



FORUM





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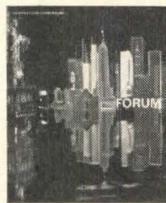
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Cover: Photograph by Clara Aich and George Senty

### THE ARCHITECTURAL FORUM

Vol. 126 No. 4, May issue

Published 10 times a year, combining Jan./Feb. and July/Aug. issues, by Urban America, Inc., 111 W. 67 St. New York, N.Y. 10019.

Sent without charge to architects registered within the U.S.A. Qualified persons are invited to write the Circulation Manager on company letterhead. Please give your principal state of architectural registration, your title, and the kind of work you do. Correspondence regarding service, change of address, etc., should be sent to the Circulation Manager.

Subscription rate is \$12 within the U.S.A. and possessions; Canada, \$15; Elsewhere, \$20. College Rate for students and faculty members of U.S. accredited schools of architecture, \$6.

Single copies, \$1.50.

Member of Business Publications

Audit of Circulation, Inc.

Controlled circulation postage paid at New York, N.Y.

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### PUBLISHER'S NOTE

We intend this month's cover to be a souvenir for the more than 4,000 convening AIA members, wives, children, and assorted pets who are about to descend upon the island of Manhattan. There is a story in its making.

A couple of years ago, when we were considering an issue on New York City, our editor began to think of a suitable cover. After looking around town as a tourist would, he concluded that it might be possible to construct some sort of surrealist "Manhattan Skyline" out of all those gilded souvenirs that are sold to tourists in Times Square and elsewhere.

So he began to look for enough parts: the Statue of Liberty and the Empire State Building were a cinch; slightly more difficult were the RCA Building and the UN; the Woolworth Building (or what looked a bit like it) turned up in a junk shop on Third Avenue. The Chrysler Building was unavailable, so he substituted a machine gun bullet that had been converted into a cigarette lighter.

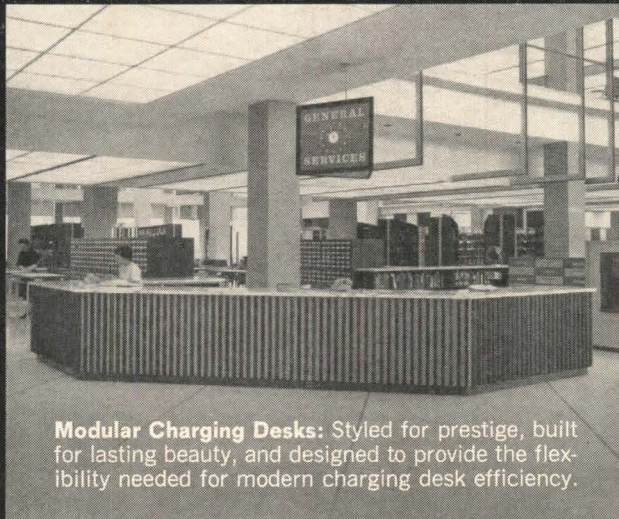
Some of the more recent additions to the skyline had to be specially manufactured. Our Art Department's Judy Loeser went off to collect bars of clear plastic that, when stood on end, would resemble new structures like the Chase. Then, Ann Wilson, the lady who actually runs this magazine, found some chocolate souvenir buildings in Brooklyn. Finally, the editor raided his son's toy chest and added a few more souvenirs from other cities.

Having started you off with some clues, we are inviting you to enter a contest to identify the more mysterious components of our skyline. The winner will receive a lifetime subscription to the FORUM.

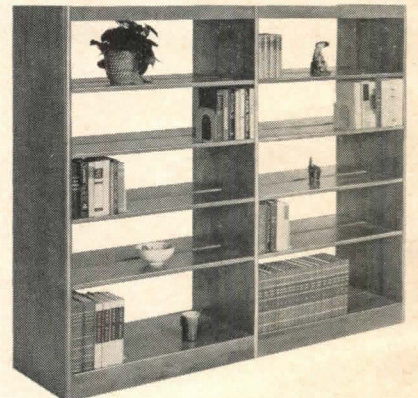
With their bag of tricks filled up, our editors next looked for a photographer sufficiently imaginative to transform the collection into a great picture. The choice was a young girl, Clara Aich, a refugee from Hungary and now a resident of New York. Her skill in transforming a playful editorial idea into a brilliant image speaks for itself.—L.W.M.



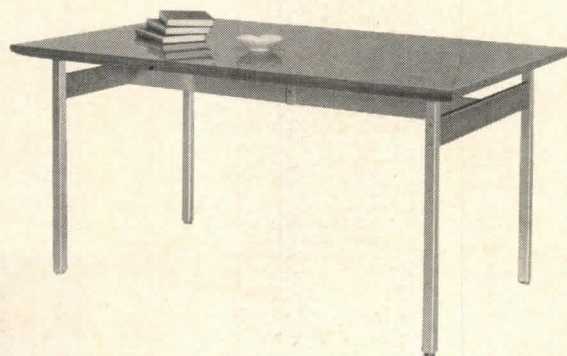
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other library planners during the actual preliminary design stages. Whatever your particular needs, there's a lot more to work with at Library Bureau. Ask your representative for details. He's in your phone book under Remington Rand.

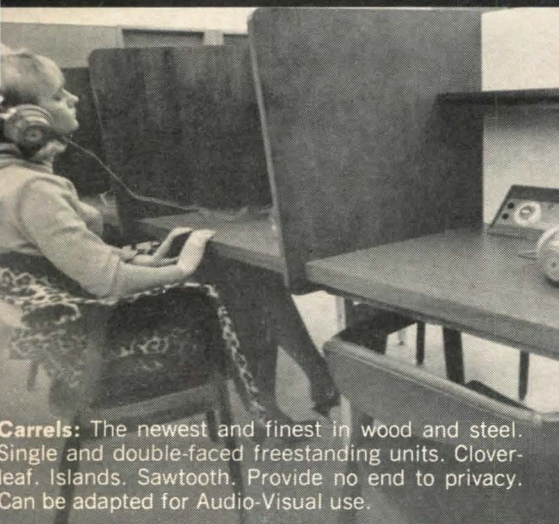


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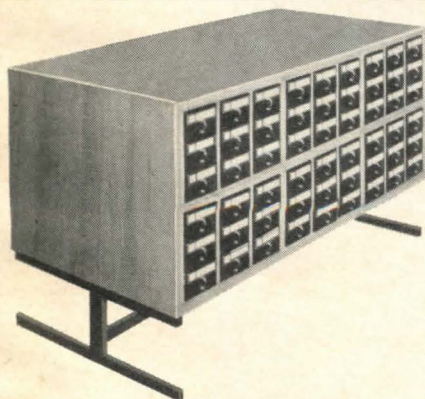
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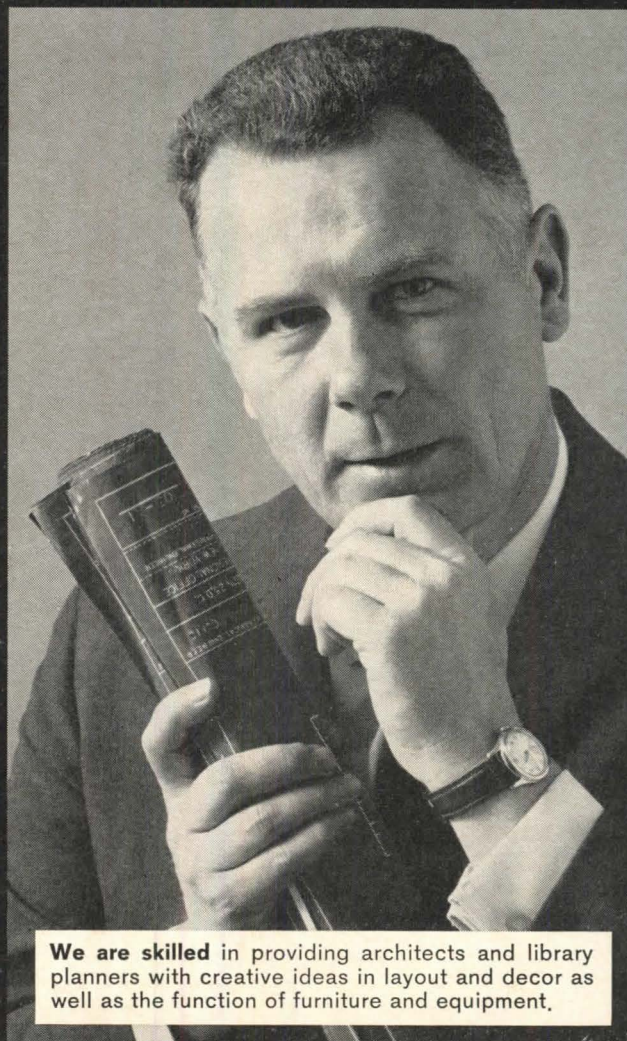
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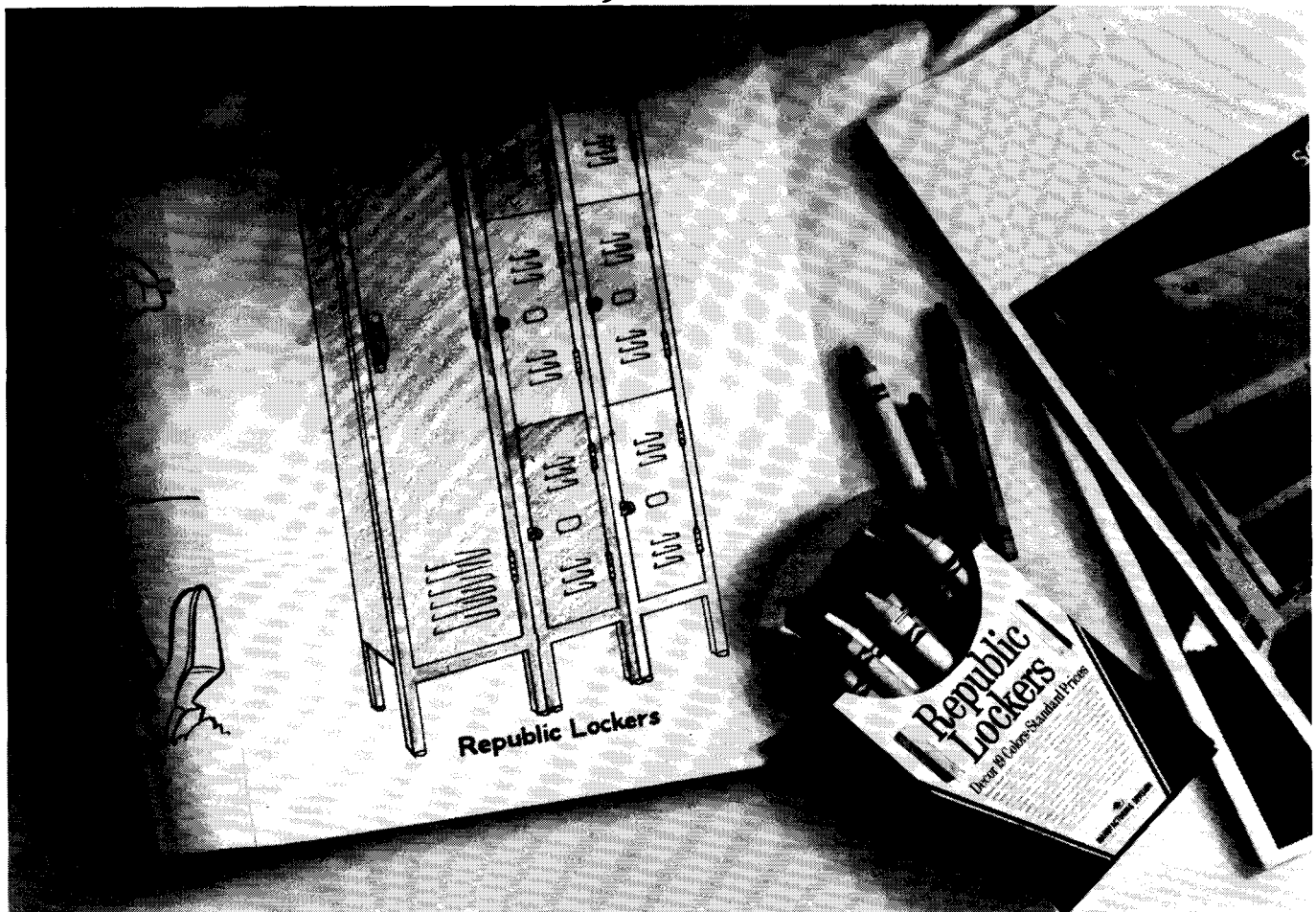
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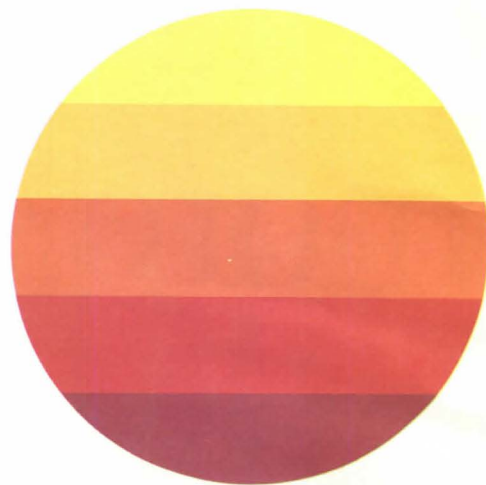






Washington and Lee High School, Montross, Va.  
Associated Architects: Stevenson Flemer, Eason Cross and Harry Adreon

Pleasant exterior visibility is provided for this gymnasium through transparent walls of solar glare and heat reducing gray Plexiglas. Grandstands on each side of the playing floor are flanked by the transparent walls, giving spectators a unique out-of-doors feeling.



## Tinted PLEXIGLAS® puts the sun in its place

Subdued light enters this chapel through patterned-surface gray transparent Plexiglas. The tint used transmits only 44% of total solar energy. Light transmittance is 27%, and this assures the reduction of solar glare with the effectiveness of sunglasses.

Dorcas Chapel, Marian College, Fond-du-Lac, Wisconsin  
Architects and Engineers: Schmidt, Garden & Erikson, Chicago



Tinted Plexiglas offers a variety of transparent colors and densities for effective control of solar energy and glare.

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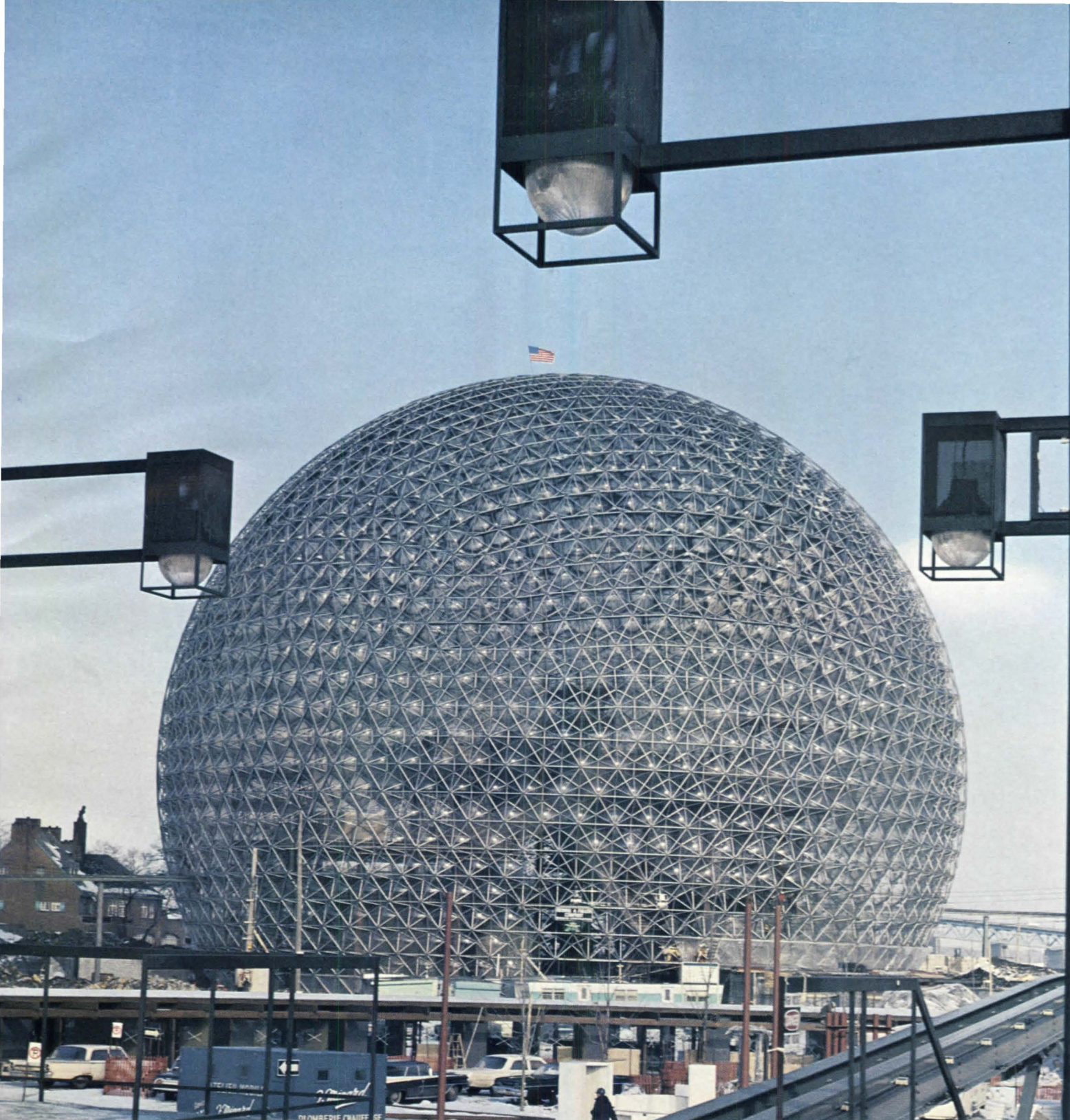
- Impact resistance nearly twice that of tempered glass.
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Plexiglas is the only glazing material that combines the properties necessary to meet the unique requirements of the U.S. Pavilion. These requirements are: transparency, light weight, breakage resistance, weatherability, formability and solar heat and light control.



Architects: R. Buckminster Fuller, Fuller and Sadao, Inc.; and Geometrics, Inc., Cambridge, Mass.



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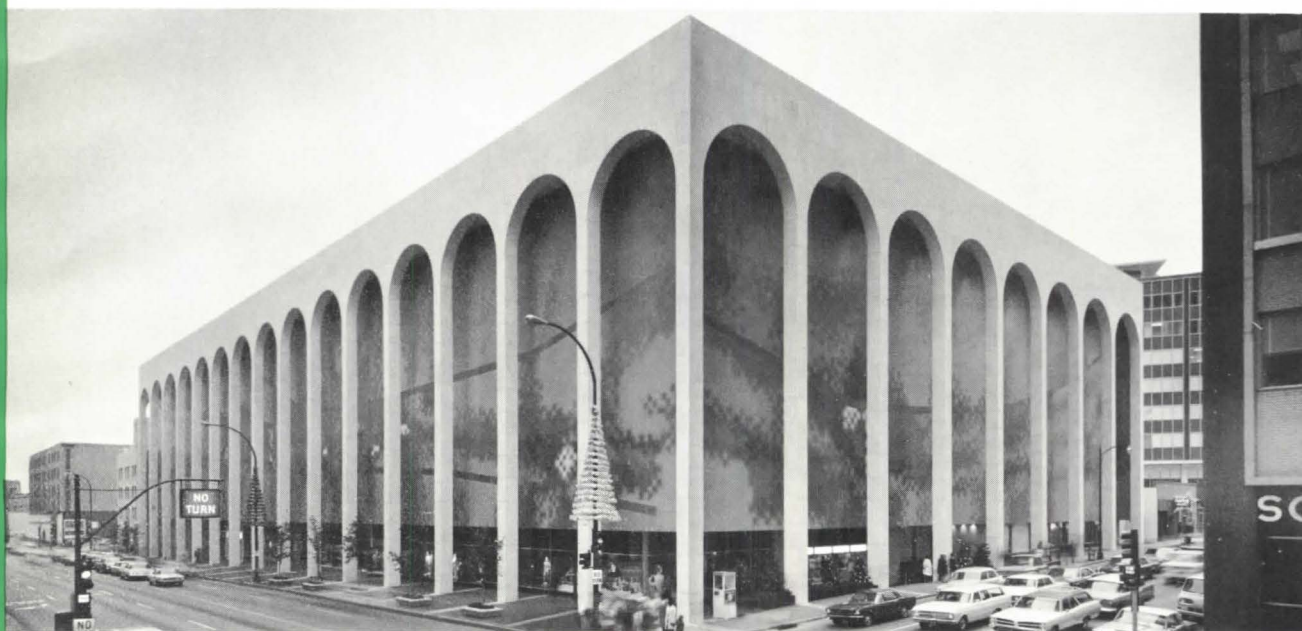
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# Design of Dazzling New Department Store in Dallas Includes Electric "Bootstrap" Heat Pump System



**DALLAS, TEXAS**—Dallas has a new department store and it's "Texas-style" all the way. Taking up nearly an entire city block, the new Sanger-Harris Department Store is a striking addition to the downtown Dallas area. From its four-story white marble arches and multi-colored glass mosaic mural to its black and white terrazzo sidewalks, the handsome new structure is a dazzling combination of the old and the new in what architect Thomas Stanley describes as "a contemporary adaptation of classical architecture."

The arches are free-standing on two sides of the building and the perimeter walls are suspended from the roof to give an open colonnade effect. The arches on the other two sides are an integral part of the building walls. The huge mosaic mural, designed by architect Stanley, covers all four sides of the structure and is illuminated at night by lights on the back of the columns.

The interior of the building is equally lavish and very modern. To help make shopping even more pleasant and comfortable, project engineer Barton B. Wallace, Jr., of Herman Blum Consulting Engineers, selected an internal source electric heat pump system for year-round environmental control. Cooling is provided by 1,585 tons of electri-

cally-driven refrigeration equipment. The building's heating requirements are met by the high level lighting and by the occupants (estimated to reach 9,000 at peak periods), and the structure requires no additional heat unless the outdoor temperature drops below 11F. "This is why the application of a heat conservation system was a natural for this building," says engineer Wallace. "Instead of dumping the unwanted heat through the cooling tower in winter, the electric system transfers it to the perimeter walls where it is needed."

The "bootstrap" electric heat pump system employs two centrifugal refrigeration machines which operate in series in summer and in parallel in winter. The chillers are installed on the top floor of a two-story penthouse and the hot and chilled water pumps on the lower level, between the two built-up, two-story air handling systems which distribute more than 400,000 cfm to the building.

"The flexibility of the electric system was a major factor in its selection," Mr. Wallace says, "and the installed cost of \$518 a ton, and the projected operating costs, compared favorably with flame fuel systems in the Dallas area. Everyone seems well pleased with our choice."



**1 CATEGORY OF STRUCTURE:**

Commercial—Department Store

**2 GENERAL DESCRIPTION:**

Area: 463,000 sq ft  
 Volume: 7,485,200 cu ft  
 Number of floors: six  
 Number of occupants: 9,000 peak  
 Types of areas: retail sales, office, storage, receiving and shipping

**3 CONSTRUCTION DETAILS:**

Glass: single  
 Exterior walls: concrete block with 3/8" marble veneer, 1" mineral wool insulation (R/4), 5/8" gypsum board. U-factor: .14  
 Roof or ceilings: concrete slab, insulation deck (R/4) and built-up roof with white marble chips. U-factor: .15  
 Floors: concrete floor with pan joist, tile and carpet  
 Gross exposed wall area: 52,770 sq ft  
 Glass area: 5,935 sq ft

**4 ENVIRONMENTAL DESIGN CONDITIONS:****Heating:**

Heat loss Btuh: 8,020,000  
 Normal degree days: 2,363  
 Ventilation requirements: 80,000 cfm  
 Design conditions: 0°F outdoors; 72°F indoors

**Cooling:**

Heat gain Btuh: 17,280,000  
 Ventilation requirements: 80,000 cfm  
 Design conditions: 100F dbt, 78F wbt outdoors; 75F, 50% rh indoors

**5 LIGHTING:**

Levels in footcandles: 20-100  
 Levels in watts/sq ft: 1-5  
 Type: fluorescent and incandescent

**6 HEATING AND COOLING SYSTEM:**

An all-electric, totally integrated heating, lighting, and air conditioning system utilizing an internal heat source heat pump. Cooling is provided by two hermetic centrifugal refrigerating machines of 1,000-ton and 585-ton capacity and heating is provided from internal heat sources—lighting and occupants, up to 9,000 people at peak periods. The building loads balance at 11F outdoor temperature.

**7 ELECTRICAL SERVICE:**

Type: underground  
 Voltage: 265/460v, 3 phase, 4 wire, wye  
 Metering: secondary

**8 CONNECTED LOADS:**

Cooling (1,585 tons)	1,446 kw
Ventilation	451 kw
Lighting	3,220 kw
Cooking	513 kw
Other	332 kw
<b>TOTAL</b>	<b>5,962 kw</b>

**9 INSTALLED COST:\***

General Work	\$3,598,000	\$ 7.77/sq ft
Plumbing & Mech.	970,000	2.10/sq ft
Electrical	583,000	1.16/sq ft
Sprinkler System	214,000	.46/sq ft
<b>TOTAL</b>	<b>\$5,320,000</b>	<b>\$11.49/sq ft</b>

\*Building was completed 8/65

**10 HOURS AND METHODS OF OPERATION:**

Store opens at 9:30 a.m. Monday through Saturday and closes at 5:45 p.m. except on Monday and Thursday when it closes at 9 p.m.

**11 OPERATING COST:**

Period: 11/65 through 10/66  
 Actual degree days: 2,228  
 Actual kwh: 11,600,800\*  
 Actual cost: \$104,714.55\*  
 Avg. cost per kwh: 0.903 cents\*  
 \*For total electrical usage

Month	Demand	kwh	Amount
11/65	2918	916,800	\$ 7,449.20
12/65	3033	929,600	7,429.37
1/66	2688	898,400	7,279.39
2/66	2688	892,800	7,331.70
3/66	2841	870,400	7,222.03
4/66	2841	911,200	7,421.79
5/66	3340	924,800	9,751.75
6/66	3302	1,099,200	10,439.23
7/66	3302	1,061,600	10,258.98
8/66	3340	1,059,200	10,301.73
9/66	3264	1,067,200	10,231.36
10/66	3148	969,600	9,598.02
<b>TOTAL</b>		<b>11,600,800</b>	<b>\$104,714.55</b>

**12 UNUSUAL FEATURES:**

During unoccupied periods in cold weather, outdoor air is cut off and the lighting system turns on automatically to maintain interior temperatures. Lights in display windows give enough heat to provide a buffer zone. Display windows are fed conditioned air through floor level slots, and air is exhausted into the ceiling plenum by auxiliary fans. The three street entrances are equipped with air curtains.

**13 REASONS FOR INSTALLING ELECTRIC HEAT:**

An internal source electric heat pump system was selected because available heat within the structure is sufficient to off-set heat loss if properly redistributed. Building thermal loads balance at 11F outdoor temperature. The electric system also compared favorably in installation and operating costs with flame fuel systems and offered the added advantages of being extremely flexible, clean and convenient.



**14 PERSONNEL:**

Owner: Federated Department Stores, Inc.  
 Architect: Thomas E. Stanley  
 Consulting Engineers: Herman Blum  
 General Contractor: Robert E. McKee, Inc.  
 Electrical Contractor: Fisk Electric Co.  
 Utility: Dallas Power & Light Company

**15 PREPARED BY:**

C. B. Mallet, Jr., Power Service Engineer,  
 Dallas Power & Light Company.

**16 VERIFIED BY:**

 Thomas E. Stanley, AIA  
 Barton B. Wallace, Jr., P.E.

The Consulting Engineers Council USA, has confirmed the above categories of information as being adequate to provide a comprehensive evaluation of the building project reviewed.

**NOTICE:** This is one of a series of case histories of buildings in all structural categories. If you are an architect or consulting engineer; an architectural or engineering student; an educator; a government employee in the struc-

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# LETTERS

## THE EXPRESSWAY PERIL

Forum: Thank you for the excellent article on the Vieux Carré expressway in New Orleans (Mar. '67). It has already served a tremendous purpose by being part and parcel of Mr. Morris Etchum's legal deposition for our lawsuit, which he delivered here on Tuesday. It had the defendants' lawyers shaking, and he did a masterful job.

I must commend Mrs. Dunhill for hitting the nail so squarely on the head.

While our lawsuit rests in Federal court, the state highway department has just released its "Arsenic and Iron Lace" cosmetic treatment to the monstrosity—complete with false arches, iron framework, and "authentic type" French Quarter lanterns as the sublime and inspired answer to all our woes! In other words, the civil engineers have concocted "Instant History" [see page 33].

I must say the design is both quaint and "unique," but hardly within the intent of the protective laws of the historic area.

This beauty has been sent to the Bureau of Public Roads for their final approval, which we hope to stymie.

The mayor of New Orleans and two city councilmen (with a determined citizens delegation) asked Mr. Charles Haar of HUD, in Washington last week, for the intergovernmental task force study requested last October by the National Trust. Lack of official community support has kept Washington mum on the subject, but now that Philadelphia's task force has proved effective in saving Independence National Park, what excuse can they offer to our second most important ensemble nationally?

Please keep up your good work. We, and all other beleaguered cities need your type of support.

MARK LOWREY  
President

Vieux Carré Property Owners  
and Associates, Inc.

Forum: The article on New Orleans was superb. We here in San Antonio have an informal alliance with our fellow expressway fighters in the Vieux Carré—and we always cheer when someone cheers for them.

May I second Wanda Ford's notion that your influential magazine consider publishing an ac-

count of the threat to San Antonio posed by the scheduled intrusion of U. S. 281 North expressway into the scenic green heartland of our city.

Mr. Sam Zisman has pointed out that while most urban expressways meet opposition because they threaten one historic site or irreplaceable civic feature, our expressway sets what may be a record in destroying or maiming: a public golf course, park areas of irreplaceable trees, public school stadium facilities, the zoo, an outdoor theatre, the campus of Incarnate Word College, and the Olmos Basin.

In short, U.S. 281 North will be a monster of utterly unbelievable proportions.

The rather cuttingly frank style your writers use in commenting on other monsters which I have enjoyed so much in perusing your magazine could be employed with gusto in telling the San Antonio story.

MRS. DON F. TOBIN  
President  
San Antonio Conservation Society

## MEANWHILE, BACK ON EARTH

Forum: I urge you and other media to continuously repeat the point of Peter Blake's final two paragraphs (in "Cape Kennedy," Jan./Feb. issue) until enough transportation specialists and decision-makers begin to take heed. The Woods Hole conference summary was a very appropriate story to follow Blake's.

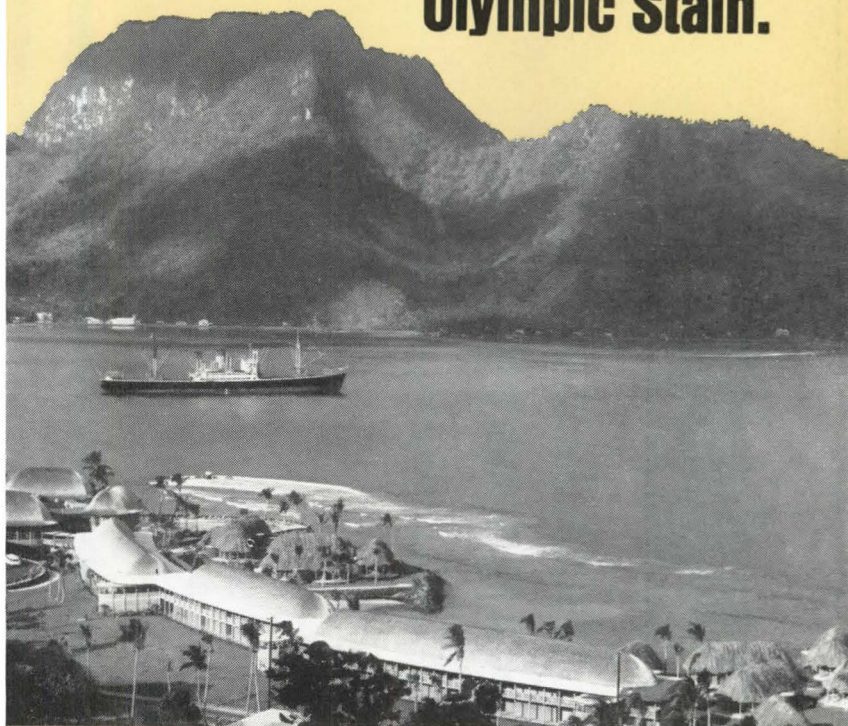
E. JACK SCHOOB  
Chief Planner  
San Francisco Bay Conservation  
and Development Commission

## BELATED COMPLIMENT

Forum: I was recently referred to your March issue for the article on the Museum of Modern Art's urbanism exhibition. (I had written an indignant letter to the publicity director about my disappointment in the projects presented.) Overcoming my initial skepticism about Forum printing a thorough criticism of that misguided venture, but trusting in Mr. Hatch's opinion, I paged through a copy in our Art and Architecture library. To my grateful surprise, in the process I came across other articles of constructive comment and controversy. Furthermore, I could not find any mention of Johnson, Rudolph, etc.—I guess you have left them to the *New York Times Magazine*. In their place were photographs and drawings of whole buildings, set down in their sites as use-

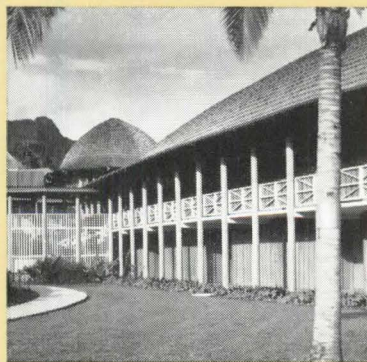
(continued on page 16)

# Pago Pago Intercontinental... protected with Olympic Stain.



Fidelity to the native Samoan *fales* and Polynesian long house design forms was one of the things that helped Wimberly, Whisenand, Allison and Tong, Architects Ltd. win a design Honor Award from the Hawaii Chapter of the A.I.A. for their Pago Pago Intercontinental Hotel in American Samoa.

The 101-room hotel—made up of twelve *fales* and three two-story long houses—is situated on a peninsula at the entrance to Pago Pago harbor. Its site plan reflects a typical Samoan cluster.



"Native construction techniques were used whenever possible," the architects write. "Natural materials, breadfruit limbs, coconut mid ribs, sennet, and thatch were utilized except where greater permanence dictated otherwise."

In Pago Pago, where the annual rainfall averages 200 inches, protection is a vital problem. To solve it, the

architects specified Olympic Stain. In their words, "Semi-Transparent stains were used on all exposed interior and exterior wood, because of their resistance to salt air, high humidity, and alternating tropic sun and rains."

But protection wasn't the only reason for their choice of Olympic Stain. According to the Honolulu firm, "The stain's excellent ability to both preserve and color the wood and yet enhance the natural decor and grain further complements the tropical atmosphere of these buildings."

Wimberly, Whisenand, Allison and Tong's success in Pago Pago stands as one more good example that wherever a good design calls for beautiful wood, protected and enhanced by color, it calls for Olympic Stain.

For color samples on wood and A.I.A. Information Manual, write Olympic Stain Company, 1118 N.W. Leary Way, Seattle, Washington.











Some people believe  
a door should be a work  
of art.

Schlage does.

