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THREE RESTAURANTS AS THEATER

BUILDING TYPES STUDY: INDUSTRIAL BUILDINGS

FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

MARCH 1982 3 A McGRAW-HILL PUBLICATION SIX DOLLARS PER COPY

Jonas Clarke Junior High School Lexington, Massachusetts Flooring installed 19


Bold Look | Colortone

Letters to the editor

Regarding your December 1981 issue [page 37], I am sure, were he living, Frederick Law Olmsted would appreciate your coverage of efforts to rehabilitate Central Park in New York but would regret your misspelling of his name.

Richard H. Olmsted, AIA
Hooper Olmsted & Hrovat
San Francisco

Re: Letter from George Ranalli (RECORD, January 1982, page 4).

Authorship in architecture is made ambiguous by the many levels an idea passes through from conception to brick and mortar (or aluminum and glass). The Why level is the most personal, the place where an architect's authorship is most relevant. The How level is by current practice the most general, with the materials and execution usually by another.

The profession once valued a shared body of knowledge, a common language that could be built upon and added to by all members. It was assumed that the How could—should—be passed around as a common learning from singular mistakes or triumphs. On the other hand, the Why was the realm where the leap was made in private. In a large sense, the building types (the Answers) were the common ground. The differences were mostly in the phrasing.

The competitive marketplace, the context for the Ranalli referenced project, is perhaps a poor site for seeking profound answers. It is a place best reserved for the thinner play of phrase and paraphrase. Talent and commitment are perhaps even more in demand when the Why level waits so closely below the How.

It is my belief that a profession remains relevant only as it succeeds in sharing the How. This still leaves plenty of room for the more solitary exploration of the Why.

E. Bitzer
Architect
Brooklyn, New York

To consider Ten Stamford Forum a gateway to the city of Stamford [RECORD, December 1981, pages 86-91] is like acknowledging McDonald's arches as the passage to gourmet dining.

Having been raised in Fairfield County, worked for an architectural firm in Stamford, and planned corporate offices on floors 14 and 15 of Ten Stamford Forum, I became increasingly disturbed the further I read into your article.

Not only does the building fail to establish a point of departure into the city, but it adds to the towering wall of buildings that has steadily grown along Interstate 95, isolating the downtown from the south. Forum and its neighbors might better be viewed as monumental thruway sound attenuators, versus any likening to the forums of ancient Rome. Having myself just returned from explorations of Florence, Rome and Athens, I find nothing, in concept or in execution, that could even be compared with the Duomo, the Roman forums or the Acropolis.

It has to be said that Mitchell/Giurgola are fine architects and have done some very competent work. But one wonders if that alone is enough to justify the attention given to a building that really missed the point. Ten Stamford Forum finds itself one of a group of corporate giants (i.e., GTE, Champion International and others) competing for prominence on the Stamford skyline. It is located in a town that is in desperate need of a cohesive urban plan, one that encourages the development of pedestrian green space and provides for social interaction. No more catering to the auto and the construction of isolated public space. Ten Stamford Forum does little to alleviate, let alone address, these important issues. It is now time for constructive design decisions, not historical illusionary reference.

One last point: are the travelers traveling north from New York entering the back door of Stamford, or is there soon to be built a southern gateway?

Mark van Summern
Architect
Stamford, Connecticut

Calendar

MARCH

3 through April 28 A series of Wednesday lectures by authors of recently published books on the built environment, presented by Urban Center Books; at the Villard Houses, 457 Madison Ave., at 51st St., New York City (212/935-3595). All lectures begin at 12:30 P.M.

6 through April 17 Exhibit, "Original Furniture of the Modernist Period," including examples of Marcel Breuer, Mies van der Rohe, Le Corbusier, Thonet and Alvar Aalto; at Max Protetch Open Storage, 214 Lafayette St., New York City.

9 through April 20 The Architectural League will host a series of presentations by young architects entitled "Emerging Voices," which is sponsored by Krueger. The presentations will be held on successive Tuesday evenings beginning at 6:30 at the Urban Center, 457 Madison Ave., New York City. Contact: The Architectural League (212/753-1722).

15 Conference, "Marketing Research and its Application to Ambulatory Health Care Facilities," sponsored by the American Institute of Architects Committee on Architecture for Health; at the Mayflower Hotel, 1127 Connecticut Ave., N.W., Washington, D.C. Contact: Mike Cohn (212/626-7366).

18-19 "Exchange 82," the first annual design-profession computer users' conference, sponsored by *Design Compudata Exchange* newsletter; at the Hyatt Regency, Houston. Contact: Richard C. Vendola, *Design Compudata Exchange*, 45 Van Brunt Ave., Dedham, Mass. 02026.

22-26 "Computers/Graphics in the Building Process," conference and exhibition on the application of computer technology for the building industry, at the Sheraton-Washington Hotel, Washington, D.C. Co-hosted by the National Academy of Sciences, Advisory Board on the Built Environment and the World Computer Graphics Association. Contact: World Computer Graphics Association, 2033 M St., N.W., Suite 250, Washington, D.C. 20036.

Through March 27 Exhibition, "Prints and Drawings by Architects from Ancient to Modern Times," at the SPACED Gallery of Architecture, 165 West 72nd St., New York City.

29-30 Seminar, Protection of Historic Architecture and Museum Collections from Earthquakes and Other Natural Disasters, held in the auditorium of the National Academy of Sciences in Washington, D.C.; organized by the Architectural Research Centers Consortium, Inc., with financial support from the National Science Foundation. Contact: James Haecker, Architectural Research Centers Consortium, P. O. Box 225, Fairfax, Va. 22030.

APRIL

Through April 10 Exhibition, "Prairie School Architecture in Minnesota, Iowa and Wisconsin," at the Minnesota Museum of Art at Landmark Center, St. Paul, Minn. Contact: Pat Heikenen (612/224-7431).

26-27 Conference, "The Next Generation of Housing Technology," sponsored by the National Institute of Building Sciences and the U. S. Department of Housing and Urban Development; to be held in Orlando, Fla. Contact: Neil Sandler, National Institute of Building Sciences, 1015 Fifteenth St., N.W., Washington, D.C. 20005.

MAY

7-9 The third annual Festival of Historic Houses in Providence, R.I.; presented by the Providence Preservation Society and sponsored by Industrial National Bank. Contact: the Providence Preservation Society, 24 Meeting St., Providence, R.I. 02902 (401/831-7440).

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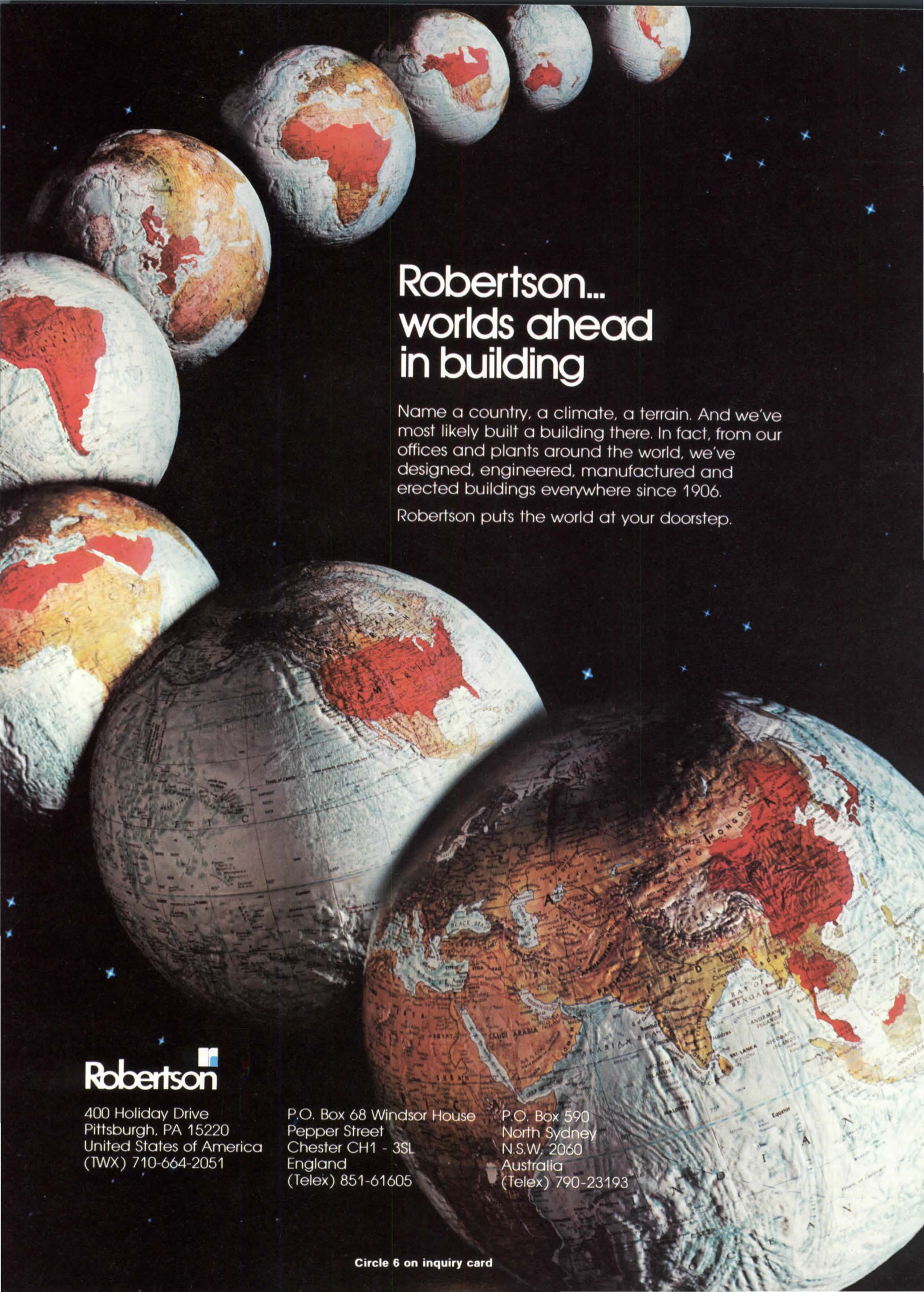

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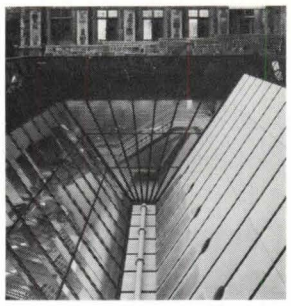

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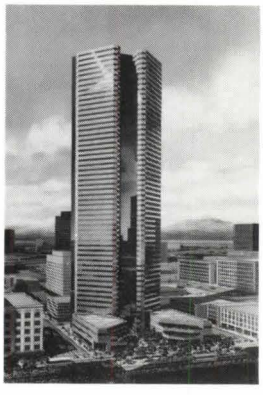

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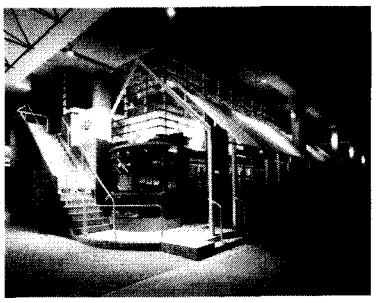

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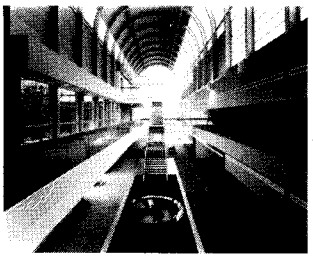

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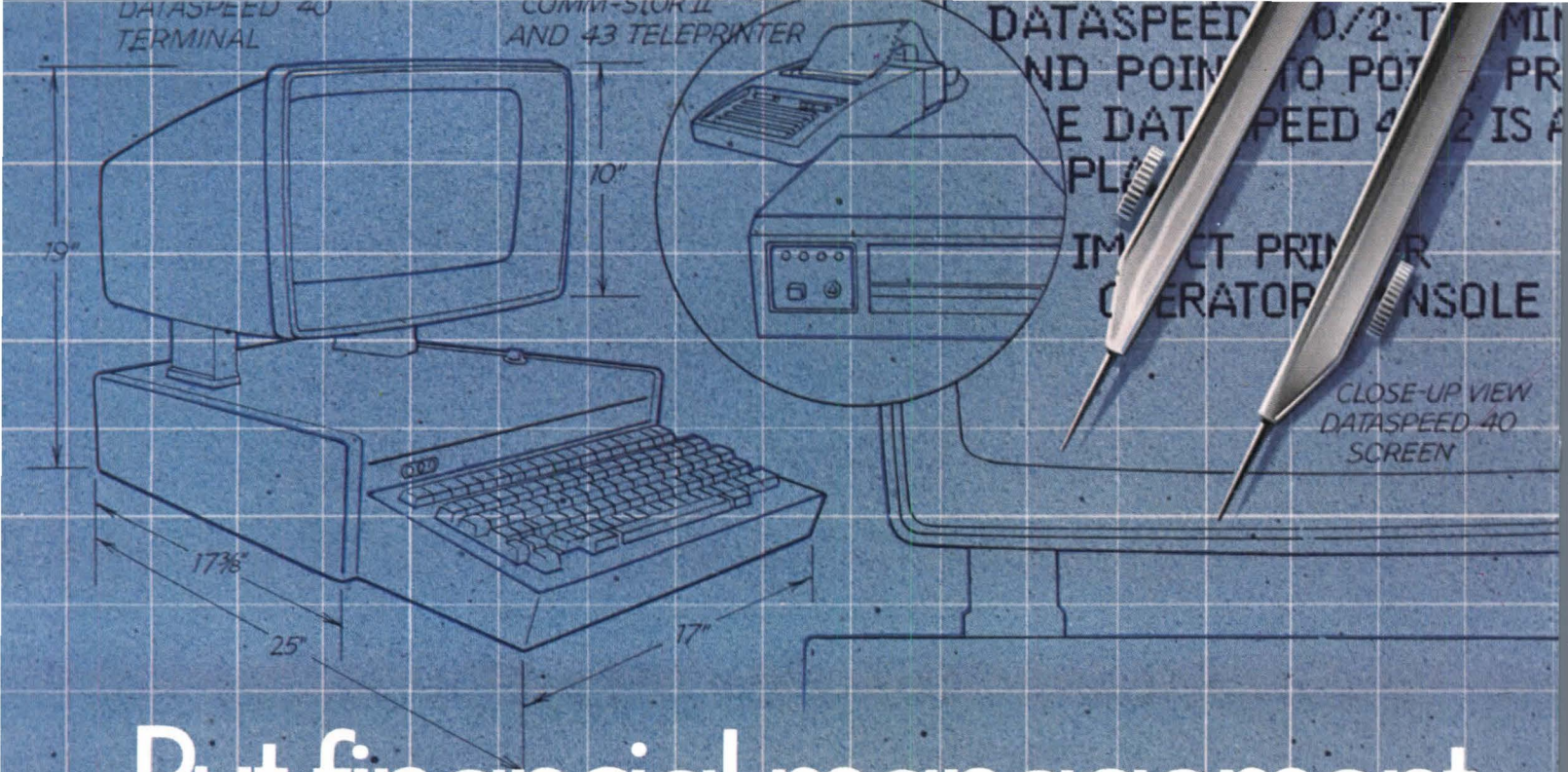
ARCHITECTURAL ENGINEERING

NEXT MONTH IN RECORD:

Building Types Study: Shopping Centers
Although considerable attention has been focused of late on the more glamorous ventures in retail development—downtown shopping complexes, omnicenters in and out of town, the imaginative adaptation of old buildings to new uses—the regional center remains the bread and butter of the industry. The bread and butter, however, is increasingly likely to be topped with jam. Changing economic and demographic factors are creating a competitive climate that demands of developers and their architects ever higher levels of amenity and quality in the shopping environment. RECORD's April issue will show four varied but thoughtful responses to the emerging constraints and challenges that characterize shopping center design in the 1980s.



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Why more architects should have gone to the NAHB Convention in Las Vegas

Heaven knows, not because it's Las Vegas—*Learning from Las Vegas* notwithstanding, I don't enjoy the city and I never seem to learn to stay away from Blackjack.

But I sure learn from the sessions at the NAHB convention and I sure learn from the builders and *that* is why I think more architects should be smart enough to attend the NAHB show (and next year it's in Houston).

Registration for the big January show was something over 40,000—and though that is a 20 per cent drop from last year, for obvious reasons, that is still a lot of homebuilders.

They were there because, despite the terrible conditions under which they are now trying to make a living, they clearly understand that it is not just a matter of weathering the storm, but of trying to understand the fundamental changes taking place in housing and adjusting to a whole new set of rules on financing of houses and buyer expectations. They are coming to grips with the Administration's non-policy on housing, and the clear facts that very little public money will be available for housing, that the private market alone cannot seem to serve the low- and even middle-income markets, that the housing industry cannot compete for money against military spending and re-industrialization, that interest rates have literally doubled the monthly payments on the same mortgage compared with only a few years ago, and that housing prices are close to doubling every five years. They are learning to come to grips with concepts such as variable rate mortgages, adjustable rate mortgages, graduated payment mortgages, and even shorter-term (10-year) mortgages—more per month, but paid off faster, which arguably may be a smarter way to save than Treasury bills or an IRA. They talked about land-lease plans—under which the buyer finances only the house and the builder holds the land; and a new Fannie Mae plan under which the builder—as an inducement to the buyer—"buys down" the interest rate by up to three points for as long as 10 years.

But if this seemed to some, as it did to me, all a little bit iffy—the builders were clearly interested in smart ideas for lowering the cost of houses and increasing their appeal. And that, as I've said here many times, is architect talk.

There were some architects at NAHB—but in my view not nearly enough. Bob Lawrence, the AIA president, headed a well-attended panel entitled Design '82—which presented some of today's most successful, marketable, and profitable projects (mostly higher density) that also offered quality design. Architects who work with builders all of the time were there—I saw or met Barry Berkus, Walter Richardson, Arthur Danielian, Rod Friedman, Quincy Johnson, John Bloodgood, Zane Yost, Louis Lundgren. They were talking about the design of smaller, "space-stretching" houses; about energy efficiency, about higher density, about zero lot line—and about good design. They sat for three hours a day at AIA Plan Review Workshops, to which a constant stream of builders and developers brought their site plans and house drawings for gratis criticism. What these skillful architects did with a pencil and yellow trace to improve some pretty bad design (and some pretty good design) was astonishing—and most of the builders who subjected their plans for criticism were clearly grateful and impressed. (Of course, whether they make the quantum leap to retaining a good architect next time remains to be seen.) Other panel discussions were on, for example, Designing and Building the Energy Efficient House, on Construction Techniques (how much do *you* know about all-wood basements, two-stud corners, nailed-and-glued floor systems, 22½-inch windows?), Making Housing Affordable (by building smaller homes designed to seem larger—by all those techniques of opening up space that architects have known and used for years). And thousands (literally thousands) of builders visited *Housing*'s "space-stretcher"—an under-1000-square-foot prototype house (which was built in California, trucked to Las Vegas and re-erected in the exhibit hall, and now moves back to California to its final home). Sure it was a stunning exhibit—but it was a house full of ideas and fresh thinking—and *that* was why the line was 40 minutes long during the Super Bowl (for more details, see Record Reports this month).

To make my point one more time: Builders *can* be a big market for architects—for today's slump has to end. The demand is clear—for two million starts a year. Most importantly, the problem of creating better housing has to be shared by architects—as professionals we owe it to the public to do what we can to create good houses that people can afford. Think about it—and maybe go to Houston next year . . .

—Walter F. Wagner Jr

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DuPont makes fibers, not carpets.

December marked a rebound from the year-long deterioration in the construction market. The total construction contract value for 1981 came to $150.2 billion, barely one per cent over the already depressed 1980 total, according to George A. Christie, vice president and chief economist for the F.W. Dodge Division of McGraw-Hill Information Systems Company. "Two years of monetarist Federal Reserve policy along with successive rounds of budgetary restraint have created a harsh environment for both housing and public works construction," said Christie. "The only bright spot on last year's construction scene was commercial building, and it remains to be seen how much longer this sector can weather the recession." December's $11.6 billion of newly started construction, after adjustment for normal seasonality, was up 21 per cent from the November total, the lowest total for 1981.

A new Historic Preservation program is being sponsored by two divisions of the University of Cincinnati. The College of Design, Architecture and Art and the McMicken College of Arts and Sciences is designing the curriculum for graduate, undergraduate and continuing education students. According to the program's chairman, Samuel V. Noe, professor of urban planning and design, the program will cover the following aspects of historic preservation: how to identify those elements of the built environment that "contribute significantly to our cultural heritage;" how to "find new and vital uses for them;" how to "create the political climate, financial support, legislation and architectural designs needed to achieve preservation goals." For more information write: Professor Samuel Noe, School of Planning, Mail #16, University of Cincinnati, Cincinnati, Ohio 45221.

Approximately 100 Federal regulatory programs affect the building process, according to a recent study by the National Institute of Building Sciences (NIBS). The study groups the regulatory programs into the following nine categories (several programs overlap more than one category): direct Federal construction (seven programs); Federally assisted building programs (25 programs); Federal mortgage financing (10 programs); safety, conservation or business standards (seven programs); regulation of specialized facilities or affected limited geographic areas (14 programs); Federal property land use or occupancy (six programs); indirect or industry-wide impacts (20 programs); Federal coordination or multiple agency participation (12 programs); miscellaneous (10 programs). Copies of the study are available by sending a check for $30 ($25 for NIBS members and government agencies), payable to NIBS, 1015 15th, Street, Suite 700, Washington D.C., 20005, attn: Publications Department.

An exhibition of the work of Prairie School Architects will be on display at the Minnesota Museum of Art from February 14 to April 10. Drawings, photographs, stained glass, furniture and decorative objects by Louis Sullivan, Purcell and Elmslie, Walter Burley Griffin and George W. Maher will be shown, including a full-scale mockup of Frank Lloyd Wright's 1906 design for a "Fireproof House for $5,000."

Six leading architecture firms have been invited to compete for the new headquarters of Humana, Inc. The firms include Cesar Pelli and Associates of New Haven, Connecticut; Murphy/Jahn of Chicago, Illinois; Michael Graves of Princeton, New Jersey; Ulrich Franzen of New York City; Foster Associates of London, England; and Richard Meier & Partners of New York City. The new corporate headquarters for the Louisville-based hospital management corporation will be located at Main and Fifth Streets in the downtown section of that city.

A new journal on industrial design will be published three times a year out of McLean, Virginia. *Innovation*, published by the Industrial Designers Society of America, will furnish technical and how-to information, and will cover new developments in materials, processes and theories on esthetics. The journal's first issue appeared in January, 1982, the other 1982 issues will be published in May and September. Subscriptions are available to nonmembers of IDSA for $29.95 per year or $49.95 for two years. For further information contact: Industrial Designers Society of America, 6802 Poplar Place, Suite 301, McLean, Virginia 22101, (703/556-0919).

Harvard Graduate School of Design is holding "The International Style in Perspective," a major conference, April 16-17. April 16th's session will focus on "Architecture in 1932," April 17th's session on "Architecture since 1932." Two papers will be given at each session, followed by a panel discussion. Speakers will include: Henry-Russell Hitchcock, Philip Johnson, Lewis Mumford, Anthony Vidler, Neil Levine, Thomas Beeby, Alan Colquhoun, Peter Eisenman, Paul Rudolph, Francesco D'al Co, William Hewitt, Richard Rogers, Eduard Sekler and Bruno Zevi. For further information contact: "International Style Conference" Room 506, Gund Hall, 48 Quincy St., Cambridge, Mass. 02138 (617/495-2578). The participation fee is $75.00.

For the 49th year, Historic Garden Week in Virginia is being sponsored by the Garden Club of Virginia. 195 of Virginia's outstanding homes and gardens will be open for this springtime event, from April 24 to May 2. Fifty of the state's most historic landmarks will also be open to the public.For further information write: Historic Garden Week 1982, 12 East Franklin Street, Richmond, Virginia 23219.

Architect Arthur Erickson has been named Companion of the Order of Canada, one of the highest honors the nation can bestow upon its citizens. The Latin motto of the Order of Canada proclaims the aspirations of its members who, in their lives and work, have shown that "they desire a better country."

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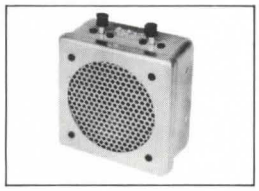

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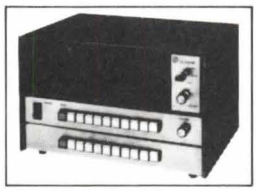

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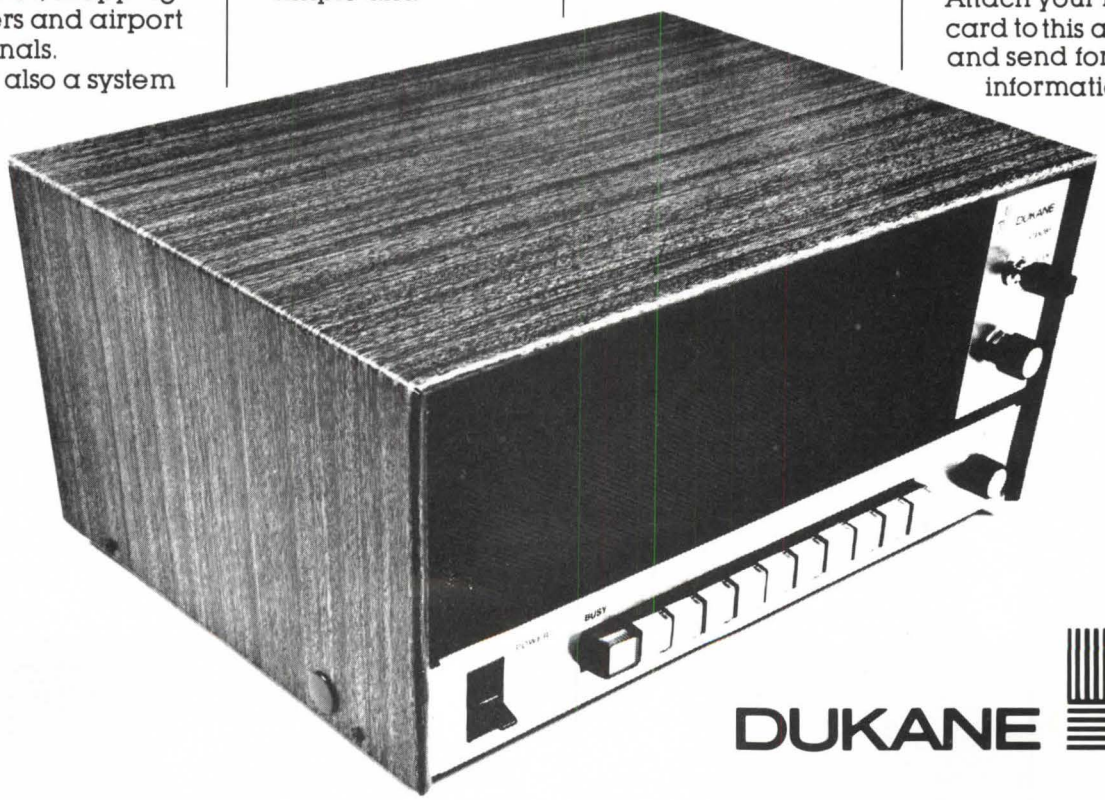

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State-of-the-Union Message does not bode well for the construction industry

In President Reagan's new budget for fiscal 1983, a new $150 million grant program to rehabilitate 30,000 existing apartments for low-income families was about the only cheerful news for the building professions. In fact, the new budget and assorted tax changes outlined in President Reagan's State-of-the-Union message does not bode well for the construction industry.

The $150-million housing rehabilitation grant is designed for those families who receive rent vouchers under an experimental program. Other programs to be continued are: a $1.8-billion Department of Housing and Urban Development grant for the modernization of public housing; the Community Development Block Grant, which communities tap to finance streets, sewers, water projects, public buildings and similar projects will be maintained at its present $3.5-billion level; the Urban Development Action Grant program will also be maintained at its current $440-million level.

However, the Administration is not making any money available for building additional subsidized housing for low-income families. Housing for the elderly is being continued, but loans are limited to 10,000 units, which represent a 40 per cent drop from this year's limit.

The Department's total spending for fiscal 1983 is slated to drop from about $14.6 billion to $13.1 billion this year. By comparison, the Carter Administration approved $38.7 billion in fiscal 1982, a total that dropped to $23.4 billion after the initial Reagan budget slashes.

The mortgage-buying authority of HUD's Government National Mortgage Association (Ginny Mae) will be set at about $38.5 billion, amounting to about a 20 per cent cut from last year's level. The Federal Housing Administration's mortgage-insuring authority will be about $35 billion, representing a cut of over ten per cent from this year's level. Most of this money will go to first-time home buyers, inner-city residents and buyers of factory-built homes.

As for taxes, Mr. Reagan wants companies to begin reporting losses and gains on projects under construction on a yearly basis. At present, companies do not have to file such reports with the Internal Revenue Service until a project is completed. The Administration estimates that yearly statements on such projects could produce an additional $3.3 billion in taxes in fiscal 1983 and as much as $5 billion in 1984.

The building industry does not like the concept, arguing that it is impossible to assess profits or losses on a multi-year project until it is completed. "A lot of companies would see their cash flow dry up," said a spokesman for the Associated General Contractors.

The Administration is also proposing that construction costs be included in the capitalization of a project and written off with the structure itself over its tax life, which is generally 15 years. At present, a construction user can deduct interest and tax payments incurred during construction as a current expense. — *Peter Hoffmann, World News, Washington, D.C.*

Nathaniel Owings resigns from Pennsylvania Avenue's rejuvenation committee

Nathaniel A. Owings, one of the original architects in the movement to rejuvenate historic Pennsylvania Avenue, has resigned from the Pennsylvania Avenue Development Corporation (PADC) in protest against the policies and plans being carried out by present chairman Max. N. Berry.

In a letter to President Reagan and in interviews with reporters, Owings, a founder of Skidmore, Owings & Merrill, charged that Berry, a Carter appointee, was pursuing short-term development goals to boost the local economy, instead of adhering to long-term goals for the Avenue.

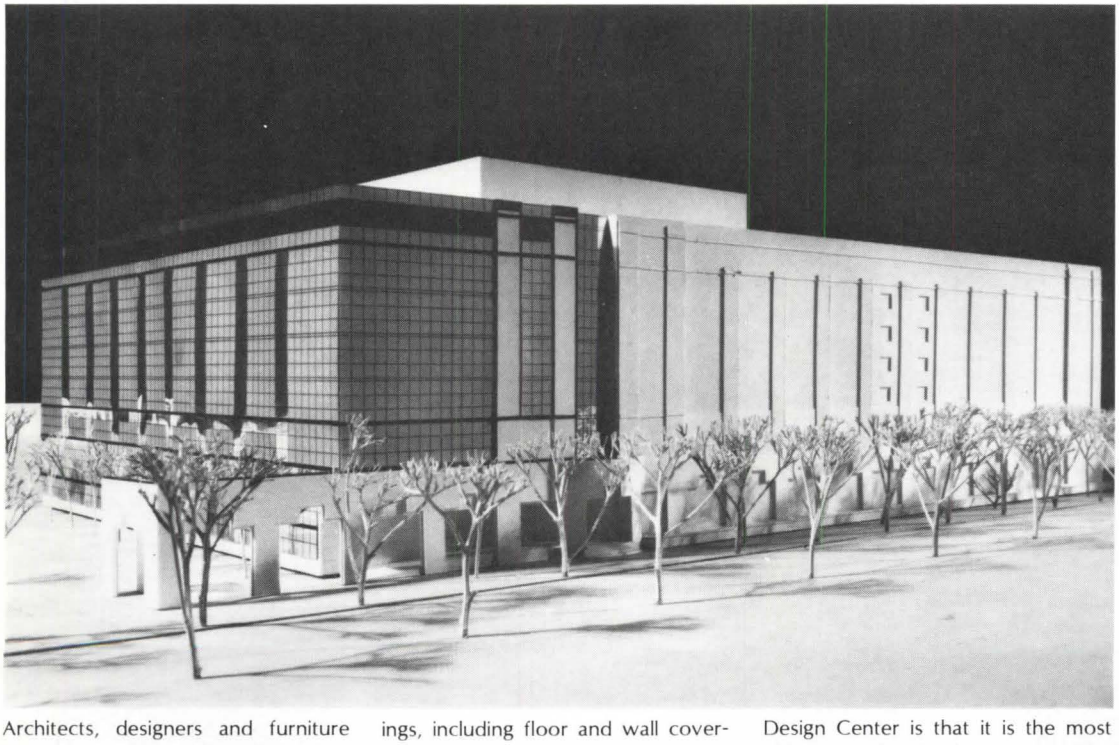
Owings criticized the rows of new office buildings that dominate the prestigious neighborhood on Connecticut Avenue and K Street, N.W. He also faulted the corporation for dropping plans that would include apartments in a mixed development along Pennsylvania Avenue.

However, according to Max Berry, no government agency can afford the estimated half billion dollars it would cost to purchase land and to build buildings that would also include units to be rented to low-income tenants.

Berry and Owings also swapped barbs regarding Owings' sponsorship of earlier plans to tear down the Washington and Willard Hotels. According to current plans, both hotels will be saved.

Lawrence B. Simons, a New York developer who was an assistant secretary for housing in the Carter Administration, replaced Owings as chairman of the PADC's advisory committee last fall. — *Donald Loomis, World News, Washington, D.C.*

New Design Center for furniture will open this fall in Washington



Architects, designers and furniture aficionados will now be able to shop for everything from wall covering to the kitchen sink at the new Design Center in Washington, D.C. This coming fall, the Chicago Merchandise Mart will open its first subsidiary in the nation's capital.

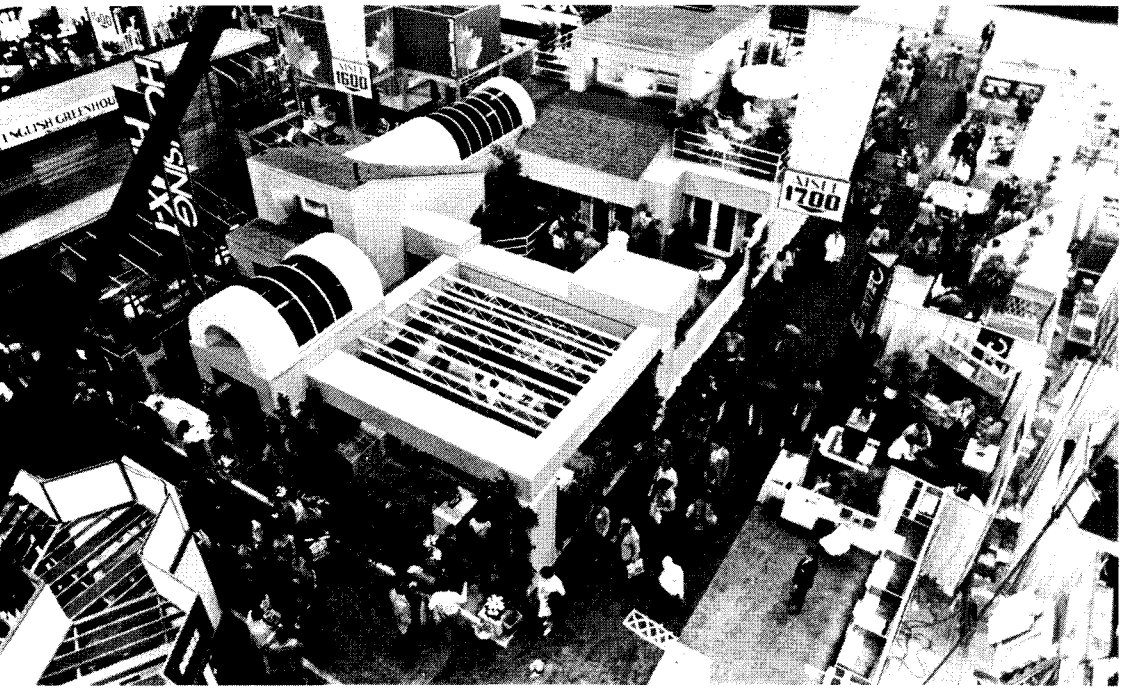
The Design Center will display over 400 lines of major manufacturers of residential and contract furnishings, including floor and wall coverings, lighting and window treatments, fabrics, furniture and a wide variety of accessories. Located at 4th and D Streets, S.W., the Design Center will be open on all business days and will service a five-state area, including Pennsylvania, Delaware, Virginia, West Virginia and Maryland.

"One of the major reasons we chose Washington to open the Design Center is that it is the most affluent market in the country. The capital has the highest median income in the United States," said Jim Bidwill of the Merchandise Mart in Chicago. Washington had several other advantages as a national merchandise center: the Capital area has the fourth largest population density in the country; there is no central merchandise facility anywhere in the area (unlike San Francisco and Los Angeles, which have several); and there is a large concentration of association and professional service industry headquarters throughout Washington and its surroundings.

In addition, according to Bidwill, it is becoming prohibitively expensive for department stores to carry high-quality furniture lines in major metropolitan areas like Washington and New York. At $45 per sq ft—the price of commercial space in many buildings throughout New York and Washington, including Manhattan's Designers and Decorators Building—it makes more sense to sell expensive perfume than quality furniture. In fact, John M. Smythe Co., Chicago's major retail furniture store is going out of business, and furniture departments around the country are devoting less space to furniture display according to Bidwill. Central merchandise facilities like the Merchandise Mart and the Design Center provide a central location where designers can bring their clients to shop for furniture from a variety of manufacturers.

The Design Center, which is to be housed in an abandoned warehouse, will be leasing space at about $15 per sq ft. The Merchandise Mart is now negotiating with New York City, with an eye toward establishing a new satellite in the Big Apple.

—*Andrea Gabor*



HMX-1 prototype house is smash at NAHB

The longest line at the National Association of Home Builders Convention held in Las Vegas this January was for HMX-1—a prototype, under-1,000-square-foot, "space-stretching" house conceived and exhibited by *Housing* magazine. Even on Super Bowl Sunday, the line was 40 minutes long to see the first complete house ever exhibited at the giant NAHB exposition.

"Both in the magazine and the seminars we hold year-round, we have been emphasizing the advantages of space-stretching design," said June Vollman, managing editor of *Housing*. "We wanted to create a house that would meet the lifestyle demands of the markets that will dominate the 1980s—young professional couples who will remain childless or have at most one child, single parents, singles buying in tandem, empty nesters."

In building their house, *Housing* enlisted the help of the Berkus Group Architects of Santa Barbara and the Childs/Dreyfus Group of Chicago, an interior design and marketing concern. In addition, Motivational Design and Marketing of Irvine was responsible for construction and Land Concern of Santa Ana designed the landscaping.

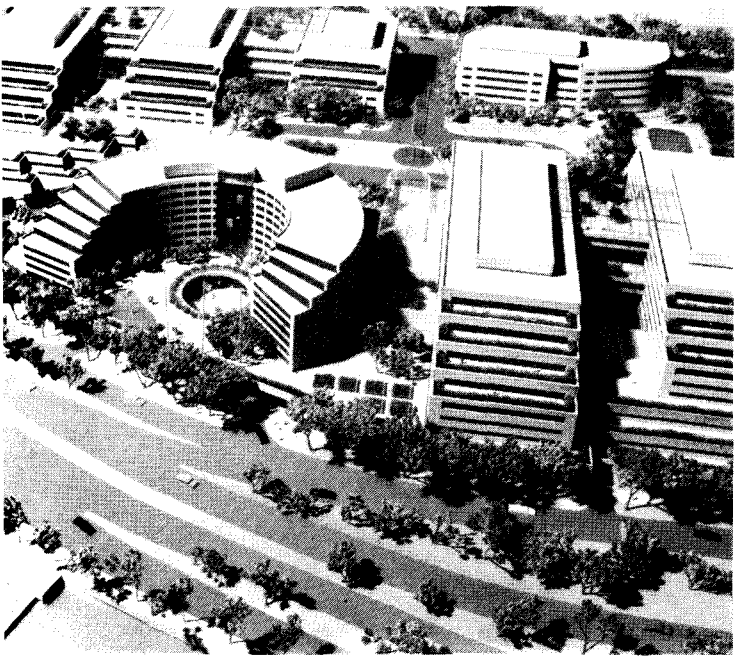
HMX-1 is 969 sq ft; an additional 213 sq ft are in a detached office/bedroom and 154 sq ft are in a loft. The house can be built by any competent builder.

The luxury model, featured at NAHB, includes a living room, kitchen, two bedrooms, three baths, a loft, covered walkway that leads to a detached bedroom/office, a patio with a spa, two decks, a greenhouse and a carport. The structure was built on four mobile-home chassis in a parking lot in Garden Grove, California, and was trucked to Las Vegas for the convention. The extra amenities and the need to over-engineer the model to help it withstand the stress of the cross-country trip, put the cost of HMX-1 at about $70 per sq ft. Barry Berkus, the architect, estimates that without some of the extras included for the exhibit, a no-fringe HMX-1 would cost about $35 per sq ft even in the inflated Southern California market.

The basic HMX-1 can be adapted to a variety of styles by changing building materials, landscaping, roofing, chimney location and the size and shape of windows.

HMX-1 will be lived in and monitored, probably by an architecture student, to determine how it functions on a long-term basis. For more details, see the February and March issues of *Housing*.

Banneker Plaza is last project planned for the Southwest Washington urban renewal area



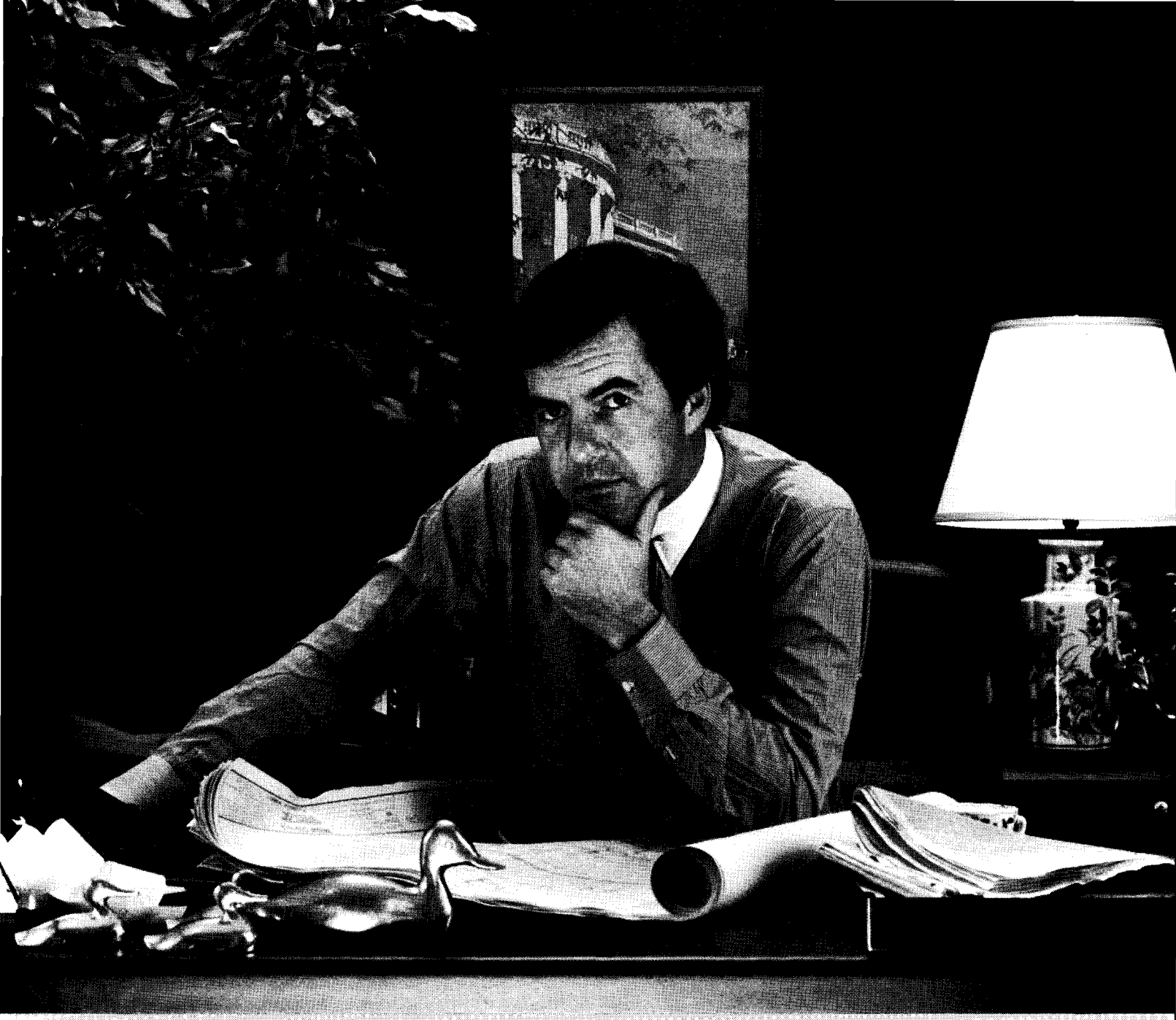
A choice ten-acre site on the Potomac, one of the last remaining lots in the Capital's urban renewal area in Southwest Washington, is being transformed by a group of Washington developers into a $335 million office and hotel complex.

