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On Readers' Service Card, Circle No. 328

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moisture-
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JULY 1968 P/A

On Readers' Service Card, Circle No. 378

THIS MONTH IN P/A

Progressive Architecture ® July 1968

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91 EDITORIAL

P/A's Editor discusses the various dimensions of human scale.

OMNIBUILDING

92 **INTRODUCTION:** One of the most important directions architecture is taking is toward omnibuildings: constructions of wide-ranging scale that contain a multiplicity of uses in a building system consisting usually of a common structural armature with substructures or additive units imposed thereon to provide spaces for the various uses.

94 **IN HISTORY:** A view through history of what were essentially omnibuildings — castles, fortified villages, ocean liners, terminals, hotels — including work in this century by Wright, Corbu, the Metabolists, Archigram.

102 **WHAT . . . WHY . . . HOW:** Why do we need omnibuildings? What is their rationale? What are the planning approaches? A number of noted architects and planners state their views.

108 **THE PRIVATE SECTOR:** The scope and multiple-use aspects of omnibuildings raise many questions concerning the role of private ownership, development, and management.

108 **OMNIBUILDINGS, PROJECTS, AND VISIONS:** More than 40 completed complexes, scheduled projects, and visionary concepts illustrate the omnibuilding idea from this page to the end of the feature section.

127 **THE PUBLIC SECTOR:** What problems exist at the governmental level? Will the bureaucratic red tape typical of public agencies — which may well become the main "client" of omnibuildings — stifle necessary initiative and planning?

146 **TECHNIQUES AND TECHNOLOGY:** The structural and mechanical problems are enormous, but equally impressive are the means of solving them. Some far-sighted engineers outline the future of advanced structure.

47 P/A NEWS REPORT

Prefab housing shelters poor in Washington . . . Gropius celebrates No. 85 . . . Single families restore

Brooklyn homes . . . Yale students use city streets as architectural laboratory . . . Clean-looking Osborne building . . . Safdie collaborates on redevelopment project in Niagara Falls . . . Products, Data, Washington/Financial News: professional negotiation.

160 **SPECIFICATIONS CLINIC**

Harold Rosen discusses the difficulty of sealant selection due to widely different standards in manufacturers' brochures, and cites examples of their loosely written specifications.

162 **IT'S THE LAW**

Bernard Tomson and Norman Coplan discuss implications of a recent case in which Illinois' four-year statute of limitations on damages for personal injury was voided.

164 **BOOK REVIEWS**

A cross-section of significant new books.

6 **VIEWS**

Our readers' comments on the architectural scene.

COVER

"Roselights for Whiteville," a sculpture by architect Roger Katan, is a study of light and motion integrated into a series of "megaforms" for an abstract cityscape. Photo: Jon Naar.

90 **FRONTISPIECE**

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Philip Johnson, writing in *Look* magazine, January 9, 1968.

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30

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Vinyl Asbestos
Tile floors—at
3¢ per square
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maintenance
cost!**

Owner-conducted wear test at United Fuel Gas Company Headquarters proves so outstanding, vinyl asbestos tile now specified for over 50 branch offices.

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KENTILE FLOORS

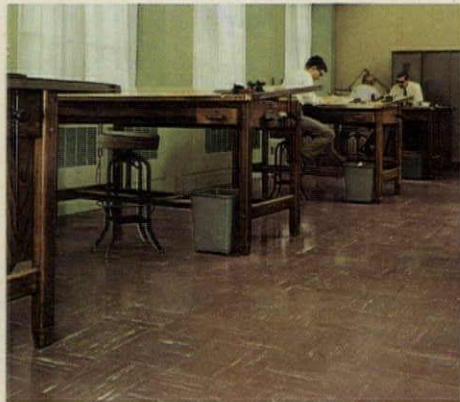
BROOKLYN, N.Y. 11215



UFG cafeteria, serving 700 employees daily, features a 12-year-old Kentile Vinyl Floor that gets plenty of heavy traffic. Yet it looks brand-new! Note: All photographs were taken April 1968 and are unretouched.



24-hour communications area, where the clean, glossy appearance of vinyl asbestos tile reflects the "clean fuel" image of UFG.



In UFG drafting room, as elsewhere, cost of upkeep for floors is an amazingly low 3¢ per square foot per year.



Advanced look of UFG Headquarters, Charleston, W. Va., is complemented beautifully by modern Kentile Floors.

VIEWS

A Final Note on New Haven

Dear Editor: The story appeared in your January issue. We readers saw the first letters in the February VIEWS column. And in March and April came some more, but by now, I expect, the storm is over. So in the clearing air, we can get back to work.

The article, "Urban Planning and Urban Revolt: A Case Study" (JANUARY 1968 P/A), was a time-consuming collection of facts, figures, and opinions put together in such a way as to quite thoroughly discourage any business, civic, or political leader from wasting one more minute thinking about or trying to improve our urban environments in any notable way whatsoever.

Apparently, nearly everything that has been done in New Haven in the past 20 years under the city's planning, redevelopment, renewal, or neighborhood programs has been done in the wrong location, at the wrong time, by the wrong group, for the wrong minority, and sometimes even by the wrong architect.

So the conclusion might be drawn from this very well-documented story (as far as it went) that the perfect and least disturbing solution to the urban problem, as illustrated by this interpretation of the New Haven experience, is for our cities to devote their energies to maintaining the status quo, if it can be made to stand at all, by guaranteeing continuation of the basic services first, such as road repair, garbage collection, fire protection; then the secondary services, such as schools, recreation, charities, and so on down the list to police protection—the Z item.

However, as is so well recorded in the history of civilization, there have fortunately always been some men in each period of their development who have been driven to seek improvement over their inheritance.

Even Daedalus and Icarus weren't content to watch the birds outdistance them with such ease and apparent pleasure, so they undertook to fly. In spite of this well-advertised failure, the idea had such appeal that after a thousand years or so Leonardo pursued it further. After another lapse of centuries, the Wright brothers had a go at getting off the ground, and now each of us is hurt when he can't get a seat on a jet shuttle around the world.

When each of these particular attempts

was made to achieve what we now take for granted and absolutely necessary, the critics swarmed on these provocateurs from every direction, and apparently the whole world laughed. I say "apparently" because obviously and fortunately there were then and still are a few devoted leaders in the laughing, critical crowd to keep good purposes alive and bring them to fruition.

For some reason, New Haven has enjoyed such devoted leadership sporadically from 1638 to 1940 to date. The present Mayor, Richard C. Lee, is the man who, starting in the early 1940's, took the updated New Haven City Plan out of the Planning Commission office where it had been nurtured by several preceding mayors, and translated it into the remarkable three-dimensionality upon which you comment in your story, and which many, many people come daily to see. For a man interested in political service, this took real courage and great conviction—as did Daedalus' and Icarus' flight.

Finally, after chewing and regurgitating this story of yours these several months, it is most disappointing not to find any mention anywhere of the widespread, alluring reputation New Haven must have as a result of its above-average civic, business, and social leadership that it would continue to draw people of all social, racial, and economic backgrounds to settle here continuously.

Open criticism and debate are some of the tools of progress, but, along with these, credit must be given where credit is due if progress is to continue to progress.

PETER P. HALE
New Haven, Conn.

[A list of the writer's credentials, sent to P/A together with his letter and apparently intended to back up his opinions, should put Mr. Hale's attitudes toward New Haven's urban renewal in perspective: former director of the New Haven City Plan Dept.; founder and vice-president of Technical Planning Associates, New Haven (consultants on city planning and traffic); chairman for 12 years of the Wallingford Town Planning Commission; founder and former chairman of the Regional Planning Authority of South Central Connecticut.—Ed.]

Words About Details

Dear Editor: The words attributed to the architect and his associates responsible for the Arthur Hadley house (MAY 1968 P/A) create awe and not a little envy in me who from time to time has spent at least an hour over a minute detail. In fact, you might say I am stunned.

WILLIAM B. McCORMICK
San Francisco, Calif.

So Who's Advertising?

Dear Editor: I believe the book reviews by James T. Burns and Alan H. Lapidus on Edward Durell Stone (APRIL 1968 P/A) were quite childish and immature. The Volkswagen people in their clever advertisements do not snipe at Cadillac and Continental.

These reviews were quite a let-down after reading your fine evaluations of New Haven and the American Dream of Education.

WILLIAM L. DALRYMPLE
Port Republic, Md.

Plaudits for P/A Pundits

Dear Editor: Congratulations on an outstanding job of putting together a major contribution in the field of education (APRIL 1968 P/A). I was much impressed by the issue.

PROFESSOR DONALD J. LEU
College of Education, Michigan State University
East Lansing, Mich.

"Flower City Market" Addendum

Dear Editor: P/A readers may be interested to learn that the reaction to "The Flower City Market Center" (pp. 156-157, MARCH 1968 P/A) has hardly been one that would encourage the city to grant any variance, let alone approve a project of this character, for these reasons:

(1) Most people who live on Telegraph Hill enjoy its isolation as well as views, and have little need for any of the rooftop greenery offered as a placebo for their support.

The use of a funicular to Coit Tower would make greater sense if it had been suggested that tourist traffic be barred from the use of the present tortuous street, which dogs the hill and makes Sundays a traffic nightmare for Hill residents.

(2) Unfortunately, no mention was made of the existence of the Northern Waterfront Study, its aims and current status. The Market Center is but one element in an area whose planning is of vital concern to all of San Francisco, and to date there seems to be little awareness by the developers of this larger responsibility.

(3) Setting up a level of roof-parks some 80 ft in the air is small recompense for a continuous facade of blank concrete walls that will constitute the streetscape of this area. It is a dull pattern now found in the Golden Gateway of San Francisco and one would regret its repetition in this section of the city.

(4) Unless there are to be substantial departures in current trade practices, the Market will be open only to the "trade" designers, decorators, and architects. The

Continued on page 12

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raises ceilings to a
new level of
esthetic importance.



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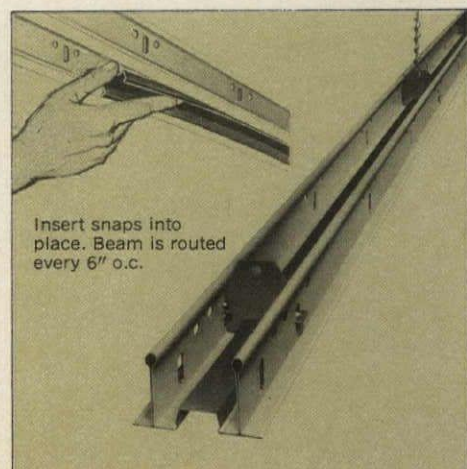
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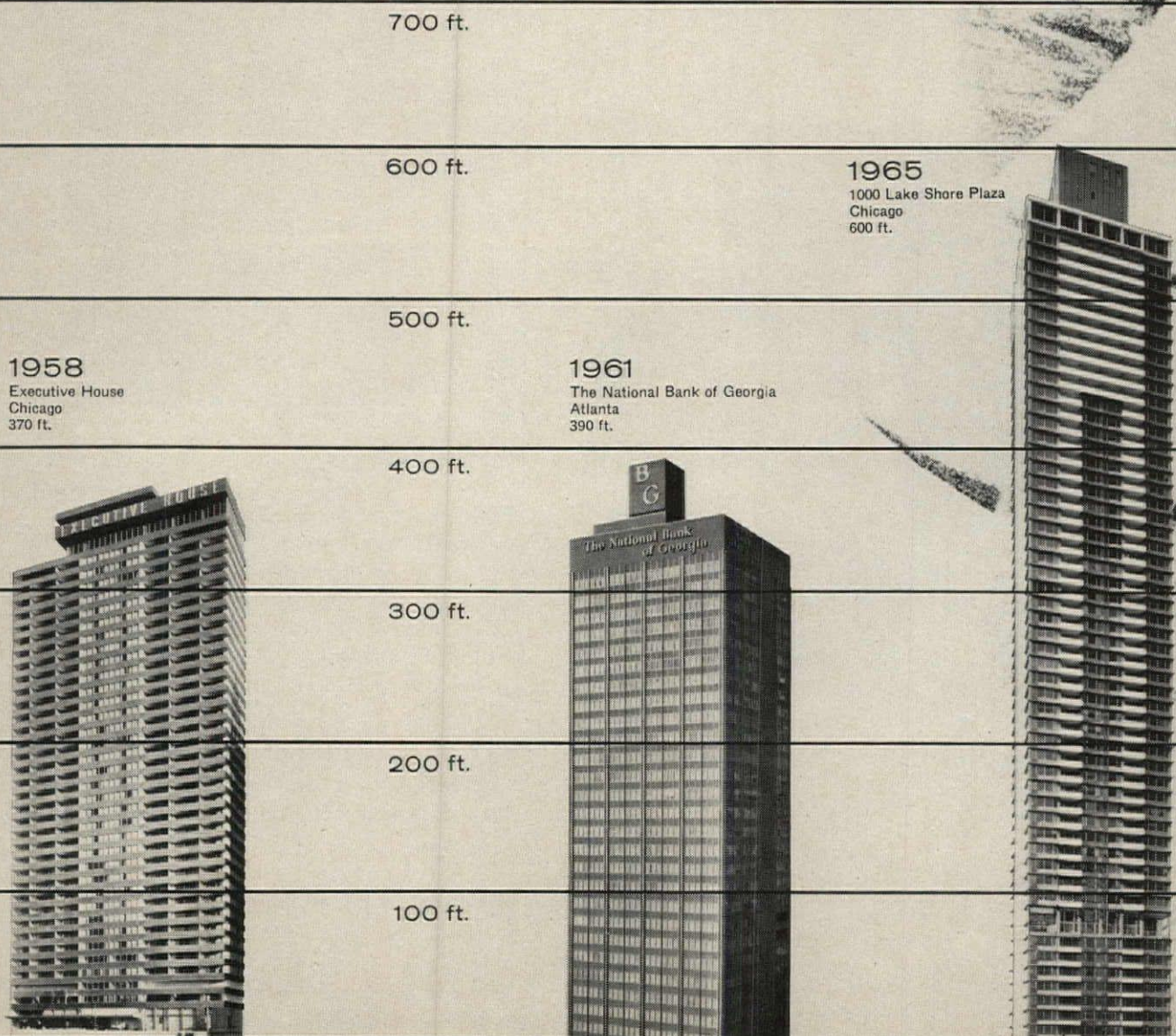
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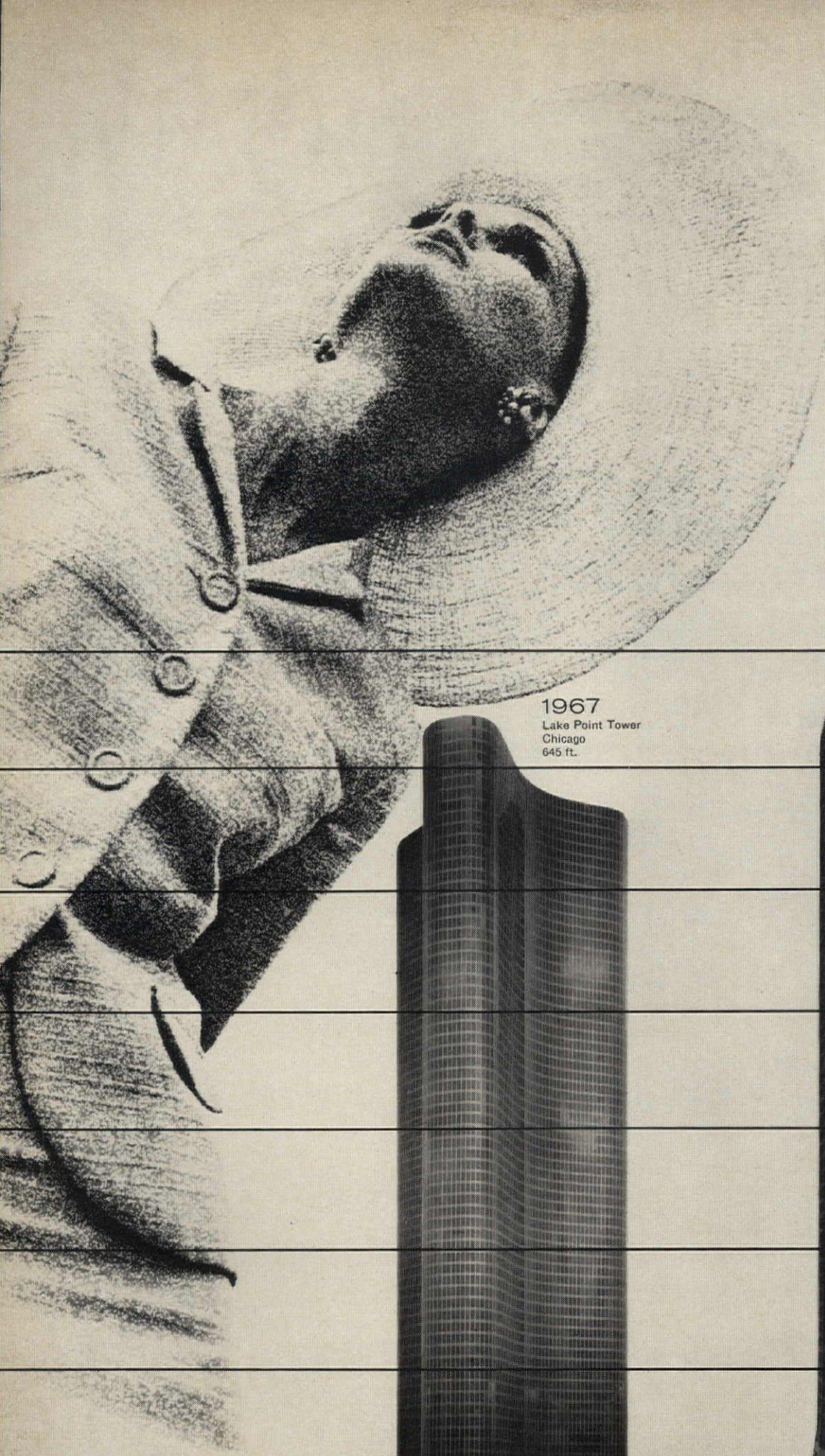
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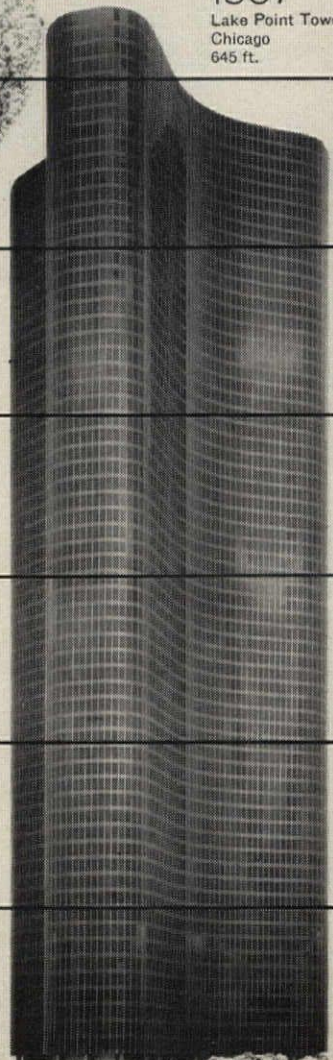
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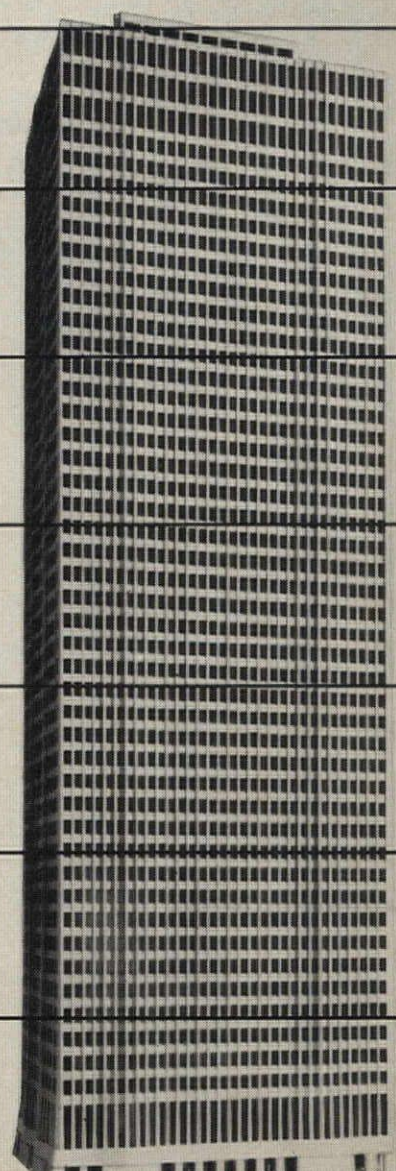




1967
Lake Point Tower
Chicago
645 ft.



1969
Shell Oil Bldg.
Houston
714 ft.



CONCRETE REINFORCING STEEL INSTITUTE

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Continued from page 6

current Merchandise Mart in San Francisco may be a great economic success, but it offers very little to the average city dweller or visitor. Retention of the man who managed the old Mart as manager of the new Center is hardly any indication of the advent of a new approach, despite all the flowery phrases about artists and craftsmen being included in the new project.

Either the new Center subsidizes its rent, which has never been mentioned, or it will never be able to pay the going rents. The San Francisco Planning and

Urban Renewal Association (S.P.U.R.), one of the city's most influential groups, has already incorporated many of these thoughts in its report on the project, and we can hopefully look to the developers and architects to give this proper attention.

For the most part, P/A is tremendously incisive and on target in writing about individual projects within the broader context of the city. Perhaps this addendum to your article will give a more local and current view of this project than your article was able to do.

ELLIS KAPLAN
San Francisco, Calif.

Architects Bemoan Critics

Dear Editor: You "cover" the Hartford National Bank and Trust Company Building (NEWS REPORT, MARCH 1968 P/A) by saying that while the architects paid attention to detail, they ignored the cityscape. This is truly presumptuous architectural criticism. You must realize that no qualified architectural firm would place a tower on any site without design consideration of all the surrounding buildings.

If your critic had seen the Hartford Bank Building, he would have realized that it was carefully designed to be a contribution to that city's skyline and especially to harmonize with the Statehouse. The photograph alone does not illustrate this point (nor the fact that it was a very limited site with complex problems of existing buildings), but a personal visit would have. We continue to bemoan, as do all architects, desk-chair criticism. Most people who have experienced the building have complimented us on the very point you have criticized.

It is all right to dislike a building—any building—but to dismiss a qualified designer by saying he did not consider the rest of the city is irresponsible.

RALPH JACKSON
Public Relations Director
Welton Beckett & Associates
Los Angeles, Calif.

Trihex Feedback

Dear Editor: I was very interested by Robert Le Ricolais' remarkable study entitled "The Trihex: New Pattern for Urban Space" (FEBRUARY 1968 P/A). I am busy with a comparison of various patterns for urban space—orthogonal, triangular, trihex, hexagonal, radial, and radial concentric—on points of view, distance saving, accumulation of traffic and intersection conditions. But, owing to the aid of computers, it has been possible to extend the comparison for all the points in the town, and, moreover, to introduce data better able to describe the reality (i.e., the nonuniform distribution of points of departure and arrival in the town).

This study shows, like the one by Le Ricolais, the advantages of the Trihex grid versus the orthogonal grid; it also shows that the radial-concentric grid produces good conditions for fluid circulation in small towns and that the hexagonal grid produces the best conditions in towns of greater dimensions.

PHILIPPE COYETTE
Urban Engineer
Liege, Belgium

Continued on page 18



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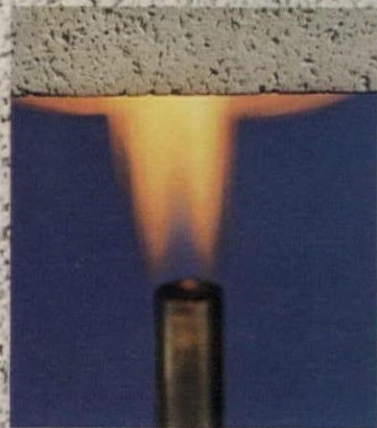
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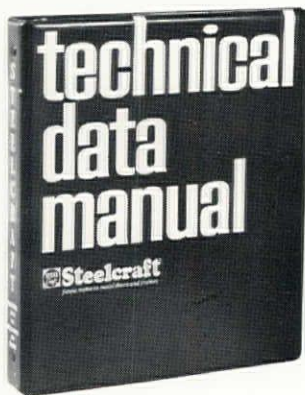
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Continued from page 12

CORRECTION:

A letter from Martin Kravitt (pp. 6, 10, MAY 1968 P/A) gives rise to the assumption that the cost of the Ford Foundation Headquarters was in the \$1000/sq ft range. This misconception was evidently arrived at by comparing the over-all cost with the square footage of only the area (16,500) cited in P/A's article (pp. 92-105, FEBRUARY 1968 P/A). Net rentable area is 239,300 sq ft, and gross building floor area is 287,400 sq ft, or in the range of \$55/sq ft, comparable to other prestige office buildings.

NOTICES

New Branch Offices

ECKBO, DEAN, AUSTIN & WILLIAMS, Architects, Landscape Architects, Planners, San Francisco, Calif., announce the opening of an office at 1649 Kapiolani Blvd., Suite 22, Honolulu, Hawaii 96814.

OKAMOTO/LISKAMM, Architects and Planners, San Francisco, Calif., have opened two new offices at 1 Yester Way, Seattle, Wash., and 295 Madison Ave., New York, N.Y.

New Addresses

P. D. BOBROW, Architect, 4455 Sherbrooke W., Westmount, Quebec, Canada.

THE PARD TEAM, Architects and Engineers, 148 State St., Boston, Mass. 02109.

Elections, Appointments

BENHAM-BLAIR & AFFILIATES, Architects and Engineers, Oklahoma City, Okla., have named HAROLD A. KOENIG, JR., a vice-president and principal of the firm.

BOLT, BERANEK & NEWMAN, INC., Acoustical and Lighting Consultants, Cambridge, Mass., announce that DONALD GERSZTOFF, JAMES NUCKOLLS, and WILLIAM WARFEL have joined the firm's New York office to form a new illumination design and consulting department.

CANDEUB, FLEISSIG & ASSOCIATES, Planning Consultants, Newark, N.J., announce that DOROTHY H. CRONHEIM has joined the firm as code enforcement specialist.

THE H. K. FERGUSON Co., Engineers, Cleveland, Ohio, has appointed RALPH A. BROOKSHIER assistant chief estimator for the firm.

IMERO FIORENTINO ASSOCIATES, INC., Lighting Designers and Consultants, New York, N.Y., announce that RICHARD D. THOMPSON has become director of theater and television studio facilities planning.

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Half Hollow Hills Community Library, Long Island, N.Y. Gibbons & Heidtmann, Architects, White Plains, N.Y.; Doris Allebach, Interiors Consultant.

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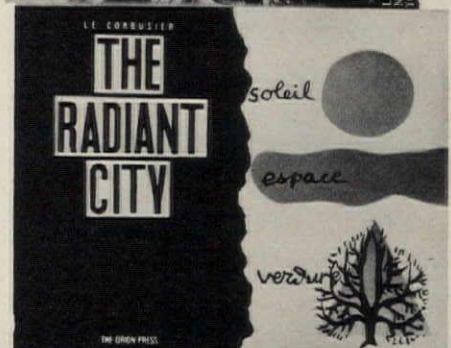
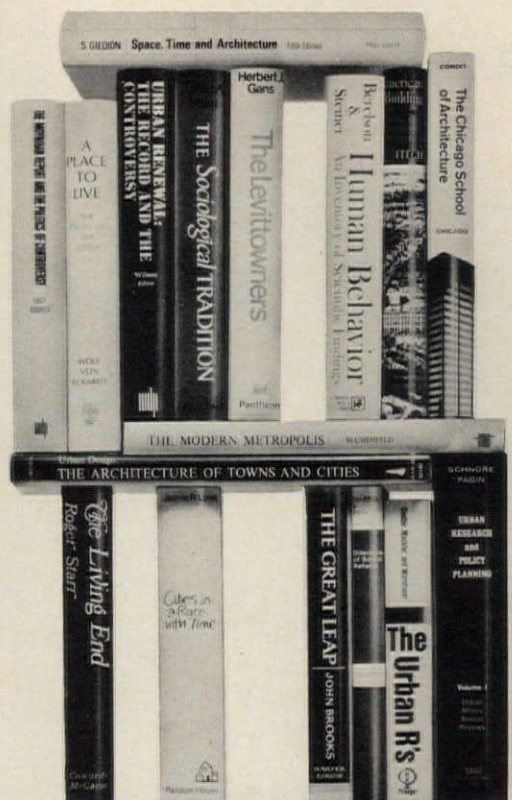
69380. A PLACE TO LIVE. Wolf Von Eckardt. Speaks out eloquently on a major issue: how we may still manage to shape an urban environment which fills man's basic needs. **\$10.00**

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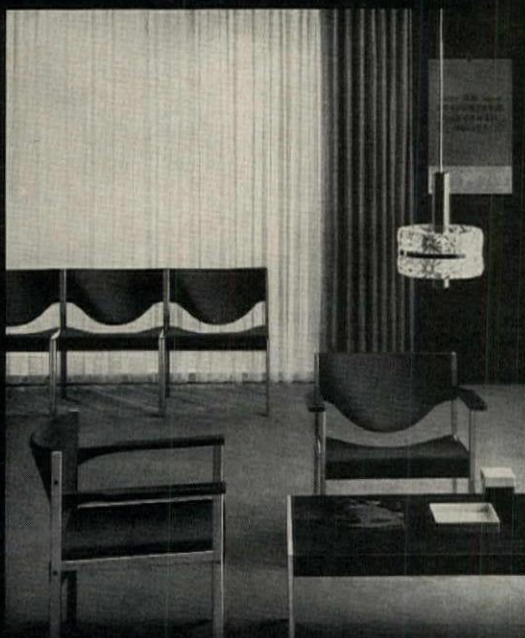


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TRADEMARKS AND SYMBOLS OF THE WORLD



BY
YUSAKU KAMEKURA
PREFACE BY
PAUL RAND

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by Yusaku Kamekura, Preface by Paul Rand

"It is easier to remember a person's face than his name" is a statement often used to explain the importance of trademarks. In this extraordinarily beautiful book, the best trademarks designed during the last 10 years are reproduced at large scale in black and white and color. The high level of imagination and skill that designers of many countries have brought to bear on this most important design assignment is clearly visible. The trademark designs presented cover a wide variety of fields, such as advertising, packaging, and television. Since a recent trend in trademark design is the use of color, the book contains pages printed in as many as six colors. Complete new designs for old and new firms — as well as examples of the re-design of old trademarks — are included. Examples range from Erik Nitsche's design for General Dynamics and Saul Bass's design for Alcoa to Giovanni Puitori's signs created for Olivetti products and Paul Rand's complete design programs for I.B.M. and Westinghouse.

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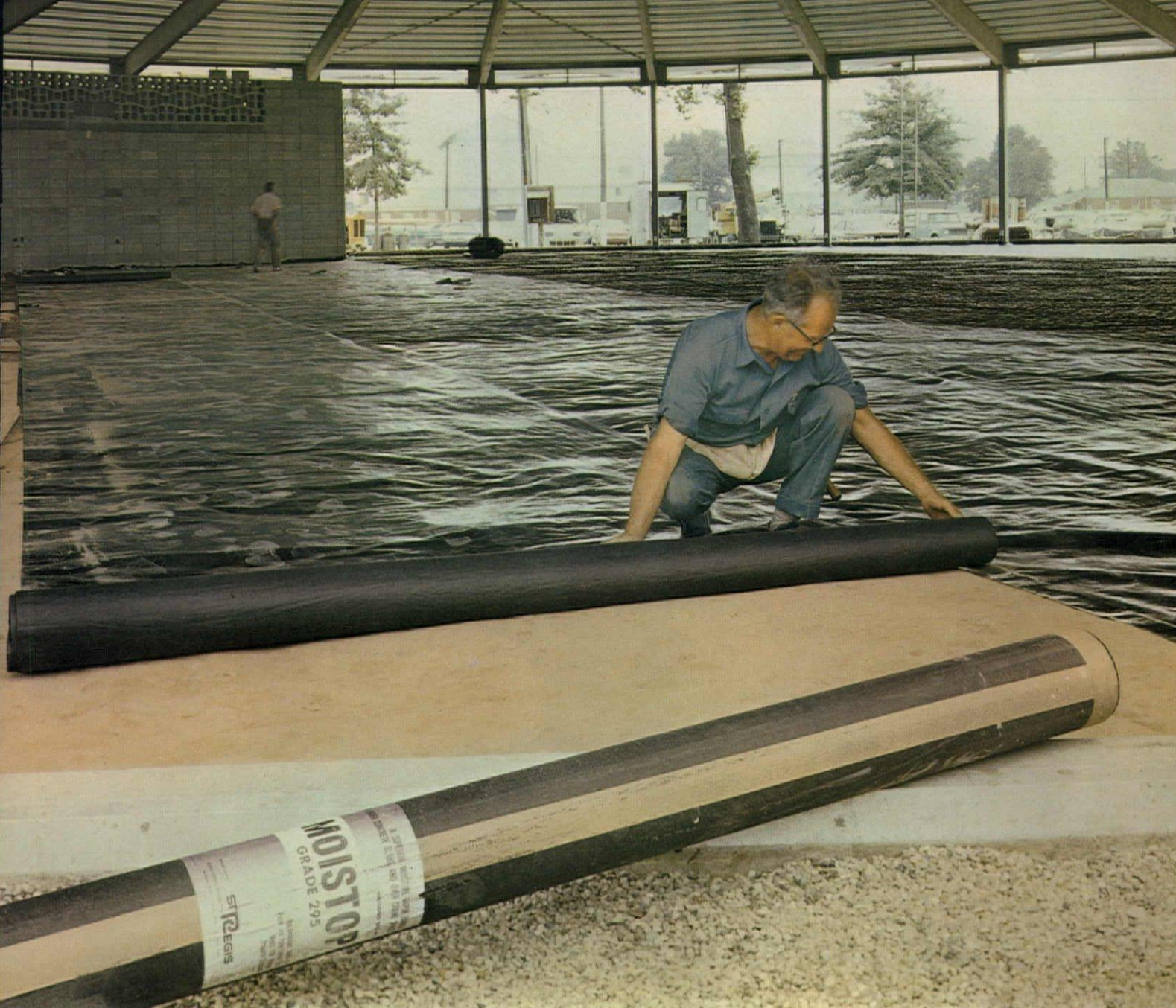
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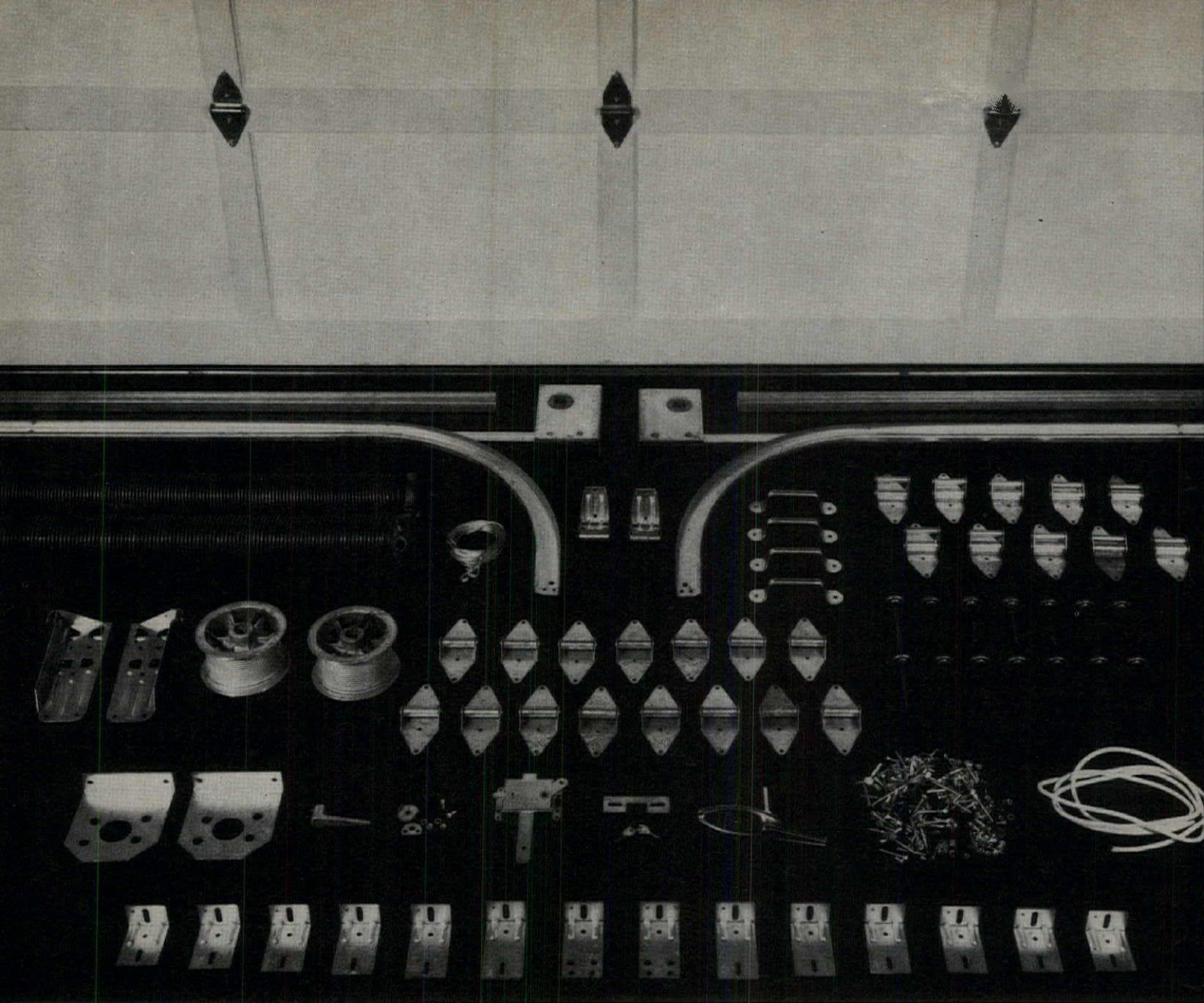
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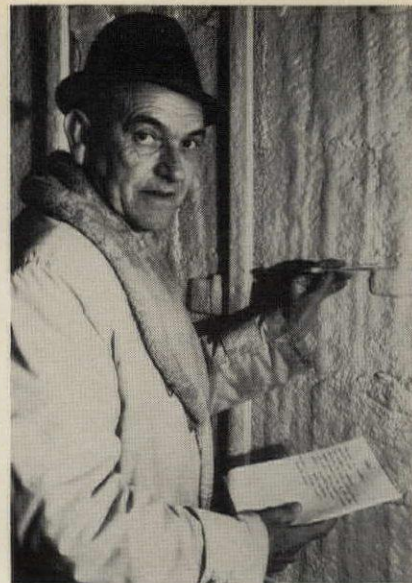
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Something-for-everybody package clicks in D. C. townhouse society

Capital idea: D. C. developer uses 1/4" urethane foam insulation to pare costs; boost comfort, floor-space and profit in townhouse units.

Town Square Townhouses, a creation of architects Macomber & Peter, masters of the Federal style, is an ambitious urban renewal project in Washington, D. C. Being built by Bresler and Reiner, when complete it will consist of 116 garden apartments and 180 3-story, single-family units, priced up to \$54,500.

Of brick construction, nearly all of the townhouse units are insulated with sprayed-on urethane foam applied by Bilton Insulation & Supply, Inc., D. C. specialists in this type of contract insulation since 1952.

Because of urethane foam insulation, each Townhouse unit gained a living space bonus worth \$572-\$1144* to the buyer.

Here is how the urethane foam gains were measured by the principals involved:

C. V. Davenport, Bilton executive vp and gen. mgr.: "The arithmetic is there for all to see. Urethane enabled

*Computed on basis of 2400 sq ft of living space in unit selling for \$54,500. Buyer is paying about \$22 per square foot. Better insulating ability of rigid urethane foam saves 26 sq ft to 52 sq ft or \$572 to \$1144.

the developer to gain up to 52 sq ft of extra floor space per unit. Urethane foam is a cryogenic insulant. With a k factor of 0.11 and as used in this instance (1" wall space consisting of 1/4" of urethane foam and a 3/4" air space), urethane foam replaces a 3 5/8" glass fiber batt. In addition, urethane foam is moisture-proof, the need for a vapor barrier is eliminated, and it safeguards electric wiring and plumbing fixtures against fire, freeze-ups and corrosion."

Potomac Electric Power Company determined that this wall design met their Gold Medallion insulation requirements. They estimate it will cost the average Town Square Townhouse owner about \$305 a year to heat his home, \$60 to cool it. A dollar a day for a \$54,500 home investment isn't bad.

B. Reiner, Bresler & Reiner builders: "There is no question about the customer benefits of urethane insulation. I would be sold on it just for the space savings it offers. Most home-buyers don't care what insulation is used, but we publicize urethane as a key selling

point. We translate the measurable extra floor space, consistent comfort, warmer wall areas, lower heating and cooling bills, and they are impressed."

R. A. Dwyre, Bilton sales mgr.: "With batt-type materials, builders often have an expensive, irksome problem of securing dry wall to the studding. Because of the slick vapor barrier necessary, nails keep popping out. With urethane, one man can complete two walls each on three floors (1140 sq ft) in about 30 minutes."

H. White, project mgr. and supt.: "I've been in the construction business for 30 years and I have never seen an insulating material that provides a better seal than sprayed-on urethane. It's clean, simple and fast in application, and leaves no mess of scraps to clean up."

The foam chemicals system for this project was supplied by Isocyanate Products, Inc., New Castle, Del. 19720. For the full story on urethane foam insulation in a wide range of projects, write MOBAY CHEMICAL COMPANY, Code PA-78, Pittsburgh, Pa. 15205.

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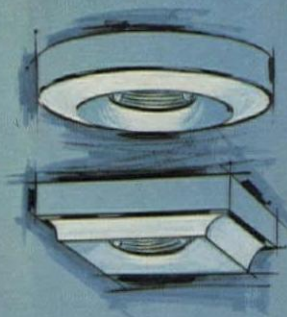
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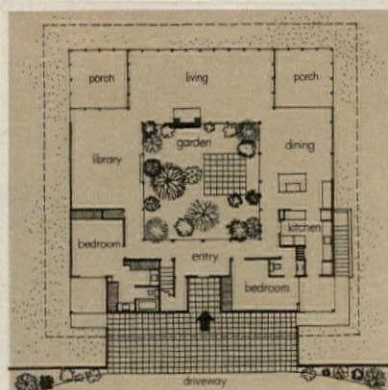
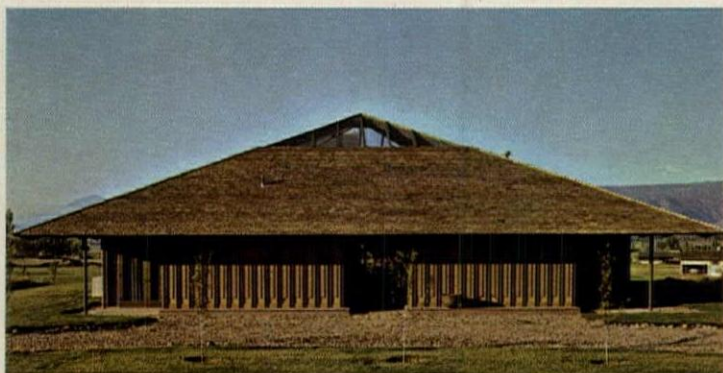
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Architect: Hobart D. Wagener.

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Usually, open plan derives its character by using portions of the wooden structural frame as both framing and finish. Solid or laminated heavy beams and timbers, boards, rugged framing, roof decking and siding are all blended together to create dramatically effective total environment.

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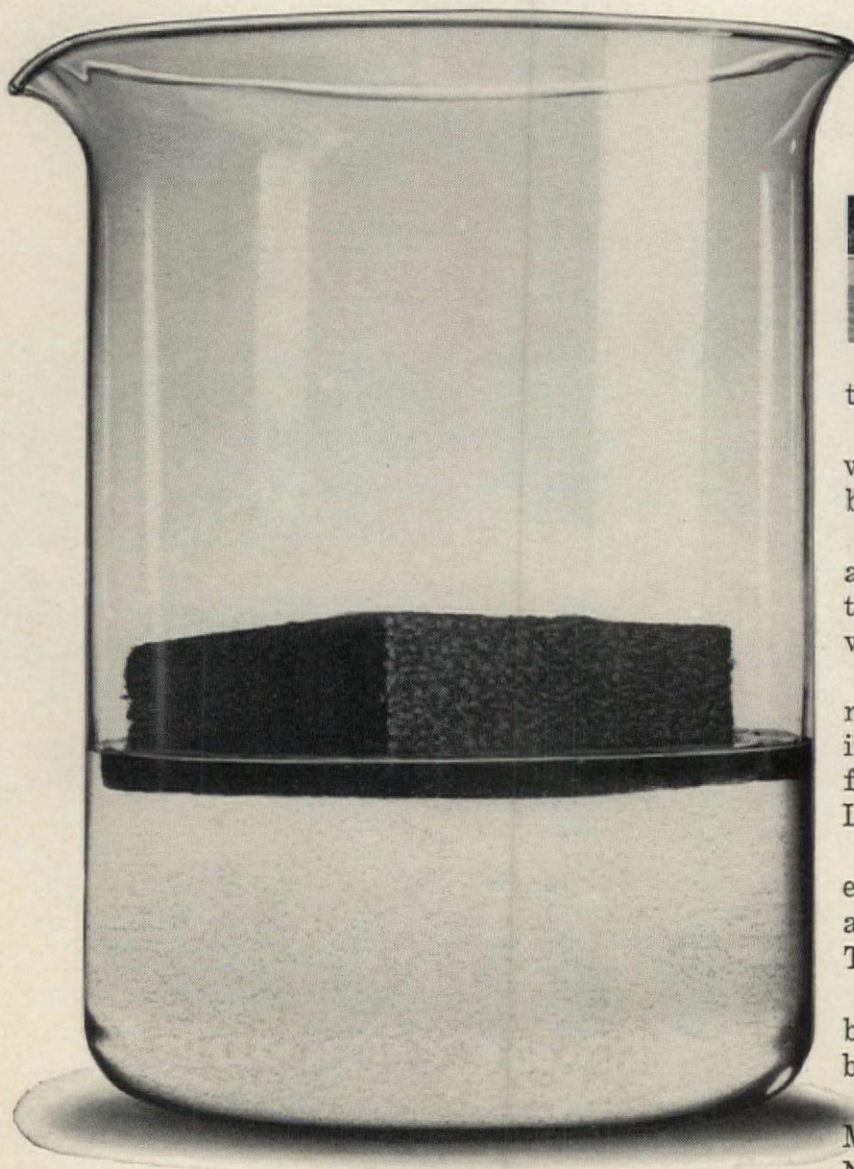
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P/A NEWS REPORT

Progressive Architecture's Monthly Digest of Buildings, Projects, People and Products

July 1968

TOTAL SCOPE WITH GROPE



Photo: Steven A. Hanten



Pritchard.



Gropius, his wife and granddaughter, Sert.

BOSTON, MASS. "Live longer; through endurance you may become somebody," said Walter Gropius on the eve of his eighty-fifth birthday. They were the modest words of a man who has been "somebody" for half a century, a man who has left his imprint on this century's architecture and design through the essentially non-egotistical pursuits of collaboration and teaching. "Admiration and affection do not often go together," said Jose Luis Sert in a brief speech at the Harvard party attended by 500 of Gropius' friends and colleagues that May evening. "However, Grope, because he is a wonderful human being with universal interests and appeal, has been able to unite both admiration and love."

The Harvard party was or-

ganized with banners, balloons, and buttons around a political theme: "Grope for President," in the way parties at the Bauhaus were staged as happenings with a single unifying theme. The buttons proclaimed "There's Hope with Grope," a band played in Seaver Court, and Constance DuPee, a student at the Graduate School of Design, which Gropius headed from 1937 to 1952, presented him with a "Grope Jacket," a white butcher's jacket with "T.A.C. Walter" stitched above the breast pocket.

It was typical of the thoughtfulness of the party's organizers that they brought Jack Pritchard over from England for a reunion. In 1934, shortly after the Nazis had closed the Bauhaus, Pritchard arranged for Gropius and his wife to come to

England. Urbane and witty, Pritchard summed up the lessons of the Bauhaus: "I can't help thinking that there would have been less restlessness amongst students throughout the world if we had learned more from the Bauhaus experience. Gropius insisted that the students should learn to understand their materials by working with their hands — making mistakes and profiting thereby. This lesson should be applied to the control of their own environment. Better to practice democracy as a student than make mistakes afterwards. . . . Your dreams of the 20's, dreams for a better environment in which architects and planners will join in building

a better world, are materializing. . . . Architects will have to follow your broad approach and become generalists, rather than specialists. We share your faith in teamwork, but at the same time we believe we should remain architects in the broadest sense of the word and not get side-tracked, which is very easy today."

In all, Dr. Gropius spent two weeks of May celebrating. In Germany, for the opening of the 33,000-sq-ft, 50-year jubilee Bauhaus exhibit, he was winned and lauded. The exhibit will move from Stuttgart to Paris, Amsterdam, London, Tokyo, and New York. Gropius is, appropriately, back at work.

COME TO THE FALLS



NIAGARA FALLS, N.Y. Moshe Safdie, who won almost instant recognition for his Habitat housing at Montreal's Expo 67 last year, is the architect for an extensive 82-acre redevelopment design here that encompasses the heart of the downtown business district. Collaborating with the Newark (N.J.) planning firm of Candeb, Fleissig & Associates, Safdie presented plans to Niagara Falls that proposed a mixture of activities in the downtown area, with land being used for retail shops, offices, hotels, residences, and entertainment facilities.

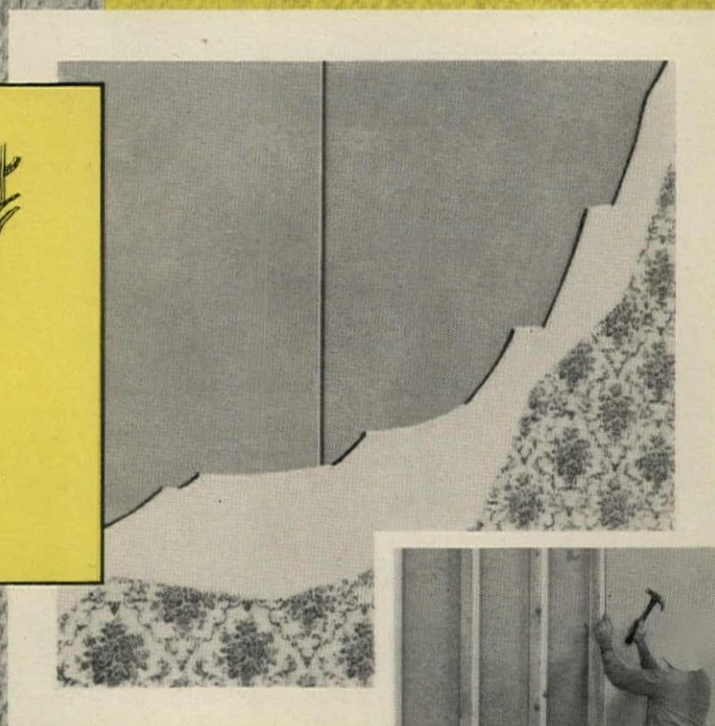
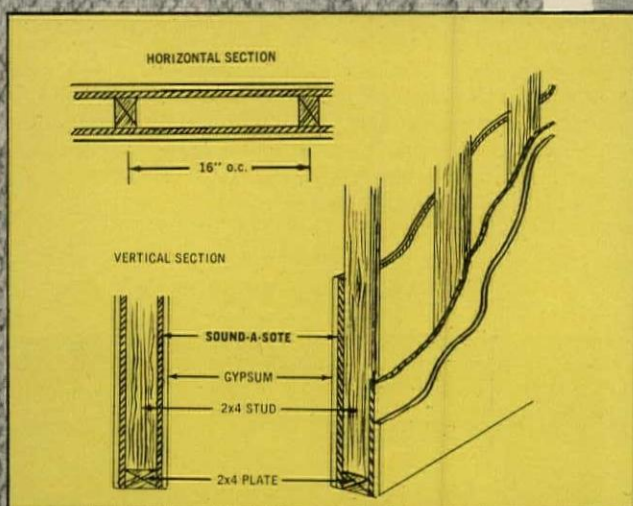
In March 1968, HUD approved the city's application for \$15,300,000 in urban renewal funds, for Rainbow Center Project No. 1, after Candeb, Fleissig had put forth a basic concept for redevelopment. The city then retained the planning firm and Safdie to develop design recommendations that establish a framework under which public and private development can actually be carried out. The recommendations were presented in late May.

Crux of the Niagara Falls plan is an attempt to make the city a place to come to, rather than just a place to

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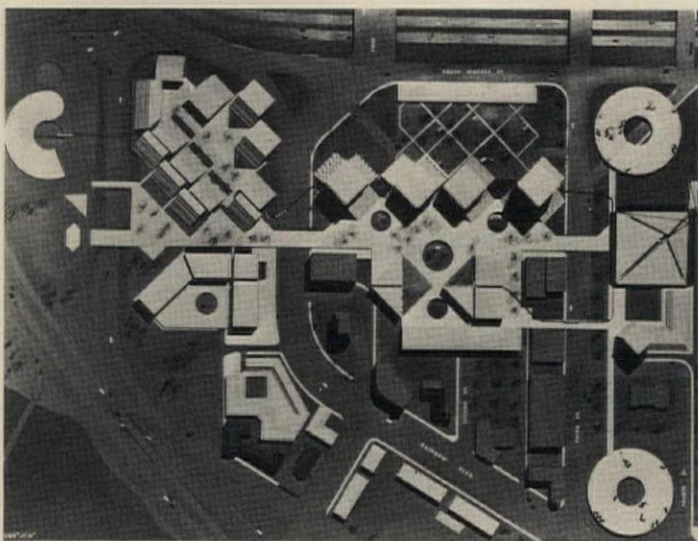
pass through on the way to the Falls. And one of the chief objectives is to separate cars and pedestrians and to eliminate exposed parking from the city center.

According to the planners, the project area is ripe for development. There is no cohesive commercial core, they point out. Over half the structures in the area are substandard. The existing street pattern is rigid and poorly designed, so that intersections are awkward and traffic congested.

To overcome these existing obstacles, the designers suggest an open, elevated pedestrian mall, 14' above grade, stretching from a convention center and two circular parking garages at one

end to residential structures with a view of Canada to the west. Between are lines of structures, each housing several functions (apartments, offices, shops). The mall's spaces vary as it proceeds from east to west, and beneath it will be two levels of parking for about 5000 cars.

Once a visitor has parked, he can step onto a minirail that travels through the public spaces of the structures, on the mall. Possibly the minirail can be extended over the Falls. Safdie's suggested structures would be stepped in height from 10-story buildings along the fringes of the river to 30 stories in the central downtown area, giving everyone a view to the west.



INTO THE CITY, SEEKING, GO STUDENTS FROM YALE

NEW HAVEN, CONN. In New Haven and New York last semester, 30 Yale undergraduates preparing for careers in such diverse fields as medicine, law, economics, and architecture got right down to the nuts and bolts of urban problems and found out just why it's so hard to rehabilitate a slum, build an urban expressway, or reduce crime in a large city. The students were participating in two seminars designed to let them discover on their own all the forces at work in neighborhoods, government agencies, and the business community that hinder or encourage good city planning. Although the courses were offered by the Department of City Plan-

ning, students in the department were not invited to participate, for the goal was not to teach professional planning, but to involve and stimulate awareness in students who, as future businessmen, professionals, and politicians, will be influential in shaping policies and programs affecting city life.

Practical Planning: Ask the People—Under the direction of Alex Garvin, whose work in Philip Johnson's office keeps him in New York most of the week, students explored New York neighborhoods, talking with members of citizens' organizations, politicians, and local businessmen, gathering statistics and soaking up attitudes. The first course, geared to the problems of New York City as a whole, presented the students with specific

problems in four city areas. Each student was given a specific client, program, and presentation audience and was charged with finding a solution that would satisfy both clients and critics. In developing their solutions, students were sometimes surprised at the information they uncovered, and, at least once, they were appalled at their own efforts. When asked to provide housing for a large number of families without destroying existing housing, the only practical solution suggested was a 43-story tower that would have been entirely out of scale with existing structures. It would work, but it wasn't what the students had in mind, nor what they thought the neighborhood wanted.

The second seminar focused on Harlem as a device for grasping the problems of cities generally. In this course, students were presented with problems based on actual conditions, and asked to prepare "model" programs, explaining the reasons for the problem, the methods to be employed in solving it and the philosophy behind their solution. Problems fell into general areas such as crime and police protection, rehabilitation and code enforcement, housing, and unemployment. Expert speakers were invited to discuss these problems before the class; students were then sent into Harlem to collect specific information. After on-the-spot investigations of the problems from all points of view, students were asked to prepare a paper giving their conclusions on the ideal way to plan for a city, based on their Harlem experiences.

Both seminars were experimental, and, significantly, will probably be altered next year to include more involvement with physical design, at the request of students who participated this year; the paper required in the second course will probably be dropped.

Right now, Garvin is working on a third seminar, to be given this summer in three cities. Students from as wide a range of fields as can be gathered will work in New York, New Haven, and Boston. They will hold jobs in government agencies (budget bureau, mayor's office, bureau of public health, and so

on), and in various types of private community organizations. Twice weekly, they will meet with instructors to synthesize their experiences and knowledge. In New York, government offices have offered summer positions to Yale students, and community groups are extremely eager to accept the added help.

Urban Studies on a Larger Scale—About 80% to 85% of each student's salary for the summer course will be paid by Yale out of a fund for the establishment and operation of a new Urban Studies Institute. The idea for the institute has been evolving since last September, when the president and the provost of the university expressed their desire for a body that would assess and fill the university's gaps in the field of urban affairs. They were anxious to fill educational needs in the university itself as well as to find ways to involve the school in problems of the community. At a time when many schools are developing interdisciplinary programs of urban studies, Yale has come up with an interdisciplinary approach that answers three needs: involvement of non-architectural or planning students, basic research on urban life, and immediate help for the school's own community. Although development of the institute's programs is still far from complete, some of its responsibilities and functions have been defined, and various programs are being implemented.

Teaching: New Courses—Courses for both graduate and undergraduate students will form a major part of the institute's activities, and several new courses, such as the three-city seminar described above, will be added to the university catalogue. As a university-wide facility, the institute will offer its courses to students in all departments, rather than grant degrees of its own. Main emphasis will be on the social sciences, such as economics, sociology, law. Says Joel Fleischman, director of the institute, "We intend to continue to graduate people with technical skills as we have done in the past, but we hope to give

these skills a new, substantive focus." Some architectural courses will come under the jurisdiction of the institute, but there may also be such innovations as programs for people who intend to fill decision-making positions in city governments.

Research: New Approaches

Research programs sponsored by the institute, some of which are already underway, will be carried out by both students and faculty; they will be attempts to gain new knowledge about the factors that create urban problems and shape urban life. Typically, emphasis will be on cooperative efforts by members of different academic departments. A project getting started now, for example, is under the direction of professors of sociology, economics, and, political science, and, using New Haven as a basis for its findings, it will try to establish qualitative measures for evaluating qualities of life in cities.

Action: More Involvement

Finally, the institute is developing a number of programs oriented toward direct action in New Haven — programs that will be of immediate benefit to the community. Although the university does not wish to indicate, until these programs have been set in motion, just how they will operate, it does expect the institute to work through the three-month-old Yale Council on Community Affairs. So far, the council has been working with New Haven's Black Coalition, helping to set up neighborhood corporations and hire planners. In the opinion of its director, what makes Yale's Urban Studies Institute different from similarly titled organizations at other schools, is the three-pronged nature of its effort. Teaching and research will be important to the institute, but its emphasis on direct help for the community is what most such centers lack, and what most cities need.

CALENDAR

The Chicago architectural firm of Fridstein, Fitch & Partners announces architectural tours of Chicago's fam-

ous buildings. Emphasis is on the Chicago School and its influence today. Tours, limited to organized groups of 35 or more, are available by arrangement with: Fridstein, Fitch & Partners, 351 E. Ohio St., Chicago, Ill. 60611 . . . The Plastics Institute of America offers two summer courses; one at the University of Massachusetts, Amherst, Mass., the other at Stevens Institute of Technology, Hoboken, N.J. The course at Stevens will treat "PVC — Theory and Practice," and will be given July 29–August 2. At the U. of Mass., the course is "Polyolefins — Theory and Practice." The course will run August 19–23. For details, write to: Dr. Albert W. Meyer, Executive Secretary, PIA, Stevens Institute of Technology, Hoboken, N.J. 07030 . . . The Annual National Convention of the National Builders' Hardware Association and the American Society of Architectural Hardware Consultants will take place August 4–7 at the San Francisco Hilton Hotel. Write for program to: National Builders' Hardware Association, 1290 Avenue of the Americas, New York, N.Y. 10019 . . . The 1968 Symposium at Stockholm on City Planning and Architecture is open to those engaged as professionals or students in any of the planning professions. The symposium consists of five days of lectures, discussions, and tours devoted to achieving an understanding of "the Swedish accomplishment — the creation of a slum-free society." Address inquiries to: Symposium at Stockholm, Box 9137, Stockholm 9, Sweden.

OBITUARY

Harrison M. Ives, the man who introduced double glazing to the construction industry, died May 15 in Winter Park, Fla., at the age of 74. Ives was Libbey-Owens-Ford Glass Company's first sales manager for Thermopane, the first successful, mass-produced insulating-glass unit. For the last 16 years of his career, which ended in 1959, he directed L-O-F's nationwide program to acquaint architects, builders, and homeowners with the qualities of Thermopane.

SOUL CITY



Polyethylene sheets at ridge admit light to A-frame plywood tents, and in hot weather are removed to increase ventilation. Front curtains of paired family units can be draped over extended ridge poles to create protected space between plywood shelters.

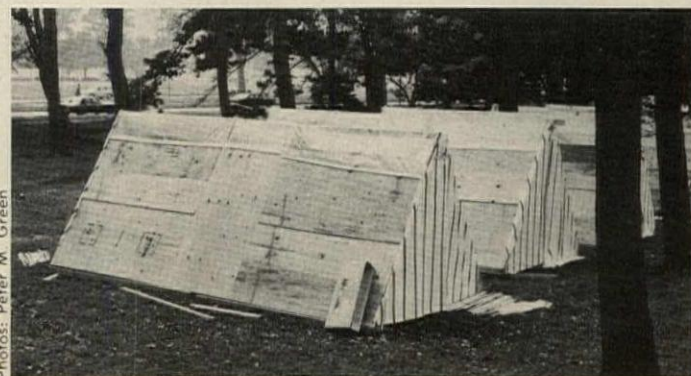
WASHINGTON, D.C. Soul, that expressive rallying cry for the black man's rights, lifts the minimal housing of Resurrection City here into a rich experience for communal living. The "city" houses some 3000 participants of the Poor People's Campaign, organized by the Southern Christian Leadership Conference to dramatize the need for Congress to provide funds for a multitude of social and economic needs.

Congress dawdled over giving permission for the encampment to be erected, but finally allotted a good site: 16 acres in West Potomac Park along the reflecting pool between the Lincoln Memorial and the Washington Monument. During World War II, the site contained military barracks, which, now departed, bequeathed the line of fire hydrants that run through the middle of the site and the sewer and water lines under it.

Accommodation is minimal because funds are low. Families are housed in pairs of lean-to plywood shelters to separate parents from children, and everyone else lives

in A-frame dormitories. In all, there are some 650 units. Both types of living quarters are really tents, not houses, because there are no room divisions, water or heat. Cost estimates showed that tents could be built for less with plywood (\$80) than canvas. Components are kept to a minimum, and unskilled volunteers prefabricate tents in the grounds of Xavierian College a few miles from the park. Equally unskilled crews put together the units with hammers and nails. With unbridled energy, enthusiastic crews can prefab and erect one unit in 20 minutes.

A committee of architects and planners began working on the layout and details of the housing last March. From suggestions offered by neighboring architects and students at Howard University, they developed the present two tent designs and those for communal facilities such as shower rooms and offices. Heading the committee, and now serving as field superintendent, is John Wiebenson, who teaches at the University of Maryland and at Yale.



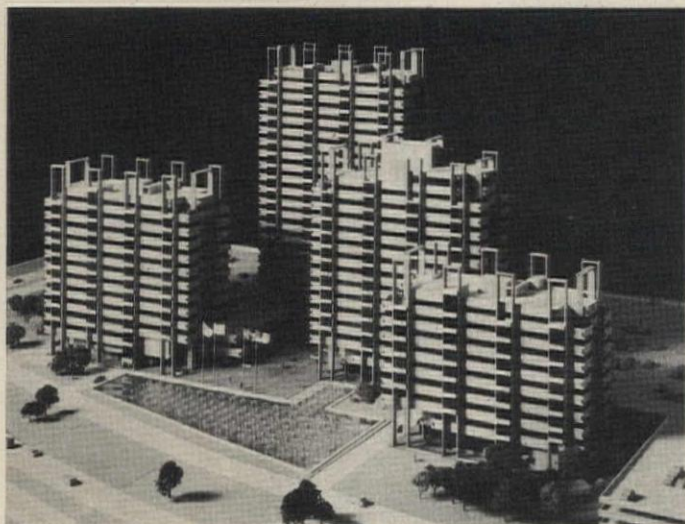
Photos: Peter M. Green

Wiebenson, a soft-spoken, almost shy man, literally works out of his hat at the site. His badge of office is a floppy-brimmed fedora, recognized by all the guards and marshals. He carries drawings, memos, and notebooks around with him, and when he needs to make a phone call he searches for a dime for the pay phone.

Wiebenson sees Resurrection City as an example of a community in which facilities are provided that individuals

can mold to their particular way of life. He hopes people will move their tents around; and at the time of writing he was arranging for cans of brightly colored paints to be distributed to the occupants for use in interior decorations. After only a few days, signs and posters broke up the plain sides of the plywood tents. Wiebenson plans to record what people do to their "houses" and secretly hopes that they can stay beyond the three-months permit.

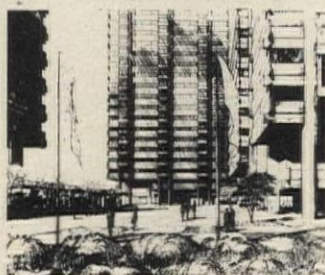
RUDOLPH OFFICE TOWERS



DALLAS, TEX. Paul Rudolph, who has worked out of a New York office since leaving the chairmanship of the Department of Architecture at Yale in 1965, has just completed the design of a \$20 million office complex here. In all, there will be four buildings, ranging in height from 9 to 22 stories, and providing some 700,000 sq ft of office and commercial space. The first one will get under way shortly and be completed sometime next spring. The entire project is expected to take five or six years.

The site is at a key interchange on the Stemmons Freeway, eight minutes from the central Dallas business district and five minutes from Love Field. To be known as Brookhollow Plaza — after the Brookhollow Corporation, the real estate investment firm whose project this is — the buildings will use only a portion of the Brookhollow Corporation's 160-acre site that runs for about a mile along the Stemmons Freeway.

The buildings will be set in



a staggered line around a central plaza lined with restaurants and shops. Between the plaza and the freeway will be a $\frac{3}{4}$ -acre reflecting pool sprinkled with more than 80 fountains. A four-level garage with space for 3000 cars will flow around three sides of the complex.

Rudolph chose precast, prestressed concrete for the structures. Precast exterior columns will support the building, leaving the interior floor areas column-free. The supporting columns are grouped in pairs, and the area between each pair will be enclosed on three sides in glass, forming offices that project from the sides of the buildings. These offices provide the

interior effect of being on a corner of the building, leading Rudolph to comment that, "In this way, it has been possible to create floors with as many as 16 corner offices instead of the usual four."

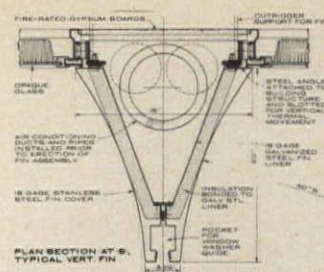
CLEAN, CLEAN



ST. PAUL, MINN. If things go as planned, a recently completed 20-story office building here will, within a year or so, give itself a bath in public every three months, perhaps more often.

The 270,000-sq-ft Osborn Building is the new home office of Economics Laboratory, Inc., one of the U.S.'s largest producers and marketers of cleaning equipment, products, and sanitation systems. Understandably, the company wanted its building to be a showcase of advanced cleaning techniques, one of which is so new it is still being developed. Economics Laboratory is working on a mechanical device that will run up and down the face of the building in roller channels provided in the stainless-steel mullions, cleaning, with a yet to be devised compound, both the steel and the glass windows. According to one source, the company feels it can produce such a device for about \$35,000, and, if so, it should offset the normal cost (\$10,500) of cleaning the exterior of a comparable building in about four years. After that, the only cleaning costs would be the relatively minor ones of maintaining the system.

The stainless-steel mullions on which the device will ride are set 4'-3" o.c. and project 20" from the glass line. Within are air-conditioning pipes and air ducts. Tinted glass strips run between the mul-



lions from lobby to top floor.

Originally designed as a 13-story building with the structural capacity to be expanded to 23 stories at an unspecified future time, the Osborn building added seven additional stories just as the steel framework for the first 13 was completed. Architects Bergstedt, Wahlberg & Wold (Clark Wold Architect) revised the working drawings, issued change orders, and upped construction contracts \$3 million over the original \$5 million, with hardly a break in stride.

At ground level, the building rests on lobby-high columns faced in black marble, and the entire structure rises from a landscaped public plaza designed by architects Hammel, Green & Abrahamson.

NEW DEAN AT YALE



NEW HAVEN, CONN. Since Gibson A. Danes left Yale just a year ago to become Dean of Visual Arts at Westchester College, Yale's school of Art and Architecture has been without a dean. During the interim, however, Howard Sayer Weaver, Associate Secretary of Yale University and Assistant to the President for External Relations, has been serving as acting head of the school. Now, he has been officially appointed dean.

Weaver, whose background includes diplomatic service, business, printing and graphic

arts, and academic administration, concluded his other duties with the university administration in June. He will continue nonetheless to develop plans for incorporation of television and other media in Yale's educational programs and extend the university's resources to the community. Weaver is also president of the newly established Yale New Haven Educational Corporation, an organization created to design visual materials and television programs, for educational use at Yale and in the New Haven School system.

EXPLOSION COLLAPSES PRECAST BEARING WALL



Photo: London Daily Express

LONDON, ENGLAND. The collapse of a portion of a recently opened, 23-story apartment house here in mid-May was laid to an explosion that blew out a portion of an exterior bearing wall. Authorities theorize that a gas leak may have precipitated the explosion when an early morning riser on the eighteenth floor tried to light her stove to heat a cup of tea. As the portion of the bearing wall gave way, the floor slabs and walls of that corner of the building collapsed like a tower of dominoes. The local borough architect was quick to point out that "there is nothing structurally wrong with the building. The undamaged flats could be reoccupied immediately if we could persuade the people to go back."

The damaged building is one of nine similar apartment structures going up in the area, using the Danish Larsen and Neilson prefabrication system. Like all prefab sys-

tems, it is meant to minimize on-site construction work. All walls, floors, and stairways are of precast concrete, and all are installed in one-story-high, loadbearing sections.

So far, the L & N system has not been used in the U.S.,

but it has been used widely throughout the rest of the world. And although not all architects are convinced of the merits of heavy prefabricated systems, there are no indications that the system itself is faulty.

MIXED-INCOME HOUSING PROJECT IS NEIGHBORHOOD-BACKED



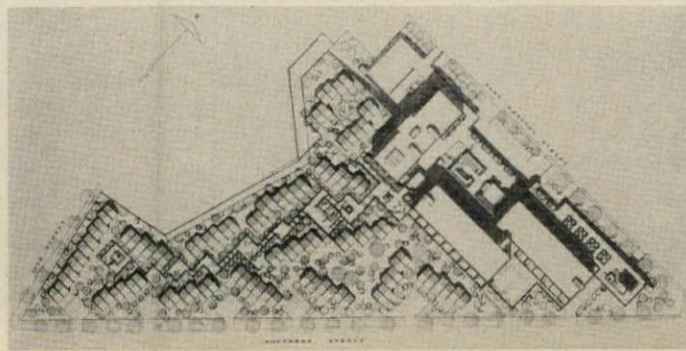
WASHINGTON, D.C. The outstanding advantage of a low- and middle-income development proposed for downtown Washington is that it will go up on 8½ acres of vacant land. No one will be forced to move from the site. Another advantage will be 92 low-income townhouses, financed by the HAA, and built on the Turnkey 3 principle, which will provide eventual home ownership for families unlikely to be able to afford it otherwise.

Also planned are a high-rise apartment house with 212 units for elderly occupants and a high-rise 221 (d) (3) building with 265 units, mostly two bedrooms.

But Capital View Plaza, as it is called, will be far from a typical development. In fact, its departure from the typical seems to have made its path toward total approval a relatively smooth one for developer Alan Kay.

The site is in an area of developments and single-family homes, and the neighborhood

desired play space for the children, a day-care center, professional offices, shops and entertainment facilities for everyone else. Especially needed was a supermarket. Architects Brown, Wright, Mano of Washington knew these things, because they went into the community and asked. Working through the Capitol View Civic Association, a 30-year old neighborhood group with about 1000 members, the architects discovered there was antipathy to previous plans for the land



that called for seven high-rise slab buildings.

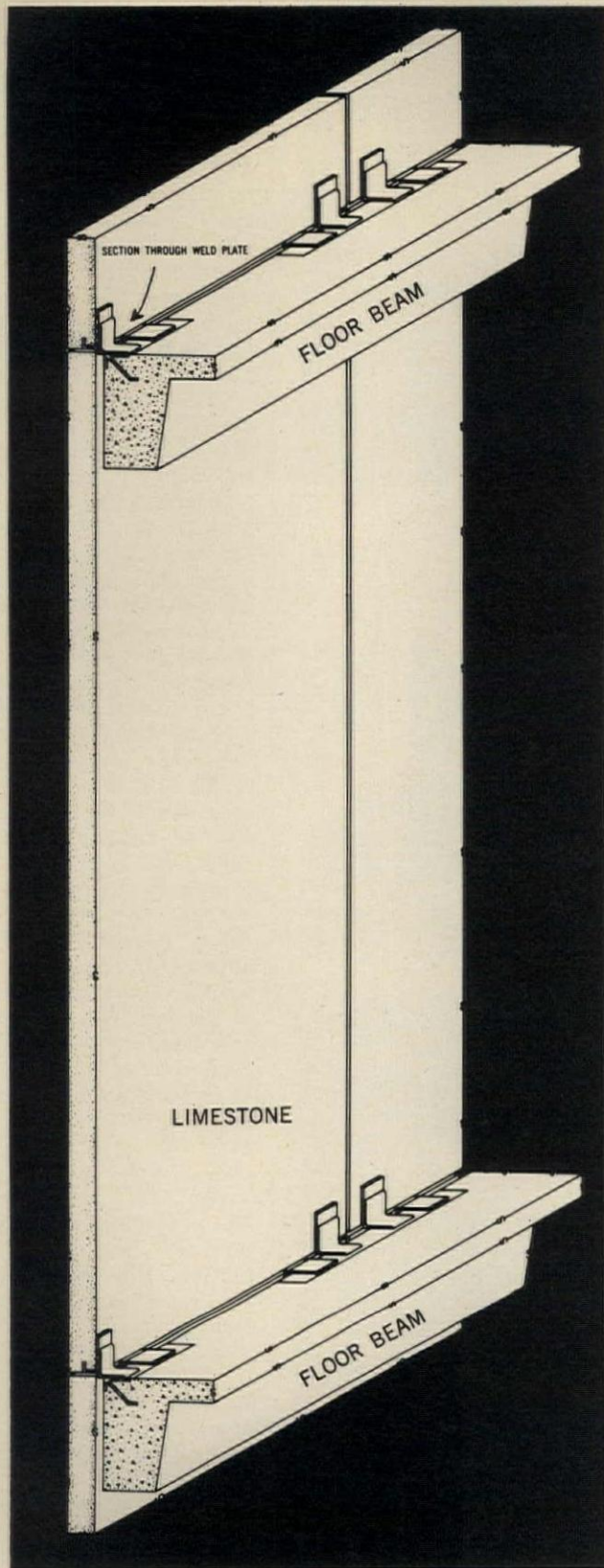
Perhaps most attractive to neighborhood residents is a scheme for neighborhood management of the project. Current plans call for the formation of a nonprofit corporation, the Capitol View Development Corp., created jointly by the Capitol View Civic Association and the Alpha Omega Chapter of the Omega Psi fraternity. The sponsoring cooperation will own the FHA financed portion of the project and will manage the public housing portion under a contract with the National Capital Housing Authority.

But the community is also pleased by the ratio of moderate-income to low-income dwelling units and the fact that the low-income families can achieve home ownership, for in this way the community is sure to attract families with concern for neighborhood improvement.

Not the least of the factors about the project that pleased the community is the proposed quality of its architecture. The high-rise buildings will be grouped around a central plaza play area, beneath which will be commercial shops. In a way, these buildings will serve as a gateway to the Capital View area, for the architects obtained a zoning variance permitting them to build 11 or 12 stories, twice the height of structures previously permitted there. Behind the three high-rise structures, the two- and three-story turnkey houses will be staggered around parking and open landscaped areas. Their arrangement is such that the spaces between them is varied, and each has its own generous allotment of privacy and light.

COMPETITIONS

Primary sponsors of a new design competition are the New York Paint, Varnish and Lacquer Association, the New York Chapter, AIA, and the American Institute of Interior Designers. Two **Spectrum Awards** will be given for the most effective uses of color in paint to beautify commercial and institutional buildings in eight categories: apartments, banks, factories, office buildings, hotels and motels,



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restaurants, retail stores, and schools. Entries close September 1, and awards will be presented in October. Entry forms are available at the New York Paint, Varnish, and Lacquer Association, 2 Park Ave., New York, N.Y. 10016 . . . The American Institute of Steel Construction announces opening of its **1968 Prize Bridges Competition**. Any steel bridge completed and opened to traffic during the calendar year 1967 is eligible for entry. Submissions must be postmarked before August 25; judging will occur September 15. Write for details to: 101 Park Avenue, New York, N.Y. 10017.