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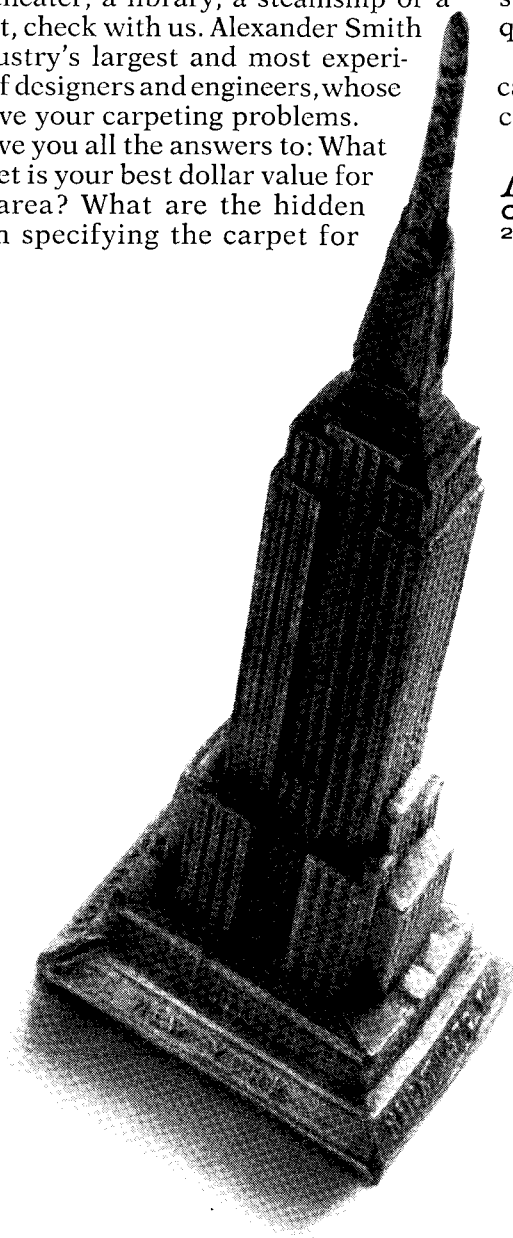
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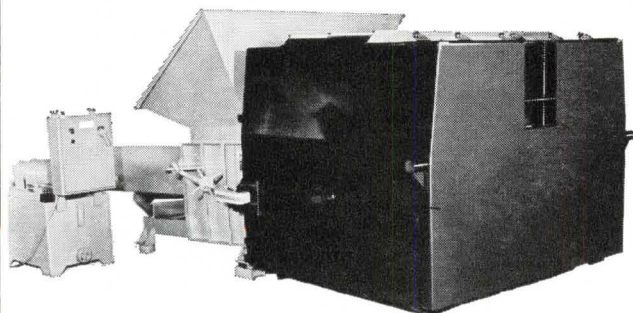


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## LETTERS

(continued from page 11)

ful things. Neither was the coverage restricted to single buildings, but there were groups of buildings and cities even.

ROBERT H. KUEHN JR.  
New Haven, Conn. *Architecture Student*

### MISPLACED GILT?

Forum: Reading the "Nervi's Gilded Gateway" article in the March Forum, I too, as the interviewed architects, failed to identify the building, but for reasons radically different from those mentioned.

As a frequent observer of this particular "work of such a celebrated figure" I fail to be overcome and sound the paeans for what is essentially a poor design both functionally and esthetically.

Firstly: why make the Port of New York Authority (an attractive villain, I will admit) the scapegoat for the designer's lack of judgment and understanding in omitting elementary weather protection? "Glazing of the triangular openings and windbreaks . . . with plastic canopies" might not have been necessary had Nervi planned a building for its purpose instead of an exercise in "burly trusswork."

And, incidentally, the "muscular concrete diagonals" are a fake—no more than a cosmetic for the wide-flange steel sections of a large part of the structure.

As to the esthetics—don't you find the puny edges of roof slab picking at the skyline rather pathetic? And what of the clumsily rounded pilasters at the clerestory ends, awkwardly sloping to the very edge of the vertical trusswork, the acute visual discomfort of which is evident even from photographs (page 72)?

Truly, the only good view is the aerial one—for the birds, obviously.

NORBERT N. TURKEL  
New York City *Architect*

### A SMOOTH BLEND

Forum: One great consolation of living a long time is the privilege of seeing what seemed like irreconcilable opposites merge into unexpected combinations. Who would have believed, in say, 1939, that one shining day we would see a merger of the restless "endless" Johnson's Wax Factory with the poised but static curved windcreens atop the Villa Savoye, or, for this is not all, a synthesis of Oud's placid, soft-cornered hous-

ing scheme with the restless stepping up and down on the same plane of Aalto's 'cut-out' walls? And one should add a large dose of Mendelsohn's Palestine work.

The victim of all this influence-spotting is the Estée Lauder Cosmetics Plant, (Forum, Mar. '67), a building shot through with an ambivalence gloriously of our time. It hovers over its sodded berm eluding both Wright's "building as extension of the ground" and Le Corbusier's classical detachment from the ground. Sooner or later we should have known that the rather false question of detachment from the ground versus earthbound would be resolved with the suggestion that man needs both circumstances. In fact Aalto, Utzon, and others have been saying this for some time, the Sydney Opera House in particular. This "streamlined" factory actually looks as though it could hover, then streak from one berm to another, which is an expression very relevant to the problems of disposing rapid-obsolence factory-made structures in a new urban setting where the trees will probably be the time-marking "permanent" structures.

There is ambivalence again in the elegant detailing. Those white porcelain enamel panels with their almost suppressed joint and total absence of articulation at the roof, remind one both of early Bauhaus and of the "non-material" painted concrete of Wright's last buildings. Most irresistible, it comes straight from the common gas station, as the black neoprene gaskets come from the Detroit car, so it's all very "pop." As for expressing the building's purpose, this "skin," for that is what it is, could hardly be bettered for a cosmetics plant, though rather blatantly white, if you can carry the symbolism that far! The thing can also be read as a white cardboard package—a neat cosmetics box, and here the lettering is a clever touch, reminding one of De Stijl and of French graphic art of the late '30s.

My only complaint in these times when relationships are all, is your failing to give us at least one shot of the context. We always see these accomplished buildings on their own, which prolongs the terrible illusion that things are going well with the environment. Otherwise, thank you.

JOHN KENYON  
City of Oakland Planning  
Oakland, Calif. *Department*





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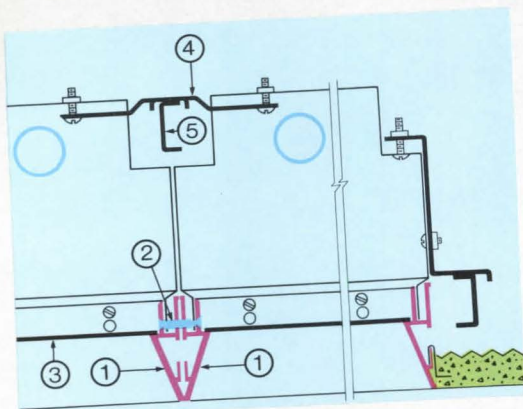
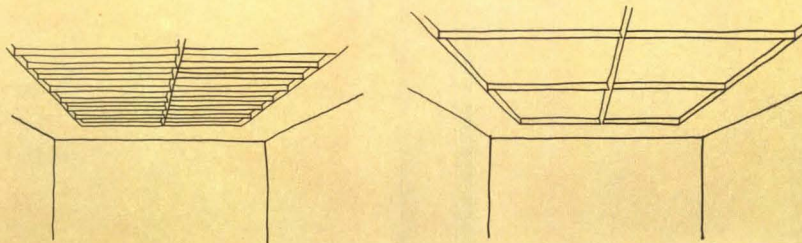
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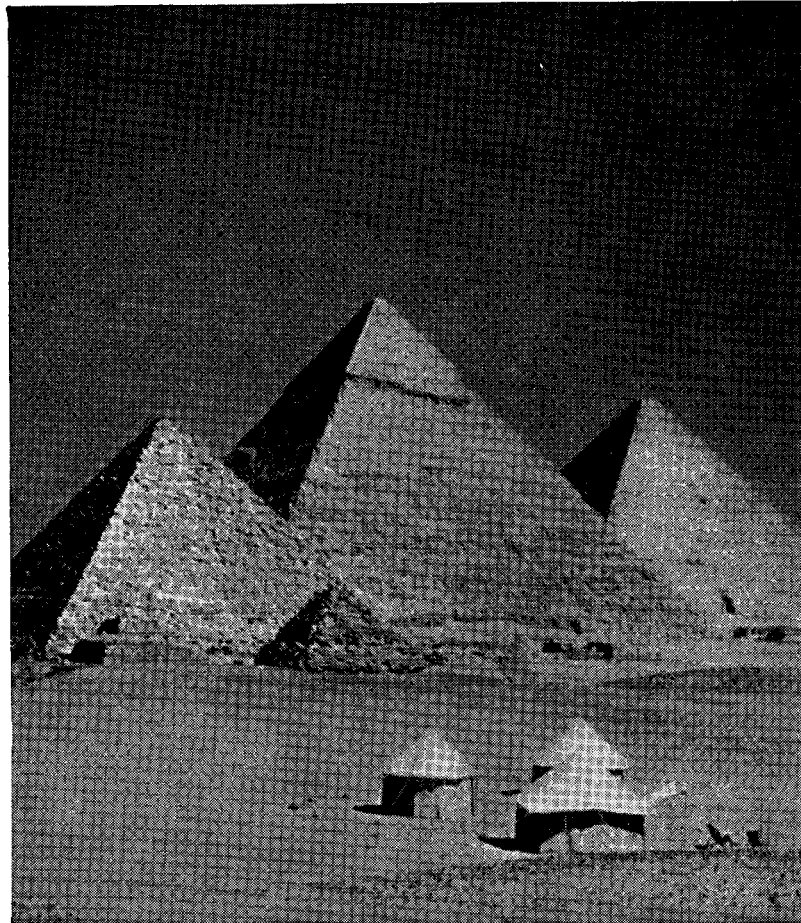
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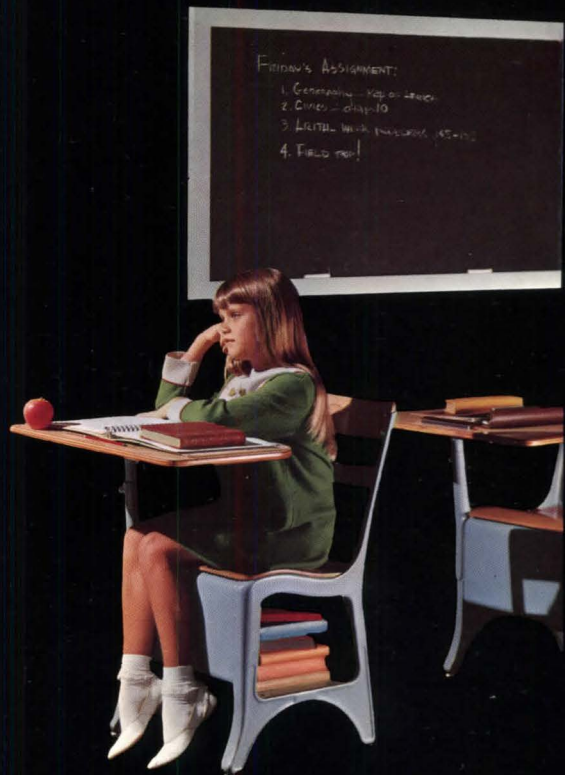
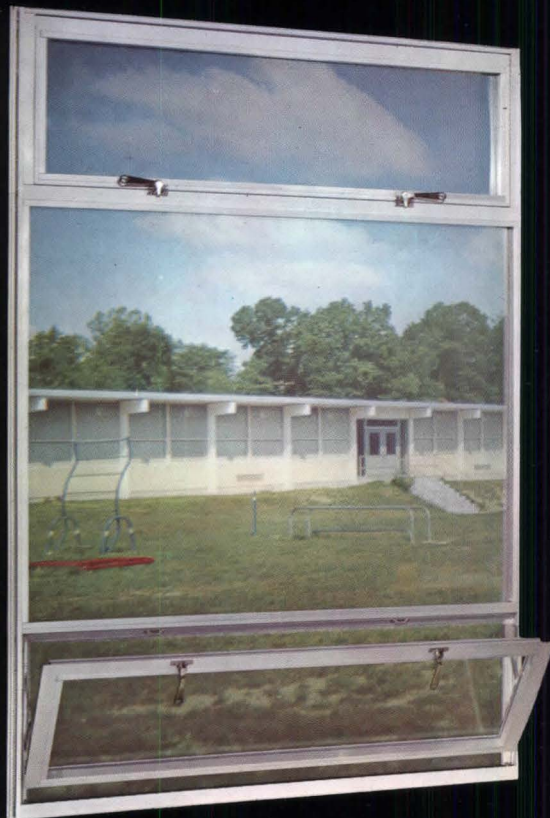
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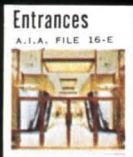
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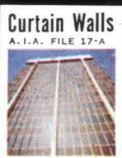


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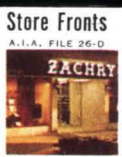
**Entrances**

A.I.A. FILE 16-E



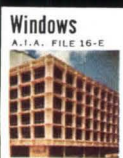
**Curtain Walls**

A.I.A. FILE 17-A



**Store Fronts**

A.I.A. FILE 26-D



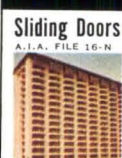
**Windows**

A.I.A. FILE 16-E



**LaPorte**

A.I.A. FILE 16-N



**Sliding Doors**

A.I.A. FILE 16-N

**Amarlite**

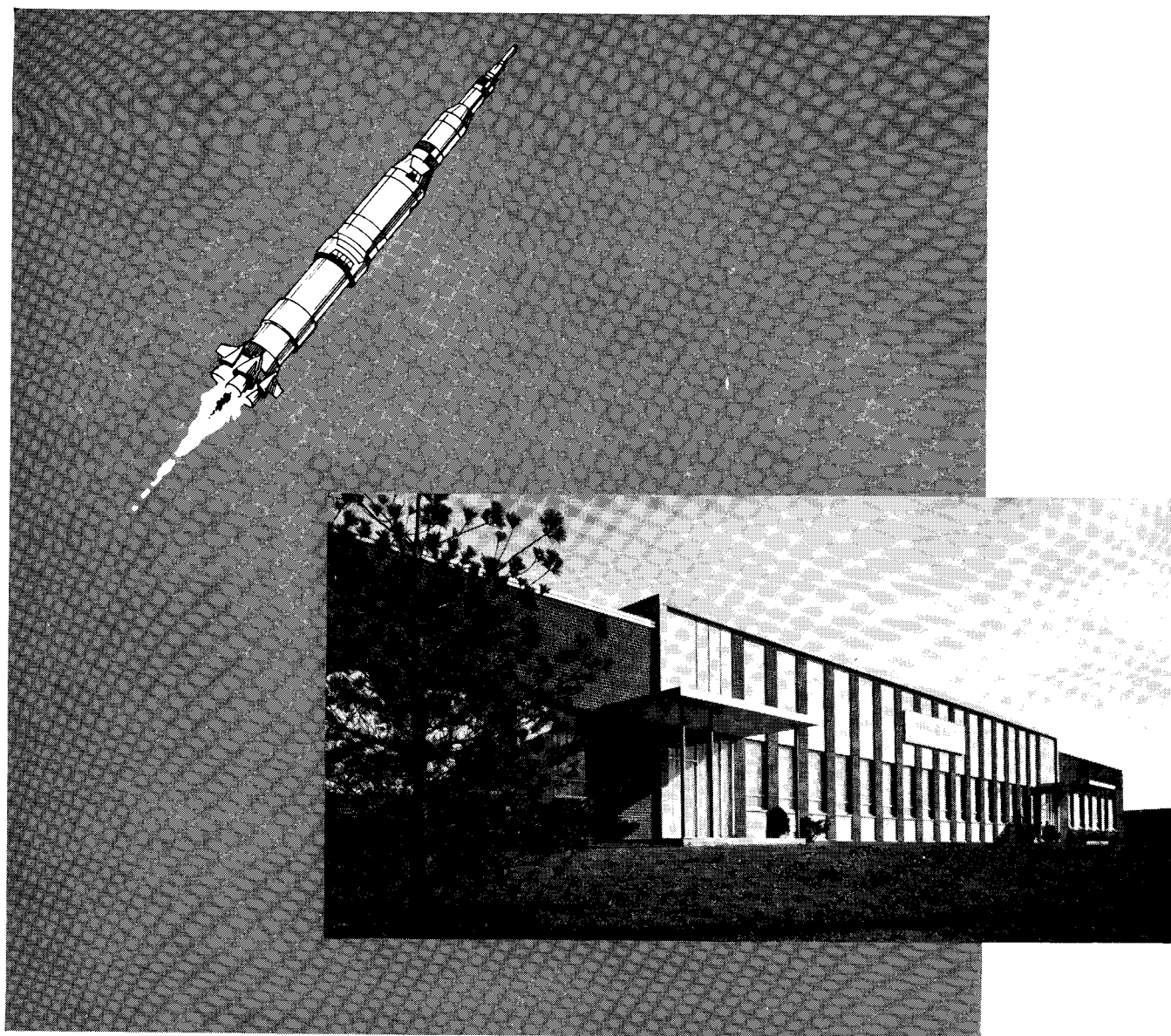
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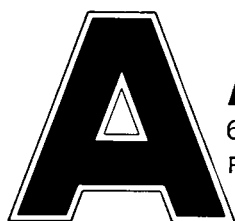


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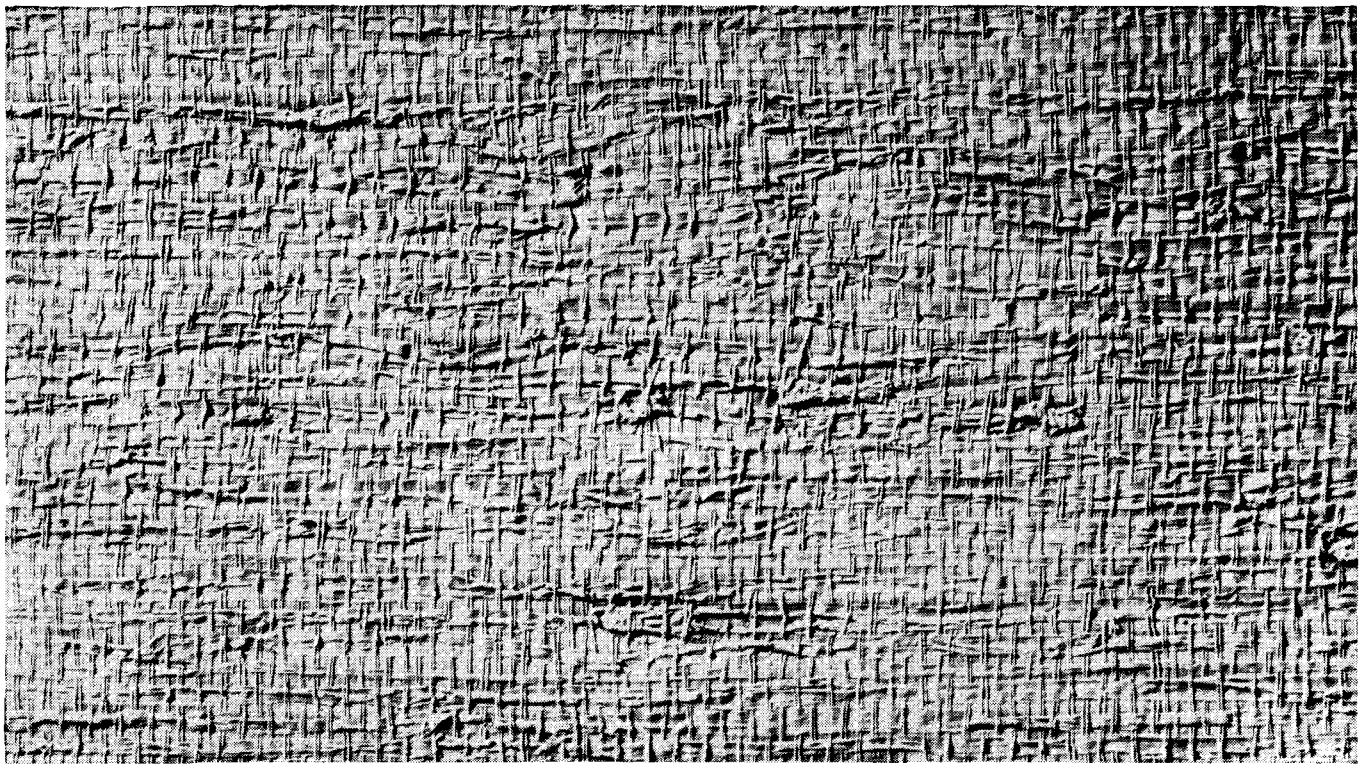


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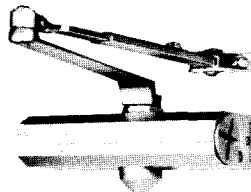
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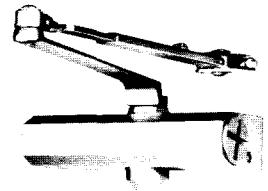
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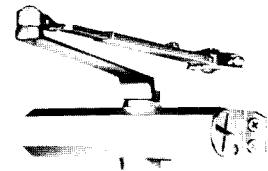
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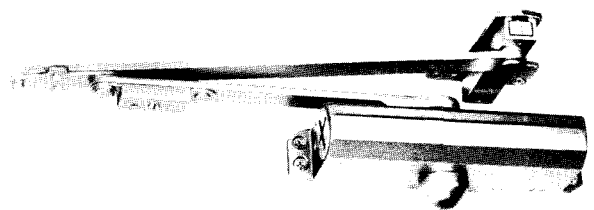
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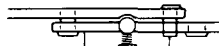
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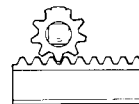
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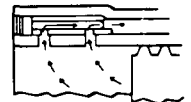
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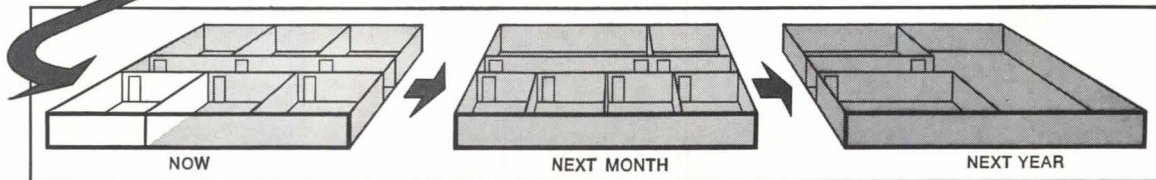
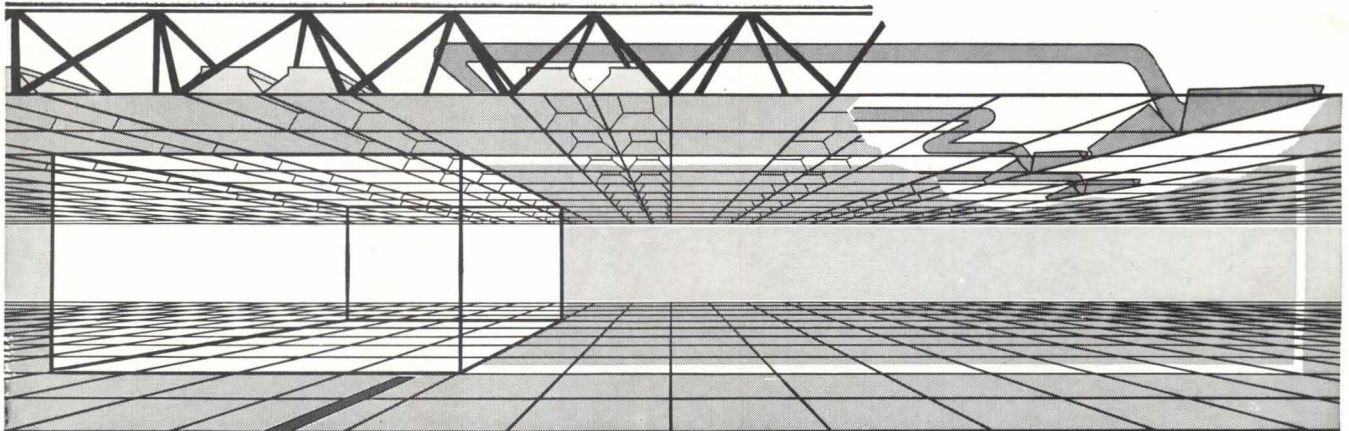


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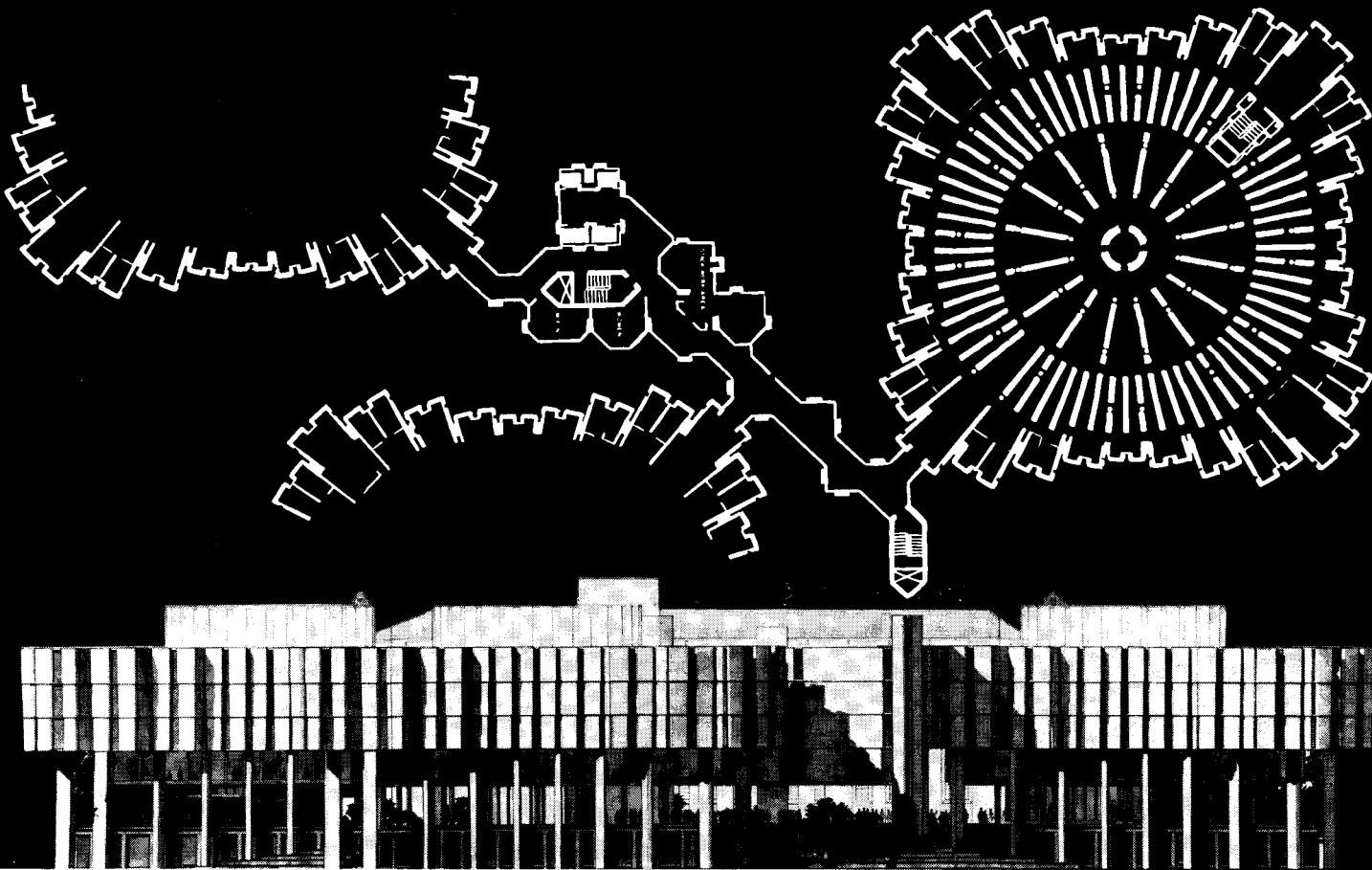
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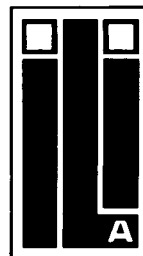
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## FORUM

Last November, the citizens of Hartford, Conn., voted to build six badly needed public schools at a total cost of \$44.9 million. A selection committee was then set up to pick the best architectural firm that could be found to design (and/or to coordinate the design of) these six new schools. It was a good committee: among its members were such experienced architect-selectors as Dr. Anthony Adinolfi of the N. Y. State University Construction Fund, and Art Critic Belle Ribicoff. So far, so good.

Last month, after many interviews, the selection committee announced that it had narrowed down its choice to three firms: Caudill-Rowlett-Scott of Houston, Tex.; The Architects Collaborative (TAC) of Cambridge, Mass.; and John Andrews & Partners of Toronto. Andrews, shown below on one of the terraces of his fabulous Scarborough College near Toronto (May '66 issue) is Australian by origin; one of his partners, Robert Anderson, is British by birth; his staff consists of architects from the U.S., Barbados, Rhodesia, South Africa, and Scotland.

When the list of finalists was announced, there were the usual muffled moans and groans from those who hadn't made it. This time, however, there were also some ugly rumors to the effect that one or two of the "also rans" were trying to use pressure to muscle their way into the select group of finalists.

Pressured or not, Hartford's Corporation Counsel thereupon looked into Andrews' qualifications, discovered that the man was un-American (i.e., Australian); that he was not registered as an archi-

tect in Connecticut (which is why Andrews had proposed to set up a new Hartford office, in association with an established Connecticut firm—something that all Connecticut-registered firms do when they build in Toronto, say); and that Andrews was, therefore, ineligible for the Hartford public school commission.

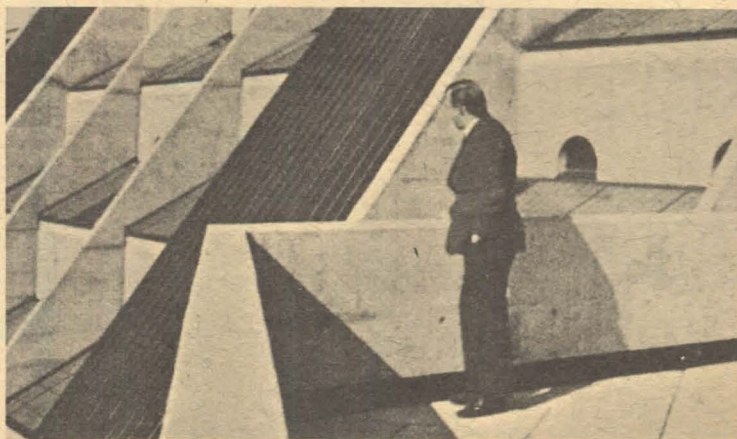
In the subsequent public debate, the Hartford papers neglected to make some relevant points: first, that Mr. Andrews' place of residence, Toronto, boasts a world-famous modern City Hall designed by the late, un-Canadian architect Viljo Revell (he was a Finn); second, that Toronto also boasts the brand-new Dominion tower—Toronto's tallest to date—designed by the un-Canadian architect Mies van der Rohe (a U.S. citizen of German origin); third, that Toronto is getting ready to build the controversial Eaton Center, designed by the un-Canadian firm of Skidmore, Owings & Merrill (which consists, in large part, of U.S. citizens); and, fourth, that the 1873 Connecticut State Capitol was designed, in part, by Brunelleschi, who wasn't registered in Connecticut either.

Actually, if Hartford were to reconsider its patriotic decision, it might find Mr. Andrews just a trifle busy at the moment: he has just been chosen to design a Transportation Center for Miami. It seems that Florida does not maintain immigration quotas on talent.

## ALL-IN

### SWEEP-IN

Early in April, about 100 New Yorkers, inspired by Radio Station WBAI's personable Bob Fass (animus of the recent Central Park Be-In), descended with brooms and rags upon the insalubrious area between 3rd and 7th





# HABITAT AND AFTER

The idea is not entirely new. There have been earlier proposals to assemble multistory structures by piling prefabricated boxes upon prefabricated boxes. The Russians have built apartments like that for years; and there have been proposals, on paper, to erect multistory frames, and to insert into them prefabricated apartments.

But now there is Habitat 67—an accomplished fact. And, suddenly, the idea is no longer a pipe dream. All over the world, the notion of building with boxes is recognized as a realistic alternative.

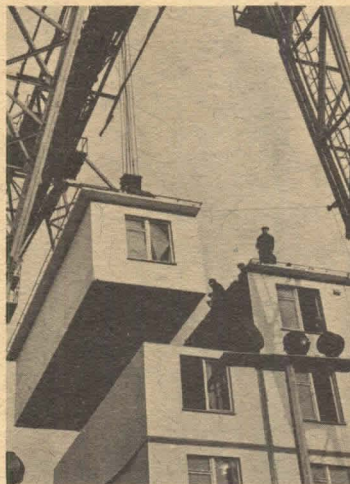
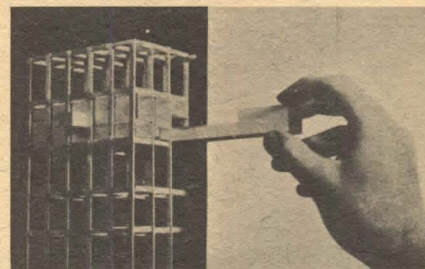
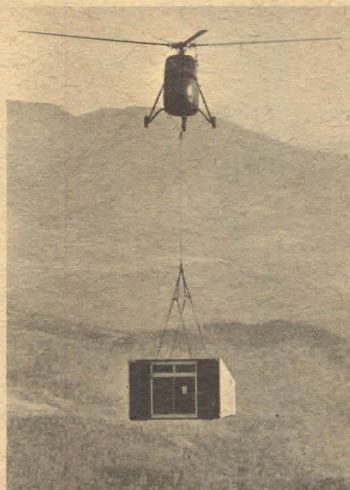
"There is one thing stronger than all the armies in the world," Victor Hugo once said, "and that is an idea whose time has come." Despite its many shortcomings, the idea of Habitat seems to have come.

The three-part article on the next 17 pages has a beginning, a middle, and an end. Its beginning is Habitat 67, discussed, critically, by Robin Boyd; its middle is a survey of the highly sophisticated technology available today to anyone wishing to build with boxes—and the implications of this technology; and its end is what may be the first good-looking U. S. building to have been constructed, almost entirely, of prefabbed "mobile homes."

Habitat 67 is spectacular, wonderful, and, in some ways, a failure. Its form, its plan, its philosophy, its implications for urban living in the future—all these are enormously impressive and largely convincing. But its technology is, quite obviously, anachronistic.

Many people will condemn Habitat 67 because it does not work in technological, economic, 20th-century terms. They will be right, and they will, also, be very wrong. It is quite true that Habitat 67 could have been built—as we will suggest in this article—of metal-and-plastic boxes, weighing a mere fraction of the weight of the 90-ton concrete crates that make up the prototype in Montreal. But it was difficult enough to realize the spatial, esthetic, social, and planning concepts in any form; and since Habitat 67 was built as part of an exposition, and subsidized by governmental agencies as a major experiment in housing concepts, its success or failure in economic terms is somewhat irrelevant. As its designer, Moshe Safdie, has pointed out: "If you built only one prototype Ford, its cost would be prohibitive. Obviously, the car becomes economical only if it is mass-produced. We built only a handful of apartments at Habitat, but we are all tooled up to build tens of thousands of them."

