

Progressive Architecture

March 1973 A Reinhold publication

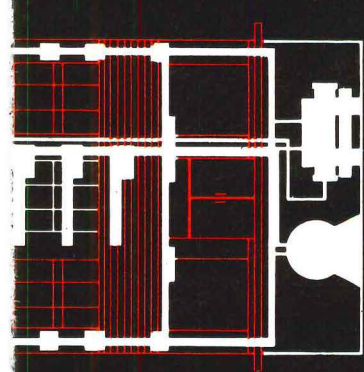
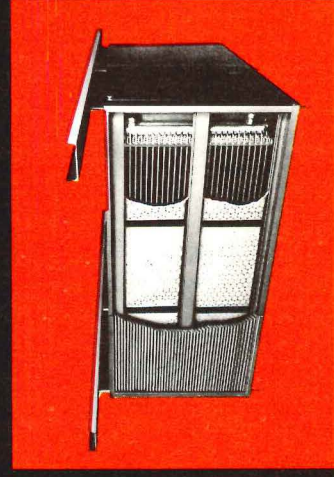


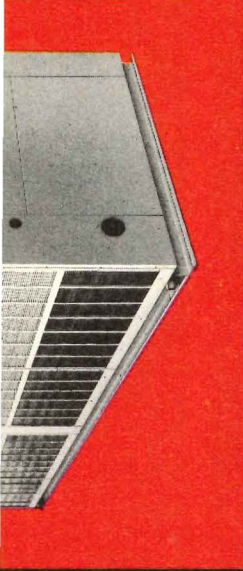
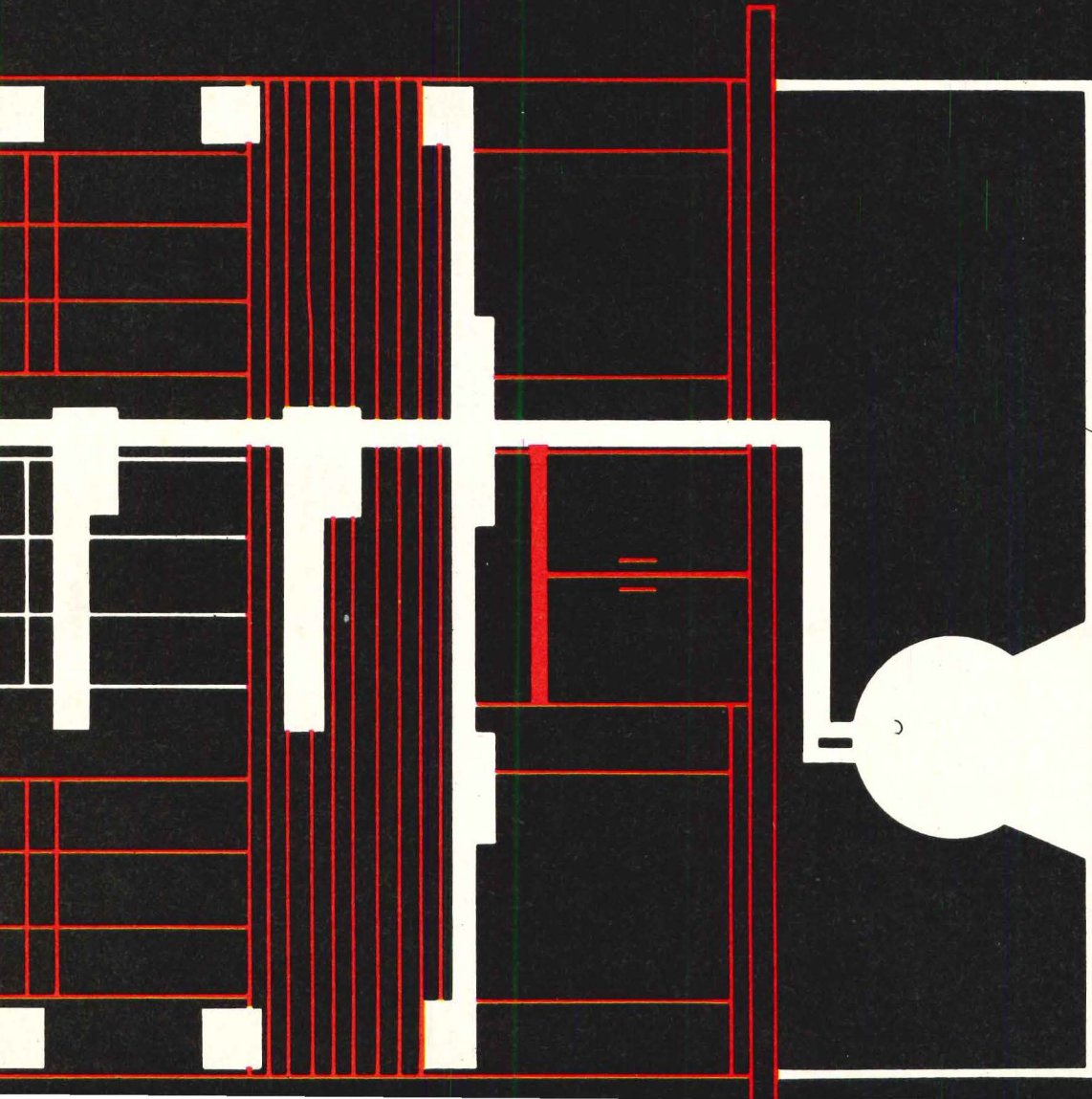
been replaced by Fedders Unizones (Package Terminal Units) using electricity for both heating and cooling. It costs less for the new Fedders system because of the lower investment in equipment and the reduced piping and installation costs. Maximum comfort is now achieved because the individual perimeter tenant is in complete control of his environment. Full capacity cooling or heating is available any time, days, nights, weekends and holidays—and any season. Maximum system reliability is possible because of the individualization of the components. Equipment failure cannot shut down the complete building. Because cooling can be shut off in unoccupied areas, operating costs are drastically reduced.



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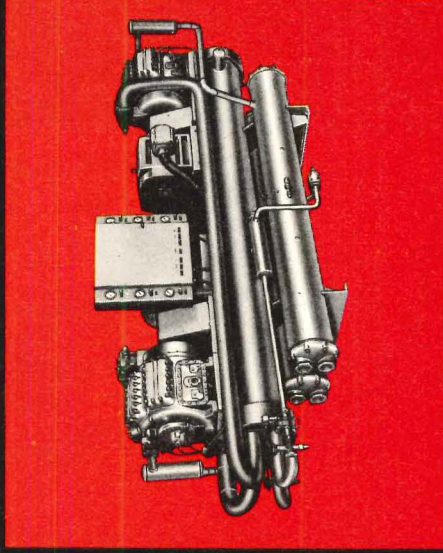


completely assembled, charged and run at the factory. Reciprocating compressors are designed with capacity reduction system operated directly in response

to required chilled water temperature. Unit may be operated year round. A mild ambient control (to 35°F) is supplied as standard equipment. Optional low ambient control permits operation down to -10°F. Capacities range from 25 to 85 tons.

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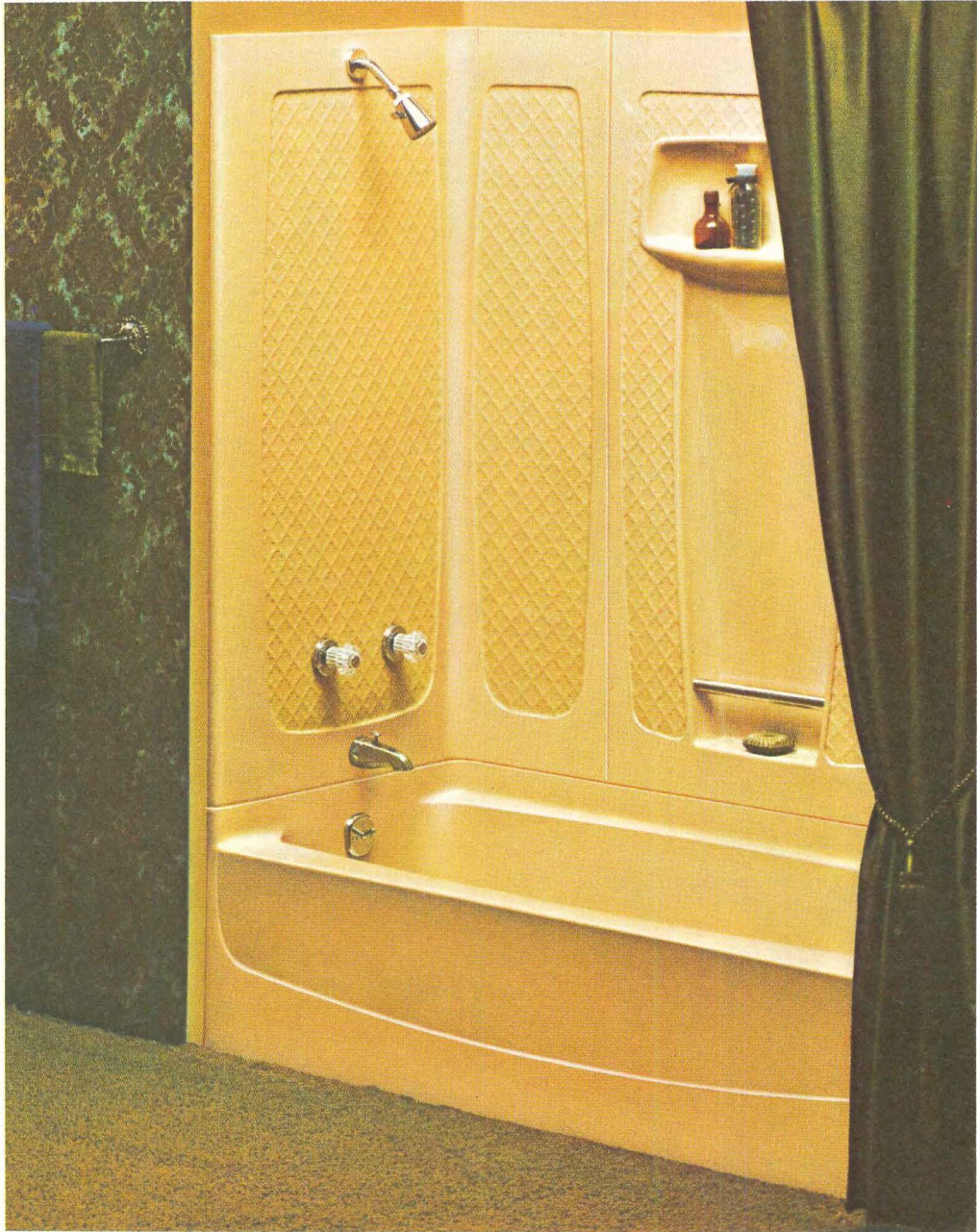
available with capacities 115 to 200 tons and features two independent refrigerant circuits utilizing two heavy-duty industrial type compressors with open motors to provide 50% standby plus more efficient performance, lower maintenance and insurance costs. This system with Fedders Unizone used for perimeter comfort offers savings comparable to a system using an air cooled liquid chiller.

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March 1973

Progressive Architecture

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Building between and over existing buildings gives the University of Winnipeg additional usable space without buying additional acreage
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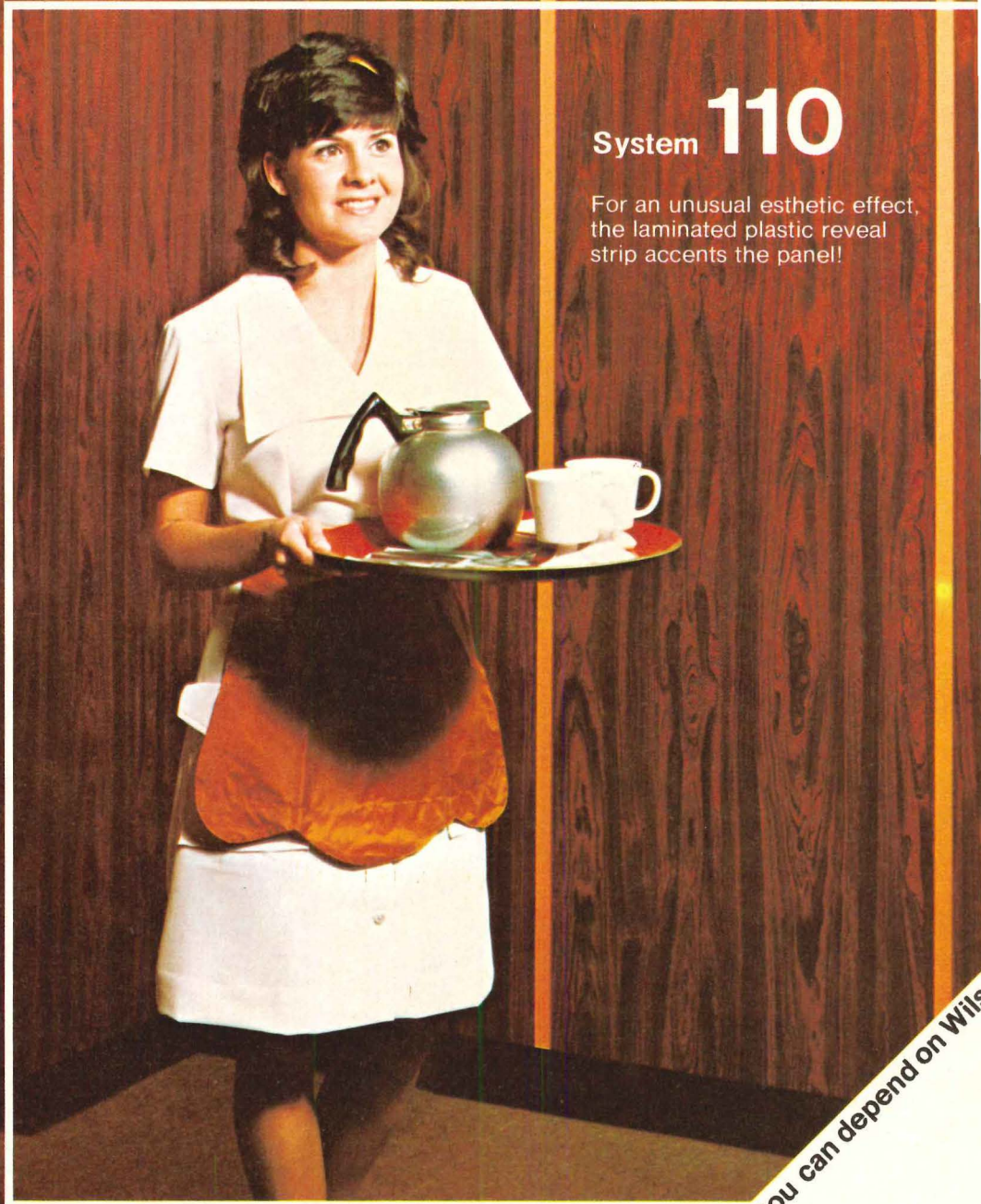
Cover: Centennial Hall, University of Winnipeg, Canada (p. 80), Moody Moore Duncan Rattray Peters Searle Christie, architects. Henry Kalen photo.



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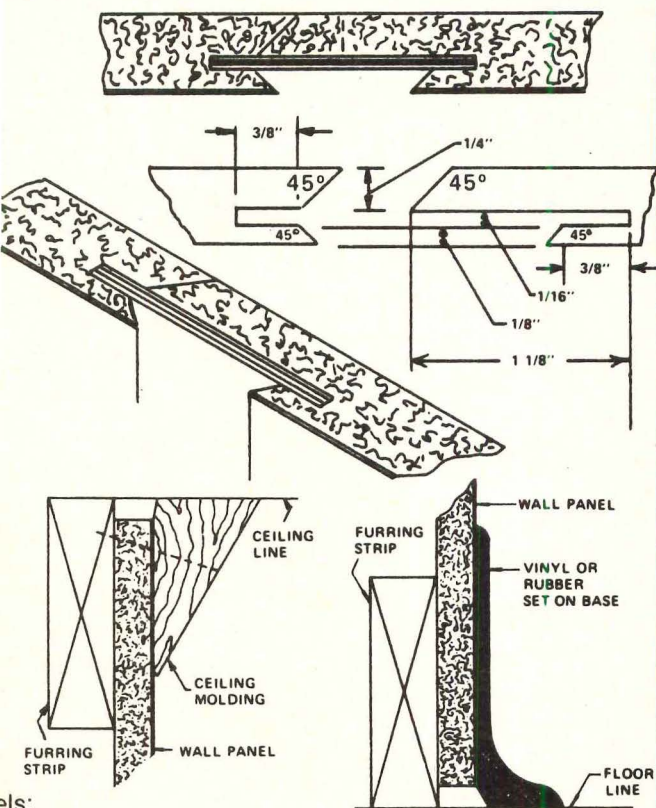
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People in P/A

ar Birkerts & Associates

Multilevel urban planning scheme by ar Birkerts & Associates (p. 74) represents a new kind of effort for a firm widely known for individualistic single buildings. Birkerts, born in Latvia and trained in Germany, first worked in this country for the architect Eero Saarinen and then with Minoru Yamasaki. Birkerts' partnership with Frank Gehry, in 1959, won an AIA First Honor Award for its very first completed project, the Schwartz house, in 1962. Birkerts' P/A has won awards include citations for houses in 1957 and 1959 and a swim club (with Gehry) in 1961. Since 1962, the firm of ar Birkerts & Associates has won an

AIA Honor Award for the Lincoln elementary School, one of the famous collection in Columbus, Ind., and a P/A citation for the IBM Computer Center in Sterling Forest, N.Y. (P/A, Dec. 1972).

Recently completed works are campus buildings at Tougaloo College in Mississippi and the Institute of Contemporary Arts, Houston. The Federal Reserve Bank in Minneapolis, an unprecedented design, is now nearing completion. Since 1959, Birkerts has been on the faculty of the University of Michigan School of Architecture, where he is now a full professor.

Rhone & Iredale

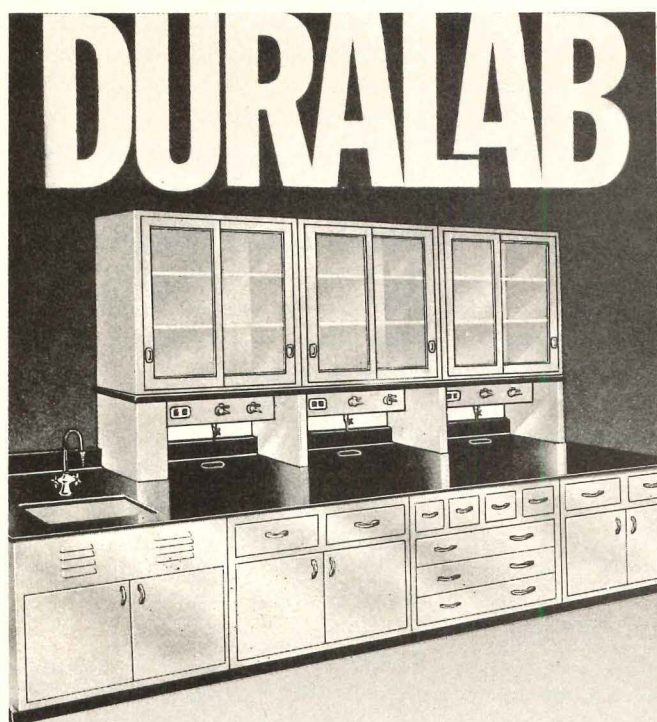
William R. Rhone and W. Randle Iredale, who combined their individual practices in 1960, are probably best known for the cable-suspended Westcoast Transmission building in Vancouver. They have also been involved with Simon Fraser University and numerous medical projects. Awards, including a 1973 P/A design citation for prototype housing in Kitchener, Ont., total 22. Iredale, partner in charge of the Sedgewick Library (p. 86), is a member of RAIC and a graduate of the University of British Columbia. He says his firm "special-

izes in problem solving and intense early-stage programming," which made it possible to locate the library where it is—under a mall.

Moody Moore Duncan Rattray Peters Searle Christie

This 60-person Winnipeg firm, obviously enough, has its roots in several other firms: Moody & Moore, established in 1936 and Duncan Rattray Peters & Searle, 1963, merged in 1969. In 1971, another merger gave them an affiliated office in Toronto which operates under the name Wilson Newton Roberts Moody Moore Duncan.

James H. Christie, FRAIC, ARIBA, partner in charge of Centennial Hall (p. 80), attended Glasgow University and moved to Canada from his native Scotland in 1950. He is a past president of the Manitoba Association of Architects, active in the Community Planning Association of Canada and the Canadian Club in Winnipeg. He says one of the most important things about this project was the close teamwork between the University, the management contractor and his staff. Another was having Dr. J.G. Pincock, university librarian, as on-the-spot consultant.



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Views

Design awards

Hurrah for P/A's 20th annual design awards issue. Rather than suggesting the "new directions" Johansen keeps searching for, it democratically acknowledges a pluralism of ideas rarely represented in past awards issues. As such, P/A hits new highs and new lows, to be determined by each reader's taste, of course.

Ant Farm's citation is outrageous! As a "media studio" it is in the tradition of C.N. Ledoux's *architecture parlante* and like Ledoux's penis shaped brothel, its message is explicit (as well as being lovable, squishy, blatant and bald). It is interesting to note the rate at which last year's angry young men from Yale become this year's counterculture heroes. There can be no doubt that sex is more fun than advocacy planning (P/A awards, Jan. 1967, p. 130) or high fashion (Jan. 1970, p. 117), a lesson for us all, I suppose.

Stuart E. Cohen, AIA
Chicago, Ill.

Regarding your jury's comments on the single-family house (Jan. 1973), I had believed a building of any sort could, through direction and inspiration of the architect, contain a soul called architecture. Indeed, should.

Now I see your jury has decided that this building has no right (social?) or place in the time or talents of an architect. Is this arrogance? Two-family, perhaps? Three?

I remember Frank Lloyd Wright speaking of those who have been got by education. One wonders.

Walter Harvey Dunning
Pottstown, Pa.

The 20th annual design awards moved me to rhyme—not to be confused with poetry.

Gone are the days of the smock and beret./Social implication is the program today./May the future evolve as a "case-work" plan./From the architects' concern with the plight of man./Architecture as transient honesty in a world of fright/A social equation interspersed with delight./Alas, limited form for posterity/Just broken balloons and the remnants of social dexterity/Bow quietly while we play our age-old game./The smock has reappeared and the conflict's the same.

John W. McGough, AIA
Spokane, Wash.

It appears to me that this year's illustrious P/A design awards jury fantasized about how wonderful it would be to partake in the design of:

- The house of the century
- A '57 Porsche monument house
- A home for the little old wife
- A home for the little old architect
- A pedestrian-oriented environment filled with "greenies" to solve all the problems of a central business district
- A poetic "internal-architecture" space enclosure
- A more central social kind of issue, advocate-planned rehab jobbie
- An it's got everything in it mini-community
- An all kinds of space, space frame roof school
- A piece of sculpture inside—a piece of sculpture outside reconstructed temple
- A diplomatic artifact
- An only submitted, factory delivered habitat prototype
- A typical land use and marketability study
- A tourist map for a Chamber of Commerce

A guess who did it?—air rights multi-urban project.

If this year's P/A design award winners are any indication of what will be published in the January issue of 1974, I hope your advertising for submissions will be titled "21st Annual Progressive Architecture Program Awards."

Joseph C. Schidlowski
Kent, Ohio

Room at the top

I very much enjoyed "Room at the top: rise of the professional manager" (P/A Dec. 1972). I am undertaking research on management problems of architectural firms, and am sympathetic with the comments made in your article.

There are two aspects of the article that are inaccurate, however. First, Harvard does *not* have a double degree program between the graduate schools of Business Administration and Design. The only such program I am aware of is getting underway at Washington University in St. Louis.

Second, those in David Foote's class at Harvard Business School who also had architecture degrees prior to entering the MBA program did *not* feel Mr. Foote was "crazy to work for an architectural firm." I know two of these students who wanted very much to find positions as business managers in architectural firms. However, the offers they received were in the \$10,000-12,000 range, compared with a median offer of \$15,000 for their MBA classmates, and as much as \$18,000 for developers (for whom both went to work). Thus a barrier to prospective MBA-B.A. business managers seems to be architectural firms' unwillingness to offer the salary comparable with that of their MB peers and/or developers' offers.

James S. Reece
Assistant Professor
Harvard Business School
[P/A stands corrected on the first point; the second, however, the disagreement seems to be between Mr. Reece and Mr. Foote, with Mr. Reece's explanation backing up Mr. Foote's comment. Ed.]

Banana splits

You reported in "Architecture west" (P/A Dec. 1972) that "Farrell's Ice Cream Products built the longest banana split in the world." Further research would have shown that the longest banana split was sponsored by Goodnoe Farms Dairy, Newtown, Pa. It was 508 ft long.

G. Deane Riniker
Newtown, Pa.



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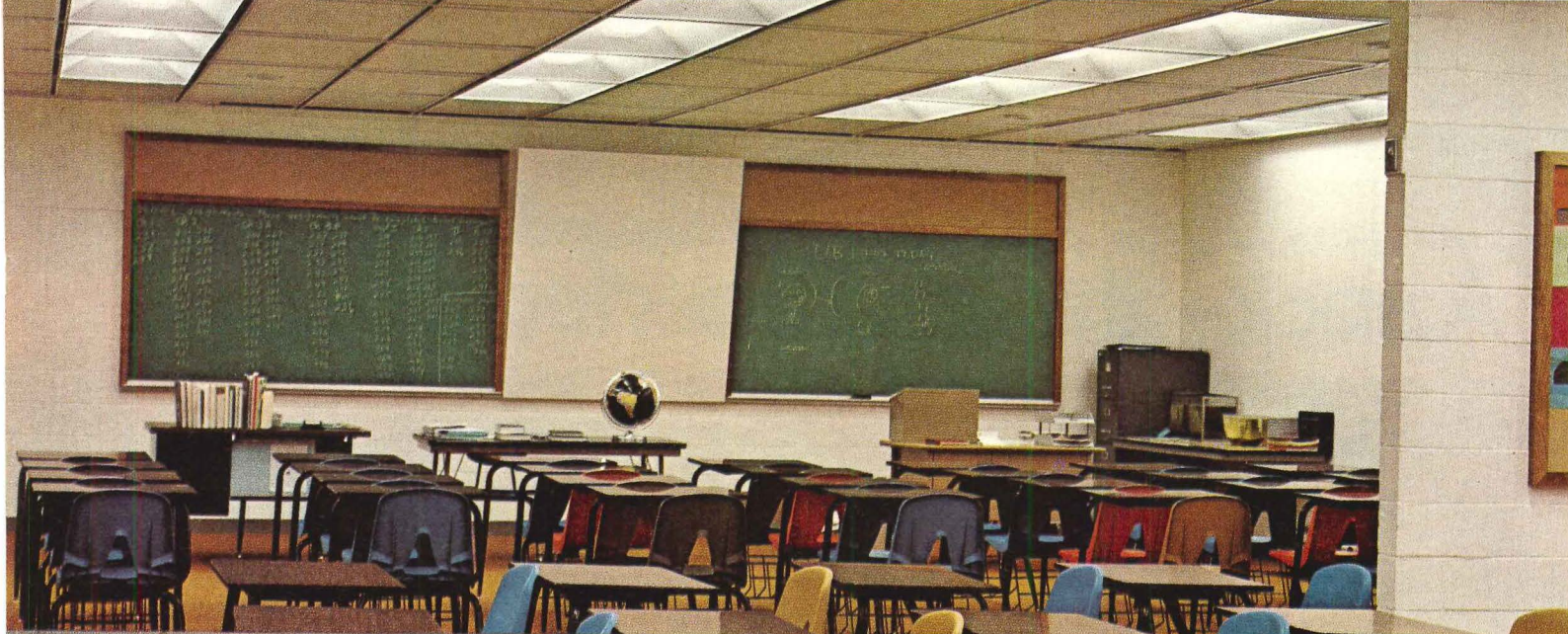
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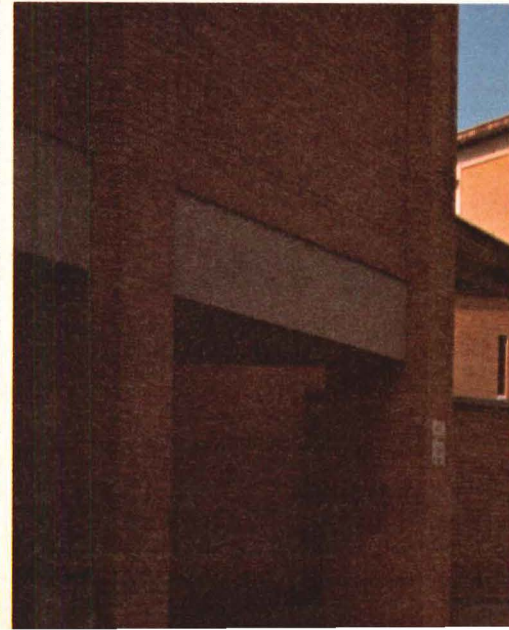
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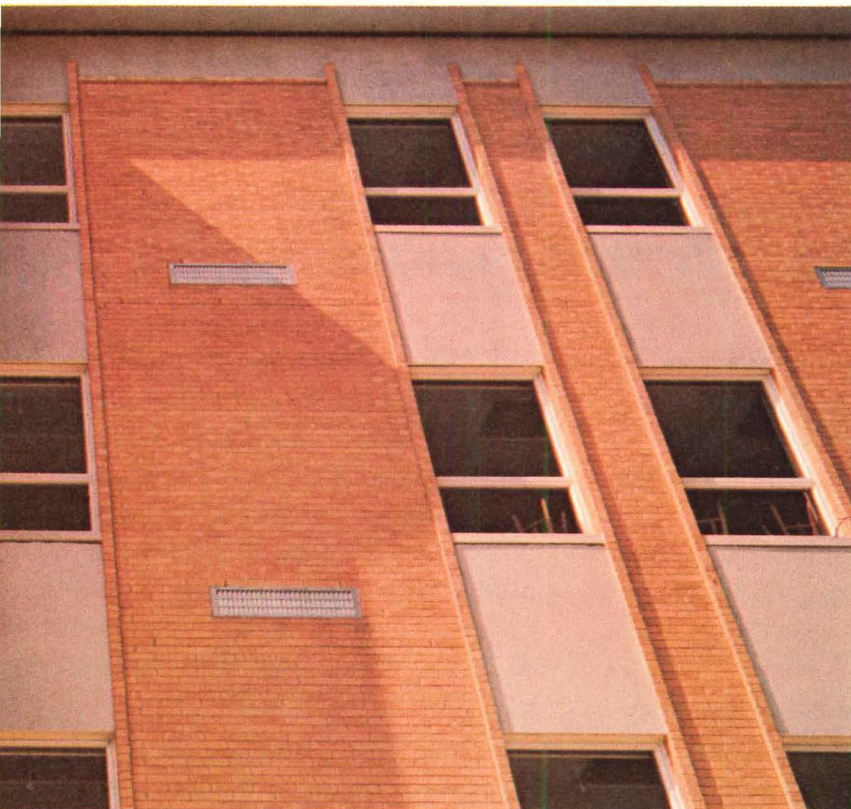
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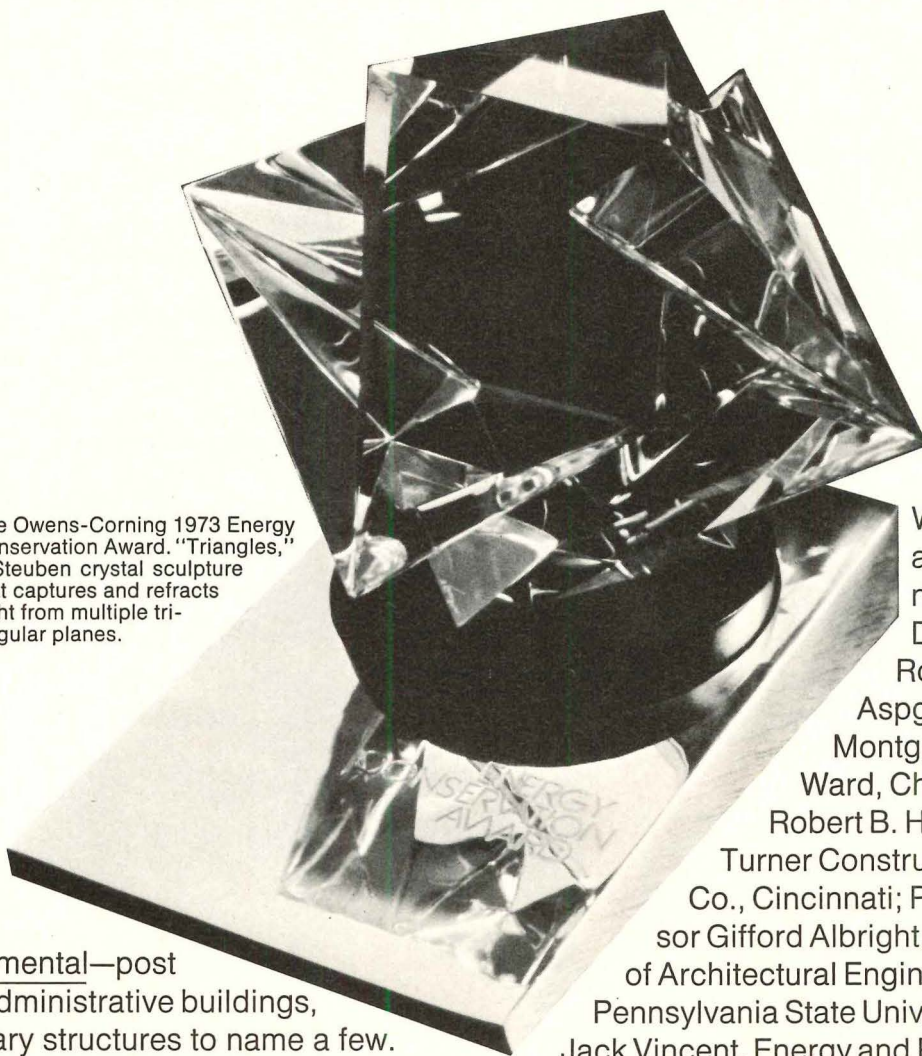
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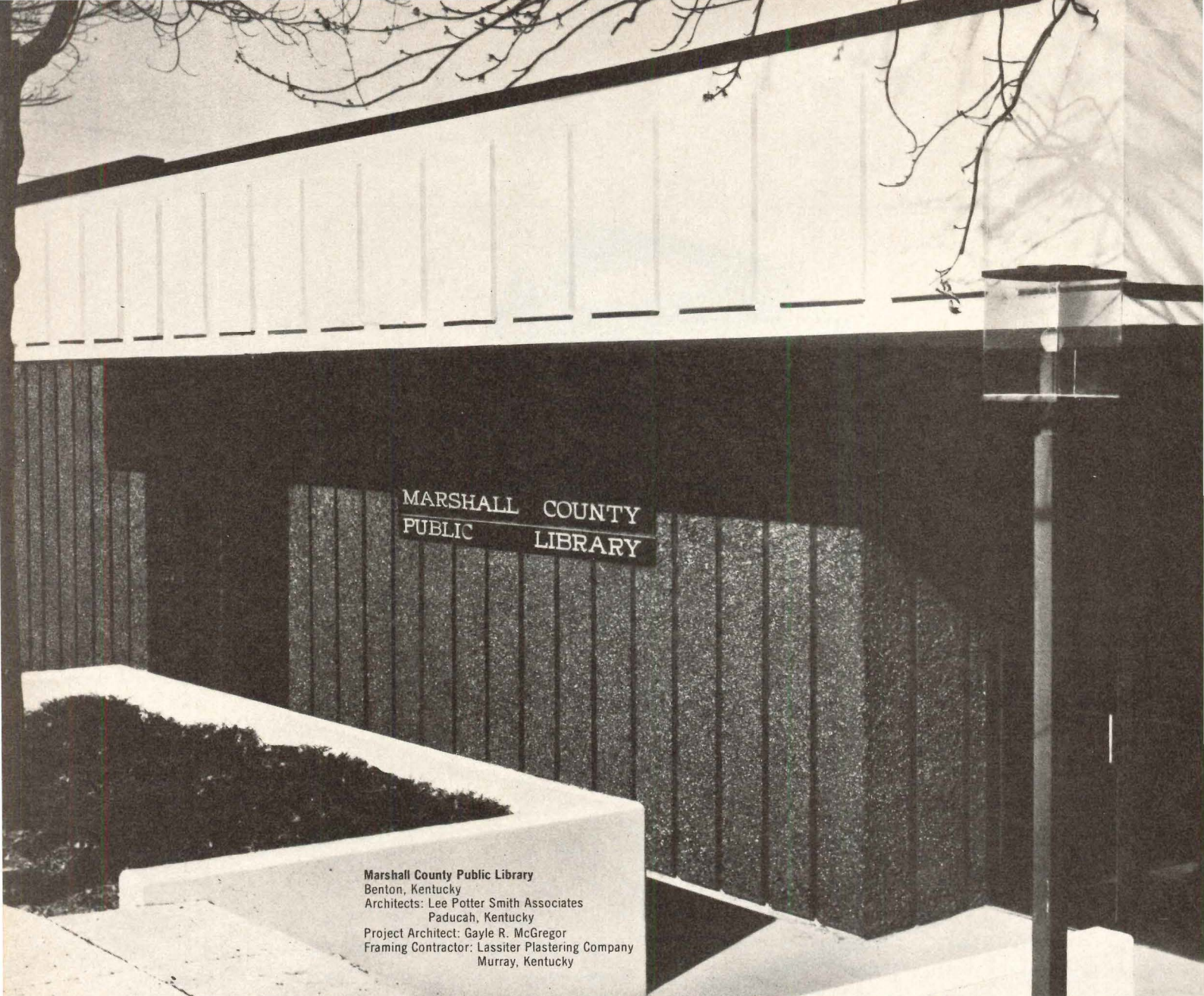
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Send for entry details now. Completed entries must be submitted by August 31, 1973. Winners will be selected in September and notified in early October.

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Design freedom, versatility, fast enclosure and economy... the benefits that make light gage steel framing so popular for the exterior walls of multi-story construction... can also be enjoyed on smaller buildings. Here are a few comments from project architect, Gayle McGregor, concerning the library pictured above:

"The variety of possible finishes available was an obvious advantage."

"Site conditions complicated the footings and foundation design. Light gage framing enabled us to cut down on bearing weight."

"We were able to save about one

square foot of floor space for every two lineal feet of wall... a value of about five thousand dollars on this small project."


"Prefabricating framing assemblies in the shop saved on-site time and helped us meet a tough winter construction schedule."

"We have gone on to six other projects using the same systems, including an elementary school that ran \$15 per square foot compared to the \$22 per square foot statewide average for this type of facility."

There are further advantages we haven't covered here. See Sweet's, section 5.3/In; send for catalog 37-1;

or let a Milcor representative explain how they apply to one of your projects. Write to: Milcor Division, Inland-Ryerson Construction Products Co., Dept. C, 4069 W. Burnham St., Milwaukee, WI 53201.

INLAND RYERSON

General Offices: Melrose Park, Illinois
A member of the  steel family



Naugahyde[®] fire fighters come in 38 cool to sizzling colors.

Fire-safe furniture doesn't have to be dull. Uniroyal proves it right here with a kaleidoscope of colors in flame-retardant Naugahyde vinyl fabric.

Icy whites and blues, through warm greens and browns, to flashing yellows and reds. They're all in stock now and available on call in the Naugahyde House & Garden pattern.

Every one meets the flame resistant requirements of Federal Government Specification CCC-A-680a. Plus the Boston Fire Code, FAR 25.853, The Port of New York Authority, and Federal Motor Vehicle Standard 302.

What's more, they stand up to oil and mildew, too.

Need these qualities in something other than the House & Garden pattern? No problem. We can add them to any design in the Naugahyde catalog or any custom-created pattern you might require.

Of course, any way you order this flame-retardant fabric, you also get the durability all Naugahyde is famous for. So, you can be sure whatever you create will look its beautiful best for years to come.

Talk over your contract upholstery requirements with your Uniroyal representative. With all the Naugahyde ideas he has to offer, there are bound to be several you'll warm to. Call him now. Or write Uniroyal Coated Fabrics, Mishawaka, Indiana 46544.

Naugahyde Decorative
Fabrics



We help you do it with style.

Some sash designs need to put the pressure on glazing tape.

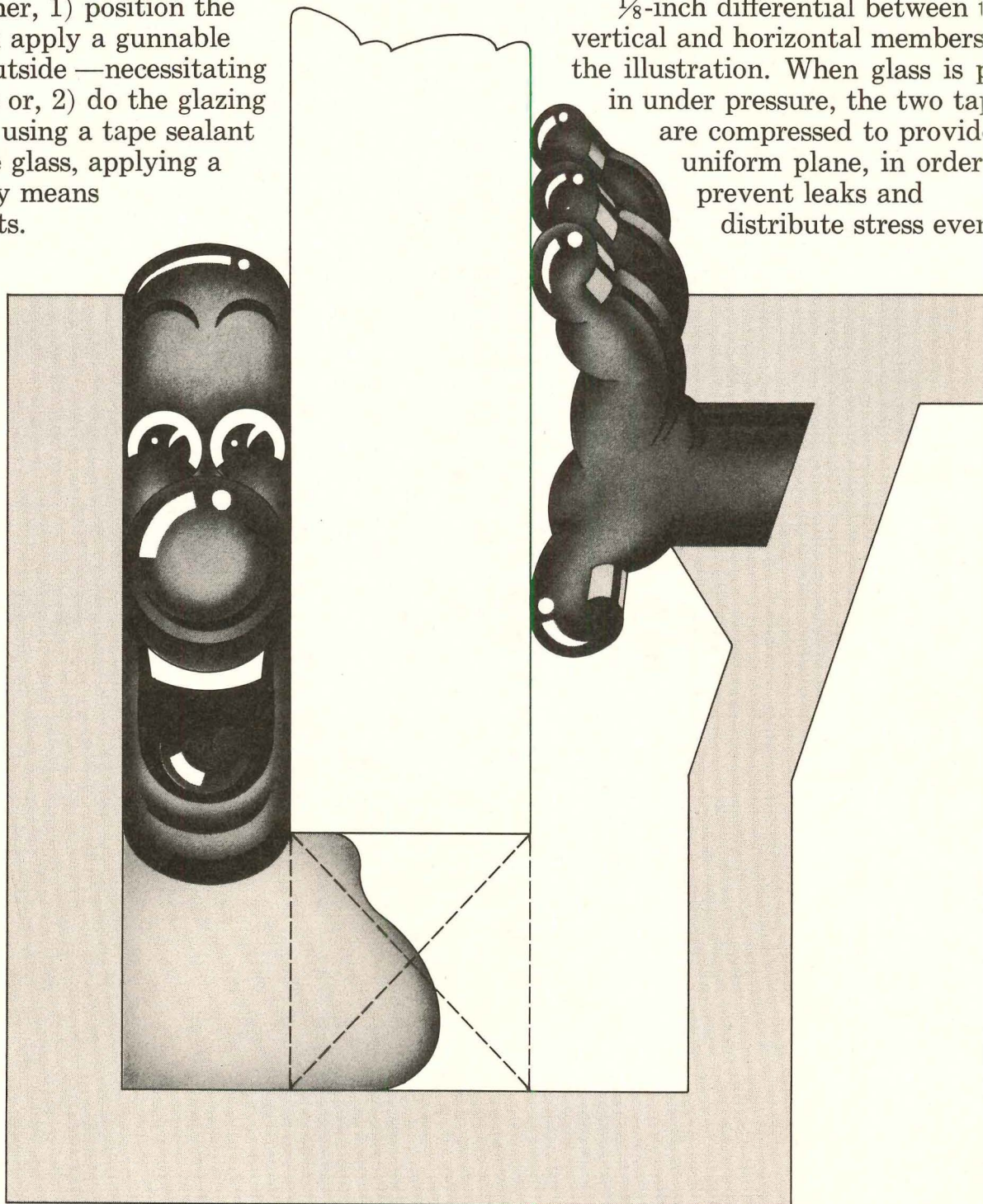
Stick curtainwall systems and pocket-glazed windows provide structural economies in many applications. But they also present you with some formidable glazing problems.

For one thing, the pocket channel allows the glazer very limited working space. This means he must either, 1) position the glass first and then apply a gunnable sealant from the outside —necessitating costly swing stages or, 2) do the glazing from the inside by using a tape sealant and then insert the glass, applying a positive pressure by means of wedges or gaskets.

This tape sealant must be 25%-50% compressible, yet must not squeeze out of the channel despite the pressure.

Another problem — illustrated on the opposite page — is the offset condition of channels in stick system glazing. As you can see, there is

a $\frac{1}{8}$ -inch differential between the vertical and horizontal members in the illustration. When glass is put in under pressure, the two tapes are compressed to provide a uniform plane, in order to prevent leaks and distribute stress evenly.



Besides the design problems not mentioned, you and your glazing contractor are faced with increasingly critical glazing conditions as buildings go higher and higher. For example, larger lights of glass, greater pressure differentials and higher windloads all put a greater burden on glazing techniques. Omitted, misplaced or incorrectly chosen shims compound these problems and increase the possibility of leaks and glass breakage. All these conditions call for something special in the way of glazing tape. And Tremco has it. It's called POLYshim.™ And it's designed for use wherever design conditions call for 25% to 50% compression. It contains a continuous, integral reinforced shim that transfers windload from glass to sash evenly around the entire perimeter. This eliminates pressure points and any danger that the sealant will pump out of the sash.

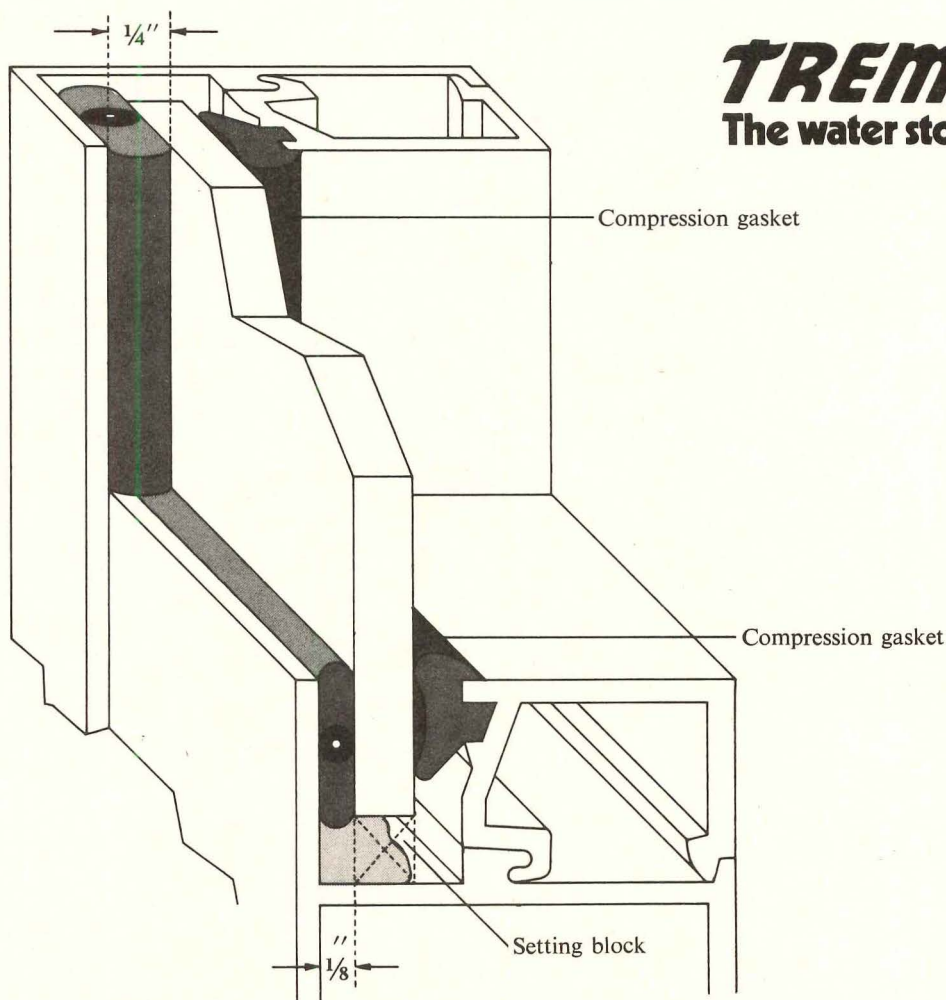
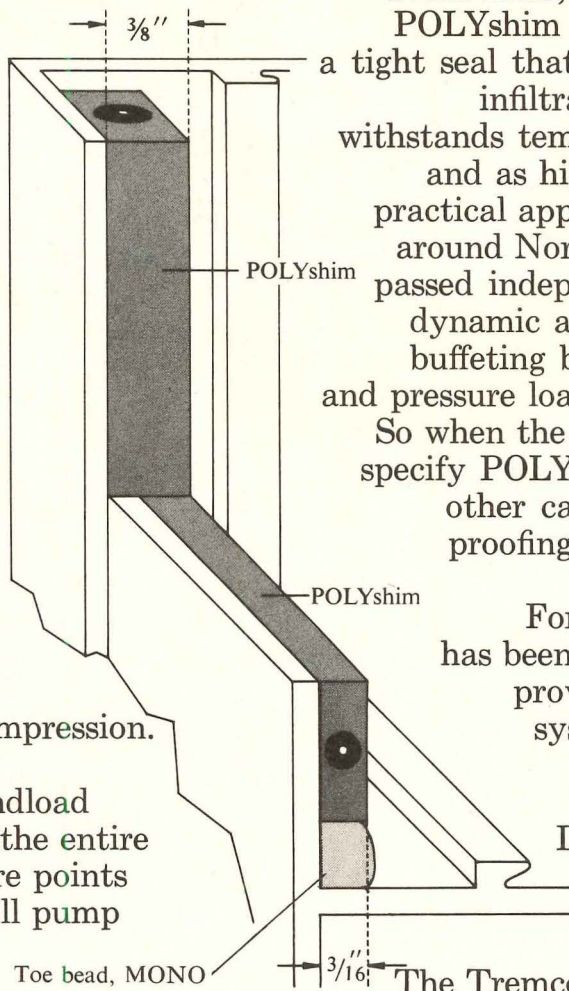
POLYshim can be installed from the inside quickly, easily and accurately. It comes on a specially-treated instant release paper backing that helps

avoid mess, waste and tape distortion. POLYshim is self-adhering and forms a tight seal that effectively prevents water infiltration, resists ultraviolet and withstands temperatures as low as -65°F and as high as 220°F . In addition to practical applications in major buildings around North America, POLYshim has passed independent laboratory tests for dynamic and static water infiltration, buffeting by wind and water, thermal and pressure loading and accelerated aging.

So when the pressure's on glazing tapes, specify POLYshim. And if you have any other caulking, glazing or weather-proofing problems, remember your Tremco man can help.

For over 40 years, our business has been solving these problems and providing top-quality leakproof systems and products, such as our job-proven sealants MONO®, DYmeric® and Lasto-Meric®, liquid polymer Tremproof™ waterproofing and our new roof edging system, Tremline™.

The Tremco Manufacturing Company, Cleveland, Ohio 44104. Toronto 17, Ontario



TREMCO
The water stoppers.

Communications preplanning for the modern building.

We know enough to fill a book.



What happens when tenants in your building need changes in their telephone service?

Can their requirements be met easily? Or does business grind to a halt in a cloud of plaster dust?

Our free book on preplanning can make the difference.

Take the matter of cable, for instance. In some buildings, telephone installers can run new wire quickly through well-planned vertical conduits and underfloor ducts. But in others, the only possibility is to punch holes in floors and ceilings.

To help you minimize the costs of changes, we offer you our hardcover guide, aptly called "Communications Preplanning for the Modern Building." This book summarizes the knowledge and experience of our nationwide force of Building Industry Consultants.

It tells which types of business have special communications needs. The requirements of equipment ranging from Call Directors to complex switching systems. The new demands of computers.

Reading it can help you plan for change—and avoid expensive alterations later.

Call us collect at (212) 393-4537 and we'll put you in touch with your nearest Building Industry Consultant who will come and confer. And deliver your copy of our book, absolutely free.

We are continually working to improve service to the building industry.

**In communications preplanning, we wrote the book.
AT&T and your local Bell Company.**



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News report

20th Design Awards dinner held in New York

As a grand finale to the 1973 P/A Design Awards program, 160 winners, clients and guests joined the editors in New York City on Jan 19 for dinner and the presentation of award and citation certificates. Among the guests were three mayors—Patience Latting of Oklahoma City, location of the first award winner, Myriad Gardens; William Donald Schaefer of Baltimore; and Frank Brockgreitens of St. Charles, Mo. The dinner, held in the Edgar J. Kaufman Conference Room, designed by Alvar Aalto for the Institute for International Education, appropriately was served as a smorgasbord.

Design Awards dinners would seem incomplete without after-dinner speakers; this year it was Charles Moore, who described the design awards program as a "useful exchange of images." He then went on to answer his own question of what architects are up to. "Do we copy people? Do we exchange these images so that we run home and jam them right down onto our drawing boards? Of course we do. If we didn't, we'd be not only mad but blind."

Warming up to his main topic, Moore divided architects into two categories, the vulnerable and the invulnerable. The latter, he said, are "the people who have known since they were born what they were going to do and what they were for and who are invulnerable to the problems that surround them; the others are buffeted by the world, make things happen in the way they see them in response to the things that occur. There are good guys on both sides."

Speaking for the vulnerables, Moore commented that the "chief use of the P/A Design Awards is so those of us who enlarge our field of images, who do things differently because of what we see, can enlarge that field of images; we can see all sorts of new things that will make us do things better."

Reynolds announces mobile home competition

Designers, architects and students of architecture or design are eligible to enter the second annual design competition for mobile home exteriors sponsored by Reynolds Metals Company. First prize this year is \$7500, an increase over the \$2500 and Chevy Vega that went to last year's winner, Victor R. Nelhiebel, a landscape architect from Lansing, Mich.

