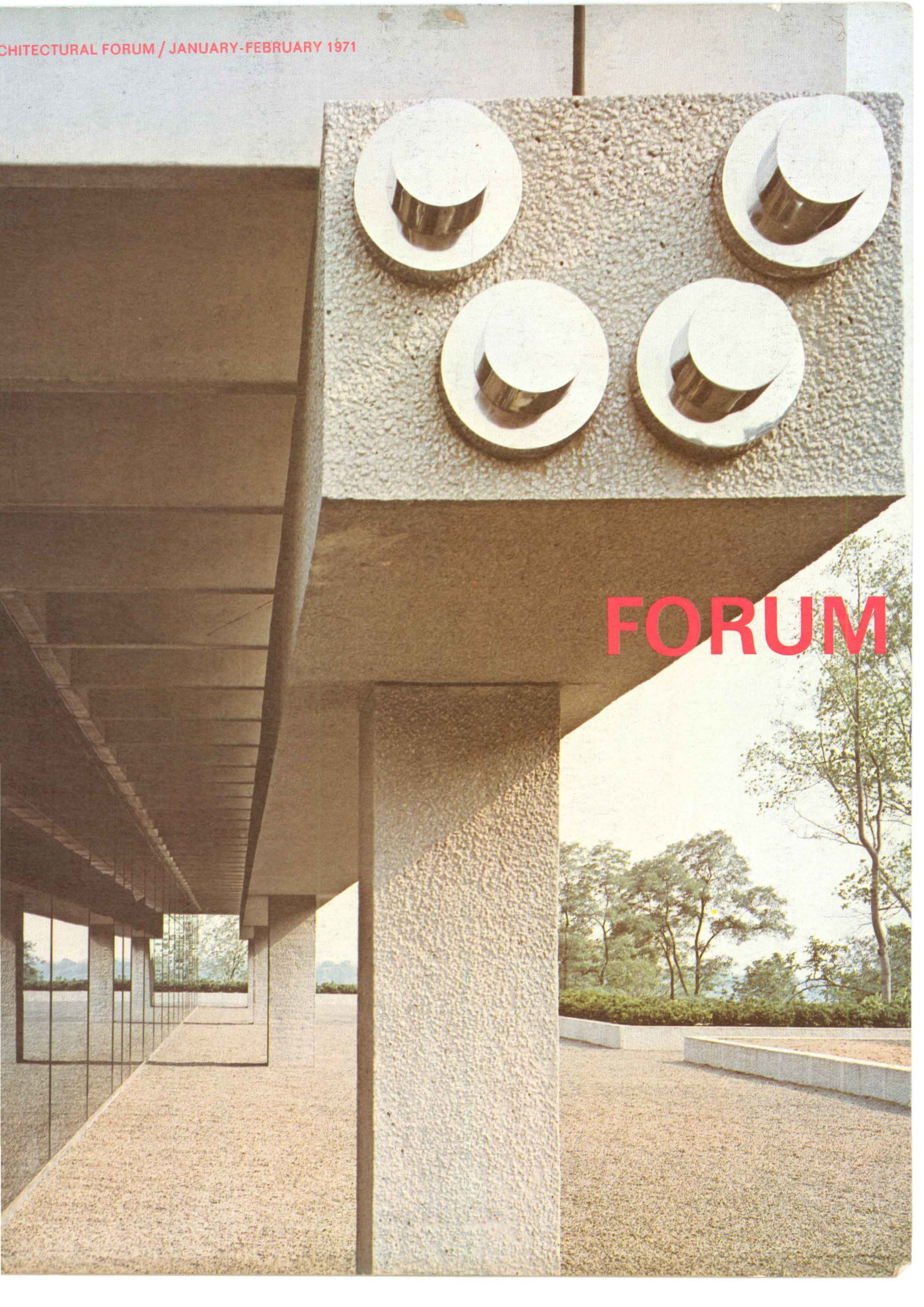
CHITECTURAL FORUM / JANUARY-FEBRUARY 1971



FORUM

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Most carpets just cover the floor. This one decorates it. Stunning patterns and a wide spectrum of clean, crisp colors. Visualize "De World" in a theatre, hotel, motel, club, lounge, office building, recreation area. Yet all this beauty is just part of the story. "Design W has the tightest gauge cut pile available. That's why it can take the toughest traffic and remain bright and new looking longer with maintenance. With its continuing stream of new patterns, you'll easily understand why this growing collection is named "Design W

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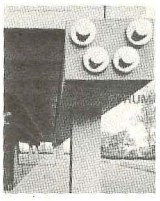

Cover Design: A photograph by Ezra Stoller of the American Can headquarters building in Greenwich, Conn. (p. 28).

THE ARCHITECTURAL FORUM Vol. 134 No. 1 January/February issue.

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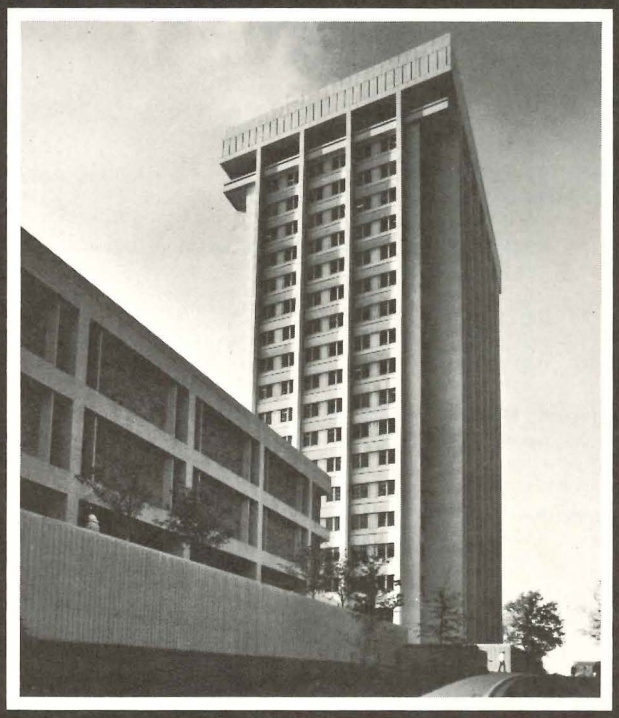
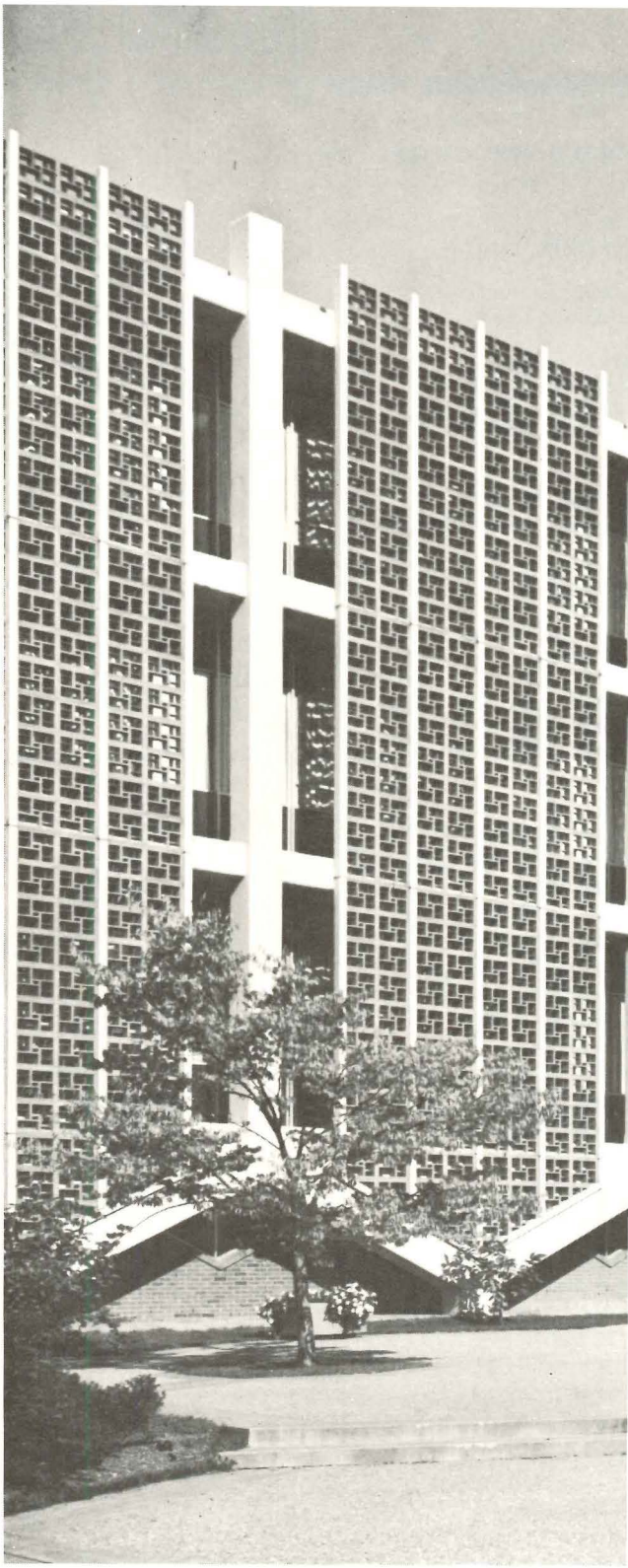


(Above) Patterson Office Tower and White Classroom Building. Architects: Johnson-Romanowitz, Lexington. General Contractor: Foster & Creighton Company, Lexington. Six Dover gearless traction elevators with Computamatic IV Control.

(Right) Agricultural Science Building One. Architects: McCulloch & Bickel, Louisville. General Contractor: Foster & Creighton Co., Lexington. Two Dover Oildraulic Elevators with Duplex Control.