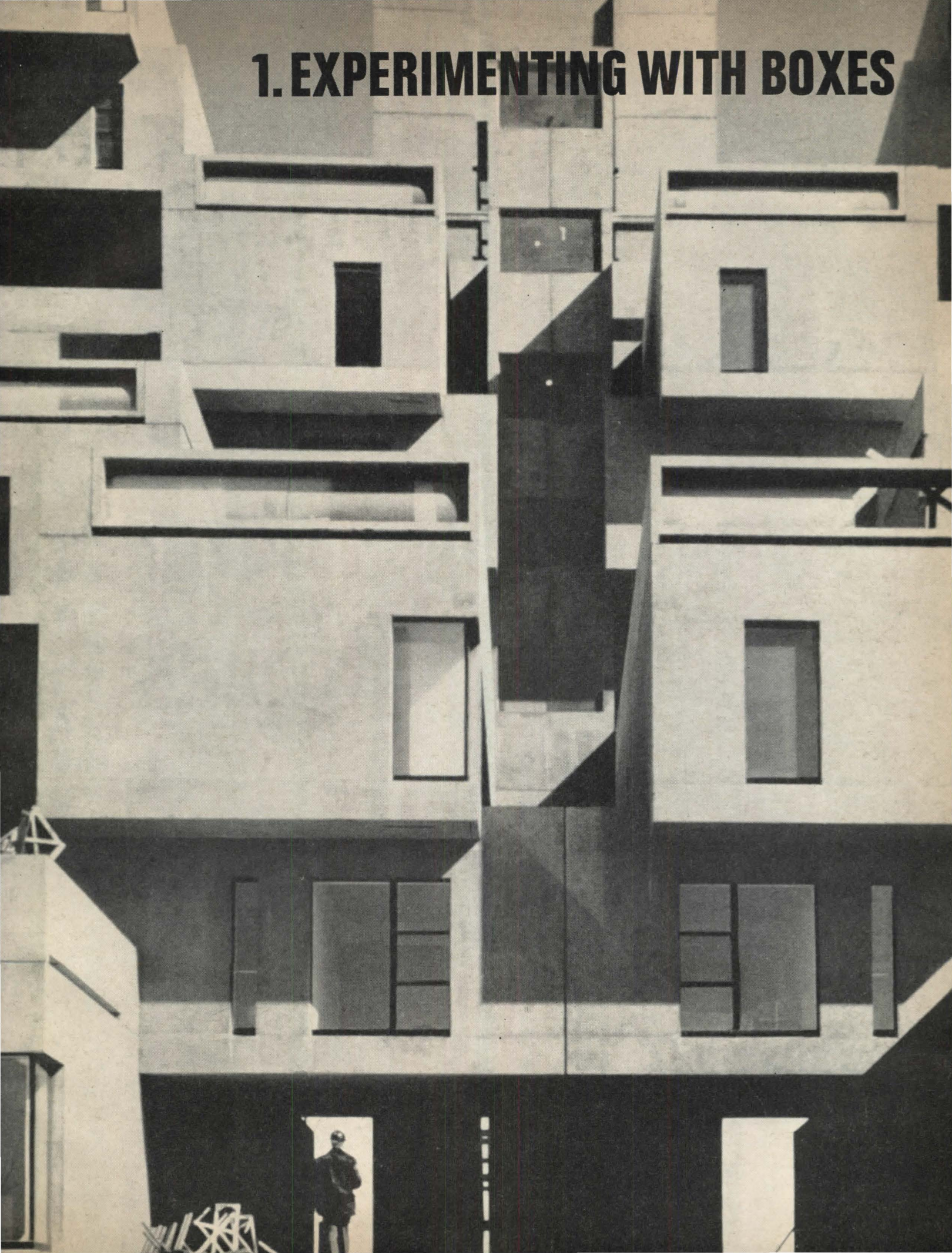
Now that Habitat 67 has been built, it will be possible to study the effect of this revolutionary kind of housing upon its inhabitants. And, after the bugs have been eliminated, it will be possible to adapt existing box-building technology and make the Habitat notion economically feasible as well. For the next step after Habitat, see pages 42-45.



Illustrations (from top down) show typical Habitat box raised into position by special crane; "Nutshell" vacation cottage and metal shipping container being airlifted by helicopters; diagrammatic model of Le Corbusier's Marseilles apartments as envisaged by him in 1946; prefabricated, Soviet apartment unit of concrete hoisted into place—after having been trucked through Moscow streets; and the standard Mobile Home unit used in the construction of Syntex' offices (p. 46), being trucked to building site.



# 1. EXPERIMENTING WITH BOXES











# HABITAT'S CLUSTER

BY ROBIN BOYD

Moshe Safdie was the architect of Habitat 67 in every sense of the word. Without him it would not only have looked different, it would not have happened at all.

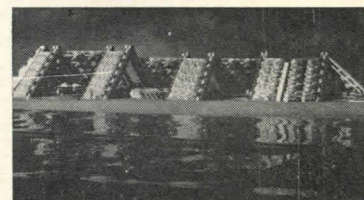
It was he who first proposed the idea of a living demonstration of urban housing as one of the highlights of Expo 67. He was working on a master plan for the Canadian Corporation for the 1967 World Exhibition, and he saw the chance to build the subject of his final-year thesis study at McGill University—a study that was still much in his thoughts. He sold the idea to the corporation, was granted money to develop it, and prepared a presentation that carried away three governments: municipal, provincial, and federal. Thus it happened in 1964 that Safdie, at the age of 26 and just three years out of college was commissioned to build his dream.

It was not a lonely dream. The Habitat idea has hovered in the background of the architectural conscience all this century, one way or another. Its basis is that modern architecture must become more involved in making an appropriate total environment for modern life. The rules require the integration of car traffic, vertical circulation, outdoor and indoor communal amenities, and last, but perhaps not entirely least, apartments in which people might actually want to live. Not so very long ago its image was the Corbu spectacle of towering headstones linked by ribbons of elevated roads strung across parkland. This vision faded after World War II when glass slab skyscrapers and elevated freeways suddenly appeared in disor-

ganized abundance and lost their romantic novelty. So the monumental vision dissolved into Le Corbusier's Unité d'Habitation, in which the individual units were beginning to have identity. Then the Unité image gave way to the cluster concept, which starts with the individual units and builds up to a monument.

According to Reyner Banham, the cluster concept was first stated in an article by Kevin Lynch in 1954—the year Unité was completed. In 1957 Alison and Peter Smithson described the ideal as a “close-knit, complicated, often-moving aggregation, but an aggregation with a distinct structure.” They advised: “We must think out for each place the sort of structure which can grow and yet be clear and easily understood at each stage of development.”

In the following decade many a building was erected which professed to subscribe to these high principles but which finished up as just another closed, competitive apartment block. In 1960, Kenzo Tange, with his students at MIT, first gave the cluster a powerful image, and later that same year developed the idea further in his well-known proposal of a plan for Tokyo.



But Moshe Safdie was the first to keep hold of the ideals, and a strong image, and to get it built—even if not quite as he first proposed.

His original scheme had some 900 dwellings for 5,000 people in two separated blocks. The larger was composed of parallel, spaced, staggered rows of neo-Unité slabs which were, in effect, toppled inwards until their top corners touched and they supported each other while making an equilateral triangle with the ground. It was a nice development from the Tange-MIT scheme, which clustered the dwellings on the sides of enormous tents. These threatened to be somewhat dingy on the inside,

Mr. Boyd is an architect practicing in Melbourne, Australia, and a well-known critic. His most recent book is *The Puzzle of Architecture* (reviewed in our June '66 issue). He is a member of our Board of Contributors.









whereas in Saffdie's scheme the undersides of the slopes still had open outlooks. His smaller block was a shorter modification of the first; all the slabs leaned the one way, although they zig-zagged in plan. They were supported by vertical circulation shafts.

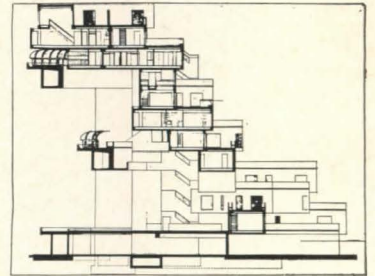
What has been built is only a large part of the smaller block, capable of housing some 700 people in 158 units.

Saffdie's triumph is that, despite this, he has held on grimly to the essentials of the original idea and has not allowed it to become, in spirit or image, just another one of those familiar things. It manages to convince as a little scrap of tomorrow. Since this was the object of the exercise as an Expo exhibit, almost any price paid in practical building discomfort and economics was prejustified. The estimated final cost of about \$100,000 per average apartment sounds ridiculous enough, but these few units have to be considered as pacemakers for something bigger, or not considered seriously at all. This cost, after all, includes massive overheads—for example, one special crane costing \$750,000—which would have been no more costly for the originally planned 900 units.



The sociological objective of all clusters is to bring people back close to the heart of the city (or to cheer up those who are still left there) by restoring a sense of community—yet, at the same time, providing something of the space and privacy enjoyed in the suburbs. Habitat 67 responds to this in several ways. Its site is a socio-architect's delight, for it recovers a section of Montreal's lost waterfront. Its

size is just big enough and its character quite strong enough to impress any inmate with a sense of a unique environment. There are communal play terraces, and various amenities leading off the wide balconies which serve as communication on every fourth floor and which are called, as you may have guessed, streets.



The technological objective of clusters is to exploit mass production of the minor, monotonously repetitive elements of dwellings within a major structural system. Habitat 67 responds to this with a technique already well publicized. Concrete boxes measuring 17 ft. 6 in. by 38 ft. by 10 ft. high, and weighing 90 tons, are precast in a "factory" on the site, sandblasted and fitted out on the ground, and hoisted into place on that expensive traveling crane. Compromises along the way have led to less than half the finishing trades being done on the ground. Bathrooms are continuously moulded glass fiber shells. Kitchens are neat but ordinary.

The apartments come in three sizes. The smallest is a single box (665 sq. ft.). Bigger units are made of two or three boxes linked together, usually in a two-story arrangement.

The Russians, of course, have been precasting apartment boxes for years. The standard Russian boxes are about the same size as Habitat's, but are stacked into slabs safely and squarely and are held together by gravity.

Saffdie's biggest innovation was to tie pairs of blocks together vertically by post-tensioned cables, three on each side, fitted into internal pilasters, the outer ones 3 ft. from the ends of the boxes. This system allows the boxes to be stacked in almost any way imaginable. One can be tied down at right angles to the box below. Another box

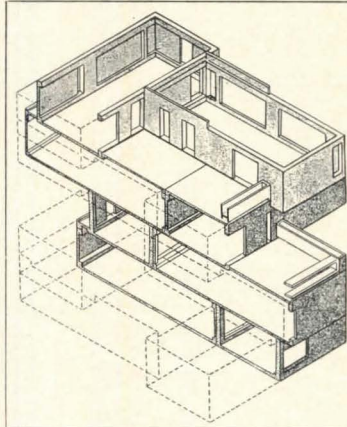








can be offset above with nearly half its length cantilevering out over, perhaps, a children's play plaza. Up to five such cantilevers may be stepped out perilously one above the other if the architect calls for it. This device has made possible the outdoor-living decks enjoyed by all apartments on exposed parts of the roofs of lower boxes. (The decks are bor-



dered by automatically watered flower boxes!) It also provides the antigravity, science-fiction Flying Housing look, which is exciting, frivolous and entirely appropriate for Expo 67.

To that extent it is a resounding success. Nevertheless some awkwardness is inherent in the free-stacking scheme. For instance, plumbing is necessarily scattered haphazardly throughout the complex. Safdie solves the resulting problem of waste pipes by gathering those of each apartment together under a false floor and discharging them into the nearest vertical plumbing stack. He passes them through a single antisiphon trap. This eliminates the need for any back vents, which indeed would have reduced the attractions of life on the roof gardens. The system works, but the need for false timber floors everywhere deflates the concept of precast, self-sufficient boxes.

The artistic objective of clusters is to make the whole greater than the sum of the parts. Habitat 67 achieves this, first, by making sure that there is a whole. All the structural elements, the vertical elevator towers, sloping stairways and horizontal "streets," as well as the boxes, are consistently of precast concrete. The surface

throughout is sandblasted and as austere as the form is extravagant. Although a fashionable diagonal is stressed both in plan and in section, the progression and recession of the boxes in defiance of the overall discipline lends a quality of irrefutable empirical aptness reminiscent of villages not far from Moshe Safdie's birthplace of Haifa. But the hollows between some boxes, affording glimpses of other precariously stacked boxes several floors and maybe hundreds of feet away, play a teasing game with space that is entirely of this century; while the concise, yet open-ended, almost still-growing form of the whole belongs intimately to the late 1960s.

Thus, in terms of sociology, technology, and architecture, Habitat 67 should go far—as far as it is possible for any building of its size to go—in fulfilling its primary function of demonstrating to Expo visitors a third way of life, and a possible way of building it.

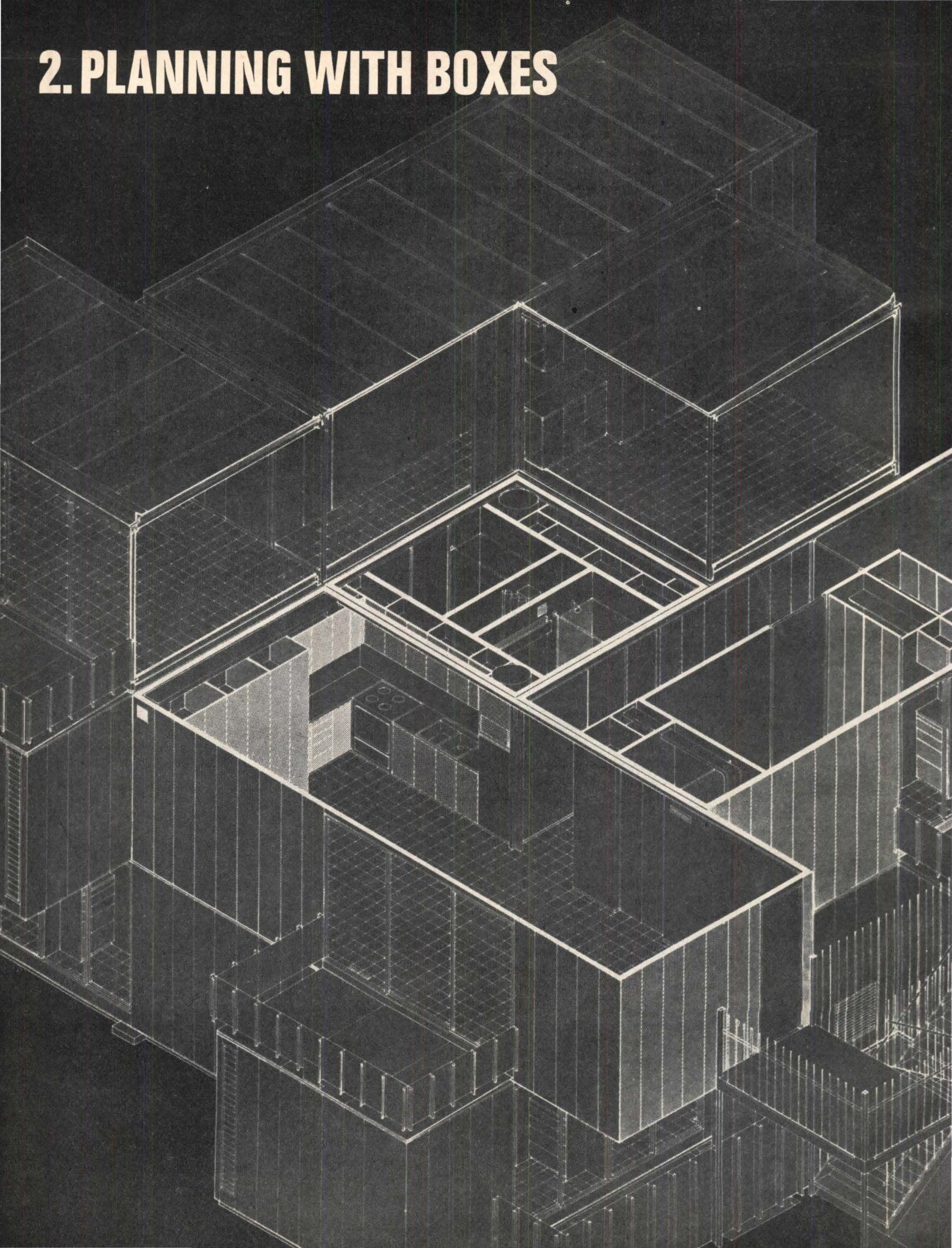
A fourth objective of cluster blocks is humanist: to make the units especially good places for living. In Habitat 67, the apartment boxes, which are literally and figuratively the bricks that support the whole idea, are found to be, on entering, somewhat antilimactic. After the spatial thrills and the brave grey concrete of the exterior, the insides of the boxes seem no more communicative than most other good, conventional, compact, smoothly plastered apartments. After all, that is the nature of a box. Half the model apartments have been decorated by a shelter magazine, so perhaps the interior quality of the architecture is irrelevant.

#### FACTS & FIGURES

Habitat 67, Montreal, Canada. Owner: The Canadian Corporation for the 1967 World Exhibition. Architects: Moshe Safdie and David, Barott, Bouiva, Associated Architects. Engineers: Dr. A.E. Komendant (structural consultant); Monti, Lefebvre, Lavole, Nadon & Associates (structural); Huza & Thibault and Nicholas Fodor & Associates (mechanical and electrical). Landscape architects: Harper & Lantzius Consortium. General contractors: Anglin-Norcross Quebec Ltd. PHOTOGRAPHS: Page 35, staff photo. Pages 36-41, Aerial Photos of New England.



## 2. PLANNING WITH BOXES





## GROWING SOPHISTICATION

The chief trouble with Habitat is its very high unit cost—an average of more than \$100,000 per apartment. While a great part of this high cost is due to the fact that Habitat is a prototype, and required much expensive tooling up, mass production alone is not likely to reduce Habitat's unit cost very substantially.

The fact is that Habitat is already, technologically, somewhat obsolete.

Habitat's concrete boxes weigh about 90 tons. They are 38 ft. long, 10 ft. high, and 17 ft. 6 in. wide. This means they weigh 27 lbs. per cu ft. of total bulk, and the weight per cu. ft. of usable, enclosed space is considerably higher. (The walls are either 5 in. or 12 in. thick!)

By comparison, these are the characteristics of some of the other, prefabricated boxes being manufactured today:

►The large metal containers currently manufactured for shipping, trucking, and flatcar rail-

by air, water, road, or rail, and are rigid enough to resist all the many different stresses and strains implied by this. Their cost is about \$1 per cu. ft.

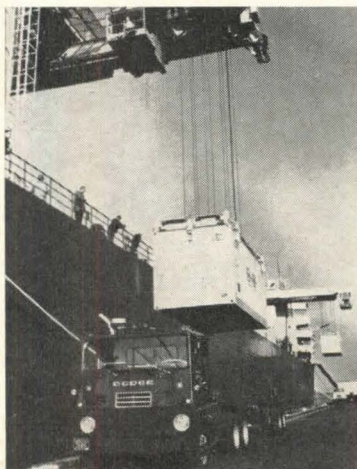
►The so-called Nutshell vacation house, manufactured in Massachusetts with an all-wood



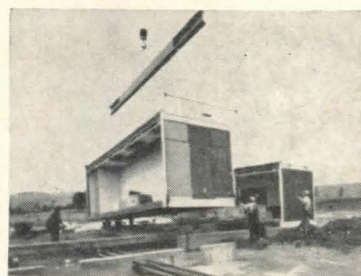
frame, measures 18 ft. by 8 ft. by (an average of) 8 ft. 6 in. high. Its total weight is 5,000 lbs., or 4 lbs. per cu ft. And this includes interior partitions. The box can be, and has been, transported by helicopter (above).

►The prefabricated vacation house—actually a trailer—manufactured by Redman Industries in Dallas, Texas, and framed in wood and steel, measures 56 ft. long, 11 ft. wide, and (an average of) 8 ft. 3 in. high. Its total weight, including interior partitions, equipment, etc., is 18,575 lbs., or 3.6 lbs. per cu. ft. This one can be put on wheels and driven to its permanent site.

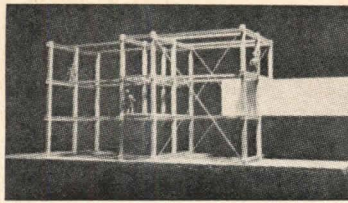
►And the office building for Syntex Laboratories Inc. (see pp. 46-51) is made up of two types of prefabbed boxes (below); one is 10 ft. wide, 10 ft. high, and 60 ft. long. It is manufactured in El Monte, Calif., with a light steel frame covered with sheet materials. The 60-ft.-long units weigh either 16,000 lbs. or 25,000 lbs. each, depending upon the amount of interior equipment (toilets, etc.) installed



road, interchangeably, measure about 8 ft. by 8 ft. by 40 ft. long. (There are other sizes, but this is one standard container unit.) They are steel-framed, aluminum-finished, and some are insulated. Their weight is about 5,200 lbs., or a mere 2 lbs. per cu. ft.! They can be transported







at the plant. That gives them a unit weight of between 2.7 and 4.2 lbs. per cu. ft. The boxes are rigid enough to be put on wheels and driven to the building site.

In all these examples, the weight per cu. ft. is *no more than 15 per cent* of Habitat's. Moreover, in most of these examples the precision of dimensioning and of finishing is superior to that achieved at Habitat, so that a great deal of on-site patching could be avoided.

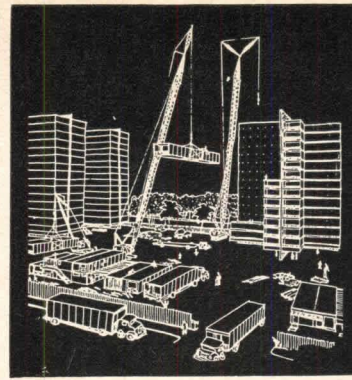
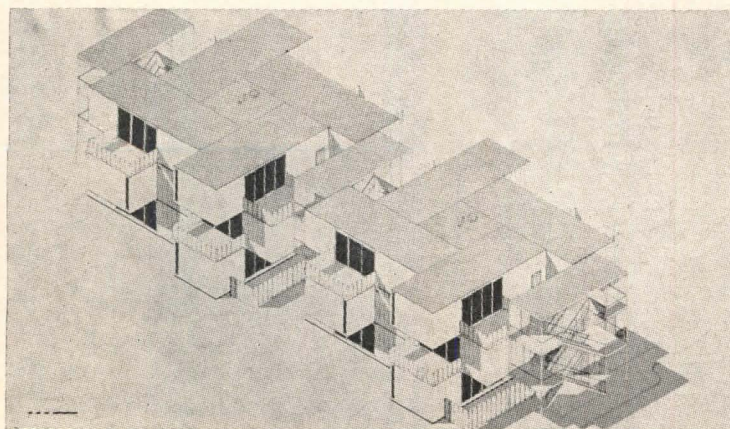
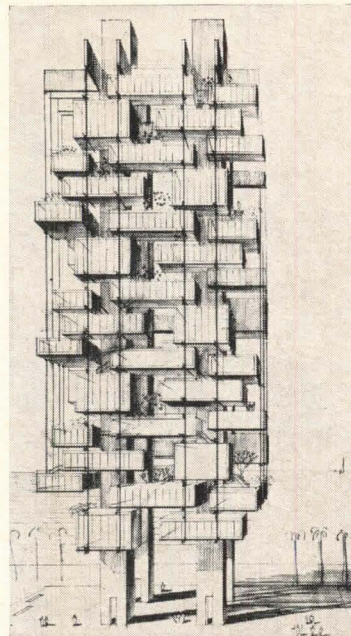
Admittedly, these light-weight boxes could not be piled up, one on top of the other, in the same manner as that employed in Montreal. But is that method really essential to the Habitat concept? Might it not make more sense to erect a simple, structural cage, integrated, possibly, with a grid of utility lines, and insert the prefabricated boxes in such a cage (above)?

Several projects now in the design stage suggest that it might, indeed, make more sense to do just that.

The one illustrated on p. 42 and below, is only three stories high, and the boxes will rest on one another without additional, structural support. The center shaft is a utility core that measures 12 ft. square in plan; grouped around this three-story core, in pinwheel fashion, will be prefabricated boxes, four to each floor, measuring 12 ft. by 30 ft. by about 9 ft. high. These

boxes would be prefabbed in a mobile home manufacturer's plant, hauled to the site by truck, and hoisted into position by a 25-ton crane. None of the boxes would weigh more than 5 tons, or 3 lbs. per cu. ft. Exterior stairs will provide access to the units. The designers are Housing Research Inc., Michigan City, Ind.

Admittedly, there will be problems of fireproofing as these box clusters are extended to greater heights—and Habitat's concrete boxes do face up to these problems. Still, even with fireproofing requirements, it would seem advantageous to separate the prefabbed boxes from the structural frame and the grid of utilities. Some projects, like this early one by Paul Rudolph, have proposed suspending the boxes from concrete service towers; others have proposed inserting them into a concrete honeycomb; still others have assumed



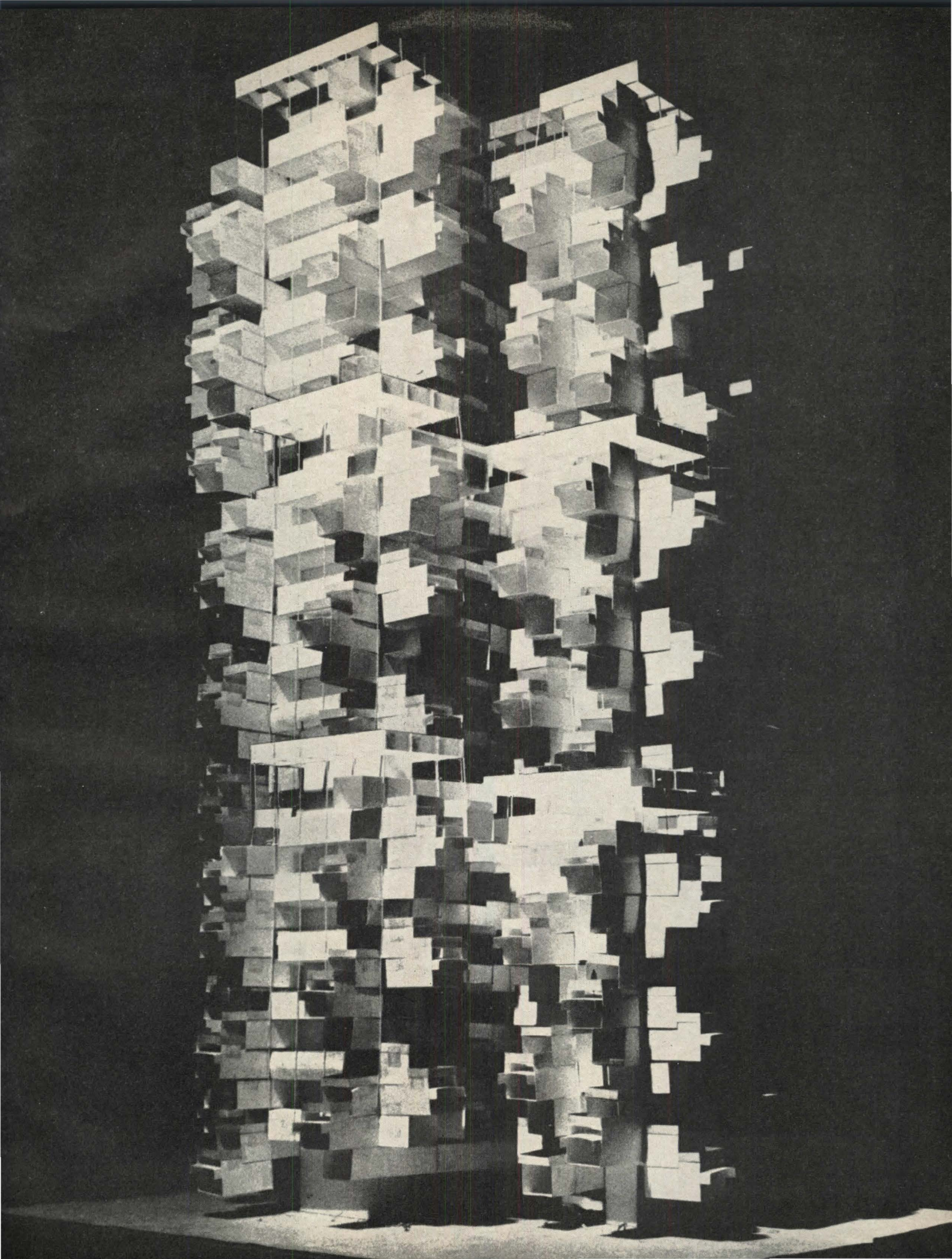
a reevaluation of codes as they apply to fireproofing. In Britain, such a reevaluation is now taking place, and it is being found that a steel frame separated from a wall by a couple of feet will not be affected by fire within the building, and need not be fire-proofed. These findings, and related developments, may profoundly affect the nature and cost of high-rise box clusters in the future.

In any event, even a multi-story cluster of *concrete* boxes would not have to be anywhere near as heavy as the Habitat cluster if the boxes were inserted in a structural frame, rather than made to support each other.

Paul Rudolph, in his most recent scheme for a multistory cluster (opposite) proposes a vertical core with mobile-home boxes "plugged in." He would prefer to suspend the boxes from an overhead truss, but adds that "a three-dimensional structural grid of steel or concrete could also be used. However, the placement of the prefabricated units would possibly be more difficult, and the flexibility would be impaired." The latter objection need not be valid; after all, even Habitat, which is about as irregular a cluster as anyone is ever likely to construct, is governed by the regular geometry of continuous, vertical, post-tensioned cables.

In short, the technical means exist—and have existed for some time—to make the Habitat concept economical as well as beautiful. All that is necessary is to go outside the narrow confines of the traditional building industry, and to use resources in other, possibly more advanced fields of manufacturing.







# 3. BUILDING WITH BOXES





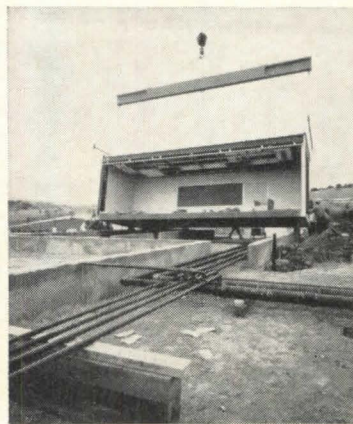
## AN ASSEMBLY OF CONTAINERS

The evolution from shipping containers to people containers is not merely within the realm of possibility; it is already here.

In California, Architects Ian Mackinlay & Associates have taken 56 factory-produced modular units that are closely akin to shipping containers, bunched them together to form a complex of four buildings around a central courtyard, and produced a surprisingly good-looking 23,000-sq.-ft. "interim facility" for Syntex Laboratories Inc., a fast-growing drug firm.

The project took just six months from start of design to move-in. Under normal circumstances, such a project would have taken at least a year.

The units involved are slightly modified versions of standard modules that a California manufacturer, Designed Facilities Corp., has been producing for years as portable classroom buildings. They were assembled at DFC's El Monte plant near Los Angeles, placed on wheels, trucked 400 miles to the site at the Stanford Industrial Park in Palo Alto, lifted off the wheels by a crane (photo left), and set down on previously constructed concrete footings (below).

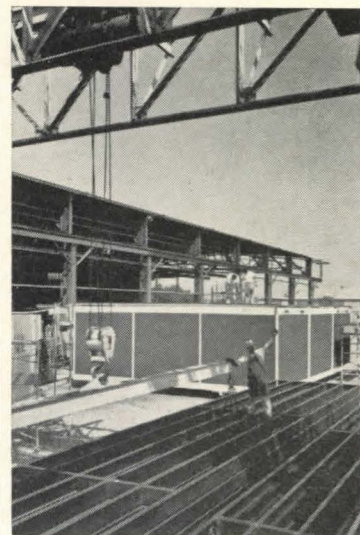


The units are produced assembly-line fashion, in much the same way as automobiles. The floor section, composed of six rolled 13-gauge C-section channels, is the "chassis" of each module. It rolls along a network of tracks through a series of work stations, where other components are taken from an overhead conveyor system and assembled.

First, corner columns of 3-in. square steel tubes are welded to

the floor section. Then structural roof members and purlins that support the roof diaphragm are welded to the columns. Next the roof panels—22-gauge sheet metal pans with standing seams—are bolted on. Where the roof joint is to meet that of another module, it is simply covered with an upside-down panel so that units can be slotted together on the site.

Continuing down the assembly line, a 3/4-in. plywood subfloor is screwed to the chassis; wiring, rough plumbing, and air conditioning ducts are installed;

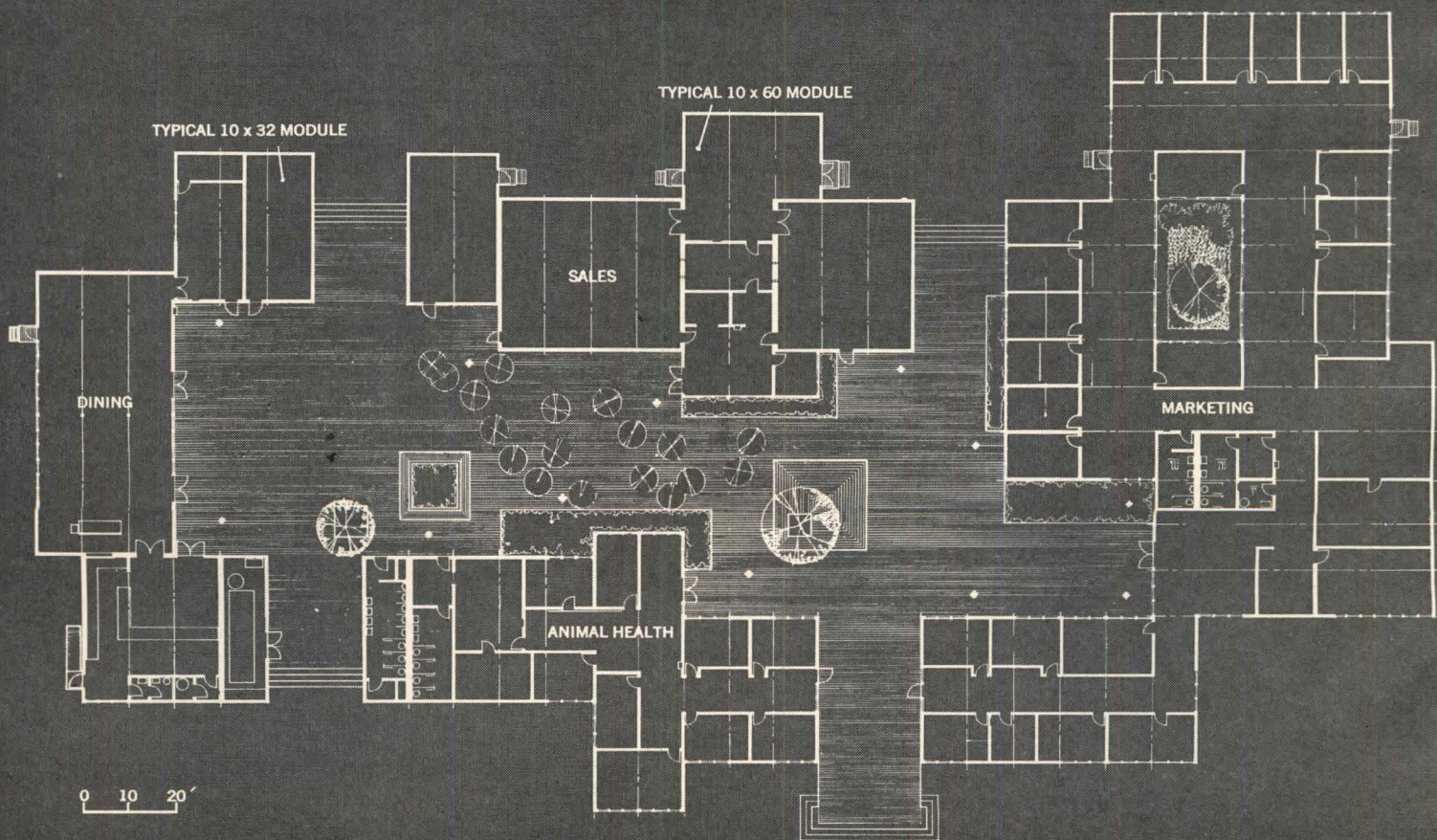


walls and window panels are fastened to the frame; and ceiling grid, lighting and acoustical panels are put in place.