Design should be suitable for mass production and should meet normal mobile home size standards: 48 to 60 ft long, 12

[continued on page 24]



Citation winners Louis Sauer, Scott Perry with P/A's Rita Robison



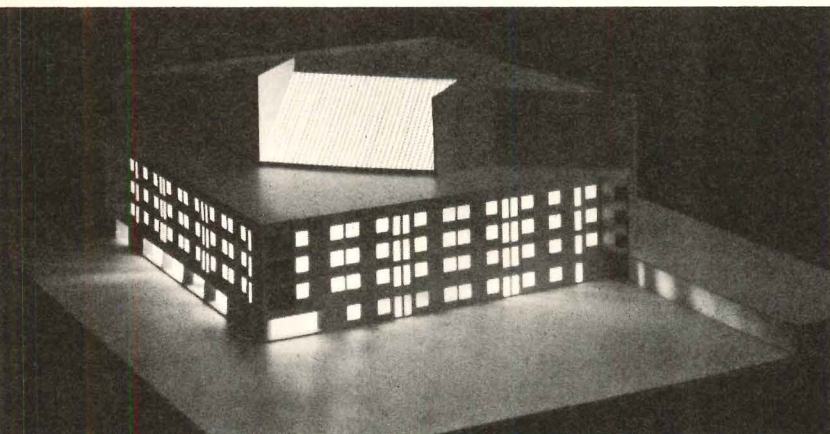
Office of Downtown Brooklyn Development was represented by Richard Rosan, here with Donald Elliott



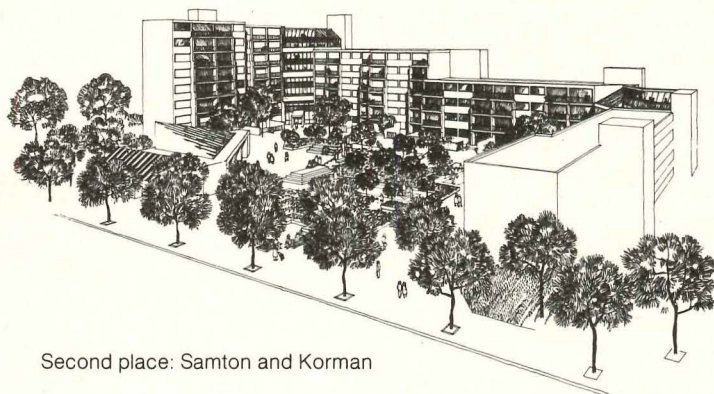
Oklahoma City's mayor Patience Latting chats with P/A's John Dixon



Juror William LeMessurier, award winner Ronald Beckman



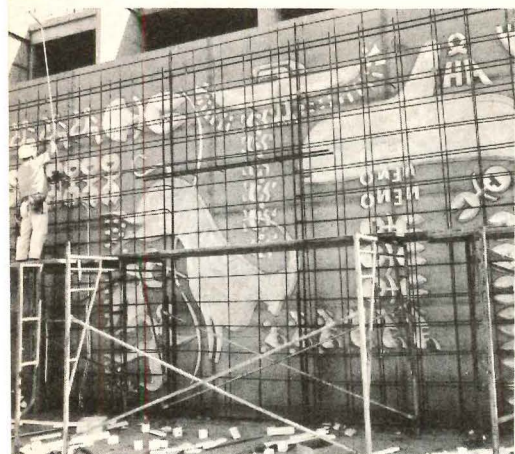
First place: G. Kent Hawks and John S. Garment



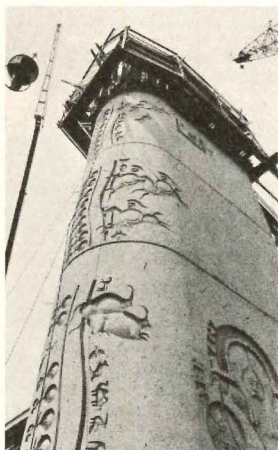
Second place: Samton and Korman



Third place: Howard Cohen



Carved plastic inside form yields instant intaglio



to 14 ft wide, 8 to 9½ ft high, plus about 24 in. wheel clearance. They should be for a single-family home of one or two units. Entries must be postmarked on or before August 1, 1973. Registration forms and details can be obtained by writing Mobile Home Design Competition, Reynolds Metals Company, P.O. Box 27003, Richmond, Va. 23261.

NYSAA enters real estate game

Individual architects and architectural firms have been involved in the real estate game in recent years, but the New York State Association of Architects has carried things a step further. NYSAA has become the first U.S. architectural association to set up its own development corporation. The first project is a 100-unit apartment complex for the elderly in downtown Utica, N.Y.

Architects for the project were selected by a design competition, with G. Kent Hawks and John S. Garment of White Plains taking first place. Besides the commission, they walked off with a \$2000 first prize. Second prize went to Claude Samton and Henry Korman; third was taken by Howard Cohen.

As design competitions go, this one was not earthshaking; what is of lasting importance, however, is the idea of an architectural society putting its money where its mouth is. The NYSAA Development Corporation is the outgrowth of a two-year-old idea. During the 1971 convention of the Association, the Housing, Urban Development and Community Planning Committee proposed a resolution calling for the Committee to be enabled to act as a housing sponsor, provided the Association would not become financially involved. The nonprofit corporation was the result, and it was incorporated in late 1972. The corporation is explicitly committed not to practice architecture; "what we have done," says Association president Thomas F. Galvin, "is to design a client."

In the case of the Utica project, the newly designed client is now arranging a combination of state and federal financing. The housing project will be built on an already cleared parcel of urban renewal land. The winning design provides six floors of apartments on one side of the building and four on the other, divided diagonally; between them is an enclosed garden. A variety of tenant facilities are planned. The structure is concrete block bearing walls and precast floor slabs resting on a concrete foundation.

Jurors were John Fisher, dean of the Syracuse University School of Architecture; Patrick Quinn, dean of the School of Architecture, Rensselaer Polytechnic Institute; David Todd; Joseph Stein, commissioner, New York City Department of Buildings; DeForest Winfield, director of planning for the city of Utica. Richard Ravitch, executive vice president of HRH Construction Corp.; Victor Peretta, executive director, Municipal Housing Authority of the City of Utica; and Sal Gentile, chief cost analyst for the N.Y. State Division of Housing and Community Renewal served as a technical advisory panel.

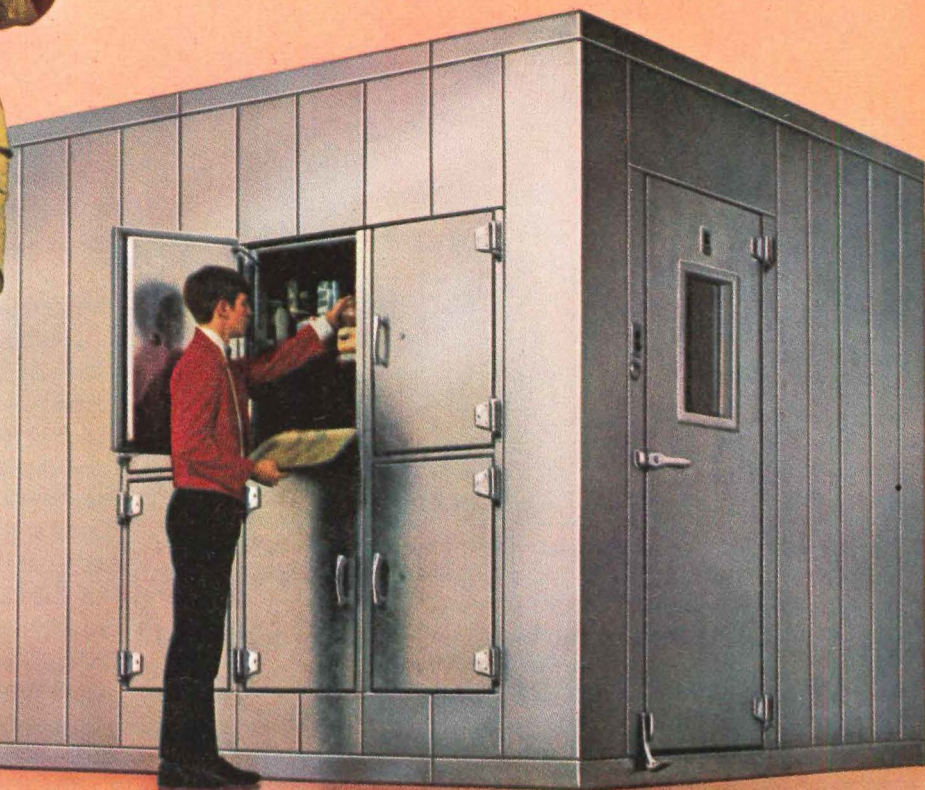
Instant intaglio

Art and architecture are being thoroughly blended in the \$32 million Inglewood, Calif., Civic Center complex. Designed by Charles Luckman Associates, the complex will include a nine-story city hall, three-story library and adjoining lecture hall, police facility and parking for 2000 cars; the five-story stair tower of the library and the south wall of the lecture hall are being treated to an adaptation of intaglio to contemporary [continued on page 26]

Bally belongs.

In mass feeding for active kids
and on-the-go parents

**Bally Prefabs set the standard
for Walk-In Refrigeration**



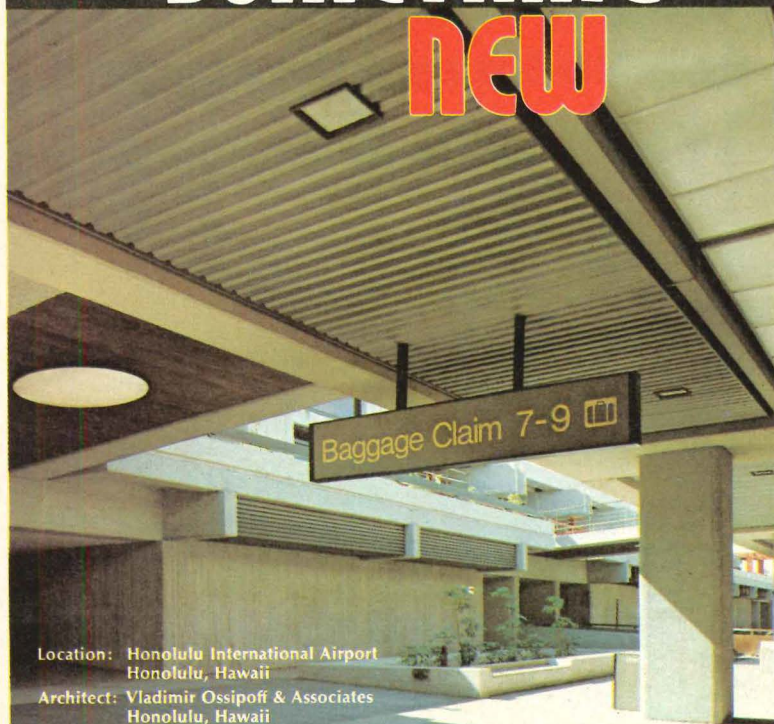
Bally Walk-In Coolers and Freezers belong everywhere mass feeding takes place. They can be assembled in any size for indoor or outdoor use from standard panels insulated with four inches of foamed-in-place urethane, UL 25 low flame spread rated. Choice of stainless steel, aluminum or galvanized. Easy to enlarge . . . easy to relocate. Refrigeration systems from 35°F. cooling to minus 40°F. freezing. Subject to fast depreciation and investment tax credit. (Ask your accountant.) Write for 28-page book and urethane sample. **Bally Case and Cooler, Inc., Bally, Pennsylvania 19503.**



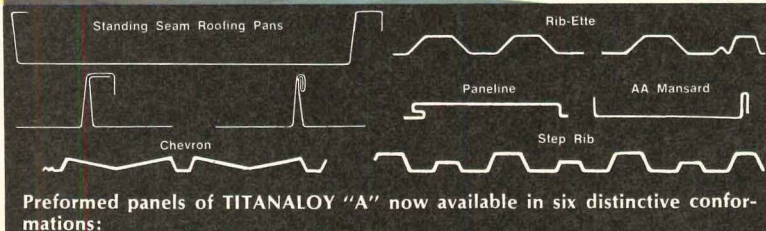
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Address all correspondence to Dept. PA-3.

TITANALLOY® "A" IS UP TO SOMETHING NEW



Location: Honolulu International Airport
Honolulu, Hawaii
Architect: Vladimir Ossipoff & Associates
Honolulu, Hawaii



Preformed panels of TITANALLOY "A" now available in six distinctive conformations:

New applications, new designs, new installation procedures, and now new preformed panels that substantially reduce construction costs . . . all warrant your further investigation.

Here, decorative, yet highly functional soffits of preformed TITANALLOY "A" are used at the new Honolulu International Airport. Perforation adds design and texture to the preformed panels while helping to dampen noise.

New installation procedures are fully explained in our new 8 page color brochure. See it in Sweet's Light and Heavy Construction file, 7.2/mat, or write us for your personal copy. We'll send you up to date details on using TITANALLOY "A", truly the most versatile architectural metal in America.

In addition to six new preformed panel designs described above, TITANALLOY "A" is supplied in continuous coils up to 36" in width, for soffits, fascia, trim, or complete roof systems. May we send you samples, case histories, and the names of M&H distributors nearest you? Matthiessen & Hegeler Zinc Company, La Salle, Illinois 61301; New York Office, 233 Broadway, Rm 4015, Phone 815/223-8600, or 212/267-6542.



TITANALLOY "A"
THE ARCHITECT'S METAL

Circle No. 343, on Reader Service Card

News report continued from page 24

concrete construction techniques.

Sculptor Tom Van Sant makes his carvings in reverse on polystyrene, which is then placed in the concrete forms. After the concrete has been poured and cured, the form and the polystyrene are removed and the surface of the concrete is sandblasted to expose the aggregate.

The carvings depict some of man's basic ideas throughout history, according to the artist. One secondary theme is the use of chemical and scientific formulas, expressing some of man's contemporary beliefs in scientific rather than philosophical or religious terms; another theme is "The Word"—the contents of the library—expressed in a wide variety of languages.

The project will also include an elevated plaza for art and sculpture exhibits and sculptured fountains to be done by California artists.

AIA forms task force on energy conservation

High energy consumption and shrinking power resources are among the problems to be dealt with by a newly formed AIA task force on energy conservation. The group intends to explore long- and short-range aspects of energy conservation, focusing on ways the design professions can help cut energy use and encourage more efficient use of power resources. The task force is being funded through a contract with the AIA Research Corporation and the National Bureau of Standards.

Chairman of the group is Leo A. Daly; members are George T. Heery, Frithjof M. Lunde, Richard G. Stein and Herbert Swinburne.

Brunner scholarship deadline extended

Deadline for proposals for the New York Chapter AIA's Brunner Scholarship has been extended until April 30, 1973. Proposals are invited for studies in the following areas: purpose of architectural education training: construct an innovative curriculum or endorse present training priorities with an eye toward the unprecedented number of architectural functions and dearth of forward-looking proposals about which to rally design and political activity; access to profession: examine the status of trainer attitudes and training process, which bear directly on the ability to "make it" in the profession; environmental concern: construct or demonstrate a model for planning and development concerned with integrating elements of community awareness, local politics and legislation into a structure that can improve and protect environment.

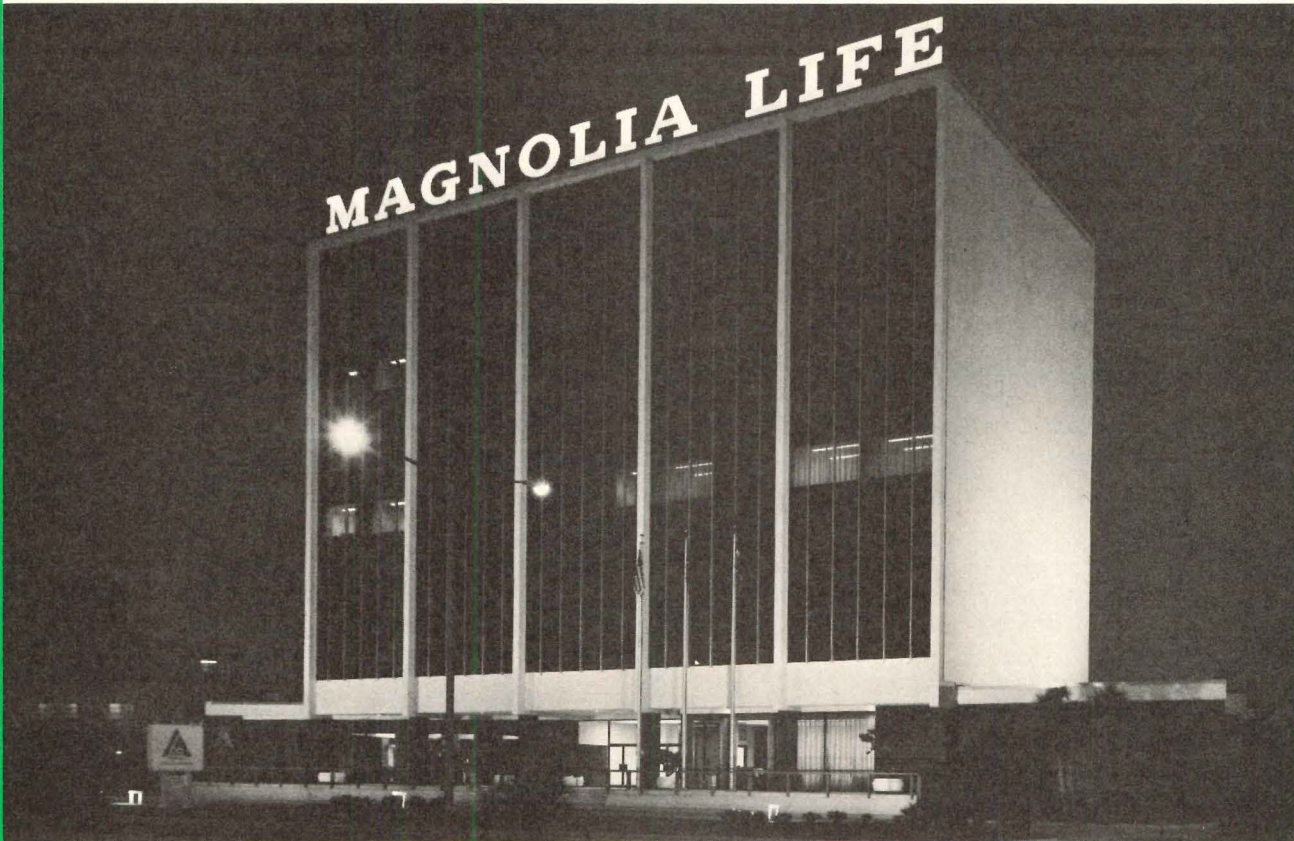
The award, as usual, is an amount of money, up to \$10,000 to finance the selected study. Applications are available until March 31, 1973 from New York Chapter AIA, 20 W. 40 St., New York, N.Y. 10018.

AIA names Honorary Fellows, members

Ten architects from as many foreign countries have been elected Honorary Fellows of the AIA, and an equal number of people outside the profession have been named honorary members of the Institute as part of the first flood of AIA honors for the year.

The 10 Honorary Fellows are: Nikolai B. Baranov, USSR; [continued on page 29]

Space, Cost Factors Influence Choice Of Electric Heat Recovery System



The Magnolia Life Building, Lake Charles, Louisiana, adds a touch of glamor to the city's skyline.

PROJECT: Magnolia Life Building, Lake Charles, Louisiana. **ARCHITECTS AND ENGINEERS:** Dunn & Quinn, Lake Charles.

DESIGN CHARGE: To design a modern office building that would provide a closely controlled year-round environment for approximately 350 home office employees and tenant personnel.

DESIGN RESPONSE: The Magnolia Life Building, designed by Patrick B. Gallagher, AIA, of the architectural firm of Dunn & Quinn, is a handsome 7-story structure sheathed in charcoal curtain-wall panels and glass at the front and rear and marble facing on both ends. The ground floor level, which forms a platform for the superimposed 6-story office tower, is occupied by a bank, brokerage firm, IBM showroom, and a coffee shop. The rest of the building is given over entirely to offices and suites. The insurance company owner occupies two floors and the remaining space is rented to lawyers, ac-

countants, brokers, and other professionals.

The choice of a space conditioning system for the building followed an evaluation of the total owning and operating costs of various types of systems capable of providing simultaneous heating and cooling all year long. As a result of this careful evaluation, the designers chose an electric single-duct HVAC system that makes use of lighting heat recovered by returning air through the fluorescent fixtures and into the ceiling plenums to meet much of the heating demands of the building.

A three-zone air handling unit on each floor contains water coils which are supplied from two parallel chillers located in the rooftop mechanical room. Thermostatically controlled dampers direct the warm plenum air through or around these coils as needed to maintain the desired temperature conditions within the various zones. When any space requires more heat than can be obtained from the plenum, supplementary electric duct heaters downstream from its air handling unit are energized automatically.

1 CATEGORY OF STRUCTURE:

Office Building

2 GENERAL DESCRIPTION:

Area: 58,000 sq ft
 Volume: 702,300 cu ft
 Number of floors: seven
 Number of occupants: 350
 Number of rooms: 200
 Types of rooms: private and general offices, commercial spaces on first floor

3 CONSTRUCTION DETAILS:

Glass: single solar gray
 Exterior walls: front and rear walls: glass and metal panel curtain walls; U-factor: 0.20. End walls: face marble, air space, 8" concrete block, vermiculite core fill (R-3), gypsum board; U-factor: 0.125
 Roof and ceilings: built-up roof on vermiculite fill, precast concrete deck, 3" glass fiber batts (R-11), suspended ceiling; U-factor: 0.08
 Floors: concrete slab
 Gross exposed wall area: 34,000 sq ft
 Glass area: 8500 sq ft

4 ENVIRONMENTAL DESIGN CONDITIONS:**Heating:**

Heat loss Btuh: 1,250,000
 Normal degree days: 1600
 Ventilation requirements: 5000 cfm
 Design conditions: 25F outdoors; 75F indoors

Cooling:

Heat gain Btuh: 1,800,000
 Ventilation requirements: 5000 cfm
 Design conditions: 95F dbt, 79F wbt outdoors; 70F, 50% rh indoors

5 LIGHTING:

Levels in footcandles: 125-175
 Levels in watts/sq ft: 5-7
 Type: fluorescent

6 HEATING AND COOLING SYSTEM:

The electric ducted-air space conditioning system is capable of simultaneous heating and cooling year around. A three-zone air handling unit on each floor is equipped with coils that are continuously supplied with chilled water from two 100-ton packaged chillers connected in parallel and located on the roof. Return air is drawn into the plenums through louvered recessed fluorescent lighting fixtures. In the air handling units, warm plenum air either moves through the water coils or bypasses them as determined by thermostatically controlled dampers in response to temperature conditions in the various spaces. The recovered lighting heat is supplemented as required by electric duct heaters.

7 ELECTRICAL SERVICE:

Type: underground
 Voltage: 480v, 3-phase delta, 120/208v, 3-phase wye
 Metering: secondary

8 CONNECTED LOADS:

Heating & Cooling (200 tons)	300 kw
Ventilation	75 kw
Lighting	396 kw
Cooking	40 kw
Water Heating	6 kw
Other	70 kw
TOTAL	887 kw

9 INSTALLED COST:*

General Work	\$ 978,500	\$16.90/sq ft
Elec., Mech., Etc.	371,500	6.40/sq ft
TOTALS	\$1,350,000	\$23.30/sq ft

*Building was completed 1/70

10 HOURS AND METHODS OF OPERATION:

8 a.m. to 6 p.m. five days a week.

11 OPERATING COST:

Period: 9/29/69 to 9/29/70

Actual degree days: 1895

Actual kwh: 1,176,960*

Actual cost: \$17,686.67*

Avg. cost per kwh: 1.5 cents*

*For total electrical usage

Billing Date	Degree Days	Demand	kwh	Amount
10/29/69	18	320	82,560	\$ 1,320.48
11/28/69	226	157	83,840	1,335.64
12/30/69	395	176	92,800	1,464.51
1/29/70	568	224	130,560	1,952.77
3/ 2/70	398	435	128,000	1,868.00
4/ 1/70	248	195	115,840	1,763.04
5/ 1/70	37	346	79,360	1,338.07
6/30/70*	5	282	124,800	1,616.35
7/30/70		416	113,920	1,724.96
8/28/70		390	112,000	1,666.88
9/29/70		365	113,280	1,635.97
TOTALS	1895		1,176,960	\$17,686.67

*Two months bill

12 FEATURES:

The temperature in each zone is regulated independently by wall-mounted thermostats which control face and bypass dampers in the air handling units as well as duct heaters downstream. The air handler coils are supplied with chilled water continuously. When warmer air is indicated, the dampers gradually increase the amount of untreated plenum air being recirculated. When full heating is called for, in any particular zone, the cooling coil is bypassed and the duct heaters energized.

13 REASONS FOR INSTALLING ELECTRIC HEAT:

A feasibility study indicated that the total owning and operating costs for the electric system would be less than those for an equivalent system using another type of energy for heating.

14 PERSONNEL:

Owner: Magnolia Life Insurance Company
 Architects and Engineers: Dunn & Quinn
 General Contractor: F. Miller & Sons, Inc.
 Electrical Contractor: John H. Wolf Associates, Inc.
 Mechanical Contractor: Corley Plumbing & Heating Co.
 Utility: Gulf States Utilities Company

15 PREPARED BY:

Jack Bass, Commercial Sales Representative,
 Gulf States Utilities Company.

16 VERIFIED BY:

Patrick B. Gallagher
 Patrick B. Gallagher, AIA

G. G. Quinn
 G. G. Quinn, P.E.

NOTICE: This is one of a series of case histories of buildings in all structural categories. If you are an architect or consulting engineer; an architectural or engineering student; an educator; a government employee in the structural field; a builder or owner, you may receive the complete series free by filling out the strip coupon at the left and mailing it to EEA. If you are not in one of the above categories, you may receive the series at nominal cost.

ELECTRIC ENERGY ASSOCIATION, INC. 90 Park Avenue, New York, N.Y. 10016

Justus Dahinden, Switzerland; Robert LeRicolais, France; Nikola Nikolov, Bulgaria; Fabio Pentead, Brazil; Roland Rannier, Austria; Cyril Frederick Thomas Rounthwaite, Canada; Takeo Satow, Japan (posthumously); Manuel de la Sierra-Amieva, Mexico and Sir John Newenham Summerson, United Kingdom. They bring the total of Honorary Fellows to 160 and will be invested during the Institute's annual convention in San Francisco, May 7-10.

Honorary membership has been conferred on three women and seven men who have made distinguished contributions to the profession or to allied arts and sciences. New honorary members are: Lt. Gen. Frederick J. Clarke, chief of engineers, U.S. Army; Ben E. Graves, project director, Educational Facilities Laboratories; Nancy Hanks, chairman, National Endowment for the Arts; Vernon E. Jordan, Jr., executive director, National Urban League; Rita E. Miller, executive secretary, Southern California Chapter AIA; Arthur F. Sampson, administrator, General Services Administration; Betty Silver, executive secretary, North Carolina Chapter AIA; Herman D.J. Spiegel, dean, Yale School of Architecture; James Johnson Sweeney, former director, Museum of Fine Arts, Houston and Paul N. Ylvisaker, dean of the graduate school of education, Harvard University.

Phillip Daniel, DMJM founder, dies

Phillip J. Daniel, the Daniel in Daniel, Mann, Johnson & Mendenhall, died of a heart attack in November. A 1937 grad-

uate of the University of Southern California, Daniel, along with Arthur E. Mann and S.K. Johnson, founded DMJM in 1945. The firm has since grown into a giant multidisciplinary organization with 22 offices in this country and others with close to 700 employees (P/A, June 1972, p. 72).

Another amusement park yields to progress

Revere, Mass., a largely blue collar suburb of Boston, is in for a \$300 million facelifting, according to plans recently announced by the Revere City Council. Unfortunately, it looks as if the mammoth redevelopment plan will remove one of the town's major attractions—its amusement park.

The plan, drawn up by the New York office of Welton Becket & Associates, would replace the old amusement area with a mile-and-a-half-long complex of apartments and commercial development. About 4000 residential units, 200,000 sq ft of office space, a 400-room hotel, 200,000 sq ft of retail space and parking for 6600 cars are planned for the 45 acres.

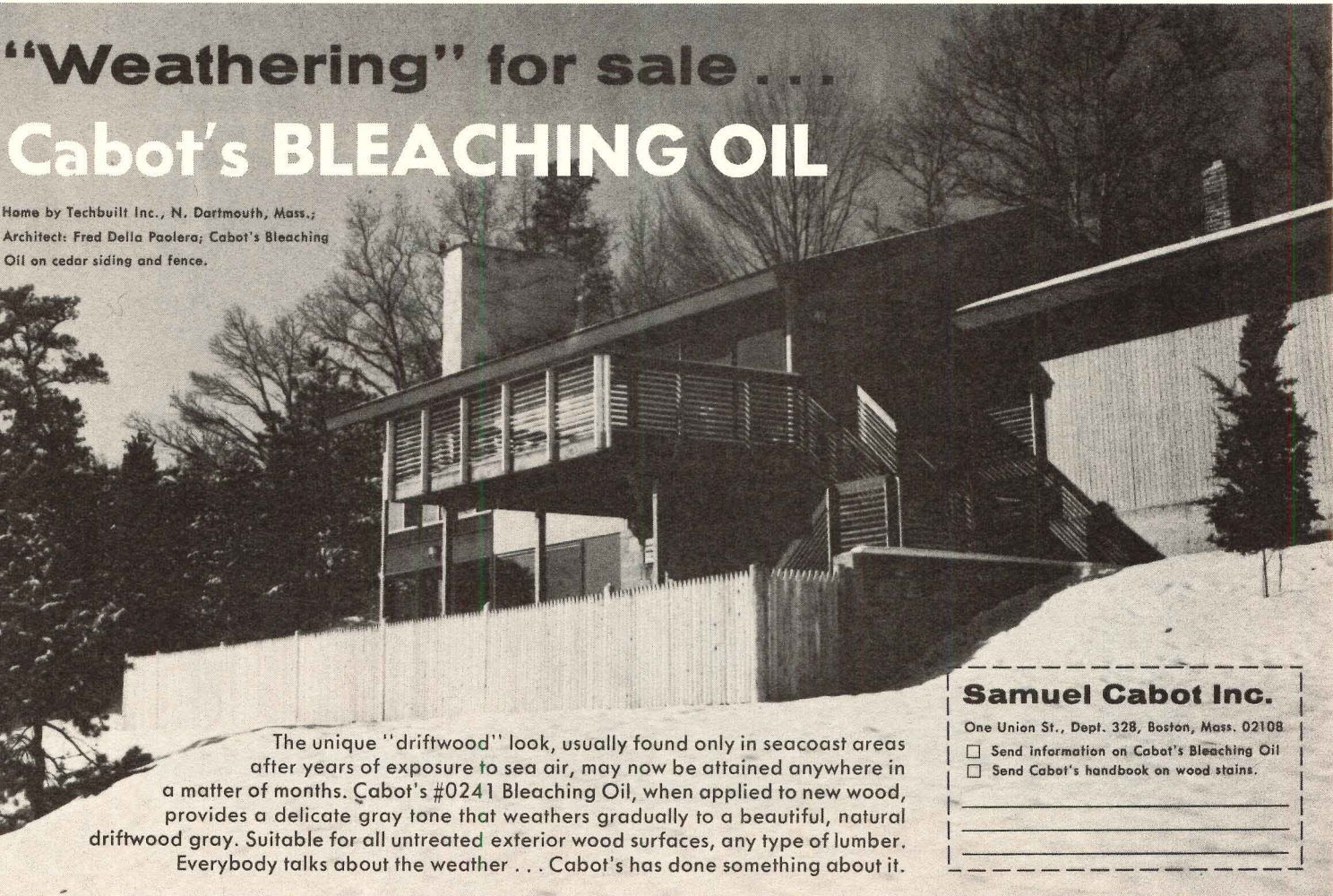
Residential units will be clustered towers and interconnected low rise buildings set back from the beach front, oriented to give the largest numbers the best possible views of the ocean. A four-lane street cutting through the site would be realigned to provide better traffic flow and improve public access to the beach.

Jumbo jets need jumbo hangars

One of the inevitable by-products of an age of giant airplanes is a giant hangar in which to repair them, and Trans World Airlines will have one at the recently opened Kansas [continued on page 34]

"Weathering" for sale . . . Cabot's BLEACHING OIL

Home by Techbuilt Inc., N. Dartmouth, Mass.;
Architect: Fred Della Paolera; Cabot's Bleaching
Oil on cedar siding and fence.



The unique "driftwood" look, usually found only in seacoast areas after years of exposure to sea air, may now be attained anywhere in a matter of months. Cabot's #0241 Bleaching Oil, when applied to new wood, provides a delicate gray tone that weathers gradually to a beautiful, natural driftwood gray. Suitable for all untreated exterior wood surfaces, any type of lumber. Everybody talks about the weather . . . Cabot's has done something about it.

Samuel Cabot Inc.

One Union St., Dept. 328, Boston, Mass. 02108

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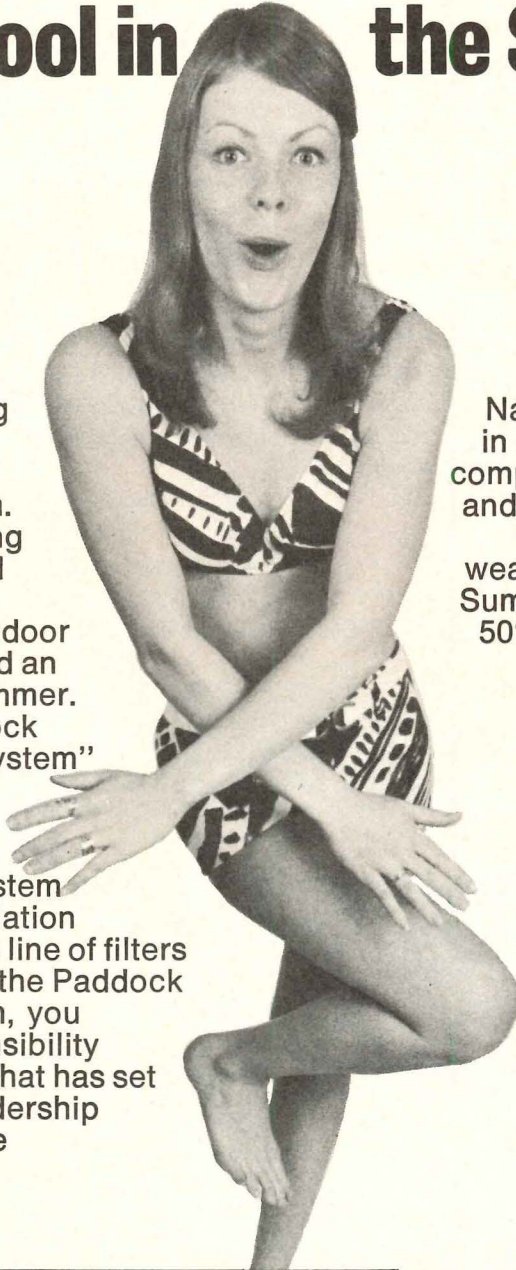
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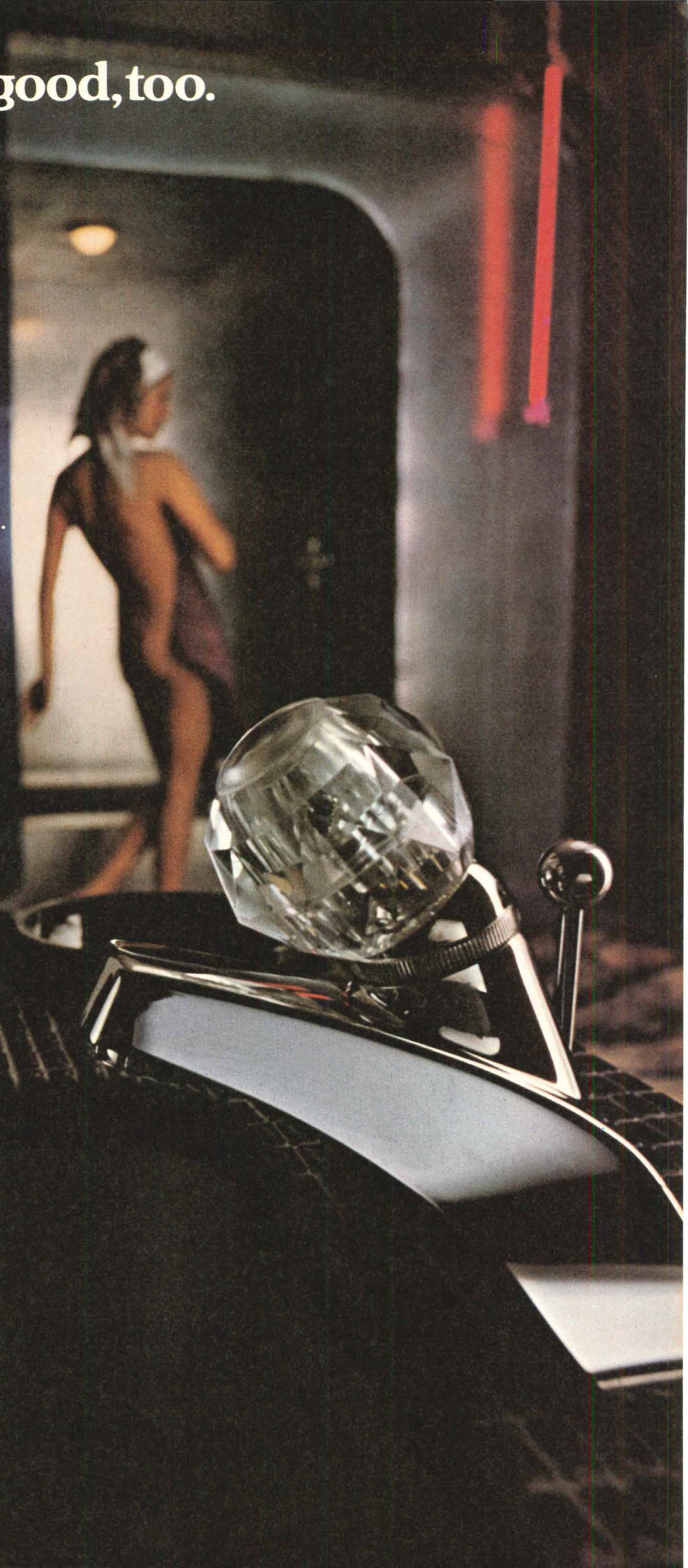
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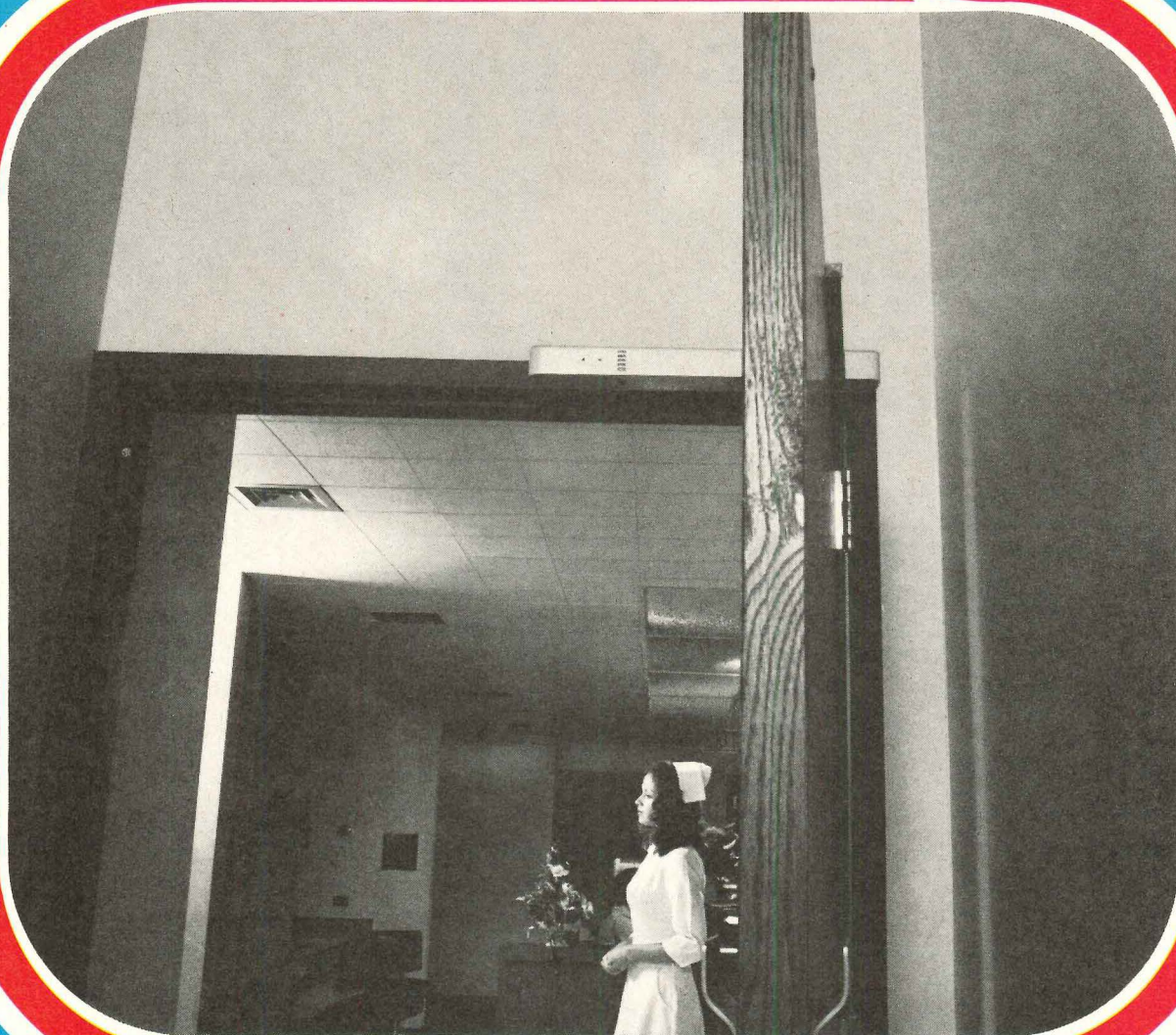
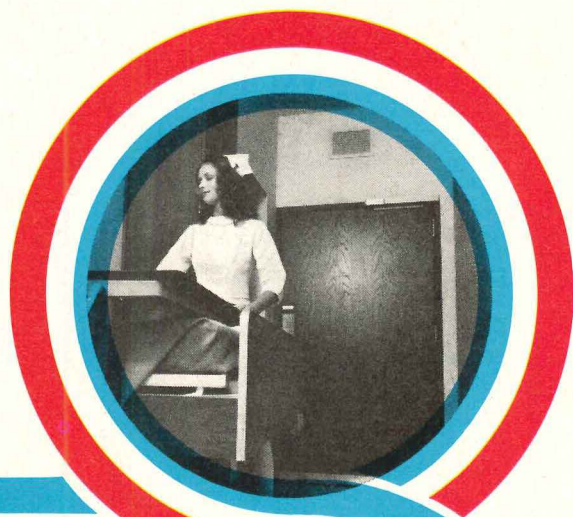
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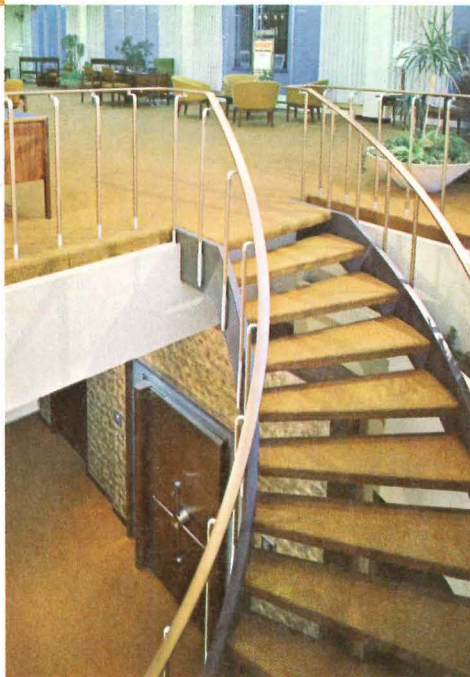
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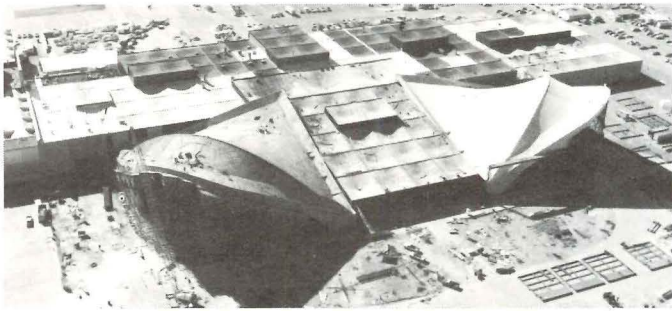
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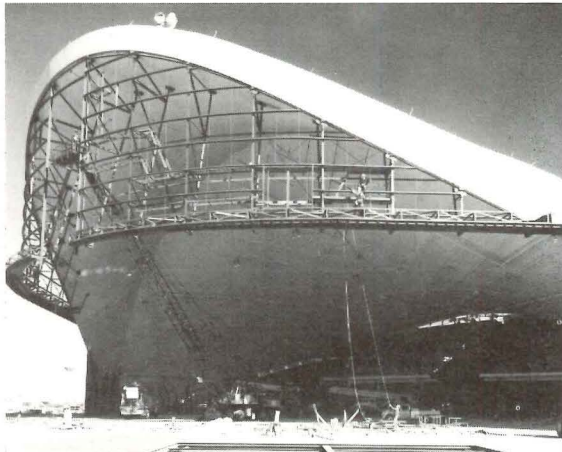
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Superhangar at Kansas City International



City International Airport. The structure is a concrete hyperbolic paraboloid saddle-type thin shell that neatly accommodates the jumbo jets (747s and SSTs); the shape of the roof eliminates wasted floor space and unused overhead space by bringing the service facilities close to the plane.

Each hangar (there will be four of them growing out of a large rectangular building housing shop space) will be 225 ft square, close to the square shape of a 747 placed along the hangar's diagonal. The nose area is 57 ft wide, 120 ft long and lined on three sides by shops. The second floor of the hangar is close to the deck level of the airplane, allowing overhaul of cabins at this level while other work is done below.

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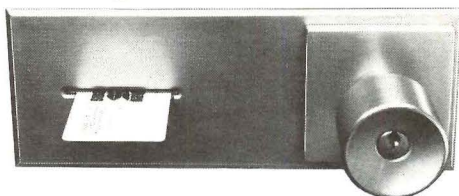
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[continued on page 38]

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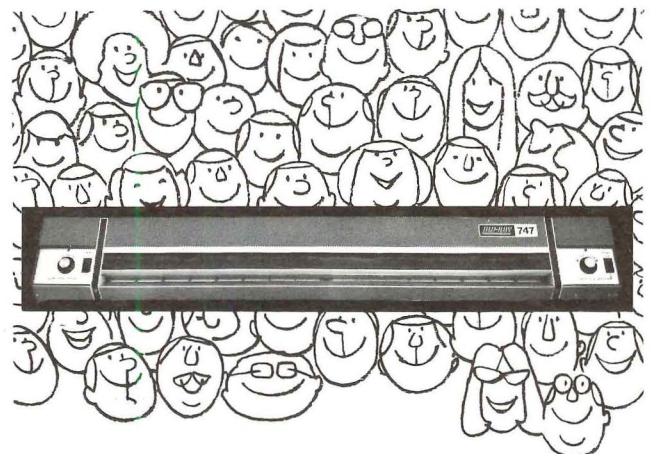
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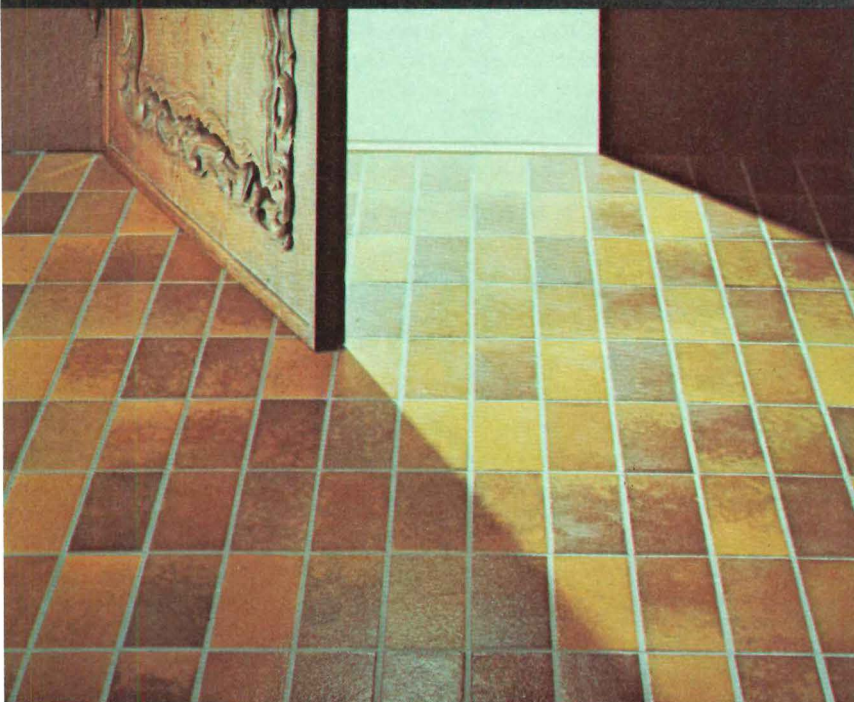
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News report continued from page 34

flects the insurer's view that adequate specifications can help reduce professional liability losses.

Washington report

The budget: propose is not the same as spend

Presidential budget messages are heavily overrated as news events, particularly in Washington, where the federal government is the principal employer and "business" operation. The problem is that the gap between what a president may propose and the manner in which Congress may dispose of the proposals is often very wide. The importance of such messages and their details rests in another direction—the indication of the general philosophy of the administration, and the areas in which it will do battle.

Thus, for the construction industry, the overall planned spending for public works construction looks even a little better than it did last year: The budget calls for total federal spending of about \$13.4 billion in the upcoming fiscal year, up about \$600 million from the current year. Of that total, about \$5 billion is for direct use (on such matters as military and civil construction of all kinds, including the work of the Bureau of Reclamation and the General Services Administration); the rest is in grants and loans to aid other construction, either privately or state-municipal financed.

You must look within these categories, however, to see where the shifts will come. For instance, the Civil Works programs of the Army's Engineers drop back from about \$1.2 billion in the current year to about \$952 million; Bureau of Reclamation drops about \$50 million under last year's allowance; General Services Administration holds about even; Environmental Protection Agency goes up almost double last year's spending for grants—to \$1.6 billion—but stays well below the figure Congress wanted. Some programs are phased out by the simple device of providing no money, in particular the 26-year-old Hill-Burton hospital program (under HEW), which has seen total spending of about \$12 billion over its life for new hospitals and medical care facilities (of which about \$3.8 billion was federal, the rest local money). Other programs such as the Office of Economic Opportunity that provided, among other things, loans to small businessmen for plant and office construction; the programs of water, sewer, electrification for rural areas; holdbacks in federally subsidized housing programs, and more are either planned for phase-out, or diffused among the existing departments for administration and operation.

One big program remains in real doubt: The huge federal-aid highway program. The "normal" total of about \$4.7 billion is provided for payment out of the Highway Trust Fund, but the administration wants to devote about \$1 billion of it to mass transit, and Congress has received proposals to go much further in that regard.

Those, then, are the proposals. Many of them seem justifiable enough: Hospital occupancy, said the president, is down to about 70 percent, thus little justification seems to exist for further work; there's no doubt at all that many of the overlapping and vastly complex housing and urban renewal programs haven't worked out well; the amount allotted for water

and sewer work is more than double previous years.

But a planned hospital project in the home district of an individual congressman—a dam, highway or other project, for that matter—assumes an entirely different aspect when viewed from Capitol Hill; as does housing and urban renewal seen from City Hall. And that's aside from differences in political philosophy on the question of whether Washington or local governments should have the final say.

So, with the Vietnam war out of the picture, at least for the time being, there's plenty of room for infighting and no real assessment at the moment of the final outcome. It is clear enough that the battle lines will center around the whole issue of federal spending for what purpose, on the whole range of government activities including the problem of energy supplies: research and development; highways and other forms of transit; even labor relations, price and wage controls, and government reorganization.

Clearly, the administration is in a stronger position than Congress on this matter: It will be difficult for Congress to avoid the onus of "big spender," despite the righteousness of its argument over who has the power of the purse (witnessed by an actual suit now due before the Supreme Court in an attempt to force the president to spend the full amounts that Congress has appropriated).

Phase III

Everything in Washington now will be tied closely to this overall view. Such things as "Phase III" of the wage-price controls (under which much of the machinery is to be dismantled, with a big stick remaining in the president's hands in the form of the right of decisive intervention should "voluntary" restraints not prove effective), are part of the picture. Incidentally, things won't change much for the construction industry under the proposed "Phase III." The Construction Industry Stabilization Committee will go on functioning—now reporting to its former boss, Prof. John Dunlop, on the Cost of Living Council, instead of through the now defunct pay board. Professionals, however, are exempt from CISC controls, in general. So are continuing controls, or rather, refusal to lift controls on labor practices; continuing White House moves to effect reorganization of the 12 federal departments (among other things, by creating "super cabinet" posts for three secretaries to oversee activities in departments closely related—like energy, under Agriculture Secretary Buttz).

The "environmental" drive of the past few years will be a little quieter but will continue. Dozens of bills are already in the congressional hoppers to establish national "land use" regulations; control strip and surface mining (these would also presumably affect quarries, sandpits and borrow areas used in construction); tighten air pollution standards—even if it means forced reduction in automobile use by the public.

In all of this, it is worth noting that labor is getting no obvious concessions beyond the naming of a labor leader to the post of Secretary of Labor. None of the long cherished legislation (such as the right to picket a whole project even though a dispute is with only one of the numerous employers) has been proposed or is likely to be proposed.