HOUSES BLOOM IN BROOKLYN

BROOKLYN, N.Y. Much of the highly publicized middle-income exodus from Manhattan—and the high cost of living there—is getting no farther than Brooklyn. Here, in six major areas, a renaissance is taking place that is transforming not only the borough itself but also the attitudes of the people who live in it. One hundred or more years ago, the streets of Brooklyn were lined with single-family homes. More recently, many of these were converted to rooming houses to hold the hordes of the city's poor and near poor. Now, as the pendulum swings back again, home-hungry middle-income families are buying the old houses, converting them to single or double-family living and moving in—to stay.

Like any other pioneers, these people are bound by their common cause. Though they come to Brooklyn for many reasons, they all desire a house of their own in the city, and "because they have common problems and interests, these people create an instant neighborhood," noted one observer recently.

To stand in a group of new Brooklyn homeowners is to hear unflagging talk about fireplaces, marble mantles, stained glass, and moldings.

As one walks through the area, and sees signs of restoration—a tree being planted at the curb, a cornice being repaired, a coat of paint going onto a front door—one realizes that in 5 or 10 years



Carroll Gardens



Cobble Hill



Boerum Hill



Photo: Nancy Flowers

these areas will achieve, and perhaps even sustain, the charm of Brooklyn Heights. The Heights, along the waterfront directly across from Manhattan's financial district, is one of the most desirable neighborhoods in New York. Last year, it was made a Landmark District by the city's Landmarks Commission, assuring its preservation. The Landmarks Commission has already had hearings on three other Brooklyn areas: Cobble Hill, Carroll Gardens, and Boerum Hill.

Prices of homes in the Heights start at about \$100,000. But despite this deceptive financial background, it maintains the look and feel of a small town. With its narrow streets, its towering sycamores, its wonderful variety of houses, its back alleys, and its promenade above the harbor, it could, with only slight adjustments, be a Midwestern town. Change the sycamores to elms, put small yards between the houses, turn the promenade into a central green, and you have Wauwatosa, Wisconsin, instead of a neighborhood in New York. Eventually, much more of Brooklyn will take on this flavor. It seems to be what almost everyone wants.

In the 24-square block area of Boerum Hill, for example, an estimated 174 houses have been sold in the last four years and 30 others are under contract. Most of the activity in the 750-house area has occurred in the last two years.

Six years ago, when Miss Helen Buckler, a writer and publicist from Manhattan, bought and renovated a brownstone in the area, she started the movement. Because the area was run down, it was possible to purchase a house for \$10,000 to \$15,000 and spend about as much again fixing it up. But at the same time, the deteriorated conditions made banks cautious about financing mortgages there. The mortgage picture has now run full circle. As conditions improved, some banks provided mortgage and renovation money; some, like the South Brooklyn Savings Bank, even encouraged such loans. Now, however, with interest rates soaring and money in demand, banks are finding it more profitable to invest in ventures that do not keep their money tied up for

Photos except as noted: Richard C. Lewis

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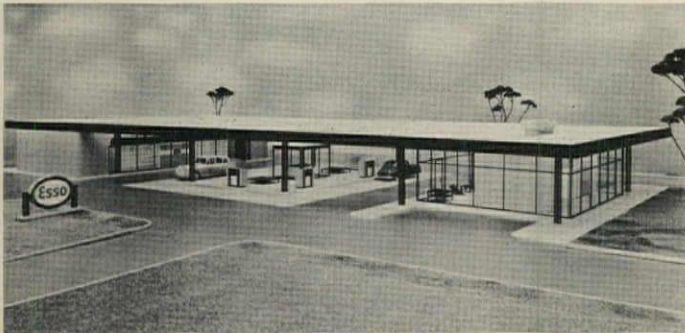
25 or 30 years.

Many individuals have overcome the money problem by taking mortgages from the sellers, who are moving, income in hand, to Staten Island, or to the comparative wilds of Long Island.

Houses in several areas of Brooklyn are following the path from rooming house to single-family dwelling: Boerum Hill, Carroll Gardens, Clinton Hill, Cobble Hill, Fort Greene, and Park Slope. All were once fashionable

middle- and upper-income areas, and will be so again. The houses are early- and mid-Victorian, with a few Federal clapboard homes sprinkled around here and there. And, for the most part, the renovation work done is loving and accurate. While one Victorian expert deplores the fad for stripping plaster off the brick chimneys, he applauds the restoration of lintels and balustrades and the occasional additions of gas lamps.

FOR A SIMPLE PROBLEM, A CLEAR AND SIMPLE SOLUTION



MONTREAL, CANADA. It is readily apparent the Mies van der Rohe was the design consultant for this service station, being built for Imperial Oil, Ltd., on Nun's Island in the St. Lawrence River. The architect is Paul H. Lapointe of Montreal.

The black and white station will be constructed primarily of steel and glass. Motorists

will drive through it to receive gas from stainless-steel pumps under the ample roof.

Scheduled for completion by the fall of 1968, the station will be 167' long and 74' wide on a 50,000 sq ft site. The only advertising allowed on the site will be the oval Esso sign, which looks as if it will also be the only non-rectilinear object.

AIA HONOR AWARDS ANNOUNCED; JURY CHIDES PROFESSION

WASHINGTON, D.C. The report of the 1968 AIA National Honor Awards Jury is a forceful plea for architectural design that is truly representative of life in the inner city and its ghettos. According to the report, a majority of the five jurors (Max O. Urbahn, New York, N.Y., chairman; Joseph Amisano, Atlanta, Ga.; Sigmund F. Blum, Detroit, Mich.; John M. Morse, Seattle, Wash., and Walter A. Netsch, Chicago, Ill.) believes that the profession "has too obviously become the visual connection with the affluent sector of our society." The report goes on to say that, although this in itself is a traditional role for

the profession, our times are not traditional, and new approaches are necessary. Wondering what has become of "two of the strong organizers of architecture—the logic of the plan and the force of the environment"—the jurors remark that "architecture has become almost an art of fashion, in which accepted aesthetic norms, such as primary geometry, structural exposure, or opulence become the dominant replacement for environmental design. 'As in art,' the report continues, 'the third and fourth generation examples in architecture of *à la mode* aesthetics are not done with conviction, but with opulence.'"

The jury's comments were based on the general qualities represented in the 377 en-

tries it was called upon to judge. In its selection of 20 winners, it attempted to reflect the strong attitude of its members.

Following is a list of winning entries:

East Pine Receiving Substation, Seattle, Wash., by Fred Bassetti & Company of Seattle; Civic Center Synagogue, New York, N.Y., by William N. Breger of New York; Jefferson Market Branch Library, New York, N.Y., renovated by Giorgio Cavaglieri of New York; Chicago Civic Center, Chicago, Ill., by C. F. Murphy Associates with Loeb, Schlossman, Bennett & Dart and Skidmore, Owings & Merrill, all of Chicago; Covenant United Presbyterian Church, Danville, Ill., by architects Crites & McConnell of Cedar Rapids, Iowa; Humanities-Social Science Center, Long Island University, Brooklyn, N.Y., by Davis, Brody & Associates with Horowitz & Chun, both of New York; Hale Matthews House, East Hampton, N.Y., by Alfred De Vido of New York.

Also, Adlai E. Stevenson College, University of California, Santa Cruz, Calif., by Joseph Esherick & Associates of San Francisco; Washington & Lee High School Gymnasium, Montrose, Va., by Stevenson Flemer, Eason Cross, Harry Adreon, Associated Architects of Washington, D.C.; U. S. Pavilion for Expo 67, Ile Ste. Hélène, Montreal, Canada, by R. Buckminster Fuller/Fuller & Sadao, Inc./Geometrics, Inc. of Cambridge, Mass.; Suburban YM and YWCA, West Orange, N. J., by Gruzen & Partners with Abraham Geller, consulting architect, both of New York; Residence, Purchase, N.Y., by Gwathmey & Henderson Architects of New York; Migrant Master Plan, Indio Camp, Indio, Calif., by Hirshen/Van der Ryn of Berkeley, Calif.; Syntex Interim Facilities, Stanford Industrial Park, Palo Alto, Calif., by Mackinlay/Winnacker & Associates with Herbert D. Hughes, project associate, of Orinda, Calif., and Research Laboratory D, Richmond, Calif., by Gerald M. McCue & Associates, Inc., with McCue Boone Tomsick Architects of San Francisco.

In addition, Classroom Building, Kentucky State Col-

lege, Frankfort, Ky., by The Office of Oberwarth Associates of Frankfort; Health Sciences Instruction and Research Building, San Francisco Medical Center, University of California, by Reid. Rockwell, Banwell & Tarics of San Francisco; John Deere Company, Timonium, Md., by Rogers, Taliaferro, Kostitsky, Lamb of Baltimore; Dormitories and Fraternity, Colby College, Waterville, Me., by Benjamin Thompson & Associates, Inc., of Cambridge, Mass., and Sea Ranch Swim and Tennis facilities, The Sea Ranch, Calif., by MLTW/Moore Turnbull of Berkeley, Calif.

PERSONALITIES

The Federal Department of Housing and Urban Development recently announced changes in its top-level organizational structure. **H. Ralph Taylor**, formerly Assistant Secretary for Demonstrations and Intergovernmental Relations, now becomes Assistant Secretary for Model Cities and Governmental Relations. **Charles M. Haar**, Assistant Secretary for Metropolitan Development, assumes responsibility for the Office of Intergovernmental Relations and Planning Assistance . . . The AIA's national headquarters has taken on three new staff executives. They are: **James Britton**, Special Architectural Journalist; **James Edward Ellison, II**, Executive Secretary of the Association of Collegiate Schools of Architecture/Assistant Director of Educational Programs, and **Israel Herman Stein**, Director of Urban Design Programs . . . **Henry-Russell Hitchcock**, the architectural historian, was honored twice this spring: once by the Museum of Modern Art, which elected him an honorary member of the Advisory Board of its brand new Lillie P. Bliss International Study Center, and once by Smith College, where he has taught for many years. At Smith, a three-day program of lectures and other events was arranged with the aid of local members of the Society of Architectural Historians on the occasion of Hitchcock's retirement. Speakers included Nikolaus Pevsner, architectural historian of the University of Lon-

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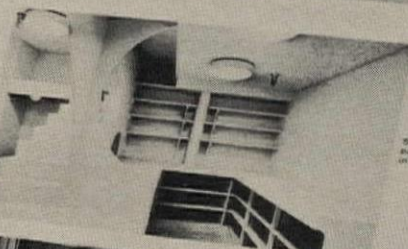


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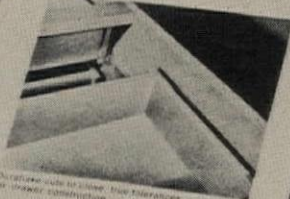


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don, and Philip Johnson, who collaborated with Hitchcock on the book, *The International Style* . . . The Bliss International Study Center of the Museum of Modern Art, before its opening in May, announced election of two architectural writers to serve on its Advisory Board. Elected were **Ada Louise Huxtable**, architectural critic of *The New York Times*, and **William Jordy**, architectural historian and professor of art at Brown University . . . **Byron E. Barnes**, Director of Planning for Daniel, Mann, Johnson & Mendenhall, is the new president of the California Association of Planning Consultants, a two-year-old organization . . . **William Turnbull, Jr.**, partner-in-charge of the West Coast office of MLTW/Moore Turnbull, Architects, is the only representative of the architectural

and planning professions serving on the Technical Advisory Committee of the California State Legislature's Joint Committee on Open Space Lands. The legislative committee is charged, under an amendment to the state constitution approved by the voters last year, with the definition of open space lands and with provision for their assessment for tax purposes as open space, "provided they are subject to legally enforceable restriction to use as agriculture, recreation, natural resources, or enjoyment of scenic beauty . . . Architect **Leo O. Daly** of Omaha, Neb., has been re-elected to the Board of Trustees of Catholic University of America, Washington, D.C. . . . The U. S. Institute for Theatre Technology, 245 W. 52 St., New York, elected **C. Ray Smith** president. Smith is an associate editor of P/A.



Photo: Scherry

obfuscation of distinctions between public and private life, for their love-protectors consist of no more than thin, transparent plastic, and, as can be seen in the accompanying photos, are intended for use in public places. By Laurids' own account, couples inside the synthetic environments are not at all disturbed by the attentions of the public eye, but those on the outside tend to feel left out, in the cold.

The company's three principals take care to indicate the unprepossessing character of their inventions, noting that they can be set up at home, next to the flowers on the little end table, or over by the TV set. The Haus-Rucker (literal translation: house-jolters) Company is not out to rock the world; it only wants to shake up a few houses.

SCHOOLS

John W. Wade, head of the architecture division at Tuskegee Institute has become the first dean of the new **University of Wisconsin-Milwaukee School of Architecture**. The new school is the first architecture school in Wisconsin. It will begin accepting students this fall . . . **The City College of New York's City University** also plans to open a school of architecture this fall, at its uptown campus. Presently, the college's architecture program leads to a Bachelor of Science degree after four years and a Bachelor of Architecture after five years. The new school will offer a six-year program leading to a Master of Science in Architecture and Environmental Studies . . . At **Harvard**, the Faculty of Arts and Sciences has created a Department of Visual and Environmental Studies for

Harvard and Radcliffe undergraduates interested in visual communication and design, and in the study of man's physical environment. Chairman of the new department will be **Eduard F. Sekler**, Professor of Architecture and Director of the Carpenter Center for the Visual Arts . . . HUD Secretary **Robert C. Weaver** will resign his position after the Presidential election next fall to take on responsibilities as president of New York City University's new **Bernard M. Baruch College**, a four-year school to be built in a Brooklyn renewal area . . . **Auburn University**, Auburn, Ala., has named **Richard G. Millman** to head the department of architecture . . . **Alphonse Ileki**, who received a bachelor of architecture degree from the **University of Illinois** in June, is winner this year of the Paris Prize, officially known as the Lloyd Warren Fellowship and sponsored by the National Institute for Architectural Education.

WASHINGTON/ FINANCIAL NEWS



by E. E. HALMOS, JR.

Professional Gripes — The continuing debate over professional status and practice has moved front and center in a Washington generally preoccupied with political maneuvering.

One aspect was a strong plea from the Executive Committee of the AIA supporting "professional negotiation" as the means of selecting architects or engineers for Government projects, and demanding that the Government "adopt a policy of se-

THE LOVE PROTECTORS

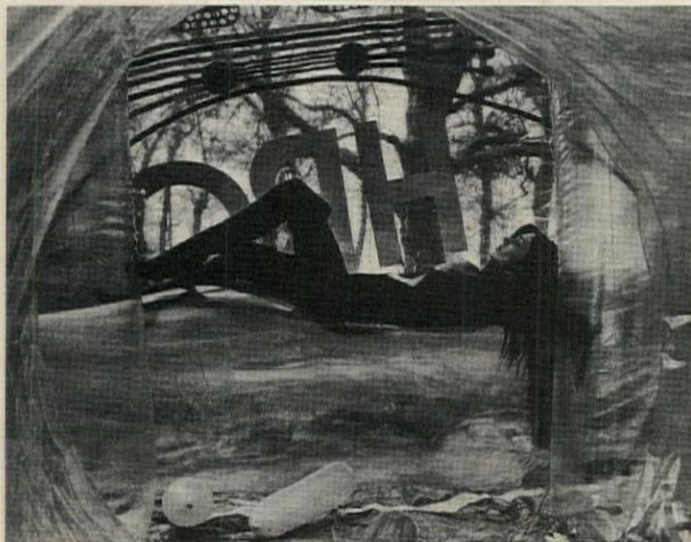


Photo: Joseph Tandi

VIENNA, AUSTRIA. A young Viennese graduate architect named Laurids (see p. 155, this issue), with his friends Zamp and Pinter (all use first names only: seated, left to right), has formed the Haus-Rucker Company for the design and production of "devices that bring about and intensify contact between two people." The devices are, at the same time, part of the company's "mind-expanding program," which is concerned generally "with the broadening of physical and psychical capabilities. Current offerings, guaranteed to help you think better and love better, include "Balloon for Two (1)" and "Connection-Skin



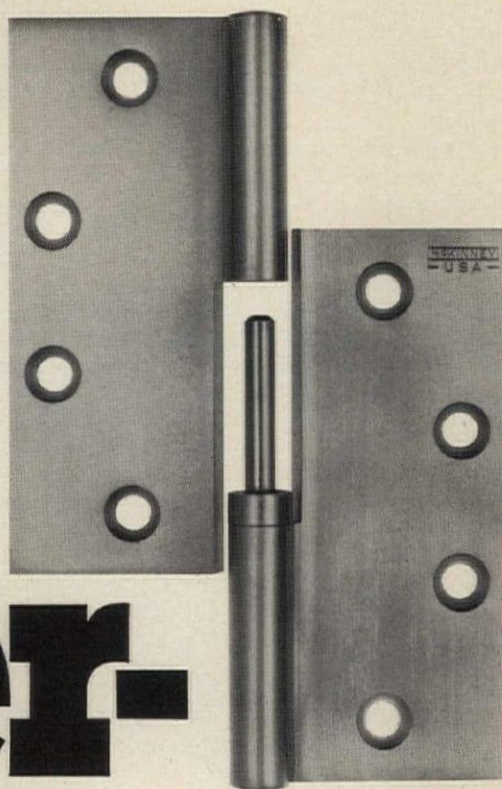
Photo: Joseph Tandi

(2)." The former is a PVC shell with interior seating for two; the latter is described as the prototype of a very intimate, inflatable sphere-house. It is said to be especially useful for summer parties.

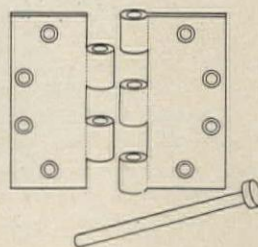
Laurids, Zamp, and Pinter seem to favor an increasing

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lecting contractors for services of this [professional] type on the basis of qualifications and technical competence."

Prompting the AIA statement is the system of actual competitive bidding now in use by the Department of Housing and Urban Development to select contractors for in-city experimental housing projects. But behind it are Government-agency attempts to comply with year-old findings by the General Accounting Office to the effect that negotiations with architect-engineers, without consideration of price, are probably illegal.

On another level, a major engineering group (the National Society of Professional Engineers) mounted a broad attack on Federal agencies, which, it said, are continuing to promote programs and solicit applications from communities (for grants, loans, and guarantees) even though they have no funds to meet existing requests, let alone new ones; NSPE complained that there are no standard guide documents for engineers, that Federal agencies persist in repetitious requests for information and data that delay projects.

But NSPE—and AIA—said they were pleased with new language in the "Intergovernmental Cooperation Act," S. 698, which apparently makes it clear that services offered by the Federal Government must not compete with those of private consultants.

There was also major interest in a new bill, introduced by Senator Wallace F. Bennett (R., Utah), which would guarantee professional employees the right to stay out of labor unions. Strongly supported by such organizations as the Professional Engineers in Government (a group of city, county, state, and Federal professional people) the bill would be a "right to work" act for government employees. It has been opposed by union leaders. Professionals have long feared that they will be swallowed up in broad Government unions whose principal membership has little interest in professional matters.

Coincidentally, the whole matter of the right of Federal professionals to stay out of

nonprofessional unions was up for study by the Senate's Judiciary Committee, which heard charges that the National Labor Relations Board has usurped powers not granted to it by Congress. The committee has ruled that NLRB itself will determine when—or if—professional employees may hold separate elections for their own union representation.

In fact, said an NSPE statement, NLRB actions have virtually stopped Government professionals from even forming nonbargaining associations, purely for the purpose of communications on matters of mutual interest.

"The NLRB," said NSPE's general counsel, "has apparently taken the position that there is no middle ground whatsoever between hostility to management and domination by it. In doing so, it has practically read professional employees out of the act."

How About Prefabrication?

By implication, too, the matter of professional competence and willingness to accept newer, money-saving methods of construction very quickly became the central theme of a two-day conference on labor matters, sponsored by the Associate General Contractors.

Obvious background for the meeting was the fear of: (1) Government controls over the wage-price structure of the industry; and (2) the very real fear of a runaway inflation in the industry, sparked by labor rate increases that have run to nearly 8% a year over the past several years.

But the discussion (panelists included architects, building owners, engineers, as well as contractors) very quickly turned to the point that owners will look to other industries—notably the aircraft industry—for better, cheaper methods of building, unless construction men are willing to modernize and streamline their own operations.

Flaws in "Equal Employment"—Another area of profound interest to professionals because of its effect on prices and because it may extend to their own offices and employment practices, was the growing battle over the activities

of the three-year-old Equal Employment Opportunities Commission.

Contractors have claimed that this commission, in its zeal to open employment to racial minorities, has been forcing them into an actual numerical system of employing Negroes (in large part) almost regardless of their training or aptitudes, just to achieve a percentage "balance" in the labor force.

In some cases, contractors charge, they have actually been forced to "import" Negro workers from other areas when there aren't enough to satisfy EEOC where they're working.

Particularly galling has been cancellation of a number of low-bid awards at EEOC's urging, when contractors have not submitted what EEOC considers to be a "satisfactory" employment plan even though there are no firm guidelines to what constitutes an "acceptable" plan.

Since EEOC's powers extend to any contract in which Federal money is involved in any way, the "manning" requirements it is trying to enforce could very easily be extended to architects' office and field staffs.

The fight came to a head in Washington in early June with: (1) an "opinion" by the Comptroller-General that failure to award contracts to the low bidder, unless he is successful in post-award negotiations about employment, is illegal; (2) introduction of a bill (S. 1308) that would vastly broaden the powers of EEOC, giving it quasi-judicial powers to issue "cease and desist" orders, for instance; and House action to chop the annual appropriation for the commission's operations by more than half.

Highway In-fighting—Congress was also continuing its interest in proper planning of the nation's highway system, particularly from the standpoints of safety and design in urban areas. And it wasn't buying the Department of Transportation's attempts to cut the highway program in favor of other forms of transportation by "raised" on the Highway Trust Fund. Of special concern: DOT's request for \$327 million for construction of fringe parking lots, and \$250 million for im-

proving city streets, all out of the Trust Fund, for the next two years, even though DOT has been crying loudly about heavy cutbacks in highway construction if Congress forces a heavy budget cut-back.

Congressmen feared that DOT, which is just digesting the mass-transit functions of the Housing and Urban Development Department, will use highway money to foster rail transit.

Financial—In view of current worries about Federal financing, there's a good chance Congress will buy that \$6 billion, six-year airport improvement program proposed by DOT. It would be financed by a "trust fund" like the highway fund, fueled by added taxes on airline tickets and air freight, aviation fuel, and the like.

■ Although municipal and local bond sales to finance construction have been dropping this year, some areas reached all-time highs recently. The Health-Education-Welfare Department reported that bonds to finance building and remodeling elementary and secondary schools topped \$3,300,000,000 during the year that ended June 30, 1967. One reason for this year's apparent slowdown: HEW noted that the annual net interest cost for bonds in 1967 averaged 4.01% compared to 3.67% in 1965-66, and a low of 3.11% in 1962-63.

■ Construction put in place in March was down slightly under February—\$81 billion (adjusted annual rate) compared to \$81,400,000,000 for February—but up slightly over a year ago, said the Census Bureau. But housing, very surprisingly, continued its strong upward pace through April, running at a seasonally adjusted rate of 1,620,000 units. That was up 5 percentage points over March, and far above the 1,100,000 rate of April 1967.

■ All levels of Government this year are expected to spend a total of nearly \$20 billion for highway, water, and air transportation facilities, according to the Association of American Railroads, which wryly commented that only \$22 million of the total will go for high-speed inter-city rail transit research and development.

REINHOLD PUBLISHING CORPORATION'S

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FIRST DESIGN AWARD, AWARDS, AND CITATIONS may be given by the jury listed below to the best projects chosen on the basis of site use, choice of structural system and materials and methods of construction, solution of the client's program, and over-all design excellence.

JURY will be composed of the following architects, planners, and engineers: HENRY N. COBB, Partner of I. M. Pei & Partners, Architects, New York; LEWIS DAVIS, Partner of Davis, Brody & Associates, Architects, New York, and Professor of Architecture at Cooper Union, New York; RICHARD M. GENSERT of R. M. Gensert Associates, Consulting Engineers, Cleveland; ROGER MONTGOMERY, Architect and Professor in the Departments of Architecture and City and Regional Planning, University of California, Berkeley; CESAR PELLI, Director of Design of Daniel, Mann, Johnson & Mendenhall, Architects, Los Angeles.

JUDGMENT will take place in New York during September 1968. Winners of Awards and Citations will be notified (confidentially) immediately after the judgment.

ANNOUNCEMENT of the winning projects will be made at a presentation in the home town (if practicable) of the recipient of the First Design Award. Winning projects will be featured in January 1969 P/A. As in the past, P/A will arrange coverage of winning projects in news media, particularly those in the localities of all the Award and Citation winners.

SUBMISSIONS do not require filling of an application blank. For each project you submit, simply send:

1. On a 5" x 8" card, type the client's **name, location, and proper name of project; name and address of the architect;** and identify all items included in the submission.
2. Brief explanation of the program and your solution.
3. Description of materials and construction methods used, and the reasons for their use.
4. Site plans; basic building plans; pertinent sections and details.
5. Perspective or model photographs.
6. A statement that (a) the project is now in the design stage and that construction is anticipated in 1969, and (b) that submission of a project for judgment gives **PROGRESSIVE ARCHITECTURE** first rights in the architectural field to publish both the project and the finished building if it receives an Award or Citation.

It is preferred that you submit 8" x 10" prints, photostats, or photographs bound in a folder. **Original drawings, actual models, or mounted exhibit panels will not be accepted and no material is to exceed 11" x 17" in size.** Each project is to be submitted under separate cover.

DEADLINE FOR MAILING is August 31, 1968. Address entries to Awards Editor, **PROGRESSIVE ARCHITECTURE**, 430 Park Avenue, New York, N.Y. 10022

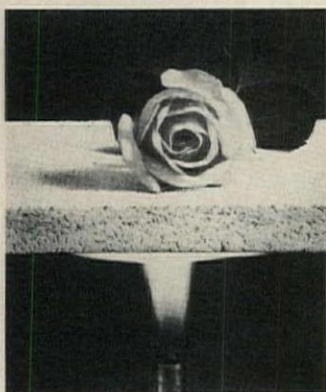
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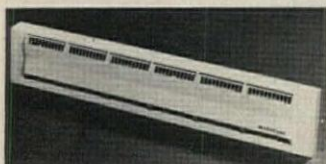
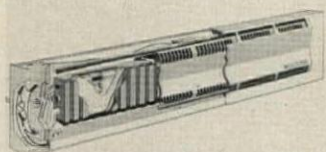
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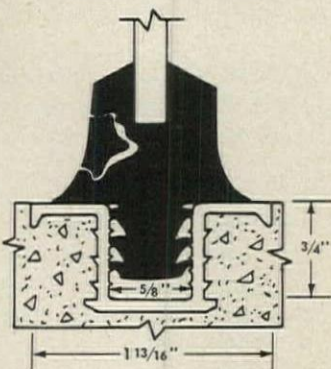
control. The 3M Company, 3M Center, St. Paul, Minn. 55101.

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Odor-proofing. Designed especially for hospitals, laboratories, and laundry areas, the electrically operated Jewett Air Sentry produces tri-valent oxygen, which purifies air at a cost lower than that of operating a 50-w bulb. Models are available with area capacity from 2500 cu ft to 10,000 cu ft; multiple installations recommended for larger areas. The Jewett Refrigerator Co., Inc., 2 Letchworth St., Buffalo, N.Y. 14213.

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DOORS/WINDOWS

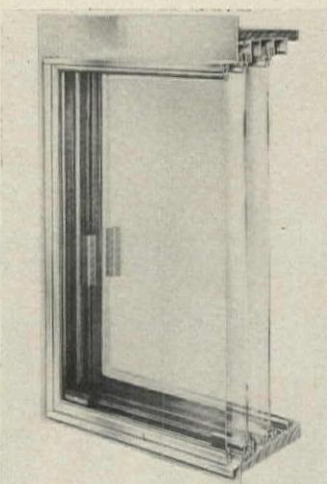
Concealed hinges. Plastic hidden hinges for doors and cabinets remain fully concealed when closed but are still said to permit a 180° swing. Colors: brown and tan. Inviso Corp., 2045 Howard St., Chicago, Ill. 60645.

Circle 105, Readers' Service Card

See-through plastic door. "Jamaclear" doors for walk-in freezers are constructed of 1"-thick transparent plastic.

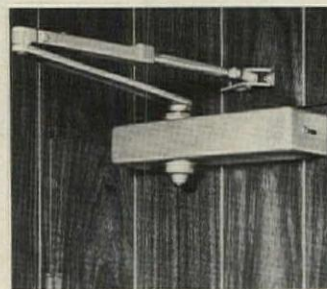
Reinforced bars and plates are of stainless steel; hinges, handles, and closers are chrome-plated. The doors may be installed with wood or plastic frames. Sizes: 2 1/2'x6 1/2', 3'x6 1/2'. Jamison Door Co., Hagerstown, Md. 21740.

Circle 106, Readers' Service Card



Two-in-one. The "Thermo-Twin" Series 500 window is actually two aluminum framed windows whose edges are separated by a nonconducting wood thermal break that is said to reduce heat loss. The unit also features an integral wood buck for quick installation and a "Gravity-Seal," reducing air-infiltration to nearly 80% less than the maximum allowed. Aluminum Industries Corp., Cedarburg, Wis.

Circle 107, Readers' Service Card



Open and shut case. "Sleek-line" door closers may be mounted regularly or inverted on the top jamb to eliminate need for corner brackets. Interchangeable arms are available; closing speed is adjustable. Available with brass, bronze, and aluminum enamel finishes, or prime coat only. Kwikset Sales and Service Co., 516 E. Santa Ana St., Anaheim, Calif. 92803.

Circle 108, Readers' Service Card

FURNISHINGS



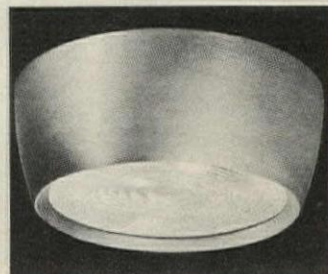
Table curl. Designed by Vladimir Kagan, the "Snail Table" uses a hardwood base shaped like a curl. An oval glass top caps the 15"-high base. Selig Manufacturing Co., Inc., Leominster, Massachusetts.

Circle 109, Readers' Service Card

All Wool. "Counterpoint" upholstery fabric has a mini-checkerboard pattern in 11 color combinations. The two-tone tweed-like fabric uses mothproofed two-ply wool with an acrylic backing. Fabric width: 51". Jens Risom Textiles, 444 Madison Ave., New York, N.Y. 10022.

Circle 110, Readers' Service Card

LIGHTING



Surface fixture. Designed for hospitals and prisons, the "84 Line" light unit may be provided with 1/4"-thick shock-resistant glass with gasket. Wattage: 150-w; lens options: 3; over all diam: 12 3/4". All units come with vaportight junction boxes. McPhilben Lighting Div., Emersen Electric Co., 8100 Florissant, St. Louis, Mo. 63136.

Circle 111, Readers' Service Card

Outdoor lighting. An adjustable floodlight, "Panorama," may be adjusted vertically. Its diameter is 9"; depth, 7 1/2". The fixture is available in sev-



Plastic Products, Dept. 8721, The Dow Chemical Company, Midland, Michigan 48640.

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On Readers' Service Card, Circle No. 338

MFRS' DATA

ACOUSTICS

Acoustic sealant. Suggested uses for "Tremco," a synthetic rubber acoustical sealant, are listed, with ASTM and audio. Sealants are used on drywall and plaster partitions and are claimed to be nonhardening, nondrying, and nonbleeding. 4 pages. Tremco Manufacturing Co., 10701 Shaker Boulevard, Cleveland, Ohio 44104. Circle 200, Readers' Service Card

AIR/TEMPERATURE

Electronic controls. Thermostats, motors, humidistats, and other controls are illustrated with spec data. Electric-heat power controllers, step-controllers, fan-speed controllers, dampers, linkages, and motorized valves are listed. Brochure presents 43 items. 4 pages. Honeywell, 2727 S. Fourth Ave., Minneapolis, Minn. 55408. Circle 201, Readers' Service Card

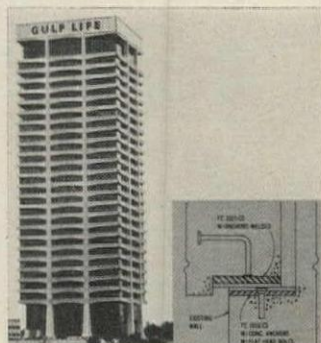
CONSTRUCTION



Bulb tee tables. Subpurlins or bulb tee roof supports meeting ASTM A572 requirements are described. Booklet contains tables for design stress, load span, deflection limits, moment calculation formulas, dimensional sections, and specs. 8 pages. Connors Steel Division, Box 118, Huntington, West Virginia. 25706. Circle 202, Readers' Service Card

Masonry reinforcement. Eleven types of reinforcing bonds and ties for all types of masonry walls are shown. Manufacturer claims a control of shear and compression that

reduces concrete cracking. Specs and sections describe different uses for different wire designs. Included are descriptions of control joints, "Z" bars, and ties (adjustable or nail-on). Pamphlet. 12 pages. AA Wire Products Co., 6100 S. New England Ave., Chicago, Ill. 60638. Circle 203, Readers' Service Card



Slide bearings. "Fluorogold Slide Bearings" illustrates architectural uses of slide bearings that accommodate thermal expansion and movement. Characteristics and properties of the metals used in the company's products are cited with graphs and performance data. Sections illustrate the bearings, which reportedly need no maintenance. Booklet. 8 pages. 1754 S. Clementine St., Anaheim, Calif. 92803. Circle 204, Readers' Service Card

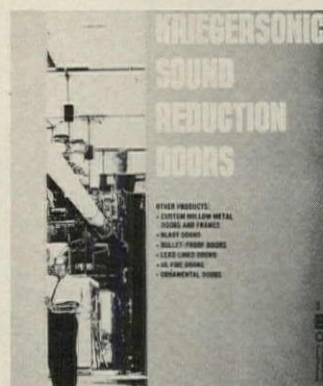
Water stops. Vinyl waterstops intended to prevent leakage through masonry construction joints are illustrated in section. Splicing details and short form specs are also included in the brochure. Vinylex Corp., 3600 Pleasant Ridge Road, Knoxville, Tenn. 37921. Circle 205, Readers' Service Card

Building stone. "Adirondak-Hue," a brochure, describes a quartzite rock resembling sandstone for use as wall facing, or walks or terraces. The rock is available in pastel shades of brown and gray. Specs and properties of the rock are cited with test results. 4 pages. Adirondak Stone Quarries, Inc., Malone, N.Y. Circle 206, Readers' Service Card



Curing concrete. Applied to concrete by roller, brush, or low-pressure spray, "Parlon" curing compound leaves a protective surface film of chlorinated rubber. The curing agent, which is described in a brochure, meets GSA specification TTC-00800 and is said not to require removal before painting or tile installation. Hercules Inc., 910 Market St., Wilmington, Del. 19899. Circle 207, Readers' Service Card

DOORS/WINDOWS



Acoustical doors. Neoprene and vinyl perimeter seals on "Kriegersonic Sound Doors" are described in a pamphlet devoted to explaining steel doors as acoustic devices. Sound Transmission Classes and door models are paired in tables and graphs. 4 pages. Krieger Steel Products Co., Inc., 14200 S. San Pedro St., Los Angeles, Calif. 90061. Circle 208, Readers' Service Card

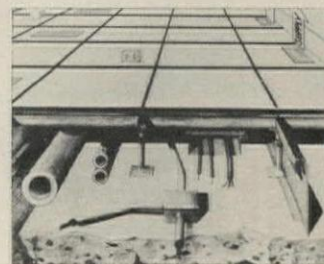
Window specs. "Specifications for Aluminum Windows" contains short form and master form specs for residential, commercial, and "monumental" categories of windows. Window types included: double-hung, casement, projected, horizontal sliding, vertical sliding, top-hinged, and vertically pivoted. An appendix, wind-velocity

map, load table, and chart of standard sizes complete the booklet. 50 pages. Architectural Aluminum Manufacturers Assoc., 35 E. Wacker Drive, Chicago, Ill. 60601. Circle 209, Readers' Service Card

Steel doors. Seamless steel doors (hollow or filled) with some models bearing UL approval are featured in a catalog, "Metal Doors." Complete construction details are given for these and for those with reversible steel frames. Sliding, electrically-operated doors are also detailed. 24 pages. Dusing & Hunt, Inc., 59 Lake St., Le Roy, N.Y. 14482. Circle 210, Readers' Service Card

Weather strips. Metal weatherstrips for doors and windows are described. The catalog contains 59 basic types and 194 sizes. Sections and specs for door bottoms, saddles, and window strips are given. Door bottom strips are of aluminum, bronze, or stainless steel with waterproof felt or sponge neoprene. Zinc and brass may also be specified. 24 pages. Accurate Metal Weatherstrip Co., Inc., 725 S. Fulton Ave., Mount Vernon, N.Y. 10050. Circle 211, Readers' Service Card

FLOORING



Elevated floors. Elevated floors supporting 250 psf uniform load of 1000 lb concentrated load are described with sections, illustrations, and specs. The floors are designed for computer rooms, offices, laboratories, and other areas where access to under-floor wiring is necessary. Ductwork and conduits may be passed beneath the floors, which are composed of 2'-square steel panels resting on a steel support grid. Catalogue. 21 pages. Liskey Aluminum, Inc., Box 580, Glen Burnie, Md. 21061. Circle 212, Readers' Service Card

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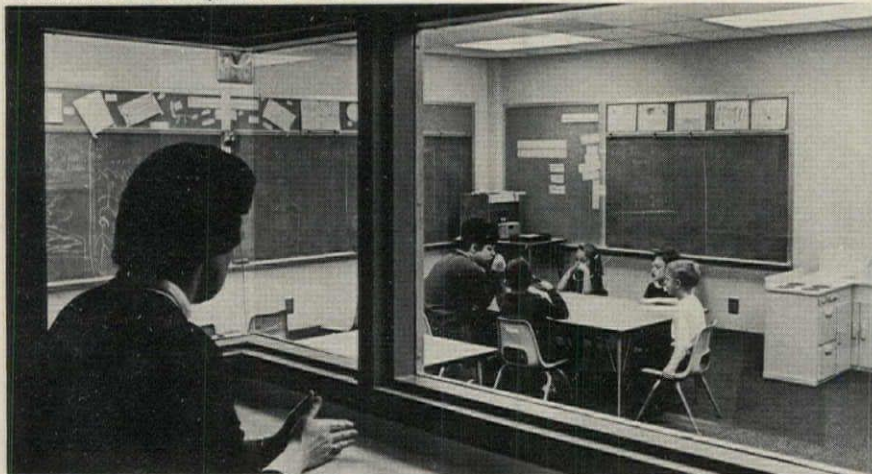
On Readers' Service Card, Circle No. 346

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from the other side.**



Architects: Bull & Kenney, A.I.A., Atlanta, Ga.



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On Readers' Service Card, Circle No. 355

FURNISHINGS



Furniture range. Chairs for classrooms and offices are catalogued with dimensions and specs. Tables for restaurants and schools are also included in catalog. Other items: coat racks, stools. 56 pages. Krueger Metal Products Co., Green Bay, Wis. 54306.

Circle 213, Readers' Service Card

Library designs. Library chairs, desks, file cabinets, shelves, and dictionary swivels are illustrated. Brochure also gives dimensions and ordering information. The furniture has plastic, wood-grained laminate surfaces. 4 pages. Decar Plastic Corp., 2600 Washington Blvd., Bellwood, Ill. 60104.

Circle 214, Readers' Service Card

SANITATION PLUMBING

Pipe movement. Fundamental considerations for the best techniques of accommodating pipe movement are discussed in a handbook, "Bulletin 958." Emphasis is on calculating pipe anchor loads and support. Thermal expansion, torque specs, flow ratings, and correlated tables are included. 52 pages. Aeroquip Corp., Barco Div., Barrington, Ill.

Circle 215, Readers' Service Card

SPECIAL EQUIPMENT

Aluminum exteriors. Sliding, roofing, fascia, soffits, shutters, gutters, and screens—all in aluminum—are illustrated, with specs, in a catalog. The products are designed for residential and commercial use. Eleven patterns of horizontal and verti-

cal siding are manufactured with accessories, including corner posts and trim. 16 pages. Kaiser Aluminum, Kaiser Center, Oakland, Calif. 94604.

Circle 216, Readers' Service Card



Systems ceilings. Ceiling systems using a variety of acoustical tiles, lighting fixtures and louvers are listed on file. Included is information on perforated and fissured tiles that may be substituted for conventional air diffusers in plenum-pressure installations. The catalog also presents several versions of a vinyl-faced tile that may be washed. Illustrations, performance ratings, and specs accompany tables for each tile category. 39 pages. Celotex Corp., 1500 N. Dale Mabry, Tampa, Fla. 33607.

Circle 217, Readers' Service Card



Metal prints. A pattern chart illustrates 64 different textures that may be applied to metals for grills and screens. The three-dimensional patterns are cited in the brochure with maximum gage requirements and ordering information. Widths of the metal

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On Readers' Service Card, Circle No. 341

types offered range up to 52". 4 pages. Rigidized Metals Corp., 658 Ohio St., Buffalo, N.Y. 14203.

Circle 218, Readers' Service Card

COLORTRIM

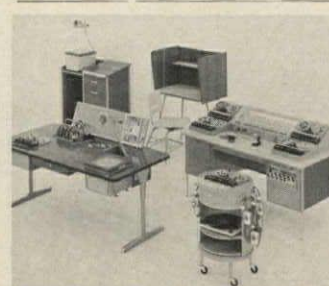
MANUFACTURED BY COLORTRIM, INC. / 1968
CONSTRUCTION SPECIALTIES, INC. / 1968



Colored trim. Mansards, gravel stops, fascia, coping, and soffits are available in 20-year guaranteed colors. Booklet describes the trim in sections, specs, and construction data. Also listed is a hard coat aluminum anodize called "Duranodic 300" that features matte-finishes of gray and brown. 12 pages. Construction Specialties Inc., 55 Winans Ave., Cranford, N.J. Circle 219, Readers' Service Card

Fire vents. A fire and smoke vent, the "Pyroport," is presented with UL ratings and dimensional data. Unit is claimed to decrease temperature and smoke accumulation. Descriptions of damper action. Brochure. 4 pages. Penn Ventilator Co., Inc., 11 St. & Allegheny Ave., Philadelphia, Pa. 19140.

Circle 220, Readers' Service Card



Teaching aids. Electronic learning equipment and allied classroom furniture are described in a brochure. Built-in overhead projectors, tape recorders, microphones, headset provisions, and controls that can present 14 dif-

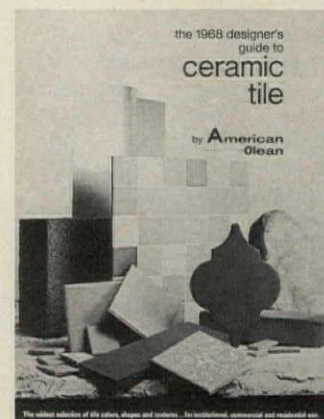
ferent lessons in one classroom simultaneously. Equipment reportedly reduces the amount of space required by students because not as many classrooms are required. American Seating, School Equipment Division, 901 Broadway Ave. N.W., Grand Rapids, Mich. 49502.

Circle 221, Readers' Service Card

SURFACING

Wood-grain panels. "Theme-line" panels with many varieties of wood grains, solid colors, and patterns are presented with samples in a file format. The panels use a plastic bonded to a hardboard; bond is said to be permanent. Partitions using the panel surfacing may also be specified by a company-supplied list of cooperative manufacturers. 16 pages. Bestile Manufacturing Co., 621 S. Bon View, Ontario, Calif. 91764.

Circle 222, Readers' Service Card



Ceramic variety. Ceramic tiles in diverse shapes and sizes with glossy and matte finishes are illustrated in a catalog. Mosaics and quarry tile are also included. Trim tile is described in details and sections. Specifications are included. 32 pages. American Olean Tile Co. Div., National Gypsum Co., Lansdale, Pa. 19446.

Circle 223, Readers' Service Card

PROGRESSIVE ARCHITECTURE NEWS REPORT

REINHOLD PUBLISHING CORPORATION
A subsidiary of Chapman-Reinhold, Inc.
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NEXT MONTH IN P/A

TURNING THE CORNER has been a concern of sensitive designers ever since architecture was born. The impact of the corner—inside and outside—as a major element of most building compositions receives major visual and textual treatment in the August P/A. Famous and infamous, good and bad, sensitive and gross corners are explored and reasons for corner compulsion over the centuries are thoroughly documented.

Contemporary continuity in design finds an exemplar in the “quiet approach” of designs by the young New England firm of Huygens & Tappé, which exhibits a sure awareness of regional tradition while simultaneously possessing a freshness of today.

A challenge. Riots and strife and the failure of most city planning departments to affect any meaningful changes for the black and poor lead architect, writer, and professor Ervin Galantay to advance an audacious proposal: “Black New Towns.” This is certain to be a controversial topic in the continuing discussions over where and how town and city planning should be directed.

Plus . . . Another contribution from P/A's architectural gadfly, Robert H. Mutrux; a discussion of new computerized classroom systems at Syracuse University; some guidelines for designing planetariums; new hints for designing brick loadbearing structures; P/A News Report; P/A Observer; and P/A's continuing columns and departments.

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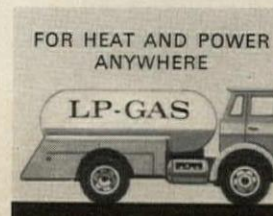
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For LP-gas data, see Sweet's Architectural File 29a/Na.

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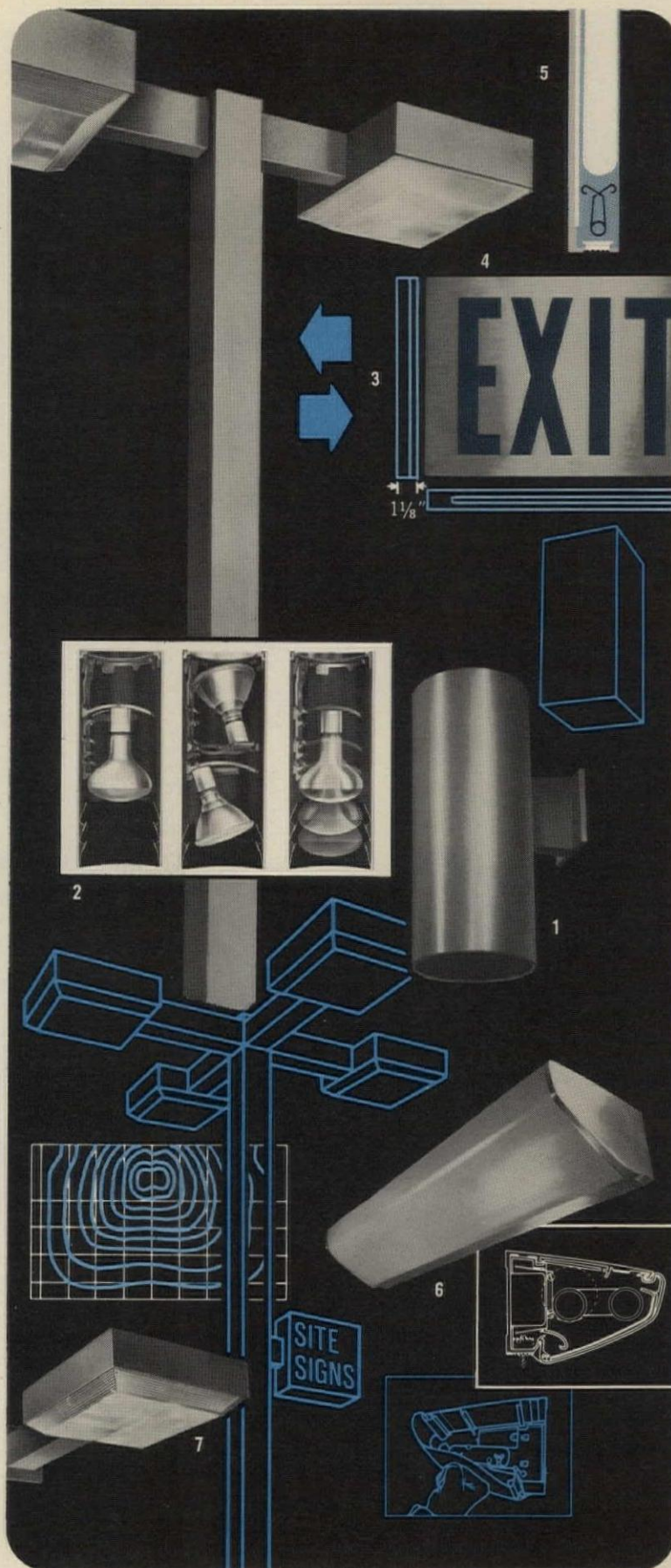
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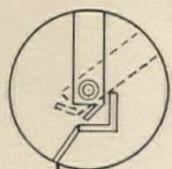
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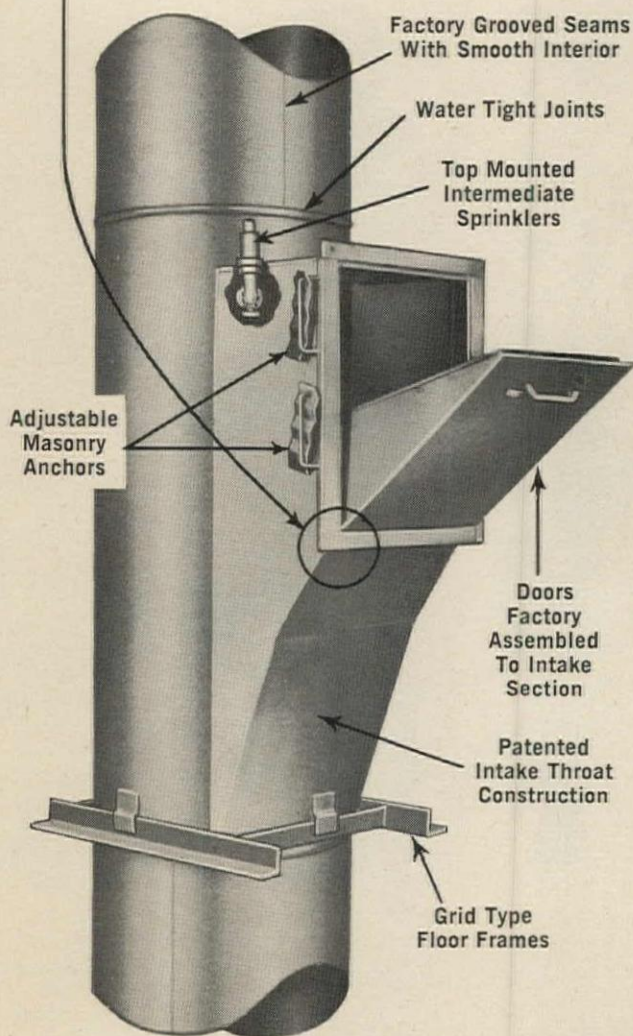


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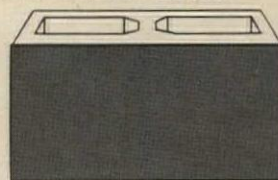
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On Readers' Service Card, Circle No. 374

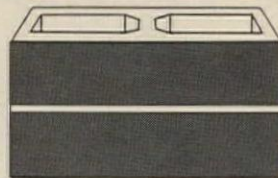
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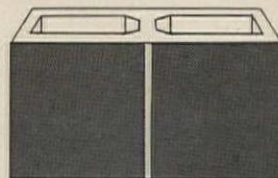
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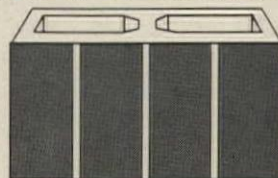
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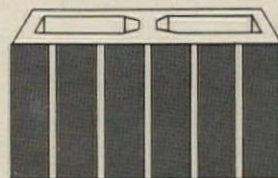
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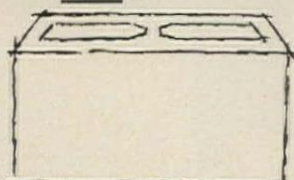
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Photograph by Mr. Phokion Karas

1963 Francis Greenwood Peabody Terrace, Married Students Housing, Harvard University, Cambridge, Mass. Sert, Jackson & Gourley, Architects

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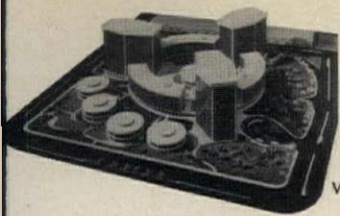
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|------|--|------|--|
| 1928 | Langdell Hall (Addition)
<i>Architects: Shepley, Rutan & Coolidge</i> | 1960 | Andover Hall Library — Harvard Divinity School
<i>Architects: Shepley, Bulfinch, Richardson & Abbott</i> |
| 1937 | Lowell House and Eliot House
<i>Architects: Coolidge, Shepley, Bulfinch & Abbott</i> | 1961 | Arnold Arboretum Head House
<i>Architects: Griswold, Boyden, Wylde & Ames</i> |
| 1949 | Botanic Garden Apartments
<i>Architects: Des Granges & Steffian</i> | 1961 | Gordon McKay Applied Science Laboratory
<i>Architects: Shepley, Bulfinch, Richardson & Abbott</i> |
| 1949 | Graduate Center
<i>Architects: The Architect's Collaborative</i> | 1962 | David & Arnold Hoffman Laboratory of Experimental Geology
<i>Architects: The Architect's Collaborative, Inc.</i> |
| 1951 | Gordon McKay Applied Science Laboratory
<i>Architects: Coolidge, Shepley, Bulfinch & Abbott</i> | 1964 | Computing Center, (Alterations & Additions)
<i>Architects: Shepley, Bulfinch, Richardson & Abbott</i> |
| 1953 | Observatory
<i>Architects: Harvard University</i> | 1967 | Law School Faculty Office Building
<i>Architects: Benjamin Thompson & Associates, Inc.</i> |
| 1958 | Quincy House
<i>Architects: Shepley, Bulfinch, Richardson & Abbott</i> | 1968 | Law School Classroom & Administration Office Building
<i>Architects: Benjamin Thompson & Associates, Inc.</i> |
| 1959 | Leverett House, New Dormitories
<i>Architects: Shepley, Bulfinch, Richardson & Abbott</i> | | |

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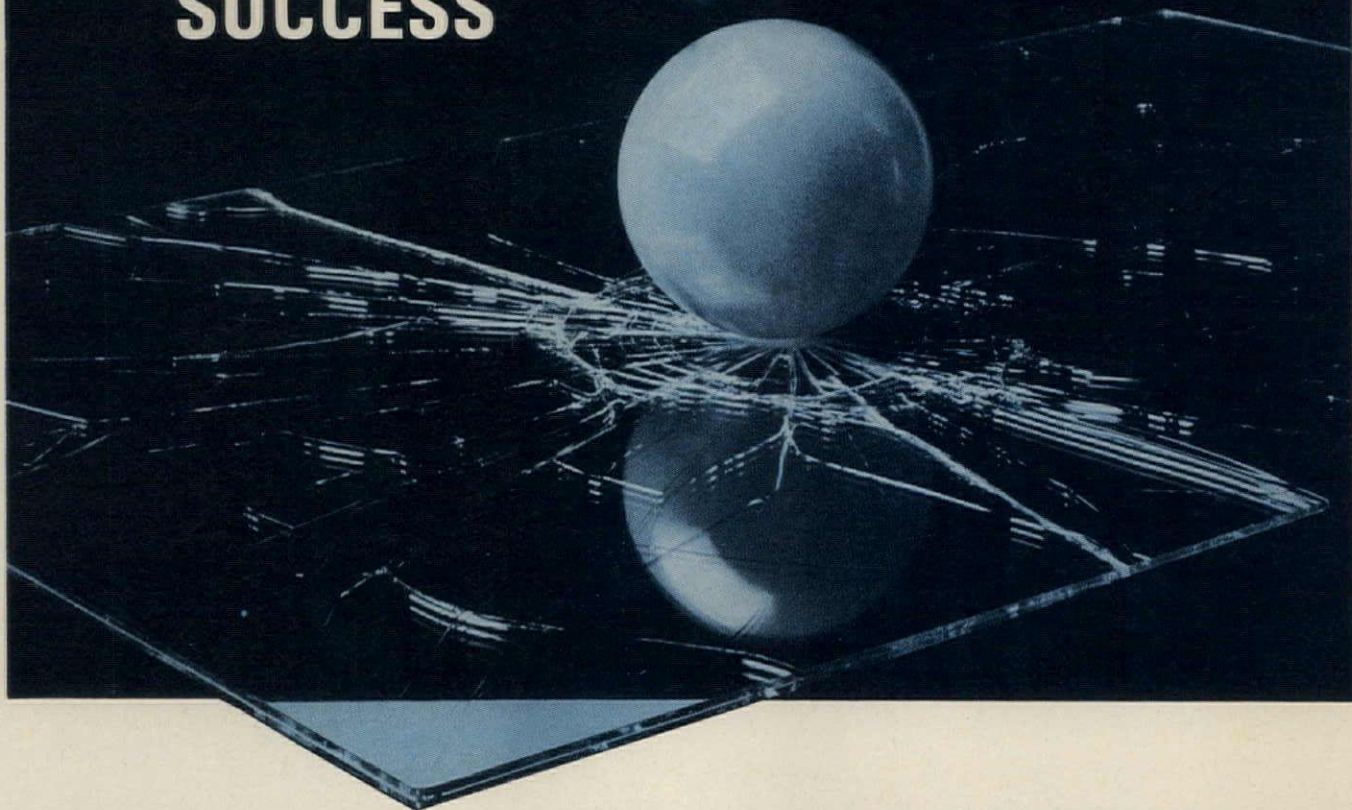
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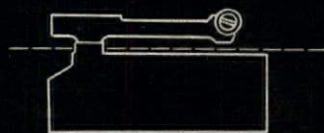
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July 1968 **PROGRESSIVE ARCHITECTURE**

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PHILIP JOHNSON



EDITORIAL

Human scale is a slogan used by architects whenever they are trying to make the point that their concern is, after all, humanitarian. A few months ago, the retiring Editor of another architectural publication wrote in his farewell Editorial that human scale is what really matters and that now, at last, he will be able to live happily in a New England cottage in a New England village. Similar pronouncements about scale and expressions of personal desire are as common as so many other sentiments bandied about the convention and seminar circuits. Thus, human scale is somewhat akin to motherhood — it is supposed to be never changing, always desirable, and beyond questioning.

And yet, human scale has many dimensions. First, there is the physical man whose scale is his body. The reach of his arms, the speed of his walk, the size of his body itself are what determine the human scale of the anatomical man's habitat. It is the traditional scale that existed for millennia of human evolution, right up to the Industrial Revolution. As long as extensions of man were of the same order as his own physical capabilities, the scale did not change. When the hammer was a simple extension of the fist, the scale did not change. As long as the speed of locomotion was not much faster than man running, the scale did not change.

But when mechanical extensions put man in a situation quite alien to his traditional experience, the scale began to change drastically. Power tools, railroads, and other machines introduced by the machine revolution, took man away from his accustomed physical experience into a new realm — a realm that is of a different order of magnitude and therefore of a different scale.

The third stage — the electric revolution — further extended man's experiences into even more remote areas. Radio and television made speed even faster than jet travel. Automation introduced new concepts of work. These and other electric extensions pushed man still further away from his original animal dimensions.

Traditionalists and other dreamers hanker after recapturing the first stage of human development — the animal stage when man had limited extensions of himself. They hanker for an environment scaled to the proportions of the body.

If one thinks of all mechanical and electrical extensions as being inhuman, then no human scale can be achieved in contemporary life. From such a point of view, there is nothing human in being thousands of feet up in the air, or hundreds of fathoms under water; there is nothing human in being transported a mile a second, or even a mile a minute; in seeing on a screen events that happen many miles away; in pushing buttons to shape goods and to shape events.

But if one thinks of man's extensions simply as extensions rather than limiters, oppressors, and distorters, then human scale achieves a different status: It becomes a variable quality, a series of scales dependent on particular situations. The walking scale, driving scale, flying scale are all different yet human scales. The contemporary perceptual world has a vast range and it shifts drastically depending on the size, speed, and intensity of movement, events, and experiences.

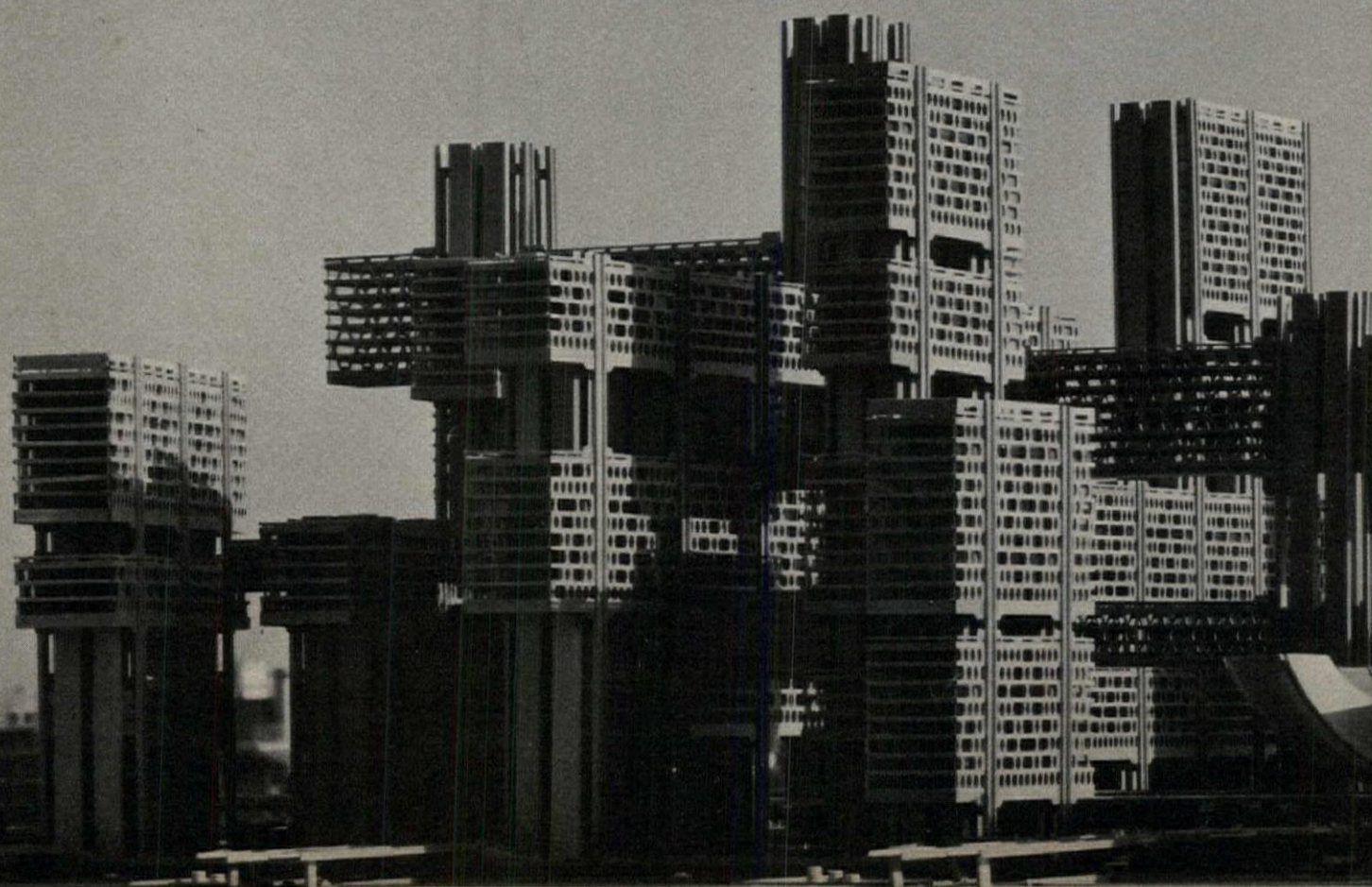
In this issue, we are discussing large-scale, complex buildings made necessary by the growing congestion in metropolitan areas. Many will call them inhuman. Others will consider them the inevitable result of man's numerous extensions. We call them omnibuildings rather than megastructures, because it is not their *mega* quality (great, mighty) which is important, but rather their *omni* (all) aspect that is of interest. These buildings represent a beginning attempt at a synthesis of all man's extensions into what hopefully will become some day a viable environment for man — an extended man. ■

Jan C Rowan

Of all the building and planning concepts to leave the confines of "fantasy architecture" and begin to find life as actual complexes — in as disparate locations as northwest Scotland, the cliffs of Monaco, on the banks of the Chicago River, and an Iranian mountain — the most significant and the most likely to influence the future course of architecture and planning is certainly that reborn approach that we, in this issue of P/A, call the **omnibuilding**.

As a fresh way of housing the activities of an increasingly urban-oriented world population, omnibuildings perhaps have as many variations in definition as there are, or will be, people designing them. Basically, however, they are those constructions of wide-ranging scale that contain a multiplicity of uses (residential, commercial, educational, recreational, public use, light industrial, religious, and so on) in a building system consisting usually of a common structural armature with substructures or additive units imposed thereon to provide spaces for the various uses. The complex is served by integrated mechanical and electrical systems, and the horizontal and vertical movement of people, vehicles, and goods is woven into the fabric of the structure. The characteristics of omnibuildings are most frequently: generous scale on the part of the over-all structure and more intimate scale for its many parts; changeability and flexibility within the basic matrix of the structure; potential for vertical and horizontal expansion and extensibility; ability to extend into surrounding areas and establish connections with the general community; and ability, on the other hand, to provide most major needs of permanent and transient inhabitants so that the omnibuilding can be a self-sufficient thing.

Dr. William Zuk of the University of Virginia defines an omnibuilding as "a continuous



in history

An overview of the omnibuilding concept as it has occurred in theory and practice over the centuries.

Although the complete omnibuilding is a phenomenon (or an ideal) of the present, it has some historical ancestry. The past shows us building complexes and special constructions that have housed most or all of the ordinary human activities of production and consumption, that have housed communities of persons, and that have sometimes used highly coordinated, adaptable structural systems. Even the ideal, the intellectual or aesthetic concept of a whole community within a single construction seems to have cropped up unconsciously in the New Jerusalem that form the backgrounds of medieval paintings, fretted pyramids of spires within tightly fortified perimeters, or in the cutaway views of grand hotels, ocean liners ("floating hotels") or railway terminal complexes, showing the complexity and comprehensiveness of these huge constructions, that the "romance-of-commerce" publicity of 1910 or thereabouts revealed in.

But circumstances, technical and psychological, have prevented the omnibuilding from becoming a clear, realizable ideal until recently. Before this was possible, we needed the perfected technology of the modern large building, an organism with bones and bowels, umbilically connected with city-wide utility systems. Then we needed the insight that these centralized utilities, the wires and tubes beneath the pavement, were really taking all the buildings and connecting them into a kind of organism: a clumsy, uncoordinated organism thus far, a jumble of improvisations and afterthoughts, but with a great potential. No longer were buildings isolated constructions, set into laboriously dug holes along wear-resistant strips of public land called streets. If the demand upon the facilities of the city could be anticipated and regulated, something like a comprehensive design for the city, a formula for its growth, could be worked out. The formulation of such a concept, necessary to the perfect design of utilities, roads, and urban facilities of every sort, is indispensable to the further concept of the omnibuilding.

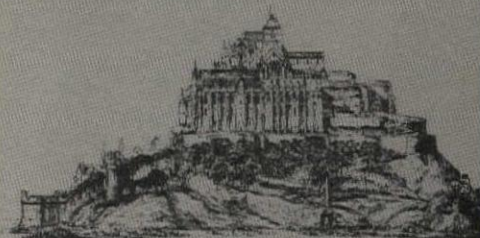
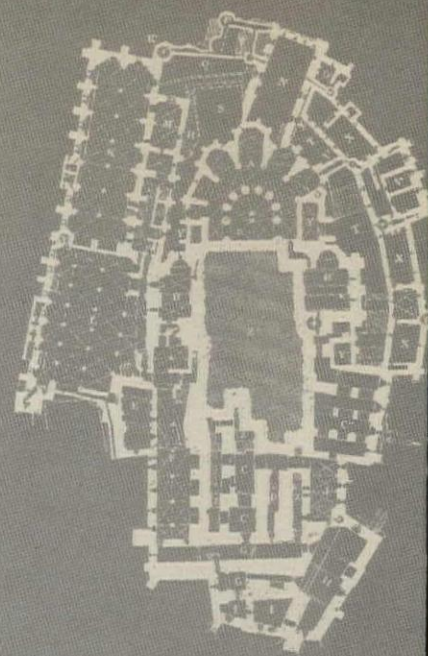
Before the Machine

A building that shelters all the activities normal to human existence is nothing new; any peasant house of the pre-indus-

trial era, remote from shops and the other facilities of town, was likely to house a great many diverse productive activities, often under the very same roof with the living area. Things for the house were whittled at the family table; cloth was spun and often woven in the family room; brewing and soapmaking went on beside the kitchen. The dairy farmer might have his cows beside the living area, often with no partition between, since they made, in the mass, a fairly effective central heating plant. Even the specialist, a cobbler, for instance, tended to work out of one room of his house, producing and selling in the same space. With production and consumption going on in a single tight circle, under one roof, the peasant house was a miniomnibuilding, so to speak.

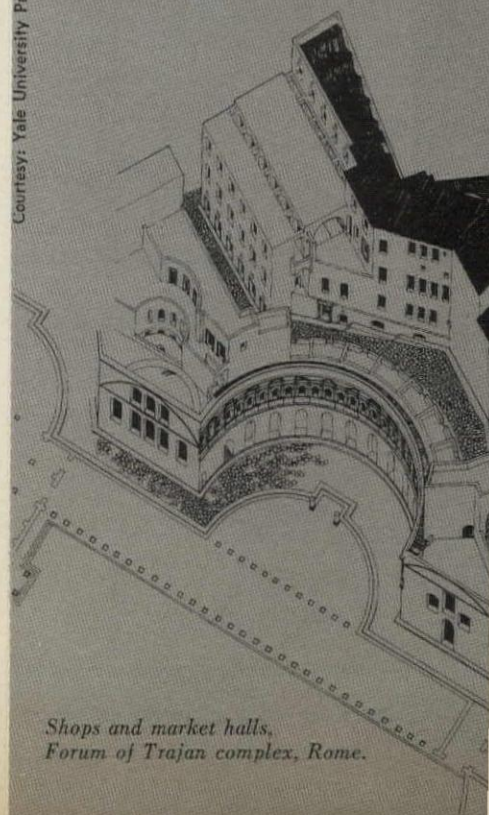
In more collective structures, castles or monasteries, or later on, in the 19th-Century projects for socialistic phalansteries, whole communities were housed within tightly composed architectural complexes, arranged around courtyards. Persons of varying degrees hobnobbed, exchanged money and services, and banded together to offer the outside world something in exchange for its wealth—"protection" in the case of the castle, prayers in the case of the monastery, plated silver, patent medicine, or almost anything else, in the case of the phalanstery. All this, however, was housed still at a primitive technical level. Structural alterations were jobs for the trowel and the pickaxe; though, by compensation, the uses of interior spaces were in the remote past relatively unspecialized, making alterations and additions less necessary. Communication and movement of goods called for walking and climbing, across courtyards and up winding stairs, with only an occasional windlass or tackle to help in the raising of goods. The building that housed such communities, then, was still an inorganic, sprawling mass.

Similar, though more articulated structurally, was the medieval and Renaissance bridge, with its houses and shops clinging to the edge of the roadway. In amenity-conscious later periods, such buildings were eliminated. But the idea of combining enclosed space with bridges or viaducts and getting two things for the price of one-and-one-half has re-



Mont Saint-Michel.

Courtesy: Yale University Press



Shops and market halls,
Forum of Trajan complex, Rome.

container of any shape of comparatively vast volume structured for coexisting manifold purposes for man in his ever-increasing, complex, high-density existence." And Bertrand Goldberg, creator of the Marina City omnibuilding in Chicago, says that "It is a combination of spaces for . . . total living, with density so intense as to achieve critical mass. I mean by critical mass that density wherein human energy expressed daily in the structure is self-regenerative, economically and spiritually."

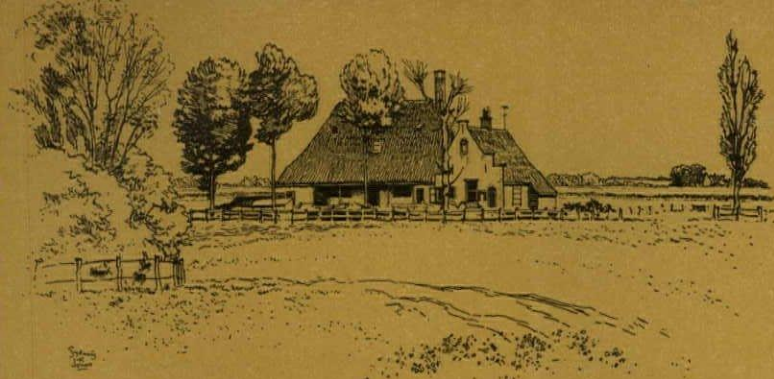
In the following pages, you will see that that the concept of omnibuilding represents a compellingly intriguing idea for the solution of providing enclosure for the increasingly crowded and multifarious human condition in the second half of the 20th Century. This special P/A study examines the backgrounds of omnibuilding, many current projects and completed complexes, and delves into the factors — political, economic, legal, mechanical, structural, conceptual — that can help create (or prevent) omnibuildings. As William J. Conklin of Conklin & Rossant says: "An omnibuilding really implies a different kind of society than the one which we now have — a society in which we have both a higher order of agreement and a higher order of freedom. An omnibuilding as a goal statement leading to a physical reality becomes, then, also a method of restructuring society."

A large order — but, then, omnibuildings are large in implication as well as size, and likely to be the major future influence on future design and planning as well as the way they, in turn, influence the living patterns of people. This issue, it is hoped, will help to crystallize the thinking of the profession on a subject that has heretofore tended to be amorphous and consequently a bit frightening to many.

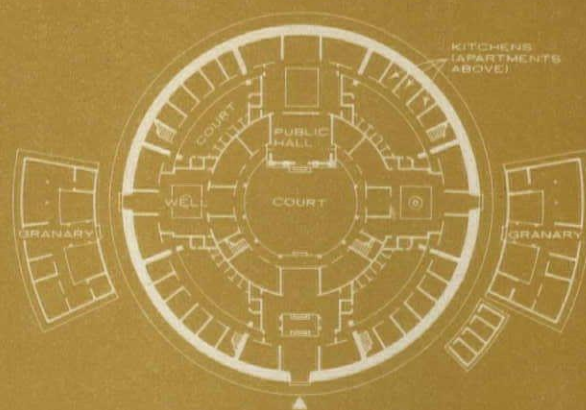
(The architects, engineers, planners, developers, and public officials who aided P/A in preparing this issue are listed on page 206.)

OMNIBUILDING

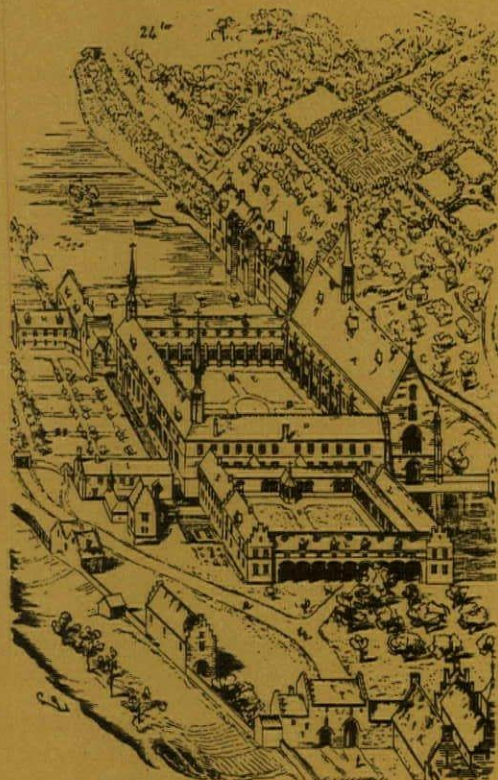




Dutch farmhouse, 17th or 18th Century.



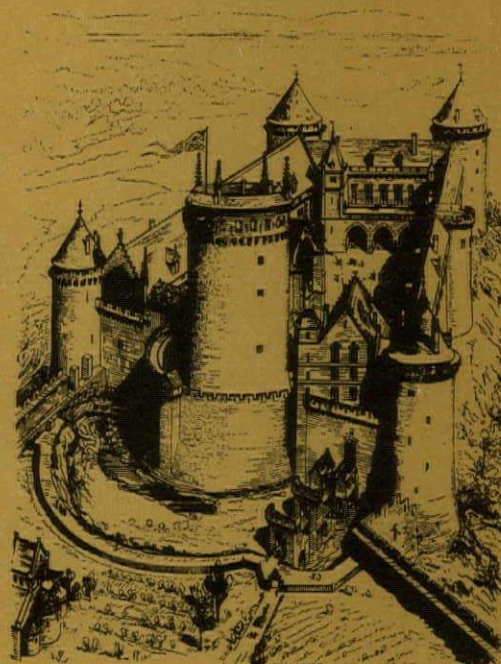
Village-sized dwelling, Chinese Hakka culture.



Flemish monastery, 15th Century.



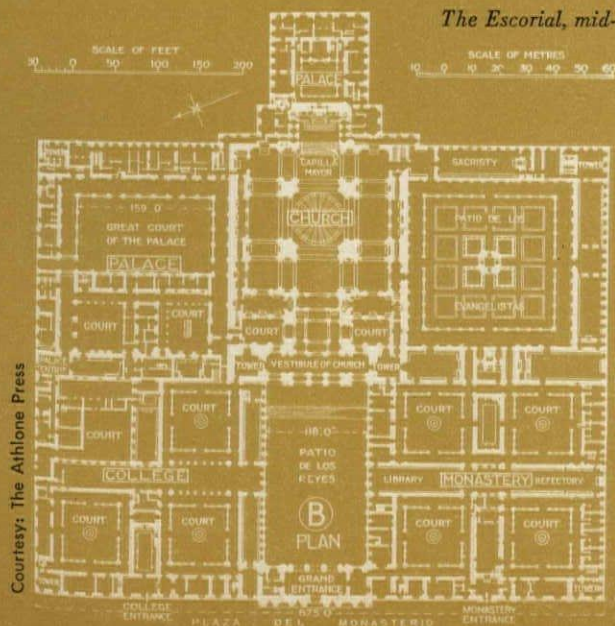
Scottish "dark house."