Dover delivers 53 elevators for 29 buildings at the University of Kentucky

For many years Dover has been a major supplier of elevator equipment and service to meet the expanding needs of a continuing building program at the University of Kentuc

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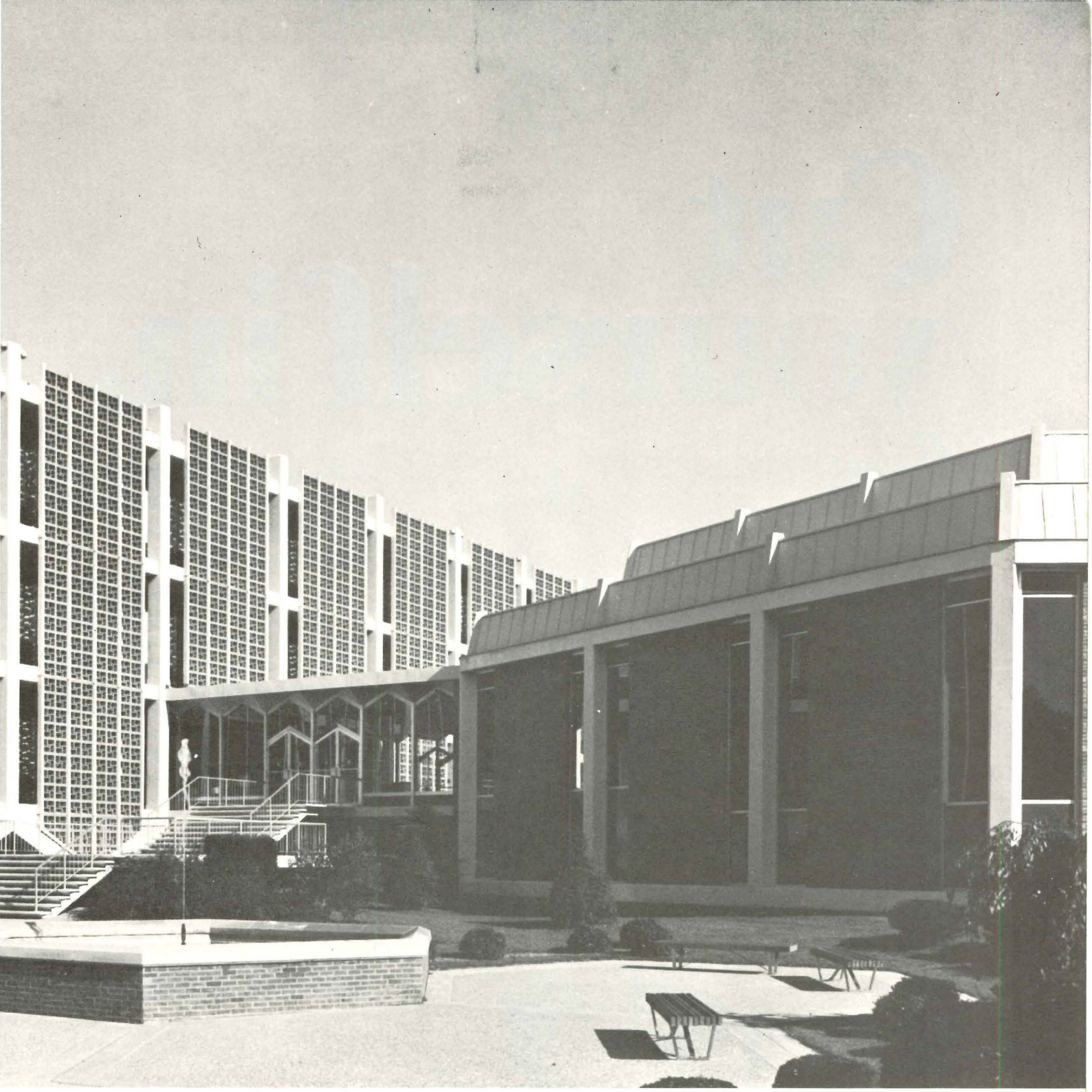

over distributor in Kentucky.
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Dover Corporation, Elevator Division, Dept. C-1, P. O. Box 2177, Memphis, Tenn. 38102. In Canada: Dover/Turnbull.

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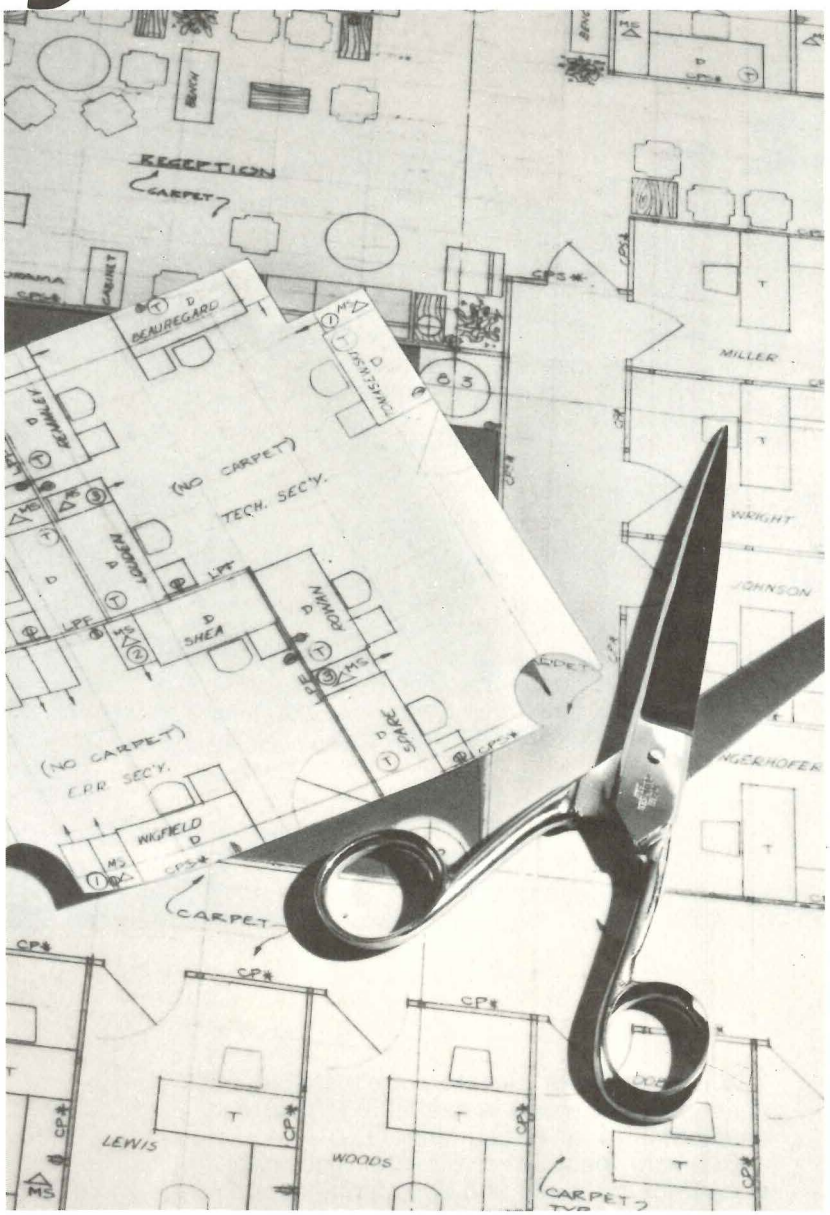

