



PILOT CENTER, CINCINNATI, OHIO, BY WOOLLEN ASSOCIATES

THREE MANHATTAN APARTMENT INTERIORS

COLUMBUS OCCUPATIONAL HEALTH CENTER BY HARDY HOLZMAN PFEIFFER ASSOCIATES

BUILDING TYPES STUDY: CRISIS IN HOUSING

FULL CONTENTS ON PAGES 10 AND 11

# ARCHITECTURAL RECORD

OCTOBER 1975 **10** A MCGRAW-HILL PUBLICATION FOUR DOLLARS PER COPY



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## Letters to the editor

I wanted you to know what an excellent article I thought "The Oil-Rich Mideast" was in your June, 1975 issue. From our limited experience there, Charles Hoyt did an excellent job of putting a handle on the situation. RECORD's editorial content continues to surpass all others in the architectural field.

Keep up the good work in these difficult times!

*Louis M. S. Beal  
Executive Vice President*

Most architects, even those with legal training, seem terribly elated because of the decision of the New York Court of Appeals, which applied a statute of limitation to malpractice for architectural services (RECORD, August 1975, pages 49-50).

Our attorney advises us that this decision applies to property damage resulting from malpractice, but does not clearly create a statute of limitations for personal injury.

In the practice of this office we have been sued more often because of personal injury than because of any fault in the construction of the building. Personal injury suits, particularly those that result in either death or permanent injury, attain very high awards. We have had two cases recently, one where a militant group tossed a firebomb into a tenant space resulting in deaths, and another where an expansion joint on a high-pressure steam line gave way at least 12 years after we had anything to with the project.

The problem of architect's liability needs legislation in supplementation of the court decision which would place limits on his liability in cases of personal injury.

*Julian Roth  
Emery Roth & Sons  
New York, New York*

As a member of the ASHRAE Standard 90-75 Executive Committee and Chairman of Panel 4—Exterior Envelope, I have been most active as well as concerned with energy conservation developments in our nation. Your reporting of the Round Table discussions (RECORD, Mid-August) rates as the best article on the subject that I have seen in the two years that energy conservation has been in its present focus. You have put together the various philosophies in a manner which touches the key criteria and puts them within grasp.

The report of Standard 90-75 touched on the most important aspect

of this document, "interim." As Bill Chapman stated, "90-75 will be a good start." My own terminology for this standard is that it is a living document that can be nurtured and improved as we use it and then give birth to a new standard based on budgets.

The only item that your article did not touch upon is the fact that so many buildings today are built, designed and owned by organizations with much less knowledge and concern for energy conservation than those represented at the Round Table. Energy consumption and costs concern these organizations only when they see the bill which comes after occupancy. It is this area of our society which needs minimum standards to require an upgrading of their quality. Informed organizations will always build better buildings since they are concerned and knowledgeable of such things as life-cycle costing, energy cost and availability projections and so forth. This informed group has always met and exceeded building codes in areas other than energy conservation. There is no reason that they will not exceed the requirements of energy conservation standards or guidelines.

*Anthony B. McGuire, P.E.  
American Society of Heating,  
Refrigerating and Air Conditioning  
Engineers, Inc.*

## Calendar

### OCTOBER

**23-24** Conference on the Revitalization of Shopping Environments, Milwaukee, Wis. Contact: The University of Wisconsin-Milwaukee, School of Architecture, Milwaukee, Wis. 53201.

**29-31** Thirty-sixth annual meeting-exhibition, Texas Society of Architects, Sheraton Fort Worth Hotel, Fort Worth, Tex. Contact: Texas Society of Architects, 800 Perry Brooks Building, Austin, Tex. 78701.

**29-Jan. 4** The Architecture of the Ecole Des Beaux Arts exhibition, the Museum of Modern Art, New York City (see story, page 37). Contact: Arthur Drexler, Director, Department of Architecture and Design, the Museum of Modern Art, 11 West 53 Street, New York, N.Y. 10019.

### NOVEMBER

**4-6** National Interior Design Show, Exhibition Park, Toronto. Contact: Southex Exhibitions, 1450 Don Mills Road, Don Mills, Ontario M3B 2X7.

**5-8** Fourth International Exhibition of Sports Facilities and Swimming Pools,

Cologne, West Germany. An exhibition of U.S. and European developments in sports, games, leisure and recreation amenities. Contact: Mr. H. J. Teetz, German-American Chamber of Commerce, 666 Fifth Avenue, New York, N.Y. 10019.

**6-7** Professional Marketing Workshops, Los Angeles. Contact: Building Industry Development Services, 1301 20th Street, N.W., Washington, D.C. 20036. Phone (202) 785-2133.

**7-9** Women's Design and Planning Conference, Boston Architectural Center, Boston. Sponsored by The Mayor's Office of Cultural Affairs, the Boston Architectural Center, the New England Regional Council of AIA; Women in Architecture, Landscape Architecture and Planning (WALAP); and the Women's Design Center. Contact: Joan E. Ramer, Women's Design & Planning Conference, c/o Boston Architectural Center, 320 Newbury Street, Boston, Mass. 02115.

**10-11** Conference on "How to Finance Downtown Action," Hotel Warwick, New York City. Sponsored by the Downtown Research and Development Center. Contact: Nancy McMichael, Conference Coordinator, Downtown Research and Development Center, 555 Madison Ave., New York, N.Y. 10022.

**11-12** Health Care Facility Interior Design Exposition, Americana Hotel, New York City. Contact: Contract Marketplace, Ltd., P.O. Box 908, Larchmont, N.Y. 10538.

**12-21** Interbuild Exhibition, Olympia Hall, London, and aboard the Queen Elizabeth 2. Contact: Cunard/Interbuild Transatlantic Conferences, 555 Fifth Avenue, New York, N.Y. 10017.

**16-18** Conference on Architecture for the Justice System, Key Bridge Motor Hotel, Arlington Va. Sponsored by The American Institute of Architects. Contact: Mark Maves or Evagene Bond, AIA, 1735 New York Avenue, N.W., Washington, D.C. 20006.

**18-20** Seminar on Firesafety in Buildings, Lincolnwood Hyatt House, Lincolnwood, Ill. Contact: The Registrar, Educational Services Department, Portland Cement Association, Old Orchard Rd., Skokie, Ill. 60076.

### DECEMBER

**4-5** Professional Marketing Workshops, Philadelphia. See above, November 6-7, for details.

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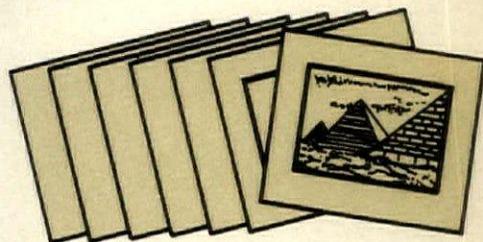
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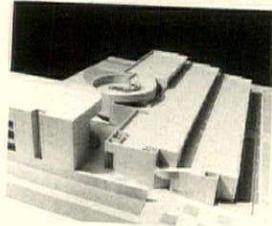
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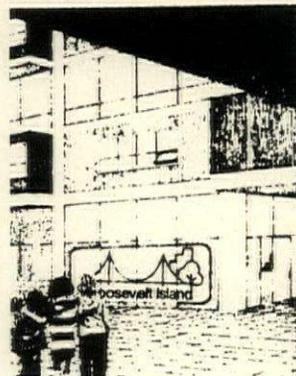
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The volume of construction associated with leisure has continued to expand—even while other construction has not done too well. The study in November will constitute a broad range of such projects illustrating some of the many areas in which the growing interest is directed. There will be an innovative indoor-play structure by architects Gordon and Meltzer, a big fountain that becomes a stage by Lawrence Halprin, a massive outdoor concert pavilion by Edward Knowles, imaginative concrete structures for a Colorado Park by Cabell Childress and two buildings that make economical use of materials, answer their functions and generate dynamic spaces at the same time: a yacht club by architect David Austin and a tennis club by Hartman-Cox.

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## More productive buildings: one way to fight our stagflation

There are many complex reasons that the building industry is so badly slowed, and showing such sluggishness in starting its recovery. But one major and obvious reason is the high cost of building.

What can we do about that high price? We've already done much. There have been meaningful and well understood responses in the form of more careful cost control, the emergence of construction management, the development of fast-track, and the continuing, evolutionary increase in the amount of a building that is prefabricated and therefore decreases on-site labor.

There have been some responses that will surely prove counterproductive in the long run—the "skinning out" of buildings to cut material costs; an emphasis on minimum first costs that has led to the use of too-cheap (and therefore inefficient and energy-wasting) sub-systems.

But a response that seems to offer the most promise for basic, long-term cost reduction has not yet been well explored, and that is the architectural approach—the planning and design approach—to the problem of high and rising costs.

This is a much broader approach than the above-mentioned cost control or construction management techniques; and involves far more than more careful selection of products and materials and building techniques for life-cycle economy. . . .

It involves most importantly more careful ways of thinking about long-term economy, and more productive use of what we do build. It involves a return to the attitude of carefulness, of thrift, of economy of means that was once a hallmark of building and design. We have long been profligate in our use of land, our use of energy, and our use of building materials; and we must now realize that we cannot continue this profligacy. For some time now we have *not* been designing and building towards a goal established by productivity—we have been designing and building towards goals established by lending practice (how many square feet at what rental per square foot) or by tax policy (30 years is long enough, or who cares after it is depreciated) or by the truly inefficient and non-productive urge for lowest first cost.

It seems to me that these false goals have some parallel in the auto industry—which is now, of course, paying a tough price in terms of buyer rejection. For years and years, the automakers managed to persuade most of us that

is was practically un-American not to have a practically new car—and an over-scaled, over-powered, over-accessorized new car at that. And for years and years, they watched with indifference (perhaps "with scorn" is fair) the growing impression being made on the market by small foreign autos—and their belated response in developing small cars has come only after 65-cents-per-gallon gasoline and the first real financial anxiety many of us under 50 have ever known has caused us to start saying "No!" to cars of dubious quality, dubious design, and undoubted inefficiency. Isn't what we're all saying, as car buyers, is that we want efficient, productive, long-lived autos built as efficiently as possible so that the price is reasonable?

To return to our industry: What is a more productive building? For one thing, it might be a building designed to be truly flexible; easily and economically refitted for changing use or a new use. (Or to look at it the other way around: Are we building too many non-convertible, special-purpose buildings? What would it take to design even an urban skyscraper so that it could be converted at some later date into school space or residential space or college space?) In short, is not "loft space" an approach that needs to be taken more often?

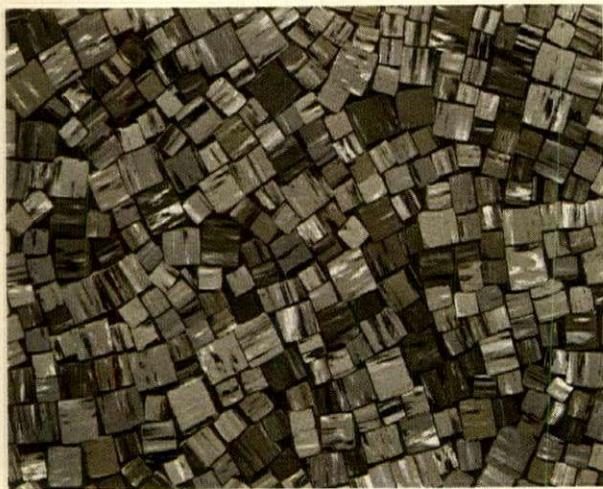
Another way to build more productive buildings is to design them so they can function more than eight hours per day—through mixed use or combined use. There is obvious waste in schools that operate only from eight until three, office buildings that sit empty from five at night until eight in the morning, theaters that function only at night, auditoriums that sit empty waiting for great events, college buildings that sit mostly idle for four months, lobbies that exist only to be walked through. There are alternatives—and isn't it time to explore them more carefully?

There are ways to make presently inefficient buildings more productive by careful additions that permit a new and more productive floor plan or circulation. We have become well aware (though only very lately) that there are productive uses for older buildings that we once cleared away for parking lots and "renewal."

In short, there are planning and design solutions to building that can add up to much more—in terms of lowered cost and increased productivity—than anything we have tried so far. Isn't now the time to try them?

—Walter F. Wagner Jr.

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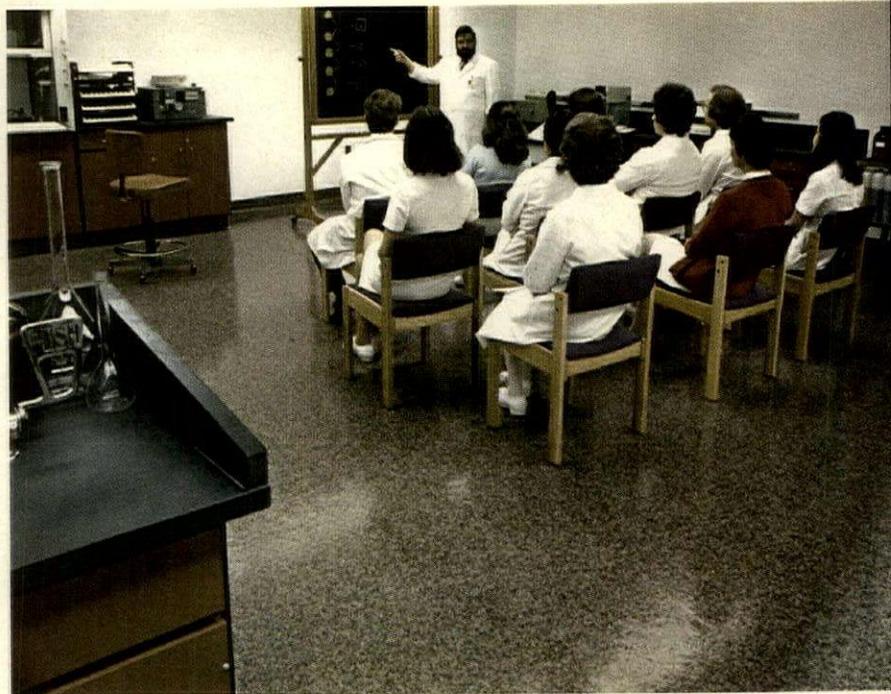
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NEWS REPORTS  
 BUILDINGS IN THE NEWS  
 HUMAN SETTLEMENTS  
 REQUIRED READING

**RESOURCES 76, a RECORD seminar for October 27-30th, has been cancelled.** The seminar, scheduled for the University of Chicago Center for Continuing Education, offered a distinguished faculty on all aspects of professional marketing and the lending and financial picture for next year as it affected the industry; the editors hope to incorporate some of the material developed by the faculty into RECORD in the coming months.

**RECORD senior editor William B. Foxhall, 62, died September 4.** He was responsible for the magazine's Architectural Business section, and had been one of the country's leading authorities on professional practice. Details on page 35.

**Congress is moving to approve the "Construction Industry Stabilization Act of 1975,"** legislation proposed by Labor Secretary John T. Dunlop that would set up a voluntary wage stabilization program for the construction industry. The measure comes as a result of Administration distress over the industry's wage leapfrogging and surge in strike activity. The bill would give international construction unions authority to intervene in local bargaining disputes. Details on page 34.

**The value of July construction contracts totaled \$9,044,203,000, little changed from one year ago,** reports the F. W. Dodge Division of McGraw-Hill Information Systems Company. In July, the seasonally adjusted Dodge Index (1967=100) slipped a bit to 165 from June's 174, but the July rate of contracting was well ahead of the low index readings of January and February, when the bottom of the cycle was reached at 135. Non-building—or heavy construction—showed the greatest strength in July. Residential construction is valued at just 6 per cent short of the July 1974 value.

**Nicholas Panuzio, mayor of Bridgeport, Conn., has been named head of the Public Buildings Service** of the General Services Administration. The Acting Commissioner of PBS, architect Walter Meisen, is expected to become Assistant Commissioner. As yet, no one has been named to the chief GSA post, to be vacated this month by resigning Administrator Arthur F. Sampson. (See RECORD, September 1975, page 34.)

**Federal energy legislation affecting buildings is expected to be passed by Congress this fall.** As yet, the questions that remain involve whether mandatory standards for conservation will be forced on the states and local governments, and the degree of emphasis on performance versus prescriptive standards. Details on page 34.

**Philip Johnson has won the 1975 Louis Sullivan Award for Architecture, with four projects.** Sponsored by the Bricklayers, Masons & Plasterers International Union of America, the \$5000 award is presented once every two years. Details on page 34.

**The John Hancock Mutual Life Insurance Company of Boston has filed suit on its new building there.** The suit to recover damages in connection with the design and construction of the 60-story tower's curtain wall may run as much as \$50 million, and names the general contractor, architect, several major suppliers and the bond companies. Details on page 37.

**The Senate has approved, 45 to 37, a bill requiring public disclosure of where home loans are made.** The bill requires disclosure by some 20,000 mortgage lenders of the neighborhoods in which they make their loans, in an attempt to curtail "red-lining." The practice of not approving mortgage loans for certain neighborhoods has been suggested as a major cause of inner city decline. Details on page 34.

**November 3 is the deadline for applying for \$50,000 "Cityscale" grants from the National Endowment for the Arts.** The program, successor to the "City Edges" and "City Options" programs, will provide funds on a matching basis to local communities for design and promotion of elements such as street furnishings. For further information and application forms, contact: Architecture & Environmental Arts Program, National Endowment for the Arts, Washington, D.C. 20506.

**Applicants are being sought for internships with the National Endowment for the Arts.** November 21 is the deadline for applications in the program designed to train professionals for an arts administration career. For further information on the program beginning February 9, 1976, contact Miss Kathleen Bannon, National Endowment for the Arts, Washington, D.C. 20506.

**"Designers' Saturday," an exhibit of contract furnishings, will be held October 24-25 in New York.** Open Friday and Saturday, from 9 a.m. to 5 p.m., 26 internationally known showrooms will provide an opportunity for architects and designers to view interiors products from domestic and foreign manufacturers. For further information, call Judd Spencer, (212) 886-6540.

## Congress moving on wage stabilization program

Congress is racing to give approval to legislation proposed by Labor Secretary John T. Dunlop that would set up a voluntary wage stabilization program for the construction industry. At the same time, Congress moved to end a 25-year-old fight between construction labor and management by giving unions a broad right to picket at job sites.

The Dunlop bill, entitled the "Construction Industry Stabilization Act of 1975," is a result of negotiations which have been going on ever since formal wage-price controls ended in the spring of 1974. Since that time, Dunlop—who wanted controls to continue for the construction industry—has been distressed by a return to the industry's old pattern of wage leapfrogging and large, distorted wage increases, along with a big surge in strike activity.

The proposed legislation establishes a construction industry collective bargaining committee, a successor to the controls-era Construction Industry Stabilization Committee, which Dunlop headed. Unlike CISC, the new panel will not have mandatory controls authority.

All parties to a construction labor dispute are required to serve notice to their respective international unions or national contractor associations 60 days before the expiration of a collective bargaining agreement. These notices are to be passed along to the committee, which may decide to intervene in the case. If it decides to step in, it

can force a postponement of any strike or lockout for up to 30 days beyond the expiration of the contract.

The committee has a broad charter for mediating disputes consistent with furthering the goals of collective bargaining and the stability of the industry. The committee can mediate disputes itself, turn them over to craft boards or ask the international unions to intervene directly. If the international unions become involved, they then must approve any contract settlement before it can be put into effect.

The bill has the general endorsement of many contractor groups, although some have publicly expressed reservations—mainly fears that the proposed law does not go far enough. Associated General Contractors, for one, has asked that the new Committee be given mandatory controls powers.

Although the bill appears on the surface to be anti-labor legislation, it has strong endorsement within the building trades. The building trades international leadership welcomes it because it gives them control over unruly local unions, whose strikes and often unreasonable wage and work rule demands have spurred the growth of non-union construction. Support of Dunlop's bill also was part of the price the unions had to pay for getting Administration support for the job site picketing bill.—*Stephen Wildstrom, World News, Washington.*



### Philip Johnson wins Sullivan Award

The 1975 Louis Sullivan Award for Architecture has been won by Philip Johnson, FAIA, New York City. The award, sponsored by the Bricklayers, Masons & Plasterers International Union of America, and

administered by The American Institute of Architects, is made once every two years to a practicing U.S. or Canadian architect whose work is judged to best exemplify the ideals and accomplishments of Louis Sullivan.

The 1975 Sullivan Award jury reported that the four projects submitted by Johnson "are as consistent in their level of concept and execution as they are in their diversity of scale, form, program and siting. Each is a highly intelligent and, perhaps most important, highly particular and appropriate project."

The Award and the \$5000 prize which accompanies it were presented to Mr. Johnson at the Union's convention, September 15, in Atlantic City, N.J.

Johnson submitted four

projects in the 1975 Sullivan Award competition: the Busch Auditorium at Harvard, the Neuberger Museum at Yeshiva University in New York City, the Kline Science Center at Yale (shown left), and his own "sculpture studio" (shown below) in New Canaan, Conn.

The jury, composed of practicing architects and one architectural student, chose Johnson from among 51 entries by architects in the U.S. and Canada. Members of the jury were Warren J. Cox, AIA, Washington, D.C., chairman; Ulrich Franzen, FAIA, New York City; Robert B. Marquis, FAIA, San Francisco; Bernard Westerman, FAIA, Edmonton, Alberta, Canada, and president of the Royal Architectural Institute of Canada; and Lucien Rougellet, University of Wisconsin.



## Congress expected to pass some form of energy conservation legislation this fall

It now seems a sure bet that some form of Federal energy conservation legislation will be approved by Congress this fall.

The remaining questions are when approval will come, whether mandatory standards will be forced on the states and local governments, and the degree of emphasis on performance versus prescriptive standards.

Proposals for energy conservation in new construction have bounced around on Capitol Hill for most of the year, beginning with the Ford Administration's plan. This plan would have forced the adoption of Federal standards on pain of loss of borrowing rights at Federal lending institutions. Its emphasis would have been on performance standards.

At this stage, however, the legislation is not nearly so rigid. A recently approved House

version encourages (not forces) states to adopt a standard approved by The American Society of Heating, Refrigerating and Air-Conditioning Engineers Inc.

This standard, known as ASHRAE 90-75 (previously 90-P), is largely prescriptive, though it includes a performance section on lighting (see RECORD, mid-August, Round Table).

Many architects have worried that adoption by the slow-moving state legislatures would freeze the standards for years with technology that may soon become stale.

The House did not accept these arguments. Members apparently feel it is vital to get some kind of energy conservation legislation on the books quickly. And since it is generally acknowledged that two to four years will pass before ade-

quate performance standards can be written, the legislators feel they must begin with ASHRAE standards.

At the same time, the House members did not feel so strongly about the ASHRAE standards that they felt compelled to force them on the states. A large segment of the construction industry made special lobbying efforts to block the mandatory language.

The Senate may be a different story. The Housing Subcommittee has been deadlocked for months over the mandatory vs. voluntary question. Ironically, the Republican White House and the liberal Democrats on the committee teamed up to push the mandatory standards, while conservative Republicans and Democrats are fighting for voluntary standards.

The same general division

holds on the performance-prescriptive question, though none of the Senators feels so strongly on the issue, largely because they do not fully understand the distinction.

Despite the Senate stalemate, committee staff aides believe a compromise will develop shortly and the measure will win approval by the full Senate. The aides expect to be able to reach an accommodation with the House in a conference committee and be able to send the bill to President Ford, perhaps by mid-November.

The Administration will not be delighted with the measure, but will no doubt sign it into law, presumably under the theory that this bill is better than none at all.

At the same time, the White House may get in a few political licks. Frank G. Zarb, Federal Energy Administrator,

signaled as much recently when he declared that "Congress has once again failed to come to grips with the difficult decisions which must be made if the nation is to have an effective and meaningful energy conservation program."

Zarb, speaking for the Administration, did applaud the other section in the House-passed bill. This section, Weatherization Assistance, provides an authorization to spend \$55 million a year for three years to pay for insulation materials for dwellings of low-income persons. None of the funds can be used for installation costs according to the legislation.

Details for distributing the funds are to be worked out by the Federal Energy Administration after the bill is passed. *William Hickman, World News, Washington.*

## Anti-red-lining bill approved by the Senate; requires home loan disclosures

Bill requiring once-a-year public disclosure of the neighborhoods in which some 20,000 mortgage lenders make loans—and the neighborhoods out-of-favor—won approval of the Senate, 45 to 37, in September.

The "Anti Red-Lining" bill (S. 281) was trimmed back by a series of amendments allowing the loan breakouts to be by zip code areas, rather than by census tract, and by limiting the scope of the legislation to three states.

However, by a 40-to-41 vote, a bipartisan bloc of Senators failed to put across a substitute which would have provided for a test run in only 20 metropolitan areas picked by the Federal Reserve Board. Instead, the measure as adopted

requires that the data be supplied by all financial institutions with one or more branches in any of 276 standard metropolitan statistical areas.

The bill requires disclosure only for home loans originated or purchased each fiscal year "beginning with the last full fiscal year of the institution" prior to the bill's effective date. The data have to show: total number and dollar amount of loans outstanding and loans made during the fiscal year; number and dollar amount of loans on property located in the SMSA (or county if located outside the SMSA); number and dollar amount of FHA and VA loans and loans made to borrowers not intending to live in the property.

The bill was supported by the U.S. Conference of Mayors

and the AFL-CIO. It was strongly opposed by the mortgage lending industry; Senator E. J. Garn (R-Utah), a leading opponent, said the bill was "a first step on the road toward the allocation of credit."

Senate Banking Committee Chairman William Proxmire (D-Wis.), chief sponsor of the bill, said that he had industry estimates that the cost of complying with the bill would be about \$1 per mortgage or less, and that similar disclosure measures were effective in stimulating increased lending in "old neighborhoods."

A similar measure was being considered in a financial institutions sub-committee of the House Banking Committee.—*Donald Loomis, World News, Washington.*



## Bill Foxhall, RECORD editor, dies at 62

William B. Foxhall, a senior editor of ARCHITECTURAL RECORD and a member of its staff since 1961, died of a heart attack September 4 at his home in Yorktown Heights, New York.

He was responsible for the magazine's Architectural Business section and was its authority on hospital and airport design.

Mr. Foxhall was one of the country's leading authorities on professional practice and the author of two books on the subject. The first was "Professional Construction Management and Project Administration," published by RECORD and the American Institute of Architects in 1972; the second, "Techniques of Successful Practice for Architects and Engineers" was published by McGraw-Hill this year.

Before joining RECORD, Mr. Foxhall was an associated editor of "Air Conditioning, Heating, & Ventilating", and an editor with Industrial Press. He also worked for "Readers' Digest" and A. M. Best Company.

He was a graduate of Clark University.

He is survived by his wife Bertha, and son Richard.

**Editor's note:** Bill's death is to us at RECORD a terrible loss. Bill was not only a respected colleague; to many of us he was one of the best friends we will ever be honored to have. We tried to phone the people in the profession closest to Bill so that they would not need to learn of his death in this too-impersonal way. I hope those of you who were close to Bill but whom I did not know will understand.

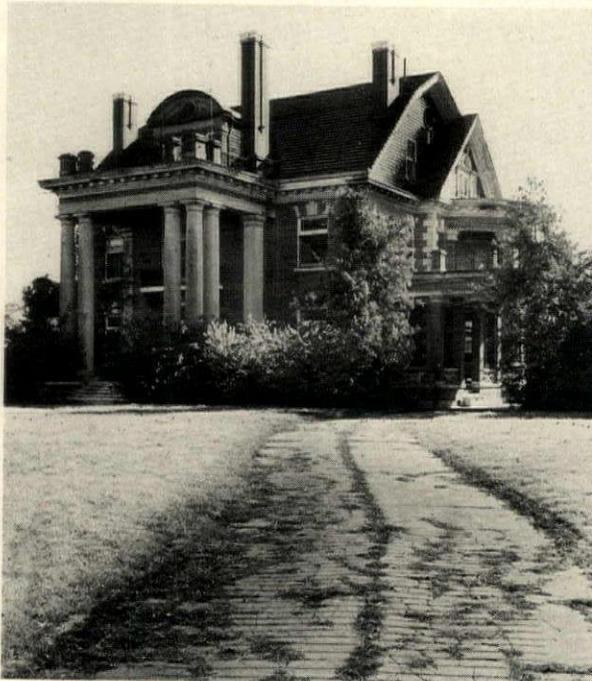
We've received here at RECORD many letters which have helped us in the loss of our friend; and in that spirit I would like to share a letter from Ralph Jackson in Beverly Hills, California: "Your news was a tremendous shock—and it says something that a person as gentle as Bill can cause a shockwave 3000 miles away. He was such a wonderful person and friend that every cliché pops to mind. . . . His loss to the profession is a great one as well—he contributed so much that it is hard to contemplate the void. He gave love and understanding to architecture, which has so much need for those qualities and so little of it within its ranks. The time he gave to the advancement of the profession cannot be measured alone in the works he produced. His unique contribution was in the gentle wisdom and prodding that he provided for doing something a little better than you were used to doing it. For Bill I think most of us tried harder because that was the example he set—and you couldn't think of disappointing Foxie—not ever. . . ." —W.W.

## Worth landmark endangered

One of three remaining houses of the "cattle baron" era, the House is perhaps the most imposing of many such mansions that were built in Fort Worth at the turn of the cen-

Besides its historical interest, the house together with its outbuildings and extensive grounds has the potential of a fine visual and open-space amenity for the city.

A group of concerned citizens have formed Save the House, Inc., and are seeking contributions towards the purchase price which must be paid within a limited amount of time. The address is 1509 Pennsylvania Avenue, Fort Worth, Texas 76104.



## Massachusetts architects work in public schools with fourth graders

What is a city?"

"It's where people live!" "It's where people live!" "Buildings and streets!" came a chorus of replies from Mrs. Rosalind O'Sullivan's fourth grade class at the Fletcher School in Cambridge, Mass. "Streets . . . airports . . . skyscrapers . . . stores . . . elephants (brought from a recent zoo trip) . . . people . . ."

"Why don't you write down all the things you can think of in a city," suggested the visiting lecturer, architect Anthony Casendino (shown), "and you can each read your list aloud."

This classroom scene is part of the Urban Awareness Program, an ambitious undertaking that has coordinated the efforts of Boston and Cambridge design firms with a dozen

Cambridge public schools. All of the design professionals—architects, landscape architects, planners and university instructors—have volunteered their time and efforts over the past year to bring to primary school children a sensitivity to the built and the natural environment around them. Mr. Casendino is a partner in the Boston firm of Childs Bertman Tsekares Associates, Inc.

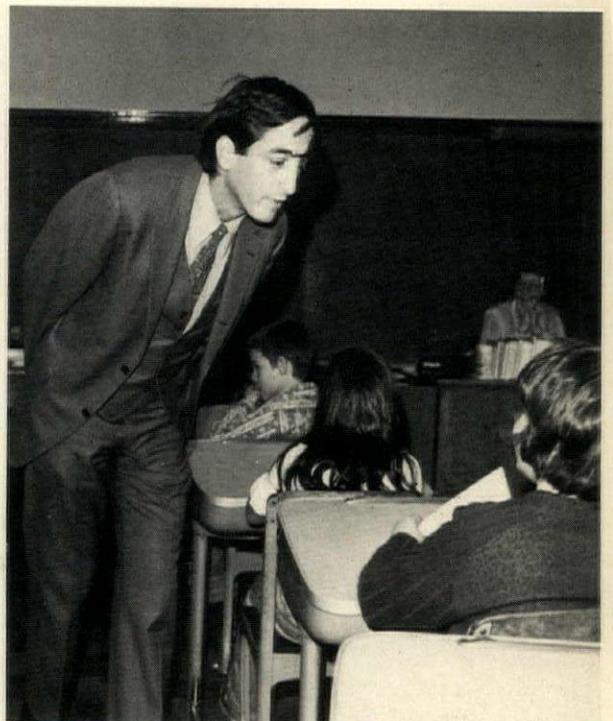
The Urban Awareness Program is funded by grants from the National Endowment for the Humanities, the Massachusetts Council on the Arts and Humanities, and the Cambridge School Department. It is administered through the Environmental Education Fund of the Boston Society of Architect's Charitable Foundation. George

Zimberg (who is also an architectural photographer) is administrative director of the program.

Other design firms in the program have instituted a variety of different projects with their assigned schools, ranging from the planting of trees to an extensive teaching guide/children's text. There are also field trips and photo documentation projects of the school neighborhoods.

Other projects include planning and construction of a model bedroom, and designing and building a scale model neighborhood community.

In the program, the first half of the year is devoted to fourth grade levels, with the second half assigned to work with twelfth grade students.



more news on page 37

# "With Maytags, the net from our laundry beat our most optimistic expectations at Campus Green Apartments," writes Mr. Sally.



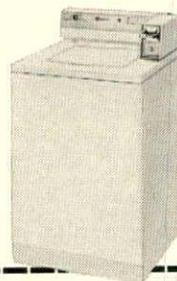
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## Damages suit filed John Hancock

In September, the John Hancock Mutual Life Insurance Company filed suit to recover damages, possibly as much as \$10 million, in connection with the design and construction of the 60-story John Hancock Tower in Boston.

Originally, the building was to cost approximately \$55 million, but problems involving the design of window glass and other materials almost doubled the cost. 10,344 glass units were eventually replaced.

The complaint named the Granite Building Company, general contractor for the project; the H. H. Robertson Company, subcontractor for the curtain wall; the Libbey Owens-Lord Company, designer and supplier of the glass window units; I.M. Pei and Partners, architects; the Aetna Casualty and Surety Company, which furnished the performance bond for the building; and the Granite Insurance Company, which furnished the performance bond for H. H. Robertson. The complaint alleged that Hancock suffered substantial damages, including the cost of replacing the original glass, and the additional design, engineering and construction. It claimed damages in being deprived of the use of the building and income on rentals.

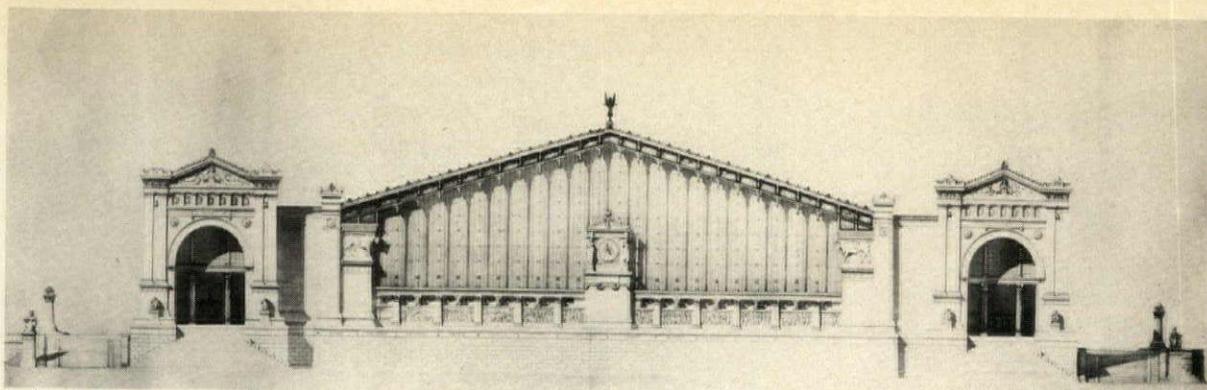
## Washington landmarks spared

Two landmarks on Washington, D.C.'s historic Pennsylvania Avenue—The Willard Hotel and the old post office building—will be spared from demolition.

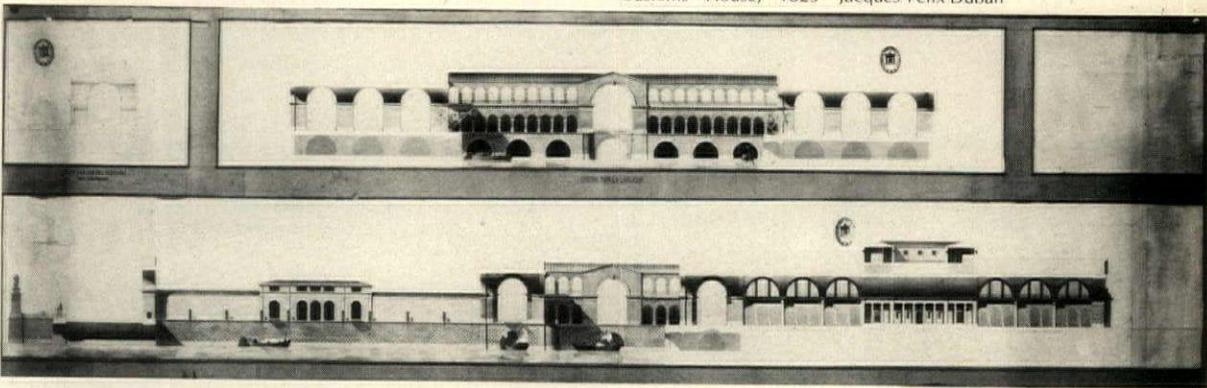
The 75-year-old Willard, at 1400 and Pennsylvania Avenue N.W., was reprieved when a federal judge told the structural engineers that they could demolish the building with approval by the Pennsylvania Avenue Development Corporation. The corporation has restored it as a hotel.

The old post office building, which anchors the corner at 1400 and Pennsylvania, was saved by the National Capital Planning Commission. The commission has authority over preservation of Federal buildings within their jurisdiction.

The Planning Commission ordered the General Services Administration to study restoration of the old post office building, which now houses the Federal Bureau of Investigation and other Federal agencies.—William Hickman, *World Architecture*, Washington.



Railroad station, 1876—Jean Camille Formigé



Customs House, 1823—Jacques-Felix Duban

## Architecture of the Beaux-Arts and Walter Pichler exhibited at MOMA

"The Architecture of the Ecole des Beaux-Arts" will be on view at The Museum of Modern Art, New York City, from October 29 through January 4. Directed by Arthur Drexler, Director of the Museum's Department of Architecture and Design, in collaboration with David Van Zanten of the University of Pennsylvania, Neil Levine of Harvard University and Richard Chafee of the Courtauld Institute, London, the exhibition of more than 200 original drawings examines the dominant ideas of 19th-century French academic architecture against which modern architecture rebelled.

In addition to drawings made for competitions and school assignments on ambitious projects like reconstructed antiquities, monuments, railroad stations, churches, and casinos, the exhibition includes drawings by such former students as Charles Garnier for the Paris Opera, and Henri Labrousse for the Bibliotheque Ste. Genevieve. Part of the exhibition is devoted to photographs

of major French and American buildings reflecting Beaux Arts ideas applied to practical problems, including the design of urban spaces.

Many of the drawings in the show had not been unrolled since they were submitted by students to their professors 80 or 100 years ago and more than two-thirds have never been published. The selection, made primarily in the storerooms of the Ecole in Paris, is intended to illustrate the nature of architectural instruction and the debates which influenced the evolution of 19th-century French architecture, and to indicate sources of such pioneering American work by such architects as H. H. Richardson and Louis Sullivan.

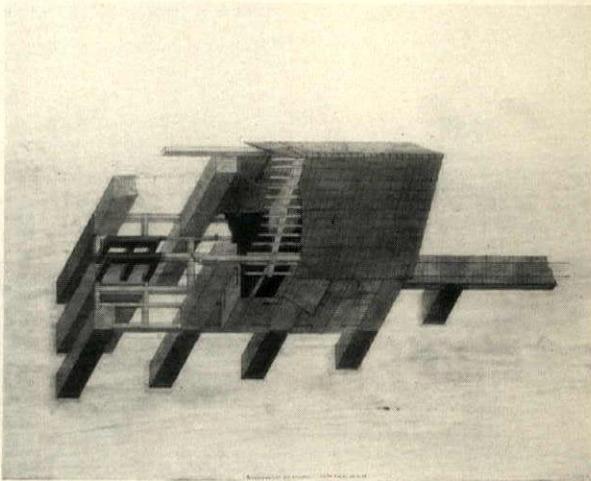
Also, currently at MOMA: "Walter Pichler: Projects," the first one-man exhibition in the United States of work by the Austrian artist who has been a pervasive influence on much of the architecture and design avant-garde in Austria and Italy. The 70 drawings will be on view

at The Museum of Modern Art through October 28.

Pichler's technique of intricate cross-hatching, carefully composed axonometrics, and melancholy monochromatic washes are "... the intensely ascetic means by which (he) evokes the lonely spaces of an architectural landscape of the mind," says Emilio Ambasz, Curator of Design, who directed and installed the exhibition.

Pichler's largest project to

date is the complex he plans to build on ten acres of land at St. Martin, near the Hungarian border. Many drawings for this project are included in the exhibition. Here Pichler has designed an observatory tower for the top of the hill and a concrete silo for the meadow below the house. A wagon will run on tracks from an underground chamber through the open silo to a wooden gallery (below) outside.



## Sweet's "Buyline" service to specifiers reports 500 calls per day

Architects and other building product specifiers throughout the country have been using Sweet's "Buyline" almost 500 times a day to find local representatives of building product manufacturers and suppliers, according to a Sweet's spokesman. This first nationwide toll-free telephone inquiry service for the construction and interior design industry began operating

late last year.

The "Buyline's" computerized data bank gives building product selectors access to continually updated names, addresses and phone numbers of more than 40,000 representatives of nearly 1400 manufacturers.

The information has come from all manufacturers with product catalogs in the 1975 Sweet's Catalog Files and with

interior furnishings photos in the new Sweet's Showroom.

Sweet's "Buyline" operates 24 hours a day in the 48 contiguous states. When a product selector calls the "Buyline" number for information on a manufacturer's nearest sales representative, following his use of a product catalog in Sweet's, an operator asks the caller for the name of the manu-

facturer and his own office zip code number. Using coded designations for the manufacturer and the caller's zip code number, the operator punches a terminal keyboard to pass along the inquiry to the computer. The computer flashes the answer on the terminal's screen, which displays information on the nearest representative.

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Handbook

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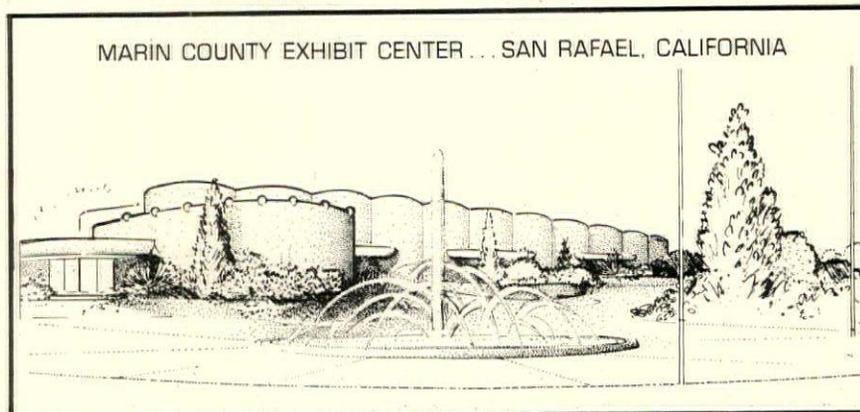
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**Government studies  
on earthquakes**

Advancements in the ability to predict earthquakes accurately are still as a growing understanding of how structures react to tremors, mandate a complete revision of building codes and disaster planning in quake-prone regions, according to two government studies.

A lengthy National Academy of Sciences report evaluates how communities might respond to long-range, yet precise, earthquake predictions that will be possible. It finds that without proper planning and engineering, such knowledge in itself is destructive to political, economic and social structures of a city, bringing stagnation to normal growth.

The restructuring of land-use and building codes as recommended by the study can benefit from work now in progress at the U.S. Geological Survey's office of earthquake studies.

Scientists there have determined that "many modern structures, such as freeways, are not being subjected to and protected by near-fault shaking in earthquakes." Tests show ground shaking close to an earthquake producing fault is more intense than it was previously believed to be, thus current earthquake codes are inadequate.

In a recent study scientists found that "exposure to damage from seismic shaking is steadily increasing because of continuing urbanization and the increasing complexity of lifeline systems, such as power, water, transportation and communication systems."

The study recommends that "new structures situated close to active faults be designed on the basis of ground-motion estimates greater than those used in the past."—James Wargo, *World News, Washington*.

**Architects tax  
in Washington**

The City Council of the District of Columbia has enacted a special tax on the net earnings of architects and other professionals in private practice. The U.S. Congress, which has vetoed earlier council-passed bills, may overturn the decision, however.

The tax is believed unique. Other jurisdictions have taxes based on the value of fixed assets or a sale tax on the receipts of professionals. The D.C. tax, however, places the tax burden solely on the net earnings.

The American Institute of

Architects say nearly 1500 architects are licensed to practice in the District of Columbia.

The tax levy would fall at the rate of 12 per cent this year and 9 per cent in subsequent years. It would be on the net earnings of unincorporated professional business with a \$5000 per-business deduction and 55 per cent individual deduction for salary.

Tax officials in the city say that a professional earning \$40,000 a year after expenses would owe \$1560 this year. This amount could be deducted from D.C. income taxes, but not from the state income taxes of professionals who live in nearby Virginia and Maryland.

In addition to architects, the tax would hit design engineers, doctors, lawyers, freelance journalists and others.—William Hickman, *World News, Washington*.

**Colorado attacks  
fee schedules**

The Colorado Board of Architects has abolished a rule which in effect prohibited architects from bidding competitively. The Board acted after the state Attorney General's antitrust division told it the rule was "inconsistent" with state and Federal antitrust laws.

Robert F. Hill, first Assistant Attorney General who heads the state antitrust division, said this was first of other actions planned to force lawyers, engineers, architects and other professionals in the state to abandon rigid fee schedules.

Hill said a recent U.S. Supreme Court decision in *Goldfarb v. Virginia State Bar* nullifies the "learned profession" doctrine, and that he intends to bring about radical changes in the bidding process and pricing structures among the professions in Colorado.

He asked the Board of Architects to rescind its competitive bidding regulation after the city of Aurora complained that architectural firms competing for work on the city's new municipal complex refused to submit bids as requested by the City Council.

The State Board of Architects had enacted in 1973 bidding restrictions similar to regulations of The American Institute of Architects.

Hill said, "while nothing we do is intended to force an architect to take a particular action, our hope is that repeal of this rule will open the way for competitive bidding on both municipal and private projects."—Frank Pitman, *World News, Denver*.

**Renaissance's fair housing advocate honored in Columbia University show**

The birth 500 years ago of Renaissance architecture's most influential fair-housing advocate, Sebastiano Serlio, will be celebrated at Columbia University this month.

A major exhibition of his books and drawings will focus on his innovative ideas for the design and social reform of domestic architecture. Serlio surprised fellow 16th-century architects by advocating good housing for the poor as well as the rich. His row housing became standard in Europe; his drawings influenced the design of the Louvre, and he is said to have inspired Palladio's greatest works.

The exhibition will be held to October 29 in the Rotunda of Low Memorial Library on Columbia's Morningside Heights campus in New York, Monday through Friday, 9 to 5.

The materials will be drawn from Columbia's Avery Architectural Library, and the University's Rare Book and Manuscript Library. The treasure of the exhibit will be the unpublished, illustrated manuscript of Serlio's "Book VI, on Domestic Architecture" with drawings in the master's hand of idealized private houses for all.

From country houses with thatched roofs to palaces in town, the drawings are arranged in categories according to the social position in the dweller. Serlio was promoting changes in basic living conditions—in effect, social reform in housing—by including building types for the lower and middle classes as well as for aristocrats. His approach was dramatically

new and epoch-making, according to Avery librarian Adolf Placzek.

Though never published, the book circulated among other architects in manuscript form in the mid-1500's and continued to influence building for the next three centuries. It was discussed when the east facade of the Louvre was designed in the 17th century, its concept of the "worker's city" reappeared in a project for a French town in the 18th, and its row house became standard in the 19th.

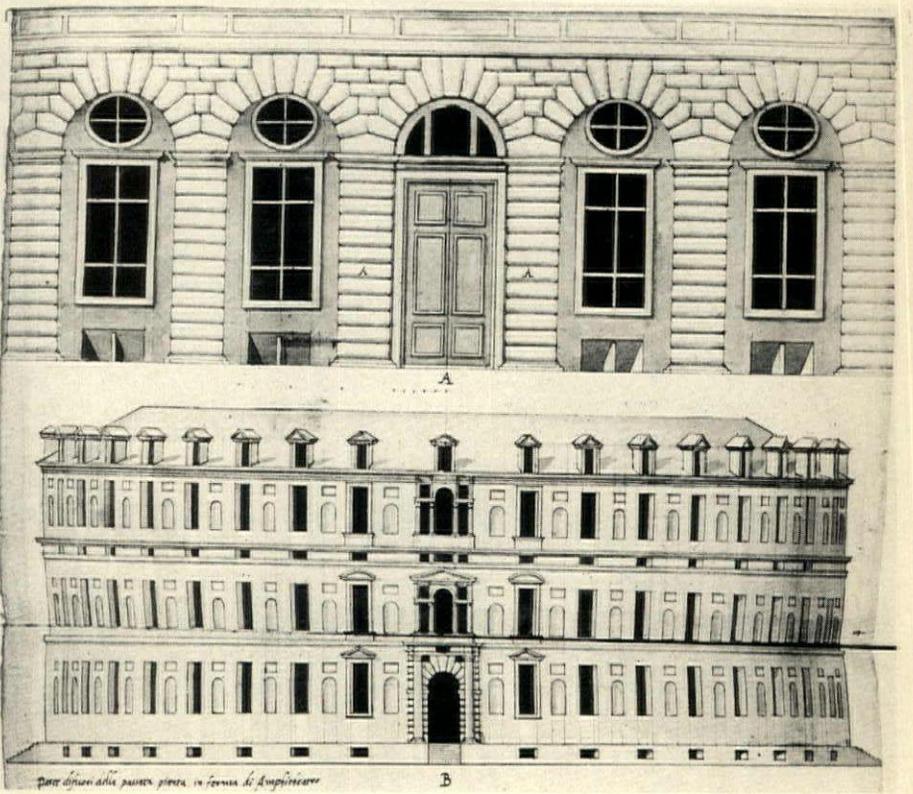
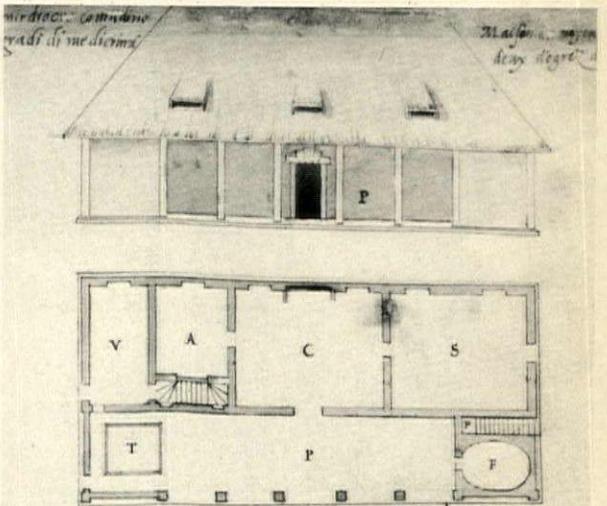
"Serlio was instrumental in bringing to large numbers of practicing architects in Europe from the 16th to the 19th century methods of designing and constructing buildings which became universally accepted," states Myra Nan Rosenfeld of the Montreal Museum of Fine Arts in an introduction to the exhibition catalog.