For architects and other professionals, there may be some real advantages in the program, if Congress okays it substantially as proposed. Most obvious is that things will be somewhat simplified and certainly more stable if many functions

[continued on page 42]



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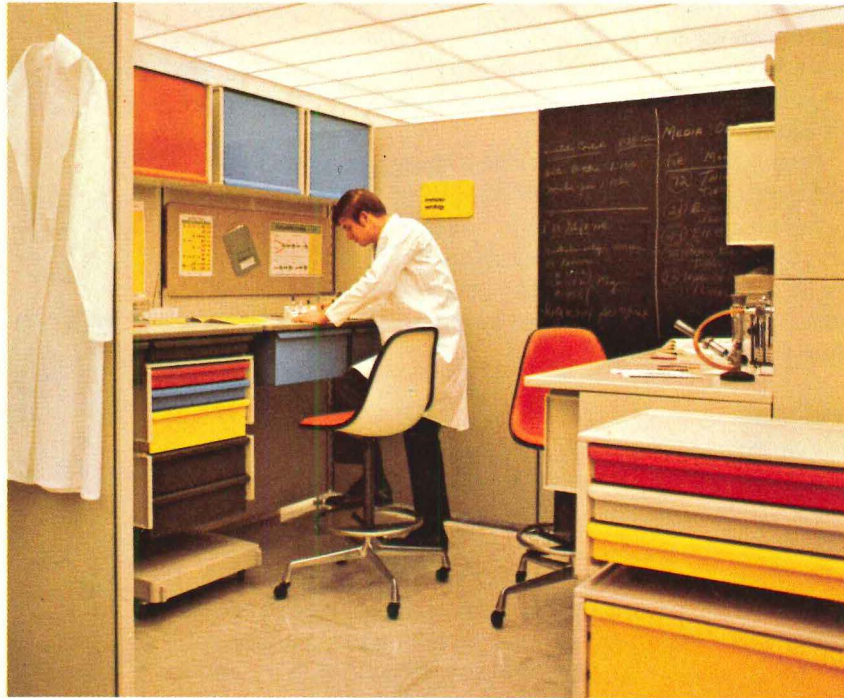
You are invited to visit the «Herman Miller Hospital»

(a Co/struc demonstration model)

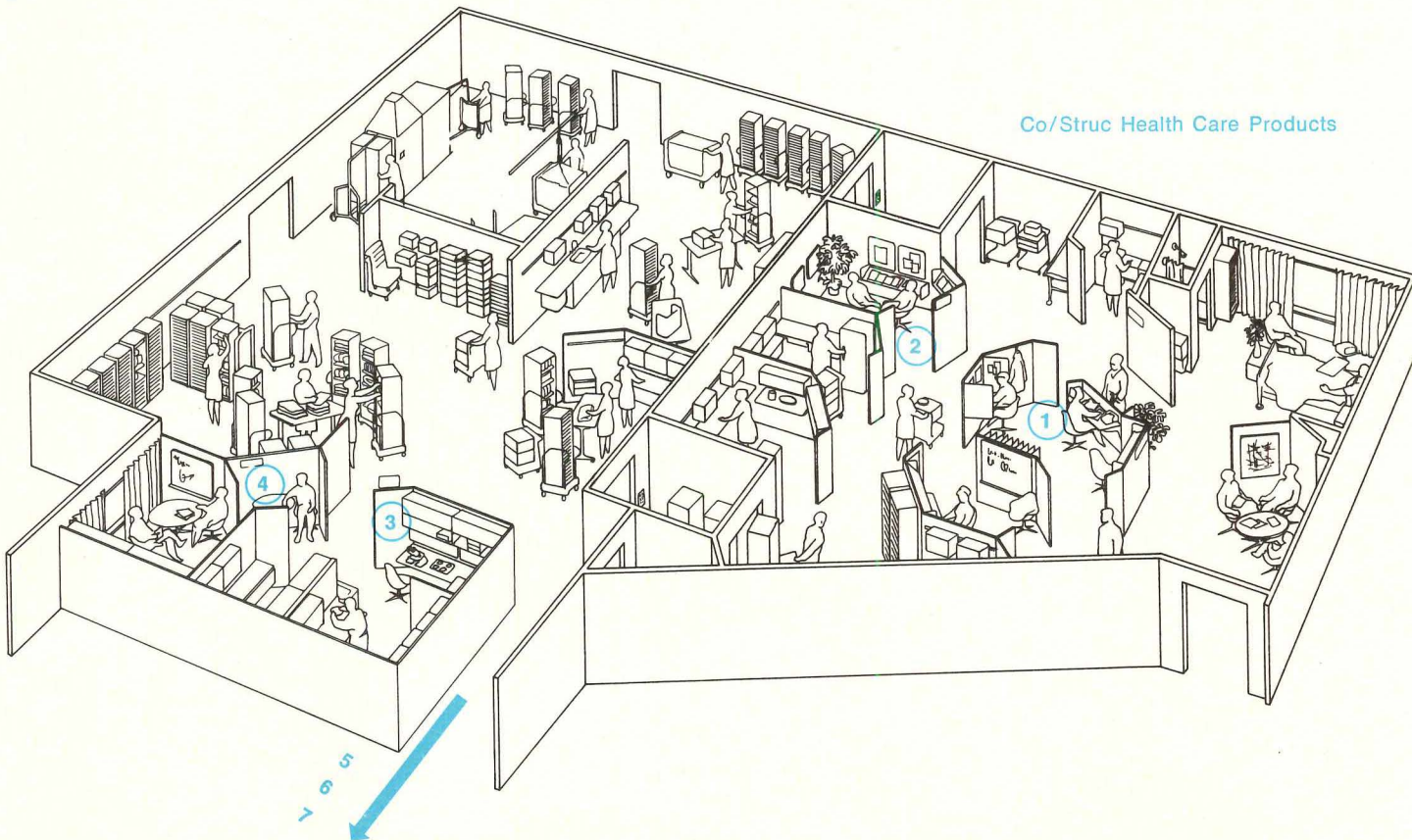
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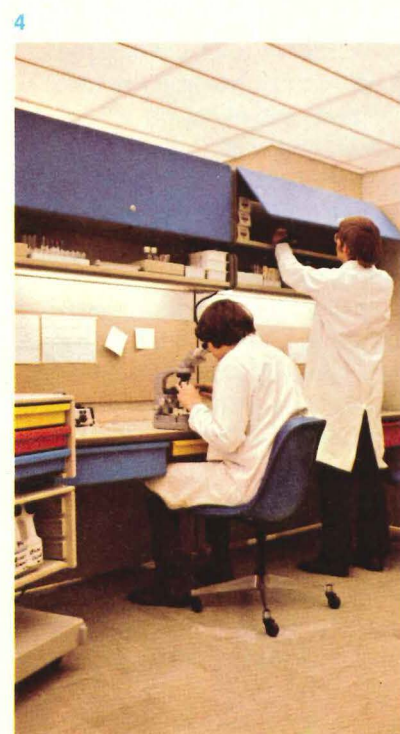


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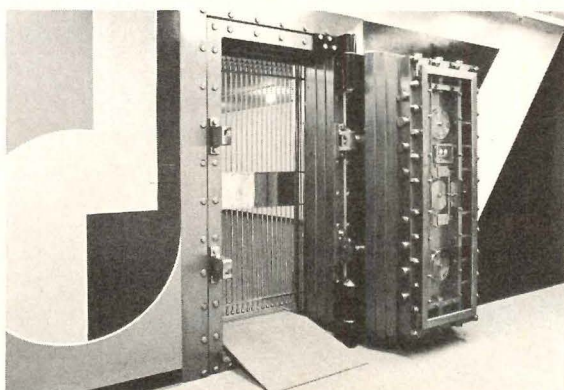
herman miller health care group Zeeland, Michigan



Interior of old bank was remodeled, exterior left unchanged



Banking area (above) became exhibit space, vault became entry to children's museum



are shifted out of hastily formed, quasi-responsive special agencies and back to the old-line departments and agencies. There also will be advantages in terms of less complication and more predictable dealings with the accomplishment of one of the president's most cherished objectives: shifting much of the administrative burden out of Washington and back to state and municipal levels. [E.E. Halmos]

Old bank becomes new Tacoma Art Museum

When Pacific National Bank of Washington moved out of its old headquarters building and into a new office tower near by, the old bank became the subject of \$100,000 renovation effort. The exterior of the old bank, built in 1920 and designed by Sutton, Whitney & Dugan, was unchanged, but the interior was completely revamped to provide exhibit space, offices and an auditorium for the privately endowed museum.

The main banking lobby, formerly a typical arrangement of tellers' counters and desks, became the museum's main gallery. The existing dropped ceiling, which covered the air conditioning ducts and fluorescent lighting system was left intact; a system of flexible museum lighting was installed to supplement the existing light system, which is not used during gallery hours, but is still useful for changing shows and cleaning up. Windows were filled in and walls were covered with wall carpeting in the main gallery. At the end of the main gallery is a work room.

On the second floor, the bank president's office has been turned into an office for the museum director along with other administrative space. A 200-seat auditorium has also been provided on the second floor. The third floor includes more galleries and a library and members' lounge. The basement provides storage space and vaults, a meeting room and two more galleries.

Architects for the renovation were The Architectural Offices of Alan Liddle, with Charles Rueger as associate architect.

AIA announces more awards, honors

The yearly flow of AIA honors, awards and citations is increasing as convention time nears. Among the latest honors to be announced is the 1973 Architectural Firm Award, which goes this year to the Boston firm of Shepley Bulfinch Richardson & Abbott; the firm, says AIA, has "contributed to the best at all times" throughout its almost century of practice.

Other awards include the Fine Arts Medal, which goes this year to sculptor Harry Bertoia; the Allied Professions Medal, to Hideo Sasaki; the Craftsmanship Medal, to textile designer and weaver Helena Hernmarck; the Industrial Arts Medal to Lella and Massimo Vignelli.

The Architectural Photography Medal will be given to Robert C. Lautman; the Collaborative Achievement in Architecture Award, to the Bay Area Rapid Transit District; the Citation of an Organization, to the San Francisco Planning Commission; and the Architecture Critics' Medal, posthumously to Robin Boyd of Australia.

The Architecture Critics' Citation goes to cartoonist Alan Dunn; the Whitney M. Young Jr. Citation, to the Architects' Workshop of Philadelphia; and the AIA Medal for Research, to Harold B. Gores, Hon. AIA, president of Educational Facilities Laboratories. All awards will be presented at the AIA's 105th annual convention, scheduled for May 7-10 in San Francisco.

[continued on page 44]

Efficient building idea: Recent report tells how to solve the acoustical problems of open offices.



Good news for architects who like the design freedom of open offices—but don't like the acoustics.

Tests by an independent acoustical testing agency show you can get excellent open office acoustics by using these three things (with the help of an acoustical consultant):

1) An acoustically non-reflective ceiling—so the sound won't bounce off to other areas.

2) Sound-controlling screens—to stop sound from going directly

from one area to another.

3) A masking sound system—so personal conversations can be held in a normal voice without being overheard.

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MOMA to show Eames furniture

Furniture, from prize winning designs of 1940 to designs that never went into production, will be on display when New York's Museum of Modern Art opens an exhibit of work by Charles Eames. The show, which opens March 27 and runs through May 30, will be directed by Arthur Drexler, the museum's director of architecture and design.

Photos of Eames own widely known house built in Santa Monica in 1949 will be shown and a program of his short films will run in the museum auditorium Mar. 28-29. Accompanying the show will be a catalog of all the Eames furniture in the museum's design collection.

Awards

Six first awards were given in five categories in the First Annual Department of Defense Awards program for military construction projects. Awards went to: **Delawie, Macy & Henderson** (Thompson Medical Library Addition, Naval Hospital, San Diego, Calif.); **Chapman & Miller** (family housing, Vint Hill Farms, Va.); **George Matsumoto & Associates** (family housing, Presidio of San Francisco); **John Graham & Co.** (Engineering Management Building, Puget Sound Naval Shipyard, Bremerton, Wash.); **Robert M. Thomas & Associates** (Main Exchange, Marine Corps Air Station, El Toro, Calif.); **Finical & Dumbrowski** (Environmental Radiation Test Facility, Fort Huachuca, Ariz.).

Seven current projects and three historical buildings were honored in the 1972 Honor Awards program of the San Diego Chapter AIA. Special awards were given for **Villa Montezuma**, designed by N.A. Comstock and Carl Trotsche in 1887; **The Women's Club**, La Jolla, designed by Irving Gill and the **Botanical Gardens**, Balboa Park, designer unknown. Two first honor awards were given: **Leonard Veitzer** (John Dawson House, Del Mar) and **Liebhardt, Weston & Goldman** (Recreational Village, San Diego Wild Animal Park). Awards of honor went to **Brian Paul & Associates** (Lake Park Apartments) and **Russell Forester** (Russell Forester House, La Jolla). Merit awards: **Tucker, Sadler & Bennett** (Security Pacific Bank); **Deems, Lewis & Partners** (U.S. Post Office and Vehicle Maintenance Facility). Honorable mention: **Paul McKim & Associates** (The Warehouse Complex).

Personalities

Frank Masiello, FARA, of Masiello & Associates, Palm Beach, Fla. and Worcester, Mass., has been named president of the Society of American Registered Architects.

Seichi Konzo, Professor Emeritus, Mechanical Engineering, University of Illinois, has been awarded the F. Paul Anderson Medal by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

Karl H. Greimel, Greimel, Malcomson, James, Inc., has been elected 1973 president of the Detroit chapter, American Institute of Architects.

Jerome Cooper, Cooper, Carry & Associates, Atlanta, Ga., has been elected president of the North Georgia chapter of the American Institute of Architects.

Mario G. Salvadori, professor of civil engineering and architecture at Columbia University's Engineering School, has been appointed the Renwick Professor of Civil Engineering at the School.

Calendar

Feb. 24-Apr. 22. "The Arts and Crafts Movement in America 1876-1916," Art Institute of Chicago.

Mar. 5-9. Annual convention and exhibition of the American Concrete Institute, Atlantic City, N.J.

Mar. 7-8. Lighting conference for manufacturers of mobile homes, General Electric's Lighting Institute, Nela Park, Cleveland, Ohio.

Mar. 7-9. Conference on "Airports: Challenges of the Future" sponsored by the Dallas and Fort Worth chapters of the American Society of Civil Engineers, Inn of the Six Flags, Arlington.

Mar 11-15. Seventy-fourth national meeting of the American Institute of Chemical Engineers, New Orleans, La.

Mar. 12-15. Twenty-fourth National Plant Engineering and Maintenance Show, McCormick Place, Chicago.

Mar. 16. Twenty-second Soil Mechanics and Foundation Engineering Conference, Lawrence, Kan.

Mar. 17-21. Convention of the American Association of School Administrators, San Francisco.

Mar. 19-20. Sixth annual AIA-CEC Public Affairs Conference, Mayflower Hotel, Washington, D.C.

Mar. 25-29. Thirty-fifth annual convention of the National Association of Architectural Metal Manufacturers, Royal Sonesta Hotel, New Orleans, La.

Mar. 29-30. National Brick Bearing Wall Conference sponsored by the College of Engineering and Architecture and School of Environmental Development, University of Nebraska-Lincoln and the Brick Institute of America.

Mar. 30-Apr. 29. Exhibit of the Italian Art & Landscape Foundation Inc., Seattle Art Museum, Seattle, Wash.

Apr. 2-3. First Federal Design Assembly, Washington, D.C., sponsored by the Federal Council on the Arts and the Humanities under a grant from the National Endowment for the Arts.

Apr. 2-6. Fifty-fourth annual meeting of the American Welding Society, Chicago.

Apr. 9-12. Design Engineering Show, Civic Center, Philadelphia.

Apr. 9-12. American Society of Mechanical Engineers design engineering conference, Civic Center, Philadelphia.

Apr. 9-13. Structural engineering meeting of the American Society of Civil Engineers, San Francisco Hilton Hotel.

Apr. 11-13. Third national conference for the Building Team, Drake Hotel, Chicago.

Apr. 14-May 12. Exhibit of the Italian Art & Landscape Foundation Inc., New Orleans Museum of Art.

Apr. 15-18. Fourth international conference of the Environmental Design Research Association, College of Architecture, Virginia Polytechnic Institute and State University, Blacksburg, Va.

Apr. 23-25. 110th annual meeting of the National Academy of Sciences, Washington, D.C.

May 3-4. Ninth annual meeting of the National Academy of Engineering, Washington, D.C.

May 7-9. International Symposium on Urban Housing, Wayne State University, Detroit, Mich.

May 7-10. AIA national convention and exposition, Brooks Hall, San Francisco (to be reconvened in Honolulu May 11-15).

May 7-10. Thirty-first annual technical conference of the Society of Plastics Engineers, Queen Elizabeth Hotel, Montreal, Canada.

May 21-23. Conference on "Environmental Assessments of Transportation Facilities" sponsored by the Illinois chapter of the American Society of Civil Engineers, Regency Hotel, Chicago.

June 2-30. Exhibit of the Italian Art & Landscape Foundation Inc., High Museum of Art, Atlanta, Ga.

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Photo: Wayne Thom

Scottsdale, Arizona has been able to escape the chaos that usually goes hand in hand with a population rise within 10 years from 10,000 to 70,000, and an increase in area from 4 to 64 sq mi, by enacting tough legislation and making it stick.

The results: utility lines are all underground; billboards and polluting industry are banned (only garden industry that can co-exist with residential and commercial is allowed); density for multihousing is set at 15-16 units per acre; off-street parking spaces are abundant. All plans must pass an eight-member design review board on which are two architects and a landscape architect. Landscape plans must be filed—15 percent of open space exclusive of streets must be landscaped.

These restrictions started in 1964 with the formation of citizens groups aimed at saving the environment; the result was a plan, drawn up with HUD money and adopted in 1966. It has not been accomplished without making some powerful enemies. Suits have been filed by Arizona Sign Association and Hallcraft Homebuilders, the latter against the design review board.

The support of Scottsdale's comprehensive growth plan is broadly based and has wavered little over the years. The Taliesin Foundation was so impressed by what was happening that it asked last year to be annexed to Scottsdale. Charles Montooth, with the Foundation many years, says that the turning point came when William Donaldson, who came to city government by way of the Episcopal ministry, became city manager in 1965.

"It was a new kind of political scene. We wanted to get involved," Montooth is now on the Traffic Committee which is planning new freeway routes. Other Taliesin Fellows are working on impact studies for the city. Montooth credited the Brookings Institution seminars held at Taliesin for creating a climate of inquiry and public acceptance.

Architect Calvin Straub of the Arizona State University, Tempe, who worked with other faculty members and architecture students on the zoning and planning studies, believes that the citizens committees and Donaldson were a magical combination. Straub lectured sometimes to audiences numbering 800 about Scottsdale's goals.

Architect Bennie M. Gonzales paid respects to "an enlightened city government" which carries out the wishes of the people. "The mayor and city manager are not the same as when the program began but the goals are unchanged."

A staff member in the planning and zoning department had this to say about their policy. "It's not enough to pass ordinances and let the law take its course. Our method is persuasion. The staff is expected to suggest alternatives rather than reject a proposal. We invite discussion while the plan is in the formative stage."

Meetings of the Site Plan Committee and Design Review Board are informal hearings open to the public. Gonzales' new city hall makes them truly public. The assembly room is in the center of a great unwallled and galleried interior space; it is several feet below floor level and overflow visitors can look down on the proceedings from the rail at the perimeter of the upper level. From anywhere in the interior there is a view of city government in action.

This summer Scottsdale enters phase two of its program. The tangible evidence of phase one is the city hall, library and public services building designed by Gonzales for a 20-acre site. Preparation of an 18-acre adjacent site for a civic center renewal project makes way for a 300-room hotel, then a mall, *mercado* and parking structure, finally a 750-seat performing arts center which will be completed in 1976. The firm of Rock-rise Odermatt Mounjoy Amis is coordinator of design.

Mayor Bud Tims calls the program a way of preserving the lifestyle of Scottsdale. According to Mary Anne Egurrola, secretary to Gonzales since 1963, the town grew because winter visitors didn't want to go into Phoenix for a hotel. "My whole family worked at one of the big hotels here, Camelback Inn, from baby sitters to relish girls. There was much wealth."

Their houses were in Spanish Colonial styles although Scottsdale has no Spanish heritage. It is an Anglo town laid out more in the manner of the Mormon settlements with wide main streets and car tracks down the middle—stretching seemingly to glory. It is unlike Tucson with its authentic Spanish territorial style which, according to Straub, now throws in a little Ramona and calls it regional.

The regionalism of Scottsdale comes out of solving the sun, Straub continued. "The quality of scale it demands is reflected in big simple buildings—mass; reduced window openings. Roof decks have real meaning here."

Gonzales calls his civic center buildings "indigenous to our Sonoran southwest . . . an interplay of mass and desert void." He started his career by using large glass areas "but now I am a wall man, the only good solution here." [Esther McCoy]

J. O. Johnson High School, Huntsville, Ala. Architect: Millberger, Rutland & Associates. Associated Architects: Jones and Herrin. Hardware Dealer: Hardware Services, Inc.

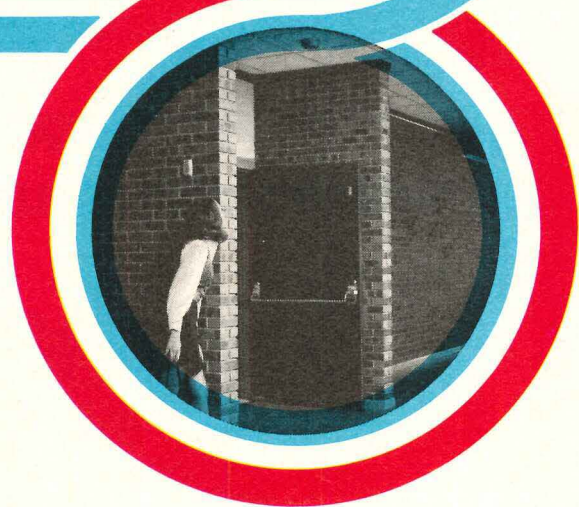


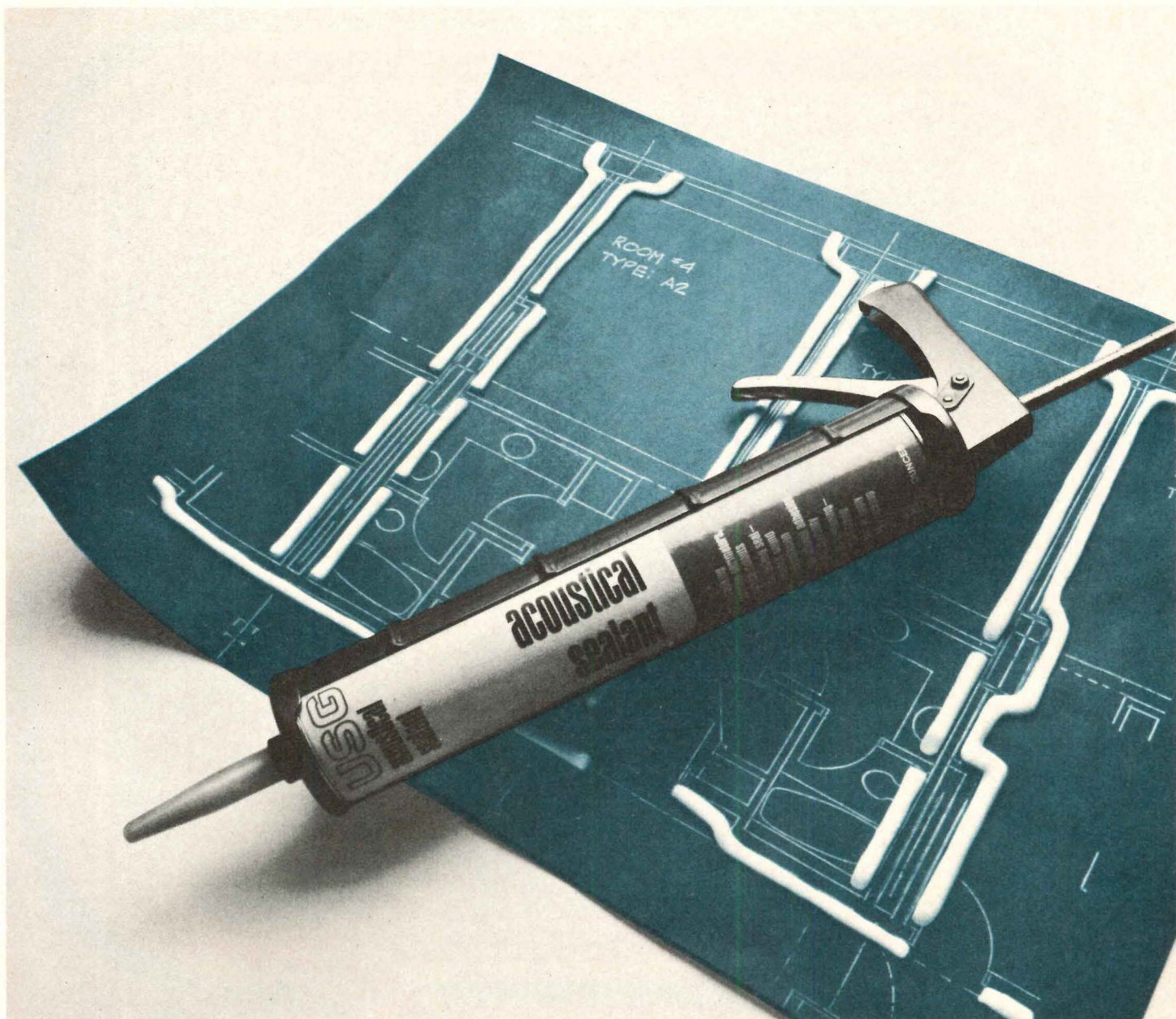
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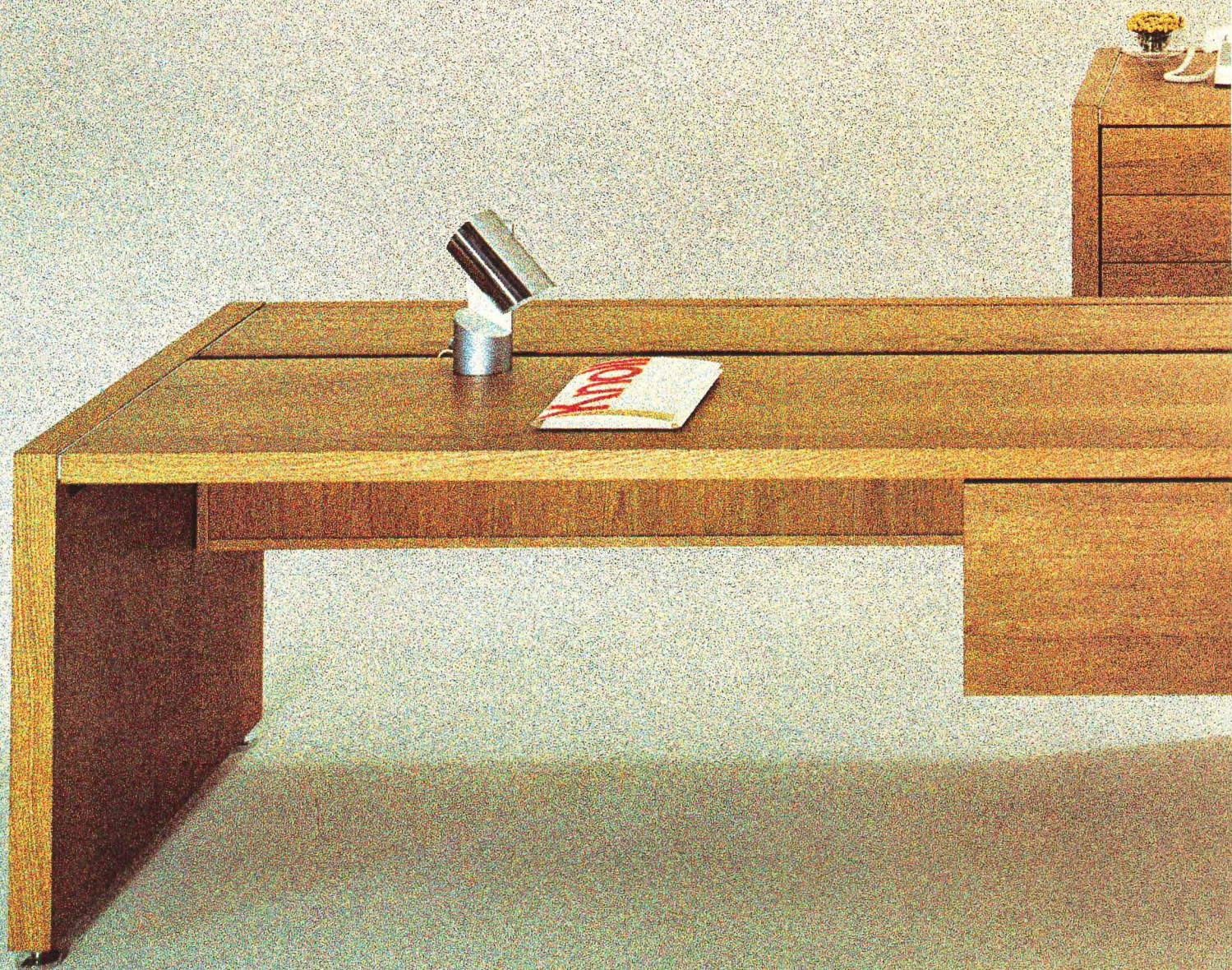
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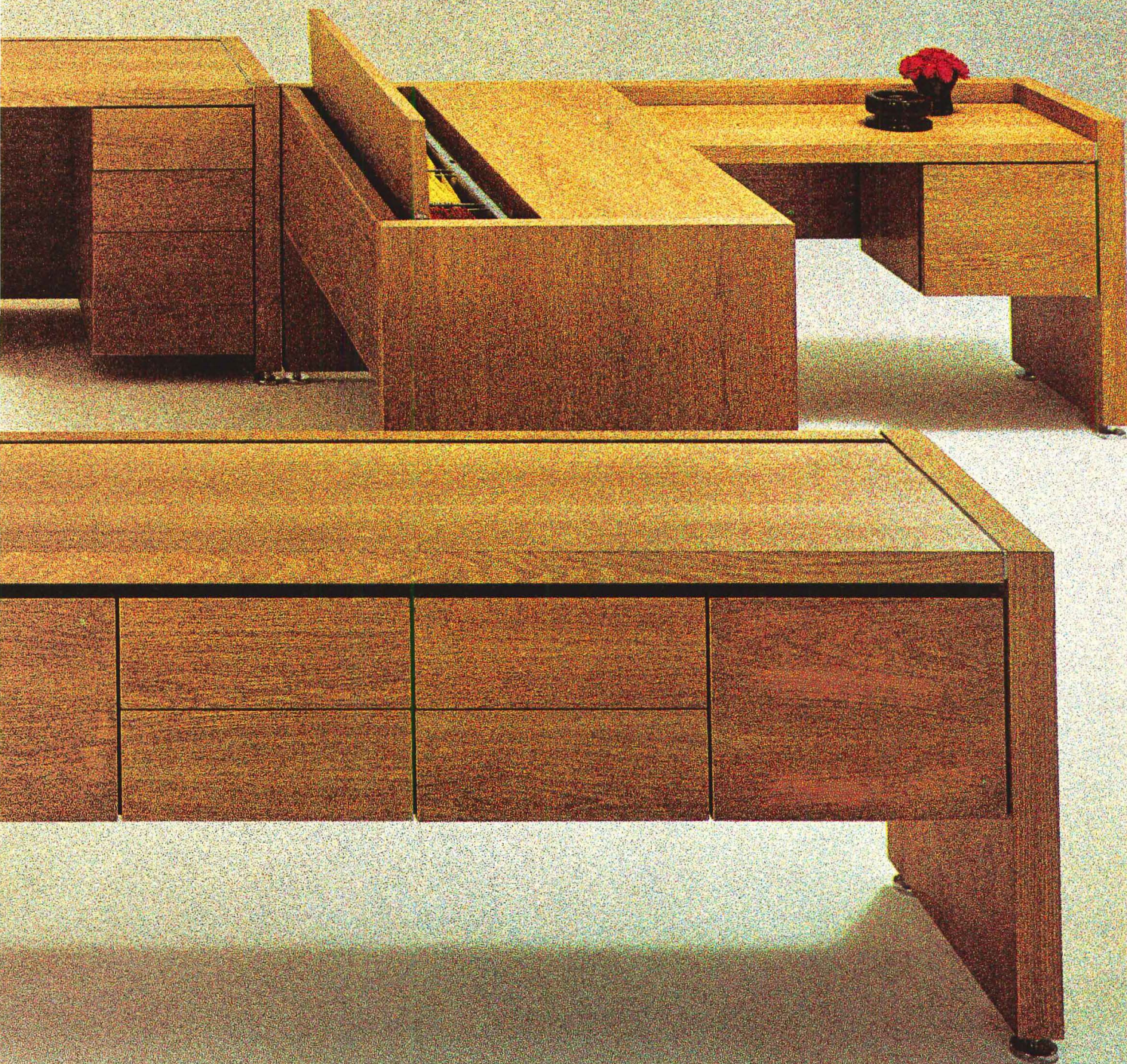
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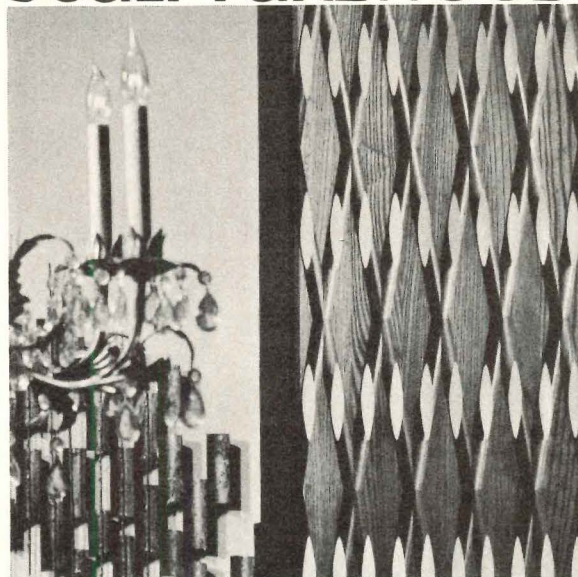


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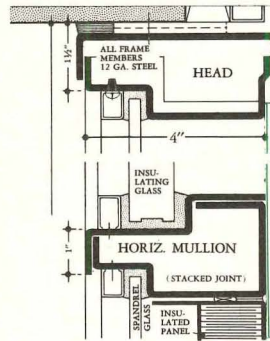
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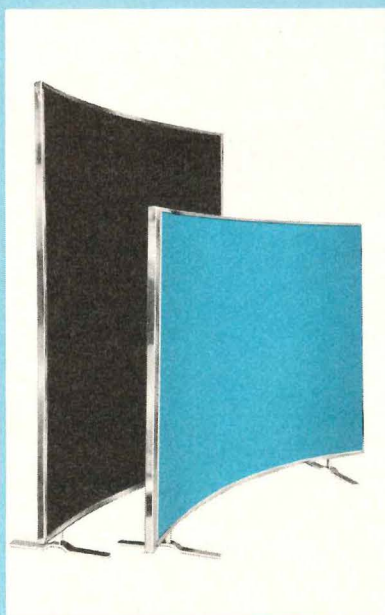
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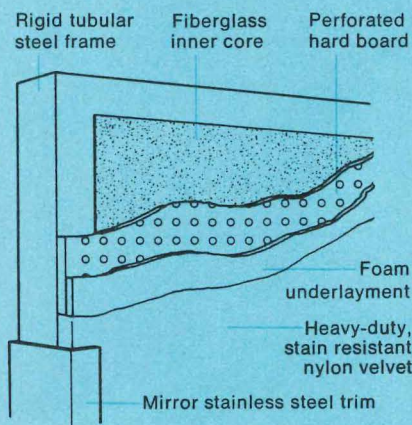
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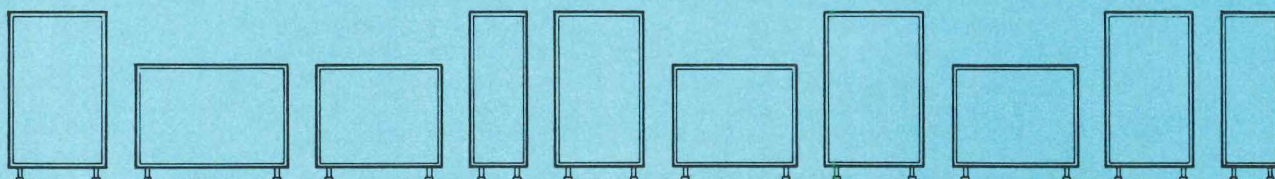
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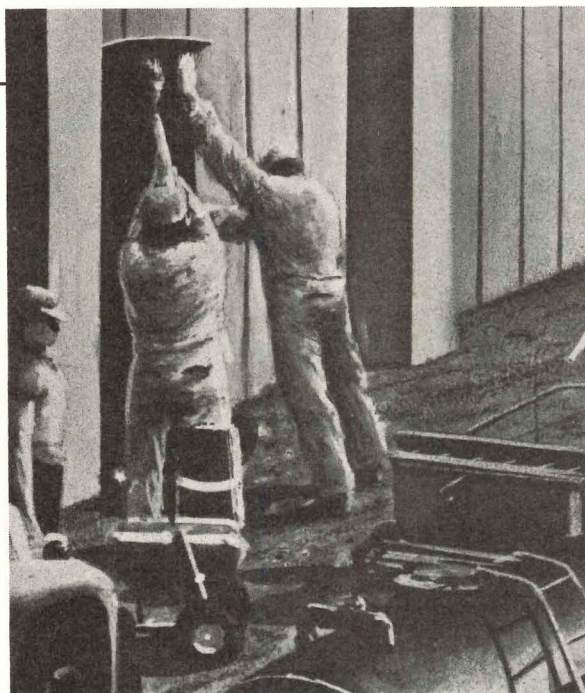
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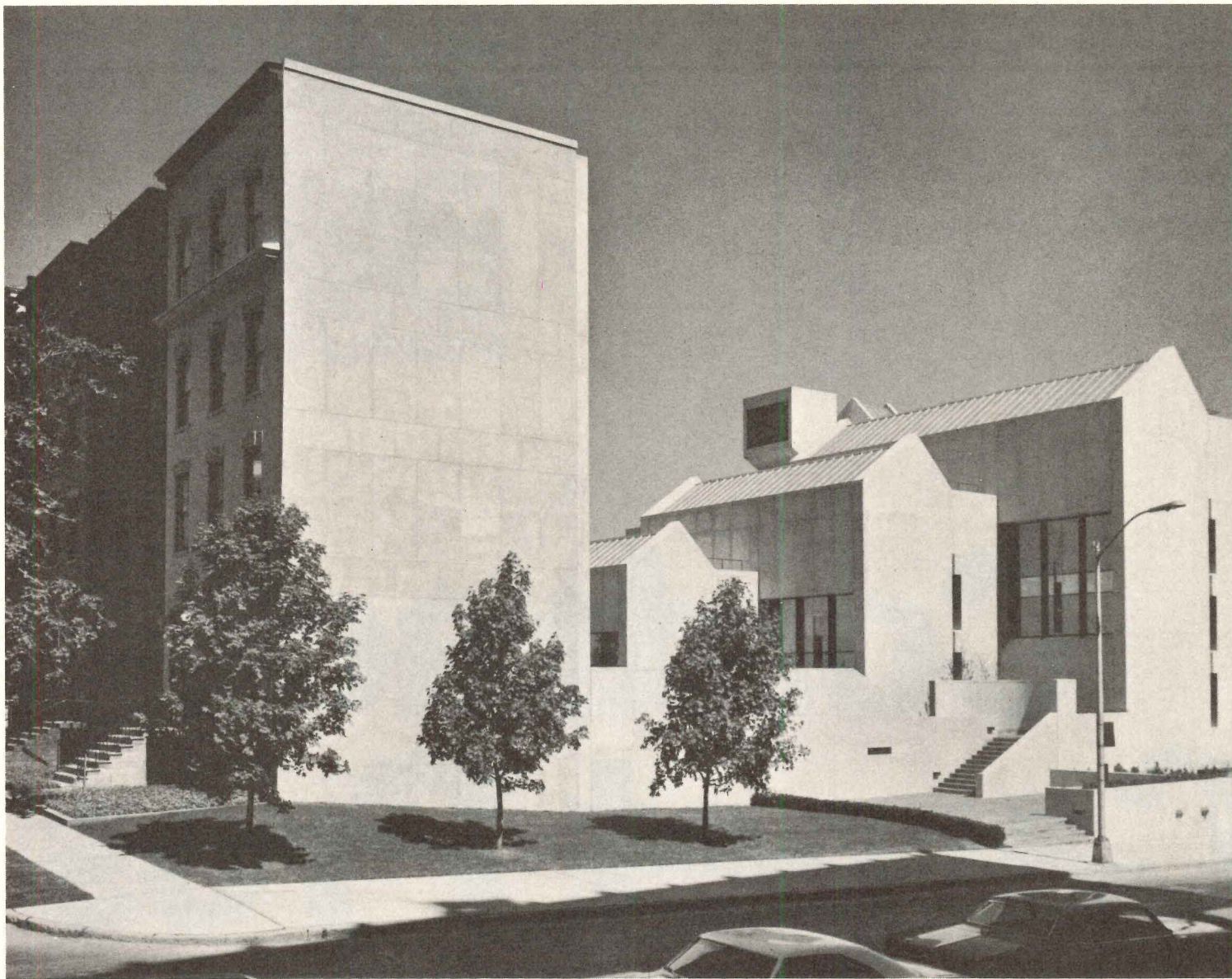




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Headquarters, New York State Bar Association, Albany, N.Y.

Architects: James Stewart Polshek and Associates, New York, N.Y.

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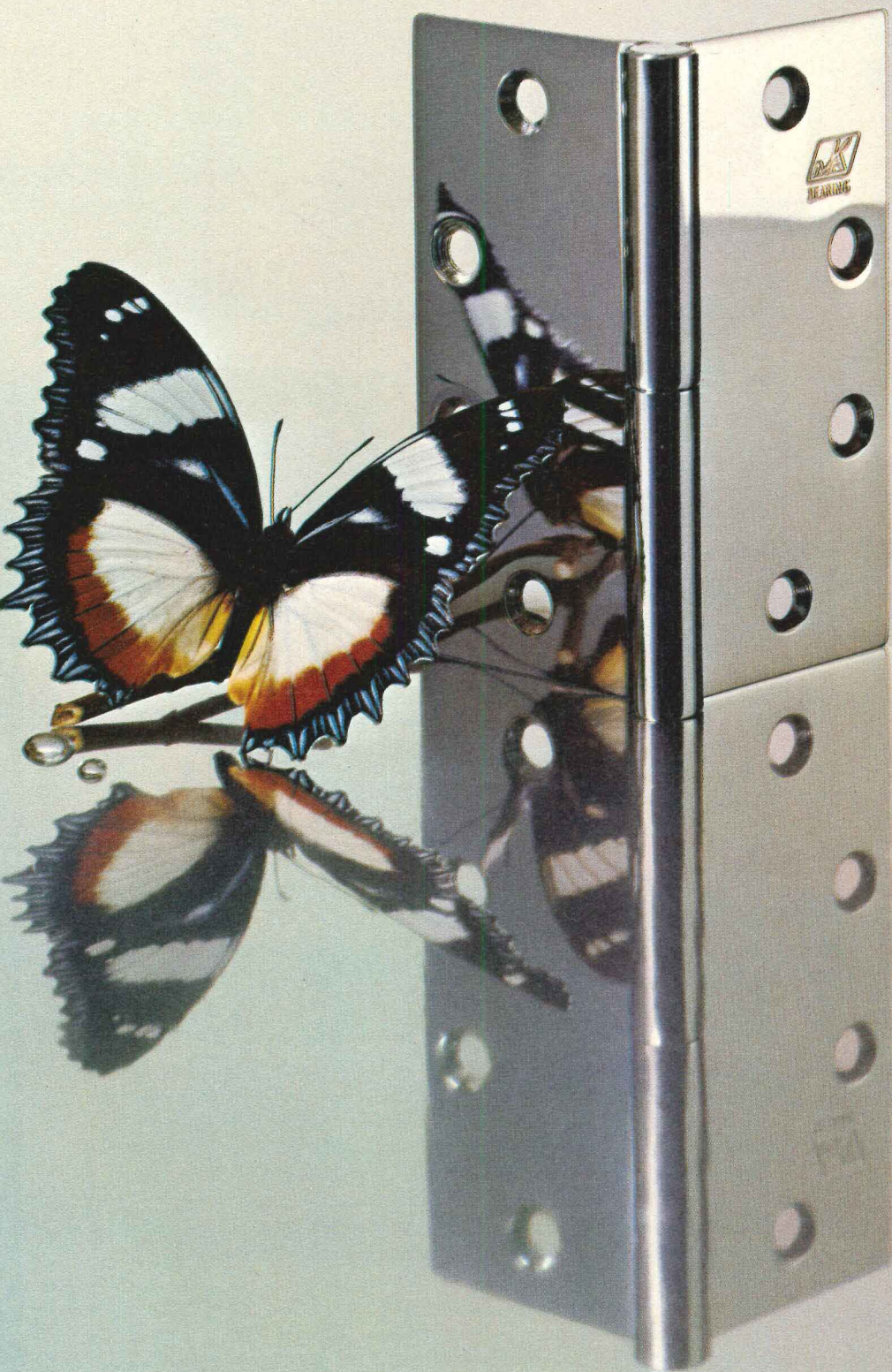
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Building over and under

March 1973

Living over the store has carried an even worse social stigma in America than coming from the wrong side of the tracks. It was okay for prosperous families in Europe to live above shops, with poorer neighbors upstairs, but the American (or Anglo-American) ideal has been to sort out functions and classes, each to its own parcel of land.

With the spread of zoning ordinances, circa 1920, this ideal took on the force of law, everywhere except in holdout towns like Houston and in the no-man's-land jurisdiction of the highway strip. The idea of rigid zoning was taken up back in Europe, as part of the Garden City planning vision, and it was in large part accepted by leaders of the Modern Movement. Sant'Elia did offer a different vision of a city with many layers—a vision perpetuated by science fiction illustrators ever since. And Frank Lloyd Wright—in all things both a champion of American traditions and a visionary rebel—built isolated, single-use structures by the score, yet gave us images of multilevel megastructures. (Remember his hive-like scheme for Pittsburgh's Golden Triangle?) In one building, the Price Tower in Bartlesville, Okla., (1953) he carried out an unprecedented scheme for mixing apartments and office space on every floor.

Yet even in the 1960s, when urban renewal spawned urban design, the effort had to start with a two-dimensional land-use map; public administration demanded an assigned use for every parcel. At the same time a new breed of "centers" appeared, expanding on the mix of uses tested at New York's Rockefeller Center back in the 1930s. Boston's Prudential Center (a 1960s version of a 1953 plan) combined layers of shopping and parking in a podium for office, hotel and apartment towers and set them all above a railroad and a turnpike.

By 1965, Marina City in Chicago had shown how far the stacking of functions could go, with layers (reading from top to bottom) of apartments/parking/roadways and plaza/shopping concourse and skating rink/marina and freight sidings. Chicago's John Hancock Center (1965–1970) carried the successful formula even further; here the worker on the 35th floor can stop at the 44th-floor health club for a swim on the way to his apartment on the 91st, then go to dinner up on the 96th. If he *has* to leave the building (to go to church?) he can find his car on the 12th.

In these city-core examples, maximum economic return on land is obviously the objective. But beyond the developer's

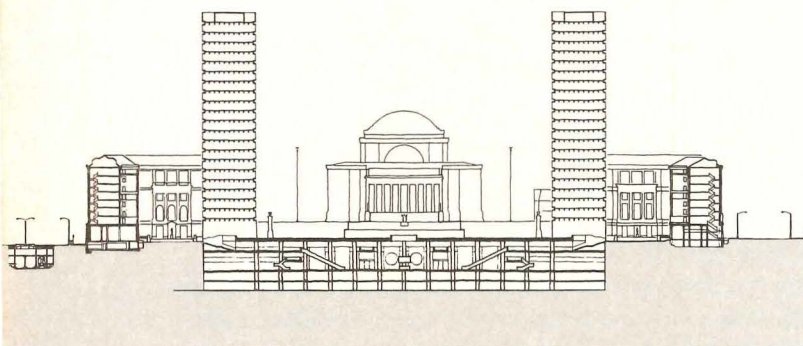
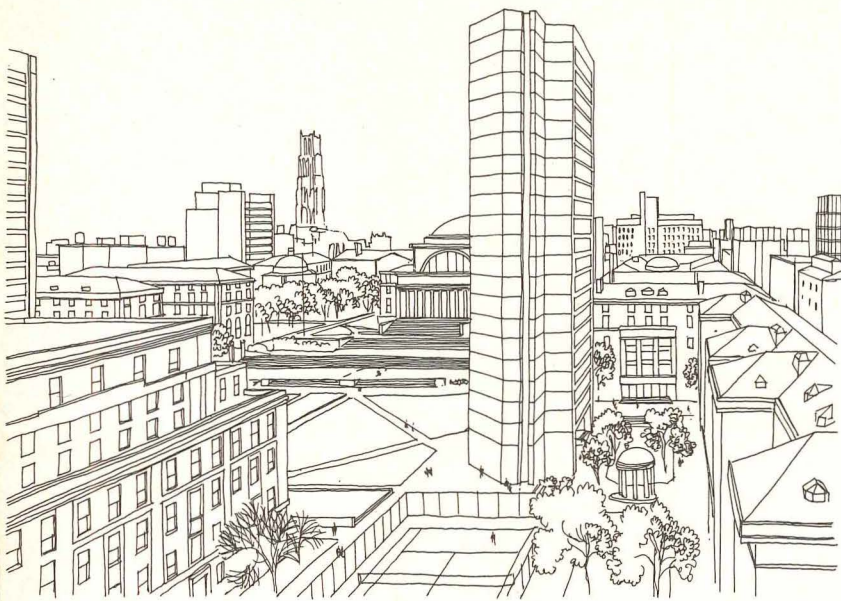
goals, the economy of the whole community benefits from round-the-clock use of utilities, streets, parking spaces, neighborhood shops, public facilities, etc.

The isolation of urban functions into assigned zones was a political act, and it often takes a political act to maintain or revive mixed use. The need is most obvious where a valuable existing mix is threatened by expansion of one single function. That's why New York City has recently established "special zoning districts" for several areas, including Times Square (where new office buildings incorporate new theaters) or Fifth Avenue (where shops at the base of new office buildings will keep this famous shopping district intact and apartments above the offices will bring residents back after decades of banishment). Careful political-administrative strategies also lie behind the plan for Boston's Tufts-New England Medical Center to replace a layer of shops, restaurants and theaters as it expands on upper levels.

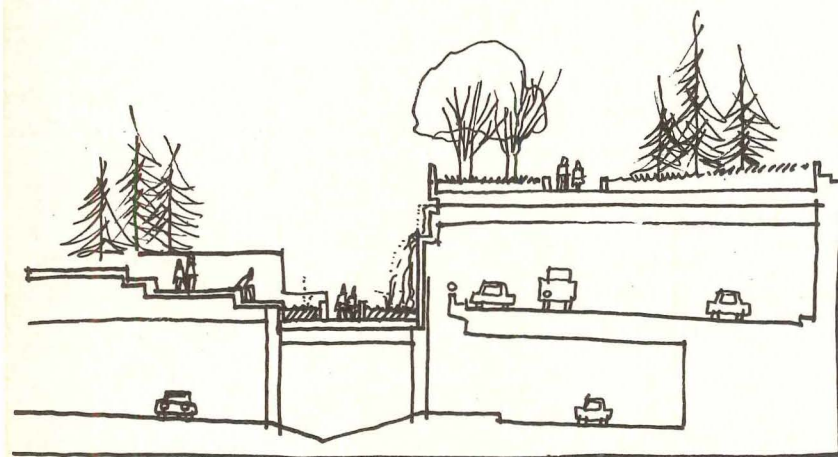
Government policy is also involved where functions are stacked to recoup the cost of land for vital facilities—schools, or fire stations, for instance—where these costs would impose an impossible burden. A New York firm experienced at putting apartments over schools cautions us (page 92) that it may be easier to work this economic equation if the uses are side by side; the cost of ingenious solutions can be high, especially in situations such as theirs, where design is hemmed in by a web of administrative regulations and approvals.

Campuses are a special case. Many universities are actually land-shy and cannot expand because adjoining land is too costly or social resistance is too strong. New York's Columbia University, whose incursions into surrounding turf have led to actual bloodshed, now has an imaginative plan by I.M. Pei & Partners that would put most new construction under its precious open spaces. Other campuses with plenty of available land have recognized that they cannot extend walking distances any further (or resort to cars for on-campus trips). To get a new facility at the center of action, they may build under a quadrangle, as at Vancouver (page 86) or, as at Winnipeg (page 80), build over existing buildings to avoid the cost and disruption of the usual demolish-rebuild sequence.

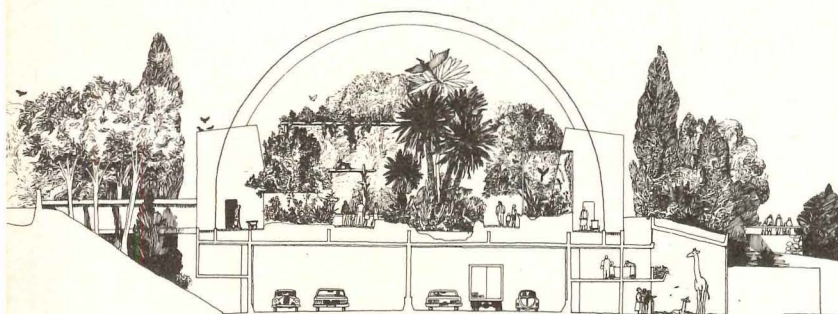
There are still other situations to be salvaged, opportunities to be exploited by building over or under an existing situation. The use of underground space in the revival of the urban core is demonstrated in both of this year's top P/A Design Award



Columbia University, New York, 1970 plan by I.M. Pei & Partners.



Seattle Freeway Park, Lawrence Halprin & Associates.



Conservatory, master plan for Seattle Zoo, G.R. Bartholick, Architect.

winners, one for Oklahoma City, one for Brooklyn (Jan. issue). In downtown Seattle, a 4½-acre park is under construction over a freeway, to make up for the acute lack of park space and to link an office concentration to an apartment district. In another part of Seattle, a zoo structure is planned to span a road, joining together two halves of a severed park. A clinic in Columbus, Ind. bridges a river to give residents on both sides equal access and preserve park strips along both banks.

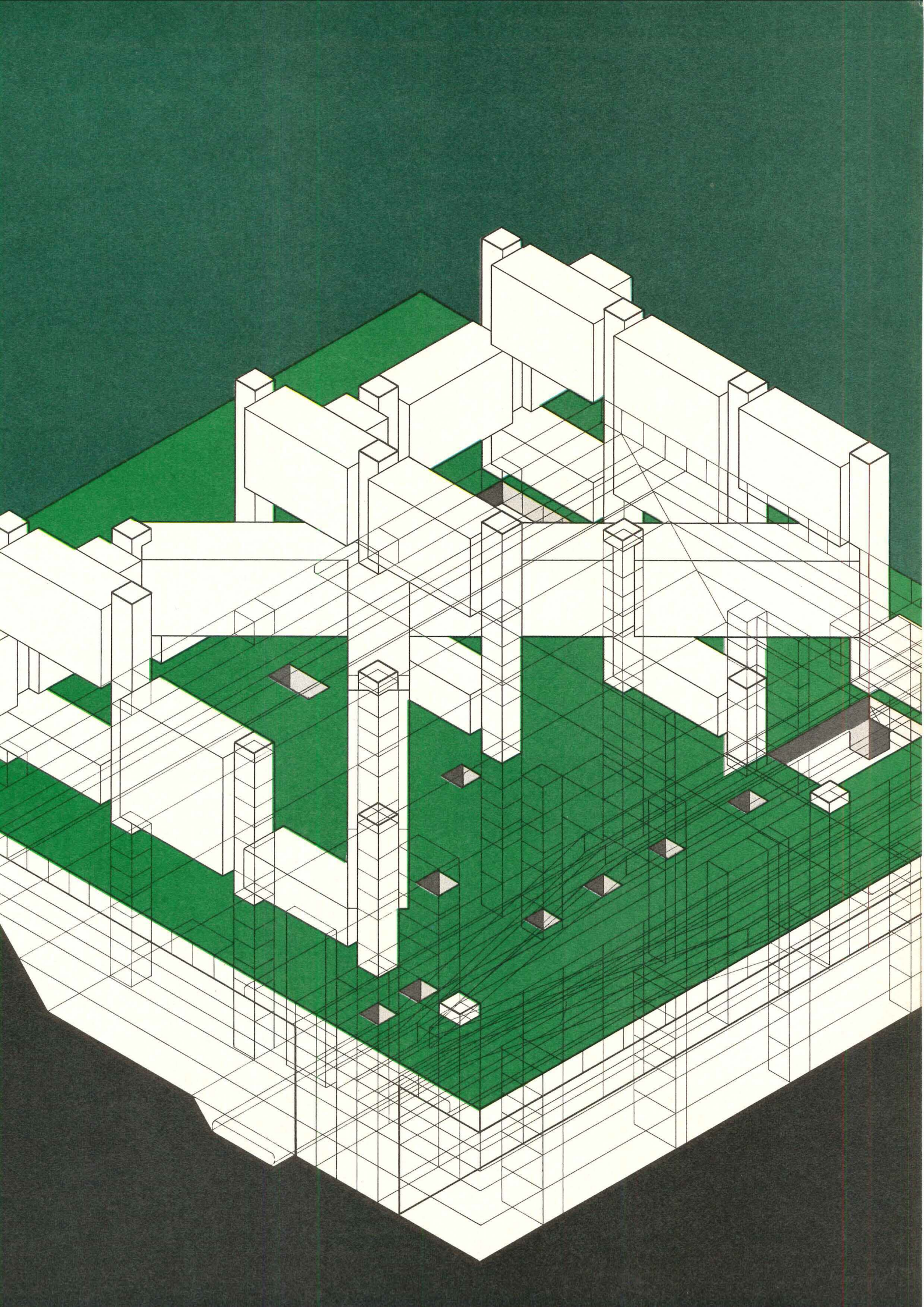
Adding layers of functions can help accommodate the demands on a typical suburb as its density rises. Offices and shopping concourses have gone up over and around railroad stations. Sprawling shopping centers could be turned into a complete economic-residential center by superimposing layers of housing and offices.

On the following pages, the potentials of building in layers are illustrated with two exceptional completed buildings, an ongoing urban development and some audacious proposals. All of them are notable for their ingenuity, an element of such schemes that is bound to intrigue us all. But the buildings we have selected show more: they demonstrate ways in which the layered arrangement can be made visually apparent—either subtly or dramatically—and they show how the vertical links necessary in any such schemes can be made exciting, revealing experiences for users.

The advantages of organizing our built environment in layers are beyond question. Many of us would welcome the chance to make the daily trips to work, to school, to the store by elevator instead of road or rail. We have had the technology for a long time. It is only the conventions of city planners, zoning boards, tax assessors, building departments, and real estate interests that keep our community functions segregated. But these obstructions will give way; building in layers presents potentials we cannot afford to pass up.

