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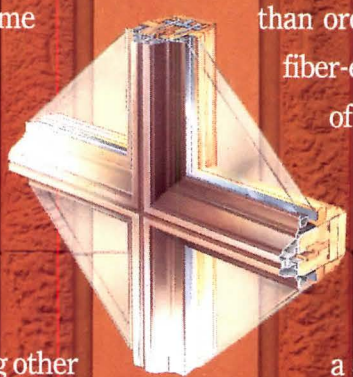


EDITOR'S PAGE

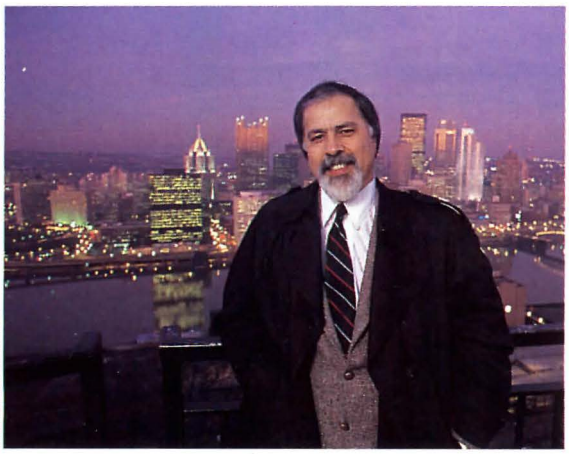
SYLVESTER DAMIANOS, HUMANIST

"THE AIA HAS BEEN TOO TIMID IN THE PAST," CLAIMS SYLVESTER Damianos, FAIA, who was inaugurated the Institute's 66th president last December at the Library of Congress. "If we are to maintain any level of leadership, we as a profession must act now to deal with education, social commitment, public outreach, and membership participation." Foremost on the new president's agenda is encouraging the AIA to assume a more prominent role in addressing the crisis in low-cost housing. As a first step toward that goal, Damianos attended a symposium on affordable housing at Harvard two days after his inauguration. "Instead of telling the federal government that housing is its problem," he explains, "we need to act as a partner with HUD in determining innovative solutions to housing, especially in the area of design."

Damianos also is eager to educate the public about the importance of architecture in their daily lives. Last year, he helped to organize Accent on Architecture, a series of lectures and tours intended to increase public debate about controversial architectural issues. The event will be held in Washington later this month.

"Protean Scape" was created by Damianos in 1988 for the Westinghouse Energy Center in Monroeville, Pennsylvania.

How Damianos will succeed in leading the AIA to a more visible and vocal position remains to be seen. However, if the new president's past experience is any indication of his strengths, then the 56-year-old architect is well-prepared to meet a variety of challenges. As chairman of the 20-person Pittsburgh firm, Damianos Brown Andrews, he is involved in architecture, planning, graphics, industrial and interior design, and art consulting. He has taught at his alma mater, Carnegie Mellon University, and was a Fulbright Scholar at the Technological Institute of Delft in The Netherlands. Damianos has served as director of the Pennsylvania Society of Architects Service Corporation, as president of the Pittsburgh AIA Chapter, and as a councilman for the Borough of Edgewood, Pennsylvania, for five years. He is also a self-taught sculptor and has completed many commissioned works for public spaces. "My artwork forces me to look at space with a more critical eye," he says. This Renaissance-styled background has given Damianos a humanist perspective that may be his greatest asset in spurring the AIA to develop a more public profile. "There's a tendency for us to forget about our clients during AIA committee meetings," he points out. "We need to remember that architects are in the business of serving people." ■



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— DEBORAH K. DIETSCH

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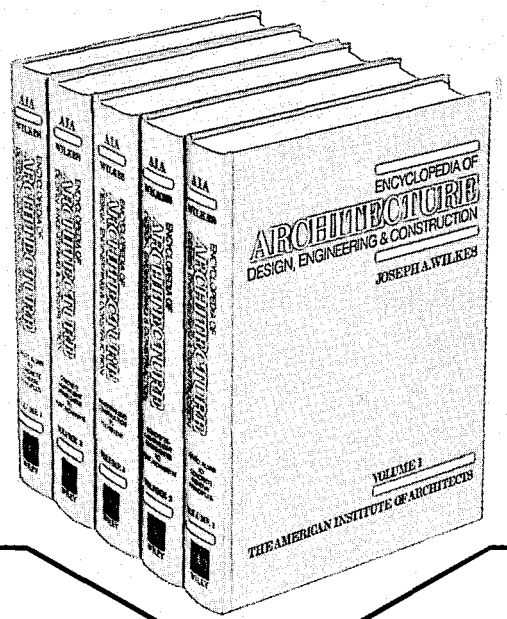

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LETTERS & EVENTS

Weathering Woods

Timothy McDonald's article "Protecting Cedar-Faced Plywood," published in the November 1989 issue, provides a good overview of the weathering process on unfinished wood siding. We agree that plywood siding should be protected with a pigmented finish when exposed to outdoor weathering. I would like to add that weathering can damage the appearance and integrity of any wood surface and negatively affect subsequently applied finishes should a homeowner later decide to paint the siding.

An article published in the November/December 1987 issue of the *Forest Products Journal* concluded that all unprotected wood should be coated within two weeks of outdoor exposure with a finish that will prevent photodegradation and water damage. We recommend three basic finish types on plywood siding exposed outdoors. Oil-based semitransparent stains are suitable for certain plywood 303 siding face grades, provided the finish is properly maintained. These finishes are available in a wide variety of colors including wood tones and grays that maintain the "natural" color and appearance of wood.

Your article states, "On their 303 siding, the APA recommends only oil-based solid-color stains..." However, both oil-based and latex solid-color stains are recommended by APA for most 303 siding face grades. Some manufacturers of overlaid plywood recommend only latex formulations.

Finally, acrylic latex house paints, well-known for their superior durability on wood-based sidings, are suitable over all plywood 303 siding face grades.

Richard A. Carlson
Associate Scientist, Technical Services
American Plywood Association

Cost of Nostalgia is Rehabilitation

While walking in Washington recently, it occurred to me that two unfortunate events have taken place in the '80s, each contributing to the current mood of the place. Reagan sought to disassemble government and Post-Modernism made a similar effort to turn the clock back in architecture. Both were fed by nostalgia, a very potent medicine. Only painful rehabilitation is ahead.

Robert Lawton Jones, FAIA
Professor and Director of Urban Design Program,
The University of Oklahoma

To San Francisco

For anyone, but perhaps more so for those of us in the architectural metals industry, it was difficult to watch the horrific tragedy unfold in San Francisco and the surrounding Bay Area during the devastating earthquake.

Although there is no way to mitigate the severity or loss of life, we can find one bright spot on a landscape of destruction: despite a reading as high as 7.0 on the Richter scale, nearly every high-rise building in the earthquake zone retained its structural integrity.

And though we are always in pursuit of higher levels of quality and technological sophistication, the talent and dedication of countless architects, consultants, specifiers, product testers, construction workers and manufacturers throughout the country speaks for itself.

While we look to bring this engineering excellence to the world and prevent tragedies such as those in Mexico City and Armenia, we can be proud of our accomplishments and commitment.

On behalf of every employee at Amarlite, we extend our heartfelt sympathy to those stricken in the disaster. To our colleagues, peers, and competitors alike, our thanks for allowing us to take pride in this industry and its people.

Ronald A. Camp
Vice President, Engineering/Marketing
Amarlite Architectural Products

Corrections

Our December 1989 issue suffered damage from bugs in a sophisticated computer system used for the first time. As a result, the last three lines on page 60 of Lawrence Houstoun's evaluation of PPG's public spaces were repeated on the top of page 62, and his final five lines on page 63 are missing altogether. Houstoun's last paragraph should read: "The problem with PPG is that it appears to have been designed from the top down. A half-century before open space standards such as Pittsburgh's, the designers of Radio City's promenade at Rockefeller Center got it right—abundant seating, the play of water, outdoor dining, statuary, shop windows, flowers and greenery, and, winter and summer, people. Remarkable."

Similarly disastrous, the final word, "gallery," disappeared from the end of Charlotte Ellis's article on James Stirling's Staatsgalerie. We apologize to all.

Feb. 12-Mar. 9: The AIA Committee on Architecture for Justice will display its 1989 Exhibition of Architecture for Justice, co-sponsored by the American Correctional Association, at the John Jay College of Criminal Justice in New York City. For details, contact: Mike Cohn, (202) 626-7366, or Hank Smit, John Jay College, (212) 237-8737.

Feb. 12-Mar. 30: Registration for the "Gateway Gas Design Competition," design of a gas station along a major road into Portland, Maine, is due April 23. A first prize and three merit awards will be presented. Contact: Rose & Thompson, 30 Forest Ave., PO Box 618, Portland, Maine 04104. (207) 772-3846.

Feb. 23-May 8: The Octagon will host the exhibition of "Sir Christopher Wren and the Legacy of St. Paul's Cathedral." The exhibition features the greater part of the surviving drawings of one of the world's most remarkable buildings.

Feb. 28: Opening of the Compasso D'Oro Italian Design Show to mark the inauguration of the New Italian Exhibition Center in Orlando, Florida. The show, exhibiting the work of over 100 designers, will run for three weeks. Contact: RY&P, (407)-875-1111.

Mar. 1-4: The Frank Lloyd Wright Building Owners Conservancy will hold its first national conference at Taliesin West, for anyone interested in preserving Wright's architectural heritage. Contact: The Frank Lloyd Wright Foundation, (602) 860-2700.

Mar. 19-22: The 11th annual National Computer Graphics Association's conference and exhibition, "Real Solutions to Real Problems," will take place in Anaheim, California. Call: 1-800-225-NCGA or (703) 698-9600.

April 1990: Submittals due for open competition for design of the Minnesota Vietnam Veterans Memorial, sponsored by the Minnesota Vietnam Veterans Memorial, Inc., and the Minnesota Capitol Area Architectural and Planning Board. Registration is now open, and multi-disciplinary teams are encouraged to register. Contact: Professional adviser, Capital Area Architectural and Planning Board, Room B-46, State Capitol, St. Paul, Minnesota, 55155. (612) 296-7136.

NEWS

TOMORROW'S ARCHITECTURE AT WALKER ART CENTER

New York City architects Tod Williams and Billie Tsien have created a miniaturized "house" for the third of six exhibitions featuring the work of innovative young American architects at the Walker Art Center in Minneapolis, Minnesota. The architects' juxtaposition of recycled and inexpensive materials creates an idealized living environment of immense warmth and serenity, according to reviewer Linda Mack.

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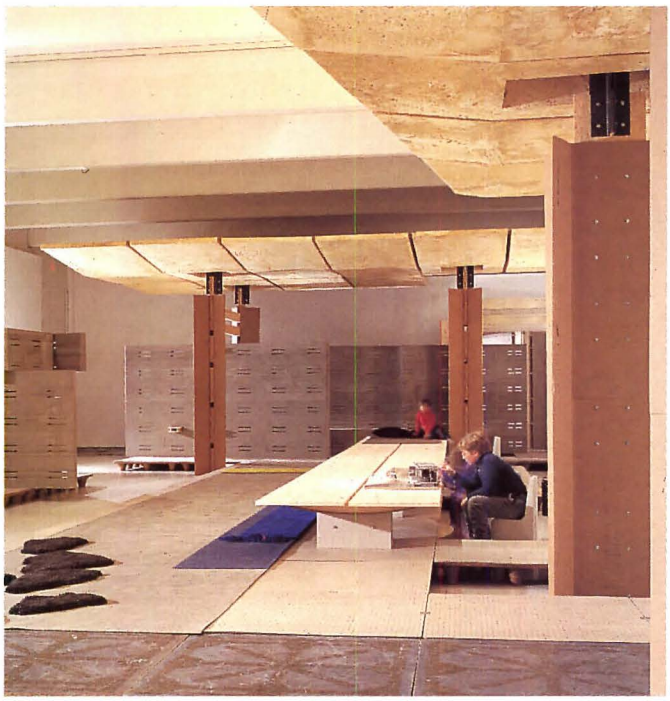

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Architects and Interior Designers Reach Consensus

THE AMERICAN INSTITUTE OF ARCHITECTS, the American Society of Interior Designers, the Institute of Business Designers, and the International Society of Interior Designers have signed a letter of agreement on title registration for interior designers. In announcing the consensus last month, James P. Cramer, AIA's Executive Vice President, said, "National agreements cannot anticipate all contingencies or encompass the custom or professional conditions in 50 states. This accord does not attempt to do so. It does, however, establish a framework for general conformance upon which a responsible course of legislative action should be taken."

Two years ago, the presidents of the groups joined together to reach a consensus on an approach to state regulation of interior designers that would benefit the design professions and the public they serve. The groups also agreed to establish a clear definition of interior designer to be developed and agreed upon by the respective parties at the state level.

Discussions among the four organizations centered on a unified approach to title registration of interior designers. They agreed that a set of definitional conditions will apply to states that customarily provide sealing privileges for professionals under title registration. In addition, the parties pledge not to be associated with the development, consideration, or introduction of any form of interior design practice registration. ("Practice registration" means that only those individuals who meet the legislated criteria may perform the services of the profession. With "title registration," only the use of the title is controlled; individuals who do not have the title may continue to perform the services.")

The terms of the agreement also affect educational standards requiring either a four-year minimum professional degree, accredited by the FIDER or the equivalent, in addition to a monitored internship, to be developed.

The agreement also provides for voluntary continuing education and joint regulatory boards, where feasible. Grandfathering is allowed only with strict and equivalent education, training, and testing criteria. Licensed architects can continue to perform interior design services and use the title, "interior designer." ■

—LYNN NESMITH

AIA BRIEFS

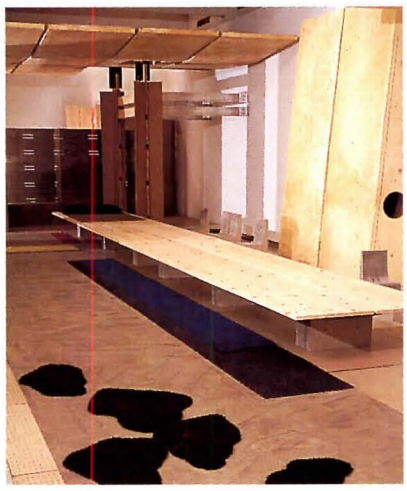
The seven living AIA gold medalists and nine members of the AIA Executive Committee will gather in the Roosevelt Room of the White House on February 22 as President Bush awards the 1989 gold medal to E. Fay Jones. Also that day, 220 AIA members participating in the annual Grassroots leadership training conference will attend a lengthy briefing at the White House on federal policy and legislation affecting architecture held by President Bush, Secretary of HUD Jack Kemp, EPA Administrator William Reilly, and John Frohnmayer, Chairman of the National Endowment of the Arts.

The AIA Convention in Houston (May 19-22) will discuss technological, design, and practice issues relating to the convention theme, "Pushing the Limits." Historian and scholar James Burke, narrator of two BBC and PBS documentaries "Connections" and "The Day the Universe Changed," will give his view of how technological changes in the country relate to architecture on May 19. On May 20, Joel Garreau of the *Washington Post* and a Pulitzer Prize-winning novelist will examine the abolishment of state boundaries, and in some cases, national borders, and how adopting the idea of nine principal regions of the country will inspire architects to think regionally.

Deconstructivism at the AIA? In an abrupt departure from the usual art exhibits at the AIA's headquarters building, a sculptural installation, entitled "The Weak Force," created by Washington, D.C. artist Lisa Scheer transformed a corner of the Institute's lobby into a cave of rusted sheet metal fragments (above left).

NEWS

Domestic Arrangements at the Walker

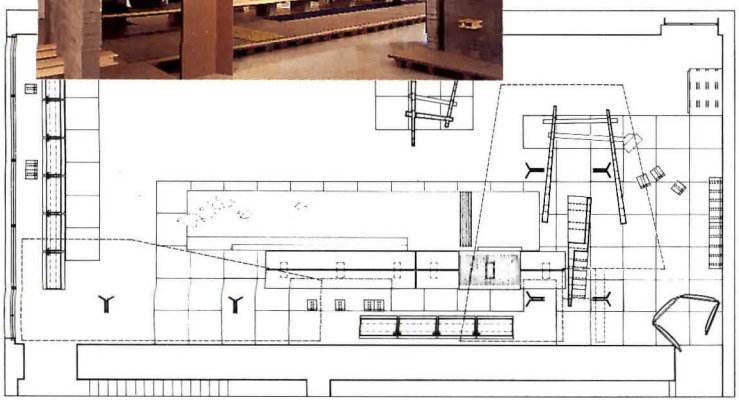


JUST AS NO ONE KNOWS WHAT TOMORROW'S ARCHITECTURE will be, no one knows what the Architecture Tomorrow series at the Walker Art Center will bring until the cycle of exhibitions ends in 1991. In 1988, design curator Mildred Friedman selected six young architects for their innovations: Frank Israel and Morphosis of Los Angeles; Tod Williams Billie Tsien and Associates, Ricardo Scofidio and Elizabeth Diller, and Steven Holl of New York; and Stanley Saitowitz of San Francisco. In an open-ended challenge, Friedman provided a 2,000-square-foot gallery, a budget of $30,000, and the mandate to "make something new." If the success of the series is judged by the ability of these designers to convey their intentions in a museum, it earns high marks thus far.

The latest exhibition, created by Tod Williams Billie Tsien and Associates, focuses on a room-sized "house," intended to explore the question of use. And people are using it. On the cold December Sunday the show opened, people sat on the almost-miniature chairs looking at models, gathered around the low wood bed/table to talk, tried out benches in smaller spaces, and touched the suede-like walls. Children zoomed from one end of the long gallery space to another, exploring every turn of a wall. Williams, who wanted the installation "to be clear and used and touched," was delighted.

It is testimony to the design and craft of Williams and Tsien that a construction of such homely materials is so inviting. The suede-textured walls are six-foot-high pieces of compressed layers of newsprint that stand up without supports. The child-size chairs are similarly "mined" from laminated paper stacks. The columns also are constructed of formed paper, put together like steel I-beams; the wing-shaped roof pieces are of lightweight foam. The floor is covered with perforated hardboard, except for two sections made of wood chips and resin. A V'soske "rug" is actually only a backing onto which bits of colored tufting have been applied, like a child might place pieces of string within a house of blocks. It provides the only color in the assemblage of industrial materials.

The installation by Williams and Tsien is designed as an ideal living environment and explores the possibilities of low-cost materials.



Strangely enough, the architects' arrangement of recycled materials forms an environment of immense warmth and serenity. Or perhaps it is not strange, given the personal approach of Williams and Tsien to the installation. Rather than presenting architecture as abstraction , they decided to do what they have not done in real life—design an ideal house for themselves. In Tsien's mind, such a house would have only a bed/table and a source of water. Running water wasn't possible in the museum setting (an absence partially supplied by sounds of dripping water in Kamal Kozah's accompanying video). But the bed/table is there—all 32 feet of it, forming the centerpiece of a long, uncluttered space that is defined by partial roofs and walls.

Oriental in its serenity, this stretch of space contrasts with a delightful rabbit's warren of smaller spaces and passageways clustered at one end of the gallery. (One free-standing room with movable walls recalls the telephone booth Williams and Tsien designed with artist Mary Miss for the American Crafts Museum in 1988.) With the casually arranged chairs, the rug, and stairs suggesting another level, the domestic space is ready to inhabit. All that's lacking is a site, and that is supplied by three models which show how the elements in the exhibit could be implemented on real sites. The models are so beautifully integrated into the exhibit as small-scale objets d'art that it's easy to miss their practical implications.

Williams and Tsien have done more than merely present their architecture in a museum setting. They have rejected assumptions about materials, beauty, and domestic comfort without being polemical. Now the architects have a chance to prove the strength of their personal vision on a large scale. Last December, they were commissioned to extend the Phoenix Art Museum with a new addition.

After closing at the Walker this month, Domestic Arrangements will be exhibited from March 14 to May 18 at the Whitney Museum of American Art Downtown, New York, a space also designed by Williams and Tsien. The show will then travel to the Cleveland Center for Contemporary Art, from September 8 to November 3, and the Wexner Center for the Visual Arts in Columbus, Ohio from March 15 to April 28, 1991. ■

—LINDA MACK

Linda Mack is architecture critic for the Minneapolis Star Tribune *and former editor of* Architecture Minnesota.

A wine warehouser had a better use for a bucket than a leaky roof.

When Quality Beverage Company, a major distributor in the Southwest, decided to expand their Houston distribution warehouse, they'd already had their fill of the water ponding and leaking problems of traditional built-up roofing. Quality Beverage principals Anthony and Michael Saragusa said roof maintenance on their main 250,000-square-foot facility was too costly.

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NEWS

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George Hartman, FAIA

Adele Chatfield-Taylor

New Appointments to Fine Arts Commission

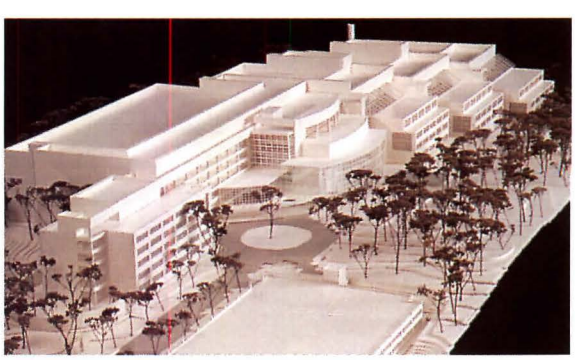
GEORGE HARTMAN AND ADELE CHATFIELD-TAYLOR HAVE BEEN APPOINTED BY President Bush to four-year terms on the Commission of Fine Arts, the federal design review board that greatly influences the planning and architecture of Washington, D.C. The Commission, the unofficial successor to the McMillan Commission of 1901, was established by Congress in 1910 to advise on "statues, fountains, and monuments in the public squares, streets, and parks in the District of Columbia." Its authority over the years has been expanded to include public and private buildings in or near the city's monumental core, Rock Creek Park, and the Georgetown Historic District.

WASHINGTON WATCH

Hartman is a partner of the Washington-based firm, Hartman-Cox Architects, winner of AIA's firm award in 1988 and four national honor awards. After graduating from Princeton in 1960, Hartman worked for Keyes, Lethbridge & Condon before establishing his own firm in 1964. His firm has designed a number of buildings that have fallen under the jurisdiction of the Fine Arts Commission. "I am familiar with the Commission not just in an abstract way," said Hartman, "but from going through the review process on several significant projects." When asked about upcoming projects that will require approval of the Commission, Hartman said that he would simply excuse himself from the panel and have someone else from the firm make the presentation. Chatfield-Taylor is president of the American Academy in Rome and lives in New York City. Director of the Design Arts program of the National Endowment for the Arts from 1984 to 1988, Chatfield-Taylor received a masters degree from Columbia University's school of architecture and planning in 1973. Each nominee expressed excitement about taking on the responsibilities of the Commission. "Washington is the nation's capital, and to be in a position to influence its design is a great privilege." said Chatfield-Taylor. Hartman credits the image and prestige of the Commission in part to the stature of the architects who have served throughout the years. "Not having an architect on the most recent Commission has lessened its balance," said Hartman.

Unlike some architects, Hartman said that he is a "big booster"of review boards. "I am a great believer in both the effectiveness of the Commission and the importance of L'Enfant's and the McMillan Commission's plan," said Hartman. "The combination of the Commission and those plans is what has given us Washington as it is today." ■

—LYNN NESMITH



A 1.75 million-sqare foot facility designed by Hellmuth, Obata & Kassabaum will augment the National Archives. Located in College Park, Maryland, the new archives will house records for research and is scheduled for completion in 1993.

Legislative Update

LEGISLATION TO AMEND THE COPYright Act of 1976, providing protection against unauthorized construction of buildings from copyrighted architectural plans and drawings, is expected to be introduced soon by Rep. Robert A. Kastenmeier (D-Wis.), who chairs a U.S. House of Representatives Judiciary subcommittee. The AIA's version of the proposed legislation states that the owner of copyrighted architecture drawings maintains exclusive rights to authorize construction of a building from those plans. Under current copyright law, architects cannot prevent clients from constructing buildings based on architect-copyrighted documents, although architects may be held liable for negligent design errors to anyone foreseeably injured by such errors. The law affecting architectural plans currently extends only to two-dimensional copying of the plans, not the execution of the building.

The AIA will chair the Committee on Federal Procurement of Architectural/Engineering Services (COFPAES), giving the AIA an opportunity to promote an agenda that will be advantageous to the architectural profession. Chief among several important issues is protecting and expanding the 1974 Brooks Act procedures in the selection of architects and engineers for federal procurement. The Brooks Act stipulates that if the federal government obtains A/E services, it must choose the most qualified firm for the project, not according to the lowest bidder.

The AIA endorses two bills that will consolidate and boost federal historic preservation activities to a higher level. Introduced in 1989 by Senator Wyche Fowler (D-Ga.), the Historic Preservation Administration Act of 1989 (S 1578) would establish an independent agency comparable to the NEA. The bill would establish a national center for preservation technology providing research, technical training, and public awareness programs.

The AIA and other small business associations were successful in their efforts to repeal Section 89 of the federal tax code, which required employers to comply with stringent non-discriminatory rules with regard to benefit plans. For more information, contact the AIA governmental affairs department, (202) 626-7300. ■

—AMY GRAY LIGHT

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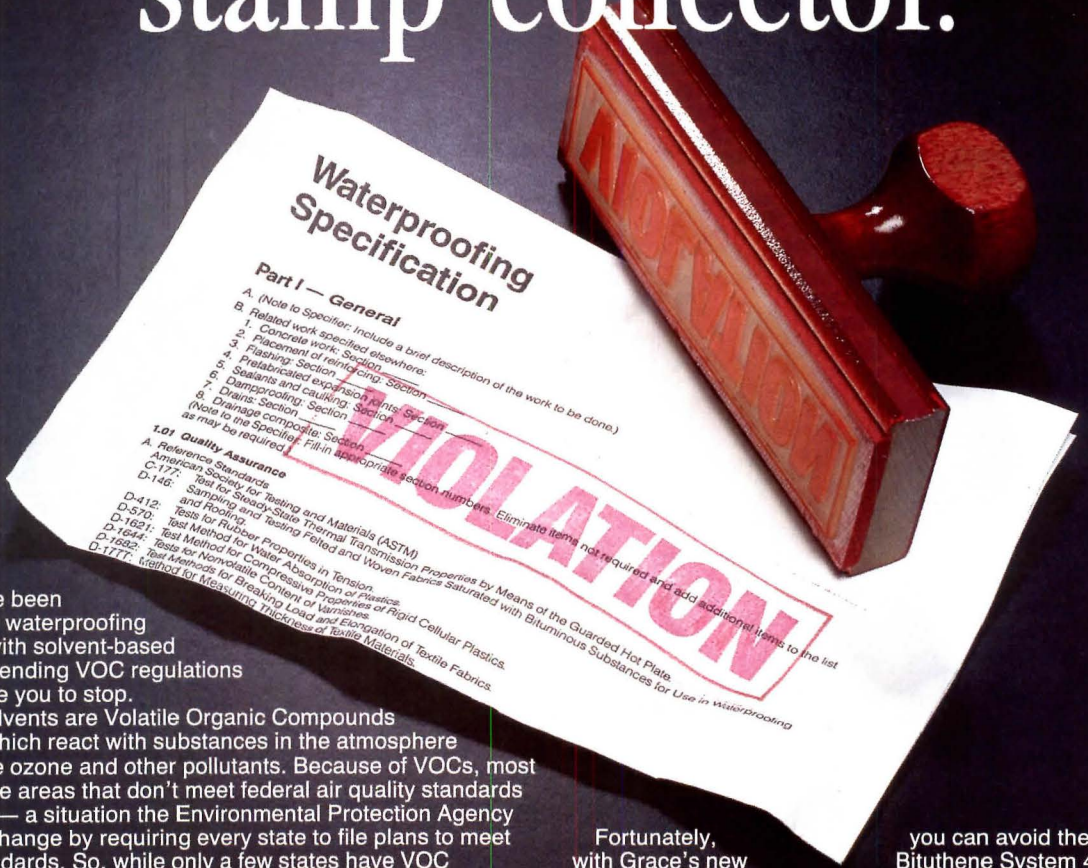

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When that happens, you'll be forced to specify only compliant systems. Or be in violation. But there's a risk: many of those systems will be new to the market — hastily reformulated for compliance — and unproven. You might find yourself trading cleaner air for a leaky building.

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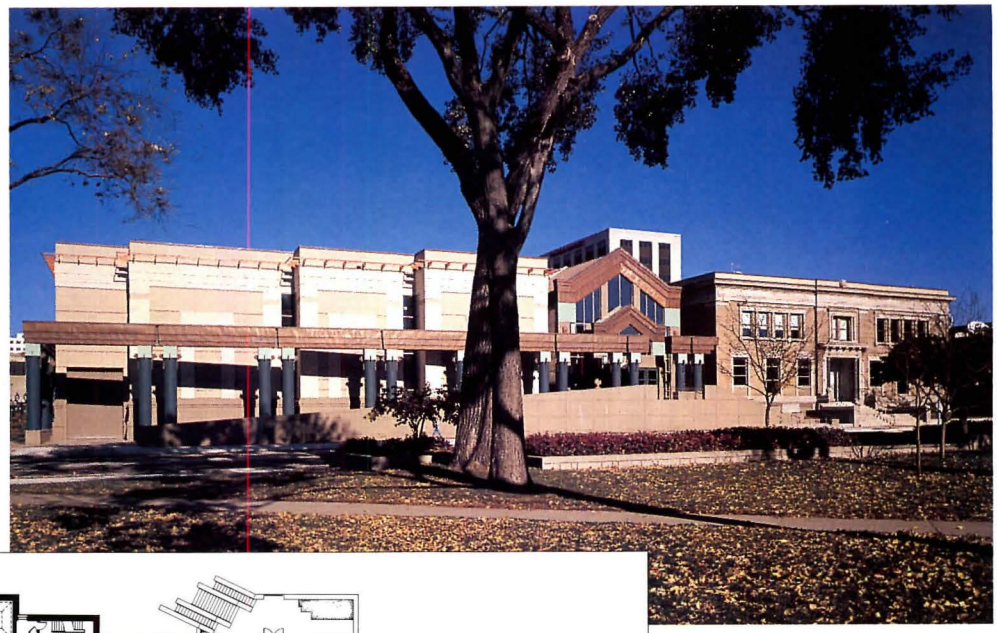
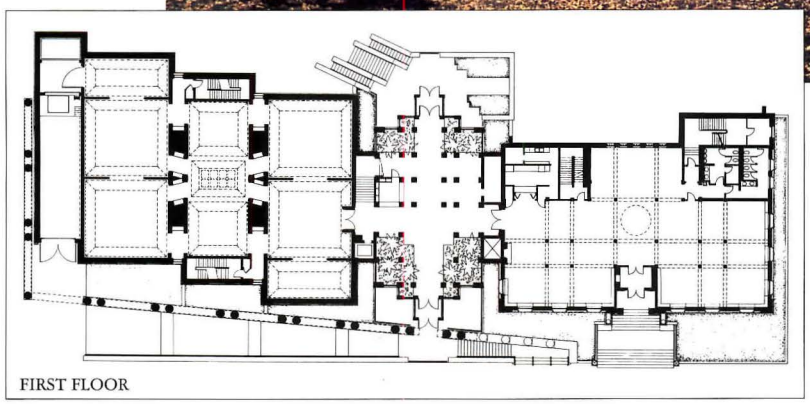
Iowa Museum Opens





Centerbrook Architects' 42,000 square-foot museum addition (above) is joined to an existing library by a gabled atrium (below left and right).

THE OPENING OF THE CEDAR RAPIDS, Iowa, Museum of Art on December 9, 1989 concluded nearly four years of intense public and private efforts to house a significant collection of works by Midwest iconographer Grant Wood. Designed by Centerbrook Architects with Charles Moore as design consultant, the $10 million project creates over 16,000 square feet of exhibition galleries in a new wing that extends the useful life a former Carnegie public library.

Centerbrook created a complex composed of three very discrete elements. The new gallery wing presents a stolid, nearly windowless volume of alternating bands of brick and limestone. It acts as a counterpoint to both the Carnegie Building and an L-shaped arcade of concrete columns and copper-formed caps that wraps around two sides. The overscaled arcade defines a pedestrian ramp and establishes a sense of scale on the primary facade.

The atrium linking the old and new buildings is intended as an introductory sculptural element in itself, an event that signals even to the timid visitor that the museum is not an elitist repository of art. Indeed, its aggressive forms and color palette make it nearly impossible for prints, paintings, or sculptures to coexist comfortably with the interior. The pedimented glass entry and Postmodern forms already look a bit clichéd and have little visual relevance to either the existing 1920s structure or the new gallery spaces. In fact, an uninformed visitor might surmise that two fine old structures have simply suffered the addition of an abstracted arcade of columns wrapping their exteriors and culminating in a gabled roof entry. Moore and Centerbrook have broken no new ground in this part of their design.

In contrast, the gallery spaces are a direct and sympathetic response to the collection of small prints and modestly scaled paintings by regionalist artists Grant Wood, Marvin Cone, and Thomas Hart Benton that form the core of the museum collection. A classical disposition of rooms provides a series of comfortable and appropriately scaled galleries, establishing glimpses of adjacent spaces that successfully draw visitors into the museum.

The former Carnegie library houses offices, a lecture hall, a library, and a children's gallery within beautifully restored spaces that provide a dramatic foil to Moore's winter garden. The separation of these support functions from the galleries appears to have contributed to the architects' efforts to create successful exhibition spaces. It is clear that Moore, Centerbrook, and the Cedar Rapids Art Association have worked hard to form a thoughtful response to the nature of the museum's specific collection. Indeed, the underlying precept of the Cedar Rapids Museum is that what are needed in this country are more regional museums that draw upon the traditions of an area and focus on its cultural and historical development. In light of recent additions to American museums, the Cedar Rapids Museum is modest, but makes a strong argument for a regional arts center .

—KIRK BLUNCK

Kirk Blunck is a partner of Herbert Lewis Kruse Blunck Architecture, a Des Moines firm.

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NEWS

Gimme Shelter

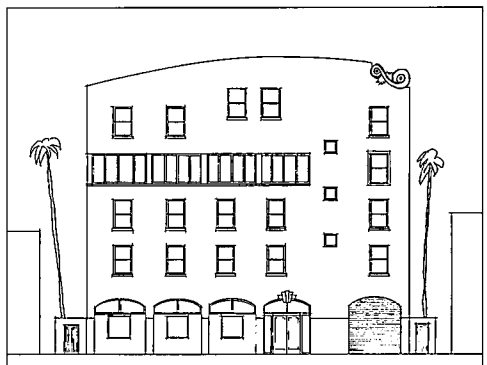
IN LOS ANGELES, A CITY WITH FEWER than 10,000 units of public housing, the construction of a new 120-unit single-room occupancy (SRO) facility in the downtown Skid Row district is indeed news. The project is one of the first sponsored by the Los Angeles Housing Partnership, a non-profit group devoted to land acquisition and project development for public housing. An outgrowth of the 1988 City of Los Angeles Blue Ribbon Committee for Affordable Housing, the LAHP is a cooperative effort of the City of Los Angeles and the private sector, primarily with corporate giants ARCO and Castle and Cook.

The SRO project was originally the brainchild of Los Angeles developer Glen Erikson. Influenced by the Baltic Inn project, an SRO facility in San Diego designed by Rob Wellington Quigley, Erikson secured a site, initiated schematics, garnered approvals, and, needing more capital to secure the project, looked to a non-profit group to develop the SRO for a very low-income clientele. The LAHP purchased the land and retained the Skid Row Housing Trust for technical assistance and project management. The Trust is responsible for non-profit group development as well as management services to groups interested in housing in the Skid Row district (they've worked with several Episcopal church and Jewish temple partnerships). The organization has several projects underway in Skid Row; mostly acquisition and rehabilitation of existing structures.

Koning Eizenberg, a young architecture firm known for a refreshing approach to affordable housing, was retained for the design of the LAHP's SRO—a five-story building on the site of a surface parking lot. Now that these new non-profit groups are in place, there's hope that this project will be just one of many, both replacing housing stock that has been recently torn down and providing new units that are sorely needed. ■

—JUDITH SHEINE

Judith Sheine is a Los Angeles-based architect.



SAN JULIAN ELEVATION

Koning Eizenberg's SRO will incorporate two common dining/kitchen facilities. Each floor will have shared shower and toilet facilities; each room will have its own sink and closet. Special problems of the building type were addressed by the architects with sensitivity to building residents. For example, the visibility of public spaces necessary for security was maintained by a careful arrangement of sitelines rather than the impersonal scrutiny of a video camera.

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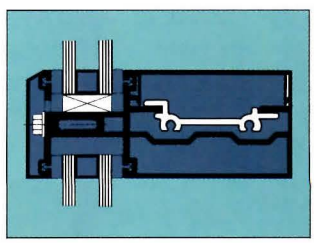

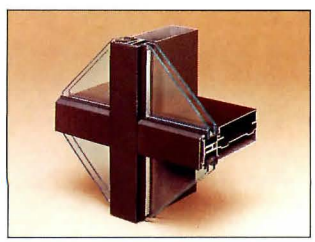

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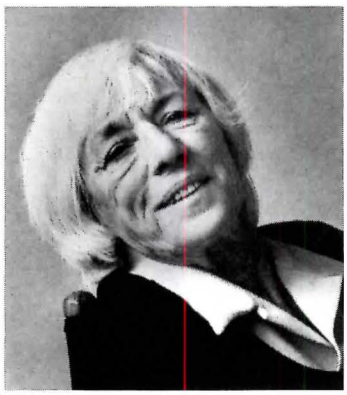
NEWS

Esther McCoy Remembered

ESTHER MCCOY DIED LAST MONTH AT THE AGE OF 85, AFTER more than 10 years of ill health. To those of us who knew her, her death came as a great shock. Esther was eternal. With her snow-white bobbed hair, brusque manner, and dry wit, she had a style that never changed. She lived simply but well in a modest Santa Monica bungalow overlooking the ocean, surrounded by books, pictures of friends, art, and cats. There she spent her days in solitary writing or sharing lively conversations with friends—architects, writers, and designers.



To most architects, Esther McCoy is known for her articles and books on California architecture. Her work included six books and hundreds of articles for *Arts & Architecture* magazine, the *Los Angeles Times, and Progressive Architecture,* and other publications. Through her efforts, the work of California architects became known worldwide. More than an architectural historian or critic, she was foremost a writer. Her writing on architecture was unique because it read like poetry—taut, descriptive and sometimes mysterious—challenging the reader to uncover deeper levels of meaning. She began her career as a fiction writer and poet in New York, then moved to Paris, and finally to California in the early 1930s. She never planned to stay here.

McCoy, like many intellectuals of her generation, had a deep-seated commitment to social change as reflected in her writing. Her friends included free thinkers Rudolph and Pauline Schindler, Theodore Dreiser, John Dos Passos, and others.

Esther's involvement with architecture came from both a love of the subject and the people who created it. She formed deep and lasting friendships with many of the architects about whom she wrote, and her understanding of the subject sprang from her unfailing eye and her ability to translate the dreams and aspirations of its creators. She wrote about architecture from a biographer's viewpoint, delving into the history and personalities of its practitioners, presenting an intimate and challenging view of their work.

She was extremely generous with her time, seldom turning down a writing assignment or a request for an interview or lecture and encouraged others who wrote on the same subject. Many local architectural writers and historians blossomed under her guidance, although she was never afraid to challenge us when she thought we were wrong. When Esther criticized, you were sure to listen. In recent years, Esther McCoy had begun writing about her own life and was working on her memoirs at the time of her death. ■

—BARBARA GOLDSTEIN

Barbara Goldstein is editor of the forthcoming anthology Arts & Architecture: The Entenza Years, *to be published by MIT Press.*

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MIDWEST COMMISSIONS

Private Residence
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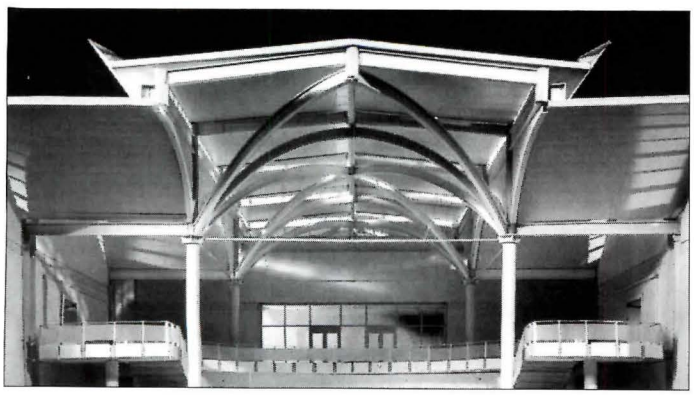
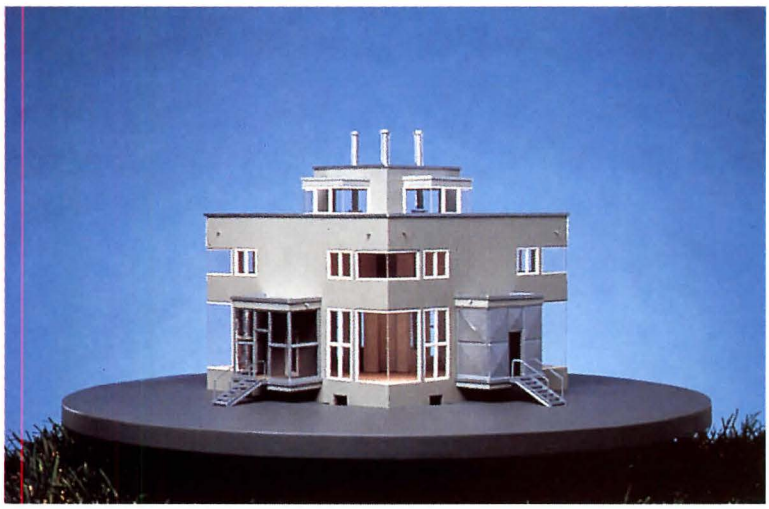
THE 3,400-SQUARE-FOOT HOUSE HINGES FOUR DISTINCT wings around a cylinder, which is detached from the ground to provide an entranceway and a central carport. Exposed structural columns rise through the house, defining interior spaces, which are shaped into an assembly of living areas according to their functions. Two separate extensions—a guest wing and a garage—are reached from a bridge connecting the garage to the porch of the main house. Exterior finishes consist of cedar siding, corrugated metal siding, and cedar boards and battens. Construction began last fall and is expected to be completed this spring.

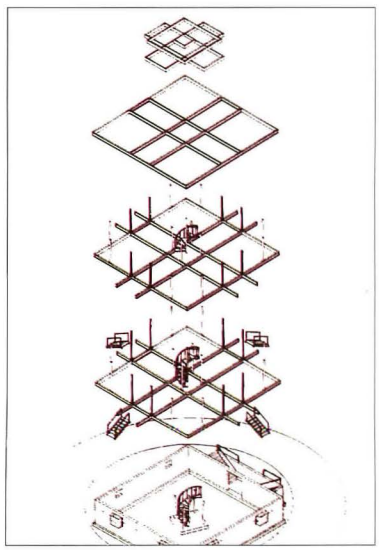
Motorola Museum of Electronics
Schaumburg, Illinois
Booth/Hansen & Associates

NOW UNDER CONSTRUCTION, THE 80,000-SQUARE-foot museum of electronics located on the Motorola Inc. corporate campus is designed by the Chicago firm, Booth/Hansen & Associates, as a component directly linked to a training and education center, used to educate visitors on the fundamentals of electronics. The building will house collections and artifacts explaining the history, values, and technology of the company, as well as display products of the future. Constructed of brick and lead-coated copper, painted steel, and glass, the building will consist of a single-story products pavilion, a conference/reception center, a two-story exhibit hall with theater, and an office and storage wing with an auditorium.





