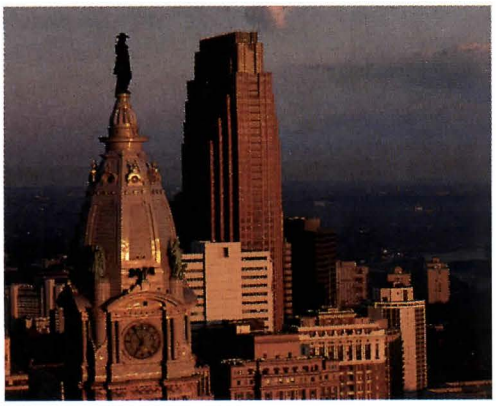
ARCHITECTURE

MARCH 1991



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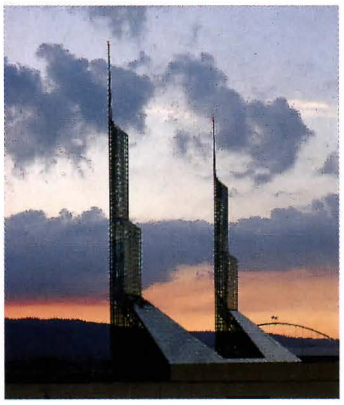

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DESIGN

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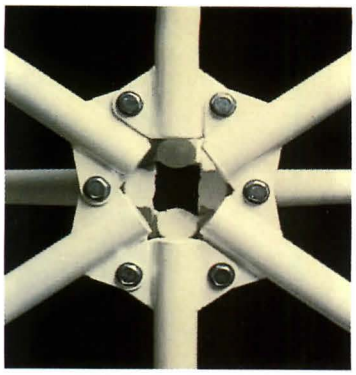

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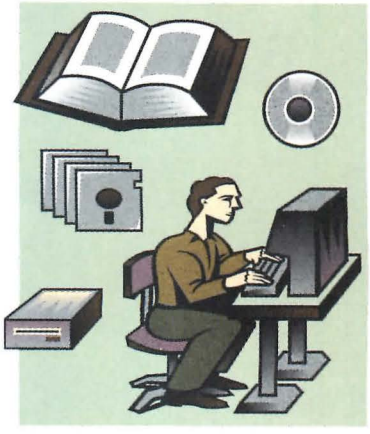

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DEPARTMENTS

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COVER:

Oregon Convention Center, Portland, Oregon, by Zimmer Gunsul Frasca Partnership (page 86). Photograph by Strode Eckert Photographics

NEXT MONTH'S ISSUE:

Washington D.C. architecture
Government as client
Minority architects
Roofing technology


FORD

Toward a New Public Architecture

LAST SUMMER, I WAS INVITED TO JUDGE THE U.S. POSTAL SERVICE'S FIRST NATIONAL Honor Awards for Facility Excellence. In evaluating 120 entries, my four fellow jurors and I discovered that, with few exceptions, today's post offices have lost their stature in the community as important and inviting public buildings. Similarly, the nine-person jury that convened last October to honor federally commissioned projects under the General Services Administration's reinstituted biennial design awards program found the quality of new government buildings "mundane and thoughtless." While the jurors managed to cite three projects under the architecture category (below), they found the quality of historic preservation work far superior to new G.S.A.-commissioned buildings.

Unfortunately, the findings of both juries encapsulate the low level of public design today. Although exemplary edifices continue to be built (some examples are featured in this issue), most new government structures are designed to emulate the bland model of the spec office building rather than the inspirational civic architecture of the past—robust Richardsonian courthouses of the 1890s, dignified Georgian libraries of the 1920s, or even stripped down Classical post offices built under the W.P.A. in the 1930s. Given that the G.S.A. is budgeted to spend nearly $1.5 billion on new construction this year, the need for more innovative public buildings has never been greater.

Bonneville Power Headquarters
Portland, Oregon
Zimmer Gunsul Frasca Partnership

U.S. Port of Entry
Columbus, New Mexico
Holmes Sabatini Eeds, Architects

Hollings Judicial Center
Charleston, S. Carolina
Goff Associates

Certainly, the competitions established by the U.S. Postal Service and G.S.A. in conjunction with the National Endowment for the Arts should be lauded for their effort to elevate the quality of public architecture. Already, these award programs have alerted governmental officials all over the country to the importance of design excellence in setting future public policy.

With work in the private sector now drying up, architects, too, are advocating the need to upgrade public design. Last December, the AIA established a new medal as part of its annual honor awards program, in order to recognize architects involved in government commissions, as well as their clients. Each year, the Thomas Jefferson Medal will be issued to recognize government architecture in three categories: private sector architects who have established a distinguished portfolio of public work; public sector architects who manage or produce quality design within government agencies; and public officials who have furthered public awareness of design excellence. A call for entries will be announced later this spring, and the first Jefferson Medals will be presented in 1992. (For more information, contact Frimmel Smith at the AIA; 202-626-7390.)

Although such awards programs are a step in the right direction, it is ultimately up to architects to convince the government that good design is good leadership. As Thomas Jefferson wrote in a letter to James Madison, "How is a taste in this beautiful art [architecture] to be formed in our countrymen unless we avail ourselves of every occasion when public buildings are to be erected, of presenting to them models for their study and imitation?" ■

—DEBORAH K. DIETSCH

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LETTERS & EVENTS

Continuing education

ARCHITECTURE'S focus on Patrons of Professional Excellence (December 1990) is laudable. Historically, patrons like Tom Monaghan have been important catalysts in advancing architectural ideas. Another aspect of patronage not touched upon in the article, but deserving acknowledgement, is patronage of architectural education.

Tom Monaghan has supported the College of Architecture and Urban Planning at the University of Michigan in several ways. His support has included the supplemental funding of a teaching position titled "architect-in-residence," now filled by architect Gunnar Birkerts. In addition, he has supported a visiting professors program, exposing our students to a wide array of views which they might not have otherwise confronted. Tom has also supported our lecture series which has achieved great distinction, and which serves the profession and the community as well as the school.

Such patronage of education has an immeasurable impact on the profession. Others should be encouraged to follow Tom Monaghan's example and to invest in the future of architecture by supporting programs that expand horizons of teaching and research in our professional schools and colleges.

Robert M. Beckley, FAIA
Dean, College of Architecture and Urban Planning
University of Michigan

Anti-choice patronage

It is all very well and good that Mr. Thomas Monaghan has built an empire and has the wherewithal to pursue a vicarious career in architecture. What I question is not the coverage of the architecture created by the professionals hired by Mr. Monaghan, but your romantic portrayal of the patron.

Mr. Monaghan has been a large donator to the anti-choice group Operation Rescue. He has denied the use of his facilities for the National Organization for Women's Convention because he is anti-choice with regard to abortion rights for women. In a magazine which is read by women in the profession, and edited by a woman, why must I read an article glorifying a man actively involved in misogynist practices?

Catherine A. Finn
Cutsogeorge & Associates
New York, New York

Other platforms

It was perhaps fitting that your last issue of the decade contained one more (and hopefully the last) article comparing DOS and Macintosh operating systems (December 1990, pages 115-119). This may have been an important issue of the 1980s but most architectural offices have made their choice by now. Many have decided on more than one system, so DOS versus Mac is really not worthy of further debate.

What is worth investigating is the continuing emergence of the UNIX platform, and more importantly, the networking of all data and devices in the office. This in fact was the key point of the article "Mini-Micro Merger" (ARCHITECTURE, April 1990, pages 109-111), in which two firms discussed how they have been dealing with this challenge.

I think it's appropriate to continue with this type of investigation rather than your periodic "shoot-outs" between DOS and Mac, and to begin to explore networking systems rather than operating systems.

Jules Chiavaroli, AIA
Department of Construction Technologies
Rochester Institute of Technology

Corrections

The photographs of Toussaint Louverture School in Miami (January 1991, pages 64-65) should have been credited to Steven Brooke.

Leo A. Daly should have been listed as the associate architect of the College of Law Library Expansion at Arizona State University (January 1991, page 30).

Bryant Associates P.C. was the civil engineering firm for the Science and Technology Center at Syracuse University (January 1991, pages 48-51). In addition, credits for the Schaffer Art Building were inadvertently omitted, and should have been listed as follows:

ARCHITECTS: Fuligni-Fragola Architects, East Syracuse, New York—Dante Fuligni (principal-in-charge); David Bonacci (associate-in-charge); Edward Rice (project manager); Vincent Fragola; David Tucker, James Markley, Robert Manca, Keith Turner, Robert Fuss (design team)
ASSOCIATE ARCHITECT: Koetter, Kim & Associates, Boston, Massachusetts—Fred Koetter (principal-in-charge); Mark Chen (associate-in-charge); Edgar Adams (project architect); Bradford White, John Reed, Gerald Valgora, Peter Ching, William Loftis (design team)
LANDSCAPE ARCHITECT: O'Brien & Gere Engineers
ENGINEERS: Klepper, Hahn, & Hyatt (structural); Robson & Woese, Inc. (mechanical)

March 20-22: WestWeek's "Explorations: Commerce, Culture & Design in the International Marketplace," at the Pacific Design Center in Los Angeles. Contact: Lucia Balinbin, (213) 657-0800.
March 21-23: "Excellence in Housing," the ninth annual International Energy Efficient Building Conference and Exposition in Indianapolis. Contact: Howard Faulkner, (207) 780-5143.
March 27: CSI Products Show, sponsored by the Metropolitan New York chapter of the Construction Specifications Institute, at the IDCNY in Long Island City, New York. Contact: Joanne Markowitz, (718) 937-7474.
March 27-May 19: "Raymond Loewy, Pioneer of American Industrial Design" exhibit at the Design Museum in London. Contact: 071-780-5143.
April 5-7: "Dawn of the New Decade for Hospitality Design" Restaurant and Hotel International Design Conference (RHIDEC) in Los Angeles. Contact: Judy Skalsky, (609) 825-6800.
April 5-6: "Banff Session 1991" annual conference on contemporary architecture, sponsored by the Alberta Association of Architects, with Romaldo Giurgola, Antoine Predock, and Wolf Prix. Contact: (403) 432-0224.
April 19-21: "Emerging Forms of Architectural Practice," a symposium focusing on the changes in the sponsorship, design, and production of buildings. Sponsored by the Center for the Study of the Practice of Architecture in Cincinnati. Contact: David Saile, (207) 780-5143.
April 24-25: Specifix^3 at The Washington Design Center, Washington, D.C. Contact: Mary Dee Bartolomei, (202) 554-5053.
May 17-20: "199Issues" at the AIA convention and exhibition in Washington, D.C., featuring nearly 100 seminars, workshops, and consultations for architects. For registration information, contact: (202) 626-7395.
June 16-21: "Bare Bones," the International Design Conference in Aspen, Colorado, exploring ways for designers and others to maintain creativity during hard times. Contact: Joan Scherman, (212) 685-0990.

NEWS

Accent on Architecture: Less Style, Moore Substance

THE AMERICAN INSTITUTE OF ARCHITECTS' SECOND ANNUAL ACCENT on Architecture in February was significantly less extravagant than last year's affair—maybe because of the war in the Middle East, maybe the recession, but most likely for lack of a Prince. The three-day event, established by the AIA to celebrate design excellence and to stimulate public dialogue about architecture, included Smithsonian seminars on global architecture and an exhibition, "The Grand Louvre: Entering a New Century" at the Octagon.

But without the draw of His Royal Highness the Prince of Wales, who served as the guest of honor last year, the 1991 Accent on Architecture failed to attract the media exposure of the inaugural event. And without Joan Rivers, Brooke Shields, and Tom Selleck, who attended last year's dinner, the only celebrities in the audience were the architects who have rated a profile in *Vanity Fair* or a PBS television series. Lacking these superficial distractions, Accent's gala awards dinner focused purely on architecture and its stars: Gold Medalist Charles W. Moore and other award winners. The Pension Building, which undoubtedly houses one of the grandest rooms in America, was a fitting setting to honor the best of today's architecture.

Previous Gold Medalists Fay Jones, Joseph Esherick, and I. M. Pei toast Charles W. Moore (second from left).

Keynote speaker Vincent Scully supported architecture's responsibility to the past as a "most hopeful movement that was hardly imaginable 30 years ago" and praised Moore as an architect worthy of celebration. Moore opened his acceptance speech by telling the audience that his "little talk" was not a "manifesto which proposes a new order." Although he claimed "we've already been treated to too many manifestos in our century," Moore went on to say "there is no future worth contemplating that doesn't build on the great storehouse of energy our history provides," and he charged his fellow architects to "get their

ED CASTLE PHOTOS

William Turnbull, Donlyn Lyndon, and Richard Whitaker (above left, left to right) accept the AIA 25-Year Award for Sea Ranch for their work with Charles Moore. James Brady (above right) speaks out on the importance of responding to the needs of the disabled.

AIA BRIEFS

Responding in part to what AIA Group Vice President for Membership Virgil Carter calls "alarming trends," the Institute's membership futures task force is conducting a comprehensive review of membership services and fees. The trends include a declining rate of new members joining the AIA and increased terminations by associate members.

The group's recommendations include revising fees, which are presently equal for all members, so that owners of firms pay higher dues than employees, government architects, or architect educators. The task force suggests eliminating the supplemental dues charged to firms according to employee count. Recently licensed architects would receive a 20 percent discount upon joining, and graduate architects would pay lower fees for their first three years. The first dues adjustment in six years is proposed for 1992, but amounts are still undetermined.

To attract new members, the task force proposes a category for people in allied professions such as landscape architecture, engineering, and manufacturing of building products. Susan Maxman, an AIA vice president and a member of the task force, contends, "We do a great job for people in private practice, but we're less attuned to those people who make architecture happen but are not practitioners." Maxman believes that the AIA must become "more member-driven."

AIA's board of directors approved the task force's preliminary report last December, and the group will solicit feedback from components throughout 1991. Revisions that require changes to the Institute's by-laws will be voted on at the AIA convention in May. Upon approval, the recommendations will be implemented in 1992.

DETAILS

The Museum of Contemporary Art in Chicago has named six finalists to design a new building and sculpture garden scheduled to open in the spring of 1995. They are: Emilio Ambasz, Tadao Ando, Josef Paul Kleihues, Fumihiko Maki, Morphosis, and Christian de Portzamparc. The winning architect will be announced in May.

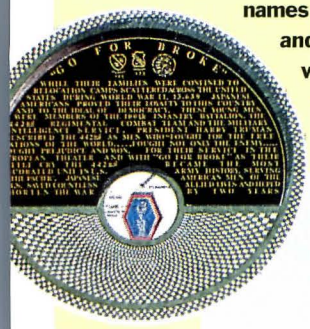
Hugh Hardy of Hardy Holzman Pfeiffer Associates is designing a 31-story apartment building next to St. Jean Baptiste Church in downtown Manhattan.

The Columbia Design Collective of Columbia, Maryland, won a national competition to convert the Albert Thomas Convention Center in Houston into a 200,000-square-foot urban entertainment complex. The $35 million project is expected to begin construction this year.

Meyer, Scherer & Rockcastle of Minneapolis won a design competition for the Sahara West Library and Art Museum in Las Vegas. Construction of the $13 million project is scheduled to begin in 1992.

Carol Krinsky, professor of fine arts and director of urban design at New York University, won this year's Arnold W. Brunner Grant, awarded to further architecture in a special field.

Los Angeles architect Roger Yanagita, AIA, won a national competition to design a memorial to Japanese-American veterans in Los Angeles. The $2.5 million memorial (below) will be engraved with the names of those honored, and the lower slope will feature an eternal flame and an American flag.



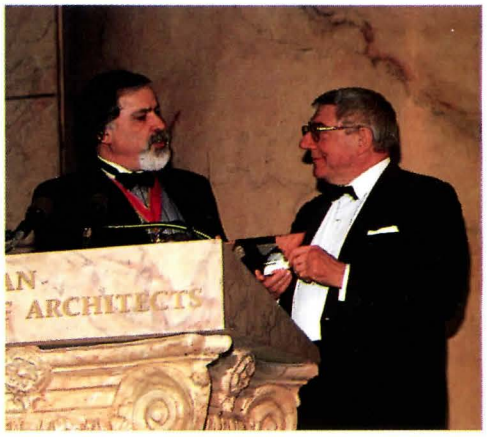
Accent on Architecture *continued from page 21*

power from human memory, which lies at the base of all we do."

Accent's emphasis on increased public awareness of architecture included a tribute to the role of French President Francois Mitterrand in heightening the public stature of design in his country through the highly publicized, and sometimes controversial, Grands Projets and specifically I.M. Pei's Grand Louvre expansion. Pei and three of his associates and representatives of the Louvre presented an in-depth look at the planning and construction of the pyramid at a panel discussion the previous evening.

Accent's gala also included commentary on social issues. Former White House press secretary James Brady, who survived an assassination attempt on President Reagan, praised AIA's role in the passage of the Americans with Disabilities Act. "While the law established certain standards for buildings, it is not a building code," Brady pointed out, adding, "The new law won't automatically change attitudes or generations of misconceptions."

In a second Smithsonian forum moderated by ARCHITECTURE contributing editor David Dillon, Moore joined Peter Eisenman, Michael Graves, Robert A.M. Stern, and French architect Jean-Louis Cohen to discuss their experiences in working abroad. Attempting to answer why foreigners are getting major commissions in France, Cohen claimed, "Global architecture has to do with expertise, but often more so with power and the media." Eisenman echoed Cohen's sentiments by relating a recent meeting in Japan. "When I asked about the program, the client simply responded 'cover.' When I questioned what he meant, the interpreter explained the client wanted the building to appear on the cover of a magazine." Stern, on the other hand, credited the Japanese interest to stylistic reasons. "The Japanese come to us old guys who still pitch a roof every now and then." But the real reason behind American architectural exports may stem from the question Dillon asked in his introduction: "Are we finally paying Europe back for the Columbian Exposition of 1893?" —LYNN NESMITH



Emile Biasini, head of the Grands Projets, accepts a gift from American Architectural Foundation chairman Sylvester Damianos.

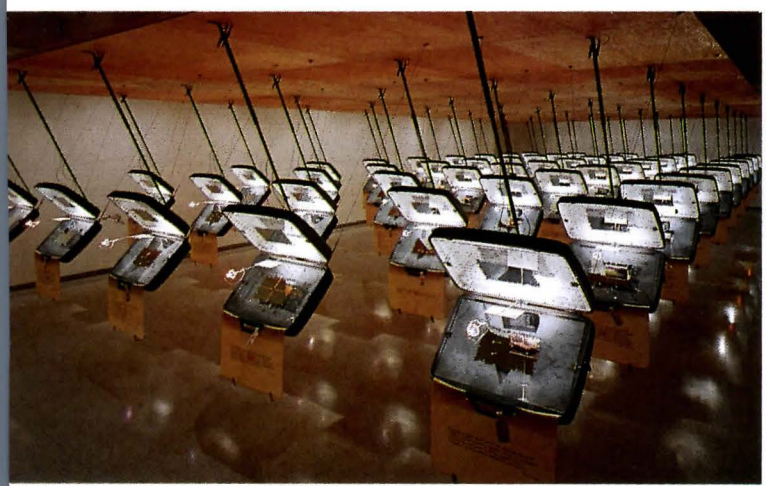
AIA President James Lawler congratulates Moore on receipt of the Gold Medal.

ED CASTLE PHOTOS

I. M. Pei discusses his Louvre project at a Smithsonian Institution seminar.

Architectural Tourism at the Walker Art Center

IN HIS ARTICLE "ARCHITECTURE," ADOLF Loos proudly proclaims that his buildings are "totally ineffective in photographs," that "only the power of the example has had an influence." In the context of the production of architectural culture today, it would seem to be unthinkable to uphold such a view. What "important" building is not caught in the web of its own representation? How many people have "visited" such buildings solely through the pages of a magazine?



Diller and Scofidio's 50-suitcase shrine (above) is intended to investigate the implications of tourism.

Rather than regard Loos's position as reactionary, it is perhaps more productive to view his statement as a refusal to submit architecture to the laws of photography, a position which emphasizes architecture as a craft of making artifacts. "Tourisms: suitCase Studies," raises similar questions about the role of representation in our culture. The work was conceived and executed by New York-based architects Elizabeth Diller and Ricardo Scofidio and is the fifth in Minneapolis' Walker Art Center's six-part series by young architects entitled "Architecture Tomorrow." Curated by Mildred Friedman, the series is intended to indicate the future of architecture by providing a context for young architects to design something original. In their installation, Diller and Scofidio propose to "analyze newly configured relationships among people, geographies, and histories as they relate to evolving technologies."

The work is composed of 50 identical Samsonite suitcases delicately suspended by steel rods and cables from a floating plywood ceiling plane. These suitcases, arranged alphabetically in 10 rows of five, are each dedicated to tourist sites from one of the 50 states. Each suitcase, a shrine to that historic site, is replete with messages—a map and "reconstruction" of the site; a postcard image of the site; information on the tourist trade of the state, and quotations from various authors on the subject of tourism. These "messages" are communicated through a manipulation of the perception of the observer by using materials such as glass and mirrors, which play with transparency and reflectivity. This communication is successful at the scale of a single experience, carefully crafted to engage the observer. However, by repeating the images with a minimal variation, Diller and Scofidio appear more concerned with the structuring and repetition of the message than with their ability to "speak." Accordingly, the experience of taking in the exhibit entails decoding a cryptic system of messages, a process that fails to engage the viewer/participant.

This result is unfortunate, as this work, in addressing the ambiguities of representation, ultimately communicates a message about architecture's role in our culture. Obscure quotations, combined with the impenetrability of the explanatory text, keep "Tourism: suitCase Studies" abstract, like an illustration to an argument that focuses on language rather than in the realm of the materials and craft of architecture. Perhaps by heeding the words of Loos, that "every work of art possesses such strong internal laws that it can only appear in its own form," Diller and Scofidio might have placed more importance on the integrity of architecture and its ability to affect change. —BRIAN MCLAREN

Brian McLaren is a New York-based architect and writer, and is currently teaching at the New Jersey Institute of Technology.

Contact Kawneer, Department C, Technology Park—Atlanta, 555 Guthridge Court, Norcross, GA 30092. 404-449-5555.

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R/UDAT Held in Austin, Texas

IN A STATEMENT OF FITTING IRONY, THE AIA Regional/Urban Design Assistance Team (R/UDAT) that visited Austin, Texas, in January suggested that the city stop its seemingly endless planning and begin to revitalize of its downtown. The team, led by Charles M. Davis, FAIA, of Esherick Homsey Dodge and Davis of San Francisco, compiled a schematic master plan from various proposals completed over the last four decades and challenged citizens to support a new convention center under construction (ARCHITECTURE, February 1991, page 38).

"The convention center is the best horse to ride now," said Denver development consultant James Murray of the $69 million center's construction. The team identified improvements to the area around the center, which would create "linkages" with nearby attractions such as the Sixth Street entertainment district three blocks to the north, Town Lake one block south, Congress Avenue retail and restaurant businesses three blocks west, and Waller Creek on the east edge of the convention center's site.

These urban improvements are addressed in other plans, such as the Town Lake Park plan and the convention center's District Design Guidelines, both of which local architect Lawrence W. Speck helped write. The R/UDAT's reinforcement of these plans is important, Speck maintains. Already, the city has begun improvements along the route to Sixth Street and has commissioned a master plan for the entertainment district.

Also key to long-term goals, explained team leader Davis, is recognizing that downtown Austin must attract people from bordering centers. They include the state office complex and the University of Texas at Austin, both north of the state capitol, and East Austin, whose residents are effectively cordoned off from the east edge of downtown by Interstate-35. In East Austin, Davis pointed out, the largely minority population is "very, very unhappy." He added, "Unless you accommodate their needs, you are going to have a real war on your hands." The R/UDAT called for city-subsidized districts for a small-business community and a cultural marketplace, as well as a halt to a planned "upper deck" expansion of I-35 through downtown, which would further cut off East Austin.

To make downtown a place for people, not cars, Davis recommended returning coupled one-way streets, which have turned the downtown grid into a through-transportation system at merchants' expense, into intentionally less-efficient, two-way roads.

In the city of the laid-back, which prides itself on an active, if often cumbersome, participatory democracy, the focused vision demanded by this R/UDAT will be an uphill battle, fought in the cause of economic progress. —RAY DON TILLEY

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Baltimore Marine Mammal Pavilion Opens

WHEN THE NATIONAL AQUARIUM IN BALTIMORE opened 10 years ago, it was at once the sculptural centerpiece of the city's Inner Harbor and a major contribution to its downtown revitalization. When other cities learned of its success and began building their own aquariums, directors of the Baltimore facility launched plans for expansion that would keep the National Aquarium at the forefront of the field. The addition also had to correct one of the few flaws of the original building, a wharf-level "dolphin tray" that dolphins found uninhabitable. Last December, the aquarium directors unveiled their solution: a $35 million Marine Mammal Pavilion designed specifically to showcase bottlenose dolphins and beluga whales.

Located one pier east of the original aquarium, which was designed by Cambridge Seven Associates, and connected to it by a pedestrian walkway, the new pavilion was designed by Grieves Associates of Baltimore (now Grieves Worrall Wright and O'Hatnick). At its center is a 1,300-seat amphitheater where visitors can view dolphins and beluga whales in 30-minute "behavioral demonstrations" six times a day. Exhibit spaces, classrooms, a gift shop, and dining area are placed along the periphery, as well as back-of-the-house isolation and viewing areas and laboratories.

GEORGE GRALL

PATRICK SANDOR

Although debates about the rights of whales and dolphins continue, the new Marine Mammal Pavilion by Grieves Worrall Wright and O'Hatnick (above) provides a fitting showcase for their behaviors without detracting from the original aquarium (below).

Architect James Grieves incorporated forms and motifs of the original building, including a glazed pyramidal roof, to identify the new pavilion as an appendage of the parent facility. But he treated colors, window openings, and other details differently, making the second building more like the original's cousin than its twin. Inside are bright, airy spaces that let the outside in—a deliberate contrast to the dark, Piranesian "world of water" created by Cambridge Seven.

The pavilion opened amid charges from animal-rights advocates that dolphins should not be held in captivity even for educational purposes. Although the debate continues, the building itself seems to provide a hospitable environment for the marine mammals and a fitting showcase for their behavioral demonstrations. Best of all, it doesn't upstage the original aquarium—still one of the finest buildings in Baltimore. —EDWARD GUNTS

Architect Chosen for Chicago Pier Redevelopment

CHICAGO'S METROPOLITAN PIER & EXPOSITION Authority (MPEA) has selected the architectural design team of Ben Thompson & Associates of Cambridge, Massachusetts, and VOA Associates of Chicago to design the city's Navy Pier Park. Twenty-eight major firms were vying for the project, from which 10 semifinalists were chosen last fall. The MPEA chose two finalists (the other was local firm Booth/Hansen Associates, with RTKL of Baltimore) in December and announced the winner in mid-January. The redevelopment of the 3,000-foot pier, the commercial section of which has been abandoned since the 1970s, will include retail space, an exhibition hall, gardens, and parking for 1,800 cars.

Designed as part of Daniel Burnham's master plan for Chicago and completed in 1916, Metropolitan Pier, as it was first known, was a shipping and recreational facility for the city. In its heyday, the pier served as the main port for coal, grain, and timber shipped into and out of the city along the Great Lakes. Its name was changed to the Navy Pier during World War II, and its commercial section grew stronger with the opening of the St. Lawrence Seaway. The structure began to deteriorate, however, as other Lake Michigan ports competed for its business in the 1970s.

BTA's design incorporates existing pier buildings, including its actively used auditorium, into a three-building scheme. An addition to the existing "head house," or gateway to the pier, will comprise a museum hall, aviary, museum shops, and retail area, complete with a food court, restaurants, and cafes. A 120,000-square-foot exposition hall will accommodate medium-sized displays open to the public, such as antiques fairs and boat shows. This section in turn will be connected via a winter garden to the renovated auditorium. The entire complex will front a "grand promenade" to the south.

The project is funded by a $150-million state bond, half of which has been allotted to renovating existing buildings. The other half will pay for the new park/exposition area, expected to be completed in 1994. —H.L.

Rendering of winning scheme for Chicago Navy Pier (above) by Ben Thompson & Associates and VOA Associates. Runner up by Booth/Hansen and RTKL (below) emphasized a single structure.

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NEWS

New Zoning Plan for Houston

ON JANUARY 9, A UNANIMOUS CITY COUNCIL passed the first comprehensive zoning measure in Houston's history, the latest act of atonement for unbridled speculative overbuilding in the former "only major U.S. city without zoning." Even so, it is only a delicate first step.

The city council recast the Planning Commission as the Planning and Zoning Commission and set into action a timetable for developing a comprehensive plan. The revamped commission will return in April with a plan to protect endangered existing neighborhoods, with implementation by October. At the same time, the commission is working on a zoning ordinance and map, to be adopted by the council by July 1992. The ordinance, says councilmember Jim Greenwood, who initiated the zoning effort in 1989, will be "uniquely Houston." He adds "with latitude to respond to the market in nonresidential areas."

Whether zoned Houston will be "new" or "improved" compared with "anything-goes" Houston is unclear, says developer Louis Sklar, executive vice president of Gerald Hines Interests. Sklar served on Houston Mayor Kathy Whitmire's Land Use Strategies Committee, a competitor to Councilmember Greenwood's grassroots campaign. The committee concurred with an April 1990 AIA R/UDAT report that called for land-use controls but shied away from citywide zoning. "People in the middle of a subdivision will like zoning," Sklar says. "On the periphery it might be a problem" because residents may be prevented from a natural—and profitable—conversion of their land to commercial use.

"Neighborhoods have been badly abused" with only deed restrictions to protect them, admits Sklar, "but [the zoning process] is going to get a lot more complicated." That is the one safe bet. —RAY DON TILLEY

PAUL HESTER

Without zoning, incompatible land uses pervade Houston (above). Office towers, parking garages, or lube shops are built in long-established residential neighborhoods.

NEWS

Botanical Garden Proposed for Boston Redevelopment

A BOTANICAL GARDEN ON A MEDIAN STRIP, cozied up to two exit ramps, sandwiched by six lanes of traffic, and punctured by two cross streets. This image may not be Buddha's idea of the tranquil Chinese garden, but it is the most concrete proposal for the 27-acre swatch of land now dominated by Boston's Central Artery. The plans for the new three-acre garden and conservatory by Monacelli Associates of Cambridge, "designed for the 21st century," will fill three of a dozen or so downtown sites to be released when the artery's $6 billion underground replacement road opens around 2010.

"Challenging" is how the architects describe the design for the Massachusetts Horticultural Society. Atop the air rights of the massive tunnel, the firm proposes an open-air, temperate-zone garden to the south, a 70-foot trussed glass winter garden to the north, and a 40,000-square-foot visitors' pavilion in the center of the former roadway.

Other notions for the remainder of the two-mile strip include a hotel, parks, and office buildings. Launched with a quick-fix scheme from Ricardo Bofill in 1989, other infills remain nebulous and uncommissioned. And, despite the detail of the models and plans for the conservatory, the future of both the garden and the "Big Dig" tunnel construction inspire skepticism.

Even as the announcement of this botanical tourist attraction sounded, the depressed state and city landscape echoed with empty towers. A zoo in Stoneham closed this summer, another in Dorchester is in trouble, and parks lack maintenance money.

While the notion to rid the city of its ugly elevated highway finds appeal, the megascale replacement has aroused hostility. Scheme Z, a notorious highway segment slated near the Charles River, is a 10-story interchange as grim as the monster it succeeds, and polluting ventilation shafts have prompted a lawsuit from the Sierra Club. The failure to insert mass transit in the proposed north-south tunnel after disrupting the city with more than a decade's worth of construction (or deconstruction) dismays environmentalists.

Not surprisingly, then, in the midst of the threat to such tranquillity, prosperity, and greenery as lingers in this wilting city, the notion of costly ecological instruction amid six lanes of traffic inspires something less than rapture. ■

—JANE HOLTZ KAY

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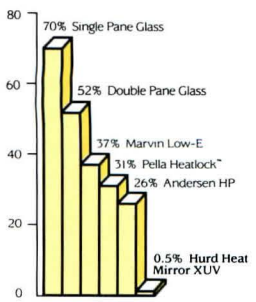

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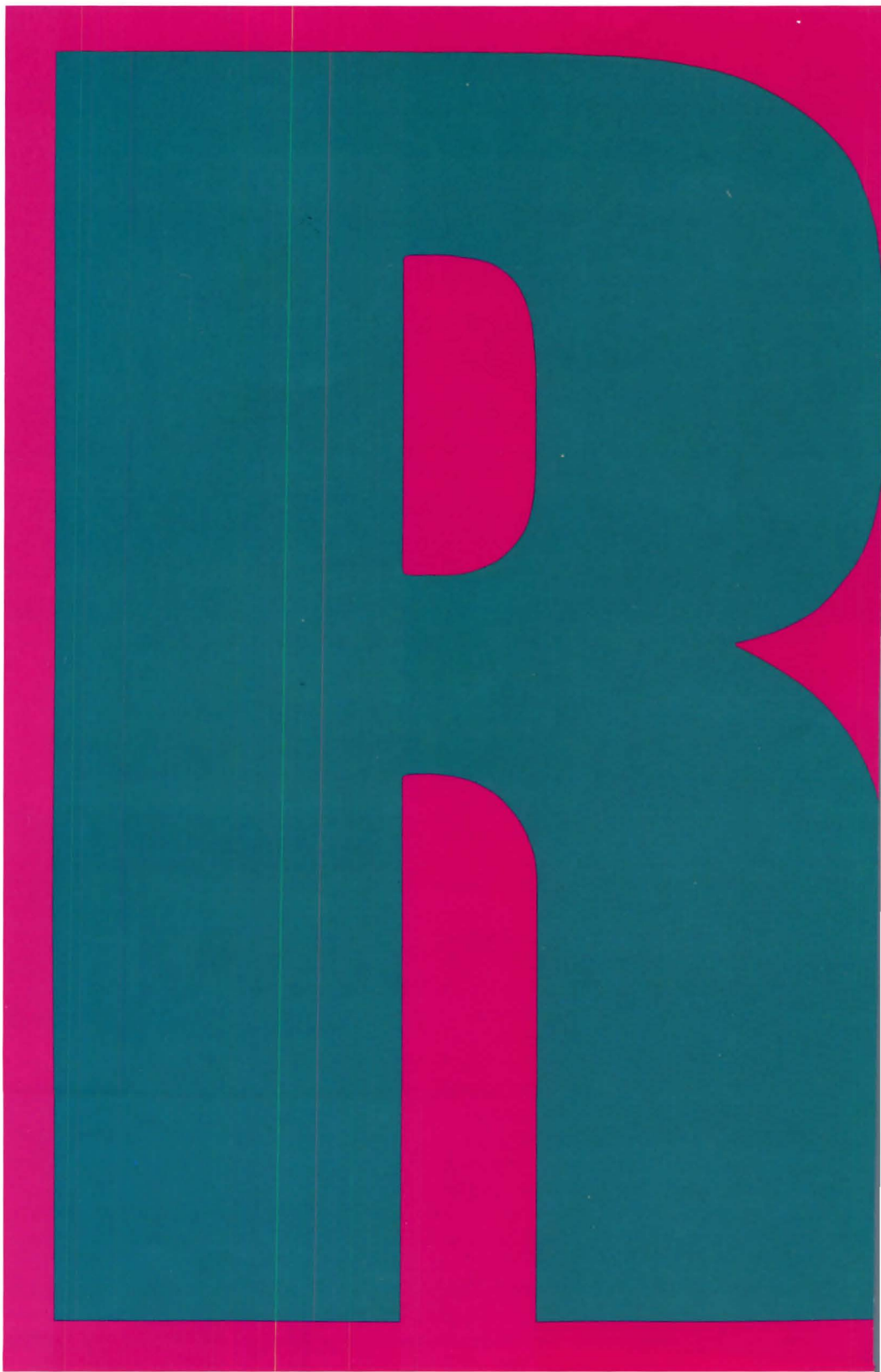

All calculations based on center of glass values for 1" Hurd InSol-8 windows with the Superglass System® with Heat Mirror™ Film. All data were calculated using WINDOW 3.1 Computer Program and standard ASHRAE winter conditions of 0° (F) outdoor and 70° (F) indoor temperatures with a 15 mph outside wind.

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1991 AIA COMPONENT AWARDS

AIA Central States Region

THE AWARDS PROGRAM FOR THE CENTRAL States Region, which includes Iowa, Kansas, Missouri, Nebraska, and Oklahoma, was held in conjunction with the Regional Conference in Kansas City, Missouri, last October. Of 10 awards issued, seven were for projects in Iowa, and one each in Florida, Kansas, and Missouri. Jurors included William Callaway of The SWA Group in Sausalito, Sudhir Jambhekar of Kohn Pedersen Fox, and Ranko Ruzik of Denver's Hoover Berg Desmond. They recognized a wide range of building types and new construction. Citing a tendency toward "flavored" vernacular regionalism, the jurors honored a variety of projects including an elementary school; a conservatory and botanical complex; a world headquarters for Burger King Corporation in Miami by HOK (not shown); the renovation of an office interior; a skywalk and lobby extension; a child care center; and production support spaces for a public television station.

FARSHID ASSASSI

Broken Arrow Elementary School
Shawnee Mission, Kansas
Abend Singleton Associates

KING AU

Findlay/Haugen Residence
Boone County, Iowa
Robert A. Findlay, Architect

SAM FENTRISS

Missouri Botanical Garden Climatron Complex
St. Louis, Missouri
The Christner Partnership

1991 issues.

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AIA COMPONENT 1991 AWARDS

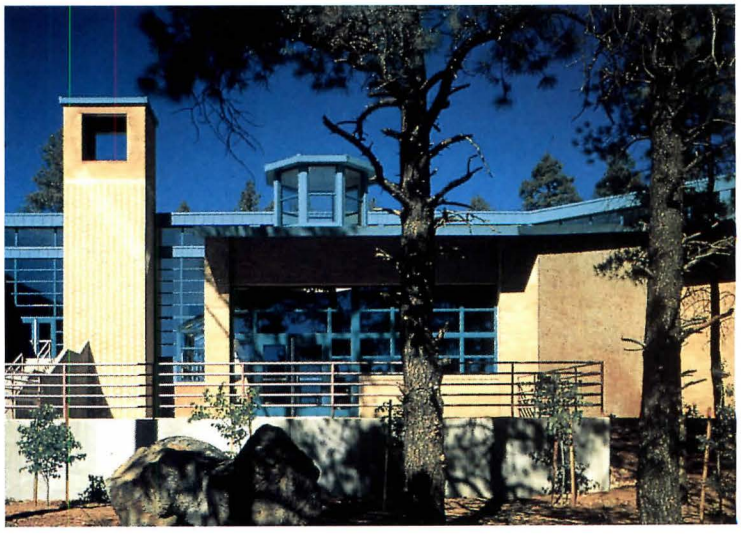
Southern Arizona Chapter

TWO ELEMENTARY SCHOOLS, TWO RESIDENCES, AN ARBORETUM, A stadium addition, and a church were awarded by a jury of three prominent California architects: Richard Fernau of Fernau & Hartman Associates, Berkeley; Ripley Associates' Cynthia Ripley, San Francisco; and Joseph Esherick of San Francisco-based Esherick Homsey Dodge and Davis. The premiated projects included an elementary school that incorporated natural vegetation into the design (ARCHITECTURE, January 1991, pages 62-63); and a pueblo-style residence that echoes the surrounding environment through shapes, colors, and masonry forms. Merit awards were given to a barrier-free elementary school and a passive-solar house. Citations were presented to a four-level addition to the University of Arizona's football stadium; a pueblo church nestled into the foothills of the Catalina Mountains in Tucson; and a center that introduces visitors to one of the oldest botanical and research gardens in the American West.

University of Arizona Scholarship Suites
Tucson, Arizona
Anderson DeBartolo Pan, Architects

TIMOTHY HURSLEY / THE ARKANSAS OFFICE

DiMiguel Elementary School
Flagstaff, Arizona
NBBJ, Architects



DOUGLAS KAHN

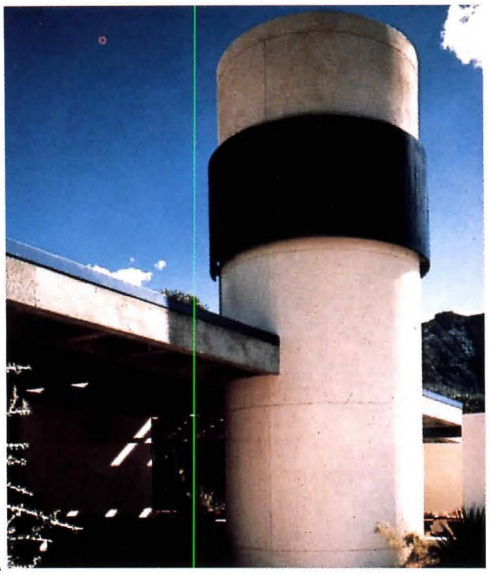
Southern Arizona Chapter

ANDREW HERSHBERGER

Hershberger Residence
Tucson, Arizona
Robert G. Hershberger Architect and Planners

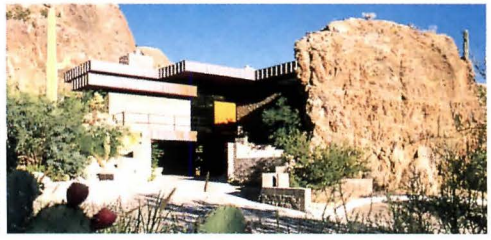
DOUGLAS KAHN

Canyon View Elementary School
Tucson, Arizona
NBBJ, Architects



J. BRETT

Boyce Thompson Arboretum Visitor Center
Superior, Arizona
Line and Space Architect

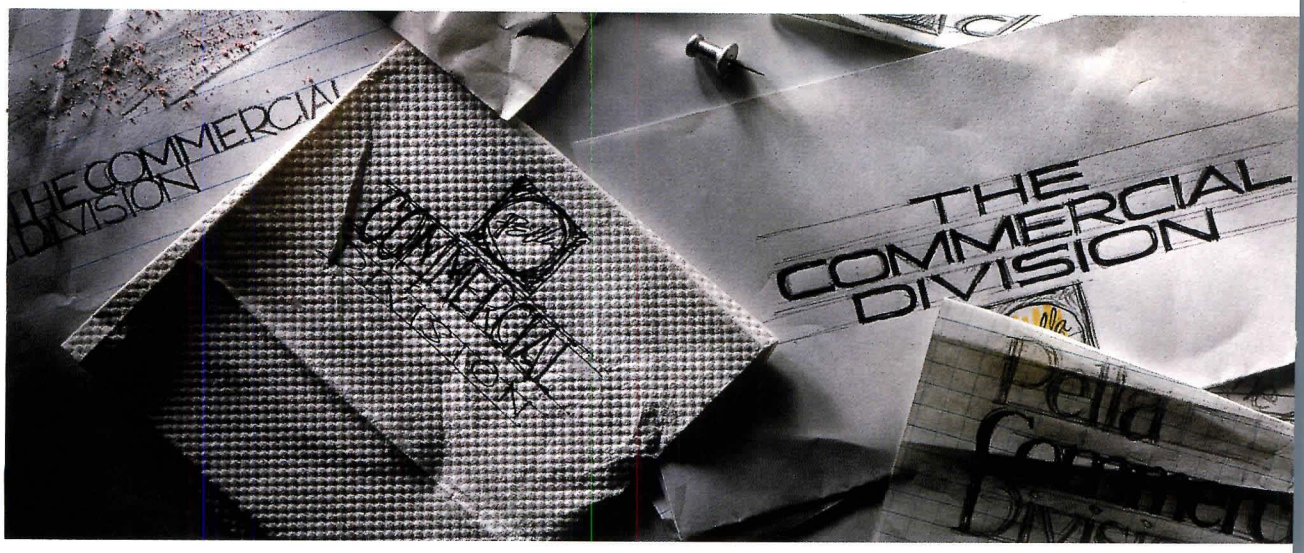


TIMOTHY FULLER

Swanson Residence
Tucson, Arizona
The Fridlind Group, Architects

HENRY TOM

Saint Francis in the Foothills
Tucson, Arizona
Line and Space Architect



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1991 AIA COMPONENT AWARDS

Las Vegas Chapter/AIA

NATURAL DESERT COLORS PREVAILED IN PROJECTS CHOSEN BY THE Las Vegas Chapter/AIA awards jury. Large, flexible spaces and functional sophistication were praised in both the Southpoint Industrial Center by Gibert Aja Associates and the Howard R. Hughes School of Engineering by Tate & Snyder Architects and Kittrell Garlock & Associates. G.C. Wallace Architects received two citations: one for a prototype fire station and a second for the Desert Shores Clubhouse featuring a tiled tower and sculpted stucco walls. At the University of Nevada, JMA Architects & Engineers successfully created a garden-apartment atmosphere on a minimum budget for new campus resident halls. Using painted stucco on wood frames, multipurpose rooms were designed for flexible living spaces. The United States Postal Service General Mail and Vehicle Maintenance Facility by JMA Architects & Engineers (not shown) was cited for its effective use of light and earth forms for a large government building. ■

CHERYLE O'GARA

Southpoint Industrial Center
Las Vegas, Nevada
Gilbert Aja Associates, Architects

MARC LEMOINE

Prototype Fire Station
Las Vegas, Nevada
G.C. Wallace, Architects

Temple, Church of Jesus Christ of Latter Day Saints
Las Vegas, Nevada
Tate & Snyder Architects; Kittrell Garlock & Associates

1991 AIA COMPONENT AWARDS

Las Vegas Chapter/AIA

LISA ANDERSON

Desert Shores Beach Club
Las Vegas, Nevada
G.C. Wallace, Architects

Residence Halls
Las Vegas, Nevada
JMA Architects & Engineers

OPULENCE STUDIOS

Howard R. Hughes School of Engineering
Las Vegas, Nevada
Tate & Snyder Architects; Kittrell Garlock & Associates

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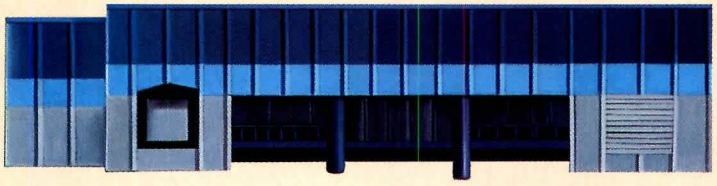

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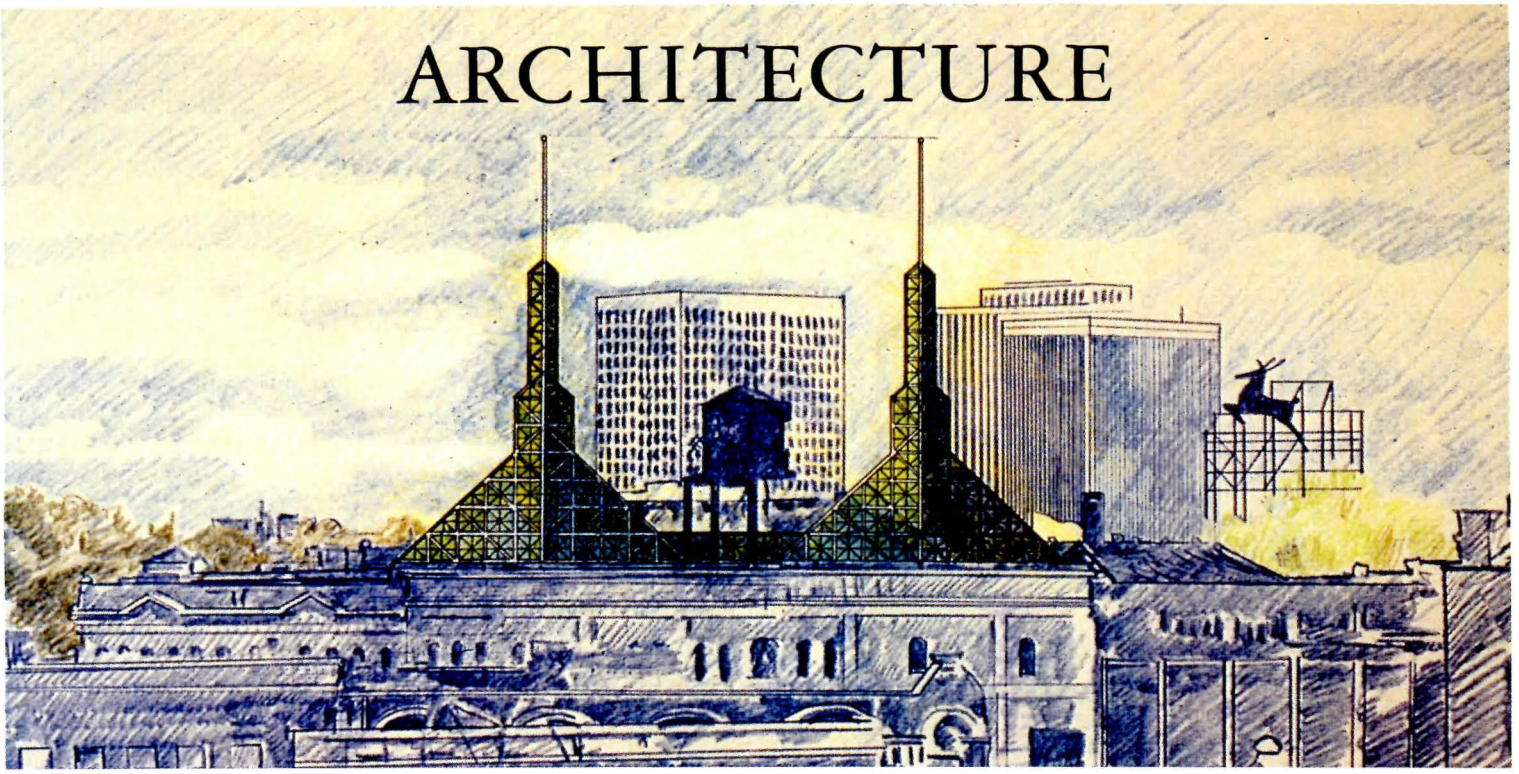
ARCHITECTURE



Fitting In

AIA GOLD MEDALIST CHARLES MOORE DESCRIBES THE SEA Ranch Condominiums, winner of this year's AIA 25-Year Award, as "fitting" their surroundings. As reflected in a portfolio of his latest buildings, Moore continues to practice a regionalist approach to architecture, achieved in collaboration with the several firms he has founded over the past three decades. "Fitting" also characterizes the collective urbanism of the Zimmer Gunsul Frasca Partnership, winner of the 1991 Firm Award, whose twin-spired Oregon Convention Center (above) creates a new landmark for Portland. A chapel outside Fort Worth by last year's Gold Medalist, Fay Jones, similarly affirms a sympathy to the American landscape, and Jones's craftsmanship and spiritual sensibilities, so familiar from his rural chapels, are made manifest in a more urban setting.

Another example of "fitting" is demonstrated by a new tower in Philadelphia, where both skyline and streetscape have been addressed with respect. A Santa Monica community center by Koning Eizenberg Architecture and two buildings in Beverly Hills by Skidmore, Owings & Merrill also address the street, representing new expressions of the Angeleno Modernist tradition.

