards—might be missed. The courtyard and pool are oriented toward the park and city core, from which many visitors arrive by car.

The pool, filled with recycled, unclean water, is another source of concern for the museum staff. On hot days, kids romp in it, and can easily fall while playing in the water. At night, the courtyard becomes a gathering place for homeless people who use the pool to refresh themselves and sleep in the corners of the building's sheltering walls. The museum and the city are now contemplating ways to screen the pool just below water level or to close it off with walls.

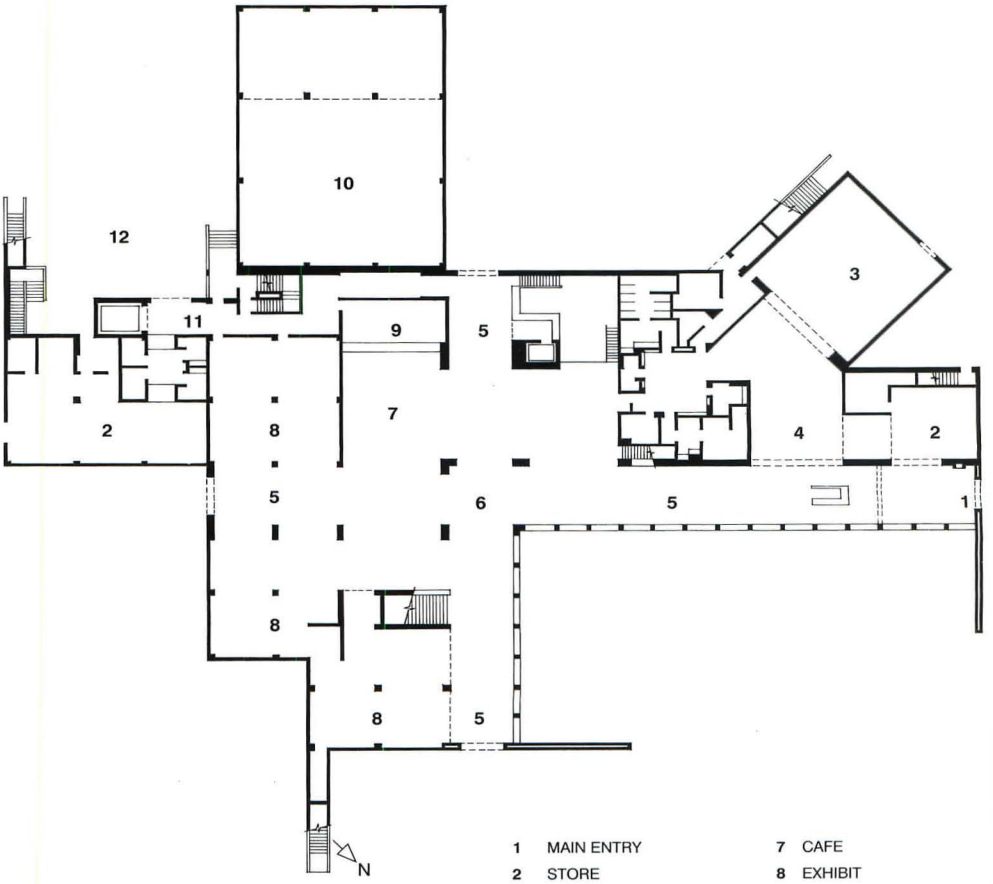
Inside the building, Legorreta conceived the public areas as one large T-shaped space, which works well with the museum's exhibition theme of "streetscapes." Natural light emitted through clerestories and skylights cheers the two-story space. One-story galleries at the southeast end of the building contain exhibits that work best in tighter quarters with less natural light, such as computer displays. As is common in most children's museums, the sequence through the exhibits is not choreographed—visitors may circulate as they wish. The open design, which allows views between exhibit areas, is flexible to accommodate changing displays and encourages the feeling of discovery. Views of the interior have been marred, however, with the installation of plexiglass "fences" on the second-floor balconies and interior windows. According to the museum's public relations manager, Karen McBride, "We didn't want to take the chance of someone falling in. And I don't think the wall heights were ever tested by 800 kids before."

Luckily for the museum, Legorreta's design is strong enough to withstand these adjustments. Despite minor flaws, the museum has established a firm foothold in San Jose's redevelopment and provides a memorable experience for visitors young and old. It will surely prompt them to discover architecture. ■

—MICHAEL J. CROSBIE



Inside the museum, service vehicles and traffic lights complete the illusion of an indoor street (top right). Interiors receive ample daylight from courtyard windows (top left and facing page), clerestories, and skylights (top right). Skylights accent stairway to second-floor exhibits (facing page) and square interior windows offer views up and down the "street."



GROUND-FLOOR PLAN

CHILDREN'S DISCOVERY MUSEUM OF SAN JOSE
SAN JOSE, CALIFORNIA

CLIENT: San Jose Redevelopment Agency
ARCHITECTS: Legorreta Architects, Mexico City, Mexico—Ricardo Legorreta, Noe Castro, Gerardo Alonso, Sydney Brisker (project team)
ASSOCIATE ARCHITECTS: Gould Architects, San Jose, California—Stanley G. Gould (principal); Alfred Y. Nishiura (project architect); Alfredo Garcia, Chinmun Hsu (project team)
ENGINEERS: Kurily Szymanski Tchirkow (structural); Flack + Kurtz (mechanical/electrical)
COST: $8.2 million
PHOTOGRAPHER: David Hewitt/Anne Garrison, except as noted


JESSE'S CLUBH

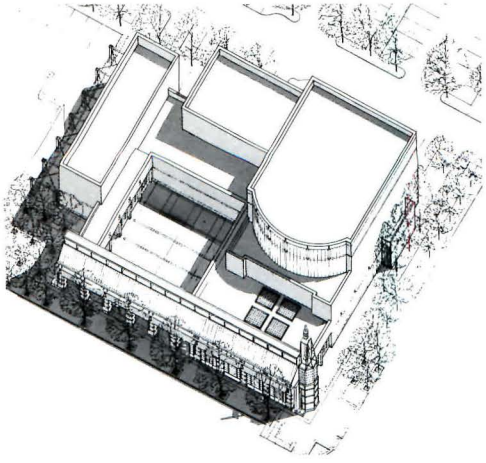
Fairfield Center for the Creative Arts
Fairfield, California
ELS/Elbasani & Logan, Architects

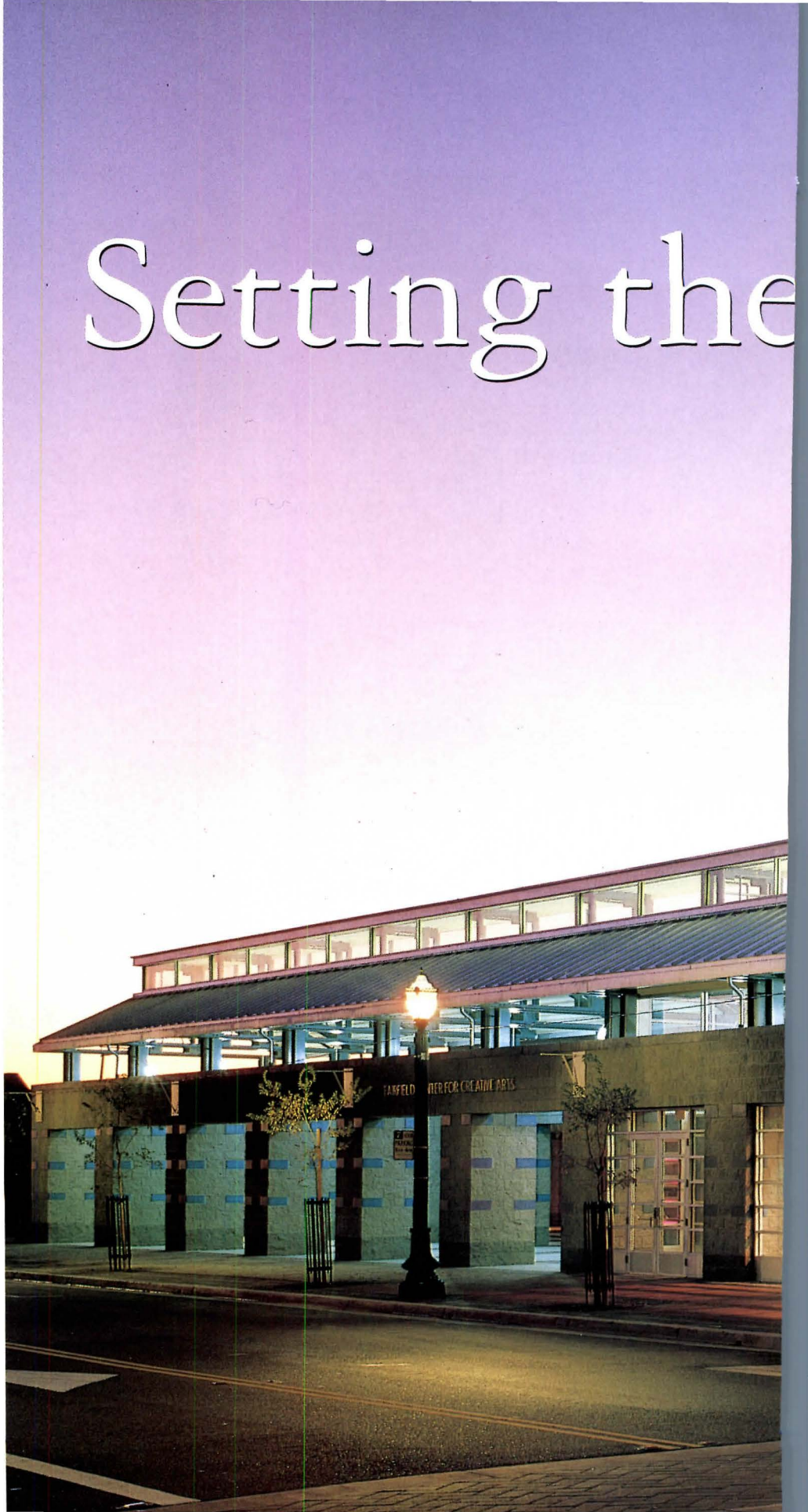
Setting the

IF, IN THE WORDS OF ROBERT VENTURI, "MAIN Street is almost all right," in Fairfield, California, *Main Street* just got better.

Located approximately 45 miles northeast of San Francisco, Fairfield was once a sleepy California farming community that woke up to find suburban sprawl rapidly encroaching upon its borders. During the 1980s, the town's population grew from 58,000 to 80,000, and several major corporations moved into the region. In 1987, afraid of losing its small-town appeal, the city commissioned The Planning Collaborative, a San Francisco landscape architecture firm, to create design guidelines for a downtown revitalization program. That same year the city tapped ELS/Elbasani & Logan to convert an old Elks Lodge on the outskirts of town into a community theater. "Immediately, we questioned the logic of spending a lot of money on a building out by the freeway," recalls design principal Donn Logan. "We insisted that the theater would be a major catalyst for revitalization if it were located in the downtown core."

Convinced by the design team, the city acquired a corner site for a new 25,000-square-foot theater that fronts West Texas Street, Fairfield's Main Street, at the western edge of the town's original retail district. Eager to create a gateway to the city, ELS anchored the corner with a 45-foot-high beacon that announces the arts center as well as the revitalized shopping district. This octagonal tower is more than an icon, providing additional space for a small public art gallery.





Stage

An arcade leads to the theater's ticket booth (facing page). The architects wrapped the arcade, theater lobby, and rehearsal space around a central courtyard (below), which is also used for performances. Clerestories below a continuous barnlike roof (bottom) fill exhibition space with natural light.

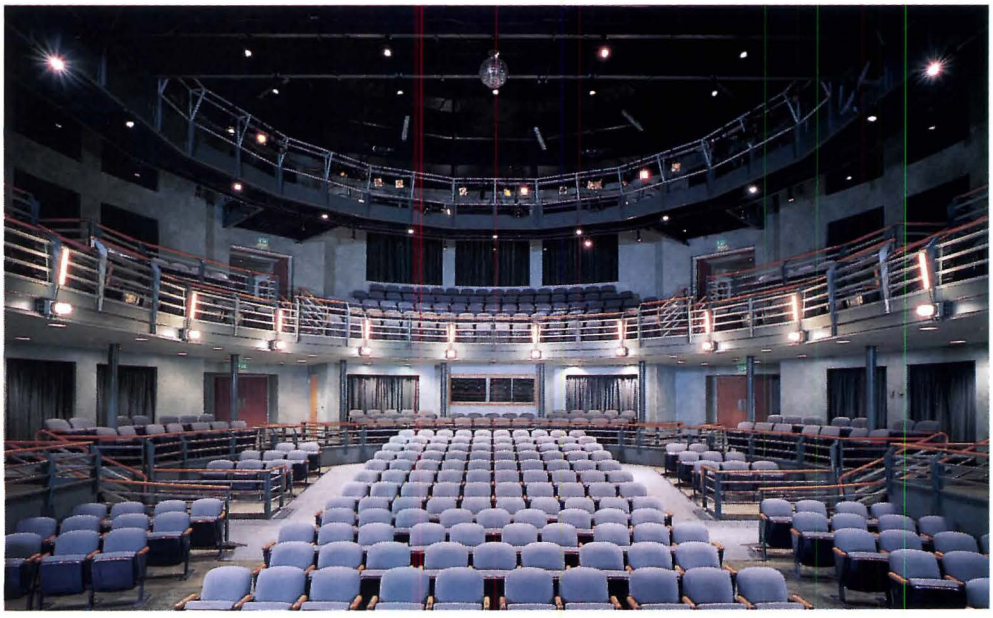
To maintain the continuity of the streetscape, the architects held the property line with a long horizontal spine housing exhibition space, a ticket booth, and an arcade. Crowned with a pitched, barnlike roof with a continuous clerestory, this low mass is articulated with a series of 15-foot bays that echoes the rhythmic pattern of nearby storefronts. Behind this facade, the architects wrapped the various components of the building around a central courtyard. Single-story wings containing a rehearsal hall and administrative support space define the eastern and southern edges. The lobby and auditorium, defined by a curving facade visible from the street, anchor the southwest corner of the site, and a trellised walkway at the east end of the building connects parking at the rear with the theater's front entrance.

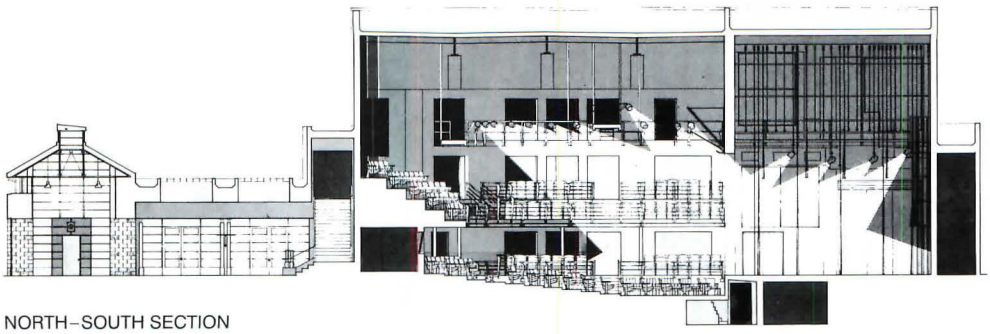
The architects chose materials sympathetic to the city's agrarian and industrial traditions. The building's dominant material, split-faced concrete block, met economic, structural, and acoustical demands without sacrificing the architects' desired vernacular esthetic. The auditorium's curved facade is finished in galvanized aluminum-based metal cladding, which is repeated on the pitched roofs and downspouts. Inside and out, the architects accented wall surfaces with square blue tile insets.

ELS fulfilled its urban design goals without sacrificing the appropriate technology and maximum flexibility that was required of a community theater. "This is vaudeville land," explains theater manager Greg Crow. "Everything and anything goes." The architects wrapped the 403 seats close to the stage in a courtyard theater plan and utilized a limited fly loft stage arrangement. The first two rows of seats can be removed to accommodate up to 32 musicians in the orchestra pit. Above the stage opening, a decorative plywood fan provides a permanent acoustical screen, while heavy velvet curtains are retractable to change reverberation time, creating hard or soft acoustical environments.

ELS designed the light gallery as a series of suspended catwalks to appear like a second balcony that reinforces the lines of the seating and accommodates mechanical equip-

Theater's curved facade extends to the lobby (facing page) and serves as a backdrop for main staircase (below). Gently sloping orchestra seating and wrapped balcony (below center) create an intimate setting. The architects held the street line with a low spine, setting the bulk to the south (section).





NORTH–SOUTH SECTION

ment for many different types of activities. Within its first six months of operation, the center has presented local and touring dramatic groups, dance, and all kinds of music from opera, symphony, and chamber music to jazz and blues.

The facility as a whole is as flexible as the main auditorium. A rehearsal room the same size as the stage is regularly used for community events and as an experimental performance space. In the public art gallery, the architects incorporated a series of wooden accordion partitions to allow the space to double as a secondary lobby. The courtyard also accommodates overflow and was designed to support informal outdoor performances. Both spaces are utilized for theater fund-raising and social events.

ELS eschews the notion of architecture as signature design or freestanding sculptural objects. But for the Fairfield theater, the architects stretched their own rules, achieving a bold, civic monumentality. The facility is undeniably the city's current architectural prima donna, setting the stage for a new standard of design in this small California town. Six blocks to the east, anchoring the opposite end of the downtown core, stands the Solano County Courthouse. The county recently commissioned ELS and the San Francisco firm Simon Martin-Vegue Winkelstein Moris to design a major expansion to the Neoclassical building. Each firm is working on a wing to flank the 1910 structure. Stay tuned for future attractions. ■

—LYNN NESMITH

FAIRFIELD CENTER FOR THE CREATIVE ARTS
FAIRFIELD, CALIFORNIA

ARCHITECTS: ELS/Elbasani & Logan Architects, Berkeley, California—Donn Logan (principal-in-charge); Kurt Schindler (project manager); Tom Monahan, Bruce Teel, Andrew Jacobson, Clifford Chang (project team)
LANDSCAPE ARCHITECT: The Planning Collaborative
ENGINEERS: Nellie Ingraham Associates (structural); JYA Consulting Engineers (mechanical); The Engineering Enterprise (electrical)
THEATER CONSULTANT: Charles M. Salter Associates
GENERAL CONTRACTOR: Roebblen Engineering
COST: $7.2 million
PHOTOGRAPHER: Timothy Hursley/The Arkansas Office

Shatto Recreation Center
Los Angeles, California
Steven Ehrlich Architects

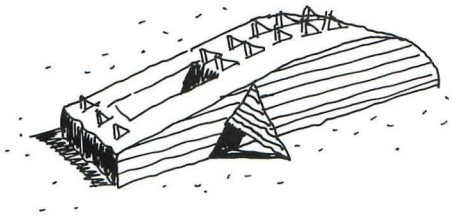
Street Smarts

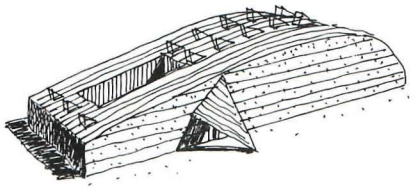
THE SHATTO RECREATION CENTER, LOCATED in a tough neighborhood just west of downtown Los Angeles, is often referred to as "the whale." Indeed, the new community building's dynamically curved form resembles a surfacing marine mammal, complete with an angled metal canopy that looks like a pectoral fin. "It's a very intuitive, emotional response to the site and the neighborhood," architect Steven Ehrlich explains. "I wanted to bring a softness into the environment—a gentle built element. The shape came from looking at the waves on the Pacific one day." And, hoping that residents' pride in their expressive new building would discourage graffiti artists, Ehrlich collaborated with Los Angeles artist Edward Moses to develop the exterior elevations. The pattern incorporates fluted, split-faced concrete block the color of sandstone, black glazed concrete block, and a smooth masonry unit of red clay.