La Pointe Residence
Buchanan Twonship, Michigan
Daniel Wheeler Architects



DESIGNED BY DAN WHEELER, a young Chicago architect, the 3,500-square-foot stuccoed house serves as a second residence for a family of five and is scheduled to be completed this spring. Located on a spacious wooded lot with views to neighboring farmland and a distant lake, the house consists of a four square plan, punctuated by a centrally skylighted core that provides a simple paradigm for the development of each level. The core is visually autonomous on the ground floor, enveloped by bedrooms at the second level, and opens on the top level to four raised sleeping porches overlooking the trees, fields, and lake. The corners of the house are sliced away, defined by glass inserts that distribute natural light to the interior. A steel moment frame with wood infill provides structural stiffness, allowing the galvanized steel porches to be cantilevered off the ground.

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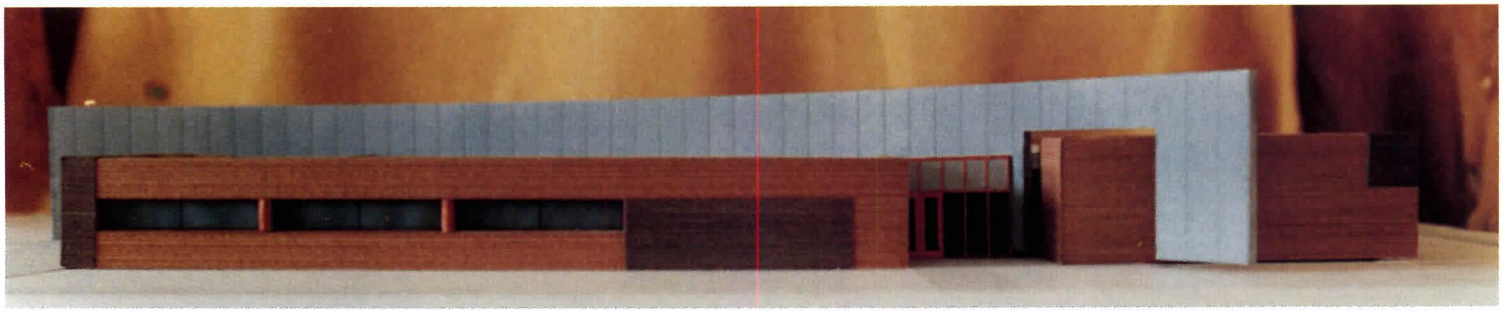
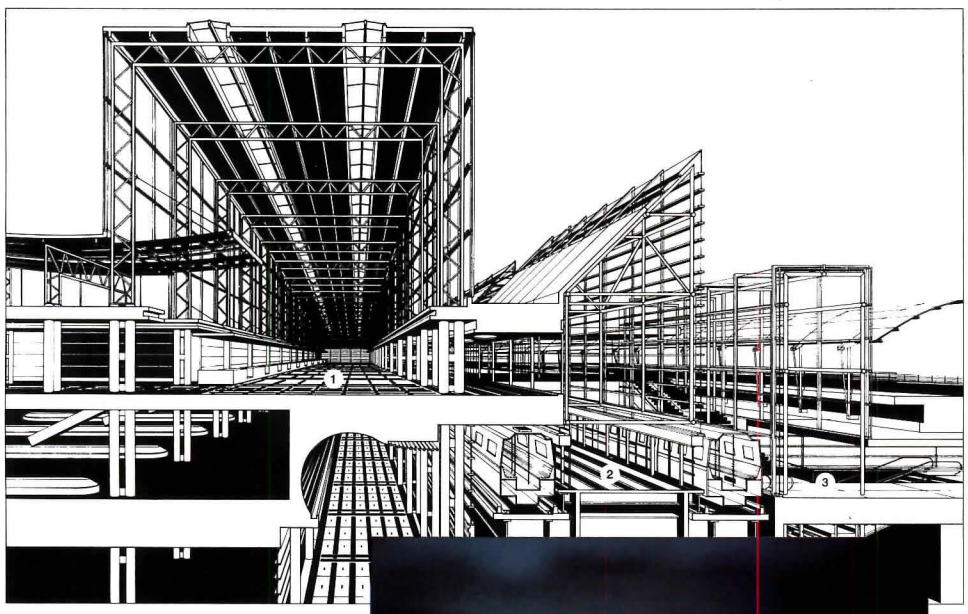
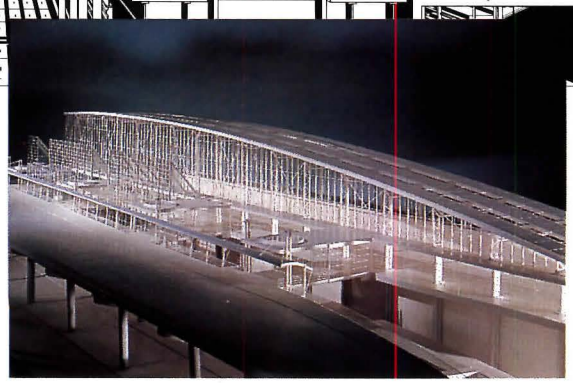
ON THE BOARDS



Classroom Building
Ellsworth Community College
Iowa Falls, Iowa
Architects Wells Woodburn O'Neil

THE 15,200-SQUARE-FOOT BUILDING BY THE DES MOINES FIRM, WELLS WOODburn O'Neil, will begin construction this spring. Facing the central campus, two main entrances will be located at the ends of a long concrete curve that slices through the one-story building, separating learning spaces from administrative facilities. Major circulation paths will follow this curve and intersect at two minor corridors leading to classrooms and exiting onto a parking area. The simple lines and concrete block masonry with brick veneer of the building are borrowed from existing campus structures.





New International Terminal
O'Hare Airport
Chicago, Illinois
Perkins & Will and
Heard & Associates, Ltd.

CONSTRUCTION WILL BEGIN this October on the New International Terminal at Chicago's O'Hare Airport. Architects Perkins & Will with Heard & Associates, designed the four-story terminal to sit on a 100-acre site adjacent to the main entrance roadway and existing airport. It will be the first structure seen upon arrival to the airport. Constructed predominantly of steel, and concrete at portions of the structure which support the aircraft apron, the facility will also feature an expansive glass curtain wall, glass skylights, and a terne-coated standing seam metal roof. Intended to reflect Chicago's stature as an international center of culture, business, and tranportation, the 100-million-square-foot facility is expected to be completed by February of 1994.

Hazardous Material Laboratory
University of Illinois
Champaign, Illinois
Holabird & Root and
S.M. Altay & Associates

LOCATED ON THE EDGE OF THE CAMPUS and close to open countryside, the brick and limestone laboratory will provide Illinois with a facility with the capacity to safely receive and identify suspected hazardous materials, and to conduct research into innnovative methods by which these materials may be treated or the volume of their production minimized. The 55,000-square-foot facility will integrate containment laboratories, research labs, pilot scale development capabilities, and information collection and dissemination activities. It will also contain automated state-of-the-art instrument rooms, pressurization-controlled HVAC systems, and an array of laboratory support spaces, a complex of support offices, a library, seminar rooms, and a conference center. To create a high-tech lab without a "fortress" look, the office block is connected to the laboratory block by a skylit spine. The facility will be completed late this year.

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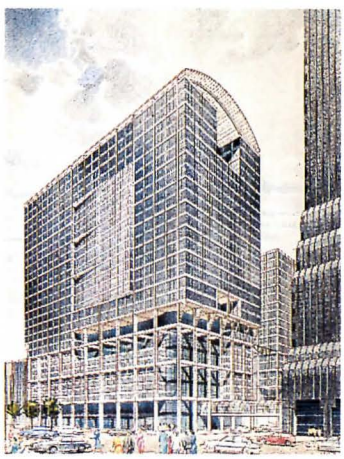
JAHN IN THE LOOP

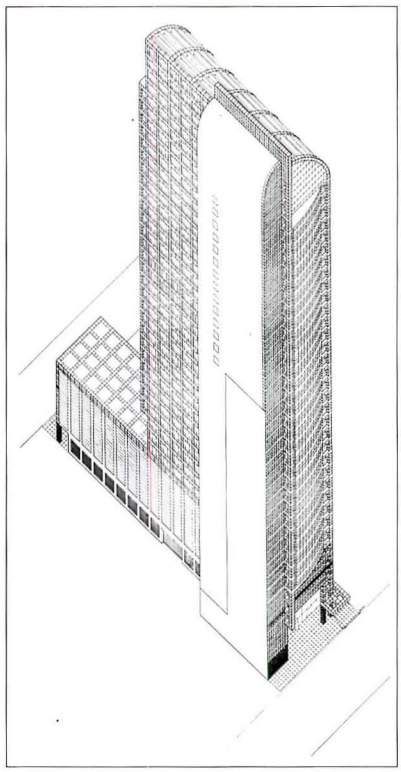
HELMUT JAHN'S MOST RECENT PROJECTS are located in Chicago's North Loop redevelopment district, and were approved by the Chicago Planning Commission last August. All of the architect's schemes for this area are in the design stage; some will start construction this spring and be completed one to four years from now. Developed by FJV Venture, Jahn's buildings are designed for sites bounding LaSalle, State, Randolph, Dearborn, and Washington Streets. The Savings of America Tower will be located on LaSalle Street, one of the city's most highly defined urban sites. Construction is beginning now and is due to be completed within two years. Located on a mid-block site, the building will have views down LaSalle and to the river. In response to the site, the building will be asymmetrical in plan and elevation. The Chicago Office Tower, expected to be completed in early 1992, is a corner building that responds to the highly defined and limited space of the city to the south and Lake Michigan to the east. A tower at 550 Madison is being designed as a full-block, mixed-use development adjoining the Northwestern Terminal on the west side of Chicago's Loop. Situated one block from LaSalle and one block from Wacker Drive, the Wells + Lake Office Tower will anchor a corner of the Loop and will contain 600,000 square feet of office space. Block 37, the centerpiece of the North Loop redevelopment scheme, is planned as a full-block development, with two towers containing 1.8 million square-feet of office space connected by a skylit retail galleria and organized along a pedestrian arcade.



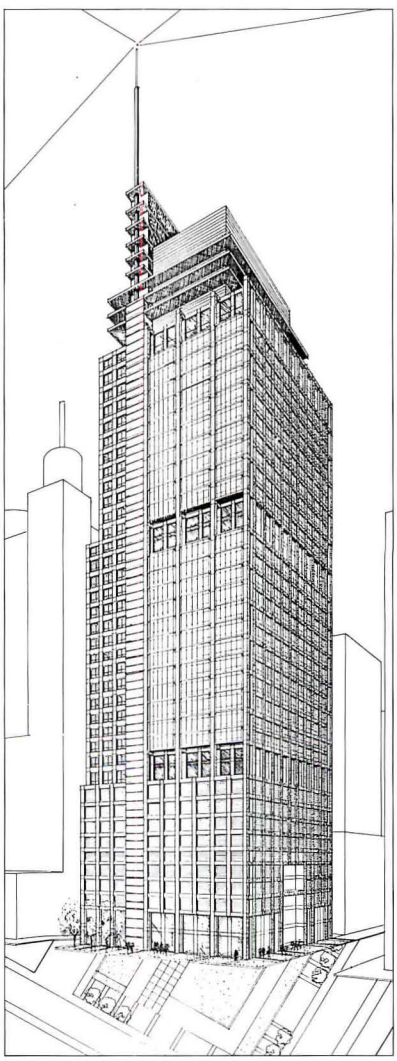
550 Madison Street

Another mixed-use development designed by Jahn is proposed for a full-block site north of the Chicago River on Michigan Avenue. Now awaiting the city planning review process, the structure as proposed for developer Jupiter Development Company will be 127 stories, two stories taller than the Cesar Pelli-designed Miglin-Beitler skyneedle, making it a contender for the title "World's Tallest Building." ■

—AMY GRAY LIGHT



Savings of America Tower



Wells + Lake Office Tower

Chicago Office Building

Block 37

BOOKS

A watercolor sketch of Kelso in Scotland completed by the Prince in 1986.

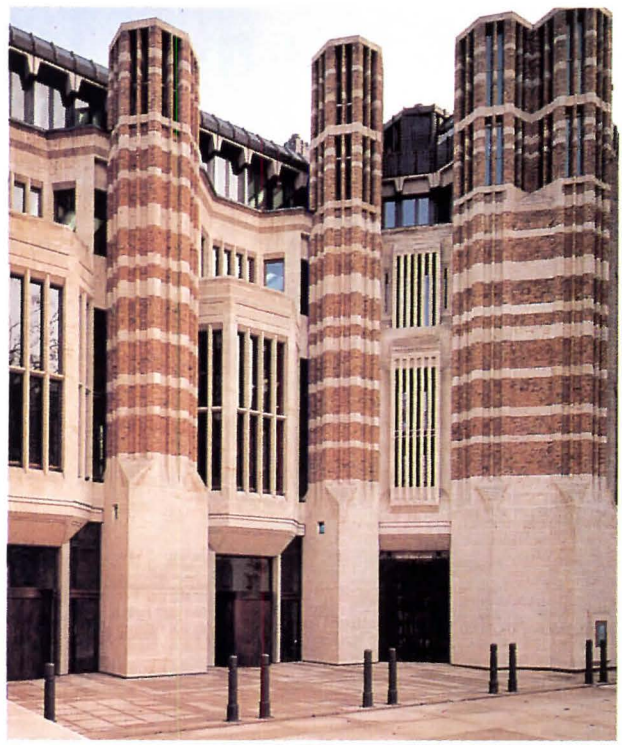
A Vision of Britain

H.R.H. The Prince of Wales (The Architectural History Foundation, MIT Press, $50.)

MANY ARCHITECTS ON BOTH SIDES OF the Atlantic dismiss *A Vision of Britain, A Personal View of Architecture* as unworthy of their consideration. On what authority can the Prince of Wales base his observations of our hallowed profession and its creations? A worldly and sophisticated liege for sure, but not formally trained in the art and science of architecture. Some architects, however, welcome the Prince's effort. In their eyes, his public image and political influence add momentum to the anti-Modernist movement of the late twentieth century.

The Prince's simple and disarmingly convincing manuscript, punctuated with lovely sketches and watercolors from his own hand, makes no pretense about Charles's formal credentials. On the contrary, his opening paragraphs "humbly" acknowledge the Prince's lack of academic credentials in architecture, but admit to a long-held interest in the field, as well as a growing sense of disgust with "the sheer, unadulterated ugliness and mediocrity of public and commercial buildings." Charles notes that out of 5,000 viewers who wrote to him in response to his film, "A Vision of Britain," 99 percent supported his views.

Throughout his thoroughly readable and delightfully juicy journey, the Prince launches frontal attacks on the descendants of the "great architects" of the early Modern movement who "set the style," while lauding grass-roots efforts to maintain the character, scale, and beauty of existing neighborhoods and cities. His lobbying is not directed purely toward the preservation of historic buildings, nor the introduction of new structures designed in the classical style. Rather, H.R.H. The Prince of Wales entreats us to return to some basic principles which he contends are commonly held as essential to the successful design of beautiful and humane architecture.



A new government office building in Whitehall with "nostalgic, Elizabethan feel."

It is the loss of history and historic principles that Charles laments. The loss of beauty in our built environments, justified as an appropriate reflection of the "dominance of high technology and man's apparent mechanical triumph over nature," sends Prince Charles dashing to the soap box to challenge architects and developers alike. "What is the point, for example, of being the most technologically advanced society if, at the same time, we lose our soul, and forfeit the right to be civilized?" he asks.

Prince Charles questions our wisdom in ignoring the lessons of history in our designs, citing examples such as the unclear hierarchy of elements in contemporary buildings. The front door should clearly look like the front door, the public facade grander than the others. "Even in the smallest house is a distinction between back and front doors, between living room and attic windows," he notes. "Only in recent large buildings have we lost this sense of hierarchy, so that it is hard to discover whether the block at the end of the street is a hotel, office, or civic center." Charles encourages respect for regional influences and suggests the use of local building materials to escape what he has come to see as a "bland and standardized uniformity" in our buildings. The first section of the book is devoted to a survey of the state of the art of Britain's unique character, which Charles contends has been sorely compromised by building booms over the last 40 to 50 years. The second outlines ten principles offered as true in the "governance" of architecture since the Greeks. These are suggested as an antidote to current planning rules and regulations which, he believes, have failed to create "a better environment."

While we may well argue that the issues of scale in the larger urban centers of the United States are, more often than not, different from those in London or other British cities, we can learn much from this book and the public dialogue that has resulted from its publication.

Architecture is the most public of the cul-

Books *continued on page 132*

Colonial window, 1822.

Mission window, 1793.

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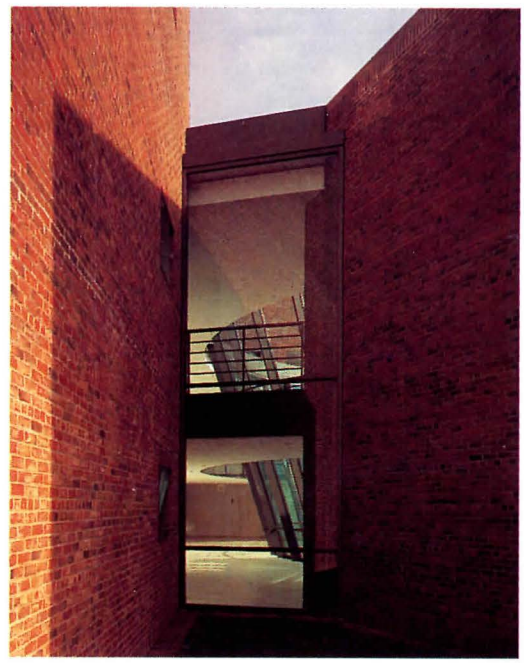
VITAL SIGNS

OUR LEAD ARTICLE THIS MONTH ON IEOH MING PEI'S NEW CHOATE SCIENCE CENTER in Wallingford, Connecticut (below), stands as prologue to a profile of the firm Pei founded nearly 40 years ago. During more than a decade of Postmodernism's ascendancy, I.M. Pei & Partners' stubborn adherence to an abstract vocabulary dampened its appeal to some critics, though never to clients. The recent reawakening of interest in Modernsim has turned the firm's very persistence into an asset. During the past year, the Pei office added six newly completed buildings to its achievements, and it has two dozen major projects on the boards or in construction. In the midst of all this activity, after reaching his 72nd birthday last year, Pei changed the firm's name to Pei Cobb Freed & Partners. Now seems like the right time to take the firm's vital signs. In addition to a profile of Pei Cobb Freed & Partners, we take a close look at the technological aspects of recently completed buildings by the firm: the Bank of China's cladding; the acoustics of the Morton H. Meyerson Symphony Center in Dallas; and the seismic structure of the tallest building on the West Coast, the First Interstate World Center in Los Angeles.

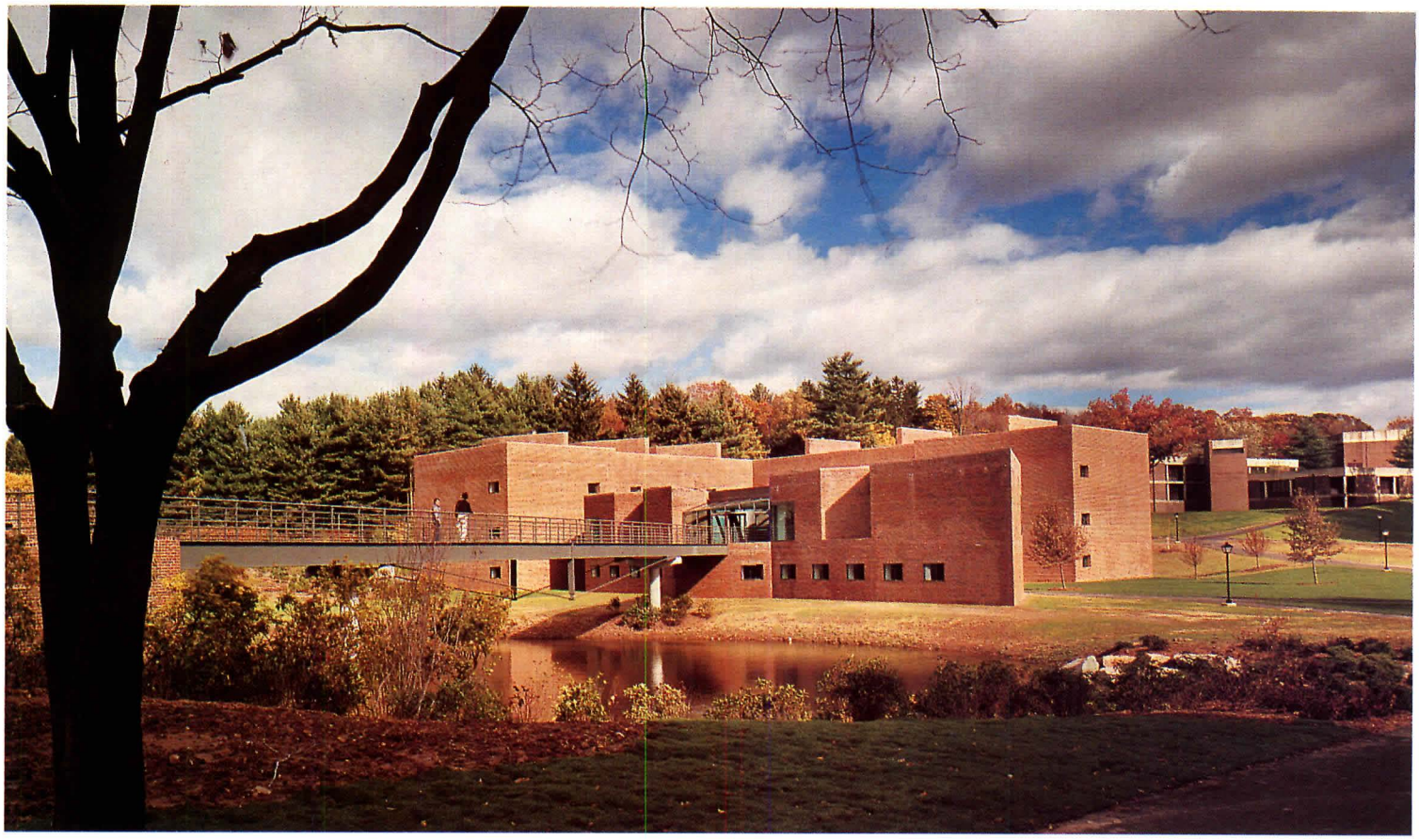


STEVE ROSENTHAL

We also found signs of vitality in a region of the country that, for different reasons, has often been neglected by the architectural press. The Midwest is the inbetween place—between the two coasts, between the oldest and newest, between the most and least Europeanized sections of our country. But it is also our nation's center, its heart. We found there, among many other examples of distinguished design, a crisply crafted church in Peoria, Illinois, by Weese Langley Weese; a sleek airport in La Crosse, Wisconsin, by HSR Associates; a sturdy police station in Excelsior Springs, Kansas, by Gastinger Reese Walker; a fragmented commercial complex in Troy, Michigan, by Rossetti Associates; and a dignified legal clinic in Des Moines, Iowa, by Herbert Lewis Kruse Blunck.

And since the American skyscraper tradition began in the Midwest's premier city, we wanted to discover how the recent downtown building boom has affected Chicago, where it continues unabated, according to Second City architect writer Howard Decker. His article examines how eight new towers alter the city's urban scale. As a group, they certainly don't constitute a new Chicago School. Only two—AT&T Corporate Center and NBC Tower—are designed by a Chicago firm, Skidmore, Owings & Merrill. The remainder are by Kohn Pedersen Fox Associates of New York City, Kevin Roche John Dinkeloo Associates of Hamden, Connecticut, Cesar Pelli & Associates of New Haven, Connecticut, and Kenzo Tange of Tokyo, Japan. It is an international group befitting these times of increasingly global architectural practice. ■

—ANDREA OPPENHEIMER DEAN



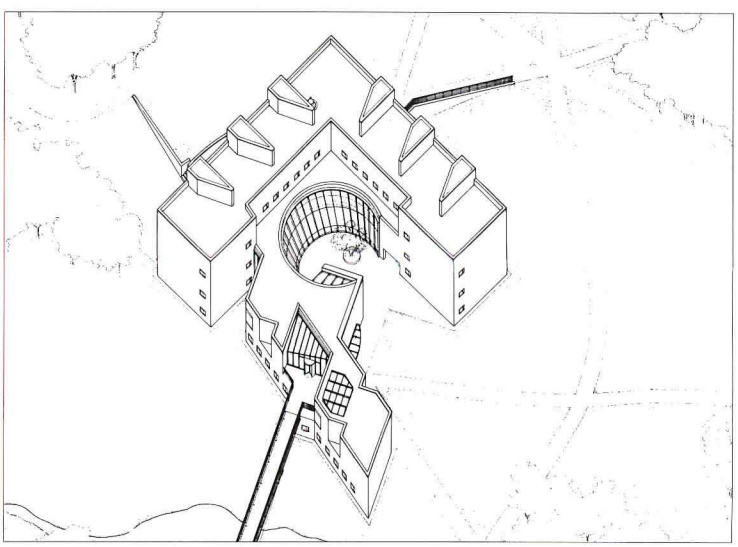
Science Center
Choate Rosemary Hall
Wallingford, Connecticut
Pei Cobb Freed & Partners, Architects

Bridging Science With Art

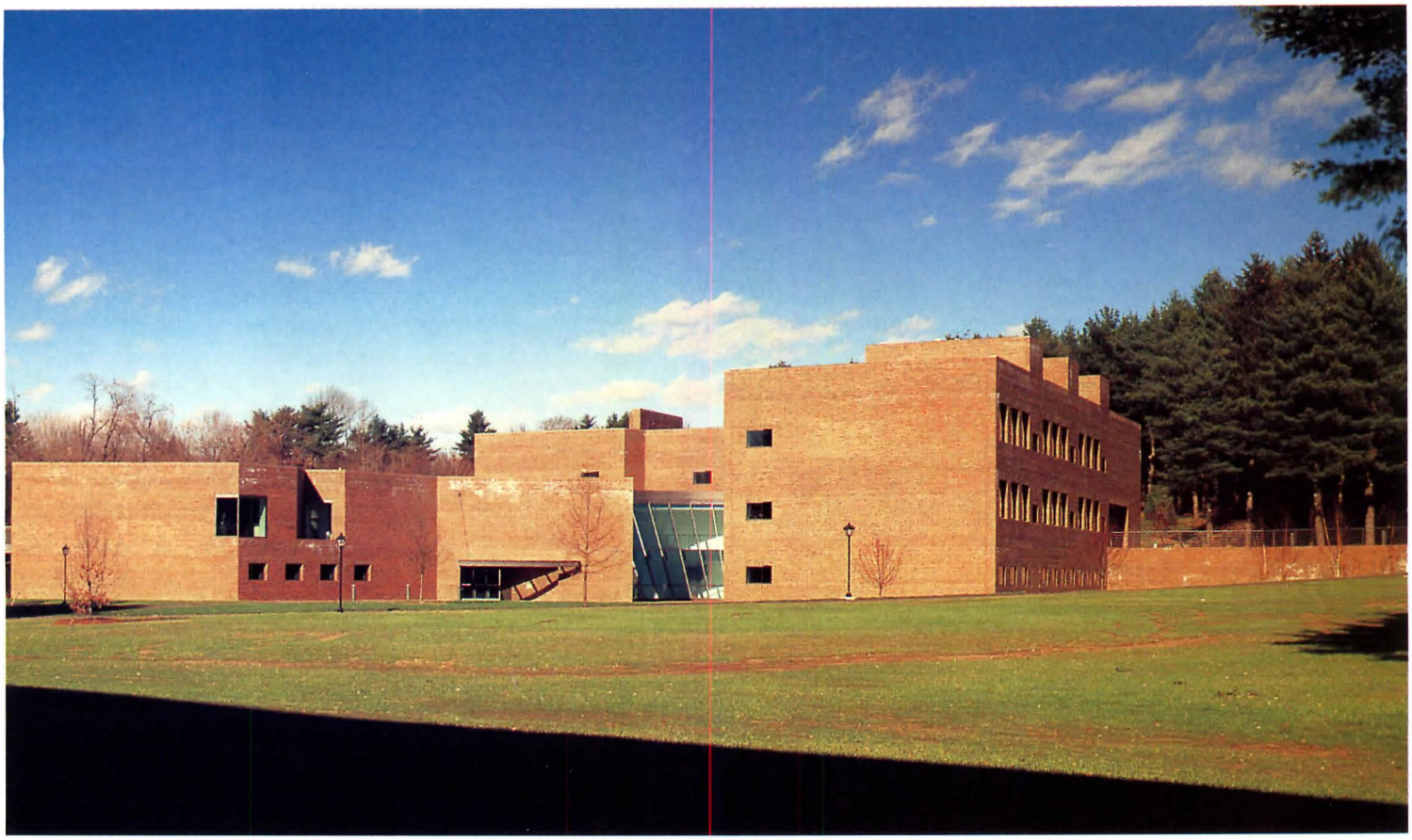
Two campuses are united by a dynamic laboratory and teaching block.

THE NEW SCIENCE BUILDING AT CHOATE ROSEMARY Hall, an elite New England preparatory school, is a modest building in program but a complex work of architecture. Designed by Pei Cobb Freed & Partners, it is the firm's second building for the Choate campus, located directly across from the 1972 Mellon Arts Center—Pei's dress rehearsal for the National Gallery's East Building in Washington, D.C. Separated by a wide greensward and more than 15 years, the two buildings share the same donor and Pei's uncompromising Modernist vocabulary. But the science building reflects the firm's recent reorganization and a greater autonomy among Pei's talented associates. According to the building's architect-in-charge of design, Ian Bader, Pei was intimately involved in the project's schematics, giving his junior architect a free hand in developing the design.

The new building occupies a critical site on Choate's 400-acre campus, as a brief overview of the school's history illustrates. Ten years after its founding as a girls' school in Wallingford, Connecticut, by Mary Atwater Choate, Rosemary Hall was moved to Greenwich, Connecticut, 50 miles to the west. In 1896, Choate founded a second school in Wallingford for boys, which grew west of a busy two-lane road that now divides the campus. In 1971, the two schools merged and Rosemary Hall moved back to Wallingford,



The new science building at Choate Rosemary Hall appears most sculptural when viewed from the west (photo and drawing above) as it is approached via a bridge that spans a reflecting pool. A dynamic conoid wall (facing page) joins the building's various wings.



occupying a flurry of new buildings east of the thoroughfare, several designed by James Stewart Polshek, which faced away from the Choate campus to establish a separate enclave for Rosemary Hall. Pei's arts center was conceived as a gateway to link the two campuses, but the building's placement and configuration is peculiar because its east gate opens to athletic fields and not to the heart of the Choate campus.

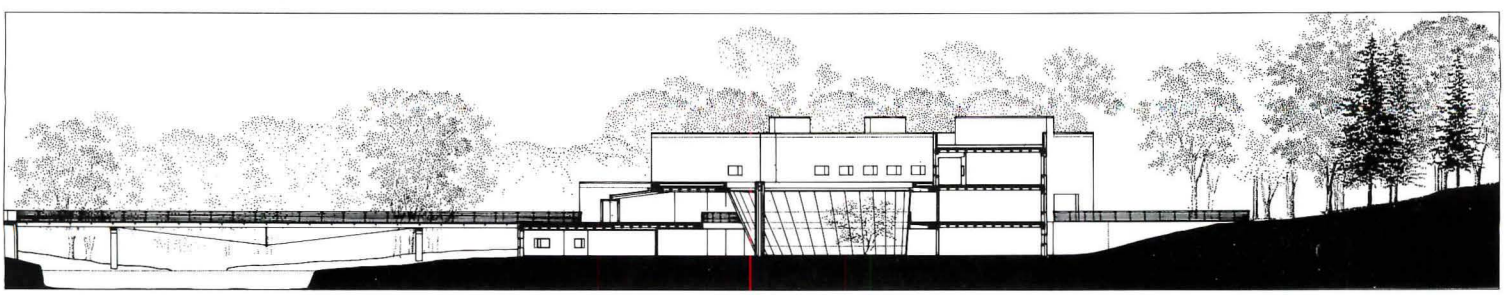
The science building indeed forms a new link between the two campuses, which are separated not only by space but geography—the new building occupies a saddle of wetlands between the topographic rise of Choate and Rosemary Hall. Foot traffic between the two campuses, once directed in a straight line, runs right through the science building. The building negotiates the site by literally bridging across a brook dammed to create a reflecting pool, and extending a bermed walkway into the hill leading to the upper campus.

From a distance, particularly from the west or approaching from the arts center to the south, the science building appears much smaller than it actually is. The 47,000-square-foot building comprises 22 laboratories and classrooms dedicated to biology, chemistry, and physics instruction, faculty offices, and a 135-seat auditorium. The three floors of the building project above grade, but the architects' skillful massing and fenestration, and the choice of warm, honey-colored New England brick, suggest something more modest. Entering from the 160-foot-long bridge, a visitor is not as aware of the building as of the thrill of moving over water. The bridge ends at the building's midlevel, in a glassy, shed-roofed lobby framed by brick-clad wings, which appear almost domestic in scale.

Once inside, the seemingly modest building explodes—it literally appears to be collapsing—as an interior bridge swings out and around a tilting, sliding wall of glass. The glass wall's struts, which disappear above the ceiling and shear away from the bridge, seem to have fallen through the building, converging at some point in the earth far below the courtyard paving. In fact this complex geometric shape, which Bader describes as a conoid, is an inverted, distorted cone whose concentric elements are tangent to a single line. The shape was modeled and analyzed with a computer, and the vertical elements, if extended, would indeed meet at some subterranean point. The super scale of the conoid and its distorted geometry convey an alien presence, almost as if it crashed to earth long ago, and the building was constructed around it.

The conoid marks the midpoint of the building, and the traveler on the bridge proceeds around it, now conscious of the courtyard on a level below, occupied by a single magnolia tree. Past its glassy form, the bridge becomes less defined and the building's east entry leads out to a walkway that extends along the top of a 100-foot-long retaining wall—an opaque counterpoint to the bridge spanning a void on the west side of the building.

The dynamic movement of the building around the courtyard is animated with the change of each class, as students move not only within the building, but through it. The arrangement of the interior allows for generous circulation space, with the entrance to each classroom and laboratory located in a small alcove or around a corner from the main hallway to mitigate collisions.



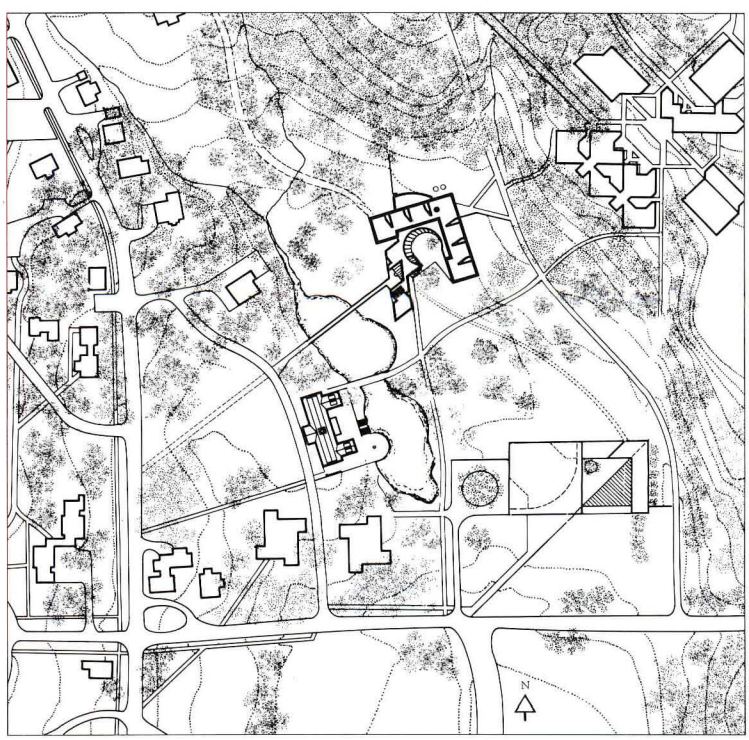
In plan, the building actually appears to be two separate buildings—a three-story L-shaped wing to the east and a two-story angled wedge to the west—that have been joined by a web of circulation space. Bader is particularly interested in the dialogue between these two elements, and articulates their differences in subtle ways. For example, when viewed from the bridge to the west, the building appears sculpted from a mass of brick into which angled segments have been cut. The two-story element seems to be separated from the taller wing behind.

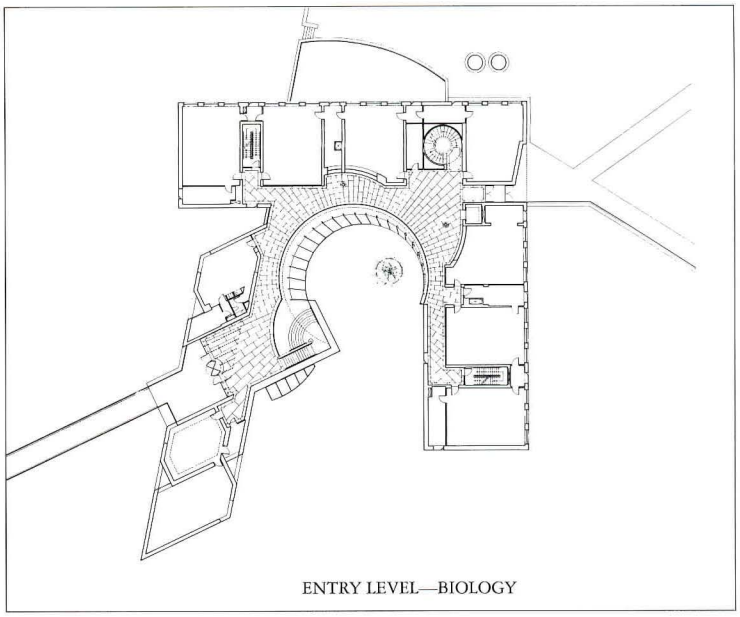
As one moves counter-clockwise around the building, the separate wings appear to converge, joined by the conoid. In sharp contrast, the east elevation is flat and rhythmic, with six-foot-by-six-foot windows punched out of the facade. The chimneys appear tower-like but without depth. At one point in the design, the two-story element was to be constructed on poured concrete as a gesture to the arts center and to sharpen the distinction between the elements, but it was correctly decided that the implied comparison between the two wings in the same material would be less obvious and more engaging.

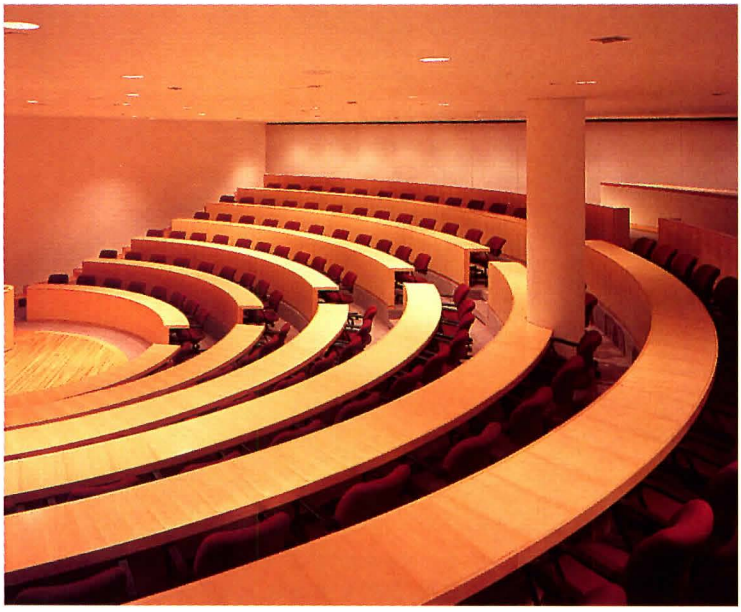
Comparing outside to inside, the completely brick exterior surrounds a completely white interior, including a white terrazzo floor in the public areas. The terrazzo's radial pattern provides a clue to a series of overlapping and incomplete geometries within the plan—which Bader likens to the distortions and dislocations of space in the Surrealist paintings of Giorgio De Chirico. The lower level plan best illustrates colliding radial geometries, the floor pattern converging on the conoid's focal point. The configuration of the auditorium responds to another radius point, while nearby a small circular staircase begins its coiled ascent to the top floor. Within the stair, a Foucault pendulum marks the rotation of the earth.

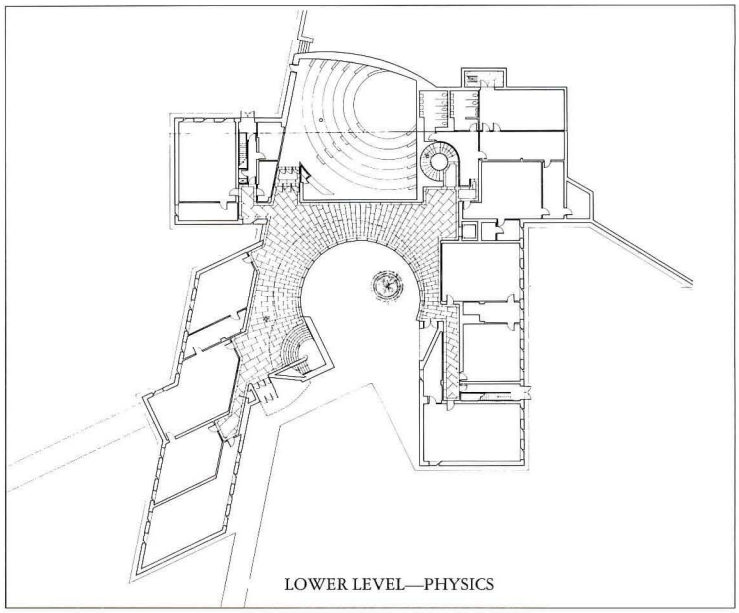
The lion's share of the interior is devoted to classroom and lab spaces, and these are zoned according to discipline: the lower level is delegated to physics, the middle level to biology, and the upper level to chemistry. Between each lab or classroom is a chase space, evidenced by the six chimney towers. This portion of the design seems a missed opportunity (especially for Bader, who is a confessed admirer of Kahn) that these elements are not more powerfully

The science center's south elevation and transverse section (facing page) illustrate how the entire building becomes a bridge that links the school's east and west precincts. A pathway extends through the building's center and offers barrier-free access from one side of the hilly campus to the other. A lower-level entry on the building's south elevation, shielded by a steel canopy, provides access to an auditorium lobby. Thus, extracurricular use of the 135-seat meeting hall need not disrupt the flow of students and faculty on the upper levels. The building's east elevation (above) exudes a planar quality, and alludes to Archbold Hall (at left in photo), a campus landmark, in its material palette. Site plan (below) reveals the juxtaposition of the science building to Pei's art center to the south, and James Stuart Polshek's 1970s buildings to the northeast.









Lower level lobby (top left) provides direct access to the 3,200-square-foot Getz Auditorium (bottom left) without disrupting student and faculty use of the building. Floor plans (above) reveal the building's dichotomy of east and west wings joined by conoid wall (facing page) as viewed on the entry level. Detailing of conoid glazing is simple, as are other details throughout the building. Interior railings are identical to those of exterior bridge, thus reinforcing the presence of a pedestrian path through the building.

expressed in plan, section, or elevation. The labs and classrooms are well-appointed, flooded with natural light from the large square windows that frame views of surrounding evergreens.