If any hints about the architecture of the 1990s can be gleaned from these and AIA Honor Award-winning projects, it might be concluded that a particularly American architecture, replete with reflections of local culture and context, is on the rise. Architecture with a social conscience, too, may become more prevalent over the next decade, as revealed by Chris Schmitt and Associates' transient housing for homeless people in Charleston, South Carolina, and Robert Herman Associates' Mendelsohn House for the elderly in San Francisco.

For architects who puzzle over the structural aspects of the Oregon Convention Center's twin glass towers, or the intriguing stepped facade of Philadelphia's Bell Atlantic Tower, we offer detailed examinations of their building technologies. We also present the human element of design excellence: three AIA roundtables reveal the process, thoughts, and organizational structures of some of the most recognized firms in the country. ■

honor

1991 AIA HONOR AWARDS

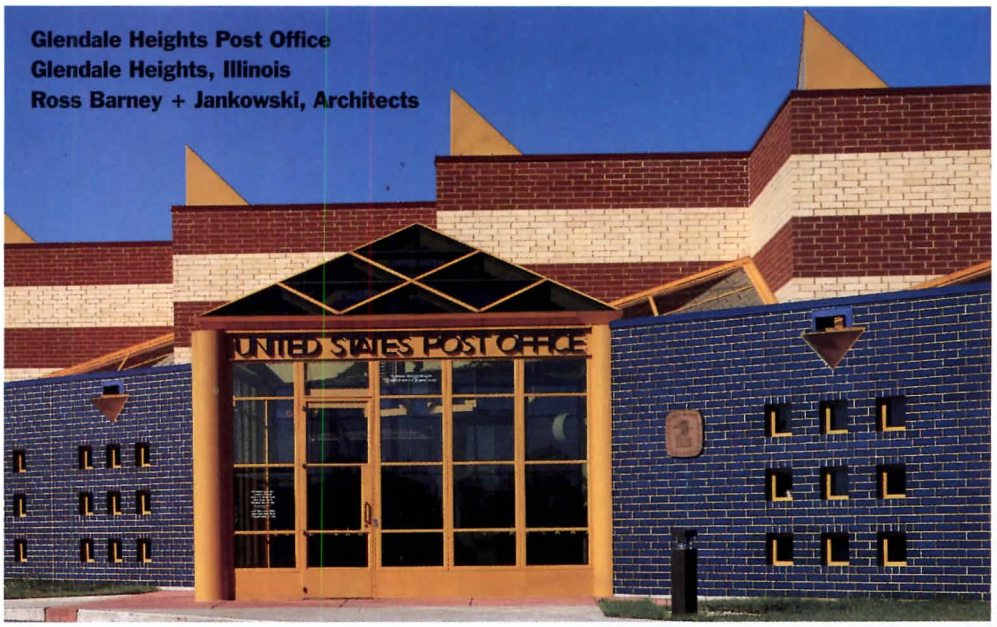
The Year's Best

The 1991 AIA honor awards jury favors small-scale, regional designs.

THIS YEAR'S AIA HONOR AWARDS "REFLECT the particular architectural spirit of our time, its range, and its quality," claims jury chairman Robert Venturi. With him on the jury were architects Charles M. Davis, FAIA, San Francisco; Michael Graves, FAIA, Princeton; Elizabeth Plater-Zyberk, AIA, Miami; Robert H. Timme, AIA, Houston; architecture critic David Dillon, Dallas; landscape architect Michael Van Valkenburgh, Cambridge, Massachusetts; R. Brandon Sprague, Associate AIA, Champaign, Illinois; and Frank A. Massaro, Jr., architecture student, Columbus, Ohio.

For the most part, the winning projects represent today's pluralistic mainstream rather than avant-garde approaches to design, ranging from the Modernist Morton H. Meyerson Symphony Center in Dallas by Pei Cobb Freed & Partners (ARCHITECTURE, February 1990, pages 56-61) to a low-budget post office in suburban Chicago by the firm Ross Barney + Jankowski (ARCHITECTURE, February 1991, page 70). Noticeably underrepresented in this year's awards are civic buildings, reflecting the Reagan era's neglect of the public realm. Relatively few restoration projects were submitted and, in all cases, "the architecture of the original, not the new, was captivating," says Graves. Also missing are commercial and retail facilities, particularly high-rise buildings in the U.S., though a new office building and a hotel in Japan were chosen. While commercial, multistoried designs constituted the largest single entry type, "none of the U.S. high rises we looked at advanced the art of building skyscrapers," explains Massaro.

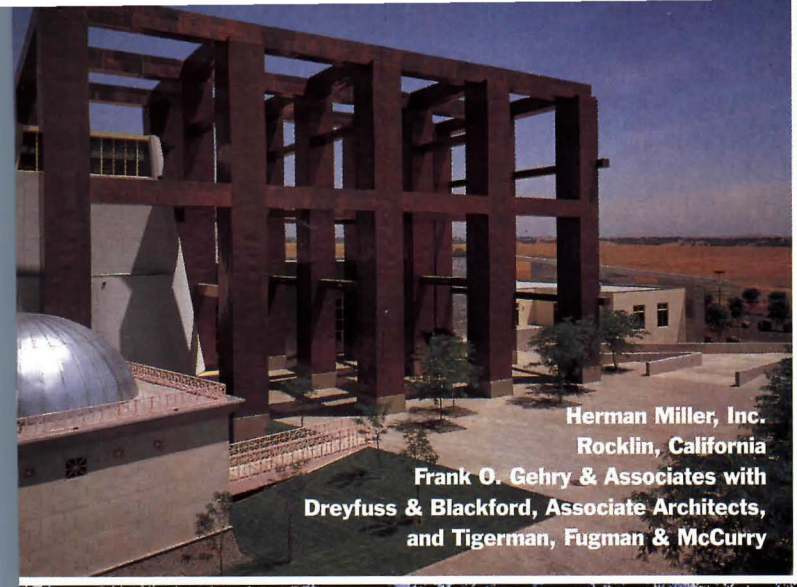
Other jury members cited a surplus of glitz and a dearth of dignity. Van Valkenburgh was excited only by San Francisco landscape architect Peter Walker's scheme for Gehry's



Glendale Heights Post Office
Glendale Heights, Illinois
Ross Barney + Jankowski, Architects

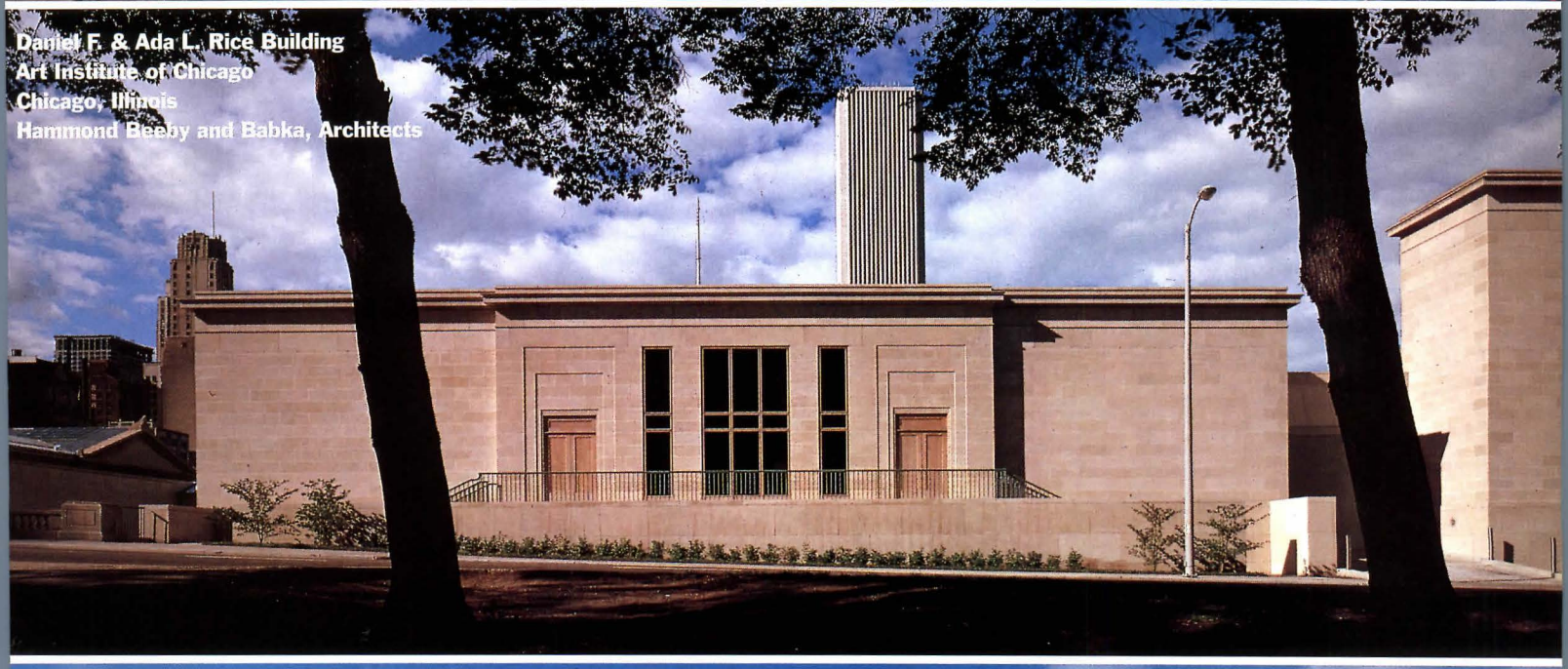
Royalton Hotel
New York City
Gruzen Samton Steinglass Architects with Philippe Starck, Interior Design Consultant

THIS PAGE: BARRY RUSTIN (TOP); RICHARD BRYANT / ARCAID (BOTTOM) FACING PAGE: NICK MERRICK / HEDRICH-BLESSING (TOP LEFT); JEFF GOLDBERG / ESTO (TOP RIGHT); JON MILLER / HEDRICH-BLESSING (CENTER); TIMOTHY HURSLEY (BOTTOM)



Herman Miller, Inc.
Rocklin, California
Frank O. Gehry & Associates with
Dreyfuss & Blackford, Associate Architects,
and Tigerman, Fugman & McCurry

Boston, Massachusetts
Frank O. Gehry & Associates
with Schwartz/Silver,
Associate Architects



Daniel F. & Ada L. Rice Building
Art Institute of Chicago
Chicago, Illinois
Hammond Beeby and Babka, Architects

Morton H. Meyerson Symphony Center
Dallas, Texas
Pei Cobb Freed & Partners

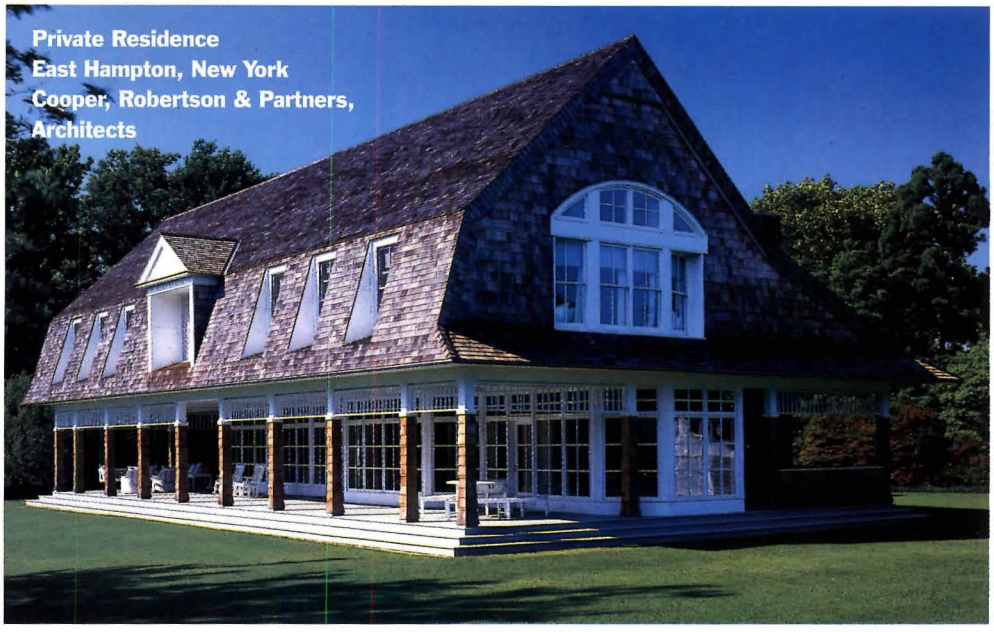
honor

1991 AIA HONOR AWARDS

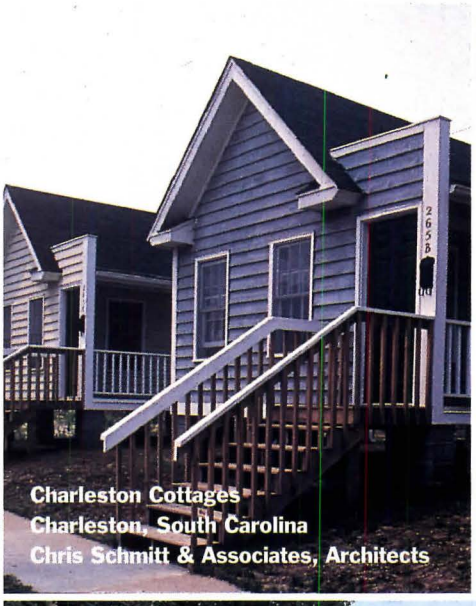
Herman Miller factory. "It's spare and looks like it fits its arid site," says Van Valkenburgh. The jury's definition of good architecture was more than esthetic, "because we felt strongly about supporting good design for Everyman," explains Plater-Zyberk. Timme adds, "We felt that issues of SROs, low-income housing, and community facilities have to be addressed by architects." Among projects chosen in large part for their community and social values were Susan Maxman Architects' Camp Tweedale in Lower Oxford Township, Pennsylvania, and Chris Schmitt & Associates' transitional dwellings for the homeless in Charleston, South Carolina.

Although the majority of entries were suburban, "there was a strong bias toward buildings that used urbanistic principles," according to Timme. The jury was dismayed that most submissions "failed on the level of sensible site planning—establishing good circulation, frontality with the street, and building an urban fabric," says Van Valkenburgh. The jury's contextual bias may explain its apparent preference for vernacular and regional designs, which traditionally take cues from their surroundings and local precedents. Many jury members admitted a predilection for schemes such as Walter Chatham's double house at Seaside, Florida, which reinterprets traditional elements to create a contemporary expression. A bias for vernacular architecture was also evident in projects such as Cooper, Robertson & Partners' East Hampton residence, which created a new expression out of traditional elements. While submissions of historicist projects were abundant, good Modernist entries were few. The jurors were known to entrants, which probably eliminated some submissions that designers believed would not appeal to the group.

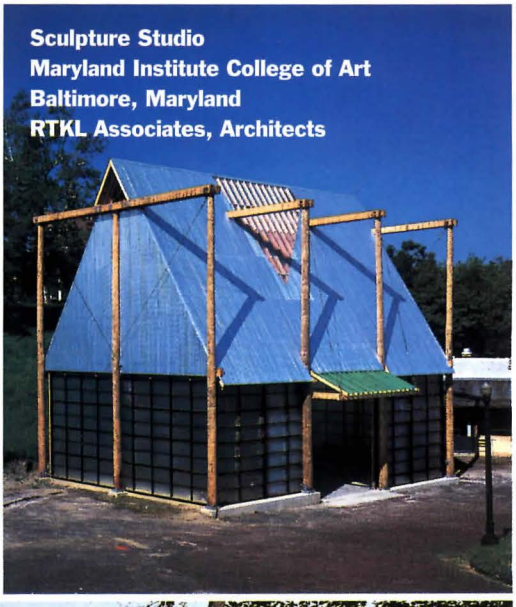
Three of the winners were designed for Florida's resort new town of Seaside. Although juror Elizabeth Plater-Zyberk served as planner for the community with her partner Andres Duany, she claims no involvement with any built projects at Seaside, and credits the developer for encouraging individualized designs that draw on the local vernacular without mimicking it. At least two jurors praised Steven Holl's Dreamland Heights Hotel for demonstrating that inventive architecture can meet the guidelines of a *planned, traditional community.*



Private Residence
East Hampton, New York
Cooper, Robertson & Partners, Architects



Charleston Cottages
Charleston, South Carolina
Chris Schmitt & Associates, Architects



Sculpture Studio
Maryland Institute College of Art
Baltimore, Maryland
RTKL Associates, Architects

Camp Tweedale
Lower Oxford Township, Pennsylvania
Susan Maxman Architects

THIS PAGE: LANGDON CLAY (TOP); MAXWELL MACKENZIE (CENTER RIGHT); TOM BERNARD (BOTTOM)
FACING PAGE: STEVEN BROOKE (TOP); MICHAEL MORAN (CENTER); PAUL WARCHOL (BOTTOM)

Honeymoon Cottages
Seaside, Florida
Scott Merrill Architect

Chatham House
Seaside, Florida
Walter Chatham
Associates, Architects

Dreamland Heights Hotel
Seaside, Florida
Steven Holl Architects

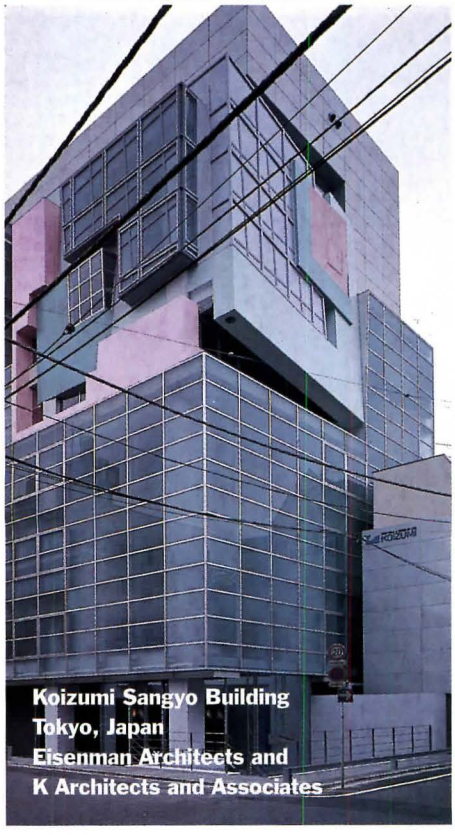
honor
1991 AIA HONOR AWARDS

The more abstract projects produced controversial debate for a jury described by its members as unusually harmonious. The members settled on three projects for sites in Japan, one by an Italian and two by American architects. It chose Aldo Rossi's Hotel Il Palazzo, in Fukuoka City, "as a superb example of Modernism," in Davis' words; Peter Eisenman's Koizumi Sangyo building in Tokyo (ARCHITECTURE, September 1990, pages 80-85); for "fitting into its mixed Tokyo neighborhood" according to Timme; and Stanley Tigerman's mixed-use building in Fukuoka (ARCHITECTURE, September 1990, pages 94-97) for its "light-filled, freely organized apartments and oriental courtyard," as noted by Graves. According to Venturi, these projects "tell us that Modernism is no longer Modern but now anti-Modern. Their architecture is not based on function and structure, but on mannerist and esthetic ideals." Davis feels that Gehry is also expanding the horizon of Modernism in innovative ways. "His work is of the 20th century but doesn't have the dogma," he explains. In addition to the Herman Miller and Newbury Street projects, Gehry came close to winning a third award, for he is in "a particularly prolific and creative stage of his career" asserts Plater-Zyberk.

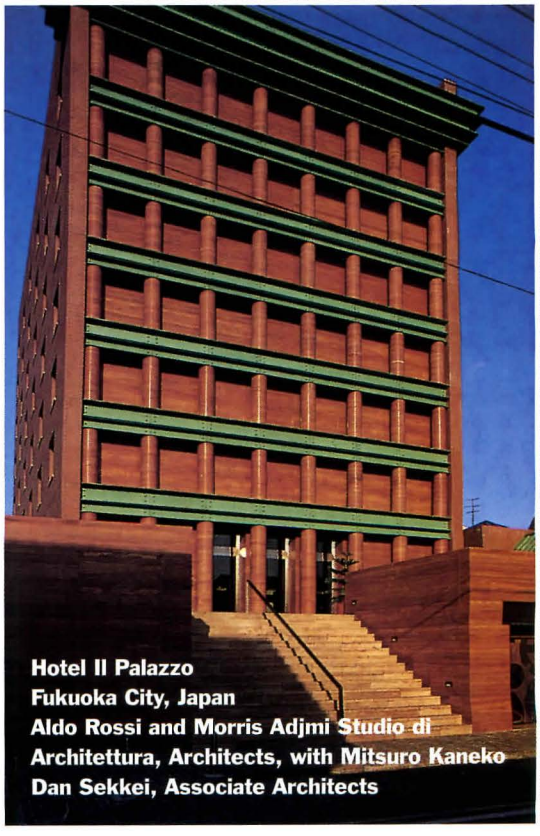
A trio of designs—Robert Herman's Mendelsohn House for elderly residents in San Francisco, Robert A.M. Stern's Florida Courtyard Houses, and Charles Harrison Pawley's colorful Caribbean Marketplace in Miami—summarize the intent of this year's honor awards jury. All attempt to create physical coherence and a sense of community within an urbanistic setting. All reflect a sensitivity to local conditions of site, climate, vocabulary and materials—a truly regionalist attitude. Two of the projects illustrate a predilection for "architecture that is not just for the rich," in Massaro's words. In aggregate, the honor awards show that "the nature of society and the ways people are making architecture have yielded a richness and shortage at the same time," says Van Valkenburgh. Paradoxically, during the late Reagan years, when projects were growing in size and complexity, architecture's greatest riches, as shown in these awards, seem to lie in a diversity of small, community-based designs. ■

—ANDREA OPPENHEIMER DEAN

Fukuoka Mixed Use Apartment Building
Fukuoka, Japan
Tigerman McCurry Architects with
Yoshihide Kato, Zenitaka,
Associate Architects

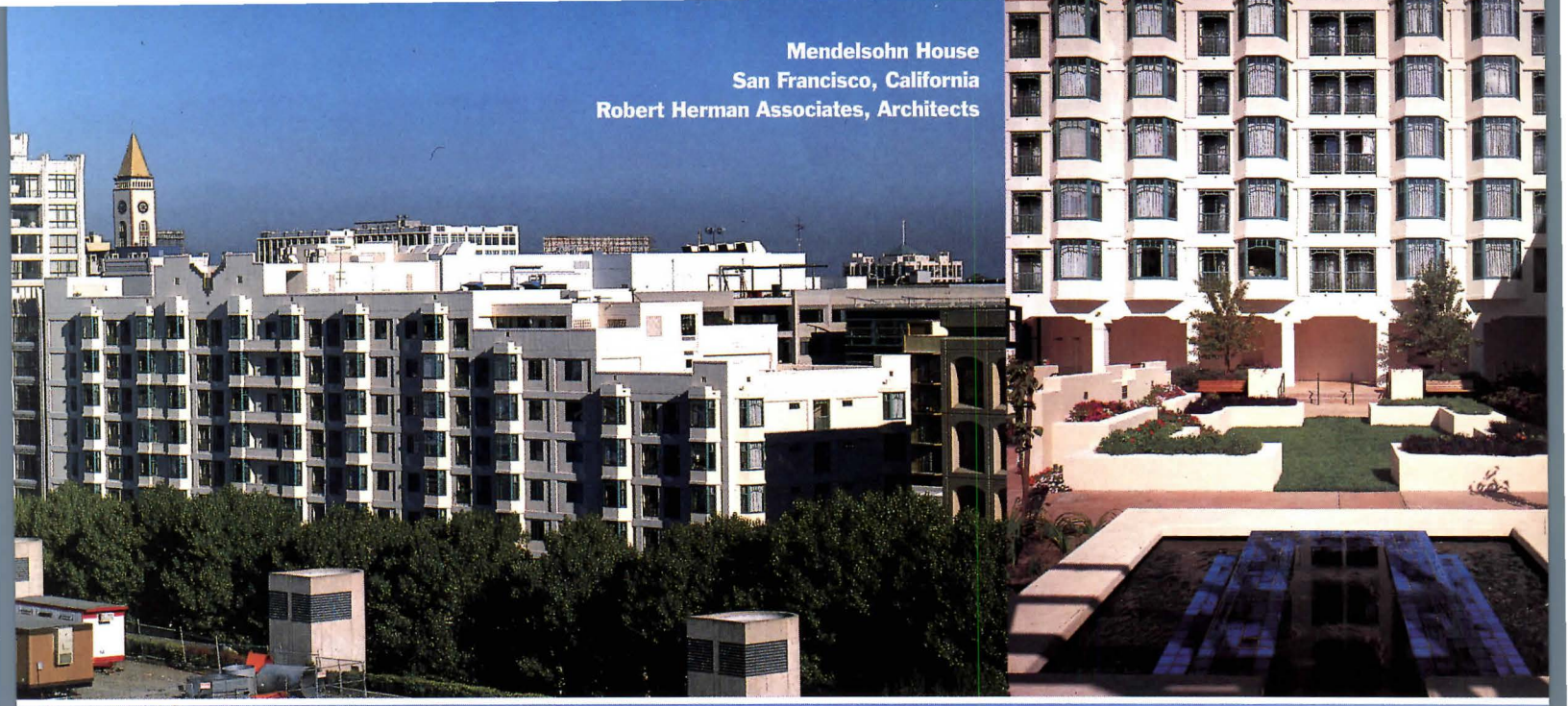


Koizumi Sangyo Building
Tokyo, Japan
Eisenman Architects and
K Architects and Associates



Hotel Il Palazzo
Fukuoka City, Japan
Aldo Rossi and Morris Adjmi Studio di
Architettura, Architects, with Mitsuro Kaneko
Dan Sekkei, Associate Architects

THIS PAGE: PETER AARON / ESTO (TOP AND BOTTOM LEFT); T. NACASA & PARTNERS (BOTTOM RIGHT)



Mendelsohn House
San Francisco, California
Robert Herman Associates, Architects

Courtyard Houses at Wood Duck Island
Vero Beach, Florida
Robert A.M. Stern Architects

Caribbean Marketplace
Miami, Florida
Charles Harrison Pawley, Architect

1991 AIA GOLD MEDALIST

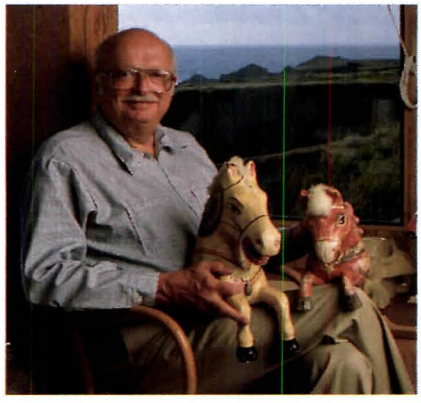
Collaborative Genius

Charles Moore continues to explore his extraordinary vision through a network of partnerships.

ON MY WAY TO INTERVIEW GOLD MEDALIST CHARLES MOORE, I MET the architect coming down a jet bridge at the Austin Airport, on the home leg of a flight from Fargo, North Dakota. His feet hurt, and he could still feel the minus-20 degree wind blowing at his back. But it had been a productive trip, he insisted, which generated promising ideas for a new cathedral. "We managed to talk our clients out of a few bad ones too," he chuckled triumphantly.

There is no architect like Charles W. Moore, and no architecture career that has followed such an exotic trajectory. Since graduating from the University of Michigan in 1947, he has cofounded seven firms, coauthored six books, and codesigned nearly 300 projects, ranging from simple mountain cabins to imposing civic centers and fantastical theme parks. Between engagements, he has directed three schools of architecture, and taught and lectured continuously.

A conventional architecture practice has little appeal for Charles Moore. In his view, most architectural problems are too complex for one person, and the best solutions emerge from intense collaboration with sympathetic colleagues. "I need other people," he says flatly, "and stay more interested in a project if other people are interested at the same time. That's a matter of choice, but also the way the world works. Decisions about buildings involve a great many people and should not be seen as sparks of genius."



JOHN BLAUSTEIN

Gold Medalist Charles W. Moore at the 1969 Sea Ranch Condominiums, winner of the AIA 25-Year Award.

And yet for all its apparent eccentricity, Moore's approach is quintessentially American, infused with boundless optimism and a passion for untapped possibilities and unknown perfections. Purity of form and singularity of purpose are anathema to him. He delights in hybrids—the Renaissance aedicula reinterpreted in a Marin County house, the zigzag line set against a New England saltbox. And in his lifelong celebration of the quirky fecundity of the American landscape, he is closer to J.B. Jackson than to any of his Postmodern counterparts.

"After Charles Moore, things were never the same," says Yale professor and sometime collaborator Kent Bloomer. "He opened up the information base for a whole generation, and changed the architectural landscape of American universities by ridding us of the notion that there is virtue in having one point of view. Charles felt that it was better to learn about all kinds of architecture in the beginning, and then spend the rest of your life sorting it out."

Moore calls the Sea Ranch Condominiums, designed in the early 1960s with Donlyn Lyndon, William Turnbull, and Dick Whitaker, his "purist" collaboration. Four young architects, moonlighters all, spent a year around a single drafting table, debating site, space, place, and memory with a rigor that would have delighted their mutual mentor Louis Kahn.

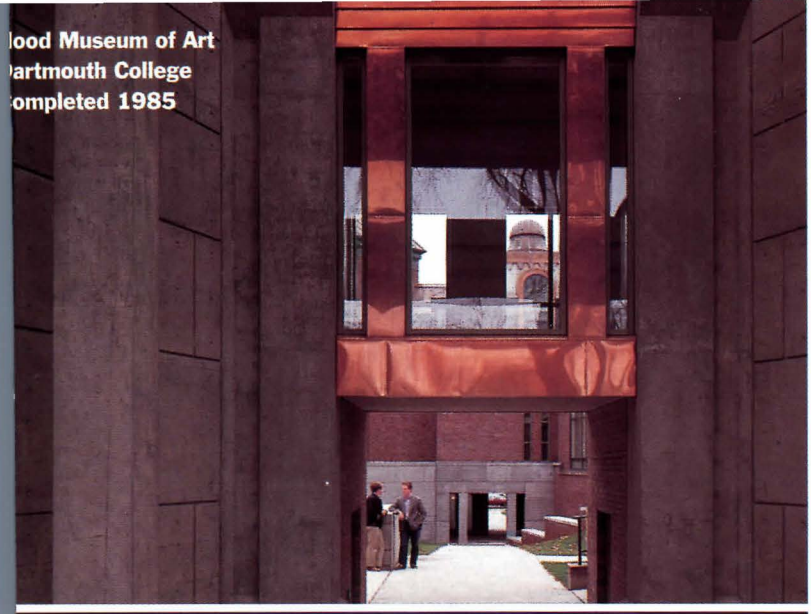
"Everyone was out to find a new way of doing something," recalls Donlyn Lyndon, "so there was a thorough consideration of everything. Charles was the senior amongst us, but everything was conducted as though we were equals. In the end, we couldn't say for sure who had done what."

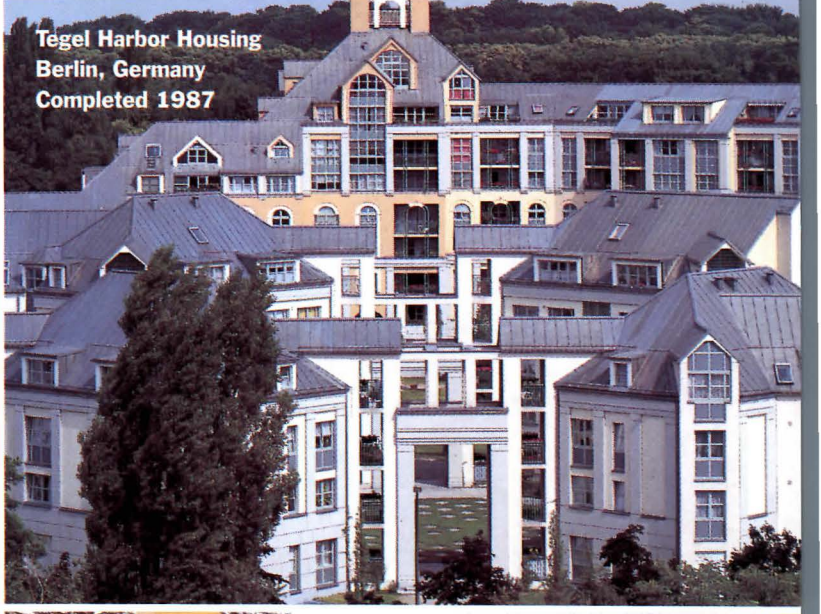
Bill Turnbull describes the project as all give and take. Like Don Lyndon, he considers Sea Ranch one of the best designs any of them has ever done. "We just picked and prodded and prodded until we got it right," he explains. "If I fault Chuck for anything these days, it's for relinquishing that overview. He can get it almost right, then miss if he doesn't have the right person following through for him."

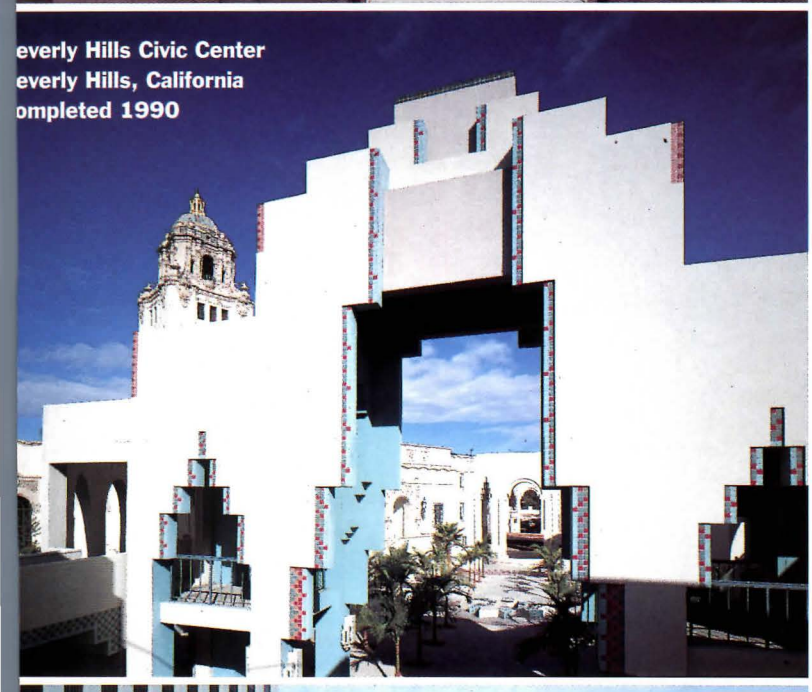
Following the dissolution of MLTW, Moore founded Charles Moore Architects, which nearly bankrupted him. He then started the firm Moore Grover Harper, which became Centerbrook. In 1974, he established the Urban Innovations Group at UCLA, and a decade later joined John Ruble and Buzz Yudell to form a still flourishing partnership. When he moved to the University of Texas in 1985, he established Charles W. Moore Architect, which will soon include Arthur Andersson as a partner.

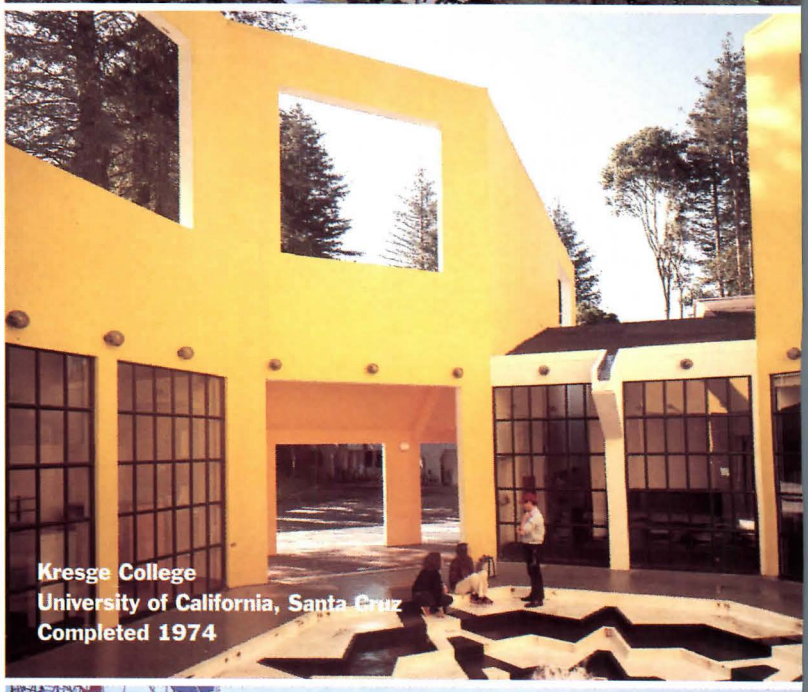
In this Byzantine network of partnerships and associations with their overlapping leadership and occasional internecine squabbling, there are nevertheless a few constants. In each office, Moore cultivated a support group of bright, young architects, some former students, others plucked from competing firms and judiciously planted in positions of influence. John Ruble describes their partnership as "a continuation of the field trip I took with Charles Moore in graduate school." Moore is famous for giving young designers awesome responsibility, and then allowing them to find their own level. In return, Moore expects his charges to initiate, revise, and defend their

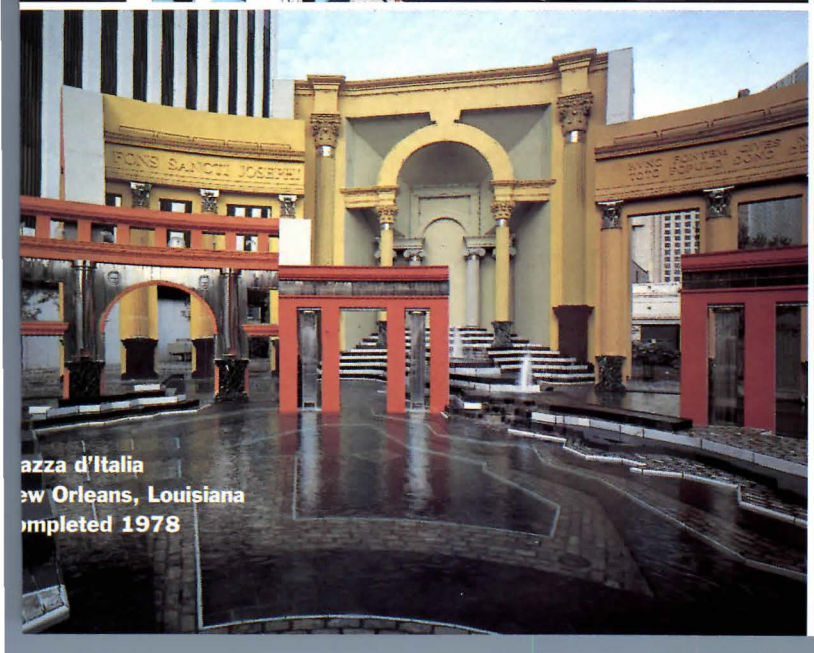
Continued on page 170


lood Museum of Art
artmouth College
ompleted 1985

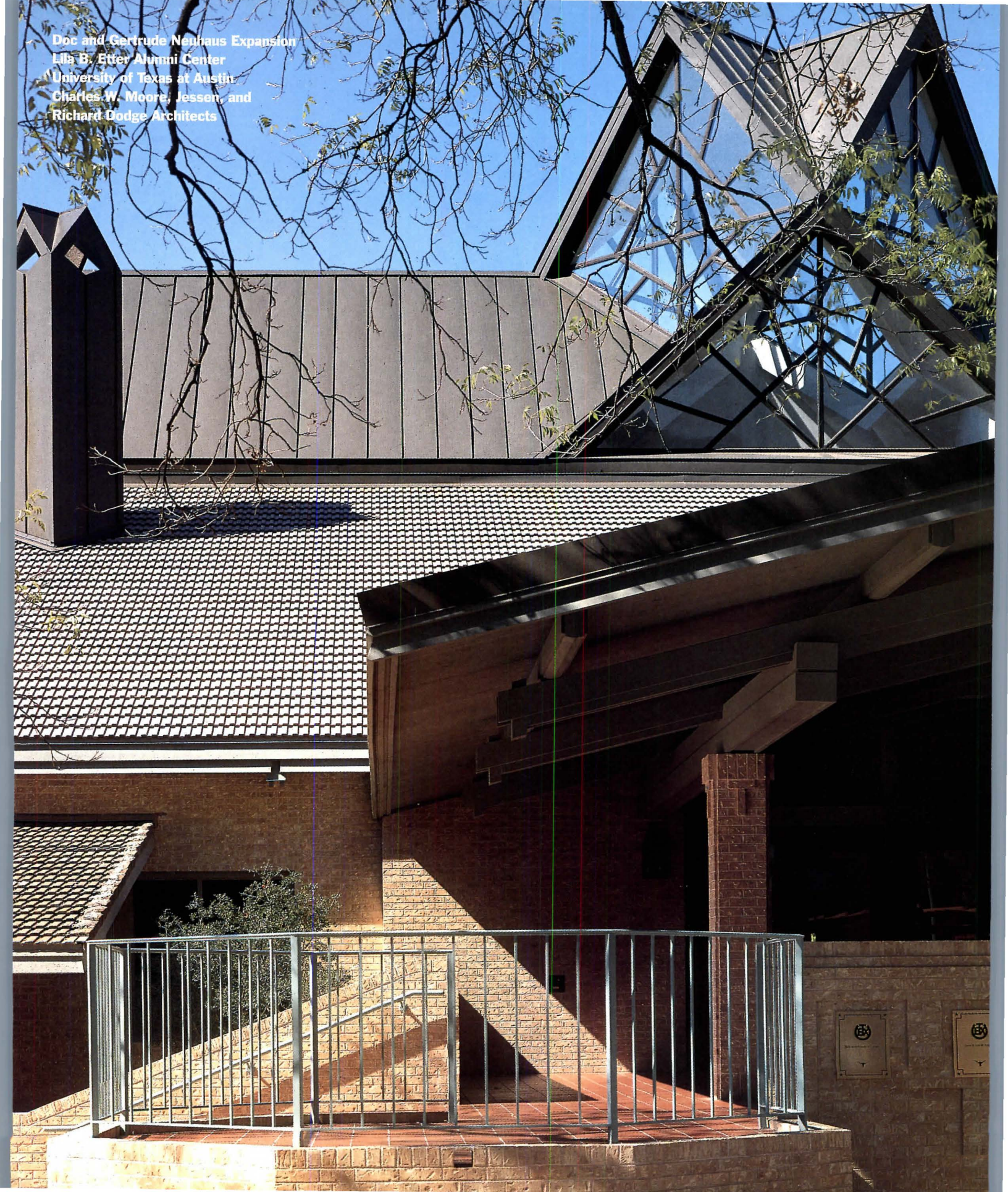

Tegel Harbor Housing
Berlin, Germany
Completed 1987


everly Hills Civic Center
everly Hills, California
ompleted 1990


Kresge College
University of California, Santa Cruz
Completed 1974


azza d'Italia
ew Orleans, Louisiana
ompleted 1978


Wonderwall
New Orleans, Louisiana
Completed 1984

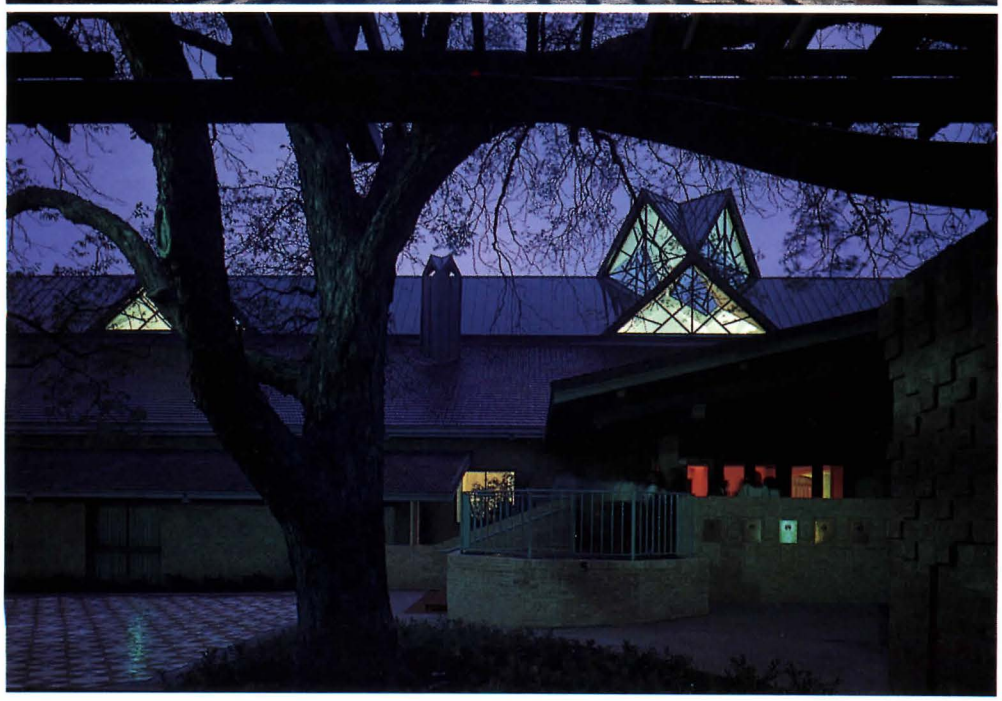


Doc and Gertrude Neuhaus Expansion
Lila B. Etter Alumni Center
University of Texas at Austin
Charles W. Moore, Jessen, and
Richard Dodge Architects

1991 AIA GOLD MEDALIST

gold

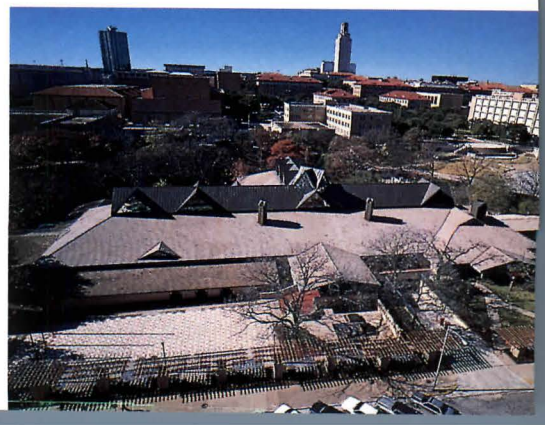
Alumni Cheer

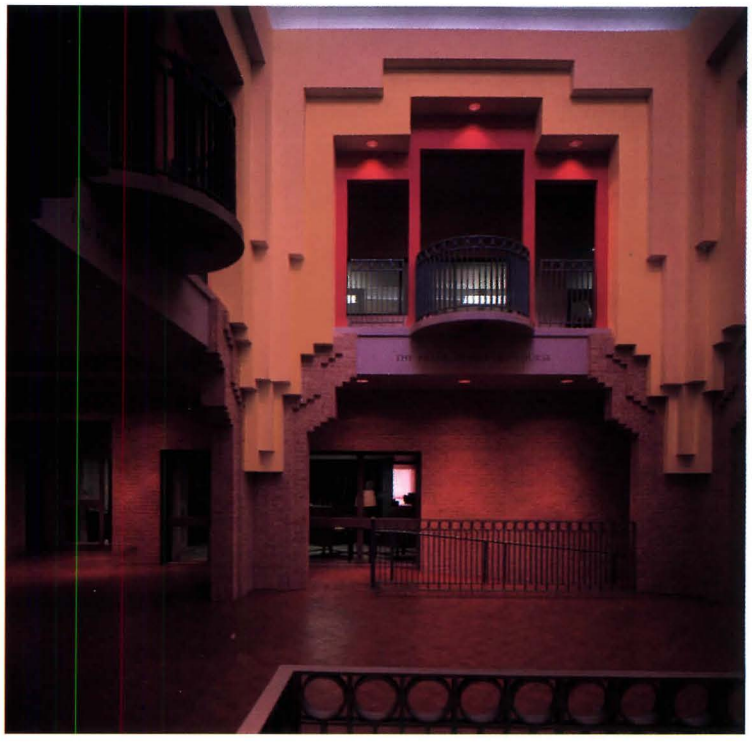


THE NEW ADDITION TO THE ALUMNI CENter at the University of Texas at Austin is what Charles W. Moore calls an example of "fitting," a category he reserves for Sea Ranch, this year's AIA 25-Year Award-winner; the addition to Williams College (1987); the Hood Museum at Dartmouth (1985); and the Beverly Hills Civic Center (1987). Like each of these projects, the Doc and Gertrude Neuhaus Expansion to the Lila B. Etter Alumni Center behaves on the outside as a "congenial partner" with its context, belying a colorful expressionistic interior.

Conceived by alumni more than 10 years ago, and designed and constructed over the last three years, the center triples the size of a low-slung 1965 structure by wrapping two levels of offices and meeting spaces, including a new grand ballroom, around a sequence of public atriums. Moore developed the addition with architect Richard Dodge, a member of the U.T. Austin faculty (Jessen, Inc. of Austin is the architect of record), according to client requirements that included preserving an existing entrance and the building's interaction with a small creek that flows behind the cen-

The 36,000-square-foot expansion extends to the north (right in photo, below) and adds a second story to the existing Alumni Center. A "donor wall" announces new secondary entrance (facing page); one-story strip of the original extends to the south (top left), capped by the double clerestory (left).

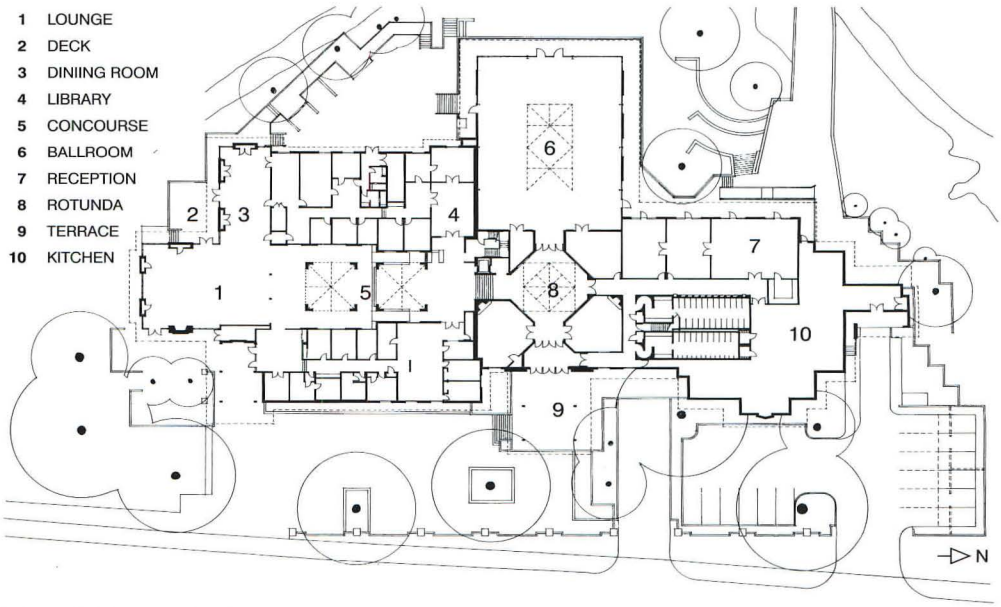




ter. Moore and Dodge also responded to adjectives such as "exciting," "open," "fun," and "festive," which the Ex-Students Association, or Texas Exes, used to describe the characteristics they hoped the building would portray. Like Piazza d'Italia in New Orleans (1978), the alumni center is one of Moore's "receptacles for human energy": an architectural shell that is fulfilled only when fortified by energetic alumni eating, drinking, and rubbing elbows before or after a Longhorns football game (U.T.'s massive, Brutalist Memorial Stadium sits across the street).