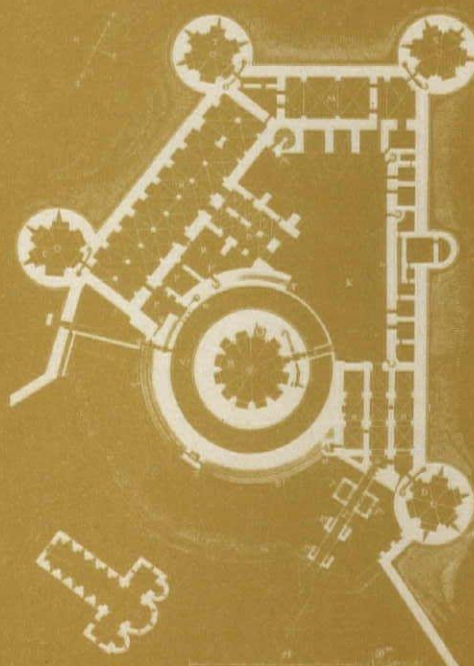
Château of Coucy, 13th Century.



The Escorial, mid-16th Century.



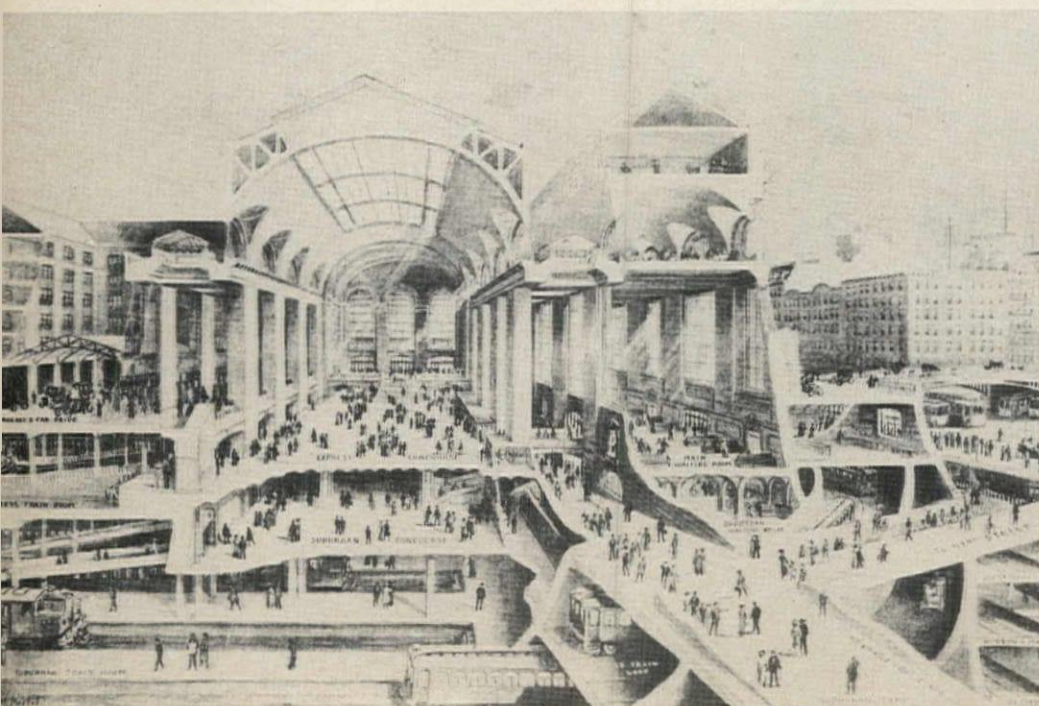
Courtesy: The Athlone Press





Courtesy: Italian State Tourist Office

Siena, Italy.



Grand Central Terminal, 1913.

tained its fascination. Thus, Le Corbusier, in the early 1930's, proposed elevated roadways with housing in the supporting structures for Algiers and Rio, and Raymond Hood, in the late 20's, suggested using suspension bridges, towers, hangers and all, as supports for apartments and offices.

In addition, there are pre-machine age agglomerations that give the effect of, without actually being, omnibuildings: Mont Saint-Michel, the pueblos, Italian hill towns, Aegean villages are examples. The need to build on restricted, often rising ground, the use of uniform materials, at the same scale, and with a common tradition determining the shape and the finish of the buildings, give them the illusion of being compact structures, built to a comprehensive plan. Their streets, narrow tracks threading perhaps between solid walls, whitewashed to the very edges of the pavement and spanned by arches for buttressing the houses, give the effect of corridors in a building rather than strips of no man's land between private properties.

Omnibuildings on the Move

In the machinery of long-distance transportation we have more of the true omnibuilding, with all its comprehensiveness and sophistication. In such examples, though, we still must be selective. The space capsule, for instance, is thus far only a skyborne tourist cabin, a place for one or two transients. And the transcontinental express train of a few decades ago, with sleeping accommodations, eating facilities, telephone for communication with the trackside world, and occasionally even movies (not to mention "central" heating, lighting, and plumbing) was not so much a "small town on the move" (J.B. Priestley's image) as a moving transient hotel, in which even the Pullman porter was only camping out.

The ocean-going, passenger-carrying ship is a better example, and one with a long ancestry. A sailing vessel, headed from Europe to India, had necessarily to be an omnibuilding on the water. The trip "out" took a minimum of three months, with few calls on the way, and for passengers and crew alike it was an isolated period of their existences. Such a ship was, in fact, a floating village, with its squire, the commander, its peasantry, the crew, and its gentry, the passengers, who lived in a genteel troglodytic boarding house, the cabin. They met on a village common, the deck, where there was even token agriculture in the form of the pigs, chickens, and milch-cow kept to supply the cabin table. The ship, if taken to a yard, could be lengthened ("jumboized" in modern shipyard usage), remasted, or otherwise rebuilt as the need arose. The descendants of the sailing ship—the ocean liner and the warship—are both more in the way of being om-

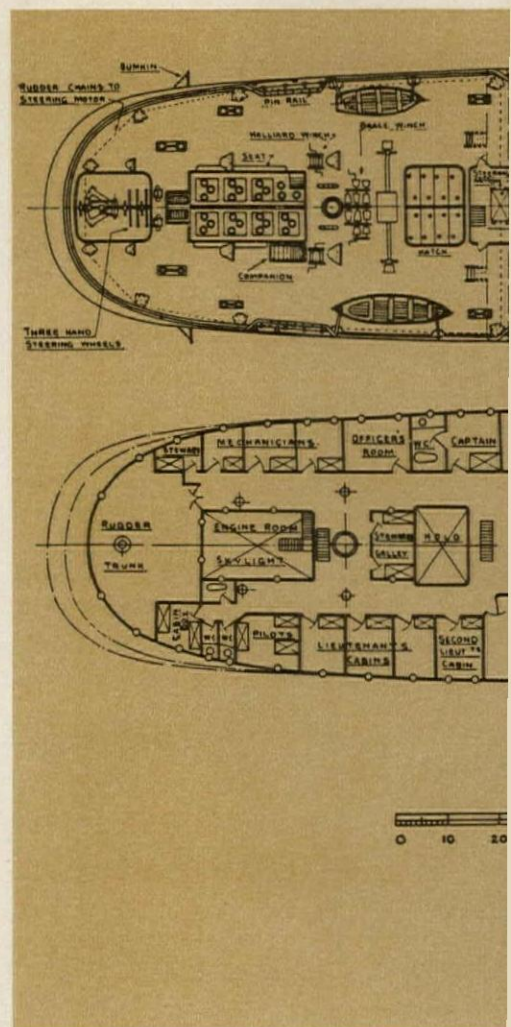


Galleria Vittorio Emmanuele, Milan, 1867.

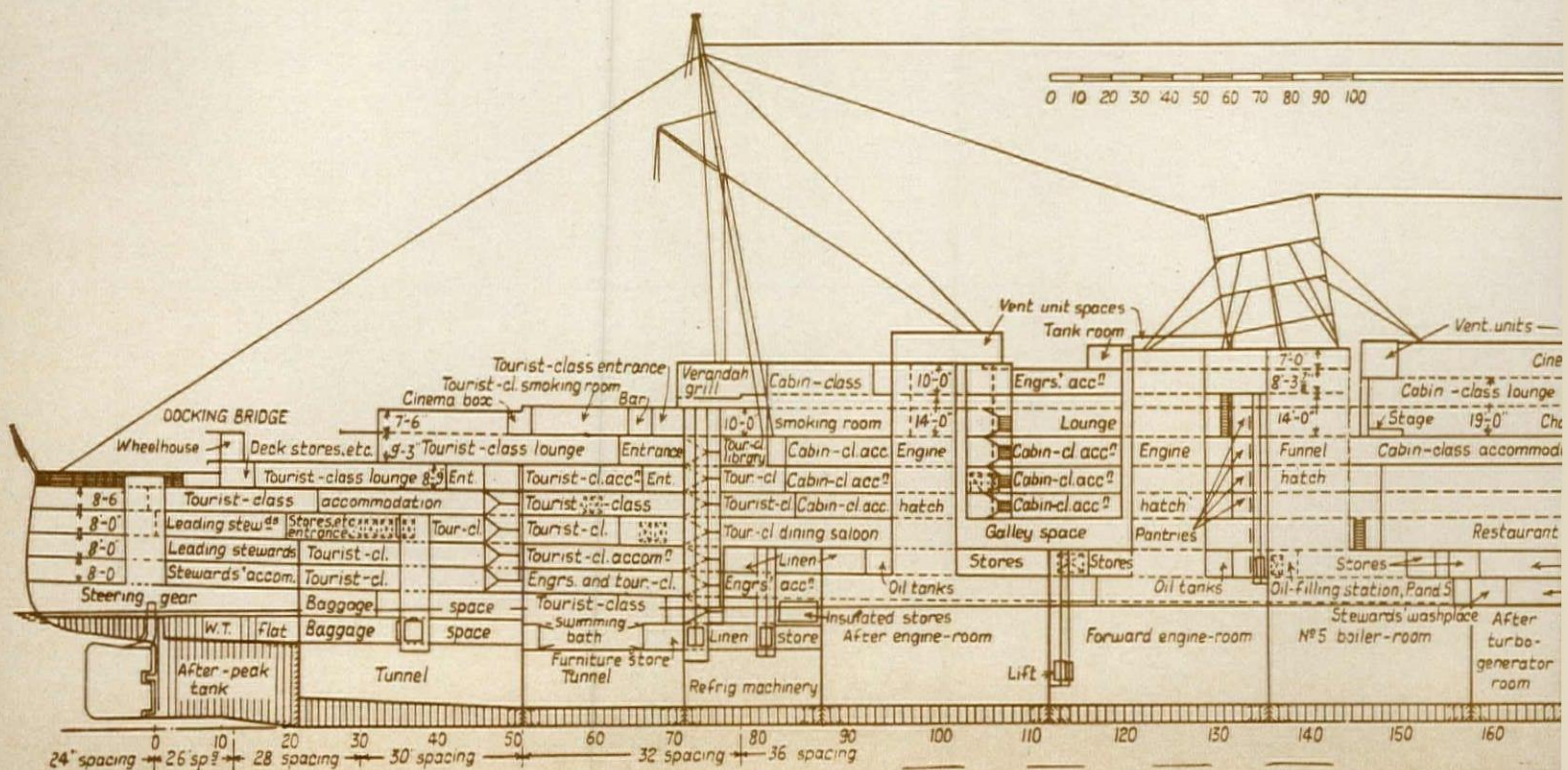
nibuildings and less so. The liner is a great machine, a highly coordinated, sophisticated construction. Its psychological equivalent on the land, however, is a resort hotel, supplying a hedonistic, transitory experience, felt as such even on a lengthy world cruise. The warship, or aircraft carrier, which keep the sea (and their personnel) for periods of long duration, are floating, defensible company towns, whose product is national security. The life on board, however, is not a normal one; for a land equivalent, one would have to look to an army camp, or possibly a camp on a construction site remote from civilization.

Ganglia and Places to Stay

The machine, and the yen for commercial grandeur that came with the large-scale exploitation of the machine and its products, began to create approximations of the omnibuilding on land about a century ago. The Grand Central complex in New York, as originally planned, was the culmination of 50 or more years of railroad terminal development. The hotel had long been a place to sleep, eat, drink, sell things, and conduct business, and when, around 1850, it was combined with the railway station, it universalized it, so to speak; the station hotel was as much a part of the whole railway system as it was of the city in which it stood. If the immense hotel over Grand Central Terminal had been built as intended, the complex would have been a city within a city. As it is, there are not only two levels of



THE CUNARD WHITE STAR QUADRUPLE-SCR
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railroad tracks, three subway lines, shops, offices, restaurants, and a movie house, all integrated into the complex, but the spaces of adjoining buildings are tapped through passages under the surrounding streets. In another and later terminal complex, that at Cleveland, an even showier group of buildings went even a little further, housing the station along with a hotel, a department store, and offices, restaurants and shops.

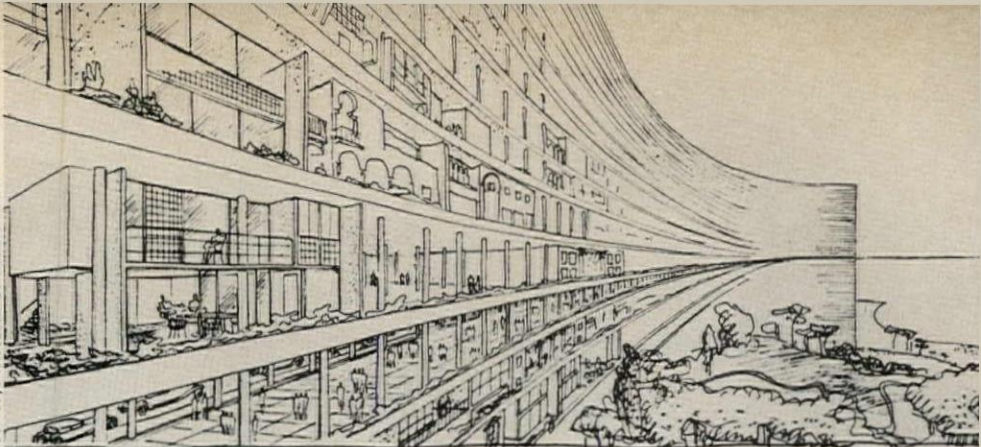
But if we were to look for the best forerunner of the true omnibuilding, we might give our vote to the luxury hotel of the sort that encourages permanent residents. Here are apartments, shops, offices, restaurants. Anything purchasable is available on the spot, or can be sent for. The affluent, sedentary hotel dweller need have visited only two outside buildings in his life: the hospital in which he was born, and the mortuary to which he was removed.

The Architects

Our historic examples thus far have approached the omnibuilding ideal in intuitive, unthinking ways. Their architects or builders were in situations in which solutions of an omnibuilding type were necessary or expedient; the lumping together of the functions of a modern town was not done in response to a clearly formulated ideal but as a matter of practical solution of particular problems. Perhaps it was the realization that technology had turned the modern building into something like an organism that prompted some architects at last to go further and imagine the modern community, with its sewers, water and electric mains, subways and elevated lines, as an organism too, free of the chancy interrelationship of isolated buildings set in a no man's land of public space.

To Antonio Sant' Elia, the organism of the city held dramatic possibilities of stunning proportions, more so even than the organism of the isolated structure. A Futurist or quasi-Futurist, he found beauty in the movement of vehicles, the intersecting lines of transportation, level on level, above the ground and below it, with the levels interconnected with conveyor belts, escalators, and elevators. The conventional street he compared disparagingly to a doormat in front of a building. In Sant' Elia's city, the powerhouses, transit centers, and other installations that made the organic city function were to be monuments, carefully modeled and built (apparently) for the centuries, in the midst of ephemeral residential archi-

Courtesy: Museum of Modern Art



Courtesy: Museum of Modern Art

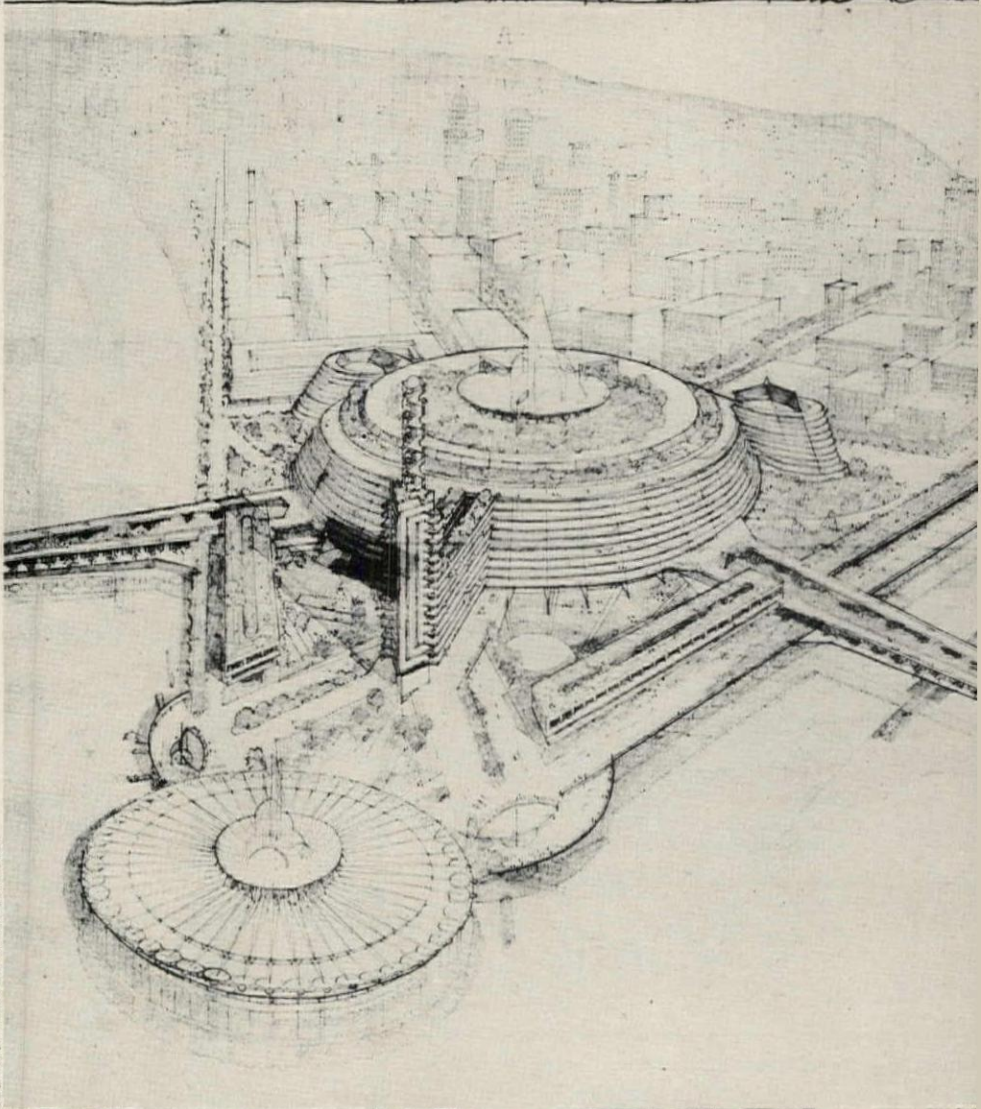
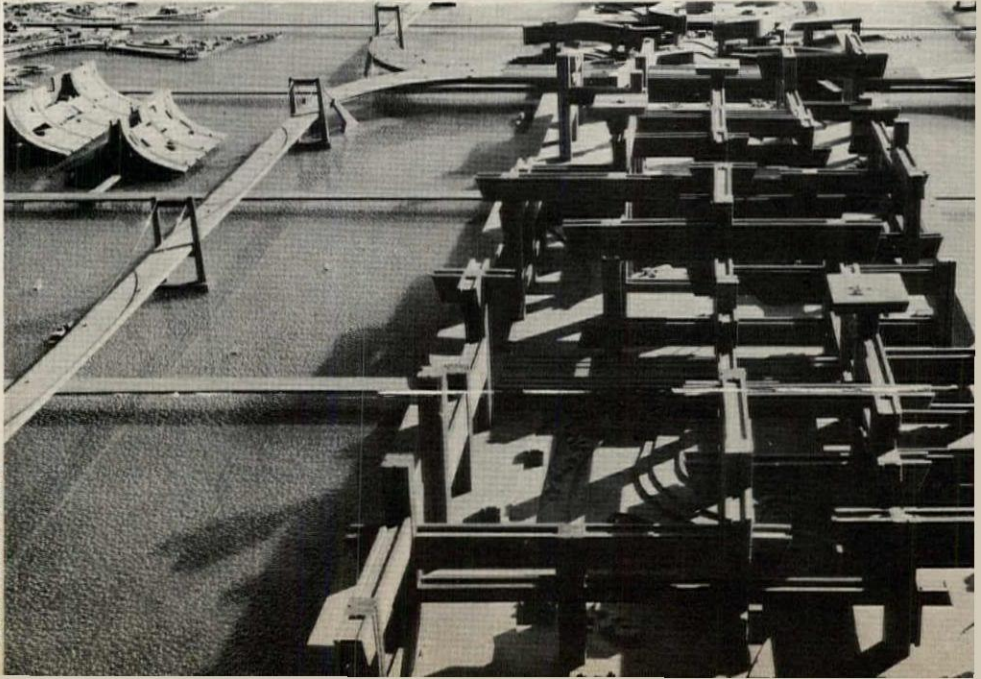
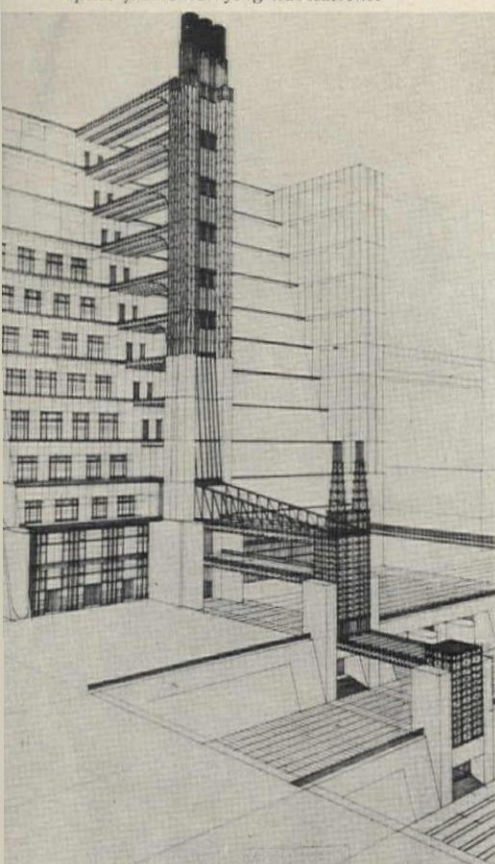


Photo: Akio Kawasaki



Le Corbusier: Algiers proposal, early 1930's (top); Frank Lloyd Wright: Pittsburgh Point proposal, 1947 (center); Kenzo Tange: Tokyo Bay project, 1960 (right).

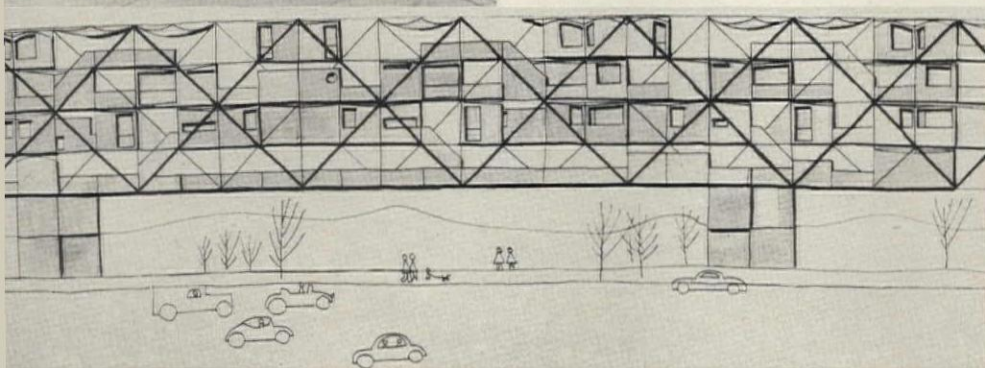
Antonio Sant' Elia: Proposal for commercial building, with multilevel transportation systems, c.1913 (below); Yona Friedman: Proposal for elevated space frame carrying habitations.



Courtesy: Museum of Modern Art

Frank Lloyd Wright's first building projects to approach the comprehensive quality of an omnibuilding were the two schemes of 1947 for the redevelopment of the Point in Pittsburgh; offices, amusement places, parking garages, landscaping, and bridges were worked together into an architectural whole. In 1959, just before his death, Wright was handed a commission of similar scope, namely, to prepare plans for a "residential city," to be built on Ellis Island. As completed by the Taliesin Associates, the "city" would have been composed of a round landscaped platform, its edges supported by cables descending from apartment towers. Under peripheral domes on this platform (looking like costume baubles and eyeballs) there would have been educational and recreational facilities. Moving sidewalks, escalators, and elevators would have gotten people and goods around, no vehicles being allowed.

Buckminster Fuller has produced theoretical designs for things that would be both more or less than omnibuildings. Having evolved, as early as 1927, a "world town plan," he has always seen the world as a vast corporate enterprise, to be put on the soundest possible economic basis. Such a concept is but a mod-



Courtesy: Yona Friedman

ecture, like so many Mayan temples surrounded by plebeian thatched huts.

Le Corbusier echoed the general Sant' Elia concept of a transportation center, in more sedate terms, for his *Ville Contemporaine*. His *gare centrale* was to include a highway interchange, railway station, and landing deck. Highways were to come into this pulsating heart of the city raised above ground level, emphasizing the organic nature of the plan. "A town is a tool," he declared. As has just been indicated, a Corbusian town could also be a viaduct, as in his Algiers project of the 1930's. In his *Marseilles Unité d'Habitation*, Corbu attempted to provide in one building the basic services of a residential neighborhood, including shops, a post office, a cafeteria, a nursery, a playground, and hotel rooms. That he called the corridors *rues intérieures* shows that he was aware of the omnibuilding aspect in his design.

est step away from that of the world as a roofless omnibuilding. Fuller has shown signs of willingness to supply the roof, too, as witness his project of a few years ago for a 2-mile diameter dome to cover central Manhattan.

The Real Thing At Last

In the last few years, we have seen the flowering of the omnibuilding concept. Architects have come forward with systems adaptable to widely varying situations and capable of indefinite growth.

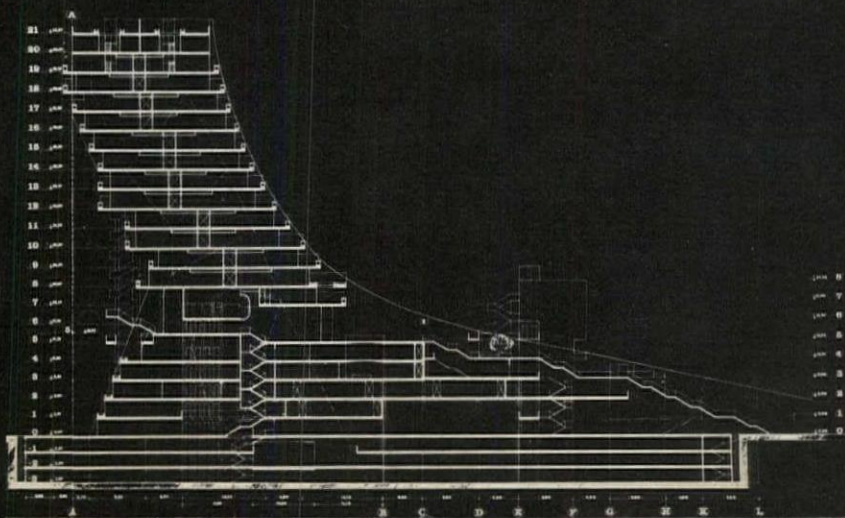
Yona Friedman, a Parisian architect, has concluded that a raised orthogonal, triangulated space frame, is the best answer to an important problem of the community — namely, the movement of people, goods, and utilities in the most direct way and with the minimum vulnerability to breakdown. He divides the city conceptually into the "infrastructure" — that is, the network along which move-

ment takes place — and the "fillings" — that is, the enclosed spaces used for habitation, trade, or other activity involving only the most localized movement. The fillings, potential obstacles to cross-city movement, are also "addresses" — that is, places where such movement originates or terminates: You go to an "address," sewage goes from an "address," and so on. By an analysis of the demand for communication between "addresses," the optimum relative location of the houses, shops, institutional buildings, public places, and so on can be established, up, down, or across from one another, in the most convenient way. Obviously, this is computer-age planning.

Since 1960, we have been made aware of the Japanese Metabolists, whose concern is with the inherent ability of the communal "plant" to recreate itself according to demand. Their proposals are many and varied, but the factor common to all is the creation of an "infrastructure" (supported by an over-all structural system) that permits individual dwelling or business units, standardized or otherwise, to adhere to its walls or platforms in whatever configurations and for whatever lengths of time seem expedient. The most famous of the Japanese plans, of course, is that developed by a team under Kenzo Tange in 1960 for the extension of Tokyo into Tokyo Bay. A series of squared traffic loops would extend from the city into the bay in parallel rows, eventually hooking up with the road system on the opposite side. On made land in the center would be business buildings and places for general public use, while large, rooflike structures for holding housing units would branch off from either side. No one building would be self-contained; the householders would swarm down the slopes of their megastructures every morning, headed for the offices, but the whole complex, organically hooked up, thoroughly engineered, would have the effect of a single, growing entity — London Bridge again, enormously multiplied, analytically dissected.

As a final example,* we have Archigram: total mechanization, plug-in units, and the rest; the English Channel acknowledged as an architectural precedent; technology utilized as it becomes available, with change the only halfway permanent thing. The Archigram people as a group are presenting ideas rather than final solutions; they have an evangelical mission to keep architecture up to date.

*For further examples of the current preoccupation with omnibuildings, see: OCTOBER 1964 P/A; *Perspecta 11; Architecture: Action and Plan*, by Peter Cook; *Urban Structuring*, by Alison and Peter Smithson; and *Architecture: City Sense*, by Theo Crosby.



what...why...how

As a mystique moving into reality, omnibuildings challenge us with some basic questions concerning their existence.

Two-dimensionality and separation of functions are elements that have characterized planning and city design thus far in modern architecture. They not only satisfied the map and site plan filers in city planning departments, but also answered the profit-making needs of private developers in providing them the chance to assemble "parcels" for commercial building, and conformed to the requirements of government and private interests in setting aside or clearing some land for housing or public development. The architects, planners, and transportation authorities of recent years also found these elements adequate for their plans; ring roads were drawn on paper, central business districts were set aside for redevelopment, residential sections were assigned their "proper place" in the order of things, and "ancillary" services (education, religion, recreation, and so on) were threaded through the plans in a different color to show that people could get to different activities without too much trouble ("within walking distance of your chosen place of worship," in the words of the old restricted real estate ad euphemism).

The increasing complexity of today's society and technology has made these

two-dimensional approaches inappropriate and even harmful to the concept of a living city. Even as this is being written, the bastardizations of Le Corbusier's ideas for the city continue to proliferate in the form of new, slab-sided residential towers on bits of connective land — tenements of the future, they are universally dubbed. Architect Frank Schlesinger notes that "Clearly defined land use areas, separated by function and linked by open space and transportation systems, has proved a fragile concept in the caldron of our urban centers. The appeal of Corbu's sketches has led to the reality of corporate headquarters, 'cultural centers,' and inner-loops. The notion of urban organization accomplished by the assignment of differing uses to separate, two-dimensional parcels of land has given way to the realization that a viable city requires a complex mix of uses and that this mix can best be accomplished by thinking of land in our urban cores as three-dimensional blocks that will allow differing, but mutually reinforcing, uses below, at, and above ground. . . . The organizational power of the *section* is finally finding its rightful place in planning."

One of the major solutions in this new kind of urban thinking is obviously the omnibuilding, although, just as obviously, the solution must be dictated by the municipal needs. "The problems of, say, Tokyo are not the problems of Buffalo," say Schlesinger, who is working on Buffalo's downtown revitalization. In most cases, however, the need is for a concept large enough to provide for connective-

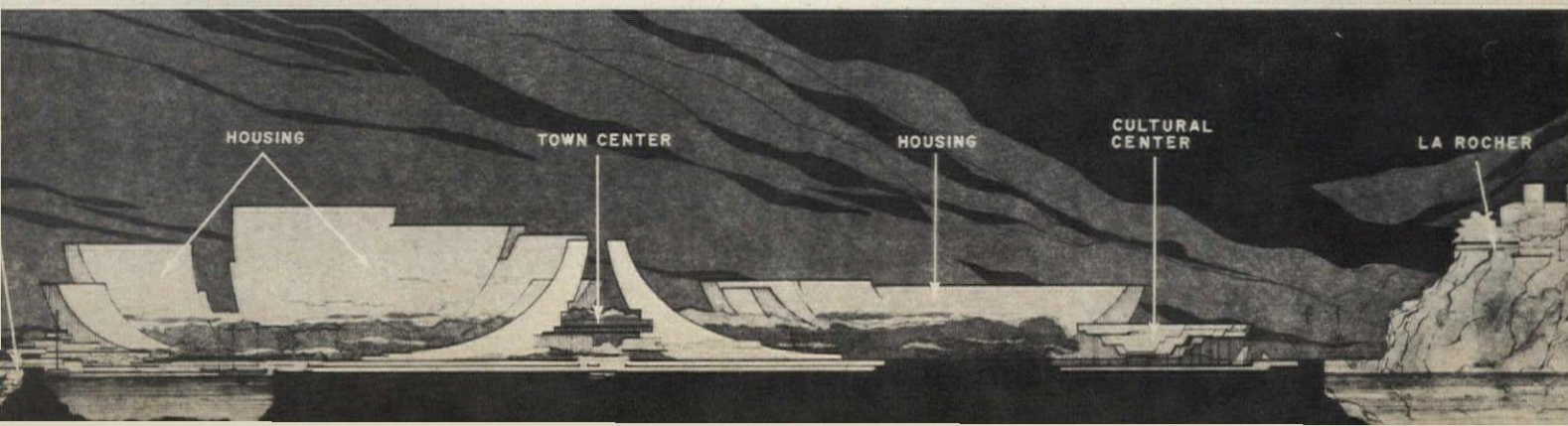
ness and involvement of large sectors of the community. This is implied in the intermix of functions, sweep of scale, life-encompassing powers, and open-endedness that can be inherent in omnibuildings. Architect George Qualls is of the opinion that this "seems the logical vehicle for the large-scale construction techniques that are more and more dominating our design thinking; systems find their home here. As in the case of most industrially produced buildings, there may be a momentary sense of completion and static poise, but the over-all aspect of such a structure may well be a sense of additive formlessness and an appetite for continued growth."

Scope and Use

"The whole environment has now become far more important than the individual building," said Dean Lawrence B. Anderson at the most recent P/A Design Awards judging. And, in a sense, omnibuildings can be called environment structures, for they contain the multiplicity of activities and both the macro- and micro-cosmic scale that one thinks of when one considers the term environment.

The 100 per cent "pure" omnibuilding — one that contains elements of all human activities; fully integrated examples of all transportation, transit, and mechanical systems; a structural armature that can support a completely changeable and flexible system of enclosures for every use and at the same time be easily extensible horizontally and vertically; one that reaches into and becomes part

The satellite city being constructed largely on made land in Monaco from plans by Manfredi Nicoletti of Rome (pp. 154-157, DECEMBER 1966 P/A) will include, in what the architect calls "artificial hills," commercial and housing units plus provision for parking and on-site vehicular and pedestrian circulation. A church, cultural center, and recreation facilities are also included. Secondary structures can be individually designed and plugged into the omnibuilding of the "hills."



of the community rather than a divisive factor — may never be seen except in the dreams of visionaries. But, in practice, “impure” omnibuildings — those that perhaps lack some element of an “ideal” omnistructure — have been built (Grand Central, Rockefeller Center), are being built (Cumbernauld Town Center, Montreal’s Place Bonaventure and Place Ville Marie), and are in planning stages for construction (Market Street East in Philadelphia, Embarcadero Center in San Francisco). They are designed to recreate the centers of important cities and make them living “omnibuildings” of the old and new elements, as with the multi-level commercial and transit developments beneath the traditional centers of Vienna (p. 106) and Stockholm. They are created to form new centers at a remove from the classical centers of old cities, as at Rond Point de la Défense in Paris (more “pure” as an expression of integrated transportation and transit and parking systems below ground; the aboveground structures have been built in a traditional manner, each on its own piece of land). Developments that seem disconnected have the possibilities of becoming omnibuildings. The terrace housing of Switzerland, for instance, has, in the opinion of Ervin Galantay, the potential of multiplying, adding its own commercial and cultural nodes or centers as it grows and becomes a linear omniscity some 150 miles long.

There are elements that will undoubtedly remain unadaptable for omnibuildings. Heavy manufacturing would tend to need its own services and to be inappropriate for inclusion in a living environment. It is interesting to note, however, that in the City of the Future being planned at the University of Minnesota, quite “heavy” manufactures are included in the complex — some of them, indeed, needed to make the city a life-supporting mechanism (i.e., the disposal and transformation of waste material). Some activities will remain separate through choice or necessity.

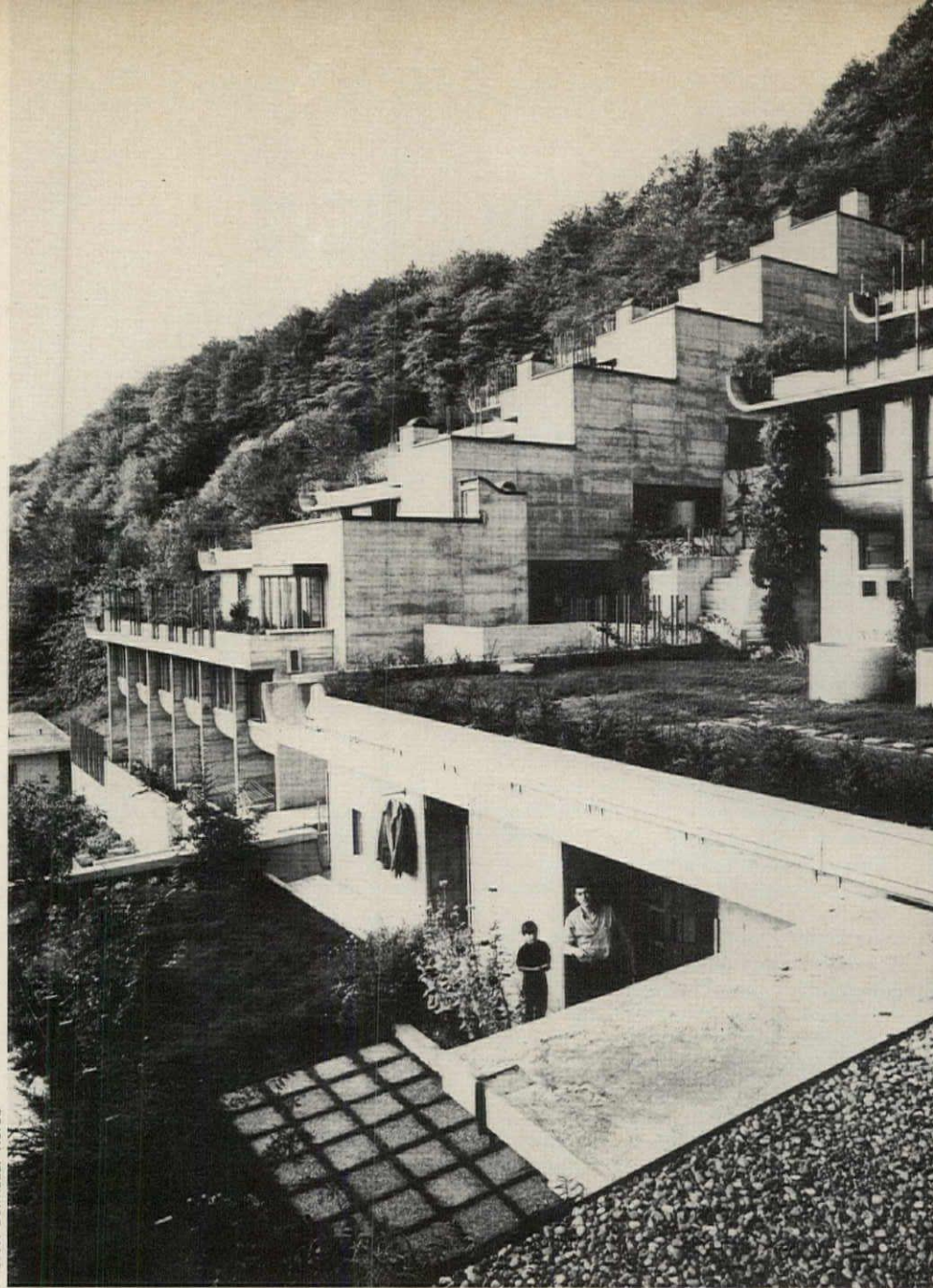
Currently, some of the most interesting examples of omnistructures — in microcosm — are furnished by college and university plans. Simon Fraser University in Canada (pp. 122–123) and Pahlavi University in Iran (pp. 110–111) show the integration of many elements to form a community, albeit a community with a singular goal. The University of Minnesota future city itself will be a thing apart, created from scratch. It is in this respect that “ease” and “difficulty” of planning enter. It is obviously simpler to create a college community on easily available land, or a visionary city on the Midwestern plains, than it is to inject a superscaled pattern for living into an existing city, and tie it in with all the exist-

ing living patterns, legal restrictions, accepted construction practices, and the like. Most experts agree that even with the materials and techniques we have at hand, there is very little we cannot physically build, at any scale; it is in working to *get* something built through the governmental, societal, financial, and bureaucratic maze in which we exist that makes strong men weep. Engineer Paul Weidlinger says we can put a man on the moon easier than we can build a big, complex building under current circumstances.

Reasons Why

Even if we can do it, it might be asked, why consider building structures so obviously different than those we are now accustomed to, so fraught with change and filled with new complexities?

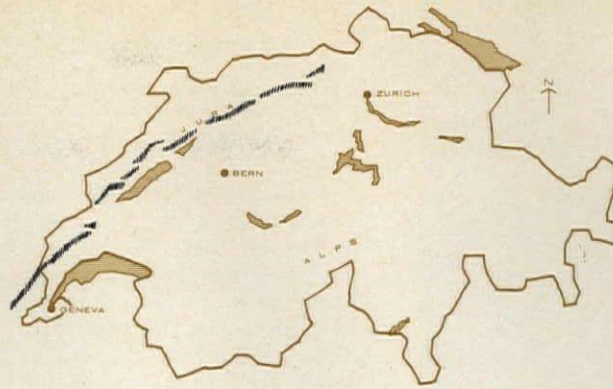
One very practical answer is given by Habitat architect Moshe Safdie: “If the present rate of growth continues, since



Photos: Balhazar Korab



The terrace housing of Switzerland, built along the southern slopes of the mountains to take advantage of the exposures to the sun so precious to those living in the Swiss climate could eventually, according to Galantay, link up together to become a linear strip-city 150 miles long, generating commercial and civic centers along its length as needed. Map shows a possible result of such growth (hatched area).



Center in Portsmouth (pp. 108-110), writes from England that "We are deeply involved in urban renewal schemes in this country and . . . with the restrictions on Office Development we are finding this is forcing residential development back into the air space over the main commercial schemes. In other words, we have two projects at the moment at detailed design stage where the lower floors are shopping and similar commercial uses and above are planned a large number of local authority housing units."

The large-scale developments that must be brought into being to house men and their activities cannot, as in the past, merely provide a vast number of cubicles stacked in vertical containers more or less tentatively related to service and transportation lines and let it go at that. Society is no longer that simple and the means of creating cities are no longer so constrained by technological deficiencies or impossibilities. Rai Y. Okamoto describes his concept for the central business district of Manhattan (pp. 144-145) as "an enormous machine for the distribution and movement of people, goods, and vehicles as well as the exchange and transmission of services and information. The network, paths, and envelopes which enclose or define these elements are in turn related to the distribution and exchange network of power, water, and waste systems." This is a farsighted vision for the heart of the world's largest city; it remains after the accomplishment of this "machine" to tie in the individual commercial and work buildings, entertainment places, hotels, convention centers, and other elements with all the service lines. Giedion wrote in *Space, Time and Architecture* of Rockefeller Center that "It is apparent that it was not through vision but through an effort to adjust design to changing necessities that the development took its final shape." It is doubtful that omnibuildings in the future will be liable to such a judgement, at least if they are appropriately programmed to begin with, for it is obvious, as Qualls observed, that the role of sys-

tems analysis and performance design will be seminal in the planning of omnibuildings.

The need to house an ever-burgeoning urban population in convenient and salubrious circumstances being the prime need in today's society is coupled with another humane, and conservationist, requirement: to hold aside from insensate exploitation and speculative overbuilding those square miles of natural resource still left to us. These conserved acres will not only act as a "bank" for future generations, but will also provide relief and diversion from our increasingly urbanized civilization. Vincent G. Kling observes that "The ideal of garden-fresh leafy vegetables in the kitchen, an acre of greensward per house, and an environment that promotes relaxed people-to-people relationships is already only possible for some, and rapidly becoming unavailable for more than a few, but concentrating space in much larger structures in unused overhead space will help to keep some open space open longer."

Connections

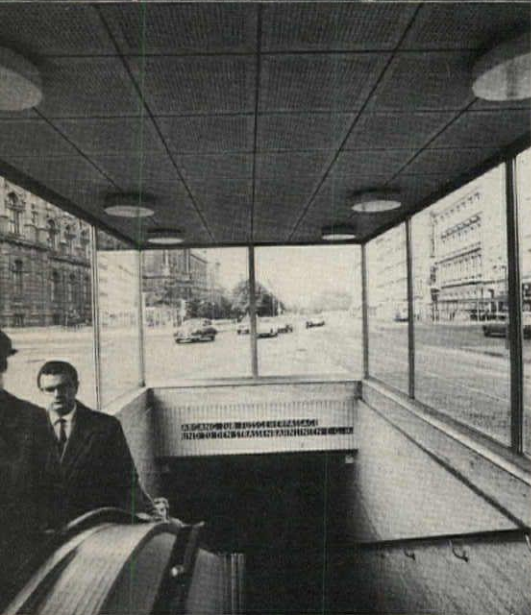
Architect, planner, and teacher David A. Crane thinks along the lines of linkages and connections for the solutions to urban integration, and believes that the concept of omnibuilding (or "megastructure"), in the words of his associate James McKellar, "brings forth both an architectural image and a city form which fails to transmit the full potential of structural integration. In addition, it is also more indicative of technological feats than of an emerging spatial institution." In this approach, Crane has conceived of the "Capital Web," wherein the government authority (city or state) plans and builds in an integrated system all public services—sewers, schools, highways, mechanical sources, horizontal and vertical transport, etc.—either underground or aboveground. This web would be the form-giver for the city, and public or private developments and individual buildings would take place within its embrace. This was the concept

population growth is not a linear growth but rather a geometric series, it would quadruple in the following 40 years, and be eight times that in 120 years. Accompanying this growth is a major shift of population from low density rural regions of the United States and Canada to the major metropolitan areas. From the point of view of rate of construction in addition to growth and shifting of population, provisions for the replacement of present housing and other functions of the city must be made because of dilapidation, poverty, and slums, which are overwhelming both in the rural and metropolitan areas." More and more space for living must be had, and it must be had right where it is dearest and least obtainable—in the midst of the world's teeming urban areas.

This squeeze for urban space is not a problem of the future, even of the near future. H. Owen Luder of the Owen Luder Partnership, architects of the Tricorn



Photos: Balhazar Korab



used by the planners of the Downtown Lower Manhattan Plan (pp. 128-139, AUGUST 1966 P/A), and, for that matter, of the Regional Plan Commission's Manhattan CBD study (pp. 144-145). McKellar says that "We are searching for the bonds that bring together disparate parts and are in turn searching for the forms that maintain these parts in a dynamic equilibrium. The idea of linkages among the institutions of the city has long been recognized; we are obligated to investigate the physical implications of such linkages, one of which is the megastructure."

Other architects and planners conceive that the entire complex, buildings and all, is the answer, as in the case of such a renowned existing example as the Town Center of Cumberland, Scotland (pp. 134-135). The idea of the actual buildings becoming part of the "connectivity" is reflected in the possible future Ervin Galantay sees for the terrace houses of Switzerland, also (pp. 104-105).

The problems of connectivity are not reserved for connections within the omnibuilding itself, however. A most important aspect of the success of such complexes is how they might relate to and grow into their surrounding communities. Interpenetration of traffic and transit lines of both community and omnibuilding is one element of this relation, if a mechanical one. Mechanically, also, if the omnibuilding is to be physically extensible in the future, it must connect with all the other service lines shared with the community (a view that Crane's approach would support). Beyond the purely physical aspects of the problem are those of social interaction between activities in the omnibuilding and those "outside." Care must be taken by planners and city agencies that a proper mix of activities in entire areas of cities be insured (education, living, recreation, work, worship) in order that massively scaled developments do not dominate or divide entire neighborhoods in a Chinese Wall fashion. The possibilities for these omnicohesive neighborhoods have been disbuildings to act as agents for more lively, cussed in P/A before (pp. 162-173, APRIL 1968 P/A). It is important in this respect to involve the community and its desires and problems from the first in planning a project of such scale; the

The centers of older "world cities" can take on some of the attributes of omnistructures, according to Ervin Galantay, by employing means to intensify their connections. In Vienna, subsurface interconnections in the old city center not only feature transit lines, but also have become underground shopping and commercial passages and linkages with the revitalized older structures aboveground.

sociological elements must be high on the list of factors to be included when considering a new environmental process.

How to Do It

Given money enough and freedom from bureaucratic controls and the exigencies of complex ownership arrangements, omnibuildings of all sorts could start to flourish like the flowers of the field. However, problems of public and private ownership do exist, the involutions and convolutions of bureaucratic officialdom are there to subdue the wide-ranging imagination, and the most farsighted and appropriate plan must submit itself to the Procrustean bed of zoning laws and building code regulations.

In succeeding pages, we examine in detail the private and public problems inherent in approaching the planning and design of omnistructures, as well as viewing the present possibilities and the future probabilities of structural and mechanical techniques for structures of large scale and vast scope.

What is needed in initially conceiving, then realistically planning, omnistructures is a reference point, a body of knowledge and data to refer to, a source to act as a clearing house for facts, ideas, and propositions, so that every project does not have to be designed as a separate, one-of-a-kind entity the way buildings are today. The Federal Government certainly must come in here, as well as schools and "think tanks" and other research centers. Perhaps, in this connection, the recently formed Center for Environmental Structure in Berkeley, California, will point the way. Recognizing that "hundreds of social, psychological, economic and technical questions . . . occur in any design project and are never thoroughly answered," and that, moreover, "even if we design individual projects well, these individual projects will not function properly until they are coordinated with other projects," Christopher Alexander and his associates (Sara Ishikawa, Roslyn Lindheim, Murray Silverstein, and Sim Van der Ryn) propose the Center as a continually available resource for fresh research and comparative information in the integration of design and planning with the realities of society and technology. They articulate their two-headed approach as first the concept of an "environmental pattern" as an abstract solution to a restricted design problem. This can be applied many times over, and can be improved as new aspects, new developments, and new solutions present themselves. The second part of the approach is the "environmental pattern language" or a system coordinating patterns with one another, and insuring that solutions to various projects are properly related.

According to the staff of the Center for Environmental Structure, the process would be thus:

"(1) Any aspect of the environment — whether at the scale of regional land use distribution, transportation networks, the layout of building complexes, the design of individual buildings, the design of interiors, or the details of construction — can be represented as a pattern.

"(2) The functional basis for each pattern is clearly stated.

"(3) Each pattern is readily communicable.

"(4) Each pattern contains a precise statement of the conditions under which it can be applied.

"(5) Each pattern has a format that encourages criticism and feedback.

"(6) Each pattern becomes a viable element in a universal pattern language.

"The language coordinates these patterns. It has the following effects:

"(7) It accounts for the functional interdependencies among patterns.

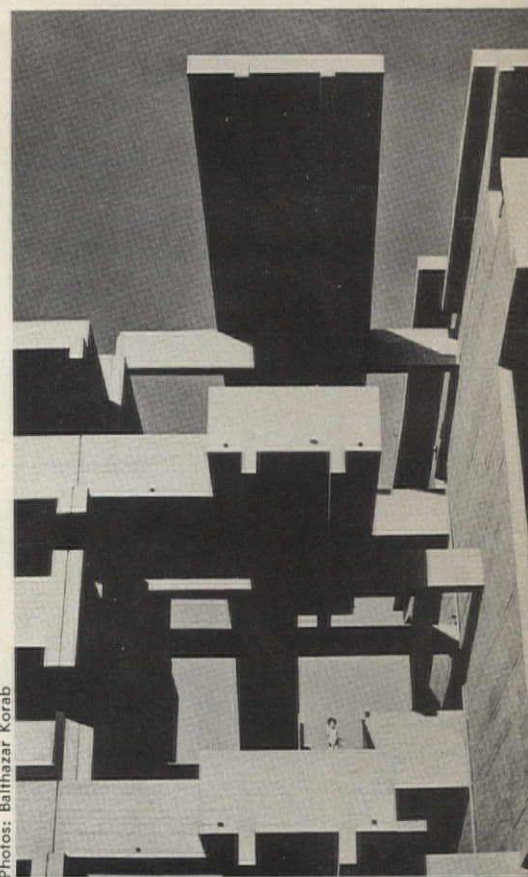
"(8) It guides the process of combination, so that an individual making use of patterns knows how to put them together.

"(9) It indicates clearly how newly invented patterns are to be related to pat-

terns already known, in such a way as to maintain the organic unity of the whole."

With continual use and feed-in and feed-back, Alexander points out, the environmental language pattern "will ultimately contain hundreds of subsystems and tens of thousands of individual patterns." By the tripartite operation of (1) design and invention of patterns, (2) basic research, and (3) publication, distribution, and criticism of patterns, such an organization as the Center, storing the entire spectrum of patterns and their language on computers, can provide answers to problems of all types on an actual omnibuilding scale for real communities. (Stuart Silverstone, of the MIT architectural and civil engineering faculty, points out that such a resource should ultimately be a governmental or quasi-governmental function.)

"A total strategy has been seen to be more and more necessary as architecture and life become more sophisticated," writes Peter Cook in *Architecture: Action and Plan*. "The synthesis of operations in the correct sequence has more need to be accurate. The action becomes more part of the plan. Ultimately, the user comes into his own."



Photos: Balthazar Korab



Sorgane, Italy, the new town rising near Florence, was partially completed in time to receive some of the families struck by floods of 1966. The housing by Leonardo Ricci, one of the master planners of Sorgane, cannot be considered a "pure" omnibuilding because it is not a strictly multiuse structure. However, it does serve as example for planned extensibility of a building. The structure is left "incomplete" to welcome future additions and extensions: perhaps, in the future, to qualify as an omnibuilding.

the private sector

The scope and multiple-use aspects of omnibuildings raise many questions concerning the role of private ownership, development, and management.

Although some of the best examples of omnibuildings are to be found in the countryside, their greatest relevance is perhaps for the cities. Urban densities seem eminently appropriate. A tight center serving multiple urban needs cuts down on movement through the overcrowded city. Developers appreciate the great benefits of the economy of large scale. And many planners feel that some form of omnibuilding is the only feasible answer to the need for rebuilding decaying parts of cities. Single buildings are not enough. Anything less than intensive land use would be an abuse of the heavy public investment that has been made in access roads, streets, and utilities.

It is, of course, precisely in these densely built-up population centers that planners and entrepreneurs encounter their knottiest problems. Starting with the difficulties of assembling a site large enough to accommodate a major project, they continue through the obstacle course of politics, public hearings, legal and governmental red tape.

While true omnibuildings are of a hens' teeth scarcity on the urban scene, large-scale, multiple-use projects are becoming fairly common, and their over-all planning complexity can serve to guide future omnibuilders.

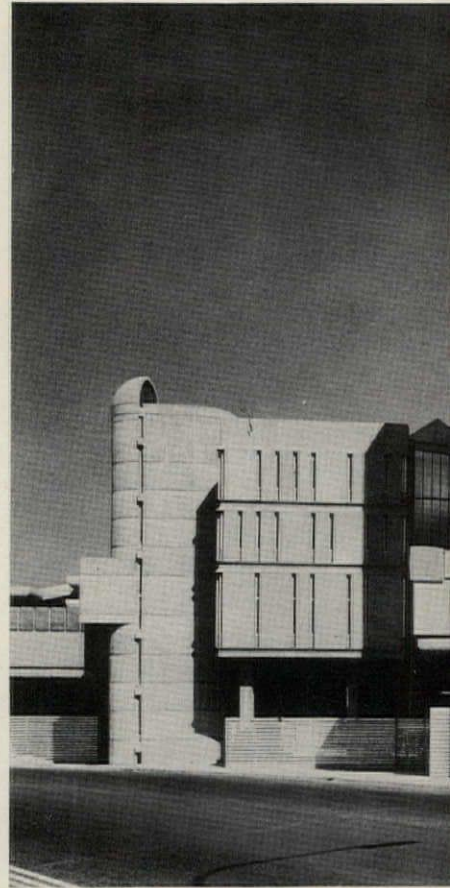
All too often, the problems are in direct proportion to municipal or other government involvement, causing developers perhaps to think fondly back on simpler times. Whether or not public funds are at stake, special dispensations are bound to be needed from the city — street closings, release of easements, or a waiver of some zoning restriction.

However, big builders and entrepreneurs seem less concerned about specific changes in zoning ordinances or legislation than they are about the wasteful-

ness of the entire bureaucratic and political machinery. No matter how well the rule book may be written, the fitting of large complex projects into the larger and more complex environment of the city will require special action on each individual project, action that is bound to be unpopular with one power group or another. And elected officials are loathe to make, or cause to be made, unpopular decisions.

Aside from the traditionally influential segments of the private sector, city hall has been giving increasing weight to the voice of its citizen at large — the Negro, the poor, the small businessman, the small property owner, and even the white-collar worker. Effectively obscured until now by their very numbers, by the size of the city and by their lack of organization, unaffiliated citizens are forcing the city's attention in a wave of social and political activism that includes much more, although nothing more terrible or imperative, than the riots. The community's inclusion in the planning process is not only an obligation of the city, but would seem to offer very real advantages. If the grass roots needs of a neighborhood can be built into a plan, certainly that plan should have a better chance of social and economic viability. And if the community can be brought in from the beginning, it should reduce the chances of last-minute injunctions being filed by belatedly aroused citizens' groups.

After long neglect of the so-called common man, however, there are those who feel that cities are allowing the pendulum to swing to the other extreme. In practical terms, the unorganized community can be a severe impediment to the developer. He must now cope not only with the municipal hydra, and with the business and institutional community,



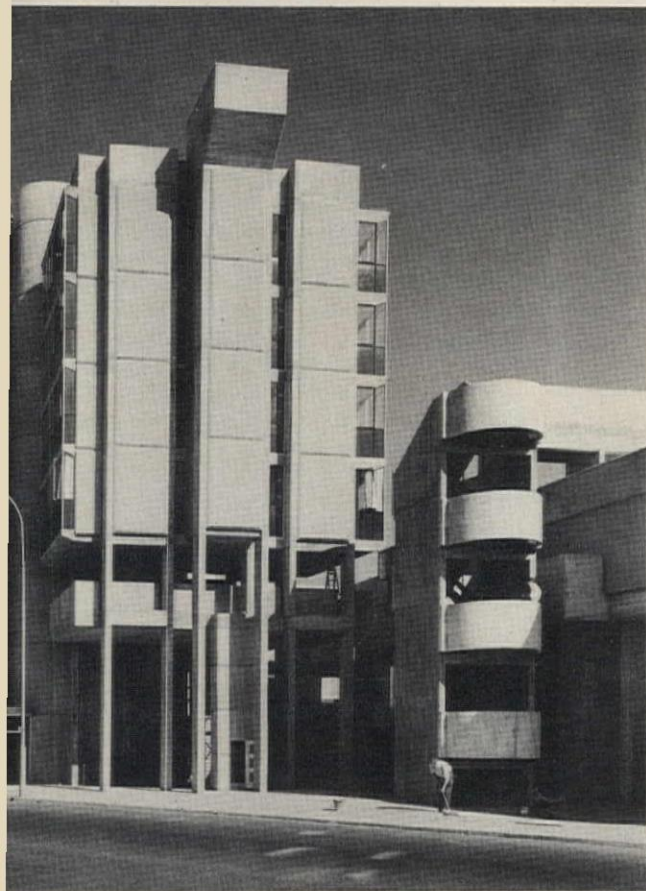
TRICORN SHOPPING CENTER, Portsmouth, England.

Architects: The Owen Luder Partnership. **Partners:** Owen Luder, Dennis Drawbridge, Rodney Gordon. **Associates:** Norman Wilson, Peter Abbott, Lawrence Howard.

Characterization and Site: Completed in the summer of 1966, this commercial center is located on a triangular wedge not far removed from Portsmouth's main shopping street; it is linked to shops on that street by narrow alleys. Because of poor subsoil and flooding problems, there is no construction below street level. The ground-level plaza contains shops, a supermarket, small vending areas, and two pubs. Above this is a wholesale market level; by putting it on the second floor and thereby leaving the street level available for tax-revenue producing retail shops, the city has converted an £8000 annual deficit into an £18,000 profit. Above this two-story podium rise several separate blocks, a four-level parking space for vehicles, a four-story apartment tower, and a four-story department store, which is entered on the ground floor.

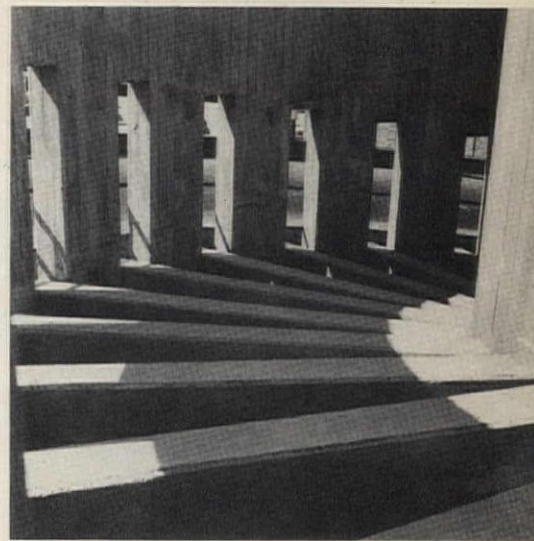
Structural System: Grid system of 42' x

NOTE: In all cases in the examples shown on the following pages, vehicular traffic is shown in solid color, and other transportation and transit lines are shown in hatched color.

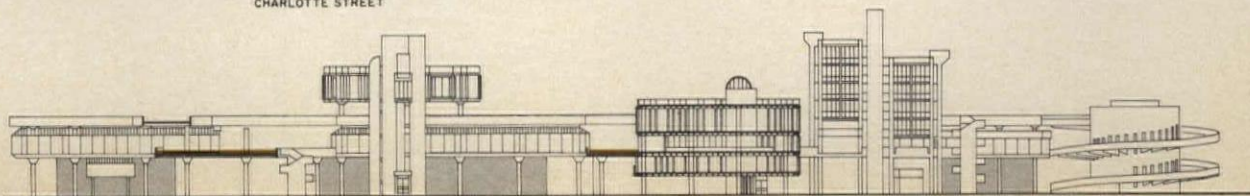
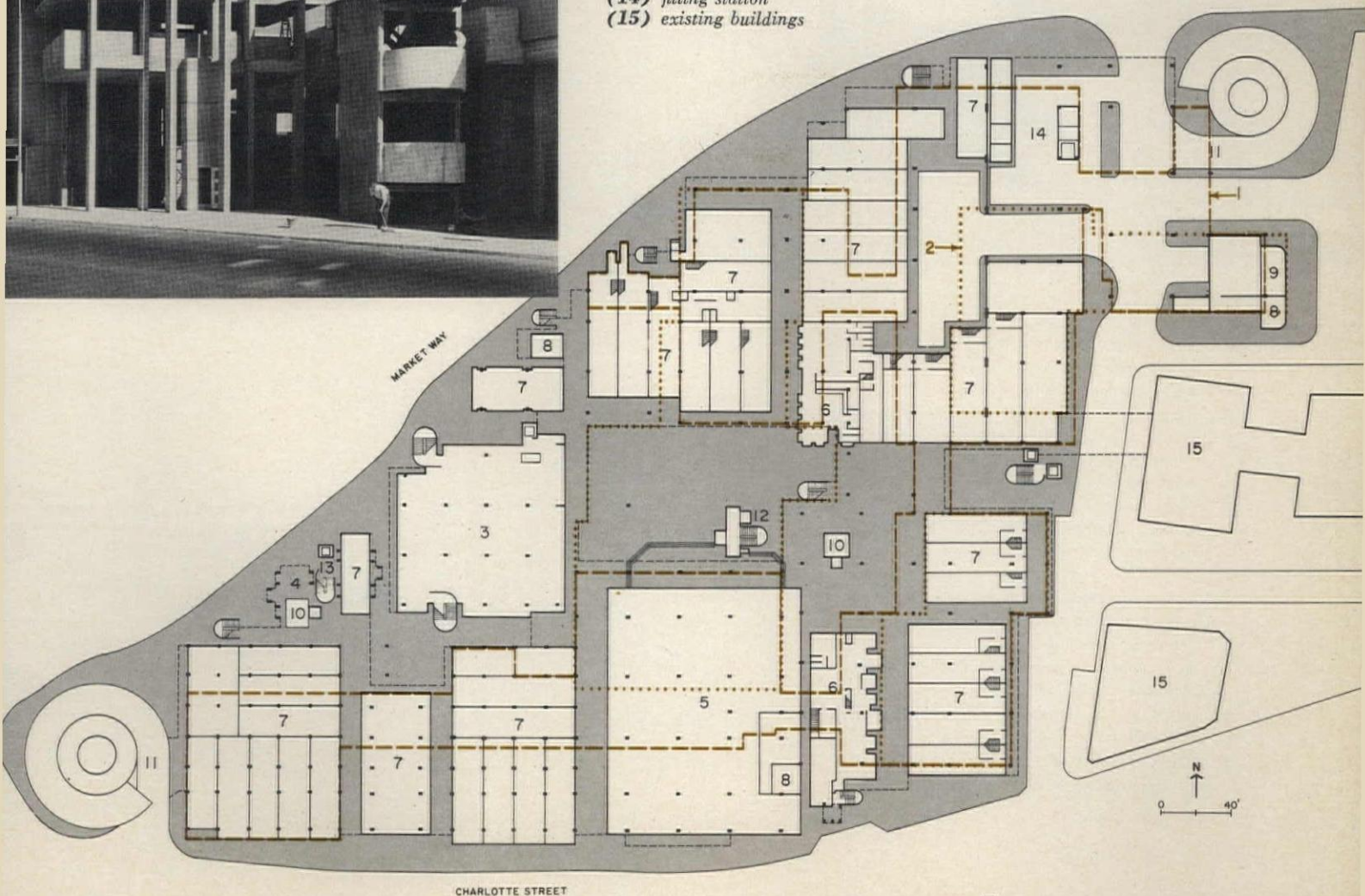


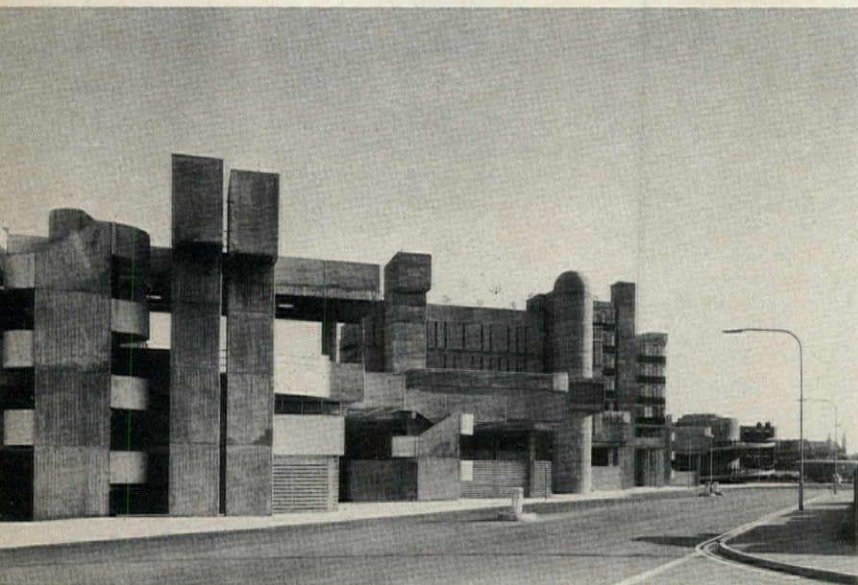
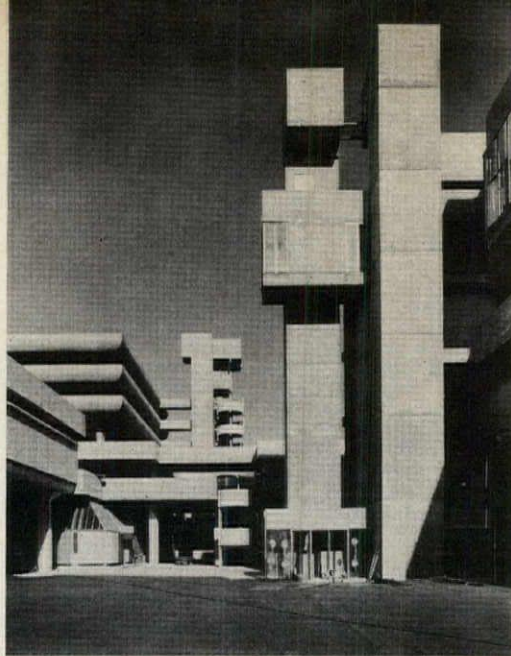
(above indicated in color):

- (1) parking (floors 3, 4, 5, 6)
- (2) restaurant over
- (3) department store
- (4) flats (over kiosk and shops)
- (5) supermarket
- (6) pubs
- (7) shops
- (8) substation
- (9) appliance store
- (10) kiosks
- (11) vehicle ramps
- (12) up to restaurant, up to flats
- (13) up to flats
- (14) filling station
- (15) existing buildings



Inside drum of parking ramp.



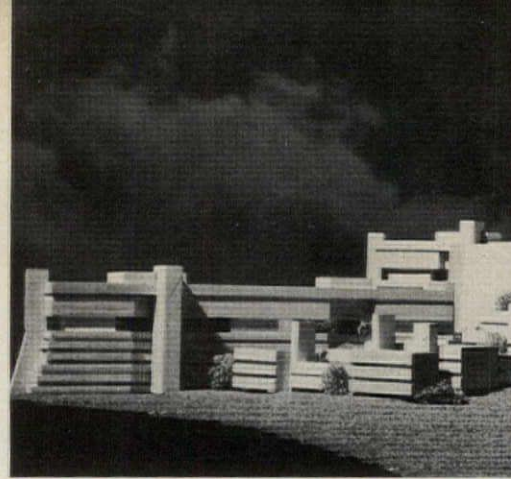
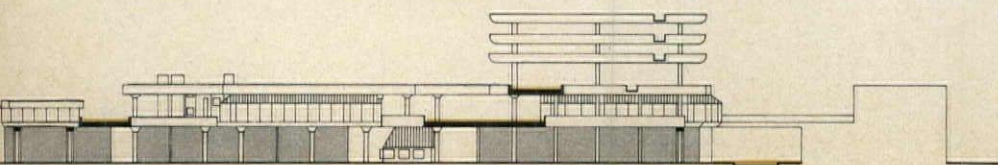


18' with a 3 ft module uses cast-in-place and reinforced concrete for floors, roof areas, and some elements of vertical circulation. Cladding and high external stairs are precast except for spine wall of the stair and its floor connections. Spiral car ramps use precast, cantilevered concrete beams supported by cast-in-place core walls. Neoprene gaskets capable of absorbing tolerances of $\frac{1}{2}$ -in. were used between cast-in-place and precast members.

Transportation: Pedestrians are separated from vehicular traffic. Vehicular access to the center is via a spiral ramp at the north; exit is by a similar ramp at the west. Parking for 500 cars is provided partly in the four-story block, and partly on the roof of the podium.

Consultants: Clarke, Nicholls, & Marcel, structural; C. R. Wheeler, surveyors.

Photography: Sam Lambert.



PAHLAVI UNIVERSITY, Shiraz, Iran.

Architects: Robert S. McMillan Assoc.; Mohamedi & Dana, associated architects.

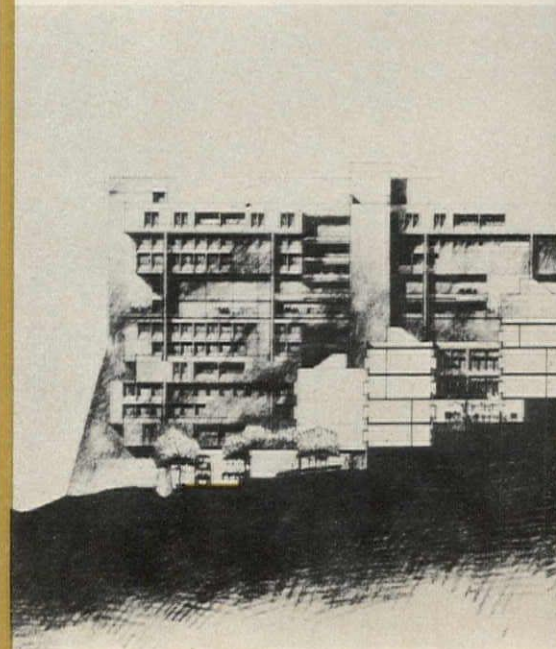
Characterization and Site: This proposed campus will include medical and engineering schools, staff housing, and athletic facilities. A central cluster of academic buildings is sited on the highest point of rocky land; an underground parking facility serves as a podium for the academic buildings. The initial phase of the planned three-phase construction is scheduled for completion in 1970. Ultimate building space totals 4,300,000 sq ft.

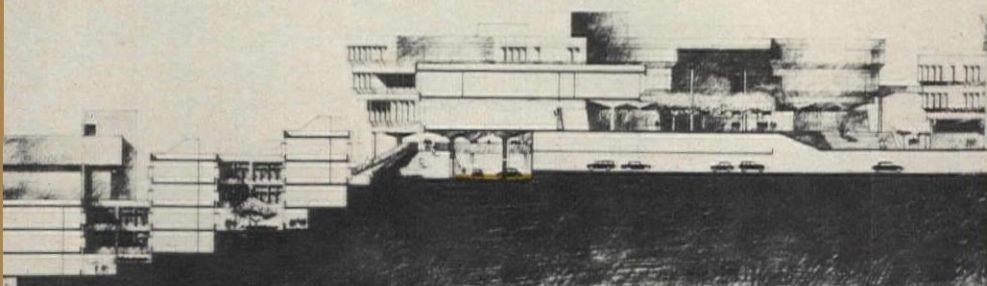
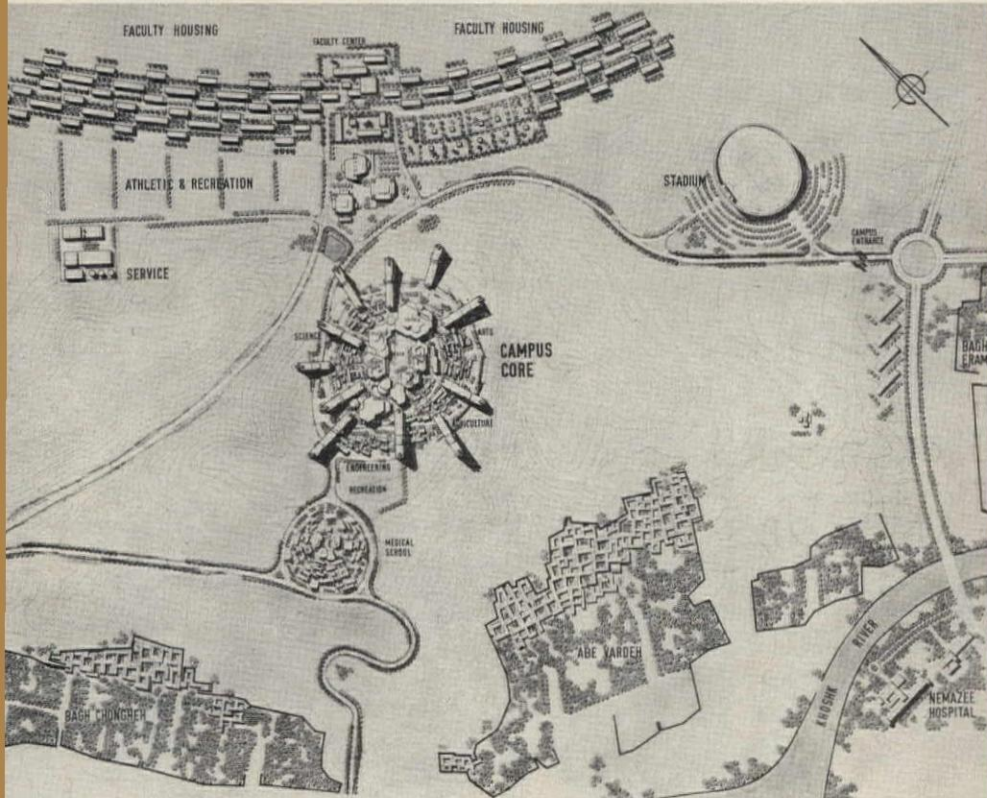
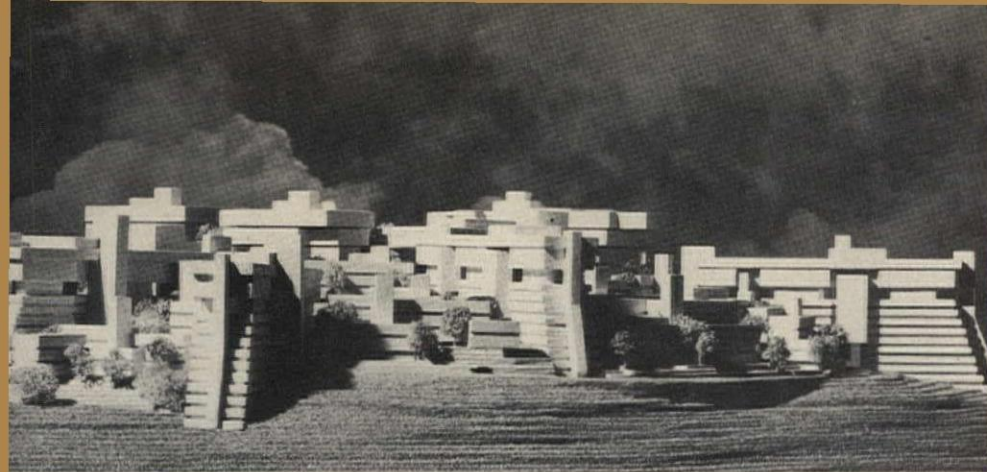
Structural System: Loadbearing reinforced concrete piers and slabs; precast sun control elements.