Architects Vlastimil Koubek and Fry and Welch Associates (both of Washington) and Sasaki Associates (of Boston) are designing Banneker Plaza, a complex of eight buildings with over two million sq ft of office and hotel space. The plaza features elaborate landscaping, fountains, arcades, plazas within the plaza and a pool that will double as a skating rink in the winter.

The seven rectilinear office buildings incorporate terraces, in configurations that slope toward the Potomac. Each is intended to house one main tenant, but will also include space for retail shops. The horseshoe-shaped, 434-room luxury hotel features a theater in addition to the usual restaurants, banquet facilities, ballrooms and meeting rooms.

The Plaza was named after Benjamin Banneker, the surveyor and astronomer who, in 1791, helped Pierre L'Enfant plan the city of Washington.

Banneker Associates, headed by Theodore Lerner and Melvin Lenkin, both Washington developers, say that they will be able to complete construction in about three years. They have pre-lease commitments on close to half of the available space from the American Enterprise Institute for Public Policy Research; the Communications Satellite Corporation; the American Association for the Advancement of Science, and the Urban Institute. Britain's Trust House Forte Group will operate the hotel, according to Banneker Associates.—*Peter Hoffmann, World News, Washington, D.C.*



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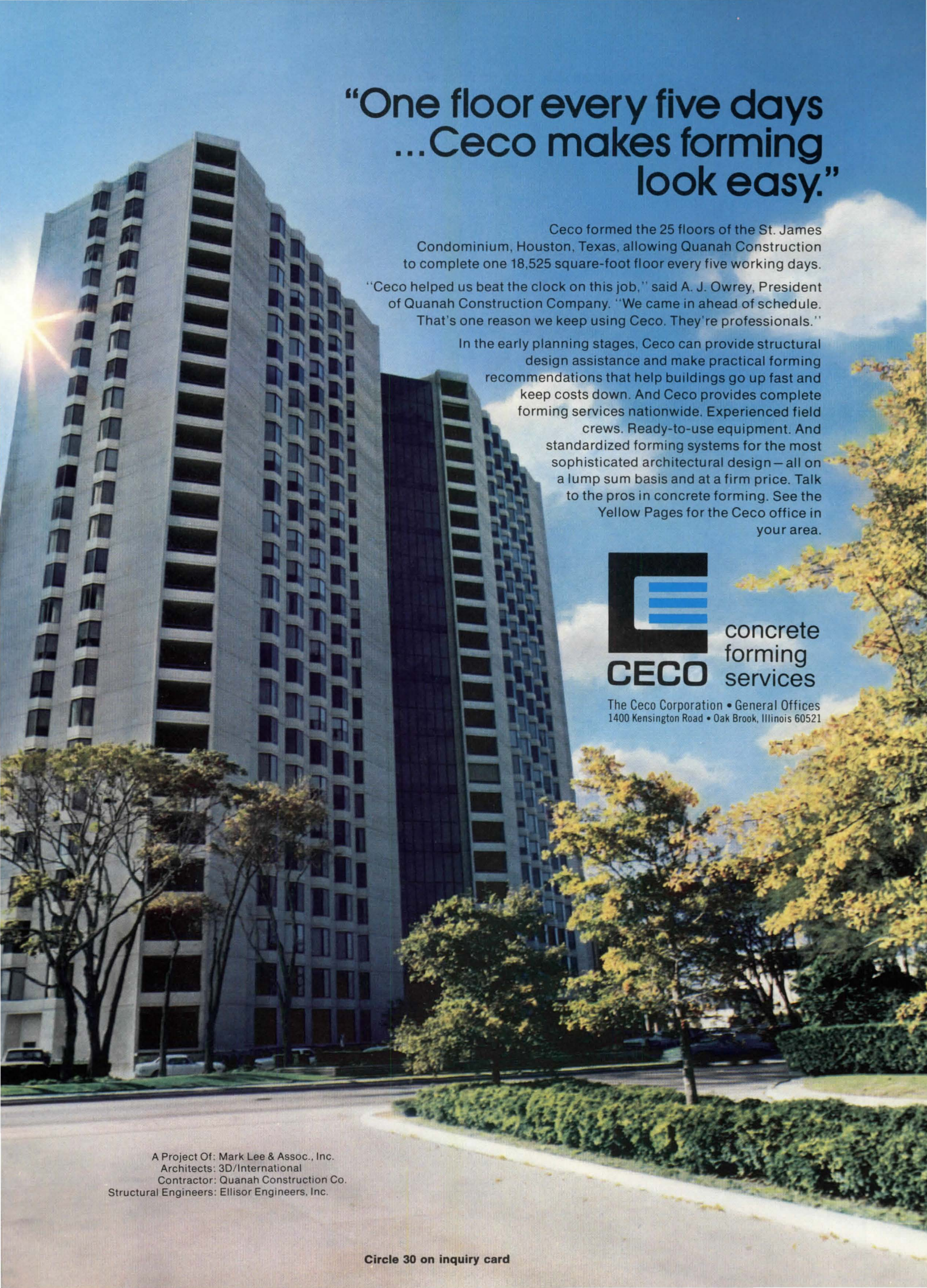

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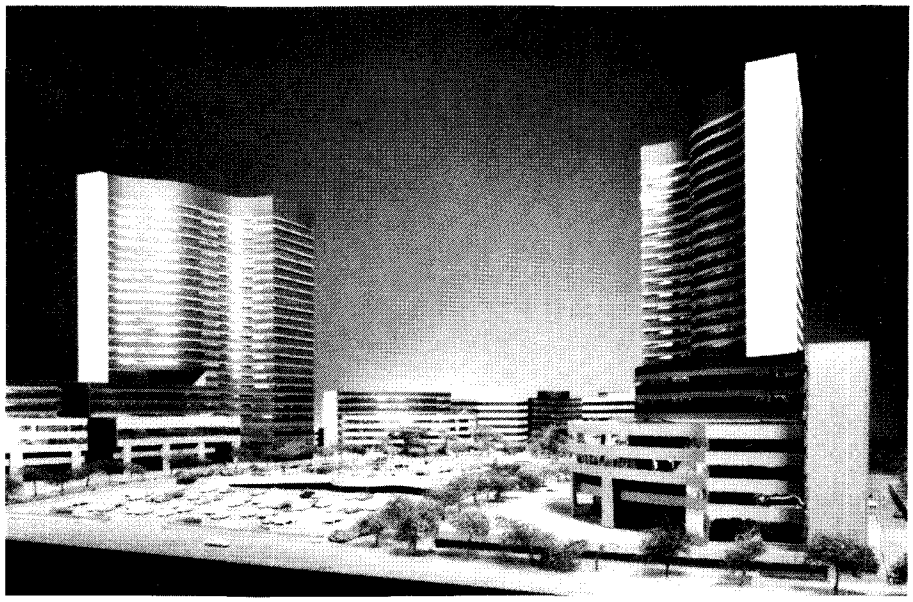
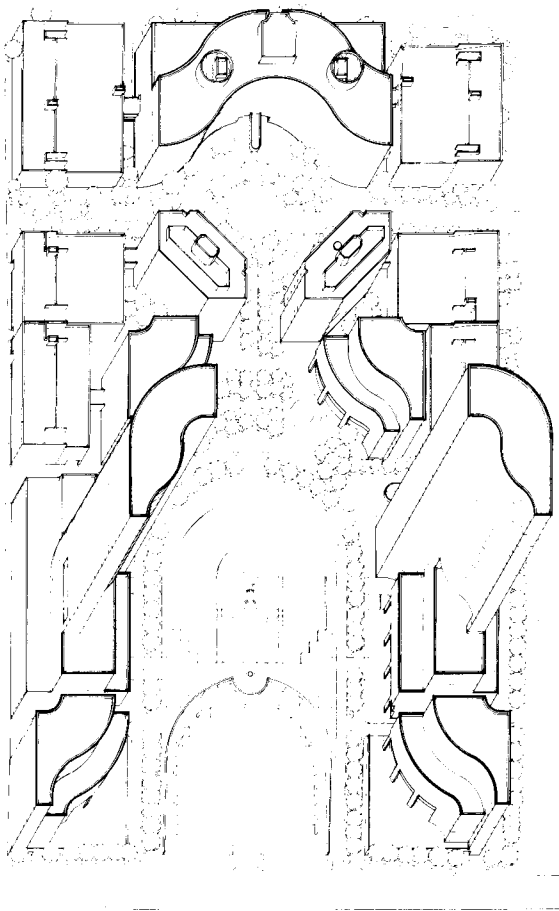
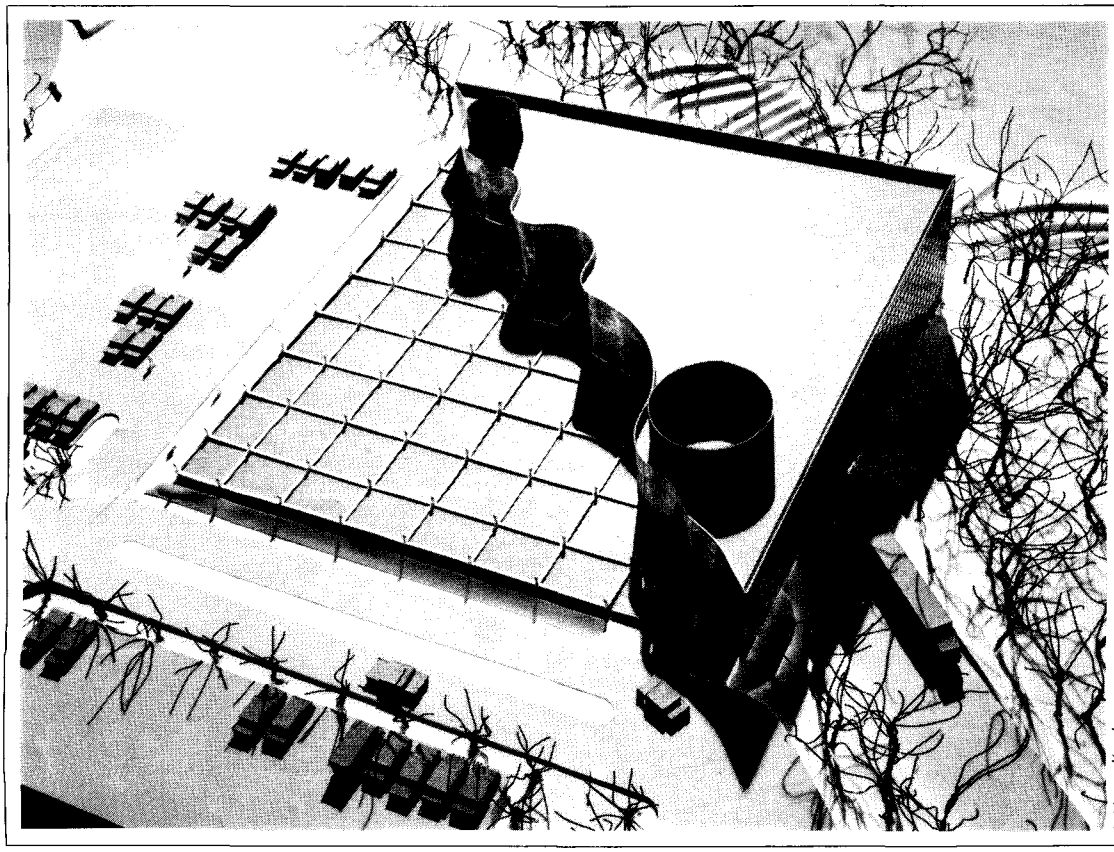
Gunnar Birkerts and Associates design office park near Houston

Woodbranch Energy Plaza, located in the Houston area adjacent to the new Shell and Conoco office complexes and to Cullen Park, has been designed by Gunnar Birkerts and Associates Architects of Birmingham, Michigan, in association with Morris Aubrey Architects of Houston. Covering a 32-acre site, the Plaza consists of ten office buildings representing 2.5 million sq ft of office and retail space, parking, restaurants, a full-service dining, athletic and social club and a helipad. The plan also calls for extensive landscaping, including a formal circular plaza, lake, oak trees, benches and walkways. Two of the seven-story buildings will have facades composed of alternating bands of reflective glass and precast concrete panels with a granite aggregate finish. The remaining eight buildings will feature alternating bands of reflective glass, metal panels and a solar screen or heat reflector for energy conservation. The complex is being developed by Duerr-Dealy Investments, Inc. The first two buildings are scheduled for completion in late 1982; the remainder will be completed during the next five to seven years, based on rental commitments.

Mike McCormick





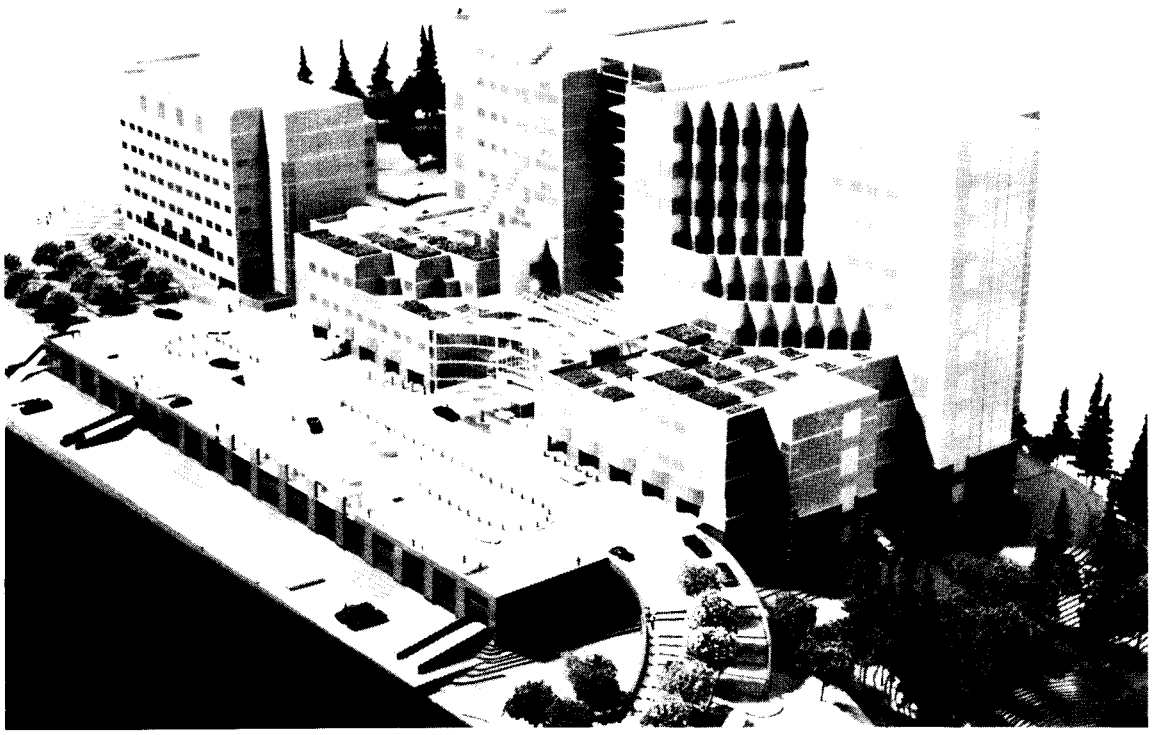


Balthazar Korab

The Electronic Data Systems Corporation Eastern Regional Center was designed to provide 100,000 sq ft of office space to house computer hardware and an office/programmer facility. Rossetti Associates of Detroit designed the building in East Pennsboro Township, Pennsylvania under a fast-track schedule, to be built and occupied within about 18 months. It is scheduled for completion this summer. The windowless computer space and some offices are buried into the site. The office and programmer areas are stacked in two floors above the computer floor, providing views toward a forest, river and mountains. The building is located on a steeply sloping parcel of land, and the curved reflective glass block wall is meant to suggest the original ridge line, the edge of the forest, the creek and the Blue Ridge Mountains. The developer is Luedtke, Aldridge, Pendleton, Inc.

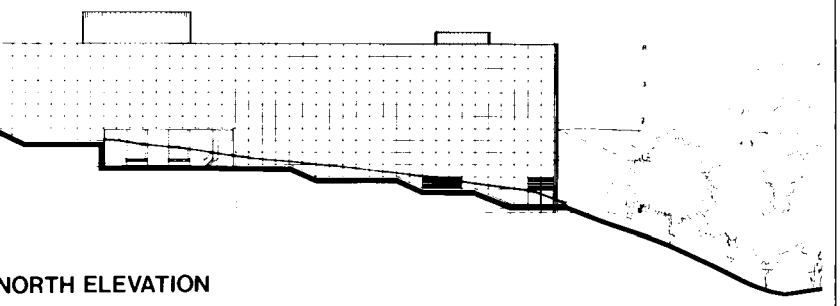
Skidmore, Owings & Merrill design new medical center in Portland

Photo Craft

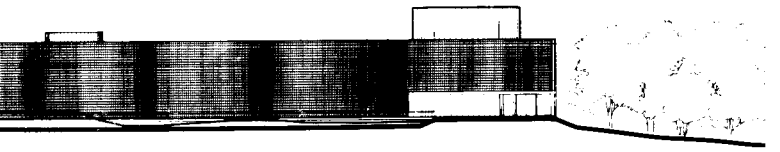


The Portland Veterans Administration Medical Center was designed by Skidmore, Owings & Merrill and the Zimmer Gunsul Frasca Partnership. The new hospital facility will replace the 50-year-old hospital located on Portland's Marquam Hill. The new building, also located on the Marquam Hill site, is designed to permit continued medical service during construction. The design provides 490 beds, diagnostic and treatment services and out-patient facilities in a nine-story building. An adjacent six-story structure houses medical research and administrative functions. Parking is provided in a two-story structure, located under an arrival plaza. Landscaping of the project is intended to restore the site to the forest environment of its hilltop location. Construction for the hospital will begin early in 1983, and is scheduled for completion in 1986.

...etti Associates design Pennsylvania computer company headquarters



NORTH ELEVATION



EAST ELEVATION

C.W. Fentress designs Denver's *Reliance Center*

The 57-story Reliance Center is Denver's highest building. The reflective silver-gray glass and gray granite structure, by C.W. Fentress and Associates of Denver, provides almost 1.5 million sq ft of office and retail space, as well as parking for 800 cars. The building, which is on the block bound by 15th Street, Welton Street, Glenarm Place and the 16th Street Pedestrian Mall, will cost $195 million. The Reliance Development Company, Inc. is developing the building. Construction is scheduled for completion in 1984.

The Parisien Restaurant in Trusthouse Forte's new Excelsior Hotel, Tulsa, OK. Shown is 8 × 8 Sandstone, which is also available in 4 × 8, 8 × 12 and 12 × 12.

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DESIGN AWARDS/COMPETITIONS

The Historic Savannah Foundation has announced the winners of a competition for the design of infill housing in the Georgia city's Victorian District. Jointly funded by the non-profit Foundation and the National Endowment for the Arts, the open competition drew entries from 50 architects. Submissions were reviewed by three jurors known for their own distinguished work in historic contexts: Louis Sauer, FAIA, head of the Department of Architecture at Carnegie-Mellon University; Harry Wolf, FAIA, of Wolf Associates; and George Notter, FAIA, of Anderson, Notter, Finegold, Inc. Rather than selecting a single winner, the jury premiated five designs (illustrated below and opposite) as prototypes to "encourage development compatible with the existing character of the District." On pages 46 and 47 we show the nine projects honored in the Portland, Oregon Chapter of AIA 1981 Design Awards program. The Portland jury consisted of Paul A. Kennon, FAIA, of CRS, Inc.; Charles M. Davis, AIA, of Esherick Homsey Dodge and Davis; Fred B. Dalla-Lana, AIBC, of Dalla-Lana/Griffen Architects; Ken Shores, a ceramist and art professor at Lewis and Clark College; and Michael Alesko, staff assistant to a Portland city commissioner.

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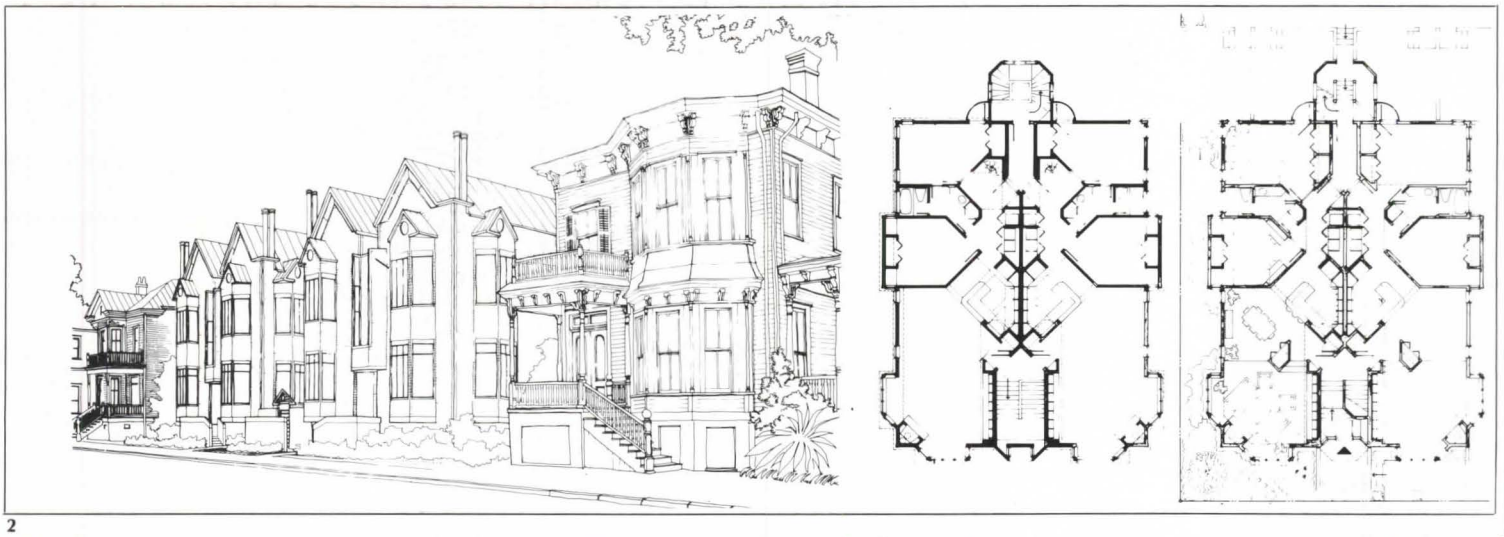

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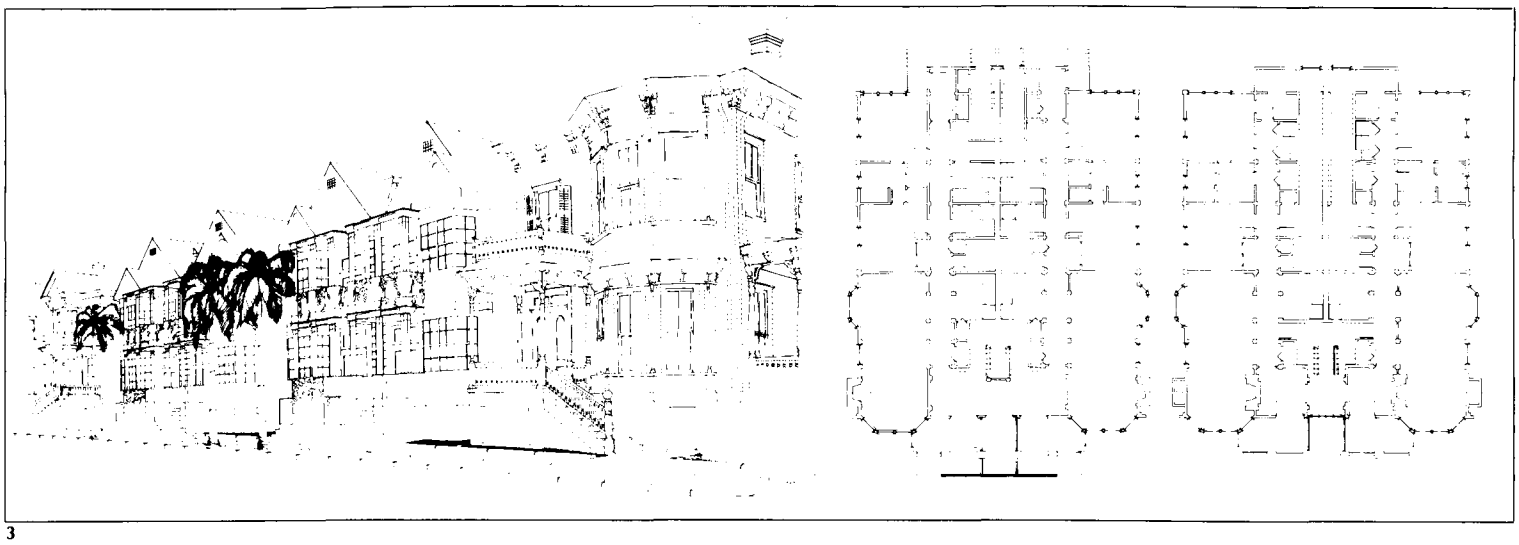
SAVANNAH VICTORIAN DISTRICT DESIGN COMPETITION

Located to the south of Savannah's famous 18th- and early 19th-century squares, the Victorian District encompasses a rich variety of residential architecture, running the gamut of styles from Greek Revival to post-Victorian Prairie Style and "Bungaloid." The 51-block area was listed on the National Register of Historic Places in 1974 and subsequently received an Urban Development Action Grant for public improvements. In 1979, the Historic Savannah Foundation used monies from its own Revolving Fund and the City of Savannah Community Development Block Grant to purchase vacant buildings for resale, in order to encourage home ownership and private investment. The City of Savannah also initiated a subsidy program as a further incentive to homeowners. The competition instituted last year responds to the need for infill buildings on vacant lots throughout the District.

Entrants were asked to design a moderately priced ($50,000 to $60,000 per unit) multifamily condominium for a specified parcel of land. Although the sponsors refused to dictate a particular architectural style, their competition program offered detailed guidelines regarding scale, materials, roof shape, proportions, and yard enclosures, as well as space requirements for interior planning. The program stipulated a total of eight living units (each comprising a maximum of 1,200 square feet), with a two-bedroom unit on the ground floor and a minimum of two bedrooms on the second. Ideally, these units were to be combined as a "four-plex," with two first-floor and two second-story units served by a common entrance. Competition participants were given the option of siting the "four-plex" units as free-



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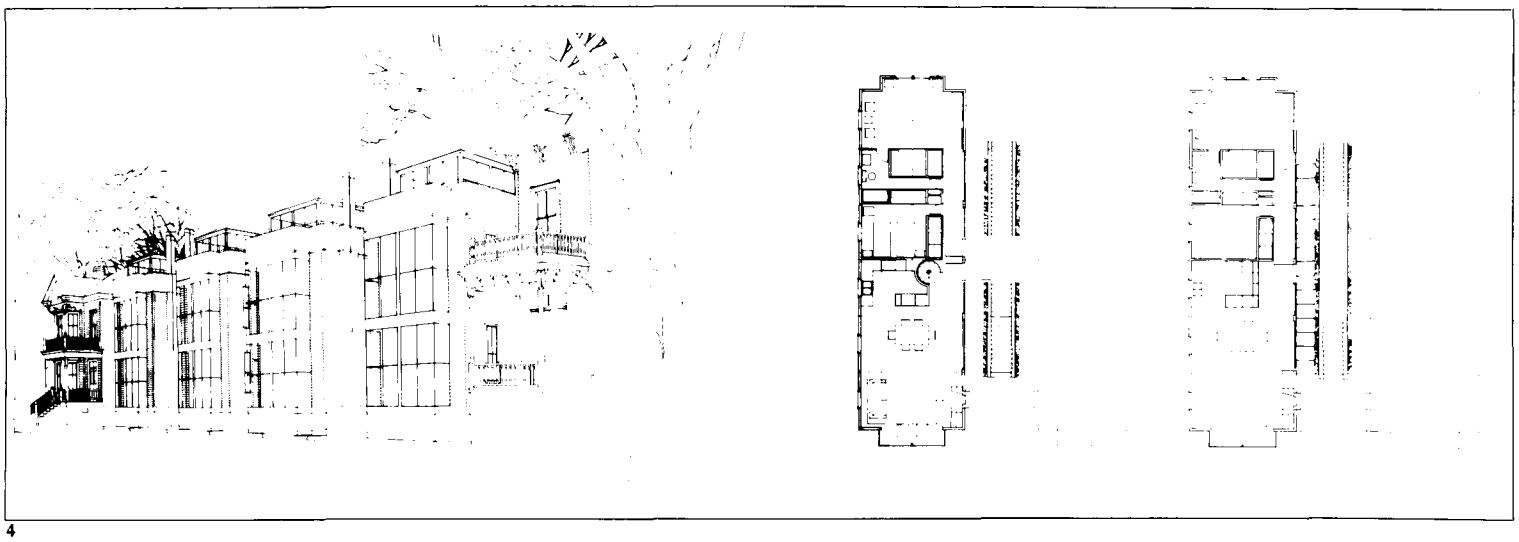

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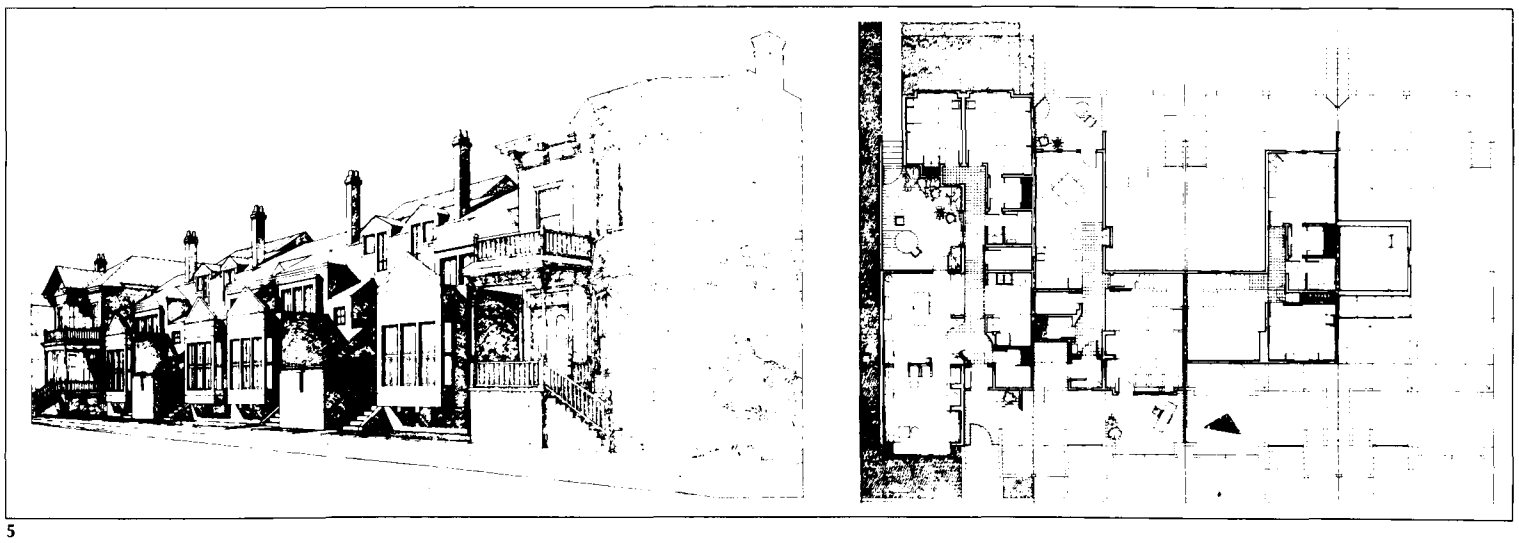


5

standing structures or as a continuous row.

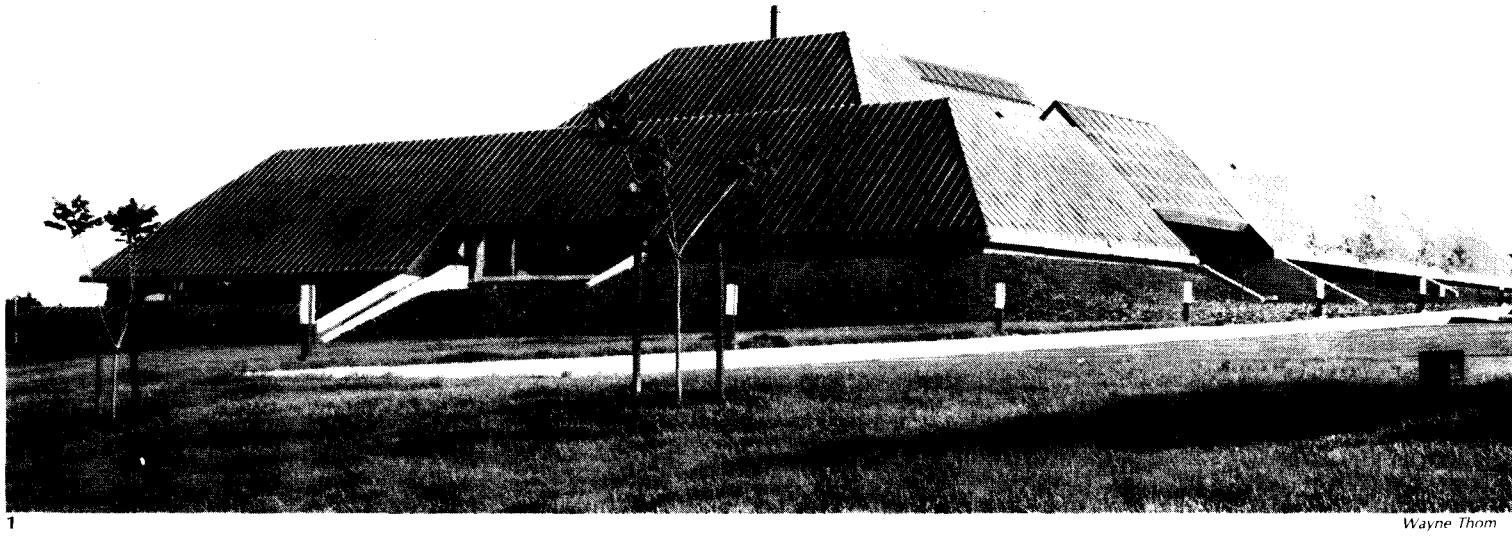
1. Nagle, Hartray & Associates, Chicago, Illinois. The jury remarked that this row-house complex "takes the problem of the narrow-frontage town house and with economy achieves a massing, scale, and rhythm sympathetic to the Victorian street." Architect James Nagle comments: "I think that if we were able to build our entry that the final solution would be much more 'modern' . . . much more of a translation of the Victorian vernacular rather than quite so literal a solution."

2. Warren W. Gresham, AIA, Atlanta, Georgia. Clapboard siding and sheet-metal roofs with standing seams repeat characteristic components of old houses in this neighborhood. Angled interior spaces recall plans of the Shingle-Style era. Mr. Gresham's design was cited by the jury for its employment of "simple elements, comfortable materials, and familiar forms to achieve a rhythm and articulation of the basic four-plex plan."

3. Stewart Burgh & Neal I. Payton, Charlottesville, Virginia. As conceived by the architects, "projecting elements of decreasing volume, such as bay windows, porches, stairways, and low walls, give expression to the increasing degrees of enclosure and privacy suggested by the plan." The jury found that "this project takes a so-called conventional plan and develops it in some happily unconventional ways."

4. W.G. Clark, Architect, Charleston, South Carolina. This project was commended for its "ingenious planning. . . .Roof lanterns increase traditional natural light elements and provide the opportunity for great natural air movement. . . ." Mr. Clark elucidates his scheme: "An ivy-covered masonry staircase separates the wooden houses and introduces light at the passage, so that the inner face of the house is privately exposed like a section drawing."

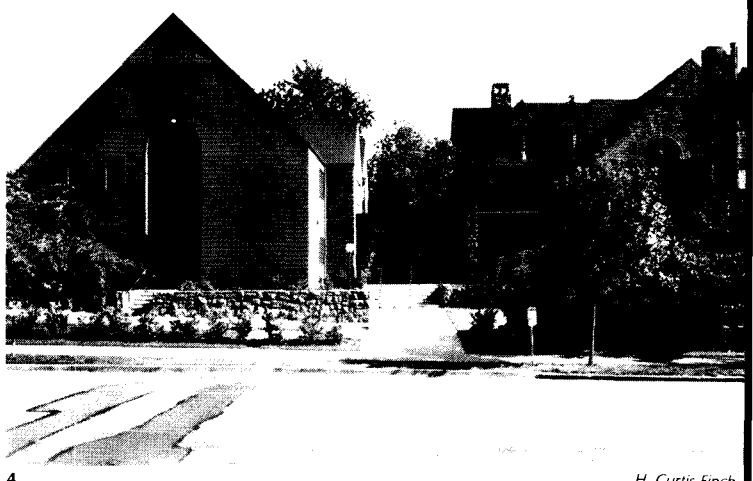
5. Robert Burnham, Manhattan, Kansas. Rooftop solar collectors on the south-facing fronts of these houses are the most conspicuous of various active and passive devices introduced in all five premiated designs. In the jury's estimation, Mr. Burnham's scheme "utilizes three-dimensional spatial modeling for creation of a heightened sense of privacy and house identity."



1 Wayne Thom

2 Rob Reynolds

3 Carlos Grant



4 H. Curtis Finch

PORTLAND, OREGON AIA 1981 DESIGN AWARDS

1. Bureau of Land Management District Office Complex, Salem, Oregon; Campbell-Yost-Grube, P.C., architects. The client wanted an office, warehouse, and maintenance facility in harmony with its rural setting. Canted walls inset with solar-shielded windows recall the forms of nearby farm buildings and allow for natural cooling by prevailing breezes.

2. Copeland Lumber Home Office, Portland, Oregon; Fletcher/Finch/Farr & Associates, architects. Located on a triangular parcel of land next to a freeway, this 28,000-square-foot reinforced concrete structure is terraced to afford views of Portland and distant hills.

3. Thompson Residence, Portland; Hanson, Dunahugh, Vaivoda, Thompson, Nicholson Architects. The jury observed that this frame house, clad with cedar shingles, "becomes a manmade object attached to a hillside with a dramatic view of the Tualatin Valley. It is cubistic in its spatial quality. . . ." The open-plan, 2,300-square-foot interior includes a family room and study treated as balconies overlooking the living room.

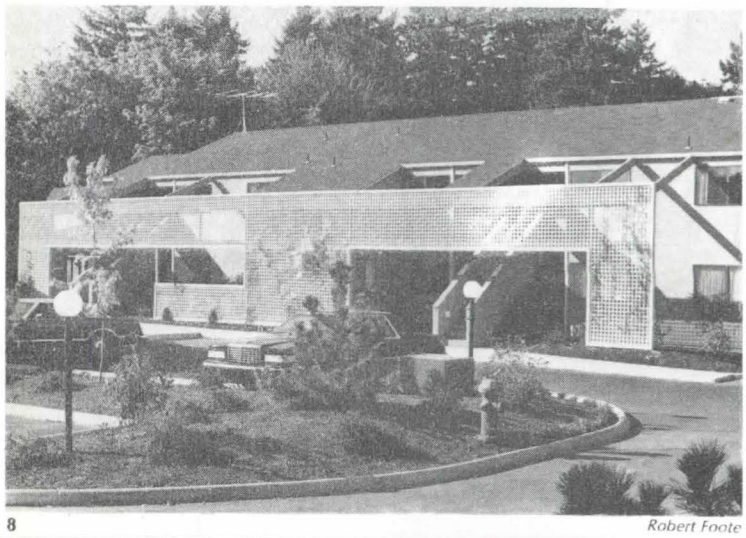
4. William Temple House Addition, Portland; Fletcher/Finch/Farr & Associates, architects. This annex to a Victorian mansion was praised by the jury as "easily the most sensitive treatment of any project submitted. . . ." The client, the Episcopal Laymen's Mission Society for Social and Psychological Counseling, needed larger quarters for staff facilities. Sandstone and cedar-shingle walls match the facades of the original structure.

5. Tualatin Hills Park & Recreation District Center, Beaverton, Oregon; Broome, Oringdulph, O'Toole, Rudolf & Associates, architects. Constructed on a wooded knoll at the

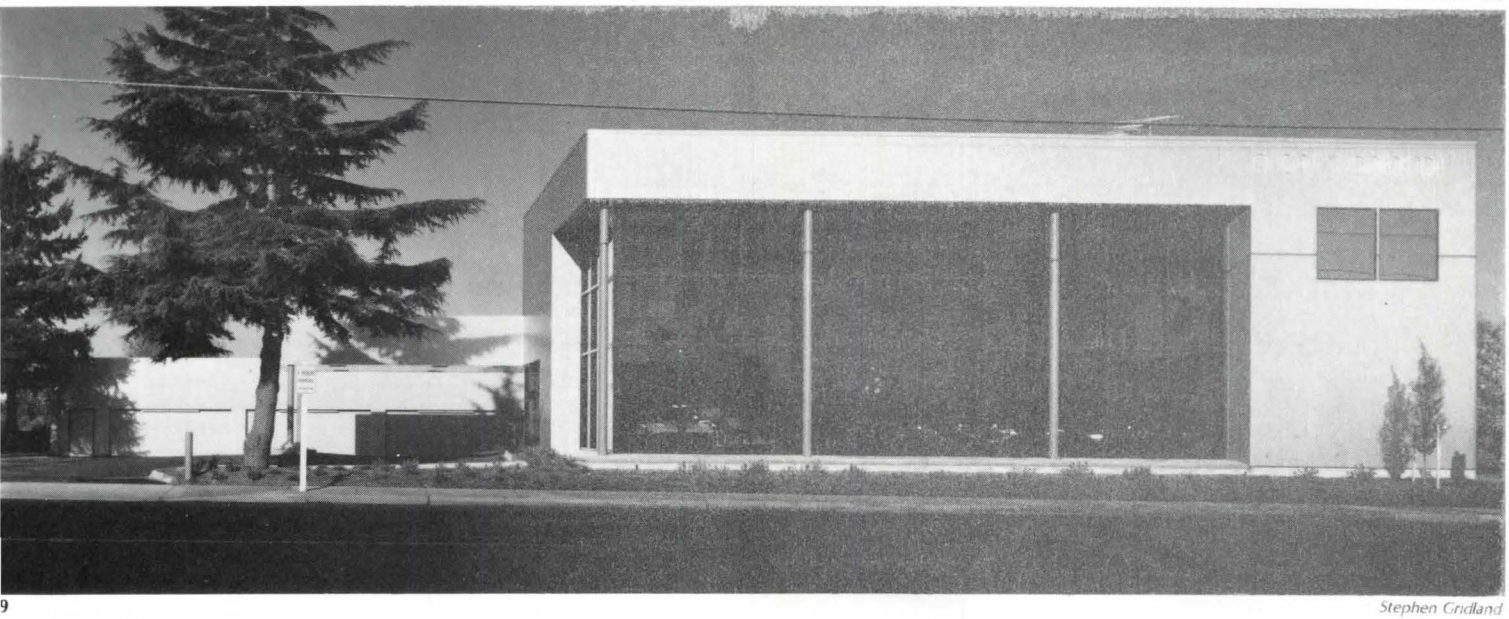
5 Rus Keller & Bruce Forster

6 Wayne Thom

7 Stephen Gridland



8 Robert Foote



9 Stephen Gridland

center of a 66-acre site, this complex s Oregon's largest recreational facili-y. Earth berms designed to reduce visual impact and lower energy costs lso serve as bleachers.

. Willamette Center, Portland; Zim-ner Gunsul Frasca Partnership, archi-ects. The Portland General Electric Company required a 500,000-square-oot headquarters to be built on a lowntown site. Constructed in two hases, the project was intended to atalyze waterfront redevelopment y emphasizing street-level pedestri-n activity rather than a dominant orporate image.

7. Nel-Tech Development, Inc., Portland; Griggs, Lee, Ruff, Ankrom/Architects, P.C. When Nel-Tech moved into an old factory, they decided to retain as much as possible of the building's Moderne detail. The architects reorganized interiors to suit the client's technical needs and enhance energy efficiency. New windows were scaled to existing sash, and colors were chosen to emphasize original facade articulation.

8. Woodview Village, Newberg, Oregon; Robert Foote, Jr., Architects & Planners, AIA, P.C. This 34-unit multi-family development for the elderly occupies a 3.5-acre parcel on the edge of a picturesque ravine. A greenhouse adjoining the communal recreation area allows residents to garden throughout the year, as well as providing a passive heat source.