John Morris Diefen

Urban concentration over utility-transportation-industry conduit. Planning proposal by Gunnar Birkerts, Architect (see next page).



Liberating land

A blueprint for urban growth by Gunnar Birkerts & Associates would return land to human use by concentrating utilities, transportation, storage and industry in underground conduits

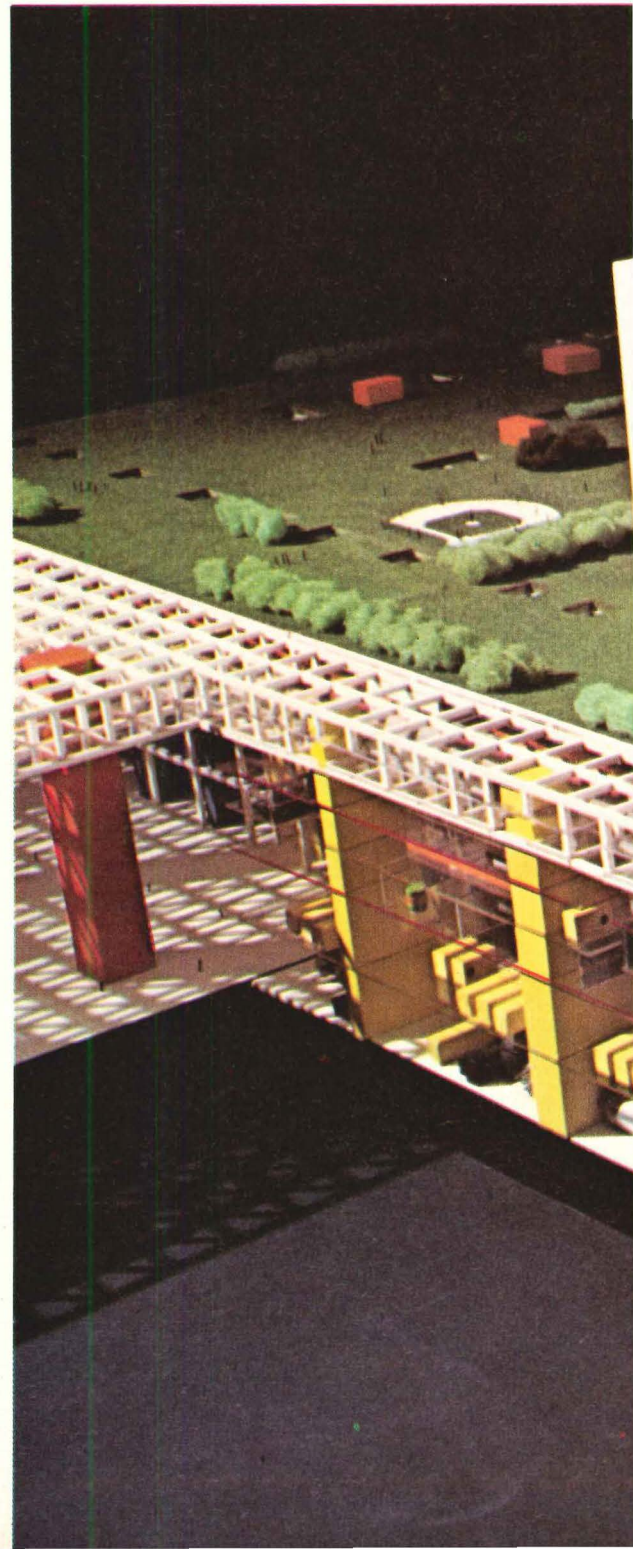
An aerial view of any urban region in our industrialized world shows vast tracts given over to highways, railroads, freight yards, warehouses, factories, parking lots, power stations and waste disposal plants. These tracts of mechanical paraphernalia, with low and declining levels of human occupancy, not only consume valuable space at the cores of our cities, they also form divisive barriers between areas of human activity, blighting some of them with noise and fumes.

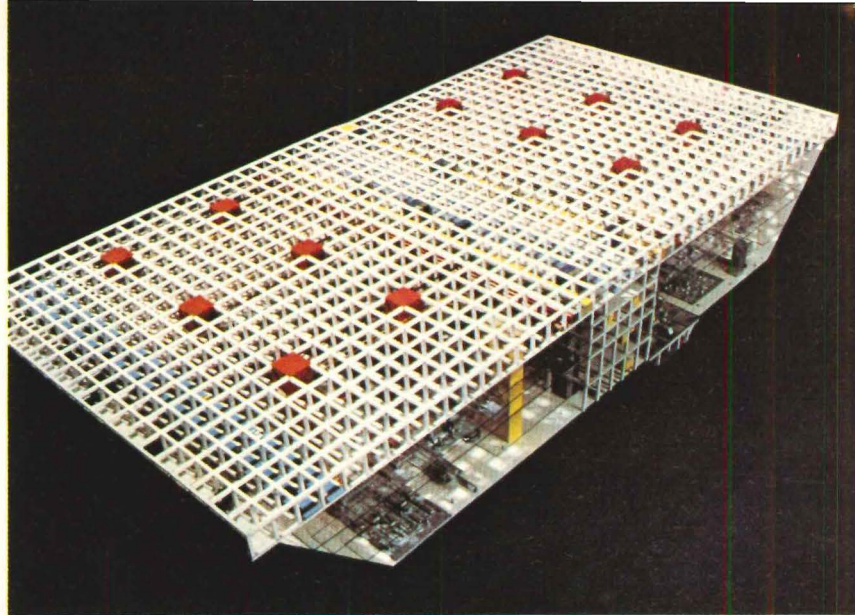
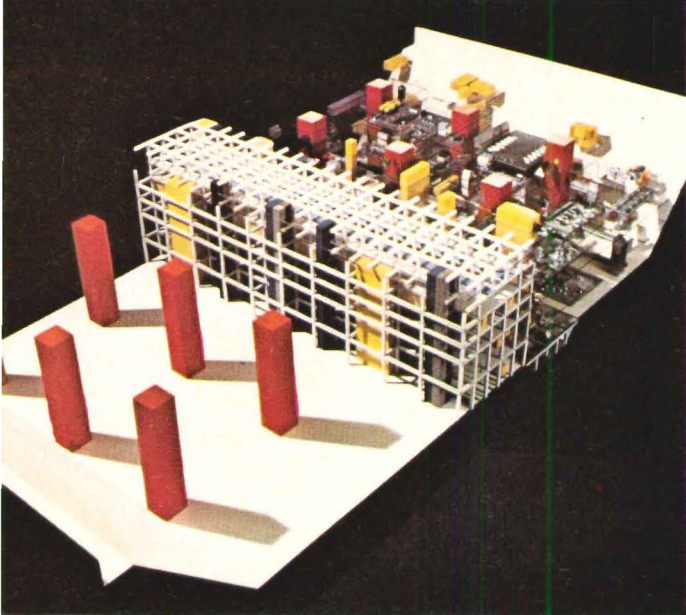
Disturbed by the sheer wastefulness and ugliness of this situation, architect Gunnar Birkerts decided, two years ago, to design an alternative urban landscape. Up to that time, the firm of Gunnar Birkerts & Associates had dealt mainly with individual buildings. The decision to do an independent planning study was undoubtedly prompted by the firm's "layered" concept for the Federal Reserve Bank at Minneapolis, now near completion. The bulk of its volume is below ground, the rest in an office slab suspended between two slim towers, leaving a virtually uninterrupted plaza at pedestrian level.

With a grant from the Graham Foundation and the help of several University of Michigan students working for credit at the Birkerts office, the firm has developed a prototype plan for an urban district of three million people. What they propose is to banish all large-scale mechanical functions from the surface and house them in huge underground "conduits," freeing the areas above and around them for residential, commercial and social functions.

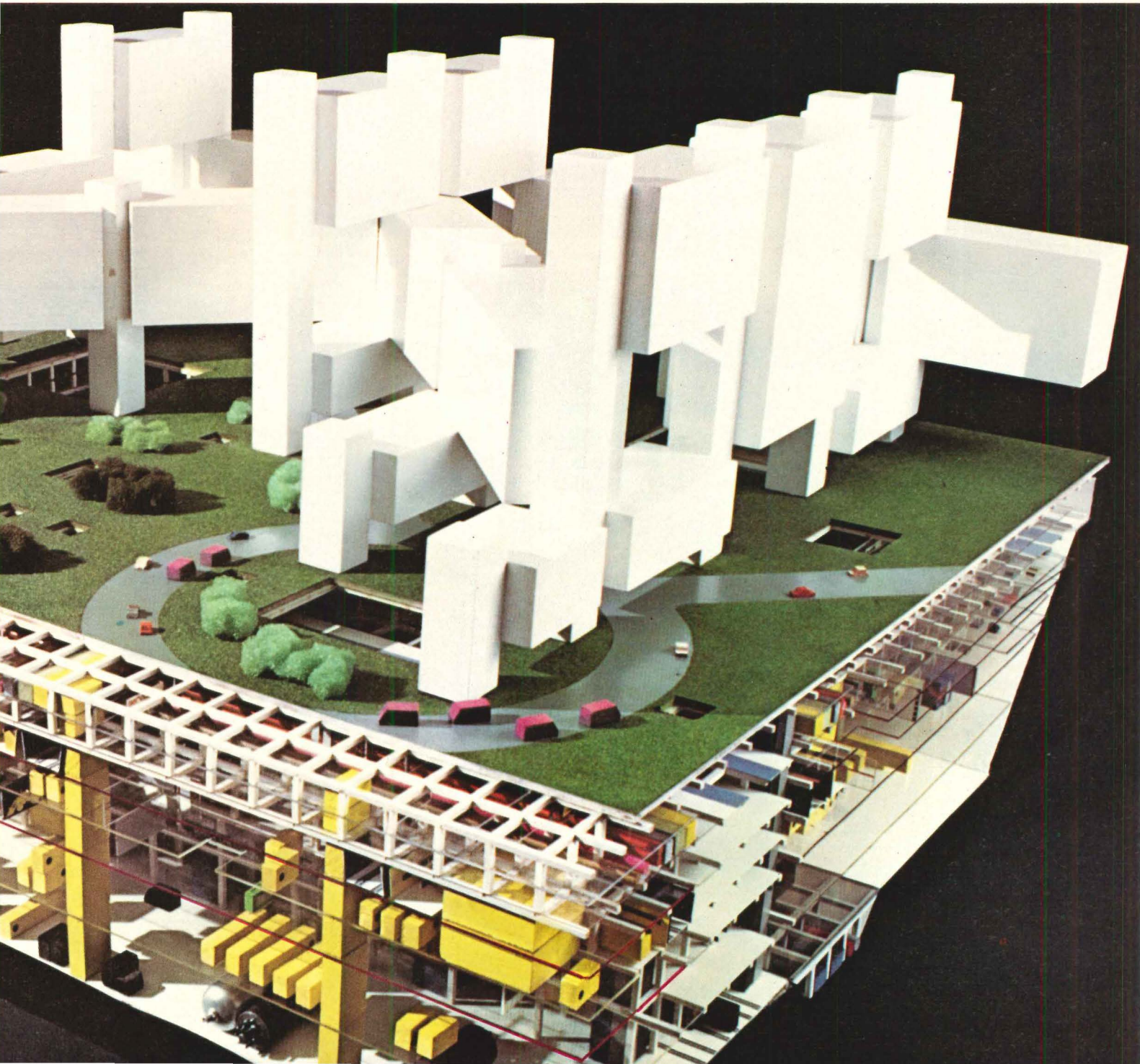
These conduits would form a framework for regional development on a radial pattern, stretching out along transportation lines to neighboring centers. Following this historical pattern, the conduit systems could be applied in new cities or grafted onto present ones. In existing urban areas, the scheme could be introduced in new peripheral development, then be extended gradually in toward the core, replacing existing facilities in stages. The original core would become in the end a mere interchange and symbolic center, with no greater intensity of development than other points along the conduits.

Above-ground development would be concentrated heavily along the conduits; location of virtually all industry within the





Typical portion of Birkerts conduit is organized around a utility-transportation spine (above). Vertical structure-circulation cores serve industrial or storage spaces inside the conduit and support the grid that covers it (above right). Cores can be extended above the earth-covered grid (below) to carry air-rights housing and offices.



Liberating land

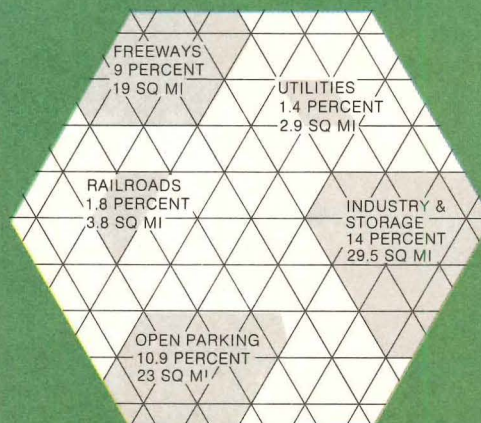
conduit and about 60 percent of all living units directly above it would concentrate the requirements for power and waste disposal (which would include gaseous waste as well as liquid and solid) in the conduit corridor, minimizing the capacity of utility lines extending out from it. Waste generated in off-conduit neighborhoods would not be directed back to the conduit, but treated locally.

Surface traffic in and between neighborhoods, by automobile or other form of personal vehicle, would be largely isolated from the cross-country highways inside the conduits. It would be easy to park the vehicle inside the conduit, approaching from either inside it or outside, but interchange between the two networks of movement would not be easy.

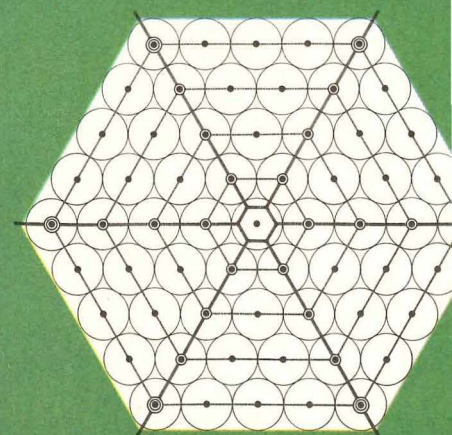
Thus transfer to public transit lines for long trips would be encouraged and the local system would be freed of most long-distance traffic. Use of the surface system for cross-region trips would be further discouraged by the layout of the surface road network, which would join neighborhood centers with the least mileage of road, rather than providing direct point-to-point connections between them.

The equal accessibility to utilities and transportation throughout the urban area, and the equal freedom from surface traffic and air pollution would tend to level out the physical distinctions between areas that now cause so many workers to make extended trips between home and job. It would be possible in this scheme—and desirable—to live in high-

Plan for a prototype city of 3 million, on an area 18 miles in diameter, places space-consuming services (near right) in radial "conduits," which contain main transportation, goods movement and utility lines. "Communities" of 1-mile radius are subdivided into "neighborhoods" of 1/4-mile radius. Green belts above conduits and bands of open space between neighborhoods will be supplemented by larger parks interrupting the pattern.

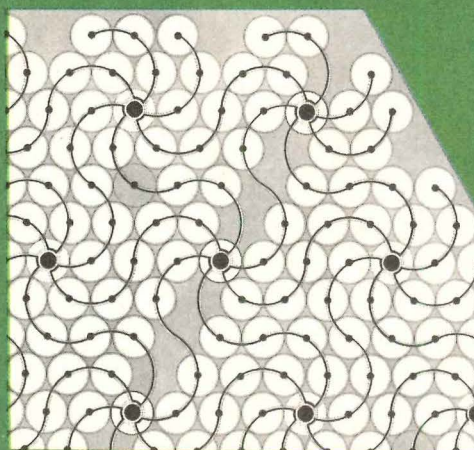


2-MILE EQUILATERAL GRID
COMPARATIVE LAND USE, EXISTING CITY

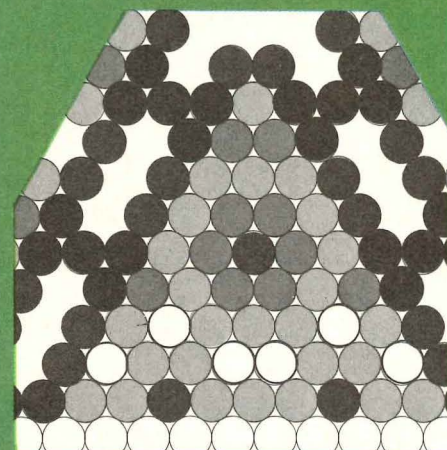


BIRKERTS CITY, SUBSURFACE TRANSIT LINES,
NODES AND COMMUNITIES

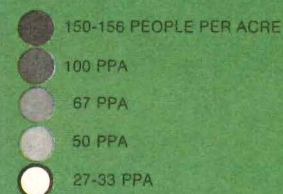
Surface transit lines link neighborhoods to transit nodes along curves that leave traffic-free green bands between neighborhoods. Residential density is concentrated, with commercial activity, around transit nodes, with lower densities in outlying neighborhoods. Schematic variations in population would give way to a "buckshot" pattern during actual development; schematic geometry of the plan would be adapted to geography.



DETAIL: SURFACE TRANSIT NETWORK



SCHEMATIC DENSITY BY NEIGHBORHOODS



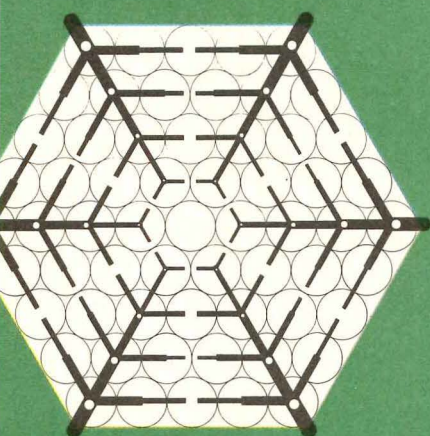
density housing directly above the job or in close-by areas of lower density.

The neat geometry of the Birkerts plan is, of course, purely conceptual. In actual application, the plan would be adapted to demands of existing transportation lines and terrain. The whole 200-ft depth of the conduit would not necessarily be below present grade. It could rise above ground to avoid difficult rock conditions or cross underground streams; more often the conduit would be partly above existing grade, with excavated material used to create a new landscape around it. Nor would the width of the conduit be a constant 1000 ft. Where it met difficult geological conditions it would be narrowed down to the 150-ft central spine; where it passed

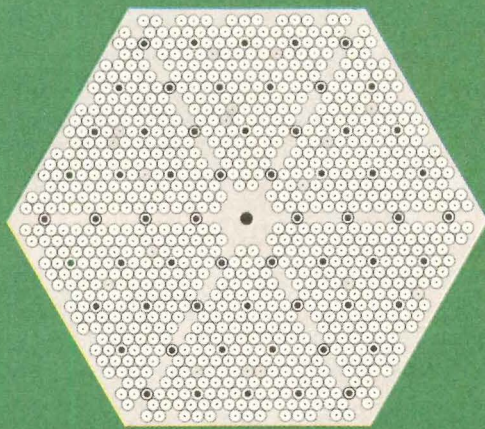
through existing neighborhoods, the spine would be built first and the conduit broadened in stages, as existing development was replaced.

The task of excavating and earth-moving would obviously be formidable, but Birkerts is convinced that they are "well within our present technological capabilities." He points out that, while the U.S. has applied large-scale excavation techniques largely to strip mining and highway construction, building underground has advanced further in Europe. Sweden is reported to have spent over two billion dollars on underground installations including a number of large factories.

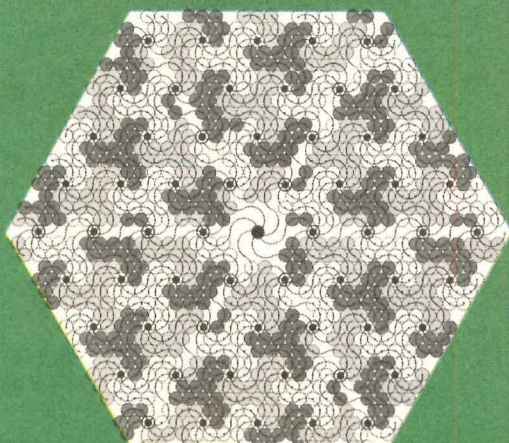
Birkerts could be accused of understatement when he observes that executing his scheme in the U.S. would demand



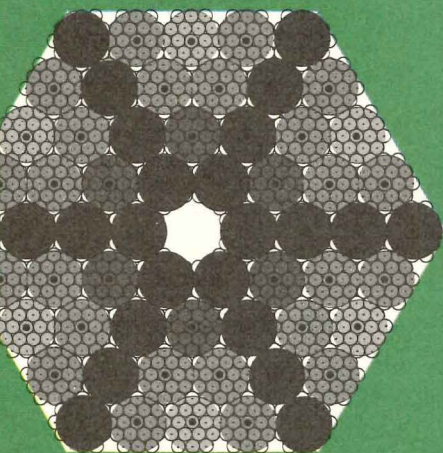
Y DISTRIBUTION



NEIGHBORHOODS AND OPEN SPACE NETWORK

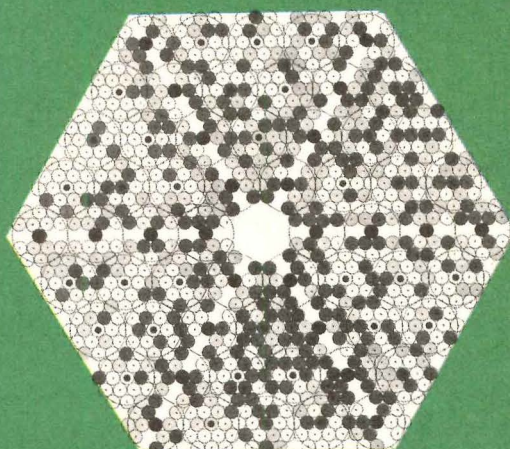


TRANSPORTATION NODES AND
SURFACE TRANSIT NETWORK

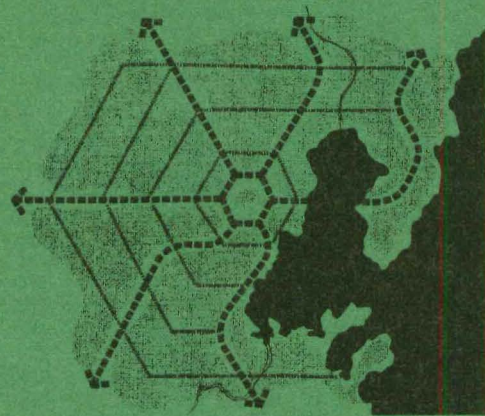
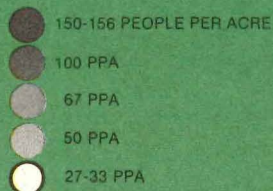


OMATIC POPULATION BY COMMUNITY

70,000 PEOPLE
50,000
40,000
30,000



POSSIBLE ACTUAL DENSITY PATTERN



GEOGRAPHICAL ADAPTATIONS

Liberating land

"a bold commitment of government on local, state and, perhaps, federal levels." Public controls over planning of highways and utilities, zoning ordinances, etc., would have to be integrated to an unprecedented degree across whole regions. The conduits themselves would have to be public property, within which space would be leased to private industries, railroad companies, state highway authorities, etc.

Birkerts has not calculated the cost of the conduit system, but is certain that it would take a commitment comparable to the interstate highway program at national scale or the TVA at regional scale. Construction costs of the conduits would have to be compared, of course, with expenditures on highways, utilities and other hardware they would replace, plus the innumerable isolated structures used for power production and control, warehousing, manufacturing, etc., each of which must now have its own road and utility connections, its own heating and cooling equipment. Private companies could lease as much of the interchangeable conduit space as they required for heavy processes, storage, parking, information retrieval systems, etc., linking it directly to their own surface buildings (on leased surface area above the conduit) where offices and employee service facilities would be located. Operating costs would be lowered by the natural insulating value of underground space and the elimination of the need to protect each activity separately from weather. Cost of the conduit would also have to be weighed against its useful life, which could extend "hundreds of years," during which partitions and services inside it would change continually.

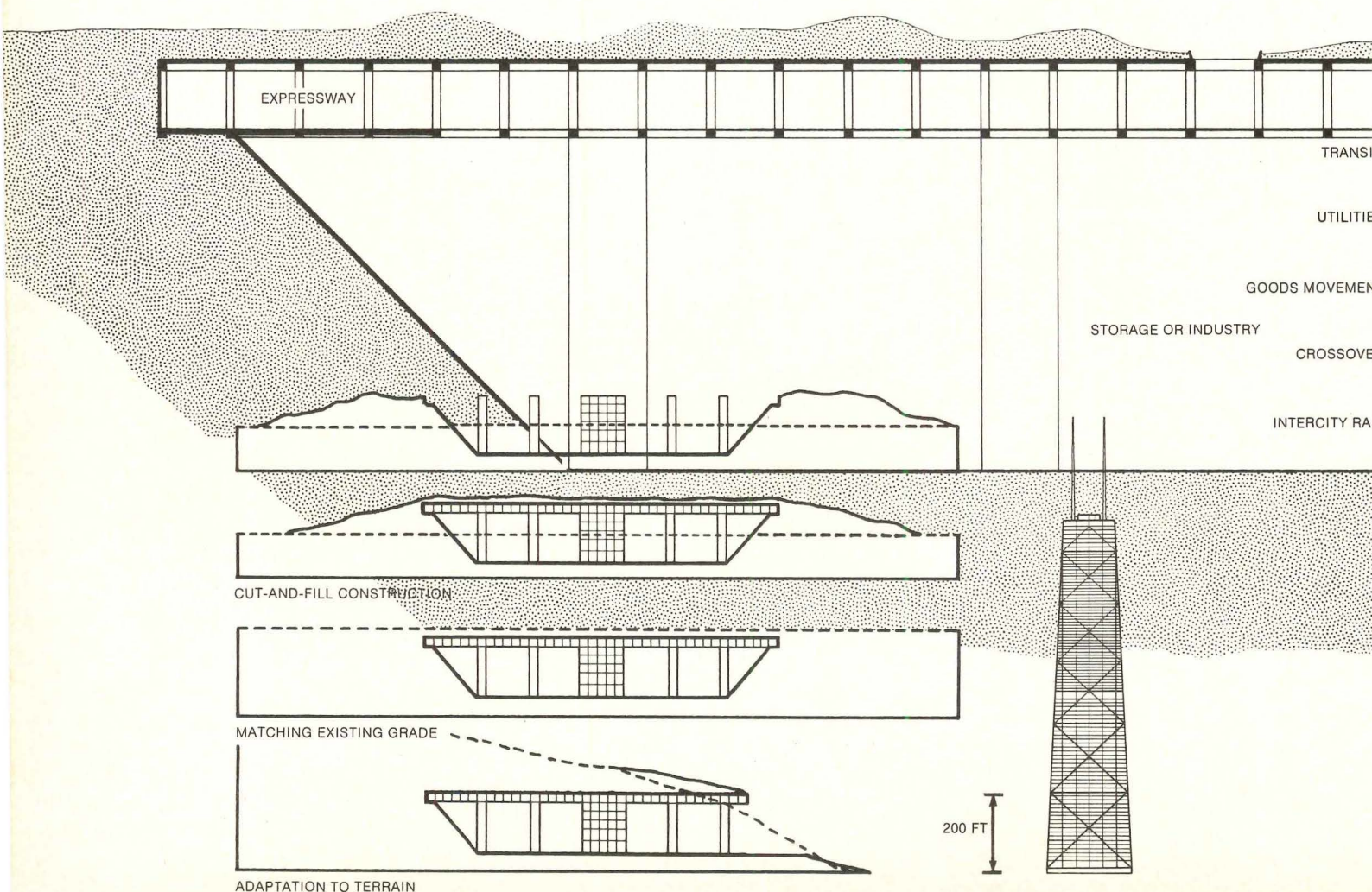
The Birkerts office and University of Michigan students are now working out details of the scheme as applied to a real lo-

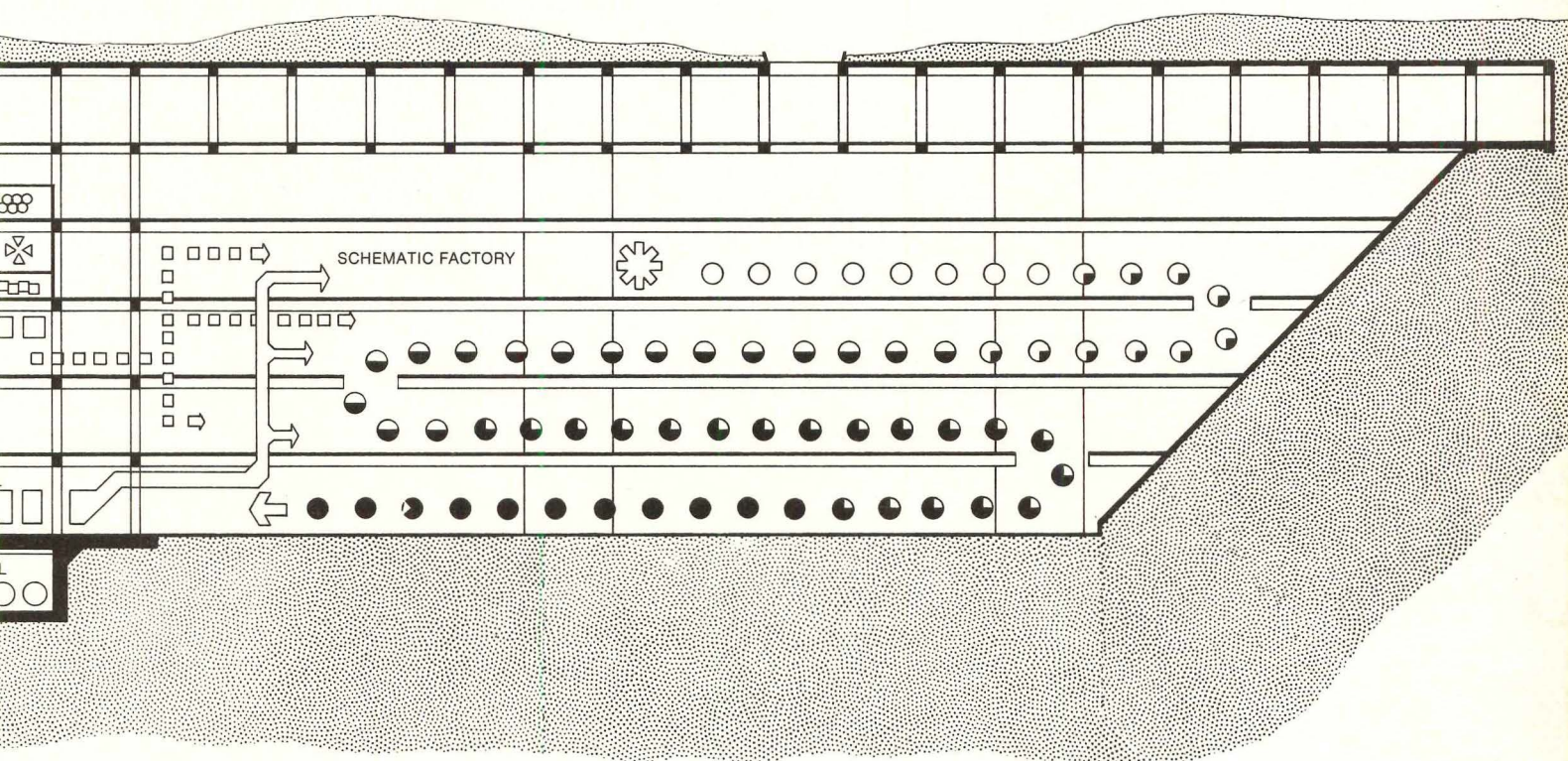
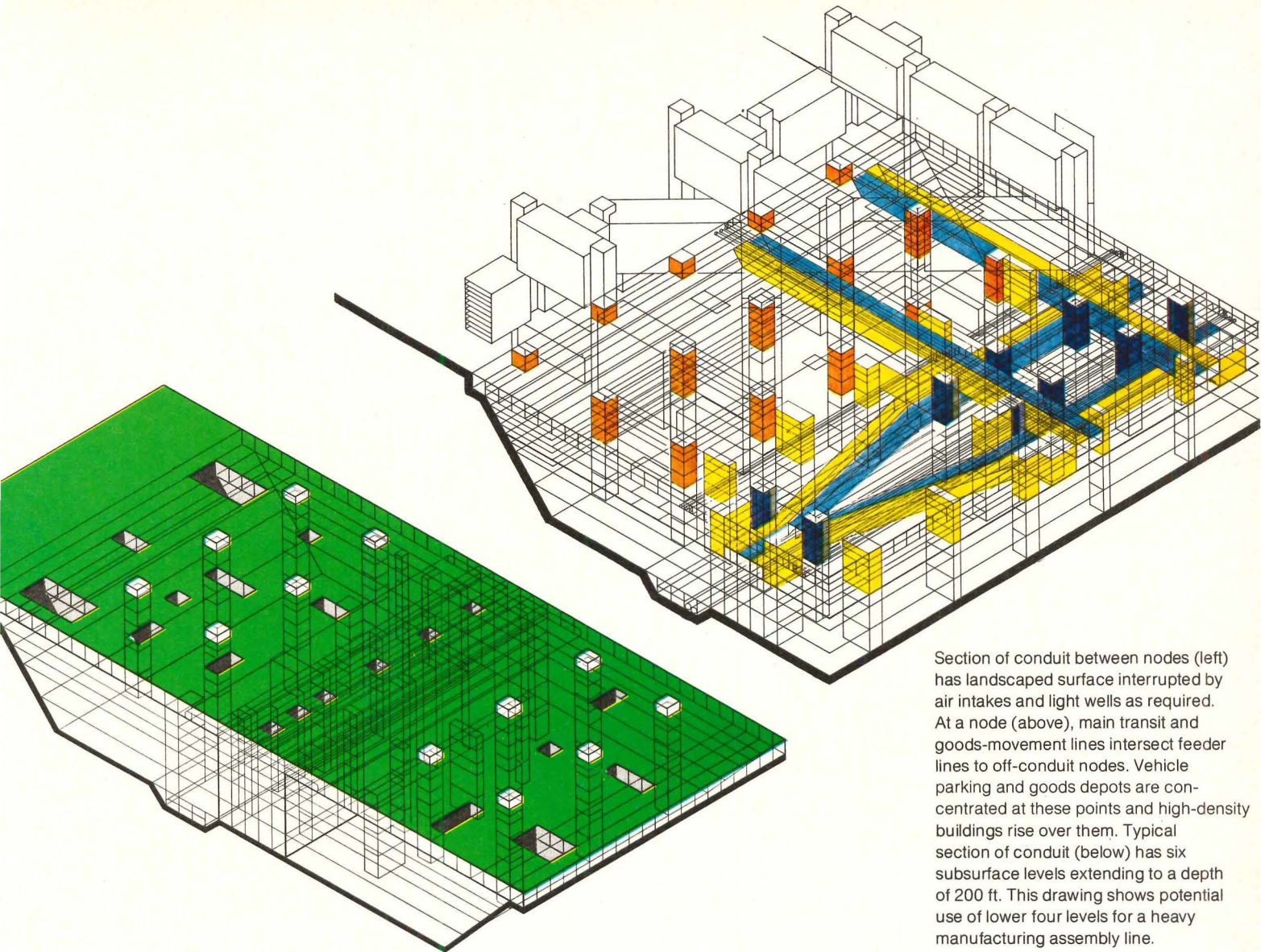
cation, starting with a portion of the Detroit-Ann Arbor corridor. The smallest feasible increment of conduit, they estimate, would be a two-mile section; that would have to join existing highway and rail lines at both ends and would be too short for a self-containing public transit system.

Birkerts is convinced that we can reconcile our conflicting demands for land only by building in layers. His conduit scheme carries that notion to an extreme, idealized limit, and he realizes it may be greeted with skepticism. The vast volumes and obvious costliness of the conduits are staggering at first exposure, yet they represent space and facilities that we are already building in any case—in a fragmented, inefficient way. Indirectly, the study presents a plea for miniaturization of our mechanical systems, reduction of excessive movement and storage through tighter programming.

Whether his scheme is adopted literally or not, Birkerts sees intense, multiple use of land as the only way we can renew our existing cities—with existing institutions and employment opportunities—and avoid the immeasurable costs of abandoning them for new sites. As a regularly spaced, invisible service grid, his conduit system, he predicts, could eliminate physical barriers that divide the land into favored and less favored areas and could make all of the urban landscape fit for human life. [JMD]

Credits: Gunnar Birkerts, Architect, supported by a grant from the Graham Foundation for Advanced Studies in the Fine Arts and assisted by six graduate students from the 1971 class and four from the 1972 class at the University of Michigan College of Architecture. Photos: Gary Desmond.

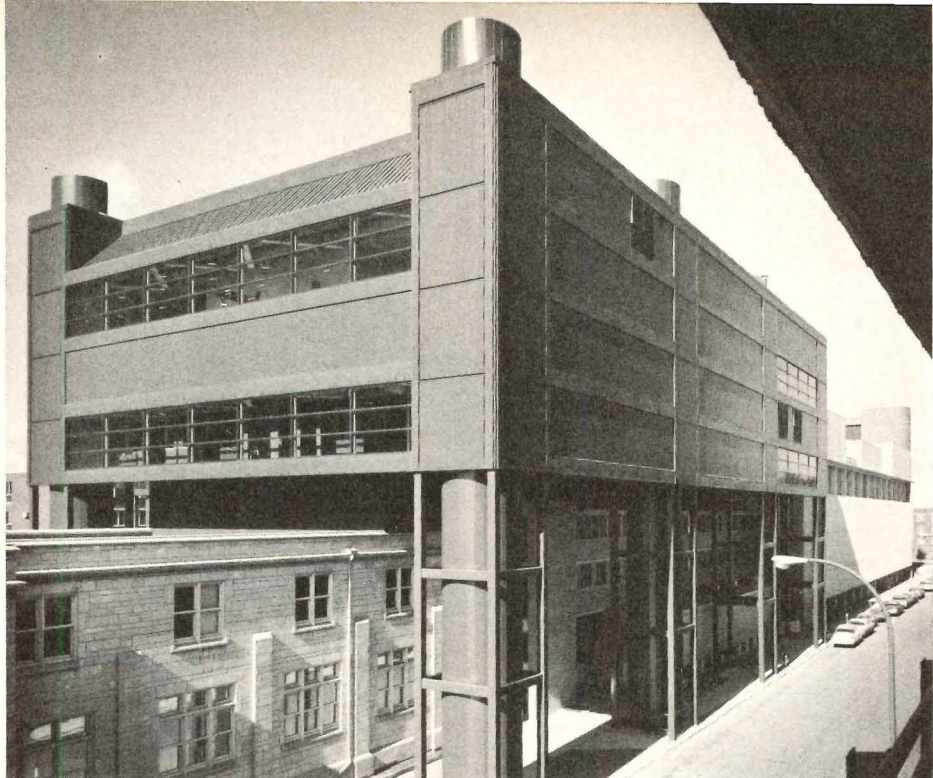




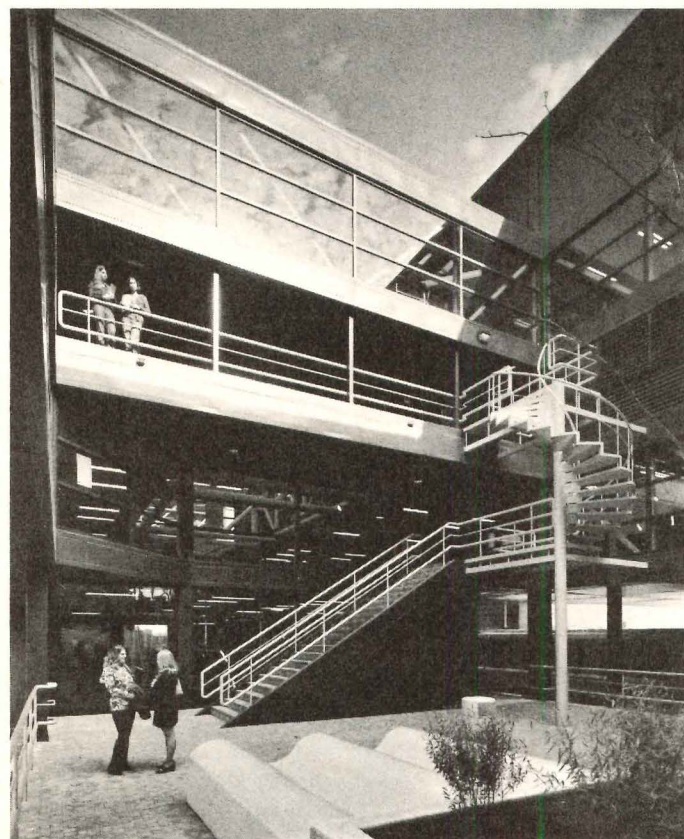
University of Winnipeg

Without grounds



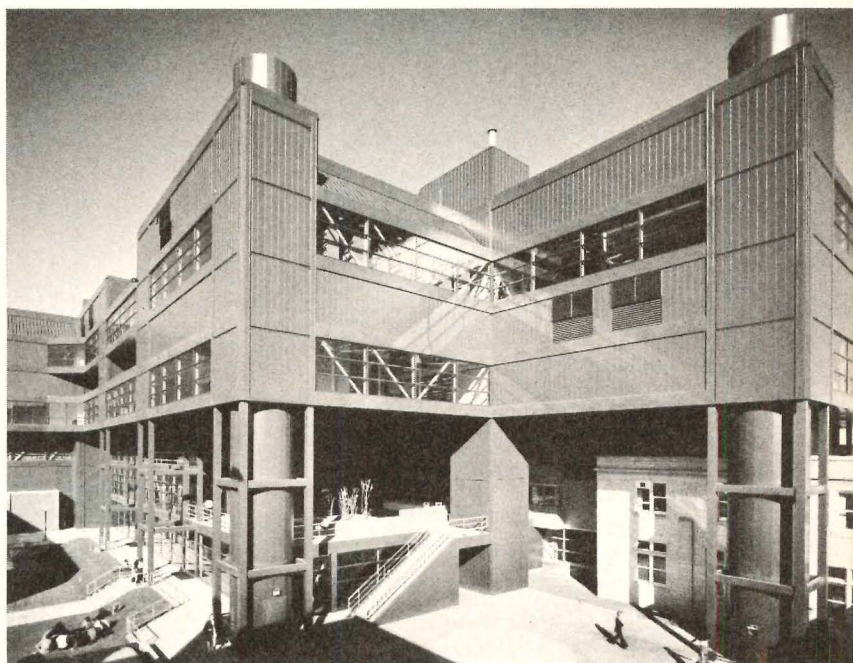


Along the street (right), tubular legs carry Centennial Hall over Bryce and Ashdown Halls. Third floor courtyard (below) opens to the sky, overlooks a second floor courtyard and the open areas at the main student entry (below, right).



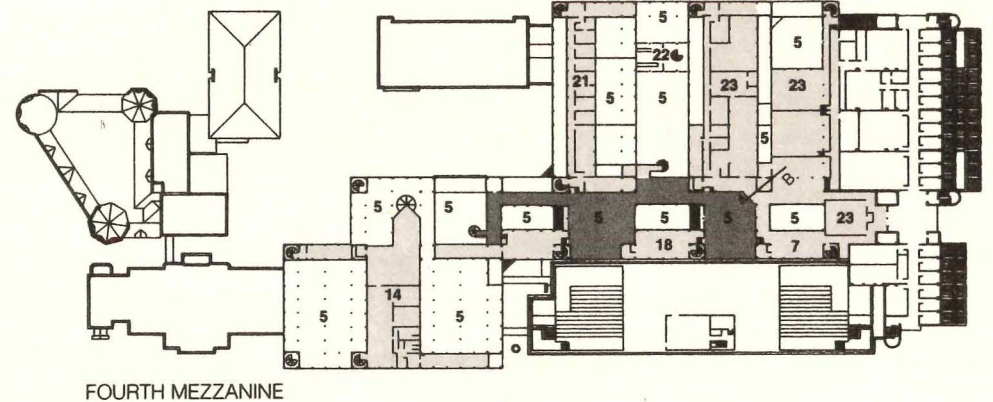
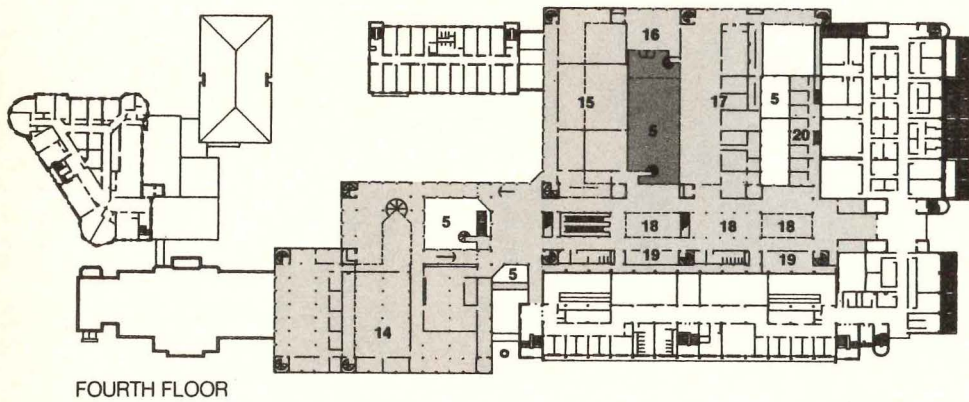
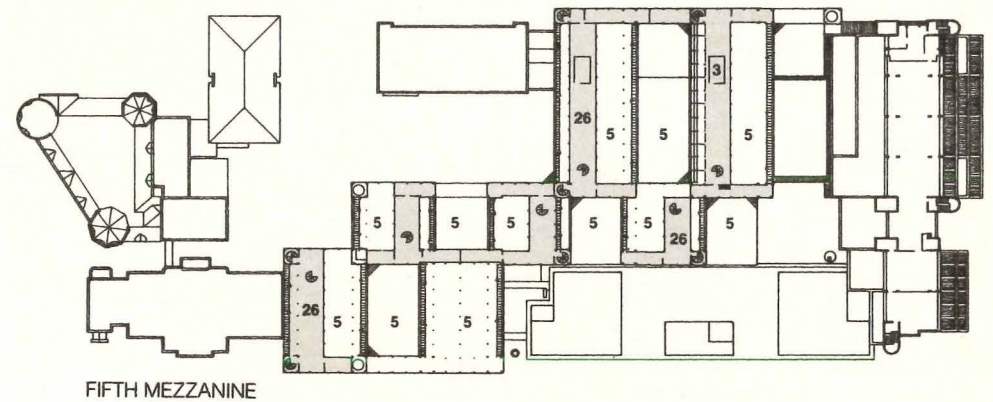
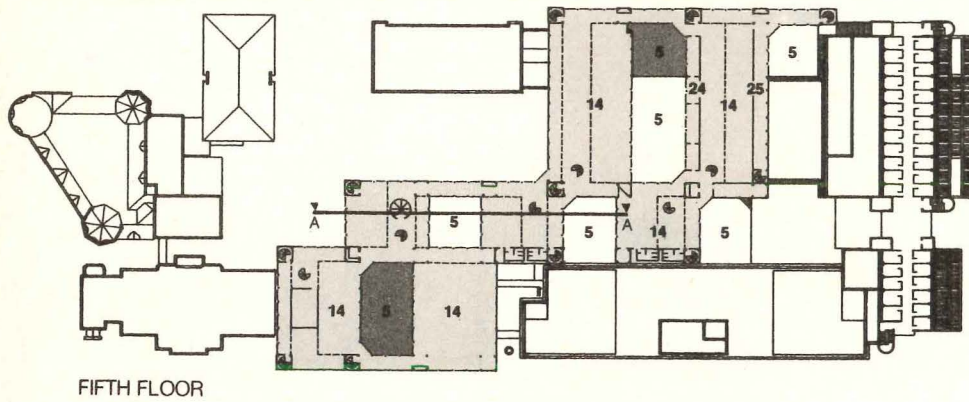
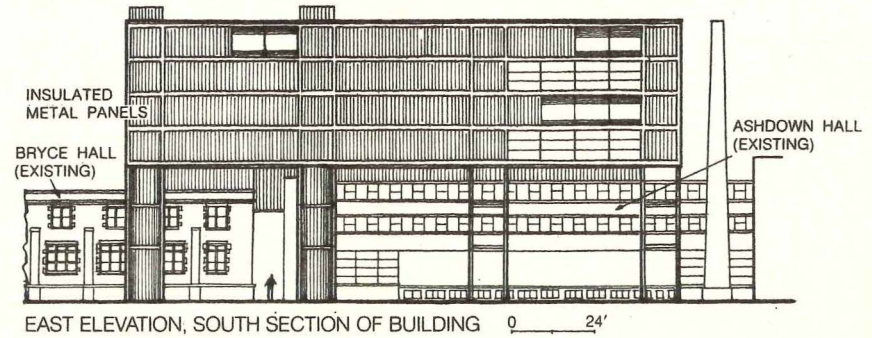
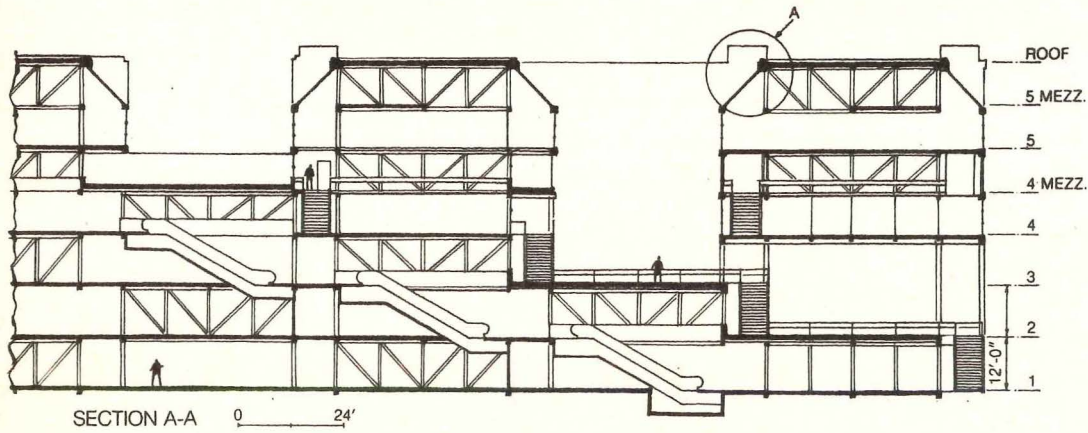
Rising between and over existing buildings, Centennial Hall makes one statement out of many parts at the University of Winnipeg, while breaking down academic barriers as well

University of Winnipeg officials might have tried harder to buy and clear adjacent land for their expansion program. That would have allowed the comfortable continuation of the original college Gothic Oxford/Cambridge campus plan. But universities are not static, land does not come easily and Winnipeg weather (temperatures from -30 F to the mid-90's) can make a cross-campus journey something of an undertaking. Architects Moody Moore Duncan Rattray Peters Searle Christie, recognizing those facts, set out to design a system,



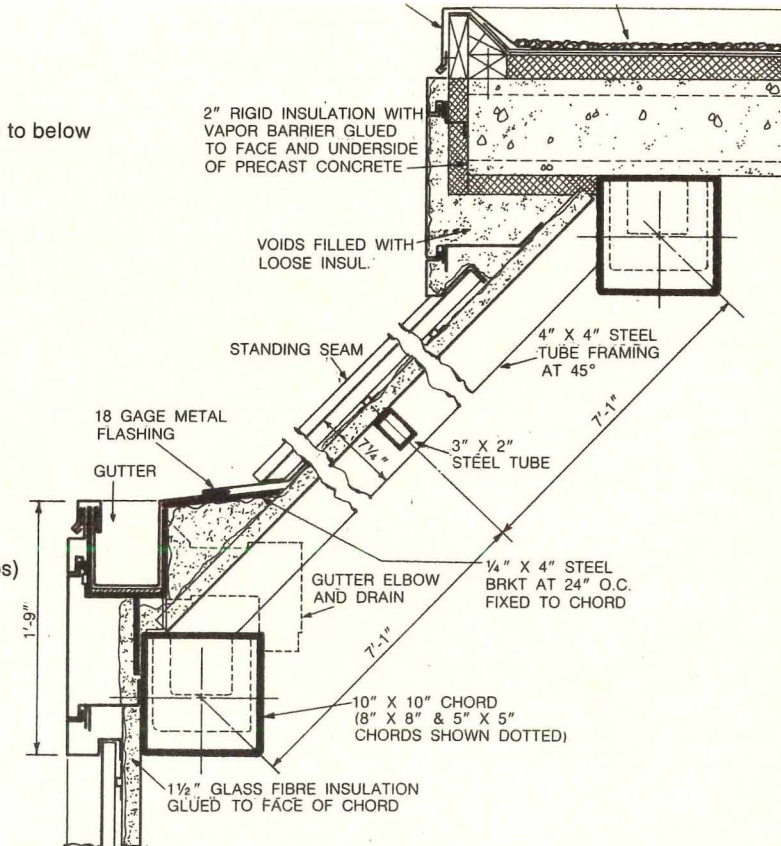
not a building—an encapsulation of university activities, with tolerance for change. Using air space over existing buildings and available land within the two-block campus boundaries, 250,000 sq ft of new academic space was built with no additional land purchase.

Circulation within the new structure, and between it and existing buildings, was a key element. Flexibility was required to accommodate changing student activity patterns and to integrate the entire complex into a closely organized unit. Building components were designed for speed of erection at any time of the year, due to a critical construction schedule. Disruption of service, utility or pedestrian access to existing buildings had to be avoided, as did major excavation with its corresponding underpinning problems. In addition, provi-

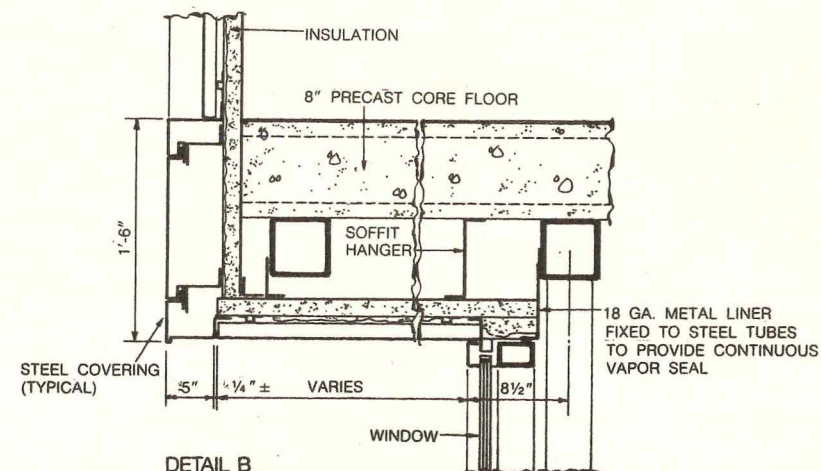




- 1 Pedestrian street
- 2 Lecture
- 3 Seminar
- 4 Purchasing and delivery
- 5 Court yard (dark shading) or open to below
- 6 Physics
- 7 Lounge
- 8 Deans complex
- 9 Media
- 10 Languages
- 11 Language conversation
- 12 Biology
- 13 Biology museum
- 14 Library
- 15 Anthropology
- 16 Child psychology playroom
- 17 Psychology
- 18 Buffeteria
- 19 Kitchen
- 20 Biology offices (overlook labs)
- 21 Anthropology offices (overlook labs)
- 22 Psychology observation
- 23 Geography
- 24 Greenhouse
- 25 Geography map library
- 26 Library study mezzanines



DETAIL A SECTION AT SLOPED PANELS



DETAIL B
SILL & SOFFIT AT 45° CORNER

Without grounds

sions had to be made for future expansion.