Mechanical System: Separate air-conditioning plants for campus core and medical school. Core unit water chilling machines to have capacity of 64 million Btuh at 40 F. Circulation by centrifugal pumps.

Transportation: Underground parking for 600 cars below core plaza; ground-level parking at other areas. Primary vehicular access is by a road that rings the campus and passes beneath central core.

Photography: G. Gherardi, A. Fiorelli.





but with a many-voiced citizenry exerting more political pressure than ever before. When the community does cause unusual delays, which is not always the case, the results are ironic, since the developer is hamstrung at a time when action is most needed.

Therefore, the problems encountered by would-be omnibuilders, as well as the key to solutions, lie in the interrelationships between government, community, and developers or builder-entrepreneurs. Can the much-touted partnership be set up between government and private enterprise, a partnership that is responsive to the community but still effective? Can a liaison be formed that will not simply multiply obstacles and further delay action? And what is the proper sphere of action for each group—who controls and who takes the risks?

The answers to those questions depend largely on where one is building and for whom. The development of major multi-use complexes without financial aid from the government seems possible only in those social and physical areas of a city where private enterprise can build for a market that will offer profitable returns on the investment—areas that can support offices, high-rent commercial, and high-rent residential units.

But if the target is rebuilding the slums for the benefit of those who live in them, to provide low- and middle-income housing and adequate opportunities for small business, then some sort of government assistance is needed, either in the form of land subsidies, cheap mortgage money, or subsidies of construction costs and rents. There is always the possibility, of course, that research in prefabrication will lower costs to a feasible level.

The Governmental Maze

But whatever the financing may be, the bureaucratic maze remains.

What are the chances for building something like the Linear City scheme (pp. 165-167, APRIL 1968 P/A), a five-mile-long structure that is seriously being considered for the air rights over Brooklyn's proposed expressway and portions of the Long Island Rail Road tracks? When asked this question, executive vice-president Richard Ravitch of HRH Construction Corporation (\$50 million worth of building construction last year, primarily in the New York area) said, "I think conceptually it's a great idea. And I think it's do-able. But I don't think it's possible under the prevailing political circumstances and sets of relationships between the government agencies, and between government and private enterprise as they are presently constituted. It's too complex. The sources of money

are too varied. The sources of control are too disparate. Who's going to own, rent, manage, design, take the risk? These questions have to be resolved before you can do it."

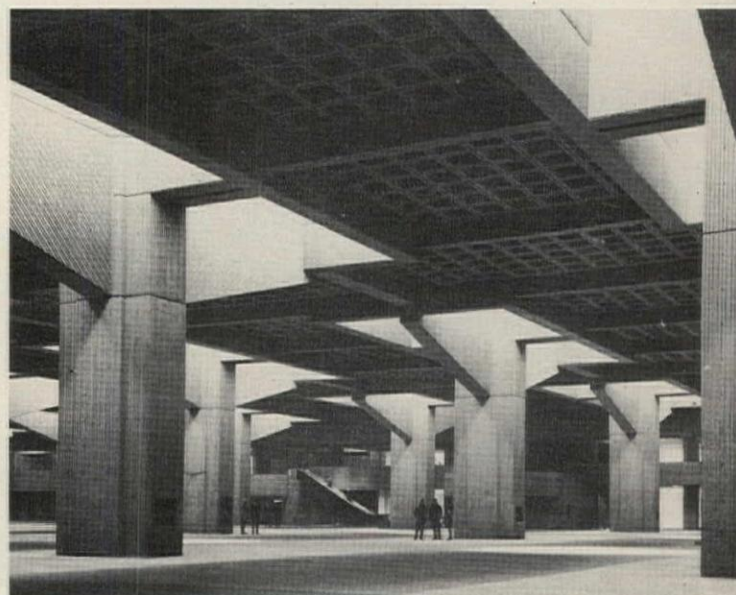
At present, Ravitch has found, there are no rules. "Conflicting imperatives are resolved on an ad hoc basis of compromise negotiations and tough dealing. They get resolved when there is finally somebody who is going to put up the money and take the risk of construction. Then you begin to talk about the realities. You don't," he adds wryly, "play it in the abstract unless you work for the government."

His exasperation with the procedures necessary to get a large project into construction is familiar to most of the industry building in big cities, particularly New York.

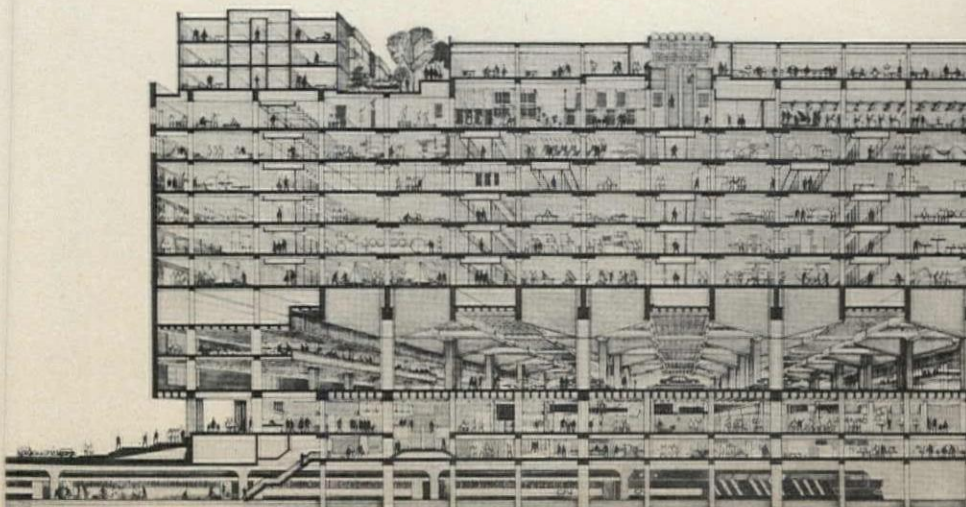
With architect Lewis Davis of Davis & Brody, Ravitch nursed the widely acclaimed Waterside project (pp. 146-149, FEBRUARY 1967 P/A) through the toils of city hall. Working as an entrepreneur-designer team, the two men "visited every institution, and presented the Waterside scheme." Some people thought the rents were too low, others that they were too high. Some felt there was too much tax abatement, others that there was not enough. The local planning board was about equally split for and against the proposal. At the city level, Ravitch was passed between the Housing and Redevelopment Board and the Department of Marine and Aviation, which could not decide which of them was responsible since the project is to be built on pilings over the river.

"I worked seven years on Waterside," Ravitch says. "I spent enormous amounts of money in architects', engineers', and lawyers' fees, in printing brochures, and so on. I spent thousands upon thousands of hours—myself, my secretary, people in this office—budgeting out schemes and so on. I had a fortune invested in the project and the Board of Estimate could have turned it down—for proper or improper reasons—and I would have lost all that money. It was crazy to invest so much when there was no assurance that the project would ever be built. I'll never take that kind of risk again."

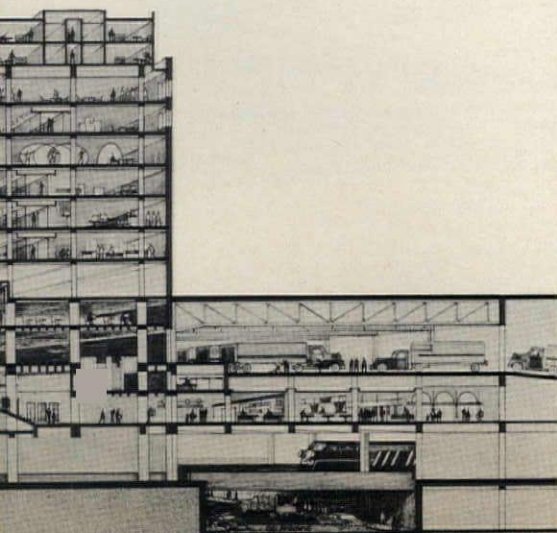
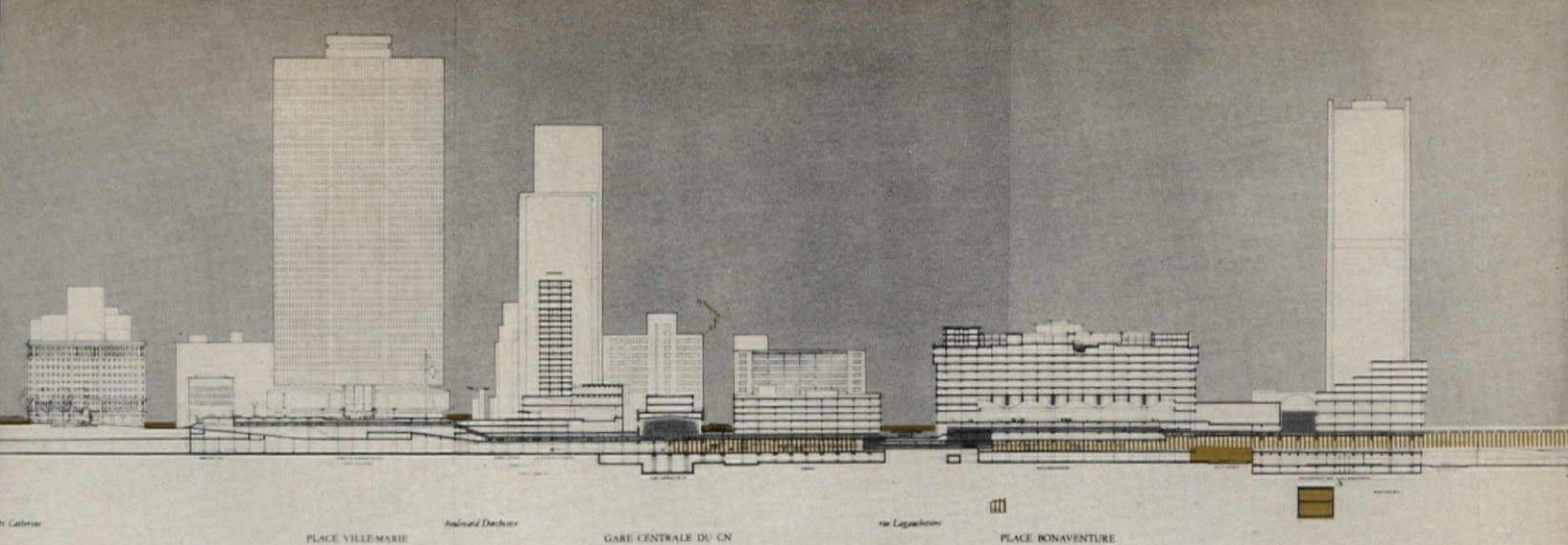
Despite the experience, Ravitch, a vigorous, outspoken, and obviously concerned citizen, is optimistic about the country's potential ability to rebuild its cities. But his opinion is that private enterprise today is less inclined to participate in government programs. "It is not because of the inadequacy of profit—private enterprise is willing to work with limited profit, with full audit and all the controls—but because of the bureaucrat-



Concordia Exhibition Hall.



10 0 50'



PLACE BONAVENTURE, Montreal, Canada.

Architects: Affleck Desbarats Dimakopoulos Lebensold Sise; R.T. Affleck, partner-in-charge; J.R. LaRiviere, project manager; Eva Vecsei, project designer; D. Lazosky, project architect; J.K. Stenman, project architect; N. Holloway, project administrator; Herman Pallas, specifications; Mrs. T. O'Brien, Antoine N. Haddad, design coordinators; R. Khosla, tenant architect; I. Reichman, lighting and graphics coordinator; H. de Konig, interior designer.

Characterization and Site: Place Bonaventure rises as a massive block of 17 stories above a 6-acre site on Canadian National Railroad air rights directly south of Place Ville Marie, the impetus to downtown renewal. Its complex of "simultaneous" urban activities is distributed on ascending floors as follows: two levels of retail shopping, a cinema, and a "Better Living Center" (a permanent exhibition of building materials and consumer products). Concordia Hall, a three-story-high exhibition hall of 250,000 sq ft (for auto and boat shows and the like) with meeting and convention facilities. Above this hall, a five-story Merchandise Mart with total floor space of 1 million sq ft provides permanent wholesale showrooms for manufacturers and distributors. On the next upper floor are office space and an International Mart that provides showrooms for products of foreign countries. Place Bonaventure Hotel, with 400 rooms on the three uppermost floors, provides a domestic oasis of landscaped gardens, waterways, and swimming pool surrounded by the surprising urban vista of Montreal's business towers.

Structural System: Over-all structure is reinforced concrete, cast-in-place on a 25' x 25' grid, which was determined by Canadian National track clearance. In the great exhibition hall, forces were collected into a long-span system (50' x 75') by means of a cast-in-place, post-tensioned, concrete transfer truss and 20-ft-high tree columns. Grid system was regular where railroad tracks are perpendicular to metro below, but where rails veer off and spread, the problems and the

system of shear walls became complex.

Mechanical System: Ventilation system for diesel trains and parking garage. Air conditioning: central 6400-ton refrigeration plant supplies chilled water to tenants' fan-coil systems. Owner conditions public spaces. Air-to-air heat exchangers reduce energy requirements in the Showmart.

Transportation: Accessible to the C.N.R.R. commuter trains that pass under it by means of enclosed pedestrianways connecting the Central Station, Place Bonaventure is also a major stop on the new Montreal subway, which passes beneath the building and under CNRR tracks; this Metro stop is considered the hub and "front door" of the building's circulation pattern and its "internal connections." Parking for 1000 cars, under the west plaza entry to the hotel, is the length of the building away from the University Street—Bonaventure Expressway. Extensive truck docking for the third-story exhibition hall is at that level, and accessible by ramp on the south side of the building. Railroad level also accommodates a two-level trucking system related to the Royal Mails, fish dock, railway express, and a road connection to Place Ville Marie. A microcosm of urban systems analysis, the design of Place Bonaventure also entailed design of a project due south of the site and the consequent advance construction, underground, of an interchange for the future east-west expressway, which will lead to the entire complex.

Consultants: R.R. Nicolet & Assoc., Lamonde, Valois, Lamarre, Valois & Assoc., structural; Jas. P. Leith & Assoc., mechanical & electrical; Sasaki, Dawson, Demay & Assoc., landscape architect, Masao Kinoshita, principal-in-charge; Roland Wm. Jutras Assoc., Inc., hotel interior designer; Vincent Ponte, town planning; DeLew Cather & Partners, traffic and parking; William M.C. Lam, lighting; N.J. Pappas & Assoc., acoustics; Paul Arthur & Assoc., Girard, Bruce Garabedian & Assoc., graphics; W. Tabler, hotel.

Photography: Roger Jowett, Michael Drummond, Arnott Rogers Batten Ltd., Christ F. Payne.

**SCARBOROUGH COLLEGE, PHASE II,
University of Toronto, Ontario, Canada.**

Architects: John Andrews (coordinating) with Page & Steele (on phase I). Partner-in-charge, Robert W. Anderson.

Characterization and Site: A 200-acre site, 20 miles from downtown Toronto, is zoned so that only 47 acres can be built on. The college is on a northern ridge, rising above the wooded valley and defining a plateau. Phase II shows a major change in concept for Scarborough in that resident students are to be accepted (a ratio of one resident to five day students is to be maintained), walking distances are to be minimized, and parking is to be accommodated in structures that provide covered access to the other buildings. Phase I's continuous, single-building campus, accommodating 1500 students, is to be expanded (first to 2000 then to 3500) by extending the existing wings (resi-

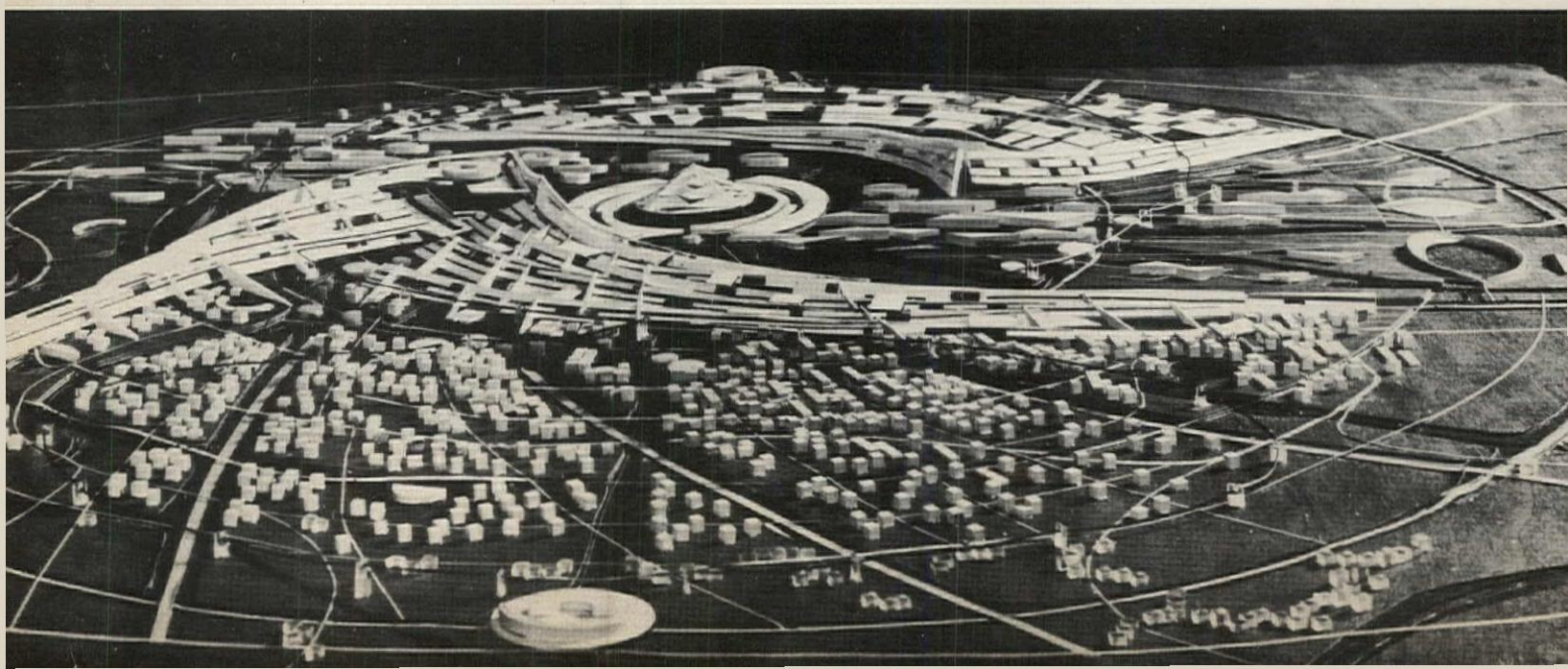
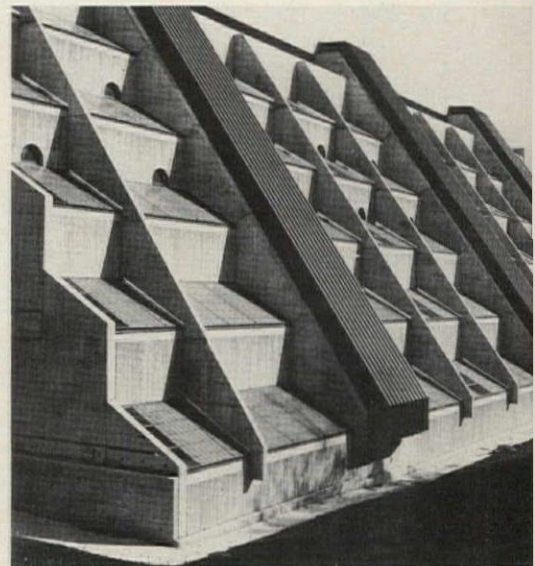
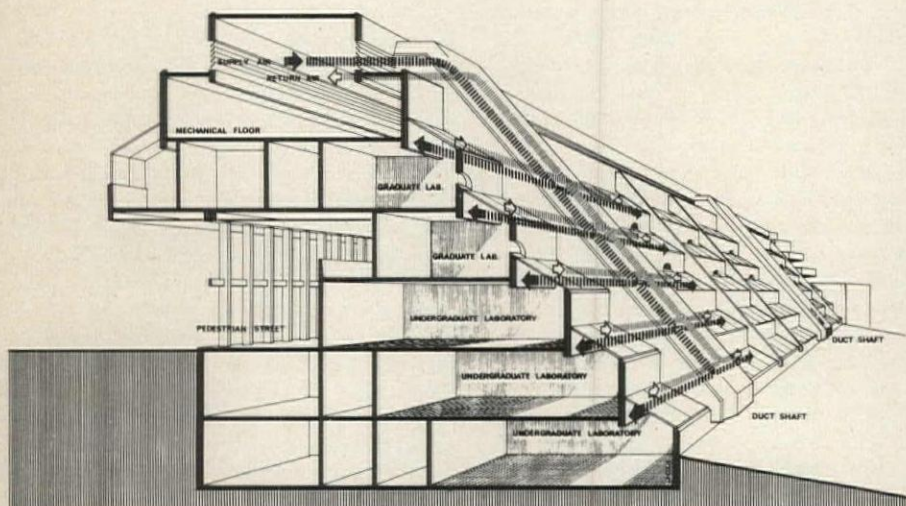
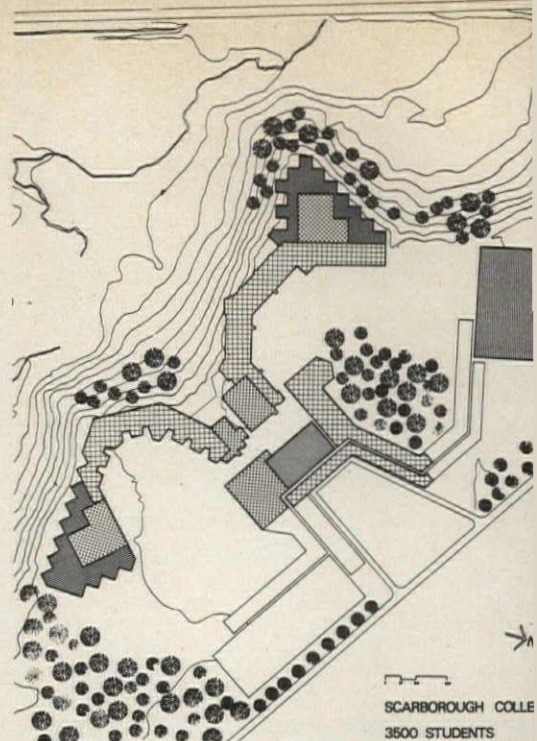
dential facilities at the extremities) and the creation of new academic wings, which focus on the Meeting Place, which is the central link between the first buildings. Also to be added are a new library, swimming pool, and student activity areas linked to the two new academic wings.

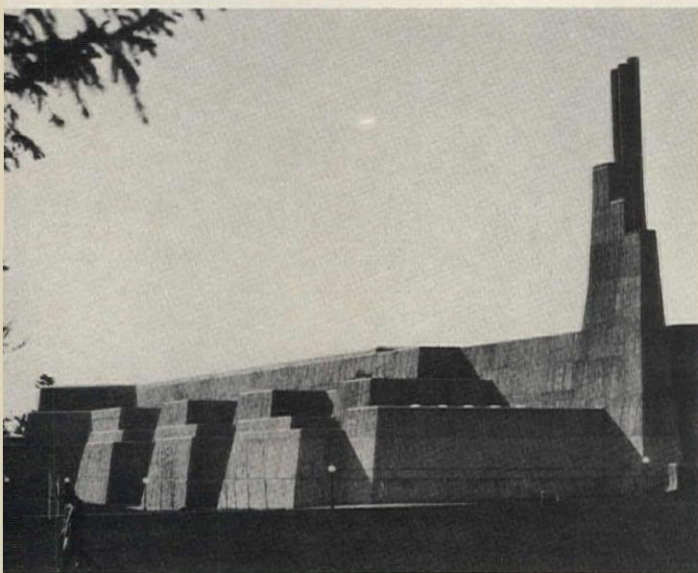
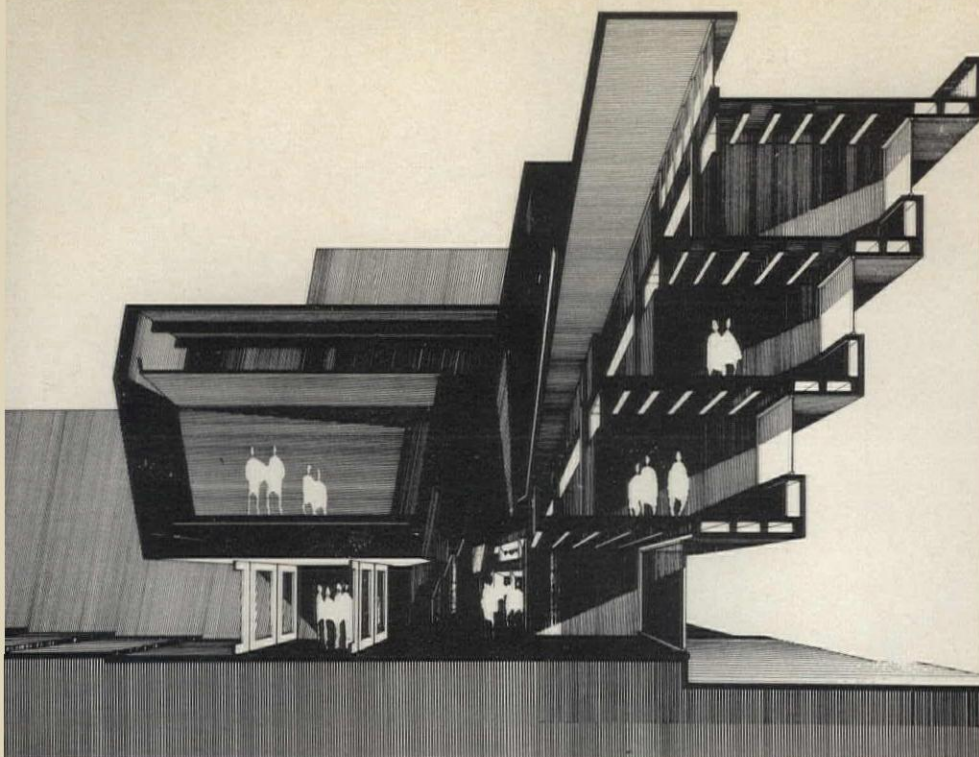
Structural System: Not specified.

Mechanical System: A forced-air, oil-fired system is fed from a central boiler plant, which is designed for expansion in order to provide for the entire college. Phase I stacks are built to accommodate ultimate use. In the science wing, diagonally inclined equipment shafts on the exterior contain supply and return ducts connected to mechanical rooms on the roof.

Transportation: Linked to the parent university in downtown Toronto by bus or car. Parking lots redesigned as enclosed structures with covered walkways to the college.

Photography: Panda Associates.





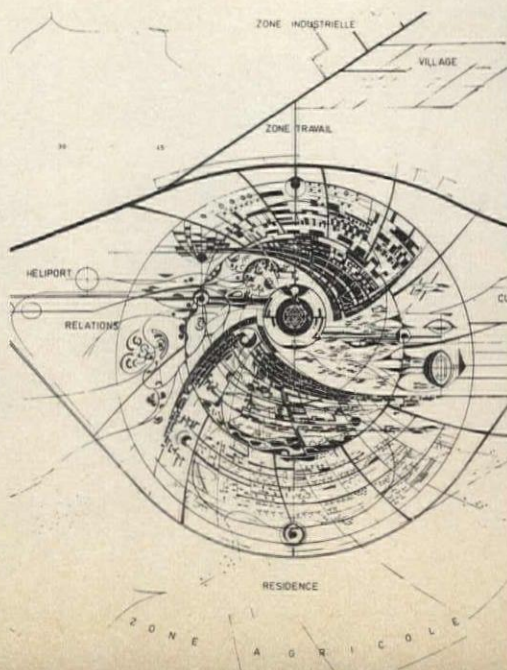
AUROVILLE, CITY OF DAWN, Pondicherry, India.

Architect: Roger Anger, Paris.

Characterization and Site: Proposal is to build the first city consciously planned around the "idea of human unity." Auroville is to be an example of "how higher consciousness could operate in city life," a synthesis of the Yoga tradition and Western technology. Site is a 15-square mile area, 95 miles south of Madras, sloping down to the Bay of Bengal. A circular plan, "accentuating the symbolic character of a Yoga's oneness with the world," is divided into four quadrant zones for work, dwelling, culture, and social relations. In the center are the Gardens of Unity.

Structural and Mechanical Systems: Not specified.

Transportation: Monorails and moving sidewalks where motor vehicles are prohibited.



ic labyrinths and because of the inability to get political decisions made crisply."

Action Requires Decisions

The need for decisions from government is a recurrent theme on the part of building industry forces involved in large-scale projects—including, ultimately, omnibuildings. For men whose economic survival depends on action and efficient management based on clear-cut decisions, the frustrations of the democratic process are sometimes acute. Although they are aware of the political exigencies and the obligations of government to consider opposing views from all segments of the community, they also know that no plan of giant dimensions can be implemented without stepping on a few toes.

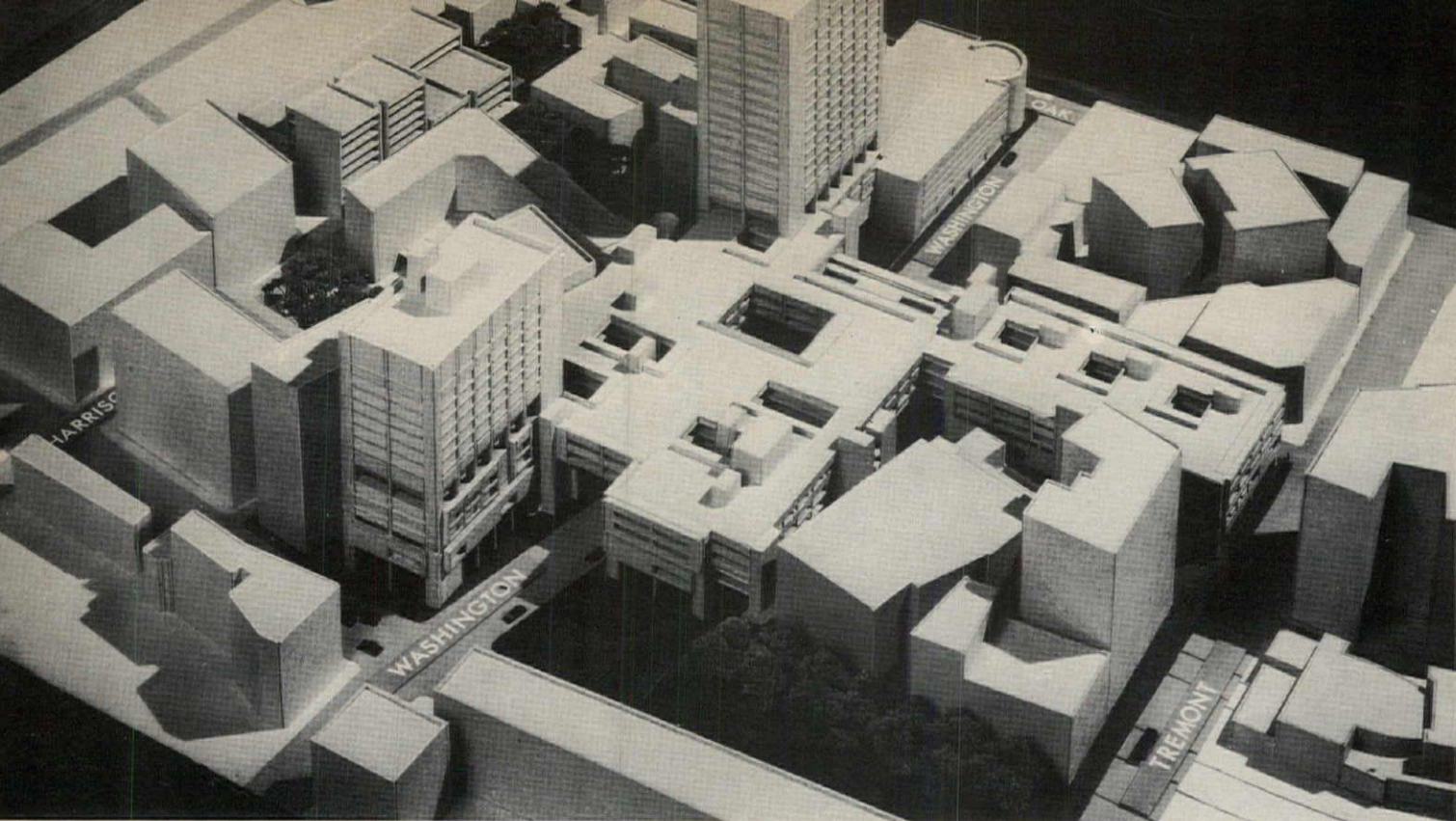
Industry spokesmen list some of the areas where decisions need to be made:

■ What should be the hierarchy of priorities? John S. Halpern, vice-president of Uris Buildings Corporation, comments, "There are so many problems. Someone has to establish an absolute priority. What's the Number One problem? Let's solve that. I think that worrying about everything in sight is a luxury we can't afford."

■ How can action be expedited? Delays are costly—both in terms of money and in terms of blight in those areas that have been declared renewal areas and then left to stagnate while planning flounders. Decisions should be made to establish a firm time schedule for the various stages of planning, review, and approval of each project. They should be realistic but inflexible.

■ Who's in charge? The decision should be made as to what level of government will make fundamental decisions in the first place—Federal, state, or city. The Federal Government is far away and municipal administrations are deeply involved. This has led some to feel that the mantle should fall to the state. However, most big city mayors are strong advocates of home rule, and states have been slow to recognize the urgency of urban problems. In the recent past, leadership and money have most often come from Washington.

(In April, New York State passed enabling legislation that will lead to the establishment of an urban development corporation—a quasi-public corporation operating at the state level with the right of eminent domain and the power to override local planning bodies, building codes, and zoning regulations. Its success, or lack of it, in by-passing politics and cutting through governmental red tape to create such huge projects as omnibuildings should provide valuable pointers for the parent states of other



TUFTS-NEW ENGLAND MEDICAL CENTER, Boston, Mass.

Architects: Building Design and Master Planning: The Architects Collaborative; Herbert K. Gallagher, principal-in-charge.

Characterization and Site: A 12-story Dental Health Science Building, a 20-story basic science building, new library, and several research buildings in the 15-year plan, will all be integrated on a 13-acre superblock site with the New England Medical Center hospitals. A pediatric hospital and an adult-care unit that will bridge a street will be added, along with additional hospital facilities. Residence facilities for hospital staff will be in rehabilitated buildings with the cooperation of the Boston Redevelopment Authority.

Unlike most urban hospitals, the Center will link together, rather than separate, teaching, patient care, research, and community health functions. Upper floors of hospital buildings will be devoted to patient rooms; lower floors to offices and treatment rooms. Retail shops at ground level will produce tax revenue. Programming, financed by U.S. Public Health Service Grant, was accomplished following a three-year study directed by Hermann H. Field.

Transportation: Removal of an elevated railway is planned, together with relocation of subway to provide a station near the hospital. Street widening and other gestures to the surrounding neighborhood have been emphasized.

Structural System: Not specified.

Mechanical System: Not specified.

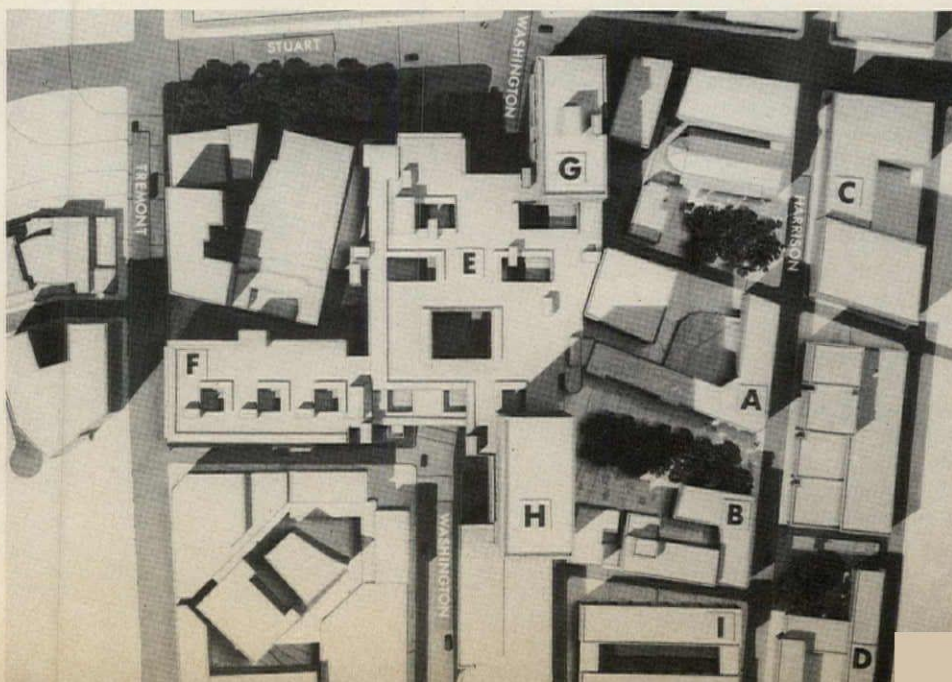
Consultants: Hermann H. Field, Director Tufts-New England Medical Center Planning Office, development and concept planning, programming, and research; Boston Redevelopment Authority and Massachusetts Bay Transportation Authority, planning.

Photography: Robert D. Harvey.



Phase I (below):

- (A) existing New England Medical Center Hospital
- (B) existing Rehabilitation Institute
- (C) existing Tufts Medical, Dental Science Schools
- (D) existing Medical Center housing
- (E) new adult care unit, Stage I
- (F) new pediatric care unit, Stage I
- (G) new dental health science unit
- (H) new medical school, basic science, and medical library
- (I) new medical center housing





URBAN CENTER REDEVELOPMENT, Worcester, Mass.

Architect: Welton Becket & Assoc.

Characterization and Site: A 20-acre central business district proposal adjacent to the Worcester Common and the City Hall consists of an interconnected, multilevel complex containing two department stores (Filene's and Jordan Marsh); three high-rise office buildings totaling more than 400,000 sq ft; approximately 300,000 sq ft for specialty shops, restaurants, banks, and a glass-enclosed, two-level galleria 400 ft long and 45 ft wide; a 300-room hotel; parking for 4000 cars; a 2500-seat theater; and a bus terminal.

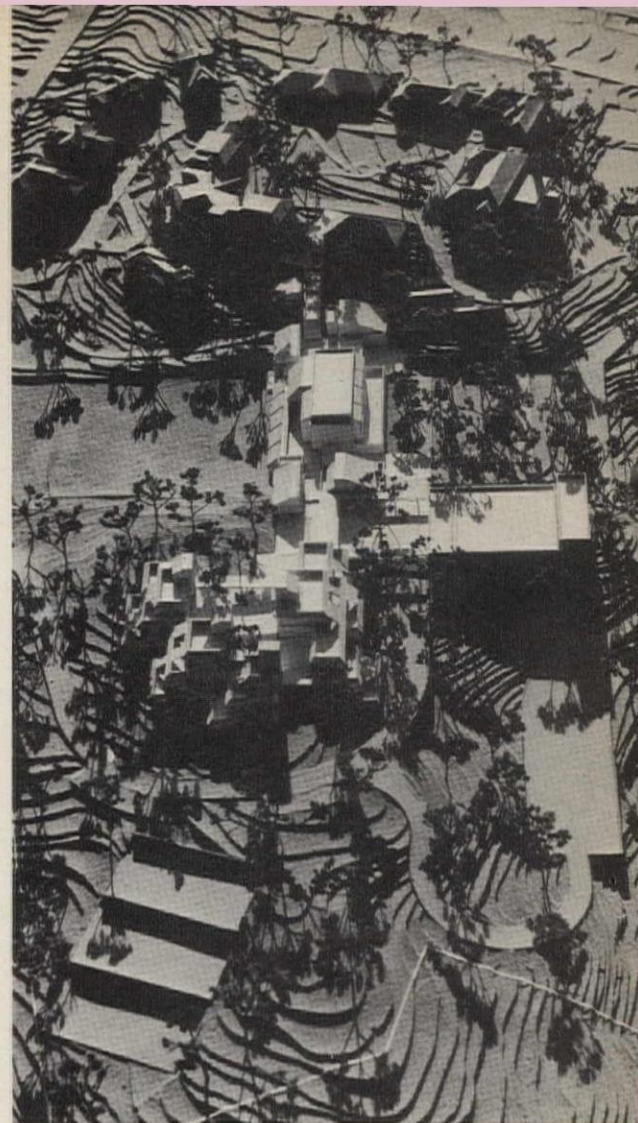
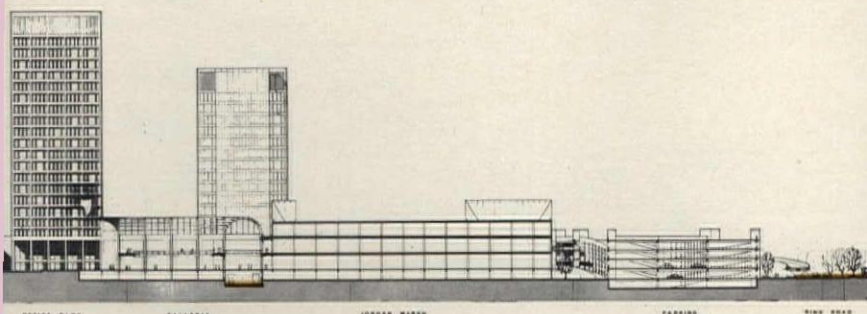
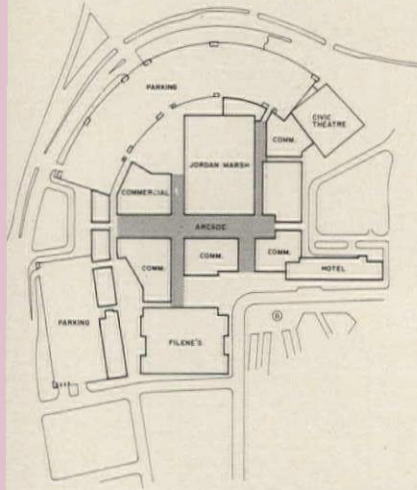
Structural System: Steel-framed retail and tower units clad in precast panels; garage is cast-in-place concrete; department stores to be by other architects.

Mechanical System: Total energy system; cooling tower atop tallest building.

Transportation: Loop highway connections to center city; parking on perimeter.

Consultants: Wayman C. Wing, structural; Cosentini Assoc., mechanical; M. Paul Friedberg, landscape; Fay, Spofford & Thorndike, traffic; Sasaki, Dawson, DeMay Assoc., landscape of Commons.

Renderings: Ron Love.



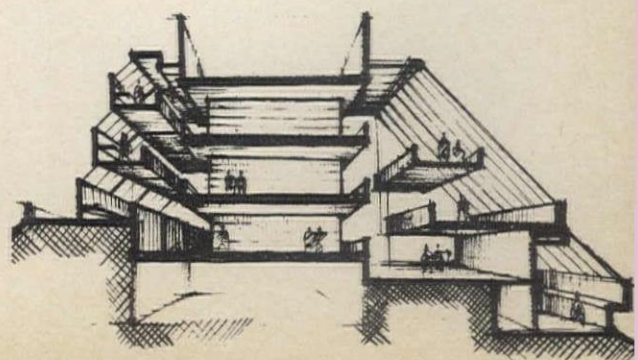
LONG RANGE DEVELOPMENT PLAN, Mount Vernon Junior College, Wash- ington, D.C.

Architects/Planners: Hartman-Cox; Dober, Walquist & Harris Inc., planning and landscape architecture.

Characterization and Site: Limited acreage in this girl's school made it imperative to plan for greater density than the original east half of the campus in order to preserve open space. New residences on the west are scaled down and juxtaposed to small open spaces. Bridging the old and the new is a library-arts center, which places the two functions parallel (see section). Circulation is primarily undercover, but not always indoors.

Structural and Mechanical Systems: Not specified.

Photography: Hartman & Cox.



large metropolitan areas.)

■ Who does what? A clear relationship should be established between the city and the different sectors of the building and real estate industries that will specify the place of private and public interests at each point in the construction cycle, from planning to ownership and management.

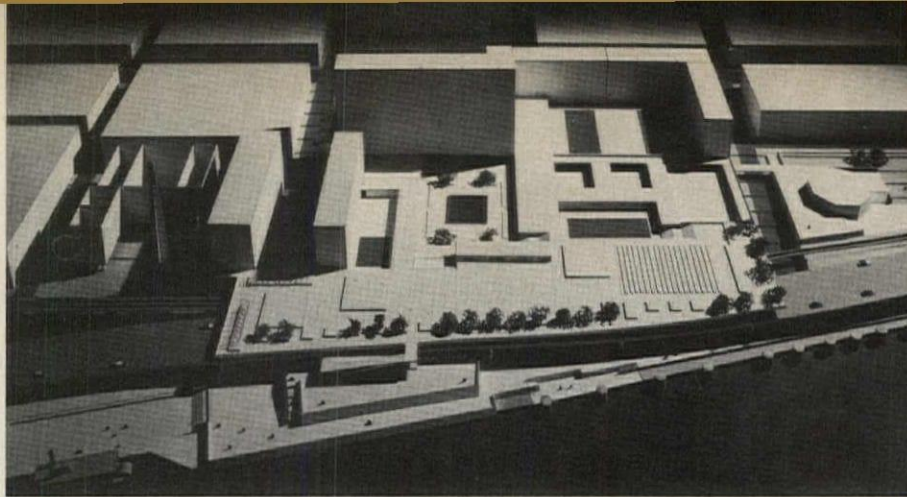
Two extreme alternatives would be to leave the entire plan-build-own package in the hands either of government or of private developers. Under either of these schemes, the owning and managing sector would lease space to the other sector. In omnibuildings, the matter of mixed-use occupancy would probably call for some sort of public-private ownership and management. It has also been suggested that cities form a kind of partnership with developers. In contrast, architect Seymour Jarmul recently advocated (pp. 102-103, DECEMBER 1967 P/A) that the city merely act as a licensing agent. Once the competency and financial stability of a developer had been established, he would be free to act at his own discretion.

Planning with the Community

Turning large-scale projects over to community controlled nonprofit corporations has met with strong criticism from entrepreneurs. It sets their teeth on edge, or worse, to think of a group of housewives, insurance salesmen, and small businessmen earnestly working in their spare time to put together the financing and planning of a major project.

However, aside from the possible advantages mentioned earlier, and those that accrue to any community whose residents have a stake in their own neighborhood, there is a further point in their favor. Omnibuildings may have several owners — a community council may own the housing, the city may own the parking garage (which may be leased to private interests) and schools, and private business interests may own the profitable office, commercial, or industrial spaces. If a community nonprofit corporation owns the entire complex, higher rents could be used to subsidize educational spaces and to lower residential rents.

Such an arrangement is planned by the Atlantic Terminal Urban Renewal Project, which fans out from the intersection of Flatbush and Atlantic Avenues in Brooklyn. The liaison committee for the project, which has considered some form of omnibuilding during early planning discussions, has effectively acted to restore the balance of power between the predominantly nonwhite community and vested political interests, and their plans call for rehousing displaced residents in the renewed area. The nonprofit corpora-



WATERFRONT RENEWAL, Louisville, Ky.

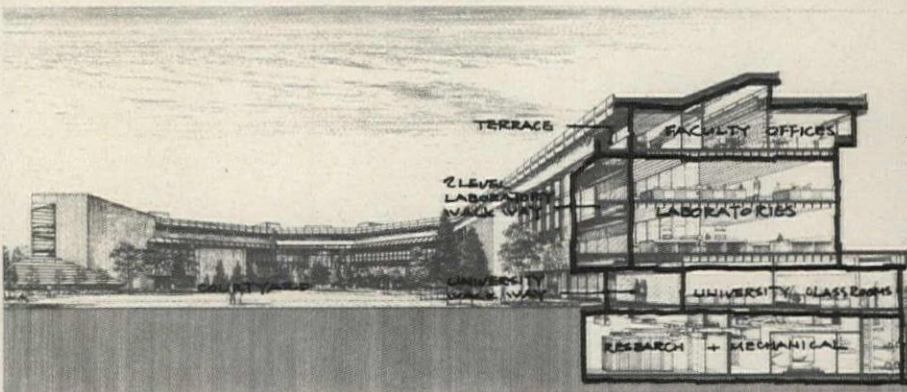
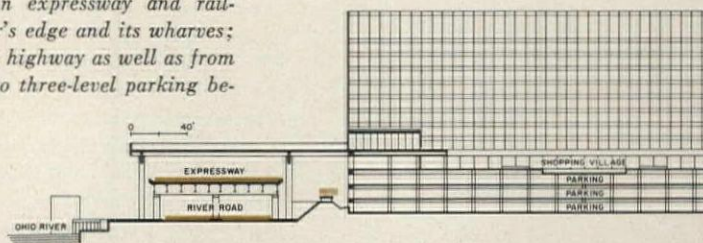
Architects/Planners: Doxiadis Associates, Inc. A.C. Doxiadis, principal, Jasper Ward, Lawrence Melillo.

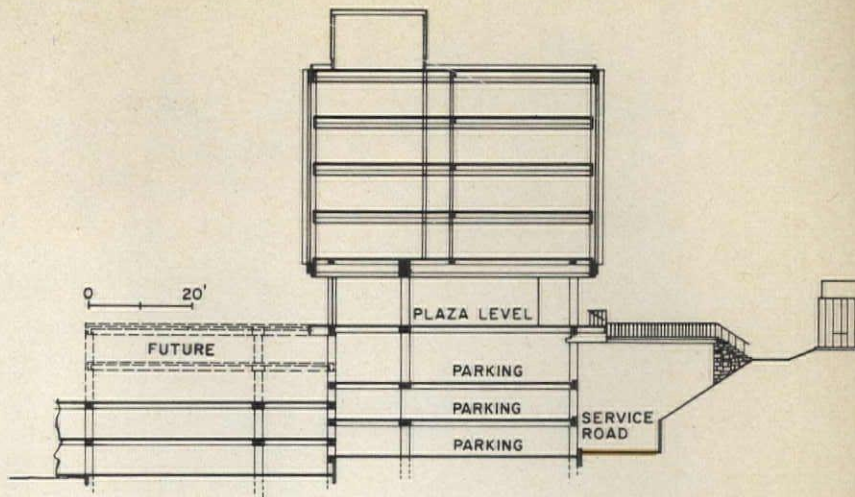
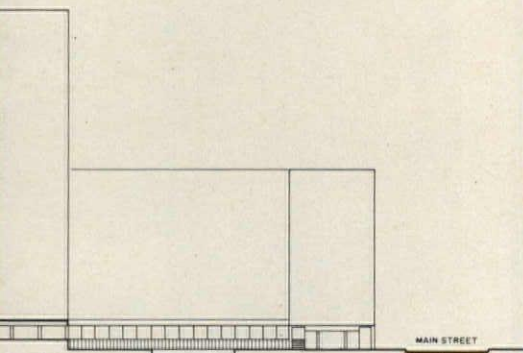
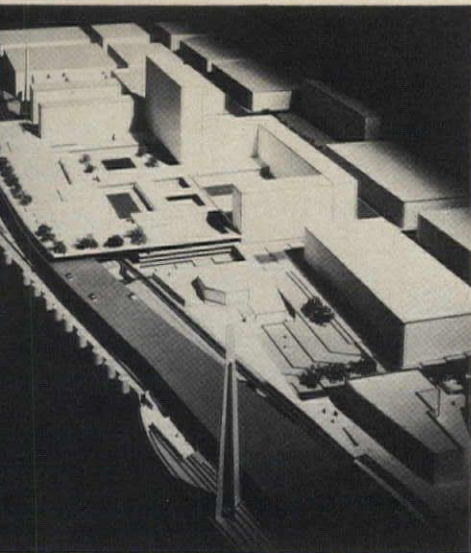
Characterization and Site: Embracing nine city blocks bordering the Ohio River, the design proposes a large, elevated plaza extending over the downward slope to the waterfront. Office towers, apartments, a motel, shopping center, and a museum would be built above the plaza.

Structural System: Not specified.

Mechanical System: Not specified.

Transportation: An expressway and railroad border the river's edge and its wharves; access provided from highway as well as from surrounding streets to three-level parking beneath the plaza.





DEL AMO FINANCIAL CENTER, Torrance, Calif.

Architects/Engineers: Victor Gruen Assoc.

Characterization and Site: Circling a 480-ft diameter plaza are three arc-shaped, five-story buildings set between three 13-story towers. Low-lying, circular pavilions skirt the southeast perimeter of the 20-acre site, which is near a shopping center. The buildings house banks, brokerage houses, and insurance companies.

Structural System: Towers: One-way floor slab system supported by girders 12 ft o.c., which span 37 ft from core to exterior columns. Ring buildings and garage: One-way floor slab spanning 10 ft between girders located at each transverse column line. Pavil-

ions: Steel girders support roof of plywood sheathing over wood joists. Interior columns steel, exterior concrete.

Mechanical System: Each tower and arc unit share a refrigeration system located in tower basement. Electrical system is one of the largest all-electric in the region; 480/277 v; two-primary sources with emergency reserve.

Transportation: Three-level parking beneath plaza; adjacent accommodations for trucking; pedestrian separation.

Consultants: Jack Bevash, architectural; Development Consultants, Inc., civil engineering; Wilbur Smith & Associates, traffic engineering.

Photography: Gordon Sommers.

LAKEHEAD UNIVERSITY CENTENNIAL BUILDING, Port Arthur, Ontario, Canada.

Architects: Fairfield & Dubois.

Characterization and Site: Part of a pilot plan for a campus unified by an interior walkway, the four-story building contains facilities for the sciences and features multidiscipline laboratories. An agora and terraces focus on an artificial lake that is the core of the proposed campus.

Structural System: Reinforced concrete; cantilevered steel beams in agora.

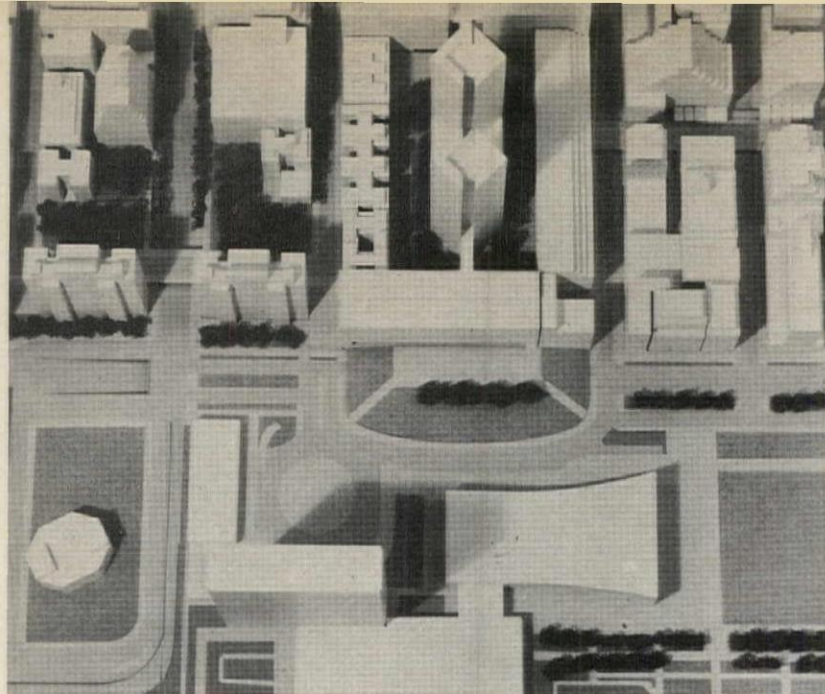
Mechanical System: Not specified.

Transportation: Perimeter road separates vehicles, which are parked outside in landscaped areas.

Consultants: M.S. Yolles & Assoc., structural; R.P. Allsop & Assoc., mechanical, electrical; P.T. Carter & Assoc., laboratory; Bolt, Beranek & Newman, acoustical; Oswald, Conway & Assoc., landscape.

Photography: Panda Associates.





UNITED NATIONS DEVELOPMENT DISTRICT PROPOSAL, New York, N.Y.

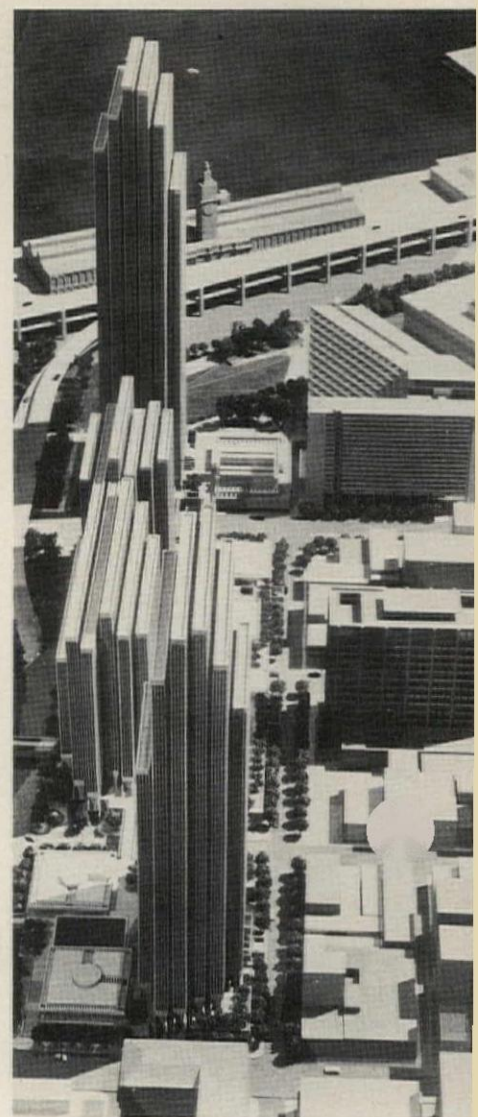
Architects/Planners: Kevin Roche, John Dinkeloo & Assoc.

Characterization and Site: Twin towers accommodating apartments, a hotel, and office space are placed within a landscaped plaza also containing a center for 6000 daily visitors. Commercial facilities, including light industrial, are included in the project. The site covers most of the area from 43rd to 45th Streets between First and Second Avenues. The existing Beaux Arts apartments and U.S. Mission to the U.N. will be incorporated into the complex.

Structural System: Not specified.

Mechanical System: Not specified.

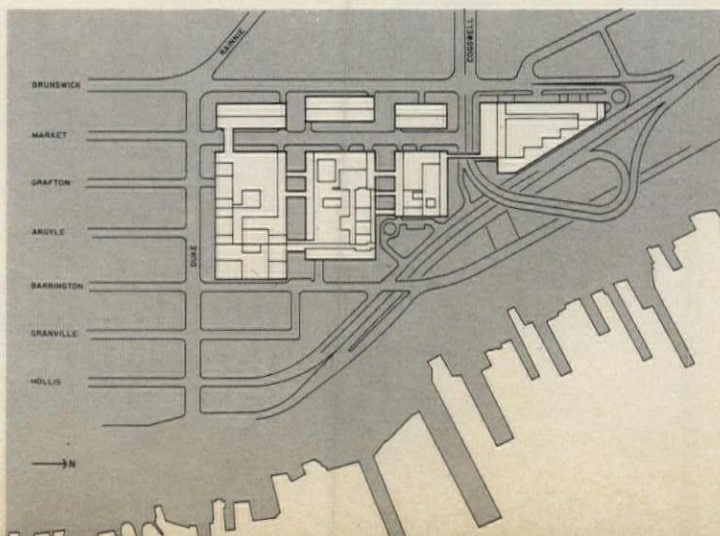
Transportation: A multilevel parking garage and a bus terminal will be located beneath the plaza.



PROPOSED SCOTIA SQUARE REDEVELOPMENT, Halifax, Nova Scotia, Canada.

Architect: Carl Koch & Assoc., Douglas Shadbolt, associate architect.

Characterization and Site: A complex of business, government offices, hotels, restaurants, entertainment services, convention fa-



cilities, trade associations, and residential blocks to be linked structurally and visually "so that they may contribute vitally to each other." Site is a center-city slope between the ancient Citadel and a year-round harbor. At completion of Phase II, available retail space, including a department store, a shopping arcade with a two-level mall, and a theater, will total 342,000 sq ft; tower office space available will be 401,000 sq ft; 340,000 sq ft for apartments; a 100,000 sq ft hotel; a 193,000 sq ft trade mart; and 899,000 sq ft for parking 2350 cars in a podium beneath the towers.

Structural System: Precast concrete load-bearing wall.

Mechanical System: Not determined.

Transportation: Construction of a Harbour Drive and improved surrounding streets and interconnections between them will provide adequate access for vehicles and "trolley coach" public transit.

Consultants: David A. Crane, planning; Michael A. Powells, Jr., and Alfred Howard, traffic.

Photography: George Zimberg.

EMBARCADERO CENTER, San Francisco, Calif.

Architects: Edwards & Portman.

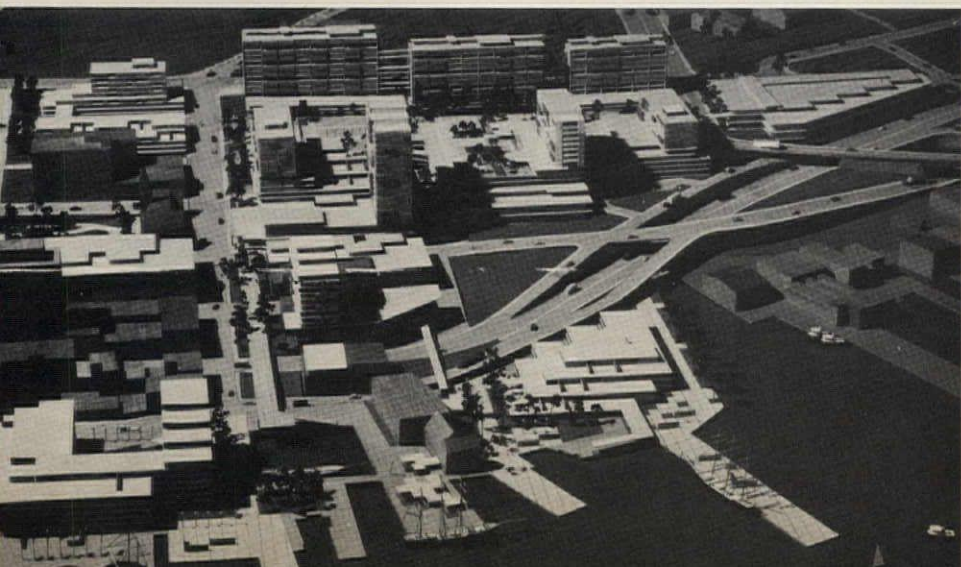
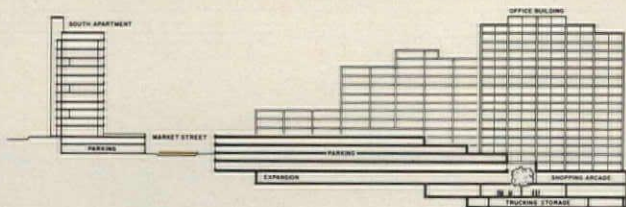
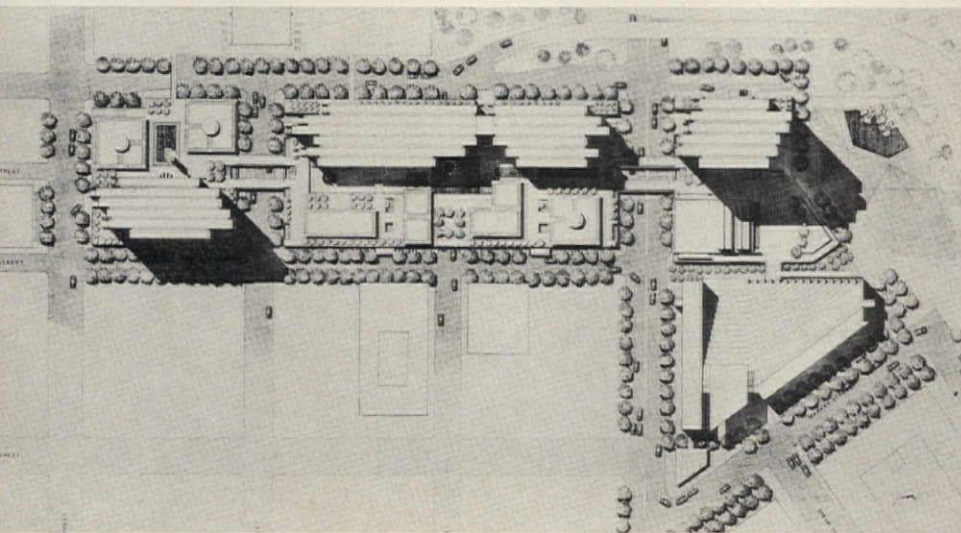
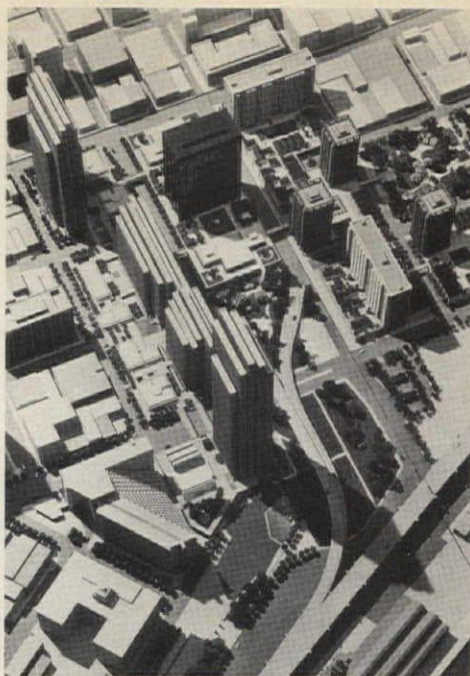
Characterization and Site: A proposed complex of three office towers (25, 45, and 60 stories tall) with total office space of 2,800,000 sq ft, shops, three theaters, art galleries, a wine center, and restaurants is sited on five blocks with an east-west axis. Adjacent to the easternmost block and south of it is an 800-room hotel whose guest floors rise from the base in a series of setbacks. An elevated pedestrian mall connects all of the buildings. The 8.5-acre, L-shaped site is adjacent to Golden Gateway Center.

Structural System: Not determined.

Mechanical System: Not determined.

Transportation: Mall is two stories above ground-level traffic. Underground parking for 2000 cars. Footbridges provide link to Golden Gateway Center.

Consultants: Sasaki, Dawson, DeMay Assoc., landscape architects; DeLeuw, Cather & Co., traffic survey; Kirker, Chapman & Assoc., site survey.



tion being formed is backed by local institutions but is subject to majority rule of the entire community, and it will be able to use commercial rents to lower residential rents.

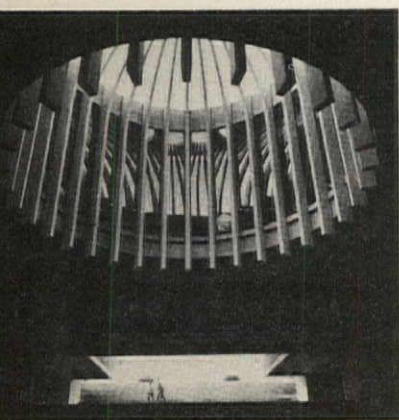
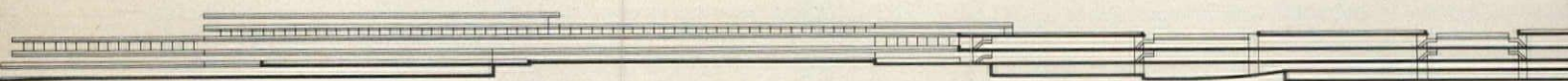
Despite the persuasiveness of the hard-headed real-estate entrepreneur who feels that the action is needed *now*, that city economies need the money that large omnibuilding projects will bring, that the community needs the jobs that will be created, and that community-controlled corporations cannot possibly offer the skills necessary for getting things done efficiently, it is difficult to resist the great enthusiasm with which many community groups are beginning to attack their planning problems.

Usually under city leadership (reinforced by Model Cities requirements), community groups are being pulled into the planning process. "We are meeting with the people actually affected in project after project," says planner Isadore Candeub of Candeub, Fleissig & Associates. "The day when these plans are just drawn up at city hall and brought in and presented to the community is over." Candeub, whose firm presently has planning contracts with some 75 cities, feels that the first requirement is an agreement about goals, followed closely by effective communication about the plans to meet those goals. This should not be in the form of technical brochures, but in easy-to-understand graphic sketches showing a series of alternatives that can be debated, changed, or accepted by the community. "You get a synthesis developing and it is a fascinating experience," Candeub says. "Interaction is extremely exciting. And out of it you will almost invariably improve the plan." Continuing interaction being one of the major community results of omnibuildings, it is easy to support Candeub's statement.

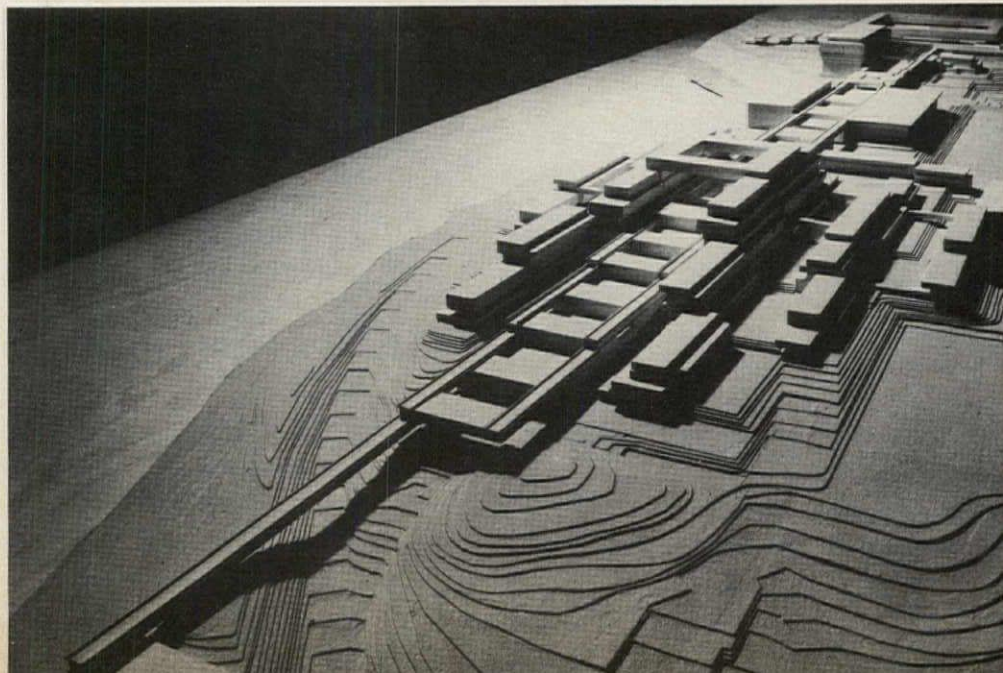
Highway-City Structures and the Design Team

Planners and developers have differing views on what should be given top priority as the omnibuilding generator. Some say housing. Some say education, and therefore schools. Some believe it should be blue collar jobs, and therefore industry. And some believe omnibuildings should be built around the transportation terminals and massive parking structures that can provide air-rights platforms for everything else.

Given the tremendous difficulties in assembling a site, both in terms of actual land acquisition and in terms of relocation costs, a very strong case is being made for building on the air rights of railroad tracks or major access highways



Transportation Center.



SIMON FRASER UNIVERSITY, Burnaby, B.C., Canada.

Architects: Erickson/Massey, planning, development, landscaping, preliminary design, and design coordination of all buildings. Architects of Phase Two construction: Zoltan S. Kiss, academic quadrangle. Rhone & Ireland, science complex. Erickson/Massey, residence halls.

Characterization and Site: The ridge atop Burnaby Mountain (altitude 800 ft), isolated in a forest area, overlooks fjord-like Burrard Inlet and the city of Vancouver, 8 miles away. To avoid the traditional park of separate, departmentalized fortresses for each discipline, and to respond to the site, the architects planned a continuous phalanx of adjacent and contiguous structures on both sides of a linear, multilevel mall, which gives symbolic unity as well as physically uniting the buildings into a single-building complex. From this linear spine, buildings are terraced down the mountainside, varying with the slopes. Phase Two realizes the completion of the academic quadrangle at the east end, the extension of the adjacent science complex, and at the west end (less than 2000 ft away) the construction of initial residences for men.

The now completed academic quadrangle (440 ft square) contains classrooms (for from 15 to 1000) on the first of its two elevated floors, and faculty offices on the upper. Below the level of the landscaped quadrangle are student and faculty lounges and a concourse serving the lecture theaters and the science complex. Beneath the exterior stair leading down to the mall is a 350-seat student cafeteria; below this, a kitchen, storage, and

service area.

The residential complex, not included in the original program but indicated by the architects in the master plan, has now been designed for even greater density, and will include commercial facilities.

Model for this new plan shows the linear, covered pedestrian streets that line the mall continued into and beyond the residences. Under Phase Two, a 214-unit men's residence has been built, containing efficiency, and one- and two-bedroom suites.

Structural System: Cast-in-place concrete, except for precast fins and the structure supporting the central mall's space frame. A 9-ft grid is used throughout, except at the academic quadrangle, where it is 10 ft. The vertical grid is constant.

Mechanical System: All systems are centralized in the mall, with trunk connections to all present and future buildings provided.

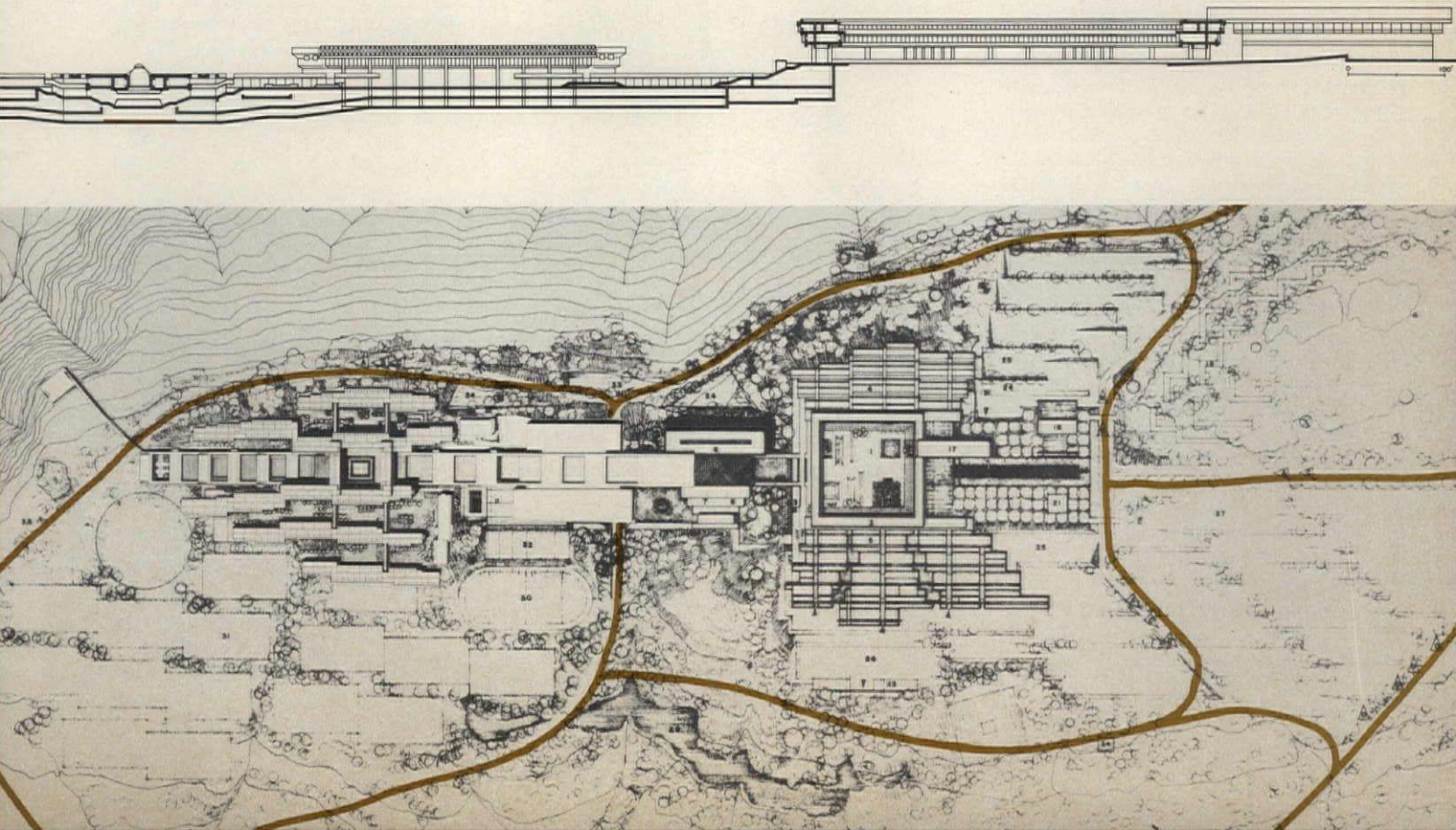
Transportation: Accessible by car and bus, center of the college is a section of the continuous mall, appropriately called the Transportation Center. This element, an enclosed, multilevel structure, separates pedestrian traffic on the mall above from vehicular traffic, which enters at a lower level along a roadway that gives a broadside view, perpendicular to the linear plan.

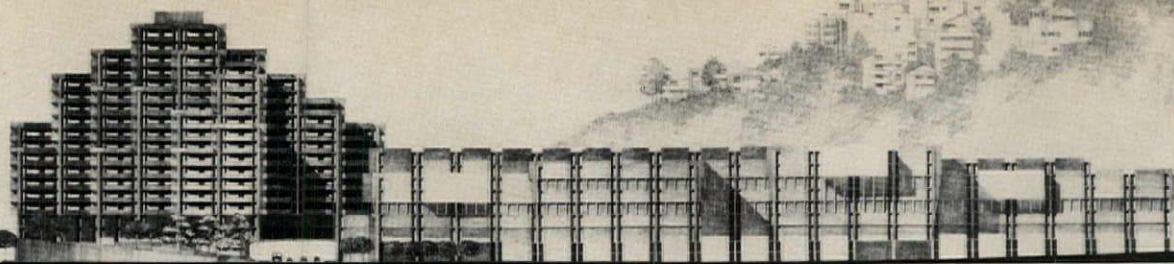
Consultants: Academic Quadrangle: Otto Safir, structural; J.D. Kern, mechanical; A.E. Simpson, electrical. Science Complex: Swan Wooster Engineering Co. Ltd., structural, mechanical, and electrical.

