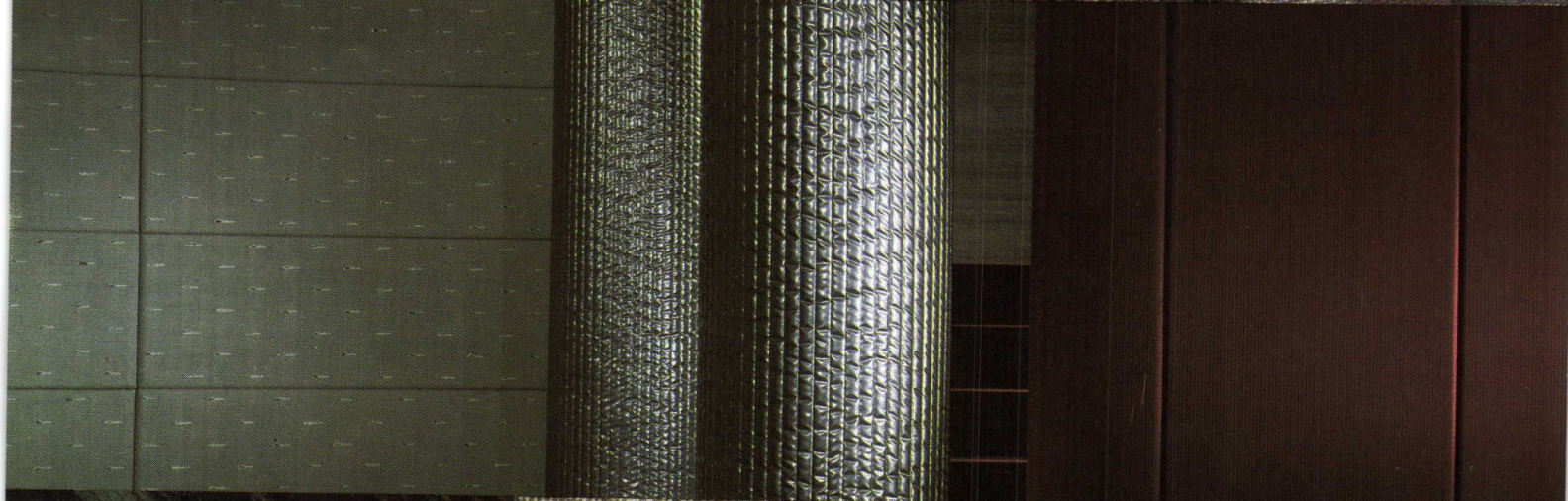




FIRE

NOVEMBER 1985 FIVE DOLLARS

A R M S T



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	Donald Canty, Hon. AIA , Editor in Chief; Carole J. Palmer , Art Director; Andrea Oppenheimer Dean , Executive Editor; Allen Freeman , Managing Editor; Nora Richter Greer and Michael J. Crosbie , Senior Editors; Mary E. Osman, Hon. AIA , Senior Editor, Books; Lynn Nesmith , Associate Editor; Kathleen Vetter and De Fischler , Design Assistants; Karen Collins , Editorial Assistant; Robert Campbell , David Dillon , Carleton Knight III , John Pastier , and Marguerite Villecco , Contributing Editors. Michael J. Hanley , Publisher; John D. Payne , Associate Publisher; Christi L. Wilkins , Assistant to the Publisher; Linda C. Cherry , Eastern Sales Manager; David S. Godfrey , General Manager; Jesse Sims , Production and Business Manager. James P. Cramer , Magazine Group Publisher.			
	ARCHITECTURE, publication number ISSN0746-0554, official magazine of The American Institute of Architects, is published monthly by the AIA Service Corporation at 1735 New York Ave. N.W., Washington, D.C. 20006. Individual subscriptions: U.S. and its pos- sessions; \$28 for one year, \$45 for two years, \$62 for three years. Canada: \$34 for one year, \$53 for two years, \$72 for three years. Foreign: \$52 for one year, \$93 for two years, \$134 for three years. Single copies, \$5 each (except for May and September issues, which are \$10). Publisher reserves the right to refuse unqualified subscriptions. For subscriptions: write circulation department, ARCHITECTURE, 1735 New York Ave. N.W., Washington, D.C., 20006; allow eight weeks. Quotations on reprints of articles available. Microfilm copies available from University Microfilm, 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Referenced in The Architectural Index, Architectural Periodicals Index, Art Index, Avery Index to Architectural Periodicals. Second class postage paid at Washington, D.C., and additional mailing offices. © 1985 by The American Institute of Architects. Opinions expressed by the editors and contributors are not necessarily those of AIA. vol. 74, no. 11.			

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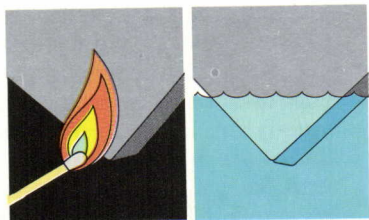
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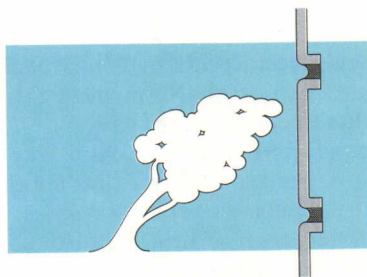
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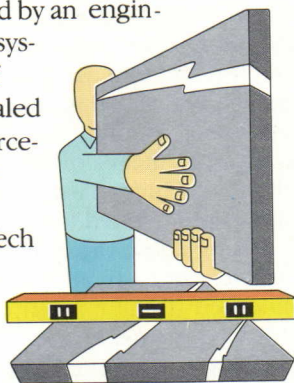
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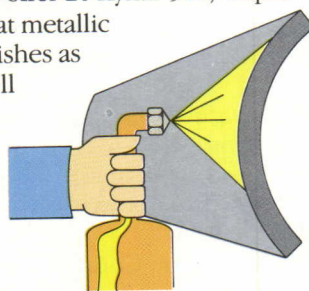
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EVENTS

Dec. 2-5: Conference on Thermal Performance of the Exterior Envelopes of Buildings, Clearwater Beach, Fla. Contact: Carey Moore, American Society of Heating, Refrigerating and Air-Conditioning Engineers, 1791 Tullie Circle N.E., Atlanta, Ga. 30329.

Dec. 2-6: Course on the Application of Infra-Red Scanners to Detect Building Energy Losses and Roof Moisture, South Burlington, Vt. Contact: Paul Grover, The Infraspection Institute, Juniper Ridge, Box 2643, Shelburne, Vt. 05482.

Dec. 2-6: Course on Management of Hazardous Waste, Washington, D.C. Contact: Gloria Greene, ASME/Professional Development, 345 E. 47th St., New York, New York 10017.

Dec. 2-6: Conference on Defense Computers and Graphics, Washington, D.C. Contact: World Computer Graphics Association, 2033 M St. N.W., Suite 399, Washington, D.C. 20036.

Dec. 3-5: Course on Downtown Revitalization, Orlando, Fla. Contact: Vicki Onderdonk, National Trust for Historic Preservation, 1785 Massachusetts Ave. N.W., Washington, D.C. 20036.

Dec. 3-7: Seminar for Marketing Coordinators, Atlanta. Contact: The Coxe Group, 2 Mellon Bank Center, Suite 1002, Philadelphia, Pa. 19102.

Dec. 4: Seminar on Designing Concrete Structures for Wind and Earthquake Forces, Indianapolis. Contact: Education Department, American Concrete Institute, P.O. Box 19150, Detroit, Mich. 48219.

Dec. 4-6: Seminar on Single Ply Roofing Systems, Phoenix. Contact: Susan Mathews, The Roofing Industry Educational Institute, 6851 S. Holly Circle, Suite 100, Englewood, Colo. 80112.

Dec. 4-6: AIA Professional Development Programs Advanced Marketing Seminar, Williamsburg, Va. Contact: Peggy Kersten at Institute headquarters, (202) 626-7357.

Dec. 5: Seminar on Roofing and Roof Maintenance, New Brunswick, N.J. Contact: Special Services, Division of Continuing Education, Rutgers University, 39 Easton Ave., New Brunswick, N.J. 08903.

Dec. 6: AIA Professional Development Programs CADD Seminar, Tulsa, Okla. Contact: Peggy Kersten at Institute headquarters, (202) 626-7357.

Dec. 9-11: Conference on Long-Range Planning and Strategic Facility Management, Chicago. Contact: Sue Sjogren, Facility Management Institute, 3971 South Research Park Dr., Ann Arbor, Mich. 48104.

Dec. 9-11: Seventh Annual International Conference on Alternative Energy Sources, Miami Beach. Contact: Dr. T. Nejat Veziroglu, Clean Energy Research Institute, University of Miami, Coral Gables, Fla. 33124.

Dec. 11: AIA Professional Development Programs Effective Time Management Course, Cincinnati. Contact: Peggy Kersten at Institute headquarters, (202) 626-7357.

Dec. 12: Conference on the Roofing Systems, Salt Lake City. Contact: National Roofing Contractors Association, 8600 W. Bryn Mawr Ave., Chicago, Ill. 60631.

Dec. 13: AIA Professional Development Programs Micro-Computer Energy Analysis Course, Philadelphia. Contact: Peggy Kersten at Institute headquarters, (202) 626-7357.

June 8-11, 1986: AIA Annual Convention, San Antonio, Tex.

LETTERS

Serra's Sculpture: Regarding "Tilted Wall" by Richard Serra (July News, page 11), I just couldn't believe what I saw.

Shades of the Berlin Wall. And they call it art or sculpture. This is just another of those twisted steel beams, or pipes, welded together or protruding through another being passed off as art or sculpture, and they get paid for it. I think the American public is being taken. A sheath of Cor-Ten steel two and a half inches thick, 12 feet tall, and 120 feet long can be nothing but an obstruction. Remove it; take it down.

*J. Roy Haase, AIA
Baton Rouge, La.*

Penn in the '70s: In his August article (page 64), Michael J. Crosbie accurately described the history and present state of architecture at Penn as "humanistic." We are indeed committed to studying architecture, as well as planning and landscape architecture, as a means of facilitating the fulfillment of human aspirations. As Adele Santos was quoted as saying, we are "... talking about the human content of architecture." In addition, a part of our inherited strength is our emphasis on considering architecture in its context.

I would, however, like to offer a more complete history of architecture at Penn by shedding light on the period after 1974 alluded to in the article. When I arrived in 1979, Peter McCleary was chairman and had been since 1974. He and the then dean, Sir Peter Shephard, made great strides in strengthening the program during the period after Louis Kahn's death by retaining the best of the existing faculty—for example, George Qualls, John Bower, Mario Romanach, David Polk, Alan Levy, Marshall Meyers, and Jack Thrower. Equally important, McCleary brought Gilbert Cass, Steve Izenour, Yves Lepere, Marco Frascari, John Blatteau, Aldo Van Eyck, and many others here to broaden our base of inquiry and keep the program from stagnating into a museum of memories of Louis Kahn.

Shephard and McCleary did an excel-

lent job of leading the program toward addressing the pluralistic concerns that were emerging in the middle 1970s. At the same time, they retained a dedication to those values basic to architecture at Penn that are so well described in the ARCHITECTURE article.

*Dean Lee G. Copeland, FAIA
Graduate School of Fine Arts
University of Pennsylvania*

Charleston Infill Housing: The article entitled "Gentle Infill in a Genteel City" (July page 44) raises a number of important, even critical, architectural design issues.

To ease social integration and allay neighborhood resistance through adaptation of remnants of a house form associated with Charleston's slave-owning aristocracy of the 18th and 19th centuries indicates a greater concern for visual context and the heritage movement than for the inhabitants of the housing project.

It is also interesting that, although the "single" house has been built in the architectural styles of a number of periods—colonial, Georgian, federal, Greek revival and Victorian—only today's architects have found it impossible to adapt the concept to the contemporary situation.

Of course, the new houses in Charleston are not "single" houses. They pay only lip-service to architectural ideas incorporated in the "single" house—a thin veneer on a more or less typical "low-income" housing unit. None of the features that made the original houses habitable in the hot and damp climate of the area are present.

*Derek A. Drummond
Professor of Architecture
McGill University, Montreal*

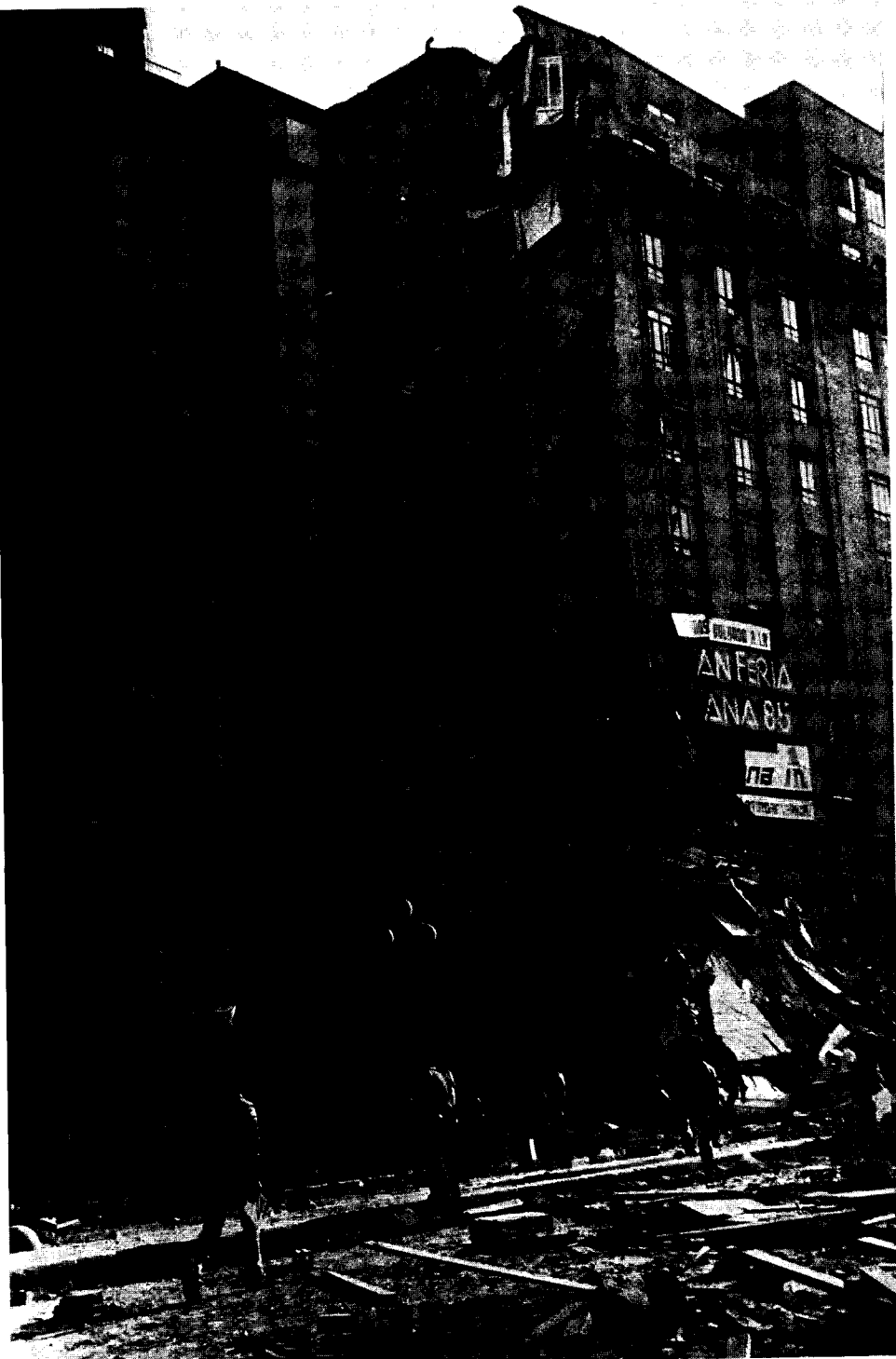
The writer, Michael J. Crosbie, responds: It is true, as Mr. Drummond points out, that Charleston's new low-income housing was designed to "ease social integration and allay neighborhood resistance." That does not, however, exclude an equally strong concern for the inhabitants of the housing projects. The past 4 years have shown that highrise, high density public housing alienates residents of the surrounding neighborhood and serves as an identifiable warehouse for the poor.

Moreover, there was indeed concern for the visual context and Charleston's rich architectural heritage that was matched with high regard for the inhabitants. If Mr. Drummond travels to Charleston to see the projects first hand and to talk to the residents, as I did, he will learn that these people are generous with their praise for their new homes. None expressed psychological discomfort about living in houses that in form are attributable to dwellings that may have once been occupied by slave owners.

continued on page 1

asters

Building Damage Severe but Potty in Mexico City Quake



Editor's note: This report is by Christopher Arnold, AIA, a seismic design specialist and president of Building Systems Development, Inc., San Mateo, Calif. He participated in a California Council/AIA tour of Mexico City in October.

At 7:18 A.M. on Sept. 19, an earthquake with a Richter magnitude of 8.1 occurred off the Mexican coast, 200 miles southwest of Mexico City. Rippling through the soft ground of the old lake bed upon which Mexico City is founded, the earthquake completely destroyed some 60 large buildings, severely damaged hundreds of others, injured countless people, and killed a number not yet fully counted but approaching 10,000. The earthquake was by far the most destructive to strike North America since the continent was first populated. By contrast, the San Francisco earthquake of 1906 killed approximately 700 people, half by fire.

Mexico City has a history of severe earthquakes. In this century it has been struck by six earthquakes with a Richter magnitude greater than 7.0. In fact, the Sept. 19 earthquake was followed the next day by an aftershock of magnitude 7.5, a major earthquake in its own right that apparently caused few additional casualties or damage. The extreme damage to Mexico city overshadowed the losses in other cities closer to the epicenter of the quake: 150 were killed in Jalisco, 30 in Michoacan, 20 were killed in church at Ciudad Guzman, four hotels in Ixtapa were evacuated.

In focusing on severely damaged buildings and the totally collapsed structures with terrible casualties, the news media tended to portray a city in ruins, with life totally disrupted. The truth is paradoxical: The earthquake only briefly affected the basic life of the city area-wide destruction. After a short pause the subway continued operation. Power and water failures were frequent but isolated. Although destruction of the central telephone exchange effectively cut off Mexico City from the outside world, within the city telephone contact was soon restored. The earthquake sought out individual buildings and destroyed them, but these were a very small percentage of the building stock. The aggregate of dam-

continued on page 12



Disasters from page 11
aged buildings only represents about 1 percent of the total.

Records of ground motion obtained at sites within the affected area show a strong shaking duration of about 60 seconds (a very long duration; that in the San Fernando, Calif., earthquake of 1971 was about 12 seconds), and a long period of vibration of about two seconds.

When the period of vibration of the ground shaking coincides with the natural period of a building, great amplification of motion with the building is likely. This occurred at Mexico City, because buildings of between eight to sixteen stories, depending on their construction and proportion, have periods of vibration of approximately two seconds.

Modern highrises, predominantly steel framed, have even longer periods and will not suffer the same amplification; they may sway considerably, but will not come apart. Older buildings in Mexico City are predominantly reinforced concrete framed (with no shear walls) with no ductility (the ability of a material to distort but not collapse). So the long period, long duration motion in Mexico City was ampli-

fied in these large nonductile concrete frame buildings.

Still, only a small percentage of them received devastating damage. In the Nuevo Leon housing area, a 14-story housing unit totally collapsed, partially on its side, while an adjoining identical unit still stands. These are tall, rectangular slabs built some 20 to 25 years ago. Their reinforced concrete columns looked too slender for their task, and the reinforcement projecting from shattered beams and columns looked inadequate. A clear architectural weakness is visible: The first floors are open, and heavy braced infilled walls at the building ends terminate at the second floor, introducing a structural discontinuity.

Small and medium sized unreinforced masonry buildings suffered little damage, except in the adjoining barrio of Tepito, where buildings are constructed by non-professionals, often virtually propped together. Baroque churches stand unharmed alongside shattered reinforced concrete buildings; undamaged simple brick commercial structures adjoin collapsed reinforced concrete hotels. These masonry buildings respond dangerously to short, sharp jolts, but rode unscathed over the long swell of this earthquake.

Many huge buildings with curtain walls stood unscathed. The glass facade of the Latino Americano tower, built in 1948, stands serene and perfect in the center of the damage area. Many large glass storefronts also were unscathed.

The government talks of reconstruction, and the decentralization of government offices, now hard hit by the damage. Planners talk of demolishing Tepito and rebuilding the Thieves Market, heavily damaged by the quake. Both these moves have long been proposed, and the earthquake simply provided a convenient tool for government planners to take action.

Damage estimates for replacement run as high as \$5 billion, disastrous for a not affluent country struggling with high foreign debts.

Meanwhile life in Mexico City continues: Fire eaters show off at gridlocked traffic intersections, and the international hotels are full of business people hardly aware of the disasters a few blocks away.

Administration, HHS Reject 'Model' Homeless Shelter Plan

It now appears certain that a dilapidated building in Washington, D.C., will not be turned into a "model" shelter for the homeless, as promised by President Reagan just prior to the November '84 election. Most likely the shelter residents will be moved by the federal government to temporary and then more permanent quarters run by other advocacy groups for the homeless. At the heart of the year-long ordeal between one such group, the Community for Creative Non-Violence (CCNV) and the Administration is the question of what constitutes a model shelter.

President Reagan's pledge came on the 51st day of the hunger strike of Mitch Snyder, CCNV's director. Snyder, whose plight was nationally televised by CBS's "60 Minutes" and ABC's "Nightline," said he would starve himself to death unless the Reagan Administration agreed to appropriate \$5 million to repair the squalid CCNV shelter for the homeless—a 185,000-square-foot run-down government-owned building at 425 Second Street N.W.

After Reagan conceded, Snyder turned to architects for help in designing a model shelter. So, last January five architectural students from the City College of New York set up shop inside the CCNV shelter (see March, page 28). Their design called for clusters of cubicles to accommodate up to 1,000 people, lounges and dining areas on each of the four floors, an infirmary, and a restaurant-quality kitchen. Subsequently the estimated cost was set at \$10 million.

The Administration countered with \$2 million and a more modest plan calling for such things as the repair (not the replacement) of the roof, open dormitories, one eating area. At this point negotiations broke down in mutual recriminations. In late June the Administration announced that the CCNV shelter would close by July 10. Snyder sued, and in late August a U.S. district court ruled that the government could not reclaim the CCNV building without providing alternative shelter for those in the facility. Since then the battle has broadened to include the D.C. government and other advocacy groups. N.R.G.

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Unless otherwise indicated, the news is gathered and written by Allen Freeman, Nora Richter Greer, Michael J. Crosbie, and Lynn Nesmith.

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Attractions

San Diego Gets an Exuberant New Downtown Development

The people who brought you the design elements of the 1984 summer Olympics now bring you downtown San Diego.

It is not quite all of downtown but a substantial chunk of it, six and a half city blocks of shops, restaurants, and other amusements called Horton Plaza, developed by Ernest W. Hahn and principally designed by the Olympic team of architect Jon Jerde and graphic designer/colorist Deborah Sussman.

Horton Plaza meets the surrounding

streets with a succession of pastel walls and missionesque gestures. But they do not fully prepare the visitor for what goes on inside.

The main "street" is a meandering multilevel pedestrian way that is a dizzying melange of architectural elements, is repeatedly bridged, balconied, arched, and festooned. And it is awash in color, a palette of 49 exterior colors in all, ranging from vivid pinks and greens to the Tuscan combination of black, white, and beige.

The impact, when in the midst of all this, is positively assaultive. On the upper levels, which have fine views of the city and bay, it is easier to take.

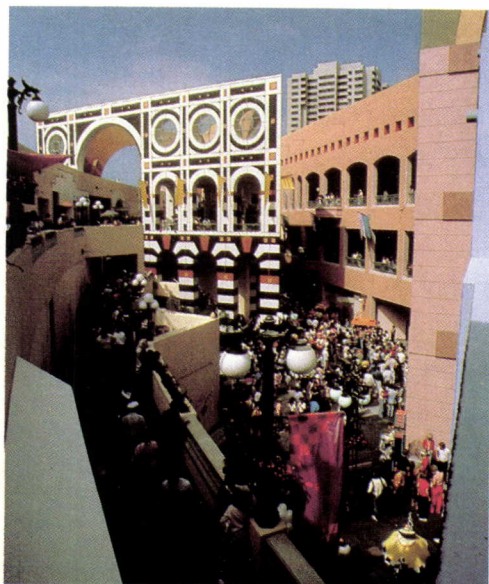
For all of its festivity (the urban design catchword of the 1980s?) Horton Plaza is a serious effort at downtown renewal anchored by four major department stores. Its site was formerly part of San Diego's skid row. There has been much rehabilitation in the area, but pockets of degradation remain nearby.

Horton Plaza is a strenuous, even desperate effort to make downtown competitive with suburbia and induce people to come to a part of the city they have shunned for a long time.

It opened in August, and so far crowds are said to have exceeded expectations. This magazine will return to Horton Plaza over time to see how well its unrestrained brand of urban architecture achieves its ambitious objectives.

DONALD CANTY, HON. AIA

News continued on page



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Pier 17 Pavilion Completes New York's South Street Seaport

Mayor Edward Koch and other city, state, and federal officials sailed into New York City's South Street Seaport on Sept. 11 and dedicated the Pier 17 Building. The building is the final component of the Rouse Company's involvement in the South Street Seaport project, and it completes the link envisioned between the restored 19th century seaport buildings and the restored sailing vessels moored at adjacent piers along the East River.

Projecting out into the river some 400 feet, the 100-foot-high, bright red Pier 17 Building is designed to accommodate about 100 shops, cafes, and restaurants on its three 50,000-square-foot levels. At dedication time more than 55 percent of the space was occupied by some 40 shops and restaurants.

The most memorable space in the new pier building is the glass-enclosed waterfront area on the third floor, which is occupied by two square, marble-and-wood seafood and drinks bars. There one can sit nearly 400 feet out into the river with a splendid panorama of the opposite waterfront, of the Brooklyn Bridge north, and of the Seaport Museum's ships.

The building is constructed as a shed of steel and glass with skylighted arcades, crossings, and open-air decks. It is enclosed by a skin of corrugated metal, which is painted a bright "nautical red" offset by charcoal steel structural frames, white graphics, and blue awnings under a gray zinc-coated steel roof. It is unlike the Rouse Company's Fulton Market at the South Street Seaport, which has a brick-and-glass skin with cable suspended glass canopies.

The architect, Benjamin Thompson & Associates, explains this as a respect for the consistency of building types and their traditional materials—the recreational pier versus the market building—rather than

customary design consistency: "In historic contexts, we look to traditional and generic building *types*, using typical architectural materials and forms. . . . Designing any building in an urban setting surrounded by older structures of various periods . . . starts as a problem not of 'styles' but of *scale and fabric*. . . . Just as we wanted a straightforward 'shirt-sleeves' environment in the market, we wanted an even more muscular and workaday character for the pier."

The adjacent old Tin Building of the Fulton Street Fish Market has been newly painted gray, with red accenting its pressed-metal classical details. The architects associate the "nautical red" of the piers with "the assertive red stacks of ocean liners, the jaunty color of the river tugs and barges, the painted hulls of tall ships, the proud red of the Ambrose Light Ship," which is moored among the Seaport museum's collection.

The new building is expected to draw great crowds to the South Street Seaport along with the currently fashionable evening influx of Wall Street and City Hall singles—in business garb with briefcases and beer steins in their hands. After an admittedly tough first winter—"because the first summer was not long enough to get established," a Rouse Company spokesman explains—sales in phase-one components of Rouse's Seaport venture were up 30 percent this second summer.

Looking up, also, is the Seaport Museum, which after financial trouble that brought recent staff layoffs and other cutbacks, has been reorganized by Peter Neill from the National Trust for Historic Preservation, who started June 1 as the Seaport Museum's new president.

New Yorkers can now look forward to the increasing popularity of this seaport as an established entertainment center and to the gradual restoration and improvement—if not over gentrification—of the surrounding 11-block neighborhood.
C. RAY SMITH, FAIA

Mr. Smith is a New York City writer, editor, and architect.

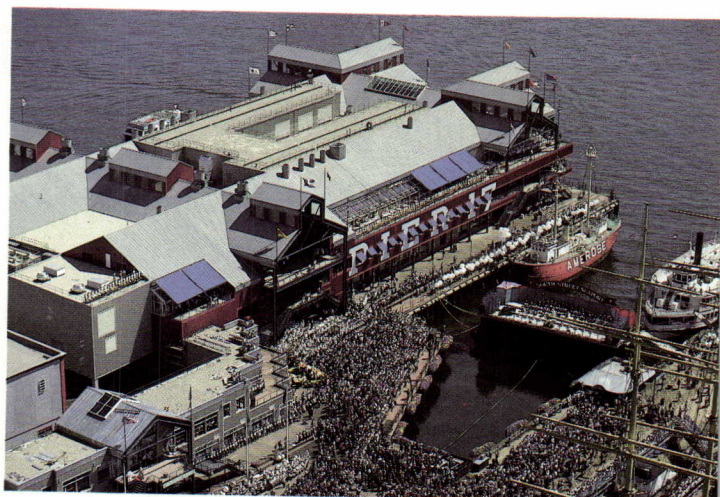
Public Television to Broadcast Three Series on Architecture

Three series that address diverse aspects of American architecture are being produced for public television. The first of the three was aired last month in select areas, and the other two series are scheduled to be shown in 1986.

The first series is an eight-part children's educational program of 15-minute segments on artists and their relationships with the environment, entitled "Pass It Along." The architecture segment was hosted by Peter Bohlin, FAIA, and was filmed at his national honor award-winning Shelly Ridge Girl Scout Center near Philadelphia. Bohlin leads a group of fourth and fifth-graders on a scavenger hunt around the camp to discover elements of the buildings that relate to the landscape and later he has the children pretend to be parts of buildings. The program was produced by South Carolina Educational Television and the Center for Environmental Education. Additional funding was provided by the National Endowment for the Arts, AIA, and the Polaroid Foundation.

In the spring of 1986 PBS is planning to air an eight-part documentary that will examine American architecture in a historical and cultural context. Entitled "Pride of Place: Building an American Dream," the series was written and hosted by Robert A. M. Stern, FAIA, and was filmed at more than 100 locations ranging from a South Bronx urban renewal site to Jefferson's academic village at the University of Virginia, to Houston's Transco Tower by Philip Johnson, to Eliel Saarinen's Cranbrook campus. In each one-hour episode Stern will be joined by various architects, architectural historians, critics, and developers. The scheduled guests include Philip Johnson, FAIA, Stanley Tigerman, FAIA, Cesar Pelli, FAIA, Frank Gehry, FAIA, Charles Jencks, and Gerald Hines, Hon. AIA.

The series was directed by Murray
continued on page 2





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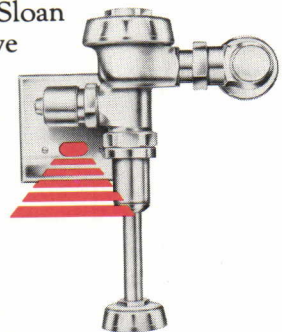
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Attractions from page 20

Grigor and produced by Malone Gill Productions, with funding provided by Mobil Corporation. South Carolina Educational Television will present the series to national public television stations. A companion book of the same title and also written by Stern will provide further analysis of the themes addressed in the series.

The third series is "America by Design," a five-segment program produced by Charles Guggenheim with WTTW/Chicago and hosted by architecture professor Spiro Kostof of University of California, Berkeley. It will focus on the events

and people who have contributed to architecture, planning, and design in this country, as well as the way history and events influence the process of design. Written and produced to engage a general audience, each of the five episodes will address different types of architecture: the house, the workplace, the street, public places, and the shape of the landscape.

Funding was provided by the National Endowment for the Arts, AIA, Haworth, the Corporation for Public Broadcasting, and the Public Broadcasting Service. The series is scheduled to be shown in the fall of 1986.

ing services to the federal government for a 'fair and reasonable' price," said Lawson, who added that the ultimate beneficiary had been the American taxpayer.

Lawson pointed out that last spring the Maryland state legislature had overturned an 11-year-old law that required project price as a factor in awarding set-aside contracts, due in part to efforts by local AIA components (see May, page 96). A study of Maryland's repealed selection method revealed, stated Lawson, that preparation of detailed preliminary designs upon which proposals could be based was more time-consuming and expensive than a method modeled on the Brooks Act. Many A/E firms stopped competing for government work because of the expense. Over the years a growing number of projects went to the lowest bidder rather than the most technically competent, said Lawson, and that the subsequent change in orders on low-bid awarded contracts resulted in increased costs.

Lawson also noted that the study of the Maryland method made Bedell's test redundant. "Many of the undesirable aspects of using price proposals at the selection stage may, by happenstance, not become apparent during a test that selects a few projects," said Lawson. "Nevertheless, the test will be used as evidence to support changing the Brooks Act so that all design work is procured by the price proposal method."

As to the repeal of the \$85,000 threshold method for set-aside projects, Lawson stated that AIA neither supports or opposes set-asides, "which tend to favor one segment of the membership over another." But, he added, the Institute does favor "the more objective and measurable \$85,000 threshold method over the totally subjective 'rule of two' method."

Lawson made his remarks as a member of a panel of architects, engineers, and surveyors who testified for the Committee on Federal Procurement of Architectural-Engineering Services (COFPAE).

Petition Protesting Proposal Submitted to Whitney

A petition signed by more than 600 people, including I.M. Pei, FAIA, Romaldo Giurgola, FAIA, Edward Larrabee Barnes, FAIA, and artists Saul Steinberg and Isamu Noguchi, was sent to the trustees of the Whitney Museum of American Art to protest an addition that they believe will "totally destroy the architectural integrity of Marcel Breuer's original museum completed in 1966.

The announcement in late May of Michael Graves' proposed expansion provoked emotional debate and set off a storm of controversy in the architecture community.

continued on page 24

Controversies

AIA Opposes Legislation to Weaken Brooks Bill Process

The Brooks Act, which governs the selection process of A/E firms for federal government contracts, and a contract threshold used to set aside government projects for small businesses are being challenged by Rep. Berkley Bedell (D.-Iowa). Bedell plans to introduce legislation that would require the Department of Defense to consider the estimated price of a project in addition to a firm's technical competence in awarding contracts. Currently under the Brooks Act, government contracts for architectural and engineering services are selected "on a basis of demonstrated competence and qualification for the type of professional services required at fair and reasonable prices."

Bedell's legislation would call for a program to test the use of price as a factor in selecting A/E services for Defense Department projects. The test would be modeled on a report made by the Office of Federal Procurement Policy (OFPP) that concluded that project price should be the "paramount selection factor" for A/E services that are clearly defined and simple to perform. For more complex projects, the OFPP report stated that technical competence be the most important factor. For projects that fall in the middle range—moderately complex—the report suggested a two-tiered selection process: A/E firms would submit separate technical and cost proposals. The firm ranked highest in technical competence and lowest in price would be awarded the contract. If the most competent contender is not the lowest in price, then the government should try to persuade that firm to meet the lowest bid.

Another part of Bedell's legislation would repeal the \$85,000 threshold method used for setting aside government projects for small businesses. (Under the Small

Business Administration's current standards, approximately 97 percent of all A/E firms are considered "small," and thus eligible to bid on set-aside projects.)

If the cap were repealed, then set-asides would be governed by the "rule of two," as stipulated in the Federal Acquisition Regulation. The "rule of two" requires that whenever a contracting officer believes that "there is a reasonable expectation" that there are at least two small businesses available to fill a contract at a reasonable price, the entire class of contracts must be set aside for small business. Without the cap, multi-million dollar architectural projects could be set aside for "small businesses," which the SBA defines as having under \$3.5 million in gross annual revenue. This means that truly small firms would compete with larger firms for set-aside projects.

In hearings before the House armed services subcommittee on military installations and facilities in late September, Bedell stated that he intends to introduce the repeal of the \$85,000 threshold method as a floor amendment to the FY '86 military construction budget and will introduce the price test as a separate piece of legislation. As separate legislation, the price test may be debated (probably not before next year) in the Armed Services Committee, the Small Business Committee (of which Bedell is a member), and the Government Operations Committee (chaired by Rep. Jack Brooks, Hon. AIA [D.-Tex.], author of the Brooks Act).

At the subcommittee hearings in September, AIA vice president-elect David E. Lawson, FAIA, testified in support of the Brooks Act. "The selection process mandated in the Brooks Act is fair, competitive, effective, and efficient in the delivery of quality architectural and engineer-

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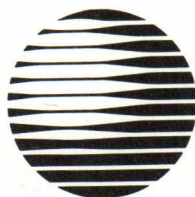
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Controversies from page 24

community. Critics charged the Graves design would overwhelm the original building while supporters argued the addition would incorporate the Breuer building as an element of a larger composition. The addition would rise to the south of, and directly above, the original museum at Madison Avenue and 75th Street (See Aug., page 11, and Sept., page 48).

Calling themselves the "Ad Hoc Committee to Save the Whitney," signers of the petition are urging the trustees "to abandon the presently proposed design for the expansion of the building." The founding members are: Herbert Beckhard, FAIA; Noushin Bryan, AIA; Robert F. Gatje, FAIA; Abraham W. Geller, FAIA; Lillian Leight; Murray L. Levi, AIA; Barbara Neski, FAIA; Arthur Rosenblatt, FAIA; Susan Reichman; Carl Stein, FAIA; and Richard G. Stein, FAIA.

Although the group acknowledges the museum's need to expand and right to "select an architect whose work it feels represents an important current trend in architecture," they believe that it is possible "to develop a strong and important new building that would, at the same time, respect the existing museum."

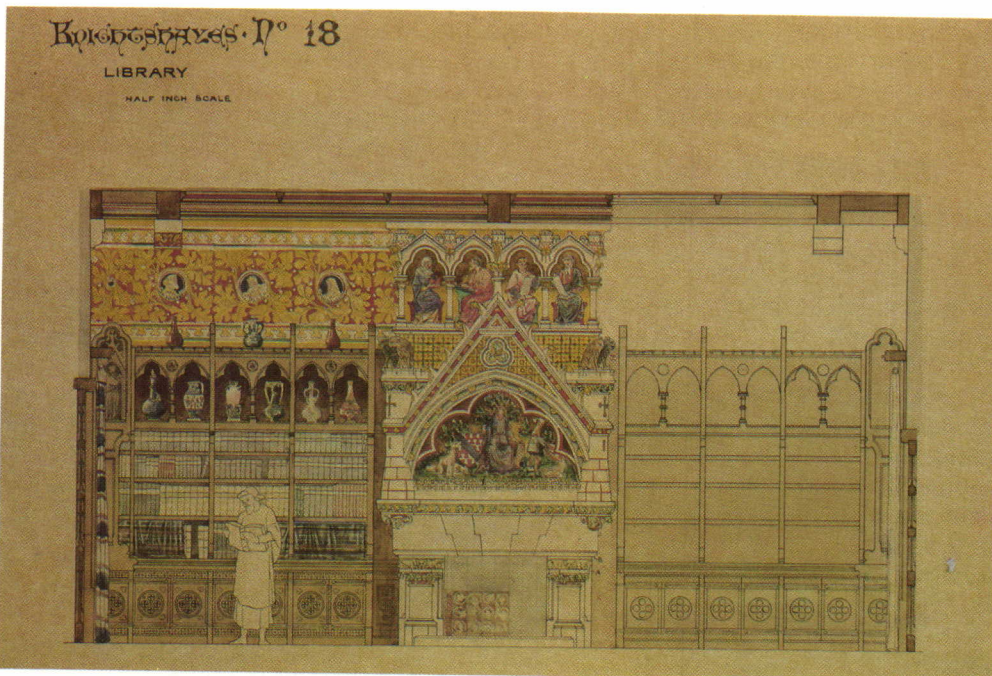
The petitioners, who also include John Belle, FAIA, Hugh Stubbins, FAIA, Lewis Davis, FAIA, and J. Stuart Johnson, state concern that the Whitney "appears willing to allow the destruction of a world-renowned work of architecture in conjunction with its new building program. This is particularly distressing given the museum's role as a caretaker as well as an exhibitor of the visual arts of our culture."