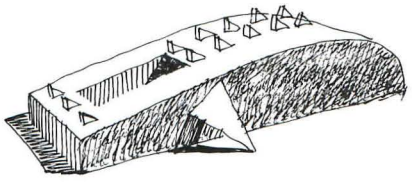
Three community rooms, a stage, a full-size gymnasium, kitchen, director's office, and equipment room fill the 11,640-square-foot building, which, to the casual observer, appears as some sort of oversize, primitive meeting hall, its exterior motif suggesting a handmade structure of reeds or fibers. Such fragility is only an illusion, however. Commissioned by the City of Los Angeles and designed by Ehrlich, this sturdy, Quonset-hut-like building occupies a 6½-acre site in the middle of a community where vandalism is common. Yet the city's offerings at the rec center—free dance and aerobics instruction, sports leagues for all ages, nursery school, and senior care—hardly befit a fortress; the architect wanted the building to appear as unimposing as possible.

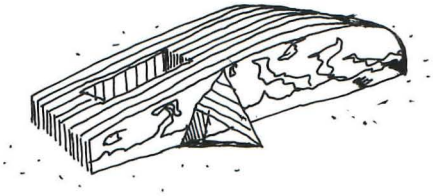
Both the center's shape and odd calligraphy have origins in the six years Ehrlich spent in Africa, first as an architect for the Peace Corps in Morocco, then traveling across the Sahara and settling in Nigeria to teach architecture. The experience left the 45-year-old architect, who has now settled in Venice, California, with an interest in "simple, pure, primitive responses."

Artist Ed Moses, who was experimenting with random expression in his own paintings, was of a similar mind. Working for several months, he produced hundreds of drawings on drafting tissue with felt-tip pen. He

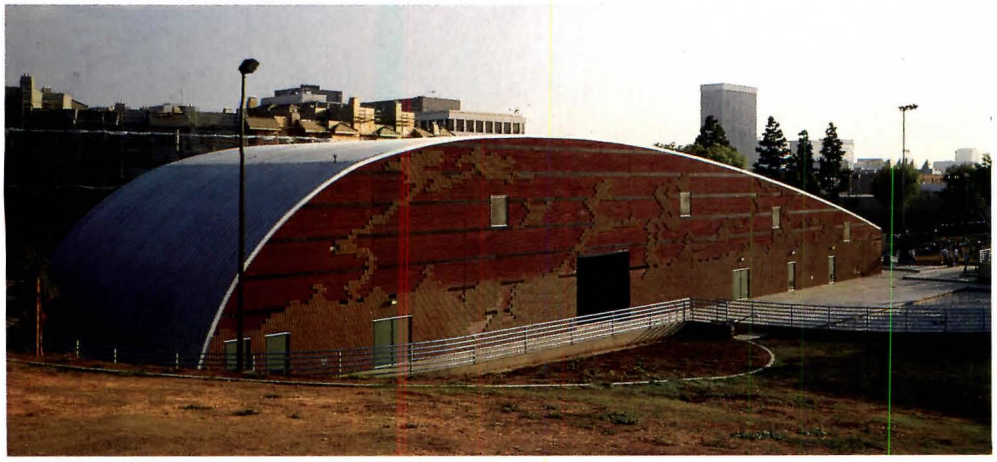


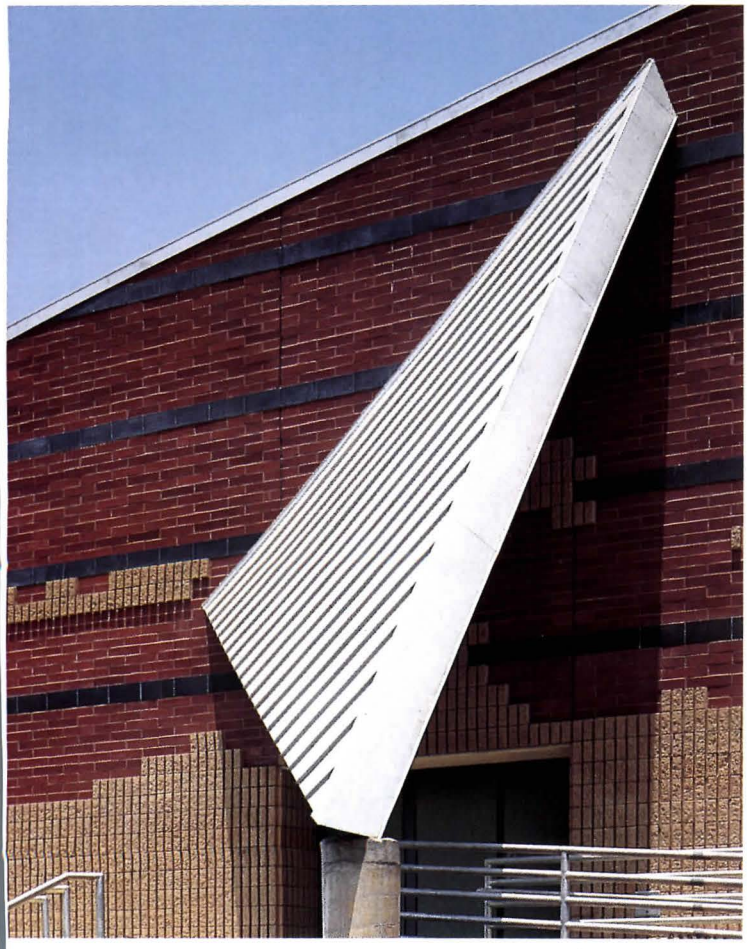


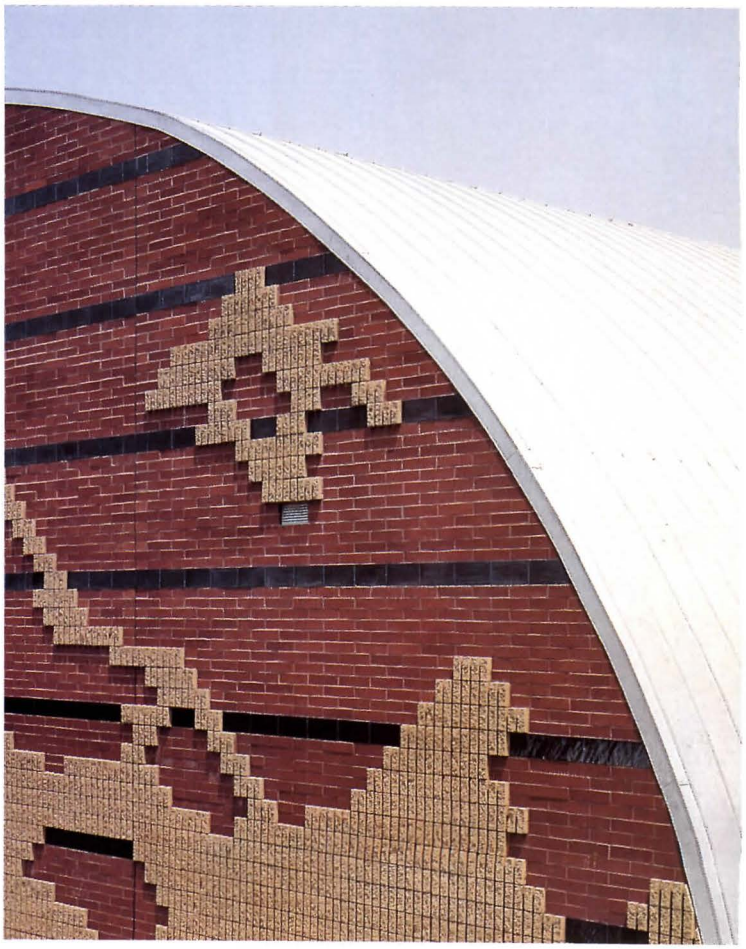




Galvanized steel "fin" (facing page, top and bottom left) creates a place in the shade for neighborhood residents. Abstract patterns in concrete block (below and facing page) were derived after collaborative studies (right) by architect Steven Ehrlich and artist Ed Moses.







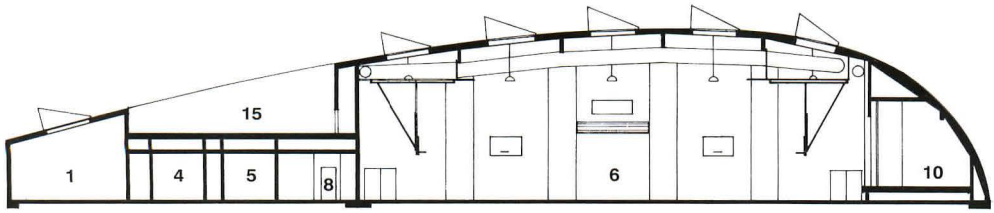
Yellow plywood above reception window (below left) repeats roofline curve in reverse. Roll-up metal doors (below right) join interior spaces with baseball diamond, basketball courts, and tennis courts. A return-air duct winds like a snake across gymnasium ceiling (facing page, bottom and plan).

didn't want the elevations to appear "designed"; instead he sought a motif that simply evolved "through the nature of marking." Moses also wanted an elevation that fit the environment, that "took on some of its attitudes." He initially suggested that the neighborhood's residents use the first 10 feet from the ground up for their own artwork or graffiti. But the city wanted a "clean" building. Moses says that, in this primarily Hispanic area, the Shatto Recreation Center assumes a Mexican, or Aztec, quality that even he hadn't intended. As the artist notes, "Somewhere or another, the nature of that marking took an attitude that is closer to the hearts of the people in the area."

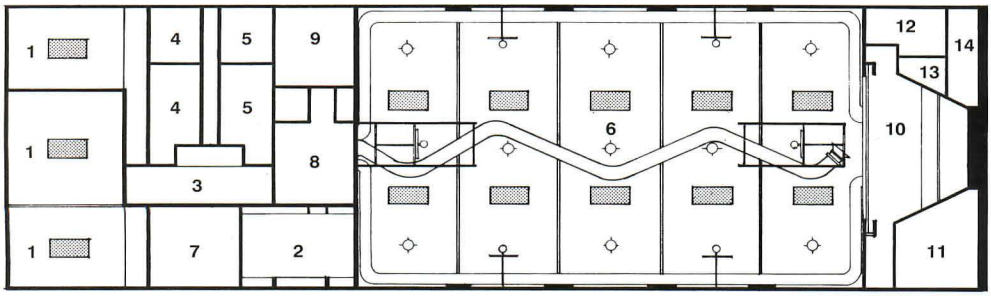
Originally, Ehrlich sought to focus attention on the uninterrupted facades by daylighting the structure with skylights (see sketches, page 70), but the city eliminated them because they provided too many points of access. To make the building vandalproof, the architect placed all mechanical equipment in a sunken well on the roof, and set a chain-link cage over it. Rather than insert breakable glass windows, he brought natural light into the gymnasium and community room through four screened openings placed high on the north elevation, and through large roll-up doors that lead to playing fields. Penitentiary-code bathrooms with stainless steel fixtures defy would-be pillagers, and the heavily grooved exterior offers a poor canvas for spray paint. The concrete block structure, arranged in a simple rectangle with 10 security steel doors, is a stronghold.

The maverick community center pleased not only the city, but Los Angeles' formidable Cultural Affairs Commission, the organization responsible for ArtsPark L.A., the proposed cutting-edge complex in the San Fernando Valley that will probably never be built. The commission chastised L.A.'s Department of Recreation and Parks for erecting too many typical, square-box, government-type buildings, and the city responded by hiring several local architects to devise unique designs for a variety of new recreational buildings. Dallan Zamrzla, a parks department contracts administrator who has been involved with Shatto center since its inception, says Ehrlich's design surprisingly encountered little resistance in the review process. "The 'whale' is a showplace," Zamrzla muses. "Just what we were looking for to make a radical change." ■

—HEIDI LANDECKER



EAST–WEST SECTION



GROUND-FLOOR PLAN

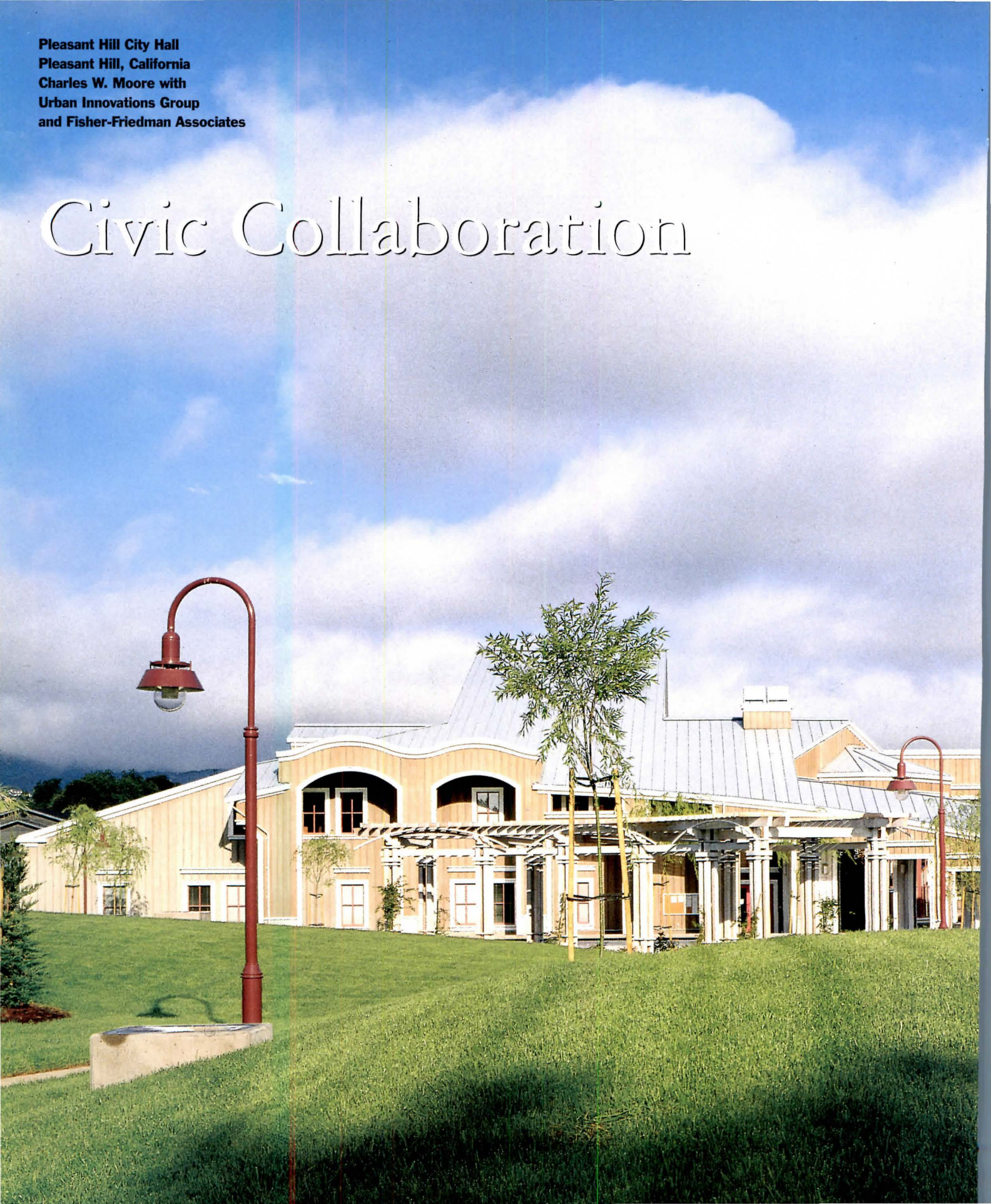
1	COMMUNITY ROOM	6	GYMNASIUM	11	STORAGE
2	LOBBY	7	KITCHEN	12	JANITOR
3	HALL	8	DIRECTOR'S OFFICE	13	DRESSING
4	MEN'S RESTROOM	9	EQUIPMENT ROOM	14	ELECTRICAL
5	WOMEN'S RESTROOM	10	PLATFORM	15	MECHANICAL

SHATTO RECREATION CENTER
LOS ANGELES, CALIFORNIA

CLIENT: Department of Recreation and Parks, City of Los Angeles
ARCHITECT: Steven Ehrlich Architects, Venice, California—Steven Ehrlich, AIA (principal-in-charge and designer); Gary Alzona (job captain); John Gerard (project manager); Carlos Kitzinger, Jim Schmidt, Nadine Carome, Karen Thornton (project team)
ENGINEERS: Stephen Perlof (structural); MB&A (mechanical); E.B.S. (electrical); Christian Chan (civil)
CONSULTANT: Ed Moses (artist)
CONTRACTOR: Mallcraft, Larry Bradley
COST: $1.8 million (including sitework)
PHOTOGRAPHER: Tom Bonner

Pleasant Hill City Hall
Pleasant Hill, California
Charles W. Moore with
Urban Innovations Group
and Fisher-Friedman Associates

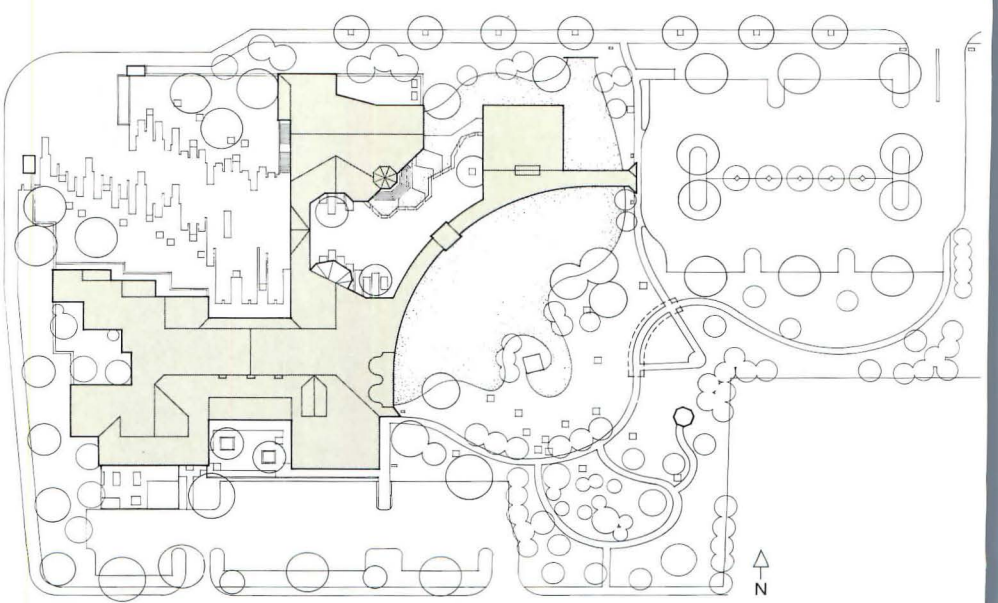
Civic Collaboration



PLEASANT HILL, CALIFORNIA, IS THE NEXT-to-the-last stop on the San Francisco BART system. The town was incorporated only 30 years ago and now numbers approximately 32,000 residents. Following the pattern of contemporary suburban edge cities, Pleasant Hill developed without any planning or architectural integrity. When the local government outgrew its quarters in a converted shopping center, city leaders seized the opportunity to create a civic focus with the construction of a new city hall. Although never stated in the building's program, the municipal structure was to become the heart of Pleasant Hill, a community that didn't have one.

