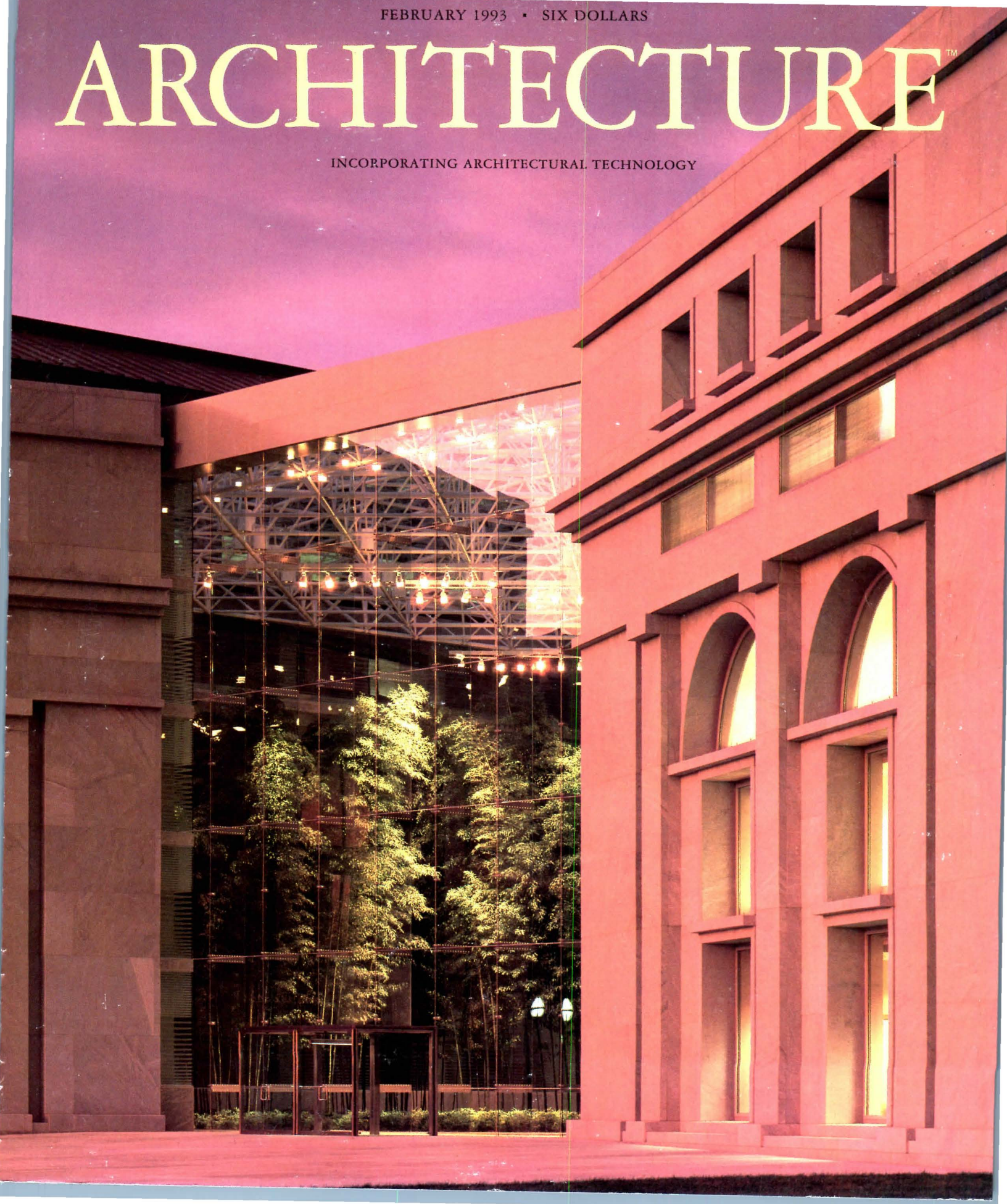
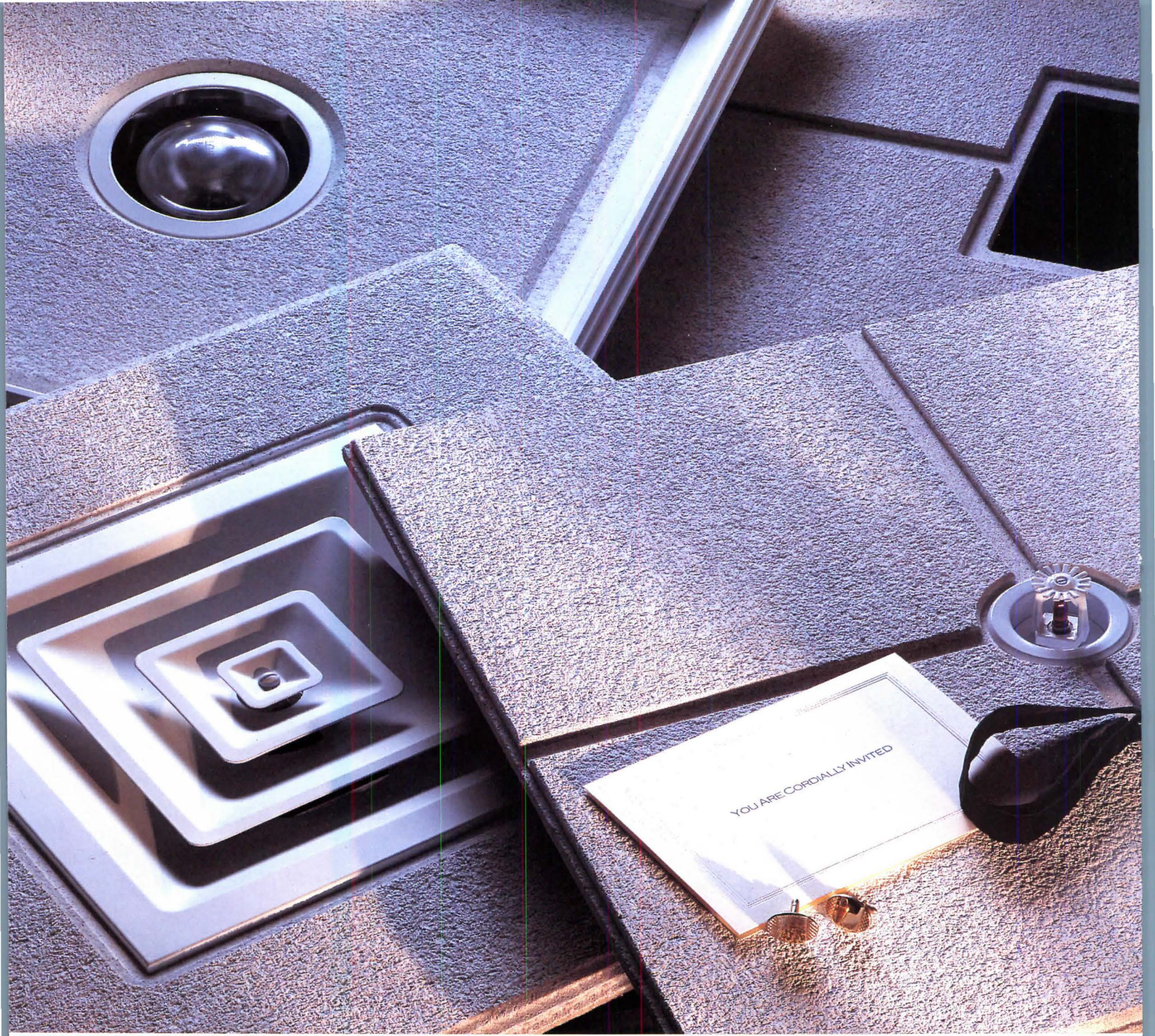


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Improving Federal Design

Efforts to elevate the design of government buildings have been thwarted, but may be renewed under the Clinton administration.



TOP: Restoration of U.S. Courthouse, Foley Square in New York City won a 1992 GSA honor award.

ABOVE: Metcalfe Federal Building in Chicago was one of two citations GSA awarded for new buildings.

The largest design client in the nation is the federal government, which annually invests more than \$40 billion in public projects, ranging from postage stamps to buildings. Its pervasive influence is well documented in an exhibit titled "From Mars to Main Street: America Designs, 1965-1990," on view at the National Building Museum through December. While diverse in scope, the show offers few tributes to federal architecture and urban design, underscoring the current decline in the quality of public buildings and the government's abdication of its role as design patron.

No event sums up this sad state of affairs better than the 1992 Presidential Design Awards Program. Established in 1983 as a major vehicle for recognizing federal design quality, the awards are presented every four years by the President to honor the work of architects, interior designers, and related professionals. The winners of the most recent Presidential Design Awards were selected in October 1991 by a jury chaired by San Francisco graphic designer Michael Vanderbyl. Now more than a year later, they have yet to be announced by the White House, indicating the extent of former President Bush's disregard for the arts.

Other design award programs for public buildings have similarly fallen by the wayside, such as the National Honor Awards for Facility Excellence sponsored by the U.S. Postal Service; the competition was held only once in 1990 and then abandoned. Last year, the General Services Administration (GSA), a federal agency trying to promote design excellence through a biannual awards program, handed out honor awards to restoration and interior design projects rather than to new government buildings, which only merited two citations.

More important, legislation that would improve the quality of public architecture lapsed when Congress adjourned last year. Bills introduced by Senator Daniel Patrick Moynihan (D-NY) and Representative Dick Swett (D-NH) would have required design competitions to be held for federal building projects and final selections to be made by expert juries, whose members would include architects. The proposed legislation also called for appointing a supervising architect within the GSA to oversee that agency's design-related activities.

Now that President Bill Clinton has taken office, federal design has another chance to improve. While governor of Arkansas, Clinton (who has lived in two houses designed by AIA Gold Medalist Fay Jones) made an effort to boost the arts within state agencies and schools. And last December, his transition team met in Little Rock with a group of designers, including New York architects Max Bond and Maya Lin, to discuss the relationship between design and economic competitiveness. Now it is up to Clinton to cement that relationship by appointing architects and other design-sensitive professionals to top positions within his administration. The National Endowment for the Arts, in particular, should be reinvigorated with strong leadership. In the 1970s, the NEA played a key role in shaping federal design policy; as a result, legislation encouraging the preservation of government buildings, the Presidential Design Awards, and other public programs fostering architectural excellence were enacted. The message behind these efforts is simple: Good design is good business. And good public architecture is one of the most visible ways our government represents its values to the governed.

Debra K. Dietz

Co-housing conservation

As a licensed architect and resident of the Winslow CoHousing community on Bainbridge Island (December 1992, pages 42-45), I am very pleased with the strong architectural underpinnings of the development and have worked to maintain them in the face of the increasing pressure for individual self-expression—I may be one of the few members of the cooperative group who understands why the compound looks as attractive as it does.

But the buildings function equally well on another, less visible level: They employ several innovative energy conservation technologies. In addition to being superinsulated, all the buildings have constant mechanical ventilation, coupled with a heat exchanger that dumps waste heat into the hot water heaters. The system has proved so efficient that all of the site's domestic hot water is produced by waste heat. Additionally, all of the connected lighting loads are fluorescent and consume roughly 75 percent less electricity than incandescents.

These conservation measures earned us \$97,000 worth of electric

utility rebates, which compensated us for the initial costs. I was disappointed that the article did not mention this aspect of the project. Designers can begin to overcome their resistance to these new technologies if they see them implemented and published in magazines like yours.

*Pamela Root
Bainbridge Island, Washington*

Dome clarifications

I enjoyed your feature story on the Georgia Dome (December 1992, pages 73-77). It was written with engaging clarity and the photographs were outstanding.

One correction: In addition to the two tensegrity domes in Korea and the Suncoast Dome in Florida, there is a fourth dome at Illinois State University called the Redbird Arena. I believe it is the first oval-shaped-in-plan dome. All of these were designed by the late David Geiger. Also, the roof fabricator and erector was Birdair, Incorporated, of Amherst, New York, the only firm in the country capable of constructing such roofs.

*R. E. Shaeffer
Tallahassee, Florida*

Modernism lives

Your call for the preservation of Modern architecture (November 1992) sounds strange to one who feels that there should never have been an end to this style and that Postmodernism and the resurrection of historical styles was a mistake. Modernism reflects the 20th century and takes life seriously.

*Pat Guthrie, AIA
Scottsdale, Arizona*

Traffic problem

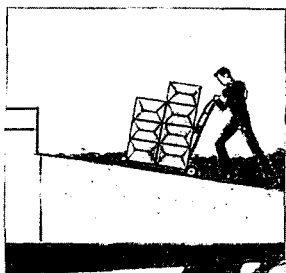
Chicago's Auditorium Theater (December 1992, page 19) is a classic reminder of how the environment has been ruined by the traffic engineer. Cutting a classic lobby in half for the sake of an additional auto lane in an urban area was patently absurd, even in 1955 when the original damage was done. But to spend \$1 million to try to overcome this affront only compounds the absurdity.

Remove the auto lane. Who cares if traffic takes 30 seconds longer to pass? Let's wrestle our environment from the automobile and give it back to the people.

*Jerome Morley Larson, Sr., AIA
Red Bank, New Jersey*

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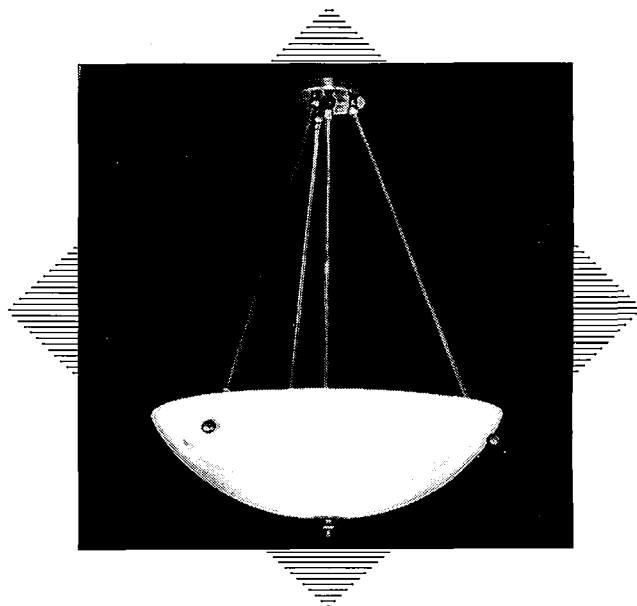
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Northern appreciation

After a long day in my low-rise storefront office, I trudged through the thick forest of fir trees that surrounds my rough-hewn log lodge. In the mail was the December issue of ARCHITECTURE, featuring a number of buildings in Washington and Oregon. "It's about time," I said aloud. "Those editors back East have finally realized that we aren't an outpost near the Arctic Circle."

Mark L. Hinsbaw, AIA
President, AIA, Seattle Chapter
Seattle, Washington

Computers on a budget

As an architect with a small residential practice, I would like to see an article on setting up an office with a computer on a small budget. I'm using a Macintosh LC computer for office administration, CDs for storage, and a Hewlett Packard Paintwriter for color studies. I'd like to read about what others are doing.

Mike Venechuck, AIA
Wilmette, Illinois

Editor's note: Stay tuned. We are featuring an article on computers for small offices later this year.

February 15

Submission deadline for the Brick in Architecture Awards Program, co-sponsored by AIA and the Brick Institute of America. Contact: AIA Awards Program, (202) 626-7390; or BIA, (703) 620-0010.

February 19-22

National Association of Home Builders annual convention in Las Vegas. Contact: (202) 822-0200.

February 24-26

Fourth annual Quality Management Conference in San Diego, California. Contact: (202) 347-7474.

February 25-27

Annual meeting of the Exterior Insulation Manufacturers Association. Contact: (813) 726-6477.

February 28

Louis I. Kahn exhibition at the Los Angeles Museum of Contemporary Art. Contact: (213) 621-1750.

March 1-3

Engineering Design of Glazing Systems, a course. Contact: Texas Tech University, (806) 745-3300.

March 1-5

The Fundamentals of Commercial & Industrial Lighting, a conference sponsored by General Electric's Lighting Institute. Contact: (800) 255-1200 or (216) 266-9000.

March 6

Conserving Energy at Home workshop in Boston, Massachusetts. Contact: Passive Solar Industries Council, (202) 628-7400.

March 17-19

WestWeek '93, sponsored by the Pacific Design Center in Los Angeles. Contact: (310) 657-0800.

March 19-21

Monterey Design Conference, sponsored by the California Council and AIA. Contact: (916) 429-1414.

March 25-26

First annual Healthcare and Senior Living Design Forum, in Minneapolis. Contact: (612) 338-6250.

March 26

Registration deadline for Lakeview Visions, a design competition in Chicago. Contact: (312) 281-5492.

March 28-April 1

National Roof Consultants Institute eighth national convention, in Orlando, Florida. Contact: Jeanette Bortitta, (919) 859-0742.

March 29-30

Residential Construction Technology, a two-day course offered by the University of Wisconsin-Madison. Contact: (800) 462-0876.

March 30-April 1

International Particleboard/Composite Materials Symposium, in Pullman, Washington. Contact: (509) 335-2262 or (509) 335-4923.

April 4-6

Color forecasting conference, sponsored by Color Marketing Group. Contact: (703) 528-7666.

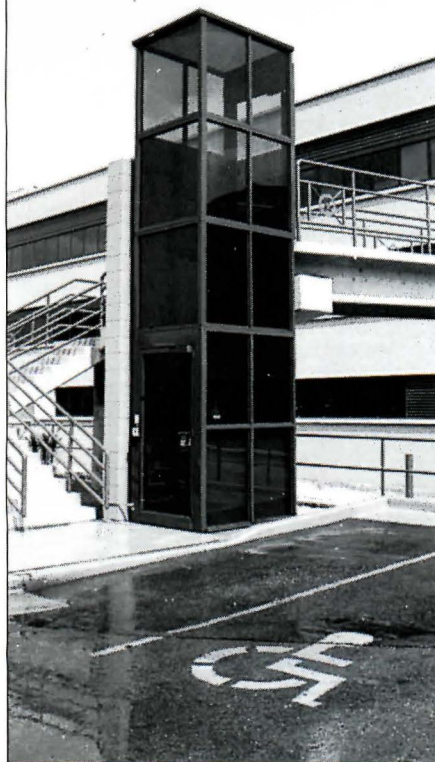
April 21-24

1993 International Tile & Stone Exposition, in Miami Beach. Contact: (407) 747-9400.

April 26-29

National Computer Graphics Association conference and exhibition. Contact: (703) 698-9600.

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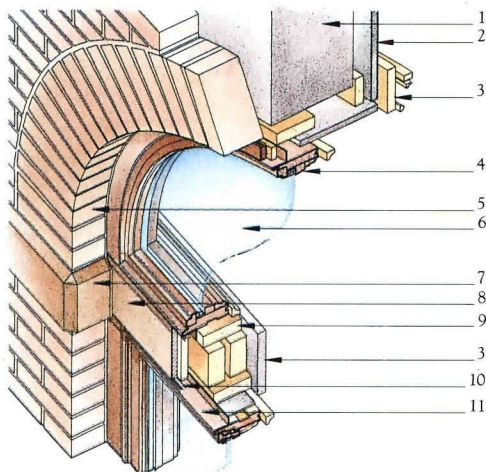


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Deere & Company Center Wins 25-Year Award

For the sixth time, the AIA has honored Modernist Eero Saarinen with its 25-Year Award for buildings whose designs are of enduring significance. This year's award recognizes Saarinen's Deere & Company Administrative Center in Moline, Illinois, for its simplicity of form, technological innovation, and brilliant siting. The AIA honor awards jury noted that the 1964 corporate headquarters, completed three years after Saarinen's death, looks better today than it did when first finished, thanks to a maturing of the landscape that completes the architect's original vision for the 720-acre site. The jury also commended Saarinen's design of the building's furniture, which is still in use today.

Saarinen's other 25-Year Award-winning buildings include the Crow Island School in Winnetka, Illinois; Christ Lutheran Church in Minneapolis, Minnesota; the General Motors Technical Center in Warren, Michigan; Dulles International Airport in Chantilly, Virginia; and the Gateway Arch in St. Louis, Missouri.

The award was announced on January 26 at the AIA's Accent on Architecture gala at the National Building Museum in Washington, D.C., and will be presented at the AIA national convention in June.

Engineer Wins Topaz Medallion

Mario Salvadori, a civil engineer and professor at Columbia University, has been selected to receive the 1992 Topaz Medallion honoring excellence in architectural education. The award, which is sponsored by the AIA and Association of Collegiate School of Architecture (ASCA) will be bestowed at the ASCA's annual meeting on March 15.

The first engineer to receive the Topaz Medallion, the 85-year-old Salvadori has taught structural design and technology's cultural impact to college students and children for more than 50 years. Before becoming chair of the department of architectural technology at Columbia University in 1965, he taught architecture at Princeton University.



DEERE CENTER: Siting evokes ancient Japanese temples.



DEERE CENTER: Jury praised landscaping and furniture.



Congressman Receives Award

On January 26, the AIA awarded its Thomas Jefferson Award for Public Architecture to U.S. Representative Jack Brooks (D-Texas), author of federal legislation to improve the design of government buildings. In 1972, Brooks sponsored legislation—now called the Brooks Act—requiring federal agencies to use a qualifications-based selection procedure, rather than a low-bid system, when choosing architects and engineers for federal building projects.

Since the act was passed, it has influenced state and local building design review processes, and has opened the eyes of community governments to the notion that public architecture should be more than merely utilitarian. Over the past two

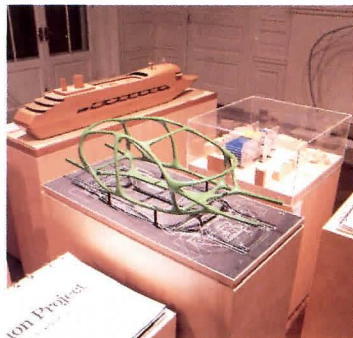


JACK BROOKS: Jefferson winner.

decades, Brooks has worked to extend his legislation's influence to military construction agencies, the Federal Highway and Transit administrations, the Federal Aviation Administration's Airport Improvement Program, the U.S. Postal Service, and 34 state governments.

Brooks received his award January 26 at the AIA's Government Affairs Reception in Washington, D.C.

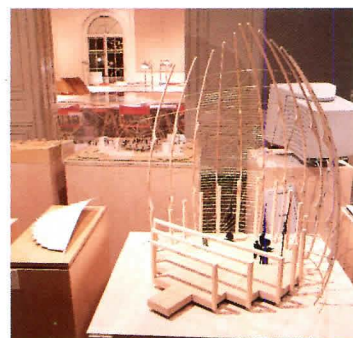
- 22 Piano Exhibition
- 23 Madrid Exhibition
- 23 Details
- 24 Ferry Terminal Competition
- 27 San Diego Housing
- 31 On the Boards



FIAT FRAME: Experimental car.



HANGING MODEL: Stone arch with timber props for Padre Pio church.



MODEL: Cultural center in Noumea.



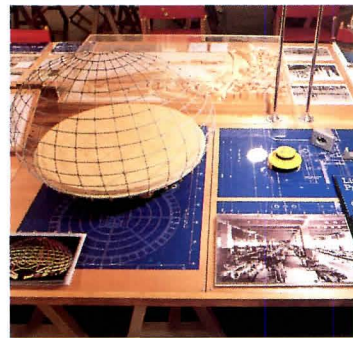
MODELS: Structures based on nature.



COMPUTER STATION: Helping visitors understand Piano's structural analysis.



WORKTABLES: Following the process.



MODEL: Lingotto conference room.

Piano Exhibition in New York

Renzo Piano and Richard Rogers' Pompidou Center remains the sacred monster of 1970s High-Tech, "a spaceship landing in the middle of Paris," according to Piano, and one of the few examples of the brief Piano-Rogers Partnership. In 1978, Piano dissolved his seven-year association with Rogers; he established his own firm, the Renzo Piano Building Workshop in 1981.

Based in Genoa, Paris, and Osaka, this workshop of 60-plus architects, designers, and engineers seeks a more delicate rapprochement between technology and nature, innovation and tradition than seen at the Pompidou. How well Piano and his team have succeeded is evident in an exhibition organized by the Archi-

tectural League of New York in collaboration with the Italian Cultural Institute. "Renzo Piano Building Workshop: Selected Projects" portrays 12 projects through models, drawings, photographs, and visitor-activated computer stations. On view at the Urban Center during December and January, the show will be presented at the Piano-designed Menil Collection in Houston from March 11 to May 31, 1993.

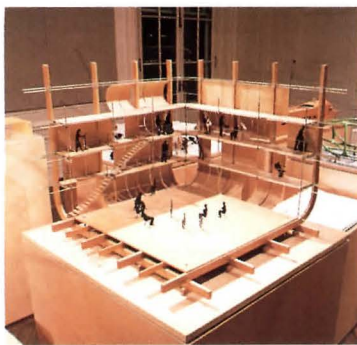
"The exhibition is a mirror of my office, which is a mirror of myself," says Piano, who designed the beautiful installation with graphics by Massimo Vignelli. The show's most unconventional elements are long wooden worktables where visitors can sit and study drawings and photographs of six projects, flip through sets of construction documents, touch sensuous models, and handle actual building elements.

Visitors can also operate computer stations to view the types of structural and geometric analysis employed by the building workshop. This hands-on show is an apt way to display the work of an architect whose father, grandfather, uncles, and brother were all builders, and who loves "connecting the work of the mind with that of the hand."

The exhibition reveals that Piano detests overt quotations from the history of architecture, though he is a master manipulator of metaphor and memory. As the exhibition's curator, Peter Buchanan, points out, Piano's only building in the United States, the Menil Collection in Houston, evokes rich American precedents. "Charles Eames comes to mind," Buchanan writes in the catalog, "because the building seems, to foreign eyes at least, so very American, having particular

affinities with California of the 1950s and '60s." The white steel frame of the Menil evokes Craig Ellwood, while Buchanan connects its ferro-concrete roof "leaves" to Ezra Ehrenkrantz and Skidmore, Owings & Merrill. Created in collaboration with British engineer Peter Rice, who died last fall, these sculptural louvers let natural light fill the interior with a clear, brilliant illumination.

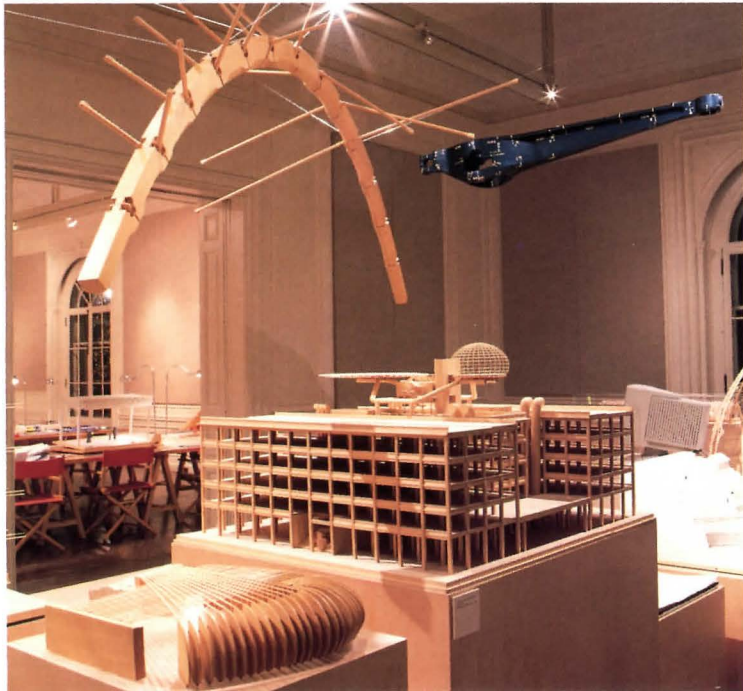
The exhibition also includes a new design of a pavilion adjacent to the Menil Collection for works by American artist Cy Twombly; low-cost housing in Paris made of glass-reinforced-concrete and clad in terra-cotta; and the mile-long Kansai airport now under construction on a man-made island outside Osaka. The swooping, curving roof of the airport, "a big, big machine" to Piano, takes the shape of the airplane as its progenitor, much as Le



MODEL: Prometeo opera installation.



MODEL: UNESCO mobile workshop.



WOODEN MODELS: Lingotto factory renovation with helipad.

Corbusier looked to ocean liners to design the Villa Savoye.

Piano's scheme for renovated cargo warehouses in Genoa harbor combines space-age futurism with mastlike imagery from the city's maritime past. And under the workshop's guidance, the Giacomo Matté-Trucco-designed FIAT Lingotto factory in Turin will be transformed into a kind of minicity including hotel, university, cultural center, offices, and shops.

The New York exhibition shows a tremendous stylistic range, but its diversity belies a "strategic deployment of technology in a way that is minimally disruptive, or even actively regenerative, of both local culture and nature," according to Buchanan. Piano's design for a mobile conservation laboratory, for example, is a light, translucent, and tentlike structure that can be moved to different historic sites

in need of restoration. In these locations, Piano and his team collaborate with local citizens to devise technologies to regenerate, rather than destroy, old buildings.

As clearly revealed by this exhibition, the Renzo Piano Building Workshop goes against the grain of traditional architectural thought. Piano and his collaborators are preservation-minded without resorting to historical recreation. They create buildings based on engineering models but endow this technology with great architectural presence. They're ecologically sensitive and committed to high esthetic ideals, while retaining an earthly delight in the sensuous appeal of building materials and textures. Piano and company have a lot to teach their American counterparts.

—Donald Albrecht

D. Albrecht is a New York-based curator.

Visions for Madrid

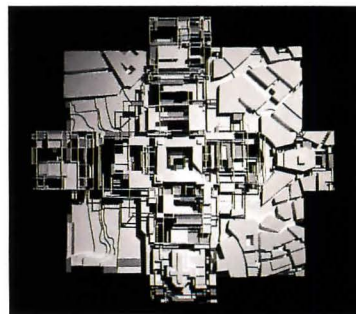
D E T A I L S

A Spanish design exhibition inspired Chicago architect Stanley Tigerman of Tigerman McCurry Architects to propose reorienting the city's 500-year-old Catholic cathedral, turning it away from the Royal Palace to the north to face Jerusalem to the east.

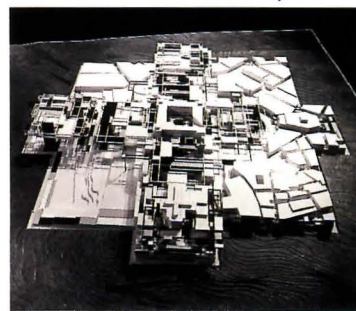
The exhibition was part of a year-long celebration of Madrid as the 1992 cultural capital of Europe. Sponsored by Madrid '92—a consortium composed of the Spanish Ministry of Culture, Madrid's regional government, and the Madrid City Hall—the celebration included three architecture exhibitions organized by Martha Thorn. "We decided to bring in foreign architects who weren't necessarily familiar with Madrid and ask them to propose utopian projects to change the city," Thorn explains.

Tigerman's urban intervention is based on a system of scaffolding, which covers the cathedral and surrounding buildings, repositioning its entrance 90 degrees to the east. "I chose simple materials because I knew if the scheme was built at all, it would be temporary," he explains. The Madrid exhibition also included schemes by London-based Zaha Hadid, Finnish architects Mikko Heikkinen & Markku Komonen, Hans Hollein of Austria, and Alvaro Siza of Portugal.

—Philip Porado

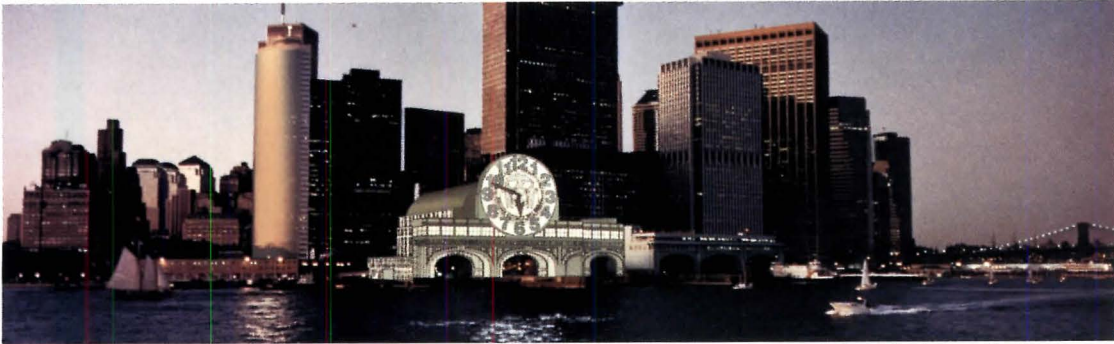


TIGERMAN MODEL: Scaffold city.



MODEL: Reorienting cathedral.

The Leonard Parker Associates of Minneapolis has been selected to design a 120,000-square-foot convention center in Sioux Falls, South Dakota, and the expansion and renovation of Duluth Technical College. The team of New York-based **Gwathmey Siegel & Associates** and **Loschky Marquardt & Nesholm** of Seattle won a competition to renovate and expand the University of Washington's Henry Art Gallery. New York-based **Eli Attia Architects** won an international competition to design the 2.7 million-square-foot mixed-use Shalom Center in Tel Aviv. Philadelphia-based **Ewing Cole Cherry** has been selected to design the city's 400,000-square-foot Federal Metropolitan Detention Center. Boston architects **Shannon Taylor Scarlett** and **Timothy Scarlett** won a competition to design an urban plan and new library for Blacksburg, Virginia's civic center. The work of **Frank Gehry** was ranked as the best architecture of 1992 by *Time* Magazine. Architect **Diane LaBelle** of Pittsburgh, Pennsylvania, has been awarded the James Marston Fitch Charitable Trust Grant for her program to teach inner-city children about the built environment. **William Brown** and **Jennifer Seal**, two students at Ball State University, have started A Sustainable Architecture Program (ASAP), a national organization of architecture students committed to ecologically responsible design. **SCA Group** of South Pasadena, California, is designing a 10.8 million-square-foot development in Guangzhou, China, that comprises apartments, a convention center, hotel, offices, shopping mall, and marina. **Beverly Willis** of New York is the first architect to be named a Dartmouth College Montgomery Fellow. **Don Smith**, former managing partner of **Skidmore, Owings & Merrill** in New York, has joined **Dan Friedman** to form **CORE Environmental**, a new firm in Hartford, Connecticut. Architect and urban planner **Paul Curcio** was recently named president of UCLA's Urban Innovations Group. Harold Adams, chair of Baltimore-based **RTKL Associates**, has become one of four foreign architects to be registered in Japan. **Chloethiel Woodard Smith**, a Washington, D.C., architect who worked on the urban renewal of the capital's southwest quadrant and on the creation of Reston, Virginia, died on December 31. **Leonard Jacobson**, a partner of New York's **Pei Cobb Freed & Partners**, died on December 26. **Charles Blessing**, Detroit's director of city planning in 1953 and 1977, died December 17.



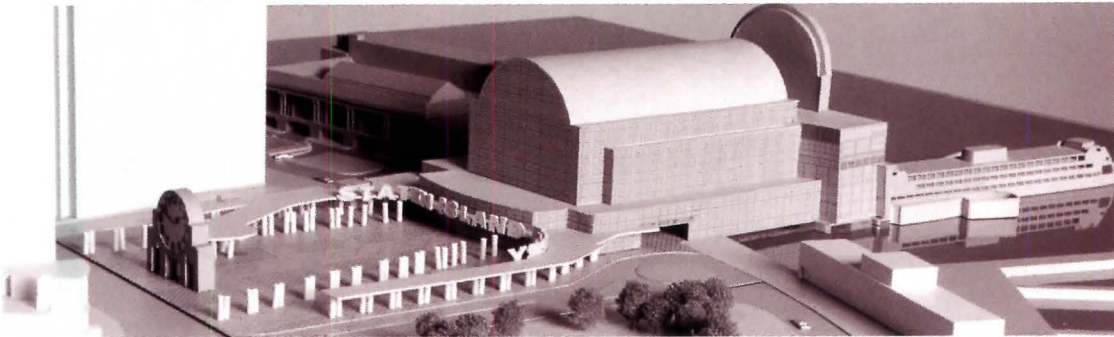
WINNING DESIGN: Entry by Venturi, Scott Brown and Anderson/Schwartz features clock scaled to Manhattan skyline.