The proposed addition is also opposed by many neighborhood residents and preservation groups, including a group of nearby property owners who have organized and hired legal counsel to fight the proposal. In an announcement of the group's opposition, James Endler wrote that they feel the Graves design "is out of character with the neighborhood . . . and expresses the Whitney's insensitivity to its site and its neighbors."

Jennifer Russell, assistant director of the Whitney, said that the trustees intend to stand by the proposal and go ahead with plans to obtain the required approval of the New York Landmarks Preservation Commission and other city agencies. "The Whitney hired Graves to come up with this design and it was accepted unanimously by the board," she said. L.N.

The Institute

Courtesy of RIBA Drawings Collection



Exhibition of British Country House Design: The Octagon Museum in Washington, D.C., will have on view through April 6 an exhibition of 90 architectural drawings, entitled "The Architect and the British Country House, 1620-1920." The exhibit has both interior and exterior views by more than 35 architects including Sir Christopher Wren, James Wyatt, and Sir Edwin Lutyens and is running in conjunction with an exhibition of decorative objects and art works from British houses of this period at the National Gallery of Art's "The Treasure Houses of Britain: Five Hundred Years of Patronage and Art Collecting." The colorful pen and wash (above) is the design for the library at Knightshayes in Devon by William Burges (1827-1881). After its showing at the Octagon Museum, the exhibit will travel to the National Academy of Design in New York City (May 4-June 29); the High Museum in Atlanta (July 7-Sept. 7); and the Farish Gallery at Rice University in Houston (Oct. 19-Nov. 30).

News continued on page 108

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ARCHITECTURE

This month we present a series of truly electrifying projects that have, all of a sudden and at once, come to completion in major American cities. They vary dramatically (from late modern to latest Graves to neo-Romanesque), and we thought it would be instructive to show them all at once, side by side.

To achieve this we have had to trample upon the practice of magazines arranging for first and/or exclusive publication commitments with architects, a practice that we have pledged to neither pursue nor honor. Three of the buildings in the issue have appeared in other architectural magazines lately, and if we were the other magazines the buildings would therefore not appear here, thereby depriving our readers of another viewpoint on them.

A fourth building was pledged to another magazine, but we decided to include it anyway. After all, isn't there something vaguely bizarre about something as large and prominent as the State of Illinois Center in Chicago being kept from view until the architect and magazine decide it's time to unveil it? Of course, it has been repeatedly unveiled in the general press, and even the construction press. So we should wait?

These things underscore anew the folly of the commitment system which, as we have said before, inhibits discussion and criticism and makes architecture's professional press a little less professional than it might be. We are happy to report that growing numbers of frequently published architects are coming to agree and are abjuring the commitment system entirely. *D.C.*

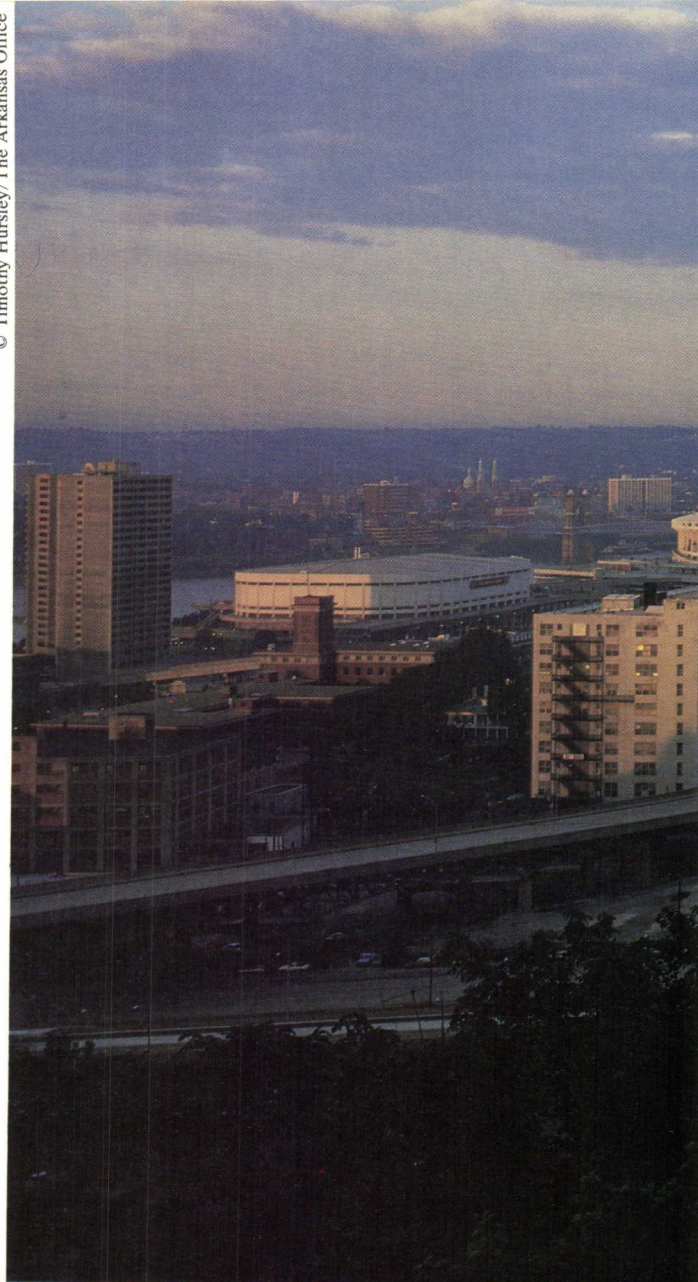
Making a Nonentity Into a Landmark

*Procter & Gamble headquarters addition,
Cincinnati. Kohn Pedersen Fox.
By Andrea Oppenheimer Dean*

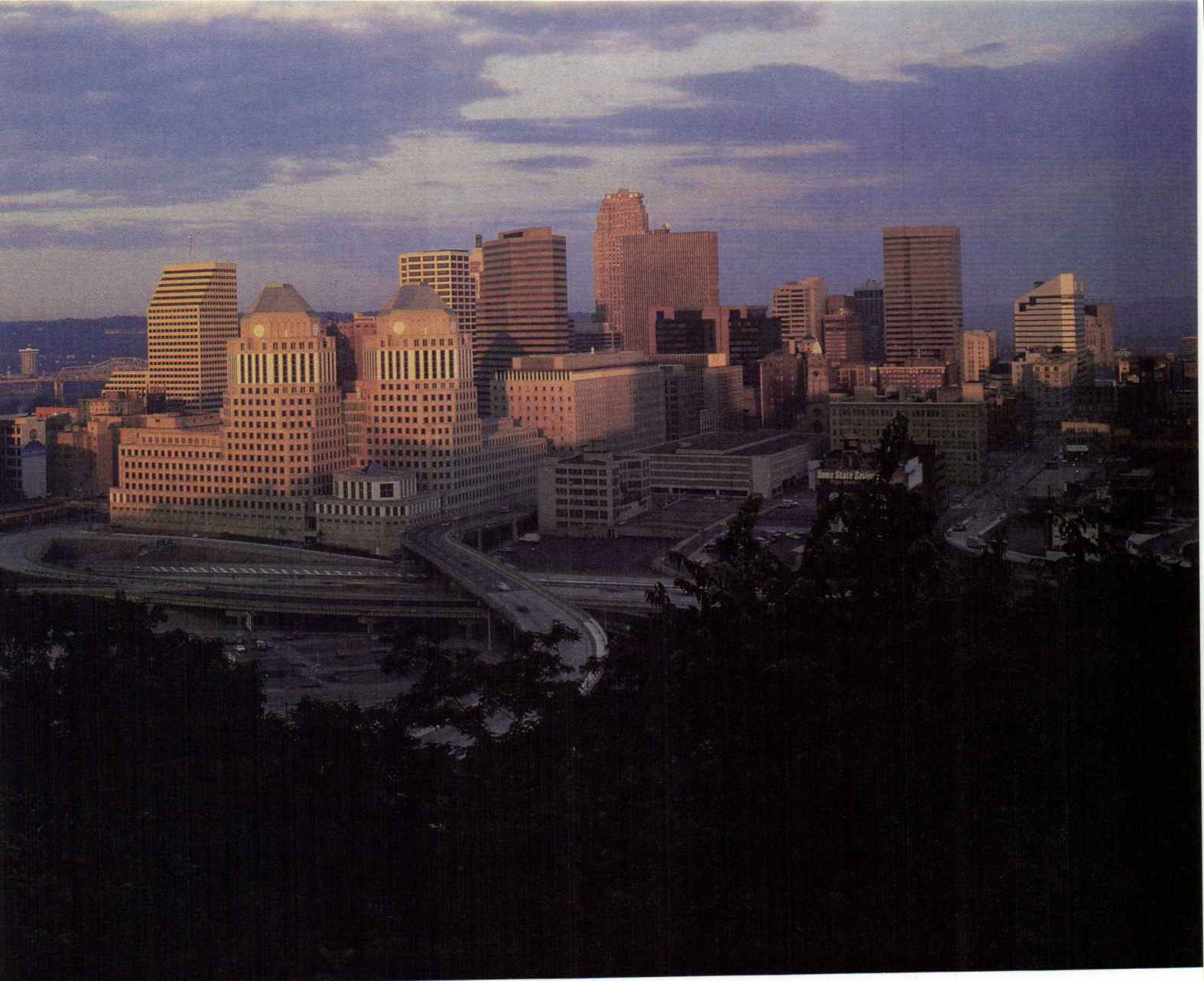
Procter & Gamble's new headquarters signals a departure both for architects Kohn Pedersen Fox and for their client, a cautious old corporation known to some in its home city of Cincinnati as "Prim and Grim." According to the designers, P&G made only two stipulations for its new building: that it have a more public, less cloistered look than the existing headquarters—a dull and dour 11-story, 1956 limestone box with punched windows—and that the old be incorporated in the new complex.

P&G's headquarters has a sense of solid presence without appearing ponderous, is elegant without the flash and showiness of some KPF buildings. Moreover, it is KPF's first all stone building. The firm, known for taking design cues from nearby buildings, has until now created mainly collages that often juxtapose contrasting, sometimes jarringly dissimilar materials, shapes, and colors. The only consistent juxtaposition at P&G is of large volumes and contrasting linear decoration, granite and marble on the exterior, stainless steel banding within.

Partner in charge of design William Pedersen, AIA, explains, "Procter & Gamble is a more homogeneous approach. It isn't an issue of taking one's personal style from place to place. The issue is one of drawing one's style from the place, to create a personality for a building that fits into but isn't distorted by the context. In this sense, this is a pivotal building, something of a departure." Senior designer Alex Ward adds, "P&G gave us the confidence to do all stone buildings. Previously, we thought it might not be modern enough."



Joek Porttle



KPF's starting point was urban design, and once they had settled on limestone as material and an L as basic shape, which generated the two rotated towers rising from the L's elbow, they solved the basic urban design problem. It consisted of making the building a terminus for the eastern edge of Cincinnati's downtown grid, which unravels near the site into an amorphous mess of side and spaghetti-like freeways. Because of the towers' diagonal placement, which aligns with the main artery into downtown from the northeast, the building, as Pedersen had wanted, also became a gateway into the city. Limestone towers with punched windows were chosen for the simple and good reason that Cincinnati is a city of predominantly limestone buildings, many dating from the '30s, several having distinctive shaped tops. Without mimicry, whimsy, or irony, KPF thus adapted Cincinnati's typical building shapes and materials.

The L-shaped complex neatly incorporates the old headquarters building, in a sense, making it appear as an addition to the new, which it is linked via a second story bridge. Like the old building, both new wings have punched windows, but of a special kind. These consist of four-foot-wide reflective glass panels flanked by two, one-foot clear panes set back six inches to reveal the thickness of the limestone skin. The effect is to enrich the wall surface with changing patterns of light and shade. Both new wings, like the old building, are colonnaded, and KPF performed superficial surgery on the 1956 arcade for purposes of justifying old to new. Oddly, though, while in previous build-

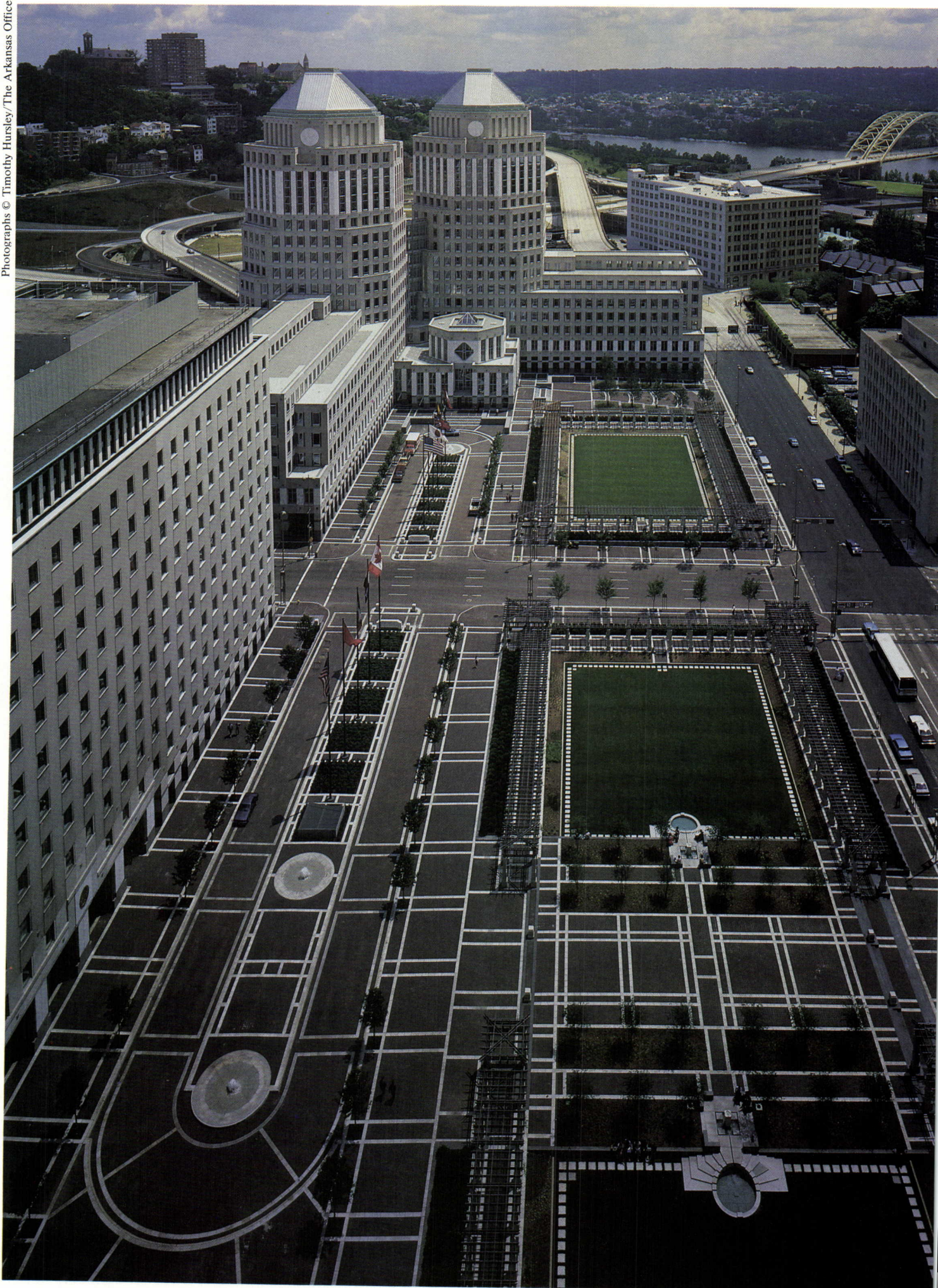
ings KPF has tended to concentrate mass and ornament at the lower levels, at P&G the focus is on the jewel-like entry pavilion and the tower tops, leaving at street level a lusterless repetitive colonnade shielding a drab wall with false windows. Behind them is mostly shell space and mechanical equipment.

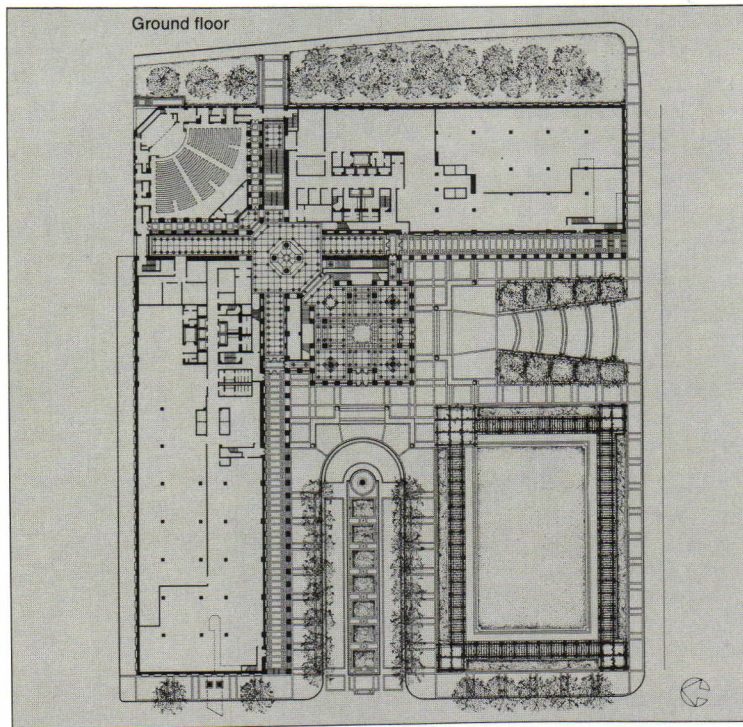
The L-shaped complex, including the old headquarters, embraces a two-block formal garden/piazza, which is aligned with Cincinnati's signature Fountain Plaza just two blocks away. In its last life the P&G plaza was a more casual backyard for the 1956 building. It was enlarged and landscaped with latticed pergolas and an entry drive when the decision was made to shift P&G's front door to its new three-story entry pavilion.

The last, popping out from the crook of the L, is the building's centerpiece and focus at street level. To underscore its special role, it is mostly clad in marble and has an octagonal window above the entry—a sort of medallion. Rising above the pavilion are P&G's two, 17-story, rotated, octagonal towers. Here again, KPF used white marble cladding just under the domes to call attention to these special elements and topped them with green tern-coated metal to echo the colors of nearby tower tops.

Asked what he likes best about the building, Pedersen responds, "The external volumetric relationships to the site were relatively predictable. But there are few buildings in modern architecture that can rival the interiors of this building. They

Center above, P&G towers in skyline. Left, with precursor.





with existing headquarters
 foreground, the L shape with
 spires at its knuckle
 braces a formal garden and
 creates a terminus for the east-
 edge of the downtown grid.
 At night, a view through trellis on
 cast tapered columns to
 the Greek Masonic Temple
 and newer towers.

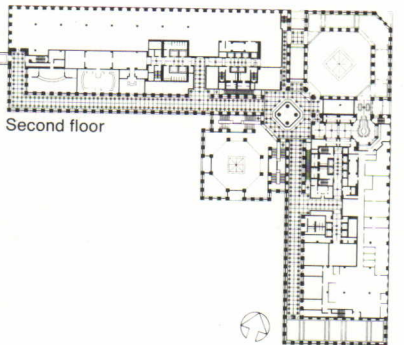
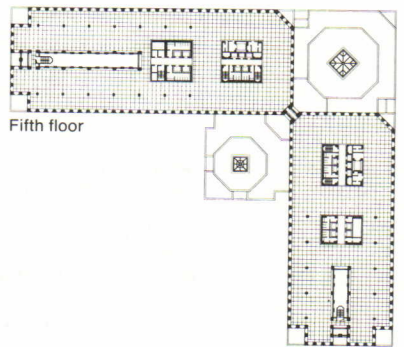
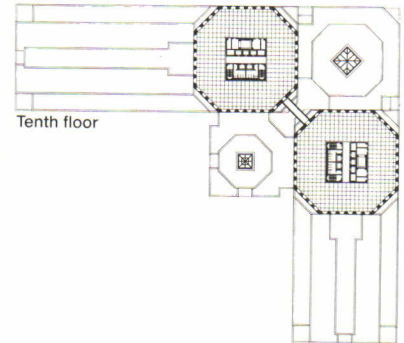
have a high level of complexity, a layering that takes on an almost Piranesian quality." In truth, the interiors are splendid.

At the center of the entry pavilion is a marble fountain, artfully composed of curves and crooks, a lovely object and a damper for noise. Furnishings and fixtures—sconces, suspended light fixtures, flooring in several types of stone, plus corner seating—are all art deco motifs. And stainless steel banding is used not only for decoration but to conceal joints, sprinkler systems, air intake valves, and lighting.

Like the rest of the complex, the entry pavilion is sympathetic in scale and though richly, sometimes sumptuously, detailed never approaches that overly expansive, overly expensive yet impersonal look of "high corp."

From the entry a stair or escalator leads to the second floor wings whose corridors yield to dining, kitchen, and other service areas, and act as a public street to the old building. Four cores, two for each tower, service offices in the spires.

The higher reaches of the towers become not only smaller in floor area but "more domestic," in the architects' words, a euphemism for less expensive. But the principal motifs, such as stainless banding and deco sconces (albeit now in plastic), are constant throughout the building.



In each wing above the second story is a large atrium with hanging light fixtures and clerestories (the architects acknowledge a debt to Wright's Larkin building), and ranged on either side are floors of open offices with views into the atria. Circulation is on the perimeter where all ducts have been enclosed in a dropped soffit that signals "corridor," in part to prevent the amoeba-like growth such plans are prone to.

Surprisingly, while other companies have forsaken office landscaping for conventional offices or some combination of closed and open spaces, all of P&G's work spaces are open plan. But before deciding on furniture systems, lighting, acoustic devices, and the like, the company researched almost all available equipment with all the thoroughness it would lavish on testing a new detergent or diaper, according to Patricia Conway, president of Kohn Pedersen Fox Conway, KPF's interior design arm.

Most office partitions are six feet high, the work floors are orderly and attractive, and, best of all, quiet—thanks, in part, to the electronic revolution. P&G's top brass, nonetheless, has elected to remain in splendid isolation in their closed offices in the old building, ostensibly to avoid making the original headquarters seem inferior to the new. □

Top, entry pavilion interior; above, second story 'street' to old building. Right, view from piazza/garden.



Look What Landed In the Loop

*State of Illinois Center, Chicago.
Murphy/Jahn. By Nora Richter Greer*

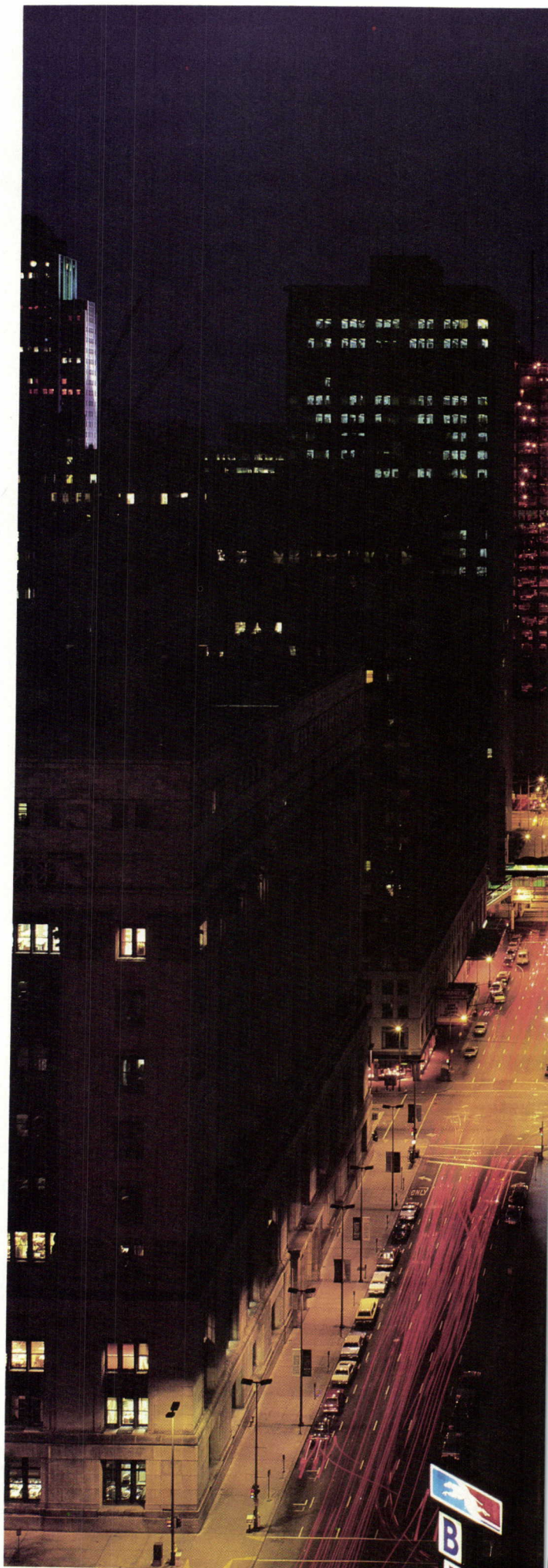
Occupying an entire block in Chicago's North Loop is a huge, squat, wedge-shaped, polychromatic glass and steel building with a distinctive, sliced-off cylindrical crown that seems to have popped through the roof. It is neither of modern nor postmodern genre, but is a synthesis of old and new forms, abstraction and functionalism, purity and pizzaz. Eclectically futuristic, it stands in a tense relationship with its more traditional neighbors.

It is the State of Illinois Center, a \$118 million building housing 3,000 state employees and 150,000 square feet of commercial space. (Rather than creating a typical government office building that is deserted after 5 o'clock and on weekends, the State of Illinois insisted on a mixed use facility.) The architect is Helmut Jahn, AIA, of the Chicago firm Murphy/Jahn. The design was the most radical (and Jahn's favorite) of three submitted to Gov. James R. Thompson, the others being a more conventional, triangular-shaped office tower and a 17-story building similar to the scheme chosen but fashioned out of rectangular planes.

In the design chosen, Jahn took a lowrise (17 story) Miesian glass box and transformed one of the short sides (the south end at Randolph Street) into a sweeping curve that twice steps inward as it rises. Instead of simply pulling the curve from the southwest to southeast corners, the glass skin is tautly stretched from the southwest corner to halfway along the east side, giving the curve greater volume. The result is the most spectacular rounded facade in the city, one that seems to drastically change shape when seen from different vantage points. At times it appears smooth and graceful; others, bulky and distorted.

Curving the structure frees a portion of the southeast corner for a small plaza, in which now stands a Jean Dubuffet sculpture and which announces the building's front entrance. The placement of the curve and that entrance orients the center

Right, at night the center becomes a glowing apparition of the skyline, with the transparent portions of the curve allowing views into the interior atrium.





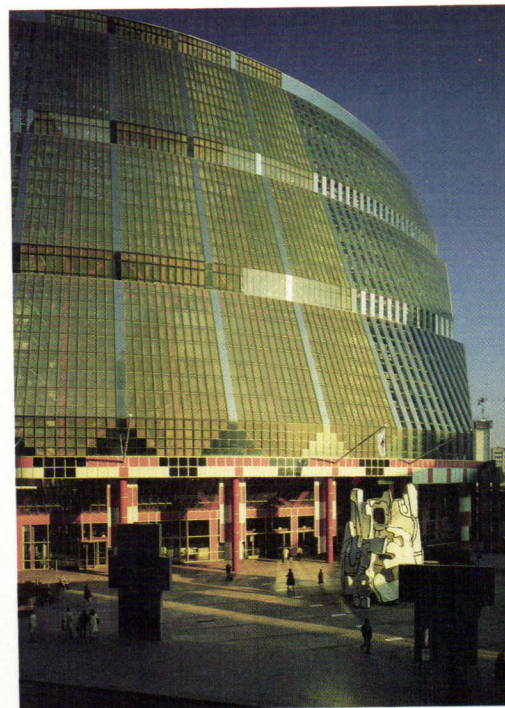


toward other government offices—the City/County Building to the south (a 1906, 10-story, classical building with huge Corinthian columns rising from a granite base) and the Richard J. Daley Civic Center (a 31-story, glass and cor-ten steel building designed in the early '60s by Murphy/Jahn's predecessor firm C. F. Murphy). In the process of creating this tripod relationship, however, an awkward thing happens: The State of Illinois Center with its tremendous bulk (1.2 million square feet) overwhelms the two older buildings.

In sharp contrast to the curve are the three rectilinear facades. On the south side (Lake Street), down the middle of which run elevated tracks, the wall rises straight up and serves as a backdrop for the elevated trains. On the east and west sides (Clark and LaSalle Streets, respectively), the curtain wall is raised two stories by columns, the space beneath becoming a covered arcade. Jahn brought the colonnaded west side to the curb to maintain LaSalle Street's canyon. And to echo the curving facade's inward motion, both the LaSalle and Clark elevations twice step slightly back as they rise. Where these elevations hit the curve, the edges are slightly scalloped.

Jahn has described the treatment of the center's facade as "a play between what is transparent, translucent, and opaque—not always conscious, sometimes unconscious and totally unintended." The center of the curve is transparent—clear glass with four, thin vertical strips of reflective glass. Through this portion hints of the interior can be gleaned. At either end of the curve, the surface becomes more translucent; here 2.5-foot panes of clear glass vertically alternate with the same sized panes of reflective glass. On the remaining three facades the vertical stripping becomes even more opaque, as blue glass panes alternate with clear. The almost garish blue panes on the facades' lower third lighten each time the building steps back. The blue hues are actually quite

Below, the center seen from the east; right, its main entrance; and left, glimpsed between city/county building and civic center.



Right, looking down to the geometrically patterned concourse and main level floors and the glass-walled 'antechamber' opening onto the cylindrical atrium. Below left, the exposed elevator shafts soar toward the atrium's space-framed top.

fickle, changing significantly as the intensity and the direction of the light alters.

Juxtaposed against the skin are salmon-colored columns. The arcade has salmon and white patterns on its storefront surface and its ceiling. And placed next to the columns are pink and gray granite "mock" columns that march away from the building as it curves and that diminish in size as they move down Randolph and Clark streets. Meant to be whimsically metaphorical, at points the granite hits the ground, at others it is suspended, sometimes it is on the street side of the columns, other times on the inside, and at the LaSalle Street entrance it makes an arch with a keystone of glass.

Like the curving facade, this ornamentation is most successful when seen in isolated vignettes. When all exterior elements are seen together, the effect is dizzying. *New York Times* architecture critic Paul Goldberger calls it "hyperactive . . . architecture on amphetamines, a building that is so utterly relentless that it seems never to let you go."

Enter the building, though, and the atmosphere changes to one of congenial exuberance. At its heart is a 17-story, 160-foot-diameter atrium topped by that sliced-off cylindrical protrusion. Opening onto the atrium is a soaring antechamber, a triangular-shaped space the hypotenuse of which is actually part of the curving facade. Together, the skylight and the antechamber let in abundant natural light, which is patterned by the steel space frame and bounces off mirrored glass walls in the atrium.

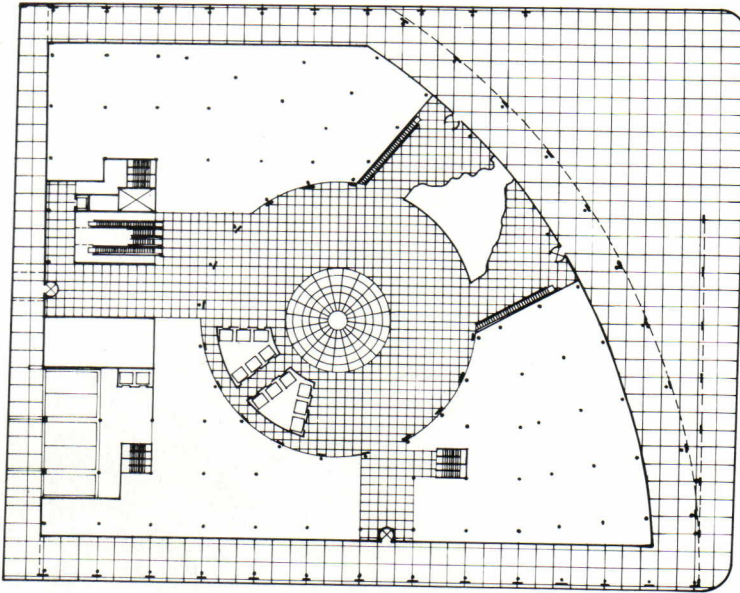
The grand atrium—the largest and most exhilarating in Chicago—was conceived by Jahn as a modern-day rotunda, modeled after those found in turn-of-the-century government buildings. Jahn also wanted to reflect the feeling of an Italian piazza albeit sheltered from Chicago's brutal winter climate and rendered in a high-tech esthetic. The necessary ingredients, besides light, were shops and restaurants and motion and color.

While the shops are located mainly on the first and second floors, the restaurants are below on the concourse level. A large circular hole cut in the center of the atrium floor lets light and views of the space above into the concourse, opening up what otherwise would have been a dark, closed environment.

Motion and color are everywhere. Across the atrium from the main entrance are two exposed elevator shafts, each with six glass enclosed cabs that race up and down, one nine floors and the other 16. From the elevators, clip-on walkways lead to the offices, the balconies of which open onto and ring more than two-thirds of the atrium. Down on the main floor, escalators immediately in front of the entrance lead to and from the concourse level; escalators to the right and left lead to the second floor balcony. Above these side escalators are staircases that seem to precariously hang off the office balconies. In addition, there is a steady flow of people: tourists visiting what is fast becoming the city's biggest attraction, Chicagoans there for state business or simply to cut through the building on their way to or from the "L" or subway, others to browse in the shops or eat. Repeated are the blues and salmons of the exterior, again the tones at the lowest levels fading to pastels above. The steel space frame is red. The result is a series of richly complex images that shift as one moves through the building, the most dynamic being the view from the top balcony down to the elaborately patterned granite floors on the first and concourse levels.

In this new state office building, Governor Thompson wanted to create a new focal point in the North Loop. What Jahn gave the state is a highly dynamic and idiosyncratic building, one that since its conception half a decade ago has been the subject of a heated public debate. □

Ground floor





Sharp-Edged Set of Straight- forward Towers

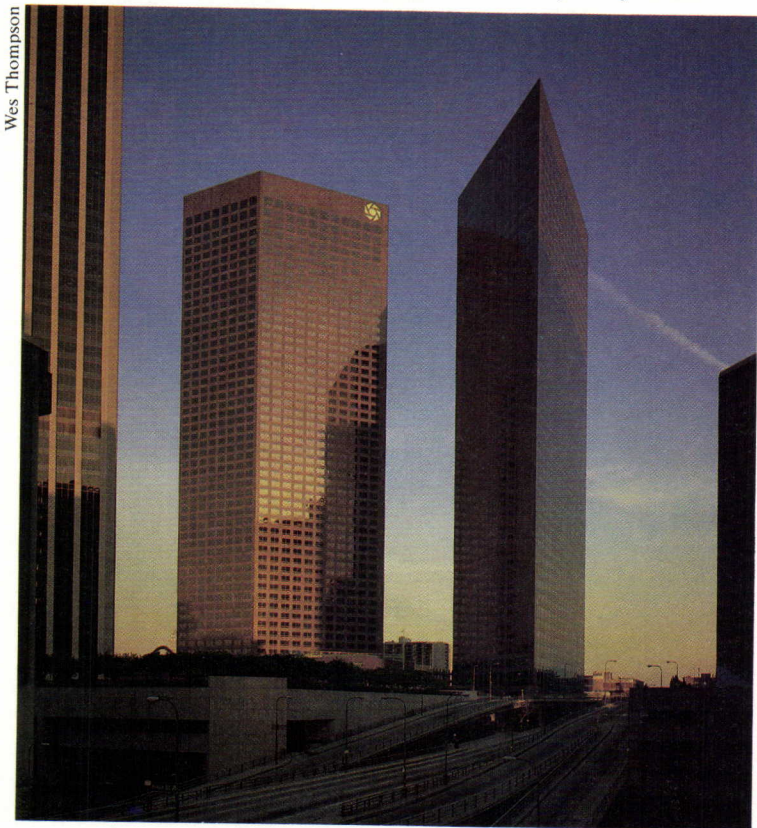
*Crocker Center, Los Angeles, SOM/
San Francisco. By John Pastier*

A few years ago, a visiting architectural critic nominated downtown Los Angeles as "arguably the worst collection of highrise construction in any American city." While this Western American metropolis is not the only serious contender for that depressing distinction, the charge cannot be easily dismissed. The best response would be to plead guilty with an explanation. Or, more accurately, many explanations.

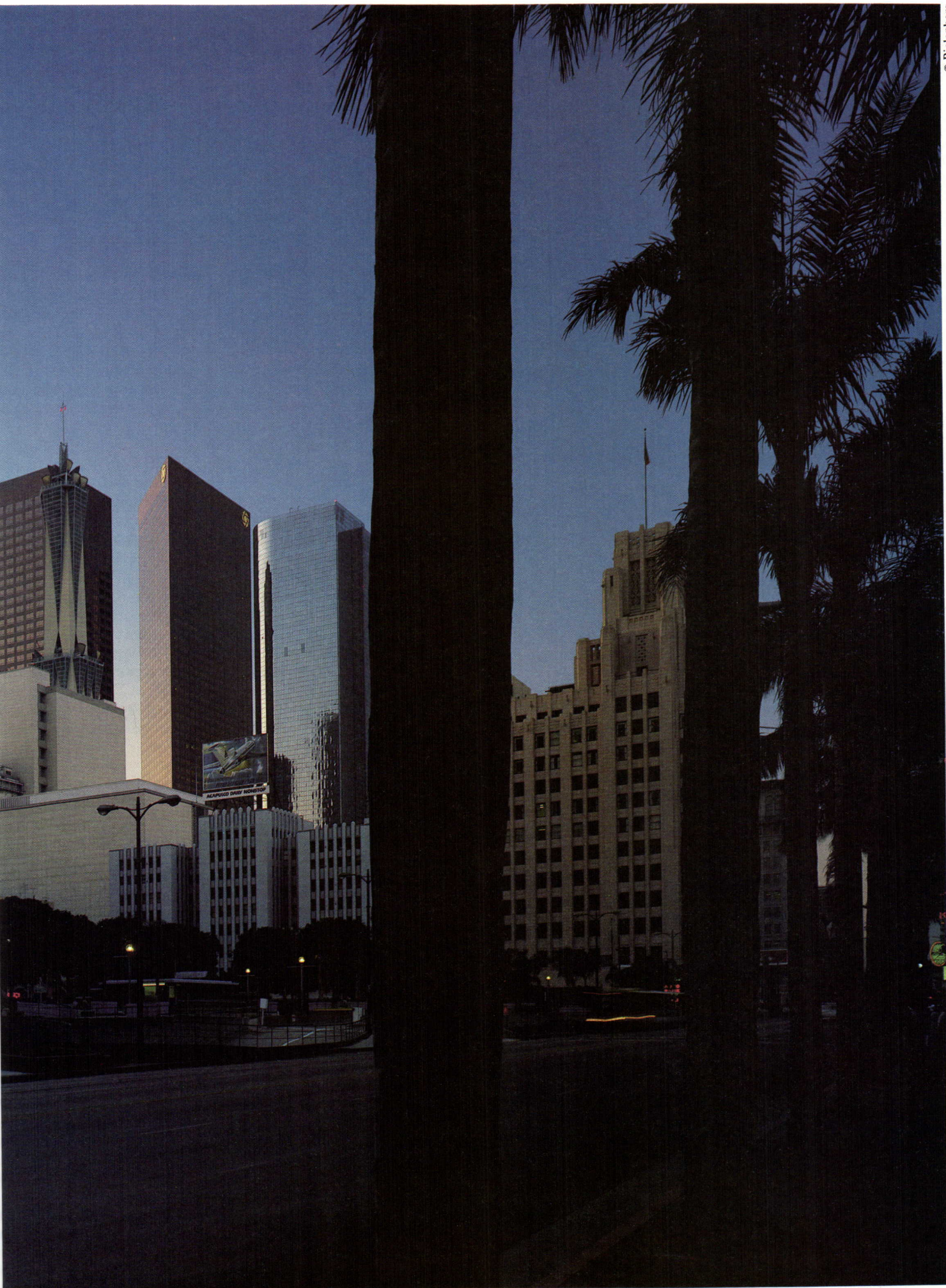
Urbanism has never been the city's strong suit. Its environmental design strengths have always been horticulture and the single family house. Its orientation has been to things secluded rather than public, and to spread rather than compactness. For the typical Angeleno, a tall building is an unwelcome intrusion into an imagined pastoral life. "High rise" is a pair of four-letter fighting words, and, for half a century, skyscrapers were actually illegal. Until the late 1950s, a city ordinance limited building height to 13 stories and 150 feet, with the only exceptions being, ironically, the city hall and the neighboring federal building.