What emerges from the end of the production line (above) is a lightweight unit 10 ft. wide (the maximum permitted on California highways) and 32 or 60 ft. long (determined by state square-feet-per-pupil formulas). It is rigid enough not only to withstand the long highway trip, but also to be cantilevered from its footings.

Ian Mackinlay & Associates are not the first to discover new uses for the portable classroom units. For several years DFC and other manufacturers have supplied modules for projects ranging in size from a one-unit sales office to a 97-unit, 60,000-sq.-ft. health services center. But, with Syntex, the architects have demonstrated quite handsomely that prefabrication and good looks need not be incompatible (see following pages).





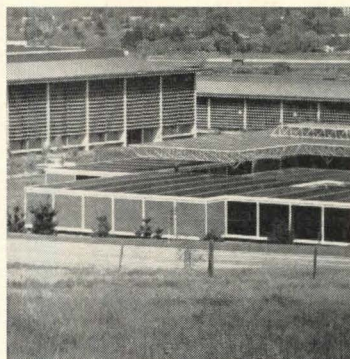




The 56 modules that comprise the entire 23,000 sq. ft. of enclosed space at Syntex Laboratories' "interim facility" are grouped into four buildings to meet program requirements, separated by 20-ft.-wide breezeways, and arranged around an open mall to minimize internal corridors and encourage the interchange of ideas between the company's researchers and employees in other departments. The glazed space frame (above) gives a sense of visual enclosure to the mall and protects it from rain and the hot summer sun. Because of the nature of the space frame, the architects were able to place its 11 supporting columns almost at will.

Syntex is a leading producer of The Pill, the oral contraceptive that is helping to curb the population explosion. But its sales have had the opposite effect on the company, whose personnel roster is multiplying faster than the mice in its laboratories.

Last year, Syntex called in Building Program Associates and Baxter, McDonald & Co. as programmers to help it plan an orderly expansion of its facilities. Studies conducted by the programmers showed that the company's existing facilities



(the louvered buildings in the background of the photo above) would be overtaxed long before it would normally take to build a new permanent addition.

Syntex had four major choices, the programmers said: double up on existing space; build a permanent facility on a crash basis; lease space elsewhere; or build a temporary addition on the site.

None of the alternatives especially appealed to Syntex. Doubling up would impede research and cut down on efficiency; a crash program might produce a less than adequate permanent building; and leasing would be inconvenient, since the nearest available space was at least a 20-minute drive away. As for a temporary building, Syntex feared that would mean putting up with an eyesore for three years.

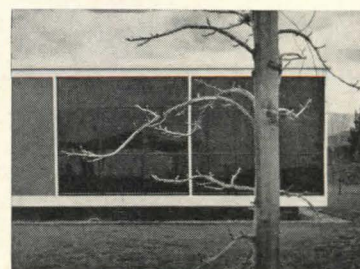
The company finally reduced its considerations to leased space vs. a temporary structure, and Ian Mackinlay & Associates were called in by the programmers to run a cost comparison between the two. They discovered that the costs would be virtually equal.

So the architects were retained by Syntex to produce a prelimi-

nary scheme for an interim facility. Their drawings convinced the company that a temporary structure could be handsome. They also won over Stanford University, which also was skeptical about prefabricated structures and exercised strict controls over buildings in its industrial park.

The architects' solution is a far cry from what one usually associates with a trailer-park. Rather than lining up the modular units in typical, barren-looking rectangular rows, the architects have grouped them into four irregularly shaped buildings—two offices, a cafeteria, and a conference-training center—and linked them all by a central landscaped mall. Hovering over the wood deck of the mall is a giant space frame (covered with panels of translucent plastic and cement asbestos), which not only shelters the mall but adds a vertical dimension to the project that takes the onus off the regularity of the modular units (photo opposite).

Moreover, the units themselves are considerably more attractive than the standard mobile classroom boxes from which they are designed. Working from the architects' specifications, the manufacturer modified the basic unit by removing a wide roof overhang and simplifying the fascia; eliminating individual heating and air conditioning pumps that protruded from the end and the roof by substituting a central fan-coil system with the mechanical equipment contained in one of the modules. They also added a handsomely detailed steel and glass windowall (photo below).



All this cost more money, of course, but Syntex was more interested in speed of erection and a pleasant environment for its employees than in getting the cheapest building possible.









Syntex and its architects were determined not to sacrifice comfort and pleasantness in their rush to get a building up fast. The central mall, for example, with its space frame, deck, and landscaping (photo opposite), added to the cost, but Syntex considered it well worth the expense—and it did not slow up completion of the job.

The same concern also extends to the office interiors (photos left). They are spacious and airy; their floors are carpeted; the generous glass areas are protected by vertical blinds; and the furnishings are comfortable and attractive.

If Syntex had been willing to put wheels under its units and slap license plates on them, they could have been taxed as vehicles instead of buildings—at a somewhat lower rate. But Syntex resisted the temptation.

In contrast to normal practice, the architects prepared working drawings for only one part of this project—the mall. “Our primary responsibility,” said George S. Winnacker, the project architect, “was that of overall concept and detailed coordination and review.”

As their first step in the final design and construction process, the architects prepared a bid package and sent it to four manufacturers. Two replied: DFC, the successful bidder, had begun as a trailer manufacturer; the other bidder had started out as a producer of shipping containers and graduated to people. Both companies produced light units of panel-type construction using assembly-line techniques.

Once DFC was selected, the architects set up a critical-path chart based on DFC’s manufacturing cycle. This permitted the architects to schedule the work for footings, utilities, the mall, the space frame, and landscaping while DFC prepared working drawings for the modified units, and the architects and their consultants did the rest of the working drawings.

Before the modules were delivered, footings were poured and utilities run through the exposed crawl space. After the units had been set, in two two-

day sessions, DFC crews moved in to complete finish work inside while other contractors installed the mechanical package, made final hookups, built the mall, and erected the space frame.

Six months after drawings were begun, Syntex moved in. The schedule called for four months, and it could have been met, claims Winnacker, if the weather had cooperated and if a manufacturing error hadn’t cropped up in the modular roofs, which had to be field-corrected.

Now Syntex is proceeding unhurriedly with plans for its permanent addition. When the time comes for the company to abandon its temporary facility, the units can be sold back to DFC at a percentage of the original cost, donated to a nonprofit organization as a goodwill gesture, or moved to a distant site, such as the Palo Alto hills, as a “think tank” for the Syntex research staff.

Would Ian Mackinlay & Associates take on another prefab job? “Indeed, we hope to,” says George Winnacker. “Portable buildings can provide an architecturally interesting and timely solution to temporary space needs. And, technically speaking, there is no reason for such units not to be able to meet long-term needs.” (DFC estimates the life of its modules at 40 years.)

“The day of the permanent factory-built building,” says Winnacker, “is close at hand.”

—JAMES BAILEY

#### FACTS AND FIGURES

Syntex Interim Facility, Stanford Industrial Park, Palo Alto, Calif. Owner: Syntex Laboratories Inc. Architects: Ian Mackinlay & Associates; George S. Winnacker, project architect; Herbert D. Hughes, project associate. Developer and manufacturer of prefabricated units: Designed Facilities Corp. Landscape architects: Sasaki, Walker Associates Inc. Engineers: Pregnoff & Matheu (structural); William M. Brobeck & Associates (mechanical); Beamer, Wilkinson & Associates (electrical). Facilities programmers: Building Program Associates; Baxter, McDonald & Co. Building Area: 23,000 sq. ft. Cost: \$29.90 per sq. ft. (building units, \$18.30; exterior utilities and connections, \$5.10; space frame, deck and landscaping, \$6.50).

PHOTOGRAPHS: Tom F. Walters









#### THE ISLANDS OF EXPO

Expo's two man-made islands in the St. Lawrence are now abustle with the first of its forecasted 30 million visitors. Arriving by Montreal's new Metro subway, shiny Expo Express trains (see track from mainland to two islands, photo left), and boats, Expo-goers are taking in: (1) Britain's craggy-towered pavilion; (2) West Germany's steel and plastic tent, (3) Cuba's "composite of parallelepipeds"; (4) the African nations' village-like cluster; (5) Russia's concave-roofed, glass and steel giant; (6) the stacked boxes of Moshe Safdie's Habitat 67; (7) Place des Nations, a 2,500-seat open-air theater; (8) the United States' 20-story geodesic dome; (9) La Ronde, the 5-acre amusement area.

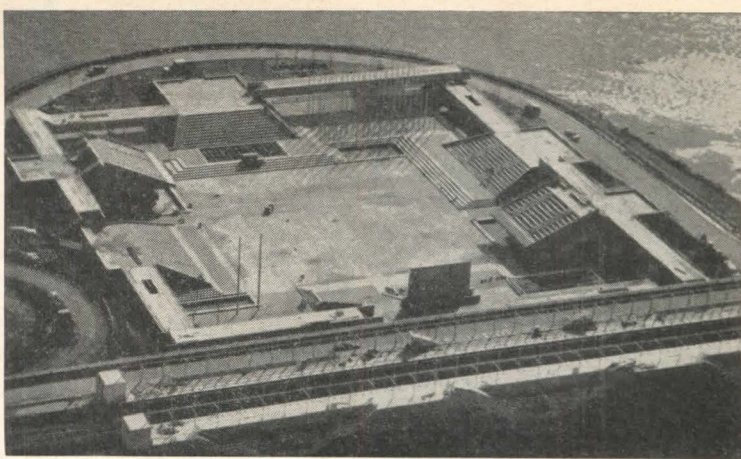
#### ENMESHED AUDITORIUM

"The thinking man's roller coaster," the Gyrotron is the centerpiece of La Ronde, the amusement area. Space frames of extruded aluminum tubing (some 27 miles of it) support two auditorium structures designed by Boyd Auger. The visitor starts his ride in a four-seater cabin through the larger of the two theaters (photo right), then moves on into the smaller theater on an outdoor track some 100 ft. above the Expo grounds. On the way, he experiences a trip through space, a live volcano, and a journey into a monster's jaws. The effects were created by Sean Kenny.



#### CLUSTERED WINDSCOOPS

Like a native village, the structures of Africa Place (left) are clustered irregularly around a central space. Each red brick pavilion is topped with a white plywood-hooded windscope for ventilation and natural light. Each has its own entrance. Sixteen African nations, most of them so new they weren't around for the Brussels fair, have leased space in the grouping from Expo. John Andrews is the architect.



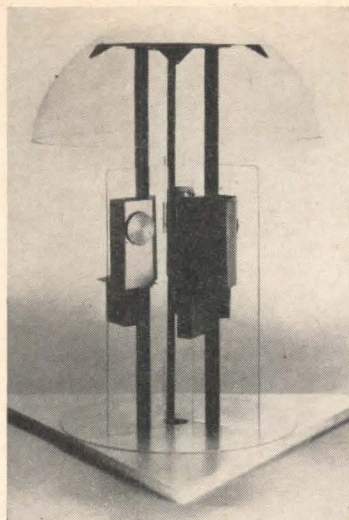
#### CEREMONIAL PLAZA

Banks of concrete bleachers surround a vast plaza to provide seating for 2,500 spectators (and standing room elsewhere for another 4,500) in Expo's Place des Nations (above). Architect André Blouin has

linked bleacher sections with raised wooden walkways to form a square "amphitheater" for so-called "national day" celebrations. A quadrant of 62 flags flanks the stage (rectangle in upper left of photo).





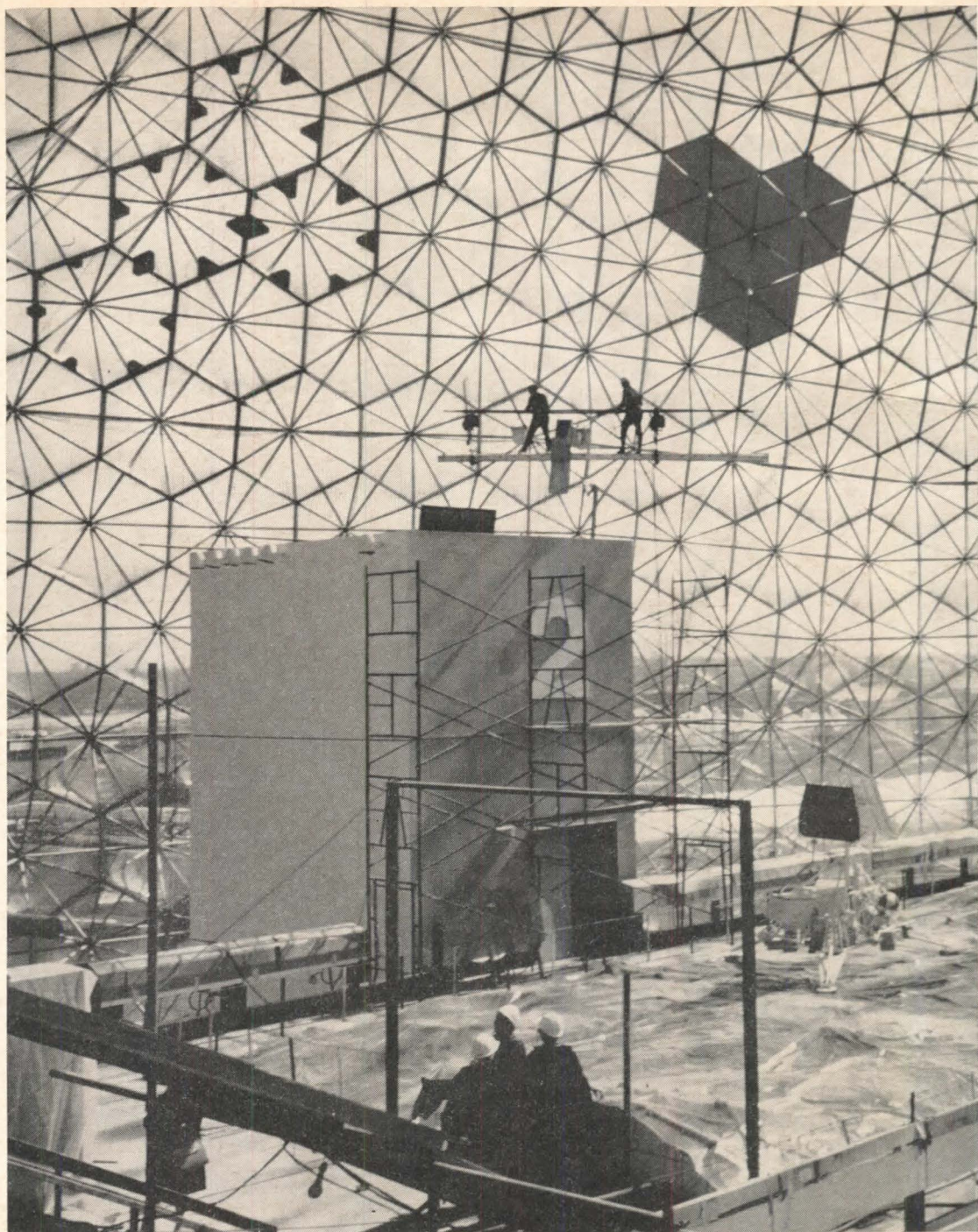
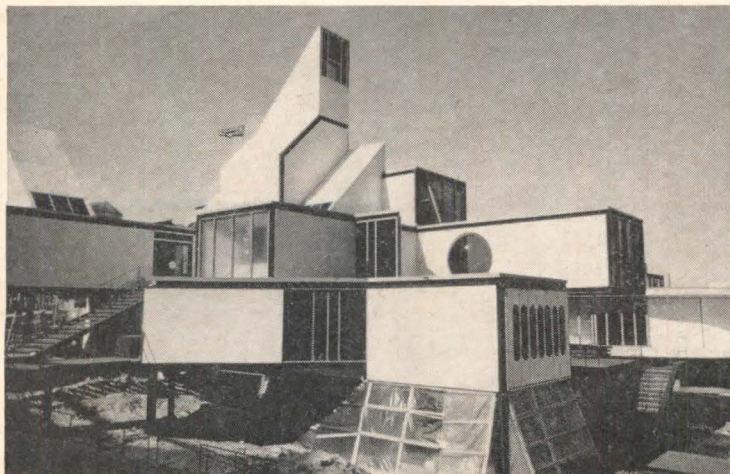


#### FUTURISTIC PHONE BOOTHS

Acrylic domes protect groupings of three pay-telephones scattered through the Expo grounds. (There are 109 such booths.) The three telephones are separated by tinted acrylic panels and supported on their own steel sections. Villa, Macioge of Montreal are the designers.

#### CONCRETE POP

The Cuban Pavilion is a highly imaginative, pop-construction of concrete, glass, aluminum, etc.—all modular, and demountable despite the irregular forms of the building. Some exterior surfaces are screens; documentary movies depicting “Cuban life” will be rear-projected on these screens and made visible to passersby. Architects Baroni and Garati won their commission to design the pavilion through a national competition.



#### BIG CONFRONTATION

Expo's two giants, the Russian and United States pavilions, confront each other across the LeMoyne Channel (right). R. Buckminster Fuller's “geodesic skybreaker bubble,” dramatizing “creative America,” is a 20-story environmental chamber enclosed by hexagonal domes paned in plastic. Each dome has its own roller shade (dark areas in photo above) to modulate light and temperature. In the bubble, exhibits created by Cambridge Seven Associates run the gamut

from U.S. art to space technology. To commemorate the 50th anniversary of the Soviet State, M. V. Posokhin has designed a large rectangular structure (140 ft. high, 449 ft. long, and 220 ft. wide) with a swooping steel roof and suspended walls of plate glass panels partly screened by aluminum louvers. The roof rests on two V-shaped steel pylons.

PHOTOGRAPHS: Pages 52 and 55, Aerial Photos of New England.







A handful of affluent suburbanites in Dayton, Ohio, have initiated a \$22-million program to renew the oldest neighborhood in downtown Dayton; and under the enlightened renewal proposal, the neighborhood would retain most of its existing buildings. The plan is receiving encouragement and support from a surprising cross-section of city officials and citizens.

The neighborhood is called Burns-Jackson, and it consists

of 15 neglected city blocks, just four blocks east of the downtown center. Last year, the citizens' group formed to save Burns-Jackson hired Chicago Architect Bertrand Goldberg to make a preliminary study. Goldberg advised that the city acquire the 31 acres as an urban renewal project and sell it intact to a citizens' corporation. His three-stage program, for development by the corporation, proposes rehabilitating 197 ex-

isting houses into 492 apartments, converting many of the narrow streets into pedestrian plazas, and adding 1,200 new apartments, 50 arts and crafts studios, and a range of community facilities—parks, a theater, and a 1,000-car garage.

Only a year ago, Dayton officials were proposing condemnation of much of the Burns-Jackson neighborhood for public housing. Originally, the neighborhood had been excluded from

# GIVING THE PAST A FUTURE

BY HUBERT MEEKER

The Burns-Jackson neighborhood in Dayton, Ohio, was the original downtown. Now it huddles beside a downtown center that is barely visible at the top of this air view (opposite). The enlightened proposal for renewing Burns-Jackson will salvage most of its houses remaining from the earliest days of Dayton.

Mr. Meeker is a staff writer for the Dayton Journal Herald.





the adjacent 75-acre clearance area in the city's 750-acre East Dayton urban renewal project. But the few businessmen and landlords who were interested in upgrading Burns-Jackson had produced spotty results; and, elsewhere in the area, there was general neglect of properties by absentee owners as the neighborhood became the port of entry for migrants from Appalachia. Talk of including Burns-Jackson in the proposed clearance

area troubled Mrs. Thomas C. Colt Jr., the wife of the director of the Dayton Art Institute. Mrs. Colt is a lecturer in the history of art and architecture at the museum school. She was impressed by the special qualities of the neighborhood—the pattern of offset and dead-end streets, the consistency of scale and building materials, and the variety of architecture and craftsmanship.

The area is rich in local as

well as architectural history. In Burns-Jackson, the city's earliest families built their thrifty Federal houses and, later, their exotic Victorian monuments to success. On narrow Tecumseh Street, for instance, a street that is a single block long and lined with simple Federal period houses, David Rike had his first home while he was establishing Dayton's chief retail store. Some of his earnings nourished the Evangelical United Brethren

church at the corner, where the denomination now has a seminary, publishing house, and its national headquarters. Other early Daytonians whose homes are still in the neighborhood include an early civic leader, an inventor, an industrialist, and several early merchants.

Mrs. Colt inquired if the condemnation techniques of urban renewal could be used for preservation; and Earl Sterzer, Dayton's director of community de-





velopment, said "yes." Next, she approached some of Dayton's senior families among the Art Institute's patrons. One anonymous donor gave \$10,000 for a feasibility study and preliminary plan. Thereupon, Mrs. Colt persuaded Goldberg to accept the commission.

Goldberg's plan for Burns-Jackson is not aimed at preserving the pastness of the past, but giving the past a future. The neighborhood hardly warrants

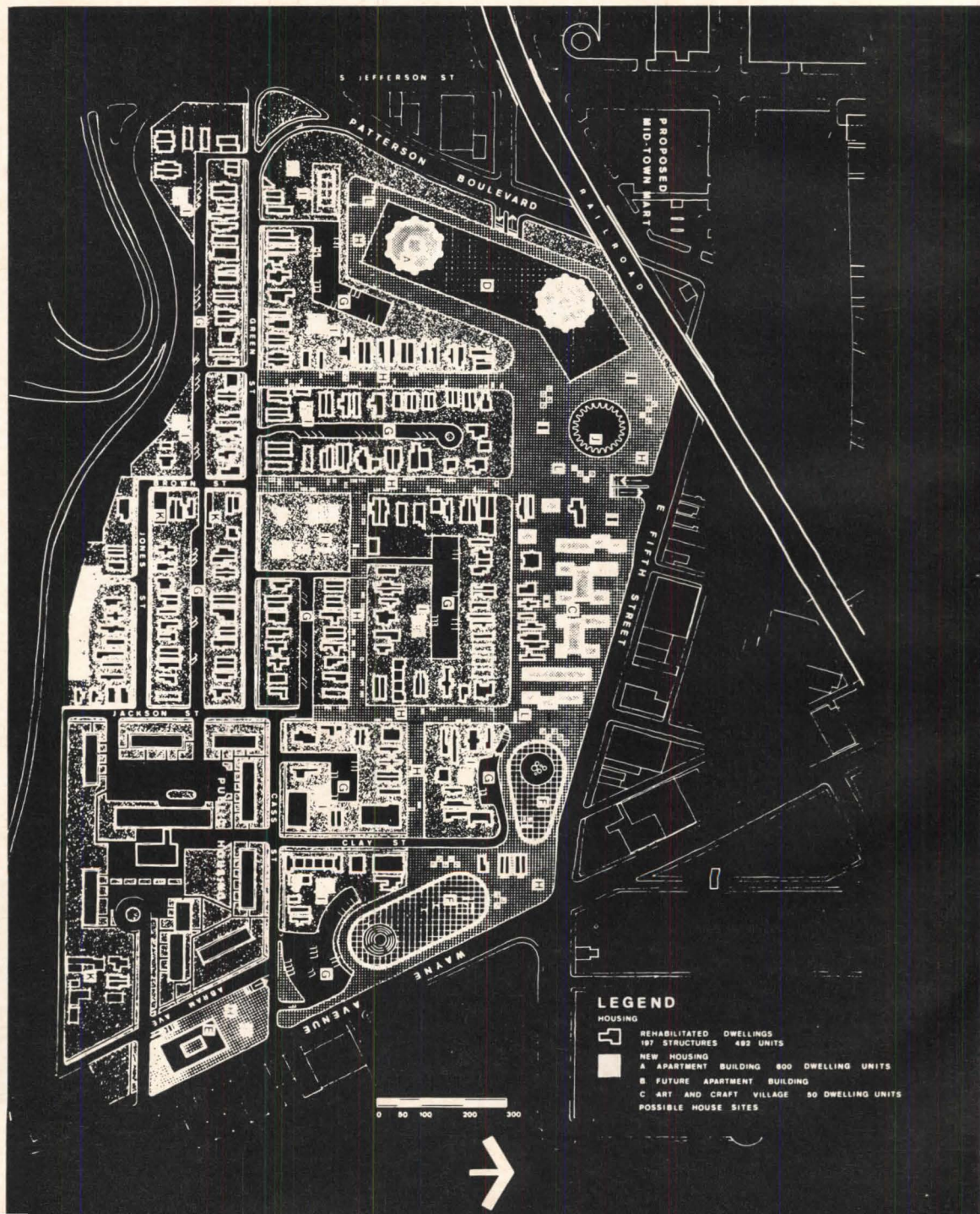
total restoration, even if someone were willing to pay for it. Unlike German Village in Columbus, the area is not large enough, nor the quality of housing consistent enough, to sustain itself through a gradual rehabilitation process. And unlike the hillside charm of Cincinnati's Mt. Adams, the visual image of the Burns-Jackson enclave, huddled next to the downtown center, lacks obvious public appeal. To get a broad base of enthusi-

asm, there would have to be a total plan with bold objectives.

Goldberg recommends salvaging every possible structure, which means moving some scattered houses at the fringes into tight block-clusters in the heart of the neighborhood. Average cost for the 492 one- and two-bedroom units created from existing buildings would be \$6,000.

To maintain the human scale of the neighborhood, in an era when cars are longer than most

Bertrand Goldberg's plan for the renewal of Burns-Jackson would preserve the historic flavor of the neighborhood, rehabilitating 197 existing houses into 492 apartments. Although streets and front yards would be closed to the automobile, Goldberg does not regard the plan as "anti-auto." Cars are here to stay, he feels, but he has removed them from competing with the houses as determinants of scale. New construction, on the cleared perimeter, would include two high-rise towers, an arts and crafts village, and numerous community facilities with maximum accessibility to the rest of the city. Gross parking would be underground, in space already excavated for the basements of existing commercial buildings. The new architecture is designed to stand on its own merits, not to be a repetition of the old.





houses are wide, the plan would convert many streets into pedestrian plazas, and would create parking areas at the center of each block-cluster.

Goldberg conceives of Burns-Jackson as a total "community within the community." To raise the population to a "critical mass" of 50 families an acre, he proposes building two high-rise towers (with 600 apartments each) and an arts and crafts village (with 50 live-above-the-

shop units), all located in the cleared perimeter. The estimated apartment rental is \$185, with craft studio rents about \$385.

The three-phase development scheme calls for rehabilitation of the old houses first, and the new housing divided into two stages. A portion of the community facilities—library, theater, band shell, and supporting shops and services—would be developed with each stage.

Goldberg believes that the

character of the new construction should be "strictly contemporary and unsentimental. I wouldn't want to see any phony old houses built next to the real ones. What is desirable is some really good contemporary architecture that would add significantly to the spectrum of this outdoor museum."

A focal point of the project would be two sunken plazas at Fifth and Wayne, to provide elegant sheltered spaces for sum-

mer and winter activities. Some \$550,000 is programmed for special site work, landscaping, art, fountains, and lighting.

Goldberg envisions that the special old-and-new atmosphere of Burns-Jackson will encourage the "thought-making group" to return from the suburbs to the area. It is less than five minutes from the University of Dayton, and just a few blocks from the site of the planned Sinclair Community College in





the Center City West urban renewal area, a 37-acre project designed primarily for expansion of downtown office and residential space.

Immediately west of Burns-Jackson is the four-block Mid-Town Mart urban renewal area, now in the planning stage, which would raze and redevelop the oldest section of the retail district. To the east is the still incompletely redeveloped clearance area of the East Dayton

project, where a 13-story, middle-income apartment went bankrupt last year. Low occupancy was blamed on the undesirable image of the near east side area. Redevelopment of Burns-Jackson would bring fresh life to this problem section.

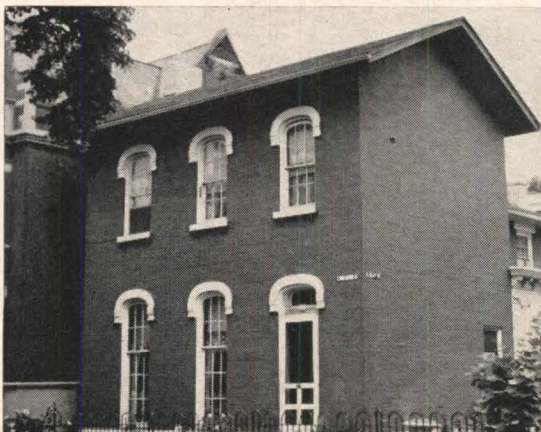
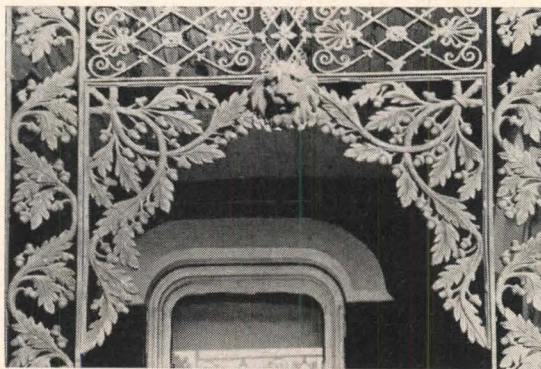
The Burns-Jackson corporation was formed in March, and most of its first issue of \$408,000 in common stock and notes has already been subscribed by a varied group that includes mem-

bers of Dayton's oldest families, young business and professional people, and even some secretaries. Informal reaction from the FHA regional office on the program's eligibility for a \$22-million loan is also favorable.

"This would be a unique urban renewal project," says Burns-Jackson Inc. President James P. Woodhull. "None of the investors expects to make much immediate profit. But the kind of redevelopment we have

A selection of the treasures of the existing Burns-Jackson: trim houses in the Federal style, exotic monuments in the Victorian. Under the renewal, every possible structure will be salvaged, some houses at the fringes being moved into tight clusters at the center of the neighborhood. At present, the area is the main gateway for immigration from Appalachia; there is a high percentage of absentee ownership.

PHOTOGRAPHS: Page 57, Mark Schaefer. Pages 60-61, Walt Kleine; except bottom left, Robert Whaley.





in mind will substantially increase the city's tax base, and will pass on something very worthwhile to our children."

The plan raised some initial criticism, particularly from church and welfare groups who have worked hard to establish rapport with incoming Appalachian families, and who resent another drastic relocation. But the city reports that previous relocation programs have worked smoothly, with largely positive

benefits, including a greater percentage of home ownership.

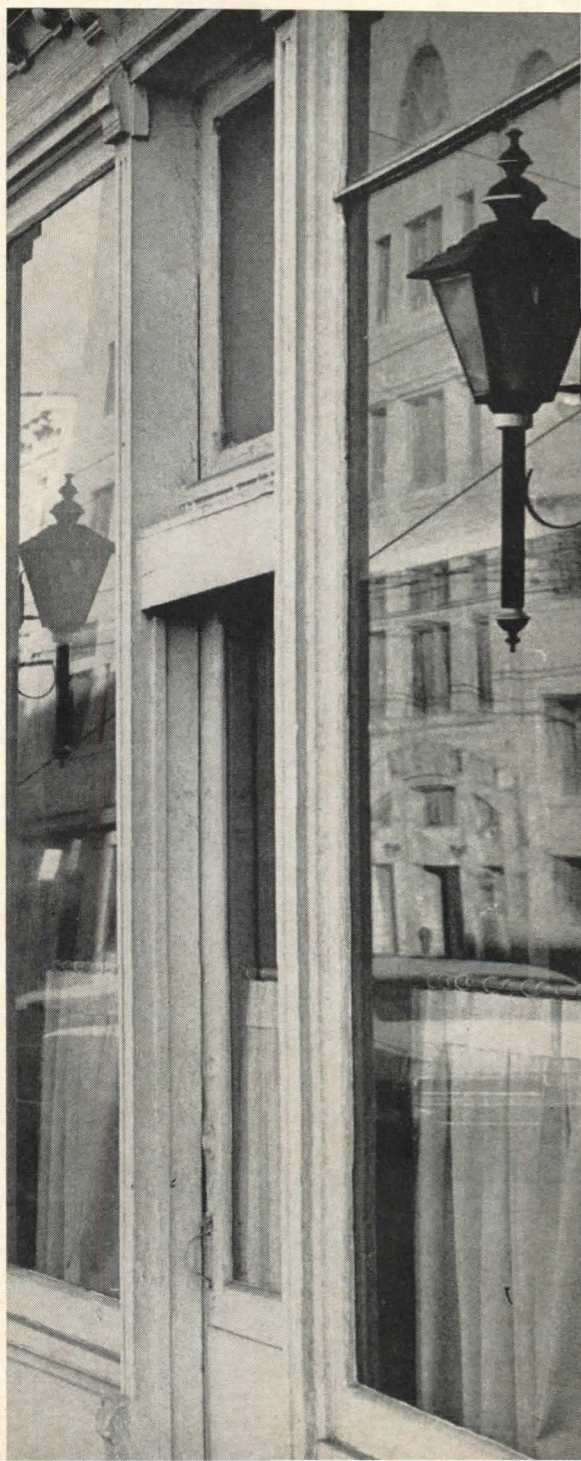
Dayton's share of the Burns-Jackson renewal would be \$1.9 million. Although the city's community development department has shown interest in the project, Dayton has already committed more than \$21 million in five other urban renewal areas over the next six years; and almost \$14 million of this has not yet been funded. In addition to these five urban renewal projects al-

ready in the works, there is another in the planning, and a model-cities proposal for the Negro ghetto in West Dayton.

The city's one per cent income tax expires in 1969, and the Ohio legislature is now considering a reciprocal income tax law that would distribute half this income back to suburban municipalities. Dayton is thus faced with the virtual necessity of raising the income tax, and is also considering a package

bond issue that might well include the Burns-Jackson project.

"We're very optimistic," says Horace Huffman Jr., one of the original backers of the project and now treasurer of Burns-Jackson Inc. "With the strength of citizen interest in this, the city can't afford to ignore it. The project might be a kind of nonsuccess for a while, but I can't see the possibility of its failure. In the long run it is sure to prove its value."





**Two persons have been instrumental in salvaging Burns-Jackson: Priscilla Colt, wife of the director of the Dayton Art Institute, and the architect, Bertrand Goldberg. Here are their comments.**

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**BERTRAND GOLDBERG:** The new voice from the wilderness of planning calls us to "save our cities." We are called to save for another 50 years the bad building and poor neighborhoods from an earlier urbanism.

Burns-Jackson in Dayton called us differently. Here at one time there was an earnest community with a statement of faith in the West, with self-confidence in the arrangement of its world, with pride in its Sunday best. This was the beginning of Dayton and, like other archeological beginnings, had appealed to us to save, to identify, to reconstruct.

But Burns-Jackson reconstruction is no whimsy. The clarity of its early opinions, stated in its Federal and Victorian architecture, requires the clarity of our own program.