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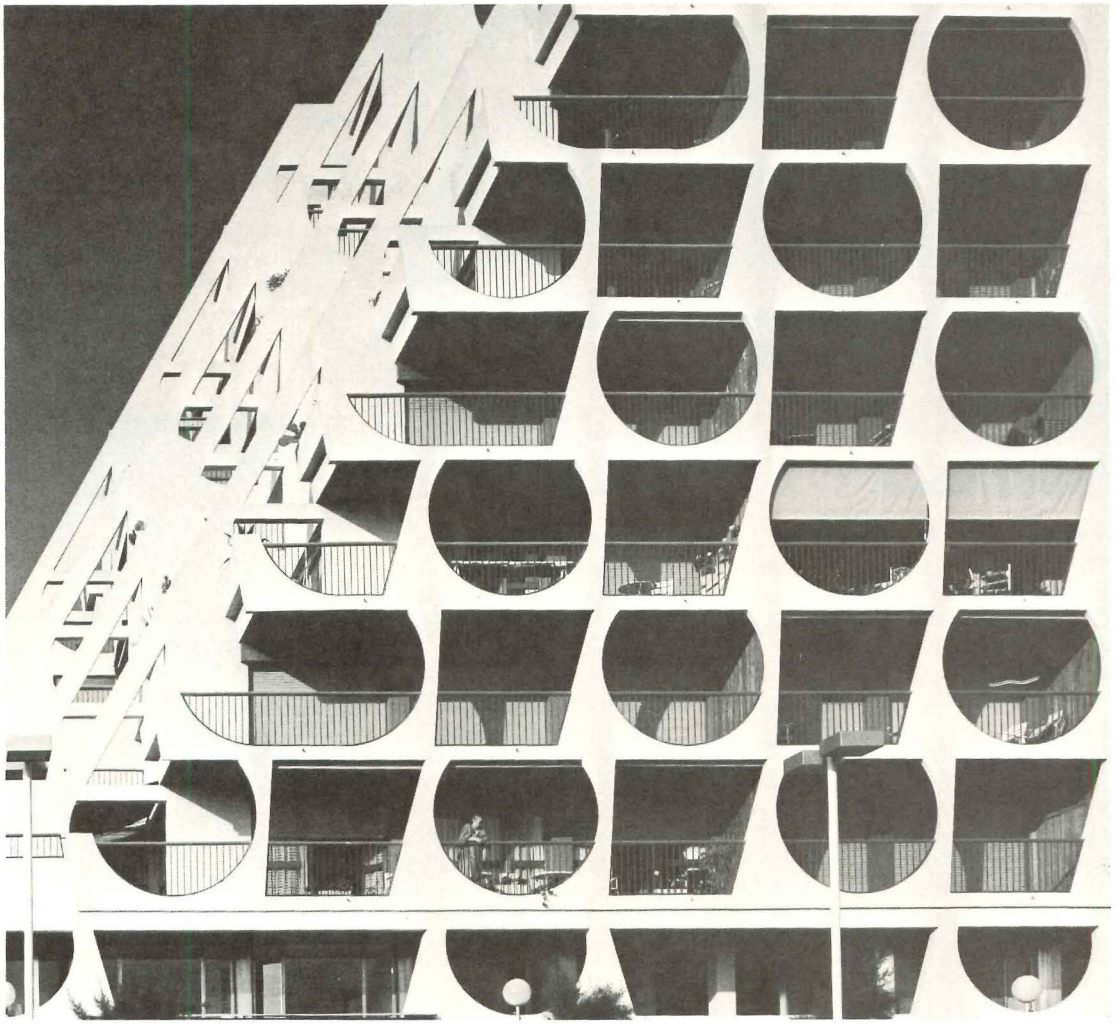
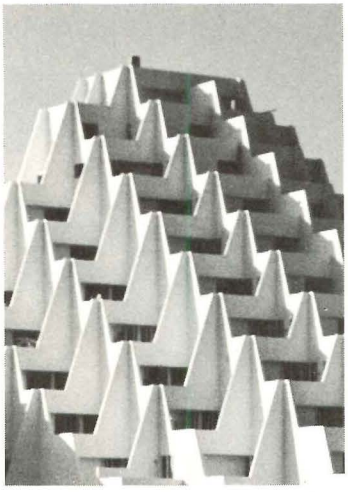
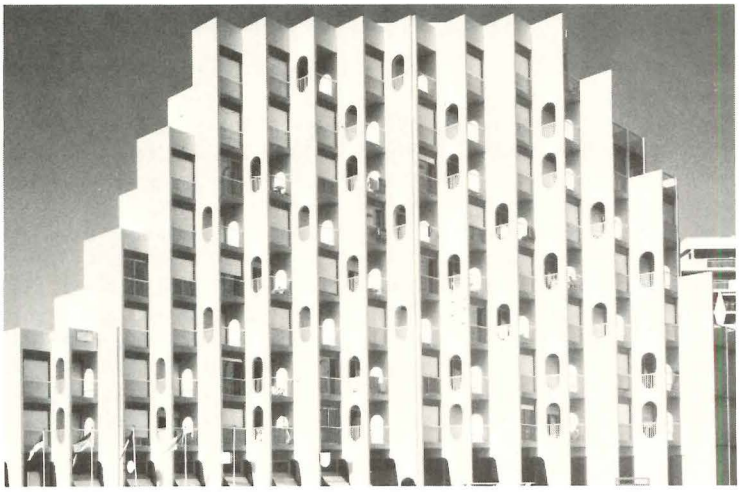
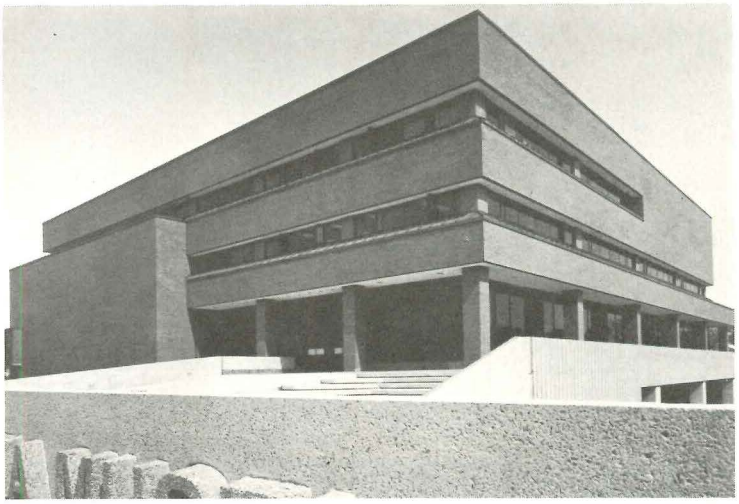


ARCHITECTURE OF JOY?

A Gallic version of Miami Beach Wonderland is La Grande Motte, one of the newest and most flamboyant of French Riviera resorts. Designed by architect Jean Balladur, the assorted megastructure-type hotels and apartments resemble a cock fight between clashing architectural cliches, all designed to make this part of France the vacation land extraordinaire. Covering 1,730 acres of land and 7,900 acres of lakes, La Grande Motte is part of the largest state-supported resort development ever undertaken in France: Languedoc-Roussillon, which stretches 120 miles from Marseilles to the Spanish coast. By 1975, the area will expect 2 million tourists and La Grande Motte will have 42,000 beds for them in hotels, apartments and homes. It already has 10,000 ready for those who can't wait to visit Miami.

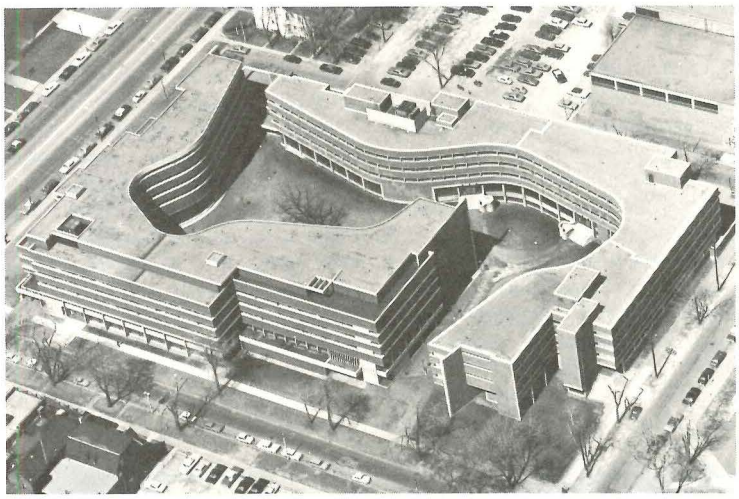






MASONRY MUSEUM

The new Nova Scotia Museum makes available 65,000 square feet of display halls, classrooms, auditorium, and workshops for displaying a large and varied collection of valuable scientific and historical material. The Halifax architectural firm of Duffus, Romans, Kundzins & Rounsefell explain that the external treatment was intended to express the internal function —the large exterior brick wall, for instance, shields the main interior exhibit area, expressing that significant interior volume. The main floor is open, glazed from floor to ceiling, and bands of brick wrap around each facade for a height of several stories. As the local newspaper expresses it, the building can be "viewed from any angle," since it has "four front sides and no rear." Cars parked in a sunken area are not visible to street traffic. The building cost $1.6 million, the exhibits $400,000.

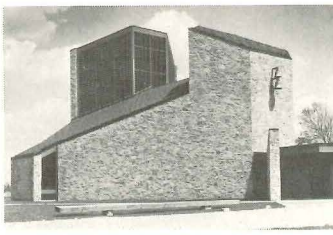


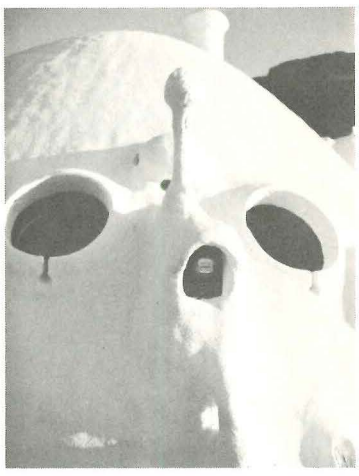
CURVACEOUS COLLEGE

New College II, of the University of Toronto, is an exploration of the possibilities of the curved line, according to Architects Fairfield & DuBois. "More and more contemporary structures are using this kind of geometry. In this building we have added another aspect by using the curve in relation to the straight line." They explain further: "New College exploits the spatial resonances of curved-walled exterior space in its courtyard, and of undulating interior spaces in its bedroom and common floors. The idea has many possibilities for future development," say the architects; "in this urban context we are showing one such possibility." The architects state that their "basic misgivings about client dictated corridor system residences were strong motivations behind the shaped corridor." They wanted to create "eddies and cul-de-sacs for sub-groupings." The roof terraces are a welcome facility in an urban residential college complex.

AWARD-WINNING CHURCH

Recipients of an Honor Award from the Architects Society of Ohio for St. Margaret of Cortona Church in Columbus, Ohio, are Pietro Belluschi and Brubaker/Brandt, Inc., Architects-Planners. The jury commended the building's "appropriate air of religious tranquility. The introduction of soft daylight is both dramatic and effective to the form and content. The lofty space and use of natural materials also contribute to t total success of the building While the jury felt the buildi to be "strong" it deplored t inadequate site development.



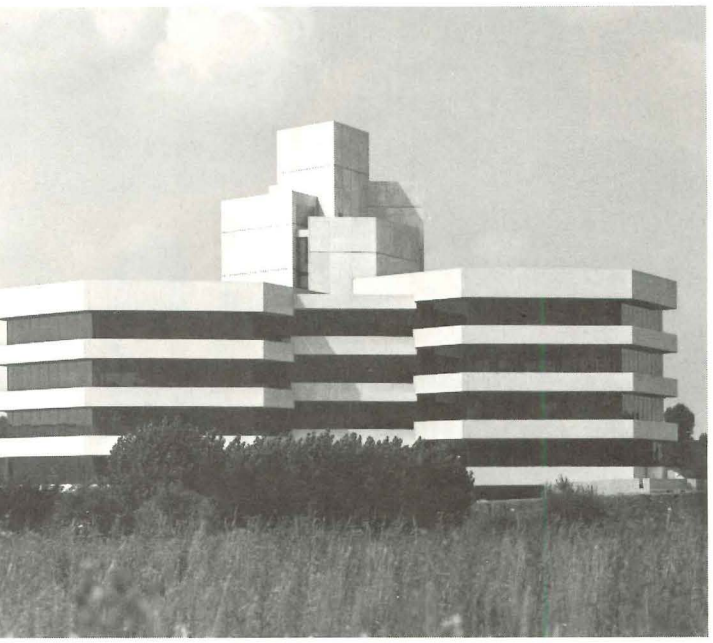


SHELLS FOR LIVING

The ruffled skirts and horn face-mask at left belong to house in Golden, Colo., design by Architects Stan Nord C nolly. Its fanciful structu shells are made entirely of u thane foam, poured over flatable forms. Window a door frames—and other m unconventional details—w e shaped by hand when the sh reached the proper thickne Double curvature makes plastic shells rigid enough stand up without reinforc (except where they are ancho to the concrete foundatio Surface materials in the 1,6 sq.-ft. interior include wh plaster applied to the foa natural wood, steel, and carp Many interior details, includ curved storage walls and a fr standing steel fireplace, w personally shaped by the own Sculptor Ron Kessinger.