Photography: Aerial: George Allen Aerial Photos, Ltd. Model: Bob Cobbett. Completed buildings: Art Hupy.



Academic Quadrangle.





NORTH ELEVATION

SAN FRANCISCO INTERNATIONAL MARKET CENTER, INC., San Francisco, Calif.

Architects: Wurster, Bernardi & Emmons (Donn Emmons, principal-in-charge; Ralph O. Butterfield, project architect).

Characterization and Site: Privately financed trade complex for home and contract furnishings and the apparel industry, including a 550-room hotel, restaurants, retail shops, convention facilities, and parking. Site is a 15.4-acre portion of the northern waterfront, bounded by the Embarcadero, Battery, Chestnut, Winthrop, Lombard, Montgomery, Sansome, and Union Streets, and currently occupied primarily by industrial

warehouses. Two great halls, with galleried stories for mart tenants, are set into grade and linked with public spaces by escalators and glass-walled elevators. Fountains, malls, plazas, and foliage areas scattered among the buildings, and rooftops of most buildings are landscaped to form 11.3 acres of multi-leveled parks. Vehicular access and parking space for 2000 cars are kept below grade and connected with the Embarcadero.

Structural System: Not yet determined; major considerations are probable use of post-tensioned concrete structural slabs for relatively small floor-to-floor spans and thin superstructure. Structures will have to be reinforced sufficiently to support tons of earth,

trees, and other types of planting on the rooftop gardens.

Mechanical System: All buildings will be air-conditioned.

Transportation: A funicular railway running from the core of the complex to the top of Telegraph Hill will enable residents of narrow street on the hill to make use of parking facilities of the waterfront.

Consultants: T.Y. Lin, Kulka, Yang & Assoc., structural; Dan Coleman & Associates, civil engineering; Lawrence Halprin & Associates, landscape architects; S. E. Onorato, Inc., parking; Wilbur Smith & Assoc., traffic; Barbara Stauffacher, graphics.

Photography: Jeremiah O. Bragstad.

ALEXIS NIHON PLAZA, Montreal, Canada.

Architect: Harold Ship.

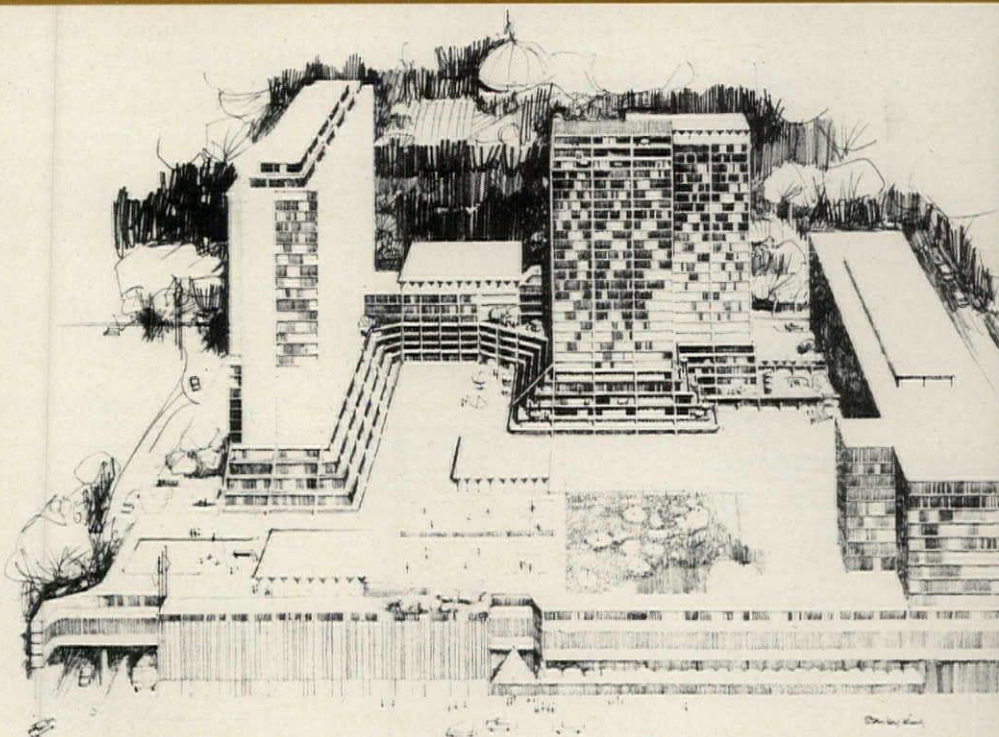
Characterization and Site: A 6-acre urban superblock design proposes a 10-story office building, seven-story medical building, and two high-rise apartment towers (24 and 27 stories, containing 300 units each), which will rise atop an already constructed, six-level podium. Upper three floors of the podium are devoted to parking (for 1350 cars). Lower floors constitute a shopping center (for more than 100 businesses), which provides the financial as well as physical base for the project. Net leasable area: 1,154,000 sq ft. Major tenants include two department stores that occupy three-story units; a 1102-seat cinema, specialty shops, kiosks, cocktail and restaurant facilities are also provided; all shops face a central, three-level, skylighted court.

Mechanical System: Central boiler and refrigeration room feeds hot and chilled water to 40 different systems, ranging from simple fan-coil units to complete fan rooms for the department stores. Each system is an all-air, single-duct, high-velocity installation.

Transportation: Trucking and storage concourse is 35 ft below grade. Subway station is at lowest shopping floor (one level below grade). Buses and adjacent Atwater bus interchange at street level.

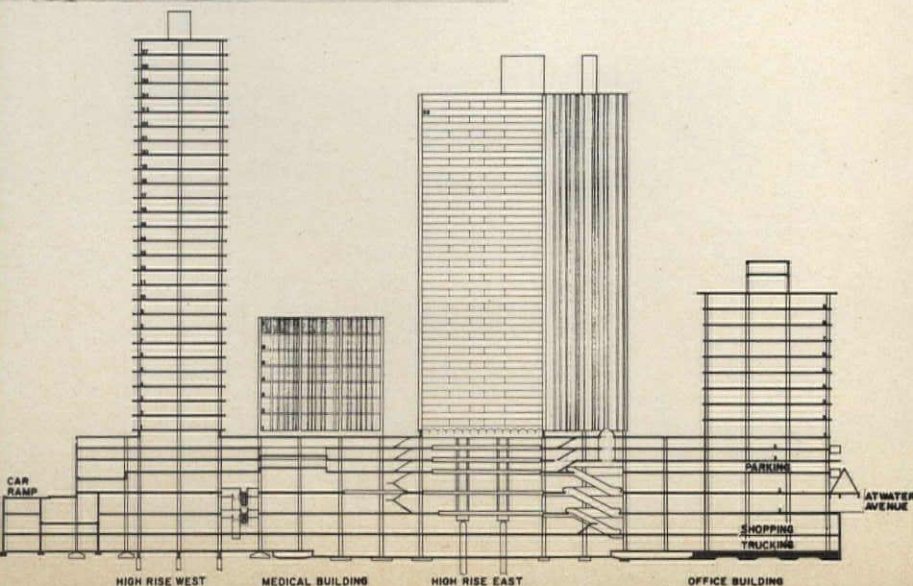
Consultants: Stanley King, design; Felix M. Kraus, structural; Mendel, Brasloff, Lassman & Sidler, electrical.

Photography: Hans Samulewitz.



VIEW FROM STE CATHERINE





or a combination of both.

Protests against the gigantic multilane highway that slices through the ghetto or through the city's historic heart are all too familiar. They have recently centered with particular bitterness around the urban links of the Interstate Highway system. But out of these Interstate Highway problems has evolved one of the most promising approaches to urban design, and an opportunity for integrating roadway with large city structures to "stitch the community together."

It all started in Baltimore, where controversy over 20-odd miles of Interstate Highway has been dividing the city for more than a generation. The operating procedure finally agreed upon is basically a systems approach: Put together an interdisciplinary design team (architect and engineers, in this case), bring in consultants as needed (sociologists, economists, and so on), form coalition city-state bodies, and maintain constant communications between the team and all levels of government. This includes close liaison with Federal Government, which is financing the major portion of the \$4,800,000 design contract from Highway Trust Fund monies.

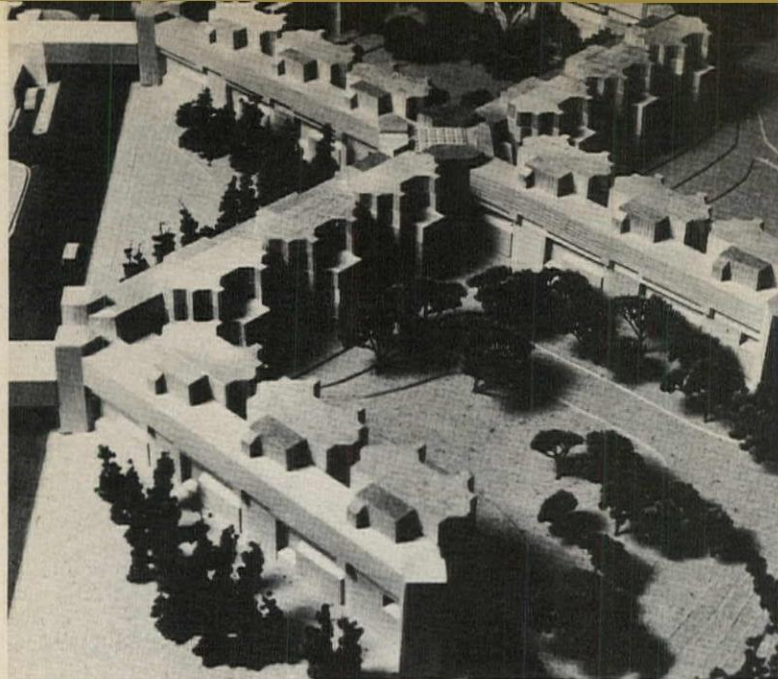
Although the project has developed something of a bureaucracy of its own, it is performing the valuable function of collecting at one table the agencies and professions that usually operate more or less independently. And the pressure is on from Federal Highway Administrator, Lowell K. Bridwell, to cooperate and to produce.

Skidmore, Owings & Merrill, the project director, is also on a similar team in Chicago, where planning is still in the early stages. And variations on the systems are under consideration in several other cities, including the Watts section of Los Angeles, Calif., and Brooklyn, N.Y. (see below).

The father of the Baltimore highway-urban design team idea is architect Archibald Rogers, of the local firm of Rogers, Taliaferro, Kostritsky & Lamb. "Our biggest obstacles are procedural," he says. "Governmental agencies are product-oriented. What we need is a process."

In the key role of coordinating generalist in "the process," Rogers sees a new breed of professional—the urban designer, a synthesis of architect and planner. And the demand for their services, he has found, is coming from an increasingly sophisticated client, "on both the public and private sides." It is only fair, at this point, to acknowledge a new breed of planner working for some cities. "The city now has some of the most enlightened civil servants I have ever dealt with," one New York developer told P/A.

Roger's faith in rationalized proce-



**HOUSING COMPLEX "B", Phase I,
University of Guelph, Ontario, Canada.**

Architect: John Andrews; Robert Anderson, associated architect; Edward R. Baldwin, project architect.

Characterization and Site: The first of four complexes (planned to house some 12,000 students by 1980) is to provide housing for 1662. Groups of 6 will share a washroom and groups of 12 will share a common lounge. Forty-six students make up a six-story "house." Houses are lined along multilevel, enclosed, pedestrian streets. Six houses containing 277 students make up a "residence," of which there are six—a series of V-shaped plans that intersect to form a lattice system. A dining-kitchen facility will serve each pair of residences.

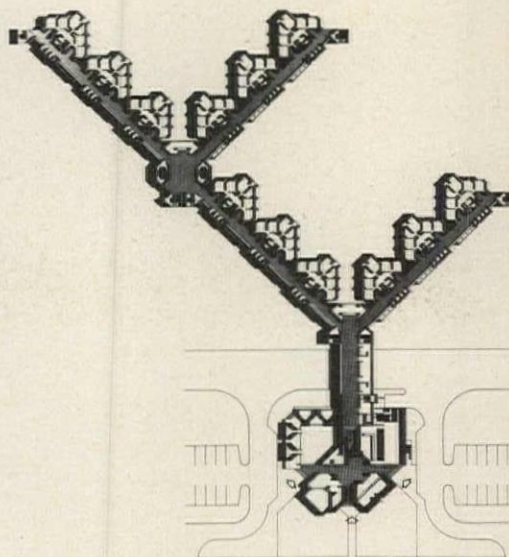
Structural System: Reinforced and precast concrete elements and loadbearing structural tile, placed in position by cranes moving on tracks.

Mechanical System: Heating and limited cooling for peak summer conditions from the university's central power plant.

Transportation: Campus ring road connects dining facilities, which are the entry points to the pedestrian-only residences.

Consultants: Norbert Seethaler, structural; R.E. Crossey, mechanical; Jack Chrisin, electrical; Smith-Somerville Co., Ltd., critical paths; Bolt, Beranek & Newman, acoustic; Project Planning Assoc., planning.

Photography: John Reeves.



dures was considerably strengthened by a recent planning experience in Cincinnati, where the city had rejected three downtown renewal plans in less than three years. Working with representatives of the city, the developer, and the business community, he managed to get a plan approved in less than a year.

Meeting with the committee for a two-day session every two weeks, Rogers presented the plan in increments that were debated, discussed, and approved step by step. Meetings were open to the public and covered by the press. After each committee meeting, the city council met and usually approved the decisions just made. When the plan was complete, it was an adopted legal document, binding and agreed upon under public scrutiny. The project is now under construction and partially completed.

Borrowing from his Cincinnati and Baltimore experiences, Rogers has prepared a planning report entitled "Linear City and the Cross Brooklyn Expressway" for the New York City Planning Commission. It is a well-organized and sophisticated proposal that spells out the place of almost every conceivable part of the public and private sectors. It is composed of three major teams—design, decision-making, and community. Perhaps the most significant difference between the Brooklyn and Baltimore schemes is in Brooklyn's decision-making, or Policy Committee, team, proposed as a nonprofit corporation and client of the design team. Its controlling committee, composed of representatives of city and state agencies, will presumably cooperate to push things along at a reasonable pace.

If and when the expressway is finally approved, the planning report assumes a massive joint development (Linear City) from the outset. The process is set up to start with a determination of goals and to continue "without interruption to completion of construction."

Estimated cost for Linear City plus expressway: \$1,300,000,000. For construction: \$1,014,000,000—exclusive of land costs, administration, and so on. Of this budget, the report foresees an investment of \$331,700,000 in private money.

For rebuilding one section of one city, this would seem to leave a somewhat staggering burden to be borne by the public sector. But perhaps Linear City is an experiment worth attempting. In the words of the report, "The overriding goal is to create through Linear City a totally new and prototypical urban environment. Innovation per se is an objective that is self-validating in the light of the failure of existing social and physical institutions to adjust thus far to the volcanic forces that are shaking our society."

the public sector

Public agencies will have to assume major responsibilities in the planning of omnibuildings, probably emerging as the prime "client."

Writing the first report of planning for Montreal's Place Ville Marie (p. 113) just eight-and-a-half years ago (pp. 123-135, FEBRUARY 1960 P/A), Jan C. Rowan pinpointed inherent characteristics of a realistic urban plan as "flexibility and adjustability to changing conditions . . . attainable within the existing political framework." He went on to call the story of Ville Marie "an interesting example of a powerful impact on the economic and physical structure of a city brought about by an enthusiastic team of officials, property owners, real estate developers, planners, and architects," thereby summarizing the aims of cooperative approach to urban planning that has found its quintessence in the omnibuilding. He concluded with the suggestion that such an approach might mean that "even within the framework of our society, cities could have new life and drama and an exciting future."

Unquestionably, the urban design philosophy described by Frank Schlesinger (p. 103), which calls for a "mutually reinforcing" mixture of uses on a given sector of urban land, the philosophy that provides the ideological climate for omnibuildings, demands a far-reaching revision of attitudes and policy on the part of governmental agencies whose legal, political, and financial powers control the patterns of urban growth. In the course of its investigations for this issue, however, P/A discovered evidence that, during the years since the construction of Place Ville Marie, a gradual re-evaluation of policy, programs, and processes has begun to take place at Federal, state, and municipal levels of government to make cooperation and coordination of effort (among branches of the government as well as between government and private interests) a major goal. As the omnibuilding begins to escape the realm of visionary architecture and emerge as a practical means of dealing with the multifarious elements of urban life, government agencies are finding it necessary to use traditional mechanisms in new ways, to create machinery for new purposes, and to deal with a relatively unexplored range of legal possibilities. Although a number of new methods remain to be tested, and some questions raised by the

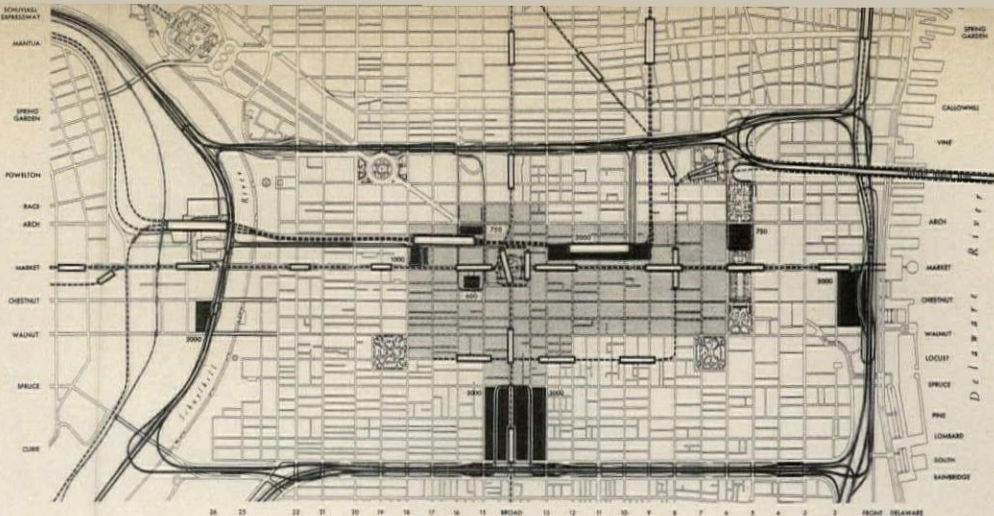
intensive concentration of uses and co-operation of interests that go into an omnibuilding are yet to be resolved, the need for three-dimensional planning with the involvement of multiple interests has been accepted and some distinct trends have been established.

Perhaps purely incidentally, a goodly portion of the organizational work has been accomplished to fill other needs, such as the efficient handling of vast sums of Federal money under the Model Cities Program, or the simple recognition that present and pressing urban problems demand faster and more efficient governmental operations: consolidation of agencies, less red tape. In New York, for example, the Model Cities Program has meant consolidation of 10 separate municipal departments into a single structure, the Housing and Development Administration, and establishment of a community relations office for Model Cities areas. Bringing together all those officials who must deal with housing and urban renewal is, of course, a major step toward expedition of such large, expensive, and complex planning projects as omnibuildings. But the experiences of cities where omnibuildings, however "pure" in form, are actually being planned now, indicate that the involvement of many more agencies (not merely those with jurisdiction over buildings and construction) is absolutely essential to accomplish an omnibuilding.

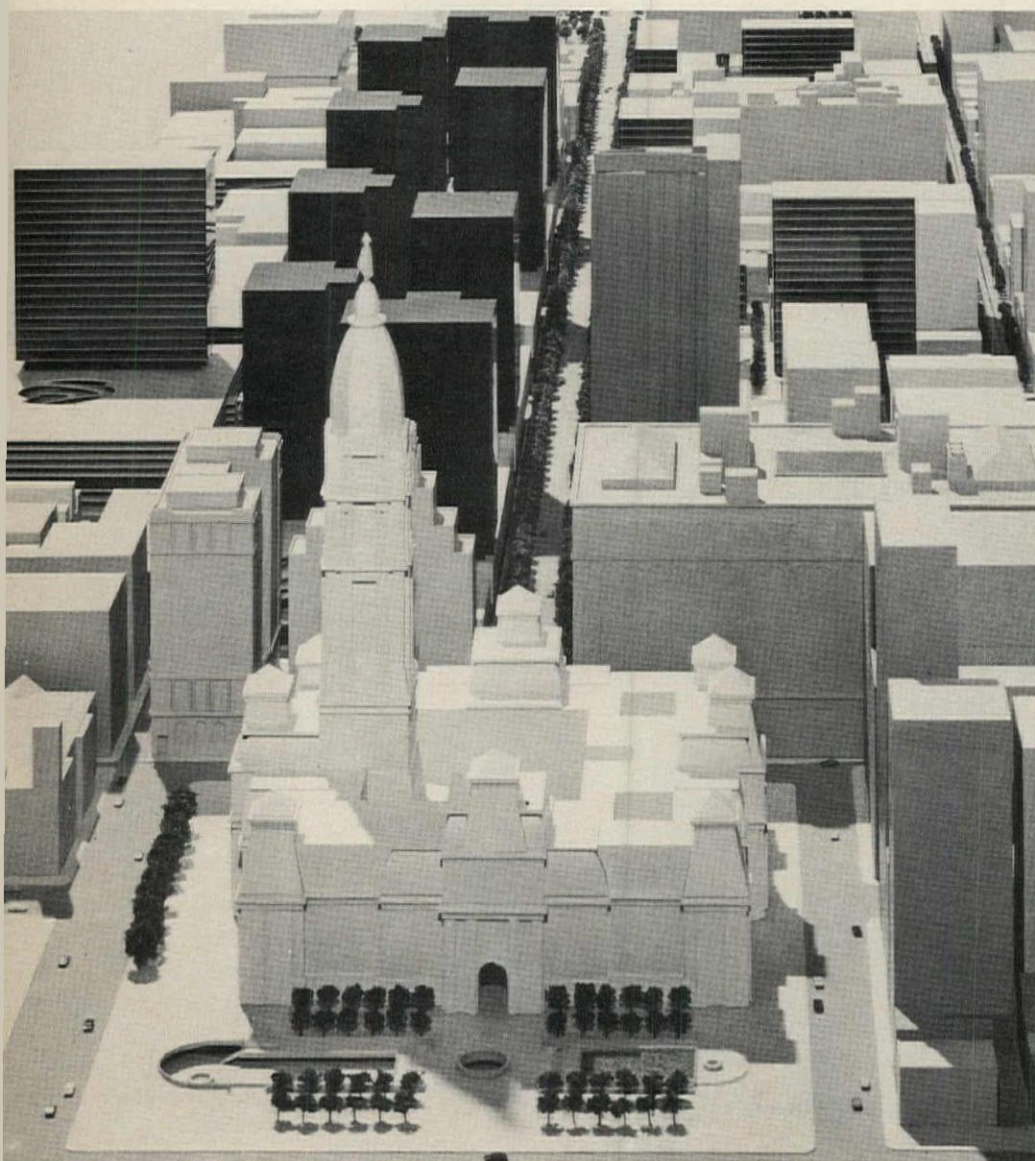
New York and Philadelphia, two cities whose planners have given considerable thought to the implications and problems, as well as the benefits, of omnibuildings, planning has taken varying forms of implementation and raised different sets of legal and financial problems, but both cities have established what they feel are satisfactory mechanisms for fully cooperative planning.

Philadelphia: The Design Continuum

In Philadelphia, where omnibuildings may become the dominant elements of the central city, at least one omnibuilding is on the verge of construction, awaiting approval of Federal funds, and at least two more are in the design stage, with other, conventional buildings already be-



- EXPRESSWAYS
- - - ACCESS RAMPS
- ... RAIL TRANSIT
- STATIONS
- PARKING



TRANSPORTATION-COMMERCE CENTER, Market Street East, Philadelphia, Pa.

Architects: Skidmore, Owings & Merrill, San Francisco.

Characterization and Site: A combined transportation center and climate-controlled shopping mall surmounted by office towers will be a focal, five-block-long structure. Site proposed is the north side of a five-block-wide area stretching east along Market Street from City Hall to Independence Hall Mall.

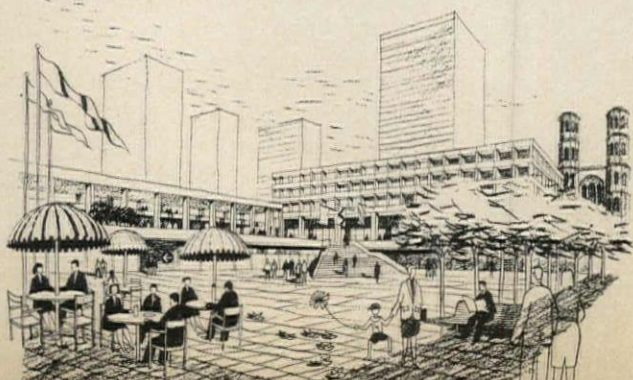
Structural System: Structural module of 30' x 30' established for adaptability to retail store modules, parking, and mall elements on lower 80 ft of project. Same module could be adaptable above, where individual towers will rise, through use of transfer beams or trusses.

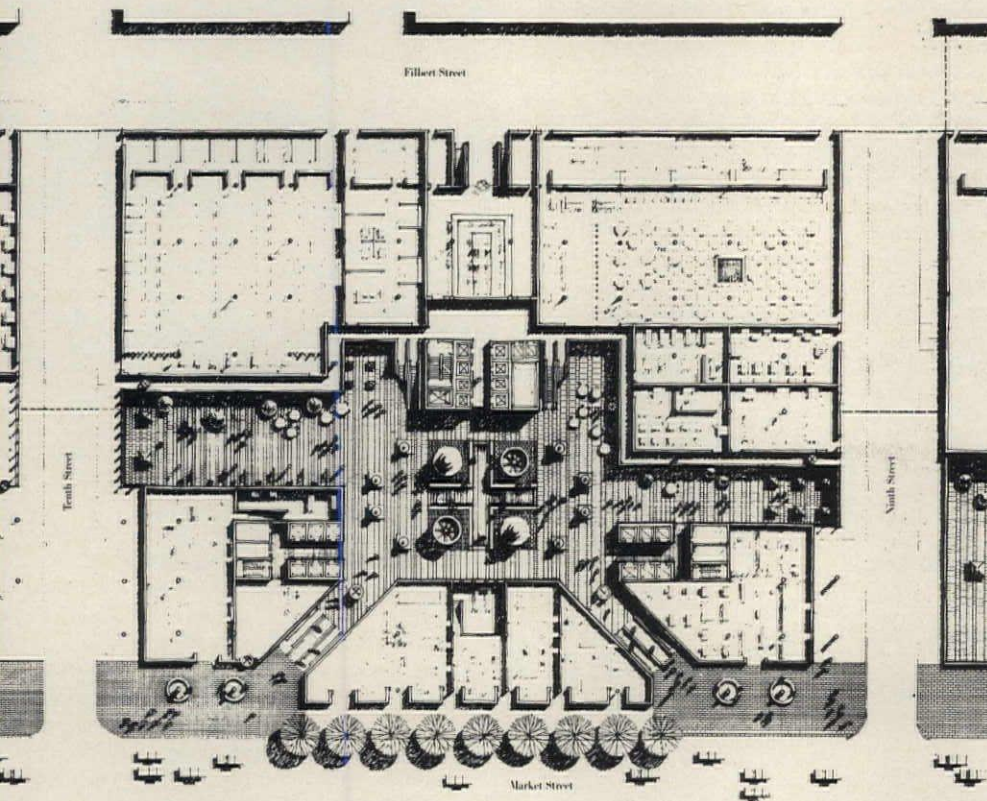
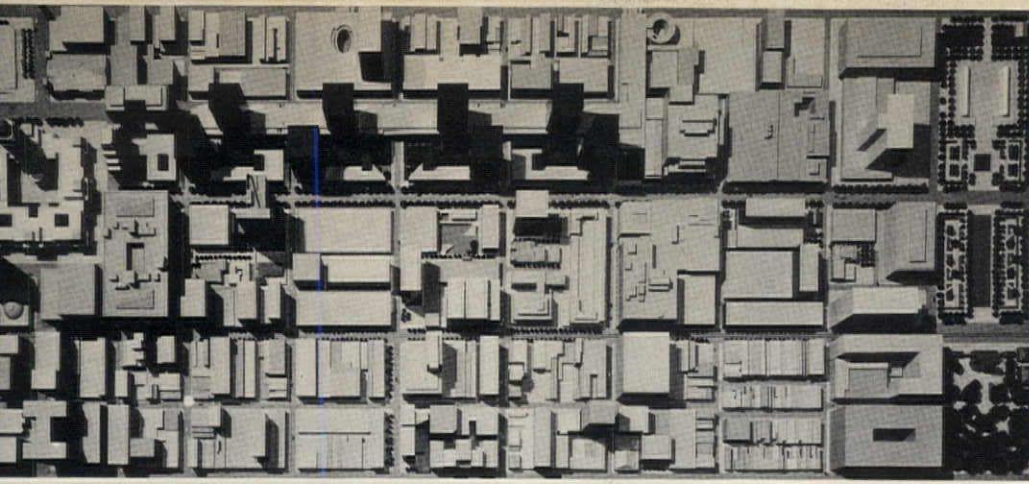
Mechanical System: Central plant with leasable conditioned air to be provided near truck service tunnel with cooling towers on roofs of mall-level stores.

Transportation: A ring of highways around Center City will connect to the midtown Transportation-Commerce Center's parking space for 4000 cars. The area's two commuter rail lines will connect and both have a terminus at the Center. High-speed subway connection with Camden, N.J., across the Delaware River will have its main stop at the Center. Loop bus service around the Center, and east-west bus service along it will increase capacity for short trips within the Market Street East area. Parking for a total of 10,071 cars will be provided in area. Railroad and service roads will be two levels below Market Street. The main sunlit, climate-controlled shopping galleria, the Concourse, will be one level below the street, open visibly to passers-by through great glass walls. At street level are block-corner, escalator entrances to the Concourse level below, and also the entrances to the office towers above. One level above the street are the commuter rail stations and cross-country bus station. Parking floors rise above at levels 2 to 5.

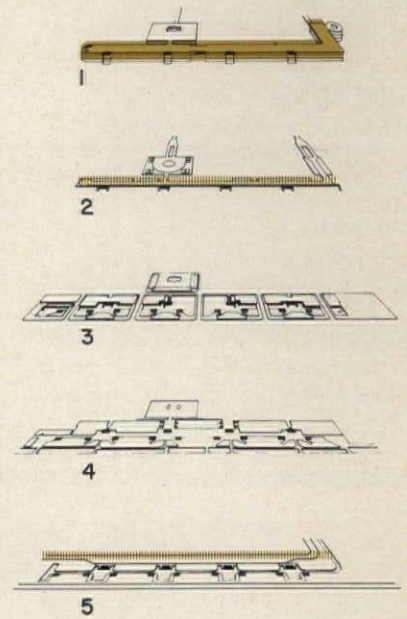
Consultants: Larry Smith & Assoc., economic; Wilbur Smith & Assoc., traffic and parking; Walker Murray Assoc., relocation and rehabilitation; McCormick-Taylor Assoc., engineering of commuter rail connection.

Photography: Jeremiah O. Bragstad.

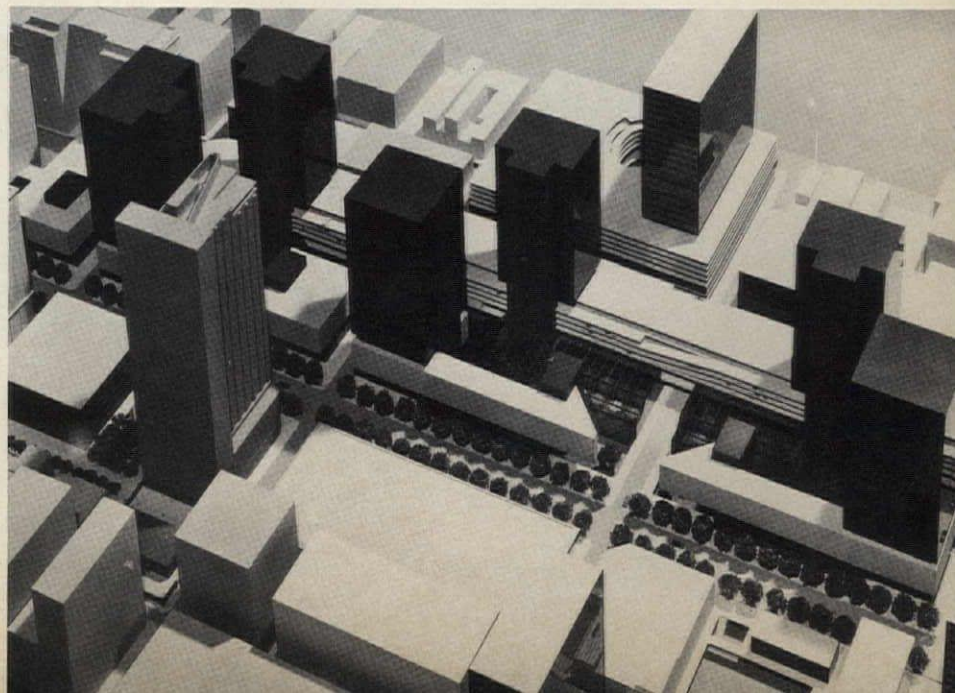
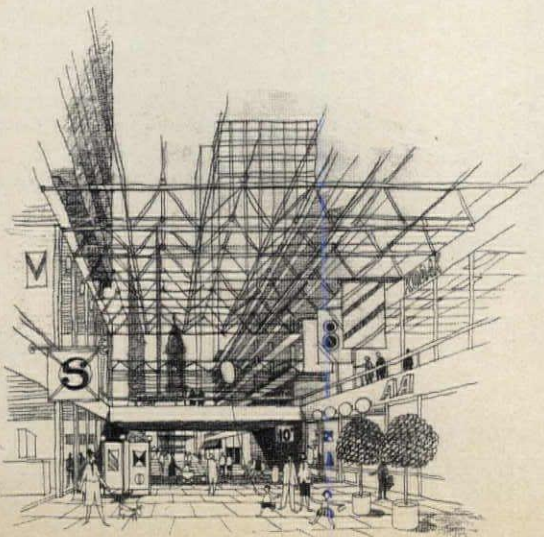




Block-long segment at street level shows corner entrances to concourse level below.



- (1) Parking levels; levels 2-5 above street.
- (2) Commuter and cross-country bus stations; first level above street.
- (3) Street level.
- (4) Concourse level; first level below street.
- (5) Service and railroad level; two levels below street.





CENTURY 21, Philadelphia, Pa.

Architects: Pietro Belluschi (coordinator); Sasaki, Dawson, DeMay Assoc. (planning); Jung/Brannen Assoc. (hotel design with Belluschi).

Characterization and Site: Proposal for a multiuse, privately financed complex on a 6-block, 7-acre tract stretching west along J.F. Kennedy Boulevard from 20th Street to the Schuylkill River. Approximately 5 million sq ft designed to accommodate 50,000 people in a \$200-million hotel-office-commer-

cial-and-residential complex. A four-level enclosed pedestrian mall will form the "spine" off which the individual units will be constructed.

Mechanical System: Total energy for entire complex will utilize Schuylkill River.

Transportation: Streets feed directly into parking system. High-speed commuter trains at 30th Street Station across river will be linked to the Center by a minirail system that encircles it. Link by subway envisioned.

Consultant: John Portman, for client.



PROPOSED INTERNATIONAL EXHIBITION FOR 1976, Philadelphia, Pa.

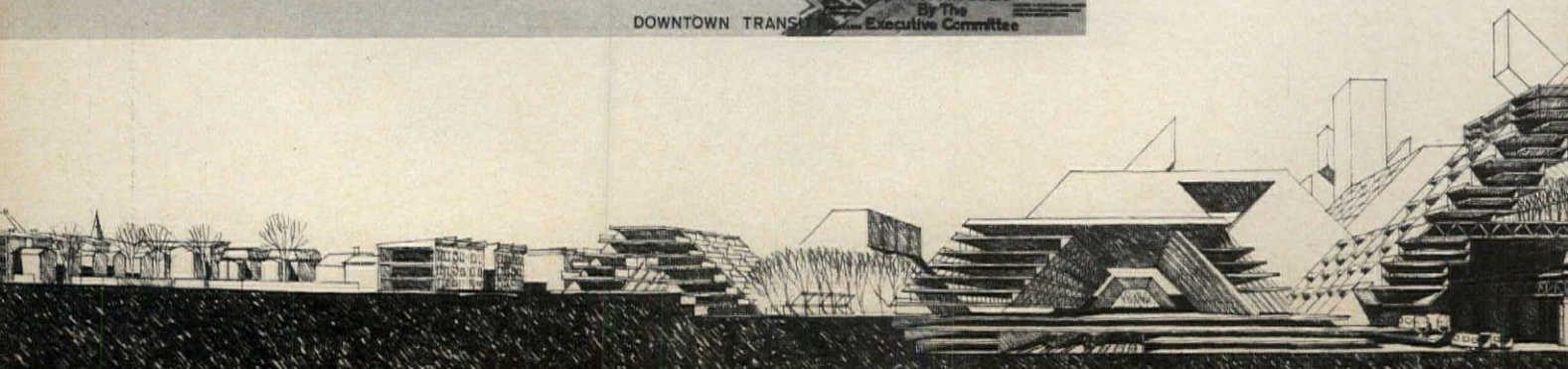
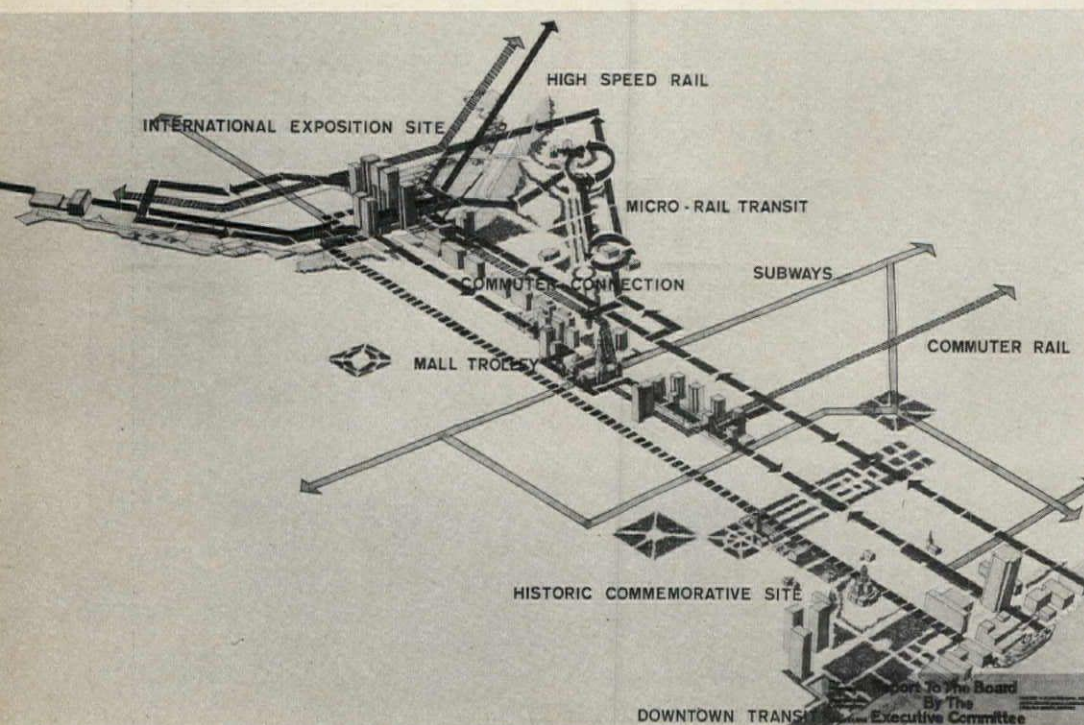
Architects: Vincent G. Kling & Assoc.; Geddes, Brecher, Qualls, Cunningham; Charles R. Broudy.

Characterization and Site: Located over the air rights of the Pennsylvania Railroad tracks leading to 30th Street Station, the site, which includes exhibition buildings and grounds, parks and amusement areas, will embrace 390 acres, extending in a continuous boomerang shape for about 4½ miles. At the close of the exhibition, the open-ended design will serve as a prototype for future expansion.

Transportation: A spine with minirails, moving platforms, and aerial cars of various speeds will stretch throughout the length of the exhibition area. The site will be connected to older sections of Philadelphia via existing and proposed transportation systems.

Consultants: The Young Professional Committee.

Photography: Lawrence S. Williams, Inc.



PROPOSED TOWN CENTER, "New City" of Jonathan, Minn.

Architect: Benjamin H. Cunningham.

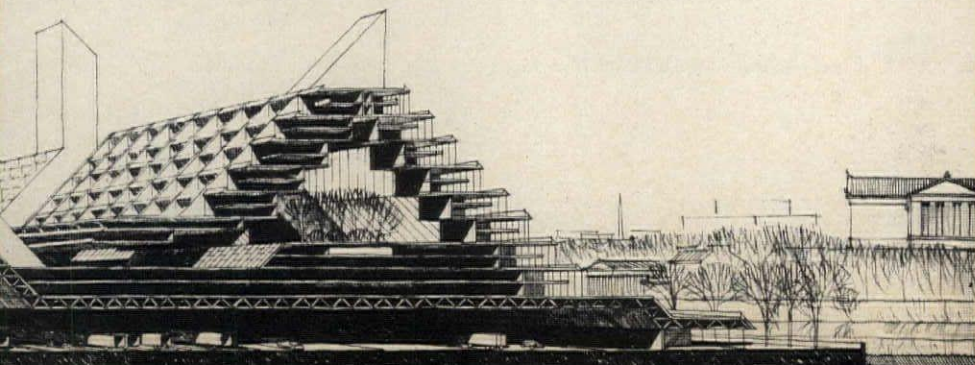
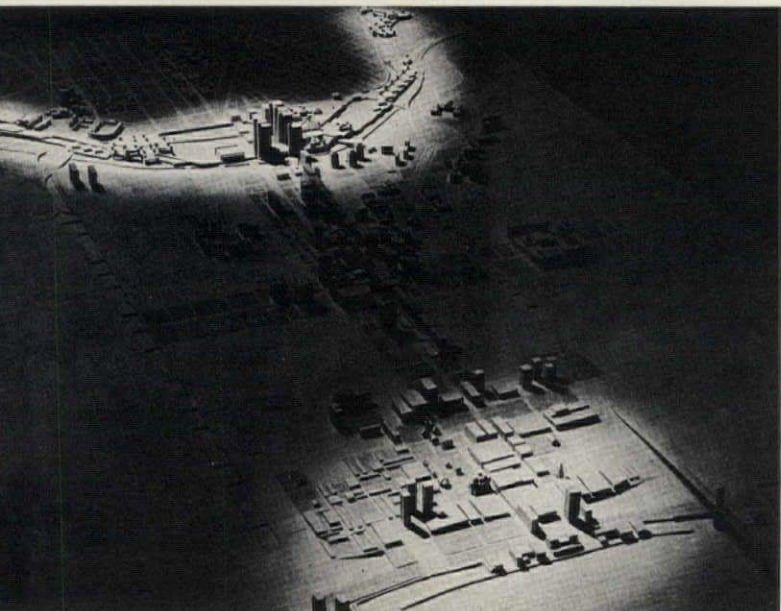
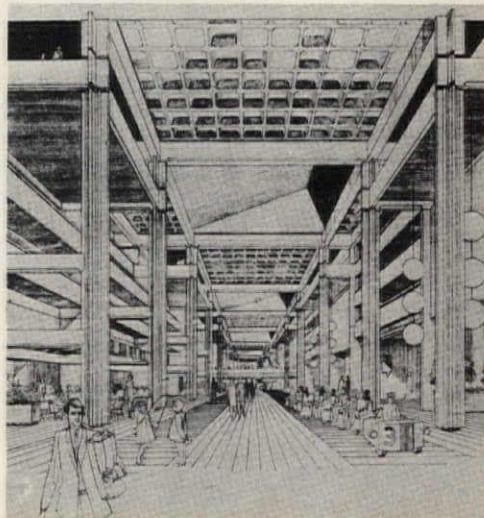
Characterization and Site: Straddling otherwise undesirable land around railroad tracks, the proposed half-mile-long new town center will be linked to the railroad and to the principal highway, which passes at its eastern end; also to be accessible by boats on an adjacent lake. First story to be devoted to warehousing, then, on ascending levels: central shopping mall including entertainment facilities, office level (between 200,000 sq ft and 300,000 sq ft for commercial use), apartment level, and heliport.

Structural System: Reinforced concrete structure to receive infill components.

Mechanical System: Not specified.

Transportation: Ground level terminus for trains, buses, and rapid transit.

Consultants: Masao Kinoshita of Sasaki, Dawson DeMay Assoc., planning; Comstock & Davis, traffic and highways.



ginning to provide for eventual physical connection with the omnibuildings. Edmund N. Bacon, Executive Director of Philadelphia's Planning Commission, has formed definite opinions on the proper role of the municipal government in the creation of an omnibuilding. "A true omnibuilding," says Bacon, "can most effectively be initiated and coordinated by the local government. No private developer has the authority to direct all the various interests toward the desired goal." The surest means of insuring cooperation among private and public interests, he feels, is to present "a design image to which all parties can relate and adapt. This image should originate with the government and be extended by individual developers, for, in a project that includes several private investments, obviously no one private interest can easily impose its preferences upon the others, nor can it, of course, provide the necessary coordination of government facilities. To accomplish an urban omnibuilding, the city needs a design atmosphere that people will care about and want to relate to." Bacon illustrates this statement by pointing out that, during the long period of pre-planning that preceded the Planning Commission's presentation of SOM's design proposal for Market Street East (pp. 128-129), planning officials attempted to stimulate interest in the business community and to involve its members in planning consultation. But until confronted with an image of the idea, no one was interested enough to participate in the planning process. Once a preliminary design has been prepared, however, it must be effectively presented to the public, both through the press, hopefully, and, by all means, through a continuing dialogue between government and private interests. And this preliminary design image should by no means be considered a final solution.

"There must be a continuous process of restructuring," says Bacon "—not merely review, although this function is traditionally assumed to be the sole role of the government in the design process. Planning officials must work continuously with both architects and clients so that the final solution coincides with the primary interests of all concerned. The function of government is not merely approval of a preliminary idea and of a final design, but an active participation in the creation of the final plan. In the process, the design is enriched."

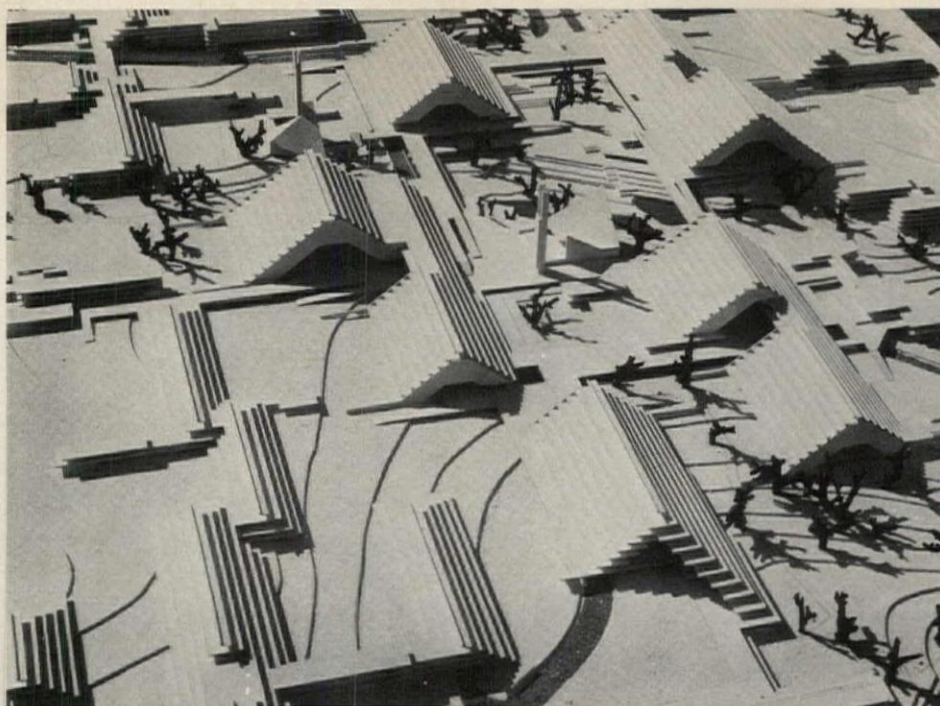
There are additional reasons for Bacon's insistence on central, governmental control of the urban "design image." An argument Bacon does not mention, but one that is amply illustrated in both the New York and Philadelphia projects, revolves around the cost of air-rights sites. Since cost of site preparation must be added to the cost of site acquisition, government write-downs for such sites are usually necessary to make the sites

competitive with conventional sites. There is, he fears, a great danger in planning individual omnibuildings. "It is tremendously important to be careful with the very terms 'megastructure' or 'omnibuilding.' One must avoid thinking of an omnibuilding as a discrete entity or separating it, administratively, from the urban system, for this will end in detaching it from the urban fabric and in negating its *raison d'être*. The omnibuilding should be able to extend itself, to link with and provide impetus for developments that may come after it." If the public is aware of a flexible but well-defined plan for present and future development (Philadelphia does have one of the most up-to-date and comprehensive city plans in the country), "people can begin thinking in terms of connection and preparing for it. An individual project may not be an omnibuilding, but may become part of one if provision is made for connections to transportation facilities, to other structures, or to public places."

The plan for Market Street East, developed under the auspices of the planning commission, has indeed been the stimulus for Century 21, a privately-financed residential, commercial, and office complex that might appropriately have been dubbed Market Street West, and for the still more recently proposed omnibuildings to be built over railroad rights of way for the national bicentennial in 1976. And, with the generator of all these plans, the Market Street East project, still awaiting the initial steps of construction, people have already begun thinking in terms of connection. Bacon declares, "The force of a central design image was responsible for the coordination of three different clients with three different programs, so that each project was linked with the others and became elements of a single omnistructure." The buildings he refers to are the Municipal Services Building and City Hall with its annex, and the two buildings at 1500 Market Street that are part of Penn Center.

Making It Work

How does a city insure that its plan will be carried out? What weapons can it use to enforce its will? According to Bacon, who is himself an architect, "Architects have the real weapon. Zoning laws and other restrictions can and should be applied in their place, but these are not the means to insure that development will fulfill the city's needs in their proper spirit. The strongest weapon is a strong plan, but, up to now, architects have refused to recognize the power they control. In the case of Penn Center, the planning commission had no legal right even to prepare a plan; all the land was owned privately in fee simple. But once the plan was prepared, its own force carried it forward. Zoning restrictions were



FORT LA TOUR, St. John, New Brunswick, Canada.

Designer: Lewis Morse (submitted as architectural thesis at University of Manitoba).

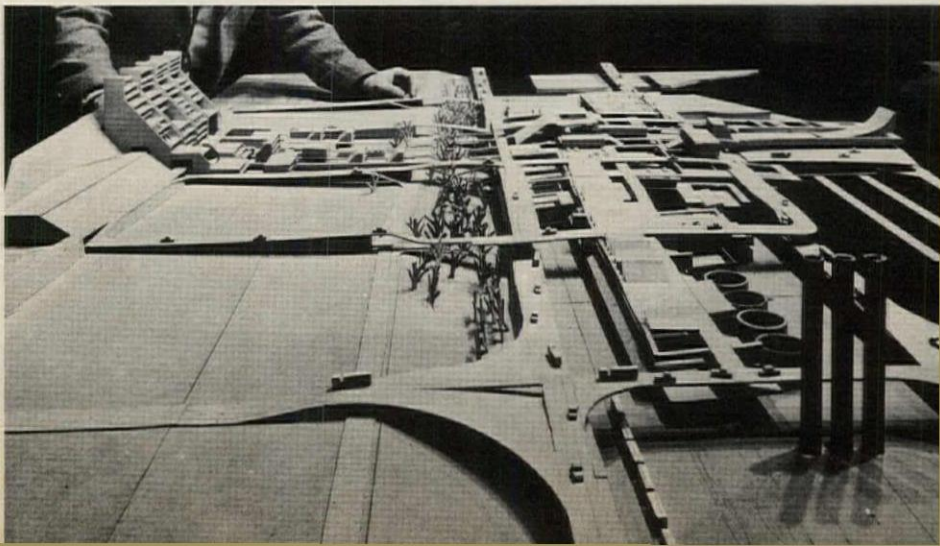
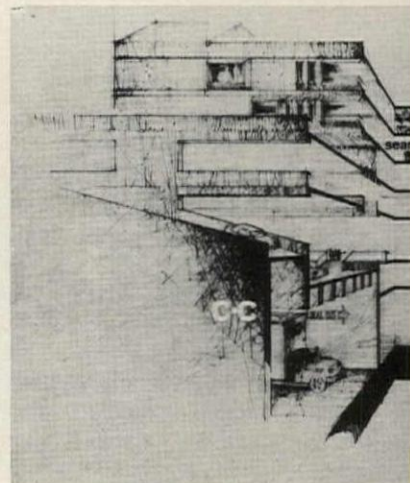
Characterization and Site: A proposal for a market for distributing and collecting marine, farm, industrial goods and services, the design includes housing, offices, warehouses, showrooms, and restaurants. Open spaces below the roof offer protection from strong winds. In a progression from sea to steep slopes, the market area is followed by low-rise housing, then high-rise apartments fringing the northwest slopes.

Structural System: Not specified.

Mechanical System: Not specified.

Transportation: Two primary, one-way roads run east-west with connections from the harbor bridge to the market by ramps and loops. Between these two roads are a pedestrian walkway and a railroad connection to wharves. Parking facilities on roof.

Photography: Ron Vickers.



HILL HOUSING, Marl Germany; and proposals for Berlin Ruhwald, and Schramberg, Germany.

Architects: Faller & Schroeder for Marl; Frey, Schroeder, Schmidt & Faller for Competitions.

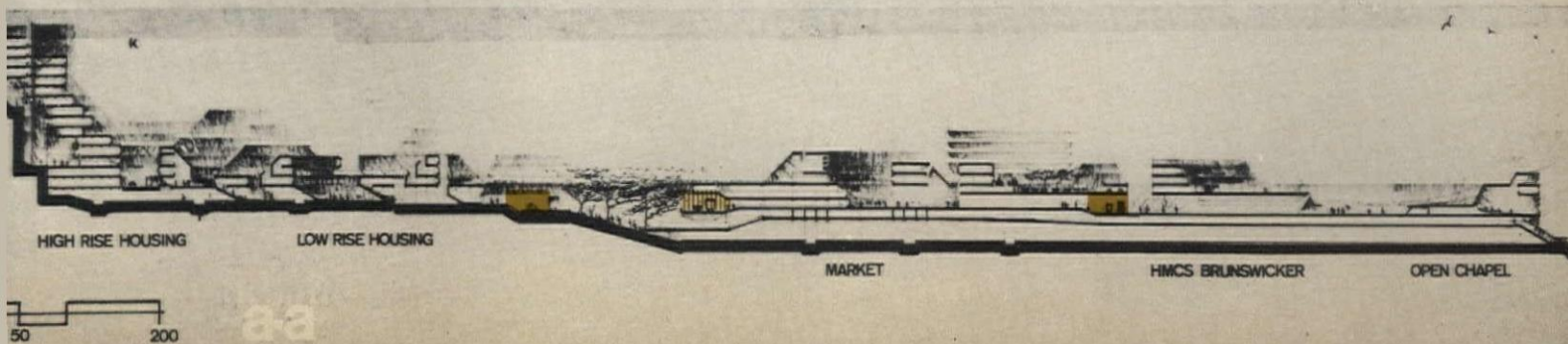
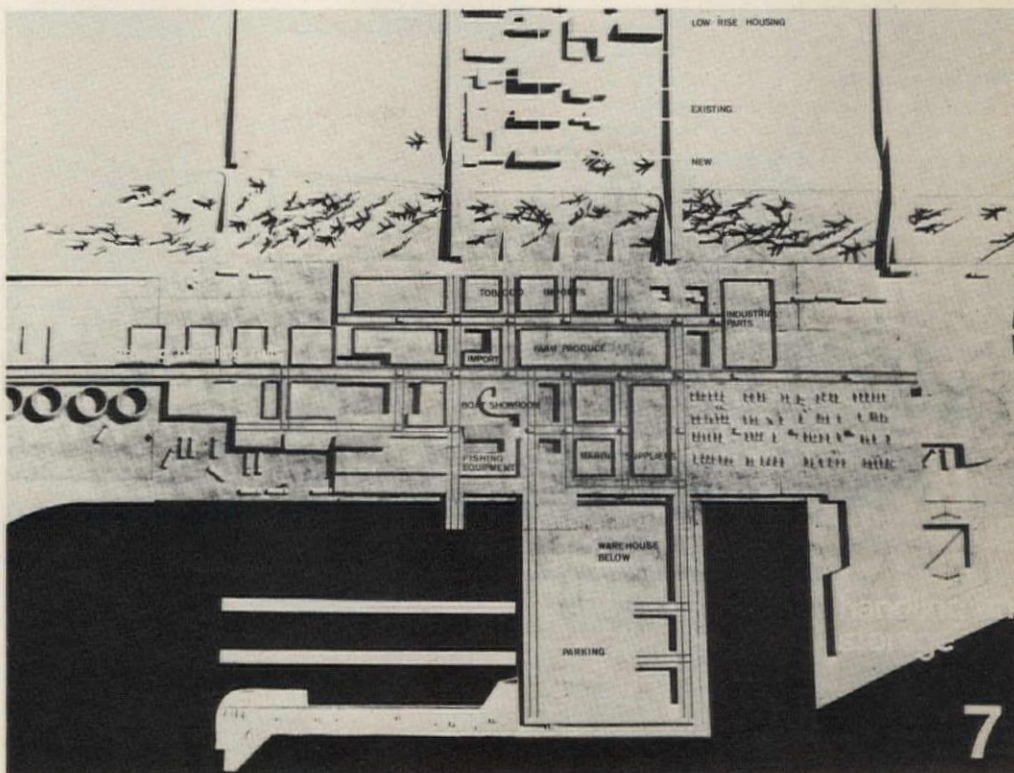
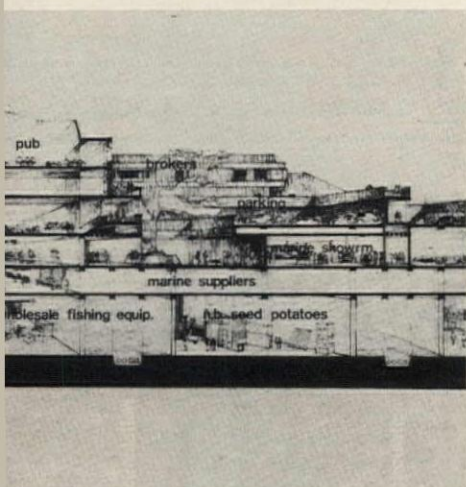
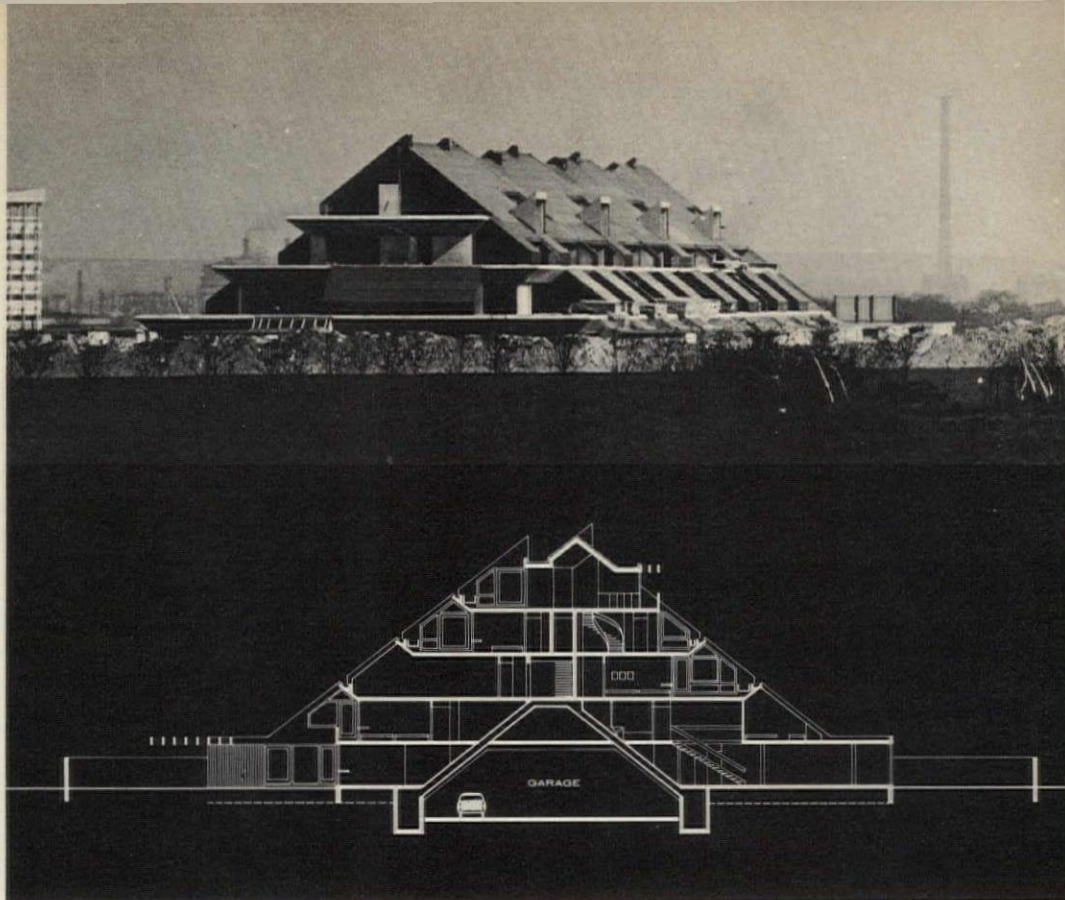
Characterization and Site: A triangular "hill" of housing units, now completed in Marl, is the prototype for a competition proposal for the Ruhwald section of Berlin as well as for Schramberg in the Black Forest. The four-story scheme constructed at Marl has been expanded to five stories and the garage system occupying the base of the triangle is incorporated into the internal road system of the suburb. Ground and first floors contain two-, three-, and four-room units; third and fourth floors have efficiencies and one-and-a-half-room units.

Structural System: Loadbearing reinforced concrete on a 9'-6" grid.

Mechanical System: Not described.

Transportation: Roads beneath the "living-hills" lead to the garages that provide 100 per cent parking.

Photography: Hermann Schroeder.



TOWN CENTER, CUMBERNAULD NEW TOWN, Scotland.

Architect/Planner: Dudley Leaker. First chief architect-planner, L. Hugh Wilson. Group architect for central area, Neil Dudge. Job architect, John Ogg. Past and present members of the architectural team: G. Copcutt (first group architect), P. Aitken (group architect from 1963), David Beaver, Colin Stewart, Robert Maxwell, Malcolm McIlraith, James Halliday, John Byron.

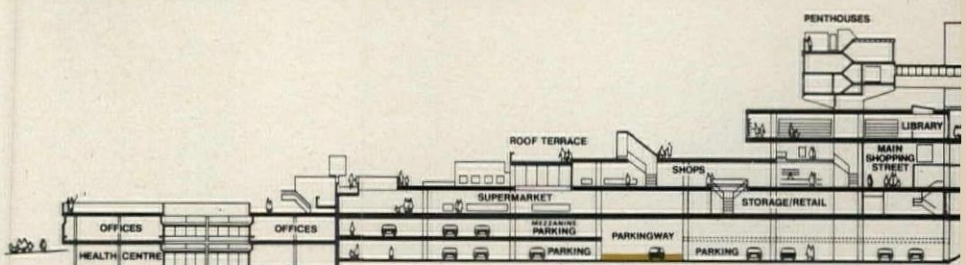
Characterization and Site: A ridge rising from fields 14 miles northwest of Glasgow is the center of the surrounding new town of Cumbernauld. Of the total future population, the majority (50,000) is to be accommodated within walking distance of a linear, multi-level, multiuse urban center on this site, which will contain all the town's shopping facilities. One-fifth of that half-mile-long center is already constructed to serve a population of 20,000. The over-all project is planned along a spinal highway that runs through the Town Center. Two parallel areas of building are on each side of the highway spine, linked by bridges of varying width. Ground level is devoted to transportation, parking, and communication. Pedestrians are separated from vehicular traffic outside the complex by bridgeways and within by escalators, elevators, stairs, and ramps leading from ground level to pedestrian-only areas on the floors above. Besides shopping mall and commercial facilities, Cumbernauld Town Center also accommodates restaurant, bar, and hotel services, a medical center, and 35 penthouse apartments with expansive views of the valley. Churches, banks, cinemas, library, post office, and 30,000 sq ft (in Phase One) of offices for professional and government use are also included.

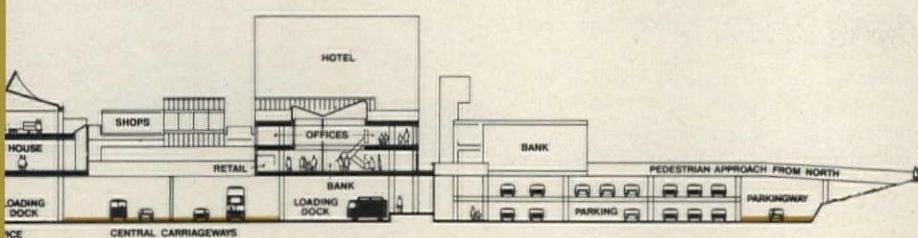
Structural System: Cast-in-place, reinforced concrete grid of 28'-4"; waffle slabs; separate cast-in-place structure for the apartments. Brick infill panels.

Transportation: The four-lane divided highway that is the spine has cloverleaf interchanges at each end, leading to parking roads parallel to the perimeter of the Center. These parking roads are connected at midpoint by a tunnel that passes under the spine. Parking for 5165 cars is planned: for Phase One, 400 cars are accommodated on two levels beneath most structures, excepting some such as the church.

Consultants: Oscar Faber & Partners, consulting engineers; Douglas MacGowan, quantity surveyor.

Photography: Bryan & Shear, Ltd.





in no way involved with the Penn Center project."

Development of a final plan for Market Street East began with the establishment of lines of communication between the Redevelopment Authority, a state agency authorized to act for the city in administering urban renewal projects, and the Old Philadelphia Corporation, a well-organized agglomeration of center city business interests. With the concurrence of Mayor Tate, Bacon set up a municipal task force consisting of representatives of the departments of licenses and inspections, water, fire, streets (and through it the state Department of Highways), and public property. Later, a policy committee was created to act as the decision-maker for the whole project. OPC was hired as a consultant to the Redevelopment Authority and served as a permanent member of the policy committee, as did representatives of the Redevelopment Authority and the Planning Commission. From time to time, as the design progressed, representatives of other city agencies sat in on the monthly meetings.

To allow for continued restructuring of the design as community and individual needs and desires defined themselves, the design consultants—SOM of San Francisco—were required to meet monthly with the policy committee as soon as preliminary drawings were begun. This process, in the words of the Redevelopment Authority's James T. Martin, "became a bit of a hindrance at times. Every month, the architects would go back to the drawing board, revise their design, and come back the next month, only to revise their revisions." But with time, a policy of compromise asserted itself, and design proceeded more smoothly. Disagreement among members of the committee was, nevertheless, partly to blame for one event that can only be viewed as a major disaster: the loss of a \$12 million Federal grant reservation.

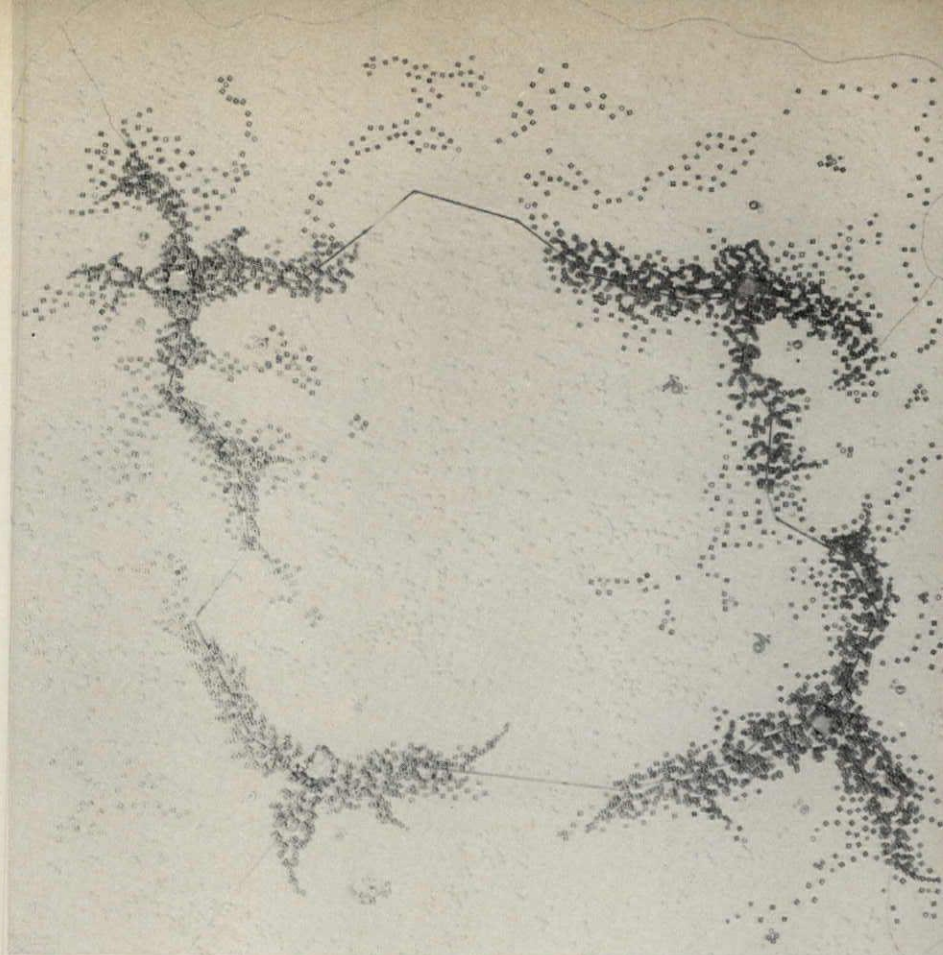
Immediately after approval of the grant, obtained under the Federal General Neighborhood Renewal program of the Housing Act of 1949, the project was delayed for nearly a year while the Redevelopment Authority applied for authorization of additional state funds to cover administrative expenses and salaries. Then, last spring, when planning had reached the final stages, a dispute developed among the major department stores (Gimbels, Strawbridge & Clothier, Wanamakers) over the location of their facilities and of a shopping mall in the over-all scheme. At the height of the dissension, HUD served notice that final submission and approval of the project must have taken place within 36 months of the original applications for funds, and that time was about to run out for Market Street East. Since no action was possible until all parties responsible for the project had agreed on the design, the grant was lost. Ironically, agreement

was reached only a few weeks after the final deadline, but not before SOM had been recommissioned to alter parts of the "final" scheme. Despite such truly major difficulties, Martin is convinced that, within the parameters of our social and political structure, the kind of planning process that produced a scheme for Market Street East is indispensable, and generally satisfactory, for the creation of an urban omnibuilding. As government and private agencies gain experience in the method, difficulties in coordination should diminish. "It is impossible," according to Martin, "to proceed without the cooperation and participation of local groups. If they are disregarded, they obviously will not cooperate in implementing the final plan, and, if their needs are not represented in the plan, they will desert the area, leaving behind the old cliché — the dead hand of urban renewal."

Getting Governments Together

If at least one municipality has arrived at a working method of coordinating an omnibuilding, what do its experiences with higher agencies of government indicate about *their* readiness to cope with the cooperative, combinatorial approach to urban design? From the beginning, local representatives of the Department of Housing and Urban Development participated in policy committee meetings on Market Street East, primarily to evaluate proposed facilities for possible eligibility for Federal funds. Philadelphia authorities are left with the impression, despite a local willingness to cooperate, that present Federal programs are not structured to deal efficiently with the concept of an omnibuilding. During the design stage of the Market Street project, innumerable questions arose over such facilities as escalators (There was money for stairs, but what about moving stairs?), and glass walls between public and private spaces (What kind of a wall is that — public or private? Why glass? Why doesn't the private sector just wall itself off from the public space?). On a more general level, representatives of local government are annoyed by a discernible disparity, or perhaps a lag, between policy as stated at a high national level and programs and mechanisms at a local level. Then, too, changing national priorities can make programs ineffective before they become operational.

At the local level, where most Federally-aided projects are processed and approved, Federal departments are just now beginning to institute the machinery for interdepartmental coordination. At present, local HUD officials do check with the Department of Transportation to see whether a major highway is projected for a HUD project area, but this checking is done on a project-to-project basis, and does not provide a basis for further cooperation. Until recently, HUD has maintained the point of view that if a city



SUFFOLK COUNTY PROPOSAL, Suffolk County, N.Y.

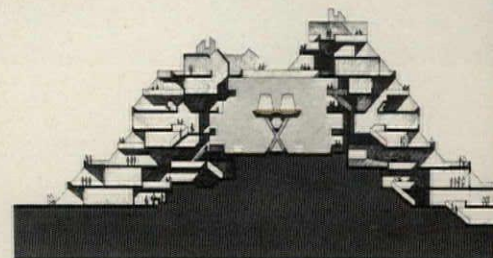
Designers: Gerald Hallissey, George Kongeter, Clark Neuringer, Burt Stern (*Fifth Year Design Project, Pratt Institute*).

Characterization and Site: At the perimeter of a 100-sq-mile site, four "nodes" containing high-density housing (10,000 people each), community centers, and schools would be situated around central plazas, with related commercial and industrial areas. From them, residential spokes (6000 total population each) would radiate along transportation routes. A university campus would be near.

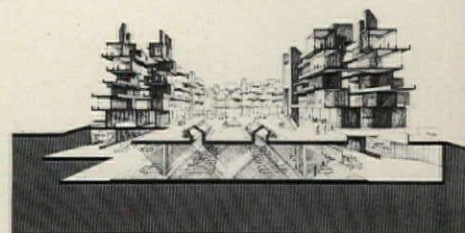
Structural System: Not specified.

Mechanical System: Not specified.

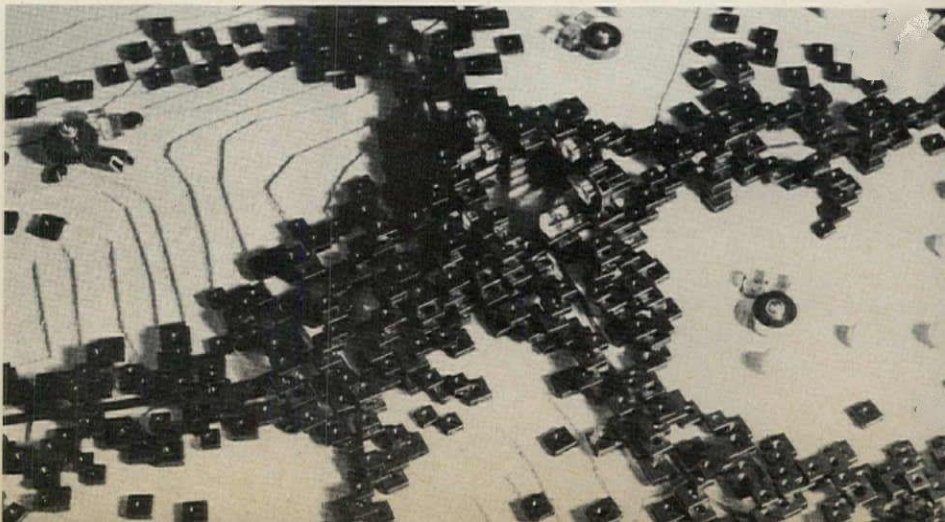
Transportation: A loop road connects the nodes. Pedestrian-car separation within complex, with a link-bus system serving as public transit.



SECTION-HOUSING UNIT



PLAZA SECTION-LIVING CENTER



LIVERPOOL CIVIC AND SOCIAL CENTER, Liverpool, England.

Architect: Colin St. John Wilson.

Characterization and Site: To be constructed in 1970, the design will house 25 law courts, 5000 staff members in approximately 550,000 sq ft of office space for municipal departments, and will be able to accommodate 8000 daily visitors. The complex will have a square, eight-story office block with a central, building-high skylighted reception hall; wings will stretch out from the block's corners. Beneath the court are nongovernmental facilities; several shops, a bank, travel agencies, pubs, restaurants, a swimming pool, and a multipurpose hall. The complex is sited on an 8-acre triangular space in the middle of a cityscape of 19th-Century architecture. The office sector of the city, west of the site, is connected with the cultural center on the east by an arcade that passes through the civic and social center. The wings radiating from the main office block provide the major portion of the arcade. Construction will be in three phases.

Structural System: The main block has structural steel framing, with a space frame over the central hall.