The only drawback to the classroom layout is that the students are seated with their backs to the windows. Not only do the students miss impressive views, but they cast shadows on their own work surfaces, and the teachers must withstand the glare of facing the windows. Arranging the desks beside the windows would have made better use of natural light. The laboratory and classroom ceilings are constructed of exposed concrete coffer slabs, flawlessly poured with a smooth finish. Each coffer is fitted with a fluorescent light. The auditorium, located off the lower level lobby, is ample yet intimate. Any pretentious formality in this space is quickly deflated by an asymmetrical entrance, a corner focal point, and finely crafted ash woodwork.

According to the school's administration and faculty, the building has been well-received by students and teachers. "It really works," remarks Ronald Hill, head of Choate's science department. The auditorium has become a popular place for campus-wide faculty and community meetings. Even elder faculty who were skeptical about the new building have expressed delight in using the classrooms and labs. The students have treated the building gently—the white interior is still gleaming—and have already made it part of a Choate initiation ritual by diving off the bridge. What higher form of acceptance would you expect from high school students? ■

—MICHAEL J. CROSBIE

SCIENCE CENTER
CHOATE ROSEMARY HALL
WALLINGFORD, CONNECTICUT

ARCHITECT: Pei Cobb Freed & Partners, New York City
I. M. Pei, partner-in-charge; George H. Miller, partner/administration; Ian Bader, architect-in-charge/design; Robert Madey, project architect; Fritz Sulzer, Curtain Wall; Robert Rogers, Jennifer Sage, Ching-Ling Huang, Deborah Campbell, Abby Suckle, staff architects
ENGINEERS: Leslie E. Robertson Associates (structural); Edwards and Zuck, P.C. (mechanical)
CONSULTANTS: Keith E. Simpson Associates (landscape); V. J. Associates (cost estimates); Haley and Aldrich, Inc. (soils)
GENERAL CONTRACTOR: Bartlett Brainard and Eacott
PHOTOGRAPHER: Steve Rosenthal

CHANGES FOR SURVIVAL

After almost 40 years, I.M. Pei & Partners alters its name to underscore important design contributions of two senior partners.

HOW FICKLE WE ARE. FOR MORE THAN A DECADE OF TRENDY ARCHITECTURAL IMAGE-making, I.M. Pei & Partners was broadly perceived as colorless and fusty for its tenacious adherence to a Modernist esthetic. But by 1988, when the pendulum's inevitable swing had revived interest in Modern forms and attitudes, a national survey put Pei at the top of a list of "architects that exert...the most positive influence on current design." And abroad, where U.S. designers now vie for commissions, Pei's is arguably the most renowned and sought-after American firm. The controversy, beginning in 1983 over the pyramidal Louvre addition, thrust the firm into the international limelight, then yielded to overwhelming acclaim when the project's first phase opened last year. Shortly thereafter, Pei added the first annual Japan Arts Association's Praemium Imperiale award to his already considerable stash of architectural trophies (the AIA gold medal in 1979, the French Academie d'Architecture gold medal in 1981, the Pritzker prize in 1983). More significant for American architecture, last September at age 72, Pei changed the name of the firm he founded almost 40 years ago to Pei Cobb Freed & Partners and created two new partnerships for younger men—Michael D. Flynn, 55, and George H. Miller, 40. (Cobb is 64, Freed is 59; the other three longtime partners are Eason Leonard, 70, Leonard Jacobson, 69, and Werner Wandelmaier, 65.)

Explaining his choice of new commissions, Pei says, "One of the secrets of architecture is to select clients, not projects."

The name change is an attempt to sustain the firm's character and momentum after its founder's inevitable retirement. Pei asks, "Can you think of any firm that has made such a transition successfully? Johnson and Burgee tried it; John Carl Warnecke's firm is now Kohn Pedersen Fox, an entirely new organism." Pei explains that he has become increasingly concerned with trying to ensure the firm's continuity and assure its young designers that there will be room at the top for them."

By changing the firm's name, Pei is also signaling his desire to free himself from day-to-day operations in order to concentrate on choice projects and consolidate this place in architectural history. Pei wants to be remembered "not as a late Modernist, because Modernism will continue long after I'm gone, but for giving new life to Modernism, taking it a notch beyond where it was."

Pei has just completed the most fecund and exhausting cycle of his professional life. In 1989, he finished, in addition to the Louvre, the Meyerson Symphony Center in Dallas, the Bank of China in Hong Kong, the Creative Arts Agency in Los Angeles, and the Choate Rosemary Hall Science Center in Wallingford, Connecticut. His new work is more sensuous and dramatic, with no loss of refinement. Indeed, it's hard to think of another recent architect, with the possible exception of Louis Kahn, whose design prowess has grown with the consistency and momentum of Pei's.

For now, Pei has limited his new projects to three, chosen for "personal or philosophical reasons, without having to worry how many designers the work can keep busy." The first is the Rock 'N Roll Hall of Fame in Cleveland, chosen because "the clients are serious people who want a serious museum, not Disney entertainment." Pei adds, "One of the secrets of architecture is to select clients, not projects." His second new project is a monumental bell tower for a Buddhist monastery in Japan; the third is a research laboratory in California for the study of Alzheimer's disease.

The name change, as it affects the firm's operations, is for now "a nonevent," says Cobb, a founding partner along with Leonard Eason. Cobb met Pei in 1946 when Cobb was a Harvard undergraduate and Pei a young Harvard instructor. Both were enamored of Gropius and Breuer. Freed, who joined the firm in 1956 after completing work for Mies on the Seagram building, was elevated to partnership in 1980. The three partners think about architecture in broadly similar ways; and their personalities have similarities. Maybe it's because they've been working together for so long, or maybe likenesses drew Pei, Cobb, and Freed together in the first place. In describing each partner, colleagues and clients tend to use the same words: cautious, considerate, and patient; learned, articulate, deliberate, and perfectionistic; diplomatic yet tough, charming yet self-effacing, determined yet flexible; and, above all, hard-working. Despite their similarities, however, in their backgrounds Ieoh Ming Pei, Henry J. Cobb, and James Ingo Freed could hardly be more different. They began their lives in three distant corners of the world.

Pei grew up in China. His father, Tsuyee Pei, as governor of the Bank of China before it was nationalized in 1949, was known as the Chinese David Rockefeller of his generation. Young Ieoh Ming lived in the cosmopolitan centers of Canton, Hong Kong, and Shanghai and spent summers in the bucolic preserve of Suzhou. In 1935 he went to study in the United States and did not return to China until 1974. Freed, also an immigrant from a highly educated family, came to the United States in 1939 as a nine-year-old refugee from Hitler's Germany. Cobb is the consummate WASP, the scion of an old, established New England family.

All Brahmins in their native cultures, the three partners were brought together by a "youthful enthusiasm for large undertakings, a desire to practice architecture at the urban scale, and, in so doing, to remake the world," Cobb says. With these aspirations Pei, in 1948

SERGE HAMBOURG

THE PARTNERSHIP IS EXPANDED TO EIGHT: JAMES I. FREED, HENRY N. COBB, EASON H. LEONARD, IEOH MING PEI (BOTTOM ROW FROM LEFT); GEORGE H. MILLER, WERNER WANDELMAIER, LEONARD JACOBSON, MICHAEL D. FLYNN (TOP ROW FROM LEFT).

MEYERSON SYMPHONY CENTER

© RICHARD BRYANT/ARCAID PHOTOS

The Meyerson Symphony Center appears unassuming from the street, huddled alongside the landmark towers of Dallas. Yet it catches the eye with its compact and somewhat dissonant harmony, the result of a juxtaposition between rectilinear grids and circular volumes. Figuratively, the building itself is a square peg in a round hole. It was commissioned and built during the Dallas oil bust, yet boasts a symphony hall that has few equals in this country in finish materials and in acoustic performance (pages 99-100).

The hemispherical lobby wrapping around the symphony hall is full of movement. Its curve offers ever-changing vistas with every step. Broad stairs give quick access to and from the orchestra level and four tiers of seating, but otherwise the lobby does not promote a sense of procession. With flat sandstone walls meeting at acute angles and overhead walkways, it is reminiscent of Pei's National Gallery East Building, while expanses of sloped glazing set in heavy mullions bring to mind the Pei Cobb Freed & Partners pyramid-topped addition to the Louvre.

Inside the empty symphony hall, one is struck hard by the looming presence of a huge acoustic canopy that extends out over several rows of the orchestra seats like a space-monster mutation. When the hall is filled, though, the canopy creates a totally different effect. During a performance, it makes the room seem smaller and cozier. Indeed, it is the audience's visual and acoustical intimacy with the performance that makes the symphony hall such a pleasing space.

The Meyerson Symphony Center is not all opulent, however. The dressing areas are comfortable, but obviously designed for those at work. The administrative space for the symphony association—a mixed crush of *cubicles and* offices—is downright austere. A few rough spots are yet to be smoothed over. Two glass panes in the lobby cracked severely following a cold snap last fall; the cause will be determined when replacement glass is available and the cracked panes can be removed and inspected. Less severe is damage to the sweeping longspan walkway, where the necessity of a lightweight structure dictated the use of polymer-coated mesh to simulate stone. One can only guess that the many dents and holes are the result of curious and strong Texan fingers.

—Douglas E. Gordon

became head of the architecture department of Webb & Knapp, a subsidiary of the real estate firm of William Zeckendorff, an ambitious, high-minded, resourceful developer. Pei hired Cobb in 1950 to design Montreal's Place Ville Marie, which Cobb completed for Zeckendorff at age 30. Freed joined Pei and Zeckendorff in 1956, at age 26, to design the Kipps Bay housing project in New York.

Today, more than three decades after Pei fully separated his firm from Zeckendorff's in 1962, each of the three partners is working on a project for Zeckendorff's successor, William, Jr.—Pei on the Regent Hotel in New York, Cobb on a New York office tower, and Freed on the Federal Triangle in Washington, D.C.

Why has the partnership endured nearly four decades? Why, for that matter, have all architects in positions of responsibility at the Pei firm been there practically all their professional lives?

Although the practice has been identified with and molded by its founder, I.M. Pei had the foresight and inner security to share responsibility for the firm from its beginnings. No partner, not even Pei, has ever had sole control of the office. The result has been a remarkable give and take. "We have been together so long that we scarcely need to talk to understand each other, and there's complete trust," says Cobb. Their mutual support extends to never critiquing each other's projects and to solving problems by consensus without ever taking a vote.

No other large practice today is led by three renowned designers working out of a single New York office. None is as diversified or has the expertise and depth of knowledge to follow all aspects of a large complex through to completion. Cesar Pelli and Burgee/Johnson are predominantly involved with design development of commercial buildings. Kohn Pedersen Fox, while maintaining control over construction as well as design, is an overwhelmingly commercial practice. SOM, with offices in five U.S. cities, is a different creature altogether. Unlike the Pei firm, it is divided into separate studios, a practice opposed by the Pei partners, who insist that sharing resources is crucial for design consistency.

Also unusual is the Pei firm's management. As Cobb explains, the office balances on the horns of an unresolvable dilemma. Its principals insist on a degree of inventiveness associated with much smaller practices, yet most of their projects have to do with solving complex urban problems that require a large, sophisticated apparatus. To maintain design control, the partners have resisted adopting a corporate structure or any overarching management system. Says Cobb, "You have only to look at the sad history of firms that have tried to maintain

BANK OF CHINA

IAN LAMBOT PHOTOS

Skyscrapers abound in the financial and business district of Hong Kong, but the tallest by far is the svelte, 70-story building that houses the local branch of the Chinese central bank. Hong Kong, of course, is to revert to Chinese control in 1997, and some have read the bank's towering height as an ominous sign that China means to impose its will on the territory, despite reassurances to the contrary. Hong Kong's future is as hazy as its weather, but the architects at least insist that no political statement is intended. In fact, the bank does not dominate the skyline, although at 1,209 feet, it is taller than any other building outside Chicago and New York. This perception is due in part to the tower's trim form. At its base, the footprint measures 170'-7" square, but quadrants of this square are shed in stages as the building rises, so that by the 51st story, the floor plan has been reduced to a quarter of that size. In viewing the building close-up, attention is drawn to the foursquare granite-clad base, and from longer distances, this seemingly simple geometrical form assumes an unexpected complexity.

The bank is nearly equidistant from Norman Foster's Hongkong and Shanghai Bank (above right) and Paul Rudolph's Bond Center, and the three stand out in an environment cluttered with skyscraper clichés. With its webbed structure revealed on the outside, the Hongkong Bank suggests a body restrained by an elaborate corset; in contrast, the interlocking, cantilevered forms of the Bond Center bulge out like a bodybuilder's muscles. The former emphasizes lines, the latter is basically constructed of masses. In mediating between the two, the Bank of China offers a composition of planes—defined by metallic aluminum and silver heat-reflective glass—on which the structure is selectively expressed.

The bank's unique megastructure, devised by Robertson, Fowler, and Associates (pages 95-96), incorporates eight structural steel frames, four orthogonal and four diagonal, bonded at the edges by concrete columns that permit the moment-free transfer of loads from the frames.

The horizontal stiffening trusses that occur every 13 stories were visually suppressed on the exterior at the request of the client because they emphasized an X, which has infelicitous associations in China. Without the horizontals, it is averred, the elevation reads as a pattern of diamonds. Despite its unconventional character, the new Bank of China Building has its own architectonic and structural logic.

—Hiroshi Watanabe

themselves for more than a generation. They all fell into a rigid management structure and their work ceased to sing." Off the record, a Pei employee admits that "the greatest achievement of the firm's management partners is that, in the interests of art, they have raised bad management to an art."

During the last 10 years, the Pei firm made a reputation for designing Modern buildings of the highest quality when Modernism was equated with shoddiness, says Bill N. Lacy, a peripatetic professional adviser to architectural patrons. Though the firm rejected Postmodernism's penchant for dressing up buildings with "pretty hats," as Cobb says, it strengthened its long-standing commitment to urban context and was influenced by the richer surfaces, the shapes, textures, and materials of both Postmodernism and early-20th-century skyscraper design. Nonetheless, Pei insists, "I have never changed directions. I have continued to explore form, space, materials, and technology to make my architecture more varied, more interesting, and better."

The firm's more varied shapes, the partners contend, derive from a structural strategy rather than plain prettification. "The negative way of looking at our development is to say we are running with fashion," says Cobb. "The positive way is to say that we are mature enough to be self-critical." Cobb expands on Philip Johnson's adage by saying, "You cannot *not* use history." He adds, "We haven't gone the way of Philip Johnson, that is to give society anything it wants." The partners agree that the tall office building has "played the single most disruptive role in the American city since World War II, and changing its clothes doesn't make it a less unpleasant presence," Cobb says. While the firm hasn't stopped designing towers, it has concentrated on their public function of shaping urban spaces and integrating with the surroundings. In this, and in most things, Pei, Cobb, and Freed are quintessential pragmatists.

During the '80s, the Pei firm's commissions have become increasingly far-flung. The 1982 Fragrant Hill Hotel in Beijing was followed by the 1986 Raffles

City in Singapore, the 1988 preliminary design for the Kansai International Airport, a design for Singapore's International Exhibition and Convention Center, also in 1988, and the recently completed Bank of China in Hong Kong. The Grand Louvre project, meanwhile, has brought numerous prospective European clients to Pei Cobb Freed & Partners' doors. Pei's globe-trotting naturally shifted the "center of gravity in New York to Cobb and Freed," partner Leonard Jacobson says. While taking more projects under their wings, Cobb and Freed also have acquired more clients on their own merit, as a portfolio of their current work following this article attests.

Cobb came to prominence with Boston's John Hancock tower of 1976, a test of the firm's endurance whose adverse publicity over engineering problems would have annihilated firms with a less diversified clientele and lesser reputation. Cobb followed the Hancock with the highly acclaimed Portland (Maine) Museum of Art of 1983 and the Allied Bank Tower in Dallas of 1986, among other projects. He was also chairman at the Harvard Graduate School of Design from 1980 to 1985. Freed, whose credentials include being dean of IIT from 1975 to 1978, has just begun to come into his own. The first major building to bear his name was the 1986 Javits Convention Center in New York City.

Conversations with clients and colleagues reveal both Cobb and Freed to be people who listen and take pains to understand the marketplace and the community, who are thoughtful and flexible, yet unyielding on fundamentals. Neither has a signature style, and their approaches are so similar that even partner Leonard Jacobson finds it "hard to see a significant difference between their work. They're both very much a part of I.M.'s philosophy and way of doing things. It has to do with architectural integrity, with a strong interest in large urban design issues, in history, and in not jumping on bandwagons."

Cobb ventures, "I.M. is interested in volume, I'm interested in surface, and Jim's interested in parts." Pei and Freed disagree.

POTOMAC TOWER

Rosslyn was conceived in the 1960s as a futuristic minicity in Arlington, Virginia, located across the Key Bridge from Washington, D.C. Today, Rosslyn is a concrete, metal, and glass desert of isolated, clunky, and shoddy-looking office towers. James Ingo Freed recently performed significant cosmetic surgery on Rosslyn's profile as seen from Washington. His Potomac Tower not only filled a gaping hole but also endowed a bland yet chaotic skyline with character, coherence, and a gracefully curved riverside edge.

PHOTOGRAPHS © WALTER SMALLING

The 19-story office building on a leftover triangular site bows to embrace the Potomac River and a bordering parkway. The tower's first five stories containing parking are masked by carefully composed banding and openings that suggest occupied office space. Above a horizontally striped base, a dark screen of vertically bundled glass and metal facets steps inward, narrowing as it rises, and terminates in twin translucent beacons. While the screen's colors and inflections echo those of neighboring buildings, it adds a vertical focus to Rosslyn's squat skyline and gives all offices behind it corner windows with splendid views of the capital city.

Flanking the dark mantle-like screen, and appearing from some angles to flare from it diagonally, are light-colored, set-back wings of precast concrete with banded glazing. From a distance they may be mistaken for background buildings, a purposeful ambiguity Freed used to weave his tower to its neighbors and to give depth to the skyline. He also deliberately varied the exterior materials, colors, and shapes to form a collage that reduces the building's large scale and changes its appearance from one vantage point to another—from upriver and down, from across the river and from its edge in Rosslyn.

The tower's V-shaped entry elevation, facing Rosslyn, is in banded concrete and glass, like its neighbors. Although it surpasses them in design and workmanship, it's unremarkable. Similarly, the only exceptional feature of Freed's small, unpretentious, and tasteful lobby and core, which are clad in tricolored patterned marble, is a V-shaped, glazed opening admitting natural light. Unarguably extraordinary, however, is Potomac Tower's contribution to Rosslyn's skyline. As the architect understates, "The view of Rosslyn from Washington is no longer so boring."

—A.O.D.

Pei says this overstates differences, which the partners consistently downplay. Freed counters that his own principal interest is space, not "parts." But what differentiates Freed's work is its complex, brilliant organization and expression of disparate design elements.

Bill Lacy contends that "Pei is the diplomat. Cobb is the intellectual and carefully deliberate one, and Freed is the loosest, the one with the sense of humor, the most adventurous, the most comfortable with where architecture is today." David Childs, design partner at SOM/New York, cites Cobb's "ability to listen, to synthesize ideas, to make people stop and gather around him. He's a real teacher." Childs describes the tall, gangly Freed, who speaks softly with a German accent, as "stiff at first, but probably the warmest of the three, the one with the most sense of humor." Freed, says Robert Stern, "may succeed I.M. as the person most responsible for public buildings of individual expression."

Despite their age differences, Pei, Cobb, and Freed are of the same generation. As Childs says, "all three are strong people with the same focus. The next generation still hasn't emerged." The talk on the street, Stern says, "is about other architects named Pei," namely I.M.'s sons, 44-year-old Chien Chung (known as Didi, "little brother" in Chinese) and 41-year-old Li Chung (called Sandi, "third brother"). Both have been employed with the firm since graduation from Harvard, and both have worked mainly under their father, though their roles differ, Sandi being less interested in management than his brother. Asked about his sons, Pei says, "This is not a dynasty. I let them rise and fall like the rest, as they deserve."

The greatest peril for Pei Cobb Freed & Partners, the principals agree, is its increasing size. The firm now employs nearly 300 compared with half that number 10 years ago. "The danger is in trying to do too much in too many parts of the world and thereby diluting quality," as Jacobson says. *Crain's New York Business* listed the Pei firm as New York City's largest architecture office last year, and the partnership logged an astonishing volume of $2.3 billion in 1988.

Pei believes that the firm's balancing act between being a large practice with huge urban projects, and aspiring to be as inventive and attentive to craft as a small firm, can be sustained through "superior leadership and a feeling among the young that there is room at the top."

Who the leaders will be that guide Pei Cobb Freed & Partners into the 21st century and assure its continuity, if that can be done, remains a question. ■

—Andrea Oppenheimer Dean

FIRST INTERSTATE WORLD CENTER

MICHAEL MORAN

The 73-story First Interstate World Center stands like a long, thin finger on the skyline of downtown Los Angeles, poking a hole in the smog. Topped by a helipad 1,038 feet in the air, the $350 million, 1.5 million square foot tower is the tallest structure on the West Coast and a beacon marking L.A.'s commercial core.

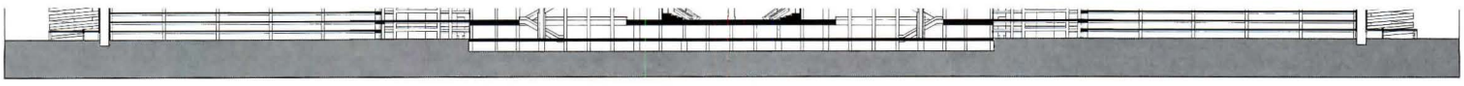
As seen from the street, the Center is the focus of a cluster of new highrises circling Bertram Goodhue's landmark 1920s Central Library (below). "Our aim has been to shape this very tall building in such a way that, while presenting a memorable image on the Los Angeles skyline, it grants primacy at street level to Goodhue's great library," declares Henry Cobb. Principal designer Harold Fredenburgh explains that the tight site and air rights transferred from the Library dictated the relatively small floorplate and the tower's extreme height. To articulate the slim shaft, Fredenburgh devised a complex geometry that plays variations on a squared circle motif. Rising from a multifaceted base 160 feet in diameter and 45 stories high, the granite-clad tower narrows through four more variations of the squared circle to emerge as a pure drum shape in the top five floors.

As an articulated tower with landmark pretensions, the Center succeeds at a distance, but fails close up. Seen in silhouette from the freeways that close in upon downtown, the shaft is sleek and elegant. At street level, however, the detailing of the granite spandrels is too bland to sustain interest, and the tower's articulations cannot be easily deciphered since its geometries are too fussy to be easily read. The interior of the tower, however, is more interesting than its exterior. The eccentric floor plates generated by the squared circle plan allow offices of a variety of shapes, from wedges to octagons. The shallowness of the floors guarantees that few workers are located far from a window.

Essentially, the Center's format reflects its origins as a marketing deal, the result of political and commercial manipulations that dictated its size and its shape. This deal, which involved a complicated density transfer and leaseback agreement, provided the major financing of the Central Library's $140 million renovation and expansion. All the architects could really do was finesse the tower's profile and strive to gentle its impact on the overshadowed library. To many local observers, the Center is a rude digit hoisted by developers and elected officials who appear to care more for today's deal than for the long term destiny of a Los Angeles that must somehow survive their triumphs.

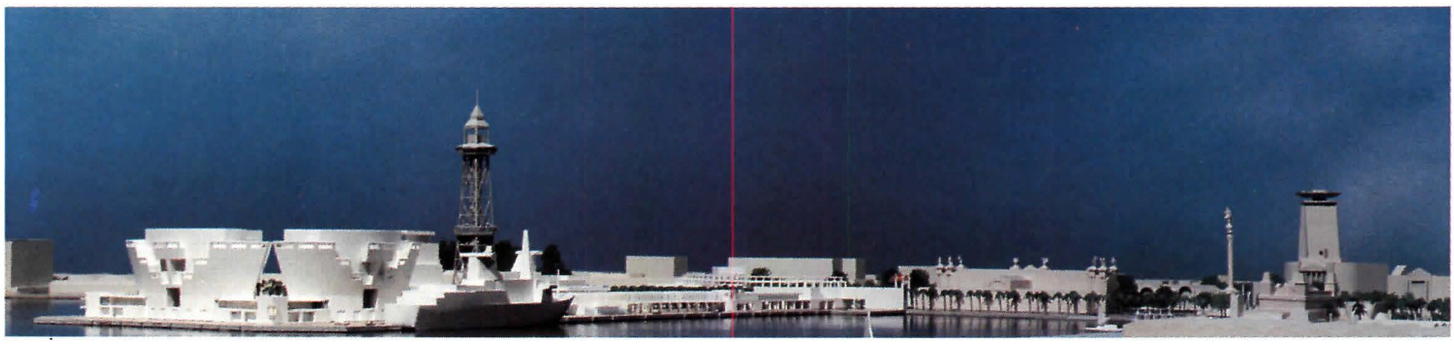
—Leon Whiteson

***Leon Whiteson writes about architecture for the* Los Angeles Times.**



HENRY N. COBB

International Trade Center
Barcelona, Spain

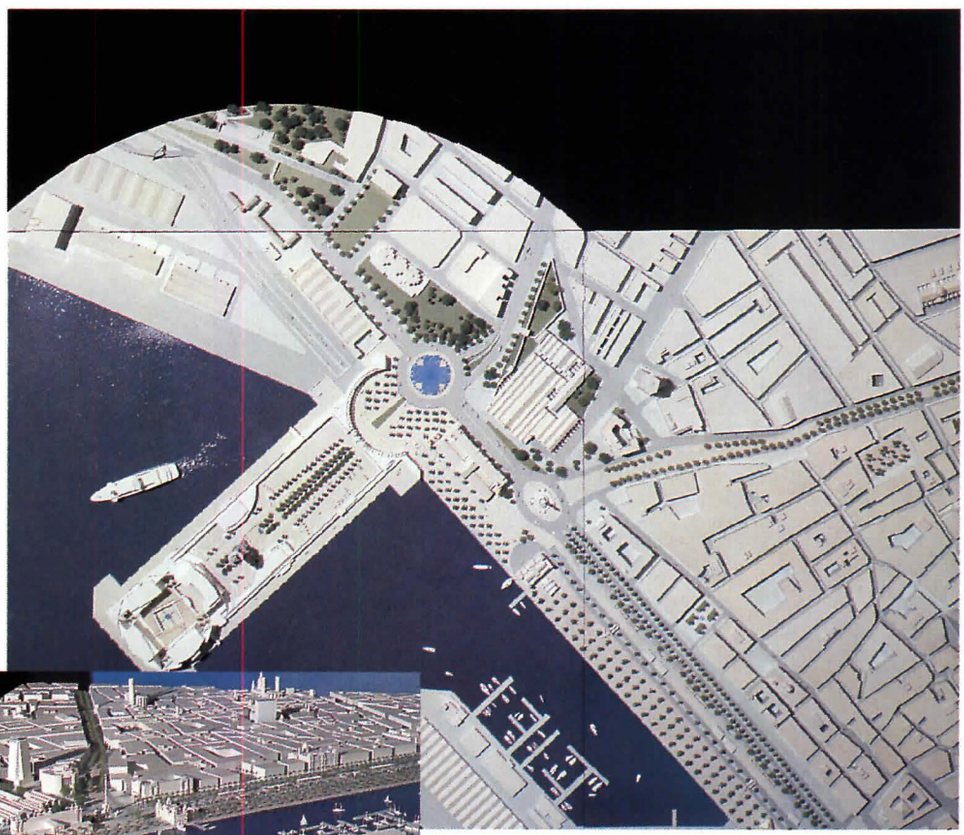


PHOTOGRAPHS © NATHANIEL LIEBERMAN

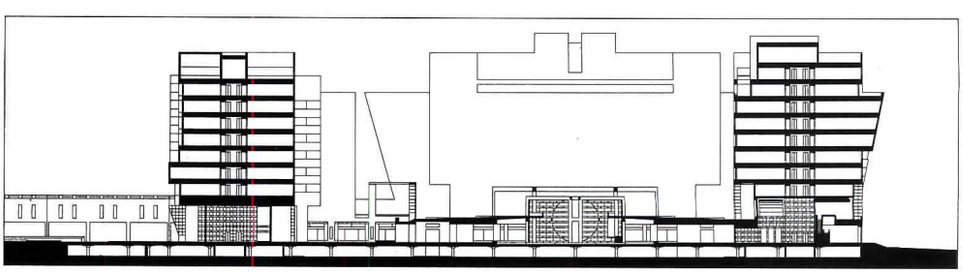
"ALTHOUGH THE INTERNATIONAL TRADE Center at the foot of the wharf is this project's economic engine," maintains Cobb of his redevelopment in Barcelona's harbor, "its most important contribution will be a sequence of public spaces linking the wharf with its larger urban setting."

To leave harbor views unobstructed, especially down the tree-lined Las Ramblas, Cobb kept the height of the trade center below the midpoint of the historic Torre Jaume Primer monument, located halfway down the wharf. He also dispersed the Trade Center into an unassuming cluster of three buildings. Their curved elevations peel back like an orange and frame interlocking central courtyards composed of a vehicular arrival space, a court with arcaded shops around its perimeter, and, above that, a patio. On the northwest, the courtyard spaces are bounded by a semicircular gateway building; just beyond it is the Torre Jaume Primer and its new plaza. From this plaza, an avenue defined by pines, palms, and berms screens the ferry operations on either side, as well as two new passenger terminals. The avenue leads to a final open space, a control and security point, which links the newly developed wharf with the city. The curved form of this last public space screens views of the port's industrial areas and is shaped to enhance views of the Aduana monument at the foot of Las Ramblas. Due to be completed for the Olympics in 1992, Cobb's scheme expresses, above all, an architecture of connection and of great civic ambition.

—A.O.D.



To preserve views from the diagonal avenue Las Ramblas, the Trade Center is divided into three curved, low buildings at pier's end. Section shows facade peeling outward (below). A fourth curved structure forms gateway to two major public spaces, a tree-lined avenue and a circular plaza.



JAMES I. FREED

First Bank Plaza
Minneapolis, Minnesota

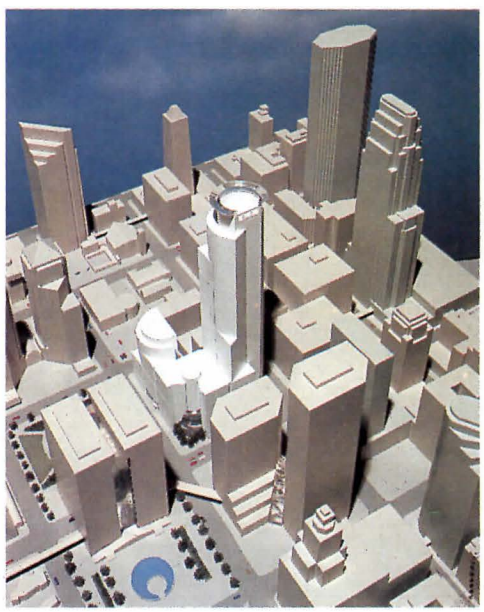
PHOTOGRAPHS © NATHANIEL LIEBERMAN

FREED'S CHALLENGE IN DESIGNING THIS 1.3-million-square-foot office and retail complex on an L-shaped site was to accommodate "three different conditions," says the architect—nearby new blockbusters, historic neighbors, and treasured green space. East of the 1.6-acre site is John Carl Warnecke's Hennepin County Building, with a paved plaza to its north. Just north of Freed's proposed complex is the venerable Minnesota Capitol. The grassy park south of the Hennepin is, in turn, adjoined by a 1970s mirrored-glass building by Skidmore Owings & Merrill, a new skyscraper by Helmut Jahn, and recently completed twin towers by Kohn Pedersen Fox.

While respecting the request of the principal client, First Bank, for a building with a "distinct identity," Freed chose a "less active" design by shaping his building into two intricately articulated parts. The lower, 20-story tower, across from and in scale with the Hennepin building, acts as a frame for the previously borderless park to the Hennepin's south. The second, 55-story building, on the northwest corner where Freed's site approaches the tall towers of Minneapolis's financial center, will be occupied by First Bank. The architect deferred to the capitol, located diagonally across from Freed's complex, by opening the site's northeast corner with a setback and glassy pivoting entry; and he linked his two towers with a six-story winter garden.

Freed's massing, surface articulation, and shifting grids are calculated to break down the scale of the complex, reinforce vistas of the capitol, and respect the existing urban fabric. Composed of squares and circles, the portions are variously clad according to their alignment. Those following the city's orthogonal grid are gridded in granite, metal, and glass. The circular towers are banded in granite, metal, and glass. The taller tower is sliced to "create a funnel, an opening pointing to the capitol; this slice is clad in much denser metal and glass." Assures Freed, "You won't have to decode the building to appreciate the design."

—A.O.D.



To suit the complex to its varied urban context (above), Freed juxtaposed a low block to a 55-story tower, a slice of which points to the capitol, and applied three different cladding patterns and materials.

JAMES I. FREED

United States Holocaust Museum
Washington, D.C.

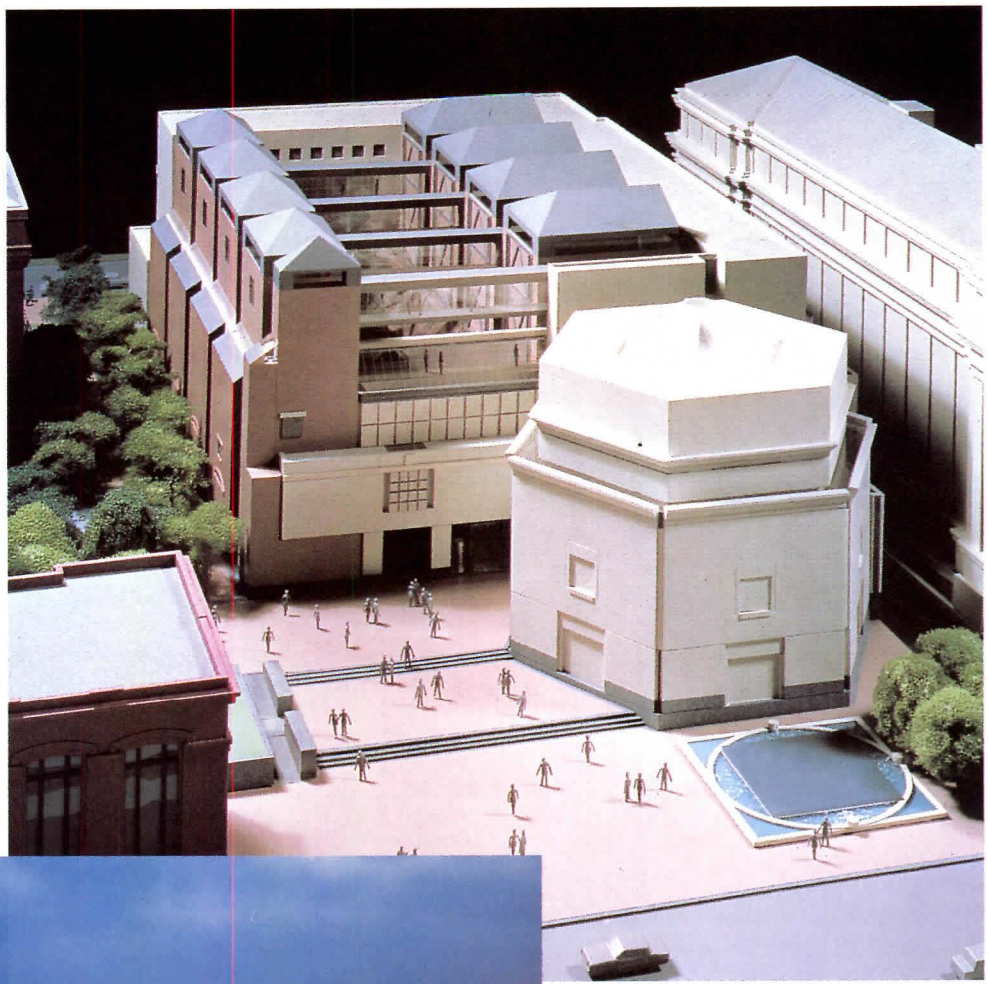
FREED TELLS HOW, FINDING HIMSELF stymied by this commission, he visited the Nazi killing camps at Auschwitz and Birkenau and then submerged his feelings (many of his relatives perished in the Holocaust) by focusing on the tectonics of the camps. Like architects of the Third Reich, Freed employed a deceptive facadism for his Holocaust Museum; the Neoclassical entrance screen masks the building's purpose and contents. Similarly, Freed faced the interior of limestone walls with raw concrete, covered openings against prying eyes, and crisscrossed looming watchtowers with heavy metal straps like those that lashed death camp incinerators to keep them from exploding. This museum, admits Freed, was his first venture into symbolic thinking.

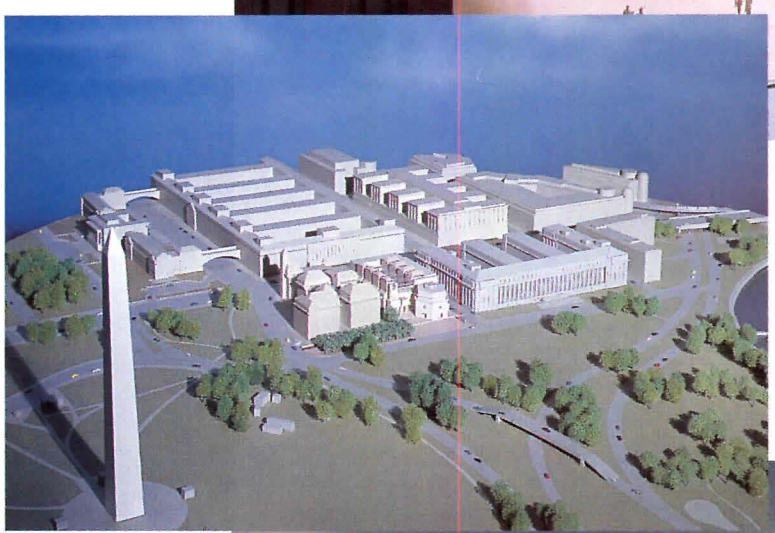
The architect stitched his villagelike museum into its urban setting by adjusting its proportions to those of adjacent buildings. He applied brick cladding to the east, where his complex meets the 1880's Victorian U.S. Department of Agriculture annex, and limestone to the west, where it approaches its 1920s, stripped Neoclassical neighbor.

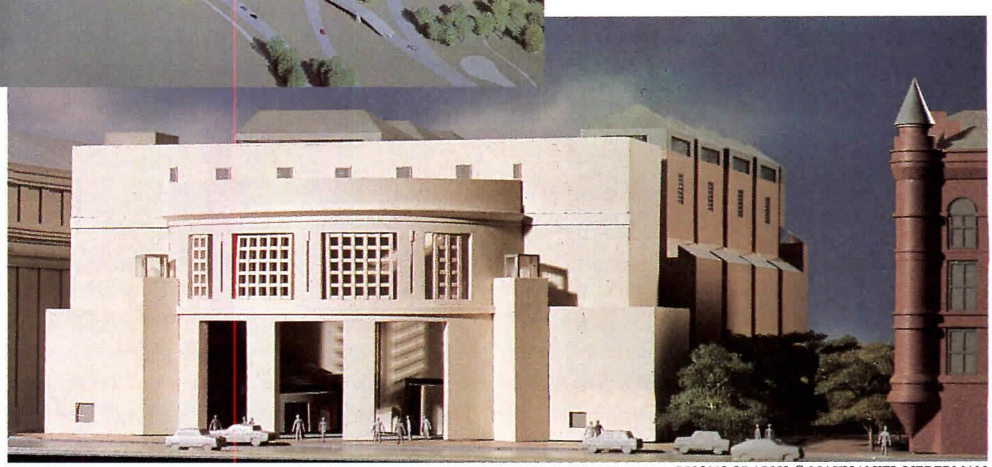
Because it is a center for Holocaust studies, the five-story, 225,000-square-foot building houses a library, rooms for scholars ("to keep watch," says Freed), and offices on its top floor, and two auditoriums and meeting rooms below grade. Most of the remaining space is designated for exhibitions, which will occupy the better part of three floors, and for meditation.

The building focuses on two ceremonial halls. The Hall of Witness, a skylighted, five-story spine, extends nearly the length of the building. On entering it, children are directed to the right, adults to the left, simulating the "selection" process that occurred at Hitler's camps. Perpendicular to the Hall of Witness, and projecting into a forecourt, is the monumental Hall of Remembrance. A place for contemplation, it is six-sided, symbolizing six million Jews.

—A.O.D.







Serene Neoclassical screen entrance helps fit the museum to its historic neighbors (below), but in belying the tenor of exhibitions in the double-pronged Hall of Witness, it recalls Third Reich facadism. The six-sided Hall of Remembrance is pulled away from building mass (top).

PHOTOGRAPHS © NATHANIEL LIEBERMAN

JAMES I. FREED

Los Angeles Convention Center
with Gruen Associates

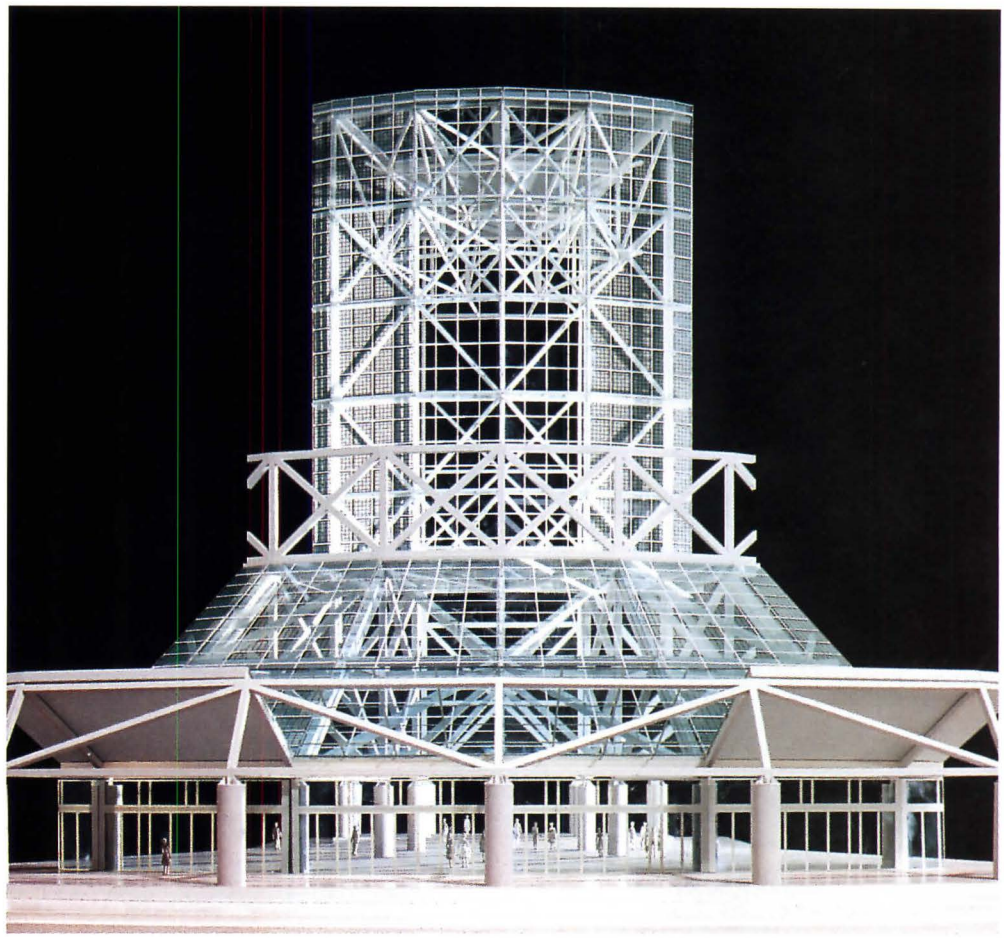
TOPPED BY TWO HUGE, GLASSY ENTRY towers, Freed's convention center is designed as a giant beacon and as a new gateway to the city rather than as the mundane closed box characteristic of the building type.