9. Ron Tonkin Gran Turismo, Portland; Griggs, Lee, Ruff, Ankrom/Architects, P.C. An automobile dealership and "boutique," and a garage for the client's personal collection of Ferraris were key elements of the program. The jury commented: "high tech on high tech; a metallic expression with the neon sign as art. Clearly the best architecture of the strip."

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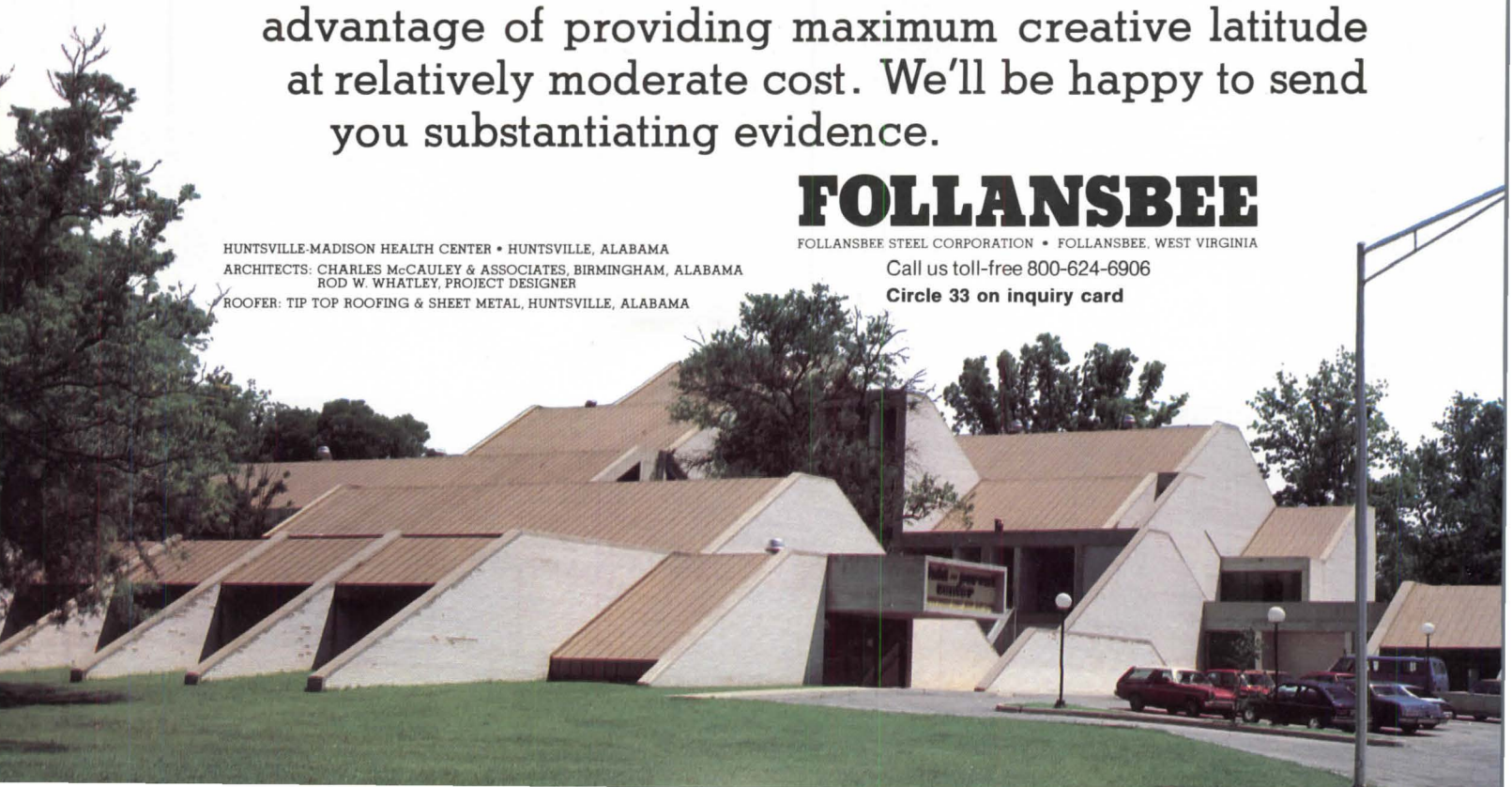
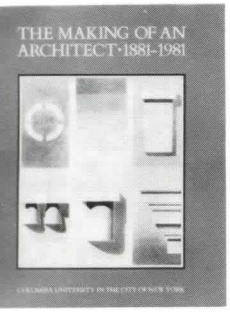
ROD W. WHATLEY, PROJECT DESIGNER

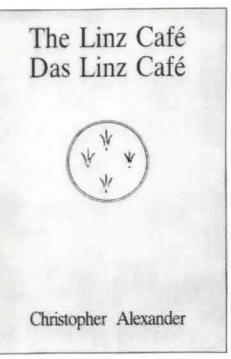
ROOFER: TIP TOP ROOFING & SHEET METAL, HUNTSVILLE, ALABAMA





THE MAKING OF AN ARCHITECT 1881-1981: COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, *edited by Richard Oliver, introduction by James Stewart Polshek; Rizzoli New York, $30.*

An exhibition held last December at the National Academy of Design in New York and this 264-page hardbound book celebrate the centennial of Columbia's Graduate School of Architecture and Planning. While *The Making of an Architect* shares its name with the exhibition, and serves as the exhibition catalog, architect/alumnus/editor Richard Oliver has provided more than a sentimental journey for Columbia graduates. Faculty members Robert A.M. Stern, Rosemarie Haag Bletter, Kenneth Frampton, and James Marston Fitch, among others, contribute seven "thematic" essays inter-relating the history of Columbia with the history of architecture and architectural education. Seven additional essays (four by graduate students) outline specific chapters in Columbia's 100-year history. Dean James Stewart Polshek supplies the introduction; 204 illustrations, the visuals.



THE LINZ CAFE, *by Christopher Alexander; Oxford University Press, $19.95.*

A slender, but exquisite volume detailing the design and construction of a cafe on the banks of the Danube. Sponsors of the 1980 summer exposition "Forum Design" in Linz, Austria, provided theorist/architect/professor/author Christopher Alexander with an architectural commission, "with the explicit intention of allowing him to express his ideas, concepts, feelings and philosophy in a single building." The humble wood structure with its hand-painted wallflowers Alexander created will be recognized by students of his earlier four books—*The Timeless Way of Building, A Pattern Language, The Oregon Experiment, The Production of Houses*—as the built expression of his theories. The bilingual (German/English) *The Linz Cafe* marks a welcome Volume Five to the much distinguished series. Color and black and white photographs document the project; line drawings detail the process.

ESSAYS IN ARCHITECTURAL CRITICISM: MODERN ARCHITECTURE AND HISTORICAL CHANGE, *by Alan Colquhoun; The MIT Press, $30.*

English architect and Princeton professor Alan Colquhoun will be familiar to followers of *Oppositions* for his memorable criticism of Le Corbusier, Michael Graves, and Robert Venturi. Appropriate then, that a selection of his essays (written between 1962 and 1979) should be compiled and published as the first in a new series of "Oppositions Books" from the MIT Press. The four-chapter compendium opens with "The Modern Movement in Architecture" and "Symbolic and Literal Aspects of Technology," and closes with "From *Bricolage* to Myth, or How to Put Humpty-Dumpty Together Again" and "Form and Figure." *Oppositions* co-editor Kenneth Frampton supplies the Preface.

continued on page 55

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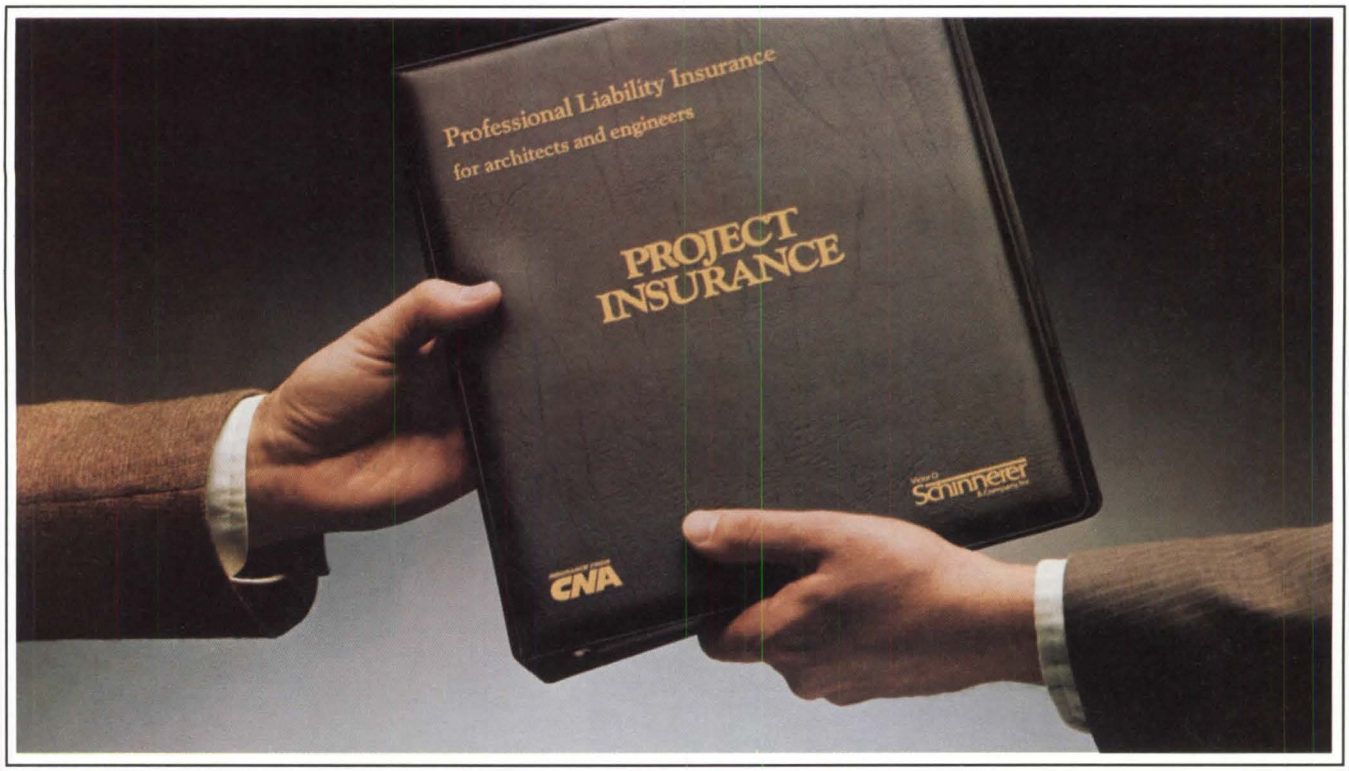

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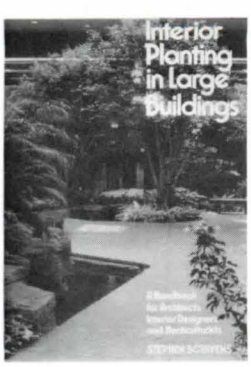
CHICAGO INTERIORS: VIEWS OF A SPLENDID WORLD, *by David Lowe; Contemporary Books, Inc., $10.95.*

In some 250 photographs and illustrations, the author of *Lost Chicago* and *The Great Chicago Fire* introduces one of the richest slices of Chicago's architectural history. In his introduction, David Lowe observes that what was built in Chicago immediately following the Great Fire of 1871 made "Chicago Style" synonymous with gaudiness. According to Lowe, the function of most architects at that time was limited to designing the shell of the building while the interior was given over to "decorators." After a decade of tumultuous interiors, in an effort to regain a continuity of design, some architects turned to their history books while others sought a new style and carried it throughout. Like the calm after a hurricane, the Arts and Crafts Movement began to take hold and interiors were gradually returned to the domain of the architect. This history is told in pictures of interiors from the elaborate Pullman cars of the 1850s to the penthouse of The Cliff Dwellers, a well-known men's club built in 1909.

SEVEN STONES: A PORTRAIT OF ARTHUR ERICKSON, ARCHITECT, *by Edith Iglauer; University of Washington Press, $29.95.*

"I like to think I am writing not so much about architecture as about the mind of an architect." In what is not only a biographical portrait, but an up-to-date photo study as well, Edith Iglauer discusses the work of Arthur Erickson from the success of Simon Fraser University in 1965 to the Courthouse—Robson Square Complex (RECORD, December 1980). The wide variety of his work is illustrated from the headquarters of the Royal Bank of Canada to a swimming pool cabana. The title is the result of an assignment Erickson gave to his students at the University of British Columbia: " 'The assignment is to choose seven stones and present your project in three weeks.' . . . one student got seven beautiful stones from the beach and presented them in a velvet box, clanking them together for everyone to hear. It was a little performance. Arthur looked and said, 'Why are you wearing a blue sweater?' The student was dumbfounded and replied, 'That had nothing to do with the problem!' And Arthur said, 'No. It's a performance, and your clothing is part of it.' "



INTERIOR PLANTING IN LARGE BUILDINGS: A HANDBOOK FOR ARCHITECTS, INTERIOR DESIGNERS, AND HORTICULTURISTS, *by Stephen Scrivens; John Wiley & Sons, $44.95.*

A British lecturer on "landscape construction" compiled this manual of technical information on flora which details the various forms, determines appropriate light intensities, and analyzes composts and irrigation systems. Included are illustrations of plants with lists of their primary characteristics as well as sections on plant specification and maintenance after installation. Though the bulk of the book is technical, there is also a chapter on the origin and history of interior plants.

continued on page 57

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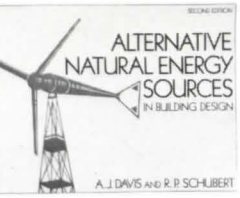
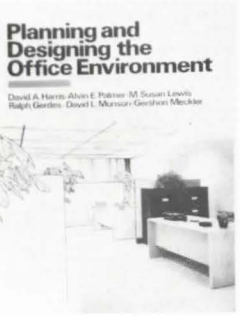


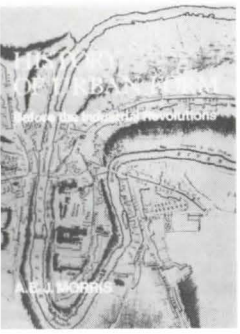
ALTERNATIVE NATURAL ENERGY SOURCES IN BUILDING DESIGN (Second Edition), *by A.J. Davis and R.P. Schubert; Van Nostrand Reinhold, $19.95.*

Although this book is borne by theory, its content is practical, focusing on design and hardware. The authors begin with energy conservation, become more specific with chapters on water power, wind power and solar energy, and conclude with ways to integrate these systems. Text, tables, formulae and diagrams are all devoted to the use of alternative energy sources on a permanent basis and not as a temporary answer to the rising cost of oil. The tenet set forth in the introduction is that when technological development "generates unnatural contingencies that tend to destroy the very environment which sustains life, then this form of development must be questioned.' "



PLANNING AND DESIGNING THE OFFICE ENVIRONMENT, *by David A. Harris, Alvin E. Palmer, M. Susan Lewis, Ralph Gerdes, David L. Munson, and Gershon Meckler; Van Nostrand Reinhold, $27.50.*

Sponsored by Owens-Corning Fiberglas Corporation, this reference manual is compiled to integrate the lighting, acoustical, and HVAC systems of an office interior plan. It analyzes privacy, task illumination, air distribution and thermal comfort. A section on fire safety covers a systems approach for designing precautions into any office project. Also included is a method of complying with building codes "without jeopardizing system performance."



HISTORY OF URBAN FORM BEFORE THE INDUSTRIAL REVOLUTIONS (Second Edition), *by A.E.J. Morris; John Wiley & Sons/Halsted Press, $41.95.*

In this new edition, Morris includes a set of city case studies, both for Europe and the United States, and two sections dealing with systems of artillery fortifications in England and in early American railroad towns. Urban history is analyzed from the origins of Greek and Roman urban settlement to the advent of the Industrial Revolution in Europe. The sequence of chapters is: the Greek city states; Rome and the Empire; the medieval period; the Renaissance and subsequent periods in Italy, France and Britain; and a chapter on the early history of urban development in the United States. Japan and other parts of the world are less extensively covered in the appendices.

AWARDS DIRECTORY (1982), *by Lord & Welanetz, Inc. and A/E Marketing Journal, $48.00 ($38.00 pre-paid).*

Co-published by an editorial consultant to design professionals and a national marketing newsletter for the design field, the *Awards Directory* is a guide to preparing design and construction award entries. Over 300 national awards are described with information on jury criteria, type of recognition, and the sponsor to contact for more information. The Directory is available by mail from A/E Marketing Journal, Post Office Box 11316, Newington, Conn. 06111.

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The last frontier: Canadian developers in the United States

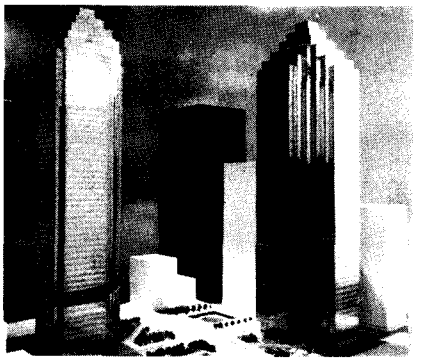
Ten major Canadian developers have become leaders of the real estate market not only in their own country, but also in the United States. Two attributes, in particular, characterize their speculation in this country: strong financing, facilitated by the centralized Canadian banking system, and a belief that good design is good business. With few exceptions, the developers have chosen American architects to design their contributions to the American landscape.

Ten years ago they were still busy north of the U.S. border. By the early 1970s they began filtering into the West, the South, the Southwest, and Midwest, until they finally planted their steel and concrete roots in the East Coast and began changing America's profile. Limited growth opportunities in Canada, and constraints on U.S. developers caused by the economic and real estate slump that was, in turn, brought about by the Arab oil crisis during the 1970s, led Canadian developers to seek business and financial opportunity in the United States. With ample financing, a sophisticated sense for land development, and leading (mostly U.S.) architects, the Canadian developers have rolled over the U.S., leaving residential projects, shopping centers, office towers and whole sections of cities in their wake.

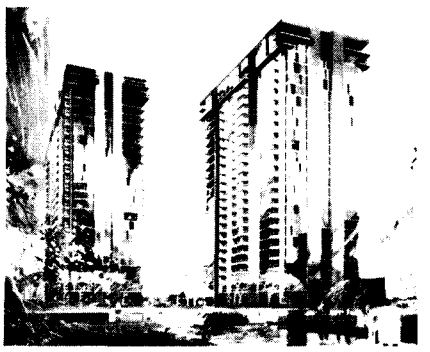
There are ten major developers that account for most of the Canadian real estate investment in the U.S., which will total about $10 billion by the end of 1982, according to Michael Galway, executive director of the Canadian Institute of Public Real Estate Companies (CIPREC).

CIPREC reports that the seven largest publicly held companies, in order of the approximate book value of their assets (which in most cases is lower than actual market value), are: Cadillac Fairview Corp., headquartered in Toronto, with approximately $3 billion in assets; Genstar Ltd., in Vancouver, with assets of about $2.5 billion; Trizec Corp., in Calgary, with over $2 billion in assets; Daon Development Corp., in Vancouver, with about $1.5 billion in assets; Nu-West Group Limited, in Calgary, with assets of just over $1 billion; Bramalea Ltd. in Toronto, with assets of about $1 billion; and Campeau Corp., in Ottawa, also with assets of about $1 billion.

The three privately held companies are Olympia and York Developers Ltd., headquartered in Toronto; Oxford Development Group Ltd., in Edmonton; and Marathon Realty Co. Ltd., in Toronto. CIPREC cannot quote assets for Olympia and York, but they are thought to total about $3.5 billion. Oxford has assets of about $2 billion, according to G. Donald Love, president and chairman of the company. Marathon commands nearly half that amount, according to CIPREC.



Main Center in downtown Dallas was designed by Jarvis Putty Jarvis, a Dallas-based architecture firm, and developed by Bramalea Ltd. in partnership with the First National Bank in Dallas. The 70-story office tower was designed with kitchen facilities in the basement that cater gourmet breakfasts, via a central elevator, to the breakfast conferences of its corporate tenants. The building is also designed with four clusters of corner offices, in order to enable the top management of each company to be located near each other, rather than around the four corners of a more conventional building, according to Kenneth Field, President of Bramalea Ltd. The building is scheduled for completion in 1984.



Independence Place in Philadelphia was designed by The Salkin Group, a Philadelphia-based architecture firm. The two-tower mixed use project contains 20,000 sq ft of commercial space for shops and offices and 528 condominium units. Construction of the first tower was finished in the fall of 1981; its units have been substantially sold out. The second tower is scheduled for completion toward the end of 1982. The project costs $75 million.

Two attributes particularly characterize the major Canadian real estate developers: they are very well financed, by virtue of the Canadian banking system (see below), and they clearly believe that good design is good business.

One reason Canadians buy good design is that they typically retain ownership

Benjamin Swirsky, executive vice president of Bramalea Ltd., attributes this strong design sense to stiff government regulation of building ventures in Canada, stiff competition for limited development area there, and, perhaps most important, Canadian developers' long-term investment in their projects.

"We are very mindful of design—that is part of our company philosophy," said John Daniels, president of Cadillac Fairview. Daniels is one of the few developers who is himself an architect. "Unlike many U.S. developers, we like to maintain ownership of our buildings because they have intrinsic value—and good property will only appreciate in value."

Arthur Erickson Architects was selected by Cadillac Fairview (in association with Goldrich Kest and Associates and Shappel Government Housing, Inc.) to join them in a limited architectural competition to develop over 11 acres of the Bunker Hill site in Los Angeles. In choosing Erickson's firm, the Cadillac Fairview consortium made an exception to its usual practice of hiring local architects (perhaps because the Erickson firm has won many competitions—including, as it turned out, this one). More characteristically, in a recent joint-venture development with Greenwood Management, Cadillac Fairview hired the Salkin Group, Inc. of Philadelphia to design Independence Place in that city's Society Hill section.

Trizec Corporation has also chosen U.S. architects to design six current projects in the States. Skidmore, Owings & Merrill (SOM) is the principal architect for the New Center One office complex in Detroit and the Los Angeles Freeway office development; Gruen Associates will design the Park Meadows shopping center and office development in Denver; Hellmuth, Obata & Kassabaum is in charge of the Tivoli Brewery restaurant and shopping complex, also in Denver; Welton Becket heads the design team for a 12-acre

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hotel and office building property in Stamford, Connecticut; and Harry Weese and Associates will design the Pershing Square office building in Kansas City.

Canadian developers hire U.S. architects on the basis of their expertise with particular building types and their familiarity with the area in which property is being developed. Says David Horne, vice president and chief in-house architect at Bramalea, Ltd.: "We use local architects because they are familiar with local preferences. We also want architects with local prestige, who maintain good relationships with city government." Don Wilson, president of Genstar Properties Ltd., says his company considers an architect's familiarity with local zoning regulations to be an important factor in the selection process.

Some U.S. architects have long-standing relationships with Canadian developers, dating back to the '50s and '60s when Canadians were importing U.S. architectural talent to create the downtown areas of their major cities. For example, Donald Smith, who now supervises SOM's Denver office, began working with G. Donald Love, president of the Oxford Development Group, in 1969, when he helped design Lombard Place Ltd., an office, bank, and hotel complex in Winnipeg. Today, SOM's Denver office alone has designed two of ten recent Oxford projects in Minneapolis and St. Paul and three of four Oxford projects in Denver, as well as Oxford projects in Louisville, Kentucky, and in Edmonton. "After 12 years of working with Donald Love we have a good relationship," said Smith. "He is personally very involved with the architectural product, but he doesn't want a yes-man architect. He wants someone with independent ideas who will argue with him." Smith says that, out of personal courtesy, he consults with Love any time he is offered a job by a competing developer, in order to avoid a conflict of interest. But, so far, he has never had to turn down an offer because of his affiliation with Oxford.

Canadian developers do not always select architects with whom they have an established relationship, however. Just last year, Olympia and York chose Cesar Pelli & Associates to design the $1 billion commercial core of Battery Park City in New York, even though it had not previously worked with that firm. Architect Fred Clarke, one of Pelli's team for the Battery Park City project, reports an unusually close and cooperative relationship with Olympia and York's top executives, Paul and Albert Reichman.

"We work directly with the Reichmans," said Clarke, "and they appreciate our input more thoroughly than anyone we've ever worked with. They seldom question parts of our scheme that might be more costly than a conventional solution, like structural setbacks or the shapes of towers. And they have made very valuable suggestions, like giving Battery Park City an identity and access from Westway, that we, frankly, had not thought of."

Strong financing from Canada's compact banking system is a major asset

Of course, in competing for U.S. renewal projects, many Canadian developers are chosen less for their design sense than for their strong financing and efficient management techniques. Olympia and York, for example, was chosen in part because it promised to complete construction on Battery Park City in half the time estimated by other developers. And even though Cadillac Fairview's success in the Bunker Hill competition was in part the result of Arthur Erickson's preliminary design, it received the contract largely on the basis of its financial package.

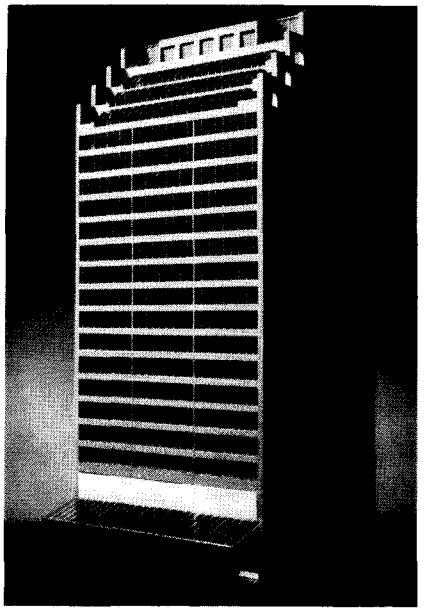
Ed Helfeld, administrator of Los Angeles' Community Redevelopment Agency, recalls that "We narrowed our choice of developers down to Maguire Partners [a Los Angeles-based developer] and Bunker Hill Associates [the joint venture of which Cadillac Fairview owns 50 per cent]. Maguire Partners had an excellent design, but Bunker Hill Associates had stronger financial backing."

If there is one goose that can be said to have hatched the Canadians' golden eggs, it is probably their country's compact banking system. Unlike the U.S. with its largely localized network of about 15,000 banks, Canada has 11 national banks, five of which provide much of the short-term financing to developers. Since the money supply is centralized, each lending institution has a larger pie from which to allot funds to each developer. Canadian banks also tend to make large corporate loans, rather than smaller loans targeted to specific projects. In 1976, for example, when Manhattan's real estate market was at its lowest ebb since the Depression, Olympia and York received financing to buy eight office buildings there. Relatively lenient Federal Reserve requirements in Canada facilitate the flow of funds between banks and developers. Because the big bank/big developer community is so small, Canadian bankers have followed the developers on their southward move, according to Bertram Lewis, president of Sybedon Corporation, a New York investment banking house that acts as U.S. consultant to one of Canada's major banks.

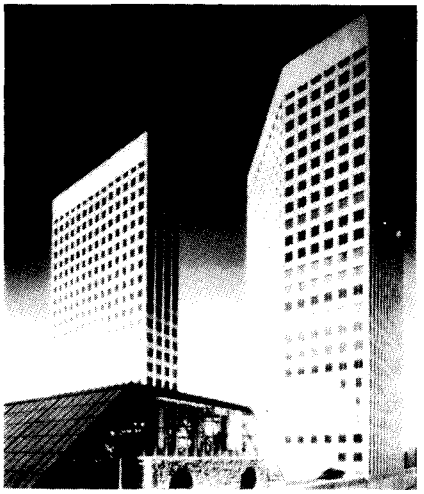
Canadian developers have also been drawn to the United States by a variety of political and economic factors in their homeland. Canada's major cities, which are sprinkled along the U.S. border, have mostly been developed to full capacity. A limited industrial base inhibits further expansion. Many developers, threatened by provincial unrest, have already pulled up stakes in Quebec. Ultimately, the U.S. still provides the safest haven for investment capital. As Don Smith of SOM puts it, "Where is a company to invest its money these days? In France? Or England? Maybe Australia, but that's awfully far away."

Indignant protest over Canadian investment in this country has risen from American businessmen who may have forgotten that at least 75 per cent of Canada's natural resources are owned by U.S. companies and that, by recent estimates of Canada's Foreign Investment Reserve Agency, the U.S. has invested over $88 billion in Canada—more

continued



San Francisco's 135 Main Street building was designed by Robinson Mills & Williams, a San Francisco-based architecture firm, and developed by the Daon Development Corporation—although the building was recently bought by Norland Properties, another Canadian developer. The 22-story office building, located near the downtown area, is scheduled for completion in 1984 and will cost $150 million.



Town Square in St. Paul, Minnesota was designed by Skidmore, Owings & Merrill and developed by Oxford Development Group and the City of St. Paul. The complex consists of two office towers, gardens, a mall, retail space and a garage. The projects cost $100 million and was completed in 1980.

The Battery Park City Commercial Center Park, in New York City, was designed by Cesar Pelli & Associates and developed by Olympia & York. The $1 billion complex consists of four office towers and two nine-story octagonal buildings, a winter garden and four-acre landscaped plaza.

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than eight times what Canadians have invested here. Recently, Oklahoma Attorney General John Cartwright, responding to the Canadian buying binge, tried unsuccessfully to force Hillcrest Investment Ltd., a Calgary developer, to sell investments worth about $150 million in the state. Cities Service Co. of Tulsa, a U.S. oil company, also put up a ferocious legal fight when Nu-West Group, one of the Big-Ten Canadian developers, bought seven million Cities Service shares. Nu-West has since sold the shares, but acquired other oil interests.

Canadians are not stopping at real estate

Part of the secret of the Big Ten's success in penetrating the U.S. real estate market has been the personal drive and business savvy of the men who started Canada's large development companies from scratch during the 1950s and '60s. Three of Canada's Big-Ten executives—Jack Poole, president of Daon; Harold Milavsky, president of Trizec; and Ralph Thomas Scurfield, founder of Nu-West Group—were raised in small Saskatchewan farming communities. G. Donald Love was a used-car salesman before he founded Oxford Development Group. The Reichman brothers, who emigrated from Hungary during the 1920s via a circuitous route through Africa, received no university education. And Robert Campeau, chairman and chief executive officer of the Campeau Corporation, the only Quebecois developer, dropped out of school after the eighth grade.

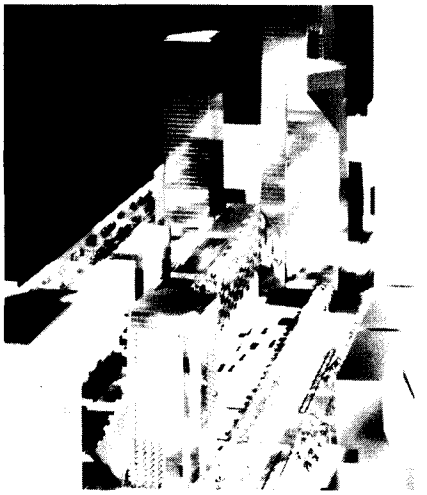
In fulfilling their own Canadian Horatio Alger story, these developers refuse to stop at real estate. Olympia and York, which began primarily as a builder of office buildings, has not only expanded the range of its development projects but has also diversified into other businesses such as asbestos, oil, gas exploration and newsprint production. Genstar, which has specialized in low-rise residential developments, is probably the most diversified of the Canadian developers, with interest in 20 different businesses, including architectural components, precast concrete, cement, lime, and shipbuilding. Nu-West Group has also diversified into natural gas, as well as oil.

Another reason for Canadian diversification is the need to hedge against the inherent instability of the real estate business. Although Cadillac Fairview's John Daniels likes to quip, "What do interest rates have to do with it [the development business]?" Not even Canada's biggest developers are immune to the vicissitudes of the percentage point. Furthermore, the insurance companies that provide long-term financing to developers are no longer content with mere mortgage payments and are demanding a piece of the building block, in the way of part ownership.

In fact, Bertram Lewis of Sybedon predicts that changes in financing practices, particularly the changing role of insurance companies, will soon make developers as real estate speculators obsolete in all but the housing market, which he says is too close to the public: "The financing companies will be the developers of the future."

April Sound Townhomes in Phoenix was designed by Calhoun-Eads & Associates and developed by Nu-West Group Limited. The $6.5 million project consists of 143 residential units that are scheduled for completion around 1984.

Denver Square, situated on one square block in downtown Denver, was designed by Skidmore Owings & Merrill and developed by the Oxford-AnsCo Development Co., a partnership between Oxford Properties, Inc., the U.S. subsidiary of Oxford Development Group, Ltd. of Edmonton and the Anschutz Corp. of Denver. The complex, completed in 1979, includes the 40-story Anaconda Tower, the 550-room Fairmont Hotel, 600-car parking garage, and a 60,500-sq ft, single-level retail pavilion.



California Center, a $1 billion high-rise office, residential, hotel and cultural complex, is being built on 11 acres in Los Angeles. Kamnitzer Cotton Vreeland, Gruen Associates and Arthur Erickson Associates are the designers. The project is being developed by Bunker Hill Associates, of which Cadillac Fairview/California, Inc. is a major partner.

And so, changes in the Canadian developers' business practices are already visible. Joint-venture teams of two or more Canadian developers, or American and Canadian developers, are becoming quite common. Developers are also trying their hand at creative financing. Daon Corporation, for example, recently raised all of its outside money for two projects without turning to a mortgage company, by organizing a public syndication in which individuals could invest a minimum $20,000 toward an office building in Vancouver, or a minimum $125,000 toward three shopping centers in Alberta. These syndications enabled Daon to raise 75 per cent of its financing for the office building ($18 million) and 82 per cent of the financing for the shopping centers ($145 million) in six weeks. Daon was the first to finance developments this way, according to Mitchell Gropper, senior vice president of Daon. But according to Donald Love of Oxford, taking in dozens of inexperienced investors is "a risky business." Love prefers to use more conventional methods for financing Oxford ventures. In the housing industry, Angus A. MacNaughton, chairman of Genstar, says his company will be launching a pre-sale campaign of residential units as a hedge against a fickle housing market.

The need to pre-sell units to finance residential housing has brought a third actor to the real estate scenario—the marketing consultant who orchestrates the efforts of the developer and architect to meet public demand and to convince the public that they are in fact getting what they want. Alvin Preiss, a New York-based marketing consultant, has helped pre-sell several residential projects, including Independence Place in Philadelphia. Preiss's advertising gimmicks included showing prospective tenants a $10,000 doll-house-scale, fully furnished apartment model and an equally costly slide show. Preiss says that he has, at times, actually changed the architectural product to make it more saleable, by suggesting to the architect and developer that individual apartments might need more bedrooms to meet public demand, or by proposing specific changes or modifications to the public spaces of apartment buildings.

Lawrence Salkin, the architect chosen by Cadillac Fairview for Independence Place, says it is too early to discern the effect of marketing consultants on the relationship between developers and architects or on the final architectural product. But he does assert that marketing consultants have been instrumental in helping to establish an architect's professional credentials to the developer.

So the very complexities of real estate that brought the Canadians to the U.S. in the first place are introducing high-tech marketing techniques to architecture, insurance companies to the development business, Canadian developers to everything from oil and concrete to newsprint and shipbuilding, and architects to a new type of client and a new concept in architectural marketing.

—Andrea Gabor

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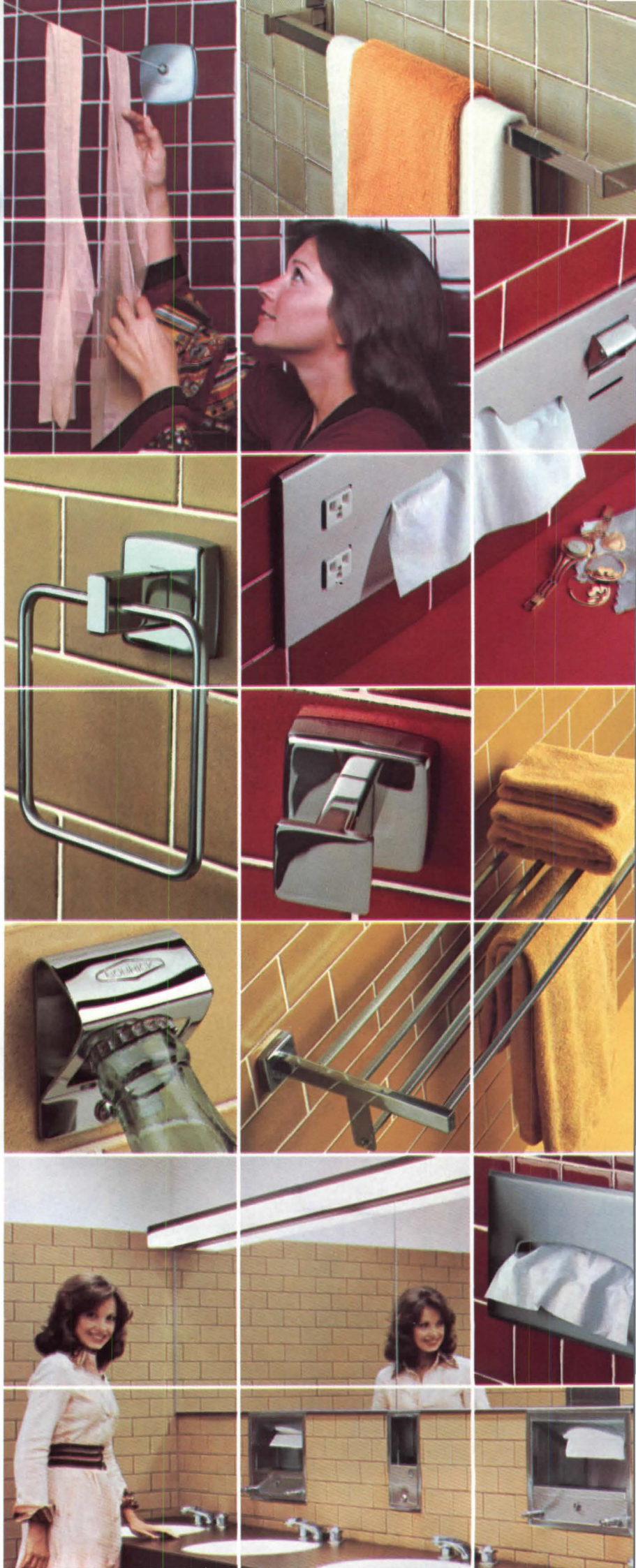
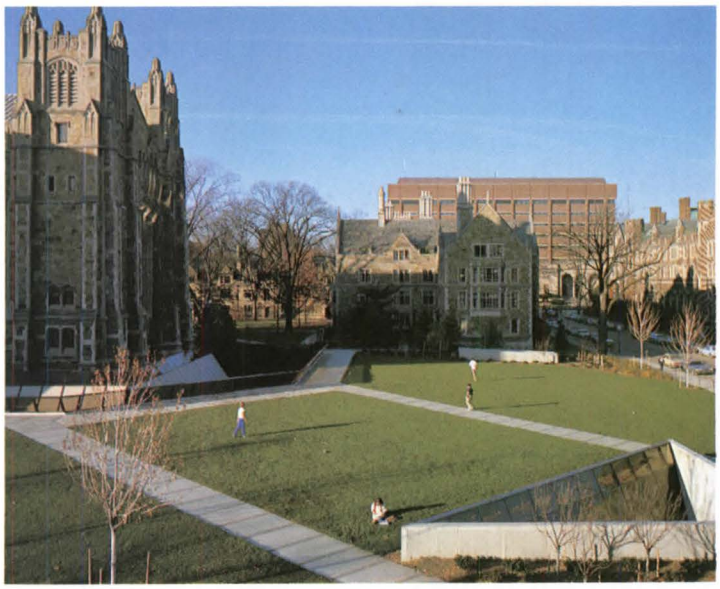


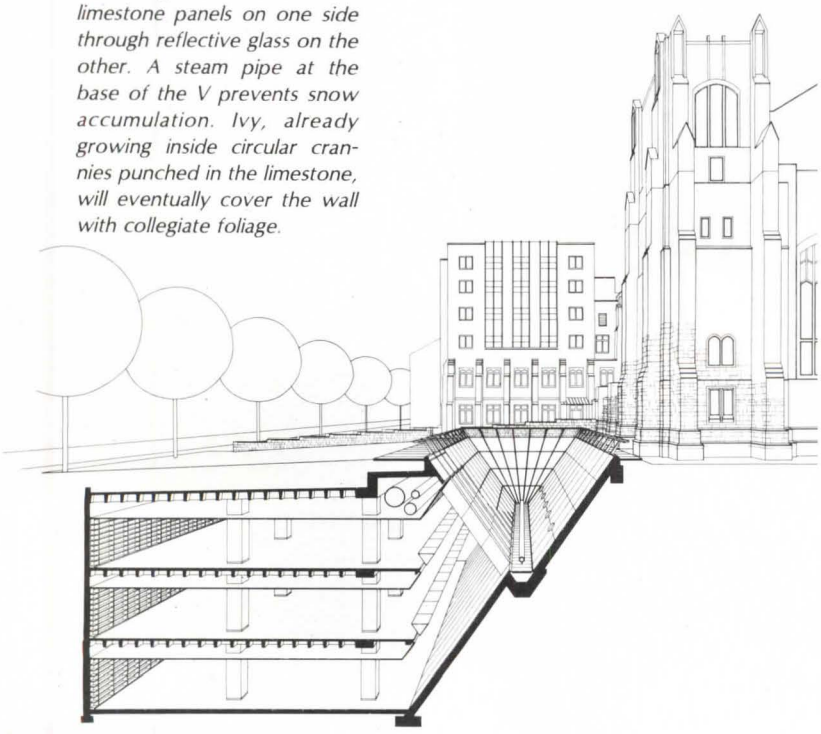
Timothy Hursley, Hursley-Lark-Hursley photos

ARCHITECTURE BENEATH THE SURFACE

All his working life Gunnar Birkerts has been captivated by the effect of light on architecture. He comes by the fascination naturally—though he is Latvian by birth and American by citizenship and experience, his soul, he says, is Finnish. And early association with Aalto and the younger Saarinen nourished his Scandinavian bent for husbanding and celebrating precious daylight. What greater challenge can offer itself to such an abiding love than the design of a building deep underground? The underground building in question here is a large library for the University of Michigan's prestigious law school, where students cracking their books get a plenitude of daylight and a multitude of views. The puzzling photographs on this page and the cover show the reflective glass moats that perform the sorcery. —*Grace Anderson*



The major source of underground daylight at Michigan's law library is a V-shaped moat stretching 160 feet along two sides. Light rebounds from limestone panels on one side through reflective glass on the other. A steam pipe at the base of the V prevents snow accumulation. Ivy, already growing inside circular crannies punched in the limestone, will eventually cover the wall with collegiate foliage.

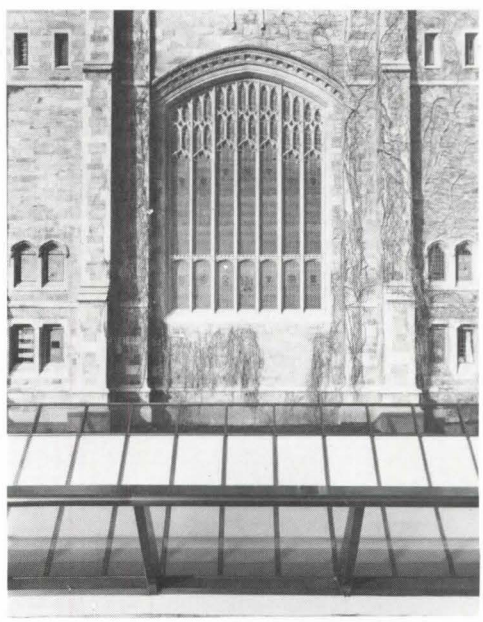


Confronted by the need to expand its library, the law school at the University of Michigan and its architect, Gunnar Birkerts, decided to go underground. The decision followed a precedent set by some other universities that, like Michigan, wanted to preserve open space above ground. Early efforts to raise a building on this site were rejected, Birkerts reports, when it became evident that such a structure would hide the Gothic presence of the existing library and impede visual and pedestrian access to the cherished Law Quadrangle formed by the older library and dormitories.