The scale found at Burns-Jackson was the overwhelming statement. The scale of the houses, the walls, the trees, matched the scale of the people as they saw themselves in the world of Burns-Jackson. Every decision for our master plan is intended to restore the original scale and preserve it in the new work.

Burns-Jackson, restored, will answer the planners' call to save our cities but with a sense of community which remodeling alone can never provide.

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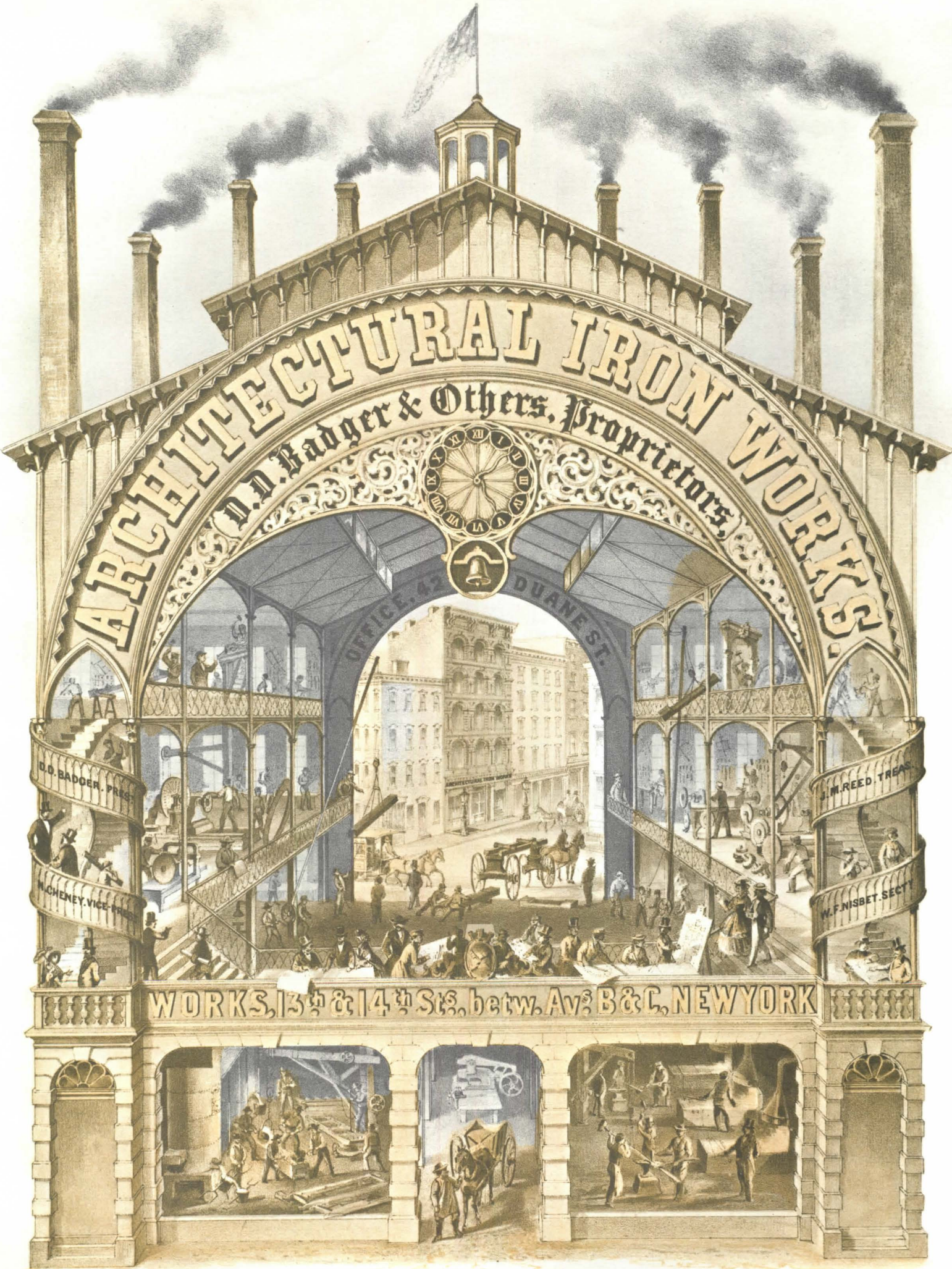
**PRISCILLA COLT:** Daytonians are like the Midwesterners I grew up with: secure and friendly with bright optimism and energy, candor and apparent naïveté. The people were familiar to me, when we arrived in Dayton ten years ago. But for the eyes it was different. Like many American communities, ours was becoming a faceless cityscape, in places afflicted by the ugliness of blight or decay. I could not understand how it had happened—how such a busy, wholesome people could condone these affronts to their environment. I knew it was not by premeditation; somewhere, sometime, things had got out of joint. It made one always vaguely sad, because eventually it could change the people as well.

Then I found Burns-Jackson, a tiny enclave hidden in the heart of the city. Here was what seemed to me the real Dayton! It had a simple integrity and beauty that had been sustained for over a century and, miraculously, events had conspired to leave it relatively whole. I was captivated by the modest, well-crafted houses, the human scale of the narrow tree-lined streets and little fenced-in gardens. This, I thought, could be a good place to live and possibly it was the place to begin to reclaim Dayton.

This wish to save Burns-Jackson seemed at first hopelessly romantic. But it soon became a cause, and support burgeoned in the most gratifying ways. The first tangible help came from a close friend, a native Daytonian, who, after a nostalgia-filled walk through the neighborhood, saw to it that a planning grant was provided. Soon after, enlightened businessmen, city officials, newspapers, local historians, and many just plain citizens joined in support. The city fathers, upon having the plan presented to them, called it "exciting."

But such enthusiastic lay support could not have been sustained without the best of professional help. It was our great luck to have Bertrand Goldberg take an interest in our project. Goldberg is a rare amalgam of artist and practical man, an architect and urbanist whose experience and talent seemed ready-made, if not destined, for this planning task. His thinking transforms our romantic wish into something of realizable substance. A Midwesterner, he understands the Dayton ethos, and his plan, completed, would build strong bonds between our nearly lost past and our future. Dayton, like other American cities has its opportunity now to reverse the trend toward anonymity. I believe we will rebuild Burns-Jackson and draw strength from it for the whole community.





# ARCHITECTURAL IRON WORKS

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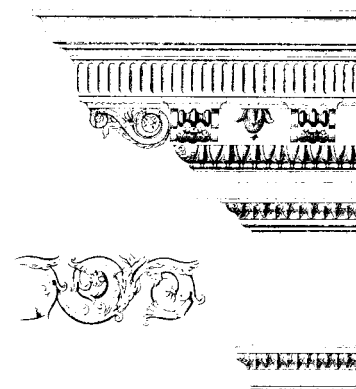
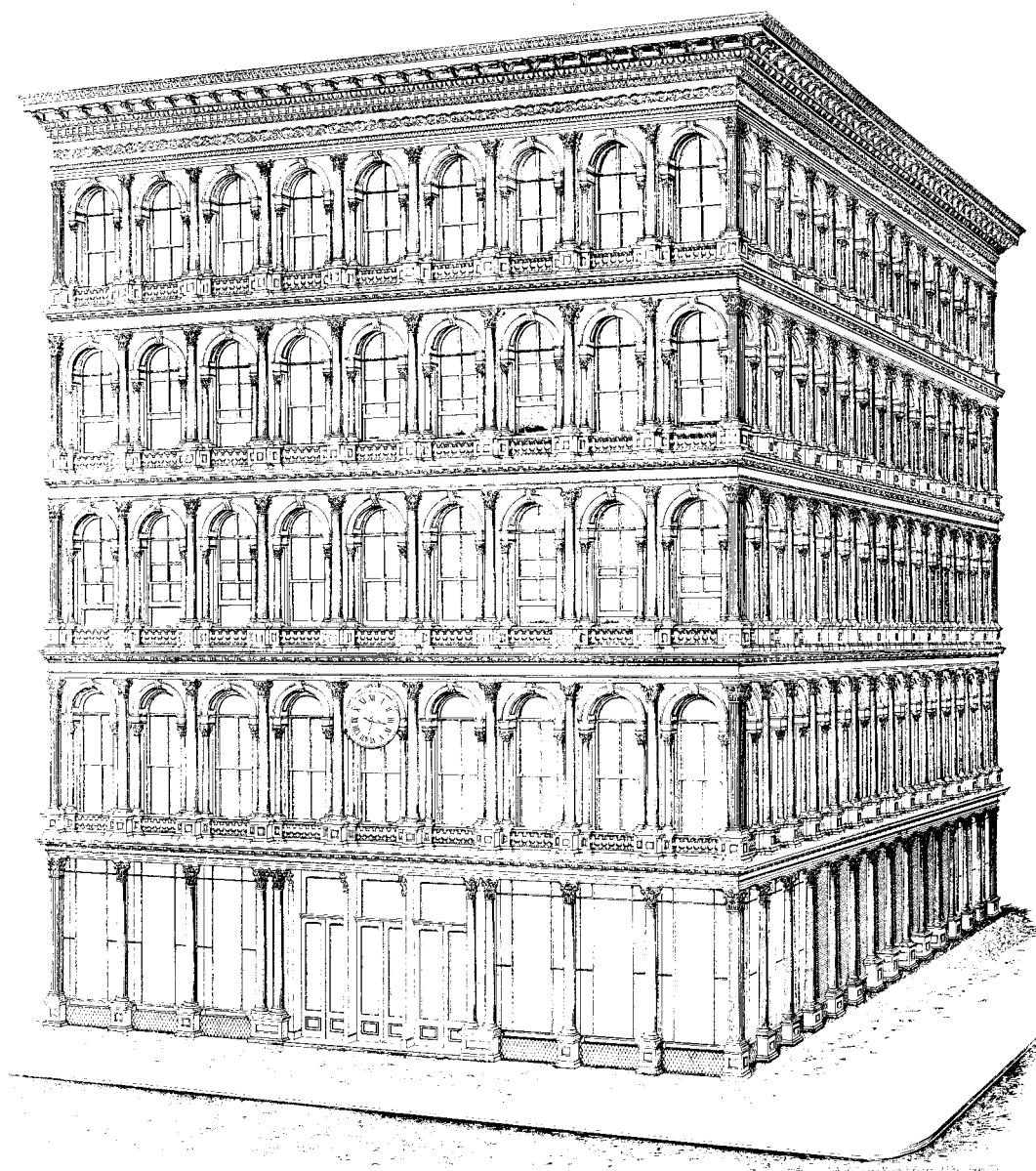
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The extraordinary fantasy in cast iron on the previous page as well as the lithographs of New York buildings on this and the next few pages come from a handsome book which a local firm, Daniel D. Badger's Architectural Iron Works, brought out in 1865. The book was in part a catalog of the firm's stock of iron building-fronts, and in part a brochure illustrating work the firm had completed. Badger and the now more renowned James Bogardus were the two principal entrepreneurs—and rivals—in cast-iron building in the 1850s. Whatever our debt to Bogardus as an innovator, we owe to Badger's firm, by way of its catalog, our finest source of illustrations of mid-century iron architecture.

Of the 102 plates in Badger's book, 21 illustrate New York buildings; eight of these buildings still exist; and four of them are presented here as they appeared in the 1865 catalog and also as one finds them today in Downtown Manhattan. Badger gives credit to the architects who designed the buildings he illustrates; but his firm had its own architectural department as well; and it is clear that reputable New York architects used Badger facades out of stock. So it is hard to say how much credit is due to the architects of record, and how much to Badger's firm itself.

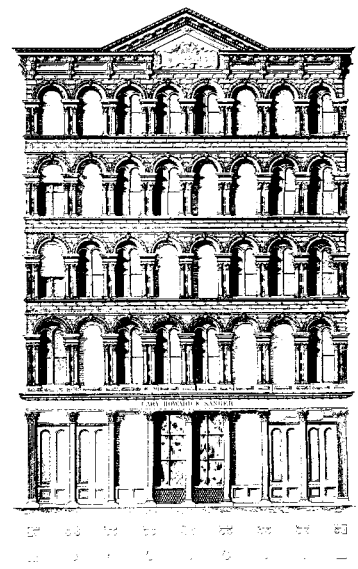
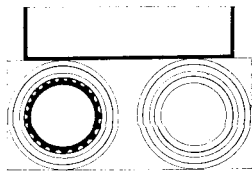
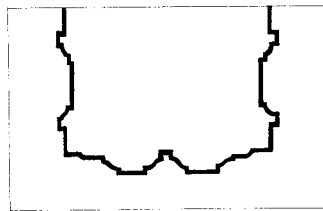
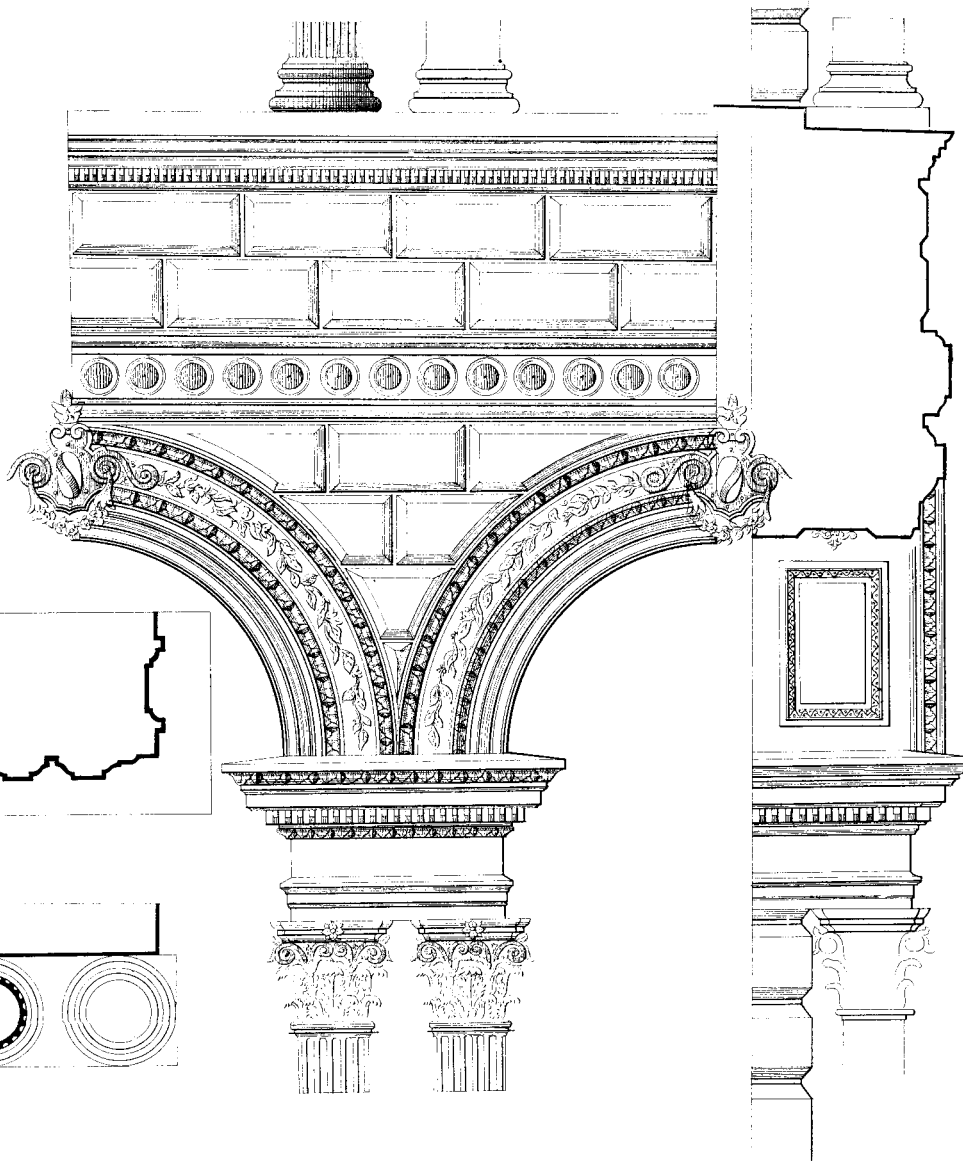
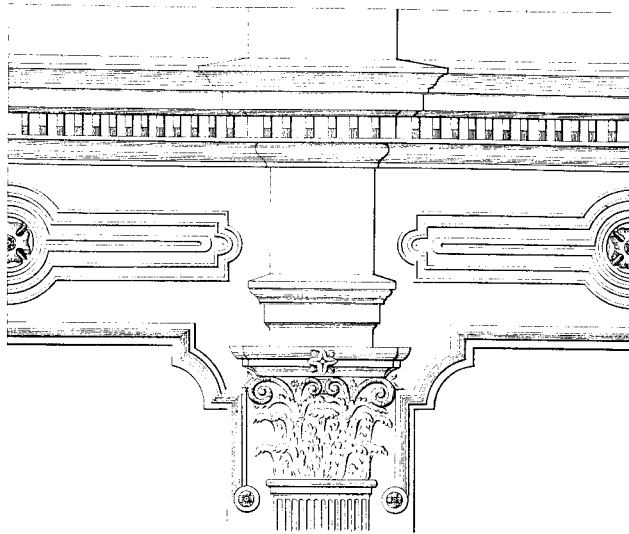
*John P. Gaynor is credited with the design of a building which was built in 1856 for Eder V. Haughwout's firm, importers and manufacturers of sterling silver, china, glassware, mirrors, bronzes, etc. It was the masterpiece of Badger's firm and the first commercial building in New York to contain a passenger elevator. Today, thanks to its broad corner site (at Broadway and Broome Street) and to its remarkably fine condition, as well as to the quality of its design, it is the finest example of its kind in New York.*

*Adolf Placzek of the Avery Library, Columbia University, lent the rare volume. Research, photographs, and descriptions are by Cervin Robinson.*



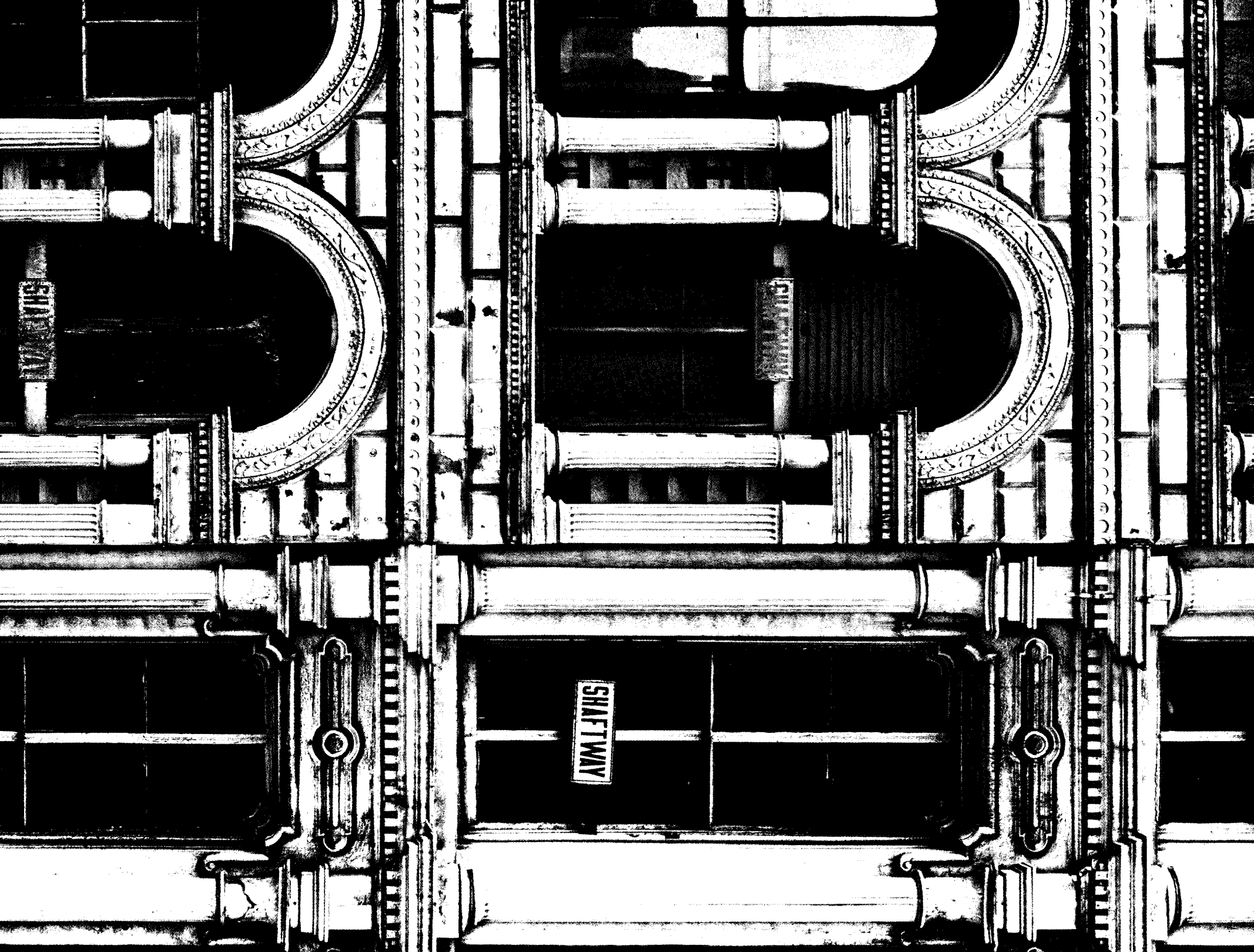






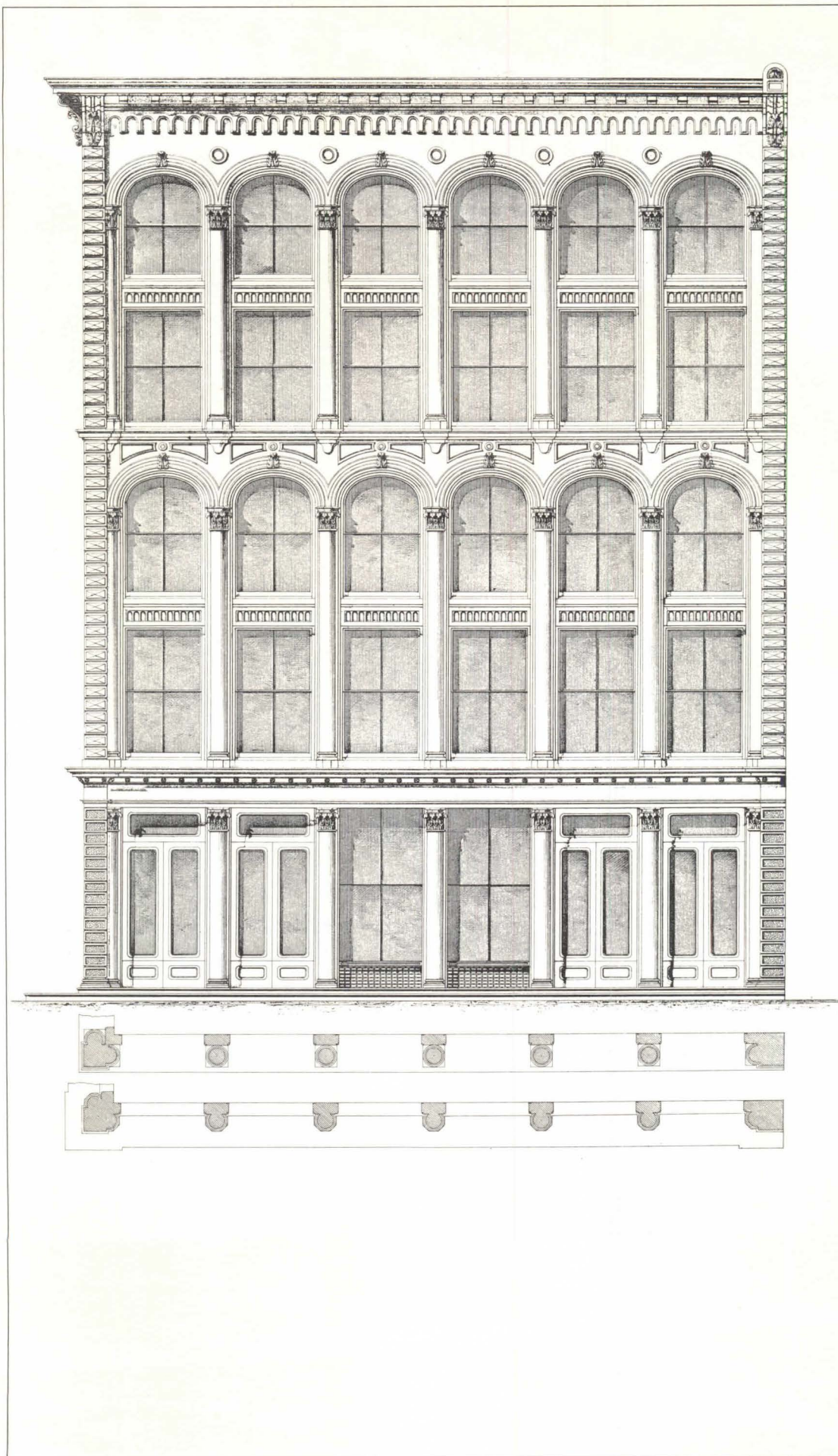
King & Kellum were the architects of the Cary Building built in 1856 to house Cary, Howard, Sanger & Company's fancy-goods store. In Badger's catalog a detailed drawing of the facade of the Cary Building was published immediately below that of another facade which, coincidentally or not, can be found today directly beside the Cary Building's Reade Street front, at the corner of Church Street.





SHAFTWAY





When, in 1860, Kellum & Son designed a building for S. H. & J. E. Condict, saddlers, its five-story facade was an example of a type, then remarkably popular for commercial fronts, in which verticality was stressed by combining pairs of upper stories by means of two-story arches. This particular example of the type, cast by Badger's firm, can be found today (right), on White Street just west of Broadway. It lacks only the keystones, the foliage from its capitals, and the rustication.







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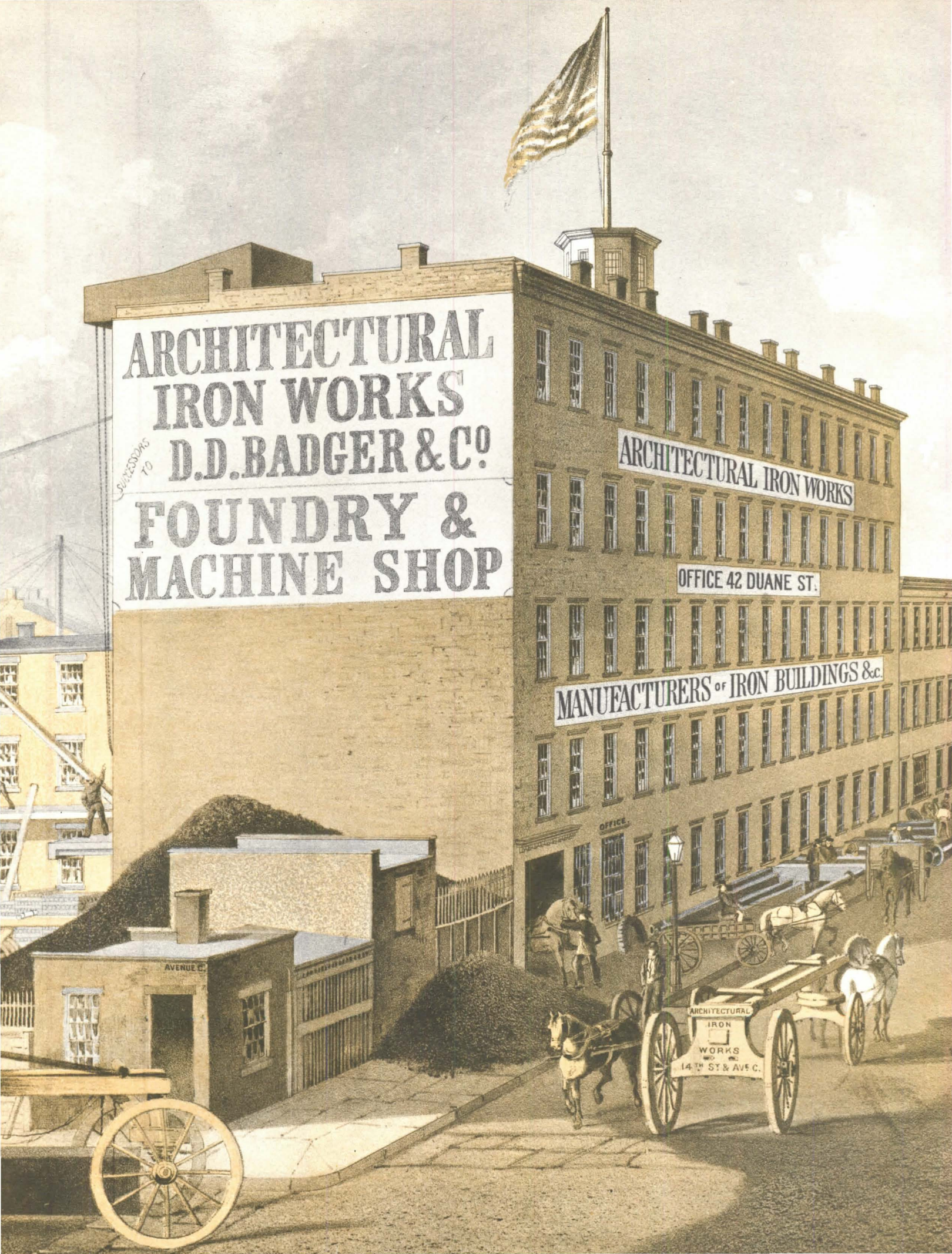
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# BOOKS

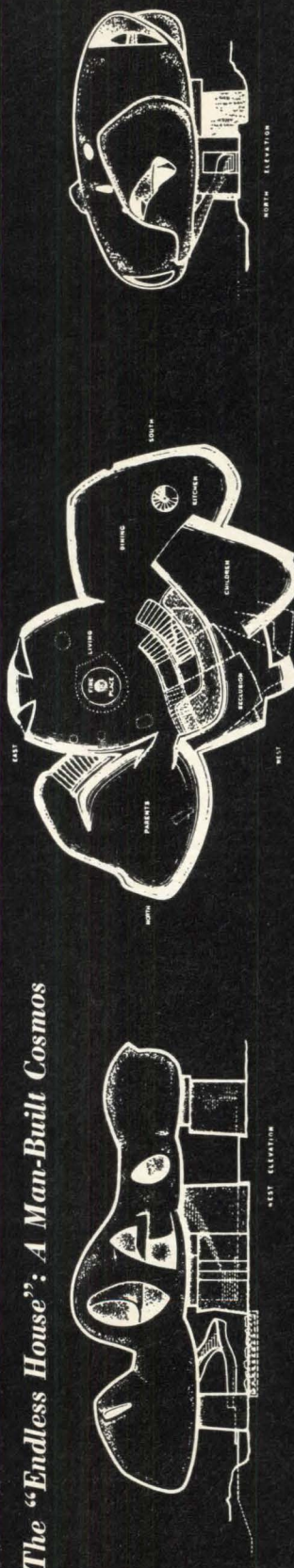
**INSIDE THE ENDLESS HOUSE.** By Frederick Kiesler. Published by Simon and Schuster, New York, N.Y. 576 pp. Illustrated. 8 by 10 in. \$15.00.

REVIEWED BY MARGUERITE YOUNG

*Inside the Endless House*, covering only the years 1956-1964 in the life of the architect, sculptor, painter, stage designer, Frederick Kiesler, is like one of those sculptures which he described as hatching numerous eggs, suddenly and unexpectedly as if the exuberant creative life has a life of its own as is the fact, the marvelous fact which he is always pondering upon. It is like those fantastic galaxies of ink drops out of which seemed to evolve, with his minimal assistance, Christmas cards for the Museum of Modern Art, patterns of beauty seeming to assert themselves out of anarchic purposelessness which he viewed more as the witness than the creator as he writes, "From each ink blot there seemed to rise luminous arcs which fell on the paper and rose again and fell, commending me where to set down the next blot and where to connect the drops. As if blind-folded, I followed the course of the arcs across the empty cards strewn on my desk. I rapidly finished one after another, six in all as I remember, and christened them Star-Dove, Galaxy of Wishes, Birth of a Star, Moon-Baby, Snow-White and White Laughter." The choice of the names seems of symbolic significance for, in whatever medium he might work, he was also, as this book shows, a poet deeply obsessed and possessed by themes of birth and death, dualities in which birth and death may be interchangeable as consciousness and unconsciousness, and dreams of resurrection not to be postponed until we are dead but to be experienced now in the ambiguous fullness of time while we live. That is why one of his sculptures is that shell of a horse into which a man may crawl and read the hieroglyphs

Marguerite Young, poet and novelist, is the author of *Angel in the Forest* and the recent and widely acclaimed *Miss MacIntosh, My Darling*. She is currently living and teaching in New York City.

The "Endless House": A Man-Built Cosmos



upon the roof until he sleeps. When he crawls in, he dies. When he crawls out, he is born again or, as Kiesler once put it, certainly refreshed. The horse signifies, as may be seen by its name, Marc, water and mother as Kiesler knew, if not from reading, then from his scrutiny of self. He was so literate, so articulate that I am sure he must have been born with a book in his hand. Man is, in his definition, the mere barrier reef between two eternities—but which is which as one mirrors the other? The building which man inhabits is the sea shell which he himself exudes like the small animal, building, room after room. And now this book—in which Kiesler records his observations and meditations, his feelings that even when he is old he has time, time to go, time to do, time to be, his future opening just when it might seem to others to be ready to close—is like that Endless House of which he writes so many poems and notes.

Perhaps the Endless House, not yet built, only planned by him, is like Xanadu, a stately pleasure dome decreed if not built by Kubla Khan, a thing of a dream. Perhaps it may yet be built. Never beginning, it is never ending. Perhaps it is a child's prenatal memory. It is a maze. It is, perhaps, this house which he has in mind when he writes, "Every detail seemed to be bound to a wider world, a world of infinite links. Bound to links. Links after links, Links and links and links. . . . What are they? How do they hold me and the world together? Magnetic rings? Or arrows shot through space, piercing everything without pain? Are they locks whose keys are invisible to man? Or waves thrown at you by natural forces, whenever they feel like it, to embalm you and then go on to other plays in infinite space? Now it seems to me we live a life of links, a life of infinite links. All and everything bound together. There is no escape from this prison of cosmic love."

He believed in art as the self-begetting ritual, as something beyond the mechanistic, the flat

(continued on page 101)









# NEW THEATER: A CENTER FOR BALTIMORE

John Johansen's new theater in Baltimore's Charles Center gives the project the vitality—both functional and architectural—that it sorely needed.

Among the many urban-core renewal projects undertaken in the past decade, Charles Center was one that promised real urbanity. Out of 22 decaying acres at the very core of the city, it was to create a tight-knit complex of offices, apartments, hotels, and shops—and a theater (see June '58 issue).

Early schemes showed a multi-level circulation system, with pedestrians above the streets and parking below, using the slope of the land to make convenient interchanges between levels. The center that is actually being built is less advanced. Most of its buildings are isolated objects, and its upper-level pedestrian system has shrunk to a set of overpasses extending no farther than necessary to get people across streets.