XAGONAL OFFICES

e concrete-and-glass building own below contains the West rman headquarters for the nk-Xerox organization. The ors consist of three hexagons ouped around a central service d circulation core, and the nds of board-formed concrete e parapets that protect balconies used as emergency exits from different office floors. (The building is actually sealed and air conditioned.) The site is in a suburb of Dusseldorf, and the architects were Hentrich-Petschnigg & Partner—best known for their Bochum University campus (March '69 issue) and their Europa Zentrum in West Berlin.

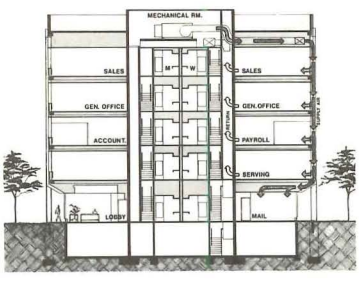


A PLACE IN THE SUN

On the slopes overlooking the Maltese fishing village of Marsascala, the British development company, David Charles, has built a vacation community called Ta Monita of linked villas, terraced houses and flats. Shown here are curved apartments by architects England & England. Each floor has only four apartments; all living-dining rooms and primary bedrooms face onto the terraces, while kitchens and secondary bedrooms face the rear. A single apartment will have as many as three terraces along the arc. Construction is of the solid masonry traditional in Malta.

OUTER TUBES

Designed expressly for the owner's use, this five-story building contains offices for the Tubing Division of Bundy Corp. The building is planned on a 5-ft. module and is supported by a central core with columns 10 ft. on center at the exterior wall. Between each pair of structural columns is a mechanical riser-tube bringing all utilities to window induction units. Fed from the roof, these tubes service the ground floor at the ceiling line. In order to give the building an industrial character, limited corrosion steel tubes are used for both mechanical distribution lines and as forms for columns. The building in Warren, Mich. was designed by William Kessler & Associates, Architects.



OTOGRAPHS: Page 5, S.A.T. Voe- page 6 (bottom left) Geoffrey zer; (top right and second from Barbara Hunt Assoc.; page 7 left) Inge Goertz-Bauer; (bottom and right) Balthazar Korab.

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PREVIEW

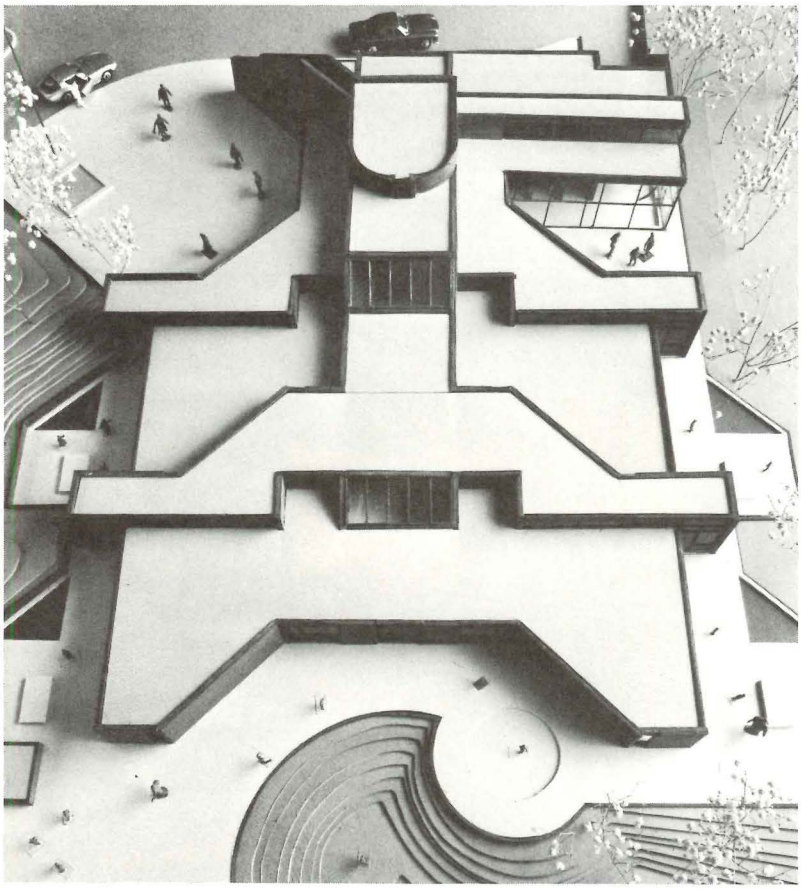
PROGRESSIVE DAY-CARE

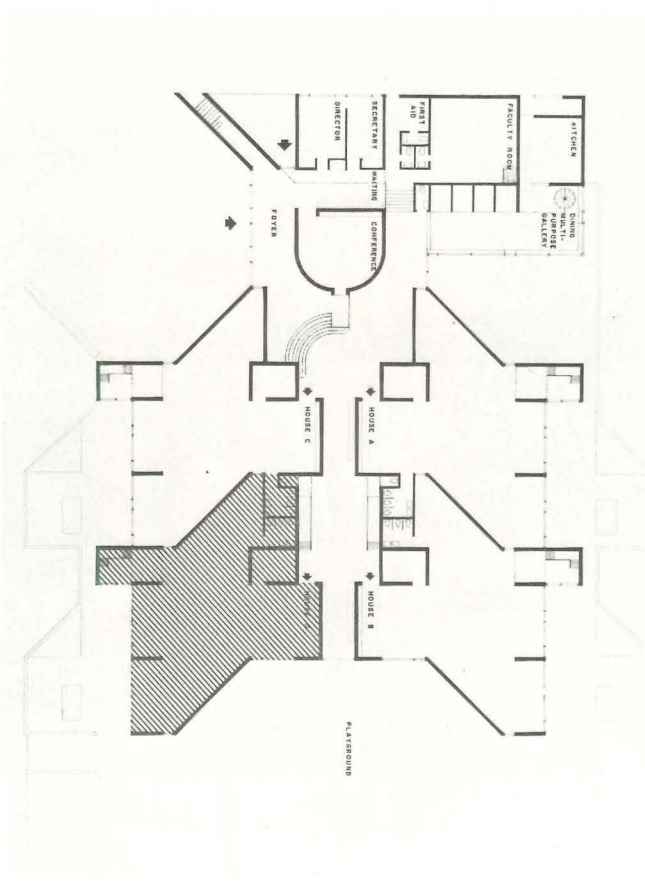
An unusually innovative nursery school, with 50 children in each of its four "houses," is planned for the Child Growth and Development Corp. (in Harrington Park, N. J.) by Paul Heyer, architect. Traditional classrooms are abolished in favor of an open plan that gives children more freedom of choice, more opportunity for growth, as they explore what interests them in their richly equipped house.

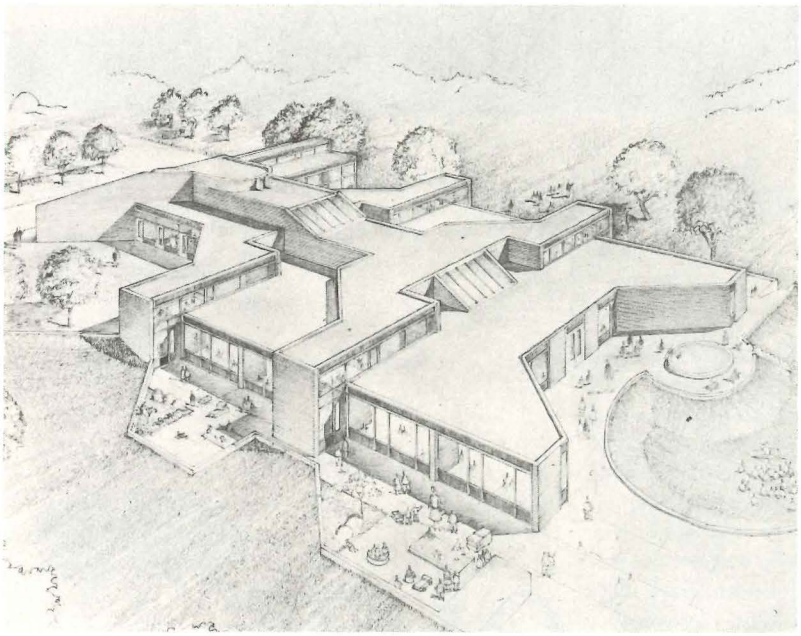
The "houses" open symmetrically off a central spine (lit from above). A dining-painting gallery is at the northern end, and a sun bowl at the southern. The second-floor space, with its outdoor staircase, is for teacher training.

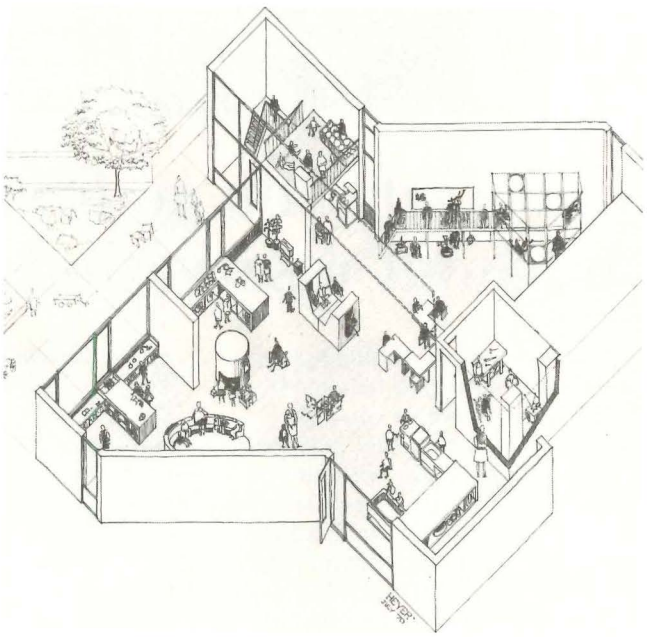
"I believe in universal space, but in doing it specifically," says Heyer; "the spaces are very open but are of a very particular character." A soundproof room in the center tends to z each house.