Dr. Rosenfeld's research was undertaken in connection with the forthcoming publica-

tion of a facsimile edition of the Avery manuscript of "Book VI" on housing. A later manuscript by Serlio of the same book with quite different text and illustrations was published in Munich in 1967; missing from it are "some controversial elements which would not have appealed to conservative taste," she states.

The domestic architecture book was one of several by Serlio on churches, classical orders, doors, geometry, perspective and other matters that together constituted one of architecture's first treatises printed in a modern language with illustrations. The treatise was the source of inspiration for Palladio's "Four Books on Architecture" of 1570, notes Dr. Rosenfeld.

Serlio was born September 6, 1475, in Bologna and died at Fontainebleau in 1555. Like Leonardo da Vinci, Raphael and Michelangelo, he was both a painter and an architect.





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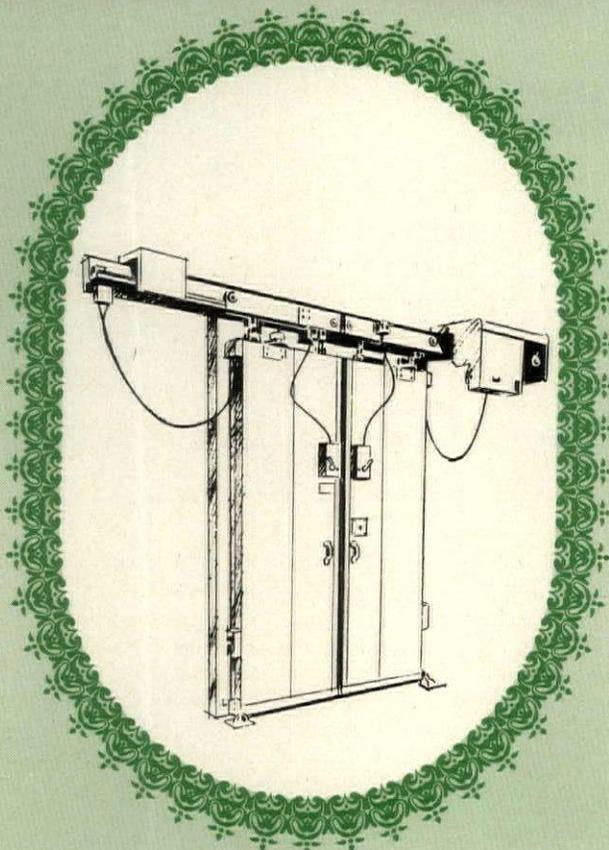
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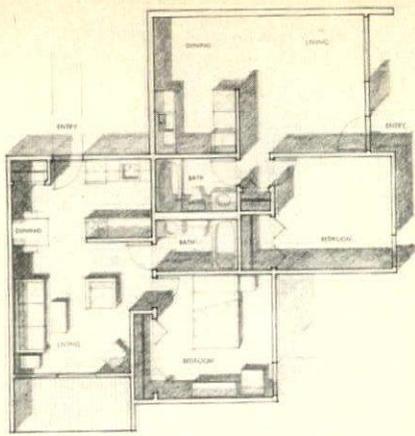
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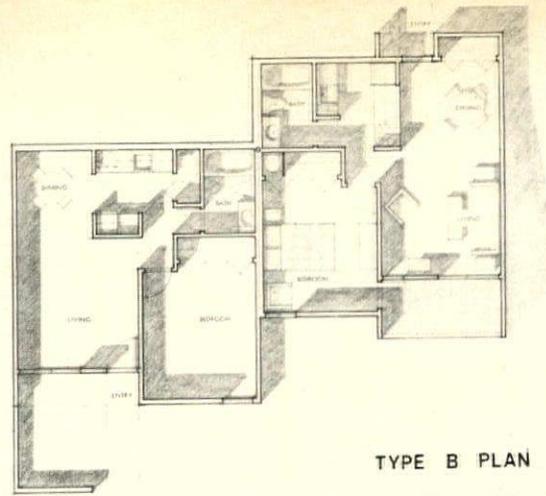
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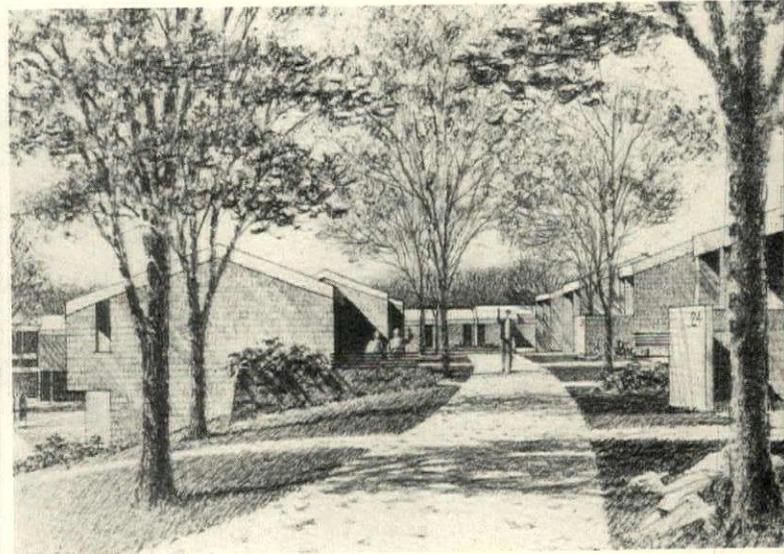
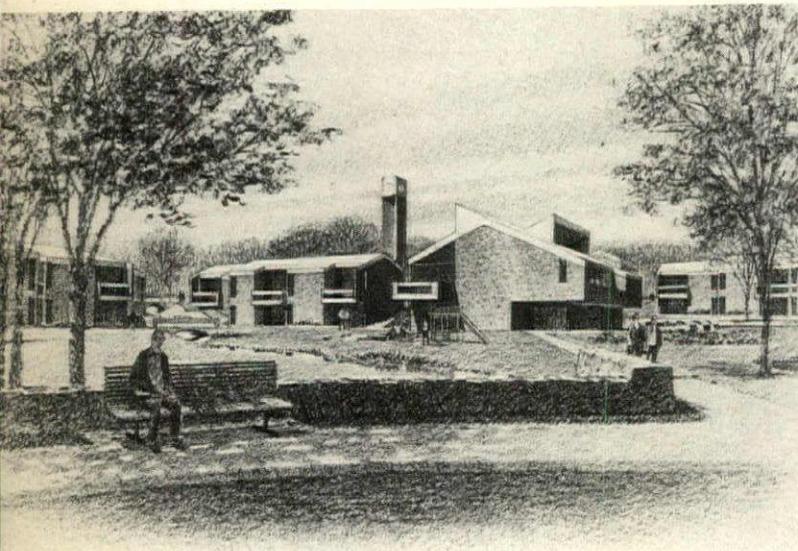
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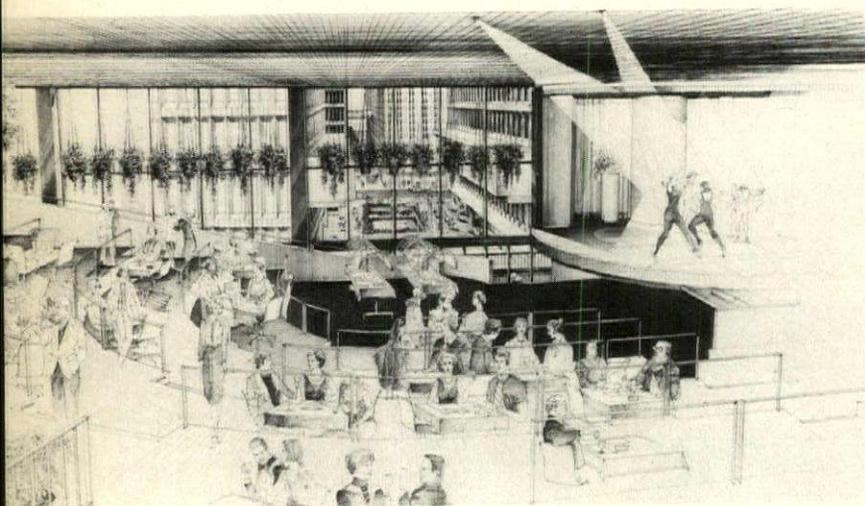
**Competition winner designs for the elderly**

The Massachusetts Department of Community Affairs in cooperation with the Housing Authority of the Town of Dracut, Massachusetts has selected a scheme designed by Gary Lowe and Steve Oles, as the winning entry in a recent design compe-

courtyards linked by a pedestrian way. Total estimated cost is approximately \$2 million, and ground breaking is scheduled for the Spring of 1976. The Dracut competition is one of a series representing an effort on the part of the Department of

Community Affairs to place housing on a merit basis, by organizing and sponsoring competition in cooperation with the local Housing Authority which makes the final selection with town officials.

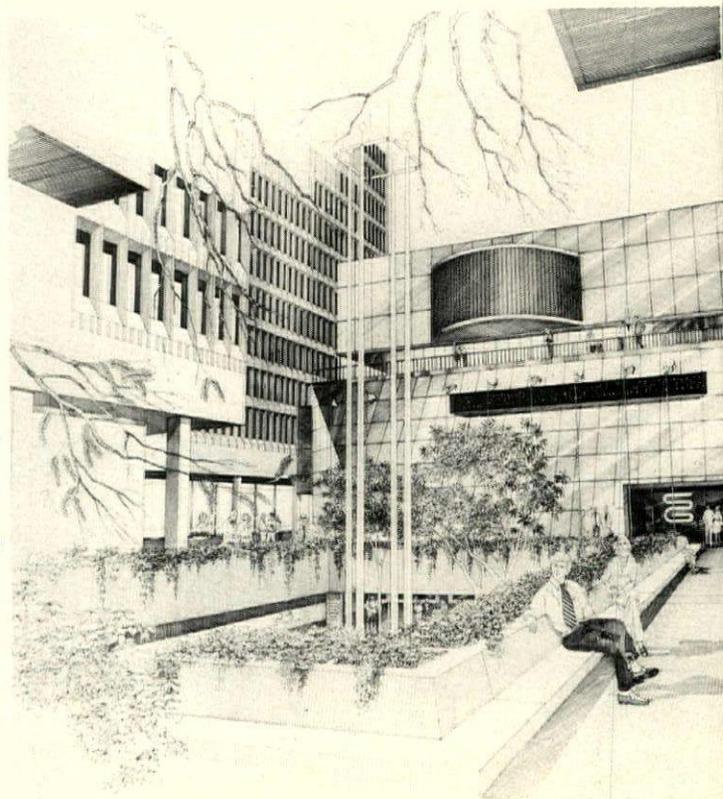
Competition called for 80-100 units of housing for elderly persons, plus a community center, to be built on a sloping, 16-acre site in a residential neighborhood. The winning solution consists of single-level units grouped around several

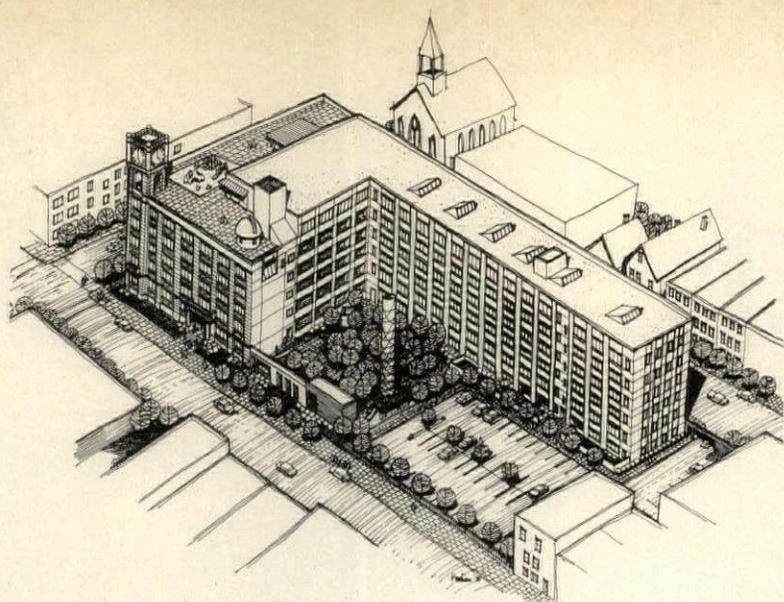


**John Portman design for dinner theater added to Peachtree Center**

A \$2.5-million, 525-seat dinner theater addition to the Atlanta Peachtree Center hotel and office complex was opened last month. Architect-developer John Portman, in describing his design, said the cantilevered round thrust stage extends beyond the exterior wall (right)

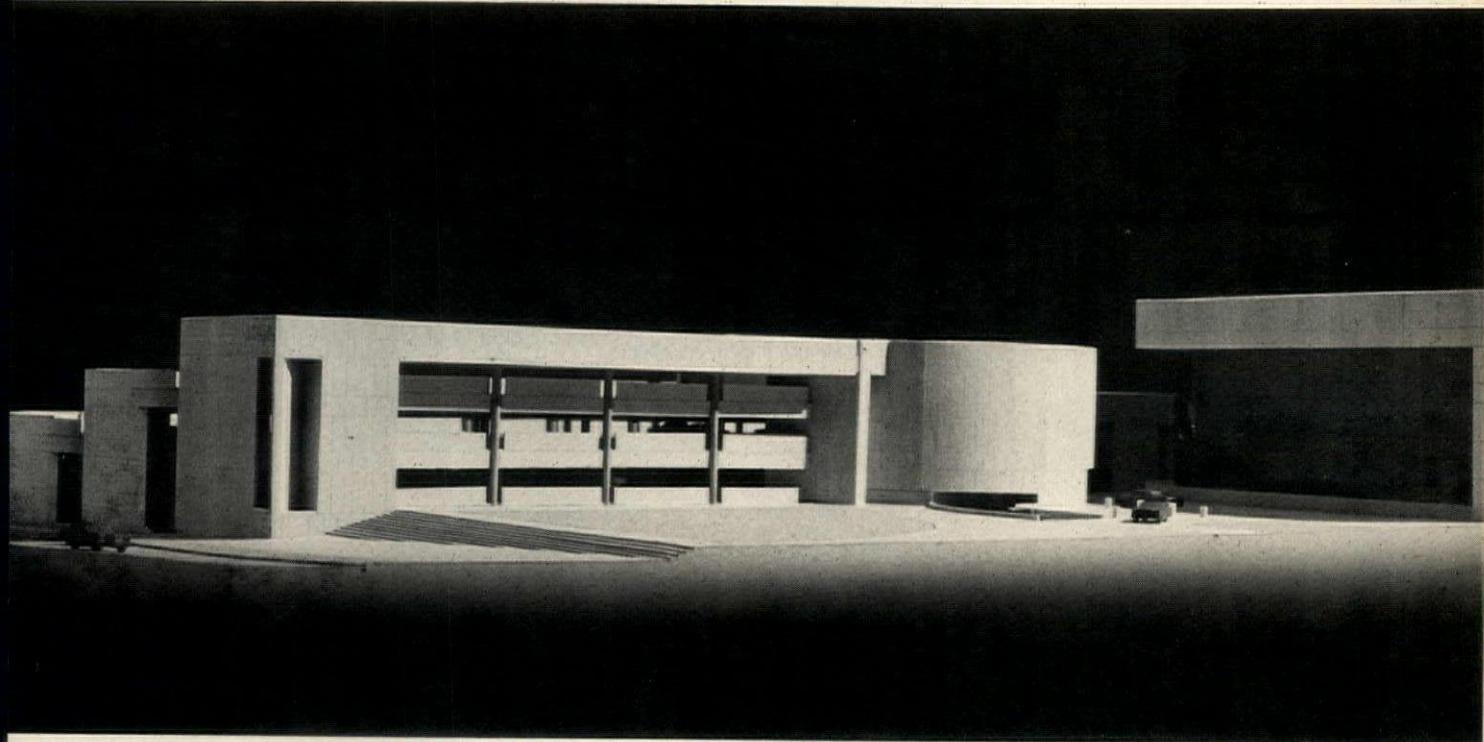
line to "create a backstage area and make it clear that this part of the building has a special function." The turret-like protrusion is sheathed in bronze panels. The Midnight Sun Dinner Theatre is located on the top of the center's shopping gallery, and is reached by escalator.





**Model Cities recycling of factory to housing**

Built in 1906 as a factory for the drafting supplies firm of Keuffel and Esser, this building in Hoboken, New Jersey will provide 173 apartments for moderate-income families by May 1976. The \$5-million project is being financed by Section 236 of the National Housing Act which allows subsidy reduced interest rates on the mortgage from 8= per cent to 1 per cent. In 1971 Hoboken Model Cities acquired the property by using recycling funds. The New York firm of Volt Information Sciences, Inc. is the developer, and Beyer-Blinder-Belle of New York designed the renovation of the 188,735-square foot building.



**ing garage for  
n setting**

The Mecklenburg County (North Carolina) Parking Facility by Clark Tribble Harris and Li Architects forms the gateway to a county court complex. Providing parking for 460 cars, the ex-

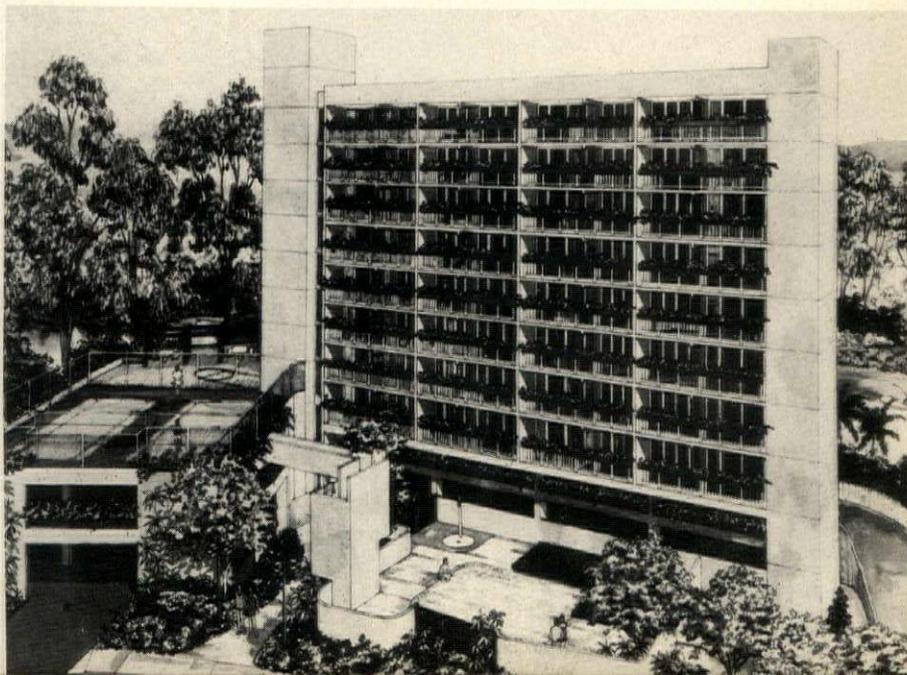
posed, cast-in-place concrete structure makes use of precast concrete double tees and integral concrete slabs. Bid at \$1.44 million, the building uses a double helical ramp both as a signal

for garage entry and as a transitional element between buildings of different mass and proportion. The garage is expected to be completed next month.

**ular concept used in Hawaii apartments**

In early this year, the Lake-Circle Apartments at Wai-anae, Oahu, Hawaii are being built at a cost of \$3.5 million. The building uses retractable, room-size concrete boxes as forms. Concrete pouring of two to three apartments (four to six rooms each) can be completed daily on the temporary structure, designed by

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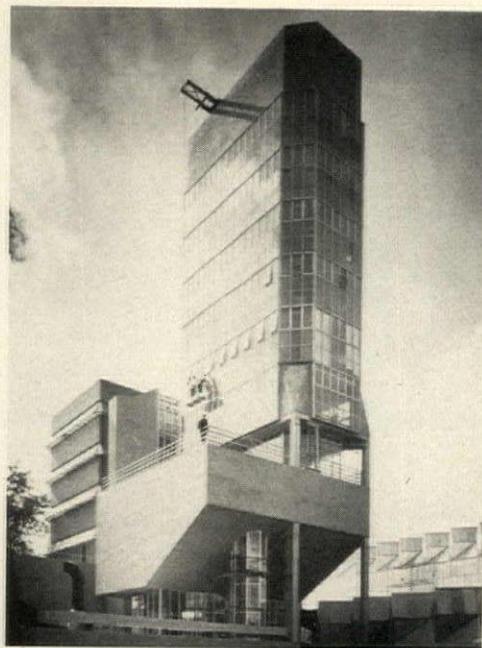
JAMES STIRLING: BUILDINGS & PROJECTS 1950-1974, by James Stirling, with an introduction by John Jacobus; Oxford University Press, New York, 1975, 184 pages, illustrations, \$30.00.

Reviewed by Martin Filler

The flow of dispatches from the New Haven-Philadelphia axis continues unabated. The group of American architects who have been making architecture safe for historicism have won the battle in creating an important new direction for architecture, but at times they seem close to losing the war. Their victory comes in being able to do an architectural number that has been taboo since the last gasps of the Beaux Arts: not only to borrow from architectural styles of the past, but (gasp!) to talk about it—openly. Yet their defeat might well come from their unawareness that large segments of their public are put off by what they see as ingrown concerns. These concerns, often voiced in a self-conscious style begging for parody (RECORD, July 1975, pages 99-104, and September 1975, page 4), obscure the fact that the work of these architects is usually strong enough to stand without the aid of enough quoted historical sources to give a post-doctoral fellow a cerebral hernia. Also, the mutual back-scratching of architects (tangle reviews of each others' houses don't help matters) will be cited by those who want to expose the Emperor's new house, while those of a brainier bent will no doubt seize upon the growing gap between the purely esthetic and specifically semantic applications of inclusivism, thereby being able to settle even more complex philosophical scores.

Many others, of course, will refuse to get involved in the debate at all, preferring to throw out the architectural baby with the polemical bathwater. Before they do, though, they might read a new book on the career of the British architect whose works have done a great deal to show that the concerns of his American counterparts are shared and valid, and capable of realization without the birth of yet another "ism."

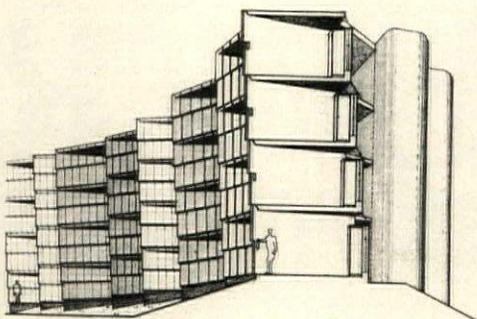
That architect is James Stirling. It is now 25 years since he graduated from the Liverpool University School of Architecture, and next year he will celebrate his semicentennial. He is considered in some circles to be not only the most important contemporary architect in England (a verdict that verges on *faute de mieux*), but the most important architect anywhere. He was catapulted into international prominence a dozen years ago by the Leicester University Engineering Building, which John Jacobus, in his introduction to *James Stirling: Buildings &*



Leicester University Engineering Building, 1959-63, office tower, James Stirling and James Gowan.



Cambridge University History Faculty Building, 1964-67, library ceiling, James Stirling.



Selwyn College, Cambridge University (project), 1959, student residence, perspective section, James Stirling and James Gowan.

*Projects, 1950-1974*, calls "the finest work in Britain since Mackintosh's Glasgow School of Art, built at the turn of the century." The emergence of an architect like Stirling after such a dry spell in Britain seems providential.

England was in the throes of what has become known as the Festival Style, a mercifully short-lived phase centering around the Festival of Britain in 1951, which marked the rebirth of Architecture in England after six years of post-war austerity. That Stirling was able to resist the Festival Style's "look"—at its worst like third-rate Gropius with touches heralding the approach of a new Stone Age—was an encouraging sign. His great early influence was Le Corbusier, and his earliest projects (he had no work built in his first five years of practice) pay unusually thoughtful homage to the master. Yet whatever historical sources he recalled throughout his career (and Jacobus cites such diverse ones as Paxton, Sant' Elia and the Russian Constructivists), Stirling's work has always been hallmarked by an attention to pragmatics over polemics, of program over personal philosophy.

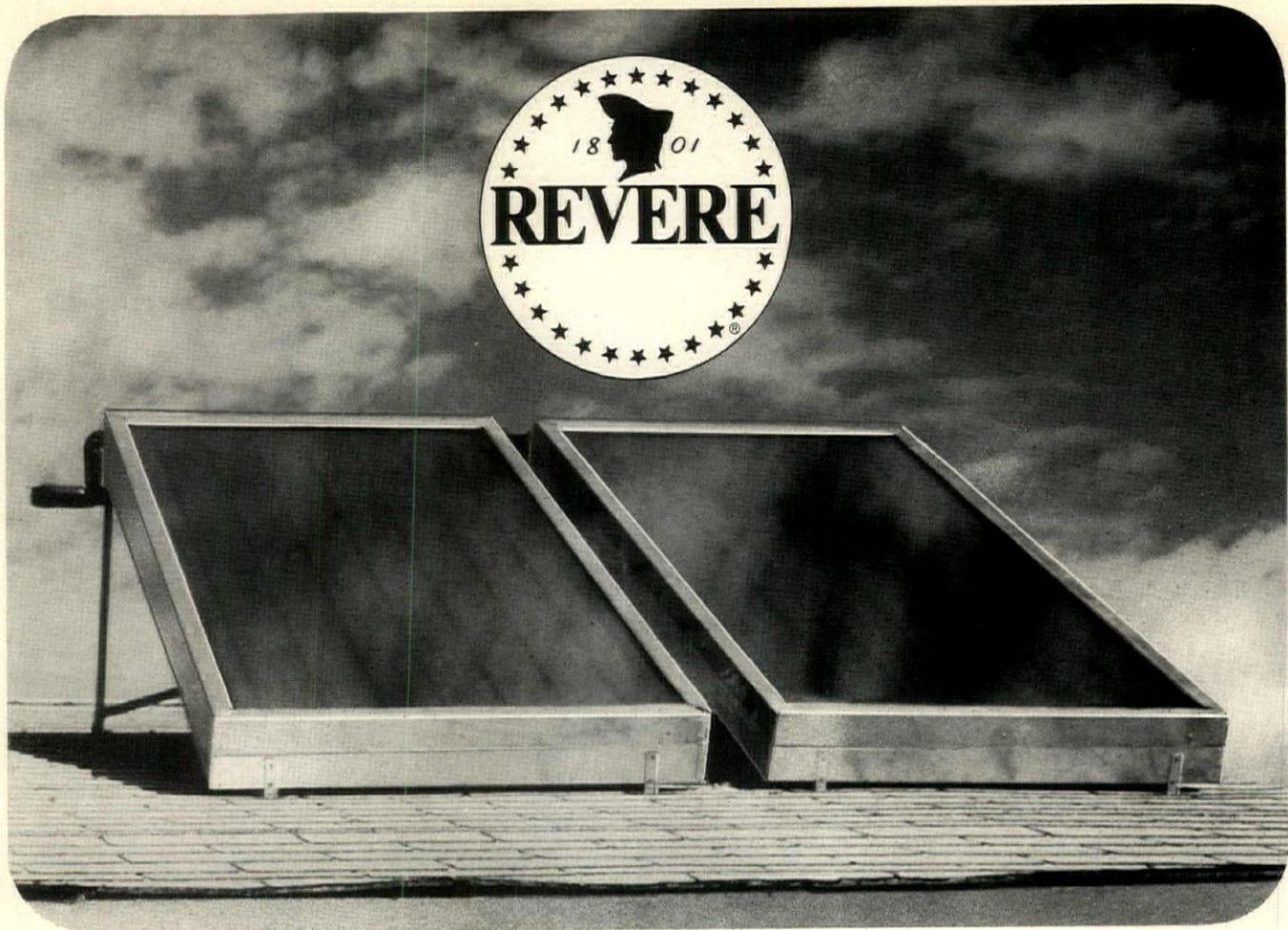
Stirling himself has averred that "when making a presentation of a project to a client, we must never talk about esthetics, and explanations must be in terms of common sense, function and logic. If you mentioned the word 'beauty' their hair would stand on end, and you'd probably lose the commission." He has been content to consider his an "illicit manifesto" and to leave the historical footnotes to be filled in by those who need the work.

Among Stirling's smaller commissions are several that illustrate the rightness of his outlook, and they should prove that where sufficient talent is present, no more is really needed. His infill housing in the town of Preston is thoroughly vernacular, retaining those aspects of the urban, working-class setting that architects here seem to have such trouble with. The Putney Children's Home was conceived as "almost a caricature of the domestic house" to "overcompensate for the lack of a real 'home'", while the Old People's Home, Blackheath, was no less sensitively planned to avoid long institutional vistas down corridors and to provide residents with a choice of involving (outward-facing) or contemplative (inward-facing) views from their rooms.

The major part of the book, however, is devoted to Stirling's major commissions for three universities—Cambridge, Oxford and St. Andrews—that taken as a group also form the core of his work to date. The first of these was his student residence for Selwyn College, Cambridge, never built, but which as Stirling ac-

Mr. Filler is editor of Architectural Record Books.

continued on page 47



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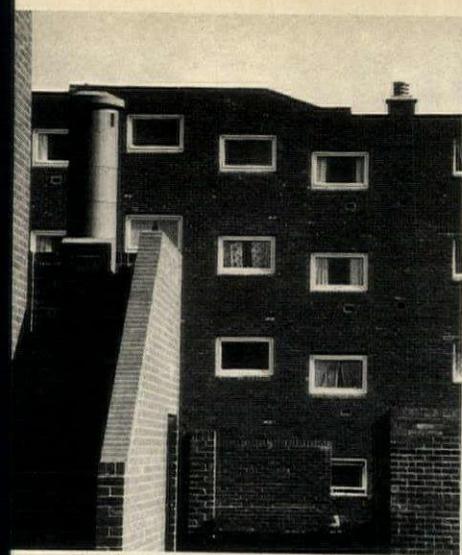
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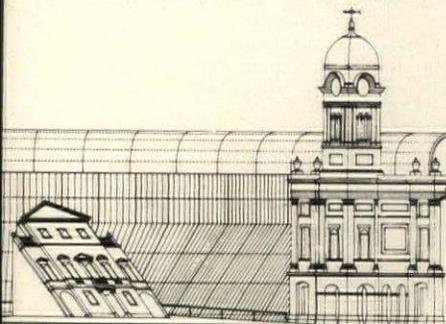
Leiston housing, 1957-59, James Stirling and James Gowan.

owledges was "an important move in the direction of our present designs." Its expression, for the first time in his work, of banked, curved, glass-skinned forms was to be echoed later in schemes like his Derby Civic Centre.

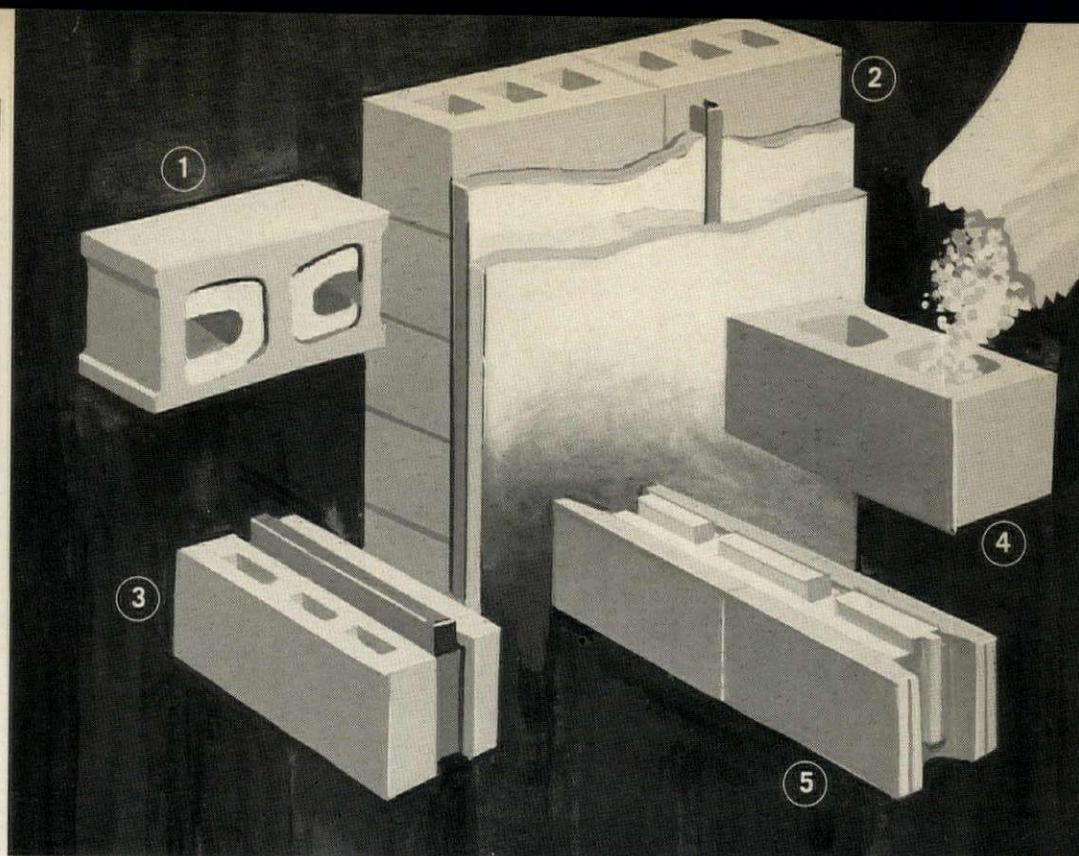
The celebrated Leicester building is better illustrated in plans, sections, elevations and photographs than anywhere else so far, and it is a building with enough historicizing references to make an architectural historian fairly giddy. Corbusier's vision of building as ocean liner is not only formally expressed, but is punned upon by an exhaust vent in the shape of a ship's funnel. Melnikov's Worker's Clubhouse in Moscow seems another sure source, while the glassed-in spiral staircase is straight from Le Corbusier's Werkbund Factory, and so on. Yet this finally makes little difference in terms of the invention inherent in the over-all design. The building is a *tour de force*, whatever the invention of its parts. It is a triumph over an absurdly difficult site, a restricted budget and a complex program—all surmounted with the skill as to make it seem effortless. And it achieves a greater-than-the-sum-of-its-parts content that few merely "collage" buildings in America have been able to bring off.

Stirling's next major work, the Cambridge University History Faculty Building, continued much the same idiom as Leicester, while not a derivative of it beyond the use of similar, brilliantly understood materials. But what must have seemed an appropriate image for engineers at Leicester met with some disapproval at Cambridge. Such reactions show that even architects who do not set themselves up as pole-

continued on page 48



Derby Civic Centre (project), 1970, façade of Assembly Hall and Guildhall (right), James Stirling.



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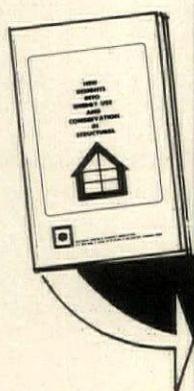
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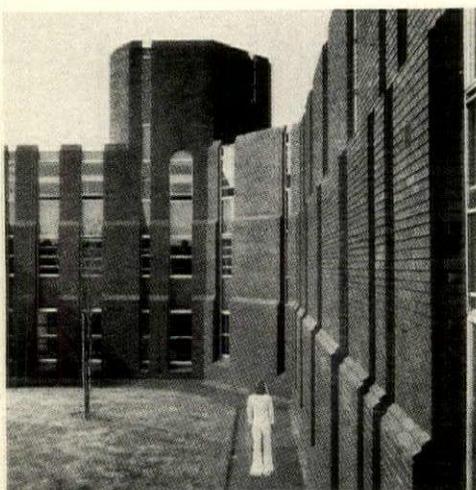
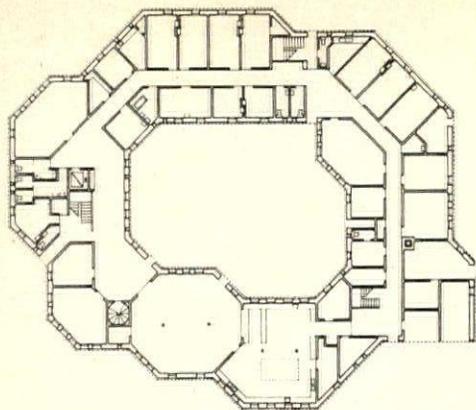
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Old People's Home, Blackheath, 1960-64, ground-floor plan (above) and garden court (below), James Stirling and James Gowan.

micists can find themselves the center of controversy. But if Stirling had provided ammunition in the form of detailed apologies, such reactions might be less dismissable, since they would have been made in response to his stated intentions.

In his most recent work, Stirling has been involved in still other stylistic modes which he once again never lets run away with his over-all purposes. The already famous Derby Civic Centre makes use of "pop" references quite a bit more generally accessible than those to obscure historic architectures. Stirling reworks the definition of "pop"—that of using familiar objects-as-icons in new, sometimes startling ways—by extending it to architecture in a totally unique application: the tilting of the façade of the Assembly Hall to form the back of a proscenium is a jokey but oddly loving move. Despite the great originality of the idea (and the resulting attention given it rather out of proportion to its importance in the over-all plan), Stirling nevertheless subjugates it to the harmony and correctness of his design. He never tips his hand completely, and in telling us less than we want to know, rather than more, he keeps us looking rather than listening, perhaps the chief service anyone's art could hope to provide. Stirling's work proves that there ain't nothin' like the real thing—to which one might add: New Haven, New York and Philadelphia papers, please copy.

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## Programming: analysis as prelude to design synthesis

*Creativity in design depends on the originality and depth of organization of the parts identified in programming. That is a premise stated by William Pena as preamble to an intermittent series of articles on programming, of which this is the first, by Pena and John Focke, both of the Houston office of Caudill Rowlett Scott. This introduction is a statement of the issues and assumptions for the architectural programming process. Later sections will deal with the interactive analytical process, communication and decision making, the client's responsibilities, etc.*

A basic assumption that is essential to raising the programming process to a professional level appropriate to the architectural interpretation that is to follow states that: you must know what happens in the process of design before you can determine the required input for the program. This occurs as a thread of understanding throughout the numbered assumptions below.

The architectural programming process—the process aimed at stating the architectural problem and the requirements to be met in offering a solution to that problem—is based on a number of fundamental assumptions. A clear understanding of these assumptions is essential to an understanding of the process and its successful implementation.

**Assumption 1:** *Problem solving is a valid approach to design.*

The programmer assumes that the programming process will ultimately lead to a design solution that responds to the client's problem. Design, then, is problem solving, while programming is problem seeking.

**Assumption 2:** *A clear distinction can be made between programming and design and between analysis and synthesis.*

We feel that this distinction is essential to a rational architectural process. If design is synthesis, then programming is analysis. In synthesis, the parts are brought together. In analysis, the parts are identified to determine what the problem is all about. If a design problem is to be solved, the problem must first be defined and understood.

**Assumption 3:** *Analysis precedes synthesis.* Before the diverse informational aspects of a design problem can be brought together for translation into a solution, these diverse aspects must be clearly identified, organized and analyzed. Information precedes solutions—this precludes programming through

design, which risks creating a "solution" to the wrong problem.

**Assumption 4:** *The effectiveness of a client's decision making during programming will determine the number of changes during the design and subsequent phases.*

The quality of decision making in the programming phase determines the amount of trial and error in the design and subsequent phases of a project. This does not deny alternatives in design; it means merely that decisions in programming will provide a sounder base of requirements to be met. The less relevant the information, the fewer the decisions in programming, the more elusive the problem and the more chance for error in the solution.

**Assumption 5:** *The programming process leads to the statement of the problem—the whole problem.*

The statement of the problem becomes the link, the interface between programming and design. The "whole problem" then serves to point up constituent problems in terms of four considerations: function, form, economy and time. The statement of the problem represents the essence and the uniqueness of the project. Furthermore, it suggests the solution to the problem by defining the main issues and giving direction to the designer.

**Assumption 6:** *The programming process is basically analytical.*

Analysis, through classification and interrelation of steps and considerations, provides a format for dialogue between the process's many participants. This should ultimately lead to a better understanding of the problem.

Analysis also provides a useful framework for classifying and documenting information. The framework is particularly useful in avoiding "information clog" when massive quantities of information have been assembled.

**Assumption 7:** *Raw data coming from many diversified sources must be processed before it becomes meaningful information.*

It's worth pointing out that the more clients and users become active in the programming process, the more information is generated—information that ultimately must be organized and analyzed.

**Assumption 8:** *Many groups of people will participate in the programming process.*

This means that the over-all approach must be rational enough to withstand public scrutiny, and analytical enough to achieve a greater mutual understanding among the process's participants.

**Assumption 9:** *Participants on the programming team will cooperate with one another.*

This precludes the prima donna client and the prima donna architect who compete to play every role on the team and make every decision in programming and design. He who has the responsibility for the outcome, has the authority for decision making. Without an attitude of frankness and openness, there is the need to test for reality, to prove the validity and the integrity of the information being analyzed.

**Assumption 10:** *The programming process is heuristic (i.e., indicates directions) and not an algorithm (i.e., a mathematically precise procedure).*

The process is "non-rigorous" because the steps are not inflexibly strict and the information is not scrupulously accurate.

**Assumption 11:** *The client's real needs can be determined as different from his wants.*

The client's functional requirements must be reconciled to the economic feasibility of the project.

**Assumption 12:** *The architect must develop a background understanding of the client's problem.*

The architect must have a good understanding of the client's jargon and the general nature of the client's problem—prior to beginning the programming process.

**Assumption 13:** *The process and the team concept applied to implement it require a high degree of communication.*

Because of the amount and complexity of data generated during the process, only information that has been thoroughly organized and documented is likely to be considered and evaluated by the team.

**Assumption 14:** *Both clients and designers require graphic analyses in order to fully comprehend the magnitude of numbers and the implication of ideas.*

Communication techniques such as "brown sheets," "analysis cards," and gaming cards can help to graphically promote the kind of understanding that leads to sound decision making.

**Assumption 15:** *The reaction to disorganized or too much information is invariably a bad case of "data clog" that paralyzes the thought processes or results in a mental block.*

The solution is to classify, discriminate, abstract and organize information, in order to determine its relevancy and reduce it to its essence.

—William Pena and John Focke

In a sharp break with traditional lock design, Russwin has created building protection that's in a class by itself... the new Emhart High Security Locking System. This advanced concept features inter-locking pins operated by cross-cut configurations in a unique key.\* It's virtually pick-proof. And, as an additional security measure, Russwin will duplicate the key only for authorized persons.

This revolutionary system can be tailored to a building without the excessive cost of a complete new security system. While it cannot be operated with keys from other Russwin locks, keys used in this system may operate other selected Russwin locks.

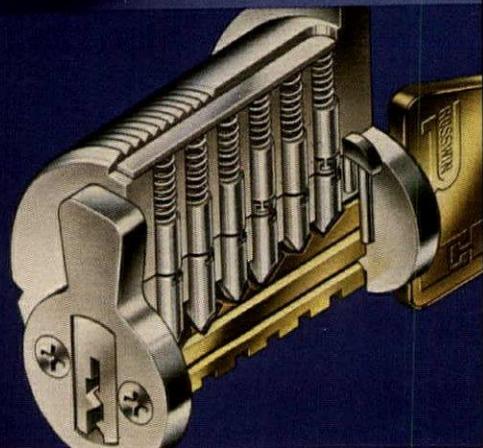
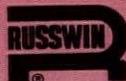
\*Patent applied for UL listed

This permits the use of conventional locks in normal security areas and Emhart High Security System locks in critical security areas. All may be operated with one key. If desired, Emhart High Security Cylinders may be superimposed on new or qualified locking systems.

Have Russwin make up a high security package to your custom requirements with a fine quality lock and the Emhart High Security Locking System built into it. You'll have the key to positive building protection in your pocket! For details, write Russwin, Hardware Division, Emhart Corporation, Berlin, Connecticut 06037.



HARDWARE DIVISION, EMHART CORPORATION  
BERLIN, CONN. 06037



Emhart High Security Cylinder design presents the would-be intruder with what we believe are insurmountable odds. Angular cross cuts in the key bit simultaneously rotate the lower sections of the two-section pins a precise number of degrees. This action lines up T-slots in their upper ends with mating projections in their upper sections to free the cylinder. A would be intruder must find the exact angle of rotation for each pin to beat the system. Virtually impossible, when you consider the vast number of possible combinations of angles in the 6-pin cylinder!

**Protection  
perfection**



## The real cost of an on-site project representative

If you're working out the multiple-of-salary factor for charging costs of a full-time, job-site representative, you already know that once is not enough. J. Karl Justin of O'Brien & Justin gives the rationale of components of a reasonable factor.

The upgrading of nomenclature in recent years from "Clerk of the Works" to "Full Time Project Representative" in the parlance of the profession indicates a considerable increase in responsibility envisioned for the man in that job (more often than not, today, a licensed architect of considerable experience). And the corresponding advances in technology and administrative complexity have mandated the change; certainly for any architectural office that intends to maintain the integrity of its designs through the many vicissitudes of the construction phase. On a project of any size today, sufficient control simply cannot be maintained at arms length.

On the other hand a fair *quid pro quo* often becomes elusive when the negotiation is left to the time when construction is about to begin, or has already started. Admittedly it is hard to generate much interest during a job's earlier stages in resolving proper compensation for even special construction phase personnel. But perhaps the following check list of attributable costs for "field men" (based at the job site and not in the drafting room) can be useful in helping reach an equitable compensation arrangement whenever the matter can be resolved.

Usually the rate of compensation to the architect for the Full-Time Project Representative is expressed as a multiple of his salary. The following check list assumes that the reckoning of the multiplier is being worked out with all elements on an annual basis. Costs however must be spread only over the 47 weeks (allowing for vacation, sick leave, etc.) that the man is actually assumed to work and in which the architect is actually paid the multiplier. Any reasonable time period of course can be used provided the units are consistent throughout. Costs therefore, in terms of multipliers to be applied to annual salary, are:

**Vacation:** At least two weeks salary with three weeks becoming more common. Considering the over-all temporary nature of this work and the costs of hiring and training a replacement, liberal benefits, and sometimes liberal negotiations thereof under time pressure, are more common than the more tightly controlled situations found in the drafting room.

Cost contribution: say  $3/47$  (i.e. 3 weeks out of a 47-week year) = .064.

▪ **Sick leave:** The same liberalism referred to above necessarily obtains here. In this case, one can be sure any formally allotted sick leave will be used up, because there is no value to the short-term employee in accumulating this benefit.

Cost contribution: say  $2/47$  = .043.

▪ **Holidays:** Cost contribution: say  $8/225$  days = .036.

▪ **Termination pay:** For the "field man," generally hired for the duration of the job, this probable cost has to be faced. Assuming a job runs two years in the field, two weeks' termination pay is equivalent to one week a year.

Cost contribution:  $1/47$  = .021.

▪ **Bonus:** Employment on a two-year job will overlap two year-ends and probably be in the range of say two weeks in pay. The attempt is sometimes made to forget the field men at the end of the year in contrast with distributions made at the office, but such secrets are badly kept, usually with more costly results than any possible savings.

Cost contribution:  $2/47$  = .043.

▪ **Hospitalization, major medical and life insurance:** This depends on the firm's benefit plan but probably will exceed . . . .040.

▪ **Professional liability insurance:** This is a major factor often overlooked. It is about twice as important this year as last year. However it could be much more depending on individual firms and job size. Or, on the other hand, if treated as a reimbursable item it might not apply at all. In any case it should be calculated anew for each situation. The dominant factor in determining the firm's rate is the annual billing. Therefore the cost contribution versus the "field man's salary" (approximately expected billings for these services at \$30,000 per year) is:  $30,000/\text{firm's annual billing} \times (\text{annual premium}) = \text{say}, .090$ .

▪ **Federal and state employee benefit contributions:** The state portion of this item varies from one to the other but, using New York figures for instance, the employer's contributions are:

Federal: FICA @ 5.85% on first \$13,200	= \$772.20
Federal unemployment @ 0.5% on first \$4200	= 21.00
State unemployment @ 3.7% on first \$4200	= 155.40
	\$948.60

Cost contribution as multiple of salary, say, .050

▪ **Other insurance:** This includes Workmen's Compensation, general liability, valuable papers (away from the office) and varies with coverage but ranges near .005 of annual salary of the "field man."

Cost contribution: say, .005

▪ **Office services, miscellaneous expenses and contingency:** Telephone, typewriter or other office equipment, water cooler, attention of office staff and processing by the bookkeeper all add up substantially. The variation from one situation to another can be considerable, but for the sake of a broad approximation, say that the aggregate costs run \$50 per week.

Cost contribution = .150.

▪ **Salary (finally) = 1.000.**

▪ **Total costs (including salary) = 1.542,** the sum of the above items, to which should be added a reasonable margin (subject to further diminution due to new business development expenses, some other general overhead items, and taxes) at 20 per cent, say = .308.

▪ **Contract multiplier, given the above, = 1.850** (as a multiple of the Full Time Project Representative's annual salary).

It should be most strongly emphasized that the foregoing is only a sample computation based on some broad assumptions, and that each firm and project should be computed in its own right; perhaps using the foregoing as an outline only if it is pertinent.

For example, the larger the job and the more "field men" required, the greater will be the cost contribution made by the heavy professional liability insurance factor. This is magnified hugely if, in addition to the architect's full time project representative, structural, mechanical or electrical engineers are required. These may run up the total gross fee substantially (and therefore premiums) without increasing the architectural net. The above figures are calculated on the basis of a single architectural field representative.

As a final thought, then, it is well to remember that while the value of the full-time project representative is high, the fraction of total job fees and costs he represents are also high. For instance, a project of medium complexity with a construction cost of four million dollars and a basic services fee of, say, a quarter million, if it only runs eighteen months in the field, may involve gross full-time project rep fees of about fifty thousand dollars. This is twenty per cent (or in reality probably much more) of the basic services fee; much too much to resolve hastily, without full reflection.

—J. Karl Justin



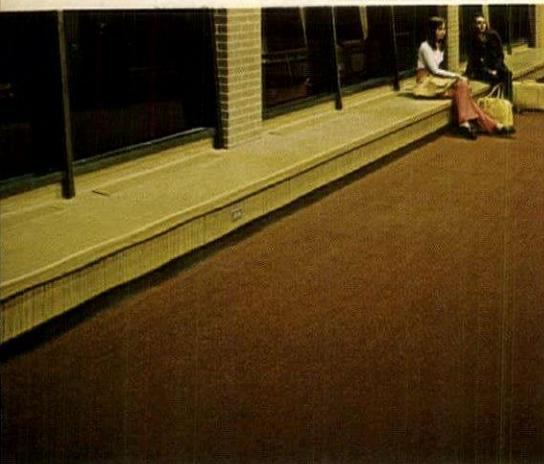
**BEAUTY.** One of the more than 200 attractive choices in Wilson Art, here used for table tops that enhance restaurant decor.