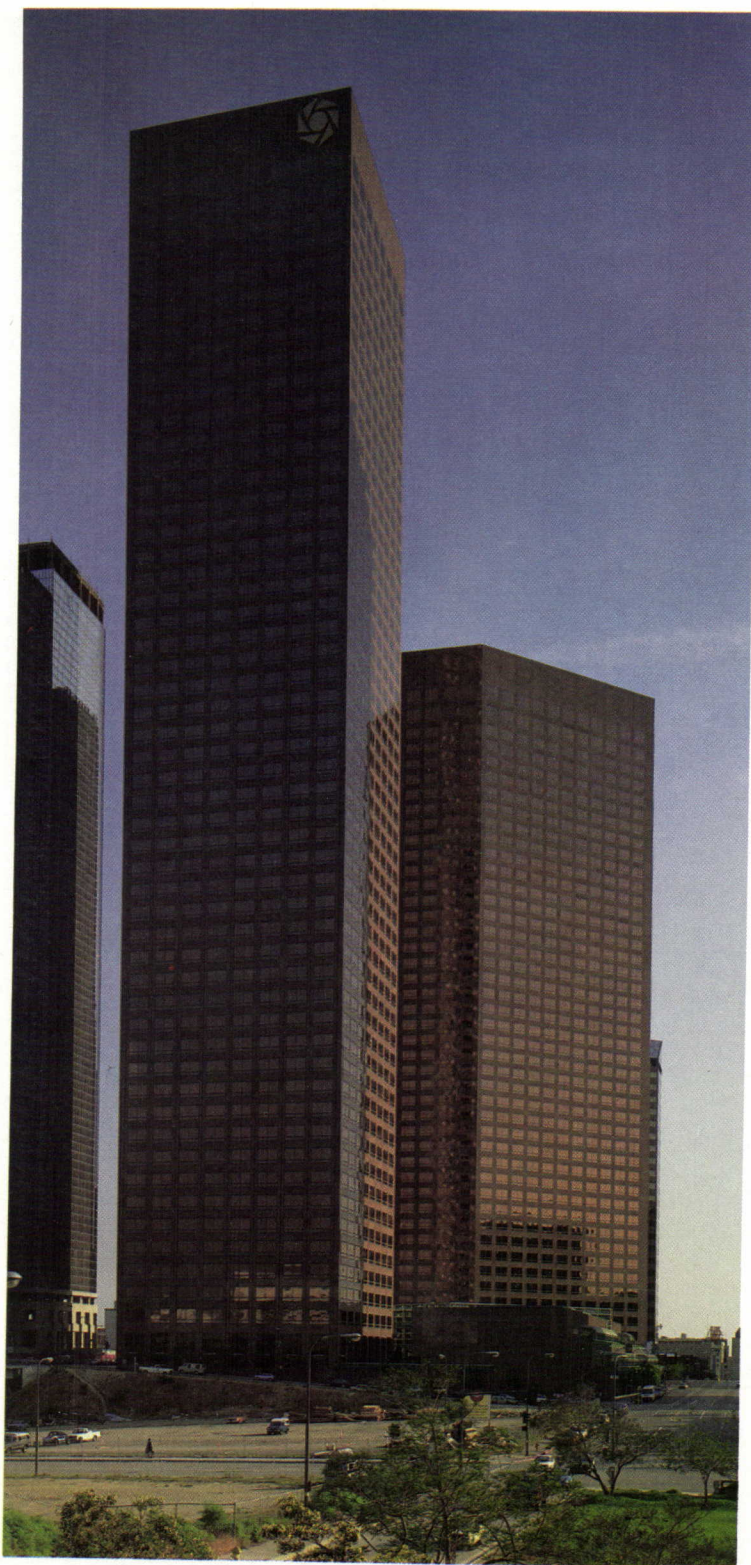
After the height limit was repealed, tall buildings began proliferating, especially during the 1970s. The skyline that has resulted from this concentrated burst of activity is about the fifth tallest in the country, but it lacks representation from the golden age

Right, Crocker Center's towers from the southeast, amid Los Angeles' skyline; below, towers come within 150 feet of each other.



Wes Thompson





Above, towers from northwest, showing reflectivity of granite and 'warm toned' windows, with low buildings on Hope Street.

of skyscraper design that occurred before World War II. There is almost no historical variety. The institutional clients with sufficient resources for first rate buildings were conservative, while the speculative developers generally lacked architectural sophistication. The best locally based skyscraper designers of the period, Cesar Pelli, FAIA, and Anthony Lumsden, FAIA, were given just one commission each, and those were for buildings under 25 stories. And pragmatically, an ordinance requiring emergency helicopter landing pads on the roofs of tall buildings virtually mandates flat skyscraper tops.

Lately, this dismal state of affairs has been changing, in great part through the efforts of a single developer. The Maguire-

Thomas partnership first received major attention about five years ago for its richly diverse Bunker Hill redevelopment proposals involving, among other designers, Frank Gehry, FAIA, Lawrence Halprin, Charles Moore, FAIA, Ricardo Legorreta, Hon. FAIA, and Pelli. (In keeping with the city's anti-urban tradition, this scheme was rejected in favor of a more suburban proposal.) The developers are now in the local limelight because of their plan to build a 70-story tower by I.M. Pei & Partners, and a 65-story one by Philip Johnson and John Burgee. In the same downtown precinct as both its future buildings and its lamented unbuilt ones, Maguire-Thomas has completed a highrise project that has gained considerably less attention, which is somewhat puzzling since it is the city's best piece of postwar skyscraper design to date.

Crocker Center consists of 55- and 45-story towers, and an intervening multipurpose lowrise element. A product of the San Francisco office of Skidmore, Owings & Merrill, the project is something of a rarity in today's skyscraper scene. Eschewing axial symmetry and fanciful tops, and bereft of even a single arch, pediment, or pilaster, it is an undiluted late-modern design, highly refined in materials and details. Its siting and overall organization is derived not from Beaux-Arts principles but from a conscientious response to a rather unpromising context.

The center is part of the 136-acre Bunker Hill redevelopment project, 24 years old this month but still far from finished. Forming the north end of the new Los Angeles financial district (which has migrated about six blocks westward over the last two decades), Bunker Hill is a classic case of the persistence of 1950s-style scorched-earth urban renewal. The hill was once the city's premier residential district, famous for its lavish Victorian mansions. Now, in an area equivalent to a dozen original Rockefeller Centers, not a single old house remains. Its top has been scraped down about 30 feet, its many individual parcels have been combined into a few superblocks, and one of its streets has been turned into a small elevated freeway. Although there have been at least three master plans for the project, the specific forms they suggested have not been carried out by actual developers.

What has been built has turned its back to pedestrians and the street, and has taken the shape of huge garages and free-standing towers usually surrounded by large expanses of uniform open space. The Security Pacific Bank, a simple, 54-story shaft across the street from Crocker Center, occupies but a small fraction of its ground area, provides no commercial activity at sidewalk level, and flouts the master plan by aligning itself diagonally to the street grid. This last bit of bad urban manners was ironically the starting point for Crocker's design, much like the irritating grit that stimulates an oyster into secreting a pearl.

Marc Goldstein, FAIA, SOM's design partner for the project, devised a site plan and building footprints that in part echo Security Pacific's oblique siting, but which also respected the existing grid orientation and managed to form a reasonably straight set of street walls. This was accomplished through trapezoidal tower plans composed of a square joined to a diagonally sliced half square—the familiar "zoot" of the late '60s and early '70s. A third building, the lowrise Crocker Court, combines diagonal and orthogonal geometries in a somewhat different pattern, provides restaurants and retailing, and creates a pedestrian-scale building edge along Hope Street. By coincidence, the plan of the two towers (the taller is named for the Crocker Bank and the shorter for IBM) is exactly congruent in shape with John Burgee's celebrated Pennzoil Place in Houston. Its dimensions of 134x268 feet come within a few feet of Pennzoil's 125x250.

Aside from this similarity, the Texas and California designs are very different. Pennzoil's site is about an acre and a half compared to Crocker's four. Pennzoil's towers are identical twins whose corners come within 10 feet of touching; indeed, they are Siamese twins, since they are joined by an atrium base. Crocker towers are of unequal heights, are spaced 150 feet apart at the closest points, are sited asymmetrically, and are separated, rather

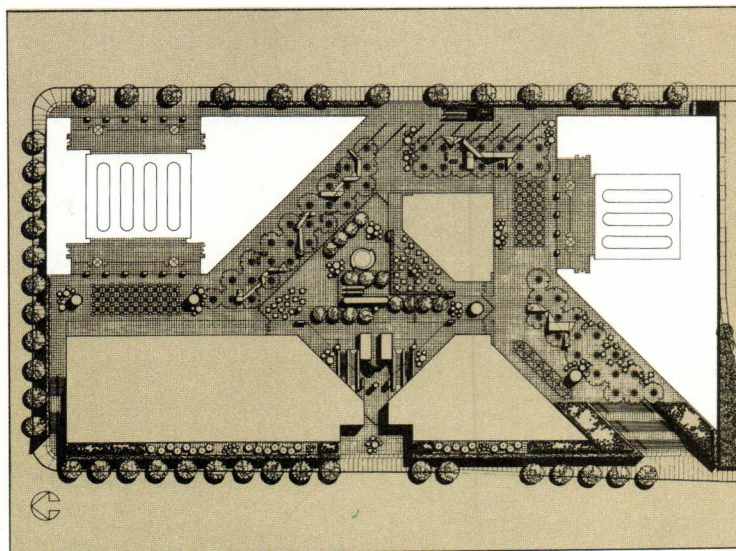
joined, by an intervening plaza-level building. At 523 feet, Pennzoil's towers form something of a trough in the hyperthick Houston skyline, failing to place in the city's top 20 while 57 and 640 feet, Crocker's towers rank second and sixth in northern California.

Houston's trapezoidal twins are also different in three-dimensional form from those of Los Angeles. Their tops are sliced at opposing angles, giving them a complex and interesting profile when seen from a distance. (This has become an almost mythical point as taller buildings have hemmed them in on all sides.) Crocker's flat-topped towers may present less interesting profiles at a distance, but their sharp corners are more dramatic close up, since the flat top emphasizes the acuteness of their angles. Indeed, the knife-edge view of the Crocker and Pennzoil towers is an amazing sight in which immense volumes take on an elegant slimmness and illusory weightlessness that is enhanced by the flushness and reflectivity of their skin.

Buildings such as Crocker Center and Pennzoil Place are really minimalist sculptures on a scale that lies outside the normal range of fine art. To be effective in this role, their surfaces must reinforce the minimalist concept yet also provide human interest and satisfaction at an intermediate and close range. Brilliant as they are, Pennzoil was betrayed by a run-of-the-mill curtain wall that ignored its essential sculptural premise. Crocker, while less convincing as a pair of objects in space, is clad in a skin that fulfills its essential design objectives with skill and subtlety. The Crocker curtain wall is composed of a polished reddish-brown Finnish granite and warm-toned semireflective glass. Depending on the weather and time of day, the figure-ground relationship between wall and window can vary widely. Normally, windows are darker than the granite, but at the beginning and end of the day they can seem to catch fire from the low sun. Other times, glass and granite almost become one, particularly when seen at sharp angles. The result is a skin that is almost as responsive to environmental change as mirror glass, but one with more substance and character of its own. This combination of nearly equivalent glass and granite is by now a classic one. It was used as long ago as 1970 on the Bank of America's San Francisco headquarters by an architectural team composed of Pietro Belluschi, FAIA, Wurster, Bernardi & Emmons, and the SOM office that designed Crocker Center.

Overlaid on the basic rectangular grid of stone and glass are more delicate ones. The windows are set in metal frames that include a central vertical mullion and a roughly thigh-high horizontal one, bringing the scale of the large glass areas down to more human proportions. This framework has been painted a dark, grayed-down turquoise, an unexpected color that works nicely with the warm hue of the stone. (Color selection for the project and building graphics for Crocker Court were the work of Hussman-Prejza & Co.) Additionally, the granite column faces are bisected by vertical slots that guide the window washing equipment, and the joints of all the granite panels are aligned in a pattern that continues the geometry of the window mullions. These secondary patterns are most readily discerned at close range, where their contribution to building scale is welcome, but tend to be absorbed into the larger building pattern at a distance, where such complexity would seem merely fussy. In fact, this is a highly evolved system of enclosure that addresses a wide range of formal and practical issues with considerable subtlety.

Much the same can be said for the site plan, which determinedly attempts to observe urban proprieties in an unpropitious setting. As already noted, it manages to hold its street faces, not only by turning its longest tower sides outward and by using landscaping elements to fill in where needed. Its ground coverage is high, and its open spaces architecturally defined. On a plot of more than four acres, this is no mean trick. It also avoids a stereotypical parking configuration, providing instead a broad alley (with planting designed by landscape architect Allen Fong) that meanders



Photographs © Bielenberg

Above, corner of south tower's marble-clad elevator lobby, with end of one of three semicircular elevator banks at right in photo.

angularly through the site, meeting its perimeter at three points. Along that nearly 1,800-foot-long street edge, there is not a single garage ramp, driveway, or loading dock to be seen. (There is one parking entrance placed so inconspicuously as to be practically invisible.) In the automobile-oriented, antipeDESTRIAN context of Los Angeles, this unprecedented sensitivity to people on foot seems miraculous. Actually, however, it is done through sleight-of-hand. Grand Avenue is a two-level street, which allows vehicular access to be kept out of sight below apparent grade. Additionally, more than 900 of Crocker's parking spaces are in a satellite garage two blocks away. These arrangements can be disconcerting to a first-time visitor searching in vain for the garage



Left, view of low-rise courtyard with north tower at left and south tower beyond; below left, courtyard interior, which overlooks courtyard cafe, is topped with pyramidal skylights. Across passage is a skewed stair approach to complex from Hope Street. South tower is at extreme right in photo with north tower beyond.

entrance while driving along streets where parking is prohibited but they seem the right sort of step to take if Los Angeles is ever to put the automobile in its proper place.

Within this intelligently worked out site plan, the key element is the one most easily overlooked. While the two towers command attention with their prow shapes and almost kinetic placement, the low Crocker Court will determine much of the center's success in terms of human activity. It anchors more of the street frontage than either of the towers and contains all the commercial space in the project. Its central element is an atrium of significant potential use that, for several reasons, has not yet been realized. This 40-foot-high, glass-roofed square is adjoined on three sides by two floors of restaurants and retail space, a much of the court proper is devoted to a sculpture garden designed by Lawrence Halprin.

At present it is a place that has not yet found its identity, since the rental space is not fully occupied and the sculpture are not all in their final locations. The minor art works, three small decorative nudes of gymnasts by local sculptor Robert Graham, present no problem since they are undemanding and are nicely integrated with Halprin's fountains. The three major pieces are works by Louise Nevelson, Joan Miro, and Jean Dubuffet. The first has not yet been installed, and the latter two are set in provisional locations that do not grant them the visibility and dignity they deserve. Proper placement of this trio will be crucial to the court's success as a sculpture garden. The problem is complicated by its busy ground treatment and because the design of the space and the selection of the major art seem to have been two independent processes. It may also be that multiple fountains, labyrinthine waterways, ambitious landscaping and serious art cannot coexist easily in a limited space.

The court's social function is not clear, due to its unoccupied commercial spaces. It could be a vital public place in a downtown that needs as many as it can get, but only if a metropolitan scale drawing card can be found for its vacant space and if the off-limits feeling to Halprin's fountain area can be overcome. At worst, it will serve some of the 9 to 5 needs of the center's occupants, mostly during lunch hour; at best it will keep some of those workers downtown past quitting time and bring in people from other parts of the city on evenings and weekends.

Inside the towers, of course, is where Crocker Center's 12,000 workers spend nearly all their time. The lobbies that they traverse at least twice a day are cleanly designed, but uneventful except for the semicircular form of the ends of the elevator banks. The garage is, like almost all local garages, mildly depressing. New Yorkers have their subways; Angelenos have their Stygian parking structures.

Upstairs, some very fine views can be had by occupants of the outside offices. Overall, one's working environment can vary widely in response to each tenant's self-image and choice of space designer. Based on a small sampling, it seems that modern interiors work out better than "traditional" ones, partly because the former are in the spirit of the building as a whole, and partly because the latter require more money and design talent than is usually available to even a well-heeled corporation. It is disappointing to be on the top floor of the Crocker Tower, at the apex of the prime tenant's real estate holdings and organization chart, and look down a corridor where empty Chippendale highboys stand incongruously at attention every few yards like a cadre of Swiss Guards. Unfortunately, such a mismatch between the buildings' lucid architecture and decorators' interiors is common. It also illustrates how substantial the architects' accomplishment really is, and how surprisingly vulnerable it is as well.

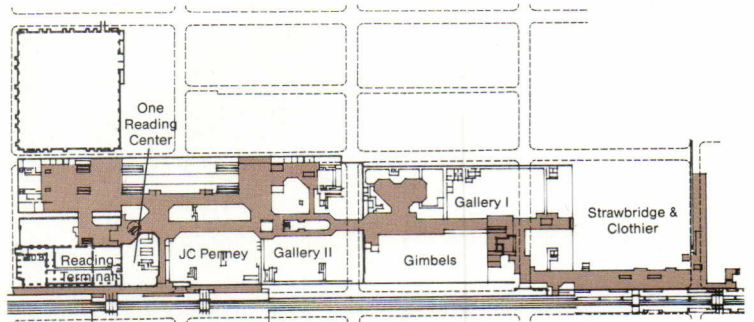
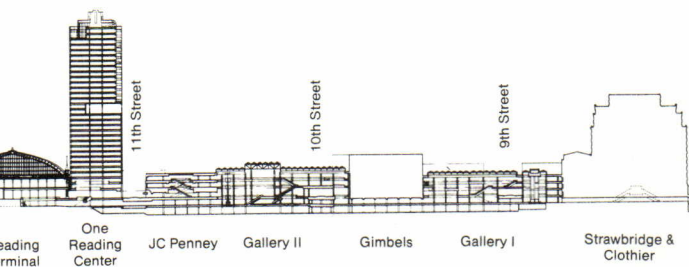


Decoesque Tower Caps Market East

*One Reading Center, Philadelphia. Bower Lewis Throver and Cope Linder Assoc.
By Thomas Hine*



© Christopher Ransom



er the better part of three decades and the expenditure of nearly \$1 billion, the key elements of Philadelphia's Market East urban renewal project are in place.

A culmination came last fall with the opening of the tunnel linking the city's two commuter rail systems, the new station serving it, and, above ground, One Reading Center. The last is a neo-eclectic tower that is the first new office building in Market East, and, the city hopes, the precursor of more to come.

The Market East project was predicated on several assumptions about the metropolitan region as a whole. The most important of these is that the area's extensive commuter rail network, the backbone of suburban development for more than a century, must be strengthened, especially because the region's highway network is undeveloped for a U.S. city of its size.

Even Philadelphia's main streets are quite narrow. The only way center city Philadelphia can accommodate great numbers of people is on foot. By unifying the commuter rail system—and linking it together with the subway and elevated lines, the rail link to the New Jersey suburbs, and buses to Philadelphia neighborhoods and suburban towns—Market East is an attempt to make sure the center city remains the most accessible place in the region, even if it is hard to drive there.

The first phase of Market East, on which construction started a decade ago, was an attempt to strengthen the city's retail core by clearing blight and spurring foot traffic between city hall and the John Wanamaker store to the west and the Strawbridge & Clothier store six blocks east. This was done by relocating Gimbels in a new smaller store, attracting a new J.C. Penney store, its first in a downtown site in decades, and building the Gallery, a downtown shopping mall on a suburban model. Developed by the Rouse Co. in two phases, the Gallery stretches for two and a half blocks, bridges three streets and wraps around the new department stores. Its first phase quickly established itself as one of the most successful malls in America, the first to be geared to a bus and subway-riding constituency. The second phase, which is adjacent to the new commuter rail station, has been slow to catch on.

The completion of the tunnel and the new station last year makes possible the projected second phase of Market East—its development as an office center.

The Market East area has always been somewhat better served by mass transit than areas to the west. But the trains to the most desirable suburbs, especially those along the Main Line, terminate to the west at Suburban Station, at the heart of the city's postwar office district. The tunnel opens Market East to the Main Line, and offices theoretically will follow. One Reading Center advertised, with some overstatement, that its elevators would take commuters to Bryn Mawr and Paoli, quintessential Main Line destinations. Market East, like nearly all the projects initiated in Philadelphia when Edmund N. Bacon headed the city planning commission, took its basic form from transportation systems. The rail tunnel, a truck tunnel for deliveries to the complex, the city's most used subway line, and Market Street itself all run parallel to the project area. Not surprisingly, these have generated a linear development, four blocks long. It passes over and under the city grid and does not block any streets, but within itself, it has



Across page, One Reading Center and, to its right, the J. C. Penney store and the two buildings of the Gallery. Above, the new subway station with its mural. Below, Gallery interior.



Bower Lewis Thrower

Mr. Hine is architecture critic for the Philadelphia *Inquirer*.



Christopher Ransom

Above, the lobby of One Reading Center with its art. Below, the deco entry. Across page, the top of the city hall tower, One Reading Center, and its great predecessor of the 1930s.



Christopher Ransom

been conceived as a unified architectural entity, almost a single building. It was a shocking change of scale when a street of 30- and 40-foot-wide Victorian storefronts gave way to a new building whose length is reckoned in blocks. The first portion to be completed—the original Gallery shopping mall and the new Gimbel's department store, opened in 1977—set the understated architectural pattern of metal panel exteriors and multistory round columns on the interior.

Subsequent additions, such as the Gallery expansion, the new J.C. Penney store, the commuter station, and especially the One Reading Center office building, have added richer materials and additional color to the bland, basic palette. And the highly ornamented, brick and granite Reading Terminal headhouse, once scheduled to be razed for the project, is instead being restored. Its entrance will serve as the main entrance to the commuter station, and its upper floors will be offices for the Philadelphia Saving Fund Society, whose 1932 landmark of modernist architecture by Howe and Lescaze stands diagonally across the street.

Perhaps the most surprising aspect of Market East is how much the result resembles the earlier visions. This stems in large part from the strength of the original plan and the presence of architect John A. Bower Jr., FAIA, who has served as coordinating architect for the entire development since 1969 and whose firm, Bower Lewis Thrower, designed, alone or in joint venture, all the major elements of the project except for the commuter station.

There is also a negative reason: Since Bacon's departure 15 years ago physical planning has not been a strong public priority, and the ideas that Market East embodies meanwhile were falling not merely out of fashion but entirely off the agenda. In contrast with the urban cosmetic surgery represented by the rise of "festive retailing," Market East is an attempted heart transplant. Its results are not quite so quick and photogenic, but they could turn out to be more substantial.

Indeed, even if you look at the area as a series of experiences and activities rather than in the urban structural terms Bacon had in mind, Market East is remarkable. The Gallery, for example, resembles a suburban mall, but it has some distinctly urban qualities. It opens a great glass corner to the street with a series of outdoor fountains and a wide stairway that provides a lively place for people to meet, to be seen, to argue, or to solicit signatures for petitions.

The station itself was conceived more as infrastructure than as architecture, but it does offer daylight on the platforms and glimpses of the trains through large windows on the street.

Meanwhile, adaptation of the old Reading Terminal portico with its massive rusticated stone arches to serve as the main entrance to this computer era station has not yet been completed. At the moment, the main entrances to the station are through glass doors on two side streets, and these seem likely to continue to be heavily used since they provide a shortcut to one of the liveliest and most successful attractions in the area—the Reading Terminal Market, underneath the train shed.

Not far from the Reading Market is the lobby of One Reading Center, yet another kind of environment. It is a highly theatrical space, clad in bands of gray and white marble, and featuring a kind of stage that incorporates a fountain and waterfall sculpture, a mural, and the brick wall of the old Reading Terminal, which adjoins it. The entire composition relates to water and the famous buildings by Benjamin Latrobe, Robert Mills, and others, that have housed pumping stations. The water begins in the distant Arcadian landscape of the mural and moves closer so that the mural spills into the fountain and down the waterfall into the lobby. This integration of art and architecture, which is a welcome change from the "plop art" that so frequently results from the city's public art requirement, doesn't quite come off, however. The execution of the mural by Ronald Bateman, and the related classically inspired sculpture, by Walter Erlebacher, is not as strong as its conception. The entire lobby is, in many respects, a setting for the art, which does not justify the buildup and looks incongruous, even amateurish.

One Reading Center's lobby is, for the moment, the most opulent and dazzling office building lobby in the city. The architects, the same joint venture of Bower Lewis Thrower and Cope Linder Associates responsible for the Gallery expansion, J.C. Penney, and the Reading Terminal modifications, went out of their way to make a contrast with the rest of Market East. Even though the basement level of the building is a continuation of the Gallery, the challenge was to make sure people knew they were not in a shopping mall any more.

On the skyline, the challenge was different. The 32-story One Reading Center was the first office tower to be built east of City Hall since the PSFS more than 50 years before. This distinguished neighbor was particularly intimidating because, with its greater height and smaller floor sizes, the older building would inevitably be more graceful and One Reading would appear as the famous beauty's fat friend.

The architects' response was tailoring—the use of setbacks



changes of materials to minimize the building's apparent mass. The building has two kinds of curtain walls, one—with light granite and concrete horizontal bands—visually heavy, the other—dark glass with dark mullions—visually reticent. As the building rises, the masonry area decreases and the glass area increases to give it a somewhat less stubby profile. And from the east, where the building is at its fattest, a glass notch appears in the masonry wall, on axis with the skylights of the Gallery, with the space between two office buildings about to rise above the Gallery.

The Reading takes PSFS's celebrated streamline base curve, which also appears on the Reading Terminal, and uses it to mark the entrance to the tower and sidewalk level and to punctuate the meetings of the two curtain wall systems on the higher floors. At the top, where the office floors emerge onto generous terraces, the streamline profile becomes very complex. Philadelphians, who have become used to stubby, 40-story office buildings, seem to like One Reading Center because it does try

hard to be different and interesting, and all those curves are a welcome change. And the nerviest and most successful touch of all comes after dark when the meetings between the glass and masonry sections, and hence the asymmetrical profile of the setbacks, are illuminated with long bands of blue neon. The building seems almost glamorous. But in the harsh light of day it becomes evident that, hard as architects and developer may try, it is difficult to build a speculative office building today that can compete in finesse with the Depression-era classic across the street.

After some difficult early going, One Reading is gradually filling up with tenants. If the Market East area is accepted as a place for offices, many large sites nearby are assembled and ready for development. For the moment, however, downtown is moving west, not east. To truly succeed as a living place, Market East needs more outdoor public space, more restaurants and entertainment. But after so much thought and investment, Market East already has quite a lot going for it. □





Strong, Quirky, Abstract, Monumental

Humana headquarters, Louisville, Michael Graves. By John Pastier

It is not often that a single building can change the complexion of a city, and it is even less common that one building can change it for the better. Nevertheless, that is precisely what Michael Graves' Humana headquarters has accomplished in Louisville, Ky. It is the most arresting addition to the townscape since the 1937 Ohio River flood, and, in a more salubrious sense than that record-breaking foundation, represents a dramatic high-water mark. It is the best large-scale building in the city, and also Graves' most substantial design accomplishment to date.

This strong and quirky tower comes 207 years after Louisville's founding, at a time when its arrival is welcome as rain in a desert. The city's past has held some impressive moments: It was once the nation's second-largest inland settlement, was visited by Charles Dickens, and later hosted a municipally owned trunk line railroad to the Deep South as well as a major league baseball team. But over the last generation, this historic city has seemed bent on destroying its architecturally solid downtown through mindless demolition and hit-or-miss rebuilding while it was also losing nearly a quarter of its population. In the words of one Humana executive, "They tore the whole town down and never built it back again."

More specifically, Louisville severed itself from its origins by moving its riverbank to an Interstate highway, and then at considerable effort built a landscaped concrete deck to partly heal a small fraction of the wound. It tore down much of its splendid stock of 19th century cast-iron, cut stone, and terra-cotta commercial buildings, and substituted parking lots, a few office towers, and an unfriendly convention center. Downtown's sole waterfront building is an intrusive hotel, trivializing the name of its predecessor where Dickens had stayed, that seems to have lost its bearings between Las Vegas and Atlantic City. A half-articulated pedestrian mall, a plain-wrap atrium hotel, a small shopping galleria, and a few horse-drawn hansom cabs clapping down



© Peter Aaron/ESTO

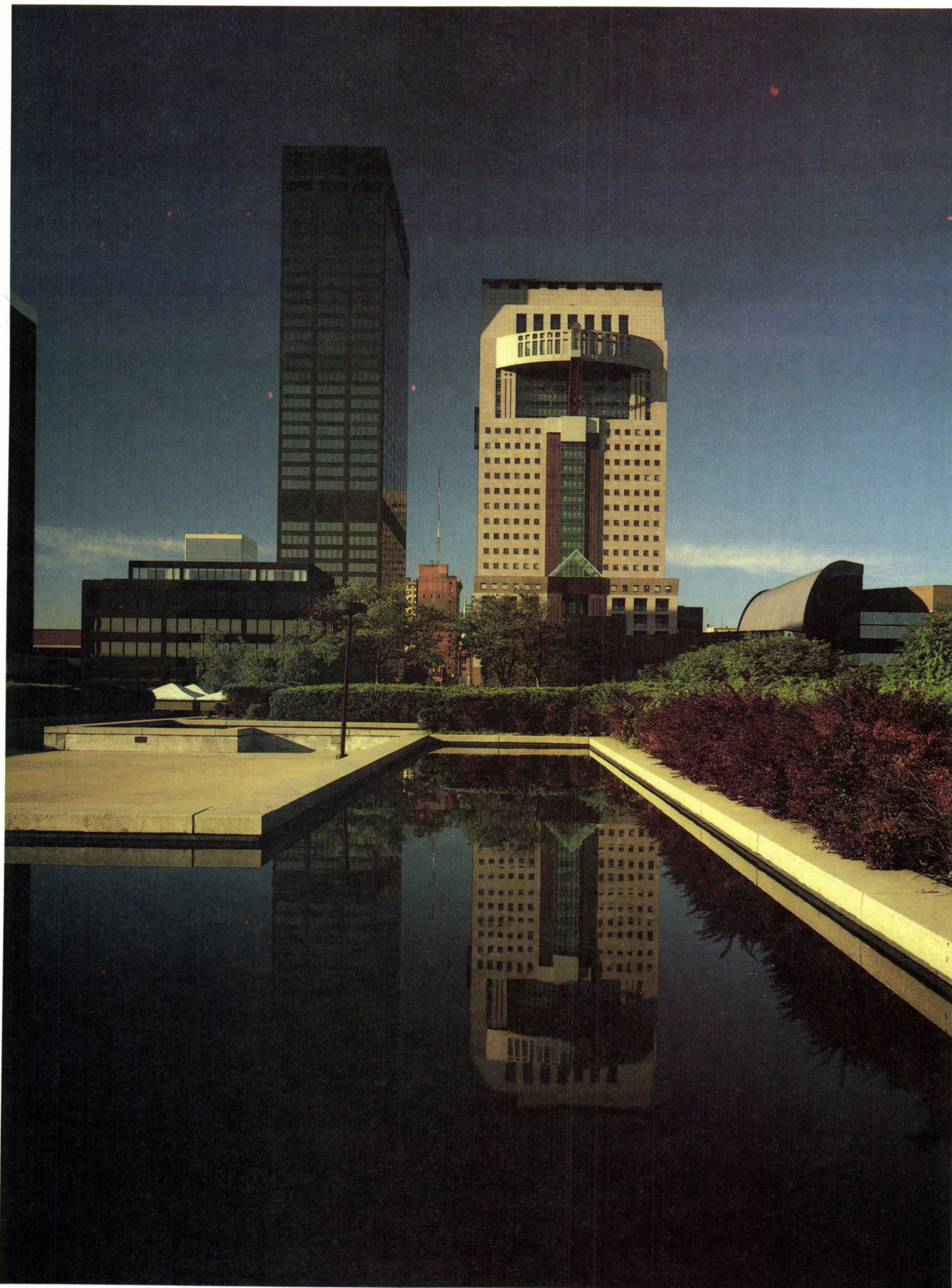
Muhammad Ali Boulevard were faint palliatives to a downtown malaise that was as much a matter of spirit as it was one of physical fabric.

But other measures seem more likely to bring the core back to life. There has been considerable rehabilitation and reuse of the old commercial buildings that survive—Louisville claims to have the second-largest stock of cast-iron front buildings in the nation. The new, slickly designed Kentucky Center for the Arts has helped anchor the performing arts downtown, although not as the most urbanistically beneficial location, which would have been in the historic theater district a few blocks inland. And now the boldly sculpted polychrome Humana building has fearlessly muscled its way into a heretofore minimalist and colorless skyline.

The improbability of this last phenomenon is worth consideration. The Humana tower's combination of architectural ambition and provincial location recalls Graves' previous large structure, the Portland Building, but amplifies the disparity. It is a taller building in a smaller town, and a more complicated design in a less architecturally advanced physical and social context. The potential for controversy and culture shock was high, but unlike the case of Portland, never really occurred. Starting with the unveiling of the model, the city mainly if not unanimously has taken Humana to its heart.

Like Portland, the San Juan Capistrano Regional Library, and a Northern California winery and residence that is yet to be built, the Humana commission was awarded to Michael Graves through an invited design competition. But while the first two were public undertakings, and the third was an art collector's fantasy-come-true, the Humana project is for a profit making

Left, the boldly sculpted, polychromatic Humana Building as seen from the northeast. Top, looking north toward the Ohio River. Above, Humana mediates between the old and the new.



poration operating in the highly cost-sensitive arena of hospitals and, prior to that, nursing homes.

There is a paradox here, since Humana's patient facilities are not built with economic efficiency very much in mind, while their administrative facility has benefitted from a rather generous budget. And, since it appropriates the human species' very essence, and seems meant to trigger altruistic associations such as humane and humanitarian, the company name has an unfortunately market-researched ring to it. Humana's best known surprise is the implantation of Jarvik-7 artificial hearts, a procedure that has been questioned in some quarters as medically premature, and which seems to have done more for the company's name recognition than for the transplant recipients' health. Architectural historian Vincent Scully has written in the *New York Times Magazine* that "the corporate program of private hospitals organized for profit gives some pause. But can we not question the program and still admire the building?" His observation and the suggested solution to the quandary do seem sound.

It also seems reasonable to ask whether the idea of a design competition and the subsequent attention-getting result were means of gaining a higher public profile for Humana. If so, it seems fair to say that the impulse has been architecturally motivated, and the publicity a legitimate byproduct. Humana's president, Wendell Cherry, is an active art collector. Chirico's "Mystery and Melancholy of the Street" hangs on the wall behind his desk) who was head of fund raising for the Kentucky Center for the Arts that now stands across Main Street from his company headquarters.

Historically, public bodies have been more receptive to design competitions than the private sector. Humana's results are a persuasive demonstration of the usefulness of competitions in corporate undertakings as well. The process began in 1981, with an initial list of 22 potential candidates that was boiled down to 11 or 12 firms, each of which was formally interviewed.

In 1982, the company selected the offices of Graves, Cesar Pelli, FAIA, Norman Foster, Hon. Helmut Jahn, AIA, Ulrich Franzen, FAIA, and Richard Rogers, FAIA, to submit designs for a 450,000-square-foot office building at Fifth and Main streets, across the street from the city's best building. The choice of architects embraced notable design talent, a good degree of experience with highrise buildings, and a healthy range of design orientations. This last point was important to the company. Jim Walters, Humana's vice president for design and construction, points out "architecture was going in several directions at once," and there was an explicit intention to "showcase that diversity."

When models and presentation drawings of the competing designs were delivered to Louisville a few months later, it was clear that most of the architects had risen strongly to the challenge. Shortly before the deadline, Meier had informed Humana that he was unable to submit a design. This was as regrettable as it was puzzling, since the style of his lowrise buildings often seems equally suited to tall ones,

and a Meier skyscraper would therefore have been interesting to see.

If built, any of the five completed entries would have qualified as the city's best tower. Franzen's was conscientiously crafted although not exceptionally inspired, while the others were polished and often provocative. Foster's was a rational trussed cylinder bristling with communications equipment on its mast-like top. Jahn's was a trussed octagon whose perimeter rose in a twisting spiral. Both of these high-tech essays would have stood out sharply in this predominantly masonry city, but both would have demonstrated affinity with the dark aluminum curtain wall of the First National Bank skyscraper across the street.

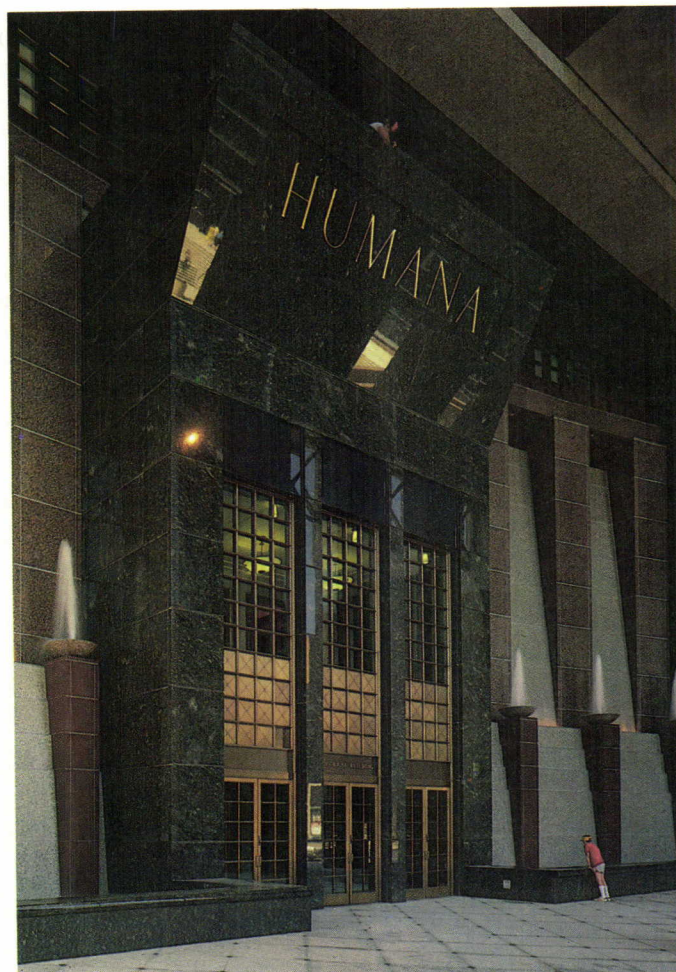
Pelli's entry also had an octagonal plan, but was sculpted into a stepped-back, pyramid-crowned form that paid conscious homage to the great towers built during the skyscraper's prewar golden age. Its cladding was a deft combination of reflective and opaque materials that gave the impression of a silvery central form rising from the grasp of heavier flanking elements. To some eyes, this economical and elegant hybrid of early and late modernism was the strongest competition entry, and even Graves felt that it would appeal to a corporate client more than his complex and unconventional scheme.