Inspired by the challenge, AIA Gold Medalist Charles W. Moore teamed up with Urban Innovations Group of Los Angeles and Fisher-Friedman Associates of San Francisco to fill the void. The new city hall represents the way Pleasant Hill would like to be, a quintessential Northern California small town, with a municipal identity that sets a new standard for design in the region.

Achieving this lofty goal took longer than the average fast-track government job. In 1983, the city council started looking for a site and an architect. After 25 public meetings, the town acquired a 3½-acre site catercorner



A sweeping loggia unifies the civic center around a manmade lake (top). Administrative functions are housed in a 24,300-square-foot structure to the south (bottom left in site plan); council chambers occupy a structure above a fountain (facing page); and a recreational center (top center in site plan) anchors the northeast corner.

to a public park. Moore was selected as design architect, proving an apt choice, since the hallmark of his practice is collaborating with colleagues and citizens' groups. He mastered the process for a number of churches, including the 1985 AIA Honor Award-winning St. Matthew's in Pacific Palisades. But Pleasant Hill was the first time Moore applied his unique brand of citizen participation to a public building. Here, the architects held five public charettes attended by more than 100 local citizens.

The 35,700-square-foot city hall is immediately recognizable as pure Moore, yet its expression departs from the architect's recent Southern California civic centers in Oceanside and Beverly Hills. Without the regional traditions of Irving Gill or William Gage to draw upon, Moore turned to Northern California's agricultural roots. Pleasant Hill's civic complex is not a response to site-specific architectural precedents, but rather a recollection of "an easy-going small town on wonderful yellow grass," in the words of Moore.

At Pleasant Hill, Moore handled his symbolism with benign restraint to create an ensemble of disparate parts that grows from the functions housed within and the site. Fundamental to the appeal of the complex is its relationship with the landscape. The architects created a villagelike assemblage of three low-slung, cedar-clad structures clustered around a manmade lake. Anchoring the southern edge of the site, the largest component is arranged as a series of stepped gabled volumes. Amid this composition, a colorful portico marks the main entrance.

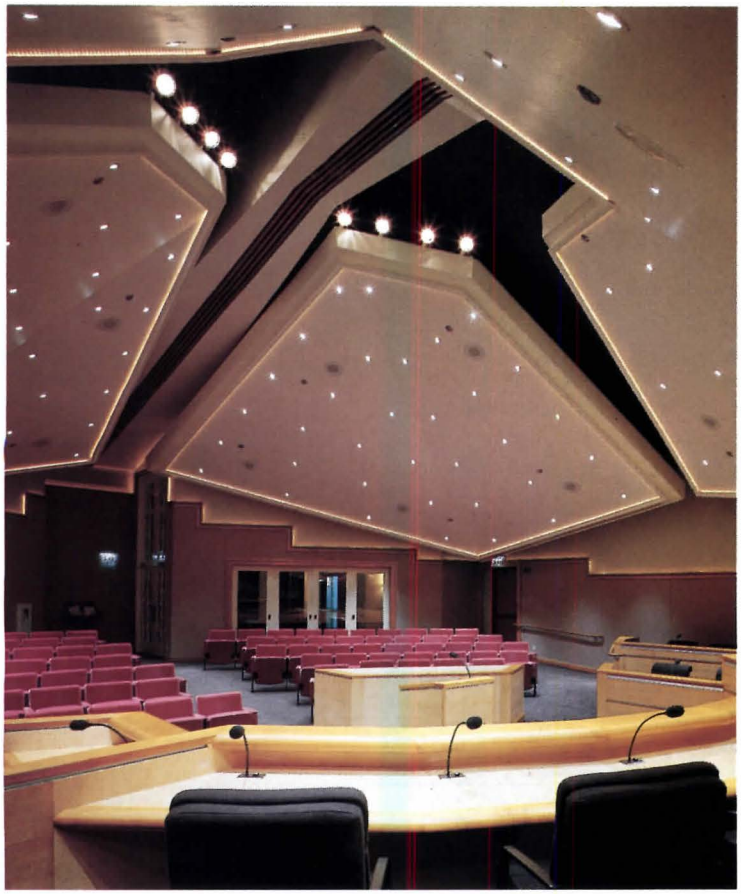
Acknowledging that most visitors will arrive by car, the architects gave the complex an even bolder back door to the parking lot. A curved arcade cupped around the lake announces the entrance procession. The midpoint of the walkway aligns with the center's second accent of color, a tiled fountain that serves as the focal point of a central courtyard.

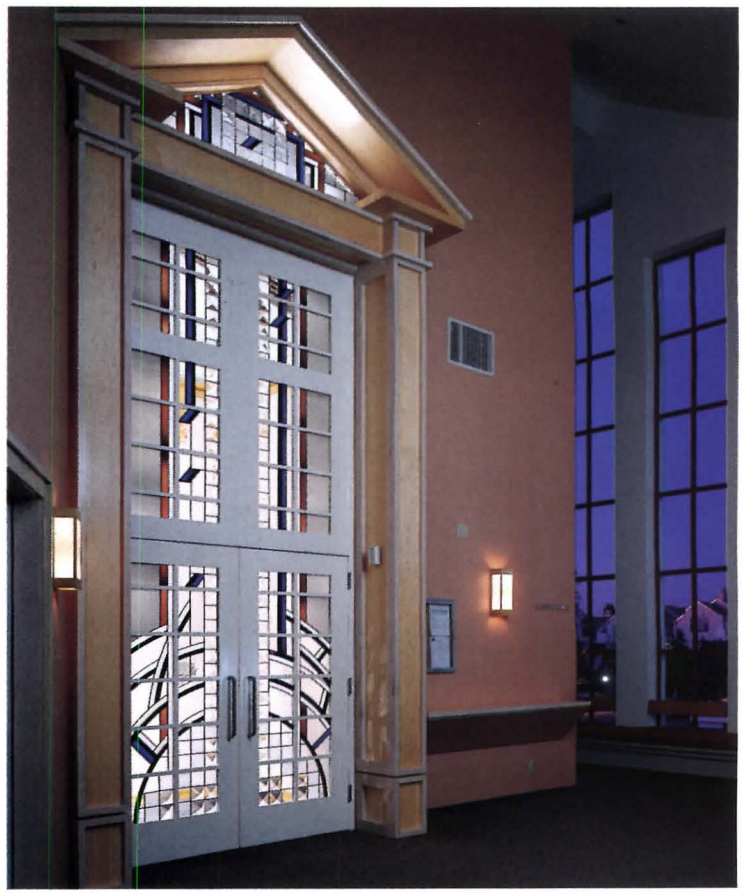
The architects extended the exterior's high level of articulation into public spaces. Administrative functions open onto an atrium enlivened with a series of sculptural, stainless steel braces, and the council chambers feature a bold ceiling of colliding, angled planes.

Moore continues to refute the architectural equivalent of the maxim, "too many cooks spoil the broth." As evident in Pleasant Hill, he thrives on a collaborative design process, devising new recipes for enriching public architecture. ■

—Lynn Nesmith

With its varied roof lines and simple fenestration (above), the city hall's west elevation appears like a collection of ancillary farm structures. The buildings are set back to create a landscaped plaza (facing page, top) that serves as a forecourt to a colorful portico framing the main entrance (facing page, bottom). The entrance incorporates a covered, elevated walkway that links the administrative building and council chambers.

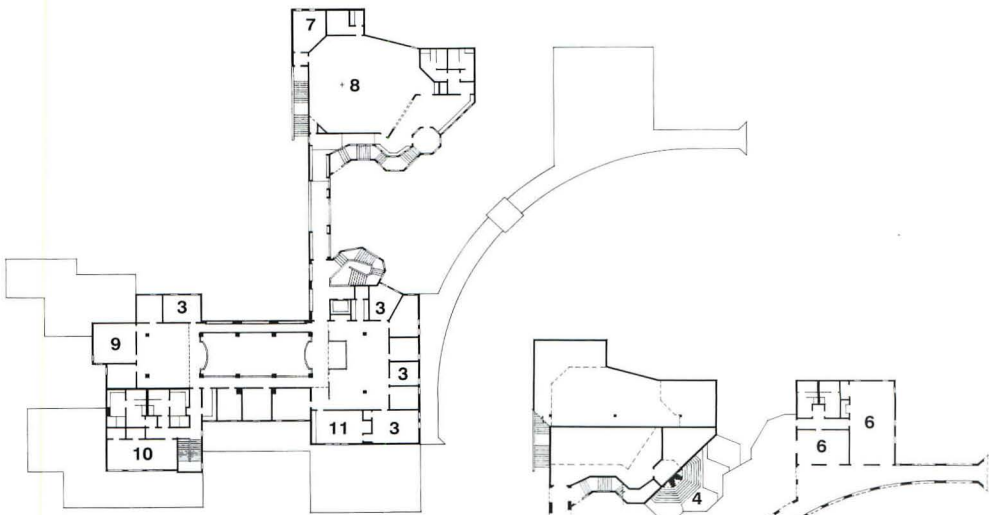




Stained glass door and transom (above right) announce council chamber. A ceiling of angled planes (above left) accentuates the irregular shape of the meeting room. Sculptural steel braces accent the administration building's atrium (facing page).

PLEASANT HILL CITY HALL
PLEASANT HILL, CALIFORNIA

ARCHITECTS: Urban Innovations Group, Los Angeles, California—Charles W. Moore (principal designer); Rex Lotery (principal-in-charge); John Echlin (project architect/designer); Steve Dumez (project architect/construction); Marcos Novak (colors); Jim Garland, Ensieh Tasdigh, Dian Phillips, Ali Barar (project team) Fisher-Friedman Associates, San Francisco—Rodney F. Friedman (partner-in-charge); Robert J. Geering (senior designer); Stephen B. Haines (project manager); Mark B. Steppan (job captain)
LANDSCAPE ARCHITECTS: Carducci Associates
ENGINEERS: Robinson Meier, Juilly & Associates (structural); Charles & Braun (mechanical); Belden, Inc. (electrical); James R. Stedman & Associates (civil)
CONSULTANTS: Richard C. Peters (lighting); Charles M. Salter Associates (acoustics); Brassaw Engineering (fountain); Shelly Jurs (architectural glass); FFA Interiors (interiors)
PUBLIC PARTICIPATION MANAGER: Jim Burns
GENERAL CONTRACTOR: Roebbelen Construction
COST: $7 million (including sitework)
PHOTOGRAPHER: *Charles W. Callister, Jr.*



1 ENTRY
2 CITY OFFICES LOBBY
3 OFFICE
4 FOUNTAIN
5 ARCADE
6 COMMUNITY ROOM
7 CLOSED-SESSION ROOM
8 COUNCIL CHAMBER
9 LIBRARY
10 EXERCISE ROOM
11 CONFERENCE ROOM

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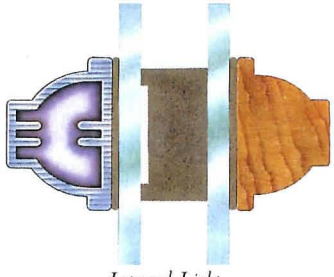

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Lift-slab Safety Challenged With New Findings

IN 1987, THE 16-STORY L'AMBIANCE PLAZA apartment building, designed by TPM Architects and under construction in Bridgeport, Connecticut, collapsed, killing 28 workers. The accident was investigated at the time by the National Bureau of Standards (now the National Institute of Standards and Technology, or NIST) on behalf of the U.S. Occupational Safety Administration (OSHA), and a determination was issued and blame assigned. However, at next month's conference of the American Society of Civil Engineers, David Peraza and David Cuoco of the New York engineering firm Thornton-Tomasetti will present a conflicting version of what happened to the concrete-and-steel structure.

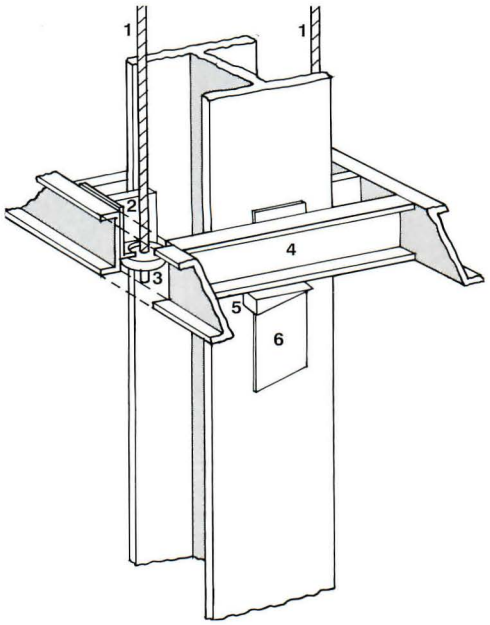
WIDE WORLD PHOTOS / AP

NIST concluded that the collapse of the building (above), which employed the lift-slab method of construction, was triggered when a rod used to hoist the 320-ton concrete slabs by hydraulic jacks slipped out of place. Federal investigators were hampered by a time limit imposed by OSHA, which must issue fines for construction violations within six months of the accident. Thornton-Tomasetti, commissioned by the city of Bridgeport, investigated the case for more than a year. But the firm's investigation was terminated when a settlement was reached between OSHA and Texstar, the lift-slab subcontractor that was found at fault.

In Cuoco and Peraza's version of the accident, slippage of temporary wedges, used between slab collars and column weld blocks, most likely occurred because they were improperly installed off-center, resulting in an uneven distribution of stresses. Another factor was the improper sizing of steel collars through which the slabs were lifted on vertical steel columns. The columns near the top of the building were smaller than those on the lower floors, yet the slab collars did not decrease in size. The resulting gap between the collar and the wedge decreased the slab's bearing on the wedge, which, the engineers claim, led to the failure. Peraza points out that the blame for the collapse under these conditions would still rest with Texstar.

The findings of Thornton-Thomasetti's investigation are important, explains Peraza, because safety measures enacted by OSHA after the collapse, based on inaccurate conclusions in the NIST investigation, would not prevent such an accident from happening today. None of the new safety measures, according to Peraza, "has addressed the problem that we have identified, which we believe was crucial to the building's failure. In the interest of public safety, we think that it should be looked at."

Cuoco and Peraza released findings of their investigation to the *Hartford Courant* last June, as a prelude to their participation in the October engineering conference. They are now preparing a report for review by NIST, which continues to stand by its own conclusions. The conference will provide a forum for Cuoco and Peraza to present their report, and an opportunity for NIST to respond to the new findings. —M.J.C.



STEEL COLUMN WITH LIFT-SLAB COLLAR

1	LIFTING ROD	4	COLLAR
2	LIFTING ANGLE	5	WEDGE
3	LIFTING NUT	6	WELD BLOCK

New evidence indicates the collapse of L'Ambience Plaza in 1987 (above left) was caused by slippage of a temporary wedge (5 above) rather than failure of lifting rods (1 above), as stated in the NIST report.

New Liability Risks Threaten Architects

IN THESE LITIGIOUS DAYS, ARCHITECTS would do well to have an additional degree in liability law. The rules governing architects' liability for construction worker safety have always been complicated, but they have just become almost unfathomable. Until now, architecture and engineering firms could rely on the relative protection afforded by the 1977 Skidmore, Owings & Merrill decision of the Occupational Safety & Health Administration (OSHA) Review Commission, which allowed a reasonable amount of communication between architects and contractors. But two cases against architecture firms pending with the review commission hint that this legal precedent is on shaky ground.

The review commission ruled in the Skidmore decision that the Chicago-based firm was not subject to construction safety regulations because it had contracted only to "observe" the construction for compliance with plans and specifications, review tests, and the correction of improper work. The commission stated that to be subject to OSHA safety standards, an employer "must perform actual construction work or exercise substantial supervision over actual construction. Although the architect exercises some supervision over construction, we would not characterize it as

Continued on page 89

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Liability *continued from page 87*

substantial in the sense that supervision by a construction manager is substantial." Most standard contracts for A/E firms are written with this decision in mind and have, in the past, provided adequate liability protection.

However, in the two pending cases, Simpson Gumpertz & Heger of Boston and Gensert Bretnell & Bobel of Cleveland, OSHA issued fines (now under review) based on its opinion that construction accidents occurred in part because of faulty design documents. An employee in the Simpson case had also offered advice in a phone call from the contractor's supervisor that may have contributed to the faulty placement of concrete. Simpson appealed its citation to the review commission. And, under the OSHA procedure, an administrative law judge heard the evidence and ruled in February 1991 in favor of Simpson on the basis of the 1977 Skidmore decision. However, the Secretary of Labor is permitted under the law to appeal the administrative law judge's decision to the full review commission, and, in April 1991, Lynn Martin did so.

In her petition on the Simpson case, Martin asserted that the Skidmore decision was "wrongly decided, and that employees of architectural, design, engineering, and other professional employees do perform construction work within the meaning of the Act." To support her argument, she invoked the Bertrand Goldberg Associates case of 1976, which found the Chicago firm subject to OSHA safety laws because the architect in question had agreed to "coordinate" the construction, making his position "more akin to that of a general contractor."

Another volley has more recently been exchanged in this game of legal ping pong. Secretary Martin seems to have backed away from her "wrongly decided" argument in a June 1991 brief to the commission regarding an unrelated construction manager case. In this instance, she wrote that the question of whether employees of architectural and other professional firms do perform construction within the meaning of the law "is not before the commission in this case...since the instant case falls squarely on the commission's precedent concerning construction management." It is possible that the commission will take this as a basis to forgo a decision on the pending design firm cases, and that the law will remain murky.

One last ominous caveat: the U.S. Supreme Court decided this March, pursuant to yet another case, that in matters where the review commission and the Secretary of Labor disagree, the Secretary shall prevail.

It appears that architects may be more vulnerable to construction worker safety liability in the future if the Labor Secretary has her way, and that all possible measures to minimize exposure must be employed. The best advice for now is that architects avoid construction supervision, or discussion of techniques and procedures of construction with the contractor or his employees, unless prepared to assume liability. And beware of phone calls from the site. ■

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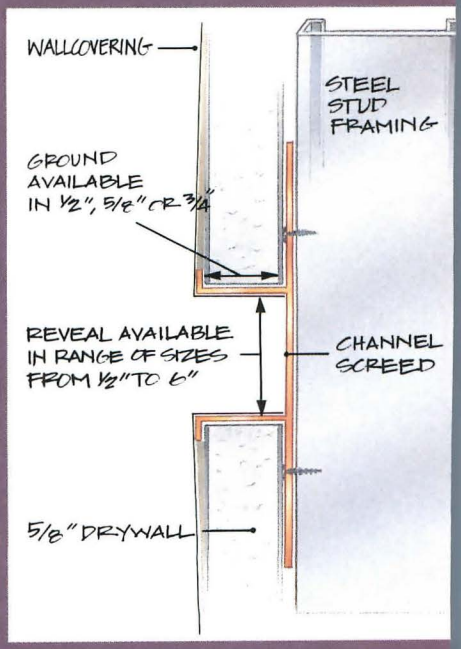

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Readers Respond

ARCHITECTURE's survey reveals how practitioners envision their profession.

IN APRIL, WE DECIDED TO TAKE THE PULSE OF the profession through a survey of our readers that asked questions about design, practice, and education. While the survey is not intended as a diagnostic examination of the state of architecture today, it does provide insight into how you are faring in the recession, what you really think about current stylistic trends, and the future of the profession.