The center's aedicular atriums illustrate Moore's predilection for historical license and finding novelty in common materials. The spaces recall Byzantine churches with domes that are resolved through squinches or pendentives into a square base, Gloucester Cathedral, or the Alhambra, where effusive ornament emphasizes the transition from suspended ceiling to solid structure. In the alumni center, the dome is replaced by cruciform clerestories, the grandest of the three topped by a second, rotated clerestory. Layers of painted gypsum board begin at the base of the clerestory and descend in progressively darker shades, to cascading brickwork at each column. The effect is more cheerful than spiritual, but generations of ex-students no doubt share the feeling that the center is a celebratory place, and their communion with fellow Texas Exes a special event. ■

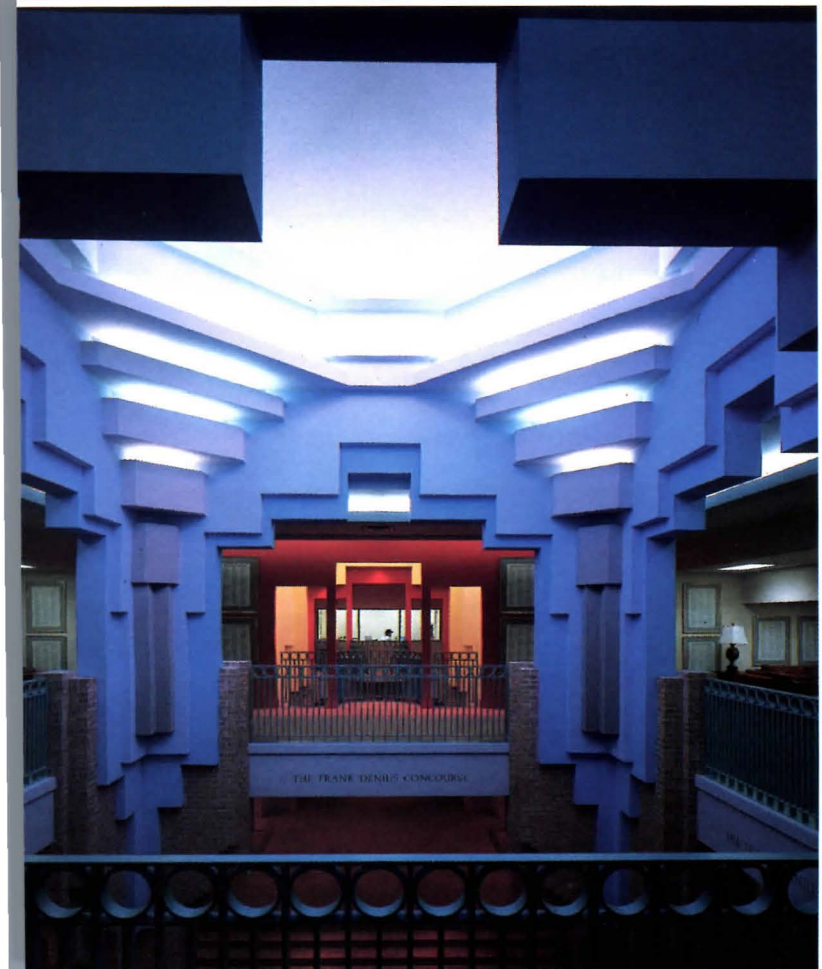
—Ray Don Tilley

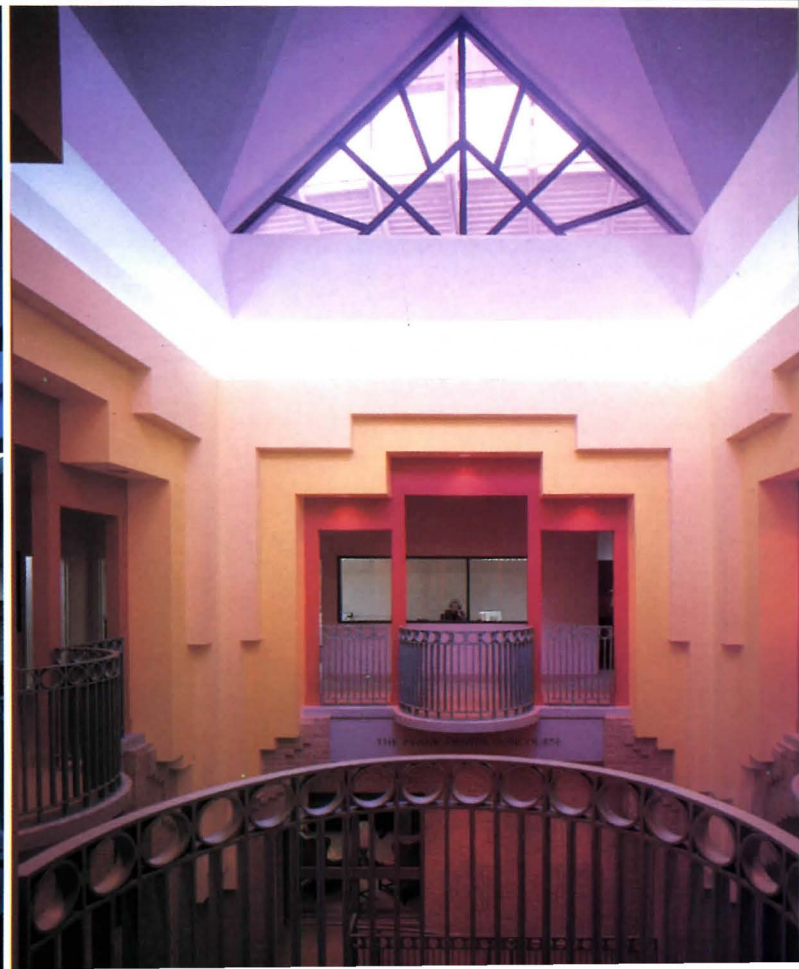


The existing south entrance leads north from a new atrium (above left), over a former courtyard, through a second atrium (above right), and into a third atrium wedged between the ballroom and new secondary entry (center of plan). Clerestory admits magical light into the central atrium (facing page, top right)—now the heart of the alumni center. Layered gypsum-board cutouts and uplighted squinches create a transition from clerestory to columns (facing page, bottom row). The color and complexity animates a variety of direct and oblique views from a continuous second-floor balcony (facing page, top right).

DOC AND GERTRUDE NEUHAUS EXPANSION TO THE LILA B. ETTER ALUMNI CENTER UNIVERSITY OF TEXAS AT AUSTIN

ARCHITECTS: Jessen, Inc., Austin, Texas—Fred Day (principal-in-charge); Sanford L. Newman (project architect)/Charles W. Moore and Richard Dodge (design architects)
LANDSCAPE ARCHITECT: U.T. Austin
INTERIOR DESIGN: Wilson & Associates
ENGINEERS: Jaster-Quintanilla, Inc. (structural); David McCandless, Jack Evans & Associates (acoustical); Ham-Mer Consulting Engineers (mechanical/electrical); Espey-Houston, Inc. (civil)
CONTRACTOR: Morton-Bellows (joint venture)
COST: $6.8 million
PHOTOGRAPHER: R. Greg Hursley


THE FRANK DENIUS CONCOURSE



First Church of Christ, Scientist
Glendale, California
Moore Ruble Yudell, Architects

1991 AIA GOLD MEDALIST

Angeleno Gothic

THE FIRST CHURCH OF CHRIST, SCIENTIST, seems at first sight like a fish out of water. Set at the top end of Glendale's Brand Boulevard, in a neighborhood of typical suburban Spanish villas, the church's board-and-batten Carpenter Gothic style appears to have emigrated entirely from Massachusetts.

This cultural displacement is deliberate, claims project designer John Ruble. "Mary Baker Eddy founded Christian Science in New England, and the Glendale congregation and ourselves agreed that the architecture should hark back to those origins. And the style has a simplicity we all felt was appropriate for the faith."

The First Church is superbly modest without being dull. Parallel to the boulevard, the complex includes a 250-seat auditorium where worship services are held, Sunday school, nursery, committee room, and offices, and it encloses a small courtyard planted with a single liquidambar tree. Painted white inside and out, with pitched roofs, the buildings make a simple visual statement enlivened by bold details.

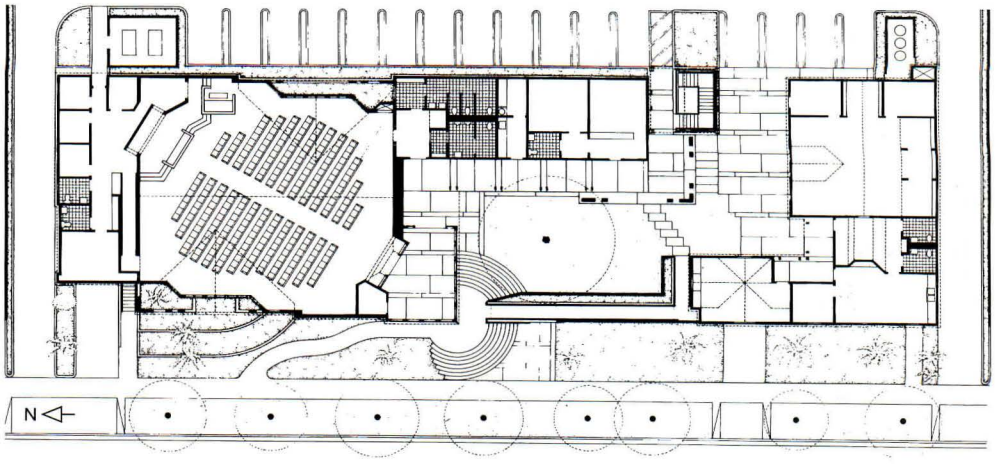
Steep gables frame oversized dormer windows that fill the auditorium at the north end with natural light. Battens, applied over external plywood above a stucco plinth, create a visual rhythm, animated by shadows in the strong Angeleno sunlight. Fanciful gestures, such as screens of arched, freestanding Glulam beams, add extra layers to the dormers' shadow play.

The auditorium itself is a light and airy space. A central steel truss, spanning 40 feet off the floor, supports a complex ceiling of exposed timber rafters. The truss spine runs at an angle to the layout of the oak pews below, creating a rotated axis that adds to the room's unusual sense of terse simplicity, which seems profoundly attuned to the biblical text painted on a projecting panel that declares: "The truth shall set you free."

The daylight flooding in through the dormer, and from two large round windows placed at each gable end, is supplemented by hanging fixtures and chandeliers of translucent cloth shading naked bulbs. The fact that every surface is white but for the pews' blue cloth upholstery assures a high level of reflection throughout the auditorium.

A raised podium for the readers, who lead the congregation in texts from the bible and from Mary Baker Eddy's *Science and Health*, and a keyboard for the organ, concealed behind a grill, complete the auditorium's main

The elevation facing Glendale Boulevard (below) emphasizes the deliberately modest Carpenter Gothic style of the suburban church. The 3,350-square-foot auditorium (left in photo, facing page top), in which services are held, is sequestered to the north and separated from the Sunday school and nursery complex (right in plan) by a small courtyard (facing page, bottom) that connects to the sidewalk 16 steps below. Parking for 84 cars is divided between the rear apron and an underground garage.



elements. Throughout the complex, finishes are basic, both for budgetary and philosophical reasons. The auditorium's floor is covered in coconut matting and the foyer's colored cement floor is already cracked by shrinkage. Externally, too, some of the plywood joints have opened and the woodwork in general seems poorly finished.

Finely considered proportions save the simple interior volumes of the Sunday School, nursery, and committee rooms from boring the visitor's eye. High sloped ceilings, articulated by ridges and valleys, and arched windows add visual variety. Extending the entrance to the underground parking area is a skeletal pavilion that takes the place of a bell tower in a standard church.

Parking for 84 cars is split between the underground garage, entered off Brand Boulevard, and a rear surface lot. The cost of the subgrade parking, mandated by the city, accounts for almost half of the total construction budget.

It's hard to place where this charmingly quirky house of worship fits into Moore's canon. Some elements of its style echo that of St. Matthews Church in Pacific Palisades (1983), particularly the interior application of battens and spatial rotation. But the Roman Catholic St. Matthews is rich with color and ornament, while First Church is stripped to the bone. Moore's generous, if slightly ingenuous, comment on St. Matthews—"we didn't design the church, the congregation did"—also applies to First Church. In both cases, the architects consulted closely with the congregation as the design progressed.

Of the two designs, St. Matthews seems far more at home in the Southern California landscape. More imagination is required to bring the New England idiom of First Church into tune with Glendale, the archetypal Angeleno suburb in which James M. Cain set his sex-and-death novel *Double Indemnity*. ■

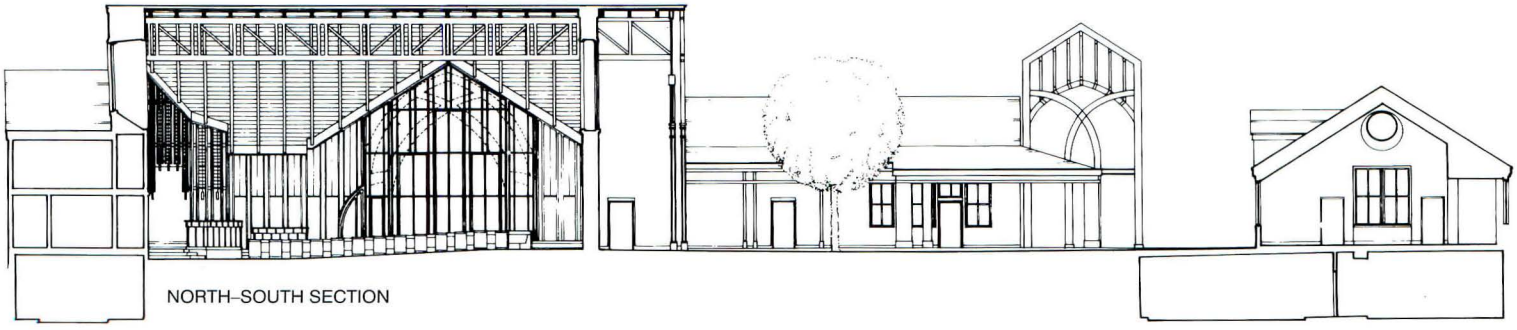
—LEON WHITESON

Leon Whiteson is the architecture critic for The Los Angeles Times.

Large, high circular windows light the Sunday school (above) and, in the auditorium, the raised podium for the congregation's readers and the organ, concealed behind the grill (facing page, top). Oversized side dormers (facing page, bottom right) also flood the auditorium with daylight, supplemented by simple suspended light fixtures screened by hanging cloths. The axial rotation of the plan, setting pews at an angle to the spine of the main truss 40 feet overhead, enlivens the essentially unadorned space. Viewed from the street (facing page, bottom left), the dormers, framed by freestanding Glulam arches, add a playful note. However, the church's rock-bottom budget shows in the crudity of its finishes, especially the general quality of the woodwork, which is already showing wear and tear one year after the building's completion.

FIRST CHURCH OF CHRIST, SCIENTIST
GLENDALE, CALIFORNIA

ARCHITECT: Moore Ruble Yudell, Santa Monica, California—Charles W. Moore, Buzz Yudell (principal designers); John Ruble (principal-in-charge, principal designer); George Nakatani (project manager); Al Diaz (head of production); Aileen Schier, Hong Chen, Mark Denton, Steve Gardner, Ying-Chao Kuo, Neal Matsuno, Gene Treadwell (design team)
LANDSCAPE ARCHITECT: Nancy Goslee Power & Associates
ENGINEERS: Robert Englekirk Engineers (structural); C&M Engineers (mechanical); A&F Consulting Engineers (electrical); Jennings Engineering Co. (civil)
CONSULTANTS: McKay Conant Brook, Inc (acoustical); Tina Beebe (color)
GENERAL CONTRACTOR: Kip Construction
COST: $2.5 million
PHOTOGRAPHER: Timothy Hursley/The Arkansas Office



NORTH–SOUTH SECTION


EXIT

Molecular Biology Research Facility, Unit II
University of California, San Diego
Moore Ruble Yudell and
The Ratcliff Architects

Campus Medicine

DURING THE LATE 1980s, THE UNIVERSITY OF California system embarked on a massive new building campaign. At the University of California, San Diego, where enrollment is expected to increase from 17,800 to 23,160 by the year 2000, Antoine Predock, Kaplan McLaughlin Diaz, Gwathmey Siegel and Associates, and Gunnar Birkerts are among the prominent architects commissioned to design more than 20 new campus projects.

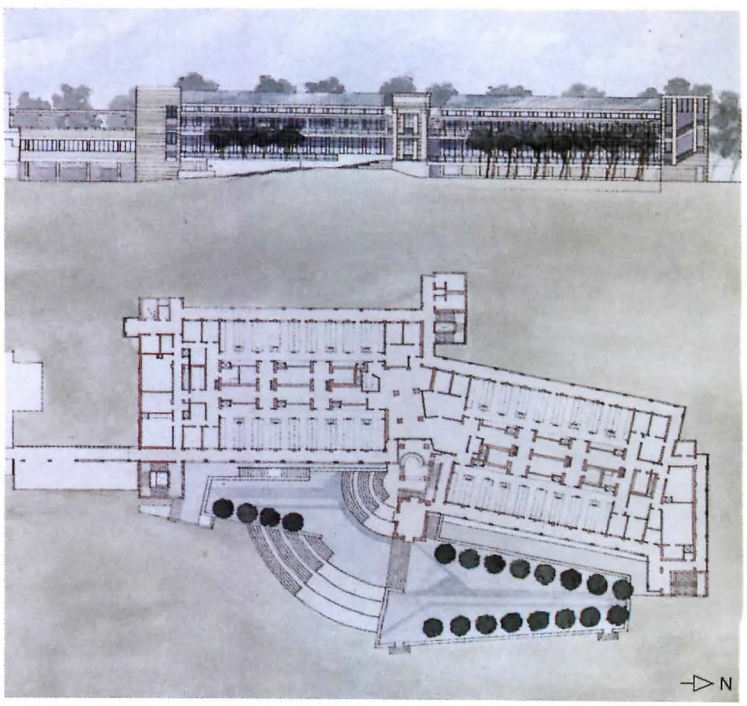
Among the best of this new wave is the Molecular Biology Research Facility, designed by Charles W. Moore and John Ruble of Moore Ruble Yudell, who worked with campus architects and experts from the Howard Hughes Medical Institute. In addition to providing assistance during the programming and design phases, the Houston-based organization footed most of the $10 million cost of the building as part of a program funding new research labs across the country.

Moore's hand is most apparent in a courtyard he designed as a hinge between the building's two wings, a typically Moore-ish collage of contemporized Classical forms that provides the scientists with an outdoor retreat from their intense work indoors. Four 35-foot concrete columns and a wooden trellis stake out the communal space. A tower encloses one edge, providing meeting and relaxing areas on two levels, with French doors that open to views and ocean breezes. "I had an image of that little tower as something painted bright pink, with a kind of Caribbean tropical mood to it," Moore remembers. With breezes blowing through open windows with shutters, it would offer a more benign atmosphere than the hard-driven purity of the laboratories.

Moore's romantic vision, which he says was inspired by the work of 19th-century German architect Karl Friedrich Schinkel, eventually became a more formalized result. Instead of shutters, for example, French doors are flanked by hard-edged pilasters that frame sections of concrete block walls accented with granite bands. Pale green and gray hues help the concrete-framed building merge with adjacent eucalyptus groves.

The 68,000-square-foot main structure contains three levels of laboratories distributed in wings that are staggered and angeled to follow the contour of a nearby cam-

Moore concentrated his design of the laboratory building on the courtyard (facing page, top and bottom left). Angular terraces (facing page, bottom right) are part of a campus public art program. Offices and smaller labs are placed at the ends of the lab wings (below). The entry faces away from the street (below left), while the back of the building jogs to follow a campus road (bottom left).



Courtyard and terraces tie the building to the outdoors (top left); a tower offers an escape for weary scientists (bottom left). Outdoor balconies provide primary access to the laboratories (below), which are furnished with lab benches (bottom) created especially for the building by designers at Howard Hughes Medical Institute. A fountain under an arch is the focus of Moore's courtyard (facing page), a Schinkel-inspired collage of forms at the juncture of the building's two wings, which channels visitors into lobbies on each floor.

pus access road. An elevated pedestrian bridge links the new building to a smaller, earlier research facility nearby.

Design of the facility proceeded from the inside out. "The section was really the driving force," Moore explains. The 25-by-90-foot lab bays on the perimeter of each floor flank central circulation and equipment cores, daylighted by large panels of glass and high clerestories. A notch between the slated aluminum roofs hides exhaust equipment.

A program called the Stuart Foundation is spreading public art across the campus. Andrew Spurlock Martin Poirier Landscape Architects of San Diego and New York artist Jackie Ferrara collaborated with the architects on two spare, geometric terraces next to the buildings, with rows of Australian willows and geometric islands of tile set in a sea of crushed granite.

Moore is now at work on a matching wing that would double the lab space. In addition, the new element would strengthen the complex's connection to "Library Walk," a linear pedestrian path that plays a key role in a new campus master plan. ■

—Dirk Sutro

Dirk Sutro is the architecture critic for the San Diego edition of The Los Angeles Times.

MOLECULAR BIOLOGY RESEARCH FACILITY, UNIT II
UNIVERSITY OF CALIFORNIA, SAN DIEGO

ARCHITECT: Moore Ruble Yudell, Santa Monica, California—Charles W. Moore, John Ruble, Buzz Yudell (principal designers); Markku Kari, Michael de Villiers (project managers); James O'Connor, Akai Yang (design team)
ASSOCIATE ARCHITECT: The Ratcliff Architects—Christopher Ratcliff, Alan Toma
LANDSCAPE ARCHITECT: The Spurlock Office
ENGINEERS: Atkinson, Johnson & Spurrier (structural); Gayner Engineers (mechanical); Semenza Engineering (electrical); Boyle Engineering (civil)
CONSULTANTS: Research Facilities Design (laboratory); Tina Beebe (color)
GENERAL CONTRACTOR: Soltek of San Diego
PHOTOGRAPHER: Timothy Hursley

Learning from Portland

An Oregon firm is honored for shaping its city and region with urban sensitivity.

IN SELECTING THIS YEAR'S FIRM AWARD, THE AIA JURY TURNED away from the East Coast establishment to honor a West Coast practice that offers architects across the country valuable lessons in urban and regional design. Over the past two decades, the Zimmer Gunsul Frasca (ZGF) Partnership has quietly amassed an impressive portfolio of diverse public and private commissions, many of which have played a significant role in revitalizing the firm's home city of Portland, Oregon. Designed with sensitivity to context and human scale, these local projects have given form to Portland's unusual urban renewal plan in transforming a riverfront expressway into a waterfront park; linking downtown to suburbs with a light rail system; and dignifying the skyline with sculpted high rises and civic structures (facing page).

ZGF's commitment to improving its immediate environment has led the firm to consider the public consequences of its designs within a greater urban matrix, a contextualism the architects dub "gregarious" architecture. This holistic approach is strengthened by the firm's ability to tackle a broad range of project types, from buildings to public parks and transportation systems, fostered by a team approach to design. "Our work doesn't hang on one partner's perception," explains design principal Robert J. Frasca, who frowns at the idea of a signature style. "If you adhere to one style, you have the obligation to peddle it, whether it works or not. For too long, architects have let their egos get in the way of making important contributions to the urban environment."

As the firm's principal designer, Frasca is largely responsible for ZGF's growing national reputation. He traces his design philosophy of "place-making" back to graduate studies in city planning at the Massachusetts Institute of Technology, where he was influenced by the urban theories of Kevin Lynch and by the school's former dean Pietro Belluschi, who persuaded the young graduate to move to Portland. Like Belluschi, Frasca is fundamentally a Modernist who infuses his abstraction with regional characteristics derived from the particulars of site, program, and client. "We try to understand the inherent logic of a place—its climate and culture," he explains. Although influenced by the historicism of the 1980s, Frasca, who supported Michael Graves's controversial Portland Building, carefully avoids vernacular appliqué and obvious contextual solutions. "Postmodernism helped us enrich our vocabulary, but not in a literal way. We don't try to make new buildings look old," he explains. Frasca also attributes the refinement of the firm's esthetic to a high level of craftsmanship and public art programs for its civic buildings.

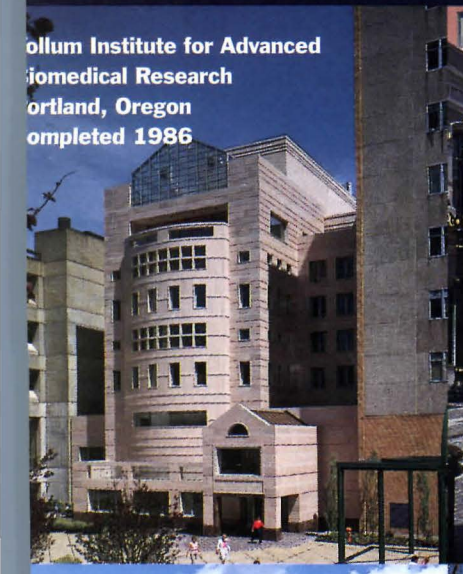
JEROME HART

The Zimmer Gunsul Frasca Partnership is headed by eight partners (standing, left to right): Larry S. Bruton, Gregory S. Baldwin, Robert J. Frasca, Daniel J. Huberty, Robert G. Packard, R. Doss Mabe; (seated, left to right): Norman C. Zimmer, and Brooks Gunsul.

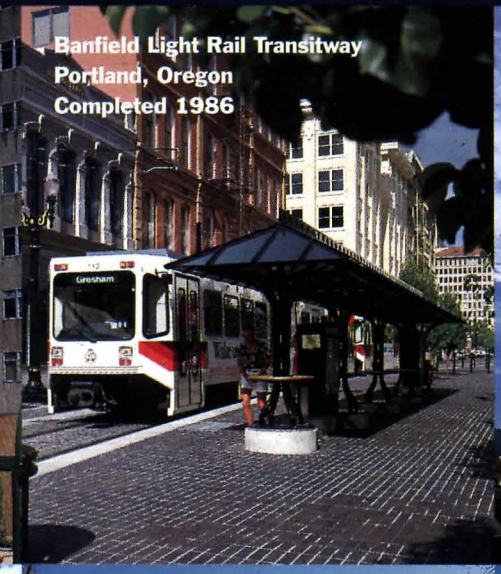
In recent years, ZGF's work has benefited from the decision to expand the firm's West Coast base. In 1988, the firm opened a Seattle office, prompted by a commission to design the $60 million Fred Hutchinson Cancer Research Center. This move has led to subsequent projects, including an office tower overlooking Puget Sound and a library in nearby Bellevue. ZGF also opened a Southern California office in Newport Beach three years ago to undertake buildings for the University of California system. Such proximity to project sites has allowed the architects to apply regionalist principles in a carefully studied way. The U.C. buildings, for example, are designed to accommodate a sunny climate with outdoor courtyards, cross-ventilation, and materials sympathetic to strong daylight and local precedents.

The firm's site-specific esthetic is facilitated by an organizational structure Frasca refers to as a "three-legged stool," balanced by design, technology, and management. The integration of these disciplines allows the architects to control every aspect of a design, from conceptual sketches to project management. "Their projects are completed on time and on budget, without litigation," asserts Tom Walsh, a Portland contractor who chaired client committees for the ZGF-designed Justice Center and Oregon Convention Center. "In an ever more contentious world, they are civilized."

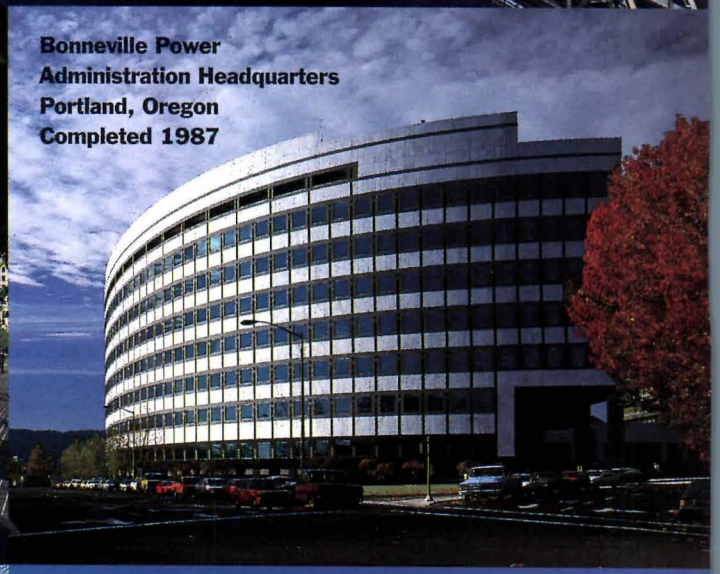
Tom McCall Waterfront Park
Portland, Oregon
Completed 1978



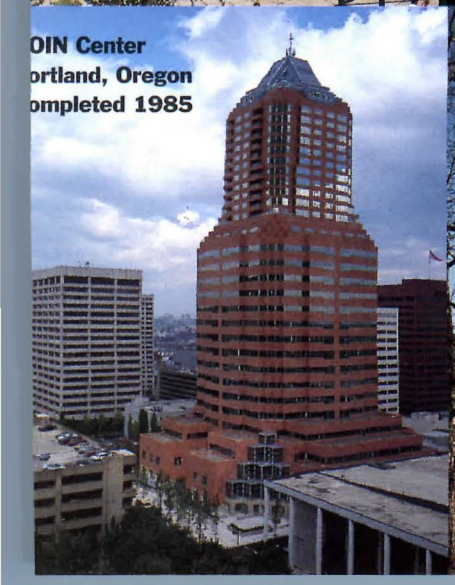
ollum Institute for Advanced
iomedical Research
ortland, Oregon
ompleted 1986



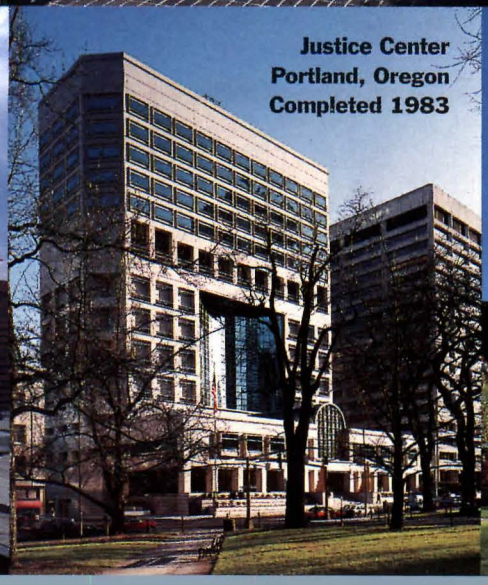
Banfield Light Rail Transitway
Portland, Oregon
Completed 1986



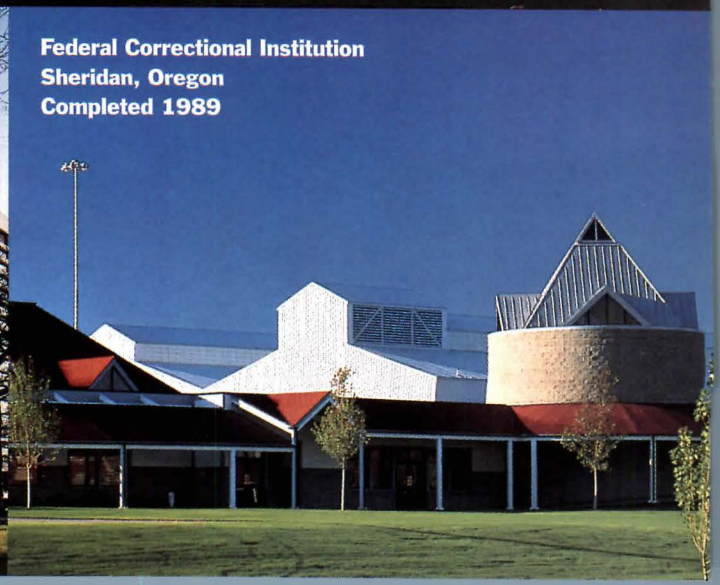
Bonneville Power
Administration Headquarters
Portland, Oregon
Completed 1987



OIN Center
ortland, Oregon
ompleted 1985



Justice Center
Portland, Oregon
Completed 1983



Federal Correctional Institution
Sheridan, Oregon
Completed 1989

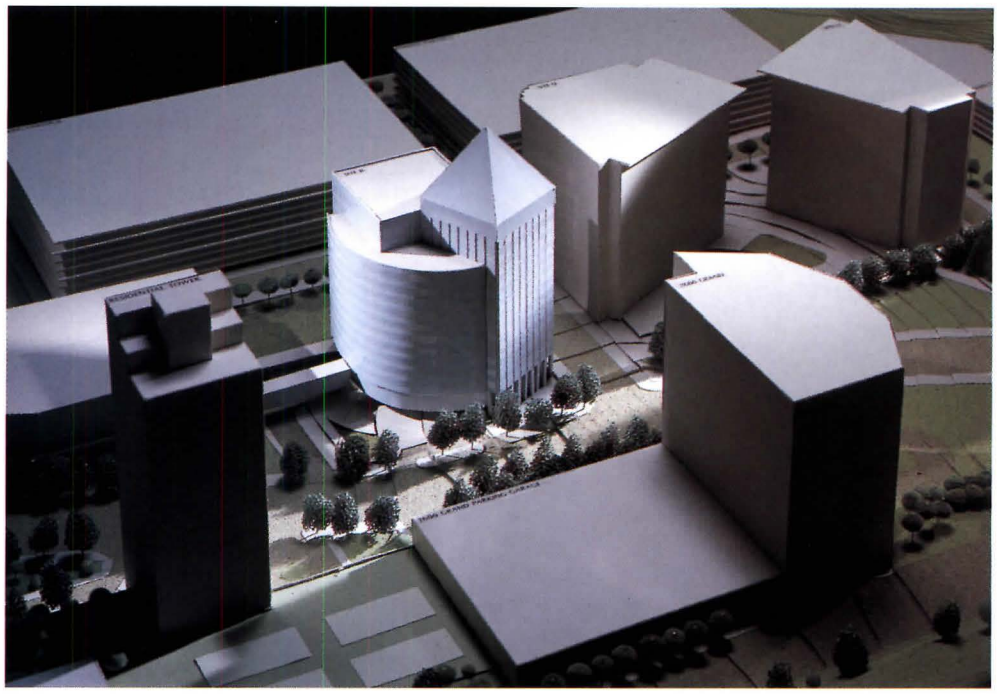
Although boundaries between design, technology, and management disappear within the open atmosphere of the practice, each of the founding principals assumes responsibility for a separate discipline. This arrangement dates back to 1966 when managing partner Norman Zimmer reorganized the predecessor firm, Wolff & Zimmer, around Frasca's design talents and the technical expertise of Brooks Gunsul. Over the past decade, the triumvirate has grown to include five younger partners who broaden the firm's multidisciplinary scope. Gregory Baldwin leads the firm's planning and urban design efforts; Larry Bruton manages and implements project design; Robert Packard has succeeded recently retired Zimmer as managing partner; Daniel Huberty runs the Seattle office; and R. Doss Mabe directs the Newport Beach office. "What attracted me to the firm was its design emphasis and open-ended collaboration between partners," explains Mabe, who left CRSS to join ZGF three years ago.

The down-to-earth interaction among the principals is reflected in ZGF's Portland office, which occupies three floors of a former warehouse renovated by the architects in 1981. Organized around a skylit atrium, the open space is cluttered with drawings and models, including a large replica of downtown Portland, dotted with the firm's numerous landmark projects. The site model serves as a reminder of the architects' continuing commitment to their home base in remaining involved with local urban developments, including the revitalization of the city's eastern core and the western extension of its light rail system. "They continue to set extremely high standards for other firms working in this city," notes Robert Thompson, principal of the six-year-old Portland firm Thompson Vaivoda & Associates.

In shaping its region, ZGF establishes a model of practice clearly in tune with the current trend toward environmentally responsive design. The firm's philosophy that buildings should respect, strengthen, and heal their surroundings seems particularly timely, given the increasing number of cities across the country that confront the repair of aging downtowns. As Gerhard Kallmann of the Boston firm Kallmann McKinnell & Wood points out, "ZGF's architecture enriches the environment beyond the confines of an individual structure." In honoring the Zimmer Gunsul Frasca Partnership, the AIA not only upholds the successes of one firm, but establishes a role model for American urbanism. ■

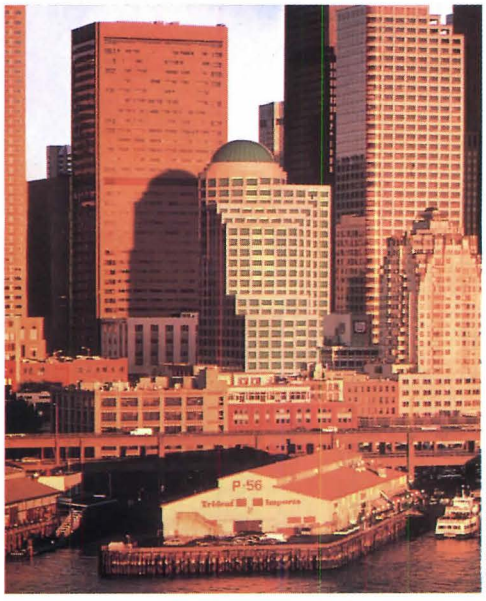
—DEBORAH K. DIETSCH

Beyond Portland: New Projects



Office Building
Crown Center Redevelopment
Kansas City, Missouri

INDICATIVE OF ZGF'S CURRENT DESIGN direction, a 350,000-square-foot tower will play a key role in the redevelopment of Crown Center's southern campus. The 15-story structure is configured to respond to the geometries of its surroundings, including a pair of office blocks designed by Kallmann McKinnell & Wood (top right in photo) and a champfered high rise by Pei Cobb Freed (bottom right in photo). Curved and rectilinear elevations will be clad in combinations of stainless steel-trimmed precast concrete and glass panels. The building will house a corporate tenant and a 40,000-square-foot training center for Hallmark. Construction is scheduled to begin early next year.



JAMES F. HOUSEL

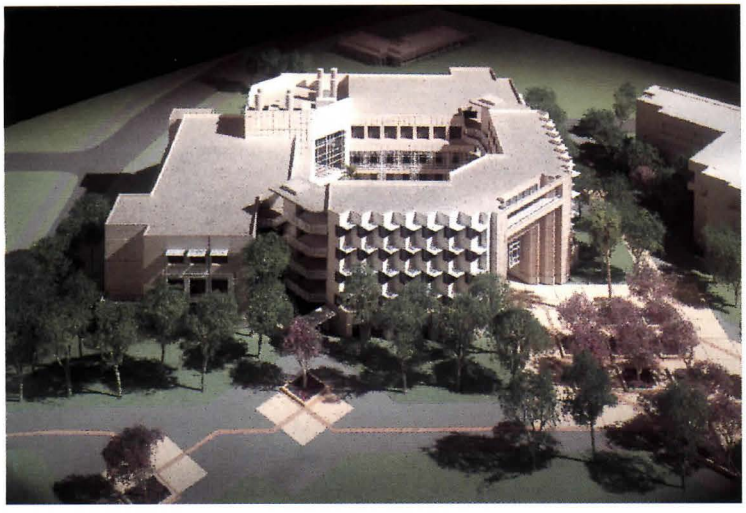
Office Building
Seattle, Washington

ZGF'S 23-STORY OFFICE TOWER IN DOWNtown Seattle shares a site at Seneca Street and Second Avenue with the five-story Washington Mutual Savings & Loan headquarters, which will be connected to the new structure. Attuned to the city's newly instituted building height limits and setback regulations, the 450,000-square-foot high rise steps down toward Puget Sound to provide outdoor terraces and waterfront views. Its highest point on Second Avenue is crowned by a glass-covered, 60-foot-diameter dome. Light-colored precast concrete and granite exteriors will sympathize with the materials palette of the neighboring 1960s savings and loan. Currently under construction, the tower will be completed this fall.

Engineering Unit Two
University of California, Irvine

THE 130,400-SQUARE-FOOT COMPLEX AT U.C. Irvine is designed as a gateway that links the main ring road of the Pereira-designed campus to a pedestrian street and buildings to the north. Reflecting ZGF's urban predilections, the engineering unit will create a landscaped forecourt to Frank Gehry's sculptural Engineering Research Facility (ARCHITECTURE, January 1990, pages 72-73). The building is organized into two wings to separate vibration-sensitive microfabrication laboratories from vibration-producing civil and mechanical engineering laboratories; the blocks are bridged by faculty offices. A campus computer facility, classrooms, 300-seat lecture hall, and administrative offices will also be housed in the building. Inspired by Myron Hunt's architecture at Cal Tech, principal Robert Frasca designed the elevations as a tapestrylike pattern of painted concrete and ceramic tile. The $22.4 million building is scheduled to open in 1993.

ADRIAN VELICESCU

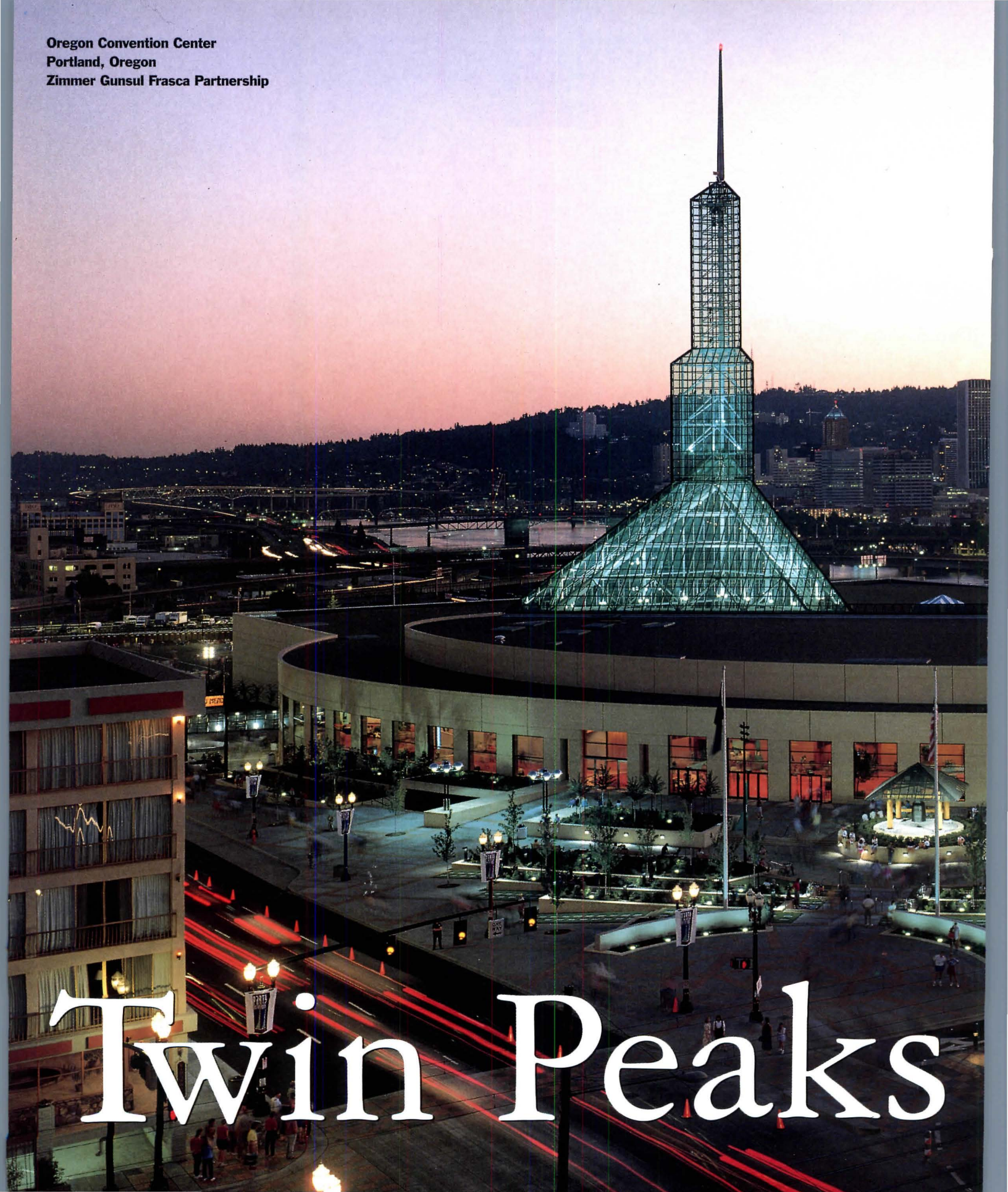


Engineering Building
University of California, San Diego

AT U.C. SAN DIEGO, ZGF'S 135,000-SQUARE-FOOT ENGINEERING UNIT is sited at the eastern terminus of the university's Warren Mall. Articulated by a three-story entrance arch placed on axis with the pedestrian mall, an L-shaped office block will be linked to adjacent research and instructional laboratories by a courtyard. The architects responded to the climate by segmenting the building mass, shading the windows with overhangs, and allowing for cross ventilation. Applied mechanics, electrical, and computer engineering labs, housed in a modular concrete structure, are designed to allow for future reconfiguration. A light steel-framed structure applied to the exterior of the lab block will contain "servant" spaces such as corridors and mechanical ductwork. Completion of the building is scheduled for 1994.

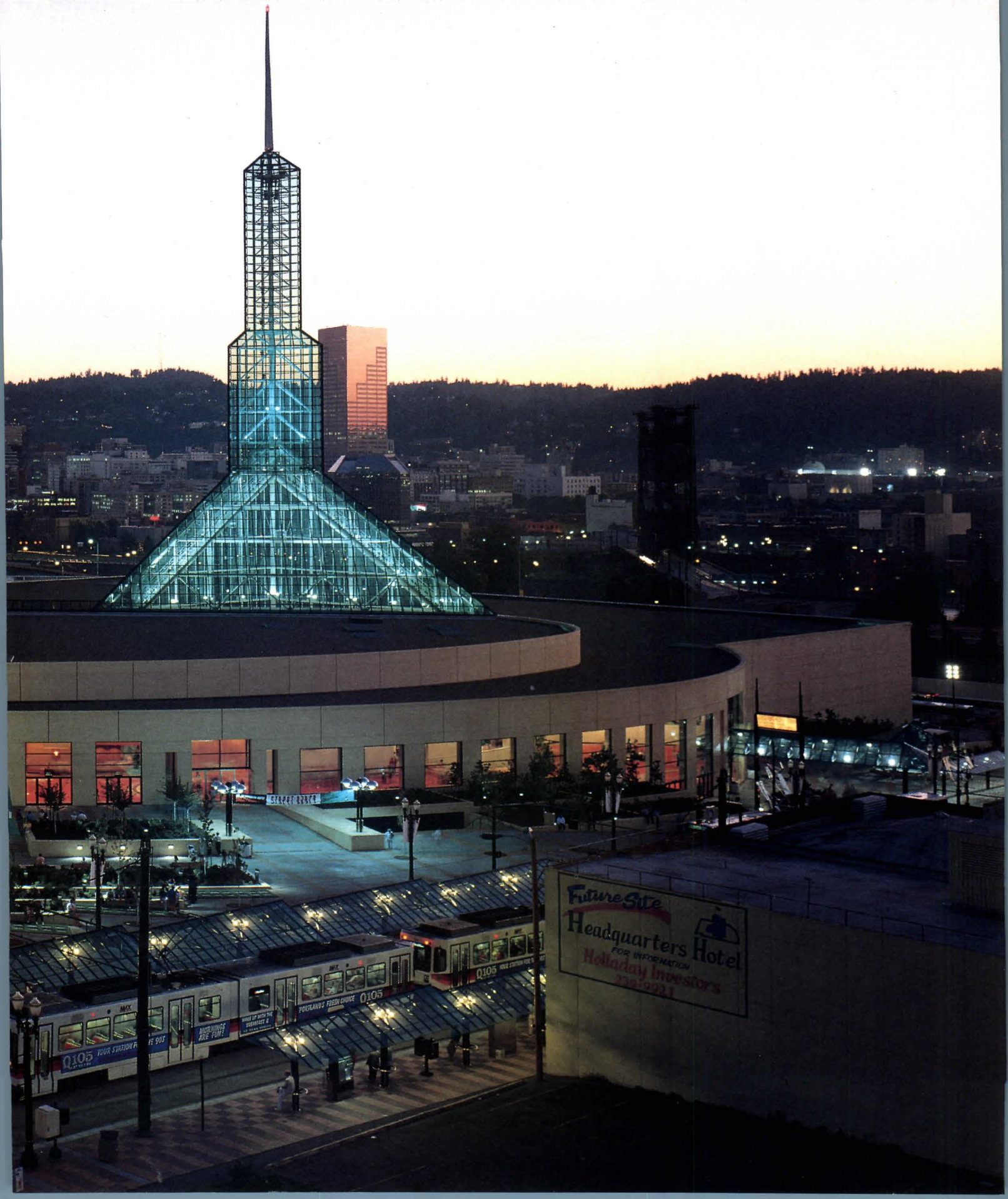
Earth and Marine Sciences Building
University of California, Santa Cruz

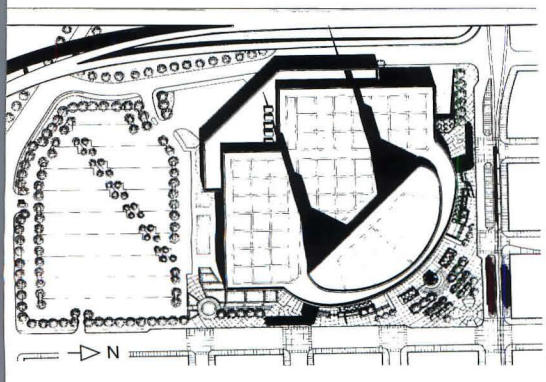
UNDERTAKEN IN ASSOCIATION WITH McLELLAN AND COPENHAGEN of Cupertino, California, ZGF's $23 million building for the wooded campus of Santa Cruz will be nestled within the university's central science complex. The 132,000-square-foot design is intended to encourage communication between biology, chemistry, geology, paleontology, and seismology departments by incorporating daylighted lounges and meeting rooms at the intersection of laboratory blocks. Like ZGF's other U.C. buildings, the Santa Cruz center separates labs from offices and communal spaces by a courtyard and distinguishes the various functions in different materials. A freestanding auditorium (left in photo above) will be available to the university's other schools. The project is scheduled to begin construction this spring. ■



Oregon Convention Center
Portland, Oregon
Zimmer Gunsul Frasca Partnership

Twin Peaks


Future Site
Headquarters Hotel
FOR INFORMATION
Holladay Investors
Q105



AS A BUILDING TYPE, A CONVENTION CENTER rarely exhibits inspiring design. Its program of hangarlike display areas, flexible meeting rooms, and vast lobbies all too often result in sprawling, hermetic boxes that disrupt the very neighborhood they are intended to revitalize. However, as cities across the country compete for a share of the booming convention center market, they are realizing that public amenities are as important as functional efficiency in attracting business.