Although the term *college Gothic* could be used to describe the scale and general feeling of the U. of W. campus in 1970, the range of materials in existing buildings made them quite diverse elements. Centennial Hall, as the new structure is called, is intended to dominate and draw those elements together. Although high rise options were considered, the "ground-scraper" approach was chosen as the best suited to the university's function, while still allowing for future expansion of the system. The oldest and newest buildings (Wesley Hall, 1896 and Lockhart Hall, 1969) act as campus end points, with Centennial Hall fitting in between Riddell, Lockhart and Manitoba Halls at grade level. Located in the courtyard behind Ashdown Hall, the main entry leads to a pedestrian street

Largest of many interior spiral stairs connects library areas.

and to the remodeled first floor of Ashdown. From the entry end of the street, students can take the first of a progression of escalators leading all the way to the fourth floor, or they can pass through the street to the Lockhart Hall lobby at the opposite end. Similar streets are common to all floors through the fourth. Structural "legs" composed of four tubular steel members carry the overhanging upper floors. Additional egress from those floors is through spiral stairs expressed as tubes within the open leg members. At the third floor level, Centennial Hall spreads over Riddell Hall and at the fourth, over Ashdown and part of Bryce Hall. Crawl spaces over existing buildings, enclosed with skirts below the new structure, are used for mechanical equipment.

Above the entry at the second floor is a courtyard, begin-



ning a series that punctuates the building. At each level above the second floor, courtyards bring natural light and visual/spatial variety to the interior areas. Mezzanines above the fourth and fifth floors give an even more flowing character to spaces on those levels. By restricting the mezzanines (the fifth and seventh levels) to 40 percent of the floor area below them, the architects were able to retain a five-story code classification, permitting a one-hour fire rating on the exposed structural steel.

All hollow tube members include a secondary system of reinforcing steel and are filled with concrete to achieve the fire rating. Tubular steel trusses—the main ones a full story in depth—span between the legs, leaving all infill panels and partitions nonloadbearing. All floors above the first are precast cellular concrete units, carpeted above and exposed and painted below. All interior mechanical and structural elements are painted white, serving as a subtle but complex back-

ground for strong graphics and colorful furnishings. An additional suspended pipe grid supports lighting in some areas, creating another visual layer within the system. Prefabricated components, interior as well as exterior prefinished, insulated metal wall panels, were selected for ease of assembly.

Centennial Hall is a departure in planning and expression of university function. As a process, the design and construction was a model of teamwork, says James Christie of MMDRSPC, stressing strongly the credit due the construction manager (Bird Construction Company, Ltd.) and the university for their fundamental roles. Physically, and as a direction for the university, it is an uncommonly bold response to three major problems: expansion without land, difficult climate conditions and a desire to dissolve rigid school disciplinary boundaries. Centennial Hall establishes a vocabulary that is admittedly dominant, but it is also unifying, open-ended and workable. [JM]



Trusses enclose seating areas (above) and escalator opening (below).



Child psychology playroom (above) has an adjoining court.

Data

Project: Centennial Hall expansion for the University of Winnipeg, Man.
Architects: Moody Moore Duncan Rattray Peters Searle Christie; partner in charge, James H. Christie, FRAIC, ARIBA; design team, Lewis Morse, George Frederickson, Glenn Tinley; project architect, H. Cawker; mechanical engineer, David E. Cross; structural engineer, W.H. Milley; interiors, Ursula Ferguson.

Program: expansion of university campus to provide library, multimedia center and teaching facilities in 250,000 sq ft.

Site: open areas and air space over existing college buildings, within a two-block campus. Area surrounded by mixed urban low rise buildings, both residential and commercial.

Structural system: poured concrete rock socketed caissons supporting reinforced-concrete-filled hollow steel structural tube columns and trusses and precast cellular concrete floor units.

Mechanical system: gas fired hot air, with hot water and electric supplementary heating, direct refrigerant cooling.

Major materials: exterior, prefinished insulated metal wall panels, prefinished enameled aluminum curtain wall and bronze glass; interior, exposed and painted structural steel and mechanical components, exposed and painted precast floor units serve as ceiling finish, carpeted floors, gypsum board interior partitions on steel studs.

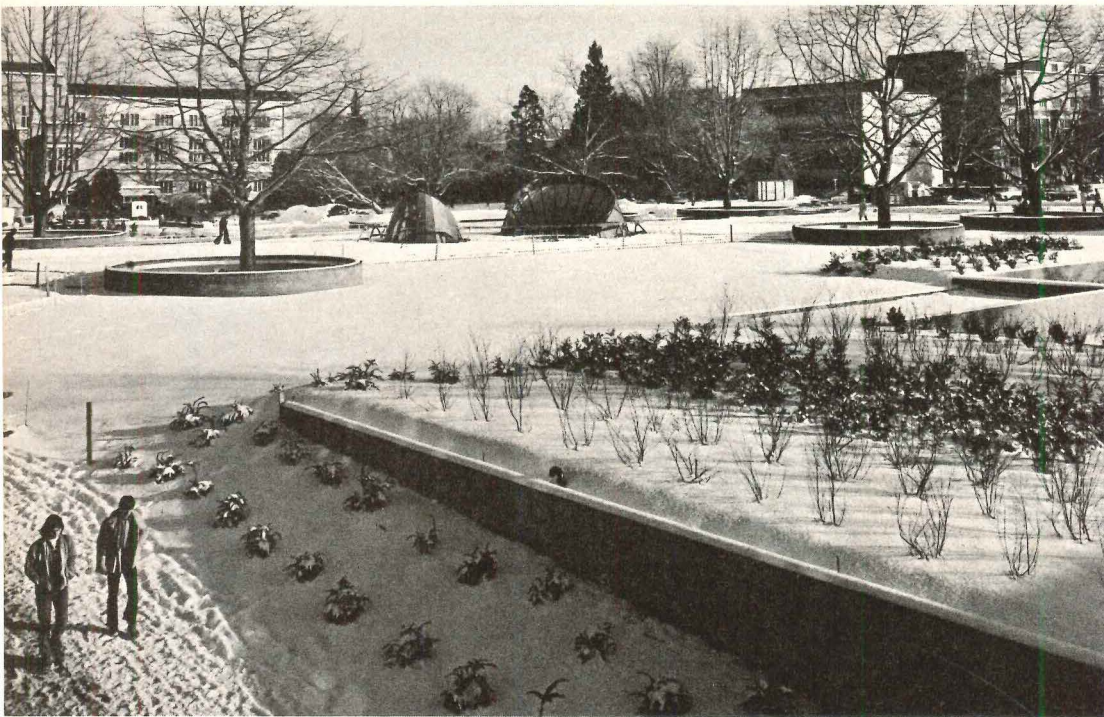
Consultants: landscape architect, Gary Hilderman; management contractor, Bird Construction Co., Ltd.

Costs: \$6,763,036 (\$25/sq ft), construction only.

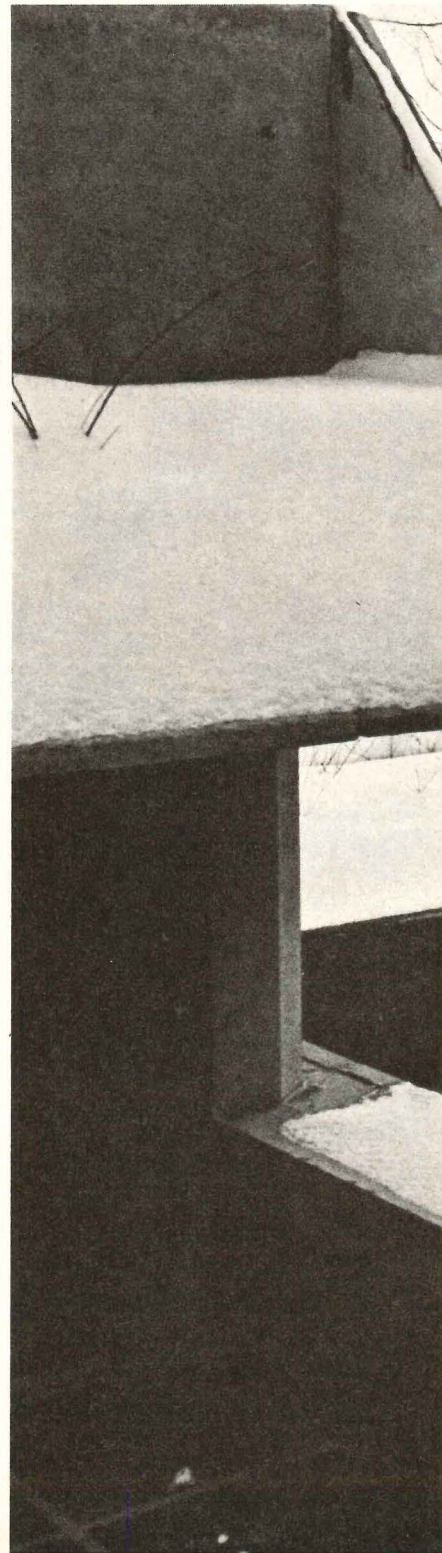
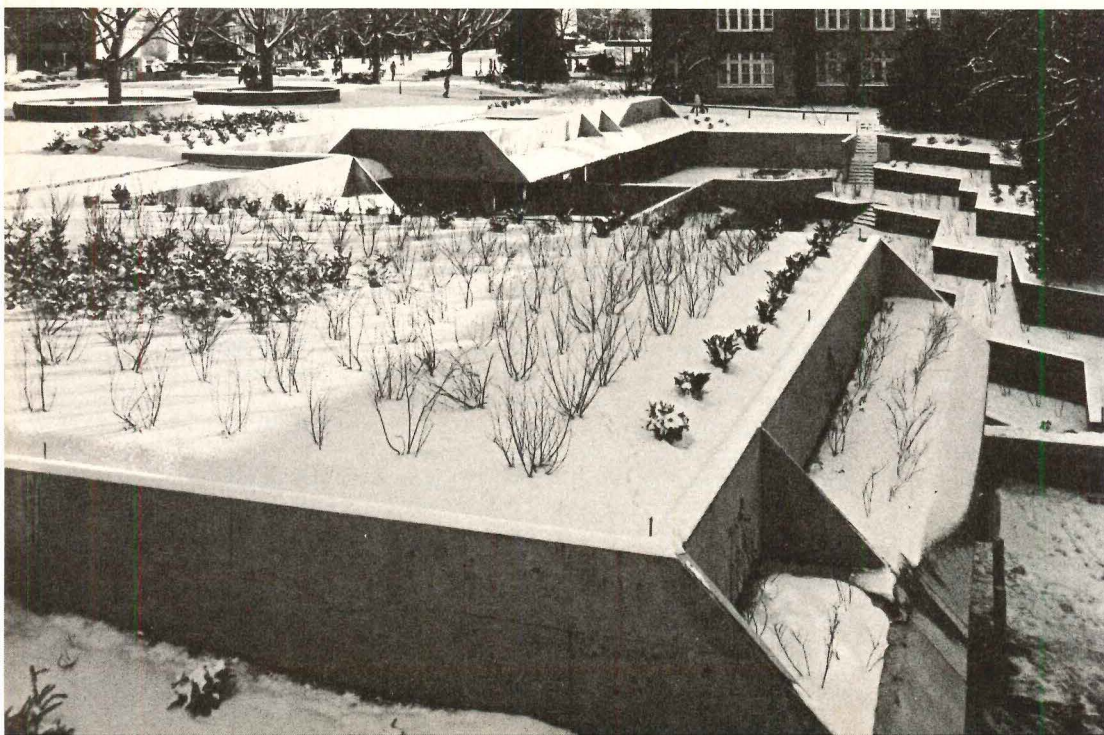
Understatement

Perceptive site observations give the University of British Columbia a new library on the centerline of its traditional mall, without sacrificing the walk, its trees or its feeling

It was the classic situation—the University of British Columbia needed more library space near the center of established student traffic patterns. Studies indicated that the best location, allowing the new facility to become the hub of a “matrix” system tying campus activity centers together, was the university’s treelined main pedestrian mall. The large trees along the mall were the school’s most outstanding trademarks, and nine 40-year-old northern red oaks lined the walk at the library site. Architects Rhone & Iredale were asked to design a structure, located where the studies showed that it should be, without destroying the traditional character of the mall and adjoining spaces.



From mall level (above), tree containers, skylights and planters are the only visible signs of the library. Recessed courtyards expose both east and west (below and right) building faces; north and south are below grade.



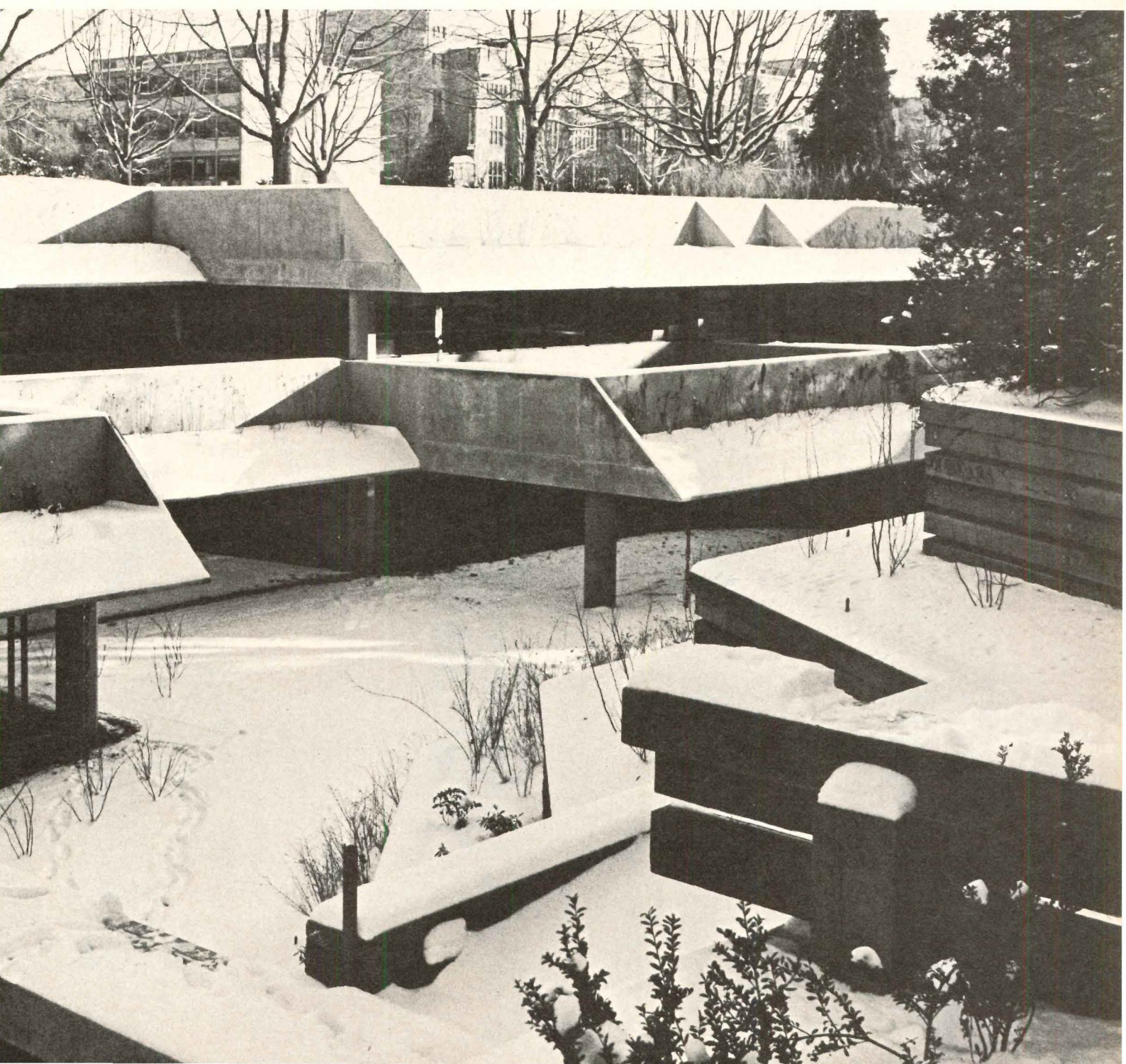
They perceived a less obvious feature of the site. As the main mall ran past the existing library, distance masked the fact that its elevation was 12 ft higher than the main library entrance. On the opposite side, an 8-ft differential existed between the mall and the mathematics building. Just as this slope was virtually unnoticed, the architects felt that by reversing the drop and cutting the same amount as the rise, a two-story building could exist *under* the main mall without a disturbing sense of excavation. Pedestrians could use the mall as usual, with no grade changes and, 12 ft below, both old and new libraries could share the same entry level.

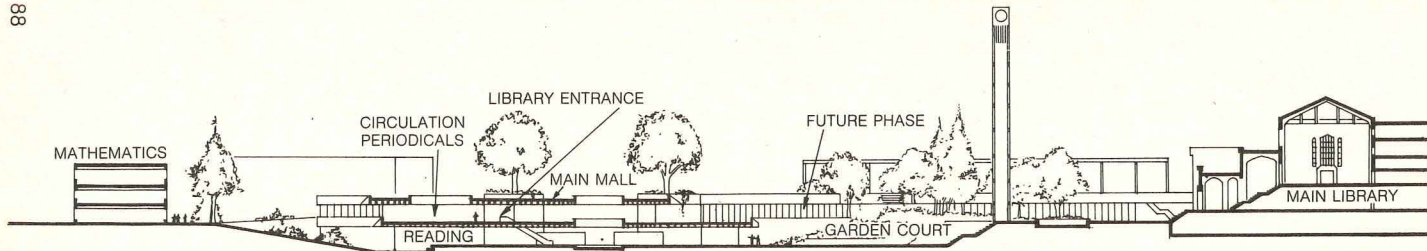
Still, there was the problem of the trees. Planters had been built before, but to save the oaks, such enclosures would have to become part of the building below. One of the nine trees finally did have to come out, but eight were protected by high "pots"—steel drums built of sections ordinarily used for tunnel work. The 30-ft-diameter drums encase the tree roots

from grade down through both levels of the library structure. Outside the bolted tunnel plate (see detail) is an air space, insulation and a curved brick cladding. The insulation, interestingly, is more for the trees than for the building's occupants, since building heat would upset the root environment.

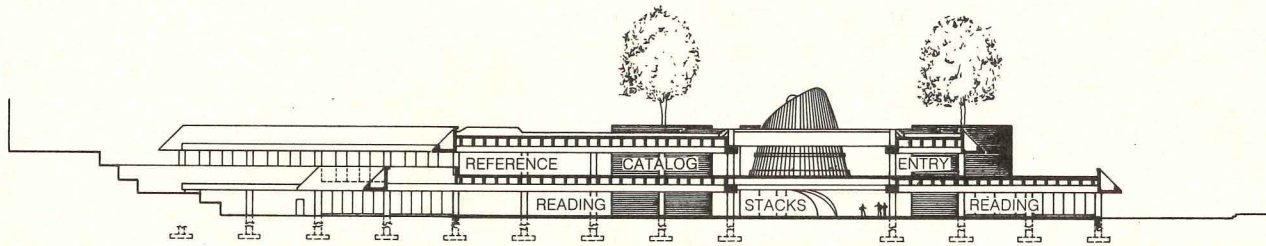
North and south ends of the building, formed by poured concrete walls, are below grade. East and west exposures open onto courts, with precast planters overhanging glazed window walls. All structural components inside the end walls are precast concrete.

The planning was not entirely concerned with structure and site, however. Once those considerations had established directions, the main emphasis was on the "matrix," its planned phasing and the proper activity patterns within the library itself. Working with students, librarians Basil Stuart-Stubbs and Turey Erickson, library consultant Ellsworth Mason and environmental psychologist Dr. Richard Seaton, the architects

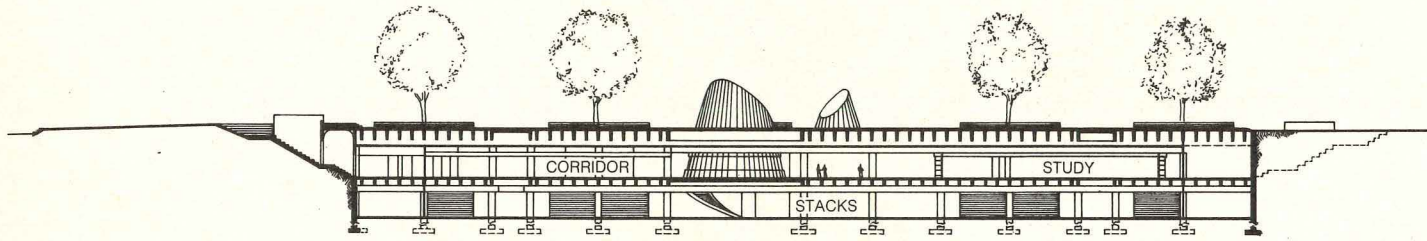




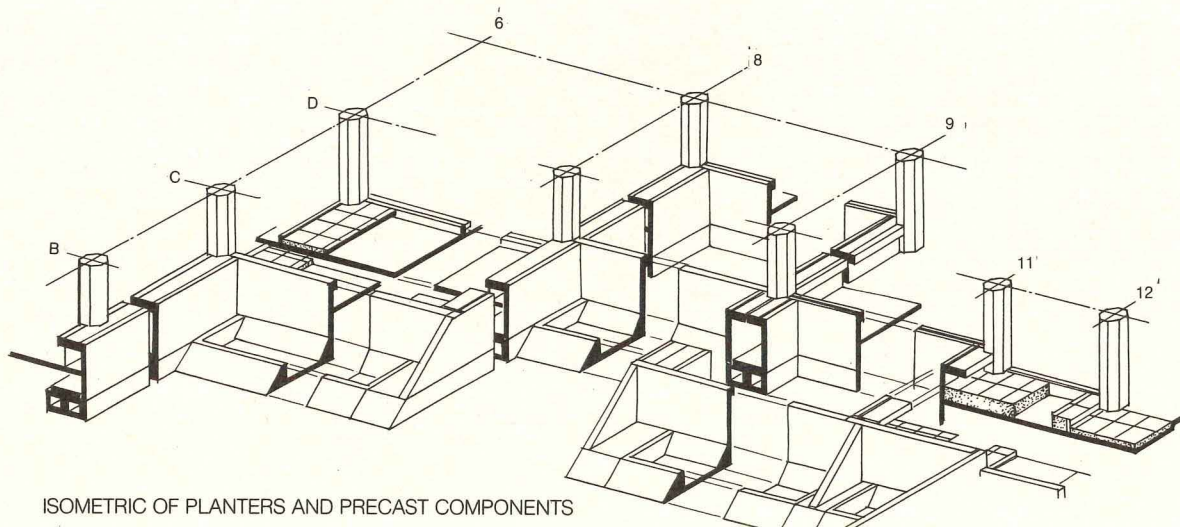
SECTION THROUGH MAIN QUADRANGLE (E-W)



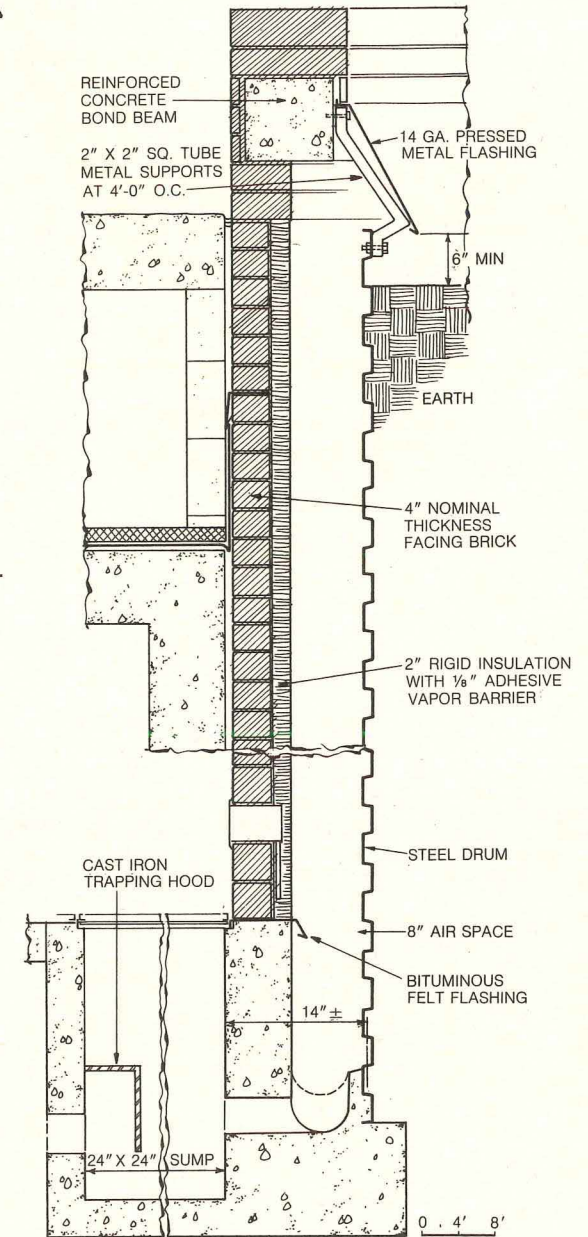
CROSS SECTION (E-W)



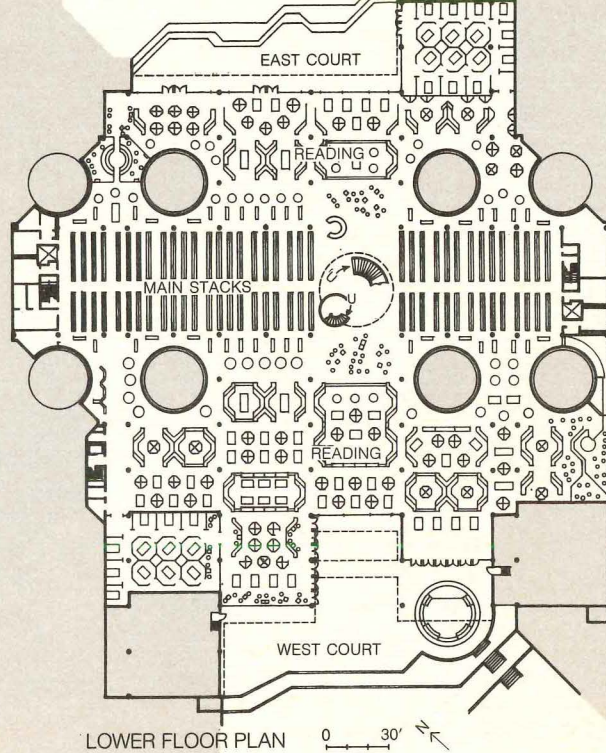
LONGITUDINAL SECTION (N-S)



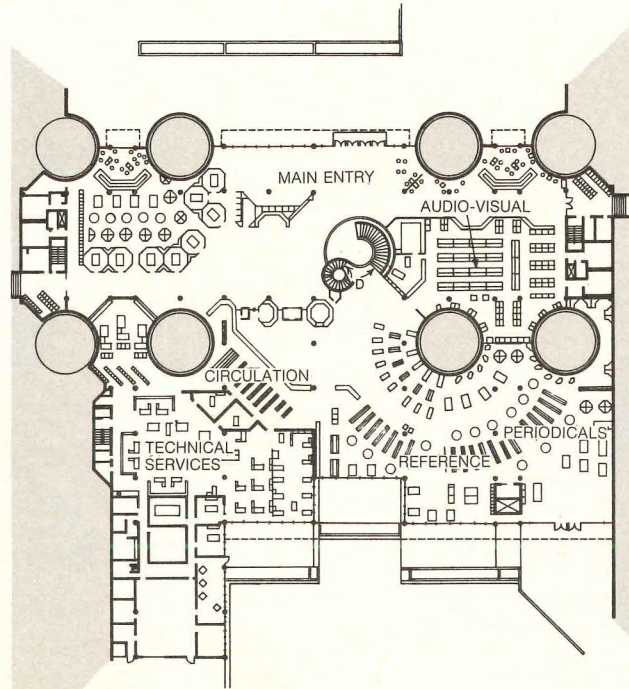
ISOMETRIC OF PLANTERS AND PRECAST COMPONENTS



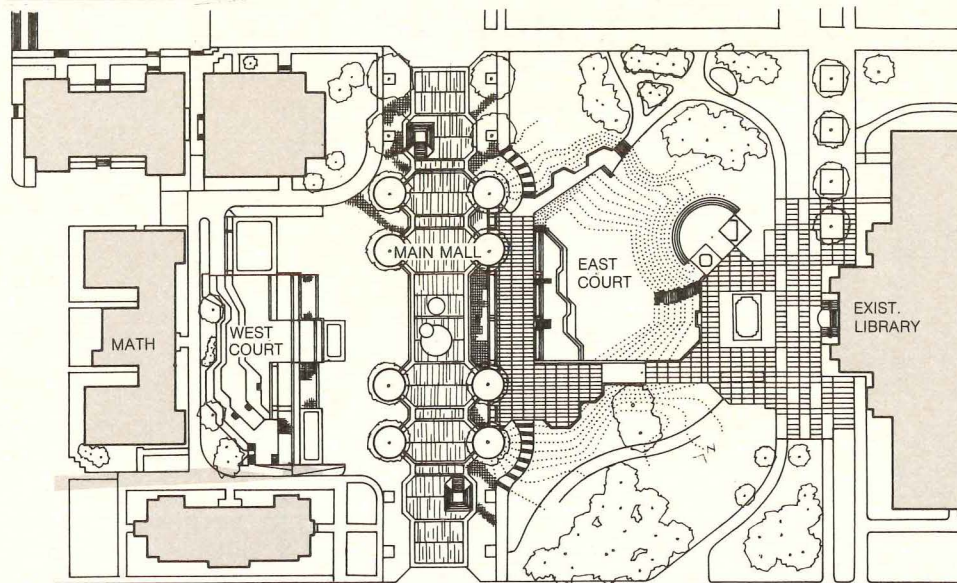
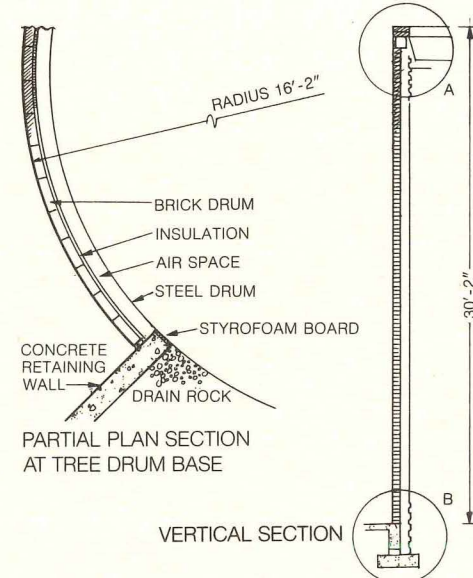
DETAIL SECTION THROUGH TREE DRUM AT A & B



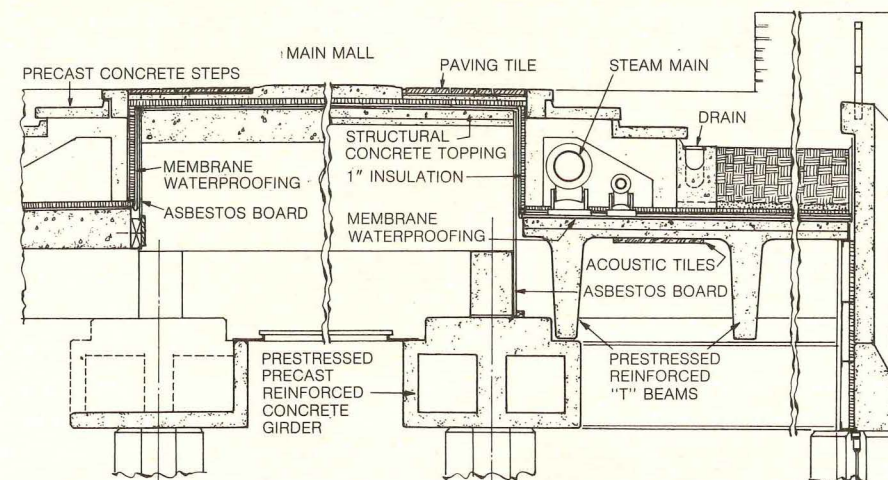
LOWER FLOOR PLAN



UPPER FLOOR PLAN



SITE PLAN



SECTION THROUGH MALL AT ROOF

Understatement

identified five required environments for library study. They list them as: 1) short-term open, where people are scanning material to choose relevant information for further study; 2) long-term open, which includes both lounge and table seating, for those who study best with activity around them and in open view of others working; 3) long-term enclosed, including walled study carrels, enclosures formed by dividing walls and level changes, for those who prefer isolation from distraction and activity; 4) group enclosed, group study carrels with blackboards and tackboards for both formal and informal quiet study and small group meeting study; 5) casual reading. The last category is a recognition that much study does not require writing at a table and that the most popular locations for reading are often nooks and crannies that permit spreading out full length on a carpeted floor or platform.

Implementing their studies on use preferences, the architects provided all of these characteristic environments, allowing for a study capacity of 1200, while maintaining a more intimate, noninstitutional atmosphere than most libraries afford. On the uppermost level are activities which do not depend on direct access to main stack areas. Administration, reference, periodical, lounge and less intensive study areas line the circulation matrix, which is to be extended in a future phase. At the lower level, reading areas on both the east and west sides of the stacks look out to the courtyards. Except for a skylight, the main stair enclosure and subtle rings around the old trees, a trip down the main mall is very much what it has always been. [JM]

Data

Project: Sedgewick Library, University of British Columbia, Vancouver.

Architects: Rhone & Iredale.

Program: new undergraduate library to expand existing capabilities of the university by a maximum of 200,000 volumes, located to best serve student needs. Provision to be made for 1200-student study spaces in 113,000 sq ft.

Site: under the main pedestrian mall on existing university campus, lined by large existing trees and lawns.

Structural system: cast in place reinforced concrete retaining walls, north and south ends, entirely below grade, with precast concrete structure elsewhere, poured foundations and roof slab.

Mechanical system: air conditioning system uses steam from central campus plant for heating, fresh air for cooling (no chilling required in this climate). Water for supplementary fin-tube radiation also heated by steam.

Major materials: cast in place concrete end walls, precast concrete double tee system and interior walls with exposed and plastered surfaces, brick caissons enclosing tree containers, carpeted floors, acoustic tile and exposed concrete ceilings and glazed window walls in steel frames.

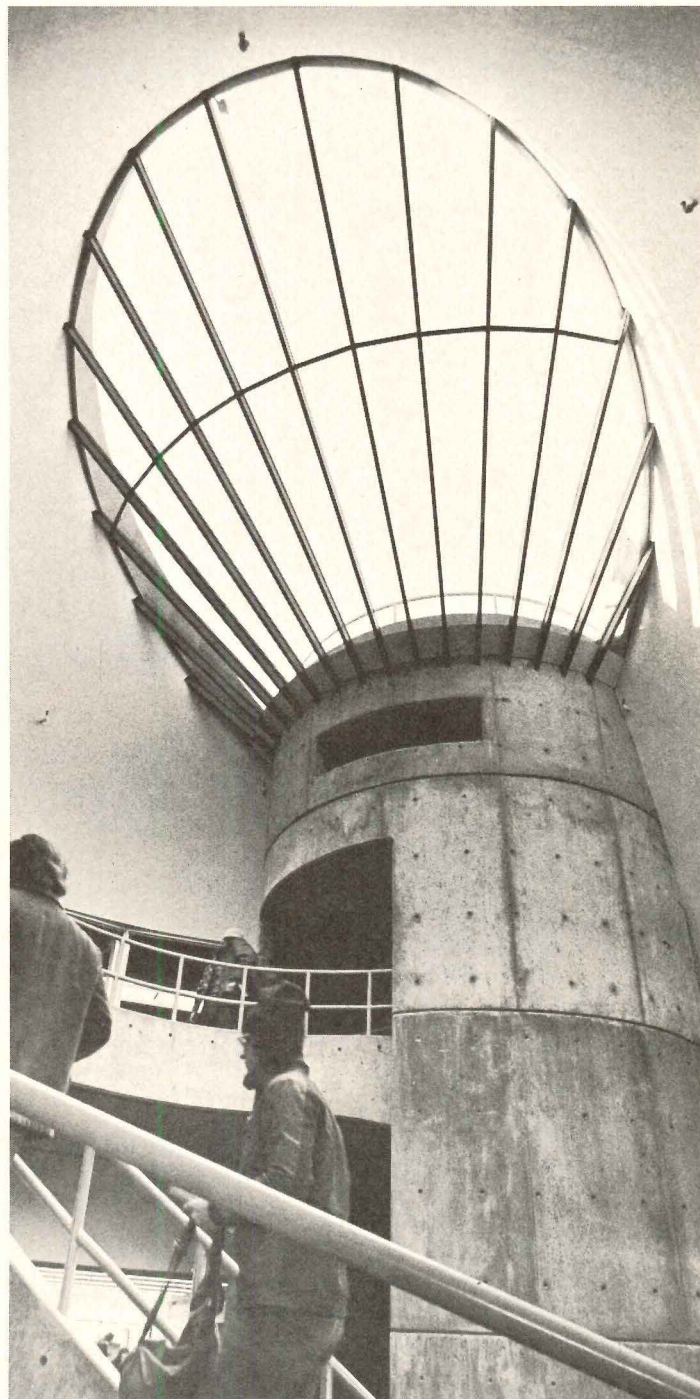
Consultants: structural engineers and landscape architects, Canadian Environmental Science; mechanical, D.W. Thompson & Company; interior, Rhone & Iredale; acoustic and illumination, Bolt Beranek & Newman; management contractor, CANA Construction Ltd.

Costs: \$3.3 million, excluding all equipment and fees.

Photography: Selwyn Pullan.



Skylight tops double-curve of the main stair.





Varying study environments promote a less institutional feeling than most libraries, from busy (top, right) to quiet (above). Bold color is used in graphics by Virginia Chapman and Terry Harrison, and in light fixtures. Fixtures between the white painted precast tees are topped by a plastic lens which may be changed at will. Colors are arranged from active areas color coded by yellows and reds to quiet areas using blues and greens.

Architectural acrobatics

Building on air rights is not just a matter of putting one building on top of another to save money; two New York architects discuss their experiences and opinions

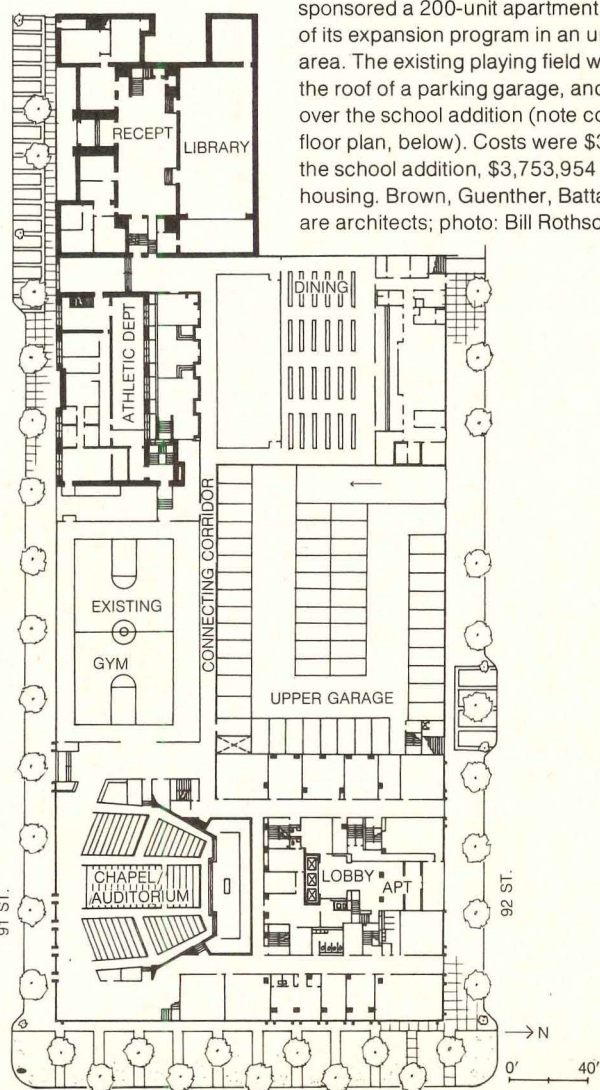
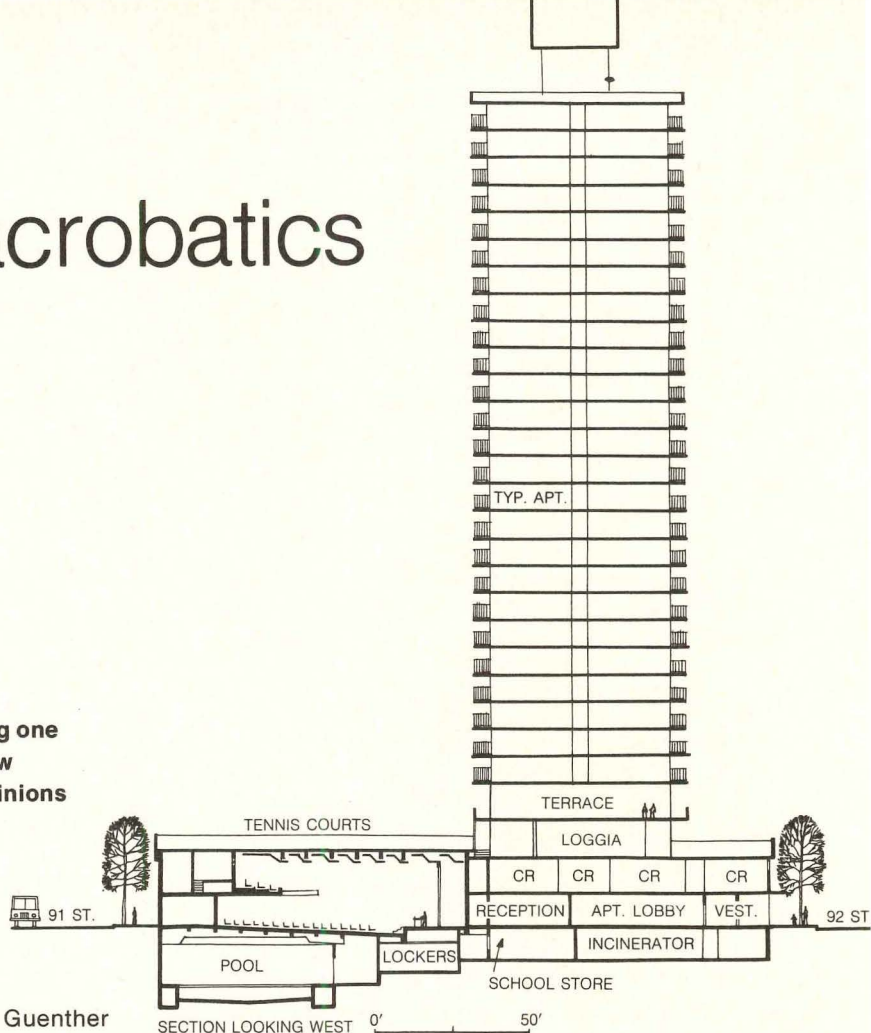
"Architectural acrobatics" is the term Bernard W. Guenther uses to describe air rights structures. "It's a great deal of fun; there's no greater thing than sitting down to work out this kind of a problem. As a purely architectural exercise, nothing else beats it—if you didn't have clients, if you didn't have the agencies."

Guenther, of the New York City firm Brown, Guenther, Battaglia, Seckler, is quick to add, "There's not too much excuse for it. But in a city where there are all sorts of political, institutional and social pressures concentrated on one acre, or part of an acre, it might be highly justifiable. Any air rights, or multi-use, job is a grandiose compromise."

Defining air rights as opposed to other types of multi-use structures such as buildings with below-grade garages or the John Hancock Tower in Chicago, Guenther pinpoints the legislative control which defines how much volume can be built on a piece of land in a given district, and also whether or not any unused volume can be transferred to another building. Without the legislation, zoning and an implementing agency which can combine public buildings with private development, such projects are impossible.

Arthur J. Seckler, Jr. points out that many cities, including smaller ones, could combine facilities—schools, firehouses, libraries—with income-producing properties above them and "perhaps solve some aesthetic problems as well as financial ones. And it need not be only housing; it could be office or commercial space."

New York City has been building schools this way for several years. Because schools must be publicly bid, but housing merely negotiated with a developer, the Educational Construction Fund was set up to straddle this public/private fence. The Fund floats its own bonds to cover school costs, sells or rents the air rights to developers and uses that money to off-set the bond issue. The result is a school that, after 40



Trinity, a private boys school in New York City, sponsored a 200-unit apartment tower as part of its expansion program in an urban renewal area. The existing playing field was raised to the roof of a parking garage, and the tower was built over the school addition (note columns on first floor plan, below). Costs were \$3,189,563 for the school addition, \$3,753,954 for the housing. Brown, Guenther, Battaglia, Seckler are architects; photo: Bill Rothschild.

FIRST FLOOR PLAN



Architectural acrobatics

years, will have cost no capital funds. The Fund has the authority to combine schools and housing (but not other building types) on one site, bid the mechanical trades on the school and negotiate all general construction on both parts. One developer can handle the entire project.

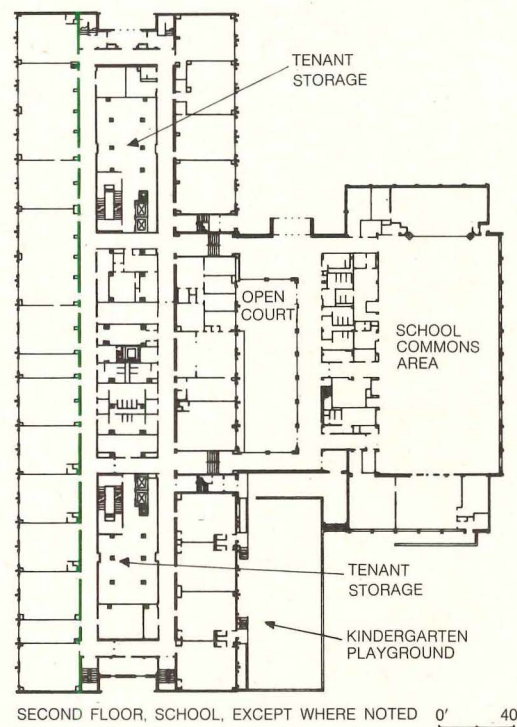
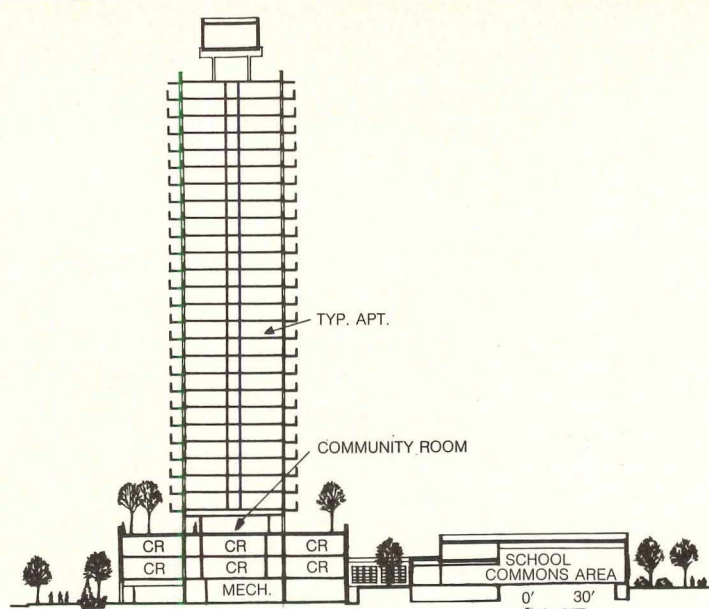
It's not really that simple—Guenther's first air rights school took seven years from proposal to occupancy—nor is it cheap. Air rights buildings take more, not less, materials than comparable single buildings; mechanical services must be duplicated rather than shared, and the engineering is another exercise in acrobatics. Guenther calls it an "unnatural marriage" of building types.

The common notion of an air rights project—held by officials as well as by the public—is "piggyback construction" where one building is put directly over another, or over a highway or rail yard. Guenther's experience is that "contiguous" projects are preferable. They require slightly larger sites than those used for piggyback projects, but eliminate some of the expensive engineering problems of extended utility runs and load transference so that apartment-grid columns do not descend through classrooms. An added bonus is use of the lower building roof as play space.

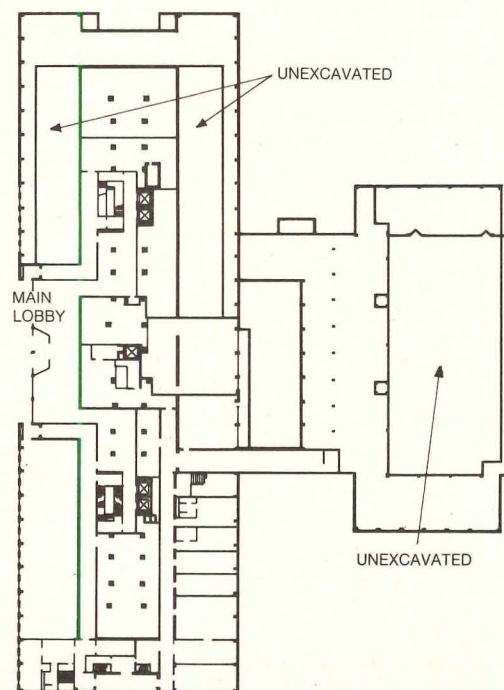
Duplication of services is still a problem, due to the practical fact that schools are used intermittently while apartments need services every day, and the bureaucratic fact that one agency does not want to buy steam, for instance, from another. Guenther considers it a triumph that he was able to have a single flue in one project even though it has two complete boiler plants.

Nor is it cheap to put housing over highways or rail yards. Air rights for the Bronx Expressway housing project were sold to the developer, after lengthy delays, for \$1.65 million but that was only the beginning: the girders alone, and there are some columns, cost close to another million. Guenther says about railroads, "If you build over them, they are going to want their pound of flesh because they are looking for income. I can't begin to describe what problems there are in dropping columns between tracks. We've been working on a couple of these over railroad storage yards, and in one case the surveyor had to have a yard man, a security man and a flag man go along with him, which brought the cost of the survey up to \$25,000." [RR]

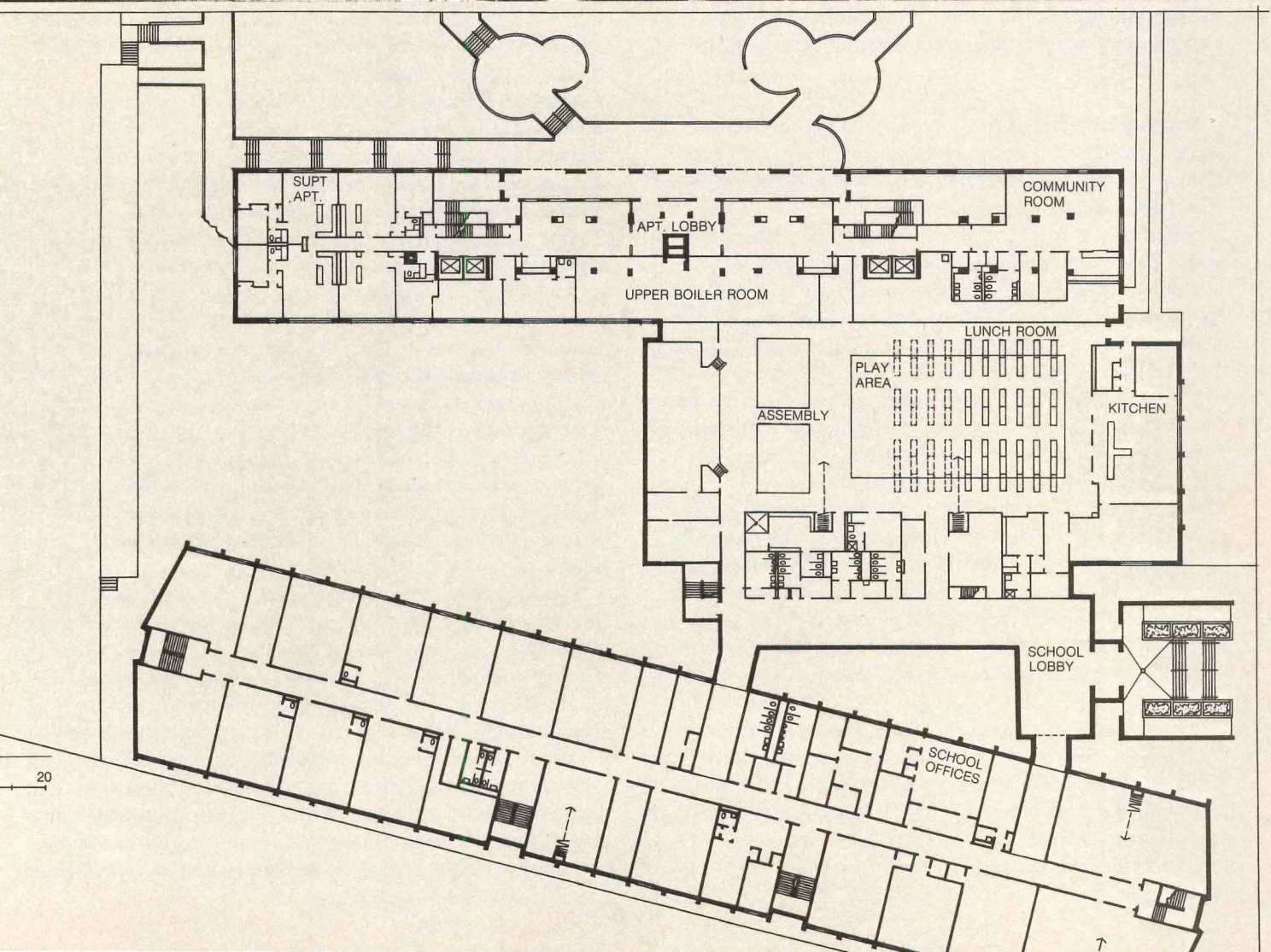
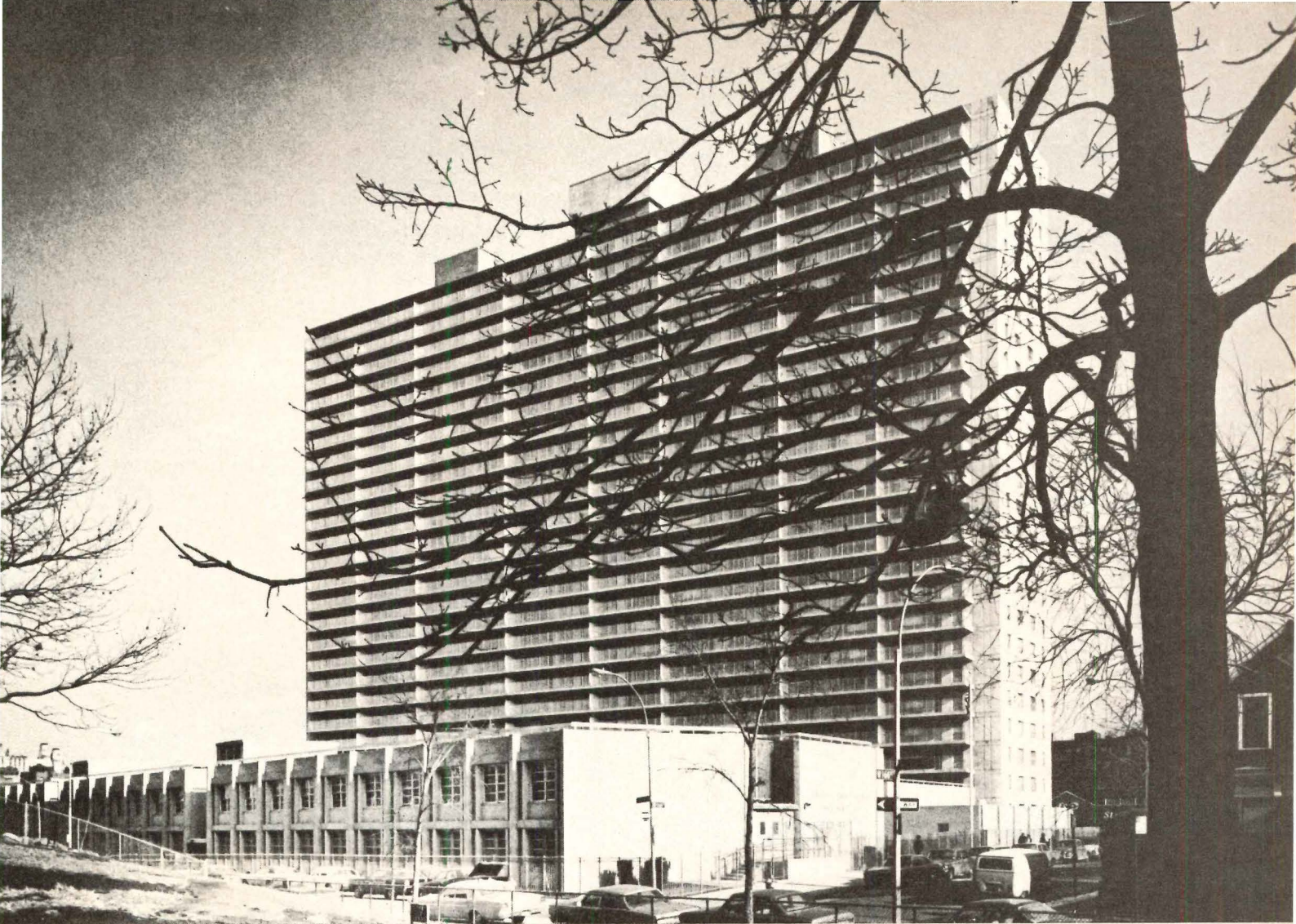
New York's first completed apartment house/public school project was designed twice by Brown, Guenther, Battaglia, Seckler. The first scheme (this page) with the tower directly over the main part of the school, was estimated (partly due to inflation over the long planning time) at \$2,250,000 over the original \$2,850,000 budget. Revising the scheme (across page) so that the tower and school share the site but not the structure, the architects went "only" \$1,250,000 over budget, thereby "saving" \$1 million. The 25-story apartment house, the 3-story school, 1 1/2-story gym, garage and playground share a 4-acre site, while each structure has its separate entrance.