**DURABLE.** Perfect for high-traffic areas — fixtures, walls, hallways, elevators. Wilson Art takes scuffs and kicks yet stays unmarred for years of service.



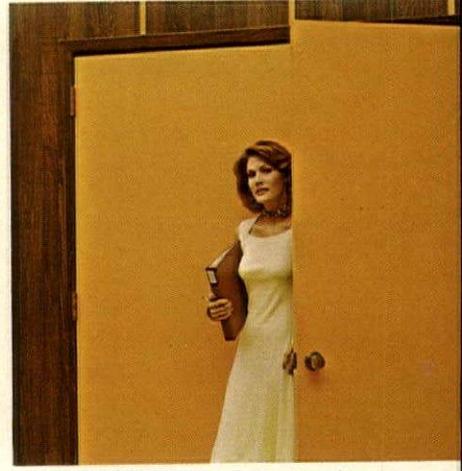
**SANITARY.** Moisture-repellant Wilson Art provides easy-clean, stay-clean decorative surfaces ideal for lavatory applications.



**MAINTENANCE-FREE.** Tough, hard-surfaced Wilson Art resists burns and stains. A quick wipe now and then restores its original beauty with ease.



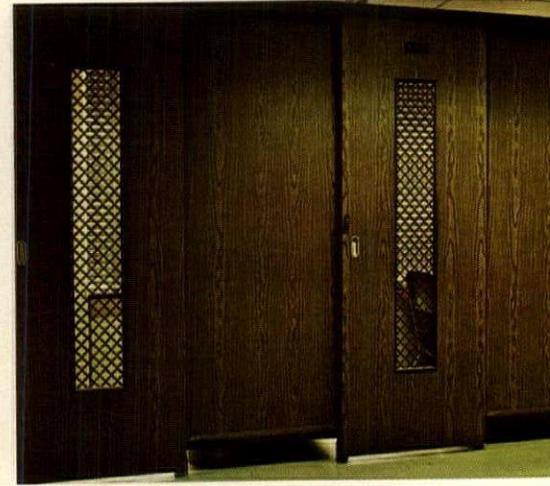
**ECONOMY.** Very reasonable initial cost, plus savings on low maintenance and durability gives Wilson Art excellent life-cycle costs.



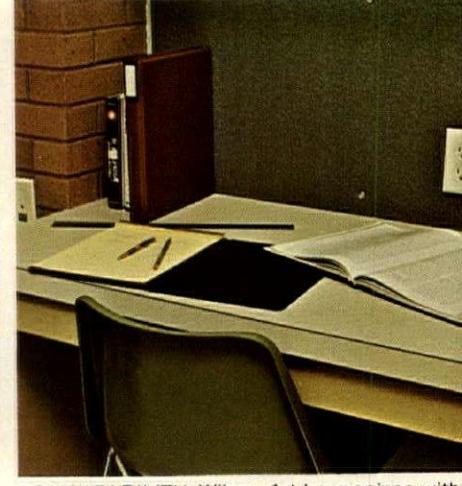
**IMPACT-RESISTANT.** Super-tough, extra-thick Dor-Surf®—made by Wilson Art to take a door's rough life. No kick- or push-plates needed.



**LONGEVITY.** Long life cycles—10, 15, even 20 years—mean Wilson Art outlasts most other decorative surfacing materials. Durable beauty.



**IMAGE.** Set a tone, create an atmosphere. At a fraction of the cost of many other decorative surfaces, Wilson Art gives designers flexibility and control.



**COMPATABILITY.** Wilson Art harmonizes with many decorative materials. Try it with wood, brick, paint, stone to neutralize or accent.

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tems for walls, and Dor-Surf for doors. You'll receive lower life-cycle costs and the best service from Wilson Art.

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**When the chips are down, you can depend on Wilson Art.**



WILSON ART... TEMPLE, TEXAS... 7

Forty new assemblies added to 1976

Dodge Construction Systems Costs

Forty new assemblies and 40 more pages have been added to the expanded 1976 Dodge Construction Systems Costs, now available from Dodge Building Cost Services, a unit of McGraw-Hill Information Systems Company. Updated annually, the book provides architects with the latest cost data on systems used in building.

The book enables architects to quickly figure the cost impact of early design decisions, and to make cost comparisons of design alternatives for their projects. For example, in the section on partition systems, the cost per sq ft for drywall-steel stud/gypsum board can be speedily compared with 62 other partition systems.

The 1976 Dodge Construction Systems Costs also presents low, middle and high average building cost-per-sq-ft data on more than 40 different building types.

A guide for making maximum use of available space has been expanded from the previous edition.

Also updated are the local adjustment tables, which can be used to figure average systems costs in 84 U.S. metropolitan areas.

The book can be ordered now for \$33.80 (plus tax where applicable). Mail orders or requests for more detailed information can be sent to Dodge Building Cost Services, McGraw-Hill Information Systems Company, Room 2150, 1221 Avenue of the Americas, New York, N.Y. 10020.

John H. Farley, senior editor  
Dodge Building Cost Services

INDEXES: October 1975

1941=100.00 (except as noted)

Metropolitan area	Cost differential	Current Indexes				% change last 12 months
		non-res.	residential	masonry	steel	
U.S. Average	8.5	519.5	477.1	511.7	499.0	+ 9.6
Atlanta	7.5	604.9	570.3	596.1	585.3	+ 4.1
Baltimore	8.5	590.0	554.7	581.1	564.2	+ 8.7
Birmingham	7.3	453.7	421.9	442.4	436.1	+ 6.5
Boston	9.0	518.9	490.2	521.5	503.6	+10.9
Buffalo	9.1	577.7	526.4	569.2	552.4	+10.1
Chicago	8.3	554.8	520.9	546.6	539.8	+ 5.7
Cincinnati	8.8	552.5	507.5	544.9	532.0	+10.1
Cleveland	9.0	535.9	491.7	528.0	514.9	+ 4.2
Columbus, Ohio	8.2	534.1	486.5	526.2	510.5	+ 5.9
Dallas	7.9	501.7	475.9	496.7	486.6	+ 4.5
Denver	8.4	557.2	513.4	550.6	539.3	+ 8.5
Detroit	9.8	622.7	568.1	615.3	589.3	+10.9
Houston	7.4	485.5	447.7	478.3	469.8	+13.7
Indianapolis	7.8	458.3	420.4	451.5	441.1	+ 7.5
Kansas City	8.7	511.9	475.1	504.8	495.9	+14.4
Los Angeles	8.5	601.9	539.6	588.4	577.1	+11.5
Louisville	7.6	497.8	458.2	490.4	480.8	+ 7.0
Memphis	8.4	533.4	490.7	525.5	514.9	+11.6
Miami	7.9	562.6	523.1	555.4	542.1	+15.1
Milwaukee	8.7	611.4	555.2	602.4	582.6	+16.1
Minneapolis	8.9	545.3	501.0	538.8	526.3	+10.1
Newark	9.0	498.1	454.4	490.7	476.8	+ 6.3
New Orleans	7.5	500.2	463.2	493.3	484.0	+11.9
New York	10.0	545.8	496.6	533.0	521.7	+ 3.5
Philadelphia	9.1	578.7	535.8	571.8	555.8	+ 9.4
Phoenix (1947 = 100)	8.2	297.5	273.3	293.1	286.8	+11.4
Pittsburgh	8.9	518.5	472.4	512.4	496.2	+ 9.4
St. Louis	8.7	538.9	497.1	531.5	519.4	+10.9
San Antonio (1960 = 100)	7.6	198.4	182.4	195.5	191.4	+ 9.3
San Diego (1960 = 100)	8.7	220.5	201.3	217.2	211.2	+11.0
San Francisco	9.6	775.9	689.7	785.5	737.7	+12.0
Seattle	8.6	534.6	461.3	520.6	502.0	+14.4
Washington, D.C.	8.4	523.0	476.9	515.3	500.4	+11.8

Cost differentials compare current local costs, not indexes, on a scale of 10 based on New York

Tables compiled by Dodge Building Cost Services, McGraw-Hill Information Systems Company

HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL NON-RESIDENTIAL BUILDING TYPES, 21 CITIES

1941 average for each city = 100.00

Metropolitan area	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 (Quarterly)				1975 (Quarterly)			
										1st	2nd	3rd	4th	1st	2nd	3rd	4th
Atlanta	321.5	329.8	335.7	353.1	384.0	422.4	459.2	497.7	544.8	555.2	556.7	573.5	575.0	583.8	585.3	597.2	
Baltimore	285.7	280.9	295.8	308.7	322.8	348.8	381.7	420.4	475.5	516.3	517.8	532.8	534.3	538.7	540.2	579.6	
Birmingham	265.9	270.7	274.7	284.3	303.4	309.3	331.6	358.3	402.1	405.5	407.0	419.7	421.2	438.6	440.1	447.4	
Boston	257.8	262.0	265.7	277.1	295.0	328.6	362.0	394.4	437.8	455.1	456.6	461.0	462.5	484.1	485.6	511.7	
Chicago	311.7	320.4	328.4	339.5	356.1	386.1	418.8	444.3	508.6	514.2	515.7	528.1	529.6	539.2	540.7	558.6	
Cincinnati	274.0	278.3	288.2	302.6	325.8	348.5	386.1	410.7	462.4	484.5	486.0	498.6	500.1	518.0	519.5	549.1	
Cleveland	292.3	300.7	303.7	331.5	358.3	380.1	415.6	429.3	462.2	490.3	491.8	508.0	509.5	516.6	518.1	529.5	
Dallas	260.8	266.9	270.4	281.7	308.6	327.1	357.9	386.6	436.4	453.7	455.2	476.4	477.9	488.3	489.8	498.1	
Denver	294.0	297.5	305.1	312.5	339.0	368.1	392.9	415.4	461.0	476.1	477.6	508.5	510.0	530.4	531.9	552.1	
Detroit	284.7	296.9	301.2	316.4	352.9	377.4	409.7	433.1	501.0	519.5	521.0	537.2	538.7	554.4	555.9	596.0	
Kansas City	256.4	261.0	264.3	278.0	295.5	315.3	344.7	367.0	405.8	435.6	437.1	443.4	444.9	481.1	482.5	507.6	
Los Angeles	297.1	302.7	310.1	320.1	344.1	361.9	400.9	424.5	504.2	514.3	515.8	531.3	531.8	546.7	548.2	592.6	
Miami	277.5	284.0	286.1	305.3	392.3	353.2	384.7	406.4	447.2	467.6	469.1	484.6	485.5	499.5	501.0	557.4	
Minneapolis	285.0	289.4	300.2	309.4	331.2	361.1	417.1	412.9	456.1	469.7	471.2	487.1	488.6	513.9	515.4	536.5	
New Orleans	256.3	259.8	267.6	274.2	297.5	318.9	341.8	369.7	420.5	437.5	439.0	440.6	442.1	463.5	465.0	493.2	
New York	297.1	304.0	313.6	321.4	344.5	366.0	395.6	423.1	485.3	497.4	498.9	513.8	515.3	524.1	525.5	532.0	
Philadelphia	280.8	286.6	293.7	301.7	321.0	346.5	374.9	419.5	485.1	495.7	497.2	517.0	518.5	531.5	533.0	566.0	
Pittsburgh	267.0	271.1	275.0	293.8	311.0	327.2	362.1	380.3	424.4	443.7	445.2	464.1	465.6	475.2	476.7	508.0	
St. Louis	280.9	288.3	293.2	304.4	324.7	344.4	375.5	402.5	444.2	458.7	460.2	475.2	476.7	497.5	499.0	527.4	
San Francisco	368.6	386.0	390.8	402.9	441.1	465.1	512.3	561.0	632.3	647.1	648.6	671.0	672.5	716.0	717.5	751.8	
Seattle	268.9	275.0	283.5	292.2	317.8	341.8	358.4	371.5	424.4	437.8	439.3	448.7	450.2	472.5	474.0	513.6	

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.0) divided by the index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0 ÷ 200.0 = 75%) or they are 25% lower in the second period.

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## What's wrong with the apartment market?

Among all the sagging statistics that verify the woes of an economy struggling to break free from the grips of a serious recession, there is at least one indicator that has managed to point itself upward this year. That one, housing starts, has been making a labored but steady advance since hitting bottom last January. Yet even this good news must be qualified. One of the troublesome things about the 1975 housing recovery, until mid-summer at least, is that it had been confined almost exclusively to single-family home building, a relatively limited market for the services of the design profession when compared with apartments. However, in July multi-family starts moved ahead. And even though one month's numbers don't make a trend, this rise was more or less on schedule since upturns in apartment starts normally lag behind single-family starts. It is a simple fact of life that a cyclical recovery in residential building typically begins with one-family housing and is later joined by a rise in multi-family construction. The reasons for this lag—which occurs time after time—are too obvious to labor. Design, financing, site preparation and all the other preliminaries to apartment construction increase in complexity with the size of the project. So it's hardly surprising that when conditions are right for a housing recovery, one-family building gets going anywhere from three to six months ahead of apartments. It worked that way in 1967, again in 1970 and it looks like it is happening again this year. So if the recovery in apartment building has finally begun, we can forget about the question of "when" and concentrate on the more interesting question of "how much." And one way of getting some idea is by comparing this year's recovery with the last one that occurred in apartment building. That is, how do today's market forces affecting the potential for multi-family housing differ from the conditions following the 1970 recession—conditions that led to an unprecedented burst of apartment building in 1971, 1972 and 1973.

### Then and now: the key variables

The severe imbalance between the supply of apartment units and demand for apartment units existed as we came out of the 1970 recession. During the 1960's, the number of persons in the two age groups that constitute the bulk of the demand for apartments rose rapidly. The number of 20- to 24-year-olds jumped nearly 5 per cent—over 6 million persons, and those over 65 years old increased over 20 per cent—more than 3.5 million. During this same period, fewer than five million apartment units were started, roughly half the rise in the num-

ber of people in the two age groups. One should quickly caution that too much shouldn't be made out of the above numbers; clearly they don't imply that twice as many apartment units should have been built in the 1960's to keep pace with increasing population in those age groups, because many of those persons are married to each other and require only one housing unit, and many prefer single-family homes. On the other hand, there are people in other age groups who prefer to live in apartments, which tends to boost demand.

One result of this imbalance: The vacancy rate on rental units, which never fell below 8 per cent in the first half of the decade, began declining as the demand for apartments made itself felt, reaching 5.3 per cent in 1970.

By contrast, the supply-demand balance is dramatically different in 1975. From 1970 to 1974 the number of persons in the 20 to 24 and 65 and over age groups rose nearly 3.2 million, while during the same time more than 3.2 million apartment units were begun.

It seems certain that much of the apartment building burst from 1971 through 1973 went to whittling down the backlog of pentup demand from the '60s. The rental vacancy rate indicates this since it began climbing, reaching 6.3 per cent in the second quarter of this year—not as high as the 8 per cent rate of the early 1960's, but nearly 20 per cent above the 1970 figure. And this figure doesn't really reflect the true situation because of the way these statistics are compiled. The rental vacancy rate excludes vacant condominiums because they are for sale rather than for rent even though from the occupant's or builder's viewpoint a condo can be an effective substitute for a rental apartment. Given the estimated 250,000 unsold units one would expect a high vacancy rate on condominiums. And so it is. The homeowner vacancy rate on 5 or more unit structures—virtually all condos—stood at 13.8 per cent in the second quarter of 1975. If these unsold condominiums were properly accounted for in the vacancy statistics, the apartment vacancy rate would be higher, more accurately reflecting the supply-demand balance.

Summing up, there seems little doubt that supply and demand forces tipped in favor of demand in 1970, while in 1975 they are more nearly in balance or even listing to the surplus side.

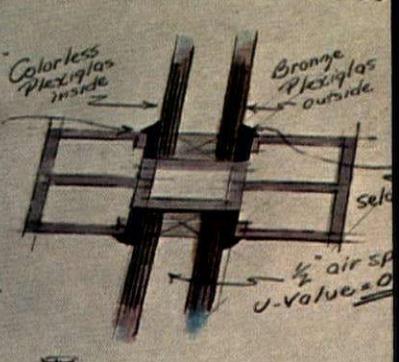
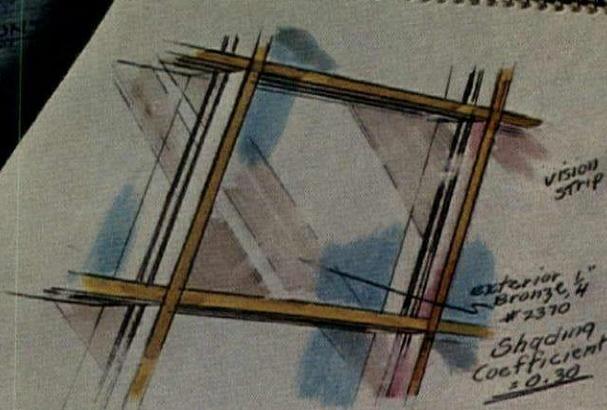
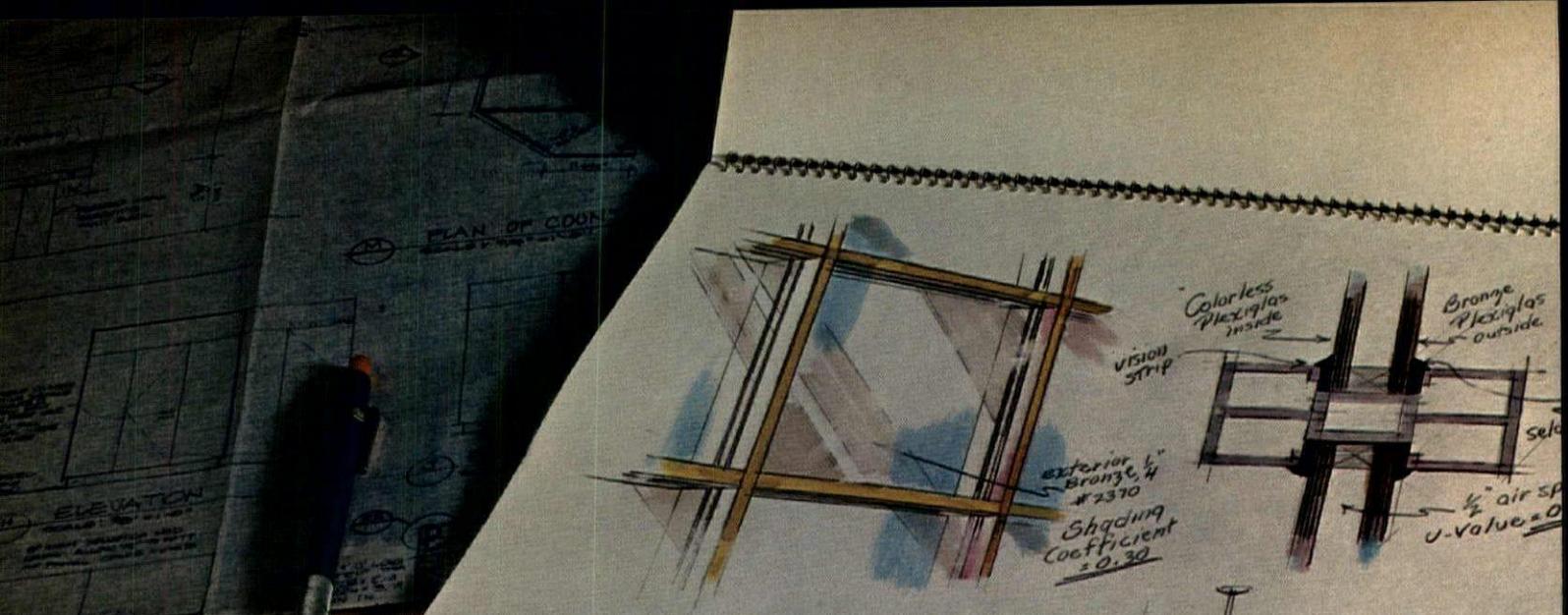
For demand to be effective, financing must be available and money was much looser in the early 1970's than it has been in 1975. The Federal Reserve was pursuing a policy of monetary ease in 1970 to aid the economy's

recovery from the recession. Today the Fed is fighting inflation with tighter monetary policies. During 1970, 1971, and 1972 the Federal government subsidized more than 600,000 multi-family units under Section 236 of the 1968 Housing Act and similar programs. Partially because of the scandals in cities like New York and Detroit, the Nixon Administration placed a freeze on these subsidies. Moreover, the thrust of government policy shifted last fall when Congress passed the Housing and Community Development Act. Section 8 of the Act subsidizes rents rather than new construction, which means that rehabilitation instead of new construction will be encouraged.

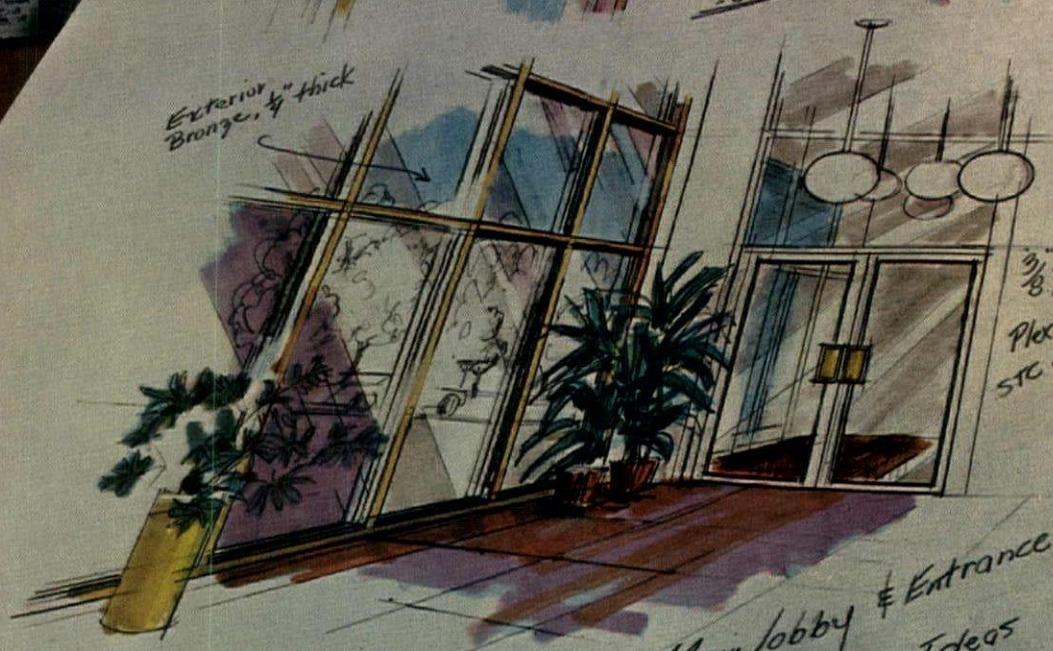
Now we come to the core of the apartment market's problems, summed up by the oft-heard comment of builders and developers, "The arithmetic doesn't work," that is, current rentals simply don't make new apartment projects profitable ventures. From 1970 to 1975 all the costs associated with building and operating an apartment building have risen, in some cases substantially, while rents have merely inched up. Some examples: Financing costs have increased. The data are sketchy, but some idea of the magnitude of the rise can be gained from the rates on new conventional mortgages—including all fees and charges—which climbed more than 20 per cent. Land prices have soared and the cost per square foot of new apartment construction increased over 40 per cent. Operating expenses have skyrocketed led by fuel oil, which more than doubled in price, and gas and electric utility rates, which increased over 55 per cent. While these costs soared, rents (as measured by the consumer price index) rose less than 25 per cent—not much of an incentive to get builders to break ground for new apartment buildings.

So a welcome recovery in the badly depressed apartment market is finally taking hold. And even though there isn't the support behind this recovery to turn it into a super-boom like 1971 and 1972, there is nevertheless the prospect for a period of strong multi-family demand ahead. Basic demand will be reasonably healthy as the two age groups that constitute the main demand for apartments are projected to increase their numbers by over 4.5 million by 1980. Some balance will return to the "arithmetic" of real estate development. As we said in our Second Update: "Some blend of lower interest rates, control of inflated building and fuel costs, higher rentals, and/or rent subsidies is needed. . . ." Achieving this blend will allow the basic demand factors for apartments to play a more prominent role.

Henry C. F. Arnold



Exterior  
Bronze, 1/4\"/>

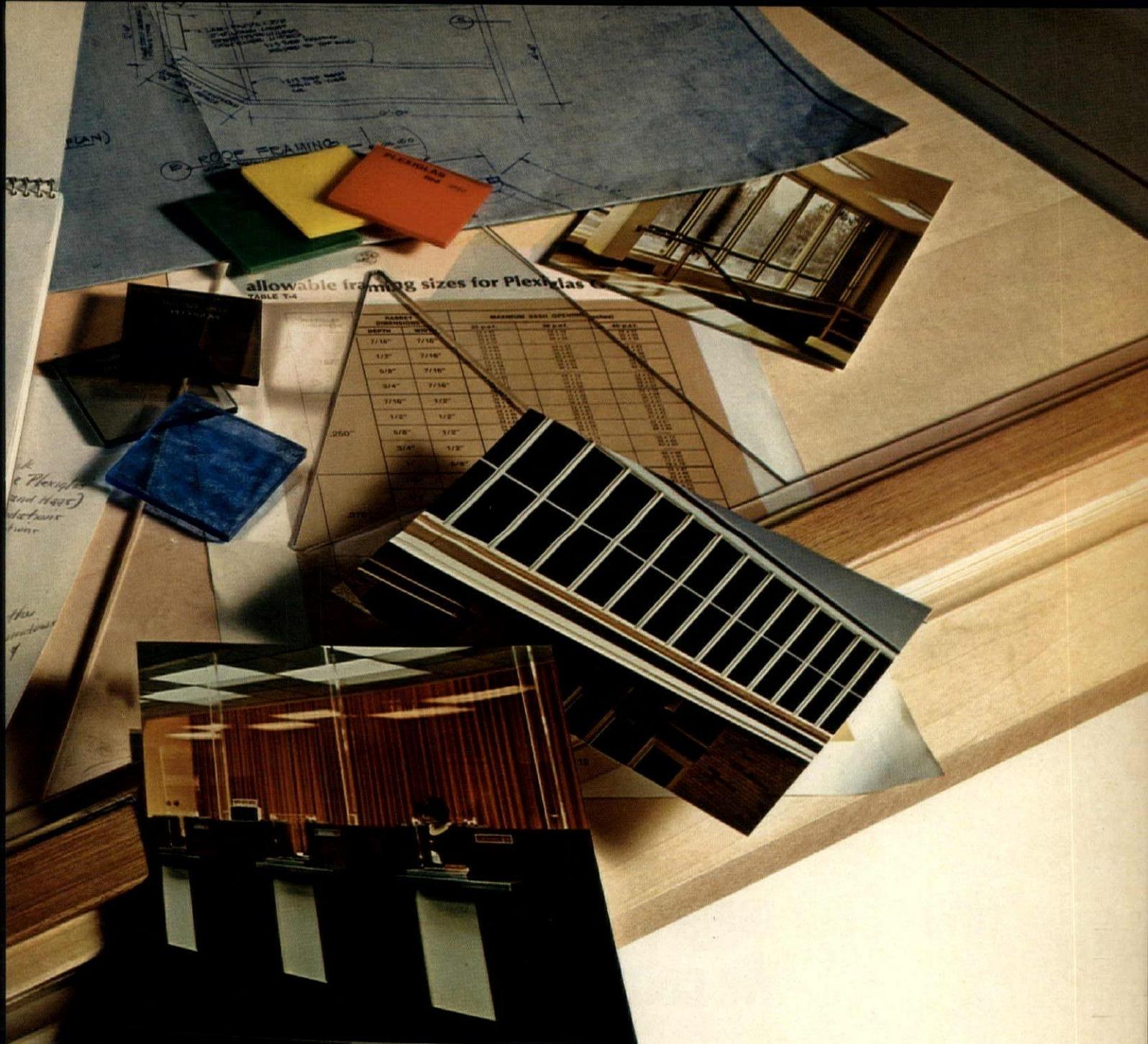


3/8\"/>

Main lobby & Entrance  
Design Ideas

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TABLE T-4

DEPTH	WIDTH	MAXIMUM SASH OPENING (INCHES)	
		BY CODE	BY STATE
2 1/8"	7 1/8"	12	12
1 1/2"	7 1/8"	12	12
5/8"	7 1/8"	12	12
3/4"	7 1/8"	12	12
7/8"	5/2"	12	12
1 1/2"	1/2"	12	12
5/8"	3/2"	12	12
3/4"	1/2"	12	12
1 1/2"	3/8"	12	12

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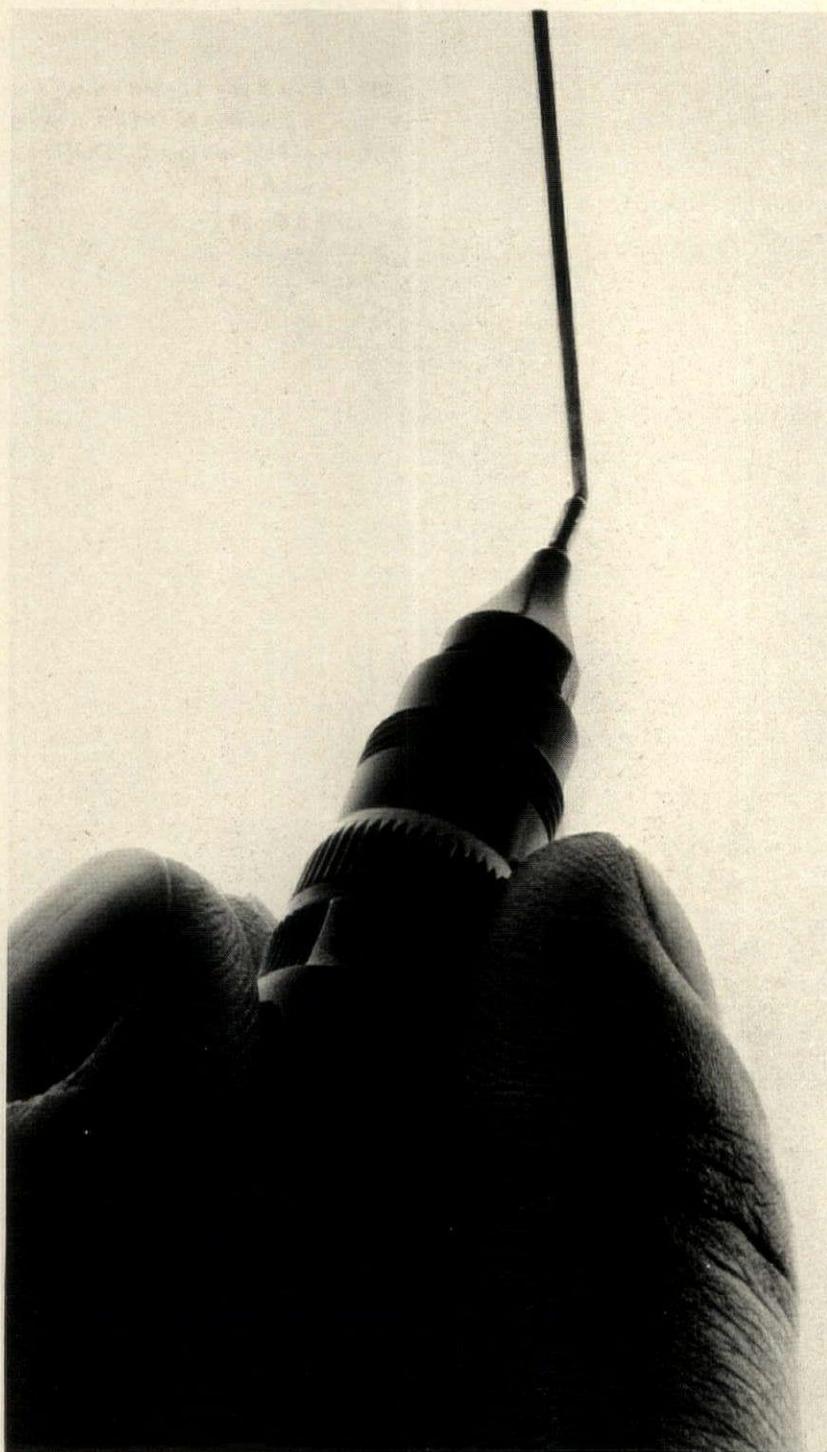
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Pedro Cypress  
Gray Design #211



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# ANOTHER PEACE

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Triangle Building, Atlanta, Georgia. Glass: Vari-Tran 1-114.  
Architects: Thompson, Ventulett, and Stainback.  
Mechanical Engineers: Mauldin & Associates.

# FOR GEORGIA.

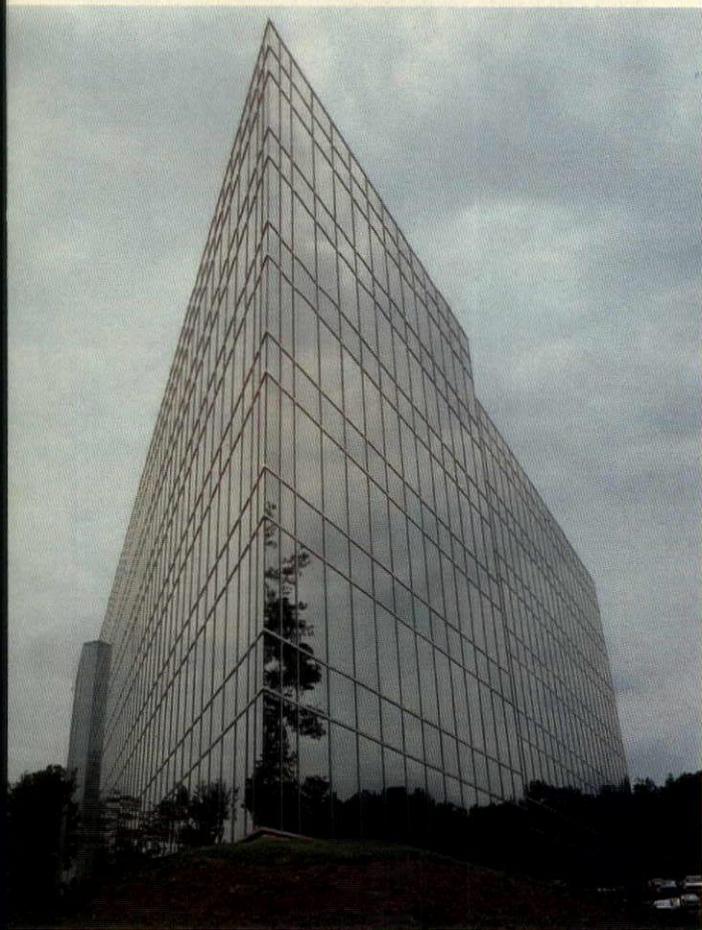
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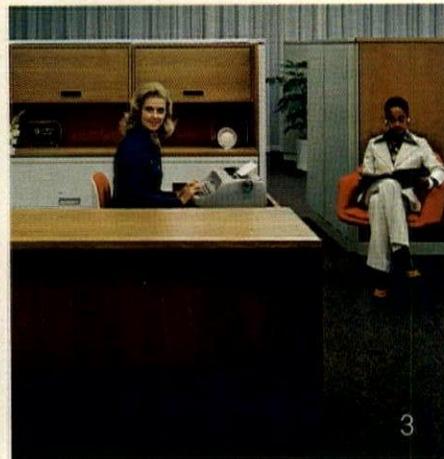
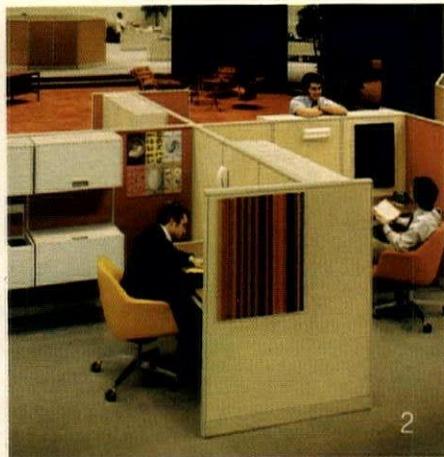
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## Pilot Center—filling in Over-the-Rhine

Infill, mixed use and neighborhood context are familiar buzz words in the professional designer's theoretical vocabulary. Here, in the Pilot Center for Cincinnati's Over-the-Rhine district, designed by Woollen Associates of Indianapolis, is an admirable example of these concepts being put to good use. The center is a complex of four separate recreational and social-service facilities that occupy what was originally two city blocks, weaving their way in among older neighborhood buildings and, on the street, filling in the gaps while making semi-enclosed public spaces on the inside. The new buildings, by virtue of their scale and materials and composition, allude, as in the photograph above, to their older neighbors even as they assert their own complexities with painted-on graphics and with window and door openings. But their effect is somehow quiet and modest—they are blessedly unrhetoical descendants of louder-mouthed forebearers of the "Yale-Philadelphia," or "Inclusivist," design persuasion . . .



**New buildings  
join old ones  
to form a  
co-operative  
partnership**

"We have been able to add the things people need in order to identify with a community—the social and recreational elements that bring people together," says architect Evans Woollen. "And we have been able to do it with a minimum disruption to the existing fabric." The existing fabric is Cincinnati's Over-the-Rhine district, a neighborhood that is 45 per cent black, 45 per cent Appalachian white, and 10 per cent of German extraction. Over-the-Rhine has been suffering from

many of the familiar, self-compounding ills of older urban neighborhoods—deterioration of housing, loss of population, and low average incomes (about \$4500 per year) among those who remain. Thus what was once a well-knit social (and architectural) fabric had begun to unravel.

But planners and residents who hoped for a brighter future for Over-the-Rhine did not place their hopes on the *ci-devant* panacea of wholesale urban renewal; instead, they opted for a more meticulous

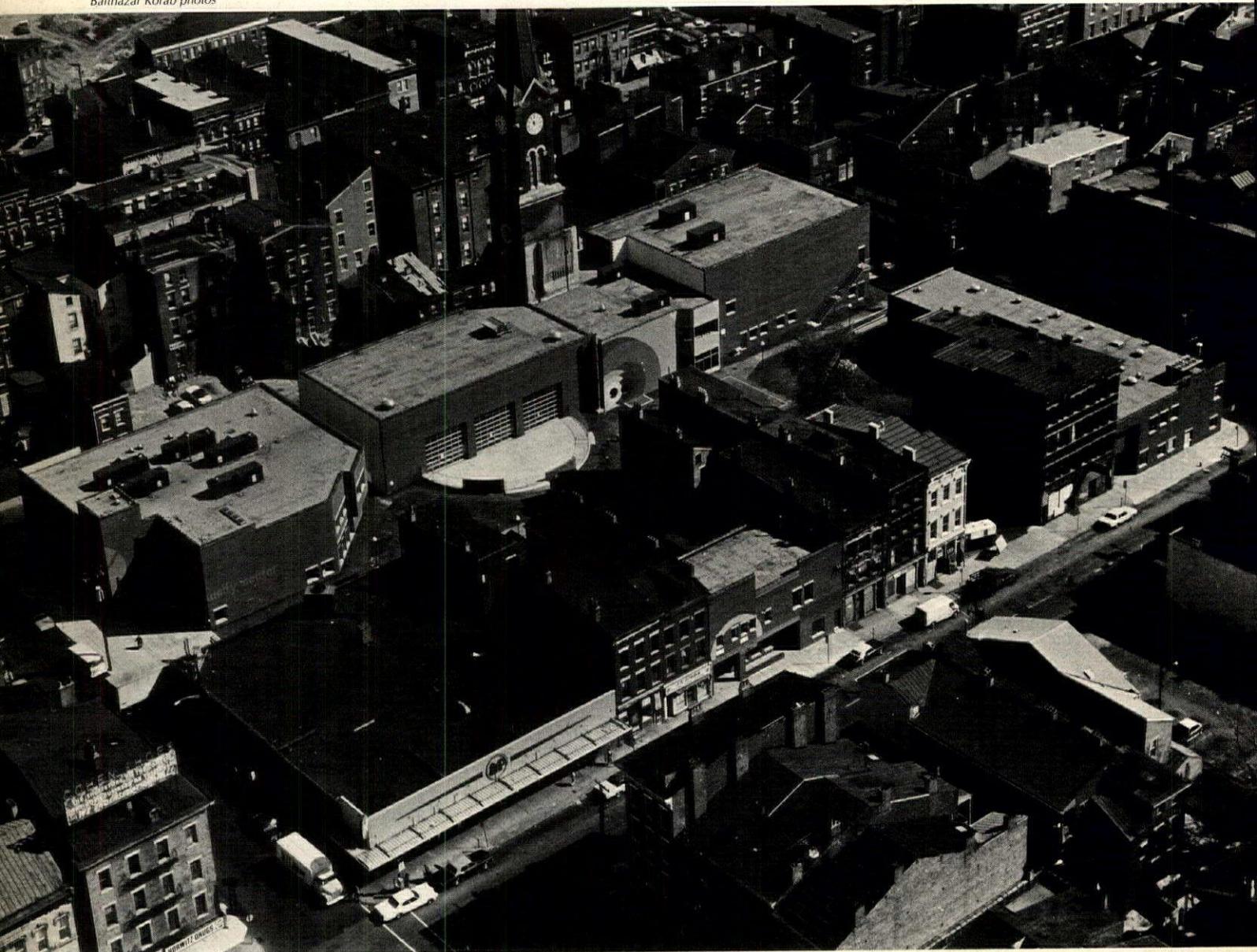
process of retaining whatever of buildings were sound (and therefore retaining the image and character of the district).

Initially, only one part of the district — dubbed the Target Area—was singled out for study by planners, and at its heart was the 1850 Findlay Market, an open-air meat and produce market diagonally across from the A & P store shown in the photograph below. In the planner's view, Findlay Market had an importance to the Target Area analogous to the importance of a shopping center in a contemporary suburb. Most of the key new buildings would be built close by it.

So the Pilot Center is one cog in the Target Area wheel. It consists of four separate buildings (site plan left) that fill gaps between older buildings and enclose an interior green space. The spiral in the photograph on the right is the surviving remnant of an 1840s Roman Catholic church, demolished to make way for a new gymnasium—a loss to the cause of adaptive reuse, and to the architects, who argued for its retention



Balthazar Korab photos







**A block-long  
city street  
becomes a  
pedestrian  
common**

In order to maximize contact with local residents, Woollen Associates planned the Pilot Center from a branch office in a store near the site. The largest of four buildings in the Center is the recreational building, seen in part in the photograph below and on the left. It contains a skating rink, games room, crafts room, gym and swimming pool. The pool is in a two-story space enclosed on one side with aluminum and glass

garage doors that can be opened up on warm days to give some sense of connection between the pool and the outdoors. Conversely, two portholes (photo below) give passers'-by the chance to look in at the pool and the swimmers.

Across the pedestrian common from the recreation building is the Senior Citizen Center; it provides low-cost meals, recreational and educational facilities for the elderly. Also across from the rec-

reation building is a Parent-Child facility that houses a Montessori school and a day-care center. The HUB Services building is the heart of Pilot Center; it contains a large community room for local meetings, parties, weddings and movies. In addition, the building provides employee training and placement services, a free store, a small health center and a post office. The architects hoped that this building, like the other ones in

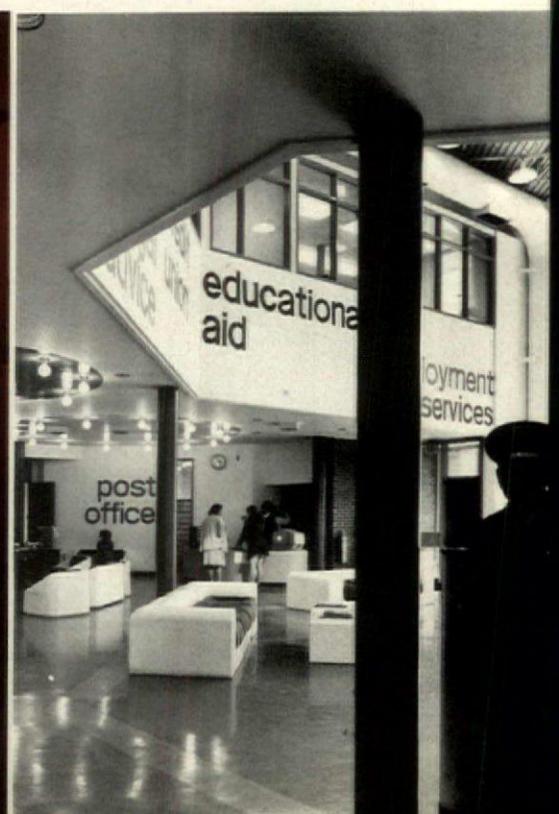


## PILOT CENTER

Pilot Center, would provide local residents with a familiar context, rather than a bold and impressive new architectural statement that would run the risk of being forbidding.

The \$2.5 million cost of Pilot Center was funded by the United States Department of Housing and Urban Development and by the city of Cincinnati whose Department of Urban Development was, with Woollen Associates, also a major contributor to the task of co-ordinating the host of separate organizations that finally made their home in Pilot Center.

PILOT CENTER, Cincinnati, Ohio. Architects: *Woollen Associates*—project architects: *Laurence O'Connor and David Niland*. Engineers: *Miller, Talarico McNinch & Hoeffel* (structural); *WHB Associates* (mechanical and electrical). Consultant: *Robert Weinstein* (interiors). General Contractor: *Messer, Perin, Sundahl, Inc.*





# 3 MANHATTAN APARTMENT INTERIORS

New York City's inventory of housing types is surprisingly narrow and unimaginative. But even within this constraint, skillful residential designers can create spaces that are rich and varied, fluid and expressive. When they can do this where spatial limits are also severe—as in the apartment by *Design Coalition* in this portfolio—the accomplishment is particularly noteworthy.

## A CIRCULAR THEME— ITS FORMS RICHLY ACCENTED BY LIGHT

Architect Norman Jaffe has renovated this duplex apartment on Manhattan's East Side for a family with two children—a family that owns a house in the country and therefore wanted a city apartment that was light and cheerful but thoroughly urban in character. The owners also asked for privacy, so Jaffe zoned the apartment vertically: entrance, living room, dining room and kitchen upstairs; bedrooms downstairs.

The apartment centers on a rounded stair that separates the entry from the kitchen, which is enlarged to become a family room. Overhead, a skylight picks up the circular theme and suffuses the center of the apartment with daylight. An existing column (photo upper right) was beefed up by the architect to house hi-fi equipment and to enhance the feeling of separation between the living-dining space and the kitchen beyond. Jaffe understood that the living room did not have to be large to provide ample seating and apportioned the space accordingly.

Downstairs, the master bedroom is separated from the other bedrooms, but opens to a study (photo below right) when privacy is not required. Throughout the apartment, daylight was an important design concern. The powerful dose of daylight brought down through two floors at the apartment's center acts as both a reference and a gentle barrier that gives more dimly lighted surrounding spaces a sense of containment and identity.

PRIVATE APARTMENT, New York City, Architect: Norman Jaffe. Contractor: S & M Enterprises.

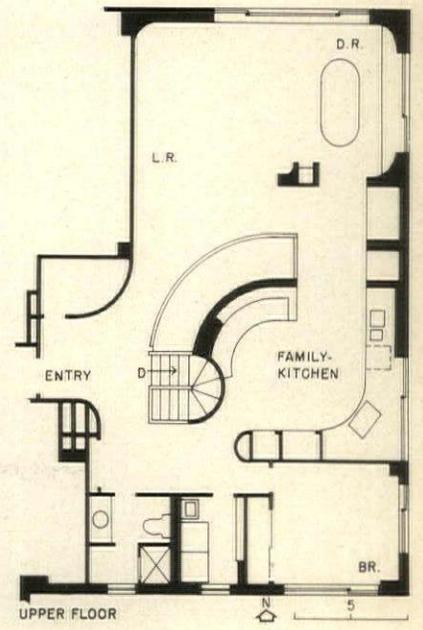
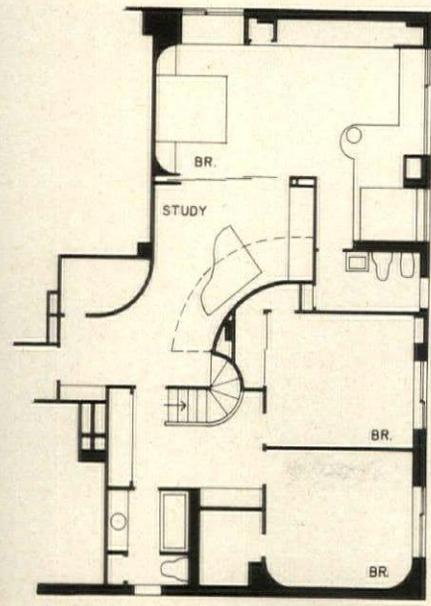




Norman McGrath photos



The circular theme and rounded corners used consistently in major spaces move the eye easily from plane to plane in long visual sweeps. Colors throughout are kept subdued: gray and white and chrome predominating but relieved by accents from rugs and plants.



## FLEXIBILITY AND EASE OF UPKEEP ARE PRIMARY GOALS

A modern apartment of fairly conventional plan that overlooks the East River has been modified substantially by architects Alan Buchsbaum and Howard Korenstein of *Design Coalition*. By removing a fixed partition and substituting a large, folding cabinet-wall, a variety of spatial and functional options are easily provided. In its fully extended position, the wall isolates a section of the living room to create a private guest bedroom suite. Half open, it provides a semi-private work space, and fully opened, an expanded space for entertaining. Designed for this installation by the architects, the wall is hinged in three sections, equipped with rollers and beautifully detailed in living room furniture and lights were selected for their lightness and can be moved easily as circumstances dictate.

A dressing area (photo below) was developed by angling the partition that leads into the bedroom. In the process, a freestanding column was created around which the bathroom, dressing table and closet pivot easily. The diagonal partition has the added advantage of focusing the dining area on the living room instead of into the kitchen.

The result of these comparatively simple non-structural changes is a series of spaces that are remarkably active and lively, flexible and intelligently planned.