Giant Timepiece Alarms Manhattan

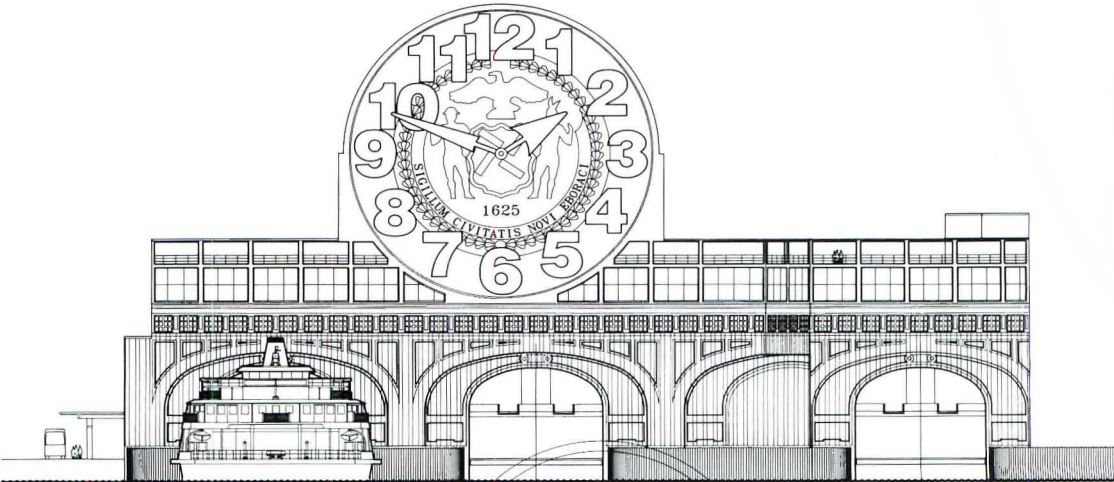
When Venturi, Scott Brown and Associates and its frequent collaborator, Anderson/Schwartz Architects, win a design competition, some form of public uproar usually follows. The team's entry in the Whitehall Ferry Terminal competition, designed to replace an existing fire-damaged terminal at the tip of Manhattan, is but the latest object of controversy generated by these spirited and unfailingly inventive architects. Photographed from the ferry deck, the completed terminal with its 120-foot-diameter clock—the largest in the world—will make a great postcard, as emblematic of New York as classic shots of the Empire State and Chrysler buildings, the Guggenheim, and Times Square. Unveiled to the public last November, the ferry terminal has already become the subject of a memorable cartoon that shows one Staten Island ferry passenger saying to another: "I hear it's an alarm clock to wake up the whole city!"

The first architecture critic to be aroused by the winning terminal design was Herbert Muschamp of *The New York Times*, who declared the scheme "rooted in the past" and called it the "last boat for Postmodernism [by] Robert Venturi and Denise Scott Brown, the architects whose ideas launched the now-cap-sized Postmodern movement." A New York architect of great distinction, understandably wishing to remain anonymous, declared the competition's winning scheme "a giant breadbox, a huge inert thing, a big, inward-focused lump."

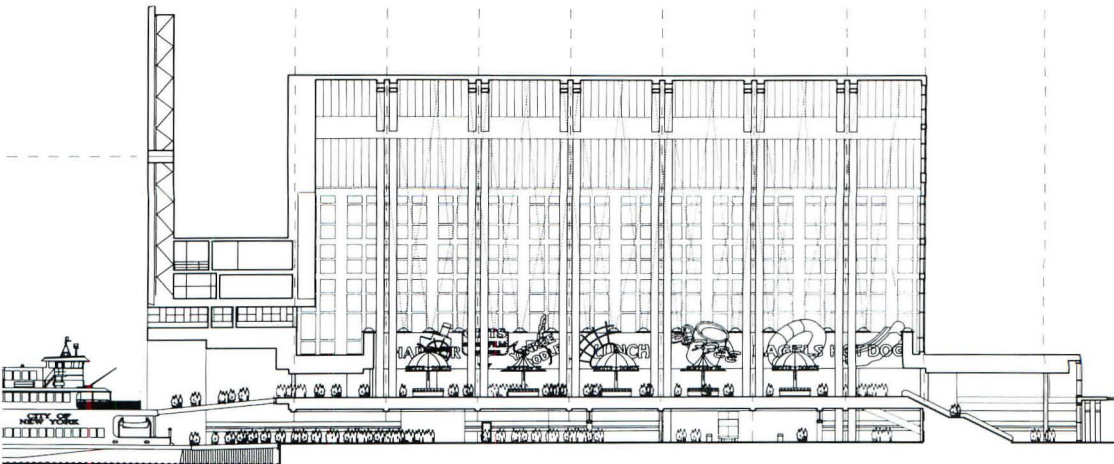
Because the New York City Economic Development Corporation, which launched the competition and will build the terminal, was anxious to enlist public support, the six competing proposals were dis-



WEST ELEVATION: Miesian facades are more utilitarian than elegant; public plaza introduces building from north.



SOUTH ELEVATION



EAST-WEST SECTION

played for several days before the jury met, thereby ensuring that all the entries would become the subject of public debate. The judging process itself was unusual. Putting aside the customary requirement that the submissions be anonymous, two members of each architectural team presented their schemes. The five teams bested by the Venturi architects were Hardy Holzman Pfeiffer Associates; James Stewart Polshek and Partners; Aldo Rossi Studio di Architettura with Anschutz Christidis & Lauster; the New York office of Skidmore, Owings & Merrill; and Rafael Vinoly Architects. Almost all of the defeated designs had their champions. Rossi's entry was considered a beautiful building with the wrong image—too formal and unwelcoming. Polshek's solution was thought to be sensible but unexciting. SOM's was supported by the citizen activist Bowling Green Association, while the HHPA scheme was favored by the Staten Island citizens polled by the *Staten Island Advocate*. The high-tech Vinoly proposal was the favorite loser among those who consider the Venturi team's design old hat.

In truth, however, the Venturi and Vinoly projects are both brilliant examples of contemporary building technology. Each expresses structure in a manner that is manipulated for esthetic ends, but each tells a different story. Vinoly's tented steel structure speaks to one kind of past, heroic Modernism, its imagery more airport than marine. The Venturi team's latter-day Crystal Palace speaks to another past, that of the great railroad terminals—New York's Grand Central Station and the 30th Street Station in Philadelphia. "I would like to remind those who consider our design retro that a ferry terminal has a longer past even than a train station, because ferries came before trains," explains Robert Venturi. "The ferry is a very old-fashioned kind of a boat. It's not a 747 backing into the slip, or the Concorde, so why should the terminal look like a high-tech airport?"

Venturi, Scott Brown Partner Steven Izenour explains that his team was dealing with the design of a would-be popular building in a public environment; this visibility called for a design approach unlike one the architects might take for a private house or a campus building. In dealing with a pop environment, the whole idea of vanguard work,

with allusions directed toward a knowledgeable elite, is inappropriate. "Ruling taste in the public environment is a complex issue," Izenour adds, "but we have to do something that the people understand. It is not a question of one style or philosophy of architecture versus another, or choosing the currently chic over the currently *retardataire*. Good architecture can be at the service of a style or theory, or it can be, as in the terminal, our very best interpretation of public goals."

The Philadelphia architects believe that they won the competition simply because their scheme worked the best. In the five weeks they had to design the project, they spent 75 percent of the time working on function, the rest on image. The facades on the east, west, and north are almost Miesian in character, but are more utilitarian than elegant. The south facade beneath the clock replicates the proportions of the adjacent Battery Maritime Terminal, employing the monumental elliptical arches of its original facade. Superimposed on the corrugated metal surfaces will be metal appliques consisting of abstracted interpretations of the original ferry building's ornamental metal panels.

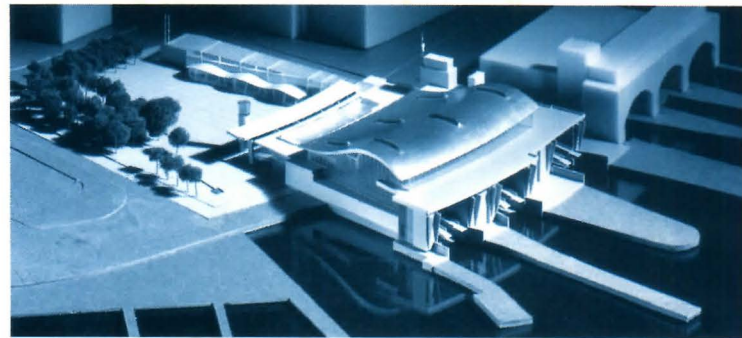
The team struggled with the question of how big the building should be, and pondered the scale of the clock. Fred Schwartz of Anderson/Schwartz explains: "The clock came into our minds on a ferry ride. We looked at the Colgate clock on the New Jersey skyline and decided our clock, in order to read against the Manhattan skyline, had to be bigger. Scaled against all those scaleless 60-story buildings on the skyline of Manhattan, the size is just right. On the way back to Manhattan, we took a photo of the skyline every five minutes. Back in the office, we photomontaged computer-generated perspectives of the terminal and clock scaled to these photos to study how the clock reads at a series of distances across the water. From 3 miles out, it's not so big."

Denise Scott Brown hopes that people will soon realize that the Whitehall Ferry Terminal is more than its clock. "This building," she reflects, "will be here long after the people who first use it. We have designed it to be sturdy and tough and nurturing. We have made it monumental, but we hope we have made it monumental in a human way."

—Mildred F. Schmertz



HARDY HOLZMAN PFEIFFER ASSOCIATES: A favorite of Staten Islanders.



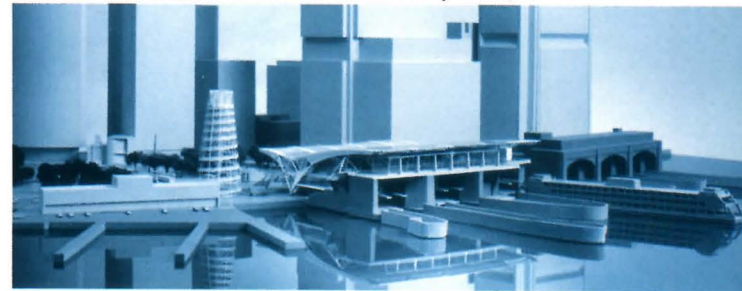
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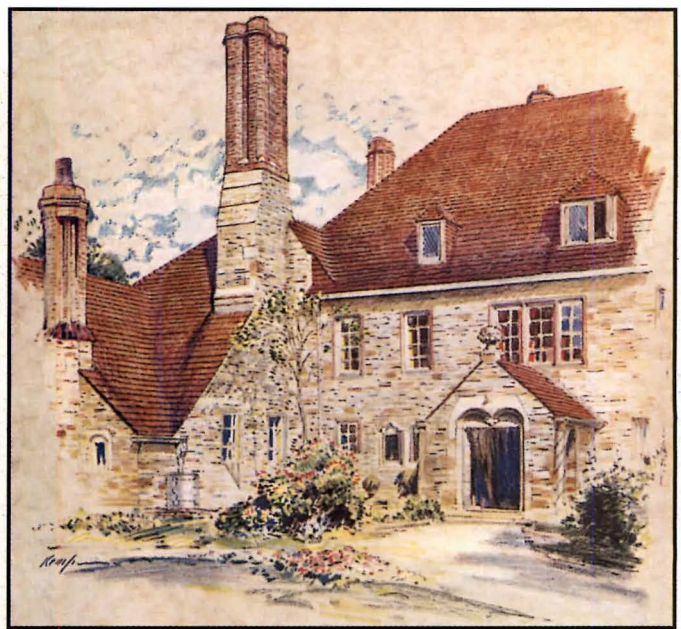
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San Diego Affordable Housing Competition

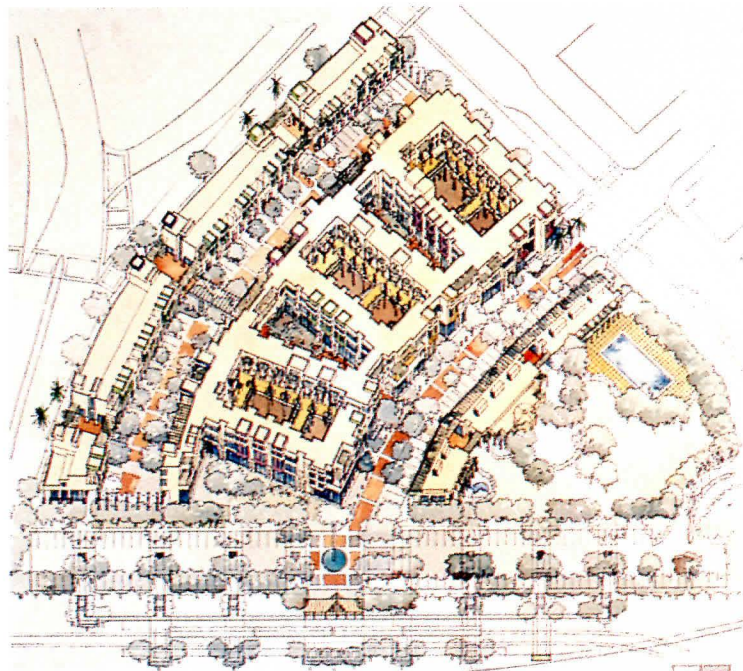
The involvement of young architects in the problem of affordable housing goes back 70 years to socially oriented Modern architects of the 1920s such as Ernst May, Otto Haesler, and Walter Gropius. Judging from the entries in a recent affordable housing design competition for two sites in San Diego, architects in the 1990s are no less altruistic. The competition, which was held last December and sponsored by the San Diego Housing Commission and other city agencies, was won by San Francisco architects Michael Pyatok and David Tritt.

The winners' 160-unit scheme for a 5.5-acre plot close to mass transit in Linda Vista, an ethnically diverse, middle-income San Diego neighborhood, organized the main building around five large court-

yards to supply natural light, fresh air, and pleasing views. Along a busy street frontage, Pyatok and Tritt proposed a separate strip of apartments over ground-floor retail. At the back of the wedge-shaped site, the architects placed recreation and child-care centers and a community meeting hall next to a 1.2-acre park. One level of underground parking might have stretched the \$60-per-square-foot construction budget specified by competition guidelines, but Pyatok and Tritt achieved overall economy with modular placement of wood-frame panelized bearing walls, few unit types, and repetition of kitchens and baths. Their elevations convey a vaguely Schindlerian esthetic, with trellises shading top-level balconies and cubes of gridded windows popping out from flat facades of stucco.

For their winning entry, Pyatok and Tritt won \$10,000, while architect Laura du Charme Conboy and the team of James Brown and Jonathan Linton, all San Diegans, each received \$3,000 for second-place entries. Honorable mentions went to Studio E Architects of San Diego, Vishva Priya of Ahuja Priya Architects with Ken Smith Landscape, both of New York City, and Los Angeles architect and ARCHITECTURE contributor Judith Sheine, with designer Ali Barar.

Du Charme Conboy's design for a 1.8-acre site in the upscale San Diego beachfront community of La



FIRST PRIZE: Pyatok/Tritt's courtyard plan grew from the city grid.

REQUEST FOR PROPOSAL URBAN-DESIGN CONSULTANT

The Coordination Committee directing the study for the improvement of the Woodrow Wilson Bridge is seeking expressions of interest from consulting firms to work with the sponsoring agencies, state and local governments, and the public to examine urban design concepts which could offer creative approaches to urban/ environmental enhancements on the portion of the Capital Beltway/I-95 crossing of the Potomac River as identified in the Woodrow Wilson Bridge Draft Environmental Impact Statement (DEIS). The DEIS was circulated for review and comment in September 1991 and a preferred alternative has not been identified. The Coordination Committee consists of the Federal Highway Administration (FHWA), the Maryland State Highway Administration (MDSHA), the Virginia Department of Transportation (VDOT), the Washington D.C. Department of Public Works (DCDPW) and representatives of the National Park Service (NPS), the City of Alexandria, Prince George's County and the Transportation Planning Board (Metropolitan Planning Organization).

Development of these possible enhancement concepts will require an understanding of the character, nature and history of the project area, particularly in and around the City of Alexandria. Transportation improvements in the study corridor could impact historic districts, parks and housing. The objective of the Urban Design Contract is to evaluate existing DEIS options and possible revisions and to develop creative, yet practicable, urban design options that are responsive to local values and concerns.

The consultant staff must have a knowledge of, and prior experience in, architectural history, urban design, urban planning, landscape architecture and transportation design including multi-modal concepts. The consultant must demonstrate previous project experience which required extensive public interaction and presentation skills in order to resolve complex transportation related urban design issues. In addition to extensive coordination with the affected localities, the consultant will be required to provide advice and guidance to the Coordination Committee on landscape and multiple use opportunities and integrate the results with the continuing EIS process as appropriate. The ability to produce perspective sketches, renderings and models which depict the enhancement concepts will also be a requirement for consideration. The firm must maintain an office in the City of Alexandria during the study. Short-listed firms may be required to attend a retreat organized by the Coordination Committee.

To demonstrate capability for performing the required services, interested firms must reply with nine copies of qualifications, past experience and samples of brochures, materials, etc. which support previous efforts of a similar nature. Information must also be furnished indicating the identification of subcontractors, the relationships with any other consulting firms and the anticipated disadvantaged or women-owned business enterprise participation. Replies must include current GSA Forms 254 and 255 with information on all professional level personnel who would be assigned to the project, including similar information on subcontractor personnel. Replies should be sent to Mr. Kenneth E. Wilkinson, Contract Officer, Environmental Division, Virginia Department of Transportation, 1401 East Broad Street, Richmond, Virginia 23219.

The selection of a consultant and management of the contract will be done jointly by the Coordination Committee using the Virginia Department of Transportation procurement procedures. The contract will be administered by VDOT.

Submissions must be received no later than 4:00 p.m. February 26, 1993. The Virginia Department of Transportation assures compliance with Title VI requirements of nondiscrimination for all activities pursuant to this advertisement.



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SECOND PRIZE: Du Charme Conboy's scheme for La Jolla recalls residential architecture of Irving Gill.

Jolla consists of 27 units grouped in spare stucco cubes and is highly reminiscent of the work of Irving Gill, San Diego's primary early Modernist. Du Charme Conboy's proposal has won approval from community leaders in La Jolla and sparked the interest of at least one San Diego developer. Acceptance of her Gill-influenced design underscores a reality of low-income housing development in the United States: inventive architecture is less likely to win the support of conservative community leaders, politicians, bankers, and developers. Fifty-seven years after his death, Gill is revered in La Jolla by architects and citizens

alike. The interested developer was more impressed with the economy and "political correctness" of du Charme Conboy's design than with other, more progressive schemes. He pronounced the Pyatok/Tritt proposal, with its underground parking and elaborate facades, far too pricey.

Brown and Linton clustered small, three-story stucco buildings with vaulted roofs toward the back of the Linda Vista site. Two towers serve as orienting landmarks, along with a central plaza including a pool beneath a wooden trellis. Corners are anchored by a child-care center and café. The contest and two-week exhibition of the 77 entries drummed up

media coverage, as the sponsoring commission hoped it would, that could help improve low-cost housing's public image. But instead of enlightening the public, the commission should be producing more well-designed, low-cost housing in diverse neighborhoods.

Building any one of these winning proposals, even du Charme Conboy's conservative design, could go a long way toward enhancing the reputation of the commission and of low-cost housing in San Diego. But the commission is not taking a leading role in trying to build any of them, and that comes

as no surprise to grand-prize winners Tritt and Pyatok. Tritt has worked in affordable housing for 20 years and designed a half-dozen projects, none of which has been built. Pyatok has won six affordable housing competitions, but only one of these designs has been realized.

Jurors for the competition included San Francisco architect and planner Peter Calthorpe and San Francisco architect Donald MacDonald. The San Diego Housing Commission is preparing a workbook on affordable housing that should be available by summer. Call (619)-525-3610 for information.

—Dirk Sutro

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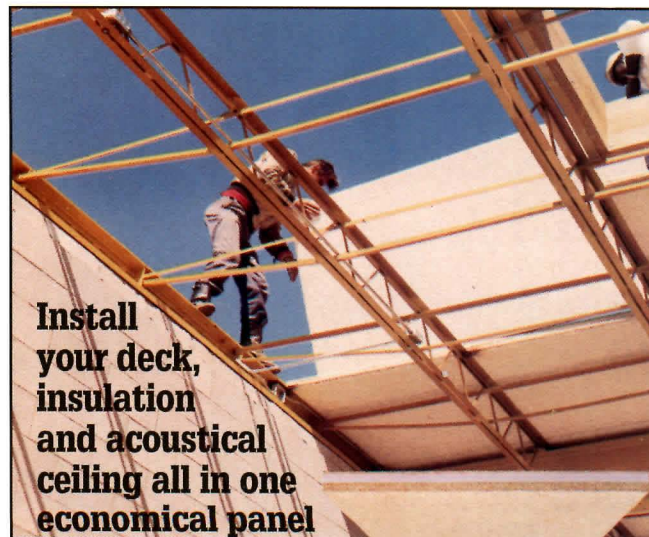
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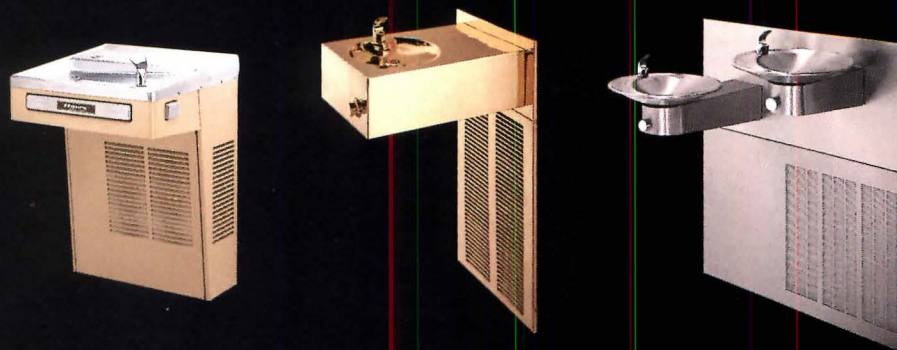
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On the Boards

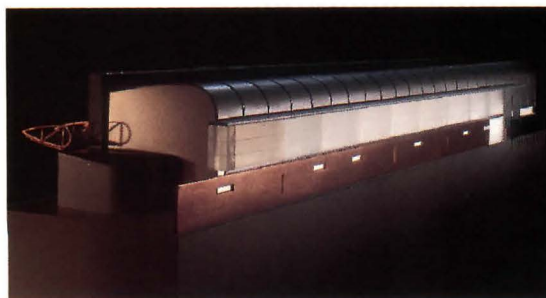
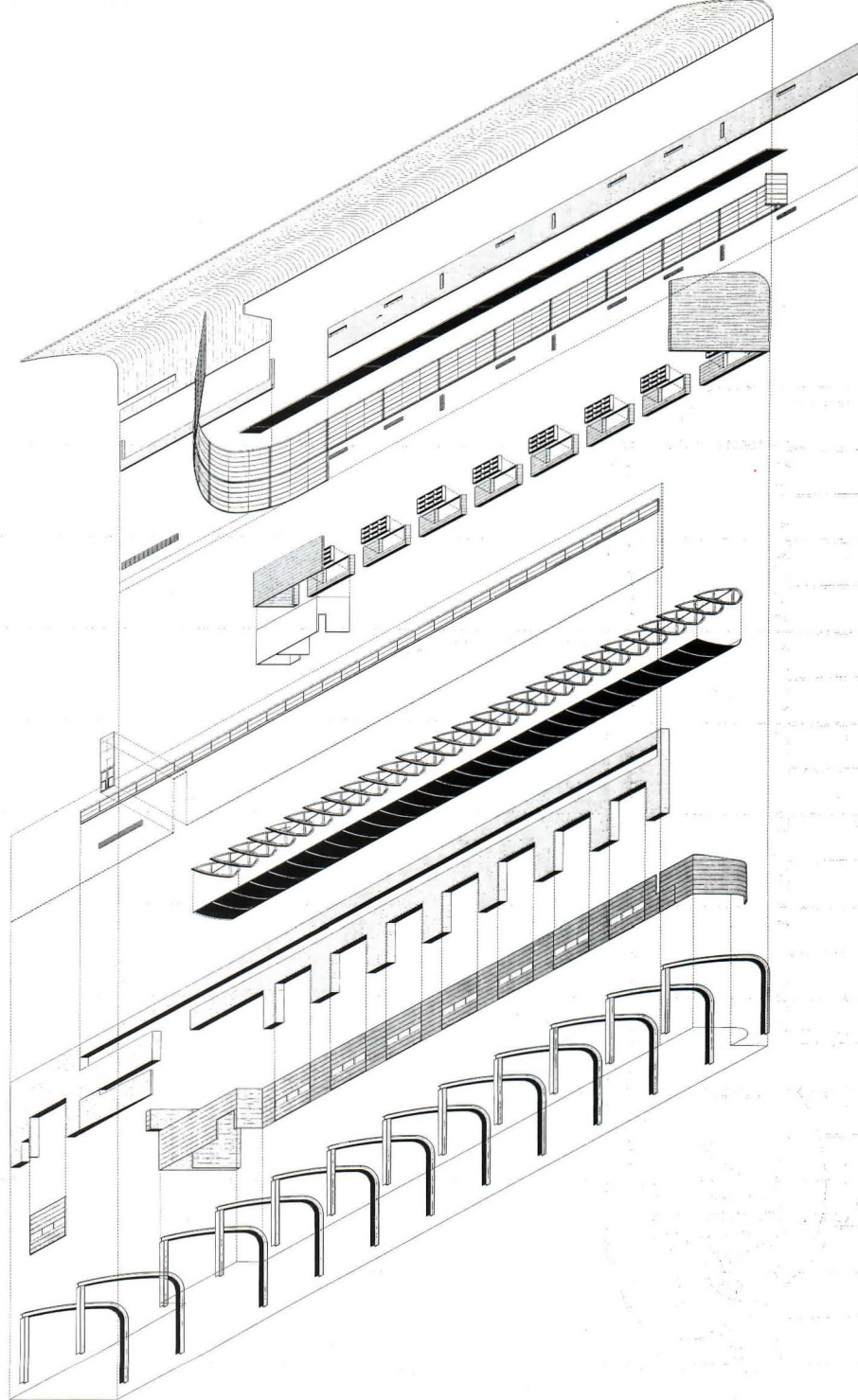
Fleet Repair Building Los Angeles Department of Water and Power Central Distribution Headquarters Ellerbe Becket, Architects

A 19,000-square-foot garage for repairing service trucks and a 12,000-square-foot shed for storing them have been designed by Ellerbe Becket Design Principal Mehrdad Yazdani for the Los Angeles Department of Water and Power. The new structures, arranged around an outdoor storage yard, are located to the west of the administrative headquarters and warehouse completed by Ellerbe Becket's Los Angeles office last year (pages 68-75, this issue) and the firm's four-story parking garage erected in 1989.

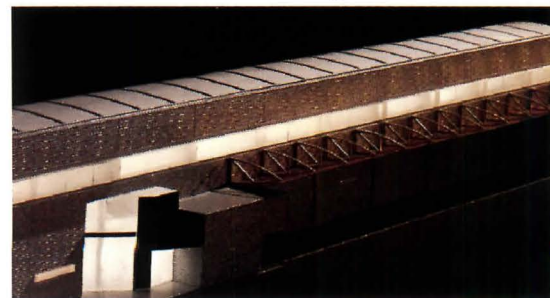
To distinguish the buildings from the volumetrically composed office structure, Yazdani developed a series of steel, glass, concrete, and copper planes that define the orthogonal structures. For the truck repair building, he devised a translucent glass and concrete block wall that spans Maple Street, cuts through the building mass to encircle a lunchroom, and emerges at the main entrance to the east. Truck bays along the east facade are clad in corrugated steel siding and topped by a steel canopy that recalls the cantilevered overhang of the administration building's south facade.

Yazdani distinguished the L-shaped parking shed with a semicircular volume housing security functions. Wrapped in perforated metal screens and branded with the department's initials, this form echoes the cylindrical conference and electrical rooms of the administrative headquarters across the street.

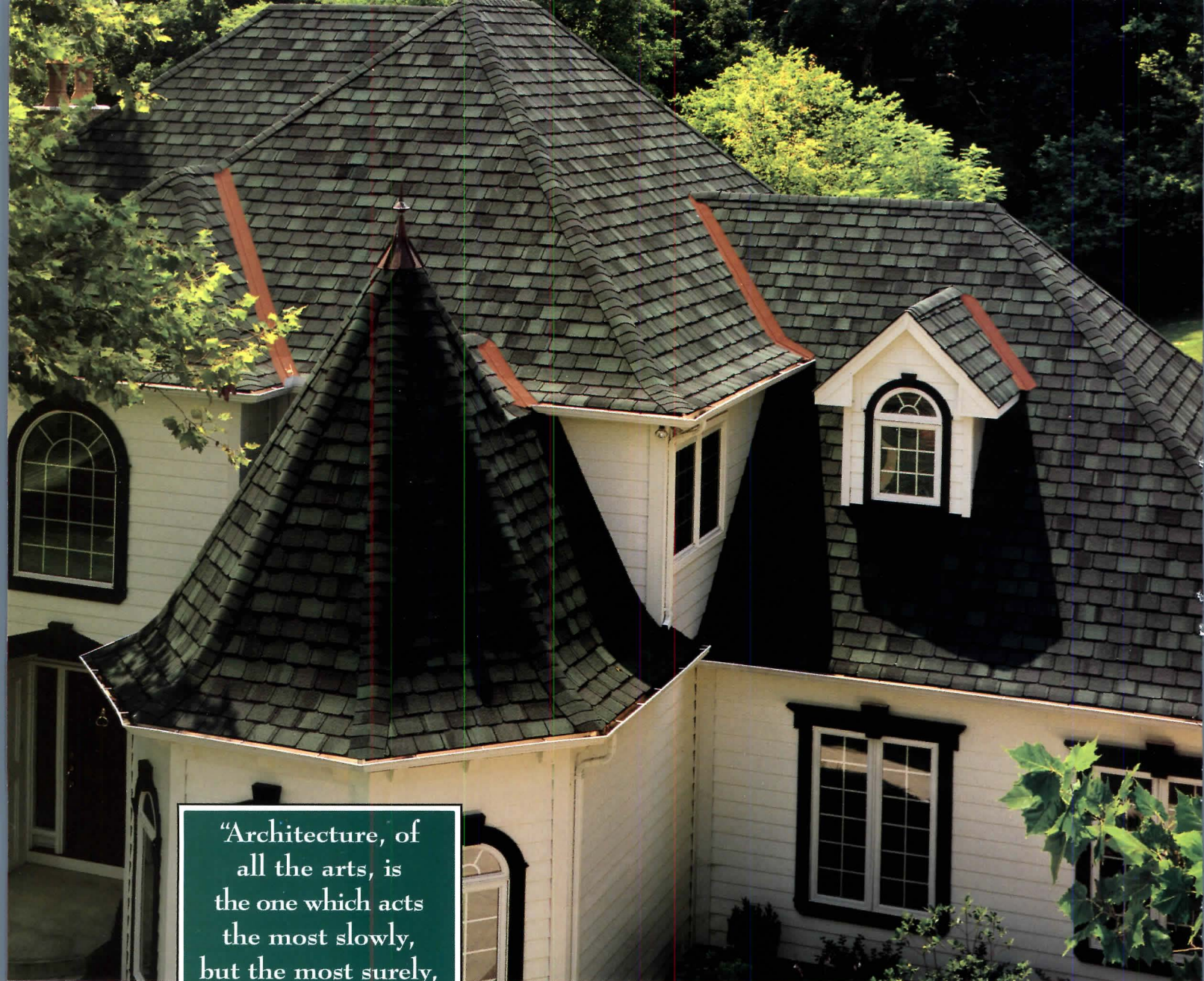
Together, the two rounded volumes act as a gateway to the Department of Water and Power complex. The copper-roofed structures, on which construction will begin this month, will be completed in December.



WEST ELEVATION: Glass block brightens repair areas.



EAST ELEVATION: Steel canopy shelters truck bays.



“Architecture, of
all the arts, is
the one which acts
the most slowly,
but the most surely,
on the soul.”

—Ernest Dimnet

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Dictating Design

As control of architectural design by public design review boards becomes commonplace, the judging process must be clarified through more flexible guidelines.

For the past two decades, the American public has been extending its fight against bad air and dirty water to the preservation of the nation's historic buildings and urban districts. Legally mandated design review, empowered by state constitutions or city charters, is one of the most effective strategies by which a community can accomplish these goals. Design review is typically conducted by preservation, planning, or arts boards or commissions, whose members are appointed by mayors or city councils. The size, makeup, and members' tenure of these bodies vary widely across the nation. Some appointed boards include retired architects who are still active in community life. (Most architects engaged in active practice decline to serve because of potential conflicts of interest.) Such commissions or boards may also include landscape architects, lawyers, developers, architectural historians, preservationists, and laypersons.

Design guidelines

Design review tends to be discretionary, allowing a review board to apply a fairly broad and flexible set of criteria (including such open-ended concepts as "context" and "appropriateness") in making its judgments. Increasing use, however, is being made of architectural or historic preservation design guidelines. Such guidelines coexist with, but are usually not a part of, zoning regulations. Where zoning determines building uses, heights, and bulk in a given district, guidelines for a historic landmark neighborhood within the district govern such matters as appropriate height and massing for a new structure or addition, based on the architectural and historic context. Such guidelines may include mandatory floor-to-floor heights, a specified number of stories, and replication of existing ornament. They often call for specific color palettes, building materials, and window and door types.

Once formulated, such guidelines usually have no separate legal sanction and can only carry the force of law if they are part of a zoning ordinance. Guidelines may, however, hold the equivalent of legal force. For example, when a city owns public land and transfers it to a developer, it can impose guidelines written into the deed, or as part of the agreement that accompanies the sale. Or a town or

city can establish a special zoning district, in which guidelines and regulations supersede those of the zoning ordinance. By setting forth a design language to be shared by all parties involved in design review, guidelines are intended to make the process less arbitrary and subjective on the part of the reviewers, and thereby more fair to architects and developers seeking approvals. Whatever the merits and demerits of guidelines, combining them with review is gradually becoming more widespread. And across the United States, design review, with or without guidelines, is being increasingly imposed on not only historic buildings and districts but on ordinary development projects.

Design review conference

Professors Brenda C. Lightner and Wolfgang F. E. Preiser of the University of Cincinnati's School of Planning are engaged in a major study of the interrelationships between design review and design guidelines; they conducted an international symposium on the subject in Cincinnati last October. Design professionals and preservationists from the U.S., Germany, Great Britain, Australia, Switzerland, Denmark, India, and South Africa presented their own local design guideline strategies, ranging from the regulation of renewal in historic neighborhoods to the preservation of entire towns.