Naturally, Graves was glad to be proven wrong in his assessment of Humana's taste. Still, his instincts were not that far off the mark, for one member of the design evaluation committee recalls uncrating Graves' model and thinking "you've got to be kidding." But first impressions were quickly succeeded by a more rigorous nine-week evaluation process. An outside consulting firm prepared cost estimates and energy analyses for each scheme. The buildability of the five proposals was weighed. (Norman Foster's construction technology was felt to be intimidating, as was, to a lesser degree, Helmut Jahn's.) But bald facts and informed speculation are not the sole factors that produce decisions, and reading between the lines of the statements of several company people close to the process leads me to think

that at some point Wendell Cherry developed an art patron's understandable preference for the Graves' proposal and turned the tide in its favor.

Walters feels that the Graves design won in great part because of its relationship to its surroundings (presumably the smaller, older buildings rather than the bank tower) and its embodiment of "quality at human scale." Nonetheless, this pragmatic hospital builder was at first "afraid Graves would be a prima donna." As the project went forward, however, he found the architect to be "responsive . . . very good to work with, and open to criticism."

For Graves, the process of bringing a competition-stage design through development and construction must have been a pleasant contrast to that of his previous office building commission in Portland. There, a bare bones budget and the client's stip-



Left, the monumental entrance embellished with waterfalls and fountains. Across page, Humana flanked by the Kentucky Center for the Arts (right) and First National Tower (left).

ulation of a poured-in-place concrete structure gave little latitude to a designer attempting the unusual. In Louisville, the square foot costs were about double those of Portland—not luxurious by big-city standards, but very comfortable in a largely non-union town at a time when the construction business was slow. The design evolved in the process, but the changes were not the sort of cost-cutting substitutions and deletions that characterized Portland. (The New York office of John Carl Warnecke, FAIA, was the associated architect for Humana.) The only major alteration was one of color; the handsome and unusual yellow Kasota stone that Graves had originally envisioned at the main exterior finish was considered too soft to be practical and was replaced by a more conventional pink granite.

Graves is a superb colorist, and in Humana he had the rare opportunity to work with colors inherent to natural materials rather than mere paint. While the dominant exterior surface is a Finnish pink stone, there are also Indian red, Brazilian green, and Angolan black granites, plus gray ones from Italy and Spain. (All the products of this geological United Nations were cut and finished in Italy.) There are also small square gold accents on the exterior, set on a secondary grid between the windows.

But even more than color, it is form and detail that give this design its identity. To an even greater extent than in his previous work, Graves has been able to draw upon such diverse influences as the rationalism of Aldo Rossi and Leon Krier, cubism, constructivism, Depression-era stripped classicism, moderne, Roman, and Egyptian architecture to create an idiosyncratic trademark style. It is one that manages to combine dignity, ponderousness, and what must surely be wry humor. For all its projections, recesses, overhangs, and adhesions (*Newsweek's* Douglas Davis declared it to be “nooked and crannied to death”), Humana conveys a sense of solidity that is rare in the recent

Below, the columns of nearby George Rogers Clark Bridge are echoed in framework supporting roof terrace. Opposite page: top, the 40-foot-high ground floor lobby with the smaller rotunda seen in the background; bottom, an elevator lobby.

Caulfield & Shook Collection/University of Louisville Photographic Archives



history of highrise buildings. Other architects, most notably Philip Johnson, FAIA, have built masonry towers of late, but have treated the stone as a precious veneer rather than a solid material. In his Republic Bank Center in Houston and AT&T headquarters in New York City, Johnson has arranged the cladding of typical office floors as though the stone were a conventional curtain wall material, using it as spandrels and as slender mullions in wide banks of windows. Of course the stone is a facade rather than a solid, even in Louisville, but Graves is after a Phoenician massiveness rather than communicating a literal truth about thin stone panels.

Although Humana's architecture is one of mass, it is also one of space. The ground floor loggia, the lobby and rotunda, and the 25th floor roof terrace constitute a hierarchy of public, semi-public, and private spaces. The terrace lies behind the dramatically curved 25-foot projection near the top of the tower and is accessible on special occasions to company personnel and guests. Open to the sky, it is contained by the building on three sides and a glazed screen wall overlooking the river on the fourth.

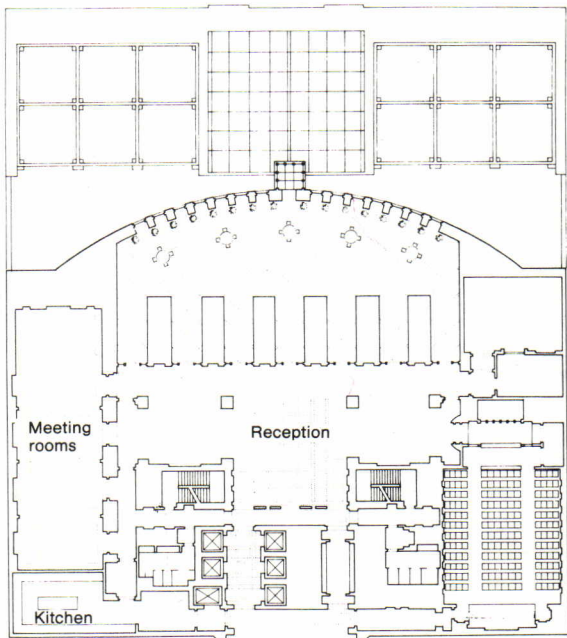
The lobby and rotunda are of course entirely indoors, the first being a 40-foot-high embellished functional space and the second being largely symbolic. Two and a half stories tall and disproportionately narrow, the domed central element of the rotunda seems to exist as an indoor folly, or perhaps as an ironic comment on dramatic spaces that are more visual than palpable; it is designed more to be walked around than through. Like the exterior, the rotunda and lobby are faced in five different colors of stone: French and Italian marble in white, beige, pink, green, and black.

The loggia is the building's most significant space—one that is large, fully public, and freighted with symbolism, both intended and not. Bounded by a massive, closely spaced colonnade on Main Street, it is a 120-foot-long, 32-foot-deep, and 65-foot-tall space capped by a triangular skylight at its center. Flanking the building's entrance doors are two slightly concave waterfalls embellished by fountains in which six sheets of water cascade down 50 feet into knee-high pools while smaller jets of water spring from the centers of a half-dozen bronze bowls. This ensemble symbolizes the nearby falls of the Ohio River, actually a series of rapids whose total drop is less than that of the metaphorical cascades themselves.

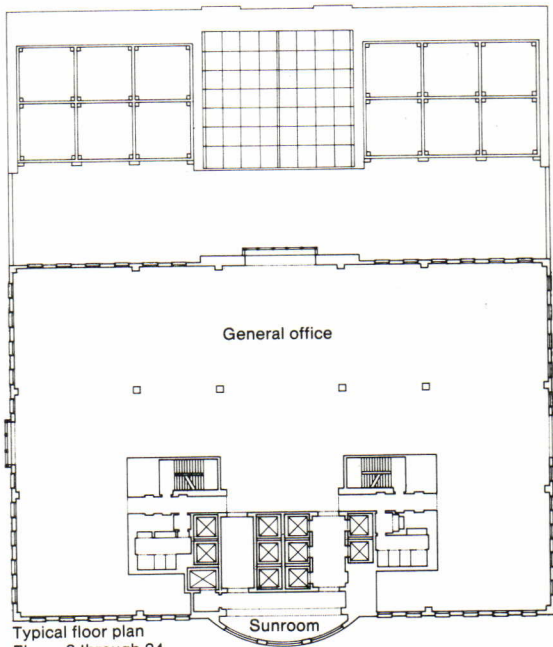
The waterfalls are not the only loggia elements that are bigger than life. The columns bounding the space, many of which are nonstructural, are each seven feet square, separated by one and eleven feet. This is monumentality with a vengeance, underscored by the polished darkness of the loggia's shallowly fluted stone surfaces. There is some resemblance here to an Egyptian hypostyle hall, and an even stronger one to the absolutist architecture of Italy under Mussolini, Germany under Hitler, the Soviet Union under Stalin, and the United States under the postmaster general. These styles might be considered precursors to postmodernism insofar as they were calculated reactions to modernism, but one would expect that a designer of Graves' sophistication could avoid such dreary connotations in a space that is clearly so important to him and to his building.

Even if one ignores those stylistic associations, the space is inhumanly rather than humanistically proportioned. Its columns bear comparison with the ceremonial pylons of the nearby 19th-century Louisville Memorial Bridge, later renamed in honor of George Rogers Clark. Designed by Paul Philippe Cret as grand gateways to Indiana and Kentucky and meant to be experienced from moving automobiles, they are nonetheless smaller, more refined, and more humanely scaled than the columns defining Humana's pedestrian precinct. This bridge, incidentally, is one of several steel-trussed spans visible from downtown that have been symbolized in the triangulated framework supporting the roof terrace.

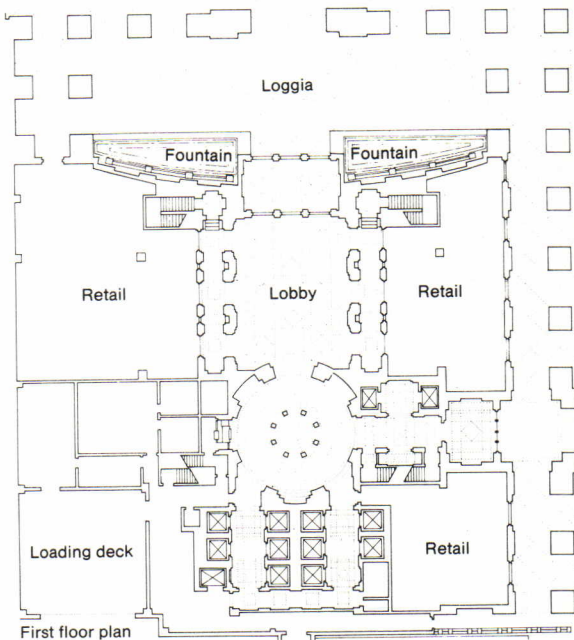
Humana's references to the Ohio River bridges and rapids are nice touches, but metaphors are a form of contextualism



25th floor plan
Conference center



Typical floor plan
Floors 8 through 24



First floor plan



Paschall/Taylor



Paschall/Taylor



Paschall/Taylor



© Peter Aaron/ESTO



Left: top, the roof terrace overlooks the river from the 25th floor, the building's 'conference center'; middle, reception on same floor; bottom, auditorium. The 25th floor lies behind the dramatically curved 25-foot projection near the tower's base. Right, colors found in the executive stair between fifth and sixth floors are typical of those used both on exterior and interior.

once-removed. As a tangible object in a specific physical setting, the building has its plusses and minuses. Its masonry, its undulating and oddly articulated mass generally work well with respect to the city's buildings, but not as well with respect to the city's most prominent one, the tower that stands just 85 feet away. By holding the street line, the loggia makes a good start, but its scale and abstractness do not produce a particularly engaging streetscape element. Placing stores along Fifth Street is a positive urbanistic step, but they are about 20 feet back from the property line, screened from the street by the massive loggia columns. Given a choice between commercial liveliness and abstract monumentality, the architect chose the latter.

In his competition statement, Graves stated an aim of "holding" to mediate the disturbing disparity between the diminutive storefronts on Main Street and the enormity of the First National Tower." The strategy was to break up Humana's mass into a base and a tower, with the former respecting the old cast-iron buildings and the latter relating to the somewhat taller buildings to the east. Both tactics have produced mixed results. The Humana tower holds its own against its larger neighbor, but the two relate to each other mainly as Louisville's odd couple. Humana's base is 120 feet high (145 feet if measured to the top of the skylight), while the adjoining old buildings average about 60 feet. The result is a new building that does not accommodate its historic neighbors but instead overwhelms them. This seems a deliberate choice rather than a necessity, since the 30 feet of the Main Street facade is a false front rising above an open roof deck.

There is a marked dichotomy in Michael Graves' work of the last decade or so. He considers his designs an "attempt to reaffirm and re-establish humanist aspirations which have been too long neglected by modern architecture." In his smaller buildings, such as the Capistrano library or, judging from photographs, the New Jersey Environmental Education Center, he achieves this aim with great success. In his interior design of smaller spaces, such as his Sunar showrooms in several cities, the Diana Von Furstenburg boutique in Manhattan, or Humana's lobby, executive floors, and employee sun rooms, he once again meets his goal consistently, using color and detail wittily and well.

But when the program is on a larger scale, humanism is forced to compete with blatant monumentalism, as in much of the Humana Building, in Humana's lower portion and its oddly brooding top, and, most notably, in the proposed addition to New York's Whitney museum. In these larger buildings, precedent and context seem to take a back seat to an episodic mannerism that has its engaging moments but, alas, is often little more than an architecture of exaggeration. Fortunately for Louisville, the Humana Building is the finest of his trio by a wide margin.

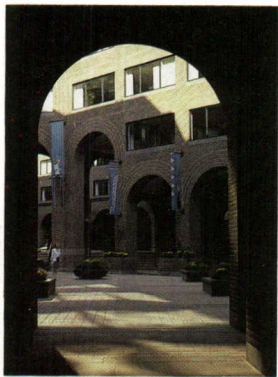
Much of this accomplishment should be credited to the client. Humana has provided Graves with his most significant building opportunity to date, whether measured in terms of size, generosity of budget, or prominence of location. It has also been sympathetic to his aspirations and appreciative of his products. Humana President Cherry declares, "Michael Graves and other architects are trying to re-establish poetry in architecture, and I think it's wonderful." He finds the building to be a "clear addition to the visual literacy of the city" and hopes it will "inspire and set a benchmark for others."

Among all the metaphors in Humana's design, one more deserves mention: This immense and oddly shaped artifact is the company's most successful heart transplant to date. □



Richardson Aura In Old Georgetown

*Jefferson Court, Washington, D.C. SOM/
Washington. By Michael J. Crosbie*



Michael J. Crosbie

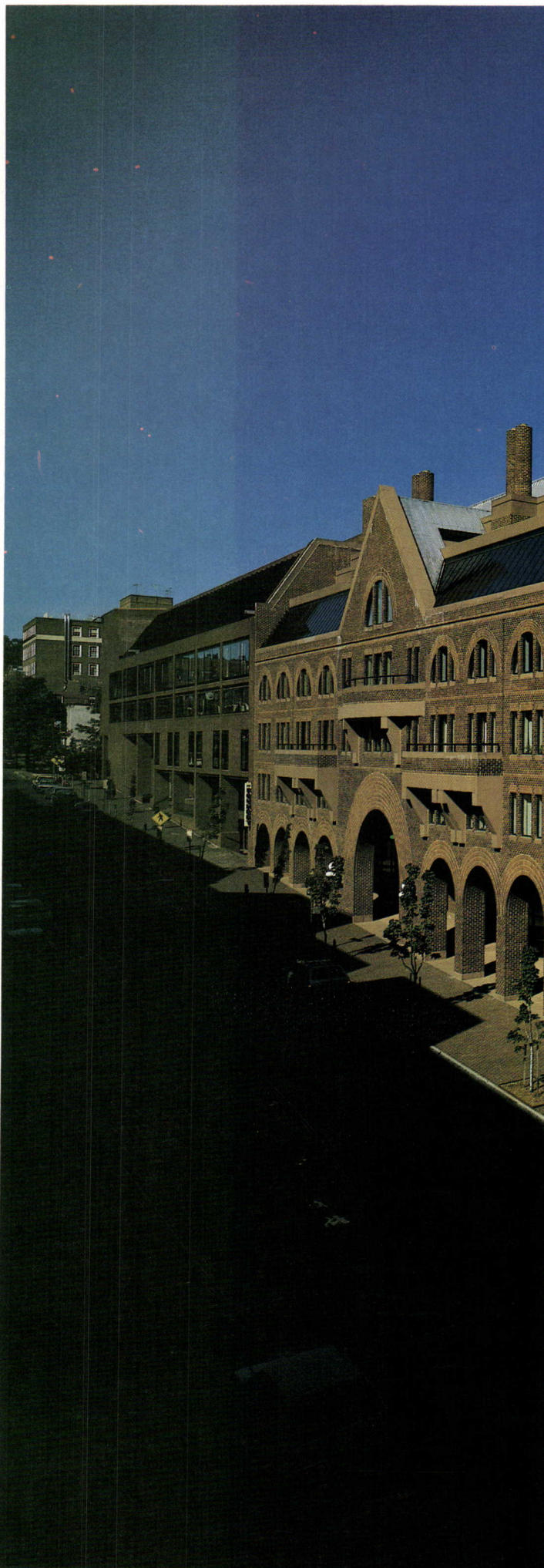
Washington, D.C.'s Georgetown waterfront was never the fashionable address one associates with that neighborhood's M Street and environs north. In the 18th and 19th centuries it was the center of the city's shipping trade, with brick warehouses storing flour, tobacco, and other goods. Mills and foundries added to the waterfront's gritty character. By the mid-1960s, however, most of these buildings were gone, replaced by railroad yards, power plants, and the Whitehurst Freeway, an elevated

artery that rambles along Georgetown's underbelly casting shadow, dirt, and noise. Today, even that is changing. A redevelopment plan calls for transforming Georgetown's waterfront from M Street's ugly sister into a cultural, business, and retail attraction. Now under construction is the Washington Harbour project, a bulbous, sinuous pile that rises like Xanadu on the Potomac.

Amid all of this sits Skidmore, Owings & Merrill's new Jefferson Court office building for Trammel Crow developers, which gestures toward Georgetown's past, present, and future. It is hemmed in to the north by an antique foundry made centerpiece of a commercial complex, to the south by K Street and the Whitehurst Freeway, and to the east and west by 30th and Thomas Jefferson streets, the latter on axis with Washington Harbour.

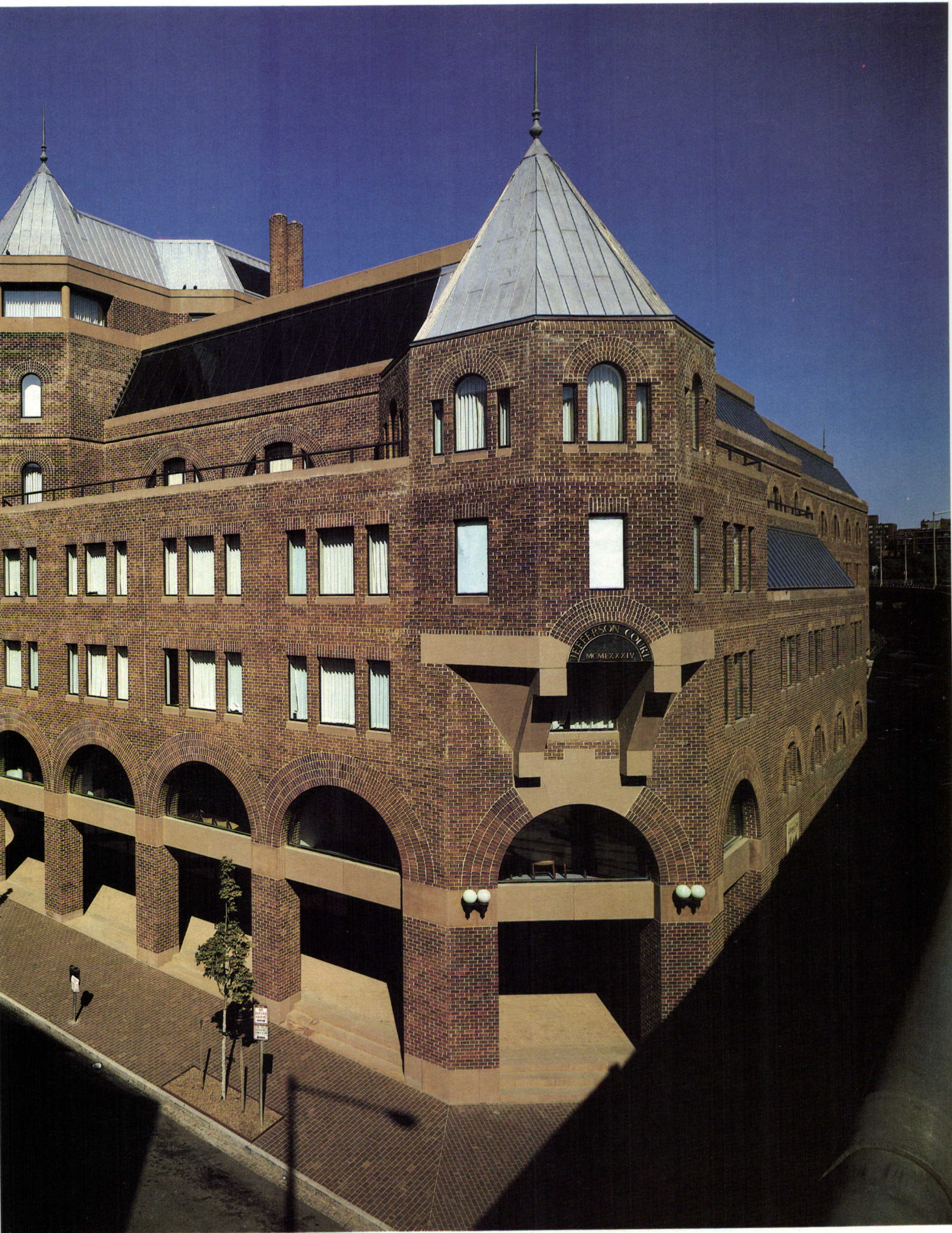
At nearly a half million square feet, Jefferson Court is a big building. SOM co-design partners David Childs, FAIA, and Richard Giegengack, AIA, say that the tight site and narrow streets worked to their advantage in making the building appear less than its eight stories. The pedimented profile makes the building read as four. Mansard roofs ring the building behind the pediment line, but they are actually glass windows for the building's sixth floor. The seventh and eighth floors step back, out of sight from street level, and are only hinted at by the rows

Right, Jefferson Court from Whitehurst Freeway, below, which skirts it to the south. Above, framed view of courtyards from street.



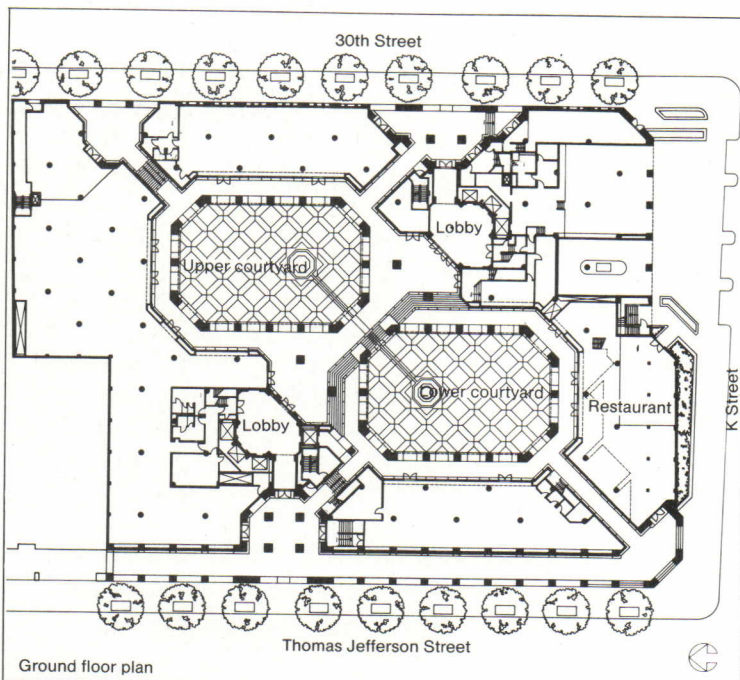
Allen Freeman

Carol Highsmith





Above, detail of major entrance on 30th Street; below, one of two richly appointed elevator lobbies with lamps modeled on fixtures in the U.S. Capitol. Across page, south court of double courtyards. Here windows lack brick mullions of street windows, diminishing the building's weighty appearance from this vantage and revealing the brick as veneer.



of round, double chimneys that march along Thomas Jefferson and 30th streets. As Giegengack says of the careful massing "What concern is the height, as long as you can't see it?"

Jefferson Court's hulking presence was an outgrowth, say architects, of their efforts to give the building weight, the kind of weight that one associates with the buildings that once lined the Georgetown waterfront. "By making it muscular and heavy," says Giegengack, "we wanted to avoid the notion of brick as paint." Many of Georgetown's newer brick buildings, like the adjoining foundry complex, use the material with a paper thin veneer. But Jefferson Court, even though it is brick veneer, appears to be of bearing brick, especially in the long row of gracious arches on Thomas Jefferson Street, with their generous voussoirs and brick-clad intrados. The brick mullioned windows set back in the wall are another implication of the building's depth.

As to the obvious debt to H. H. Richardson, the reference is strained. Richardson built only three houses in Washington (two of which have been demolished and the other relocated), but none of them was in Georgetown, nor were any other Romanesque revival buildings of the period. But the image fits with the architects' intent to recall industrial buildings, and the Richardsonian elements are used effectively to give Jefferson Court a comfortable city scale. Viewed from a block away, one clearly reads the pediments, the cast stone balconies, and the tallest arches as defining the major entrances. On its west side an arcade extends the length of the building, connecting to the foundry's arcade to lead pedestrians down the Thomas Jefferson Street axis to Washington Harbour. The 30th Street side has no arcade, because there is nothing for it to lead to.

One needs to go deep to penetrate this building. Its twin elevator lobbies, accessible through the largest arched opening on Thomas Jefferson and 30th streets, appear to be carved out of the interior. Here one finds materials of like weight to those on the exterior—a light and dark green marble patterned floor, robustly detailed cherry wainscoting, brass elevator doors and hardware. At the center of the lobbies' corbelled coffer ceilings hang cast glass lamps.

Before entering the elevator lobbies, however, one becomes aware of the building's best kept secret—its double courtyards. You don't expect to find them in a building that evokes images of warehouses and mills and the architecture of a man who was not noted for using courtyards. They are discovered casually, almost accidentally, as you pass one of four entrances and catch glimpses of daylit arcades and the sound of splashing fountains. On a site that slopes 15 feet from north to south, two courtyards are better than one because they allow, as Giegengack points out, three opportunities to negotiate the grade, making the descent seem much less than a story and a half. The courtyards are on a diagonal, making a shortcut through corner entrances across the site, and will funnel Washington Harbour visitors off of 30th Street and deliver them at the foot of Thomas Jefferson Street. The diagonal arrangement also makes the courtyards appear larger and creates a sense of mystery through the oblique views from one courtyard to the other. The two fountains tie these spaces together via a watercourse that trickles down the steps—a hint of the riverfront beyond.

Ringed by the courtyards are retail spaces, better than half of which are rented. Yet to arrive is a restaurant, which would give these courtyards life after 5 P.M. Childs speculates that the completion of Washington Harbour will boost nightlife for Jefferson Court. But unless one happens across one of the courtyard entrances the shops within may never be discovered.

As it fronts K Street Jefferson Court is less successful. Here is found the loading dock, the parking garage entrance, and a less carefully composed elevation, all of which will be the first thing that visitors see from Georgetown's waterfront development. But Jefferson Court is a considerate neighbor, mindful of its context and its history, and an intelligent piece of city making, providing well appointed public spaces. □





High-Tech Castle On a Wooded Hill

*Intelsat headquarters, Washington, D.C.
John Andrews International.
By N.R.G.*

Connecticut Avenue is the main street of Washington's office core. Then, as it proceeds north, it becomes a largely retail and residential corridor, with a few bulky office buildings and hotels along the way. But about half way to the Maryland line is a startling apparition: seemingly a huge jeweled fortress with gleaming turrets, set on a wooded hill.

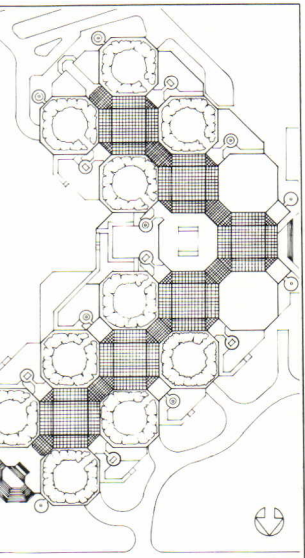
In actuality it is the headquarters of Intelsat, the 109-nation cooperative that runs a world communication satellite network built to a competition-winning design by John Andrews International of Australia. It is a hard building to organize into a single coherent image. Rather it reads as a series of glimpses of angular shapes and varied surfaces: glass of various degrees of transparency and reflectivity, bits of concrete, shiny metal as both struts and panels.

The building was deliberately fragmented by Andrews in his competition entry to reduce its apparent bulk (it exceeds 600,000 square feet, with more to come) and to meet the competition program's two principal goals: ample daylighting and energy efficiency. Andrews' initial plan was a checkerboard, with offices in the dark squares and light courts in the white, with the offices drawing daylight both from their perimeters and the courts. But it proved difficult to link the office squares, and their corners were lopped off, as were those of the courts.

The end result is a procession of nine octagonal "pods" grouped around five skylit atria. The links between pods are service



Allen Freeman



Right, aerial view of Intelsat building complex at sunrise. Above, coming upon Intelsat at sunrise.



Courtesy of Geoff Willing



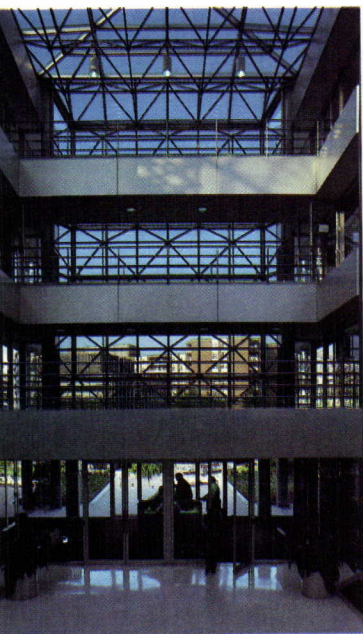
spaces, and projecting from them are spiral stairs in striking towers of glass block and concrete.

The 11.75-acre site rose 40 feet from Connecticut Avenue on the east to the western edge bordering the still abuilding "International Center" of embassies and chanceries, a branch of Washington's traditional embassy row. There were two fine clumps of deciduous trees, including magnificent 100-foot oak

Intelsat wanted to keep construction to eight acres, and Andrews saw the utility of the trees as part of a passive solar system, providing summer shade and protection from winds sweeping up the slope. The trees were kept and the building limit respected, so that the shiny glass and metal surfaces play against green and wooded public spaces, including a park at the site's southwest tip.

The main axis of Andrews' modular matrix is a northeast to southwest diagonal going up the hill from Connecticut Avenue. Three of the atria march up the hill, one sits on the crest of the slope, and one steps down toward Tilden Street, bordering the site to the south. Another atrium will step down even closer to Tilden in the second phase of construction. The elevation change between consecutive atria is 11½ feet.

Lining both sides of the atria are the nine office pods (four more will be added around the still-to-be-built atrium). On the



Allen Freeman



Allen Freeman

cross page, the contrasting geometries of IntelSat as seen from the northwest. This page, counterclockwise from lower left: the main entry's aluminum H flanked by stair towers; the aluminum-clad lobby; the Connecticut Ave. entrance with its ceremonial staircase; and the glassy Connecticut Ave. lobby.

On the north side the pods are four stories, on the south five, and in the future addition they will be six stories. Parking for 300 cars is tucked underneath the north pods.

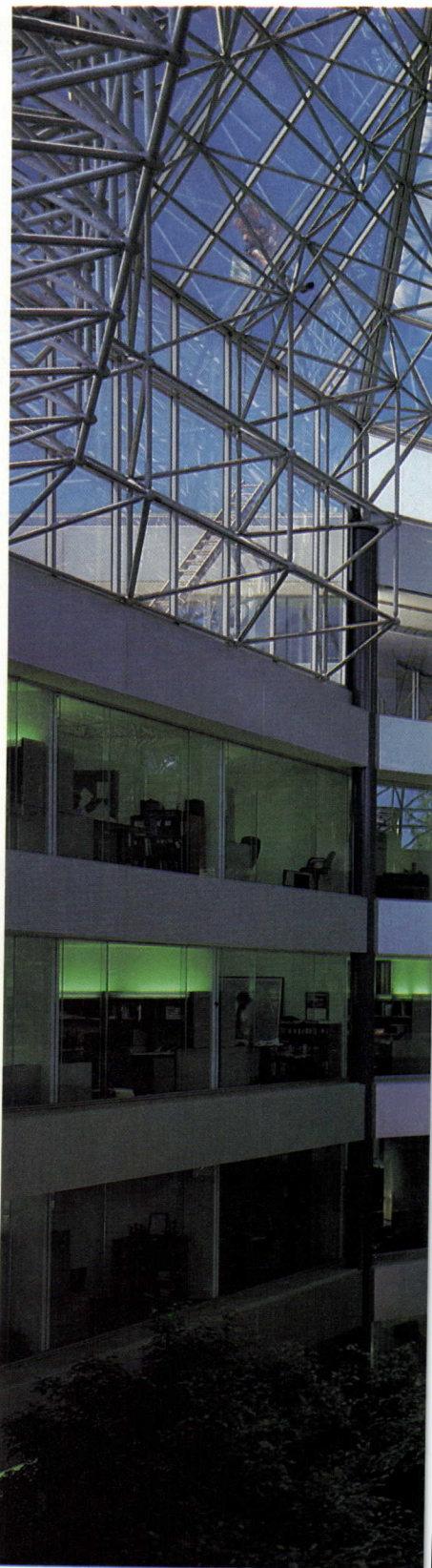
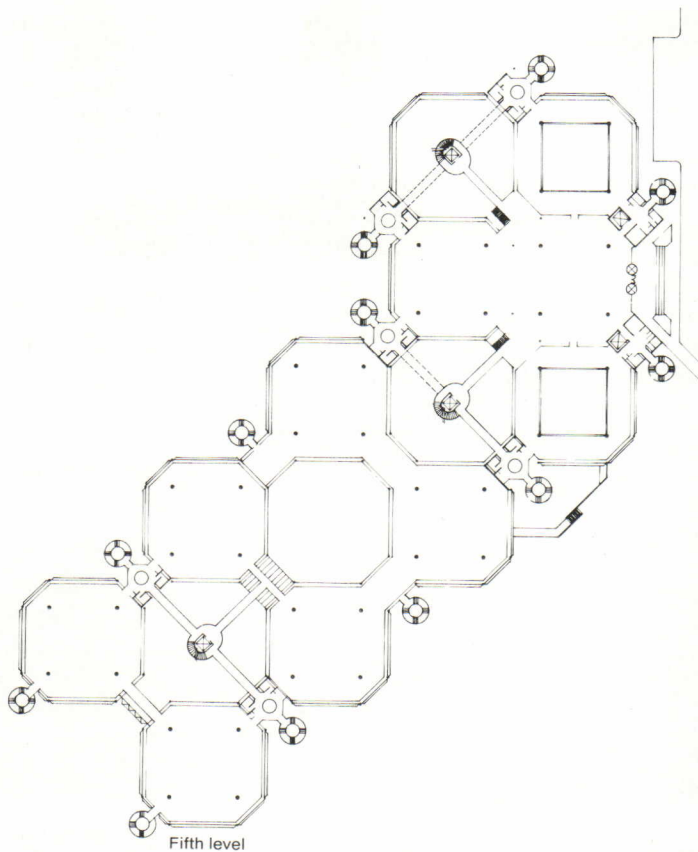
At the slope's top the geometry is shifted to allow for a greater amount of contiguous floor space. Here three modules sit side by side and house the two-story main lobby, a boardroom and other conference facilities, the executive offices and dining room, an atrium garden, the reference library, an employee cafeteria, and the two-story satellite control rooms (IntelSat owns and operates satellites for 70 percent of the world's public international communications plus some countries' domestic communications and television transmission).

The atria are topped by clear, reflective, and translucent glass panes supported by stainless steel space frames. The panes were strategically placed to allow maximum solar heat gain in the winter while maintaining minimal gain in the summer. The atria are cooled 80 to 90 percent of the time by outdoor air that pas-

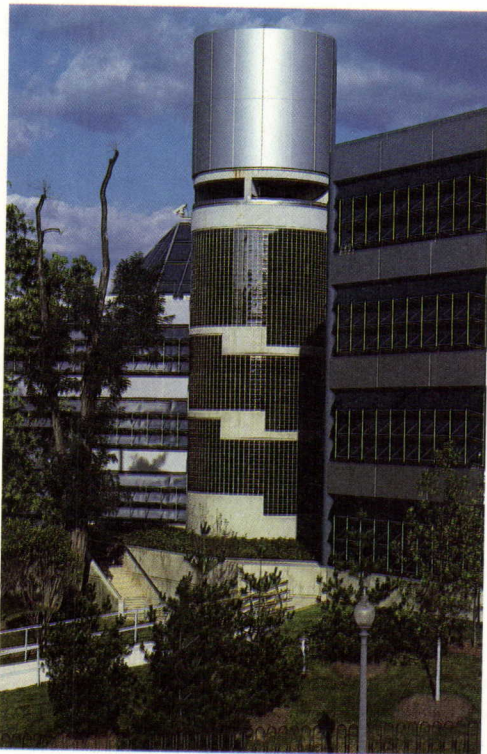
ses through that clump of trees on the southwest and across cooling ponds located on the roofs of the plant rooms that sit next to the office pods on the building's south side. The cool outside air enters at the bottom of the atria and is pulled upward and out vents located near the top of the atria. It is estimated that due to the passive concepts and mechanical energy saving devices, particularly cogeneration, IntelSat will only have to pay for 29,242 BTUs per square foot per year as compared with the average of 75,000 BTUs per square foot per year consumed by a building of the same size in D.C.

In all but two of the office pods, 50 percent of the windows face an interior court (only 25 percent of the windows of the pods at the northeast end do). So the next problem was to allow maximum daylight penetration through the exterior windows, yet control heat gain. Andrews wrapped reflective glass screens around the entire exterior facade, except the entrances (the southern exposure has two rows, the rest three). The screens rest on stainless steel frames that sit at the edge of concrete floor slabs projecting two feet from the windows. That space allows any heat buildup to rise up and away from the windows.

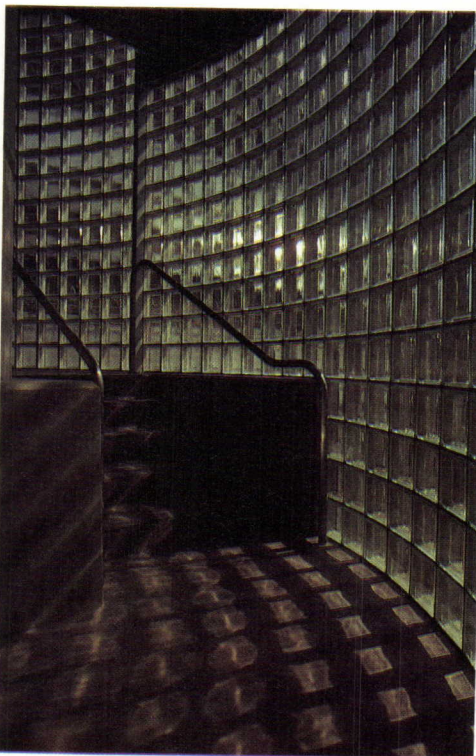
The sun screens transform a plain facade of glass and aluminum into a glittering composition that dramatically changes in texture and color as the sun and clouds move across the sky.



© Robert Lautman



Allen Freeman



Jim Tetro

Glimmering beside the walls is the reflective glass block of the nine stair towers, their cylindrical shape contrasting with the octagonal pods. The rhythmic movement of octagons and cylinders up the hill works to camouflage the building's tremendous size.

From inside, the sun screens are like airy, transparent blinds, the space frames bold yet unobtrusive cages of steel. A soft, ethereal quality is even felt inside the cylindrical glass block towers, which have spiraling concrete stairs set around a concrete core.

Even more ethereal are the atria. Rising 90 feet, they are soaring, light-filled volumes, their steel frames painting a silvery geometric pattern against the sky. Andrews gave each atrium a

Above right, private offices surrounding an atrium, with the stair tower of another atrium visible in the background. Above left, glass block stair tower flanks octagonal pods. Above center, the glass block admits a glowing light into the stair towers.

measure of distinction. Starting from the Connecticut Avenue entrance, the first is Barragán-esque, with a little Darth Vader thrown in. Set against its glass and concrete walls are four triangular pools—a stark image that becomes all the more fantastic with the addition of an aluminum and concrete elevator/stair tower rising energetically from the atrium's center. From one side the tower is reminiscent of Russian constructivist art of the '20s, with its suspended-in-space concrete stairs spiraling out from



the concrete cylindrical core. On the opposite side, it is all high-tech glitter with aluminum-sided landings circling the tower and an aluminum-sided elevator that runs through the core. Each level on the upper floors is linked to the tower by concrete bridges clad with aluminum panels that were computer scanned for color consistency.