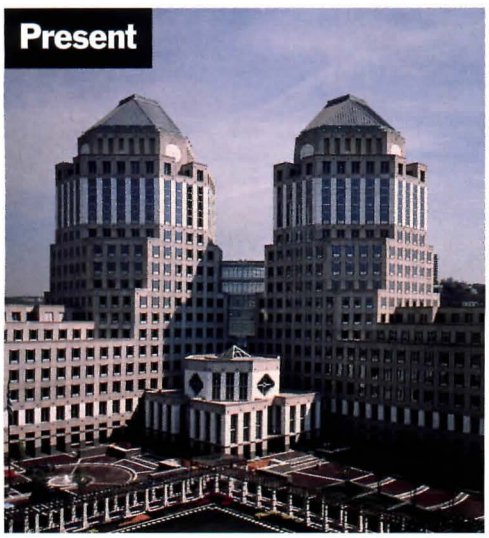
Hundreds of responses came from all parts of the country: 20 percent were from the Northeast, another 20 percent from the West, 18 percent each from the Mid-Atlantic, South, and Midwest. Six percent of the responses came from Hawaii and Canada. Principals, presidents, and owners sent in the most replies (58 percent), followed by project managers/project architects (28 percent), and staff architects and interns (24 percent).

The general consensus from the field centered on the importance of business skills, which were grudgingly rated more important for success than design skills by a margin of roughly 2:1. Architects' preoccupation with the recession was anticipated, although the regional variations in its impact and magnitude were not (see page 92). Over 49 percent of respondents in the Northeast indicated that their firms were faring poorly, versus only 22 percent in the Midwest and 14 percent in the West. Job security was voiced as one of the most pressing issues because of the recession, and an analysis of survey responses found the decrease of jobs to be much higher among firms with four to eight architects (23 percent) than among those with over 100 (4 percent). According to practitioners who responded, success in the field is measured in economic terms, and the practice of architecture is first and foremost a business endeavor.

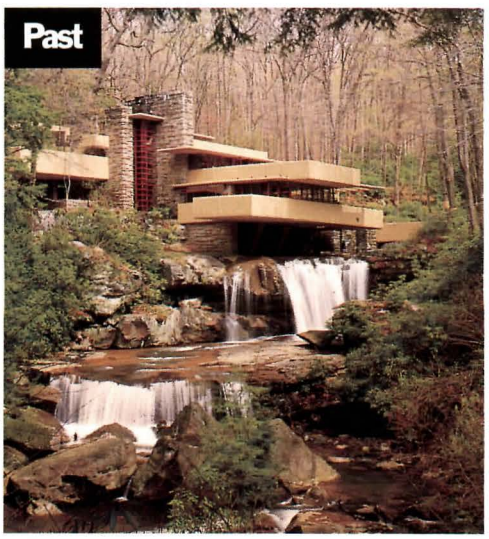
Despite the overwhelming emphasis on the economy, the survey respondents urged more involvement in social issues on the part of architects. Of particular concern were environmental conservation and better treatment of minority groups, especially women, within architects' own professional ranks. Social and civic activities were listed by approximately 25 percent as among the most effective ways to attract clients.

Architects face challenging times ahead, readers predict, not only because of the economy, but also because of increased competition from related disciplines—"Architects practicing without a license," as one Honolulu principal explained. The profession's financial burden is made worse by the increasing squeeze of liability insurance and other legal issues. "We are acquiescing," another reader quipped, "to the lawyers' dream of litigating everything." For the situation to improve, our respondents wrote, the public must be made more aware of the value of good architecture. The best tactic in the meantime, a New Mexico architect advised, is to "work smarter with less."

Whose architecture do you admire?



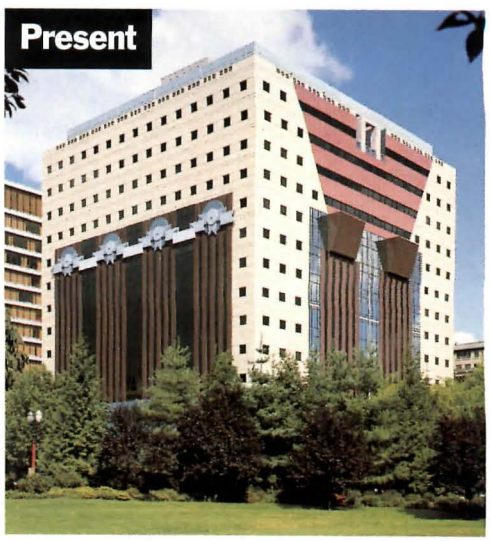
1. Kohn Pedersen Fox and I.M. Pei (tie)
2. E. Fay Jones
3. Antoine Predock
4. Charles Moore
5. Robert Venturi



SCOTT FRANCES / ESTO

1. Frank Lloyd Wright
2. Louis Kahn
3. Louis Sullivan
4. H.H. Richardson
5. Greene and Greene

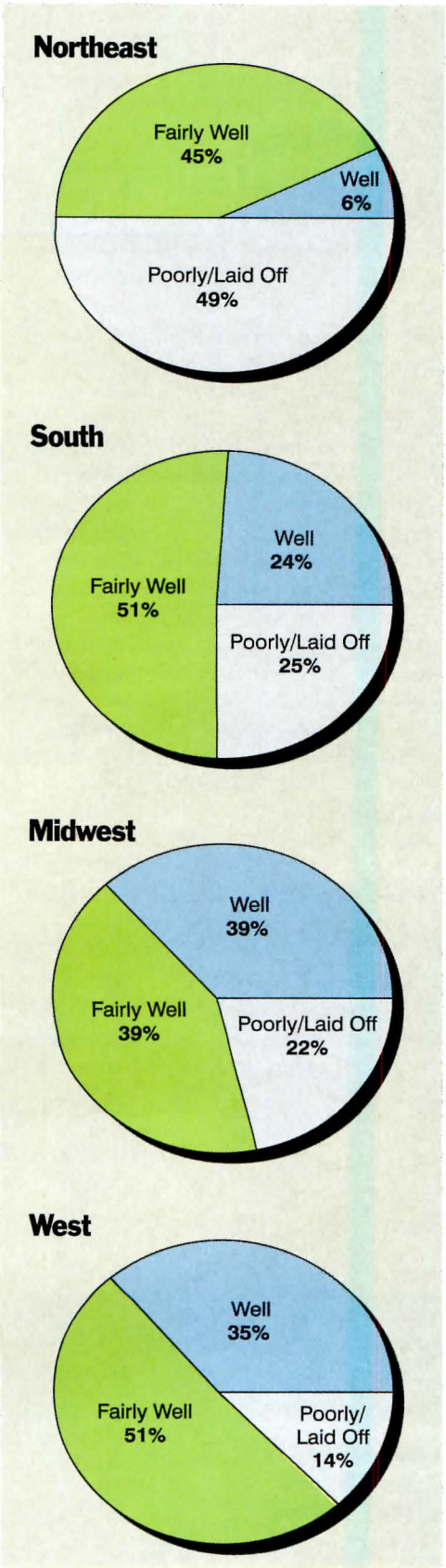
Whose work do you despise?



PETER AARON / ESTO

1. Michael Graves
2. Frank O. Gehry
3. Philip Johnson
4. Peter Eisenman
5. Robert Venturi

How are you weathering the current recession?



PETER HOEY ILLUSTRATIONS

To gauge how architects are responding to current design trends, several questions asked for readers' reactions to the work of contemporary architects, role models from the past, and regional trends. Answers underscored a pluralistic attitude toward design, with a distinctly American and conservative bias. A 39-year-old architect from New York City commented, "Style has become such an open-ended question—it doesn't matter anymore—and the profession is definitely better for it."

Who are your architectural heroes/heroines of the past?

Readers listed architects of the late 19th and early 20th centuries whose pioneering designs helped define a uniquely American esthetic. Rated at the top of the list was the triumvirate of H.H. Richardson, Louis Sullivan, and Frank Lloyd Wright, as well as the work of Greene and Greene, indicating a preference for the innate structural and ornamental potency of materials.

Of today's practicing architects, whose work do you admire/despise?

Not coincidentally, readers admired contemporary architects who share common ground with their heroes of the past. The works of Kohn Pedersen Fox Associates and I.M. Pei tied for first place, and were cited for their "principled and intelligent" approach to design. Albuquerque architect Antoine Predock and Arkansas-based E. Fay Jones also placed high for their sympathetic responses to the landscape and regional vernacular. In contrast, the buildings of cutting-edge designers such as 1989 Pritzker Prize-winner Frank Gehry and Princeton architect Michael Graves were dismissed by one reader as "absurd and self-indulgent." Ironically, the work of 1991 Pritzker Prize-winner Robert Venturi was listed in both categories: the "clarity" for which he is admired was also characterized as "boring."

What regions offer the most exciting new design?

The mythic promise of the American West prevailed, yielding, in descending order, California, the Pacific Northwest, and the Southwest as the three most exciting regions for architecture. Los Angeles was the city most frequently mentioned as offering the most innovative designs. "Americans are innately cheap," commented a 31-year-old Alabama architect. "No one is willing to pay for good design except, of course, in L.A." A number of respondents asserted that small- and medium-size towns, in contrast to the big cities, offer the most favorable climate for architecture. "Any town or city under 400,000 is good," suggested a 53-year-old New York City practitioner. Still other responses reiterated the age-old principle that the grass is always greener: a principal of a 34-employee Southwestern firm chose Washington, D.C.; a project architect in the Southeast voted for the Southwest; and a 41-year-old president in Phoenix selected Disney World.

What current design trends do you feel are meaningful?

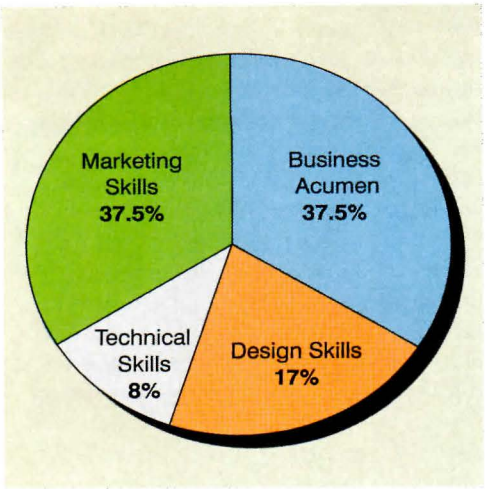
Overall, readers cited contextualism and the resurgence of Modernism as the most meaningful developments, followed by environmentalism and regionalism. As definitions of these stylistic terms vary, a number of respondents qualified the trends which they found meaningful. For example, an architect in Chicago lauded "Modernism tempered by Postmodernism"; a project manager in Boston cited "historical regionalism"; a Los Angeles principal noted "slightly adapted Postmodernism"; and a firm president in Chicago cited "traditional Modernism and Modern Traditionalism." Other design trends that defy categorization included a "return to quality materials and material articulation," "people-first architecture," and "honesty." At the same time, 35 percent of respondents bristled at the very question, dismissing categorized design "trends" as transient by definition and incapable of resulting in meaningful architecture.

Education

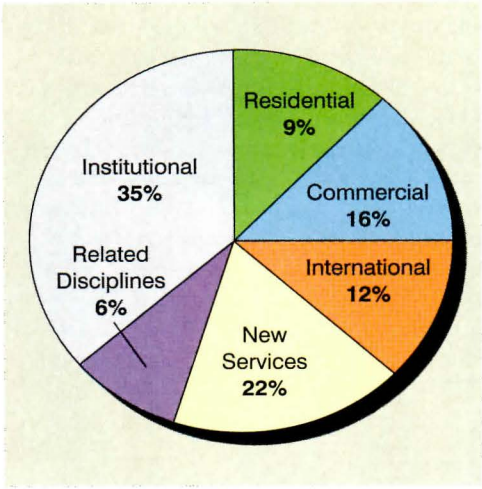
SEVERAL QUESTIONS SOUGHT TO DETERMINE how well architecture schools are perceived to be addressing the needs of the profession. The survey revealed that practicing architects found that recent graduates are well-versed in design and computers, but less adept in technology, which most graduates learn through on-the-job training. A 35-year-old California architect summarized the responses best: "Architecture schools' current approach to education is too removed from reality. It is too long and the design emphasis is totally inappropriate for a field full of technical, management, and construction-related challenges."

Ranking the importance of design, technology, computers, practice, and organizational skills from 1 (excellent) to 5 (poor), architects overwhelmingly agree that recent graduates are adequately, if not well, prepared in design and computers, adequately prepared in organizational skills, and poorly

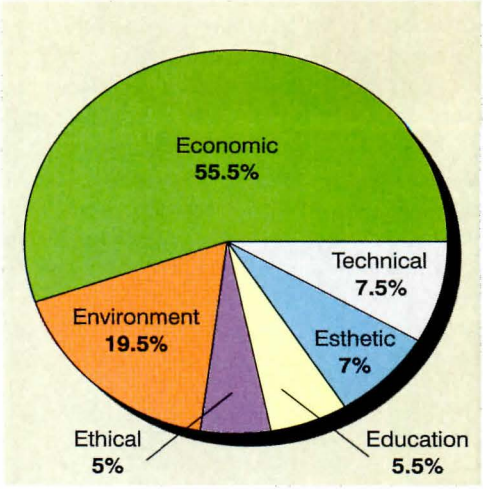
What does it take to become a successful architect today?



Where do the greatest opportunities for future practice lie?



What are the challenges for the next decade?



prepared in practice and building technology. While many comments acknowledged that work/study programs hold the primary responsibility for student preparation in practice, the observations on architectural curricula were, nonetheless, extremely critical. "The schools are turning out dilettantes. What we need are some good nuts-and-bolts architects," a 63-year-old owner from Rhode Island complained. The issue of education also inspired negative comments about recent graduates' poor writing ability, people skills, and the ability to work in a team.

Knowing what you know now, would you enter a profession other than architecture?

Even with all the problems in the profession today—recession, lack of public awareness as to architects' responsibilities, and inadequate education—73 percent would choose the field of architecture again if they could start over. Of those who would select another career path, one-third would select law and another third would choose real estate development. As one 39-year-old project architect in Missouri observed about the low wages he receives, he would have chosen "law and architecture, because anyone considering architecture should have at least two careers." Disgruntled architects would have chosen medicine, computers, construction-management, and art. Greater professional prestige and compensation were the most frequently mentioned factors motivating architects to hunger—hypothetically, at least—for other careers. A 47-year-old architect from the Midwest offered that he would work in public service. "Since I'm going to give my talent away, I may as well be recognized for it."

Practice

RESPONSES TO PRACTICE-RELATED QUESTIONS underscore the sentiment that the current downward economic trend has affected practitioners in every region of the country to varying degrees.

How are you weathering the current recession?

Nationally, 47 percent of respondents were doing fairly well, even though their commissions were fewer, while 28 percent indicated that there have been significant cuts to profits and staff. Of the remaining 25 percent who responded that the recession was having no effect on their practice, most were based in the West and Midwest, underscoring the resilience of practice in these two regions, as well as the regional variance of the recession's effects. The Northeast, for example, had a disproportionate amount of firms—49 percent—classified as either doing poorly or having gone out of business.

How do you attract clients?

Referrals accounted for 40 percent of the responses, due in part to the large proportion of respondents who work for small offices. However, marketing and social/civic activities made a substantial showing, each receiving roughly 25 percent. Additional methods of attracting clients were repeat business and response to RFPs.

What is the biggest selling point you offer clients?

While design and specialized services each captured roughly 25 percent, convenience offered by a full-service firm ranked highest with 46 percent. The most frequently mentioned specialized services offered by practitioners were healthcare and geriatric facilities design, renovations, and religious buildings. Many respondents emphasized that their biggest selling point was the personal attention they give each client: "A one-on-one relationship for the complete design through construction," wrote a Chicago architect.

Where do the greatest opportunities for future practice lie?

Regarding the future of the profession, our survey of practicing architects concurs with the forecasts of experts who predict future opportunities (ARCHITECTURE, August 1991, page 94). The clear leader for upcoming business was institutional work with 34 percent. New services were listed as second with 22 percent, followed by commercial projects at 16 percent. The least number of opportunities are expected to be in international (12 percent) and residential (9 percent) work, and in related disciplines (6 percent).

What are the major threats to the profession?

The greatest threat to the profession today is the economic climate (38 percent), which architects feel is linked to a recession that will last into the coming years. The second-and third-largest threats were lack of public awareness as to what architects actually do (32 percent) and legal issues (19 percent). A 65-year-old principal of a two-person firm in San Diego suggested a way to improve both public awareness and reverse the downturn in commissions spawned by the economic climate: "We need to educate the general public as to what architects do in the first place, then maybe we will see an increase in clients." Other factors frequently mentioned include

unfair competition from architects and non-architects alike. According to a 49-year-old architect in the Midwest, "Even architects are at each other's throats, cutting schedules and fees until there is nothing left."

Some architects are finding that even when they want to trim fees to remain competitive, they can't, because, as a South Carolina manager put it, "Our liability doesn't decrease, even though we must do less work." A Northeastern respondent wrote that legal issues have taken the fun out of the profession, but an L.A. architect was less restrained: "Lawyers are a menace. The money I have, I want to keep."

How has the profession changed for the better/worse over the past decade?

"Design vocabularies have expanded and the quality of architectural exploration gets better and better," offered the optimistic principal of a three-person firm in South Carolina. A 46-year-old staff architect in an eight-person Midwest firm added, "There is more freedom now, and one can design in context without embarrassment." However, observations about changes for the worse outnumbered those about changes for the better by a margin of 3 to 1. Such skepticism is the result of an unfavorable economic climate, as well as increased governmental regulation and professional liability problems. According to one 44-year-old New York City principal, "Architecture quality and exploration has improved, but legal thin ice makes it financially tougher for new practices." And from a 29-year-old staff architect in Pennsylvania: "With the decline of the medium-size firm as a result of the economy, most professionals have either moved to big firms or struggled along as single practitioners."

Among the large number of negative comments addressing design quality were many complaints about trend followers in the profession. A 38-year-old Southern Connecticut partner wrote: "Fadism seems to rule the day. No one can design a building that fits in serenely without shrieking, 'Look at me!' " Another architect lamented, "Too much 'signature' architecture. Buildings must work better for clients and owners."

What are the challenges facing architectural practice over the next decade?

Though only 38 percent of the respondents viewed the economic climate as a current threat, 55 percent viewed it as a major threat for the next decade. This grim view of the recession indicates that architects do not believe it will come to an end in the near future. The other important challenges are environmental issues receiving 19 percent, followed by technical (7.5 percent), esthetic (7 percent), educational (5.5 percent), and ethical (5 percent) issues.

What does it take to be a successful architect today?

With such a high proportion of architects feeling the crunch of the current economic climate, it is not surprising that a combined 75 percent of respondents believed business acumen and marketing skills were the most important factors in becoming a successful architect. Design skills received only 17 percent and technical expertise 8 percent. Although many respondents noted that they found their priority rankings to be most unfortunate, it is clear that architects today have come to view practice as a professional enterprise that is subject to economic forces, and must therefore be approached in a businesslike manner. Other factors identified as important included wealthy patrons and spouses. What does it take to be a successful architect today? According to one 53-year-old architect in Texas, "Love and dedication to the ideals of architecture, to get you through the poverty and the uglies." ■

Joanna Edwards contributed to this article.

Engineering Nature

Diminishing sources for natural wood are leading to manufactured alternatives.