For all its public and professional support, design review is not popular among architects whose schemes are subjected to it. Lightner charges that "design review rewards ordinary performance and discourages extraordinary performance. Designers adhere to the range of acceptability held by particular reviewers, and therefore rarely waste their clients' time proposing something original or exceptional." Review board or commission members are rightly accused, she contends, of applying highly subjective and arbitrary esthetic criteria in a manner that exceeds their mandate. When this occurs, architects are without bargaining power, and have little recourse but to accept the changes design reviewers impose, largely because it is in their clients' interest to get through the review process quickly. Lightner reports that a survey she and Preiser recently conducted reveals that many architects find design review an inordinate and uncon-



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scionable waste of time, requiring revisions at the behest of capricious, ill-informed, politically appointed laypersons, along with professionals biased against the architect's particular style.

Survey results

Of the 170 firms that responded to survey, more than half reported that between 50 percent and 100 percent of their projects undergo design review. To achieve approvals, architects report that they must frequently alter materials, colors, and landscape design. They are less frequently required to make changes in massing or facade details. Overall, 25 percent of the respondents believe their designs to be strongly influenced by design review, while 55 percent think their work is somewhat influenced. Less than 23 percent believe their projects are substantially improved by design review, while 30 percent report that design review does not significantly affect the quality of their work. An unhappy 9.7 percent believe their work is weakened by the process. Although 25.2 percent of the respondents find design review petty, meddling, and useless, 15.1 percent find it time-consuming but worth it. Only 3.1 percent admit that design review has helped them do a better job.

Stylistic favoritism

A famous case in point is the AIA's 1967 decision to expand its national headquarters in Washington from the Octagon, a historic 18th-century house protected by the Washington Fine Arts Commission, to a new building. The AIA held a competition, and Mitchell/Giurgola Architects won. The winning design, while too early to be considered Postmodern, was a radical break from the Modernist canon. The Fine Arts Commission, strongly influenced by its most powerful member, Modernist Gordon Bunshaft of Skidmore, Owings & Merrill, turned it down. Mitchell/Giurgola's subsequent revisions were also rejected, and the firm finally gave up and resigned. The Architects Collaborative was chosen and produced a Modernist design that met commission approval. In this instance, the Fine Arts Commission imposed a highly dubious esthetic judgment favoring one stylistic approach over another, and disregarded the rejected proposal's intrinsic merit. Such travesties of design review continue to be an unfortunate part of the process, most of the time without architectural stars as players.

Nevertheless, design review, along with some form of guidelines, appears to be here to stay. Among its applications, the process is best suited to historic districts. Historic preservation has a defensible ethic, since older landmarks and districts are fragile and need protection. They are a valuable resource. What is built in them, or in their vicinity, should be publicly discussed and controlled. Furthermore, historic preservation has its own history

and established practice, with methodologies developed over the years by the National Trust for Historic Preservation, the World Monuments Fund, the Venice Charter, and the Department of the Interior, as well as by local laws and guidelines.

But the general dissatisfaction expressed by so many of the Cincinnati conference participants suggests that further study and refinement of the design review process is overdue. More and more cities and towns in the United States will be setting up legally mandated design review boards. However, because design guidelines cramp their discretion, it is unlikely that these new boards will be excessively encumbered by them. The lack of guidelines is tough on architects and owners because it leaves them in the dark as to how to get their projects approved, and forces them to rely substantially upon the often inconsistent verbal critiques they receive during the review process.

Recommendations for design review

Guidelines properly belong in zoning ordinances, but zoning, unfortunately, is devised by lawyers, rather than by architects or urban designers. Zoning governs use, density, bulk, setbacks, and other mathematical concerns, but cannot regulate the layer of urban design that must be in place before good architecture can occur, the layer that distinguishes the public from the private—walls, fences, concerns of light, shadow, and open space. Zoning is abstract, architecture is visceral. Zoning ordinances without adequate urban design modifications written into them produce a blank box. Architecture can only put a facade on the box. Then the public, if negatively aroused by the project's size and bulk, or even by its style, brings pressure to bear on the design review board to reject it, and the board usually obliges on the grounds of lack of "appropriateness."

It is clear, then, that some form of guidelines must be incorporated into the design review process. Design review without guidelines will never bring about the successful public environments to which citizens have a right. On the other hand, if design review responds to guidelines that become so specific as to deny all invention, and call for the architect to conform to the average of the average, the public will never get buildings or places that are wonderful deviations from the commonplace. New York City, for example, would have no Guggenheim Museum, no Chrysler Building, no Whitney Museum, no Empire State Building. Furthermore, design review boards, in their discretion, should not defer to citizen activists every time. Sometimes, in their conservatism, preservationists are wrong. After all, the Eiffel Tower was built in spite of the Parisians, who at the time it was proposed, hated it with all their hearts.

—Mildred F. Schmertz

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Civic Duty

This month's issue demonstrates how government buildings can dignify American cities and towns.



MICHAEL PEDERSEN

Government buildings—particularly those erected with taxpayers' dollars—should symbolize public aspirations. And yet, rather than lifting the public spirit with monumental design, many civic buildings have instead turned out to be monumental failures. Today, with the recession-induced slow-down in private office construction, many more architects are turning to publicly funded projects. As a result, heretofore perfunctory buildings are being designed with an eye toward beauty, comfort, and practicality, and civic pride is being restored across the country. And, following the recent inaugural festivities in Washington, D.C., this issue reflects both the kind of design and renewed national pride that the Clinton Administration should foster.

A blend of Classicism and Modernism may sound like a contradictory hybrid, but the mix is deftly handled in Edward Larrabee Barnes/John M. Y. Lee & Partners' Federal Judiciary Building in Washington, D.C. This new office building completes a triumvirate that includes Daniel Burnham's United States Post Office and Union Station, and should be a prototype for government buildings, bringing a note of dignity to a reviving neighborhood. Another federal project, the Federal Reserve Bank in Dallas, by Kohn Pedersen Fox Associates, elevates a freeway corridor with unabashed Modernist flair. And with a nod to Colonial Virginia, Chicago architect Hanno Weber renders his Leesburg Government Center (left) with contemporary twists on historic elements and open spaces that integrate the red-brick complex into its small-town site.

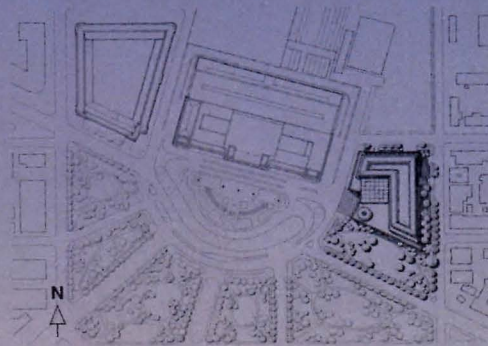
The most prominent new trend for civic architecture is environmental sensitivity. The Leonard Parker Associates' Washington State Labor and Industries Building applies new standards for indoor air quality and boasts enviably low power consumption levels. In Los Angeles, a pair of headquarters for a city utility by Ellerbe Becket introduces spirited design into an industrial context. Moreover, the new structures stand in bold contrast to the energy-squandering glass curtain wall and decorative fountain of L.A.'s 1963 Water and Power Department Building.

Finally, two articles in our practice section examine how an overburdened judicial system is soliciting the aid of architects to improve courthouse design and modernize crowded correctional centers. With \$5 billion appropriated for new federal courthouse construction and \$4.2 billion for new jails, architects may be crafting high quality government buildings for a long time to come.

Federal Judiciary Building
Washington, D.C.
Edward Larrabee Barnes/
John M. Y. Lee & Partners

FEDERAL STYLE





THESE PAGES: Barnes/Lee's Federal Judiciary Building flanks Daniel Burnham's Union Station to the east. Instead of replicating Burnham's elaborate Classical ornamentation, Barnes developed a massive granite building articulated with similar column proportions and shadows of comparable depth.

SITE PLAN: The building's C-shaped footprint opens up to embrace Columbus Circle, strengthening the connection to Union Station and to Burnham's United States Post Office, situated to the west.

LEFT: To accentuate this visual linkage, Barnes inserted a 60-foot-high wall of glass to announce the Judiciary building's main entrance.





TOP: The Judiciary building's glazed entrance wall sharply contrasts with its granite structure; a forecourt outfitted with 6-by-8-foot granite pavers accentuates the main approach to the complex.

ABOVE: A stone-clad dome shielding rooftop mechanical equipment anchors the building's southeast corner. On the south elevation, the architect followed the angle of Massachusetts Avenue but set the building back 180 feet to create a landscaped park.

FACING PAGE: The building's construction schedule and the quantity of stone required for the 1 million-square-foot structure precluded specifying an almost-white granite similar to Union Station's. Instead, the architects selected Chelmsford gray granite with rich veining that provides a slight relief in the frieze and subtly articulates the unadorned columns.

In a city where politics tends to overshadow architecture, Edward Larrabee Barnes/John M.Y. Lee & Partners has created an arresting building that stands up to its monumental neighbors. The new Federal Judiciary Building on Capitol Hill, though designed by a New York City firm, clearly sympathizes with the prevailing Neoclassicism of Washington, D.C. And in a time of architectural *laissez-faire*, Barnes' design embodies the old-fashioned values of heroic scale, weighty massing, structural integrity, and rigorous detailing.

Barnes/Lee won a design-build competition for the building four years ago over Skidmore, Owings & Merrill; Kohn Pedersen Fox Associates; Kevin Roche John Dinkeloo & Associates; and I.M. Pei & Partners. Last September, the building was dedicated after what seemed to be an exceptionally quick design and construction process, considering the prominent location and complexity of the 1 million-square-foot project. In fact, the Federal Judiciary Building culminates a history of schemes for the site.

In 1902, Daniel Burnham first proposed a building for the site under the auspices of the Senate-appointed McMillan Commission, which was charged with recapturing the clarity of L'Enfant's 18th-century plan for the capital city. Burnham actually suggested three major buildings to define the northern boundary of Capitol Hill. Two of them, his Beaux-Arts Union Station and United States Post Office to the west, were built. But for 80 years, the third parcel to the east sat empty, until the Barnes/Lee building completed Burnham's tripartite composition.

The arcing path of Massachusetts Avenue and the raking geometry of Columbus Circle define the trapezoidal site. "We wanted to avoid the building mass as a doughnut," notes project architect Michael Barratt. "A doughnut footprint, although similar to Burnham's Post Office, would have diminished the connection, visually and spatially, between our building and Union Station." As

a result, the architects developed a C-shaped configuration that addresses Columbus Circle.

While Union Station is primarily a load-bearing structure, the Federal Judiciary Building is essentially a skeletal frame clad in Chelmsford gray granite. To make the building appear sufficiently weighty, Barnes specified stones from 3 to 8 inches thick and utilized 16-inch-thick bases and capitals for his expressed columns. To echo the rhythm and scale of Union Station, Barnes articulated the 325-foot-long elevation fronting Massachusetts Avenue with 13 arched openings. Each massive archway is enlivened by a three-story keyhole motif: a pair of floor-to-ceiling windows capped by a semicircular light. This tripartite window assembly corresponds to the height of Barnes' unadorned columns defining the south elevation, while a horizontal band of glazing on the fourth floor aligns with a stone frieze on the Post Office to the west. "Rather than repeat the detailing or ornament of the historic structures in a paper-thin curtain wall technology," Barratt explains, "we assembled primary volumes and created shadows that recall the massing of Burnham's station."

To avoid the appearance of stacked, fully setback floors, the architects detailed the seventh floor with a horizontal band of bronze glass and a copper spandrel panel to make what is actually the penthouse appear to be part of the roof. Although Barnes' original competition scheme called for a building 94 feet tall, piercing Washington's height limit of 80 feet, the new building was kept below the height limit in response to protests by local preservationists and Capitol Hill residents. Barnes echoed the roof detailing of the Post Office with the same offset jointing pattern and batten dimensions, and crowned his structure with a panelized coping. Rather than applying acid to hurry the weathering process, Barnes is allowing the roofs to turn green naturally. "The building will be around for 200 years," Barratt asserts. "We can wait 20 years for nature to take its course."

The rear of the Judiciary building faces





TOP: To create continuity with Union Station, the architects emphasized the mass of stone panels, deep shadows, and arched openings. Barnes aligned one of the “keyhole” windows of the west facade with the station’s ornate colonnade.

ABOVE: Along the east facade, the building assumes a decidedly more Modern stance. To create a transition from Neoclassical to minimalist articulation, the architect developed a strong base and continued the line of the architrave in an abstracted composition of punched windows within a screen wall.

FACING PAGE: Monumental south elevation fronts a new park that sits atop underground parking.

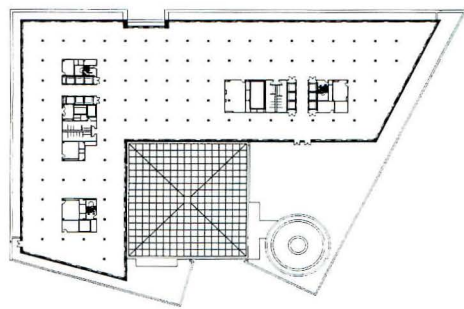




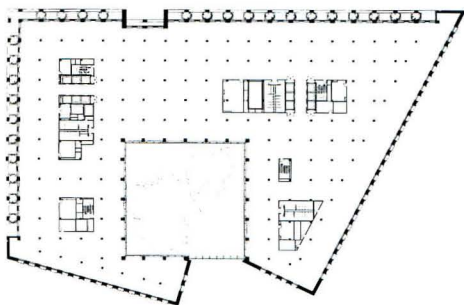




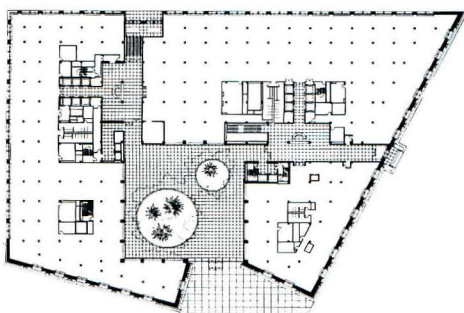
THESE PAGES: The atrium appears as a freestanding glass cube within the massive granite structure, housing a pair of asymmetrically placed stands of bamboo. **TOP:** Floor-to-ceiling windows, detailed with a horizontal ceramic frit, screen views from atrium into five levels of perimeter offices that surround central court. **ABOVE:** Atrium is constructed of a space frame comprising stainless steel plates bolted through glass panels. Skylight's laminated glazing creates faceted, transparent roof pyramids. Glazed entrance wall is supported with planar fittings bolted through the glass and attached to steel plates between structural glass fins.



SIXTH FLOOR PLAN



FIFTH FLOOR PLAN



FIRST FLOOR PLAN

PLANS: Barnes organized the atrium-centered building with an elevator lobby in each wing.

FACING PAGE, TOP LEFT AND BOTTOM: Oldham & Seltz designed all nonceremonial interiors, including a below-grade conference area with meeting rooms opening off a broad corridor and a 250-seat auditorium.

FACING PAGE, TOP RIGHT: To shield work spaces surrounding the atrium, Barnes varied the density of horizontal frits within glazed openings. He widened the pattern at eye level to accentuate outward views, but intensified the pattern at the ceiling and floor to mask mechanical equipment and lighting. Fourth-floor library offers views through the top of the atrium's bamboo.

low-scale commercial structures, 19th-century townhouses, and a proposed office building. With Burnham's station out of view and no longer setting the tone for the new structure, Barnes rendered the north and east elevations in his signature 'Modernist planes.' "It seemed much too ponderous to go the whole way around with the same scale," Barnes maintains. He composed the lower three stories of floor-to-ceiling glass and recessed the upper floors behind a stone screen wall.

It is the Massachusetts and Columbus Circle elevations, however, that define this building as a part of Washington. Barnes' adoption of Paul Philippe Cret's "starved Classicism" seems appropriate for the 1990s. Like Cret, who more than 50 years ago provided the capital with such landmarks as the Folger Shakespeare Library and the Federal Reserve, Barnes designed restrained volumes. In the Judiciary building, this design philosophy has been translated into vertical fenestration, planar walls, and stripped columns.

But unlike Cret, who created ornate and opulent interiors, Barnes has designed a building that adheres to modern interior planning. He tucked the heavy, C-shaped west elevation inward at complementary angles of 63 and 27 degrees and inserted a towering wall of glass that serves as the primary entrance and opens into a dramatic, 50-foot-high atrium. Contrasting completely with the weight and mass of the granite, Barnes' atrium appears as weightless and transparent as gravity will allow. The walls are clad floor to ceiling with ceramic fritted glass, but a dense, horizontal pattern at the top of the atrium masks the view from surrounding individual work spaces. The almost cube-shaped space is crowned with a stainless-steel frame covered in glass.

Barnes' hand extends throughout the main public spaces; Washington architects Oldham & Seltz designed the remaining interiors. The new headquarters of the federal government's judicial branch contains no courtrooms, but houses a conference area and 250-seat auditorium in the basement, three

office suites for retired Supreme Court justices, work spaces for another 1,200 employees, and parking for 800 cars.

If the Judiciary building does not break new stylistic ground, it sets a precedent for federal construction: the \$105 million complex was built at no initial cost to taxpayers. At the building's dedication, Senator Daniel Patrick Moynihan (D-N.Y.), who supported legislation authorizing the funding of the project, stated, "One of the engaging features of the American experiment . . . is the counterpoint between our insistent association with classical republican forms of government, and equal insistence that ours is indeed a wholly 'new order of the ages,' as is proclaimed on our Great Seal." And perhaps this building that deftly marries classically inspired iconography with Modern functionalism presages something else: an era in which the federal government transcends petty political agendas and embraces long-term investment in improving the public realm.

—Lynn Nesmith

**FEDERAL JUDICIARY BUILDING
WASHINGTON, D.C.**

CLIENT: The Architect of the Capitol

DEVELOPER: Boston Properties

ARCHITECT: Edward Larrabee Barnes/John M.Y. Lee & Partners, New York City—John M.Y. Lee (partner-in-charge); Michael Barratt (project architect); Todd Achelpohl, Steve Chan, Susan Chisholm, Nancy Geng, Heng-Choong Leong, Peter Morgan, Gisela Schaefer, Timothy Waters, Takamori Yamazaki (project team)

LANDSCAPE ARCHITECT: Jack Curtis & Associates

ENGINEERS: James Madison Curtis (structural); Shefferman & Bigelson Company (mechanical/electrical/plumbing); Associated Engineers (civil)

CONSULTANTS: Oldham & Seltz (interiors); Fisher Marantz Renfro Stone (lighting); Chermayeff & Geismar (graphics); John A. Van Deusen & Associates (elevators); Specifications Associates (specifications)

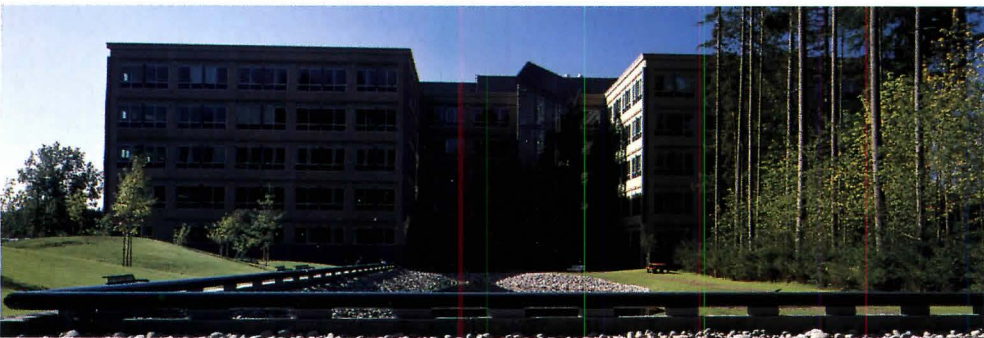
CONSTRUCTION MANAGER: Charles H. Tompkins Company

COST: \$105 million

PHOTOGRAPHER: Jeff Goldberg/Esto, except as noted



PUBLIC HEALTH



TOP: From left, Labor and Industries Building is divided into a two-story conference and dining wing, a conical entrance rotunda, and a five-story office block.

CENTER: Park in foreground is designated for Labor and Industries employees entering from parking lot.

ABOVE: Building will be expanded in future from north elevation of office block, with glass-enclosed stairwell and light shaft.

FACING PAGE: Conical rotunda is enclosed by glass on its southeast facade, where public enters. Curving steel canopy shelters sidewalk.

In this age of taxpayer revolt, budget austerity, and deficit consciousness, government buildings have become a messy, ambiguous symbol of our democratic ideals. Monumental grandeur is out of favor, and authority must be balanced by accessibility. After all, our government is of, by, and for the people, and most believe that buildings paid for with tax dollars should not overwhelm or intimidate the public.

Creating architecture that conveys this message is quite a challenge. The new Washington State Labor and Industries Building, designed by Minneapolis-based The Leonard Parker Associates (TLPA) on a site in Tumwater, Washington (a few miles south of the state capital in Olympia), meets the challenge by creating a sense of authority without monumentality. Site sensitive, energy efficient, and a model of the healthy workplace, the new 425,000-square-foot structure sets a positive example for the private sector. Above all, the building is accessible, welcoming the public while providing superior working conditions for the more than 1,700 state employees who occupy it daily.

TLPA's design is even more remarkable given that the Tumwater project was constructed on a design-build basis under the supervision of Opus Corporation, a Minneapolis general contractor. Leonard Parker speaks for most architects when he criticizes contractor-led design-build because it "limits architects' access to the client, and as a result the sense of shared values can be lost"; but in the case of the Labor and Industries Building, Parker notes that an "unusually sympathetic" builder made the process work. "We had our disagreements," Parker says, "but Opus' standards were high."

The project began with a limited competition that required each entrant to propose ways of preventing sick-building syndrome. Other, more typical issues included siting on 35 wooded acres adjacent to a freeway, parking for 1,700 cars, and programming for workers from agencies formerly dispersed in



BELOW: Two-story wing housing conference rooms and cafeteria terminates in sharp angle. Stairs provide access to outdoor dining patio.

BOTTOM: Angled light shaft and stairwell on rear side of office block allow daylight into building and offer north-facing views.

FACING PAGE: Aluminum-clad back of conference area forms a curved wing, with rotunda and office block visible at left and rear. Entrance at right is for employees.



10 different locations. At the same time, the client felt it was important that the building welcome the public. Several agencies of Labor and Industries deal with people every day, requiring ease of movement through the building, while controlled access was needed for other areas, such as insurance offices.

TLPA's winning proposal began with an intensive in-house charette to develop a response to the issues of siting and parking. The resulting plan divided parking into four irregularly shaped lots located at the four corners of the site, which were then subdivided into parking "rooms" to minimize their impact on the landscape. The architects then created a 310-foot-wide landscaped park zone on the north-south axis, and positioned the building in the center of the zone, with public and employee promenades on a crossing east-west axis leading to the east and west entrances. Both axes are skewed 10 degrees off the perpendicular to create a direct view of Mount Rainier, the dominant geographical element in the region, from the entrance rotunda.

The structure is composed of three distinct yet linked elements, each dedicated to a separate function. Parker calls them the "work place," "entrance place," and "social place." Together, they define an irregularly shaped volume that embraces an entrance courtyard oriented to the southeast. This courtyard is dominated by the central entrance, an asymmetrical glass-and-aluminum rotunda with an exposed interior structure of painted steel. Hinting at the domes of Classical civic buildings, this 4,600-square-foot conical volume reaches 90 feet at its highest point and abstracts the form of the evergreen, an important natural motif in the region. From the beginning, the owners and architects intended the rotunda to serve as a clear, recognizable symbol of the department and the building, and it dominates the visual impression of the complex from its primary, public avenue of approach.

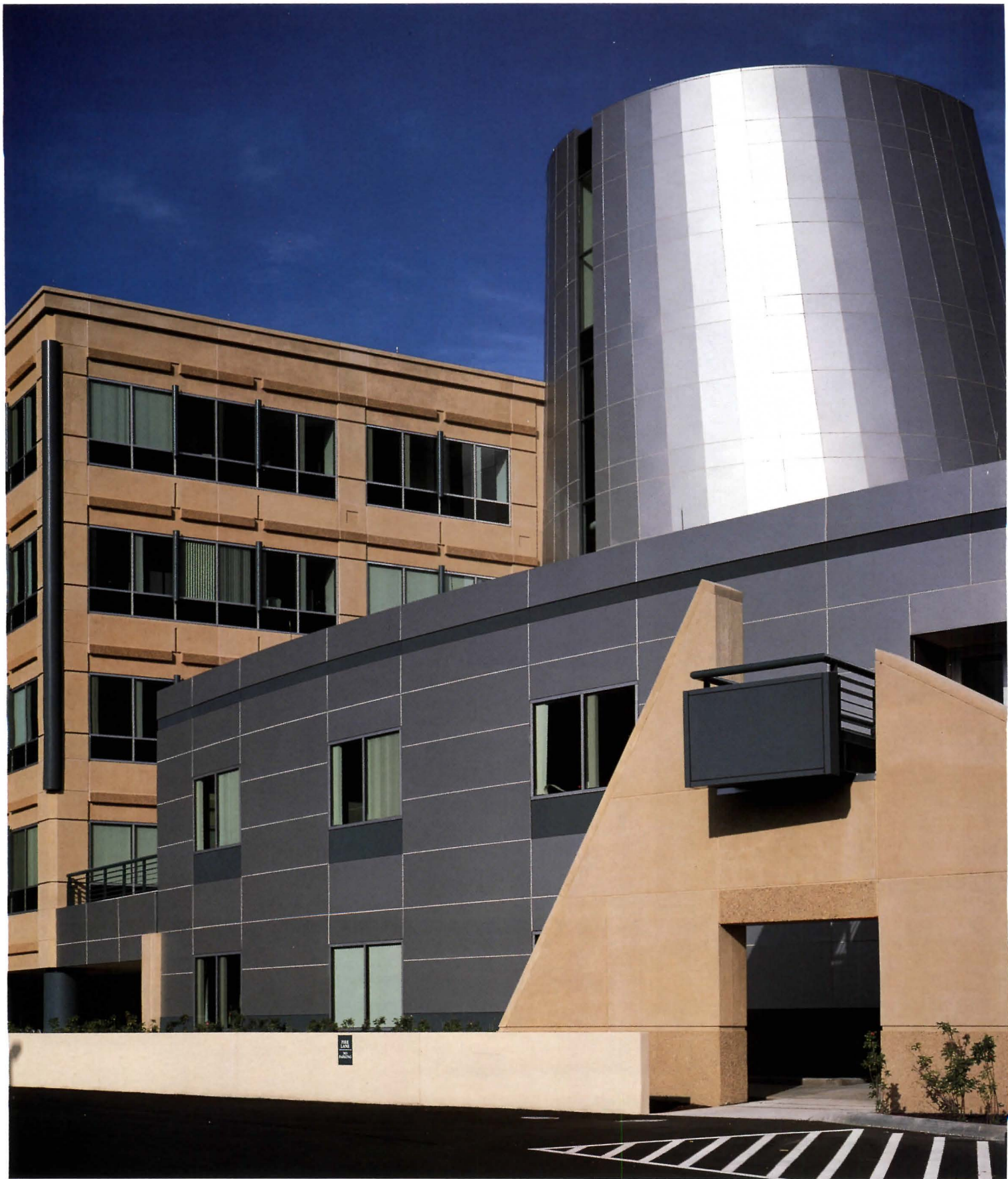
Parker's "work place," a five-story office block linked to the rotunda's northeast side, is

clad in textured, precast concrete, embellished with deep green vertical half-rounds on the window mullions and the building corners. The most powerful architectural element of the office block is a glass stairwell, which leads to the landscaped park on the building's north side. The glass-enclosed light shaft and stairwell may end up under a glass pyramid atrium when the building expands as planned. But for now, the stairwell provides wooded views and enhances the flow of daylight to the interior of the building.

With its aluminum-clad back forming a gentle yet taut arc, the smaller conference and dining pavilion—"the social place"—curves out from the other side of the rotunda. The rectilinear front facade of this wing is also finished in precast, of a slightly paler hue than the office block, with horizontal bands of darker stone anchoring it to the ground at the bottom and forming a decorative band close to the roof line. Vertical glazing alternates with precast columns across the facade of the pavilion, setting up a rhythm not unlike that of a Classical colonnade.

The building's interiors are straightforward, functional spaces, particularly in the utilitarian rectangles of the office block. However, there is more here than meets the eye. The design incorporates state-of-the-art environmental features, successfully solving potential problems such as sick-building syndrome and high energy costs.

Healthy building guidelines were contained in the design-build criteria, and required an extensive range of testing of materials, finishes, and furnishings before, during, and after construction. For example, four furniture manufacturers proposed workstations for four Washington State projects, including the Labor and Industries Building; each was asked by the state to spend \$25,000 to \$30,000 on a complex series of tests conducted at a special Georgia lab. Workstations and carpeting were tested for formaldehyde, airborne particles, and a range of volatile organic chemicals and other carcino-



BELOW: Rotunda is supported by an exposed steel structure and glazing on southeast facade. Vertical slot in aluminum cladding acts as a beacon for passersby.

BOTTOM: Corridor on mezzanine level of rotunda includes decorative terrazzo floor.

PLANS: Building's tripartite form embraces southeastern public approach, creating a sense of accessibility. Curved conference and dining wing to the south is connected to office block by rotunda.

FACING PAGE: Metal-clad column supports balconies on fourth and fifth floors of office block.



**LABOR AND INDUSTRIES BUILDING
TUMWATER, WASHINGTON**

CLIENT: State of Washington

ARCHITECTS: The Leonard Parker Associates, Minneapolis, Minnesota—Leonard S. Parker (design principal); Francis Bulbulian (project manager); Gary Mahaffey, Dave Dimond, Bill Englehardt, Ray Greco (project team); Opus Corporation, Minneapolis, Minnesota—Gerald Rauendhorst (principal-in-charge); John McKenzie (construction manager); David Hunt (assistant construction manager)

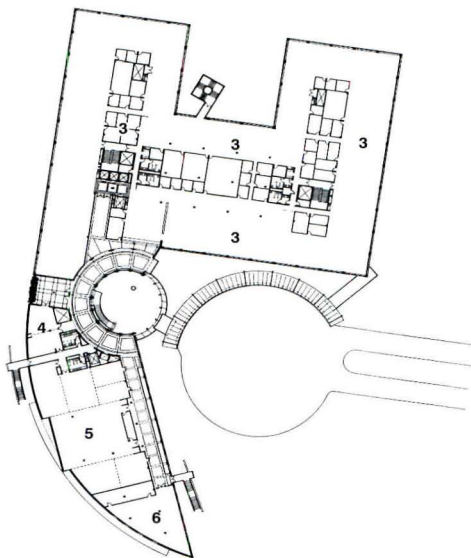
LANDSCAPE ARCHITECT: Charles Wood Associates
ENGINEERS: Opus Corporation (structural/civil); Cosentini Associates (mechanical/electrical)

CONSULTANT: Gensler Associates (interiors)

GENERAL CONTRACTOR: Opus Corporation

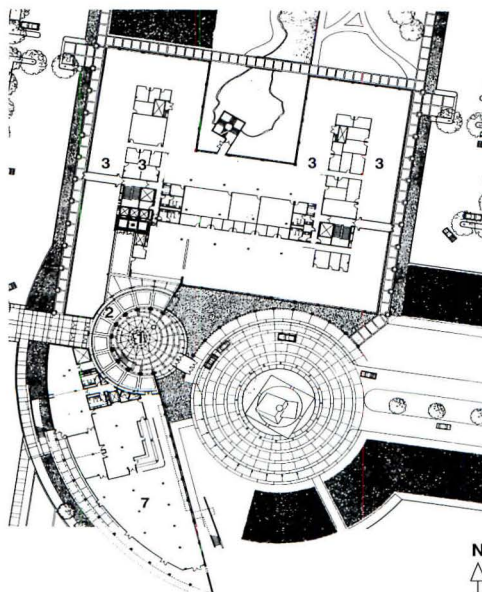
COST: \$43 million—\$101/square foot

PHOTOGRAPHER: Michael Ian Shopenn



SECOND FLOOR PLAN

- | | |
|-------------|-----------------------------|
| 1 ATRIUM | 5 DINING AREA |
| 2 RECEPTION | 6 TERRACE |
| 3 OFFICES | 7 LIBRARY/CONFERENCE CENTER |
| 4 LOUNGE | |



FIRST FLOOR PLAN

gens, with strict emission-rate standards. Eventually, one firm won the \$10 million contract—but all four will be able to apply their test results to the development of environmentally safe office products.

After the building was completed, finishes, including carpeting and paint, were installed. The interiors were left unfurnished for 30 days and unoccupied for 90 days to allow outgasses from furniture, carpeting, paint, drywall, and other materials to dissipate, since studies have proved that furniture acts as a wick for toxic chemicals.

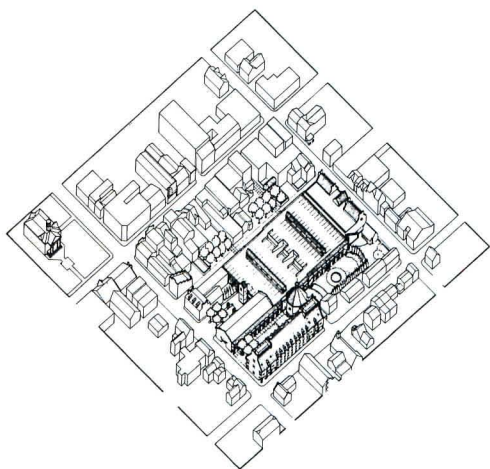
To boost the introduction of natural light, private offices on some floors are located in the center, with workstations placed on the perimeter, reversing the usual office hierarchy. This arrangement permits daylight to reach every workstation and office—no desk is further than 42 feet from a window. Fluorescent lights are balanced by spectrum bulbs, which most closely simulate daylight. The architects also incorporated a range of computerized energy-saving devices. Computer chips control electronic ballasts to regulate fluorescent lighting and save energy, and photocells raise light levels as required. Computers also control variable-speed motors that automatically slow fans when air-conditioning requirements drop. As a result of these and other energy-saving measures, including increased levels of insulation and insulating and reflective glass, the Labor and Industries facility is projected to use 32 percent less power than buildings designed to minimum state energy codes.

The early integration of environmental awareness into the design process is critical, for many "healthy" buildings have a tendency to sacrifice design and become merely functional. With its rotunda-dominated form hinting at civic architecture's past glories—without reviving its deadweight pomposity—the Washington State Labor and Industries Building is handsome, healthy, and it works. What more can we ask of government and its buildings? ■

—Justin Henderson



TOWN CENTER



ABOVE: Leesburg Government Center is organized around greens facing north and south; block on western edge contains town offices; parking occupies southeastern portion of site.

FACING PAGE: Octagonal tower forms centerpiece of government center, which was built as the result of a national design competition.

Tucked among the two-story, 18th- and 19th-century buildings that form the historic core of a quaint Virginia town, the Leesburg Government Center is a testament to sensitive urban design and formal contextualism at its nonliteral best. The center's unobtrusive siting, small-town poetics, and uncluttered streetscape have been lauded by juries at every turn: first by the panel that selected the scheme from among 201 national design competition entries in 1987, and later by the jury that honored it with one of the AIA's inaugural Urban Design Awards in 1992.

The kudos belong to Hanno Weber & Associates of Chicago, architects who produced a work of austere clarity from a competition brief overrun with complications. Among the hurdles were an oddly shaped site that already contained a motley assortment of buildings—some of historic value, some not—and an eyesore of a parking lot. Added to the problematic but highly visible site was a demanding list of objectives that focused on creating a symbolic town center by consolidating town offices without destroying the scale of the surrounding historic district. Other requirements included providing parking for 320 cars, maintaining pedestrian paths through the site, and creating new urban spaces.