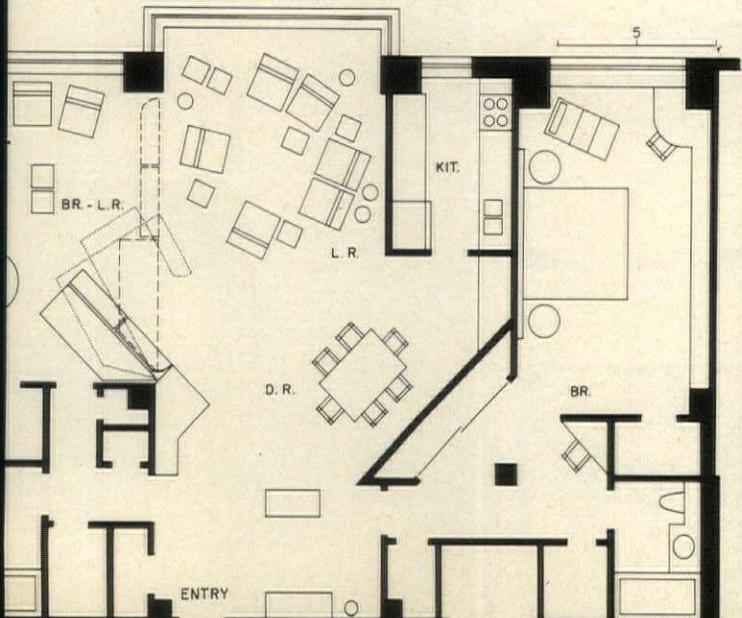
PRIVATE APARTMENT, New York City by Alan Buchsbaum and Howard Korenstein.





Korman McGrath photos

Color on the walls is provided by a paper patterned in dots that change in color intensity with the viewing angle. The upholstery fabric and rug are a rich blue, the freestanding column and dressing area rug a bright green.



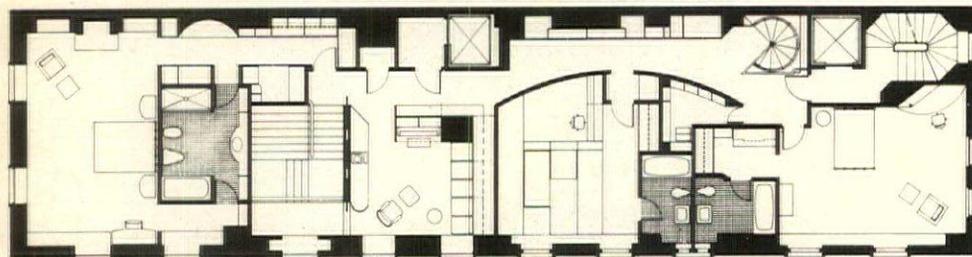
## RENOVATED DUPLEX PRESERVES CLUES TO ITS PAST

In renovating this 50-year-old duplex apartment, architects Robert Stern and John Haggmann, had to overcome the insistent pattern of small rooms along narrow corridors that was the apartment's principal spatial feature both upstairs and down. They had also to liberate some space vertically without giving up living areas. They accomplished both of these requirements by a process of simplification—by subtracting unnecessary elements and allowing space to flow freely over, through or around the elements that were left. Two staircases were added: one (photo right) replaces an ornamental stair near the entrance and a second, at the rear of the apartment, connects the kitchen with the children's bedrooms. Two gently arched partitions along the corridors relieve the severity of the rectilinear plan and shorten the apartment's apparent length.

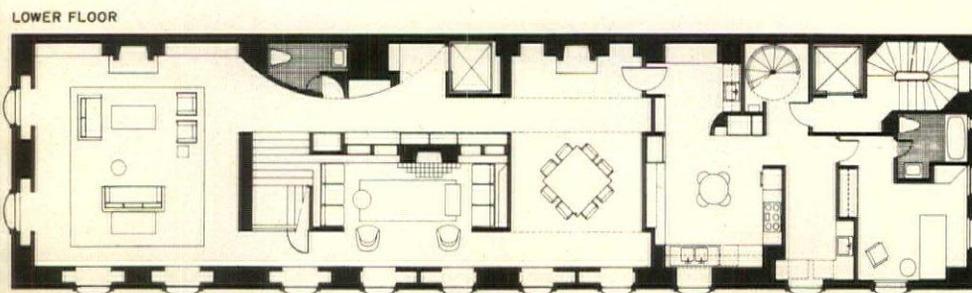
Along the north wall, an inner lining of cabinet work designed by the architects closes out openings to an airshaft. On the remaining exposures, the lining is modified to admit light while it conceals air conditioning, curtains in pockets, and lighting behind a valance.

The apartment's parquet floor was retained, and with it, a record of the location of original partitions fixed by interruptions in the parquet pattern—a faintly visible reminder of earlier days and occupants.

PRIVATE APARTMENT, New York City. Architects: Robert A. M. Stern & John S. Haggmann. Engineers: Soldos/Silman (structural); Langer/Polise (mechanical). Consultant: Carroll Cline (lighting). Contractor: Garson-Bergman, Inc.



UPPER FLOOR



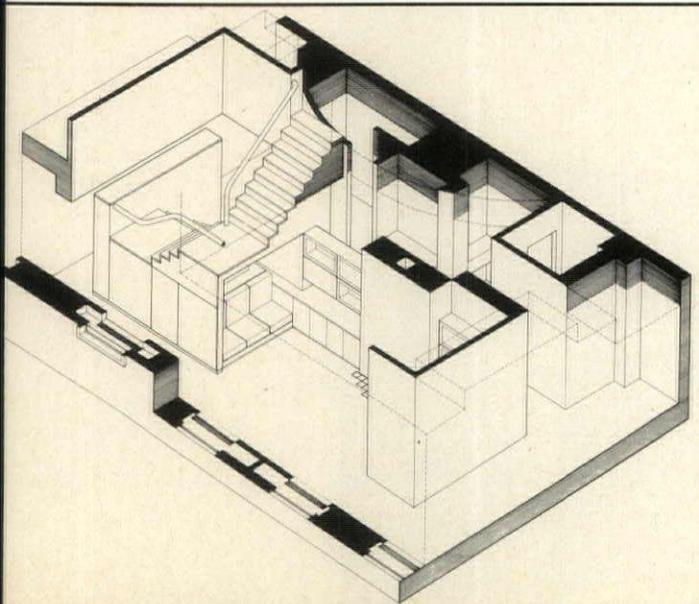
LOWER FLOOR





Norman McGrath photos

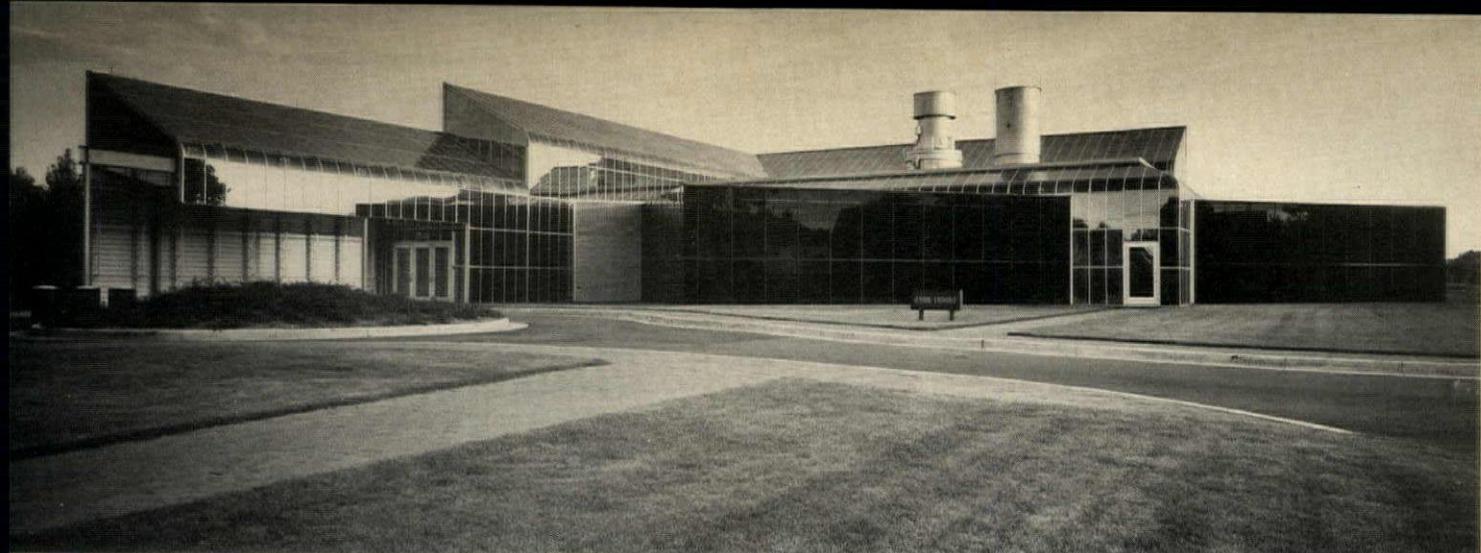
The whole design expression is relatively restrained and placid in deference to the owner's growing collection of sculpture and painting. Colors are rather muted and lighting is soft. Detailing throughout is elegant and expressive.



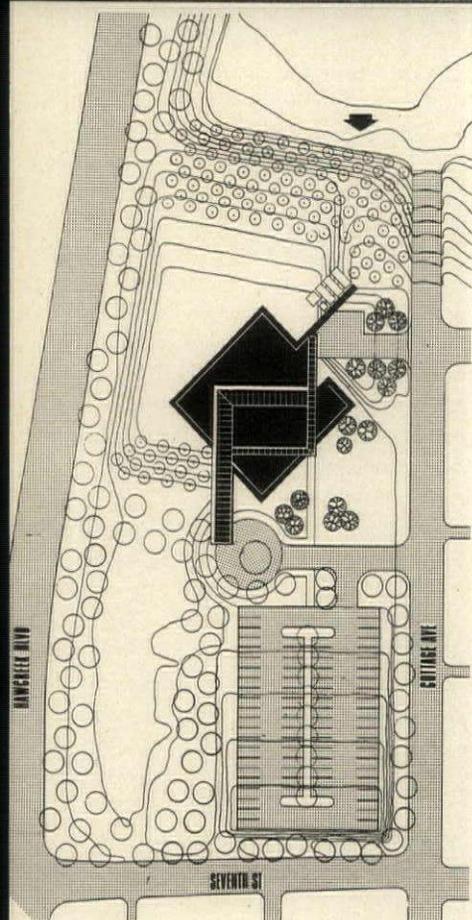


Boy's bedroom (photo top) is built up with a series of platforms and a study area is created on the highest level at rear. Photos below are the kitchen and dining area that continue the design theme from the major spaces (previous page).





Norman McGrath photos



MACHINES, MAN AND ARCHITECTURE—  
A COMMENTARY  
BY HARDY HOLZMAN PFEIFFER ON THE DESIGN OF

# THE COLUMBUS OCCUPATIONAL HEALTH CENTER

valuation of buildings by those who helped make them is often an exercise in fragmented conjecture rather than first-hand factual review. Clients for most institutional buildings change in the course of planning, design and construction; the programs are often in flux; and all the participants change in outlook, however subtly. Even if they did not, society itself most assuredly undergoes great shifts of value during the long architectural process. Nevertheless, the invitation to write about a Medical Center which HHPA completed for Cummins Engine Company in 1974 has given us the chance to consider its design objectives, and to examine how it now functions as an environment for medicine. We hope it will also clarify the context from which the building came while discussing the validity of an architecture designed to accept change.

To suggest that the Medical Center represents perfection would be unreal. Perfection belongs to machines or to death, and even if obtainable it would mock a building intended to enhance life. The Medical Center does represent exploration. Exploration assumes discovery. But have the discoveries of this project

confirmed conventional wisdom about the need for a mechanistic and compartmented medical environment? Or have they indicated hope for less stereotyped enclosures more responsive to individual needs? The answers, in part, are ironic, for while we obviously proselytize for a less mechanistic and more human approach to medicine (and to architecture), at the same time we have brought forth an environment which, in photographs, appears to celebrate machines. To unravel this apparent contradiction we believe it would be helpful to consider the ideas which brought it into being.

## The hospital environment

Abstract forces increasingly shape our lives, not direct actions which have familiar associations. Cause and effect are becoming so separated that Americans spraying away body odors and gluing curls in the privacy of their bathrooms may cause irrevocable ecological damage to the atmosphere we all share but cannot see. This phenomenon is as true in medicine as in architecture. An increasingly impersonal relationship between doctor and

patient results in procedures apparently designed for robots, not living beings. Change is so endemic that even one of medicine's most cherished goals, the prolongation of life, is under attack. At the same time legal confusion grows about what constitutes death. Once a moral and legal certainty, there is increasing debate as to whether stoppage of the heart or the brain certifies demise.

In all this uncertainty hospitals remain the cathedrals of the medical profession. They not only represent medicine at its most complex and dramatic, but they also offer the training which establishes the standards of the profession. Any discussion of change in the medical environment must begin with consideration of their influences upon design.

In the beginning faith had as much to do with healing as science, but the modern enticements of technology and the idea of man as machine have caused Science to replace God as healer. As nurses' uniforms aptly indicate, hospitals are descendants from the Church in whose convents their programs originated during the 16th century. Simple large-volume spaces with rows of beds (sometimes divided

by curtains for privacy), all with views of the altar, were the basic elements of early plans. Surgery traditionally lies at the core of hospital care, and until recently it was often performed as much from need for diagnosis as for treatment. Lacking modern methods for identifying disorder, doctors (after offering prayers) were once reduced to cutting open the body in hopes of seeing what was wrong.

Hospitals are built in the hope of improving the human condition, and in the process they have also become big business—a business made increasingly less profitable by expanding costs. They are difficult to administer, costly to build. Next to missile silos and airports, hospitals have become our most technologically complex forms of construction. They take years to plan, design and build. Yet they often fail to do their job when completed and are then subjected to extensive renovation—sometimes even before being used. Nonetheless, their environment has been supremely influential in establishing both a public and a professional image of medicine. We believe, however, that they no longer provide the correct image for all activities of the profession.

Even as granite Doric columns once symbolized strength and permanence for banks, long green tiled corridors and polished metal surfaces have come to symbolize hygiene and machine-like perfection for hospitals. The results may be easy to clean, but they offer scant encouragement for the apprehensive and little comfort for those confined to bed, for while our bodily functions may indeed be as mechanical as plumbing, we are hopefully *human* as well as *being*—a fact which an awakening humanism in all professions has begun to celebrate. Medicine, like our own profession, is as much an art as a science, and it is increasingly clear that treating people like machines or faulty plumbing cannot banish all forms of sickness.

Ironically, during modern surgery the once neat distinctions between man and machine have begun to disappear. The patient is now often joined by umbilicals to new mechanical parents to sustain him throughout the ordeal. But even beyond this temporary linkage body plumbing and structure can be permanently replaced with plastic and metal parts. Electronic devices are also becoming commonplace internal additions, thus the concept of man as machine approaches fact.

But what then would constitute a more humane environment for medicine? It might be argued that it should look like home, that comfortable well-known place tailored especially for personal need. But even if it were possible to standardize "home" into a universal architectural style, pretense is not the true stuff of architecture. A Walt Disney might have the technical skills to shape the sophisticated requirements of hospitals into an environment of "just folks," where flowered wallpaper concealed all electronic services and nurses were costumed like some kindly maiden aunt. But however entertaining such a fantasy hospital might be, it would be little more than a sophisticated sham.

What then are the alternatives? It is often

assumed that since the simplest configuration is the easiest to keep clean, the best environment for medicine should resemble Kubrick's *2001* where surfaces melt into one another with no distinction between the various elements of enclosure. For many, there is strong sentiment towards believing all such "soft" environments *are* the future, a nirvana offering the perfect sculptural union of the functional and the round-cornered esthetic of organic growth. Such "perfect" design may indeed be appropriate for the interior of airplanes, those single-purpose devices which enjoy the limited life inherent to all machines. But architecture for medicine must accomplish many aims and be capable of accepting change not now foreseeable. Indeed, medical buildings built today must continue to function long after all 747's become a memory.

In any case, the burgeoning cost of medical care is itself forcing hospitals to consider new techniques which reduce the amount of time patients spend in bed. Diagnosis, surgery and post-operative care have traditionally formed the central ceremony of hospital services, which all sustain the central necessity of surgery. By speeding up the diagnostic process before treatment, emphasizing ambulatory care after treatment and isolating surgery from all other hospital functions, more efficient use of resources is possible.

The first goal is partially aided by new techniques borrowed from space programs in which bodily functions are monitored by electronic means. Remarkable sophisticated technology is used, involving computers, radioactive isotopes and sensors once found only in research laboratories. All have become ordinary equipment in contemporary hospitals.

The second goal is pursued by insuring that hospital beds are occupied only by those too ill to be housed elsewhere. Like motels whose drive-in, do-it-yourself conveniences replace the services of trained hotel staff, hospitals are attempting to reduce cost by shifting many aspects of post-operative care onto the patient.

The third goal has already been accomplished in buildings which eviscerate traditional hospital planning by placing minor surgical functions in completely separate administrative entities with no diagnostic, post-operative or other peripheral services. It is in new medical programs such as these which treat people before and after hospital care that change is evident, and it is here that we believe the Medical Center provides its insight about a future environment for medicine.

#### Columbus Occupational Health Association

Architectural planning for the Medical Center began in 1969. Nixon was in the first year of his Presidency. Our gross national product was moving towards a trillion dollars annually, and Neil Armstrong had just become the first man to walk on the moon. By that time, Columbus, Indiana, had seen construction of 24 buildings by noted architects, some like this one built under a program of professional fee subsidy sponsored by the Cummins Foundation.

The project was intended to confirm the advantages of free enterprise. It was hoped the

Medical Center programs would demonstrate that private industry could directly shoulder the burdens of medical care—without the necessity for significant Federal aid. It was also assumed in that time of expansionist thinking that corporations had an obligation to do more than pay their personnel. If money was spent on maintenance of machines, why not enhance and prolong the life of those who ran them? Beyond this immediate responsibility lay the question of dependent care. Should a corporation also accept responsibility for the well-being of the families of its employees?

In addition to the Cummins Corporation Columbus contains several other industrial concerns, all of which were invited to join the proposed program. Of these, 15 organizations eventually came together to form COHA (Columbus Occupational Health Association), a new organization intended to initially offer three activities: pre-employment physicals, annual physical examinations, and care for occupational injuries and illnesses.

Secure in the sixties about future growth these businesses assumed that pre-employment physicals would be the large volume. Although the programmed areas were generous, there was little doubt by either client or architect that the 20,000 square feet originally planned would soon be insufficient, and expansion was therefore anticipated as a basic element of design.

Cummins had considerable experience in the design and construction of manufacturing facilities, but lacked specific expertise in the design of medical facilities. It had commissioned a study from the Kaiser Foundation which recommended a cooperative health center. Since the project was intended to set an example for other industries (Kaiser had suggested that it might serve as a national model) the client encouraged the architects to consider what methods of organization and type of environment would in general be appropriate for medicine in the future.

The architects and consultants had all not previously designed a medical facility, nor had they worked with a large corporation. But all of this collective inexperience was assumed to be an asset, because it left both client and professionals free to explore without prejudice what an ideal environment for medicine would be.

Three initial premises guided the program phase of work: the building would be designed for flexibility and program change, the environment would not be forbidding and the exterior would make a sophisticated statement without overwhelming the adjacent residential community. To these was added the requirement of future expansion.

Happily, the Medical Center was not bound by the same rules which regulate the design of hospitals. It would contain no truly sick people—except on an emergency basis. Although it would have several complex diagnostic functions to perform, surgery is not central to its programs (except in emergencies) and it would contain no beds. However, the doctors would perform a large volume of examinations each day, serving sometimes groups of 50 at a time.

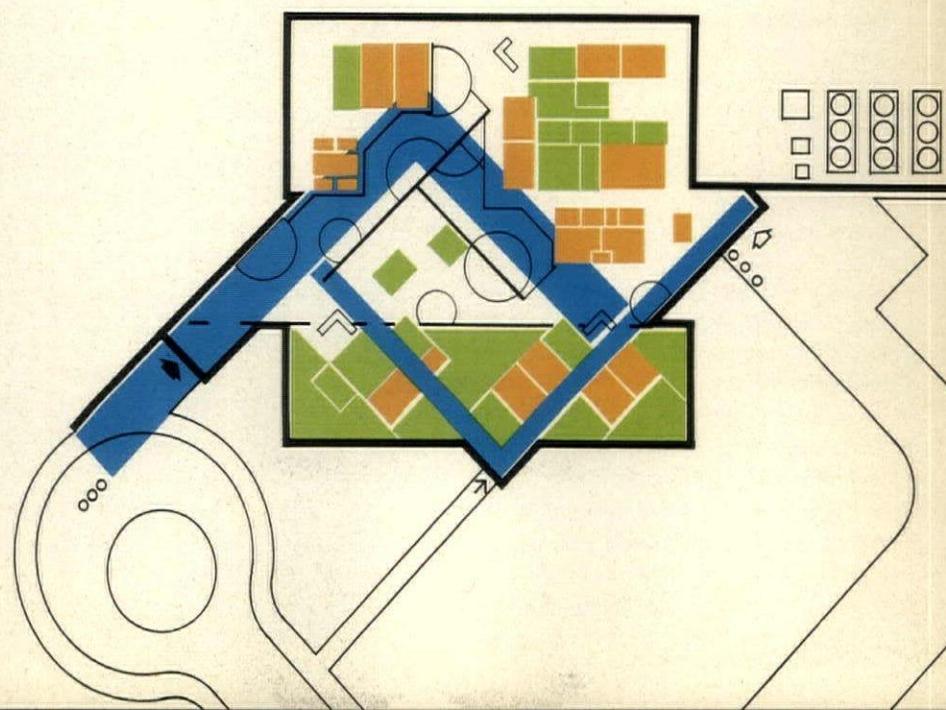
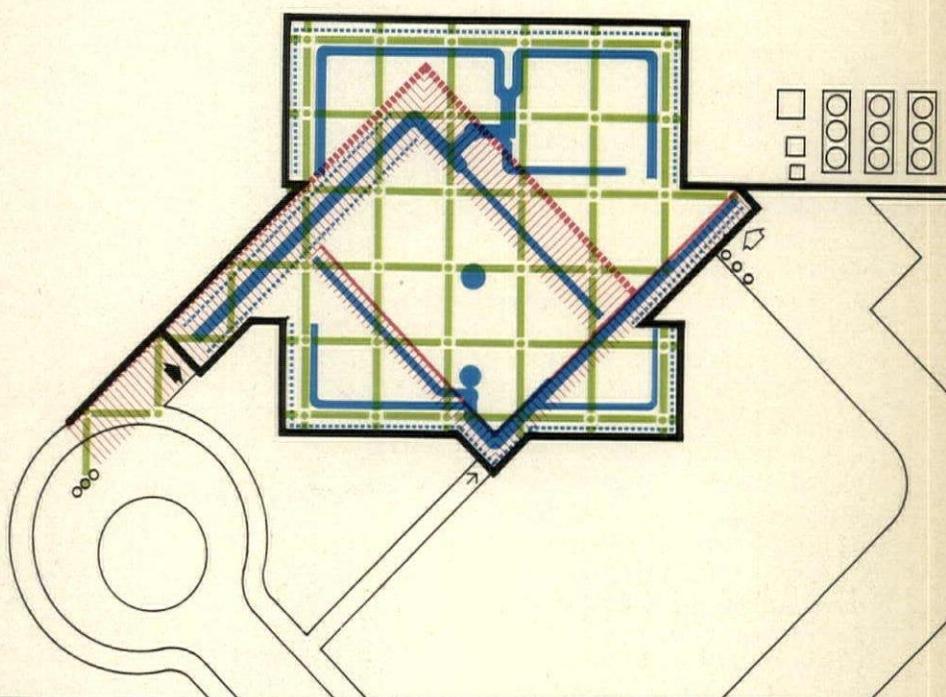
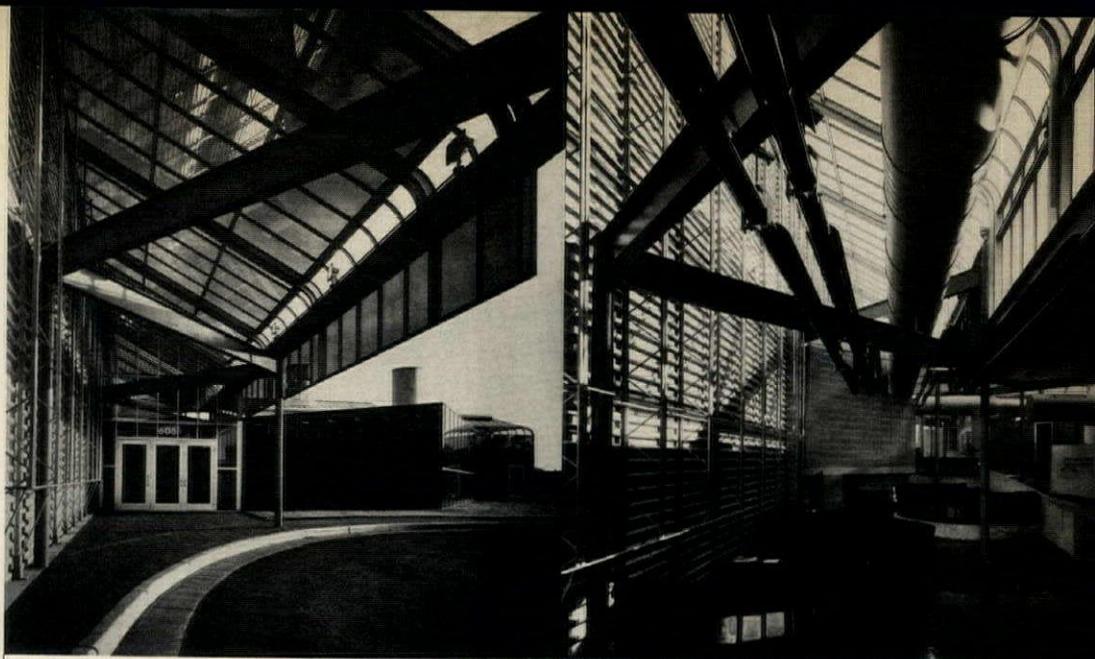
Much of the cellular nature of modern medical facilities was, of course, unavoidable. Testing booths, toilets, X-ray rooms, all require complete enclosure—most often behind masonry walls. But if these fixed elements of the medical environment needed to be determined by personal modesty, Victorian plumbing systems or lethal radiation, the quality of the total environment did not. We therefore analyzed the programs according to requisite degrees of enclosure—Closed, Open or Semi-Open. Closed activities, such as examining rooms, are completely separated from the surrounding environment. Semi-open activities, such as changing of clothes or administration, do not require ceilings—although they do need walls. Circulation, waiting and lounge areas require no separation at all.

Closed areas are constructed of profile concrete block with hung ceilings for complete privacy. Semi-open areas are surrounded by eight-foot tall plasterboard partitions, open at the top so that, although their activities have a degree of separation, it is still possible for the people inside to sense the building as a whole. To insure privacy of speech between Semi-Open and Open areas, the mechanical systems are deliberately designed for an audible air flow throughout the building.

The laboratory is sheathed in glass, so that testing can be conducted in full view of waiting patients. Waiting is perhaps the single most annoying and frightening aspect of the average person's contact with the medical environment. It is not just that dog-eared magazines are insufficient entertainment, it is impossible to know what is happening behind closed doors. Even if the occasion is not one for serious concern, the sense of helplessness and anonymity present in a typical waiting room is unnecessarily intimidating.

The large number of patients and the time required for recording and analyzing each test would generate long delays for patients between tests if the Center were designed in a conventional assembly-line approach; traditional planning goals were reversed. Rather than minimize the length of time between testing activities, the public's progress from one face to another was deliberately made circuitous. Waiting was therefore used to generate a large three-level open space at the building's core, surrounded by the activities of the center, many of which are opened up to public view. It is possible to sit in any of the public waiting areas and see what is happening in individual parts of the building.

In addition to activities of the Center being visible, the systems which support it are also clearly on display. This approach makes all of them easily accessible as program changes require adjustment, provides an architectural variety which insures that no two places are the same, and reintroduces ornament to the medical environment. Having chosen to bring these service systems out from hiding, we have deliberately contrasted them with each other through the use of opposing geometries and colors. Throughout the building, in fact, color is liberally used to make clear the difference between structure, infill and mechanical systems. The intersections of sheetmetal ductwork



are clearly not those of steel structural members, and strong color differences celebrate the fact.

A large L-shaped skylight reinforces the central ramp circulation areas and orients visitors to the three-level plan; it also fills the interior with a constantly changing display of light and shade. In the Medical Center light forms as much an element of architecture as steel and concrete.

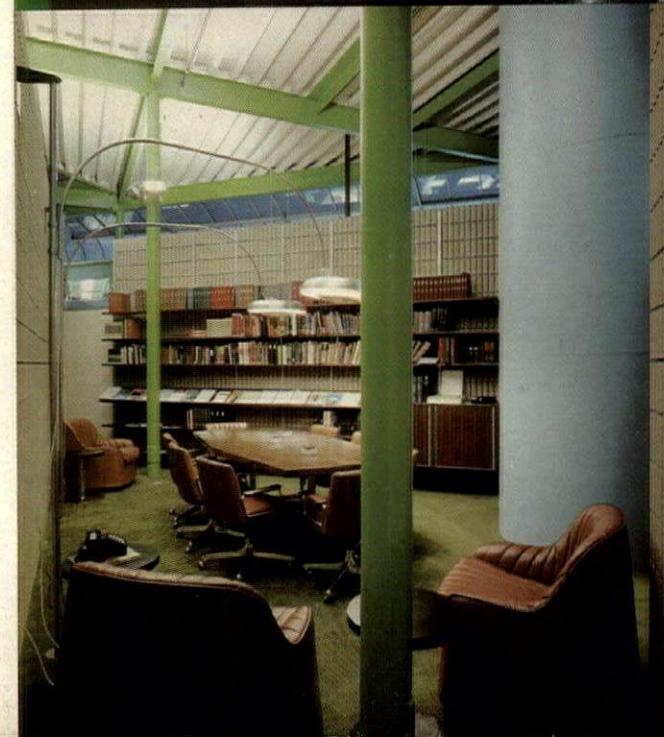
In the course of programming we asked why hospital environments looked so sterile. Could more spirited and vigorous surroundings be appropriate to medicine? Or is there some inherent virtue in the operating room esthetic? Surprisingly enough we discovered that hospitals are not in fact cleaner than airports, banks or missile silos; they only *look* cleaner. But medicine is involved with image as well as substance, and so we set out to question the difference between hygiene and sterility. Does a clean interior have to look lifeless?

We chose to reintroduce ornament to architecture with the pipes, coils, bolts and flanges of our fellow professionals and we have accomplished our purpose, but not without some surprises. It seems therefore important to digress briefly to note how ill-trained the professions of architecture and mechanical engineering are to converse with one another. Not only are their two traditions of drawing entirely different (the architect's is pictorial, the engineer's diagrammatic), their perception of buildings is not the same. A veil of sheetrock or acoustical tile usually separates their two preoccupations; one is a world of what things look like, the other of how they work. Few engineers are trained to understand an enclosure as spatially complex and multi-faceted as the Medical Center, and few architects are trained to understand what the systems so elegantly diagrammed by engineers actually look like. Architects may be well-versed in the coursing of masonry walls or the niceties of mullion intersections, but not many care to know what a reheat coil or a chiller *looks* like—let alone what it *sounds* like.

The two professions will surely move closer together as energy costs climb. Past indulgences, and the technical ignorance of architects are already giving way to more careful consideration of site orientation and system design. As those familiar with the use of solar energy know, the requirements of such engineering begin directly to influence the form of architecture. Thus a new dialogue between the professions is not only possible and necessary—it has begun.

In contrast to the active interior, the exterior of the Medical Center is deliberately more inert. It is sheathed in black glass and diagonally intersected at 45 degrees by two mirrored glass skylights. Although the use of glass curtain wall construction was in itself a well-established corporate cliché by the late sixties, we chose to rework it in a new way by juxtaposing two glazing systems containing two different kinds of glass.

The appeal of a minimal enclosure which brings the landscape indoors by day and displays buildings by night was obvious to both client and architect. But the addition of natural



The interior of the Medical Center is organized around skylit L-shaped spine, seen in plan on the preceding page. The photograph on the preceding page shows the spine from just inside the main entrance; the large photograph on the right shows the spine from the opposite end, and the semi-circular seating areas for waiting patients. The photograph on the left shows the same area seen from the intersection of the two arms of the L. One of the glass-enclosed laboratories is shown in the photograph below, and below that, a conference room which, in the architects' terminology, is a Semi-Open Space.



light overhead into interior spaces, and the acceptance of its shifting intensity, direction and color not only enliven the inside but animate an otherwise placid exterior. The placement of skylights also insures that the exterior of the building changes as it is seen from various sides. From the highway it is a simple glass box, from the entrance a layered puzzle. It is thus both an abstract object when seen from a speeding car, and an addition of specific known parts for an approaching pedestrian. At night artificial lighting for the building is provided by a system of fluorescent lights integrated with an acoustical ceiling deck. A second system of perimeter night lighting insures the building will glow from within in off hours without requiring full illumination of the main system.

An unprotected two-story glass box set in central Indiana would be a technical tour de force if it were completely successful, and uninhabitable if a failure. Moreover, the Medical Center is defined by different types of enclosure which must obviously be served in different ways by mechanical and electrical systems. Sophisticated in control, the building still contains only two basic supply systems, each of which is simple in concept. One is a perimeter ring of piped hot-water radiation which balances heat lost through the glass walls. The second is a duct system of forced air which supplies general distribution of heating and cooling to all open and semi-open areas, with specific runs to closed areas. A central vertical shaft returns *all* the air in the building. Transfer grilles are used to return air from closed spaces.

#### Adjustments

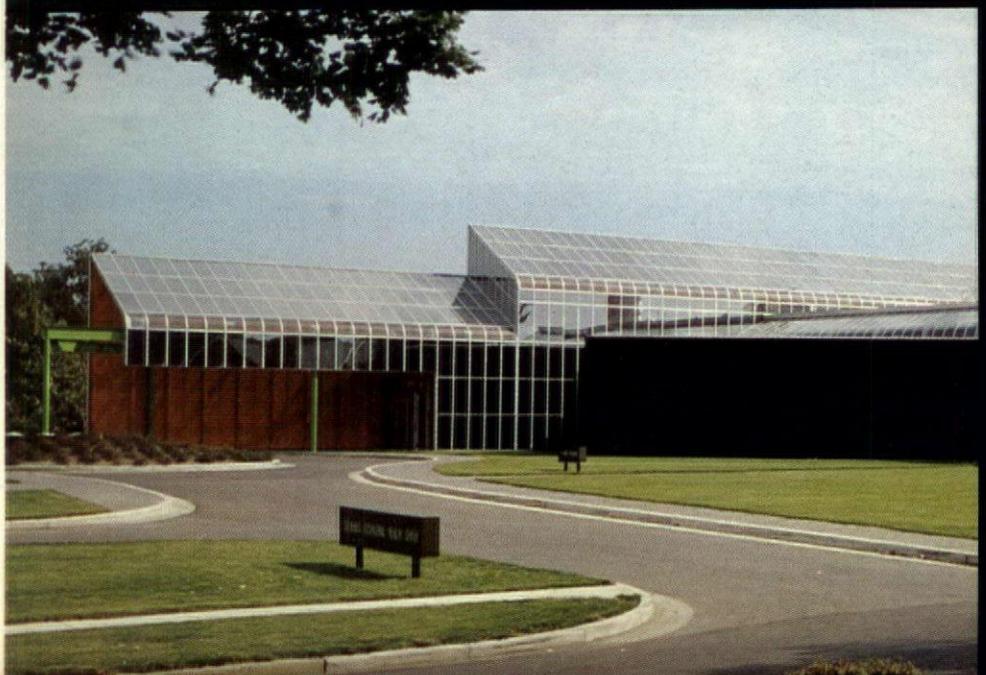
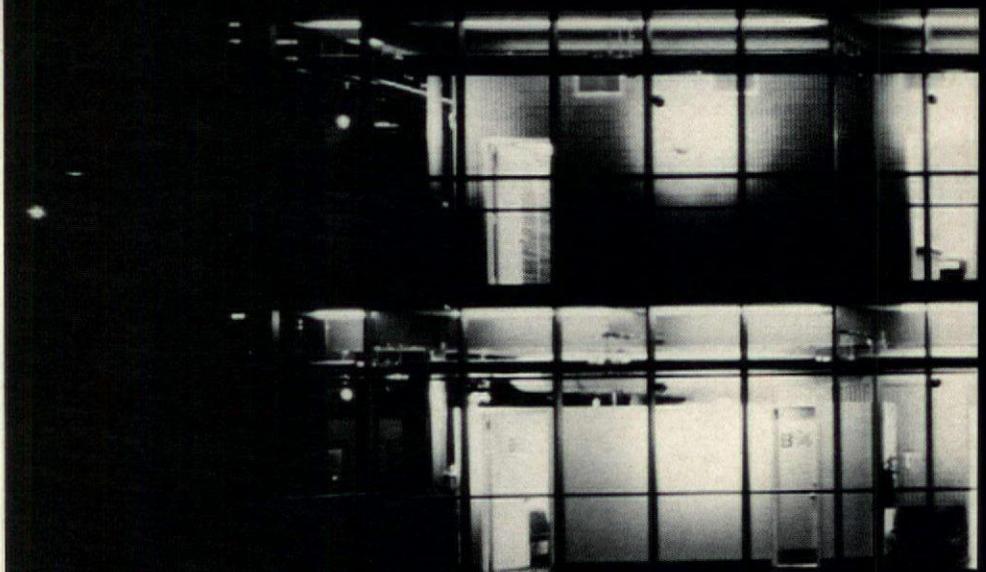
Having reviewed the ideas which brought the Medical Center into being, we now turn to a consideration of how it works in practice. At this point warts naturally begin to appear upon the portrait, but it is important to ask if they disfigure or verify accomplishment. Doctors who use the building confirm it *is* a success for those whom they serve. It *is* a pleasant, almost joyful place to receive medical attention. Our central purpose has therefore been accomplished. But for those who work in the building five areas of concern remain:

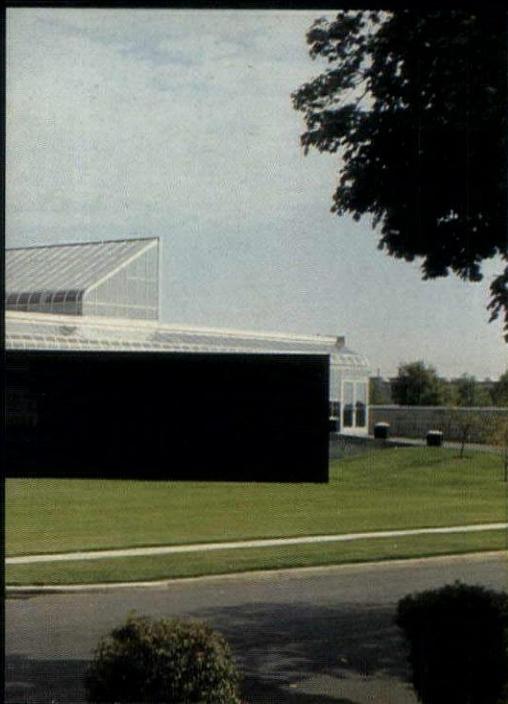
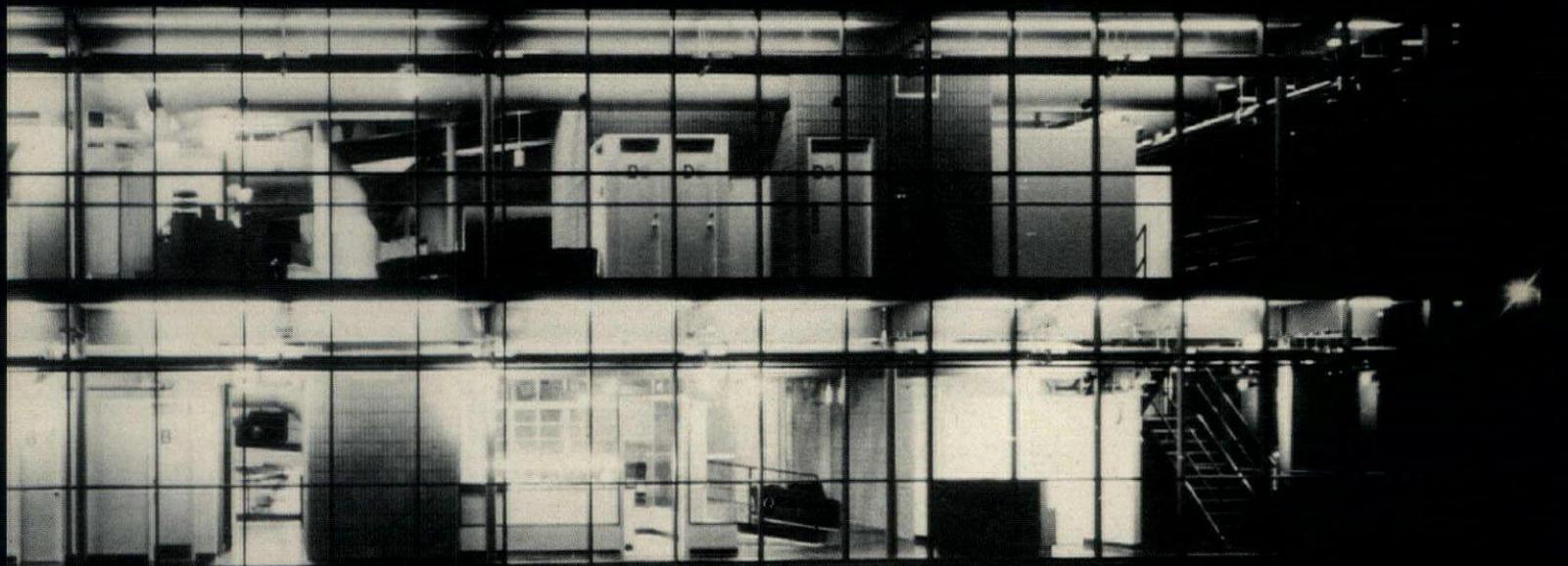
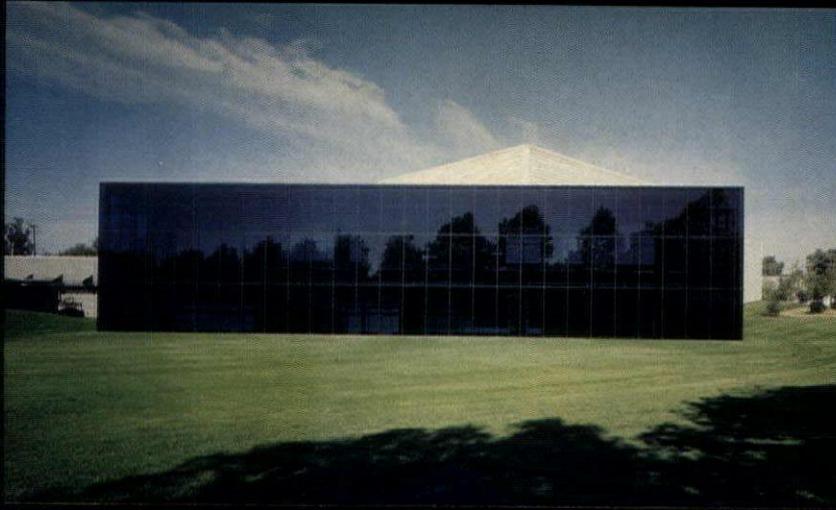
1. Office privacy for doctor-patient conversation.
2. Excessive mechanical noise in examination rooms.
3. Inadequate heating and cooling at perimeter locations during 3 per cent of the year.
4. Inadequate control of light in semi-open areas.
5. Glare and heat from the sun in some office areas.

Are these difficulties an inherent part of open planning, its application or its technical execution? Do they indicate that conventional planning is best after all?

The first two concerns stem from acoustical control; the last three come from systems design. For some doctors, confidentiality between doctor and patient cannot be accomplished with masking sound—not because sound levels cannot be raised high enough but because of the psychological effect of semi-

An independent lighting system around the periphery of the Columbus Occupational Health Center illuminates the interior at night. The building is sheathed in two different glazing systems containing two different kinds of glass—one black and one mirrored—and the systems intersect each other at a 45-degree angle. Thus, in the daytime, it is “both an abstract object when seen from a speeding car, and an addition of specific known parts for an approaching pedestrian.”





open spaces which, for some, strains patient confidentiality. These few continue to believe that doctors' offices should be as completely enclosed and private as a confessional booth. For them, planning all the doctors' offices as semi-enclosed spaces is too uniform, and completely enclosed rooms should be developed in future.

The mechanical systems have a double responsibility: to respond to different degrees of enclosure, and to provide constant climatic conditions within a glass enclosure. For the most part, the latter requirement is well met, since two decades of experience in making the glass box habitable now stand behind mechanical engineering. But the former responsibility is flawed because of the difficulty of understanding a three-level open plan containing varying degrees of enclosure. Both architect and engineer must share the responsibility for understanding such three-dimensional configurations, but only the architect can insure that the mechanical engineer is conversant with the different requirements of each type of enclosure. Ultimately it is the architect's responsibility to integrate these systems into the building successfully. Despite the general understanding of intent achieved during the initial stages of the design of the Medical Center, detail decisions about the systems have produced results which are in some cases unsatisfactory. For instance, the noise level sought in semi-open spaces is undesirable in examination rooms, and sound traps are required in the ductwork of these rooms so that delicate measurements can be made without interference from background noise.

Corridors line the perimeter walls on the upper and lower levels, but at mid-level the doctors and administrative staff are positioned next to long glass areas. Since the environmental requirements of people walking along a glass wall are different from those who sit for long periods close to it, administrative areas are not well served during periods of extreme outdoor temperature, and it is clear that air circulation in semi-open spaces at the building's perimeter must be increased over that in central areas during such times.

Finally, in X-ray reading and sight testing areas, despite individual light-control circuits, the natural light is too strong. And despite exhaustive program research which confirmed the present configuration, existing technology insists these areas should be completely closed off from natural light.

All of these deficiencies can be easily corrected, because they represent additions to, not transformations of, the basic systems. The open nature of the building permits easy access so that changes can be made for the improvement of existing programs or the adaptation to new ones. If the interior were conventionally finished with cellular walls and ceilings, these adjustments would be far more difficult and far more costly.

Contemporary architecture has increasingly become the captive of a sculptural illusion which presents buildings as abstract free-standing objects. In fact they are rooted to their site and as dependent upon nourishment by hidden umbilicals as are trees in the forest, and

hopefully we are now all becoming much more conscious of energy use and far more aware of how to allow natural forces to make structures livable rather than using mechanical means. We can also now see that if the architect's love of the abstract form of glass enclosure is to be furthered in future, glass will more likely collect solar energy than block it. And instead of paying lip-service to "bringing nature indoors" as a part of buildings which become solar ovens, the siting, fenestration, and construction of new enclosures must all be far more sensitive to the differences between a visual and a factual integration with nature.

Given these new insights, the concept of a glass enclosure for the Medical Center might seem suspect. A single pane of glass—however colored—cannot prevent glare and discomfort when a person is sitting directly in the sun's rays, and so exterior or interior shade devices are required. Trees work well (in summer months), but in winter mechanical shades are required. These time-honored devices have been installed in areas where glare at desk-work requires modulation of light. Their patterns now enliven exterior walls in fixed locations and add another pattern to the enclosure.

For the most part the two contrasting glazing systems satisfy the requirements of enclosure. But the skylight system, borrowed from greenhouse construction, has proven difficult to make watertight at intersections (during the shakedown period this was grotesquely aggravated when mechanical systems delivered negative pressure to the interior of the building, thus literally sucking rain indoors). The skylights suffer the problems of expansion and contraction inherent in all metal and glass roofing systems, but modern sealants are proving equal to the task. Nonetheless, these shortcomings show the difficulties of shifting manufactured products from one use to another, and the importance of the manufacturer's commitment to new ideas of use. An assembly of pre-engineered parts may be good "ad hocism" but note that the true art of architecture lies as much in its technical as its esthetic success.

Aside from these technical considerations, what then can be said about the program operation of the building?

Open circulation prevents the maze-like disorientation often found in medical facilities and permits a small staff (11) to operate the building effectively. In the planning phase it was envisioned that as many as 25 different companies might join in COHA programs. As of this writing 80 are enrolled. Eighteen thousand prospective patient cases were projected by 1976. In fact 22,000 are currently served in 1975. At present there are almost no programs of pre-employment physicals for potential Cummins employees because the corporation is experiencing a decline in manufacturing. Nonetheless, because of the building's double-circulation scheme it is possible for annual physical examination programs in occupational care to operate without intensive use of central pod seating or ramp circulation. It is therefore clear that the building can serve both the expanding programs originally foreseen and the shrunken demands of those temporarily reduced.

### Built results

One visiting critic stated with obvious distaste that the Medical Center reminded her of rock music and suggested that medical environments should by definition be soothing (muzak, perhaps?) But why assume the environment appropriate to a recovery room should dictate the character of different activities?

Our original question was: must hospitals provide the only image for the medical environment? Despite their powerful influence upon both public and professional thinking their great size, complexity, cost, and length of planning inhibit new ideas. It is then in small-scale, more intimate projects such as the Medical Center that exploration can occur. It is here through programs of preventive medicine that a more humane architecture can be achieved and an architecture responsive to change.

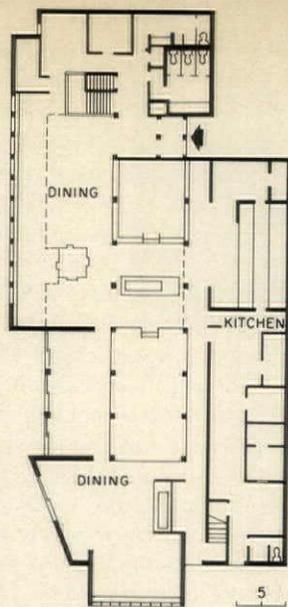
While we believe the interior character of the Center clearly provides a viable alternative it is not our intention to proclaim it now as the medical environment of the future. The building *does* make its intended statement about the importance of medicine to contemporary corporate life, and it does so by reworking the traditional vocabulary of the medical environment. It is now impossible to avoid machines and the enticements of technology when planning for medical environment, and the Medical Center acknowledges the fact by making clear what it does and what makes it work. None of the elements used in its interior is new to the medical environment, only their juxtaposition and their visibility.

For some, the building suggests that contemporary architecture suffers a lack of resolution between man and machine. Perhaps this conflict comes from the medical profession as well as from architecture. Only recently have both professions discovered there are human limits to their fanciful technological achievements. The mere prolongation of life is not sufficient if the quality of the result is bestial. The architect's encapsulation of human beings in artificial environments which deny time and place are similarly possible, but equally degrading to those whom they house.

All professions make a great show of serving the public, for without the confidence and understanding of those whose money they spend and whose lives they influence they would have little to do. We believe the Medical Center serves its public better by an honest and spirited enclosure than if it canonized secrecy, holding the fig leaf up over nature. The proof, however, will lie in use through time. Since no sensible architect would dare predict the outcome, we invite you to visit Columbus and decide for yourself.