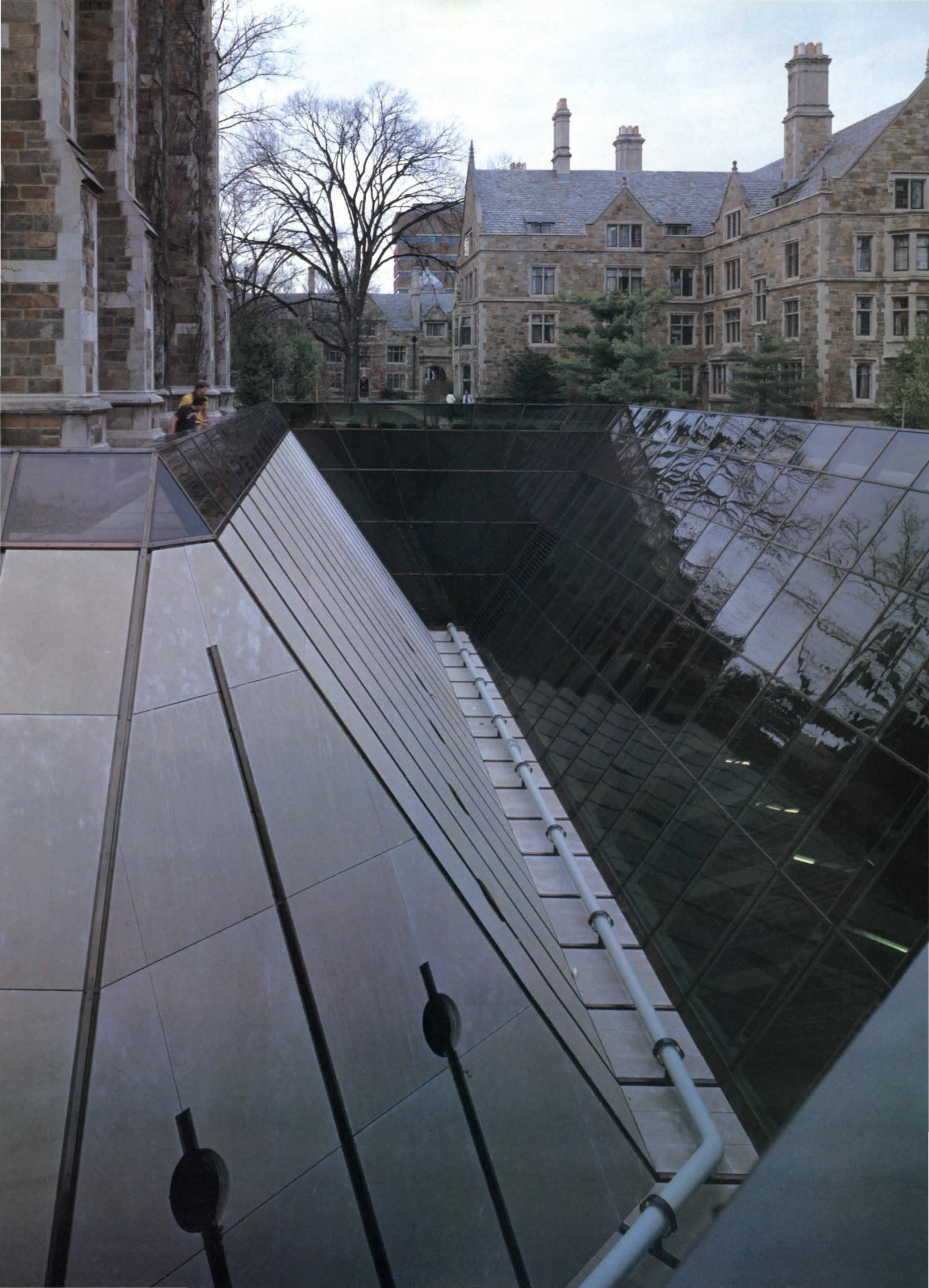
Birkerts seized the underground assignment as a chance to create an unmistakable work of architecture rather than simply to ameliorate the lot of enforced troglodytes with interior decoration. Deprived of all the familiar external tools of architectural design—massing, facade, structural expression—he turned for help to an old friend: daylight.

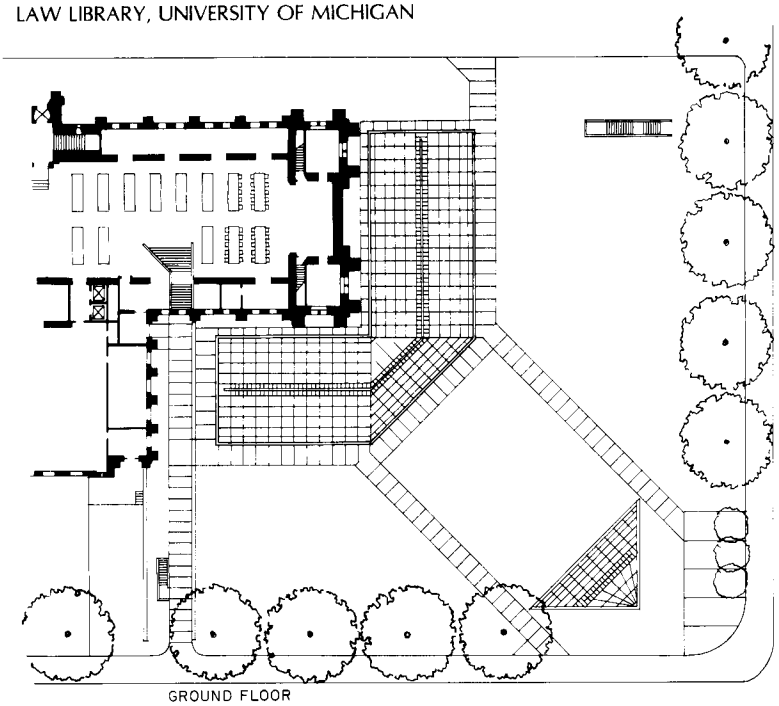
Merely widening windows to streaming sunlight has never satisfied Birkerts's ambitions. He sees daylight as a material—a material to be manipulated for use and beauty. In recent years he has become increasingly caught up by ways to diffuse, reflect and refract light. (See the IBM offices in Southfield, Michigan, in the October 1979 issue of ARCHITECTURAL RECORD, the Duluth Public Library in November 1980, and the Corning Museum of Glass in February 1981.) The current passion for daylighting as a passive use of solar energy and a conservation measure is all very well and an additional advantage to this design. But the real point of daylight to Birkerts is that it shapes architecture.

The Ann Arbor library draws sunshine, both direct and diffuse, down to the bottom of a three-story building. At the same time,

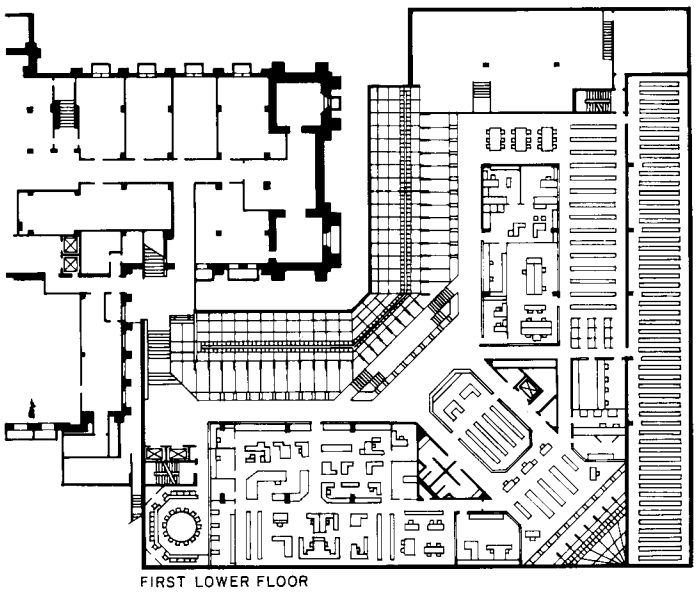


readers can raise their eyes from their books to see the reflected richness of indoors, outdoors and themselves. Birkerts declares his intention of going underground without degrading the building's users, who can sit or move about in the space with no oppressive sense of burial in a remote subbasement. The

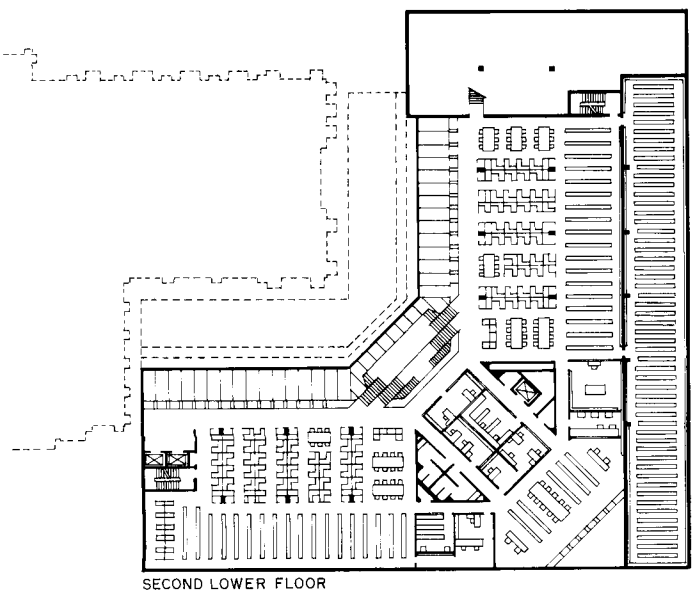




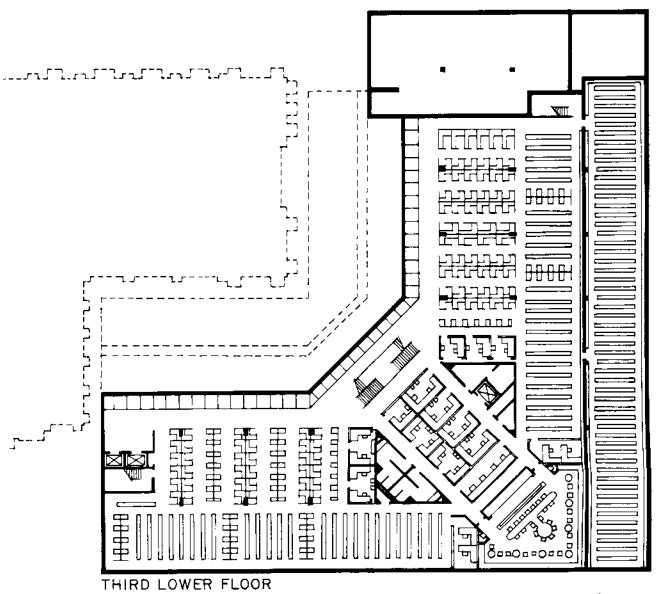
GROUND FLOOR



FIRST LOWER FLOOR



SECOND LOWER FLOOR



THIRD LOWER FLOOR

eye, ranging the balconies around the skylight or glancing up to trees and clouds, can encompass distances that would be generous in any building.

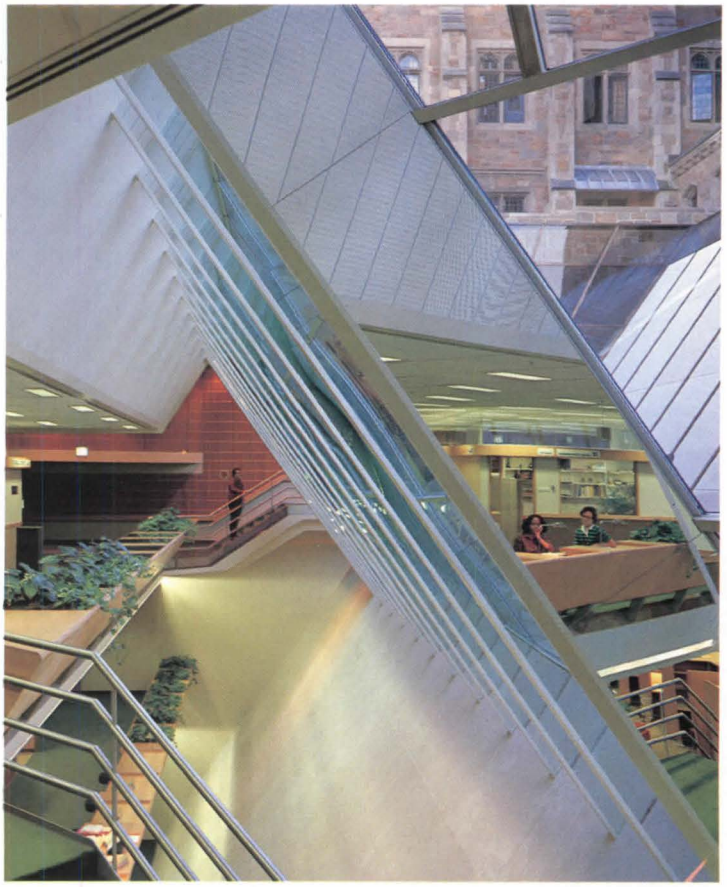
The key to underground daylighting here lies in a pair of penetrations through the roof. The larger is an L-shaped trench defining the inside corner of the new library and wrapping around the base of the old. The limestone panels that face one sloping wall bounce light through the reflective glass opposite. The trench itself goes down only one story, but the slanted limestone extends all the way to the bottom of the building (see section on preceding page). This surface is in effect the workhorse of daylight distribution, its texture diffusing illumination received from the skylight deep into areas on both legs of the L. More important psychologically, the bright sunlit expanse is visible to anyone sitting or standing well inside the building.

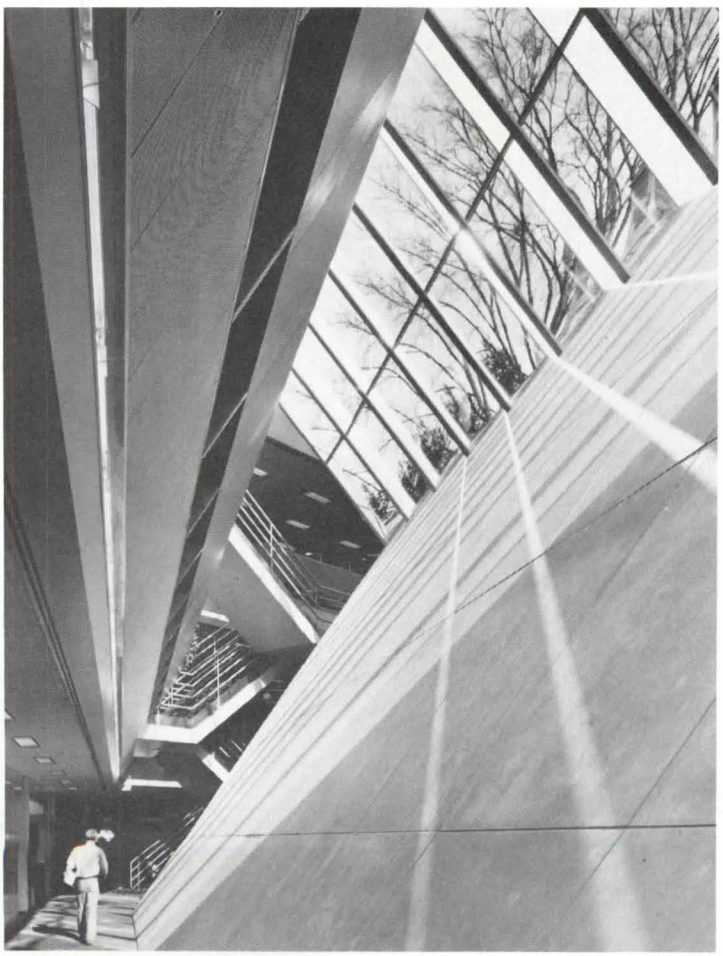
Of equal importance psychologically, a smaller triangular well provides backlighting in the underground space. Even along the back walls, if no partition interferes, one is conscious of daylight in the corner and in the lounge at the bottom of the well.

The long skylight does more than merely admit daylight. Birkerts has used it for the kind of visual fun and games that can turn functional shelter into architecture. A deceptively simple device—yard-deep mirrors set perpendicular to mullions—creates a long row of "stained glass windows" that capture colorful and changing images of foliage, sky and the Gothic details of the "mother building." The architect cunningly devised this fractured and kaleidoscopic ornament to beguile and tranquilize "pragmatic minds" preoccupied by law texts.

Functionally, the mirror-mullions operate as baffles to reduce the amount of direct sunlight and glare entering the space. In this guise, the mirrors add another decorative dimension—a plaid pattern formed as direct and reflected light and shadow meet on the limestone slope (see next page).

After sunset, the trenches come close to being external architecture. Cove lighting at the edges of the balconies shines through the glass to glow on the limestone panels and





Reading desks set on stair railings take advantage of diffuse daylight from sloping glass (opposite). Skylight and mirrored baffles admit and reflect light to the bottom floor (directly above). The mirrors reflect outside views as well as viewers themselves (at top above).

illuminate a fanlight at one end. At those hours, rather mysterious moats of light surround the old Gothic building.

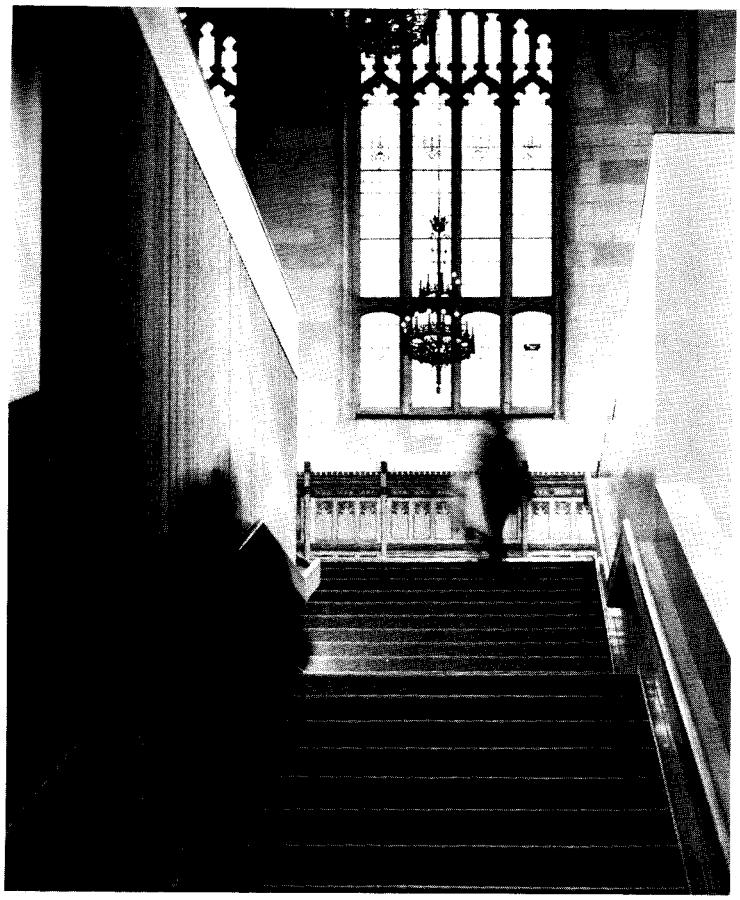
Quite apart from the relief of the psychological pressures engendered by an underground building and the visual entrapment of pragmatic minds, however, the building is first of all a working library—and few libraries work harder than those of law schools. The addition is intended for the use of students; other scholars and guests will use the old library above, which also becomes the main entrance to the new.

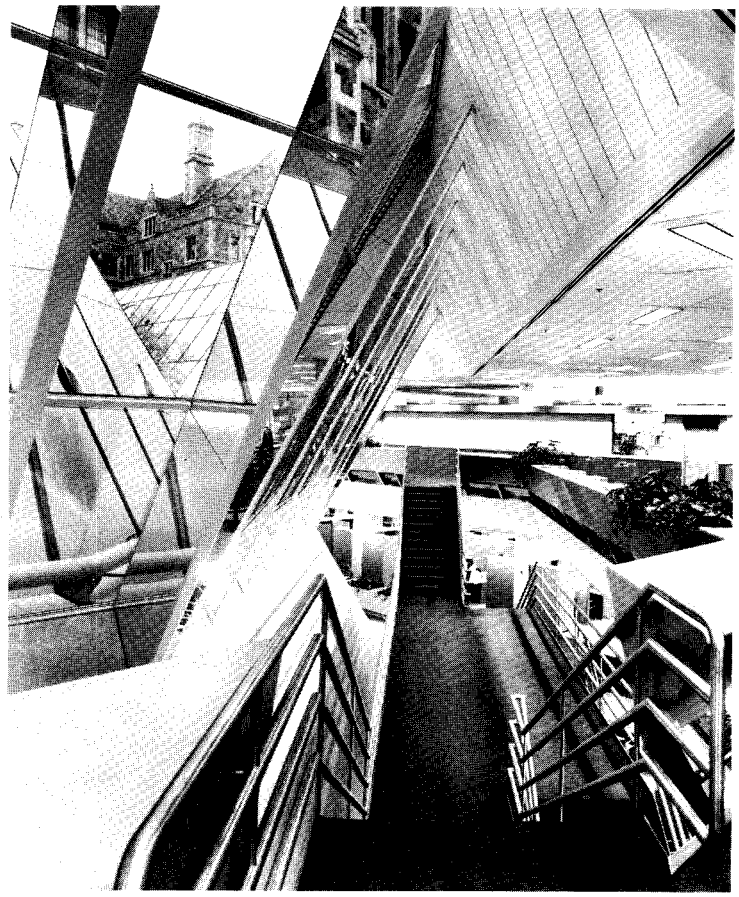
Students are each assigned a carrel provided with cabinets for sustained projects and already wired for the video display terminals that librarians expect will shortly be needed. Many of the students, however, regularly use the daylit reading desks on balcony railings, though Birkerts meant these chiefly for brief reference stops; the seats are in fact only armless stools, but the resilience of youth and the luxuriousness of light and interesting things to look at clearly outweigh lack of creature comfort. Ranking just behind the railing as choice space, the diagonal axis that connects the inside corners of the L offers occupants daylight at either end. The space is used for circulation desks, administrative offices, and casual lounges.

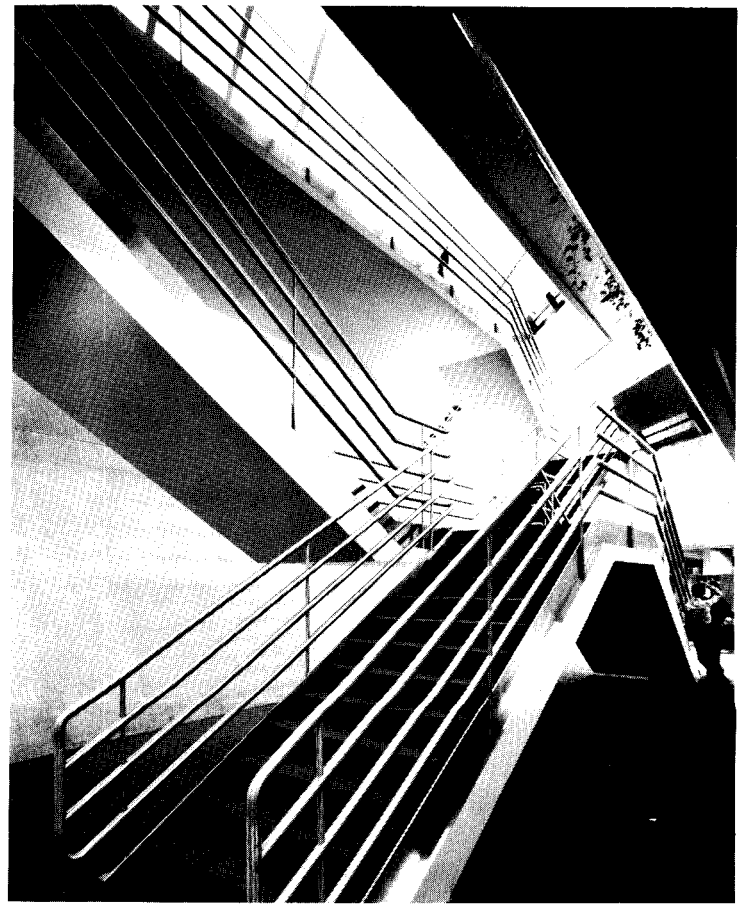
The 77,000-square-foot building can accommodate 180,000 volumes in finished space, another 200,000 to 300,000 volumes in unfinished space. The new library cost $9.5 million, all private money contributed by law school alumni and other donors.

UNIVERSITY OF MICHIGAN LAW LIBRARY ADDITION, Ann Arbor. Architect: *Gunnar Birkerts and Associates—Kenneth Rohlfing, project director; Barbara Bos, Mary Jane Dines, Charles Fleckenstein, Anthony Cholz and Kenneth Kemp, project team.* Engineers: *Robert Darvas Associates, P. C.* (structural); *Joseph R. Loring & Associates, Inc.* (mechanical/electrical). Consultants: *Wolf & Company* (cost); *Construction Consultants, Inc.* (waterproofing). General contractor: *J. A. Fredman, Inc.*

LAW LIBRARY, UNIVERSITY OF MICHIGAN



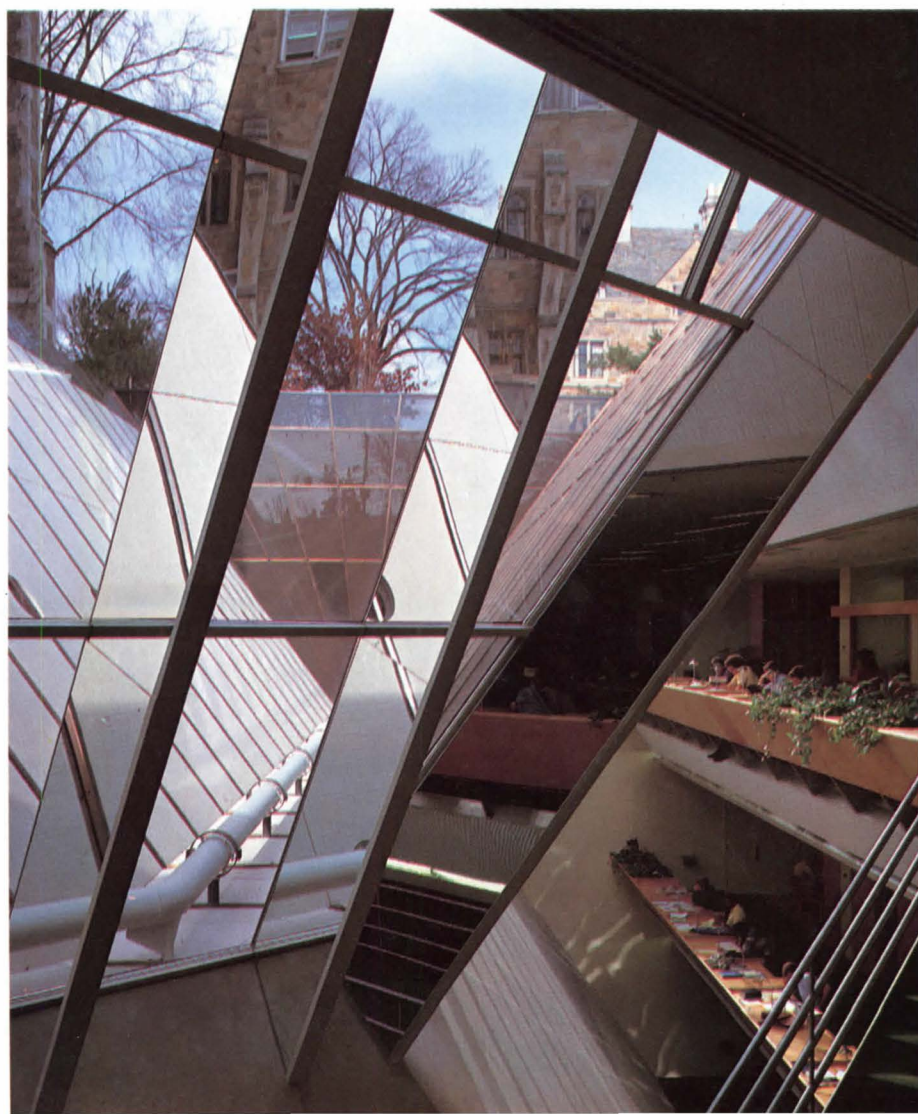


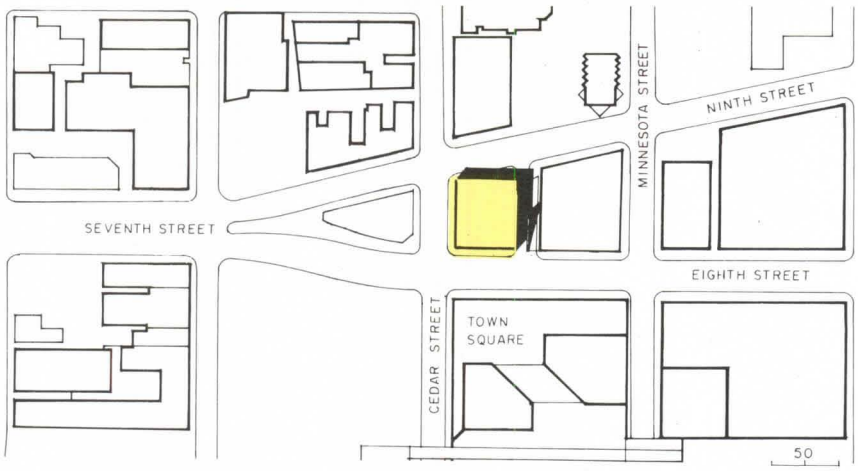


The predominant—indeed the only readily recognizable—architectural element at the University of Michigan's law library addition is a grand staircase that connects all three floors at the corner hinging the two underground ells. The stairs combine with balconies overlooking the long lightwell to form the building's major circulation route (opposite). Visitors enter first from the old Gothicized library via a broad but discreet stairway. ("It hurt to make an incision in the old building," Birkerts says of the surgery required to connect the two libraries.) The structural variations composed for the descending stairway are described by engineer Kenneth Winters: "The top run is suspended from two cantilevered sections of the floor slab, 68 feet from end to end, to an intermediate landing. The next run is an arch between two cantilevered sections of the middle floor slab, 58 feet from end to end. The next run is again suspended, 48 feet from end to end, with the lowest run acting as an arch, 30 feet from end to end."

Waffle-plate floor slabs, in addition to supporting a live load of 150 psf, and the roof slab, in addition to supporting 3 to 6 feet of soil, act as diaphragms to resist lateral earth loads in the two outside walls. The sloping light well is supported by vertical concrete piles, built adjacent to each other to effect a retaining wall and stabilized with prestressed concrete tie-backs extended into earth below the old building. Concrete planks behind the limestone facing were backfilled with a sand-cement mixture, and a lead membrane provides waterproofing.

At the entry to the new library, glass display cases are embedded flush with red oak railing (upper right).




NINTH STREET
MINNESOTA STREET
SEVENTH STREET
EIGHTH STREET
TOWN
SQUARE
CEDAR STREET
50

Balthazar Korab Ltd. photos

New offices and studios for Minnesota Public Radio

On a prominent site in the central business district of St. Paul, architects Leonard Parker Associates have skillfully fashioned—through rehabilitation and new construction—the new corporate offices and broadcast studios for Minnesota Public Radio. MPR started 15 years ago in a small Minnesota town, but has been so progressive in its programming that it is now considered the flagship of the public radio system. Representative of this growth, MPR sought out St. Paul for its new home because of the city's broad electronics industry base. Because it is primarily supported by public funds, a strict budget controlled what could be achieved in the new facilities. Opportunely, a most acceptable solution was found in an existing two-story building, one which had been structurally designed to carry the load of two additional floors that were never built. The architects remodeled the existing building and added two new floors on top—all at a cost of $50 per square foot.

The site is on axis of the major exit from Interstate 94 leading into the business district, and at the intersection of heavily traveled Seventh, Eighth and Ninth Streets (see site plan). A triangular parcel of land to the west is planned as a public mini-park. MPR, with its electronic news banner incorporated into the roof on the western elevation (photo below right), has therefore become the recognizable gateway to the business core.

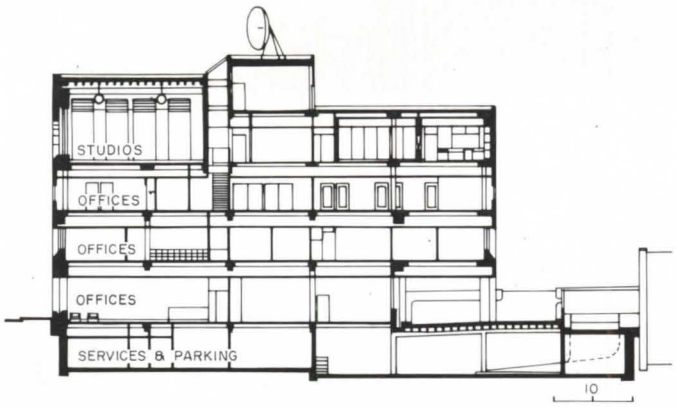
The original building (photo below) was constructed in the mid-1960s as a savings and loan bank. The two new floors overhang the perimeter of the original building by 25 feet to the east in order to accommodate interior program requirements. These new floors consist of concrete columns and joists, with the building envelope of masonry cavity wall construction.

The architect's intent in handling the exterior was to present a new image—one which unifies the old and new elements, without pretense or gimmickry. On the first floor, the exposed columns, dark red granite base and window sash were retained, but the entrance was relocated to a highly visible corner. While the window sash was also kept on the second floor, some of the fins between columns were removed along with the marble facing. The third floor introduces another visual element in the use of a continuous ribbon of glass, symbolizing the demarcation between old and new floors. But it is the fourth floor which caps the over-all image. Here, the varying roof line signals high-volumed spaces for interior studios, and the prominent arched windows reflect this recurrent form found in older, neighboring buildings. The four-story building was reclad in deep red-colored brick, matching the granite of the building's base; metal sills and trim are burgundy-colored porcelain enamel.

St. Paul is no longer considered just the other half of the Twin Cities, for the renaissance of its central core has produced some notable architectural designs. The creation of the MPR headquarters adds a special visual character to the area that could not have been achieved in the same manner with a totally new structure; its architectural success is a tribute to the ingenuity of the architects and support of the client. —*Janet Nairn*

CORPORATE HEADQUARTERS AND BROADCAST FACILITIES FOR MINNESOTA PUBLIC RADIO, St. Paul, Minnesota. Owner: *Minnesota Public Radio.* Architect: *The Leonard Parker Associates—Leonard Parker, Gary Mahaffey, Merle Hansen,* project team. Engineers: *Meyer Borgman and Johnson* (structural); *Ericksen-Ellison & Associates* (mechanical/electrical). Interior design: *Del Westberg Associates.* Acoustical consultant: *Robert A. Hansen Associates.* General contractor: *Kraus-Anderson of St. Paul.*

This four-story building for Minnesota Public Radio has been transformed through remodeling of an existing building (above) and the addition of two new floors. The news banner (right) has become the focal point for those driving into the city.



FOURTH FLOOR

THIRD FLOOR

SECOND FLOOR

FIRST FLOOR

The facility program required 53,000 gross square feet, of which 25,000 existed in the two floors of the original building. Three floors contain administrative functions in conventional office layouts, with perimeter offices and conference rooms, and open-planned work stations in center areas. Since production/broadcast/recording studios had to relate closely to the news room and music department, the former were positioned on the fourth floor and the latter on the third floor, interconnected by a central stairway. There are a total of eight studios and seven control rooms, most of which are grouped on the eastern half of the fourth floor into two bays; three studios are operated from two control rooms (see plan). Along the common wall of these spaces is a window to allow for necessary visual contact between engineers and announcers (below). Since these areas are made pleasant with controlled amounts of natural light, one arched window was placed between each studio and control room along the perimeter. Sound absorptive material was placed on all interior walls and above wood slat ceilings (an esthetic device as well as for acoustical enhancement). The largest studio for recording musical groups incorporates six semicircular acrylic tubes facing a large window to diffuse sound while admitting daylight (far left). The spatial volumes of each of these studio bays is expressed on the exterior (see page 86). A lounge (left), also located on the fourth floor, leads onto an outdoor deck, hidden from street view behind a low wall.

A CONVERSATION WITH PAUL RUDOLPH

From the start of his own office in 1952, Paul Rudolph has worked on all kinds of commissions, but in this dialogue with architectural writer and former RECORD managing editor, Jeanne M. Davern, he focuses on one of his major concerns—urbanism—in the context of recent architectural history, post-modernism, technological innovation and advice to young people who aspire to be architects.

BY JEANNE M. DAVERN

As a leading member of the second generation of modern architects—that is, the generation that began practice in the years immediately after World War II—how do you view the state of architecture today?

With complete surprise!

How is it different from what you expected, when you were a student of Gropius at Harvard?

I thought, by this time, that (1) *urbanism* and (2) the expansion of earlier modern *spatial concepts* would be of passionate concern. They aren't. The avant-garde is consumed merely by questions of style. Something called "orthodox modern architecture" is seen as the enemy. They mean Miesian or reductivist architecture, which doesn't reflect at all the thinking (or building) of Post-World War II. It was clear by the early fifties that Miesian architecture was highly resistive to urban design except as a marvelous counterpoint to traditional architecture. Furthermore, spatial concepts in Miesian architecture remained limited (why didn't they turn the Barcelona Pavilion on its side?) and modern architecture's resistance to appropriate variety of interior space rules today. The two great limitations of modernism remain urbanism and a paucity of spatial concepts that satisfy man's psychological needs. The so-called avant-garde rejects the vertically, horizontally, swirling, flowing space or the 20th-century concept of space (as yet entirely undeveloped) and returns to the more static room. This is understandable since the multiple directional 20th-century space (Pei's Washington Gallery main space, for instance) makes concentration or even standing still difficult. Such spaces lead simultaneously in many directions, often are unbalanced in their thrusts and counter thrusts and it takes an artist to balance them. However, the return to the "room" can be seen as ignoring Freud, Wright, the camera and the implications of science, as implied by 20th Century artists. Thus we need to continue to develop spatial concepts.

How early did your own concern with urbanism begin?

Not until an unforgettable year in Europe (1948). I saw then that since time began people could add, subtract, remodel, redefine their cities in the most dynamic manner—and that style had little to do with it. The 20th Century penchant for specialization and its great teachers suggested that the planners would determine large-scale three-dimensional design and architects would fill in the details. Alas, it doesn't work that way. The free-standing building, an object in space, seldom contributes to urban design, but that concept dominates America today. Unfortunately our concepts of zoning and the law, our abdication to planners, and sheer habit results in our seldom building "places" but collections of free-standing objects, unrelated to each other or to their particular place. Groups of free-standing buildings, each with no sense of hierarchy, unrelated to its neighbors, following laws completely unto itself, cannot give a sense of place. In the past two decades people have become disillusioned with modern architecture, but the proposed solutions or alternatives (merely stylistic) don't get to the roots of the problems. This dilemma goes back to the 20th Century's greatest architects—Le Corbusier, Mies, and Wright.

Le Corbusier wanted to tear down Paris and build his multi-use skyscrapers in parks (for a time New York's zoning was based on this concept, except the parks became minimal setbacks with plant boxes). More important, and more damaging, Le Corbusier cried "down with the street." This notion has poisoned 50 years of urbanism, for the street (or circulation system) and its appurtenances remain *the generator*. It should be noted, however, that Le Corbusier is the only architect who undertook to make even hypothetical proposals integrating the automobile. His poetic Algerian project best illustrates this principle.

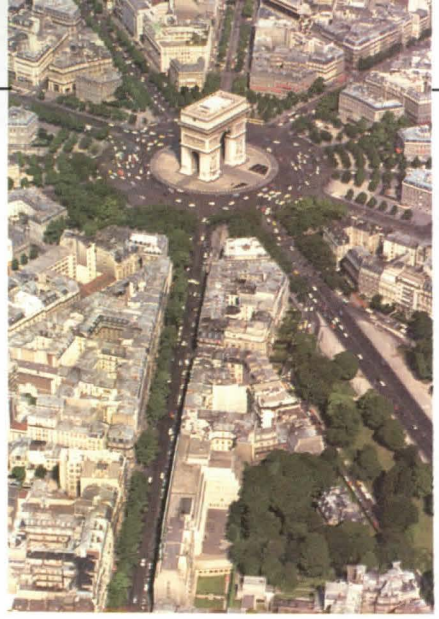
Mies was content to build his beautifully proportioned and detailed skyscrapers on the speculative builder's site with no sense of place or climate, or the demands of immediate access and relationships to the environment. It should be noted that the scaleless skyscraper works well above the 100-foot-height (people do not easily recognize others much beyond that distance) and so becomes a determinant for design. The "point" building, or "slab," requires clear definitions of scale and space at the street level, or for the first 100 feet. Our skyscrapers seldom contribute to urban design for they do not recognize the fundamental difference between the base which people can relate to and the scaleless middle and top.

Wright's manifest dislike of cities comes through in his urbanistic thinking. He was best when building isolated structures. The results of his "acre for everyman" are seen in Los Angeles, which has a certain clarity until you get to the concentrated precincts, and then Wright's thinking gives way to our largely anonymous central business districts.

The truth is that the 20th Century has not developed any new urbanism, but adapts traditional notions. This should not be deplored because the city is—fundamentally—shared and deeply felt images which change very slowly. This is reflected in Colin Rowe and Fred Koetter's book, *Collage City*. They propose building monuments based directly on the great historical models of the past. Presumably each city should have one of everything (Noah's ark had two of everything, but Mr. Rowe is very modest). The 20th Century hasn't built great cities (not even workable ones) but the idea of recreating the monuments of the past won't solve any problems at all—not even esthetic ones.

Here is a list of the component parts (buildings only) which form comprehensible exterior spaces:

1. Focal and centralized freestanding building.
2. Focal building which is attached to another.
3. Flanking buildings.
4. Crescent buildings.
5. Row buildings which form a wall.
6. Building at "knuckle" or bend in a row of buildings.
7. Concavely curving building.
8. Building which turns a corner.
9. Building which terminates a row of other buildings.
10. Building which acts as a gateway.
11. Building which marks an entrance.



Far left: Piazza San Marco, Venice.
Left: Place de l'Etoile, Paris

12. Transitional building, leading from one to another.
13. Building which acts as a base for others.
14. Building which is placed on top of another.
15. Building which forms a courtyard.
16. Building which forms a bowl of space.
17. Convexly curving building forming a space.
18. Building which deflects circulation.
19. Building which forms a bridge.
20. Building recessed in a wall.
21. Building which forms a terrace.
22. Stepped, terraced buildings.
23. Building which forms a loggia.
24. Cellular buildings which multiply.
25. Building which acts as a pivot in space.
26. Building which partially shields others.
27. Building which acts as a hill.
28. Cloister type building which forms a precinct for others.
29. Building acting as a generator for others.
30. Tall buildings can be divided into points, slabs, bent slabs, intersecting slabs, sentinals, stepped in one or several directions, variations on the pyramid, and irregular topographical buildings.

They are completely independent of style. They have been with us for two thousand years with the exception of the skyscraper, and the superhuman scale of transportation systems. The automobile in various forms will be with us for a long time, and opens up untold possibilities. Instead of being an evil its demands will eventually lead us to "mega-structures"—an unfortunate word. Mega-structures are multi-use building complexes with integral transportation systems. New York's East River Drive, with its use of air rights, is gradually becoming a megastructure, although it is not thought of in this way. The use of air rights in highly developed areas will eventually lead to more humane and comprehensible cities.

My definition of urban design is remodeling, adding, subtracting, reworking, relating and reforming three-dimensional spaces for human activities, including all pedestrian and vehicular systems. Urban design deals with the old and the new, the expanded and the contracted, the humdrum and the extraordinary. It brings people together. It separates people. It commemorates its history. It never lies, but portrays life three-dimensionally, as it really is. At its best, it creates related and usable exterior spaces, provides means of "getting there" and a "there" once you are "there." It is the mother art of civilization, for it allows and, indeed, demands ideas, thinking, reactions to opportunities of the moment. Urban design must be executed in the spirit of its time, but demand respect for its earlier efforts. The new depends on the old and is responsible for the future. If the old is ignored, misunderstood, the future will mock the seemingly new and reveal for all to plainly see the false thinking expressed. All the other arts are handmaidens to urban design.

Do you feel that modern architecture is over?

No. Modern architecture exists because society posed many hitherto unknown problems which required new solutions. The International Style has been over for three or four decades. Architects are servants of society and our work is relevant only insofar as we recognize society's demands. Architecture exists when there is need. We don't deal very well with society's demands because they are so difficult and so a whole generation turns away and tends to deal with stylistic niceties, not with real problems. Sheer bulk; the relationship of transportation systems of all kinds to buildings—in short, the environment—is ignored. I'm not sure that "post-modernism" is more meaningful to most people, partially because of its attitude of "talking down" to people. People instinctively recognize anything that has real merit. It doesn't have to have little patronizing assists from its authors.

What do you think of "post-modernism"?