The winning scheme successfully reconfigured the pieces into a simple composition that is artful and pragmatic, and recognizes the importance of Market Street as a civic corridor linking the town complex with the Loudoun County courthouse a block away.

The stroke of inspiration is an octagonal tower that houses a ground-floor lobby and second-floor public meeting room. Conceived by Principal Weber as an "object" building set apart from the street by a narrow green and framed by rhythmic facades, the tower's prominence and heft render it the heart of the center. Its position in the center of the block also allows it to serve as a linchpin around which the other elements are organized.



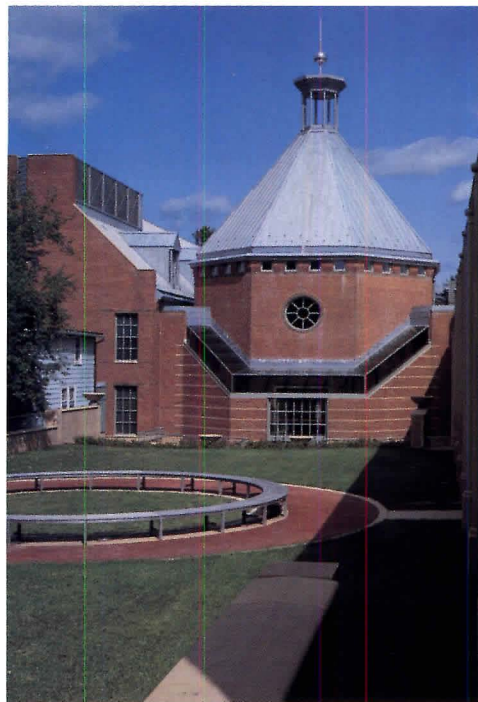


LEESBURG

GOVERNMENT CENTER
32



ABOVE: Architect Hanno Weber's plan for the government complex yielded many dividends, including a neatly defined urban plaza facing busy Market Street.
BELOW: The center's three-story office building re-creates the urban edge along Wirt Street.



ABOVE: To the rear of the site, the architect inserted a quiet, terraced green. Skylights illuminate a staircase that wraps the tower.
BELOW: Parking garage entry steps back from Market Street to reinforce pleasing rhythm of solids and voids along the street edge.
FACING PAGE: Curved bay above Wirt Street entrance is designed as a large window box for hanging vines. Dormer, like roof, is fabricated of sheet metal. Rooftop louvers conceal mechanical systems.



Grafted directly onto the tower is a three-story block of town offices, which reestablishes the street edge along the western side of the block and authoritatively anchors the street corner, with a masonry facade and "chimneys" echoing the architecture of nearby buildings. To the east, opposite the block containing town offices, Weber designed a two-story arcade that mirrors the proportions of the office facade, screens the unsightly side wall of the adjacent Tally-Ho movie theater—one of the site's precious givens—and defines one boundary of the center's cozy town green. The arcade continues past the tower to create the edge of a second green at the rear of the site. Behind the arcade, Weber concealed a two-level parking garage within the rising slope of the site and behind existing buildings.

For all the right-mindedness of the center's buildings, the complex would be incomplete without its restrained open spaces. The front and rear courtyards serve a double mission, separating the office building, tower, garage, and adjacent structures and connecting them at the same time. The greens serve as places to meet, and more important, are integrated into town life by a variety of pedestrian paths.

The intellectual treat of Weber's urban design scheme is made all the more stimulating by his sometimes quirky architectural hand. Modern influences on the complex appear in the urban scale and in the spatial concepts of the plan.

Centuries of tradition in Leesburg inspired Weber to anchor other details in Classicism but render them with a contemporary twist. Engaged columns and architectural trim are handled like stone, yet are fabricated of salmon-toned precast concrete. Dormers are fabricated entirely from sheet metal, and square windows ring the pitched ceiling in the town council chambers. Public spaces inside the building are replete with moldings and mullioned windows, but the moldings are sleek, simple curves, and the mullions secure translucent partitions separating circulation corridors from office space.

Despite budget constraints, the architect's restrained colors, well-considered details, and judicious application of high-grade materials conspire to give the Leesburg Government Center a sense of importance and permanence. As a bonus, Hanno Weber's perceptive response to the delicate townscape reinforces the notion that an institution born of the people can, in turn, serve them well. And for once, the platitude fits the place. ■

—Vernon Mays

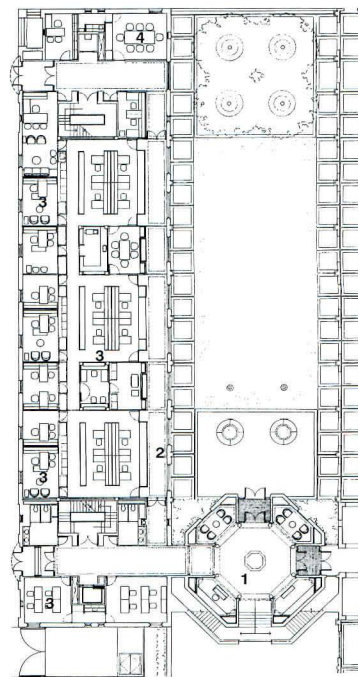




ABOVE: Main public entrance leads into spacious lobby on first floor of octagonal tower, offering a view of the parklike green to the south.

BELOW: Access to the various town departments is along a pedestrian concourse that faces the town green; interior details such as paneled wainscot and patterned linoleum floors evoke Leesburg's architectural traditions in a contemporary context.

FACING PAGE: Colonial Virginia's civic symbols are most energetically reinterpreted in the town council chambers, which feature raised paneling, circular windows—a reference to the Colonial Williamsburg Capitol—and high square windows that Weber likens to cornice details.



GROUND FLOOR PLAN

- | | |
|-------------|-------------------|
| 1 RECEPTION | 3 OFFICES |
| 2 CONCOURSE | 4 CONFERENCE ROOM |



EAST-WEST SECTION

**LEESBURG GOVERNMENT CENTER
LEESBURG, VIRGINIA**

CLIENT: Town of Leesburg, Virginia

ARCHITECTS: Hanno Weber & Associates, Chicago, Illinois—Hanno Weber (project principal); Kathleen D. Hess (project interior architect); Christopher D. Hale, Joseph Heinowski, Yon Jung, Gregg Loeschler (project architects); Kaitlin Drisko, Gary Jaeger, Thomas Mozina (project team)

LANDSCAPE ARCHITECT: Hanno Weber & Associates

ENGINEERS: Tylk, Gustafson & Associates (structural); Mid-Continent Engineering (mechanical/electrical/fire protection/plumbing); S.D.I. Consultants (civil)

CONSULTANTS: Yerges Acoustics (acoustics); Jerry Kugler Associates (lighting); Rainbow Custom Woodworking, Taylor Ramsey Furniture, Chasen's Business Interiors (furnishing contractors)

GENERAL CONTRACTOR: Manhattan Construction Company

COST: \$10.7 million

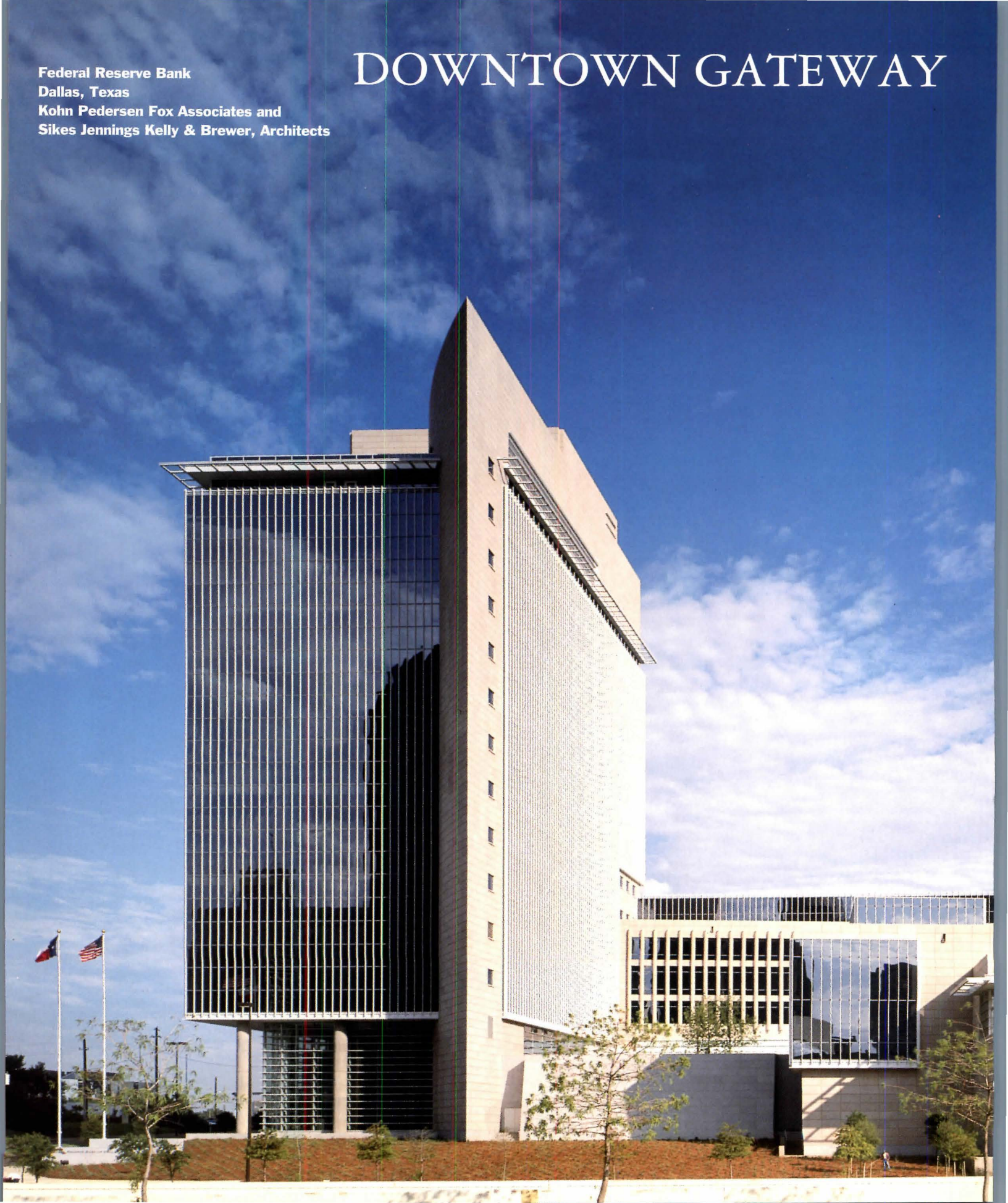
PHOTOGRAPHER: Steve Hall/Hedrich-Blessing, except as noted

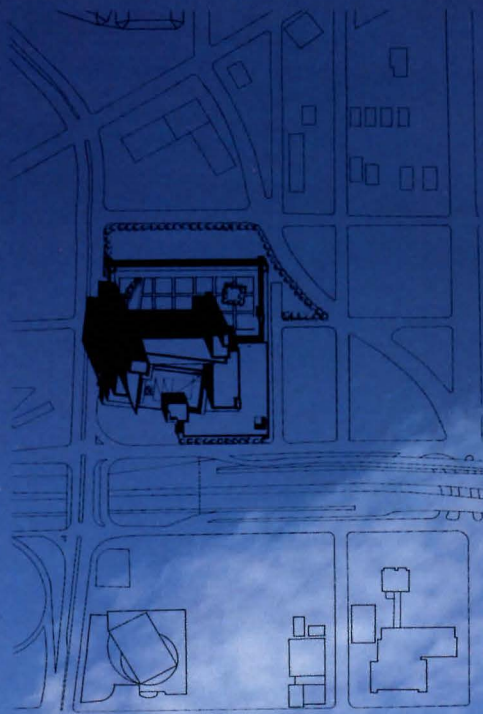




Federal Reserve Bank
Dallas, Texas
Kohn Pedersen Fox Associates and
Sikes Jennings Kelly & Brewer, Architects

DOWNTOWN GATEWAY





THESE PAGES: Downtown elevation of Federal Reserve Bank reflects hierarchy of functions within: underground banking floor, cafeteria, long horizontal office block for the Fed's major departments.
BELOW AND SITE PLAN: New bank is located north of Pei-designed Meyerson Symphony Center in Arts District.
CENTER: Main office tower is canted 7 1/2 degrees to reinforce Pearl Street as a new ceremonial entrance to downtown Dallas.
BOTTOM: North side of building features garden above parking garage.





FACING PAGE: KPF's application of Indiana limestone, aluminum sunscreen, and gridded curtain walls recalls 1950s architecture. Limestone matches that of buildings in downtown Arts District across freeway. Punched windows at top of blade indicate executive offices.

TOP: Executive dining room is housed in a glass cube at the center of the complex.

CENTER: Employees enter through a spacious garden on north side of building.

ABOVE: A more formal garden within the complex is visible from upper floors.

Downtown Dallas, like downtowns throughout the country, has become a knot of skyscrapers ringed by parking lots and freeways. The ring tends to form an edge or a noose, depending on the circumstances. But in Dallas, the circle has been broken by a public institution: the newly constructed Federal Reserve Bank. The \$107 million Fed dominates an anonymous sprawl of warehouses, small factories, and used-car lots next to a stretch of depressed freeway. An instant landmark, the bank nevertheless acknowledges the forms and materials of the Morton H. Meyerson Symphony Center and the Dallas Museum of Art directly across the freeway gorge—not to mention the numerous paneled and finned buildings constructed in downtown Dallas during the 1950s and early 1960s. Its Modernist composition looks nothing like the old Federal Reserve it replaces; for that matter, it looks nothing like a bank, except maybe for the flags and the formal bronze lettering beside the entrance. Classical civic architecture has given way to contemporary collage: this is a bank for the age of ATMs and no float.

The Federal Reserve asked architects Kohn Pedersen Fox of New York City and Sikes Jennings Kelly & Brewer of Houston for a building that would meet its needs for the next 50 years and express “stability, dignity, and security”—not qualities one automatically associates with banking in the late 20th century. To satisfy the first requirement, the architects designed a 6-acre ground floor, where all the cash, checks, and overdrafts for the entire 11th Federal Reserve District can be processed in 24 hours. This sprawling maze of secure corridors and bullet-proof rooms drove the design of the rest of the building. It also provided a podium on which to site the rectangles, cubes, and squares that house the Fed's numerous departments—legal, regulatory, accounting—as well as its executive offices.

This is a building of parts rather than serene wholes. In profile it resembles a toy city on a plain, with the horizontal sweep of the

podium interrupted by the vertical thrust of the office and mechanical towers.

As the building rises, its floors shrink in size, from 250,000 square feet at the base to approximately 20,000 square feet at the top of the office tower. The variations in scale keep the building from becoming an overbearing monolith while offering clues, not always clear ones, to the hierarchy of functions within.

KPF's composition looks best from the south and west, where the planes of stone, metal, and glass meet with surprising energy. Here the architects have skillfully played cube against curve, solid material against transparent, the orthogonal geometry of Modernism against the arc and cant of its various successors. The bank's most dramatic feature is a tapering blade of limestone that slices through its main office tower, a masonry version of the curving glass facade on KPF's 333 Wacker Drive in Chicago. While this element lacks the contextual justification of its predecessor, it serves a similar mnemonic function, calling the building to mind in a flash. But from other directions the massing turns into a jumble of disconnected forms, with the north facade seeming especially banal. A pergola along this elevation was cut from the budget, and that may account for some of the severity.

“Stability” and “dignity” find expression mainly in the facade of creamy Indiana limestone, the same stone used by I.M. Pei on the Meyerson and by Edward Larrabee Barnes on the Dallas Museum. The limestone points directly toward the Meyerson and to the possibility of some future connection to the downtown Arts District. To smooth the transition between downtown and residential areas to the north, the architects placed the 14-story main tower up against the freeway, and stepped the rest of the building down in deference to an adjacent historic neighborhood. Moreover, the office tower is canted 7½ degrees toward Pearl Street, affirming its importance as the new ceremonial gateway to downtown.

The Federal Reserve's detailing underscores KPF's rediscovery of Modernism after a





TOP: Exterior sunscreens on Pearl Street elevation extends into main lobby.

CENTER AND ABOVE: Large louvered windows in lobby frame dramatic views of downtown Dallas skyline.

FACING PAGE: Exterior detailing of the Federal Reserve Bank reflects both KPF's rediscovery of classic Modernism and its appreciation for downtown Dallas buildings of the 1950s and early '60s.

decade of mannered Neoclassical experiments. The forms are spare and embellished with fins, sunscreens, and gridded curtain walls that recall classic 1950s architecture. KPF obviously borrowed a few details from Dallas buildings of the era, but the shift in focus transcends the region. In its overall esthetic, as well as many of its architectural details, the Federal Reserve is a first cousin to KPF's new headquarters for the St. Paul Companies in Minnesota. The same Spartan look pervades the bank's interiors, reflecting in part the Fed's own ambivalence about its public role. Visitors are welcome to drop in to buy T-bills and government securities, but not to stand around admiring the architectural detailing. Armed guards and conspicuous gun ports remind everyone that they are, after all, dealing with the Fed.

Half of the lobby is framed by limestone walls and tall louvered windows, which offer dramatic framed views of the downtown skyline. The other half comprises a two-story box illuminated by clerestory windows that will light displays and art exhibits. The mezzanine level is slated to become a money museum. All of these spaces are clean and spare, and once all the art and furnishings arrive may mellow into ingratiating public spaces. At the moment, however, they appear a bit chilly and self-important.

More appealing are the rooftop garden and courtyard, designed by SWA of Houston as a natural counterpoint to KPF's severe architecture. The 2-acre garden contains crape myrtle, river birch, and various flowering shrubs arranged in formal and informal patterns. Half is thickly planted with perennials, like a slice of a cottage garden, while the other half slopes away into a series of terraces and grassy swales. The bank's conference rooms, health club, and day-care center all open onto the garden at the south side. More important, most of the 1,200 employees must walk through it to get into the building. After parking in the underground garage, they take an elevator to the second

level and cross the garden to the mezzanine. Instead of starting the day with a sprint through a parking lot or menacing tunnel, they stroll through a flowering landscape with the downtown skyline as backdrop.

The courtyard, on the south side of the building, covers a half-acre and is more formal and abstract than the garden—a landscape painting that looks best from above. Its position directly over the vaults made big trees and heavy planting tricky, so SWA combined simple panels of Bermuda grass with a swirl of perennial beds and gravel paths. The result is an understated space that serves as an extension of interior lobbies and corridors as well as a window on downtown Dallas.

The offices, conference rooms, and other spaces that look out onto these green areas are generally clean and understated, in keeping with the Fed's desire to be tasteful but sober. The notable exception is the executive boardroom, an orgy of dark woods and Arts and Crafts details that must have been designed by committee. The employee cafeteria, though spare, offers spectacular views of the city, particularly from the outdoor terrace overlooking the freeway.

Despite the Federal Reserve Bank's architectural sophistication, not everyone in Dallas is thrilled about its jumping the freeway loop. Some downtown partisans fear it will siphon energy from the core Arts District and make downtown redevelopment even more difficult. Others see it as an umbilical cord, a critical link to the emerging residential and restaurant enclaves along McKinney Avenue. It's too soon to say who's right.

But the Federal Reserve has met the first requirement for expanding the downtown core: If a city is going to enlarge its boundaries, serious, rather than merely expedient, architecture is required. KPF has designed a thoughtful building that reinforces downtown Dallas and confirms the Federal Reserve's reputation as an architecturally enlightened client. ■

—David Dillon



2200 N. PEARL

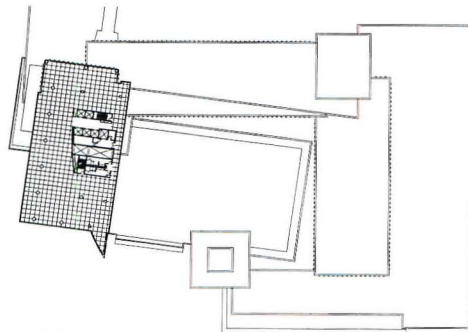


TOP: Corridor at perimeter of central volume reveals column geometries.

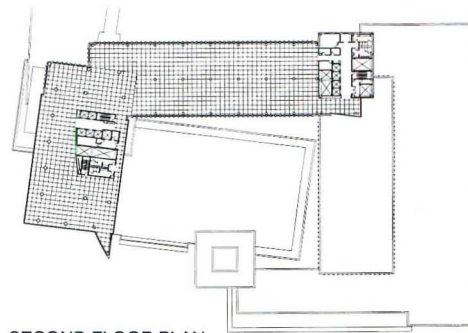
CENTER: Mezzanine overlooking main lobby will contain a banking museum open to the public.

ABOVE AND FACING PAGE: Reception desk in lobby echoes planar esthetic of building.

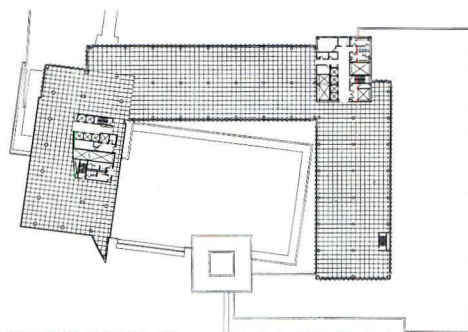
PLANS: Floors shrink in size as the building rises, going from 250,000 square feet in the basement to approximately 20,000 square feet at the top of the tower.



FIFTH FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN

**FEDERAL RESERVE BANK OF DALLAS
DALLAS, TEXAS**

ARCHITECTS: Kohn Pedersen Fox/Sikes Jennings Kelly & Brewer Architects, New York City and Houston, Texas—William Pedersen (design partner); Benjamin E. Brewer, A. Eugene Kohn (managing partners); Richard Clarke (project designer/associate partner); Robert Kuykendall (project manager); Roksan Okan-Vick (project coordinator); Glen Da Costa (job captain/KPF); Manuel Zapeda (job captain/SJKB); Tat Chan, Marjann Domoulien, Alex Gotz, Joel Karr, Ming Leung, Tzen-Ying Ling, Nicole Mronz, Ryochi Nakamura, Susan Seastone, Tom van den Bout, Robert Whitlock (design team/KPF); Tom Abel, Gary Griffith, Su Thangh Nguyen (design team/SJKB)

ASSOCIATE ARCHITECT: John S. Chase, Architect, Dallas, Texas—Darrell A. Fitzgerald (managing partner); Susan Keil, Robert Morris (design team)

INTERIOR ARCHITECT: Kohn Pedersen Fox Interior Architects—Miguel Valcarcel (managing partner); Woody Rainey (design partner); Robert Hartwig (project manager); Merrie Hevrdejs (project designer); Sal Papa (project architect); Kathy Sanford, Katherine Colby, Allen Foster, Alice Lesman, Gerald Robertson (design team)

LANDSCAPE ARCHITECT: SWA Group

ENGINEERS: Walter P. Moore & Associates, Datum Engineering, Charles Gojer and Associates (structural); Blum Consulting Engineers (mechanical/electrical/plumbing)

CONSULTANTS: Jerry Kugler Associates (lighting); Knight, O'Connor & Associates (security)

GENERAL CONTRACTOR: Austin Commercial

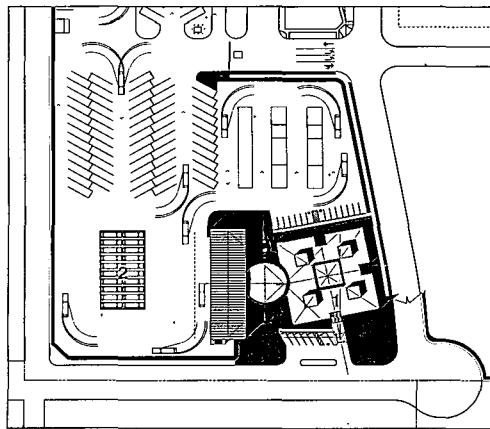
COST: \$107 million

PHOTOGRAPHER: Richard Payne



Two headquarters for the
Los Angeles Department
of Water and Power
Ellerbe Becket, Architects

BEYOND UTILITY



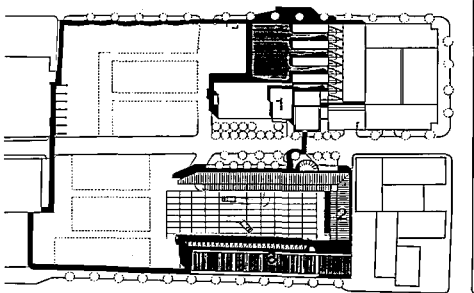
VAN NUYS SITE PLAN



ABOVE: Van Nuys Distribution Headquarters comprises discrete buildings—offices, warehouse, and truck storage—within a walled enclosure.

BELOW: Central Distribution Headquarters incorporates offices, warehouse, garage, and vehicle storage into a 12-foot-high perimeter wall.

FACING PAGE: Downtown Los Angeles glows beyond the Central Distribution Headquarters.



CENTRAL SITE PLAN



- 1 ADMINISTRATION/WAREHOUSE
- 2 TRUCK PARKING
- 3 FLEET REPAIR BUILDING

In the corporate halls of Ellerbe Becket's Los Angeles office, Mehrdad Yazdani is an unexpected surprise. Wearing a genial smile and a vivid green vest, the 33-year-old design principal walks past remarkable models, drawings, and photographs of award-winning architecture for which he is largely responsible. The production of such energetic designs within the country's largest architecture/engineering firm is a significant achievement. At Ellerbe Becket, Yazdani has designed such buildings as the Department of Water and Power (DWP) facilities in Van Nuys and downtown Los Angeles, a Metro Rail station, office towers, and a hotel and theater complex—projects of a size and complexity that a young designer could not hope to accomplish without the technical expertise of a large firm. And by giving Yazdani these opportunities, Ellerbe Becket has won recognition from clients and colleagues alike.

Yazdani joined the firm in 1987, when it was still Welton Becket, a practice with a record of emblematic Modern buildings in Los Angeles, including the circular Capitol Records tower (1954) and the Los Angeles Music Center (1964-69). He had worked for Michael Graves, first as a student intern and again before attending Harvard for a master's degree. While he learned much from such a signature firm, Yazdani found little room for personal growth as a designer. Hoping to work on the kind of projects that only large firms offer, the 27-year-old Yazdani moved to Los Angeles in 1987 and interviewed with Welton Becket Principal Louis Naidorf. When asked what he wanted from the firm, the designer replied, "Leave me alone, and let me show you what I can do." Naidorf did just that. Welton Becket merged with Ellerbe in 1988, and Yazdani has proved his talents within the new firm.

Ellerbe Becket takes a project-team approach to design, giving a multifaceted team responsibility from schematics through production. In each of the firm's six offices, groups headed by a variety of designers pur-

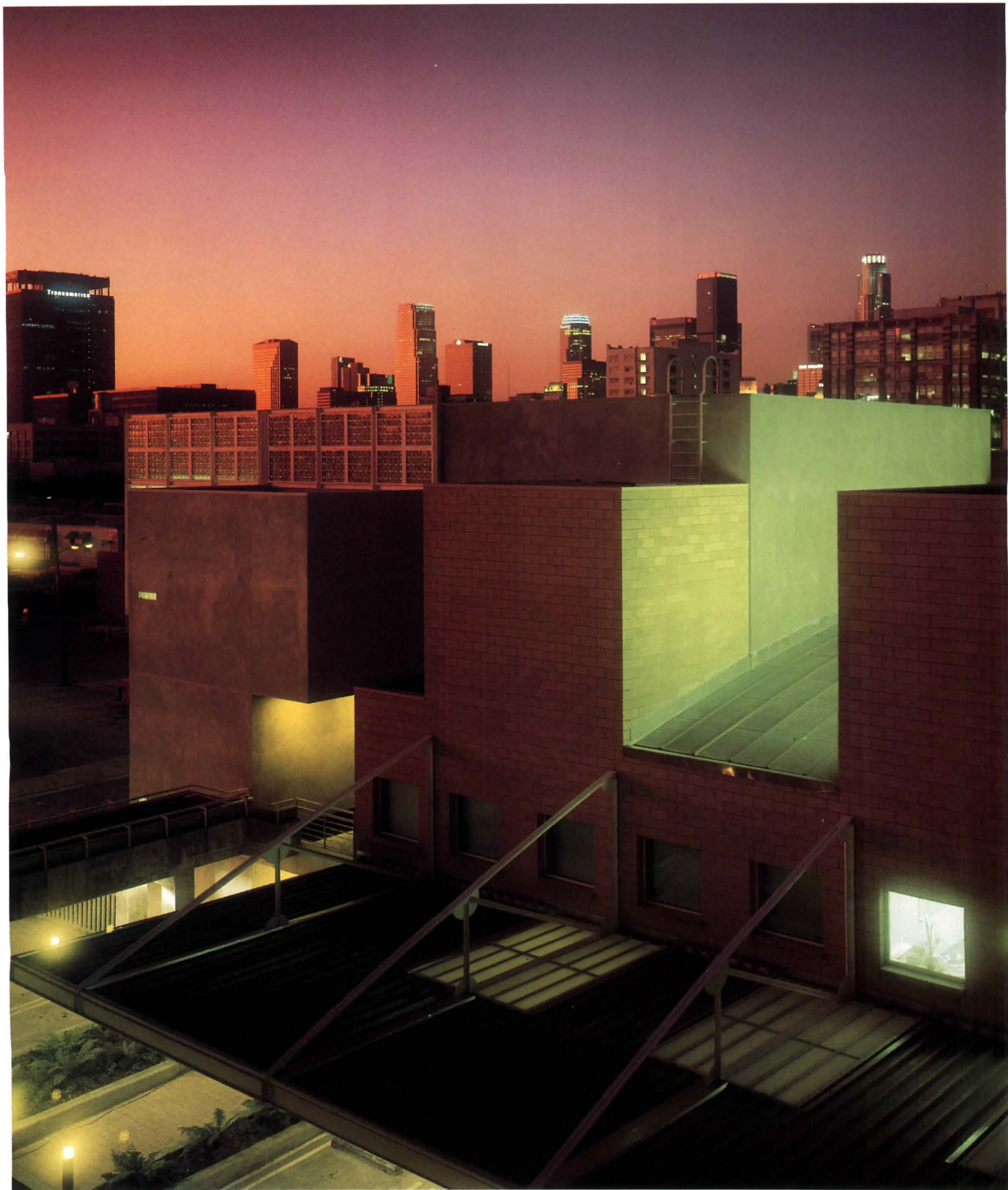
sue individual styles rather than a signature style. "The world demands diversity," believes CEO John Gaunt, and the firm's employees attest to Ellerbe Becket's success at a time when many firms have cut back. And in Yazdani, Gaunt saw an opportunity for "recognizing a brilliant talent and supporting it."

Although Yazdani cites Graves and Naidorf as his most important mentors, former Los Angeles Cultural Affairs Commission (CAC) President Merry Norris also played an important role in his career. When Norris joined the CAC in 1984, she discovered that the commission served as de facto design review board for any building constructed on city property. Under Norris's guidance, the CAC shocked city agencies, including the DWP, by turning down projects designed by in-house teams or established local architects and by enforcing criteria of excellence.

Some firms whose designs the CAC repeatedly rejected were strongly urged to associate with younger designers who could enliven public buildings, creating positive contributions to their neighborhoods. Welton Becket was having trouble getting its central DWP headquarters scheme past the CAC, so with its own youthful talent already on board, the firm gave the Van Nuys project to Yazdani. When Yazdani presented his design to the CAC, Norris recalls, it was "the best we'd seen." Encouraged by that success, the firm asked Yazdani to work on the central headquarters. To further promote good civic design, Norris implemented a CAC awards program, and honored both Yazdani-designed DWP projects with awards of design excellence. "I can't say enough wonderful things about him," Norris maintains.

This rare confluence of Yazdani's talents, Ellerbe Becket's corporate policies, and Norris's promotion of civic responsibility has led to a real public presence for the DWP headquarters. If other firms and city agencies were to emulate this collaboration, such buildings could come to symbolize Los Angeles.

—Judith Sheine





DOWN IN THE VALLEY

Much has been made of the development of Los Angeles and its connection to the history of water rights and distribution, from Roman Polanski's *Chinatown* to the essays of Joan Didion, to well-publicized confrontations between citizens and developers. In his 1971 book, *Los Angeles: The Architecture of Four Ecologies*, architectural historian Reyner Banham emphasizes the relationship between water and civic architecture. He describes the Los Angeles Department of Water and Power Building by Albert C. Martin and Associates (1964) as the "only public building in the whole city that genuinely graces the scene and lifts the spirit." Banham explains how the building, a glass box in a pool of fountains, symbolizes L.A.'s dependence on water, especially at night, when "one sees only this brilliant cube of diamond-cool light riding above the lesser lights of downtown."

Such conspicuous consumption of water and power was a large part of the DWP building's successful and symbolic image in the 1960s. But times have changed in Los Angeles, where strict conservation policies now prescribe a public architecture without large, glazed walls or decorative fountains, an architecture of solid volumes and concrete block walls covered with three layers of graffiti-resistant paint. And the Van Nuys DWP facility stands on a far less auspicious site than the building Banham praised, surrounded by a mix of industrial and residential structures. Both the new policies and specifics of the site are reflected in Yazdani's compositional approach to the design of the building.

Ellerbe Becket master-planned the entire site, which had been a DWP location for parking and materials storage. The new complex includes a 515-car parking garage, covered truck parking, and the new administration and warehouse building, all surrounded by an 8-foot-high concrete block perimeter wall. The administration building, begun by Yazdani in 1987, is clearly influenced by the principles he learned while working for Michael Graves.

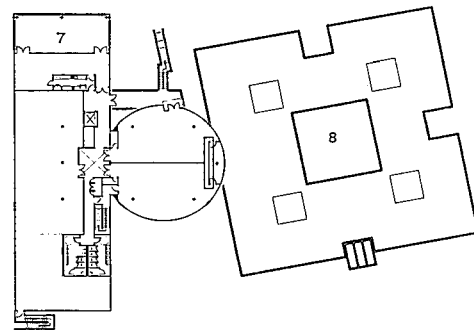
Yazdani describes the form of the new DWP complex as "program-driven," in which "program pieces are identified with certain volumes," composed with a characteristically Gravesian concern for the "clarity of the diagram." Here, that diagram is resolved as a one-story, square wing of administration offices; a central, two-story, cylindrical volume containing ground floor locker rooms and an assembly/training room on the second floor; and a rectangular volume housing a warehouse, with a lunch room and porch at one end of its upper floor, and a 24-hour emergency services offices at the other. The office wing is placed parallel to B Street, formerly a city street that has been taken over by the DWP, and the warehouse wing is aligned with Tyrone Avenue and Covello Street, on a different grid; the cylindrical volume resolves the two grids into a single structure.

The public enters at the center of the street-facing side of the office wing, and employees enter from parking at the center of the opposite side. Four symmetrically located roof monitors illuminate open office space between private, perimeter offices and a solid service core of striped concrete block.

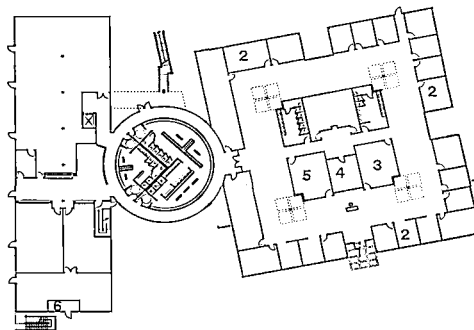
The building incorporates traditional architectural elements: walls with a base, middle, and top, and real windows, rather than lightweight Modernist planes and glazing. The architect established continuity between the volumes by keeping the warehouse's concrete block base at the same height as a solid metal rail along the cylindrical volume; this height is continued by the top of the office wing.