COLUMBUS OCCUPATIONAL HEALTH CENTER  
Columbus, Indiana. Owner: *Cummins Engine Company*. Architects: *Hardy Holzman Pfeiffer Associates*—project architects: *Michael Ross, Marvin Wiehe, C. E. John Way, Patrick Stanigar*. Engineers: *Arthur Miller Associates* (structural); *Ziel-Blossom Associates* (mechanical and electrical). Consultants: *Robert A. Hansen Associates* (acoustical); *Dan Kile* (landscape); *Donald Wolf, Wolf and Company* (cost); *James Rappaport, Atelier International, Ltd* (custom furniture). General Contractor: *Repp and Mundt, Inc.*

# DESIGN FOR DINING



The restaurants on the following pages are the work of architect Edmund Stevens for a national chain—the Rusty Scupper—of the Borel Restaurant Corporation. They illustrate that good design can be good business at low cost. The successful entrepreneurs have installations in a wide variety of building types, some specially built for the purpose and some existing, but each conveys the same desired message to the prospective patron: a crisp and fresh, yet warm and intimate, atmosphere as garnish for good food at moderate prices.

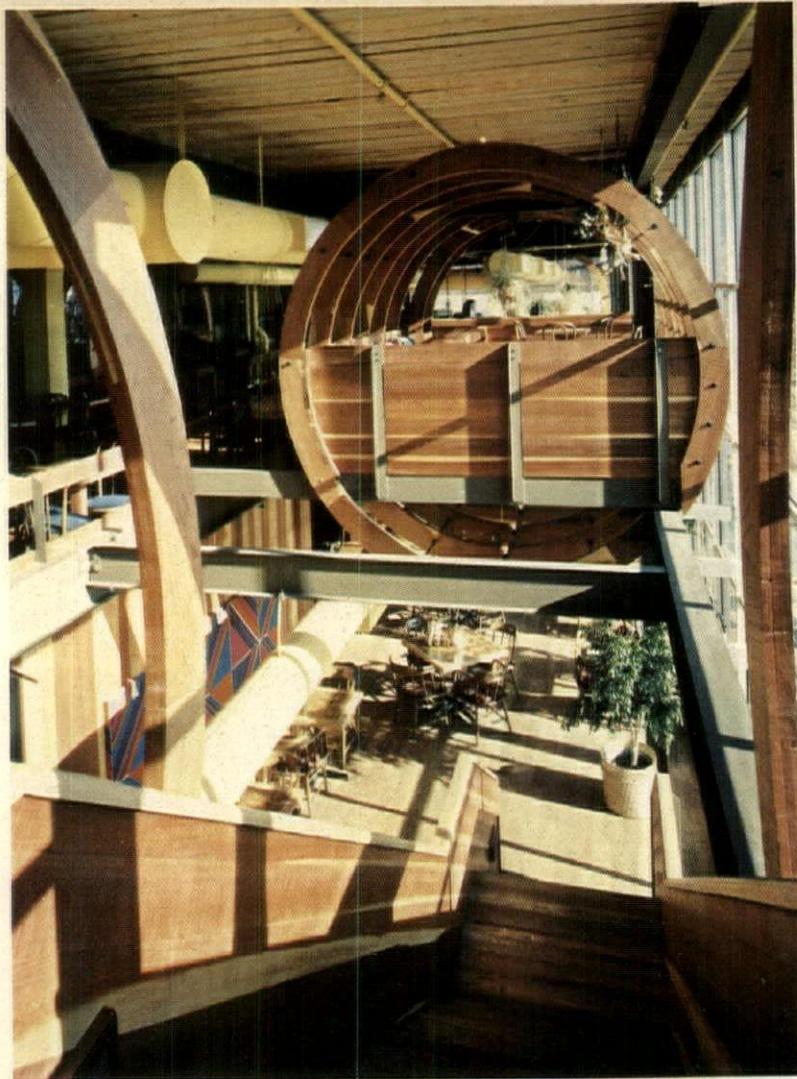
For new buildings, Stevens has designed the prototype seen on this page in Acton, Massachusetts. (Engineers are Charles Chaloff, structural, and Balco, mechanical.) The design is adapted for various regions, as in the Princeton building (page 106), which has a slightly evolved plan and exterior walls of load-bearing brick. All of the designs emphasize spatial variety and natural materials combined with bright colors and growing plants. —*Charles K. Hoyt*

*Nick Wheeler photo*



# PHILADELPHIA

This Rusty Scupper projects a warm atmosphere within an existing glass-walled building



Otto Baitz photos



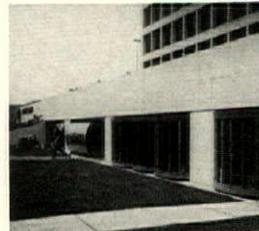
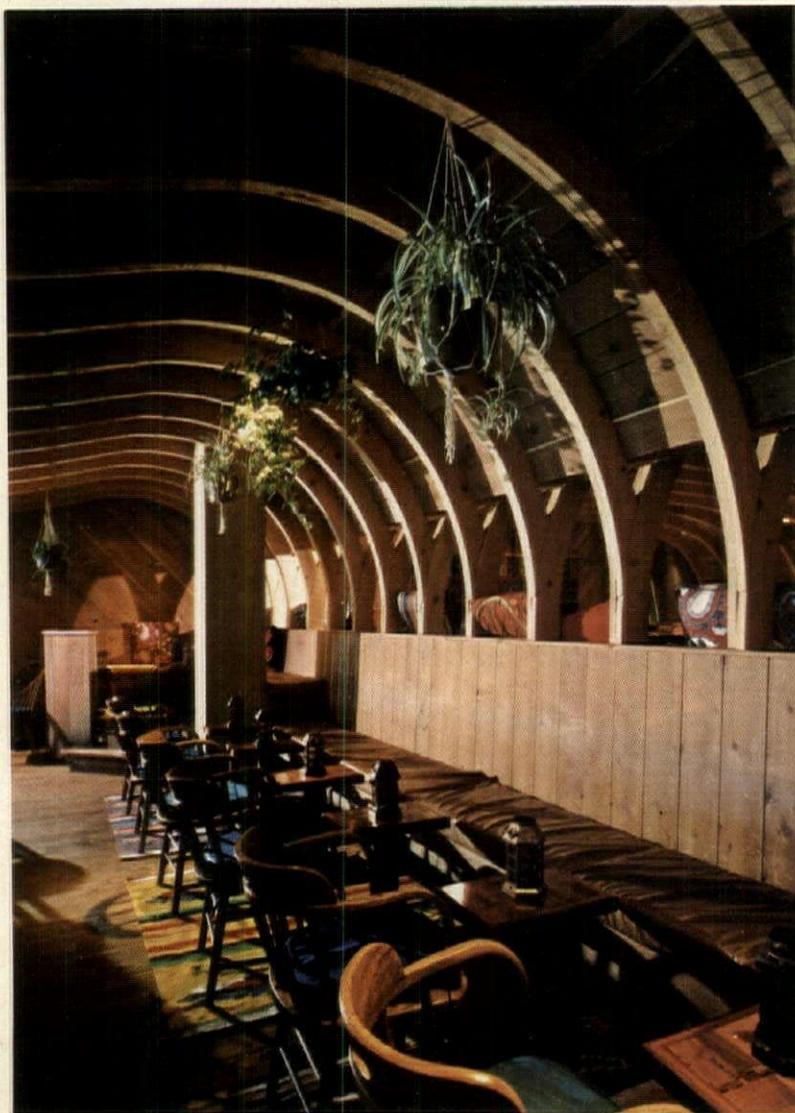
Part of an integrated development of current and Colonial period construction called New Market at Head House Square, this restaurant has a public room, which is essentially a large multi-level space. This is arranged so

that diners on the lower level can look up at a mezzanine-bar, which—because of its low ceiling and suspended seating areas (photo left and above)—achieves an intimate but unenclosed feeling. This is a typical arrangement for all Rusty Scuppers, and it eliminates the need for carrying food to an upper level. A program requirement was the ability of patrons either to be isolated or “in the middle of things.” The arrangement of balconies and suspended “barrels” is viewed as a sculpture of natural materials within its polished transparent box which tends to disappear when the interior lights go on at night. Redwood walls, oak floors and exposed air handling ducts, painted brilliant yellow, contribute to the warm but purposely unlavish atmosphere, which particularly appeals to a young clientele.

Architect: Edmund Stevens—project architect: Richard C. Boast. Engineers: Charles Chaloff (structural); Meridian Engineering (mechanical). Consultant: Shari Stevens (interiors); Eusters (food service equipment). General contractor: O'Connor Construction Company, Inc.

# CHICAGO

In an existing office building with an exposed concrete frame, the restaurant interior reaches outside to project its image to passers-by



This design for a one-story space near O'Hare airport provides the desired diversity of space with platforms that give minor changes in level, and by the

sensuous forms of partitioning and of walls and ceilings. These are all constructed of rough-sawn redwood, and are contrasted with yellow pine floors. In the bar, curved beams supporting the undulating ceiling span from the inside banquettes to the outside wall; and they project outside the building to support the curved glass windows. Architect Stevens, who regards himself as a designer for economic realities, felt that the projecting windows gave the restaurant's message better than any sign—despite initial objections of building architect Skidmore, Owings & Merrill. The dining room windows also project, but are rounded in plan, reflecting the curved plans of walls and platforms in that area. As at all Borel restaurants and office areas, this unit serves both “fast food” and more leisurely meals for lunch, and may be divided accordingly. At O'Hare, the separation is achieved by the provision of a large dining room and a smaller interior room which views into the bar over the top of the banquettes (photo, left). The cost was \$250,000 for the 8,000-square-foot interior and for the replacement of building-standard windows.

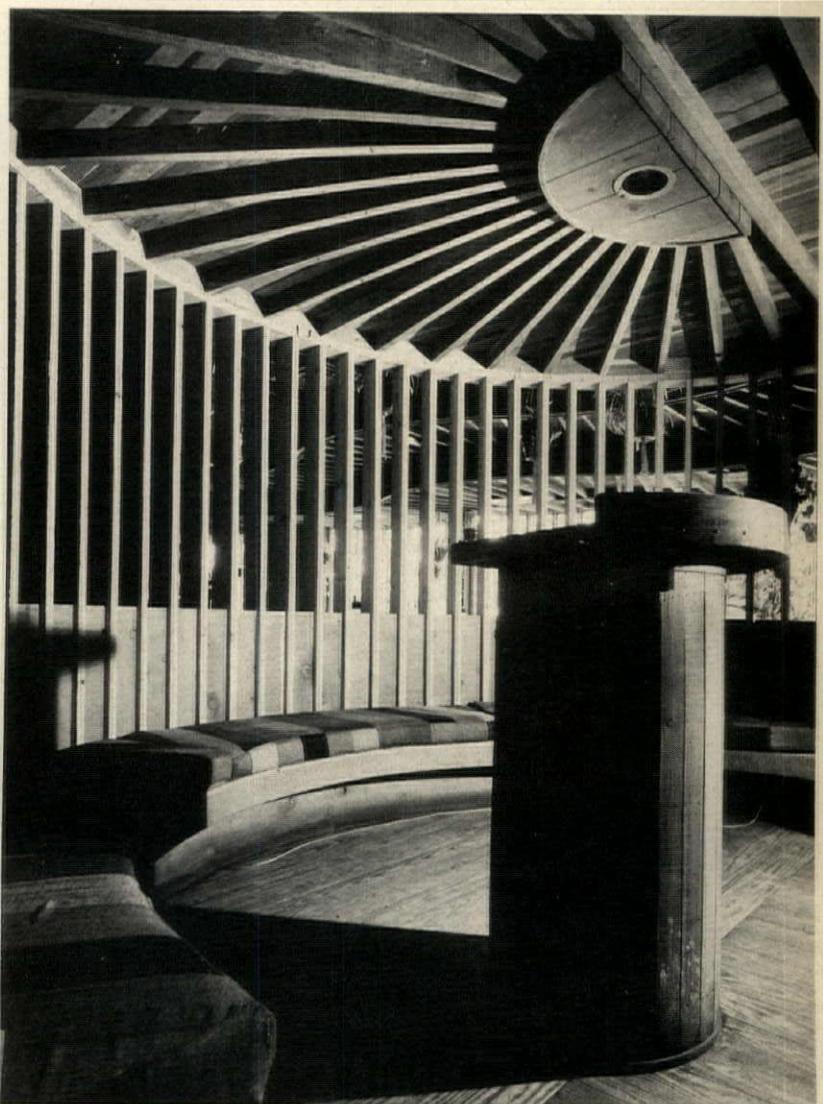
Architect: Edmund Stevens. Mechanical engineer: Robert Jeffers. Interior consultant: Shari Stevens. General contractor: Paul Borg Construction.



The large space overlooks the landscaped court of a commercial complex, and is separated by level changes into main dining room (photo, above) and smaller rooms (left). The bar on the second level (photos, opposite) offers varied types of seating including in the "barrel."

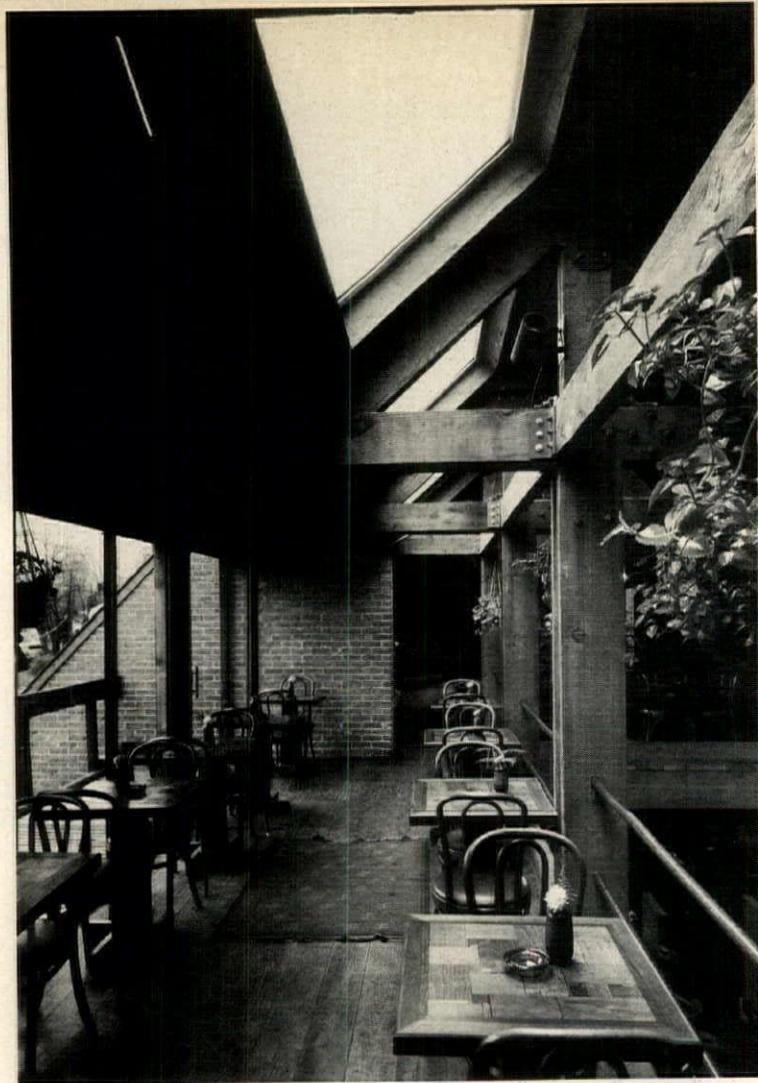


A continuation of the beams in the bar (photos, above and far left) support a curved glass facade (photo, opposite top) in counterpoint to the containment of an office building's exposed structure. The receptionist's stand is located near waiting patrons (photo, right).



# PRINCETON

A developed prototype of an all-new building illustrates adaptability for varied situations and contexts with minimum change



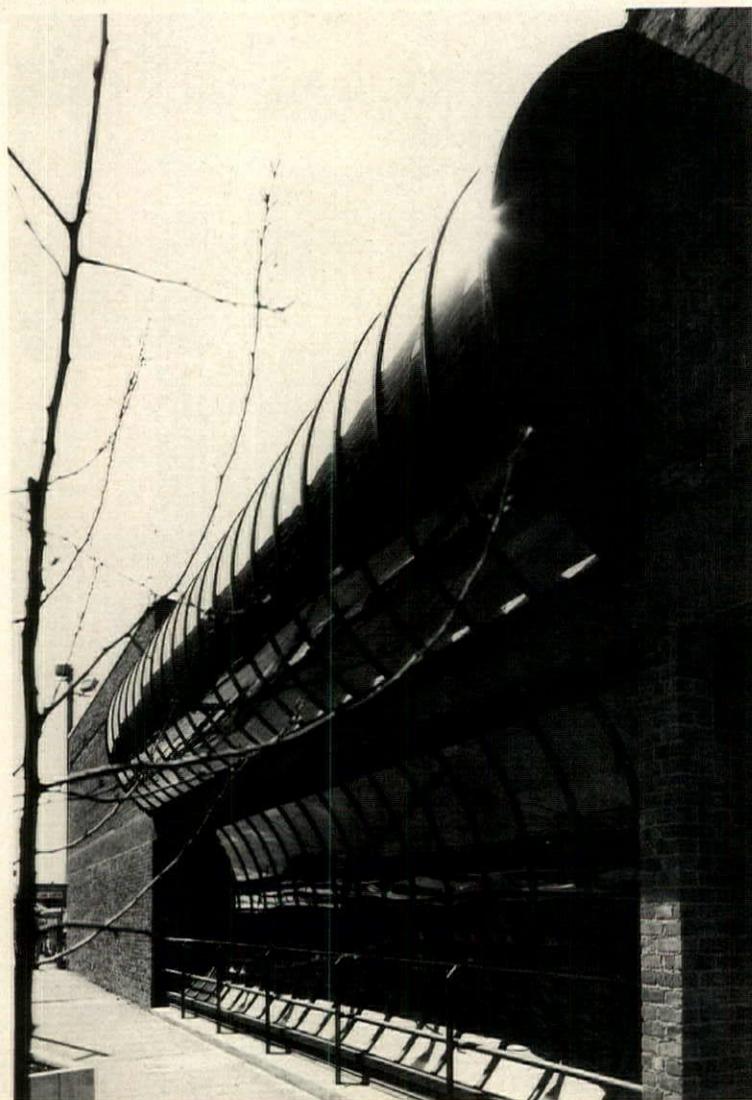
Utilizing the prototype developed at Acton (see page 103), Stevens stuck to the basic concept of service areas facing the entrance and parking, with

public areas oriented towards the view on the other side. But the lack of a good view in this case dictated the substitutions—for the prototypical balconies and windows—of greenhouse enclosures, to provide year-round greenery. The bar was again placed on an overlooking mezzanine. Wood roof trusses and rough-sawn wood again predominate as the major interior finishes including walls and floors. But local laws required a fireproof sheathing and Stevens chose to make flush-joined brick work as an external bearing wall as well as facing. Learning from the Acton experience, the architect rearranged certain aspects of the kitchen and circulation, but essentially the building is the same—with perhaps a happier aspect for its locale, where brick buildings predominate. As in many other Rusty Scuppers, the Princeton prototype has a corbeled brick fireplace which opens at two levels on separate flues. The total construction cost was \$300,000 for the recently completed building.

Architect: Edmund Stevens.. Engineers: Horst Berger (structural); Princeton Trane (mechanical). Consultants: Shari Stevens (interior); Surfes, Inc. (food service). General contractor: Edward Espourato Construction Co.

# CLEVELAND

This branch turns the usual plan upside down to occupy an existing building, bringing new nightlife to downtown



In an area of drab existing buildings, Stevens has transformed one of the drabest (a 1940's commercial building) into a catalyst for nightlife in the city—capitalizing on the small existing theater district and reinforcing it at

the same time. Stripping away existing metal paneling to reveal the brick and concrete walls underneath, the architect introduced generous glass areas to reveal the restaurant's color and activity to passersby. Because of the restricted size of the above-grade floors, the basement was used for its only suitable public function, the bar, while the upper levels are both devoted to dining. All of the levels are tied together by a central landscaped atrium (photo, above), which extends to the full height of the building, by the setback of the floors adjacent to the windows (photo, left), and by stairs next to the entrance. Because the dining is at various levels, stairs were introduced into the service areas as well. Again, Stevens has utilized oak flooring and rough-sawn redwood paneling and window mullions. The cost of the 18,000-square-foot renovation was \$435,000.

Architect: Edmund Stevens—project architect: Richard Boast. Engineers: Charles Chaloff (structural); Cleveland Mechanical, Inc. (air handling); Upman Plumbing & Heating (plumbing). Consultants: Shari Stevens (interiors); Surfes, Inc. (food service).

# CRISIS IN HOUSING

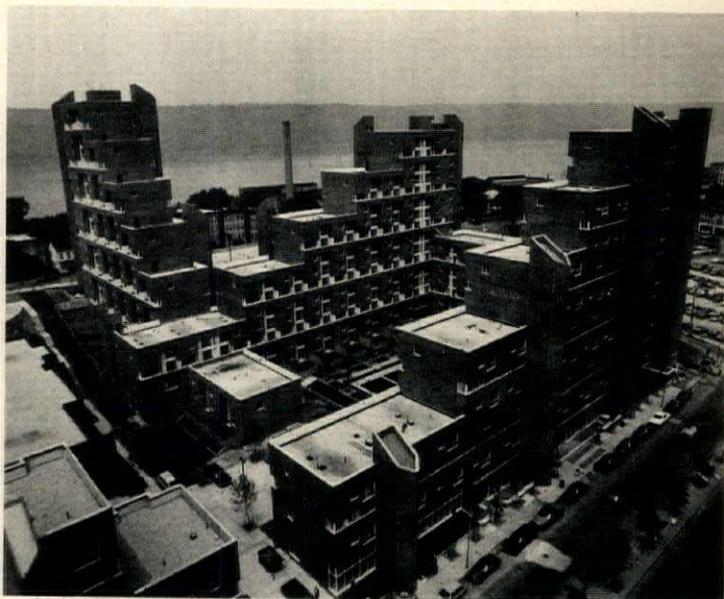
What went right and what went wrong with New York State's pioneering Urban Development Corporation? Here, in three parts, are some answers with important lessons for architects and planners everywhere . . .

## What did the new super-agency mean for the architect?

Writing in the RECORD of April, 1971 (pages 124-131), Robert Jensen said, "The UDC is using revolutionary mechanisms of economics and politics to provide new housing all over the state." And the promise seemed great—even beyond producing places for people to live. Today, the UDC seems to be foundering (see pages 121-124), but—when it was established in 1968 by pressure on a recalcitrant legislature by Governor Nelson Rockefeller—it did indeed hold great new hope for cities. According to the mandating act, the goals were primarily to provide balanced physical situations for jobs near housing and vice versa in accordance with all-important urban-revitalization principles. But, the construction of housing within multilayered government subsidy programs quickly became and remained the primary goal (see Jensen article for a description of these programs)—despite the published statement of a respected UDC staff-member who said that maintenance and renovation of existing residential facilities would come close to supplying the state's non-growing population. The UDC was after all a politically motivated organization that wanted visibility not available through obscure renovations, despite spectacular opportunities missed.

To the architect, the UDC was initially the client that could carry through the professional's vision of innovative design without limitations of local building codes, zoning, labor unions, bureaucratic harassment and undue economic restraint (the former exemptions were mandated by the act, and the last was the result of then-high construction budgets of close to \$30,000 per dwelling unit). To a certain extent, the architects' hopes were justified, but it is the failures to meet these hopes that may provide the most interesting reading for the professional wanting to support the superagency-concept in the future.

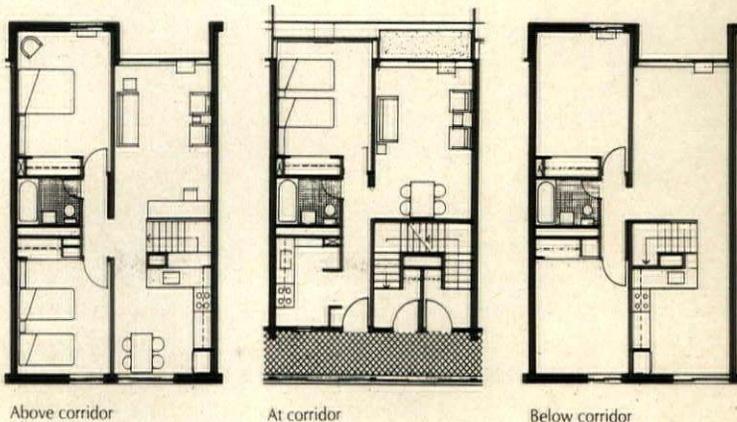
From the beginning the abilities were not as far reaching as they initially seemed due to both external pressures and indecision within the organization. Contained within the UDC's memorandums of understanding (and subsequent amendments) with localities where projects were to be built, were restrictions on den-



### A steady development of concepts for some

The two-stage Riverview project in Yonkers, by architects Sert, Jackson and Associates, illustrates the clear design evolution that was possible by adapting an initial innovative concept for large developments (800 apartments here and 1000 on Roosevelt Island). Despite the UDC's belief in later days that single-loaded corridors serving through-the-building apartments, including those on floors above and below, were financially infeasible, the concept was found to be competitive

here, where construction costs were about \$30,000 per dwelling unit including a 300-car garage. Phase Two (photo above) is nearing completion and has a rearrangement of stairs and spaces to allow living rooms to be recessed from the exterior wall for shading, and to allow storage spaces for all units on the corridor levels. While these buildings are of conventional construction, they are of the same design as Sert, Jackson's Roosevelt Island systems construction.



Above corridor

At corridor

Below corridor

sities and even the minimum number of parking places that would be supplied (feasible or not) which generally conformed to some standard of zoning. Because buildings have to be built within some parameters of safety and health, the State Construction Code was generally substituted for local codes, although the former was sometimes more restrictive. Labor unions did successfully object to the introduction of some innovations (all contractors employed union labor). Because of the use of a building code, and—because of the construction of many ancillary facilities that would be operated by local agencies (such as day care)—architects spent long hours in gaining government approvals. And, because the construction cost limitations had a tendency to go down instead of up, economy of construction became an increasing concern.

Still—in order to demonstrate that the Corporation could produce where others had only dallied—the main aim was to get construction going quickly. While generally sympathetic to the concerns of architects, the administration was torn between those concerns and the need for immediate action, and accordingly took an increasingly strong hand in directing design where it affected costs—which was almost everywhere. Instead of relying on the professionals to evaluate and control their own cost problems (as they have traditionally done) the Corporation often ordered radical changes to a design without allowing time to re-evaluate the impact on the concept. Buildings generally went into construction before working drawings were finished, and architects could be sure that further changes would be made to the design and specifications.

These changes were partially possible because the construction agreement by its timing had to be reached on non-specific assumptions, and partially because the architect had little leverage in the agreement which was basically between the UDC and the contractor. One architect of a UDC building states that he had no idea what the real construction cost was. Still, other architects were happy over the arrangement, as they felt that the Corporation had far greater leverage in negotiations than an individual. But the advantages of the process were not significant; buildings still took over two years from start to finish and cost over \$30,000 per dwelling unit—despite watering down of initial concepts. Meanwhile, the Corporation lost a significant part of the services that architects are established to provide.

President Edward Logue encouraged competition among everyone, most specifically his staff. Several persons would believe that they

were responsible for the same thing at the same time. The intention was to produce strong effort, and the result was often internal unpleasantness and worse: confusion for the outside professional. From time to time, statements would be issued by one department head—only to be countermanded by another: “there will be no duplexes, there will be only double loaded corridors, large family units will be like houses within the bottom of high-rises, etc.” In effect every architect had three clients: the regional office during schematics, the central office during preliminaries and the private developer thereafter. A common view among critics was that many of the top personnel lacked necessary experience, since—as in any political organization—aggressiveness was a prime factor in gaining key positions. On the other hand, some architects were encouraged by the resulting fresh approaches to problems.

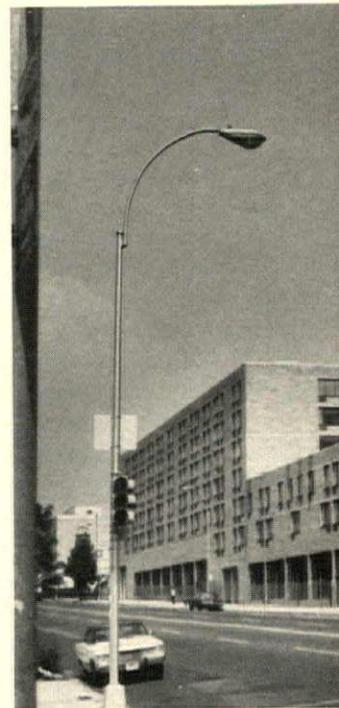
**Amid the debris, there were real accomplishments.** The UDC did manage to produce 34,000 units of housing and other construction worth close to \$300 million. Many of these projects have won awards for design excellence; the Corporation received a 1974 A.I.A. citation as an outstanding client. One project, Metro North by architects Conklin and Rossant scored highest in a New York City housing quality survey (over half of the UDC's housing was in New York). The projects illustrated on these pages are the results of thinking that emerged after the first round of construction (as illustrated in the 1971 article), was complete. As many are still in construction, the photos suffer accordingly.

**Did the Corporation manage to answer the challenges of Pruitt-Igo?** As with housing everywhere, aside from some aspects of design and quality, it is only as good as its tenants and management are prepared to make it. Fortunately, the UDC pursued a strong course in the control of management and tenant selection from astutely mixed income levels; this assured that most of its projects function well. Certain in-house ideas on design were put forward strongly in the latter days: design should produce a sense of coming together of residents, ability to supervise children, ease of maintenance, flexibility of apartment plans and security. On the latter idea, projects were originally developed as “open,” where the neighborhood was free to circulate through the outdoor spaces contained by the new buildings. But—in urban low-income areas—these spaces were quickly fenced with chain-link fabric by owner-developers (never offering an adequate test). And subsequent projects were



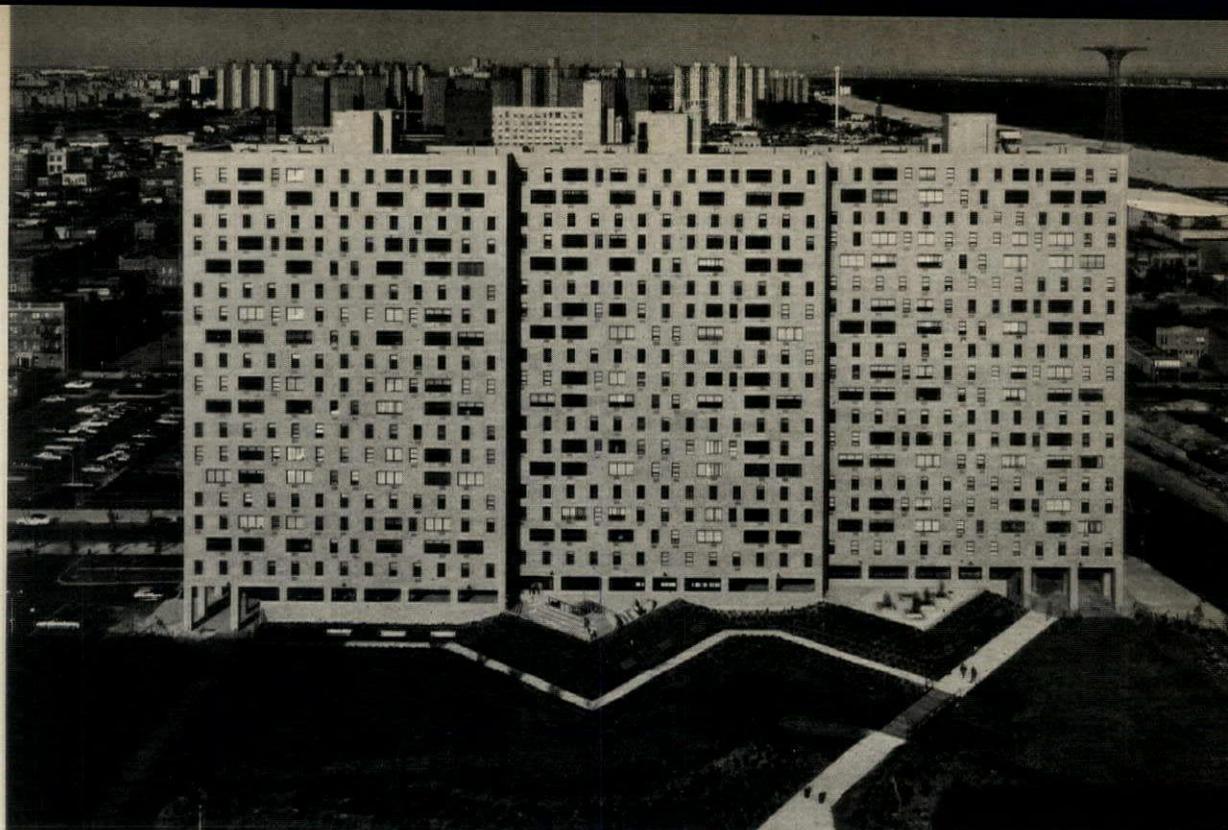
**There was hard work on the development of systems . . .**

Architects Hoberman & Wasserman and Gruzen and Associates respectively produced several high-rise buildings in Rochester using the Jespersion System of prefabricated-concrete wall and floor panels. Hoberman & Wasserman stepped their buildings' massing down to





low-rise neighborhood (photo, above). Because of a more urban location, Gruzen produced simple towers with an exposed structure. But the system had definite problems which had to be worked out first. The spans were limited, as were the possible panel combinations due to the methods of joining.



Elliot Fine photos

### ... and quick work to meet instantaneous demands

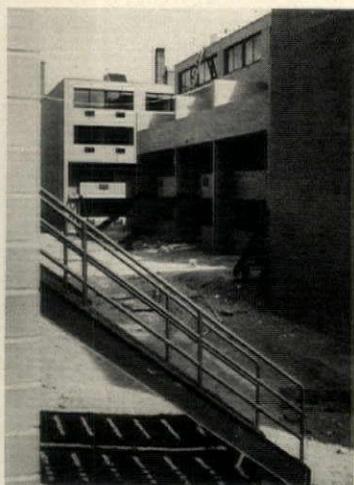
Although the possibility had been considered in the wording of standard architectural contracts, replication of buildings previously built by the UDC did not become a reality until mid-1971, when it became apparent that available FHA 236 funds would be lost without groundbreakings before the end of the year. Coney Island in Brooklyn was selected as the site, and two designs were used. One was for the still incomplete vertical tower on Site 4 in the Bronx (RECORD, April 1971, page 130) by architects Pren-

tice, Chan, Ohlhausen. The original building was designed to accommodate 120 apartments in a tightly confined, cliff-top location. The replication building contained 360 apartments on an open, flat site, and the results can be seen in the photo above: three towers side-by-side. Architects Hoberman and Wasserman's nearby Site 5 and 6 was similarly replicated twice, and Wasserman was happy with the results, which contained more of the site for the residents' use than his original building.



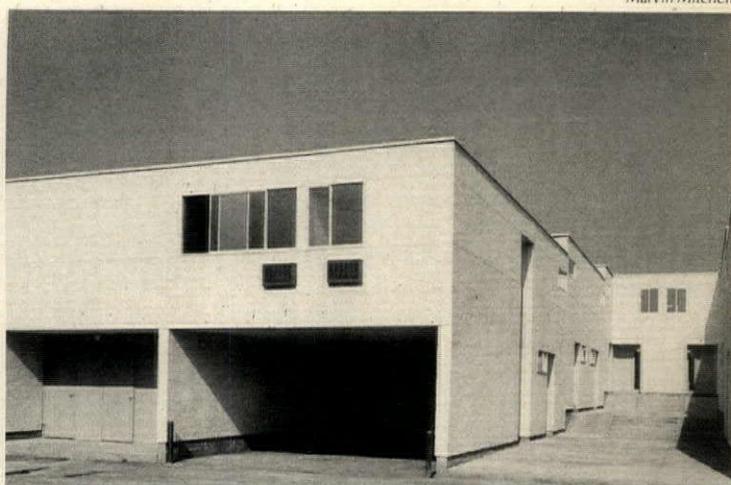
### Enclosed sites and a desire for smaller scaled buildings characterized many later projects

In designing the almost-complete Melrose project of 500 dwelling units (photo, above), architects Weiner and Aran first considered goals of livability. Within a more than usually restricted budget, the goals were privacy for family members within the apartment, sunlight, large families near the ground for play supervision, handicapped and elderly near the ground for relation to neighborhood activity, minimum public halls and maximum



securable outdoor areas. The scheme was a series of varied-height elements around 3 courtyards. Basic livability goals were met, limiting hoped-for options for the building's exterior.

625 units of a low-rise, high-density prototype designed by the Institute for Architecture and Urban Studies is under construction in Brooklyn (photo, above). At about 60 units per acre, the project is intended to demonstrate desirable alternatives to high-



Marvin Mitchell

rise construction, especially for large families. The house-like segments of the buildings have their own stoops and typically contain 2 two-bedroom duplexes on the top floors and 2 three-bedroom duplexes below, related to their own rear yards. The buildings are reached by semi-public courts in the middle of a city block where residents' observation is intended to provide security, and the limited number of the residents is intended to provide identi-

fication with a community. Apartments' living areas are equally divided into eat-in kitchen and living room; the plan makes strong assumptions about the ways in which residents want to live. 560 units nearing completion in Perinton (photo, above), designed by architects Gwathmey Siegel, combine townhouse and apartment units around entry courts. The design was shown in detail in RECORD for July, 1974, pages 105-109.

designed to completely enclose such spaces (see Melrose, pages 108-109).

After the first round of projects, there were both live-in programs by UDC personnel and a study by Dr. Franklin Becker at Cornell University to evaluate user reaction. Becker's "Design for Living" begins with a statement to the effect that good design does not cost more. But many of his recommendations involved exactly those aspects of housing that had been declared economically infeasible by some UDC personnel: single loaded corridors, corridors as play space, larger room sizes, etc. Still, the report had a good deal of merit. The usual room sizes based on FHA 236 standards (plus 15 per cent) were too small; a living room for a family of six was limited to about 11- by 15-feet, and there would be only one and a half baths. Melrose illustrates a latter-day attempt to gain larger rooms.

**Did the UDC advance technology?** Because of its large volume of buying power, the UDC held another promise for architects: the advancement of construction technology for which front-end costs must be distributed over large numbers of apartments to be feasible. An early study commissioned from the Tishman Corporation produced a list of innovations including prefabricated plumbing-walls and spray-on painting, but union and other problems prevented widespread use. Systems construction was considered a welcome challenge by such architects as Gruzen and Partners and Hoberman and Wasserman, who built several respective projects (see page 108) in Rochester using the Jespersen system—but the producer went out of business because of the lack of volume. Sert, Jackson abandoned systems in Yonkers (see page 107) after an initial building by Buildings Systems Inc. in which the desired economies and advantages of timing just weren't present. The problem, of course, was that the UDC never did achieve enough business to keep multiple producers afloat.

**The final stage of the UDC's experience with design was the Roosevelt Island Competition** for housing on a site (photo, right) which is probably destined to remain vacant in the near future. According to one juror, there was little practical reason for the competition. Even if the project was to be built, the scope was too limited to produce revolutionary answers, and the client had always known what was wanted in the past. More probably, the reasoning to UDC's last was political: gain exposure by calling attention to the potential.—*Charles Hoyt, RECORD associate editor and former Director of Architecture, New York City Regional Office.*



### There was serious work on reproducible parts . . .

Prentice & Chan, Olhausen designed three buildings for elderly tenants in Rome (photo, above), Buffalo (photo, right) and North Tonawanda. Each is built of conventional construction like local motels: concrete plank on concrete-block bearing walls. And each design consists of the same repetitive planning elements: stacks of variable-height one-bedroom and efficiency apartments which fit together to form repeated building segments containing apartments, stairs and elevators. The projects—despite completely different arrangements of segments and site plans—were predictable to contractors who could quickly give cost estimates based on previous experience. Both time and cost savings were substantial. The cost was about \$20,000 per dwelling unit.

*Elliot Fine photos*



### . . . and ongoing work on Roosevelt Island

The development of Roosevelt Island began over five years ago in accordance with a master plan by architects Philip Johnson and John Burgee. There were to be two main stages, and the first (photo, below) is nearing completion. Eleven hundred apartments for middle-income tenants face Manhattan, and relate to a central pedestrian "street," as do the 1000 apartments for lower-income tenants, which face away from

Manhattan. All cars are left in the garage (foreground of photo) after crossing the access bridge. The previous architects had been Jose Luis Sert, John Johansen and Ashram Bhavnani. The second stage of construction was to continue the housing on the Manhattan side of the island to the forward end of the garage and was the subject of the competition discussed on the next pages.



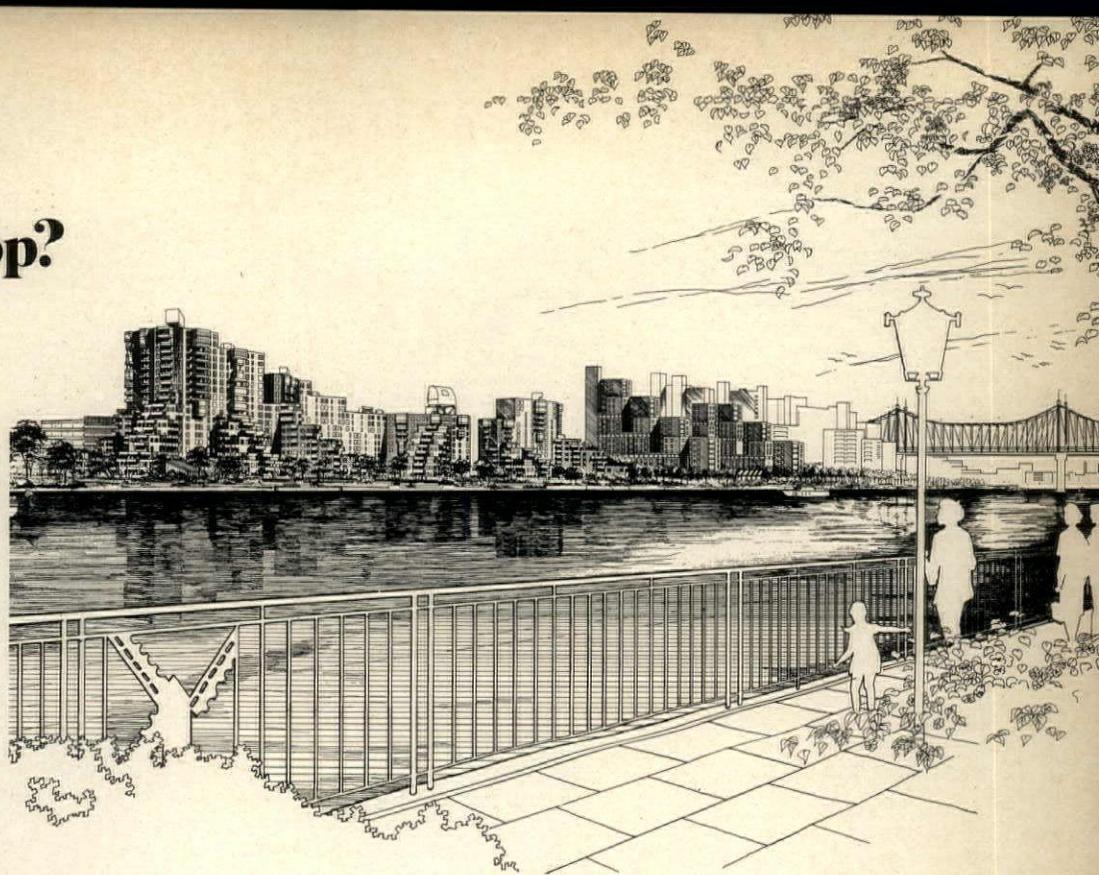
# Roosevelt Island Competition

## —was it really a flop?

Almost every design competition ever held has managed to generate heat in the form of controversy, criticism and, often, resentment—reactions that are in part the irrational, if natural, results of each entrant's disappointment at not winning. They are irrational nonetheless (since not winning is the normal condition in a competition, winning the exceptional one), but they are shored up by a much more cogent objection: that competitions require an enormous amount of energy to develop, finally, only one built design. In the case of the Urban Development Corporation's Competition for Roosevelt Island, this objection must be felt with unusual bitterness, since, if everything goes according to the present discouraging plan, *none* of the entries will be built.

UDC's intentions seemed splendid enough: to sponsor a competition for the design of 1000 housing units to be built just north of the existing 2100 units on Roosevelt Island—another step, it was hoped, toward the goal of developing the island into a new community for 18,000 people (see RECORD, December 1973, pages 98-99 and 104-105). The program, moreover, invited a straightforward solution, and it seemed to embody specific criteria that indicated to potential entrants that the sponsor had its heart in the right place. What happened, of course, was that UDC's finances went amuck before the judging—forcing a temporary cancellation of the competition, then a telescoping of the two stages into one, and finally (because of a jury squabble) the awarding of only four, rather than eight, prizes.

All of this seems to indicate chaos and suggest failure. But to make that judgment would be to take a fairly limited view of what competitions are really for, and to ignore the value to the entrants of developing their ideas, and the value to the professional public of seeing them. On the following pages is a collection of entries in the Roosevelt Island Competition—two winners and six, so to speak, losers—that we think show an encouraging competence and an encouraging variety in housing design. Some, we hope, will appear thoughtful and some exciting; others will seem boring, and still others silly—we leave it to individual readers to decide for themselves which are which. Together they make a fugal sounding of several popular themes: responsiveness to the site and to the existing context, to the exigencies of the construction industry, to the requirements of shared as well as private space. One entry focuses simply on how the site and the proposed addition *feel*, and renders these feelings in poetical terms that preclude buildability—but we think there should be room for that too. —Gerald Allen

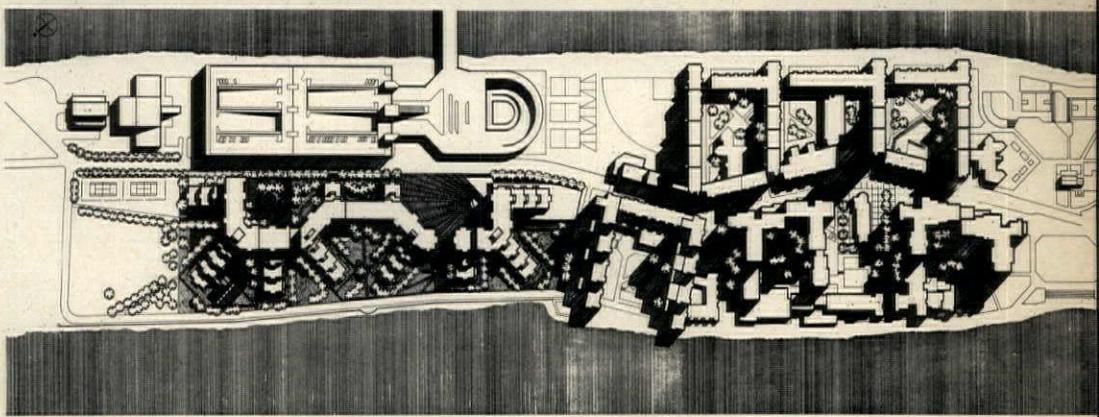


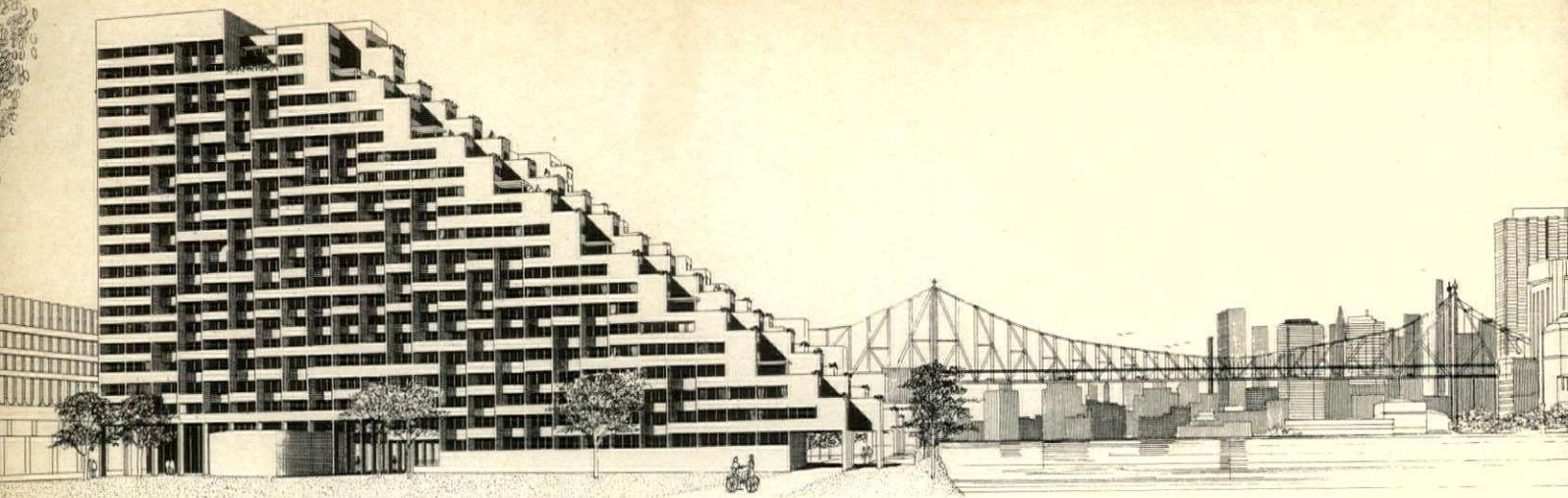
### Tower blocks that step down to the river

"The serpentine spine forms a wall against Roosevelt Island's Main Street and houses low-, middle- and upper-income groups. From this spine fingers gingerly step out and down to the waterfront, providing both large and small open spaces to the river in an alternating open/closed rhythm. The fingers contain duplex walk-ups reminiscent of New York brownstones, with unobstructed views up and down the river.

"There are shops and cafes at

Northtown Plaza, the arrival point on the island, and an area of heavy pedestrian traffic (site plan below); this connects with Riverview Court on the opposite side of the island, and to the West Promenade. An initial consideration of the design was the preservation of existing trees, and the spine and fingers step around them."—Secundino Fernandez, Joseph Fleischer, Alfredo Salsano, Masahide Susuki, and Basil Callimanis (New York).