SECOND FLOOR, SCHOOL, EXCEPT WHERE NOTED 0' 40'

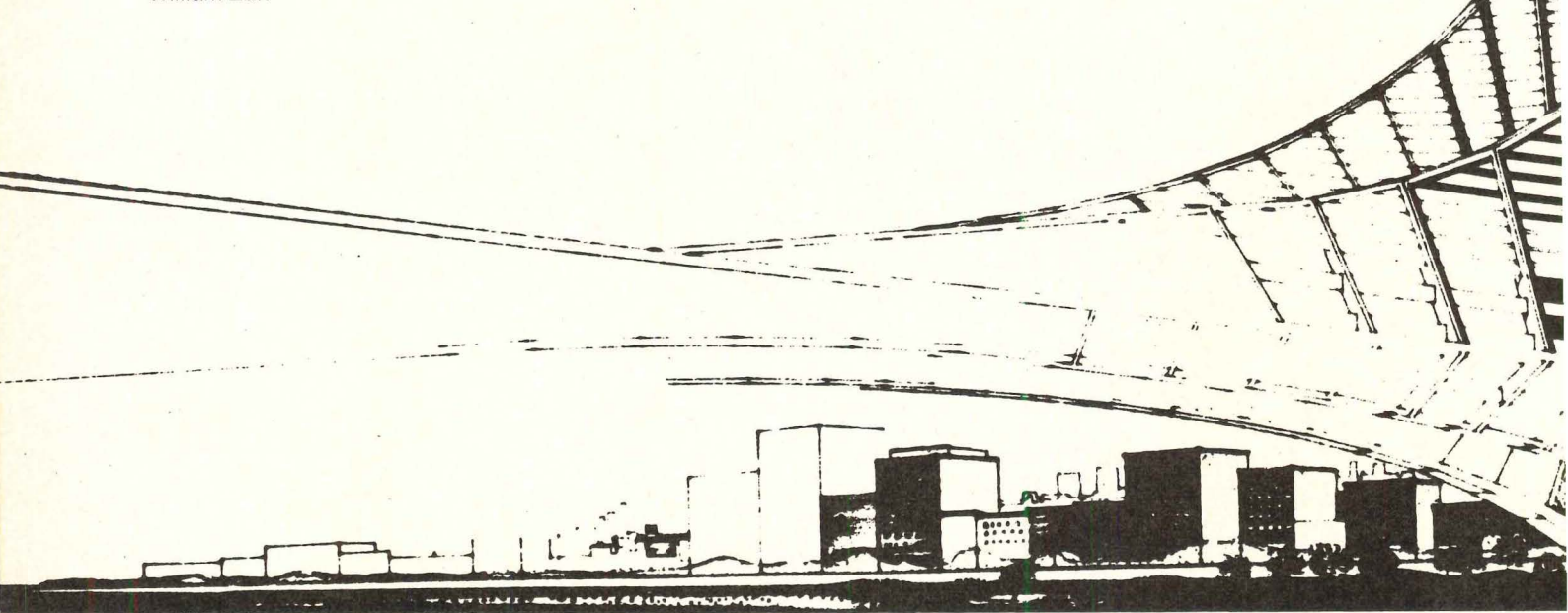


FIRST FLOOR, APARTMENT LOBBY AND SERVICE AREAS



The architecture of bridges

William Zuk



Using bridges as places to build has a long history and a bright future. The author discusses bridges that become architecture either through function or design

When does bridge design become architecture? When it serves some form of occupancy (houses, shops, etc.) or when it possesses an aesthetic elegance that transcends the structure's basic utilitarian demands.

Historically, the old London Bridge with its many shops and living quarters heaped upon it was an example of the first category, while the highly ornamented Ponte St. Angelo in Rome would be an example of the latter. Hundreds of other bridges out of the past could also be cited; for this discussion, however, the eye is on the future.

In the "architectural" space category, architects James Chapman and George McClure have proposed a dramatic structure to cross the East River at Welfare Island in New York City (1). As seen in the plan and elevation, a four-lane roadway crosses the span uninterrupted, while coiled ramps on the west bank serve as the interchange for north-south traffic at Manhattan. Bus and local vehicle lanes flank the main runway. Down ramps at the four piers lead to multilevel parking. Elevators carry people from bus stop or parking areas to the residential units in the towers, or to the shopping plaza located in the central area between the tow-

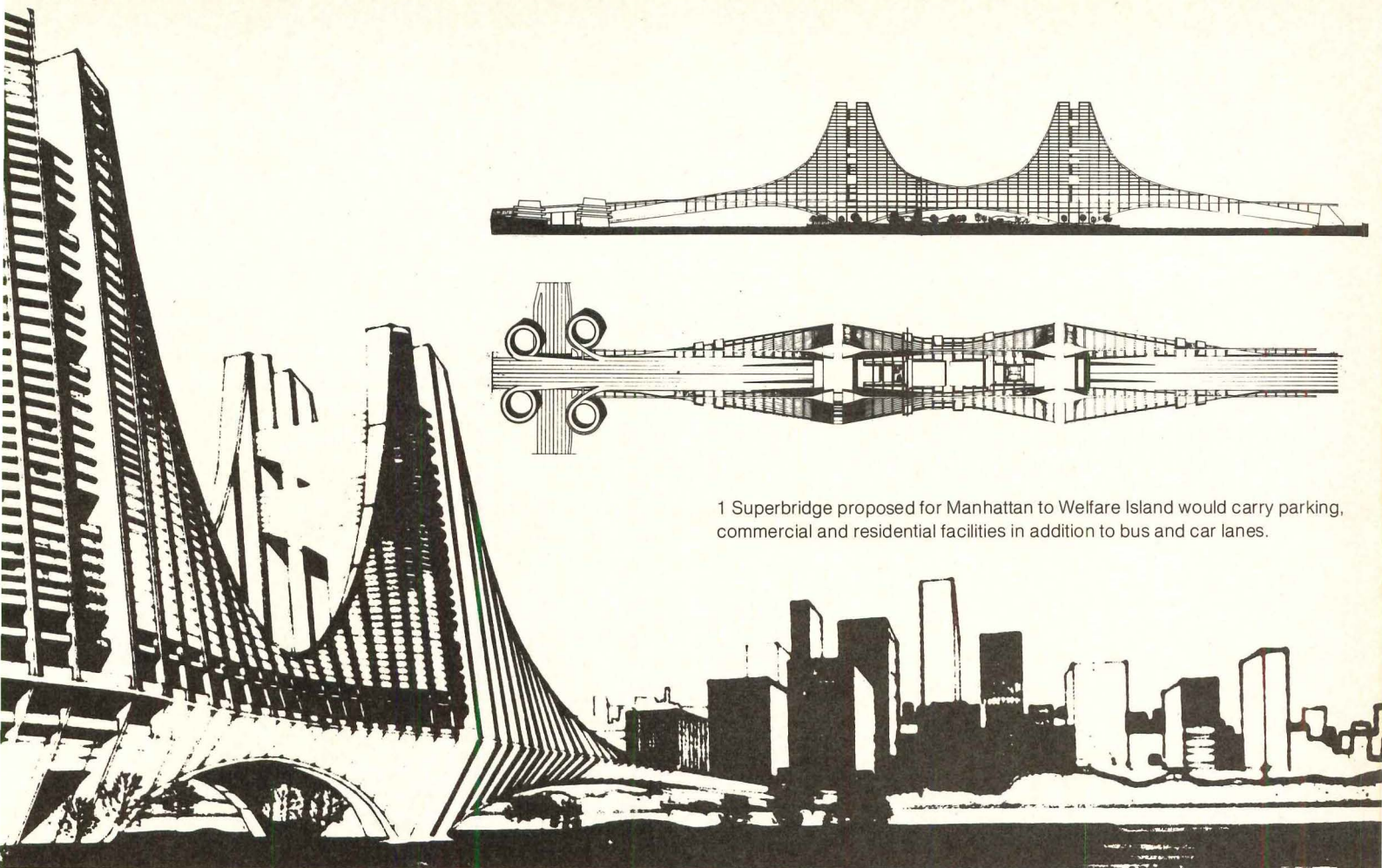
Author: William Zuk is professor of architecture in charge of structural engineering at the School of Architecture, University of Virginia, Charlottesville. Some of the material in this article is taken from the book, *New Directions in Bridge Building*, which he wrote with Wallace McKeel, soon to be published by Van Nostrand Reinhold Company.

ers, just above the roadway. To stiffen this suspension structure enough for residential use (most suspension bridges deflect several feet), rigid arches are added below, tied directly to the suspension cables by rods.

Architect George Oomen has proposed a somewhat similar bridge-housing scheme for Calcutta, with possible applications for Delhi, Kanpur and Lucknow. All these cities are densely populated and straddle rivers, making the joint use of bridges for transportation and housing reasonable.

A joint use bridge-shopping center has been proposed by architect Timsley Galyean to span the Kanawha River in Charleston, W. Va. As the business district of the city is squeezed in by the river valley, normal expansion is difficult. The new bridge would carry vehicles, pedestrians and seven stories of shopping space. Structurally, the entire system would be hung from a three-story-deep girder which, in turn, is supported on each end by a high pier. Parking would be contained in one of these piers. Enough clearance would be allowed under the roadway, which is located at the lowest floor level somewhat above the river bank elevation, for unobstructed river traffic. The estimated cost of this bridge-shopping complex is \$30 million.

A number of other well-known architects, such as Paolo Soleri, Yona Friedman, Eckhard Schulze-Fielitz, Rene Sarger, Andre Biro and Jean-Jacques Fermier, have studied the possibilities of building "architectural" bridges not only over water or valleys but over existing cities. Their intent is to use the air rights over cities to provide additional housing and transportation. These bridges are visualized as immense structures, with large pier-towers many hundreds of feet apart. The spans between, held high in the air, are seen as space trusses or suspension structures. Multistory housing units would be incorporated in the bridge. These space bridges could extend



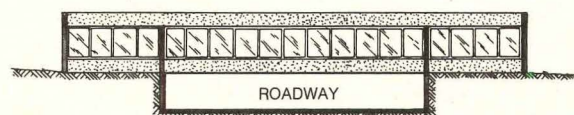
1 Superbridge proposed for Manhattan to Welfare Island would carry parking, commercial and residential facilities in addition to bus and car lanes.

for miles and even intersect to form networks, virtually creating cities over cities. At the present time, such concepts are probably not economical, although future urban growth may require new bridge configurations of this type.

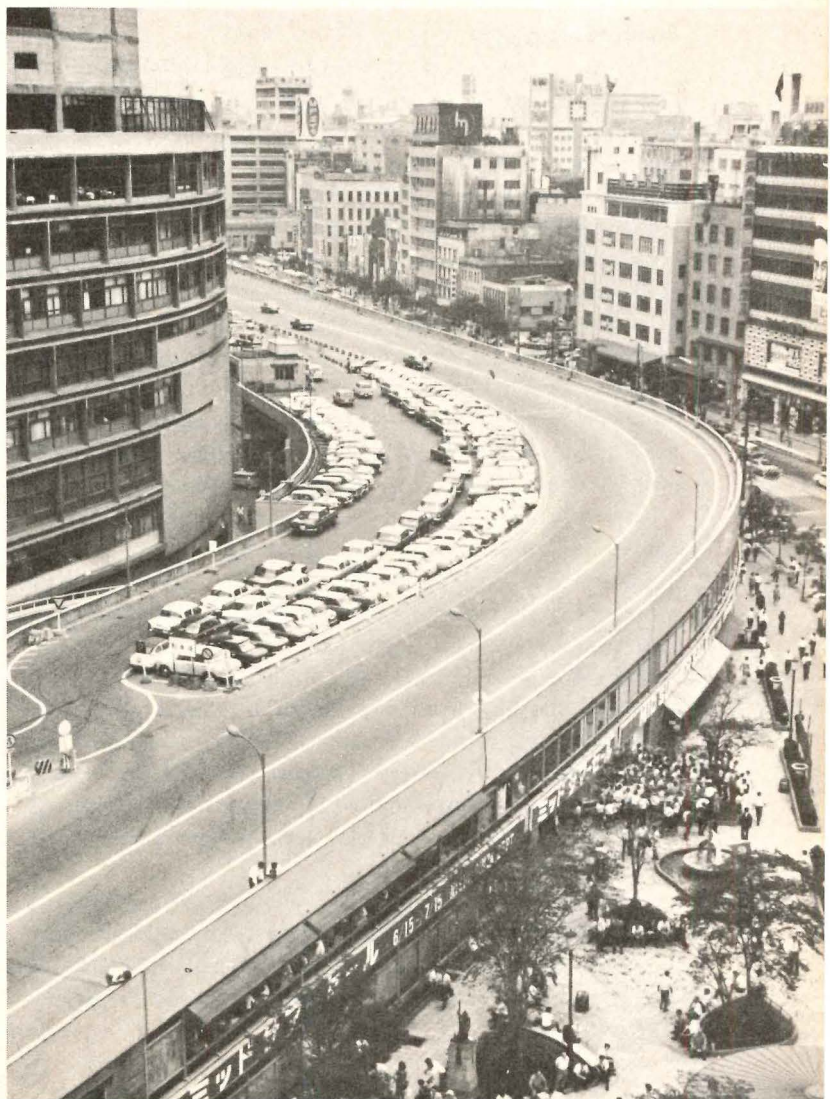
More modest projects

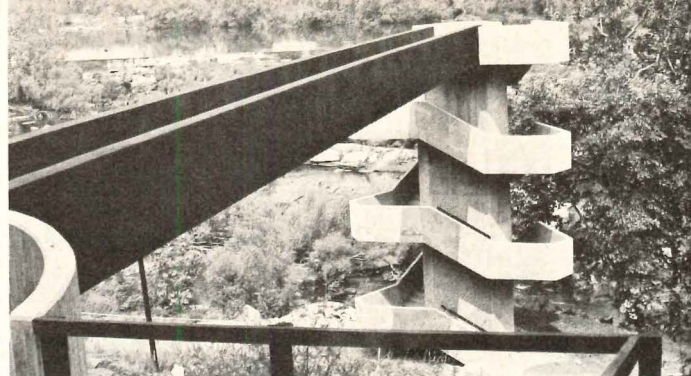
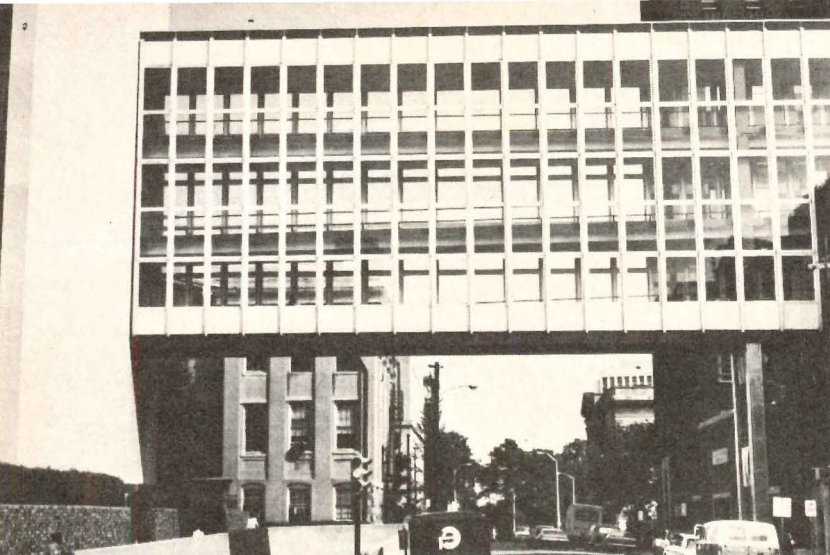
On a more modest scale, air-right bridge buildings, however, are being used. One example (2) is an existing bridge-restaurant spanning 135 ft across the Tri-State Toll Road near South Holland, Ill. Others of similar nature also are being constructed in different parts of the United States and Europe. Uses for some of the new air-right bridges range from offices and libraries to tennis courts and parks—indicating the large untapped architectural resources of these structures.

Not only is the space above bridges being used for architectural purposes, but the space below as well. One example is found in crowded Tokyo where the space under a highway bridge (3) is occupied by commercial buildings. Similarly in Osaka, a half-mile portion of a six-lane expressway bridge passes over four stories of commercial buildings. An air gap of several feet between the roofs of buildings and the roadway helps acoustic and deflection control, although the buildings and the bridges are interrelated. Also along this Osaka expressway, a three-lane segment passes through the third floor of a building, the Osaka newspaper plant, further demonstrating bridge building possibilities.



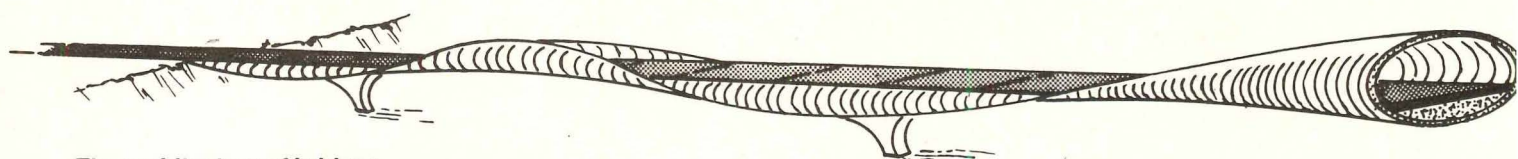
2 Pedestrian bridge over an Illinois toll road houses a restaurant.





5 Architect-designed pedestrian bridge is concrete and weathering steel.

4 Triple-decker bridge (left) connects two buildings in Richmond, Va.



The architecture of bridges

In Florida, a school is to be constructed under a freeway bridge. In this instance, added thought is being given to safety barriers on the bridge to prevent vehicles from accidentally crashing to the ground surrounding the school. With open land in urban centers becoming scarcer every day, there is little doubt that more architecturally related bridges of this nature are in our future.

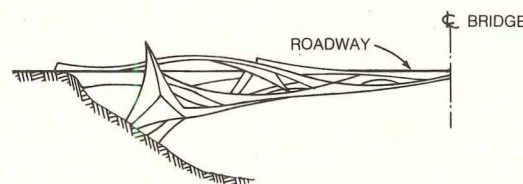
Pedestrian bridges

In crowded urban areas, more and more pedestrian bridges are being used to connect buildings. They are seen at heights from just a few feet in the air to many hundreds of feet. One such bridge in Richmond, Va. is slightly unusual in that it contains three levels of walkways (4). These pedestrian bridges are without a doubt part of the buildings themselves and as such must be considered as architecture, and many are beautifully designed. In all likelihood, the next step for these bridges will be to actually contribute to the structural strength of the buildings, particularly under lateral wind and seismic forces. Off hand, it would appear that if the twin World Trade Towers in New York were joined at several levels by adequate pedestrian bridges, not only would circulation improve, but less wind bracing would be needed in the towers themselves.

Other pedestrian bridges are growing in number. One handsome architecturally designed pedestrian bridge is the Buttermilk Springs bridge in Richmond, Va. (5). The towers are concrete and the span is weathering steel. Architect Carlton Abbott was the designer.

There are also bridges so elegantly designed that they are more than mere bridges. No intention is inferred here that other bridges designed with great efficiency and economy are to be considered as second class structures. Rather, the merit of their designs rests on engineering values, although good in themselves, are oblique to the subject under consideration here.

In Paolo Soleri's design (6) note not only the grace of his bridge, but also that it is so shaped that the largest section modulus of the tube occurs at the position of maximum bending moment—at midspan for positive moment and over the



6, 7 Engineering can be beautiful; two bridges by Paolo Soleri are designed with their largest sections at the maximum bending moment.

pier for negative moment. It is unfortunate that the brilliance of this design has never been transformed into reality.

Soleri's other bridge (7) is by contrast, more complex; yet it too is so shaped in its overall configuration that it assumes the largest section where the moment is maximum, and smallest section where the moment is minimum, at the center. Its aesthetic quality reads as "organic," wherein the internal "truss" members suggest the irregular open network found in bone marrow. This structure is obviously not the most efficient or economical of bridge types, yet comparing it with the standard plate girder bridge found on our highways today, it is clearly seen that Soleri's bridge is architecture while the girder bridge is straight engineering.

Engineers' achievements

Thus far, most of the bridges cited originated from the hands of architects. But engineers too have their achievements. An exciting tension bridge designed by Lev Zetlin (8) is offered as an example. This structure, designed for Baltimore, has a span between towers of 840 ft. Its basket system of tension and counter-tension cables insures stability under all load conditions. The composition of the inclined towers, played against the sweeping pull of the cables hung in space, makes it far more than just another functional suspension bridge. It is, without apology, great architecture. Sadly, due to reconsideration of the planned roadway system in Baltimore, this bridge project has had to be shelved.

Another highly imaginative project was designed for Phoenix, Ariz., by the engineering firm of Johannessen & Girand. The Papago Freeway (9) includes the bridges in the Central

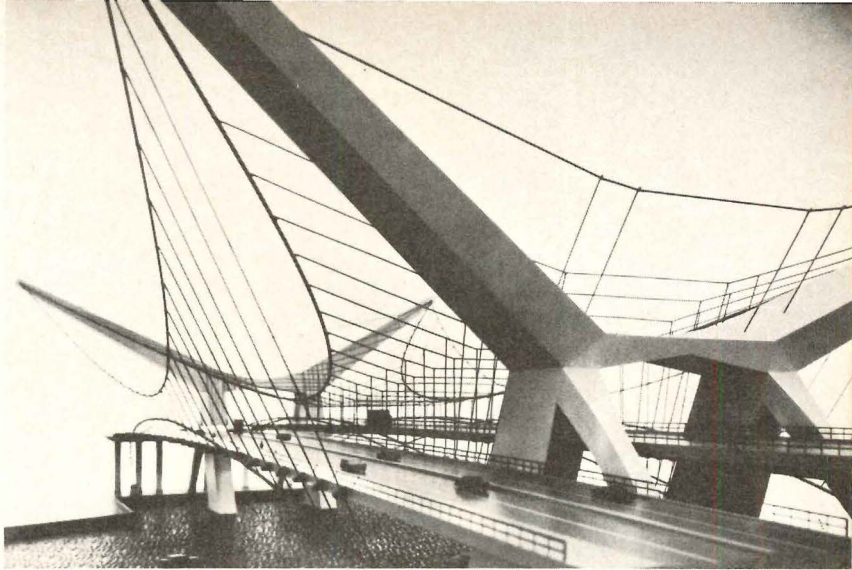
Park area and two features of these structures are especially novel and innovative. The first is that the elevated bridges or freeways soar 100 ft above ground level. The advantages of such high overpasses are: 1) older buildings can be left untouched along the right of way; 2) less suppressive psychological effect is imposed by the structure at ground level; 3) views from the ground are generally preserved and views from the bridge above are enhanced; 4) less noise and air pollution is transmitted to the ground from vehicles on the bridge; and 5) open development of space below is permitted in the form of parks, buildings and the like. That this bridge relates so well visually to the rest of the city, qualifies it as architecture.

The second novel feature of this Central Park freeway is the use of the helicoil interchanges to provide vehicular access between the ground and the 100-ft-high roadway. These kinetic forms add materially to the aesthetic qualities of this bridge, making the structure much more than just a bridge with on-off ramps.

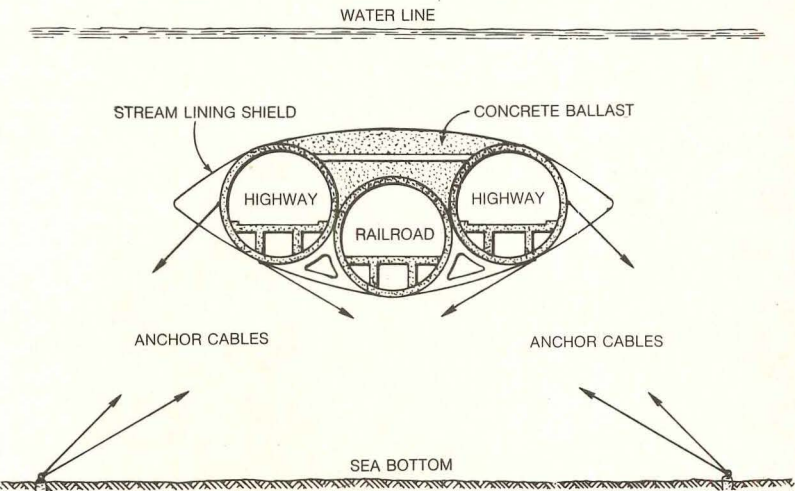
Another portion of the freeway has stores located beneath the bridge, somewhat in the fashion of those in Japan. The planning of this Papago project is going ahead and it may become a reality.

Unorthodox bridge

The final example to be noted (although dozens of other fine bridges could be mentioned) is so unorthodox as a bridge form that its architectural value has to be closely considered and viewed from a totally new perspective—from under water; for this bridge lies completely in the water, neither resting on the bottom nor floating on the top. Alan Grant, English engineer, proposed a bridge (10) to connect Italy with Sicily at the Messina Strait. Whereas most bridges must be held up against gravity, this bridge must be held down. The hollow tube sections are buoyed up by the water and held taut by underwater cables anchored to rock at the sea bottom. Load cells in the anchor cables sense any length changes so that the tubes can be maintained in their correct position at all times. The tube units, about 40 ft in diameter, would be fabricated of reinforced concrete and steel plates in sections about 300 to 400 ft long and floated out to the site. In all, this underwater bridge would be two miles in length. Concrete ballast added at the top would reduce the tension in the anchor cables, and streamlined deflector plates at the sides



8 Unbuilt design for Baltimore Harbor, dramatic bridge by Lev Zetlin would have spanned 840 ft between towers anchoring basket tension cables.

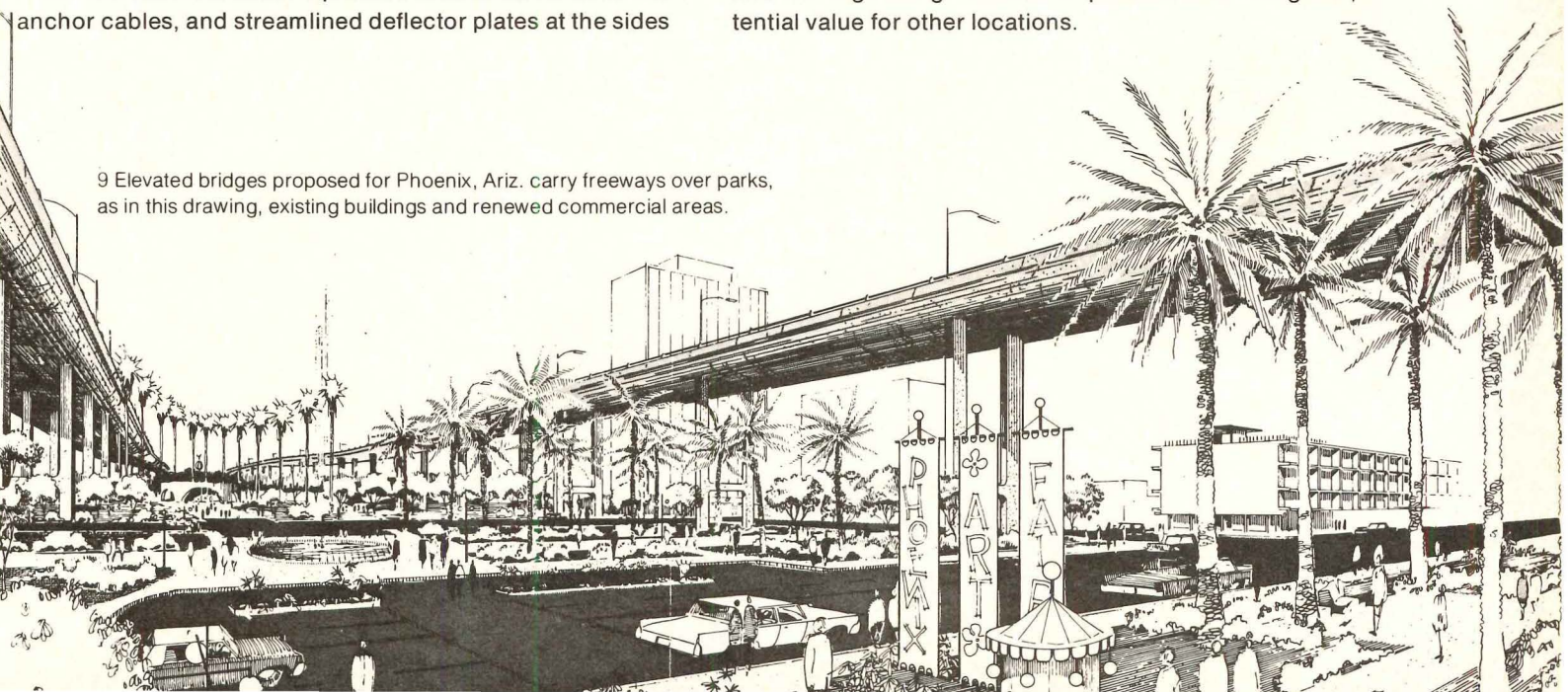


10 Underwater bridge proposed for Messina Strait is held down by cables.

would reduce the transverse drag due to water currents. Clearance of about 130 ft will be maintained from the top of the bridge to the water surface for navigational requirements.

Why is this bridge of architectural significance, despite the fact that none of it will be visible? Partly for the same reason that the Japanese architect Kiyonori Kikutake's underwater floating cities proposal is architectural. Additionally, the offset arrangement of the three tubes and the streamlined configuration make for a clean and pleasing bridge form unseen before in bridge design. The concept is bold and has great potential value for other locations.

9 Elevated bridges proposed for Phoenix, Ariz. carry freeways over parks, as in this drawing, existing buildings and renewed commercial areas.



Marshaling the yards



Acres of obsolete railroad yards in the center of the Midwest's largest city offer an opportunity for development that could add substantially to the resources and revenues of the city and make important connections to the existing urban fabric

Illinois Center, rising from 83 acres of obsolete railroad yards at the edge of Chicago's Loop, is an air rights project of such complexity that its master plan is nothing more than an open-ended development strategy to link all buildings and facilities via a three-layer circulation system. The first phase of building is now being completed; within 15 years, two more phases will extend the development east from Michigan Ave. to the lake and south from the Chicago River to Randolph St.

To date, One and Two Illinois Center, buildings by the Office of Mies van der Rohe, are completed and occupied. The Standard Oil of Indiana headquarters by architect Edward Durrell Stone is nearing completion and the new Chicago Hyatt House by A. Epstein & Sons is under construction. The only remaining building planned for phase 1 is a 50-story, 800-unit condominium on Lake Shore Drive.

While the concept of air rights for urban land development may seem relatively new, the Illinois Central Railroad had contemplated such development as early as 1929. But with the Depression followed by the war, it was not until the early 50's that the first development, the Prudential Building, was built over the yards. In the early 60's, Outer Drive East, a 900-unit apartment building was built on air rights, but neither of these early buildings was thought to be part of any large scale development. When the railroad sold these air rights, the city

sued, claiming that the railroad had the right only to the use of the land and not to the air rights. The decision, by the Supreme Court of Illinois, gave the air rights to the Illinois Central Railroad and by the mid 60's, three separate developers held options for air rights over various pieces of land. The city officials, anxious to see planned rather than continued piecemeal development, began working on a set of guidelines. Since the original concept of land use had been based on the sale of air rights, it was necessary, according to a city statute, to have a Plan Development Ordinance approved by the City Council and the Department of Planning and Development. The city had worked closely with the various developers and their architects on the guidelines and resulting Plan Development Ordinance is very similar in intent. The ordinance sets up maximum land coverage, maximum square footage of specific types of uses, the distribution of these uses throughout the site, and outlines the responsibilities of the various parties involved for public improvements.

The city, seeing further complications in dealing with three different developers, asked that they combine efforts in developing one master plan. One of the option holders was bought out and the development became a joint venture between Metropolitan Structures, Inc. and Illinois Center Corporation, a subsidiary of Illinois Central Industries, parent company of the railroad.

It's difficult to describe an 83-acre master plan that has no future buildings indicated, but exists as generalized land use and maximum square footage diagrams. The lack of an idealized model has provoked criticism from many people who would feel reassured by seeing what would eventually exist after 15 years of development. But due both to the nature of



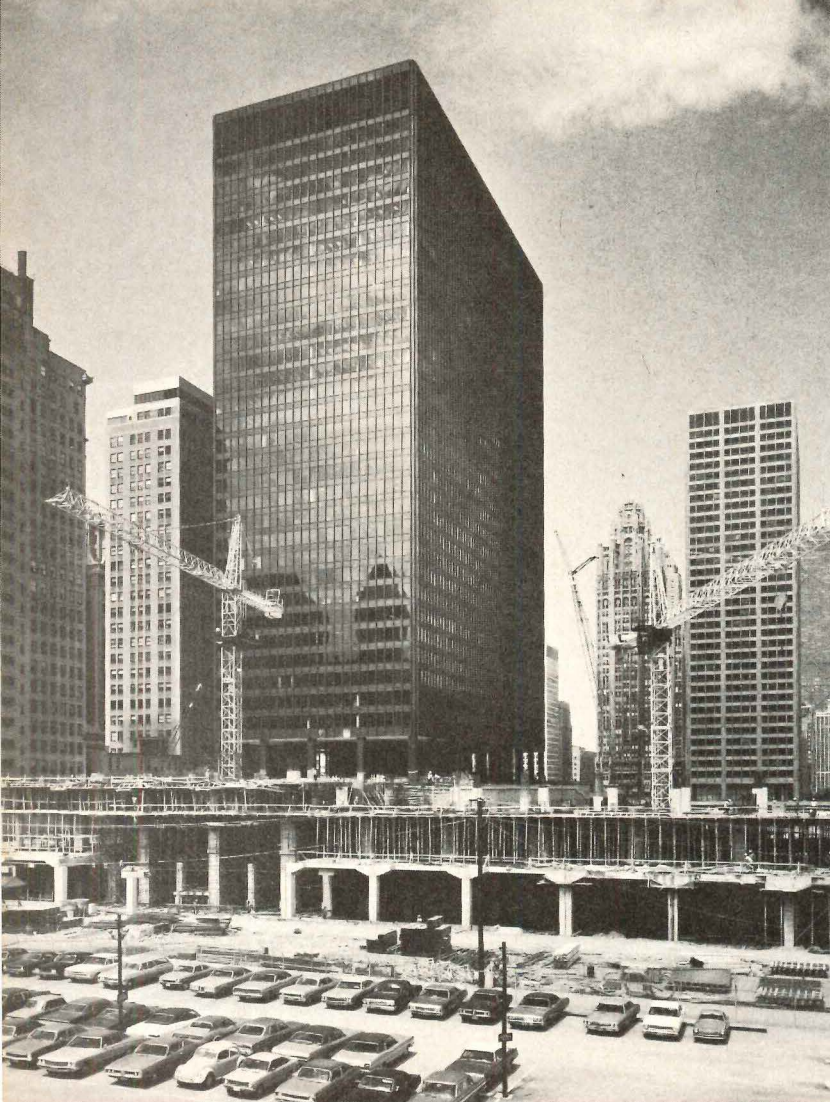
Railroad yards (above) around 1951. One Illinois Center (below) by the Office of Mies van der Rohe, was the first building completed.



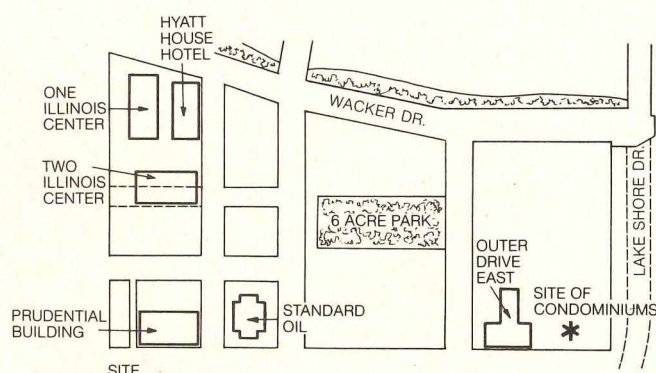
the lease agreement for land acquisition and the time span of development, an alternative to predetermined development was chosen by the firm of Soloman, Cordwell & Buenz Inc. and the Office of Mies van der Rohe, joint planners. Development had to be broken into three phases to correspond realistically to the construction of on-site utilities and necessary access roads.

The lease agreement between the railroad and the joint venture calls for the land to be purchased over the entire period of development. The options must be exercised by specific times so that land costs do not escalate beyond those set in the agreement.

Since specific development will take place only after the land is acquired, the master plan was conceived as a three-layer circulation network connecting all development. The lowest level (ground) is a truck and service link; the intermediate level is for through traffic; the upper level is for local access into the project. The railroad is responsible for construction of the on-grade service level, the city is responsible for the intermediate street level and the developers are responsible for the local access. Inserted into the intermediate level is a pedestrian walkway along which most commercial development would take place. This level will connect into building lobbies, into the suburban commuter station at the extreme edge of the site and into a proposed subway extension in the middle of the site. The rest of the three levels—where no access roads exist—will be parking, accessible from both the intermediate and upper levels. Even this network, however, exists mostly in theory. The only portion realized so far is under the buildings already constructed on the site. The



One Illinois Center (above) showing the construction of the substructure.



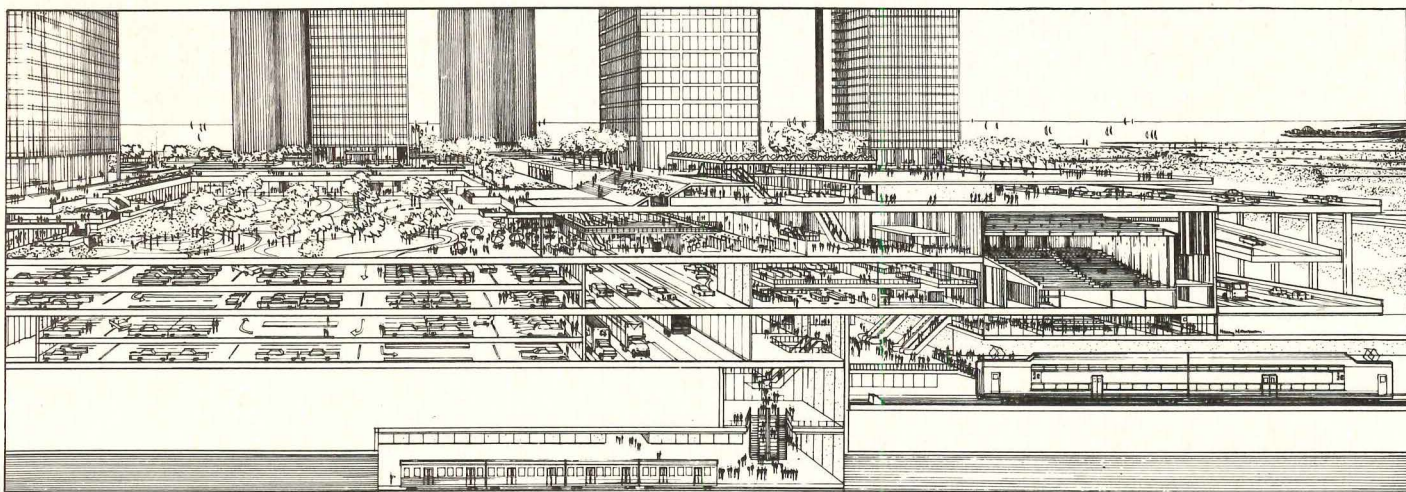
Marshaling the yards

remaining portions of the network will be designed as the land is developed.

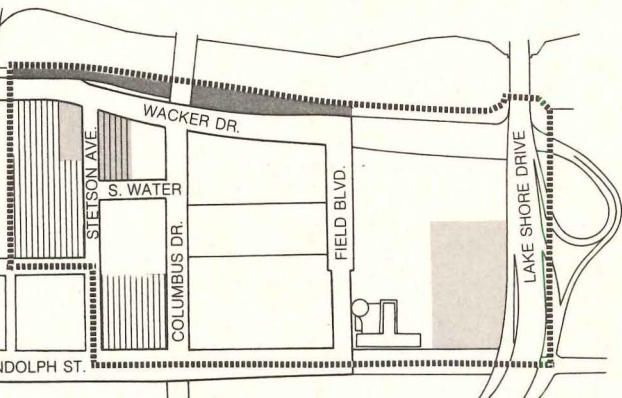
The developers see the potential for a mix of uses that goes beyond the residential/commercial/office relationship. Hoping to draw people from other parts of the city, they would like to encourage the development of cultural and recreational facilities. There are, however, no plans at the moment for any cultural facilities and it will take more than wishing to make that happen. There are definite plans for recreation that include a 6-acre park in the middle of the site opening directly off the pedestrian walkways. The frontage of land on the north side between the river and the project is being designed as a pedestrian promenade. Ultimately, after the rerouting of Lake Shore Drive on the eastern perimeter, 100 acres of park land will be created on fill beyond the drive. Activities programmed so far—a marina and music pavilion—will serve more than just the local population. The vast majority of the project's open space, however, will be the stretches of open plaza between the main entrance levels of all the buildings. Herald Jenson, president of Illinois Center Corporation, feels that much more thought should be given to what kinds of things happen there and how all the plazas connect.

Acknowledgment of this type of problem often occurs only after something is partly built. One of the possibilities of this kind of open-ended master planning strategy is that later stages can be altered to take advantage of new theories and attitudes towards planning, design and construction. If demand exists for other uses, if economics, technologies or construction methods change, no one is committed to buildings that are already obsolete.

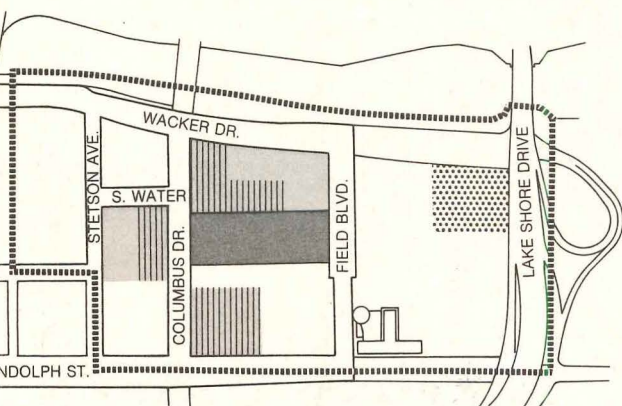
Further criticisms have been leveled at the development for its high density and for cutting off the lake front still more from the city. But unlike Los Angeles' Century City or Boston's Prudential Center, where disruption of the existing scale is obvious, the scale and density of Illinois Center fits comfortably with what exists. As for the second point, the rail yards have always separated the city from the lake in this area. While building high obviously means cutting off certain views of the lake from existing buildings, the ultimate accessibility of the lake and river to many more people, the potential residential units in the center of the city and the economic returns to the city of Chicago seem to outweigh any criticism voiced so far. [SLR]



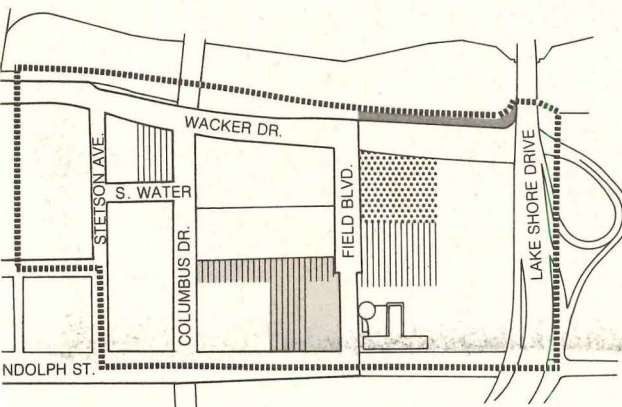
Drawing shows how the various levels of traffic tie into the buildings.



E 1



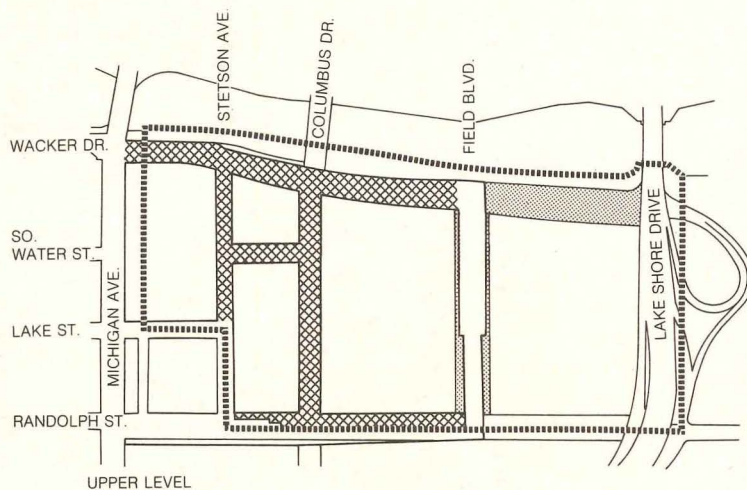
E 2



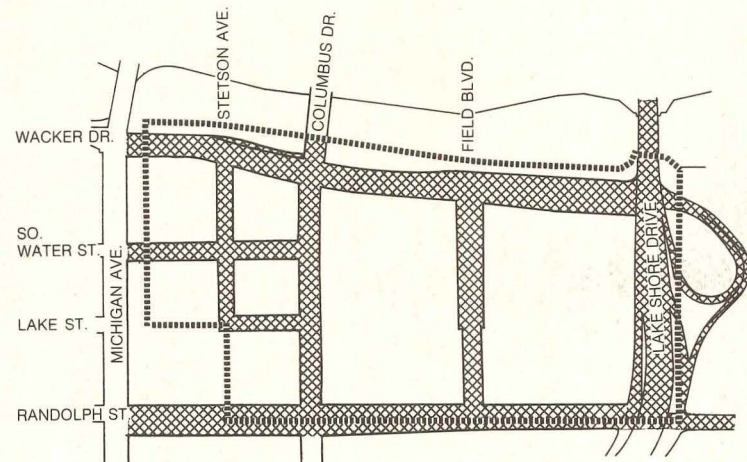
E 3

USE PLAN

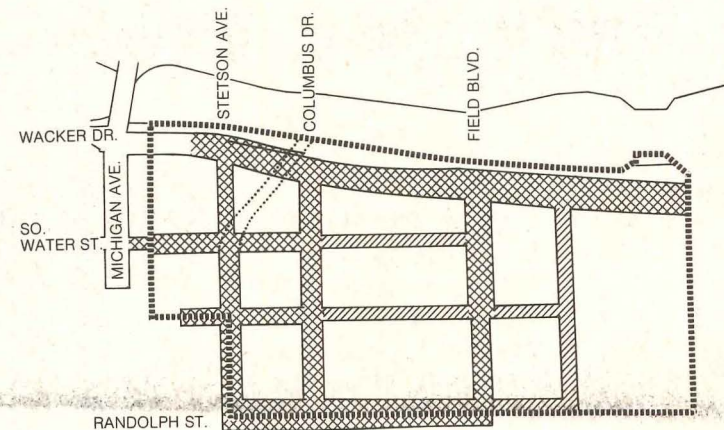
- SITE BOUNDARY
- EASEMENT FOR SUBWAY
- RESERVED FOR ARCADE LEVEL PARK AND ESPLANADE
- APARTMENTS, HOTEL, OFFICE, RETAIL
- APARTMENTS, OFFICE, RETAIL AND SERVICE
- OFFICE, RETAIL AND SERVICE
- APARTMENTS, RETAIL AND SERVICE
- VACATED RIGHTS OF WAY
- EXISTING RIGHTS OF WAY
- PROPOSED RIGHTS OF WAY
- PUBLIC UTILITIES
- EXISTING BUILDING



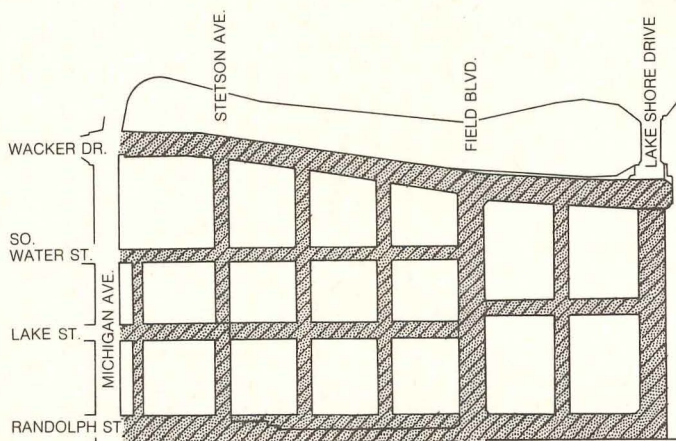
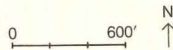
UPPER LEVEL



INTERMEDIATE LEVEL

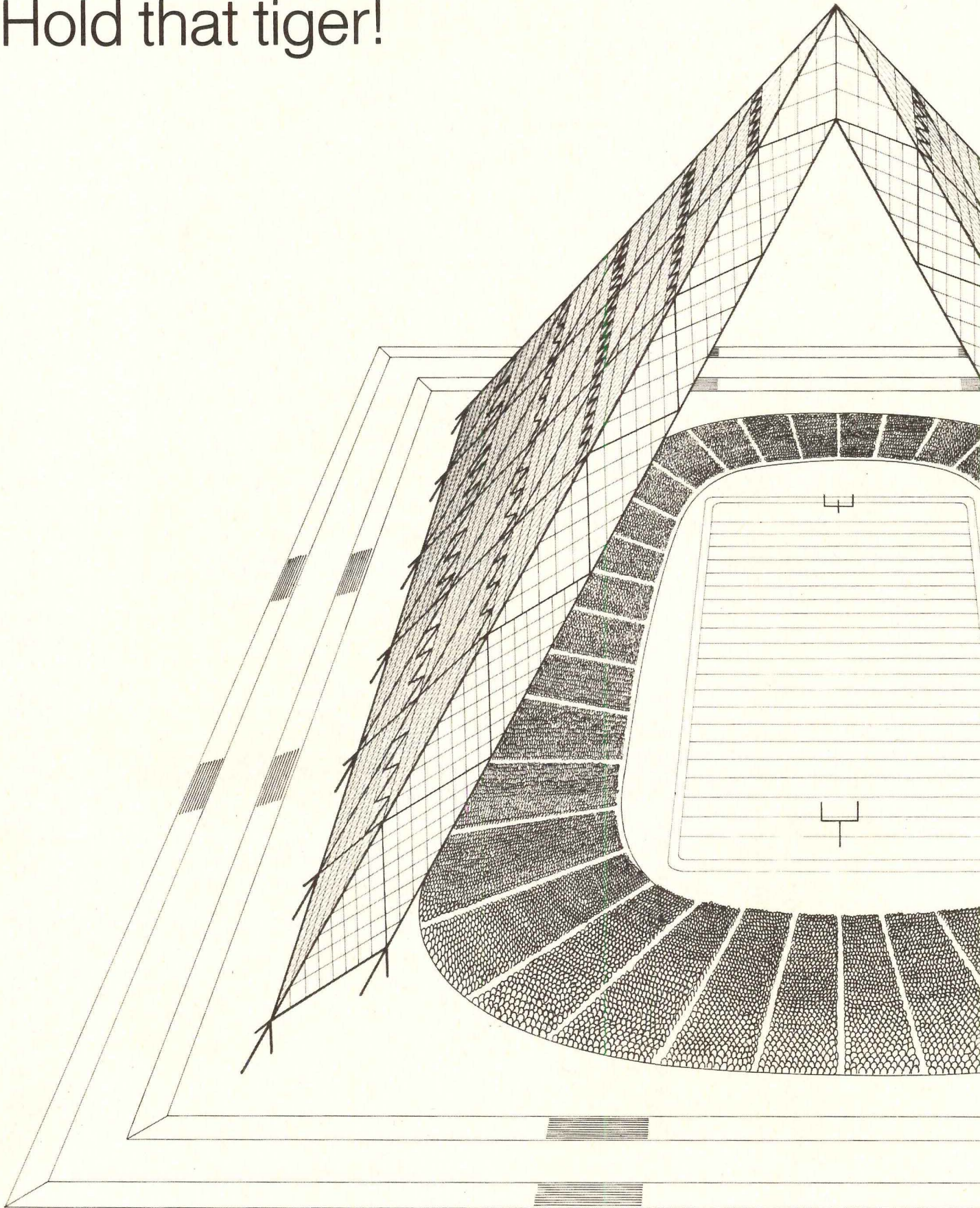


LOWER LEVEL

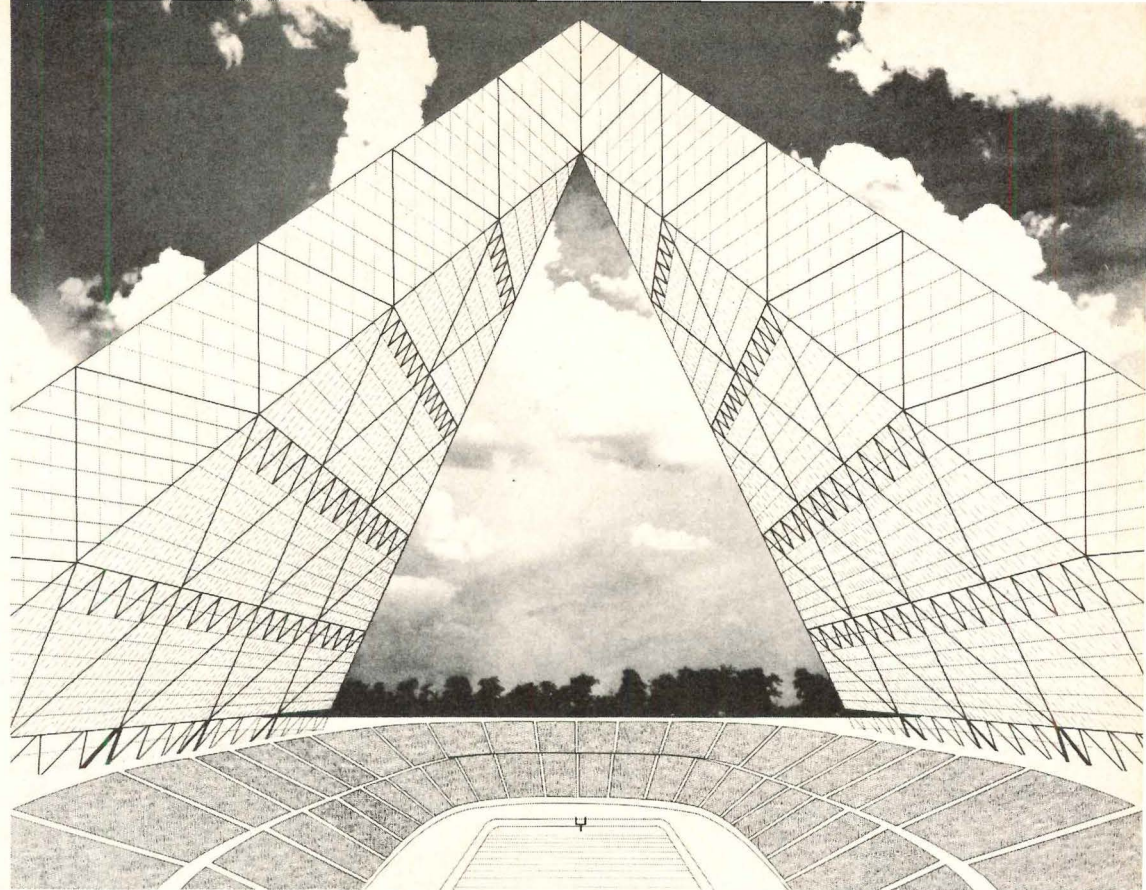


EXISTING
RIGHTS OF WAY

Hold that tiger!