But along with these more traditional compositional devices, Yazdani hints at his Modernist learnings. A round metal "column" turns the corner between the windows of the office wing; light monitors go a step further, with fully glazed corners. This well-composed building begins to suggest the more abstract direction (though hardly the brave new world described by Banham) of Yazdani's next project for the DWP, located in downtown Los Angeles.

PLANS: Headquarters comprises warehouse, cylinder containing assembly/training room, and office wing. **FACING PAGE, TOP LEFT AND RIGHT:** Cylindrical volume acts as knuckle between office wing and warehouse. **SECOND FROM TOP, LEFT AND RIGHT:** Warehouse is articulated with concrete block base, plastered piano nobile, and painted aluminum-covered roof. **SECOND FROM BOTTOM, LEFT:** Eastern end of the warehouse block shelters a porch for outdoor dining. **SECOND FROM BOTTOM, RIGHT:** Office wing's facade is divided into tripartite composition. **BOTTOM LEFT AND RIGHT:** Aluminum-clad stairs enliven the eastern side of headquarters and warehouse.



SECOND FLOOR PLAN



GROUND FLOOR PLAN



- | | |
|-------------------|-------------------|
| 1 PUBLIC ENTRANCE | 5 DRAFTING ROOM |
| 2 OFFICE | 6 CABLE SPLICING |
| 3 CONFERENCE ROOM | 7 DINING ROOM |
| 4 CONTROL ROOM | 8 MECHANICAL ROOM |

**DEPARTMENT OF WATER AND POWER
VAN NUYS DISTRIBUTION HEADQUARTERS
ADMINISTRATION AND WAREHOUSE
LOS ANGELES, CALIFORNIA**

ARCHITECT: Ellerbe Becket, Los Angeles, California—Louis M. Naidorf (principal); Samuel Burnett (project director); Mehrdad Yazdani (senior project designer); Robert Griffith, Pedro Newburn, Audrey Barrett, Steve Fader, Juliet Taft, Chris Ossa, Ed Crayne, Karen Munson, Kelly McBride, Hernan Bejarano, Les Rothstein, Alireza Hadain, George Cranston, Debbie Pearson
LANDSCAPE ARCHITECT: Melendrez Associates
ENGINEERS: Martin & Huang International (structural); Ellerbe Becket (mechanical/electrical); Rogoway/Borkovetz Associates (civil)
GENERAL CONTRACTOR: Montgomery Ross Fisher
COST: Withheld at owner's request
PHOTOGRAPHER: Adrian Velicescu

PLANS: Northwest-facing volume houses offices; cylinder contains conference room and stair hall; wing topped by roof monitors comprises warehouse.

FACING PAGE, TOP LEFT AND RIGHT: Glass-block-enclosed volume containing assembly/training room rests above concrete block cylinder.

SECOND FROM TOP, LEFT AND RIGHT: Office wing includes concrete base and windows shaded by sunscreens.

SECOND FROM BOTTOM, LEFT AND RIGHT: Rear of warehouse is part of a continuous street wall: its copper-sheathed roof is intersected by five roof monitors.

BOTTOM LEFT AND RIGHT: Cantilevered canopy is supported by exposed curved trusses.

DOWNTOWN POWER

Maple Street between Pico and 15th streets may be located in downtown Los Angeles, but the area is far from the city's civic center. The site lies within an industrial district near the intersection of the Santa Monica and Harbor freeways, about as urban and gritty as Los Angeles gets. The war-zone mentality of businesses in this area is reflected in their architecture: high, solid walls topped by razor wire, punctuated with small openings protected by iron bars.

The Department of Water and Power site is surrounded by a 12-foot-high, concrete block security wall, hardly a promise of public architecture. But in the hands of Design Principal Mehrdad Yazdani, the building becomes both urban and civic, as well as representative of a Modernist esthetic that respects the structures of the 1990s.

A program similar to the one at Van Nuys was master-planned for the site by Ellerbe Becket to handle functions ranging from customer services to the storage of electrical cable and water meters. The complex comprises a parking structure, an administration and warehouse building, and a building accommodating covered truck parking and fleet service repair (On the Boards, page 31). Instead of designing a number of object buildings inside an enclosure, however, Yazdani incorporated the 12-foot-high perimeter wall into the buildings to create an urban street edge. On Wall Street, the recently finished administration and warehouse building, with the fleet-services building, will eventually form a well-defined entrance to the complex.

Yazdani describes the composition of the administration and warehouse building as a "collision of volumes," rather than the delicate intersections of the Van Nuys project. Like Van Nuys, he rendered the volumes as solid forms, with restricted glazing. However, the downtown Los Angeles project, begun 18 months after the first, differs stylistically from its predecessor, revealing the young designer's esthetic evolution from the Van Nuys project to his more recent office towers, from

representational to more abstract.

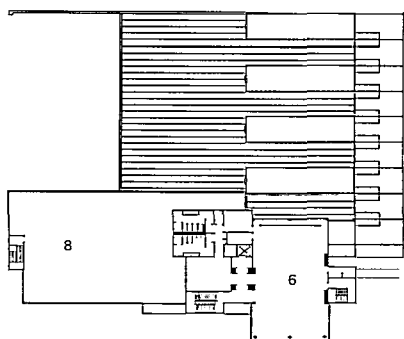
Although his sensibility is far more Modernist than that shown in the projects he worked on for Graves—the Humana Corporate Headquarters in Louisville, Kentucky, and the Clos Pegas Winery in Napa Valley, California, for example—Yazdani found it easier when he first joined Welton Becket to introduce a Postmodern imagery with which clients might be more comfortable. As he has earned their trust by being responsive to their needs and bringing projects in under budget, Yazdani has begun to introduce the Modernism he prefers, influenced by architects such as Rem Koolhaas and Zaha Hadid.

The primary volumes of the Los Angeles DWP building are not nearly as pure as those at Van Nuys, nor are they so axially related. A two-story office wing faces Wall Street, where it is intersected by a concrete block cylinder (representing water) topped with a rectangular glass-block form (representing power). This intersection defines the two entries: the public one from Wall Street and the employee entrance from the parking garage.

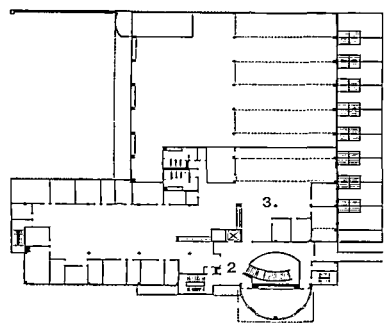
The designer split the cylinder in half to provide both a stair hall and a telecommunications room, which he topped with a conference room. Above, he extended the glass-block volume as a solid to house an assembly/training room and a lounge.

The office wing interlocks with the warehouse volume in both plan and section. The copper-sheathed warehouse roof is intersected by five roof monitors. Its curved trusses are exposed under a shallow canopy to the northeast, while on the southwest side the trusses are exposed above the canopy. The Maple Street elevation of the warehouse is Yazdani's most blatantly abstract composition. Its solid mass is penetrated by a few small openings and topped by a large, curved band of translucent glazing.

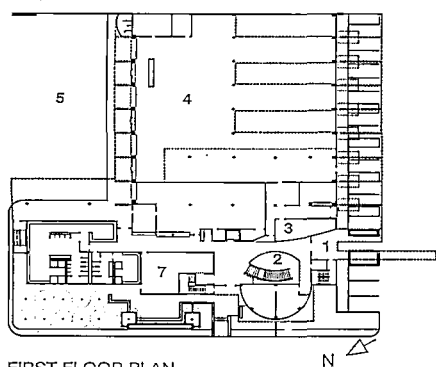
Interiors reveal a startling choice of materials. The two-story stair hall contains a large, sculptural curving stair; the white walls, white terrazzo floors with large black marble



THIRD FLOOR PLAN

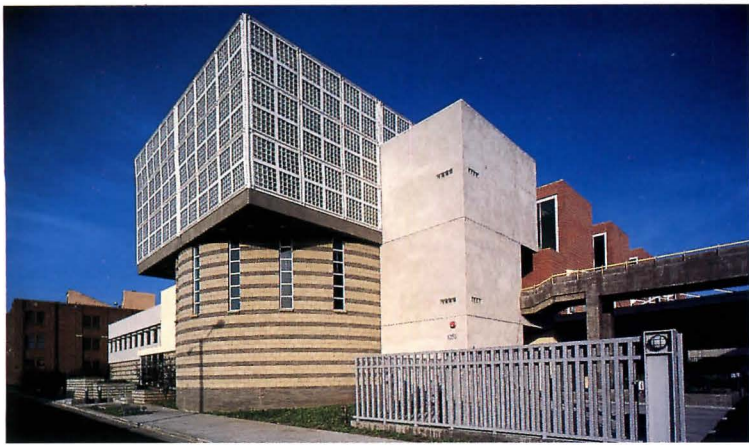


SECOND FLOOR PLAN



FIRST FLOOR PLAN

- | | |
|-------------|-----------------|
| 1 ENTRANCE | 5 LOADING AREA |
| 2 LOBBY | 6 ASSEMBLY ROOM |
| 3 OFFICE | 7 LUNCHROOM |
| 4 WAREHOUSE | 8 ROOF |

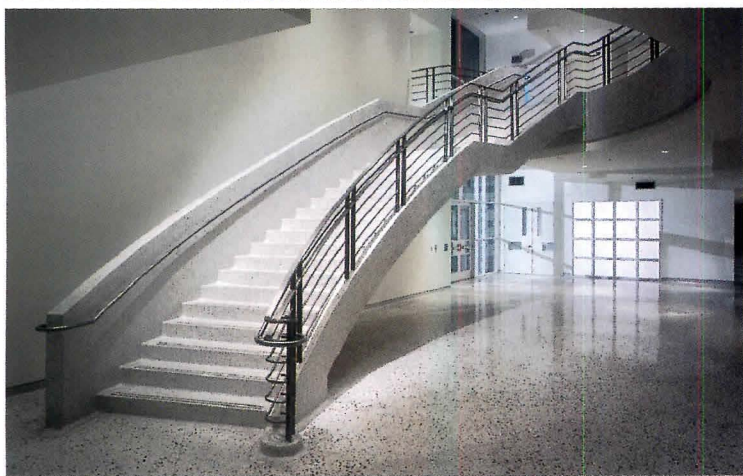
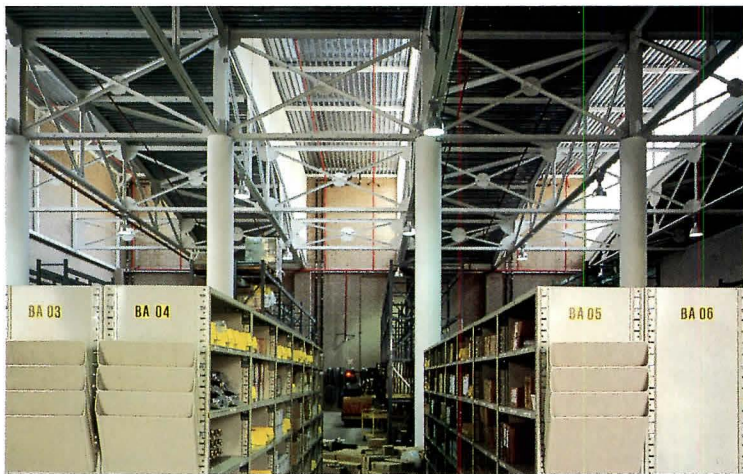


BELOW: Light monitors illuminate the warehouse, with its exposed steel bowstring trusses and industrial utility shelving.

CENTER: Curved sculptural stair with brushed stainless steel railing graces a two-story, half-cylindrical entrance lobby leading to offices.

BOTTOM: Assembly/training room at top of building incorporates textured glass-block walls with clear glass-block "windows."

FACING PAGE: Two-story entrance hall is finished in sophisticated materials—terrazzo floors containing large marble fragments and Venetian plaster walls—resulting in a surrealistic space.



chips, and shifting ceiling planes are surprising punctuation in this industrial setting. Bathrooms are finished with floors of small black and white tiles in a checkerboard pattern, contrasting with walls of larger tiles in unexpected colors. It's as if these rooms were sets in a Fellini movie. Similarly, on the outside, at the southwest edge of the warehouse, wall and sidewalk are covered in the same salmon-colored block, confusing their separate identities.

The Central Distribution Headquarters received not only an award from the Cultural Affairs Commission in 1989, but another from the Los Angeles Chapter/AIA last November. Meanwhile, Yazdani is hard at work on a theater and hotel complex in Santa Ana that extends his sculptural esthetic to a new level of abstraction. In discussing contemporary practice, the Iranian-born designer compares the role of design principals in some corporate firms to hood ornaments on a car, noting, "They are kind of nice, but the motor runs without them." As evidenced by his growing portfolio, including the buildings for the Los Angeles Department of Water and Power, Yazdani breaks the stereotype. He has become an essential part of Ellerbe Becket's smoothly running engine. —J.S.

**DEPARTMENT OF WATER AND POWER
CENTRAL DISTRIBUTION HEADQUARTERS
ADMINISTRATION AND WAREHOUSE
LOS ANGELES, CALIFORNIA**

ARCHITECT: Ellerbe Becket, Los Angeles, California—Louis M. Naidorf (principal); Samuel Burnett (project director); Mehrdad Yazdani (senior project designer); Art Dungo, Luz Sanes, Fred Javier, Heidi Hefferlin, Noel Matsamura, Brit Billeaud, Alicja Hrabia, Anne Laurie Prichard, Ed Crayne, Karen Munson, Vicki Desch, Audrey Barratt, Hernan Bejarano, Les Rothstein, Kelly McBride, Michele Zappen, Alireza Hadian (project team)

LANDSCAPE ARCHITECT: Fong & Associates

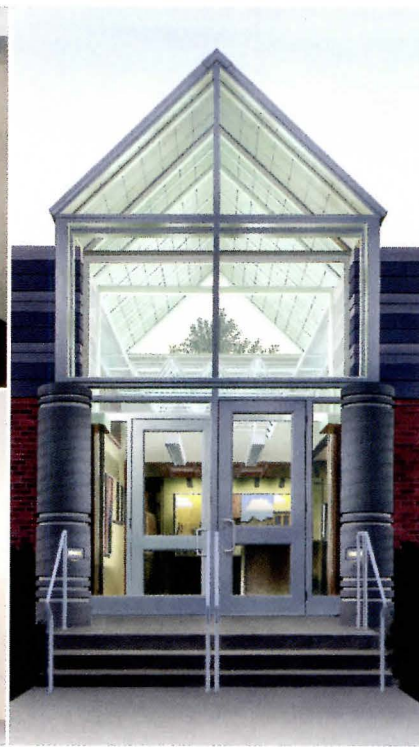
ENGINEERS: Martin & Huang International (structural); Ellerbe Becket (mechanical/electrical); Psoomas & Associates (civil)

GENERAL CONTRACTOR: Moran Construction

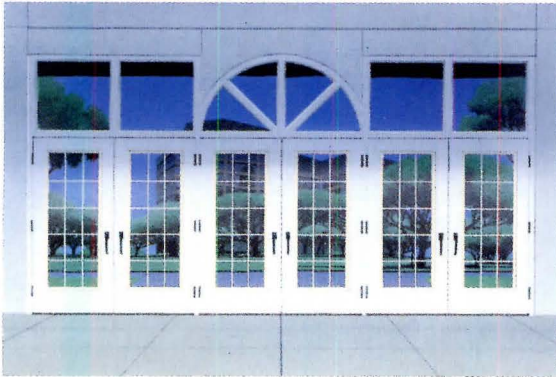
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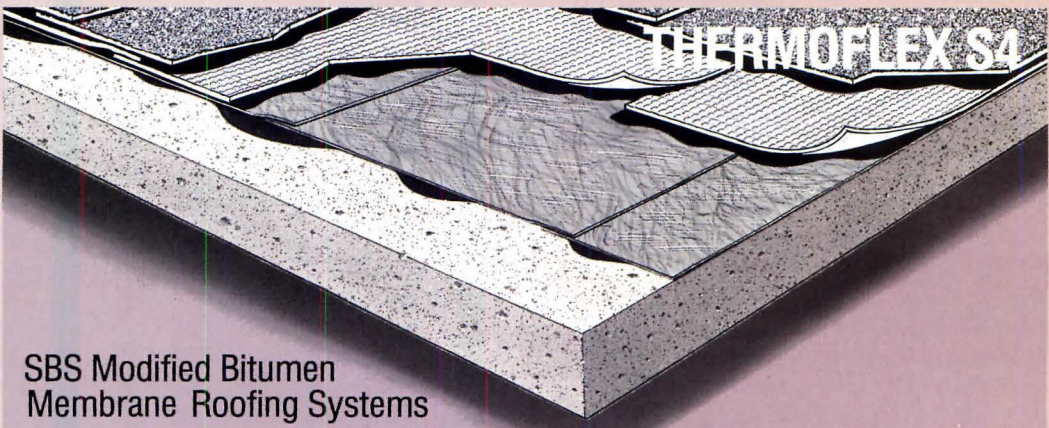
An explosion of crime and litigation, fueled by a decade of dwindling expenditures on affordable housing and education, is changing both society and architectural practice. Architects who might once have mused over the decorative fancies of the rich and famous are being called upon to design for society's outcasts; courthouses and jails represent two of the most plentiful sources of work today for American practitioners.

This month's Technology & Practice section examines several aspects of architecture for justice. We probe the complex political, economic, and ethical problems with which architects must wrestle in designing such commissions. We also explore advances in security systems, communication networks, and behavioral theory that influence the design of courthouses and jails.

- As our feature on federal courthouses reveals, practitioners must patiently undergo a multistage selection process that is mandated by the government, and be prepared to produce a building under a variety of project-delivery systems, including traditional, design-build, and turnkey, to save taxpayers' money.
- Firms designing jails must become well versed in the spatial implications of management systems such as direct supervision, in which corrections officers circulate among groups of convicts confined to one ward. Architects are also being called upon to offer strategies to accommodate growing populations of elderly, female, and sick inmates. New correctional facilities, for example, must house more sophisticated health services than in the past.
- Our computer feature discusses new software that assists practitioners in complying with building codes. Although tremendous gains have been made, researchers are still a long way from merging the visual symbols of construction documents with the complex reasoning underlying codes to analyze drawings electronically.
- An article on lighting controls describes new systems that help clients adhere to more stringent energy-conservation requirements. For example, photocells installed in Portland, Oregon's airport terminal monitor light intensity in the concourse to ensure consistent illumination from dawn to dusk.

The challenges of judicial reform, inmate rehabilitation, code compliance, and energy savings presented in the following pages exemplify the pragmatic attitudes of the 1990s. Moreover, they offer architects opportunities to integrate significant social and technical concerns within the context of design, thereby contributing to the well-being of society. ■

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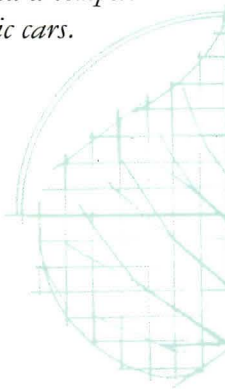
Environmental Guide Expands

One year after its formal debut, the AIA's *Environmental Resource Guide* (ARCHITECTURE, January 1992, pages 99-101) continues to grow. The 300-page manual now reaches about 950 practitioners and allied professionals across the country. Its topics range from case studies of sustainable architecture and specific materials (including aluminum, carpet systems, and paint) to more general discussions of wetland preservation, indoor air quality, and the hidden costs of energy. A survey of selected subscribers was taken last fall to determine the guide's future direction. One of the 19 respondents said the resource motivated him to open his own environmentally sensitive design practice, while another noted that the guide helps him educate clients on environmental issues.

When asked what they would like to see changed, added, or expanded, most subscribers replied that they simply needed more information on every facet of the environment. This year's topics include laminates, chipboard, plaster, salvage and demolition, legislation and regulation, rebate programs, and water resources. As the guide expands, readers will have enough data within each category to be able to compare the environmental effects of different materials in a given application.

EcoWatch

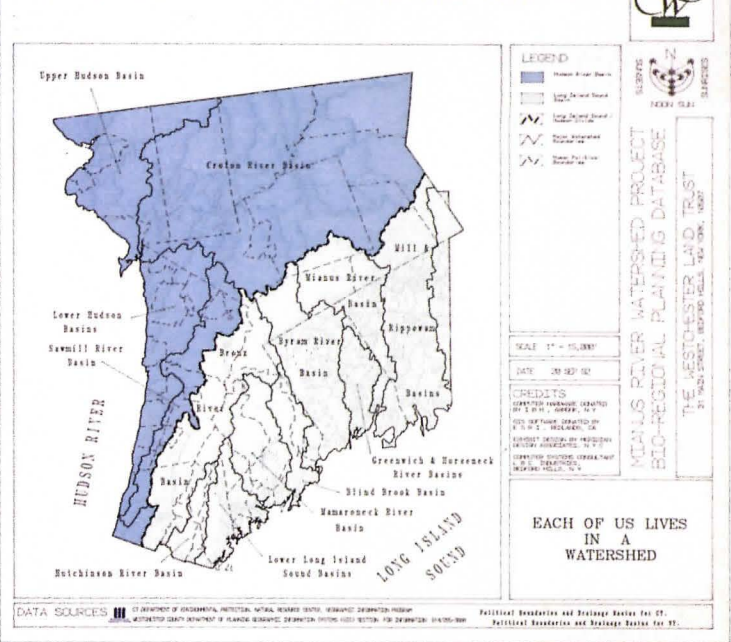
Growing interest in the environment spawns guidebooks to building materials, new mapping techniques, and a competition for electric cars.



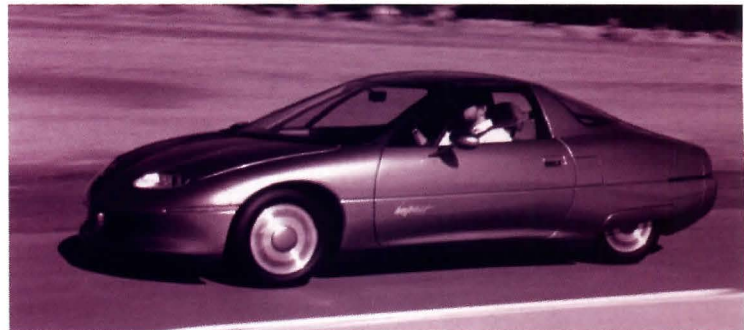
Ecological Mapping

One architecture and planning firm's three-year initiative to assist communities in Connecticut to envision a more ecologically sound future is now receiving recognition. An exhibition entitled "The Power of Maps," now on display through March 7 at New York's Cooper Hewitt Museum, highlights New York City-based Meridian Associates' creative adaptation of topographical maps to graphically depict the interdependence of individual political and ecological jurisdictions within the Long Island Sound region. The firm's maps, the result of Principal Bice C. Wilson's work on behalf of the Westchester Land Trust, combine CAD and Geographic Information Survey data to document and demonstrate how ecologically de-

OUR LOCAL WATERSHEDS



MERIDIAN'S MAP: Depicts overlapping political and ecological boundaries.



ELECTRIC CARS: Fueling competition for feasible design.

finied boundaries of the region's Mainus River Watershed extend across man-made state, county, and town property lines.

Additional maps communicate the potential overburdening of the region's resources by depicting what Wilson has termed a "phantom city"—that is, the cumulative effect on the region should current zoning regulations and planning strategies be "built out" to their fullest capacity. Wilson hopes these graphic depictions will persuade residents to view their actions in a more environmentally conscious context.

Wilson says he also expects his documentation of the region's previously disparate records will provide a foundation for an interactive computer database. This database could help plan more sustainable development within the limits of the region's resources.

—Marc S. Harriman

Electric Fill-Up

Electric cars are now seen as a viable alternative to gasoline vehicles. But what will electric "filling stations" of the future look like? GM, Hughes Power Systems, Electronic Data Systems, the Edison Institute, and the Department of Energy are offering a \$100,000 prize for feasible designs. The entry deadline for "The Electric Vehicle and the American Community" is April 15. Contact: (617) 262-9035.

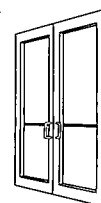
Build It Green

The Boston Society of Architects has published a "Sourcebook for Sustainable Design," which evaluates the ecological soundness of commercial building products and materials and lists their manufacturers. Contact: (617) 951-1433.

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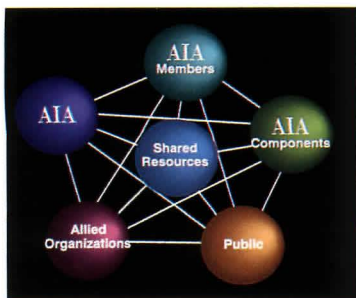
The Mark of Responsibility

AIA Restructures Committees

The national committees of AIA's Practice/Education Group have always represented one of the Institute's greatest resources. Practitioners convene on a regular basis to share their experiences and research on topics as diverse as prison architecture and interior design. But access to this knowledge has been limited to a fraction of AIA members.

In the past, explains AIA Group Vice President Richard W. Hobbs, "joining an AIA committee was one of the Institute's best-kept secrets." Lucky participants were appointed by AIA board members, and the rest who inquired about the process could sign up as corresponding members for \$45. Although committee conferences were open to all AIA members, most attendees were members of those committees, and many committees focused only on the needs of their members rather than on the general AIA constituency or the design profession as a whole.

Beginning this year, the AIA is actively encouraging greater participation by all its members. In the annual dues renewal package, each AIA member was invited to join one of 22 professional interest areas, for a nominal fee of \$50 each. As a member of an interest area, an architect will receive a quarterly newsletter and mailings covering relevant topics, a directory of members who share the same interests, and a \$50



AIA RESTRUCTURING: Shared resources.

discount on the registration cost of the first national conference he or she attends this year within that area of specialization.

By simplifying the membership process, the Institute hopes that these groups will better reflect the needs of the profession.

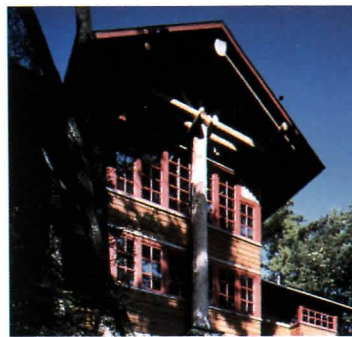
The restructuring of committee membership is part of a larger change within the AIA as the organization recognizes that information and resources are increasingly critical to the practice of architecture. The once-autonomous committees have been encouraged to define broader issues, such as environmental sustainability and total quality management, that are affecting the profession; examine these subjects within their specific disciplines; and then communicate their findings to other interest areas so that efforts are not duplicated. And the association aims to share this knowledge with as many AIA members, allied professionals, and laymen as possible.

To this end, the AIA has held video conferences on topics such as the Americans with Disabilities Act and environmental sustainability, opened up a toll-free number for AIA publication and program inquiries, and introduced an electronic communications system known as AIAOnline. "Providing information—making it accessible, affordable, relevant—is the AIA's responsibility," insists Hobbs. "That is the business that we are in." —N.B.S.

Architects Win Cedar Awards

Canadian-based Western Red Cedar Lumber Association and the AIA have named winners in their second biannual awards program. The jury selected a house in upstate New York by Bohlin Cywinski Jackson Architects for the grand award.

Merit awards went to Steinberg & Stevens Architects, Dennis Wedlick Architect, and Burrirt Robertson Architects for three vacation houses; Akin Olfert Dressel Burnyeat Tracey Architects for the Wanuskewin Heritage Park Visitors Center in Canada; Fisher-Friedman Associates for apartments in Beaverton, Oregon; Richard Roseland, Architect, for an Iowa picnic shelter; and Tigerman McCurry for an Illinois Boy Scout camp.



GRAND AWARD: Bohlin Cywinski Jackson.



MERIT AWARD: Dennis Wedlick house.



MERIT AWARD: Iowa park shelter by Richard Roseland, Architect.



MERIT AWARD: Visitors center by Akin Olfert Dressel Burnyeat Tracy.

Accessibility Standard

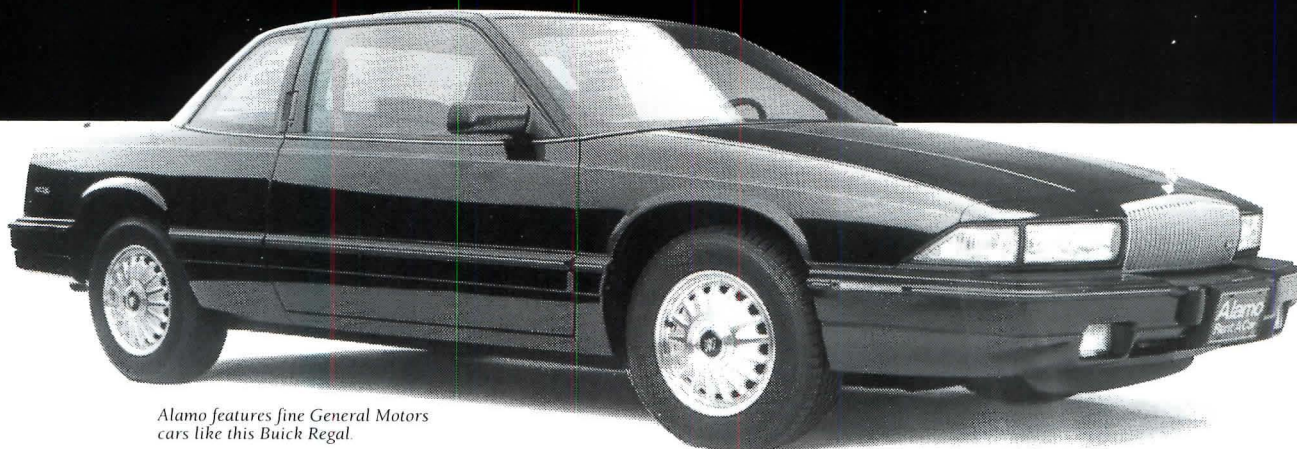
The American National Standards Institute (ANSI) approved the latest edition of the ANSI A117.1 standard for accessibility in December. The revision, initiated in 1989, was coordinated by the Council of American Building Officials (CABO). The new version will be published by CABO and entitled CABO/ANSI A117.1-1992.

The ANSI document was rewritten to establish an enforceable standard compatible with the model building codes. Ambiguous language was clarified; commentary and illustrations were removed from the text of the standard and inserted in an appendix; and specific information about the quantity and locations of accessible features

such as toilets, telephones, and parking spaces was deleted. Although the revision was part of a periodic review required by ANSI for all of its standards, members of the review committee took the opportunity to compare ANSI A117.1 to the accessibility guidelines developed for the Americans with Disabilities Act (ADAAG). Robert Spangler, program manager of CABO, explains that the ANSI committee did not always agree with ADAAG. "Overall, the ANSI standard is more restrictive, and therefore provides greater accessibility."

Even as CABO/ANSI 117.1-1992 is being printed, the committee is discussing appropriate heights for automatic teller machines, size of signage, and shape of manufactured shower stalls for future editions. For a copy, contact: (703) 931-4533. ■

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Courting Design

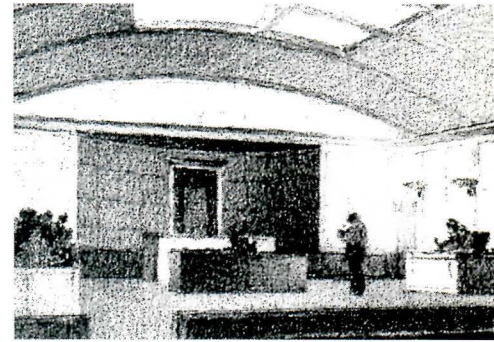
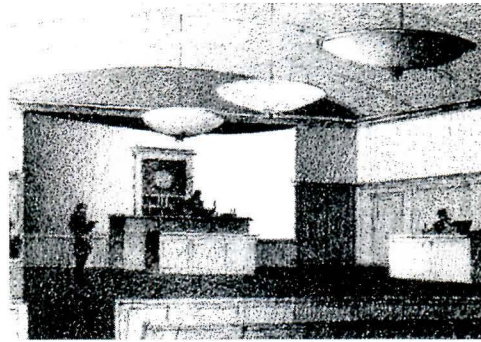
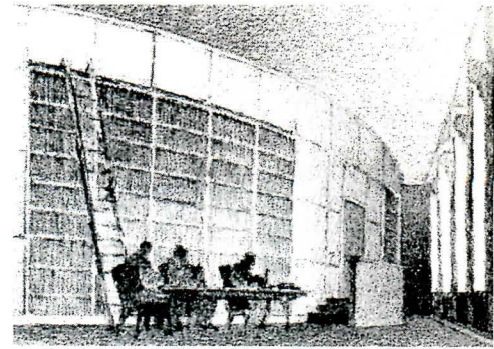
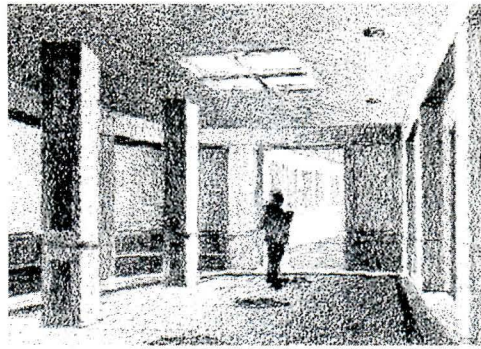
Under a massive government building program, federal courthouses are changing to reflect new legal procedures and technological opportunities.

TOP LEFT: Leers, Weinzapfel Associates' expansion and renovation of the Harold J. Donohue Building in Worcester, Massachusetts, will include a skylit courtroom lobby inserted into existing building.

TOP RIGHT: Judges' library is located within new addition, behind curved wall of main courtroom, and will face a wall of windows.

LOWER RIGHT: Courtroom is designed as 20-foot-high space with vaulted ceiling, oak paneling, and a large skylight. Jury seating for 18, spectator seating for 70, and a two-person witness box facing the jury define the courtroom, while a raised judge's bench will be framed by a curved, wood-paneled alcove.

LOWER LEFT: New bankruptcy courtroom will also incorporate vaulted ceiling and oak wainscoting.



When he retired after 40 years as a district judge for Massachusetts, the Honorable John Davis couldn't help but register one small complaint about the "peculiar embarrassment" he faced on a regular basis. "Frequently, no place could be found for holding the courts of the United States but in a hotel," Justice Davis lamented. And at one point, fellow justice Marshall Prince "knew not where to find a place for the court but under the great tree on the Commons."

Davis made those remarks in 1841. Yet more than 150 years later, the problem is much the same. Across America, the halls of justice have grown more crowded than ever, thanks to the litigation explosion of the 1980s and 1990s. But today's federal judges won't be forced to endure the hardships Justice Davis faced throughout his career.

Federal building program

In 1990, the federal government launched what amounts to the largest nonmilitary building program in its history. Over the next decade, the United States is expected to spend more than \$10 billion to complete work on 114 federal courthouses now in various stages of design, construction, and renovation around the country. That figure includes more than 50 major new courthouses scheduled to open by 1997. It is a major cycle of courthouse building that promises to change the face of our public realm. In increasing the current volume of courthouse

space, judges are seeking to improve dramatically the quality of the spaces available for their proceedings. Courts have already begun to take advantage of technological advances such as recording systems that eliminate the need for stenographers and computer systems that introduce nontraditional forms of evidence such as videotape.

Now there is talk of even more futuristic ideas, such as courthouses that would take advantage of sophisticated communications technology to try cases without requiring all parties to gather in one location. Some believe that a renewed commitment to cooperation between the federal and state courts will lead to more sharing of space.