A model of this new direction is the $65 million Oregon Convention Center, opened last September in Portland. Designed by the Zimmer Gunsul Frasca Partnership, the 490,000-square-foot structure is distinguished from other recently completed convention centers by its visibly urban profile, which elevates not only its immediate surroundings, but the city at large. This achievement is remarkable given the center's location on a 17-acre urban renewal site across the Willamette River from downtown Portland. The architects visually and symbolically connected the building to the heart of the city by designing a pair of glass and steel spires that majestically soars 250 feet from the roof line (see pages 127-129 for technical details). "The towers were a way to achieve a civic quality and introduce light into the building," explains principal Robert Frasca, who admits his design was inspired by a 1948 Frank Lloyd Wright drawing of two suspension bridges for Pittsburgh. Illuminated at night and visible from vantage points throughout the city (left), the bold, crystalline prisms instantly elevate the convention center to a Portland landmark.

The twin towers also signify the Oregon Convention Center's ability to accommodate two simultaneous conventions of equal size. The building's 150,000 square feet of exhibit space, 25,000-square-foot ballroom, and 28 meeting rooms are organized according to a symmetrical plan that eases visitor orientation. Primary public areas wrap the northeastern perimeter, taking advantage of daylight through tall windows, and encircle the ballroom to form lobbies between meeting rooms and exhibit areas. Divided into five modules, the exhibit hall occupies the rear of the building, adjoining an 850-car parking lot. In anticipation of future expansion, its exterior is faced in precast concrete panels and covered by ivy-planted trellises to conceal the boxy rear volume from adjacent freeways.

At street level, the sweeping, 800-foot-long brick facade is carefully proportioned with spacious openings. A landscaped plaza, dotted with benches and two bronze temple bells (a gift from Portland's Asian sister cities), provides additional gathering space, although its fussy arrangement of terraced planters and paving patterns detracts from the graphic simplicity of the building. The plaza connects the center to a new light rail station at the northern edge of the site, created by the architects as their latest design for Portland's Banfield Transitway. Ties between station, plaza, and building are strengthened by a shared vocabulary of glass and steel, expressed in platform shelters and canopies over the center's main entrances.

As revealed by the building section, ZGF took advantage of an existing northwest-southeast change in grade to organize functional adjacencies and circulation into a coherent whole. Visitors enter the middle level of the convention center from the plaza through doors placed at either end of the building. From anigre-paneled lobbies, they

Illuminated at night (preceding pages), twin spires (facing page, top) echo Steel Bridge towers (above left). Entrance elevation is clad in brick (facing page, bottom left); exhibit halls faced in precast concrete (facing page, bottom right).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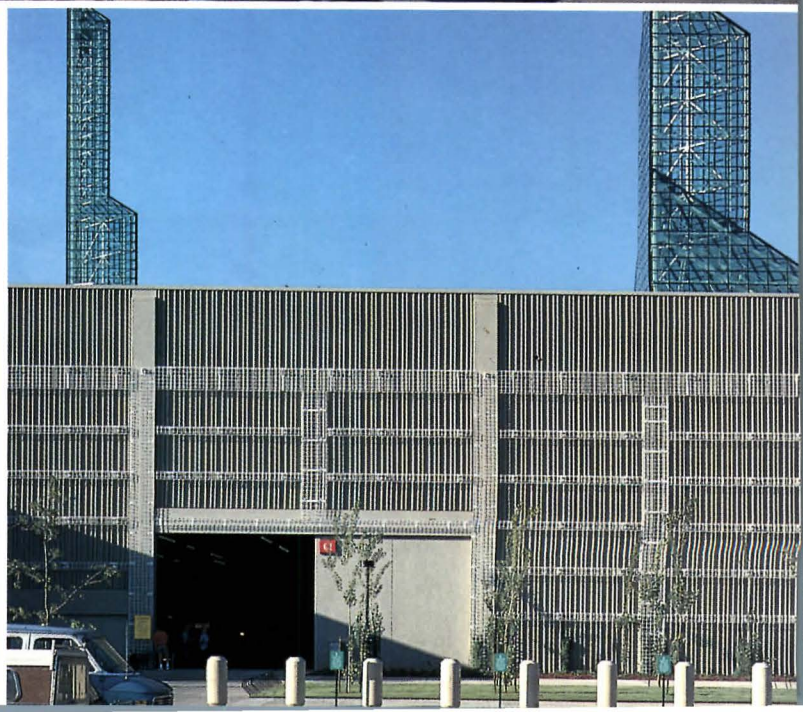
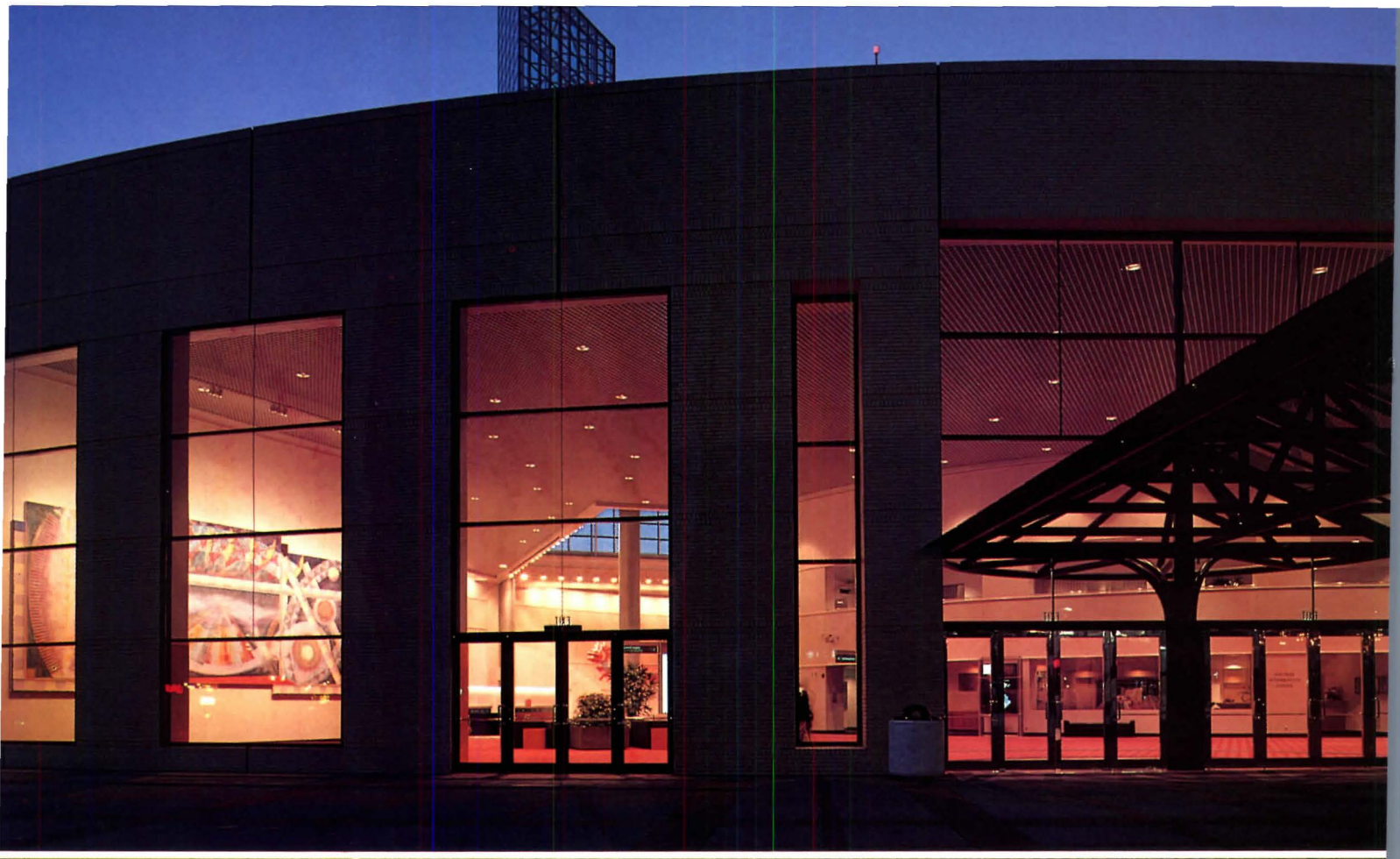


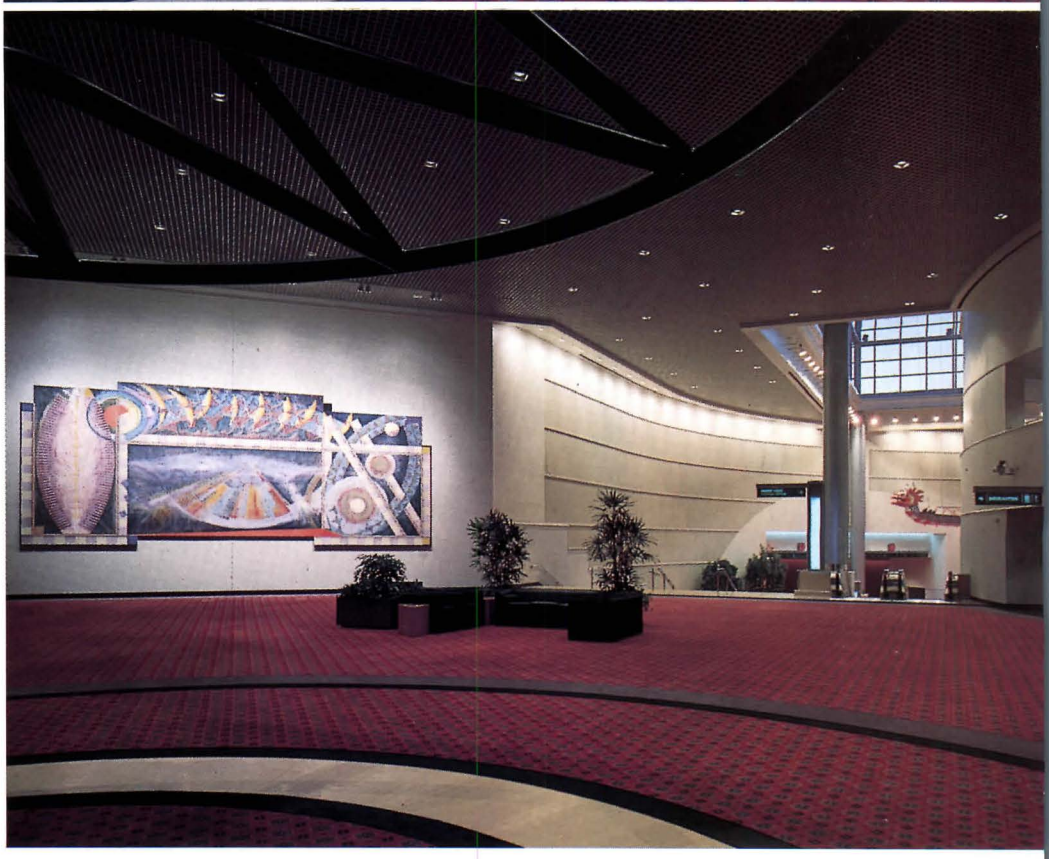


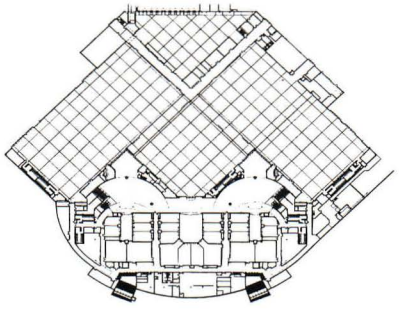
ascend a half-floor to the upper-level ballroom or descend a half-floor to exhibit halls and meeting rooms. A third entrance located in the center of the street facade provides direct access to the ballroom level. The internal clarity of public circulation is further emphasized by skylights formed by the towers, which transform lower-level lobbies into monumental spaces flooded with daylight. Although the towers' interiors are inaccessible to visitors, dining terraces on the topmost level offer views through their steel tracery to downtown Portland and hills to the west.

As in their design of Portland's Justice Center, ZGF took advantage of the city's 1 percent for art fund to commission site-specific artworks for the convention center. A seven-person selection committee held workshops with artists to determine where their work could be integrated with ZGF's schematic design and then selected 10 designs that best completed the task. Created primarily by Pacific Northwest artists, the unconventional collection infuses the architecture with elegance, humor, and serendipity.

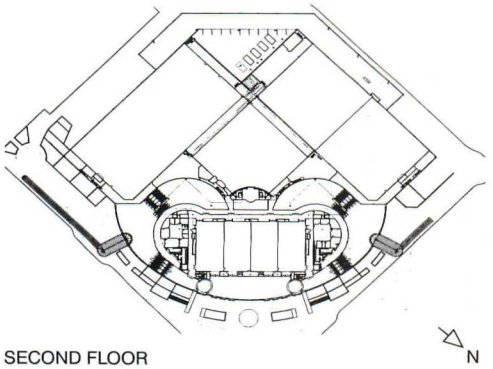
Since opening, the Oregon Convention Center has already surpassed expectations, attracting twice as many events as anticipated. Part of its success is due to a committee formed by Portland's Metropolitan Service District to oversee the design and construction of the building. The Advisory Committee for Design and Construction (ACDC), composed of local architects, contractors, developers, and city officials with a track record of large-scale projects, visited convention centers around the country to determine the drawbacks and assets of the building type. As ACDC Vice-Chairperson Harriett Sherburne asserts, "Communities only get one shot at a convention center, so they'd better do it right." ZGF not only accomplished the feat with a striking civic symbol for the entire city, but established a strong anchor for Portland's next tide of urban revitalization. ■

—DEBORAH K. DIETSCH





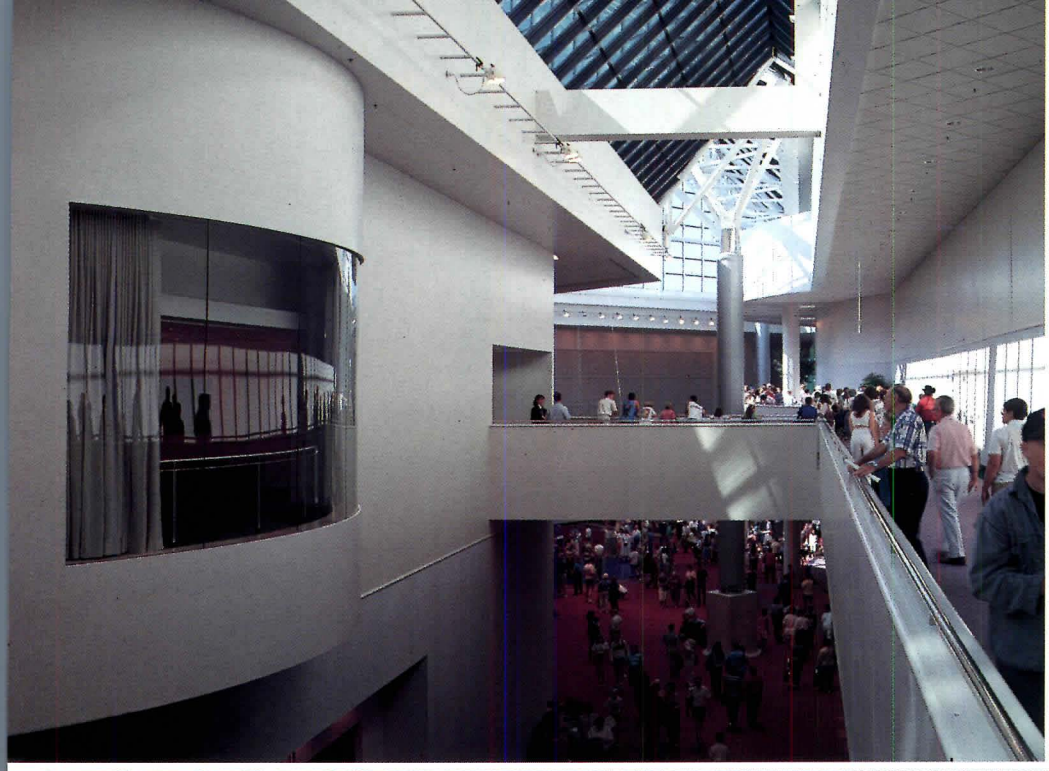
FIRST FLOOR



SECOND FLOOR

N

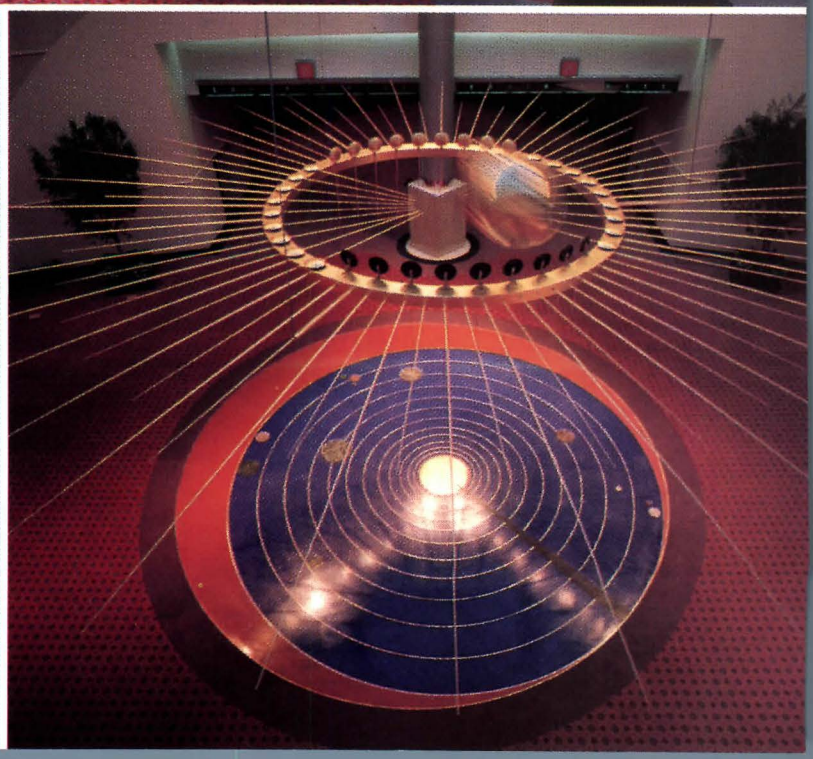
Visitors enter the convention center under canopy-covered entrances (facing page, top) to double-height lobbies (facing page, bottom). They descend to lower-level exhibit halls (above right and left plan) or ascend to ballroom floor (top right and right plan). Anigre-paneled lobbies are lighted by glass sconces designed by Seattle artist Walter White (top right). Painting by Seattle artist Bill Hoppe (above right and facing page, bottom) was inspired by the building's geometries and by Native American legends.

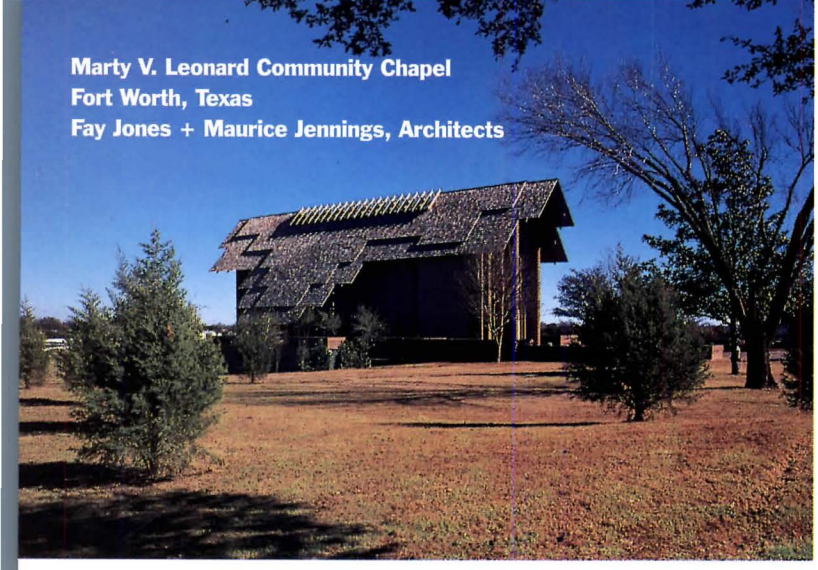


ZGF designed the convention center so that all levels of activity are daylit. Lower level lobbies (below left and facing page, top) and upper level walkways (left) are illuminated by pyramidal skylights at the base of each tower and a glazed ridge extended between them. Each space is enriched by an unusual collection of sculpture, painting, and decorative arts as a result of a $671,000 public art program for the building. The diverse works, many designed by Pacific Northwest artists, reflect a regional spirit, ranging from plaques emblazoned with Oregon lore and literature in the lobby to ceramic panels depicting Columbia Gorge waterfalls in the men's restroom. In the south tower, a 40-foot-long Chinese dragon boat (below left) celebrates the sister city relationship between Portland and Kaohsiung, Taiwan. In the north tower (facing page, top), New York artists Kristin Jones and Andrew Ginzel designed a brass pendulum to swing according to the earth's rotation. The pendulum's course is marked by a gilded halo of spikes (facing page, bottom left) and a circular terrazzo floor, patterned to represent the solar system (facing page, bottom right).

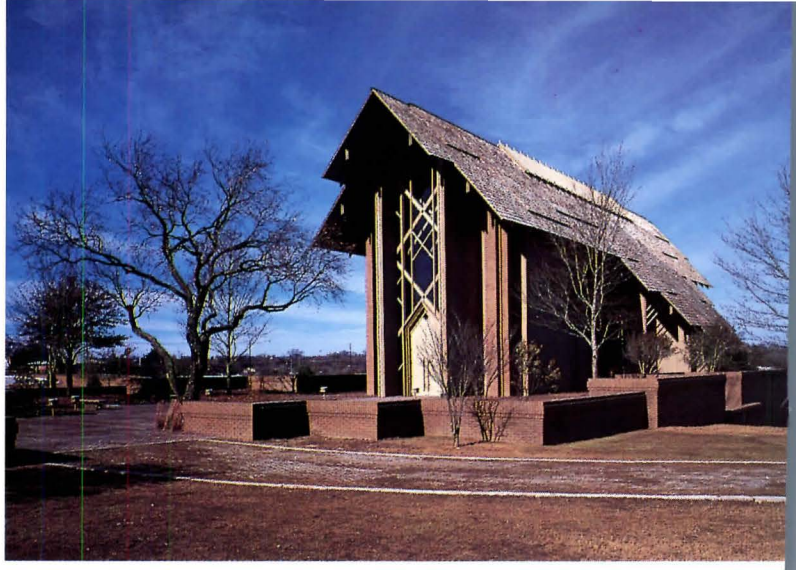
OREGON CONVENTION CENTER
PORTLAND, OREGON

ARCHITECT: Zimmer Gunsul Frasca Partnership, Portland, Oregon—Robert J. Frasca (principal designer); Daniel J. Huberty (partner-in-charge/project manager); Ernest L. Grigsby (project architect); Evett J. Ruffcorn (project designer); Brooks Gunsul, Larry S. Bruton, John P. Blumthal, Ronald P. Gronowski, Michael T. Spatz, Robert J. Barnard, Robert G. Furusho, David B. Gonrowski, Robert W. Hastings, Robert S. Fisher, Gregory J. Stadler, Lloyd D. Lindley, Mark L. LaFarge, Christopher K.L. Chin, John S. Walling, Eve Stevenson-Booth, Janet L. Webb, Ronald W. Ramberg, John B. Malone, Lee F. Kilbourn, Carl E. Freeze, Linda Muerle, David J. Morey, James R. Smith (design team)
INTERIOR DESIGNERS: ZGF Interiors
LANDSCAPE ARCHITECT: Murase Associates
ENGINEERS: KPFF Consulting Engineer (structural/civil); Daniel, Mann, Johnson & Mendenhall (mechanical/electrical); David Evans & Associates (civil); Rittenhouse-Zeman & Associates (soils); Carl Butke, Inc. (traffic); Lerch Bates & Associates (vertical transportation)
CONSULTANTS: Daniel, Mann, Johnson & Mendenhall (planning); Rolf Jensen & Associates (fire/safety); McKay Conant Brook (acoustical); Fred Schmid Associates (food service); Con-Tech, Inc. (telecommunications); Lightsource, Inc. (lighting)
GENERAL CONTRACTOR: Hoffman Construction Company
COST: $65 million (building)—$104/square foot
PHOTOGRAPHER: Timothy Hursley/The Arkansas Office





Marty V. Leonard Community Chapel
Fort Worth, Texas
Fay Jones + Maurice Jennings, Architects



House of the Spirit

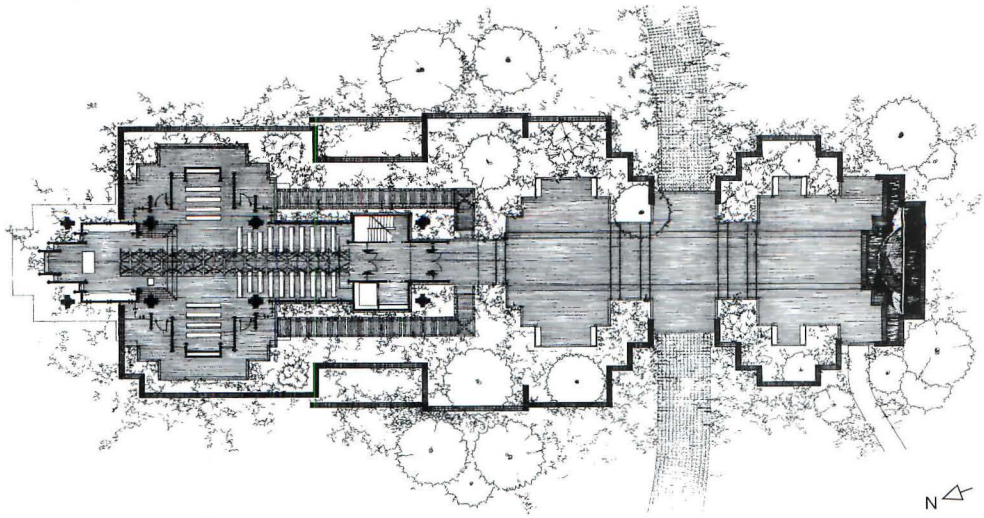
A roadside chapel designed by last year's AIA Gold Medalist encourages introspection.

BUILDINGS DESIGNED BY FAY JONES HUG the landscape, ingratiating themselves with hills and forests until they appear to bond with their surroundings. The Marty V. Leonard Community Chapel in Fort Worth is an exception to Jones' pattern. It has no glass side walls, unlike Thorncrown Chapel (*AIA Journal*, Mid-May 1981, pages 140-147) and the Mildred B. Cooper Chapel (ARCHITECTURE, October 1988, pages 52-57), and instead of blending into a wooded site, it sits on a treeless knoll overlooking an interstate highway. With its hefty podium and broad overhanging roof, the chapel appears more an object on the landscape than an extension of it.

Inside, the Leonard Chapel is quintessential Fay Jones. A lofty ceiling and intricate network of beams and trusses recall the Gothic cathedrals that have inspired his earlier chapels. And every surface joint reveals his devotion to visible craftsmanship, which links his work not only to the Arts and Crafts movement but to the older tradition of European wooden architecture.

"Symmetry and repetitive structure—I can't seem to get away from them in my chapel work," Jones explains matter-of-factly. The architect frequently claims that he would like to design the same basic chapel 10 times, "because if there's a serious idea, it can't be summed up in one building." The Leonard Chapel marks his fourth attempt. It was a 50th birthday gift to Marty Leonard, a longtime benefactor of the Lena Pope Home in Fort Worth, which was founded in 1930 to care for neglected and abused children. Rather than accepting a gift for herself, Leonard urged friends and family to make a donation to the home. So they raised $170,000 for preliminary design work on a chapel (the final cost was $2 million), and urged Leonard to choose an architect who would understand the special needs of the project. Poring through books on ecclesiasti-

The chapel at the Lena Pope Home (top left) establishes itself on a nearly treeless site as a dramatic object on the landscape instead of an extension of it. The lofty sanctuary and broad, sheltering roof (above) reference Jones's link to traditional wooden European architecture, and the window at the entrance recalls his Gothic influence (facing page). Though cruciform in plan (below), a first for Fay Jones, the meticulous craftsmanship and bold structural expression make it a close relation of his earlier Thorncrown and Mildred B. Cooper chapels in Arkansas.



cal architecture, the benefactor came across a photograph of Thorncrown Chapel and knew that she had found her man. "It was done in innocence," Leonard says. "I didn't know who Fay Jones was and had never been to Thorncrown, but I felt it was the prettiest structure I had ever seen."

The Leonard Chapel resembles Thorncrown in its lofty and suggestively Gothic profile and its primary material of wood—in this case Philippine mahogany. But the Fort Worth building is cruciform in plan, a first for Jones, and more spatially complex than Thorncrown. Visitors cross a large, somewhat stiff plaza with a water wall at one end ("My Paley Park scheme," Jones laughs) to reach two arched doors. Inside, a small, low-ceiling vestibule opens into a soaring sanctuary with a dramatic skylight perched along its ridge. Before we are exalted, we must first be humbled.

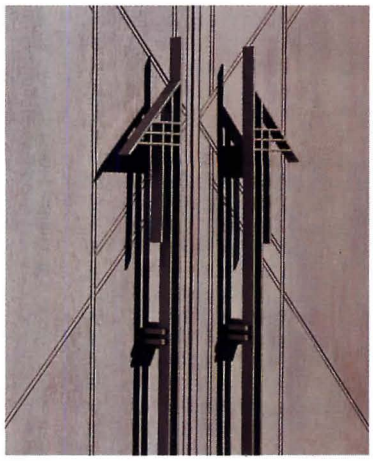
The chapel seats only 150, but, like Thorncrown, feels far grander because of the way the architect has manipulated the interior volumes. Most of the drama is overhead, in the web of beams and trusses that casts dramatic shadows across the nave. Total structural expression, a staple of Jones's work, reaches a new and more authoritative level in this project. The columns are freestanding, so it is possible to walk completely around them, touching joints and surfaces. The glass corners in the transept have mahogany louvers. Even the wall paneling is subtly grooved to make it more tactile, and the only applied decorations are hand-crafted light fixtures.

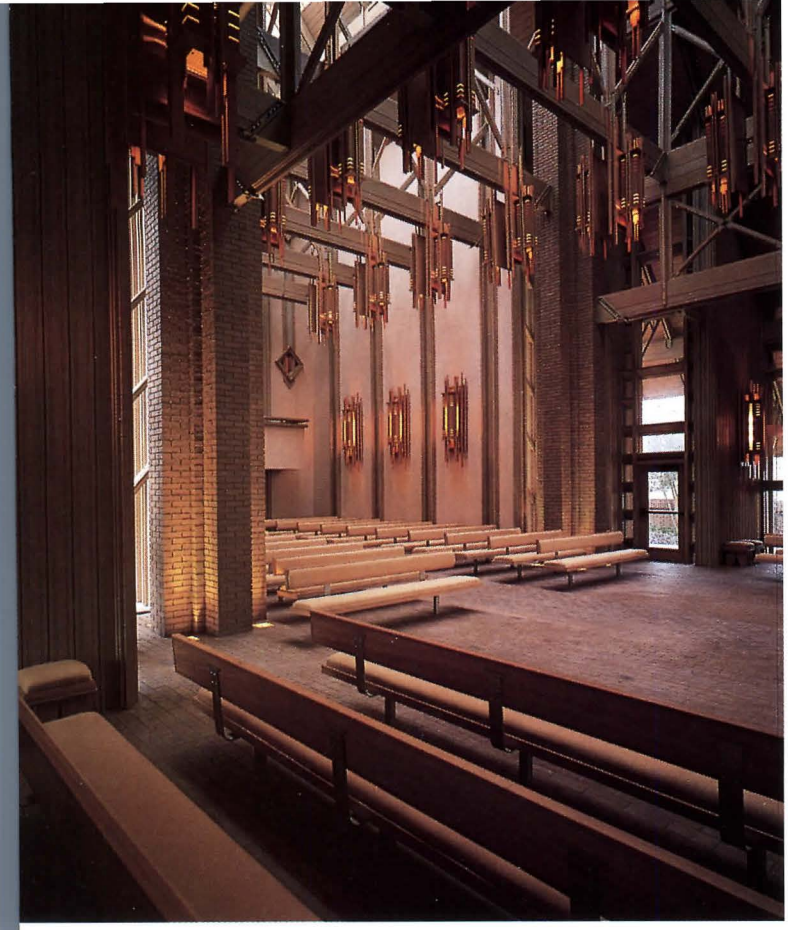
But the Leonard chapel is also more introverted than the architects' earlier chapels. Pews are intentionally low to cut off views of the freeway. The basement of the chapel—the podium of the building—contains administration space. The absence of side windows, and therefore of dramatic views of nature, coupled with the subdued, monochromatic interior, further encourages contemplation.

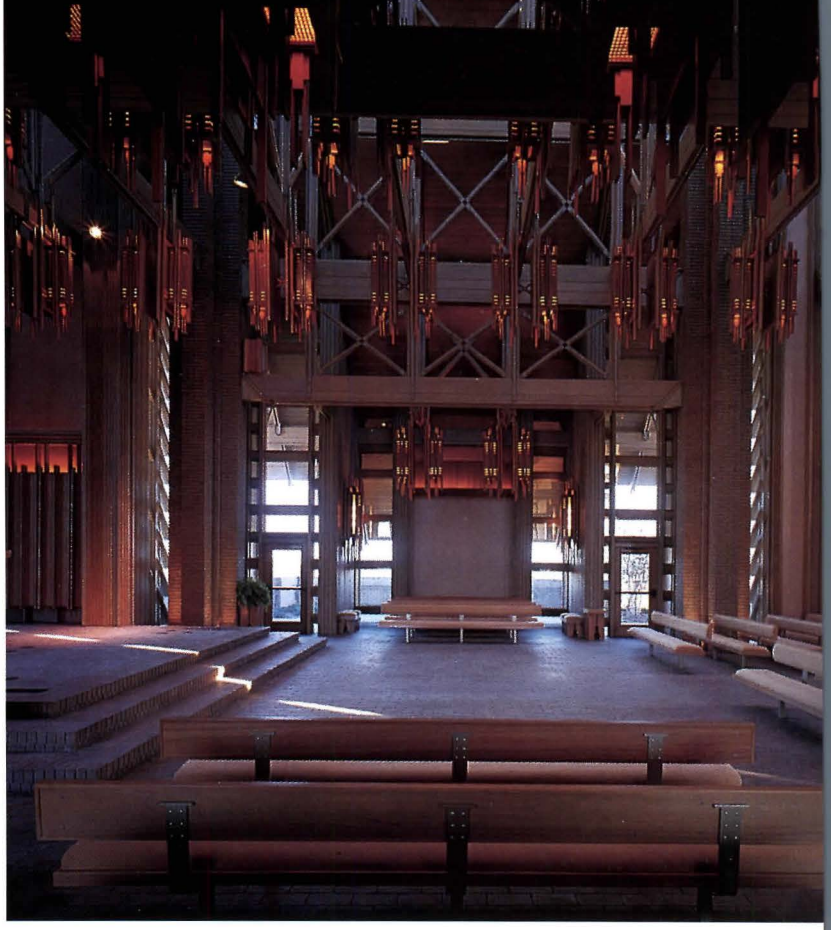
Such introspection is entirely appropriate for the Pope Home. Although the organization has no church affiliation, spiritual counseling has always been central to its mission. A plaque in the vestibule reads: "The chapel provides a peaceful place where youth can let down their walls and where they can surrender and relinquish control of their lives to a higher power that will not abandon them, not abuse them, will not judge them, but will love them no matter what and forever."

The new chapel provides both a spiritual and an architectural focus for the Lena Pope Home. It is a place of refuge and reconciliation, whose massive roof reaches down to enfold the sanctuary like arms, offering serenity to those within. ■

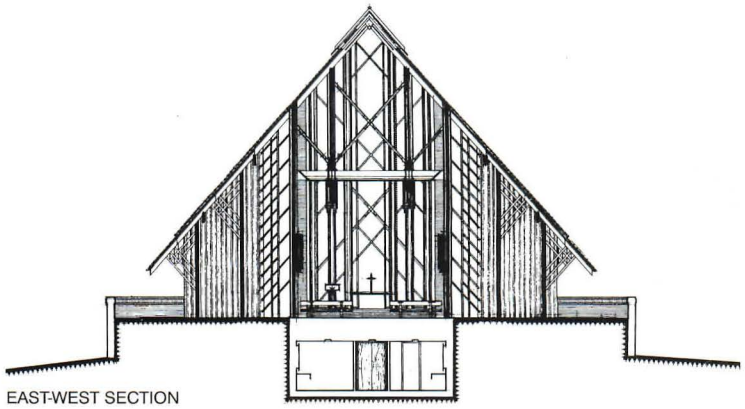
—David Dillon



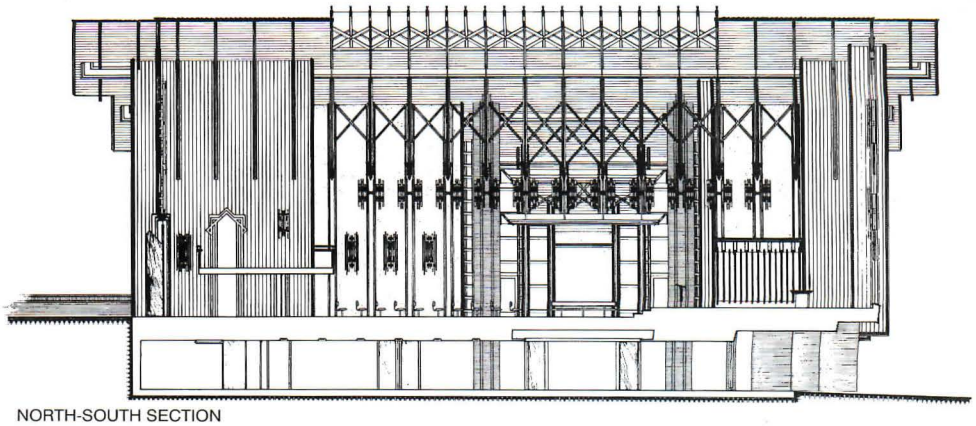




The Marty V. Leonard Community Chapel sits on a tall podium that houses offices and activity space (section, right). Inside the spatially complex, 6,640-square-foot chapel, the most dramatic and direct reference to the Arts and Crafts construction is overhead, in a web of beams and trusses (facing page, top left and right) that represents the architect's fascination with "symmetry and repetitive structures" in all his work. Brick columns are freestanding to further enhance the building's structural expressiveness (above), while the applied ornament is limited to door handles and light fixtures (facing page, bottom), all designed by the architect. Pews seating as many as 150 cut off views of the freeway (top right). The absence of glass side walls (section, bottom right) makes the space seem more introverted than his earlier chapels, with light filtering through skylights that span the length of the nave.



EAST-WEST SECTION

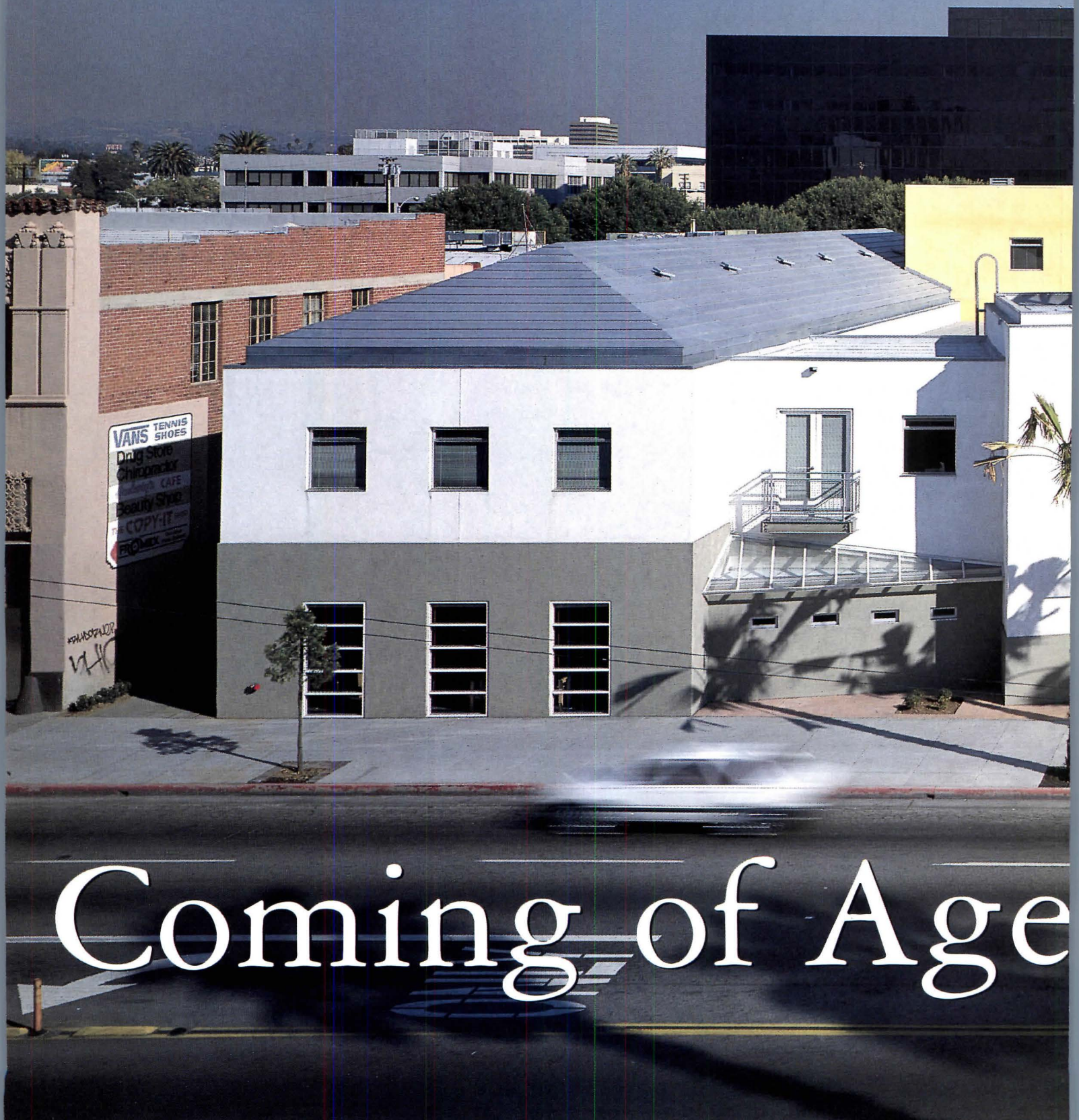


NORTH-SOUTH SECTION

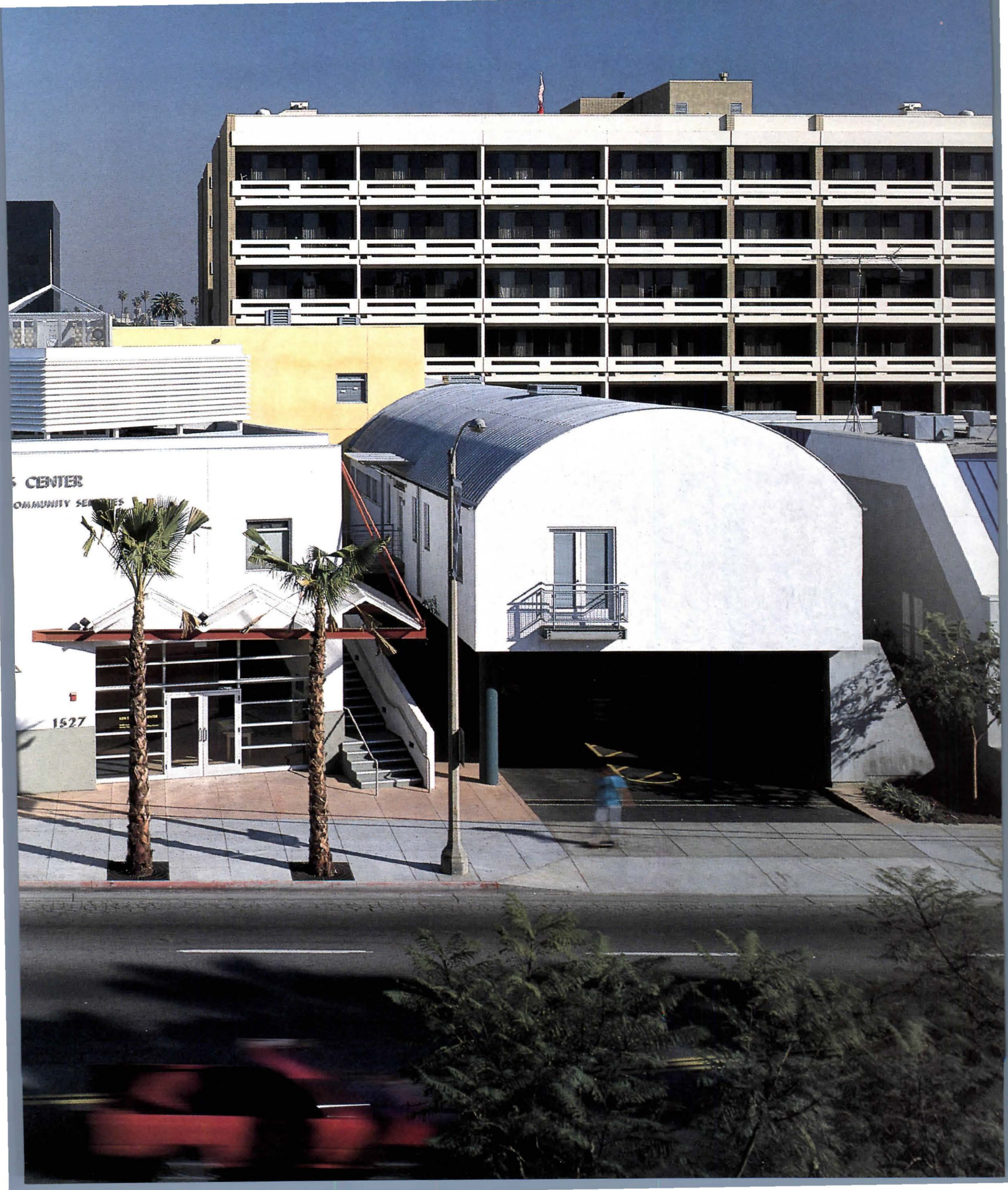
MARTY V. LEONARD COMMUNITY CHAPEL
FORT WORTH, TEXAS

ARCHITECTS: Fay Jones + Maurice Jennings, Architects, Little Rock, Arkansas—Fay Jones (principal-in-charge); Maurice Jennings (project architect); David McKee, Barry McNeill, Michael Cockram, Buster Coplin, Leroy Scharfenberg, Daryl Bantis, Naoto Sekiguchi (project team)
ASSOCIATE ARCHITECTS: Kirk Voich Gist—Fort Worth, Texas
LANDSCAPE ARCHITECTS: Fowlkes, Norman & Associates with Nathan Gaspard
CONSULTANTS: Jerry Wall (structural)
GENERAL CONTRACTOR: Frymire Company, Larry Frymire, John Snyder
PHOTOGRAPHER: R. Greg Hursley

Ken Edwards Center for Community Services
Santa Monica, California
Koning Eizenberg Architecture



Coming of Age


CENTER
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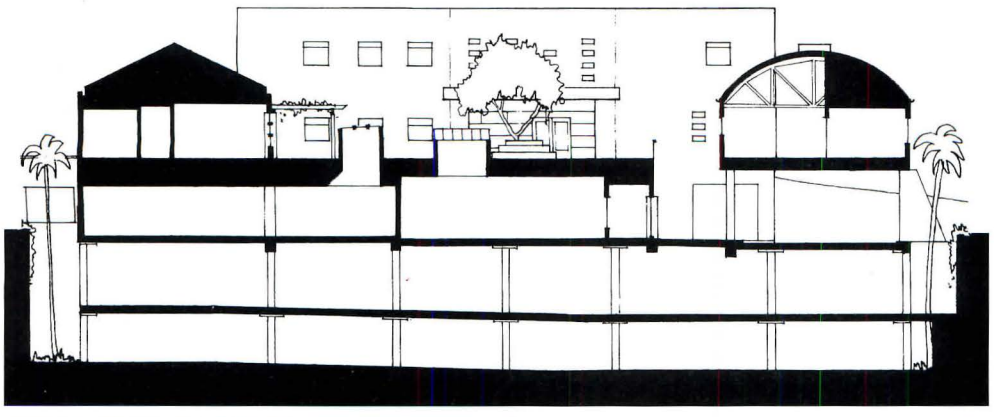

SECTION LOOKING NORTHEAST

SINCE OPENING THEIR OFFICE IN 1981, ARCHITECTS Julie Eizenberg and Hank Koning have found the architectural and economic climate of Los Angeles conducive to their growing practice. After completing a number of residential commissions, including a pair of studio towers, a series of low-cost apartment buildings, and their own house (ARCHITECTURE, March 1990, pages 136-141), the Australian-born husband and wife team were ready to meet the challenges of a more complex program. They tackled them in the Ken Edwards Center, a 25,000-square-foot complex for Santa Monica's elderly residents.

Reflecting a similar spatial investigation as expressed by earlier works, Koning Eizenberg combined discrete volumes into a composition that interweaves public and private functions, indoor and outdoor spaces, to give autonomy to the various groups that use the facility. As the city's umbrella for senior services, the center houses two independent agencies that provide health and counseling services to older adults, a lunch program, and a conference center for the entire community.

The building also had to be flexible enough to accommodate changing programs that might be funded one year, dismissed the next. "It's a building type beginning to be elevated to a new status," says Eizenberg. "But we didn't want a structure that cushions or patronizes seniors, so we deliberately avoided pastel colors and gables—the clichés that make institutional environments look homey."

To achieve an appropriate balance of civic stature and human scale for the Edwards Center, the architects took cues from Santa Monica's WPA Moderne city hall a few blocks away. A variation of the city hall's cooling tower crowns the center's main entry pavilion, and windows reminiscent of the 1938 structure punctuate the stucco facade.

Obvious references to Frank Gehry's work are also evident. But, as Eizenberg remarks, "Which young architect practicing in L.A. isn't influenced, as well as intimidated, by Frank?" The Edwards Center is, in fact, located across the street from Gehry's 1980

Fronting Fourth Street, the Edwards Center (preceding pages) is broken down into an assemblage of varied forms. A steel and glass canopy (facing page, top and bottom left) marks the main entry and an open stairway (facing page, bottom right) leads to a second-story courtyard (top left) filled with miniature constructions (center left). Koning Eizenberg's variegated composition sits atop two levels of below-grade parking (section).