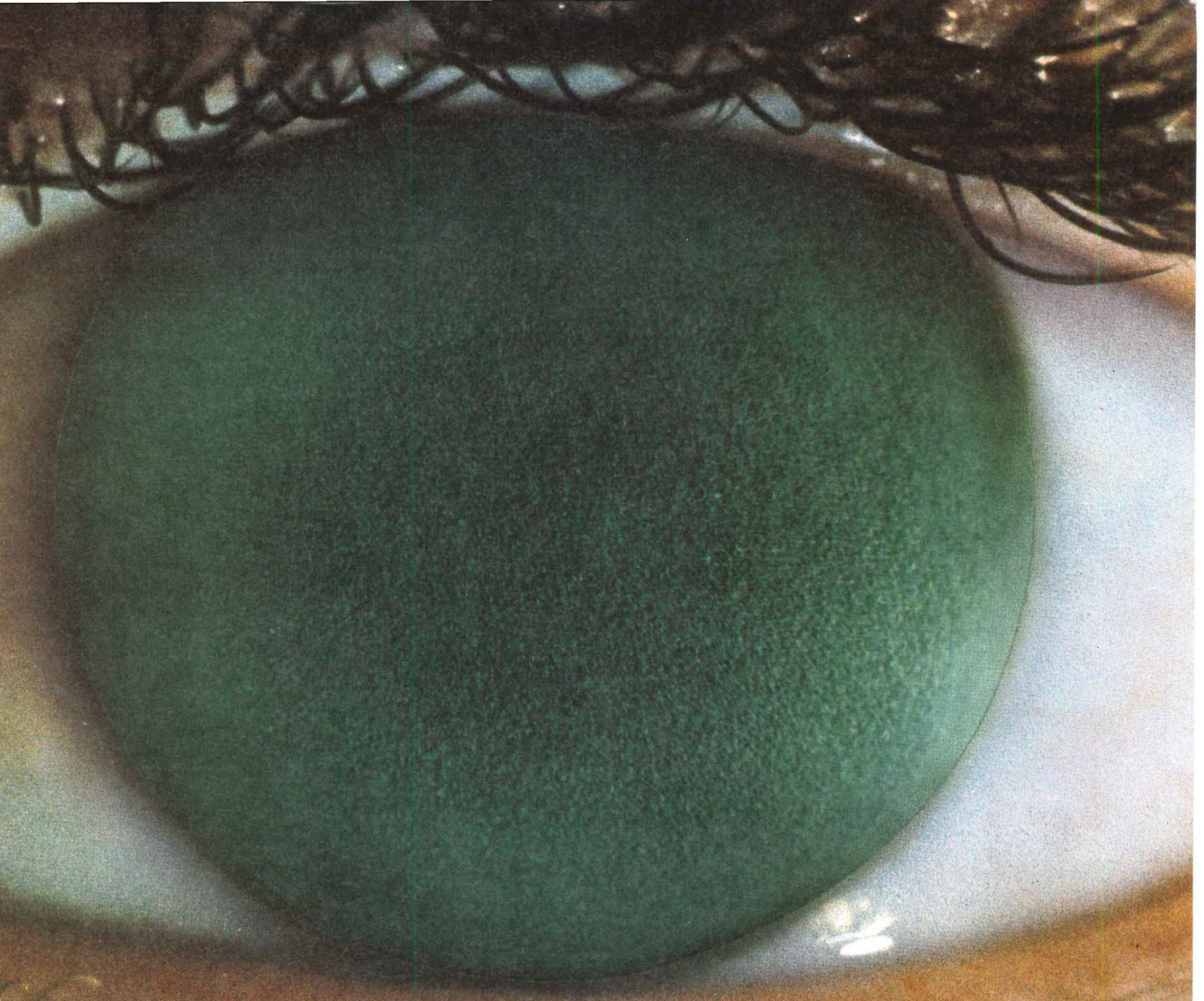
Heyer wanted the build clearly understood by child aged three to six, and constr tion is of brick bearing w and wood beams. Everythin exposed, including the pip (Carpeting, piping, etc., ar different color in each hou A seating carousel, audio bo and puppet theater are speci designed.











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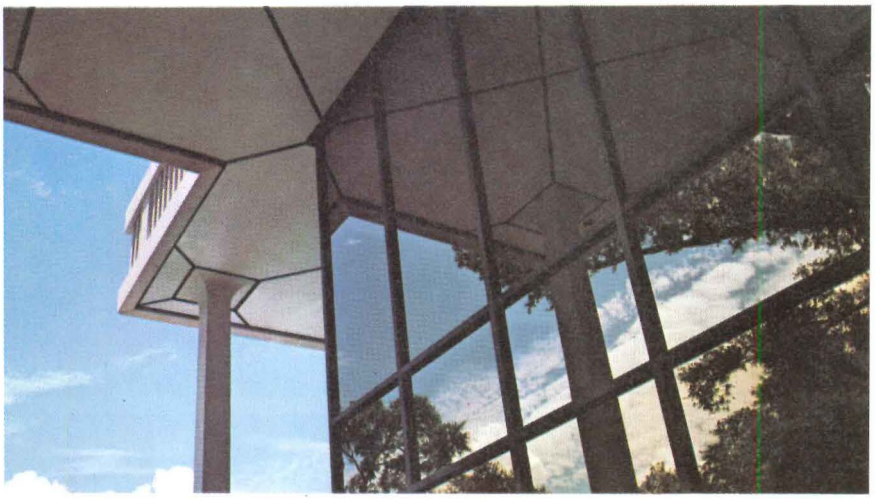

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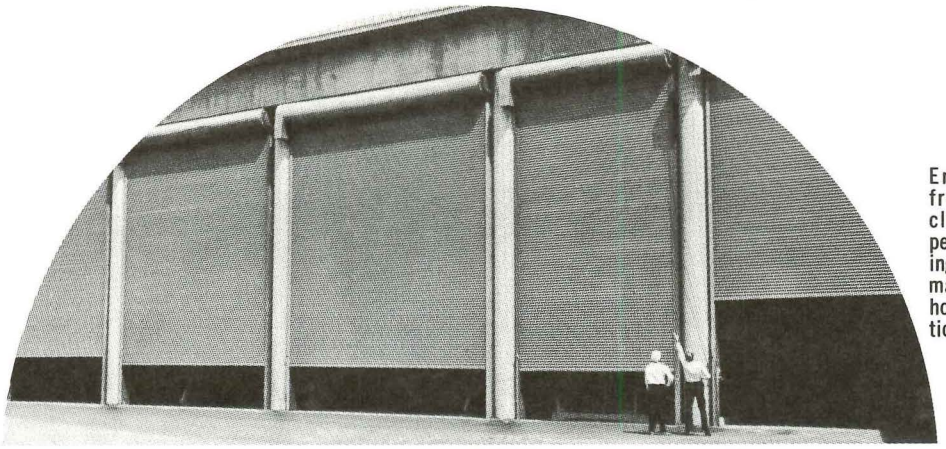

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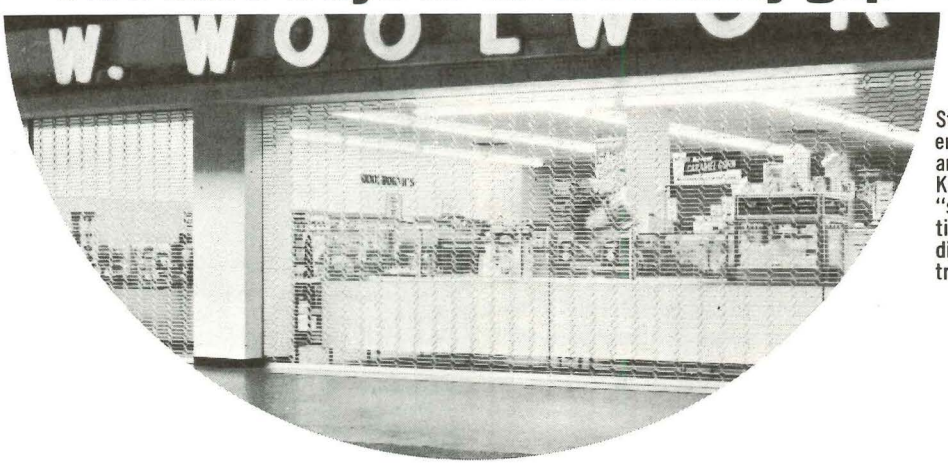
Two sure ways to fill a security gap



Stores opening on an enclosed shopping mall are ideally protected by Kinnear Grilles where "see through" protection is often a plus for display and climate control.

Weather, fire, debris and unauthorized people all offer a real challenge to building security. Kinnear recognized these challenges years ago and designed doors and grilles to effectively answer the protection needs of buildings for retail business, industry, entertainment, education, public service and many other enterprises.

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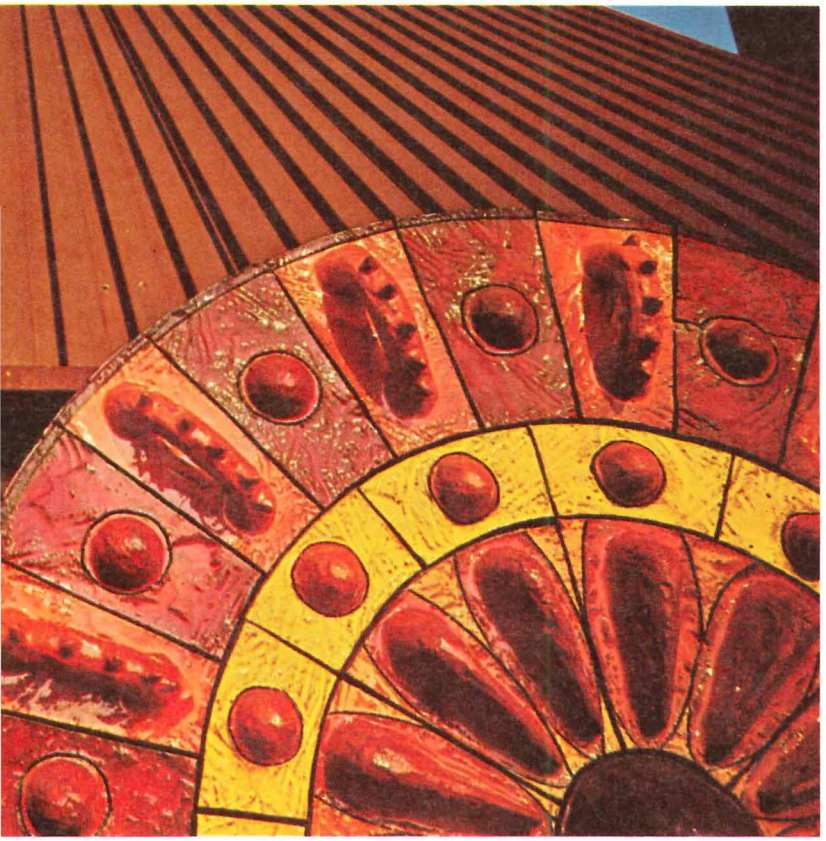