It is a reaction which started in the early fifties to modern architecture, is tainted with eclecticism, celebrates "pastiche modern," and leads to revivalism. The post-modernists say they want to reinstate decoration (the best modern buildings always included decoration); "use" history (they are busily rewriting history) and exhort one and all to return to the urbanism of the 19th Century (they call it contextualism, which apparently means that you can ignore the automobile and embrace eclecticism). Contextualism usually means matching older buildings by putting windows in walls in ways which are at best ambiguous in their relationship to structure, since no one has ever figured out how to drape masonry over a steel or concrete frame. 20th Century architecture's emphasis on inside-outside flow of space has not aided urbanism where the "reading" of the "wall" at varying distances is all important. Decoration adds meaning and is a prime scale-giving device but this does not excuse pastiche. The fundamental, misunderstood, and potentially rich relationship between scale and urbanism has been forgotten, although the size of our buildings and environment requires a new understanding of scale and, therefore, decoration. The post-modernists' attempts at decoration are additive, not integral, and ornament is not usually used in the service of urbanism, but as part of complex montages of several historical styles all within one poor building. Not even the 19th-Century was so self indulgent. Appliqués of many kinds, plywood key stones, aluminum Ionic column capitals, a plethora of superimposed memorabilia, references to history (often very personal) as opposed to a dialogue with history, results in added dead weight. I've never seen a post-modern section or plan—just elevations. Space, scale, structure, urbanism and meaning must exist in a work of architecture, otherwise it is a movie set. The most successful decoration reflects and celebrates structure, space, and organization of the whole as related to the part. Decoration can be thought of as a precious assemblage of selected parts which is poured over the structure in such a manner that the parts adhere to important junctions—the junction of building to base, base to support, support to the supported, building to sky and, most important, building to user as manifest at entry and opening. The best

Far left: Admiralty Arch, London.
Left: Hotel des Invalides, Paris.

decoration has always grown in an integral way with the structure and reduced or heightened the scale. Appropriate 20th Century decoration will emerge through meaningful and appropriate selection of themes, celebration of the joint, manipulation of artificial and natural light, and the juxtaposition of regular structure to irregular mechanical systems.

Post-modern references to history sometimes become a delicious game for players only. The post-modernists' "allusions to history" and jokes are often codes whose meaning is best known to themselves. Their meaning and humor will not be very clear when their works, in turn, become "history." Rome, for instance, is timeless, because one knows instinctively when each work was constructed. Post-modernist work depends on the art of montage, and not even a three-dimensional one, at that.

The great London exhibition devoted to the work of Sir Edward Lutyens, a patron saint of the post-modernists, demonstrated his command of space, structure, place, site, etc. He borrowed rules from various periods of the past and joyfully broke them here and there, but he knew the rules (a necessary hurdle if you want to successfully break them). His best buildings are not merely montages, but efforts to relate to their environment. His work is very different from the post-modernist. Few, if any, architects can combine many periods of architecture in one poor building, especially when the underlying scheme is merely "functional" to begin with. Post-modernism is an interlude because it seldom addresses itself to real problems.

Not the historical?

Historicism, or eclecticism, has its uses. The early 20th Century architect threw out eclecticism, saying it was "fake," and should be torn down. Fortunately no one paid any attention. Eclecticism, or historicism, is useful when it helps to preserve *a sense of place.* I could never subscribe to revivalism. Chartres Cathedral's two towers eloquently reveal changed attitudes in the time elapsed between their construction. However, the eclecticism of the United States' suburbs, similar from Maine to California, will resist reproduction. The post-modernists, whose principal concern is to be identified with the avant-garde, combine elements of every known historical style in the name of pluralism, exercising fantastic variety and arty expression, adding to the environmental nightmare.

A rather different situation exists on many university and college campuses, since they are based on one period of history rather than multiple historical periods and are often related to climate. The ensemble must come first. Eclecticism with a canted wall here or a lantern there is merely trivial. My own first large building, the Jewett Arts Center at Wellesley College, made an effort to blend a series of new buildings with a pseudo-Gothic campus. That was carried out by completing a courtyard barely started by earlier buildings, utilizing the scale, heights, bay spacings, materials, details, emphasis on silhouette, etc. The new was derived from the old.

The terms abstract (meaning minimalism) and representational (meaning traditional) often appear today in architects' descriptions of their work. Of course all traditional architecture contains "abstract" form (the Parthenon's triangular gable is an abstract form) and good 20th Century buildings contain "traditional" elements—(the gate of Le Corbusier's Mill Owners Building).

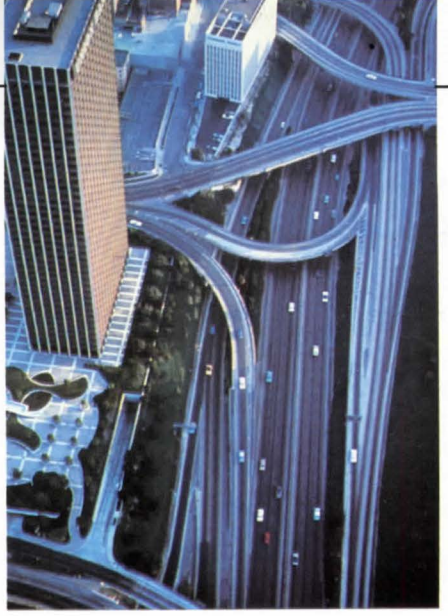
You could say the same thing about a particular corner in New York City, or Portland, or Chicago?

Yes. Styles, alone, do not make comprehensible environments. The great squares and cities of Europe are never based on historicism or a single style. For instance, the Piazza San Marco took a thousand years to build and has many "styles." It would never have happened if our preservationists had been around then, because much was torn down to enlarge the square. Many styles are represented because each period built in its own way (the spirit of the times). The Square is like a great symphony with each element or building playing a crystal-clear role so that the whole is greater than the sum of its parts. The Cathedral is a focal point, the Tower is a turning, pivoting point; the flanking buildings define the space in front of the Cathedral and frame the various entrances. The Doge's Palace, with its marvelous inter-twining structural system, leads you out to the sea. Each building is of its time stylistically, but it works as an ensemble, because each building or element sings in harmony with its neighbors. There are no appliques of history from other periods—not even "landscaping." The piazza is music.

Years ago I designed a house in Alabama based on the Greek Revival architecture of the South. I was brought up in that area, knew it well, and my first memories of architecture were the Greek Revival buildings of the area and the sharecroppers' cottages, both of which intrigued me no end. Both seemed to have complete validity—in other words, vernacular and so-called high architecture. This house in Alabama has double-story-high porches on four sides, over-scaled columns not based on structural need but on character—yet it's a modern house. It doesn't ever deal with Greek columns, capitals and bases, cornices, nor the use of symbols, but the image of the south is clear. The design comes from the climate, the environment, how people live, what was suitable. It gets *very* hot in summer; therefore, the enclosure is put in man-made shade, which lowers the energy consumption of the air-conditioning system. It has many symmetrical parts, but the circulation and spatial organization is asymmetrical. If you know the location of this house it is clear that it really comes from the Greek Revival architecture of the South, but it certainly doesn't have any specific Greek Revival symbols, although its image is similar because it tries to solve some of the same problems.

What is appropriate in a particular place, at a particular time, for a particular purpose?

Appropriateness for its time, use and cultural meaning is inescapable. However meaning changes with time and use, as Joseph Hudnut has eloquently made clear. 20th Century architects have often produced buildings which have unintended meanings at least at the outset. Forms and symbols take on different meanings. An example in this country is the Washington Monument—the



Far Left: Albany Mall, Albany, N.Y.
Left: Los Angeles Freeway.

Egyptian obelisk symbolized the Eye of God for the Egyptian; for us, it symbolizes the Father of our Country. Hudnut said that meaning comes *after* the fact. There are archetypical spatial-psychological aspects of architecture which strike the deepest human emotions and therefore, when wisely chosen, become the most appropriate of all. For instance, a space lit essentially from overhead takes on certain religious, psychological overtones. True architectural meaning is always felt and understood by everyman with complete inevitability. The public may be misled for a time—the Fascist architecture of Italy is now clearly seen as pompous, scaleless, therefore inhuman and relying too much on borrowed images and, therefore, "inappropriate."

It seems fashionable these days to be concerned about the lack of "diversity" modern architecture is thought to have engendered. I wonder if there is not indeed a very great deal of diversity, and I wonder whether it is necessarily always a virtue?

Certainly not. Diversity to what end, is the question. In classical times, they essentially had two materials to build out of, stone and wood, and that was it; and they did okay. Now, if you mean the call for diversity of style a la the 19th Century—Gothic for religious architecture; classical for government, etc.—then one can say that we do not have today enough diversity of "feeling" in our architecture. This is the failure of spatial concepts, but eclecticism is a copout.

Eclecticism, or diversity of styles (an indulgence of the 19th Century), is not, as I see it, an admirable state of affairs. Architecture, unlike the other arts, is not a private art. A Greek island, a traditional Japanese village, Haussmann's Paris, a medieval village, Boston's Beacon Hill are most lively and diverse, but not stylistically diverse. In art you see the whole in the part and that tension is something every man understands instinctively. The diversity of Mykonos, which is finally an island unified by the appropriateness of its forms, spaces, and materials, and the diversity of a U. S. suburb, which remains a collection of parts shouting for attention, are two different things. The daily concerns of the U. S. A. deal with efforts to unify a pluralist society. And so it is ultimately with architecture.

Arthur Drexler's show of several years ago at the Museum of Modern Art, for example, certainly revealed great diversity?

The Drexler show of the architecture of the last 20 years indicated *fantastic* diversity, each man unto himself, each element outdoing the other, and each building shown as an object, not part of the environment. I visited the show three times and each time I had to leave, it was so revolting. All those shapes and forms and materials. What did it add up to? Chaos. People talk about freedom. Freedom is yours only when discipline is clearly understood. It's a question of freedom to what end, and the end is not the individual building, the end is the environment. My generation made a mess of the environment.

In which too great diversity may result in chaos?

Most of our cities and new buildings demonstrate that that is so. However, we certainly need more diverse spatial concepts. A church for example is, of necessity, a very different kind of space psychologically. The pseudo-scientific approach to 20th century interior spaces spawned a bevy of specialists (interior designers, acousticians, lighting experts, space planners, etc., etc.), but they seldom produce spaces equal to those of the past. We also need the humanism of diverse exterior spaces. Every city needs its Times Square—brassy, honky-tonk—but it also needs its calm green outdoor room (Bryant Park, behind New York City's central public library). We need psychological diversity, not stylistic diversity. Denver should be very different from London or Tokyo, because of climate, history, society, etc. Diversity in and of itself is not an end; diversity is the means to create more appropriate and human architecture.

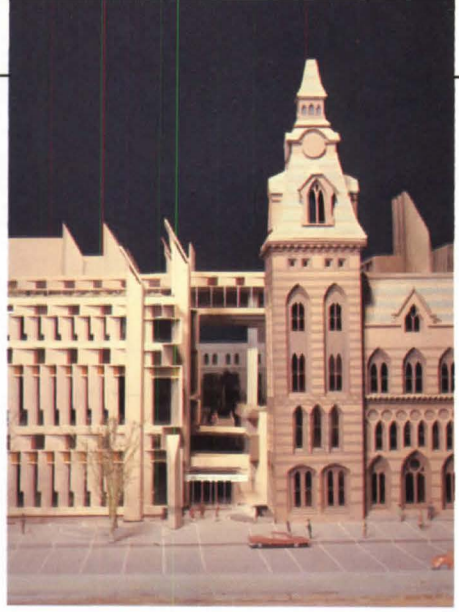
And diversity we may have, which does not mean we have architecture?

We never have had so many diverse materials before, which make possibilities of building various shapes and forms. That doesn't mean it's better. The best towns and villages have usually been where there's great unity, with diversity among the parts. Diversity was used to create a clear hierarchy of building types related to social usage.

Would you say that over some 30—almost 35—years of doing architecture, you have seen changes in the kinds of problems architects are required to deal with—problems in the sense of needs?

Yes, of course. Who would have anticipated the sheer volume of building carried out after World War II? The amount of built space constructed since World War II is probably at least double the entire amount that man had built up to that time. Transportation systems must have quadrupled. This starts with the population explosion. Dimensions are unparalleled. Traditional concepts of architectural scale are not adequate. Some now flirt with a return to classicism. Classicism is a way of looking at the man-made world which will always be with us and indeed is found in Miesian architecture. It is a beacon, a compass point, but it will not suffice in and of itself. Classicism had rules—rules that could be broken by the sophisticated—but well considered notions of architectural composition. One example was the idea of a beginning, middle and end: It's impossible to imagine a shopping center, an airport, or the East River Drive organized with a beginning, middle and end. A classical base which implies solidity is silly if one starts with an urban site which has many levels below the street, which suggests porosity rather than density (base). The Renaissance had already encountered the problem of large buildings (St. Peter's, for instance) where the size of the moldings and other decorations no longer played its real role as a scale giving element. Our skyscrapers can't depend on moldings several hundred feet in the air to serve as a terminus. The idea that an ant is a very different thing from an elephant is a guide. Today's scale is something we don't truly understand.

You have made some notable efforts in your



Far left: Jewett Arts Center, Wellesley College, Massachusetts, by Paul Rudolph with Anderson, Beckwith and Haible (1955). Left: Government Center, New Haven, Connecticut by Paul Rudolph (1968).

own work to recognize the future in the development of design concepts, and to design for what would come, admitting the future contributions of other architects. I think of both the Boston Government Center and of the campus for Southeastern Massachusetts University (SMU). There hasn't been very much of this in modern architecture, however, and isn't this the other end of the connection?—at one end connecting with what is in the past and at the other end preparing for the possibility of what will be in the future, which may be more difficult?

The generating ideas of most traditional cities are pedestrian and vehicular circulation, streets, squares, terminuses, with their space clearly defined by buildings. This means linked buildings united to form comprehensible exterior spaces. The Boston Government Service Center is the opposite of Le Corbusier's dictum "down with the street." It started with three separate buildings, their clients, architects and methods of financing. We didn't build three separate buildings, as others had proposed, but one continuous building which defined the street, formed a pedestrian plaza, and utilized a multi-storied building (not yet built) to announce the development from a great distance. The scale of the lower buildings was heightened at the exterior perimeter (street) so that it read in conjunction with automobile traffic (columns 60-70 feet high plus toilet and stair cores at the corners were used). The scale at the plaza was much more intimate using stepped floors which revealed each floor level, making a bowl of space. As one approaches the stepped six-story-high building it reduces itself to only one story. Since the high-rise building is an integral part of the whole, it calls for a particular kind of high-rise building.

You would prefer to finish the project yourself?

The architect must understand the role the multi-storied building plays in the ensemble. The multi-storied building was designed as a cluster of pivoting shafts, each turning at the corners so that it leads the pedestrian into the plaza. It was not just another skyscraper. The ensemble illustrates partially the principles of a megastructure. It is multi-functional; it accepts the car by defining the space of the street plus treating the garage as an entrance to the complex; it is integrated into the surrounding fabric (at the street intersections there are small piazzas, one of Boston's traditions). The bowl of the plaza is the counterpart of Beacon Hill and its state house one block away. It has nothing to do with stylistic elements (you could add classical details to the columns and cornices and it wouldn't matter very much—I don't know what could happen at the multi-storied building). When finished properly it will be "a place." I hope that Gertrude Stein would recognize it as a "there there."

SMU is a new commuter campus on a very large piece of land well removed from other structures. Its design started with Jefferson's University of Virginia and his defined "lawn" surrounded by pavilions connected with covered walks on two sides with the rotunda addressing the view on the opposite side. SMU's "lawn" is a spiralling space, defined by a series of connected buildings on opposite sides, with a narrowed entry at one end and an open ended space at the other where the spiral becomes much larger, is marked by a campanile, and turns towards the lake. This central pedestrian complex was set in a mile diameter access drive connecting to an inner ring of parking. I got fired before the "spiral" was finished, but fortunately I had some friends in other architectural offices who saw it through.

Desmond and Lord?

Desmond and Lord, yes—they believed in the scheme and carried out most of the buildings which define the central space.

As I recall the intention at the time SMU was designed, it was to provide a context in which future building could occur, which you assumed would not all be done by you, maybe not even in your lifetime?

Oh, absolutely.

But a context would be created to which others could contribute while the basic intention would continue to be carried out?

Yes. It's naive to think you're going to build everything. People change their minds, requirements vary, architects can get fired, and you can hold on only so long, at least that's my experience. SMU was open-ended; it was not complete within itself.

It was DESIGNED to be open-ended?

Yes. It's a spiral, what's more open-ended than a spiral? It is also open-ended in its parts, because there are knuckles on the rear side of the buildings which invite attachments and extensions. It involves circulation—there's enough space for expansion between the parking and the purely pedestrian precincts. The structural-mechanical is open-ended since there are hollow columns and double beamed space forming a three-dimensional space that accommodates additional mechanical systems throughout the campus.

I wonder if to design for open-endedness is not a more difficult effort than attempting to relate to something already there?

Yes, because the work must seem to be complete at each stage, yet be open-ended. Most of our airport terminals indicate the problem.

I have not seen very much effort in that direction. Gio Ponti used to talk about "unconcluded" buildings; he was the first architect who actually ever used that word to me, in the early Fifties. The Pirelli building was an "unconcluded" building.

Most of the 20th-century architecture is thought of as a gem complete unto itself. When I first went to Yale [as Chairman of the School of Architecture in 1957] everyone designed pavilions in the forest, no matter what the use might be. The only thing I really did while at Yale was to insist that people relate their proposal to the environment. Every building, no matter how large or small, participates in urban design, positively or negatively. Michelangelo's great Campidoglio took a hundred years to complete, but his concepts were so strong that his successors really had no alternatives. The Capitol of Rome was a group of medieval buildings, probably very fine but not in tune with the spirit of the Renaissance. Michelangelo

Far left:
Government Service Center,
Boston, Massachusetts,
by Paul Rudolph (1962-1968).
Left: Wallace House,
Athens, Alabama
by Paul Rudolph (1961).

started by placing the great Marcus Aurelius sculpture at the center of an oval which accommodated the angle of the flanking building. He replaced the first bay of one flanking building and the focal building with his marvelous high Renaissance facades. A hundred years elapsed before they built the other flanking building to complete the space. The Campidoglio utilized sculpture on either side of the entry stairs to prevent the space from leaking on that side. Lincoln Center could use some sculpture on the approach side for the space hemorrhages badly into the street. Sculpture is an element of urban design which we are currently denied, since sculptors ususally think of their work as a completely independent work of art.

It seems to me that there is generally more focus on the issue of how to complete, or attach to, something that's already been done, than on how to prepare the way for what will come?

We think of buildings as free-standing elements, complete unto themselves. Buildings are photographed and drawn that way, and the law treats them that way.

Are there institutional failures, institutional lacks, which could be corrected, which operate to keep architects on their site?

Often the cultural institutions are more aware of the broader picture than architects are. Governmental bodies are so plagued with what they think the taxpayers will say or do or think that they can hardly see beyond the immediate goal. Others have said that our environment is too important to leave to architects. Commercial interests are civic minded at their best. Rockefeller Center is a prime example. In Fort Worth, Texas, a local organization is taking the long view by rethinking Main Street. They are widening the sidewalks, narrowing the street, beautifully renovating four important downtown blocks, plus making a very real effort to integrate several new buildings with the existing ones, thereby making a major civic gesture. In this case it is certainly not institutional lacks.

Is the function of architecture to improve the human condition?

Yes, in part that is so, but the *art* of architecture is not necessarily accessible to everyone. Architecture is a social art, and that never will change. We are privileged to be servants of society. The early 20th-century architects thought, for instance, that if everybody had lots of light and air, we'd be better off immediately. Why do people flock to certain highly concentrated areas all over the world simply because it's marvelous to be there? It's certainly not a matter of density. What was intended to be good for people, in the Le Corbusier/Gropius vocabulary, often didn't turn out to be at all.

As a student of Gropius, do you feel that you were poorly educated?

Not at all. He was a *marvelous* educator, and I will feel eternally grateful to him.

What did he do for you?

He did what any educator must do, he indicated a point of reference—nothing more. If you want to go in the opposite direction, it's perfectly okay—and it was okay with Gropius, actually.

You had no feeling that he insisted on your following his prescriptions?

He clarified, in a larger sense, the relationship of society to architecture and then the thinking of the Modern Movement. Once this was clear you could proceed on your own.

Free of the Academy?

Free with eternal principles firmly at hand. Yes, free at last. That isn't to say he was perfect, he obviously liked certain solutions better than others; but he thought very carefully. There was nothing wishy-washy about it. He never intended that it all be taken literally, which is what a lot of people think. For me, it was a great point of reference. If you wanted to go in the opposite direction, by George, you *knew* you were going in the opposite direction; and that was actually all right with him. What more can you ask of an education? It gave a basis for proceeding. I think he was NOT a very good architect, but I think he could see through and around and get to the essence and the base of things in ways that very few people can.

Not a great architect but a great teacher?

Exactly. It's popular nowadays to misrepresent his thinking and attitudes. For instance, people say that models were the sole method of studying buildings and that he hated drawings. It isn't true, for we did draw, and Gropius admired drawings very much, indeed. The current popularity of isometrics comes from the Bauhaus, partially because they're so easy. The current effort to re-write recent history is a bit bothersome.

A major purpose of this interview is to get some of recent history into context.

Good, good. People bend facts (especially creative historians) in order to make their theories fit. Usually they're not challenged at all because we're all too lazy.

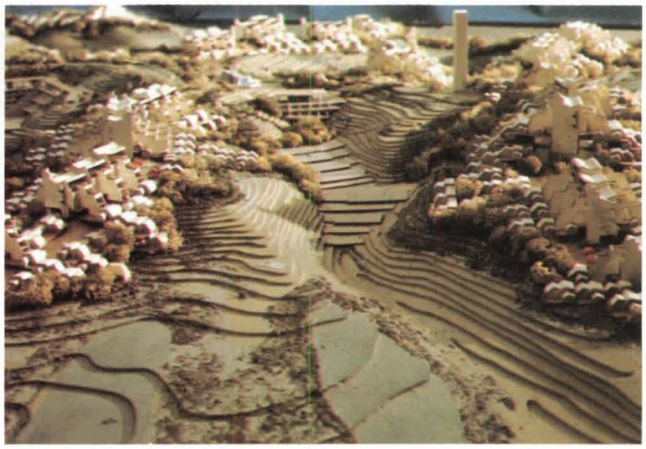
I have a strong feeling that architects under 50, say, whose education very often did not include much history, and who did not live through the Fifties as architects, are really unaware of how strongly directions in architecture were being questioned at that time—I think they really believe that no questions ever were raised before Charles Jencks—or whoever—

Gropius thought that "history" should come relatively late in the education of an architect, in order to turn on more easily and naturally the flow of the creative juices. The claim that he was uninterested in history as part of an architect's education is sheer nonsense. The attitude of the architect is very different from that of the historian in spite of some historians wishing it weren't so.

But the fact of the matter is that people of that generation are really, I think unaware of a great deal of post-World War II architectural history. I don't know how it's taught in the schools now.

History, criticism, journalism, and propaganda are hopelessly mixed up nowadays. My experience is that roughly half of the "facts" presented are inaccurate. The recent past cannot really be taught, because fathers must be destroyed first. But, of course, a few don't buy that sentiment.

Just as in a sense the founders of modern



Far left: Machu Picchu, Peru. Left: Master plan for Stafford Harbor Resort Community, Virginia by Paul Rudolph (1966).

architecture threw out the baby with the bath in conquering the Beaux Arts? It's a new dragon to slay.

You have to have dragons to slay.

Let me shift a little—not too much, but a little—to ask how you would compare the kind of questioning of modern architecture which was occurring in the early Fifties and the one that's going on now. Then, a very large body of responsible opinion was questioning the directions of modern architecture—your talk to the AIA was part of it, and other perceptive architects as well as critics from Mumford to Giedion and Henry-Russell Hitchcock were raising questions. Now we have the "post-modernists," so-called, questioning the accomplishments of modern architecture and the intentions of modern architecture. Would you be able to compare those two bodies of questioning in any way that would be useful? I don't think the criticism now is any stronger than the criticism that began then was. How does it differ?—can you say?

Well, in the Fifties not much modern architecture had been built and it was relatively easy to be a true believer (I'll never forget the shock of seeing the reality of Gropius's dormitories for Harvard). Today the whole world, whether you like it or not, is building modern architecture. It is a world vernacular. Marrakesh, Detroit, or Singapore build essentially the same thing. Modern architecture would have happened if there hadn't been a Mies, or a Le Corbusier, or a Wright. It was inevitable. Sheer bulk, numbers of people, means of transportation, the needs for flexibility, the less static, new building types stretching horizontally as well as vertically demanded other architectural solutions. There is a world wide modern vernacular which certainly isn't based on reductivism. The relatively easily built fireproof concrete frame is being built literally all over the world. Architecture starts with the bones ("shed") and proceeds to the sheathing (not necessarily "decoration"). Today's vernacular has great difficulties with sheathing. It's heartbreaking. The world's vernacular architect tries to make important the church, the individual commercial building, the hotel, the building as advertisement, etc. Very human instincts come out, but they don't have much to go on. Others have said that war is too important to leave to the military. The environment is too important to leave to architects. Architects' work exists to help give coherence to vernacular architecture. Vernacular architecture needs help.

Because it lacks tradition?

Yes. For instance, Kuwait has, literally, been built since World War II in the modern vernacular. It is not really related to climate, site, or way of life, but seems totally borrowed from other cultures. Modern architecture has not served well vernacular architecture because it has not yet developed powerful enough ways of expressing diverse human aspirations.

They lack a tradition for the building types they now require?

Yes, that's a much better way of saying it. The instant city is now catching its breath. There's no tradition for solving some of the problems. Tradition means that there is an academy. However, our leading schools now teach the "avant-garde" rather than principles. Original thinking or the avant-garde cannot be taught.

Would it be fair to say that the questioning of modern architecture today tends to focus on stylistic matters, whereas the earlier questioning was focusing on philosophical bases of modern architecture?

Yes, earlier questioning was surrounded by political and social concerns. A new world, the early 20th-century architects thought, was in the making and it would be better. No one has believed that for a very long time. Architecture, they said, could solve many more problems than it really can. Architecture has well-defined limitations. Unfortunately, modern architecture's notions of urbanism and the psychology of space were a complete failure. It is inevitable that subsequent generations try to find better solutions. Stylistic answers, however, will not suffice. To focus upon style alone is to trivialize architecture.

Would you say that there's been a shift, in the years since you were in school, in prevalent architectural attitudes, from expecting architecture to create a new world to expecting architecture to deal with the world as is?

No one today expects architecture alone to create a new world. My generation never really thought that to be true. Design oriented architects contribute only three per cent or perhaps five per cent to the total building effort for any given project, but that effort changes everything. There is currently a lot of frustration among architects, especially young architects, for they do not receive large commissions. In the Fifties and Sixties, when I was a young architect, I could work on larger buildings, but my equivalents in the Seventies and early Eighties all too seldom have similar opportunities.

It was feasible for you as a young architect to be technologically daring?

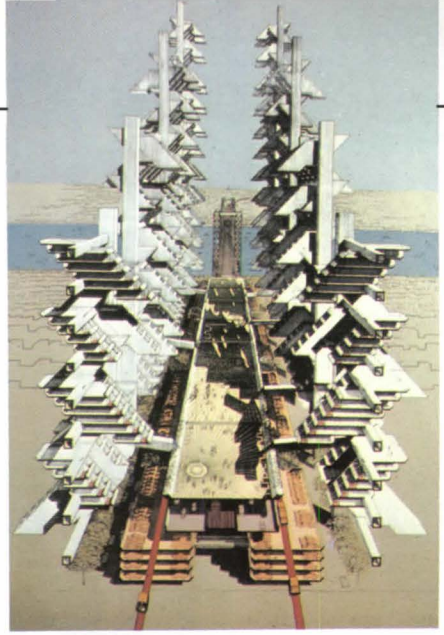
In the 1940s and '50s it was possible to use materials in building which had been developed for other uses. Today the propensity for legal actions renders this consideration less feasible.

The possibilities of exploiting materials were always very important sources for you?

There are those who do think that architecture is a decorated shed. Nonsense. You can't dismiss the shed, not that. The "shed" establishes proportions, how you put it together in the first place, how you get into it, its siting, etc. The shed has such unlimited possibilities that I could never just dismiss it, and go on to its "decoration." Decoration must be an integral part of the whole, with paramount attention given to its scale giving attributes.

I'm backing into the question of whether current efforts at innovation, which often seem to amount to efforts at novelty, rather than true innovation, may focus on pastiche partly because there are stronger constraints on technological innovation?

The stakes in technological innovations are much greater today but we have so much that hasn't really been touched. Artificial light,



Far left and left: Study of Lower Manhattan Expressway by Paul Rudolph (1967).

its psychological and decorative possibilities, could equal Chartres Cathedral's stained glass. Mechanical systems have inherent architectural possibilities that we haven't begun to touch. I don't mean merely exposed ducts and pipes, but the celebration of the ability of a building to breathe, to encourage air flow, to relate itself to the sun-universe, to take advantage of the natural use of energy. At the chapel for Emory University there are four identical columns which support the centralized space. The demands of the exposed mechanical system at each of these columns is very different because of the sun's orientation. The regular structure juxtaposed to the irregular mechanical system and the resulting clusters are consequently much more dynamic, lively, humane. You sense that the sun is here, and that the return is there; you need more cooling here, because that's where the sun is, and less there, which, in turn, helps to put you in touch with the universe. We should have buildings which adapt to the changing seasons. A long time ago, I made a cottage which had walls that pivoted; and these walls were closed during the wintertime, and open during the summertime so that the cottage became a pavilion, the wall became the overhang, it became the window, it became the hurricane shutter. Most importantly, it varied the space inside psychologically, from an enclosed small cottage to a wide-open pavilion. These aren't really technological innovations but a concern with the psychology of space.

What you're calling for is exploitation of technological possibilities—what the material will do, or what the system will do?

Exactly, exactly. Our domestic interiors are often dominated by storage of mechanical, electronic, entertaining, worksaving devices of all kinds. Since they must be continually replaced the architectural accommodation influences and often dominates the interior space. Furniture and equipment become the architecture.

Lighting?

Since World War II the number of experts, advisers, and consultants has grown fantastically. This phenomenon contributes to the young architect's problems. The interior designer's relationship to the architect, with his pure structure (and impure mechanical system) caused problems because the architect sometimes forgot how the space felt. The interior designer often adjusted the architect's designs so that they were more related to the psychology of interior space. The result was often really schizophrenic. The architect wasn't able to think in terms of the innate feel and meaning of interior space. This is the second great lack of the International Style. Le Corbusier, after World War II, started expanding his concepts of interior space principally through the use of natural light (not artificial). Wright, of course, was born knowing exactly what to do with interior space as it relates to light (again not artificial light). The technology of interior lighting has been greatly extended today so that I'm sure Mr. Wright would have reveled in its use.

Has there been a tendency to leave too much to the specialist in connection with these technological things?

It's important for the architect to digest the advice of the specialist and to rise above pure analysis.

Would you encourage young people to go into architecture today? That is, do you think it is any less hopeful a career than before?

Architectural training is a good background for many related activities, but it also leads to frustration for many. Sometimes people study architecture for very specious reasons. You cannot teach people to be talented and, ultimately, architecture needs talent. I think people sense that architecture is for them and need no encouragement whatsoever.

What advice would you have for young people who aspire to be architects?

It should be remembered that the great architects of the 20th-century—Wright, Corbu, Mies—never studied architecture in a school. What works for one does not necessarily work for another. The apprenticeship system, travel, reading, a stimulating environment, creative work in related fields, may act as a substitute for the more usual architectural school programs. There needs to be more recognized diversity in education. Schools today are inundated with the current avant-garde, sheer propaganda, "publicity," and "history." All of this has its place, but the attitudes and passionate concerns of the architect are very different. The architect's primary concern is ultimately the environment, with making things, and how to do it within the power structure. The young architect as quickly as possible should learn how to build—how to make working drawings, the inner relationship of client, consultants, the law, etc. This is best learned by working in an office. I would try to understand why things are as they are, and then how they might be changed, or improved, et cetera—not to be too quick to just assume that everything is horrible and terrible until one understands why it is that way in the first place. From an architect's viewpoint, as opposed to a scholar's or historian's viewpoint, I would try to understand the interrelationship of the parts—and by the parts I mean society and the place and the whole notion of how you get things built and how you translate it from paper to actuality. I would urge that the young architect experience at first hand the joy of *making* things, explore the realm of ideas and intellectual aspects of architecture: the sheer joy, and problems, and possibilities of materials, and techniques, and technology, and related fields. Does the aircraft industry really have overtones for architecture? Why does the space shuttle in its cradle seem so much like a cathedral to me? I would investigate all sorts of physical phenomena, not only those things which one can make with one's own hands, but those things which can be made by machines, and organizational aspects of how they came into being, and the question of size in relationship to organization, and the demands made. I would travel and see how others solved essentially the same problems. I would probe the questions, "What is architectural space?," "What is architectural composition?" I would listen to the faculty and go through their routines and not bother challenging them too much, in order to jump the particular hurdles at hand. But I would think for myself.

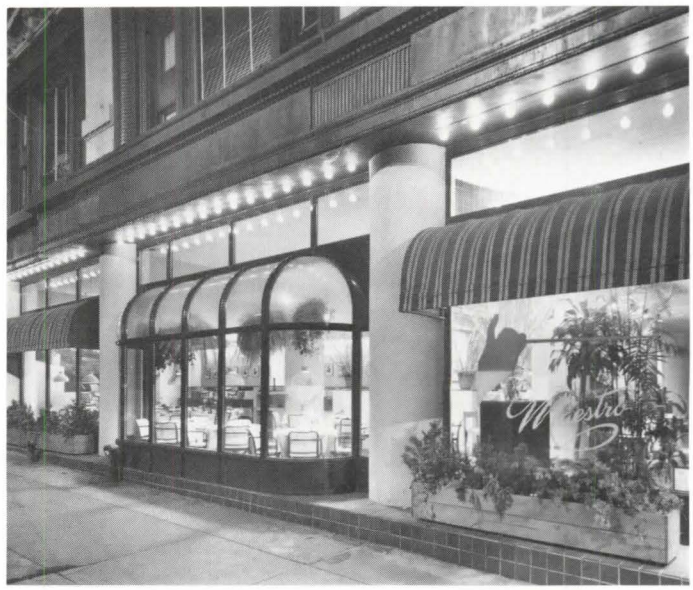
DINING AS AN EVENT

The architects of three restaurants demonstrate that a theatrical flair can help build popular success—as well as design success

THE MAESTRO CAFE BY GRANDBERG/MAREK. In the area around the performing-arts facilities of New York's Lincoln Center, restaurants are in keen competition for a demanding clientele—often in a hurry to make a curtain but usually in a festive, out-for-fun mood. Given the area and that mood, it is appropriate that architects Grandberg/Marek have used a strong sense of theater to create a most appealing restaurant. The Maestro offers the right staging for people-watching, for patrons and passers-by alike. To achieve this, the architects have used changes in floor levels and a transparent wall towards the street. They have created an indoor version of a sidewalk cafe in the front (see photo opposite). Large windows give close visual contact with the street and the people on it, while ceramic-tile paving and large trees in tubs enhance the outdoor effect of this garden room. The carpeted raised platform for tables in the center of the restaurant (see plan) provides a view of diners in the garden room—as well as a view of the street beyond. The result is not only good staging, but a variety of spatial experiences within the large restaurant, with its 200-seat capacity.

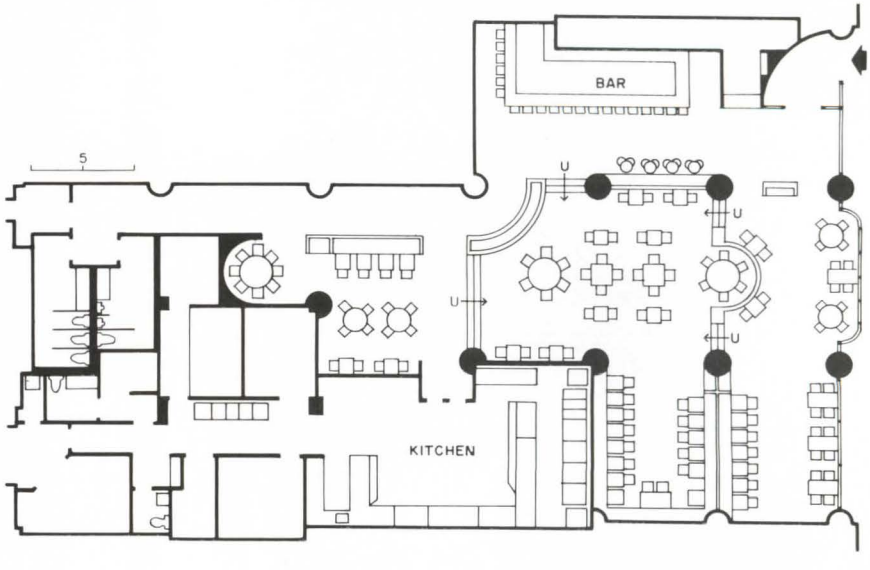
The architects have brought order and a sense of elegance to the interior through careful attention to proportions and details, rather than with lavish materials. The large round column enclosures, formed with drywall, reduce the scale of the space by suggesting rooms within the room. On the street side, the architects have met important challenges in attracting patrons to the sidestreet location. The garden room attracts and invites passers-by from the area's main thoroughfare, several doors away. And in detailing the windows on the street, the architects have been particularly sympathetic to the character of the building, a turn-of-the-century warehouse with an elaborate facade above street level (see photo below). —*Charles Hoyt.*

MAESTRO CAFE, New York, New York. Owner: *Maestro Cafe Corp.* Architect: *Grandberg/Marek—partner-in-charge, Ira Grandberg (now Grandesign); project architect, Paul Pilchardo.* Engineers: *Anta Leemets* (structural); *Naimowitz & Rubenstein* (mechanical). Furnishings: *Bergin/Weiser.* General contractor: *All Building Construction.*



Norman McGrath photos

A mural by Ted Seth Jacobs in the garden room (photo above) provides the view of Central Park that *would* be seen if several blocks of buildings were not in the way. Its vivid colors are a beacon to the nearby main thoroughfare which it faces through the large windows. And it is also a development on the restaurant's name: chairs like those in the restaurant are painted in the foreground with musical instruments on them, as if the musicians had just stepped out "to take five." Carrying through the architects' theatrical intentions, there are three large round "star" tables accentuated by placement in the center of the room.

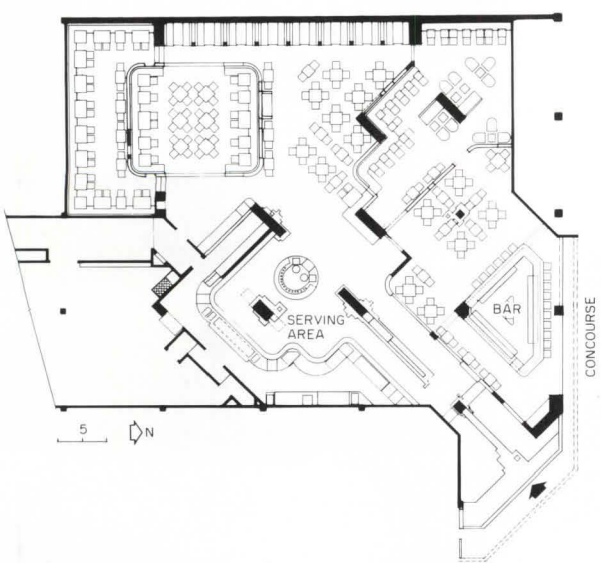


CONCOURSE E-4 BUFFETERIA AND LOUNGE BY MILTON HARRY AND DENNIS JENKINS. Concourse E-4 is the largest of Dobb's Houses' many restaurants and bars at the enormous Miami International Airport, and its recent remodeling makes dining a visual event—not the fast-food frenzy that is the fate of most air travelers in most cities. The elements of this event are a processional dining room entry, a raised area for views of the surrounding tables, theatrical lighting that emphasizes centers of interest and partitions with strong geometric shapes and unusual colors—all given animation by the sometimes hurried movement of the patrons. The results seem totally appropriate to a lively airport, and enliven a vast, low windowless space of the sort given over to eating at most airports.

The designers have created all of the design elements to focus attention on the elements, and not on the broad dimensions of the space. The cut-out shapes in the partitions produce views between the areas they separate, and create the impression of seeing outside. A strong diagonal axis of the dining room entry signals a forceful identity to passersby on the concourse, where the facility's frontage is very limited (see plan). Patrons can see directly into the main dining space along a route marked by the cadence of columns and the cut-out geometric shapes in the bar partition. The diagonal axis has been reinforced by diagonal partitions around the structural columns, providing a visual reorganization of the rectangular grid.

A playfully ceremonial buffet area (photo right) provides a sense of arrival. Here, the designers accentuated the sculptural shape of the central column by making a fanciful element from a code-enforced "bug light." Of course, the ceremonial entry and the ability to see from space to space have not only enlivened the facility, but have overcome the visual isolation of the dining room, placed at the back of the 7000-square foot floor area.

CONCOURSE E-4 BUFFETERIA AND LOUNGE, Miami, Florida. Owner: *Dobb's Houses Inc.* Architects: *Milton C. Harry Associates—Everett Jenner, project architect.* Interior designers: *Dennis Jenkins Associates.* Engineers: *Barry & Ellis Associates, Inc.* General contractor: *Bob Poppino.*



Dan Forer photos

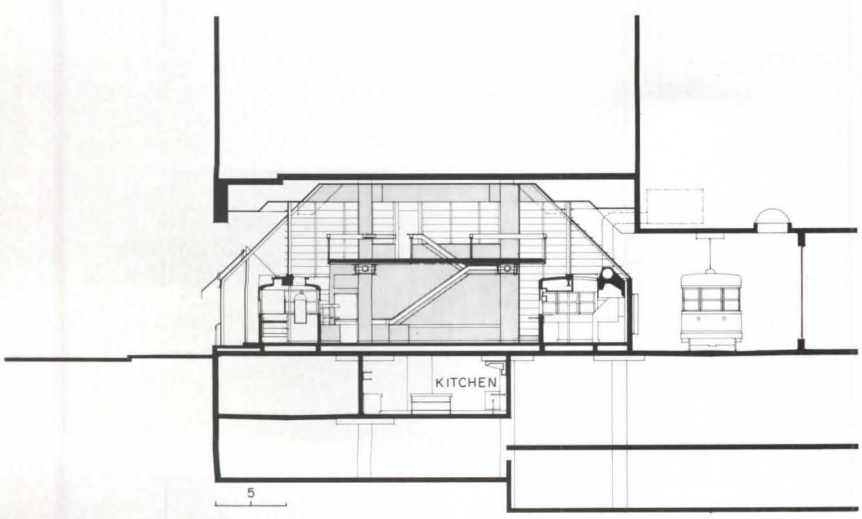
The playful esthetic includes many basic parts, such as the industrial-type, hanging light fixtures and anti-insect lights (photo upper left). It also accommodates features that are standard for the owner's many restaurants, such as the mural in the bar (far left), in ways that make them appear unusual. From the bar, patrons can look into the restaurant through the cut-out geometric shapes in the separating partition. For patrons on both sides, there always seems to be something beyond the space in which they sit, although there are no windows.

THE TROLLEY RESTAURANT BY BLAKE MILLAR. This restaurant is located in a circular loop of track where one of Toronto's trolley lines ends in a turnaround. Diners sit on either of two floors, and watch the trolleys move on all sides; the motion here is theater. The Trolley was conceived to be not only a successful restaurant in itself, but to be an anchor for a retail mall located under a new complex of apartments and offices. To accomplish this ambitious goal, architect Blake Millar has capitalized on the unique site to build a new structure with attractions both inside and out.

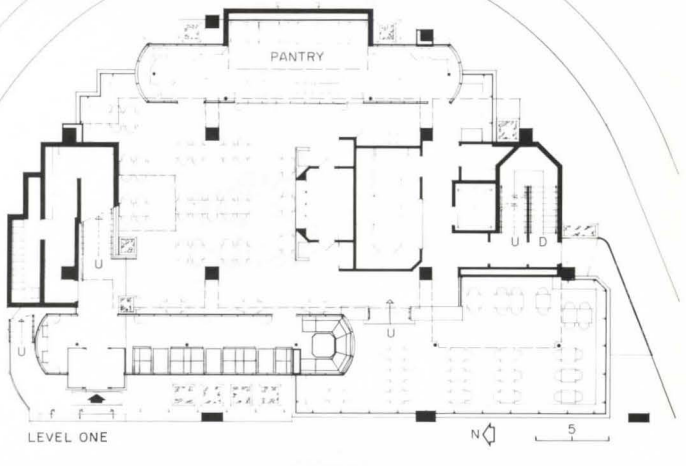
The focus is outward, and the two levels make the restaurant a good place to watch other people as well as the trolleys. The character is lighthearted, animated and bright. Millar has emphasized the trolley theme by making two stationary antique streetcars important design elements within the restaurant, by suspending a metal sculpture from the ceiling to resemble overhead electrified track, and with award-winning related graphics.