IF BUCKMINSTER FULLER HAD GONE INTO forestry, he might have invented engineered wood instead of the geodesic dome. Such manufactured products incorporate the attributes he admired: economical use of materials, simplicity of form, and technological elegance. These products offer advantages of strength and consistency over traditional sawn lumber or even glulam beams, but most importantly, they address what is perhaps the timber industry's most pressing problem: supply.

In the Pacific Northwest, where stands of Douglas firs have for decades been a reliable source of big, clear-grained wood, recent logging cutbacks imposed by a federal judge this June to preserve the northern spotted owl's habitat may place one third of the region's timber supply off-limits. Coupled with environmental efforts to protect the remaining 5 percent of North America's old-growth trees, the Pacific Northwest's available harvest could be reduced by more than half. Production of engineered woods—glulams, I-beams, laminated veneer lumber, and parallel-strand lumber—is anticipated to increase by up to 160 percent by the end of the decade.

Engineered woods make more efficient use of logs once considered commercially unsuitable. These structural members are manufactured from smaller trees, inferior-quality species, and even from what was once considered waste. They not only conserve virgin forests, but actually offer enhanced structural properties compared with natural wood. They allow greater lengths of timber to be produced with more than twice the strength, more slender dimensions, and longer spans than conventional lumber, offering architects new design opportunities.

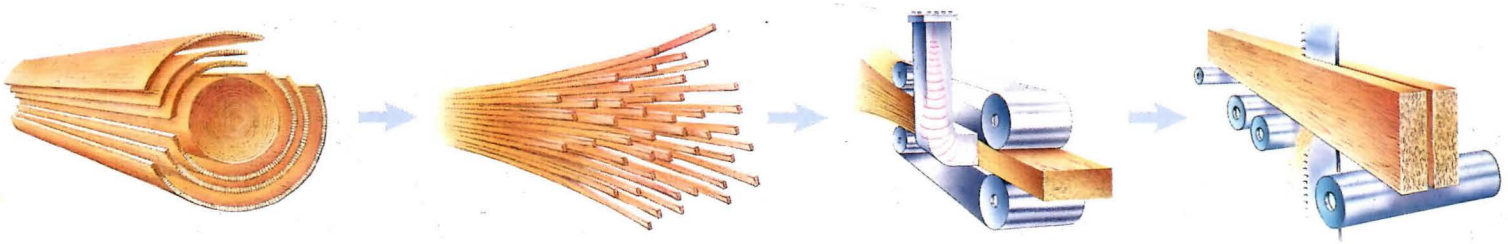
Engineered woods first emerged in the 1950s with the availability of glulam beams and columns. These members are composed of small-dimensioned framing lumber, such as 2-by-4s, that are stacked, joined lengthwise, and adhered with a waterproof glue, usually phenolic resin. Their production, however, still relies on traditionally sawn timber, which is capable of extracting only 50 percent of an individual log as suitable framing material.

Newer engineered woods are produced through a more resource-efficient process, derived from plywood manufacturing, that debarks and peels logs in sheets down to the core. Manufacturers claim up to 80 percent of the processed wood is incorporated into final structural members.

Laminated veneer lumber (commonly referred to as LVL), for example, was first conceived at the end of the 1960s to achieve the strength required for wood I-beam flanges. To produce this type of engineered wood, sheets of wood veneer are stacked with their grain aligned to gain added strength, adhered with glue in a heated press, and cut to a desired length. In the last decade, manufacturers of such wood I-beams have grown in number from only one in the 1970s to nine across the country.

Laminated lumber production methods have also improved. Originally constructed with plywood webs, I-beams are now also commonly combined with oriented strandboard (directionally aligned rectangular wood flakes that eliminate strength-reducing flaws found in continuous sheets of plywood)

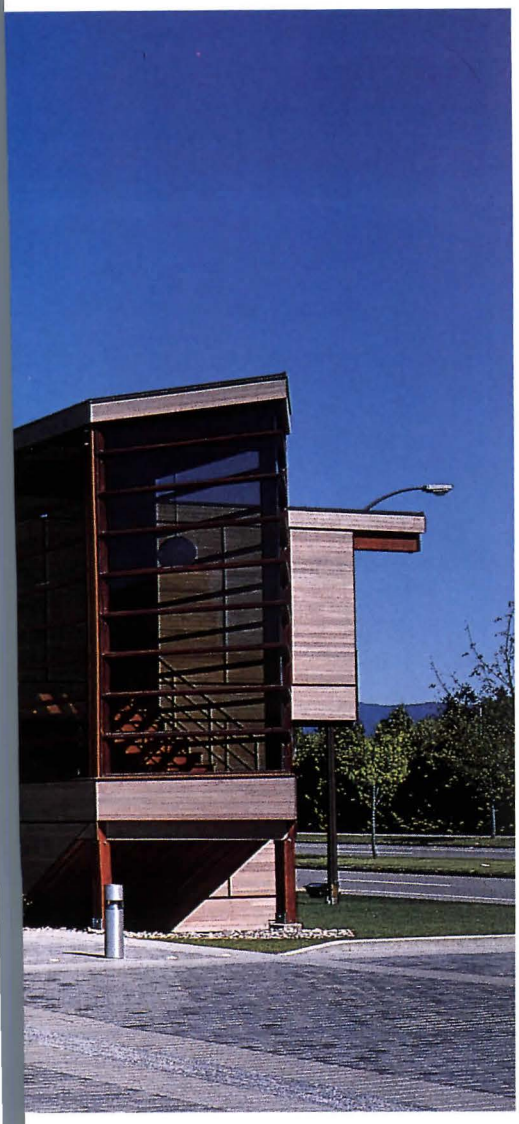
Parallel-strand lumber is created by peeling logs into veneer, cutting sheets into thin strips, adhering them on a heated press, and sawing the wood (below, left to right) to produce a finished structural member (below center). Composite lumber (bottom) combines oriented strandboard infill, produced from sheets of laminated wood flakes, with laminated veneer edges.



COURTESY OF PARALLAM

COURTESY OF ARROWOOD


FOREST
ENGINEERING
RESEARCH
INSTITUTE OF
CANADA



Forest Engineering Research Institute of Canada
Vancouver, British Columbia
Henry Hawthorne Architects

The Forest Engineering Research Institute of Canada (FERIC) develops improvements to logging engineering techniques and machinery. As requested by its forest product sponsors, FERIC's new 20,000-square-foot headquarters (facing page, top) demonstrates the possibilities of engineered wood construction in a post-and-beam structure. Hawthorne Architects arrived at a linear arrangement of office cubicles along two wings (facing page, bottom left) flanking a central core of common facilities to enable the continual regrouping of research teams for specific projects. The split-level structure ensures no office is more than one-half level from common areas. The 10-foot modules meet standard wood I-beam and decking spans and provide a comfortably sized office for compiling field reports. Exposed glulam girders span from clusters of four, 40-foot-tall, 7-inch-square parallel-strand laminated columns on the exterior (below left) to column clusters within the two-story central atrium (below right). Broad overhangs are designed to protect the exterior's exposed structural wood and cladding.

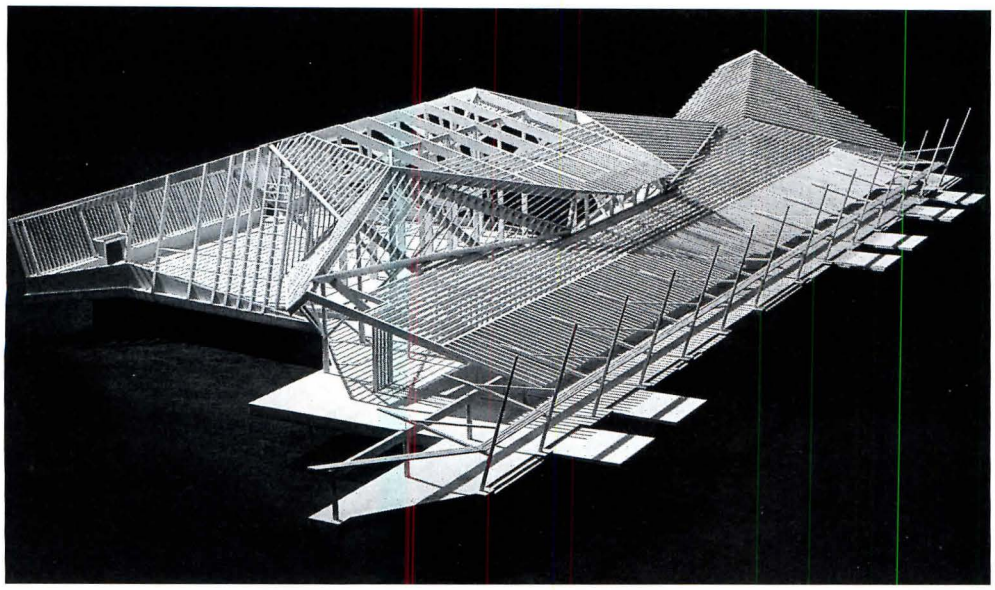
to form composite lumber. Other new types of reconstituted woods include solid members constructed entirely of laminated veneer lumber, with the same nominal dimensions as sawn lumber, and a composite brand of oriented strandboard with laminated veneer edges.

The newest category of engineered woods is parallel-strand lumber, produced from wood veneer sheets and available in the United States since 1990. Unlike laminated veneer lumber, parallel-strand lumber is clipped into veneer strips before it is combined with phenolic resin. Overlapping these thinner pieces of wood creates a product stronger than most laminated products because flaws, such as knots and uneven grains, are distributed more evenly. Parallel-strand lumber also offers a pronounced grainlike pattern, a more desirable exposed finish than other engineered wood alternatives.

Scrimber, another type of parallel-strand lumber, is produced from small logs—often only 3 to 4 inches in diameter—that are partially crushed in a roller press, dried, sprayed with glue, and combined in a heated press. However, scrimber is currently available only in Australia, where it was developed, and is not yet marketed in the United States.

Regardless of production method, the dimensional stability of reconstituted lumber is more predictable than that of natural wood, due to its 8 to 11 percent moisture content (the moisture content of kiln-dried lumber ranges from 15 to 19 percent). Engineered woods are, therefore, less prone to shrinkage, warping, and bowing. Fire performance of engineered woods exceeds that of natural lumber due to their greater density, and the adhesives that bind them do not produce any fumes more toxic than wood's own. Like conventional wood, exterior applications of reconstituted lumber require additional protection with preservatives. While adhesives are weather-resistant, the untreated, exposed engineered wood is not.

Engineered lumber has certain limitations, however. Inch for inch, such members cost two to three times more than their conventional counterparts. The web and flange configuration of I-joists requires adding blocking and stiffeners. This premium, however, can be offset in many cases, since precut members mean less material is wasted during installation, and the increased strength of engineered wood results in fewer structural members. Engineered woods can also be ordered with more precision, since their properties are more predictable. Due to their



Seabird Island School
Agassiz, British Columbia
Patkau Architects

Completed this spring, the school's massing and structure (top) respond to the local environment of an island delta site 75 miles east of Vancouver. The broadside of the one-story, 23,600-square-foot primary and secondary school is oriented along an east-west axis to buffer an expansive south-facing playing field from harsh winter winds funneled through a mountainous river valley. Withstanding such winds and 65-pound-per-square-foot snow loads imposed strong demands on the wood-framed building, which was constructed according to the region's traditional, heavy timber post-and-beam methods (second from top). While the geometry appears complex (right center), the framing is based on a straightforward central spine of regularly spaced columns, up to 32 feet tall, with diagonal struts that support massive rafters measuring up to 9 inches wide and 33 inches deep. Such large members were necessary to provide an open floor plan and a clear span over the gymnasium. An angled pergola (second from bottom) with supports spaced 14 feet apart, defines the regular rhythm of the 11 structural bays on the south facade. To meet the required structural sizes of the framing members and leave them partially exposed, the architects decided to specify parallel-strand lumber for the columns, beams, rafters, and braces (bottom). They connected the structural wood elements with bolted steel plates and clad the building in *white-stained plywood* and cedar shingles.

HARRY GEHRMANN PHOTOS

proprietary production, however, engineered woods have the disadvantage of limited availability and a lack of product consistency among manufacturers. Although industry standards are currently being considered, the production of engineered woods, with the exception of glulams, is not regulated.

The impetus behind the development of engineered lumbers has been driven by the controlled properties they offer in comparison with sawn lumber. However, a machine-stress-rated (MSR) lumber grading was added to existing, but less reliable, predicted performance classifications several years ago in order to provide more precise information on the strength of an individual piece of lumber. Otherwise, grading rules for determining the quality of traditional, sawn lumber have remained unchanged for more than 80 years.

But this year, wood specifications are undergoing significant changes. While natural wood's properties have not been enhanced, architects' understanding of them has been strengthened by the results of a 12-year testing program (ARCHITECTURE, April, 1991, page 95). Revised structural design tables will be released later this month by the Western Woods Products Association. To facilitate their acceptance among building departments, the new tables will be evaluated by every local building department of the Building Officials and Code Administrators International, International Conference of Building Officials, and Southern Building Code Congress International by February 1992.

Other revisions are contained within 1991 National Design Specifications, published this month. Separate formulas for long, short, and medium columns, for example, have been eliminated and replaced with one new formula. Earthquake and wind-load-duration factors have increased by nearly 25 percent, but may be offset due to revisions in connection formulas. Built-up column design provisions now reflect structural capacity more accurately than previously conservative design values. The Western Wood Products Association offers information regarding lumber design values and will sponsor 31 nationwide free seminars to explain the changes this September and October. For more information, call (503) 224-3930. Copies of the 1991 National Design Specifications, including revised design formulas and tables, are available from The National Forestry Products Association, (202) 463-2700. ■

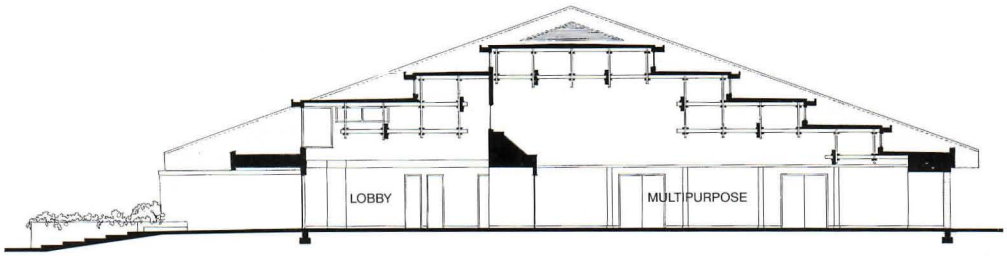
—MARC S. HARRIMAN

Douglas Gantenbein contributed to this article.

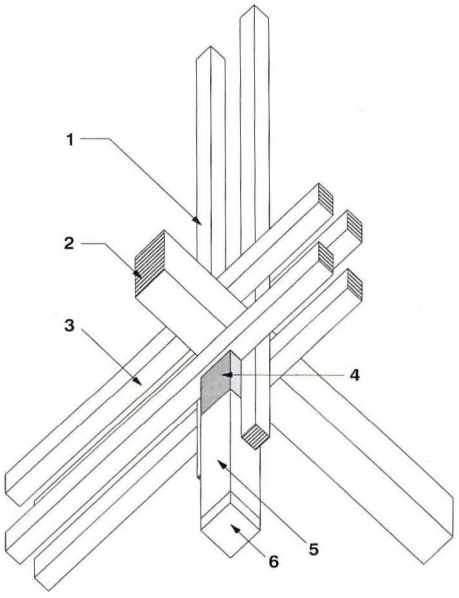
ROB DESTRUBE

Graduate Students Society Center
University of Victoria
Victoria, British Columbia
Peterson Architects

The one-story social center offers a variety of meeting, study, and activity rooms for University of Victoria graduate students. The university requested its $920,000 building be housed within a compact form. To meet this requirement, Peterson Architects capped the 7,360 square-foot volume with a pyramidal, cedar shingle-clad roof, which is divided diagonally on an east-west axis by a four-tiered clerestory to daylight public spaces (top left). Rather than conceal the stepped roof structure, the architect exposed the construction of the interior's intricately framed hanging truss to provide a dramatic focal point above a central multipurpose room and lobby (section). The truss steps down from the center of the building to two corners, and is divided into two sections by a wall separating these meeting areas. Designed to sympathize with small spaces of the rooms, the truss is framed in parallel-strand lumber, specified for its strength and dimensional stability in small sizes. Four 2-1/4-inch-square members are grouped to form beams that span 28 feet—a structural feat traditional sawn lumber, which frames the rest of the building, could not achieve. Even with the added strength of parallel-strand lumber, every other grouping of beams is connected to larger built-up beams to form a tier. Each tier is suspended from the one above by a grid of paired posts; the crossing beams and posts intersect one another at 4-foot, 8-inch intervals (detail, below center). Together, the four cantilevered tiers of the truss span the 56-foot length of the multipurpose room, and vary in height from 9 feet to 23 feet. Sprinkler and lighting systems are integrated within the structure. The posts of the truss extend below the lower beam to support light fixtures in the multipurpose room, which are specifically designed for the project (bottom left).



EAST–WEST SECTION

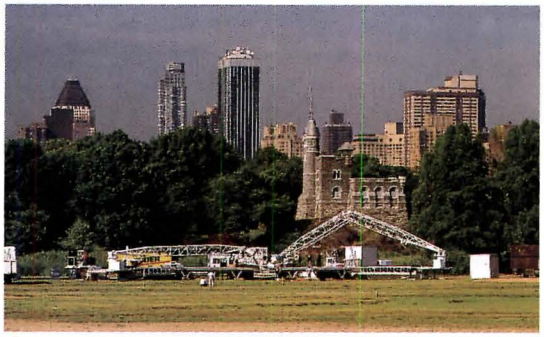


FRAMING DETAIL

1 POST
2 CROSS BEAM
3 CLUSTERED BEAM
4 CHROME BASE
5 LIGHT FIXTURE
6 LENS

Strike Up the Bandstand

A fabric canopy, stage, and speakers create a movable outdoor performance space.


A PORTABLE ORCHESTRA SHELL GIVES NEW meaning to Shakespeare's "all the world's a stage" for hundreds of thousands of listeners in New York City. Set up for 30 performances in 16 park locations within the city's five boroughs this summer, the new $3.4 million Carlos Moseley Music Pavilion (named for the New York Philharmonic chairman who, in 1965, initiated free summer concerts in the park) pushes the quality of outdoor sound amplification and portable performance structures to new heights. Provided there is firm ground and vehicular access, the speaker towers, stage, and tensile polyester membrane canopy can be assembled within six hours. After a performance, the 3,120-square-foot open-air facility can be dismantled in equal time, loaded onto seven trucks, transferred to the next site, and reconstructed by the following day.

Based on a concept proposed to the New York Philharmonic, Metropolitan Opera, and New York Department of Cultural Affairs by sound and lighting designer Peter Wexler, the pavilion is designed by FTL Associates of New York City to maneuver through congested streets and leave natural performance sites pristine.

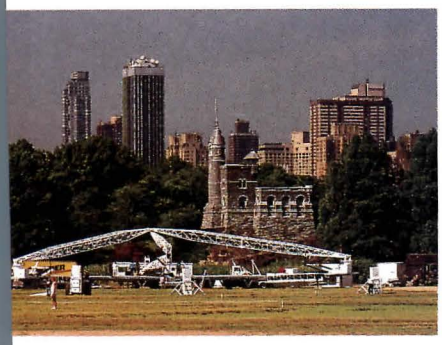
To avoid obtaining special permits each time the facility is moved, weight and dimensions of the vehicles transporting the pavilion could not exceed federal highway regulations, which stipulate a maximum 13-foot height and 45-foot depth for each tractor trailer bed and its cargo. The architects therefore devised a customized kit-of-parts that can be easily transported on a fleet of seven conventionally sized trucks, five of which are retrofitted to become part of the structure. According to architect and FTL principal Nicholas Goldsmith, the pavilion's components and temporary nature left city building department code officials in a quandary as to how to review the structure. The plans, incorporating rotating and hydraulically unfolding trusses, were initially passed to the Department of Transportation and then forwarded to the Department of Cranes and Derricks for final approval.