The half-mile-long complex is shaped by Los Angeles's grid and the adjacent Santa Monica and Harbor freeways, from which the center is seen as a series of kinetic images. Its two huge exhibition halls are linked to William Pereira's existing exhibition hall by a meeting room/special events/restaurant "bridge," which spans Pico Boulevard and serves as the principal organizing element for both the old and new portions of the complex. The bridge connects the two public entry spaces and facilitates movement of people, equipment, and vehicles from hall to hall. "This is an architecture of people-moving," explains Freed.

In carefully reworking the building's seismic structure for architectural purposes, Freed achieved a design solution that is all structure. Long-span steel trusses create virtually column-free space, and catwalk systems are integrated into the steel structure.

The grade-level exhibition halls are flexible and hangarlike, accommodating up to three separate, simultaneous events. Phase I will include 350,000 square feet of new exhibit space with 60 meeting rooms, restaurants, and parking for 3,300 cars. The second phase, to be completed in 1992, will include additional exhibition space, below-grade parking, and a fixed-seat auditorium.

—A.O.D.



Freed embroidered on the earthquake-resistant structure to create tinker-toylike facades and lacey, beaconlike towers for the Los Angeles Convention Center (above). His new building is linked to William Pereira's existing exhibition hall by a "bridge" (right in photo below) spanning Pico Boulevard and containing restaurants, special events, and meeting rooms. The half-mile-long complex is graced by gardens bordering the freeway (below). The exhibition halls are hangarlike envelopes that provide vast amounts of flexible space.

PHOTOGRAPHS © NATHANIEL LIEBERMAN

PRAIRIE RESURRECTION

A new church rises like a phoenix from the ashes of a devastating fire.

THE BUILDING OF A CHURCH IS OFTEN A BINDING force in a congregation's growth. An example is Westminster's beloved 86-year old English Gothic sanctuary, completely destroyed by fire five years ago. In rebuilding the congregation's new home, the Chicago firm, Weese Langley Weese, recalled the spirit of the original church, evoking numerous historical images without quoting strict style. Located in Peoria's most historic residential area, the church respects its eclectic neighbors—glorious Victorian residences and Frank Lloyd Wright's 1903 first Francis Little House directly across the street, which inspired the church's planar simplicity. On the exterior, designer Ben Weese used rich materials and sophisticated detailing in combination with strong ecclesiastical images. A stone base and warm-colored brick provide a solid foundation, and a bell tower alludes to more lofty aspirations. Entrances on the west and north are defined by stylized copper-roofed porches.

Interior spaces leading from the outer narthex to the chancel are intended as a step-by-step progression, slightly off axis. To heighten this sense of movement, Weese relied on dramatic volumes and spatial contrasts. A low, sheltering portico opens into a dim vestibule followed by a shallow narthex, anchored on one end with a skylit stairway leading to administrative offices and an intimate chapel set within the structure's smaller gabled roof.

The narthex explodes into the 50-foot-high sanctuary flooded with natural light and gracefully supported by pale greenish-gray structural beams and trusses. Continuing the asymmetrical arrangement, a simple golden cross adorns the angled half-wall defining the altar. A U-shaped balcony with undulating bays provides additional seating and is connected to the chancel and choir loft to allow a pathway for processions.

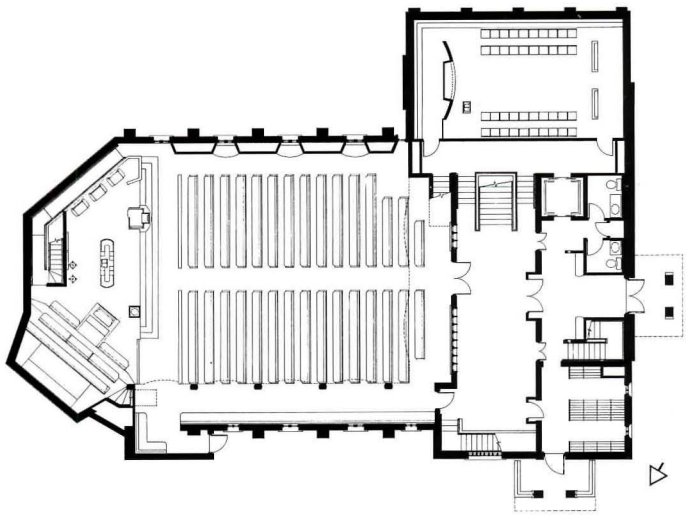
The sanctuary's configuration was also determined by the church organ, a gleaming sculptural object 30 feet high with 2,280 pipes of various lengths. "The size of the organ had already been established," explains Weese. "In fact, the organ determined the height of the structure." To accommodate its sounding box, Weese pushed the aspe outward, serving as a counterpoint to the sanctuary's asymmetrical arrangement.

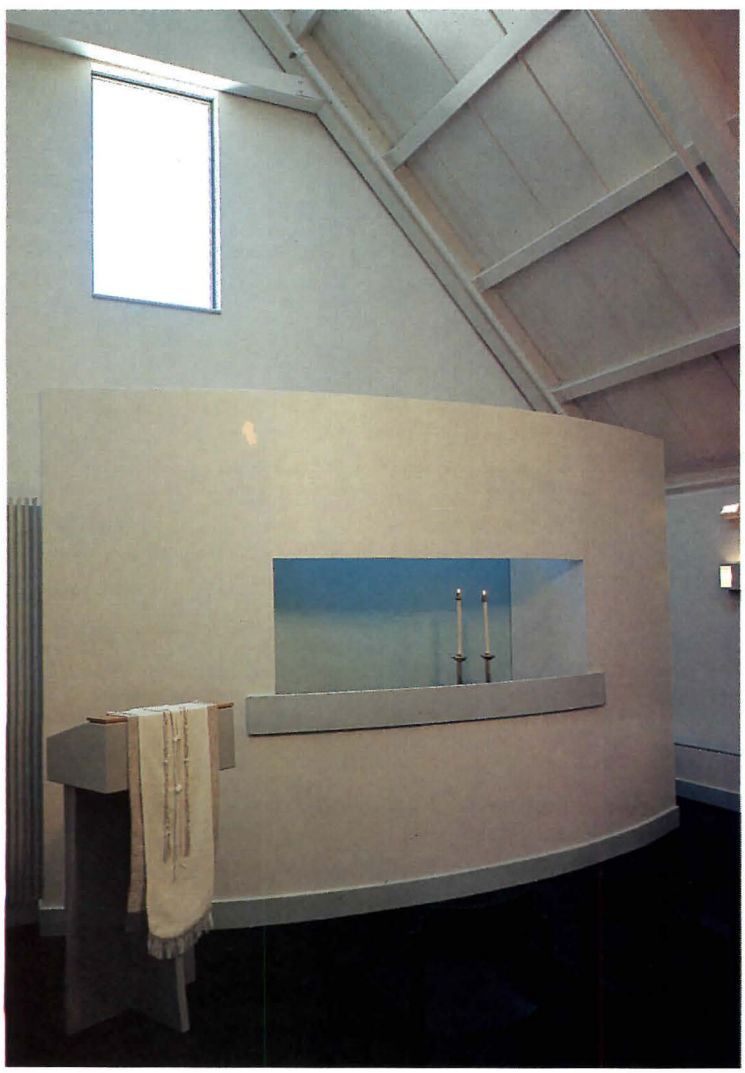
The church's ancillary areas are a wonderful combination of niches and spacious rooms. Interior finishes throughout are carefully crafted to the smallest detail, from polished hardwood floors and smooth pews to Weese's sophisticated custom-designed altar furniture and light fixtures.

Westminster Presbyterian church is the work of an architect who wants to be a good neighbor. Weese used references from Wright, and Arts and Crafts architecture not as a game of trivia, but as a means of communicating a message. The big, simple forms, crisply defined, strike just the right chord, providing an appropriate monumentality for the church and an expression of its higher purpose. ■

—LYNN NESMITH

The exterior of the church with its textured brick cladding, corner tower, steeply pitched roof, and ornamental detailing alludes to the original church and Arts and Crafts architecture without stylistic mimicry (facing page). Along the southern elevation, windows open onto a recessed amphitheater to bring natural light to the lower level (above left). Section illustrates the building's cloistered effect and complex layering of spaces (top). The 350-seat sanctuary (above) has three small skylights along the peak of the roof and a hooded skylight high above the altar.





Simple yet elegant, the interiors contrast grand volumes with intimate spaces. The plan illustrates the asymmetrical arrangement of the church. The corner tower houses a cloakroom on the ground level (above). Natural daylight floods the sanctuary through skylights and a double row of windows along the north wall. The overhanging gallery provides additional seating and shelters the sanctuary from the busy street fronting the south elevation (above left). The backlit window, located on the inside wall of the main sanctuary, is a replica of the rose window lost in the fire, and is crafted by Jumer's Construction, the local company that built the original (top). The small chapel is slightly more austere but repeats the colors and forms of the sanctuary, with a steeply sloping ceiling, an exposed structural system, and numerous skylights. A curving partition serves as the altar, and a simple rectangular window punctuates the wall beyond (left). Weese designed the hanging light fixtures in the main sanctuary and the wall-mounted fixtures in the hallways, meeting rooms, and chapel. Looking back towards the rose window, textured translucent windows separate the sanctuary from the narthex. The soaring space features exposed beams and trusses, painted a soft greenish gray to match pews and trim (facing page).

WESTMINSTER PRESBYTERIAN CHURCH
PEORIA, ILLINOIS

ARCHITECT: Weese Langley Weese, Chicago, Illinois
Ben Weese, designer; assisted by Rich Klein
ASSOCIATE ARCHITECT: Phillips Swager Associates, Peoria, Illinois
Tom Wilson, principal-in-charge
CONSULTANTS: A. Lawrence Kierkegaard (acoustics) ; Viser Rowland (organ); Lynn Ziehe (altar cloths); Kevin Strandburg (baptismal)
COST: $2.1 million
GENERAL CONTRACTOR: C. Iber
PHOTOGRAPHER: Balthazar Korab and Daryl Littlefield

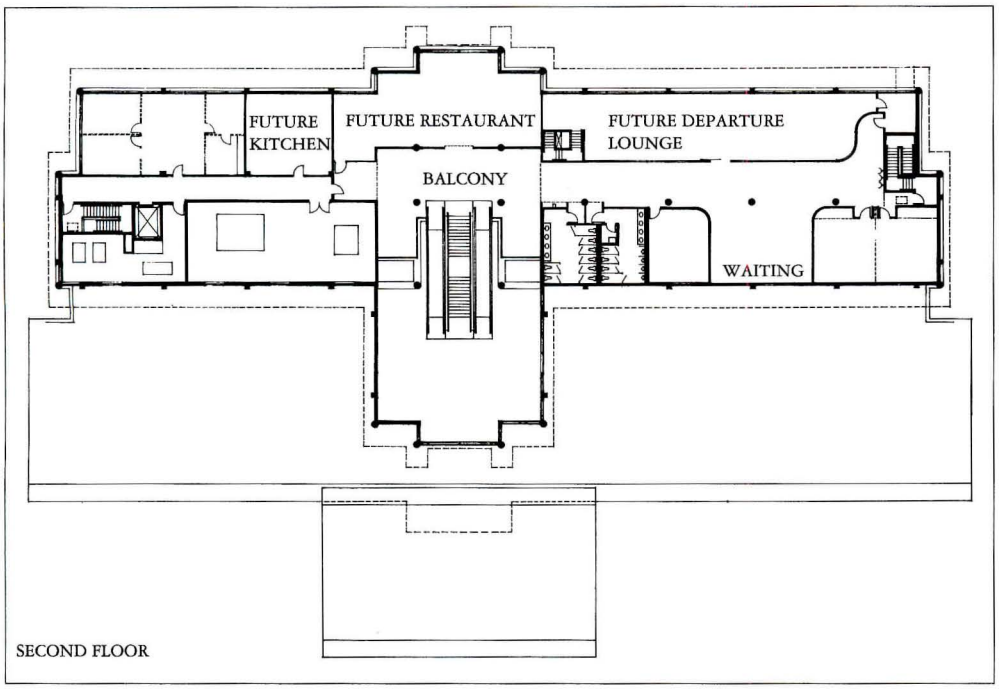
PLANE AND SIMPLE

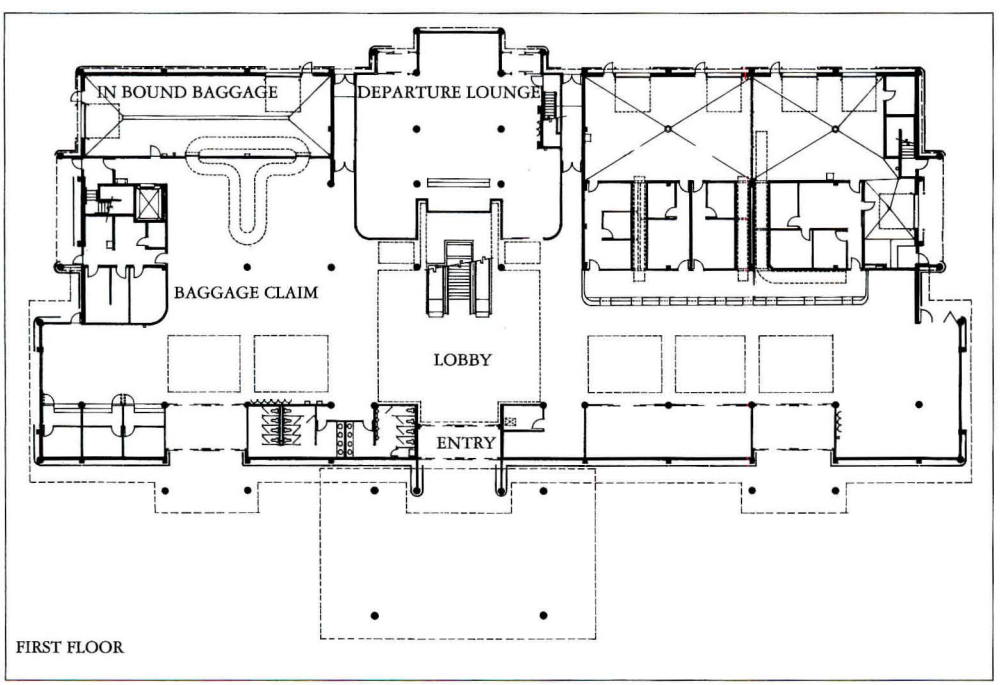
A gleaming new terminal creates a memorable gateway to a small city.

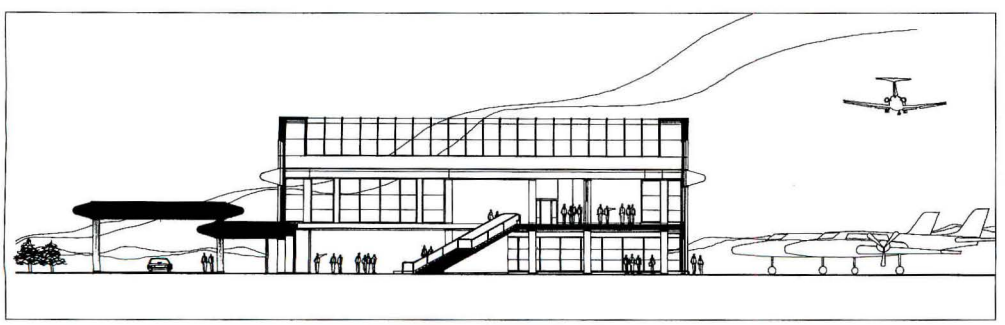
SET DOWN LIGHTLY AMID THE open landscape of central Wisconsin, the La Crosse airport celebrates air travel in the tradition of Eero Saarinen's Dulles terminal and the more recent United Airlines terminal designed by Helmut Jahn. But unlike its more ambitious precursors, the La Crosse airport is a small, regional terminal servicing no more than 15 flights on an average day. La Crosse is not a hub or a transfer point, it's a destination. And for a city that prides itself on always looking toward the future, says airport adminstrator Duane Haataja, the sculpted aerodynamic terminal has been embraced by the locals as the new symbol of the Wisconsin city.

Project architect Jack Fleig, of the La Crosse-based firm HSR Associates, wrapped the two-story terminal with reflective aluminum panels while retaining an exposed

The La Crosse terminal's aluminum cladding glistens in rain or shine (preceding pages). Overhangs are curved with a diameter equal to the structural columns and are angled up and out to maximize views from adjacent windows (inset preceding page). Floor plans illustrate a straightforward circulation path (below). The structure was designed by HRS Associates with a series of bays to allow future expansion off either end. The skylighted spine is an abstraction of the cockpit canopy of a fighter plane (right). A ceramic dot pattern applied to the glass of the skylight reduces glare while flooding the two-story atrium space with natural light. The high volumes and extensive glazed surfaces create an open and inviting environment throughout—from the second story departure lounge (facing page, top) to the main lobby space (facing page, bottom).







structural steel column system and expansive banks of windows. On the street side of the building, he successfully broke up the low, horizonal massing with an over-scaled *porte cochère* and rolled overhangs, which project at the roofline and at the three entrances to simulate ailerons on the edge of a plane's wing.

The 44,000-square-foot building is organized to allow a very simple flow of circulation from taxi stands to ticket counters. Perpendicular to the main axis of the terminal, a two-story, lobby atrium is crowned with a gabled skylight system that juts through the roof. A pair of escalators and a granite staircase draw passengers up to the second level, which features unobstructed views to the airfield and bluffs beyond the Mississippi River. The upper level houses the terminal's only security checkpoint and its one departure lounge with jet-way access to the planes, as well as a restaurant. Interiors are finished throughout the building with terrazzo floors and ceramic tiled walls.

Clad in a shiny coat, La Crosse's light and airy airport terminal is a building seemingly poised for flight. ■

—LYNN NESMITH

LA CROSSE AIRPORT
LA CROSSE, WISCONSIN

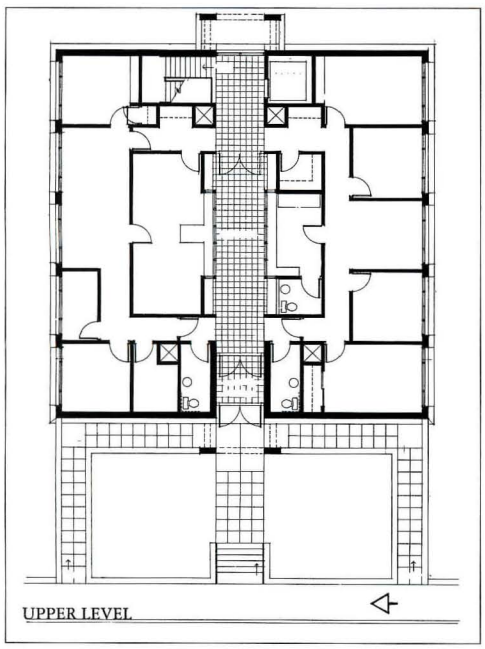
ARCHITECT: HSR Associates, Inc., La Crosse
DESIGN TEAM: Roger D. Roslanski, senior principal; Jack Fleig, principal designer; John Pearse, Greg Johnson, technical team
LANDSCAPE ARCHITECT: HNTB, Milwaukee
ENGINEERS: HNTB, Milwaukee (structural and civil); HSR Associates (mechanical and electrical)
CONSULTANTS: Yerges Acoustics (acoustical); Westburg Design, Ltd. (color and furnishings); HNTB, Alexandria (program development)
CONTRACTORS: Ebner Construction Company (phase I); Ellis Stone Construction Company (phase II); Fowler & Hammer, Inc. (phase III)
PHOTOGRAPHER: Mick Hales


Shorts 360


RESTROOMS
PARKING
CAR RENTAL
BAGGAGE CLAIM
ELEVATOR

PEACEFUL COEXISTENCE

A municipal building complements the historic character of a former resort.



Excelsior Spring's new police station aligns with the center of South Street (facing page) in the former resort's downtown. Gastinger Rees Walker capitalized on the building's sloping site (below) by relegating jail cells and security areas to the building's lower level and arranging public and office areas around a skylighted spine on the main floor (plan and photo, below right). In detailing the police station in concrete, the architects echoed the palette of the nearby city hall.

THE NEW EXCELSIOR SPRINGS, Missouri, police headquarters posed a demanding contextual challenge to its architects, Gastinger Rees Walker of Kansas City, Missouri. Excelsior Springs, an aging resort town located 30 miles northeast of Kansas City, is gifted with a heritage of rich architecture. One of its most notable landmarks is the Hall of Waters, a WPA-era city hall set into a tree-lined downtown street. The building runs north and south, with its southern end curved toward a berm of trees and mounded earth to protect it from floods.

Principal R. Stephen Rees and project architect Judi Bauer met the daunting challenge of adding a new facility, housing municipal police and justice services, to this parklike setting. They began by meticulously examining the needs of the police department, and carefully dissecting the logic of the Hall of Waters and its surroundings. By respecting the city hall, not copying it, and stacking security-conscious police functions to take advantage of a sloped site, they achieved a balanced and restrained counterpoint to the city hall.

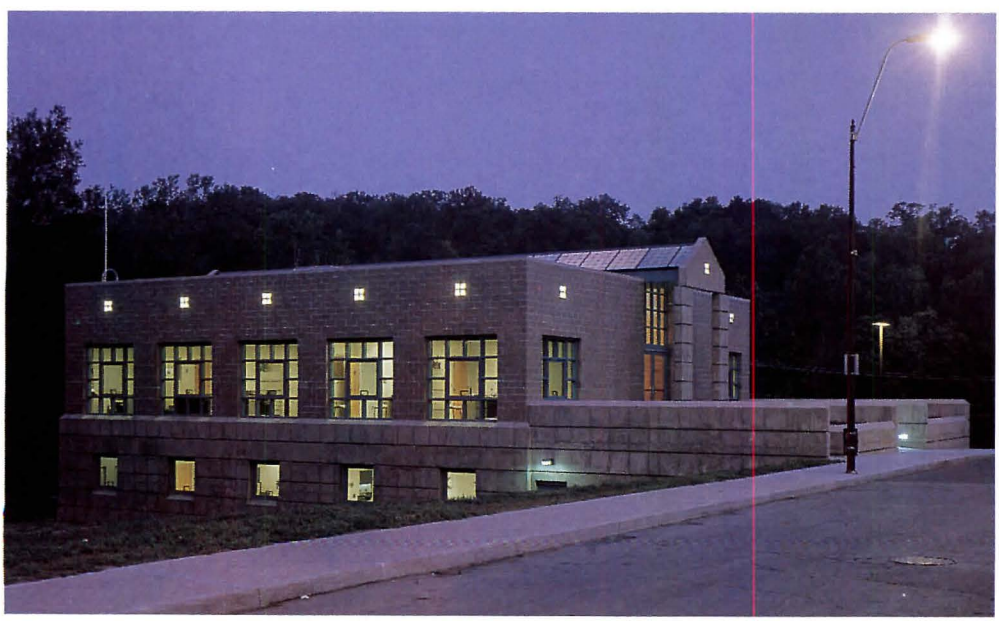
Like the Hall of Waters, the police station conveys an accomplished sense of scale—the proportion of one element in relation to the whole. The concrete building is given a rhythm from its overall geometry and a sculptural scoring and subdividing of elements into squares, such as fenestration and sidewalk paving.

No longer does the Hall of Waters occupy its park site all alone. It is joined now by work unafraid to be itself, despite an ornate and grand neighbor. In the joining, the two make a provocative statement about public municipal facilities. ■

— LAWRENCE GOLDBLATT, AIA

Lawrence Goldblatt is a Kansas City architect.

EXCELSIOR SPRINGS POLICE STATION
EXCELSIOR SPRINGS, MISSOURI
ARCHITECT: Gastinger Rees Walker Architects, Kansas City
R. Stephen Rees, principal-in-charge; Judi Bauer, project architect
LANDSCAPE ARCHITECT: Land Design Company
ENGINEERS: Structural Engineering Associates; W. L. Cassell Associates (mechanical/electrical)
GENERAL CONTRACTOR: Bohnert Construction Company, Inc.
PHOTOGRAPHER: Mike Sinclair/Sinclair Reinsch




HOTEL OAKS
VACANCY
HOTEL
OAKS
COFFEE SHOP
COCKTAIL LOUNGE
Florsheim
SHOES
LEWIS'S
MARIETTA

CHICAGO ON THE RISE

A wave of speculative office towers sweeps across the Windy City, altering its urban scale for the better—and the worse.

BY HOWARD DECKER

THE TRADITION OF THE TALL BUILDING HAS ITS BEGINNINGS IN Chicago, a product of local practitioners: William Le Baron Jenney, Burnham & Root, and Louis Sullivan. Long closed to visiting architects, the city today is being transformed by architects and developers from all over the country. While the roaring boom in high-rise office buildings is diminishing in most U.S. cities, the tumult in Chicago's skyline continues unabated. In transforming itself from an industrial to a service-based economy, Chicago boasts a combination downtown developers can't resist: low land values and a zoning ordinance that places no constraints on private construction—no transfers of development rights, no linked development, no lottery for development opportunities. Coupled with a robust demand for office space, this relative freedom has resulted in rapid and radical change within the famed Loop as many blocks are being razed and completely rebuilt.

Given this redevelopment, how can the developer's speculative product best establish a "presence" in its market? Unfortunately, the designer-label answer to this question has not necessarily resulted in solid, handsome building integrated with Chicago's urban traditions. Some recent results do merit inspection as distinguished members of the city's family of skyscrapers. Unfortunately, a few others will remain outcasts for years to come. Most importantly, behind the wave of recently completed buildings shown on these pages is posed another wave, even more powerful in effect. Tree-lined North Michigan Avenue has lost the battle to retain a gentle and humane scale and character, and there is actually a serious proposal to build yet another "World's Tallest Building." Developers clamoring for a prominent place in the rental market are taking a heavy toll on the city.

New towers crowd Chicago's Loop, including KPF's 225 Wacker Drive (center foreground).

The good news is that several of the recently completed tall buildings are quite successful in urbanistic and architectural terms. NBC Tower, designed by the Chicago office of Skidmore Owings & Merrill, 225 West Wacker Drive by Kohn Pedersen Fox, and the AT&T Corporate Center by SOM shine brightly as signs of success.

NBC Tower is the first tall building constructed in the Chicago Dock and Canal Cityfront Center development at the mouth of the Chicago River. Located to the north and east of the city's traditional downtown, the 60-acre Center site was planned by Alexander Cooper, SOM, Lohan Associates, and others. When completed in the first decade of the 21st century, it will feature some very sound and attractive urban design: a continuation of the adjacent street grid, a riverwalk, a balance between urban scale and uses, and even a park. Developed by Tishman Speyer Properties and Equitable Real Estate Management, the 38-story, precast concrete tower is an affirmation of the best traditions in tall building design. Its formal arrangement is characterized by a balanced hierarchy: stepped massing, centralized vertical banding, and suppressed spandrels emphasizing height and presence. This building clearly connects with the unbuilt Eliel Saarinen design for the Tribune Tower competition and with a host of buildings built in Chicago in the 1920s and '30s. And yet it seems to find its own place in the city's tradition—simpler and a little less refined perhaps, but rich and attractive. Best of all are the wonderful spaces surrounding the building: a lovely park and well-arranged and detailed traffic circles, roadways, lighting fixtures, and benches. Chicagoans so used to the windswept plazas of earlier tall buildings can breath a sigh of relief. The NBC Tower and its landscaping are a success.

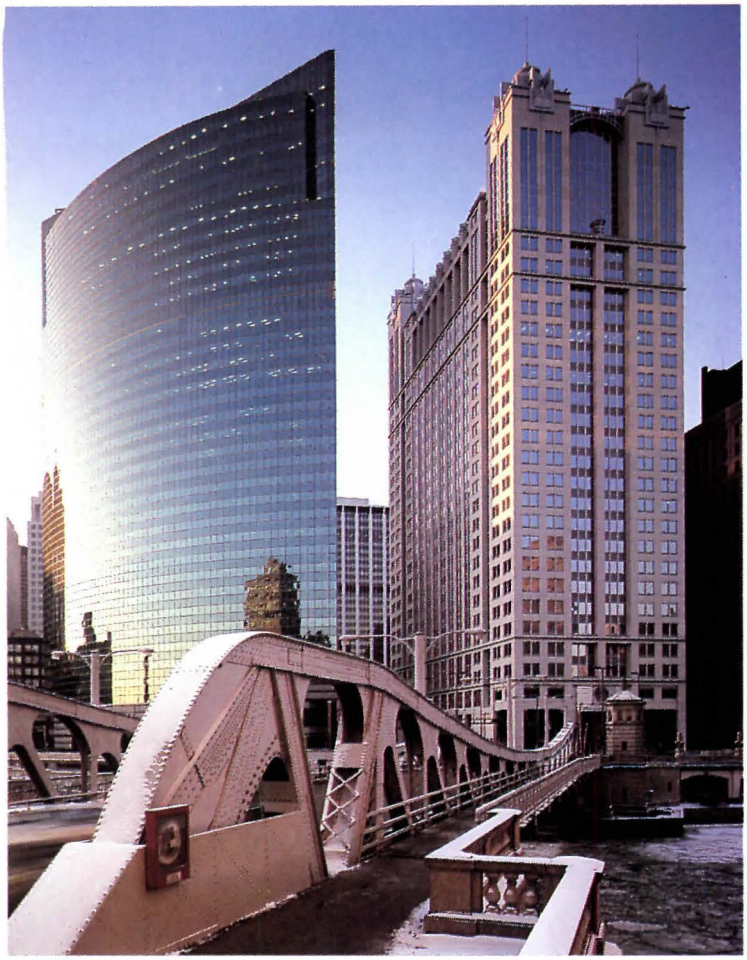
Another building linked to the architectural traditions of the 1920s and 1930s, and perhaps even stronger as an individual design, is 225 West Wacker Drive, designed by the New York firm of Kohn Pedersen Fox Associates. Located immediately east of the firm's

WAYNE CABLE/CABLE STUDIOS (FACING PAGE)

© HEDRICH-BLESSING

NBC TOWER

SKIDMORE, OWINGS & MERRILL, ARCHITECTS



225 WEST WACKER DRIVE

KOHN PEDERSEN FOX ASSOCIATES, ARCHITECTS

WAYNE CABLE/CABLE STUDIOS PHOTOS

900 NORTH MICHIGAN AVE.

KOHN PEDERSEN FOX ASSOCIATES, ARCHITECTS

A T & T CORPORATE CENTER

SKIDMORE, OWINGS & MERRILL, ARCHITECTS

acclaimed 333 West Wacker, the KPF building is elegant, well-dressed, and sophisticated. Traditional in so many ways, it is a wonderful counterpoint to the modernity of its next-door neighbor. Clad in grey flannel granite, the building also features the use of richly colored marbles, stainless steel, and bronze. It also successfully responds to its urban context. The tower fronts the river and Wacker Drive and includes a beautifully scaled arcade to the north. Structured parking to the south steps away from the elevated train tracks and holds the street edge.

Kohn Pedersen Fox has recently completed a number of tall buildings in Chicago, and without question 225 West Wacker is the most successful. By contrast, the firm's gigantic 900 North Michigan Avenue mixed-use development, located near the northern end of Chicago's great avenue, seems fussy and awkward. The looming mass of the tower is pulled away from its eight-story base, but the building lacks a middle scale. The balance and repose of 225 West Wacker is definitely missing, and parking garages at the rear and along the side street of this full-block development simply crush what was once a vital and active shopping avenue and residential neighborhood.

The new AT&T Corporate Center, designed by SOM and located on the western edge of the downtown Loop, is another recently completed building that is quite successful. Though rising to 60 stories, its massing is sensitive to the street. Again derived from skyscraper designs of the '20s and '30s, AT&T, like NBC and 225 West Wacker, features rich materials and textures and an array of planar changes that add shadow and depth. At a future date, a second phase will be constructed and a small sibling (only a million additional square feet) will join the ensemble to create a well-modulated composition that strongly considers scale and setting.

Not all the news in Chicago is good. Nearing completion on North State Street is the headquarters for the American Medical Association. The building is the first of two phases in a full-block development designed by Kenzo Tange that disregards the traditions and the public life of the city. When complete, twin towers of trapezoidal shape, clad in a flat curtain wall of reflective glass and metal panels, will frame a plaza whose arrangement and character are not related to the surrounding context. The shape-making of the building is reminder of the well-known criticisms of Modernism as abstract and and hermetic.

Another note of dismay is the first major structure of the city's North Loop redevelopment district, the Burnett Company headquarters, designed by Kevin Roche John Dinkeloo, Associates. This brooding, granite-clad structure has been dubbed "Fort Leo Burnett", in honor of both its major tenant and its forbidding character. The unrelieved and unscaled massing of the 46-story tower and the insistent and undifferentiated treatment of its elevations ignore the surrounding city, the Chicago River and Wacker Drive, the elevated trains to the south, and Dearborn Street, one of Chicago's most important north-south arterials on the west. None of these urban features have been used to shape and define the building, ease it into its context, or establish its place and role among adjacent buildings. The most basic expectation of a new building in any city—humane and sensitive support of the

WAYNE CABLE/CABLE STUDIOS PHOTOS

BURNETT CO. HEADQUARTERS

KEVIN ROCHE JOHN DINKELOO, ASSOCIATES

AMA MEDICAL HEADQUARTERS

KENZO TANGE ASSOCIATES, ARCHITECTS

181 WEST MADISON STREET

CESAR PELLI & ASSOCIATES, ARCHITECTS

surrounding community—has been ignored.

On the west side of the Loop, at the southeast corner of Wells and Madison Streets, is 181 West Madison Street, designed by Cesar Pelli & Associates for Miglin-Beitler Developments. Essentially vertical in composition and order, Pelli has created a 50-story building not nearly as rich in appearance, materials, or details as many other recent competitors, but as nicely proportioned as any other. The biggest asset of this tower is its giant and very handsome entry loggia. This feature could be the grand entrance to an important public building; a great room leading to other great rooms. But as is so often the case with newly constructed commercial buildings in Chicago, its monumental scale is appropriated for a private purpose.

Proposed for a site across the street from 181 West Madison is another Pelli-designed tower. Dubbed the "World's Tallest Building," the Chicago "skyneedle," as Miglin-Beitler Developments describes it, will comprise small floor plates that become cozier as the building rises. During negotiations, the developer agreed to provide space at the ground floor for a museum of unspecified character and origin. The proposal is an elegant stepped tower; when viewed from Michigan across the Lake, it will no doubt seem graceful.

However, Chicago has always been plagued by the kind of defective thinking that building yet another "World's Tallest Building" exemplifies. (In the midst of the recent tall building mania, the Sears Company announced a plan to add 10 stories to the current world's tallest building, the Sears Tower.) The price for this cowboy mentality, unfortunately, is always paid by the public. Preservation of precious and dwindling historic resources is nearly impossible in the face of wildly escalated land values. (In 1979, there were 96 post-Fire and pre-1885 buildings left in the Loop. Today there are only 26.) And more importantly, the kind of city architects dream of, embracing a mixture of entrepreneurial activities, a variety of building types, scales and uses, and public spaces is crushed by such single-minded, overscaled development.

CHICAGO SKYNEEDLE

CESAR PELLI & ASSOCIATES

In Chicago, speculation continues with unbridled intensity because the private use of property is substantially unconstrained by public intent, public policy, and public legislation. The zoning ordinance should be an instrument that protects and promotes the public realm, but instead this ancient and now archaic document is serving as an instument of destruction.

Come to Chicago for a visit; we have a few lovely new buildings. But the Chicago you may remember is almost gone, so come soon. ■

Howard Decker is a principal of the Chicago firm, Decker and Kemp.

LEGAL PRECEDENCE

A law center invigorates a university curriculum and an urban neighborhood.

AT ITS DEDICATION, FORMER CHIEF JUSTICE OF THE Supreme Court Warren Burger characterized the Drake University Legal Clinic as a model for law schools throughout America. In providing quality legal aid for the indigent, elderly, and infirm, and a professional setting for students to gain practical experience, the Drake program is an important part of the community and an integral aspect of the law school's curriculum.

Architecturally, the project afforded Herbert Lewis Kruse Blunck the unique opportunity to design a new building type. As is with most inner city colleges, the neighborhood around Drake deteriorated in recent years due to the vagaries of off-campus housing. In addition to adhering to an educational and public agenda, the architects viewed the building as a means to revitalize the small business district adjacent to the campus and as a chance to reaffirm the distinctive Midwestern character of the neighborhood.

The simple L-shaped volume developed by the architects effectively addresses the street without blinding fanfare, fitting into the neighborhood as comfortably as a corner grocery store. The visual anchor of the structure is an octagonal rotunda that opens out onto the corner and street. Dull red brick and gray limestone quarried in Stone City, Iowa, subtly activate the elevations to create a textured elegance, lending just enough character to give the corner a virile presence but not so mannered as to dominate the streetscape or alienate the clinic's client base. The rotunda stops just short of grandeur with its scored masonry, limestone, etched glass, clerestory, and dome, and its modest two-story scale prevents the building from looking garish or awkward. The clinic owes as much, in form and materials, to the midwestern Prairie tradition as it does to the classical magnificence of historic courthouses.

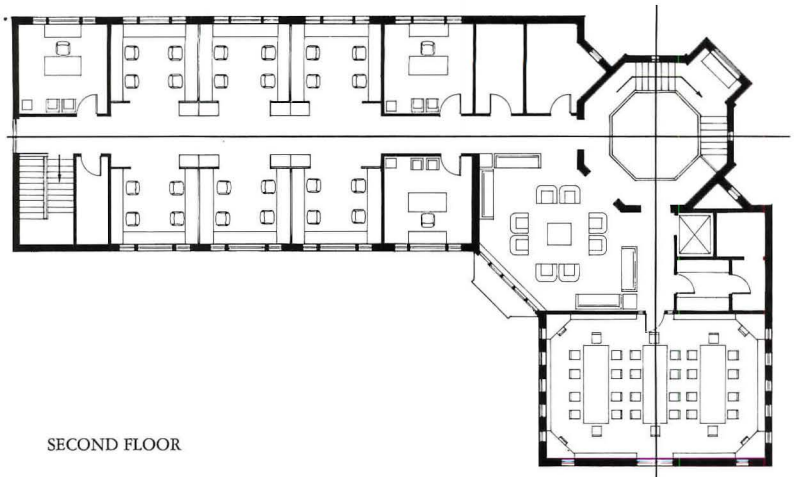
The remaining facades consist of solid walls that blend seamlessly into the streetscape and give the structure a sense of permanence. The rhythm of simple punched openings and Chicago windows creates a perfect discourse with the street, one that engages both motorist and pedestrian alike.

The overall impression of the structure is more akin to that of a small private law firm than an academic building or a social bureaucracy. Should the success of the Drake program continue, Americans are likely to see dozens of similar facilities emerging on campuses around the country during the next decade. In fact, legislation is already currently pending on a handful of such programs.

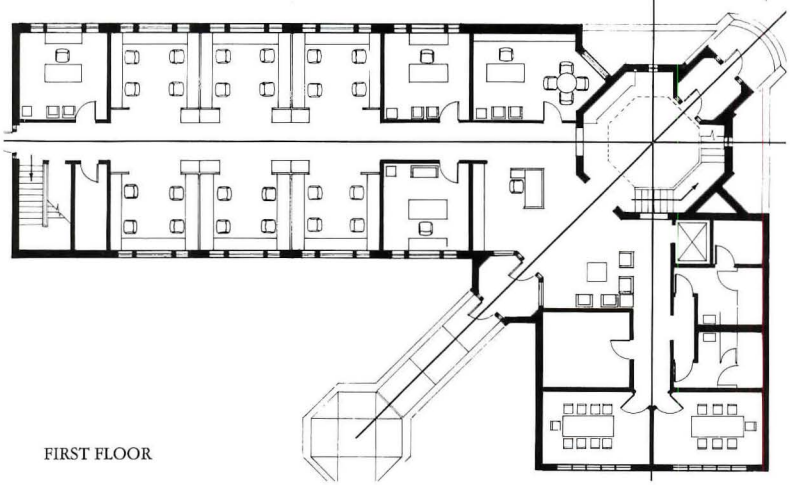
In time, the Drake legal clinic will undoubtedly gain an historic significance for developing an innovative program, housed in a building which so adroitly defines its purpose with the quiet integrity of a jurist. ■

—ROBERT TIBBETTS

Robert Tibbetts is a writer on art, architecture, and film, based in St. Louis, Missouri.



SECOND FLOOR



FIRST FLOOR

LAW SCHOOL LEGAL CLINIC
DRAKE UNIVERSITY
DES MOINES, IOWA

ARCHITECT: Herbert Lewis Kruse Blunck Architecture, Des Moines
Calvin F. Lewis, AIA, principal-in-charge; Richard Roseland, Tim Hickman, project team.
ENGINEERS: Structural Consultants, P.C. (structural); Kimmel Jensen Wegere Wray Engineering Consultants (mechanical and electrical)
GENERAL CONTRACTOR: The Weitz Company
COST: $63/square foot
PHOTOGRAPHER: Farshid Assassi

Iowa Congressman Neal Smith, an alumnus of Drake University's law school, was instrumental in formulating a program for the Des Moines legal clinic that would effectively address the educational problems which plague the legal profession. In fulfilling Smith's vision, Herbert Lewis Kruse Blunck Architecture designed the clinic with an historic profile detailed in brick (bottom left), intended to establish a quiet grandeur amidst a decaying neighborhood. Anchored at the corner by a rotunda (facing page), the L-shaped volume comprises two floors of offices (below, left). The plan is easily understood from anywhere in the building, especially from the rotunda floor where the entire clinic can be viewed down either corridor. Oak milled in Iowa is lavishly applied to shelves, doors, and window frames, and especially in the rotunda's grand staircase (bottom right). The architects designed thick flat molding with long wide bands of blond wood, accentuated with dark corner pegs that resemble the craftsmanship of a Greene and Greene house.

A Separate Piece

Twin structures challenge the banality of the spec office block.

IN TROY, A SUBURB NORTHWEST OF DETROIT, ROSSETTI Associates recently has completed a pair of six-story office buildings called Liberty Center. Situated on a divided east-west thoroughfare, Liberty Center exemplifies the unavoidable characteristics of the now standard spec office typology: double-loaded corridors, upscale lobbies, parking in the rear, and an image grasped instantly by motorists. Yet, the complex exhibits a considerable effort on the part of the architects to transcend the limitations of the banal box.