Judicial prototypes

What planners ultimately envision is nothing less than a new system for meting out justice—and new structures to accommodate it. They believe the high-tech justice centers of the future will be as different from the venerable courthouses of the past as today's medical centers are from the antiquated hospital wards of the 19th century. "The structures in which the justice of the future is dispensed may look very different from the courthouses we know today," agrees the Honorable William Rehnquist, Chief Justice of the U.S. Supreme Court.

The federal court system was established to adjudicate cases that are broader than those handled by state and local systems. In recent decades, however, the role of the fed-

eral courts has expanded greatly, reflecting the federal government's growing role in cases ranging from bankruptcy proceedings to prosecution of drug dealers and white-collar criminals. To handle the flood of new cases, the government increased the number of federal judgeships from 506 in 1978 to 828 at the start of 1993. But few federal courthouses were constructed over the past two decades to accommodate these new judges and their support staffs, resulting in the current shortage of courtrooms and offices. Compounding the problem is a demand by judges and jurors alike for better facilities, including new methods of ensuring the security of those involved in legal proceedings.

Aware of these concerns, Congress earmarked \$338 million for courthouse construction in fiscal year 1993, enough money to build 17 new courthouses. According to the Administrative Office of the U.S. Courts, \$5 billion worth of construction and renovation projects are already in the pipeline, and the office projects that another \$5 billion will be authorized over the next five to 10 years for future courthouses.

Improving courthouse design

Along with this ambitious investment of taxpayers' dollars, elected officials and government planners want to improve the way courthouses are built. In the past, design services have been procured by the regional offices of the U.S. General Services Administration. Dissatisfied with the GSA's results, some judges and elected officials have proposed a separate agency to seek out the finest design talents for these new courts, just as the federal government has separate processes for building embassies, federal prisons, and medical centers for veterans.

In 1991, Senator Daniel Patrick Moynihan of New York introduced legislation to create such an agency to oversee the design and construction of federal courthouses. Although Congress has taken no action on the legislation as yet, the judges who favor more specialized treatment vow that they won't let the idea die.

In the meantime, the ambitious program of building federal courthouses is moving ahead under the auspices of the GSA. Leading the search for design quality within that agency is Edward Feiner, architect for the office of design and construction. "Dignity, vitality, stability—these are the traits we try to translate to architecture," Feiner explains. "We are going to the best architects in the country to do that."

Leading architects who might not have even bid for work a decade ago are designing federal court facilities from Portland, Maine, where Leers, Weinzapfel and Associates renovated and expanded an existing courthouse, to Portland, Oregon, where Kohn Pedersen Fox Associates is working with BOOR/A on a 602,000-square-foot courthouse. Also now working on federal courthouse commissions are Richard Meier & Partners, which has joined with the Spector Group to design a \$195 million federal building and courthouse with 21 courtrooms in Islip, New York, and Harry Cobb of Pei Cobb Freed and Partners, designer of Boston's new federal courthouse on Fan Pier. Skidmore, Owings & Merrill has three projects in various stages of design and construction, and KPF's Foley Square Courthouse in New York is now under way.

Along with this influx of design talent has come a diversification in the range of project-delivery systems implemented in courthouse construction. In some cases, the architects

The high-tech justice centers of the future will be as different from the venerable courthouses of the past as today's medical centers are from the antiquated hospital wards of the 19th century.

work directly for the GSA under a straightforward construction contract. But other courthouses are now being built by a design-build process, in which architects and contractors join forces to compete for a specific commission. In other cases, the federal government may bring in a private developer to build the courthouse, and the architect may be hired by the developer.

Delivery systems may vary even when the architectural firm doesn't. According to SOM project architect Cary Haney, each of his firm's three federal courthouse projects will be constructed under a different delivery system. SOM has designed a courthouse for Charleston, West Virginia, under a straightforward construction contract, Haney explains, but the firm is working as part of a design-build team on a courthouse in White Plains, New York, and for a private developer on the renovation of judicial space inside Brooklyn's General Post Office Building.

The architect selection process for federal courthouses is a multistage procedure, in which the GSA issues a request for credentials, to which any firm may respond, and then prepares a short list of the most highly qualified candidates for a specific project. Although various regional offices handle the process differently, the short list is usually determined by a panel of government officials, GSA staff architects, and others. Today, numerous judges are serving on selection panels and helping draft specifications for new buildings, or even recruiting architects with whom they would like to work. Many are looking beyond their own courtrooms and chambers to demand that court buildings address a broader urban agenda.

For the massive Foley Square project in lower Manhattan, judges met with architects from Kohn Pedersen Fox every three weeks until the design was finalized. Robert Cioppa, design principal for KPF, found the judges to be demanding but thoughtful clients. "Judges are used to verbal arguments, and they insist on an exploration of antecedents and precedents," Cioppa observes. "They are not wedded to a single stylistic solution."

Judicial involvement

Recognizing such judicial involvement, the Administrative Office of the U.S. Courts in 1991 issued the "U.S. Courts Design Guide," a 410-page document that outlines many of the issues that arise in the design of new or renovated facilities for the federal appeals courts, district courts, and bankruptcy courts. The guide does not promote any particular stylistic approach, but attempts to raise design standards by serving as a comprehensive planning tool.

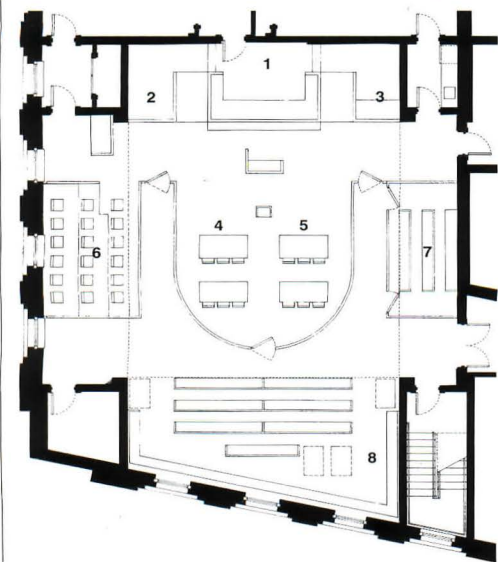
Last fall, a four-day international conference on courthouse design was held in Washington, D.C., attracting nearly 600 architects, judges, court administrators, and government officials. While many issues are just beginning to receive the attention they deserve, speaker after speaker underscored the significance of the effort—and the need for better collaboration among all involved.

"The question is whether these new courthouses will be built well or built poorly," contends Judge Douglas P. Woodlock of the District of Massachusetts. "If justice is carried out in second-rate facilities, we give a message to the people who are called upon to use our justice facilities. Our courthouses say a great deal about what our country thinks about its system of justice." ■

—Edward Guntz

**Harold J. Donohue Building and
U.S. District Courthouse Renovation**
Worcester, Massachusetts
Leers, Weinzapfel Associates Architects

An \$11.3 million expansion and renovation of the Harold J. Donohue Building, designed in 1932 to house a post office and federal courthouse, will provide a grand jury courtroom, bankruptcy court, two district courtrooms, and chambers for judges and their staff. Leers, Weinzapfel Associates' scheme restores the five-story, 90,000-square-foot granite building and inserts 9,000 square feet of new construction within an existing upper-level light well. This three-story infill, expressed as a giant bay window, will house a new district courtroom on the fifth floor and a new bankruptcy courtroom on the third floor. Libraries on each level are located in the space between the courtrooms. Construction of the complex is scheduled to begin this spring.



GROUND FLOOR PLAN

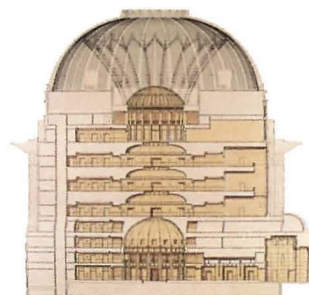
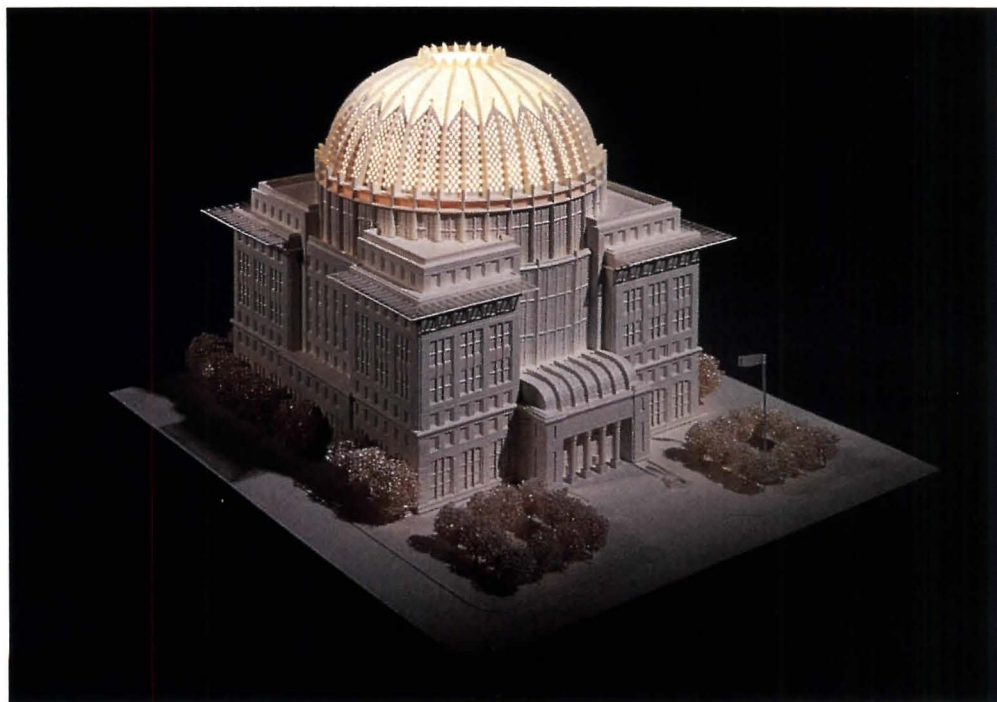
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| 3 CLERK | 7 COURT STAFF |
| 4 PROSECUTION | 8 SPECTATORS |

United States Federal Courthouse
Charleston, West Virginia
Skidmore, Owings & Merrill

Located on a site adjacent to other state government buildings, a new 350,000-square-foot courthouse will be one of West Virginia's largest buildings, second only to the Cass Gilbert-designed state capitol, which anchors the opposite edge of downtown. To echo the capitol, Skidmore, Owings & Merrill organized the limestone-clad building around a perforated steel dome that admits natural light to a rotunda. The courthouse's 185-foot-diameter dome serves as a contemporary counterpart to the Gilbert-designed 95-foot-diameter gold dome, and will be internally illuminated at night. A series of radial trusses form the support structure of the dome, eliminating the need for tension- and compression-ring members.

The first courthouse design to be com-

pleted following release of the U.S. courts design guidelines in 1991, the building is organized with agency and administrative support functions on floors one through four. Floors five through seven are designed to contain eight courtrooms and 11 judges' chambers. But SOM has designed the building to accommodate internal expansion as the court system grows over the next 30 years. Lower-level office space can ultimately be replaced with additional courts and chambers, giving the building a total of 12 courtrooms and 15 judges' chambers. The eighth floor will house a ceremonial court, appellate chambers, and a law library, with a mezzanine of reading rooms immediately under the skylight dome. Construction is scheduled to begin later this year.



ROTUNDA SECTION

**United States Courthouse
Boston, Massachusetts
Pei Cobb Freed & Partners and
Jung Brannen Associates**

Located on a 4.6-acre site on Boston's Fan Pier, the 10-story courthouse represents an effort to accommodate the needs of the federal court system with a structure that takes advantage of spectacular waterfront views while leaving half the site open for use by the general public. The plan's openness is a reference by the architects to both the strong tradition of public space in Boston, dating back to the Common, and the judges' desire for a building that embodies the principle that the courts are open to all.

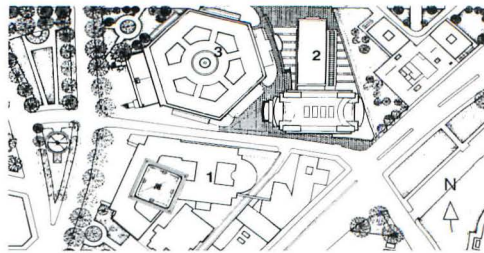
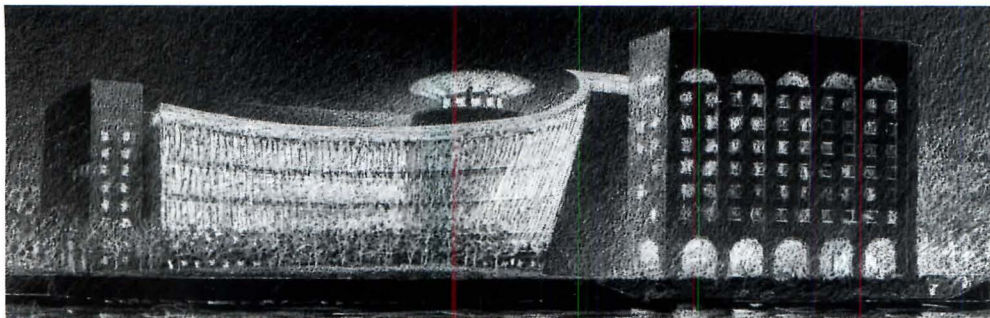
The \$184.2 million project is essentially L-shaped in plan, with two legs holding the street edge along Old Northern Avenue and Farnsworth Street and the open end facing the water and framing a new public park. In contrast to the brick and granite-trimmed el-

evations along the street, the waterfront side features a crescent-shaped glass wall offering views of the Boston skyline. The 500,000-square-foot building will house 19 district courtrooms, six magistrate courtrooms, and two appeals courts, with expansion space for four more courtrooms. The first level will be devoted to court-related support functions, and the second level will contain the main public areas, a cafeteria, and court clerks' offices. Levels three through eight contain courtrooms and judges' chambers. The design calls for three double-level spaces, with the main court activities on floors three, five, and seven and companion mezzanines containing jury deliberation rooms on floors four, six, and eight. The top two floors will accommodate a future U.S. attorney's office.

**Foley Square Courthouse
New York City
Kohn Pedersen Fox Associates**

One of the largest federal courthouse complexes under construction in the country, the Foley Square project encompasses a 921,000-square-foot courthouse designed by Kohn Pedersen Fox Associates and a 940,000-square-foot, 34-story office building designed by Hellmuth Obata & Kassabaum, which is located two blocks to the east. To meet the building's complex programmatic requirements as efficiently as possible, KPF sandwiched floors housing judges' chambers between double-height courtrooms in the courthouse tower.

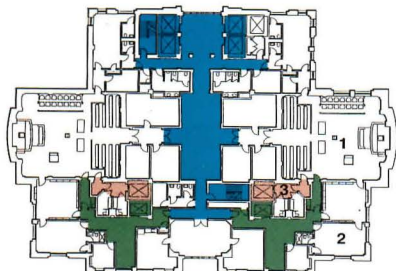
The mid-rise wing with larger floorplates contains public administrative spaces and support functions. Construction of the courthouse started last summer and is scheduled for completion in late 1994.



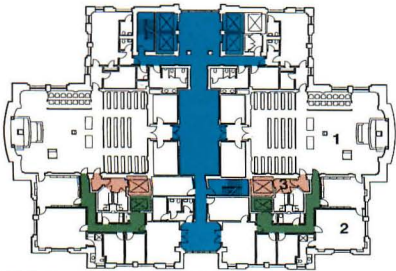
SITE PLAN
1 ORIGINAL COURTHOUSE
2 NEW KPF COURTHOUSE
3 NEW YORK STATE COURTHOUSE

**United States Courthouse
Alexandria, Virginia
Spillis Candela/Warnecke**

Alexandria's new 315,000-square-foot federal courthouse will be the centerpiece of a 76-acre mixed-use development master-planned by Cooper Robertson & Partners. To reduce the building's apparent mass, Spillis Candela/Warnecke articulated the federal-style tower with a series of setbacks and clad the structure in brick with precast-concrete accents. The tower houses three magistrate courts, two small district courtrooms, a larger district court, and a federal circuit court. A five-story wing to the west of the main tower houses offices for the U.S. attorney and staff; a three-story wing, skewed at a 45-degree angle from the tower, contains offices and fronts a landscaped courtyard. The building is scheduled for completion next year.



TYPICAL MAGISTRATE COURT FLOOR

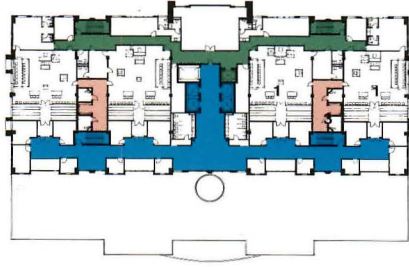


TYPICAL DISTRICT COURT FLOOR

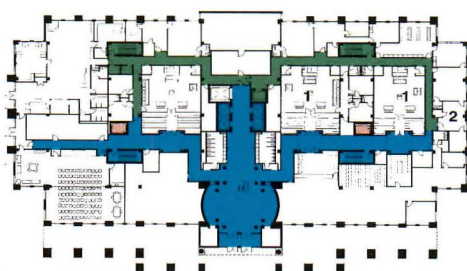
- PUBLIC
 - PRIVATE
 - SECURE
- 1 COURTROOM
 - 2 JUDGE'S CHAMBER
 - 3 LOCKUP

**United States Federal Courthouse
Kansas City, Kansas
Hansen Lind Meyer and
Gossen Livingston Associates**

In Kansas City, Hansen Lind Meyer explored a variety of possible design alternatives for the projected 274,000-square-foot federal courthouse. Schemes with four, five, and six courtrooms per floor were proposed. Due to its cost-effective symmetrical organization, the four-courtrooms-per-floor scheme was selected. This configuration allowed the architects to take advantage of the natural slope of the site, providing two levels below the first floor and accommodating a vehicle sally port for inmate transport. Holding cells are centered between pairs of courtrooms, and the judicial chambers are pooled at the top of the building to maximize both security and spatial efficiency. Construction of the courthouse began in late 1991 and will be completed later this year.



FOURTH FLOOR



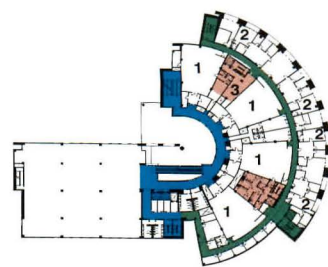
FIRST FLOOR

- PUBLIC
 - PRIVATE
 - SECURE
- 1 COURTROOM
 - 2 JUDGE'S CHAMBER
 - 3 LOCKUP

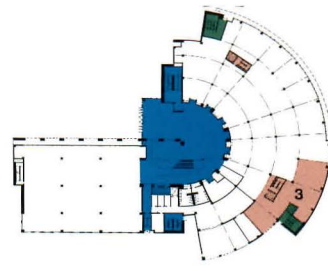
**United States District Courthouse
Greenbelt, Maryland
Hellmuth, Obata & Kassabaum**

Located on a 9.3-acre site that was formerly part of the Beltsville Agricultural Research Center, this \$36 million complex will consolidate the previously scattered functions of the Southern Division of the Judicial District of Maryland and house approximately 300 employees. Taking advantage of views of the natural landscape, HOK's scheme calls for a semicircular wing that is connected to a central circulation core and crowned with a 24-foot-tall penthouse.

Seven wedge-shaped courtrooms and judges' chambers fan out from a three-story atrium. Administrative support functions are clustered in a four-story rectangular wing, which is situated to the south. The complex is currently under construction and is scheduled to be completed in 1994.



TYPICAL FLOOR PLAN

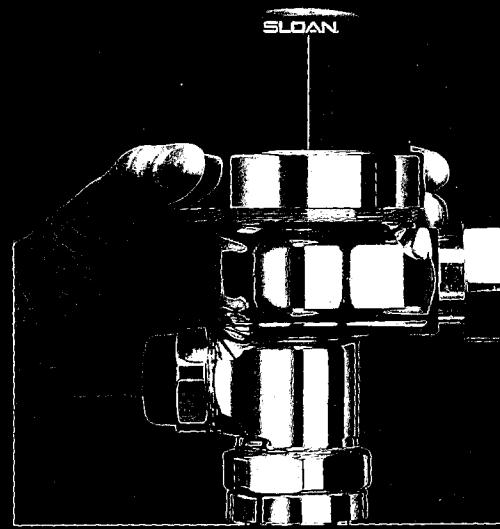
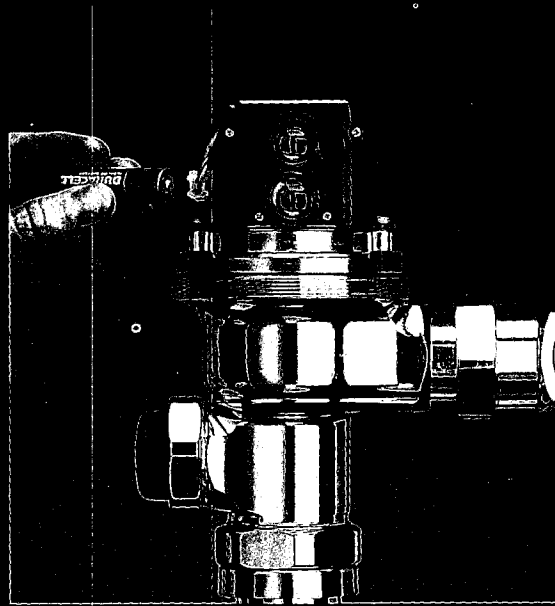
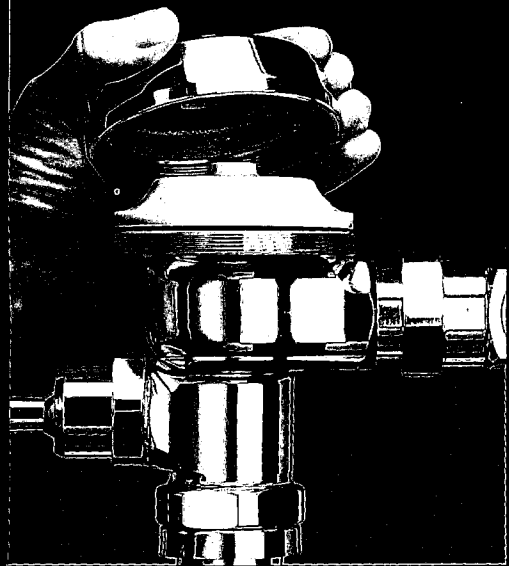


FIRST FLOOR PLAN

- PUBLIC
 - PRIVATE
 - SECURE
- 1 COURTROOM
 - 2 JUDGE'S CHAMBER
 - 3 LOCKUP

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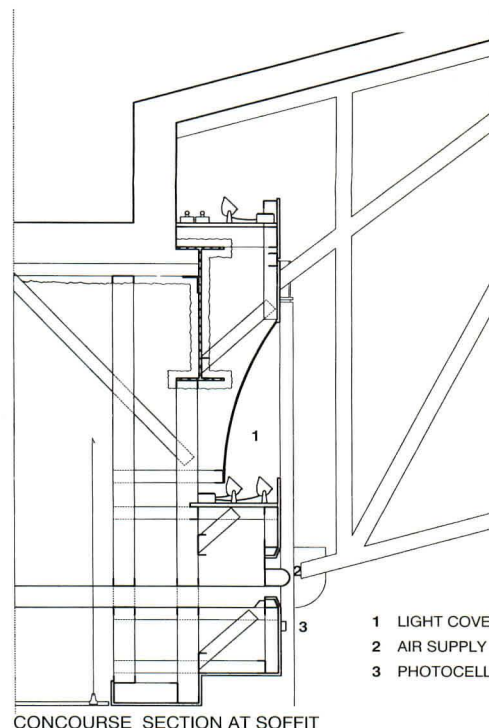
Controlled Illumination

New photocells, ballasts, and motion sensors customize lighting systems to meet design and energy requirements.



TOP LEFT: Within Concourse E in the Portland International Airport in Oregon, sculpted niches in fascia house uplights that illuminate trusses, while downlights sparkle on columns (bottom). Fluorescent strips (lower left) are located in the ceilings of holding rooms, where travelers wait for boarding calls. Skylights illuminate concourse by day (top).

TOP RIGHT: Section through soffit and light cove reveals location of photocell.



CONCOURSE SECTION AT SOFFIT

- 1 LIGHT COVE
- 2 AIR SUPPLY
- 3 PHOTOCELL

In the mid-1980s, high-tech lighting controls were poised to sweep across the architectural landscape, rendering every designed space accessible to sophisticated manipulations of illumination levels and color. Manufacturers introduced computerized systems with increasingly complex control panels sporting flashy LED displays; remote, preset, and gradual fade options; photocells; occupancy and motion sensors; and elaborate computer possibilities.

Unfortunately, the few architects who tried to implement these innovations soon discovered that the high-tech wonderland of modern lighting controls was fraught with troubles, including high costs, technical glitches, and user resistance. The lighting systems and control panels seemed to be designed for engineers, leaving the typical building occupant intimidated and confused.

New York-based lighting designer Jerry Kugler, for example, notes that control panels with multifunction programmable switches are often overly complicated. Daniel Blitzer of Lightolier, one manufacturer of lighting controls, admits that "occupancy sensors were originally disenchanting because they were erratic." As Seattle-based designer Wendy Mertel of Mertel Design Associates relates, a recent addition to Evergreen Hospital in Kirkland, Washington, exemplified the negative aspects of lighting controls: patient rooms equipped with motion sensors were automatically lighted when patients rolled over in bed at night.

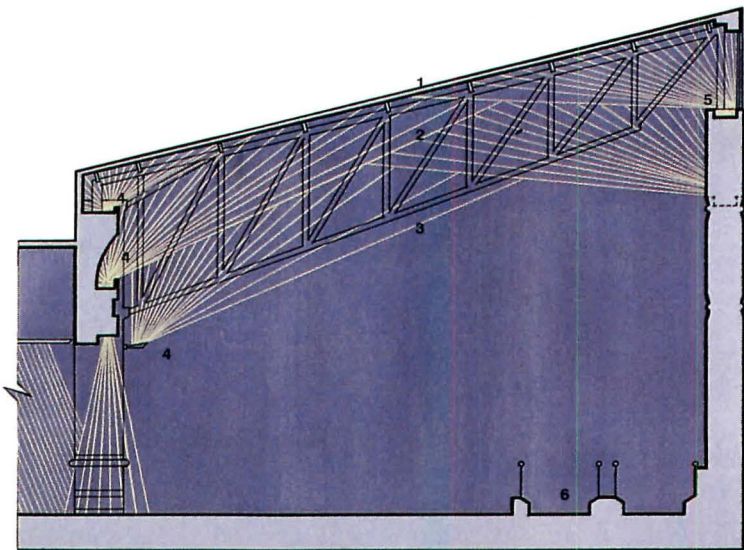
But high-tech lighting controls do not have to be intimidating or counterproductive. Such systems have been designed to improve illumination while promoting energy efficiency. As architects and their lighting consultants become more familiar with the potential and shortcomings of this equipment, they are discovering that control-generated solutions to complex lighting problems are readily available. Only now are the controls becoming commonplace as the awareness of illumination as an integral part of architecture expands, and daylighting, artificial lighting fixtures, and component controls are incorporated into schematic design.

For architects interested in light control, new systems can be custom-combined and integrated to meet illumination and energy demands on a project-by-project basis, through the incorporation of photocells, time clocks, motion sensors, and ballasts.

Motion sensors and ballasts

As lighting designers Kugler and Gary Delanski, of Warshal Electronics in New York City, observe, energy codes, with their focus on efficiency, have become a real force in promoting lighting controls in many states. Motion sensors are being linked with photocells, which read daylight levels, to maximize energy efficiency by triggering artificial lights only when they are needed. Sophisticated new photocells developed and manufactured by companies such as Multi-point can be calibrated to respond to fairly

- | | |
|-----------------|---------------------|
| 1 METAL ROOFING | 4 LIGHTING FIXTURE |
| 2 PURLIN | 5 CLERESTORY WINDOW |
| 3 STEEL TRUSS | 6 MOVING WALKWAY |



NORTH-SOUTH SECTION



subtle changes in light, as opposed to previous models that simply activated a light switch in accordance with specified levels of daylight. These new photocells are also capable of sending signals directly to a dimming ballast. This interaction of photocells and ballasts keeps artificial lighting at the lowest possible levels, reducing energy consumption.

New electronic ballasts—the Mark VII by Advance Transformer, for example—permit reliable dimming of fluorescent light, which earlier electromagnetic ballasts could not consistently achieve. In addition, the ballasts reduce energy usage; according to lighting designer Mark Ramsby of PAE Consulting Engineers in Portland, Oregon, the Mark VII controls light levels down to 20 percent, with visually consistent dimming. More significant from an efficiency standpoint, there is a nearly direct correlation between reduced light level and energy consumption: a 50 percent reduction in light levels produces a 55 percent reduction in energy usage. Another new ballast—Hi-Lume from Lutron—is dimmable down to 1 percent, but does not match the energy efficiency of the Mark VII.

Costs of lighting systems are down as well. Kugler estimates that controls for fluorescent lights ran roughly \$100 per 4 feet of lamp in the 1980s. That figure is now around \$50, and can drop as low as \$15—as in the case of the Portland International Airport expansion.

Microprocessors have simplified integration of lighting into building management systems, with controls—and overrides—now

accessible through telephone lines. Some lighting designers, including Mark Ramsby, argue that this technology is unnecessarily complicated, but it does eliminate the need for wall switches, as a telephone fulfills the code requirement for visible switching.

This new generation of lighting controls, developed in response to increasing demands for energy efficiency and psychological sensitivity, has reached a high level of sophistication. As the controls become more mainstream, they will change the way architects and their consultants think about illuminating buildings.

Airport terminal lighting

An example of the new wave of cost-effective, energy-efficient lighting systems with state-of-the-art controls is Concourse E within Portland, Oregon's airport. This terminal is part of the airport expansion designed by the local architecture firm of Zimmer Gunsul Frasca (ZGF). The mechanical and electrical engineering, and the illumination program, are the work of PAE Consulting Engineers, with lighting design by Ramsby. Architects and consultants developed the lighting and building designs together, resulting in the integration of illumination and architecture.

ZGF project architect Mark Foster envisioned natural light as the primary source of illumination in the concourse, an appropriate response to the long, narrow structure that is used most heavily during daylight hours.

From lighting designer Ramsby's point of

view, the success of the illumination system depended on its performance during transition from day to night. Dusk is the most difficult time to light, he believes, and special care must be taken with that period.

Consistent light levels

Daylight is maximized in the airport concourse through skylights and extensive glazing along the two long walls of the rectangular, pitched-roof building. As the light level drops outside, fluorescent fixtures within the building are activated by interior and exterior photocells connected through relay panels to electronic ballasts, and internal light levels rise to compensate for the fading daylight. The result is a consistent light level through dusk and into the evening hours, until 11 p.m., when a night setback automatically dims all the interior lights in the terminal.

To control illumination levels in the fluorescent lamps, the primary source of artificial light in the building, Ramsby placed a series of Multipoint photocells high up on the wall opposite the holding rooms along the concourse. These cells read the level of light entering through the skylights and clerestory. Skylights are fitted with frit glazing to enhance reflectivity at night. Ramsby then connected the photocells to Mark VII ballasts, which control light levels of the 32-watt T8 fluorescent lamps, located throughout the circulation zone of the concourse. Each continuously dimming ballast controls a pair of lamps that are installed in uplights in three locations: in coves



within the fascias that separate the low ceiling of the holding rooms from the high ceiling of an adjacent circulation zone, atop the fascia, and on the opposite wall. On the edge of the holding rooms, round downlights housing 26-watt vertical compact fluorescents add sparkle to the stainless-steel bases of the structural columns separating hallways from holding rooms. The holding rooms are illuminated with conventional ceiling fluorescents.

Automatic fade

In addition to the photocells and ballasts, Ramsby regulated the light through a time clock. Sudden changes in light are avoided by scheduling a five-minute fade period during which every lamp in the system drops to a lower illumination level at 11 p.m. This automatic drop can be manually overridden at the punch of a button; the buttons are located at the ticket and check-in counters in the holding rooms, allowing airline personnel to increase the light for late evening takeoffs or arrivals. The manual override raises the illumination to normal operating levels not only in the individual holding room, but down the concourse to the entrance. Had the night setback not been included in the program, the photocells could have been wired directly to the ballasts and the relay panels eliminated, but the manual override allows for user control.

People like to know they can physically turn lights on and off, and they also like to see light sources. Both these needs are accommodated in Concourse E. In addition,

the unwelcome shock of instantly reduced light levels is avoided with the five-minute fade, while people's acceptance of lower levels late in the evening is utilized to increase energy efficiency after 11 p.m.

Exterior photocells

A photocell on the roof is linked through relay panels to ballasts that control on-off switching in a series of uplight fixtures located at the juncture of structural columns and soffit. The fixtures house 70-watt metal-halide lamps that automatically switch on in the evening, casting a warm glow on the roof trusses. An Osram Powertronic ballast integrated with the uplights is manufactured specifically for use with metal-halide lamps, and helps stabilize the color of these often uneven lamps. Exterior apron lighting in the gate area outside the concourse is also subject to controls that are activated by rooftop photocells. The apron lights dim at 11 p.m., like the interior lights, and have manual overrides to raise levels for plane arrivals.

Oregon energy codes permit a 1.1 watt per square foot level of illumination in this building. The architects earned a 30 percent credit increase in the level by specifying continuous dimmers, resulting in an energy allotment of 1.4 watts per square foot. The system actually uses .9 watts per square foot during daylight hours and only .5 watts per square foot on a 24-hour basis, maintaining energy consumption at one-third of what is acceptable under the state energy code.

FACING PAGE, FAR LEFT: Section shows multiple sources of artificial light in Concourse E. At left, fluorescent downlight emerges from ceiling strips in the holding room and fixtures under the fascia; metal-halide uplight emanates from sconces; fluorescent lamps are located within and atop the fascia.

ABOVE, LEFT TO RIGHT: Day, dusk, and night exposures demonstrate combinations of daylight mixed with fluorescent and metal-halide light.

Achieving simplicity and greatly reduced energy consumption in the complex illumination program demanded of an airport requires a thorough knowledge of the available equipment, which is one reason architects like Mark Foster of ZGF rely on lighting designers. "This building was designed to utilize a lot of natural light, and the illumination system had to work with it," Foster explains. "We don't have time to monitor the advances in equipment. You have to work with lighting consultants."

Consultants are not a prerequisite to the successful integration of lighting into architecture. But as Concourse E demonstrates, the role and influence of energy efficiency in architecture can only grow. Since lighting control is a key element in energy strategy, all architects must come to terms with new systems. Technology should liberate, not intimidate. If lighting consultants are needed to facilitate that liberation, architects would be well advised to enlist their services. ■

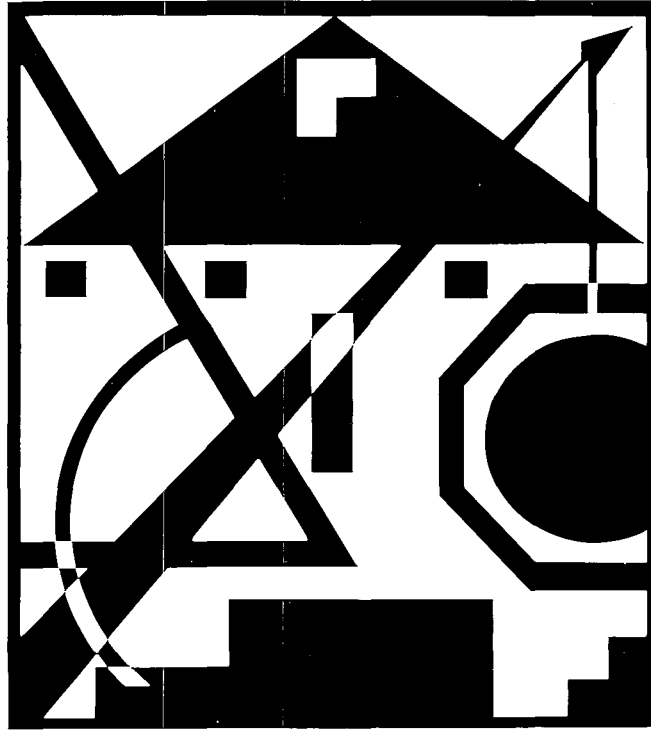
—Justin Henderson

Justin Henderson is a Seattle-based writer.