The multi-level plan is designed to give views to the largest possible number of patrons, and fits the 10,000-square-foot program into the tight and unusual site. Millar has arranged the 70 seats in the upper level dining area near the perimeter, so that all have views of both the trolleys and the lower-level dining rooms (see plans and section). Millar has managed views for about half of the 90 seats on the first floor by designing a glass-enclosed sidewalk cafe (center photo right) that wraps around in front of the antique trolley used as an entrance and bar. The other antique trolley is used as a service kitchen. The main kitchens are located on two, below-street levels in space carved out of a parking garage, which allows service trucks to come and go unseen by diners.

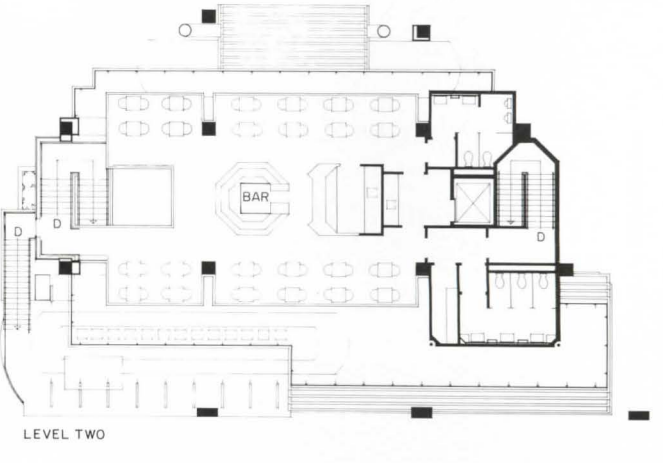
THE TROLLEY RESTAURANT, Toronto, Ontario. Owners: *Mommasan Inc.* and *The Windsor Arms Hotel.* Architect: *Blake Millar, partner-in-charge-of design; Brian McCulloch, project manager.* Engineers: *Planmac Maksymec Associates* (structural); *John Garay Associates* (mechanical/electrical). Consultants: *Bill Connoy* (kitchens). General contractor: *Mommasan Inc.—John Faion, project manager.*



Applied Photography Ltd. photos



LEVEL ONE



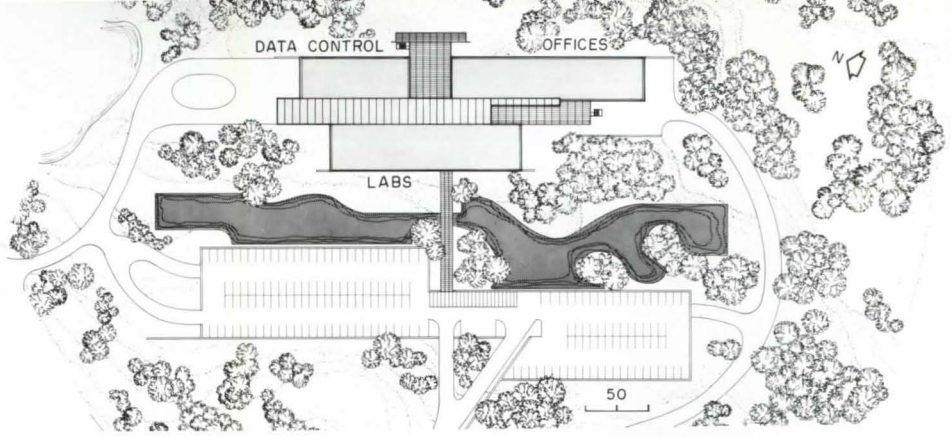
LEVEL TWO

INDUSTRIAL BUILDINGS

BUILDING TYPES STUDY®573

This month's Building Types Study contains three industrial buildings distinguished by an exceptionally high level of design. These designs suggest forcefully that it is appropriate and productive for architects *and* clients to devote the kind of attention to these production machines often reserved for buildings of grander purpose. For three similar-size sites, the architects have used similar, economical, industrial-construction materials to produce three buildings that are different from each other—and from any other industrial buildings. The differences spring from each architect's unusually close involvement in each particular industrial process, from respect for three very different landscapes, and from that unique synthesis of subjective and objective concerns that is called talent. —*Charles K. Hoyt*

Howard Kaplan photos except noted



A factory with laboratories and offices on top

The Hollister Company building in Libertyville, Illinois represents a strong design commitment by the clients and by architects Holabird & Root. The result is an exceedingly handsome, most unusual, and highly polished building.

The manufacturing spaces are on the lowest level and form a podium on which sit three separate laboratory and office structures—joined by a linear atrium—that scarcely suggest that this is a hard-working production facility.

In the manufacturing spaces, the company makes the machines for producing its small plastic medical products, such as the wrist identification bands and intravenous units used in hospitals. There is also a pilot plant for manufacturing new products to be test marketed, before they are made on a mass-production basis in other plants.

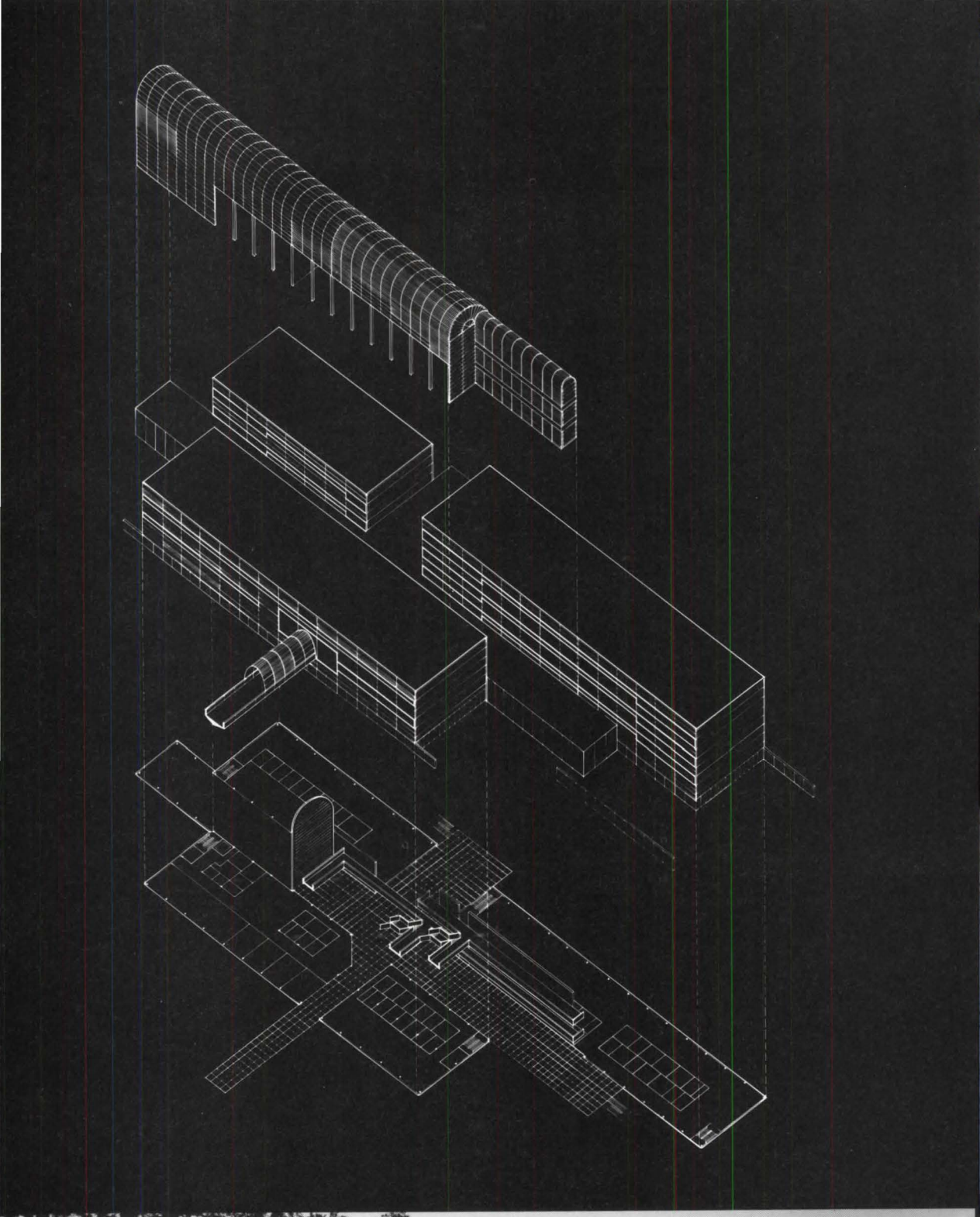
The three separate structures house computer data control, research laboratories and executive offices (see site plan). The connecting atrium has a high arched roof of translucent fiberglass (see photos) and creates a dramatic and enjoyable interior environment. Its form is extended beyond the building to the northwest to house a high mechanical room, sheathed in white metal panels (again see photos this page and overleaf bottom).

The building is entered via a bridge from the top level of the parking structure across a retention pond into the research-laboratory structure (see photos). This entryway means that the long atrium is entered on a cross axis (see caption page 110). According to partner-in-charge Gerald Horn, local architects questioned the plan in early design, because the entrance was not placed on an end to take advantage of the long axis, but the dramatic result of Horn's persistence is well justified.

The skillful use of the heavily wooded, rolling site has also produced a dramatic result. From the main entry road, the building shows only its narrow end among the trees (see small photo overleaf). As visitors proceed from this point, they are led on a winding road through the trees to the upper level of the parking garage (again, see site plan) from which the full extent of the 200,000-square-foot building first becomes apparent (photo left).

The building is parallel with the river to provide views from a maximum number of windows and from a terrace between the office and data control blocks. The building's crisp edges are a deliberate and effective contrast to the river with its marshy banks.

CORPORATE HEADQUARTERS, RESEARCH AND DEVELOPMENT FACILITY, AND PILOT MANUFACTURING PLANT, Libertyville, Illinois. Owner: *Hollister Incorporated.* Architect: *Holabird & Root—Gerald Horn, partner-in-charge of design; Miles Lindblad, project designer; Frank Castelli, project architect; David Ekstrom, structural engineer.* Engineers: *Brian Berg & Associates, Ltd.* (mechanical); *Holabird & Root* (structural/electrical). General contractor: *Pora Construction Company.*

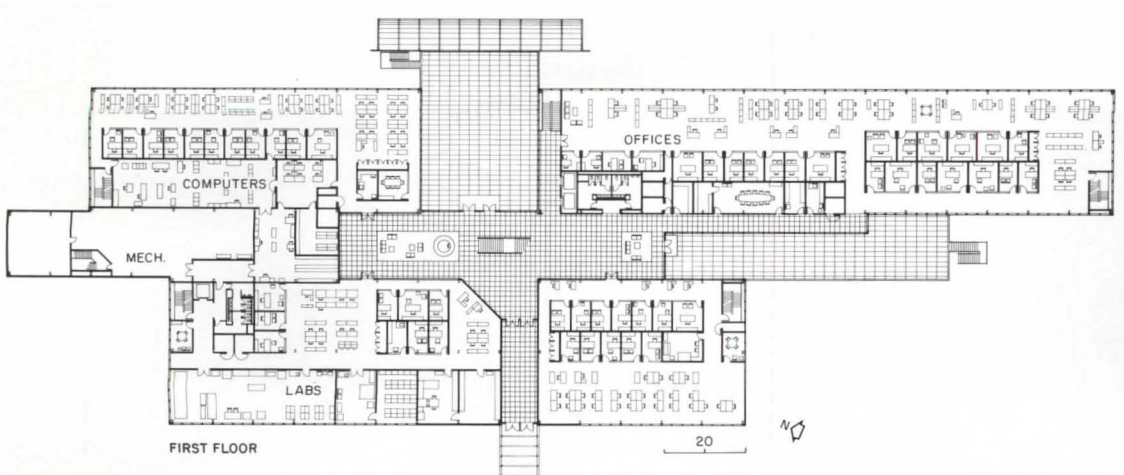


The structures for computers
research have two stories, while
office structure (right in isometric
photo above) has three. The indu
al production floor is located be
the lowest level shown in the ison
ric. A mechanical equipment roo
treated as an extension of
atrium's arched form (bottom p
tos), and occupies the space betw
the computer and research structu
at the north end of the atrium.
the first structure seen when
proaching the complex. A la
retention pond (photo above) h
overflow from the river. It is cros
by the bridge from the parking lo

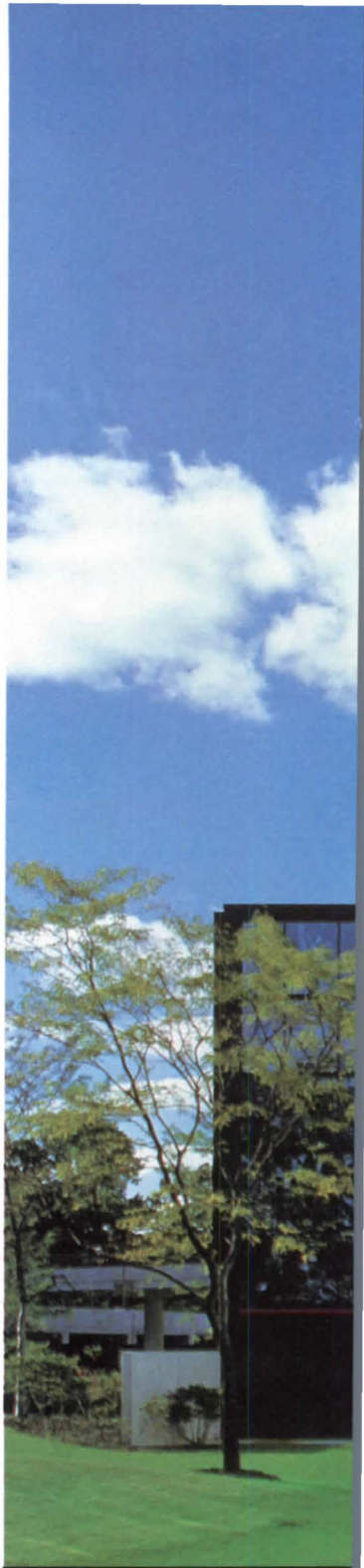
Sarah Lavicka photo

SECOND FLOOR

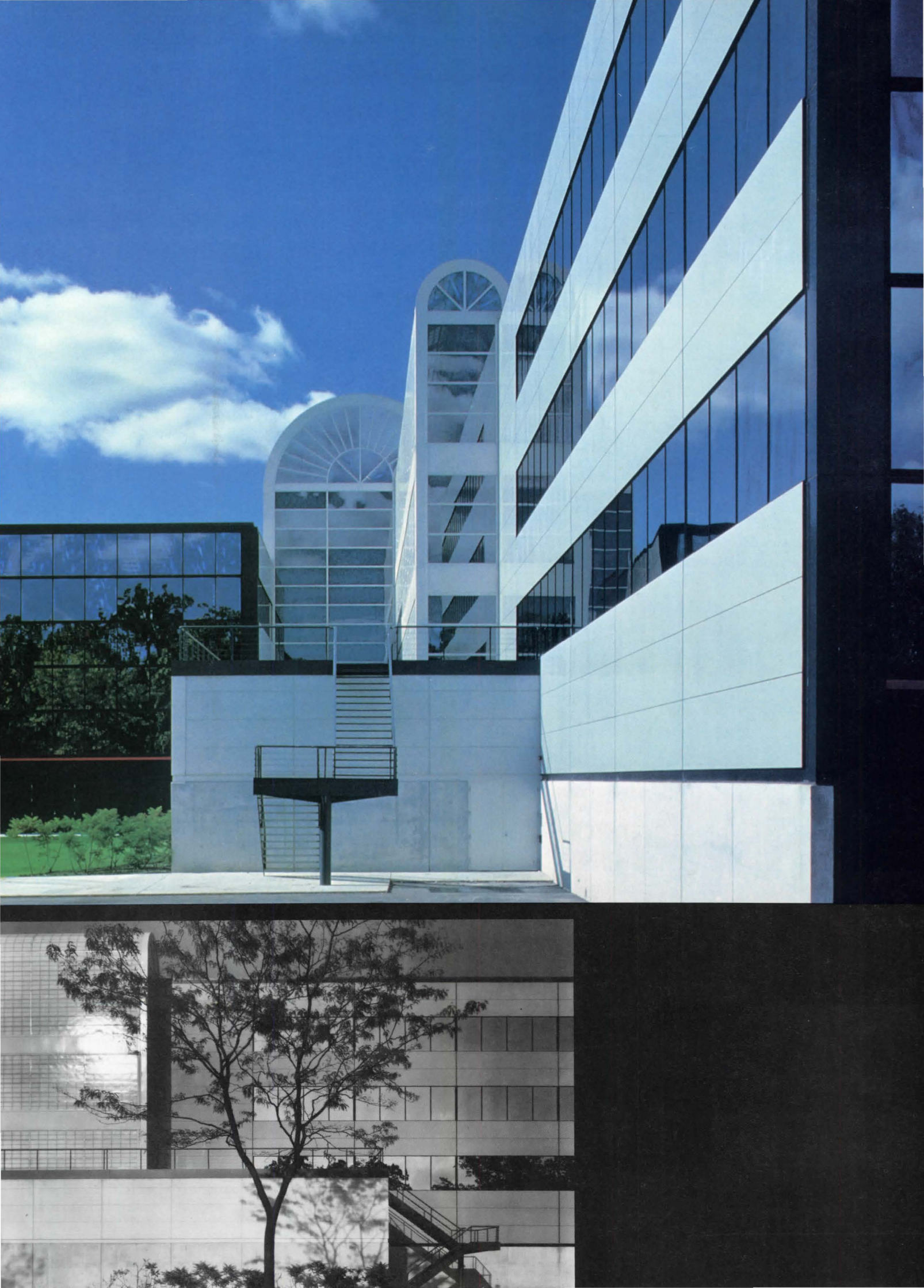
Sarah Lavicka

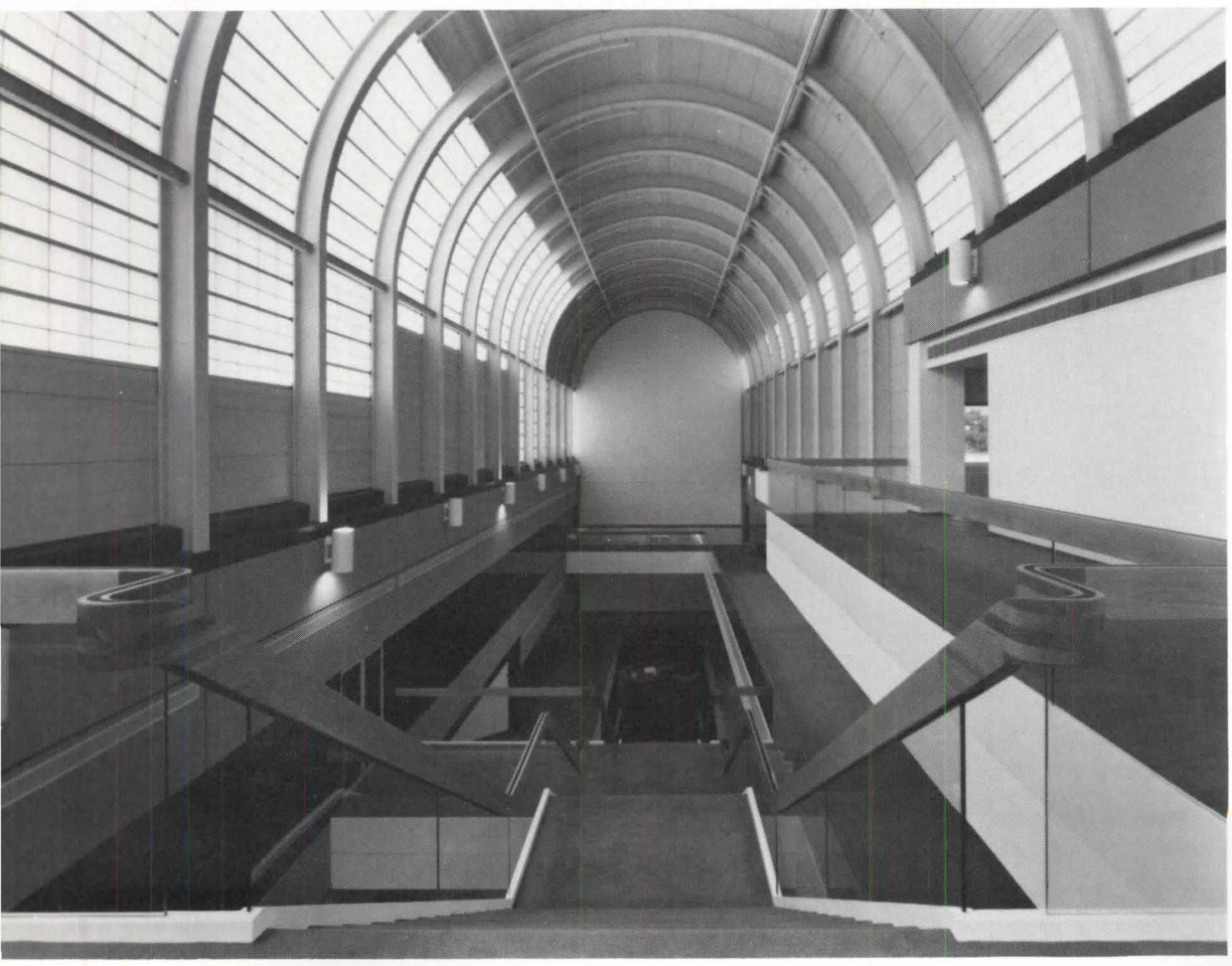


FIRST FLOOR



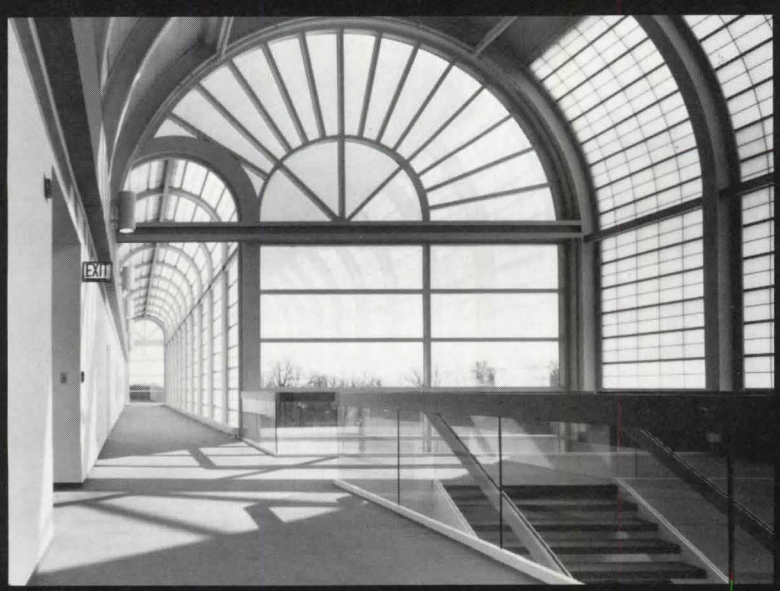
The curtain wall for each of the thr laboratory-office structures is treat in the same way. The long side w have gray steel spandrels detailed appear as if they were applied o the glass and cut off abruptly at t end walls (see photos above). T end walls are all glass, as an expr sion of the ability to extend the bu ings in the long direction. The atri is sheathed in translucent fibergl panels on roofs and on those s walls that do not butt against otl structures, and the end walls transparent glass.

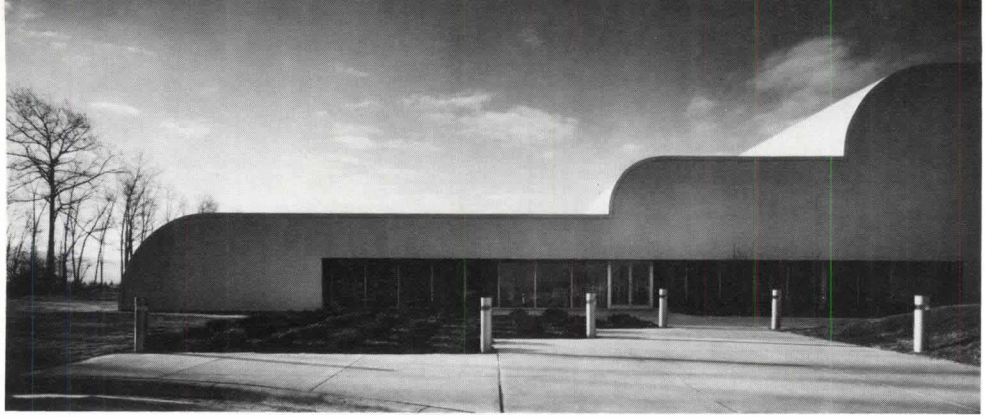




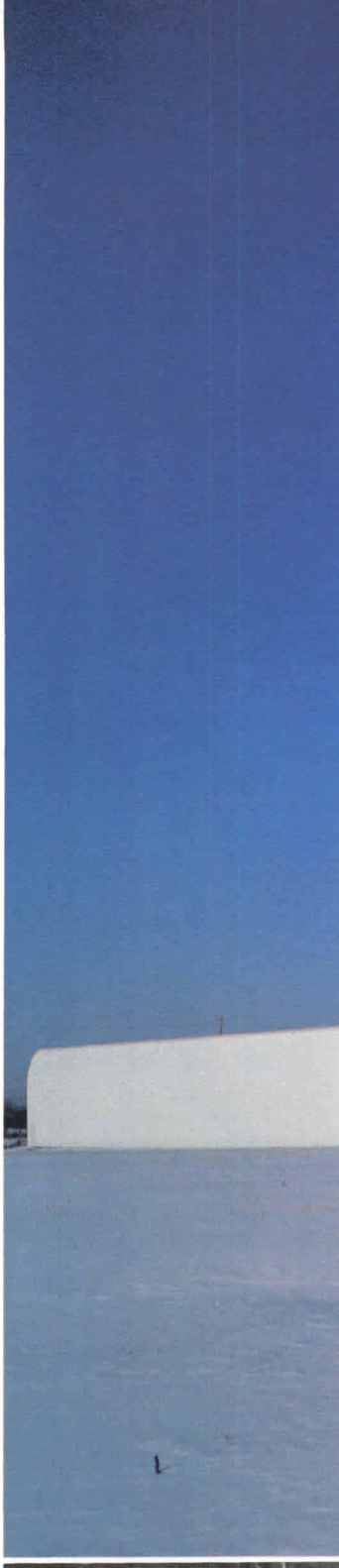
Sarah Lavicka

The central atrium is entered fr
the outside through a low corrido
the laboratory-research structure
the right in the photo above).
view ahead is through large windo
to the river. It is only when the vis
or worker is inside the atrium that
full drama of the space becor
apparent. The roof and some w
are sheathed with translucent fi
glass panels that light the sp
brightly. The cafeteria (photo ab
left) overlooks the river from
ground-floor location.


EXIT



Glen Calvin Moon photo



Robert J. Eovaldi photo

A warehouse and offices in one sculptural form

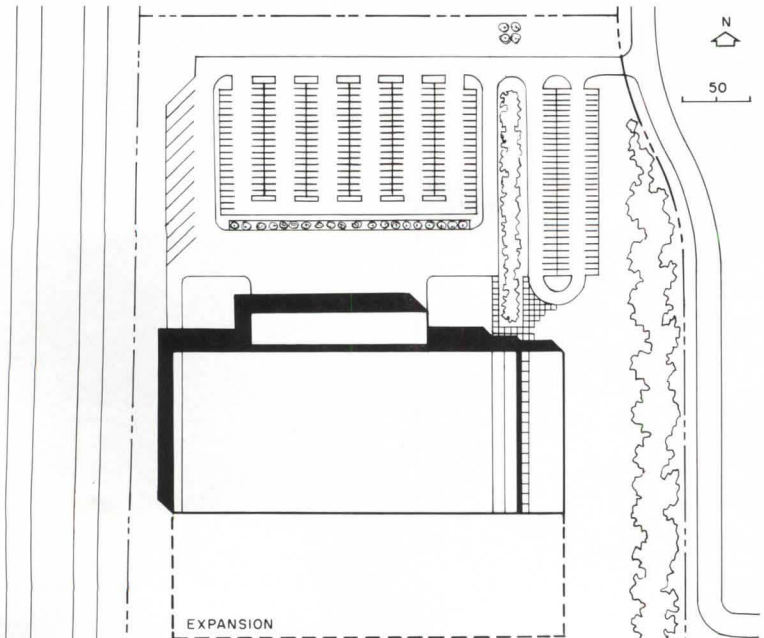
Given a straightforward program and a typically tight industrial-building budget, architects Smith, Hinchman & Grylls have designed an appropriately simple and totally functional building for the ACO Company in Farmington Hills, Michigan. But it is also a powerful building, raised above the common and ordinary by being developed as a sleek sculptural form—principally through the use of the curved shapes in the roofline seen in the photos and section overleaf.

According to project designer Richard Pinnell, the curved shapes are the result of disciplined design decisions. First, they make possible a fresh and highly successful solution to the common problem of a little box in front of a big box—the offices in front of the warehouse. They tie the two spaces into one form by making a graceful transition between very different heights. The intermediate step not only helps to smooth this transition, but houses air-handling equipment placed for economy on the roof of the offices it serves. And at the opposite end of the building, the rounded transition from roof to wall not only completes the building's sculptural appearance, but reduces the apparent height of the loft space as seen from a nearby major highway (see site plan).

Another basic decision strengthening sculptural intent was the uninterrupted sheathing on warehouse and offices—formed by insulated steel panels for both visual continuity and economy. Within each long side wall, the effect of one building is further reinforced by the design of the office windows as a cut-out shape that complements the over-all composition (again see photos). The entrance is designed within one of the cut-out shapes—with a polished aluminum reveal—toward the parking lot (see site plan and photo above). The 24-acre site is a broad grassy plane, where the building's strong white form is highly visible and its horizontal form echoes the flat horizon.

ACO owns a chain of retail hardware stores, and stocks and distributes merchandise to these stores from this building. As part of their development of the warehouse plan, the architects developed the storage and retrieval system. The system includes some standard components, such as bins and carousels for smaller items, but also sophisticated vertical loading devices (see overleaf) that lift larger merchandise onto the high storage racks that require an exceptionally high clearance of 30 feet. The building is designed for expansion (see site plan), so that additional warehouse space will have a corresponding additional office area.

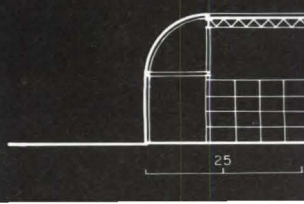
ACO INCORPORATED, Farmington Hills, Michigan. Owner: ACO Incorporated. Architect: *Smith, Hinchman & Grylls Associates, Inc.—J. Richard Pinnell, project designer; Victor J. Cardona, associate designer; Tito Marzotto, project manager.* Interior design: *Contract Interiors.* Site planning: *Johnson, Johnson & Roy, Inc.* Landscape architects: *Anderson Lesniak & Associates, Inc.* General contractor: *R.E. Dailey, Construction Managers.*

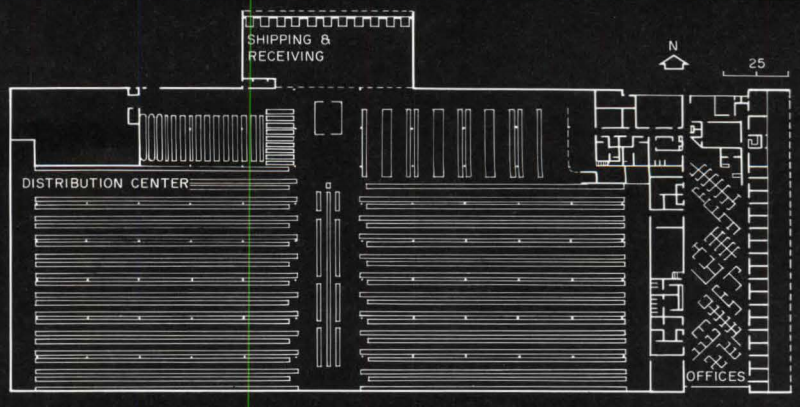


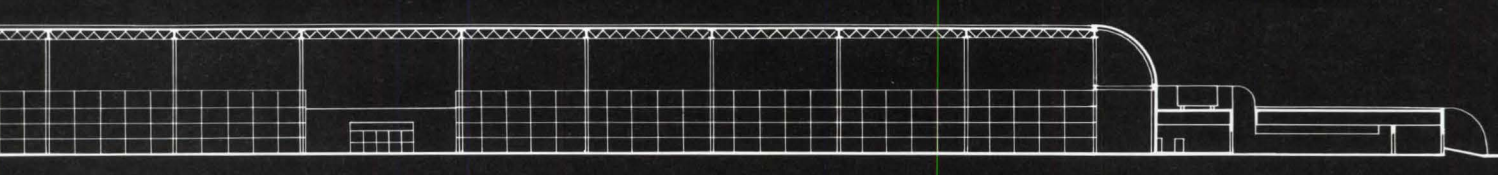
Glen Calvin Moon photo

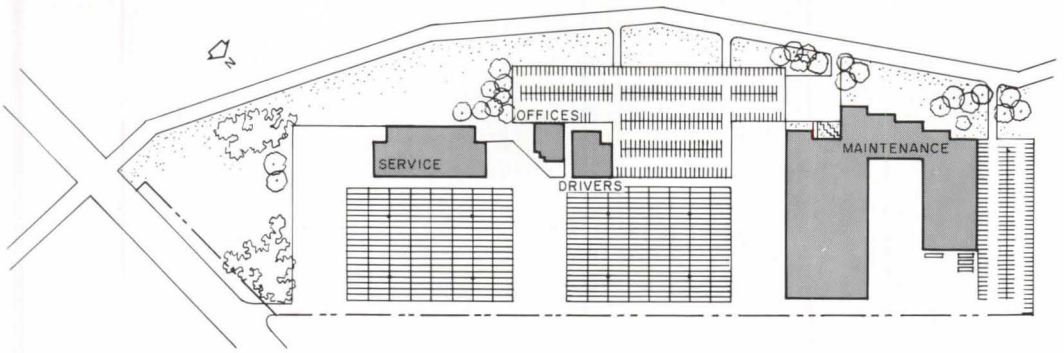
Robert J. Eovaldi photos

The offices have a continuous
light—the intermediate curved ste
the roof lines—to bring natural
deep into the floor area (see la
photo and section). Large expo
ducts bring air from the rooftop
handling equipment to the offi
The offices have been carefully
ented towards views of existing t
(see bottom photo, previous pa
The vertical lifting device (left) all
merchandise to be stored on
exceptionally high racks of the w
house space.




SHIPPING &
RECEIVING
N
25
DISTRIBUTION CENTER
OFFICES





Solar shapes unify a sprawling complex

With a series of similar distinctive shed shapes that rise like a castle above a surrounding flood plane, architects Walk Jones & Francis Mah have created a unified image for a large and sprawling bus maintenance facility, have established natural systems of air and exhaust handling, and have set the stage for a new high level of efficiency in this facility for the Memphis Transit Authority.

The shed forms are an important product of the architects' research in harnessing solar radiation for natural energy (see Francis Mah's own house, RECORD, June 1979). The dark gray metal roofs absorb the radiation, warming the air in a 9-inch plenum formed by second roofs underneath (see section overleaf). Convection moves the warmed air up through the plenums from intakes at the eaves. In winter, fans propel the warmed air down for storage beneath the concrete floor slabs. In summer, air is exhausted through vents in the towers. According to project architect Martin Gorman, Jr., the cooling effect has exceeded all expectations.

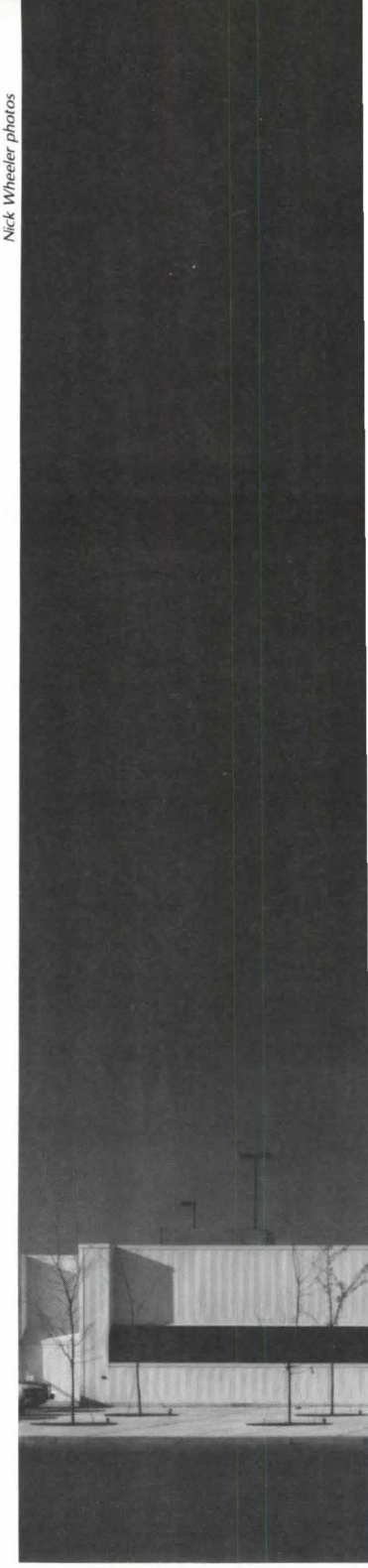
The shed forms are also important to the architects' composition—buildings that are spread over a 23-acre paved area longer than five football fields. They gain visual strength through repetition. Like extrusions of different lengths from the same mold, the sheds are arranged in parallel—singly or in opposed relationship to form larger buildings (see view from the southwest, photo bottom right). The sheathing for the lightweight steel structures is ribbed, insulated steel panels. The panels around the rooftop fans and vents are painted white for accent, and are carried to the ground—not only to create the vertical elements that give the complex its castle-like appearance, but to express the vertical air handling function within.

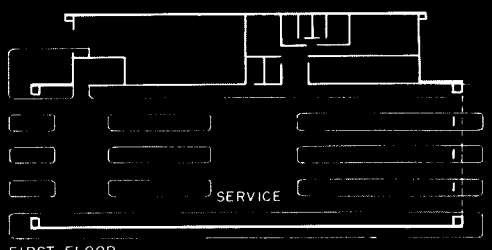
The arrangement of buildings is a direct expression of the sequence of operations (see site plan). Buses arrive each night from the main highway to the east at the service building, where both coins and refuse are removed, and proceed to the parking field. Periodically, they instead proceed to the maintenance building, where they are washed, inspected, and—as required—moved to maintenance.

At the site entry from the parking lot, between the office and drivers' building (large photo), a courtyard with trees offers an outdoor gathering place. The drivers' building contains two floors of lounges, classrooms and offices, and a lounge and lunchroom are located in the maintenance building. But it is the high level of finishes, graphics and lighting that show the most concern for the users, and make this a pleasant—as well as efficient—place to work.

WATKINS STREET MAINTENANCE FACILITY, Memphis, Tennessee. Architect: *Walk Jones & Francis Mah, Inc.—Francis Mah, partner-in-charge; Michael F. Finefield, project architect.* Engineers: *Pickering, Wooten, Smith & Weiss, Inc.* (structural/civil); *Dalton, Dalton & Newport, Inc.* (mechanical/electrical). General contractor: *Frank J. Rooney.*

Nick Wheeler photos





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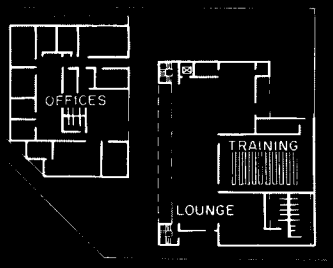
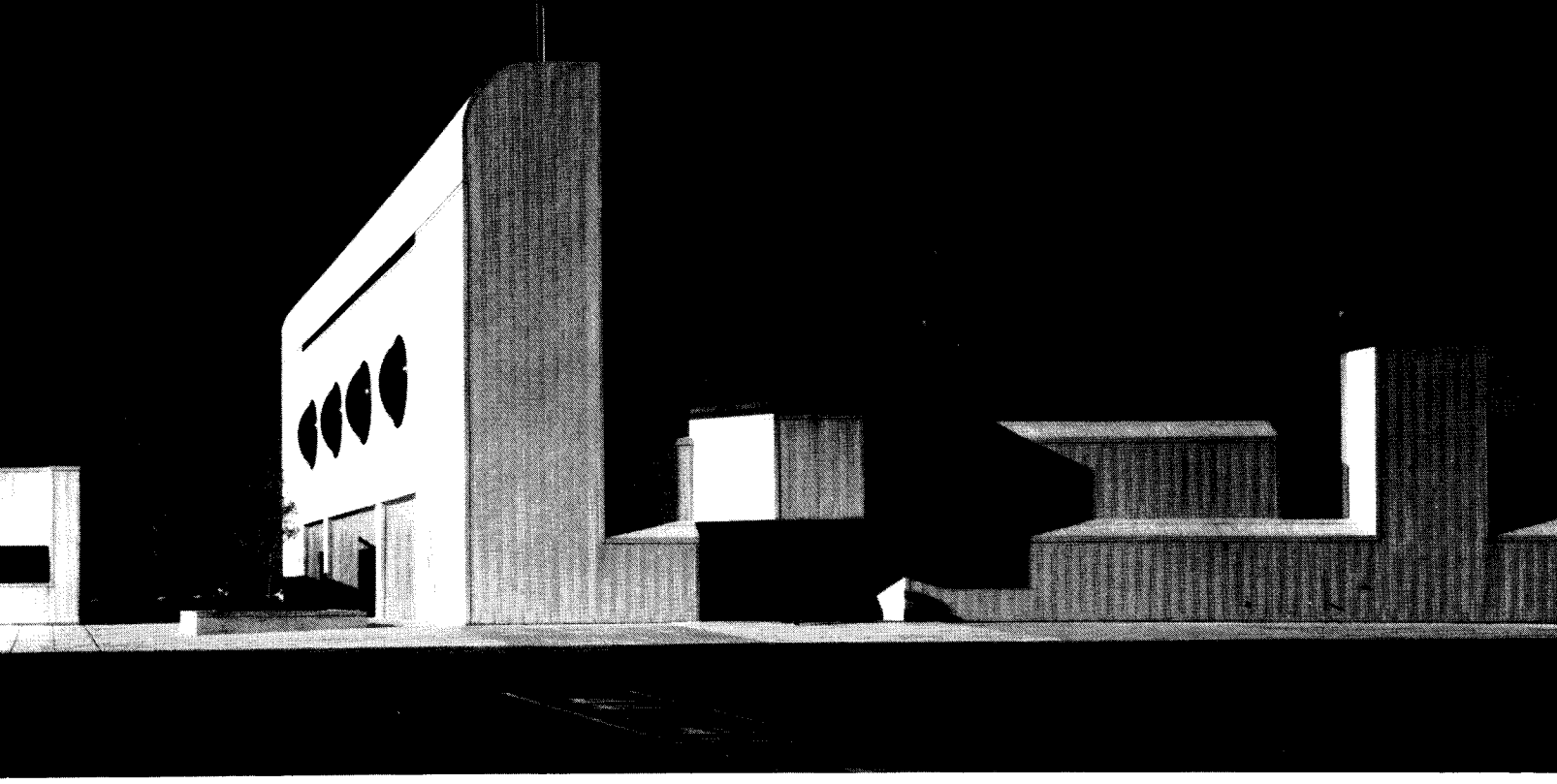
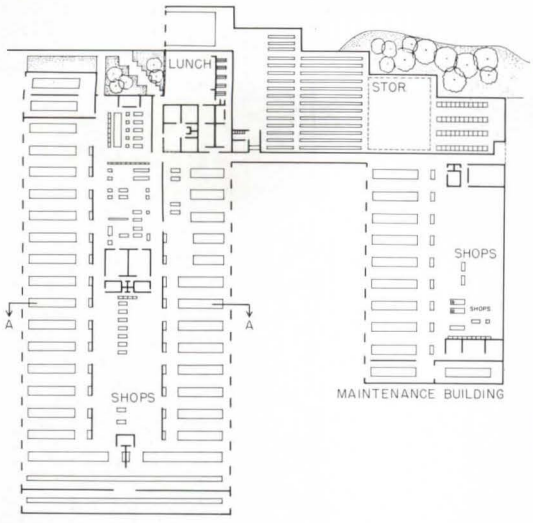
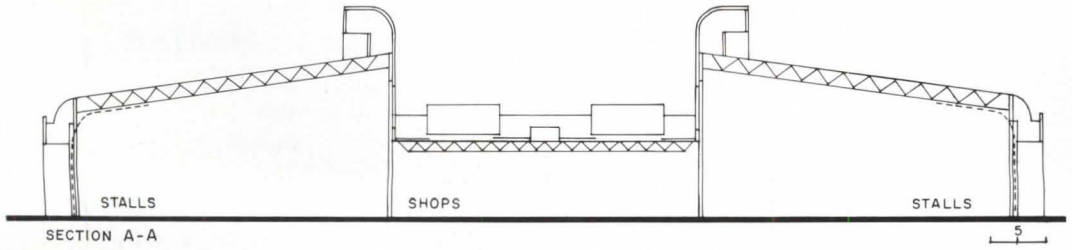


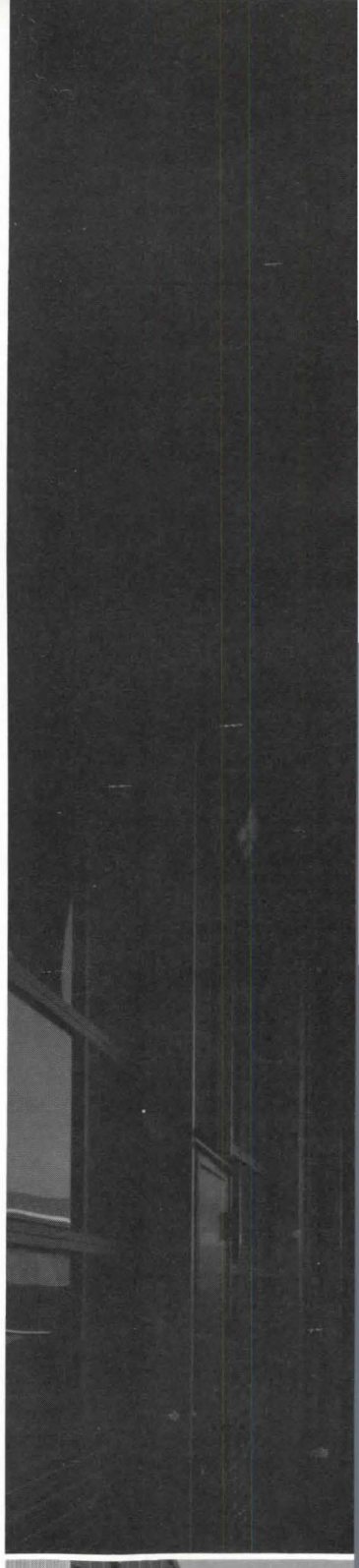


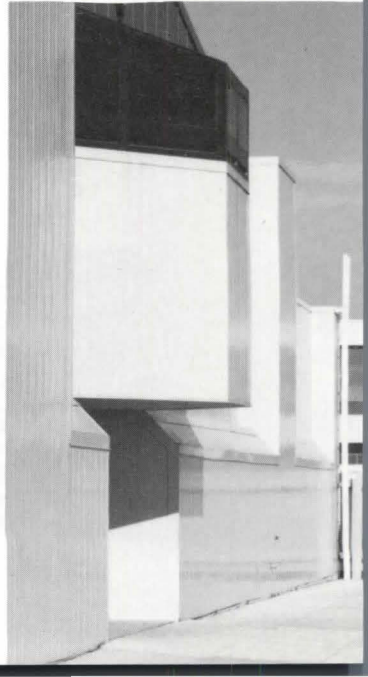


MEMPHIS AREA TRANSIT AUTHORITY

The maintenance building (photos and drawings these pages) is divided into two parallel wings of repair garages, connected by a storage structure. The larger wing for mechanical inspection and repair has a central spine of machine shops for easy access to stalls on both sides. The architects have used the shed forms to aid working efficiency by introducing natural light through clerestories under the high ends of the sloping roofs (see photo above). The light is diffused as it is bounced from the white walls, structure and ceilings. The architects studied the effect carefully, by painting sections of wall with different colors before the final painting began.