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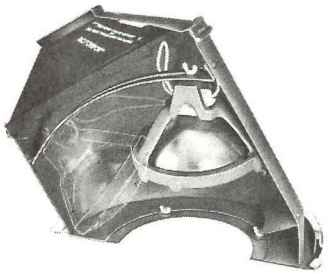

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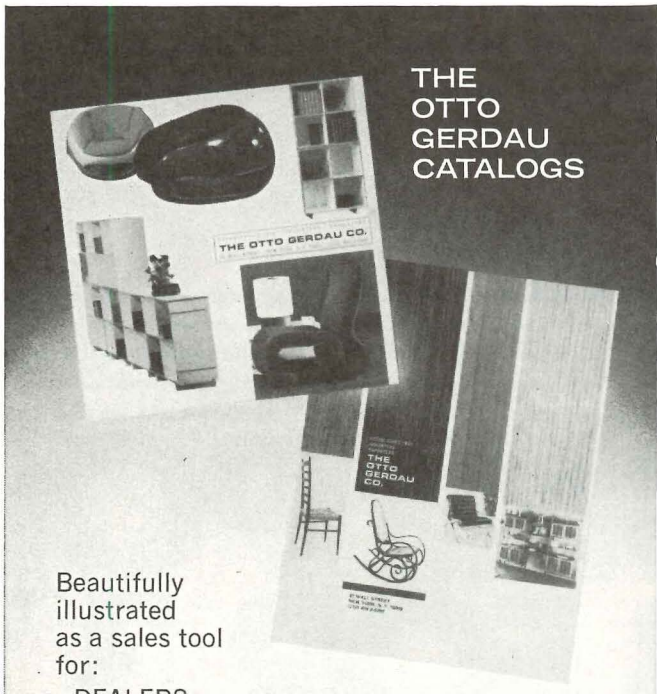

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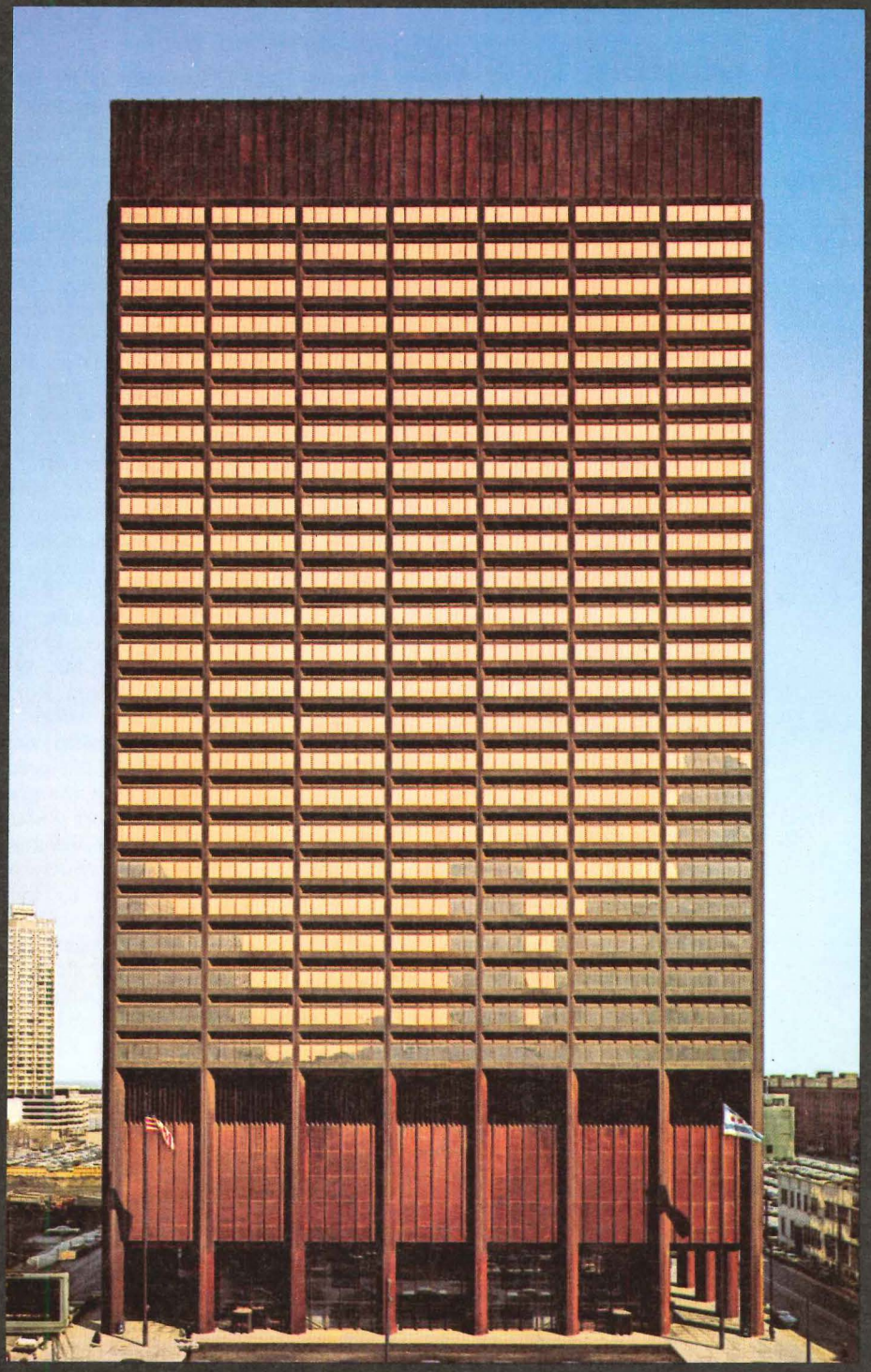

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LETTERS

NORRIS IS NO TRIFLE

Forum: In Frederick Gutheim's tribute to Roland Wank in the September issue of the Forum, reference was made to the design of the town of Norris as a "trifle" which Mr. Wank did not concern himself with. This is an error. Mr. Wank was a neighbor of ours in Norris, and I recall that he was very much involved with the design of the buildings and houses in Norris and the many other communities in the TVA. If Mr. Gutheim will refer to the August 1939 issue of the Forum, he will see that Mr. Wank was a member of the planning staff and principal Architect in the Department of Regional Planning Studies under the direction of my father, Earle S. Draper. My dad and Mr. Wank were good friends and worked together in a team effort with the other distinguished professionals, and I recall the occasion when dad called on the great Albert Kahn to support Roland Wank's outstanding designs for the engineering structures.

As far as the design of the town and structures of Norris, Eliel Saarinen was consulted in the early stages of the planning, and he concurred with the general design approach.

I wish that there were many more "trifling" towns like Norris for our restless youth to grow up in. I recall with pleasure the meandering paths, the houses carefully sited to complement the beautiful landscape, and most of all the abundance of open spaces and play areas.

It is a pity that the great achievements brought about by the collaboration and team effort of the distinguished Architects, Planners, Engineers, Geologists, and other professionals in the TVA in the late 30's are so easily forgotten by other prominent individuals as Mr. Gutheim.

EARLE SUMNER DRAPER, JR.
Charlotte, N. C. *Architect/Planner*

MONUMENTAL HOGWASH

Forum: How can you call that which is black, white, without compunction? The Copley Plaza is a scaleless, featureless, inhuman, monumental failure, as your own photographs will verify. Who would want to go there when the bench at the base of the Boston Public Library is available for girl-watching a few feet away, the in of Trinity Church is there quiet contemplation, Comm wealth Avenue's gracious e are but one block away strolling and the Boston Pu Garden offers green space r down the street? This is actly the kind of monume hogwash young architects to leave behind. Yet you prove of it by the very that you publish it! Please r your standards and encour us to raise ours by callin failure BAD.

J. S. MAL
Boston, Mass. *Arch*

P. S.: I'm a graduate of Harv GSD '69, have lived in Bos for four years, and have g respect for much of the worl Sasaki, Dawson & Demay. Copley Plaza just isn't up their standards, or yours, mine, budget notwithstandin