KEN EDWARDS CENTER
FOR COMMUNITY SERVICES
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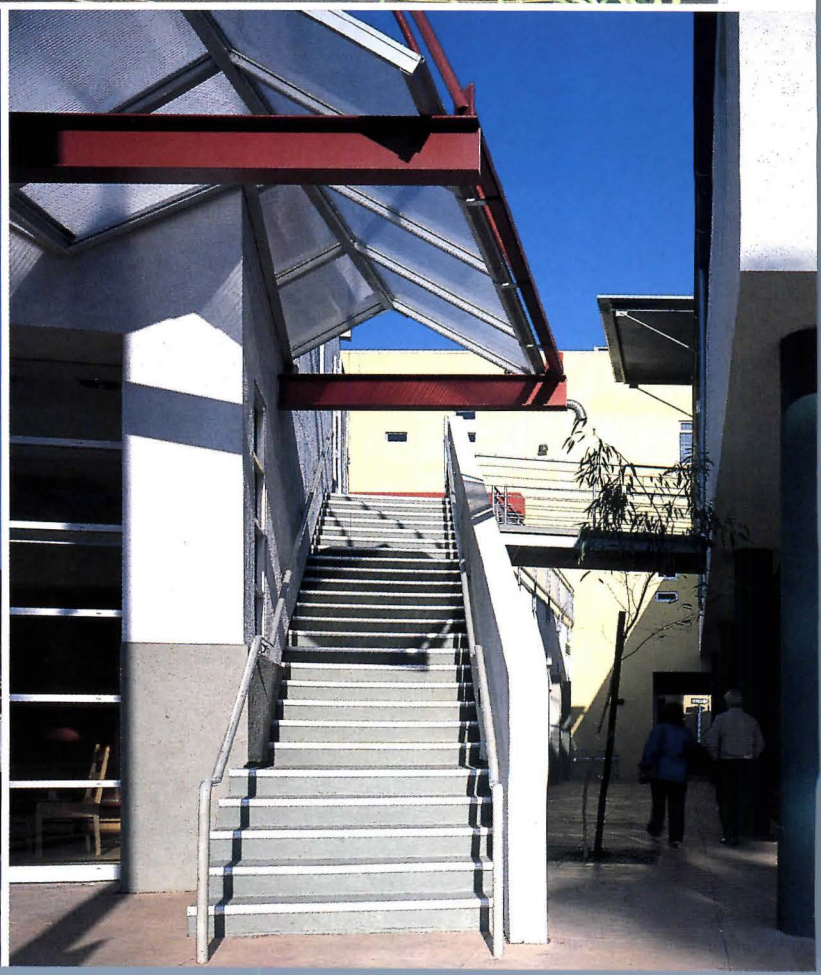


Santa Monica Place shopping mall. Attempting to synthesize the Los Angeles tradition of the individual building with the integrity of a continuous street line, the architects incorporated setbacks and canopies without creating a freestanding object oblivious to its surroundings. They skewed the central pavilion to emphasize its civic function and create an inviting public entrance. This central element appears to be a self-contained unit devoted to a single function from the outside, but in reality it accommodates public outreach services and administrative offices.

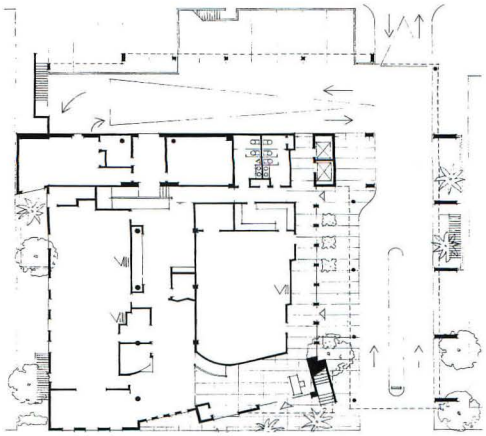
For staff and regular clients, an open stairway rising off the street leads directly to a central courtyard that provides access to the various agencies scattered throughout the wings. Four meeting rooms open directly onto the courtyard to encourage interaction between indoors and out. Extending along the southeast portion of the site, a narrow, barrel-vaulted volume is positioned almost like a freestanding structure. Carved away from the rest of the building, the elevated wing shelters an auto drop-off at a secondary, street-level entrance. Unfortunately, this arrangement requires cars to pull up with the driver's side fronting the entry, causing some problems for disabled passengers.

The Edwards Center clearly reflects its time and place. And, like Koning Eizenberg's earlier projects rooted in the traditions of Schindler and Neutra, the Edwards Center, with its assemblage of cubic, unadorned forms, captures many of the same understated references to the Modernism that continues to flourish in Los Angeles. ■

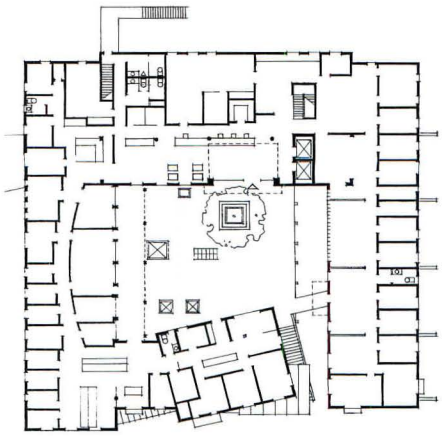
—Lynn Nesmith

KEN EDWARDS CENTER FOR COMMUNITY SERVICES
SANTA MONICA, CALIFORNIA

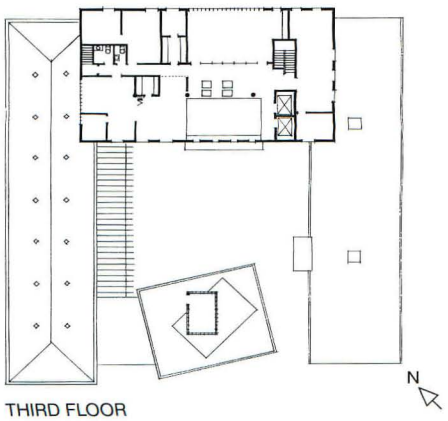
ARCHITECT: Koning Eizenberg Architecture, Santa Monica, California—Hank Koning, Julie Eizenberg (principals); Stuart Emmons (project architect); Dion McCarthy, Tim Andreas, Chris Hendricks, Susan Stevens (design team)
ENGINEERS: Hu Associates (civil/soil); Freet, Yeh & Rosenbach (structural); Savelle & Rothstein (mechanical/electrical)
CUSTOM FURNITURE FABRICATOR: Roy McMakin, Domestic Furniture
GRAPHICS CONSULTANT: Norlen & Associates Design
GENERAL CONTRACTOR: M. H. Golden
COST: $4.2 million
PHOTOGRAPHER: Tim Street-Porter



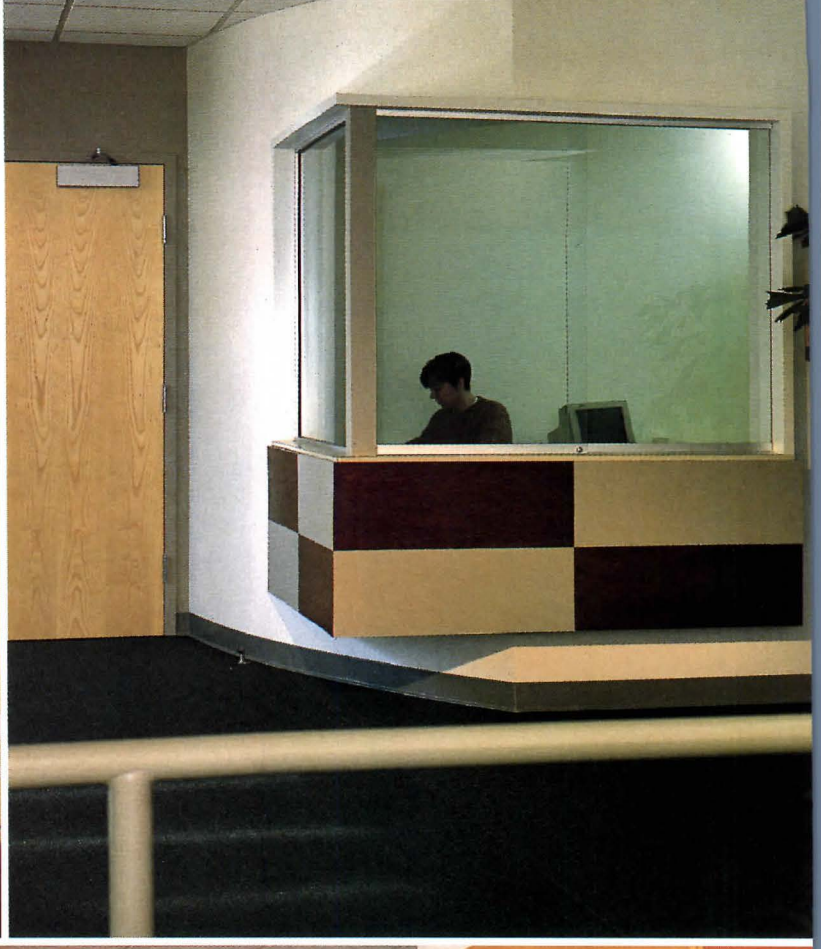
GROUND FLOOR



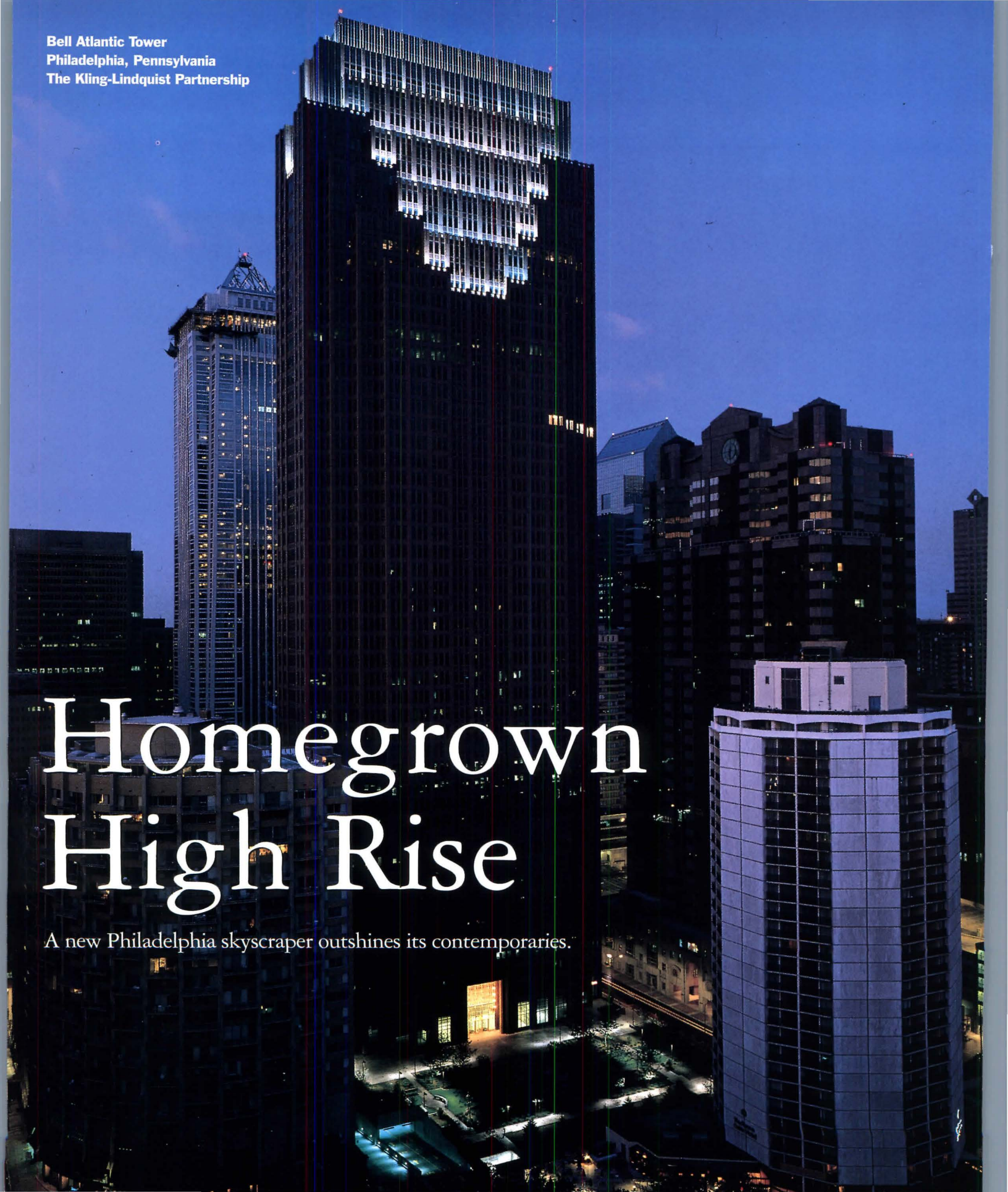
SECOND FLOOR



THIRD FLOOR



Outdoor walkway (facing page, top left) and interior hallway (facing page, top right) are placed parallel to the driveway. Senior agencies share a double-height reception area (above) off the courtyard. Ground floor (right) is staffed to provide information (top right) on community services.



Bell Atlantic Tower
Philadelphia, Pennsylvania
The Kling-Lindquist Partnership

Homegrown High Rise

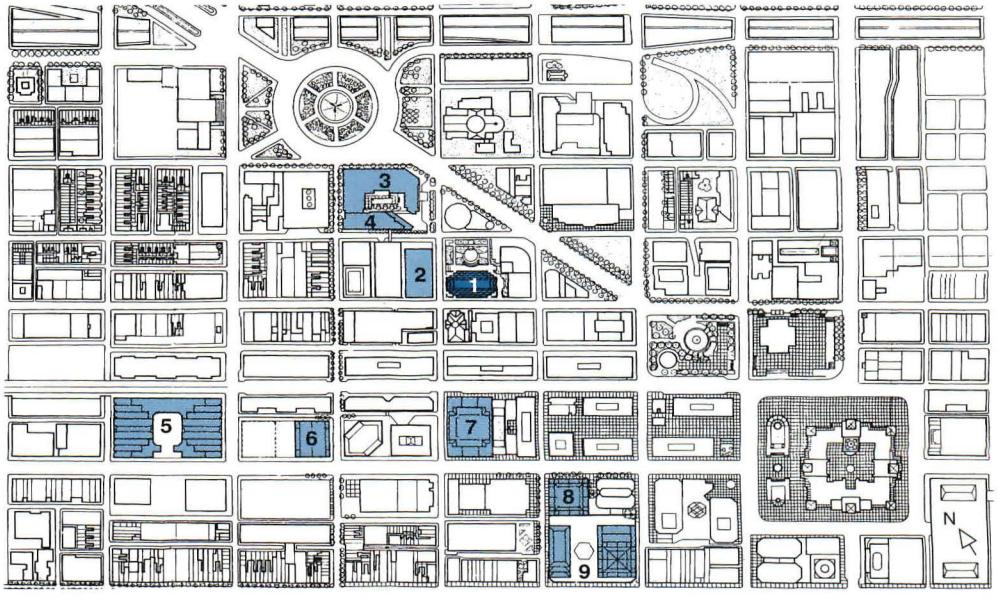
A new Philadelphia skyscraper outshines its contemporaries.

FOR SOME, THE MOST APPEALING PART OF the recently completed Bell Atlantic Tower is its warm red granite surfaces. For others, it's the stepped profile that evokes Art Deco skyscrapers of the 1920s and '30s. And just about everyone is fascinated by the cascading "waterfall" of light that brightens the night sky for homebound commuters. Together, these elements constitute the most talked-about new office building in Philadelphia since 1987, when Helmut Jahn's 61-story One Liberty Place broke the height limit set by William Penn's hat atop City Hall.

At 53 stories, Bell Atlantic may not be the city's tallest building, but it is the best of a recent crop of towers that includes buildings by Pei Cobb Freed and Kohn Pedersen Fox. Even Edmund Bacon, the former city planning director who has been a vocal opponent of buildings that break the city's informal 491-foot height limit, believes that the way the 725-foot-high structure meets the sky is "quite successful" and a "welcome contrast" to neighboring point towers.

Bell Atlantic is also the first of Philadelphia's half a dozen recent high rises to be designed by a local architect, and in many ways the tower marks a new direction for the firm that designed it. The Kling-Lindquist Partnership is a successor to the office founded in 1946 by Vincent G. Kling, a leading designer of office buildings in Philadelphia's Penn Center during the 1960s and '70s. And although it is the city's largest architecture engineering firm, the 500-person practice was initially left out of the latest high-rise building spree as label-conscious developers turned to out-of-town designers. Even before Kling's retirement in 1987, however, principals began emphasizing the "A" side of the A-E equation to become again the firm of choice for prestigious local commissions.

Design principal Bradford White Fiske, who joined Kling-Lindquist in 1985 after five-and-a-half years with Cesar Pelli & Associates, says he set out to create a tower that responds to the architectural traditions of



1 BELL ATLANTIC TOWER, THE KLING-LINDQUIST PARTNERSHIP, 725 FEET, COMPLETED IN 1990
2 TWO LOGAN SQUARE, KOHN PEDERSEN FOX & ASSOCIATES, 466 FEET, COMPLETED IN 1988
3 FOUR SEASONS HOTEL, KOHN PEDERSEN FOX & ASSOCIATES, 396 FEET, COMPLETED IN 1983
4 ONE LOGAN SQUARE, KOHN PEDERSEN FOX & ASSOCIATES, 396 FEET, COMPLETED IN 1983
5 COMMERCE SQUARE WEST TOWER, PEI COBB FREED AND PARTNERS, 558 FEET, COMPLETED IN 1987
6 1901 MARKET STREET, WZMH GROUP, 626 FEET, COMPLETED IN 1990
7 MELLON BANK CENTER, KOHN PEDERSEN FOX & ASSOCIATES, 827 FEET, COMPLETED IN 1991
8 ONE LIBERTY PLACE, MURPHY/JAHN, 850 FEET, COMPLETED IN 1987
9 TWO LIBERTY PLACE, MURPHY/JAHN, 806 FEET, COMPLETED IN 1990

The Bell Atlantic Tower has become an instant landmark on the Philadelphia skyline, with a waterfall of light at its top (facing page). By day, the imperial red granite exterior (top right) and step-slab configuration (top left) distinguish it from other new downtown high rises. The building features 35 different roof surfaces, including the highest outdoor observation decks in the city. Silver aluminum tracery at the top catches light and forms an ornamental crown.

Philadelphia, reflects the dignity of his telecommunications client, the Bell Atlantic Corporation, and forms a strong symbol on the skyline. Fiske had the advantage of familiarity with plans for nearby high rises. "The other new buildings going up were cool and reflective," he maintains. "They missed the city's sense of tradition."

The Bell Atlantic headquarters stands out largely because it is different from its neighbors; it is red in color rather than blue or gray. It is a step-slab building with a flat top, rather than a point tower capped by a spire. It is more sculptural than its office contemporaries, with serrated edges and a top fashioned from a series of terraced setbacks that culminate in a light, glass-intensive crown, which produces the nightly cascades of light.

The tower has been likened to everything from a harmonica standing on end to 30 Rockefeller Plaza, and the east-west profile bears a striking resemblance to Eliel Saarinen's second-place-winning entry in the 1922 Chicago Tribune Tower competition. Though clearly a Modern building, Bell Atlantic successfully echoes the imagery of older city landmarks—Suburban Station and the Drake Hotel, and the coloration of the former YMCA building. The flashy glass tower of Jahn's One Liberty Place may have paved the way for high rises near City Hall, but Bell Atlantic is more sedate, more dignified, more Philadelphian in expression.

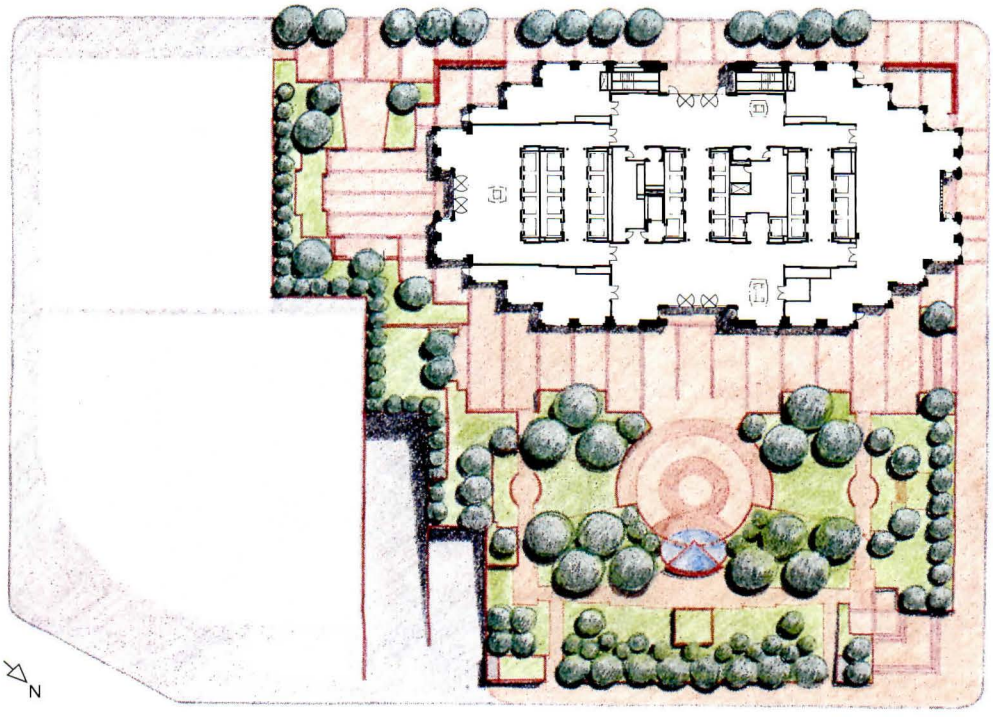
If the tower has a shortcoming, it is the way its plaza addresses the street. In 1988, the local firm Geddes Brecher Qualls Cunningham issued planning guidelines recommending that Philadelphia's new buildings be constructed out to the street to maintain the continuity of the street wall, and that open spaces should be intentionally designed as positive presences, rather than as leftover spaces between buildings. But the plaza of Bell Atlantic Tower, whose design was essentially set before GBQC's recommendations were released (and was limited by restrictions on new construction within 200 feet of the Benjamin Franklin Parkway), is an uncontained space that does little to enhance the streetscape. Pei Cobb Freed's nearby Commerce Square, on the other hand, makes the transition from skyline to sidewalk with a high level of articulation and finesse.

Despite this flaw, Bell Atlantic has upped the ante for high-rise architecture in Philadelphia—while providing a hint of what's to come from Kling-Lindquist. "I don't think we did a better job because we were local," Fiske claims. "I think we did a better job because we paid more attention to the important factors that make up the city—site, history, and tradition. A brief flash of notoriety is not nearly as satisfying as a building that looks good over a long time." ■

—EDWARD GUNTS

Edward Gunts is the architecture critic for The Baltimore Sun.

Although Bell Atlantic's height was not a particularly sensitive issue (developer Willard Rouse's One Liberty Place broke the city's informal height limit in 1987), Kling-Lindquist considered the building's proximity to Benjamin Franklin Parkway to the north. City zoning ordinances, written to protect the beauty of the parkway, require buildings above 230 feet to be set back 200 feet from the parkway's median, and for any buildings within 200 feet of the parkway to undergo a time-consuming review process. By serrating the edges of the tower's northeast corner, the architects kept the envelope outside the 200-foot setback line, maintaining the orthogonal grid of the city while acknowledging the parkway's diagonal. Serrations were repeated on the other three corners of the tower, resulting in a symmetrical footprint (plan, below), which provides up to 16 corner offices per floor. As seen from Arch Street (facing page, left), the tower's east facade is quite thin, while the north facade presents a much wider profile to frame the landscaped outdoor plaza (facing page, top right). Spandrel accents of honed granite and entrances of polished granite (facing page, top) break down the massing. Inside (facing page, bottom right), bands of white and red marble in the lobby emphasize the horizontality of the space, accented by bronze and etched glass. Walls and entranceways echo the theme of setbacks and serrated edges on the exterior.



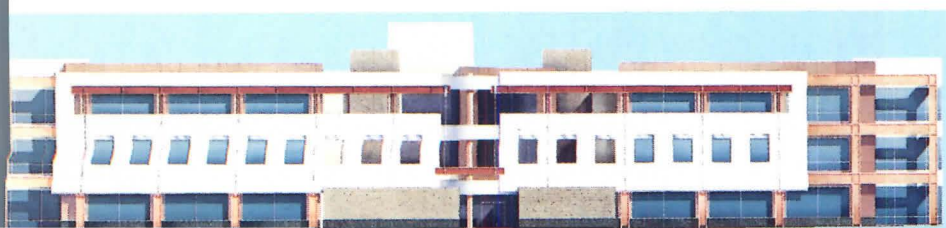
BELL ATLANTIC TOWER
PHILADELPHIA, PENNSYLVANIA

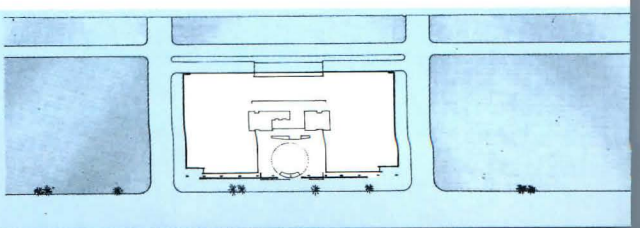
ARCHITECT: The Kling-Lindquist Partnership, Philadelphia, Pennsylvania—Bradford Fiske (design principal); John Rutkowski (senior managing principal); Richard Farley (project manager); David Doelp (project architect); Thomas Hoos, Joseph Reagan, David Colman, Alfred Bell, David Bader, Witold Wituchowski, Christopher Silver, Paul Neyhart (project team)
ENGINEERS: CBM Engineers, Inc. (structural); Cosentini Associates (mechanical/electrical)
CONSULTANTS: John A. Van Deusen and Associates (elevators); Cosentini Lighting, Inc. (lighting); Swenson Stone Consultants (stone)
GENERAL CONTRACTOR: Turner Construction Company
PHOTOGRAPHER: Timothy Hursley / The Arkansas Office

Columbia Savings and Loan Buildings
Beverly Hills, California
Skidmore, Owings & Merrill/Los Angeles

Street Scenes

Two office buildings perform leading roles on a Los Angeles boulevard.



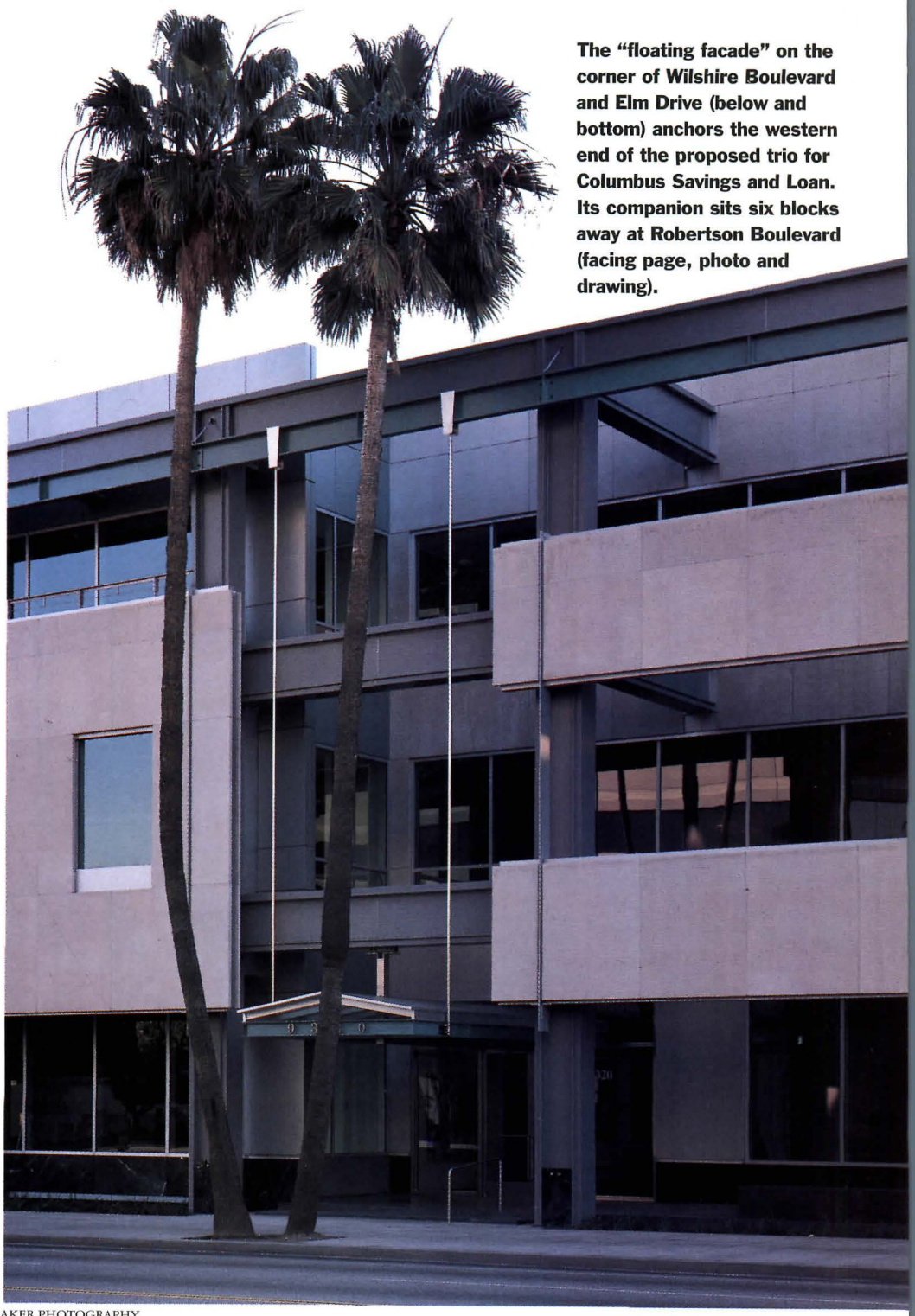


LIKE FOOTAGE FROM A FILM ABOUT LOS Angeles, the pair of buildings for Columbia Savings and Loan in Beverly Hills appears as a sequence composed in a movie camera's viewfinder. In longshot, the pair presents a continuity in the 17-mile stretch of Wilshire Boulevard, the major urban spine that connects downtown Los Angeles with Santa Monica. Seen in midshot, the buildings compose a sequence in the street wall of Beverly Hills' business district, as seen from a moving car. In close-up, each structure is a vivid still photo, rich in detail and incident.

Set six blocks apart, the two buildings were designed by the Los Angeles office of Skidmore, Owings & Merrill as part of a trilogy stretching from the corner of Robertson Boulevard to Elm Drive on the south side of the boulevard. The structure at Robertson Boulevard was never built, due to the financial difficulties that have beset many savings and loan institutions. Set between Lapeer Drive and Almont Drive, the headquarters for the now-bankrupt Columbia Savings and Loan Company is the centerpiece of the planned trio. The smallest unit, on Elm Drive, anchors the western end of the series.

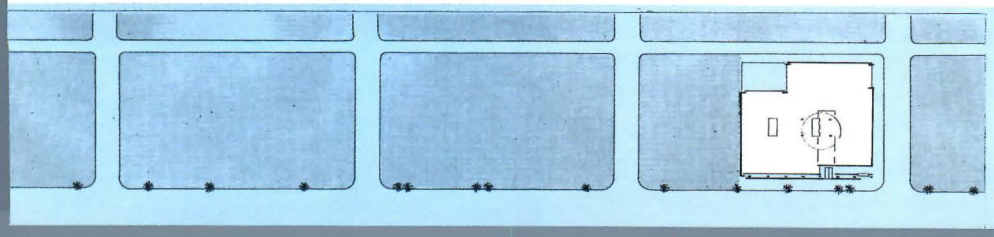
Both buildings are modest, limited by the three-story height limit imposed by the city of Beverly Hills. They are surrounded by car showrooms and architecturally mediocre office buildings, including several black, glass-clad 1970s mid-rises. The only structure of comparable design intelligence in the vicinity is the Kate Mantilini restaurant designed by Morphosis, situated between the Columbia Savings and Loan pair, on the opposite side of the street. Backing the commercial strip are residential streets lined with typical Spanish Colonial Revival houses, sprouting red-tiled roofs and white walls.

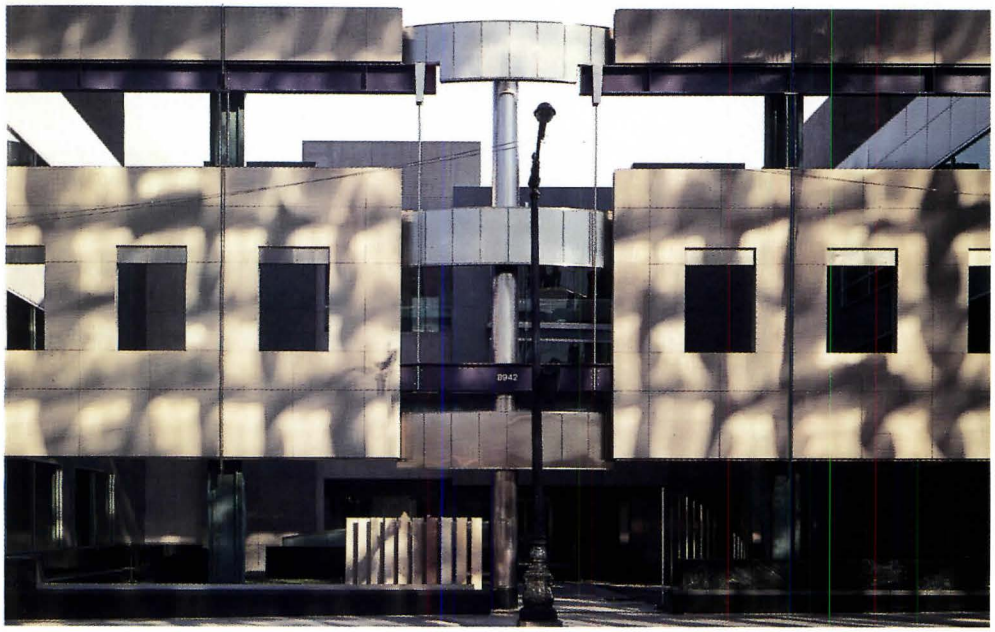
"The buildings are meant to read scenographically, as floating facades, skin-deep movie-set 'flats' over which the eye may slide in passing," says former SOM principal Richard Keating, who designed the pair in 1987. "They present a series of limestone screens fronting conventional office buildings, like fragments with crisply defined cor-



The "floating facade" on the corner of Wilshire Boulevard and Elm Drive (below and bottom) anchors the western end of the proposed trio for Columbus Savings and Loan. Its companion sits six blocks away at Robertson Boulevard (facing page, photo and drawing).

AKER PHOTOGRAPHY





ners, edges, and planes." Through the subtle use of detail and incident, of colors and textures, Keating and his design team scripted the story line for a lively movie about Los Angeles's evolving urban streetscape. The style of the architecture in both Columbia Savings and Loan buildings might be described as Modernism with a twist. The formal systems of columns, beams, and wall planes are functional, but the eclectic mixture of finishes applied to this lean skeleton creates a lively patchwork of color and texture.

In plan, the Lapeer and Elm Drive buildings are simple rectangles filling out their lot lines. To contain three stories within a floor-area ration of 2:1, Keating scooped out segments of each block, architectural voids he describes as "erosions."

In the Lapeer building, the scoop creates an entrance courtyard behind the flat front screen wall. Office areas flank a central lobby and elevator bank. Entrances to the rear delivery bays and four levels of underground parking are placed on the side streets, at either end of a narrow back terrace. Keating lavished a great deal of thought on the design of the building's front wall and adjacent courtyard. If "God is in the details," SOM's details are Divine.

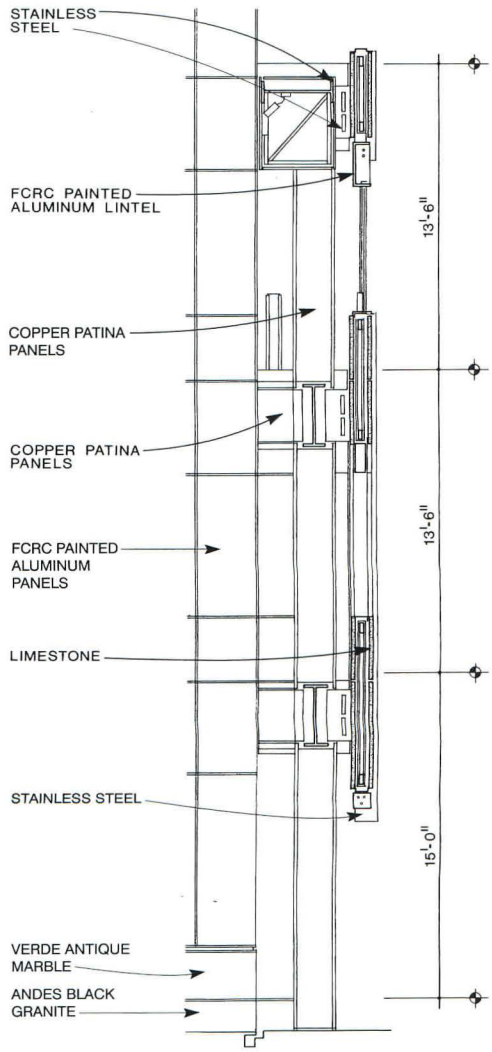
The detached front screen, held away from a conventional cladding of glass curtain wall, is hung on the bones of an exposed structural steel frame. These steel beams and columns, sheathed in greenish oxidized copper, support panels of French limestone with open joints to signal their non-loadbearing function. The limestone panels stop short of the open corners—two bays short at the western edge of the building, one bay short at the eastern end.

Another gap in the limestone screen occurs at the main entrance. Flanked by a pair of slightly bedraggled, iconic palm trees, the street-edge entrance is marked by a single stainless column supporting curved spandrels. These spandrels recall the curves of streamlined Modern architecture popular in Los Angeles in the 1930s.

"Since I'm relatively new to Los Angeles," Keating comments, "I carefully gathered clues from the street facades of the city's commercial architecture. By using elements of both historic and current mannerisms, I hoped to conjure up visual memory without lapsing into parody."

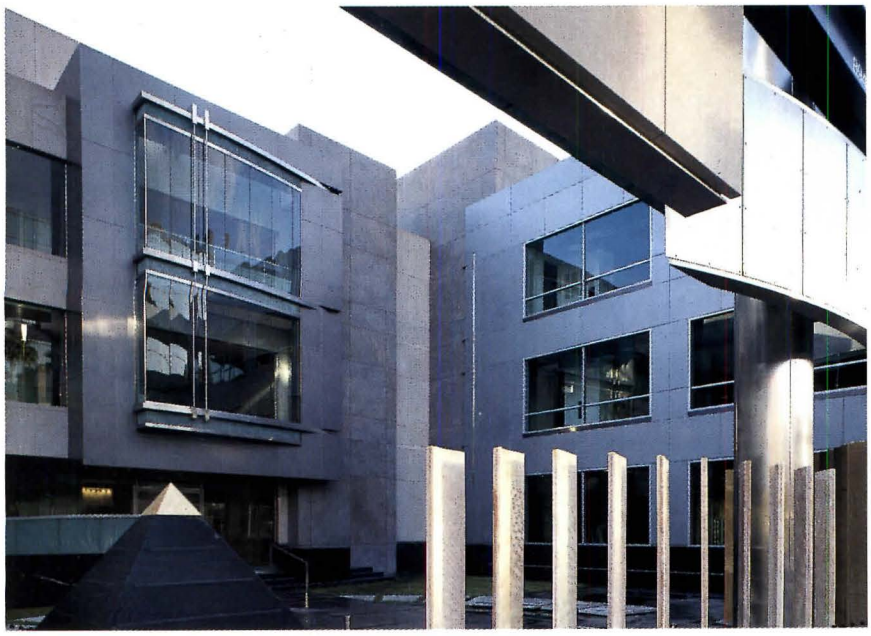
Beyond the entrance, the courtyard is a walk-through artwork complete with fountains designed by sculptor Eric Orr, shallow pools, and a circle of polished granite stepping stones. The centerpiece, dubbed by local wits "Tom Speigel's tomb," after the for-

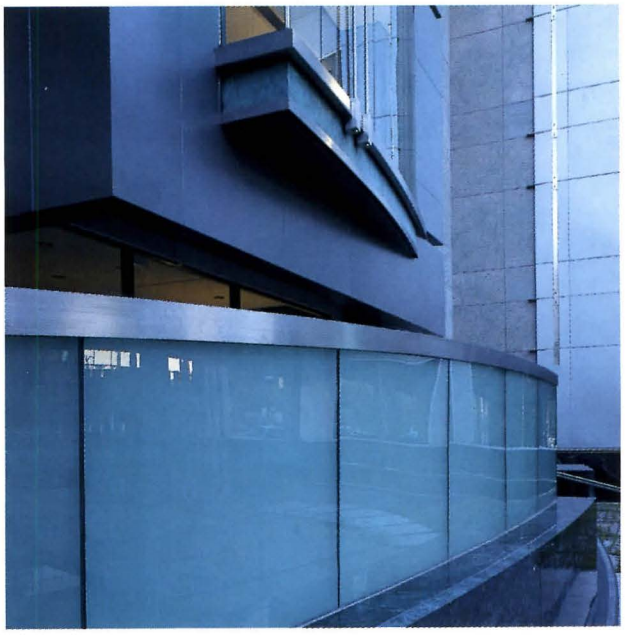
The Columbia Savings and Loan building between Lapeer Drive and Almont Drive (top left) features a limestone screen wall projected forward from the main facade. Constructed as a movie set flat (top right), the screen wall continues the urban scenography of Wilshire Boulevard. To create a sense of layering and emphasize the two-dimensional character of the front facade, the screen stops short of the corners of the building, revealing the copper-clad structural steel frame that supports it (facing page).



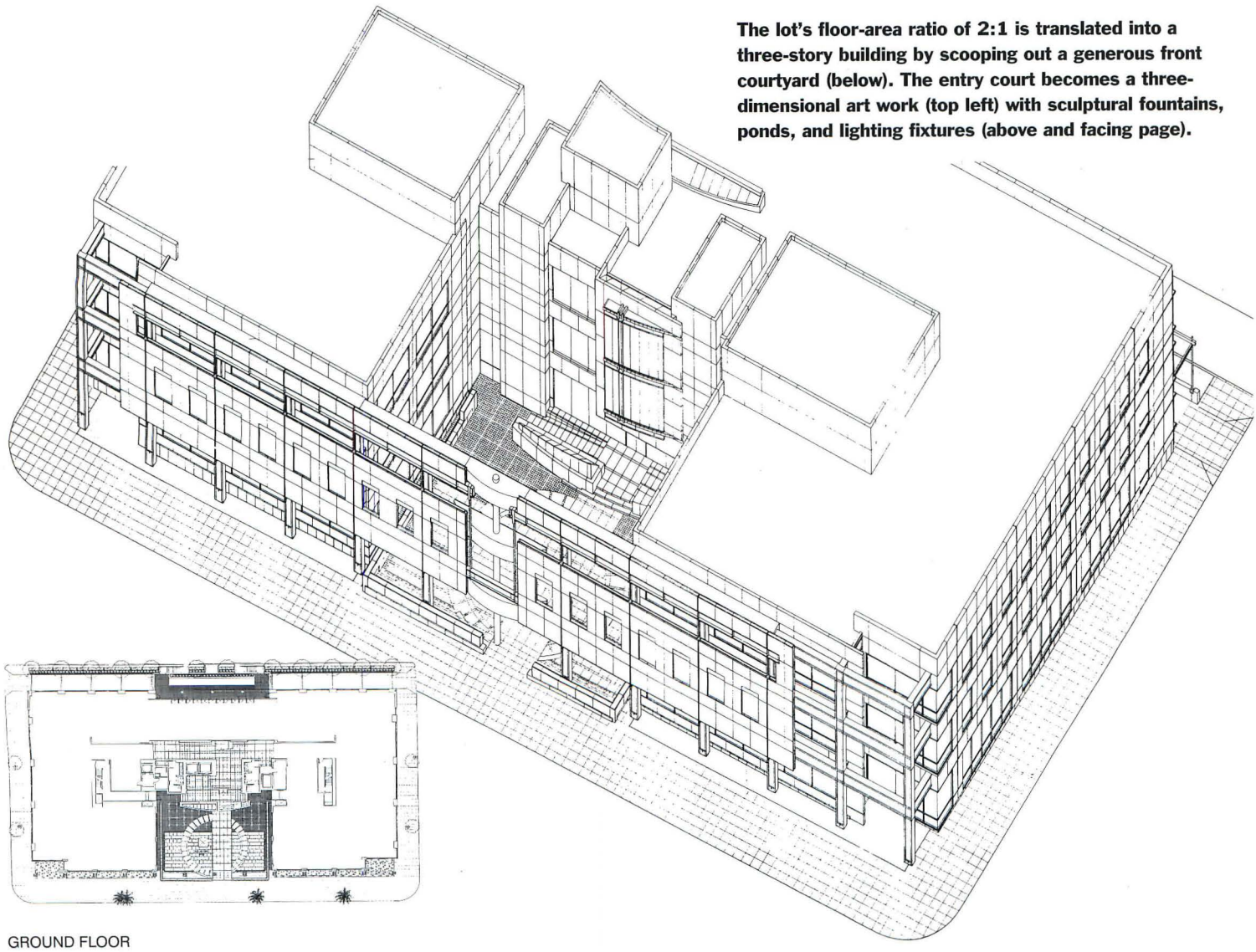
WALL SECTION


ALMONT DR.
WILSHIRE BLVD.





The lot's floor-area ratio of 2:1 is translated into a three-story building by scooping out a generous front courtyard (below). The entry court becomes a three-dimensional art work (top left) with sculptural fountains, ponds, and lighting fixtures (above and facing page).



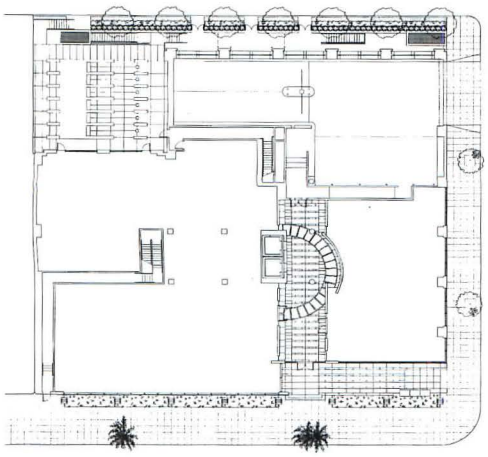
GROUND FLOOR

AKER PHOTOGRAPHY (THESE PAGES)

mer chairman of Columbia Savings and Loan, is an Orr-designed water pyramid topped with gold. The rear of the building's front screen, as viewed from the courtyard and surrounding windows, deliberately reveals its ad-hoc, movie-flat character, with its supports exposed.

The immense care taken with details extends into the lobby. Junctions of glass, metal, and stone convey a Modern simplicity reminiscent of Richard Neutra, but more finely crafted, thanks to the technological refinements that have been achieved since the Viennese master's time. Subtle details, such as stainless steel cables in the glass front wall, which reduce beam sizes, add verve to an essentially straightforward commercial interior.

After the richness and subtlety of the Lapeer building, the Elm Drive unit is relatively straightforward. The same design strategies apply, including a floating, eroded limestone screen hung on a structural steel frame, but the details are less lavish. The steel beams and columns, for instance, are not copper-clad but painted. The building's corner setback exposes an awkward stretch of glazing that allows visitors to peer deep into a section of the office space. A semicircular volume in the lobby fronting the elevators, intended to echo the corner rotunda of the unbuilt third building, now seems arbitrary.



GROUND FLOOR

The absence of the Robertson Boulevard building robs the Columbia Savings trilogy of its eastern anchor, and much of its visual impact. Since Robertson marks a bend in Wilshire Boulevard and creates a gateway to the city, this unbuilt structure was crucial to the architects' urban intentions. Before financial problems forced its cancellation, the Robertson building was intended to be the S&L's headquarters; its design possesses a certain grandeur that would have added to the visual excitement and urban coherence.