## The Sphinx

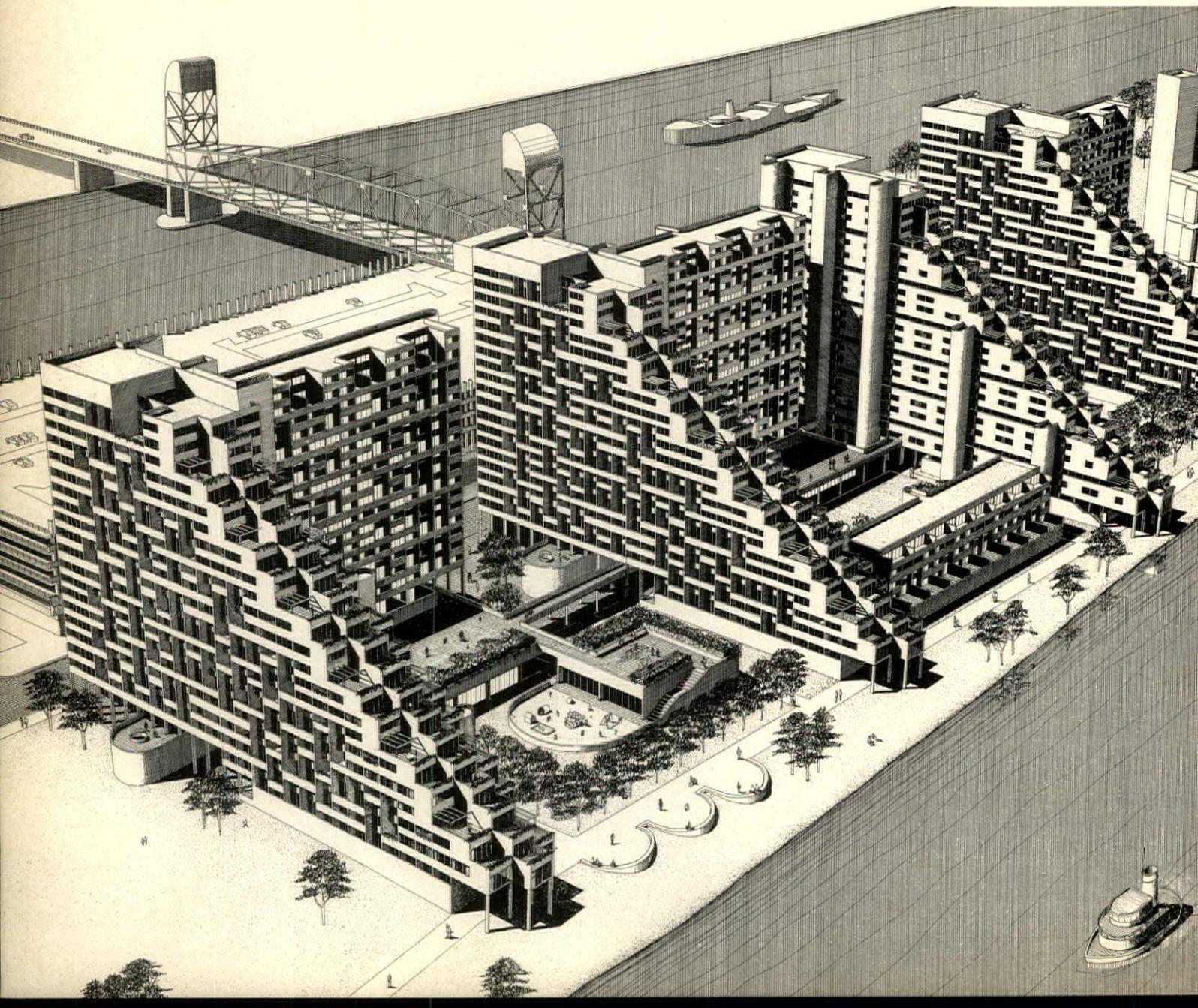
"Middle- and high-income units are in four slabs perpendicular to the river, sloping from 21 to two stories at the riverfront. Low-income and elderly housing units are in 19- and four-story blocks parallel to the river. All of the buildings use skip-stop elevators with access on every third floor.

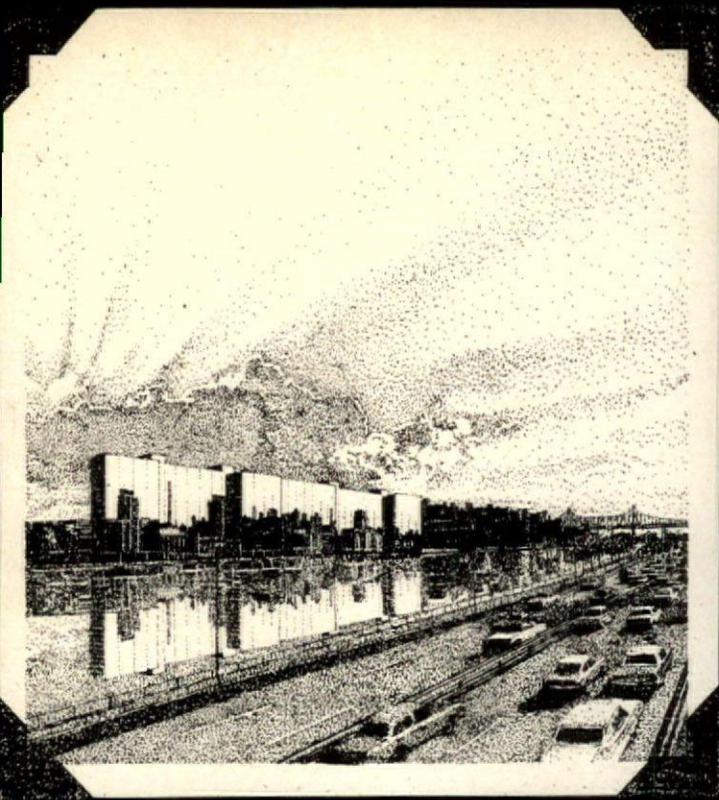
"Landscaped semi-public roof

terraces above schools, community facilities and commercial spaces augment the open space on the site, and they are connected to each other by a second-level walkway through the entire complex. Laundry rooms with small play terraces for children are also on the walkway level.

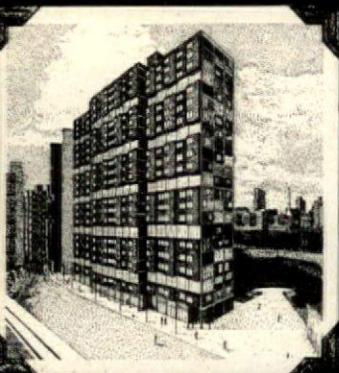
"Riverfront terraces of varying

sizes are provided for the larger units, and all of the units are provided with recessed balconies. In addition, each elevator access gallery in the stepped-back blocks has a community terrace. Construction consists of a concrete flat plate system with masonry infill."—*Ralph E. Johnson, with Karen S. Johnson (Columbus, Ohio).*





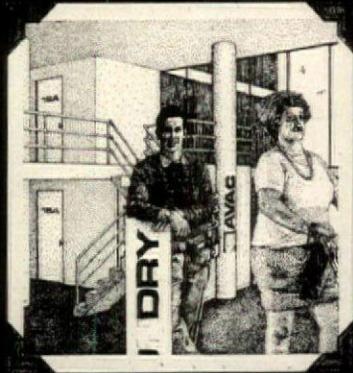
*mirror to manhattan; our home reflects the city, yet it's an island apart...*



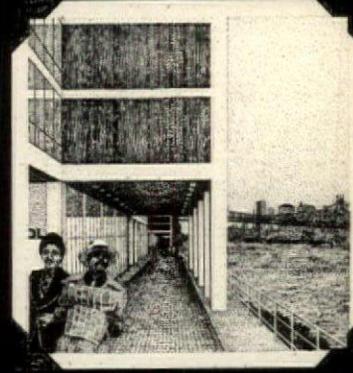
*context: the square across from the arrival deck is really a triangle... from here begin main street shops and scale under the upper income housing...*



*livability: we chose to design our own apartment... this is probably the only place in the world you can do that... we may be able to add a unit after the new baby...*



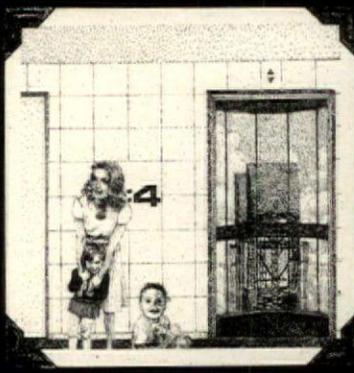
*maintenance: short sunny halls and convenient laundries are always spotless... everybody on the floor knows everybody else and takes pride in them...*



*tunnel: everybody likes to walk past the over the bridge, under the building, past flower gardens and shaded sitting area...*



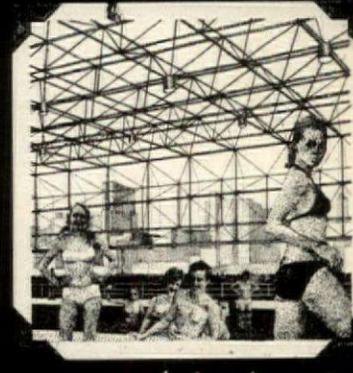
*security: it's real nice having the management right in the lobby... except on the first of the month...*



*glass elevators: you can't get mugged in our elevators, and you can always tell where you are in relation to the ground... only problem at first was people taking joyrides...*



*hill: this is the only place on the island for gliding... they probably built the hill with earth from the tidal pool...*



*swimming pool: the pool is right at the water's edge even though it's inland... it's open all year and is a great place to meet people...*

### A mirror to Manhattan

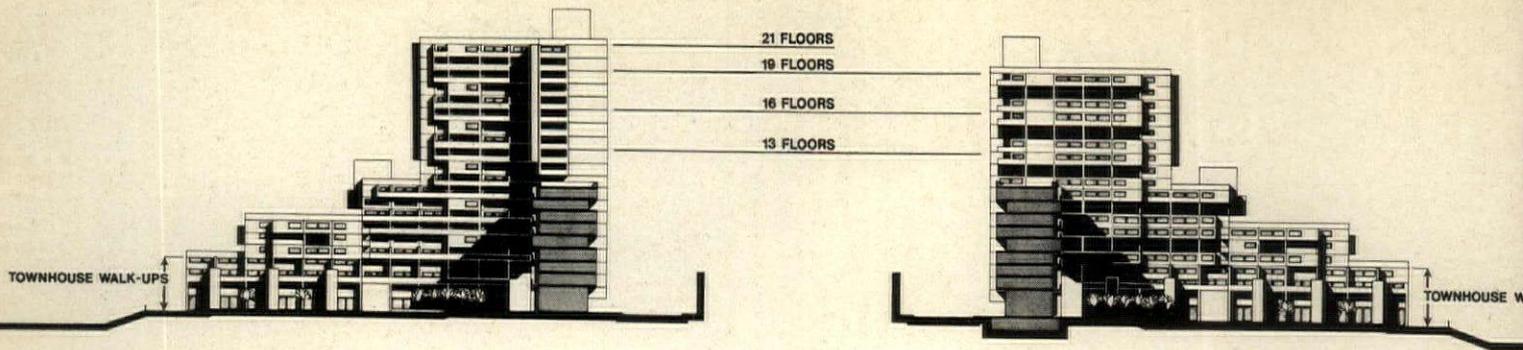
The design consists of two 20-story labs on a 20- by 20-foot grid, which is intended as a matrix within which residents may design their own private spaces with the assistance of a professional guidance program—a move toward user participation which we feel should be followed in the future.

“Three contextual differences are

expressed in the facades—the mirror glass of the river side of the North Building reflects Manhattan’s skyline; the look-alike South Building is meant to be an extension of the existing buildings on the island; and the remaining facades emerge as the result of each unit’s individual treatment.

“The emphasis throughout is on

the adaptability, both of unit type and income mix, although it has generally been supposed that upper-income tenants will occupy the South Building. The ‘scrapbook’ presentation reflects the architects’ concern for the often-neglected users’ perception of places.”—Clinton Sheerr and Susana Torre (New York).



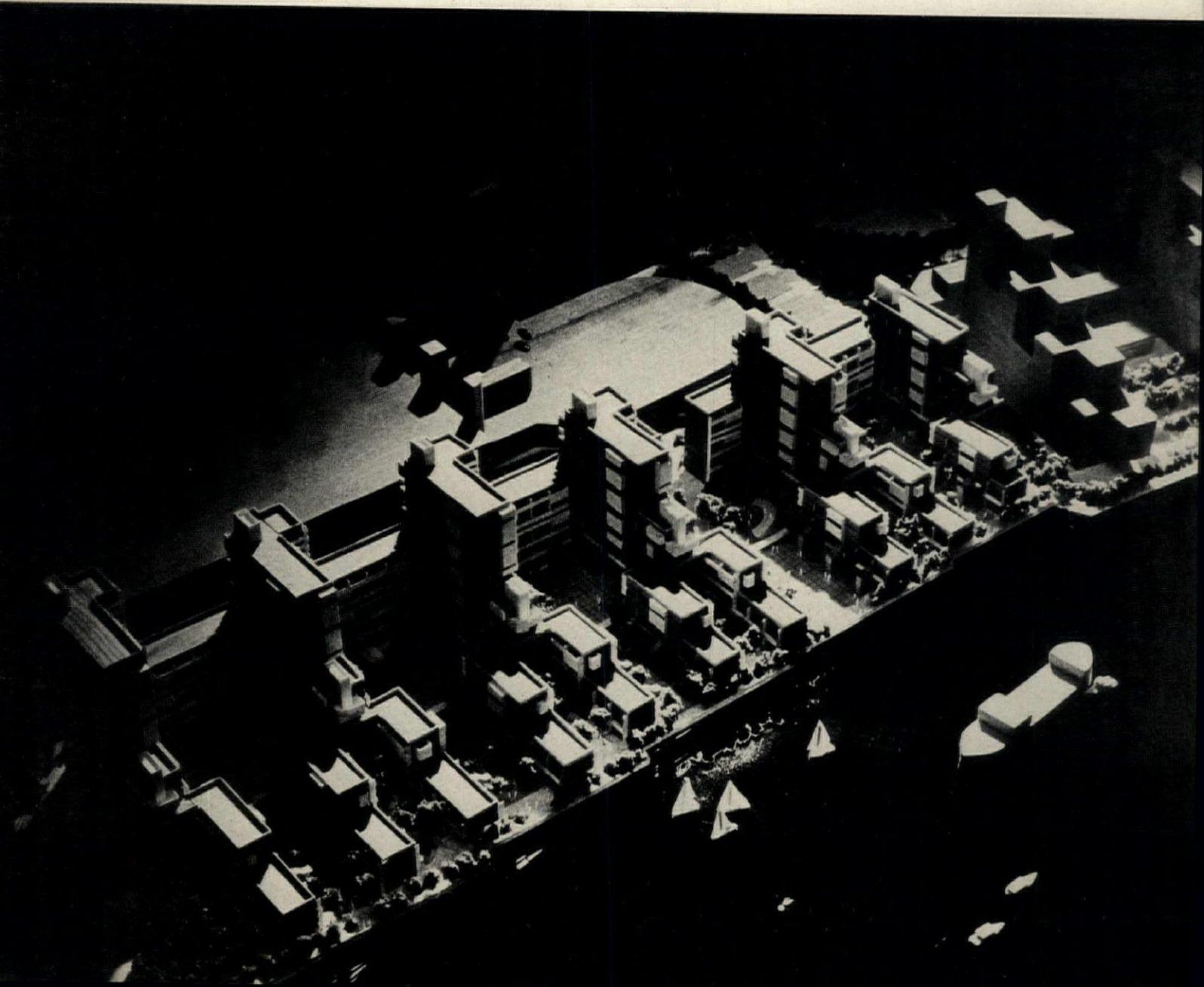
### Variations on an existing contextual theme (a winner)

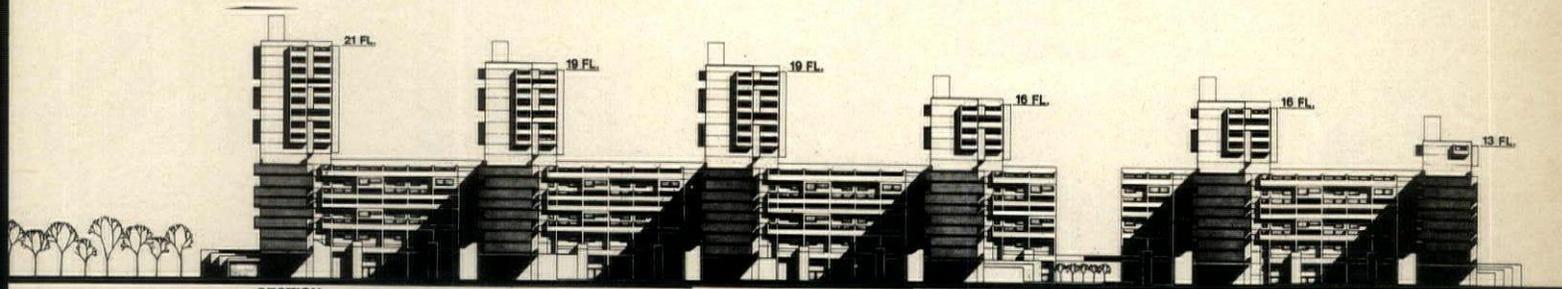
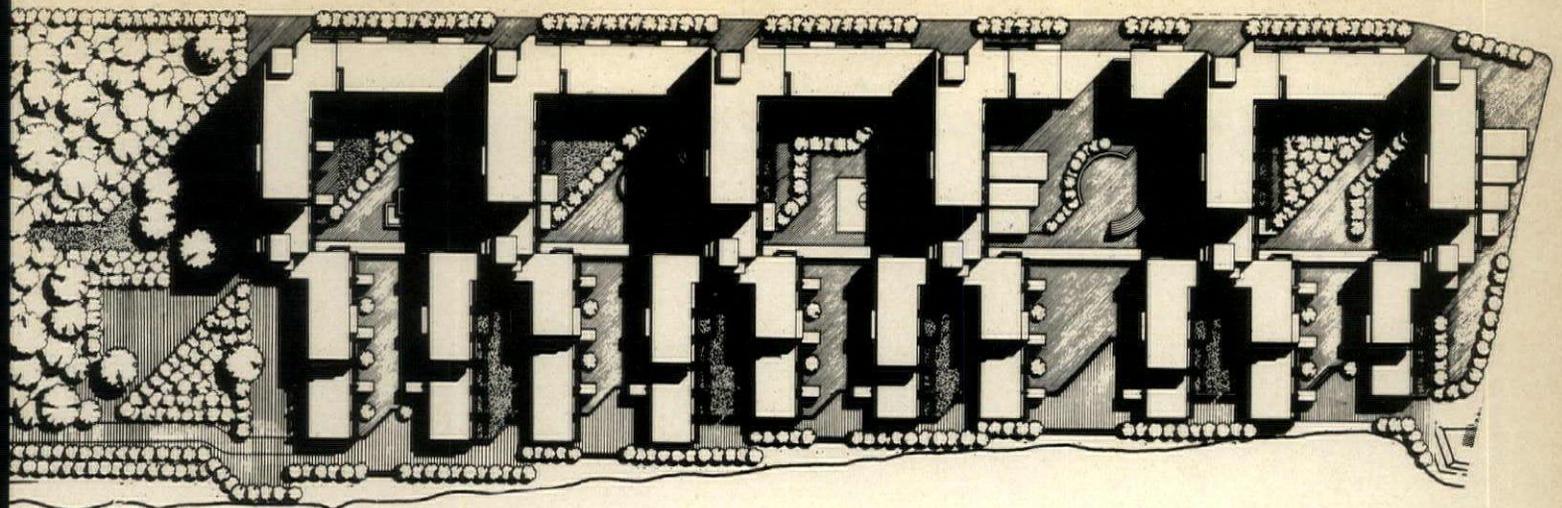
"We have taken the pattern established by other Roosevelt Island architects and continued it on a finer texture in order to create a diverse series of public spaces for resident users. The major point of the project site plan is the hierarchy of open space ranging from private yards to large neighborhood plazas. This series of spaces allows for a variety of activities and establishes an identity for individual units and, beyond that, for groups of 250 units (there are five neighborhood

plazas in the plan). The large spaces are connected by an internal street adjacent to which are community rooms and other common facilities.

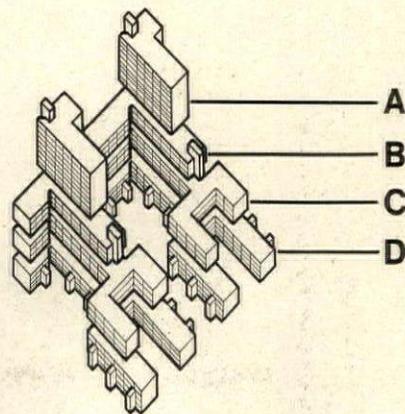
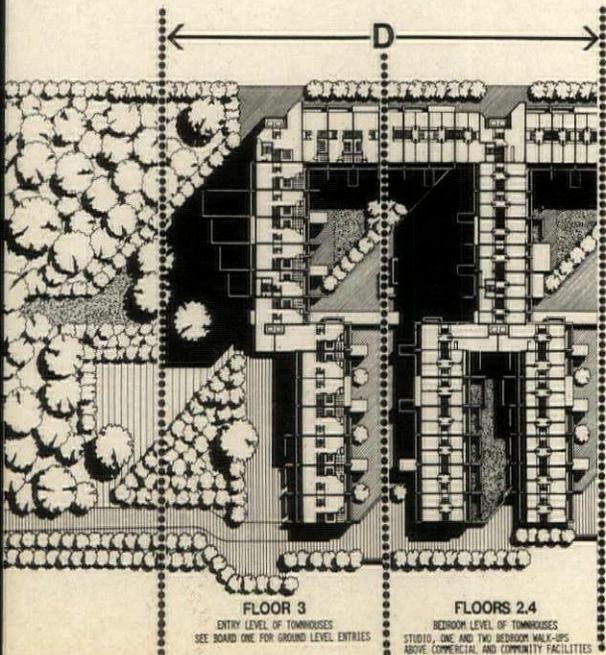
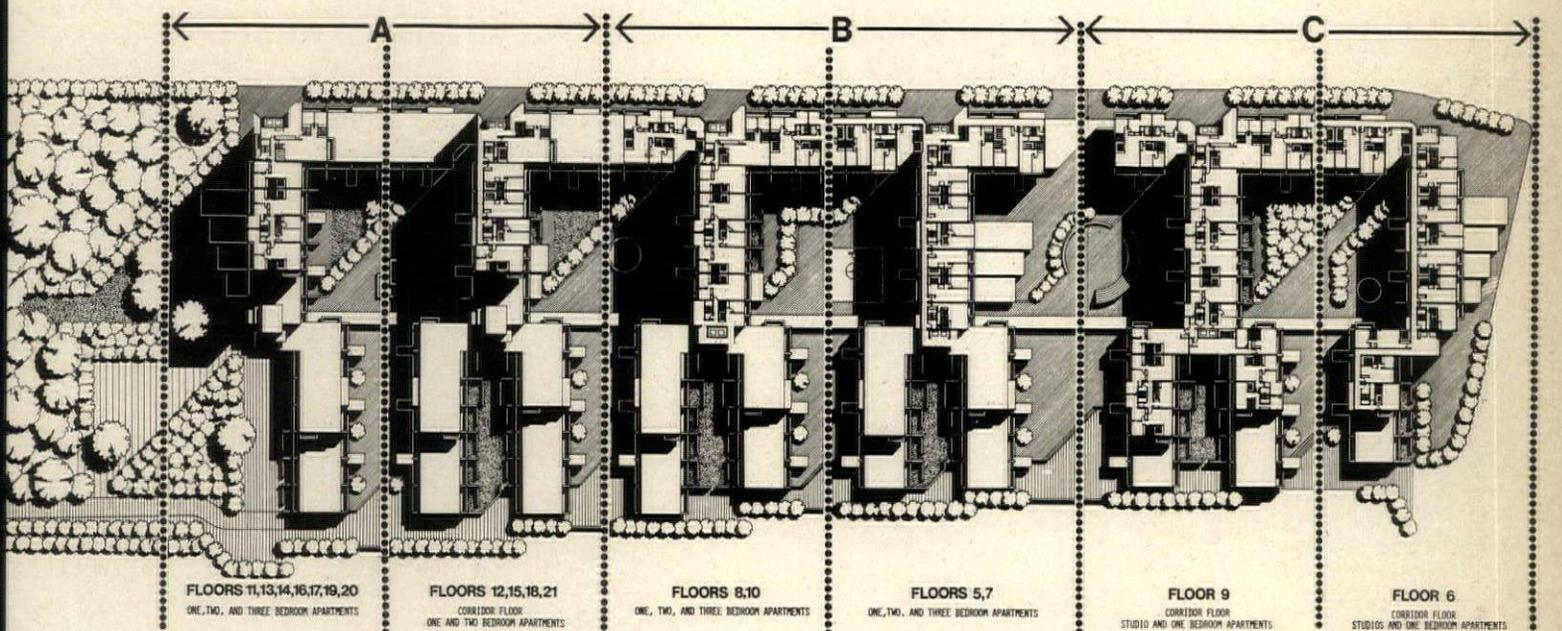
"The form of the buildings reinforces the existing pattern on the island (though, again, we thought it important to create a finer grain of development); the buildings are stepped so that the higher portions define the neighborhood plazas, and the lower buildings create their individual private yards.

"The units are flexible within the structural grid, so that unit size and mix may be established by the developer. All family townhouse units are walk-ups with either a private yard or balcony. Most of the units in the tower portions have balconies and double orientation, an arrangement that is made possible by having skip-stop elevators."  
 —Sam Davis and The ELS Design Group/Barry Elbasani, Donn Logan, Michael Severin and Geoffrey Freeman (San Francisco and New York).

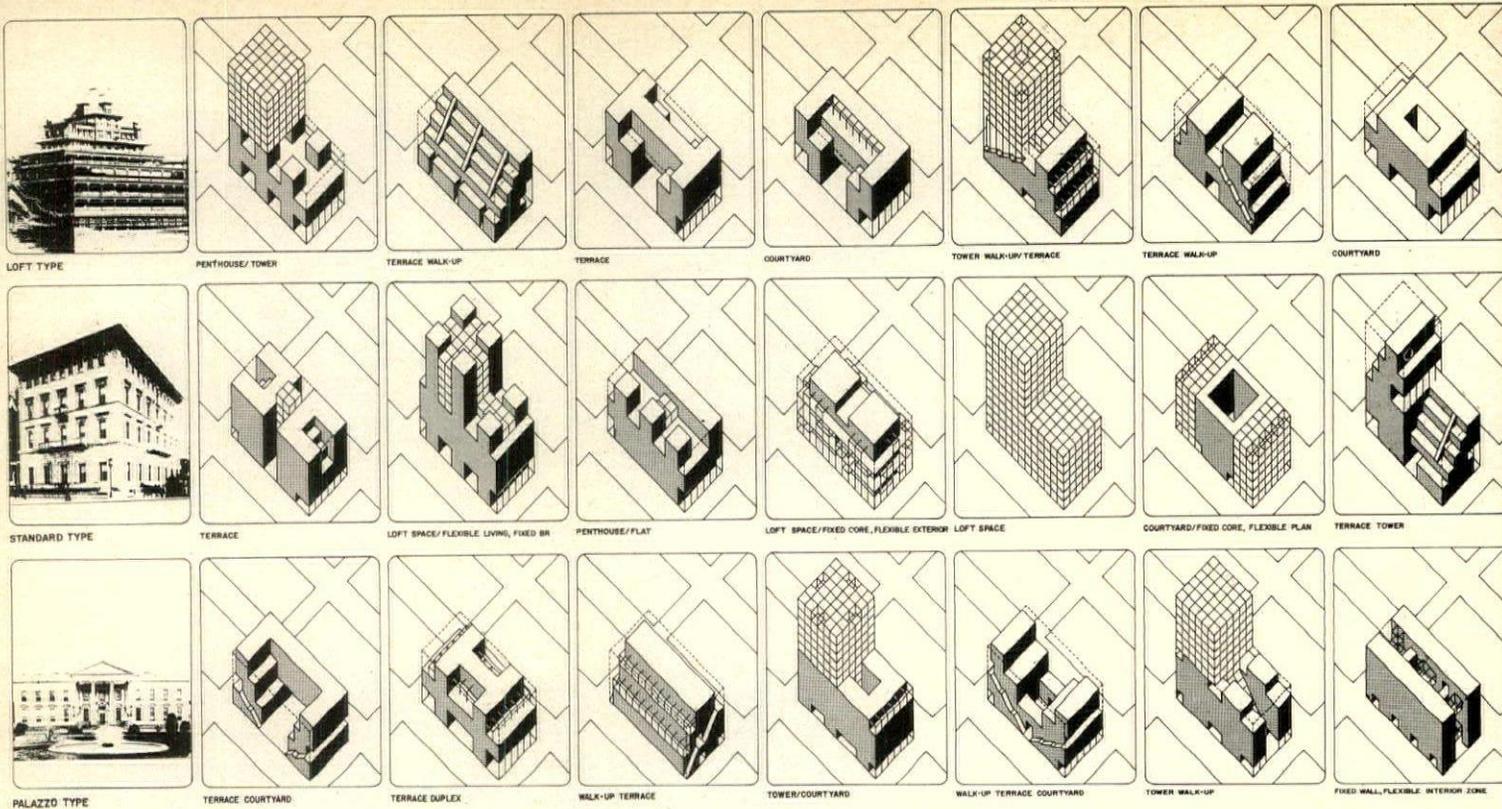




SECTION



UNITS AND FLOOR PLANS



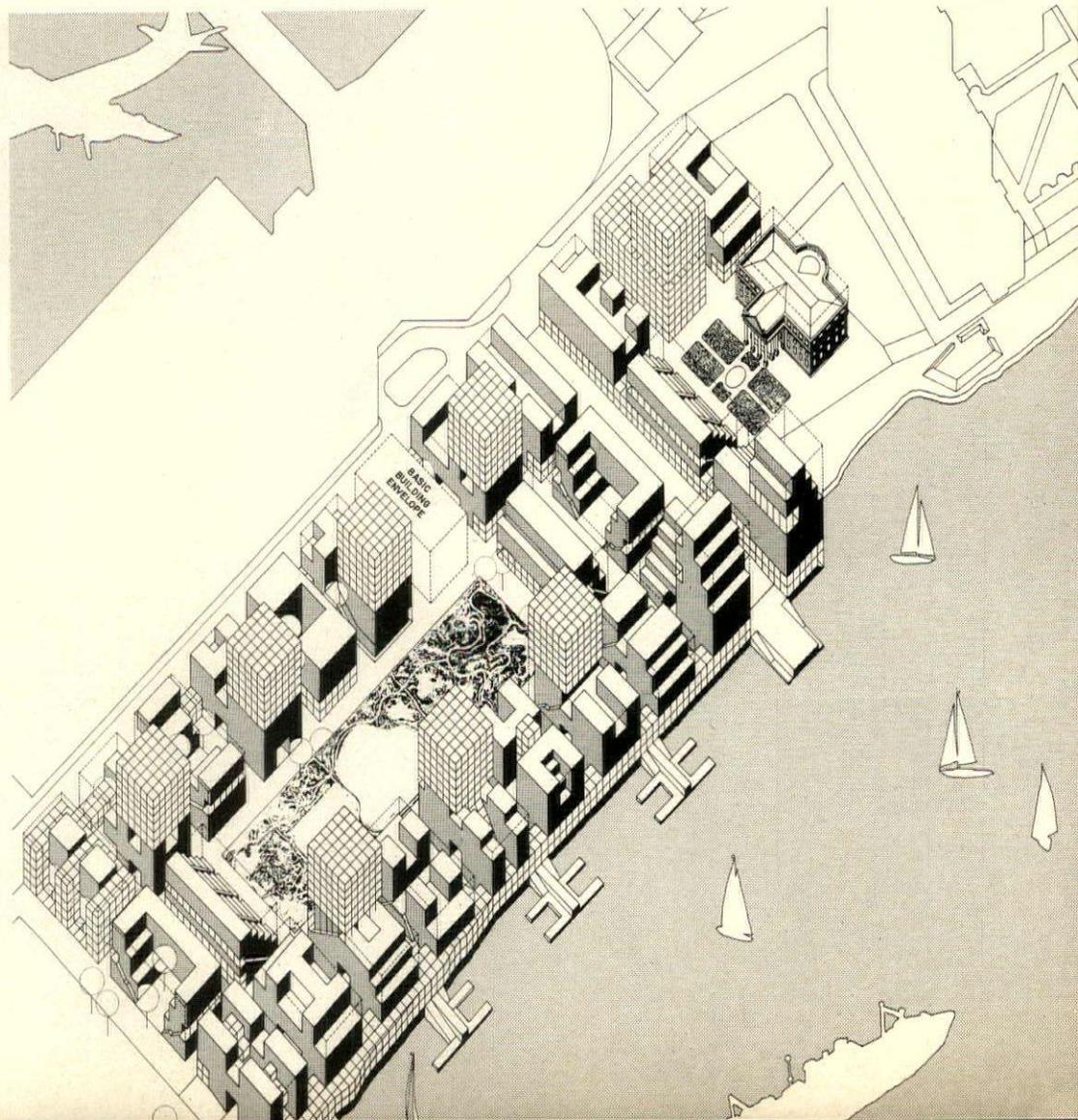
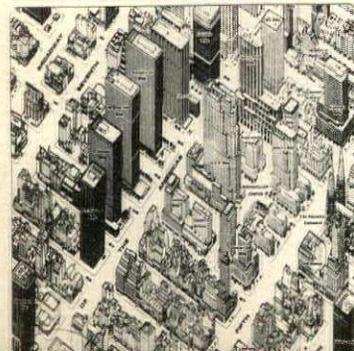
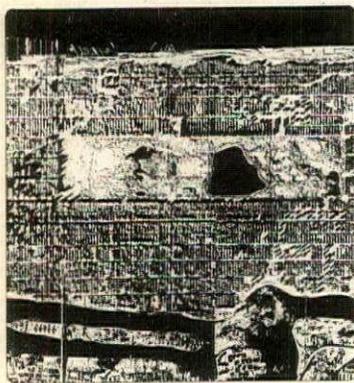
### Homage to Olmsted and others

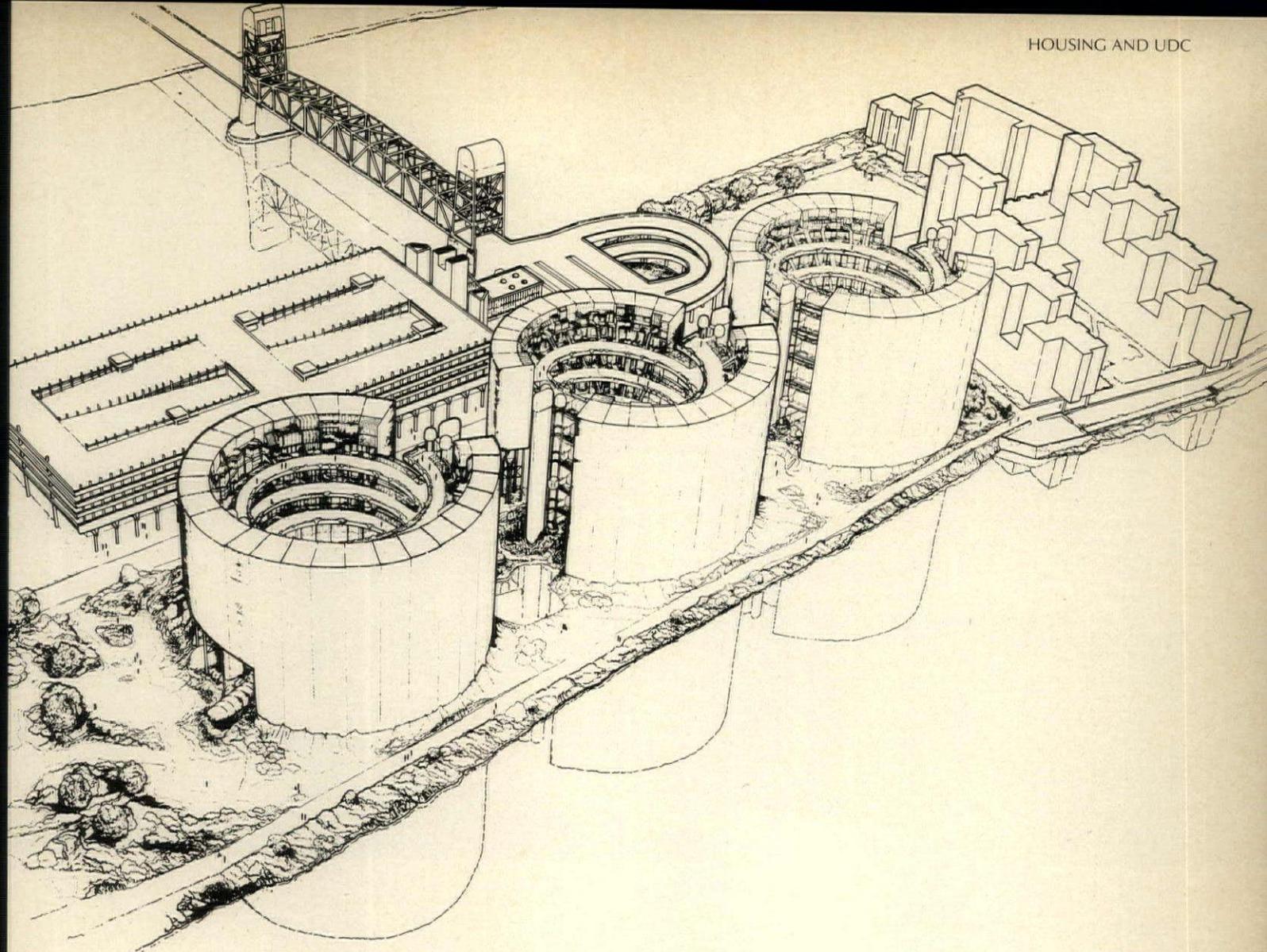
"All the elements of the design refer directly to the island of Manhattan and are meant to intensify the *genius loci*. A diagrammatic plan establishes the basic building envelope for 28 equal urban blocks, 60- by 120-feet by six stories high, containing 20 to 30 apartments of different sizes, orientation and plans.

"These building envelopes in turn define urban elements like residential streets, a mall (called 72nd Street Mall) and a central park.

"Within the basic envelope the architectural interpretation can vary within the context of three general building types—the loft space with an open plan, the standard space with a

fixed plan and the special urban palazzo (illustrations above left). The design provides only a number of possible variations (above); more could be expected as the plan reaches its final stage. The intention is to encourage a range of interpretations . . ."—O. M. Ungers, with K. L. Dietzsch, Jeff Clark and Arthur Ovaska (Ithaca, New York)





### Et in arcadia ego

"We are very aware of the unique condition of Roosevelt Island at this time. Contained within its very location and natural esthetic there is an heroic quality. It is seen and felt almost like an ocean liner that is moored off Manhattan.

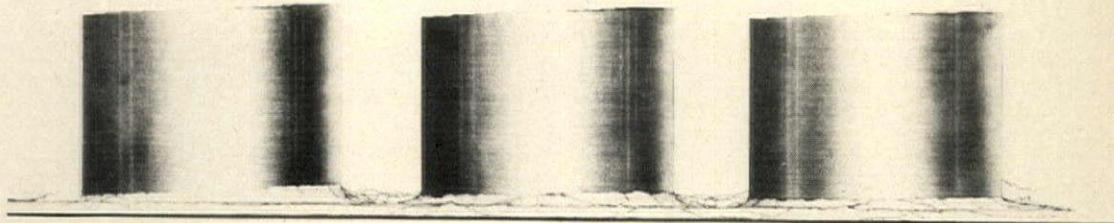
"Living on such an heroic place can be environmentally stimulating,

but should also be at a level of environmental tolerance and sensitivity far beyond the normal city block.

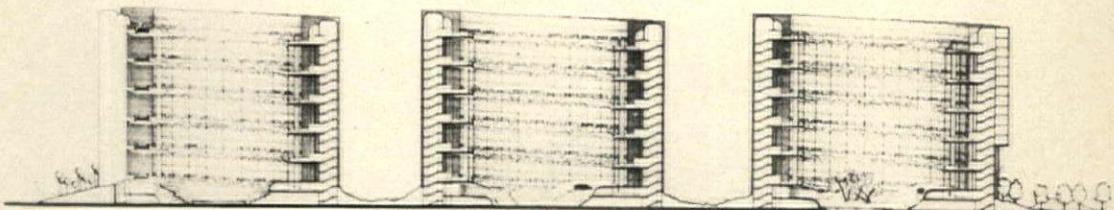
"We see the site as being both heroic and *Arcadian*. Having its strong face to the city and the water, and a gentle, localized and essentially verdant face into itself. We extend the park into the buildings; we encourage

trees and other growths to intricate themselves amongst the structures, whose outsides are the faces of sophisticated, industrial objects at the scale of a ten-mile vista."—*Peter Eisenman, Peter Cook, Christine Hawley, Ron Herron, Tom Heneghan, Ingrid Morris, Keith Priest, Penny Richards, John Robins and Gerry Whale (London).*

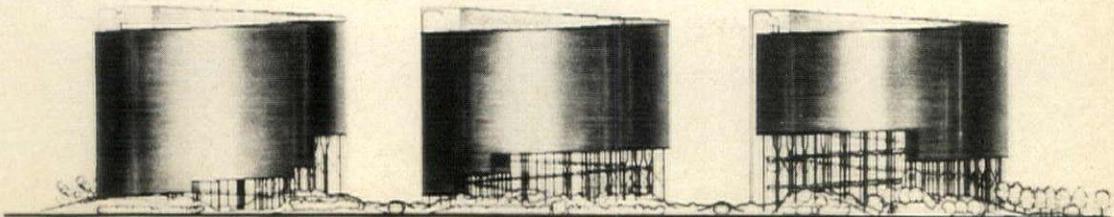
ELEVATION TO RIVER

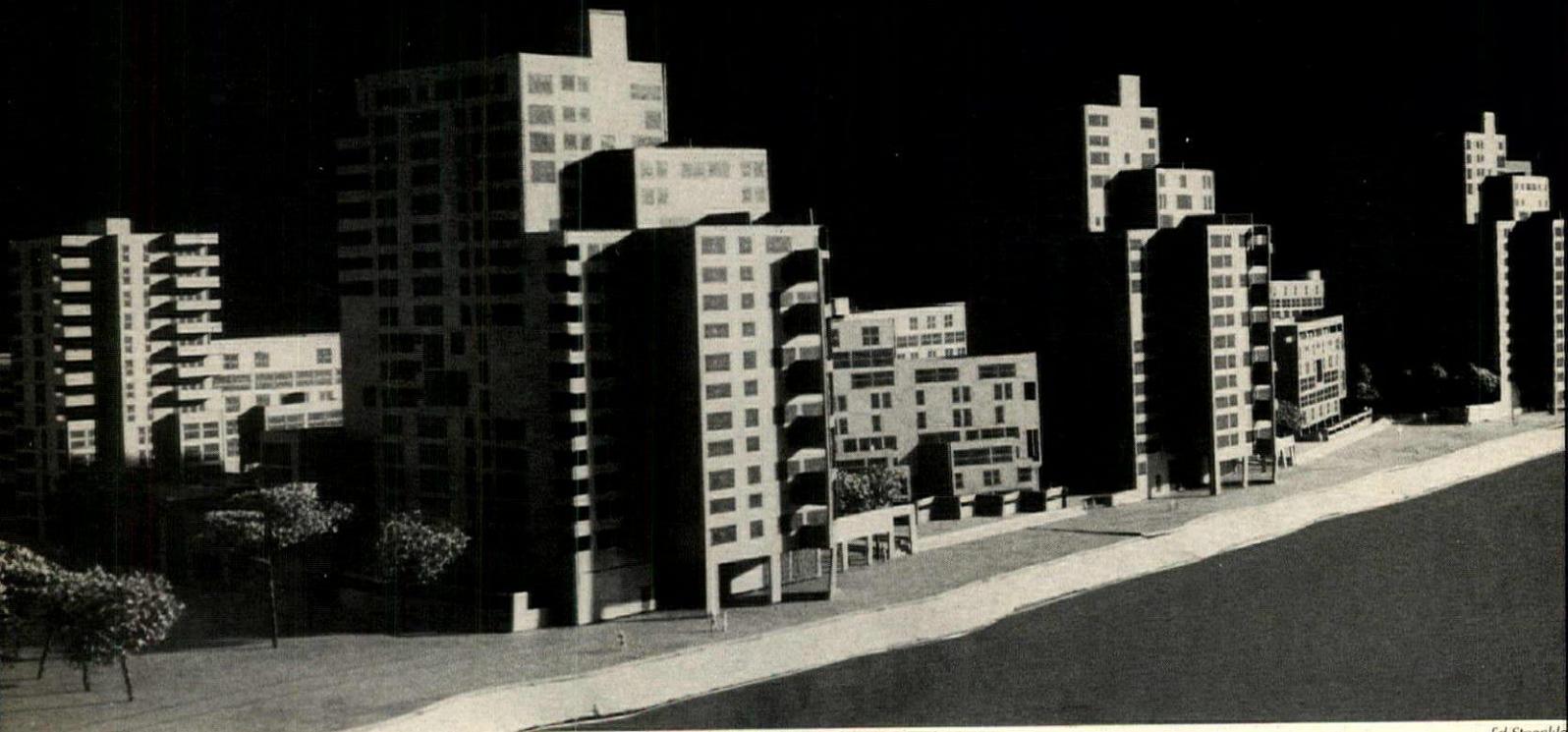


SECTION



ELEVATION TO MAIN STREET





Ed Stoekle

### Homage to Jacobs, Newman et al. (a winner)

"Our solution introduces a pedestrian street, called 'Octagon Way,' running through the site and continuing the diagonal offset of the street pattern in the earlier housing (site plan below). Octagon Way is the sole access route to the apartments in our scheme, as well as to the various community facilities. It is the focus of pedestrian life and the principal gateway to Octagon Park on the north.

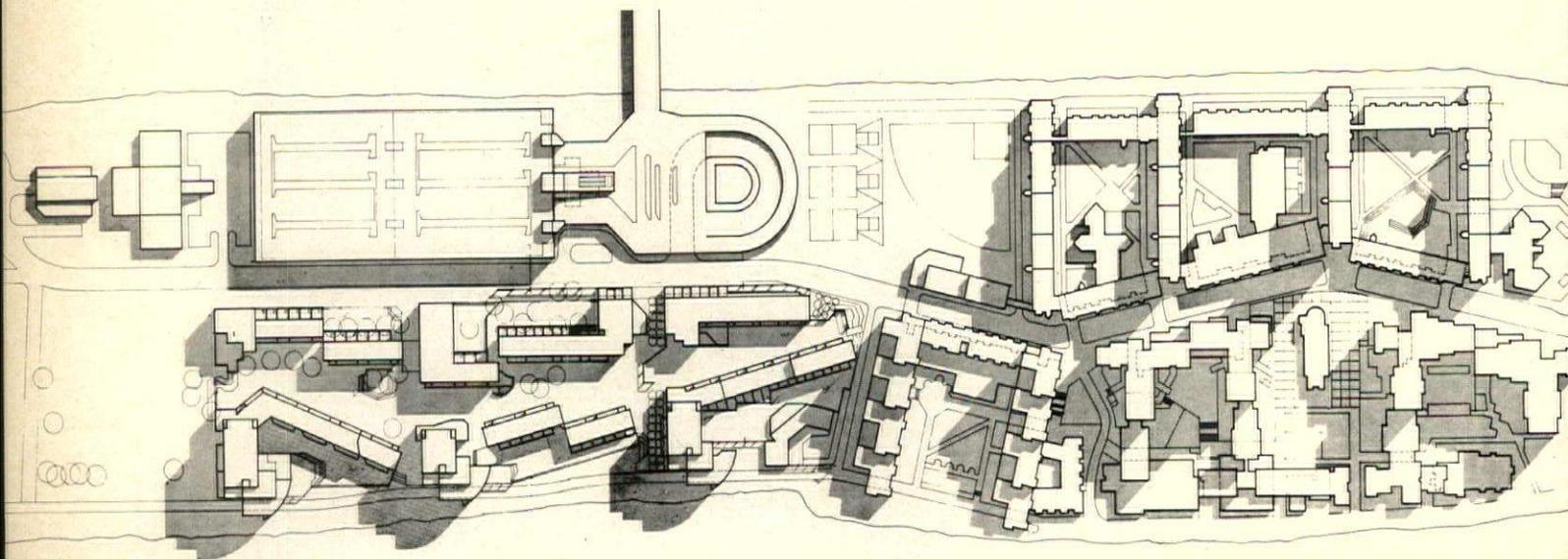
"At night it can be completely secured by gates, and electronic systems connect the sentry at the 72nd Street gateway to all the apartments. It is

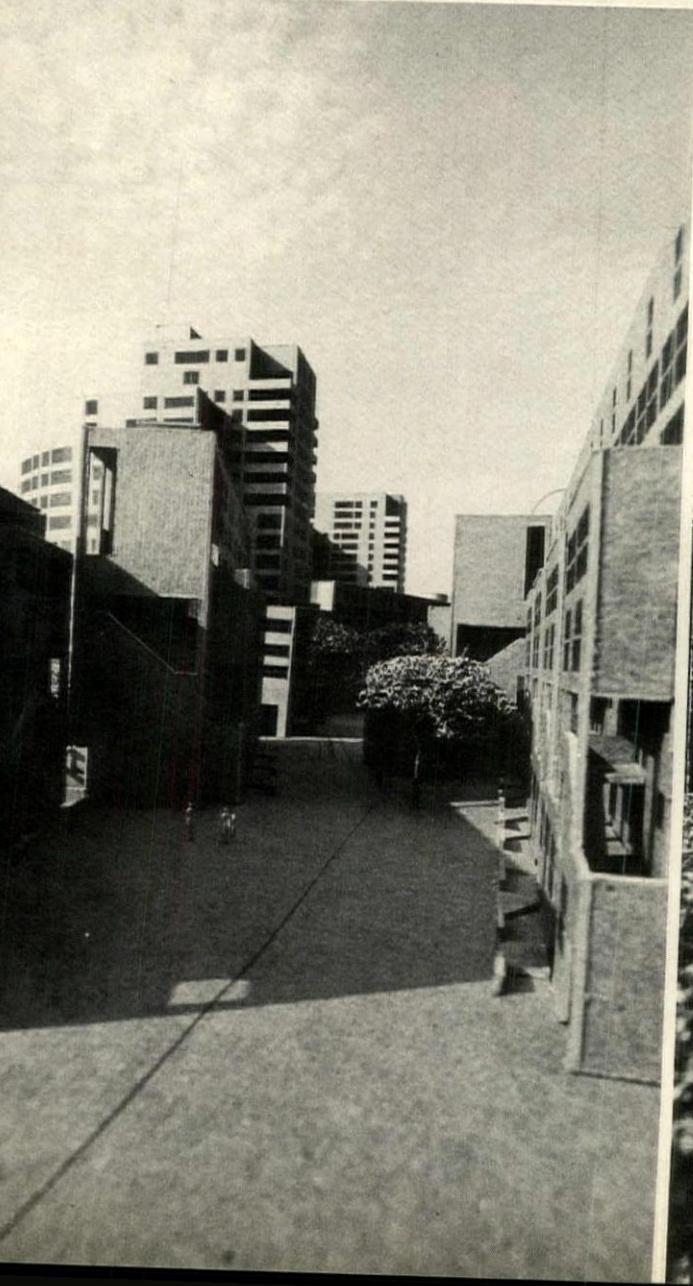
'supervised' by the townhouse apartments and by the outdoor gallery access corridors on the second and sixth floors of the low-rise buildings along the pedestrian street.