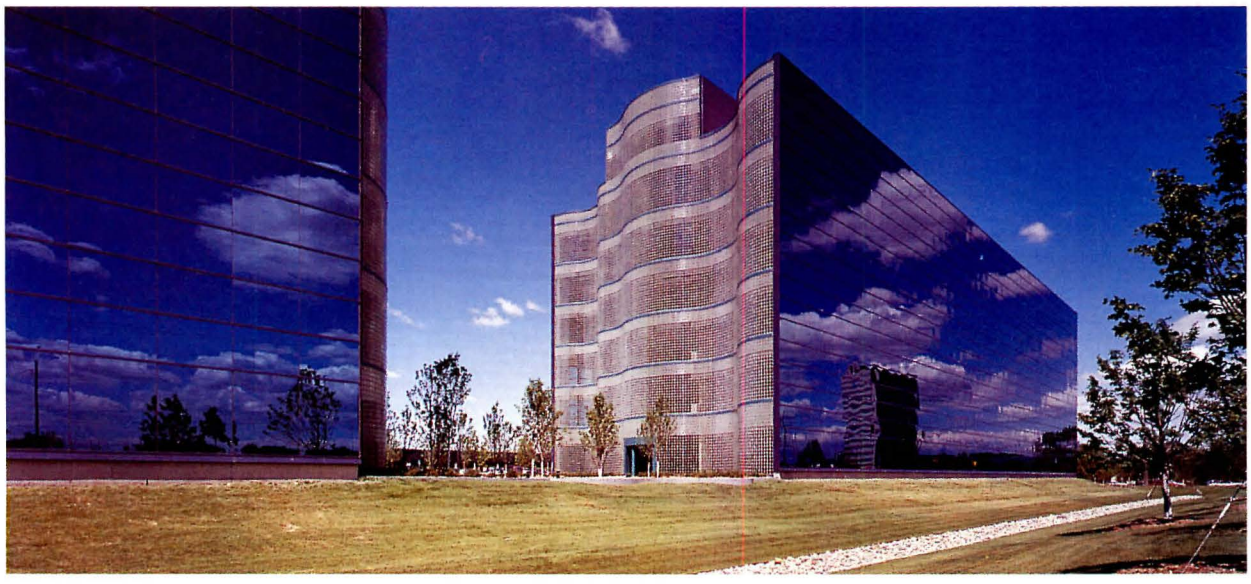
Although the reduction of the exterior to a minimalist statement is not an unusual feature of Rossetti Associates' work, it is actually a foil for the major conceit of the design at Liberty Center. The twin buildings are two parts of a whole broken apart. The resulting cleavage defined by serpentine walls facing each other across a courtyard. Bands of glass block emphasize floor and spandrel heights established by a structural steel framework. In contrast to the neutrality of the adjacent three sides, the luminous screens are active and highly ornamental.

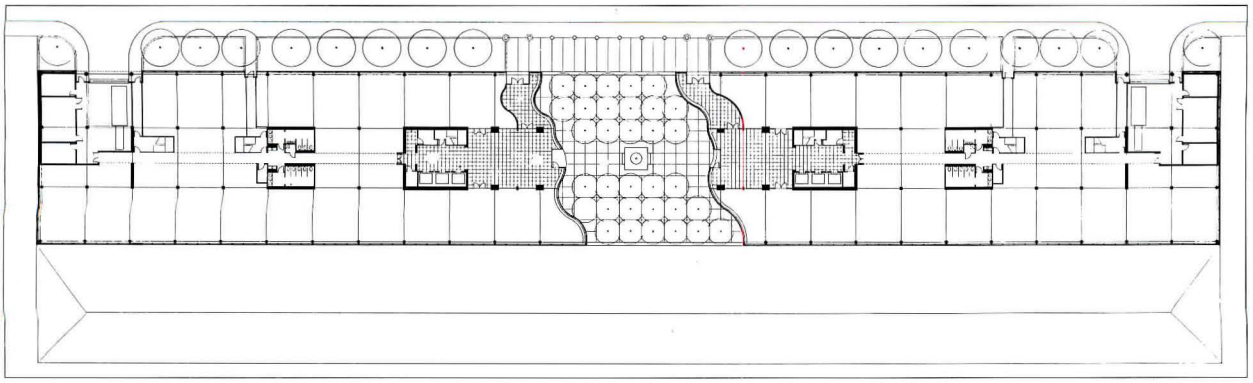
The relationship between the two buildings of Liberty Center might seem to represent the rupture between city and suburbs that has had such devastating effects in Detroit. Yet, no such intention seems to have controlled it. Principal-in-charge Algimantas Bublys refers to the concept as pieces of a puzzle pulled apart and capable of being put back together again. Rather than comment on dislocation, the elegantly tailored facades suggest the compatibility of like-mindedness, the very conditions promoted in the suburbs. ■

—ROBERT A. BENSON

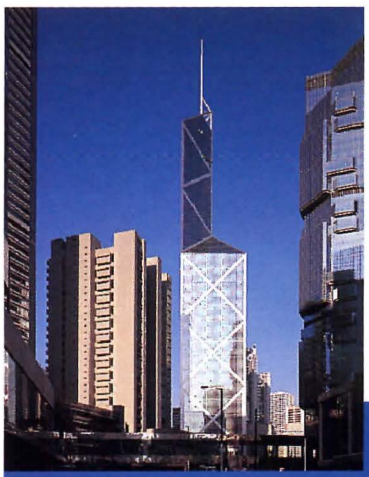
Robert Benson directs graduate studies in architecture at Miami University.

LIBERTY CENTER
TROY, MICHIGAN
ARCHITECTS: Rossetti Associates, Detroit
Louis A. Rossetti, FAIA, CEO; Algimatas V. Bublys, FAIA, principal-in-charge, design; Michael Tomasik, AIA, project manager; David Rose, AIA, senior designer; Dan Connelly, technical leader
LANDSCAPE ARCHITECT: Johnson, Johnson & Roy
ENGINEERS: McClurg & Associates (structural); DiClemente-Siegel Engineers (mechanical and electrical); Nowak & Fraus, P.C. (civil)
GENERAL CONTRACTOR: R. E. Dailey
PHOTOGRAPHER: Balthazar Korab





The Liberty Center's two long volumes are clad on three sides with dark reflective glass (left). Vertical butt-jointing and slender horizontal mullions that delicately incise the satiny surface underscore horizontality. The uninterrupted glossy planes of the street elevation are located away from a heavily traveled roadway so that they mirror the sky. Serpentine walls of translucent and reflective glass block (facing page) frame a courtyard between the pair of spec office buildings.



Curtain's Up in Hong Kong

The Bank of China's cladding poses a bid-document challenge.

CURTAIN WALL FACADES ARE GENERALLY STRAIGHTFORWARD FROM A technological standpoint, says Michael D. Flynn, AIA, partner and principal building envelope designer with Pei Cobb Freed & Partners. The reason is money. In the competitive building market, cladding is allotted 20 percent of the building budget. Any attribute added to the cladding must have a payback—energy efficiency of coated glass is an example—and the acceptable time frame for recouping such an investment is "almost zero," Flynn claims.

"With the Bank of China building, Mr. Pei made the decision to express the general structural system," Flynn continues. "The facade describes, quite literally, the structure of the building."

The cladding system for Bank of China is similar to typical curtain walls in the U.S. "With Hong Kong's 100-mile-per-hour typhoons, designing the curtain wall was akin to doing so in the East Coast's hurricane belt," Flynn explains.

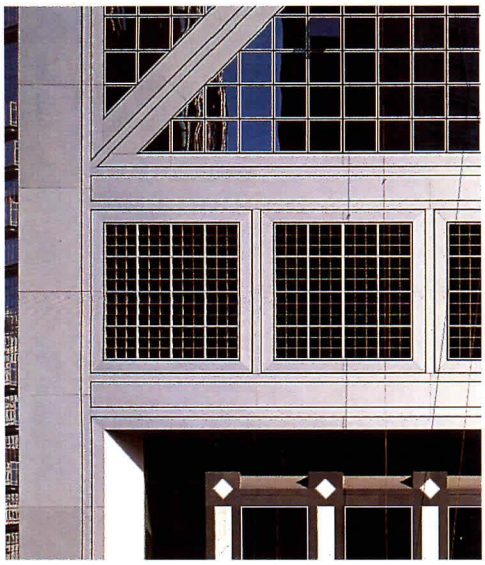
The difference from working in the U.S. was how the architects created bid documents for the reflective glass and aluminum cladding system. Hong Kong has limited curtain wall manufacturing capabilities. To get the lowest price for an enclosure 1,000 feet high and 10 acres in area, the project team leaders decided to develop bid documents that would generate worldwide response.

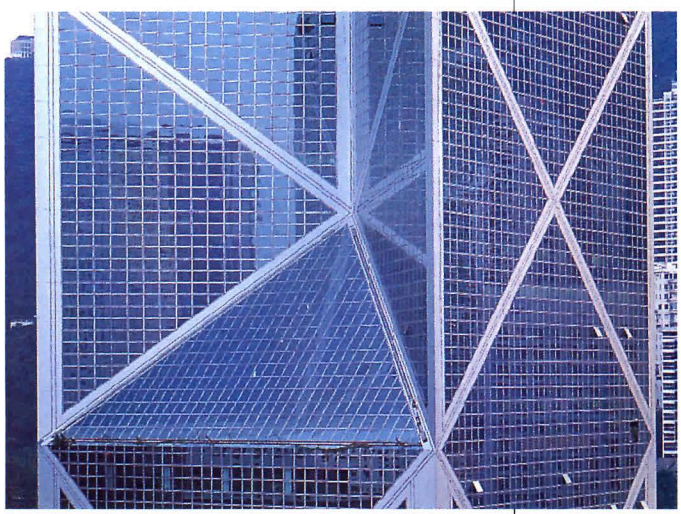
One obstacle to shopping the international cladding systems market is that manufacturers in the U.S., Japan, and Europe hold significantly different approaches to engineering development, aluminum finishing, and glass treatments. The architecture firm devoted 10 weeks, under the direction of Flynn and Robert Heintges, to developing a set of prototypical details and specifications. They issued those documents to manufacturers around the world, requesting their comments.

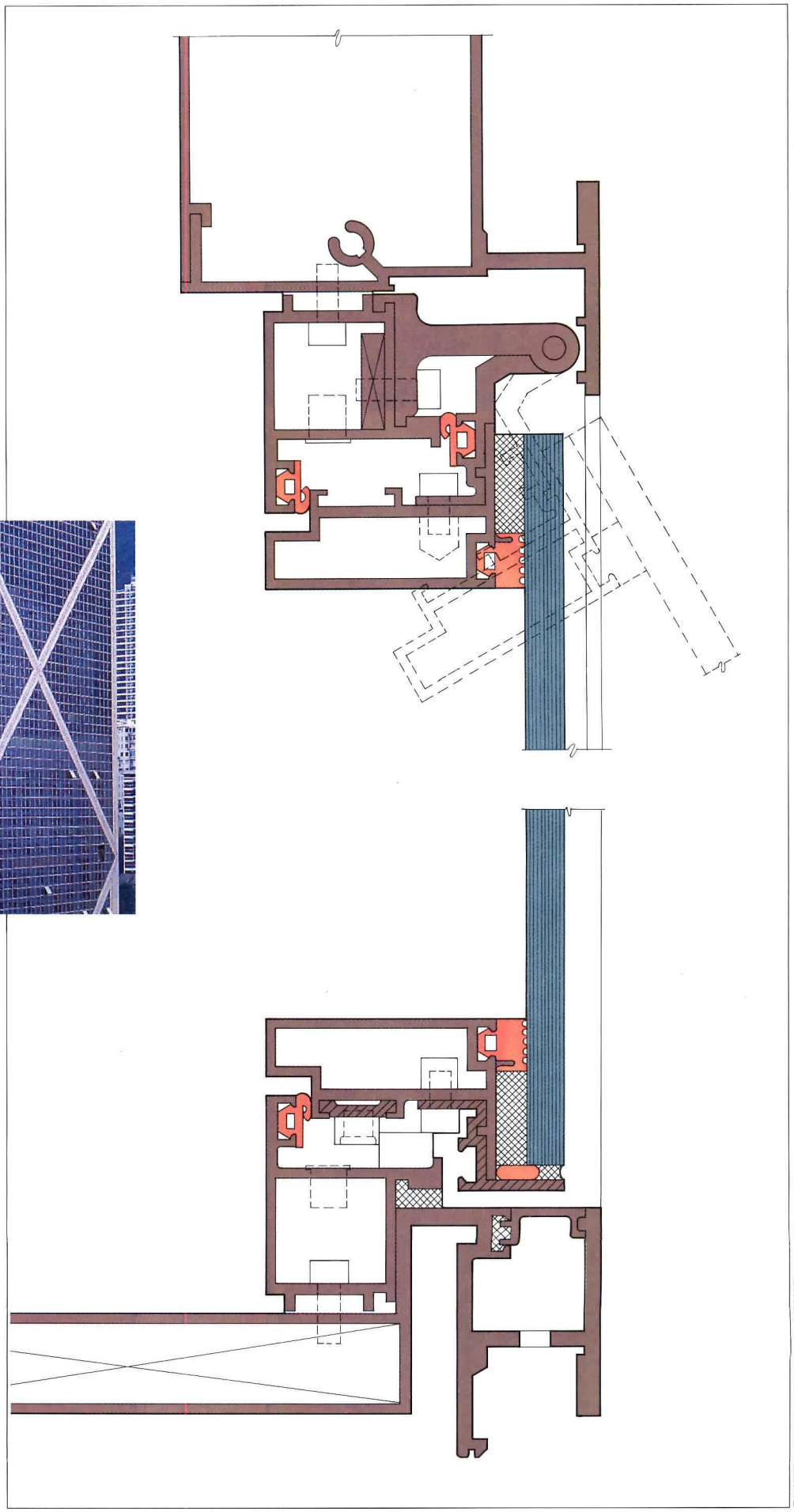
"The response to this approach was overwhelmingly positive," Flynn says. "The input was distilled into the bid documents, and the result was very competitive pricing for a definitive design." ■

—DOUGLAS E. GORDON

Reflective glass saves energy while aluminum cladding expresses structure.





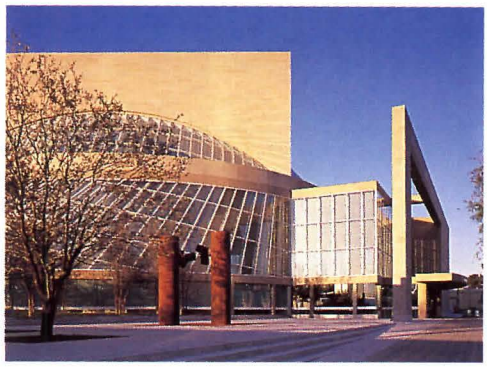


A building's cladding should relate to the logic of its structure, says Pei Cobb Freed & Partners' Michael Flynn, AIA. The firm's Bank of China 13-story-high cross bracing, clearly evident in aluminum (above), is a perfect expample of this tenet. Expressed belt trusses would have created a stack of Xs, a negative connotation for a bank, so the horizontal trusses were concealed to create instead a more positive connotation of a stack of diamonds. Transferring gravity loads to corner columns allowed an unobstructed atrium at the fourth floor, where the exterior cladding changes from stone to glass and aluminum (top). The head and sill details of the operable windows (right) show the use of low-maintenance dry seals. Only custodial staff can open the few operable windows on each floor. To compensate for crews not familiar with curtain-wall assembly, the architect opted for as much prefabrication as possible in the wall panels, manufactured by a West German firm.

DRAWINGS BY TIMOTHY B. MCDONALD

An Acoustic Jewel

A symphony center in Dallas boasts old-world sound.



WITHIN THE MORTON H. MEYERSON SYMPHONY CENTER IN Dallas, designed by Pei Cobb Freed & Partners, rests a work of acoustic art, the Eugene McDermott Concert Hall. The acoustic consultant, Artec Consultants Inc., of New York City, modeled the hall on several of Europe's grand late-19th-century concert halls, including the Musikvereinssaal in Vienna, Amsterdam's Concertgebouw, and the original Leipzig Gewandhaus.

Artec chairman Russell Johnson's acoustical goals for the McDermott Concert Hall were to conserve as much sound as possible within the hall, control the reflection of sound waves for uniform distribution and reverberation, and exclude extraneous outside noise. And he strove for a special sense of audience-to-orchestra intimacy.

The Dallas Symphony Association maintained a commitment to quality acoustics throughout the 10 years of planning and construction of Meyerson, Johnson says. Artec contracted directly with the symphony association and provided consultation from the first scale models through construction and post-occupancy adjustment. As with any fine musical instrument, it will take many seasons for the conductor, orchestra, and technicians to learn to play the hall to its full potential, Johnson predicts.

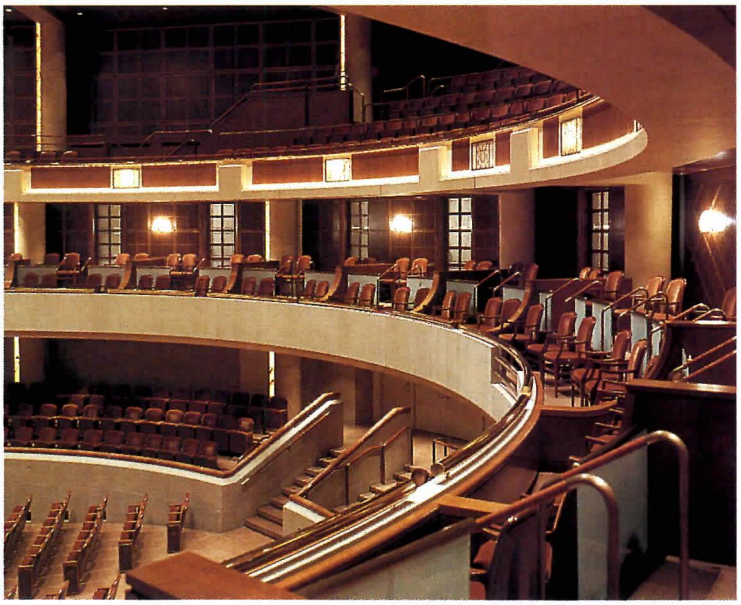
Pei Cobb Freed & Partners created its interior design based on Artec's initial scale model, which lacked fine-scale detailing, but contained enough information to establish the size and dimensions of the hall, seating and aisle patterns, proper sightlines, the shape of the stage, and the location of sound-controlling surfaces.

The basic configuration is a so-called "shoebox" design, measuring 94 feet long, 85 feet high, and 84 feet wide. This relatively long, narrow, and high rectilinear configuration has dual benefits: the parallel side walls conserve sound energy, unlike fan-shaped halls, and the high ceiling allows four tiers of seating without loss of intimacy.

McDermott Hall contains three key elements that can be adjusted to control the sound: a four-piece acoustic canopy, a large reverberation chamber, and two sets of

The hall's sound-reflecting canopy adjusts from 40 to 75 feet above the stage and tilts approximately 7 degrees.

Intimacy between stage and audience is visual as well as acoustic (right). Wood wall panels (visible below) bond tightly to the structural concrete shell to enhance sound reflection. Plaster was applied flush with nailers attached to the concrete, creating a nearly flat backing for the wood veneer. Minor distortions were inevitable as the plaster dried, so workers coated the back of the wood panels with epoxy before nailing them in place. Finish strips conceal the nailers. With a rubber mallet, the acoustic consultant tested the walls for hollow spots.



acoustic curtains. The most striking feature is the 42-ton, four-piece canopy. At its lowest adjustment, 40 feet above the stage, the canopy promotes crisp articulation with low reverberance for recitals and chamber music. Its highest setting of 75 feet accommodates a C.B. Fisk Inc. pipe organ, installation of which is underway for completion in 1992.

The reverberation chamber is outfitted with 72 concrete doors, each weighing 2.5 tons. Opening these doors increases the reverberation time of the hall. Remote controls allow technicians to adjust the acoustic size of the room from a side-stage control panel. The two sets of curtains encircling the hall reduce reverberation when the hall is empty for rehearsals or recording sessions.

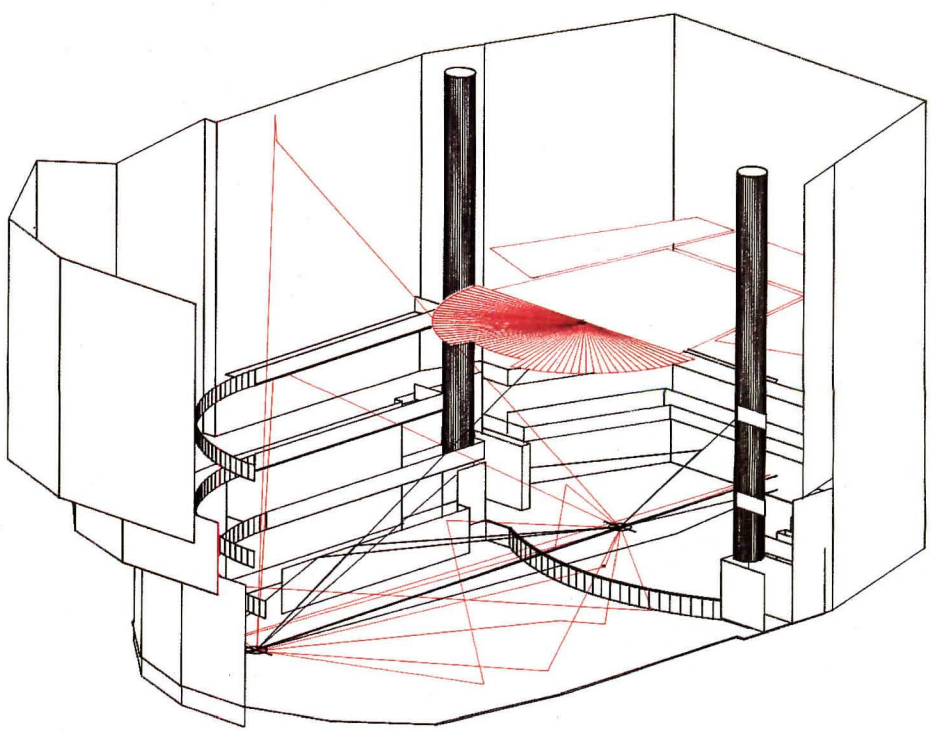
Solidity is an important component of the walls encircling the hall and its balconies. Their attractive wood veneer was painstakingly bonded to the structural concrete shell to avoid air spaces, which would have allowed the veneer to dissipate much of the acoustic energy.

The limited size of the hall—1,800 seats in the auditorium and 266 on a choral terrace surrounding the stage—helps to minimize sound dissipation, as does a series of balcony soffits which reflect sound down to the main floor.

An overhang near the top of the walls, designed to reflect sound downward, originally was to extend all the way around the symphony hall. Johnson's initial scale model also called for one tier of balcony seating to wrap behind the rear of the stage. Because the design architect terminated these sound-reflecting elements at two huge false columns framing the proscenium, some of the sound-reflecting surfaces were removed. To compensate for the resulting loss of acoustic reflection, Johnson proposed three additional canopies that he believes ultimately improved the hall's overall performance. ■

—Douglas E. Gordon

A considerable amount of acoustic design is intuitive, says Russell Johnson, Artec chairman. Although his firm employs the computer for acoustic analysis, it is only one tool among many, he emphasizes. In the computer-model diagram below, rays trace the path of waves to measure how much sound reaches a specific point over time. For Meyerson, the consultant analyzed about 20 representative locations within the hall, as indicated in a diagram revealing acoustic response (below).



Design for the Big One

An L.A. tower resists quakes with a dual structure.

THE 1.3-MILLION-SQUARE-FOOT FIRST INTERSTATE WORLD CENTER, opened in November 1989, has racked up a list of superlatives with its height of 1,018 feet: tallest tower in Los Angeles, tallest tower on the West Coast, and tallest tower anywhere located in a seismic zone 4. It is the tower's audacious presence in the most severe of earthquake zones (it is located merely 33 miles from the San Andreas Fault) that determined its unique form and resulting structural system.

The structural frame for a building this tall in a restrictive seismic zone demands a balance between stiffness, so that the building does not sway during high winds, and ductility, to ensure energy absorption capacity during an earthquake. The structural engineer's solution to this dilemma is a dual steel frame system, consisting of a 75-story-tall ductile, moment-resisting frame at the perimeter that interacts with an interior core of box columns 68 stories tall. Beginning at the sixth floor and continuing to the 54th floor, two-story-tall chevron braces laterally support all four sides of the interior core. From the 54th floor to the 68th floor, vierendeel girders stiffen the core. Between the two frames, steel transfer girders support concrete floors spanning 55 feet.

The heavily loaded box columns of the interior core are anchored to an 11-1/2-foot-thick concrete mat supported on shale. One advantage against seismic action is that the soil on the site is very hard; its 700-foot-thick layer of stone will support 7.5 million tons per square foot. Additionally, if subjected to earthquake forces, this hard ground will shake at a cycle too rapid to interfere with the building's own period of vibration.

Because the outer structure is ductile, it will experience interstory movement in the event of strong vertical and horizontal seismic motion. To anticipate this likelihood, the curtainwall panel system is designed to accommodate 2-1/2 inches of interstory drift without structural failure, according to the structural consultant, Houston-based CBM Engineers. The cladding panel system incorporates nominal 1-1/4-inch-thick granite as well as glass.

The north side of the project site, which is 50 feet lower than the south side, needed special structural accommodation for its basement wall. Rather than tie the wall back into the building as an extra load, the shoring engineers, LeRoy Crandall and Associates of Glendale, California, devised a system of permanent tieback anchors that allowed the 245-foot-long wall to function as an independent structure and its interior to be used as a six-level parking garage.

Because this is the first permanent tieback system of this scale in Los Angeles, building officials asked for assurance that the system have a 100-year expected life. The engineering team's solution was to place steel soldier piles in holes that extend below the foundation, backfill with concrete and tie the piles back with 16-inch diameter prestressed steel tendons coated with epoxy for corrosion resistance. Permanent tie-backs also stabilized the soil under an adjacent distribution station that supplies power to a major portion of Los Angeles.

Due to the uncertain reaction of tall buildings to earthquake forces, the design for the tower was analyzed for a number of failure modes, including ductility limits, deflection, and "plunging failure," which measures the building's response to vertical acceleration. The earthquake codes affecting Los Angeles deemed the most stringent in the nation, required that a dynamic analysis prove that the design would withstand a magnitude 6.8 to 7.0 earthquake on a local fault, as well as an magnitude 8.3 quake on the San Andreas Fault (a once-in-475-years event). The dual structure proved to require 5,500 tons less steel than a single-frame ductile structure.

As befitting such a complex structure, the First Interstate Tower benefitted from the expertise of a multidisciplinary design team, headed by Henry N. Cobb of Pei Cobb Freed & Partners, in association with associate partner Harold Fredenburgh. The executive architect for First Interstate World Center was Ellerbe Becket of Santa Monica, California. ■

—DOUGLAS E. GORDON

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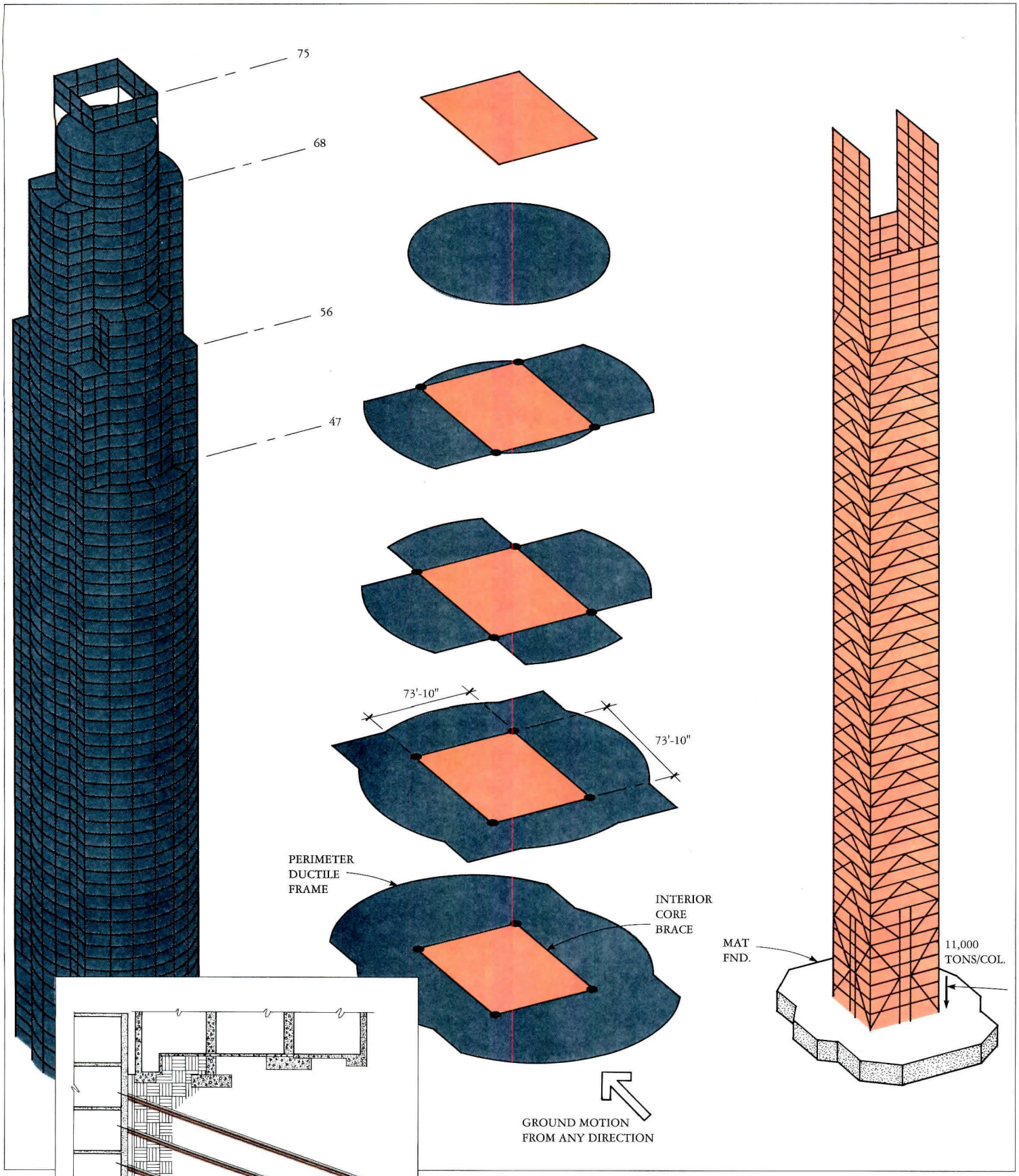
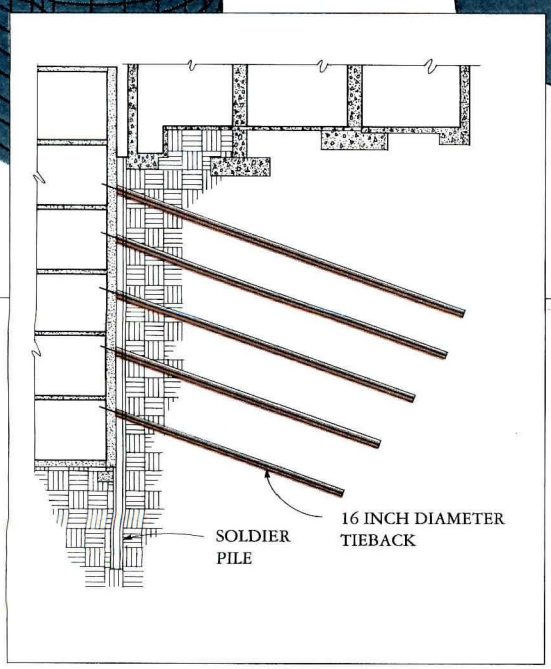
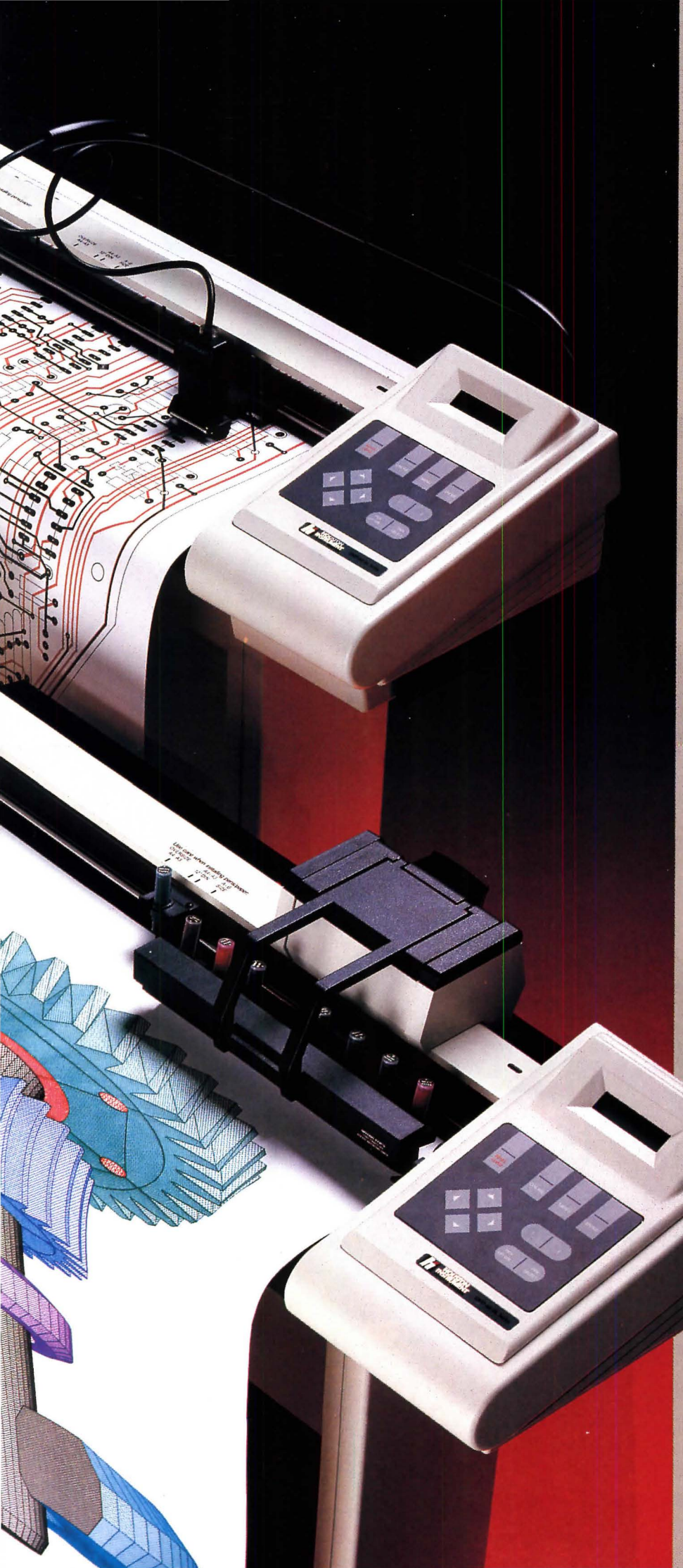
Setbacks at the 48th, 61st, 69th, and 73rd floors give the First Interstate World Tower its distinctive profile, and complicated its structural analysis.





The 68-story core structure (above at right) is laterally supported by two-story-deep chevron bracing up to the 53rd story and freespanning vierendeel girders above that height. Box columns in each corner carry gravity loads. Setbacks in the outer, ductile tube (above at left) form a series of squares and circles in plan. Permanent tiebacks on the north side of the site comprise epoxy-sheathed steel tendons 16 inches in diameter connected to subground steel soldier piles embedded in concrete (left). They stabilized the soil under an adjacent city water and power distribution station that had to remain in operation during construction of the tower.



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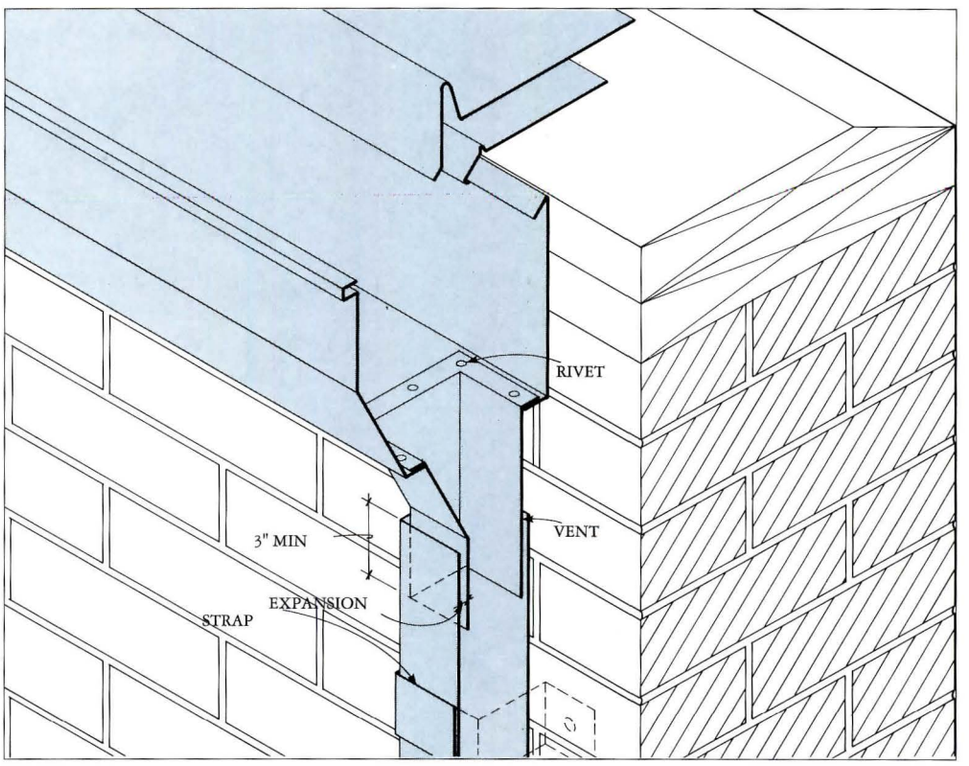
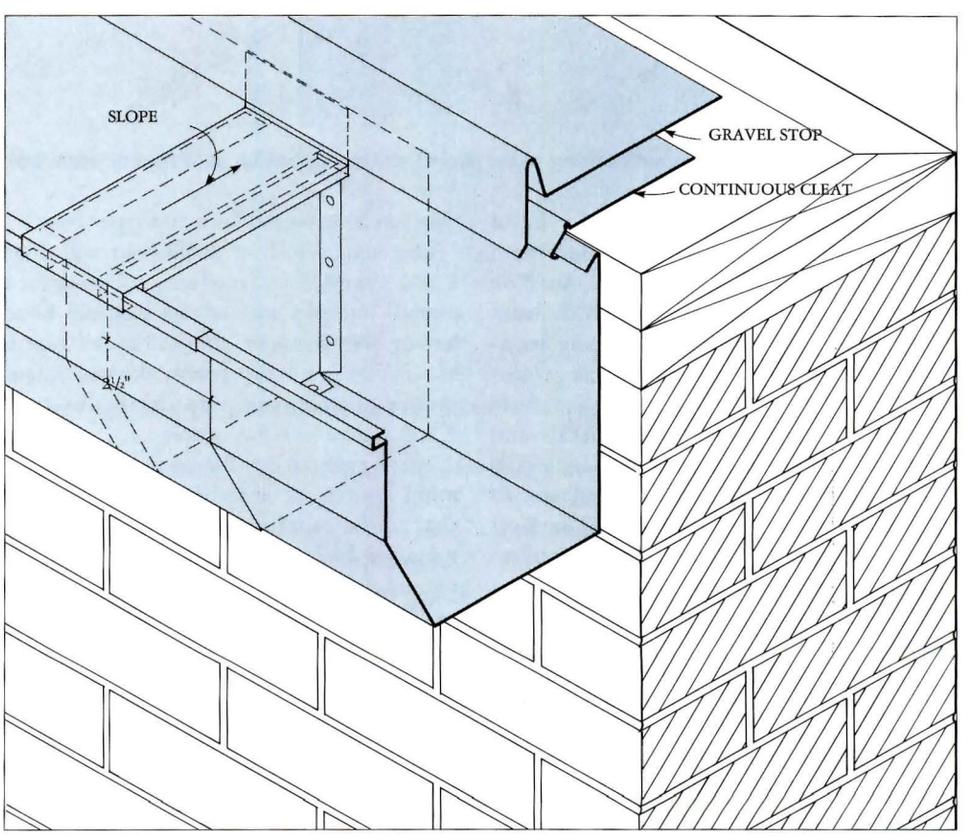
Up on the Roof

Correct accessories can make or break a roof design.

ROOFING

To assure that it can function effectively, a roof system requires fabrication and installation of metal flashing accessories in areas of the roof most susceptible to leaks. The Sheet Metal and Airconditioning Contractors National Association (SMACNA) sets the industry standards for the design of such accessories, including metal roof panels, gutters, downspouts, and gravel guards.





General considerations

THE GAUGE (OR THICKNESS) OF A METAL, one of the important considerations of metal components, is determined by many factors. The main factor is girth, which measures the total width of the metal flashing if it is stretched out flat. The larger the girth of the component, the stronger and stiffer the material must be. This strength and thickness comes from the gauge of the metal, as well as from "breaks," which are longitudinal crimps and bends.

Usually, stiffer and thicker metals are recommended for roof areas that experience high wind stress or heavy loading conditions. For example, a gutter most likely would be made from thicker material than a downspout because the downspout normally has a smaller girth, and also is strapped tightly to the face of the building. Therefore, high winds blowing across the building face would not affect a downspout as easily as they would a gutter. Secondly, unless the downspout is clogged, water very seldom will fill it. On the other hand, if one downspout does become clogged, it could cause water to stand or be entrapped in the entire gutter system.

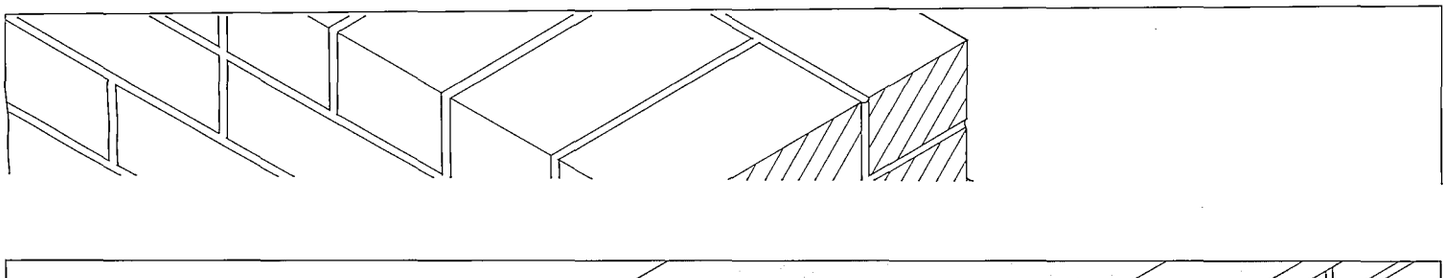
Compatibility of the metals used for flashing accessories is another important consideration. Naturally, similar metals are compatible, but combining different materials may cause electrolysis and deterioration where contact has been made. Stainless steel is compatible with galvanized steel, aluminum, and copper. Aluminum and galvanized steel are compatible, but copper is compatible only with stainless steel.