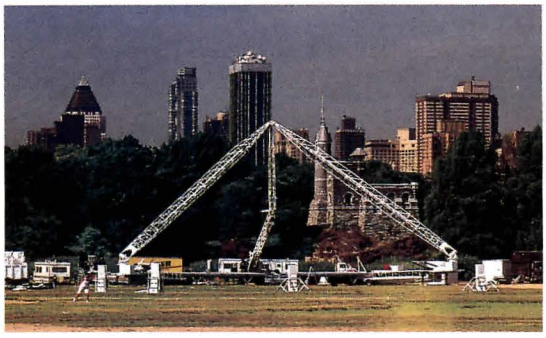
Erecting the pavilion requires assembling a foldable stage, a tensile canopy, and a trio of open-frame steel trusses into a pyramidal structure. Meanwhile, 24 collapsible speaker towers are distributed throughout the site. The hinged, eight-panel marine plywood stage, supported by six lightweight aluminum beams, is transported like an accordion and opens automatically with the aid of hydraulic pistons to form a 40-by-78-foot stage—large enough to seat a full orchestra and chorus, and leave ample room for the conductor and guest performers. The corners and rear center of the stage are supported by a 70-foot-deep by 118-foot-wide base of tractor trailer beds maneuvered into position before the stage unfolds. Lacking any foundation or fixed anchorage to the ground, the trucks' undercarriages are weighted with concrete ballasts to counteract the thrust of the superstructure and tensioned membrane. Retractable, hydraulically operated foot pads unfold and adjust in height to provide bearing for a level stage on uneven ground. The two forward trusses then unfold to their full 86-foot length and are attached to the rear truss. As the rear truss unfolds, assisted by a hydraulic hinge, it raises the entire tripod structure to its apex, 68 feet in the air. Once fully elevated, a sliding steel pin bolts the hinged truss into a secure position.

The 1/16-inch-thick polyester membrane, treated with PVC on both sides and a soil-resistant topcoat, is then unrolled from a protective dropcloth, connected at the stage corners, and hoisted into position with a winch. Along the perimeter of the membrane, a 3/4-inch-diameter rope is wrapped in fabric sleeves. Aluminum plates and an additional layer of fabric reinforce the connections where exposed ropes anchor the membrane to the structure. Synthetic fiber rope, chosen for its pliability, enables the ropes to remain attached to the membrane when it is rolled up for storage—shaving at least 45 minutes off the time otherwise required to raise the structure if more rigid steel cables had to be threaded through the canopy and removed each time the pavilion is erected. The rope is anticipated to require replacement every two years, while the membrane may last for up to 20 performance seasons, depending on its handling by the construction crew trained to raise and strike the pavilion.

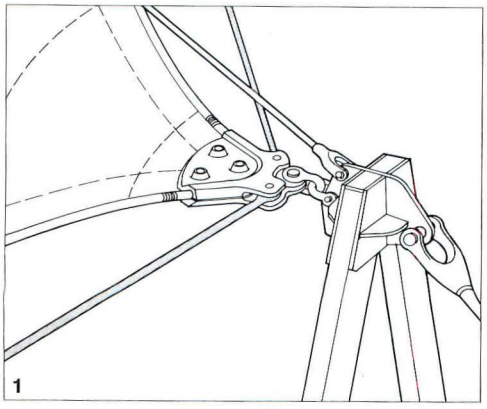
Visual drama is an essential element of the pavilion's tensile form. The shell's saddle-shaped membrane, pulled in tight along the rear and sides of the stage, opens and projects sound toward the audience with the assistance of semicircular, plywood-faced aluminum acoustic reflector panels placed on the stage. For maximum stage coverage and

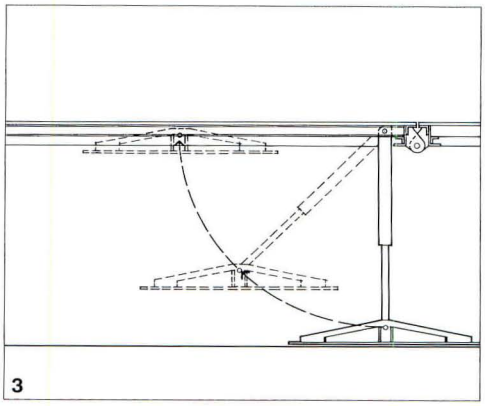
Stage and trusses unfold, membrane is hoisted (below, left to right), and speakers are distributed (bottom). *In less than six* hours, New York's Carlos Moseley Music Pavilion is ready for an outdoor performance.

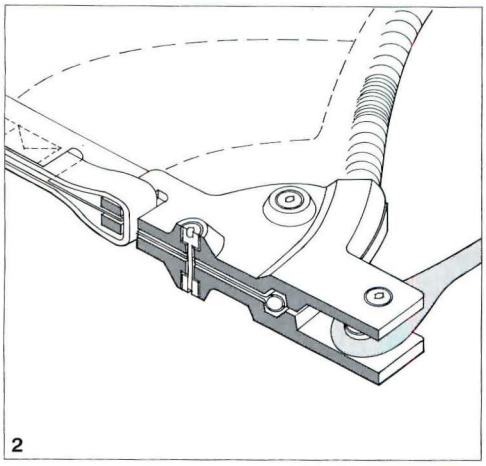


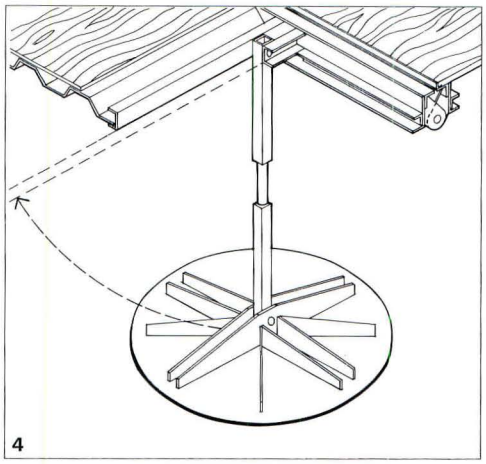


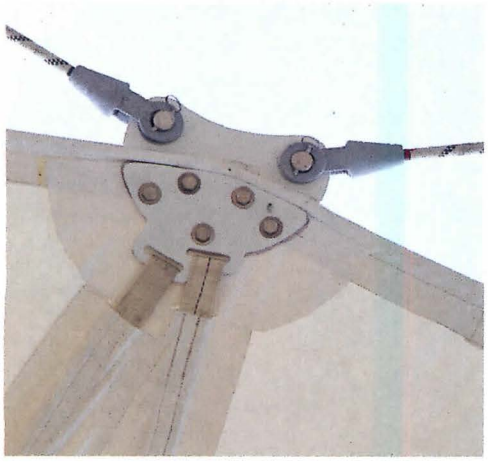
PHOTOGRAPHY BY JEFF GOLDBERG / ESTO, EXCEPT AS NOTED











MICHAEL LENT

The PVC-coated polyester membrane is suspended from top of three steel trusses. The membrane is connected to turnbuckles at stage's corners by rope (drawing 1), which is looped through reinforced aluminum ridge plates clamped to the fabric's edges (drawing 2 and photo above). Hydraulically operated foot pads swing down from the stage's framework and tractor beds (drawing 3). The legs are adjusted in height (drawing 4 and photo above right) to ensure a level platform, even on an unlevel surface. The pads also *transfer structural loads to the ground.*

MICHAEL LENT

The base of the two forward trusses incorporates a pivotal joint that can rotate in any direction, allowing them to twist into position when elevated (facing page, top left). Hydraulic hinge (facing page, top right) unfolds rear truss and provides thrust to raise the attached front stage trusses that rig lighting (facing page, bottom). Rectangular, battery-operated speakers are transported on one truck. Once positioned with the aid of a forklift, collapsible legs and foot pads unfold and the compact speakers are raised to a 15-foot height (facing page, top center).

protection, multiple scallops along the membrane's side and rear ridges allow it to be drawn as close to the stage edges as possible from its corner support points. To allow images or subtitles to be projected, an inflatable 16-foot-diameter circular fabric screen is suspended above the membrane. The front trusses double as rigging for theatrical lighting, permanently wired into the pavilion's framework. An additional aluminum truss for overhead lighting is hoisted and suspended by a cable supporting the membrane's midsection. When illuminated at night, the pavilion's support structure all but disappears, leaving a hovering canopy as a color-washed backdrop for the performers.

Developed by Jaffe Acoustics exclusively for the project, the sound system, like the tensile structure, is a unique synthesis of portable equipment adapted to mimic the acoustics of an actual concert hall. Battery-powered, wireless speaker towers, each with four collapsible legs, unfold and rise to a 15-foot height to provide ideal sound projection. Distributed speakers allow for a consistent sound level, close to the level of the actual performers regardless of distance from the stage. Sound is received by stage microphones and transmitted to a mixing console in a 12-by-4-foot audiovisual control booth centrally located 200 feet from the stage. From there, the music is broadcast via radio to each of 24 self-contained speaker towers spread in a semicircle of concentric rings in front of the stage.

The acousticians calculated a fraction of a second delay in broadcasting music to match the time it takes sound waves to travel from the stage to each speaker row, producing the illusion that the amplified sound is coming from the performers. The speaker in front is the loudest, focusing attention toward the stage. The slight delay in the broadcast of music from the rear speaker simulates the reverberation of sound a listener would experience off the rear wall of an enclosed concert hall. Likewise, the speakers flanking listeners create the effect of sound bouncing off walls to the left and right.

Although FTL's design can be easily transported long distances, the city currently has no plans to lease the pavilion to organizations in other parts of the country. For now, curious spectators and listeners who missed the Moseley Music Pavilion's debut will have to travel to New York City next summer in order to enjoy its impressive structural and acoustical performance. ■

—MARC S. HARRIMAN

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Design/Build Ventures

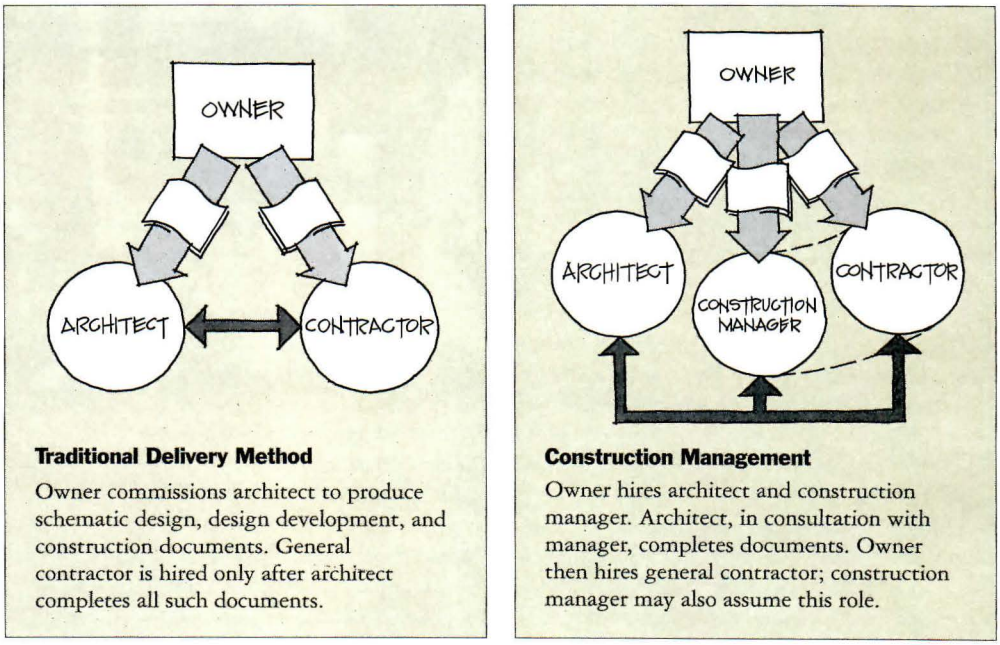
Architects join contractors to explore new forms of practice.

MENTION THE TERM "DESIGN/BUILD," AND architects immediately take opposite sides as to the merits of this project delivery system. Some are leery of any linkage between architectural and construction services. Others happily practice according to one type of design/build arrangement but look askance at alternatives. And a few are experimenting with modifications of the classic definition of design/build to avoid problems they feel are inherent to other methods of project delivery (see diagrams, right).

Alerted to the increasing number of design/build projects in the public sector, the AIA appointed a task force in 1989 to review its existing policy on the subject. The group's resulting policy statement, issued in June, defines design/build as "a method of project delivery in which one entity signs a single contract accepting full responsibility for both design and construction services of the building facility." This seemingly simple description, however, belies the complexities of design/build. The reasons architects engage in this method, the means by which design/build jobs are awarded, and the organization of design/build teams are as varied as the projects that result from such undertakings.

A design/build entity may consist of an architect who has acquired a general contractor's license to build his or her own designs. It may be a general contractor who subcontracts design services to a registered architect so that the builder can offer better designs to an owner who would otherwise not commission an architect directly. Some design/build entities are project-specific joint ventures between an architecture firm and a construction company. Others are established as permanent corporations with in-house architectural and construction expertise. Although the permutations of design/build seem endless, the makeup of a design/build entity within a specific state is contingent on that state's statutes governing licensed occupations. Some forms of design/build are illegal in certain jurisdictions.

By organizing a project around a single contract, and therefore a single point of



Traditional Delivery Method

Owner commissions architect to produce schematic design, design development, and construction documents. General contractor is hired only after architect completes all such documents.

Construction Management

Owner hires architect and construction manager. Architect, in consultation with manager, completes documents. Owner then hires general contractor; construction manager may also assume this role.

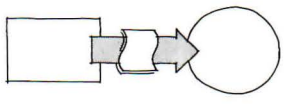
Design/Build Classic Model

Owner contracts with one design/build entity, which provides design and construction services. This entity can be organized in many ways, depending on state laws governing such arrangements.

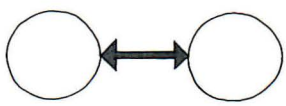
Design/Build Alternate Model

Owner commissions architect to develop preliminary design, then contracts design/build entity for construction documents and services. Interaction between architect and design/build entity varies.

DWIGHT MCNEILL ILLUSTRATIONS



Contract between owner and service provider



Communication, but not contract, between service providers

responsibility, design/build obscures distinctions between architectural design and construction that characterize the traditional method of providing such services. According to the established model, often referred to as design/award/build, an owner contracts an architect to generate schematic design, design development, and construction documents. Having fully defined the project, the architect assists the owner in bidding the construction documents, selecting the contractor, who is awarded a separate contract by the owner, and administering the construction phase of the project.

Design/build should not be confused with construction management. In that mode of project delivery, the owner hires a construction manager early in the planning stages. The construction manager, working with the architect, introduces construction, scheduling, and cost-estimating knowledge into the design process sooner than conventional methods. The construction manager may assist the owner in obtaining multiple contracts for different trades, or may also act as general contractor. In construction management, as with the traditional system, the owner holds multiple contracts. The adversarial relationship that is characteristic of design/award/build can therefore still arise between team members within construction management. This delivery system, like design/build, resolves many technical and financial issues earlier in the design process than under a conventional arrangement.

Except for a handful of practitioners who have enthusiastically embraced design/build as a way to reinstate the interdisciplinary vision of the master builder, architects turning to design/build are so motivated by the changing needs of the construction market.

George Heery, founder and former chairman of Heery International and now president of Atlanta-based Brookwood Group, is quite blunt in his assessment of the circumstances confronting today's construction industry. "While most architects and engineers are very dedicated people, working hard to serve their client," he asserts, "the basic method of providing architectural services to the client is inherently flawed." He contends that over the past 20 years, systemic contradictions in the traditional methods of project delivery have taken a great toll on clients, who, Heery stresses, must ultimately be satisfied if the architecture profession is to continue to flourish.

Heery pinpoints two weaknesses in the design/award/build process. First, it is

TOM BONNER PHOTOS

Tanaka/Ho Residence
Venice, California
Ted Tokio Tanaka Architect

Tanaka first doubled as general contractor to broaden his construction knowledge, and now only undertakes design/build when acting as developer as well. His own house (above, left and right) was awarded a 1989 Los Angeles AIA design award.

880 Park Lane
Montecito, California
Lineage Homes

Lineage Homes, a family-owned design/build firm of architects Barry and Jeffrey Berkus and contractor Steven Berkus, completed its first speculative home (below) in February 1991. The architects adjusted the design during construction to improve the scheme.

DENNIS O'KAIN

Montgomery Correctional Center
Jacksonville, Florida
The Haskell Company/HOK

In March 1989, a court ruled that Jacksonville's inmate population exceeded prison capacity. The city requested proposals from design/build teams. Selected as low bidder, THC/HOK designed and constructed a new facility (above) by September 30, 1989.

Suffolk County House of Correction
Boston, Massachusetts
Hyman-Stubbins

Having previously won a design/build competition for the Commonwealth of Massachusetts, Stubbins Associates and George Hyman Construction Company participated in an additional state competition for a correctional facility (below), to be completed this fall.

humanly impossible to complete a set of drawings and specifications with no errors in them. The owner, therefore, cannot really assume that the bid price of a project will be the ultimate cost. Either through change orders or litigious claims, an owner must often pay much more than is initially expected when construction commences.

The second misconception is that architects and consulting engineers represent the cutting edge of construction technology. On the contrary, notes Heery, "The construction technology frontier—where practical, cost-effective construction methodologies are to be found—lies with specialty subcontractors and building-product manufacturers, not with the architect, engineer, or even general contractor. The lack of practical construction knowledge on the part of most architects costs their clients a lot of money."

Given these inherent conflicts, the traditional process of project delivery can result in serious consequences. The owner must spend much money and time before an enforceable contract price is obtained, and the final construction costs are often greater than they need to be. Some contractors and subcontractors take advantage of the inevitable errors and omissions, levying claims at alarming rates against owners to compensate for profits originally forfeited in the offering of a low bid to win the job. And, if problems arise after building completion, architect and contractor—under separate contracts—often blame each other, unwilling to take responsibility for a mistake.

Such difficulties have compelled owners to look for less risky means of building procurement. Combining architectural and construction services under one contract, design/build can avoid some of the problems associated with the traditional method. Under this hybrid arrangement, costs are considered much earlier in the design, long before working drawings are completed. Collaboration among architects and contractors encourages the application of cost-efficient building technologies. Furthermore, a single point of responsibility provides the owner with an accountable party and eliminates the opportunity for contractors to capitalize on errors.

Proponents of design/build cite other advantages as well. Projects can be built quickly according to fast-track methods, with construction overlapping design. Without the burden of multiple contracts, design/ build can free an owner from project coordination and day-to-day details.

Design/build offers the small architecture

firm greater opportunities to control a project. Kenneth Lee, an architect in Encino, California, for example, obtained a contractor's license when he could not find a contractor able to erect structurally demanding houses designed for steep sites. Lee prefers the control that design/build offers him over design/award/build. "It's incredibly gratifying to take a project from design through completion," says Lee. "We can make sure it comes out the way we want it to."