In the next atrium the scene is more pastoral: The tower is absent and the path is surrounded by plants, small trees, and ponds. In the third and the atrium nearest Tilden Street, the central tower reappears and the water disappears.

The atrium at the crest is truncated at second floor level by the lobby ceiling. The board room set above the lobby is ceremonial and appropriately scaled, though it would have been far

more pleasant if Intelsat had agreed with Andrews' proposal for glass block instead of solid walls. Above the board room is perhaps the building's most delightful space—a "rooftop" garden terrace set just beneath the space frame.

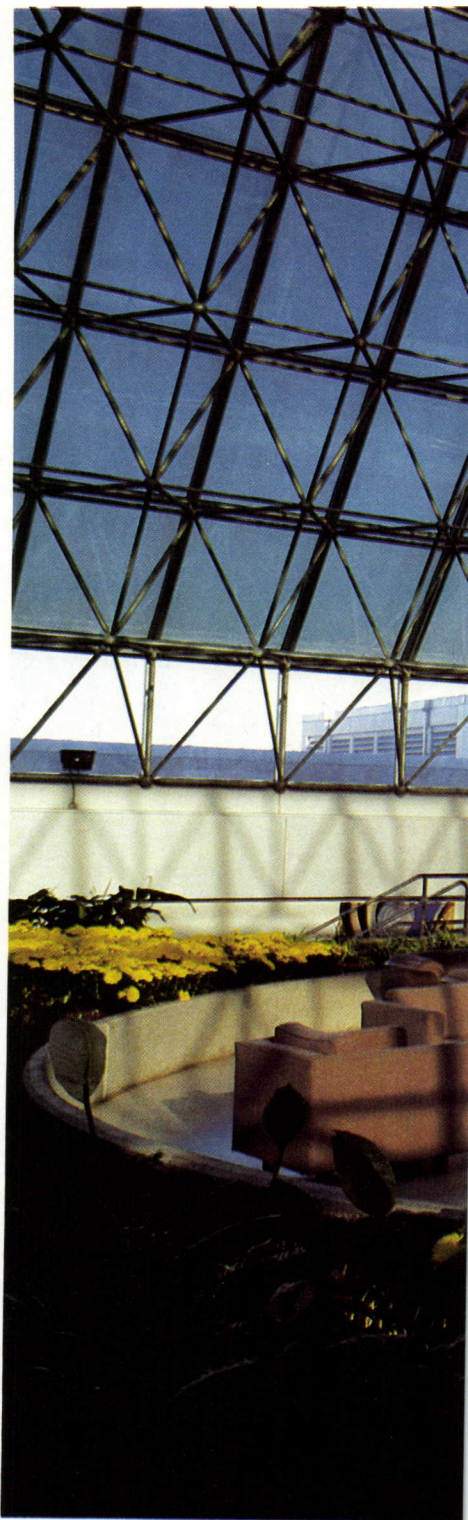
The control rooms, located off two sides of the lobby, will, when in operation, provide a bit of theater. Set on floors below the lobby, the centers are ringed on three sides by observation areas at lobby level. From there visitors will be able to watch employees tracking Intelsat's satellites on a huge electronic world map, for this uphill lobby is the main one for visitors.

Although the building greets Connecticut Avenue with arms held wide on either side of a ceremonial stairway, the public entrance is up the hill on a small street circling through the

*Right, the 'rooftop' garden terrace.
Below, bridges radiate from an atrium's central stair tower, the other side of which has swirling concrete stairs, bottom.*



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Jim Terro



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International Center. It is announced grandly but not graciously: the entry is through a heavy aluminum H flanked by stair towers. The two entries are the building's only nearly symmetrical ones, and its two least successful.

The lobby inside the public entry is the building's least successful interior space: a room that is cavernous, top-heavy, and disproportioned. Walls are stainless steel and the ceiling, much like the underside of the giant box enclosing the board room, is faceted aluminum. The space is chilly in feeling and usually almost empty, but will be markedly different when furnished. Past the lobby and inside the building proper, one is in another realm. The interiors are a series of dramatic experiences. This is the antithesis of the typical office building with its long, often narrow corridors. Here everything is space and light. The procession through Intelsat headquarters is a series of short trips with frequent many changes in direction and a succession of sunlit vistas. But the experience can be a bit disorienting; it is hard

to maintain a sense of direction, and the pods and atria are more alike than different.

It is a suitably—if aggressively—high-tech environment. One has the sense that it would be a pleasant work place. There is a great deal of visual communication from across the atria (too much for the shy?). Above all, every private office has daylight and a view. Andrews vows, "I never again will do a building where people don't have these things, because now I know I can do it." This applaudable achievement is slightly tempered because the client chose to partition the inner core spaces, rather than leave them as open landscapes, as Andrews suggested. He also wanted private offices facing the inner core to be all glass, but in width they are solid up to three feet. As it is, the celebration of light, which is such a powerful experience in the atria and offices, is muted in the centers of the office pods.

In all, Intelsat headquarters is a *tour de force*, as futuristic in its approach to the office environment as in its visage. □

Where People Are 'Users'

Reflections on the 1985 EDRA conference. By Ellen Perry Berkeley

My father, Lee Perry, who earned his B.Arch. from Columbia University in 1925, died this past December. For his last three years he struggled with a dementing illness that appeared to be Alzheimer's disease. We watched him lose his mind.

He never officially retired from his one-man architectural practice, but he filed no more plans after someone in the building department laughed at his erratic dimensioning. Quite early in the disease he began to lose all sense of numbers; he would write "3" when he meant "5" and he would say "5" when he had no idea what he meant. We don't know how fully he knew what was happening to him. We hardly knew ourselves. Of his dementia, there was no doubt. Of our heartbreak, there was also no doubt.

We tried to help him, but there wasn't much to be done. I would walk with him, again and again, past some of the buildings he had designed, and we would recite again and again the special stories associated with each: the tattered memories of a long career. I would remind him often of the community he called "Perryville"—a fictitious city of some 15,000 real people (living mostly in Westchester County) whose every shelter, every building type, had been designed by him.

He had always been active and he wanted his sketch pad constantly near him now. Yet I saw him once doing a meticulous cross-hatching with a broken pencil point; his fraying mind may have registered the lines, but the drawing didn't show them. Another time I saw him doing a watercolor with his brush dipped only in water. His sketches had once been beautiful, fresh, subtle. Now they were bizarre and hallucinatory: large birds sitting on tiny houses. And they were progressively more childlike: frontal views of simple buildings, huge stick-figures.

The withering of his quick mind was terrible to see. Over his long professional life he had specified the most sophisticated hardware, but now he couldn't understand the simple workings of his own front door; I arrived on a visit once, without a key, and tried to tell him how to turn the bolt and unlock the door. He looked out at me, smiling softly, glad to see me but unable to understand. We waited there—a stalemate—until my mother came to the door.

We put him into a nursing home finally, and within the first two days he had set off every alarm on the floor trying to get out. He was a "wanderer," energetic and curious even when he couldn't remember what he had wanted or whether he had gotten it. Often, when I visited, he was tied into his chair—"for his own good," they said at the nursing home. A thin little strap was all it took to curtail the little bit of freedom remaining to this once vivid and self-defining man.

I hated the nursing home (the best we had seen and highly regarded). I hated the strap. When my father died, I was profoundly relieved—for him and for us all—that it was over. And I was oddly proud of him; he had gotten out before he became as thoroughly helpless as some of those around him. I had been very proud of him during his long life, for his spirit and his enterprise, and for moving with the times and even ahead of the time. But he couldn't move fast enough to stay ahead of this disease for which there is no known cause or cure.

Ms. Berkeley was a senior editor at *The Architectural Forum* and at *Architecture Plus*. She has attended three previous EDRA conferences.

In the world according to the environmental design researcher, my father was a "user." With the others who share his awful circumstances he became a "user group." These are unfortunate labels for real people, and I much prefer an earlier word, imprecise though it is. "People" are alive and struggling and real in a way that "users" can never be.

When I learned of a paper entitled "Questioning Methods Restraining and Immobilizing Older People," to be given in New York City at the annual conference of the Environmental Design Research Association this past June, I put a star in the margin of the printed program. I know these older people. I have met these users and they are my father.

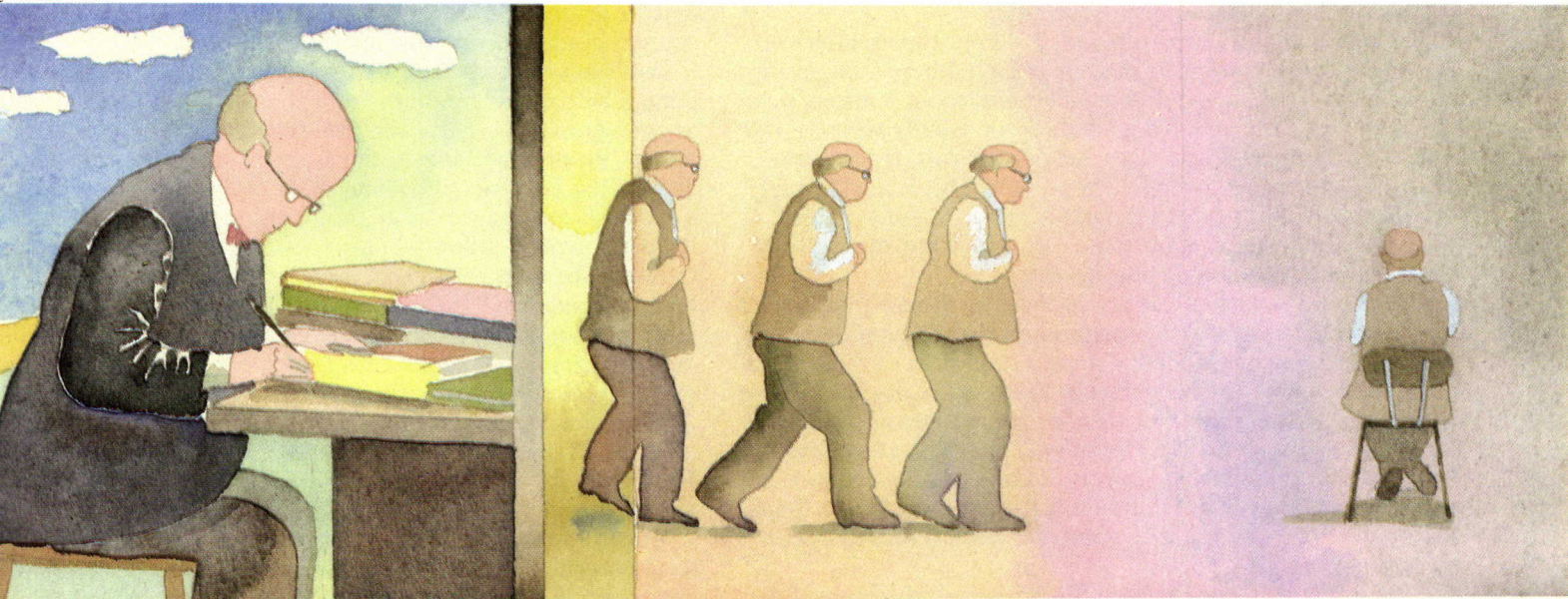
I noted the questioning stance of the title: a refreshing departure among a group perhaps too inclined toward providing answers. But what environmental answers can there be for someone like my father? I now know there *can* be environmental responses to the needs of these stricken people—indeed, there already are. The remarkable message of this paper by Lorraine G. Hiatt, a New York City consultant in environmental psychology and gerontology, is that "purposeless" wandering by the memory-impaired may have a real purpose, and that a "revolution" (Hiatt's word) in furniture and facility design may therefore be in order.

Wandering—to describe it more fully—is the excessive motor activity of pacing, roaming, getting into other people's things, trying to get out, running away. Some 11 percent of those in nursing homes are wanderers, according to the National Center for Health Statistics. Anyone with a wanderer at home knows the constant care that is needed. But to prevent wandering is not the point, says Hiatt; the *non-wanderers* may have their own problems. For, far from being purposeless, motion for the memory-impaired may serve both to stimulate mental alertness and to diffuse the stress and agitation that inhibit mental processes.

Hiatt's recent study of 170 nursing homes shows that staffs don't feel they are using the best methods in dealing with wanderers no matter what methods they use: buzzers on the doors, signaling devices on the wanderers, body holders, geriatric wheelchairs, bean-bag chairs (impossible to get out of), Dutch doors, color-coded hallways, keeping the person in slippers, etc. In fact, the method thought by most institutions to be most effective in dealing with wandering—"taking people on walks"—cannot be used in 35 percent of these 170 facilities because they lack enclosed outdoor areas.

Two kinds of environments can contribute to wandering, Hiatt explains: the excessively stark and the excessively noisy and crowded. She suggests enriching an environment with objects and textures. The richer the better, short of overload. She considers the average institution "stimulus-deprived."

For this population, says Hiatt, we must rethink the prevailing standards that favor simple layouts and produce few spaces worthy of exploration. The more irregular and unpredictable the outdoor environment is, for instance, the more successful it is for these people, she says. She points approvingly to several nursing homes that have made spacious protected areas where wanderers can move freely and safely, and one nursing home that has outfitted a special "energy outlet room" where residents can explore the room's niches and closets (trying on hats, opening drawers) in much the way children are encouraged to engage a similarly enriched place.



To my knowledge," says Hiatt, "I am the only person working on design implications as well as behavioral aspects of wandering." She confesses to being "haunted" by wandering behavior for the past 12 years. Her recent doctoral dissertation is on this subject, and some of her many papers explore the needs of the happy wanderer" (in the title of one paper).

Fewer than 30 people hear Lorraine Hiatt's presentation at the conference, and some of those attending her sessions are undoubtedly interested in the other three (unrelated) papers. She is not one of the main events at the conference, in other words, although her paper is among the small number selected for publication in the conference *Proceedings*. But I mention her first because her research has hit home with me. I, too, have been haunted—by the behavior of the "memory-impaired user" who was my father and by the inadequacies of his final home.

There are as many different EDRA conferences on June 10-13 as there are people gathered, and that is 425 (the largest yet for this 16th annual event). Each of us puts together a unique conference from among the 41 workshops, 23 paper sessions, 21 symposia, 15 film and video showings, 11 networking sessions, eight special events, eight field workshops, six poster sessions, four exhibitions, and a banquet.

Our days are rich and long and tedious and exhilarating. If I give you glimpses of my own EDRA conference, you will understand that it is only my own. A soldier's war is one yard wide. I am assured that snipings, skirmishes, battles, and stand-offs are taking place in each of the following combat zones (from the index of the *Proceedings*): esthetics, archeology, children, cognition, community and neighborhood, conservation, cross-cultural, ecology, elderly and disabled, energy, environmental education, environmental change and social change, environmental conference, health care, historical studies, housing, institutions, media, methods, nuclear, open space, participation, perception, postoccupancy evaluation, preservation, professional practice, programming, proxemics, safety, simulation, social impact assessment, squatters, transportation and traffic, urban issues, women's issues, and work environment.

I've never been in a jail, so I bypass all competing field workshops in order to spend an afternoon in The Tombs, a.k.a. the Manhattan House of Detention. Here we are to see the newest example of a direct supervision jail, one of a family of "new generation" correctional facilities built across the country over the past decade.

This place has been known as The Tombs from its opening in 1837, when a writer compared its neo-Egyptian facade to a Pharaoh's tomb. Closed in 1974 as hopelessly barbaric and reopened in 1983 fully rehabilitated, it is now known as a "third generation" correctional facility. (The first generation was the *linear remote plan* familiar to movie-goers, with officers giving intermittent surveillance to the long rows of cells but with inmates maintaining control of everything happening on the inside. The second generation was the *indirect podular plan*, with cells surrounding a day-area but with officers still giving only remote and embattled supervision. The third generation is the *podular direct plan*, with officers still built into a modular concept but providing direct supervision of a manageable number of inmates in an open and unbarred environment.)

"A country club for criminals," said one newspaper about this facility when it reopened. Each "mini-jail" in the highrise building has only 34 men. Each indoor gym has a Nautilus machine. Each day-room has laundry machines and two TV sets. All cells have exterior windows (nonoperable and nonbreakable). Inmates are locked into their individual cells at 11 P.M. but can come and go freely during the day and do not need staff escort to visit library, gym, doctor, or chapel.

If this is a country club, I do not wish to join. And I would guess that these men awaiting trial would rather be anywhere but here—anywhere, that is, but the old-style detention centers. One young man tells us softly that there is "respect for us as human beings here." But it doesn't look like fun. The inmate using the Nautilus machine is in better shape than the officers, who tend toward pot-bellies. But except for the inmates playing basketball on the caged-in roof, the men look bored, subdued, worried.

The officers and warden tell us they've had no serious assaults since the facility reopened. Supervision is pro-active, not reactive; an officer tends to be aware of problems before they occur. Reportedly there is no rape, no sodomy. Tension is low. "We don't see weapons here," says the warden, "the way we do in other facilities. We have very few incidents (inmate-officer or inmate-inmate) compared to the old-style facilities. Almost one-third of the workers can be civilians, hired at less cost to the city, and we don't jeopardize one bit of our security. Absentee rate for our staff is the lowest in the city."

The warden has a few complaints. "I'd put the architect in one of the cells for some of the things he did here—forgetting to give us an arsenal, and making a control room nowhere near adequate size." But otherwise, the warden is fully with the program. "You're hiring me to do a service for you. If you want me to do a good job, give me a good tool. This is a good tool." Yet of the 600 jails now being built in the U.S., only 30 are going the direct supervision route. All others are staying with remote supervision. Politically, it's safer.

One of our workshop leaders, Richard E. Wener (director of Polytechnic Institute's M.S. program in Environmental-Behavior Studies, and co-chair of EDRA16) is a champion of these third-generation facilities and is currently doing an evaluation of The Tombs for the city. I ask him whether his partisanship is in conflict with his research. "No," he answers. "It's clear to almost everyone that these facilities work. It's like polio vaccine. What we're studying now is which things are the critical issues. States and counties say 'we know it works; we need research to convince the voters.'"

What if a person can't handle this place and threatens the security of officers or other inmates, I ask. "He's pulled out," Wener says. "Some people are always less responsive to group norms than others. It doesn't invalidate the facility. Also, these facilities have ways of dealing with such problems: a special segregation unit, tighter supervision, fewer inmates per officer, letting inmates out of their cells a few at a time. It's incredible how infrequently this happens. With less restriction, there's a strong motivation to stay on these units."

In the random cell we are shown, I see a butcher-block counter covered with cigarette burns. "Give people good things and they'll take care of them," we had been told in the briefing. Two weeks later, I learn that someone has just hanged himself in one of these cells, the first suicide in the new life of this facility. It would be foolish to claim that the "new generation" jails are perfect: Better is enough. Eventually there will be "fourth generation" jails, as research feeds back into the design process. The procedure, too is not perfect; it is merely, and importantly, better.

A symposium on "Architects' People" catches my eye in the program. Long ago, I found an amusing comment on the people in architects' drawings: the adorable children forever carrying balloons, the well-dressed adults dallying contentedly in public plazas. Architects' people are always happy in architects' space. Naturally.

This symposium is, more or less, an out-of-town tryout for a book being put together by W. Russell Ellis and Dana Cuff (teaching, respectively, at U.C. Berkeley and Rice University). The book sounds great. From the proposal: "What are the features of the phantom actors who leap from the minds of architects to inhabit the built worlds they render? What are the implications of architects' social values for the stages they set for our daily conduct? In architects' biographies, can we uncover the evolution of these images? Is an architect's image of people competitive or consonant with reality?"

The EDRA performance, however, lacks focus and exchange. At 10 minutes per participant (a common handicap of panel discussions through the conference) there is no time to launch complete thoughts, no time to discuss partial thoughts. And this audience seems unusually passive and small, spread out through the largest auditorium like viewers at a porn movie.

As a session, it is provocative. As a book, it will be more so.

Of special interest: Cuff's survey of seven "prominent New York architects" and her conclusions about their images of self and society. Earlier in this session, sociologist Robert Gutman, Hon. AIA, has questioned the "quality of veracity" in statements that architects make about themselves and their work. He has quoted Peter Eisenman, FAIA, ("don't believe anything an architect says,") because, as Gutman points out, an architect's statements are made for the purpose of getting clients, being liked and/or justifying architectural ideas that probably sprang from sources completely other than those claimed.

Cuff's interviews will be submitted to her seven architects for editing before being published, further diluting "veracity." Still, as an example of what seven prominent architects (Eisenman among them) would like to think about themselves, and would like the rest of us to think about them, and as an example of what a social scientist makes of all this, Cuff's chapter will be interesting. Chapters by others will also cut new roads through familiar territory: the drawings of Le Corbusier, the "human face of Louis Kahn's formalism," the writings of Wright, the people in architectural photos, the technique of "evoking clients" with studies of architecture—and more. As a gifted person once said, for those of us who like this sort of thing, it's just the sort of thing we like.

Several members of the group Architects for Social Responsibility give a nuclear war and nobody comes. Their workshop, "Using Environmental Research to Inform the Public about Nuclear War," draws only six people.

We are shown a 148-page bibliography on nuclear war and shelters, "an extremely objective book," says Richard G. Stein, FAIA, chairman of ASR's research committee. But in my few minutes with the book, I see that some listings (newspaper editorials, for instance) are quoted extensively and summarized, while others (government publications and major books) are simply listed. When I mention this later to the young architect who did the work, she says that some publications are difficult to get. She has the grace to look apologetic.

Jim Morgan, another member of ASR, shows us a brochure for the ASR-sponsored "Computer-City," a development alternative to the proposed nuclear naval base on New York City's Staten Island. The point of the brochure, he says, is to stress the benefits of the center (for computer-related businesses and computer education) without arguing against the NavyPort itself. But there is little doubt that the tail is wagging this dog; the brochure sums up by stating (among other things) that the NavyPort "destabilizes the world situation and threatens catastrophe." Presumably ASR considers this fact and not argues it.

A few minutes short of the end of the workshop, when another member of the ASR squad, Frans C. Verhagen, refers with unguessed pleasure to "the serendipity of a nuclear accident," I depart.

We live in a dangerous age, with awesome powers of destruction. No argument there. But I am startled that in this entire workshop there has been no mention of the Soviet Union, no distinction between nuclear weapons and nuclear power, and no recollection of the context surrounding the use of atomic bombs on Hiroshima and Nagasaki. To disregard the complexities in this way is to operate with something less than full "social responsibility." There is room for serious discussion about nuclear issues. Unfortunately, this hasn't been the place for it and there haven't been the people.

At the special event entitled "Considering Human Needs in Design Criticism," I sit facing the audience. I am one of the program, along with three other writers on architecture (Joan Kron of *The Wall Street Journal*, Thomas Fisher of *Progressive Architecture*, and Brendan Gill of *The New Yorker*). This time the auditorium is filled, the result possibly of the effort by EDRA to attract outside architects to this event and the result possibly of the promise of wine at its conclusion.

"User needs are out of fashion in criticism," says Fisher. . .



am reporting fashion," says Kron. . . . "The critics are mostly doing PR," says Berkeley. . . . "A reviewer is bringing the reader the news," says Gill. The audience is getting a good show.

It is not surprising to me that the average critic (present company excluded) is not greatly interested in what we are calling human needs." The critics want us to believe that *their* views matter and that other people's don't. How else to explain the frequent appraisal, with no reasons given, that a building is (or not) a *serious piece of architecture*, is (or is not) a *successful solution*. Of course no reasons are given. If regular people knew how the game was played, they would be able to play it themselves (everyone his own critic) and there, as they say, would be the ball game. It is not surprising to me that the average critic, even the average critic in high places, is not greatly interested in the things that move EDRA people: a less arbitrary analysis of buildings and, simultaneously, an acknowledgment of the perceptions and activities of regular people.

Discussant for the session is Clare Cooper Marcus of U.C. Berkeley. She mentions a Canadian awards program where the buildings getting awards are later shown to be the buildings least liked by their residents; designers who now submit work for this awards program have to fill out a form saying how the building works. I wonder what it will take to make awards (and critical judgments in general) rest on more than the fashions of the moment. The new journal of research is launching its own awards program, but this won't necessarily affect the larger world in which architects move; Clare Cooper Marcus says that when she was on the applied research jury of the P/A awards program, she was told "to keep my nose out of the other awards."

Architects come in for a fair amount of guff at EDRA. Never mind that "designers" are a fair proportion of EDRA's 957 members (along with teachers, researchers, social scientists, planners, business persons, and others). Never mind, too, that architects are often in leadership positions in EDRA: Co-chair of this conference is Stephen Marc Klein, an architect teaching at Pratt and working on his Ph.D. in environmental psychology at City University of New York. Current secretary-treasurer is Polly Welch, AIA, a Harvard-educated architect of Arlington, Mass.

Architects (outside EDRA), I am told by an architect-turned-researcher, are trying to wing it. "More and more architects are doing programming and postoccupancy evaluation and don't know how to do it; they write questionnaires that are just no good." Architects are ignorant and worse. One social scientist, a professor at an architectural school, shows a slide of a drawing in which the architect has provided wheelchair turn-space in

only one spot (near the door) in the bedroom of an institution. The wheelchair can't get past the bed to reach the closet.

Architects are not clear-thinking. "Designing, as done by architects," says a past president of EDRA, "is not the process of problem-solving. Architects take poorly stated problems and attempt to come up with satisfactory solutions. It's not a case of meeting criteria. If we want to effect change in the environment, we have to impact on this process by which buildings are made."

Architects are behind the times. "It's clients and not architects who recognize the need for research," says a principal of a design and research firm. "And it's facilities managers and not architects who will create the team to make a facility. Architects won't be leading that team."

But there is more than enough criticism to cover all the assembled specialties.

"There aren't enough three-piece suits here," an environmental psychologist says to me. "A lot of these academics have made the step to applied psychology and then can't apply it."

"We have to ask ourselves what we are about," says an associate professor in environmental analysis. "People argue that it's a new field, but that's no answer. We blunt our potential because we don't know our history, we don't pursue excellence in our writings and presentations, and we have not sorted out what is important and what is trivial."

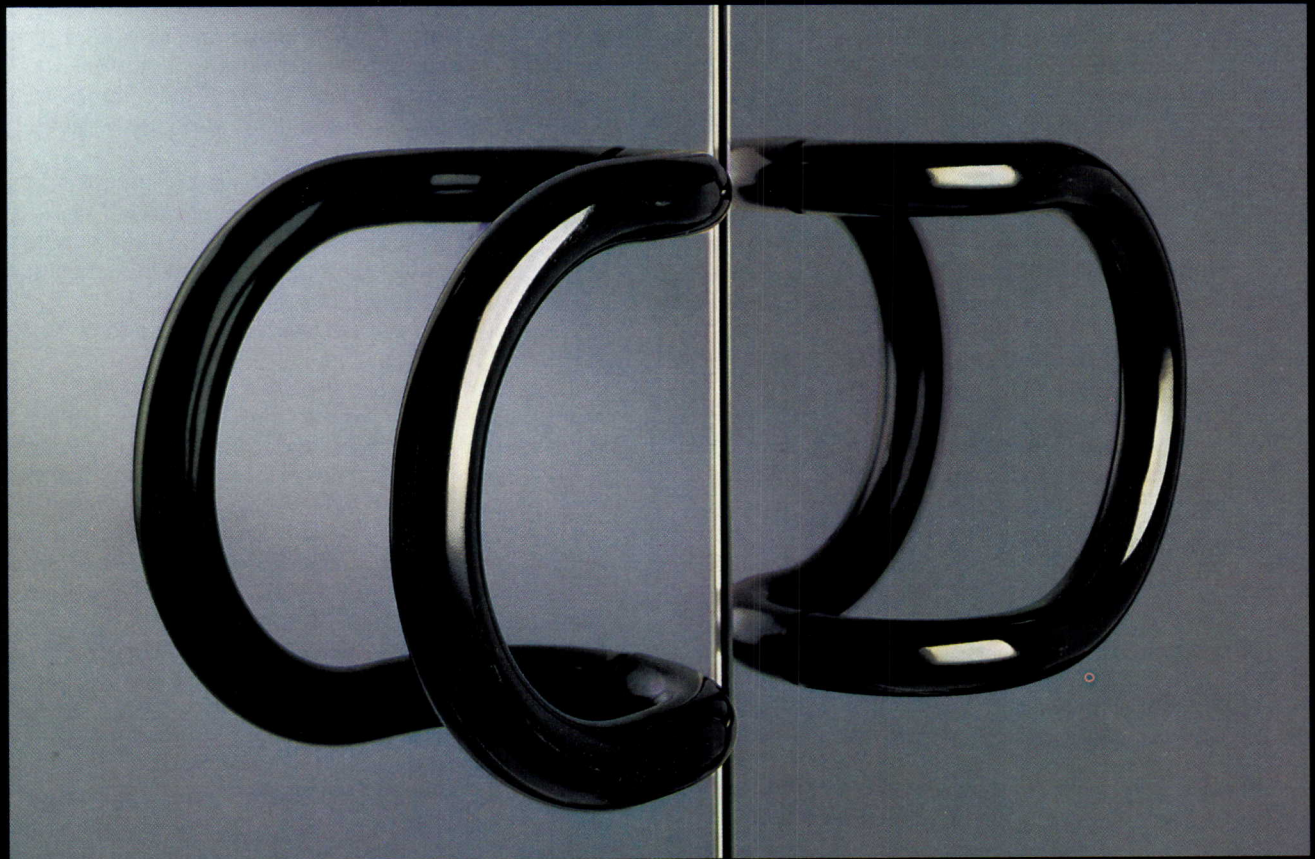
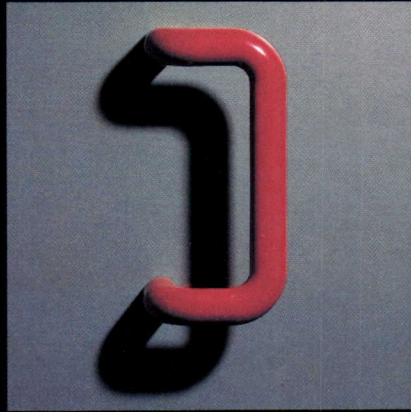
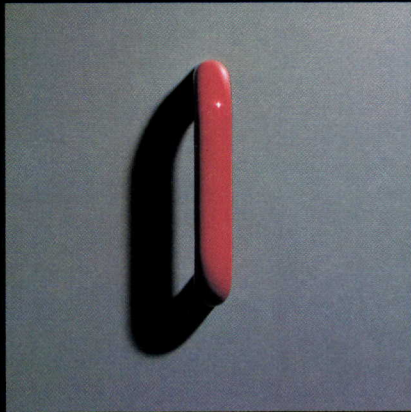
Harold M. Proshansky, president of City University of New York's graduate school and university center, and one of the "grand old men" in this field of environmental psychology (where the other pioneers are barely middle-aged), delivers a cautionary address. His intention is not to be critical, he says but to alert researchers to the "value issues that we tend to ignore."

In the wish to simplify things and be a "real science," says Proshansky, we can fail to see the "integrity of events and problems," which is always complex.

In the wish to empower the user, "we can be too quick to measure user needs and preferences, and most often in traditional ways." But, he says, people's judgments are only as good as the information and understanding they have at the time. He cautions further, "To what extent do we send our own messages about what individuals should need or prefer?" And, in words that truly lift the lid from the can of worms, "What a user says he or she needs or wants is not always best for him or her."

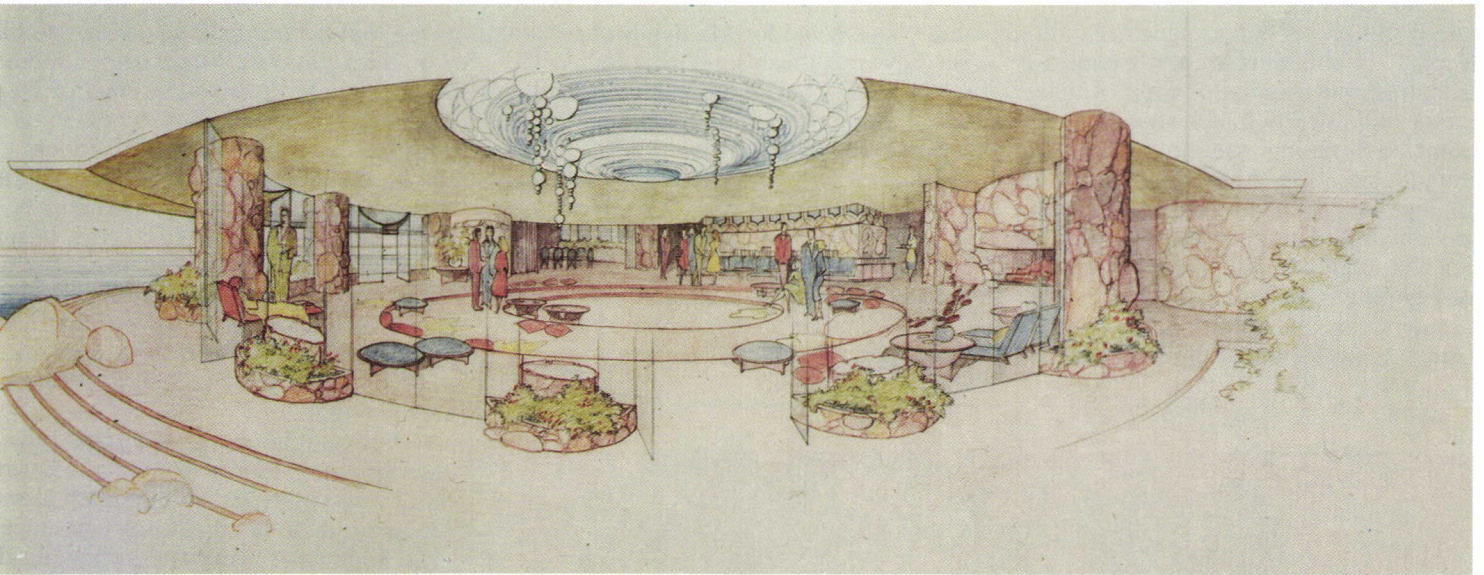
Finally, says Proshansky, in the wish to engage in scientific research, even for the highest motives, we can overlook the intrusive effects of the research process. "Research is not simply a right," says Proshansky, "but a responsibility."

A lot to think about. □



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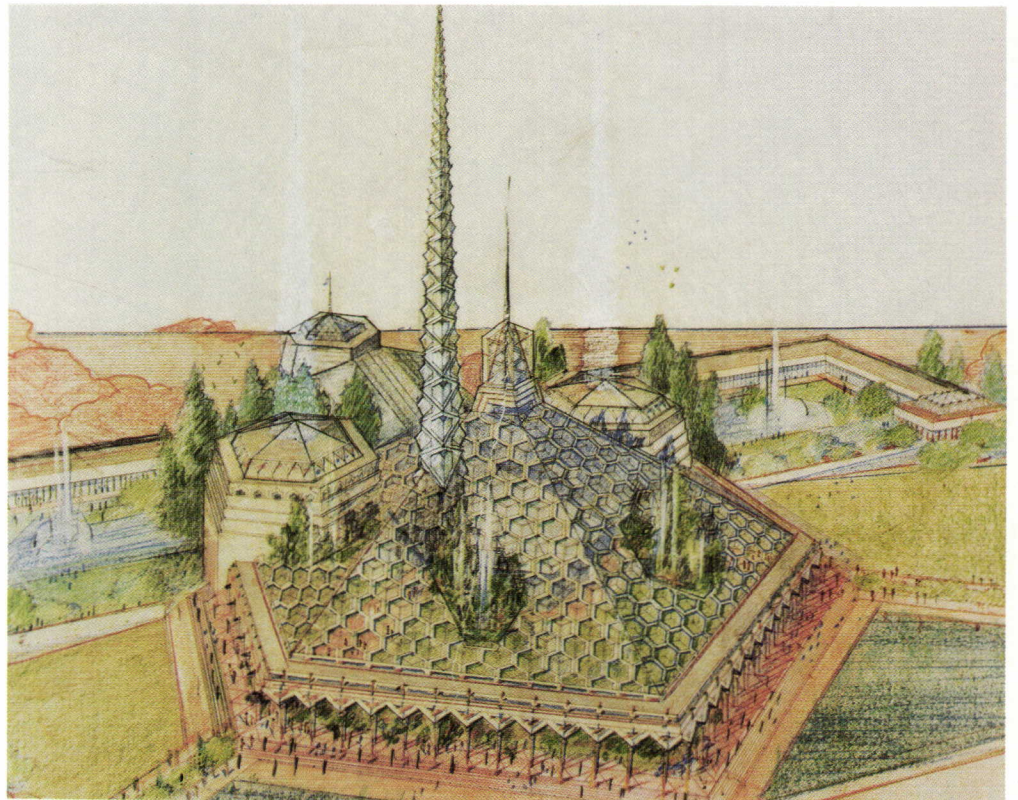


Collection of Wright Buildings Left Unbuilt

Measures of Taliesin: 76 Unbuilt Designs
Frank Lloyd Wright. Bruce Brooks Pfeiffer. (Southern Illinois University Press, 1985, \$25.00.)

Just when you think every possible thing about Frank Lloyd Wright has been searched and published, along comes a book that gives new insights into his intriguing genius. Bruce Pfeiffer, director of the archives at the Frank Lloyd Wright Foundation and well known for his books on Wright, is clearly in a position to bring out new materials. In this handsomely designed book he presents 76 color plates of Wright's drawings for unexecuted buildings, 29 of the drawings never before published. At the same time, Pfeiffer's descriptions of the projects, extending from 1895 to 1959, are rich views of this master architect. Pfeiffer's remarks about Wright, clients, and circumstances give elucidating glimpses of Wright's rich career, all rendered in entertaining prose.

Wright, who was fortunate enough to see nearly 45 percent of his designs actually constructed (more than 1,000), thought of unbuilt projects the "most interesting" of his career. The reasons they were not executed, says Pfeiffer, "range from the dramatic to the absurd. It is tragic that projects so brilliantly conceived, so timely, should remain unbuilt to this day." Some of the unexecuted projects are well known. For example, Wright described the three design schemes for Chicago's 1933 Century of Progress World's Fair in his autobiography. His sketches include a fair in a mile-high sky-



Top, the living room of a Connecticut house for Arthur Miller and Marilyn Monroe (1959) was a modified version of an unbuilt design presented to two previous clients, in 1949 and then 1952. Above, 1957 design for a state capitol for Arizona was rejected as 'too ornate, too revolutionary, too expensive.'

scraper, another fair in pavilions, and a third on pontoons on Lake Michigan. Although he knew full well that he would not be asked to participate in the fair, he was "eager to see his ideas crystallized and take form at least on paper."

Wright's concept of the skyscraper for the fair, sketched in 1931, was the inspiration in 1956 for the Mile High, Illinois, another project that was widely publicized but never realized. Pfeiffer describes how he and other Wright apprentices set up an exhibition in Chicago on Frank Lloyd Wright Day (Sept. 17, 1956). At 3 A.M., they installed in the ballroom of the Hotel Sherman a drawing of the Mile High made on a roll of canvas 26 feet high. All was in readiness when Wright arrived at 8 A.M. for a press conference.

The effect of the drawing, rising on a
continued on page 84

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wall, "was one of looking out a great picture window onto Chicago's Lake Front with the Mile High rising magnificently in place, standing as though it had been there for eternity." Pfeiffer says that the design was more than a vague dream for Wright. "Details were carefully considered, from the foundation taproot that plunges into bedrock like a handle of a sword, to the rising structure with its component parts." Not only technically feasible, but also "poetic and beautiful," Pfeiffer says, the Mile High was Wright's affirmation that such a building would free people from slums, providing them with space for interaction and permitting them to "live a more beautiful life at the same time."