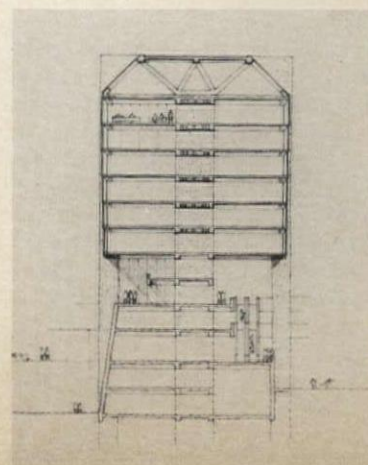
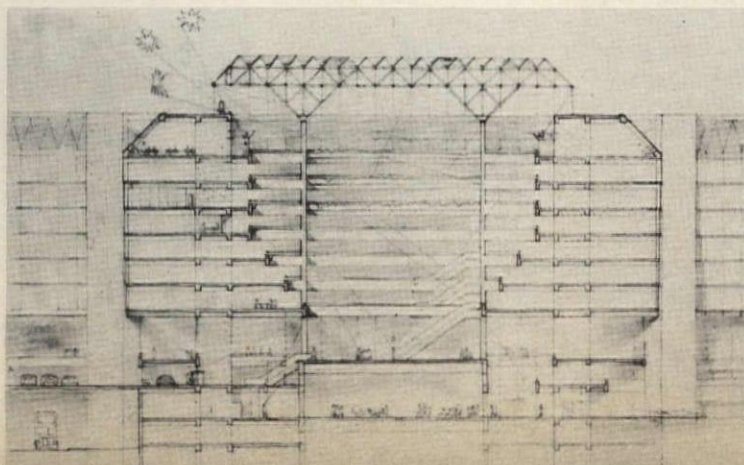
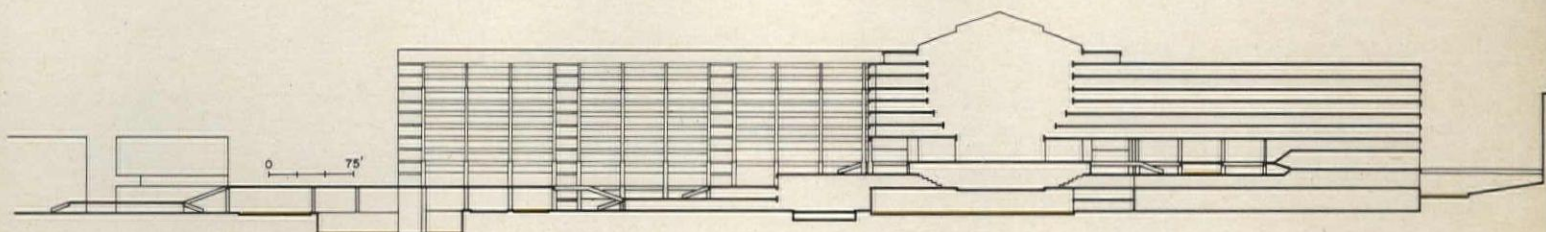
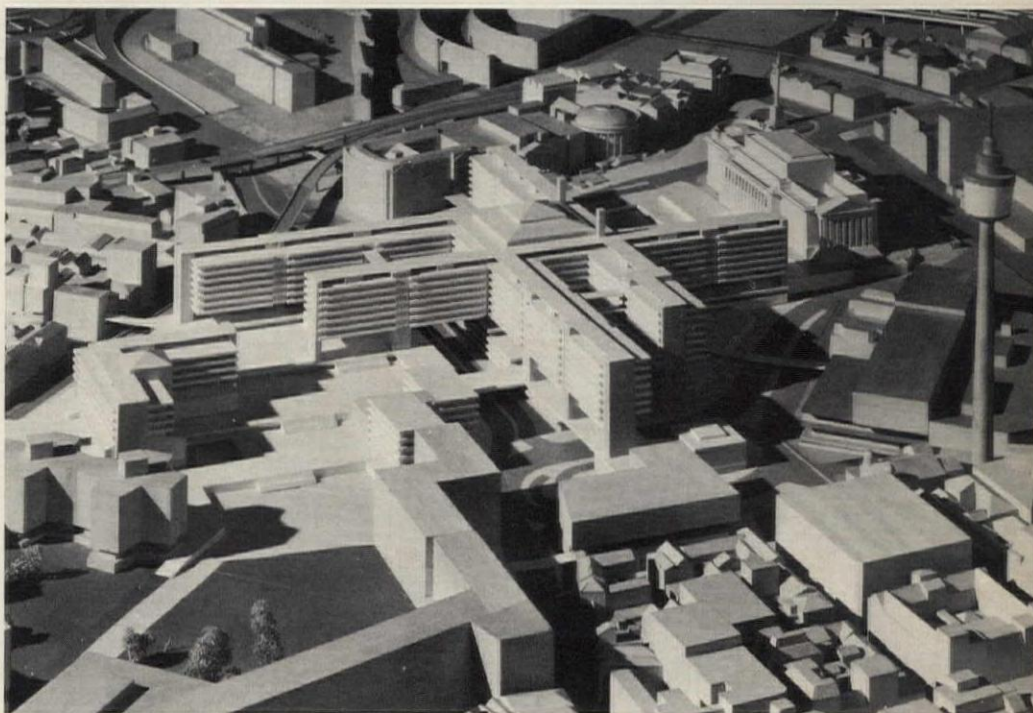
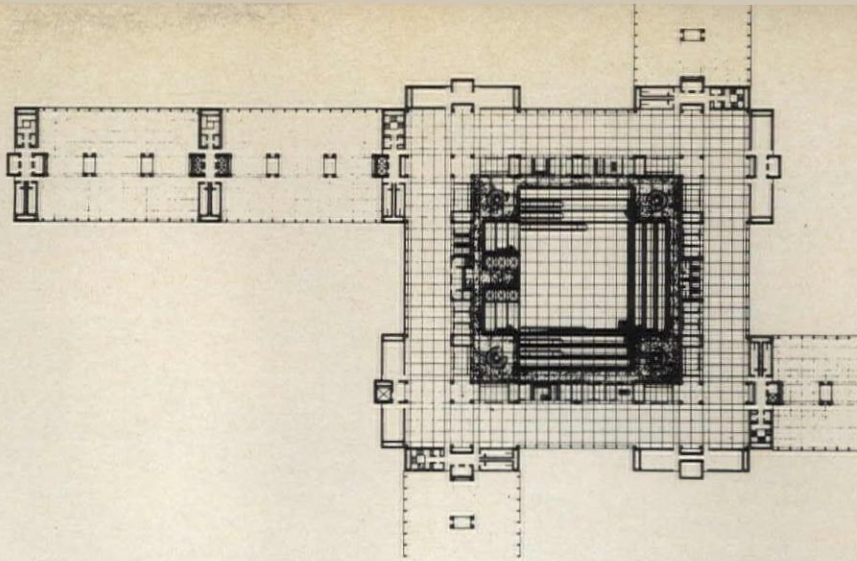
Office wings have a clear span of 120 ft on the perimeter; at 40-ft intervals, concrete pylons support roof trusses from which the six floors of offices are hung on steel suspenders 8-ft o.c. Primary structural pylons contain vertical circulation, toilets, and wind bracing.

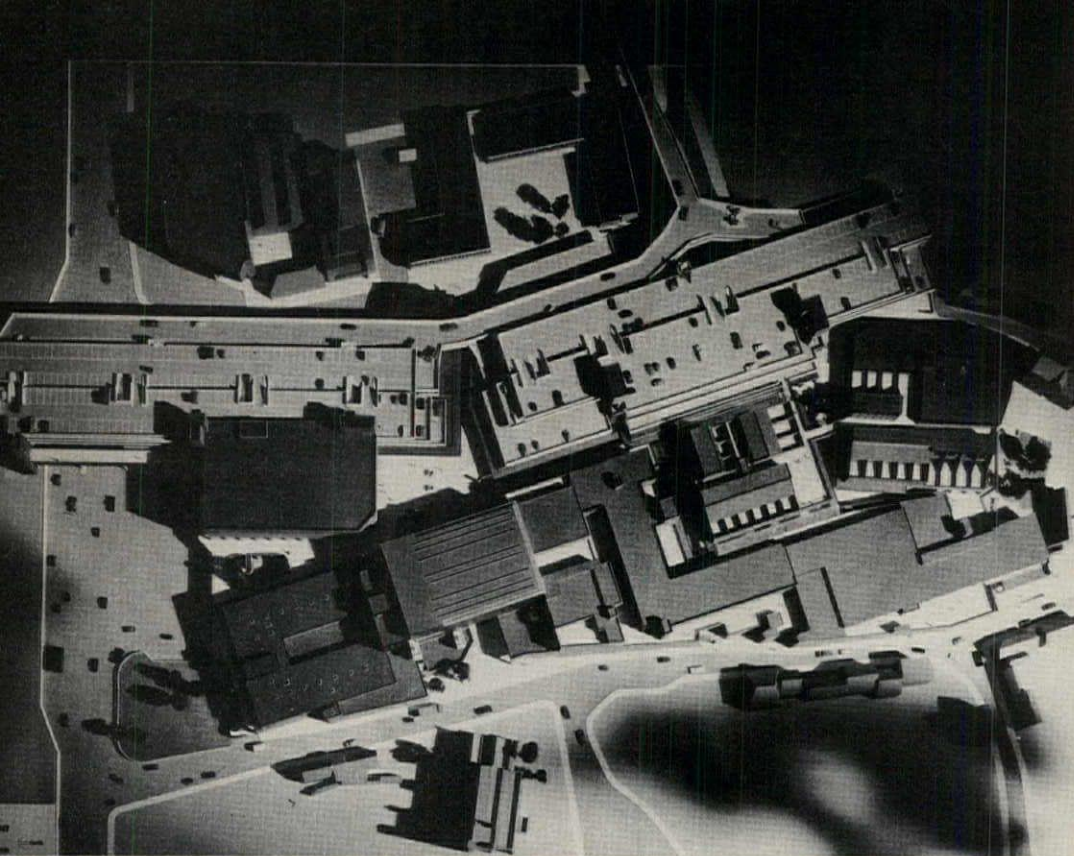
Mechanical System: Not specified.

Transportation: Pedestrian-vehicular separation is maintained vertically. Passing beneath the complex are the city streets and service roads, which have access to a garage that provides a podium for a future motel. An elevated foot ramp accommodates passengers using a bus stop across the southeastern street.

Consultants: Shankland, Cox & Assoc., planning; Monk and Dunstone, quantity surveyors; Felix J. Samuely & Partners, structural.

Photography: John Mills, Edward Leigh, John Rawson.





BASINGSTOKE CENTRAL AREA RE-DEVELOPMENT, Hampshire, England.

Architects: Llewelyn-Davies, Weeks, Forestier-Walker & Bor.

Characterization and Site: Complex proposed for 15 acres in the center of a rapidly expanding town in southeast England. Mid-town facilities for an ultimate population of 90,000 will include retail shopping space, a sports center, cinema, office space (about 50,000 sq ft), library, apartments, and a hotel. A six-level parking garage (3500 cars) passes through this town center like a spine and separates vehicular traffic from the pedestrian malls above. Phase I model (left) shows two-angled sections of the garage with adjacent facilities running north-south between the two main roads; the first part of this phase, Market Square (far right), is already completed. Phase II (right) envisions an extension of the garage and facilities running east-west along the principal roadway.

Structural System: Slab decking on reinforced concrete columns.

Mechanical System: Not specified.

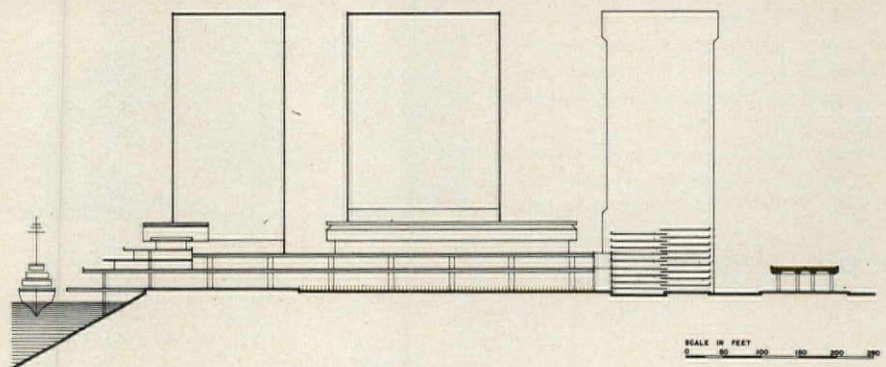
Transportation: Buses and private cars are brought to the center of town by east-west roadways that run beneath the garages and have access to service and delivery areas below the elevated pedestrian mall.

Photography: Snoek-Westwood (models).

NEW ORLEANS AIR RIGHTS STUDY, New Orleans, La.

Architects: Thompson B. Burk & Assoc., Thompson B. Burk, principal, and Jack R. Cosner, associate-in-charge, for New Orleans City Planning Commission. Urban Designers: Brown & Anthony, City Planners, Inc. Harry A. Anthony, principal-in-charge.

Characterization and Site: Sited on a rectilinear, 45-acre air-rights parcel tapered at the north end and bounded by the Mississippi River on the east, the design will include two hotels, containing respectively 1500 and 700 rooms, 3000-unit apartments, 150-unit town houses, 200,000 sq ft of office space, 180,000 sq ft of retail space, and 697,000 sq ft of civic or community center space. These separate structures rise from a plaza 50 ft above the grade-level railroad tracks. Sandwiched between the two levels is a service area. At the northwest corner of the site is a multilevel parking garage. The design tries to achieve complete vertical separation of pedestrian from vehicular traffic and offers ample views of both the Mississippi River and the city, while respecting the symbolic predominance of the already existing International Trade Mart Building that rises north of the site. The result is a high-density urban



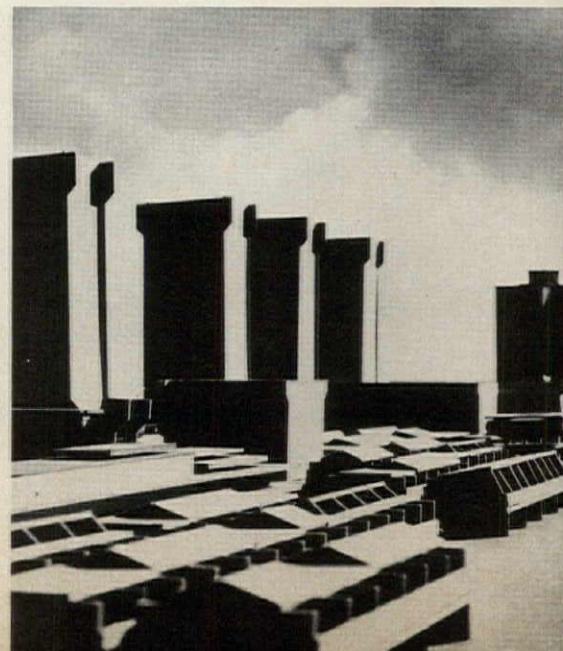
complex with a mixture of diverse but compatible uses producing the skeleton for a 24-hour community.

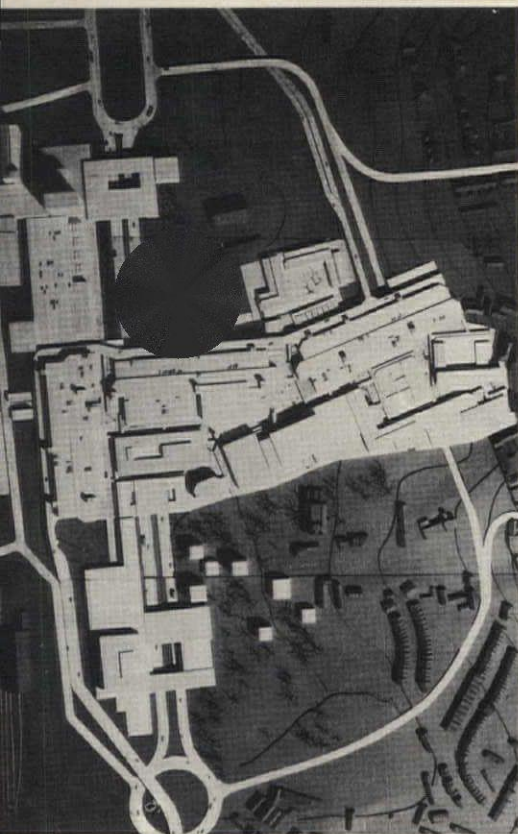
Structural System: Reinforced concrete. Proposal for service-level platform over railway tracks uses truss grid 20 ft o.c. in each direction; trusses are 20 ft deep with bottoms of chords 25 ft above grade.

Mechanical System: Not specified.

Transportation: Vehicles not allowed at plaza level. Parking areas (10 levels) are contained under apartment towers at northwest perimeter near elevated expressway. Accommodations also include connections to airports via air and water as well as by road.

Consultants: Real Estate Research Corp., Abbott L. Nelson, principal-in-charge, market analysis and economic study.





understands what it wants and needs and can stand behind a cooperative effort to obtain its desires, the force of its will is sufficient to sort out available Federal programs. A recent proposal, however, is evidence that this attitude is changing. The proposal calls for a regional representative of HUD to be versed in the intricacies of all Federal programs available for urban development, without regard to the Federal department where they originate; to confer with city agencies; help them plan projects, and aid in the preparation of applications for Federal funds.

New York and the Omnibuilding

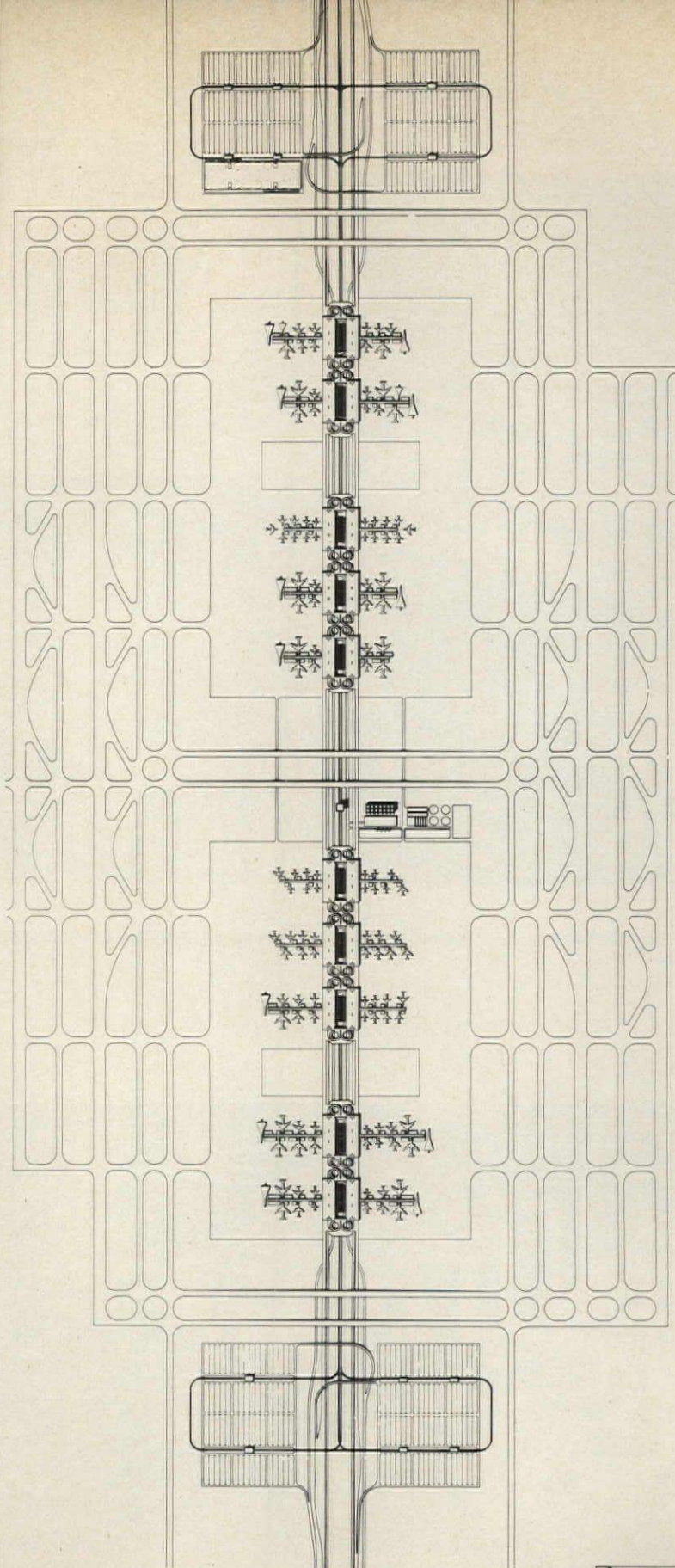
In New York, the attitudes of city planning officials sometimes diverge widely from those encountered in Philadelphia. The divergence may, to a great extent, be accounted for by different working conditions and by New York's relative inexperience with omnibuildings. Although the possible use of air rights over publicly-owned land or facilities has been under investigation since 1959, when Mayor Wagner issued an executive order instructing public agencies to give consideration to multipurpose use of real estate, only within the last year or so have omnibuildings received serious consideration from both public and private developers. Now, however, several are being studied for feasibility, and one (the largest and most widely publicized), Linear City is moving rapidly into the design stage.

To mobilize all the forces and talents that must contribute to the planning process, New York's Planning Commission relied on the machinery of a Design Concept Team as outlined in the preplanning report of its consultants, Rogers, Taliaferro, Kostitsky, Lamb. In principle, the Design Concept Team approach varies little from the method developed in Philadelphia, but it does have a somewhat different formal structure. Government responsibilities are kept clearly separate from community interests, and both are segregated from the team that produces the physical design. Ed Robbin, Director of Special Projects for the Planning Commission, feels that such separation of responsibility makes for less friction, especially since the final authority to make decisions rests with the Policy Committee, composed entirely of the heads of government agencies. Since educational facilities are to form the first and one of the largest increments of the total scheme (5000 intermediate and high school seats to be provided by September 1970, 20,000 by 1972), the chairmen of the city Board of Education and the state Board of Higher Education are important members of the Policy Committee. Other members are Donald H. Elliott, chairman of the City Planning Commission, commissioners of the city Department of Highways and the state Department of

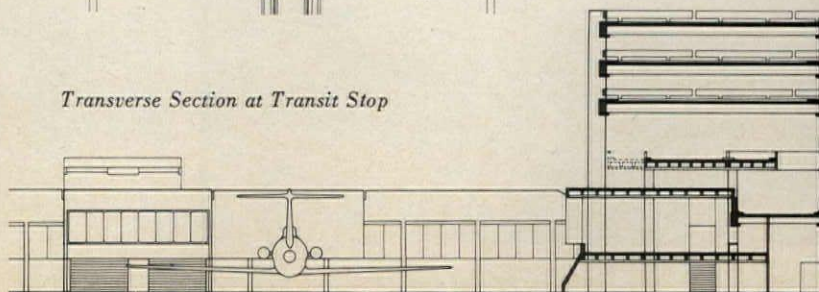
Transportation, and administrators of the municipal Human Resources and Housing and Development Administrations. At this writing, the committee is in the process of organizing itself into a non-profit corporation, with Policy Committee members forming the corporation's board of directors. A project director is about to be appointed to act as liaison between the corporation and the professional staff, and a full-scale professional team is in the field. So far, Robbin, who is former legal counsel to the Planning Commission, believes that this organizational structure can function efficiently through the planning and design stages, but that special legislation may be necessary before the corporation authorizes actual construction. For, under present law, each government agency is permitted to construct only the type of facilities over which it has jurisdiction. In a project of this kind, however, where schools may use highways as supporting foundations, and housing may be constructed over elements of a school building, precise coordination of the construction schedule is so essential that such strictures must be eliminated to avoid possibly mammoth bottlenecks. The alternative is for each agency to subcontract parts of its planned facilities to other agencies, another time-consuming process, or for legislation to create a new agency especially for the Linear City project, a body with powers to authorize all necessary construction.

So far, no formal mechanism for communicating with community interests has been set up, and, as Robbin comments, "It's a very difficult thing to do here. There are half a dozen communities in the affected area, with tremendously varied racial compositions, economic perspectives, and needs. Communities range from the Brownsville Model Cities area on one end to the rather well-off Inwood and Flatbush sections on the other." Perhaps before this summer is over, the problems of assembling a truly representative selection of community interests will have been solved; in the meantime, at any rate, staff members of the Policy Committee are already working out an arrangement with those community groups whose prime concern is education. The arrangement could be a prototype for further relationships with the communities.

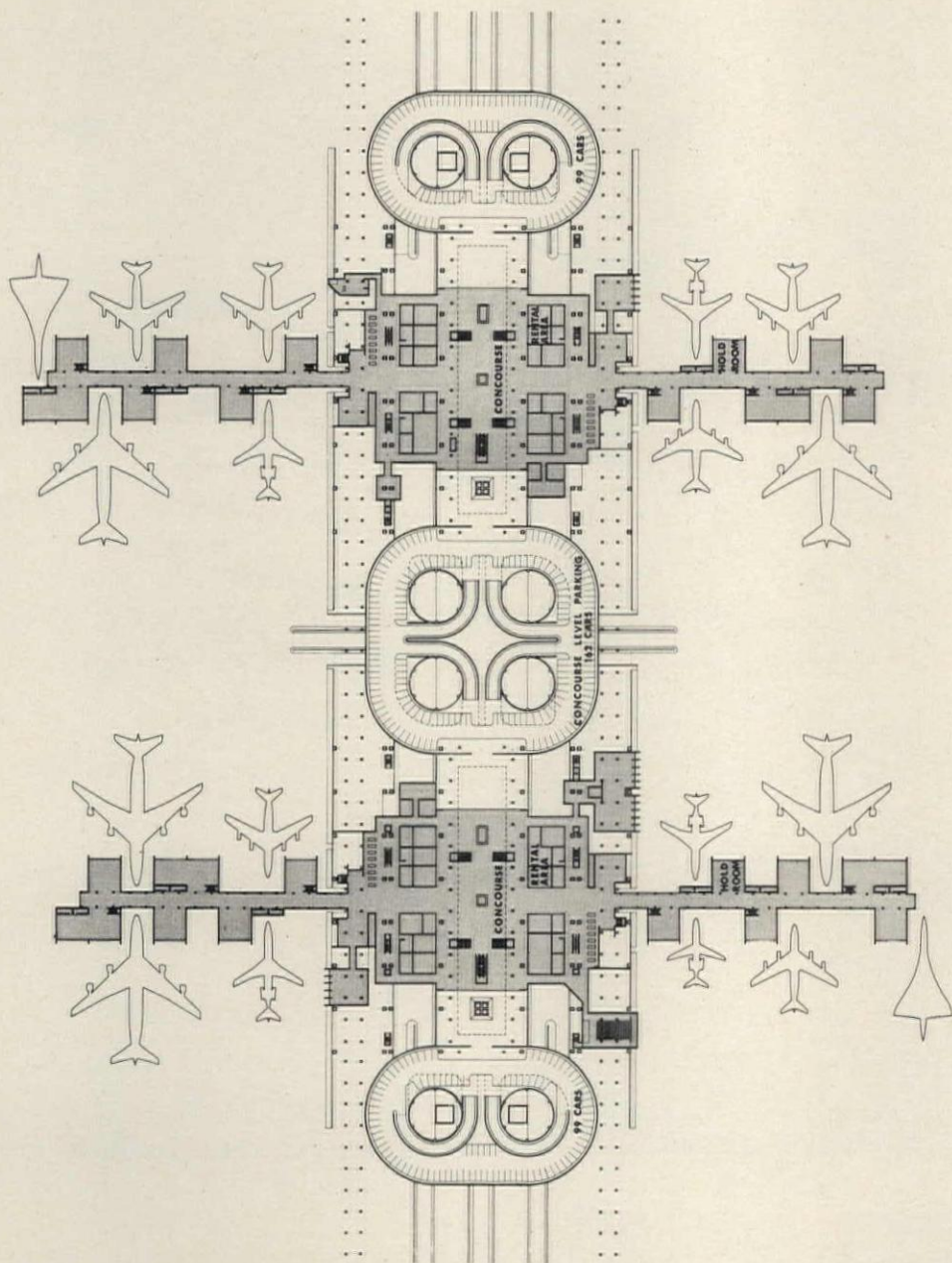
Whatever system evolves eventually, the Policy Committee does plan to devote a number of full-time staff members and a good deal of effort (perhaps this effort will include movie and/or slide presentations) to soliciting community response and cooperation. Contrary to Edmund Bacon's insistence on a "design image" as the dynamic force for mobilizing community interest in any plan, Elliott and Robbin in New York feel strongly that planners should avoid touting any physical design until they are certain that it



Transverse Section at Transit Stop



1985 Terminal Module



DALLAS-FORT WORTH REGIONAL AIRPORT, Tex.

Architects/Engineers: Tippetts-Abbett-McCarthy-Stratton. Partner-in-charge, Walther Prokosch.

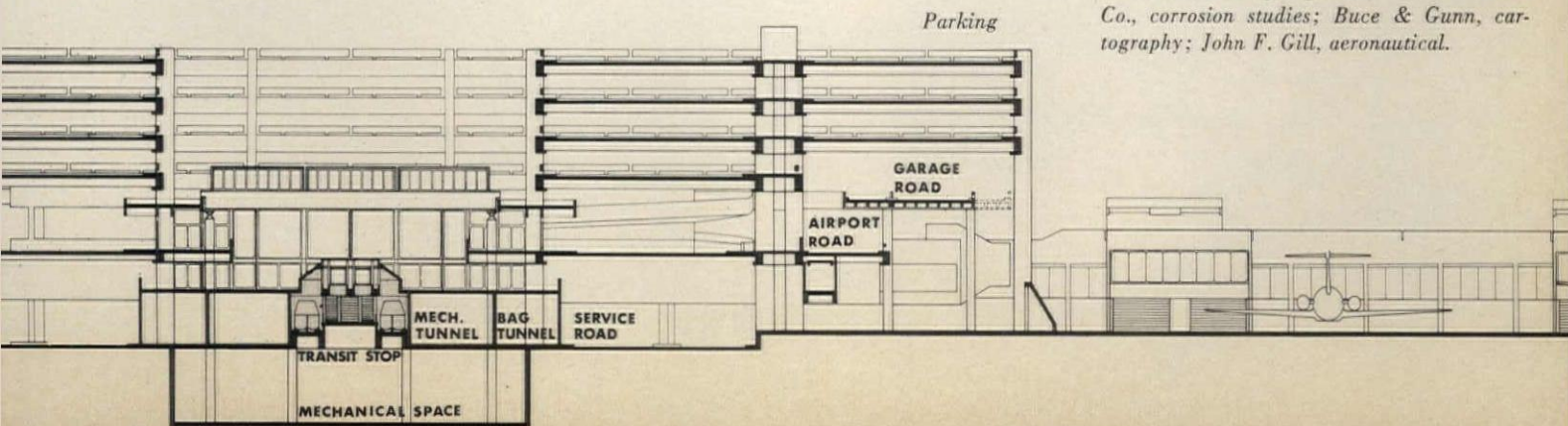
Characterization and Site: North of the midway point between Dallas and Fort Worth and sited on 18,000 acres of corrosive soil, the airport is proposed not as a terminus but as a transfer point. The design will have as its base a 9000 ft "spine" containing rapid transit, utilities, automated baggage equipment, and a service road. Perpendicular to this spine—placed across it at 800 ft intervals—are 10 "vertebrae." Each vertebra contains a concourse, with ticketing and concession facilities, flanked by service and access roads. Vertebrae are surmounted by three levels of parking projecting over and sheltering the roadways. Fingers lead from the concourses to the planes; the 10 vertebrae provide 135 gateways. Baggage check-in points located in parking areas are proposed.

Structural System: Not yet determined.

Mechanical System: A central utilities room with adjacent cooling towers is at the center point of the spine and serves the high pressure (600 F, 600 psi) system. A gas-fired boiler drives steam turbine refrigeration units. Two electrical transmission circuits feed a primary step-down substation at the north complex. Two feeders with separate transformers will serve each of the transformer points of the spine.

Transportation: An intra-airport subway, one level below the concourse, runs through the spine and connects each vertebra; accommodations are made for a proposed rail or monorail transit connection to Dallas and Fort Worth. Spiral ramps at each vertebra lead to parking areas above the concourse; long-term parking lots are at ground level at each end of the complex.

Consultants: Forrest & Cotton, Carter & Burgess, associate engineers; Freese, Nichols & Endress, Rady & Associates, consulting engineers; Mason-Johnston & Associates, soils survey; Drake, Sheahan, Sweeney & Hupp, materials handling engineers; The Hinchman Co., corrosion studies; Buce & Gunn, cartography; John F. Gill, aeronautical.



CONNECTICUT CAPITOL CENTER, Hartford, Conn.

Architects/Planners: Rogers, Taliaferro, Kostritsky, Lamb.

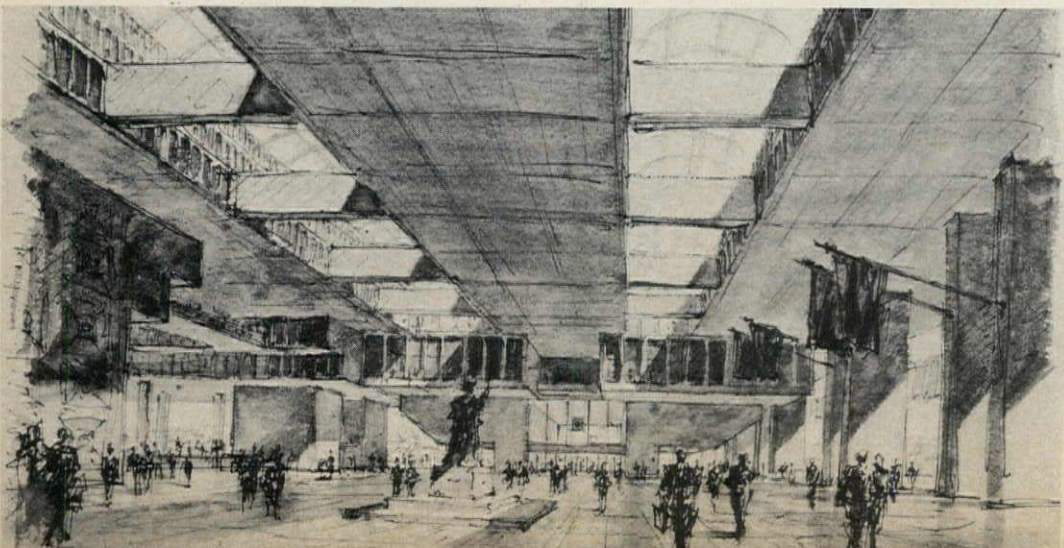
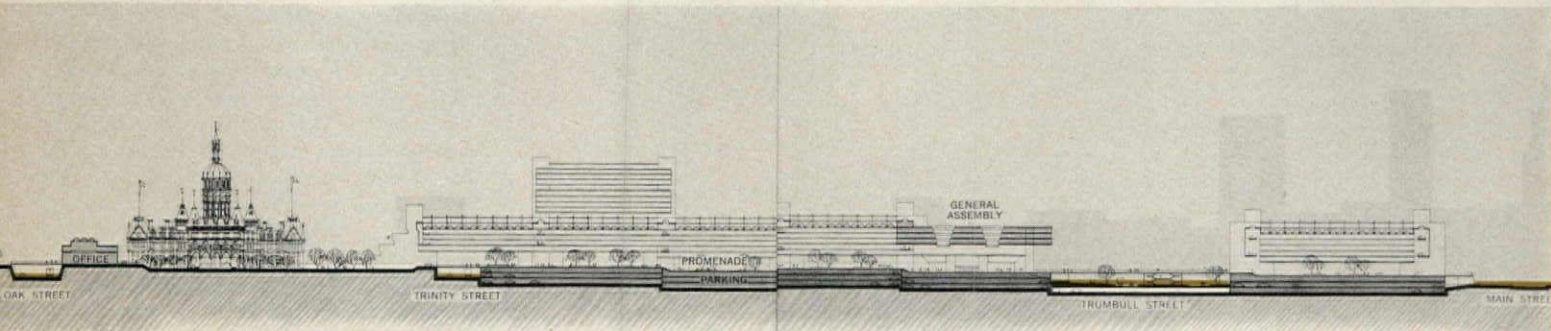
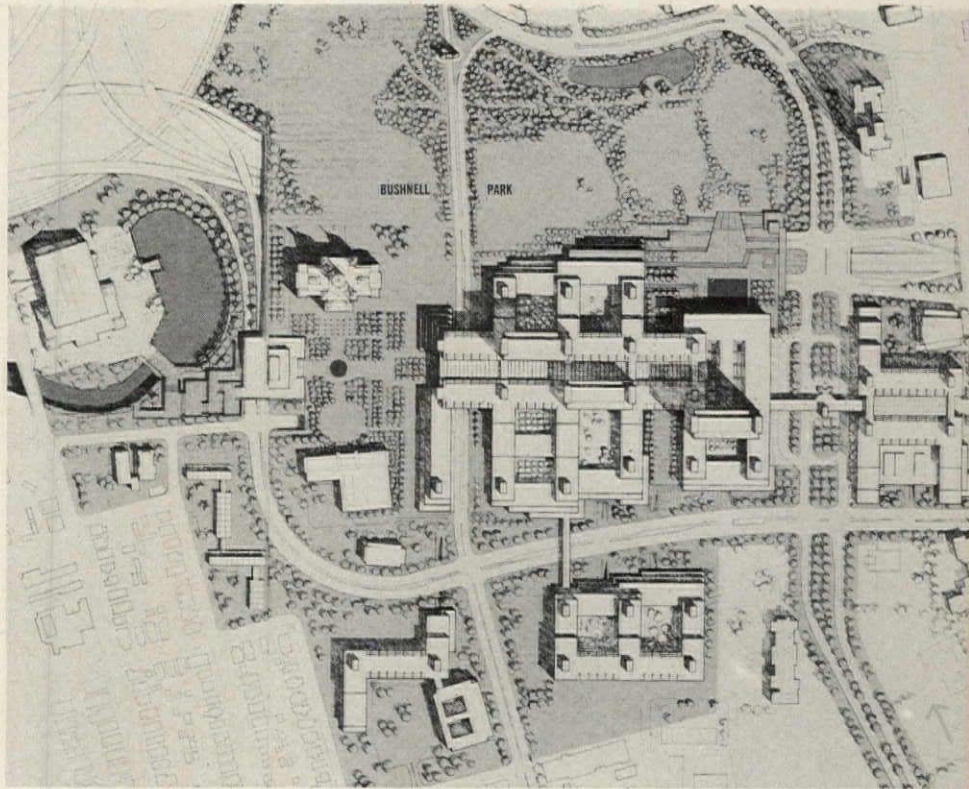
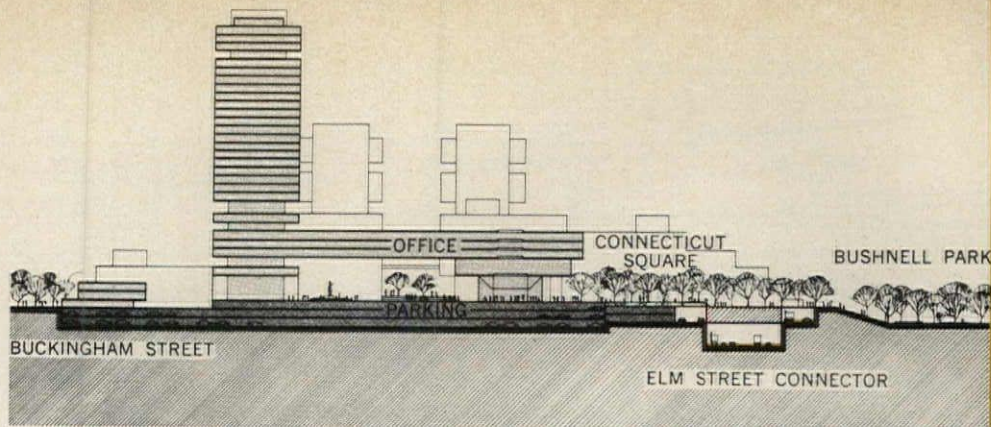
Characterization and Site: To propose a real and symbolic nucleus of state government adjacent to state capitol building that would provide for expansion till the year 2000. A new "Connecticut Capitol Center" complex would consolidate offices of state agencies. Connecticut Square and the General Assembly building, which would partly enclose it, would be adjacent to the office block. Among them, open courts and a great covered mall would link auditoriums, conference rooms, and cafeterias to offices.

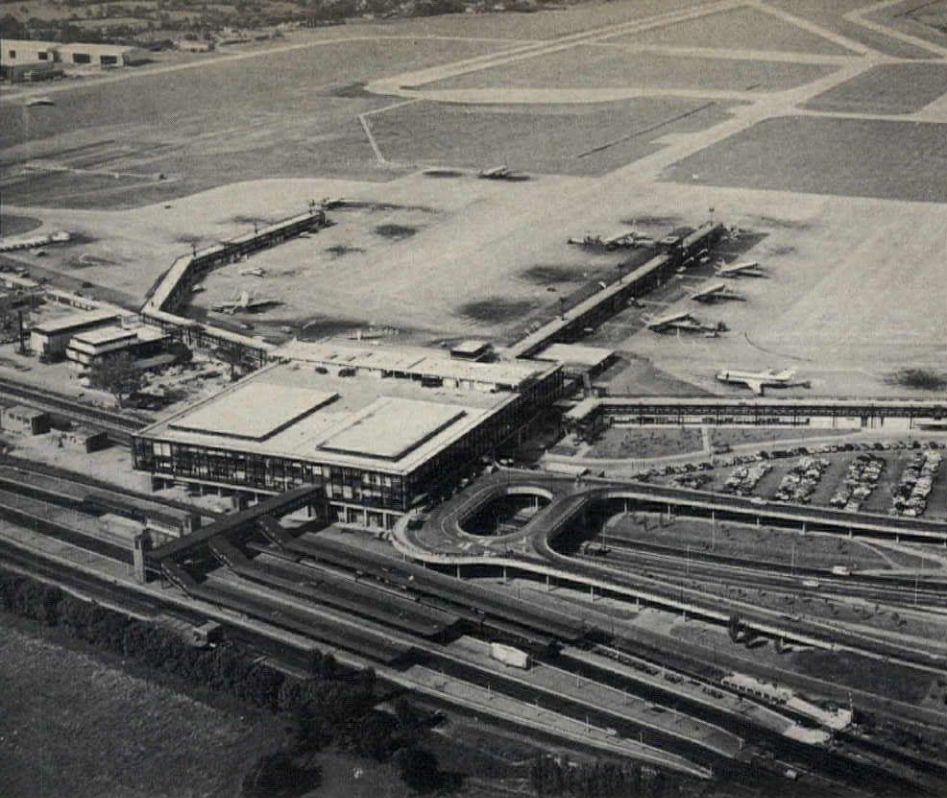
Structural System: To be complete structural entities rather than conglomerations of components, along the lines of Lev Zetlin's thinking (pp. 146-158).

Transportation: Below-grade parking (expanding from 0 in 1965 to 7600 in 2000) would be accessible from the downtown connector to expressway, which would tunnel under the complex. Neighboring streets also submerged. Surface public transportation adjacent.

Consultants: John G. Maniatty, planning; Morton Hoffman & Co., economics; Alan M. Voorhees & Assoc., transportation; Lev Zetlin, structure.

Rendering: Nicholas Solovioff





GATWICK AIRPORT, Gatwick, England.

Architects: Yorke Rosenberg Mardall.

Characterization and Site: Located between London and the South Coast, Gatwick siphons off part of Heathrow (London) Airport's domestic and continental traffic; it also serves as an alternate terminus in bad weather. The first in Europe to use the "finger" system, it was reportedly the first in the world to integrate air, vehicular, and rail transport.

Structural System: For the main concourse, "L"-shaped concrete beams are 6 ft deep, 60-70 ft long, and post-tensioned in position. Infill is a curtain wall of bronze glass between black steel mullions. Fingers are of steel frame with welded tubular trusses.

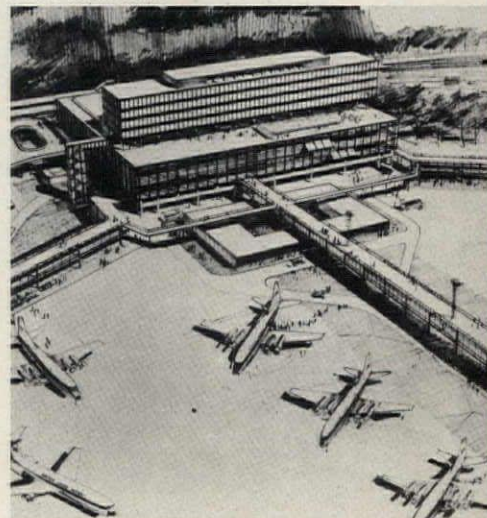
Mechanical System: Heating utilizes a boiler-fired hot-water system; ventilation is primarily through a plenum system.

Transportation: The main concourse bridges the London-Brighton highway, which is parallel to the London-Brighton railroad. Air terminal is connected to the railroad by a footbridge and to the highway by a vehicular ramp with parking contained inside its spheroid.

Consultants: Sir Frederick Snow & Partners, co-ordinating consulting engineers.

Photography: John Donat, Archie Handford.

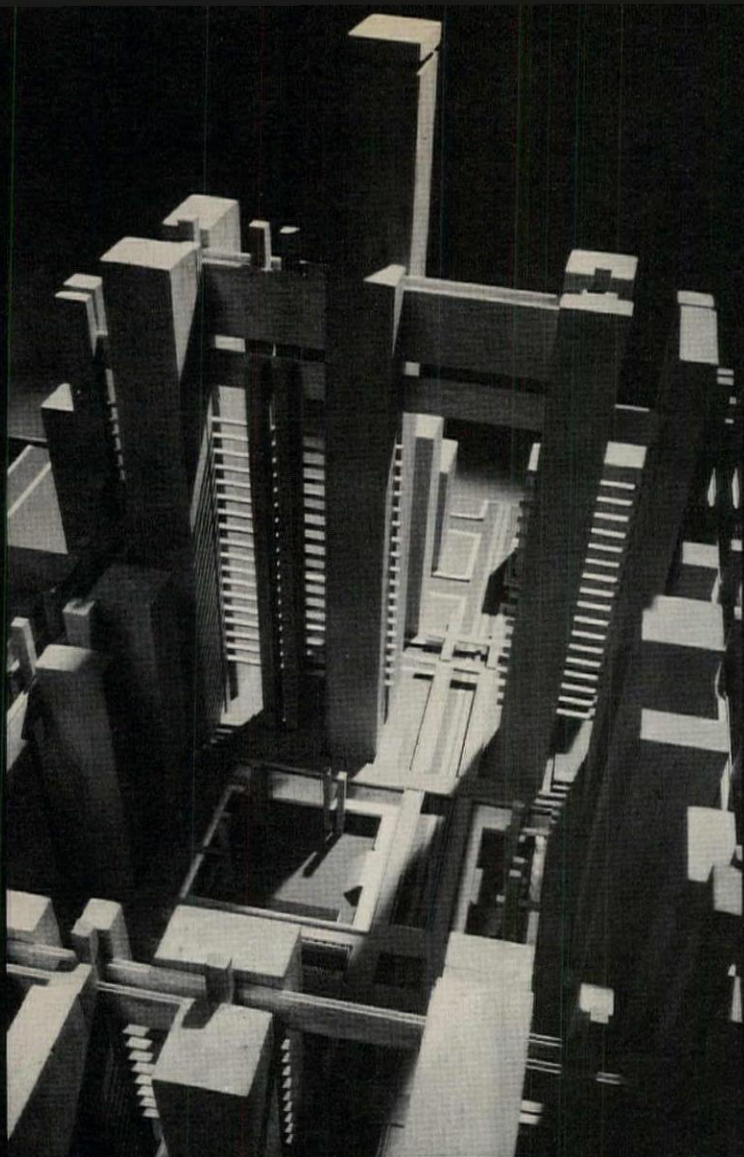
Rendering shows planned-for office building above terminals.



will be built as shown. "In this case, particularly, it is not so important for people to know beforehand what the project will 'look like,'" Robbin asserts, "because we are working with a definite program that people understand. We need those schools, we know how many students we'll have to provide for, and we're programming them in conjunction with an interstate highway that has a tight construction schedule. This forces us to plan carefully and avoid delays."

Financing of Linear City has yet to be finally approved, and, although the Policy Committee expects help from at least three Federal grants, one or two state, and funds from the city's capital budget, the actual arrangements could make all the difference in the physical solution to the design program. To a great extent, financial and design questions hinge on the use of Federal and state highway trust funds. New York City is now angling for approval of the Cross-Brooklyn Expressway as a link in the Interstate Highway System, an act that would qualify for funding on a 90-10 per cent Federal-state basis, using Federal highway trust funds. (If approval is denied, the road can still be built on a 50-50 basis.) The Secretary of the Department of Transportation has authorized the use of these funds for "Impact Planning" — planning to coordinate highway construction with surrounding community development — and that may include allocation of funds (again on a 90-10 basis) for beefing up highway structures to support construction above the road. It could also mean that the Department of Transportation, through its Bureau of Public Roads, could acquire additional land for development around the highway, over and above acquisition of the right-of-way. The Bureau would then lease or sell to the city an easement through the air rights above the road and one through bordering land. These arrangements depend on the state's willingness to participate in a similar manner, but, so far, state highway officials are determined to participate financially in land acquisition and construction for highway structures only. According to a report submitted in 1967 to the National Governors' Conference, states generally pay more than their 10 per cent share for interstate highways, since no Federal funds are spent for administrative or overhead costs. New York and several other states resent the extra 8 or so per cent they must spend to take advantage of the interstate program, and so are reluctant to participate in an extension of the program that would mean even greater expenses.

Problems of land acquisition could be solved by having the city acquire land under urban renewal procedures. But there are more problems, of a legal nature, that have not been thoroughly investigated at this writing. If air rights



URBAN DESIGN MANHATTAN: CENTRAL BUSINESS DISTRICT, New York, N.Y.

Planner: Regional Plan Association (Frank E. Williams, principal urban designer).

Characterization and Site: Plan for the development of Manhattan from 61st Street south to Battery Park adds links between existing office towers and rapid transport to weld the entire business district into a single omnistructure. Planners emphasize the need for cooperation between government and business in planning for future office space. According to the plan, office buildings of varying heights would be clustered around open plazas above subway stations, which would be open at the top to let in light and air. Direct vertical connections would be available from underground stations to all surrounding structures: building elevators would rise from train level. Flying bridges springing from tower to tower might allow vertical circulation systems to be free-standing, housed separately from the structures they serviced, with branches reaching out into the buildings at regular intervals. Among clusters, elevated pedestrianways (in addition to the underground connections) could be developed so that the entire midtown area would become a unit composed of a series of clusters grouped at key transportation nodes.

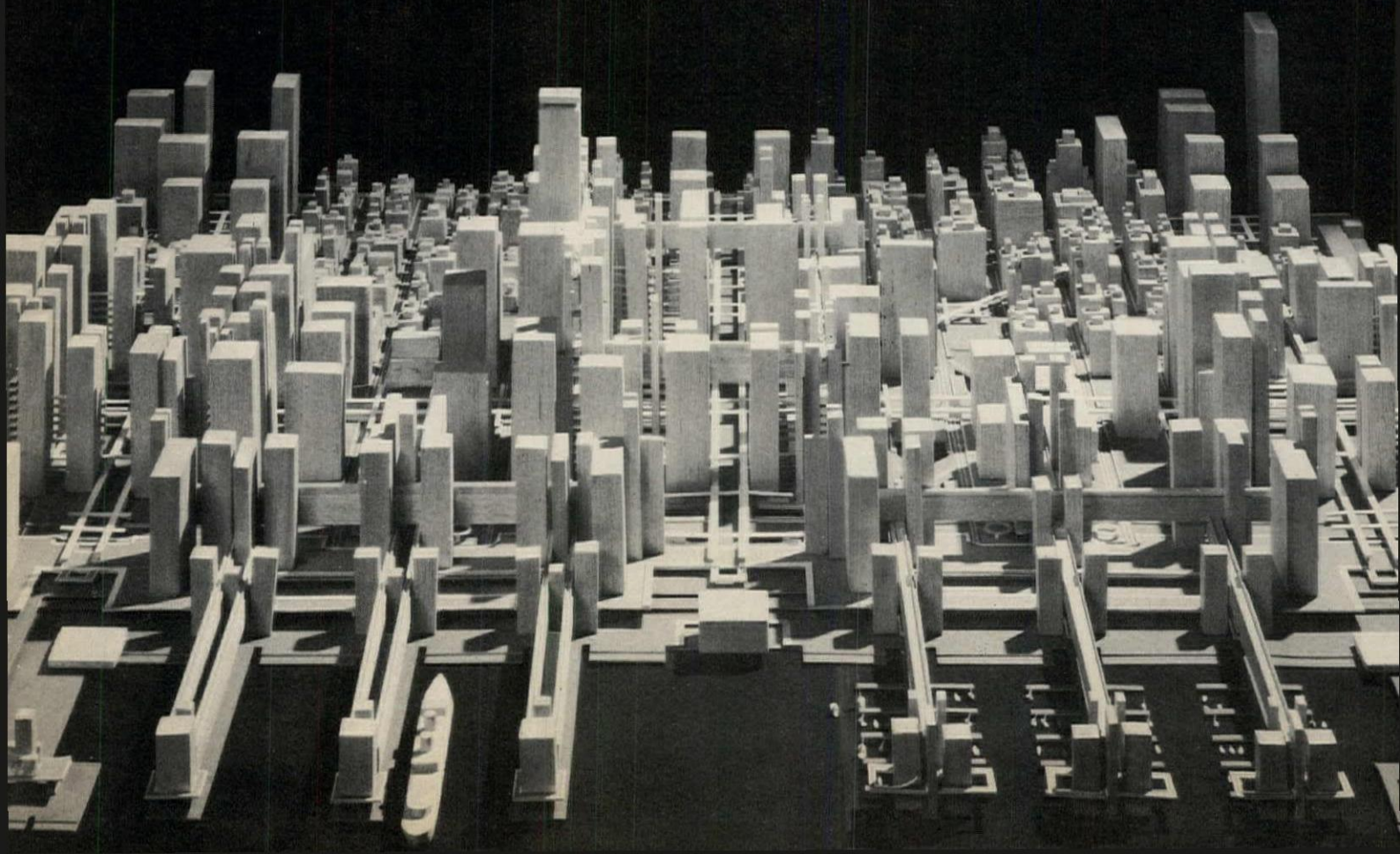
Structural System: Not specified; separate structures by different developers.

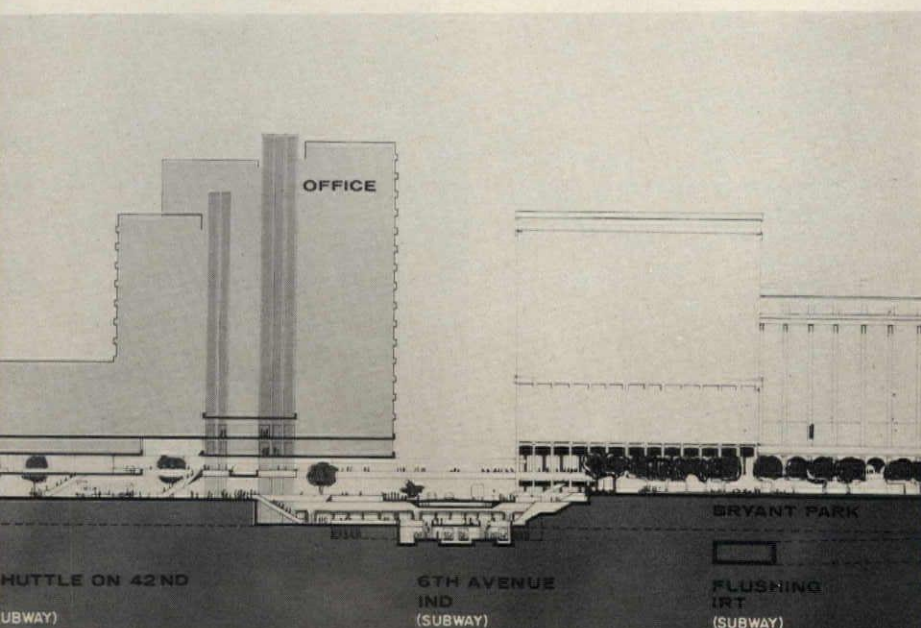
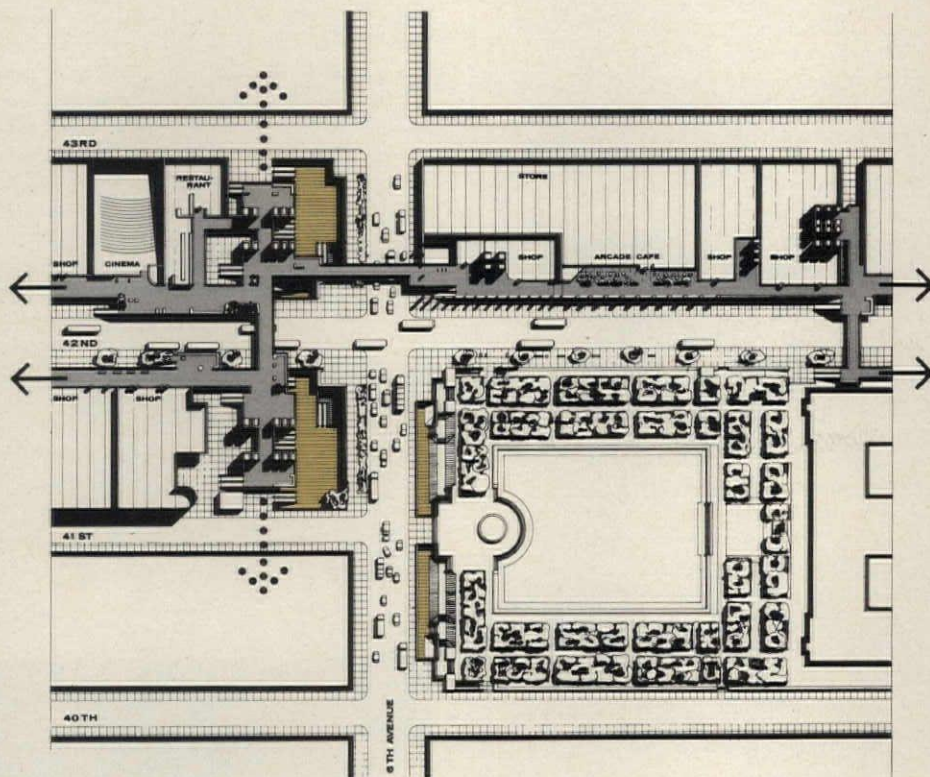
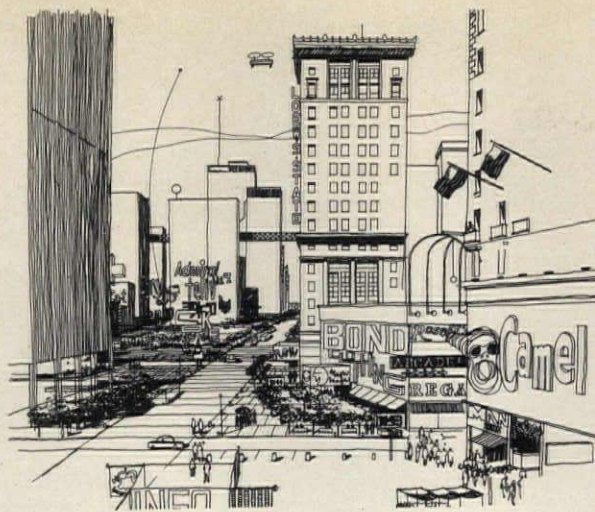
Mechanical System: Not specified; separate structures by different developers.

Transportation: New crosstown subway routes proposed at 23rd, 34th, 42nd, and 57th Streets, as well as a new rail link between Grand Central and Penn stations.

Consultants: Rai Y. Okamoto, urban design.

Photography: Jeremiah O. Bragstad.





over the right-of-way are indeed to be utilized, the Policy Committee must determine whether the rights can or should be leased or sold, or transferred as a permanent easement. Although other arrangements have been devised for this purpose, the most usual procedure for dealing with the multiple use of air rights is a complicated system of easements. Since, in New York, there is no established policy to cover the situation, it seems likely that whatever procedure is eventually determined for Linear City, it will involve a great deal of discussion and a stream of red tape. With these and other legal questions beginning to plague the planners of Linear City, there is a strong possibility that the eventual physical design will lose some of the qualities that make it an omnibuilding. Depending on the recommendations of consultants' field reports, the Policy Committee may try to have that portion of the expressway built first which runs through the Linear City project area. Or, it may merely go ahead and build around the right-of-way, changing the design concept to one of clusters, rather than the presently accepted notion of an integrated linear structural complex.

Planners of other omnibuildings in New York are looking to negotiations over the Brooklyn development for information and prototypical procedures. And already they are encountering difficulties similar to those that have been met or are being dealt with both in Brooklyn and in Philadelphia. The Regional Plan Association looks to Philadelphia's Market Street East project for guidelines on implementation. Planners of the Lower Manhattan Expressway have been too busy determining an acceptable route to give much thought to the possibility of a related omnibuilding, but will now proceed with feasibility studies such as those being made in Brooklyn. Proponents of an omnibuilding that would surround the Penn Central tracks on Park Avenue in Harlem have, at a very early stage, uncovered questions of title to air rights and right-of-way along the railroad line. And the recently established Lower Manhattan Planning Group, in a hurried and harried effort to implement a three-dimensional plan for the development of the area below Chambers Street, is engaged in a continuing you-give-us-an-underground-connection, we'll-give-you-a-zoning-change battle of give-and-take. Surely, a less involved, more efficient method than this must be found for coordinating public and private efforts. Government officials are optimistic about changing attitudes and about the concept team method of synthesizing forces. But, as Ed Robbin concludes, "There are an awful lot of legal means that haven't even been investigated, and they will have to be," if three-dimensionality is to dominate the future of urban planning.

techniques and technology

The physical possibilities of realizing omnibuildings are vast at present, according to farsighted spokesmen of engineering theory and practice, and the future will bring developments permitting truly advanced structures.

Omnibuildings are awesome things. They even scare their builders. "The scale of such leviathans exceeds the comprehension of all experience-based intuition," points out Dr. William Zuk of the University of Virginia. The sheer size of the structures limits formal alternatives. As a result, the structural engineer cannot retreat behind the "Good Soldier Schweik" defense of merely following orders as a simple problem-solver.

Omnibuildings could prove so costly that they could accomplish what the race to the moon and a series of indecisive Asian wars have not: They could bankrupt our society. "Every great architectural undertaking has been the ruin of its creators," comments Professor Seymour Howard of Pratt Institute and cites as examples the pyramids, the great cathedrals, and the chateaux of the Loire valley.

The scale of omnibuildings obliterates the professional distinction between architect and engineer. Indeed, such terms themselves may well belong to the archaic age of mini-buildings, when mistakes could be minimized by the wrecker's ball.

The Big Revolution

Omnibuildings will demand a transition in building technology by both structural and mechanical systems. They cannot be designed as we do conventional buildings: merely endless multiplications of existing building systems. "All structural scale factors must be suspended pending the computerized outcome of investigation by the more exact science of mechanics," says Zuk.

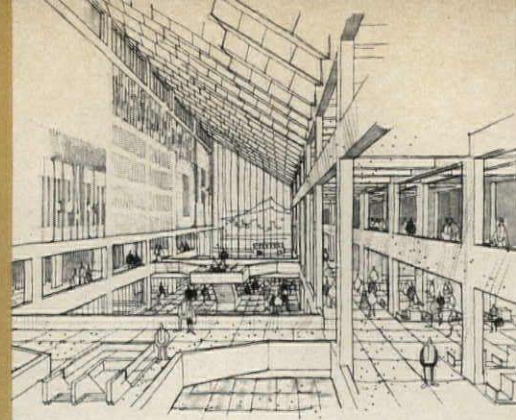
There is less agreement on the desirability of omnibuildings than there is in their inevitability. Dr. Lev Zetlin, University Professor of Architecture and Engineering at the University of Virginia, believes that the transition from today's buildings to the vast, volumed structures of tomorrow will follow a gradual transition. However, he measures this transition in terms of a few years rather than

decades. Zetlin sees omnibuildings as the conception of a new genre of engineered structure that will spawn during its gestation a new profession of architect and engineer.

The transition has already begun with our present search for more efficiently constructed, multiuse, flexible buildings at lower cost. At today's stage of development within the building industry, conventional materials, construction techniques, and organizational relationships between architect, engineer, and contractor continue to be employed. Emphasis is placed on the refinement of structure. Structural concepts are emphasized because of the four factors of building technology: construction techniques, building materials, organizational relationships, and structure; structure is the most advanced. Zetlin points out that the geometry of a structural frame and its components has a great deal of bearing on the distribution of stress and internal destructive forces within the structure. Thus, the efficiency and economy of a structure are significantly affected by its geometry. Present-day structures do not fully realize these advantageous configurations in the resistance to external loads. In omnibuildings, however, this factor of geometry will play a most significant role in achieving economy.

At present, the search centers around the efficiency and economy to be found in the continuous structure, wherein all of the separate elements we now use to construct a building — walls, floors, and roof — will be integrated into one structural element. Zetlin predicts that innovations bearing directly on the development of omnibuildings will occur within this area during the next five years.

The following step will be the orientation of the construction industry away from field assembly and toward factory fabrication. Accompanying this advance will be a radical rearrangement of the building trades from site to factory. As this change occurs, industry will usurp



PROPOSED TRANSPORTATION CENTER for Portland, Ore.

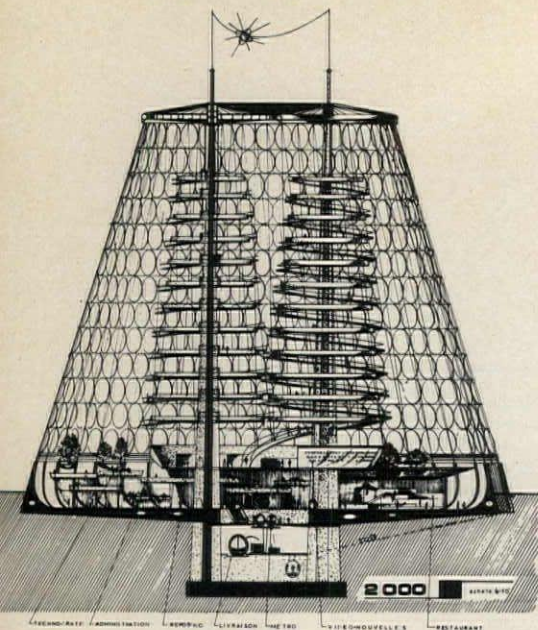
Designer: Gregory S. Baldwin. (B. Arch. thesis, Harvard, 1966.)

Characterization, Site, and Transportation: To create in a single center-city waterfront location, adjacent to government center and proposed cultural center, a single, consolidated center for all rail, bus, airport bus, and helicopter transportation that would also provide office space for transit authority, travel agencies and related operations as well as parking, and baggage-handling facilities. It would also serve as terminus for local rapid-transit and other public transportation systems. A conference hotel, auditorium, and restaurant are proposed as adjacent elements.

"To have a horizontal separation of unlike transportation facilities with a vertical stacking of like or complementary activities," was an aim of the designer. Arrivals and departures are separated by an arcaded pedestrian shopping street.

Mechanical and Structural Systems: Not specified.



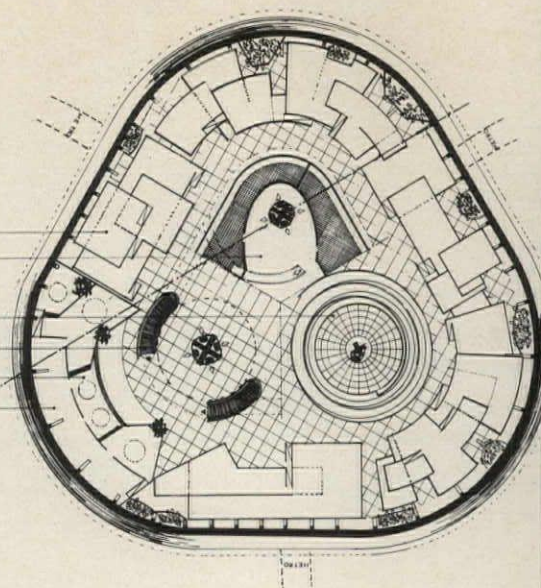


OFFICE BUILDING, 2000 A.D.

Architect: André Gilbert.

Characterization: A visionary "administration complex" for 5000 employees would be supported on three concrete pylons from which are cantilevered spiral work platforms. Tension cable wheels support the transparent plastic enclosure, with post-tensioned cables attached to retaining walls acting as stabilizers. The plastic skin would be composed of a series of cylindrical plastic chambers filled with gas that is heated and cooled electrically to stabilize the temperature inside. At night, "electrical waves will heat up this inner gas and turn this skin into a glowing diamond of diffused light. A satellite of communication floats between the poles at the summit and feeds information into the building."

Transportation: A service road and truck dock are beneath the building; the subway stops there. Elevators, in the corners of the cruciform pylons, stop at every third floor, leaving workers to walk the spiral ramp the rest of the way.



ANACOSTIA URBAN CORE, Anacostia, D.C.

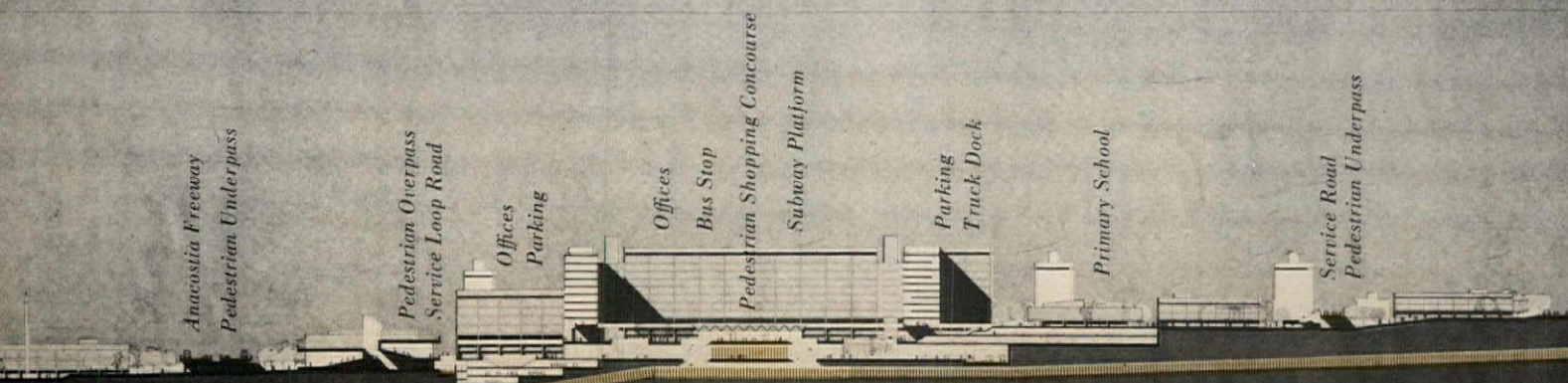
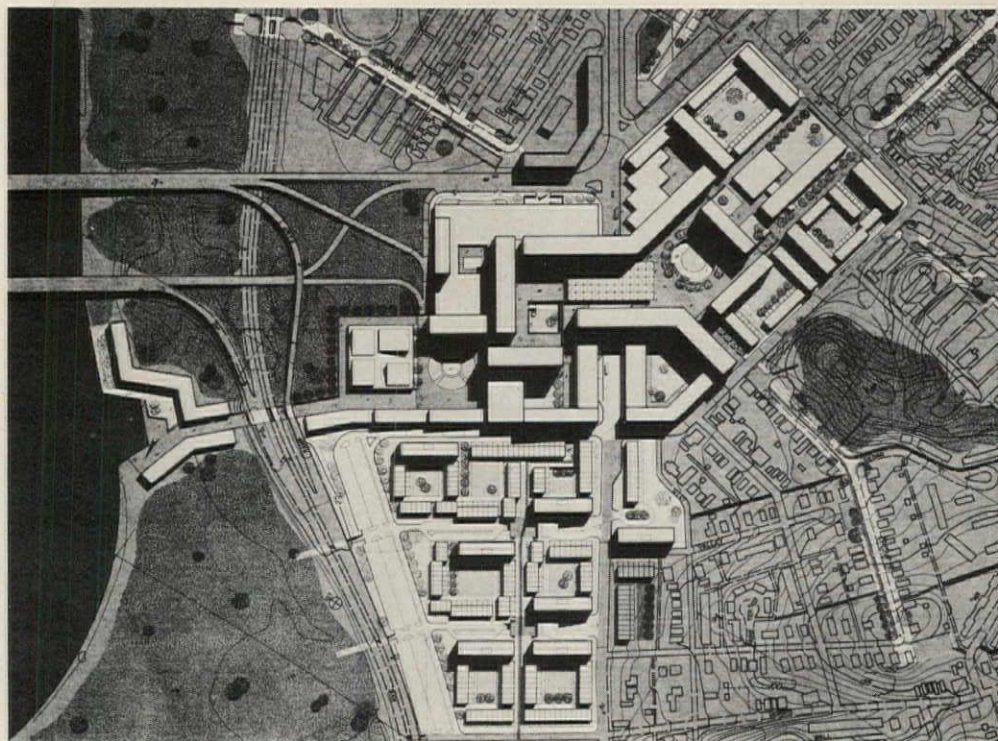
Architects/Planners: Victor Gruen Assoc.

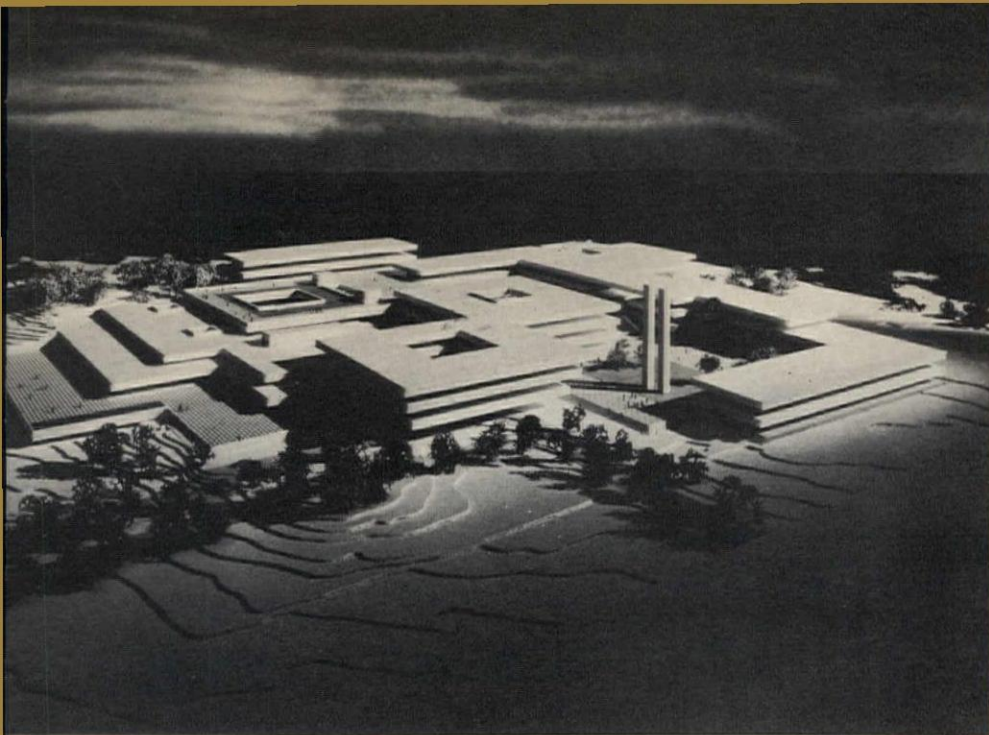
Characterization and Site: Study for National Capital Planning Commission consisting of a complex of quadrangles of residential blocks and spines of educational facilities, stores, and offices set over underground parking (5000 spaces) on a sloping site of about 125 acres.

Structural System: Not specified.

Mechanical System: Not specified.

Transportation: New subway station and bus stops located beneath central court. Pedestrian-vehicular separation maintained by restricting cars to below-grade areas.



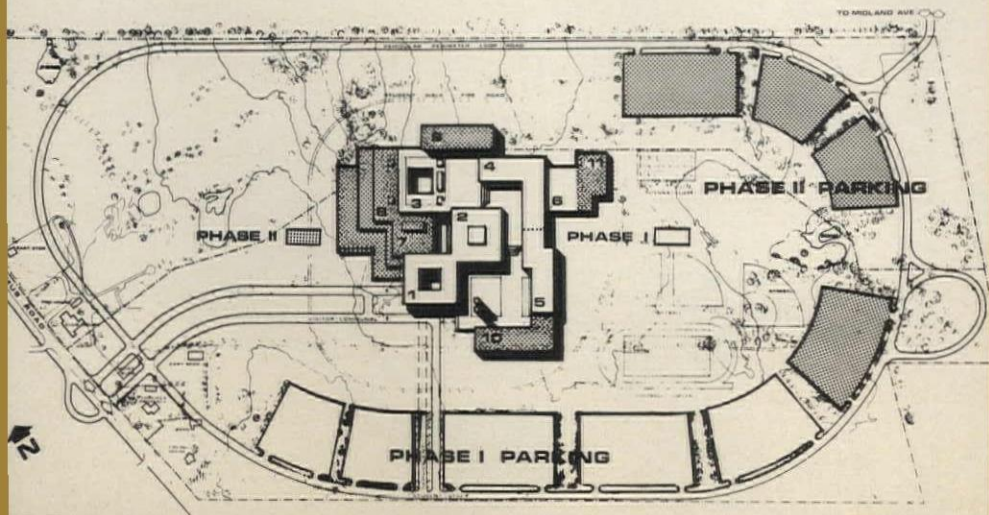
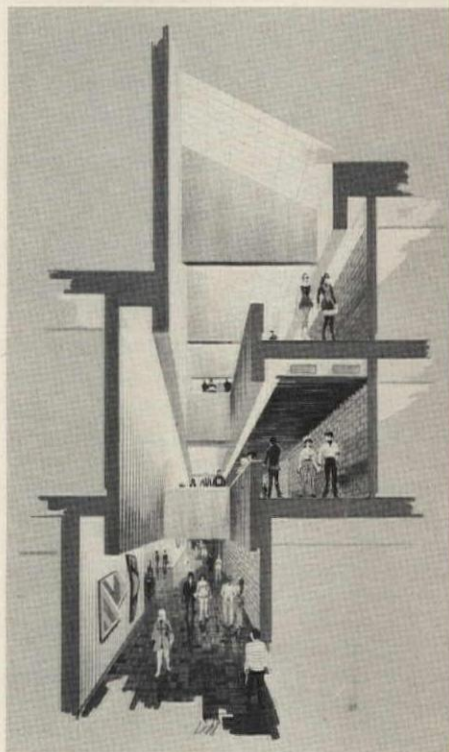


BERGEN COMMUNITY COLLEGE, Paramus, N.J.

Architects/Engineers: Frank Grad & Sons.

Characterization and Site: Sited on the highest knoll at the center of a 167-acre campus, the single-building design (approximately the size of six square city blocks) accommodates a library, administration offices, a student union, theater and facilities for the sciences, business, humanities and physical education. Terraces and courtyards within the three-story structure provide a meeting place for students and serve to connect the various building levels.

Transportation: U-shaped parking lot at perimeter of campus provides space for 3600 cars.