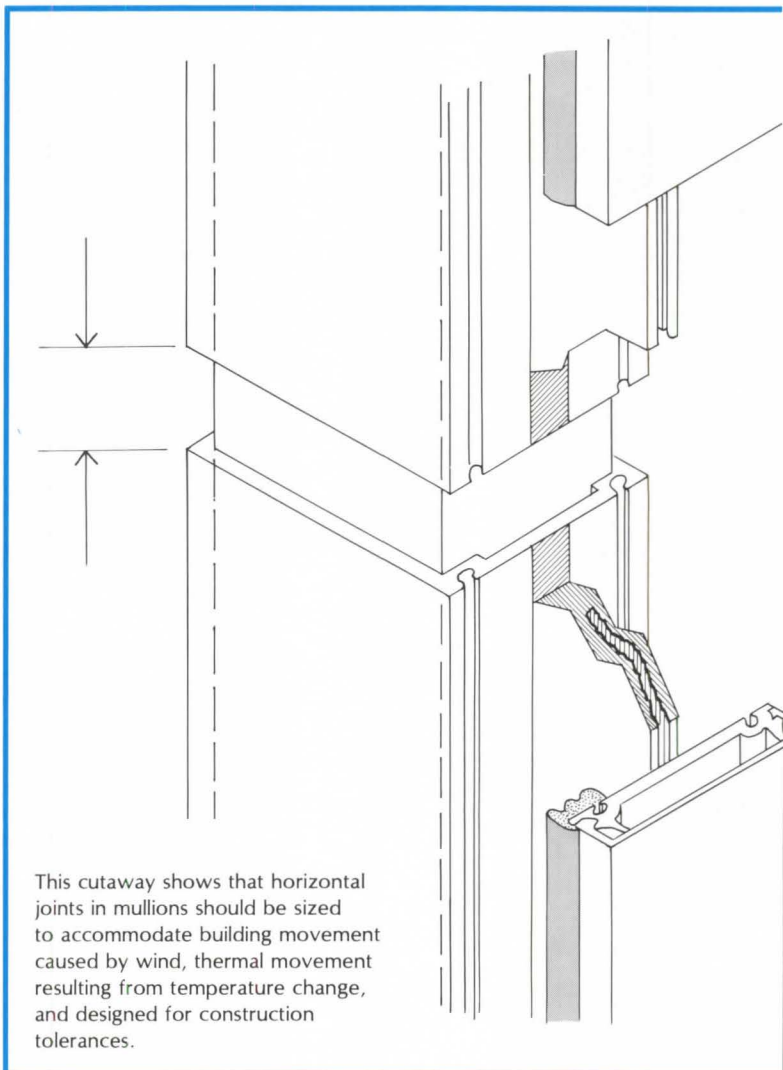




Design and testing of metal/glass curtain walls

by Gordon H. Smith, president,
Gordon H. Smith Corporation,
exterior wall consultants

To avoid rainwater penetration, excessive infiltration, and misfit of wall components, the designer must understand the principles of structural movement, utilize appropriate wind data, and know what information should be derived from mock-up tests. Gordon Smith explores these points, and more, in this article—a companion to an earlier one by Charles Thornton last December. These articles were excerpted from a seminar sponsored by University of Illinois at Chicago School of Architecture, insurance underwriter Shand Morahan & Company, and the Chicago Chapter of AIA.



This cutaway shows that horizontal joints in mullions should be sized to accommodate building movement caused by wind, thermal movement resulting from temperature change, and designed for construction tolerances.

The principal performance requirements for a metal and glass curtain wall are: 1) structural integrity, 2) provision for movement, 3) sufficient water-penetration resistance and 4) limitation on permissible air filtration. This discussion will deal mainly with the latter two requirements, which determine the *weather tightness* of a building.

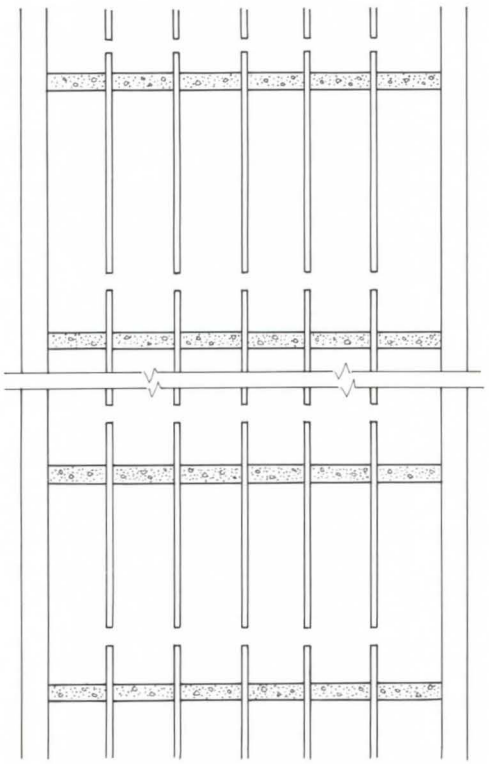
Our firm has investigated a number of installations in which owners have complained about excessive air infiltration and water leakage. A number of these walls were laboratory tested, and the designs met the performance criteria specified. Further, the walls had been fabricated and installed according to approved drawings. In a number of the cases, failure to perform in service was traced to: a) failure of the joint and seal to accommodate movement of the frame and wall caused by natural forces (attributable to deficient design or deficient execution of the design), and b) insufficient performance criteria levels in the specifications for air infiltration and water resistance.

The designer has to decide which criteria are appropriate for his particular building. If the building is tall and/or has an unusual shape, then wind loads stipulated in local codes and national standards may be too low. Local codes generally are based upon rectangular shapes and many do not recognize negative pressures at corners and the possible effects of surrounding buildings or terrain. Local codes and ANSI A-58.1 1972 indicate increasing design pressures from lower to higher elevations. But wind tunnel studies for many projects have shown high negative wind pressure concentrations not only at building corners, but also at other areas of a facade both at high and low elevations that are a result of building shapes and how the wind strikes the buildings.

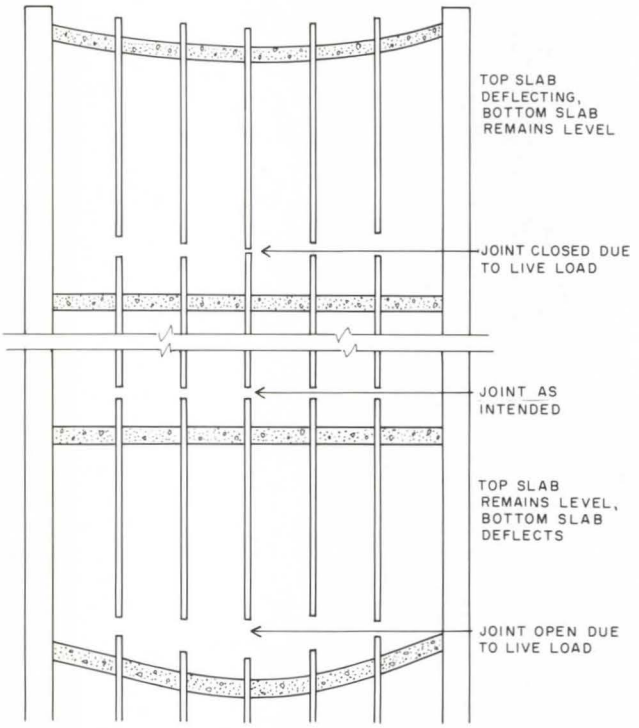
The facade is a moving system that reacts to wind loads and to temperature change

The principal causes of unanticipated and excessive air infiltration and water leakage appear to be: 1) failure to provide properly for joint movement and anchorage that will accommodate expansion and contraction caused by temperature change, 2) flexing of joints caused by wind-induced deflection of curtain-wall components, and 3) opening/closing of joints caused by movement of the building frame. It is essential that the designer and specification writer establish the temperature range over which the joints and anchorages must function, and, with the structural engineer, establish the amount of building frame movement that will occur.

Occasionally a problem arises because the architect has not fully understood the interaction of structure and curtain wall. An actual example we encountered was a multi-



Building Frame and Mullion Location Before Occupancy



Building Frame and Mullion Location After Partial Occupancy

The curtain-wall designer needs to be mindful of how floor deflection and column creep caused by gravity loads affect the wall components. These drawings show potential difficulties resulting from a staged occupancy schedule.

story building, with an interlocking-frame-type curtain wall, that had an occupancy schedule in which one floor could be occupied before the one above it and the one below it (see drawings above). This could have resulted in the center floor deflecting 1 in. while the floors above and below would not have moved, causing disengagement of the curtain wall at the floor above and crushing of the curtain wall at the floor below. To avoid this, the architect had to redesign the curtain wall for the deflection and make provisions for taking measurements during the tenants' move-in.

The type of joint seal is determined by the amount of movement anticipated

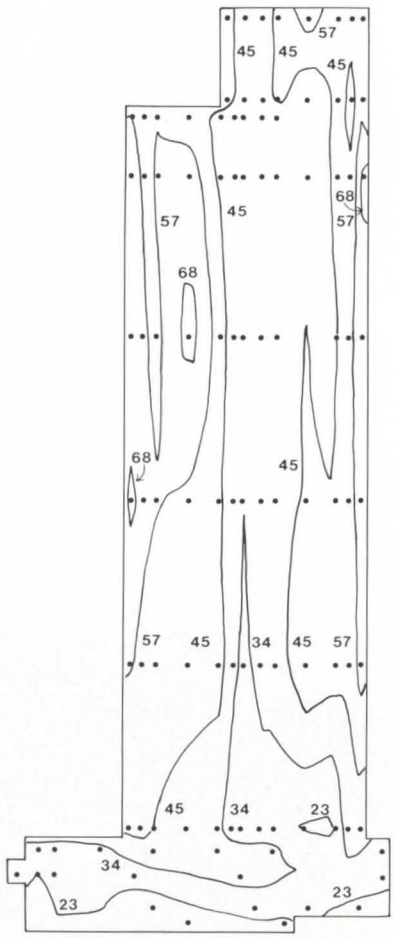
Joints required to take large cyclical movement work best with gasket-type seals at both the exterior and interior of the curtain-wall shell, separated by a gutter drained through baffled drains. The exterior gasket is designed to slow down and limit the water penetration to a quantity that can be handled by the gutter. The interior gasket is primarily an air seal whose function is to reduce the pressure drop across the exterior gasket line and increase it across the interior gasket line.

A variety of gunnable sealants or caulking materials is available, generally of three types: 1) non-curing or self-sealing, 2) semi-curing, and 3) curing. Each sealant has its appropriate applications—there is no such thing as a universal sealant. Some, for example, require minimal cleaning of surfaces; others require extensive surface cleaning and preparation with materials such as primers. In designing a joint seal for a gunnable caulking material, the designer must keep in mind that such sealants do not perform well if submerged in water for long periods of time. Care must be taken, therefore, that adequate drainage is provided from all gutters or points of water collection within a wall. One cannot depend upon evaporation to rid the wall system of entrapped water. Relying upon the water to evaporate in time is shortsighted.

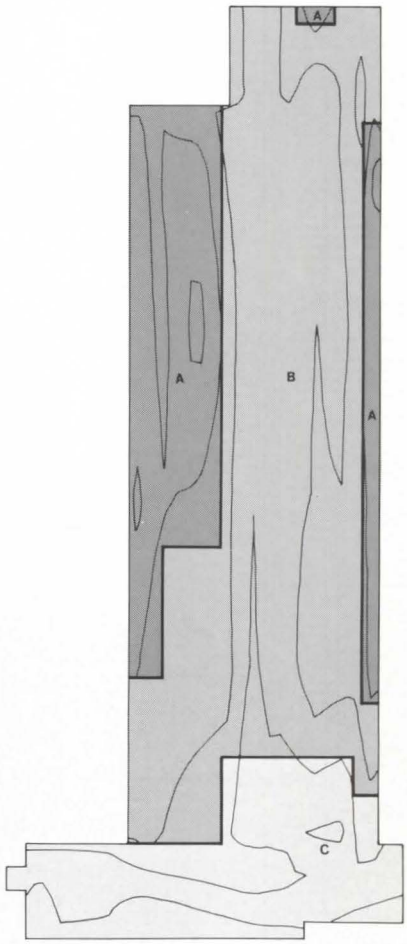
How stringent do tests need to be for infiltration and water entry?

Designers may wish to require more severe testing than those called for in standard tests, particularly if the climate is severe. For example, air infiltration through a wall generally is measured at the static equivalent of a 25 mph wind (or 1.56 psf). The fixed portions of a wall generally are permitted infiltration of 0.06 cfm of air per sq ft of surface area, and operable portions, such as windows, 0.5 cfm per lineal foot of operable ventilator crack perimeter. On this basis an operable window 5 ft on a side would permit an air exchange of 10 cfm—an amount that could be drafty for

Most curtain-wall problems result from joints and seals not accommodating to building movement, and from performance criteria not reflecting actual weather conditions.



These drawings of the north elevation of an actual high-rise building show the basis for the designer's choice of curtain-wall design loads. The irregular lines on the left-hand drawing are wind-pressure contours determined from wind-tunnel testing based upon the maximum wind velocity recurring during a 100-year period. The consultant, after studying the wind-pressure diagram, designated three different design wind pressures. These are illustrated by the three gray tones in the right-hand drawing: area A = 73 psf, area B = 56 psf, and area C = 42 psf.



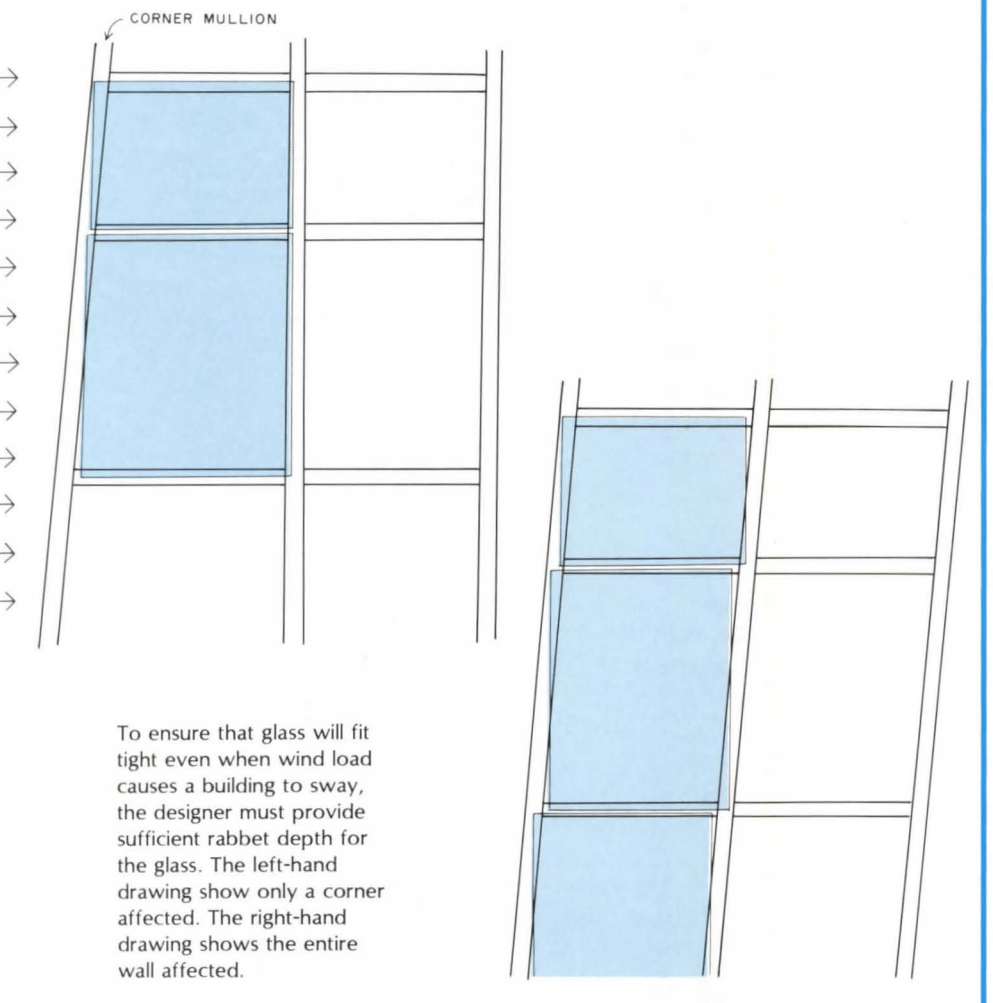
someone next to the window. Some design professionals, recognizing that cold winter winds often exceed 25 mph, retain the allowable infiltration rate, but increase the pressure differential that the wall must resist to 6.24 psf, the static equivalent of a 50 mph wind.

Degree of water-penetration resistance. This requirement is the one that is the most controversial of all. Industry standards are based on the assumption that sufficient water penetration resistance will be achieved if uncontrolled water penetration is excluded when test pressures vary between 10 and 20 per cent of the design wind pressure that is used to establish the wall's structural integrity. Thus if studies indicate that 40 psf design wind pressure is appropriate for structural considerations, the wall would be required to exclude uncontrolled water penetration at a test pressure varying from 4 psf to 8 psf, the static equivalents of 40 mph and 57 mph winds, respectively. Proponents of the standard, while recognizing the likelihood of rain occurring with wind velocities higher than those given by the formula, support their standard on the basis that a constant high wind velocity rarely occurs over a 15-minute period, the test's duration.

What the test does not consider, however, is the difference in pressure that exists between outdoors and the inside of tall buildings which are pressurized by mechanical systems. Pressure drops across walls occasionally are greater than the static equivalents of the wind velocities. Technical papers indicate that pressure drops across walls can exceed 2 psf, which is more than the test pressure used to measure infiltration for fixed wall sections, and as much as that for some water penetration tests.

Another problem area not dealt with in standards is percolation or surging of water within wall systems that can occur with the use of a high gutter system. These walls may have inadequately baffled weep or drain holes, and when wind gusts occur gutters may overflow. We know of a sliding window installation in which a geyser-like effect is reported to occur during gusty weather even though the water in the gutter does not reach overflow proportions.

We believe more research is needed on the effects of wind gusts on water penetration. The specification writer should, we feel, select a water test pressure based upon the specific weather conditions for location of his building and based upon his building's mode of operation. In the interim, specifiers should consider supplementing the standard water penetration test with a simulated gust 1½ times that used for the water penetration resistance level. This should be maintained during a 5-min. period following the stan-



To ensure that glass will fit tight even when wind load causes a building to sway, the designer must provide sufficient rabbet depth for the glass. The left-hand drawing show only a corner affected. The right-hand drawing shows the entire wall affected.

lard's 15-min. test for 15 sec. at a time at 30-sec. intervals.

Some methods of keeping out water are better in theory than in practice

The architect needs to be aware of the various weatherproofing theories before he evaluates standard curtain-wall systems, before he creates one of his own designs, and before he evaluates proposal drawings. Two basic approaches have evolved: 1) exterior barriers or shielding, and 2) internal gutters and drainage systems.

Keeping all water outside the outermost skin (or shell) of the wall is not really practical. Attempts to achieve this have resulted basically in two methods; a) the full exterior seal, and b) the "rain screen" or pressure-equalized-wall method.

It is virtually impossible to provide a perfect exterior seal, or to construct a 100-per cent pressure-equalized wall. The rain-screen approach calls for a complete interior air seal to ensure that the air pressure on the exterior wall equals the pressure within the two shells making up the wall; the pressure drop (differential pressure) occurs across the interior seal. This is difficult to achieve, not only because of the problems in constructing a virtually air-tight barrier for the inner skin, but also because it is impossible to maintain the same pressure throughout the cavity since wind pressures vary widely over the exterior skin of a building. This can result in a flow of both air and water into the cavity. Since it is nearly impossible to prevent water from penetrating the exterior skin or shell of the wall, there is a need to provide an internal shell or secondary seal and a method of draining the space between the inner and outer shells. Some designers call this a modified version of a pressure-equalized wall. For this approach to be satisfactory, however, the wall system needs to be compartmentalized into small areas, and the internal gutters need to be high enough to withstand the effects of the full pressure differential across the face of the wall resulting from the dynamic effects of water and air acting in combination. A further problem is the discontinuity in the internal seal resulting from an imbalance in pressure equalization caused by the dynamic effects of the wind.

Mock-up tests show if standards are met and uncover potential field problems

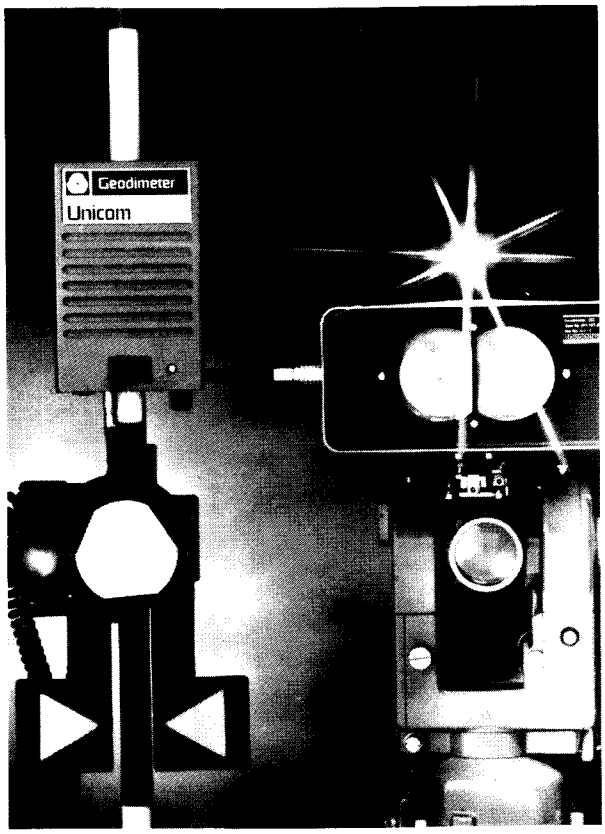
To prove that the design meets all specified performance criteria and that the wall is "weather tight," designers usually rely on the results of a specified laboratory test. The architect must be sure that mock-up size, method of construction and anchorage are representative of the wall and the manner in which it will function on the building. A mock-up also should be used to check the quality of manufacture and installation. Furthermore, a mock-up should be erected and glazed by workmen normally doing field assembly, not by specially-trained personnel.

Standards for testing metal and glass facades assume that the wall should be required only once to meet the specified performance criteria for air infiltration and water penetration. For tests to more closely approach reality, some designers require retesting of the wall's weather integrity after it has been subjected to its full design wind pressure, both positive and negative, and, in some cases, after the wall has been cycled thermally and subjected to simulated building frame movement—in particular, the possibility of a differential live-load deflection.

Mock-ups pay for their costs in many ways: We have yet to see any design that has not required some modification in order to facilitate either manufacture or erection, or to improve the design because of deficiencies discovered during testing. All modifications made to the wall as a result of the testing program must be evaluated as to serviceability from the owner's viewpoint and practicality from the contractor's. All modifications must be recorded and, if approved, incorporated on shop drawings, and verified by the design architect as having been incorporated at the site.

The knowledge acquired from mock-up testing and follow-through with field installation can be extremely valuable to the architect, but to be most beneficial, the knowledge must be shared by the full design team—those actually doing the detailing, preparing the specifications, and checking the shop drawings.

For more information, circle item numbers on Reader Service Inquiry Card, pages 181-182



Electronic distance meter for site surveys

A new electronic distance meter has been designed for site surveying. A unique feature of the "Geodimeter 122" is Unicom, which transmits the operator's vocal instructions via the infra-red measuring light beam to the reflector rodperson. Unlike the usual walkie-talkie, this geodimeter requires no FCC license and suffers no interference from weather or competing communication devices. The unit is equipped with a direct output data recorder. ▪ AGA Geodimeter, Inc., Novato, Calif.

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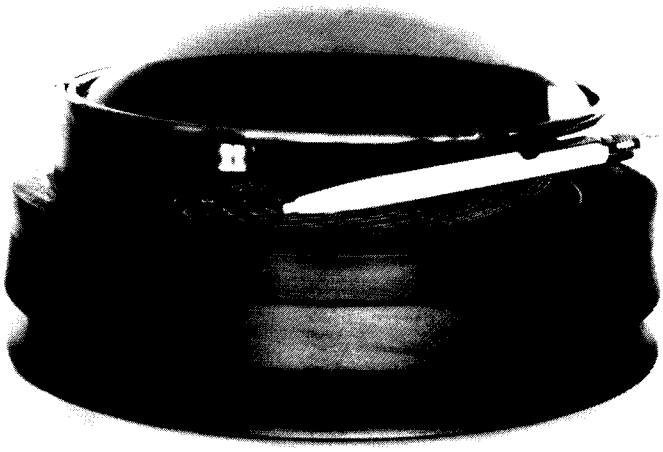

Solar site analysis instrument

A new set of specialized overlays are being offered for the *Solar Pathfinder* instrument, which permits rapid solar site analysis. By using these overlays on the instrument's circular face a diagram of the sun's path can be plotted, enabling the user to determine the percentage of solar energy av able at a specific location. A tude and aximuth of a object on the horizon can a be obtained as pertinent inf mation for site drawing ▪ Solar Pathways, Inc., Gl wood Springs, Colo.

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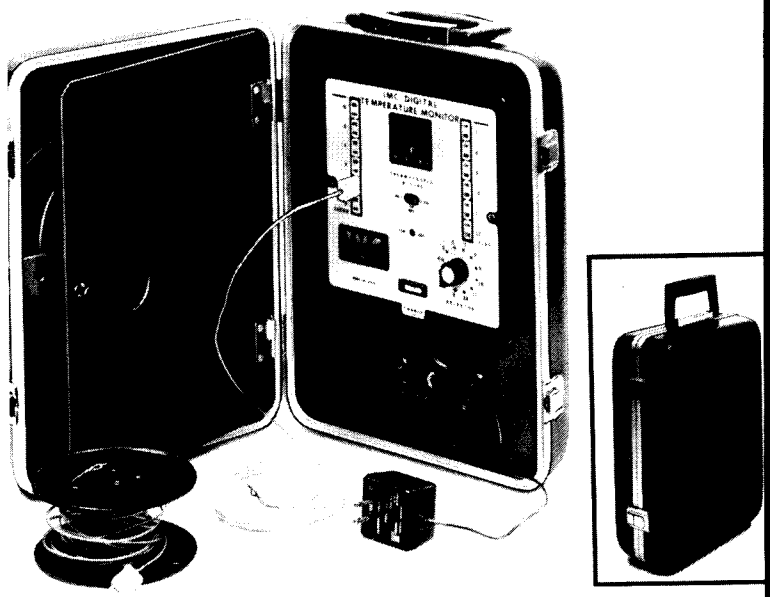

Digital thermometer monitors solar and hvac equipment

This portable digital thermometer, Model 7512, measures temperature ranging from −99 F to +999 F. Uses include monitoring solar installations, high temperature heat exchangers, food processing and conventional hvac systems. Temperature is m sured with a "K" type therm couple with cable lengths up to 1000 feet; power is batteries. ▪ IMC Instrume Inc., Glendale, Wisc.

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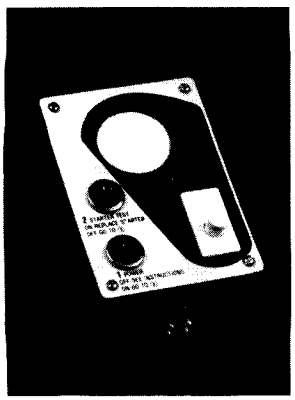
more products on page

Test Instrument for fluorescent light fixtures

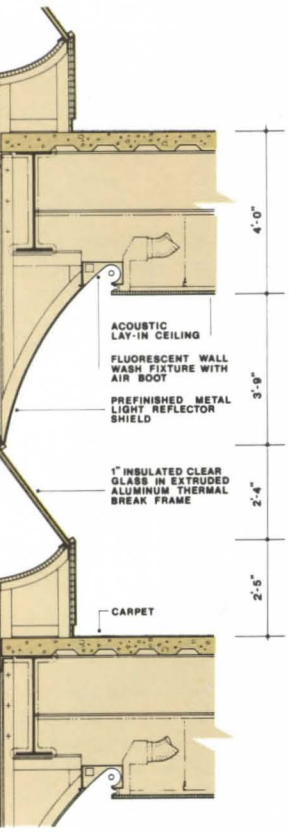


This instrument tests the ballast and starter in a pre-heat type light fixture. Shorted ballast, open ballast and bad starter mechanism are discovered by simply plugging the tester into any fluorescent fixture using circline or tite bend U-lamps; the tester avoids burning out a tube in the process of relamping. ▪ Hetherington Ind., Levittown, Pa.

circle 302 on inquiry card

Building Facts: IBM Office Building, Southfield, Mich.

Gross area: 263,000 sq ft
Steel grades: ASTM A572 Grade 50—exterior columns
ASTM A572 Grades 42, 50 and A36—interior columns, girders, and filler beams
A36—angle bracing in core
Steel supplier: Bethlehem furnished 1,500 tons of structural steel
Duration of erection: 3½ months



"Steel was chosen because of its compatibility with the exterior 'skin'...and because the owners required highly flexible and economical underfloor electrical and communications distribution," says Gunnar Birkerts, project architect.

The project is IBM's energy-efficient, 14-story office tower in Southfield, Mich. Measuring 130 ft x 130 ft, the tower houses a 50-ft x 50-ft steel-framed central core which runs the full height of the structure. The frame is cross-braced to provide lateral stiffness.

The building's steel frame required good dimensional stability to accommodate the recessed windows.

The sill reflector reduces external heat gain but not light. Light rays reflect onto the ceiling plane, then deep into the building's interior.

Three energy-saving concepts

The architect incorporated three energy-efficient techniques into the design of the structure:

- *A two-color curtain wall*—Dark-gray north and east walls absorb heat, while silver south and west walls reflect heat. Combined with the building's orientation to the sun, the curtain walls help keep the interior cooler in summer and warmer in winter.
- *A "sill-reflector" system*—Sunlight bounces off a curved stainless steel reflector located *below* the *outside* window line. Another curved reflector, placed *above* the *inside* window line, catches the reflected sunlight and diffuses it into the room. The top of the angled window glass slopes outward for solar shielding.
- *A heat-recovery system*—Because it recirculates and reconditions air, rather than taking in all new air from the outside, the system requires less energy to cool or heat outside air.

A six-year payback

According to the architect, the all-electric, steel-framed building will save an estimated $110,000 per year in utility bills. At that rate, it is projected that the additional cost of the tower's energy-saving techniques ($441,000 plus interest) will be paid for in just about six years.

Steel eases attachment of curtain wall

The curtain wall is fabricated of metal panels with an insulating foam core and double glazing. The panels are hung from a steel-grid framework of angles and channels. The framework creates a two-foot-deep air space and is bolted to the building's structural frame.

Floor system provides flexibility

The tower's cellular-blend steel floor deck, having 100% electrical distribution, can be adapted easily to changes in personnel, equipment, and office arrangements (including most interior walls). The fire-resistive floor system consists of 2½ in. of standard weight structural concrete topping over a 2-in. composite steel deck.

Bethlehem's Sales Engineers can help

Our Sales Engineers provide a variety of technical and advisory services. They're available to answer your questions on steel framing, on fasteners, on anything concerning the use of steel in your designs. For more information on the IBM Tower project, request Building Case History Folder No. 70.

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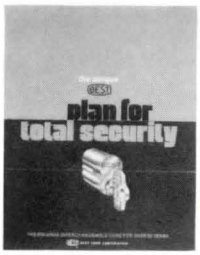
FLOOR SYSTEMS / An illustrated eight-page brochure describes a floor system which combines steel joists with poured concrete to save time and materials. The finished floor is claimed to be twice as stiff as a standard joist floor and can be stripped 24 hours after casting without the need for reshoring. ▪ Canam Hambro Structures, Beauce, Quebec.

circle 400 on inquiry card

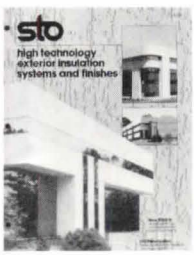
LIGHT / A four-page brochure describes the "Minilighter II," is suited for both general area floodlighting and specific lighting applications. This product is claimed by the manufacturer to consume less energy than a 1500-W quartz floodlight. Weighing 22 to 28 lb, it allows contractors to mount more per pole. ▪ Harvey Hubbell, Inc., Christiansburg, Va.

circle 405 on inquiry card



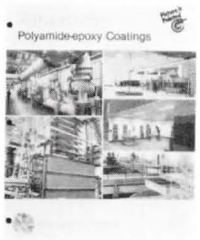
LOCKS / A four-page bookle entitled "Plan for Total Securi ty" describes the advantages o this company's interchangeable core locking systems. The loc housing is machined from soli brass and finished in nickel. The anchor lock can be keyed indi vidually, keyed alike and/o masterkeyed into any Best sys tem. ▪ Best Lock Corp., Indian apolis.

circle 410 on inquiry car



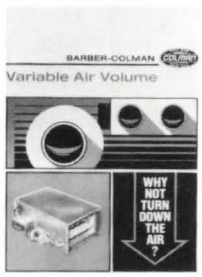
EXTERIOR INSULATION / A 12-page four-color brochure describes the composition of exterior insulation produced by STO. This product is claimed to solve such problems as infiltration and condensation in walls. Sealers and primers are discussed, photographs show samples of wall coatings and diagrams illustrate typical details of installation. ▪ STO Energy Conservation, Inc., Rutland, Vt.

circle 401 on inquiry card



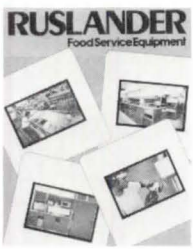
PAINT / An eight-page booklet describes coatings for surfaces requiring resistance to chemicals, humidity and stains and gives available colors and typical applications. These coatings have been accepted by the U.S. Department of Agriculture for use on structural, non-food-contact surfaces. ▪ PPG Industries, Pittsburgh.

circle 406 on inquiry card



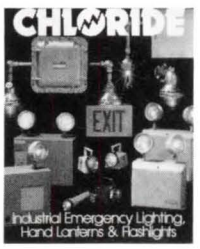
AIR DISTRIBUTION / A six page brochure from Barber Colman compares variable vol ume systems and constant vol ume systems and examine how to save in energy cost and consumption. In addition the brochure provides equip ment installation instructions ▪ Barber-Colman Co., Rock ford, Ill.

circle 411 on inquiry car



FOOD SERVICE / A six-page, four-color folder describes the production of custom food service equipment. Design and manufacturing procedures are detailed along with photographs of recently completed food service systems. A list of recent installations is also included. ▪ Ruslander & Sons, Inc., Buffalo, N.Y.

circle 402 on inquiry card



EMERGENCY LIGHTING / A 16-page brochure describes industrial emergency lighting, hand lanterns and flashlights. Definitions of hazardous locations and the types of lighting required, and photos and dimension charts accompany each product as well as suggested specifications. ▪ Chloride Systems, U.S.A., North Haven, Conn.

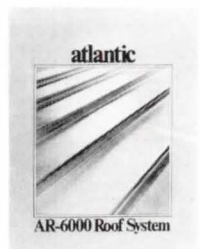
circle 407 on inquiry card

WASTE TREATMENT / A six page brochure describes sludge waste treatment proces which utilizes anaerobic diges tion. The unit described i designed for new plant applica tions and to retrofit existin sludge digesters. Diagrams an charts show the basic desig construction and performanc advantages of the equipmen ▪ Welles Products Corp., Ros coe, Ill.

circle 412 on inquiry car

MAKE-UP AIR / A 10-page, two-color brochure covers gas-fired make-up air heaters which burn either natural gas or liquid propane. Dimensions and specifications are given and options are listed with diagrams. Performance of blowers is tabulated on a chart. ▪ York-Shipley, Inc., York, Pa.

circle 403 on inquiry card



ROOFS / A four-page color brochure describes the AR-6000 standing seam roof system from Atlantic Building Systems. The entire system, including trim, flashing and accessories, is designed to float with the expansion and contraction caused by temperature fluctuations. Included in the brochure are complete specifications and applications. ▪ Atlantic Building Systems, Atlanta.

circle 408 on inquiry card

TILES / This 1982 color catalo features nine new series o ceramic wall and floor tile Among the additions are a unglazed vitreous tile, a til which resembles marble, an tiles with traditional Dutch pa terns. The manufacturer ha added two new colors, san and rosewood, to its Paliss series suitable for residenti and contract use. ▪ Villeroy Boch, Inc., Pine Brook, N.J.

circle 413 on inquiry car

CEILING FANS / A two-page pamphlet describes fans designed with a 36-in. sweep for smaller areas. This line of fans with white or brown motor housings; blades come in white or brown metal, or woods of light maple, antique white or dark mahogany. ▪ Envirofan Systems, Inc., Buffalo, N.Y.

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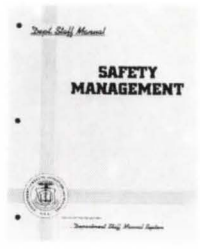

FLOORING / This kit, from Pinay Flooring, details current standards for flooring products set by the Department of Health Education and Welfare. In addition to providing information on Flame Spread and Smoke Developed standards, the kit details how Pinay products meet these standards. ▪ Pinay Flooring Products, Inc., Brooklyn, N.Y.

circle 409 on inquiry card

SIGNALS / A kit of brochure covering this company's line o audio/visual devices feature equipment which will produc high sound and bright light o minimum current. The sele tions presented include sta dard bells, horns and strob horns, plus strobes in 8,000 an 70,000 candlepower. ▪ Whee ock Signals, Long Branch, N.J.

circle 414 on inquiry ca

EROSION CONTROL / A 20-page brochure describes erosion control systems and soil stabilization fabrics with photographs and line drawings. Specification charts for all products are included. Among the products covered are a silt fence made of nylon and polyester and a downdrain made from woven polyurethane. ▪ Mercantile Development, Inc., Westport, Conn.

circle 415 on inquiry card

ROOF WINDOWS / A four-page color brochure describes "windows for the roof," claimed by the manufacturer to be more economical than dormers and more versatile than skylights. They are available with screens, blinds and shades. Photographs illustrate both residential and contract installations. ▪ Roto Frank of America, Inc., Centerbrook, Conn.

circle 416 on inquiry card

EMERGENCY LIGHTING / A six-page catalog prepared for a three-ring binder called "Survival Lighting" includes photographs of six series of lights. Also included are graphic schematic drawings of various voltage ratings for floodlamps which serve as aids for determining lighting/cost ratios. ▪ Teledyne Big Beam, Crystal Lake, Ill.

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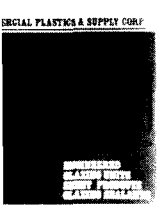

GLAZING / A line of engineered glazing units and plastic sheet products is described in this six-page brochure. A wide selection of applicable sealants and tapes is covered as well as a chart which compares the various degrees of heat savings derived from different glass and plastic glazing products. ▪ Commercial Plastics & Supply Corp., Cornwells Heights, Pa.

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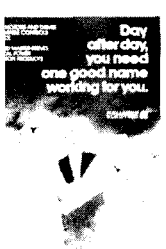
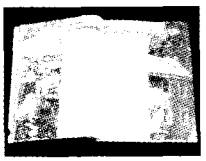


MOTORS / A 24-page illustrated brochure describes ac and dc motors, adjustable speed drives, and mechanical power transmission products. Containing material on more than 100 products, the brochure identifies motors for both standard and specialized industrial applications. ▪ Reliance Electric Co., Cleveland.

circle 419 on inquiry card

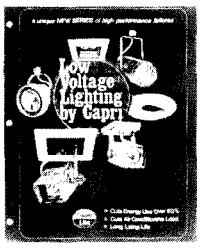


METAL BUILDINGS / This four-color brochure illustrates large industrial metal buildings designed for special needs. Economy, speed of construction, energy savings and versatility of design are analyzed in clear-span interiors. ▪ Mitchell Engineering Co., Columbus, Miss.

circle 420 on inquiry card

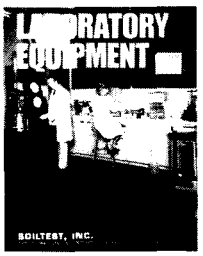
CONVEYOR COVERS / A 12-page brochure features conveyor cover systems and related facilities designed for use in the mining and quarrying industries. Three basic conveyor cover systems are cataloged as well as modular stringer frames and metal components for construction of conveyor covers. ▪ The Binkley Co., St. Louis, Mo.

circle 421 on inquiry card



LOW-VOLTAGE FIXTURES / A 12-page catalog claims its low-voltage fixtures can cut energy consumption up to 60 per cent when compared with conventional fixtures. Included is an introductory primer on how to use these fixtures with maximum visual impact and energy savings. The catalog has complete specifications and photometric information. ▪ Capri Lighting, Los Angeles.

circle 422 on inquiry card



SOIL TESTING / General laboratory equipment is extensively described in a 112-page book. Emphasis is on materials testing. This catalog is organized into sections for labware, chemicals, timers, mixers, and weather instruments. Each product is introduced with a summary listing of specifications, followed by a brief description of operation and uses. ▪ Soiltest, Evanston, Ill.

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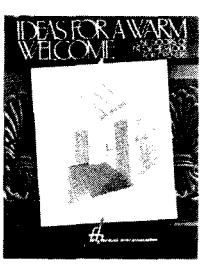

DOORS / A six-page four-color booklet presents designs of stile-and-rail wood doors manufactured from Douglas fir and hemlock lumber by member firms of the Door Producers' Association. Color photographs illustrate different designs with a variety of finishes from light stains to colorful paints. ▪ Fir & Hemlock Door Assn., Portland, Ore.