Ted Tokio Tanaka considered himself strictly a design architect before opening his office 14 years ago in Venice, California. But then Tanaka assumed the additional role of general contractor because he felt a greater understanding of construction would make him a better designer. "I would recommend that other architects do it just for the education," Tanaka insists. His honed building knowledge has helped him, in addition to design, in doing construction administration for his traditionally delivered projects.

Unlike Tanaka and Lee, sole practitioner Sarah Muros of Silver Spring, Maryland, provides design services to residential remodeling companies. As a subcontractor, she cites several benefits to this type of design/build. Not only has her own knowledge of construction grown, but the homeowners, previously unfamiliar with architecture, have gained a better appreciation of the profession. And because design decisions are made within a realistic budget, an owner is never frustrated by committing to a scheme, only to learn much later that it is unaffordable.

Architects in large design/build companies echo Muros's sentiments. Pat L. Spector, vice president and director of design at Sverdrup Corporation, which is headquartered in Maryland Heights, Missouri, enjoys the lack of adversarial relationships in this team-oriented approach. "During design, we have the benefit of construction people advising us on value-engineering and constructability issues. And during construction, we can make minor changes in the field to improve the project without major hassles."

Design/build in the public sector (ARCHITECTURE, April 1991, pages 97-101) offers additional benefits. Commissioning one design/build entity, for instance, rather than an architect and a contractor, speeds up the cumbersome procurement process characteristic of government projects. Design/build also provides many agencies with a loophole to circumvent some of the requirements that have been put in place, layer upon layer, over the years. In a traditional delivery method,

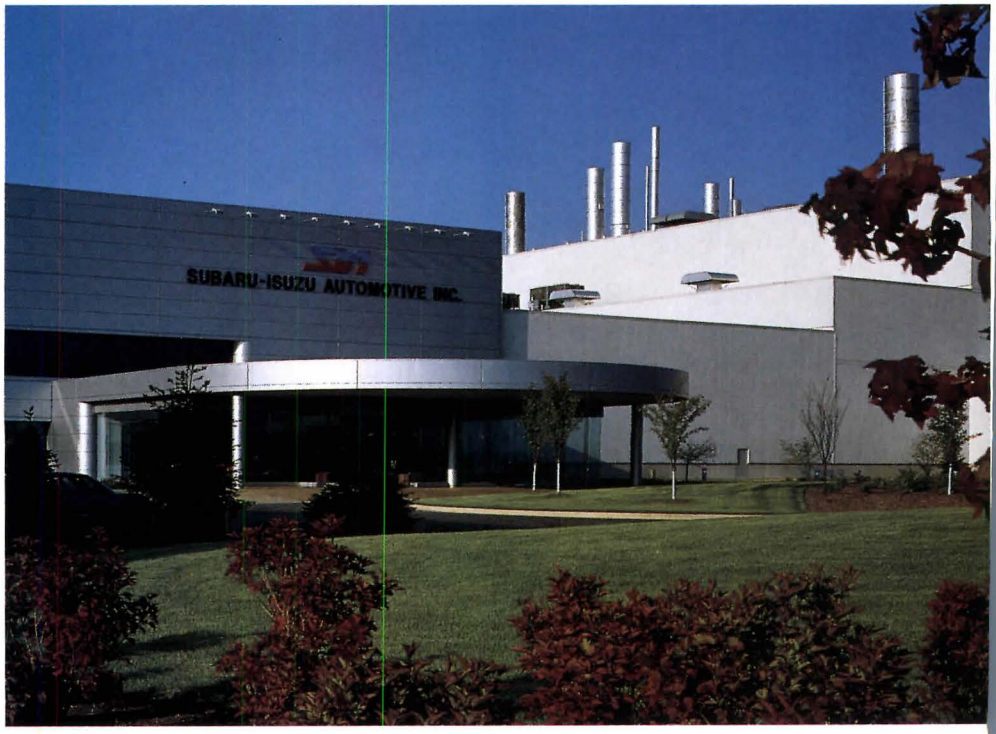
DOUG KOZEL PHOTOS

Wisconsin Education Association
Madison, Wisconsin
Findorff Potter

Subaru-Isuzu Automotive
Lafayette, Indiana
Kajima International

The association's council headquarters (top row and above right) and insurance subsidiary building (above) were designed and built by Findorff Potter, an entity owned and controlled by Potter Lawson Architects and construction company J.H. Findorff.

Kajima International, which completed this assembly plant for Subaru-Isuzu in 1989 (below), is an American subsidiary of a Japanese company and one of the largest design/build firms in the U.S. Design/build is common in Japan and other foreign countries.

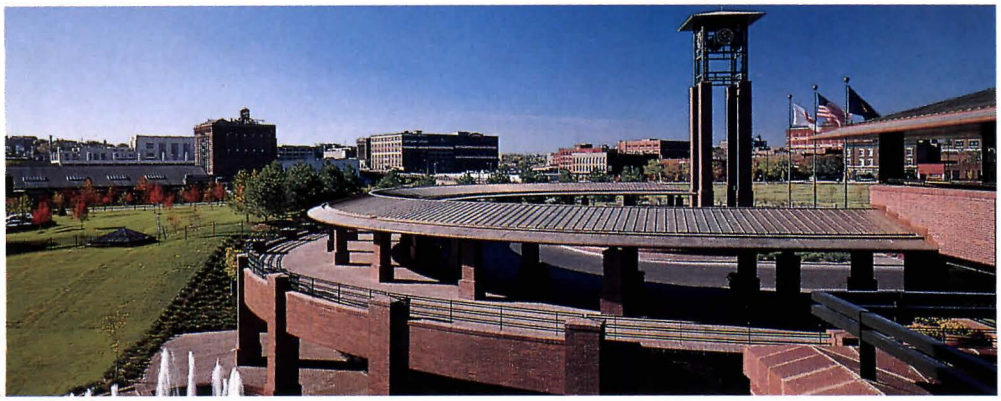


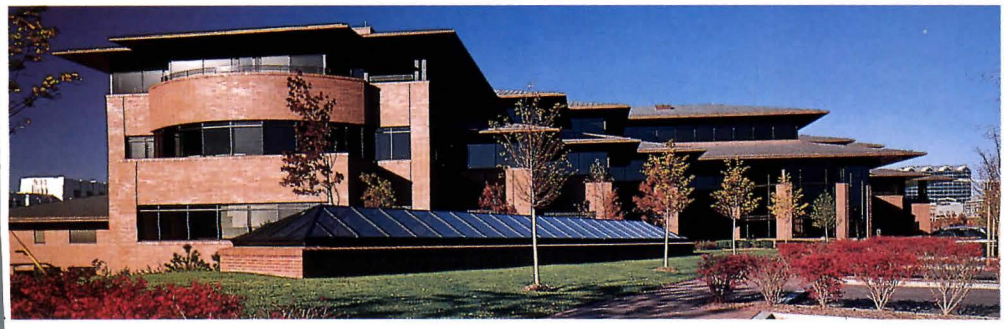
St. Peters City Centre
St. Peters, Missouri
Sverdrup Corporation

Emphasizing design, Total Program Management is Sverdrup's version of design/build. Construction considerations allow project teams, often led by an architect, to complete buildings such as this city hall and community center (above) on time and within budget.

ConAgra Corporate Headquarters
Omaha, Nebraska
Opus Corporation

Opus Corporation, which began as a construction company, encourages an adversarial relationship between architecture and construction staff to insure high-quality design. The company developed, designed, and built ConAgra's headquarters (below).





for example, a local, state, or federal agency may be restricted to specifying a particular material or construction method that could be substituted with a less expensive, more efficient alternative under design/build.

Other architects, however, are not convinced that design/build is always the best choice for certain types of projects. Larry Young, principal of Sasaki Associates in Watertown, Massachusetts, believes the most economical delivery system for an owner is still the traditional method. "Competitive bidding with full documents will give them the best price," he notes. In addition, he worries that an owner forfeits control of design quality when the architect is subordinate to the contractor, as is most often the case within design/build entities. "The architect strives for quality while the contractor wants savings. Under most design/build arrangements, money saved will accrue to the builder, not the owner. In such cases, the owner is going to be compromised."

The loss of design control clearly poses the greatest threat to architects. Recognizing this concern, some companies have taken steps to ensure quality design. For example, Sverdrup Corporation, whose staff consists of architects, engineers, construction managers, and other building professionals, carefully balances project teams so that the design/build process is driven by design. For many projects, the team is led by an architect.

David Lawson, principal of Potter Lawson Architects in Madison, Wisconsin, ensures design excellence through another approach. Lawson and partner James Potter strongly influence projects by retaining equal ownership with general contractor J.H. Findorff of Findorff Potter, an independent design/build company. Lawson believes that this unusual arrangement is an important ingredient of their firm's success. "Neither design nor cost control all of our decisions. We are jointly involved with the owner to provide the best we can within a given budget."

Lawson, chairperson of the AIA design/build task force, believes that the method by which a design/build project is awarded can affect design quality. He specifically distinguishes between design/build and design/build-bid. In design/build, the project team of architect and contractor is selected according to its qualifications. The resulting entity works with the owner to develop the design, construction strategy, and cost estimates, providing an early assessment of final construction costs. Under design/build-bid, the owner requests a design and guaranteed

maximum price from several design/build entities before the project is fully defined. The low bidder typically gets the job, but, because the documentation in the solicited package is often abbreviated, the design/build entity does not owe the owner any more than minimum compliance with the sketchy set of submitted bid documents.

"I have seen design/build-bid situations around the country where owners really are not getting what they thought they were getting," explains Lawson. "They have a picture in mind of what they are going to get, but the contractor's idea is totally different."

To minimize this occurrence, the AIA task force recommends that public agencies only accept bids from design/build entities that meet minimum criteria as spelled out in the institute's recent policy statement. Bid documents submitted by such prequalified candidates should be project-specific and comprehensive in scope so that the agency is certain of the services it agrees to purchase.

George Heery goes a step further in proposing a variation of design/build that he calls "bridging." According to this system, an architectural firm with good design, planning, and management skills is commissioned as an owner's designer and project consultant. This consultant performs the role usually held by the architect from predesign through design development phases. By the end of design development, the project must be fully defined for the client. This set of drawings and specifications, plus additional legal and technical documents, are sent out as a request for design/build proposals. As the architect-of-record, the firm associated with the selected design/build contractor generates construction documents and approves shop drawings during construction. Meanwhile, the owner's consultant undertakes all other aspects of construction administration.

Design/build and its modifications are not wholly new processes. The U.S. petrochemical industry, for instance, has applied similar techniques in the design and construction of their projects. Nor is design/build limited to the United States. Charles B. Thomsen, president of Houston-based 3D/International and a collaborator with Heery on his "bridging" concept, points out that such a delivery system is "what the Japanese do all the time. The French do it most of the time. Le Corbusier did not do working drawings."

The continued growth of unconventional systems of designing and constructing buildings within the United States forces a reexamination of the architect's position within these new organizational structures. Will increasing numbers of design/build projects further diminish the profession's stature? Or will architects assume expanded construction responsibilities to retain greater control of the design process? Clearly, many practitioners have learned to collaborate with the construction trades to create buildings that meet budgets and schedules without sacrificing design excellence. As pioneers in the design/build frontier, they are setting higher stakes for the future of architectural practice. ■

—NANCY B. SOLOMON

Architecture on Video

Advice on how to present designs in a new medium.

EVER SINCE 3D MODELING SOFTWARE FIRST demonstrated a jagged-edged, wire-frame box spinning in black space, architects have yearned for the ability to walk around or through images of buildings. The more realistic the simulation, they assumed, the better the resulting design.

Since then, the jagged box has been replaced with high-resolution, brilliantly colored images, reproducible at a speed that makes "real-time" animation feasible. With new hardware, even detailed, slow-to-render images can be transmitted, frame by frame, to videotape for later replaying. Recently introduced animation software includes fine control over camera lenses and angles, and special effects for scene changes. Suddenly, architects have been given the tools—but not the training—of a filmmaker. As a result, video risks as much abuse as drafting programs in the hands of lay designers, and requires architects to learn the trade before tackling this new medium.

Why animate?

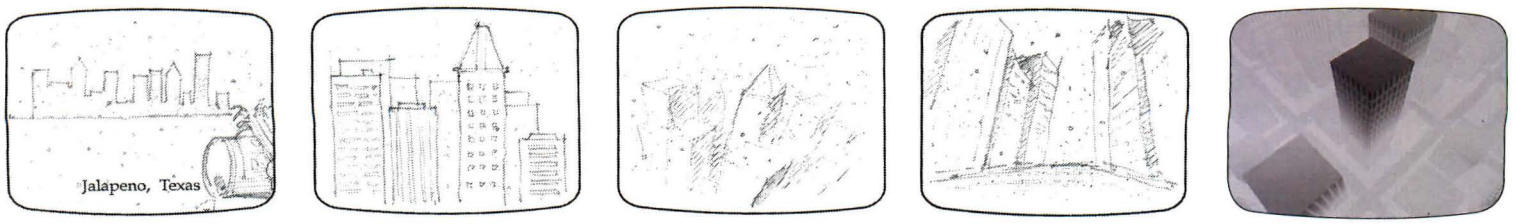
UNTIL RECENTLY, ARCHITECTURE VIDEO software, hardware, and expertise were expensive, and therefore only within the financial reach of large firms working for major developers. They used video primarily for real estate marketing—accommodating potential tenants who often understood television better than plans and elevations. With big projects, the high stakes warranted the high cost. Even with decreases in the price of the technology, marketing has remained its most common application. Still, as the technology has matured in recent years, so have the reasons for using it.

Some architects use videos to explore their designs in progress. "Moving" through a space gives a viewer a greater appreciation of the relationships between spatial elements than still images can offer. According to architect Richard Buday of the Houston-based architecture firm Archimage, "It's the difference between looking at a building in a magazine and actually being there." Kenji Murokami, of the San Francisco architecture firm Murokami Associates, adds that "even a 20-second video tells more than still images. You can walk through and feel like you were there, just as a televised travel program makes you feel like you're in Africa. Also, computer-generated images can be very accurate, unlike hand-drawn perspectives that you can modify, which therefore may not be a true representation of the space."

Animated images created in RenderStar (top) illustrate changes from day to night. Summer (above center) and winter (above) views of a Swanke Hayden Connell-designed building are part of a video created with Alias/3 by Kinetic Designs. Architect Richard Buday creates storyboards on paper (bottom) before beginning an animation (bottom right).

In addition to studying spatial relationships, designers can observe a building's changes in appearance over time—day to night and winter to summer. Construction methods, connection details, and the interrelation of major design elements can be examined in a way that is more likely to ferret out potential problems than looking at paper plans and sections. The growth of a building through future additions and environmental aspects of a design can also be animated.

Eric Bruneau of Creative Image Associates, a service bureau in Fort Lauderdale, Florida, points out that animation can be used as a tool for litigation purposes. "We're recreating a building whose roof collapsed from water buildup during a rainstorm," Bruneau explains. "This will allow a jury to visualize what the structural engineer believes caused the collapse. We're showing the water build up, the girder truss starting to bend, and finally the detail connection giving way. This helps laypeople understand what happened without difficult architectural terminology."



Videos can also effectively satisfy public policy concerns, according to Jan-Willem Gritters of Architectural Imaging Systems, a service bureau based in Toronto, Canada. He developed an animation of a proposed public building to demonstrate its visual impact from key locations. "It's hard to show an eye-level view with a regular scale model," he says, "and hand-rendered perspectives are often tweaked quite a bit. By showing an animation of the new building, the architects and developers convinced the planning commission that the design was appropriate for the urban context."

Michael Sinclair, senior research engineer of Georgia Institute of Technology, has other reasons for making videos. Most notably, he and a host of collaborators produced an interactive video of Atlanta and proposed athletic facilities that helped win that city's bid to host the 1996 Olympics. As Sinclair explains, "We were going to catch the weary International Olympic Commission in the last week of the competition, so we wanted to make this presentation more entertaining than the other bids they would see." His latest video depicts a high-tech building that would have been nearly impossible to model in traditional media.

Video images of a proposed shopping mall renovation (top) by The Callison Partnership were produced on an Intergraph system. At key views, the movement stops, and ray-traced images with shade and shadows dissolve in (above), giving the impression that direct sunlight is breaking through the clouds.

As the viewer scans the central courtyard (top) in this video by Creative Image Associates, the changing frames show only shadows and material textures. But when the final, eye-level view appears (above), the camera pauses on a fully rendered still view with trees and people.

Video capabilities

THE PROCESS OF MAKING AN ARCHITECTURAL video requires several steps. After creating a 3D CADD model, a designer should develop a storyboard and define key points, in addition to lighting and camera settings, in a path around and through the model. The computer interpolates camera angles and lighting values between those key frames, and generates a sequence of views. Most software can quickly animate wire-frame views of the sequence in real time so the designer can verify that the resulting perspectives are satisfactory. Then, for each of the generated points along the path, the computer projects and renders the view. Each rendering can take several seconds, minutes, or even hours, depending on the complexity of the scene and the speed of the hardware.

For on-screen animations, these views are stored on a hard disk and can be replayed in rapid succession at a speed limited primarily by the capacity of the computer and its peripherals. Achieving the highest resolution and the smoothest possible animation—at 30 frames per second—usually means transferring the frames, one at a time, to videotape. This process requires additional hardware to convert the computer's RGB or VGA signal to NTSC (a format defined by the National Television Systems Committee), and to control the operations of the videotape recorder. The quality of the result is roughly proportional to the expense of the equipment, and, so far, "broadcast quality" videos are usually the exclusive domain of service bureaus. However, that limitation will change soon, as prices drop. Even now, architects can produce informative videos, albeit with somewhat lower quality, for in-house purposes. (For discussion of hardware requirements, see ARCHITECTURE, November 1990, pages 141-148.)

Because interest in video technology is recent and animations are inherently complicated to set up, some software is difficult to use, even for designers already familiar with 3D modeling. Some software packages—including 3D Studio, Alias, DynaPerspective, DesignReview, Mega CADD, ModelShop, StrataVision 3d, and Topas—allow the user to build a 3D model, render it, and animate it. With other software—such as ASG Model Vision, Autodesk Animator, RenderStar, and Personal Visualizer—the process requires importing a completed model from a 3D program for rendering and animation. Virtus WalkThrough for the Macintosh, a software program in a class by itself, allows designers to model a simple building and immediately generate animated walkthroughs by simply moving the mouse over the plan.

No matter how sophisticated the software and how accelerated the hardware, the time required for calculating a rendering is much greater than the ideal 1/30-second duration of that image's display on the screen. Therefore, videomakers constantly look for shortcuts to reduce calculation time. One device employed by Bruneau is to minimize the number of objects in a computer model and draw the least detail possible without affecting the realistic appearance of the final image. He also doles out the rendering chores among several networked computers to share the image-rendering burden, and cuts the model into pieces so that the computer does not spend time calculating portions of the building that will not appear in a particular view. Bruneau has large libraries of bitmapped images of material textures, plants, and people that turn a geometric model into a vibrant, photorealistic environment. However, these take so much time to render that he applies them only to occasional still frames, in which the camera appears to pause while the space comes alive with people and greenery.