In two huge superstructures joined over a 55,000-seat stadium, Stanley Tigerman's Instant Football project puts almost 2000 hotel rooms and 375,000 sq ft of rentable office space into 39 column-free levels.



It may seem audacious to put a large hotel and office complex over a football stadium, but it makes sense in urban locations where land is scarce

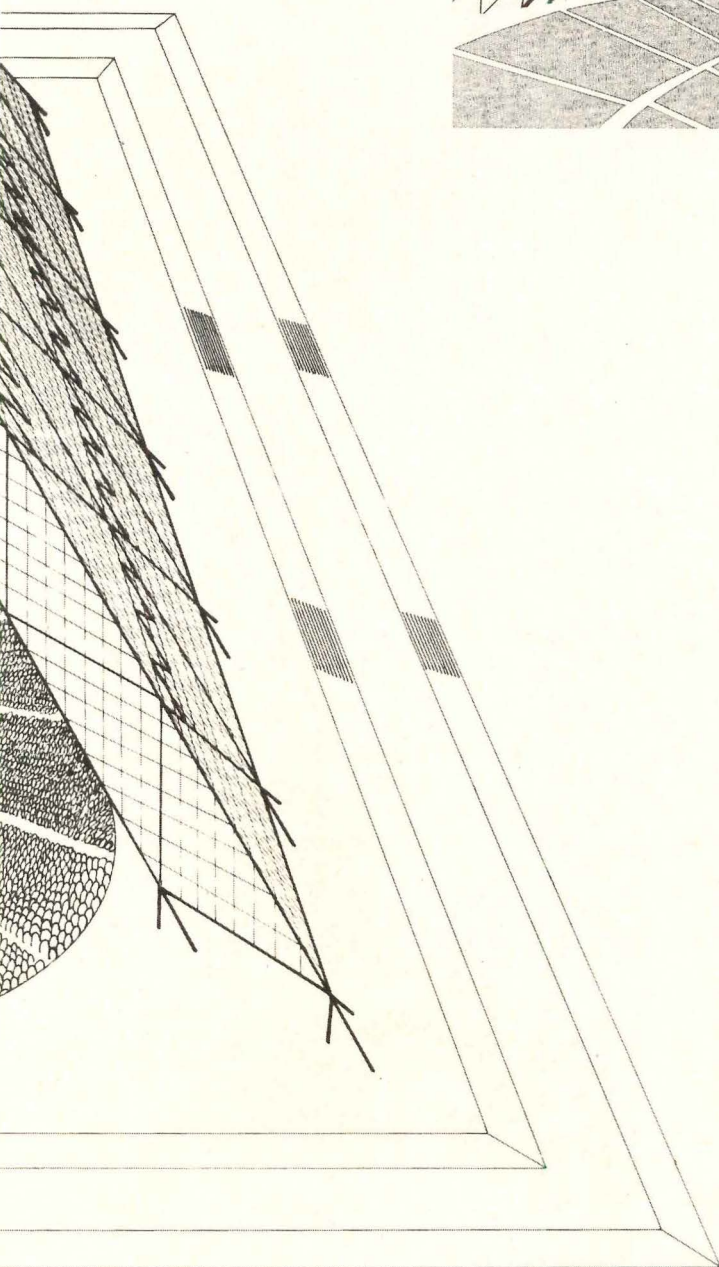
Forget the fur-lined coat, the laprobe, gloves and cushion. Check into a hotel room instead of a stadium seat. Although many football fans do this today, usually to escape a local TV blackout, the game won't be on TV. It will be just below the room, visible through a plate window and audible through a hookup to the stadium public address system.

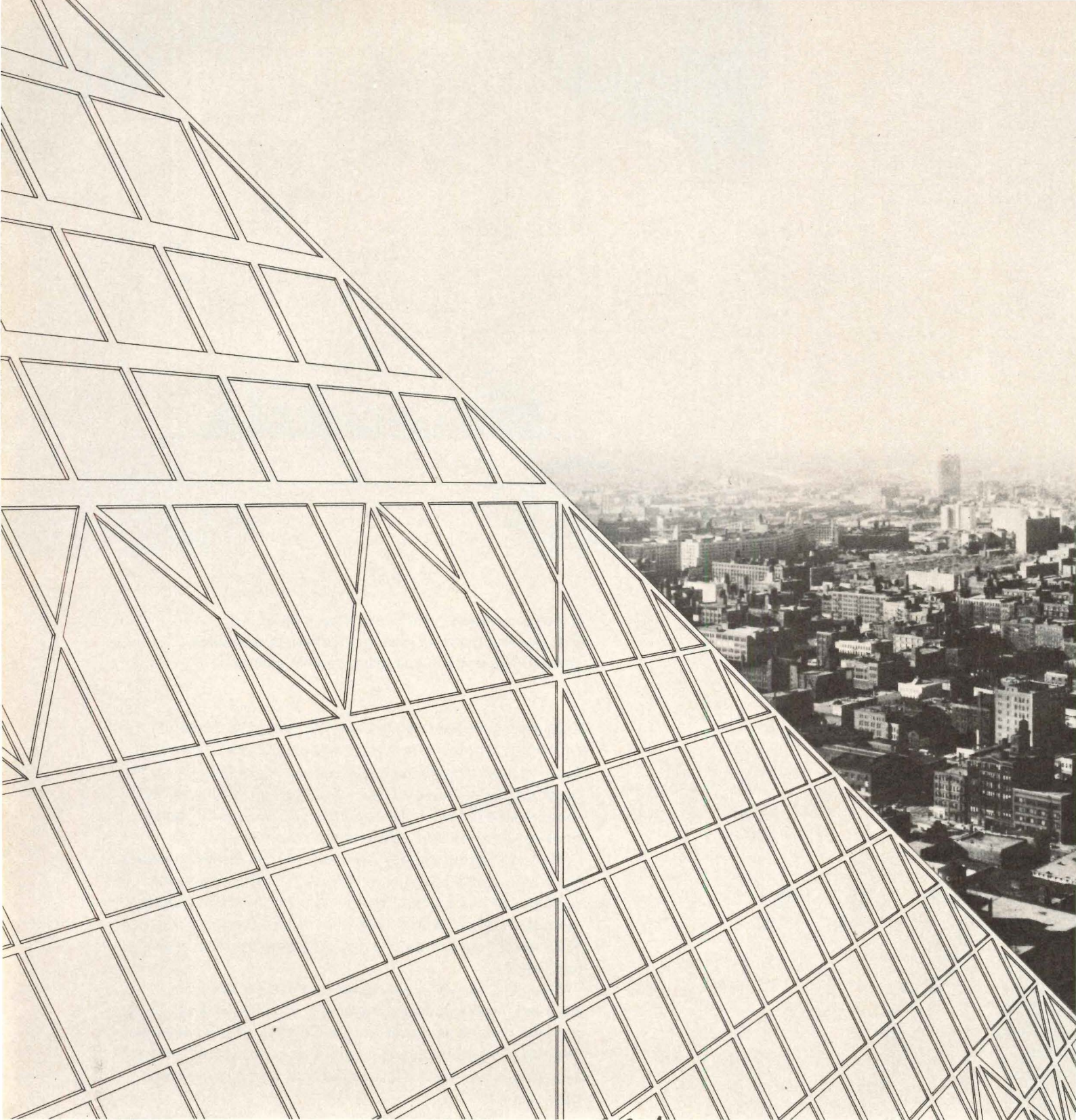
The idea behind Stanley Tigerman's hotel/football complex is not to keep the fans dry and happy, however. It's money: rentals of rooms with full view of the field, rentals of standard "outside" rooms, profits from other hotel operations and, to top it all off, rentals from the office building that occupies the top 18 floors.

Tigerman's triple-threat design was commissioned by George E. Karoska, an ex-player and team owner who has organized a firm to research and develop new stadium designs. The same investment banking firm that handled the Louisiana Superdome has agreed to arrange financing of the design development.

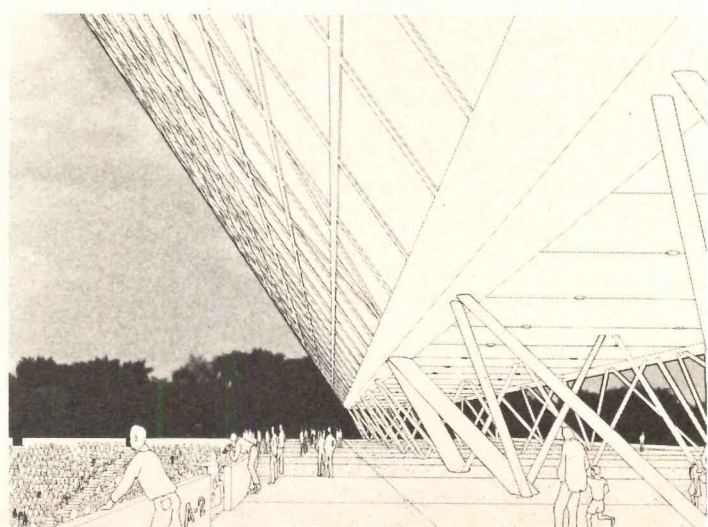
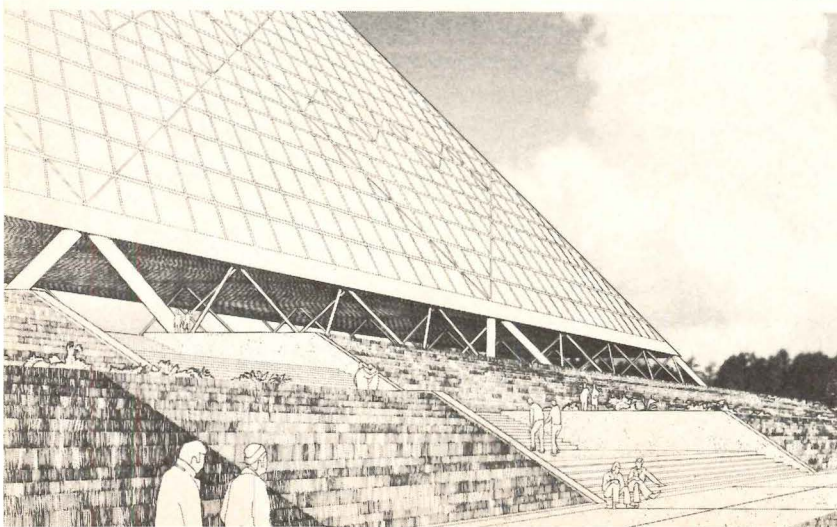
"One of the first things we did," Tigerman reports, "was to get the P/A article on stadiums ('All-American monument,' P/A, Nov. 1971). We were shocked to see what was spent for something that could only be used a few days of the year, even if it had a dome. Stadiums also take a lot of space, which compounds the problem in urban locations. We had developed the Instant City concept a few years ago, with living space built over expressways, and we thought we could apply it here so that the stadium, or at least the space above it, could be used all year. It will probably cost more than the usual stadium, but that should be justified by the extra use."

Actually, it won't cost that much more. Instant Football, as it is called, is comparable in seating capacity to the new \$41 million Cincinnati Riverfront Stadium complex, but it will cost





Stairs atop encircling berm (below left) lead over underground parking (shown in section, facing page) to stadium seating area (below right).



Hold that tiger!

only \$45 million and will include almost 2000 hotel rooms and 375,000 sq ft of rentable office space above the 55,000-seat stadium.

The hotel and offices are in two semipyramidal superstructures that slope inward over the playing fields to join each other at the top. The open space between the superstructures allows natural turf to be used on the field. The superstructures themselves are composed of 100' x 100' tetrahedral megastructures. Constructed on the principle of triangulation, the structure resolves into a three-hinged arch, thereby avoiding the inherent problems of the usual cantilevered type of tall building. The superstructures are framed in steel tube, fireproofed and clad in anodized aluminum and tinted glass. Inside these sloping structures 39 levels give a total gross enclosed area of 731,900 sq ft.

Above the entrance level, 15 floors of the superstructures contain a total of 1984 year-round hotel rooms. All rooms will be equipped with closed-circuit television, and those looking over the playing field—which will hold about 10,000 people—will be connected directly to the stadium public address system. Conference rooms, restaurants, dining rooms and a mezzanine lounge for another 2500 spectators separate the hotel from 18 floors of offices above it. An observation deck is above the offices, and mechanical rooms are above that.

The stadium itself, the parking, pedestrian and vehicular access tunnels and other facilities are in a concrete base structure surrounding the playing fields. On the field, some unique devices have been proposed to aid game scoring and to eliminate hazard to the players. The uprights of the adjustable, cable-supported goalposts house two lines of electric photocells, one behind the other, which will register goals only when the football passes between them in the right direction. The goal line markers will be brightly colored ribbons held upright by air forced from depressed ports; flexible side-line markers will protrude from an underground, electronically controlled monorail.

Throughout the hotel and office structures, a highly sophisticated system of express and local funiculars, yet to be designed, will move passengers to their destinations. [DM]

Data

Project: Instant Football.

Architect: Stanley Tigerman & Associates.

Program: develop a prototype professional football stadium with facilities for year-round use.

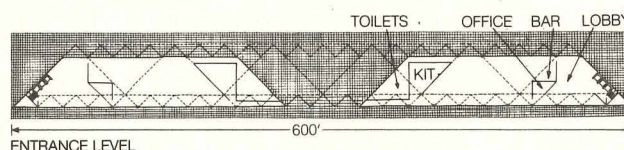
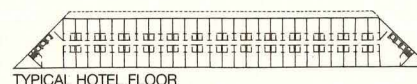
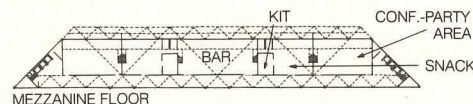
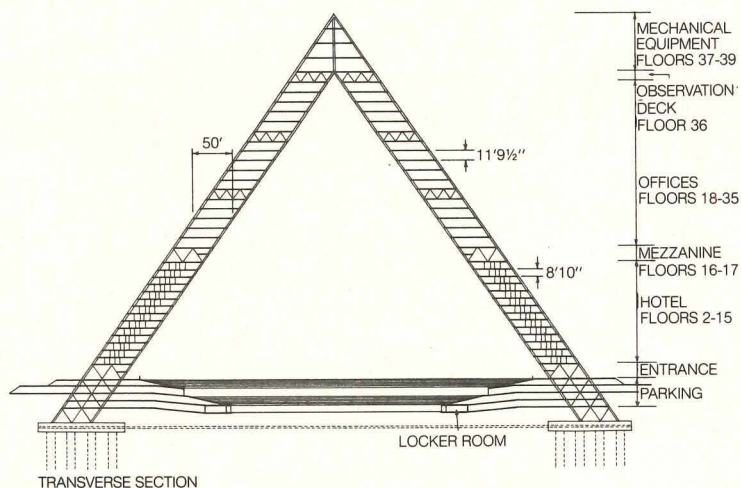
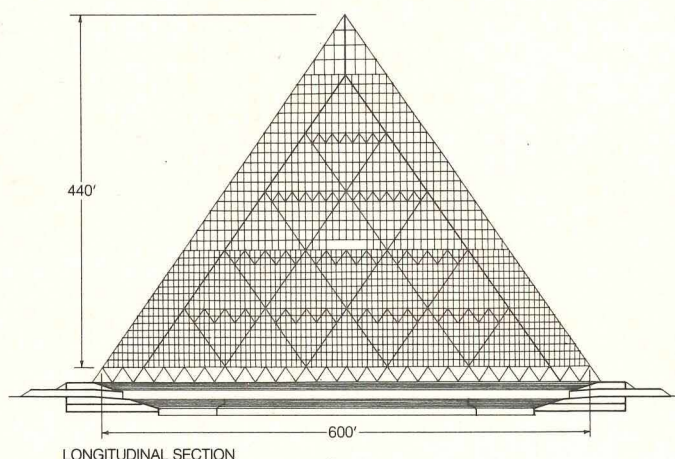
Site: 10 acres, preferably urban, to encourage year-round use.

Structure and materials: over a bermed, concrete base structure, two semipyramidal superstructures, joined at the top, are composed of 100' x 100' tetrahedral megastructures framed in steel tubes, clad in anodized aluminum and tinted glass. Floors are cored, lightweight concrete slabs.

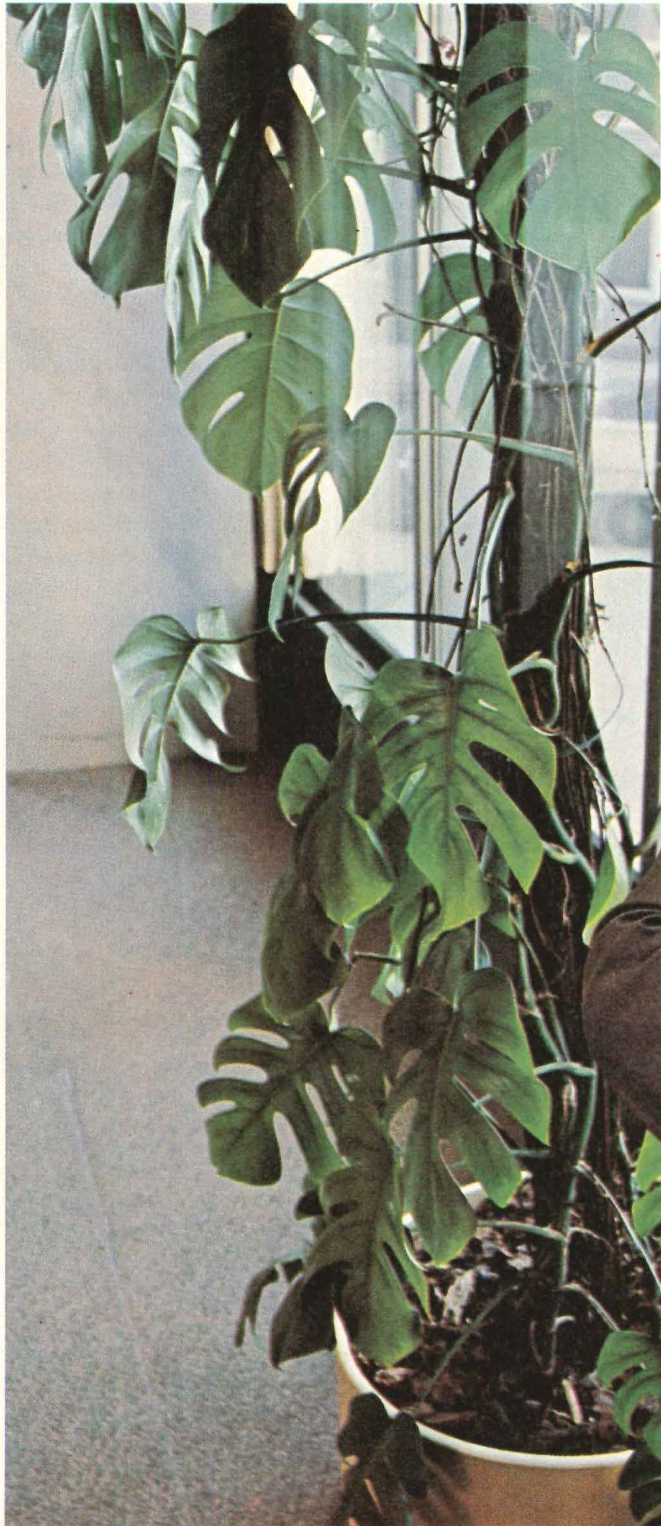
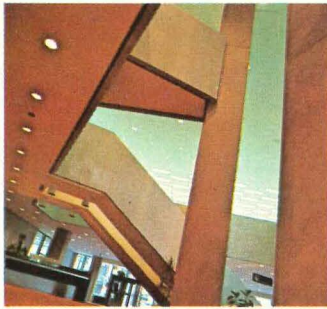
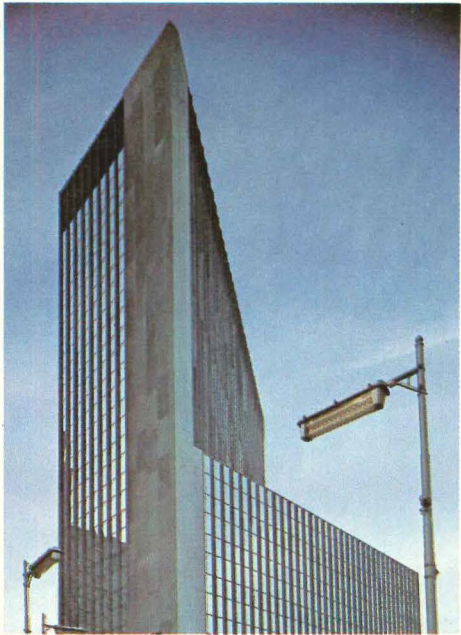
Anticipated cost: \$45 million, of which \$7 million is allocated to the stadium, \$2 million to site work and parking structures, \$36 million to the hotel and office structures.

Client: George E. Karkoska, KAR-DFD Corporation, Berwyn, Ill.

Consultants: Wallace & Migdal, Inc., Chicago, mechanical; Cohen-Barreto-Marchertas, Inc., Chicago, structural.



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Edison Plaza Building. Owners: Toledo Edison Company • Engineers, Architects, Planners: Samborn, Steketee, Otis and Evans, Toledo, Ohio.

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JAMES R. WATT, P.E., TECHNICAL SERVICES MANAGER,
TOLEDO EDISON COMPANY

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The architects incorporated in the design a heat reclaiming variable air volume system that uses heat generated from the interior lighting to heat the structure. "At Edison Plaza, the 8000-plus light fixtures generate more than 5 million BTU per hour, enough to heat 75 average homes. It was found that with proper distribution of this energy, little if any auxiliary heat would be needed."

"The key to good operating efficiencies" says Mr. Watt, "is the proper selection of air systems, heat reclaiming devices and building glass, like Vari-Tran."

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LOF

New trend in zoning laws

Bernard Tomson and Norman Coplan

Zoning ordinances that have aesthetic objectives, although traditionally held to be invalid by courts of law, now tend to be looked upon with favor

Zoning ordinances which were adopted to achieve aesthetic objectives were traditionally found invalid by courts of many jurisdictions on the ground that the legislative power to regulate can only be based on factors relating to the public health or safety. Such legal determinations were based upon the premise that aesthetic objectives vary widely and are determined by individual preferences and subjective judgments. Therefore, these courts concluded, absolute standards were outside of the legislative purview. Typical of this viewpoint is an Iowa case (*Stoner McCray System v. Des Moines*) that involved the validity of an ordinance requiring billboards to conform to certain standards of taste and appearance. The court held that a municipality cannot prohibit certain billboards because they do not meet certain standards of appearance, as considerations of beauty are an indulgence rather than a necessity. Consequently, the court ruled, the aesthetic objective sought could not validly support the exercise of the municipal regulatory power.

However, since the United States Supreme Court ruled in 1954 (*Berman v. Parker*) that aesthetic objectives may be considered in the exercise of legislative judgment and power, the judicial trend in many states has been to reject the traditional rule described above and to uphold zoning laws which have aesthetic objectives. Typical of this trend is a recent decision of the highest appellate Court of New York (*People v. Goodman*, 31 N.Y. 2d 262). At issue in this case was the validity of a 1967 village ordinance which banned commercial signs greater than 4 sq ft in area. The village involved was a beach community located at Fire Island National Seashore. The village in question had a summertime population of approximately 10,000 persons and a year-round population of less than 200. The village contained one public block with about 28 businesses.

The local druggist maintained four signs on his drugstore with each sign exceeding 4 sq ft in area. He was consequently charged with violating the zoning ordinance and found guilty of the charge. The druggist appealed, asserting that the ordinance was unconstitutional as applied to him, arguing that

since the ordinance was based solely on aesthetic factors there was no appropriate basis which could validly support the exercise of the municipal regulatory power. The druggist further argued that since the nature of his business involved the public interest, it was necessary that his store could be readily identified and located and that, therefore, no restriction relating to his signs could validly apply.

The Court of Appeals rejected this argument and upheld the validity of the statute, stating:

"It is now settled that aesthetics is a valid subject of legislative concern and that reasonable legislation designed to promote the governmental interest in preserving the appearance of the community represents a valid and permissible exercise of the police power. . . . Under the police power, billboards and signs may be regulated for aesthetic purpose. . . . Of course, as with every enactment under the police power, this measure must satisfy the test of reasonableness. . . .

"In assessing the reasonableness of such legislation, we may properly look to the setting of the regulating community. . . . To be sure, not every artistic conformity or nonconformity is within the regulatory ambit of the police power. Indeed, regulation in the name of aesthetics must bear substantially on the economic, social and cultural patterns of the community or district. . . . Here, our focus is on a small summer resort community, located on a narrow belt of sand, bounded by bay and ocean, situated within the Fire Island National Seashore. In creating the Fire Island National Seashore, the Congress recognized the special cultural values and natural resources of the area and acted to conserve and preserve for future generations the relatively unspoiled and undeveloped beaches, dunes and other resources within Suffolk County. . . . Moreover, this ordinance commands no arbitrary or capricious standard of beauty. Rather, it recognizes that advertising signs, if not adapted to their surroundings, may materially affect the appearance and character of the community."

Although, even under the present state of the law, legislatures do not have unlimited scope to adopt laws which have aesthetic objectives (being subject at least to standards of reasonableness), it would seem apparent that aesthetics will play an ever greater and expanding role in the adoption of new, and modification of existing, zoning laws.

Authors: Bernard Tomson is a County Court Judge, Nassau County, N.Y., Hon. AIA. Norman Coplan, Attorney, is Counsel to the New York State Association of Architects, Inc./AIA.

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Construction literature

Harold J. Rosen, PE, FCSI

Better organization and more complete product information can help design professionals as well as manufacturers cope with the burgeoning amount of data being generated

A national conference on construction literature was recently sponsored by the Los Angeles Chapter of CSI. The enormity of the problem of preparing manufacturers' literature for the design professional was highlighted when a speaker disclosed that the number of building products before World War II was in the range of 100 and now was estimated to be 750,000. And if four pages of literature are required to adequately describe each product, roughly 3 million sheets of literature are now in existence vying for the architect's attention. How to accurately and quickly retrieve the data contained in literature relating to design and construction is indeed an enormous task.

Organizing the material clearly and logically so that essential data may be gleaned quickly from this mass of information is essential to the architect and specifier. Organized outlines such as CSI's Spec-Data program for the preparation of manufacturers' literature is one step in this direction. One of the major criticisms of the Spec-Data I program is the absence of criteria requiring manufacturers to list the pertinent physical and chemical characteristics of their products so that side by side comparisons of competing products can be made.

A new development that takes this criteria into account is Sweet's Guide Lines. This organized outline was developed by McGraw-Hill Information Systems Co. with the help of some 270 architectural and engineering firms, specification consultants and product research experts. Sweet's Guide lines has been developed with the cooperation of AIA, CEC and the American Society of Landscape Architects.

AIA Document E101 "Technical Literature for the Construction Industry" dated July 1972 is a guide to effectively present technical data on building products. Essentially it deals with content and organization, presentation and pre-classification. Sweet's Guide Lines follows this concept and has developed criteria for several hundred basic materials, products and systems. Although the Guide Lines is intended primarily for manufacturers as an aid in the development and presentation of product information, it can also be used by architects, engineers and specifiers as a product-evaluating

check list. Document E101 recommends that products be defined in terms of significant aesthetic or visual attributes and include such aspects as operational characteristics; structural strength; water and vapor resistance; thermal acoustical and optical values; fire resistance; resistance to mechanical, chemical and organic degradation; and all other properties relevant to the product.

Sweet's Guide Lines has been formulated along these precepts by obtaining from the cooperating consultants criteria to be recommended for most building products. The Sweet's Guide Lines establishes these major headings for product literature: Document; Manufacturer, Association; Product Presentation; Uses, Application; Overall Product, In Place; Assembly, Installation; Component, Parts; Materials, Finishes; Coatings, Surfacing; Technical Support; Acceptability, Certification; Availability, Cost; Operation, Maintenance. Under these major headings, the Guide Lines provides further detailed information under subheadings intended to more fully describe the manufacturer's product.

For most basic materials and products, the Guide Lines cites specific criteria under the heading of product presentation. A manufacturer preparing product literature for concrete block, for example, would give information on fire resistance, sound attenuation, compressive strength, shrinkage characteristics, and a host of other criteria. Since all manufacturers would have to prepare their literature similarly, architects, engineers and specifiers would be able to select materials more readily since the organization of the information and specific criteria would allow more adequate appraisal and evaluation.

The major difference between CSI's Spec Data I program and Sweet's Guide Lines is that the latter system has formulated the product characteristics to be reported based on the consensus of participating consultants. And as previously stated this same criteria may be used by architects, engineers and specifiers as a check list in the selection and evaluation process.

The difficulty with the customized information that some manufacturers use is that the user must hunt and peck to find the essential elements needed to learn about the product since there is no logical framework for presenting the information. The Guide Lines provides a precision and commonality that makes for easier reference and search. However, the manufacturer is free to express the diversity of his product through graphic formats and individualized presentation, all within the framework of a uniform organization.

For additional information on Sweet's Guide Lines contact George Drake, Sweet's Division, 330 W. 42 St., New York, N.Y. 10036.

Author: Harold J. Rosen is Chief Specifications Writer of Skidmore, Owings & Merrill, New York City.

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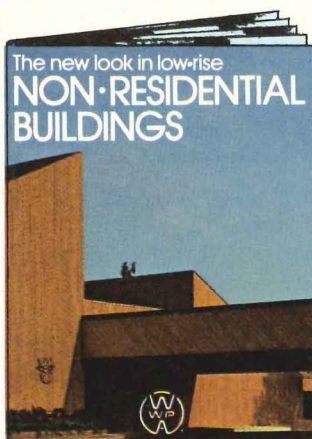


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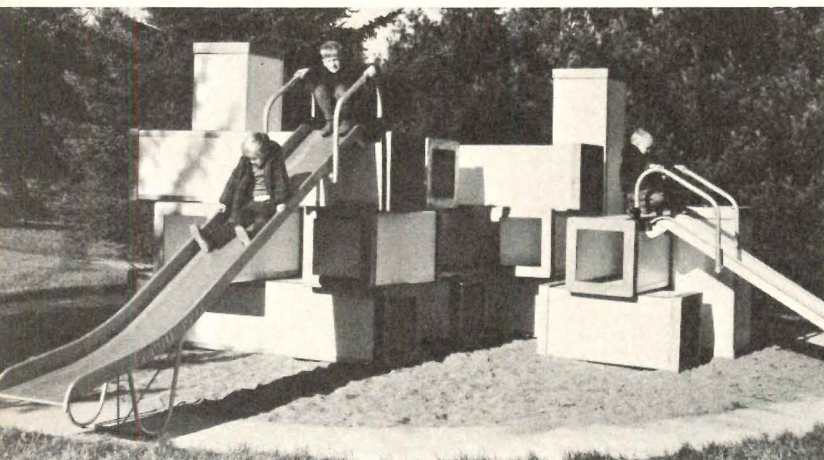
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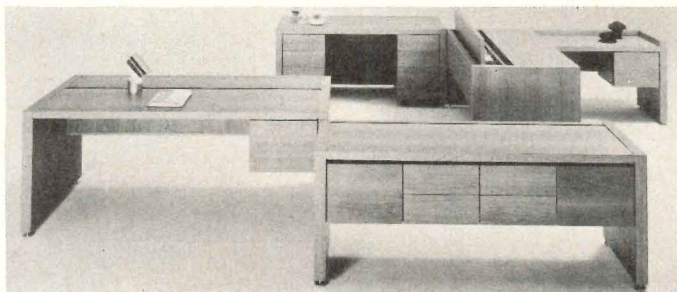
ger Restaurant, designed by Robert L. Barnett, A.I.A.; South Coast Village, designed by Bodrell Joerdan Smith, A.I.A., & Associates, Santa Ana, Calif.



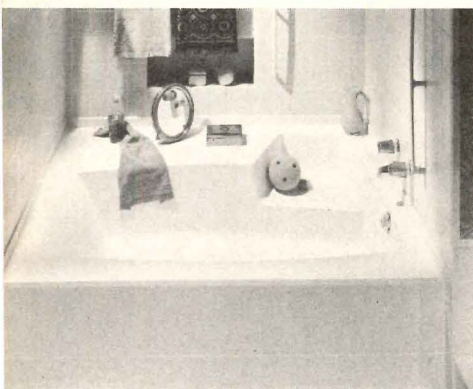
Products and literature



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Big boxes. Boxes for children's climbing fun are designed to be stacked, piled and stood on end. Made of exterior plywood pressure laminated with fiberglass on both sides, there are no protruding bolts or screws, no sharp edges or sharp corners. Boxes are 2' x 2' and come either 4 or 8 ft long. Available with ladders and slides. Game Time, Inc.

Circle 101 on reader service card

Three-circuit track lighting. This maker's swivel device for adjustability is now installed in a three-circuit track lighting system. Called StarTrack, three separately controlled circuits are housed within an extruded aluminum track, available in 4 ft, 8 ft and 12 ft lengths. The same track is used for all types of installations with track sections plugged together with connectors to form straight run, patterns or, with suitable accessories, a suspended integrated ceiling system. Swivelier Co.

Circle 102 on reader service card

Rotating draperies. This drapery construction, called Vari-Lux solar control, has a mechanism that provides for rotating folds of drapery for complete control of view and solar heat. A mechanism adapted from that used for louver blinds is used together with vertical pvc slats which form the skeleton of the drapery construction. Fabric folds may be rotated 180 degrees providing greatest transparency or they may traverse to the side to yield maximum glass exposure. Available in 20 woven patterns. Isabel Scott Fabrics Inc.

Circle 103 on reader service card

Stephens desks. Designed to accommodate the wiring of machines and telephones in the conventional office, and to offer a wider selection of ways to handle paper storage, these desks can be used either in private offices or to expand the capacity of company's landscape system. In oak; matching cabinets. Knoll International.

Circle 104 on reader service card

The bath. Oversized bathing pools are made of heavy-duty damage-resistant fiberglass-reinforced polyester, gel-coated to provide a smooth, satiny surface. Largest of the series is the 7-ft-long big oval; a gothic pool in a gently curved rectangular design is big enough for two—6 ft long by 4½ ft wide; long oval is 6 ft long and has a lumbar back support. Also available, an oriental soaking tub, three tubs with showers and four recessed showers. American Standard.

Circle 105 on reader service card

Vinyl wallcovering. An interplay of textures, Avion is a vinyl wallcovering by Vicrtex. The intricate design is created by tiny free-form semicircles set in squared-off blocks that alternate between concave and convex form; the pattern changes in all four directions. Comes in 21 colors. Swatches available. L.E. Carpenter & Co., Inc.

Circle 106 on reader service card

Building blocks. Using the square and the triangle, this furniture is designed, like building blocks, to be interchanged and adjusted to meet changing needs. There is a 23 in. cube ottoman which corresponds to seating depth and width; the 8 in. back or arm segment can be added. Further progression is described as endless. Marden Mfg. Inc.

Circle 107 on reader service card

[continued on page 120]

EASY-PLY ROOF DECKING

Structural roof deck,
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finished ceiling

specifications:

(2 $\frac{3}{8}$ " thick)

R=6.88; U=0.15

(add 1" thick urethane board,

R=13.74; U=0.07)

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60" o.c. for 40 psf live load

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1 $\frac{3}{8}$ " or 2 $\frac{3}{8}$ " thick (2' x 10'

and 2' x 12' on special order)

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White Korad[®]

100% acrylic, White "flitter"

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with white acrylic paint,

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of code-approved
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Ordinary gl

She's not crying *because* her hand's not hurt!



New Amarlite SAFETYLINE entrance protects people from injury!

A child's hand is priceless. That and safety for all people is the inspiration for this unique, beautiful entrance.

There is no way to injure hands at either stile, thanks to a cylindrical guard at the pivot edge and a vinyl protector at the locking edge. Flush hardware with recessed pull prevents injuries—no projections to catch clothing, purses, packages or

jewelry. Safetyline must be glazed with tempered or safety glass only.

The first safe and secure entrance has a 2-point top-and-bottom rod lock. Discourages break-ins and eliminates finger-cutting and ring-catching at keeper for dead bolt-type locks. Available in corrosion-resistant Amanodic hard coat finishes (dark bronze and black) and clear anodized aluminum.

*Patent Pending



Unique pivot guard prevents pinched fingers. There is no dangerous gap between the pivot stile and the jamb, as there is when an ordinary door opens. The gap is eliminated by cylindrical design.



Exclusive flexible vinyl finger protector eliminates danger to hand caught by closing door. If a hand gets caught, vinyl "gives", preventing injury. No scissors action as with an ordinary door.



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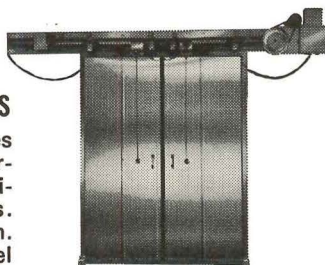
Jamison introduces

3 NEW COLD STORAGE DOOR SERIES

Now get traditional Jamison quality and service in every price range!

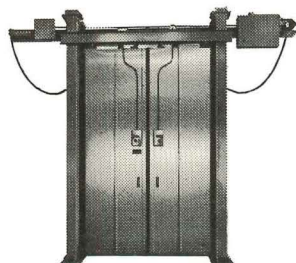
NEW JAMIGLIDE™ COOLER DOORS

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Products continued from page 116

Tubs and showers. Corlglass bathtubs and shower enclosures, particularly well suited for the mobile home industry, are suggested also for application in apartments, motels, hospitals as well as new and remodeled single-family homes. Of lightweight, corrosion-resistant fiberglass with a self-extinguishing rating, Corlglass products carry the approval of the International Association of Plumbing and Mechanical officials and comply with HUD/FHA requirements. Corl Corp. Circle 108 on reader service card

Slings. An armchair and armless pull-up chair have been added to the sling series of this maker's chairs with a slim rod frame and fabric slings; the chairs stack in varied combinations, can be ganged and alternated. Nylon-coated, woven vinyl support material beneath the covering upholstery gives additional strength and reportedly offers greater seating comfort than is possible with usual rigid chair design typical of most stacking and ganging chairs. Color brochure is available. Harter Corp. Circle 109 on reader service card

Literature

Timber. Brochure contains quality control and inspection program information for structural glued laminated timber. Illustrations of building design concepts in laminated wood; engineering design information; allowable unit stress, section properties, beam design and arch design tables; and beam and arch design procedures are offered. Also given are solid and laminated wood decking data, typical connection and building system details, appearance grade definitions; architectural guide specifications. American Institute of Timber Construction. Circle 110 on reader service card

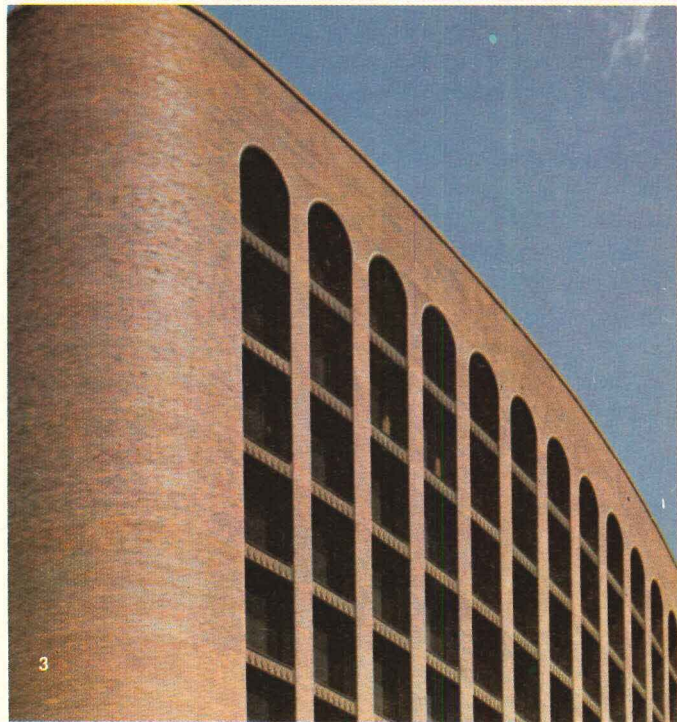
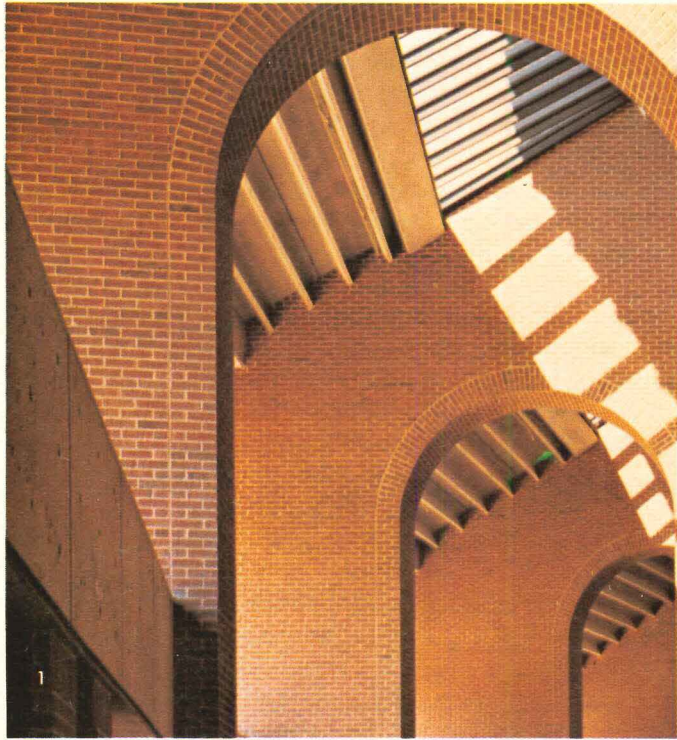
Limestone handbook. This 1973 edition of the handbook on Indiana Limestone contains 106 pages of design information, details and specifications on how to use Indiana Limestone in building construction. Indiana Limestone Institute of America. Circle 111 on reader service card

Plank paneling. Solid hardwood plank paneling is supplied in random width, random length planks. Factory-coated with catalyzed alkyd urea to resist dents and nicks, Townsend paneling is available in a choice of 13 woods. Brochure from Potlatch Forests, Inc. Circle 112 on reader service card

Western wood. Expanded to include design values and complete data on the full range of lumber sizes and grades, the 1973 edition of this company's technical library includes eight end use catalogs covering 11 softwood species. Tables giving design values for light framing 2 in. and less and 3 in. and less in thickness and on properties of sections for joists and beams, planks and decking are included. Western Wood Products Association. Circle 113 on reader service card

[continued on page 126]

Circle No. 340, on Reader Service Card



1. Richmond Coliseum, Richmond, Virginia. Architects: Vincent G. Kling & Partners. Photo courtesy Brick Institute of America. 2. Southeastern Massachusetts University, Arts and Humanities Building, North Dartmouth. Associated Architects: Desmond & Lord, Inc., and Paul Rudolph, FAIA. Interior Consultant: Bill Bagnall Associates, Inc. 3. Public Service Alliance of Canada Building, Ottawa. Architects: Schoeler Heaton Harvor Menendez Associated Architects. Photo courtesy Brick Institute of America. 4. Executive Headquarters and Nassau Center Office. Hempstead Bank, Garden City, Long Island. Architects: Bentel & Bentel, AIA.

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Circle No. 397, on Reader Service Card

Products continued from page 120

Curtainwalls. "Alcoa Alply Panels" is a quick-reference guide to all-purpose prefabricated construction panels with finished interior and exterior facings. It lists available finishes and colors and shows panel edging, joining and assembly methods as well as typical installations including hospitals, schools, office buildings and refacings. Aluminum Co. of America.

Circle 114 on reader service card

Washroom fixtures. This catalog covers 4- and 36-in. circular and semicircular washfountains in precast terrazzo, Bradglas polyester, stainless and enameled steel and corner and counter-type models. Also illustrated is this company's line of shower equipment, pressurized soap spray systems, shower valve controls and other products. Colors, specifications and layout drawings included. Bradley Corp.

Circle 115 on reader service card

Educational flexibility. Brochure explains how a concrete roof deck, masonry walls and steel beams can be used to modify school program and classroom groupings without remodeling the school building. Sketches and photographs illustrate the flexibility concept within classroom groups; drawings show plans and details for construction of decks, walls, partitions and for interior arrangements. The Flexicore Co.

Circle 116 on reader service card

Roofing shingles. Brochure describes asphalt shingles designed for wind and fire resistance. For new and remodeling applications, and for residential, commercial and industrial use, the shingles feature a Wind-Seal; powerful thermoplastic adhesive dots, activated by the sun's heat, seal every shingle down in a grip that is reported to resist even hurricane force winds. Moisture cannot be trapped under the shingles because the dots are spaced at intervals to provide quick, complete drainage. Bird & Son.

Circle 117 on reader service card

Ceramic tile. More than 140 colors, textures and designs are shown in this 20-page catalog of floor and wall tile for residential, commercial and institutional use. Newly introduced is a collection of ceramic wall fashions called Romany Flair Tile. United States Ceramic Tile Co.


Circle 118 on reader service card

Terrazzo flooring. Terrazzo flooring with dividing strips for conventional and monolithic terrazzo are described in an 8-page brochure. Advantages and specifications are given as well as use and types of dividing strips for thin-set terrazzo systems, expansion type dividing strips and base beads, technical data, and details. Manhattan American Terrazzo Strip Co.

Circle 119 on reader service card

Sideroskin. A high gloss, tough finish for this maker's furniture is the result of five years of laboratory research. Available in two forms, Sidercolor is a high gloss finish achieved by applying three coats on a specially prepared surface; Sidero-clear is a high gloss finish for application over wood without loss of natural variations. Intrex Inc.

Circle 120 on reader service card



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look
of wood
comes
to light

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Idaho White Fir and Southern Yellow Pine species are carefully selected, graded, laminated, and treated under pressure with preservatives to provide long service life. Surfaces allow natural weathering or staining. Center wire way conceals wire. Pre-drilling of arms and tenons assures installation ease and perfect fit of a wide selection of architectural luminaires. Poles range in height from 2 feet to 30 feet.

The Hubbell Architectural Woodlighting system will bring your setting back-to-nature. Write for brochure.

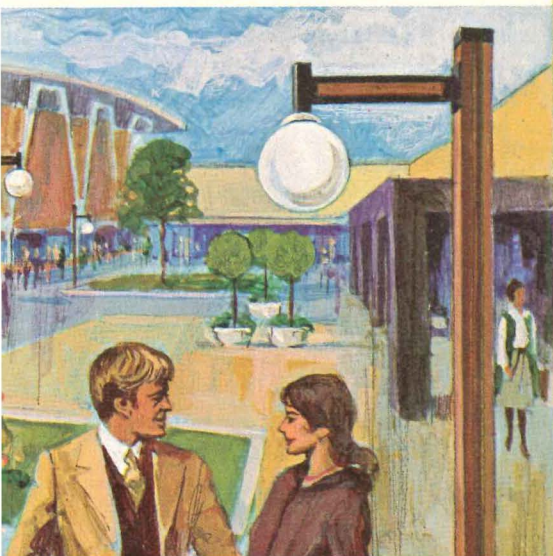
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Circle No. 368, on Reader Service Card



Roundup

Third Generation: The Changing Meaning of Architecture by Phillip Drew. New York: Praeger Publishers, 1972. 176 pp. \$25., \$3.95 paper.

In this detailed study of the new generation of modern architects, Philip Drew sets out to prove, with a series of biographical studies of over 20 such architects, that this generation "does not present a monolithic, self-consistent architectural program. Rather, it exhibits a new-found tolerance and mature insight into the complex contradictions of life." He also amplifies Forrest Wilson's statement in "From Product to Process: The Third Generation of Modern Architects," (P/A, June 1970, p. 157) that "The revolt of the third generation architects . . . is to secure an integrated human implementation of function and a richer formal language."

This is an engrossing look at the work and the theory of some of the most successful architects of this generation; the first book, to our knowledge, to draw a profile of this significant group and their contributions. The detailed biographical summaries become definitions of the work of men who rejected the functionalist concerns of their teachers and turned to other sources for inspiration. Jørn Utzon is described as "the most compelling and original visionary of the third generation; Moshe Safdie's architecture embodies its "distinctive ideals." The fantasy structures of Archigram are extensively documented, as are the plans of the Japanese Metabolists—Isozaki, Kurokawa and Kikutake. The works of Frei Otto, Robert Venturi, James Stirling, John Andrews and Kevin Roche are illustrated and analyzed from the view of structural interest, psychological input, form and expression, conceptions of

space and aesthetics. The result is a book that well succeeds in defining the meaning of architecture in a changing generation.

Mexican Landscape Architecture—From the Street and From Within by Rosina Greene Kirby. Tucson, Arizona: The University of Arizona Press, 1972. 167 pp. \$27.50.

Despite the lavish color reproductions and the slick stock that contribute to making this a visually beautiful book, there will probably not be too many people, architects included, who will sweep this book from sellers' stalls at its price. That is regrettable, because a book as interesting and attractive as this one should have been packaged so that its appeal, if not universal, could be broader. (This comment applies to countless books that cross this desk, many worth reading and reviewing—but frequently so overpriced their appeal must be limited.)

Aside from its price, however, the book is an excellent historical account, photographically and in the scholarly and informative commentary, of some 600 years of Mexican environmental design. Divided into three sections it covers "The View from the Street," defining the prehispanic era and the artistry of the Aztec civilization in relation to gardens and plants; the colonial era when the plaza and homes and gardens of Spanish design emerged; parks, portraying some of Mexico's most notable and emphasizing not only their beauty but also their use by the people from early morning until late at night.

The "View from Within" describes "the roots of Anahuac," a brief history of Aztec garden design; atrios, from those in small monasteries to those as large as a football field; patios, again with roots in Spain; and gardens of seclusion, private contemporary gardens, a fundamental element in Mexican landscape architecture. In the chapters on the contemporary scene, the book focuses on the work of Luís Barragán, through whose efforts the author feels Mexican landscape architecture has emerged as a profession in its own right.

New British Architecture by Robert Maxwell. New York: Praeger Publishers, 1973. 199 pp. \$25.

Fifty examples of recent British architecture, mostly dating from the 1960s are examined in this book, which first examines British architectural tradition and its postwar development in both theory and practice. Brutalism, "the intensification of feeling and principles" culminating in the

modern architect's statement "I don't want to be good, I want to be interesting," is viewed as the essential ingredient of the new British architecture. The buildings shown are interesting.

Analytical Models for Urban and Regional Planning by Ian Masser. New York: Hal Press, 1972. 164 pp. \$12.50.

This book is an effort to confront what the author views as one of the most serious problems facing urban and regional planners—relating anticipated needs to past experience.

With developments in the fields of systems analysis, cybernetics and operations research responsible for transforming large parts of urban and regional planning into computer-based mathematical models being used increasingly in the planning process. This is an introduction to the analytical models that are most frequently used in respect to three areas of urban and regional planning: population, economic activities and spatial organization. It is designed for students of planning and related aspects of geography, economics and urban studies and for those who wish to improve their understanding of these methods.

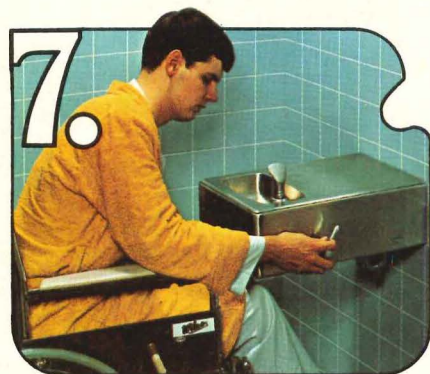
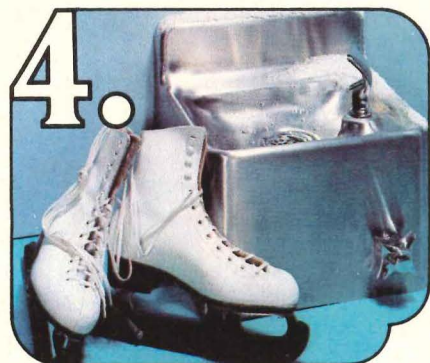
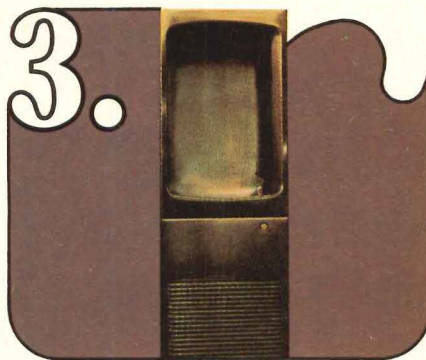
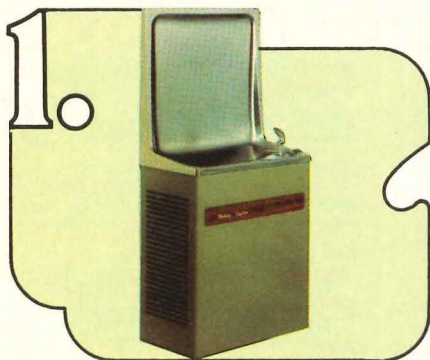
Based on the author's teaching and research experience, the material is presented using simple numerical examples. Computer procedures are included to encourage experimentation with the models described.

Tired Dragons: Adapting Church Architecture to Changing Needs by Edwin C. Lynn. Beacon Press, 1972. 276 pp. \$12.

The author takes an irreverent look at existing church buildings, tears them apart by fixed pew and room by outmoded room, and suggests ways these buildings can be adapted to the changing needs of congregations. He isn't quite sure whether congregational change or building change comes first, but, he says, the worst possible way to decide on change is to leave it in the hands of the existing building committee.