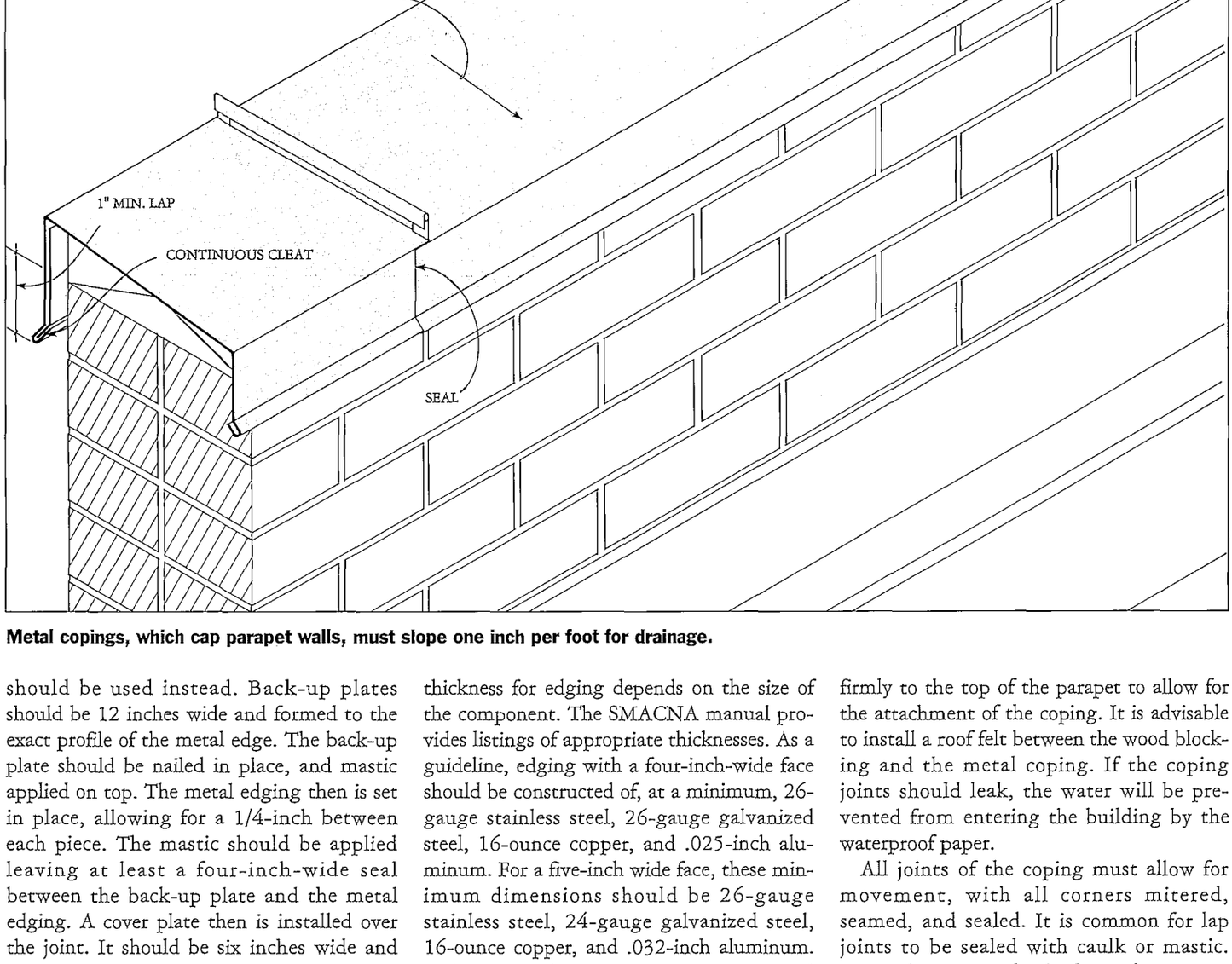
In constructing many types of roof accessories, it is necessary to solder metal compo-

scuppers usually are soldered together, except on a roof that requires open flames or heated air for roof membrane installation, either of which would melt the solder when the heat is directed to it. In this case, caulking should be applied at the joints in place of the solder, and a water-resistant barrier

primary cause of initial roof leaks on built-up roof systems is splitting of the membrane as metal edging expands and contracts. Splitting can be avoided in many cases by proper installation and design of metal edging. Metal edging should be installed on raised wood blocking, usually a 2x6. This

decked together, except at corners. The most common connection method is to lap the two pieces of the metal by four inches, and insert a solid bead of mastic or plastic cement in between the lapped metal. If the face dimension measures over five inches wide, cover plates and/or backup plates





Metal copings, which cap parapet walls, must slope one inch per foot for drainage.

should be used instead. Back-up plates should be 12 inches wide and formed to the exact profile of the metal edge. The back-up plate should be nailed in place, and mastic applied on top. The metal edging then is set in place, allowing for a 1/4-inch between each piece. The mastic should be applied leaving at least a four-inch-wide seal between the back-up plate and the metal edging. A cover plate then is installed over the joint. It should be six inches wide and formed to the exact profile of the metal edge, with a locking clip edge added at the bottom. Even if a bottom back-up plate is deleted, the metal edge sections should be installed with a 1/4-inch gap in between each section, and each end liberally coated with mastic or caulk applied to the top surface. The cover plate then is set into the mastic, which locks the bottom of the cover plate to the drip edge of the previously installed metal edging. The cover plate then is nailed in place, with the nails applied only in the 1/4-inch gap between the metal edge sections. Differential movement is accommodated by attaching the cover or backer plate to allow the metal edging to move independently.

Cover plates and back-up plates may cost more in labor and material, but in the long run these systems pay for themselves many times in reduced costs and repairs. Many sheetmetal experts recommend this system for all metal edge/gravel guard systems on a built-up roof.

As is the case with choosing metals for gutters, selecting the appropriate metal thickness for edging depends on the size of the component. The SMACNA manual provides listings of appropriate thicknesses. As a guideline, edging with a four-inch-wide face should be constructed of, at a minimum, 26-gauge stainless steel, 26-gauge galvanized steel, 16-ounce copper, and .025-inch aluminum. For a five-inch wide face, these minimum dimensions should be 26-gauge stainless steel, 24-gauge galvanized steel, 16-ounce copper, and .032-inch aluminum. If the edging face measures between six and seven inches, the thickness of the metal should be 22-gauge stainless steel, 22-gauge galvanized steel, 20-ounce copper, and .040-inch aluminum. For edging that measures eight inches or more, the minimum thickness of the metal should be 20-gauge for stainless steel and 20-gauge for galvanized steel, 20-ounce for copper, and .050-inch for aluminum.

Metal copings

THE FINAL COMPONENT TO BE CONSIDERED in a metal roofing system is metal copings, used to cap the top of parapet walls. Copings also can be fashioned of stone or clay.

Metal copings are attached to the parapet wall with a continuous cleat that locks into the hemmed edge at the bottom of the exterior lip. The interior face of the coping is fastened two feet on center with fasteners protected by watertight gaskets. These fasteners are inserted through a slotted hole in the metal, the slot allowing for movement of the metal coping. A wood nailer is attached firmly to the top of the parapet to allow for the attachment of the coping. It is advisable to install a roof felt between the wood blocking and the metal coping. If the coping joints should leak, the water will be prevented from entering the building by the waterproof paper.

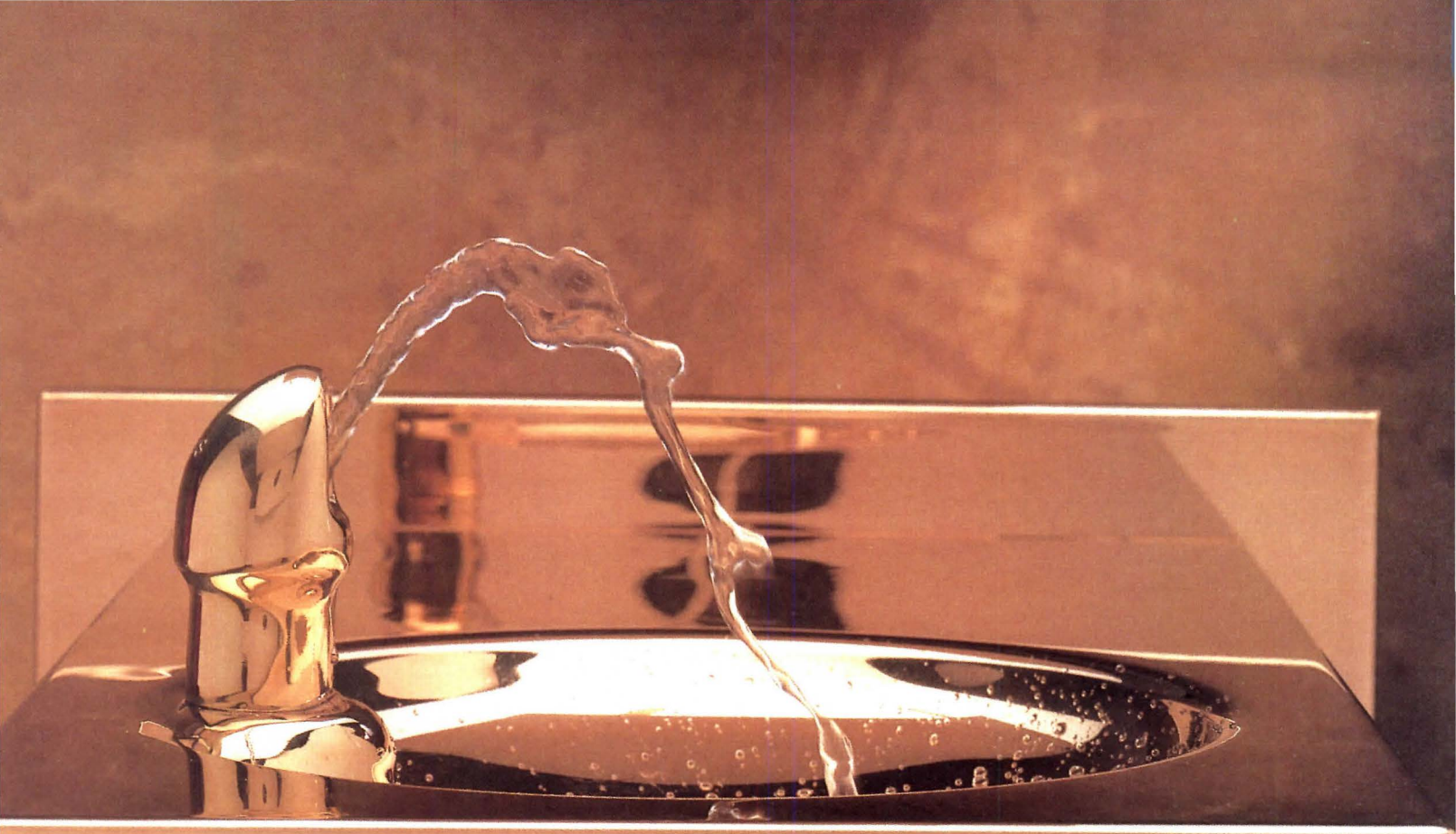
All joints of the coping must allow for movement, with all corners mitered, seamed, and sealed. It is common for lap joints to be sealed with caulk or mastic. Joints also can employ back-up plates, cover plates, standing-seam joints, and a number of other joint types that allow movement but remain watertight.

The girth of the coping will dictate the gauge and the thickness of the metal to be used. Copings always should be connected tightly, because they experience tremendous stress during high winds.

Standards for metal gauge standards can be found in the SMACNA Architectural Sheet Metal manual (cost is $75, prepaid, although architects and engineers who are not contractors are offered a discount price of $45). The SMACNA headquarters is located at 8224 Old Courthouse Rd., Vienna, Virginia, 22182. Another good source of information for metal roof detailing is the National Roofing Contractors Association (NRCA) "Roofing and Waterproofing Manual." The manual contains drawings and specifications of most situations encountered in roof flashing.

—STEVE HARDY

Steve Hardy is a roofing consultant in Texas.



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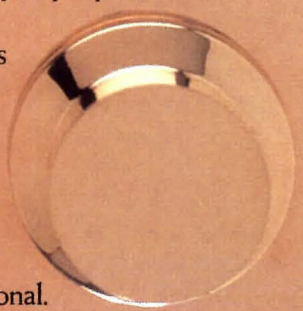


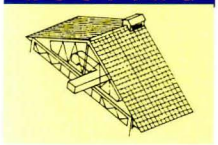
Haws

$H_2Ohhhhhhh.$

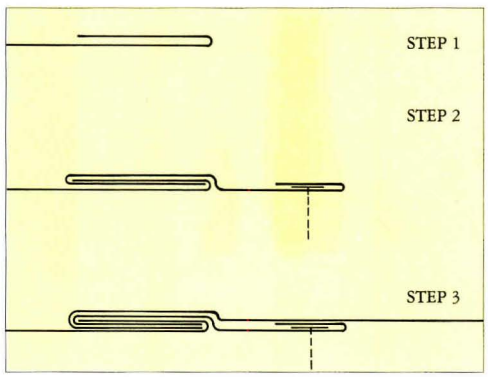
Right on Top

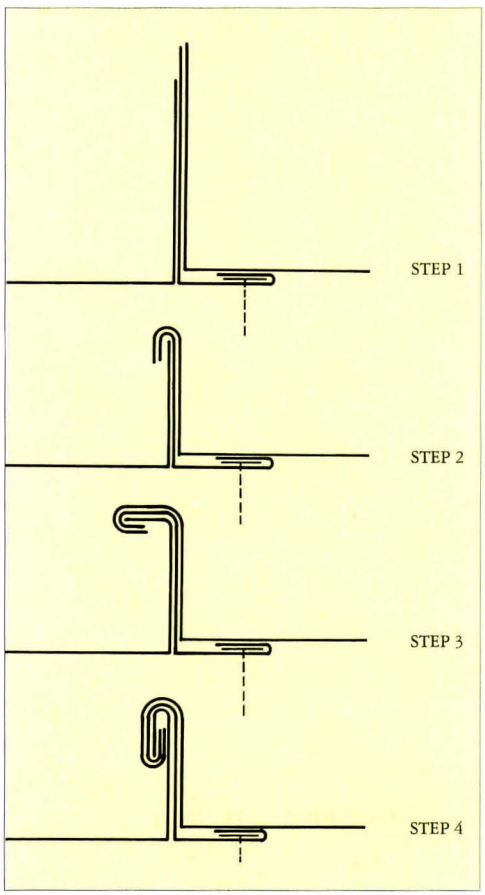
Specifying roof details is not over an architect's head.

ROOFING



Steve Hardy of Facility Management Systems, Inc., Nederland, Texas, has created a cassette-tape series (three hours of listening time) on the materials and techniques of built-up, modified bitumen, and metal roof systems. The tapes explain the important characteristics of various roofing materials as well as the contractor's means and methods for placing them. The following edited excerpts are some pointers applicable to design and specification.





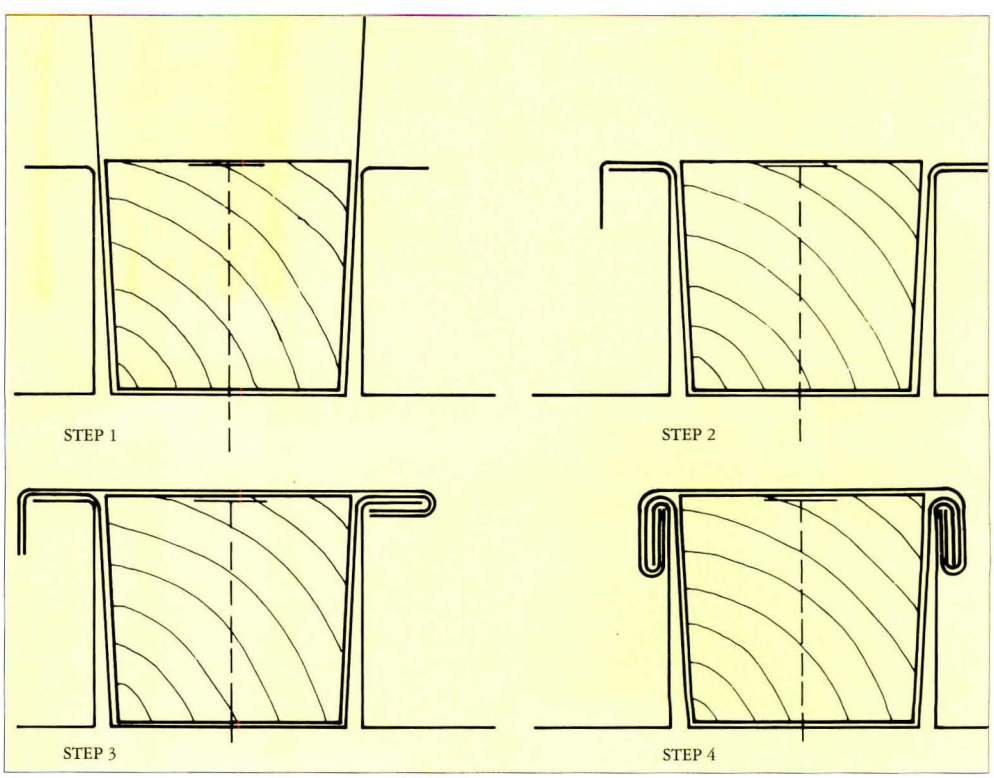
Metal roof detailing requires careful specification, whether the roof is made of architectural metal panels, or structural standing seams. Structural standing seam roofs (right) are considered "watertight," because the metal roofing is the only element preventing water from entering the building. Standing seam roofs use nailed cleats and pans that are rolled together to form the standing seam. A flat seam metal roof (above) has a series of pans preformed with folded edges, into which metal cleats are interlocked and nailed to the deck. A batten seam roof (below) uses wood battens between the metal pans.

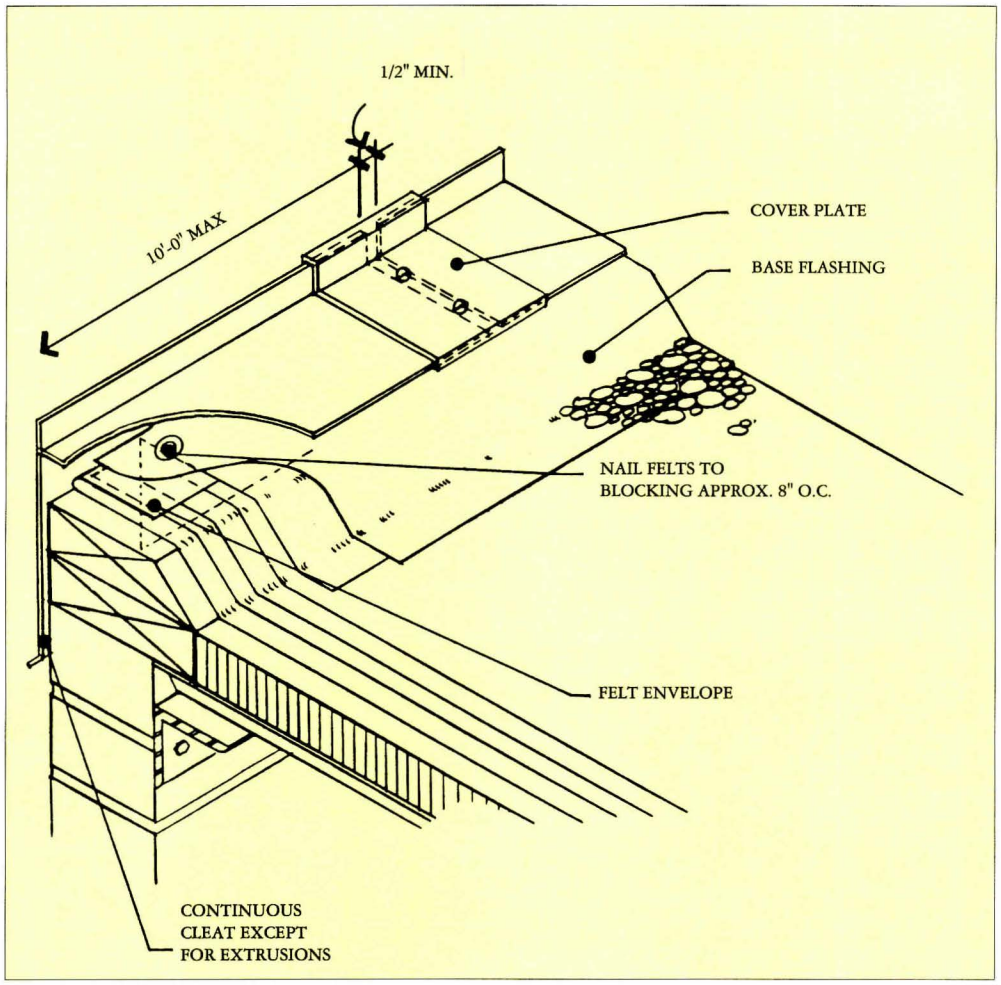
Built-up roof systems

CONVENTIONAL BUILT-UP ROOFING CAN be classified into two major categories: asphalt systems and coal tar systems, which use very different materials and require special procedures. For instance, Type 1 (asphalt), referred to as dead-level asphalt, requires a containing device, such as an edge envelope or bleeder strip, because the asphalt flows so easily. Envelopes, a common solution employed by roofers, usually are made of base sheet material such as 30-lb. fiberglass felt, 30-lb. or 43-lb. organic felt, or of soft metals such as aluminum.

The envelope is created by installing the felt or metal as the first component of the roof system. Usually 12 inches wide, the envelope is installed with half on the roof deck and half over the edge. The roofer then installs the standard roof components, then the envelope is turned over the felts and sealed to the top surface. This construction acts as a dam to prevent the bitumen from going over the roof edge when it begins to flow.

Some type of dam must be installed at all edges wherever there is a gravel guard, at penetrations, and at roof drains. It sometimes is impossible to create a proper envelope at these points, in which case roof cement is an acceptable alternative. Type 2 asphalt is used for applying roofs to slopes of between 1/2 inch to 1-1/2 inches per foot, and Type 3 asphalt can be installed on roofs with a slope between one inch and three inches per foot. Because it has high temperature flow, edge envelopes are not necessary for Type 3 asphalt, the type most commonly used for asphalt BURs.





For Type 1 asphalt built-up roofs, an envelope (above) forms a containing device to restrict the flow af the asphalt when it heats up.

Coal tar systems

COAL TAR ROOFING PITCH COMES IN three grades: Type I is "old-time" pitch; Type II is used in waterproofing; and Type III, developed by the Koppers Company, is a low-fuming product with many of the irritating chemicals removed.

All coal tar roofing pitch should be considered a dead-level or low-sloped material. Type II pitch becomes too soft at standard roof temperatures to be practical because of its low softening point range. Type II usually is installed under plaza decks or over subterranean rooms or buildings where the temperature is a constant 50 to 60 degrees Fahrenheit. Bleeder strips are always required with tar bitumens. Its exceptional molecular makeup makes tar highly resistant to ponding water, bacterial growth, and many familiar modern chemical pollutants. And, because tar is much heavier than water, it is more water-resistant than asphalt.

Modified bitumens

MODIFIED BITUMENS ARE COMPOSED OF asphalt, reinforcing fabrics incorporated into the ply sheet during the manufacturing process. Polymers, used to modify the asphalt, generally are classified in two categories: APP (atactic polypropylene) and SBS (styrene butadiene styrene). "Mod bit" sheets usually are 1/16-inch to 1/8-inch thick.

Open flame is the most common way of installing APP. As the mod bit is torch-heated, the modified asphalt melts and the lap seams are fused together, joining one sheet to the other. The melted material looks very much like hot-mop asphalt, which perhaps is one of the reasons for its rapid acceptance and popularity.

Mod bit manufacturing in the United States has roots originating in Europe, where the majority of all roofing applied is mod bit. Its resistance to the sun's ultraviolet rays can be rated as good to excellent. The typical mix for mod bit usually is 20 to 30 percent APP and 70 to 80 percent asphalt. Also in this mix may be fillers, such as talcum, and possibly small amounts of polypropylene. Reinforcing fabric comprises fiberglass or polyester, or both. A thin sheet of material such as polyethylene can be laminated to the bottom of the sheet, or it can be dusted with sand, talc, or mica granules.

The manufacturer can vary placement reinforcement fabric in the finished sheet. With torch-applied APP, the reinforcement should be placed closer to the center or top of the roof membrane. to protect the inner fabric from heat damage during application. In a mod bit that is to be applied with hot asphalt (usually SBS), the reinforcing fabric should be closer to the center or bottom of the mod bit sheet. (After the mopping asphalt and SBS sheet have been laid, the reinforcing fabric actually will be closer to the center of the waterproofing components.) If SBS is to be torch-applied, the scrim should be placed closer to the center or top.

Flow-out at the seams of the mod bit material is a main indicator of good installation. A flow-out bead of 3/8 inch to 1/2 inch is acceptable.

SBS mod bits have a much better low-temperature flexibility than do APP membranes. However, SBS mod bit membrane is manufactured with more asphalt than are APP mod bits, and is considered by many to be more susceptible to weathering and ultraviolet degradation than is APP. The most popular method of installing SBS is the use of hot asphalt as an adhesive; steep asphalt, either Type 3 or Type 4, should be used. Remember that SBS mod bits must have a protective surfacing, and that most of the problems with mod bit systems are due to lack of care in preparation of the roof deck and/or the installation of the flashings.

Metal roofs

ADVANCING TECHNOLOGY HAS ALLOWED manufacturers to create more colors that can be permanently applied to metal panels. These colored coatings also can be selected to resist chemical pollution, foot traffic, oxidation, and U.V. degradation. Metal roofing is cost effective in relation to its life expectancy, and requires less maintenance than conventional built-up roofs.

Metal roofing can be categorized into structural standing seam roofs and architectural panel roofs. For structural standing seam roofs, the roof surface also is the deck, and the panels are supported from purlin to purlin. How far apart the purlins are placed depends on the gauge (thickness) of the metal panel. Because the loads are placed onto the roof surface, uplift requirements must be followed. Structural metal roof panels are considered to be "water tight." Structural panels can be installed on slopes as shallow as as 1/4 inch on 12 inches.

Architectural metal panels usually are not considered to be watertight. They are much like tile and slate roofs, requiring a waterproofing felt underlayment. Architectural panels must be installed on slopes of three-inch rise in 12-inch run or greater. Because of the design and thinner gauge thickness of architectural panels, solid decks are required to give support.

To create additional slope for the architectural metal roof panels, two basic methods of installing purlins to the top of an existing roof can be used. One method utilizes purlins as sleepers on top of the existing roof. The other requires installing a post or brace system and then installing the purlins to the top of this system. ■

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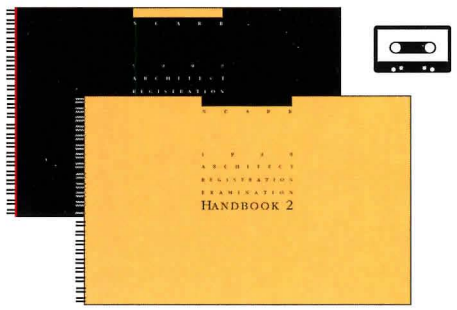

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Less Is More In 3D

Reviews of IBM and Macintosh-compatible software for design presentations.

THIS MONTH'S EVALUATION OF STAND-ALONE 3D CADD BEGAN LAST SUMMER WITH higher expectations than any previous computer software review undertaken in ARCHITECTURE. Our task finally was clearly focused on design. It was time to start having fun. By late fall, when the 21 evaluators turned in their reports, expectations had changed. Dreams of elaborate models generated in a burst of inspiration gave way to a renewed appreciation for simplicity and programs that were easy to learn and use, even if they lacked flash and power. In 3D CADD software, the accessible less was preferred to the inaccessible more.

Included in this report are five 3D programs for IBM-compatible computers and six for Macintosh computers. The DOS programs are Designcad 3-D, Generic 3D Drafting, MegaModel, SilverScreen, and Solid Vision. The Macintosh programs comprise Dimensions, DynaPerspective, ModelShop, StrataVision, and Super3D. All are intended to be used for modeling, massing, rendering or presentation, rather than for production drafting. All were conceived as 3D programs, rather than as appendages to 2D programs.

Each program was placed in the hands of a team of two architects from different firms clustered within Chicago. The Macintosh and DOS teams met separately during October at Triton College in River Grove, Illinois. Unlike previous evaluations, the teams decided not to rank the programs because their applications are so different.

The DOS evaluators ran their programs on an AST Premium 386/33, a high performance alternative, and an Arche Rival 386/20, a low-cost alternative. They disagreed about which system offered the best value. All Macintosh programs were run on a IIx with five megabytes of RAM.

Overturned almost immediately was the assumption that stand-alone 3D CADD programs possessed specialized expertise unavailable to integrated CADD programs. The 3D CADD authors appear to possess few secret weapons, and the seams between 2D and 3D in the so-called integrated programs are more apparent than before.

Most of the stand-alone 3D CADD programs offer more modeling and presentation tools than the integrated programs. But the integrated programs support more speed tools, such as Nth Graphics display list processors and the Weitek Abacus accelerator.

The evaluators generally confirmed both the benefits and limitations of computer-aided 3D. A computer model really does offer impressive advantages in design, study, analysis, education, understanding, communication, and persuasion. As the evaluators became more facile, they began to view the computer as a medium rather than as a tool. A computer model is simply an effective way to visualize a design concept and to judge spatial relationships.

On the other hand, it's also true that drawing in 3D on the computer is still costly, difficult, slow, and limited. The dream of a single model that integrates all relevant information about a building overwhelms any remotely affordable computer today. Even experienced 2D CADD users were surprised by the steep learning curve of 3D and the problem of becoming "lost in space." Designing in 3D is to drafting in 2D like flying a plane is to driving a car.

Definitions for standard architectural views are a mess. One program has a command for an "oblique axon." The command for a perspective may be found under "axo" in another, but the worst command promises to produce an "isometric perspective."

Another major complaint was that most programs are not architectural. The evaluators expected, but did not always find, the z axis up; dimensions in inches and fractions; compass directions measured clockwise from north; the sun as the default light source; shadows; time-of-day controls; enough layers; and graphically-oriented commands. The program should assume that the viewer—not the building—will move. The user should be offered the option to draw or edit in either 2D or 3D, to include text, to work in a scale, and to attach attributes to objects. A smart wall command and 3D symbols for doors and windows usually were missing.

Nevertheless, the evaluators expressed enthusiasm for some 3D programs and optimism that increasing competition would improve all of them. ■

—OLIVER R. WITTE

After testing the software in their offices, the evaluators reviewed all 11 programs.

IBM-Compatible Software

Designcad 3-D

DESIGNCAD 3-D BY AMERICAN SMALL Business Computers provides surprisingly powerful solid modeling for $399.95. Although the program was not written with architects in mind, it probably can be used effectively by architects. It is easy to learn and its best features cannot be found in programs that are several times more expensive.

"Blocks" is probably the strongest segment of the program. Basic "block" commands include the ability to change colors and layers, perform multiple or circular duplications, and to scale by a factor. More complex "block" commands permit extrusions at varying scales, slicing, spiraling, and sweeping. Missing is a "block array" command for 2D and 3D copying.

Defining a group of entities is one of the program's weakest features. The "block define" command requires placing a 3D box around the desired entities. This method breaks down quickly because data points are difficult to set. Of all the available options, the one for keyboard arrow keys was the least difficult. The program provides 20 layers, which is not quite enough, and eight light sources, which are sufficient. A built-in macro enables repetitive commands to be executed with a single keystroke. A sequence of views can be saved and played back as a slide show. Numerous file-transfer utilities promise compatibility with other CADD programs. We tried a two-way exchange with Autocad and found that it works *from* Designcad 3-D but not *to* Designcad 3-D.

Hundreds of output devices are supported. Very appealing presentations are possible even on a simple dot matrix printer.

In addition to standard text entry, Designcad 3-D permits attributes to be attached to objects as text that can be either displayed or not displayed. A simple bill of materials utility will summarize the quantities of each attribute used in the drawing.

Options for the treatment of surfaces also is impressive. A "patch" command fits a surface onto four non-planar connected lines to form a hyperbolic paraboloid. A "connect" command can be used to stretch a surface between two or more lines to form straight, curved, or smooth transitions. In addition to the usual menu of solid primitives, such as cylinders and spheres, Designcad 3-D also includes a wall.

"Zoom" and "pan" were awkward. To zoom, a numeric factor must be entered. To pan, the following information must be entered: distance of the pan, plane of the pan, and angle of the panning movement. The manual wasn't much help. Graphic alternatives should be provided. Editing features need work, too. The "erase" command, when used with a solid box, requires three steps.

The Designcad 3-D screen comprises three small views, usually associated with the x, y, and z planes, and a large isometric. All drawing is done in the large view. It's not possible to make the three small views active. This means that you can't pick an element in one window and draw a line to an element in another view. The isometric window uses the z axis to depict depth into the screen and cannot be modified. This is cumbersome for architects. It should be possible to redefine z as height.

Drawing is backward from most CADD programs. You don't pick a drawing tool, such as a line, and then pick the points, as customary. Instead, you pick points and then tell the program to connect them with a line, arc, or whatever.

In keeping with its affordable price, the program supports simple computers such as the XT with a Hercules or Color Graphics Adapter, and it does not require a coprocessor, although it will run two to three times faster with a coprocessor. Expanded memory, which further speeds up the program, is supported but not required.—Marshall F. Hjertstedt, AIA and David G. Patton, AIA

Generic 3D Drafting

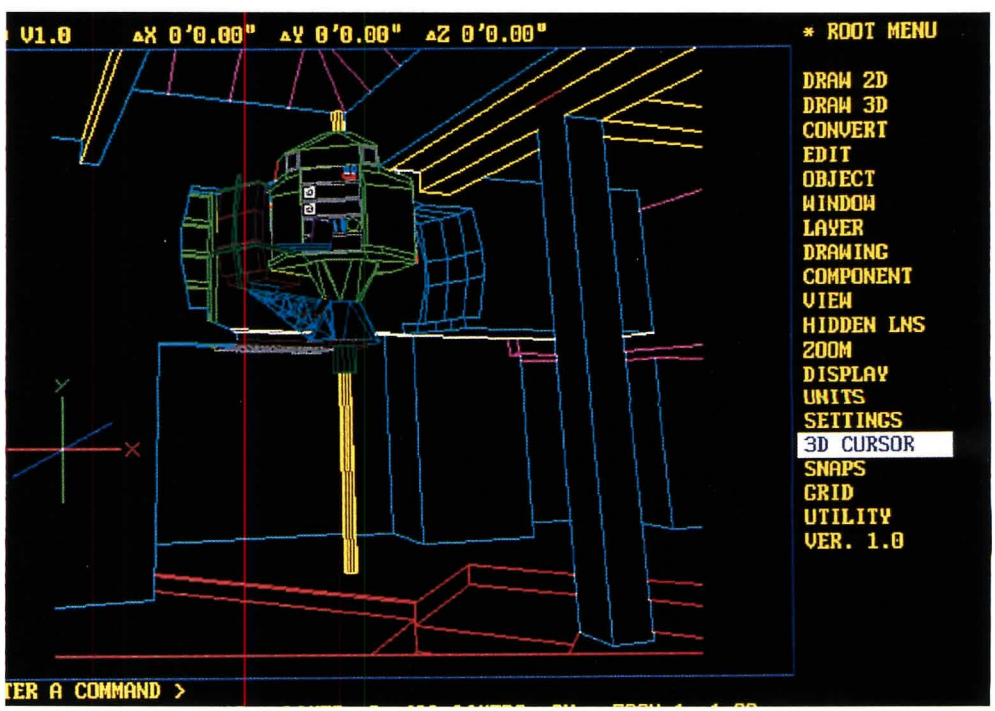
AT $249.95, GENERIC 3D DRAFTING IS the least expensive program in this evaluation. We consider it a bargain and the best value we saw. It offers 90 percent of the features of programs that cost 10 to 20 times more.

Surprisingly for a Version 1.0, the program was bug-free. It never crashed and every function we tried worked as claimed.

The program was not developed specifically for architects, even though it contains architectural symbol libraries, several architectural sample drawings in the training guide, and numerous graphic examples. We found it useful for analyzing design options in 3D and for generating a base for final renderings.

On the other hand, Generic 3D features some weak points: 3D walls must be created by extruding 2D items. Windows and doors must be created by using the hole command. Most software directed at architects does a better job of performing those simple functions. Shading, shadows, text, and dimensions are not supported. The program provides only wireframe modeling with hidden-line removal.

One of the most architect-friendly features of Generic 3D is its ability to rotate the 3D cursor so that the z axis points up and down on the screen. The only catch is that the posi-



Generic 3-D Drafting, a "bug-free" first version.

" With Designcad 3-D, very appealing presentations are possible even on a simple dot matrix printer."

MARSHALL F. HJERSTADT
MFH Associates, Chicago

DAVID G. PATTON
Philips Swager Associates, Naperville, Illinois

tive y axis then extends back into the screen. Lesson 5, which shows a house in the training guide, explains the rotation and subsequent examples use z architecturally.

Users of Generic's 2D programs will feel right at home with the 3D commands. They employ the same kind of mnemonic two-letter commands. No command or operation is more than two key strokes away. Pressing the "enter" key is not required. An Autocad user can expect a bit of a learning curve.

On-screen menus are provided for users who prefer to select commands with a mouse. The menus can be changed by the user and any series of commands can be added to the menu. The screen menu also can be turned off to permit full-screen drawing and editing.

Some of the best features of Generic 3D Drafting are its navigation aids, such as the "single-plane" mode, which restricts the cursor to movement along one axis at a time. The "track" command leaves a visible trail behind the cursor as it moves in 3D space. This helps the user to understand the cursor's location by visualizing its movement and to see the new location of an object being moved prior to its placement. The program erases the trail when the operator sets a new point .

The program provides 255 layers with multiple colors and line types on each layer. The manual, which is exceptionally clear and helpful, suggests a strategy to speed hidden-line removal: If an object must be included but cannot be seen in a view, put it on another layer and use the "layer hide" command.

We highly recommend Generic 3D Drafting. The price is low enough so that a firm can put a copy on each designer's PC for low-effort 3D problem analysis without robbing a bank to pay for it.—STEVEN L. GLENN, AIA AND ROBERT C. ROBICSEK, AIA

MEGAMODEL

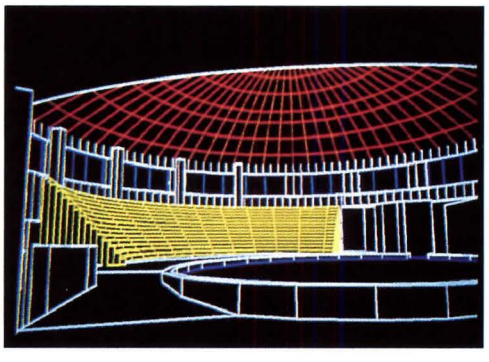
IN ADDITION TO BEING THE OLDEST DOS-based 3D drawing program for architects, MegaModel by Mega CADD is still the most sophisticated and the most popular. It has been commercially available on the PC for five years, and it continues to be a useful program to create 3D models for study or as base drawings for renderings. In fact, at $1,195, we consider it to be the best value of the programs we saw.

Three utilities enhance MegaModel's wireframe models: MegaShade, for $395, adds a light source and color to the model's surfaces. MegaPaint, for $195, enhances the model's setting with text, people, trees, etc. MegaList, for $295, generates a bill of materials.

MegaModel is refreshingly easy to learn and use. Its superior features begin with installation. We were up and running in three minutes after reading the instructions in the manual, and most of that time was spent finding our equipment from among the wealth of supported hardware.

The program was designed to perform best with a mouse as the input device. In fact, MegaPaint worked only with a mouse. But we ran MegaModel with a digitizer and puck without problems. About 25 percent of the screen is devoted to menu options, which cannot be hidden to make more room for drawing.

Although a version is available for XT computers with monochrome graphics and 512K RAM, most users choose the 640K



Interior and exterior views with MegaModel by Mega CADD.

version. A coprocessor is required.

MegaModel is entirely RAM-based and uses every bit of available memory. The 640K limit expands the model size, but the program runs so slowly before it reaches the maximum, that the expanded memory would not be practical.

The manual is thorough, well organized, and easy to understand. Although shorter than SilverScreen's manual, it contains more graphic examples. The quality of technical support is unparalleled in the industry. Mega CADD is one of the few vendors with a toll-free number staffed with knowledgeable people who speak plain English.

The three main operating modes are "create," "modify," and "view." The "create" mode allows the user to add 3D forms. Objects may be assigned to any of 50 layers, which can be made visible but not midified. Each layer supports only one color, which helps to organize a drawing. Unlike Designcad 3-D, MegaModel permits symbols to be designated, saved, and recalled. Unlike some solid modeling programs, MegaModel defines objects by their apex points, edge lines, and faces.

The "modify" mode is used to make changes. Up to five views from different vantage points are possible, although the user may opt to display only one. Any view can be made active with the touch of a button. A change in one view automatically changes all other associated views. Dimensioning is not supported. Only the "dome" command was confusing. A domed vault in a ceiling is created more efficiently with the "surface of revolution" command.

The "view" mode allows perspective displays. No other software we saw during this evaluation has such intuitive and clear controls. Information about height and location of the viewer and target as well as the cone of vision is accomplished with a few keystrokes and presented visually in an inset plan view. Saving a series of views and playing them back later simulates a walk-through.

The only method of copying is graphic and somewhat awkward. You must pick a point on the object and then pick a point where it will be copied. Another method might be to copy the object on top of itself and then move the new object. The "move" command, by contrast, permits the new location to be specified.

Methods of creating arcs and semicircles are difficult. No convenient method will find the center of a circle.

Resolution of lines from a standard laser printer is fairly crude, since the program appears to do a screen-dump of the image. The resolution of most monitors is much lower than most laser printers. Neither Mega-Model nor its add-on modules support dimensioning or shadows, although MegaShade will display colors on surfaces according to a user-specified date, time, and latitude.