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Reforming the Reformatory

Direct supervision of inmates, increased medical services, and privatization of correctional facilities are creating new types of jails across the country.

ABOVE RIGHT: "Normative" is the buzzword throughout the corrections industry today. Comfortable rooms such as the inmate dayroom designed by Silver & Ziskind for the District of Columbia Correctional Treatment Facility are becoming more common in jail settings.



DOLIG BROWN PHOTOGRAPHY

Few buildings are as politically unpopular as jails. Most people are reluctant to live near them, fearing for both their personal safety and their property values. And they are even more unwilling to hand over their hard-earned tax dollars to pay for new jails, which are often perceived as being more comfortable than criminals deserve.

The explosion in arrests during the past decade, however, has left many counties and localities, particularly in urban areas, with little choice but to build new jails to hold pre-trial inmates and state inmates serving short sentences. Last year an average of 426,000 people were held in the nation's 3,353 local and county jails each day, more than three times the number detained 15 years ago.

New wave of jails

For more than 200 years, local jails, usually owned by counties and operated by sheriff's departments, have been the "stepchildren" of the criminal justice system. According to Ken E. Kerle, managing editor of *American Jails*, local jails have consistently lagged behind more progressive federal and state facilities in design and funding. But in recent years, a variety of economic and social pressures have begun to change the face of jail design, resulting in new, so-called third-generation jails that one architect describes as "so completely different from what came before as to almost defy comparison."

The increased adoption of the direct-supervision method of corrections at the local

level, which allows for a more "normative" environment, may be the most significant factor in this new wave of jail design. Under direct supervision, a corrections officer moves among the inmates rather than overseeing them from behind a protective, glassed-in control booth. Although direct supervision was pioneered at the federal level some 20 years ago, until recently local prison officials were reluctant to adopt the direct-supervision method to manage their unclassified, short-term inmate populations. But studies showing that direct supervision yields less expensive, less violent institutions have challenged counties to adopt this method of prison management, and encouraged architects to adapt their designs for incarceration facilities.

Jail design is also being affected by the increase in special-needs prisoners. The dramatic rise in the number of people arrested who carry the AIDS virus and who are infected with communicable diseases such as tuberculosis—as well as people with mental-health or drug-addiction problems—has sent jail authorities scrambling for solutions. Jails are now being designed with more sophisticated and extensive medical facilities, a trend that will undoubtedly continue as the general population ages and greater numbers of women and elderly and disabled people are incarcerated. "The need is looming in front of us," says Allen L. Patrick, NBBJ's principal-in-charge for criminal justice facilities based in Columbus, Ohio, and chairman of the International Committee of Criminal Justice

Architecture. "Females are turning up at these prisons, and we are finding that we don't have the bed space for them."

The perennial shortage of money at the local level for jail construction may also lead to an increase in the privatization of design, construction, and operation of jails in coming years. Despite the well-publicized failure of six for-profit prisons built on speculation in Texas in the 1980s, many prison-reform advocates believe privatization eases overcrowding by speeding construction of facilities.

Overcrowding continues to be a factor at all levels of corrections. (In 1991 more than one-fourth of jurisdictions surveyed by the Bureau of Justice Statistics had a jail under court order to limit population.) Most of the nation's jails are still small facilities that hold fewer than 50 inmates, and the total number of jails has remained constant over the past 15 years. But at the same time the proportion of "megajails" has increased dramatically: 15 years ago only 10 jails held more than 1,000 inmates; now 54 jails house 1,000 or more, and the construction of these large facilities seems to be on the increase.

Although funding for jail construction is significant—according to the American Correctional Association, almost \$4.2 billion is slated to be spent to build new local jails or to renovate existing jail facilities in the next five years—that amount is down 18 percent from the peak corrections spending of 1990. Most of the planned projects are in California, Florida, Georgia, Kentucky, New York, Pennsylvania, Virginia, and Wisconsin. This reduction in funding, coupled with the continued high number of new inmates entering the system, makes it necessary for architects and counties to do more with less.

Direct-supervision facilities

According to architects who design them, direct-supervision jails are the best means of reducing the staff needed to operate the facility. The commonly accepted rule of thumb is that only 10 percent of the total costs go toward initial and capital construction, and 90 percent is spent on operations. Of that 90 percent, about 70 percent is spent on salaries.

Under direct supervision, a corrections officer moves among a group of inmates within a pod—usually 40 to 70 cells ringing a communal dayroom—and directly observes their behavior at all times. Construction savings are accrued, says Peter Krasnow, director of design for DMJM Justice Architecture, because ordinary institutional materials can be used in place of special high-security items.

Furniture and lighting fixtures can be commercial-quality items rather than expensive, vandalism-proof steel products. Cell doors can be made of wood instead of steel, and commercial-grade hardware can be installed. In addition, plumbing fixtures for the cells can be made of institutional porcelain, rather than more expensive stainless steel. Many direct-supervision jails include inmate cells without plumbing, known as "dry cells."

Costs are also being contained by eliminating secure control stations in each living unit and by doing away with extra security glazing and walls needed to further divide the inmate living area, according to Ray Nelson, president of the Direct Supervision Institute. Moreover, the podular design lends itself to the distribution of formerly centralized services to the inmate living areas. Inmates often eat their meals and participate in recreation in the dayroom adjacent to their cells; attend counseling sessions or meetings in classrooms near the dayroom; participate in

Jails are being designed with more sophisticated medical facilities, a trend that will continue as the population ages and women, elderly, and disabled people are incarcerated.

outdoor recreation in a space connected to the pod; and in some instances receive visitors and use video technology to communicate with the courts without leaving the enclosed area. Although bringing all these services to the pods can create a "cabin fever syndrome," according to Csaba Balzs, vice president of architecture services for L. Robert Kimball & Associates of Edenburg, Pennsylvania, the new system can save on staff salaries because the prisoners do not have to be escorted as they move between activities.

Other advantages of direct supervision include better control of inmates and reduced violence and vandalism, according to an early National Institute of Justice survey of direct-supervision facilities. In addition, the survey found that corrections officers took less sick leave in direct-supervision institutions, a potential savings of thousands of dollars.

But despite its apparent advantages, direct-supervision facilities are not embraced by all members of the criminal justice commu-

nity, some of whom view building jails equipped with numerous television sets, loungelike visitation rooms, and spacious recreation areas as being "soft" on criminals and too risky to adopt for inmates who have no history in confinement. "Does every community in America want a direct-supervision jail? Is it too liberal?" asks Dean Moser of the National Sheriff's Association in Alexandria, Virginia. "Each county is different and jail design is geared to the local clientele."

Growing medical needs

Jail design is also changing because of an influx of prisoners with special medical needs, says Michael F. Frawley, regional director of criminal justice architecture for Hansen Lind Meyer and chairman of the AIA committee on Architecture for Justice. Architects have already begun to include larger, more sophisticated medical facilities in their plans for new jails. In the coming years, it is anticipated that a large number of existing jails will be retrofitted to accommodate inmates who are too sick or too contagious to remain among the regular inmate population.

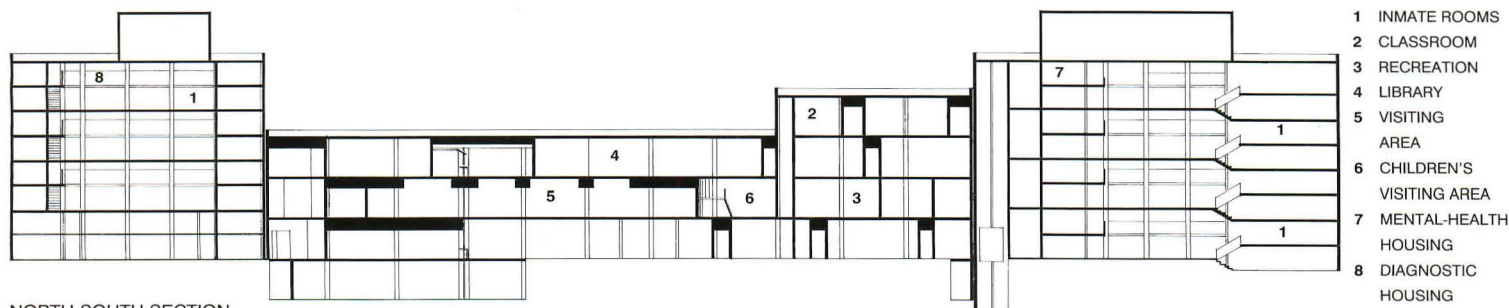
One notable example of such a retrofit project is a 140-bed tuberculosis unit designed by Silver & Ziskind of New York, the first phase of which opened in May at Rikers Island in New York City. Working to meet a tight court-imposed deadline, the architects opted to build the medical unit from steel prefabricated cells within a dozen existing aluminum-and-plastic tentlike structures formerly used as inmate dormitories. The air-handling system in the resulting maximum-security housing and treatment facility, believed to be the first of its kind, provides 12 complete air changes each hour to prevent the spread of contagious diseases.

Some jurisdictions are now considering plans to take the Rikers Island prototype one step further and design entire "jail hospitals" where sick prisoners can be held. Tom L. Allison, director of the Orange County Corrections Division in Orange County, Florida, has studied the concept for eight years and says it makes economic sense.

The county has to pay for both hospital expenses and a 24-hour-a-day guard while an inmate is in the hospital. Since it requires five full-time staff members to fill a continuous round-the-clock guard position, Allison estimates that the county spends \$180,000 a year to supervise each hospital inmate. An average of five Orange County inmates are hospitalized at any one time, so Allison figures the county could save \$1 million a year



DOUG BROWN PHOTOGRAPHY



NORTH-SOUTH SECTION

**District of Columbia
Correctional Treatment Facility
Washington, D.C.
Silver & Ziskind, Architects**

The first U.S. correctional institution designed specifically for treatment of inmates with chronic mental-health and substance-abuse problems is an 800-bed, \$50 million medium-security prison located in Southeast Washington, D.C. Although initially conceived as a therapeutic community for sentenced inmates with special needs, the D.C. Correctional Treatment Facility, which began accepting inmates in May, also houses pretrial female prisoners.

In response to an urban site, the architects divided the large facility into separate volumes containing inmate housing units and connected them to a central support structure. One goal of the design, says Joel E. Davidson, project manager of Silver & Ziskind, was to reduce the number of corrections officers needed in the facility, to create

an environment conducive to recovery. As a result, unescorted inmates in the facility may move from housing units to a multilevel, L-shaped "street" that runs along the edge of the support building. This corridor allows inmates to travel alone to the gymnasium, chapel, mosque, library, classrooms, recreation areas, and visiting areas. The facility contains a visiting area on the second floor that allows interaction between prisoners and visitors and includes sofas and televisions in order to make it as welcoming and as comfortable as possible.

Inmates with similar medical problems are housed together in 52-bed, two-story, direct-supervision housing pods that are each supervised by one corrections officer and contain office space for five or six counselors who meet with each inmate. The facility also con-

tains a 256-bed diagnostic housing unit for new admissions and a 32-bed unit for inmates with discipline problems.

Davidson says colors for the building's interior were selected with the advice of a psychiatrist; soothing blues, greens, and yellows are highlighted. Interior walls are built of 8-by-8-inch, steel-reinforced block rather than more institutional 8-by-16-inch block. Special attention was paid as well to the design of facilities for the staff. The complex also contains a 60-bed minihospital, capable of dealing with virtually any health problem. The minihospital, which will be shared with an existing jail located on the same site, was included in the plan in response to concerns voiced by local residents, who feared that inmates might escape from the prison while being transported for medical treatment.

with a secure hospital facility.

Allison envisions a multistory facility with 300 full-service hospital beds on the lower floors, including an intensive-care unit, and regular inmate housing above. Because such a facility has never been built before, he believes the project has the best chance of moving forward as a privatized venture funded by investors and designed, built, and operated by a private company, with the county paying fees for inmates who use it. Allison is currently consulting other Florida counties to determine whether a consortium that would use such a secure facility could be formed.

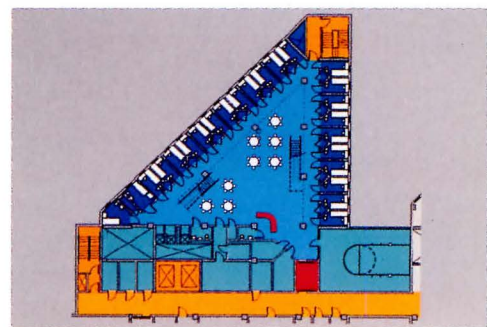
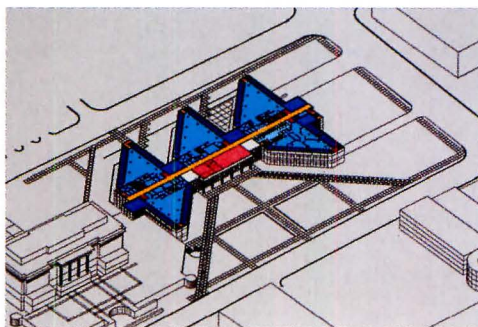
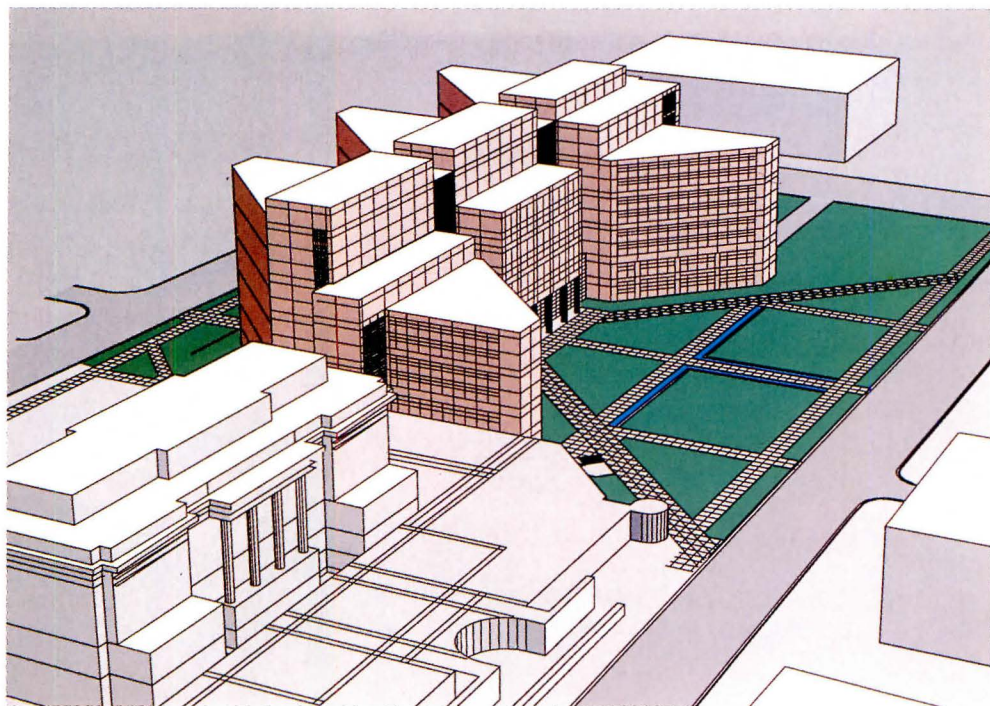
Privatized corrections

Privatization of more traditional correctional institutions, including jails, may play a role in getting such buildings off the drawing boards in the future, especially if the need for new and expanded prisons continues to outpace government's ability to finance and manage them. Although the private corrections market is still comparatively small, many believe the number of public-private partnerships—which give the government access to needed cells without the need to get voter approval for the sale of bonds—will increase if public money remains tight.

Privatized corrections work is carried out by a small group of companies and development teams that finance, design, build, and operate the facilities. These entities, which often work under government contracts that guarantee prisoners to fill the new beds, are paid on a per diem basis for each prisoner housed. By midsummer, 60 such privately managed facilities will be operating in the United States, 53 of them privately constructed or renovated, according to Charles W. Thomas, director of the Private Corrections Project at the University of Florida. The leader in the private corrections market is Nashville, Tennessee-based Corrections Corporation of America, which will be operating 17 facilities with 6,616 beds by mid-1993.

But such privatization is controversial because it turns over the care of prisoners, which is clearly a government responsibility, to a for-profit entity. Unanswered questions concerning who is liable for prisoner injuries, or if a prisoner escapes, still loom large, slowing the pace of privatization. In addition, private operation is fiercely opposed by public employee unions and politicians who want to maintain control of prison jobs.

Less controversial are lease-purchase financing and turnkey arrangements for building correctional institutions that do not in-



Mecklenburg County Intake and Detention Facility Charlotte, North Carolina Hellmuth, Obata & Kassabaum Little & Associates Architects

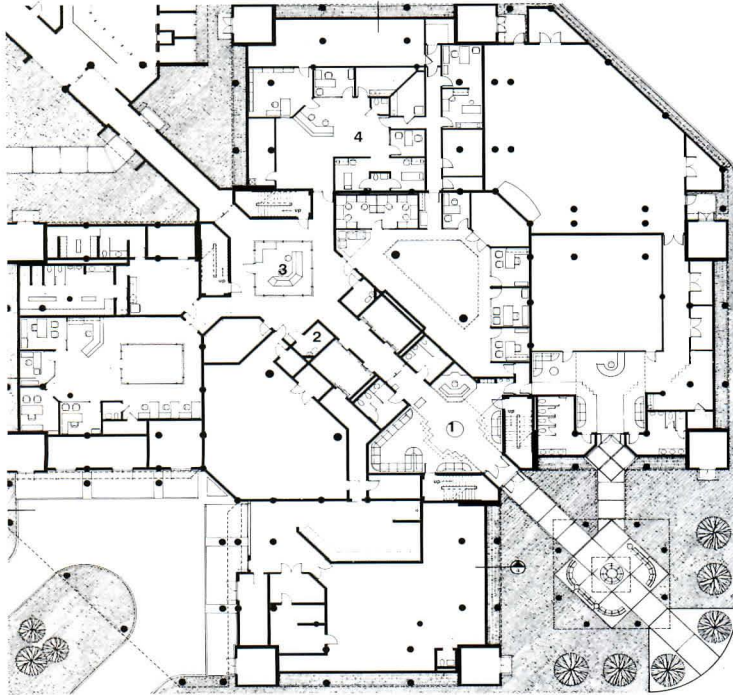
During the planning of Charlotte's Mecklenburg County Intake and Detention Facility, architects walked a tightrope between a desire to make the new jail appear solid and substantive and a wish to acknowledge the high profile of fast-growing Charlotte, North Carolina. Hellmuth, Obata & Kassabaum's James Kessler describes Charlotte as "a gracious, progressive, energetic city that is sensitive to architecture" and recalls that his firm, working in a joint venture with Little & Associates, wanted to make sure that the new 1,000-bed detention center was a good neighbor that didn't loom threateningly over the historic Beaux-Arts county courthouse and old city hall located at one end of the downtown site.

The new jail's triangular forms reflect the stacked podular housing units within, and

contextually respond to a three-sided county government center located across the street.

The \$56.8 million facility, the first phase of which is expected to begin construction this fall and to open in the spring of 1996, was designed under the newly released third edition of standards published by the American Correctional Association, which allows for slightly smaller cells.

About half of the inmate rooms in the new, direct-supervision facility will be traditional, locked "wet cells" equipped with plumbing fixtures, which will be relegated to housing newly admitted prisoners. Inmates housed in the remaining "dry cells" will be free to leave their cells to use bathrooms located within the pod. Inmates in dry cells will also be given keys so they can lock their cells, primarily to protect them from other inmates.



FIRST FLOOR PLAN



SECOND FLOOR PLAN

- 1 VISITOR LOBBY
- 2 HOLDING CELL
- 3 CONTROL ROOM
- 4 EXAM ROOM
- 5 DAYROOM
- 6 TWO-MAN CELL
- 7 EXERCISE AREA

Horizon Facility
Orange County Correctional Center
Orlando, Florida
Strollo Architects

A desire to push the direct-supervision method of corrections to the limit was the driving force behind the development of the Horizon Facility, a 768-bed, medium-security jail constructed within an existing corrections complex outside Orlando, Florida. Tom L. Allison, director of corrections for Orange County, Florida, offers inmates of the seven-story jail a choice: either participate in rehabilitative programs for at least 20 hours a week and take advantage of the privileges that the facility has to offer, or refuse to participate in the programs and be sent to a much more severe “lock-down” jail with no amenities.

Among the advantages offered to inmates by Horizon is a generous visitation program that makes use of lounge-type rooms. Although inmates are housed two to a cell in 64-bed pods, they are encouraged to spend as

much time as possible outside their cells participating in job-training and substance-abuse programs, as well as academic, vocational, and life-management courses. The correctional center was economical to construct and is comparatively inexpensive to operate because security envelopes are kept to a minimum, according to Douglas R. Storer, a principal with Strollo Architects. There is only one security control station, and officers control elevators and doors with a touch-screen computer system.

Even though 80 percent of the prisoners at Horizon are pretrial, studies show that those who remain for more than a week stay an average of nine months. Virtually the only time that an inmate leaves a secure housing pod is to meet a visitor—and even then the visiting rooms are located directly

outside each housing pod, so no inmate transportation is involved. Visitors first check in with security on the first floor and then ascend directly to the inmate housing floor. The classrooms in which the jail’s programs are conducted are located within the housing units, and each pair of housing units shares an outdoor recreation area. Because inmates are not moved except for life-threatening medical emergencies or for trial dates, the officer-to-inmate ratio is 1:9, one of the lowest in the nation.

According to Storer, the building cost \$91 a square foot to construct—about \$30 less than is typical. The facility was designed to accommodate twice its inmate capacity and can hold four to a cell in a dormitory-type arrangement with a simple computer adjustment to the locks on the cell doors.

volve private management or operation. Lease-purchase is popular because it allows for "off-the-ledger" financing and eliminates the need to go before the voters to get a bond issue approved, says Joe Vaughn, president of Lebanon, Indiana-based Diversified Municipal Services. Such a turnkey system is now being used by Pennsylvania to build four medium-security state prisons. The state sought price-fixed proposals from development teams that included architects, engineers, construction managers, and financial experts. Working with county sponsors, the teams created site-specific proposals and obtained the needed zoning approvals. When completed, the prisons will be owned by the county agencies and leased to the state, which will operate them.

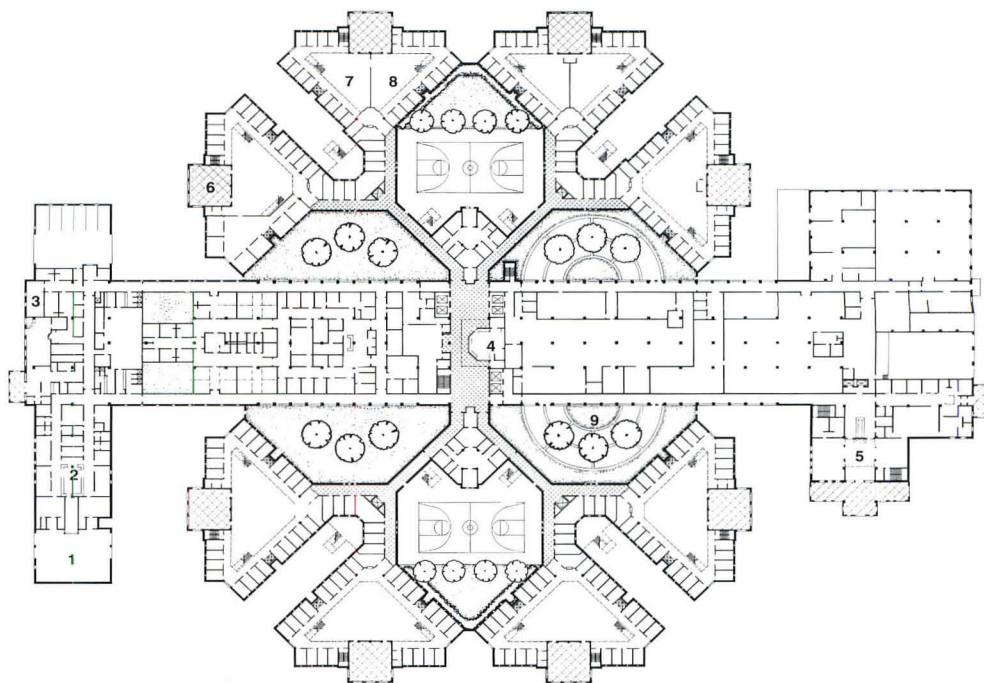
According to Thomas, most privately operated correctional institutions house state prisoners. Only eight local jails are now under private management, largely because of the extra upfront costs involved in selling the idea to counties on a case-by-case basis. But Thomas sees local jails as a "largely untapped market" for private companies and development teams, adding that privatization has the potential to save money at the local level. "A private firm can bring more of value to the table because it does this all the time and the locality only has to encounter this every decade or so," says Thomas.

Future challenges

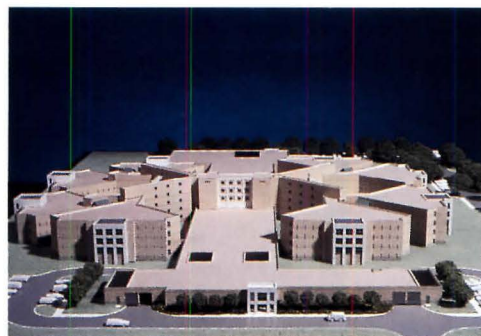
No matter whether criminal justice facilities are funded with public money, private money, or some combination of the two, there is little doubt that jails and their architects will meet new challenges in an effort to confine the United States' increasingly diverse and troubled jail population. One area that seems to be attracting increased attention is education and job training, as more Americans see incarceration as an expensive, short-term answer to a long-term problem.

"A lot of money has been thrown at the crime problem in terms of the jail, and not that much has been expected of the jail other than to hold people," says Jay Farbstein, a San Luis Obispo, California-based architect and researcher who is currently developing a post-occupancy evaluation mechanism to assess the effectiveness of jail design. "When people started using the direct-management approach, they found that they could start directing their attention toward other aspects of inmates' rehabilitation. I think we will see more demand for the jails to do more." ■

—Virginia Kent Dorris



FIRST FLOOR PLAN



DICK DICKINSON

- 1 INTAKE
- 2 BOOKING
- 3 PRETRIAL HOLDING
- 4 CENTRAL CONTROL
- 5 VISITOR ENTRANCE
- 6 MENTAL-HEALTH HOUSING
- 7 HIV-POSITIVE HOUSING
- 8 GERIATRIC HOUSING
- 9 VISITOR COURTYARD

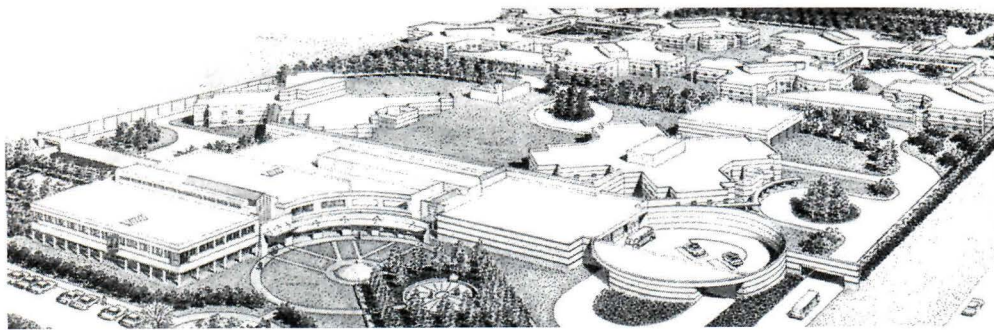
Leon County Detention Center Tallahassee, Florida Hansen Lind Meyer, Architects Johnson, Peterson Architects

Gone are the days when county jails were designed with only a small medical examination room and a minimal array of equipment. In an effort to save on rising hospitalization costs, new jail facilities such as the Leon County Detention Center in Tallahassee, Florida, are being designed to incorporate medical facilities so that all but the most seriously injured inmates can be treated on-site.

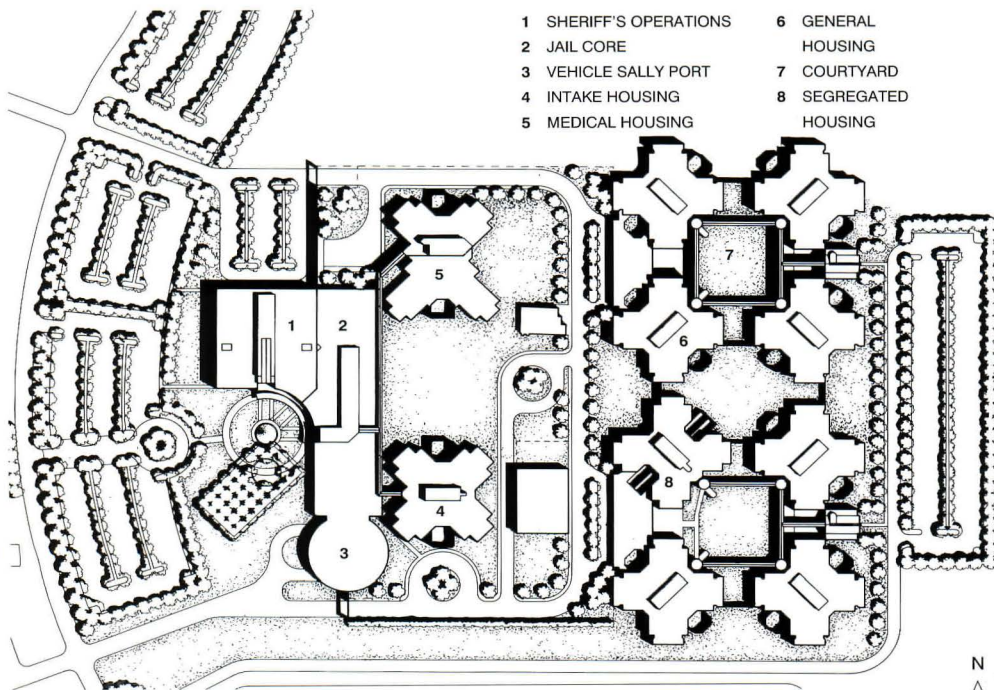
The infirmary and clinic at Leon County, a 750-bed, \$38.8 million direct-supervision prison, now under construction and expected to open this spring, will contain a dental suite and laboratory, a pharmacy, an optometry office, as well as ambulatory-care examination rooms, according to William A. Stimson, project director of Hansen Lind Meyer. "This is as nice and as well equipped as an emergency room in a large hospital," main-

tains Stimson. "It can handle anything up to invasive surgery." The need for these larger, better-equipped medical facilities within jails has grown with the increase in the number of older prisoners entering the system with pre-existing medical conditions and those with communicable diseases. Leon County will have 22 hospital beds in the infirmary, in individual rooms and small wards: 12 male, eight female, and two juvenile.

In addition, areas will be set aside for inmates who may not need immediate medical attention but are found to have special needs. Inmates who test positive for HIV and geriatric inmates will be assigned to separate 23-bed pods. In addition, a 46-bed pod will be set aside for inmates with mental-health needs, equipped with double-entry cells, restraining chairs, and consultation offices.



DANIEL L. DWORSKY



SITE PLAN



JOHN SUTTON



DANIEL L. DWORSKY

**San Joaquin County
Carlos A. Sousa Justice Center
Stockton, California
Dworsky Associates**

Officials in San Joaquin County never doubted that the new jail they were planning in connection with a new sheriff's operation center would be run under the direct-supervision method. "The goals are to encourage and promote better behavior by the inmates," says Gregory P. Sheehy, project architect for Dworsky Associates. "The client wanted a facility where you could be reasonably sure that the guy going out would be no worse off than he was going in."

The master plan Dworsky developed for the new \$60 million prison called for construction of a 60,000-square-foot sheriff's operation center and 1,200 jail beds on a rural site just south of downtown Stockton. To date the sheriff's center and a 512-bed mini-jail, which includes a 128-bed segregation wing for prisoners who pose discipline prob-

lems, have been completed; additional jail beds will be constructed as funding becomes available. Materials for the general-population cells were chosen to be as normative as possible, says Sheehy. All general-population inmates are housed in 64-bed, U-shaped pods of dry cells that contain wood doors and dormitory-type lock sets; inmates carry the keys to their own cells. These rooms for inmates stand in sharp contrast to the segregation cells, which are constructed with heavy, 12-gauge metal doors and frames filled with grout, and are fitted with prison hardware and stainless-steel toilets.

Dayrooms are carpeted to reduce noise, and handrails are made of oak, a material that Sheehy describes as less expensive than stainless steel, easier to maintain than painted steel, and warmer than metal. "If the physical

environment does not challenge the inmates to destroy it, they tend to treat it with greater respect," says Sheehy. Services brought to the inmate at the pod include mental-health counseling, religious services, a lending library, and food service. One unusual aspect of the facility, says Sheehy, is that prepared food for the inmates is reheated right in the inmate housing pod in a pantry that contains a refrigerator and an oven.

To minimize inmate movement, Dworsky organized the building to bring visitors directly to the rooms rather than take the inmates outside. To create a secondary circulation system for visitors, Dworsky created an inexpensive, weather-tight walkway of metal panels and fiberglass attached to a metal frame. After checking in, visitors can walk to the designated visiting area unescorted.

Today's design professionals are looking for products that add value to their client's new construction or

VALUE

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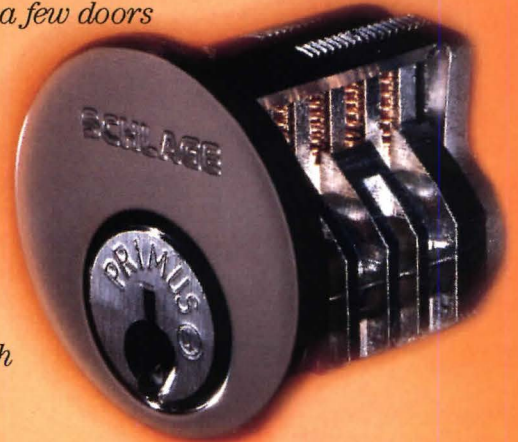
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Software-Assisted Code Compliance

Computers help architects ensure that their designs meet building codes.