Other unexecuted projects are less familiar, such as houses for celebrities as well as the uncelebrated. Pfeiffer says that Wright always accepted commissions for residences despite the fact that he gained little profit from such enterprises. One of these houses was for Marilyn Monroe and her playwright husband Arthur Miller. The star wanted a house designed for a site with a slope that led to a running brook near Roxbury, Conn. Wright's design provided for a large living room with a projection booth for movies at one end. He also included a costume vault for Miss Monroe's wardrobe, a nursery, and children's bedrooms. But when she was separated from her husband, "her dream to build a Frank Lloyd Wright house for her-

self and for the children she longed to have was reluctantly abandoned."

There are other houses among the unexecuted projects, among them one for Ayn Rand, author of *The Fountainhead*, the 1943 novel and subsequent screenplay about an architect who followed his own convictions as Wright did; a circular house in St. Petersburg, Fla., for Dr. Alfred Bergman; another in octagonal form for educator and critic Vincent Scully; two houses for Wright himself, in Italy and in Chicago; and three houses for an Arizona mountaintop. "It is unfortunate that this project remains unbuilt," Pfeiffer says, "for these three lovely residences joined together, appearing to be in harmonizing flight off the mountain crest, compose the last design by Frank Lloyd Wright."

Other than houses, unbuilt designs described and illustrated are in a vast variety of building types, among them a state capitol for Arizona; theaters for producer Mike Todd (a project halted when Todd was killed in a plane crash); cooperative farmsteads; urban complexes; a planetarium; a desert spa; educational structures; a cultural center for Baghdad, Iraq. Some projects were halted because of human tragedies, but others because Wright would not compromise. "He would rather see a project dropped and his drawings returned to the files at Taliesin than sacrifice its quality and beauty to please a client, a contractor, or a building commissioner. He may have lost commissions, Pfeiffer says, but there was never remorse nor regret "for having held to his deep sense of what was right in architecture."

The book concludes with a description of the lost Larkin building in Buffalo, constructed in 1906. Pfeiffer describes the structure as "the great form-giver and innovative pioneer from which modern architecture grew." Original working drawings still exist. "Its concepts and their practical applications—like all of the work of Frank Lloyd Wright—have such universal appeal that they are at once appropriate and timeless." An optimistic note for admirers of Wright is struck in the preface where Pfeiffer says that the Frank Lloyd Wright Foundation is gratified that some of these dormant projects are now in construction. The concepts and the drawings are there for "these vibrant, youthful, and creative designs ready to spring to three-dimensional life."

MARY E. OSMAN, HON. AIA

Palaces of the Forbidden City. Yu Zhuoyun; translated from the Chinese by Ng Mau-Sang, Chan Sinwai, and Puwer Lee. (Viking, \$75.)

The Palace Museum, as the People's Republic of China now terms what was formerly known as the Imperial Palace

continued on page



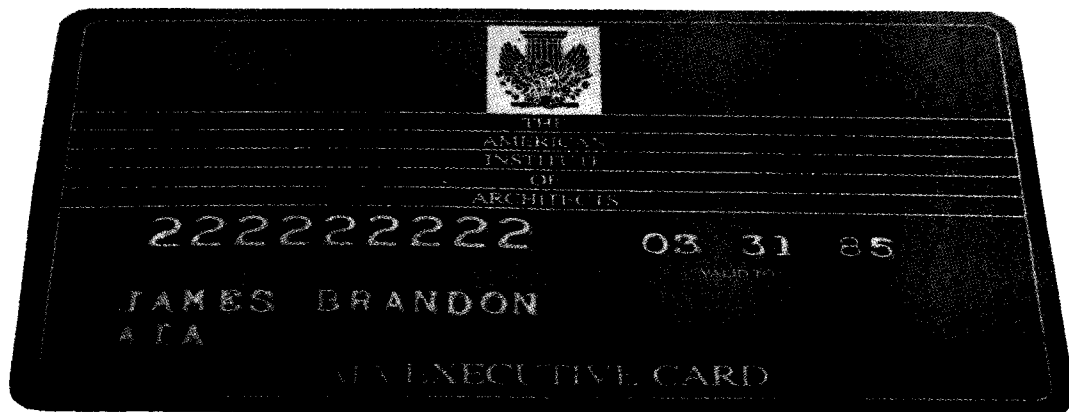
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Books from page 84

and more popularly as the Forbidden City, is a complex of a thousand buildings begun in the 1420s. Of the many dynastic palaces known to China's history, this in Beijing is the principal survivor. It is also the largest group of wooden structures.

Although many books have been written on the subject, this one is pre-eminently the one that addresses the architecture of the palace, appropriately equipped with intelligently conceived and beautifully executed drawings, plans, perspectives, and details, as well as historical and contemporary photographs that fully document this extraordinary complex of buildings. The text provides a well balanced introductory essay, followed by a more specialized treatment of topics. The resources of the Palace Museum staff have been enlisted in the preparation of this book, and the large format is appropriate to its subject.

Through the book breathes the spirit of the Palace Museum as the visitor perceives it today, restored and richly furnished, much of it with the museum-cherished "lived-in look." This example of the use of architecture and all its resources—of plan, structure, and composition; of art, symbolism, and decoration; of color and garden design to make

a religious and philosophical statement—will excite your imagination as no other building. **FREDERICK GUTHEIM, HON. AIA**

Mr. Gutheim is a Washington, D.C., educator, author, and consultant.

Mackintosh Architecture. Jackie Cooper, David Dunster, and Barbara Bernard. (St. Martin's Press, \$19.95 paperbound, \$29.95 hardbound.)

This elaborately illustrated book catalogs all of Charles Rennie Mackintosh's projects: commissions for buildings, commissions for interiors and alterations, and competitions and unexecuted projects. There is helpful information for each entry, with data provided on location, client, date, description, sources for the projects that were published, and places where existing drawings and other data are now located.

Tadao Ando: Buildings, Projects, Writings. Edited by Kenneth Frampton. (Rizzoli, \$19.95.)

"I do not believe architecture should speak too much. It should remain silent and let nature in the guise of sunlight and wind speak," says the Japanese architect Tadao Ando. This volume, which documents 21 of his projects (primarily

residences) in plans, photographs, sketches and written comment, bears out Ando's belief. He manipulates light to enrich spaces that flow together with minimal definition. Using reinforced concrete almost exclusively, he designs handsome buildings made subtle by their simplicity. For him, "concrete is the most suitable material for realizing spaces created by rays of sunlight." Although he contends that his architecture is "modern," it is traditionally Japanese in its respect for nature and structural form.

A. Quincy Jones: The Oneness of Architecture. Edited by Elaine K. Sewell, Ken Tanaka, and Katherine W. Rinne. (Tokyo Process Architecture Publishers Co., distributed in this country by Van Nostrand Reinhold, \$19.95.)

It is a pleasure to see this beginning documentation of a remarkable architect who died while his career was still ascending. The winner of AIA's architectural firm award in 1969, in partnership with Frederick E. Emmons, his was a nearly perfect role-model practice. This book presents a handsome display of work by an architect whose early work reveals a diversity as well as an influence on other practitioners. There is still much to learn from this architect. □



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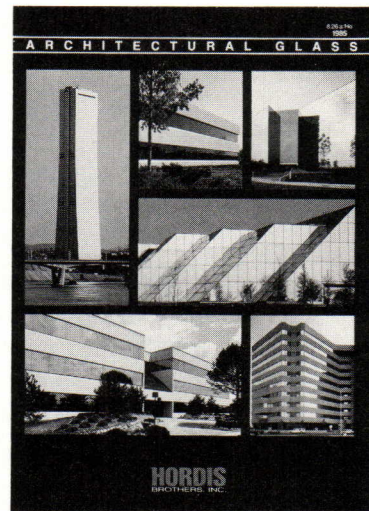
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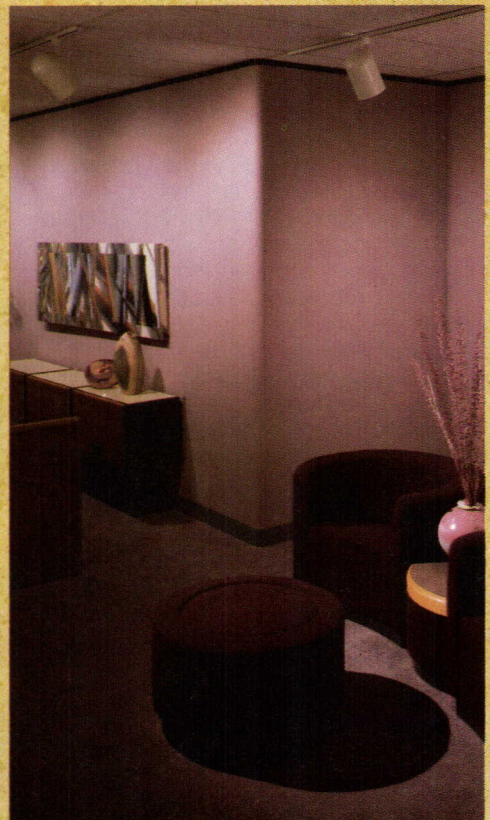
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BY CARL RUFF

No one has said it more succinctly than AIA president, Bruce Patty. Two factors are forcing architects to rethink the way office buildings are designed . . . the explosion of office technology . . . and the growing awareness that health and productivity of the office worker are seriously affected by the interior environment.

"The design of a building's exterior can't be divorced from the nature and uses of the spaces inside," Patty summed up. His points can't be over-emphasized.

Viewed positively, they provide architectural firms, large and small, with a blueprint for long range strategic planning. They should be the basis for every architectural firm's marketing program. The opportunities to orchestrate—if not to execute—the total environment of the high tech office augurs a rewarding future for the profession.

On the other hand, architects who don't seize the opportunity and educate themselves and their staffs on the needs of today's integrated automated office will find themselves replaced. The competition is already here. It ranges from highly professional interior design organizations (including several that own architectural firms), to furniture dealers with

units for temperature, humidity, and air flow distribution and even for lighting, acoustics, texture and color—"personalized office environments to enhance productivity."

This is powerful stuff. As of today, it's not yet state-of-the art. Yet, Hemscher claims a roster of clients that includes IBM and Hoffman-La Roche Inc. Clearly, it portends the future. Offices are not just going to be smart but humane. And they'll be housed in humane as well as intelligent buildings.

ARCHITECTURE VIS-A-VIS ENGINEERING

The responsibility for designing a humane building, with its problems of heat, air quality, glare, noise and wire distribution—brought on by the proliferation of VDTs—must belong to the architect. Whereas in 1900 the mechanical, electrical and plumbing systems of an office building represented eight percent of its cost, today the figure is closer to 50% and the likelihood is that it'll go higher.

No matter whether the firm is a large A & E outfit or a small shop working with consultant engi-

neers, "the architect's function is to creatively and humanely integrate the systems—the spaces remain the same," avers one articulate spokesperson for the profession, Hans Mumper, AIA of Newport Beach, CA, a principal of Langdon Wilson Mumper Architects.

If a survey conducted by the New York Chapter of the AIA has general application, small shops have little to fear. A poll of some 50 corporations in New York City found that only 10% wanted a firm with in-house engineers. (As far as interior design work is concerned, preference was split equally four ways between architects' in-house departments, architects' consultants, clients' consultants and clients' in-house operation.)

A sound marketing policy for architectural firms that do *not* have in-house engineering or interior design staffs calls for keeping abreast of the evolving demands of both technology and interior design. The need for this was made apparent to those who heard Alan Temko, architectural critic of THE CHRONICLE, at the discussion on value architecture at the last AIA meeting in San Francisco.

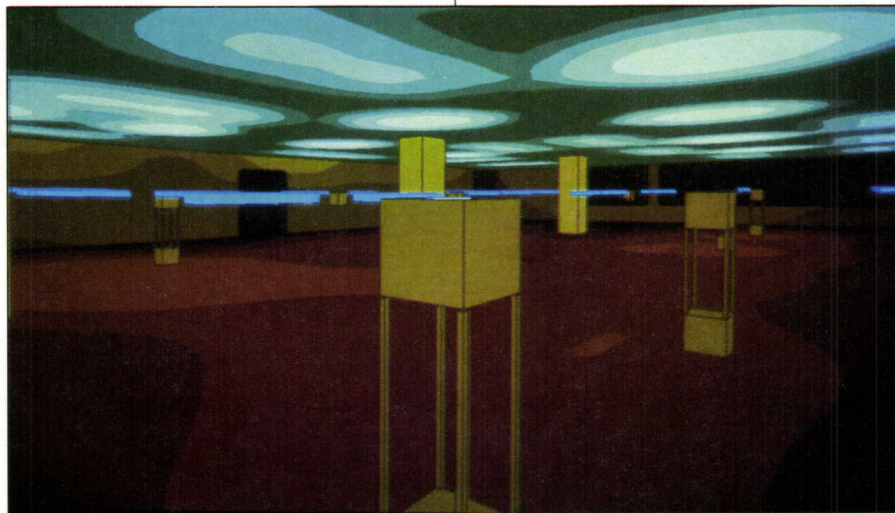
Many architects' survival—or at least success—may well depend on how soon they learn the parameters of integrated technology and its effect on design. Obviously, they don't have to become experts in all of the disciplines. But they must know more than their client. And their client, now-a-days consisting of a team, is becoming increasingly sophisticated.

The new team calling the shots on office facilities—and possibly on the building itself—includes the facility manager, the human resources director and the director of automated office systems.

A domino effect is taking place. Each facet of the interior environment impacts on another. "The great challenge to architects," as Bruce Patty says, "is the need to relate the design of the building to the technology inside. . . . A well-designed integrated office reflects the need to consider interior environments as a whole, considering the effects all elements have on each other."

EDUCATING FOR TECHNOLOGY

Just recently an organization was formed to provide educational programs and research on precisely this need. It is the aptly-named, non-profit institute, Inte-



staffs of competent architects and designers. Even the large A & E firms will be competing with bright young consultants setting themselves up to execute "holistic environmental design."

One example: the tiny firm of Hemscher Associates in a suburb of Pittsburgh, Pa., already offers to close the gap between design and environment and behavioral research. It promises to provide individualized terminal control

■ **COMPUTER-ASSISTED LIGHTING VISUALIZATION REVEALS WHERE LIGHT LEVELS ARE TOO LOW OR EXCESSIVE. PROGRAM CAN CALCULATE FOOT CANDLES AT ANY HORIZONTAL LEVEL.**

grand—The Institute of Houston, TX., which is conducting a series of workshops for facility managers and also seminars for executives. Architects should find it useful to have staff members attend ITI's 2½-day workshops, "Decision Making for Integrated Offices and Facilities." (ITI's

president and executive director, Michael Clevenger, is the author of this section's "How to Humanize Technology for Today's Offices.")

There are other organizations conducting educational programs which architects would do well to consider for themselves or their as-

sociates. On the east coast there is MIT's annual September Facility Management conference at Cambridge, Mass. Also in Cambridge and on the west coast in San Francisco, are TRADELINE, INC's Forums on Business and Technology. And in the mid-west, FMI, the Facility Management Institute of Ann Arbor, MI., which pioneered the entire facility management movement, is scheduling two-day sessions not only for that city, but also in L.A., Chicago, Dallas, New Orleans and Washington, D.C. (Letters requesting information on any of these seminars will be forwarded to the proper person.)

[FMI also serves as consultants to architects and has helped them in many capacities. Two brief examples: for HOK it reviewed space standards allocated for a major electronic firm's programmers to ensure that they were as good if not better than comparable stations elsewhere and that its facility was competitive in attracting and retaining good personnel. For TRW's headquarters at Lyndhurst, Ohio, it collaborated with FCL Associates, Chicago, and Interspace, Inc., Philadelphia. The assignment here was to review the drawings of their teammates to ensure that the facility would embody the requirements as stated in TRW's "Culture Statement" and that future changes could be accommodated satisfactorily.]

MERCK CASE HISTORY

The most definitive case history yet, is the interdisciplinary approach taken by Merck & Co for the Rahway, N.J. headquarters campus for 3200 employees of the pharmaceutical giant. It promises to be the classic example of designing the workplace for the worker and their work processes.

Productivity, the company decided in 1981, derived from a blend of physical, behavioral and technical aspects of the office. Accordingly, representatives from Facility Management, Human Resources and Office Technology met to discuss the overlap. They decided on four important points: 1) the focus on the workers would have to deliver productivity improvements; 2) the focus should include improved health and well-being both on and off the job; 3) the workers should participate in environmental changes and 4) capital outlays would have to yield acceptable return on investment.

A search for the most suitable architect/space planning firm "to become a full partner" in the project ended with the selection of Duffy, Incorporated, N.Y.C. which has its own architectural firm, Halsey, McCormack & Helmer Architects.

J. Douglas Phillips, then the Human Resources representative, now Director of Corporate Planning for Merck & Co., (his report on the entire project is available upon request), feels that one of the most important steps were the pre-occupancy and post occupancy studies. These gave Merck the ability to measure results.

Duffy first interviewed 27 senior executives to identify important managerial issues in their corporate culture. Its people then determined technical requirements for future guidelines. With these in hand, a questionnaire was sent to 2000 workers, asking them, among other things, to rate 29 specific features of workstations as to job effectiveness and job satisfaction. The survey was conducted and analyzed by a Rutgers University Graduate School MBA team.

The results, which provided space and component guidelines for the designers, showed that the greatest gaps between workstation features and job satisfaction were, in order: HV/AC, the ability to concentrate, conversational privacy, overall workspace surface and size of work area. Equally important to workers was the lighting of the work surface and the ability to adjust the workspace. The guidelines have been used in three major renovation projects and two major moves.

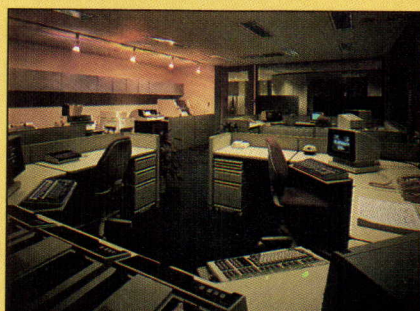
Phillips states that Merck selected office furniture manufacturers with the same care given to selecting a space planning and design consultant. The furniture manufacturer selected became a member of the Merck team, hosted end-user visits to its headquarters in Michigan and built a mock up in New Jersey so that users could "kick the tires." Most important, the manufacturer also prepared training videos on how to use their office systems and how to adjust individual workstations for personal comfort.

The return on investment for all the projects has been 25%. For one, the installation for 74 international workers cited previously, it was 50%. This was the project which reduced turn-around time from four days to six hours.

The Merck report stresses the importance of office worker involvement, not only during the planning but in the implementation of any renovation or move. It also states that the committee structure of users is one of the reasons for success.



■ THE RECEPTION DESK AT MERCK'S MSDI OFFICE. COMPUTER TERMINAL TELLS RECEPTIONIST WHERE TO REACH A STAFF MEMBER WHO IS AWAY FROM HIS WORK STATION.



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ERGONOMICS AND PRODUCTIVITY

The surest way for architects to obtain greater productivity for clients and a better return on the investment for them is to follow ergonomic principles in designing and integrating the work environment and the building itself. (It's also a sure way to build an enviable reputation for one's office.)

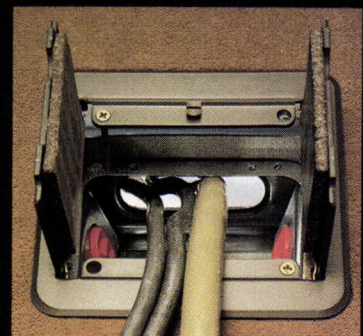
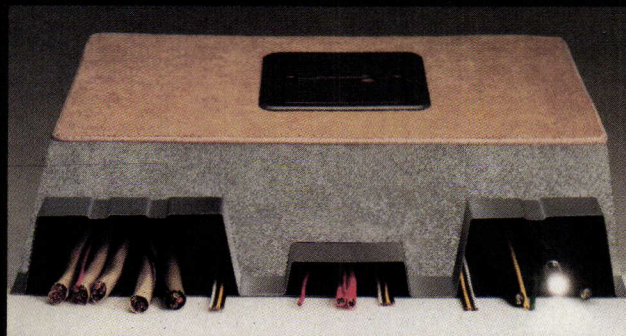
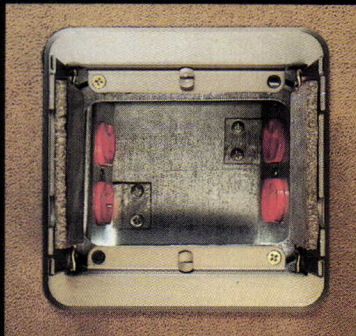
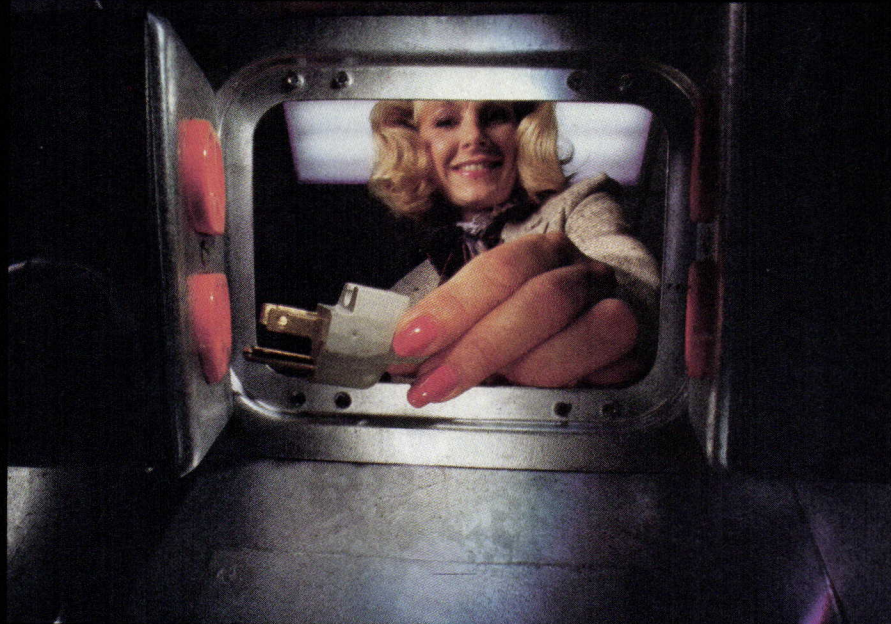
Whereas factory efficiency rose over 80% since 1975, office workers increased their productivity a paltry 4% over the same period. And during that period wages and benefits doubled! One must remember, however, that today's factory worker is backed by a \$25,000 average investment in equipment compared to \$2,500 for office workers according to a study by American Productivity Center, APC of Houston.

But this is changing—and daily. Capital investment in the office will quadruple as the ability to increase white-collar productivity becomes increasingly known. It's scheduled to

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jump to \$8,000 to \$10,000 per worker by 1989. And the money will be spent not just on electronic equipment but equally on task-supportive office furniture.

The reason, according to Stephanie K. Walter writing in *MANAGEMENT TECHNOLOGY*, is that management has failed to deal with the effect technology has on the way people work. "Once executives stop patting themselves on the back for having slapped a terminal on an employee's desk, they're surprised to learn there's been little improvement in productivity. The reason: many employees are still at work stations designed and lit for yesterday's manual environment."

PROOF OF PRODUCTIVITY

Since the first recorded case history of increased white collar productivity resulting from improvements in the work environment (McQuay Perfex) in 1978, proof positive has been flooding in from a variety of sources, especially in the last few years:

- APC's study of over 100 major companies concludes that properly designed office furniture increased productivity an average of 12% in more than half the companies. Savings began immediately and pay-back ranged from six months to two years.

- Springer Associates, Inc. ergonomic consultants in St. Charles, Ill., has found that adjustability in workstation furniture compared with non-adjustable units showed a 15% performance increase during data entry operations. Some 4% to 8% of this is attributed to improved seating.

- Merck & Co (see case history) obtained a 50% return on investment in one project—an installation for a group of 75 international workers—which included the purchase of advanced technology and ergonomic workstations for the department. Moreover, it reduced turn-around time for telex handling from about four days to six hours.

- Dr. Marvin Dainoff's lab studies for the National Institute for Occupational Safety and Health of good vs badly adjusted computer tables and operator chairs plus the elimination of glare and the provision of copyholders came up with productivity increases of 24.6%.

- Mike Brill, head of BOSTI, the Buffalo Organization for Social and Technological Innovation and author of the two-volume "Using Office Design to Increase Productivity," has



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calculated the dollar value of appropriate office design. He has even broken down the value of specific facets such as noise, glare, temperature fluctuation etc. He estimates that providing improvements of ten major facets of the environment will produce a 15% productivity increase factor for managers earning on an average of \$41,500—or a \$6,316 savings annually.

Merely moving a computer programmer out of a bull pen into a systems furniture workstation can improve his output to a value of nearly \$3000 or about 9% of his salary, Brill claims.

- M. Franz Schneider, president of Humantech Inc., Toronto, studied workers using VDTs who reported twice as many neck and shoulder discomfort complaints and three times as much eye strain as workers not using VDTs. One group, given ergonomic workstations, decreased Monday morning absenteeism from 7% to less than one percent and overall absenteeism from 4% to less than 1%. Error rates, Schneider reports, fell from 25% to 11% and computer time increased 40%. Finally, reports of postural discomfort showed a marked drop in frequency, severity and duration.

THE ERGONOMICS OF OFFICE FURNITURE

Research in ergonomics and productivity, the twin buzz words of office environmentalists, is pretty old stuff for the office furniture industry. BIFMA, the Business and Institutional Furniture Manufacturer's Association, whose members represent over 90% of the industry's sales volume, traces concern with office workers' seated posture to over 50 years ago. Adjustable seat heights and back adjustments and swiveling casters, introduced in 1921 by Kewaunee Flexible Furniture Company, were followed by "ergonomic" chairs by Domore Corporation and Harter Corporation whose chairs today are state-of-the-art.

By staying ahead of consumer needs, the industry's sales volume has grown steadily, outperforming most other segments of the U.S. economy. BIFMA's sales, expected to hit \$6.6 billion by the end of the year, are double what they were in 1980. Says Steve Channer, BIFMA's executive director, "This growth is

the result of the growing perception that automation plus the appropriate office environment—with task-supportive furniture as one of the most important aspects—will bring a return on investment within a very short pay-back period.”

One study, by Frost & Sullivan Inc., New York City, states that an investment equivalent to the annual wage per office worker, made in equipment, furniture and facility, is pable of raising office productivity anywhere from 50 to 300 percent.

The important thing is to make sure that employees know that their furniture is adjustable and that they learn how to adjust it to accommodate their individual postural needs and the work activity.

When Burroughs Corporation's Software Development Division in Mission Viejo, CA, decided to move from shared private office to the open plan, it first interviewed ten percent of the workers to develop standards for each office type. Then a typical mock-up was set up. At a formal presentation to all 250 employees, comparison charts showed workers that the proposed system would provide better quality lighting, increased work surface area and more personal space.

To accommodate employees' personal needs and further reduce their concerns, they were taken through the mock-up individually and allowed to customize their own workstations. After the move-in they were given still another opportunity to further change the arrangement of components within their workstation.

A post-occupancy employee evaluation on the new facility found that 79 percent of all workers said that given a choice they would choose to work in open plan offices.

At Portland General Electric Company where Dwight Trahin, the past president of the Oregon Chapter of IFMA, International Facility Managers Association, is Manager, Facilities Planning, word processing personnel were *not* given new ergonomic chairs until they received personal instruction in their use at a presentation. Price of admission was each word processor's old chair. These were collected at the door and exchanged for the new chair.

In addition to demonstrations with the chair, an industrial nurse described how the human back functions. The sessions ended with instructions on stretches and exercises that can be done at the workstation or at home.

As a follow-up, reminders to stretch are occasionally flashed on

operators' screens. Hubbard reports that as a special touch, employees with existing back injuries or who need a footstool or have glare on their screens are visited at their work station and the problem is resolved immediately.

At Metropolitan Life Insurance in New York City, ergonomic seating was deemed the most critical comfort factor of the VDT workstation. Met Life's procedure involved employees in selecting ergonomic furniture, taught them how to adjust it, and made sure they used it properly. The company's experience seems widely applicable. VDT users are shown a 10-minute audio visual presentation. They see how a task force was organized to study VDT impact on office workers, and how extensive employee testing helped set up standards for chair selection and the final choice. Workers are urged to adjust their chairs repeatedly during the day, since "The adjustments only take a few seconds and your body will thank you for it."

The procedures followed at both Portland General Electric and at Met Life were instituted by highly sophisticated and knowledgeable facility managers and provide excellent models for architectural firms to follow. The opportunity for architects to maintain long-term relationships with clients via Post-Occupancy Evaluation (POEs) in which they can participate in programs such as these indicates an approach that should never be overlooked.

TRENDS IN OFFICE DESIGN

POEs

Post Occupancy Evaluations have been advocated by facility managers—and by a few conscientious design firms—for the past several years. It's now a procedure who's time has come. Mike Brill was a bit fussed with Stanley Tigerman during their AIA-San Francisco debate. Nonetheless, his words bear repeating. Said Brill, "What feeds the optimism of many architects is never going back and finding out whether they did anything wrong. So that one continually faces a world with no mistakes. With no problems."

The beauty of it is that "going back" can be a positive marketing tactic for architects. The mistakes are not necessarily their's. Frequently they're the client's; or nobody's. But the designer who's on the scene to correct them is the one likely to get

the next assignment from that client.

EMPLOYEE INVOLVEMENT

Several years ago the Steelcase-Harris poll revealed the importance of involving employees in design decisions that affect them. Over the years the scope of involvement has broadened as part of more enlightened human resources policies. Experience is indicating that job satisfaction and productivity improve on a direct relationship to employee participation in design decisions. Walter Kleeman, Ph.D, the ergonomic consultant, cites one example of a reported 102% productivity increase due to users' participation in the design of their work places.

WALLS, DOORS & WINDOWS

In high-touch facilities many workers will have their own personalized workspace plus another one as part of a team in a "task/team" configuration. Relocatable floor-to-ceiling walls with tracks able to support components are being specified more and more. Many of the larger office furniture companies own or are working closely with manufacturers and installers of these relocatable walls. The next step will be chases in their walls for individualized HV/AC ducts. One company already has a kit which expands its panels' versatility by simply adding plugs for telephone and data communications.

In addition to relocatable floor-to-ceiling walls, companies are offering doors and "windows" on panel systems as well as on full-height walls. One company's system, the state-of-the art in personalization, uses a series of 16-inch tiles that range from transparent to translucent to fabric or veneer covered. There are tackable tiles and tiles with rails to support hang-on accessories. The company is currently working on radiant heat tiles and air purifying tiles. All tiles can be changed to fit changing needs, tasks or occupants. They are easily snapped in and out of steel frame walls which come in a variety of width and heights (up to the ceiling). Hence, one can have as much visual privacy—or as little—as desired.

MANUFACTURER SERVICE

Another office furniture manufacturer is offering a Lighting Visualization service which balances the requirements of both VDT and work-surface level viewing. Architects submit descriptive data and a scaled floor plan showing the placement, position and types of lights planned for a space. The company, returns a computer-assisted analysis.



When to buy an access floor.

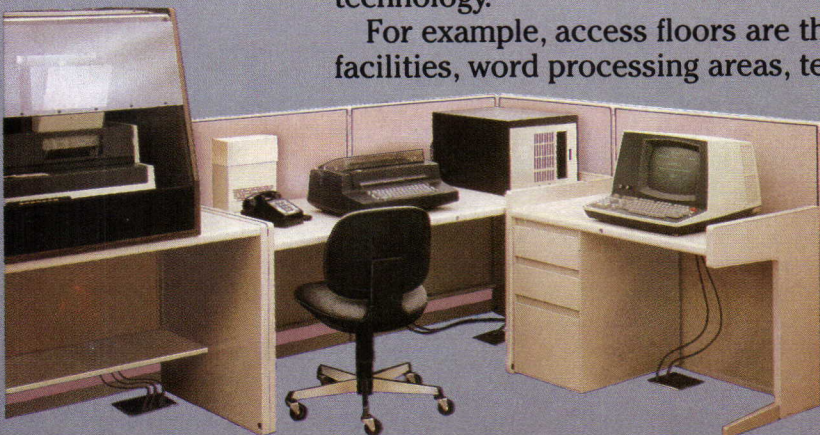
It's easy to be confused about access floors. Yet, when used in the right applications, they are a superb solution to a complex set of design problems.

Put simply, the more important flexibility is to you, the more you need access floors. Because access floors allow building management a great deal of latitude in adapting an interior space to changes in occupancy, work flow and technology.

For example, access floors are the logical choice for open offices, CRT facilities, word processing areas, telecommunications rooms, laboratories and, of course, computer rooms.

Experience has shown that access floors are highly cost-efficient in office buildings with:

- A 50% + open office plan.
- A 10% or more annual move rate.
- An occupant density of 200 sq. ft. or less per person.
- And technology-oriented workstations with as little as 20% computer terminal density.



In short, the best time to use access floors is whenever the productivity of occupants is most dependent on the network of electronic, communications and computer support systems.

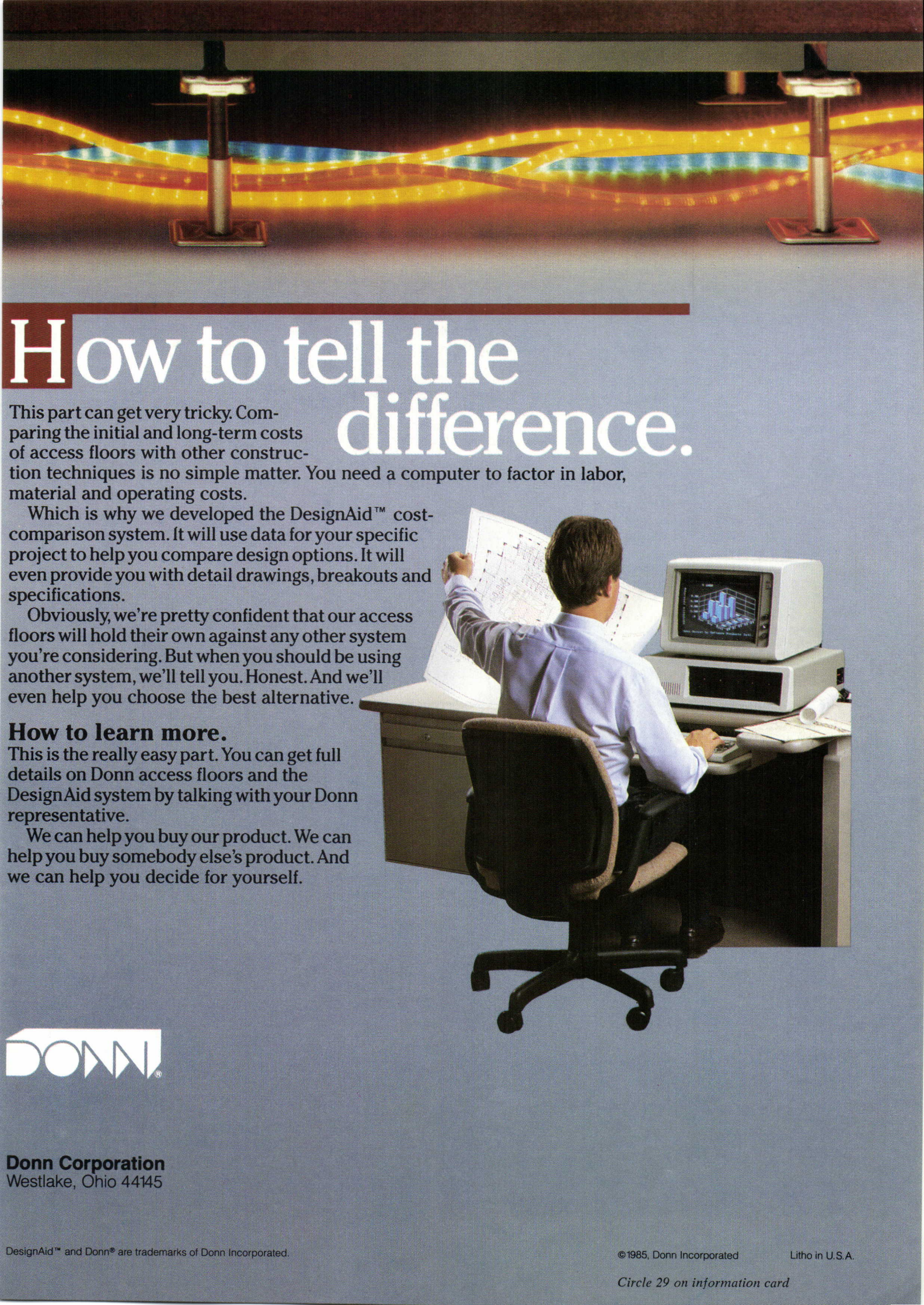
When not to buy an access floor.

There are times when a project is better served using traditional service distribution concepts. But they may be fewer than you'd expect.

While today's average access floor plenum height is only 6", access floors can add to total building height in some instances.

Also, facilities in which 90% or more of the plan will remain unchanged each year should probably continue to provide services via in-floor trenches.

Cost is a key, obviously, but most people just assume that access floors will be more expensive. In today's marketplace, you may find access floor costs competitive in more installations than you ever imagined.



How to tell the difference.

This part can get very tricky. Comparing the initial and long-term costs of access floors with other construction techniques is no simple matter. You need a computer to factor in labor, material and operating costs.

Which is why we developed the DesignAid™ cost-comparison system. It will use data for your specific project to help you compare design options. It will even provide you with detail drawings, breakouts and specifications.

Obviously, we're pretty confident that our access floors will hold their own against any other system you're considering. But when you should be using another system, we'll tell you. Honest. And we'll even help you choose the best alternative.

How to learn more.

This is the really easy part. You can get full details on Donn access floors and the DesignAid system by talking with your Donn representative.

We can help you buy our product. We can help you buy somebody else's product. And we can help you decide for yourself.



Donn Corporation
Westlake, Ohio 44145

THE MORAL

The Merck case history is the most comprehensive one on record. The company did all the things ergonomists say one should when planning an automated office. As such, it points the way for architectural firms seeking commissions for new or renovated office buildings. The reason Duffy Incorporated was selected over six competitors should preach an eloquent message to architectural marketeers.

"The deciding factor," explains J. Douglas Phillips, "was our gut feeling that Duffy was capable of understanding our corporate personality and culture. In contrast, the work of most of the other design firms seemed to reflect their own personalities rather than the client organization. After all, the goal of the guidelines is to maximize productivity within the framework of *our own* values and culture."

This attitude was echoed by a comment at the AIA San Francisco discussion where Lucy Crow Billingsley, president of the Dallas Market Center Company, reported that architects generally gave her firm standard presentations. In contrast, she said, "a new advertising agency does a much greater analysis of our needs and how we want to position ourselves."

As HLW's director of programming and facilities management services, Robert Brandt, wrote recently, "To meet the demand, some architects have become more active in developing the actual operational guidelines and business plans, signaling a shift from coordinator/

interpreter to management or human resources consultant."

While this may be stretching the architect's role a bit, a comment made by a speaker at the annual meeting of the Business and Institutional Furniture Manufacturer's Association (BIFMA) in 1984, speaks to the point and reflects a public image problem of the profession.

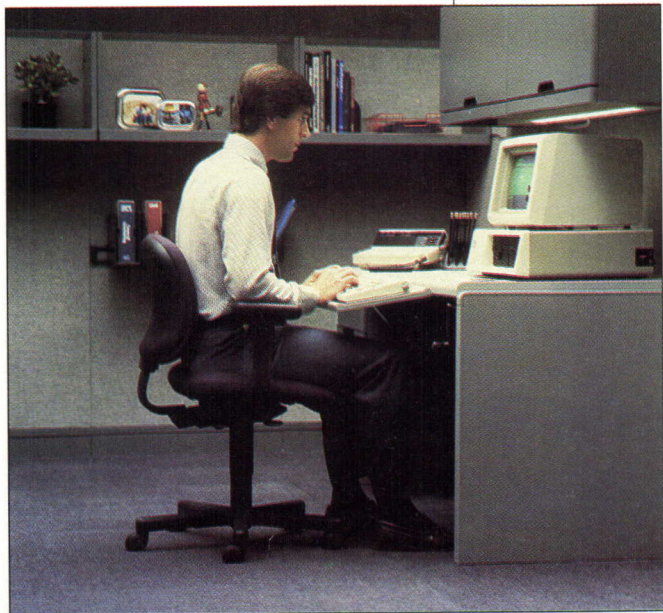
"Much architecture," said the speaker, "continues to be single-mindedly concentrated on the skin and roof lines of buildings. It shows very little of the kind of concern BIFMA's members have for the 'captive consumers' who occupy these skyscrapers. A great building is an art form. Yet it must be as ergonomic as a good chair or a lamp or a work station."