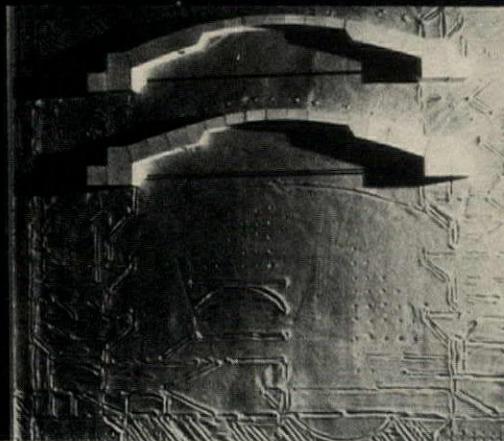
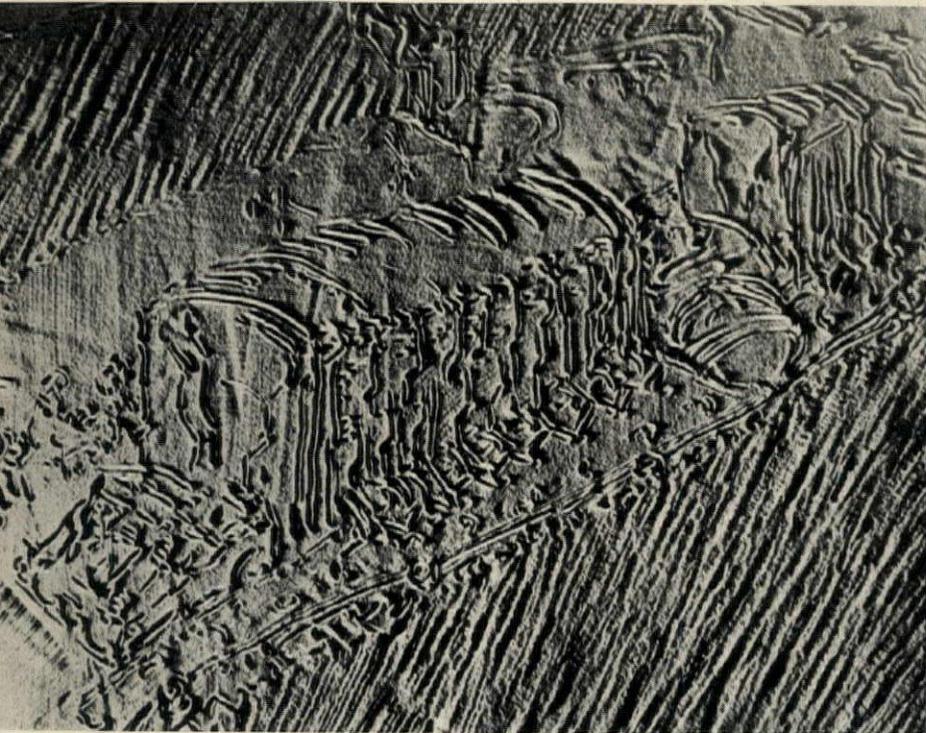
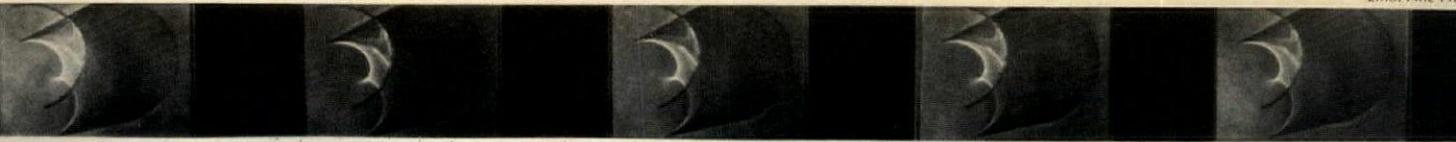
"The north-south axis of Octagon Way allows maximum penetration of light into the open spaces, and locating the towers at water's edge minimizes shadows cast by the western sun on the low-rise apartments and on Octagon Way.

"Our decision to enter the Roosevelt Island competition was based on our belief that the recent, revisionist

housing theory of Jane Jacobs, Oscar Newman and others remains unfulfilled in formal terms, and that urban multifamily housing design, at least in this country, remains largely alienated from its American antecedents, mired in pseudo-technological pipe dreams and trapped in either the last gasps of CIAM (from the Rue de Sevres to Main Street) or in a revival of the diagrammatic planning and dry formalism of the *Neue Sachlichkeit* (from Frankfurt to Brownsville in only 50 years!)"—*Robert A. M. Stern and John S. Haggmann (New York).*







The architecture is a composition of—

*The room*—extended in responsibility but identifiable as the origin.

*The walls*—thick enough to contain use; streets toward the interior, places to live toward the exterior; the elevations to state the riverside from the island side.

*The roof*—the source of light and air; the constructed independence of the arches to admit the sun in meas-

ured rhythms.

*The floor*—a mosaic of all public activity—a place to jog in the morning.

*The plaza*—the entrance to the room and the place of the tidal fountain.

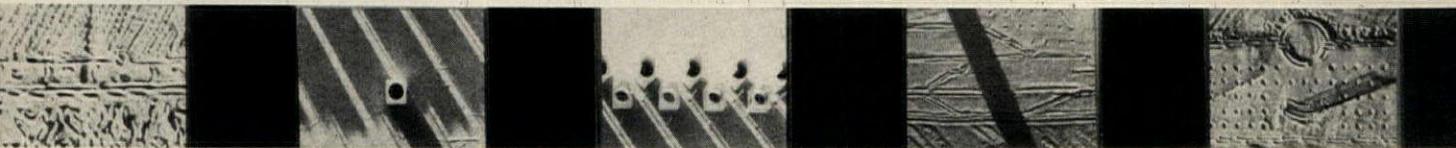
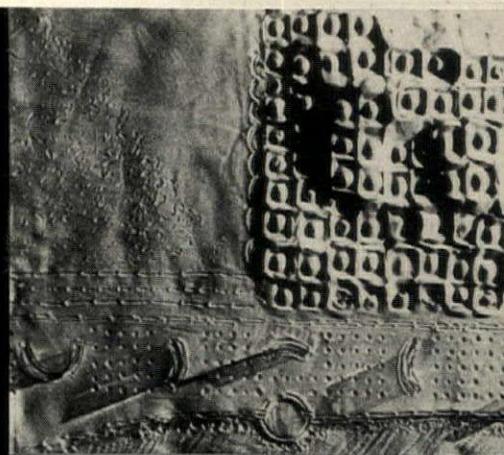
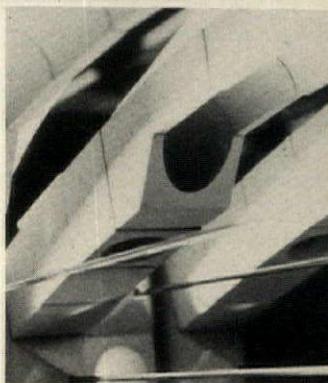
*The east staircase*—the entrance to the garden, the back door made larger.

*The windy walk*—the presentation of the river, great curved glass

quarter circles for no wind but free sight.

*The fountain*—the motion of tides made visible.

*The garden*—the room and the garden seem to inspire the presence of each other."—*Architecture Partnership, Jaan Holt and Richard Wilson, Jr. (Sparta, New Jersey), with the help of the fourth-year architecture students, Virginia Polytechnic Institute and State University.*



# AFTER THE PRATFALL: UDC Dusts Off the Debris of Default

Last December, Edward J. Logue, then president and chief executive officer of the nearly busted, politically badgered New York State Urban Development Corporation (UDC), was ensconced in an ancient English pub called "The Perch." The warm fire and eager talk notwithstanding, a chill crawled through a chink in the camaraderie, froze his thoughts on the UDC's problem back home and sent a flurry of speculation about the agency's much-debated denouement up every spine at the otherwise solid oaken table.

Logue—known among even his most admiring colleagues as "a real tough item"—had built the UDC, from its inception in 1968, on a foundation formed of the zeal and clout of long-term Governor Nelson Rockefeller who, being a one-man College of Cardinals, brought Logue in from his bravura days as head of the Boston Redevelopment Authority, following earlier successes in New Haven, and let him pose with powers that would have made Pope Sixtus, another noted builder, apoplectic.

By the first of this year, Nelson Rockefeller was in Washington as Vice President. His successor as New York Governor, Malcolm Wilson, was given short shrift by the election of Democrat Hugh Carey the previous November. The bonding and administrative prerogatives of the UDC had been cut back by recommendation of a Wilson-appointed task force.

With all of this, though, Logue could still emphasize, as he did that evening in England and a month later in hearings of the State Senate, that the UDC had gotten over 33,000 housing units off the ground, representing 115 projects, scattered among 50 communities across the state; some 30 civic, commercial and industrial projects; and three new towns—including Roosevelt (formerly Welfare) Island, located in the East River between Manhattan and Queens. This work, plus that in the "pipeline," accounted for almost all of the UDC's bonding authorization of \$2 billion.

"By the end of 1975," he said, "at least 75 per cent of this work should be completed and occupied. That is a track record of physical accomplishment which has not been equaled in this country since World War II—even with all the pressures of war-emergency housing. Remember what that stuff was like? Our stuff is built to last."

Despite this impressive volume, and despite projections that the UDC could build ten to fifteen thousand new housing units per year given the Section 802 rental subsidies created by the 1974 Housing Act, the agency was in the very position that Logue denied to be the case—"a wilderness of unknowns."

Shortly thereafter, one of the most dedicated, brilliant public servants of the post-war era was impelled to show himself the door, Logue's rapier badly blunted by wavering investor confidence in UDC bonds, the escalat-

ing rate of interest being charged by the banks, and the desire of the new Albany administration (while strenuously seeking to avert default on payment of debt), to use the crisis to prove its ability to deal with crisis—plus the desire, to install a post-Rockefeller roster.

It was not for nothing that Logue was often called the second most powerful man in New York State next to Rockefeller who, in setting up the UDC, wanted to strip the State's building program of bureaucratic red tape, speed up construction, improve design standards, and plan UDC projects as community catalysts.

To do this, the Legislature granted unprecedented powers—the right to eminent domain, the right to override exclusionary local zoning practices and outdated building codes and, most crucially, the right to float its own bonds. This last clinched Logue's almost epochal productivity but also, as it turned out, brought recurrent cash squeezes.

This bonding authority was based on a new premise for public debt called, technically, the "legislative make up" or, more popularly, the "moral obligation" approach. The notion originated with well-known Wall Street bond lawyer John Mitchell, back in the early 1960's. Designed to get around the business of securing a public vote for public housing, measures most usually defeated at the ballot box, the State Legislature agreed, without binding future sessions, to "make up" any deficit in the reserve fund set up to cover debt-service payments to bond holders. The Legislature isn't legally bound by this agreement but, so the notion goes, it has the "moral obligation" to pay off in a pinch.

In most other cases, the practice has been to issue bonds for a specific project, or set of projects, which then serve as collateral for the borrowed funds. The UDC took the unique route of synthesizing its revenues and risks into a kind of pool, so that the money it would have coming in from rental payments, plus the reserve funds covering the debt-service obligation, would be available in spreading the risk and thus minimizing the negative effects of projects that might go awry, either from the standpoint of excessive cost over-runs or unexpectedly slow rent-ups.

The advantage of this "spread of risk" factor was considered to be two-fold in nature. Instead of dealing with mercurial interest rates on a project-by-project basis, the UDC was attempting to protect itself from flights of fiduciary fancy by financing at a more average cost of borrowing, spreading the interest rate over a longer term. Secondly, this bonding strategy proved to be useful in securing funds to engage in commercial and industrial development. Shortly after the UDC was created, Congress sharply reduced the availability of tax-exempt bond money for such activity, but the UDC, in obtaining a variance at the IRS, was able to al-

locate ten per cent of these proceeds for it—money which would not have been available in adequate amounts otherwise.

The crunch point for the UDC developed because it could not raise enough cash through the sale of its bonds to carry out its construction program and, thus, engender the revenue required to pay off its debts.

The key question arises as to why the consortium of eleven banks, including six of the nation's largest, which earlier on went in for UDC bonds in a big way, gradually became so gratingly suspicious of the "risk" involved.

## The Federal "housing moratorium" started the slide in 1973

The single greatest reason, and one of the most tactless tactics in Presidential history, was the imposition, in January 1973, of a so-called moratorium on Federal housing subsidies. Denying massive amounts of money—in effect, potential rents—the Government automatically undercut the premise on which the UDC operated. With no subsidies, people could not as readily move into the agency's buildings, and with no people moving in, there could be no dependable flow of rents to carry on projects or to cover bonds.

In so doing, the Nixon administration, ostensibly to reflect upon and create a more cohesive housing and community development program, cut off the nose of rich investors to spite the face of public housing demand. Stormed Logue, "This is the most outrageous piece of public policy I have ever seen."

He should have stormed; for the moratorium cast dark clouds of fiscal uncertainty over the UDC and the banks. In connection with a bond issue in May 1973, the Official Statement acknowledged that, with the cutoff of subsidies, it was impossible to project whether revenues would be sufficient. A real blow.

This was complicated by a concurrent increase in the agency's bonding authorization from \$1.5 to \$2 billion—and this in a period when none of its projects were yet producing revenues. The banks might be forgiven for having wondered where all this was leading, especially since the official audit, completed six months after the end of the fiscal year on October 31, 1972, and in process when the moratorium took effect, underscored this.

As if this were not enough, the UDC's plans for residential projects in nine towns of Westchester County, north of New York City, were beaten back by citizen protest and, as a result, the Legislature, that same May, gave local governments the right to veto any project outside the boundaries of a city.

This gave the investment community pause again. Had the UDC lost ground at Albany and, with Rockefeller's signing the bill, at the Executive Chamber? The answer is no.

For one thing, the Legislature not only

made no effort to cut back the UDC's over-all powers but also strengthened them for the next fiscal period by granting a more generous appropriation than ever. What is more, by the fall of 1974, the agency had brought almost \$600 million of its projects into operational, revenue-producing status.

Unfortunately, this rivulet of revenue was not enough to assuage the banks and buyers of bonds. Nor could it wash away widespread doubt about the economy in a period of tight money, rampaging recession, inflation out of sight, lengthening shadows of unemployment, screams in the night from corporate chiefs and those of public utilities—not to mention the precarious state of the banks themselves.

The municipal investor, what with default and bankruptcy encroaching upon cities from every side, has become a most popular and catered-to fellow—even more so now than then. Any evidence of risk in such times adds to his reticence which, if overcome, shoots the rate of interest sky-high. The average interest paid by the UDC up to the summer of 1974 was 6.5 per cent; it zoomed to 9.3 per cent, coinciding with bond issues in September.

At this stage, and to create some semblance of stability for the UDC, it was proposed that \$190 million worth of projects be transferred to the State's Housing Finance Authority, long considered most credit-worthy and, it should be mentioned, based on the premise of "moral obligation" debt. The purpose was to reduce the UDC's borrowing needs by \$90 million and yield \$100 million in cash to work with. Even the Department of Housing and Urban Development got in the act, promising to beef up subsidies for the transferred projects. But HUD's action in December was caught up in bureaucratic cross-currents. The transfer did not occur. The banks, by this time being accused of trying to dictate State policy, feigned chagrin that State officials had not wrenched more arms to arrange it. It was also all the more reason to wonder, what with bond payments due imminently, whether the State would be similarly shy in meeting that "moral obligation" to bail the UDC out.

### Early in 1975, the plot not only thickened . . .

. . . it turned into a slinging of sludge.

On January 6, Governor Carey's representatives, in trying to persuade the commercial banks to cooperate, were told that the UDC should curtail its plans for upcoming or contemplated projects, including portions of those already in construction.

The banks railed against this, demanding that the State put up \$140 million to pay off the bond holders, who were due about \$105 million on February 25—at a paltry 4.7 per cent rate of interest!

Carey refused to approach taxpayers without a proportionate commitment from the banks. After all, were the taxpayers to be ripped off to rescue a few hundred private and institutional experts who were fully aware of the nature of both risk and yield in the "moral obligation" bonds they'd bought?

On January 8, Carey recommended to the Legislature that \$178 million be appropriated to cover the February notes and to keep the

UDC going through March 31. This amount was to take the form of a first-instance loan, at no interest—similar in nature to about \$48 million already outstanding at the time, and payable in installments over six years. Logue, to his credit, had committed the earlier loans to the agency's two new towns Upstate—Audubon near Buffalo, Radisson near Syracuse—this enabling an interest-free period of development.

The Legislature coughed up \$90 million finally, enough to keep the UDC staff limping along for a couple of months but, in the view of the banks, hardly convincing that the State's "moral obligation" would translate to cold cash on February 25, a black Tuesday when, it turned out, the UDC did default on the notes. Two days later, the 27th, it defaulted again—on a short-term loan of \$30 million.

In between, a mad Wednesday, Carey came up with the bail, pushing through the Legislature another agency, asking the banks for \$370 million in support, called the New York Project Finance Agency (PFA), designed to take over the mortgages on UDC jobs.

Deputy John Burnett replaced Logue as executive officer. And replacing him as chairman was Richard Ravitch, the urbane president of HRH Construction Corporation, of New York City, long known in building circles for his commitment to tight-ship financial management and—with such sterling achievements as the recently completed Waterside and Manhattan Plaza developments, located on the Lower East Side, designed by Davis/Brody—for his commitment to first-rate architecture as well.

Ravitch's being at the helm was strategic. For one thing, he could credibly man the pumps, get rid of the gratuitous gunk that the financial community had thrown at the problem-ridden ship, and allay fears, mostly unfounded, that the UDC had run aground because of indulgent spending. In fact, former Governor Wilson's task force, looking hard at the issue of UDC management, was resounding in its praise of the way Logue and his crew had handled things.

### New hands, new money, new hope

The creation of the PFA bought time and brought in \$280 million in loans for construction. \$105 million was also provided to make good on the defaulted notes, obviating suits that might well have led to declaration of bankruptcy. The PFA will also finance itself on "moral obligation" bonds, but will differ from the UDC variety in that PFA's are to be backed by revenue from specific projects.

The \$280 million, however, was short of the estimated \$370 million needed to complete work by 1977 on some 20,000 housing units under construction.

The bail was really set by the underwriting banks, which agreed on March 26, after a month of coolness, to lend the PFA \$140 million at 8.5 per cent—the same amount they had demanded the State put up as a sign of "good faith" in their early dealings with Carey.

The same day, the Legislature added \$20 million to its earlier appropriation of \$90 million for operating expenses—both actions coming at the very end of the 30-day grace pe-

riod following the default on February 25.

Another \$140 million, adding up to the \$280-million figure, was finagled from the State's Property and Liability Insurance Fund (also at 8.5 per cent)—repayment on both loans to begin in October 1976.

The Legislature allocated \$80 million to cover interest payments on \$1.1 billion in bonds not in default, and it added a supplemental \$8 million for operations.

Not surprisingly, this all led to a cut in UDC staff since spring, with very well-informed heads rolling every which-way, bearing witness to the epidemic near-sightedness that recurrently afflicts politicians when dealing with anyone *else's* personnel needs.

In all, \$480 million was laid out which minus the \$135 million to cover the defaulted notes and loan, left \$345 million for "built out"—any shortage to be made up by PFA bonds.

Last December, when HUD committed itself to an increase in mortgages to cover those projects that were to have been transferred to the Housing Finance Authority, HUD also contracted with the UDC to increase subsidy commitments by almost \$15.3 million per year with respect to *all* 115 jobs. Over the 40-year mortgage period involved, that commitment translates to almost \$611 million. For anyone who hadn't (or hasn't) noticed, the Nixon moratorium is over, and fresh funds are there for agencies prepared to make the most of them by dealing forthrightly with HUD, as Logue's UDC always did, in building conduits for the most creative and productive use.

In this context, the PFA solution to the crisis last winter and spring, with the aim of completing projects underway, has yet to yield any sure sign that the politicians, wailing as they did against the 1973 cut-off, understand that the UDC must be beefed up as to staff, not bludgeoned, to maximize the effect of the 1974 Federal allocation. Half of the agency's former 500 employees have been let go.

It was the renewal of Federal assistance which encouraged the commercial banks to loan that \$140 million, and if this kind of collateral is good enough for the banks, it might be suggested that it is good enough to reassure Albany in making future appropriations.

Ravitch, who has been characteristically congenial but cautious in his dealings to secure future financing, and certainly so in his statements about the avenues being pursued, has his feet to the fire and to some options.

### There are plenty of options still untapped

One of these is the savings banks, and the one which Ravitch is pursuing most ardently. Last winter, in fact, a sizeable group of them indicated an interest in buying \$275 million worth of bonds if backed by convincing projections of rental income from completed projects. Technical arrangements impeded the offer at the time, entailing an authorization measure, but the agreement between HUD and the UDC in December, just mentioned, was pretty convincing evidence that such income would be available. On May 20, the savings banks and the PFA signed a credit agreement requiring final commitment next February for the pe-

chase of the bonds. Also on May 20, the commercial banks turned over the \$140 million they had pledged on March 26.

Not just for the UDC, but for housing and community development work generally, the savings and loan institutions comprise a relatively unmined resource to shore up center-city programs but, typically, their funds have been invested, if at all in construction, outside our urban centers in "safe" suburbs.

Another option for Ravitch might be the massive pension funds made up of periodic payroll deductions. These add up to billions of dollars, most of which have been invested outside New York State or in common stocks.

On the latter score especially, the portfolios have been pulverized by market conditions, and Logue correctly urged Carey to foster legislation that would put more of these public trusts toward the support of the State's own obligations—a recommendation not being pursued. "In this way," Logue said, "the State would gain some independence from the money markets, put our own men to work"—some 8,000 are earning their bread and butter on UDC sites—"and build our own economy."

This idea deserves serious thought and action. The UDC's crisis, which is by no means over, could at the least serve to pry open previously closed (in some cases outright aloof) investment sources—a precedent benefitting other agencies, cities and states.

With respect to the larger issue of whether or not our existing communities, warts and all, merit redemption as convenient, personable places for everyday living, the UDC situation forces the hand of the financial community toward keener concentration on helping reweave the fabric of business districts and urban neighborhoods—the hand of the S & L's, the commercial banks, the public trusts, and concentrations on *localized* investment accruing to the benefit of local citizens.

Recent efforts in several cities, states and, in fact, the Congress to discourage the so-called red-lining of large swatches of cityscape by banks is part of this trend.

So even if the UDC had been lost, or were to be reduced to a shadow of its once-splendid self, which right now won't likely occur, the troublesome questions it has raised about money markets haven't been lost—least of all on those Wall Street boys who had their pants cared off last winter. If Ravitch can pursue those questions far enough in his efforts to cover the UDC's work through PFA issues next year, he will inevitably be selling, more than bonds, another kind of "moral obligation"—that is, he will be selling a new set of strategies by which other sources of money can fulfill an obligation to participate in the business of building decent, durable housing, and make money off their "morality" to boot.

One would hope that the lead-time to the February commitment of credit doesn't shorten so much longer, and that the savings banks can become a saving grace.

As harrowing as the UDC saga has been for all concerned, and as big as the numbers are, it is of serious concern to government officials, financiers and, certainly, to architects, developers and builders across the land,

for it shook the foundations of the securities market seismically and, need it be said, sabotaged a lot of building plans.

### What can be learned from UDC? Lessons for everyone

About 30 states—New Jersey, Massachusetts, Michigan, Illinois, are the next four largest after New York—have public agencies with construction responsibilities that use "moral obligation" bonding. Over-all, the figure totals more than \$7.5 billion. So the vortex of events that tossed the UDC around was bound to erode confidence elsewhere.

The shocks spread as well to the field of Federal-agency securities, totaling more than \$8.5 billion and though there is no direct connection, as emphasized by *The Wall Street Journal* in reflecting upon the matter, loss of confidence tends to create connections of its own—witness the ripple effect of New York City's fight to survive bankruptcy, undercutting, as it did, the integrity of municipal securities in every trading house around.

Can anything be learned of a preventive or curative nature by other states and agencies? Is "moral obligation" bonding a lot of bunk? And if it is a lot of bunk, why, as of last December, were 26 of those 30 states financing housing projects this way? Was the UDC's tactic of selling "general obligation" bonds, as opposed to the more routine "project" approach an undue risk, demanding that a wide-gauge siphon be permanently rammed into the side of the bond market to keep the UDC construction cup brimming?

The difference between the UDC and the approach of other states is that though it too employs a capital reserve fund, covering one's year's security for each bond issue, and though it too has the "moral obligation" of the State to make up any deficits in the reserve, the UDC offered no other form of back-up.

For example, Virginia and Missouri finance only those projects qualifying for FHA insurance which, in the case of default, takes care of the bond holders. In some states—New Jersey, Connecticut, even other New York agencies—FHA mortgages are insisted upon as a kind of collateral that recipients of funds must put up before the money is advanced—often to the tune of 120 per cent of the loan amount. Michigan maintains an escrow fund which is tapped only when projects are ready for rental, thus trying to reassure bond buyers that reserves, pegged onto specific jobs, will sustain adequate return.

With investors more wary than ever before, any semblance of back-up that makes a state's "moral obligation" more binding, or at least *seem* that way, is a definite plus. Now, because of last winter's crisis, all of the agencies are having trouble marketing their bonds at volume. And the UDC, dependent as it has been on a flow of Federal subsidies, the spigot shut on and off by uneven administration policy, was not even in a position of having any escrow to publicly eat.

To pay off what it owes, the agency must keep building; to keep building, it must keep borrowing; to keep borrowing, it must rent those units; to rent those units, it must have dependable subsidy.

The thing is, the broad premise of such subsidy, which seemed like a Golden Ring in 1968, pulled the rug out from under the UDC's very obeisance to it—a setting sun, to borrow from Victor Hugo, which urbanists of the 1960's mistook for dawn.

With the resurgence of subsidy because of the 1974 Housing Act—its Section 802 having been developed using the UDC as a model for the nation, no less—the premise of its operations has been partially restored. By no means, however, has investor confidence been restored, and this has to do with general forces, impinging upon a specific set of circumstances—forces that have emanated from the entire economic system and, in turn, eroded the *system's* basic premises.

Both the New York Stock Exchange and The Federal Reserve have released studies that project an ominous shortage of capital, with stockpiles of air building high toward the 1990's. Major utilities, for example, are already ham-strung, and in these crucial energy-sapped decades, it is difficult, even demoralizing, to try to discern where the cash or credit are going to come from—not to build new facilities or develop new technologies, but simply to maintain present facilities.

Cash can be very cold, indeed, and the plight of the UDC—once one of the nation's largest and most-touted custodians of credit—is but a glimpse of the fiduciary fail-safe which American society is fast approaching.

Logue may have been a little wide of the mark when he suggested that the banks had played "stick-em up" with the UDC, simultaneously demanding curtailment of program and escalation of interest rates. On the other hand, the "stick-em up" syndrome pervades investor and underwriting tactics across the board—especially when it comes to issues bearing upon human needs.

It has been ventured by many well-put-together experts in the housing and development field that the UDC's mandated emphasis on urban areas carried with it an inherent risk.

An excellent article last April by Robert C. Alexander, an associate of McKinsey and Company, in the *Journal of Housing*—good orientation about the lessons of the UDC for other state housing agencies—pointed out that the Council of State Housing Agencies, following national surveys, had confirmed that around two-thirds of construction carried out by these authorities have been for middle- and moderate-income families in *suburban* locations. The UDC's mandate was for moderate- and low-income people, with a customary rent-up ratio of 70 per cent moderate, 20 per cent low income, 10 per cent for senior citizens.

### What about the "cost" of quality and all that "social stuff?"

The UDC has also come in for criticism by housing experts for its insistence on thoughtful planning and fine architectural design, showing a kind of social and cultural recidivism garbed in a concern for cutting costs.

The fact is that the UDC's stringent scheduling and monitoring of jobs, with design part of rather than peripheral to the process, kept cost over-runs modest and produced extremely

decent places to live.

Logue was able to demonstrate that good architecture amortizes in more than just the matter of revenue return—that amortization consists also of having a quality environment that can pull people in, keep them there, and impel community participation.

The premeditated mediocrity of most public housing in this country has not only produced cost over-runs. It has produced long-term agonies of maintenance, shot mortgage payments to smithereens, and encrusted human life with a boxed-up ennui which Kafka would have been hard put to emulate. What do the housing experts say when one of their built-within-budget behemoths bite the dust of bankruptcy or outright abandonment?

Another variation of criticism has been about the UDC's frequent provision of community services as part of the development package. Daycare centers, schools, meeting rooms, stores and shops, even space for vocational and health-care counselors—such facilities, for the UDC staff, were thought of as being supportive of daily life, natural spin-offs of the business of building shelter.

The subsistent character of most housing projects is the result of not providing such spin-offs, even in a modest way. But all of this "social stuff," as one prominent New York City housing official put it, costs more, voicing a viewpoint which seems just to hang on, and on. Unfortunately, these same officials are reluctant to discuss something more important, even in hard economic terms, than what "costs more"—and that is what costs *longer*.

The provision of "social stuff" tends to engender long-term economies because it accommodates human needs that are at once immediately practical and heart-felt.

Some may cringe to consider it, but such things as daycare count. They count for a lot. Which is why the UDC worked with a kind of arithmetic far more exacting than that used by officials who pat themselves on the back for having built room sizes, or closet space, at or above specified standards. The arithmetic was one of quality, and to equate financial excess with "social stuff" is to distort the reasons for the UDC's cash crunch, not to mention undermine its thrust toward qualitative accomplishment within strict time and cost controls.

As chief executive John Burnett says, "Housing is full of risk, sure, but you have to look at what risk is. Is it risky to take care of daycare and schools and shops—things which enhance the attractiveness and liveability of residential projects? I don't think so. Given the UDC's bonding authorization, its mandate from the Legislature, and a well-coordinated relationship with the Federal subsidy program, we would have been adding to the margin of risk by *not* taking care to try to make our projects well-rounded, inviting and, of course, rentable by being worthy of the people we were created to serve."

#### **But the lenders still cry conservatism—short-run conservatism**

It has been about a year now since Congress enacted the benchmark housing bill of 1974, and that bill placed major housing responsibility with state housing and development

agencies like the UDC. John Burnett, at Logue's instructions, practically lived on Capitol Hill while the measure progressed.

At just the time that the UDC was coming out from under the blow of the 1973 moratorium, its first batch of buildings beginning to yield revenue, the new bill to take effect, Logue found his agency and himself looking down the loaded barrel of lost confidence on the part of investors.

In April of 1974, for instance, it had marketed \$200 million in bonds at 7 per cent; the following September, as already noted, the rate was up to 9.3 per cent—and a number of major investors had begun to pull out, complicated by the withdrawal of one major underwriter, the Morgan Guaranty Trust Company, from both the April and September offerings.

With the ratings reduced, the money market turned from "the bland acceptance of assurance that, if there were a shortfall, the State would make it up," according to Frank Smeal, executive vice president of Morgan.

In comments before a State Senate hearing last January, Smeal pointed out that the UDC itself, in a financial statement, had projected that its operating and debt-service expenses would exceed income until 1981 and, obviously, new construction would extend such a situation beyond then.

He insisted that the withdrawal of investor confidence had little to do with distrust in the UDC's management except to say that it was a serious decision to continue building when the possibility of getting positive cash-flow sooner is squashed by inflationary costs or the technical and legal problem of setting rents at a level to cover such costs.

In making the serious decision to carry on its work, and not just finish off what was already in construction, the UDC came up against the underwriters' demand to Carey that the program be curtailed. In effect, the banks were demanding an arrangement where each project pay the freight of investor faith, turning away from the "general obligation" premise.

Logue's documentation of the UDC's deeds, its ability to get housing out of the pipeline in 90 to 120 days after subsidies and mortgages are assured, its admirable fast-track system to quicken the pace of securing financing, construction and occupancy—none of this sat at all well with the banks who saw all of this as evidence that the UDC, while meeting its mandate, was equipped to release a deluge of demand for funds which they were not about to shoulder.

Logue, for his part, called this latter-day concern for the UDC's management mechanisms a "smoke screen". And so it would seem to have been. While refuting a social priority, given the muscle of public policy, the banks seemed to be dictating a denouement to which they had been a willing party. While demanding a more "conservative" approach at the UDC, the men in the corporate board rooms should have been "conservative" themselves and, being given to dictating to or influencing policy, should have gone to Washington in 1972-73 to change Richard Nixon's mind about his "conservative" decision to suspend subsidies. Perhaps it seemed too radical a method for the banks to get their money back

as soon as they say they wanted to.

One is put in mind of a comment by Harold Jensen, the group vice president of Real Estate at IC Industries in Chicago: "The problem in the development field today is one which afflicts every corner and cubic inch of society. The economy is not being looked at as an integral thing. A decision is made about one issue here, as if it were the thing. Another decision is made about another issue there, as if it were the thing. But there is no policy or procedure for really following these seemingly isolated threads through to determine potential points of connection."

The UDC saga finally points up what is perhaps the most germane issue. Will local authorities, setting local priorities, nurtured by financial assistance from the Federal Government, be able to depend upon the private money market for partnership? Or will the private money market paint itself into its attitudinal corner so far that the affairs of cities and states will again have to revert to direct public support and direct Federal control?

Chesterton's opinion of the future of Christianity works well to speculate on the future of capitalism in facing up to society's needs: It's not that it has been tried and found wanting, so the English writer ventured—it's just that it's never been tried.

The UDC pioneered in a great deal, and hopefully will bounce back to help etch a template for housing policy. If it was found wanting, it can be accurately said that its financial shortfalls were the shortcomings of faulty perspective in the nation's handling of the subsidy issue, and in the ethic of "enlightened selfishness" so brazenly evident when the loan windows get rolled up in times like these to a but a crack; and, of course, interests rate along with them.

"What is New York State going to do if the UDC goes under?" someone asked Edward Logue last winter. "It's the only game in town."

"Damn right," he said.

And well he might have, for though things went askew, he did not create a personal fiefdom, as strong a character as he is, but an institutionalized, flexible machine that demonstrated the ability of a state development agency to shorten the building process—i.e., from the start of construction—from the usual period of three to seven years down to about 18 months.

Because of fast-tracking, it further demonstrated that a great deal can be done simultaneously—planning and design, the arranging of private financing and the commitment of subsidies, land acquisition, negotiations with contractors and builders.

The pay-off has been quality design in great volume, a lot of talented staff members who didn't know which way was up, with all the work to do—and the handiwork that Richard Ravitch is now doing to salvage Logue's "damn right" legacy.

In all events, the Urban Development Corporation set fresh solutions and strategies in motion, establishing a benchmark by which other efforts, across the country, will be measured for a long time—having become the only game in most every town where a commitment to better building still resides.—William Mar

## Fire protection system for an atrium satisfies code intent

by Donald J. Boehmer, P. E., Rolf Jensen & Associates, Ltd., Fire Protection and Building Code Consultants

An atrium is an anomaly as far as many codes are concerned: How can a 1-hour fire requirement be met when it has no floors or walls? Toronto architect Raymond Moriyama and his consultants worked with local and Ontario authorities to develop a fire protection system for the Scarborough Civic Centre that would provide equivalent protection to what code ordinarily requires.



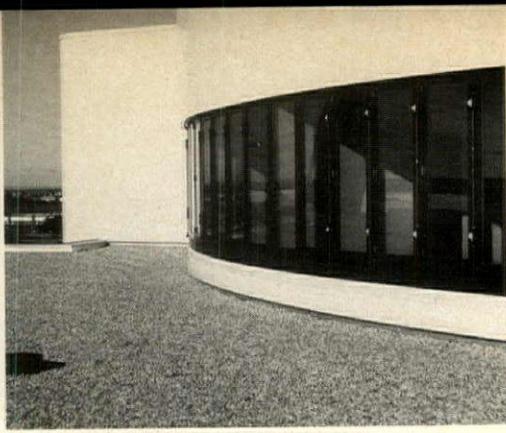
Because all levels that open to the atrium can be exposed to a single fire emergency, the evacuation plan was based on simultaneous exiting of all occupants. Doors at the bottom of the enclosed stairways open directly to grade. Stairways are pressurized by fans in the event of fire. All office areas are fully sprinklered, and a gravity venting system was designed to draw smoke from the atrium and also from the area involved if a fire occurs.



Robert E. Fischer



1



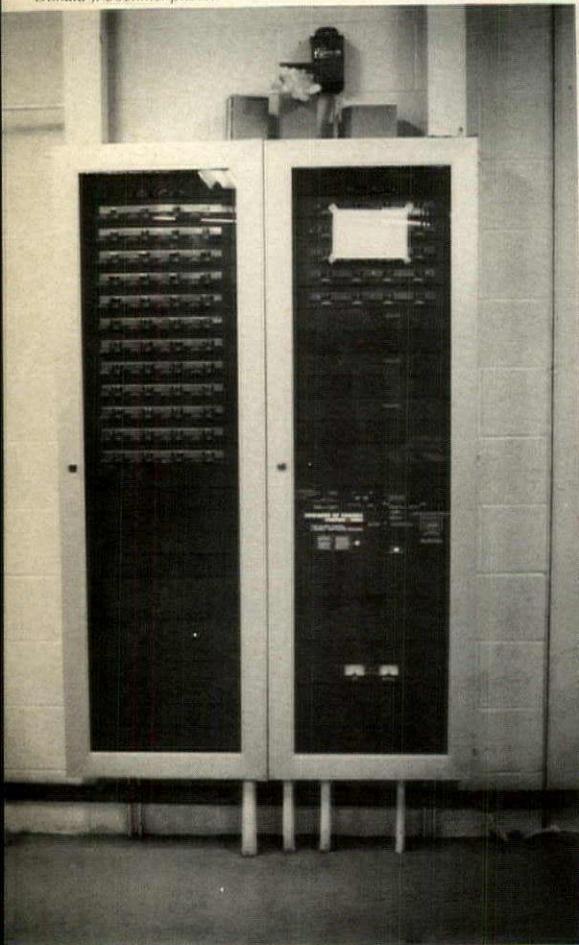
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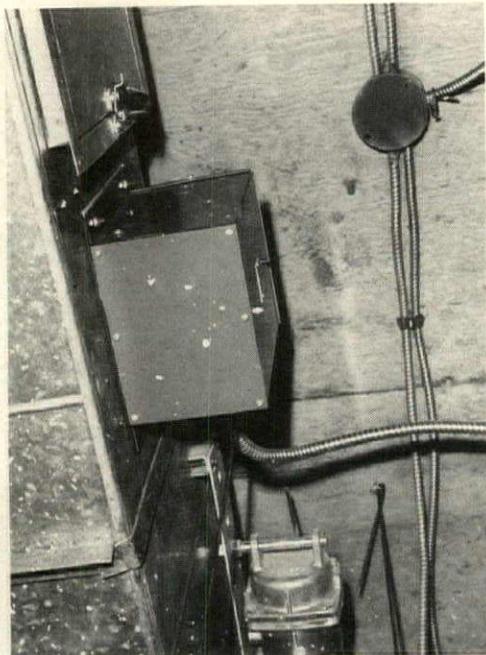
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**Fire-detection and alarm-indication system:** 6. ionization detector at return-air duct; 7. annunciator (alarm-indicating) panels at control center in basement mechanical/electrical space; 8. annunciator panel at entrance to building with indicator windows for alarm conditions (top of panel), and key-holes, together with indicator lights, for fire department control of smoke dampers (middle of panel); 9. indicating and control panel for halon fire-extinguishment system for computer space.

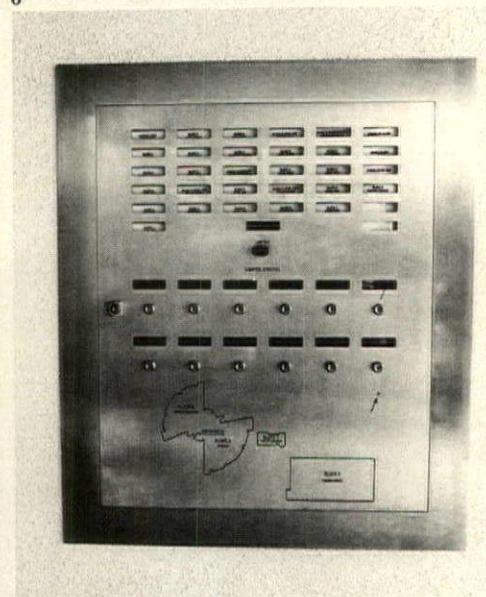
Donald J. Boehmer photos



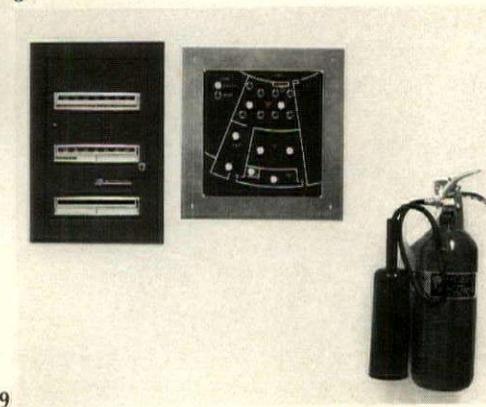
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The principal design objective of the Scarborough Civic Centre was to convey the concept that the municipal government is accessible to the public. To achieve this objective, the architects, Raymond Moriyama, Architects and Planners, adopted an open interior design that incorporated an atrium. In this manner, no physical barrier exists between the five levels of municipal offices and the entering public.

Although the open atrium space ideally serves the design concept, it provides a potential avenue for the spread of fire and smoke throughout the interconnected open levels. To prevent such vertical fire and smoke spread, the Scarborough Building Code (National Building Code of Canada) normally requires that a building of this height and area have a continuous 1-hour fire separation between floor levels. Thus, with this building, there was a major conflict between the building code requirements and the design concept.

A design team put together by the architects was charged with the task of implementing the design without compromising the safety objectives of the code. In addition to the architects and their clients, the team consisted of: structural, mechanical and electrical engineers; management consultants; and fire protection consultants.

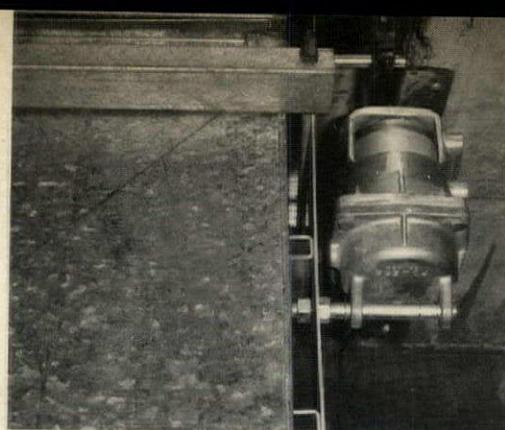
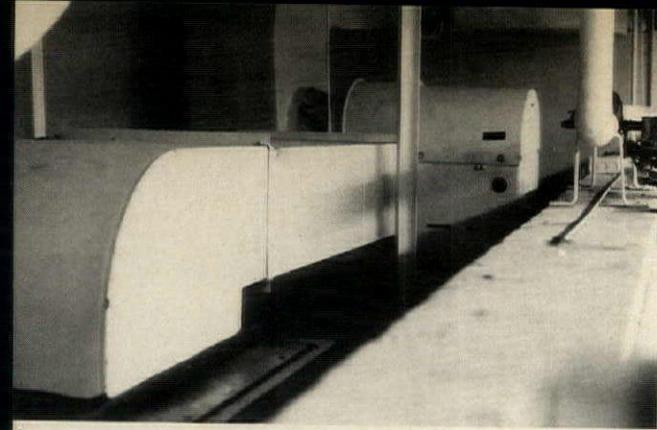
The fire protection consultants analyzed the building code to determine the degree of safety intended by the code requirements. This analysis was used to develop performance objectives to achieve code compliance by "equivalent means." These performance objectives were evaluated by other team members, who incorporated them as design parameters in their respective areas of responsibility.

The proposals developed in this manner were presented to the Scarborough Building Department, the Scarborough Fire Department, and the Ontario Ministry of Labour, who were the authorities having jurisdiction. It was their willingness to evaluate equivalencies objectively that made the achievement of the design possible.

The essential elements of the fire protection program developed were:

- fire containment by automatic sprinklers;
- efficient exiting by provision for simultaneous exiting of building occupants and the use of emergency communications systems;
- smoke evacuation by gravity exhaust.

Without the fire barrier between levels, fire containment could have been achieved by: elimination of all combustible materials; elimination of all ignition sources; or provision



**Smoke-control system:** 1. air-intake windows at grade; 2. smoke-vent windows at top of atrium; 3. rooftop smoke vent; 4. stairway pressurization fan and associated ductwork; 5. motor-operated automatic damper on return-air duct at duct shaft. (Sequence of events after smoke detection is described in the text.)

of a fire-suppression system. The first two choices were not practical or controllable to the degree necessary to achieve the containment objective; therefore, complete automatic sprinkler protection was specified. Since the successful operation of the sprinkler system was critical to the safety of the building and its occupants, the following design parameters were specified to improve its reliability.

- complete electrical supervision of system components;
- two connections to the city water main;
- emergency power to the fire pumps.

Furthermore, because the elimination of the fire barrier also provided the potential for uncontrolled smoke spread to occur between open levels, the following objectives were included in the fire protection program:

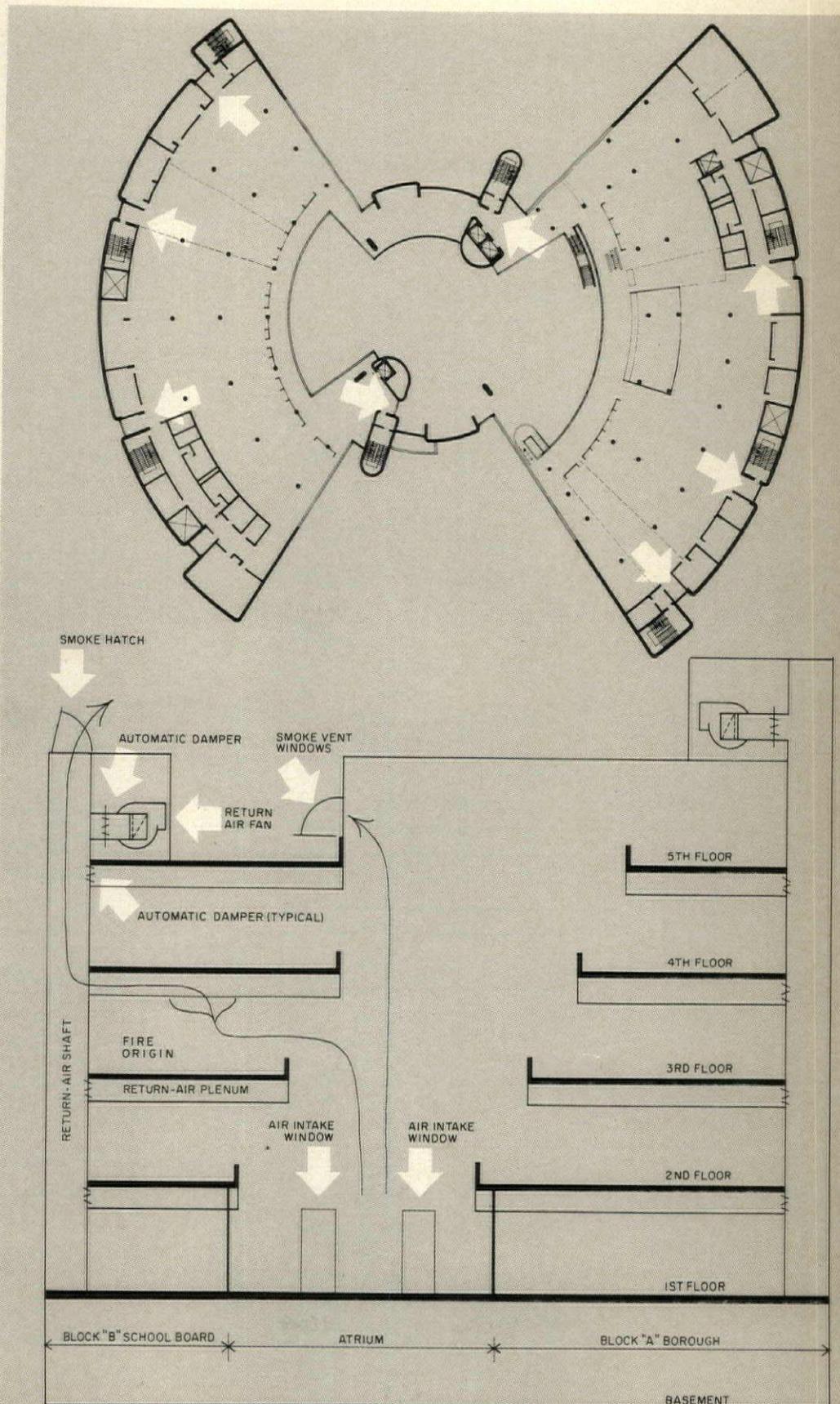
- total evacuation of the building must be reasonably ensured in a fire;
- smoke removal must be possible in order to limit smoke damage and allow firefighter access in the building.

Since all levels of the building that open to the atrium can be exposed by a single emergency condition, the evacuation plan for the building was based on simultaneous exiting of all building occupants. To accomplish this, stairs were sized to accommodate the total population of all levels on an accumulative basis. These stairs can be pressurized to provide a smoke-free path to the exterior. Nearly all stairs have vestibules on each floor and discharge directly to grade.

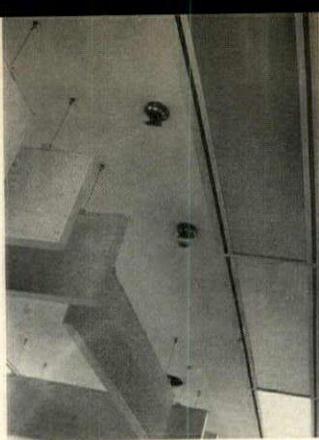
Under these conditions, the Scarborough Civic Centre is comparable to a larger one-story building where simultaneous evacuation of all occupants to the outside is possible.