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	DOS-Based					Macintosh-Based					
	DESIGN-CAD	GENERIC	MEGA-MODEL	SILVER SCREEN	SOLID VISION	DIMEN-SIONS	DYNA PERSPECTIVE	MAC PERSPECTIVE	MODEL SHOP	STRATA VISION	SUPER 3D
Price	$399.95	$249.95	+$1,645	††$3,000	$6,000	*$4,170	$1,495	$295	$595	$495	$495
Version	2.0	1.0	3V2.12M	1.03	4.11	2.14	1.2	4.0	1.0	1.0.2	2.0
Primary purpose	Modeling	Modeling	Modeling	Modeling	Modeling	All	Modeling	Rendering	Modeling	Rendering	Model/Animate
Type	Hybrid	Surface	Surface	B-rep	Solid	Surface	Surface	Wireframe	Surface	Surface	Surface
Uses exp. memory	Yes	Yes	No	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A
Fee for support	Free	Free	Free	Varies	$600	10%	Free	Free	Free	Free	Free
Toll-free help	No	No	800-223-3175	No	800-333-1479	No	800-444-3962	No	No	No	No
Use-protected	Yes	No	No	No	Dongle	No	No	No	No	No	No
Sales as of 12/1	40,000	5,000	4,000	1,500	1,500§	4,000	1,000	2,000	—	900	—
% to architects	<5%	50%	70%	60%	90%	33%	50%	80%	100%	10%	30%
Supports coprocess.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Draws in float. point	Yes	Yes†	Yes†	Yes	Yes†	Integer	Yes	Yes†	Integer	Yes†	—
Tutorial	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Demo disk	Free	$9.95	$10	$40	Free	$45	$25	$20	$10	$24.95	No
Newsletter	No	9/a	Semiannually	Bimonthly	No	Quarterly	No	No	No	No	Quarterly
2-way 3D DXF	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No
Runs on network	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Text	Yes	No	No	Yes	Yes	Yes	No	No	No	Yes	Yes
Light sources	8	No	1	15	1	1,000	1	No	1	Infinite	4
Set light color	No	No	No	Yes	No	Yes	No	N/A	No	Yes	No
Set light intensity	No	No	No	Yes	No	Yes	Yes	N/A	No	Yes	Yes
Set light elevation	Yes	No	Yes	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes
Set ambient light	No	No	No	Yes	No	Yes	No	N/A	No	Yes	Yes
Cast shadows	No	No	No	Yes	Yes-both	Yes	No	N/A	No	Yes	No
Set reflectivity	No	No	No	Yes	No	Yes	No	N/A	No	Yes	No
Set transparency	No	No	No	No	No	Yes	Yes	N/A	No	Yes	No
Set textures	No	No	No	Yes	No	Yes	No	N/A	No	Yes	No
Ray tracing	No	No	No	No	No	Yes	No	N/A	No	Yes	No
Perspective view	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Isometric view	No	Yes	Yes	No	Yes	No	No	No	No	No	No
Dimetric/trimetric view	No	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No
Oblique view	No	Yes	No	Yes	Yes	Yes	No	No	No	No	No
Number of layers	21	256	50	Hierarchical	255	Hierarchical	1	1	235	Hierarchical	1
Number of viewports	4	1	4	Unlimited	1	8	4	1 at a time	Unlimited	11	5
Change affects all	Yes	N/A	Yes	Yes	N/A	Yes	Yes	N/A	No	Yes	Yes
Draw in any view	Yes	N/A	No	Yes	N/A	Yes	Yes	N/A	Yes	Yes	Yes
Zoom independently	Yes	N/A	Yes	Yes	N/A	Yes	No	N/A	Yes	Yes	Yes
Draw in 2D and 3D	Yes	Yes	No	Yes	Yes	Yes	Yes	3D only	Yes	Yes	Yes
Fill screen w/1 drwng	Yes	No	In 1 mode	Yes	In 1 mode	Yes	Yes	Yes	Yes	Yes	Yes
Stop redraw	Yes	Varies	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No
Levels of undo	Unlimited	1	1	10	0 to 1	1	1	1	0-1	1	1
Preview command	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No
Symbols provided	No	No	Yes	No	Yes	No	Yes	No	No	No	No
Master library	No	No	No	Yes	Yes	No	No	No	No	No	Yes
Drag symbols	No	Yes	No	No	In 1 mode	Yes	Yes	No	No	Yes	Yes
Search/replace	No	No	No	Yes	Yes	No	No	No	No	Yes	No
Attach attributes	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	No
Hatch	No	No	Yes	Yes	Yes	No	No	No	No	No	No
Dithering	Yes	No	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes
Smooth curves	Yes	No	No	No	No	Yes	No	No	No	No	No
Snap to intersection	Yes	No	No	Yes	Yes	No	No	No	No	No	No
Calculate area	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
Calculate volume	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No
Calculate perimeter	No	No	Yes	Yes	Yes	No	No	No	No	No	No
Assoc. dimensioning	Yes	No	No	Yes	No	Yes	No	No	No	No	No
Inches and fractions	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No
Double-line walls	No	No	No	No	Yes	Yes	No	No	No	No	No
Nurbs	Yes	No	No	No	No	Equivalent	No	No	No	No	No
Phong shading	No	No	No	No	No	Yes	No	No	No	Yes	No
Gourand shading	Yes	No	No	No	Yes	No	No	No	No	Yes	No
Z-buffering	No	No	Yes	No	No	Yes	No	No	No	Yes	Yes
Set scale	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	Yes
Mirror: copy & move	Yes	No	No	No	Yes	Yes	Yes	No	No	No	Yes
Set Z axis as height	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Move cursor on 1 axis	No	Yes	No	Yes	Yes	No	Yes	No	No	Yes	Yes
Walk through model	No	No	Yes	Yes	Yes&	Yes	Yes	No	No	No	Yes
In-betweening	No	No	Yes	No	No	Yes	Yes	N/A	N/A	N/A	Yes
Vary line widths	No	No	No	Yes	2	Yes	N/A	No	No	No	No
Vary line styles	No	Yes	No	Yes	Yes	Yes	N/A	No	No	No	No
Plotter output	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No

* Includes six unbundled modules priced from $195 to $1,595.
\+ Includes MegaModel, $1,195; MegaShade, $395; MegaPaint, $195; Megalist, $295; and two libraries.
†† After deadline, Schroff released Version 1.10X for $3,300 and Version 1.1 for $995.
§ Worldwide. † Single precision. & Screen menu cannot be eliminated.

Closers: An Open And Shut Case

The right door hardware requires careful specification.

THE SECRET TO A GOOD WORKING DOOR CLOSER IS SIMPLE: IT MUST ALLOW A DOOR TO OPEN smoothly, and still yet be strong enough to pull the door closed. These two requirements are easy to meet if an architect pins down the certain criteria before specifying a particular product. Traffic load is the single most important consideration, followed by door width, weight, mounting , as well as closer location and exposure.

Basic Closers

THE "BASIC" CLOSER IS A GOOD ECONomical choice for undemanding conditions. Basic closers are equipped with a fixed nonadjustable spring that classified according to size from "2" to "6" (the higher the number, the heavier the spring and the greater the closing force). Most modern door closers consist of a spring and piston, housed inside a cylinder filled with hydraulic fluid.

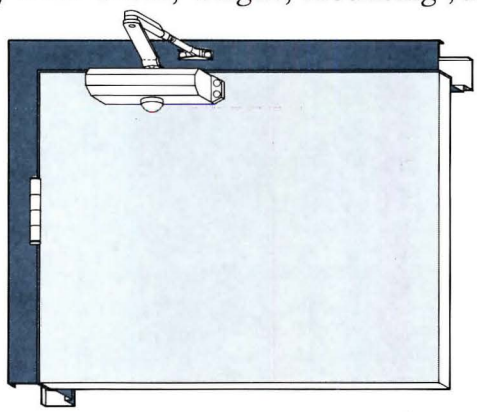
With basic closers, once you've chosen a particular spring, its power can't be increased or decreased without replacing the closer. Because a closer acts primarily as a lever, door width is crucial factor. A rule of thumb is: the wider the door, the heavier the closer. Other factors to consider are a door's weight and height. Even average-size exterior doors are subject to air pressure created by the wind. Both interior and exterior doors can be affected by pressure from the HVAC system and from drafts.

BACKCHECKS are one such option. If you've ever pulled hard on a door expecting a good deal of resistance, only to have it swing out quickly and hit you in the nose, you could say that door closer should have been equipped with a backcheck. These handy little devices resist forceful openings and limit the damage to the closer and/or structure. Though extremely useful, backchecks should not be used as substitutes for dead stops.

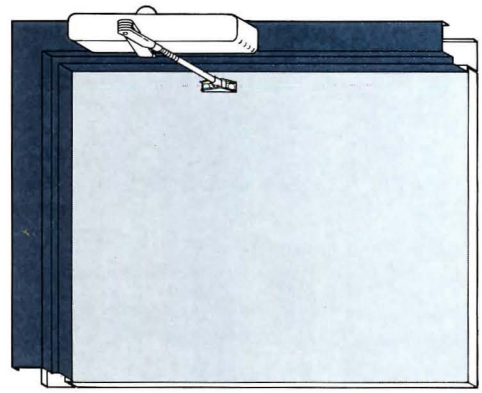
A delayed action allows the door to hesitate a moment before closing, leaving the door about 70 percent open to permit easier access. This option most often is required to meet barrier-free code requirements.

FUSIBLE LINK ARMS allow a door to self-close in a fire situation, because the link melts when exposed to heat. With the introduction of more effective fire/safety equipment, fusible link arms have been relegated to duty in places such as warehouses.

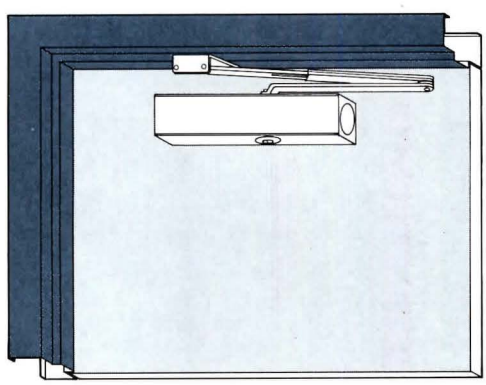
Because hold open arms are manually placed and will hold a door at a degree of openness until it is manually released, they cannot be used on labeled fire doors.



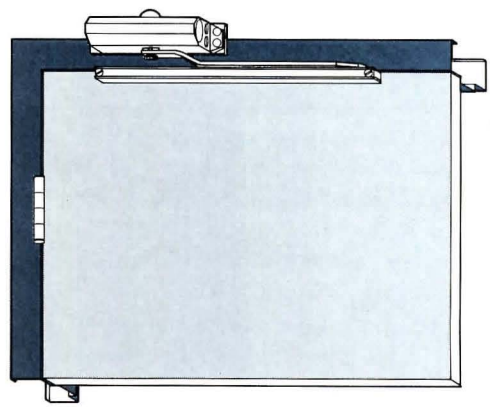
Hold open arm



Fusible link arm



Heavy duty arm



Top jamb drop plate

DRAWINGS BY TIMOTHY B. MCDONALD

Constructed of heavy gauge metal and designed to withstand abuse, HEAVY DUTY ARMS often are recommended for institutions such as high schools and detention facilities.

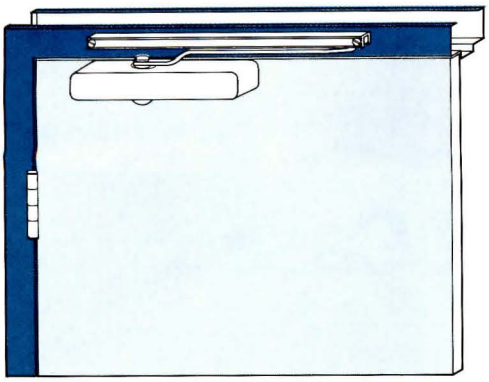
When the overhead ceiling clearance is a problem, or to permit space on the door for a surface-applied stop/holder, a DROP PLATE—simply a metal plate hung from the top of the door frame—is the answer. Drop plates are also used along with parallel arm mounts on glazed doors when narrow top rails lack the width to allow installation of a closer. Angle brackets often are used in place of drop plates or when trim doesn't allow the normal top jamb mount.

These options aren't meant only for basic closers. They can also be fitted to adjustable closers and in many cases, they are included as a standard part of the unit.

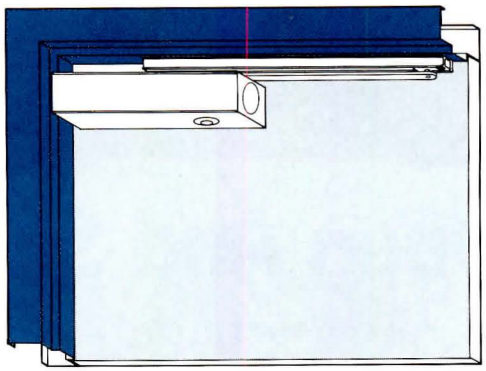
Adjustable Closers

THERE ARE TWO STANDARD VARIETIES of adjustable closers, the "50 percent adjustable" and the fully adjustable. Like the basic closers, the 50 percent adjustables are furnished with a spring that can range in size from 2 to 6. The difference between the basic closer and the 50 percent adjustable is that the power (closing force) can be increased 50 percent above the spring size. The increased power allows on-site adjustments depending on conditions. However, the power of the closer can't be decreased below size of the spring.

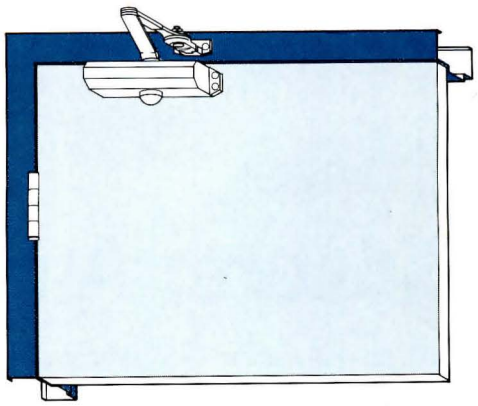
When adaptability is a major concern, fully adjustable closers are usually the answer. These "unsized" units allow for



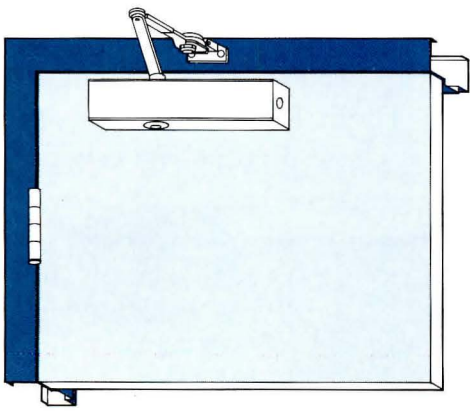
Standard mount



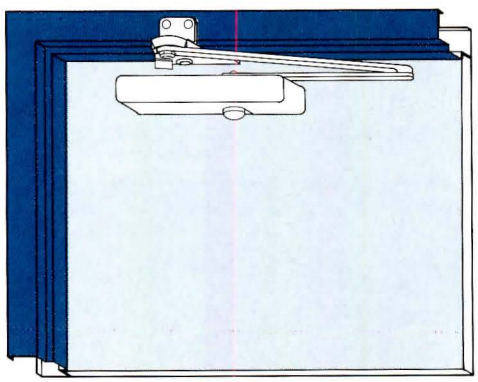
Top jamb mount



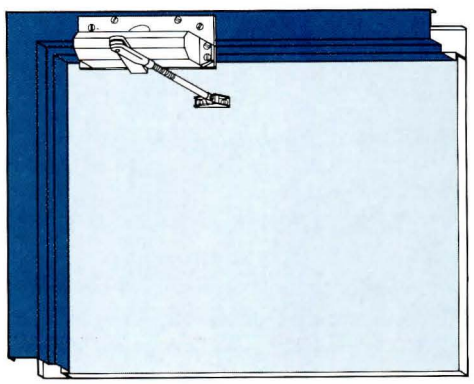
Parallel arm mount



Pull side track mount



Inverted pull side track mount



Push side track mount

spring power adjustments through the complete range of sizes. Because of their flexibility, adjustable closers are often used to meet barrier-free codes. For instance, the same kind of closer can be used where barrier-free codes limit the opening force to 8.5 lbs. on an exterior doors and 15 lbs. maximum opening force on fire-labeled doors. "Handicapped or barrier-free closers are usually designed with adjustable spring power from size 1 through 4. These closers generally meet interior barrier free code requirements of 5 lbs. maximum opening force when adjusted to the minimum spring power," says Lynn R. Eisenhauer, Technical Services Manager of Dorma Door Controls, a Pennsylvania-based manufacturer.

Since one type of fully adjustable closer can be calibrated to meet almost any situation, it is unnecessary to specify a different closer for each situation. Eisenhauer says, "The spring power must be adjusted to meet the manufacturer's sizing recommendations."

Generally, contractors and closer distributers prefer the FULLY ADJUSTABLE CLOSER. The distributers like them because they don't have to carry a large and varied inventory—one or two types of adjustable closers will meet a variety of situations. Contractors prefer them because they don't have to match closers with doors; one size fits all. However, the architect often has to wonder: have the closers been adjusted? Typically, the specifications call for adjustment of individual closers and during the final walk-through, the doors only are checked to see that they close and latch properly.

A device, however, that architects can easily carry on the final walk-through, will measure the opening force of each door and drive a contractor nuts. It's called a FORCE GAUGE and is commercially available . You simply place the gauge against the latch edge of the door as near as possible to door knob and push. The gauge will register the resistance of the door closer. Test each door all the way open. The resistance of the spring in some closers increases as the door approches 90 degrees. The door resistance must meet the code requirements through the entire motion.

Mounts

ANOTHER CONSIDERATION THE ARCHITect must investigate when choosing a closer is the type of mount. It can be either a standard or regular mount, top jamb mount, parallel arm mount, or track mount.

On interior or inward-swinging exterior doors, the STANDARD MOUNTED CLOSER is the simplest solution. It provides a good physical connection between the door and the opening. The closer is fastened to the door while the arm shoe is attached to the header on the pull side. It isn't a good choice for out-swinging exterior doors, however, since the closer is mounted on the pull side, which would subject it to the outside elements.

The mounting arrangement for the top jamb closer is the reverse of the standard mount unit, making it a push side application. The top jamb closer is mounted on the header and the shoe arm attaches to the door. Like the standard closer the top jamb unit provides a good physical connection and is simple to apply.

Because it is a push side application with the closer mounted on the header, the top jamb design must take into account the depth of the jamb, referred to as the reveal. For the closer to receive the correct amount of pre-loading, the length of the arm must be matched with the depth of the reveal. The closer should be used on exterior doors that swing inward.

TRACK MOUNT CLOSERS are compact, without the projecting arm, making them less susceptible to vandalism: ideal for schools, mental institutions, and detention facilities. Because there is a significant loss of closer power using track mounts, they need the same adjustments that parallel arm closers require, 45-degree indexing of the closer pinion and an increase in size from the standard closer. There are three common categories of track mounts (and for the most part they are recommended only for interior doors): the pull side mount, the inverted pull side mount, and the push side mount.

"While closers play a critical role in determining how well a door operates, they also are one of the most complicated components to specify. What looks like a simple door can require the specification of dozens of individual components," stresses Robert C. Spargo, general manager of Yale Security Inc.'s door control products group. ■

—TIMOTHY B. MCDONALD

Representatives from Dorma, Yale Security, and LCN Closers contributed to this article.

1990
National AIA
Architectural Photography Competition

PROSPECTUS

The 1990 National AIA Photography Competition is being organized by the St. Louis Chapter AIA. The top 54 entries will be exhibited at the 1990 AIA National Convention in Houston, Texas. Images for the 1992 AIA Engagement Calendar will be selected from all submitted entries.

ELIGIBILITY

This competition is open only to individual AIA members, Associate members of AIA, Student members of AIAS and Professional Affiliate members of AIA components, in good standing. Professional photographers, who are members of the AIA and/or any of its components, are not eligible. Slides submitted by ineligible individuals will be returned.

JUDGES

James P. Cramer, Hon. AIA, The American Institute of Architects; Mildred F. Schmertz, FAIA, editor, *Architectural Record*; Ecra Stollar, architectural photographer

AWARDS

Two Thousand Five Hundred Dollars ($2500) in cash prizes will be awarded at the AIA National Convention by the President of the Institute as follows:

First Place	**$1000**
Second Place	**$ 700**
Third Place	**$ 300**
Louise Bethune Award	**$ 500**

(The subject of the Louise Bethune Award must be located in the United States. No image will receive more than one cash award.)

Conditions of Entry

1. Only 2″×2″ 35mm color slides may be entered.
2. Entries must have been exposed by and be owned by the entrant.
3. Images previously published and/or pending publication or cash winning images in previous National AIA Photography Competitions are not eligible.
4. Entry fee is $15.00. Entrant may submit up to five (5) slides for each $15.00 entry fee. Entrants may enter as many times as desired.
5. The entry fee is non-refundable and must accompany the slides entered.
6. The subject matter must have an Architectural theme or must contain some element of the man-built environment. Photographic interpretation of the subject matter is the issue, not the architecture.
7. Slides that do not fit in a standard slide carousel will not be judged.
8. Entrants grant permission to the AIA to reproduce slides for exhibitions, AIA publications and for promotional purposes. All reproductions will become the property of the AIA.
9. The decision of the judges is final on all matters relating to the Competition.
10. Great care will be taken with all slides submitted, but no responsibility for loss or damage during transit or any phase of the Competition will be assumed by the St. Louis Chapter AIA or the National AIA.
11. Clearly mark each slide with the following:
    a. **Entrant's name**
    b. **Slide title**
    c. **Slide identification (A, B, C, D, E) as listed on entry form**
12. Entries must be postmarked by **March 1, 1990** and include:
    a. **Completed Entry Form**
    b. **Entry Fee (Check or Money Order) made payable to: St. Louis Chapter AIA Photography Competition**
    c. **Adequately sized self-addressed envelope with proper postage for return of slides.**
13. Entries shall be mailed to:
    St. Louis Chapter AIA
    911 Washington Ave., #225
    St. Louis, Missouri 63101-1203
14. Submission of slides implies entrant's acceptance of all the above conditions.
15. Void where prohibited by law.

For Additional Information Call SL/AIA (314) 621-3484.

ENTRY FORM

(Please print or type all information)

AIA Membership Number _____

Check One:

☐Member ☐Associate ☐Student ☐Professional Affiliate

_____
Chapter Affiliation — Chapter Phone

Name _____

Address _____

_____
City — State — Zip

_____
Firm Phone (Include Area Code)

_____
Home Phone (include Area Code)

If Student:

_____
Architectural School

_____
Name of Dean — School Phone

Enclosed is $ _____ for _____ slides and return envelope.

Mail entries to: **St. Louis Chapter AIA, 911 Washington Ave., #225**
St. Louis, Missouri 63101-1203

SLIDES

A: _____
Title

_____
City and State or Country

B: _____
Title

_____
City and State or Country

C: _____
Title

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City and State or Country

D: _____
Title

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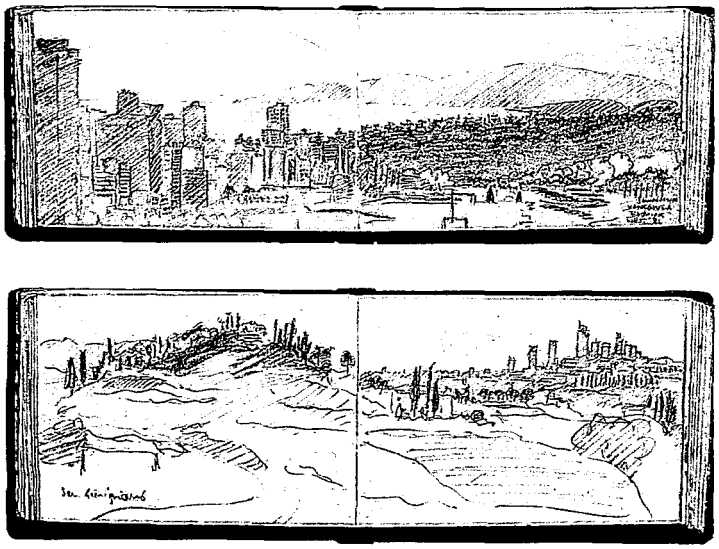
City and State or Country

E: _____
Title

_____
City and State or Country

BOOKS



Princes Charles uses excerpts from his sketchbook to compare the "great North American dream" exemplified by Vancouver (above) to San Gimignano in Tuscany, considered by many to be the forerunner of Manhattan (below). He writes,"...as far as I'm concerned, any similarities are coincidental!"

Books *from page 41*

tural arts. For the majority of this century, architects have enjoyed relative freedom from the influence of regional or community values on their art. The transcontinental and transcultural proliferation of international-style architecture has significantly blurred distinctions between community, regional, and national borders. The "Holiday Inning" of the world has proceeded with such a profound effect that we are now witnessing an often-reported backlash to its impersonal and antihistorical character.

Prince Charles has used his position of public prominence as the Prince of Wales to open a dialogue whose time is due. The body of public discussion about architecture during this century prior to recent years was largely limited to a relatively small professional press.

The emergence of architecture and architects into the general media that began with the birth of Postmodernism is now being transported to an even larger public forum. Journals such as *The Atlantic Monthly* and *Time*, and books with themes as diverse as *Chaos: Making a New Science* (1987) by James Colech and *Disappearing Through the Skylight* (1989) of O. B. Hardison, Jr., offer sections dealing with architecture and the cultural and societal influences that shape it, not to mention its beauty or lack thereof. (I heartily recommend the reading of Mr. Hardison's book as a companion to *A Vision of Britain*.)

Architects in general are loathe to publicly discuss any work but their own. While professional deference is admirable, it is this very clubbiness among design professionals that Prince Charles holds forth as the underlying cement that has glued together a modern built environment that is academically defendable, yet less than beautiful to the eye, humane in scale, character, and details, and welcoming to experience.

Prince Charles will be speaking in Washington, D.C. as part of the AIA's first annual Accent on Architecture Celebration later this month. This will be a great opportunity to hear, firsthand, his views. Perhaps, in the end, we and our architecture will be enriched as a result of this man's choice to venture forth "into a territory positively bristling with porcupine-like professionals and cantankerous cities." ■

—SANFORD M. NELSON, AIA

Sanford Nelson is a principal of Cooper Carry and Associates.

Modernity and the Classical Tradition.

Alan Colquhoun. (MIT Press, $29.95.)

THIS BOOK IS A COLLECTION OF 14 essays written over the past decade by Alan Colquhoun, who teaches at Princeton's school of architecture and practices in England. Although the essays focus on a wide range of subjects—20th century urbanism, vernacular classicism, and the work of Le Corbusier, to mention just three—they focus on the role of history in the making of Western architecture.

The first four essays survey various concepts that have dominated Western architectural theory. "The most important and at the same time the most ambiguous of these concepts is 'history,' " writes Colquhoun, noting that the changing meaning of history has been the seedbed for all theories of architecture for the past 200 years. The next four essays are devoted to Le Corbusier, who, Colquhoun claims, "was the most acutely aware of the break in cultural continuity experienced in the early 20th century." The balance of the essays concern elements of Western architecture's present state: regionalism and technology, Postmodernism and structuralism, for example.

While the past 30 years of so-called "serious" architectural thought has been characterized by an alarming escalation of opaque prose, Colquhoun's writing rings clear (with only an occasional jargonized lapse) and his ideas are engaging even to the casual reader.

The Neshoba County Fair: Place and Paradox in Mississippi

Robert Craycroft. (Center for Small Town Research and Design, $14.95.)

FOR A CENTURY, THE NESHOBA COUNTY Fair has been a yearly confluence in the heart of Mississippi's farming communities. Architect Robert Craycroft traces the fair's history and cultural significance, and documents its physical growth from handful of makeshift shanties to a veritable town of double-decker cabins and open pavilions.

Craycroft analyzes the fair's physical form through a series of simple plans, drawn by University of Mississippi architecture student Lindsey Bute, and black and white photographs. The drawings document the fair's attributes, such as major spaces, abstract grids, vehicular and pedestrian areas, private and public structures, etc. Accompanying drawings and photos are Craycroft's eyewitness accounts of the fair, which demonstrate a firm grasp of everyday detail. The book is a delightful balance of cultural history, architectural analysis, and celebration of Neshoba's annual ritual.

Towers: A Historical Survey.

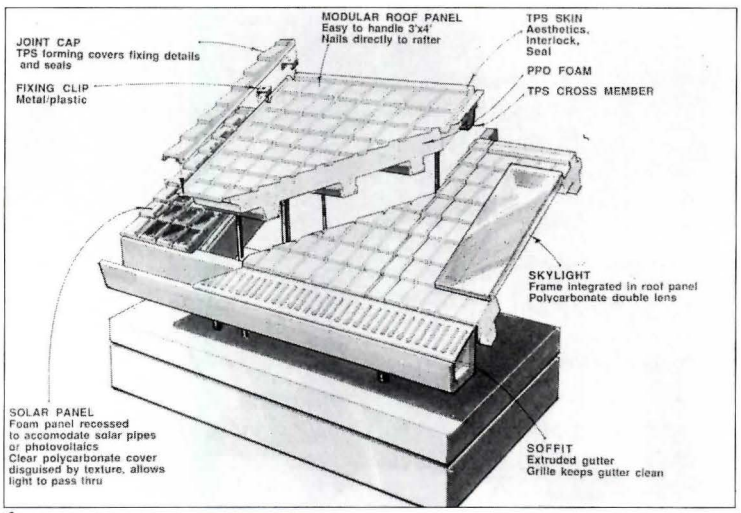
Erwin Heinle and Fritz Leonhardt. (Rizzoli, $75.)

A CONSISTENT THEME IN THE HISTORY of architecture over the past 5,000 years has been a defiance of gravity. From Egyptian obelisks to the Sears Tower, tower builders have raised stone and steel to heights that awe and inspire.

This book is a survey compiled by two engineers who have designed a number of towers themselves. It begins with nature's own towers—the peaks of mountain ranges and numerous natural stone formations in

Books *continued on page 137*

PRODUCTS



1

ADDING STYLE

Synthetics simulate natural materials.

NEW DEVELOPMENTS IN ROOFING ARE HELPING ARCHITECTS to broaden their stylistic palette. By using synthetic materials and thermoplastics in roofing products, manufacturers are able to create complex shapes. These synthetic compositions result in energy savings and more weather-resistant roofs. The synthetic rubber roofing material from Du Pont called Hypalon is distinguished by its high elasticity and its ability to become more durable over time, since exposure to moisture and ultraviolet light actually "cures" or sets it. Another synthetic, Rubbergard's EPDM membrane, creates weather-resistant seals. Using large membrane sheets results in a faster installation period and a smooth, seamless appearance. A roofing system prototype incorporating thermoplastics and structural foam materials previewed this fall in Pittsfield, Massachusetts as part of a joint venture between Carlisle SynTech Systems and GE Plastics. The result is a tougher roof available at a lower cost. Synthetics that simulate real materials such as slate shingles, tile, and granulated stone, may provide more stability than the real thing and weather environmental conditions better, while metal panels are expanding their roofing capabilities by forming a wider range of shapes and angles than ever before.

—AMY GRAY LIGHT

1. Living Environments house. Carlisle SynTech Systems. Circle 401 on information card
2. EuroSlate shingles have FibreCem Corporation. Circle 402 on information card
3. Vandiver Associates' (Plano, Texas) church in Dallas using Decrabond roofing. Carter Holt HarveyUSA. Circle 403 on information card
4. Vancouver amphitheater has Hypalon roof. Aitken Smith Carter Architects, Ltd., of Vancouver and Wade Williams Partnership of Victoria. Du Pont Company. Circle 404 on information card
5. Galvanized steel sheets by Met-Tile Inc. Circle 405 on information card
6. Customized bent sections. Curveline Inc. Circle 406 on information card
7. HOK, Inc. of Missouri used Firestone's EPDM system on a stadium in Iowa. Firestone Building Product Company. Circle 407 on information card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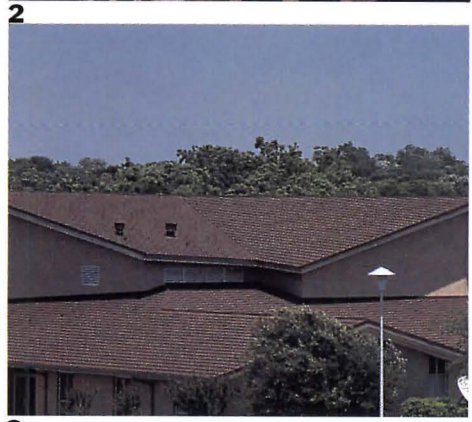
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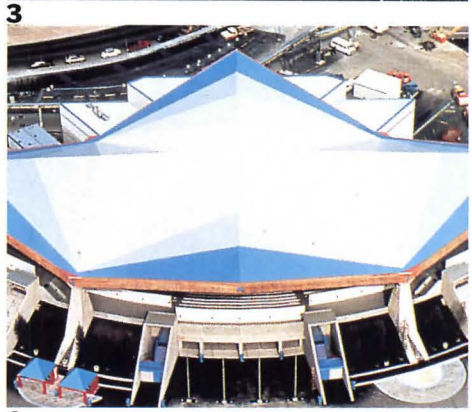
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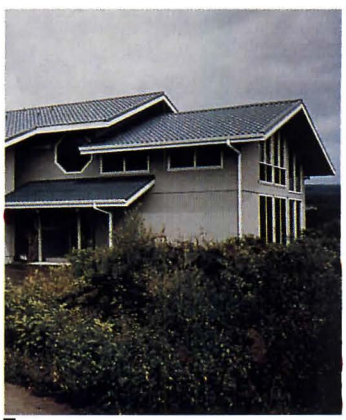
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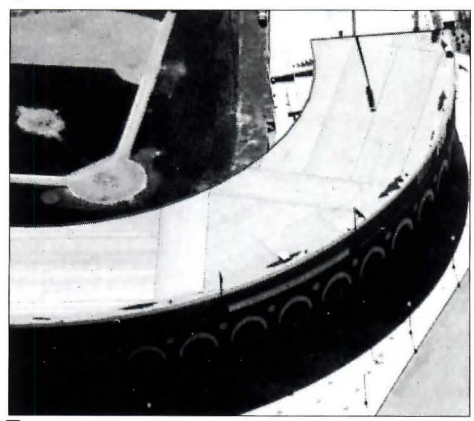
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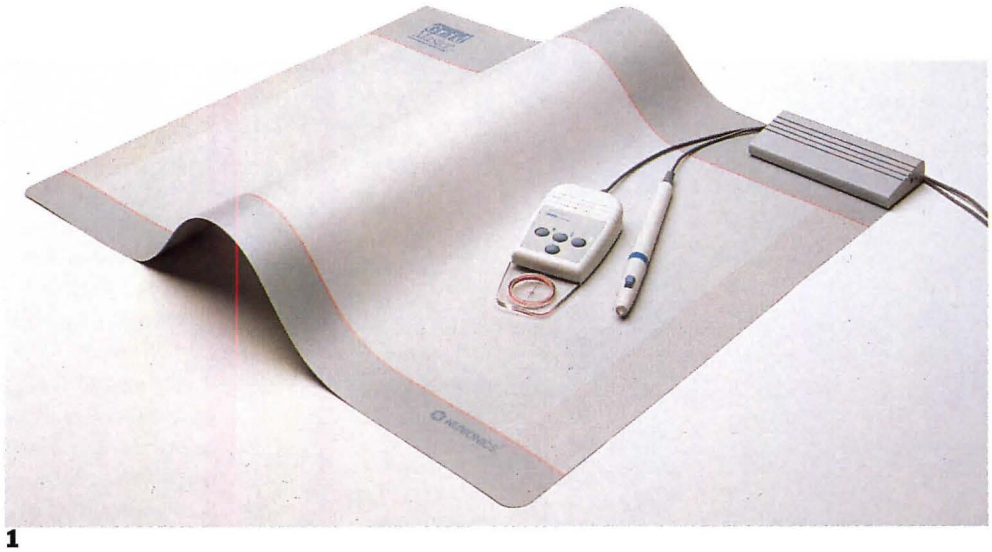
OFFICE HELP

Products designed for architectural firms.

IN AN INFORMAL SURVEY OF U.S. ARCHtecture firms of all sizes, respondents most frequently mentioned word processing and CADD systems as their most indispensable equipment. But along with the computer and such other staples as blueprint and lettering machines, and copiers, architects seek office products that help them produce professional documents in-house. Among them is the Colorcurve color system that allows architects to communicate directly with suppliers of building products to select a myriad of colors for exterior and interior products. Color matches are based on objective reflectance curves for the best possible matches. For working on CADD, Numonic Corporation's 1/32-inch-thick, flexible digitizing tablet frees up desk space because it can be rolled up and stored in a drawer when not in use.

An increased level of office security is now available with the Meridian electronic file cabinet. Each electronic file has a keypad row of soft-touch buttons and LED indicators set into a black panel on the upper right corner of the file. The file is programmed with a 5-digit code that can lock or unlock a single drawer, group of drawers, or the whole cabinet. Also new is Sonin Inc.'s full line of Ultrasonic distance measuring instruments with models that measure distances from 30 to 250 feet. The new Ultima Foldaway table can be used at practically any angle, folding to 4 inches in width when not in use.

—A.G.L.



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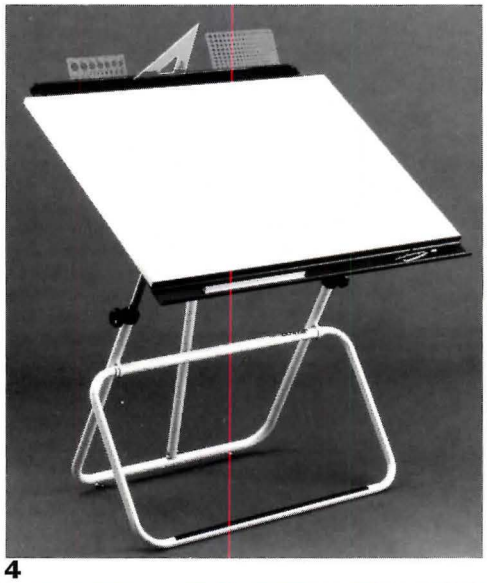

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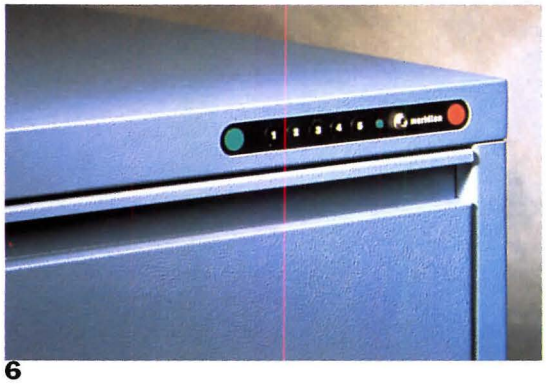

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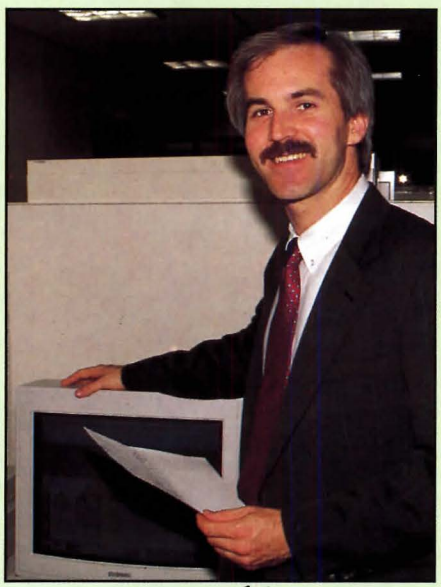
1. The Gridmaster digitizing tablet folds up like a poster, weighs four ounces, and takes up little space since the border around the active area is only 1-1/2-inches wide. Numonics Corporation. Circle 414 on information card
2. Sonin measuring tools incorporate electronic circuitry that rejects unwanted reflections from objects close to its measuring beam. Sonin Inc. Circle 415 on information card
3. The Colorcurve System enables designers to review the spectrum systematically and for communicating color selections to manufacturers; it can expand from a base of 2,185 color samples, and it provides an objective description of color that applies to any material or industrial standard. Colorcurve Systems Inc. Circle 416 on information card
4. The Ultima drafting table features a white base with black accent trim, a white melamine top, non-skid floor levelers, and a footrest. Chartpak, CPG International. Circle 417 on information card
5. and 6. A separate hand-held programming unit for the Meridian file plugs into a connector inside the unit to program individual access codes into drawers, groups of drawers, or whole cabinets. Sources of power for the file system can vary. Meridian Inc. Circle 418 on information card

NCGA '90: Real Solutions to Real Problems

Before Marriott Corporation gives the go-ahead on constructing a new hotel or restaurant anywhere in the world, its architects like to "play" with the design. When they saw how computers can help them better visualize their ideas, these designers turned to Jay Reinhardt, Marriott's CAD manager, for help. Jay knew the importance of making the right decisions (Brick or siding? How should it look from the highway?) to help the company serve travellers best -- from Seattle to Sydney.

Problem:

Computer-aided design, Jay knew, would shorten the building design process and enable sophisticated rendering options. But he wanted to ensure that his CAD/CAM investment would meet Marriott's training, design and output needs.



Solution:

At NCGA '89, experts helped Jay understand current CAD/CAM capabilities, and gave him a glimpse of the developments he could expect over the next few years. NCGA '89, Jay says, was "invaluable for researching Marriott's computer-based rendering options."

Jay Reinhardt
NCGA Member
CAD Manager

Marriott

If Jay learned a lot about CAD/CAM developments at NCGA '89, then he'll love NCGA '90. It's NCGA's 11th annual conference and exposition dedicated to all computer graphics applications, and it's better than ever before. If you want real solutions to your business challenges, don't miss NCGA '90, March 19-22 at the Anaheim Convention Center.

- 250 exhibitors of top computer graphics products
- 23 conference tracks, more than 130 sessions
- Nearly two dozen sessions on CAD/CAM/CAE/CIM technologies
- Integrate '90 and much, much more

This advertisement is not intended to be an endorsement by the Marriott Corporation

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Find out more about NCGA '90! Call toll-free **1-800-225-NCGA or 703-698-9600**
Or clip and return this form to: **NCGA, 2722 Merrilee Drive, Suite 200 Fairfax, VA 22031**

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NCGA'90

March 19-22, 1990
Anaheim Convention Center
Anaheim, California

Save Time!
Fax this form to:
703-560-2752!

The Ins and Outs Of Door Closers

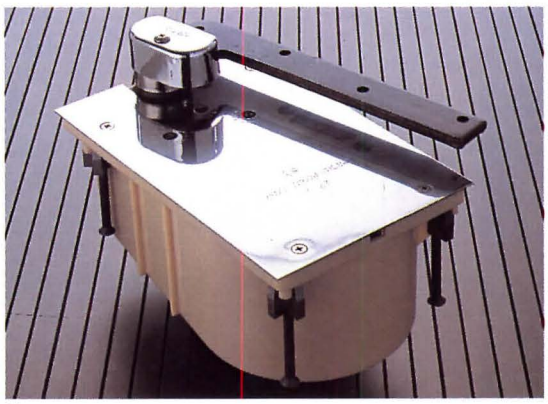
A variety of options is offered.

DOOR CLOSERS SHOULD BE UNOBTRUSIVE and dependable, for they allow safe and reliable opening and closing of doors.

Factors that should be considered when choosing any closer are the weight and height of the door, draft and wind conditions, and the location of the closer. Closers range from the most basic, with fixed, non-adjustable springs, to barrier-free models with delayed action features and motion sensors, to narrow projection profiles and clean design lines. Important options for the architect to consider are backchecks, which control resistance as the door is being pulled closed, and the type of armature that will be used to keep the door in a hold-open position. The type of mount and its position on the door also contribute to a complete specification.

Most manufacturers are willing to work with clients to insure proper installation, and caution the architect to select the simplest possible installation to assure proper closure.

—A.G.L.



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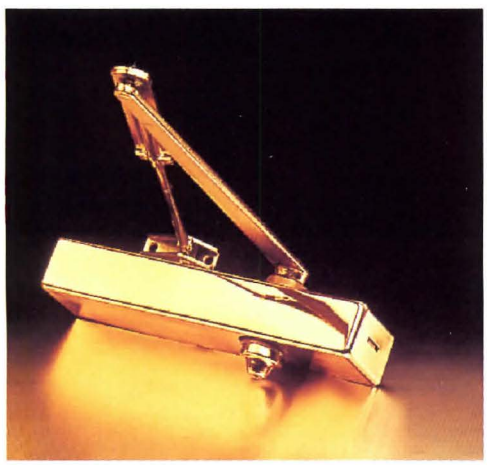
1. Rixson's lines range from a shallow-depth model to a closer capable of handling a 1,250 pound door. Rixson-Firemark Inc. Circle 408 on information card
2. The Norton Series 7700, 8000 closers, and 7200 Multi-Point Electromechanical Closer-Holder are intended for heavy, light commercial, and special applications. Norton, division of Yale Security Inc. Circle 409 on information card
3. LCN closer provides access for handicapped and complies with special building codes. LCN. Circle 410 on information card
4. Corbin 120 Series/Russwin 2820 Series castiron closers are available in a range of models. Corbin and Russwin, Black and Decker Company. Circle 411 on information card
5. The Dorma TS 93 closer is suitable for standard or frame installation. Dorma Door Control Inc. Circle 412 on information card
6. and 7. GT 300 and GT 400 swing door systems "wind resistor" models sense changes in door closing speed due to wind and adjust accordingly. Gyro-Tech Corporation. Circle 413 on information card



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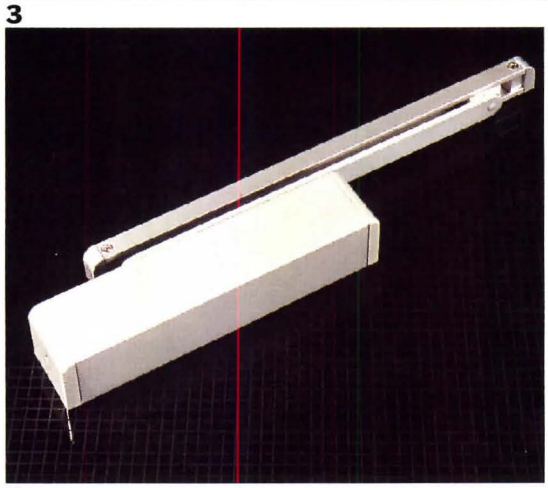

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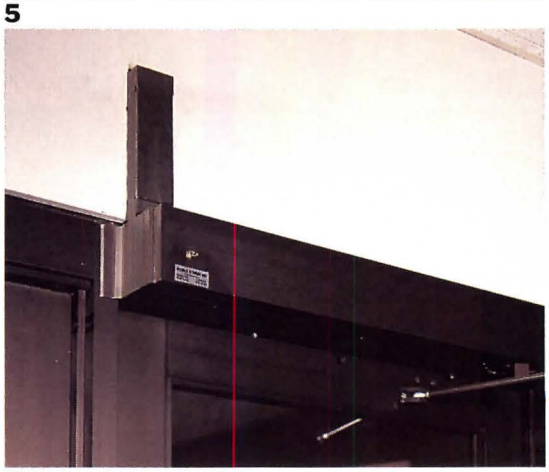


7

BOOKS

Books *from page 132*

Arizona's Monument Valley. It illustrates towers from the East and Middle East, including the biblical Tower of Babel.