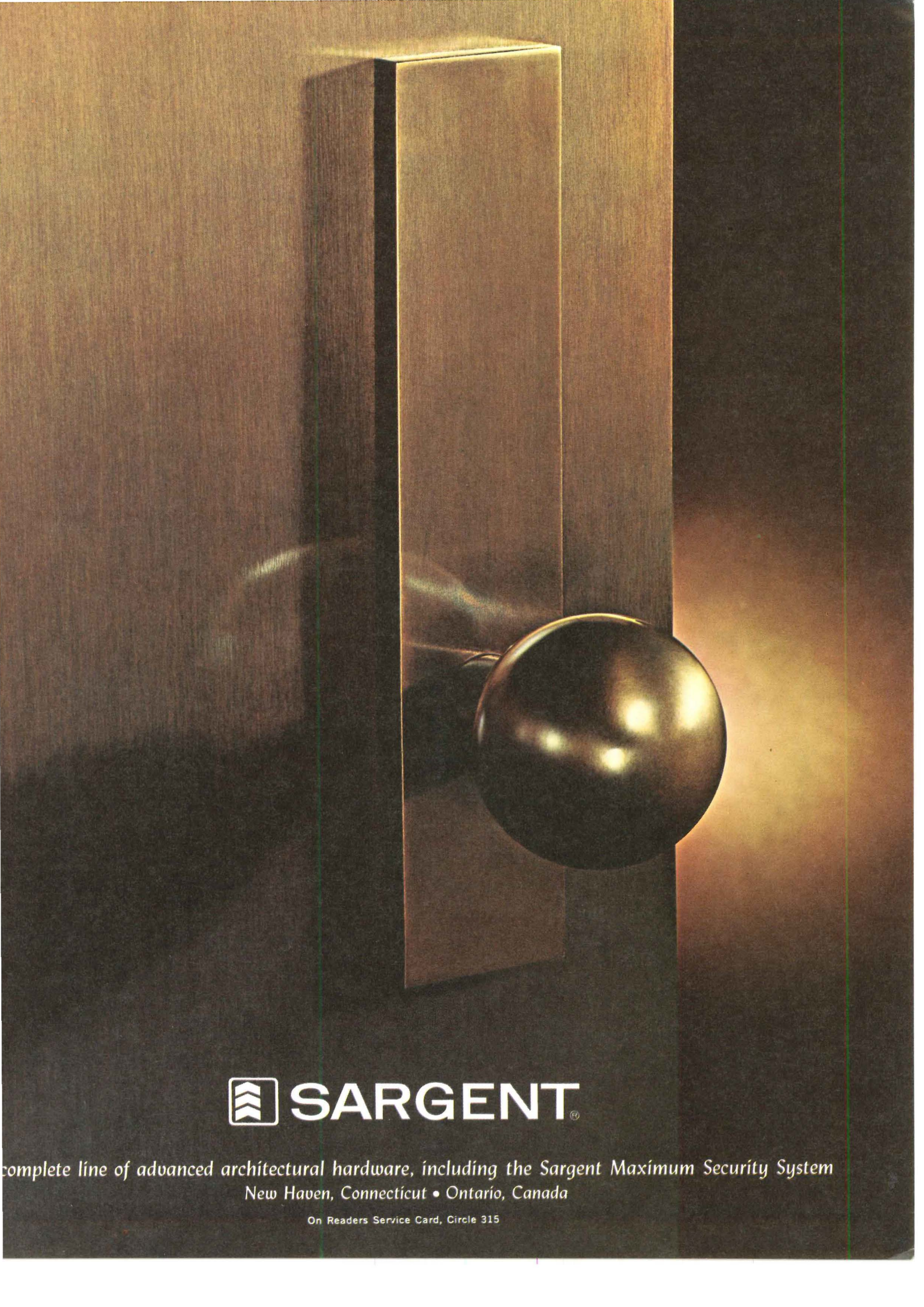
OMNICIDE WILL SOLVE ALL

Forum: Your November is devoted a lot of its edito content to ecologic problems not a single word to their s tions. Certainly the land-g ing Netsch, Barnes and W college buildings offered hope. Nor did the New Y zoning article. It had notl to say about the basic man/ relationship. And those pa made of mounded trash . How can anyone today serio propose such continuing w of our throw-away riches, alone assume that the prac will continue until "1995," even "1978"? If we don't s making the highest possible of every human waste r now we'll never have to w about 1995. Omnicide will h solved all our problems before.

Architects share with plann and engineers a huge resp sibility for the whole mess. most every land practice to is wrong; dead wrong. F the arrival of the bulldozer the fiftieth anniversary of construction, each building, h way, airport, and dam rep and repeats unspeakable crim

We all know better. So many of our clients. And of course, do you. You can by demolishing our prejud and reordering our prioritie

MALCOLM B. WE
Cherry Hill, N. J.
Architect/Conservati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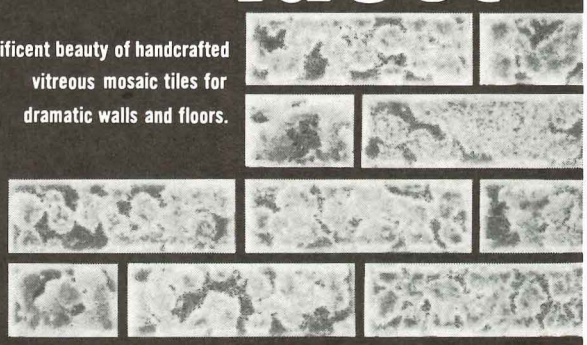

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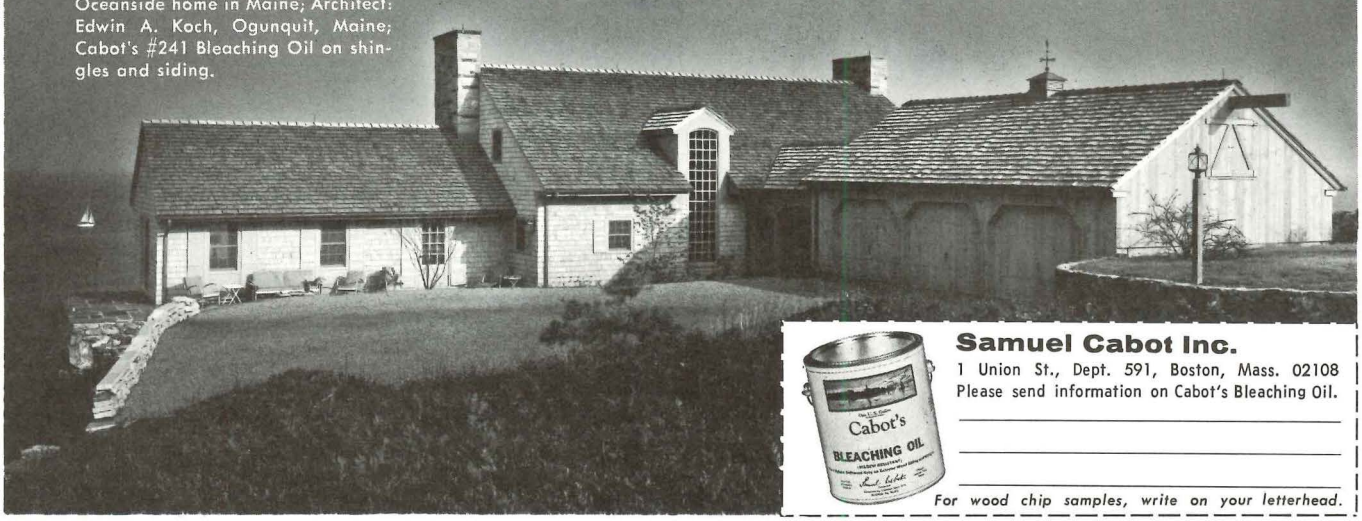

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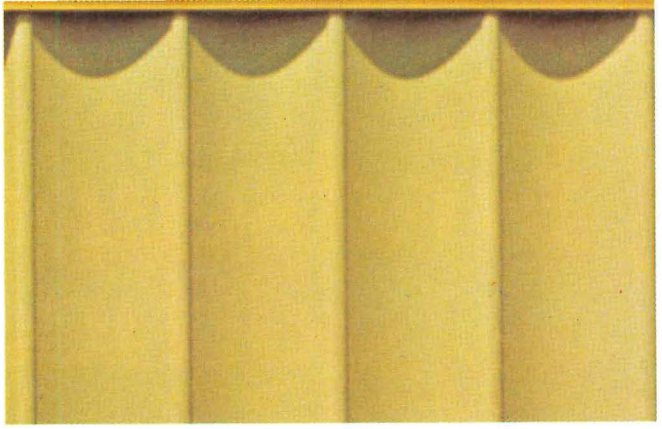

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CONTENTS

FORUM

Sibyl Moholy-Nagy, who died on January 8th, was my severest critic. Whenever it seemed to me that we had done something reasonably well there would arrive, sure as hell, a blast from Sibyl pointing out to me in acid tones what a miserable wretch I had turned out to be, after all these years. Her loyalties were fierce, and her fiercest loyalty was to architecture as an art. She thought that she also harbored hatreds, but she was wrong—she harbored only withering contempt for anyone who, in her view, cheapened the art she loved.

Bradford Bachrach

Her accomplishments are listed in Who's Who. She was the most prolific member of our Board of Contributors, and the most controversial and the most distinguished.

Although she was well over 30 when she died, those who trusted and revered her most were her young students in the U. S. and abroad. What they saw in her, I think, was an honesty so pure as to be almost devastating. She never once pulled a punch. I know. I had to dodge a few of them myself.

When I knew that Sibyl was dying, I wrote something for this space hopefully to cheer her up. I reported that the American Institute of Architects had decided to award to her its 1971 Architecture Critic's Medal. I wrote that a lot of her critical writing had appeared in our pages, and that we were thrilled. I also wrote that Sibyl might have some fairly sarcastic comments on that award, her opinion of the A.I.A. being what it was.

Well, I take it all back. The only nice thing that happened to her before she died was to hear that the A.I.A. had awarded her that medal. It really made her very happy, and it did the same for us.

—PETER BLAKE

HOUSING

HOUSING BILL PASSED

While the lame-duck Congress was immobilized by fillibuster, it managed to further frustrate the Administration's legislative program by passing a comprehensive housing bill that President Nixon had asked it to defer until next year. The main provision—a broad new policy for building new communities—had been suggested, in similar form, earlier last year by HUD. But Administration budget analysts had pulled it because it was too costly. The House had obligingly removed it from the legislation, but it was restored in joint Senate-House conference.

Present law—enacted in 1968—provides for loan guarantees and other assistance for establishment of new communities, but only three applications have been approved because HUD hasn't the resources to guarantee the required investments.

The new bill would authorize the Community Development Corporation to act in the acquisition of land in both new and blighted areas, extend loan guarantees for long-range building plans and administer grants for various public services.

Other provisions of the $2.9-billion housing measure provide for the government to underwrite crime insurance to maintain reasonable rates; and charge the President with formulating an urban growth policy.

One Senate provision—appropriating $750 million to pay deficits of mass-transit lines—was dropped by the conference.

THE FIRE THIS TIME

The start of construction on a precedent-setting housing project in Englewood, N. J.—on sites both inside *and* outside the city's primarily black Fourth Ward—has coincided with a series of fires in the Fourth Ward that has left more than 40 persons homeless. The arrest of a black woman for one of the fires (in her own home) has not quieted fears or answered questions concerning the people behind this systematic destruction.

Some theorize that the fires were engineered to lower property values in and around the Fourth Ward's recently approved urban renewal area. Others fear that it is an attempt to drive blacks out of town so as to lower the number who need relocation, or is revenge against the Greater Englewood Housing Corporation (GEHC) for its unusual split-site project.