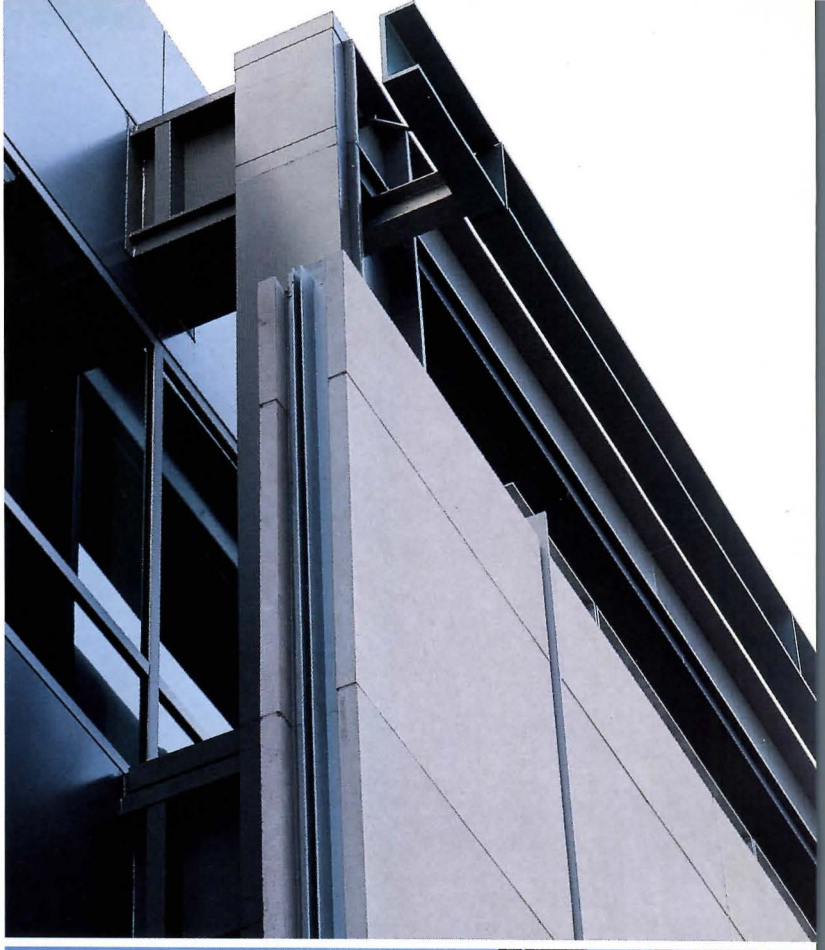
Nevertheless, the level of intelligence and visual wit displayed in both Columbia Savings and Loan buildings is far superior to the general run of commercial structures in Beverly Hills. For this reason, they may be too sophisticated for their own good in terms of rentability, too "architectural" for a rich little city that is in reality the world's most expensive suburb. But, for the enlightened observer, they light the way to an urbane evolution of Angeleno street-edge architecture. ■

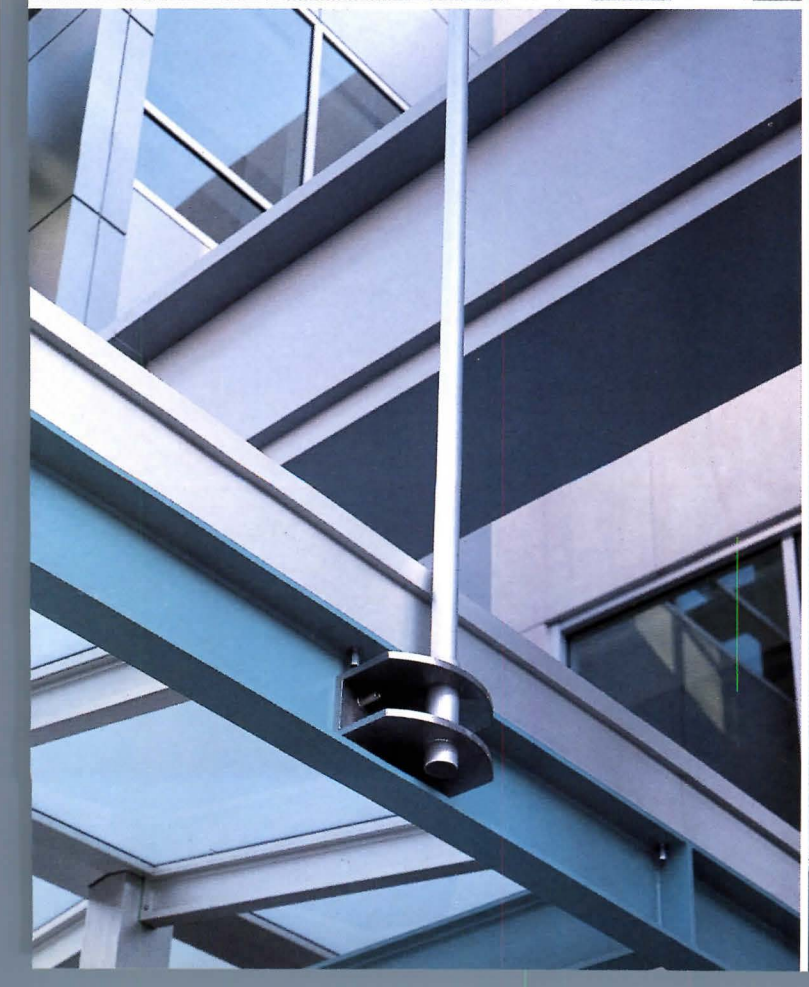
—LEON WHITESON

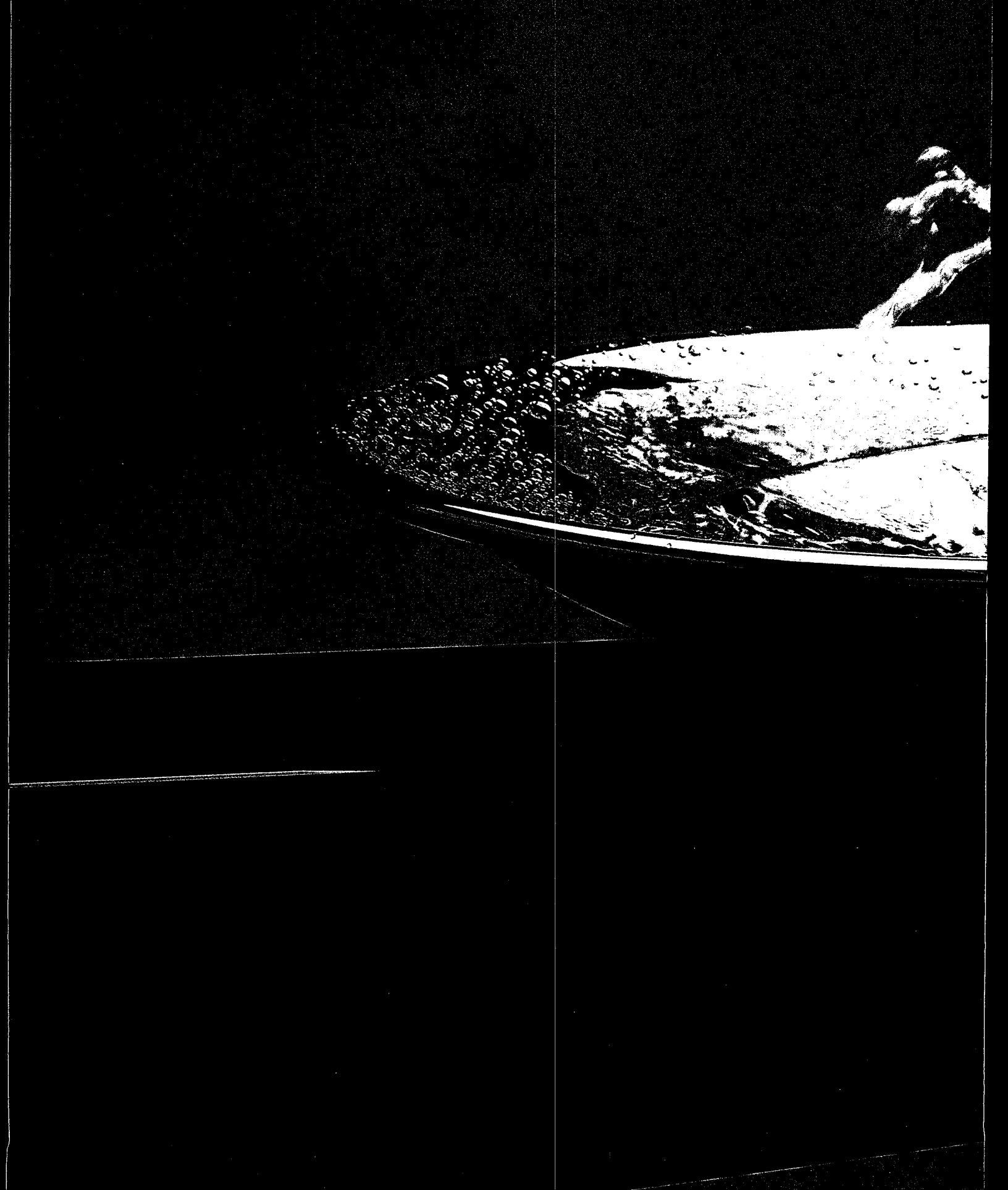
More restrained in its detailing (facing page), the Elm Drive building (above) makes its mark in a context of architecturally mediocre Beverly Hills office buildings and car showrooms. As with its Lapeer counterpart, the design is envisioned as a street edge made up of "fragments with crisply defined corners, edges, and planes," according to Richard Keating. Here, entrance canopy (facing page, bottom left) and floating, eroded limestone screen hang from a structural steel frame (facing page, bottom right). Steel beams and columns are not copper-clad but painted (facing page, top left and right). The corner setback allows visitors to peer into a section of the office space (facing page, top left). A semicircular volume in the lobby (plan), intended to echo the corner rotunda of the unbuilt Robertson Boulevard building, now seems arbitrary.

COLUMBIA SAVINGS AND LOAN BUILDINGS
BEVERLY HILLS, CALIFORNIA

ARCHITECT: Skidmore, Owings & Merrill, Los Angeles, California—Richard Keating, FAIA (design principal); Paul Danna, AIA, Jose Palacios, AIA, David Epstein, John Kaliski, AIA (senior designers); Bill Gerstner, AIA (technical coordinator); Michael Mann, AIA (project manager)
LANDSCAPE ARCHITECT: SOM
ENGINEERS: SOM (structural); Syska & Hennessy (mechanical/electrical); Psomas (civil)
CONSULTANTS: Cerami & Associates (acoustical); Claude Engle (lighting)
GENERAL CONTRACTOR: Koll Construction Company
PHOTOGRAPHER: Richard Barnes, except as noted







INFO

TECHNOLOGY & PRACTICE

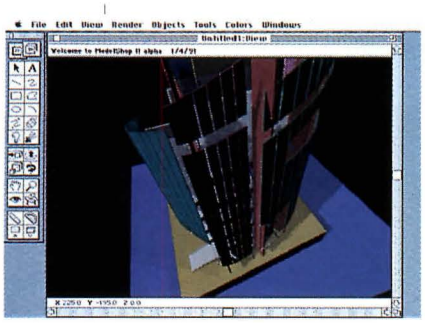
Denver's new airport terminal (left) will be covered by a fiberglass roof (right).

Stretching the Limits of Fabric Roofs

CURRENTLY UNDER CONSTRUCTION AND EXpected to be completed in October 1993, the Landside Terminal Complex at Denver's new International Airport will be covered with an innovative tensile roof system. Designed by C.W. Fentress J.H Bradburn and Associates, the Teflon-coated fiberglass membrane will span up to 210 feet. The fabric will be mechanically fastened to cables supported by steel columns spaced 150 feet apart and set 30 feet in from the building envelope. At its highest elevation, the roof will stand 120 feet above the main terminal floor level. To save on lighting costs, the main terminal is expected to require no artificial lighting during daylight hours, since the roof will transmit from 8 to 11 percent of natural light to the interior. Two independent layers of fabric (an outer, waterproof membrane and a vapor-permeable inner layer) will be separated by a 16-inch insulating airspace to reduce HVAC loads. The geometry of the roof, which encloses 1.45 million square feet of floor space, resolves snow load considerations by sloping peaks to interior drains at the valleys. The roof also echoes the snow-capped Rocky Mountains, visible from inside the terminal through a 75-by-150-foot glass wall.

Macworld Exposition Introduces New Software

THIS JANUARY, THE MACWORLD EXPO IN SAN Francisco demonstrated that even demanding architects are now well-served by Mac technology. More than 30 CADD software companies and dozens of hardware manufacturers displayed their products. Macintosh products may never catch up to those on DOS and Unix platforms for drafting and production, but older 3D modelers, like Architrion and ArchiCad, are improving their ease of use and quality of visualization. The Modelshop II upgrade features rendering, shadows, animation, and view and object libraries (above). The new Virtus WalkThrough displays a space in perspective as you design it, and lets you wander through rooms in real time. An important trend revealed at this show was the increased ability to transfer files between systems. Connectivity hardware from Dayna Communications and file-translation software from DataViz allow files to be exchanged between Macintosh and DOS environments. More 3D modelers limited to displaying flat shading can also now export files to rendering software such as MacRenderman, which adds material textures, shadow casting, and lighting effects. Estimates of those attending the show hovered around 50,000. Judging from the popularity of displays for CADD-related products, that included many enthusiastic architects. ■

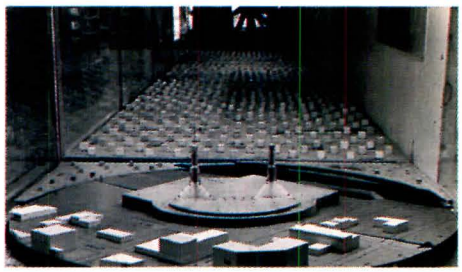


Standards Update

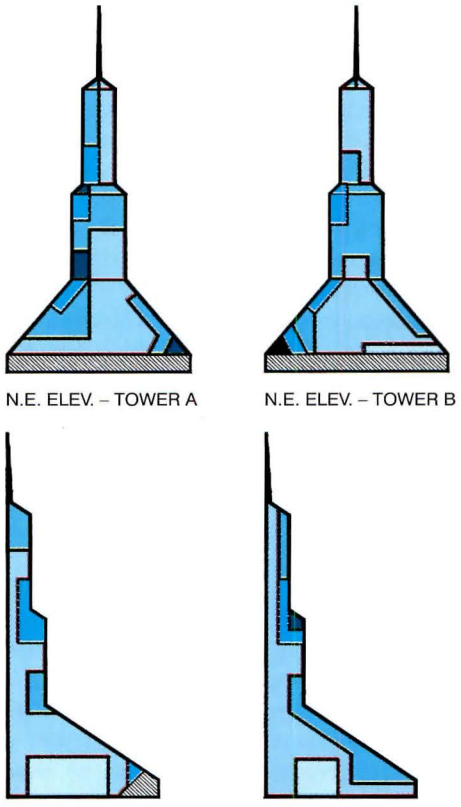
Responding to increased specification of clay roof tile over the last decade, The American Standards for Testing Materials (ASTM) recently published the first standard for this type of roofing material; it is entitled Standard Specification for Clay Roof Tile (ASTM-C 1167). Before the standard was issued in February, specifiers had to rely solely on manufacturers' literature and on loosely defined model building code requirements. The new guideline is created to aid architects in selecting the most appropriate tile for a given region and function. It classifies tiles according to three grades based on resistance to freeze-thaw cycles. Three types of clay roofing tile, categorized by their geometry, have also been established. Specifications for strength testing, material finish, texture, and color are also defined. For more information contact ASTM: 215-299-5585.

The American National Standards Institute (ANSI) will host the first joint International Organization for Standardization (IOS)/International Electrotechnical Commission (IEC) seminar to address environmental standardization issues at ANSI's 1991 conference April 9-11 in Reston, Virginia. Current environmental standards and possible future solutions to ecological concerns will be discussed in four categories: environmental quality (air, soil, water); clean transport (alternative fuels); energy efficiency (renewable sources such as the sun, and reducing light, heat, and power consumption levels); and environmental labeling (assessing life cycles of building products from development to disposal). New strategies and technologies to speed the development of ecology-related standards will also be addressed. The deadline for registration is March 25, 1991. For more information contact ANSI: 212-354-3300.

The effects of wind on the towers were tested in a Canadian wind tunnel (top right). The 1:200 scale model is surrounded by similarly reduced versions of neighboring buildings. The tests established recommended design wind loads, in pounds per square foot (psf) necessary for glazing each face of the towers to withstand both peak negative and positive pressures due to 100-mph-winds in this location. The architects designed all cladding according to the single highest recommended value. The diagrams (center right) indicate that the various positions of the similarly constructed towers respond differently to the wind. Light in appearance, each tower is vertically supported by three slender freestanding columns and tied horizontally into the adjacent roof diaphragm (section). Without this connection, the columns would have had to be designed as more massive structural elements to resist lateral loads.



Recommended Design Wind Loads for Peak Negative Pressures (psf)



with their stainless steel cladding before being lifted into place. A right triangle in cross-section, each mast tapers from 2 feet along the legs of its base to 6½ inches at its apex.

Due to their slender profiles and close proximity to one another, the towers were critically evaluated to determine their performances under wind loading. Wind-tunnel tests were undertaken by microclimate specialists Rowan Williams Davies & Irwin (RWDI) of Guelph, Ontario, to ascertain the distribution of surface pressures over the entire curtain wall and maximum deflections of the structures due to lateral loads. The tests assumed a 100-mile-per-hour wind speed, which statistically occurs in Portland only once every 50 years.

Surface wind pressures did not pose a problem. Measurements for both peak positive (inward) and peak negative (outward) pressures were easily accomplished in the lab and, though varying noticeably across both towers, were within an acceptable range. The entire glazing system was designed according to the single highest recommended design wind load as was determined by the test. More complicated, however, was the testing of the towers' deflections and subsequent adjustments.

Unlike rigid mock-ups that are built to test surface pressures alone, the model for the convention center wind-tunnel test had to simulate, at a reduced scale, the structural properties of the building itself so that deflection could be measured. While a miniaturized skeletal frame can duplicate the movements of its life-size counterpart, a scaled-down version of a glass skin cannot. As a result, the towers had to be tested for deflections twice—in the lab before construction and in the field afterward.

Under gusting wind conditions, movements no greater than a foot at the top were considered acceptable for these uninhabitable towers. Based on the structural model's measurable sway, RWDI determined that deflections would be acceptable if the curtain wall provided a damping ratio of 5 percent—in other words, the cladding needed to absorb enough energy each time its tower swayed to reduce each subsequent oscillation by 5 percent. The absorption capacity of the glazing system, however, could not be determined until the vibrational characteristics of the finished, fully clad towers were tested in the field.

In case the cladding proved insufficient, the prudent engineers developed an alternative method to stiffen the structures. During

initial fabrication, designated hollow tube sections that were destined for the top of the space frame were drilled with holes and sealed at either end with plates so that, if necessary, they could be filled with sand to increase the overall mass of the towers. Only the masts, which would have been too difficult to reach after their erection, were filled with sand during the initial installation.

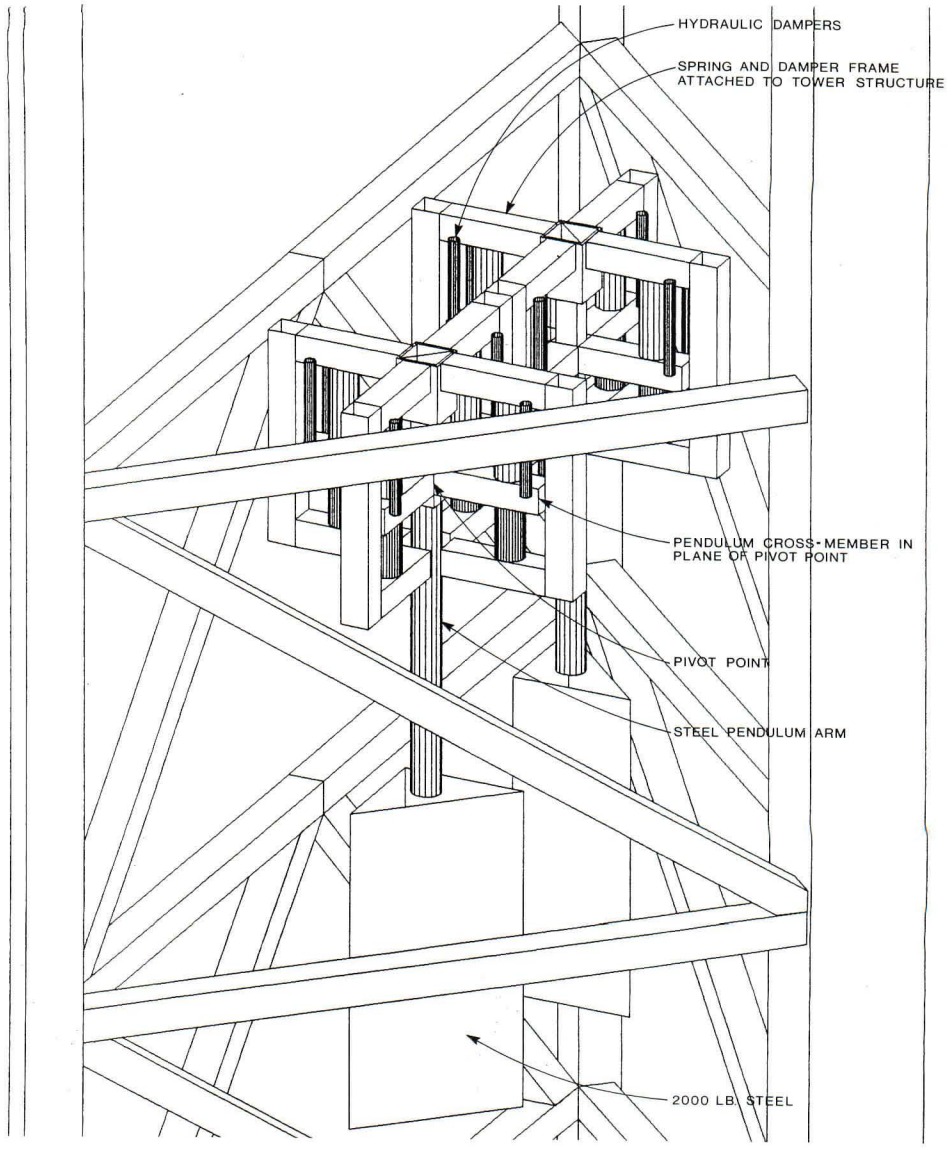
Onsite tests indicated that the glass provided so little of the necessary damping that sand would not make a significant difference in the sway of the towers; therefore, none was added. The architects were forced to turn to a mechanical solution: RWDI designed four tuned mass dampers, two per tower, which were hung like pendulums inside the upper towers and painted white to blend in with the structure.

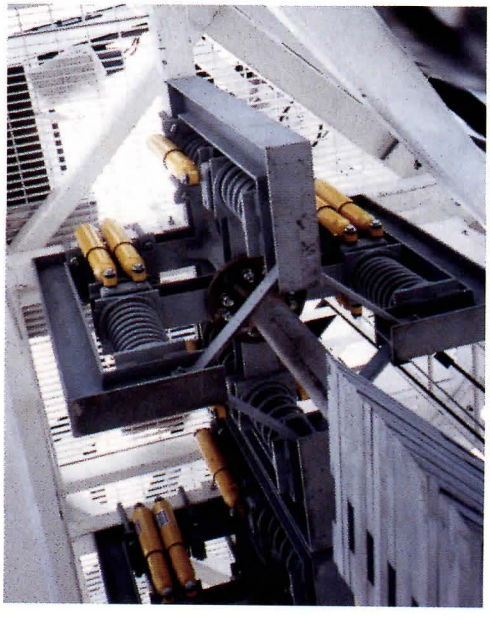
"The mass dampers," explains Arthur W. Johnson, vice-president of KPFF, "are like shock absorbers in your car—without them, you feel all the bumps in the road." A portion of the wind load is absorbed by the swing of the dampers rather than by the structure. The towers, now vibrating with less energy than the wind originally imparted to them, sway out of sync with the wind gusts, thereby counteracting the effects of the lateral loads.

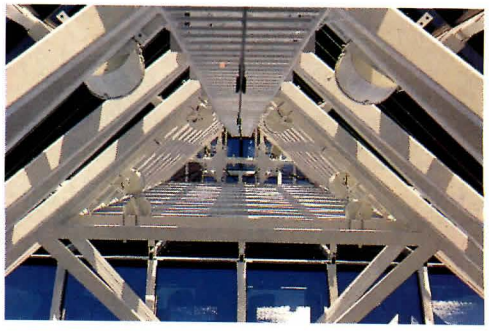
Wind bracing was not the only technicality of the convention center that had to be fine-tuned in the field. The lighting of the towers required many adjustments before the spires achieved their final, uniform glow. Cylindrical fixtures, intended to shoot light across the space and uniformly brighten the structure, were found to spill rays onto adjacent surfaces, resulting in dissonant hot spots. Conelike metal baffles were custom designed to shroud the light fixtures and better control beam direction.

While capturing the sublime, ZGF did not ignore the mundane. A ladder, equipped with a cable and safety-locking cam, winds its way up through the steel structure to the very top so that the entire tower is fully accessible for maintenance and repair. From the ladder, a brave soul can hop inside a motorized harness that slides up the mast to service the flashing red light at the pinnacle. And the firm is currently developing a maintenance vehicle attached to an arm assembly that will extend and rotate from the top of the tower. Once installed, a worker sitting in the bucket will be able to reach any point on the exterior skin to wash the windows or replace any broken panes. ■

—NANCY B. SOLOMON

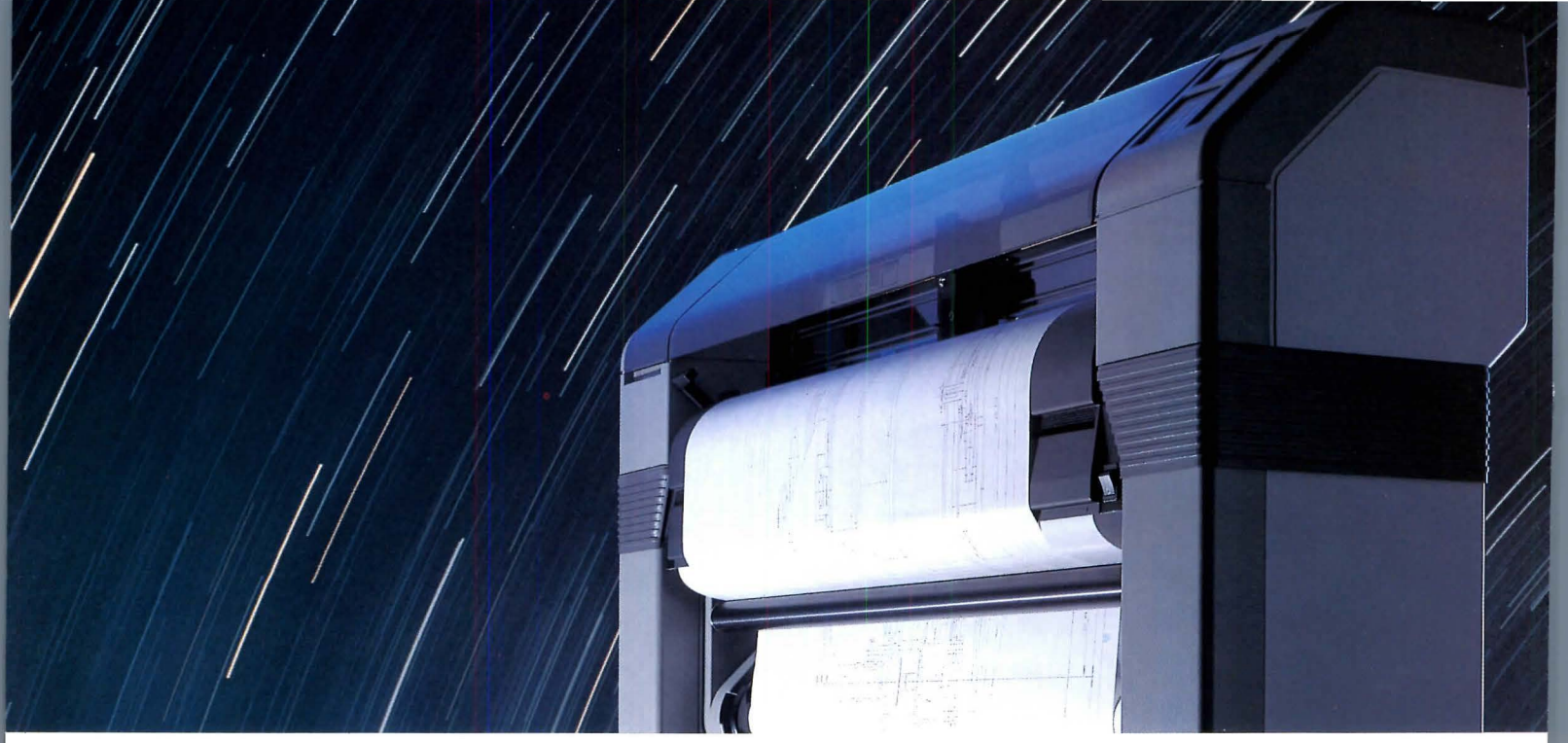






STRODE ECKERT

Tests of the completed towers indicated that deflections caused by heavy winds would exceed the maximum amount allowed. To reduce horizontal movement, a pair of tuned mass dampers (left and schematic, top) were installed inside the upper portion of each tower (above). These pendulumlike devices swing at different rates than the towers, thus reducing the structure's sway.



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Skin and Bones

An innovative structure and precision cladding generate a stately tower.

DURING THE FIRST FEW MONTHS OF DESIGN, the Bell Atlantic Tower (pages 104-107) jumped from a 36-story speculative office building to a 53-story corporate headquarters, an increase that significantly affected its structural system. "At 42 stories, a new threshold occurred," explains project manager Richard J. Farley of The Kling-Lindquist Partnership. "At that height, an additional elevator bank was needed and wind loading had to be handled differently." In collaboration with structural engineer P.V. Banavalkar, executive vice-president of CBM Engineers of Houston, the architects developed a framework that maximized the floor plate, minimized column obstructions, resisted the wind, and minimized construction costs.

The tower's resulting structural system consists of a centrally located spine based on four hefty steel perimeter box columns, or supercolumns (see page 134). The structure is configured in such a way that a large portion of the building's gravity load is carried to the supercolumns. These columns, highly stressed in compression, should never exhibit any axial tension due to bending. Tremendous weight directed to these four strategically located points, therefore, prevents the building from being overturned by the wind.

By resisting lateral loads with the building's own mass, the application of structural steel becomes highly efficient. Few columns are required along the periphery and within the interior of the tower, allowing more flexible space planning. At the serrated corners, for instance, the weight of the floor slabs is carried by diagonal transfer beams to the far edges of the building and toward the supercolumns. As a result, the architects achieved 16 column-free corner offices per floor.

Few columns at the edge also offered Kling-Lindquist greater flexibility in locating major openings. In contrast, a commonly applied perimeter tube system—with its closely spaced steel columns along the entire edge of the building envelope—requires transfer girders above every lobby, parking, and loading dock entrance. A tube also requires many more transfer girders than a spine to allow for sculptural setbacks and ornate tops.

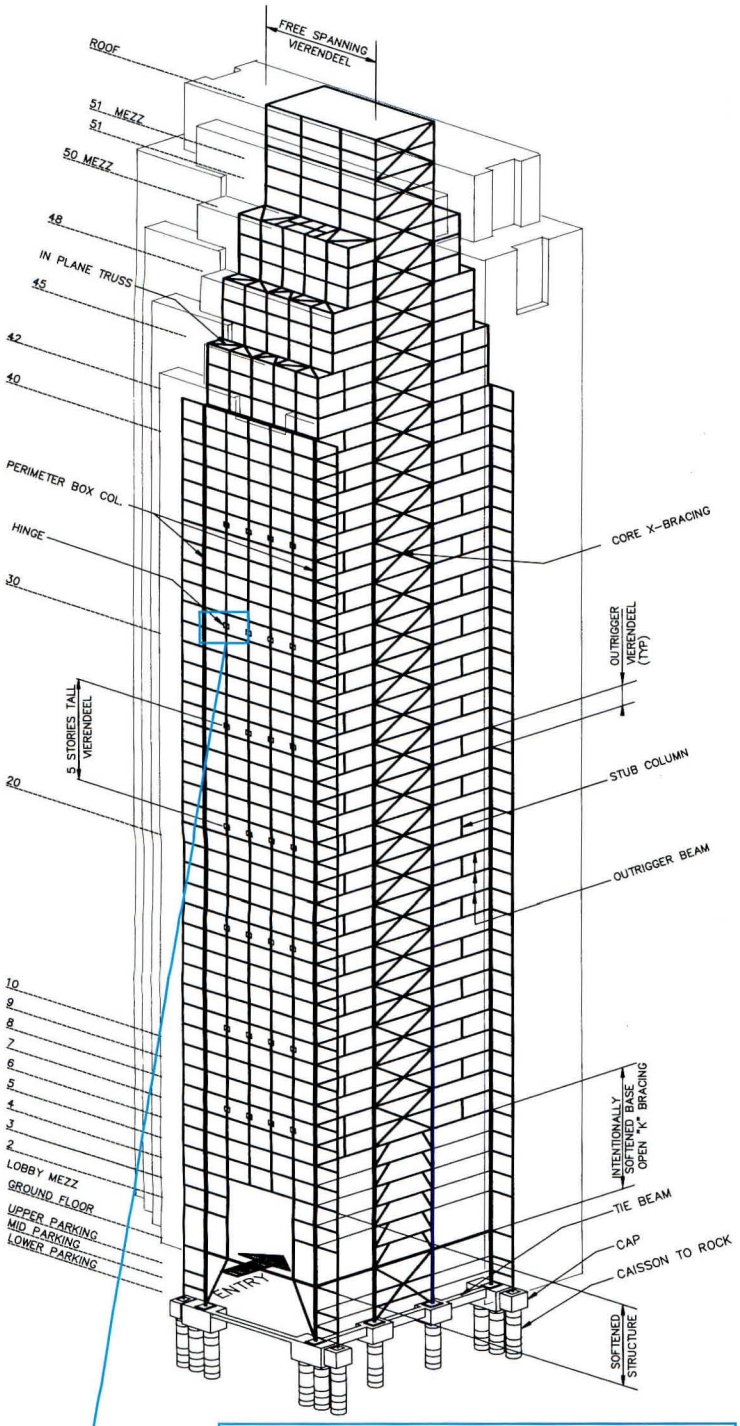
During the design stages, the tower's performance was tested in a wind tunnel laboratory. Because the structure was fairly stiff, the building's deflection was within appro-

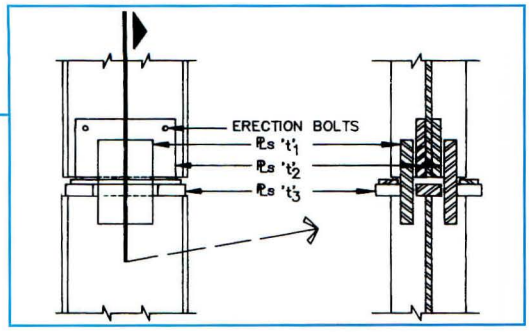
LOOMIS SHADE PHOTOGRAPHY

EUGENE MOPSIK

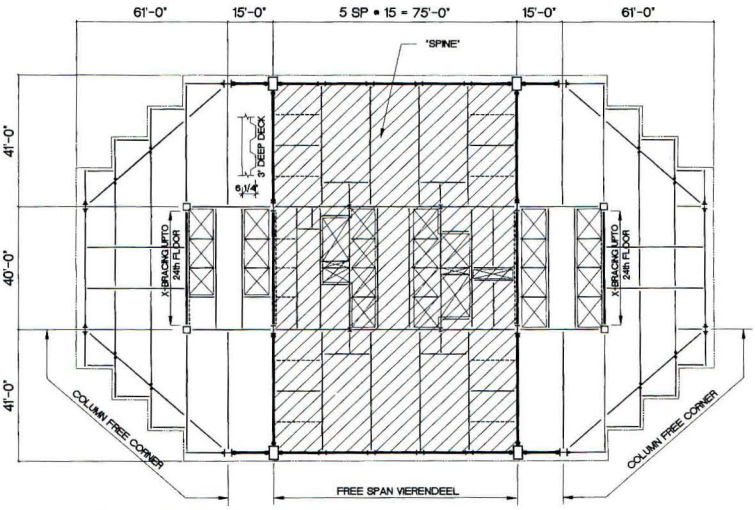
TIMOTHY HURSLEY

A view of the finished tower (left) gives no indication that its spine structure is very efficient or that its skin was assembled from factory-built panels. For a unified look, the architects chose to cover up cantilevered corners (far left) behind a regularly modulated elevation (below).

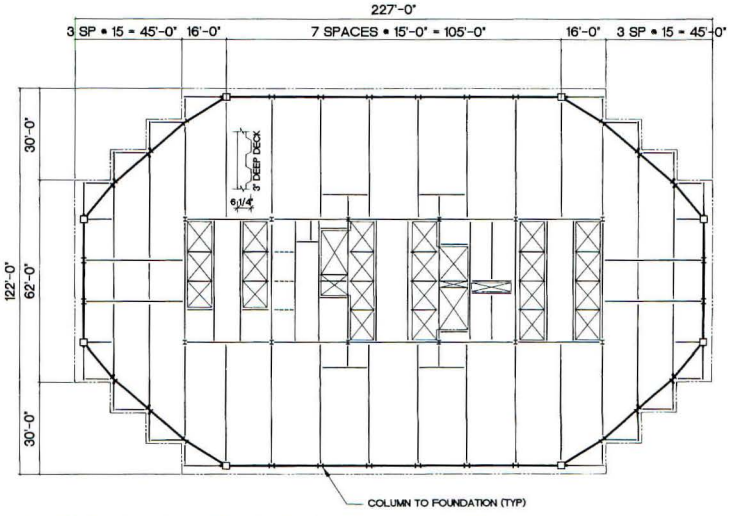




TYPICAL HINGE IN ELEVATION AND SECTION

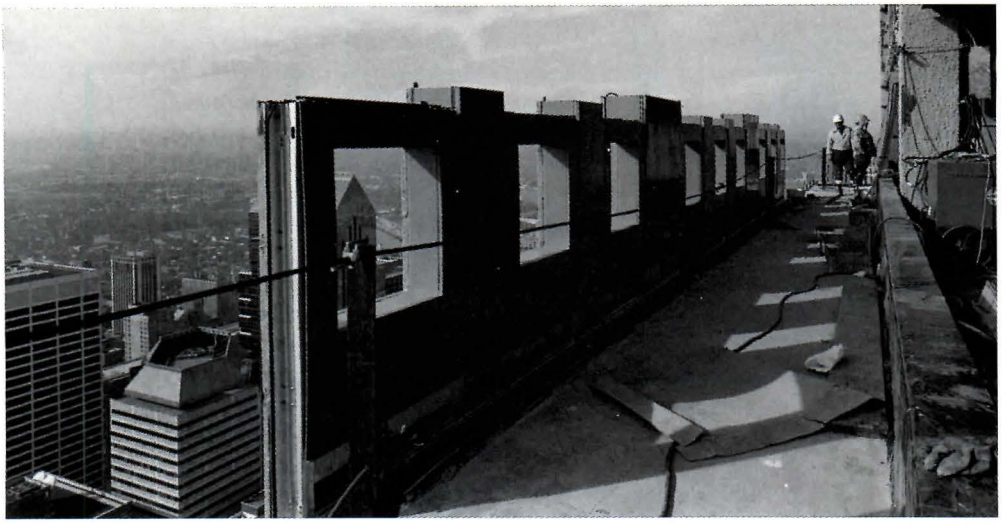


ACTUAL PLAN FOR SPINE STRUCTURE



HYPOTHETICAL PLAN FOR PERIMETER TUBE SYSTEM

A conventional perimeter tube system (above), with closely spaced columns along the facade, could not match the structural efficiency of the spine system (top) developed for the Bell Atlantic Tower. The spine (left) consists of four major perimeter box columns, or supercolumns; four adjacent corner columns; five-story Vierendeel frames along the broad faces of the tower; and two-story Vierendeel girders that secure the columns back to the interior steel-framed core. Ideally, the supercolumns and corresponding girders would have been placed at the corner column locations, but this configuration would interfere with the elevator core. The cantilevered floor slabs at the serrated corners are supported by diagonal beams that transfer loading to columns at the tower's far edges and to the corner columns, which distribute most of their loads to the supercolumns. To minimize acceleration on top floors, the base of the core is loosened by replacing cross-bracing with open K-bracing (top left). Stub columns, which are components of the Vierendeel girders, are only required on alternate floors. Hinges (bottom left) between each five-story Vierendeel frame prevent the transfer of vertical loads. The frames act like individual beams, carrying the weight of their floors to the supercolumn end supports rather than the Vierendeel below. The hinges, however, transmit horizontal wind loads between Vierendeel frames.



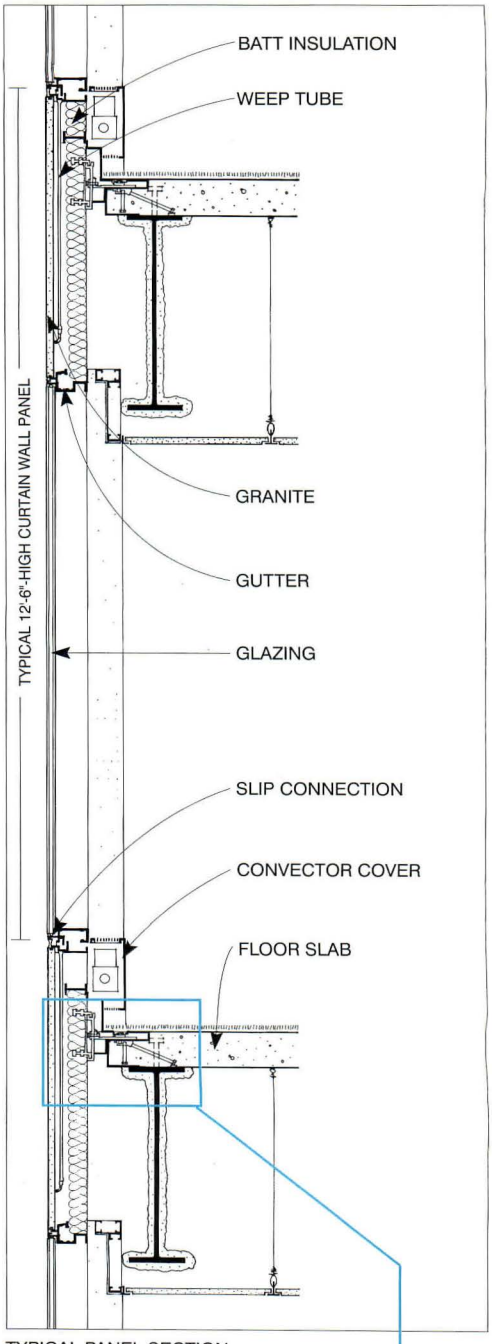
priate limits, but acceleration—the rate of speed at which it starts and stops swaying—was not. Using wind-lab data and computer analysis of each structural member, Banavalkar loosened the core-bracing in the lower portion of the tower so that the base would absorb a greater proportion of the wind's impact. In doing so, the deflections increased only slightly and the accelerations decreased to a comfortable level.

The architects selected a unitized, imperial red granite and gray-tinted glass curtain wall to clad the tower. Factory-built, these standard-sized panels are precise in their dimensions. The field-erected steel structure of the building, on the other hand, was less predictable. "It's like trying to get the snake back into a pre-made snakeskin," notes Farley. In designing such a system, the architect must consider what can and cannot be controlled in the field and make the appropriate allowances. In the Bell Atlantic Tower, an anchorage system between the panel and building skeleton provides 2 inches of leeway in every direction. "This method accommodated 99 percent of all field adjustments," reports Farley. Numerous measurements were taken once the framing was erected so that the first panel hung was in the optimum position for the rest to follow.

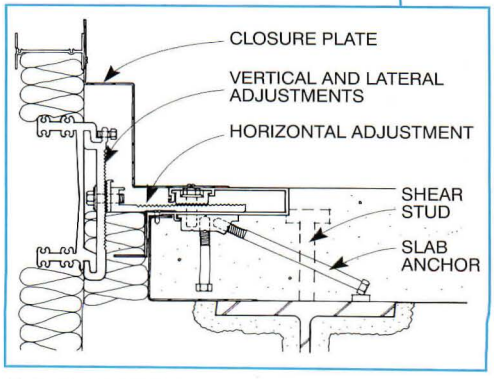
Despite this planning, the architects were prepared to make further adjustments in the field. Once the structure was erected and installation of the panels began, it became clear that the skin was creeping up higher than its frame. After conferring with the engineer, fabricator, and contractor, the architects decided to shave off a mere $^{1}/_{16}$ inch from selected horizontal joints so that skin and structure would fit snugly at the top. ■

—Nancy B. Solomon

A granite curtain wall panel mock-up (above) was tested for appearance, air and water infiltration, temperature variations, and installation techniques before being delivered to the site. The architects pushed the unitized system to its limits by erecting the panels as parapet guardrails (top), aligning them to turn corners at set-backs. The panels are anchored at the floor slab where special attachments (bottom right) allow for minor adjustments in any direction, and meet at a point above the slab (top right) where the bending moment is zero. The panels were preassembled with gutters and 6-foot weep tubes. Wind cannot drive moisture beyond these unusually long tubes, which collect enough water to purge themselves clean and prevent clogged drainage.



TYPICAL PANEL SECTION



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Organizing for Excellence

Three AIA research roundtables investigate the process of designing buildings and interiors.

THE AMERICAN INSTITUTE OF ARCHITECTS recently concluded a series of research roundtables to explore how this country's most recognized architects and interior architects organize their projects and firms to foster design excellence. Participants included a remarkable group of firms and individuals, most of whom gave two and a half days of their time to discuss projects, clients, quality control, staff, organization and management of their firms, and the factors they believe produce design excellence.

The roundtables are part of a continuing AIA program, with the first held in April 1989, the second in September 1989, and the most recent in November 1990. The first, conducted for the AIA by the Partnership for Professional Development at the University of Pennsylvania, was attended exclusively by firms recognized as strong design role models. All were AIA Honor Award winners, three received the AIA Firm Award, and one, Joseph Esherick, is the 1989 AIA Gold Medalist. The second roundtable was conducted among a group of larger firms representing a broader range of design, service, and delivery models. Its purpose was to explore the overlap in approaches between design firms and service and delivery firms. The third roundtable focused on firms involved in the architecture of interiors. Due to the absence of any AIA awards programs or other independent measures of excellence for interiors, the selection of participants was based primarily on the firms' level of visibility within the profession. The choice was made even more subjective by the absence of a consensus about the definition of "interior architecture" versus "interior design." An objective of the interior architecture roundtable was to reveal methodologies of integrated, comprehensive architecture/interiors practices.

The body of information collected at the roundtables, which fills 50 hours of audio tape in unedited form, provides a wealth of insight into aspects of practice that have heretofore been much debated but little understood. An important distinction between success and excellence emerged. While all the participating firms can be considered successful, their definition of excellence focused exclusively on their work, rather than their organization's collective identity. This confirms the research of University of Southern California professor Dana Cuff, who concluded after a study of several AIA-award-winning buildings, that there are only excellent architectural projects, not excellent firms.

In that context, a most significant finding from the research roundtables is the apparent commonality of approach and methodology in those firms that are most consistently producing excellent projects. If, indeed, these firms are role models, then the common practices they follow in pursuit of excellence may be of interest to all architects.

The research disclosed that there are remarkable similarities in the methodologies of both base-building and interior architects who have the same approach to excellence. The common methodologies were derived from questions asked of all roundtable participants. The objective was to determine special elements of the process by which projects are carried out that contribute to quality.

Roundtable I Participants
April 1989

ROBERT BUFORD, AIA
Robert A.M. Stern Architects

FREDERICK CLARKE, AIA
Cesar Pelli & Associates

WARREN J. COX, FAIA
Hartman Cox Architects

DAVID DENTON, AIA
Frank O. Gehry & Associates

PETER H. DODGE, FAIA
Esherick, Homsey, Dodge & Davis

JOSEPH ESHERICK, FAIA
Esherick, Homsey, Dodge & Davis

GRAHAM GUND, FAIA
Graham Gund Associates

CHARLES GWATHMEY, FAIA
Gwathmey Siegel & Associates

PETER E. MADSEN, AIA
Graham Gund Associates

ROBERT PACKARD, AIA
Zimmer Gunsul Frasca Partnership

Roundtable II Participants
September 1989

STEPHEN ACHILLES, AIA
John Burgee Architects

HAROLD ADAMS, FAIA
RTKL Associates

SAMUEL BRODY, FAIA
Davis Brody & Associates

DENISE SCOTT BROWN, ARIBA
Venturi Scott Brown & Associates

ALAN CHIMACOFF, AIA
The Hillier Group

SHELDON FOX, FAIA
Kohn Pedersen Fox Associates

HUGH HARDY, FAIA
Hardy Holzman Pfeiffer Associates

ROBERT HILLIER, FAIA
The Hillier Group

GEORGE MILLER, AIA
Pei Cobb Freed & Partners

LAWRENCE SAUER, FAIA
Helmuth, Obata & Kassabaum

Roundtable III Participants (Interiors)
November 1990

ANDREW BELSCHNER, AIA
Andrew Belschner/Joseph Vincent Design Partnership

SHERRY CAPLAN
The Architects Collaborative

RICHARD A. CARLSON
Swanke Hayden Connell Architects

PATRICIA CONWAY
Kohn Pedersen Fox Conway

NEIL FRANKEL, AIA
Perkins & Will

M. ARTHUR GENSLER, FAIA
Gensler & Associates

MICHAEL PINTO
ISD

KENNETH H. WALKER, FAIA
Walker Group/CNI

SCOTT WYATT, AIA
Wyatt Architects

Starting projects

THE PARTICIPATING ARCHITECTURE AND interior architecture firms define a whole new phase at the start of projects that is not described in conventional AIA documents. Most firms call the phase "predesign," although a few firms say they experience the phase at the beginning of schematics. During this initial process, firms study a project conceptually in order to confirm a program and budget, and to understand site conditions and other constraints, thereby assuring that architect and client are proceeding in the same direction. To achieve an early understanding of costs, for example, Gwathmey Siegel & Associates engages an outside cost estimator in this phase, and insists that clients also hire their own estimator. Only when both estimators—and the client—agree on a budget does the job go ahead.

The firms say this phase typically lasts 45 to 60 days, and it could be called "creating the project." All firms normally charge an extra fee for this phase, often before a full-service contract is negotiated. A poll of interior architects indicated the predesign phase typically adds 10 to 15 percent to the charge for normal services. But firms such as Cesar Pelli & Associates will sometimes undertake predesign without charge if they are worried about the client relationship. If the phase is unsuccessful, it generally reveals a client for whom the firm would rather not work.

M. ARTHUR GENSLER, JR.: The best smarts we've got get delivered in that phase.

FREDERICK CLARKE: At the end of that phase, your work is more efficient because you know what you are expected to do.

CHARLES GWATHMEY: The whole thing has to do with efficiently getting to a level of trust and not having to go back later.

KENNETH WALKER: Quality comes from concentration on phase one. Eighty-five percent of the problems come up in that phase. The success of the design is based on a good process leading up to it.

Communicating alternatives

THE DESIGN LEADERS ATTRIBUTED A LARGE part of their success in communicating with clients to sharing and studying alternative schemes during the design process. At the same time, they made it clear that top designers do not expect their clients to dictate esthetics.

DAVID DENTON: The more options the clients see, the more willing they are to accept our conclusions. We use it as a selling point in interviews.

FRED CLARKE: If the clients think they are getting ideas rather than a single solution, the fee negotiation becomes easier.

PATRICIA CONWAY: We meet with the client every week. It's the dialogue that is important. The presentation at the end of schematic design is almost an anticlimax.

Project-centered teams

PARTICIPANTS IN THE ROUNDTABLES WERE asked to diagram how they organize typical project teams. The first key point is that principals—especially design principals—in virtually all the strongest design firms have very hands-on roles in projects. While the degree of delegation to staff clearly increases in the later stages of projects, the firms that are doing the most recognized work expect their principals to be closely involved.

Frederick Clarke

Charles Gwathmey

Patricia Conway

Secondly, a large majority of the strong design architectural firms in the first roundtable did not distinguish between the role of project management and project design at the top of project teams. They use the term "project architect," and expect that person to be a generalist in design, technical, and management aspects of a project.

On the other side of this philosophy are most of the larger firms and all but one of the interior architecture firms, which differentiate project management and project design roles. But almost all put the project manager and the project designer on an equal level, carefully avoiding a hierarchy of management versus design.

WARREN COX: We don't have any totally design people or totally management people. We really want architects—someone who can deal with the client, run the job, go out in the field. We don't want just designers.

FRED CLARKE: It is a constant issue for us. Everybody in our office wants to be front-end designers. The question is how not to bifurcate the process.

JOSEPH ESHERICK: We put a very high premium on technical interest as well as creativity. We don't find any culture conflict based on what somebody does.

PETER DODGE: Everybody in the firm is involved in design. The project manager has senior design skills.

PATRICIA CONWAY: We have a working design partner and a management partner on every job. The project manager and project designer are equal, in theory. In practice, one may be stronger than the other. We balance this with the partners in charge to give younger people time to grow.

Integrating architecture and interiors

WHEN METHODOLOGIES of firms producing the most excellent work are compared, there is little difference in the practices followed by those firms designing interior architecture and the firms designing buildings. Nevertheless, the participants in the roundtable on architecture of interiors made it clear that they believe there is a culture gap in architects' views of interiors as a discipline.