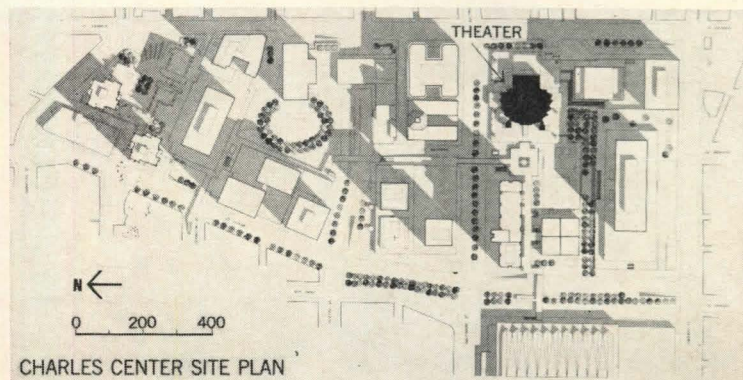
Charles Center's sponsors had the foresight to plan for 24-hour-a-day activity, but the first several buildings to go up, beginning with Mies's somberly handsome One Charles Center office building (see Sept. '63 issue), were daytime buildings. Aside from the existing Lord Baltimore Hotel, the new theater is the first building to bring life to the center after dark.

The new theater is an important asset to more than Charles

Center; it is the only all-year legitimate playhouse in a metropolitan district of more than 1,600,000 people. Despite its tradition as a locale for Broadway tryouts, Baltimore has been without a place to hold one since the ancient Ford's Theater was razed in 1964. To fill this void, Morris Mechanic (who had owned many theaters, including Ford's), agreed to build the Charles Center Theater on a parcel leased from the city for 75 years at \$30,000 a year.

Mechanic knew that a theater capable of housing Broadway shows—even with an unusually high seating capacity of 1,800—could not possibly turn a profit. To balance the expected deficit, he based his theater—structurally and economically—on a layer of rental spaces (which, incidentally, rent at a higher square-foot rate than any other retail space in the city). This rental space is, in the words of Johansen's associate, Douglas Kingston, "the flower box that sustains the theater."

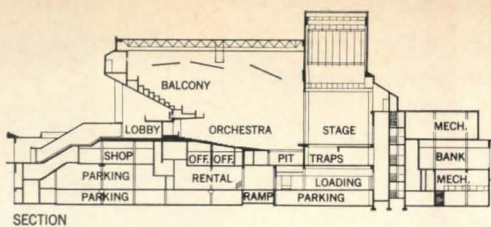
Mechanic died last year, only six months before the opening, but his theater has turned out to be more successful financially than he dared to hope. For its first season of nine events, 23,000 (out of a possible 40,000) advance subscriptions were sold. More often than not, the remaining seats have been sold at the box office well in advance. Baltimore clearly needed a theater.



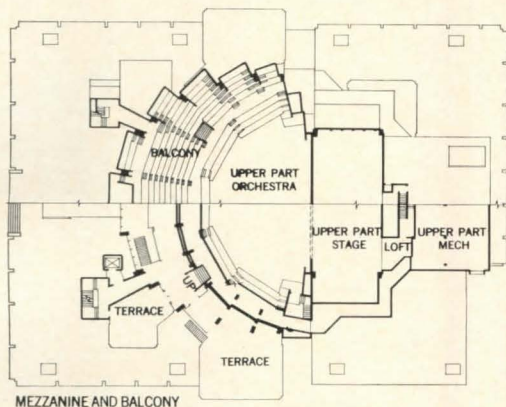




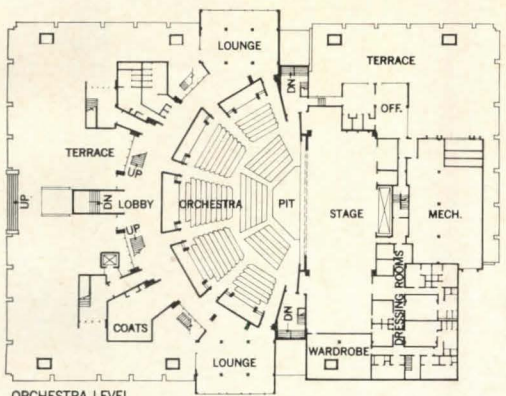




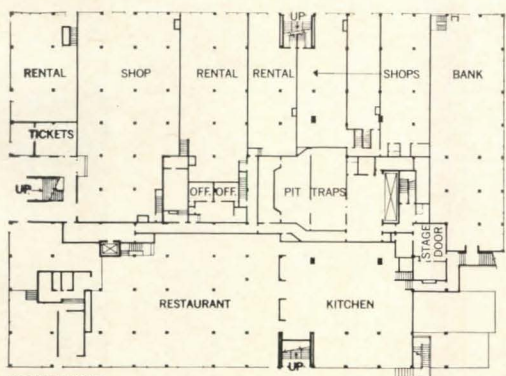
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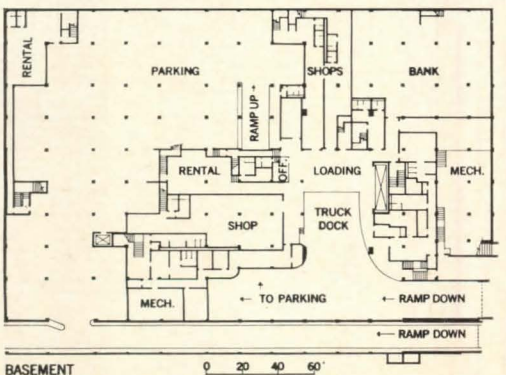
MEZZANINE AND BALCONY



ORCHESTRA LEVEL



STREET FLOOR



BASEMENT

## The angular theater sits on a box of service facilities, most of them underground

In the overall scheme of Charles Center, the theater was envisioned as a relatively small sculptural form in a setting of tall neutral facades. Except for some competition from the structurally acrobatic Sun Life Building next door to the south, that is the way things turned out.

The sculptural forms of the theater grew directly out of Johansen's conviction that "the outside is just the other side of the inside." This approach is most obvious in the theater itself and in the lounges, stair towers, mechanical rooms, and the ventilating shafts that cluster around it. The podium of rental space from which they all rise looks very much like the "universal space" that Johansen shuns. Yet even this seemingly inexpressive box does reveal what it is: a space of predetermined boundaries cut up inside like a jigsaw puzzle.

Johansen didn't want a rigidly rectangular box supporting his theater. He would have liked it to show something of what happens inside and, even more, he wanted it to be part of a continuum of street-level spaces shared with neighboring buildings. But Charles Center had not shaken off the tradition of carving land up into geometrical parcels. (The theater got what was once a city block.) And the need to fill every rentable square foot at this level was so pressing that the glass could not even be set behind the exterior columns.

The podium is only the visible part of a three-layer complex filling the whole rectangular site. At the lowest level is a sub-basement devoted entirely to parking; above that there is a level of delivery docks, storage for shops, and more parking. It is only at the street level that facilities of the theater itself start to take up floor area—and then only the barest minimum, leaving the balance to rental space.

At the next level up—the pedestrian bridge level—the theater really begins. There the concrete structural frame undergoes a radical transition. The closely spaced, regular grid of columns (spaced mainly to allow for parking clearances) gives way to a completely incompatible system of piers supporting irregular, long-span spaces. The transfer of loads is made in a 4-ft.-to 5-ft.-deep lattice atop the street-floor spaces. Its depth can be discerned on the exterior, but it is deftly minimized by the projecting concrete parapets ringing the building at this level.

The modeling of the theater itself is a visible expression of the conflicting need to have the largest number of seats and the shortest structural spans. The piers that support the roof push in as close as possible to the stagehouse, while the balcony seating pushes out in projecting compartments — separated not only to eliminate behind-the-pier seats but to give each one the structural support of cantilevered side walls.

Beneath the sloping soffit of the balcony is the two-level lobby (left), treated as an exterior space penetrating the building. Only a glass wall between the concrete piers (as inconspicuous as a glass wall with 32-ft.-high mullions can be) separates the lobby from the two-level array of decks surrounding it.

When it came to spanning the main space of the theater, the budget ruled out anything but a standard steel-truss system. Johansen, knowing the top of the building would be visible from surrounding offices and hotels, would have preferred a more sculptural roof. He did the next best thing: he gave his flat roof an intriguing outline.



## Stage and seating were laid out for touring companies of today and tomorrow

The Charles Center Theater had to fulfill one primary mission: housing Broadway productions, either in tryout or on tour. There had to be room for conventional proscenium staging, with a tower capable of supporting 34 tons of scenery.

Client, architect, and consultants agreed, however, that the theater had to have broader capabilities. The limitations of Broadway playhouses are beginning to lose their nationwide effect. Many future productions here are likely to be by repertory companies that have abandoned proscenium staging. Even productions now coming from New York (like the company of *Man of La Mancha* that played at Charles Center this spring) are sometimes designed for forestage performance.

Consideration of both immediate and future needs led to a fan-shaped seating layout facing a stage with an extra-wide (59-ft.) proscenium opening. The 450-sq.-ft. orchestra pit can be converted to a forestage using

demountable platforms. Mechanical systems for changing stage form were considered unnecessary, since most productions run for several weeks.

With proscenium staging, sight lines from the extreme side seats are somewhat limited, at least when the opening is narrowed to the 30-odd-ft. width of most Broadway sets. For forestage productions, it is the top balcony seats that have a restricted view. It is remarkable, however, how few of the 1,800 seats are really undesirable for any one production. And the sound, throughout the house, is excellent.

The treatment of interior surfaces demonstrates Johansen's conviction that the inside is *different* from the outside, even though they may follow the same convolutions. Once you pass through the lobby (an "outside" space), exposed concrete gives way to soft, coated surfaces.

Walls are covered with vinyl fabric, in a russet color also used for the main curtain; ceilings and acoustical baffles are painted black. A floor carpeted in dark blue (all over, not just in the aisles) supports seats upholstered with lighter blue fabric.









**Diverse shapes molded of a single material: one phase of Johansen's evolution**

The Charles Center Theater is a complete summary of Johansen's thinking, circa 1965. All of its parts—from stage house down to ventilation "snorkels"—are revealed, and each is placed to express its relation to the whole.

Of course sculptural judgment comes into play, as in the balancing of the stage house mass with the two burly stair towers at the front of the building. But other elements—the single off-center elevator shaft, for instance—make no sculptural contribution at all.

The two big stair towers exemplify Johansen's approach. They are direct physical expressions of building-code requirements for escape stairs—from the open bridge connections at the top of the balcony, down through increases in area at each floor level, to the exits that dis-

perse people in opposite directions at the base.

The towers stand symmetrically at either side of the main entrance, but they are not identical. One of them has been pushed farther from the main building mass and flattened in plan to make way for the elevator shaft (which is hooked onto the passage between stair and lobby). The option of making the other tower match it has been deliberately passed up.

All exterior surfaces of the theater from ground to roof are of uniform poured-in-place concrete. A mix of muted golden color was used, cast in forms of rough-sawn oak boards that were used only twice, at most, to maintain the high quality of texture. Each visible section of the building, no matter how large, was formed in a single pour.

But if the theater were to be built over again today, this carefully achieved surface uniformity would be the first thing to be changed. Johansen has now carried his ideas about revealing parts one step further. In work on his boards today, elements of different kinds are made of different materials. Visible distinctions are made between the permanent and the changeable, between heavy and light parts, between compression elements and spanning elements.

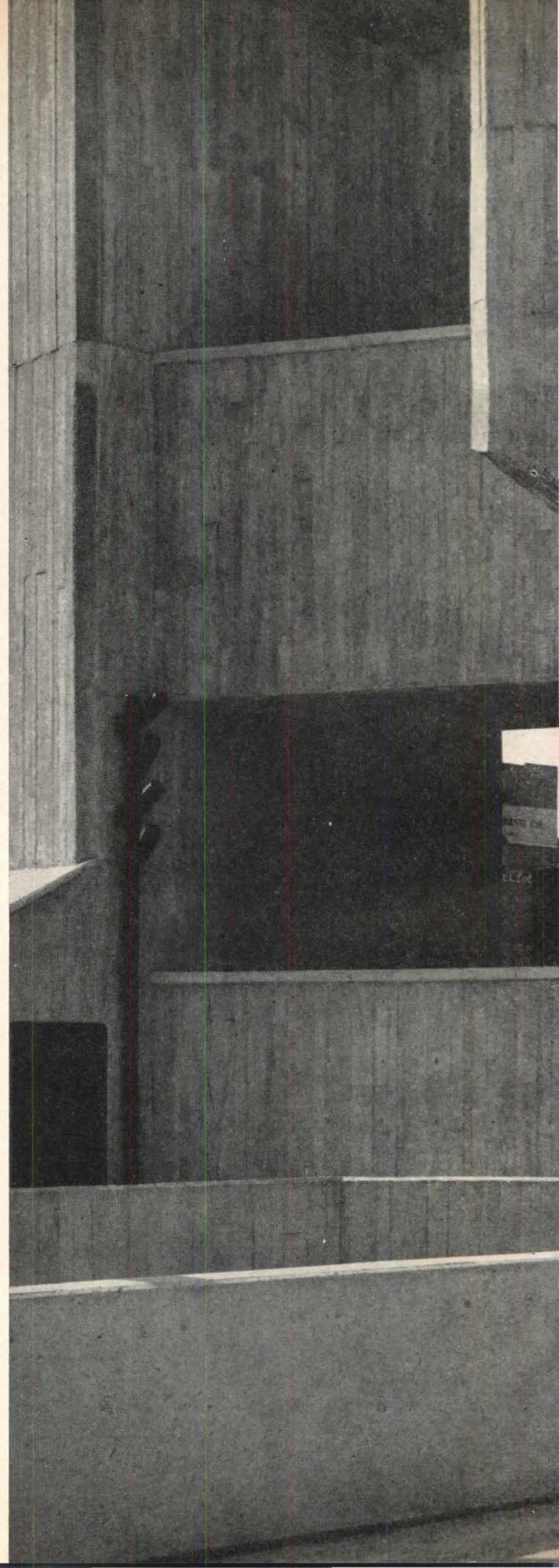
Now that the Charles Center Theater has been completed, the value of such differentiation becomes obvious—as it could not have been two years ago. If the theater has any esthetic failing, it is the unbroken continuity of its handsome concrete surfaces.

—JOHN MORRIS DIXON

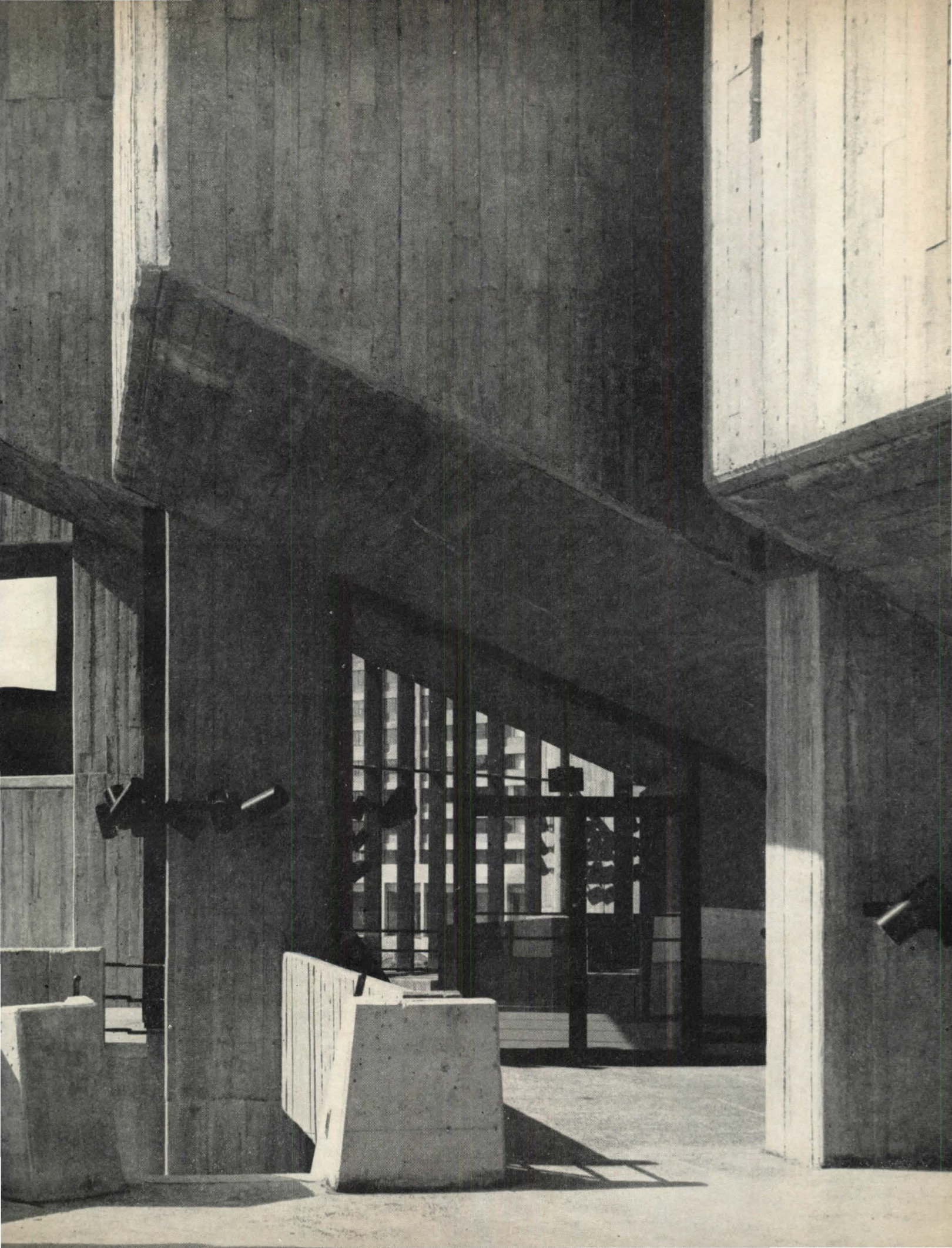
**FACTS AND FIGURES**

Charles Center Theater Building, Baltimore, Md. Architect: John Johansen. Associates in charge: Douglas Kingston Jr., and Robert Kienker. Supervising architects: Cochran, Stephenson & Donkervoet. Engineers: Milo S. Ketchum & Partners (structural); Henry Adams Inc. (mechanical). Theater consultant: Jean Rosenthal. Acoustical consultant: Harold R. Mull. Project expeditor: Howard R. Owen. General contractor: Piracci Construction Co. Building area: approximately 235,000 sq. ft. Construction cost: \$3,600,000 (original contract, including furnishings and equipment; not including land, fees, or financing).

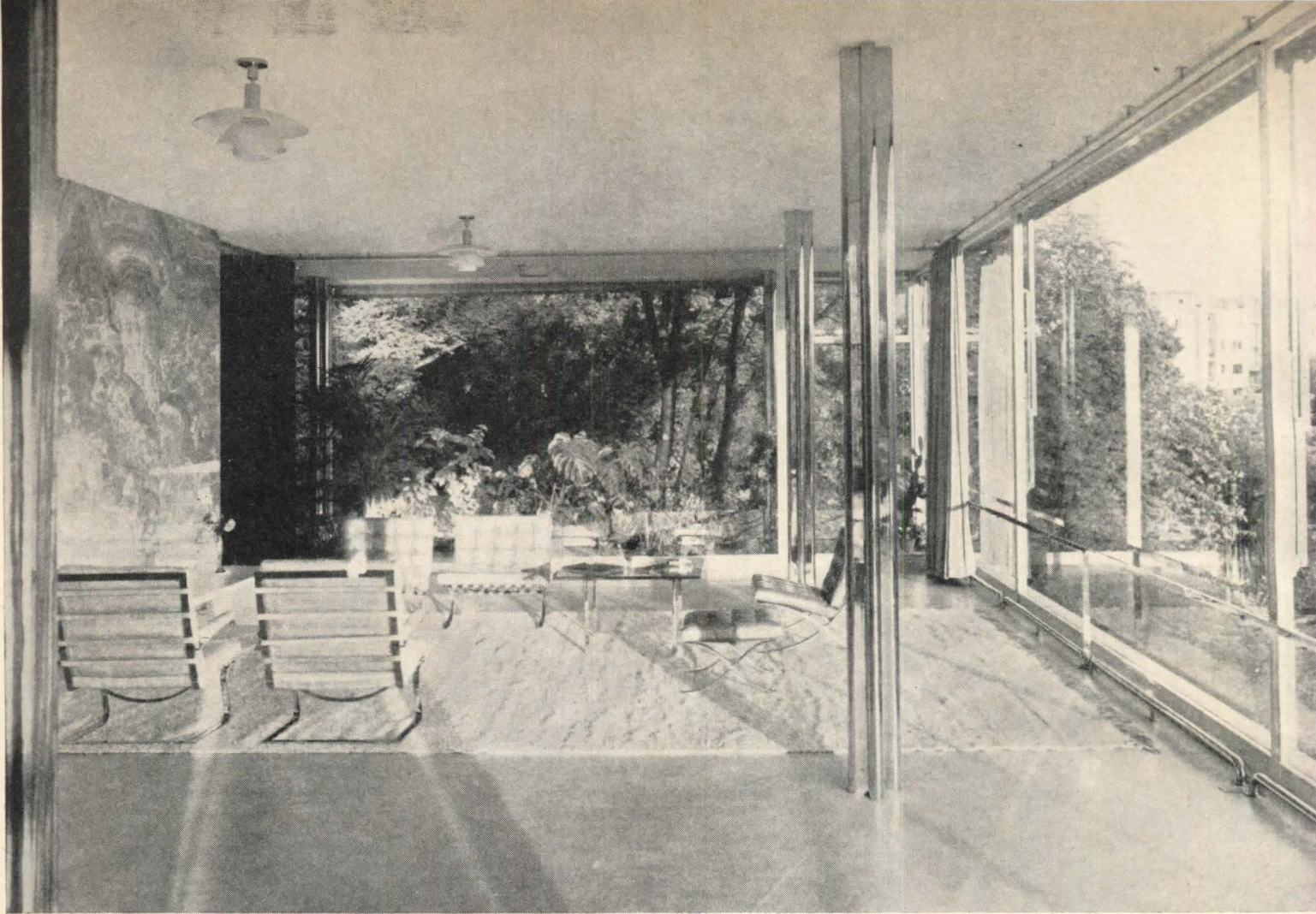
PHOTOGRAPHS: George Cserna.









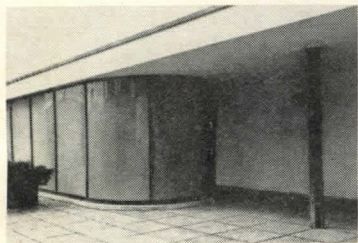




# MODERN ANTIQUES: 20TH CENTURY LANDMARKS

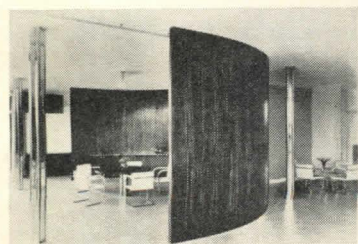
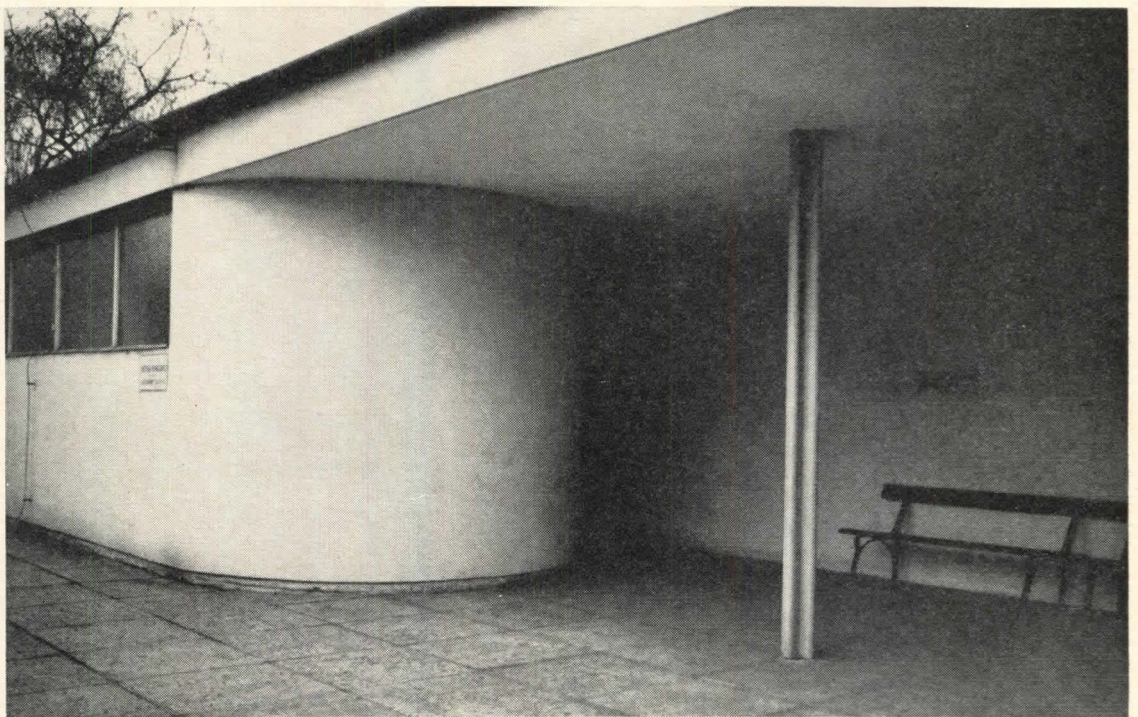
Whatever happened to Mies's Tugendhat House? Or to Mendelsohn's Einstein Tower? Or to Corbu's Centrosoyus building in Moscow? The answer, in many cases, is "plenty." Some of these buildings were severely damaged in World War II; others were radically altered by their owners—or, anyway, by their possessors. Few of these landmarks of 20th-century architecture have survived unaltered or unscathed; some of them have aged very well, others have suffered badly from poor maintenance.

This is the first of two reports on the present state of some of the "antiques" of the modern movement (the second report will appear next month). There is no intention to evaluate the significance or the lasting influence of these buildings—readers will be able to judge these for themselves. The intention is, simply, to record; and to guide some of our readers who may be able to visit these structures during the summer months. They are well worth visiting, if only to remind us that not everything in modern architecture was invented during the past two decades. Most of the photographs were taken by Cervin Robinson, who has contributed to the FORUM in the past; the rest were taken by myself. The information contained in the captions was assembled by one or both of us. — PETER BLAKE

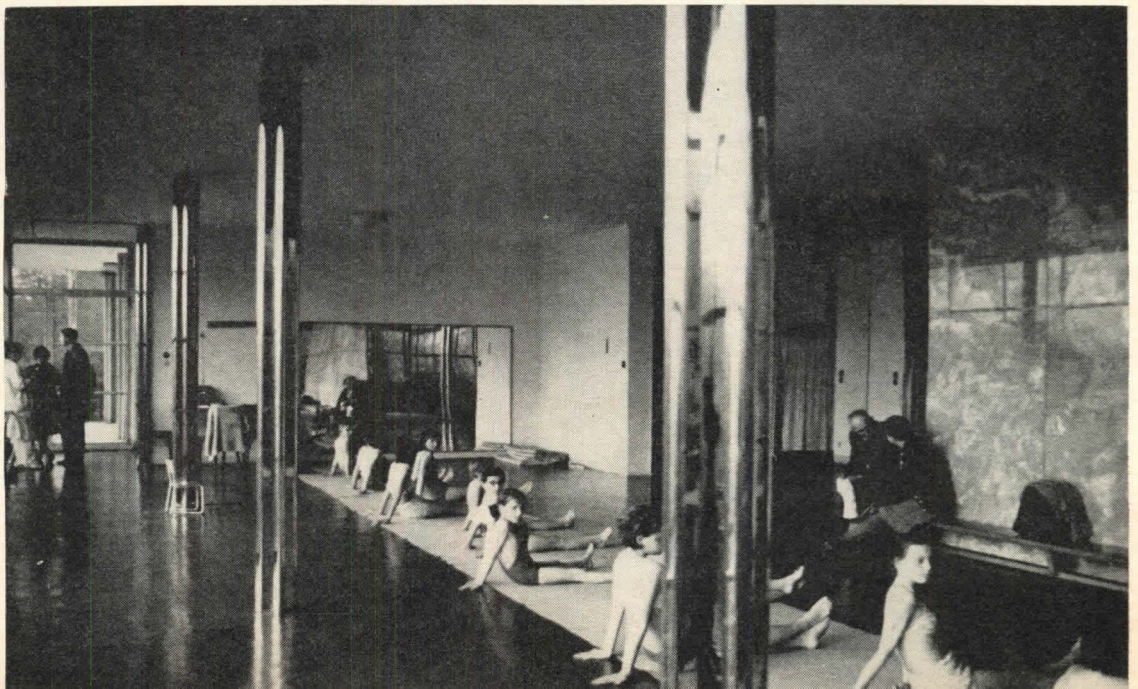


**Tugendhat House (1930),  
Brno, Czechoslovakia. Mies  
van der Rohe, architect.**

This spacious and enormously elegant house is now used as a clinic for children suffering from a mild spinal curvature. The living room (left) works very nicely as a gymnasium. The principal changes to the house have been in the fenestration: the former, curved glass wall near the street entrance (above) has been replaced by a masonry and stucco wall (right); and all but one of the large sheets of plate glass in the living area have been replaced by smaller panes. Horses were stabled in the living room briefly after the



war, and they kicked out the large sheets of plate glass. The famous semicircular screen of ebony (above) that demarcated the dining room is gone also (right); but the remaining finishes and details, especially the chromium plating of the columns, are in near-perfect condition. The house is on the Cernopolni in Brno, near the "Fakultni Detska Nemocnice, Oddeleni Lecebneho Telocviku."

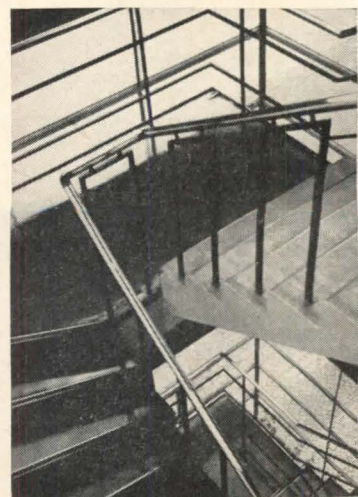






**Fagus Factory (1911-16),  
Alfeld - an - der - Leine, West  
Germany. Walter Gropius and  
Adolf Meyer, architects.**

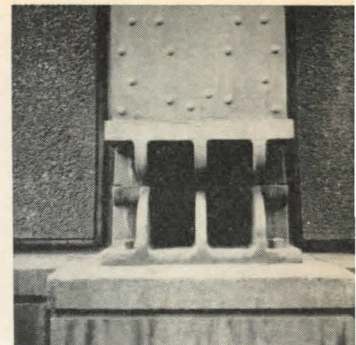
Devotedly maintained by the same family of shoe-last manufacturers that commissioned it in 1911, the building is still in full operating condition. Visitors first see the main entrance and staircase with glazed corners (above). However, this was a later addition, for the factory was built in two phases, and its early section, which dates back to 1911, is located to the rear. It faces the railroad tracks. Its detailing is substantially similar to that of the section in the foreground. The glazed corners in the earlier and later stages show the same daring and precision (right). The Fagus Factory, officially designated a "landmark," is on the west bank of the river Leine, between the railway tracks and the road north to Hannover.



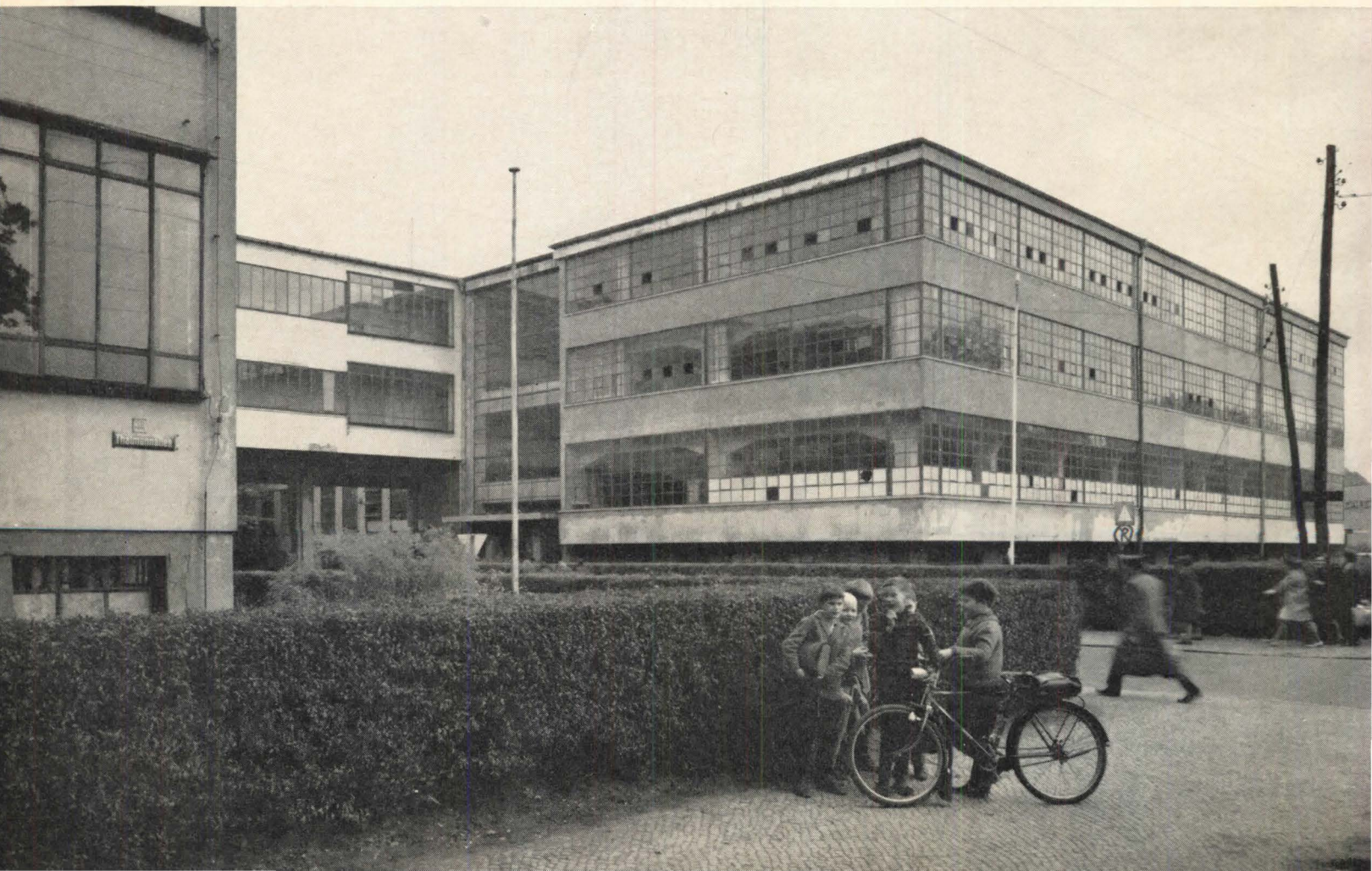
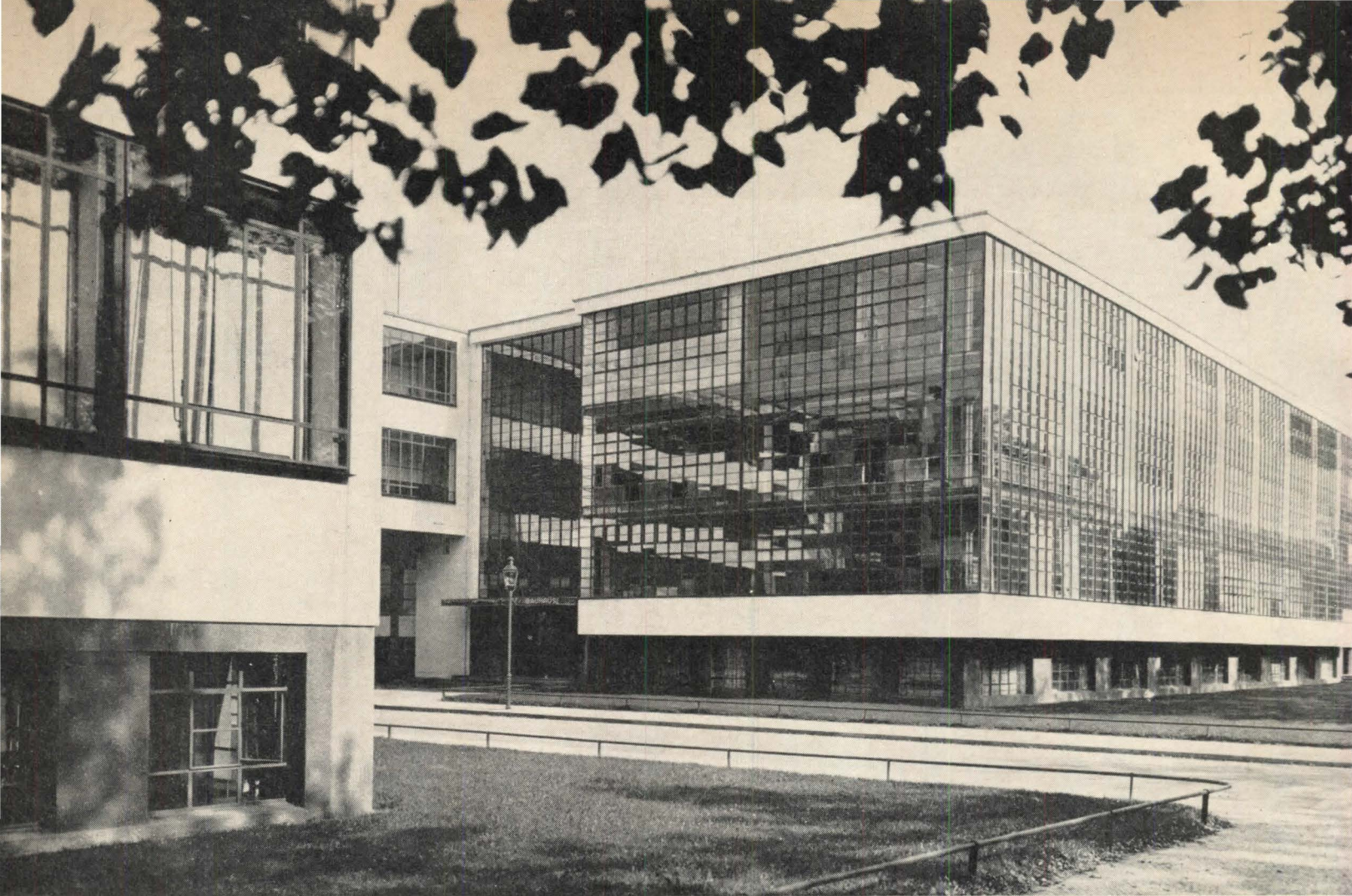


**AEG Turbine Hall (1909),  
Moabit, West Berlin. Peter  
Behrens, architect.**

The famous steel and glass hall, which Behrens designed almost 60 years ago, was built initially as a three-hinged structure (see typical hinge detail at far right). However, only the first 400 ft. of the hall were built in 1909 (near right). Later, the AEG added another 275 ft., and this addition (visible in the recent photograph, below) uses a less sophisticated rigid steel frame. As this photograph shows, the building is in perfect shape and the trees have grown nicely. The setting is on the corner of Hutten and Berlichingen Strassen.