LEGEND

PHASE I	PHASE II
1 ADMINISTRATION	7 FINE ARTS
2 LIBRARY	8 STUDENT UNION
3 STUDENT UNION	9 SCIENCE
4 SCIENCE	10 HUMANITIES
5 HUMANITIES	11 PHYS. ED.
6 PHYS. ED.	

some of the authority of the general contractor, Zetlin predicts. The introduction of premanufactured architectural elements may also curtail some of the options in architectural design. These developments are already taking place on a small scale, says Zetlin, in the use of prefabricated mobile home units (JUNE 1968 P/A). The current difficulty and failure of these experiments is due to their domination by conventional techniques and lack of labor innovation. However, in Zetlin's opinion, the problem itself is a healthy one for both design and engineering and its successful resolution will affect the future of omnibuildings. (The Battelle Report, prepared for the Building and Construction Trades Department of the AFL-CIO [JUNE 1968 P/A], was not quite as optimistic as Zetlin in predicting the rate of industrialization in the building industry. It foresaw little or no effective change during the next seven years, although it tended to support Zetlin's view that industrialization appeared inevitable.)

Transportation

Transportation structures such as bridges and highways approach the scale of omnibuildings in size. Manhattan Island itself is termed by some an omnistructure because of the connecting subterranean and on-grade transportation links. Whether transportation is a generative or destructive element in the creation of omnibuildings is a point much debated.

Transportation does not generate centers, points out Professor Howard. "It takes people away and moves them from place to place, rather than creating social entities." However, the use of transportation structures themselves can be a means of generating the growth of buildings. Zetlin believes that vertical transportation elements could have their own supporting structural skins serving as main structural supporting elements of the entire omnibuilding. These transportation elements could be located inside or outside the building.

Those who would weld an existing city into an omnibuilding say that the old setback laws could be made to work to the architect's advantage. They believe that connecting pedestrian traffic above the street at setback levels would remove the pedestrian from the street sewers created by the automobile. These walks would eventually produce their own shopping centers and other services high above the street.

The New Omnibuilding

Buildings that are to be expanded both vertically and horizontally will require more versatile connections than bolts and

rivets covered over with waterproofing. They must have some form of dynamic connection device or "miracle adhesive" that will allow for additions and subtractions as use demands.

Structural systems that will allow more flexibility will have to be employed. The drawback of today's tall buildings is that their loads are brought to points by columns limiting the bearing of the building's structure against future expansion. Skin structures with reserve strength in their bearing walls will allow expansion where it is presently curtailed. As a result, the structure of an omnibuilding would have little physical resemblance—and no structural resemblance—to today's framing systems.

Buildings that are almost totally pre-manufactured, with all services integrated into the structure, will necessitate changes in materials, forms, and in the architectural and engineering professions themselves.

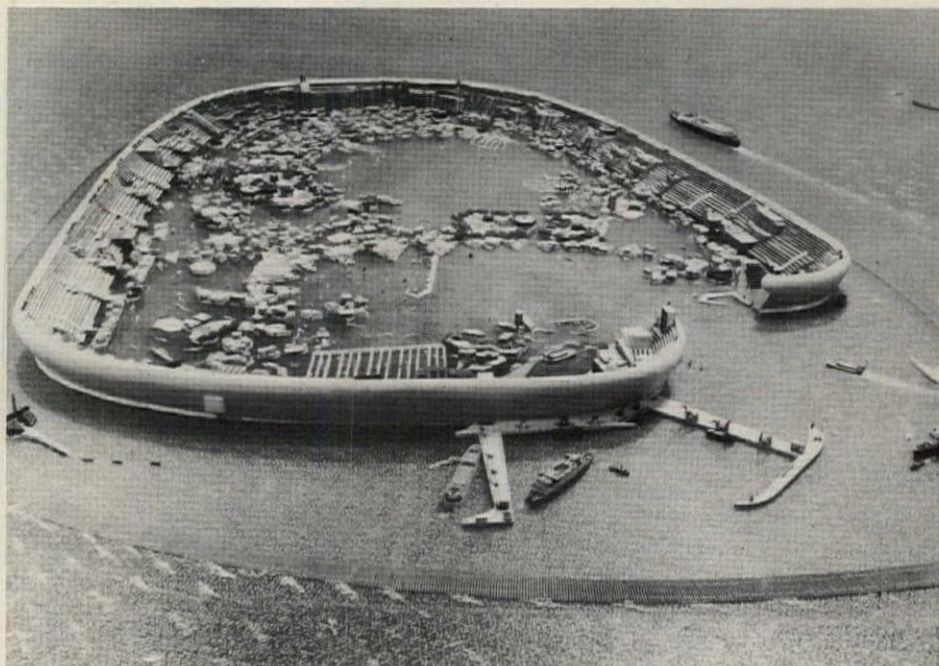
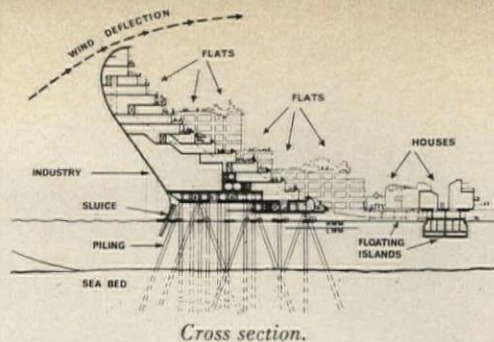
The materials may achieve a strength one thousand times greater than those in use today, predicts Zetlin. Present structures do not afford advantages to high-strength materials. However, their use with new structural concepts relying on skin stresses rather than bending will reap the advantages of their high strength.

The primary change in engineering principle in the use of new materials will be the substitution of specific gravity for the reciprocal of the moment of inertia in today's parameter of EI (modulus of elasticity times moment of inertia).

High-strength materials are extremely expensive and will require the use of optimum structures. This condition will eliminate arbitrariness from the selection of structural systems, says Zetlin. The structural system will have to grow out of a scientific process, using forms designed to gain the optimum structural advantage from these new materials. As technology advances, new materials with new parameters will create radically different impacts upon structural form, prefabrication techniques, and erection procedures. Incidentally, these materials are not figments of anyone's imagination; they exist today. Many of them were developed by aerospace research.

Dynamic Devices: The Kinetic Building

Stiffening immense structures against mammoth loads by conventional means would result in very inefficient use of materials, comments Zuk. A better way would be to introduce servomechanical devices to control the movements, as he suggested in his article on "Kinetic Struc-



THE INTER-SETTLEMENT, visionary project.

Designer: Walter Jonas.

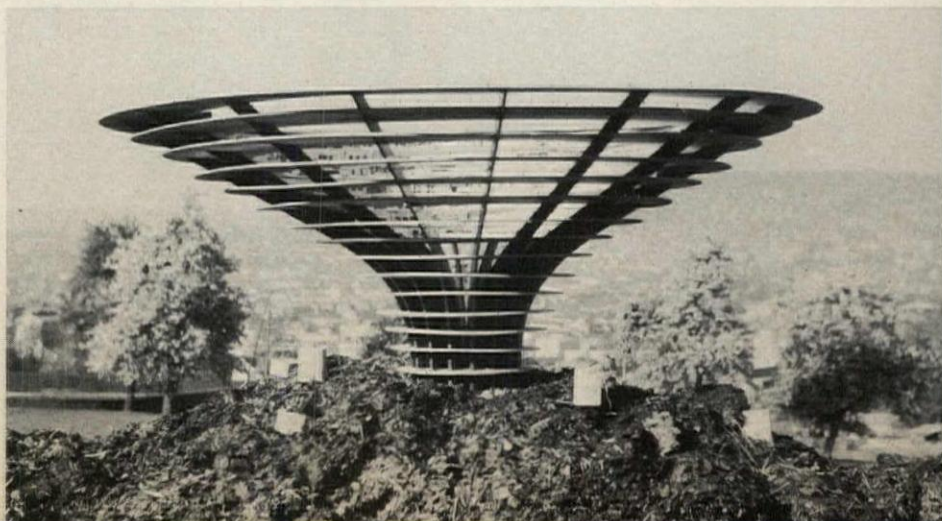
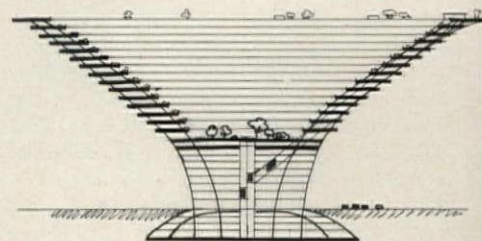
Characterization and Site: Proposal for funnel-shaped, variable-height buildings linked at rims by wide bridges. Terraced garden apartments (2000 dwellings) are oriented inward around a circular garden located at one-third of building's height. Below this garden are stores and schools.

Structural System: Not specified; infill units to be composed of prefabricated components.

Mechanical System: Not specified.

Transportation: Links at tops of funnels for pedestrians; vehicular traffic at ground level in the space between funnels, which is 350–450 yds.

Photography: Roy Oppenheimer, F. Hauswirth.



SEA CITY, England.

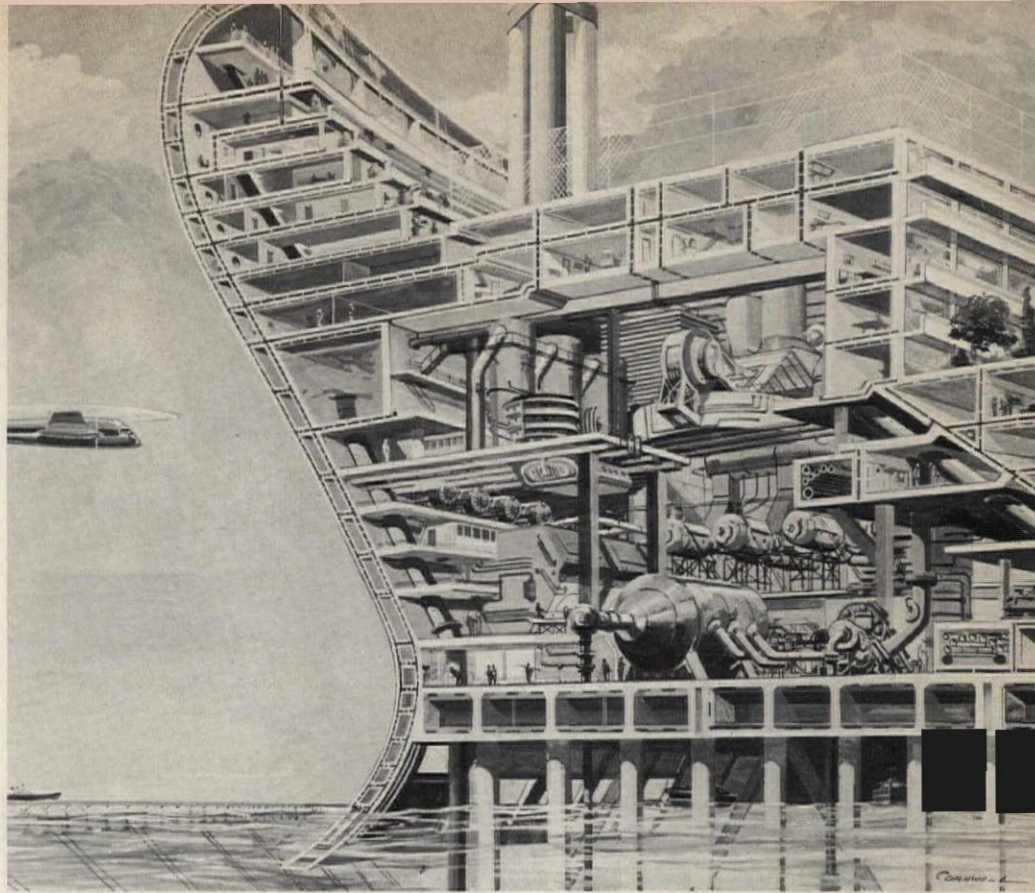
Architect: Hal Moggridge, John Martin and Ken Anthony, engineers; with Pilkington Glass Age Development Committee members Ove N. Arup, Geoffrey A. Jellicoe, and Edward D. Mills.

Characterization and Site: Visionary scheme for an off-shore island-city for 30,000 inhabitants, on shoals 15 miles off the east coast of Norfolk, England, covered by 35 ft of water at high tide.

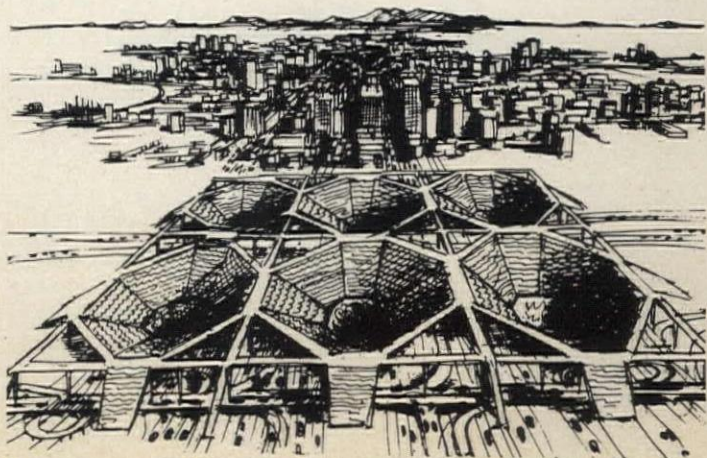
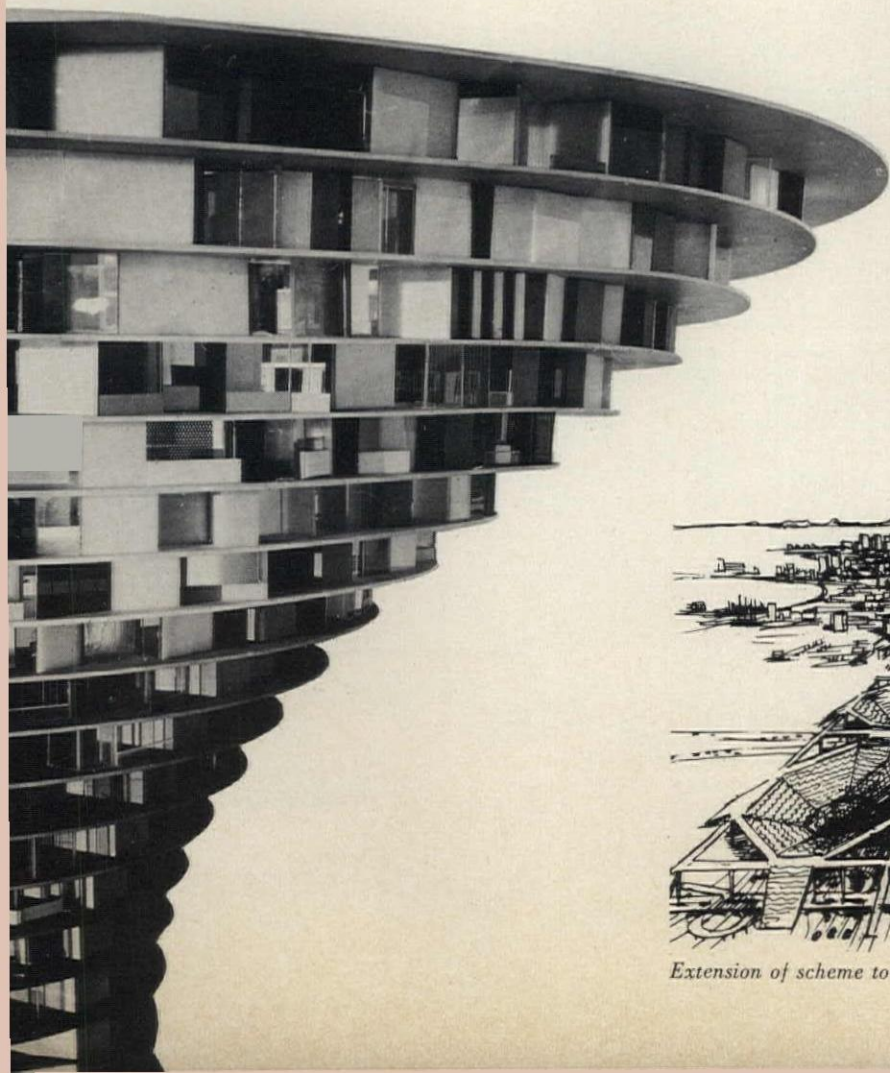
Structural System: A 16-story concrete amphitheater on piles and floating reinforced concrete pontoons; a breakwater of water-filled plastic bags would circle the city as buffer against waves; the curved outer wall would deflect the wind.

Mechanical System: Power complex at north end of terraced wall would use natural gas from nearby Hewitt Field. After processing, gas would be passed to high-speed turbines coupled to generators to produce electricity. Waste heat from turbine exhaust gases would be used for desalination plant, heating, refrigeration, fish farming, and to warm the lagoon.

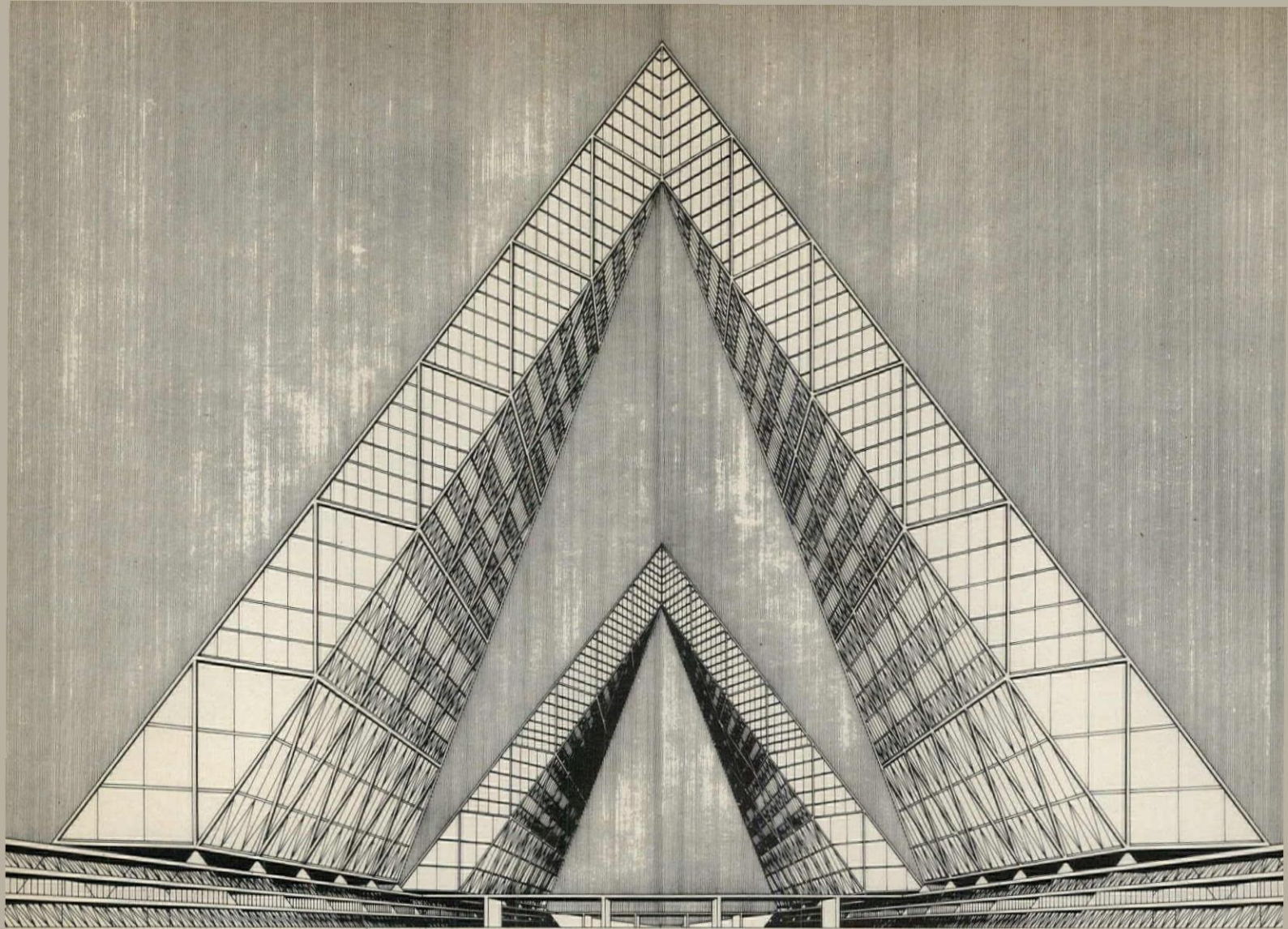
Transportation: By electrically-propelled water bus within the city; to the mainland, by helibus or hovercraft (cars to be kept on mainland).



Section showing power center with sports fields and flats above.



Extension of scheme to cluster of hexagonal studies.



INSTANT CITY, visionary project.

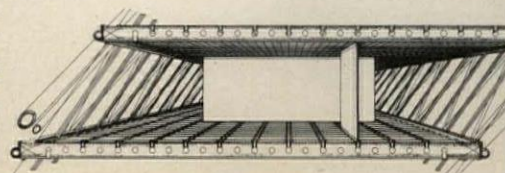
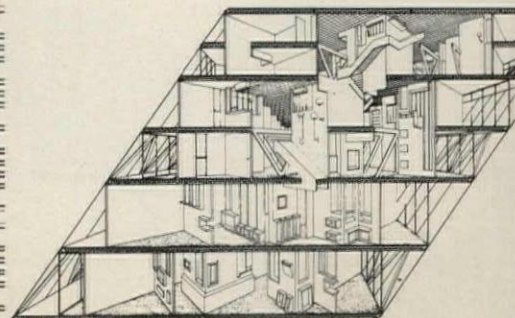
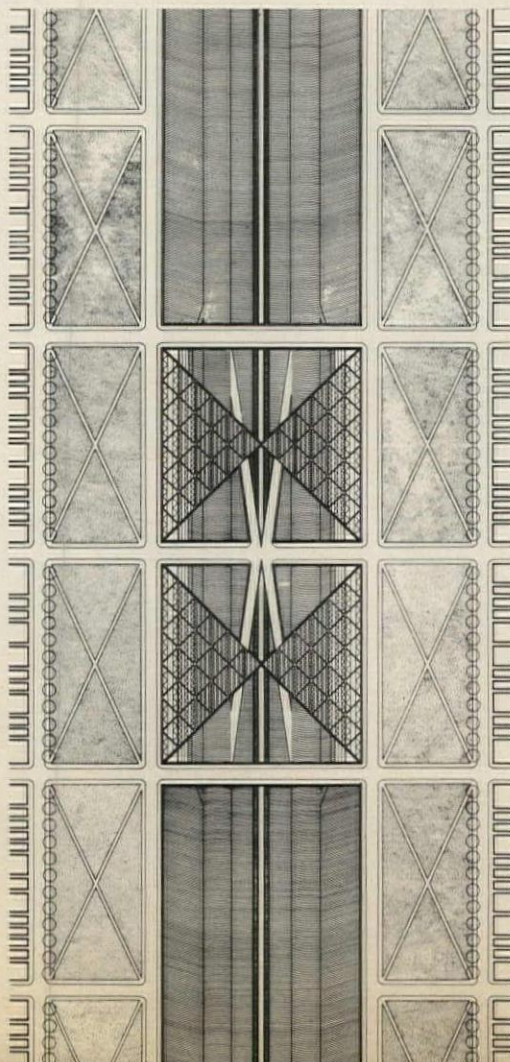
Architect: Stanley Tigerman.

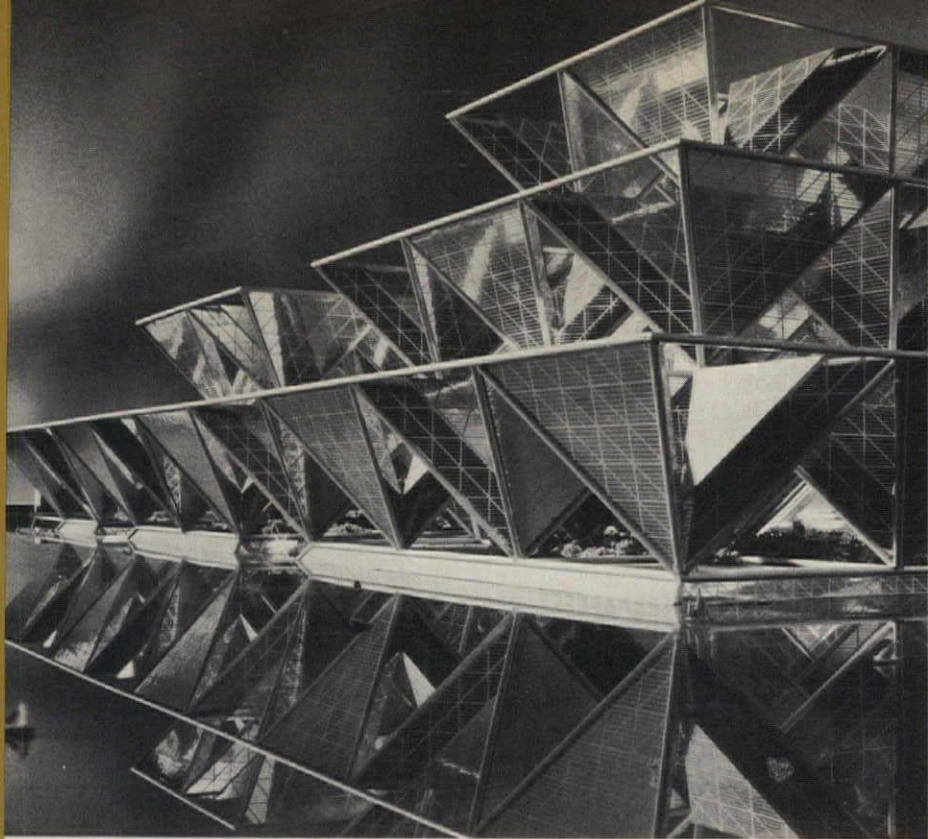
Characterization and Site: Tetrahedrons (100' x 100') used in multiples create semi-pyramidal omnibuildings towering over highways. Perched slightly above grade where entry cores are located, the envisioned base is 600 ft long — the length of an average city block. First three floors are allocated to commercial, institutional, and light industrial use. Above this are five stories for offices. Apartments (21 stories) are topped by seven stories containing recreational facilities, a restaurant, and mechanical services.

Structural System: Cored, precast concrete vemiculite slabs (18 in. thick, 13 ft widths) supported by trussed microstructure of 8-in. diameter steel tubes. Megastructure is of 2 ft diameter steel tubes fireproofed and steel clad. All resting on pin connections on reinforced concrete buttresses, which are supported by caissons with tension cables below grade.

Mechanical System: Not specified; systems to be accommodated in floor sections.

Transportation: Funicular elevator system. Below-grade parking on four levels; loops to expressway.





CITY SHAPE/21, visionary project.

Architect: Stanley Tigerman.

Characterization and Site: Using air rights over adjacent waterways, anchored pontoons measuring from 360,000 to 3 million sq ft are envisioned as supporting glass and aluminum pentahedrons, which measure 600 ft on a side, are 100 ft thick, and contain 46 floors of varying height. The pentahedron is repeated 326 times in a pinwheel three-tier arrangement requiring an area of $1\frac{1}{2}$ square miles. Inside, pentahedrons will be partitioned into residential units (23 million sq ft), commercial-industrial use (82 million sq ft), and community facilities (106 million sq ft).

Structural System: Aluminum trusses with glass infill.

Mechanical System: Not specified.

Transportation: Below-grade vehicular garage on shore. Public transportation from shore is through hollow trusses.

Photography: Orlando Cabanban.



tures" (JULY 1967 P/A).

The decreasing life span of today's building and the demand for increasing flexibility make the concept of kinetic structures feasible. This is only an extension of the concept of structural dynamics already existing in today's buildings, such as retractable roofs, revolving restaurants, power-operated theater equipment, permanent foundation jacks, movable stairs, thermostats, and many other devices that have invaded the historically static province of structure.

Omnibuildings designed on kinetic principles may evolve a rich variety of forms. Zuk points to the design of supersonic planes, hydrofoil ships, and rockets as forms evolved from the successful interaction of dynamic forces and structural response. Zuk proposes that, by giving due regard to architectural dynamics, structure might undergo beneficial transformation. Assuming that structure can be made kinetic, architecture could then be more ideally shaped to the fluidity of environment, rather than stubbornly imposing its fixed shapes on an ever-moving scene. As Zuk points out, the dynamics of environment are used to shape nature's living creatures, such as birds and fish, yet their configurations are anything but similar.

Omni-Energy Building

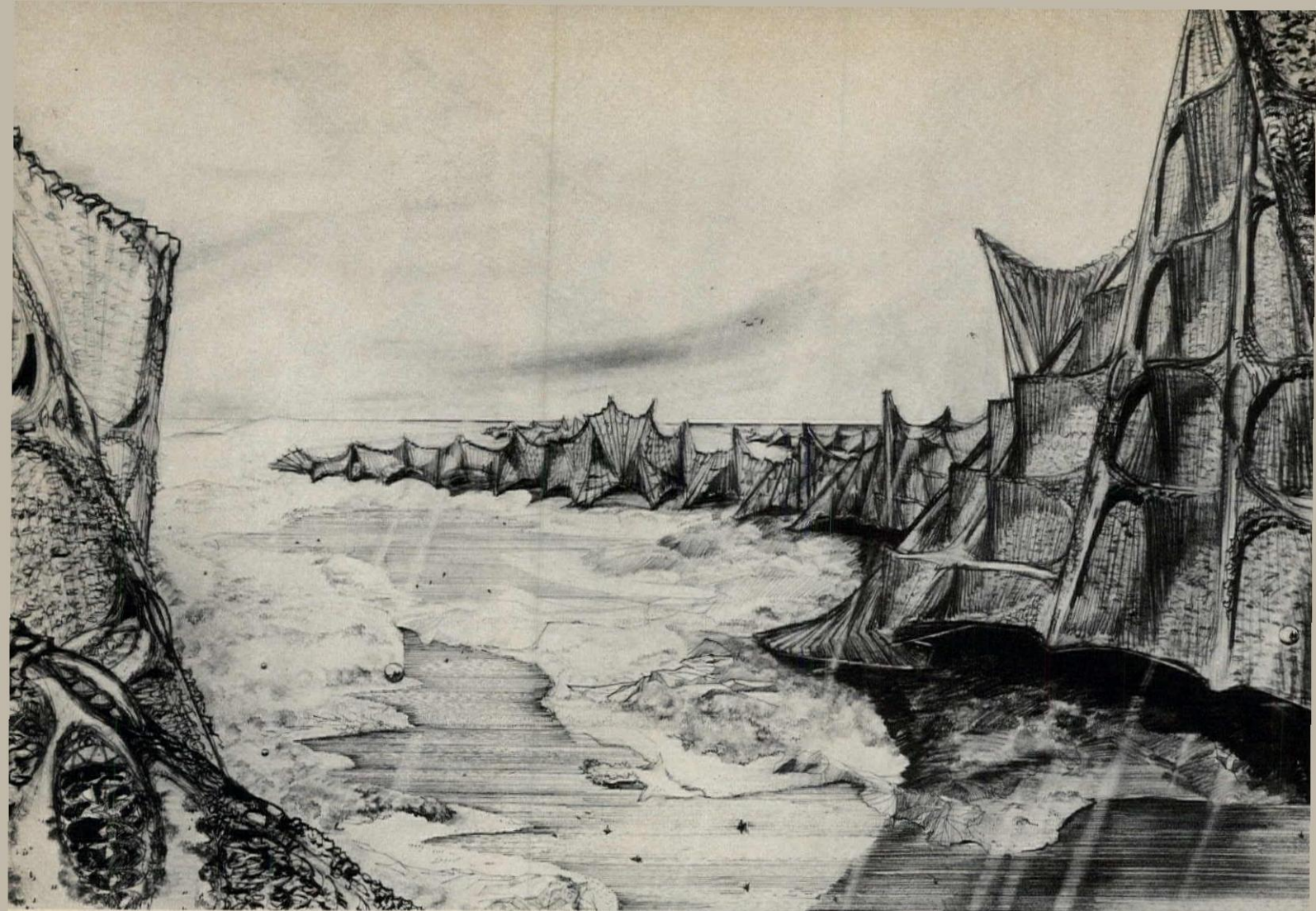
In the department of dreams that are by now very close to reality will be found many structural concepts that have little relationship to present structural limitations. For example, air pressure in a rigid plastic pipe would tension the pipe, thus theoretically supporting loads on stressed air.

All energy is similarly constituted, although it exists in a variety of forms. We have only succeeded in using one form of energy for construction: strain energy. There is no reason why other forms cannot be employed. For example, heat energy is already used for prestressing steel, and wind pressure for tensing pneumatic structures. Zuk's Kinetic Structures would depend upon forms of machine energy to stiffen them against dynamic loads, and Zetlin has designed a tower for Milwaukee that will operate on this principle.

The introduction of other forms of energy into structure will radically alter building form, and shatter previous preconceptions of architectural aesthetics.

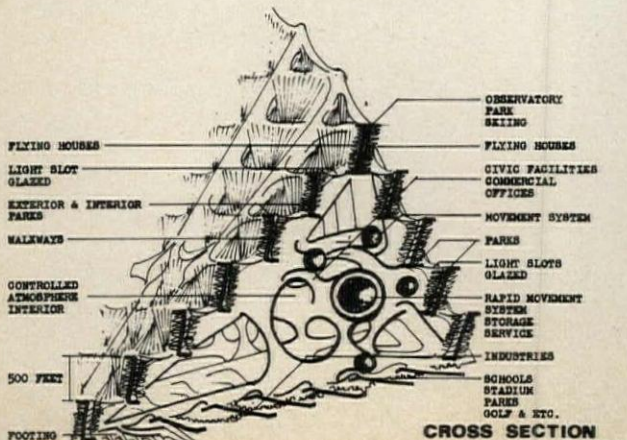
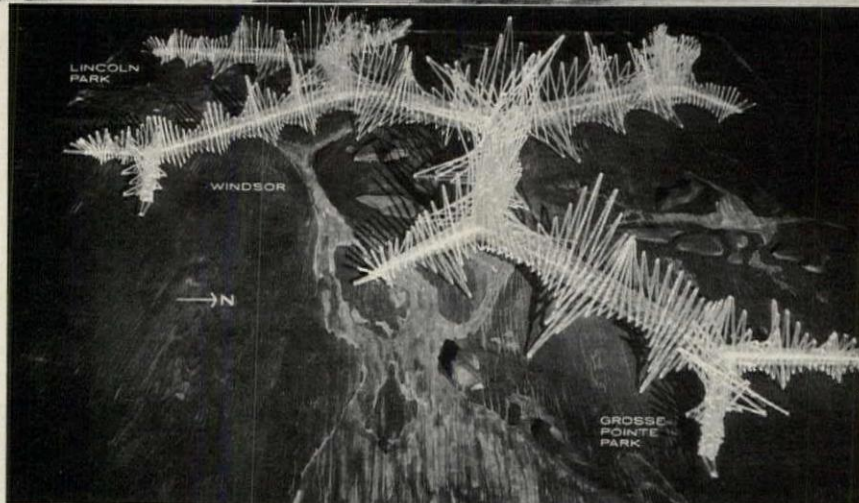
The Changing Professions of Architect and Engineer

Revolutionary alteration of building technology will naturally force changes in architectural-engineering relationships. It will bring changes in the chain of



CITY TO REPLACE DETROIT

Architect Glen H. Small's concept for a "Vertical City," which would replace Detroit, is of "a man-made mountain range, inherently functioning as an integrated organism." Housing, parks, factories, communications, and structure all interweave and complement each other. The structure is to be primarily a frame for plug-in units. "Some units would be able to fly," Small envisions, "and others would be movable by cranes or air transports. This frame, in essence, is land in the sky." Anti-gravity research is expected to aid the structure.

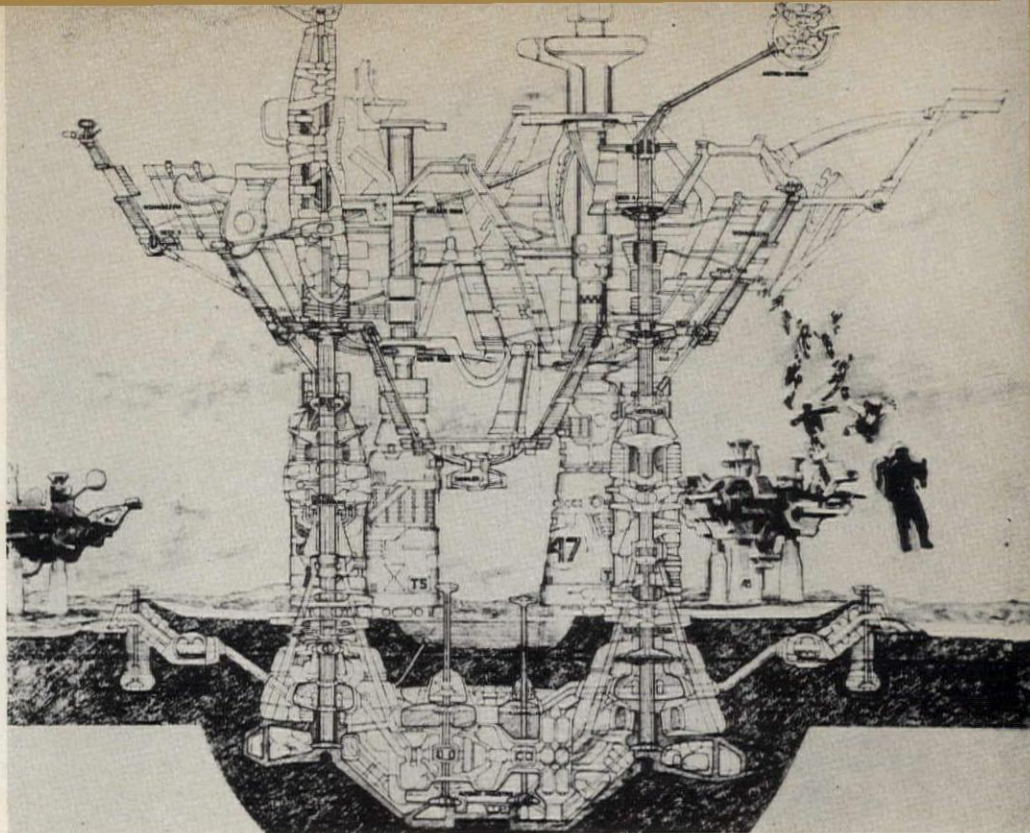


AREA USE



TURNED-ON TOWN POD

Old-time Vienna may be re-integrating its city center (p. 106), but 27-year-old Austrian architect Laurids Ortner may speak for another generation in his "absolutely psychedelic architecture" of a city: "I hate cities: Paris, Vienna, New York. But beehive cities with gates to fly out through—I know that one can live better there; that people think better, move better; that they can do almost everything better there: even love. You buy your house like a car. Desired color, desired form. You want it way high above things. Good. In 10 minutes, it is raised and assembled. Much sun, much air. You must go to your office. When you go: eight minutes in a fantastic, constantly changing environment. By air: two minutes. Or you want to get out into the greenery. Take your rocket belt, buckle it on, off to the flight gate: take-off, and you will know no more fascinating feeling. I am happy in it. Ursula lives in the red-orange, three-storied unit right next door."



command and in the range of duties. For example, as buildings become more highly industrialized, where does structural engineering stop and industrial engineering begin?

To what extent might structural engineers design a structure to be manufactured in a plant? The industrial engineer's function will increase with prefabrication, but engineers familiar with construction are essential to such a manufacturing process. A merging of the two professions will therefore be essential.

Today's Engineer

Structural engineering as we know it is undergoing a metamorphosis, notes Zetlin. Many other fields of learning are beginning to be absorbed into it. A new breed of engineer and architect is developing. This new professional in construction may be neither architect nor engineer but a combination of both.

"We are not doing our best in minibuildings. How can we do our best in omnibuildings?" asks engineer Paul Weidlinger. Historically, architects used to provide the problems and the inspiration for the civil engineer. Forty years ago, the architect demanded that the engineer solve almost insoluble problems, and the engineer came up with solutions. Today, however, the architect has a hard time asking anything from the engineer that the latter cannot do. The question no longer is, Is it possible? but, Is it economically appropriate? Can the invest-

ment in time, money, and effort be justified?

The problem of building is no longer the imaginative exercising of technical facilities. Constraints have made building design a cut-and-dried activity. As a result, "structural engineering is not a very interesting profession today unless the engineer is crucially interested in the architecture of the building as a whole," comments Weidlinger.

Today's buildings do not excite young engineers. The training for a mechanical and an aeronautical engineer are roughly equivalent. Why should a bright young man choose to spend his time developing a toilet when the same differential equations govern the exhaust of a rocket, asks Weidlinger. Good men in stress analysis and mechanical sciences find their knowledge equally applicable to the more glamorous and lucrative fields of aerospace.

New Aesthetic Options

Engineers should not be the final judges of aesthetics, maintains Zetlin, any more than architects should be the final judges of engineering. Omnibuildings should not put aesthetics in a strait jacket, but should instead provide new aesthetic options to the architect.

Many corporations do not want architects with novel concepts for large projects because they are not as familiar with building technology or systems analysis as the engineer. Corporations find that engineers speak their language.

This, claims Zetlin, is a mistake. Mass-produced products such as the automobile and the airplane are satisfactory for human occupancy for short periods of time, but living spaces need the architect to make them livable. Structural feasibility must be tempered with the livability of the space. Architecture is a more vital part of the problem of omnibuildings than engineering, because, as a discipline, it is socially oriented, points out Weidlinger.

The trick, he adds, is not in the finding of new anchorages for reinforcing bars, or looking up a couple of beams in a handbook; it lies, instead, in the resolution of social rather than technological problems.

Engineering and Sociology

If the hands of engineers were untied, they would find that the task of creating major structures is quite simple. The problems are those of vested interests. People with skills acquired throughout their lifetimes will fight for their lives when told by the engineer that those skills are no longer needed, argues Weidlinger.

He further points out that a banker who has a \$40,000 mortgage on a traditional \$50,000 house would become quite upset if a highly engineered structure of equivalent value but costing \$300 or \$400 were set down beside it. The banker would accuse the engineer of depressing the market, of bankrupting him. He would call his Congressman and begin

to lobby. All of which has very little to do with engineering, but everything to do with engineering development.

Weidlinger claims that the solutions of aerospace and deep submergence environments could easily be applied to omnibuildings because the problems are very similar. The underlying block is that of sociology, not technology.

There are many problems that must be solved before technology can be put to work. For example, what would happen to our buying habits should a cheap house be evolved? "Presumably, housing would be taken over by the teen-agers, considering their buying power," Weidlinger remarks.

Mechanical Systems

A physicist writing in the mid-19th Century maintained that trains would never work because people would never be able to adjust to the differences in food and climate between Paris and Marseilles in the short time it would take to make the trip.

People have managed to make such an adjustment, however, and are continuing to do so with jet travel, as they lunch in London and breakfast the next day in South Africa, even though the problem has changed from an adjustment to the natural environment to adjustment to an environment human beings are creating. Environmental adjustment might be more difficult in the case where a person moves from inside a closed, environmentally controlled omnibuilding to the natural climate outside.

The problems of mechanically conditioning a huge space are comparatively simple. It is not a difficult problem, merely one of cost and planning, maintains Sital Daryanani, chief mechanical engineer for Syska & Hennessy. However, mechanical systems will be entirely different for the omnibuilding than they are even for today's largest structure—that is, if they are integrated and logically conceived, as they must be if these build-

ings are to be economically feasible.

Most airports, Daryanani points out, are designed as extensions of the railroad station concept, which makes things acceptable for the airplane but not necessarily for man. We cannot be tied down to such makeshift solutions if we are successfully to solve the problems of huge structures.

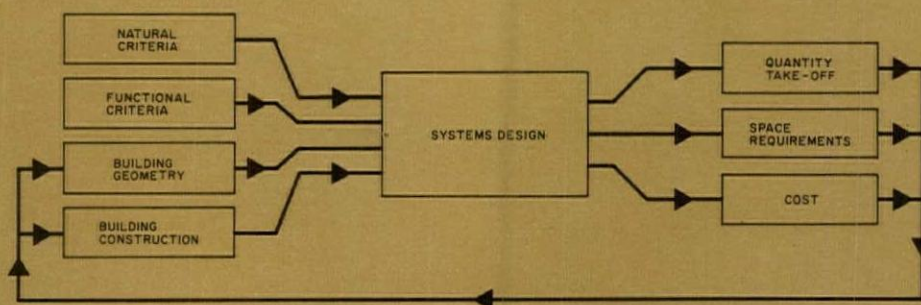
The problems of such buildings are those of high population density, high pollution, and huge amounts of power. Power requirements will continue to increase, as they have from the beginning of the century. On the other hand, nuclear power generator systems tend to decrease in size and capacity, providing smaller power sources. These two factors make possible the use of small nuclear power plants for omnibuildings.

Omnibuildings will accelerate the integration of total mechanical systems. For example, today's nuclear plants waste a lot of heat that could be used in integrated systems. The result of such integration would be a highly sophisticated balancing of the elements of use and re-use of energy in an entirely new concept of mechanical system.

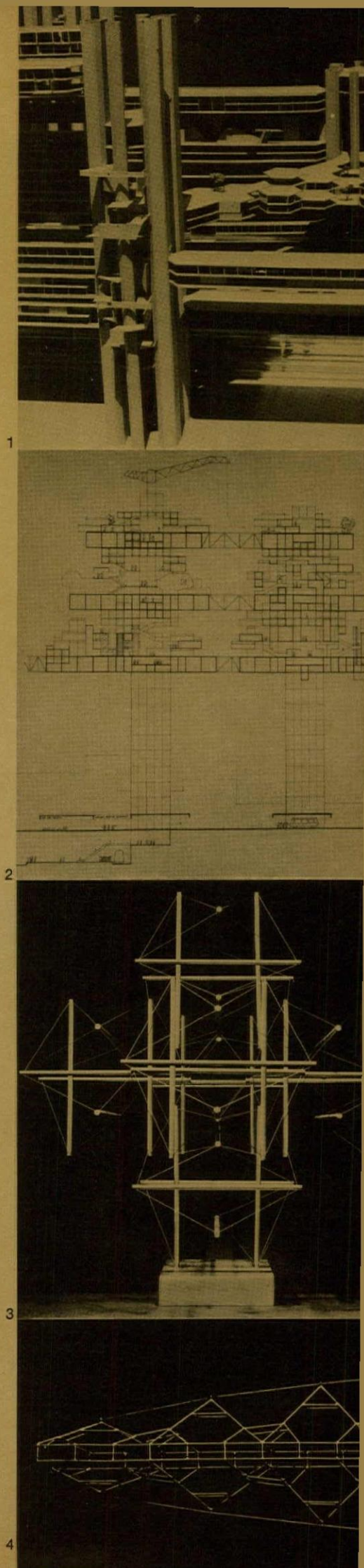
Since it is impossible to increase the size of existing building systems to create economic and feasible omnibuildings, it is also impossible to design new environmental systems within the scale of omnibuildings by simply increasing our present internal environmental equipment to do so.

Basically, every system has limitations beyond which it cannot be extended economically. As excessive heat applied to water eventually changes it to an entirely different element—steam—so it seems that omnibuildings, by applying size to existing structures, will in turn evolve an entirely different form of structure and mechanical systems for building.

As in omnibuilding, the architect will be made more aware of his mechanical options. Immediate computerized feed-



One irrational element thwarts the design of mechanical systems. The building geometry must be subject to the same rational evaluation as the other three input components. Total Building Design Concept systems diagram from the office of Syska & Hennessy, Inc., New York City.





1 Massive towers connected by cross-grids holding flexible plug-in units were designed by University of Virginia fourth-year students.

The problem with these structures, aside from their prodigious cost, is not to hold them up, but to limit deflection and dynamic motion to tolerable habitation levels, says Dr. William Zuk, technical advisor to the students. To stiffen these structures by conventional means would result in inefficient use of materials. Zuk recommends, instead, the use of servo-mechanical devices to control movements.

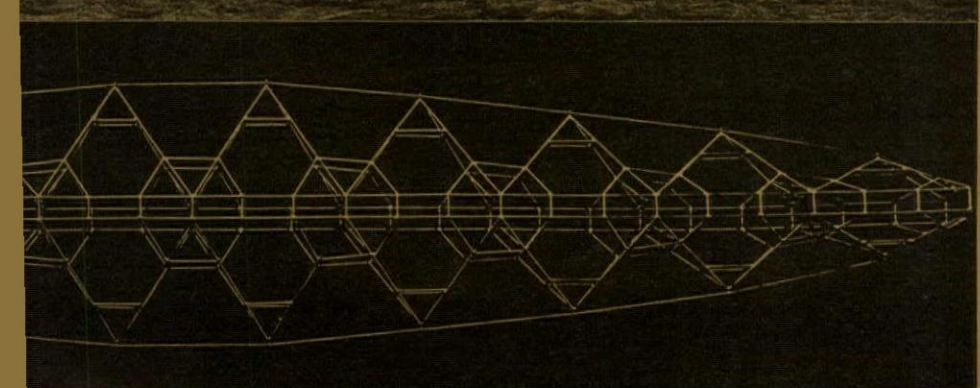
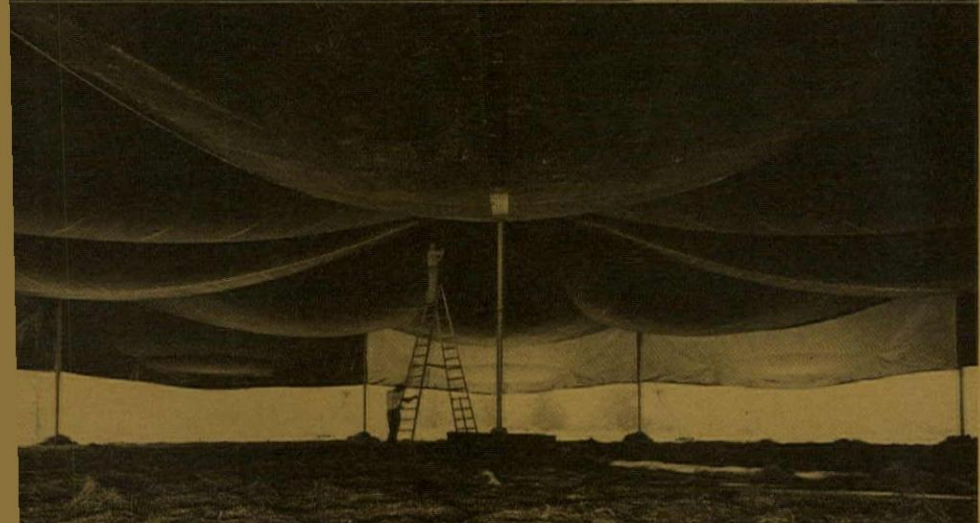
2 Omnibuildings must have the element of reversibility, designed for reduction and re-use as well as growth, so that they do not become millstones around our necks. The huge cranes we now see hovering over the growing steel cages in our cities might become permanent parts of omnibuilding architecture. Drawing study by architectural students, University of Virginia.

3 Optimum engineering of omnibuildings need not limit design, as illustrated in this sculpture by Kenneth Snelson.

4 Aerial Mass Transit: The dense occupation of the ground by utilities, ducts, electric power, basements, and foundations, makes inevitable the prospective use of the third-dimension (height) to solve the problem of intersection by a simple change of level. This model for a mass-transit bridge is by Robert le Ricolais, professor at the University of Pennsylvania's Institute for Architectural Research.

5 Can architects find anything that engineers cannot do? Paul Weidlinger, consulting engineer, thinks not, and tended to prove his point in Denmark's Great Belt Bridge Competition. The competition terms specifically advised against the use of prestressed concrete. Weidlinger accepted this as a challenge, designed his bridge in that material, and won an award.

6 Large envelopes cause new problems in air conditioning, since air currents and the possibility of condensation create differing inner climatic zones. Economic balance of power and heat become essential in the maintenance of pressure and climate in these omnibuildings, according to Frei Otto. Photo shows Airshelter by Birdair Structures, Inc., under construction.



back, in which data of mechanical systems can be analyzed and computed for instant evaluation, is already available. The system is illogical, Daryanani notes, as long as one of the elements within it remains arbitrary. This element is usually the building geometry. The form of the building may be arrived at intuitively, but it must stand against rational adjustment of the other elements of the mechanical system.

Man must be taken into account, Daryanani continues. We have given a great deal of consideration to the automobile and the airplane and let man get along as best he can. We cannot continue on this course in omnibuildings. We must have a rational basis of design that takes man into account. We cannot be tied down to makeshift adjustments to previous systems. This is a more difficult problem in mechanical systems than it is in structure, for people are aware of structure; they have been conditioned to it since childhood. But they are only aware of a mechanical system when it malfunctions. As long as they remain comfortable, they are unaware of interior environment.

The solution to interior environment, believes Daryanani, lies in the ability to provide options. Man is most happy when he has the most options. The interior environment does not have to be fixed or static. Man should be able to modulate the elements of the environment to suit the function and his emotional and physiological requirements. On a larger scale, one such option would be to design the circulation system to isolate unpleasant environmental conditions such as the automobile with its pollutants. Others will occur as omnistructures are designed.

Quality From Quantity

Quantitative change in building will automatically generate a qualitative change of structure and mechanical systems. They may, through integration, eventually become a single element.

The transition to omnibuilding may be the inescapable response to protect building from the harmful by-products of other technologies — pollution, for example, or sonic boom.

Just as automobiles cannot be controlled beyond certain speeds, and aircraft have to be guided by instruments, so buildings, like machines, may eventually become so complex to operate that they must be guided by machines. It may very well be that the future parameters for the design and construction of omnibuildings will be determined not by today's structural considerations or mechanical systems, but by how closely they approach such limits of control.

"Make no little plans," Daniel Burnham said, and the vast projects being built in and planned for the world's cities illustrate this advice with a vengeance.

In this issue, we have seen that men are attempting to struggle through seas of outmoded approaches to the building of urban places, to replace them with new rules, codes, ways of doing things, that will help the realization of concepts of which few dreamed even a decade or two ago. The technologists have told us that the tools and physical means are at hand, or likely to be so shortly. The techniques of information control and performance design necessary for the creation of huge omnibuilding projects have barely been tapped, and represent a vast potential for providing superior accommodation for man's activities.

It is a future for architecture, planning, and engineering that is awesome in its possibilities, for if we can make no little plans, we can also — having embarked on huge enterprises — make no little mistakes.

The turning of techniques and technology and a newly responsive bureaucracy and private sector to the humane intention of creating large-scale multiuse buildings for hard-pressed humanity — perhaps that is what this issue has been all about. It is certainly a far from contemptible goal to seek in the building of tomorrow's omnibuildings.

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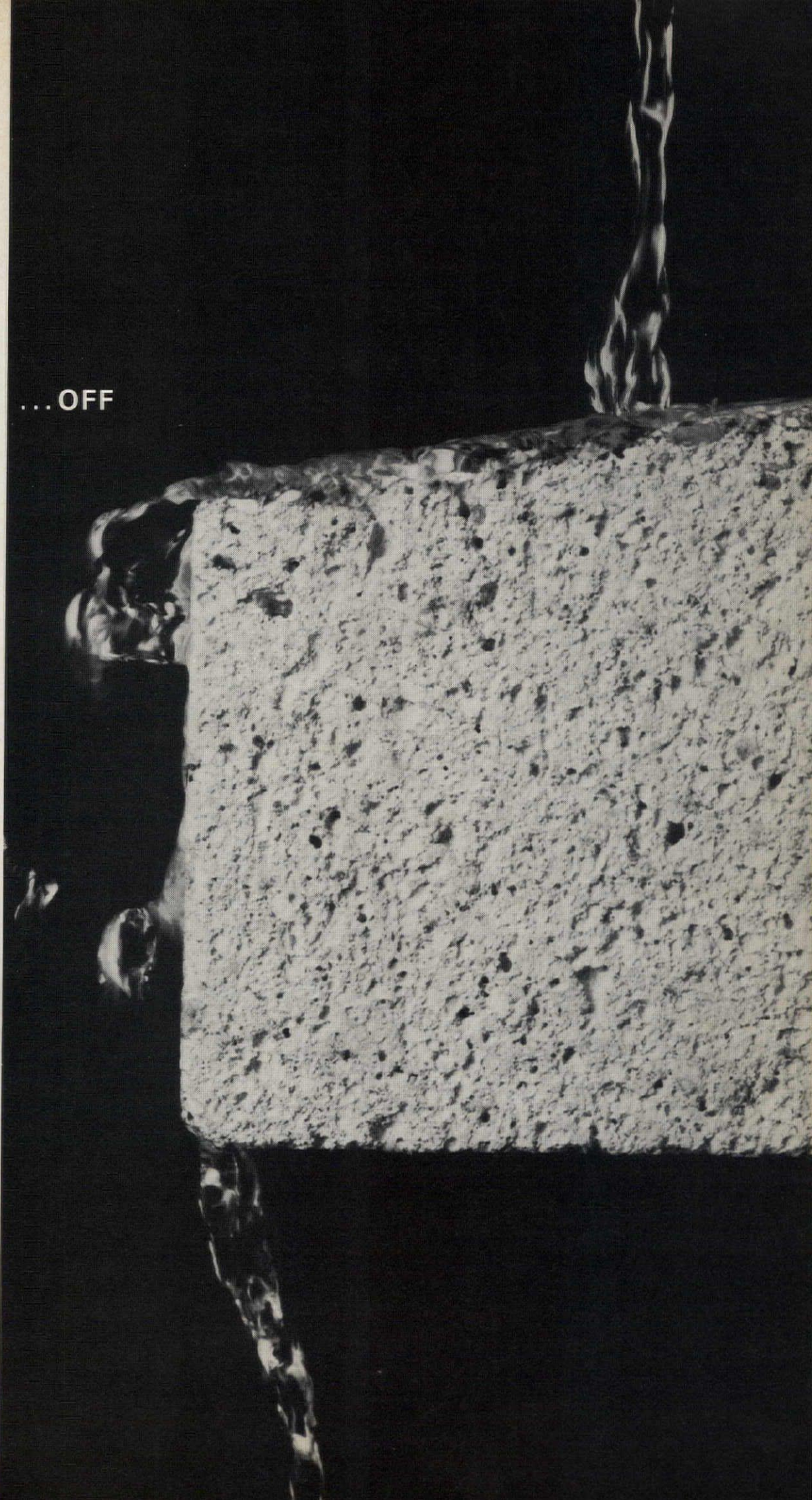
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THE LOOSE LANGUAGE OF SEALANT LITERATURE

BY HAROLD J. ROSEN

Manufacturers make sealant selection an often difficult process because they write widely different standards in brochures. Rosen is Chief Specifications Writer for Skidmore, Owings & Merrill, New York City.

Let us assume that an architect or specifier needs a sealant for horizontal joints in paving and for vertical joints in building façades. How does he go about determining what sealant to use; the width of the joint; the joint spacing; the primer to use, if any; the shape of the joint; and the joint back-up material?

Although specific answers cannot be provided here, some of the problem areas can be discussed so that the architect or specifier may become more aware of some of the troublesome questions that arise when examining manufacturers' literature. It would seem that most questions should be resolved by reviewing the literature, but a comparison of the literature will only serve to confuse the reader, since there

are conflicting statements about some of the properties and installation recommendations for similar categories of sealants.

First, a decision has to be made whether to use a silicone, polysulfide, polyurethane, acrylic, neoprene, or butyl rubber. This choice is based on the location and service to which the sealant will be subjected. Will the horizontal joint be subjected to vehicular traffic, foot traffic such as women's spike heels, or will it be immersed in a pool of water?

For vertical joints, these physical hazards are reduced. However, vertical joints can be subjected to heavy wind loads so that the joints are subjected to shear and vibration, along with expansion and contraction. In addition, for vertical joints, the designer often wishes to match adjacent colors or have contrasting colors for the sealant. How does the introduction of coloring pigments affect the listed physical properties of the sealant? In many instances, the manufacturers' literature ignores the subject.

To determine the width of joints and joint spacing, we have to determine the coefficient of expansion for the materials involved. This should take place when the designer selects the material and module he wishes to use. To the consternation of the specifier, the designer invariably chooses large panel sizes and infinitesimal joint widths. Fortunately, there are no sealants as yet that can work successfully in this joint, so the designer starts anew. A more reasonable panel layout and joint width is tentatively established, and a search made of the literature to find a sealant that will tolerate traffic, together with elongation and compression as the joint expands in the winter and contracts in the summer.

What does a review of current sealant manufacturers' literature reveal with respect to sealant movement? Note the term movement, since most manufacturers speak of elongation and rarely of compression. For silicones, one manufacturer indicates 25 per cent movement and the other major manufacturer 50 per cent. For polysulfides, some manufacturers make the following statements: "500 per cent elongation, 100 per cent recovery"; "for sealing joints with relatively large movements"; "25 per cent movement"; "elongates in excess of 150 per cent without failure"; "for all structural joints subject to extreme expansion and contractions."

For polyurethanes, the following manufacturers' tidbits are offered: "elongates up to 600 per cent"; "X brand will elongate 200 per cent"; "Y brand's high elasticity and bonding strength assure a permanent bond where extreme contraction, expansion, shear and vibration occur"; "elongation from 400-600 per cent"; "maximum recommended elongation is 50 per cent".

Take your choice. Which will you choose? As high as 600 per cent elongation to as little as 25 per cent movement. And when the term "movement" is used, does it mean the total of expansion and contraction? Does 25 per cent movement mean 12½ per cent contraction or does it mean 25 per cent expansion and 25 per cent contraction? *Caveat emptor.*

Unfortunately, the standards for sealants, ASA 116.1 and Federal Specifications TT-S-2276 and TT-S-00230, require testing only in tension, with no provision for compressive loading. Project specifications using these reference standards should be augmented to include provisions for compressive perfor-

mance as well as elongation performance, and with requirements for permanent set resulting from heat aging.

As a further complication, the actual time when a sealant is placed in the joint can be critical. If a joint is designed as a 1-in. joint, it may be only ⅝ in. or ¾ in. wide in the summer when the joint is sealed. The following winter, the joint will open up and the sealant may be stretched beyond its design limit. Conversely, the joint may be 1¼ in. or 1⅜ in. wide in the winter when the sealant is installed, and in the following summer the joint will compress and the sealant may be forced out of the joint.

Shape factors of joints, i.e., width to depth ratios, are also factors to consider in designs, and here, too, there are some variations in literature but not to the same outlandish degrees. The area of primers is likewise a jungle, but at least here the specifier can put the onus on the manufacturer by requiring him to supply the proper primer or primers for the particular sealant and substrates.

It is quite obvious that our current reference standards are outmoded and require revision to keep pace with our increased awareness and know-how in the field of sealant technology.



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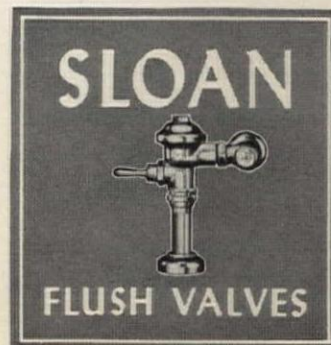
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PERSONAL INJURY LAWSUITS

BY BERNARD TOMSON
AND NORMAN COPLAN

P/A's legal team discusses implications of a recent case in which the supreme court of Illinois voided the state's four-year statute of limitations on damages for personal injury.

An architect will be held responsible in damages for personal injury sustained at the project site if it is the result of a dangerous condition created by defective plans or specifications. In most jurisdictions, if the dangerous condition is latent or unobservable, this potential liability continues after the owner has accepted the building.

An increasing number of lawsuits have been instituted against architects for damages for personal injury arising from accidents that have occurred at a project many years after the completion of the architect's services and the acceptance of the building by the client. As a result, many states have been promoting statutes "cutting off" an architect's possible liability after a specific period of time has elapsed following completion of his services. Although this effort to provide a statute of limitation was successful in Illinois, such a statute has

been declared in violation of the Illinois constitution by the supreme court of that state (*Skinner v. Anderson*, 231 N.E. 2d 588).

The Illinois statute provided for a four-year period of limitation. It stated:

"No action to recover damages for any injury to property, real or personal, or for injury to the person, or for bodily injury or wrongful death, arising out of the defective and unsafe condition of an improvement to real estate, nor any action for contribution or indemnity for damages sustained on account of such injury, shall be brought against any person performing or furnishing the design, planning, supervision of construction or construction of such improvement to real property, unless such cause of action shall have accrued within four years after the performance or furnishing of such services and construction. This limitation shall not be available to any owner, tenant or person in actual possession and control of the improvement at the time such cause of action accrues."

Although the statute denies any right to assert a cause of action against an architect if a personal injury occurred after more than four years, an action was instituted in Illinois claiming personal injury and wrongful death that occurred more than four years after the architect had performed his services. The architect had been retained to design and supervise construction of a residence in the Village of Lakewood, Ill. It was claimed the village ordinance required that ventilation be provided for rooms housing air-conditioning machinery, and that the architect had failed to provide such ventilation. It was further alleged that because the air conditioning machinery room lacked such ventilation, leaking refrigerant gas entered into an adjacent boiler room, corroding the burners of a gas-fired boiler and causing escape of poisonous quantities of carbon monoxide, which caused the death of two residents and serious injury to a third. The contractor and a

service repairman were also named as defendants. The accident occurred approximately eight years after the architect completed his services and the contractor had completed construction of the residence.

The defendant architect moved to dismiss the complaint on the grounds that the injury and deaths did not occur within four years after he had performed his services. The trial judge granted the motion, and, on appeal, this decision was reversed. The Appellate Court pointed out that, although a statute of limitation normally governs the time within which a legal proceeding must be instituted after the cause of action accrues, there are instances in which such a statute may bar an action before the party against whom the statute runs is aware that he has a right to sue. The Court further pointed out, however, that this statute went further and could bar a cause of action before it has ever arisen. In other words, a claim for personal injury does not arise until the personal injury occurs, and if it occurs subsequent to the four-year-period of limitation, then any remedy as against the design professional or the contractor causing the injury is barred.

The plaintiff had contended that the statute violated a provision of the constitution of Illinois, which provides that the legislature "shall not pass . . . laws . . . granting to any [person] any special or exclusive privilege or immunity." In answer to the plaintiff's contention that the statute of limitation granted to architects and contractors a special or exclusive immunity, the defendant argued that the statute's "purpose is to require the necessary litigation to be brought within a time when the circumstances can still be proven, when investigation is still possible, when facts are

still assessable, when proofs are not lost, when memories are still fresh. In short, when a trial can still result in fair outcome for both parties."

The Appellate Court rejected the argument of the defendant and found that the statute was unconstitutional in that it did, in fact, grant architects or contractors a special or exclusive immunity. The Court said:

"The arbitrary quality of the statute clearly appears when we consider that architects and contractors are not the only persons whose negligence in the construction of a building or other improvement may cause damage to property or injury to persons. If, for example, four years after a building is completed a cornice should fall because the adhesive used was defective, the manufacturer of the adhesive is granted no immunity. And so it is with all others who furnish materials used in constructing the improvement. But if the cornice fell because of defective design or construction for which an architect or contractor was responsible, immunity is granted. It cannot be said that the one event is more likely than the other to occur within four years after construction is completed."

It would appear that if the statute of limitation had applied to all parties that might be charged with liability in the event of an accident at the project site, the Court might have upheld the validity of the statute, despite the fact that it might bar a cause of action even before it accrued.

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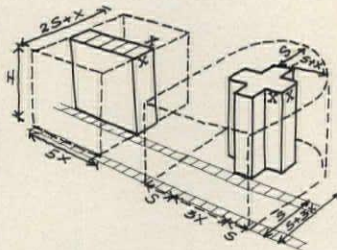
BY PAUL D. SPREIREGEN

NEW YORK NEW YORK: A STUDY OF THE QUALITY, CHARACTER, AND MEANING OF OPEN SPACES IN URBAN DESIGN. Prepared for the city of New York by Lawrence Halprin & Associates. 119 pages illus., not yet publicly available. The reviewer is a Washington, D.C., architect currently with the National Endowment for the Arts. He is the author of *Urban Design* and has edited the essays of Hans Blumenfeld and Elbert Peets.

In the fall of 1967, the New York City Housing and Development Administration, through the office of Jason R. Nathan, commissioned landscape architect and planner Lawrence Halprin to look at New York City's open spaces, with respect to the ordinances and regulations that produce them. Originally, the idea had been to do a street furniture study, but Commissioner Samuel Ratensky and Miss Bessie Economou urged something larger and more probing. It took Lawrence Halprin about six months to produce *New York New York*, a work that

may prove a landmark in substance and form. The first of its many telling points, however is the key role of the right people in the right public agencies to begin with.

Accompanied by members of his own staff, Halprin started to look around New York. He singled out six typical "project" areas: two border parks; two are near the East River and other large-scale developments; one is a typical portion of the Manhattan grid; and one faces the Atlantic. Of the six, four are in Manhattan. In sum, they represent a cross-section of what gets built. The fact that ordinances and regulations ignored the unique locational and site qualities of each hardly bears mention. *New York New York* gets into gear by walking us through the areas, pointing out what is and what could be. What is is latent potential—socially, visually, functionally, climati-



Drawing from *New York New York* is a comparative analysis of the volume of open space required for linear and cruciform buildings.

cally. What *could be* is more propitious deployment of building masses, more useful open spaces, more wisely placed greenery, more carefully chosen surface materials, more integrating links between components, more varied functions and facilities, more useful ties to neighboring areas, more constructive citizen participation in design, and greater recognition of local climate. What *could be* is a humane New York, a city become its best self.

Halprin's annotated walk

through town is refreshing because it is disarming, because the things he points out are things we've all known and felt but which too many of our design disciplines exclude. One of the book's chief merits is its articulation of 28 specific environmental considerations in the second part, and they are not only physical. Flexibility, scale, zoning, plazas, roofscape, and waterfront come as no surprise. But design for climate, a citizen "encounter group," "complexification," and involvement and participation are new entries.

The reviewer had a little trouble understanding how an "encounter group" works, but apparently it is a meeting that generates ideas and information about people. "Complexification" means that we naked apes need variety, lots of it, and preferably in close order. Those two terms, and just a couple of the many fine sketches, are the very minor exceptions to an otherwise clear exposition. In other words, there is scarcely any jargon in the text or reliance on modish architectural concepts in the illustrations to get the points across. What there is of these things is just sufficient to stimulate the reader to think more deeply about environment in Halprin's articulate terms. The shape and design of building masses and spaces becomes a lot less arbitrary. They become, instead, operable or inoperable public spaces, buildings that block or induce breezes, path systems that link or separate neighborhood components. They become things you can talk about to your mother-in-law or the Douglas Commission.

These qualities are presented in terms of everyday experience—the proximity of a delicatessen, or a place to sit in the sun. And all of these qualities are intractably linked to zoning, codes, bureaucratic procedures, approvals—the whole

mass of formularization that prescribes environment infinitely more than any designer. Halprin has given a solid basis for the critical evaluation of the environmental design process. Essentially, he seeks ways of getting environment to perform for people. Jane Jacobs' contribution, in *The Death and Life of Great American Cities*, was to pinpoint environmental crimes. Her prescription was found limited, but the book's real flaw was mistaking the identity of the criminals. The criminals are a system out of joint, not professionals or bureaucrats out of their minds, as she felt. Halprin *does* identify the real villains. They are not the actors but their faulty scripts. They are our contorted systems of building environment.

And he gives the audience a lot more credit for community sense than is commonly tendered. A sample citizen questionnaire at the end of the book reveals no small insights. People are not so dumb after all. They do know what they want. They want to be able to get a fresh corned-beef sandwich, watch girls in miniskirts, and have an undisturbed night's sleep. People want everything out of life, and livability out of their neighborhoods.

Halprin did not rely solely on his own highly developed point of view to establish perspective. He talked with lawyers, psychologists, scientists. But, thank God, the essential wisdom was found residing in the people. There is hope for our urban society, even the New York branch of the family.

New York New York puts many things in context. It contains several good sub-studies, particularly the evaluation of New York's building regulations and the physical results over the years. The context is capable of refinement

Continued on page 170



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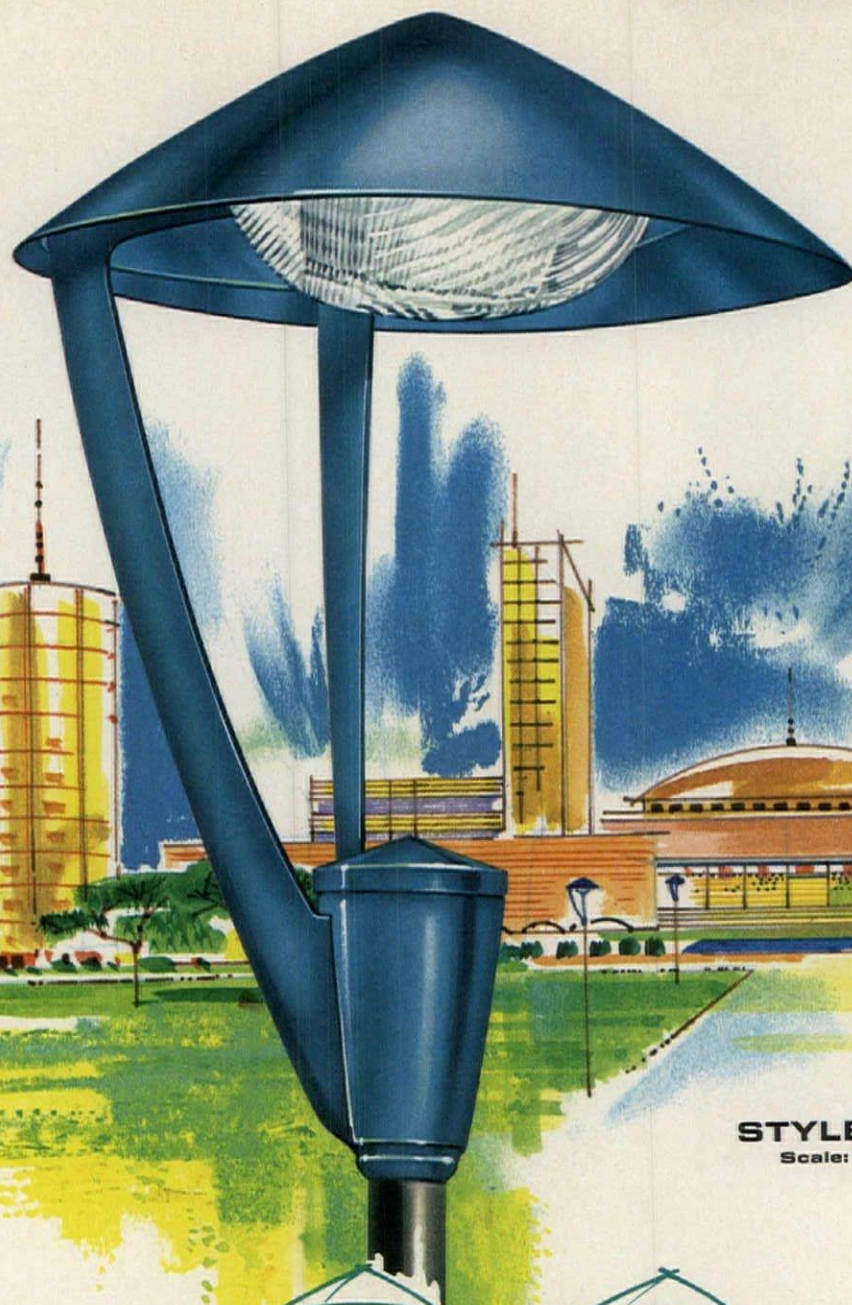
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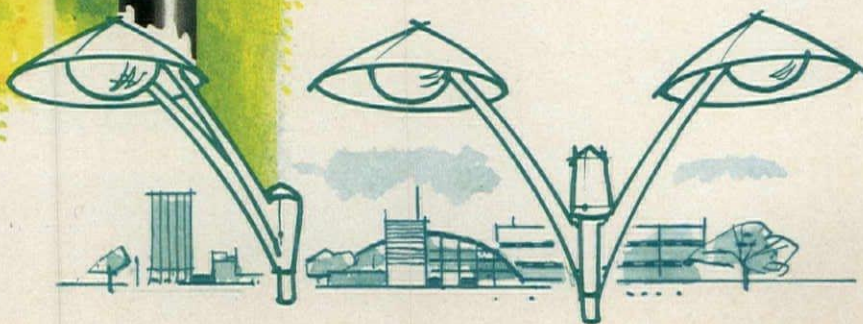


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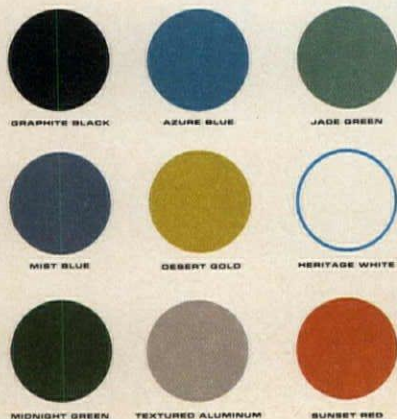


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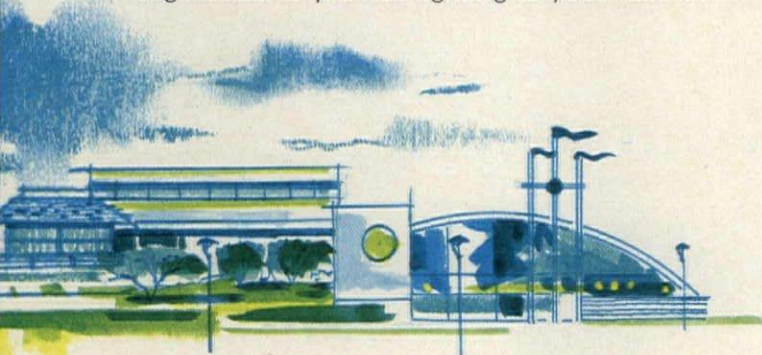
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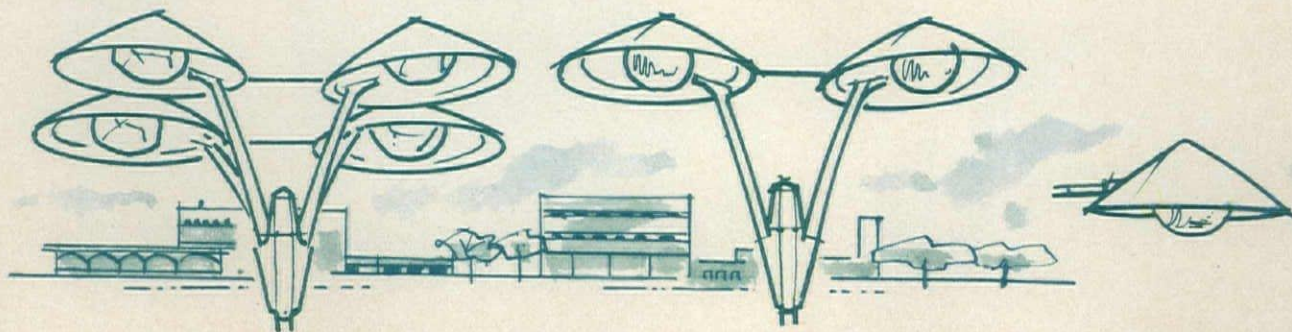
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There's an evolution in the kitchen


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Continued from page 164

and expansion, too. That all of this may prove a force in reforming the whole system, which has unwittingly been entrusted to produce the American environment, remains to be seen. But the hope is strong.