Many architects would agree. Bruce Patty was careful to include users in his statement: "Architects must respond to the needs and desires of clients, managers, builders and users, as well as rapid technological change."

For M. Arthur Gensler, Jr., whose firm's billings topped the list of architects not providing engineering services, the concept of designing "from the inside out" has been a major focus from its origins as programmers, space planners and specialists in interiors. "The danger of over-emphasizing the 'smart' or 'intelligent' building," he says, "is that we tend to forget the people who must use the technology."

There must be a lesson here. ■

Carl Ruff is a New York public relations and marketing strategist serving manufacturers and associations in the integrated office environment field.



■ **THE PROBLEM OF STATIC ELECTRICITY CAUSED BY CHAIRS IS SOLVED BY HARTER CORPORATION'S NEW ESD SEATING. THREE-LEVEL PROTECTION IS NOW AVAILABLE IN 32 DIFFERENT ERGONOMIC CHAIRS.**

HOW TO HUMANIZE TECHNOLOGY FOR TODAY'S OFFICES

BY MICHAEL CLEVINGER

The piecemeal application of bandaids to solve individual problems of safety, comfort and productivity won't work in today's offices.

In the automated office, each individual consideration is irrevocably linked to others. Systems, rather than devices, support the automated office. Now, more than ever before, place, people and tools must work together or they won't work at all.

Designing form around function is not just a nice idea—it is essential if the client is to reap the benefits of advancing office technology and achieve maximum productivity from his most important and costly asset—people.

ENVIRONMENTAL CONTROL BECOMES A PRIORITY

End-users' concerns for comfort in the office environment were documented in a recent survey of more than 1,500 office tenants throughout North America. The survey was jointly sponsored by Building Owners and Managers Association (BOMA) International, Washington, D.C., and Delphi Consultative Surveys & Research Ltd., Winnipeg, Canada.

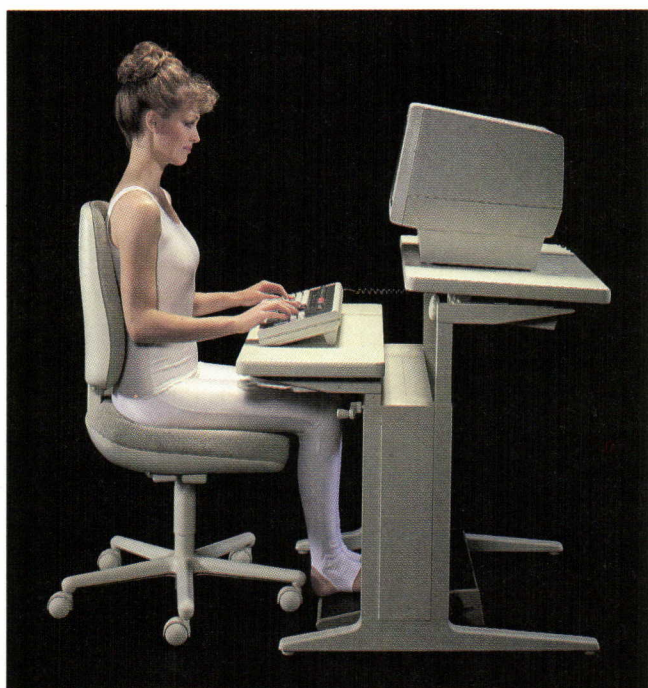
Respondents ranked temperature control, air quality, interior lighting and noise levels all as "Priority A" considerations (of A through J) in their assessment of the characteristics of an effective building.

AUTOMATION'S SOLUTIONS BREED DESIGN PROBLEMS

This rising concern for the environment and its effect on workers is a consequence of office automation. The desktop computer is rapidly transforming the very nature of much of the world's work, bringing more of the workforce into offices and redefining "office," "office worker," and "office work," as we once knew them.

Changes in telecommunications, mail and message delivery, information storage and retrieval, and conferencing also carry special requirements.

Designing smart buildings for tomorrow's offices must begin with an



■ **MUSCULAR-SKELETAL COMFORT MAXIMIZES OPERATOR'S PRODUCTIVITY. PROBABLY THE MOST IMPORTANT FACET OF A VDT OPERATOR'S WORK STATION IS AN ADJUSTABLE, ERGONOMIC CHAIR. THE OTHER ASPECT IS A HEIGHT ADJUSTABLE VDT STAND OR WORK SURFACE.**

understanding of how technology is already affecting the worker and the workplace.

By year-end, 1984, there were an estimated 16.2 million VDTs in use in the United States. By 1988, that number is now expected to grow to 59 million.

Xerox Corporation's Office '88, a project begun early in this decade and designed to assess the effect of technological change, brought early warnings that technological advances would carry problems that must be addressed simultaneously from several points of view. An initial Office '88 report, incidentally, underestimated by more than half, the number of VDTs now projected for use by 1988. I was a member of the Office '88 team and helped write that report. Despite the upward revision of VDT use, however, much of our report proved true. It stated, in part:

"This 'technology dump' has created a myriad of problems, which is ironic since the technology was designed to improve office worker productivity.

ADDRESS PSYCHOLOGICAL AND PHYSICAL WELL-BEING

"At the individual worker level, there are psychological reactions to this technology which span emotions ranging from indignation to sheer outrage.

"Equally troublesome are the physical problems which office automation creates for the individual worker."

I find that these physical problems can be generically classified under the term 'ergonomic' issues,

and summarized in the following order:

1. Excessive heat, the problems associated with adequate ventilation and cooling of automated equipment.
2. Excessive noise associated with impact printers and copiers adjacent to workstations.
3. Eye fatigue and strain, the effects of VDT glare and poorly designed lighting on employees' eyes.
4. Muscular/skeletal, the stress on the human torso from working at a VDT for prolonged periods of time.

Office '88 also noted problems in addition to the issues of employee health and comfort. "Office automation is basically counter-cultural. At best, the VDT is an eyesore in the individual office. It simply doesn't fit elegantly into the traditional managerial or executive decor.

"Even the clerical workstation is adversely affected by the screen, processor, printer, cabling and other high-tech paraphernalia of the typical word processor. In short, office automation raises serious esthetic questions and if left unresolved, will inhibit, if not countermand, the effective transition to an automated work process."

AUTOMATION DRAWS FIRE FROM SEVERAL QUARTERS

Add to this the fact that nearly half of the nation's state legislatures and many local governmental entities have addressed the regulation of VDTs in the workplace, although, at this writing no state and just one municipality has passed legislation on the subject. The proposed legislation covers a range of subjects, including

glare control, along with equipment and office design standards.

Labor organizations, such as 9 to 5, the National Association of Working Women, and The Newspaper Guild, are pressuring legislators to push standards regarding VDT use into law.

It is clear that while concern over VDT use mounts from several quarters, architects and their clients must consider effective ergonomic design as a fundamental component of office automation. They would also be wise to monitor activity regarding VDT standards, guidelines and pending legislation.

KEEPING UP WITH THE PACE OF CHANGE

Beyond the psychological, physical and legal considerations delineated above, lies another concern among architects and their in-house or consulting engineers—and the client: the mechanical accommodation of the automated office. This relates to the full range of aspects associated with a building's structure and its interior componentry. While this may sound like familiar territory to architects, technology puts it on an entirely new terrain.

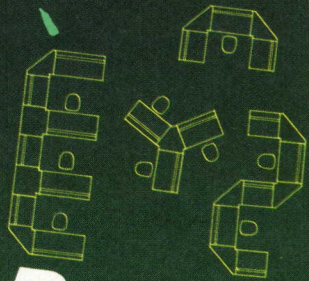
The automated office is a highly dynamic organism. It changes over time, in small and in massive ways. Technological tools emerge to expand or erode, even completely eliminate, some office functions. These new tools can also cause full-scale departments to shrink or swell quickly. Think for example, of changes that have either occurred or are being considered in your own billing and ordering procedures.

When change comes fast, your clients won't want the building, its systems or its interiors to prevent them from taking advantage of new tools and new methods.

In order to address change, three different areas of the office shell and its equipment must be addressed:

1. The structure. The need for a high degree of flexibility impinges on the configuration of floors, ceiling height, vertical and horizontal chase ways, for example.
2. Support systems. Heating, ventilating and cooling systems must meet the requirements of increased automation. So must electrical wiring and cabling for telecommunications, data transmission, local area networks, and video transmission.
3. Interior componentry. Walls, flooring, lighting and furnishings must also be flexible enough to meet new workstation and departmental

THE SYNTRAX™ SYSTEM



Designed to put people in control of their surroundings, the Syntrax System allows users maximum flexibility for their electronic tools. Problems such as wire management and computer interface can now be solved with people-oriented answers.

Incorporating unique wire management capabilities, Syntrax adds unconventional versatility to a working environment by easily adapting to additional workstations. Through the use of an electronic trough, all wires and cables can be neatly hidden and channeled through linking tops.

The Syntrax System presents a more organized, personalized work area with the addition of an accessory console which accommodates accessories such as paper and telephone trays.

With the addition of the console tackboard, not only is privacy and visual display enhanced, but the elements of color and texture as well.

With Syntrax, workstations can now be carried to new levels of productivity through design. Today, and for the technology yet to come.

To find out how you can put people in control of their surroundings, please write All-Steel, Aurora, IL 60507.

ALL-STEEL





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Lighting the Open Office

*The traditional downlight
isn't the answer.
It was never meant for
an office full of VDTs.*

The office at 10 p.m., done right: evenly-lit ceilings and upper walls keep the surroundings cheerful, minimize eyestrain by preventing bright glare spots that overpower VDT readouts.

Most of today's lighting simply wasn't designed for today's office.

Now partitioned furniture systems block off the light, energy codes demand lower light levels and VDT screens cause eyestrain.

Even the most sophisticated low-brightness downlights dictate the exact placement of computer terminals. If you rearrange the work stations, bright spots of glare appear on the screens.

These problems don't exist in the office shown below. The difference comes from a highly-engineered indirect lighting system that's based on a better understanding of what office lighting should do.

Keeping glare off the VDTs

There's been much talk about "ergonomic lighting" lately, especially for VDT installations.

Downlighting isn't the answer, even though over 90% of America's offices use

it. Any down light puts a bright light source in an unlit ceiling. The resulting strong contrast produces glare on any reflective surface: the cover of a magazine, a polished desk top or, unfortunately, a VDT screen.

To correct the problem, you need an indirect system designed with exceptionally wide distribution. This produces an evenly-lit ceiling which reflects as a soft, barely-noticeable veil. Since the VDTs don't reflect hot spots from the fixtures, workers are more comfortable. And since the screens can face in any direction, the floor plan becomes flexible.

There's a research study from a major university that discusses this in depth. Ask us and we'll send you the results.

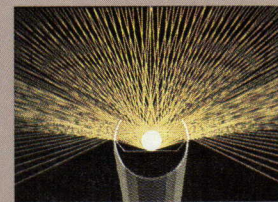
Getting good light on the work surfaces

Footcandle levels tell us how much light there is on the work surfaces, but they don't tell us how much light we think there is. And if we don't think there's enough light, there isn't.

Another recent university study offered an important new insight: if you add a low-brightness visible source to an indirect fixture, you'll immediately perceive 10% to 25% more light.

We'll be happy to send you those results, too. They show how much the visible strip of low brightness lens on the fixture in this picture actually does. It spreads the light evenly over the ceiling and upper walls and, just because it's there, it creates a higher level of perceived illumination.

The fixtures in the photo are 6" Round High Efficiency Softshine Indirect by Peerless. Under ceilings 8'6" or higher, Softshine Indirect fixtures give more good light per watt than any other fixtures made. Research computers at Peerless generated this diagram to show how the fixture's lensed optics distribute the light facet by facet into precisely the right viewing areas.



*The new answer:
lensed indirect
fixtures. They
deliver even, glare-
free illumination
enhanced by the
sparkle of a low-
brightness lens.*

No other fixture in the world has been so carefully designed for the exact purpose of lighting a workspace.

Peerless invented and patented it. Only Peerless makes it.

It's the lighting of the future. If you'd like to see what else the future holds, just call.



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"PEERLESS" AND "SOFTSHINE" ARE TRADEMARKS OF PEERLESS LIGHTING

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Project: Green Tree Acceptance, Inc., St. Paul
Architect: Culver Adams Associates, Minneapolis
Electrical Engineer: Pace Engineering, Inc., Wilmington MN
Electrical Contractor: Sterling Electric Construction Company, Minneapolis

configurations quickly, easily and inexpensively.

Though I have listed these as three "different" areas that require consideration, they are no longer distinct. If flexibility is to be an intrinsic characteristic of the office—and technology and automation demand that it be—then every aspect of these three areas of building and office design must be considered together. Today's office must be a highly symbiotic, dynamic place in which all of its parts are integrated by design.

My organization, Integrand—The Institute, exists because the map of how offices arrive, from inception, to design, to construction, fitting, furnishing, and management, once they are occupied, has been re-drawn by technology. The creation of the office, as it evolves in tandem with technological change, now requires the interaction of a range of very diverse disciplines and very complex technological know-how.

SOLVING PROBLEMS OF TEMPERATURE CONTROL

The BOMA/Delphi participants' already-identified concerns regarding the workplace offer a logical starting point in any architect's attack on the problems technology has wrought. How did heat rise to the top of their list of concerns?

As the ratio of machine to employee rises, building systems may be strained to and beyond capacity. Many buildings were never equipped to carry the heat-load generated by today's machinery. Buildings constructed during the country's efforts to conserve energy and/or lower spiraling construction costs, though relatively new, contain no provision for increasing cooling capacity.

What's more, many buildings were designed to cool via HV/AC zones that were adequate when machinery was largely segregated from workstations. Now, however, with computer equipment scattered throughout the workspace, each workstation has become its own heat source.

Strained or low-capacity cooling systems led to an erosion of comfort according to the overwhelming majority of BOMA/Delphi survey participants. Thus, they either want control of their own temperature or a guarantee of comfort.

The effects of excessive heat on worker productivity has been well documented. However, one only needed to work in a Manhattan office during this past summer's water-shortage and consequent air-condi-

tioning restrictions, to understand its impact.

Insuring comfort in respect to temperature can be addressed in many ways. The many routes an architect can take to providing clients with such assurances offer a persuasive argument for the integration of disciplines covering building, systems and interior componentry.

Open plan interiors, for example, require fewer air conditioning zones than traditional offices housing a comparable number of workers with or without machines. But open plans exposed to windows will carry different heating/venting/cooling requirements than others. The degree of openness within a plan—that is, the height of panels separating workstations—will also have an effect.

Engineers are able to calculate the capacity of an air conditioning system only when they know all of the facts: information regarding move-in workstation configurations, window access, panel and wall heights, ceiling heights, as well as the numbers of people and machines within the space should be quantified as early as possible in building design planning.

Changes that occur during construction can negate initial calculations. New input must be fed to the person working the formulae.

Such advance planning and ongoing interaction among people in charge of different design and construction details can often carry a bonus. Some HV/AC systems, for example, can also help mask sound. Sound masking can often be incorporated into the air distribution plan, lowering the costs of installing both systems.

Failure to address heat control carries increasing risk.

Like other aspects of the automated office, heat control is earmarked for legislative attention. The American Newspaper Guild, for example, has drafted a model act for states that governs computer heat exhaust. It is a tough model. It calls for terminals to be placed so that heat exhausts are not directed within four feet of any workstation that is not protected by an intervening wall, heat duct or insulation.

ISSUE OF AIR QUALITY EMERGES

Indoor pollution and the quality of the air we breathe promises to become another important issue of office health, safety and comfort. It is also evidence that "solutions" often come accompanied by new sets of problems.

Though study of indoor air pollu-

tion is still in its infancy, many researchers point to the tight building, originally designed to conserve energy, as one contributor. Smoking, materials and chemicals used in buildings and equipment, maintenance materials, and even ventilating systems themselves are also under scrutiny.

Formaldehyde, present in some carpeting and adhesives, has been one identified culprit. While carpeting sheds its formaldehyde over time, it and older furnishings and materials, continue to contain the chemical.

Carbon dioxide, asbestos, ozone, sulfur dioxide, nitrogen dioxide and radon, a radioactive and inert gas found in soil, have been identified by James E. Wood, Ph.D., senior staff scientist for Honeywell's Corporate Physical Sciences Center. "Their sources," he says, "can be linked to office furnishings, equipment, fabrics, appliances, the ground beneath a building and to people."

A national survey of office worker attitude on indoor pollution, conducted this year found that of those polled, one-quarter, 24 percent, indicated that air quality where they work was "poor" or "only fair."

While ventilating ducts, fans, air conditioning and air cleaning systems can improve office air quality and effectively remove pollutants, preventive tactics may prove a superior and less costly solution.

In any case, ignoring the problem, which is bound to receive increased attention, could be dangerous to the health of an architect and client. Just like workers themselves, questions of responsibility and liability in respect to worker health and safety, are moving out of factories and warehouses, into the office.

POWERING HIGH-TECH TOOLS

There is probably no more crucial consideration in offices today than access to power. As offices plug into technology, they do not only need more wiring and cabling capabilities, they also need more flexible wiring/cabling capabilities. Lock your client from easy access to power and you will likely lock yourself out of office business.

Fiber optics loom as the most elegant of available communication distribution systems. They are able to carry video, communication and data signals together via a strand of light that travels through a glass encasement that is often no thicker than a human hair. Fiber optics is rapidly becoming the distribution system of the nation's major telecommunications' carriers. But it has yet to make

Ergonomic Seating from Harter with 3 Levels of E.S.D. Control

Electro-Static Discharge means trouble in today's automated office. The simplest motion, rising from a chair for instance, can generate electrical charges in electronic processing and storage devices that can trigger data loss, misreadings disruptive to programs, printer malfunction, even component damage. In fact, chair-caused static can exceed static generated by floor coverings, clinging to the operator until discharged by contact with equipment.

Harter offers a wide selection of ergonomically designed seating, assuring proper posture and lumbar support for the user, and includes E.S.D. protection too.

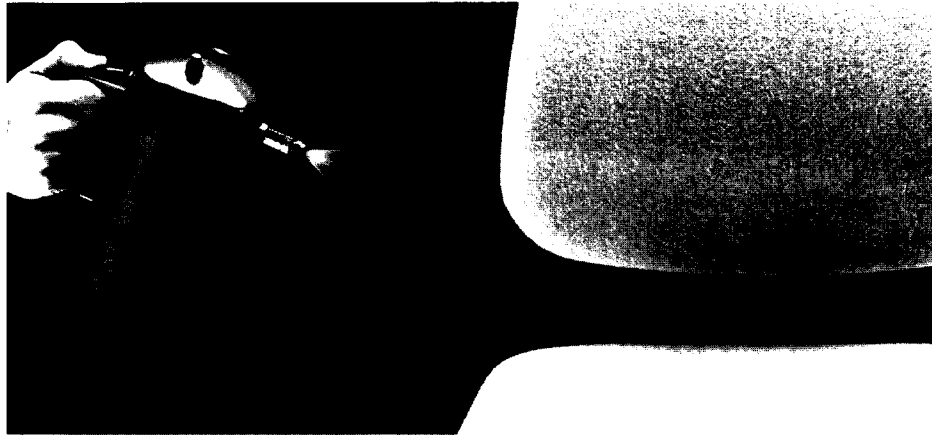
Harter offers seating in three E.S.D. protection levels. Selection depends on the specific needs of the office environment.

See your Harter representative for additional information.

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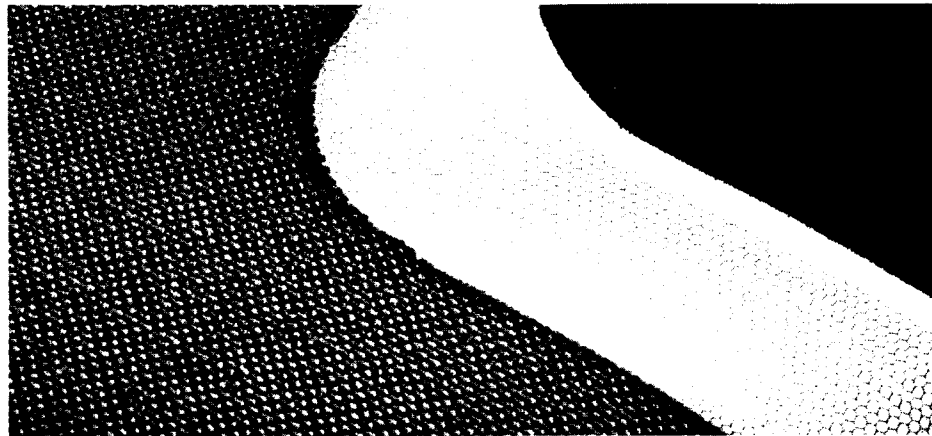
Level 1: Anti-Static Protection

Seating is made resistant to E.S.D. build-up because the fabric is heavily sprayed with a pervasive, long-lived, anti-static compound. As a result, large static charges simply do not arise when dissimilar materials rub against the upholstery fabric.



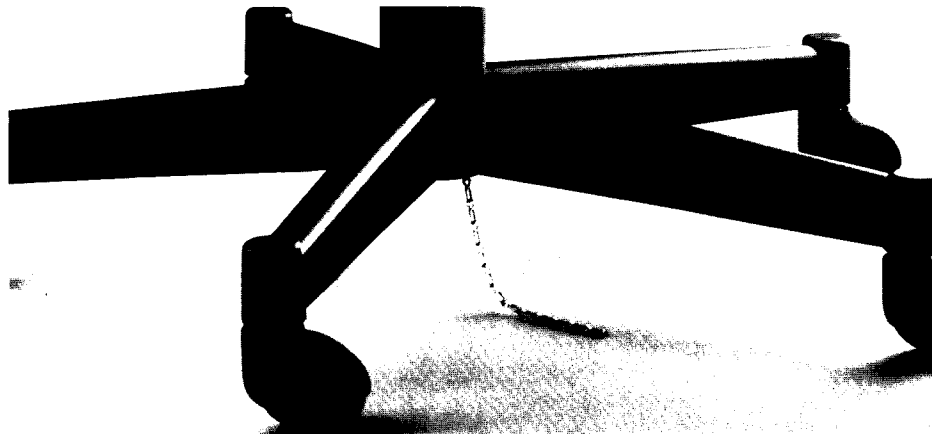
Level 2: Static Dissipative Protection

A highly conductive underlayer is placed directly beneath the standard fabric. The fabric is also treated with heavy duty anti-static spray. The result is a chair that absorbs static charges and dissipates them into the atmosphere over a large enough area to prevent a high energy discharge at any one contact point.



Level 3: Static Conductive Protection

Here, too, a highly conductive underlayer beneath the standard fabric is used. The underlayer is connected by a conductive circuit to the chair frame. A brass drag chain completes the path to a grounded floor surface. Therefore, any locally generated or external static charges in high risk environments are conducted through the fabric and frame of the chair to the floor below. Patent applied for.



much headway in general office application except where extreme security is a high priority. It is virtually untappable. Fiber optics is often touted as the medium of the future. Current local area network (LANs) installations that combine a broad range of types of communication signals within a local environment, such as a single office, a whole building, or a complex of buildings, convince me that it will be embraced by the business community soon. One manufacturer of various forms of undercarpet wire, including fiber optics, has developed a complete fiber optic building wiring system that can carry various types of signals between workstation computers and centralized computers. This provides a solution to connecting more, and more elaborate, technological equipment throughout an office or an office complex.

The accommodation of traditional, hard-wire media, in its unfolding transformations, however, can be converted to fiber optics should it gain the stronghold that is expected.

Traditional hard-wire is becoming increasingly complex, and it is adding capacity. Corporate America now chooses telecommunications from a range of competing hardware manufacturers and carriers. This adds a decision-making process that used to be handled by Ma Bell alone.

All the emerging communications options may never be needed by everyone. And devoting too much space to wiring "just in case," can be awfully costly in today's real estate markets. There are solutions to power transmission and access, however, that will prevent your client from being locked out of advancing, even uncharted, technological change.

Flatware, flexible conductor cable that comes in rolls, like tape, was approved for office use by the National Electrical Code in 1981. It now has a track record in data, power and telecommunications forms. Two companies even offer flat fiber optics. Flatwire can be cut and spliced like its dimensional ancestor, and it installs quickly on most every type of existing flooring.

An array of monuments and connectors are available to fit into flooring, furnishings, power poles and walls. Generally, it is installed on a grid, under carpet tiles, which makes it accessible to any equipment and/or furnishings along its run.

Raised or access flooring, another method for powering the office, can be installed above solid flooring

to provide a cavity that carries wires and cables to equipment and workstations. Access is achieved by simply tapping through to the cavity where the power distribution system resides.

The earliest access flooring installations were for computer rooms that were generally free from heavy foot traffic and rolling loads. When the computer expanded beyond a dedicated room, access flooring came with it and gained strength in the process. Early problems of underfoot wobble are disappearing with strengthened stilts.

And, while cable capacity continues to increase, cable size is decreasing, making a 6- or 4-inch underfloor cavity adequate for the overwhelming majority of cabling requirements.

Other new solutions to wiring and wiring access include channeled raceway systems that are either incorporated into systems furniture or will fit along them in a flexible configuration of connectible components.

Carpet tiles, a requirement of flatwire installation, also give access flooring its easy and inexpensive access. At the same time, carpet tiles can solve esthetic problems that occur when workstations change to meet changing needs. Tile from high- and low-traffic areas can be switched, for example, to extend the life and good looks of carpet in the ever-changing office.

Carpet, in tile form, is just one result of carpeting manufacturers' own efforts to provide increased function in today's offices without sacrificing esthetics.

STOPPING SHOCK

When early versions of rugged, but beautiful general office area carpeting were installed in offices with desktop computers, shock waves rippled through the office automation community. Static, the enemy of all data bases, is capable of destroying months of work at the touch of

a single finger that has not been grounded. Static can not only disrupt computer function, it can cause malfunction. It also hurts.

Virtually every major nylon fiber producer has addressed static control to some degree, eliminating the need for an unsightly static-control mat at workstations with computers. But not all nylon fibers, and not all nylon carpet constructions, carry a static-control feature. The architect who wants to avoid static from his client must study static control features, specifications and warranties of any carpet that is apt to be used near or under a desktop computer. Two manufacturers of ergonomic office systems furniture have just announced static-free office chairs.

Be warned that the desktop computer and the problem of static are no longer restricted to general office areas. Executives are taking to PCs in increasing numbers, and many companies predict that they will soon be as common a worksurface tool as telephones. They may even be the telephones of tomorrow.

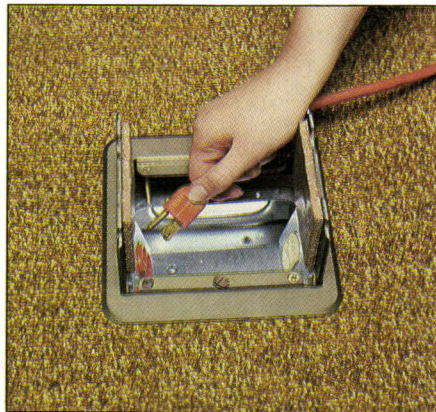
LIGHTING, GLARE AND THE VDT

As static is the enemy of the keyboard and processing unit, glare is the enemy of the screen. A VDT is both a light source and a mirror. Like a mirror, it reflects all that it "sees."

Glare can be eliminated; but not easily, especially not in today's glass towers with atria and open plan interiors and a surfeit of glossy surfaces. Though all of these materials must be addressed, lighting will require your most immediate and most arduous study.

Striking a balance between adequate lighting for working at the screen and the elimination of light reflectance on the screen has been the focus of many studies. Yet, no automatic solution that will work for all workplaces, all work and all screens has risen from the research.

In one 2½-year study, fluorescent downlights created hot spots of



■ **ALL THAT'S VISIBLE WITH INRYCO'S N-R-G FLOOR SYSTEM FOR POWER, TELEPHONE AND DATA TRANSMISSION LINES IS THE EASILY ACCESSIBLE HINGED RECEPTACLE. TYPE OF OUTLET CAN VARY DEPENDING ON FUNCTION.**

bright, glaring reflections on the ceiling, which also reflected on screens. Moving some fixtures, adding glare shields to screens and enclosing workstations were among the attempts to solve the problem. They proved inadequate. Even distribution of lighting became a goal and the highest design priority. KPFC, the interior design arm of Kohn Pedersen Fox, working with a California lighting firm, jointly developed an indirect lighting fixture for each workstation in a 16-story building. A horizontal fixture, it sits six feet off the floor on an overhead cabinet and directs light toward the ceiling. Depending on the length of the fixture, which is determined by workstation size, the resulting ambient light level ranges from 25 to 35 footcandles.

ALTERING BRIGHT-LIGHT PERCEPTIONS

The fixture contains a series of prisms that disperse light evenly on the ceiling which redirects it back down over work areas. In addition, the fixture creates the perception that the area is brighter than it actually is. In a previous study at Pennsylvania State University, the manufacturer determined that when the light source is visible to users, they will perceive the room as being up to ten times brighter than it is. Thus, part of the light source in the fixtures is exposed.

The lighting solution, no matter how innovative, was not the designers' only accommodation to VDT glare, however. Some workstations overlook an atrium filled with natural light. Others are opposite the building's exterior windows. Both are subject to glare. Vinyl shades, dotted with minute perforations that permit light to pass without producing glare, are adjustable and used when natural light is bright.

Illumination at circulation paths also had to be addressed in order to prevent glare at adjacent workstations. Decorative, low-level fixtures are mounted along perimeter walls. Despite the attention to detail, the client has had complaints about the low level of lighting. This not only proves that light matters to workers, it also suggests that lighting may well have heavy impact on worker productivity.

Only one factor regarding glare and the VDT is absolute. To eliminate glare, begin and end your research and design with consideration of what the screen will see.

LOOKING BEYOND LIGHT FOR GLARE

NIOSH offers additional guide-



lines that go beyond proper lighting and the use of glare-control devices. The sources of glare should also be controlled through VDT placement, parallel to windows and between lights. "Illumination levels," the guidelines state, "should be lower for VDT tasks requiring screen-intensive work and increased as the need to use hard copy increases. In some cases, hard copy material may require local (task) lighting in addition to normal office lighting."

ANSI is currently developing national industry standards for VDT workstations that will address the color, height and size of screens, design features of office chairs and desks, illumination levels and quality.

This mere listing of the factors that will be addressed must serve as a further guide to designing spaces for VDTs. This list is also yet another persuasive argument for taking a long, hard and ongoing look at how building, systems and furnishing and equipment must be considered in an integrated manner.

DISTINGUISHING SOUND FROM NOISE

If more evidence is needed, consider sound. Then consider noise. In a landmark 1978 survey of office workers, conducted by Louis Harris, workers mentioned "the ability to concentrate without noise and distractions" most often as critical to doing a job well.

Speech privacy, the acoustical level at which people can work, free from the distraction of surrounding conversation, is measured by an articulation index (A1), which ranks speech intelligibility from 0.0 to 1.0.

At an A1 of 0.0, a person cannot understand anything that a person nearby is saying in a normal voice. At an A1 of 1.0, everything the person nearby is saying can be understood perfectly.

■ **P & G SPENT 2½ YEARS RESEARCHING EMPLOYEE NEEDS BEFORE DESIGNING THE INTERIOR OF ITS NEW HEADQUARTERS. EVEN LIGHT DISTRIBUTION HAD THE HIGHEST PRIORITY SO KPFC AND PEERLESS LIGHTING JOINTLY DEVELOPED INNOVATIVE, INDIRECT LIGHTING FIXTURES FOR EACH WORK STATION.**

The options range from changing barrier and ceiling heights and/or materials to adding sound masking systems.

Altering the AI, once design and installation is complete, severely limits the opportunity to achieve normal speech privacy.

Furnishings, layouts and other design choices that once may have hinged primarily on considerations of esthetics and status must now be subjected to a very complex set of criteria.

WHO'S IN CHARGE?

Architects have often borne a degree of responsibility for office buildings and designs that didn't measure up to a client's expectations. One reason is that the client, whether his stated expectations and criteria actually meet the needs of his workforce or not, is responsible to his workers.

The issues that surround worker safety, health and comfort during the transition to increased office automation, however, promise to raise the "responsibility" stakes for both client and architect. Liability for identified errors as well as for errors that were not yet fully identified is an issue of our time. The design professional who relies on bandaids and piecemeal solutions to this increasingly essential integration of place, equipment and people courts risk.

In all health and safety matters, preventive medicine is considered to be the surest, safest cure. Knowledge and understanding of emerging problems and their solutions is the architect's ounce of prevention as he attempts to make office technology work well for humans. ■

Michael Clevenger is president and executive director of the international, non-profit Integrand - The Institute, headquartered in Houston, Texas.

University of Virginia Campus: Thomas Jefferson	Grand Central Terminal: Reed & Stem and Warren & Wetmore	Salk Institute of Biological Studies: Louis I. Kahn
Wheeler Center: Reinhard & Hofmeister; Corbett, Harrison & MacMurray; and Hood & Foulhoux	Glass House: Philip Johnson	Plan of Radburn, N.J.: Clarence Stein and Henry Wright
Dulles International Airport: Eero Saarinen & Associates	Monticello: Thomas Jefferson	Unity Temple: Frank Lloyd Wright
Fallingwater: Frank Lloyd Wright	Gateway Arch: Eero Saarinen & Associates	Taliesin West: Frank Lloyd Wright
Marson Pirie Scott: Louis H. Sullivan	<p>What, if any, American buildings completed in the last 10 years belong in the company of those listed on this page? The list, of course, is of winners of this magazine's bicentennial poll naming the best works of architecture of the nation's first 200 years.</p> <p>Now we are conducting another poll to determine what works of the decade since the bicentennial should be added to the list. Any reader is eligible to make nominations. Please do so in writing (via card or letter to ARCHITECTURE, 1735 New York Ave. N.W., Washington, D.C. 20006) and indicate your occupation. Brief comments on the buildings are welcome.</p> <p>You may nominate any number of buildings. Deadline for nominations has been moved to December 1, and results of the poll will be published in the January issue.</p>	Guggenheim Museum: Frank Lloyd Wright
Seagram Building: Ludwig Mies van der Rohe and Philip Johnson		U.S. Capitol: William Thornton
Philadelphia Saving Fund Society: George Howe & William Lescaze		Lincoln Memorial: Henry Bacon
Boston New City Hall: Kallman, McKinnell & Knowles		Plan for Washington, D.C.: Pierre L'Enfant
Trinity Church: Henry Hobson Richardson		Illinois Institute of Technology: Ludwig Mies van der Rohe
Walter House: Skidmore, Owings & Merrill	Plan of Savannah, Ga.: James Oglethorpe	Pennsylvania Academy of the Fine Arts: Furness & Hewitt
Brooklyn Bridge: John A. and Washington Roebling, engineers	Monadnock Building: Burnham & Root	John Hancock Center, Chicago: Skidmore, Owings & Merrill
Robie House: Frank Lloyd Wright	Reliance Building: Daniel H. Burnham	Marshall Field Wholesale Warehouse: Henry Hobson Richardson
Johnson Wax Co.: Frank Lloyd Wright	Wainwright Building: Adler & Sullivan	Lovell Health House: Richard Neutra
Ford Foundation Building: Frederick Law Olmsted Sr. and Calvin Ross Associates	Central Park: Frederick Law Olmsted Sr. and Calvert Vaux	Richards Laboratory: Louis I. Kahn

Letters from page 6

They are happy, though (contrary to Mr. Drummond's opinion), that the units are cool, comfortable, and breezy, thanks to the side porches, elevated floors, cross ventilation, and single-room widths—all hallmarks of the Charleston single house.

Of course these projects are not exact duplicates of older single houses but adaptations and reinterpretations in a new social context. The single house form has remained alive and vibrant because of its flexibility to be reinvented—a historical quality that the architects of the projects were perceptive enough to recognize. Fortunately, their designs were not guided by the hairsplitting distinctions about stylistic authenticity that a few architectural historians and academics delight in fabricating, and have so little to do with the way architecture becomes meaningful to us.

BRIEFS

Minority/Women A/E Firm Directory.

Minority- and women-owned architectural and engineering firms are encouraged to submit information for the fifth edition of the directory, which is sponsored by 10 professional organizations, including AIA. Information and a listing fee of \$50 (to cover production and distribution costs) should be sent to the American Consulting Engineers Council by Dec. 9. For information and submission forms, contact: 1986 MBE/WBE Directory, ACEC Research & Management Foundation, 1015 15th St. N.W., Suite 802, Washington, D.C. 20005, or phone (202) 347-7474.

EDRA Conference.

The Environmental Design Research Association will hold its 1986 conference, EDRA 17, April 9-13 at Georgia Tech. Title of the conference is "The Cost of Not Knowing: the costs of practice in the absence of inquiry, the costs of inquiry in the absence of practice." Information is available from John Archea, College of Architecture, Georgia Institute of Technology, Atlanta, Ga. 30332.

Architecture Study Tour.

International Design Seminars is organizing a 14-day study tour to Finland, Thailand, and Burma beginning Jan. 11. The tour will survey the design heritage of Finland's northern culture, including works of Saarinen, Aalto, and Pietila, before traveling to Southeast Asia. For further information about the tour, contact Kennie A. Lupton, IDS, 4206 38th St. N.W., Washington, D.C. 20016.

Affordable Housing Resource Guide.

The U.S. Department of Housing and Urban Development bibliography "Affordable Housing: A Selected Resource

Guide" is now available for \$5. To obtain a copy, contact HUD USER, P.O. Box 280-Dept. M, Germantown, Md. 20874.

Computer Animation Competition.

The National Computer Graphics Association is sponsoring a computer animation competition. Awards will be given in two areas—professional and non-professional in 12 categories—with first prize winners receiving \$1,000; second and third prize winners in each category will receive a certificate of recognition. The entry deadline is Jan. 31. For more information, contact NCGA, Computer Animation Competition, 2722 Merrilee Drive, Suite 200, Fairfax, Va. 22031.

Engineering Excellence Competition.

The American Consulting Engineers Council is sponsoring a competition to recognize "engineering achievement with the highest degree of merit and ingenuity." The competition deadline is set for March 7. There is an entry fee of \$200 for ACEC members and \$400 for nonmembers. For more information, write ACEC, 1015 15th St. N.W., Washington, D.C. 20005.

Portland Artwork Design Competition.

The Pioneer Courthouse Square weather machine committee of Portland, Ore., is inviting artists to submit applications in a design competition for a "weather machine." The machine should indicate the current weather conditions and weather changes through the use of a symbol system. The jury will recommend one or more artists to submit specific and detailed proposals for which they will be awarded \$1,500. Submissions with data indicating qualifications are due Dec. 1. Contact Pioneer Courthouse Square, Attention Bill Bulick, 701 S.W. Sixth Ave., Portland, Ore. 97204.

New NAAB Officers.

Newly elected as president of the National Architectural Accrediting Board is Paul H. Graven, FAIA, of Graven & Associates, Madison, Wis. Graven is also past president of NCARB. Former AIA president Robert M. Lawrence, FAIA, was elected vice president/president elect, and William K. Turner, AIA, former dean of Tulane University's school of architecture, is secretary/treasurer. New members to NAAB's board are Thomas Ventulett, FAIA, of Atlanta and Lee G. Copeland, FAIA, dean of the University of Pennsylvania's graduate school of fine arts.

Energy Analysis Software Directory.

The "HVAC/Energy Analysis Software Directory" is the fourth in 16 categories to be offered by DAEDALUS (the Database for Engineers and Architects to Locate and Utilize Software project). This directory contains information on more than

100 HVAC/energy-related programs written especially for A/E firms. Others in the series now available are on business administration and accounting, structural/building, and sanitation/hydrology/hydraulics. Contact the American Consulting Engineers Council publications, 1015 15th St. N.W., Suite 802, Washington, D.C. 20005. Administered by ACEC and co-sponsored by AIA and four other professional groups DAEDALUS plans to have all 16 directories available by early '86.