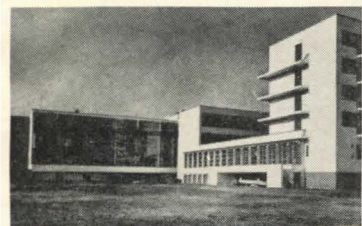






**Bauhaus Buildings (1925-26), Dessau, East Germany. Walter Gropius, architect.**

Despite the ravaged air of the buildings on these two pages, they are the pride of the citizens of Dessau. The glazed workshop block (top left) was largely bricked up after the war and is, in its present state (bottom left), considerably closer to its original state than it once was. The fact that the name of the school is no longer in place on the opposite end of the same workshop block (above and right) says little about the local attitude, nowadays, toward Gropius' school: the letters were removed in the '30s; but the building to the south of the school is called Cafe Bauhaus, the street that runs through the school is called Bauhausstrasse, and the administrators of the trade school that the building now houses proudly show the visitor examples of original Bauhaus hardware and lighting fixtures. Although progress has been slow, the restoration of the buildings seems to be in safe hands. At present, virtually all the space in the school, including that in the dormitory block (far right in these pictures), is used for classrooms. The school is to the west of the Dessau railway station: cross the tracks by a bridge to the north of the station, follow the Puschkinallee, then turn left on the Thaelmannallee. The latter runs in front of the school.

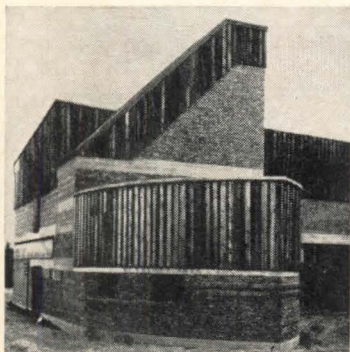






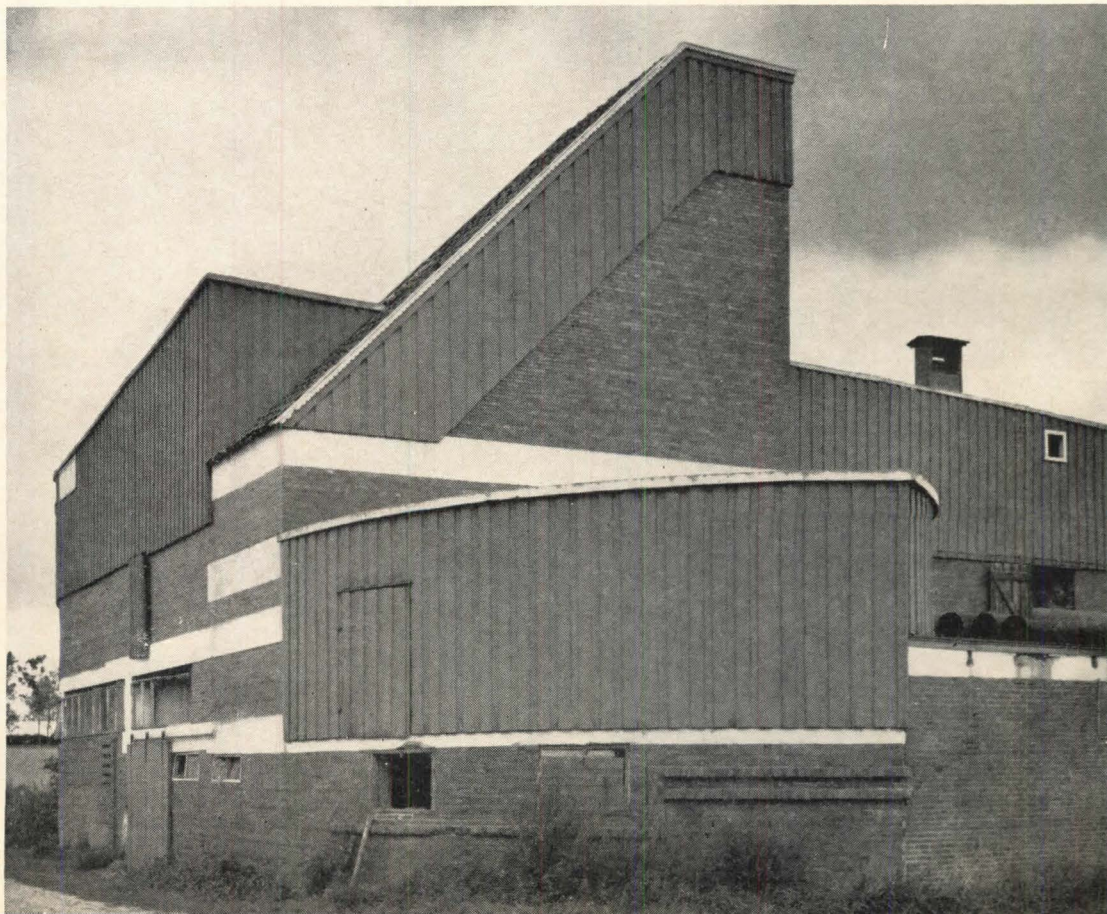
**Einstein Tower (1920-21),  
Potsdam, East Germany,  
Erich Mendelsohn, architect.**

Virtually unchanged except for a blocked window upstairs (see recent photo at right), the tower is still in use as a solar observatory. The building sits on a "hill" that conceals underground camera and dark-room spaces. This "hill" is surmounted by the tower which is used to transmit the sun's image down to the camera undistorted by heat waves that form nearer the ground. The bustle tacked onto the tower contains offices. The building's construction is brick, not concrete. The tower stands among trees to the south of the Potsdam Astrophysical Observatory. The grounds of the observatory are located about two-thirds of a mile south of the Potsdam railway station, and can be reached by way of the Luckenwalder Strasse.



**Gut Garkau (1924), Schles-  
wig-Holstein, West Germany.  
Hugo Haering, architect.**

Looking rather newer at present (right) than it did when first built (above), this cattle barn, together with one neighboring building, are all that was constructed of the farm complex designed by Haering. The low extension at the right has been tacked onto the prow-shaped beet cellar in the foreground. This, and the straw-stuffed, ramshackle condition of the windows are the only signs of change. Gut Garkau is on the Greater Poenitzer See, about ten miles north of Luebeck.





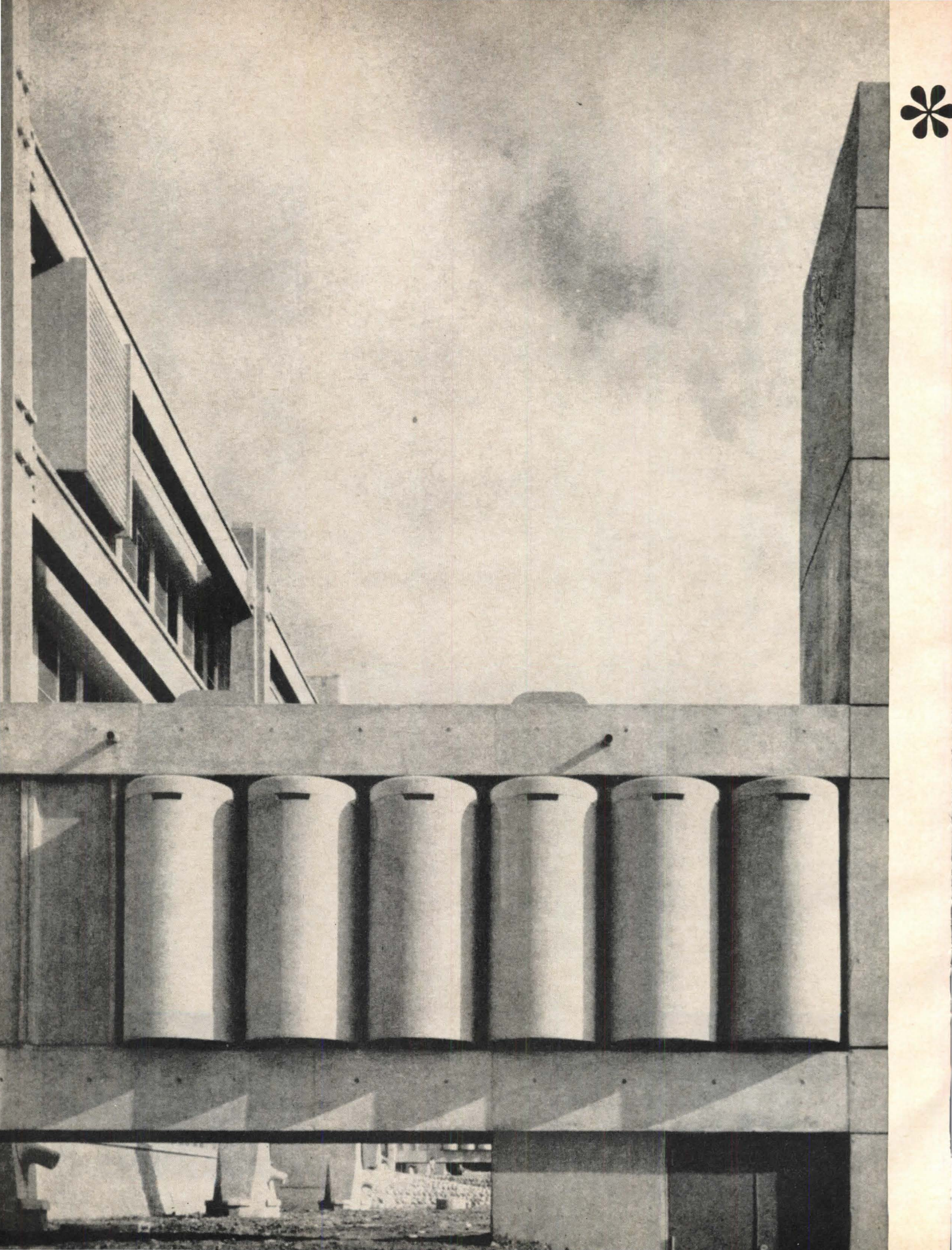


**AEG Electric Motor Plant (1910-11), Humboldthain, West Berlin. Peter Behrens, architect.**

A 700-ft.-long facade of purplish brick and glass marks the biggest plant that Behrens designed for the German equivalent of our General Electric Co. The building is in fine condition, having survived two World Wars with hardly a scar. The facade is divided up by broad pilasters into four rows of rounded columns, and each row consists of seven identical, brick-faced pillars (below). At each end of the facade is an office block, and this is treated more conventionally—brick walls punctured with windows (left). The location of the building is on Volta Strasse, between Hussiten and Brunnen Strassen. It is right in the center of a large complex of AEG structures.



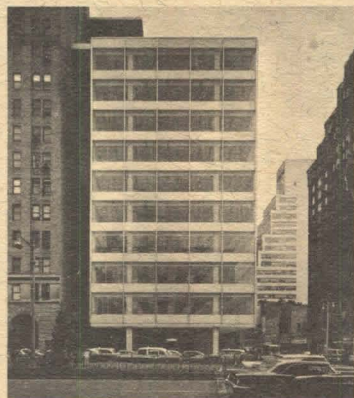






# FORUM CONT'D

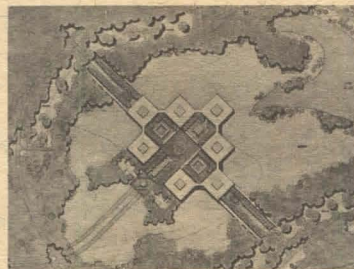
saved and this birthday party given fresh impetus. The menu included a multitiered birthday cake crowned by a miniature Water Tower, but no champagne. But then it is a water tower.



## PEPSI GENERATION?

When the Pepsi-Cola Co. announced, a couple of months ago, that it was going to leave Manhattan and move to suburban Purchase, N.Y., architecture buffs became concerned about the future of PepsiCo's award-winning Park Avenue office building, completed as recently as 1959, and designed by SOM (above).

It now looks as if Olivetti-Underwood may take over Gordon Bunshaft's handsome aluminum-and-glass showcase. PepsiCo, mean-



while, has announced that the architect for its new headquarters on the former grounds of the Blind Brook Polo Club will be Edward Durell Stone. Herewith his preliminary site plan.

## CULTURE

### SWINGING AWARDS

The New York State Council on the Arts, established in 1960 by Governor Nelson Rockefeller, is the nation's oldest and richest state agency offering general support to the arts. It may also be the swingiest.

This month the council announced the winners of its 1967 awards for "outstanding contributions to the artistic enhancement of the state," and they ran the gamut of artistic interest and expression. Among the thirteen winners were the Harlem Cultural Council's "Jazzmobile," which brings live jazz to the streets of Harlem and Bedford-Stuyvesant (below); Olana Preservation Inc., which succeeded in saving and preserving Painter Frederic E. Church's Moorish-Italian villa above the Hudson River; and New York City's Department of Parks which, under Commissioner Thomas Hoving, made the city's parks the focus of all kinds of activity (for example, a recent exhibit of Tony Smith's sculptures in Bryant Park).

Awards were given to new buildings (Marcel Breuer's Whitney Museum in New York City and Vollmer Associates' Performing Arts Center in Saratoga) and not-so-new buildings (Louis Kahn's 1963 First Unitarian Church in Rochester, and Eliel and Eero Saarinen's 1940 Kleinhans Music Hall in Buffalo). Also cited were the American Craftsmen's Council, for its "vigorous efforts in communicating creative work," and the Carborundum Company of Niagara Falls which awards original works by such top sculptors as Costantino Nivola and Max Bill to its successful distributors.

And the council singled out one individual for special recognition: Ada Louise Huxtable, architecture critic of the *New York Times*. She was cited for "her consistently incisive and courageous concern for integrity in architectural design and urban planning."



## CULTURAL EXCHANGE

The third exhibition of industrial design prepared for the U.S. Information Agency by George Nelson has just opened in Kiev after a month's sojourn in Moscow (above) where it was attended by 350,000 visitors. From mid-May to mid-June it will be shown in Leningrad.

The exhibit, held under the 1966-67 Soviet-American exchange agreement, includes some 1,000 articles manufactured by nearly 200 American firms, plus selected items from other nations. It depicts the transition of forms and processes from hand-made to machine-made objects, the influence of the consumer and of technology on product development, and the role of the designer in solving an increasing variety of problems.

The design of the exhibit is both "ultrasimplified" and visually articulate: one hundred traveling display units, rectangular boxes of similar size (and looking much like oversized steamer trunks with lids), completely installed for display before being shipped, are grouped thematically, breaking down the show into lessons about industrial design — "disposable products," "proliferation of objects," "doing with less," "highly



## FOOTNOTE

**Form follows function**—Honesty of expression in architecture isn't dead, after all! At least not in Japan: here is a detail of a building designed by Kimio Yokoyama; the building serves as a hostel for a religious sect that gathers here and in adjacent temples at the base of Mt. Fuji; and the cylindrical concrete protrusions are, of course, an honest expression of a row of six shower stalls that extends from the main dormitory block. Other sanitary facilities, however, are less frankly expressed. Photo: *The Japan Architect*.



articulated vs. closed design."

"Its real impact," said George Nelson emphatically, "lies in the fact that it is a truly cultural exhibition, not loaded with ill-concealed propaganda." The knowledgeable Russians were captivated by this approach and responded with invitations to dinners, exhibits, and design institutes—doors heretofore closed.

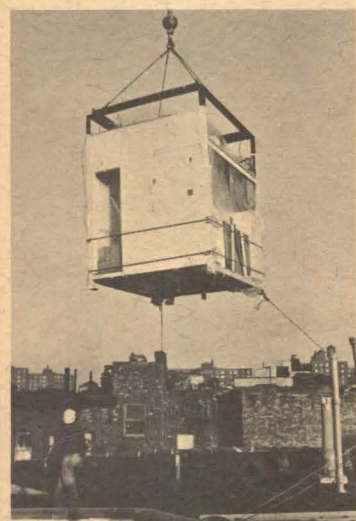
## TECHNOLOGY

### INSTANT REHAB

Aiming at the 48-hour rehabilitation of an old-law tenement in New York City, Conrad Engineers turned over the completed work in 47 hours, 52 minutes, and 24 seconds.

The work successfully concludes a one-year experiment in Instant Rehabilitation (April '66 issue) and paves the way for nationwide application of the technique.

On hand at the concluding ceremonies were Edward K. Rice of Conrad and the affiliated T. Y. Lin Associates (Rice is developer of the system); Secretary Weaver, whose \$1 million grant from HUD enabled Conrad to work out the new techniques and materials; Mrs. Carolyn Houssamen, whose



Carolyn Foundation owns the three houses at Nos. 633, 635, and 637 East Fifth St. (the other two houses were used in programming the 48-hour job); assorted local and Federal officials; proud construction workers; and a streetful of children—singing, playing, and hanging out of windows.

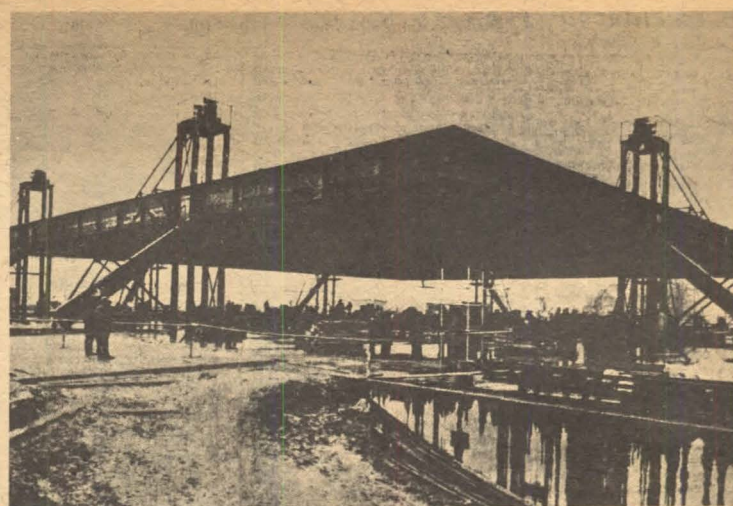
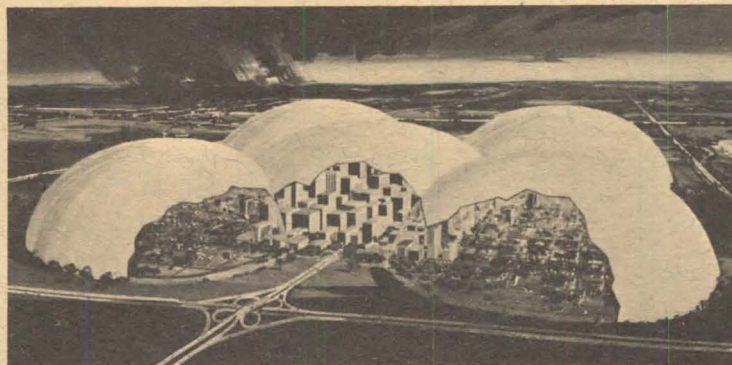
For the previous three days, the house at No. 633 had been the site of intense activity round the clock. First, the 12 families were moved off to a local hotel (three apartments were already empty). Then demolition crews moved in, the

Wrecking Corporation of America temporarily abandoning its work on the Metropolitan Opera. Then various construction workers cut an 8-ft.-square hole in the roof, lowered prefabricated kitchen-and-bathroom cores (below left) into place at 3 AM, and placed a new pre-finished wall material, a rapidly-laying flooring material, a new type of flexible window especially designed for renovations, and a new vinyl-jointed ceramic tile.

The final figure of \$11,000 per apartment (exclusive of experimental overcosts) compares favorably with \$13,000 for conventional rehabilitation, and \$21,000 for new construction. But nothing could compare with the cheer raised by all assembled when the 47:52:24 time was announced. The closest thing to it would be the cheer that greets the breaking of a new space barrier, which is, perhaps, precisely what was done.

### INSTANT ARCHITECTURE

Hardened bubble-gum buildings may well dot our cities in the future—or cover them entirely. A preview has just been unveiled by the Ferro Corporation of Cleveland, Ohio. The process, now being developed, is designed to make permanent and semipermanent buildings out of a flexible plastic material, which the sun's ultraviolet rays will harden in hours. The structures would be dome- or cylindrical-shaped and translucent, with 80 to 90 per cent light transmission. The ultimate size possible is still to be determined. But the manufacturers envisage them used as inexpensive domes over sports stadiums, houses and warehouses, covers for skating rinks, etc. More "futuristically," they could serve as air-tight shelters on the moon or even as domes over parts of cities, or whole cities (below). The light weight of these structures will allow them to be easily transported; however, they will be tough enough to require a hacksaw for cutting.



### RAISING THE ROOF

At 9 AM on April 5, one week after his 81st birthday, Mies van der Rohe drove up to a building site in West Berlin in a Mercedes convertible to watch a (literally) breathtaking performance: the raising of the huge steel roof of his new Gallery of Modern Art, now under construction (above).

The roof measures 215 ft. square and 7 ft. deep. It weighs 1,250 tons. It was raised, in one piece, on eight hydraulic jacks, located at the eight points on the perimeter of the big box structure that will, eventually, be supported by cruciform steel columns. The entire operation took nine hours and went without a hitch: the eight jacks were so perfectly synchronized that differences in roof elevation at no time exceeded 2 millimeters! When the huge roof was up to its full 28 ft. height, there were champagne toasts all around—and the Mercedes, and Mies, departed.

## UPS & DOWNS

### ROCKY'S PROGRAM

With a minimum of fuss and wrangling, New York's state legislature last month approved the largest, most ambitious transporta-

tion program ever undertaken by a state government—bigger in one respect, mass transit, than even the Federal Government's efforts.

The legislation has two parts. One authorizes a \$2.5 billion bond issue, to be submitted to the voters in November, providing \$1.25 billion for new highways, \$1 billion for mass transit in the states major cities, and \$250 million for aviation. The second part provides for unification of mass transport in New York City, the building of two jetports in the metropolitan area, and two new bridges across Long Island Sound—all to be directed by a single agency, the Metropolitan Commuter Transportation Authority.

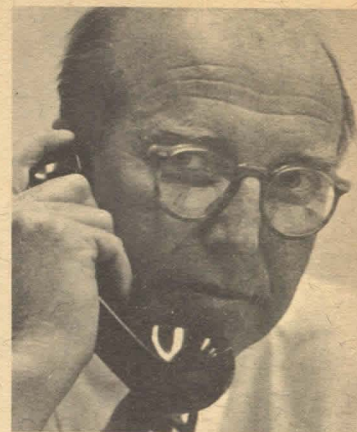
The huge program is the brainchild of Governor Nelson Rockefeller, who conducted a smooth and extremely effective campaign to sell it to the legislature and other officials up and down the state. He even won over Robert Moses, though the program calls for using surplus revenue of Moses' Triboro Bridge & Tunnel Authority to help defray the deficits of New York City's subway system, and the 20¢ fare.

Those who were puzzled by Moses' rare display of brotherhood soon got their answer. After the bill was passed, Moses immediately began finding all kinds of ways for the Triboro Authority to spend its surplus money. Moses, it seems, was only too happy to support Rockefeller's program, since he could easily get around it by simply not having a surplus.

### NEWS OF THE WEEK

Readers of the March 20 issue of *Newsweek* learned a few architectural names to drop. The article was essentially a discussion of "top" architects who have made it with the top corporate





## ROUSE ELECTED

Mortgage banker - developer James W. Rouse of Baltimore has been elected president of Urban America Inc. He fills the vacancy caused by the death of the organization's founder and first president, Stephen R. Currier.

Rouse (above) is president of The Rouse Co., whose activities include development of the new town of Columbia, Md., between Baltimore and Washington. He is a former president of the ACTION Council for Better Cities; chairman of the Greater Baltimore Committee; and a member of former President Eisenhower's Advisory Committee on Housing.

## BERKELEY DEAN

Dr. William L. C. Wheaton has been appointed Dean of the College of Environmental Design on the Berkeley campus of the University of California, effective July 1.

Dr. Wheaton has served since 1963 as Director of the Institute of Urban and Regional Development and Professor of City Planning at Berkeley. A widely known city planner, author, and educator, he is also a former member of the faculty of Harvard and the University of Pennsylvania. He has served as the United States Representative to the United Nations Committee on Housing, Building and Planning, and on innumerable other public and private bodies.

## DIED

Emil Frei, leading designer of abstract stained-glass windows for churches died last month in St. Louis, at the age of 71. He was esteemed among architects and designers and in 1953 received the AIA Craftsmanship Medal.

## THE JUGGERNAUT

"It is almost but not quite too late to stop the juggernaut," said the *New York Times*. The *Times* thus joins a group of respected publications (including the *Christian Science Monitor* and *Harpers*) which continue to express dismay over a "grandiose" World Trade Center and an "arrogant" Port of New York Authority.

New efforts to halt the WTC project were made during the past few weeks, and further battles are in the offing.

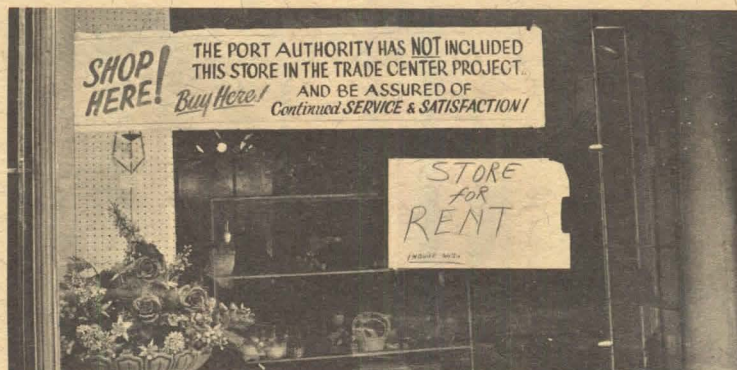
A resolution to "cease and desist" all activities in the WTC area until the city investigates the "legality of the construction work, landfill operations, street closings, and other activities" on the site (below), was brought before the Board of Estimate in January by City Council President O'Connor. After several postponements, the Board of Estimate held a stormy hearing on March 30. The question was not whether the WTC is good or bad, but whether the PA had exceeded its authority in its WTC operations, starting certain work without Board of Estimate approval.

The WTC has its supporters, but private interests and several public officials spoke against what the PA calls "these public buildings." For instance, Barry Ray of

the Downtown West Businessmen's Association charged that one of the largest purchasers of PA tax-free bonds is the Chase-Manhattan Bank, whose David Rockefeller has been strongly behind the center since the start.

The vote on the resolution was postponed a week. But on April 6, O'Connor quietly withdrew his resolution before a vote was taken. He withdrew it, he said, partly because there is now new litigation pending (some site tenants are charging that the city overlooked many violations in the demolition work already undertaken); partly because the Corporation Counsel seems to have advised that the situation has changed since he (O'Connor) brought the resolution in January. The *Times* editorialized that the Board of Estimate was "the latest body to be bowled over" by the PA.

Opponents have not yet given up, though, and the battle is not yet over. Among questions that will be aired at two further public hearings: whether the WTC is the best location for state office space, now tentatively slated to occupy 18 per cent of the WTC. The state controller was still studying alternative locations for state offices during the Board of Estimate shuffle.



clients. The Good Guys, it turns out, are such "top-flight designers" as Edward Durell Stone, I.M. Pei, Minoru Yamasaki, John Carl Warnecke, Marcel Breuer, SOM, and "Phil" Johnson. The lone Bad Guy, so called because of "an art-for-art's-sake imperiousness," was Frank Lloyd Wright. So much for the newest study of architecture on the comparative method.

## RAPE OF THE MONTH

While *Newsweek* was letting us all in on who the Good Guys are, *Ramparts* magazine, in its April issue, told us all about the Bad Guys: engineers.

An article by Senior Editor Gene Marine entitled "America The Raped" identifies engineers as this country's "new rapists" (the old rapists being "the lumbermen and miners and utilities companies"). These new rapists, *Ramparts* reveals, "are loose upon the land; theirs, still, are the vicious, violent techniques of the laissez-faire turn of the century. They are not, for the most part, employed by lumber companies or mining companies—but by you and me. They work for the Port Authority of New York and New Jersey, or for the state highway commissions; the U.S. Forest Service or the National Park Service; the Army's Corps of Engineers, the Bureau of Reclamation, or the Bureau of Public Roads. They build bridges and dams and highways and causeways and flood control projects. They manage things. They commit rape with bulldozers."

The trouble with engineers, as *Ramparts* sees it, is that they don't understand ecology: "We know very damned little about it, but Engineers know—or act as if they know—absolutely nothing.

"The 'conservationists' can lose an isolated battle over a grove of trees or a factory on the river," notes *Ramparts*. "But the Engineers are not only straining to dam the Grand Canyon and the last wild stretch of the Missouri, to wall off the rich estuaries of Long Island and fill in the Great Swamp [N. J.]. They are in every section of every state, ripping, tearing, building, changing."

And that's not all. *Ramparts* promises to deliver even more: "Coming in Part II: THE GREAT SMOKIES! POLITICS! ANIMALS! AIRPORTS! THE GRAND CANYON! ECONOMICS! OYSTERS! THE GREAT SWAMP! FREEWAYS! BIRDS! ANSWERS!"



Walter McQuade

## A VERY TALL CLIENT

I see by the program that the mayor of New York, John V. Lindsay, sometimes referred to as the long-legged LaGuardia, is scheduled to address the AIA Convention in Manhattan this month and on design, at that. In a sense he may be competing with his own city's beguiling non-design, especially if the weather is as buoyant as it can sometimes be in May in New York.

But even if the day is summer-bland, sunny but cool, with some fleecy white clouds racing across an Anso sky, it might be worth postponing that stroll over to the Plaza Oak Bar, to try instead listening to Lindsay. He sometimes can be amusing, although his basic approach is breezily political. He told a restaurateur's convention not long ago that New York was not only the melting pot of the world, but also the charcoal grille, and perhaps he can top that with architectural analogy. The serious reason to stay, however, is that this mayor should be a fit subject for study by convening architects because he is one of the biggest building clients in the world.

This is not always realized even by New York residents. Like visitors, we are impressed constantly with the ferment in private construction here, especially in Manhattan, and are awed by the way stretches of the island get ripped down and reconstructed by the speculative builders. Hotels, theaters, stores, and even apartment houses are felled to make way for offices. Money not only talks, but gesticulates. Those who



have not examined upper Sixth Avenue since the last convention in New York, for example, may be amazed by private capital's conquest in those blocks.

Nevertheless, it is the city itself who is the biggest of all the builders in New York. In the last fiscal year, the total building activity in the five boroughs was priced at \$1½ billion. Of this, private investors and institutions, unaided, initiated less than half, or about \$660 million. Of the rest, New York's own capital works alone were well over \$400 million, and this did not include the nearly \$400 million more in public and publicly aided housing whose design the mayor could govern, if he chose to. And the local pattern toward even greater domination of the building scene by public or quasi-public investment is not only holding but being extended. The new Lindsay budget for capital expenditures is more than \$1 billion, a truly staggering sum for one single city. Contractors in New York have been complaining ever since the Worlds Fair spree that business is slow. Were it not for official and semiofficial building, the contractors really would be hung over.

This of course does not mean the city builds much decent architecture. Look at the housing. More Federal renewal money has come into New York's city government than into any other single municipal coffers in the entire country. The housing moulds are immense; but the architecture poured into them is grey jello. Even the roads and



bridges around New York—which in the 1930s were the proudest of public works—have seemed second rate in design for years now. The Verrazano Bridge is impressive, of course, but in most aspects a slightly less successful replay of the George Washington.

The point is that the city's mayor can do something about it, and Lindsay shows signs that he wants to.

So perhaps it will be worth while to postpone that pilgrimage to the Plaza, and hang around the Hilton to listen to Lindsay. He will be able to drop the names of such New Yorkers, and non-New Yorkers, involved with city design problems, as Philip Johnson, Paul Rudolph, Larry Halprin, Marcel Breuer, and even Kenzo Tange. He is, again, a big enough client to be interesting; and, in this city, which is so frequently described as ungovernable, you may find his own most reassuring feature to be his own ungovernable quality.