The authors move next to the towers of Greece and Rome, early Christian towers, medieval Gothic Renaissance, and Baroque towers (a group that, inexplicably, includes the Watts Towers in Los Angeles). Included, of course, are Eiffel's tower and ugly communications towers that have sprouted all over Germany, and whose faults quickly are detected in comparison with the other towers in this book—they have no scale, and could be 40 to 400 feet tall. There also are fanciful water towers, radio towers, lighthouses, windmills, suspension bridges, and skyscrapers.

The book's contents is a recipe for tower gumbo, but the authors provide succinct descriptions and histories of each tower to guide the reader through its text. This is a book that can be opened to any page and enjoyed.

Bridges

Photographs by Graeme Outerbridge, text by David Outerbridge. (Harry N. Abrams, $45.)

IS THERE AN ARCHITECT OR ENGINEER of any stripe who has not been thrilled by a bridge? The Outerbridges' book is a sumptuous documentation of steel, stone, and wood spans. Large-format full-spread photos are accompanied by snippets of detail. Many of the bridge lover's favorites are covered: the Iron Bridge at Coalbrookdale, England; Florence's Ponte Vecchio; the Rialto in Venice; the Brooklyn Bridge; San Francisco's beloved Golden Gate. David Outerbridge's text is delightfully rich with bridge history and design.

The book is dedicated to the author's grandfather, Eugenius Outerbridge, who created, in 1921, the Port Authority of New York and New Jersey. He served as its first chairman and, the author states, proudly wore a gold medallion issued by the authority. The first bridge constructed by the authority was named in his honor.

While researching the book, David Outerbridge drove across the Outerbridge Crossing, and included his experience: "At the tollgate I had the temerity to pull out the medallion to see if it would get me across without a fee. 'What the hell is that?' asked the toll collector. I explained the history. 'Get your money out. You're holding up traffic,' he said."

Downtown, Inc.: How America Rebuilds Cities

Bernard J, Frieden and Lynne B. Sagalyn. (MIT Press, $19.95.)

THIS BOOK FOCUSES LESS ON THE ARCHITectural attributes of the festival marketplace than on its social, political, and financial role in the rejuvenation of failed downtowns. While architects and critics may fault projects such as Faneuil Hall and Horton Plaza for their dubious architectural merits and as synthetic substitutes for red-blooded urban environments, the authors argue that such marketplaces are achieving the far more important goal of revitalizing urban centers and reintroducing suburban dwellers to the city.

As federal money dried up and businesses took flight to urban shopping malls, developers and local governments worked together to rebuild downtowns that would attract the urban upper middle class to new hotels, convention centers, museums, stadiums, and marketplaces. The authors also document the restructuring of local economies to support recent developments that foster downtown renewal.

The City Beautiful Movement

William H. Wilson. (Johns Hopkins University Press, $38.50.)

AUTHOR WILLIAM H. WILSON, WHO teaches history at the University of North Texas, takes a familiar stand against the City Beautiful movement. For him, it represents bombastic civil design, unresponsive to the changing needs of American cities struggling with growth spurred by the industrial revolution.

Wilson presents case studies of City Beautiful designs for cities scattered across the country: Harrisburg, Pennsylvania; Denver; Dallas; Seattle; and Kansas City, Missouri, to underscore an alternative view to the common belief that these grandiose plans enjoyed wide public support and citizen participation. He also evaluates how the City Beautiful movement was perceived by its proponents as a reformation that encourage city dwellers to think about city design in a new way. "For all its idealistic rhetoric," writes Wilson, "the movement was imbued with the courage of practicality, for it undertook the most difficult task of all, to accept its urban human material where found, to take the city as it was, and to refashion both into something better."

Joze Plecnik: Architect: 1872-1957

Edited by Francois Burkhardt, Claude Eveno, and Boris Podrecca. (MIT Press, $39.95.)

AS IS THE CASE WITH EARLY MODERN architects such as Asplund, Joze Plecnik's work has been rediscovered by a new generation of architects who, given the current flux of the discipline, naturally gravitate toward such transitional figures. Plecnik was born in what is now Yugoslavia, and studied under Otto Wagner. After an unremarkable practice in Vienna, Plecnik taught at the School of Applied Arts in Prague, and at 50, finally returned to his native Ljubljana in Slovenia. Over the next 30 years, he produced buildings that freshly interpreted materials, ornament, and space. This book presents drawings and beautiful black and white photos of Plecnik's work, with a series of essays on his practice by various authors.

Building New Communities: New Deal America and Fascist Italy

Diane Ghirardo. (Princeton University Press, $35.)

DURING THE TURBULENT 1930s, WRITES Diane Ghirardo, "Italian and American government officials shared the same dream of effecting a new society, and indeed both governments sought to give land to the landless proletariat precisely so as to stimulate the traditional and individualistic virtues of the small land-holder."

Ghirardo draws other startling similarities between the new town programs of fascist Italy and New Deal America, which sought, she contends, to remove people from the vice and corruption of the cities and from notions about revolution and radical social change. "Governmental planning of this large scale in both countries seemed designed to reassure citizens that the respective governments would continue, and that they looked forward toward the future with unbridled confidence and a sure sense of governmental longevity," writes Ghirardo.

The Design Process

Ellen Shoshkes. (Whitney Library of Design, $45.)

THE PROCESS OF BUILDING DESIGN CAN appear to be anything but processional. Ideas emerge, are studied, developed, modi-

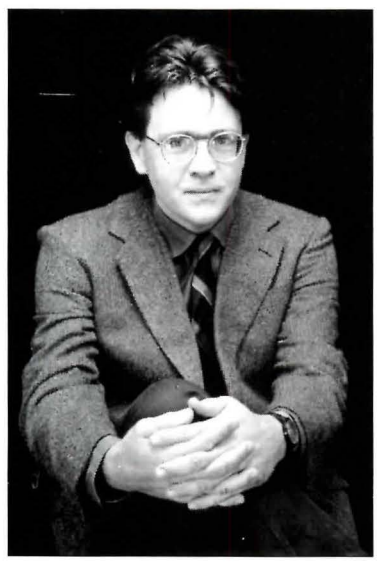
Books *continued on page 148*

Opening Up

A new office system promotes social interaction.

NEW YORK ARCHITECT ROBERT REUTER backed into office furniture and product design ten years ago while working in a design-build business on Long Island, where he met a designer from Knoll. Together they collaborated on an office system that became a runaway best-seller, accounting for a large percentage of Knoll's business. After 10 years at Knoll, Reuter left in 1987 to become an independent industrial designer.

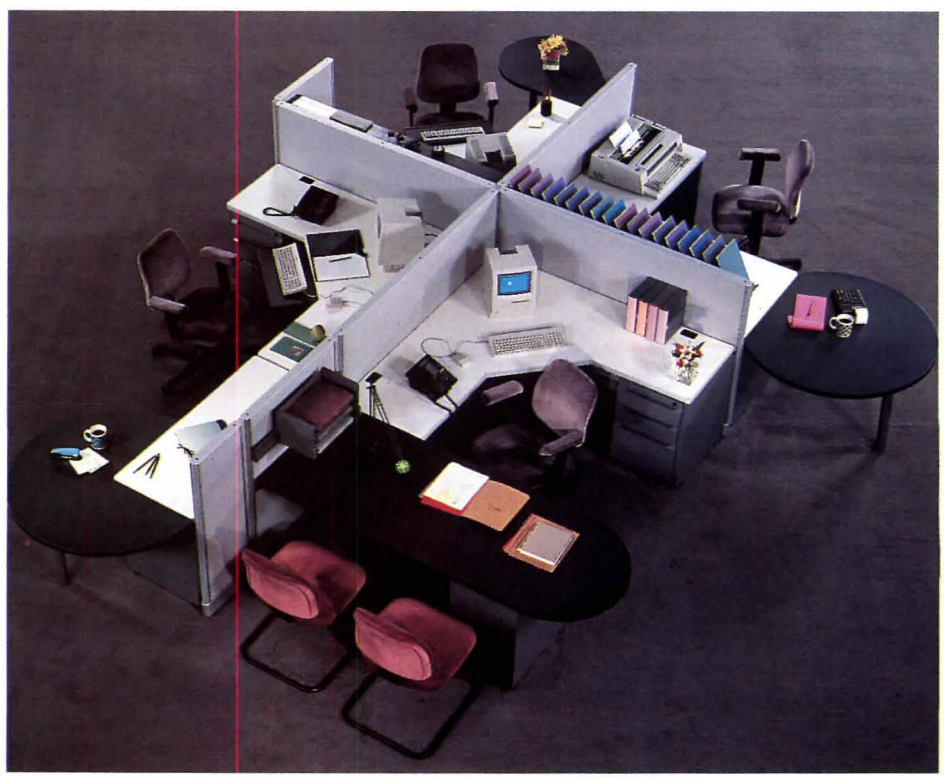
Reuter believes in office furniture as "humble servant... [that] it should serve the people using it in a quiet way and shouldn't compete aggressively with the architecture of the interior." He continues, "If you were to establish a hierarchy of the elements of an office system, I'd place worksurfaces at the highest level. Partitions are given far too much importance, supporting everything from the walls. They produce a lot of limitations and generate the cubby-hole planning no one really likes." He also faults systems furniture for not allowing more open configurations. Reuter foresaw the trend towards smaller workstations and spaces for machines, and supports a more humanistic approach towards office systems. "There's a definite trend towards more human interaction, a response partly to the threat of electronics replacing more conventional forms of communication."



"The strength of the Series Seven workstation is that it provides a very good value product at the lower-cost end of the market. It has full functioning features with innovative work surface shapes and configurations," claims designer Robert Reuter (left). Only two partitions makes each work space less box-like and more like an open area that encourages more interaction among employees while still ensuring a degree of individual privacy. Conference extensions, freestanding desks, and pedestal and cabinet storage units and work surfaces help manage space requirements and allow room for computer terminals and project work. The electrical system has a raceway accommodating a three-circuit, six-wire system. Another option is a four-circuit, eight-wire system. Snap-together connections for horizontal and vertical wiring keeps installation simple. A communications cable channel provides room for eight 25-pair cables. Domore Corporation. Circle 419 on information card

Reuter's Systems Seven workstation for Domore is a 1988 upgrade of a 10-year-old in-house design that has been the backbone of the company since it was first developed. Aside from designing comprehensive wire-management channeling, Reuter rescaled the worksurfaces, turned the focus away from the partitions, and added simple surfaces for more conference space. "This was a clever system to begin with, and I was able to change its elements without altering its basic planning characteristics," explains Reuter. "Furniture should allow people to communicate easily without using the telephone or walking around corners. I think we achieved that goal." ■

—A.G.L



IBM CADD review *from page 121*

Drawings may be exchanged with other programs. The interface between MegaModel and Autocad is excellent. Faces of objects are converted to Autocad's 3D faces so that nothing is lost in translation. Conversely, MegaModel will import a 2D plan and either convert it into 3D or allow it to be used as a 2D template from which the 3D model may be constructed.—FRANK E. HEITZMAN, AIA AND WALTER J. HAINSFURTHER, AIA

SILVERSCREEN

SILVERSCREEN BY SCHROFF DEVELOPment offers the best 2D representation of our 3D world for $3,000 or less. It was written for the 3D world and is being expanded toward 2D, rather than the more customary approach. It expands the definition of "user interface" to include the concepts involved in creating a model in 3D space.

Creating in 3D with this program, once it is learned (and the learning curve is fairly steep), is not unlike the exercise of working with basic building blocks, as Frank Lloyd Wright instructed his students. In one sense, SilverScreen is a sculptor's tool. Its elements are surfaces, volumes, and voids. To be used effectively, a user must think volumetrically—the way an architect designs. Most CADD software, including Autocad and MegaModel, is patterned after our drafting-table experience. Information is organized two dimensionally in layers, like vellum tracings. SilverScreen's drawing structure is naturally hierarchical and object-oriented with true symbol processing. Your model will be organized as it will be in nature, not the way it has been represented on paper traditionally.

Among the concepts that give production power to SilverScreen is its ability to create master symbol libraries that are dynamically linked to drawings. The libraries allows the user to upgrade all symbols in a drawing by editing the master symbol. Symbols also may have attributes such as names and values (including door type) that may be exported to data-base programs for automated door schedules. SilverScreen provides enough customizing tools to make Autocad look like a straitjacket. For instance, if you don't like the original, you can make your own cursor, colors, menus, named views, 3D coordinate system, slideshows, patterns, and script files. Included are resident compilers, in both Basic and C programming languages, and a resident editor. SilverScreen allows you to create your own 3D environment. But the program is brand new, released in May 1989. It crashes all too frequently. And, despite its many powerful features, SilverScreen was not developed for architects. It lacks many of the handy architectural features like double-line walls, but it does have associative dimensions, which is unusual for a 3D CADD program. Four 2D fonts are supplied with the program.

The "camera" approach is not familiar to architects. It is hampered by a fixed lens/film relationship. If verticals are to remain parallel, SilverScreen always will center the horizon in the image, cutting tall buildings off at the knees (not always a bad idea). Even "camera obscura" operators knew the advantages of the rising front. As in a view camera, all viewing controls should be independent. MegaModel's controls are much better than SilverScreen's controls.

Although the learning curve is steep, even for experienced CADD users, it is backed by superior tutorial and superb real-time (and real-command-sequence) demonstrations. The Roman Pantheon clearly illustrates the power of SilverScreen's modeling approach to architecture. We prefer Silverscreen's modeling to Autocad's more analytical and numerical 3D approach.

The reference manual, on the other hand, is mammoth and quite intimidating. For all its bulk, it provides no clue we could find to how to exit the program. But once the program is understood, it becomes very easy and quick to use. The menus operate like Lotus 1-2-3, and allow you to type the first letter of a command to execute it. Unfortunately, when you are down the ladder in the menu structure, you can only return to the

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top of the ladder. You should be able to use "escape" to move up one level at a time.

Schroff needs to develop a strong training program for the company's emerging dealer network. This is imperative due to the lengthy learning time.

Silverscreen ran quickly on an AST Premium 386/33 with four megabytes of RAM. It's a slug on lesser equipment. Output to a Hewlett Packard LaserJet or DeskJet is at 300 dots per inch. Plotters and PostScript devices also are supported.

For architects looking for a full-featured modeling program with a very strong development potential, SilverScreen is better than most 3D CADD programs under evaluation here. But we would not recommend the program for casual use.—TERRILL W. JANSSEN AND JOHN C. VOOSEN

SOLIDVISION

SOLIDVISION HAS IMPROVED AND IS more impressive than ever. It is a true solid modeling program that can handle large drawings. With a 256-color graphics card and monitor, you can view your model in 16 shades of 16 adjustable colors and add shadows on the surface or on the ground. At $6,000, it is by far the most expensive program in this evaluation.

The advantage of solid modeling is that it provides better visualization of a space than wireframe programs provide, which is an especially important feature for clients.

SolidVision first appeared in the United States in 1986. It is distributed by ACA of Rochester, N.Y., for Architecture and Computer Aids of Israel. The current version, 4.11, combines two programs that previously were separate.

Most work is done in plan view with the z component up. Modeling in SolidVision is similar to modeling in MegaModel, one of the more architectural CADD programs. You have the ability to toggle between plan, axonometric, and elevation views, and to draw in all views. Working only in perspective or axonometric drawing, as in Designcad 3-D or Generic 3D Drafting, is fine for small projects but becomes difficult as more information is added to the model.

There are four ways, all useful, to operate SolidVision. The menu to the left of the screen is the easiest to access but the most difficult to interpret because the commands are limited to five characters. Pull-down menus are more descriptive. One- or two-keystroke commands are the fastest. Typing commands is the easiest.

The only disappointment in the new version is that the manual has not improved. The concepts are well defined but the manual needs a better description of where to use the commands. The cost of the software includes three days of training. Because of the shortcomings of the manual, this is mandatory. Technical support from ACA has been excellent.

The program is used in Europe for drafting as well as modeling. SolidVision includes most of the normal drafting commands, multiple line types, 255 numbered layers, dimensioning, hatching, multilayer walls, parallel-line walls with automatic clean up, and automatic insertion of door and window symbols. But as complete as these features may be, they are not well organized, and programs like Autocad and Datacad are much more powerful. The real strength of SolidVision is its solid modeling.

Entities are drawn in two ways: by polygons and by walls. Polygons are created by connecting other polygons, by drawing one polygon and giving it a height, or by drawing one polygon and rotating it. Polygons can be positive or negative, and you can add or subtract them from each other. Walls are drawn with a base line, preferably a center line. Height and width are defined by the user. Corners and intersections are cleaned up as you draw. Each wall comes with one opening. The user specifies the width, height, and distance above the base line and the opening (a negative) is inserted automatically at the current thickness of the wall. Editing commands permit walls and polygons to be modified easily.

Models are created in the geometric mod-

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ule of the program. To view the model in one of the hidden-line modes, you switch to the solid module. Going back and forth is easy. The solid module offers the option of viewing the model as a wire frame with all lines visible; a wire frame with hidden lines removed; a wire frame with dashed hidden lines; a colored drawing without shadows; or a colored drawing with shadows. A second viewing module allows quicker manipulation of the model, but it doesn't have the ability to locate eye and target points by exact coordinates. SolidVision can import 3D DXF files from Autocad, but it can export only 2D files.

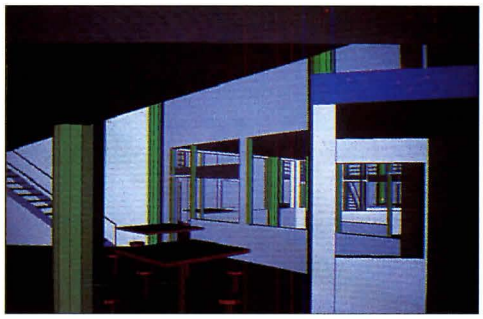
Although SolidVision is one of the best 3D modeling programs we reviewed, its shortcomings might override its advantages. Although no warning is given, SolidVision does not support networks. Nor could the program be installed on a Bernoulli Box by Iomega. Software this expensive should support the kind of equipment found in medium-size to large firms. Few firms will want to dedicate a powerful workstation to an application used as seldom as 3D CADD.

The program installs itself in four directories on two disk drives. Disk management would be much easier if it occupied a single directory with as many subdirectories as needed. One stellar point was that it gave experienced users the opportunity to modify their own housekeeping files to suit the program.

A frustrating habit of the program was defaulting to meters. Every time you run the program, you must reset it to feet and inches. Nor does the program remember the last view, grid, line color, layer, and wall width and height. These attributes are not saved with the model, and if you leave one model and load another, you will get all the parameters of the previous model.

On the other hand, "picture capture" includes borders and menus, which usually are not wanted. Further, command terminology could be more intuitive and more 3D symbols would be helpful.

SolidVision has impressive capabilities. Exceptional viewing features and the ability to see shadows on the model make this program great for presentations. Combine this with the program's ease of use (once the commands are learned) and the result is an excellent solid modeling medium.—DAVID J. ENGELKE, AIA AND CHARLES R. NEWMAN, AIA



SolidVision distributed by ACA.

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MAC CADD review *continued on page 145*

simplicity and ease of working with ModelShop. Most architects will find it useful and, at $595, affordable.

We were able to be productive with ModelShop after only two days. It is easy to learn and it is backed by an excellent, well illustrated manual.

To demonstrate the simplicity of the program, we elected to draw the benchmark building at the evaluation meeting. It took 20 minutes—a feat that was not even attempted with the other programs.

The secret to using this program is setting the snap grid to an appropriate module, such as two inches. Unfortunately, the grid disappears when the window is scrolled. To get it back, the user must set up the grid again. Dimension lines also disappear during scrolling.

The real fun of ModelShop comes in studying a design in perspective. Four clicks of the mouse are required for a perspective view. The first locates the center of view, the second locates the center of view height, the third your standpoint, and the fourth your standpoint height.

Unlike MacPerspective, you can create new perspective views without losing the back (unseen part) of the model. Easy manipulation of views after the model is constructed is one of the program's good points.

ModelShop removes hidden lines automatically and, by shading the surfaces, gives wire frame a look of reality. Changing colors and moving light source also creates dramatic visualization.

ModelShop has some odd limitations, many of which can be worked around. Although ModelShop will import PICT files, it will not import (or export) DXF files. Nor will it import files through the Clipboard. Thus, we were able to study Versacad drawings in 3D but not Jonathan drawings. The work-around for Jonathan was provided by a program called Cadmover by Kandu Software. A Jonathan drawing, copied to the clipboard, is read by Cadmover, which saves it as a PICT file, which can be opened by ModelShop.

PICT files are imported and exported through an Open File dialog box without scaling. It should be possible to import and export PICT files through the Clipboard in scale. The program also should be able to import and export DXF files.

Paracomp contends that scaling is not necessary, but we think the user should be given the option of working in scale.

Although ModelShop supports color laser printers, it does not have its own plotter drivers. The work-around is to use third-party plotter drivers by MacPlot and MicroSpot, or to export a PICT file to another CADD program with plotter drivers.

The simple geometric forms don't allow for free-form 3D. Thus models of people in the program's graphics library look like gingerbread men from a cookie cutter and it is difficult to represent trees other than as lollipop forms.

Our wish list includes the ability to select an object by pointing anywhere on its surface. The only way to select an object in Version 1.0 is to click on its handle. But when object handles overlap, it is difficult for the program to distinguish which object the user intends to select. The program also should be able to create a cross section, and snap capabilities should be improved.

Typical of first-release software, the manual has a couple of misleading references. Chapter 2 shows a model with a shadow behind it, but the single light source provided by the program does not cast shadows. One of the basic drawing commands is called "solid of revolution." But this is a surface-modeling program, not a solid modeler. The command should be called "surface of revolution."

Nevertheless, ModelShop fulfills its promise as a 3D study program and as a 3D sketch-modeling medium. It's easy to learn and fun to use.—EDWARD J. MARCYN, AIA AND THOMAS W. SHEEHY, AIA

STRATAVISION

IN STRATAVISION, I HAVE FINALLY found a computer program that helps me daylight my designs. With this rendering program, architects literally turn the light on for their projects. This is important because studying the effect of light on our designs is something we cannot do manually.

One of StrataVision's strengths is how quickly it can be learned. It has the same intuitive feel as other Macintosh software. Documentation is well written, appealingly designed, and clearly illustrated. Supplements include tutorials and Hypercard help. Technical support is excellent.

Basic drawing tools include cubes, spheres, cones, and cylinders. They cannot be drawn to any scale, and there is no overall coordinate grid. All objects must be sized and placed by eye.

StrataVision can import models created in other programs and render them with its specialized tools. It reads PICT, EPS, Super 3D, Minicad Plus, IGES, and DXF files. It can reuse data from our drafting, drawing, and painting programs for 3D studies.

With the "view set" command, we can look at any design from seven basic views including isometric. While all 3D programs give you these views, StrataVision does it more easily. To move to a new view, drag a "handle" with the mouse. This activates a ghost rectangle that is positioned for the picture plane of the new view.

We found ourselves moving the views intuitively. If it felt right, it was right. By contrast, after months of working with the spin wheels in Super 3D, they still confuse me.

Perspectives are created from StrataVision from orthographic views by using the focal length control and adjusting the view angle from 1 through 175 degrees.

Stratavision's niche is rendering. It provides ray tracing for realistic reflections and shadows, and image mapping for complex surface colors and textures. Three kinds of light sources are provided—spot, point, and sun—in an unlimited number. All lights have variable color, intensity, and direction. Spotlights have adjustable cut-off angles. An object also can "glow," much like neon.

Surface rendering options include transparency, refraction, reflectivity, emmissivity, specular highlights, roughness, and image mapping. All produce incredibly believable images. An image can be displayed in a range of sophistication, from crude wire frames, which take only seconds to generate, to photorealistic images, which take several hours to complete.

A camera tool, which previews small areas, allows various parts of the image to be checked before final processing. Images can be saved in PICT or TIFF format for output to Postscript printers, color printers, or video and film recorders.

StrataVision also has some drawbacks. It cannot draw to scale and precise placement of objects is difficult. Architectural modeling tools are limited. It cannot do animations. But StrataVision's strengths far outweigh its limitations. The images it produces are excellent.—TIM P. LARSON, AIA

SUPER 3D

SUPER 3D BY SILICON BEACH SOFTWARE is a powerful but obscure 3D program intended for model creation, visualization, and animation. Its admirers include Visual Information Development and StrataVision, both of which have utilities specifically written to accept Super 3D files.

Strengths of Super 3D include a comprehensive approach to modeling, its heritage as a product from a first-rate software house, and its reliability. We liked the "zoom" command and the animation controls. We made frequent use of the command to "undo" a previous action. A "group" command permits elements to be combined into a single object that can be manipulated as a whole; "ungroup" breaks apart the object into its component polygons The "4-view" option splits the screen into four panes. Three of the panes contain views of the model from fixed positions—front, top and right. The fourth pane shows the view from the current camera position.

Among the most distinctive features of Super 3D are its huge spin wheels that occupy the left, right and bottom edges of the screen

and allow an object to be rotated on its x, y, or z axis in increments of one degree. The user also has three other rotation options.

These rotation concepts are great, but it takes practice to know when you want to use each mode and what effect it will produce. Conventional scroll bars are not provided. Another easily forgotten factor is that the object's left and right are relative to itself, not the viewer.

Super 3D's most serious weakness is its lack of architectural orientation. Major functions are not intuitive and the manual isn't clear enough about how they work. The tutorial is straightforward, allowing us to create a goblet and even to animate it. Tutorials should explain why each command is necessary. Despite having worked the Super 3D tutorials, we still do not understand how the program works and why.

Super 3D measures only in feet and decimals; inches and fractions cannot be used. More critical is the extreme slowness of the program, especially when the model builds up to a level suitable for rendering. For example, changing the color of an element in a tutorial example took more than three minutes once the selection was made. This definitely inhibits experimentation.

Super 3D does a lot for $495, but not in a direct manner. It seems best suited for modeling components of buildings for insertion into other programs, or for creating 3D presentations of less demanding proportions than some of those shown in the manual.

—Don M. Beasley and
Adolph A. Schumann Jr.

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Books *from page 137*

fied, rejected, rediscovered, reinstated, again rejected. Projects stop and start according to client whim, legal roadblocks, or budget. The design process may span several years while the architect undergoes fits of passion and disdain for the project and its design.

Architect Ellen Shoshkes has taken on the formidable task of documenting the design process of nine projects of various size, scope, and complexity: single buildings, renovations and additions, shopping centers, master plans. For each project Shoshkes describes the project program, the client, and the architect, and then traces the design in diary fashion as it moves from concept to built reality. She incorporates the reactions of client and community to the design as it develops. Finally, the project critiqued a series of "observations" drawn from the design's participants.

Paris 1900: Architecture and Design

Franco Borsi and Ezio Godol. (Rizzoli, $50.)

THIS BOOK IS A REVISED AND EXPANDED edition of a volume published a decade ago by Rizzoli documenting the exuberant triumphs of Art Nouveau in Paris, the site of the World's Fair of 1900. The authors contend that while the style was born in Brussels, it flourished in Paris and gained international attention through the fair.

Much of the book is dedicated to the work of such Art Nouveau architects and designers as Hector Guimard, Frantz Jourdain, Henri Sauvage, and Jules Lavirotte. In addition to detailed photographs of buildings and furniture, the book contains numerous architectural drawings by these designers.

—MICHAEL J. CROSBIE

Helsinki Jugendstil Architecture: 1895-1915

Jonathan Moorhouse, Michael Carapetian, Leena Ahtola-Moorhouse. (Otava Publishing Co., Ltd., Uudenmaankatu 8-12, 00121, Helsinki.)

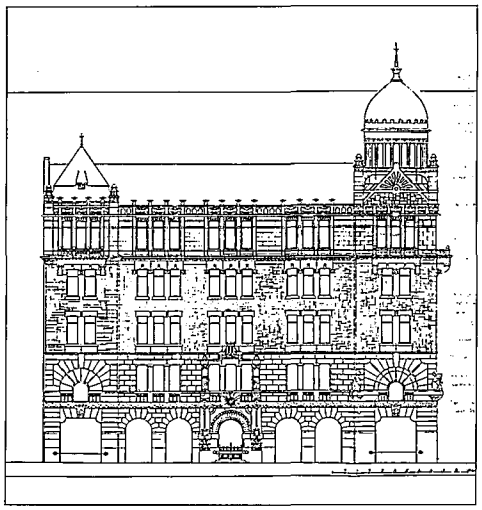
AT A TIME WHEN NATIONALISTIC FEELings are running high among the various peoples of the Soviet Union, it is fascinating to examine a moment in history that exemplifies self-conscious national expression in neighboring Finland, whose capital Helsinki is located just a few miles from Tallinn, Estonia, across the Gulf of Finland. It was at the turn of the century that the Finns, then living under Russian rule with a long history of prior Swedish domination, sought to assert their own identity through the Finnish language, decorative arts, and most clearly through architecture.

The Jugendstil movement, born and nurtured in Brussels, Paris, Vienna, and Munich just before 1900, formed the basis for cultural expression that came to be called National Romanticism in Finland. Renewed interest in the Kalevala, the Finnish national epic, sparked a search for the roots of Finnish fold culture in vernacular log buildings and farm houses of Karelia, a passion for the romance of rural forms, and a keen appreciation for furniture and crafts—all part of an effort to distinguish that which was intrinsically Finnish from Russian, German, or Swedish influences. It is no accident that this surge in artistic expression, which turned the little wooden town of Helsinki almost overnight into an exuberant and animated city of stone and brick, set the scene for national independence, won at last in World War I.

Helsinki Jugendstil gives tantalizing pictorial evidence that the city still is dominated by its Jugendstil buildings. It is a maze of villas and apartment flats plastered in yellow, pink, rust, and white, topped with colorful roofs of iron, copper, and tile, and detailed with brick, wood, and wrought iron. Its banks, publishing houses, and office buildings are constructed of heavily rusticated granite, decorated with intricate geometric patterns and images of bears, fish, owls, and reindeer carved into capitals, pediments, friezes, and balustrades. The city's short blocks produced an abundance of corner sites, often highlighted by projecting turrets, towers, and large bay windows. Doorways are deep and doors are massive; entrances are often whimsically cavelike. Windows are round, square, arched, and tapered in a variety of ways, and often feature stained glass, which casts amber, blue, and celadon-colored light into what must have been rather dim interiors, lit by gas lamps and heated only by small, tiled stoves.

Eliel Saarinen is the best known architect of those who practiced in Helsinki at the turn of the century—known in the U.S. because of his eventual emigration to America, and also among non-architects because he inevitably is confused with his son, Eero. Other architects who worked and thrived in the tiny Baltic capital are Lars Sonck, Selim Lindquist, and Wivi Lonn, one of the first woman architects with her own office. Saarinen's railroad station, with its tall, rounded tower, designed in 1914, is still the major landmark in Helsinki's cityscape of buildings no higher than six or seven stories. Likewise, the massive stone tower of Sonck's Kallio Church still rises high above the Kallio neighborhood, an area that grew to accommodate workers' housing and industry in the last years of the 19th century. The other key urban landmark from the period is the brick and stone spire of the National Museum, de-

Books *continued on page 149*



The 1901 Pohjola Fire Insurance Building by Gesellius, Lindren, Saarinen.

signed just a few years earlier by the prolific firm of Gesellius Lingren Saarinen, headed by three partners who collaborated for nearly a decade.

The book is an unequalled resource for visitors interested in exploring the visual uniqueness of Helsinki—by armchair or on foot. As a walking tour guide, though, the book is limited by its large format and size (more than 300 pages). A paperback version would be welcome, but only if such an edition maintained the large scale of the maps. One additional limitation of the book, though a curious one, is the fact that through its beautiful photographs it manages to convey the idea that Helsinki is always bright, clear, and sunny. In fact, in rains often in Finland, it can be gloomy and cloudy for long periods of time. The splendid light of long summer days is counterbalanced by the dismal darkness of long winter days. And the darkness plays a key role in the culture itself. The authors correspondingly have included an assessment of climate as a design factor. How well do buildings respond to the northern climate? In what ways do they enhance the cityscape in the gray months of the year?

Possibly the single most provocative aspect of Helsinki Jugendstil is its careful documentation of the cross-currents of design thought at the turn of the century, when revolutionary fervor mingled freely with artistic effort. In charts and diagrams, the book itemizes the places to which young Finnish architects traveled and where they studies, and cites important international exhibitions and publications that they saw, including the influential exhibit of Frank Lloyd Wright's work in Berlin in 1909. Only with such tangible evidence of exchange can we trace the circuit of ideas and begin to evaluate a nation's own style, if such an entity truly exists. ■

—JANE LOEFFLER

Jane Loeffler is a planner and writer based in Washington, D. C.

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A 16-PAGE COLOR BROCHURE ENTITLED "Fine Finishing Factory Furnished," published by the Architectural Woodwork Institute (AWI), looks at the advantages and benefits of factory finishing custom architectural woodwork items.

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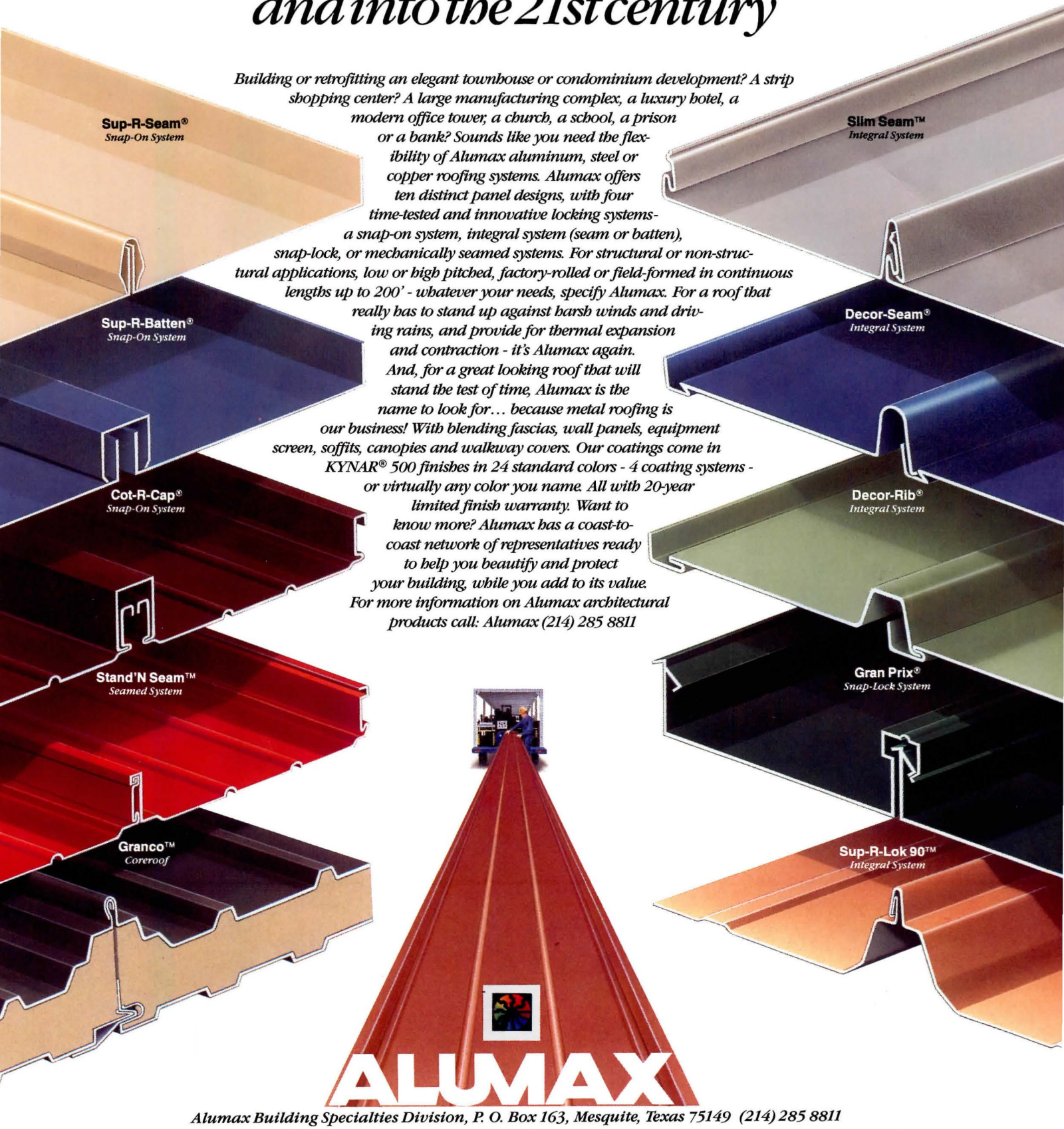

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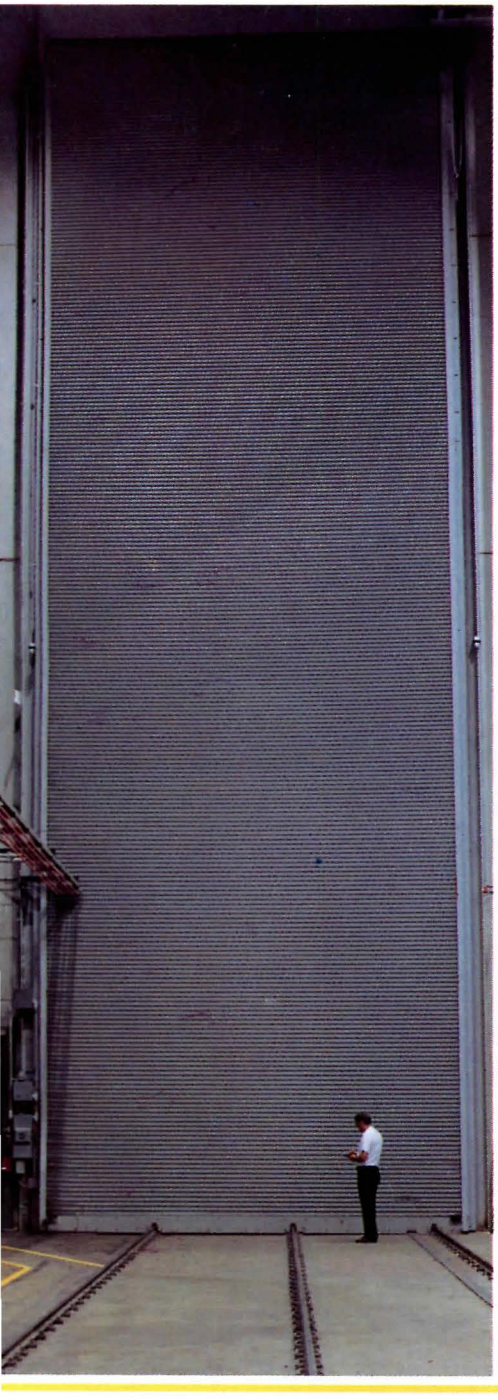

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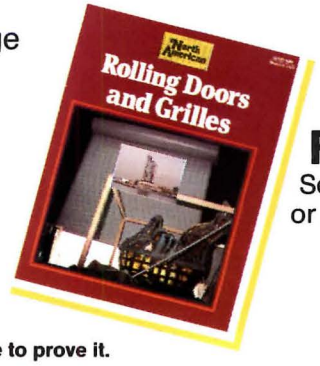

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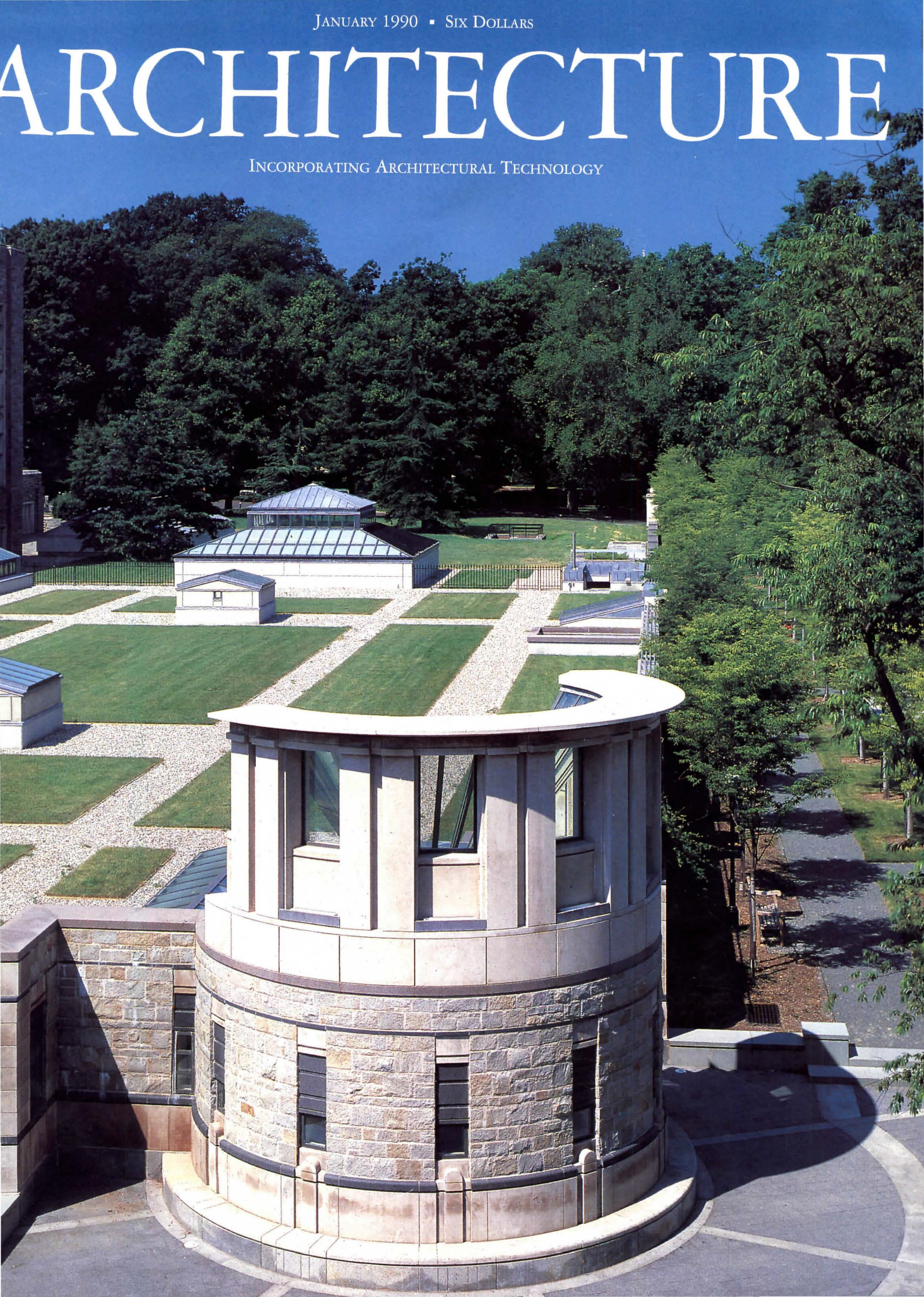

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