Student Award Fund.

A student award fund has been established in memory of Robert Bradford Newman to recognize merit in architectural acoustics. Newman was a faculty member of the school of architecture and planning, MIT, and Harvard graduate school of design for the past 30 years. For more information, contact the Robert Bradford Newman student award fund, P.O. Box 349, Lincoln, Mass. 01773.

CREDITS

Proctor & Gamble Headquarters, Cincinnati (page 34).

Architect: Kohn Pedersen Fox, New York City. Stainless steel: Tarpennig-Lafollette. Granite: A. Locrois & Fils Granite, Walker & Zanger. Terrazzo: Michigan Terrazzo & Marble. Marble: Vermont Marble, Candoro Marble Co. Roofing: Follansbee Steel. Tile: Dal Tile. Projection screens: Da Lite. Paint: Glidden. Custom light fixtures: Bergen Art Metal Works. Elevator cabs: Tyler. Accessories: The Mills Metal Co., Bobrick. Vanity tops: Dupont Corian. Access floor: Tate Architectural Products. Lockers: Republic Steel. Fabric wall covering: Unika Vaev-UWA, Architex International, Clarence House, Ian Wall, Ltd. Carpet tiles: Interface Flooring Systems. Blinds: Mecho Shade. Windows: PPG. Carpet: Stratton Industries, Bigelow & Sanford, Wund-Weve, Karastor

State of Illinois Center, Chicago (page 40).

Architect: Murphy/Jahn, Chicago. Engineer: Lester B. Knight and Assoc. Interior space planners: Vickrey Ovresat Awsumb Assoc. Special consultants: Lyle Yerges (acoustics); Rolf Jenson & Assoc. (fire protection). Flooring: Lees Carpet, Tate. Wallcovering: Kentile. Ceilings: Celotex, Chicago Metallic. Doors: Acme, Superior. Curtain Wall: Cupples Products. Storefronts: Tyler & Hippack, Alpana. Lighting: Columbia. Hardware: Sargent, Stanley, Von Duprin, Glynn Johnson. Fabricators: Anderson Wood Products, Specbuilt, Formica.

Crocker Center, Los Angeles (page 46).

Architect: Skidmore, Owings & Merrill, San Francisco. Ceiling surfacing system: Armstrong, Donn. Elevators: Otis. En-

continued on page 11

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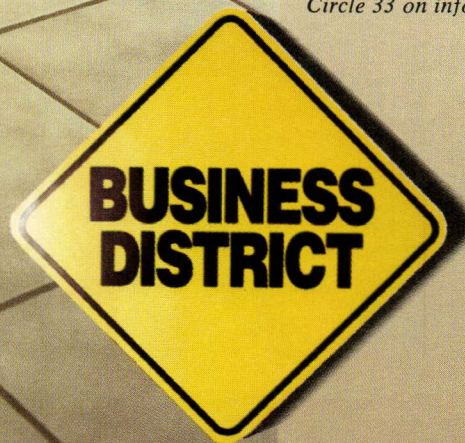
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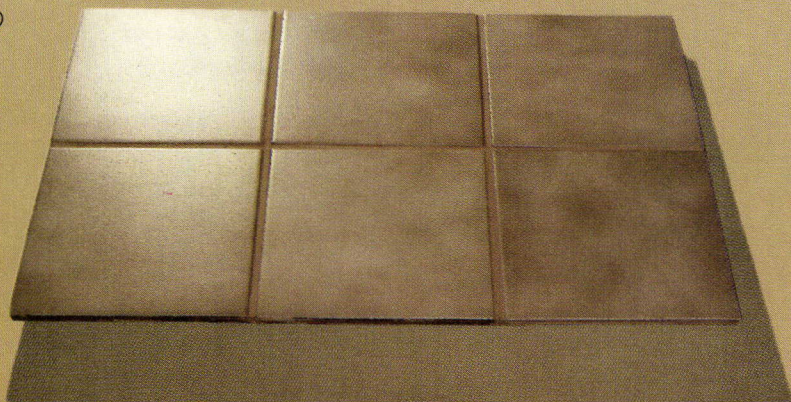
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Credits from page 108

Environmental control systems: Honeywell. Handrails: Cochran Izant. Interior lighting: Acme, Columbia. Waterproofing and sealants: GE. Signage: Ampersand, Ad Art. Exterior wall surfacing: Blaesing Granite. Windows: Fluor City. Skylights: Supersky. Locksets: Schlage. Moving stairways: Otis. Stationary partitions: U.S. Gypsum.

One Reading Center, Philadelphia (page 52). *Architect: Cope Linder Associates/Bower Lewis Throver, Philadelphia.* Ceiling surfacing system: U.S. Gypsum. Doors: USG Acoustone, Custom Art Metal. Elevators: Westinghouse. Environmental control system: Johnson Controls. Floor surfacing: Vickery Stone Co., Summitville. Foundation: Cold Spring Granite. Handrails: Custom Art Metals. Interior and exterior lighting: Kurt Versen, Klemm, Lutron. Roofing: Dow Chemical. Waterproofing and sealants: Carlisle. Plumbing: Sloan. Sprinklers: Adelphia Sprinkler Co. Toilet stalls: Global. Tubs and lavatories: American Standard. Washroom and bathroom accessories: CDC Specialty Co. Water closets: American Standard. Water fountains: Sunrock. Security and fire detection: ADT, Simplex. Signage: A. C. Davenport. Stairs and treads: Cold Spring Granite. Exterior and interior wall sur-

facing: Taylor Clay Products, Eisenhour Brick & Tile. Windows: Custom Art Metal. Skylights: Fisher. Hardware: Yale, Stanley, Schlage, Russwin. Door closers: Westinghouse. Paint: M.A.B.

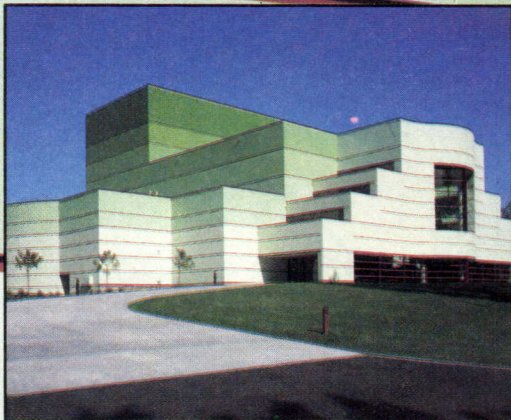
Humana Building, Louisville, Ky. (page 56). *Architect: Michael Graves, FAIA, Princeton, N.J.* Polished granite: Formai & Mariana & Carrara. Curtain Wall and skylight: Penco. Glazing: PPG. Aluminum doors and windows: Penco, Wassau Metals. Bronze doors: Michael's Art Bronze. Special light fixtures: Louis B. Baldiners & Sons. Marble walls and flooring: Industria Del Marmi Vincentini. Paints: Pittsburgh Paints. Carbon dioxide system: Kentuckiana Sprinkler. Wood ceilings: Winebrenner. Elevator: Armor Elevator. Wood paneling: Kister Wood.

Jefferson Court, Washington, D.C. (page 64). *Architect: Skidmore, Owings & Merrill, Washington, D.C.* Ceiling surfacing system: U.S. Gypsum, Armstrong. Entrance and interior doors: Kawneer, PPG, Eggers. Elevators: Dover. Floor surfacing: Bottman & Magnani. Exterior and interior floors: American Olean, Hanover. Handrails: Criss Brothers. Exterior and interior lighting: Spring City, Rambush. Roofing: American Hydotech, Follensbee. Waterproofing and sealants: Tremco, Son-

neborn Building Products. Flush valves: American Standard. Toilet stalls: Bobrick. Tubs and lavatories: American Standard. Washroom and bathroom accessories: Parker. Water closets: American Standard. Water fountains: Halsey Taylor. Stairs: Arban Cast Stone. Exterior wall surfacing: Cushwa, Arban Cast Stone. Windows: Kawneer. PPG Skylights: Super Sky. Door closers: Rixon, LCN. Hinges: Stanley. Locksets: Russwin. Panic exit: Sargent. Paint: PPG.

Intelsat Headquarters, Washington, D.C. (page 68). *Architect: John Andrews International Pty. Ltd., Sydney, Australia.* Designer: John Andrews. Project architect: Geoff Willing. Associate architect: Notte Finegold Alexander, Inc., Washington, D.C. Aluminum panels: Conspec. Space frame facade: Gichner Iron Works. Glazing: Ampat. Glass block: Pittsburgh Corning. Metal frame entrance: Ampat. Glazing: Pilkington. Curtain wall: Ampat. Atrium glazing: Lord and Burnham. Built up roofing: W. R. Grace. West entrance: Pilkington. Column cladding: Concrete. Interior metal doors: Loughman. Elevator: Montgomery. Cylindrical downlights: A. W. Pistol. Recessed downlights: Lightolier. Steel railings: A. F. Jorss. Atrium flooring: B. Satterwaite. Metallic wall finish: Forms & Surfaces. □

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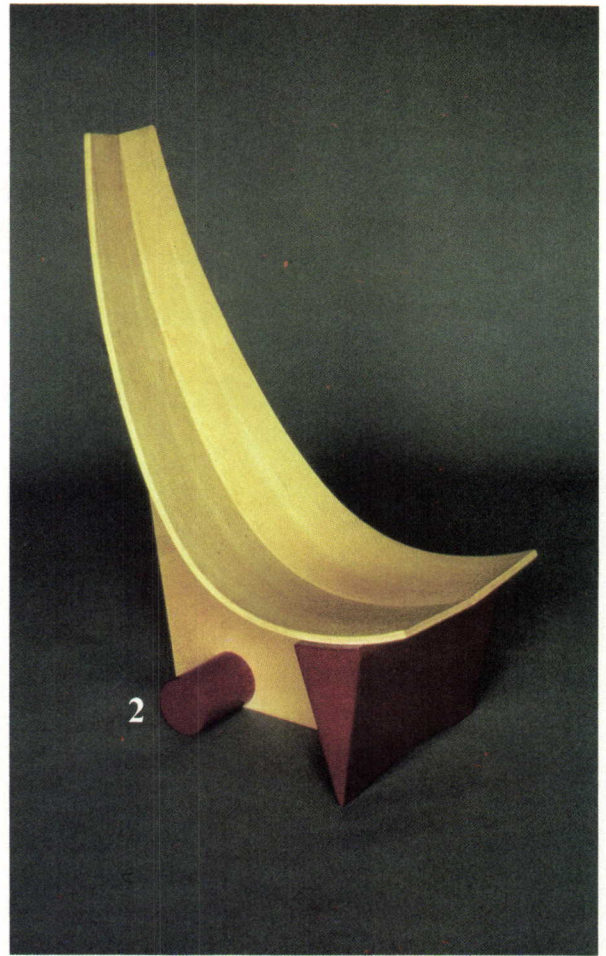
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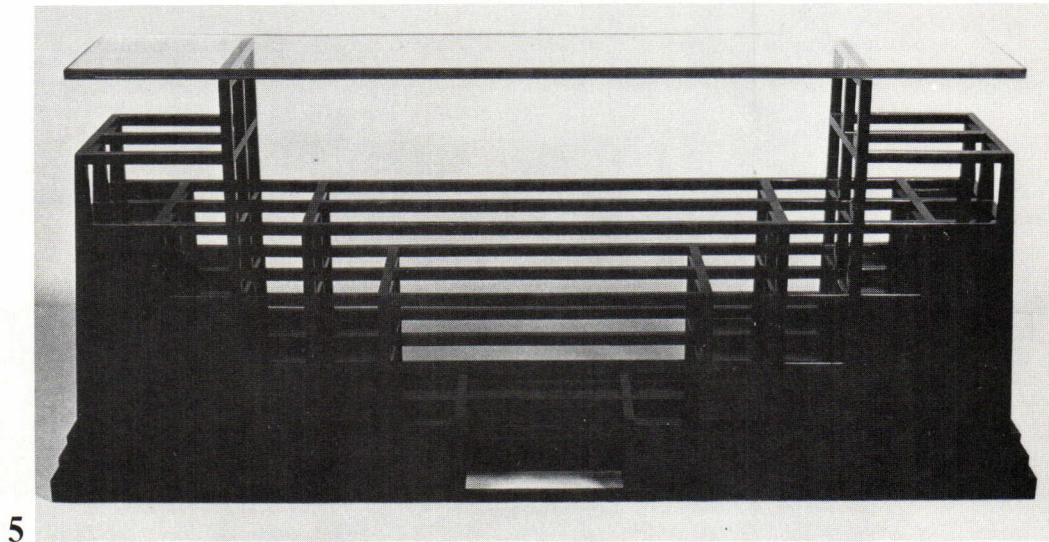
Circle 39 on information card



Furnishings

*As resources for design
and objects of design.
By Nora Richter Greer*





5

Thema's Fedra chair (1) consists of two pieces of flattened tubular steel, each of which is gently curved to become base, leg, front, armrest, and back of the frame. Attached in the back, the two pieces support a polyurethane seat and an oval-shaped backrest. For his Circus Chair (2) craftsman James B. Sagui took two pieces of poplar, joined them vertically, and curved the wood to cradle a human body. The seat rests on three solid pieces of wood: a rectangle modified at top to curve with the chair; a red-painted, wedge-shaped piece inserted underneath the lowest point of the curve; and a red-painted cylindrical section that pops out from the rectangular base. Ron Rezek Lighting + Furniture's Squiggle Desk (3) has corrugated aluminum end panels connected by a steel beam that supports a Colorcore laminate top. The panels are plastic-coated in black, white, silver, and black wrinkle finishes, and several colors.

Designers Howard D. Kavinsky and Jeff Madeen received a special merit award for their plexiglas, aluminum, and lacquer lamp (4) in the furniture design competition for the governor's reception area in the new State of Illinois Center in Chicago (see page 40). Manufactured by Wielgus Product Models, Inc., the lamp's conical shade is echoed in the base, the two pieces being joined by a cylindrical shaft. The lamp has a blue shade and salmon-colored accents (picking up the dominant colors in the state's building). The Expo Console (5), designed by Chicagoan Richard A. Gibbons, AIA, is an "exploration in theatrical structure," in Gibbons words, where the solid erodes away to show the hidden structure beneath. Standing five feet by one foot by 30 inches, the wooden table is most opaque at its lower two ends and becomes progressively more skeletal toward the middle and top, culminating at the glass top. Staff Lighting's Series 22 lamp (6) has an ultra-thin, painted brass stem running between the plastic shade that protects the light source and the transformer that acts to stabilize the lamp. □



6

Nothing tops a Hi-Tuff™ roof.



Building owner: Capital Improvement Board of Managers of Marion County, Indiana; Architect: Howard Needles Tammen and Bergendoff; Roofing contractor: North American Roofing Co., Inc.

The 122,000 square-foot roof atop the massive Market Square Arena in Indianapolis, Indiana, home to the Indiana Pacers of the NBA, is now protected from the elements by a new Hi-Tuff single-ply roofing system.

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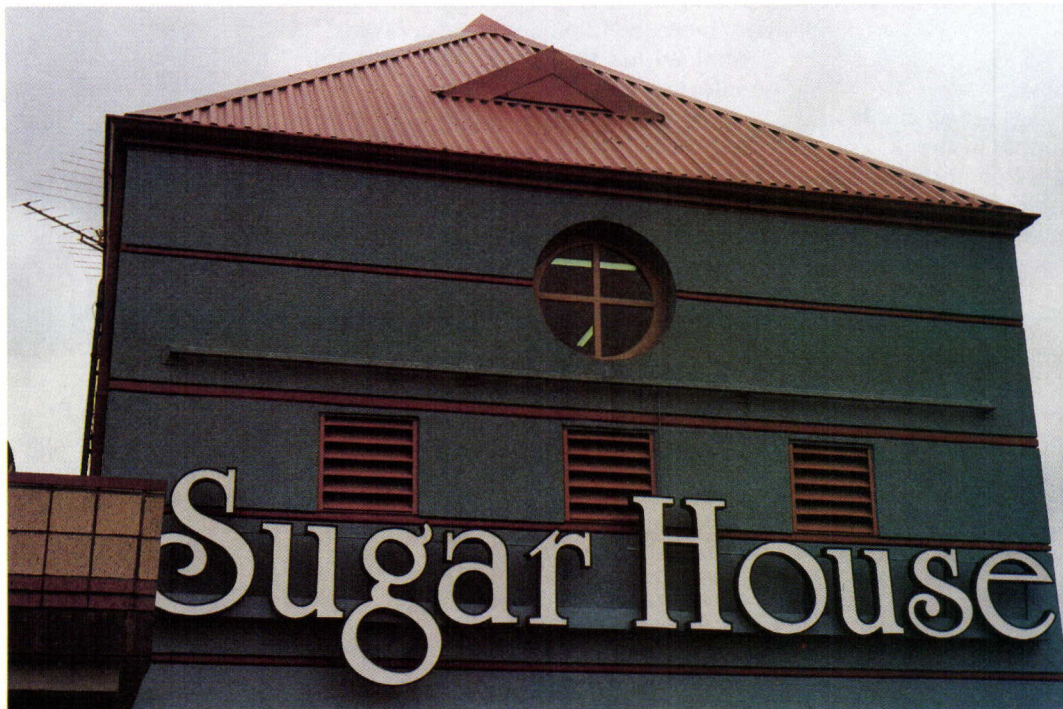
For more information about Hi-Tuff, and an actual hot-air welded sample, write to J.P. Stevens & Co., Inc., Stevens Elastomerics/Roofing Systems, Easthampton, MA 01027, or call 413/527-0700.

*Registered trademark of Du Pont

Products

A selection of notable offerings and applications.

By Lynn Nesmith



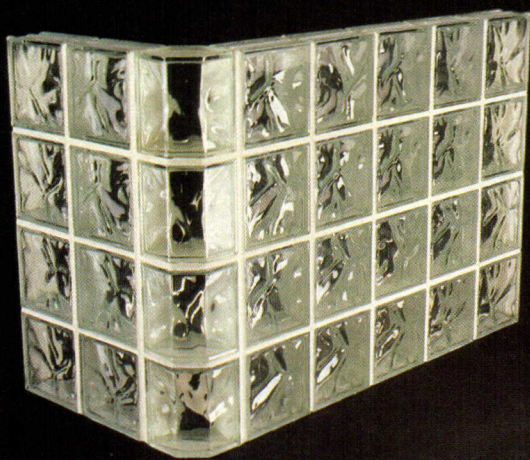
erez Associates chose an Insul-Wall cladding system (1) by Molenco for the Sugar House Hotel in New Orleans. The span b panels, which provide 36-inch-wide coverage, are available in eight standard colors. Threaded "stand-off" fasteners that guide correct panel seating are offered with painted heads for sheeting applications. Insulation thicknesses can be varied from 1.5 to 4 inches depending on R-value requirements. The long spanning capabilities and deep box configuration

make it suitable for both roofing and siding installations. (Circle 201 on information card.)

Hexagonal-shaped Hedron glass blocks (2) from Pittsburgh Corning Corporation are designed to provide structurally sound corners in glass block walls and partitions without disruptive posts, columns, or angles. Units are available in two patterns: The Vue design has both exterior and interior clear block surfaces for maximum light transmission and visibil-

ity, and the Decora pattern has moderately distorted inner surfaces and smooth outer surfaces for maximum light transmission with limited visibility. (Circle 202.)

The Elements collection of contract upholstery (3) by Laura Deubler Mercurio for Adam James Textiles is comprised of four patterns with a modacrylic/nylon weave. The double bar design is available in 13 colors, and the grid design is offered in 24 color combinations. (Circle 203.) *Products continued on page 120*



Cable System.

Undercarpet cabling system for power, telephone, and data distribution is designed to eliminate the need for underfloor ducts and utility poles in new construction and renovations. The system, used with carpet squares, is adaptable for open office landscapes. (AMP Products Corporation, Harrisburg, Pa. Circle 163 on information card.)

Bathroom Accessories.

Brass faucets and fittings are available in deck or wall mount configurations. The oversized spouts and valving mechanisms are designed to provide rapid filling. The slip-on spouts and rough-in brass are packaged separately for protection and to

accommodate different on-site installation dates. (Indiana Brass, Frankfort, Ind. Circle 161 on information card.)

Ceramic Tile.

Fiandre Ceramic Granite tiles for exterior and interior walls and floors have a solid unpolished background with raised polished patterns in either gray or black. Tiles measure 12 inches square. (Trans Ceramica Ltd., Elk Grove, Ill. Circle 156 on information card.)

Exterior Light Fixture.

Three-arm light fixture, measuring 16 feet in height, is cast in heavy gauge aluminum. (TrimbleHouse, Atlanta. Circle 218 on information card.)



Bath Fixtures.

Hydra deck tub filler (above) delivers approximately 20 gallons of water per minute. It is 12 inches wide and provides a nine-inch water flow. (Paul Associates Long Island City, N.Y. Circle 206 on information card.)

Electric Locks.

Solid brass door hardware has a 2¾-inch backset electrified mortise lock designed for security and firesafety installations. Locks are available with knobs or levers and all levels of keying, including construction keying. A fail safe function becomes manually operable if the building's power fails. (Baldwin Hardware Corporation, Reading, Pa. Circle 209 on information card.)

Paneling System.

Oak and cane series of wall paneling is comprised of 4x8-foot components with three narrow simulated cane sections framed with a two-inch-wide wood-grain border. The lower portion of the prefinished hardboard paneling has a narrow groove wood design with rounded corners. Designed for residential and light commercial applications, the system is available in two colors with an embossed textured finish. Panels are ¼-inch thick and are designed to be installed with nails or adhesives to existing walls or directly to stud walls. (Masonite Corporation, Chicago. Circle 157 on information card.)

Roof Window System.

The bottom leg of the Skyliner window system has a kerf cut designed to accommodate drywall thicknesses from 3/8 to 5/8 inches. The unit is glazed with 7/8-inch insulated, tempered glass with a clear or bronze tint, and inner and outer panes are hermetically sealed for thermal protection. The hatch is secured to a clear Western pine curb by a continuous hinge

continued on page 12

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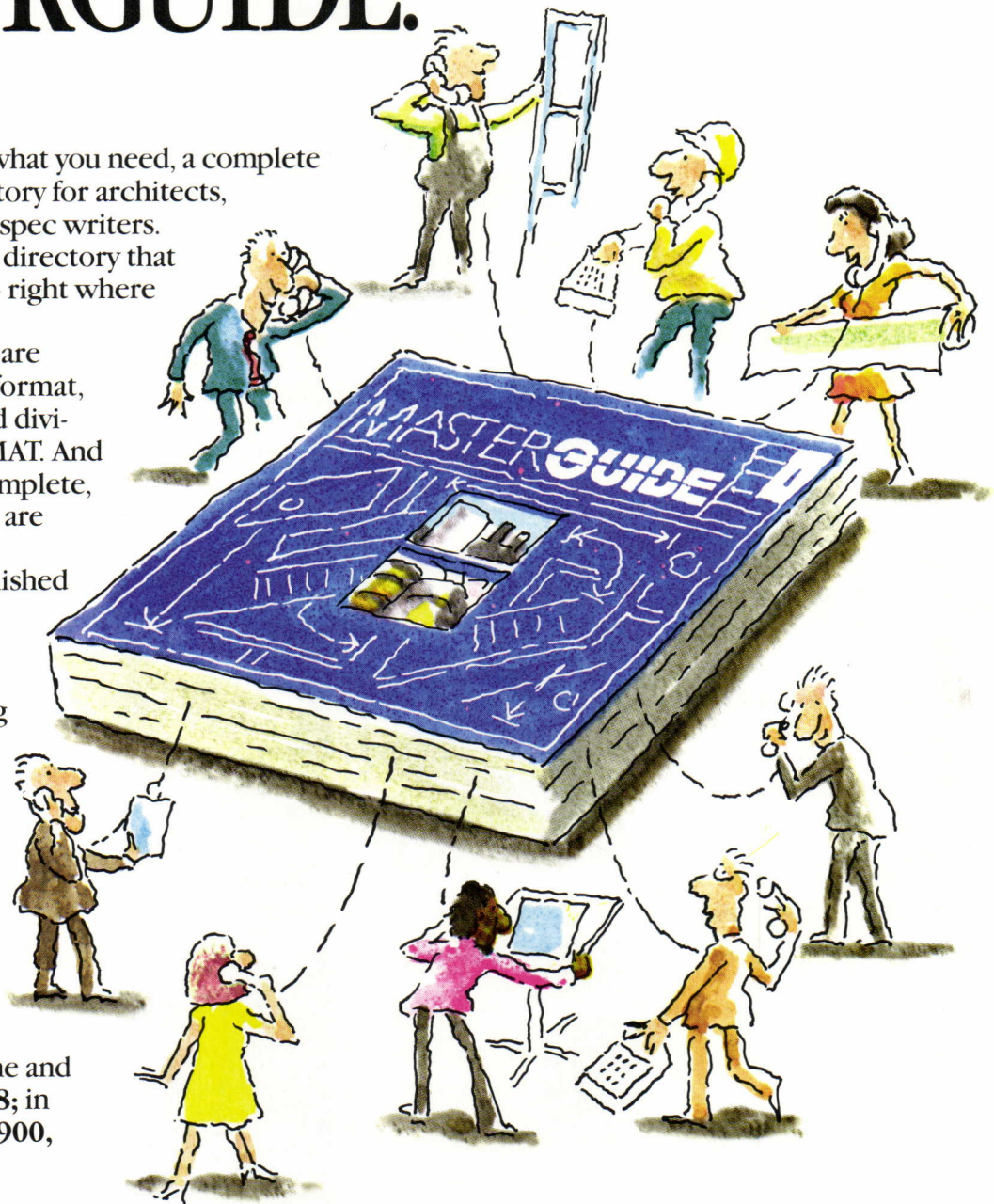
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Products from page 120
system. It is available in fixed and ventilating models with optional motorized electric operation and a shade screen. (PAECO Industries, Toms River, N.J. Circle 158 on information card.)

Porous Pavement System.

Grasscrete is a cast-in-place, continuous, reinforced grass and concrete pavement. The monolithic pavement is designed to stay flat under heavy traffic and resist differential settlement. During installation reusable forms and steel reinforcing mesh are positioned, and concrete is poured. After the concrete has hardened, slabs are filled with soil and planted with grass seed or sod. The system can be used for emergency vehicle access and parking, landscaping, and erosion control. (Bomanite Corporation, Palo Alto, Calif. Circle 159 on information card.)

Infrared Sensors for Alarms.

Pulnix PA-4000 passive infrared sensors contain two dual element sensors connected by a micro-analog computer circuit. The unit is designed to differentiate between human movement and potential false alarms such as small animal movement, air turbulence, and external lights. It is available in either wide angle or long

range coverage patterns. An automatic compensation circuit adjusts the unit's sensitivity relative to temperature changes. (Pulnix America, Inc., Sunnysvale, Calif. Circle 205 on information card.)

Door Closer.

Mustad door closers are concealed in the floor and act as a hinge, door support, and closer. The unit is designed to allow for angle and vertical adjustments after the housing is cemented in the floor and the door is installed. All fixtures are spring/hydraulically operated and can be installed single left, single right, or double acting. (F.R. Industries, Pittsburgh, Circle 210 on information card.)

Insulated Sheathing Product.

Foamular insulating sheathing is a low density rigid foam product available in 4x8-foot panels. (UC Industries, Parsippany, N.J. Circle 211 on information card.)

Wiring System.

Power strip units for 110-volts are equipped with a lighted on/off switch, a circuit breaker, and duplex outlets. They are available in 24-, 36-, and 48-inch lengths with either single- or dual-sided outlets. Single-sided strips fit outside the frame, and dual-sided units fit between the frame

for back-to-back power access. Units can also be mounted under the work surface. (Wilfab Systems, Wilmington, Mass. Circle 212 on information card.)

Measurement Calculator.

Measure Master hand-held calculator adds, subtracts, multiplies, and divides directly in feet, inches, and fractions and fully displays dimensions on the LCD read-out. It also performs one-button conversions between feet-inch-fractions, decimal feet, yards, meters, and inches, and accommodates square and cubic measurement in any format. (Calculated Industries, Orange, Calif. Circle 213 on information card.)

Ceramic Tile.

CeramaSuede tiles are available in 10 soft colors and three floral and three leaf patterns. Four-inch-square tiles are suitable for countertops, walls, and light traffic flooring. Each piece has two, one-inch lugs per side for easier installation. (Huntington Pacific Ceramics, Corona, Calif. Circle 207 on information card.)

Drinking Fountains.

SwirlFlo drinking fountains are available in eight models with bronzetone or stainless steel finishes. *continued on page 12.*

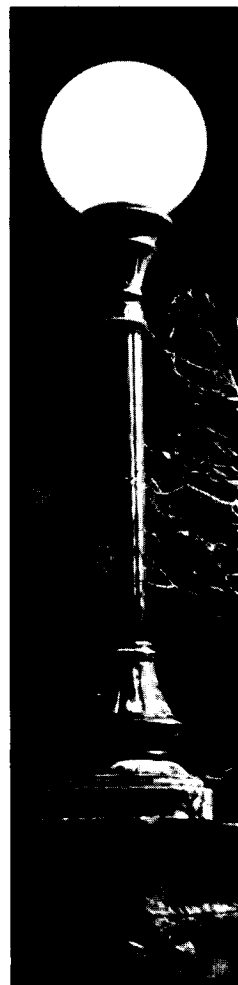
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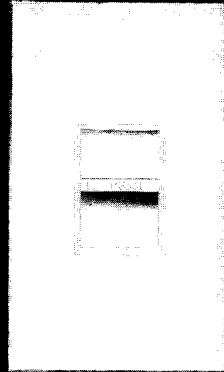
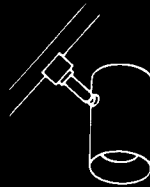
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Circle 48 on information card

Products from page 122

ss steel finishes. Refrigerated units have a recessed cooling system with a covered stainless steel grille and a copper tube tank system. The Flexi-guard safety bubble is designed to prevent accidental mouth injuries, and the contoured basin has a large strike area to minimize splashing. All models have a stainless steel front push bar with raised letters and raille symbols to aid the visually impaired. (Elkay Manufacturing Co., Oakbrook, Ill. Circle 208 on information card.)

Ceiling System.

Trivertone commercial acoustical ceiling tiles and lay-in panels are made of noncombustible mineral fiberboard with a number of textured patterns. Tiles can be cemented directly to sound ceiling structure or suspended from a mechanical system, and tegular panels are rabbeted on all four sides to rest on exposed grid suspension systems. (Armstrong World Industries, Inc., Lancaster, Pa. Circle 160 on information card.)

Facsimile Transmitter.

atafax 2000 document facsimile transmitter transmits a lettersize document in three minutes and is operated from conventional AC power or rechargeable

batteries. A fine mode setting with a higher resolution is designed to transmit drawings and photographs. Fifteen documents can be transmitted before the batteries require recharging. The system comes with an operational transceiver, batteries, battery charger, acoustic telephone coupler, direct connect device, and a cloth carrying case. (Identifax, Inc., North Brunswick, N.J. Circle 214 on information card.)

Custom Windows.

Arch-top windows are made of wood with an aluminum clad exterior. Units are available in any size and shape to match the color and clad profile of standard window systems. The exterior aluminum profile is primed and coated with a permanent acrylic enamel paint. The exposed interior sill, jambs, and stops are crafted from solid pine that will accept stain, paint, or other finish. Optional accessories include varied glazing and removable interior sunburst and rectangular muntins. (New Morning Windows, Bloomington, Minn. Circle 162 on information card.)

Insulated Wall Panels.

Stainless steel wall panels are finished with a primer, a barrier coat, a Duranar color coat, and a transparent top coat. Insulated panels can be custom manufactured to incorporate fenestration and ventila-

tion systems. The snug seam system is designed to eliminate the need for a separate network of panel framing members, and the recessed feature strip comes in different width and depths of vertical and horizontal reveals. Rod and caulked joints are designed to match the structural glazing. (Bally Engineered Systems, Allegheny International, Pittsburgh. Circle 215 on information card.)

Ceiling System.

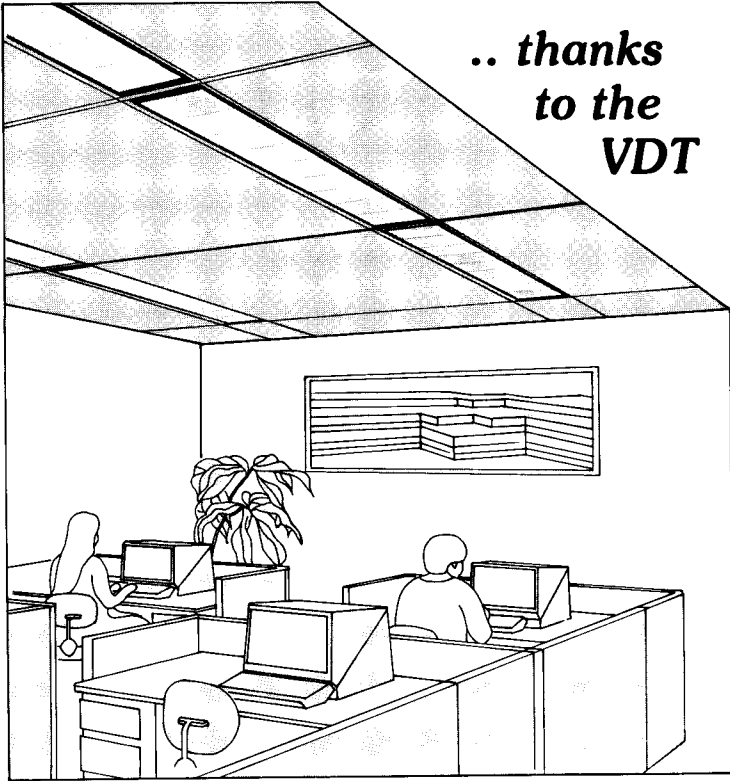
Auratone Surf acoustical ceiling panels and tiles have "tone-on-tone" accents and Class A flame spread rating. Surf panels are available with a square cut edge or a shadow line edge and fit in standard exposed grid systems. Tiles are installed in a concealed, accessible suspension system and have a bevel, standard kerf edge. Both have a factory-applied vinyl coating designed to be cleaned with a damp sponge. (USG Acoustical Products Co., Chicago. Circle 216 on information card.)

Stack Chairs.

Side and arm chairs have laminated plywood frames with a 1¼-inch molded oak veneer, and seats and backs of upholstered urethane. Chairs stack freestanding or on an optional cart. (R-Way, Sheboygan, Wis. Circle 217 on information card.) □

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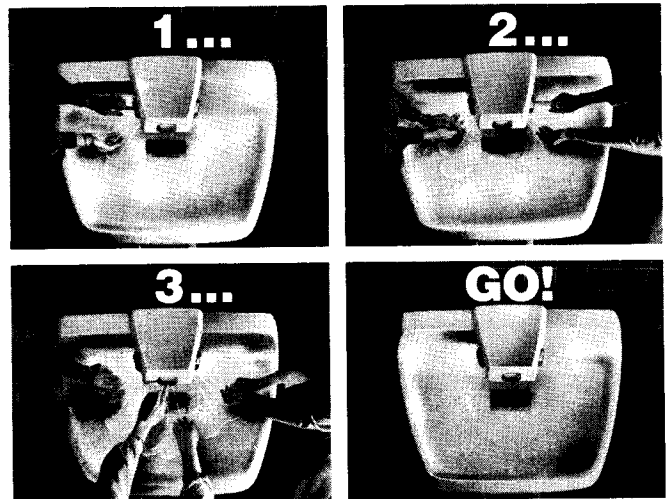
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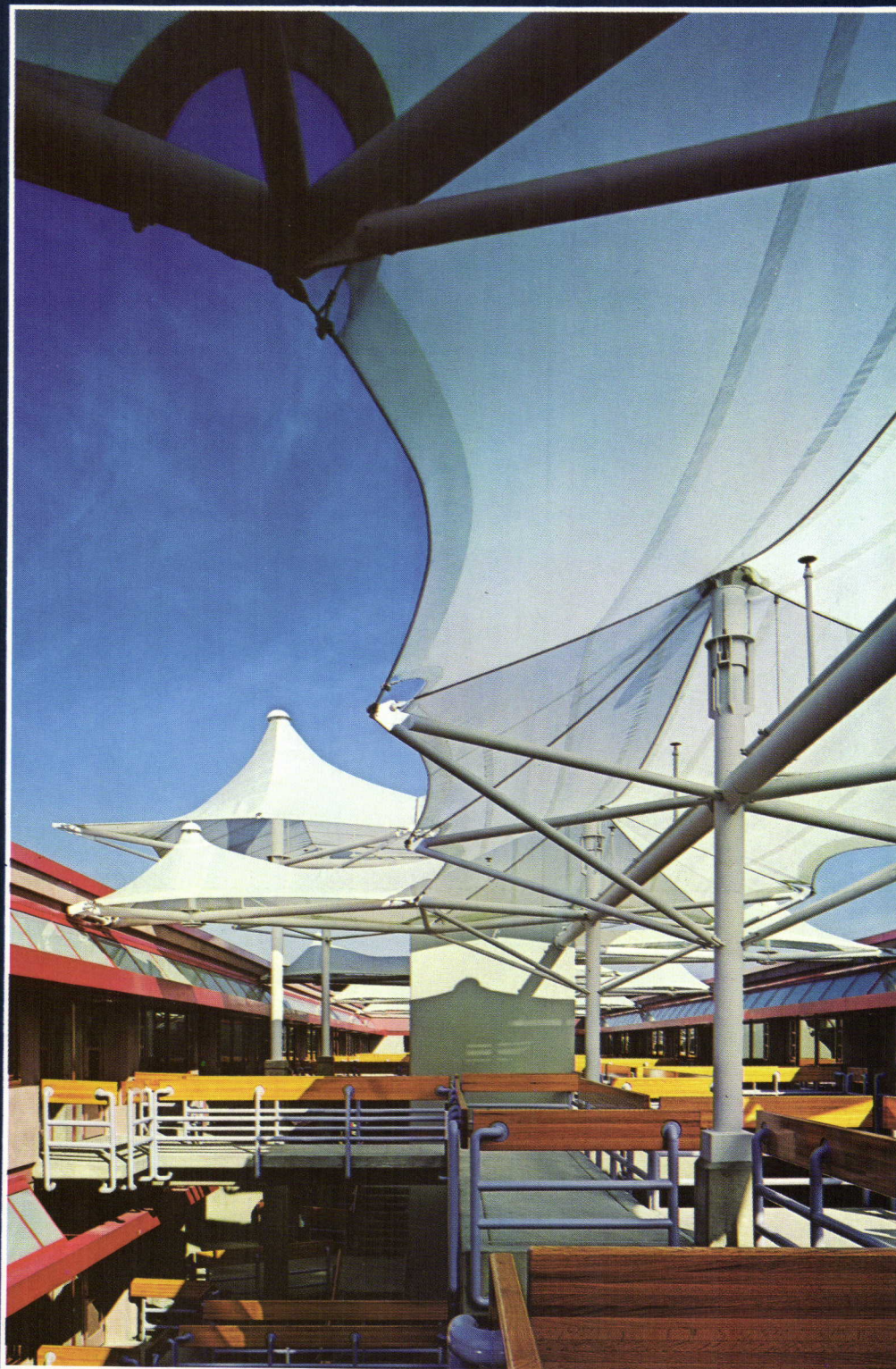
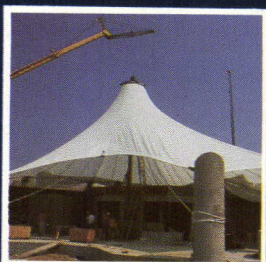
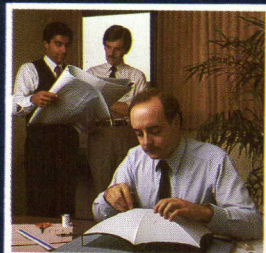
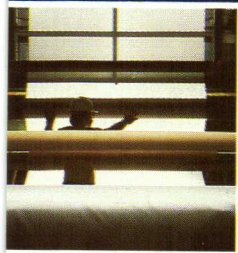
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