MICHAEL PINTO: I know that an interior designer in an architecture firm is seen as a second-class citizen.

NEIL FRANKEL: Architects are trained to think in three dimensions, whereas interior designers are trained to think in two.

PATRICIA CONWAY: In our firm, we know architects get the message that interior architecture is a second-class pursuit. We are trying to get across the message that interior architecture is more refined.

SHERRY CAPLAN: There is nothing lesser about it—it is just different.

ARTHUR GENSLER: Interior architecture as a discipline is little more than 25 years old, and still has a limited theory base and body of knowledge to distinguish it from architecture per se. The lack of serious study of the differences is restraining greater integration.

At the interior architecture roundtable, all but one of the firms doing a substantial amount of both base-building and interior architecture acknowledged that the two activities are much less integrated than they would like. The exception is The Architects Collaborative, where Caplan reported that project teams are considered interchangeable.
PATRICIA CONWAY: We've separated our practice because if you don't work in this field every day, it is difficult to be competent.
RICHARD CARLSON: There has to be more integration for excellence to occur.

Another issue discussed was how to structure teams on multi-discipline projects where both architecture and interior architecture are being performed by the same firm. At The Architects Collaborative and Perkins & Will, the approach is to have one managing principal for the entire effort and two design principals.
NEIL FRANKEL: The managing principal was put there to arbitrate between the architectural design principal and the interior design principal. In practice, it works the other way—the design principals gang up on the managing principal.
SCOTT WYATT: I've come to believe that a division of architects and interior architects is healthy—like the dichotomy of project manager and project designer. We've come to believe if either part is missing, the project is lesser.


Joseph Esherick


Neil Frankel


Scott Wyatt

Continuous design review

MANY OF THE NOTED ARCHITECTURAL designers said they conduct design reviews regularly—at least weekly, and even daily in one case—by having staff explore alternatives for reaction. This process of constantly reviewing and refining alternatives emerged as the most common practice in the strong design firms. Staff are expected to make their creative contributions in the development and suggestion of options, but the design leader makes the final choices. All firms, without exception, agreed that the design is not a discrete function that ends at a midpoint of the project.
SCOTT WYATT: The principal has the final word for quality. I've made the promise to the client, and therefore I've kept final responsibility and authority.

Quality control

IN LATER STAGES OF THE PROJECT, MOST OF the top design firms rely on the assigned project team rather than on technical specialists for primary quality control. The larger firms and many of the interior architecture firms use a parallel "crit team" for quality reviews.
DAVID DENTON: Having a technical coordinator didn't work. Everybody dumped drawings on his desk and took no responsibility! In a firm like ours, with a general culture, it is counterproductive to have single point specialists—it would insulate our younger designers. What we are trying to encourage is broader responsibility.

Staffing with talent

THE FIRMS PARTICIPATING IN THE RESEARCH roundtables debated the degree to which excellence is a factor of the process applied in carrying out the work, versus the talents of the people involved. In the end, there was a consensus that talent is indispensable, but that talent without successful process will probably not produce consistent results.

All the firms made a distinction between talent and career path. A majority of the top design firms do not see themselves as the first place bright graduates should work after coming out of school. Many suggested that apprenticing in technically strong firms was the best place for top design graduates to gain their first experience.
SCOTT WYATT: There are no excellent firms—just excellent people.
FRED CLARKE: When you graduate at the top of your class but haven't built yet, you are not an architect.
CHARLES GWATHMEY: We don't hire anyone who has just graduated. We tell interns to go out and work elsewhere for two or three years and then come back. Having the experience of a building behind you is critical.
ROBERT BUFORD: We do tend to hire out of school, but we hire the aspiring generalist.
PETER MADSEN: We screen for people who are competent in technical skills and also competent in design. Everybody is a designer.
NEIL FRANKEL: I track students through design awards. Eighty percent of my staff are people I identified ahead of time and then recruited to come to me. There isn't anybody in the studio who isn't an excellent designer.

Up or out career paths

ANOTHER ASPECT OF STAFFING THAT CAME up for considerable discussion is the question of how to confer recognition. Cesar Pelli & Associates, after having had no titles for 10 years, succumbed to pressure to recognize two levels of associates, only to have three disgruntled people leave. Nevertheless, the question was asked: How do you keep an experienced person motivated?
FRED CLARKE: We think we were happier when we had no distinctions other than project responsibilities.
GRAHAM GUND: Titles add to the problem. One person in the firm declined to be an associate. They said they would rather be 'nothing' until they were made senior associate.
JOSEPH ESHERICK: It's an illusion to tell people they are going to stay forever. Up and out is going to happen. It's inevitable.

Profitability through negotiation

THE DESIGN FIRMS QUICKLY DISPELLED THE myth that doing excellent work and making a good living are incompatible. All the firms agreed they are quite profitable. This does not mean that economic success comes easily. They acknowledge that they cost more than average firms, but they believe the key to getting adequate fees is learning to negotiate. One of the specific techniques they use to achieve adequate compensation is to avoid discussing multipliers. Virtually all the firms use fixed hourly rates for staff. To provide the margin needed to carry winners and losers, most firms seek a timecard profit of 30 percent or more in hourly rates.

While all the firms said they had developed strong skills at negotiation, they also said they did not manage their projects strictly according to the fee available. Most of the firms use computerized financial management

programs to monitor project progress, but not to control the work. The philosophy is that once the fee is negotiated, the firms do whatever it takes to produce the level of excellence they believe can be achieved. Profit comes through negotiating fee levels that allow for some winners as well as losers.

FRED CLARKE: Clients think that architects are bad businessmen. The goal is to be as good a businessman as the client.

WARREN COX: You've got to structure the firm so you can send your kids to college. You've got to negotiate the fees you need.

PATRICIA CONWAY: The most important aspect [of quality] is getting the right fee.

KENNETH WALKER: You can't do excellent work over time and not be profitable.

Project-centered organization

PERHAPS THE GREATEST DIFFERENCES between the strong design firms and those that are stronger in service and delivery is revealed in their organization charts. Not one of the top design firms has a chief executive officer or uses comparable hierarchical titles. Instead, in these firms there is almost universal use of "partner" or "principal," and they speak of "management" not "managers." Where authority and decision making is defined, it is typically in a management committee. The principals of the top design firms are heavily hands-on in projects, and the organization of the firm reflects the priority of projects.

The Gehry organization has one of the most innovative structures. It is made up of "decision groups," with each group having a designated area of authority and a time at which it meets. The top group performs project pursuit, client relations, fees, and contracts. The senior staff group handles scheduling, staffing, financial budgeting and control, and salary and personnel review. The intermediate staff operates on ad hoc committees whenever there is a problem that needs attention.

DAVID DENTON: We've tried to keep it in flux—to keep everyone focused on design quality rather than office politics. It sounds unwieldy, but in fact it works well.

PETER MADSEN: The structure is just a way to allow more people to work on a problem.

Removing the obstacles

WHILE ALL THE TOP DESIGN FIRMS HAD A partner or senior staff member assigned to oversee organization and business matters, none of these individuals sees him or herself as having executive or managing partner authority. Joseph Esherick put the role of management in a very personal perspective when he said he looks to those with organization and management responsibilities in his firm to keep him from "bumping into things" as he works on projects.

FRED CLARKE: I don't think one can consciously direct an architecture firm. We are not that much in control of our destiny. We are always scrambling.

ROBERT BUFORD: It's not a strategy that implies you know what you are doing. It is more instinctive...it is more intuitive.

ROBERT PACKARD: All the time we spend is trying to remove the obstacles.

Graham Gund

Kenneth H. Walker

Richard A. Carlson

CHARLES GWATHMEY: I want to conduct an architectural practice, not an architectural business. I do it because I love to design buildings.

Conclusions

TO THE EXTENT THESE ROUNDTABLES ARE worthy of consideration by all firms aspiring to similar performance, the following observations can be made from the research:

- The top design firms are clearly project-centered, not firm-centered. This focuses all their energy on producing excellent projects.
- The newly identified, front-end "predesign" phase of the project process can be an invaluable aid in cementing the architect-client relationship and setting the direction of the project.
- The role of architectural generalist is alive and well. Specialization in aspects of the whole, like project management or project design, is an option that works best only when the roles work together in a true partnership.
- If one learns to negotiate, it is possible to charge enough to execute excellent work and be personally well compensated.
- The top people in the top design firms are very hands-on practitioners, leaving the operation of the firm to others.
- The role of management is to "reduce the obstacles" that might otherwise get in the way of projects.
- With respect to interiors, the consensus is that the difference between two-dimensional education (interior design) and three-dimensional education (architecture) is at the root of the culture gap between the disciplines. This conclusion suggests a starting point for important dialogues both within firms trying to integrate the services, within education, and perhaps within the AIA.
- The very limited integration of the practices of architecture and interior architecture in the multidisciplinary firms (except for TAC) is a surprising finding of the roundtables. It suggests the gulf will only widen unless serious efforts are undertaken by the AIA, architecture schools, and/or practitioners to find more and better means of integration.
- The recognition that interior architecture as a serious discipline is little more than 25 years old, and therefore has a very limited body of knowledge, suggests an opportunity for those who want to make a real advancement in the study of the profession.
- The lack of awards programs in interior architecture and the resulting lack of measures of excellence is a real opportunity for the AIA, and might just be a key to opening the door to more integration.

At a reflective moment in the third roundtable, discussion turned to the uncertainties of the current economy. Conway observed: "The Depression was one of the most creative design periods in this century. This would suggest that excellence is a strategy for the current recession." For those seeking one truth from the research roundtables, this comment might well be the last word.

—WELD COXE

Weld Coxe, Hon. AIA, is principal of The Coxe Group, Management Consultants in Philadelphia, Pennsylvania. He and his partners facilitated this research as volunteers for the AIA.

AIA Interiors Roundtable—A Closer Look

FIVE CONCLUSIONS DRAWN FROM THE INteriors roundtable reveal insight into the fundamental differences between architects and some interior architects. These findings relate specifically to the practice of contract interiors and the market it serves, offering a comparison on the two different groups of practitioners. Both groups have relentless commitment to interior design from beginning to end of each project. However, what they mean when they say "interiors" turns out to be two very different things.

All base-building architects design the interiors of their projects, at least in a schematic, generic way. Most use the AIA Standard Form of Agreement between Owner and Architect (B141). That document lists interior design as additional services to be performed at the option of the owner. As a result, much of interior design by architects is left as schematic conceptualization for owners to interpret or discard after buildings are completed.

Participants in Roundtable I say they might modify the B141, or merely quote a fee to reflect that they conduct interior design as part of basic services.

The group referred to here as "contract interiors" practices—firms that provide interior design as a discrete set of services apart from base-building design—typically uses AIA B171, the Standard Form of Agreement for Interior Design Services. Some fundamental distinctions in the approaches of the two groups become apparent when assessing the following five findings:

Client expectations

INTERIORS CLIENTS HAVE AT LEAST THREE basic expectations that are different from those of base-building clients. Clients approach star architects to get a building bearing the distinction—the unique mark or "signature"—of that architect. The clients who approach excellent interiors firms seek an image that will be just as compelling, but which will be the client's own distinctive image rather than that of the designer.

Ken Walker, FAIA, notes that Gensler & Associates designs 1,300 interiors projects a year and that the market wouldn't stand for two "Art Gensler-like" interiors projects, much less 1,300. Walker's point is valid. When it comes to interiors, Nordstrom cannot afford to be confused with a Bloomingdale's, and Citicorp doesn't want to resemble either one.

Some designers add that a practice in interiors does not provide the designer with the same mystique that base-building architects enjoy. They point out that all of us remember the price of the last piece of furniture we personally bought, and will have some idea of the quality of a fabric simply by fingering it. Clients expect a much more active, hands-on role for themselves in the design of interiors.

A third expectation of interiors clients is that the interiors firm manage and control project delivery to an extent that far exceeds the control maintained by the base-building architect. Most often, the interiors firm is the direct liaison with suppliers and plays a strong role in the logistics of installation.

From these key differences in client expectations stem many of the differences found between base-building architecture firms and interiors firms. Probably the most basic difference is in intention: base-building design seeks to lead—to synthesize and resolve complexity into great clarity. Interior design seeks to manage the rich complexity of objects we choose to surround us.

Economic endurance

INTERIORS WORK IS MORE RECESSION-PROOF than base-building practice, now sharply curtailed by the 1980s legacy of an oversupply of certain building types. Those clients who are just reaching the command generation—45-year-old "yuppies"—have both cash and strong convictions about quality-of-life issues and self-image. While they may not build new buildings, many baby-boom generation clients are upgrading their lives through relocation, renovation, and interiors projects.

Interiors projects typically have a far shorter life cycle than buildings. For example, Chicago architect Jack Train has built an important part of his practice on the demonstrated ability to increase efficiency dramatically through redesign of any office space occupied in its present configuration for at least 10 years. Efficiency aside, the traditional wisdom of the retail and hospitality markets demands periodic upgrading of image—frequently as often as every three to five years.

Even clients not seeking change for the sake of change (such as law firms or government agencies) must upgrade periodically simply because furnishings, fabrics, and carpeting wear out faster than exterior building materials.

And because of the information revolution, technology continues to change incessantly. The demand for increased worker efficiency is constantly injecting into the workplace a staggering proliferation of word processing, fax, copying, telephone, and desktop publishing hardware. Interiors must change to accommodate these new developments.

Portable services

WHILE THE EXCELLENCE OF AMERICAN architectural design is acknowledged around the world, regulatory and licensing requirements are typically more restrictive regarding base-building services than interiors services. Unlike the raw materials for building construction, many of the basic components for interiors projects—furnishings, fixtures, and equipment (FF&E)—are finished, manufactured products. By their very size and the prior arrangements of their manufacturers, they have traditionally flowed freely across borders. In today's global economy, they are readily available anywhere, making interiors services more portable (and exportable) than base-building services. Due to first-hand familiarity, therefore, clients might be more accepting of American-designed interiors than of American building design.

Deductive vs. inductive reasoning

EVERY ARCHITECT'S IDEAL IS TO KNOW THE practical constraints on a project and then transcend them to achieve true excellence through design talent. The process of recognizing the design restraints for a large interiors project, however, seems a far more complex, tedious, and deductive process than it is for a base-building project.

Interestingly, both base-building and interior architects make a distinction between "predesign"—establishing the aspirations for the project—and "programming"—knowing the design restraints

imposed by others. Both see predesign as a phase of service that includes programming as a subset. During predesign, the interiors project principal is employing intuitive and lateral thinking to derive, through inductive reasoning, the "sense of place" most suitable for the client. Simultaneously, some other staff member is working from the bottom up to write the program deductively. Invariably, this is referred to as "number-crunching," and is admittedly tedious work.

Office interiors programming, for instance, involves an exacting allocation of space to each employee. The area required for each room and space is painstakingly derived from adding up the sizes and clearances necessary for each piece of furnishing and equipment required by the job description. At the same time, brand-name assumptions about the FF&E are being made and a running total kept of the unit costs of all these items.

The deliverable from this phase of the work on a sizable project will be a book-length publication, called the "program." Upon approval by the client, it will set the standards for the client's company and work environments for the foreseeable future. The program virtually establishes the project budget and limits the number of employees the facility can accommodate. Final approval therefore constitutes a major corporate decision for the client in terms of the company's long-range plans.

In the firms that are strong design role models, as in the contract interiors firm, programming goes on simultaneously with predesign. But compared to that of the interiors project, programming the base building is much less a detailed analysis of square inches and pennies required by function. Typically, its purpose is to establish building modules, gross areas and adjacencies, and threshold requirements to meet codes, standards, zoning, and deed restrictions.

Predesign for base-building architects is, in fact, very different from predesign for interior architects. Both are concerned with setting aspirations for the design of the project, rather than threshold requirements to be met. The star architectural firms report predesign in terms of exploring the potential of the site to accept a variety of forms rather than deductively and painstakingly deriving the one form most consistent with the client's self-image. Both groups report spending incredible amounts of time with the client. The signature designers report talking with clients endlessly about function—but not about design. They anticipate that their clients expect the architect to control the design, so they do.

The interiors principal, on the other hand, talks endlessly to clients about design, but always in the context of detailed comparative pricing of component options. During predesign, and even into schematics for an interiors project, there are frequent presentations to the client. These meetings involve consideration of a lot of optional palettes of FF&E selections. The objective of all this is for the interiors project principal and manager to observe the responses of the client closely, while "comparison shopping" for an appropriate image. The process moves from the general to the particular, with the goal of evolving first the iconography, or image of the project to be designed, and then the vocabulary of specific items chosen to implement it as a coherent whole.

Staff structure

STARTLING DIFFERENCES BETWEEN INTERIOR architecture practices and those built around the star architects emerge through comparing how the principal's time is allocated. In all the design-role-model firms, the design principals spend an incredible portion of their time working on billable projects. The design principal personally controls 100 percent of design decisions on every project, and spends between 75 and 100 percent of his or her time on projects and with clients. In these firms, it is the designer who has final say on the project.

Moreover, subsequent investigation of other highly successful base-building architecture firms tends to confirm this allocation of authority. Even among the large, strongly managed, and multibranch firms, the designer has final authority (or at least equal responsibility) with the project manager. In almost every case, the surest path for upward mobility within the firm is to demonstrate exceptional design ability.

This sharply contrasts with preliminary findings about contract interiors firms. For all the reasons discussed in the previous findings, their principals are much more involved in managing than in designing. Interiors clients, the staffing of interiors firms, and interiors project methodologies all demand good management.

Asked to draw organization charts to show how projects get done, participants of the strong design firms show control vested in a principal, under whom is a project manager who often is not an architect. Working under the project manager is typically a project designer and, if the technical expertise is required, a project architect. Clearly, project control is a management role.

Interiors firms also tend to be more structured than architecture firms. An interiors firm or department has a need for specific experts or specialists. Job openings have specific job descriptions, and qualified people are brought on to fill those specific roles. Employees for interior design firms are also generally hired for the long term. Continuity of talent and technical expertise is important to interiors practices, which reveal a strong preoccupation with the continuity of the firm, ownership transition, and retention of key employees.

The principals of the design-role-model firms, on the other hand, seem much more concerned with evolution of design talent—both within themselves and within the staff. For them, design control and a fresh flow of talent is of primary importance. They all report an up-and-out staffing policy. As soon as a staff member shows professional competency and a need for autonomy in controlling project decisions, it is time to encourage that architect to establish an independent practice.

Base-building architecture offices often hire the best and brightest available, with less concern for specific areas of expertise, which helps explain the "adhocracy" that characterizes many—perhaps most—architecture firms. Yet foremost among these adhocracies are those which consistently produce the designs the rest acclaim. Perhaps equally admired (though often for different reasons) are the excellent and well-managed contract interiors firms also doing fine design of a very different sort. As with much in the profession, options have far less to do with capability than with commitment and values. ■

—JAMES R. FRANKLIN, FAIA

James Franklin is a resident fellow of the American Institute of Architects. His findings are part of a larger study to be presented at the 1991 AIA convention and published later this year.

Sizing up Steel

Hollow sections and space-frame technology offer unexplored design possibilities.

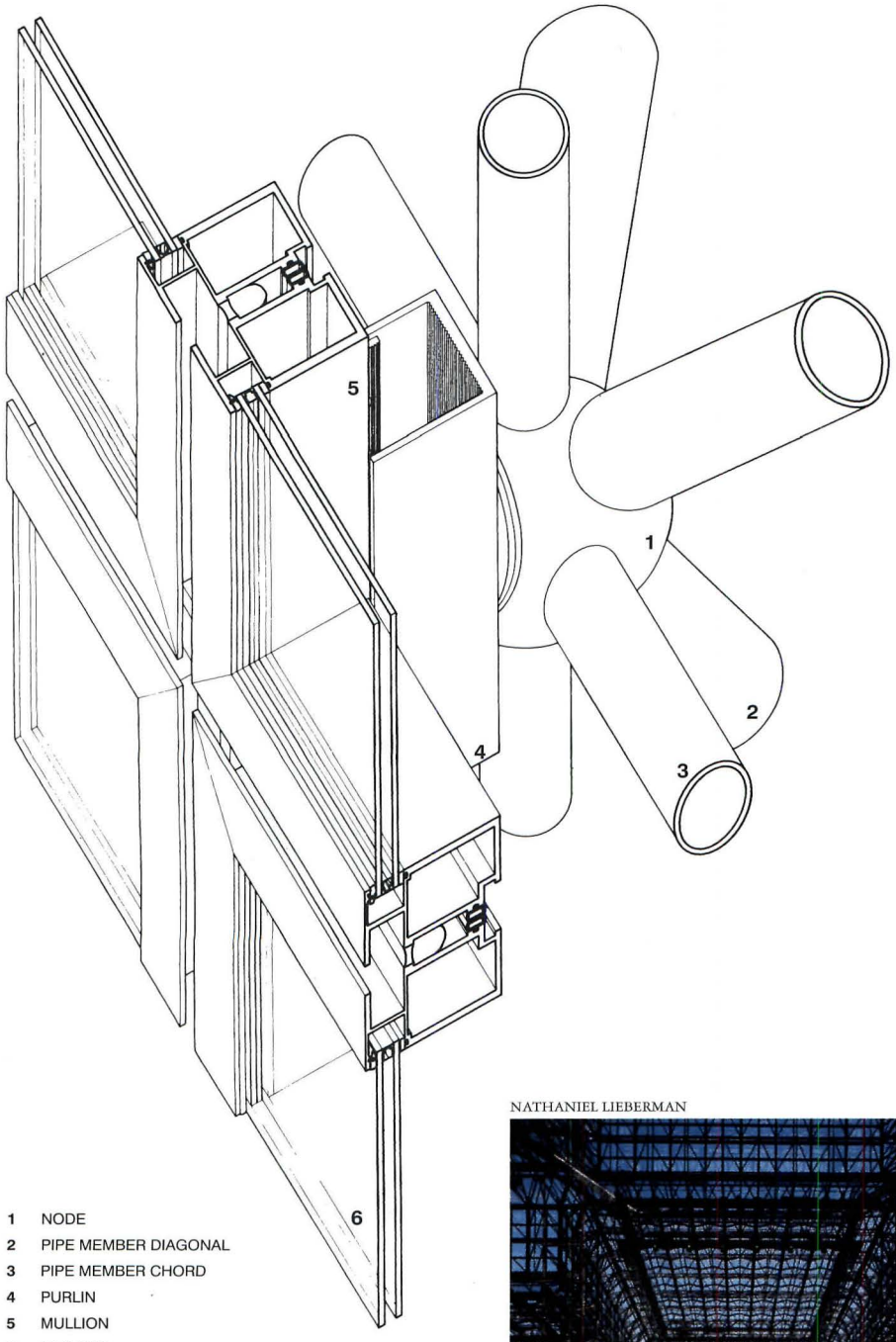
EXPOSED STEEL IS USUALLY ASSOCIATED WITH the open profile of an I-beam's web and flanges—an esthetic popularized by the International Style. But if, according to Modernist dogma, less is more, hollow steel members may prove a more appropriate form of structural minimalism than conventional steel construction.

However, these lighter weight and slimmer profile steel sections are only beginning to be explored in this country. According to Frederick J. Palmer, director of the American Institute for Hollow Structural Sections, hollow steel members constitute an estimated 15 percent of steel fabricated in Europe and 25 percent in Japan, but account for only 3 percent of steel production in the United States. Recently, hollow sections have been increasingly incorporated into the construction of American airports, exemplified by Murphy/Jahn's United Airlines Terminal and the new international terminal at O'Hare by Perkins & Will (in association with architect Heard and Associates and engineer Consoer, Townsend and Associates), currently under construction and expected to be completed in 1993. To take advantage of the sleek, aerodynamic profile of hollow sections, such members have been applied primarily where an exposed steel structure is desired. Ralph Johnson, design partner of Perkins & Will, explains how exposed steel at the terminal "creates a sense of uplift and lightness, corresponding to the imagery of an airplane wing and allowing for a layering of transparent elements in the large and open public spaces."

Hollow sections require approximately 30 percent less surface area and weigh only half what an equivalent open-profile section weighs (including W, M, and S shapes, channels, and angles) but they carry the same load. By weight, however, the cost of hollow sections can be as much as 25 percent greater than an equivalently dimensioned open-profile section. Hollow sections are most structurally efficient in columns, arches, or trusses, due primarily to their excellent resistance to torsion and compression. They are less economical in beams, due to their poorer resistance to bending in comparison to web members. Increased strength can be obtained by filling the interior with concrete to form a composite member, while still leaving an exposed steel shell.

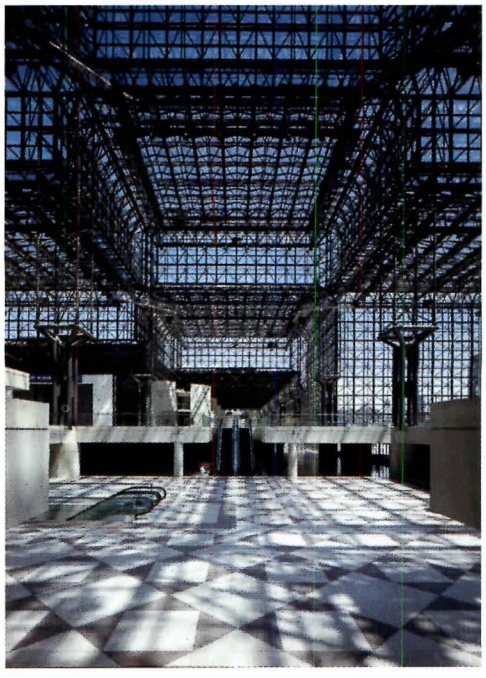
Hollow members are limited in application because of the more complex detailing of their connections. Although they can be bolted, the preferred method of attaching hollow sections is welding, which increases construction costs since only one side of the member is usually exposed. The savings in material, therefore, is offset by the increased expense of joinery engineering. To reduce costs, custom curved tubular steel members were eliminated from the recent Delta terminal expansion at Orlando International Airport, completed in September 1990.

The curved tubular steel members that accented the original design of the framework for the new Delta Airside Terminal in Orlando were eliminated due to budget constraints. But the structure still boasts a 140-foot-diameter, steel-framed dome (above) that spans 35 feet above the floor. The dome is supported by six sets of coupled steel columns constructed of standard rolled sections, protected with a layer of spray-on fireproofing and encased in curved steel. Still under construction, the Delta Landside Terminal expansion incorporates hollow steel in space trusses that span up to 75 feet and carry the loads of pyramidal skylights (above left). After visiting terminals that were devoid of exterior views, the Orlando Airport Authority requested KBJ Architects design a building linked to the surrounding Florida landscape of wetland preserves. To accomplish this objective, the architects translated the cast-iron esthetic of turn-of-the-century conservatories and Victorian train stations into a steel-supported, skylit dome and glass-clad passageways, which enclose an extensive array of tropical plants and palm trees. The terminal's domed space serves as the central hub for three concourses leading to departure gates.



1 NODE
2 PIPE MEMBER DIAGONAL
3 PIPE MEMBER CHORD
4 PURLIN
5 MULLION
6 GLAZING

NATHANIEL LIEBERMAN



In a tradition established by Joseph Paxton's Crystal Palace, the industrial, performance-oriented esthetic of modern space frames is reflected in I.M. Pei's design of the Jacob K. Javits Center in New York City (right), constructed with the PG space-frame system (above). Since the convention center was completed in 1986, however, advances in space-frame engineering have eliminated the need for additional purlin systems previously required to attach cladding to a steel framework, eliminating a step in the construction process.

Hollow steel members have always been a necessary component of space trusses, whose forms respond closely to function, requiring the maximum efficiency of each member. Although many architects still equate space frames with R. Buckminster Fuller's geodesic domes of the early 1960s, crude space-frame technology has been achievable since the 1930s. Over the last decade, improvements in manufacturing techniques, computer engineering analysis, integral cladding systems, and steel coatings have advanced space-frame technology considerably.

Several recent developments in space-frame technology are offshoots of the state-of-the-art Biosphere II project nearing completion in southern Arizona. The fragile ecosystems within the vast steel structure require not only a watertight cladding but an airtight envelope designed to sustain the environment up to 100 years. A glazing system attached directly to the steel tubes eliminates additional aluminum mullions previously required to attach glazed or opaque panels to a structural frame. Reducing one step in the construction process, the new system assures better quality, since cladding can be prefabricated and reviewed in the factory instead of assembled in the field. It also solves associated problems with the unequal expansion properties of a steel framework and aluminum mullion system.

Since space-frame steel members are usually exposed, finish appearance and durability are important. New powder and aluminized coatings and polyester resin finishes have improved steel's resistance to weathering. The corrosion resistance of these finishes is considered superior to stainless steel or hot-dip galvanizing, which is also subject to off-gassing of volatile organic compounds.

Another area of advancement has occurred in space-frame engineering analysis. Space frames usually consist of structural steel hollow tube members combined to form a triangulated structure. Such a configuration does not limit a structure's overall form. But, according to Michael Patterson, director of technology for Pearce Structures, a space frame manufacturer in Chatsworth, California, "The scope of custom, high-profile architectural applications—as opposed to kit-of-parts, cookie-cutter designs—has not yet been explored." The limited exploration of space frames can be attributed to their three-dimensional structural nature, which makes assessing design options through two-dimensional drafting difficult. Desktop computers, however, can now perform

calculations and modeling configurations that were previously limited to mainframe computers, making three-dimensional forms easier to visualize.

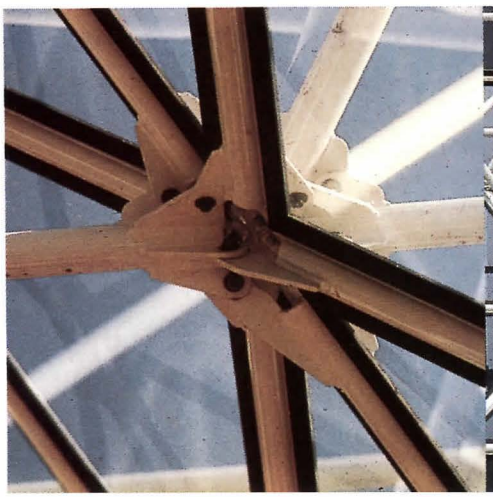
Space frames are also considerably "smarter" than more conventional post, beam, and truss configurations, requiring detailed analysis of each individual member. Although they are material-efficient, such structures are expensive to analyze and engineer, only proving economical where column-free, long-span structures are required. The relative cost of space frames will decrease in the future, however, as steel prices rise and computer technology capable of performing calculations becomes more readily available.

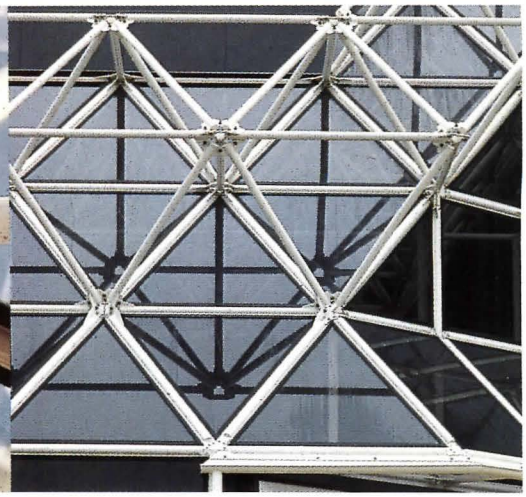
A frequent misconception among architects and engineers is the notion that space-frame connections can be easily designed. But a node connection may consist of up to 26 struts. Altering the size of members and nodes accommodates changes in grid sizes, depths, and frame loading. The capacity for the repetitive use of both members and joints for a variety of shapes and sizes has led to standardized proprietary systems, although customized connections continue to be designed for specific projects.

The design of a space-frame configuration is an interactive process between strut, joint, and overall form, which is also greatly aided by computer analysis capable of balancing all the variables at once to determine the best option. Reducing a space frame's grid to decrease individual member sizes means increasing the number of joints, leading to a trade-off between materials and engineering costs. Requirements for connections depend on the behavior of the entire structure. To explain the process in simplified terms, Patterson says, "You have to take all the variables of space-frame design and dump them into a pot [computer], and stir them [software] until they gel to see what comes out. This is where advances in computer technology really help." He adds, "I get calls every day from architects saying they want to use a space frame, followed by the question: 'What do I do?' "

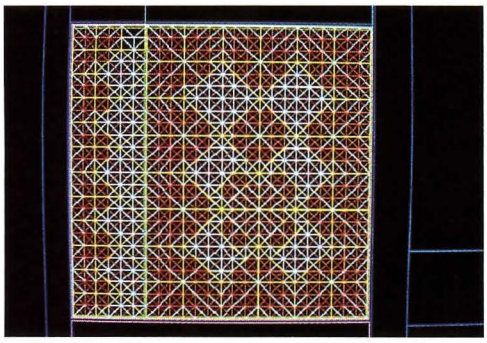
From the limited number of innovative space frames to date, existing technical capabilities of hollow structural steel and their application to space frames appear to exceed architects' willingness to experiment. But as more projects such as Biosphere II reveal the potential manipulation of hollow steel, architects will be less willing to delegate design responsibilities to space-frame experts. ■

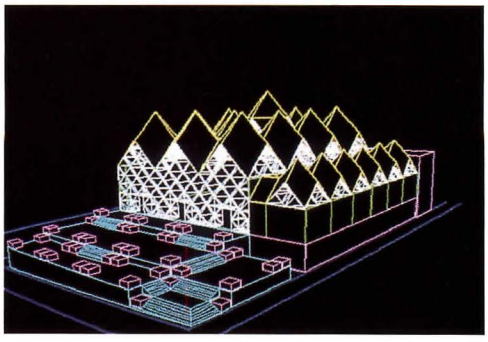
—Marc S. Harriman



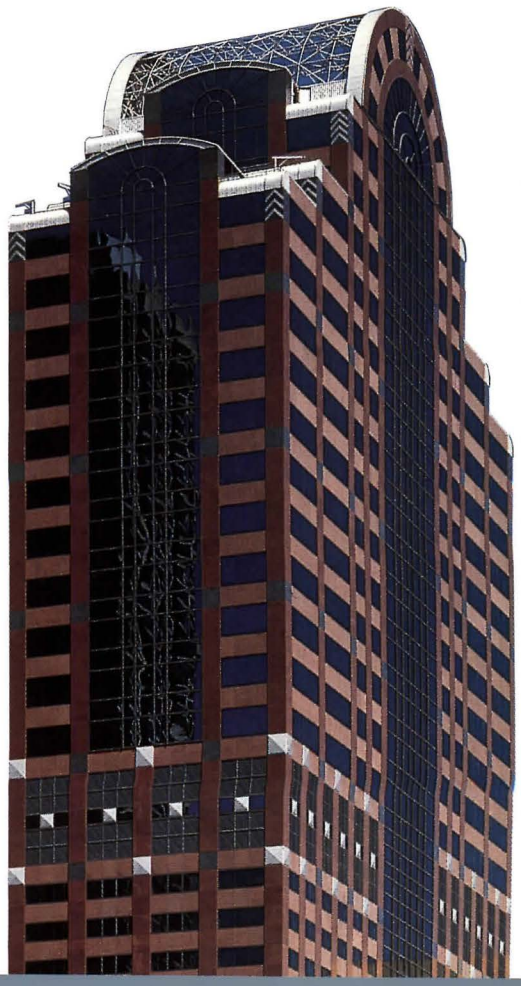


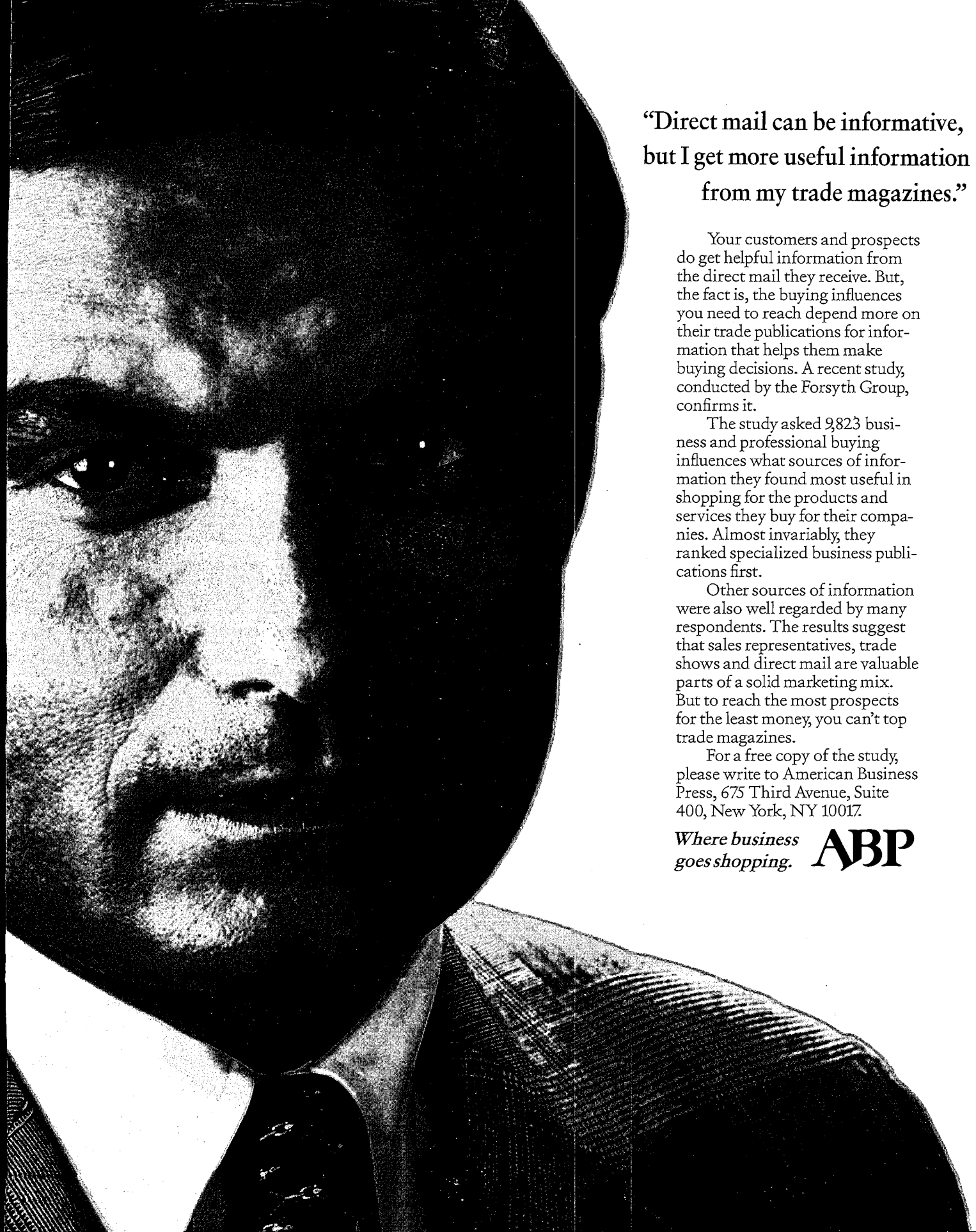
With the Pearce system, glazed or opaque panels can now be connected directly to structural steel members (above right and left), further reducing the bulk of space-frame components required for support. For City Place in Chicago (below right), Loebl, Schlossman & Hackl modified a version of the original Mero system—a spherical node and round-tube system that is the model for many other proprietary space-frame systems. The architects connected a bowl-shaped node with a flattened face to rectangular chord members, allowing the granite and glass curtain wall at the north and south ends to be directly attached to the supporting steel frame. As a result, the top of the arch is left open to ventilate mechanical equipment on the roof. The 70-foot-diameter, barrel-vaulted space frame extending above the 40-story concrete structure was chosen because it proved to be less bulky and more economical than a truss configuration, which was originally designed to be constructed with conventional rolled steel sections.





Visualizing and calculating a space frame's structure is difficult from a grid plan (top). Three-dimensional modeling now possible on desktop computers (above), however, is opening the door to exploring more dynamic and efficient configurations.





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Improving Working Drawings

Following basic guidelines assures accurate documents and satisfactory completion of a project.

WORKING DRAWINGS ARE THE MOST IMPORTANT contract documents to be produced by an architectural firm. They are also the basis of an owner's contractual agreement with a general contractor, and they ensure accurate execution of the project design. Accounting for the largest source of financial profit or loss within an architectural firm nearly 40 percent of the standard AIA contract—working drawings must be recognized as the potential source of profit or loss, and therefore be efficiently and accurately produced. If not, they may become the culprit for liability claims against the architect.

Architecture students are not taught the proper execution and function of such drawings, and until a student graduates and becomes a job captain, he or she rarely realizes their significance. How can architects be better trained to produce working drawings, particularly during the apprenticeship stages of their careers?

Working drawings and the project

FOR THOSE WORKING IN THE FIELD, THE working drawing is the tool that allows execution of a building within budget. Working drawings are not a design tool; the scheme should already be completed when the final working drawings are executed by the design team. They do not serve as an account of the construction procedures—that is the obligation of the general contractor, nor are they a description of building products or quality standards, which should be left to specifications. Instead, the drawings should be limited to showing quantity and relationship of physical elements to the building, to ensure that the project manager, estimator, superintendent, and subcontractors can properly execute their duties.

The project manager, for example, is concerned with contracts, schedules, and profitability, and must therefore be able to anticipate the timing and number of subcontractors. The estimator needs to establish accurate quantities of construction materials so the purchaser can negotiate with manufacturers and suppliers. The superintendent must coordinate the entire project in the field, while the subcontractors must be provided with enough accurate information depicted in the drawings to assemble specific building components on site. These working drawings must therefore be consistent and accurate to ensure that the job can be estimated properly, hopefully keeping the entire project within budget.

Consider a scenario in which a draftsperson has developed a room finish schedule listing 10 rooms and floor materials to be installed in each room. Instead of indicating carpeting in each grid representing a room, carpeting is indicated in the grid for room one, and the draftsperson draws an arrow from room one to room 10 indicating that all flooring materials are specified as carpeting. In room five (a corridor), however, the floor covering is amended to be vinyl composition tile (VCT), and VCT is inserted in the floor grid for room five. If the construction documents are not reviewed for final accuracy, the general contractor could assume that rooms one through four are carpeting, and rooms five through 10 are now VCT. The estimator could bid the project assuming rooms five through 10 are VCT, and the purchaser could negotiate the finish materials based on incorrect working drawings. Such inaccurate working drawings would prove to be an embarrassment to the architect and cause loss of credibility to the contractor.

Working drawings should be limited to showing quantity and location of building elements to ensure that those involved in construction stay within budget.

From the client's perspective, working drawings are part of an owner's agreement with a general contractor. A well-executed set of construction documents aids in ensuring that the project remains within time and budget constraints. Any discrepancy between the working drawings and the actual material needed for construction could be crucial to the timing of the project. Above all, working drawings provide the link between the general contractor and the owner, ensuring that the architect's design solutions are carried through to completion of the project. If the architect does not complete the documents accurately, arguments, ill feelings, and even lawsuits are likely to develop between the architect, owner, and general contractor.

From a financial perspective, the architect must produce working drawings as quickly and efficiently as possible. In addition, working drawings should be project-specific, since smaller schemes and design/build projects demand considerably less information than large-scale buildings. But many architects have a tendency to overdraw on smaller projects—it is not necessary to draw at a $1/16$ scale all the lines for clapboard siding, or the joints for brick. A draftsperson can simply show several lines representing the material with a note that properly indicates the extent the material is to be used. It is much more important to spend time on dimension information. It can be just as confusing and costly to overdraw a smaller project as it is to underdraw a large one.

Working drawings and the firm

WITHIN A FIRM, THE ROLE OF WORKING drawings is to gather, organize, and communicate information among all those involved in a given project. Procedures throughout the office should therefore be standardized so this process is consistent both within a project and among all projects undertaken by the firm. Personnel may change between design and production phases, for example, so it is crucial that newly assigned personnel understand where to locate the appropriate information and are well informed about the execution of the drawings.

The design development phase is generally the most important stage in the production of working drawings, and this stage is there-

fore where the most common problems are generated. Design development often evolves as an exercise in large-scale client presentations. In order to provide accurate dimensions and code compliance, the following steps prove a useful guide:

- Research and finalize major structural, mechanical, and electrical systems before beginning working drawings;
- Finalize outline specifications for the products and systems that will be incorporated into the project. This will foster a smooth transition from the design development phase to contract documents;
- Review all code-related issues, including life safety, structural, energy, zoning, historical, and environmental requirements, to avoid any last minute changes that could significantly influence the outcome of a project. (Common oversights include inadequate attention to barrier-free codes);
- Plan carefully before producing working drawings to alleviate additional problems (see sidebar, below).

Working drawings within the profession

PROPER TRAINING TO EXECUTE DRAWINGS should take place on two levels: within the schools of architecture and within the profession. Technical training in both cases should address the proper standards and methods for executing working drawings. However, it is in school that the architectural student must develop an understanding of the accuracy of working drawings. Armed with this knowledge, he or she will bring to the workplace both wisdom and expertise. Although students should be introduced to the ConDoc system while in school (ARCHITECTURE, December 1990, pages 107-110), that organizational process relies heavily on previous knowledge of documentation procedures. Therefore, training according to the methods and procedures of ConDoc should not be substituted for general training in the production and execution of traditional working drawings.

Working drawings should be project-specific, since smaller schemes and design/build projects demand less information than large-scale buildings.

Most design professionals are knowledgeable about CADD and have integrated systems into their architectural firms. Quite frequently, employees attend training seminars on how to use computers efficiently and effectively, and an entire support network has developed in the profession for users of CADD software. Although working drawings remain the fundamental tool and method of communication between the parties involved in construction—architect, contractor, and client—it is unfortunate that no formal training program exists to update architects as to the proper procedures in developing these basic drawings.

From the architectural student to the practicing professional, it is essential that architects incorporate the development of accurate working drawings into the firm's philosophy. Though the execution of working drawings may not appear as rewarding as design, it is crucial to the financial success of the firm. ■

—ALLEN J. BOEMER, AIA

Allen Boemer is assistant professor of architecture at the Wentworth Institute of Technology in Boston, Massachusetts.

Planning Before Production

TOO OFTEN, ARCHITECTURAL FIRMS PLUNGE HASTILY INTO THE production of working drawings. But the planning stage is as critical as the production stage. The following steps provide assistance when undertaking the working drawings phase of a project:

Cartoon Entire Set: The project manager should "cartoon" the entire set of working drawings, including the consultants' drawings, by creating thumbnail sketches for each sheet necessary to produce a complete set of working drawings. The project manager should also accurately lay out the project on a scale that will fit in an 8½-by-11-inch project notebook. This book of master drawings will help determine what drawings are needed, how they will be oriented, and on which sheets they should eventually appear. A draftsperson is then able to develop the working drawings in a uniform format.

Develop a Project Schedule: Based on budget, time, and available personnel and their skills, the project manager should develop a schedule that serves as an index of all working drawings and includes project person-hours to complete specific drawings, staffing assignments, and early and late start and completion dates. The project schedule affords the project manager an understanding of the minimum and maximum number of hours to complete the working drawings on a per sheet basis.

Determine Responsibilities of Project Team: With an accurate and detailed project schedule, the project manager is able to delegate various tasks to personnel who are best suited to handling specific areas of the working drawings.

Standardize all Symbols, Schedules, and Details: Following the uniform standard for the industry, make sure that the standardized symbols for consultants are also recorded for all disciplines to cross-reference their work with the project.

Clarify Graphics: Make sure all spelling is correct and appropriate abbreviations and graphics—such as those indicating horizontal and vertical dimensions within the building—can be clearly understood. It is important to establish centerline dimensions for structural grids, while the architectural dimensions should be measured from the centerline grid to the face of finish walls. Set a standard that is consistent throughout the project and can be easily understood by all personnel during the course of assembling the contract documents.

Correct Dimensions: Details of drawings should be clear and accurate. Cross-referencing of dimensional information should be undertaken with consultants to ensure that all architectural, structural, and mechanical dimensions add up both horizontally and vertically.

Complete Information: Properly cross-reference the specifications with the drawings to be certain that all the information the contractor needs for estimating and construction is complete. It is also helpful to perform a code review and a last-minute regulatory review to see if all compliance issues have been satisfied.

Automated Specifications

The way specifiers write is changing as dramatically as the way designers draw.

LIKE THE FIRST MOVING PICTURES, WHICH were made with stationary cameras pointed at actors on a stage, the first automated specification systems were modeled after traditional print information. Even though the information was on disk instead of paper, its nature was the same. And, like the movie pioneers who transformed cinema into a more powerful medium than a stage play on film, developers of the newest computer-aided specification systems have changed the nature of spec writing. New systems provide architects with expert guidance that was not possible in traditional media.

The ways in which specifiers currently use computers span a broad spectrum from simple word processing to sophisticated "expert systems." Graphic as well as textual product information is available in increasingly compact, easy-to-use forms. Electronic links between specifications and construction drawings are facilitating greater integration of the once discrete media.

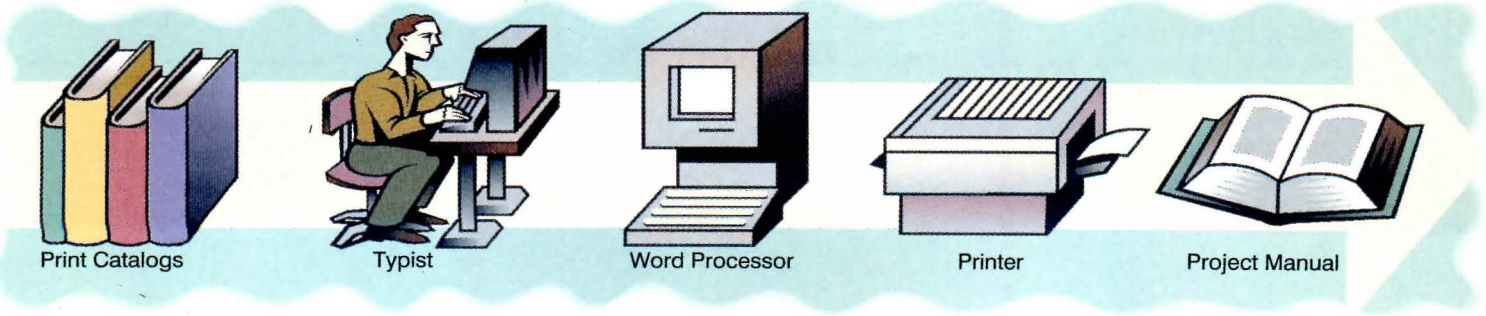
For many architects, ordinary word processors are an efficient way to extend the capabilities of traditional methods. With simple cut-and-paste operations, architects can build up a specification as they formerly used photocopiers, scissors, and tape. But word processors have additional capabilities that can be exploited for the special needs of specifiers. For example, consider the "subtractive" method employed by many architects: they begin with a master specification containing their entire library of specs, then delete text not pertinent to the current project. Frank Mascia, an architect with the Collaborative Design Group in Tucson, Arizona, has developed a variation of this technique. Macintosh Short Specs, the software developed by his firm, is suitable for small projects. Using a "hidden text" feature, the specifications writer selects text to be suppressed during printing without actually cutting it from the master. Mascia says, "The beauty is that later, when checking the spec, I can see not only what I have selected, but what I have cut." He claims that small techniques like these can provide benefits disproportionate to their cost.