The book also establishes a real case for an emerging New York as a particularly great place to live. It must have that potential because the basic ingredients are there. So many people do live there now despite the hardships. For many readers, this assertion will be interpreted as a derogation of other American environments, say the small town or the

suburb. In fact, though, the book suggests by its theme that *many* different environments should be our goal, not one alone, no matter how developed and refined. There really ought to be many studies done such as *New York New York* for all the other environments seeking their forms.

In the final analysis, though, there is still a question as to how much even a completely developed New York environment can do for Mr. and Mrs. Naked Ape. The earlier emigrant generations wasted no time in moving to pastures greener than the Lower East Side. Hal-

prin himself, a globe-trotter of no small measure, lives in a Thoreauvian setting in the San Francisco Bay region. On this score, there is a very telling section in the book on density, which raises the lid on the question of New York's livability from an unusual angle.

Halprin argues that all density measurements are faulty. To measure the land occupation density of a New Yorker, don't you have to count his ski weekends, his trip to Israel (or Italy or Ireland), or his flight of fantasy in front of the TV screen? Halprin, a most sophisticated urbanist, can charge and overcharge his senses because he has the repose of his San Francisco home—as well as a valid credit card for travel. A New Yorker charges his senses to the degree he does because he, too, has real and imagined safety valves. Defensively, he's had to build emotional overflow tanks. New York is something, no question. But it is not everything.

New York New York is a marvelous book. It was issued as a report in 500 copies. Publishers ought to be falling over each other to procure the commercial rights. The book's proprietors ought to hold out for popular prices, so that everyone can get it. A TV version ought to be considered, too.

Who knows, one day even visitors to New York might change their minds about living there.

Art and Architecture

BY H. H. WAECHTER

CONSTRUCTIVISM: ORIGINS AND EVOLUTION. By George Rickey. George Braziller, 1 Park Ave., New York, N.Y., 1967. 305 pp., illus., \$15. The reviewer is Visiting Lecturer of Architecture at California State Polytechnic College.

This book describes one of the important art movements of this century, Constructivism, from a partisan point of view but with great warmth and knowledge. What makes it a special book is that, in addition to giving a brief on the origins of the movement and a documentation in words and the works of the original masters, much space is given to the new generation of Constructivists who were born somewhat before World War II and became recognized thereafter.

While acknowledging the activities of the Bauhaus, which had started with Expressionistic trends, a discussion on the connections of Constructivism with other art movements of the time is missing. Constructivism found friendly resonance with other disciplines, as one can notice, for example, in Bruno Taut's publi-

Continued on page 174

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Continued from page 170

cations, particularly with regard to Tatlin's architectural constructions. But, then again, Tatlin, who coined the word Constructivism, is finally disowned by Pevsner because he was not a "thinker." Kandinsky, who is prominently discussed, does not make the grade because he is a "romantic." He was, of course, essentially an Expressionistic, albeit an Abstract and Nonobjective, painter.

There are interesting details, such as the story on Gabo's experiences with building the tall sculpture in front of Rotterdam's Bijenkorf department store. Although the book is dealing with Constructivism as an art movement among

painters and sculptors, to deal also in detail with the influence on architecture would have been of great value, particularly by an artist such as Mondrian.

A rather valuable addition to this volume is the thorough bibliography of Constructivism by Dr. Bernard Karpel of New York City's Museum of Modern Art.

An Underdocumented Man

BY FREDERICK HERMAN

THE MEANINGS OF ARCHITECTURE: BUILDINGS AND WRITINGS BY JOHN WELLBORN ROOT. Edited by Donald Hoffmann. Horizon Press, 156 Fifth Ave., New York,

N.Y., 1967. 238 pp., illus., \$15. The reviewer is an architect with the firm of Spiegel, Carter, Zinkl & Herman in Norfolk, Va., and is a member of the Virginia Historic Landmarks Commission.

John Wellborn Root and his work have the somewhat dubious distinction of having received continuing acclaim but little serious attention. In 1891, Montgomery Schuyler wrote, "I don't know any greater loss that could have happened to this country and to the architecture of the future than that man dying before his time." And, 72 years later, in 1963, Lewis Mumford found that Root's Monadnock Building was still "the handsomest office structure of all." In between, Root has been acclaimed both by Frank Lloyd Wright and Louis Sullivan. The firm of Burnham & Root, in the 18 years between its founding in 1873 and Root's death in 1891, were architects for some 250 buildings, including no less than 27 major edifices in downtown Chicago that deeply influenced the character of the city. The Monadnock Building, still regarded as an undoubted masterpiece, is one of the survivors, and perhaps as the ultimate achievement in bearing masonry construction.

On the basis of these comments and the size and scope of Root's achievements, one would expect that there would be available a considerable amount of literature on Root. The opposite is true. The only major book on Root appeared in 1896, and was authored by his admiring and less than impartial sister-in-law, Harriet Monroe. Recently, Carl Condit, in his book, *The Chicago School of Architecture*, devoted several chapters to Root. This winter, Donald Hoffmann contributed a perceptive article on the Monadnock Building to the *Journal of the Society of Architectural Historians*. Beyond this, there exist scattered articles and comments within larger works. Root's efforts as a writer on architectural questions is even more ignored than his work as an architect.

The ignoring of Root's architectural work may be due to the fact that most of it never fully freed itself from the limits of its time. Root's own analysis and evaluation of his work may explain the lack of esteem that has surrounded it. He thus wrote, "Burnham and Root, occupying a high position, have been very uneven in their work. Mr. Root upon whom has largely devolved their designing, seems to have been too facile, always to carefully reconsider his designs, and to have been to a large extent the victim of his own moods. Much work . . . is sugges-

Continued on page 182

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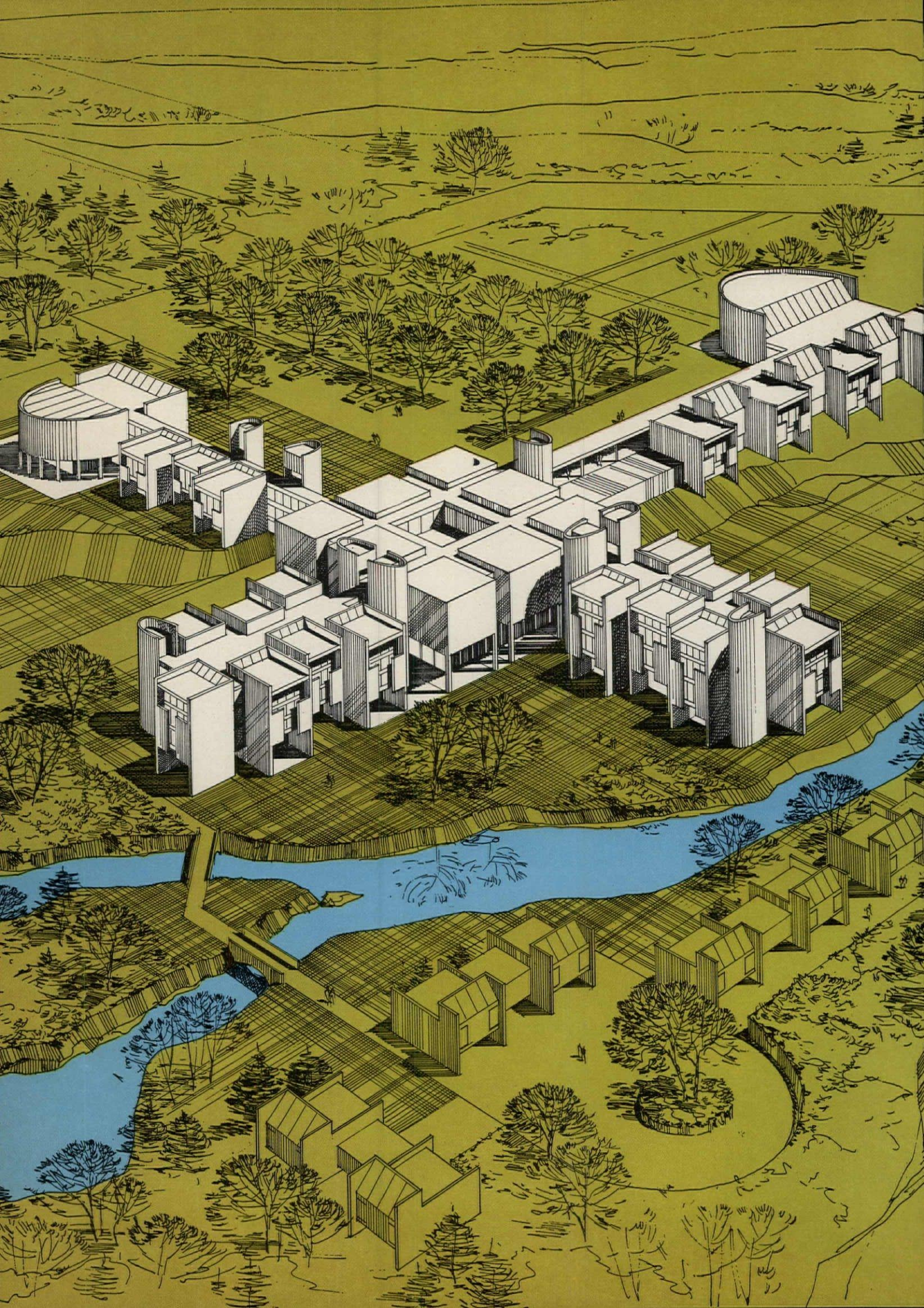


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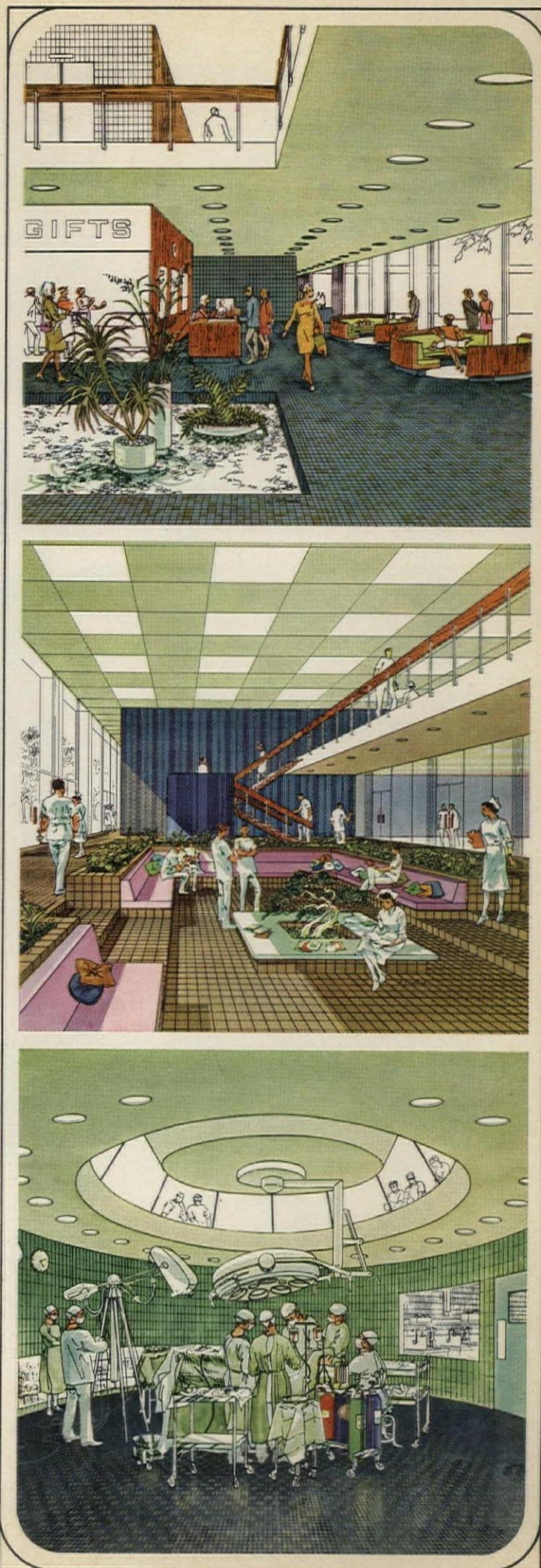
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Continued from page 174

tive and has borne its part in the architectural movement of the day, while much of it reveals crudities begotten of the haste or indifference of the hour." Root's comments are perhaps the more valid if it is remembered that his most successful building, the Monadnock, is precisely the one on which, by chance, he had the longest opportunity to work. In addition, it looks not to the future, but rather to the past for its structural concepts. Root, who died at 41, tragically lacked the opportunity to develop to his full potential.

The neglect of Root's writings is harder to understand. Root wrote well, with at times a sparkling wit, and touched on many of the basic problems that beset architecture. He dealt with such varied questions as art criticism, eclecticism, clients, the problems of cost and the building function and their relation to design. In addition, Root was committed to the concept of organic architecture and wrote perceptively on this subject.

In order to let Root come into focus, Hoffmann has wisely decided to let Root speak for himself through his writings and his buildings.

The volume begins with a very brief introduction and is followed by Root's writings arranged into five major categories under such headings as "The Organic Notion"; "Architectural Practice"; "Aesthetic Theory"; "Toast and Satires" (which, incidentally, contains not only a great deal of humor, but some highly pertinent criticism of architectural foibles), and a concluding section entitled "American Architecture." Each section consists of several articles, with each article prefaced by a short introductory paragraph in which the editor tries to point to the key ideas expressed by Root. Hoffmann thus provides a valuable guide to Root's writing and allows the reader to pre-select those articles that might be of special interest to him. These introductory remarks should not be taken as a substitute for reading Root's own comments.

The final element of the book is a section of 103 plates of Root's work, each accompanied by a caption. Visually, this is the section that allows the reader to form his own judgement as to the aesthetic qualities of Root's work; Root's evaluation of his own work; and the extent to which Root was to translate his ideas on architecture into structures.

Hoffmann has performed a most valuable service in giving us this volume of Root's writing and a portfolio of his

Continued on page 194



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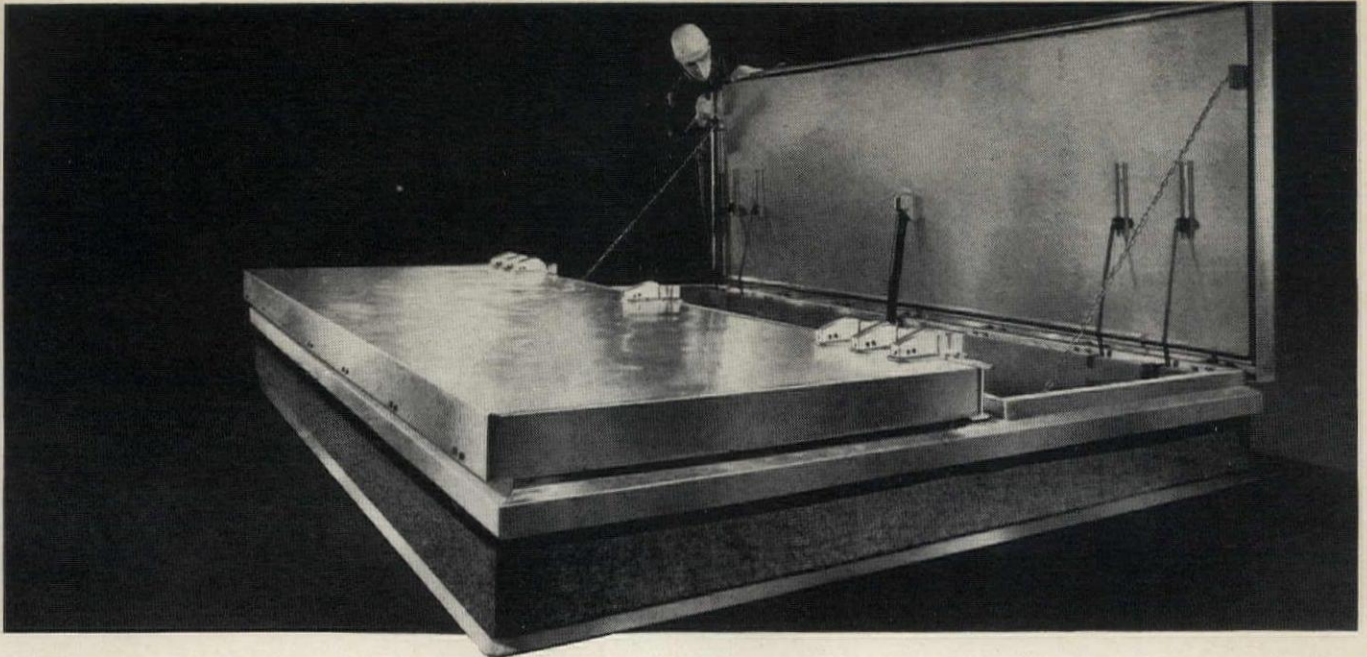
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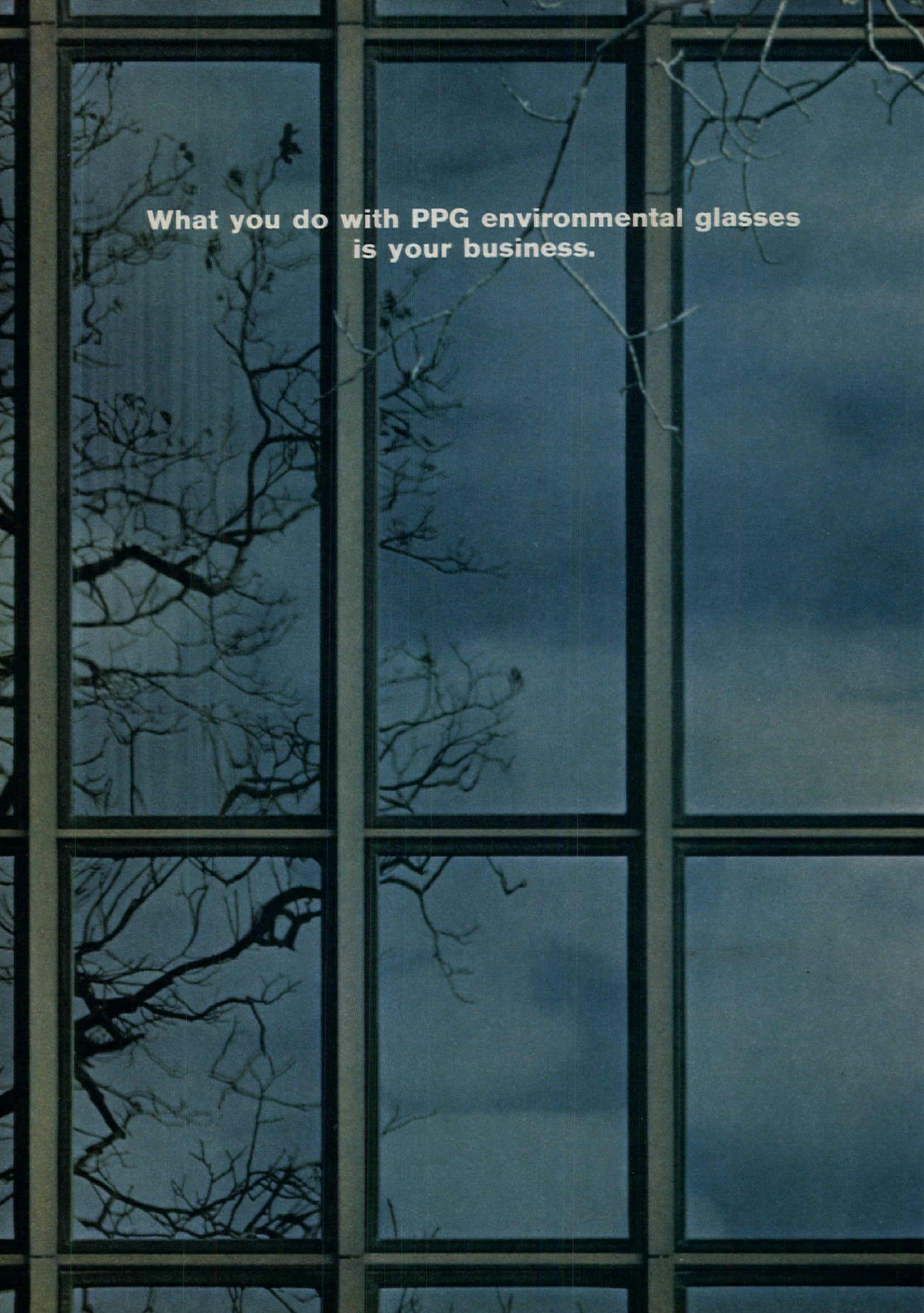
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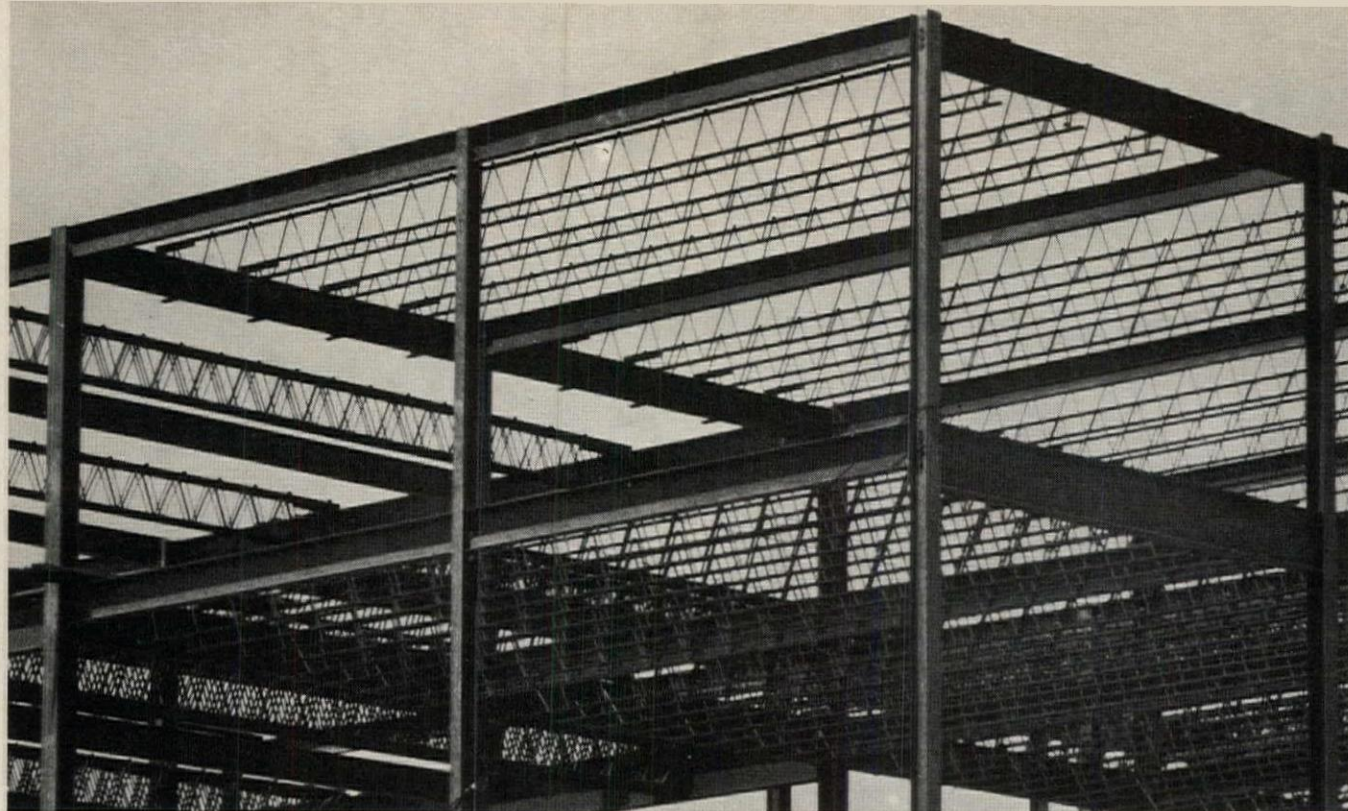


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Another Building Goes Composite with Laclede's Unique C-Joists

Composite construction is showing up in more and more buildings across the country. Here's one of the more recent: Adlai E. Stevenson Hall for Humanities at Illinois State University, Normal.

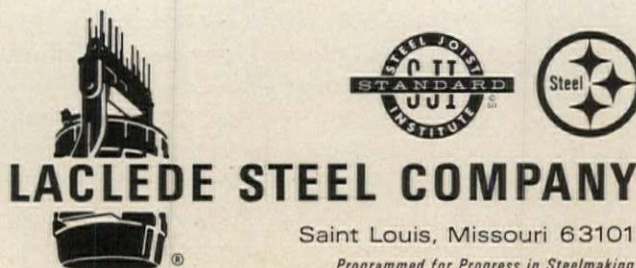
Almost 400 tons of Laclede Composite C-Joists were used in the floor system of this new educational facility, with an additional 52 tons of Laclede standard joists in the roof.

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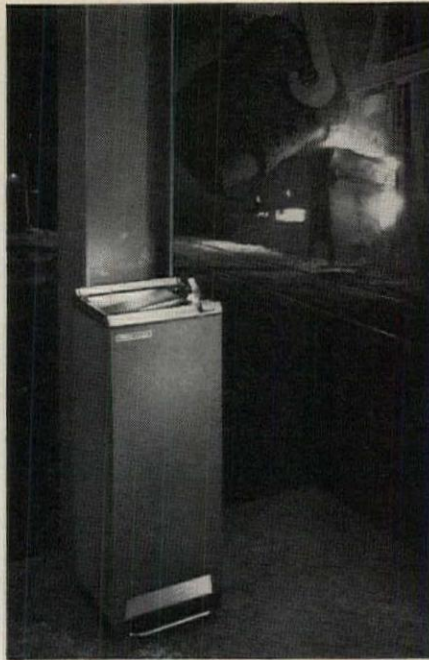
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Architect: Cooper, Carry and Associates
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Continued from page 182

works. The book is a "must" for anyone interested in this period of American architecture and hopefully will serve to obtain for Root the stature and recognition he so richly deserves. If one may express any regret, it is that Hoffmann did not see fit to include a bibliography listing all of Root's writings and the major sources of information or comments on Root.

Architecture in Canada

BY WALTER C. KIDNEY

CANADA BUILDS: 1867-1967. *Thomas Ritchie and the Division of Building Research, National Research Council. University Press, Toronto, Canada. 1967. 406 pages, illus., \$12.50. The reviewer is an Associate Editor of P/A.*

As the title suggests, this is a book about the ways in which Canadians have built; its coverage of Canadian architectural history, seen as design, is very summary. (Fortunately, there is a recent history of Canadian architecture, *Building Canada*, by Alan Gowans, that gives a good account of the march of the styles and the great architectural figures up north, and, together, the two books, complementary with some overlapping, give an excellent grounding in Canadian architecture.)

The present book, after two initial chapters on Canada in the 1860's and the building of the grand symbol of Canadian confederation, the Ottawa government group, proceeds analytically, region by region, then material by material, to cover its subject. Each area of Canada is discussed from the time of settlement, regardless of when it entered the confederation. In the older, eastern provinces, it is intriguing to see how Old World techniques are repeated, particularly the various Scandinavian techniques for making walls out of logs or heavy wooden slabs, piled up, driven into the ground, or held between vertical or horizontal timbers. Intriguing also is the "stovewood" house, in which small sections of tree limbs are piled up with the ends showing, and the interstices calked. The chapters dealing with the various materials can only sketch their histories, unfortunately, but they do it very well. A final section deals with plumbing, lighting, heating, and other auxiliary equipment that has come to be taken for granted; with town planning in Canadian history; and with architectural styles and prominent architects and engineers. At the end, there is a brief discussion of the architectural situation in Canada in 1967. Illustrations are many and very good. A lot of them are old photographs of houses,

Continued on page 202



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Continued from page 194

streets, industrial buildings, and pioneer settlements.

There is one annoying thing about the book, and that is a certain "writing down" quality about the prose, as if it were intended for the "intelligent young adult" who is such a mainstay of the encyclopedia market. A book that describes, however briefly, a process as technical as the stiff-mud process of brickmaking is presumably aiming at another audience. Still, this is a minor matter.

BOOK NOTES

The Architecture of Colen Campbell. Howard E. Stuchbury. Harvard University Press, Cambridge, Mass., 1967. 336 pages, illus., \$12.50.

A scholarly survey of the work of this great follower of Palladio, one of the Englishmen of the early 18th Century who, seduced by the Italian architect's magical use of proportion and by the local example of Inigo Jones, attempted to acclimatize the villa architecture of the Venetian mainland for the use of the early Georgians. This book examines the known work of Campbell, traces his sources of in-

spiration, and puts him in the context of the architectural history of his time.

Baroque and Rococo. Sacheverell Sitwell. G. P. Putnam's Sons, 200 Madison Ave., New York, N.Y., 1967. 306 pages, illus., \$12.95.

This book, published here under the play-it-safe title above given, is known in England as *Southern Baroque Revisited*, and forms a belated sequel to Sitwell's early work, the *Southern Baroque Art of 1924*. Like that earlier work, this is not a description of successive works of art, but a work of art itself, in which buildings, paintings, sculptures, personal reminiscences, flights of fantasy, and the curiosities of history and geography are all involved. All but a very few of the works mentioned are from Latin Europe or Latin America.

Baroque and Rococo in Latin America. Pál Kelemen. Dover Publications, Inc., 180 Varick St., New York, N.Y., 1967. 488 pages, illus., two vols., \$3 each.

A new, paperbound edition of a classic history of Latin-American architecture and painting, first published in 1951.

Karl Bitter, Architectural Sculptor: 1867-1915. James M. Dennis. University of Wisconsin Press, Madison, Wisc., 1967. 302 pages, illus., \$12.50.

A study of the life and work of the sculptor who worked on many of the great Eclectic buildings of his day, including Biltmore, the World's Columbian Exposition, the Wisconsin state capitol and New York's Metropolitan Museum, as well as executing innumerable

monuments, of which the most famous is the Pulitzer Fountain in front of New York's Plaza Hotel.

Building Canada: An Architectural History of Canadian Life. Alan Gowans. Oxford University Press, 200 Madison Ave., New York, N.Y., 1966. 412 pages, illus., \$15.95.

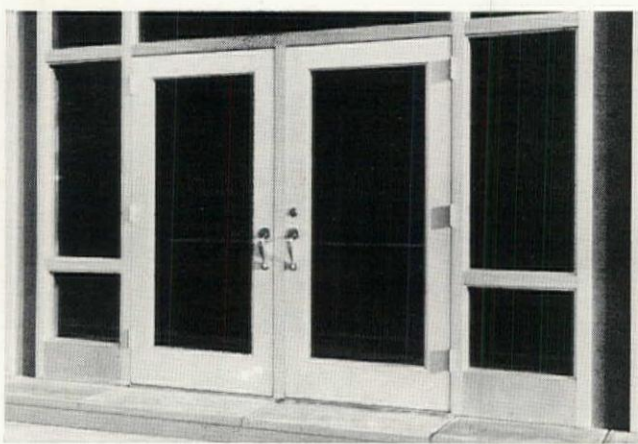
This is a revised and greatly augmented version of Gowans's earlier book, *Looking at Architecture in Canada*. A mixture of architectural and social history, it has in its main text a tendency to sermonize that makes for heavy going, and to a U.S. reader the dirty linen of Canadian political history, much exposed, may or may not be of interest. All the same, this must be the only comprehensive survey of Canadian architecture in existence, and the plates, many and well-chosen, have for captions detailed, objective accounts of the buildings chosen.

Great Interiors. Edited by Ian Grant, with preface by Cecil Beaton and photographs by Edwin Smith. E. P. Dutton & Co., 201 Park Ave., S., New York, N.Y., 1967. 288 pages, illus., \$22.50.

Art books whose titles begin with *Great* are usually wearisome rehashes of material already familiar to anyone who knows anything about the history of the art. This book is different; some little-known and interesting interiors are represented, such as ones from Ferrieres, a chateau built for one of the Rothschilds in the Second Empire, or the town hall of Hilversum, Dudok's masterpiece

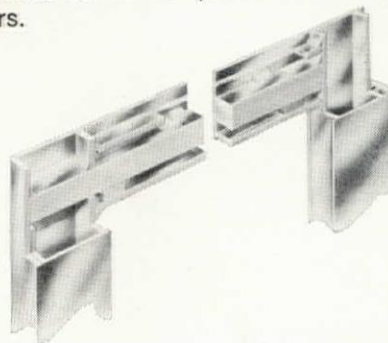
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Hollow Metal Doors by Michaels

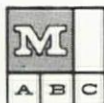


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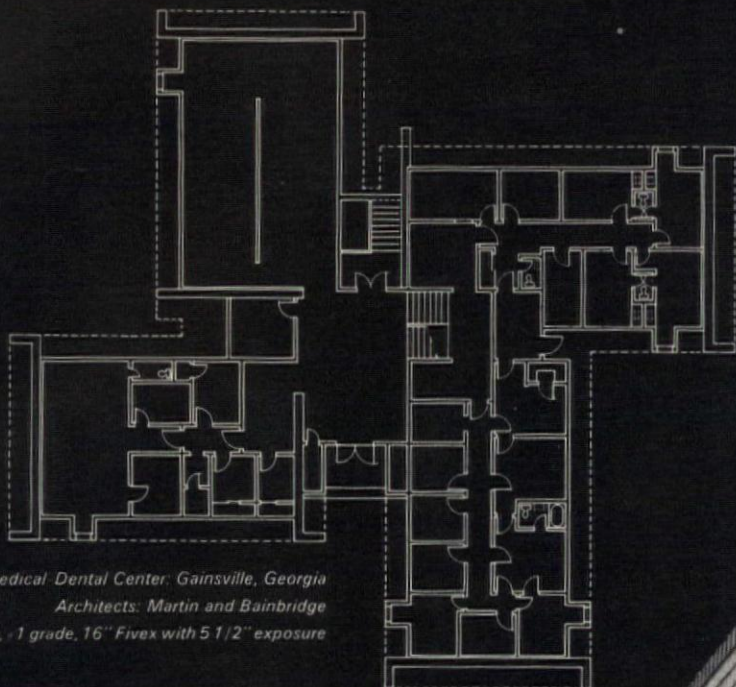
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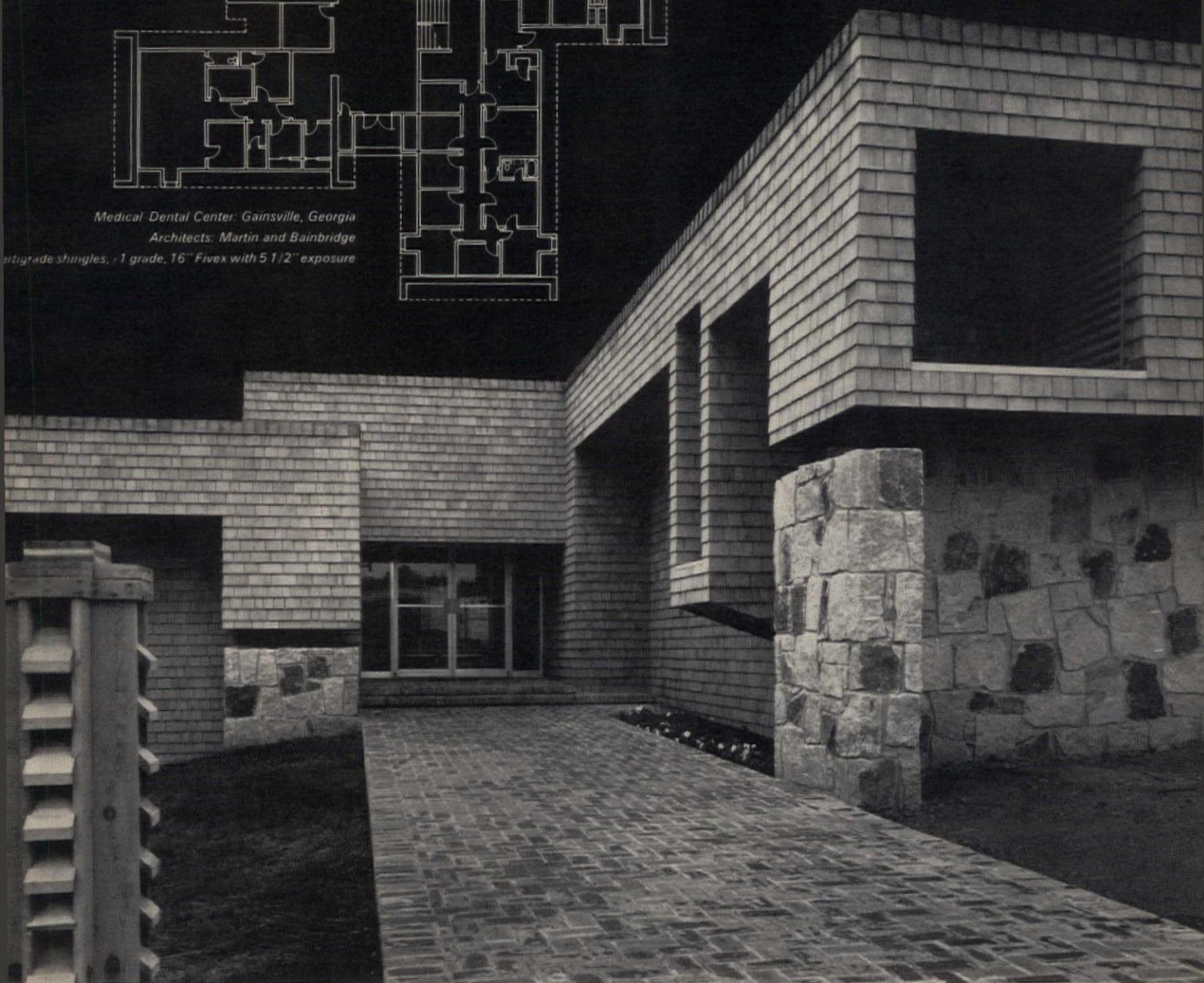
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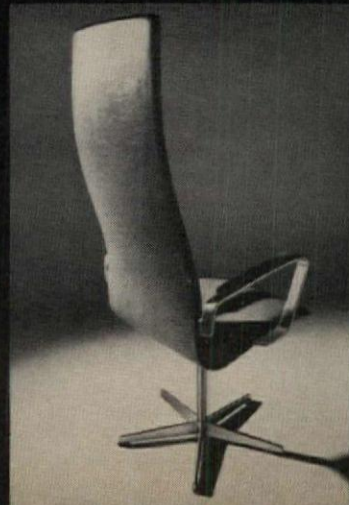
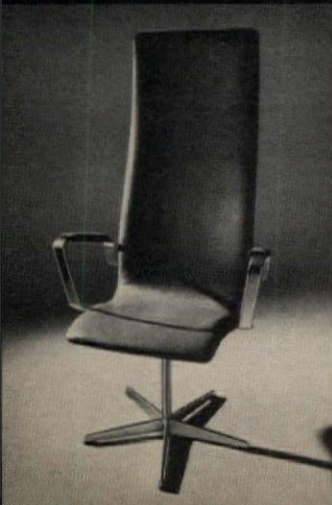
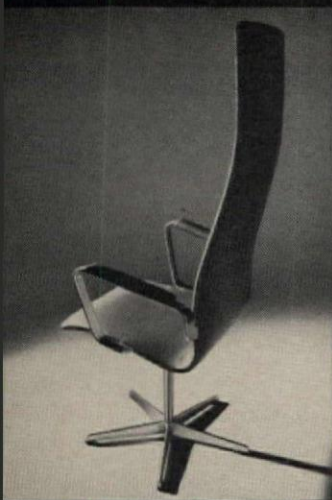
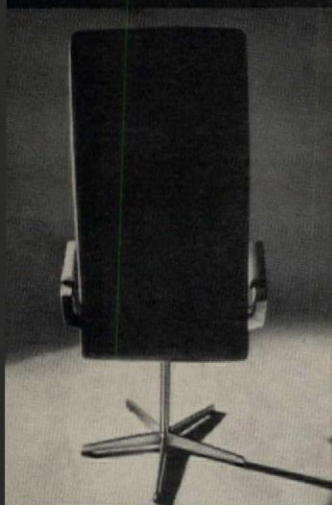
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1964 384 pages \$22.00

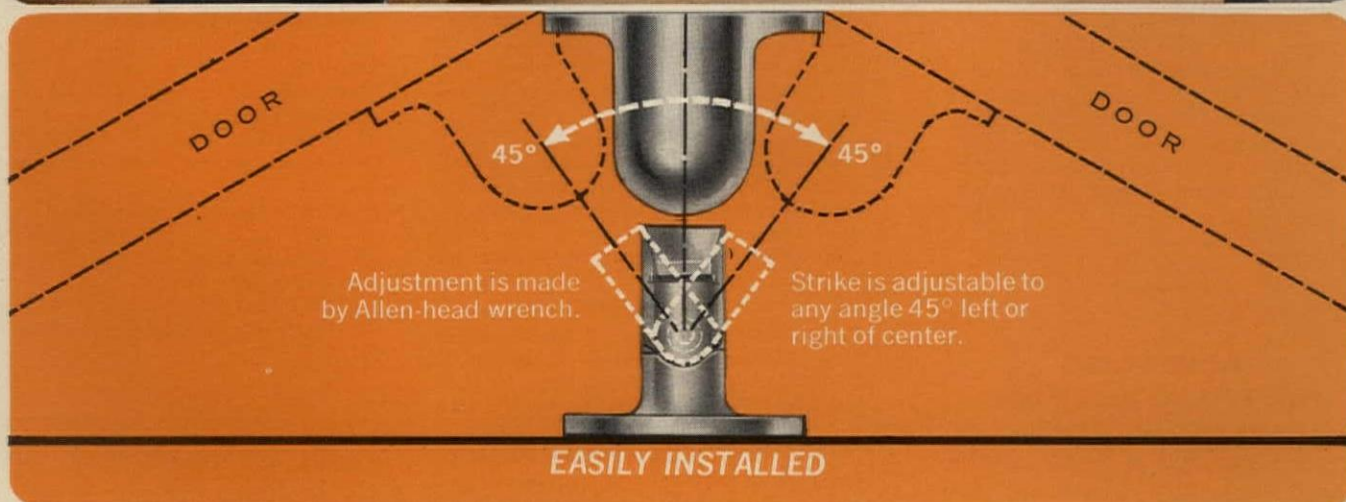
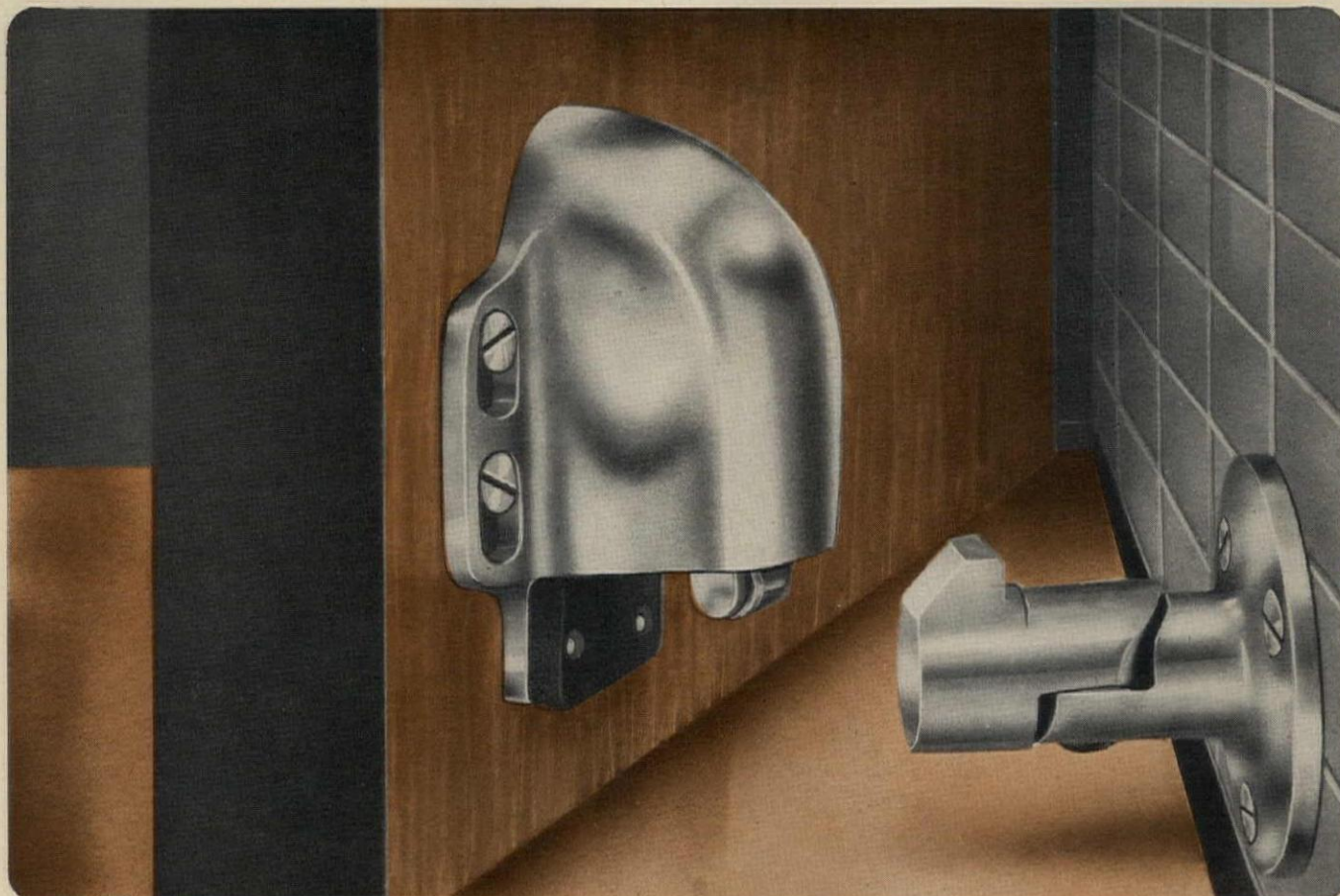
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Continued from page 202

of the late 20's, or a railway carriage built for Queen Victoria in 1869. The earliest interior shown dates from 1650, the latest from 1964. There is something slightly unpleasant about the paper, and some of the color is suspect, but it would be carping to reject so much that is informative and enjoyable on those accounts.

Impressions of Japanese Architecture. Ralph Adams Cram. Dover Publications, Inc., 180 Varick St., New York, N.Y., 1966. 296 pages, illus., \$2.

A reprint of a series of essays, first published in 1906, by America's greatest Gothickist of the Eclectic period. Cram was both an aesthete and an idealist, and here he attempts, as he did with Gothic architecture, to show that great art is the product of a spiritually healthy civilization.

Moravian Architecture and Town Planning. William J. Murtagh. University of North Carolina Press, Chapel Hill, N.C. 145 pages, illus., \$8.75.

A historical survey of the 18th-Century towns in Pennsylvania and North Carolina that were founded by the Moravian Church, especially Bethlehem, Pa., and Salem, N.C.

The New Encyclopedia of Furniture (Deluxe Edition). Joseph Aronson. Crown Publishers Inc., 419 Park Ave. S., New York, N.Y., 484 pages, illus., \$15.

A reworking of the dowdy but respected Encyclopedia of Furniture, first issued some 30 years ago. Much of the pictorial material is new, including the color plates in this "de luxe" edition, and the appearance is much fresher than in previous editions of the book. The photographs are decidedly on the gray side, however, and rather small: the book is recommended as a good all-round guide to furnishing and decorative styles and nomenclature rather than as a coffee-table book. A typical text page gives one photograph, one group of sketches, and entries like: Kent, William; Kerf; Kettle Base; Key and Key plates; Key pattern (Greek Fret); Kidney Table; Kiln Dried; Kingwood; Klismos; Kneading Table; Knee; Kneehole; Knife, Box-Knife Case.

1900 In Barcelona. A Cirici Pellicer. Translated by Joyce Wittenborn. Ediciones Poligrafa, S. A., Barcelona; distributed in the United States by George Wittenborn, Inc., 1018 Madison Avenue, New York, N.Y., 1967. 143 pages, illus., \$15.

After a very general introduction to Art Nouveau as a whole, and to that of Barcelona in particular, come enough plates in color and in black-and-white to show that there was quite a lot more to the local style than Gaudí's contribution. Unfortunately, the captions are very grudging of artists' names (only one given), and never mention dates.

Princeton Architecture: A Pictorial History of Town and Campus. Constance M. Greiff, Mary W. Gibbons, and Elizabeth G. C. Menzies. Princeton University Press, Princeton, N.J., 1967. 200 pages, illus., \$12.50.

A very well illustrated book, the plates being almost all from interesting old and good present-day photographs. The captions are copious and factual, and the texts that introduce the various architectural periods concentrate on the history of the town and university, with a happily small amount of editorializing on the styles and the specific works in them. Anecdotal content is kept to a minimum, although when it appears it can be tantalizing,

as in the case of one bulky Greek Revival house that is mentioned as having been shipped, "by canal barge," from Northampton, Massachusetts.

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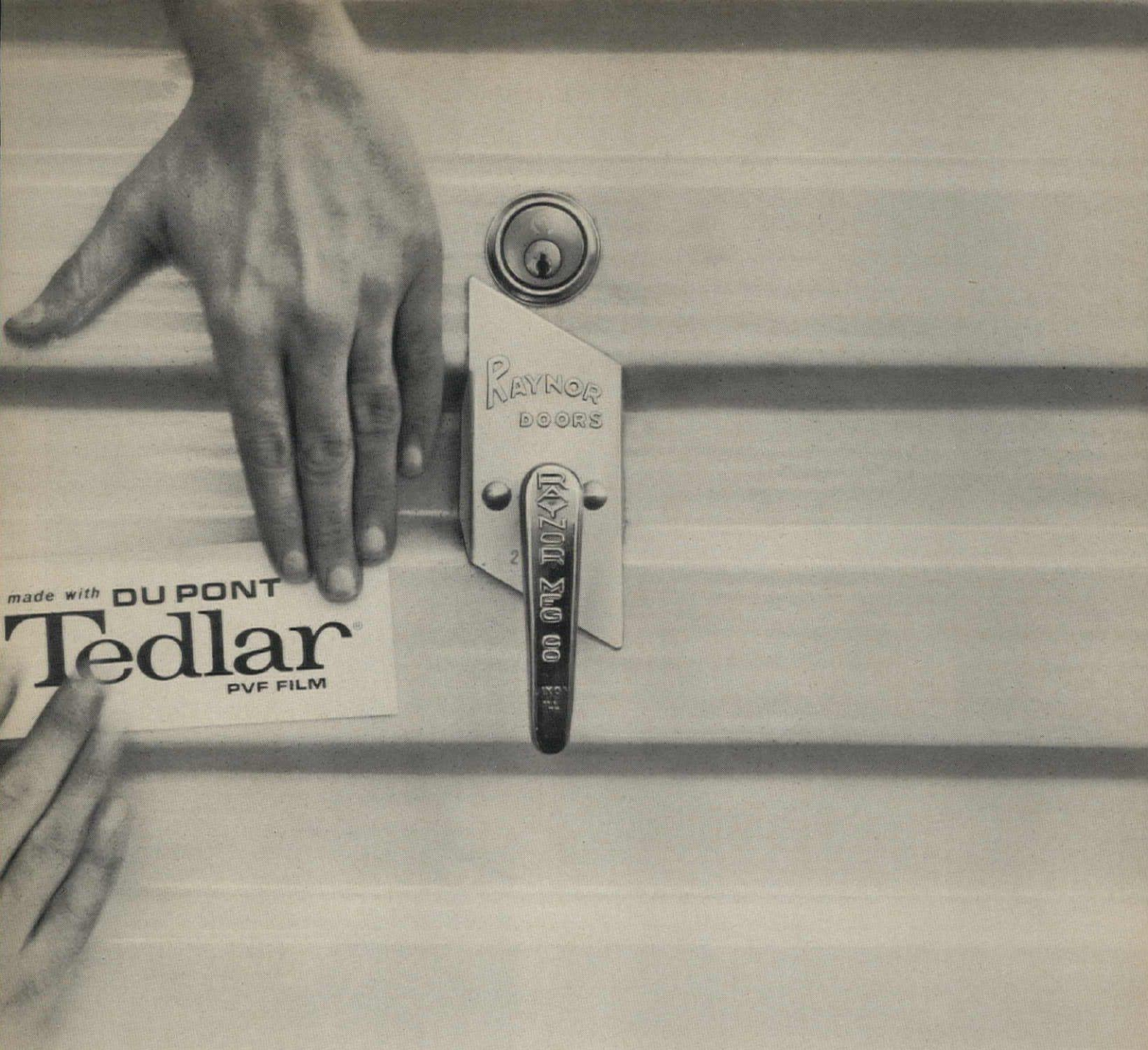
Dr. William Zuk, School of Architecture, University of Virginia, Charlottesville, Va.

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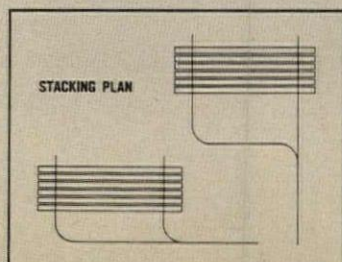
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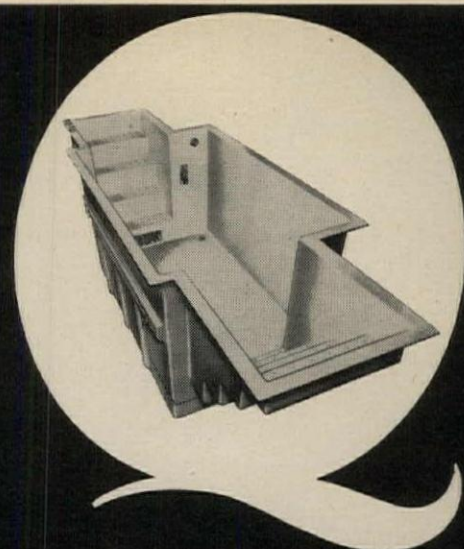
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
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
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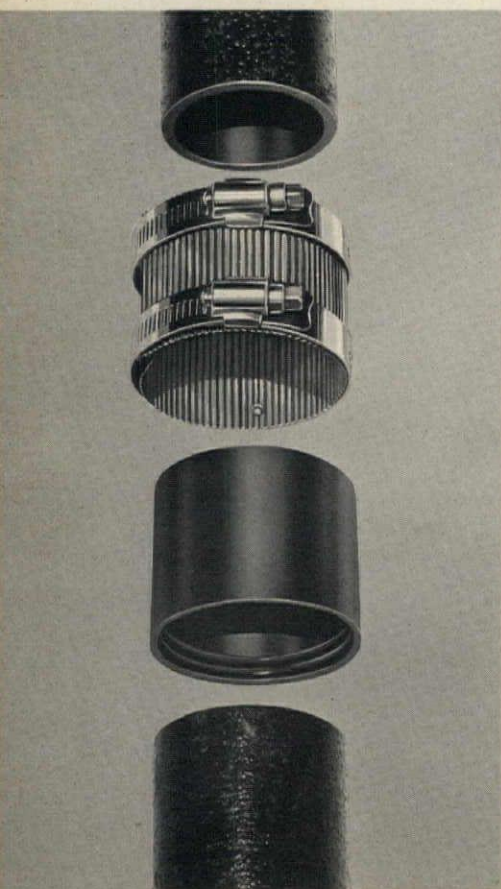


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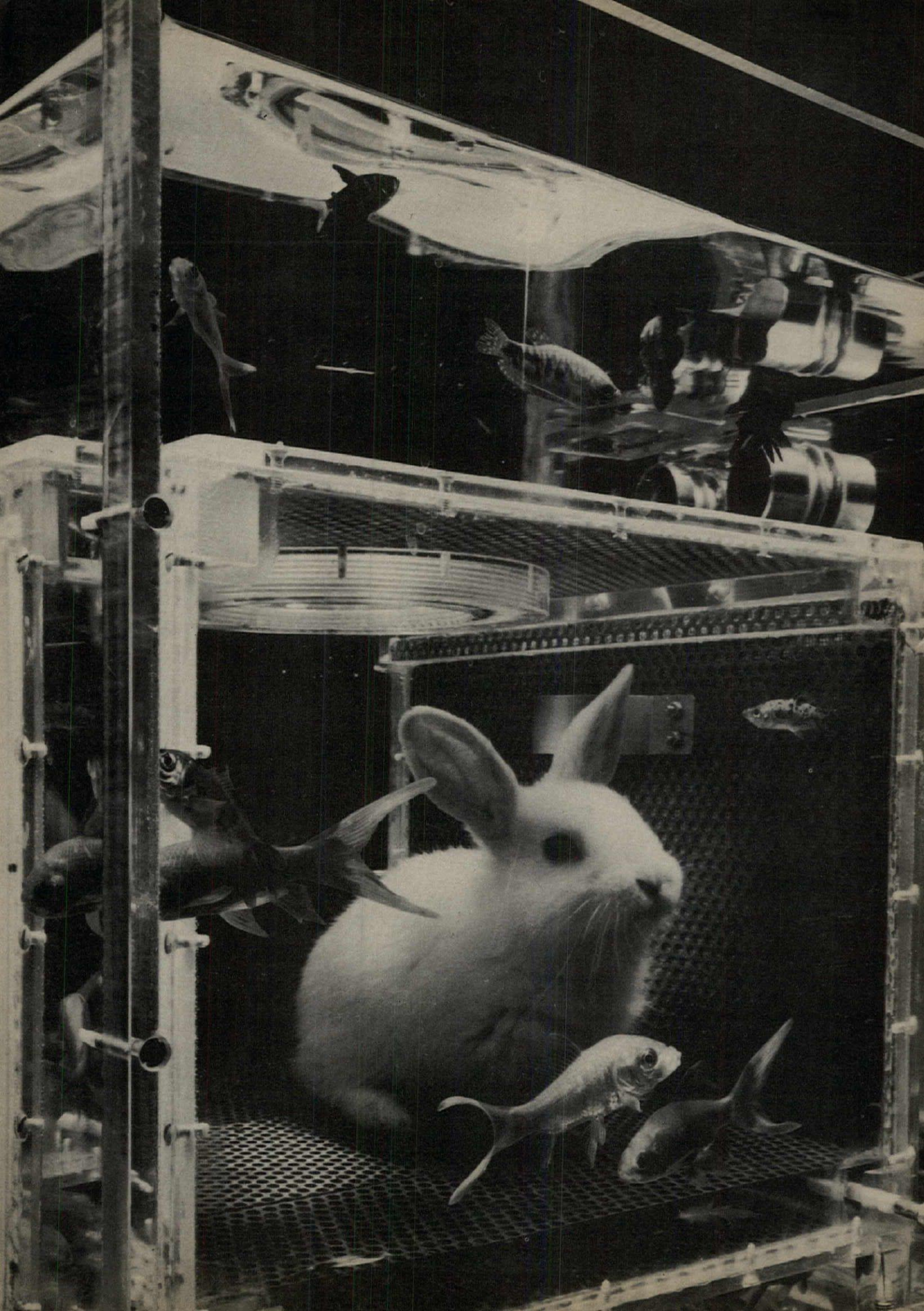
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Recently, P.A. Editor Jan Rowan accepted the Jesse H. Neal Editorial Achievement Award — the "Pulitzer Prize" of business publishing — for "Toward the Third Millennium." In competition with more than 560 other publications, it has been judged the best single issue of a business magazine of more than 50,000 circulation published from December 1966 to November 1967.

Though the story of the underwater rabbit was only a small part of the prize-winning issue, it symbolizes the editorial viewpoint that made "Toward the Third Millennium" outstanding... that makes *every* issue of P.A. outstanding.

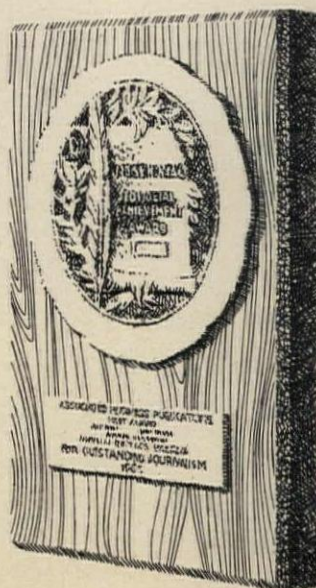
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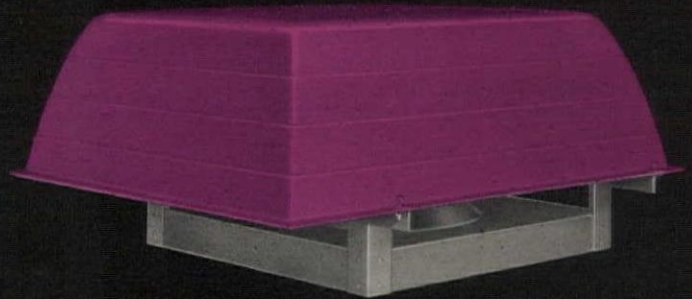
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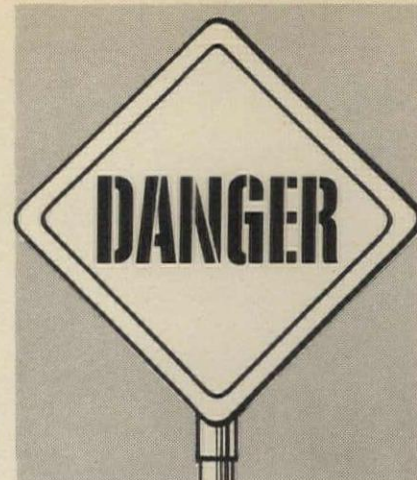
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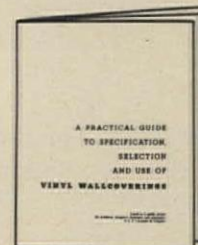


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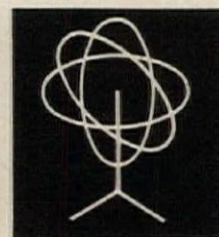
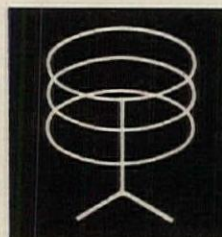
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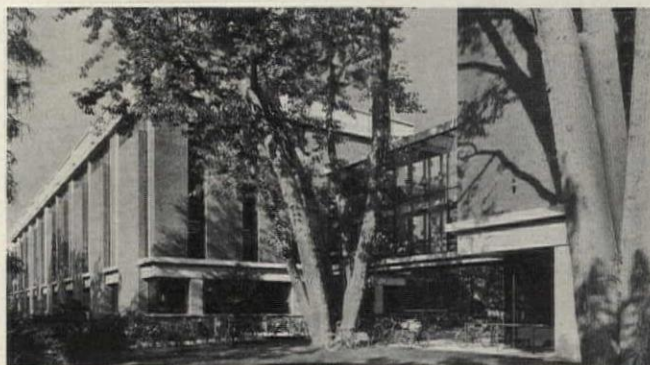
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Progressive Architecture 10 June 1968

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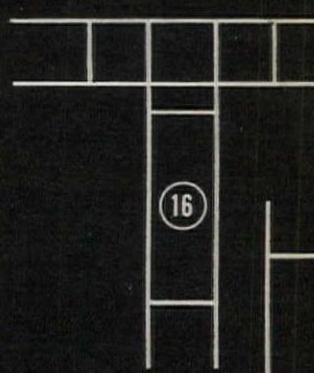
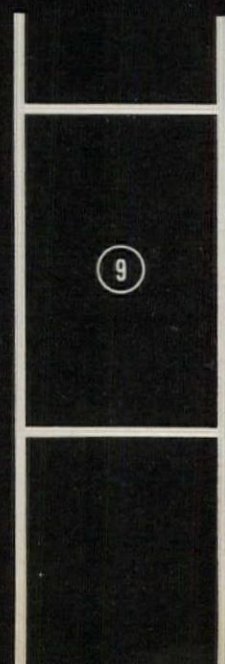
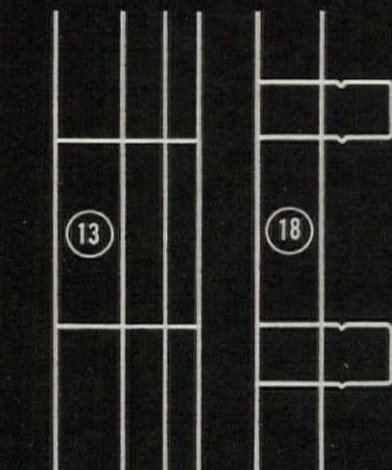
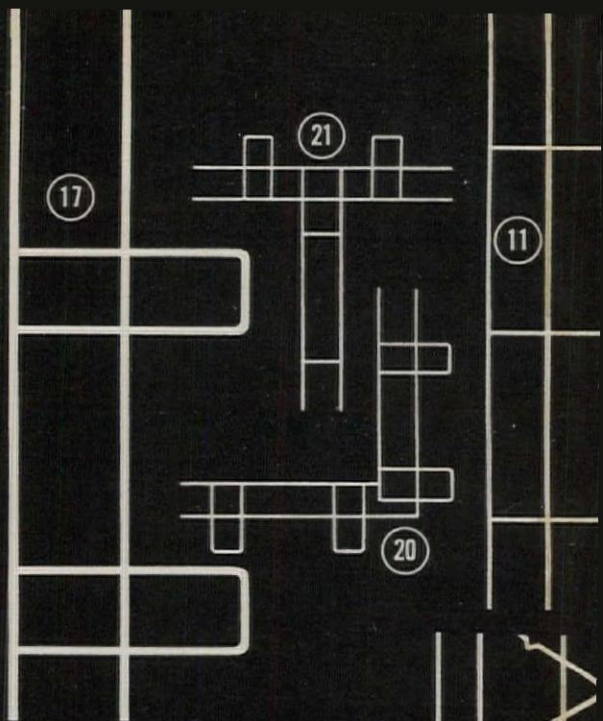
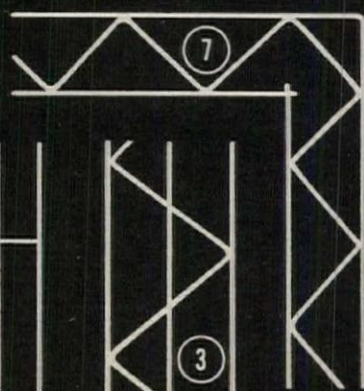
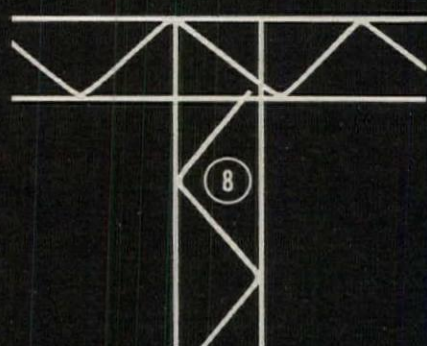
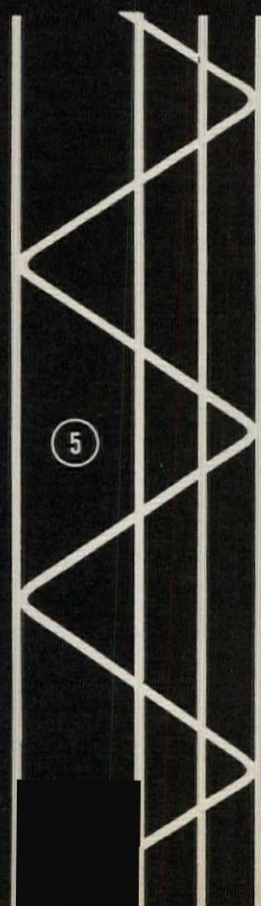
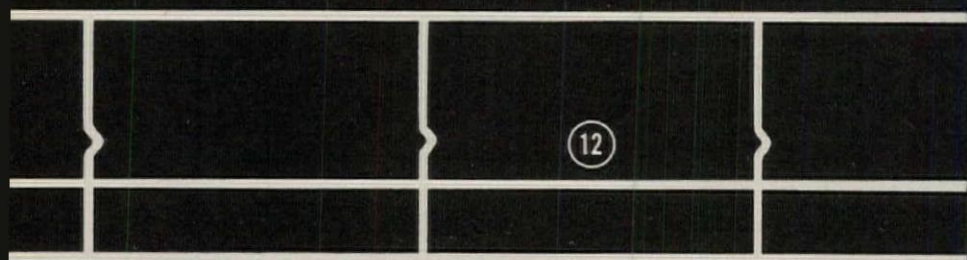
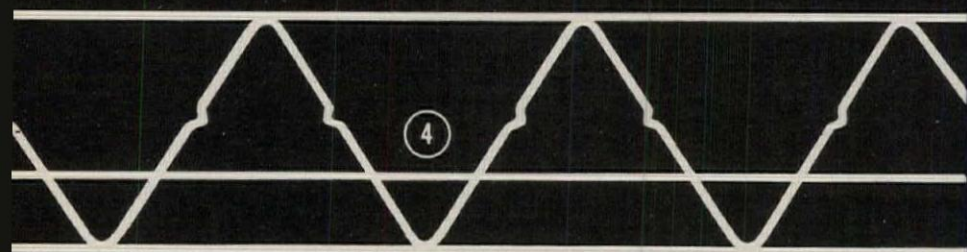
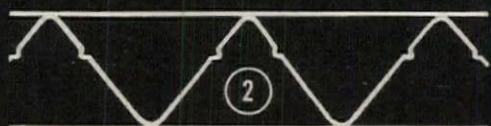
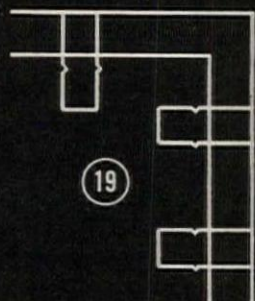
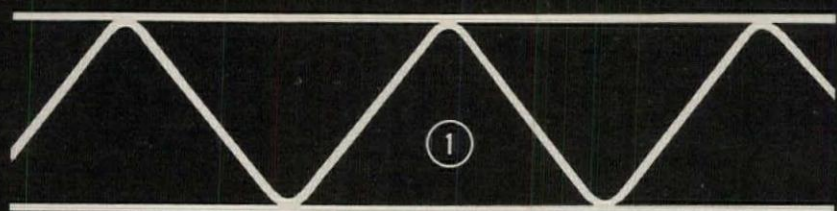
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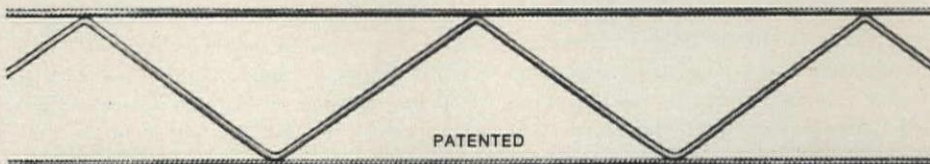
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VIEWS

Reaction to Schools Issue

Dear Editor: I saw the issue on Schools last week (APRIL 1968 P/A) and liked very much the way the subject was treated. The idea came across, though not too directly, that school buildings are educational mechanisms that use built devices, rather than the other way around. Venturi's proposal confirmed this message with clear graphic statements, even though I thought it begged the issue of nonbuildings inasmuch as he did not include the idea of using existing structures (storefronts, as in New York) as a fast and easy way of setting up day-care centers, and so on. To confirm some of these design tendencies I would have also included current research work, such as that being done by Dr. Richard Myrick on space and learning behavior, for cogent demonstrations of "performance design."

MELVIN CHARNEY
Professor Agrégé en Architecture
École D'Architecture
Quebec, Canada

Dear Editor: I have read with some interest the enormous concoction of irrelevancy by our neighbors at Rice University ("New Schools in New Towns," APRIL 1968, P/A). Surely the answer to the future of education is not television sets 6 ft on center all around town. I am beginning to wonder whether those who advocate these force-fed educational systems in preference to books were themselves slow learners in childhood who have not yet caught up with the times. When I observe my one-year-old daughter's fascination with books, I am sure of it.

L. DAVID GODBEY
Houston, Tex.

Dear Editor: I would like to convey my compliments on your April issue on schools — particularly the section entitled "Assault on the Schoolhouse." It was an excellent piece of work and said things that for a long time needed to be said.

LESTER C. HAECKEL
St. Louis, Mo.

Stone-Throwing at Book Reviews

Dear Editor: Re your book reviews of *Edward D. Stone* (APRIL 1968 P/A): Granted the subject document is presumptuously preposterous, an imposition if not an imposture; but is it hopelessly

old-fashioned to exhume that childhood refrain, "Two on one is . . . (word censored) fun"?

Or, restated, is *noblesse oblige* completely dead?

LANDIS GORES
New Canaan, Conn.

A Minute Monument

Dear Editor: Malcolm Wells' cautionary note on the scars of Cooper Pedy, Australia (pp. 164-165, MARCH 1968 P/A) is well founded. He might also have shown how the itinerant miner should construct his dwelling.

Fortunately, there has evolved a functional tradition of materials and construction, and an illustration [see photo]



shows such a dwelling built into an embankment at Andamoonka — another opal mining settlement about 500 miles east of Cooper Pedy. Here, the entrance is formed with the local limestone, and a pitched roof of corrugated iron is covered with earth.

I do, however, wonder about Wells' implied suggestion that the holes should be filled in when the occupant leaves, thus denying the memory of the opal fields.

In the summer of 1960, I was working in the center, carting fuel to an oil drilling operation. The rear axle of the truck broke and our only shelter for two days was the old meat shed of an abandoned sheep station. I learned how 50 years previously a young couple had settled there, 60 miles from their nearest neighbor. They lost all their sheep in the first drought, but struggled with the desert and the heat to restock their property. In the next drought, they lost everything, and when they found that their two small children had wandered away from the homestead and perished, they abandoned their land.

But we were grateful that their memorial sheltered us. And we thought that we could feel what it had been like.

JOHN SCHENK
Cambridge, Mass.

"Pittsburgh" Praise

Dear Editor: Your article on Pittsburgh (MARCH 1968 P/A) is the most comprehensive and adroit piece that we could wish for. You articulated many of the things we were only vaguely aware of or summed up our paragraphs in a pungent phrase. I would hope that we could get many civic leaders here to read it because it provides a perspective otherwise unattainable.

ARTHUR P. ZIEGLER, JR.
Executive Director
Pittsburgh History and Landmarks Foundation
Pittsburgh, Pa.

Dear Editor: Your Pittsburgh article in the March issue is indeed a fine piece — an excellent and comprehensive summation — aside from the fact that it's extremely well written.

BEVERLY B. SCHENAR
Account Manager, Lando, Inc.
Pittsburgh, Pa.

Dear Editor: Your Pittsburgh article was marvelous, a fine appraisal and a sensitive critique exhibiting a keen knowledge of the many nuances of the Old Smoke City.

H.T. PATTON, JR.
Vice-President and National Field Sales Manager
McKinney Sales Company
Scranton, Pa.

Stained-Glass Artist

Dear Editor: In your March issue you have an excellent and provocative article on "Stained Glass." Although it presents several valid points of view, the overall ideal of producing a stained-glass window does not seem to have been explained.

You are quite right in pointing out that the "independent artists are dependent upon the studios for the execution of their large commissions." This dependence relates to the tremendous variety of glasses that must be available, to the manpower to handle large commissions, and to the furnaces and kilns usually required.

The mechanical part of cutting the selected glass, firing it where necessary, leading it (that is, glazing it), soldering it, cementing it, and making it waterproof are purely mechanical operations. The ideal is an artist who can conceive the design, and do all the artistic parts of the window himself. Few artists in America have been able to do this. It is perfectly possible for an artist to do this in connection with a craft studio, and most of the studios are delighted to afford this opportunity.

Generally speaking, an artist can be involved in the problem in three ways. He can be commissioned to design and produce a window and engage a studio

Continued on page 10

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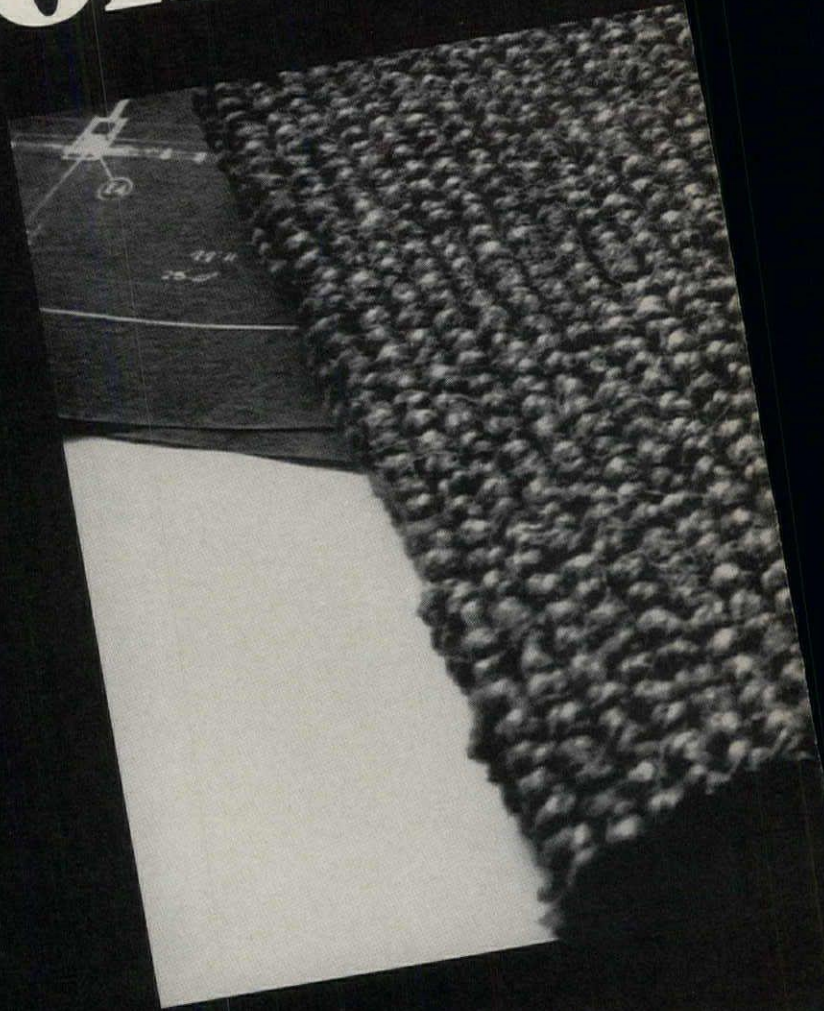
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