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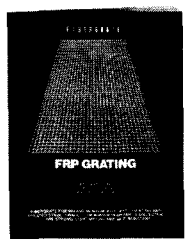
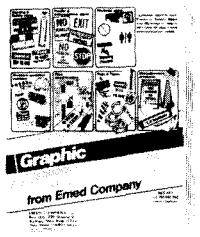


GRATING / This 16-page book describes a variety of corrosion-, fire- and impact-resistant meshes. Included are clips and fasteners as well as stair treads, elevated flooring systems, and a barrier screen used to protect personnel from safety hazards. ▪ Fibergate Corp., Dallas.

circle 425 on inquiry card



GRAPHICS / A 44-page color catalog covers signs of all kinds. OSHA signage specifications are listed as well as all prices and sizes. Other items available are safety mirrors, wheel chocks, portable gates, and U.S. flags. A special insert describes a new line of fiberglass signs for use on all types of buildings. ▪ EMED Co., Buffalo, N.Y.

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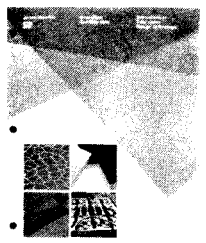

FIBERGLASS MATS / A six-page four-color brochure details the properties of fiberglass mats for a variety of laminating and filtering applications. Photographs show applications of these nonwoven mats which are available in plain form, or treated with various resins. ▪ Johns-Manville, Denver, Colo.

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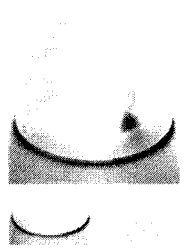

GLASS ART / Published in Dusseldorf, available in English, *Neues Glas* is a magazine which covers contemporary glass art. Each issue features glass artists and their works and reports on new techniques, workshops, exhibitions and competitions. *Annual subscriptions at $27.50 are available through Italmedia Company, 801 Second Ave., New York, NY 10017.*

ALARM/SECURITY / A 68-page catalog from Mountain West Alarm exhibits over 1,600 alarm and security products. Burglar detectors range from simple magnetic door switches to ultrasonic, microwave and passive infrared units to detect moving intruders. Other products, and basic instructions and diagrams are also included. ▪ Mountain West Alarm, Phoenix, Ariz.

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You don't need wings on your wing tips. Or vitamins in the water cooler. What you do need is MASTERSPEC®2.

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CUT PILE CARPETING / Made of *Antron* XL spun nylon Beck-dyed in 18 colors, "Stonehenge" is a new addition to the *Colonnade* line of carpeting for hospitals, schools, showrooms, and other heavy-traffic public areas. The carpet has earned ASTM E-84 ratings of 30 (Flame Spread) and 65 (Smoke Density). Its NBS radiant panel test resulted in an average critical radiant flux of 1.09. ▪ Collins & Aikman, Carpet Div., New York City.

circle 304 on inquiry card

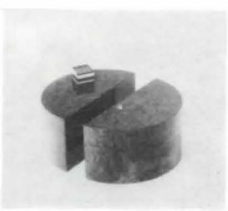
CHAIN HUNG LIGHT / The hand-decorated, translucent shade of the "Honeycomb" hanging lamp has a burnished antique brass finish. Available with either bronze or green highlights, the colorful lamp has a three-way switch and a downlight for more concentrated illumination. The fixture is 18-in. high, has a diameter of 18-in. and takes one 150-W G lamp and one 50-W R20 downlight. ▪ Thomas Industries, Louisville, Ky.

circle 305 on inquiry card

BATHING UNIT / Described as a personal spa, the "Steamsuite" consists of tub, walls, and top molded into a single heavy-gauge, color-fast acrylic unit, with a steam-tight, tempered glass enclosure. A compact steam generator can be installed within 25-ft of the unit. the 60-in. tub/shower/steam combination is shown here; a 48-in. shower/steam module is also available. ▪ Fiat Products, Inc., Skokie, Ill.

circle 306 on inquiry card

DRUM TABLE / A Paul Mayen design, this split-drum occasional table forms a 30-in. diameter cylinder; each half also serves as a table on its own. Drum table is available in 13 lacquer colors, four woods or four burls; height is 15-in. ▪ Intrex Inc., New York City.



circle 307 on inquiry card

ACCENT RUG / Angelo Donghia's "Pizzaz" accent rug is shown here in a *Wrighton* kitchen from the Hastings Tile & Il Bagno Collection. Available in white, yellow, pink and beige colorways, the rugs are 24- by 36-in., made of vat-dyed cotton. ▪ Regal Rugs, Inc., North Vernon, Ind.

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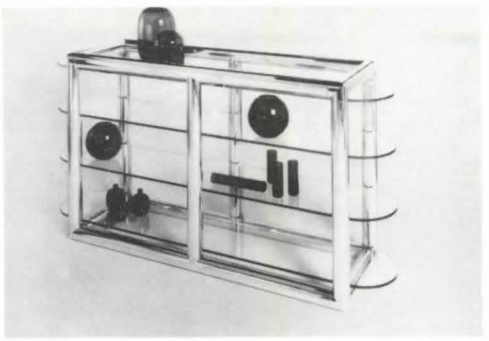


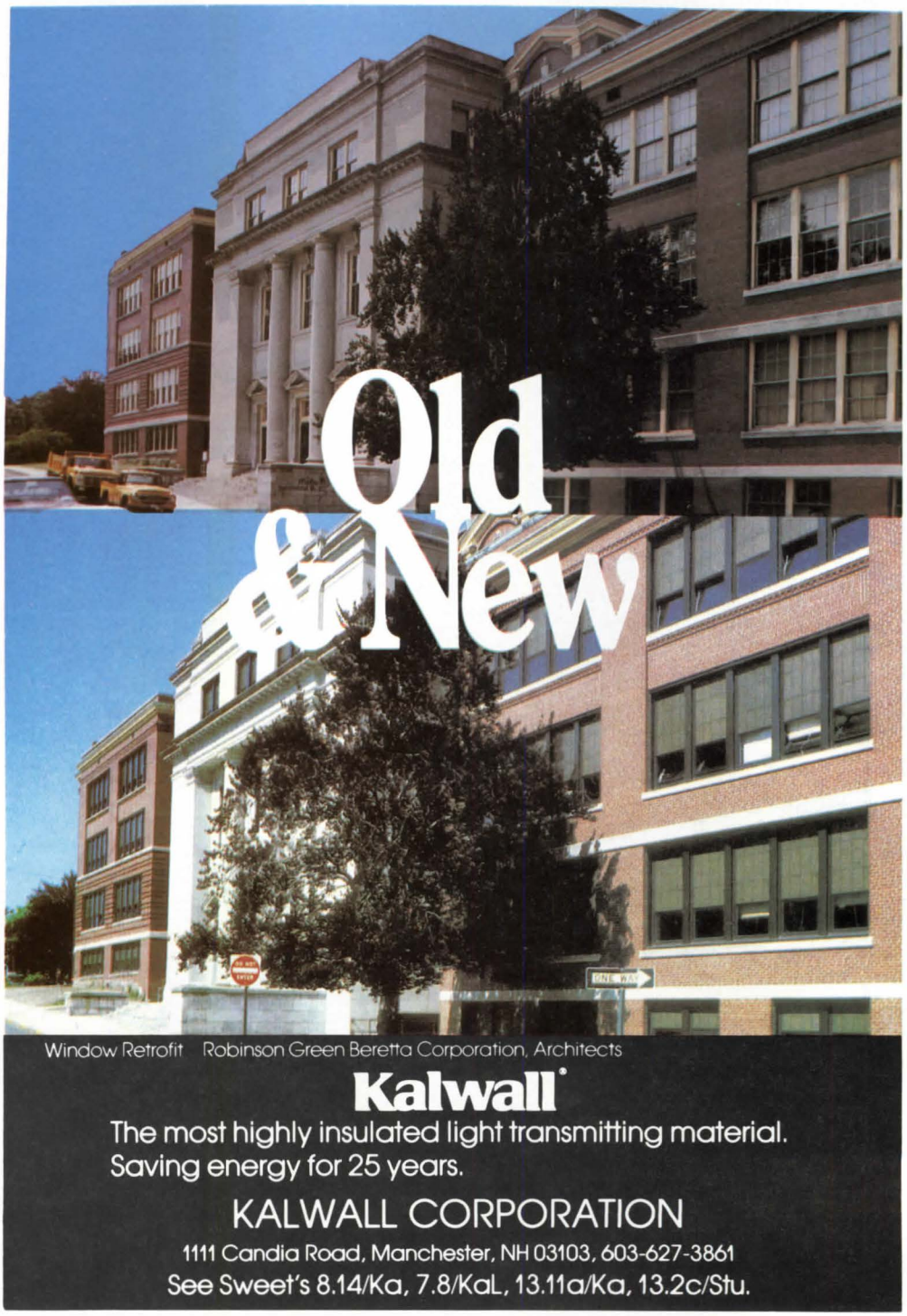
CHROME AND GLASS / Table-height étagère has a six-legged frame of polished chrome tubes, supporting four lozenge-shaped shelves of thick plate glass. ▪ Architectural Supplements, Inc., New York, New York.

circle 309 on inquiry card

SPIRAL STAIR / One of five designs available from this manufacturer, this spiral staircase is built of alternating treads and heavy wood riser segments strung onto tensioning cables of high-strength aircraft wire rope strands. The stairs and handrail are independent, internally post-tensioned assemblies. The total weight is supported by the lower floor, while the upper floor framing serves as the lateral support. The 5-in.-high risers are Southern yellow pine, laminated with *Penacolite* resin adhesives. ▪ Spiral Manufacturing, Baton Rouge, La.

circle 310 on inquiry card

more products on page 135



Circle 58 on inquiry card

Cookson insulated rolling doors clamp down on energy waste

Cookson has a *proven* way to gain on thermal losses—our new insulated rolling door.

To make this door an energy-saver, Cookson puts solid (not foamed) polyurethane insulation between two rolling door slats to give more thorough coverage. Exclusive slat interlock design and Cookson Weatherbar® weatherstripping give you all the advantages of a rolling door in a true, energy-saving system.

Cookson insulated and non-weatherstripped, non-insulated doors, both with 22 gauge exterior slats, were installed in a sealed, heated box. The Hughes Aircraft Company, Industrial Products Division, used their Probeye® Infrared Viewer and video thermography system to record visually the actual heat loss (within .5°C) through each door.

Actual installation of Cookson rolling doors—sensitive equipment is protected and energy dollars saved in this defense facility.

HERE'S INFRARED PROOF

The Cookson insulated rolling door has been tested by an independent laboratory using the ASTM C-236 Guarded Hot Box Test. Test results available on request.

Official testing proved the effectiveness of the Cookson design, but, we went one step further.

At Cookson, we think actual performance is more important than theory when it comes to saving energy dollars. So we used infrared thermography to visually show the effectiveness of the Cookson Insulated Rolling Door in a side-by-side comparison with a conventional door.

With equal amounts of heat applied to each door, a Hughes Probeye® thermal video camera accurately measured heat loss through the doors. The video images (right) are dramatic proof that the insulated door saves energy.

COOKSON ROLLING DOORS

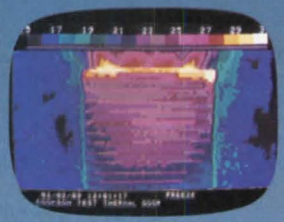
700 Pennsylvania Avenue, San Francisco, CA 94107, (415) 826-4422.

800 Tulip Drive, Gastonia, NC 28052.

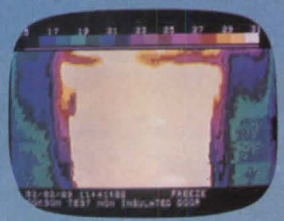
Write or call for technical data sheet on the Cookson Insulated Rolling Door or a copy of our 28-page catalog of rolling doors, grilles, and accessories.

Circle 59 on inquiry card

INSULATED DOOR

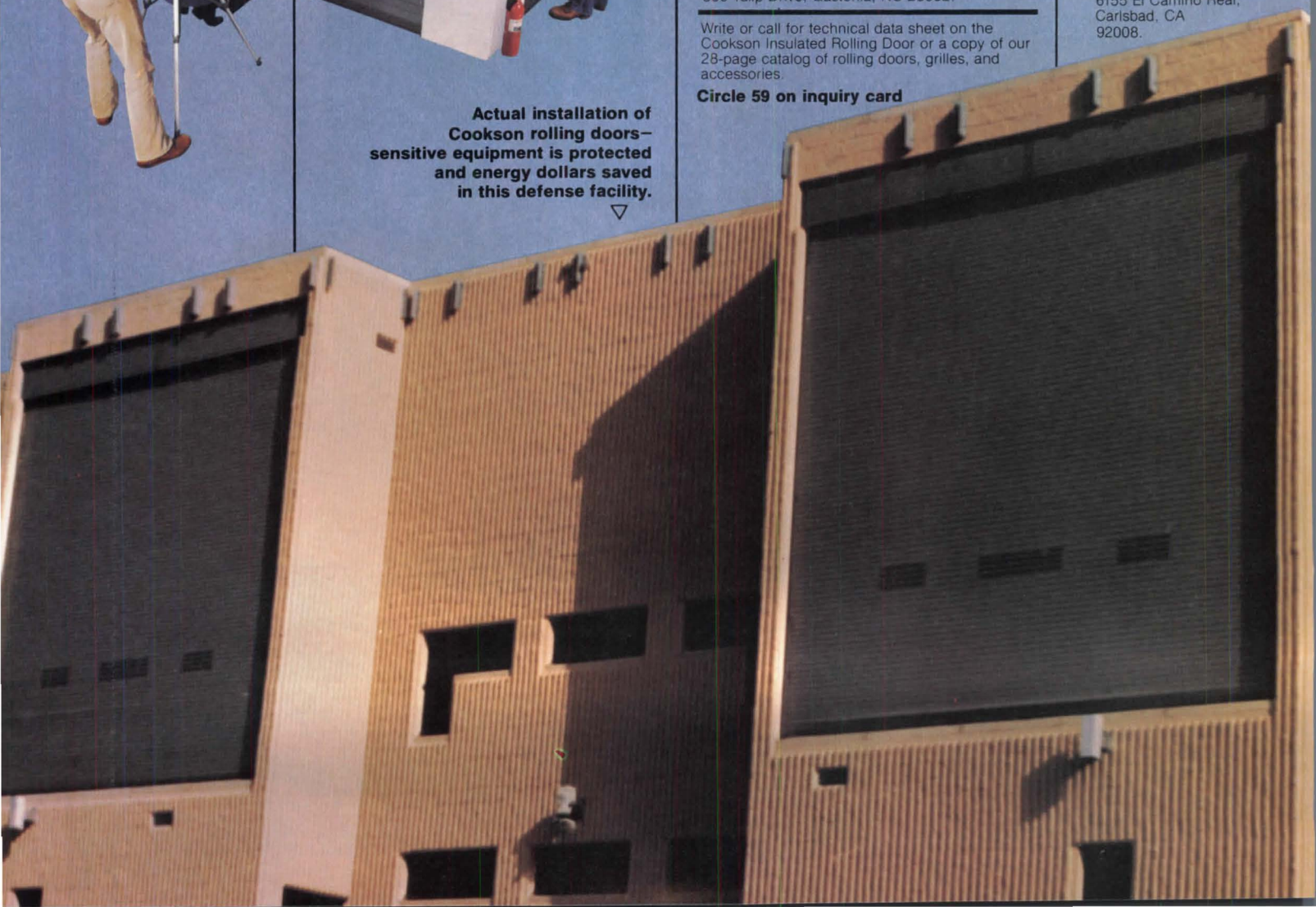


NON-INSULATED DOOR

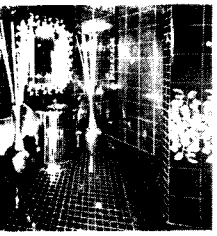


Video images show a dramatic difference in heat loss between the two doors. White areas indicate excessive heat transfer. Only moderate loss occurs in red areas. And insulated walls, appearing blue, show no heat loss at all.

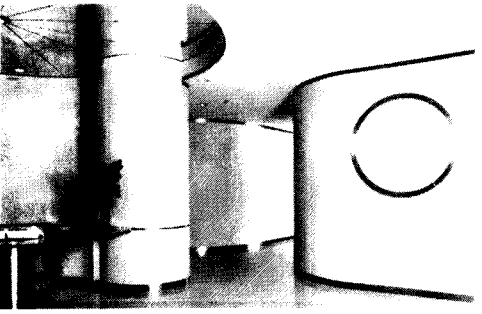
For information on the Hughes Probeye® Thermal Video System write Hughes Aircraft Company, 6155 El Camino Real, Carlsbad, CA 92008.



CERAMIC TILE / Manufactured by Cedit of Italy, "Coggyria" pattern glazed ceramic tile for walls and light-use floors comes in black or white solid colors, and the two-tone leaf pattern shown here around the mirror and as a border near the ceiling. Patterned tile is offered in black and red; black and gray; and subtly textured white-on-white. Tiles are 8½-in. square, and are available in stock in the U.S. ▪ Agency Tile, Inc., New York City.



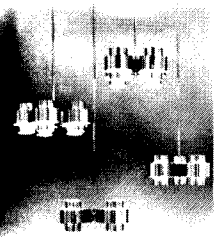
circle 311 on inquiry card



CUSTOM UNITS / The PTM Clothing Showroom in New York City (shown above) is an example of the custom architectural installation capabilities of William Lyons Design Craft, Inc. Vertical ribbed laminate paneling conforms to the curved walls, with accents of brushed bronze base and crown moldings. Other products offered include cabinets, screens, Venetian and contemporary mirrors. ▪ William Lyons Design Craft, Inc., New York City.

circle 312 on inquiry card

CEILING LIGHTS / The "Chiaroscuro" lamp series, available in clusters of two through five lights, create uplight and downlight and shadow effects suitable for use in hotel hallways, conference rooms and many other contract applications. The fixture measures nine-in. high, in diameters of from 20½- (for the double light) to 24-in. for the five-light fixture. Available in either polished brass or chrome finish, "Chiaroscuro" comes with a 12-in. stem. ▪ Koch & Lowy Inc., Long Island City, New York.



circle 313 on inquiry card

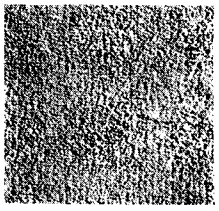
OAK FURNITURE / A bone oak finish is now offered in StāvOak's furniture line, in addition to the original charcoal and caramel shades. Made from white oak whiskey barrel staves, the residential collection includes the entertainment center shown here. Vertical units have extra-deep shelving to accommodate video, audio and television equipment, and feature canister lighting with individual dimmer controls. ▪ StāvOak, High Point, N.C.

circle 314 on inquiry card

GLASS SHOWCASE / Hexagonal vitrine displays and protects fragile and costly objects in retail store, gallery or home. Illuminated cases are constructed of either silver or bronze mirror glass, transparent glass and a locking glass door hung on the *Magic Glass* invisible hinge. Many other models of glass showcases for store, office, or home are available. ▪ MagicGlass, San Francisco.

circle 315 on inquiry card

CONTRACT CARPETING / Carpet of "Ultron 3D" nylon has been engineered to produce these features: multi-dye level properties, wool-like luster, low soiling performance, and superior flammability and static resistance. This piece-dyed pattern tufted on an "Omnipoint" machine demonstrates the design potential of heavy-denier "Ultron 3D" nylon. ▪ Monsanto Textiles Co., New York, New York.



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more products on page 137

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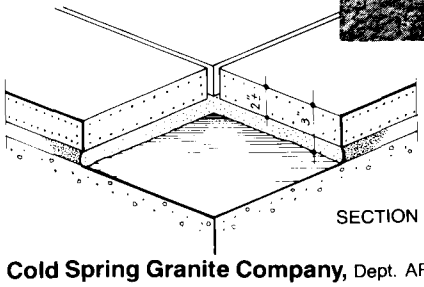
I.D.S. Center, Minneapolis, MN
Architect: Philip Johnson & John Burgee, New York, N.Y.



SECTION

Cold Spring Granite Company, Dept. AR-3, 202 South 3rd Avenue, Cold Spring, MN 56320

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Detail of Galaxy Sun Controller

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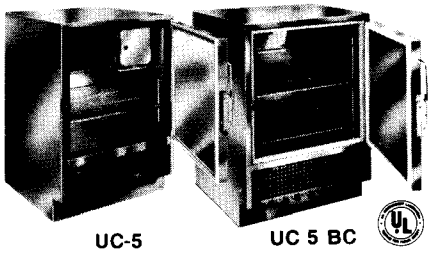
WITH

UNDER COUNTER or WALL MOUNTED STAINLESS STEEL Refrigerators / Freezers

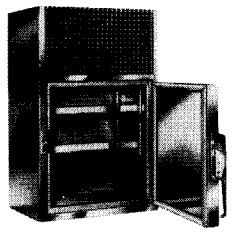
UNDER COUNTER



UC-5 **UC 5 BC**

The entire UC 5 series feature polyurethane insulated thin wall construction and air-tight neoprene thermo-break door seals. The cooler section has 2 adj. s.s. wire shelves. Cap. -5.4 cu. ft. (155 ltr.)
UC 5 — two-tray ice cuber cooling system, manual defrost
UC 5 BC — blower cooling system, auto. defrost
UC 5 CW* — cold wall cooling, auto. defrost
UC 5 CWE — *totally explosion-proof,* 4.9 cu. ft. (139 ltr.) cap.
UC 5 FBC — freezer, auto. defrost, 4.6 cu. ft. (130 ltr.) cap.

WALL MOUNTED



WM-CW

WM CW* series wall mounted refrigerators come in 4 sizes featuring cold wall cooling with auto. timer defrost. Two removable, adj. stainless steel shelves provided. Front grille removes for easy servicing.
WM 1 CW — Capacity -1.5 cu. ft. (45 ltr.)
WM 2 CW — Capacity -2.3 cu. ft. (65 ltr.)
WM 3 CW — Capacity -3.2 cu. ft. (95 ltr.)
WM 4 CW — Capacity -4.3 cu. ft. (125 ltr.)
WM 3 FCW freezer, man. defrost, cap. 3.0 cu. ft. (851 ltr.)

*With explosion-proof interior.

Jewett also manufactures a complete line of blood bank, biological, and pharmaceutical refrigerators and freezers as well as morgue refrigerators and autopsy equipment for world wide distribution through its sales and service organizations in over 100 countries.

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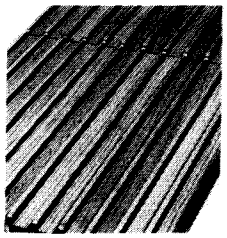
BUFFALO, N.Y. 14213

Refer to Sweet's Catalog 11.20/Je for quick reference

Circle 62 on inquiry card

TAMBOUR WALLCOVERING / Custom Tambour patterns, in flexible or rigid panels, can be produced to exact customer specifications for contour and flat surfaces. Materials available include solid woods, architectural wood veneers, various metals, and cork. ▪ National Products, Inc., Louisville, Ky.



circle 317 on inquiry card

SWEDISH CHAIR / Designed and manufactured by Gote-Mobler of Sweden, the "Viking" swivel chair and matching footstool are suitable for home or contract applications. Chair frame is laminated beech bentwood, stained in a choice of finishes. Upholstery options include fabrics or leathers. ▪ Torben Frederiksen Enterprises, San Rafael, Calif.

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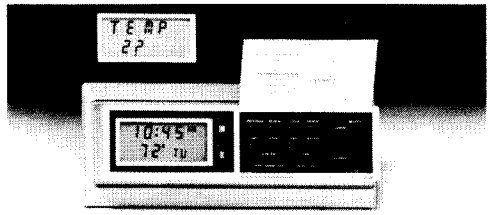

ENERGY MANAGEMENT / Designed for light commercial applications, such as restaurants, stores, churches and small offices, the "Comfort Zone TS-2000" energy management system is claimed to dramatically reduce energy consumption. Key features include liquid crystal display, shut-down control of hvac when building is unoccupied, and battery back-up. ▪ Printed Circuits International, Sunnyvale, Calif.

circle 319 on inquiry card

GEOMETRIC PATTERNED CARPET / As part of Karastan's spring collection, "Beaupoint" heavy-duty carpet has a distinct modular pattern. It is woven by Kara-loc II weave which makes possible a precise pattern definition in ultra-smooth, ultra-dense surface. It is woven of all *Antron III* nylon yarns, skein-dyed and comes in 16 colors. ▪ Karastan Rug Mills, New York City.

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more products on page 139

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Telex 951650

Can you afford a cheap imitation?

Choosing the right outdoor seating could mean the difference between a sound investment and a costly mistake.

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Kroin:

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StarTherm cross-sections

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"Elevette®" your condos' most practical status symbol

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When planning your next project, don't just allow space for "Elevettes" to be installed in the future. Have them installed as original equipment. Make the "Elevette" a selling feature.

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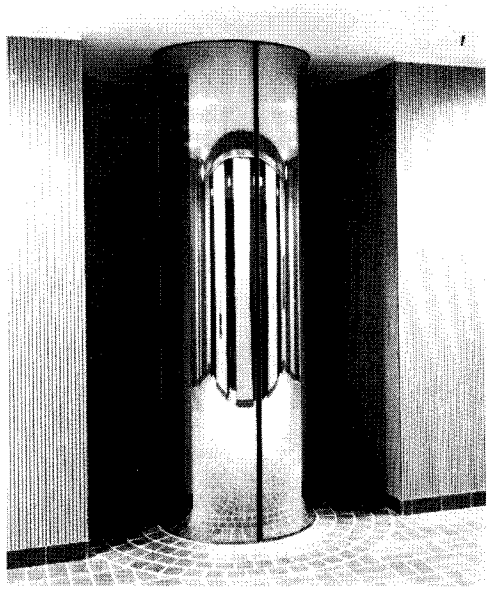

DECORATIVE COLUMN COVERS / Pittcon Industries, Inc. has introduced *Snap-form* Interlock Column System, Series 3300—a custom-designed snap-on column cover. Intended for both new construction and retrofitting, the cover can be installed around any existing columns, or it can create a space through which ducts and wiring can be extended. Covers are available in brass, bronze, stainless steel and laminates. As each cover is custom made, a variety of heights and diameters can be accommodated. ▪ Pittcon Industries, Inc., Riverdale, Md.

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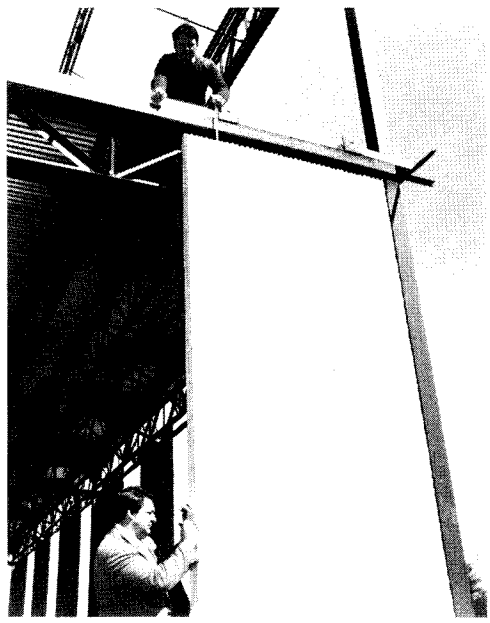

CEMENT / An advanced composite for glass fiber reinforced cement—claimed to provide long-term durability, lightweight and energy savings—was used for the first time in the United States in these panels for Middlesex Technologies Center Associates IV office building. A new technology that uses a unique polymer additive (called the Forton system) helps lessen the degradation of conventional E-glass fiber reinforcement cement composites, thus increasing durability and requiring less time for curing. ▪ PPG Industries, Inc., Pittsburgh.

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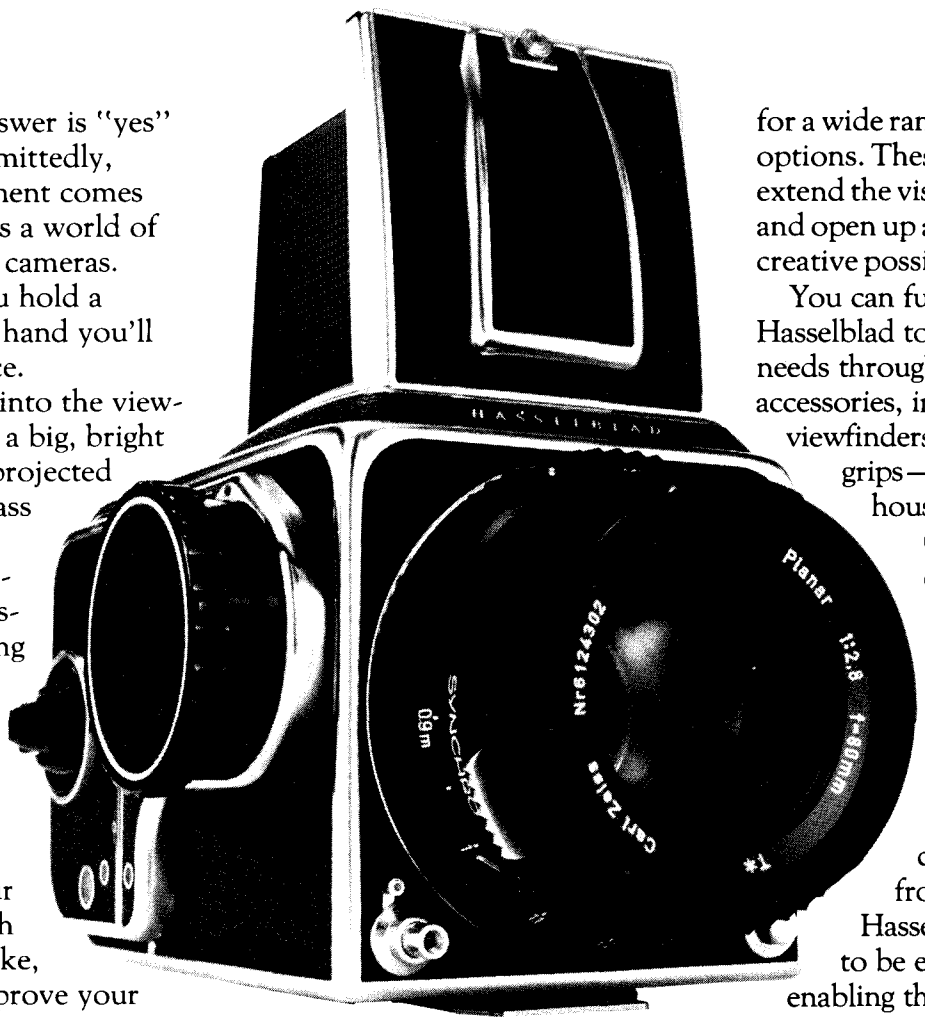

We think the answer is "yes"

While talent, admittedly, comes first, equipment comes second. And there's a world of difference between cameras.

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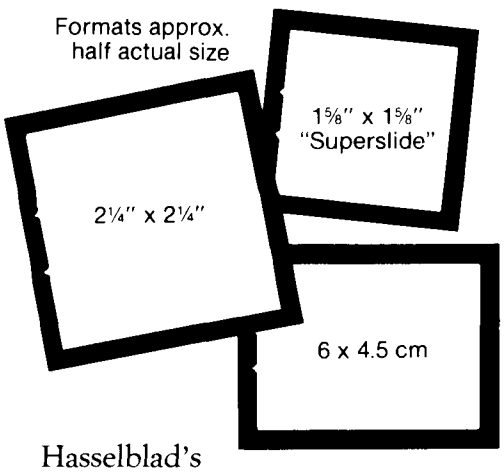
When you look into the viewing hood you'll see a big, bright 2¼″ x 2¼″ image projected onto the ground glass screen. You'll find this experience considerably more satisfying and stimulating than peering with one eye through the tiny eyepiece of a 35mm. The Hasselblad viewing system brings you closest to what your finished photograph will actually look like, which will help improve your results.



Hasselblad's interchangeability is another great creative stimulant. It helps you shape the camera configuration to suit your own ideas, so the camera and your mind's eye can work together as one.

For a start, you can interchange the film magazine with other magazines, permitting changes in film types, film capacity and even formats. And you can switch magazines even in mid-roll, without wasting a single shot and that includes a Polaroid back.

You can also interchange the lens with other Carl Zeiss lenses, for a wide range of optical options. These lenses greatly extend the vision of the camera and open up an exciting range of creative possibilities.

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Considering the extraordinary scope and versatility of the Hasselblad, the uninitiated might be inclined to conclude that this is a complicated camera. But nothing could be further from the truth. The Hasselblad is designed to be easy to operate enabling the photographer to concentrate on the subject and not on the camera.

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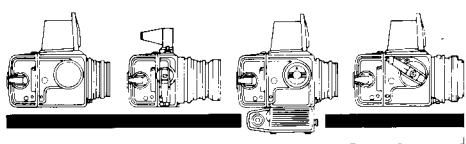

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ARCHITECTURAL RECORD

BREWERS/WARMERS / This 10-page specifier's guide describes a line of brewers and warmers, and details the features of each model. Typical specifications and dimensions are given as well as special voltages for foreign and marine use. ▪ Bunn-O-Matic Corp., Springfield, Ill.

circle 430 on inquiry card

DOORS / Insulated doors designed for residential use—the "Americana" series—are profiled in this 16-page book. Included is information on a thermal-break, all-steel stile construction. Insulation comes in a polyurethane core which is self-bonding to the steel face sheets for strength. ▪ Fenestra Corp., Erie, Pa.

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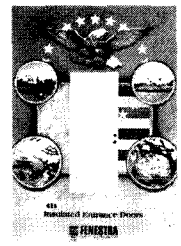

SUPPLIES / A new, coil-bound reference manual from Letraset shows a typeface range of almost 500 styles as well as artists' products. A chart showing *Pantone* colors also has been bound into the manual. For the first time, an educational section showing graphic techniques has been included. ▪ Letraset USA, Inc., Paramus, N.J.

circle 432 on inquiry card

SOLAR / This brochure describes the advantages of the "Sun-Aid" collector with a roll-formed absorber plate. Both internal manifold and end outlet models are shown along with the three different mounting options. Collector ratings and sample engineering specifications are also included. ▪ Revere Solar and Architectural Products, Inc., Rome, N.Y.

circle 433 on inquiry card

BALLASTS / A 44-page, four-color catalog features energy-saving fluorescent lamp ballasts for residential and contract use. Included are electrical and physical characteristics and wiring diagrams as well as information on the warranty. The catalog is cross-referenced by lamp type and ballast catalog number. ▪ Universal Manufacturing Corp., Paterson, N.J.

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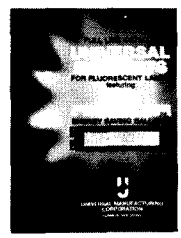

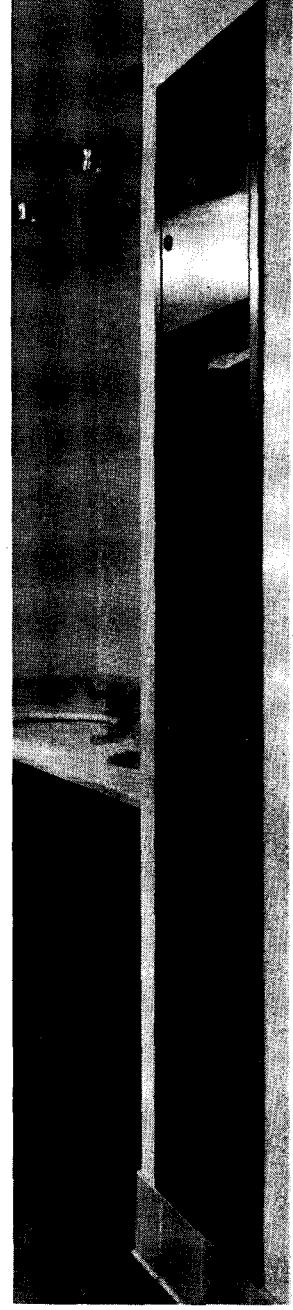

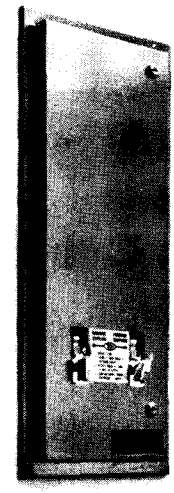

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Commercial Building Design Consultant — Battelle-Northwest is currently managing an intensive research program for DOE, on development of energy-conscious design strategies for commercial buildings. Four to six outside experts, with exceptional (at least 10 years) experience and expertise in the design of energy-efficient commercial buildings and in specific design areas (such as daylighting, HVAC systems, etc.) are required as consultants for planning and review of the research program. It is anticipated that the consulting services will not exceed a few days per month, with travel required. Highly qualified individuals interested in applying for these positions should request an RFP from Battelle by March 22. Please enclose a resume and a brief statement of major area of expertise. If there are any questions concerning these positions, please call Dan Raap at (509) 376-4317. Requests for the RFP should be sent to Battelle-Northwest, P.O. Box 999, Richland, WA 99352, Attn: D. A. Raap, HS-4.

Health Facilities Architect — Stone, Marraccini and Patterson has senior positions open in San Francisco. Additional positions available in offices in St. Louis and New York. SMP is a national firm with an excellent architectural and health care consulting practice. Extensive medical facility planning and project management experience is required. Send resume to P-5659, Architectural Record.

Chairperson, Department of Architecture The Department of Architecture and Planning Ball State University at Muncie, Indiana invite applicants and nominations for the position o Department Chairperson, beginning Sep tember, 1982. The College of Architecture an Planning contains, in addition to the Depart ment of Architecture, the Department o Landscape Architecture and the Department o Urban Studies and Planning. The Department o Architecture with 25 faculty positions and ove 400 students, is the largest of these three. Can didates should have suitable educational an professional credentials with abilities in admin istration, teaching, scholarship, and practice an should be sensitive to the needs of a multi disciplinary college in a state assisted universit of 17,000 students. Submit letter and resume b April 15, 1982 to: Jack Wyman, Chairma Search Committee, Department of Architec ture, College of Architecture and Planning, Ba State University, Muncie, IN 4730 317-285-4497. Ball State University Practice Equal Opportunity in Education and Employ ment.

Exceptional opportunities for architects wit expertise in design or production managemn spec. writing, marketing, etc., in medica criminal justice, commercial development, in stitutional et. al. Our client are nationwide completely expense paid. We are active in AIA and maintain a Dallas, TX office to serve the S.W Inquire or respond with a resume to: William E Engle Assoc., Inc. 909 Investors Trust, Indpls., I 46204 317-632-1391.

OFFICE NOTES

OFFICIAL PROPOSALS

Bids: See Advertisement

Republic of Guatemala Ministry of Public Health and Social Assistance No. 01/82 Notification of Invitation for Offers from National and International Consulting Firms for the Supervision of Civil Works and Installations

The Ministry of Public Health and Social Assistance, in accordance with the laws of Guatemala and the procedures set forth in Inter-American Development Bank Loan Contract 623/SF-GU, entered into to cover the partial financing of a project to improve and amplify the urban health services in the Department of Guatemala and Sacatepequez, invites national and foreign firms to present offers related to: "Undertake inspection and review functions of the architectural designs, structures and installations as well as physical construction of the works of the Northwest and Northeast 400-bed Hospitals in the City of Guatemala and of the Antigua-Guatemala 200-bed Hospital."

Participating firms should be from eligible member countries of the IDB, and be registered in the Consultants' Register at the "United Central de Proyectos de la Secretaria General Del Consejo Nacional de Planificacion Economica, Ministerio de Finanzas Publicas (central unit for projects of the General Secretariat of the National Council for Economic Planning, Ministry of Public Finance), 8A. Ave Y 21 Calle, 11 Nivel, Zona 1, Guatemala."

Any firm not yet registered in the above mentioned registry which, in its judgment, deems itself entitled to participate, may include itself in said registry by properly presenting the required legal documents at the said address.

Interested consulting firms may obtain the pertinent documents and the terms of reference upon delivery of 1,000 sheets of letter-sized photocopy paper on a non reimbursable basis, at the offices of the "Unidad Ejecutors de Proyectos de Servicios de Salud—UNEPSSA" (executing unit for health services projects), 5TA Avenida 13-27 Zona 9, Cuidad de Guatemala, any date commencing on March 1, 1982, from 8:00 a.m. to 4:30 p.m. Monday thru Friday, thru and including Wednesday, March 31, 1982.

The sealed envelopes should contain separately an offer of services (envelope No. 1) and an economic offer (envelope No. 2) which will be received up to April 15, 1982, at 9:00 a.m. at the address indicated above for UNEPSSA.

The opening of offers ceremony will be conducted in accordance with Article 16 of Guatemala Acquisitions and Purchasing Law.

List of IDB eligible member countries:

Argentina
Austria
Bahamas
Barbados
Belgium
Bolivia
Brasil
Canada
Chile
Colombia
Costa Rica
Denmark
Dominican Republic
Ecuador
El Salvador
Finland
France
Germany
Guatemala
Guyana
Haiti
Honduras
Israel
Italy
Jamaica
Japan
Mexico
Netherlands
Nicaragua
Panama
Paraguay
Peru
Portugal
Spain
Surinam
Sweden
Switzerland
Trinidad and Tobago
United Kingdom
United States
Uruguay
Venezuela
Yugoslavia

Guatemala, January 1982
Ministry of Public Health
and Social Assistance
Republic of Guatemala

Offices opened

Gerald Allen has now started his own professional practice, Gerald Allen & Associates, 19 Union Square West, New York, New York.

Harold W. Cox, J. Richard Kremer and Dan L. Fultz announce the formation of Cox, Kremer & Fultz Associated Architects with offices at 333 Guthrie Green, Louisville, Kentucky and 202 French Street, Elizabethtwon, Kentucky.

Paul F. Damaz announces his new professional practice, Paul Damaz Associates Architects & Planners, 249 East 57th Street, New York, New York.

Robert T. Gordon, Architect announces the opening of his office for the practice of architecture, planning and interior design located at 625 South Millward, Jackson Hole, Wyoming.

Metz Train & Youngren, Inc. has opened a regional office in Denver located at 1415 Larimer Street.

Firm changes

Attia & Perkins Architects PC announce that George E. Shear has joined the firm as director of architectural services.

Boone and Pope Incorporated announce the change of the corporate name to Boone Pope Wheeler Pullin, 224 South Leggett Drive, Abilene, Texas.

CUH2A announces that Lucia M. Stout has joined the firm as manager of communications.

Merle W. Rambo has been appointed a general partner of Dana Larson Roubal and Associates.

Jerry W. Fee has joined Daniel, Mann, Johnson, & Mendenhall (DMJM as vice president in charge of the Southwest region, based in the Houston office.

Environmental Planning & Research, Inc. (EPR) announce the promotion of Mark Heatley as project director.

Gruzen & Partners has changed its name to The Gruzen Partnership.

Antoine-Heitmann & Associates, Inc. announces the name change of the firm to Heitmann & Associates, Inc.

Jerry A. Davis has been named a principal of Hellmuth, Obata & Kassabuam, P.C. New York, and has assumed the duties of director of operations for architecture.

Hills Gilbertson Fisher/Centrum Architects Inc. announces the change of its corporate name to Hills Gilbertson Architects Inc.

KSA Group Architects announces the appointment of Bryce Graybill as managing principal of its Monterey, California office.

Marcel Breuer Associates announces a change in the firm's name to MBA/Architects and Planners. Lisa Sewell has joined MBA as director of the interior design department.

Marquis Associates announces Gita Dev as a new associate.

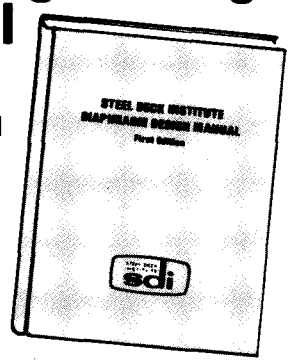
RTKL Associates Inc. announces the promotion of seven professionals to associate principals. The seven are: Paul F. Jacob, III, Timothy D. Baker, William W. Houston, David C. Hudson, Frederick J. Thompson, Robert Pratt Wingard and Fred von Behren.

Shepley Bulfinch Richardson and Abbott announces that Elizabeth S. Ericson has joined the firm as an associate vice president.

The NBBJ Group announces the appointment of Mark. A. Cameron as marketing manager.

Announcing the publication of the Steel Deck Institute

Diaphragm Design Manual



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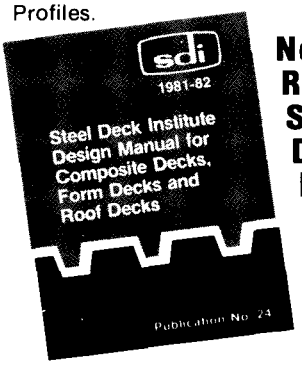

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