\* \* \*

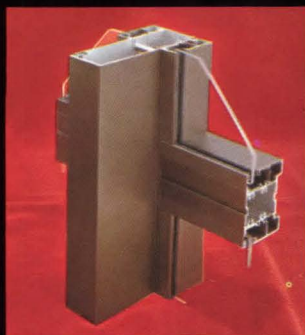
Other convention advice? Don't let anybody cozen you into calling the Avenue of the Americas anything but Sixth Avenue despite its new glint. The street signs all feature The Avenue of the Americas appellation, true, and there is even an Avenue of the Americas Association devoted to the grandiose cause. But recently, when a girl I know had to call the Avenue of the Americas Association to ask to what address a messenger should be sent to make a pickup from the Association, she was told briskly, "1100 Sixth Avenue."

PHOTOGRAPHS: Page 31, John Reeves. Page 32, Fred W. McDarrah (left); E. W. Hutchinson (Comely Hollow Studio) (top right). Page 33, Augustin Dumage (top left); Galerie Iolas (bottom left); Photo "Enit" (top right). Page 39, Ezra Stoller (top left); George Nelson (top right); James Jackson (bottom). Page 90, Die Welt. Page 91, Roy Berkeley (center columns). Page 92, U.P.I.



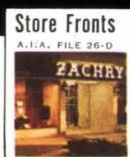
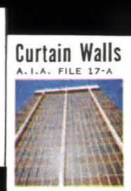
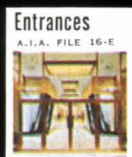
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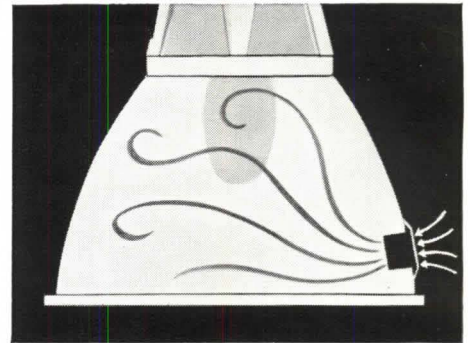
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# PREVIEW

Signs of things to come in the ambitious expansion and renovation program of the Massachusetts Bay Transit Authority began to appear this spring. Boston's Arlington Street station, just now emerging from the rubble of remodeling, gives a foretaste of the design standards Cambridge Seven Associates is applying to new trains, stations, signs, and maps.

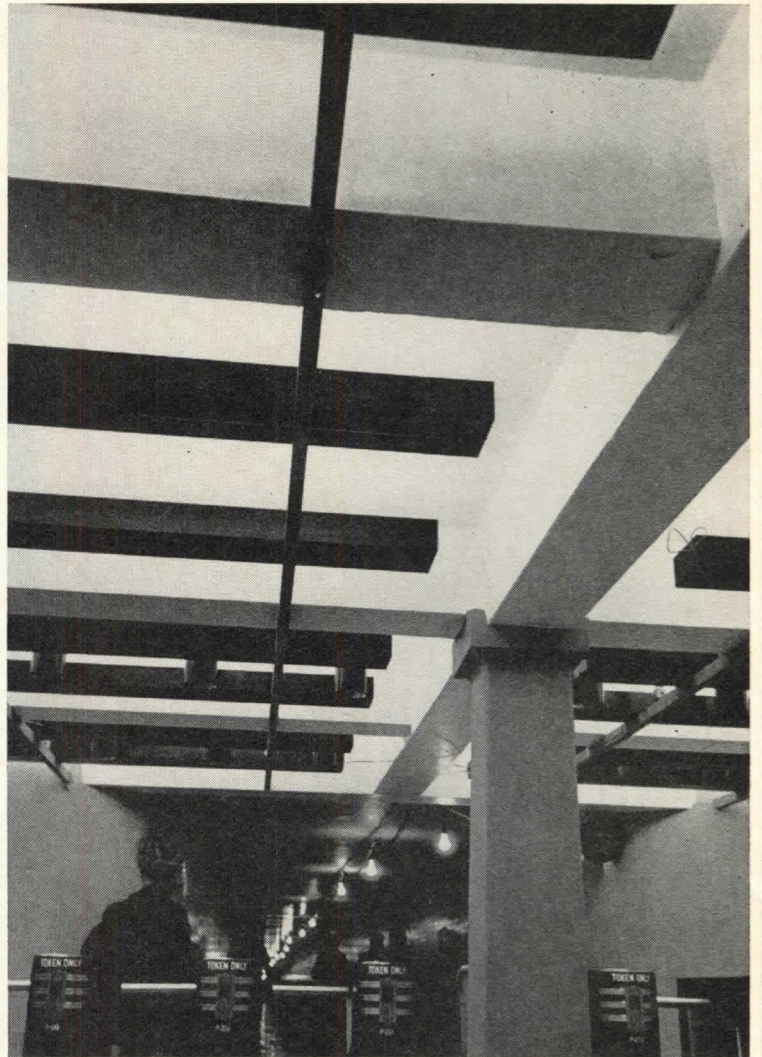
A few months ago (top left) the station looked like others along

the system's Green Line (one of the color names applied by Cambridge Seven). Now it greets prospective riders with a big "T" (bottom left) that may mean transit, train, or trip, but has the great virtue of being unmistakably visible, even in more cluttered settings than the one shown. Bostonians are becoming accustomed to the emblem so quickly that they speak of "going by T."

Inside the station, fluorescent

lighting cast up toward a white ceiling gives an effect of indefinite height (top right), in contrast to the tunnel effect in the unimproved space beyond. Station names run in strips at the floor (for standees) and above head height (for the seated few), instead of the usual in-between height. Walls between these two strips will be embellished with photomurals of nearby landmarks and carefully placed advertising.

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the day? How about architecture and paintings and sculpture—might they have a life of their own and a nervous system generating a spirit, a spirit generating a nervous system, a pulsation forth and back, an immortality, man-made, perhaps madman-made, but made existent and not perishable like intelligence?"

He writes of the creation of the world of the Endless House. He always felt that there should be a way of getting onto the roof of the house, because it has such lovely valleys, where one can sit or lie in full form in delicious comfort, sheltered on its plains and inclinations. He sometimes thought that there should be a hole cut in the roof so that he could go up by a short ladder. Finally, after much difficult search, he found the solution to the architectural difficulty, found that way he could walk straight out on an even level to the meadows of the roof. Where, not waiting for society to resurrect the artist who is buried alive and who only after many decades is exhumed and dressed up in purple with a crown in his skull and diamonds in the caves of his eyes, he has found his way now. It may be hoped that his end is his beginning.

## INSIDE THE ENDLESS HOUSE (continued from page 71)

box building which is a superficial epitaph to man's creative spirit. According to his definition, although man is flesh-made, he is also spirit. "... it is printed, although no one of us has ever seen either the spirit or the soul; yet soul and spirit have a corporate implication, like a fluid solidity, yet devoid of quantity and spatial extension, like a whiff, a breeze, like ectoplasm that flows in and out of our corpus, a wind through a ghost house." He was not content to believe that spirit or soul is confined to man. "Are we so sure," he asks, "that animal is not soul, that animal does not at least have what we call extrasensory perception, or instinct of an abstract nature? Are we truly sure that plants have not soul or at least soul-intelligence? Are we ready to guarantee that rocks and crystals are not soul; and that water is not; and that light is not; and that darkness is nothing else but a raggy shroud of

**PLANNING, PROGRAMMING, AND DESIGN FOR THE COMMUNITY MENTAL HEALTH CENTER** — By Architects Clyde Dorsett, Ellis Kaplan, and Herbert McLaughlin; and Doctors Joseph Downing and Robert Kimmich. Published by Mental Health Materials Center, Inc., New York, N. Y. 105 pages 9½ by 10 in. Illustrated. \$8.00.

REVIEWED BY DANIEL SULLIVAN

The community mental health center, a unique new building type, provides a rare opportunity for architecture to radically affect function. This book, first of a three-volume series sponsored by the National Institute of Mental Health, documents the evolution of such a complex in terms of its vital participation in community life.

The project is studiously divided into sections dealing with the social, medical and legisla-

tive background leading to enabling legislation; the medical approaches to identification, treatment, and after-care; and design.

Architects will be most interested in the design portion containing Kaplan and McLaughlin's lively sketches of several progressive schematic solutions to one center. Order and scale establish a readily comprehensible spacial organization. Site and model photos further illustrate their approach. Verbal descriptions, however, particularly of the architects' philosophy of a hierarchy of spaces—a dimension of movement which establishes order, scale, and reference so necessary for the mental patient—are worthy of further study.

Unfortunately, the front half of the book, detailing fundamentals of law, medicine, and sociology, is a graphic maze. Start at the design section in the back and work forward.

Despite the book's somewhat over-designed look, the facts, once found, are not glossed over. The architect undertaking a project of this kind will get a good idea of what he is letting himself in for.

**THE ARCHITECTURAL INDEX FOR 1966.** Edited and published by Ervin J. Bell, Box 2399, Norman, Okla. 74 pp. 5½ by 8½ in. \$6.00 (paper).

For the architect wishing to keep abreast of newsworthy events and innovations in the architectural field, *The Architectural Index* is an invaluable tool. Now available for 1966, the compact and timesaving guide cross-indexes articles from eight architectural periodicals (AIA Journal, Architectural Forum, Architectural Record, Architectural and Engineering News, Arts and Architecture, House and Home,

Mr. Sullivan, a practicing architect, is responsible for the design and construction of all New York state facilities for the mentally ill as a Director of the Mental Hygiene Facilities Improvement Fund.

Mr. Spring is a senior research architect at the Princeton School of Architecture and a member of the Forum's board of contributors.

Interiors, and Progressive Architecture) by location, building type, and architect. Back issues from 1950 may be purchased for \$5.00 each, and six-issue hard-board binders for \$4.50.

**VILJO REVELL. Works and Projects.** Edited by Kyosti Alander. Published by Frederick A. Praeger, New York, N.Y. 120 pp. Illustrated. 8½ by 10 in. \$10.00.

REVIEWED BY BERNARD P. SPRING

There would never have been this international publication (with text in English and German) of the work of the late Finnish architect, Viljo Revell, if he had not been the winner of the Toronto City Hall competition in 1959. His case is strikingly similar to that of another Scandinavian winner of a major international competition, Jorn Utzon. Both Utzon and Revell have built on their home grounds in a manner that bears no resemblance to their prize winning work.

In Finland, Revell had a rather special, isolated role as an architect. He was the unsentimental, tough-minded interpreter of a cosmopolitan doctrine (which might be called high CIAM) while most of his fellow architects were in the grip of a national-romantic or pan-Scandinavian bias. His renditions of Corbusier's ideas of the 1930s (such as the Industry Center Building at the edge of Helsinki harbor) are probably more refined in planning and detail than any of the similar local interpretations scattered around the globe. This would be the reason that a book on Revell's work could be of value to students of the development of modern architecture. Unfortunately, the book was not designed with this kind of study in mind. The schematic plans and sections are reproduced in miniscule scale and most of the photographs are conventional picture-post-card views. Alander's brief introduction may have been useful in the original but, after a semitranslation into English, it disintegrates into a collection of somewhat obscure generalizations.



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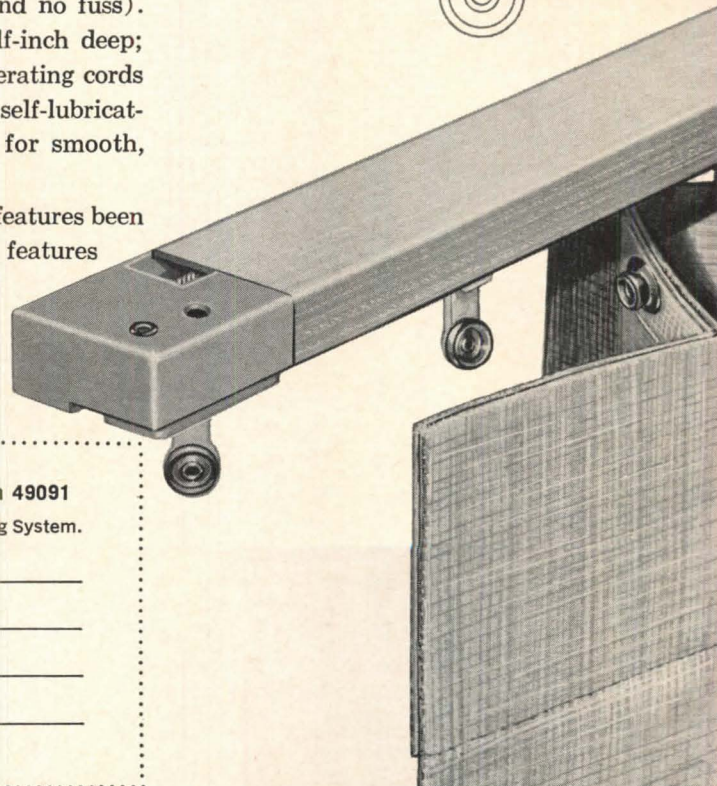
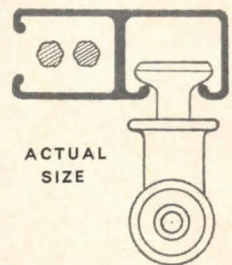
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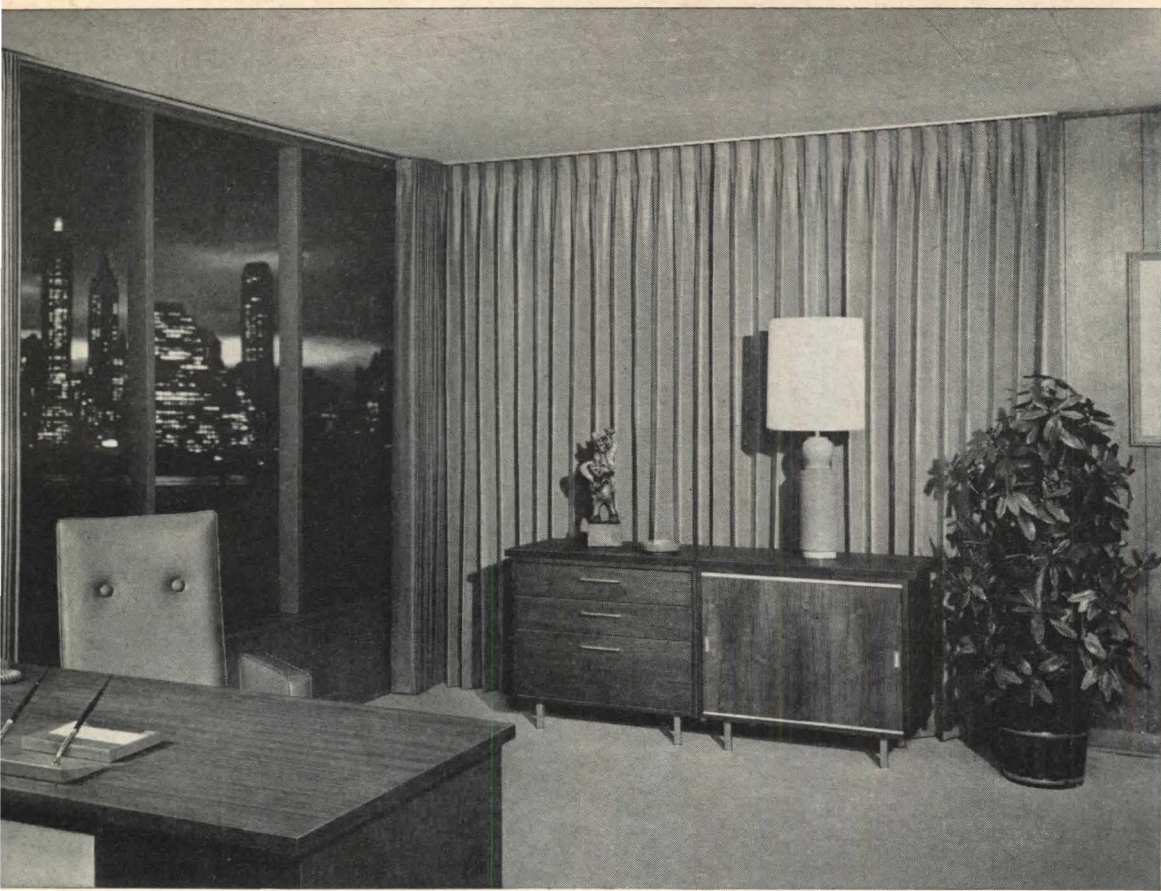
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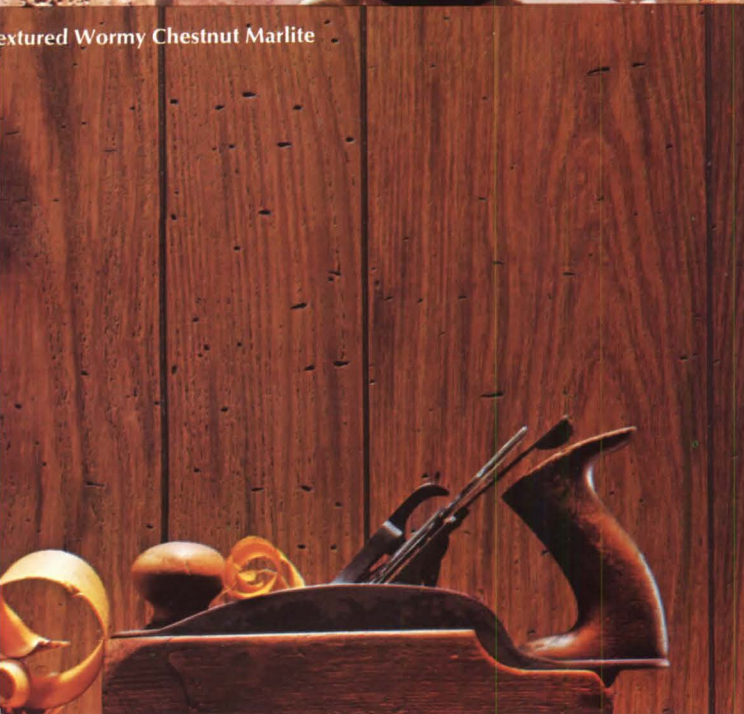
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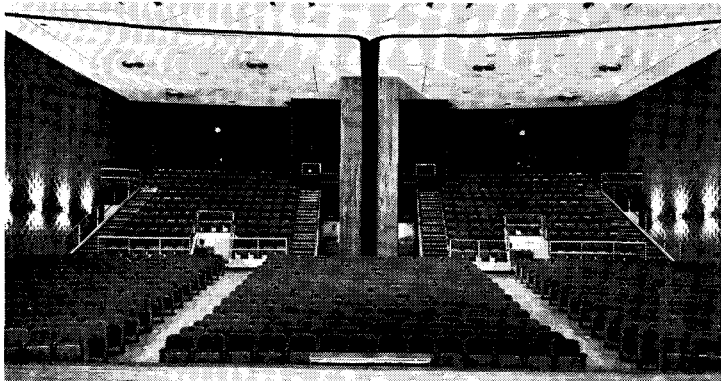
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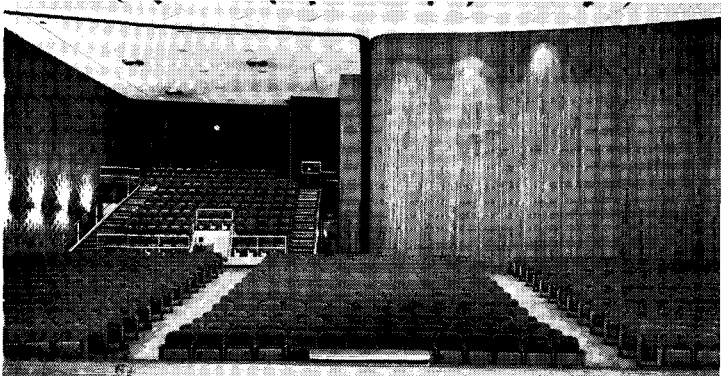
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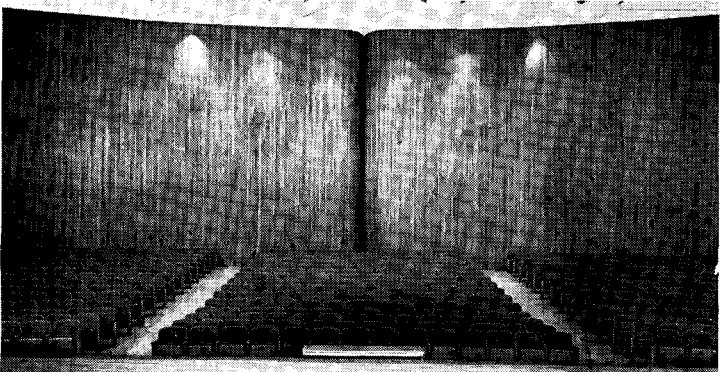
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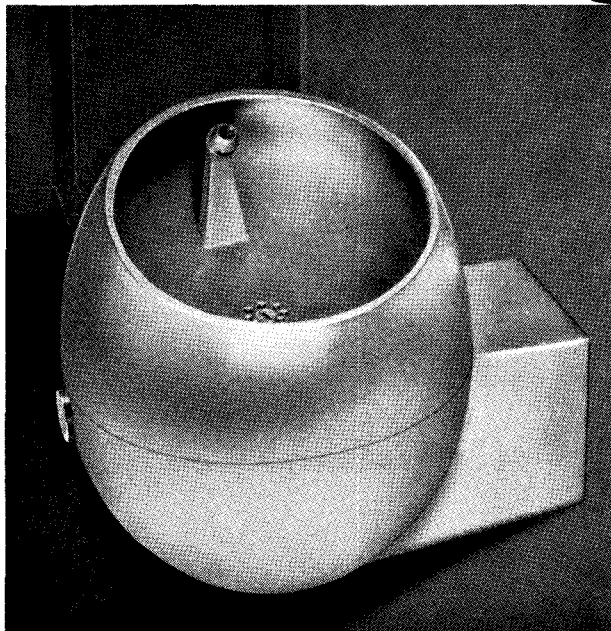


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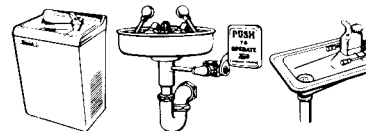


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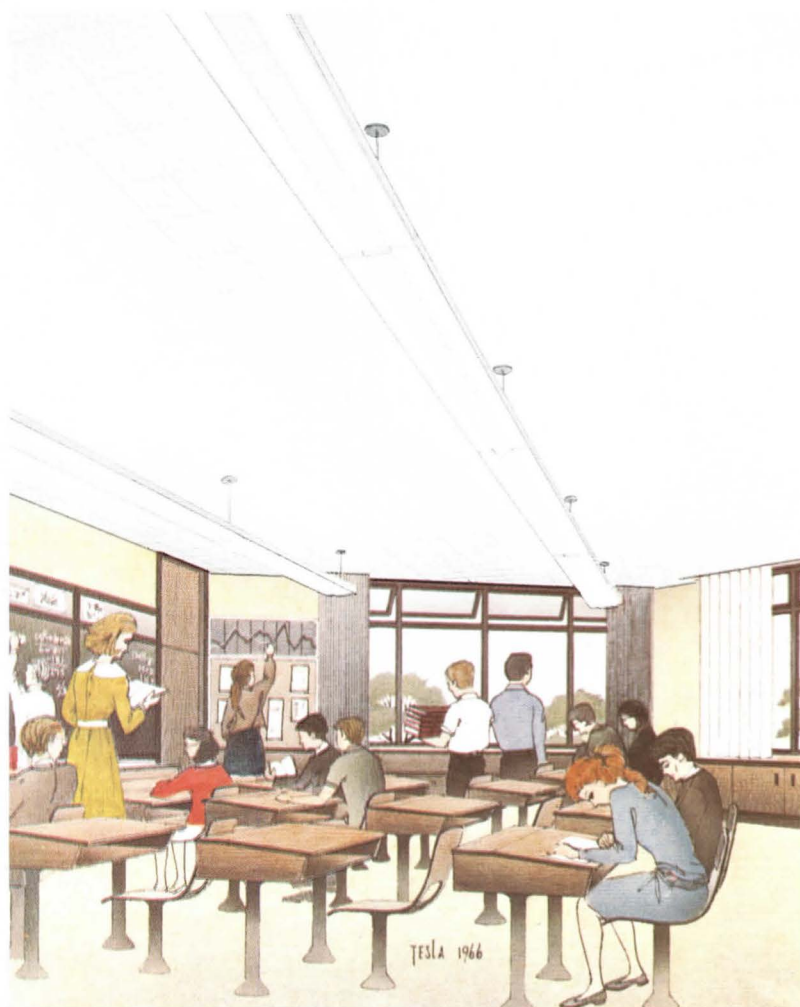




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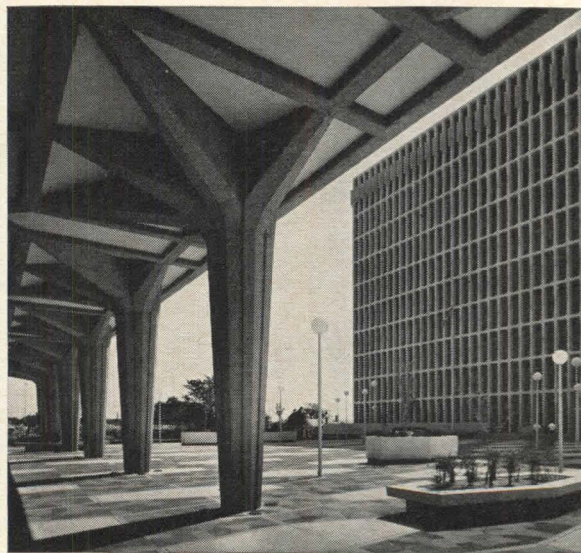
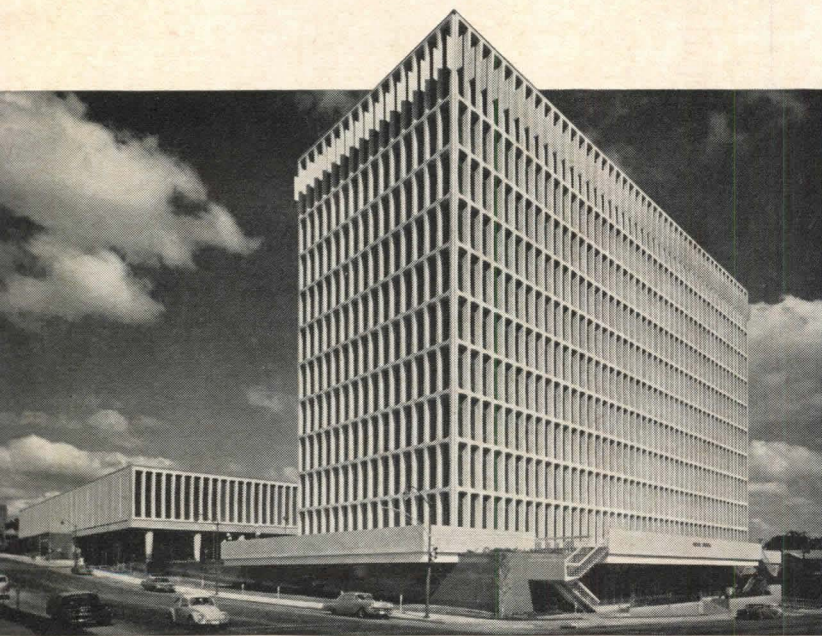
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(center) U. S. Post Office and Federal Office Buildings, Austin, Texas, combine a low, broad building to accommodate postal work areas, a high-rise office structure, and a connecting plaza that gives unity and spaciousness to the complex.

Architect and Engineer: Page, Southerland, Page and Brooks & Barr. General Contractor: Warrior Construction Co. Pre-cast Components: Texas Quarries, Inc. POZZOLITH Ready-mix Concrete: Traverse Materials Co.

(left) The plaza connecting the two structures is surfaced with pre-cast slate-covered panels. Pre-cast wall panels for both buildings feature exposed quartz aggregate.

(right) Bush-hammered concrete "trees" support one end of the rectangular post office "box" — the other rests on a base of polished native granite.



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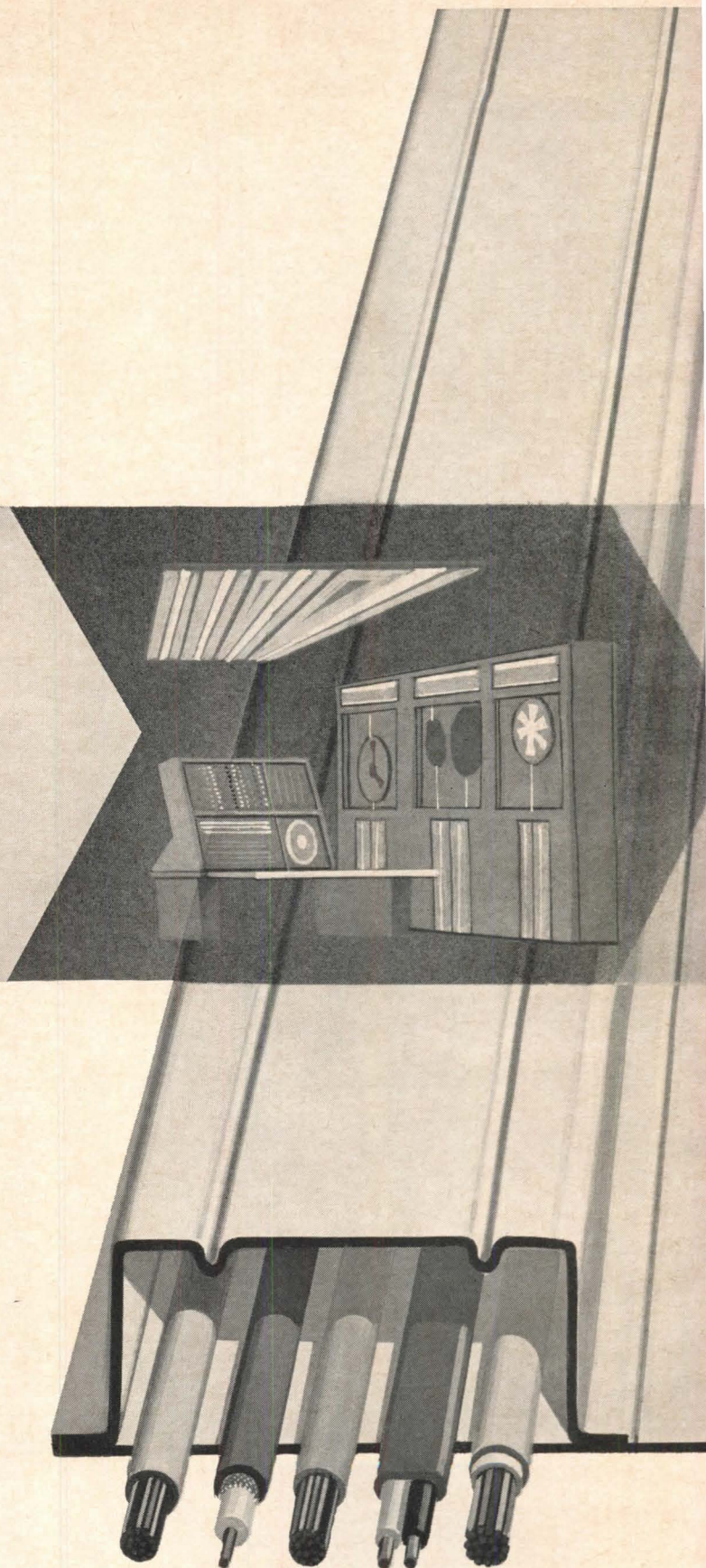
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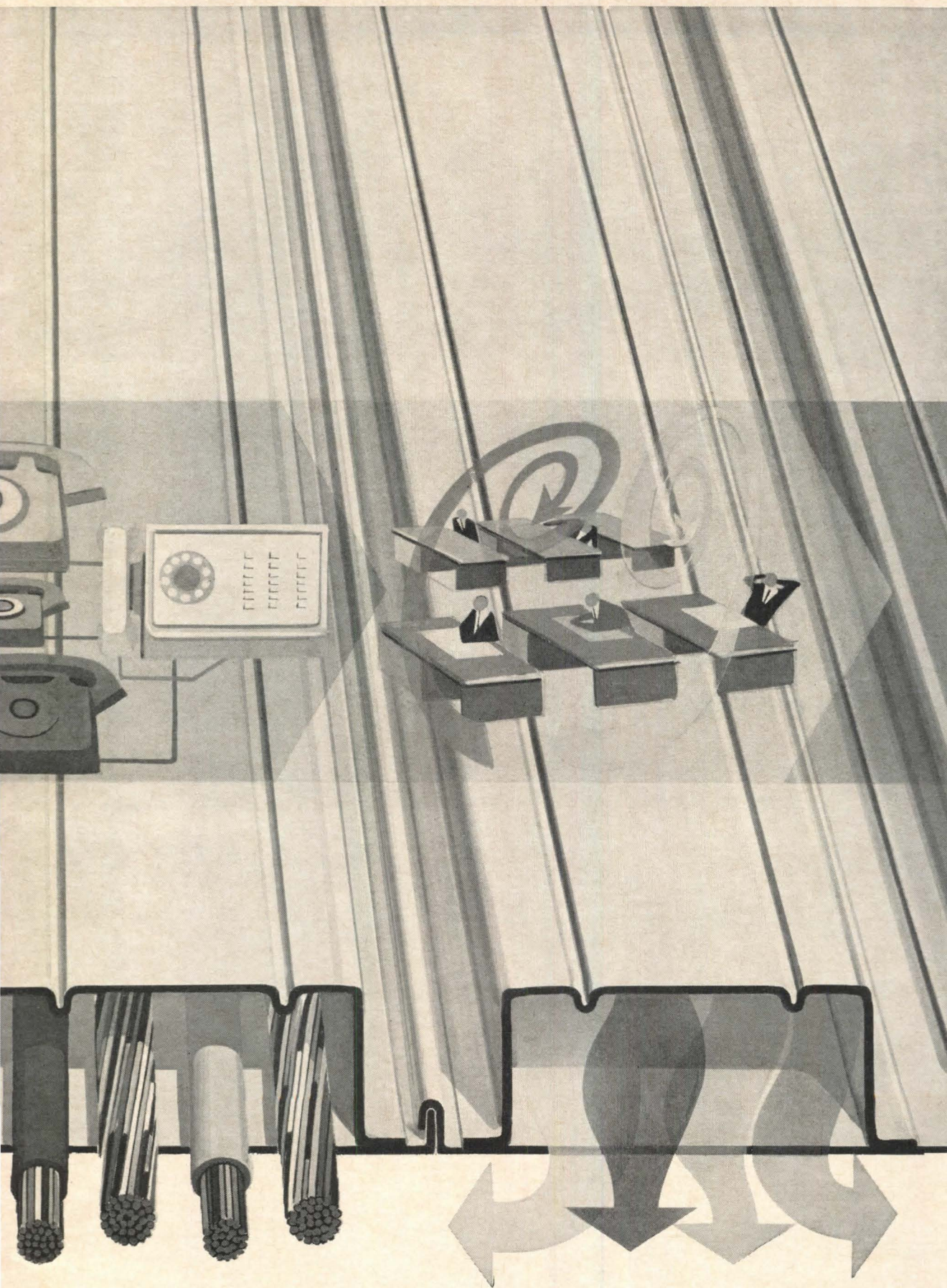
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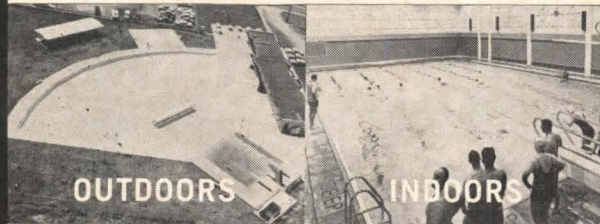
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