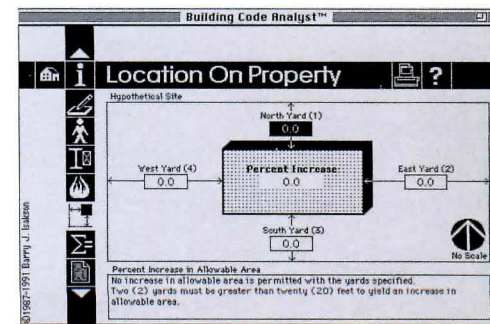
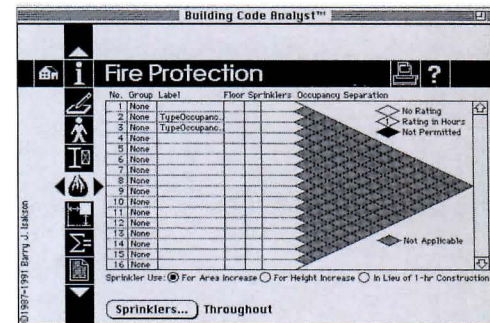
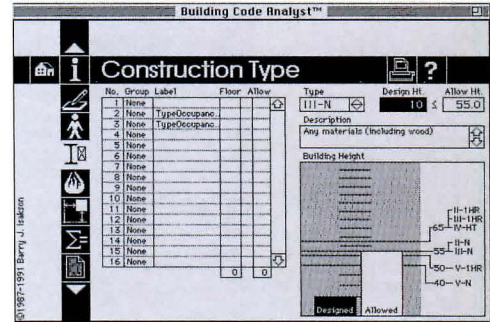
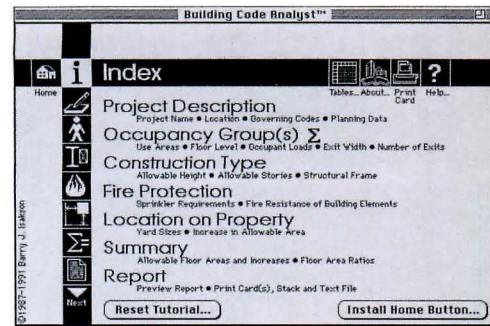
Someday, an electronic code-checker may watch over an architect's shoulder and evaluate the code compliance of a building designed on a CAD system. Although liberation from codes during the design process may sound appealing, such automation is not likely to happen soon. Many obstacles stand between electronically guided compliance and existing programs. They include the complexity of and variations among U.S. building codes and the difficulty of creating compatible computer representations of rules and building descriptions (although "expert" systems may solve this latter difficulty in the future). In the meantime, existing technology provides some relief to architects through electronic code books and code-checking procedures.

All three national building codes are now part of the Construction Criteria Base (CCB) CD-ROM disk available from the National Institute of Building Sciences in Washington, D.C. These are the Uniform Building Code (UBC) from the International Conference of Building Officials (ICBO) in Whittier, California; the Standard Building Code (SBC) from the Southern Building Code Congress International (SBCCI) in Birmingham, Alabama; and the National Building Code from the Building Officials and Code Administrators (BOCA) in Country Club Hills, Illinois. The CCB presents the electronic equivalent of the codes' texts, so architects can search for particular material by specifying keywords.

Code writers' software

Each code-writing organization publishes its own software. BOCA offers the National Building, Plumbing, Mechanical, Fire Prevention, and Property Maintenance codes, as well as Code Search software that facilitates keyword searches. BOCA's Plan Review System is an automated version of its Plan Review Record, a system for reviewing plans and generating evaluations.

ICBO publishes a CD-ROM that contains the UBC and its sister publications, the Uniform Mechanical, Fire, and Plumbing codes; the software permits on-screen comparison of provisions of the four codes. This cross-referencing is important to Greg King of Robert G. Hoskins Architect & Associates in Ontario, California. King asserts: "The ICBO software is straightforward and accessible both for computer-literate architects who don't know the code well and for code experts who don't know computers." Future releases of the Uniform codes on CD-ROM will include additional standards, handbooks, ap-

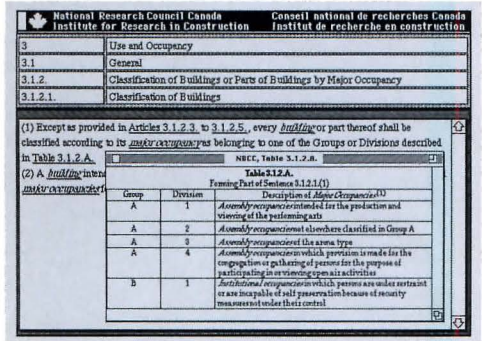
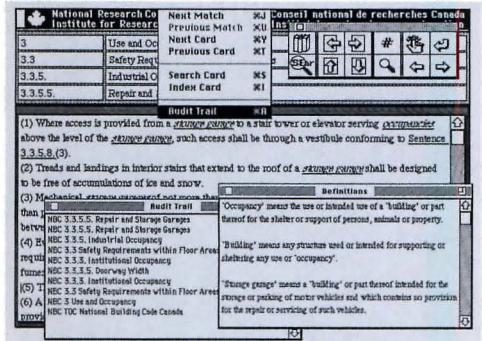
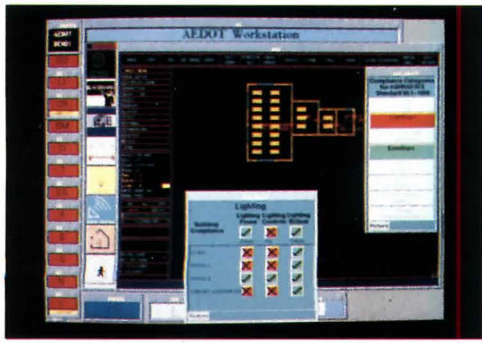


TOP: A graphic index directs users to seven sections of Building Code Analyst (BCA), a Macintosh HyperCard expert system that helps architects comply with the 1992 Uniform Building Code.

SECOND FROM TOP: When the building's construction type is specified, the screen compares designed heights with those allowed by code.

THIRD FROM TOP: The Fire Protection screen displays sprinkler and separation requirements.

ABOVE: Increase in allowable floor area due to the building's location on the property is calculated from the yard sizes. When input is complete, BCA calculates occupancy descriptions and occupant load.



TOP: Pacific Northwest Laboratory has developed software tools that inform the architect when a CAD design complies (green checks) or fails to comply (red Xs) with energy standards.

SECOND FROM TOP: From Canada's Institute for Research in Construction comes a HyperCard application for the 1990 edition of the National Building Code of Canada. The software gives word definitions and supports browsing or specific searches.

ABOVE: A table of occupancy classifications has been called up by clicking on a reference in the article in the background.

plication and interpretation manuals, evaluation reports, and training material.

Electronic browsing and analysis

In addition to its construction criteria offering, SBCCI publishes its code as an "auto-Book," developed by Intermedia Design Systems (IDS) in Latham, New York. The autoBook includes the code's text plus navigational software that makes legal documents more accessible for architects. Unlike word processors, which can only search for instances of specific words, autoBook "understands" word derivations and permutations. So, for example, in response to a request for "stairs," the system will also provide instances of "stairways." AutoBook also offers electronic bookmarks, a list of found references, and a clipboard from which information can be copied into documents for editing and formatting. To date, autoBooks have been developed for the New York State Uniform Fire Prevention and Building Code, the SBC, and the Americans with Disabilities Act (ADA).

ADA Searchware is an IDS autoBook distributed by the American Institute of Architects. It contains the entire text of the ADA plus supplementary preambles, guidelines, specifications, and resource lists. Chris Newton of Einhorn Yaffee Prescott in Albany, New York, has applied the software to both design development and construction documents. Newton particularly appreciates the extensive graphics from Title III, Public Accommodations and Services. He also found the software helpful when first learning about the ADA. "Electronic browsing," he claims, "is faster and easier than with the book. But its main strength is that it prevents you from overlooking things." Sara ADA Guide from Sara Systems of Las Cruces, New Mexico, also provides assistance with ADA compliance. After the architect answers a series of questions about a building, the software prints out areas of non-compliance, lists them in order of priority, and computes renovation costs.

Another approach to code navigation appears in NBCCard, HyperCard software for Macintosh computers developed for the National Building Code of Canada by Dana Vanier at the National Research Council's Institute for Research in Construction in Ottawa. NBCCard may be thought of as a stack of index cards, one card for each article in the code. The well-defined structure of parts, sections, subsections, articles, and provisions matches the structure of the book. Architects can find articles of interest by searching for combinations of keywords. Navigation is fa-

cilitated by a "search trail," a list of the last 40 articles reviewed by the system user during that session. The United States and Canada share many building standards, and Vanier expects to see cross-pollination between his work and that of U.S. code writers.

In contrast to text-based programs, Building Code Analyst (BCA) from Architectonica, in Redondo Beach, California, is analytical. BCA is a HyperCard application that assists in a UBC review by determining applicable requirements. The architect provides information such as occupancy groups and types, floor areas, and construction types, and BCA calculates occupancy descriptions, occupant load factors, exit-width requirements, and allowable building heights and areas.

Minneapolis architect Charles Radloff uses BCA during several phases of design. "It is first a preliminary, what-if design tool," Radloff explains, "to make sure I'm headed in the right direction—to see if I need area separation walls or a sprinkler system." When he starts working drawings, Radloff relies on BCA as a code-checker to ensure, for example, that his building meets exiting and fireproofing requirements. It alerts him to idiosyncrasies and recent changes in the code that he might otherwise overlook. This process allows the architect to inform the owner of unexpected requirements early in the budgeting process. Then he submits a BCA-printed report to the plans examiners along with his drawings. "They tell me it makes their job easier, and they appreciate that," Radloff concludes. "It still takes time to do the code review, but with the computer, the end product is more organized, understandable, and complete."

Challenges of automated codes

As beneficial as these systems are, there is still a big difference between text-based or analytical programs and "intelligent" software that automatically checks the code compliance of a CAD drawing. Efforts to produce such software face many obstacles. A code's underlying structure is not always logical, having developed incrementally in response to building failures brought on by natural disasters, fires, or human error. Some requirements are based on construction type, others on occupancy type, and the many permutations of these do not fit into a neat, easily programmable hierarchy. Software vendors are further discouraged from tackling the problems because the three national codes have countless state and local variations. Some obstacles are more social than technical. Conventional code review is subject to

human interpretation, which computers cannot simulate. According to Doug Stoker, an architecture professor at Virginia Polytechnic Institute who worked on such problems while at Skidmore, Owings & Merrill, a firm's code expert must be trustworthy, and computers are not. "Plan reviews," Stoker contends, "require a well-developed communication between the architect and the city official. The computer can get in the way."

There are two other obstacles to marrying codes with CAD: translating code provisions into rules that a machine can evaluate and extracting the required information from drawings. While an architect can glance at a drawing and immediately identify rooms and corridors, the entities "understood" by most CAD systems are lines and arcs, or at best, walls and windows. Teaching a computer to "recognize" an abstraction such as a room or a corridor reliably from a collection of lines or walls is difficult, if not impossible.

On the other hand, requiring the architect to define code-specific entities explicitly, such as fire zones, stairs, and exit routes, would place an unwanted burden on the design process and might be as tedious as a manual code review.

Building computer models

Several researchers are tackling the problem of computer recognition. Filiz Ozel, an architecture professor at the University of Nevada, Las Vegas, has been developing data structures that work within AutoCad to enable architects to define code-related entities in much the same way they define walls and windows. Within an expert system external to AutoCad, Ozel is also developing computation-intensive procedures that enable the computer to "figure out" the more abstract entities, such as mezzanines, aisles, and interior rooms, from the geometry of the lines and from positional cues within the drawing. Her prototype can determine exit routes from every room in a building and flag those that exceed allowable travel-distance limits.

James Garrett of Carnegie Mellon University has been developing conceptual models of building codes in order to tie standards evaluation to CAD drawings and to provide code authors with a rational framework for analyzing and writing future standards. A major obstacle to CAD-based compliance checking, Garrett believes, is the mismatch between concepts found in the standards and the building elements represented in a CAD model. He worries that professionals may be tempted to apply code-evaluation software without really under-

standing its scope or completeness. "We not only need a 'standards processor' that reliably links building data with the applicable codes," Garrett maintains, "we need to ensure that architects can examine the underlying structure of the code models without needing to understand computer programming. No matter how sophisticated code-evaluation software becomes, design professionals who are responsible for warranting code compliance will always want to see for themselves that the software is based on a complete and accurate interpretation of the code."

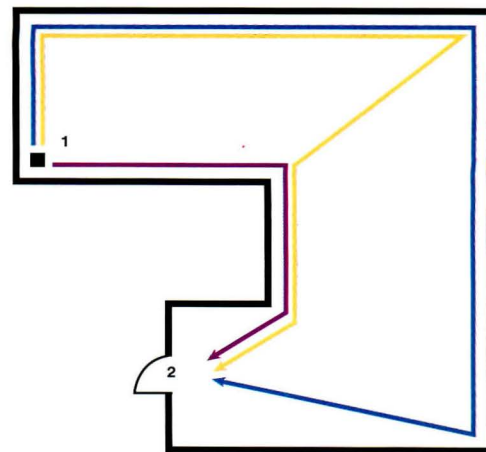
Integrating energy standards

The U.S. Department of Energy's Pacific Northwest Laboratory (PNL) in Richland, Washington, offers software that calculates design compliance with energy standards. In spreadsheet formats, these programs consider building-envelope and lighting standards in commercial buildings and calculate first costs and long-term operating costs for low-rise federal residential housing. Recently, PNL researchers Richard Quadrel, Michael Brambley, and Rex Stratton have completed prototype software that integrates energy standards with CAD. The Advanced Energy Design and Operation Technologies (AEDOT) project checks standards compliance during design and assists the architect in revising the design.

The prototype evaluates the energy consumed by lighting and fenestration and is incorporated into the Intelligent Computer Aided Design System under development by Jens Pohl at California Polytechnic State University. The system "watches" as an architect constructs a floor plan and records information about walls, doors, and windows; then it calculates the energy consequences and flags any instances of noncompliance. An experienced architect might ignore such warnings, realizing that the problems will iron themselves out as the design progresses. A novice designer might ask why the design failed to comply and request recommendations from the system. The researchers believe that architects are more likely to use such energy calculation tools because they are integrated with design processes.

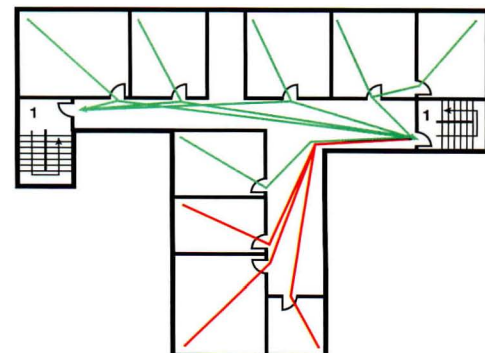
Despite the many barriers to bringing building codes into CAD, progress is being made, aided by the increasing power of computer hardware and expert systems. The gap between right-brained design and left-brained code compliance may never be completely closed, but it is narrowing, thanks to new software tools for architects. ■

—B.J. Novitski



TRAVEL ALGORITHM

- ROUTE ONE
 - ROUTE TWO
 - ROUTE THREE
- 1 STARTING POINT
 - 2 TARGET LOCATION



ROUTES TO FIRE EXITS

- ALLOWABLE DISTANCE
 - UNSAFE DISTANCE
- 1 FIRE EXITS

TOP: While it is immediately obvious to the human eye which route to an exit is shortest, computers must be taught to "figure it out" from the mathematically defined lines that comprise rooms, and corridors. Researcher Filiz Ozel has been developing methods for "training" computers to evaluate floor plans for compliance with fire and exiting requirements.

ABOVE: Once the routes from a room to a protected exit are found, the computer identifies the longest, or worst case, and flags those routes (red) that exceed the allowable distance.

Today's leading architect has a clear vision of the future.

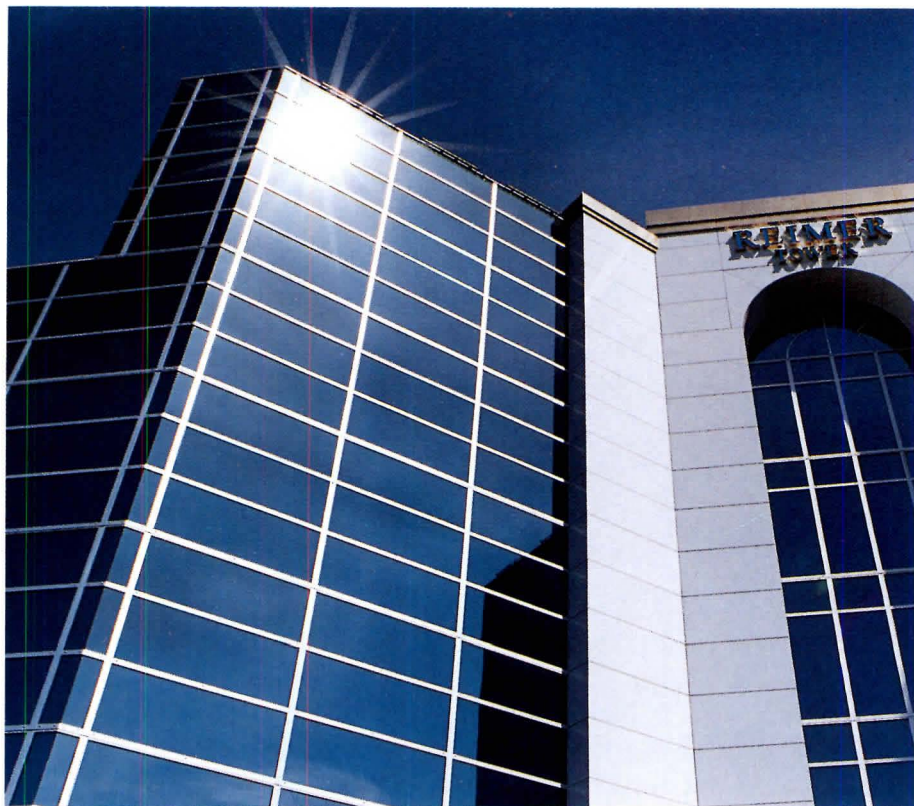
Believe it or not, this beautifully designed but otherwise apparently ordinary building is the future.

You can see it has windows everywhere. But what you can't see from this picture is the complete absence of perimeter heating. There is none.

Yet the building is incredibly comfortable. The indoor temperature is constant from room to room, floor to floor, season to season. There are no drafts. There is never a condensation problem. Ever.

And it is bright and warm, even cozy in the Reimer Tower in Burlington, Ontario, Canada even in the worst weather conditions imaginable. And when the sun shines in, the heat stays out. No sweat. Not in this building.

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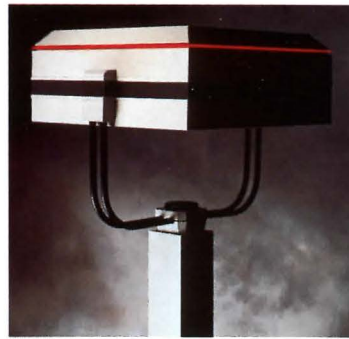
TOP: Kim Lighting introduces a vandal-resistant bollard now available in concrete as well as aluminum.
Circle 401 on information card.

ABOVE: Bantam 2000 Enduralume by Holophane contains a prismatic glass refractor and aluminum reflector. The industrial fixture is suitable for assembly areas, machine shops, and textile mills.
Circle 402 on information card.



TOP: Rejuvenation Lamp & Fixture introduces The Hawthorne, a reproduction of a lantern typically found on porches of early-20th-century Craftsman houses. The reproduction is customized with compact fluorescent bulbs, which require 20 percent of the electricity of incandescent bulbs.
Circle 403 on information card.

ABOVE: Baldinger's Villa collection is the latest in a series of lighting designs by Michael Graves.
Circle 404 on information card.



TOP LEFT: Greenbriar Series by LSI Lighting Systems combines vertical-burn lamps with segmented reflectors for controlled, uniform distribution of light.
Circle 405 on information card.

ABOVE: Phoenix Products manufactures Docklite, a durable line of floodlights, and a variety of marine and wet-location fixtures that adapt to custom-landscape lighting.
Circle 406 on information card.

TOP RIGHT: Envision Cove Lighting by Peerless features an optical system that delivers smooth wall and ceiling illumination without glare, socket shadows, or uncomfortable contrast.
Circle 407 on information card.

Controlled lighting

Lutron Electronics markets dual videotapes featuring Luméa and LuMaster lighting controls, offering a comprehensive overview of the products and their installation. Both products work hand in hand to provide sophisticated residential lighting control and are available in 14 colors. LuMaster offers central monitoring, convenience, and security. *Circle 408 on information card.*

Quadplex outlet

Hubbell four-plex receptacles incorporate four outlets in a compact design for convenience, flexibility, cost, and time effectiveness. Suitable for renovation and new construction, the four-plex replaces single or duplex receptacles and is constructed of high-impact thermoplastic. *Circle 409 on information card.*

Metal-finished lighting

Winona Lighting creates contemporary and traditional lighting in a series of chandeliers, wall brackets, and sconces. The Aaron architectural series features futuristic designs of brushed aluminum and anodized bronze; the Pyramid series



consists of angular, inverted pyramids, finished in polished brass and chrome, as well as brushed aluminum and anodized bronze. Winona Lighting offers custom sizes and finishes upon request. *Circle 410 on information card.*

Liquid sealant

Lithonia Lighting has improved the sealing process for damp-and-wet-location fluorescent fixtures with a "liquid gasket (above)." A polyurethane liquid fills the entire gasket retainer and securely adheres to the bottom and both sides of the retainer. Unlike foam-tape gaskets, the liquid sealant absorbs moisture and does not require splicing or joints that can cause leaks. *Circle 411 on information card.*

ADA-approved fixtures

The American Glass Light Company's line of sconces meets 1992 Americans with Disabilities Act (ADA) guidelines requesting that all "objects protruding from walls with leading edges between 27 inches and 80 inches above the finished floor shall not protrude more than 4 inches into walkways, halls, corridors, passageways, or aisles." The ADA-approved sconces are available in 100 designs with incandescent or fluorescent lamps. American Glass Light offers matching pendant fixtures. *Circle 412 on information card.*

Green lighting

Philips Lighting's Earth Light Collection consumes only one-fourth of the electricity required of comparable incandescents and reduces the carbon dioxide, nitrogen oxides, and sulfur dioxides emitted. The company's compact fluorescent lighting, Earth Lights, has an average lifespan of 10 to 13 times longer than ordinary incandescents. The Earth Light Collection is purported to save as much as 76 percent on energy costs. *Circle 413 on information card.*



Compact lighting

General Electric offers the Triple Biax (above), a screw-in compact fluorescent light. The fixture measures 6 1/4 inches in length, and has an average life of 8,000 hours or 10 times the performance of a standard 75-watt bulb. Its warm color is similar to incandescent lighting with a color rendering index of 82. The Triple Biax has a high power factor of 0.9, the ability to operate up to twice the lighting load of a compact fluorescent, and offers low harmonic distortion. *Circle 414 on information card.*

Mounted task lighting

Luxo Corporation has converted its task-lighting products to be mounted above workstations on rail



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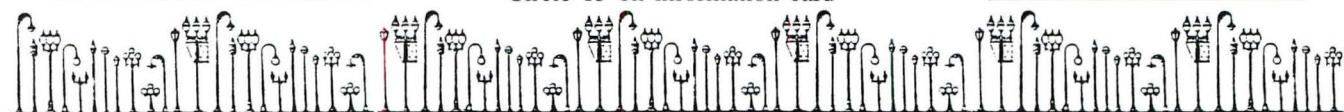
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A great old street fixture in non-rusting aluminum with a textured acrylic lens. The decorated post base scales 18 x 27-inches, the fluted pole is a 6-inch to 3-inch taper and the unit is finished in traditional black.

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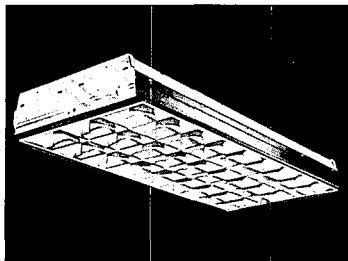
and paper-management systems. The Luxo Space Saver Load Bar may be hung or attached to demountable or permanent panel systems; the Luxo Space Saver Panel Mount Bracketry allows task lamps to be mounted directly on most office panel systems; and the Luxo Space Saver Paper Management Adaptor can be attached to other manufacturers' panel-mounted filing systems. *Circle 415 on information card.*

Illuminating stone

Lumiere introduces a unique design of landscape lighting called the Pebble. The ceramic fixture has the natural appearance of decorative garden stone and resists damage caused by ultraviolet rays, salt spray, and rain. The Pebble is available in six finishes and can be used with high-performance halogen lamps to create varied lighting spreads, ranging from a wide flood to a narrow beam. *Circle 416 on information card.*

Weatherproof fixtures

Elliptipar offers fluorescent lighting that endures severe weather. The product contains a high-impact acrylic lens with safety retainers that



are mounted securely to the reflector, compressing a UV and ozone-resistant gasket for a watertight seal. Elliptipar units are available in lengths of 36 inches to 96 inches and are constructed of rugged, rustproof components. The extruded aluminum housing doubles as the unit's reflector, and is finished in five colors of polyester-powdered enamel applied to protect exposed parts from oxidation. All hardware is constructed of stainless steel or cold-rolled steel. *Circle 417 on information card.*

Glare-free fluorescent

Metalux, a brand of Cooper Lighting, introduces a fluorescent lighting fixture that completely eliminates VDT glare (above) by suppressing high-angle brightness. The Precision

Cut-Off Parabolic (PC 2) lighting system redirects the light reflected off the surface of a VDT screen to the area below eye level, shielding the computer operator from any disabling glare.

Circle 418 on information card.

Flexible lighting cable

Dual-Light introduces the EZ-Flex II Industrial Lighting Cable, with a locking device that provides AC power to industrial lighting fixtures. The attached locking system is an industry-standard twist-lock receptacle mounted in the bottom of the connector housing. The system connects to a matching plug and cord assembly, allowing the fixture to be easily removed from the circuit. The cables are available in single-, dual-, or three-circuit models.

Circle 419 on information card.

Adjustable downlighting

Omega Lighting now offers the LV3516, a low-brightness, dual-voltage recessed downlight that can accommodate either a 75 watt PAR36 12 volt or a 150 watt PAR38 side prong 120 volt lamp. This flexibility allows the commer-

cial downlight to be adjusted up to 35 degrees from vertical; it can also be rotated horizontally to accent merchandise in retail stores or to highlight sculpture and artwork in galleries and museums. Reflectorors are available in clear, gold, pewter, bronze, or black.

Circle 420 on information card.

Sunscreen accessories

Velux-America's remote-control venetian blinds enhance roof windows and skylights. The slats may be open or closed and the blinds raised or lowered with the Velux KES 310 electric control system, regulating the entry of light. The slats are eggshell-white aluminum with a thermal reflective coating on one side that amplifies indoor heat in winter and minimizes it in summer. *Circle 421 on information card.*

Indoor/outdoor lifts

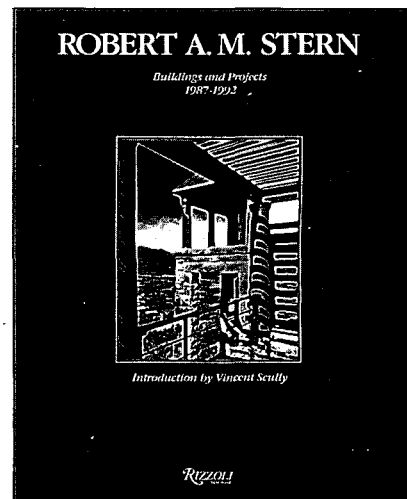
Cheney Company's VPL Series 2000 lifts are adaptable to indoor/outdoor use and may be used on residential and commercial buildings. Among the unique features are velocity sensors and overspeed safety devices. *Circle 422 on information card.*

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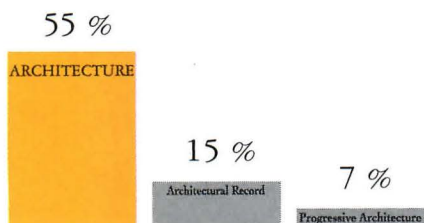
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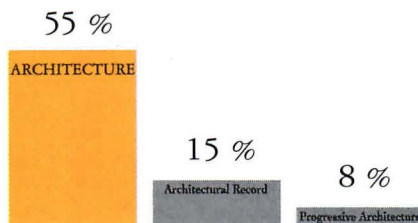
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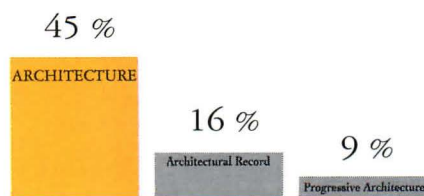
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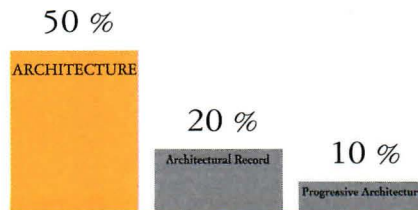
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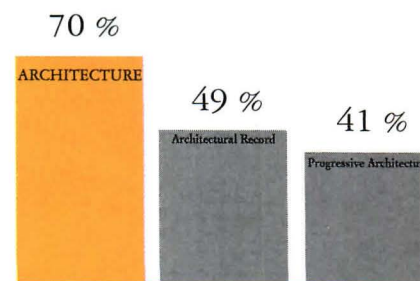
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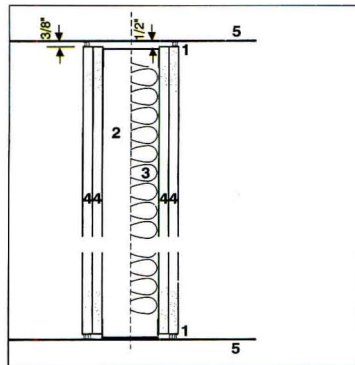


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No Excuses After This information exchange



PARTITION TYPE B

- | | |
|-------------------------|---|
| 1 ACOUSTICAL SEALANT | 4 5/8" GYPSUM WALLBOARD, FIRE-RATED AS REQUIRED |
| 2 STEEL STUD | 5 STRUCTURE |
| 3 ACOUSTICAL INSULATION | |

Insulation

CSI Section 07200

Inconspicuous Batting

Special care must be taken to reduce noise levels within large assembly areas such as cafeterias, classrooms, and courtrooms. Frequently, architects accomplish this reduction by specifying acoustical batt insulation to be installed above a suspended ceiling made of wood slats, metal slats, or perforated metal panels. A portion of the vibrations passes through the openings into the plenum above and is absorbed by the insulation. If not covered, however, the yellow or pink batting can become an eyesore as seen from below. Architects should request that the insulation be faced with black paper or wrapped with polyvinylchloride of a desired color to avoid visual distraction.

James E. Vogel, AIA
Leers, Weinzapfel Associates
Boston, Massachusetts

Drawing Conventions

CSI Section 00850

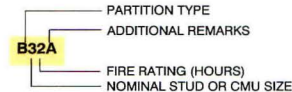
Partition Schedule

At one time, our office constructed partition schedules for each project—researching the necessary technical requirements, such as fire ratings and sound-transmission levels; drawing the appropriate assemblies; and assigning a letter to each system for the duration of the job. To minimize errors and improve efficiency, we recently developed a standardized sheet of partition types that forms the basis for the partition schedule on every job in the office.

Each assembly is assigned a two-

B Code format for various partition B assemblies				
STUD SIZE	WALL THICKNESS	FIRE RATING (AND UL LISTING)		SOUND-TRANSMISSION COEFFICIENT
		0 HOUR	2 HOUR	
1 5/8"	4 1/8"	B1**	B12*	
2 1/2"	5"	B2**	B22* (UL U411)	B2*A (STC 47)
3 5/8"	6 1/8"	B3**	B32* (UL U41)	B3*A (STC 50)
6"	8 1/2"	B6**	B62*	

SYMBOL KEY



REMARKS KEY

- A PROVIDE 2" SOUND-ATTENUATION BLANKET
* OPTIONAL CHARACTER

to four-character code. The first character is a letter indicating the partition's basic materials and configuration. The second character is a number that indicates wall thickness, either according to the nominal size of the metal stud or the depth of the concrete masonry unit. The third character, also a number, represents the fire rating in hours. And the fourth is a letter that refers to special requirements, such as the need for acoustical insulation or foil-backed gypsum wallboard. The third and fourth characters are only added when necessary.

Common wall types are then arranged on an office master sheet. A single drawing describes the basic materials and configuration for each type, while an adjacent matrix of data indicates the stud or concrete masonry unit sizes, wall thicknesses, fire ratings, UL ratings, and sound-transmission coefficients associated with the various permutations of that basic assembly (see sample above). Also included on the master sheet is a key that lists a variety of special remarks. When beginning a new project, an architect can select the partition types required for the job from this page, adding comments as necessary. The codes are written next to each partition on the plans.

This system reduces labor time, improves accuracy, and provides flexibility for new conditions. Architects do not have to re-create each assembly every time they begin a project. There is less chance for error because the staff works from a master sheet that has been checked and tested over time. New drawings are not required if stud sizes, fire ratings, or remarks must change; the architect simply ad-

justs the code on the plans. Because the codes remain consistent over time, staff and consultants become familiar with their meaning, so that they can easily follow the rated partitions, determine a stud size, or check acoustical insulation without having to refer to a detail sheet or key.

Charles Capaldi, AIA
Geddes Brecher Qualls Cunningham
Philadelphia, Pennsylvania

Insulation Schedule

Nonresidential projects commonly employ a variety of insulation products. Typically, some of these products are described within a section of the specification designated for insulation (07200), while others, such as roof deck insulation, are included within the divisions that address their location, such as single-ply membrane roofing (07530).

Identifying these products on the drawings in broad terms such as "rigid insulation" can create confusion as to which product is actually required. And peppering details with more explicit tags, such as "0.90 pcf density extruded polystyrene board," is time-consuming, clutters drawings, and becomes a nightmare if the product is changed.

We have solved this problem by incorporating a simple insulation schedule into the documents of our more complex projects. Products are identified on drawings only as "Insulation Type (X)." The schedule then spells out what each type means and gives the Masterformat number of the section, where it is fully specified.

Martin M. Bloomenthal, AIA
The Hillier Group
Princeton, New Jersey

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It uses a shutter and/or custom designed templates to precisely control the light pattern. Changing templates can announce important events — perfect for retail needs. Optional color filters allow you to “paint” objects for special effects.

Eliminate light trespass. Reduce light pollution.

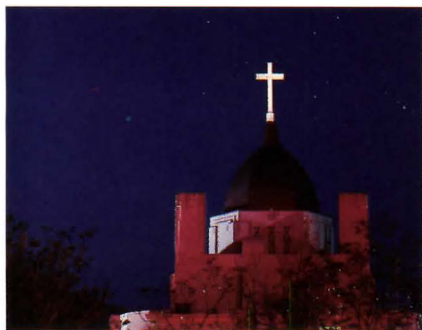
Get precise control over the light pattern and eliminate spill-over light in unwanted areas. Reduces light pollution by controlling the amount of reflected light.

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zoom and shutter adjustments on-site, the Phoenix 100™ offers all the flexibility you'll need. For example, you have the ability to double your beam size. Or give shapes a sharp or soft edge with the focus adjustment.

Stands up to weather. Insects. Even vandals. All adjustments of the Phoenix 100™ are located within the unit's sealed housing, preventing moisture, vapor, dust or insect problems.

And all access doors and azimuth adjustments are made from rugged, tamper-resistant hardware. The double locks on the tilt adjustment can withstand a 200-lb. force.

Create your own special effects! Call (414) 438-1200,

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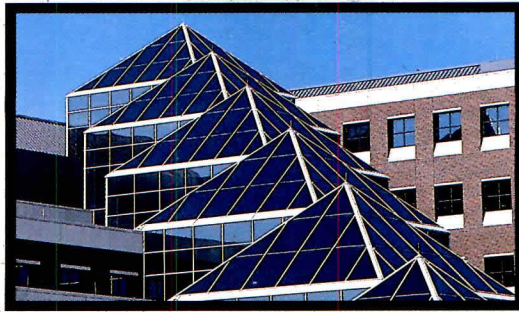
For Further Information

Contact: Mr. Chris Zuzick, Market Development Manager



PHOENIX®

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