Paul Edlund, a specifications consultant based in Eugene, Oregon, has been developing his own master specification on a dedicated word processor for nearly 25 years. His paper copy of the master spec is marked with numbers that allow him to assemble paragraphs, whole sections, or single words by simply typing a series of codes. Not only is this a fast and efficient way of compiling a customized spec, but by avoiding the subtractive method of editing a paper master, he conserves a great deal of paper. "Word processing programs are now much better than they were when I started," he maintains, "so someone starting out wouldn't necessarily go my route. But I wouldn't change now. This system lets me do it my way." Edlund believes that subscribing to an electronic specification may save typing in the short run, but that specifiers who have their own style and standards may be frustrated if their custom work is continually updated by an external standard. Nevertheless, many architects subscribe to and enjoy the benefits of electronic specification systems such as those available from the AIA and Construction Specifications Institute (CSI).

Years before computers became commonplace in architectural offices, the CSI created Spectext and the AIA created Masterspec as paper systems. Spectext was a guide spec—an outline with blanks to fill in, most useful for experienced specifiers. By contrast, Masterspec was an overall specification, with multiple options that even a relatively inexperienced specifier could employ by editing and deleting the sections that did not apply. Now these two systems have been converted to their electronic equivalents and are available by subscription on floppy disks for a variety of word processing hardware and software. To use these disks, a specifier may edit the text on screen or on a paper master copy for processing by a typist.

To assist a specifier working with Masterspec and Spectext, ARCOM, a Salt Lake City firm, has produced WordPerfect macros. (A macro is a simple command that initiates a more complex sequence of instructions.) ARCOM's Masterworks is designed for use with the AIA's Masterspec, and MicroComspec works with the CSI's Spectext and other guide specifications. Each set of macros is driven by menus for editing, file management, reporting, and printing. One macro, for example, can go through every spec section in a

Early methods of computerized specifications required selecting specs from catalogs, entering them into a word-processor, printing, and compiling a project manual (below).



PETER THOEY ILLUSTRATIONS

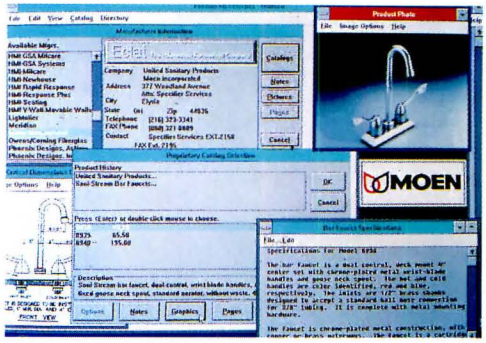
computer directory and globally modify headers and footers. Other macros perform search and replace procedures and compile summaries of important spec paragraphs. For example, the reports can summarize the submittals, field samples, and extra materials required during construction.

Specsintact is another example of specification-processing software. It was developed by the National Institute of Building Sciences to work with a CD-ROM collection of specifications from government agencies (see sidebar, page 160).

Now that computer technology is allowing architects to manipulate huge data bases with sophisticated links between kinds of information, there is a growing trend toward the integration of two historically distinct media: specs and drawings. In an integrated system, the computer will recognize, for instance, that a mention of roofing on the drawings should be consistent with a section on roofing in the specifications.

A new drawing system called ConDoc (ARCHITECTURE, December,1990, pages 107-112) takes a step toward this integration. ConDoc software interacts with its host CADD software to compile keynotes from drawings and construct a specification table of contents, based on the 16-division Masterformat numbering system. According to Warren Hoppe, senior director of the professional systems division of the AIA, developments are under way to expand the usefulness of these links between drawings and specifications. Soon, software that automatically compiles pertinent Masterspec sections from the list of keynotes will be available.

System George 4, from the Canton, Illinois-based software firm AEISI, is an information system that features specification writing and automates many other office practices. The spec system provides 190 broadscope sections that can be developed to the detail needed by pulling information from a data base of thousands of building products. System George 4 also creates links between the



A CD-ROM-based system, Eclat (above) provides photographs, CADD drawings, and technical information on products from many manufacturers. A step up from word processing, specification processing (bottom) requires sophisticated software to manipulate text from a variety of specification libraries.

specs and drawings in the form of directives to the drafting room. For example, if the specifier includes a section for downspouts, the computer will generate a note for the drafter about not placing a downspout where a car can back into it. Links can also be made from specifier to field observer, and data can be exported to spreadsheets for cost estimating. Hundreds of modifiable masters in the system include transmittal forms, professional correspondence, and checklists.

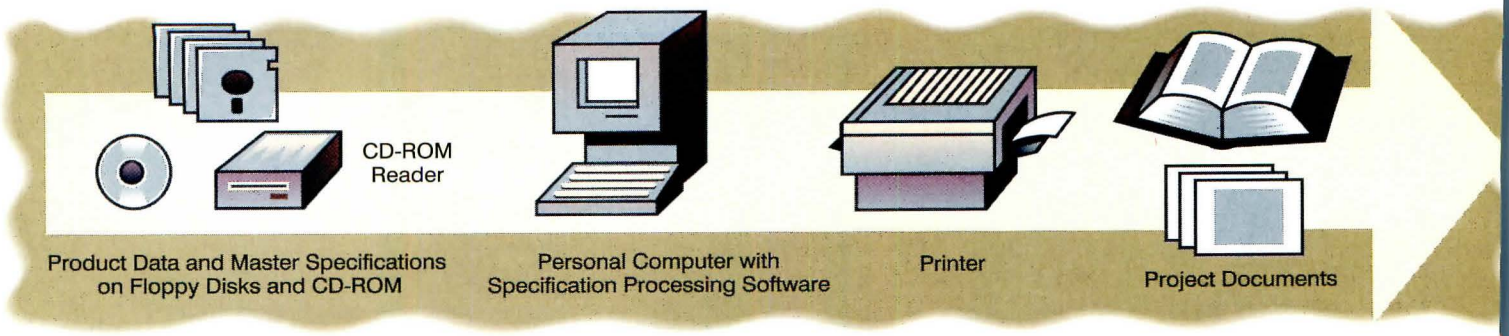
As architects begin to appreciate the value of linking specs and drawings electronically, manufacturers are responding by supplying designers with floppy disks containing proprietary specifications and details. Some of these disks are structured as "expert systems." This means that they contain not only product information, but also a method for helping the designer select the appropriate product. Instead of seeing specification text, the user answers questions that enable the computer to compile a specification. Two companies creating these systems for manufacturers are Architectural Synthesis and Vertex Design Systems.

Architectural Synthesis produces Computer Intelligent Details and Specifications (CIDS), described as information systems that resemble a conversation between an architect and a manufacturer's representative. The CIDS questions lead the designer to the appropriate product and result in a CADD drawing and a written specification. Architectural Synthesis also produces DocuKey, which allows designers to replace text notations on drawings with keynote code numbers that tie into either Spectext or Masterspec.

Like CIDS, the Electronic CADalogs from Vertex are floppy disk-based, manufacturer-specific catalogs of product information, specs, and drawings. A menu system enables the designer to find the right product quickly, copy the drawings into an AutoCad or a DFX-compatible CADD system, and export the specifications to any word processing program that can read ASCII files.

One benefit of combining drawings and specifications may be that products can be considered earlier in design development. Unfortunately, most manufacturer-specific data bases lack standardization. Dozens of manufacturers provide proprietary specs and/or details on disk, but in order to use them, an architect must learn dozens of user interfaces. Eclat's CD-ROM system solves this problem by providing a single interface for proprietary specs, drawings, engineering calculations, and other product information from many companies. Therefore, an architect need not select a manufacturer before beginning the product search. With a mouse and the Windows 3.0 operating system, the user selects products by attribute from an increasingly specific list. At the end of the search, the remaining products all satisfy the requested criteria.

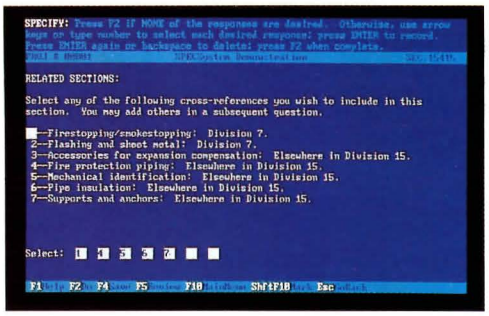
Expert systems also exist for generic, nonproprietary specifications. SpecSystem, formerly called Sweetspec, is distributed on CD-ROM. The user proceeds through a question-and-answer session for each section, and the computer develops a specification that covers the pertinent materials. The sys-

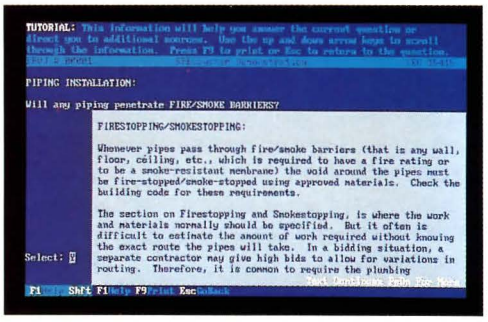


tem also offers an "audit trail" so choices can be reviewed. To change an answer, a user can jump back into the conversation, and the computer will modify its path of questioning to adjust to the changes. If the user doesn't know the answer to a question, an extensive tutorial is available. The resulting spec can be further modified with built-in word-processing functions. The system includes about 400 sections, with more under development. For sections not included, SpecSystem has section-writing software that establishes a boilerplate format with standard headings and language. The architect inserts the appropriate information into the template.

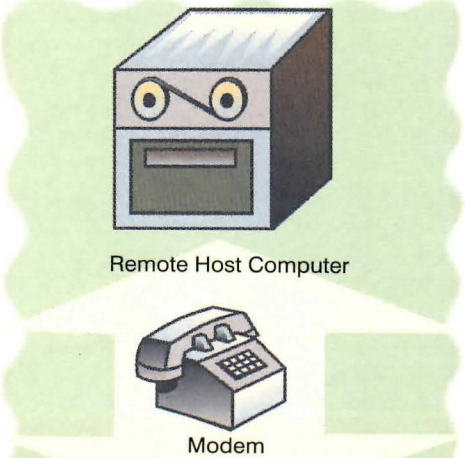
Architect and SpecSystem developer Robert Dean, of the professional services firm Heery International Atlanta, believes the tutorials make this an ideal system for novice spec writers and is offering the system free to schools of architecture where courses in building materials or construction documents are taught. But the system is also useful for experts, according to Dean. "It relieves architects of the tedium of producing individualized specs in product areas they're familiar with, leaving them more time to devote to the specialized sections." One such experienced specifier is Martin Bloomenthal, an architect with The Hillier Group of Princeton, New Jersey. Bloomenthal believes SpecSystem has enabled his office to begin writing specifications earlier in the design process and coordinating them more closely with the construction drawings. He maintains, "The context-sensitive tutorials give useful information without forcing us to read a lot of irrelevant material. Because we can go through SpecSystem so quickly, we can try more variations and use it as a design tool."

SuperSpec is another expert system, but with a very different approach. Each available section has a corresponding paper checklist. The specifier fills out the form by checking boxes, answering questions, and filling in blanks for special cases. An accompanying commentary provides background information. The specifier or typist then enters the information into a local computer, from which it is relayed by modem and toll-free number to SuperSpec's central mainframe in Florida. There, the specification sections are assembled, checked for internal consistency, and sent back to the specifier who then edits with software that automatically renumbers paragraphs when one is removed or added, and inserts margin notes to indicate where changes were made. Through conversations with users all over the country, the expert specifiers at SuperSpec are able to incorporate new information in their master specifications. They can also maintain a record of users' office styles and local codes.





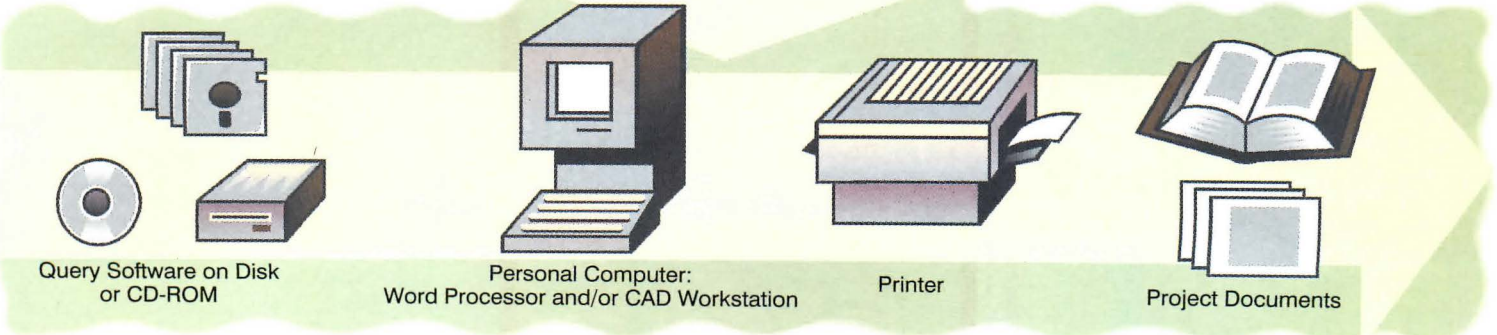
The expert systems SpecSystem (above) guides specifiers through choices of materials and requirements. Tutorials (top) explain the technical rationale behind choices. Expert systems ask questions just as a specifications consultant would, narrowing the options the specifier needs to consider. Some, like SuperSpec, have data bases on a remote host computer (below).



Finally, in commenting on the future, Chusid, a specifications consultant in Oklahoma City who has tried most of the automated systems, "What's exciting to me is that soon we will see the obsolescence of specifications as we now know them." He envisions a construction industry in which the now-haphazard communication of product information from manufacturers to designers to contractors to suppliers is replaced by a unified, electronic, multidimensional model. As design integration improves, Chusid argues, the distinction between drawings and specifications will disappear. "Now, the architect is the middle person between the manufacturer and the builder who reinterprets information. If the need for reinterpretation changes, the profession will change."

But as long as architectural practice survives in its current form, there are real benefits—and dangers—to be found in automated specifications. Easier-to-use systems generating highly polished-looking output may tempt the specifier into thinking these specs can go directly from printer to bidders without professional review. But as long as architects are still liable for ensuring the quality of whatever comes out of the machine, there can never be any mechanical substitute for good old-fashioned expertise.

—B.J. NOVITSKI



The Construction Criteria Base on CD-ROM

ANY ARCHITECT DESIGNING PROJECTS for Uncle Sam would probably welcome a reduction in paperwork. Now, with CD-ROM technology, nearly one million pages of government specifications, standards, codes, design manuals, and other documents have been compacted into four small disks (bottom). Updated quarterly, this information is always current and in an easy-to-use form.

The Construction Criteria Base (CCB) was started in 1987 by the National Institute of Building Sciences (NIBS). The most recent release includes specifications from NASA, the Army Corps of Engineers, the Naval Facilities Engineering Command, the Federal Highway Administration, and many other government agencies. Also included are military cost estimation systems, OSHA regulations, and Department of Energy performance standards. With a security procedure preventing access by unlicensed users, the CCB also includes copyrighted material such as the AIA's Masterspec and BOCA National Codes. The list goes on.

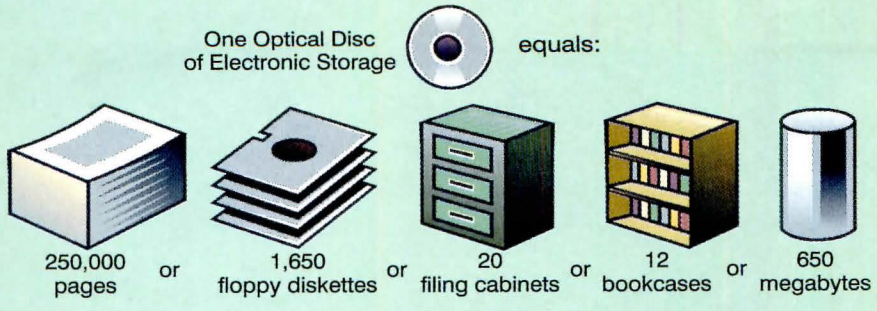
Fortunately for the CCB user, the disks contain not just hundreds of documents, but also the software to navigate among them. A search and retrieval function allows material to be located by keywords. Specsintact, a specification processor now required for some government projects, is a word processor with functions that are particularly useful to specifiers. It allows the selection of sections from different master specifications. It then renumbers paragraphs and pages, sets up a table of contents, prepares submittal reports, and compiles references that correspond to the resulting sections.

Specsintact user Robert Draper, project architect with Burgess & Niple of Cincinnati, Ohio, likes the improved accessibility this system provides for government documents. Also, he says, it improves the specifier's control over the spec-writing process. "It's no longer a typist's function. Specsintact allows the specifier to edit, make intelligent decisions, create final documents, and coordinate each section with other sections."

The hardware required by the CCB is quite modest. The basic system consists of an IBM-PC (XT, AT, 386, or compatible) with 640K of RAM and an EGA card. The CCB will work with a 20-megabyte hard disk, but a 40-megabyte disk is recommended, as is a color monitor. CD-ROM stands for compact disk/read-only memory, which means that the user cannot write over information on the disk. Similar to audio music CDs, CD-ROMs are $4^{3}/_{4}$-inch-diameter plastic disks imprinted by lasers. CD-ROM players are available from many computer suppliers and from NIBS. Because CD-ROM players that operate with computers must do more random data access than music CD players, they have sturdier read heads and motor mechanisms, and are therefore more expensive. However, prices are coming down rapidly, and some are now under $500.

Now that the documents from so many government agencies have been compiled on CD-ROMs, it may be possible to standardize specifications between agencies. According to Earle Kennett, Director of CCB Programs at NIBS, this coordination is already starting to happen. It may be some time, however, before the massive quantity of information is reduced. In the meantime, the CCB brings the myriad government documents together in a more accessible form. ■

—B.J.N.



Some Specification Systems

DocuKey and CIDS (Computer Intelligent Details and Specifications)
Architectural Synthesis, Inc.
545 Mainstream Drive, Suite 430
Nashville, Tennessee 37228
(615) 734-1500

Eclat Automated Product Information
Eclat, Inc.
7041 Koll Center Parkway, Suite 220
Pleasanton, California 94566
(800) 533-2528

Electronic CADalogs
Vertex Design Systems
282 Second Street, Fourth Floor
San Francisco, California 94105
(415) 957-2799

Macintosh Short Specs
Collaborative Design Group
345 E. Toole, #202
Tucson, Arizona 85701
(602) 629-9752

Masterspec
Masterspec Marketing
The American Institute of Architects
1735 New York Avenue N.W.
Washington, D.C. 20006
(800) 424-5080

Masterworks and MicroComspec
ARCOM
530 East 500 South, Suite 220
Salt Lake City, Utah 84102
(801) 521-9161

Specsintact
Construction Criteria Base
National Institute of Building Sciences
1201 L Street N.W., Suite 400
Washington, D.C. 20005
(202) 289-7800

SpecSystem
999 Peachtree Street, N.E.
Atlanta, Georgia 30367-5401
(800) 942-7732

Spectext
CSI Data Services
400 Oser Avenue
Hauppauge, New York 11788
(516) 231-4646 (N.Y.)
(800) 235-3515

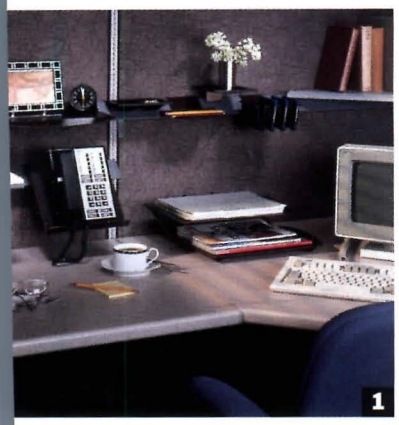
SuperSpec
SuperSpec, Inc.
1660 Prudential Drive
Jacksonville, Florida 32207
(800) 359-7732

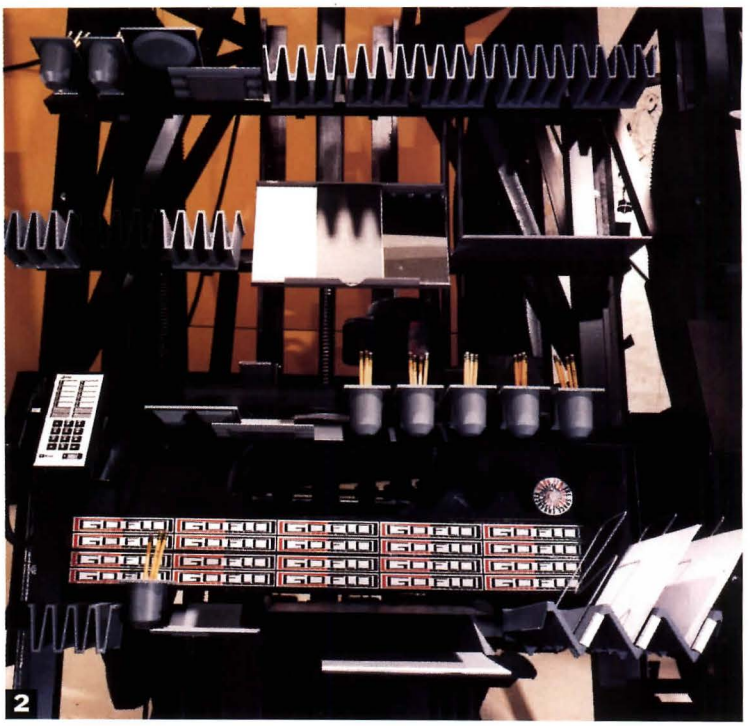
System George 4
AEISI
44 White Court, Box 459
Canton, Illinois 61520
(800) 541-4018

Machines for Working

Conveying office details through mechanistic imagery.

DETAILS IS A ONE-YEAR-OLD COMPANY THAT PRODUCES TOOLS AND accessories for the office. A division of Steelcase and the newest member of the Steelcase Design Partnership, Details is the brainchild of president Jack Cottrell, who recognized a need to provide functional products that personalize the office, reduce clutter, and improve work stations. The product line includes pen and pencil holders, file hangers, task lighting, tackboards, and locking storage bins, all designed by established and emerging American industrial design talent. "Traditionally, desktop accessories have been neither innovative nor constructed of excellent materials," explains Cottrell. "We decided from the onset that design would be an integral part of our business."

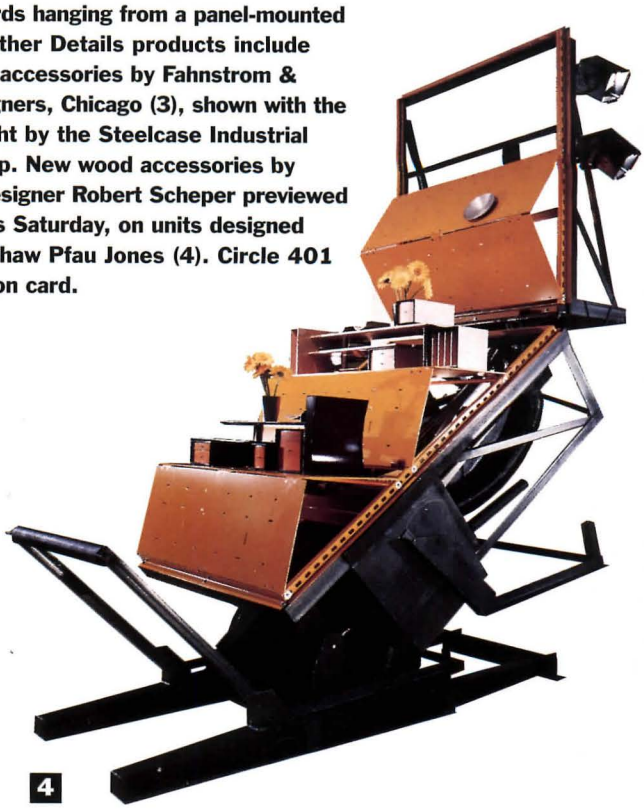




To convey a progressive corporate image, the company decided to present its line of office tools and accessories in an unusual display at the International Design Center during Designer's Saturday, held in New York City last October. Cottrell commissioned Holt Hinshaw Pfau Jones, a young San Francisco architectural firm, to design portable showroom units that could withstand rugged travel, be adjustable for different showrooms, and create a memorable impression. Within 10 weeks, the firm completed six machinelike display stands to showcase Details' merchandise. The steel-and-aluminum devices, some of which are based on historic industrial designs such as Le Corbusier's chaise lounge, can be reconfigured to accommodate the range of Details products and the Steelcase showrooms in which they will be featured. Their aluminum skins are painted black to highlight the office accessories, or a John Deere yellow that evokes images of pragmatic farm machinery. Principal Wes Jones explains that the units illustrate display as a celebratory act and assimilate a personality in their own right, exalting the products they support by emphasizing and engaging them in the final design. Holt Hinshaw Pfau Jones recently refined the units for their next appearance, at WestWeek '91 in Los Angeles, March 20-22.

In June, Details plans to introduce a full line of computer accessories, as well as additional task lighting, at Neocon in Chicago. Cottrell says his future goals for the firm include an office resource for specifying office accessories and ergonomic furniture. —AMY GRAY LIGHT

1. Work Flo accessories, designed by the Richard Penney Group, New York, include overhead bins, files, pen and pencil holders, storage units, clothes-hanging accessories, and tackboards hanging from a panel-mounted frame (2). Other Details products include Desk Scape accessories by Fahnstrom & McCoy designers, Chicago (3), shown with the Lyra task light by the Steelcase Industrial Design Group. New wood accessories by Steelcase designer Robert Scheper previewed at Designer's Saturday, on units designed by Holt Hinshaw Pfau Jones (4). Circle 401 on information card.



Locking it Up

Hardware and security systems protect investments.

THE CONTINUED INCREASE IN PRISON CONSTRUCTION AND THE trend toward privatization of medium- and low-security prisons are exerting a positive effect on the security hardware industry, according to Jeff Fenwick, an architectural hardware consultant and assistant sales manager of LCN Closers. "The government traditionally looks for the most cost-effective security items for prisons, and most products meet its basic guidelines," Fenwick maintains. "But private firms involved with building and managing prisons are motivated to select quality security hardware and monitoring systems to protect their investment, which challenges the industry to manufacture better, more innovative products." Electronic security systems, which decrease the required number of guards, may solve the problem of a steadily growing prison population versus a shrinking pool of trained personnel to monitor these facilities. Many manufacturers have developed systems that allow a systematic approach to security, with masterkey codes, specific keying requirements, and codes for growth expansion. Access control systems operated by either a card reader or keypad control are popular, as is electrified hardware that provides locking and unlocking capability. —A.G.L.

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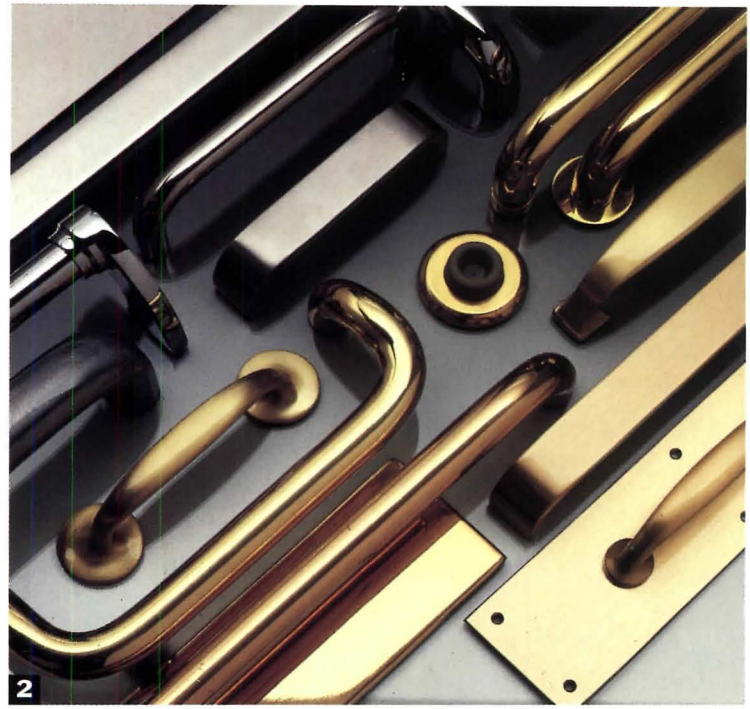
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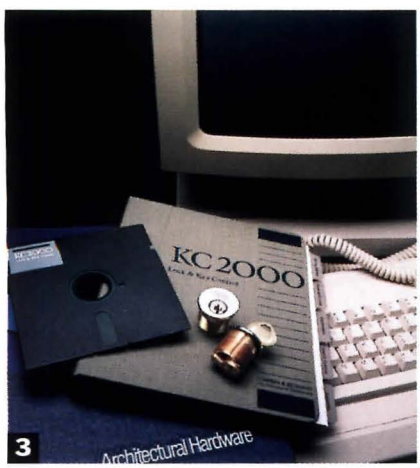

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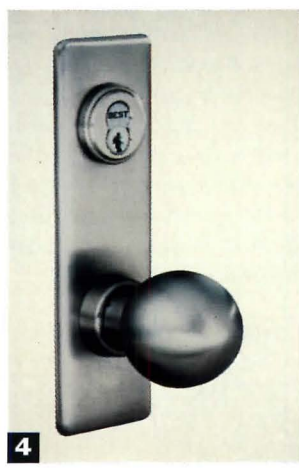
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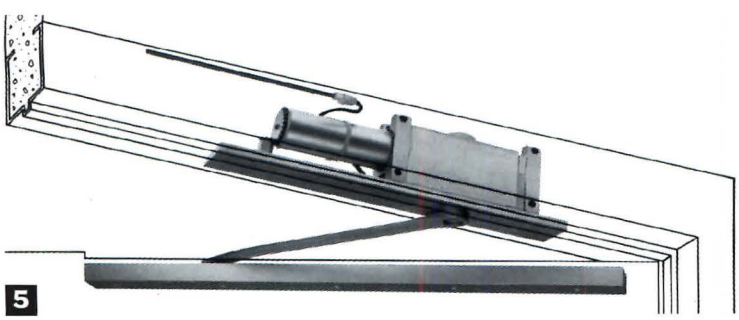
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1. The Dentco III single-door access control system introduced by Detex provides either card reader or keypad control. Circle 402 on information card.

2. Yale Security locksets include door-closing and locking systems, electronic locking systems, trim, and push and pull bars. The Brookline door line is available in a variety of materials from plastic to brass. Circle 403 on information card.

3. Corbin & Russwin, a Black & Decker company, introduces the KC2000 lock and key control system. Circle 404 on information card.

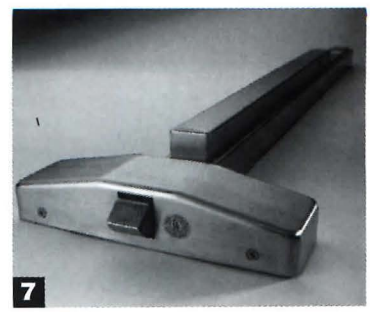
4. Best Lock's cylindrical locksets incorporate features such as quick rekeying of interchangeable cores. Circle 405 on information card.

5. The LCN 2210 DPS series of door closers is coordinated with security monitoring systems. A concealed track prevents jamming and ejects foreign objects placed in the track. Circle 406 on information card.

6. Chexit controlled-exit device from Von Duprin is a self-contained delayed exit system with all controls, auxiliary locking, local alarm, and remote signalling output integrated into the hardware. Circle 407 on information card.

7. Monarch Hardware, a Newman Tonks company, introduces a series of electrified hardware called the Electric Latch Retraction (ELR) line. Controlled manually or through a security system, the ELR products can be activated to hold a door open momentarily or for extended periods. Circle 408 on information card.


6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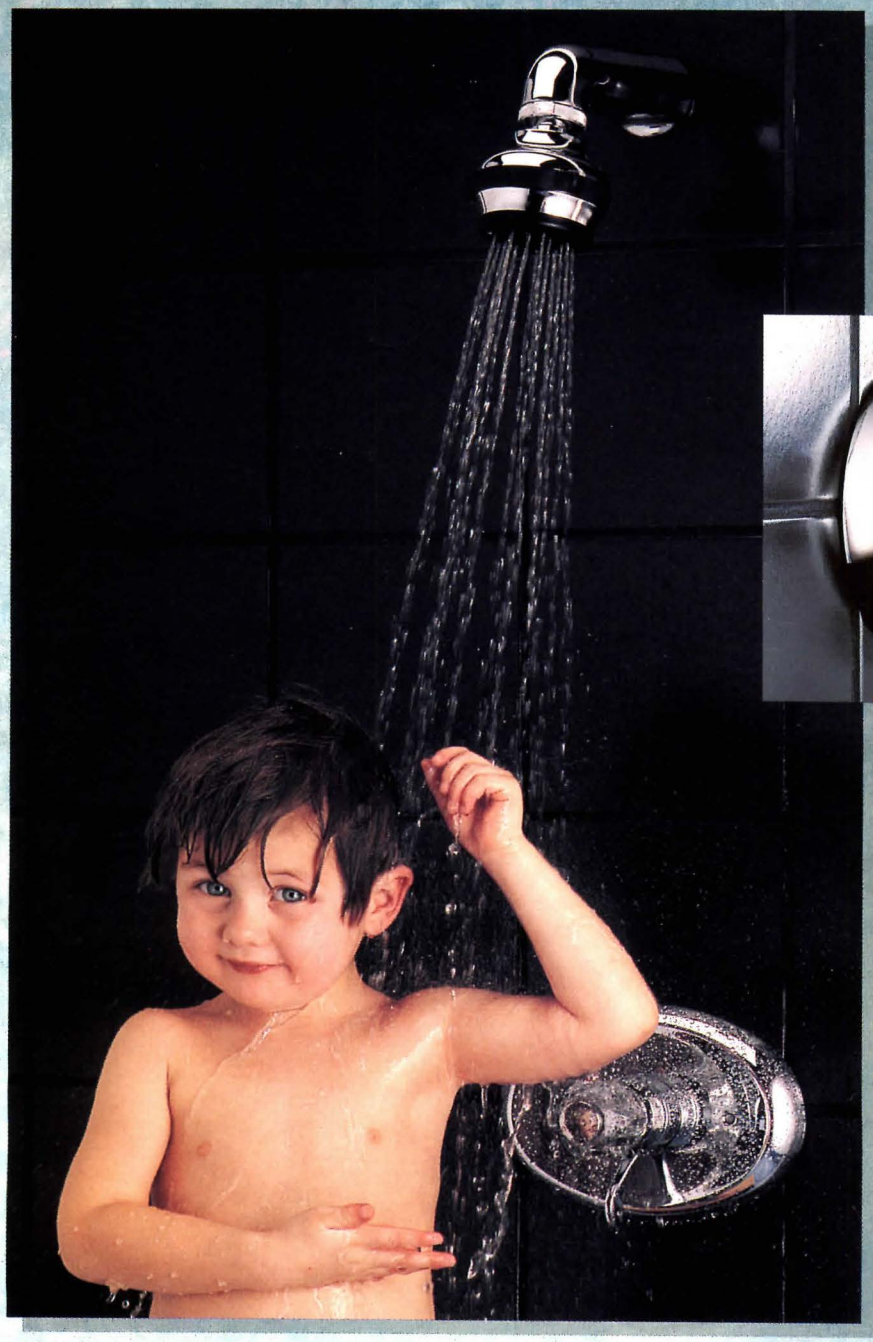
GROHE

for your family safety



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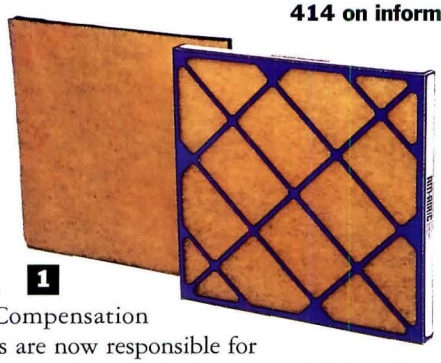
Preventing Pollution

Indoor air cleaners meet environmental challenges.

TWENTY YEARS AFTER THE CLEAN AIR ACT OF 1970, SOME EXPERTS consider indoor air contaminants in the home and workplace one of the 10 leading causes of death in the country today. Furthermore, the loss in annual productivity costs to U.S. businesses from polluted indoor air is in excess of $60 billion, according to a report issued in 1989 by the Environmental Protection Agency (EPA). The study indicates that Americans spend an estimated 93 percent of their time indoors, often in airtight buildings that result in problems associated with sick-building syndrome, which can cause everything from sore throats to fatal illnesses. Frequently, indoor air problems in large commercial buildings cannot be effectively identified without a comprehensive building investigation. Since the passage of the Federal Comprehensive Environmental Response Compensation and Liability Act of 1988, all property owners are now responsible for any environmental hazard—indoors or out—regardless of whether or not they created the peril. This legislation impels businesses to reduce the problem of fouled air to protect their investment in both employees and equipment. Architects who specify air-purifying equipment *can therefore* help their clients avoid liability suits. —A.G.L.



1

1. American Air Filter's Am-Air/C odor removal filters are disposable, and contain granular carbon for effective odor removal and particulate filtration. Circle 413 on information card.

2

2. Centercore's Spacemaker 2000 workstations feature an air infiltration system in the center of the configuration that creates additional air movement. Circle 414 on information card.

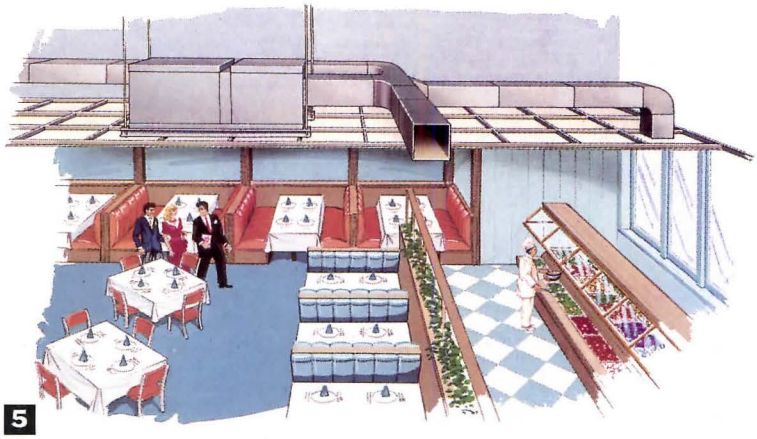
3

3, 4. Honeywell Inc.'s ceiling-mounted and flush-mounted electric air cleaners both purify and recirculate the air. Circle 415 on information card.

4

5. The EnerKleen air infiltration unit features built-in HVAC capabilities. American Air Filter. Circle 416 on information card.

6. Smokeeter concealed air cleaners adapt to various room configurations. The ceiling-mounted systems have inlet and outlet grilles that can be placed anywhere in the room (8) to create the best airflow pattern. United Air Specialists. Circle 418 on information card.



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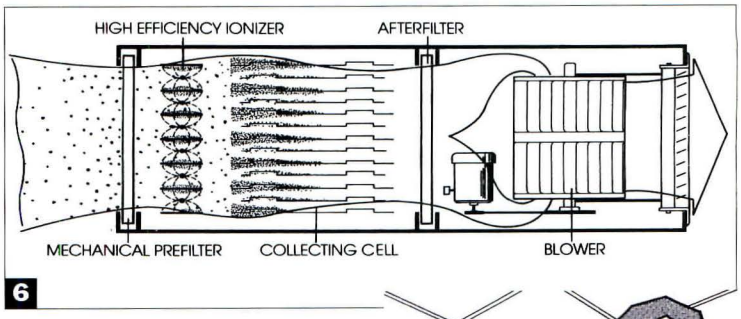

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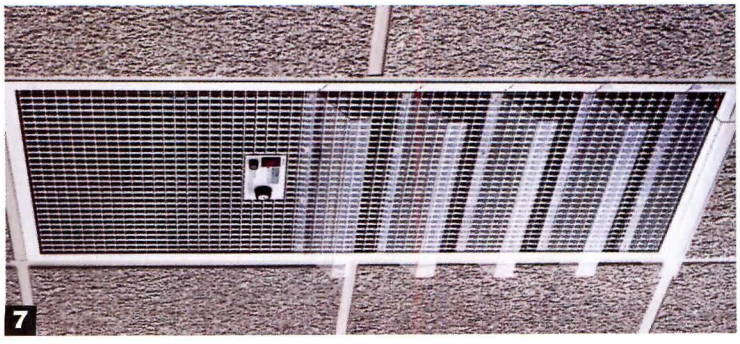
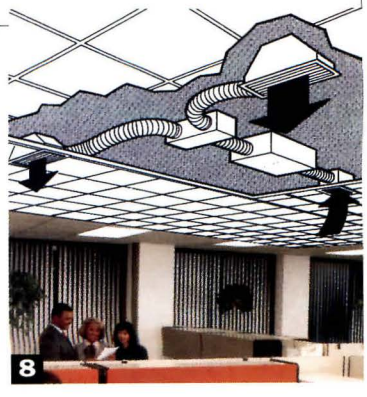


7

7. American Filtrona Corporation's UltraPure 2000 removes pollutants without restricting air flow. Models are designed for ceiling or wall installation and offered in a variety of finishes. Circle 417 on information card.



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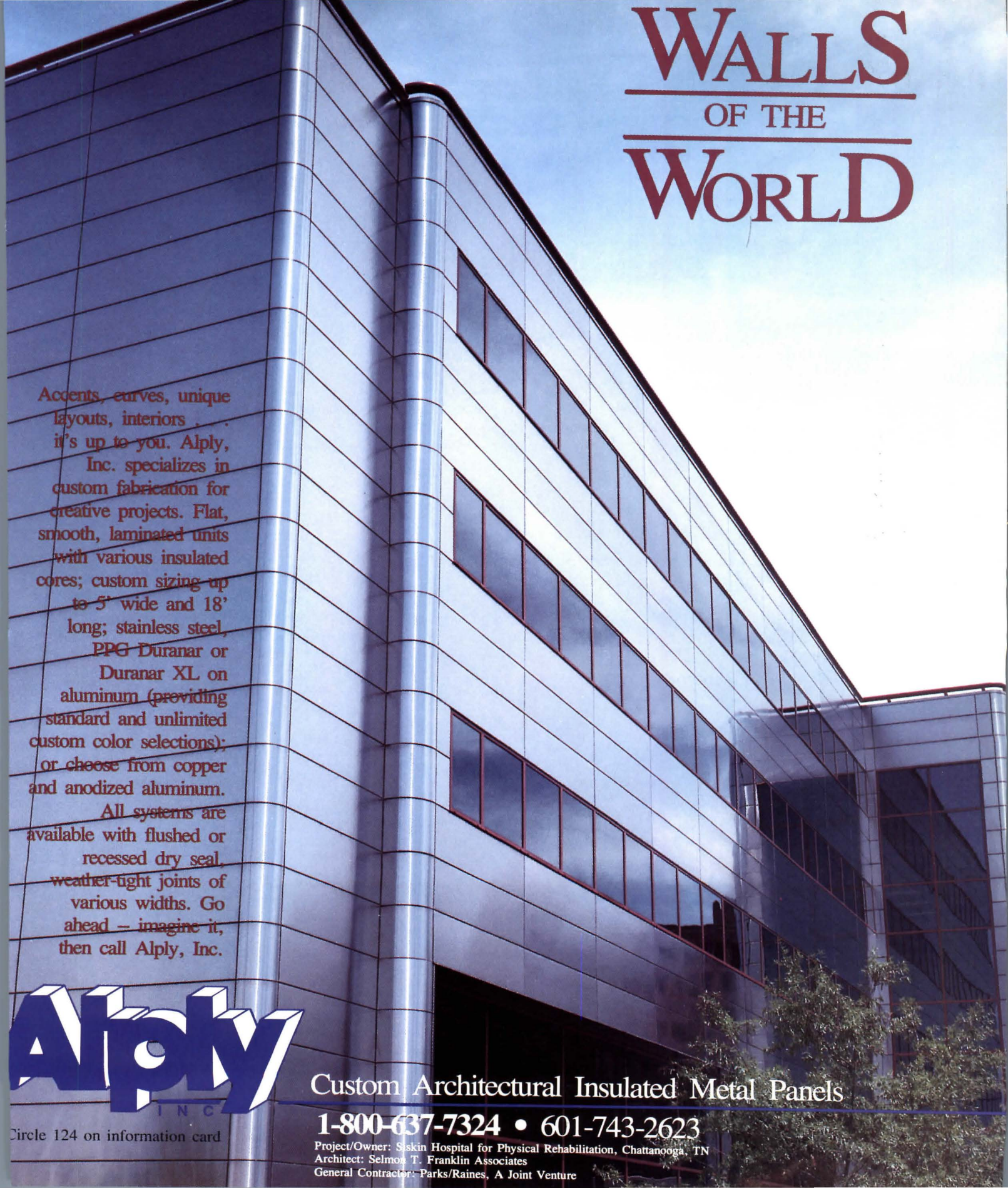

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Project/Owner: Siskin Hospital for Physical Rehabilitation, Chattanooga, TN
Architect: Selmon T. Franklin Associates
General Contractor: Parks/Raines, A Joint Venture

Circle 124 on information card

PRODUCTS

Controlled security

CARDKEY SYSTEMS, A DIVISION OF SYSTEMatics, introduces three security products tailored for the small business or office. The SK2 Keypad Door Controller monitors a single door or access point, and will support up to 10,000 identification numbers. The SK2 features a built-in alarm relay which is triggered if the door is forced, held open too long, or an incorrect access code is entered; the user can also punch in a special code to activate a duress signal. The SC2 Single Door Controller is a compact, wall-mounted unit with a built-in magnetic stripe card reader and 16-button keypad that can control door access for up to 1,000 card holders. The S200 Door Control, a low-cost unit for smaller applications, contains a door controller, one magnetic-stripe card reader, and 50 magnetic-stripe access cards. It can be expanded to control up to four doors, and has the capacity to control access of up to 1,500 cards.

Circle 410 on information card

Steel brochure

A NEW BROCHURE from the Vulcraft division of Nucor details a complete line of steel joists, decking, and joist girders by presenting its application in buildings under construction throughout the country (right). The well-designed literature targets architects, structural engineers, developers, steel fabricators, and steel erectors, and explains the advantages of specifying Vulcraft products.

Circle 409 on information card.

Door closers

THE DCO SERIES OF AUTOMATIC DOOR COORdinators from Rixson-Firemark, a division of Yale Security, controls sequential closing of pairs of doors. A hold-open lever assures proper latching and helps eliminate damage to adjacent hardware and astragal. The UL-listed coordinators accommodate jamb openings ranging from 54 to 96 inches wide and feature an adjustable spring tension to accommodate a variety of door closers.

Circle 411 on information card ■

What's behind every Fry molding?

epresentative consults on site of *Library Tower project, Los Angeles, California. Pei & Partners, Design Architect. Ellerbe Becket, Executive Architect.*

Our people. You'll find them behind every Fry architectural molding. From product selection to installation and beyond, Fry is there with you throughout the entire design/build process.

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What's behind every architectural molding? With others, you will find just drywall or plaster. With Fry, you will find the finest products available and caring professional people who will be with you every step of the way.

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Look for us in Sweets catalogue 9200/Fry.

Gold Medal *continued from page 68*

schemes, as well as look after all the small details of a project that he is too busy or too bored to bother with. Not everyone is equipped to play this game.

"You have to put ideas on the table and be willing to have them twisted and changed," says Don Lyndon. "You have to be prepared not to work in a straight line."

Solitaries who retreat to corners with their pencils and sketchpads don't last long in a Moore office. Those who are afraid to tamper with a Moore sketch, or who can't see the connection between work and play that is his modus operandi, don't fare any better. He is by nature an elaborator and a complicator who, like a good jazz musician, spins a theme out before trying to pull the composition back together.

The solos are the special design pieces that Moore sets aside for himself—the ceilings, doorways, and patios that make a space sing. Like his Princeton classmate Robert Venturi, he plays plain against fancy, dumb against articulate. More and more, these pieces have become a way for him to keep his hand in large projects that, because of his frantic schedule, he can never see through to completion. Nobody gets much of Charles Moore's time these days except American Airlines. Buzz Yudell says he spends an average of three days a month at the Santa Monica office, plus an annual retreat at a resort or health spa to get the creative juices moving. "Most architectural tasks are not subject to the bad-humored push," is Moore's rationale for these sybaritic excursions.

All of Moore's partners have learned to accept his sudden absences and legendary peregrinations as a fact of life. "You can't pretend that they don't exist," says Buzz Yudell, "On the other hand, Charles's schedule can't be a critical path either. We have to structure the way we work to optimize his time."

Moore and Mark Simon of Centerbrook are currently collaborating on Nauticus, the National Maritime Center in Norfolk, Virginia. Simon and his partner Chad Floyd completed the preliminary programming, then brought Moore in for a three-day session during schematic design. They continue to get together every two months, and also burn up the fax machine, though Simon says this long-distance arrangement is far from ideal. "Charles likes to respond to others," he adds. "He has tremendous invention, but it usually comes in response to others. He likes to pick and choose."

And virtually all his collaborators agree that Charles Moore at his best is astonishing, worth all the frenzy and inconvenience. Arthur Andersson and others describe him as a Merlin figure who arrives at the eleventh hour and, with a few flicks of his pen, solves the problem that has befuddled everyone else in the office for weeks.

"Just having Charles in the room has an effect," says John Ruble. "We feel free to do all kinds of things that we might not do when he's not around. We feel free to reinvent things and to question things instead of taking them at face value."

At 65, Moore's health and powers of concentration are not what they used to be. In somber moods he talks about cutting back, maybe teaching less, and sticking closer to home. "Home" is an even more elusive concept for Charles Moore than "office." The only place that qualifies is his condominium at Sea Ranch, about which he speaks wistfully.

"One reason I enjoy Sea Ranch so much is that everywhere I look is full of special things. And I know exactly why each of those special things is there. There may have been a difference of opinion [among us] about a few, but that doesn't matter. We fought it all the way through."

Such centeredness is rare for Charles Moore. The day we talked, he taught a three-hour class in the afternoon, met that evening with Ruble and Yudell about a competition project for Disney, and had to answer to a client in Washington who wanted him on site immediately.

Moore provided one of the clearest insights into his manic activity in a 1973 review he wrote about a book on Rudolph Schindler. In the article, he makes a distinction between vulnerable and invulnerable architects, between those who are "open to all kinds of things" and change their positions constantly to accommodate them, and those who have a position or sense of mission "to which the learned and seen things contribute without the power to change it." He put Wright and Mies in the second category, and Schindler and himself in the first. He says he still has no trouble with the vulnerability tag.

"Architecture is like Chinese brush painting," he explains. "You fill up the brush with ink and put it on the paper, which is uneven and sucks in the ink and splotches it. Then you have to maneuver the brush so that things will still come out. That to me is a more useful way to think about architecture than some vast rational structure independent of when, what, and why." ■

—DAVID DILLON