The smoke exhaust system was designed to provide a suitable environment for normal firefighting operations in the building and to limit anticipated smoke damage from a fire condition. The system consists of gravity venting at the top of the atrium and at the level where the smoke is detected. The system is activated by an alarm signal from a products-of-combustion detector. These detectors are located at each inlet to the return-air shafts on all levels. The sequence of operation on an alarm (see atrium section) is:

- the stairway-pressurization fans will start;
- the supply- and return-air fans will shut down;
- automatic dampers to the return-air fans will close, and a roof hatch on top of the return-air shaft will open;
- an automatic damper at the return-air shaft opening on each level will close, with the ex-



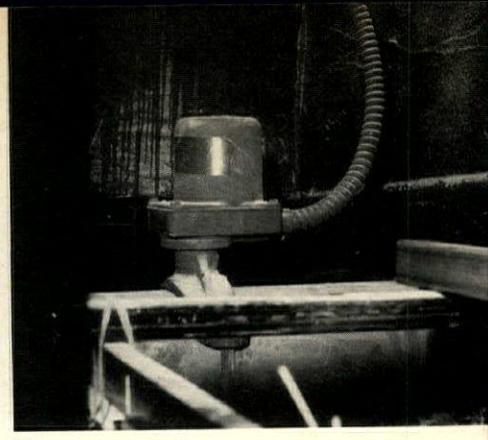
**Components of extinguishment systems:** 10. halon nozzles for computer room—"dry" system using Freon will not damage computer, as water might; 11. sprinkler head used in office spaces projects from between acoustical panels; 12. flow switch for the sprinkler system for a typical floor.



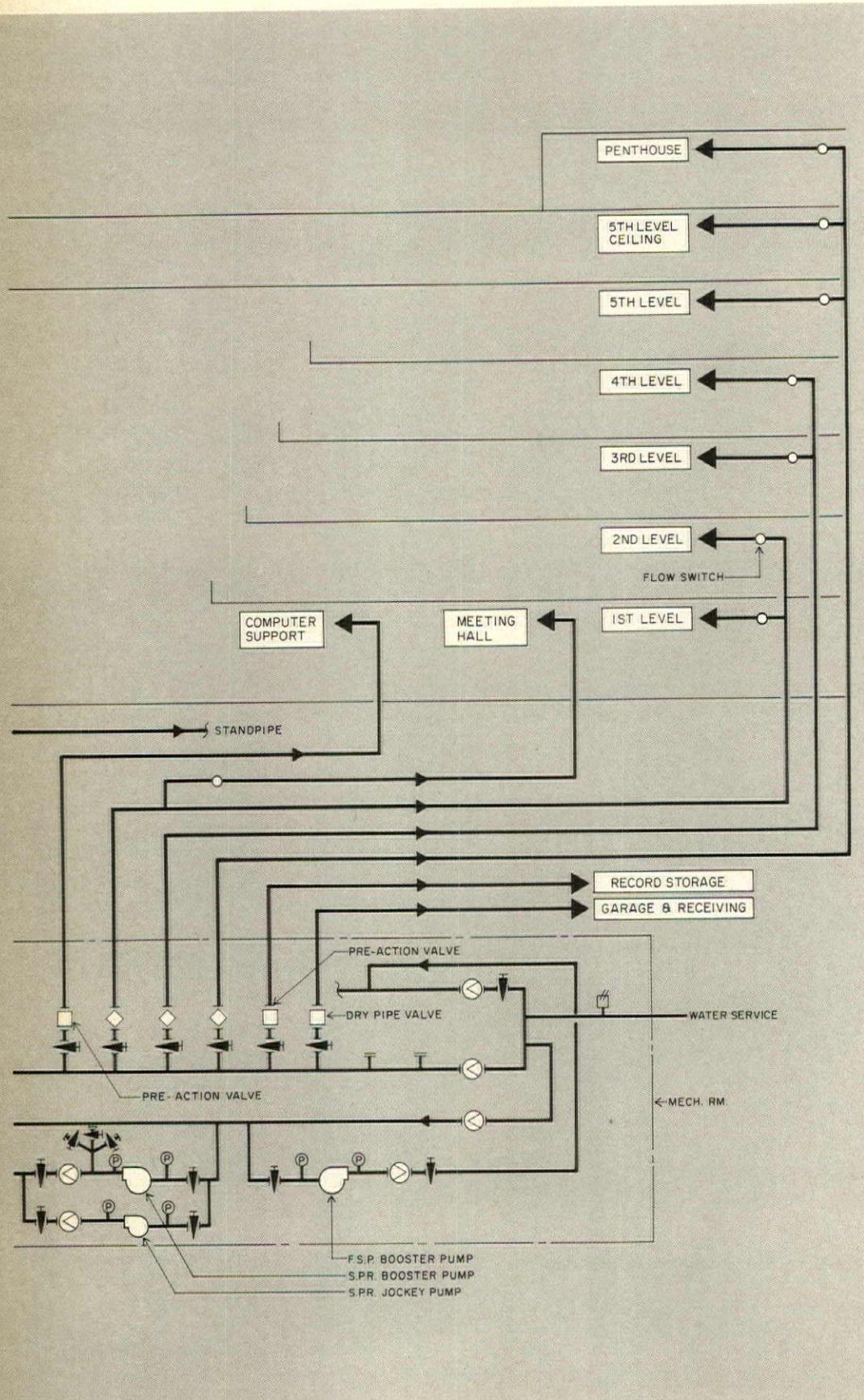
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ception of the level with the alarm.

- smoke vent windows at the top of the atrium and smoke vents on the roof will open, together with fresh-air-intake windows at grade.

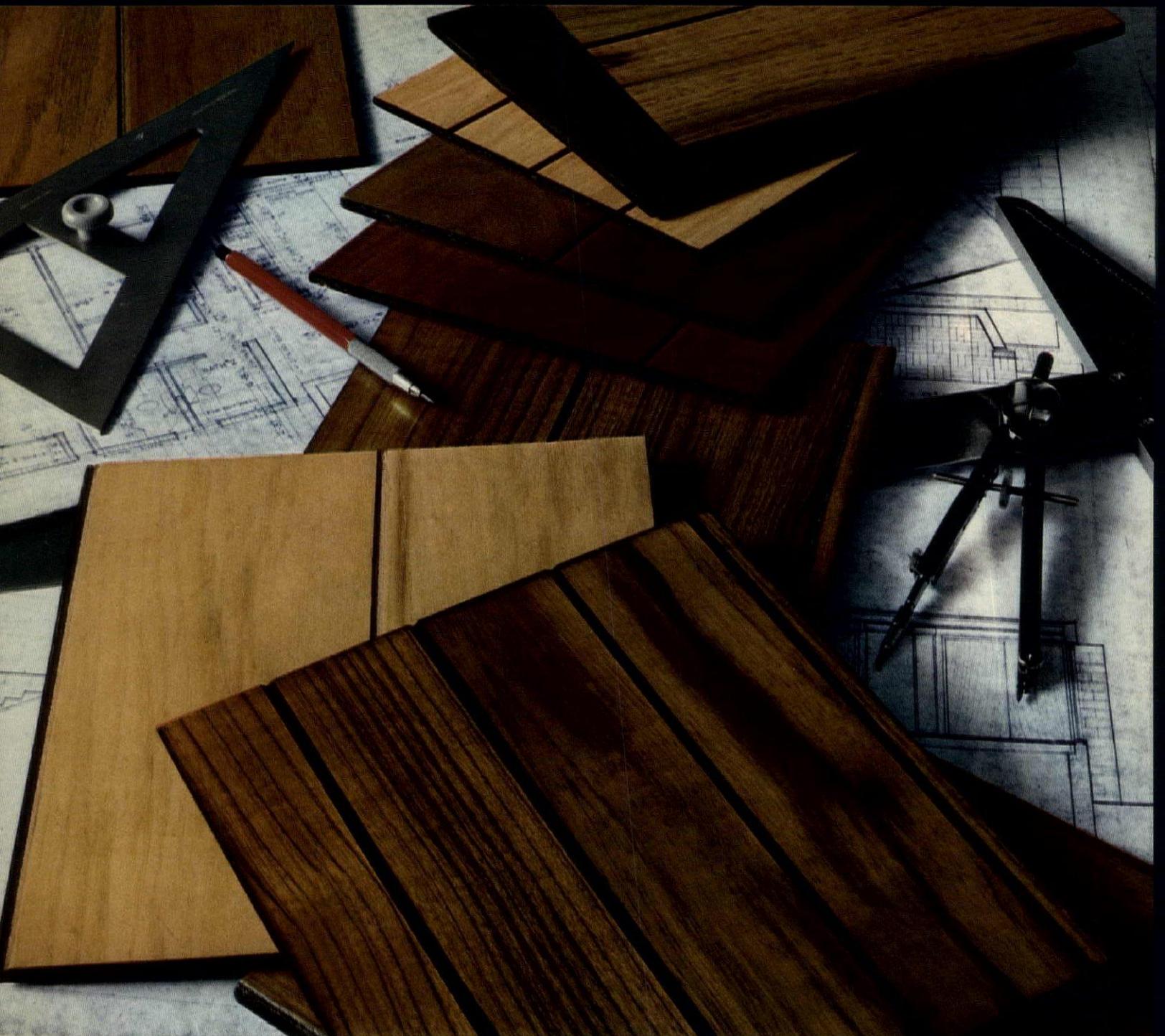
In this manner, the return-air shaft becomes a gravity vent to exhaust smoke at the level where the fire originated, and the atrium serves as an exhaust shaft for smoke which migrates into the atrium. The purpose of opening low-level fresh-air intakes was to assist in producing the desired stack effect to initiate smoke movement through the exhaust vents.

Manual fire alarm stations are installed at the entrance to all stairways. Alarms from these stations, the smoke detectors, and the sprinkler systems are annunciated by zone and type at the control center and at the fire department response point. Zones consist of one half the floor area on a per level basis (two per floor). The annunciator at the fire department response point (at the entrance to the building) is of the graphic type. From this response point, manual control of the smoke-exhaust system is possible by key-operated switches. A third alarm annunciator is located at the information desk in the lobby of the building. This annunciator indicates only the section of the building (not the level) initiating the alarm. All fire and smoke alarms are connected directly to the Scarborough Fire Department by means of a central system.

Occupant notification of an alarm is through buzzer alarm devices that emit a distinctive emergency signal. These devices were used in place of a bell alarm system because experience has shown that the bell alarm is often ignored by building occupants. Alarm sounding is automatic throughout the building on any alarm. Following the general alarm, verbal instructions can be given over the building's background music system speakers.

Control of the smoke developed ratings of the interior finish materials was also specified. All carpeting and interior finish materials, including that used on cloth-covered screen partitions, were specified to have less than a 20 smoke developed rating. In addition, strict flame-spread requirements (less than 25 for walls and ceilings, 75 for floors) were placed on interior finish materials.

SCARBOROUGH CIVIC CENTRE, Scarborough, Ontario. Architects: *Raymond Moriyama, Architects and Planners*. Engineers: *Robert Halsall and Associates Ltd.* (structural); *G. Granek and Associates Ltd.* (mechanical); *Jack Chisvin and Associates Ltd.* (electrical). Consultants: *Rolf Jensen & Associates, Inc.* (fire protection); *McDougall Construction Management Ltd.* (construction management).



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*For more data, circle 51 on inquiry card*

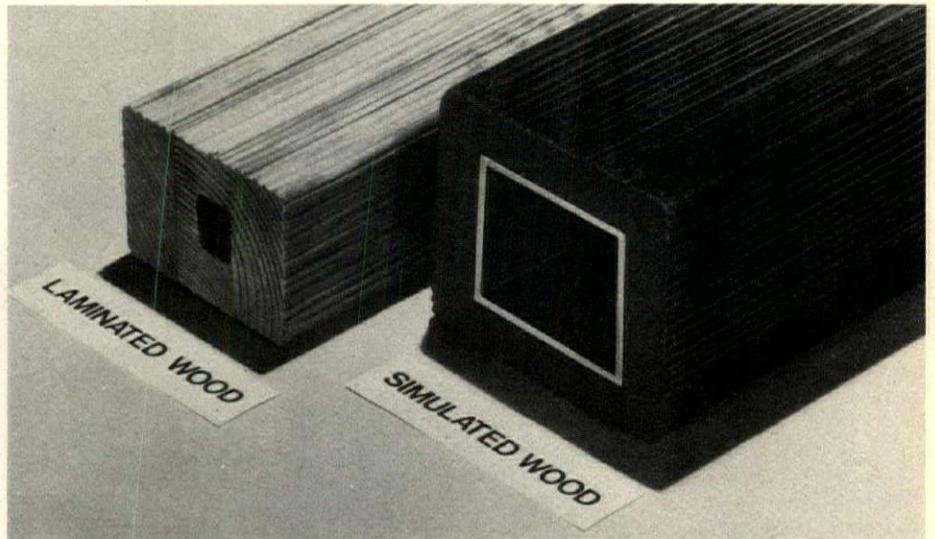
For more information, circle item numbers on Reader Service Inquiry Card, pages 187-188.

## Urethane foam joint sealant controls sound

Cell One is said to stop air, moisture and dust while it insulates and reduces sound transmission through construction joints. The material air-cures and expands in four hours to form a permanent closed cell

foam sealant that is impervious to mildew, rot and insects. It can be applied vertically or overhead without sagging in joints up to 3-in. wide. ■ Coplanar Corp., Oakland, Calif.

Circle 300 on inquiry card



## Simulated wood pole of urethane-coated steel for outdoor lighting

"Repli-wood" features a 1/2-in. thick urethane coating around a metal core, forming what is claimed to be a product three times as strong as standard

wood poles of comparable length. The urethane composition will not absorb water, check or rot. Poles are mounted on anchor bolts, instead of direct

burial to eliminate frost heaving. The poles accept in-line ballasts. ■ J. H. Spaulding Co., Cincinnati, Ohio.

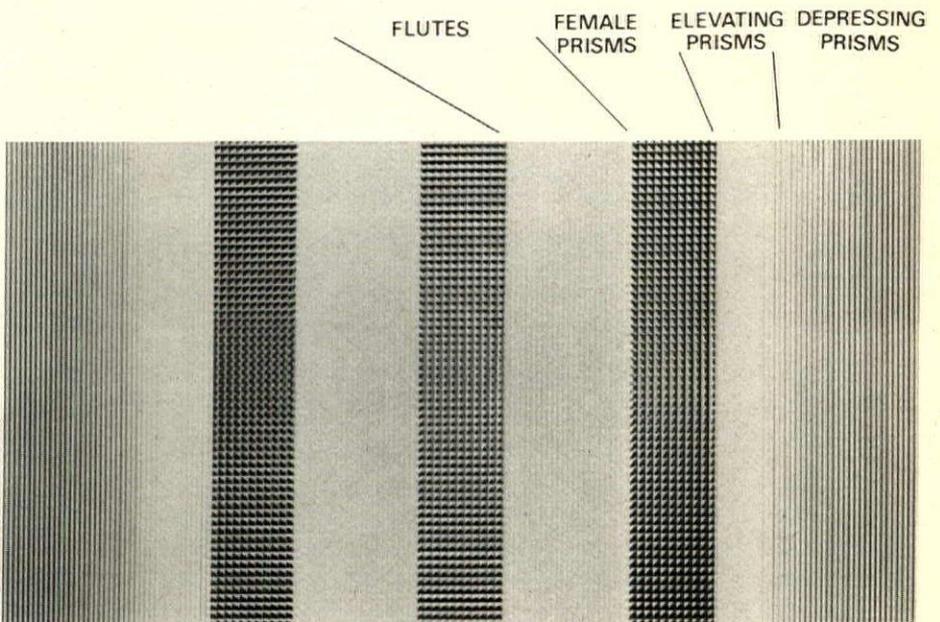
Circle 302 on inquiry card

## Acoustic wall covering offered in 10 colors

"Hush-Wall" is a commercial-grade wall covering said to absorb sound sharply on noise in schools, institutional and industrial applications. In addition to its sound-absorptive qualities, it affords fire resistance, insulation, resistance to moisture, and ease of maintenance. "Hush-Wall" is made of

Zefran acrylic-modacrylic blend yarns, and comes in 4-ft widths, in 10 colors and a pin-stripe. It employs a latex that is said to eliminate a jute secondary backing. An acrylic-nylon line is also offered. ■ Stratton Industries, Cartersville, Ga.

Circle 301 on inquiry card



## Lucite lens reduces energy consumption

A "Lucite" acrylic lens is said to improve lighting quality even with 25 per cent fewer fixtures and 25 per cent less power. The lens produces a precision candlepower distribution curve, and controls reflections. It is suited for updating older lighting. ■ K-S-H, Inc., St. Louis, Mo.

Circle 303 on inquiry card



more products on page 137

## OFFICE LITERATURE

For more information, circle numbers on Reader Service Inquiry Card, pages 187-188.

**INCREMENTAL PLOTTING** / A technical bulletin describes the "M2916" Magnetic Tape Incremental Plotting System that employs a soft controller and a 1/2-in. per second tape drive, and interfaces to Model 2000", which plots up to 2000 steps per second. ■ Broomall Industries, Inc., Broomall, Pa.

Circle 400 on inquiry card

**SHOPPING CENTERS** / Tenant and cost information on more than 550 shopping centers in the United States and Canada have been published by the Urban Land Institute. The new features of the 8-page book include a section on super regional shopping centers in the United States, complete with tenant information tables on the 33 participating centers; and an innovative data series—funds after debt service—for each of the four shopping center types studied. These data (FADS) furnish a look at "net cash flow" in terms of median dollars per square-foot of GLA. ■ Urban Land Institute, Washington, D.C.

Circle 401 on inquiry card

**HOME REMODELING** / "The Home-Tech Restoration & Renovation Cost Estimator," which applies the same unit cost method to the figuring of renovation and restoration projects, is primarily designed for use in the rehabilitation of inner city houses and buildings. A few of the items included in this booklet: the cost of gutting a two-story townhouse; plaster repair and drywall installation over existing plaster; lowering concrete floors to gain adequate height for a basement apartment. It is available for \$18.90. Home-Tech Publications, Bethesda, Md.

Circle 402 on inquiry card

**HOSPITAL PLANNING** / "Building Tomorrow's Health Care Facilities: 10 Answers" is the title of a booklet produced by The Eggers Partnership, Architects and Planners, New York City. Environmental and energy problems, changing codes, new requirements for fire safety, building efficiency, expandability, flexibility, all aspects of hospital planning are touched upon. ■ The Eggers Partnership, New York City.

Circle 403 on inquiry card

**COMPUTER GRAPHICS** / A new six-page short-form catalog describes computer graphics equipment including digitizers, drum and flatbed plotters, photoplotters and automatic digitizing systems. ■ Broomall Industries, Inc., Broomall, Pa.

Circle 404 on inquiry card

**CALCULATOR** / Bulletin 5952-2439 describes how the "9830" programmable calculator and software can be used to design HVAC control systems, including heat loss/gain, duct and pipe sizing. ■ Hewlett-Packard, Loveland, Colo.

Circle 405 on inquiry card

**STEEL JOISTS** / An eight-page brochure outlines design and construction features as well as cost-reduction benefits of load-bearing steel joists for residential construction. Spaced at 24-in. intervals, steel joists carry loads equivalent to wood joists at 16-in. spacing. ■ United States Gypsum, Co., Chicago, Ill.

Circle 406 on inquiry card

**EXPANDED METAL** / A brochure, "How You Can Use Expanded Metal—The Versatile Material," illustrates the various types of expanded metal products, and suggests a variety of uses. Carbon steel, alumi-

num, stainless steel, and other metals are available in this form. These metals are slitted and expanded simultaneously to form a mesh with diamond-shaped openings. ■ Expanded Metal Manufacturers Assn., Chicago, Ill.

Circle 407 on inquiry card

**IRRIGATION MANUAL** / The fourth edition of the reference work on landscape sprinkler system design, complete with illustrations and engineering data tables, details equipment, material, surveying, layout and hydraulics. ■ Weather-matic Div., Telesco Industries, Dallas, Tex.

Circle 408 on inquiry card

**ALUMINIZED FENCE** / Features of aluminized chain link fence fabric are explained in a full-color brochure, PF-175. Eight styles of fence, including barbed wire, are presented, in addition to fittings and gates in heavy-, medium-heavy or medium-construction. ■ Acco, Page Fence Div., Monessen, Pa.

Circle 409 on inquiry card

**LANDSCAPE TIES** / Crossties, like those used on railway lines, are described in a booklet, "Enliven Your Landscape". The booklet offers hints for installing ties. When pressure-treated with a preservative such as creosote, pentachlorophenol or Wolman salt, the wood is resistant to attack from insects and decay. ■ Koppers Co., Inc., Pittsburgh, Pa.

Circle 410 on inquiry card

**FLYING FORMS** / A four-page brochure describes flying fiberglass long forms that produce a concrete surface needing no finish and reducing the weight of a typical gang form from 20,000 to 10,000 lbs. Also included in the literature are the sizes and shapes of long forms. ■ Molded Fiber Glass Concrete Forms Co., Ashtabula, Ohio.

Circle 411 on inquiry card

**FOUNDATION FAILURE** / The company has reissued its 32-page booklet, *Failures in Foundations*, by Jacob Feld, PhD. The booklet describes many typical as well as extraordinary foundation breakdowns, ranging from pulled-down wall corners and column footings to a huge Canadian grain elevator that tilted 24 feet out of level the day after it was filled with grain. ■ Soiltest, Inc., Evanston, Ill.

Circle 412 on inquiry card

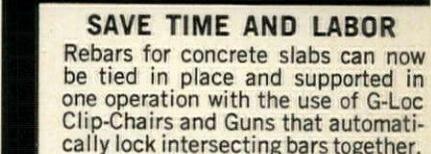
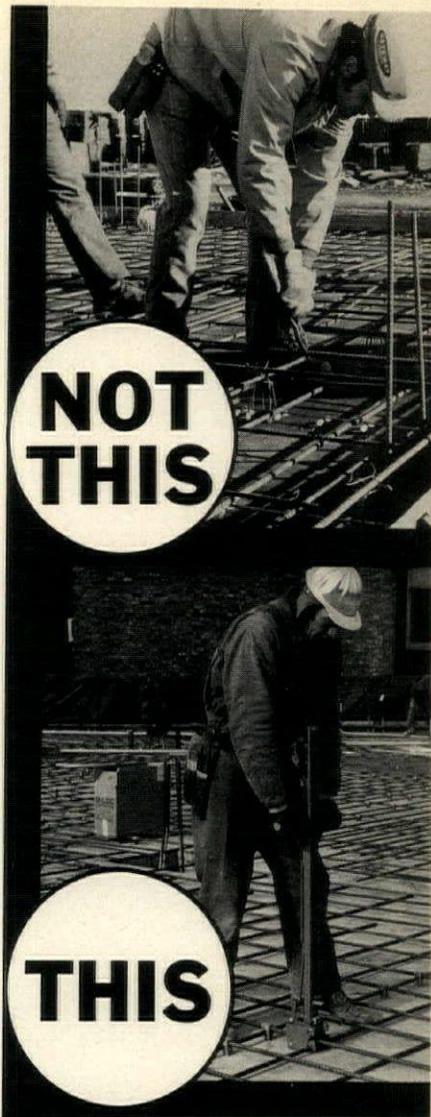
**REBAR SPLICES** / A third edition, 1975, of the CRSI booklet *Reinforcing Bar Splices* includes the 1973 and 1974 changes to the ACI Building Code that affect splices and development of reinforcing bars. Also, major revisions were made to simplify splicing practice. Design data is also presented for development of reinforcement and lap splices. ■ Concrete Reinforcing Steel Institute, Chicago, Ill.

Circle 413 on inquiry card

**PRECAST CONCRETE** / Standards for precast concrete shop drawings are meant to enable draftsmen to translate the architect's contract documents into usable information for manufacture, handling and erection of precast concrete units. Contents contain: drafting techniques and procedures; drawing preparation; submittal process; drafting room; and design and drafting aids. The hardcover book contains 208 pages, and is \$16 pre-paid. ■ Prestressed Concrete Institute, Chicago, Ill.

Circle 414 on inquiry card

more literature on page 147

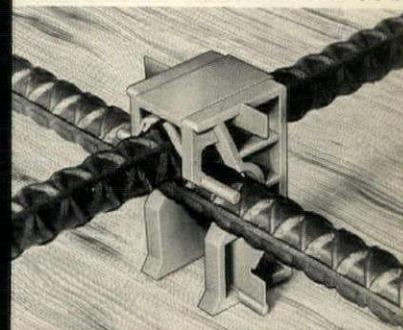


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Simultaneously, he is building all five.

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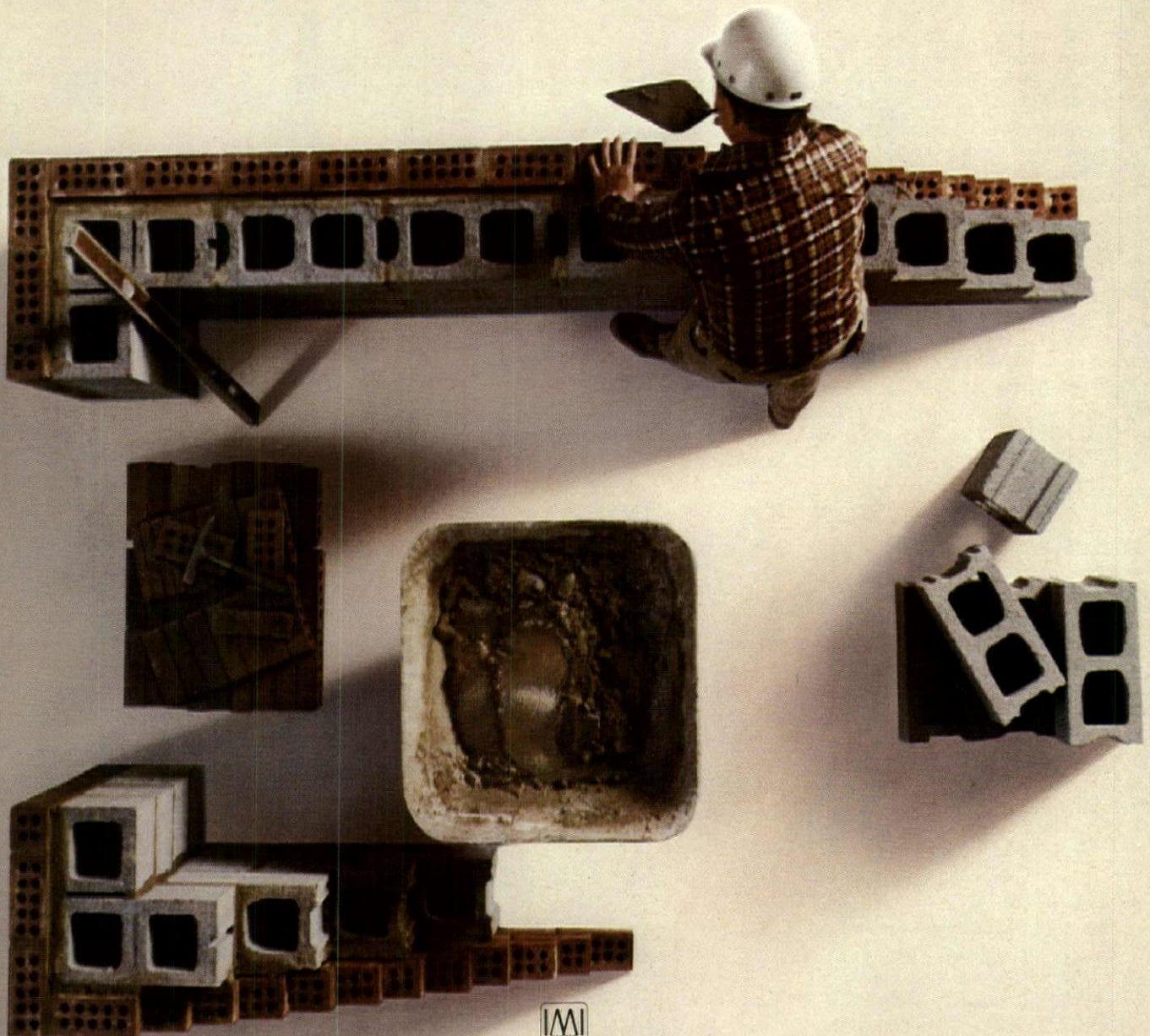
lower interim financing.

He's providing masonry's superior sound control. And, of course, he's building fire control—protecting your investment and often lowering insurance rates.

Engineered loadbearing masonry can save you 10% or more on your next building. It bears the load. You don't.

# Is this man building:

(A) a structural wall (B) a finish wall  
(C) an enclosure wall (D) a sound control wall  
(E) a fire control wall?



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For more data, circle 53 on inquiry card

**CABINETS** / Designed primarily for institutional applications, these cabinets are available in 1-in. dimension increments, so adaptation to a non-standard application is accomplished with relative ease. Faced with GE *Textolite*, the cabinets feature putty vinyl edging, radius corners and semi-recessed pulls. ■ Monitor Products, Tacoma, Wash.

Circle 304 on inquiry card

**CEILING SYSTEMS** / "Contempo" is a modular ceiling system designed by Mark Maresca. The 8-in. square modules may be snapped together in almost any configuration, and are pre-assembled, in 2- by 2-ft panels that fit standard grid systems. Two panels snap together to fit a standard 2 by 4 grid system. "Contempo" comes in a variety of colors and shapes. ■ Wilson Research Corp., Erie, Pa.

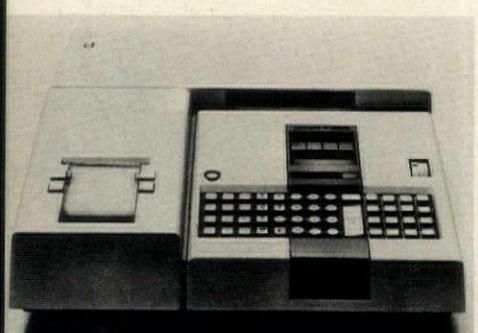
Circle 305 on inquiry card

**LANDSCAPE TIMBERS** / The 8-ft long landscape timbers are suited for ground level edging, garden perimeters, low retaining walls, garden steps, terraces, border fencing and planter borders. The company uses a "full treatment" process which drives preservative into the wood fibers, rather than just surface coating. ■ Weyerhaeuser Co., Tacoma, Wash.

Circle 306 on inquiry card

**ESTIMATING CALCULATOR** / Estimating calculators with a capability to measure linear and area dimensions and make quantity counts from drawings perform the electronic take-offs with two specially designed probes for data entry. The capability to measure area and volume is a unique feature. ■ Keuffel & Esser Co., Morristown, N.J.

Circle 307 on inquiry card



**STRUCTURAL DESIGN** / A computer-assisted structural design and analysis system costs under \$130.00 a month (basic system based on a 5-year lease, exclusive of taxes and maintenance). The system operates on the P 652 desktop computer which comes equipped with programs to perform analyses of prismatic and non-prismatic one-story frames, wind forces, multi-story frames, column loads, trusses, rectangular and gable frames. Available also are design programs for steel, reinforced concrete, foundation, and pre-stressed concrete. ■ Olivetti Corp. of America, New York City.

Circle 308 on inquiry card

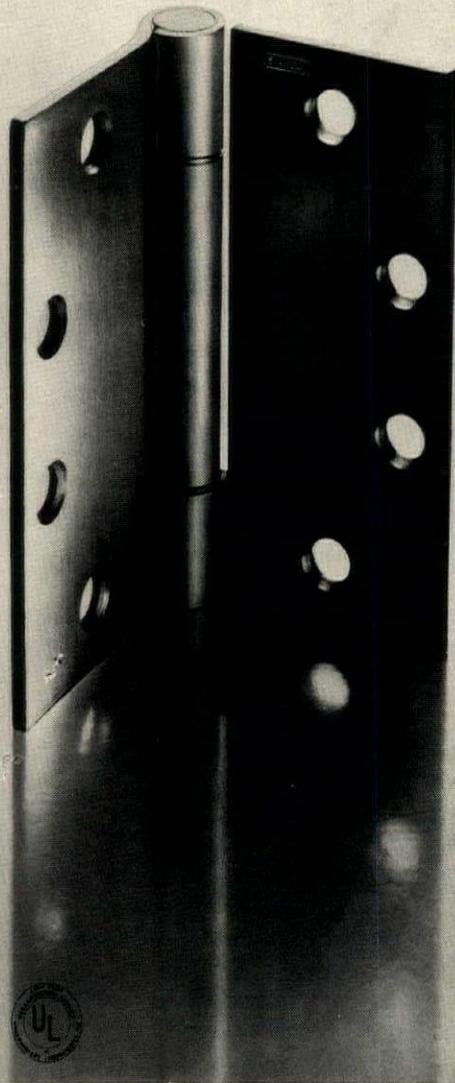
**BINDING MACHINE** / A desk top binding machine, which perfect-binds loose typewritten or printed sheets, offers users an economical system for professionally binding almost any size and combination of loose sheets into bound volumes. The "Cheshire 750" will accommodate sheets up to 14 $\frac{7}{8}$  in. (computer form dimension) at the binding edge, and bound volumes can be from  $\frac{1}{8}$  up to 1 $\frac{1}{2}$  in. thick. The "Cheshire 750" binder's one-step system allows any office worker to bind a single volume in 30-40 seconds, or up to 100 reports or presentations in one hour. ■ Xerox Corp., Mendelein, Ill.

Circle 309 on inquiry card

**GENERATOR SET** / A 950 KW generator set incorporating a diesel engine produces 1188 KVA at 60 cycles and 1800 rpm or 792 KW, 990 KVA at 50 cycles, 1500 rpm. At 1800 rpm, the engine supplies 1540 horsepower and at 1500 rpm, 1275 horsepower. The new model incorporates, as standard equipment, complete instrumentation for both the engine and the generator including 45 second crank, visual alarm and complete monitoring units. ■ Dynamics Corp. of America, Bridgeport, Conn.

Circle 310 on inquiry card  
more products on page 139

# You've got codes to cope with. Stanley's new spring hinges cope.



Building codes can be a problem. But with our new spring hinges: No problem. They answer codes requiring self-closing doors on hotels, motels, apartments, institutions and office buildings.

**Now available in sets.** New sets #2051 and #2052 combine spring hinges #2050 with springless hinges that look alike for just the right closing power.

**A new adjustable model too!** Where it is impossible to predict the closing power required, the new adjustable #2060 does the trick.

To cope with codes, write: Stanley Hardware, Division of The Stanley Works, New Britain, Conn. 06050. In Canada: The Stanley Works of Canada, Ltd.

**STANLEY** helps you do things right.

For more data, circle 54 on inquiry card

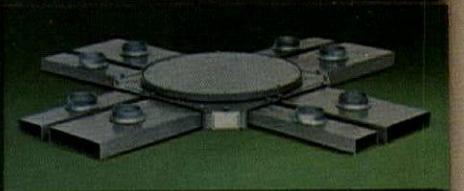
## Some communication systems are a costly error.

The communications boom can drive you right up the walls. If you can't handle it, it's really going to cost you. Running wires around the bases. For more phones, more equipment. Taking chances on an

accident. So play it safe. Put a Walkerduct Underfloor System in your building specs. It will keep packing 'em in.

By running all the communication, power and signal requirements under the floor inside Walkerduct, you've got nothing to worry about. The building is safer, more efficient and able to handle any future needs quickly, easily and neatly. Without tearing up the floors. Without spending a small fortune.

Contact your nearby Walkerman for more information. Or write: Walkerduct, Parkersburg, West Virginia 26101. In Canada: Walkerduct of Canada.

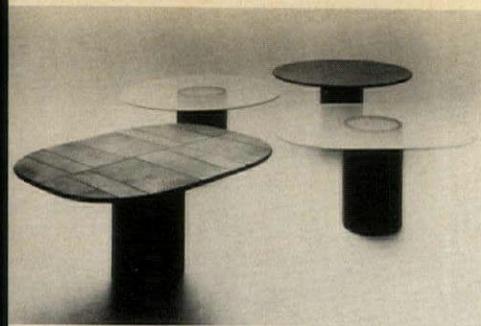


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**TABLES** / Circular and oval top versions in leather and glass are suitable for both dining and conference rooms. Leather tops are done in a patchwork application of varying sized pieces, sewn together, and adhesive applied to a plywood base. Glass tops have pull-nosed edges and a broad etched, edge band delineating the perimeter of the top surface. The bases for both leather and glass top versions, are done in similar patchwork leather techniques applied to a cylindrical fiberglass weighted base. These tops are available in a full selection of leathers. ■ Atelier International, Ltd., New York City.

Circle 311 on inquiry card

**BATHROOM ACCESSORIES** / Crystal or translucent brown acrylic accessories include: tumbler, ashtray and self-contained brush and holder, toilet tissue holder combined with an ashtray and guest towel holder. Each is trimmed in chromium. "Grand Luxe" is made in France. ■ Allibert Inc., New York City.

Circle 312 on inquiry card

**FIBERGLASS SHOWER** / Called the Bimini, the unit measures 32 in. wide, 36 in. front to back, and 76 in. high, including 1 1/2-in. nailing flanges. One-piece construction of smooth, seamless fiberglass reinforced plastic offers one-trade installation. It is available in six colors plus white. ■ Kohler Co., Kohler, Wis.

Circle 313 on inquiry card

**INSULATED PANEL SYSTEM** / Two self-supporting insulated panel systems are suggested for a variety of industrial/commercial building and remodeling applications. Each panel features a face and liner panel laminated to a core of 1 1/2-in. thick, 1.65-lb density fiberglass insulation completely factory assembled. Two face designs are available, both with 2-in. width, 3-in. thickness, and lengths up to 25 ft. ■ Crown Panels Co., West Hartford, Conn.

Circle 314 on inquiry card

**ELECTRIC STRIKES** / The addition of two tiny sensor switches gives these electric-release latch strikes the ability to report their status. Available on any electric strike made by the company, the switches allow the human controller, who may be remotely located, to "read" whether the strike's blocking arm is in place and

whether the door's latchbolt is penetrating the strike. They are optional on both normally-locked and normally-open (reverse action) electric strikes. ■ Rite Mfg. Co., City of Industry, Calif.

Circle 315 on inquiry card

**TRACK LIGHTS** / The Colonial "Trak-1" lampholder (top) reproduces the look of an oil burning library lamp. It has a green glass shade with white inner-lining mounted on an antique bronze finished burner. "Opal" (bottom) has an opal glass shade which provides a soft widely diffused light.

■ Progress Lighting Div., Philadelphia, Pa.

Circle 316 on inquiry card

**SUMP PUMP** / The unit, called "Water Warden," provides a regular sump pump with standby protection in case of power failure and reserve capacity in case of overload. The unit uses the regular household water supply as its source of pumping power. No electrical energy is required. The "Water Warden" takes over automatically whenever water reaches a higher than normal level and the regular sump pump fails to activate. The "Water Warden" will pump up to 6 gallons per minute. ■ Sears, Roebuck and Co., Chicago, Ill.

Circle 317 on inquiry card  
more products on page 145

*Saves time . . .  
increases efficiency  
and productivity*

*Instant and direct 2-way conversation  
between any 2 points*

**TALK-A-PHONE INTERCOM**  
**THE LOW COST ASSISTANT**

TALK-A-PHONE Intercom has cut work loads from 20% to 50%—effected savings of thousands of man-hours, simplified office and business routine. Where desired, replies can be made at a distance without operating controls; yet other stations can have complete privacy. Designed to fulfill virtually every office, industrial and institutional Intercom need. TALK-A-PHONE sets a high standard of achievement in Intercommunication engineering. Proportioned like a book to lie flat on the desk . . . only 3 inches high. Combines the look and feel of fine grained leather with the strength and rigidity of steel. Beautifully finished in charcoal gray with brushed chrome panels. From 2 to 100 station systems, you can do it better and more economically with TALK-A-PHONE. Pays for itself many times over. The Intercom with the "Built-in-Brain" and Exclusive "Dynasonic Selector."

**TALK-A-PHONE . . . the accepted symbol of quality and dependability in Intercom for over a third-of-a-century. "Has Everything, Does Everything."**

1 or 2 talking circuits  
1 or 2 door opener buttons

**Intercom for the Home.** Enjoy comfort, convenience and peace of mind. You can: • Independently originate and receive calls to or from any other room • Answer outside doors from any room • Enjoy radio in any room • Listen-in on children, baby or sick room from any room, yet other rooms can have complete privacy. Distinctively styled. Easily installed.

**INTERCOM FOR APARTMENT HOUSE.** Provides instant and direct 2-way conversation between any Apartment and Vestibules—in buildings of any size. Greater performance with these exclusive Talk-A-Phone features • Ample volume without "boom" • Automatic privacy • Individual volume selection for each apartment • Built-in Buzzer • 1 or 2 talking circuits.

**TALK-A-PHONE CO.**      *Send for Free Catalogs*  
5013 N. Kedzie Ave., Chicago, Ill. 60625 (Dept. AR)

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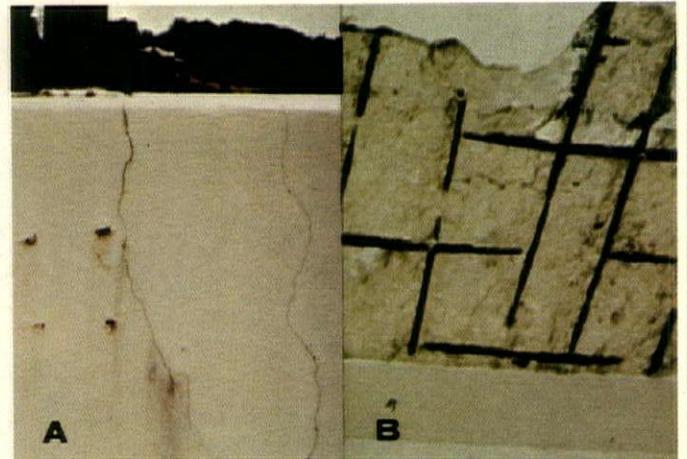
# CONCRETE FAILURE

## CAUSE



This magnification shows how rust expands as steel corrodes.

## EFFECT



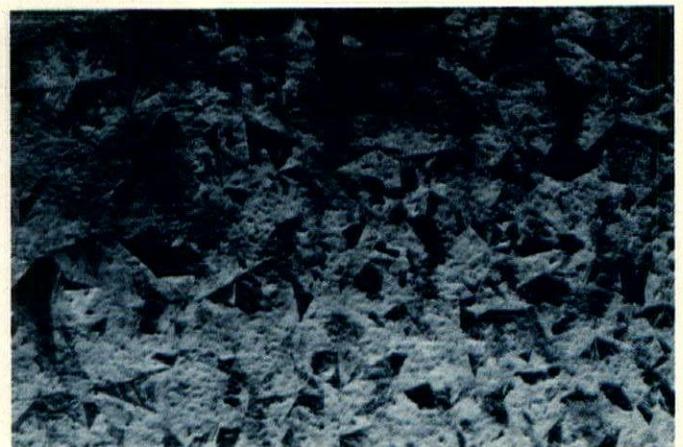
The rusting of ungalvanized reinforcing bar creates a pressure which can crack and spall concrete. Photo A shows a portion of the facade of the Charleston, S.C. Post Office which has been cracked and stained by subsurface rust expanding and "bleeding" through. Photo B shows the underside of a veranda roof in Bermuda where rebar corrosion caused a large section of concrete to fall off.

## PREVENTION

If you would like to know more about this subject, write on your letterhead for our new booklet "Galvanized Reinforcing Bar — Undercover protection for concrete."

**ST. JOE**  
MINERALS CORPORATION

250 Park Avenue  
New York, N.Y. 10017



Galvanizing — the metallurgical bonding of zinc *into* steel — has proven its ability to protect rebar against rust before, during and after installation. This is recognized in the revision of General Services Administration guide specification PBS4-0344.01 as follows: When concrete cover on exterior surfaces is less than 1½ inches... reinforcing bars and mesh shall be zinc coated... in accordance with ASTM A-123.

ZN-640

**CONCRETE CLADDING** / Six joint design considerations for applying the rain-screen waterproofing principle to precast concrete cladding are given in a data sheet. Second in a series, the two-page illustrated data sheet details modified rain-screen and rain-screen principles for four types of precast panel joints, sandwich wall panel joints and windows. Included are three factors to effective rain-screen design with support data on airflow-energy loss, and air seals. ■ Tremco, Cleveland, Ohio.

*Circle 415 on inquiry card*

**EPOXY ADHESIVE** / A four-page brochure on a concrete epoxy bonding system, outlines complete application instructions including concrete surface preparation, mixing and cure times. *Sonobond* may also be used for structural bonding and anchoring; the physical properties of the material have been adjusted to minimize stresses that occur at the concrete bonding agent interface due to thermal shock and creep. ■ Sonneborn-Contech, Minneapolis, Minn.

*Circle 416 on inquiry card*

**CONCRETE CHEMICALS** / The data includes product description, application methods, coverage, specification compliance and cost estimating data for form coatings, cures, concrete floor treatments, masonry corrective and protective treatments, grouts and bonding agents. ■ L&M Construction Chemicals Inc., Omaha, Neb.

*Circle 417 on inquiry card*

**CURING SYSTEM** / *Kure-n-Kote*, a curing and sealing system for concrete surfaces is the subject of this brochure, covering the complete application instructions and coverage rates for new and aged concrete surfaces. Standard precautions, limitations and routine maintenance requirements are also given. Sonneborn-Contech, Minneapolis, Minn.

*Circle 418 on inquiry card*

**BRICK VENEERS** / A four-color publication details concrete brick as a cladding for residential structures. Included is information regarding common sizes and colors, compressive strength, water absorption limits, and mortar proportions; quality control during manufacture; and construction tips. Also provided are guide specifications that can be incorporated into specifications. ■ Portland Cement Association, Skokie, Ill.

*Circle 419 on inquiry card*

**STONE ANCHORS** / A booklet explains why stainless steels are recommended for stone and masonry anchors. The most frequently used stainless steels are identified, and their nominal mechanical properties are given. Allowable stress values are shown for stainless steels in various hardness conditions, along with calculations for a typical installation. ■ American Iron and Steel Institute, Washington, D.C.

*Circle 420 on inquiry card*

**PIPE HANDRAIL** / An eight-page brochure describes prefabricated anodized aluminum pipe handrail, incorporating interlocking parts that are shop welded and require no mechanical fasteners. Low-cost standard components may be ordered from stock. Standard details, applications, load chart and a complete parts list are included. ■ CraneVeyor Corp., El Monte, Calif.

*Circle 421 on inquiry card*

**FRAMING ANCHOR** / The specification sheet presents descriptive and technical material including recommended safe working values on the *Du-Al-P* anchor. Manufactured from 18 gauge zinc coated sheet steel, these framing anchors are available in a single style with both right and left hand ends. ■ TECO, Washington, D.C.

*Circle 422 on inquiry card*

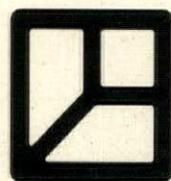
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*For more data, circle 60 on inquiry card*

# How to Keep Your Building from Being Branded a Firetrap.

A report to executives from Johnson Controls.

**P**er capita losses from fire in the U.S. are the highest in the world, 5 times greater than Japan. This grim fact, and the fear associated with high-rise fires, has spawned a rash of firecode provisions that are bewildering building executives.

This report on the state of our fast-changing firecodes has been prepared by Johnson Controls, the people who have designed and installed more than half the computerized automation systems in U.S. buildings. (It tells you what your building's firesafety system *must* do now. It also tells you some of the things your system *should* do to keep pace with firesafety demands in years ahead.)

## Things Your Firesafety System Must Do

- It must detect smoke *or* heat and give the alarm automatically.
- It must automatically direct elevators to the ground floor the instant an alarm is sounded.
- It must put firemen in full command of elevators and communications systems with a fire control panel made operative only by a fire department key.
- It must provide firesafe islands within the building. These can be formed automatically by fire doors that close when the fire alarm goes off.
- It must talk to people on every floor, telling them where to go, what to do, when, and why. A Johnson

Controls firesafety system can achieve this by broadcasting pre-recorded or live voice commands.

- It must exhaust deadly smoke and gasses, responsible for most fire deaths. Call your Johnson Controls office\* to find out how your air

conditioning system can be used to exhaust smoke from the fire area.

- It must be able to test itself and resist the onslaught of fire. A modern Johnson Controls system has a self-testing capability that works *silently* and *continuously*.

## Things Your Firesafety System Should Do

There are other vital functions a firesafety system should perform. These include anticipating a fire before it starts, giving the alarm in less than 5 seconds, processing simultaneous alarms, calling the fire department automatically, locating the fire precisely, projecting a floor plan of the fire floor onto an illuminated screen. For more information on how to make your building more firesafe, call your Johnson Controls office, or write for the booklet offered below.

\*Your local Johnson office is listed in the White Pages under Johnson Controls or Johnson Service Company. If there's anything you'd like to ask us, just call.

Find out more about how you can meet new regulations with a firesafety system that pays for itself. Send for Johnson Controls new booklet, "*Firesafety Systems: an idea book to help you cope with changing codes.*" Write to



J.J. Bartoletti, Manager, Firesafety Systems, Johnson Controls, Inc., Reference G-1, P.O. Box 423, Milwaukee, Wisconsin 53201.

**JOHNSON CONTROLS** Prime source of problem-solving systems.

For more data, circle 61 on inquiry card

# Right on.

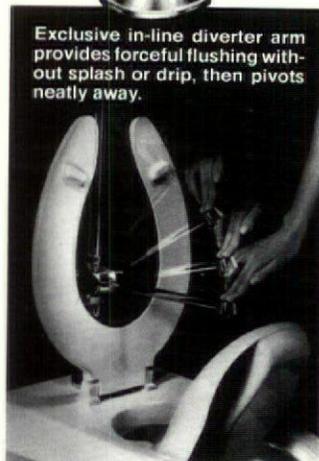
MODEL BPW-1000  
**SLOAN**  
**slimline™**  
**BEDPAN WASHER**



Right on the plumbing center line. That's what makes it so slim and straight. So unobtrusive . . . so regal.

Sloan's Slimline BPW-1000 is the only bedpan washer to center on the fixture. Simple connections provide a permanent, rigid installation at modest cost.

The Sloan Slimline Bedpan Washer is ready for use at all times. Simply pivot the spray arm down and operate the flush valve. Sloan's double-action simultaneously cleans the bedpan and flushes the fixture. No more messy hose spray to operate and leave dripping.



Exclusive in-line diverter arm provides forceful flushing without splash or drip, then pivots neatly away.

Eliminating the expensive installation of a hose spray bedpan washer with its separate pedal valves, etc., the Sloan Slimline Bedpan Washer saves both time and money.

For nearly 70 years Sloan has led the way in flush valve design. Now in this modern, economical health care device, Sloan is right on with a quality product which in a few short months has already received tremendous acceptance.

**SLOAN VALVE COMPANY**

10500 SEYMOUR AVENUE • FRANKLIN PARK, ILLINOIS 60131