Another technique that increases a sense

of realism in videos of building projects is to merge footage of real people walking and talking within animated CADD models. This was done extensively in a Georgia Tech video by Sinclair and his collaborators at Telephoto, the institution's production lab. Actors performed in a studio painted green, and the footage was merged with a computer animation of imaginary spaces. Employing the same technique used by television meteorologists who appear to be standing in front of a computer-generated map, a filter informs the camera to replace the green areas with the computer image. Coordinating the precise timing and perspectives between the two media requires meticulous planning and orchestration. Whenever a person appears to walk behind an architectural element, for example, a stand-in had to be constructed for the studio shoot, and the computer model had to include a precisely sized element to fill in the gap. To further enhance the sense of realism, videomakers at Georgia Tech applied scanned images of tile, carpet, and wood samples supplied by the architects to match the intended colors and textures.

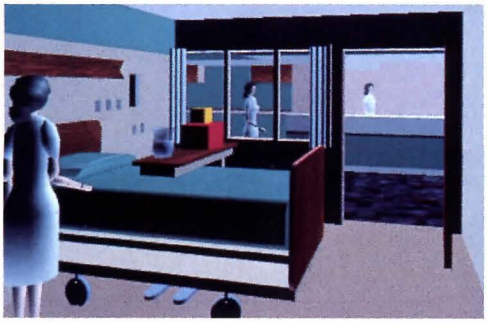
Another way to simulate realism is to film a site and merge it with the rendered CADD model. According to Jan-Willem Gritters, modeling the whole site within CADD is practical only if the surroundings are simple. For urban settings, he claims, "It often makes more sense to combine the building model with video footage shot on location. It's not only more realistic, it's usually less expensive."

Principles of good videos

NOW THAT ARCHITECTS HAVE ACCESS TO THE tools of a filmmaker, they should take the time to learn the craft. Anyone who has attended a computer trade show in the last few years has seen examples of bad animation: Star Wars-like flythroughs that would make clients reach for their seat belts instead of their wallets. Though well-trained visually, many architects are unaware of the communication opportunities afforded by motion and sound. Even more than traditional renderers, computer animators must consciously consider how colors, lighting, and shadows can add depth to a space.

According to Bruneau of Creative Associates, one of the most common weaknesses he's observed among amateur animators is lack of control over the camera capabilities within the software. "You can bore viewers by walking them too slowly," he cautions, "or by walking them too fast through spaces in the building. You have to know what parts of the architecture you want to show."

Modeling software with built-in animation capabilities, such as ModelShop II for the Macintosh, allows the architect to define beginning (top) and ending viewpoints. The computer automatically generates a smooth sequence of views in between (above). The animation can then be stored for later replaying.



Architects at HDR created an animation with Topas software for the Bowman Gray School of Medicine/North Carolina Baptist Hospitals. The video allowed them to examine visibility from the nurses' station to the patients' rooms (top) and the reverse (above)—a critical requirement of healthcare design.

One of the best ways to learn the ropes of videomaking is to first work on a video with an experienced team. Architect Buday, a self-taught and prize-winning animator, believes that collaboration with those formally trained in animation is a good way to break into the unfamiliar field. Michael O'Malley, president of Kinetic Designs, a New York City service bureau, considers technology transfer as an essential component of his service. "We don't believe we will always have to do it for you. But it's complicated, and we can show you how to do it before you start doing it yourself."

These experts insist that architects must tell a story with their animations. During conventional presentations, architects stand in front of their drawings, explain them to a known audience, and respond to questions. In contrast, video is ideally a transportable medium that should be comprehensible to an audience of unknown background and be able to stand alone without the benefit of interactive explanations. "You have to write a script that will keep the viewer interested," Buday says. "As an architect, you have a reason behind what you're designing. In developing a storyboard, you have to play Hollywood producer and director, turning that message into a coherent story."

O'Malley believes architects need to understand the strengths of the medium. "Television videos are sequential," he says, "with a beginning and an end. You have to have a narrative intent to make a powerful architecture video. It's not just an impressive medium, it's an informative one."

One of the most critical aspects of defining an architectural "story" is in designing a path and selecting a sequence of views through the building. Very often, a path is determined by what the client wants to see. The architect should resist the temptation to show every space. O'Malley explains that it's better to pick an important path and develop it. "Start somewhere and get somewhere," he advises. "For example, if you need to begin another path, look at something in the distance, then dissolve to that point. That helps orient the viewer and makes good video."

In general, filmmakers agree that the viewer's perspective ought to be as realistic as possible. This means setting the camera at eye level, moving at about 5 feet per second, not starting or stopping suddenly, and not panning the camera wildly from side to side. Buday and his colleagues study how people walk and mimic a real experience of walking

through a space. "Motion is more than a straight line," he says. "As you walk, you're also turning your head. Video is more effective if you show what people expect to see."

Some software programs automatically give an apparent depth of field by slightly blurring the background. Georgia Tech's Sinclair used this technique extensively in his video, which included close-ups of people talking. "If you have a tight shot on a person, their face is in focus," he explains. "The people in back of them are slightly out of focus, and the computer background behind them should be even more out of focus. If the background were fully focused, it would stand out like a sore thumb."

A natural view of a space is produced with a 50 to 60mm camera lens. However, in most animation software, the camera lens can be changed to modify the viewer's perception of the space. Bruneau contends that "lenses are very important; they change the space completely. If the client wants a large space, use a wide-angle lens."

Some videomakers take liberties with unnatural camera movements. For example, some double the walking speed to get through a less interesting part of a building, or "fly" rather than walk. In one of Bruneau's videos, viewers take the "butterfly's path" up to a mezzanine to save the time of taking an escalator. He explains, "We decided to glide up while making a nice, casual turn in the space instead of literally going straight up. The clients loved it. If a movement is too rigid, it's not going to sell well as a marketing video. If you can show a nonstandard way of looking at a space, it grabs their eye."

Flyovers should be applied sparingly because they do not represent how people normally experience buildings. But they can be effective in orienting viewers, explains Eimar Boesjes, president of Modern Medium, the Portland, Oregon, software company that produces RenderStar. "If you walk through a building," he advises, "it's easy for viewers to lose their orientation. So we first cut part of the building away, then circle around it, viewing the interior and revealing the composition before going inside."

Other departures from reality are possible through special effects. For example, some animation software allows designers to create dissolves and other transitions between scenes. A sharp cut between scenes can create an intense, dramatic effect, while a dissolve is more appropriate for a gradual, calm transition. But unless the video director is selective, special effects may call attention to themselves and detract from the architectural message of the video.

If few architects are trained in designing with motion, fewer still are trained in music, voice-over narration, and sound effects. But according to Buday, the sound track is essential for developing an impression of realism. "Sounds of the city and other background noises create an ambience. Buildings are experienced that way, whether we know it or not. Video provides a tremendous opportunity for simulating an environment in the laboratory and verifying the results with a client. Without the sound, it's easy to lose your viewers' attention."

Spatial improvements

EVER SINCE ARCHITECTS BEGAN WORKING with computers, optimists have asserted that such technology has the potential to improve the quality of buildings. Pessimists wonder when this promise will be kept. Could video be the technology that finally makes this happen? Or will it simply develop as a glitzy marketing tool? It may be impossible to measure video's influence on design quality without scientifically controlled experiments comparing parallel design processes. But some architects working in the medium are convinced that simulated motion improves their ability to see, evaluate, and, therefore, improve the spaces they create.

In Buday's opinion, computer graphics in general will bring about well-designed buildings, but only for architects willing to change their work styles. His own design process involves computer-based, visually interactive exchanges between architect, client, and consultants. "The clarity of computer imagery," he asserts, "enables clients to become, at last, comfortable participants in the design of buildings." And, by enabling clients to more fully appreciate the design process, the technology may indeed fulfill its promise of producing better architecture. ■

—B.J. NOVITSKI

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Alias
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Suite 300
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(317) 844-4364

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(919) 467-9700

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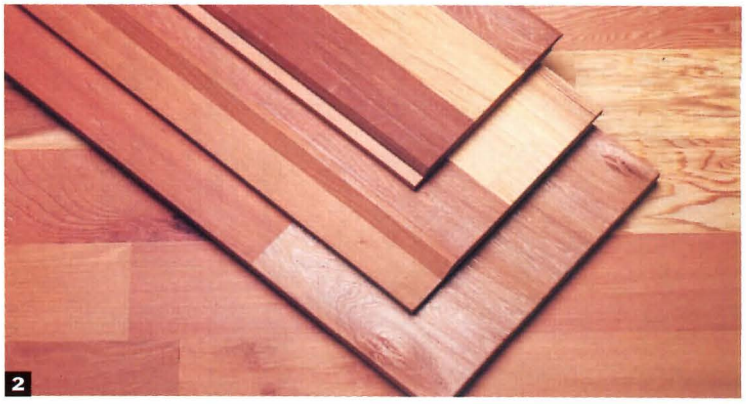

Wood Siding

Indoor and outdoor applications of timber products.

A SOUND CHOICE FOR EXTERIOR APPLICATIONS, WOOD SIDING HAS inherent insulative properties and, if properly treated, weather-resistant qualities comparable to masonry or stucco. Wood siding for interior finishes is often less expensive to install than simulated wood or composite paneling, and may be left untreated for a low maintenance, solvent-free environment.

Cedar continues to be specified for siding, decking, indoor paneling, and cabinetry, and is classified as a fine-grained, lightweight wood that can sustain harsh weather conditions. Redwood is valued for its decay-resistant heart wood and its ability to hold finishes longer than other species. Available at a decreased price, knotty redwood sidings offer the same benefits as clear redwood. Because clear wood siding is not always available or affordable, manufacturers have developed economical and ecological alternatives by gluing short pieces of clear redwood into long strips, or by binding and compressing strands of wood from replenishable trees. These rigid, moisture-resistant panels offer the strength of lumber or plywood at a lower cost.

All exterior wood applications should be treated to ensure maximum longevity. Wood preservatives include bleaching oils, also known as weathering stains, opaque latex-based and semitransparent stains, as well as conventional acrylic paints. Interior wood products in bathrooms and kitchens require sealants and varnishes for adequate protection against moisture. —KAREN SALMON

1. Oberflex manufactures its Pastelwoods line of wood veneer laminates for interior applications. Circle 401 on information card.
2. Palco-Loc redwood siding, manufactured by the Pacific Lumber Company, is finger-jointed and electronically glued to produce 16-foot-long pieces. Circle 402 on information card.
3. The James Wood Company's SelecTrim modular molding system is designed to facilitate installation while eliminating the need for on-site touch-ups. Circle 403 on information card.
4. The California Redwood Association represents 95 percent of redwood manufacturers in the U.S. Circle 404 on information card.
5. Wood particles are saturated and compressed to form Louisiana Pacific's Inner-Seal Oriented Strand Board. Circle 405 on information card.
6. Anderson Schwartz Architects of New York City applied cedar throughout the Goldman House, honored last year by the Western Red Cedar Lumber Association. Circle 406 information card.

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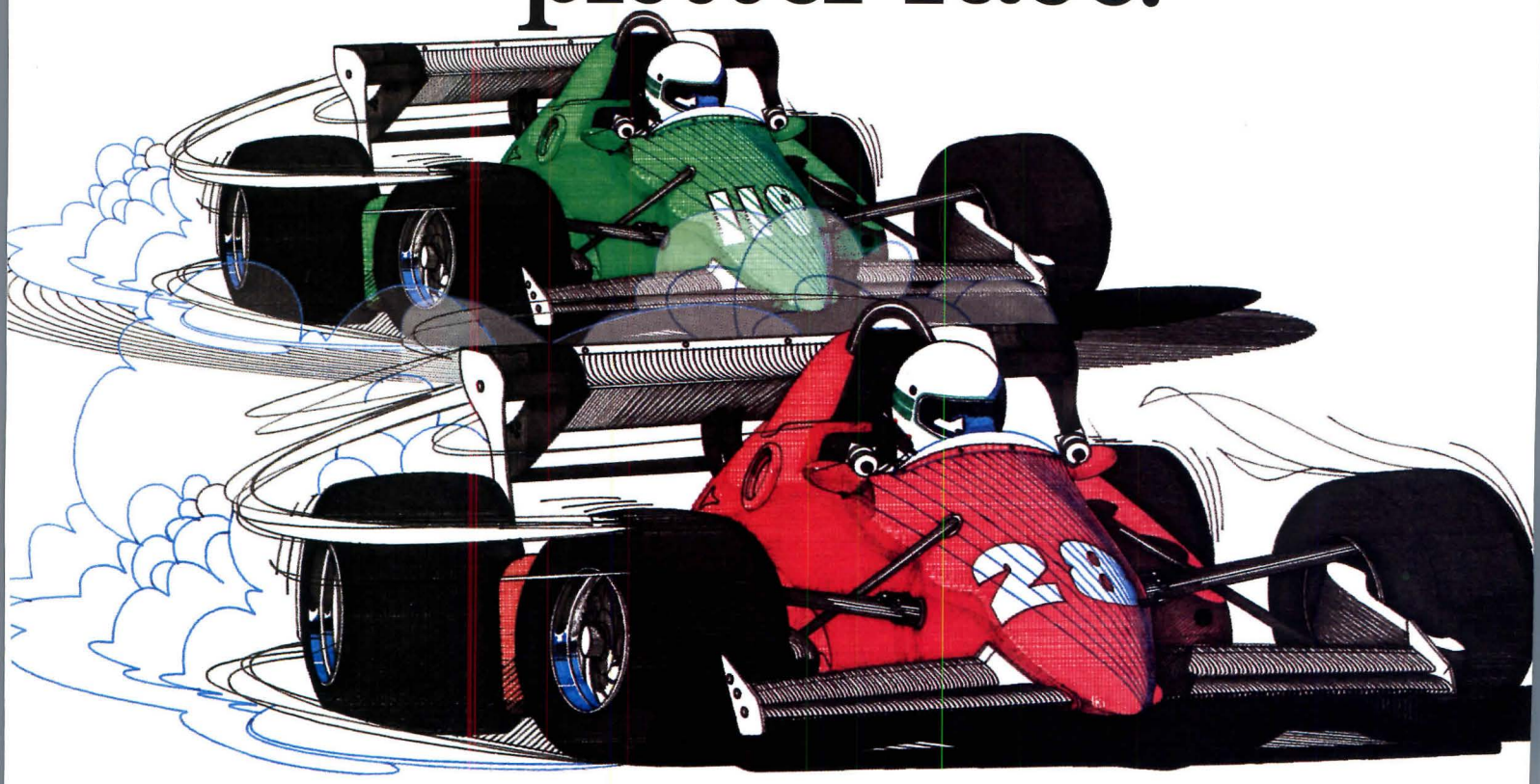

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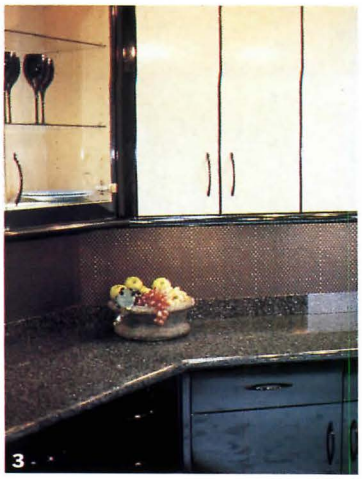
Customized Cabinets

Product diversity promotes storage creativity.

STOCK KITCHEN CABINETRY MANUFACTURERS NOW OFFER A RANGE of door styles, hardware, and accessories that enable architects to create a custom appearance at a lower cost. Similarly, cabinet manufacturers are expanding model selection not only to enhance functional convenience, but to ensure product adaptability to a variety of room configurations. While continuing to offer adjustable roll-out and revolving shelves, corner storage spaces, pull-out surfaces, and pantry units, custom kitchen product manufacturers are starting to include provisions for the eco-conscious client: capacity for two or three recycling bins, and countertop chutes for quick and sanitary compost removal.

Today, both modular and custom kitchen cabinets are most commonly crafted from clear-grained, domestic wood, and coated in a white or natural finish. Yet some manufacturers continue to apply rich woods like anigre or cherry for traditional models, or high-gloss laminates for contemporary lines. Built-in appliances have increased in popularity—more companies are introducing 24-inch-deep refrigerators and recessed ovens for a flush, tight fit within the kitchen. Wood and laminated dishwasher panels and a variety of refrigerator exteriors match cabinetry finishes to create a uniform esthetic. —K.S.



1. Merillat's Amera line offers cabinetry in 19 styles and a range of finishes. The Karis kitchen door panels are finished in white or gray laminate. Circle 407 on information card.
2. Dwyer Products offers the Series HC compact kitchen with a partially installed, removable undersink cabinet to provide accessibility for the physically impaired. Circle 408 on information card.
3. The Charleston cabinetry collection by St. Charles is available in four styles. The Solitude design is finished in black, high-gloss polyester. Circle 409 on information card.
4. Belvedere cabinetry by Bosch Custom Kitchens incorporates maple doors and a steel canopy stove hood. Circle 410 on information card.
5. The Sycamore cabinetry line by Smallbone makes use of traditional joinery construction, boxwood inlay, stainless steel detailing, and etched glass. Circle 411 on information card.

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Bathroom Standards

New products incorporate ergonomic features.

EFFORTS BY THE NATIONAL KITCHEN AND BATH ASSOCIATION (NKBA) to create a comprehensive set of guidelines and standards arose in response to a heightened interest in the esthetics of bathrooms, rather than as a result of new technically advanced products. Unlike the kitchen industry, which regularly revises its own set of technical manuals, the bath industry currently relies upon maximum and minimum clearance dimensions set forth by the U.S. Department of Housing and Urban Development (HUD) and various local building codes for plumbing regulations. With the support of major manufacturers, the NKBA has taken steps toward providing the bathroom industry with a comprehensive reference to facilitate and enhance the creation of personalized bathrooms. By the end of this year, the association plans to introduce the 5-volume set of Bathroom Industry Technical Manuals covering construction and mechanical systems, planning principles, safety criteria, equipment and materials, as well as graphic and presentation standards. In addition, the manuals will enable architects to design bathrooms according to ergonomic considerations, particularly to incorporate new equipment such as whirlpools and steam baths. Martha Kerr, chairperson of the ad hoc manual committee, notes that the technical handbooks will provide new, realistic minimum dimensions for safer, more accessible spaces. ■

—K.S.


1


2

1. Hastings' Palais Laser modular system adjusts to frame any size sink. It consists of a central hanging mirror, four swiveling towel bars, two trays, a magnifying mirror, and a light. Circle 412 on information card.

2. The Derrick pedestal lavatory by Barclay Products is finished in white porcelain with either black or multicolored handprints. Circle 413 on information card.

3. Hansgrohe manufactures the wall-mounted Turbodent massaging mouth spray. The attachment holder and spray wand are available in chrome, white, and polished brass finishes. Circle 414 on information card.

4. Instead of incorporating a conventional spring roller, the solid brass Newton toilet paper holder features end brackets with movable pegs for toilet roll replacement. Circle 415 on information card.

5. BathCAD is a software package offered by American Standard that allows architects to create photorealistic, two- and three-dimensional renderings of new or remodeled bathrooms. Circle 416 on information card.

6. Featuring 16 multilevel hydrotherapy jets, three adjustable shower heads, cascading waterfall, and steam bath, the J-Dream shower by Jacuzzi can be programmed from an electronic panel within the unit. Circle 417 on information card.

7. Duschqueen creates custom shower and tub enclosures with frameless doors and minimal use of metal. Circle 418 on information card.


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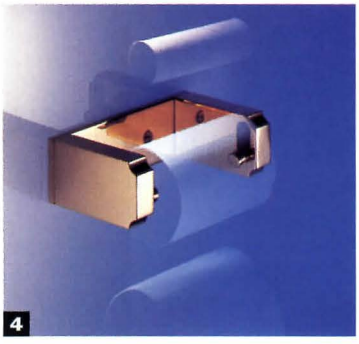
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