Mr. Lynn, minister of a Unitarian Universalist church and also a registered architect, is not writing for architects—he urges the reader to hire an architect at the very beginning of any remodeling project—architects would do well to pay attention. Many of the suggestions are the "why didn't I ever think of that?" variety.

Congregations are questioning the extensive costs of church programs and [continued on page 130]



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San Francisco-Atlanta	\$31.50
Philadelphia-Houston	\$26.25
New York-Tampa	\$26.25

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Circle No. 365, on Reader Service Card

Books continued from page 128

buildings, which are often due to poorly managed and inefficient use of existing property. Efficiency is the answer. The author's theme: Multiple use is a means to an end; the end is full utilization.

The book starts with a re-definition of functional areas required: the minister's study, for instance, now needs to be a small conference room; the church office should really serve as the reception area of the building if it is used frequently during the week. Mr. Lynn advocates study libraries, media rooms, project rooms, regional service rooms, early childhood units that can become day care centers, adult program lounges and "unfinished rooms" that can be turned over to the teenagers. He believes sanctuaries should be used for nonworship activities and that many Sunday school classes need not meet in formal classrooms.

Several case histories are included, but their illustrations are the book's only weakness. Most are without captions and are too separated from the text which could explain them.

Documents

[The documents listed below are available from the associations and agencies cited. Request for such documents should be directed accordingly.]

Steel Electrical Raceways Design Manual.

67 pp. Engineering Division Library, American Iron and Steel Institute, 150 E. 42 St., New York, N. Y. 10017. \$1.

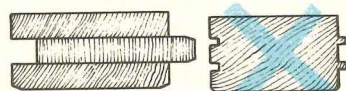
Analysis and application of the provisions of the 1971 National Electrical Code relating to steel electrical raceway systems are offered in this publication. Factors that make safe, dependable wiring systems in most institutional, industrial and residential occupancies are included.

Educational Facilities Review Series: Vocational Educational Facilities by Sharon Counts Johnson; Open Plan Schools by Alan M. Baas; Modular Components by Alan M. Bass; Environments for the Physically Handicapped by Alan M. Bass. Educational Resources Information Center

(Clearinghouse on Educational Management), University of Oregon, Eugene, Oregon 97403. Copies are available free.

These reviews of literature related to educational management refer to recently published projects as well as abstracts of various documents available.

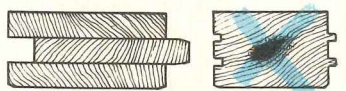
ADVANTAGES OF LOCK-DECK® LAMINATED DECKING



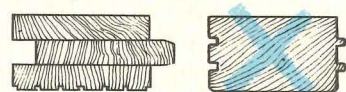
EXCLUSIVE: Lock-Deck consists of 3 or more kiln-dried boards, offset to form tongue on one side and end, groove on the other, laminated with weatherproof glue. We invented it.



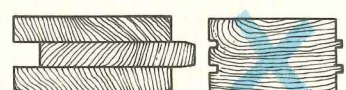
STRENGTH: Lock-Deck offers a range of E factors giving superior load-carrying values in spans to 20' or more in 5" thicknesses.



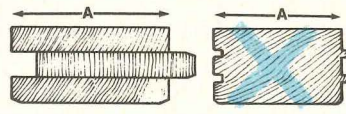
STABILITY: Each board in Lock-Deck is kiln-dried to 10-12% m.c. before lamination. This assures greater stability under all conditions.



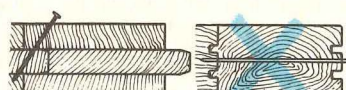
BEAUTY: One or both faces of Lock-Deck can be any desired grade, in a wide choice of species. Solid decking is limited in both grades and species.



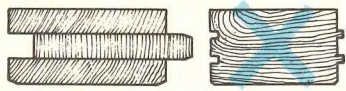
ECONOMY: In-place, finished cost of Lock-Deck is often less than solid decking due to speed of erection, factory-finishing, absence of waste, better coverage.



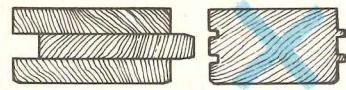
MORE COVERAGE: Offset tongue and groove on Lock-Deck gives more coverage per bd. ft. than machined solid decking.



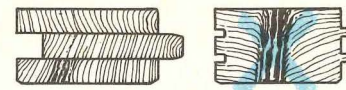
LESS LABOR: Lock-Deck installs quicker, using ordinary nails. Solid decking requires spikes, special fasteners or splines.



LESS WASTE: Offset end match, absence of twisting and few unusable shorts keeps waste well below that of solid decking.



VERSATILITY: Lock-Deck forms excellent load bearing or curtain walls as well as floors and roofs.



DURABILITY: Unlike solid decking, knots or checks can go through only one ply in Lock-Deck. Weather-proof glue and exclusive process make bond stronger than the wood itself.

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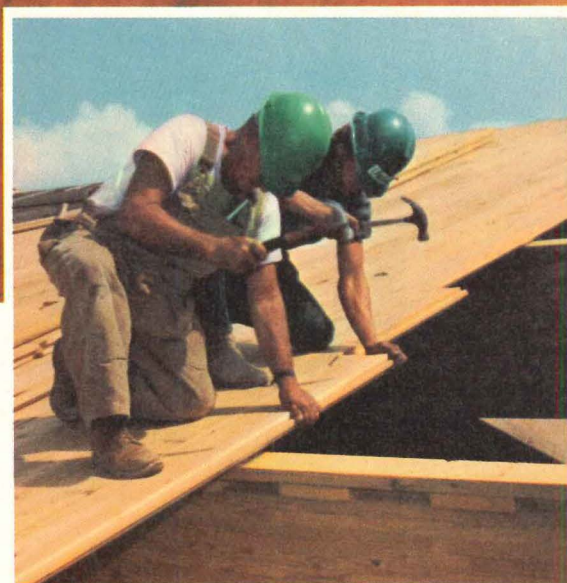
We invented Lock-Deck® the unique laminated building material

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smooth-surfaced, saw-textured or wire-brushed and factory-finished in Colorific acrylic penetrating stains.

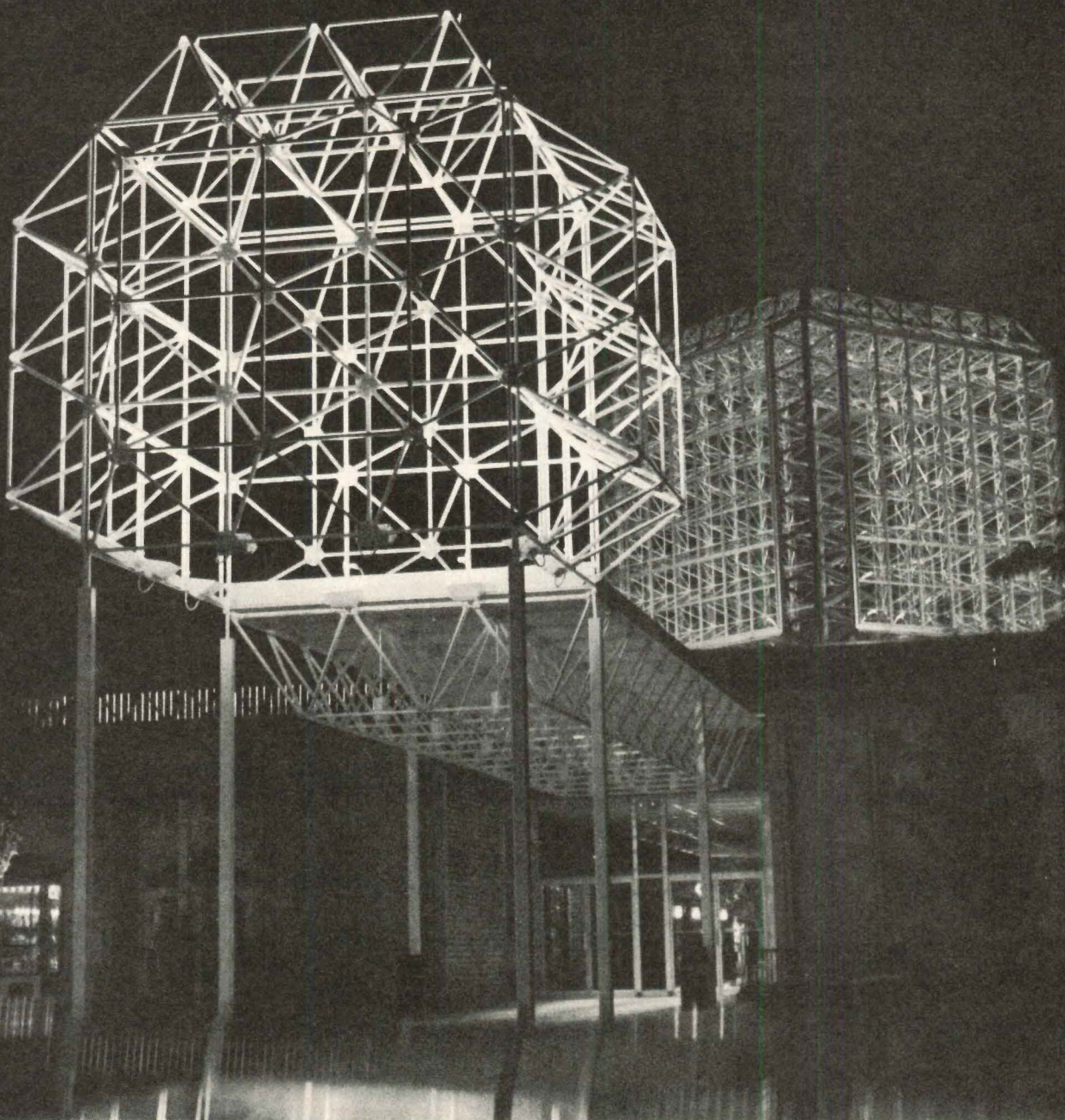
This opens a whole new world of architecture and construction. Lock-Deck forms both structural and finished wall and roof surfaces in one imaginative application. It forms superior wood walls, finished on both sides. It forms both structural roof or floor and finished ceil-

ing. It combines the unique warmth and beauty of wood with the superior strength and span capabilities of modern laminated members, and makes possible structural and aesthetic concepts not previously possible. Write for more information. Potlatch Forests, Inc., P.O. Box 3591, San Francisco 94119.



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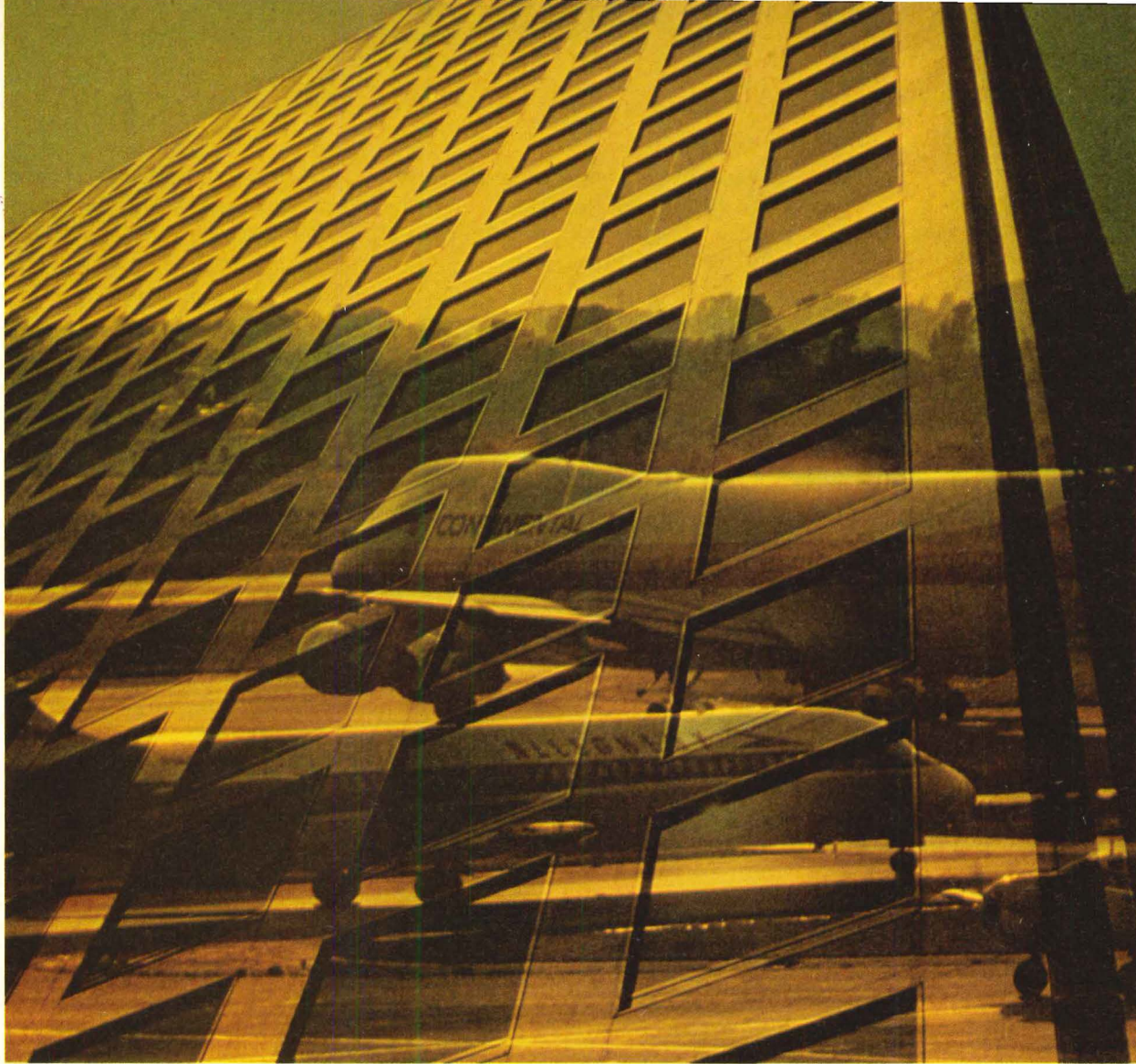
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1923 // 50TH ANNIVERSARY // 1973



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Notices

Appointments

John M. Johansen, FAIA, is now Johansen & Bhavnani, Architects, New York City, with the appointment of Ashok M. Bhavnani as partner. Thaddeus Hanser has been named senior associate in charge of the office and Benjamin Baxt and James McCullar have been appointed associates.

Leland Cott has rejoined the office of Eco-design, Inc., Cambridge, Mass.

David J. Brotman has been appointed associate of The Architectural Affiliation, Towson, Md.

Ross M. Sutherland, RA, and Jonathan S. Sutton, Associate AIA, AIP, ASLA, have been named associate partners of Wallace McHarg Roberts & Todd, Philadelphia.

Charles B. Tomlinson has been appointed senior associate partner and Donald H. Brackenbush, AIA, AIP, has been named western manager of the firm.

John P. Jansson, AIA, has been appointed director of development at Gruzen &

Partners, New York City. Named as new associates are Charles Silverman and Gordon R. Vance of the New York City office and Ian R. Johnson and Edward N. Rothe of the firm's Newark, N.J. office.

Thomas J. Dunwoody has been appointed a principal of Fanning & Howey, Architects-Engineers, Celina, Ohio.

Aldo J. Genova, AIA, has joined William Pereira Associates, Los Angeles, as vice president of retail facilities planning. James M. Sink, AIA, has been appointed regional director of southwestern and central U.S. the firm.

The Smith, Korach, Hayet, Haynie Partnership, Miami, Fla., has named four associates: Nari Balsara, PE; Alfeo J. Martina, AIA; Pedro Goicouria, RA; William R. Liddy, AIA.

Claude Braganza has been made a principal of Gassner/Nathan/Browne, Architects/Planners, Inc., Memphis, Tenn. Howard Hayslip is now an associate of the firm.

William Mayo, Jr. and Alan W. Fraser have been elected associates of Howard Sims & Associates, Architects, Detroit.

James Christensen, AIA, and Walter A. Ley have been made participating associates in the Portland, Ore. offices of Skidmore, Owings & Merrill, Architects.

H. Lee Higley, AIA, has joined Charles Luckman Associates, Los Angeles, as assistant to the president.

Lauri J. Kurki, Jr., AIA, has been named vice president for The Ballinger Company, Philadelphia. Dana G. Stetser, AIA, has been promoted to the board of directors and to vice president, project management.

Peter Ohlhausen and Anthony M. De Michele have been appointed associates of Hoffmann/Saur & Associates, Architects, Engineers, Planners, St. Louis, Mo., formerly Hoffmann Saur Architects, Planners.

Fred R. White has been named a partner of Lemmon, Freeth, Haines, Jones & Farrer, Honolulu, Hawaii.

Michael Maas and Martin D. Raab have been appointed partners of Haines Lundberg & Waehler, New York City.

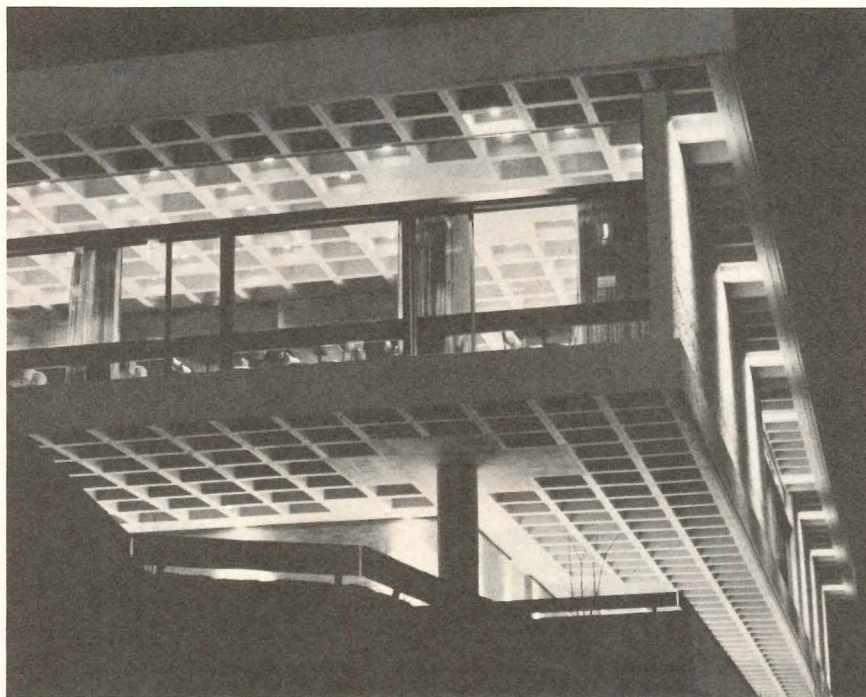
Joseph D. Bavaro, AIA and Michael J. Savoia, AIA, have been named senior associates and Kenneth B. Pearce has become an associate of The Grad Partnership, New York, N.Y.

Henry R. Hahn, PE, has been appointed vice president of Jules G. Horton Lighting Design, Inc., New York and Dallas.

Don J. Tomasco & Associates, Inc., is now Tomasco & Espinosa, AIA, Houston, Tex., with the appointment of Robert Espinosa as partner.

[continued on page 138]

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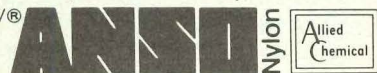
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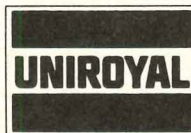
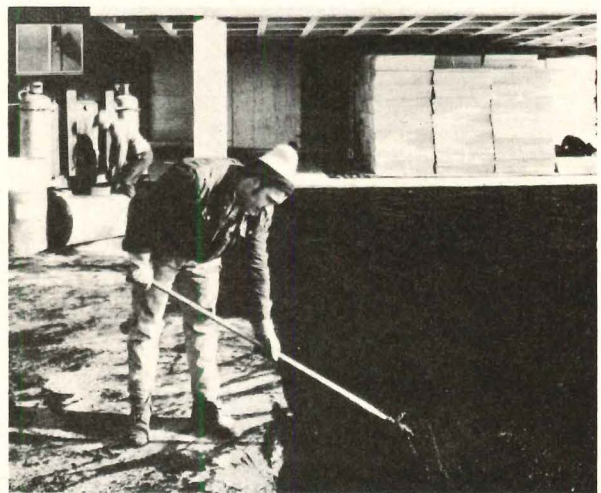


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Notices continued from page 134

Expansions, mergers and reorganizations

Benham-Blair & Associates, Inc., Oklahoma City, has established a division of facilities programming and management consulting services.

Welton Becket & Associates has acquired the firm of **A.A. Abdalian**, New York City structural engineering firm.

Higgins, McClarty & Braund, PS, Inc., has been established to continue the practice of **L. S. Higgins & Associates**, and the **McClarty Associates, Architects**, with offices at 16301 N.E. 8 St., Bellevue, Wash. 98008.

The **Warren Holmes Company** and **Kenneth C. Black Associates** have merged to form **The Warren Holmes Company & Kenneth C. Black Associate Architects, Inc.**, Lansing, Mich.

Peckham-Guyton, Inc. Architects has opened offices at 2121 Campus Dr., Suite D, Irvine, Calif. 92664.

Ellerbe Architects Engineers Planners has opened a Great Lakes regional office in Toledo, Ohio.

Name Changes

Donald Francis Haines and Zaven Tatarian & Associates is now **Haines Tatarian Ipsen & Associates**, San Francisco.

Flynn, Dalton, van Dijk & Partners is now **Dalton, van Dijk, Johnson & Partners**, Cleveland, Ohio.

Froese, Maack & Becker, Architects, St. Louis, Mo., is now **Becker & Flowers, Architects, Inc.**

New addresses

McLeod Ferrara Ensign, chartered architects, 5454 Wisconsin Ave. N.W., Suite 1525, Washington, D.C. 20015.

Schipporeit Inc., architects and planners, 1523 Chicago Ave., Evanston, Ill. 60201.

Gruen Associates, 910 16 St., N.W., Washington, D.C.

New firms

Alvin Aldrich, **Dean Burland**, **Marc Gulliver**, and **Jon Look**, AIA, have formed **Integrated Graphics, Inc.**, 4 Waltham St., Lexington, Mass. 02173.

Stan W. Gralla, Architect, P.O. Box 14427, Oklahoma City, Okla. 73114.

Guy G. Rothenstein has opened a consultants practice in system and industrialized building, 14-22 Astoria Park South, Long Island City, N.Y. 11102.

Albert L. De Guglielmo Architect AIA, 5750 Aladdin St., Los Angeles, Calif. 90008.



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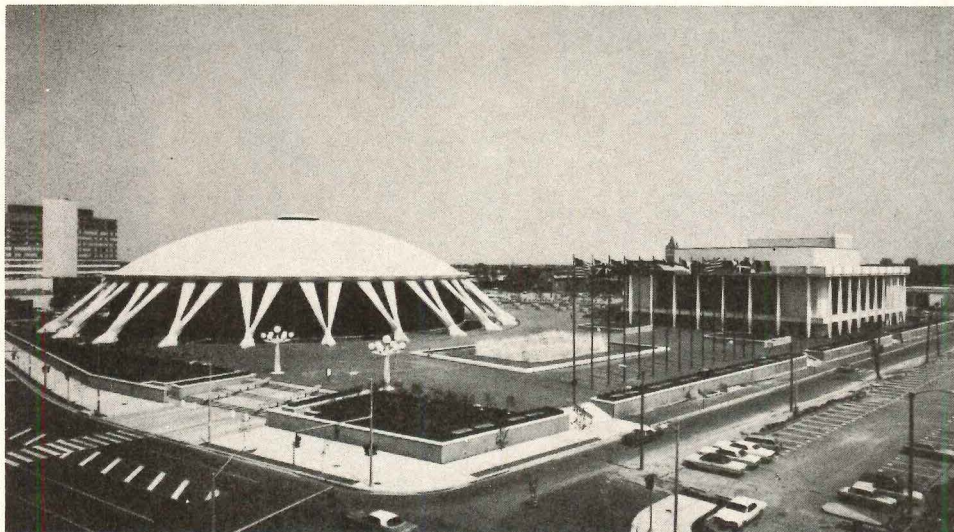
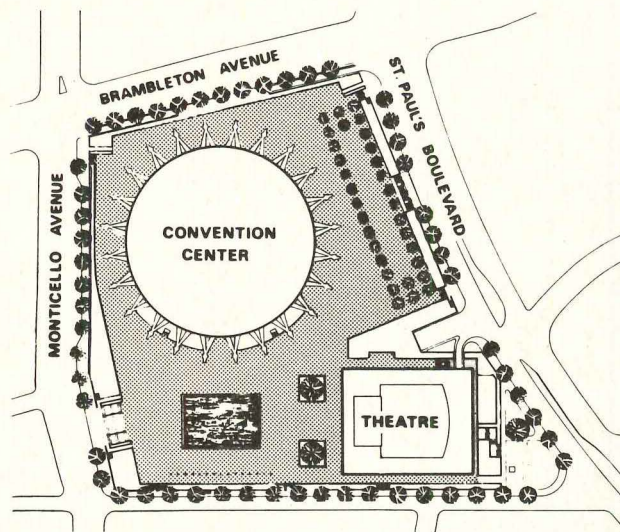
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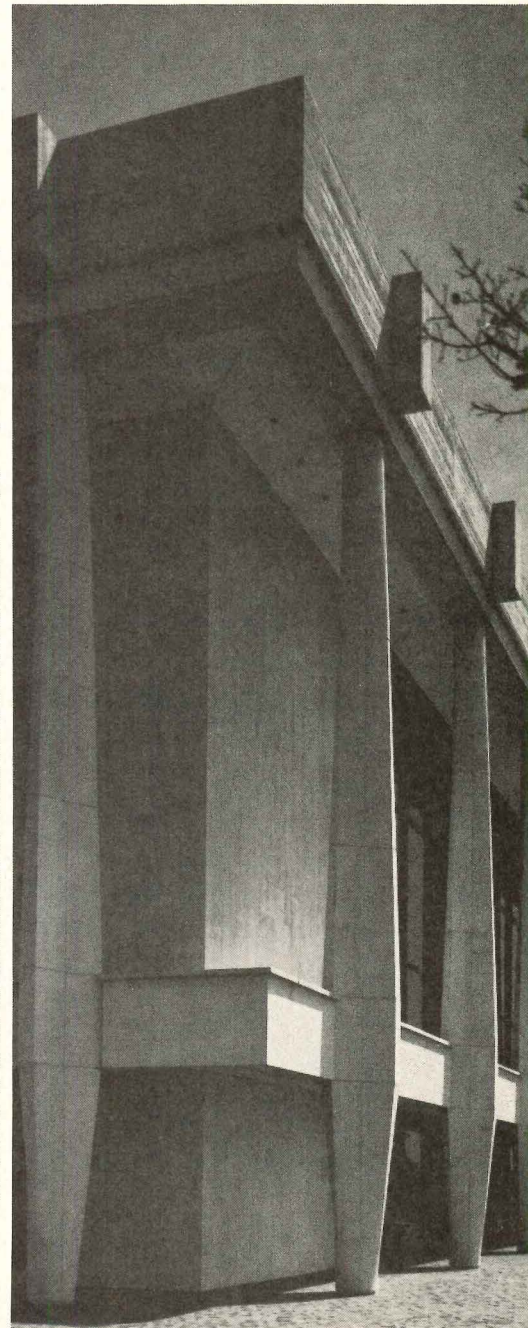


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Concrete brings harmony to contrasting designs of new cultural/convention center.



Owner: City of Norfolk, Virginia. Architect: The Williams and Tazewell Partnership. Dome Consultant: Studio Nervi, Rome, Italy. Structural Consultants: Fraioli-Blum-Yesselman Associates. General Contractor: Daniel Construction Company of Virginia. Ready-Mixed and Precast Concrete with *POZZOLITH* Admixture: Virginia/Carolina Division, Cement and Construction Materials Group, Lone Star Industries, Inc.



If, as Schopenhauer said, architecture is truly frozen music, then SCOPE, Norfolk, Virginia's new cultural/convention center, is an upbeat in contemporary counterpoint. The straight, clean lines, stark concrete pillars and simple dignity of Chrysler Hall, the center's civic theater, serves to accent the flowing curves and graceful concrete ribbons of the Convention Hall with its dramatic domed arena and ground-to-apex visual sweep.

Taken from the Greek word "kaleidoscope," the center's name, SCOPE, reflects the variety the center will offer in professional sports, theater, conventions, exhibits, and local civic affairs.

At the surface level, the two halls are connected by a paved brick plaza with reflecting pool and lighted fountain for focal points. However, the bulk of the center—including exhibit hall, offices, meeting rooms, restaurant, rehearsal studio and a 640-car garage—is located beneath the plaza adjoining Convention Hall.

Essentially the center is a large "boat" with a three-foot concrete slab floor that extends as much as fifteen feet below the area's water table. It takes 4,000 concrete piles to stabilize it—some keep it from sinking and others from floating upward.

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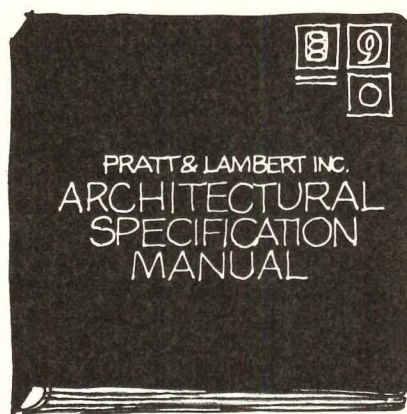


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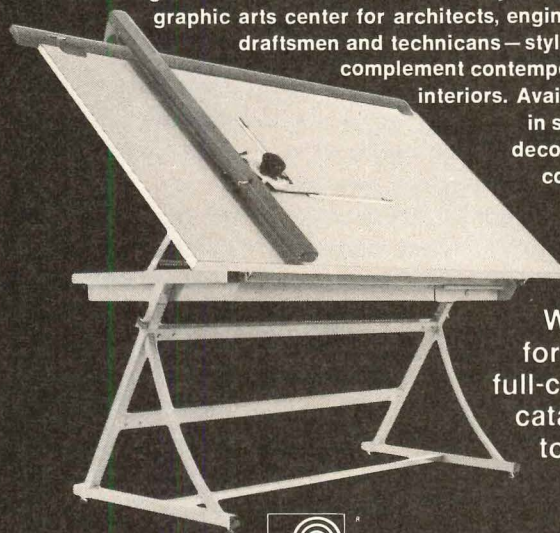


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matched dimensional stability, vital for floor cut-outs.

pet comes up cleanly, intact for re-installation.

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April...

SPRING 1973 IN P/A will begin with April's panoramic view of what is happening now in the areas of practice, architectural design, building technology, and interior design.

Office Practice #5: Architectural technicians. Good news and the bad news about the two-year alternative.

Field theory to reality: Three University of Iowa buildings carry the latest ideas of SOM's Walter Netsch into brick and concrete.

Interior Design: Early Learning Centers. Two ex-teachers share what they have learned in the field with plywood, paint and carpet.

P/A Profile: Urban Studies Center. A non-profit group in Louisville produces strategies for new communities – and old.

Soleri's desert utopia: The visionary Arcology takes shape on an Arizona jobsite, where workers pay for the experience.

Naturbetong concrete: A no-crack, no-joint technique, new to the U.S.

May...

The May "Places to Live" issue will bring you a challenging look at what is being accomplished in the field of housing, from publicly supported to personally improvised.

Genuine Breakthrough: Low-rise apartment complex by architect Werner Seligmann, built with wood frame modules, for the New York State Urban Development Corporation.

Britain sets another example: Foundling Court, London, mixes unique apartments with shops.

Hopeful sign in public housing: A tower for the elderly designed by Ulrich Franzen symbolizes regeneration of a small city.

A unique public participation concept of multi-family housing in Canada that preserves neighborhoods and cuts building costs.

An exclusive P/A research report on what's ahead in private and public, single family and multi-family housing.

Two modest statements by Venturi & Rauch: Beach houses sum up the architects' concepts of the "ordinary" and the "complex."

Economy House: A California architect has made a rich environment out of plywood and greenhouse parts.

Interior design: total renovation. Architect Charles Moore has transformed a 19th-century house.

Enclosures for alternate lifestyles: Housing made of reclaimed materials or using reclaimed spaces has implications for all living places.

Spring! 1973 in P/A

June...

In June, we'll take you on a journey through time from the early 1950's – when modern design finally became established – through the turbulent 1960's to the present. Our vehicle: the 20 annual cycles of the P/A Design Awards Program.

A time line by the editors will plot changes in the jury criteria and the winning entries over these years against developments in the world at large.

Wolf Von Eckardt will bring the perceptions of an award-winning architecture critic to a review of the whole Design Awards program, both as a reflection of architectural evolution and as an active influence on it.

Other well-known contributors will initiate a series of P/A Follow-Up studies by evaluating several landmark P/A winners in use.

Some important recent winners will be shown in completed form for the first time.

Two features on interior designs that were recent Design Awards winners, Whig Hall renovation at Princeton and a supermarket, turned Early Learning Center in Brooklyn, N.Y.

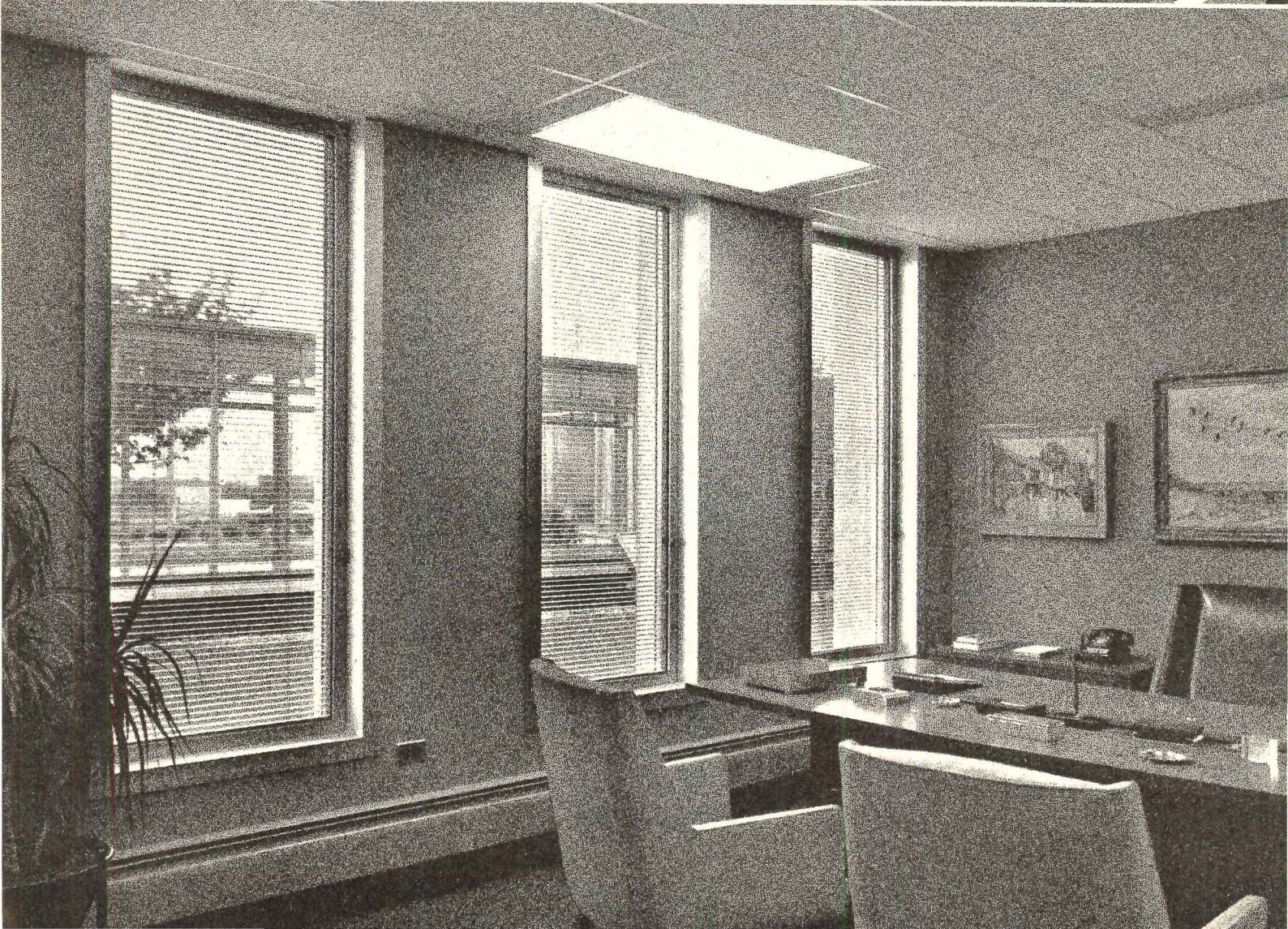
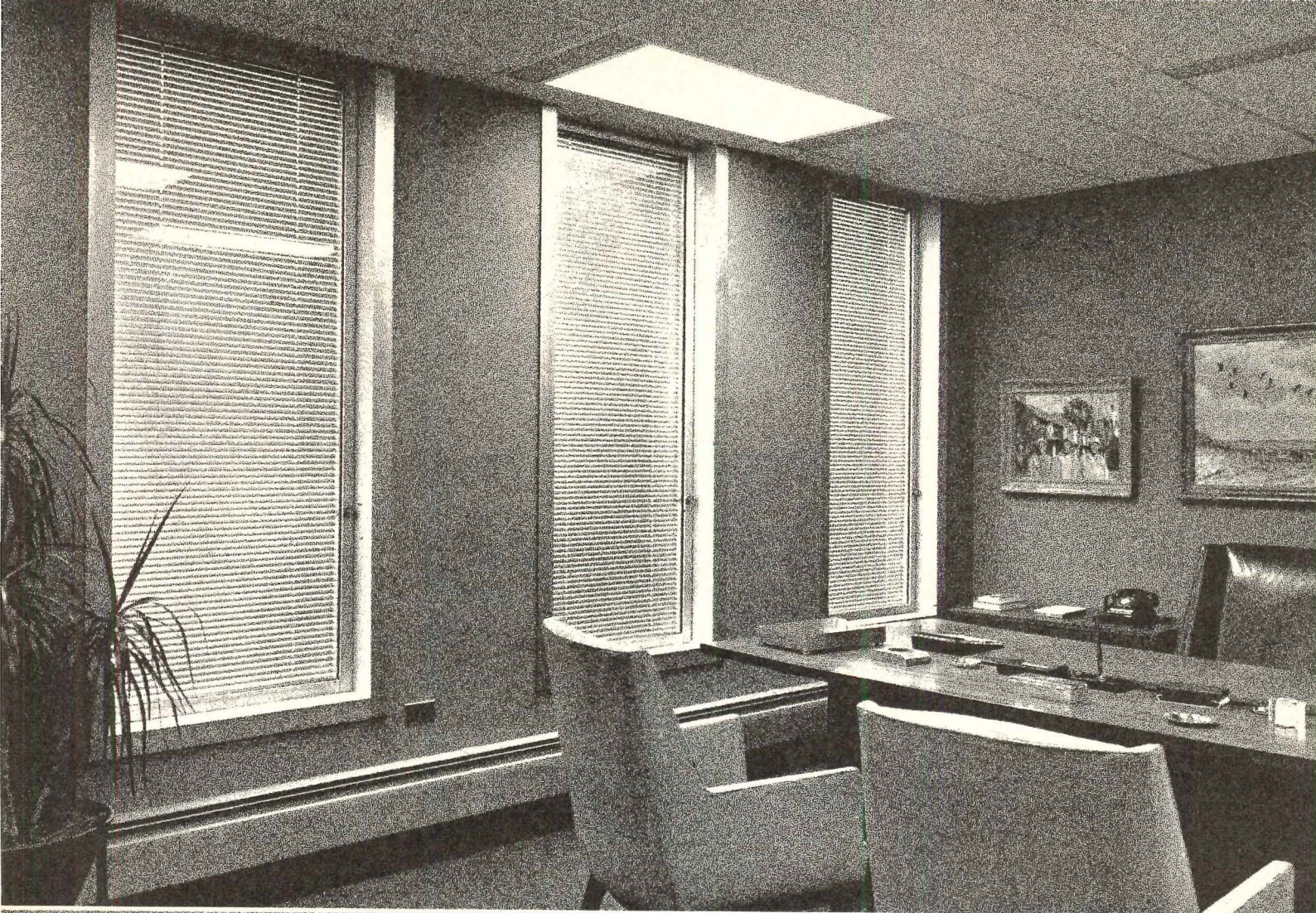
You'll want to spend time with this record of where we have just come from, and its indications about where we may be headed. And you'll want to keep this issue for years to come.

July...

Coming In July: the first of a series on Cost Analysis, for architects – dependable methods you can use right from the crucial, early stages of design – by the renowned quantity surveyors, Hanscomb Roy Associates.

Several times a year, this series will bring you cost analysis of new buildings, chosen and described in detail by the editors, plus guidance on building up your own cost data bank. This is a series many of you asked for, many of you need. You'll find it in P/A 1973.

In addition, the July issue will bring you another in the series of P/A Profiles: a study of the Washington, D.C. office of Arthur Cotton Moore, a firm with much to teach us about salvaging old buildings for new uses, the firm that gave us Georgetown's highly successful Canal Square, a firm that initiates many of the projects it designs. And rounding out this issue will be articles dealing with some recent advances in interior design, including a critical study of furniture and furnishings for open office planning and a painstaking analysis of the hospital patient room. If you are interested in costs, new methods of practice or interiors, you won't want to miss this issue.



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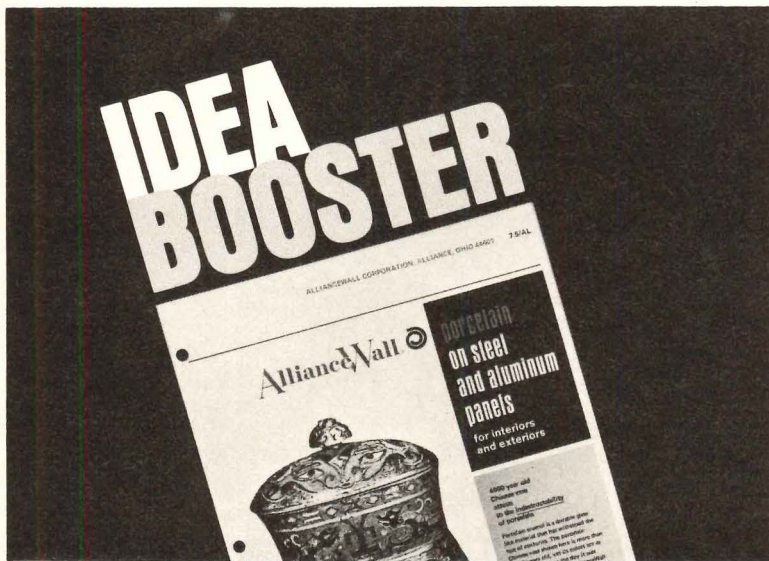
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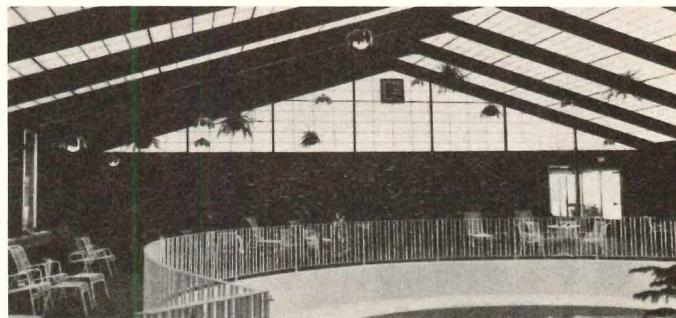
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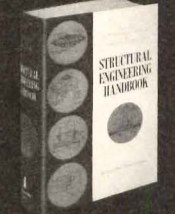
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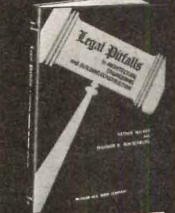
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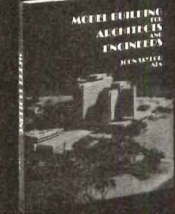
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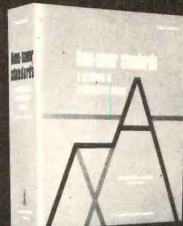
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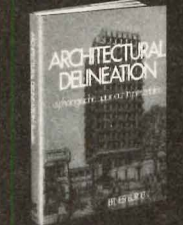
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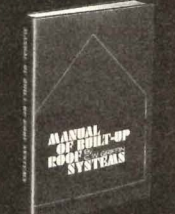
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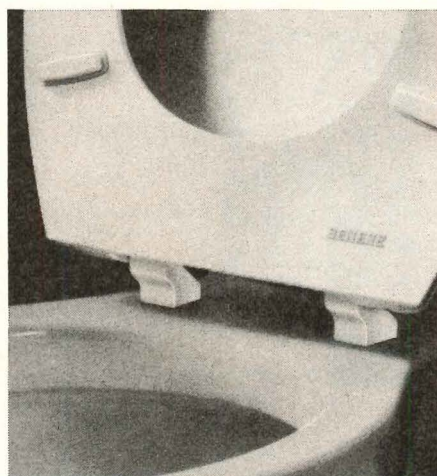
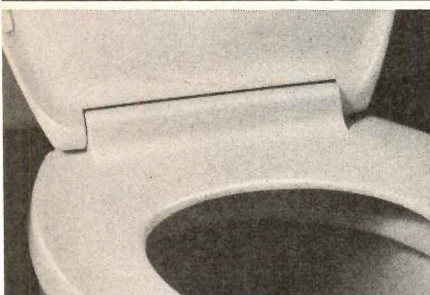
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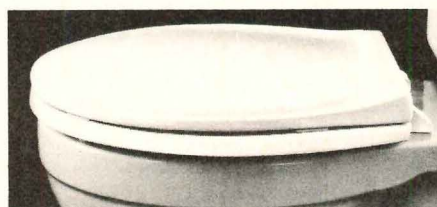
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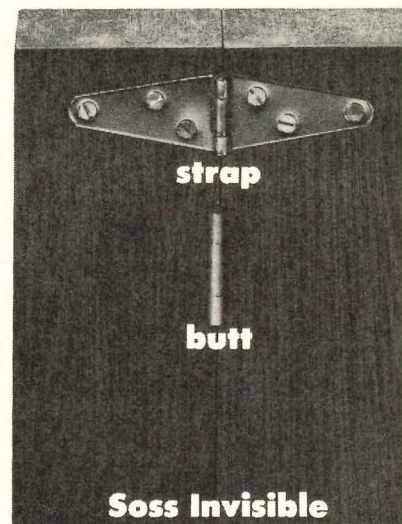
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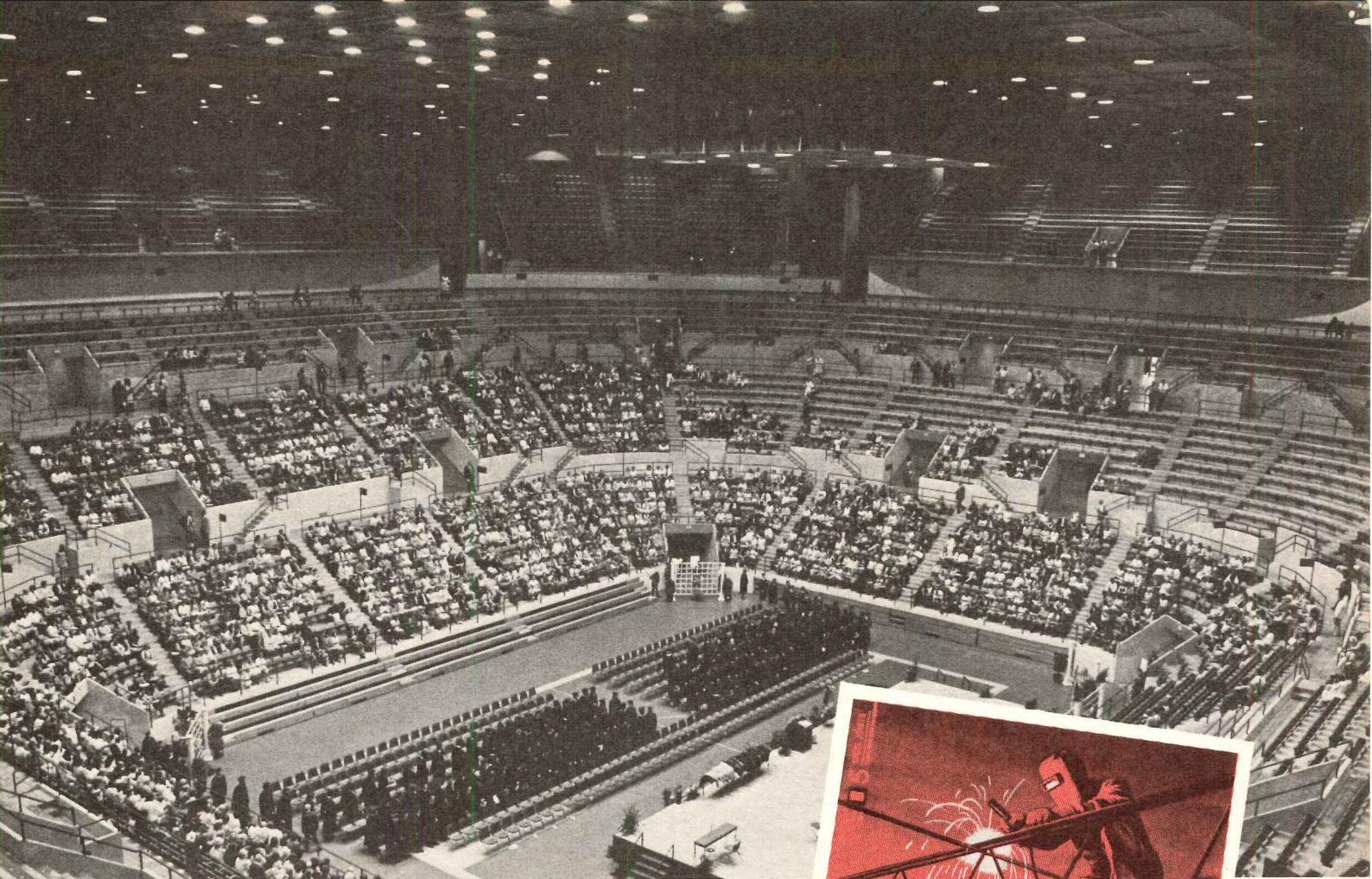
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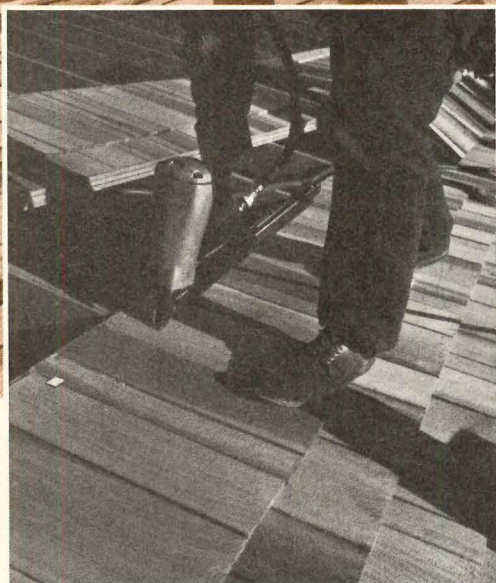


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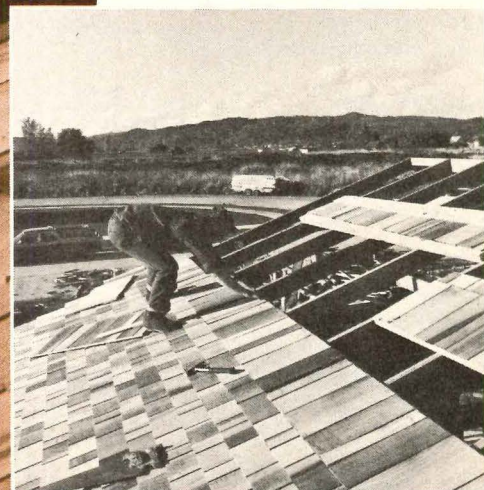
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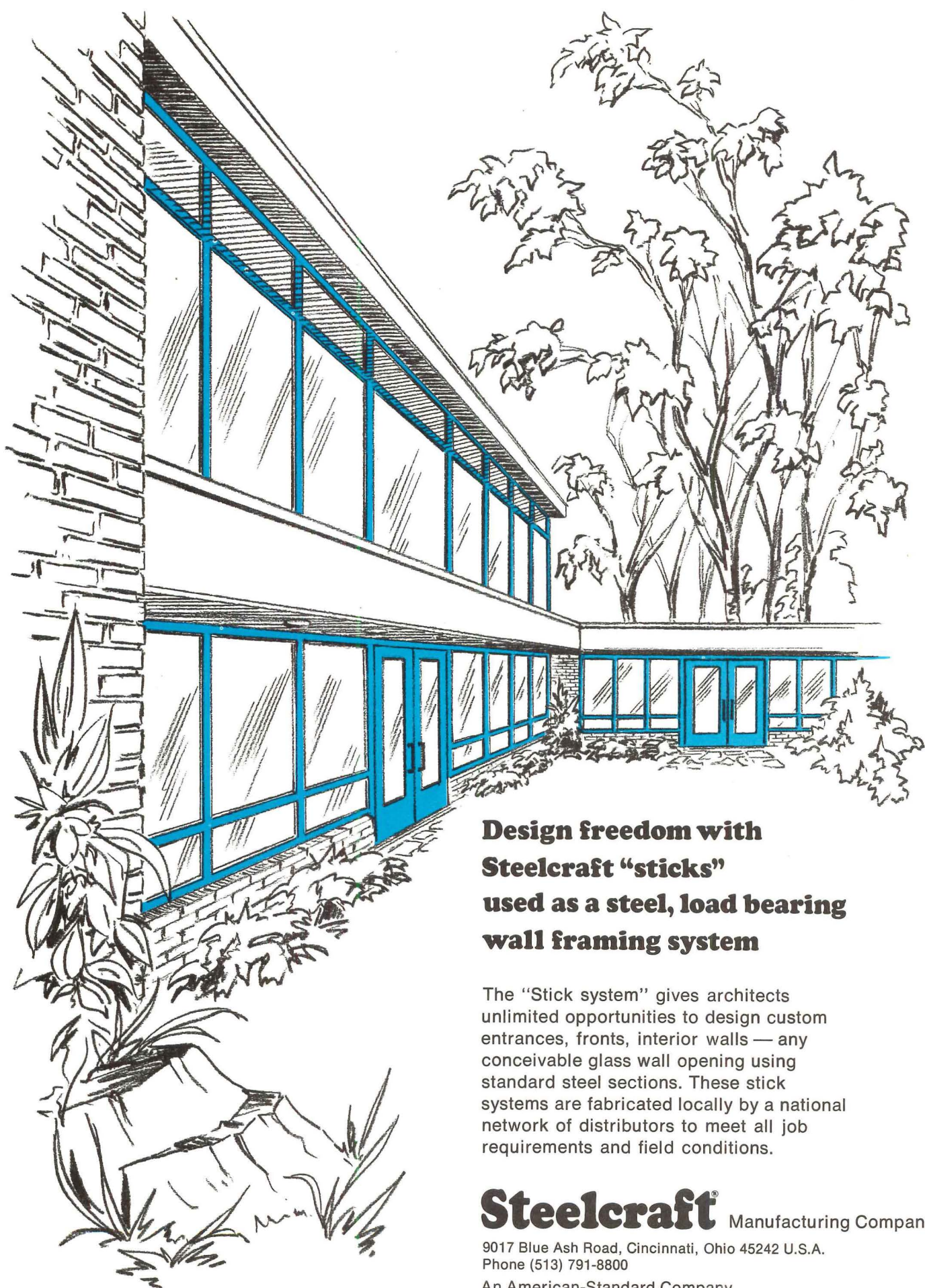
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