GEHC's 270 units are divided between a site in the Fourth Ward and another in the predominantly white Second Ward. (Housing on both sites is a pleasant cluster design, by Feldman and Sanzari, Associates, Architects.) By using two sites, the city meets the 'balance requirement" written into HUD regulations by former Secretary Weaver (for every relocation unit built in a racially confined area, one unit must be built *outside* that area). Englewood's failure to meet the balance requirement caused federal rejection of its urban renewal plan in 1967; before that, all efforts to get the local Housing Authority into balanced housing had failed.

Resistance to GEHC is tenacious and bitter. In December at the Second Ward site, a construction shack was battered, a bulldozer run into the creek, and surveyor's stakes pulled up. During the past 18 months, citizens of the Second Ward had brought a total of nine court suits, challenging the City Council for making a lease, challenging the Zoning Board for granting a variance, etc.

The final court decision, 7-0 in the state Supreme Court last

July, was a landmark case in the struggle for open housing in suburban America. Seeking to sustain the municipal approvals, lawyers Mazer & Lesemann did not argue for a traditional interpretation of "the general welfare" (for instance, providing low and moderate income housing). Instead they sought to define the *breaking up of racial confinement* as promoting the general welfare. Their successful argument gives a precedent to communities across the country, and meanwhile a project moves ahead in Englewood.

PLAN FOR A METROPOLIS

Meanwhile, out in Dayton, Ohio, five outlying counties have approved a plan to disperse some 14,000 units of housing (many of them public housing) throughout the white suburbs. The plan is regarded nationally as "remarkable," and even locally there is some amazement that it has been approved by officials. Opposition has been vigorous, but proponents waged a strong campaign to allay fears.

The plan, which originated in the Miami Valley Regional Planning Commission, divides the metropolitan area and its population of 842,000 into 53 "planning units." Each unit is assigned its quota of subsidized housing under a formula that considers the present density, present amount of housing for low-income families, and other factors.

At this point, much depends on a firm policy from Washington. The Dayton plan seems to fit the views of George Romney, secretary of HUD at this writing, but is in apparent contradiction to President Nixon's views. In his press conference in mid-December, the President stated that "forced integration of the suburbs is not in the national interests."

STUDENTS

ACTIVIST ARCHITECTURE . . .

A small group of student volunteers at the Pratt Institute School of Architecture in Brooklyn have completed a self-help housing plan for the Freedom Quilting Bee Cooperative in rural Alabama.

The project began with some

Present home, FQB

photographs of the present housing conditions at the FQB—a quilt-sewing co-op aided by OEO. The Pratt volunteers, with their project director, Assistant Professor Theoharris L. David, visited the co-op to offer their help. The Alabamans responded with caution, having been "surveyed to death," says David, by people whose "help" had been nothing they could see.

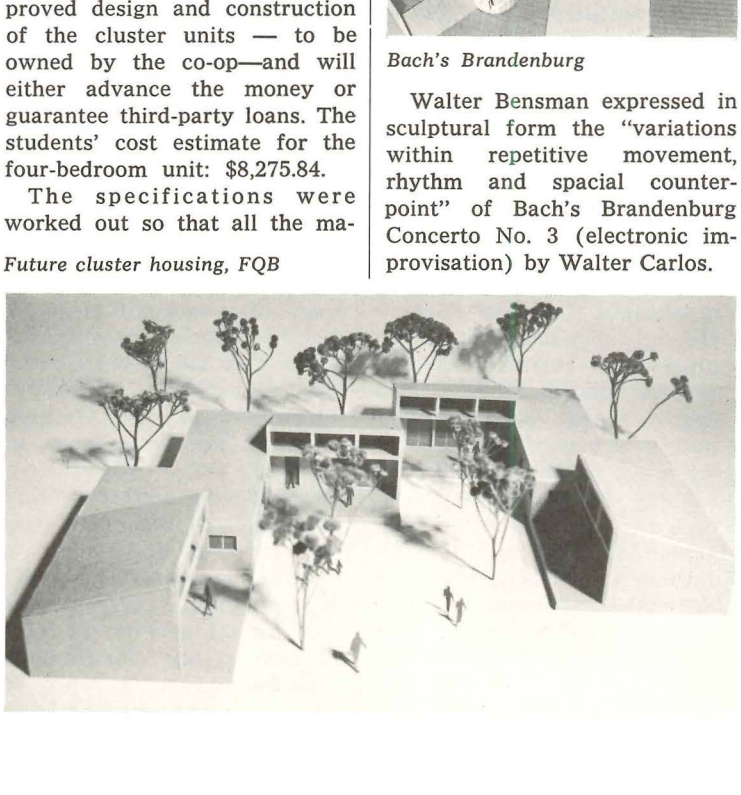
Later, when the students forwarded their plans and drawings, the co-op reacted with enthusiasm, comments and suggestions. Flown to New York by the school for a formal presentation of various alternate schemes, the Alabamans indicated their preferences and made further requests and alterations.

The plan includes three- and four-bedroom detached houses, housing clusters and a commercial center. Twelve families are now arranging financing — through 30-year, low-cost loans from the Farmers' Home Administration—for the first four-bedroom units. And HUD has approved design and construction of the cluster units — to be owned by the co-op—and will either advance the money or guarantee third-party loans. The students' cost estimate for the four-bedroom unit: $8,275.84.

The specifications were worked out so that all the materials will be purchased in the area and over 40 per cent of the construction cost per unit (that for labor, largely unskilled) will be returned to the community in the form of wages.

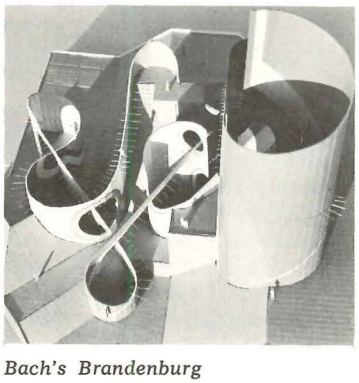
Construction may begin as soon as February on the first of the four-bedroom units, and the students will be on the scene to lend a hand.

Future cluster housing, FQB



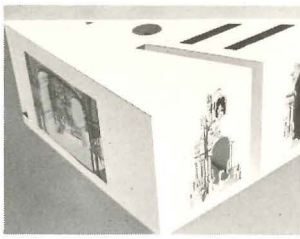
. . . AND FROZEN MUSIC

The fifth-year design problem at Catholic University of America's School of Architecture and Planning was to design a three-dimensional space that expressed the emotional quality of a chosen sound. Some architecture students we know with a passion for relevance have rioted over less. But assistant professors J. Ronald Kabriel and Theodore Naos explain their project this way: "Order or disorder of sound, space, and emotion is used to evoke particular feelings about our environment and has much to say about how effectively any society communicates."



Bach's Brandenburg

Walter Bensman expressed in sculptural form the "variations within repetitive movement, rhythm and spacial counterpoint" of Bach's Brandenburg Concerto No. 3 (electronic improvisation) by Walter Carlos.



Bach's Passacaglia

Student Joseph Prucnal
porated the designs of Giu
Galli Bibiena, finding
"basic perspective frame
(theme) with applied orna
(variations)" expressive c
chosen sound: Bach's Passa
and Fugue in C Minor (for
harpsichord).

Moustaki's Nos Corps

Apolinar A. Fernandez
three dimensions to the "so
ticated rhythmical flow
great amount of mystical
ity" in the song "Nos Corp
Georges Moustaki.

So far as we know, no
chose Simon & Garfunkel's
Long, Frank Lloyd Wright

ENVIRONME

THE FUTURE NOW

In 1959, the California Reg
Water Pollution Control
ordered the town of Sante
cated in the San Diego foo
to stop discharging sewage
ter into the San Diego
Basin. Rather than build a
sewage plant or tie into
huge San Diego Metrop
Sewer System, which d
into the Pacific, the S
County Water District de
to do what had never been
before: purify its sewage ef
so the water could be use
recreational purposes.

Since 1963, six lakes
been created to store th
claimed water. Four of
are open to the public and
300,000 persons annually pa
mission to boat, fish and
in them. The other two
soon be opened to the p
after completion of landsca

ate in November, Santee ac-
plished another first in re-
ling water sewage. For the
t time in this country, it is
ing reclaimed waste water
ough a metered system of
es for irrigation uses. Sepa-
e pipelines were constructed
deliver water to a Little
gue baseball field, a golf
rse, and a commercial Christ-
s-tree growing farm. The
er costs the customers $50
acre-foot, which is 326,000
ons. This is compared with
0 for domestic water im-
ted from the Colorado River.
ventually, the district plans
install a second distribution
tem for homeowners' garden-
needs. And a pilot project,
d for by the federal govern-
t, is purifying 100,000 gallons
ay to the point where it is
er than Santee's present
king water. District of-
als hope that some day the
ycling of sewage for drinking
er can be made economically
sible for general use.

LLUTION IN PARADISE

population growth rate of
olulu is reported to be great-
than that of India. With it
come the parallel problems
insufficient planning, trans-
tation and housing; and pol-
on, both chemical and visual.
would seem," says Architect
n Fanning, "that the deteri-
tion of the environment—
ere tourism provides the eco-
nic well-being—would be a
ster to all and concern of
n. In fact, most are bliss-
y unaware or unconcerned."
o "get people to 'look' and
naps to 'see'," Fanning de-
ied an exhibition for the

aiian reflections, outside

Honolulu Academy of Arts that demonstrated the complex interdependence of man and nature. The show began to make its point before the visitor even entered the door with large graphic panels representing sun, water and earth hung from a frame of construction scaffolds.

Inside, the scaffolding continued to bring everything together: photographs by Robert Chinn and Robin Lee focused on the island's many different ethnic life-styles; tapes of traffic sounds and pile drivers mixed with contemporary music, and four television sets tuned to different programs with audio from unrelated FM radio stations represented man's electronic environment (pollution?); and three slide shows, viewed simultaneously, brought Honolulu's stunning natural setting into the framework.

Hawaiian reflections, inside

To cap it off, closed circuit television monitors put the visitor in the picture and on the spot, though Fanning says there was "no attempt to draw any conclusions."

[redacted]CORBU

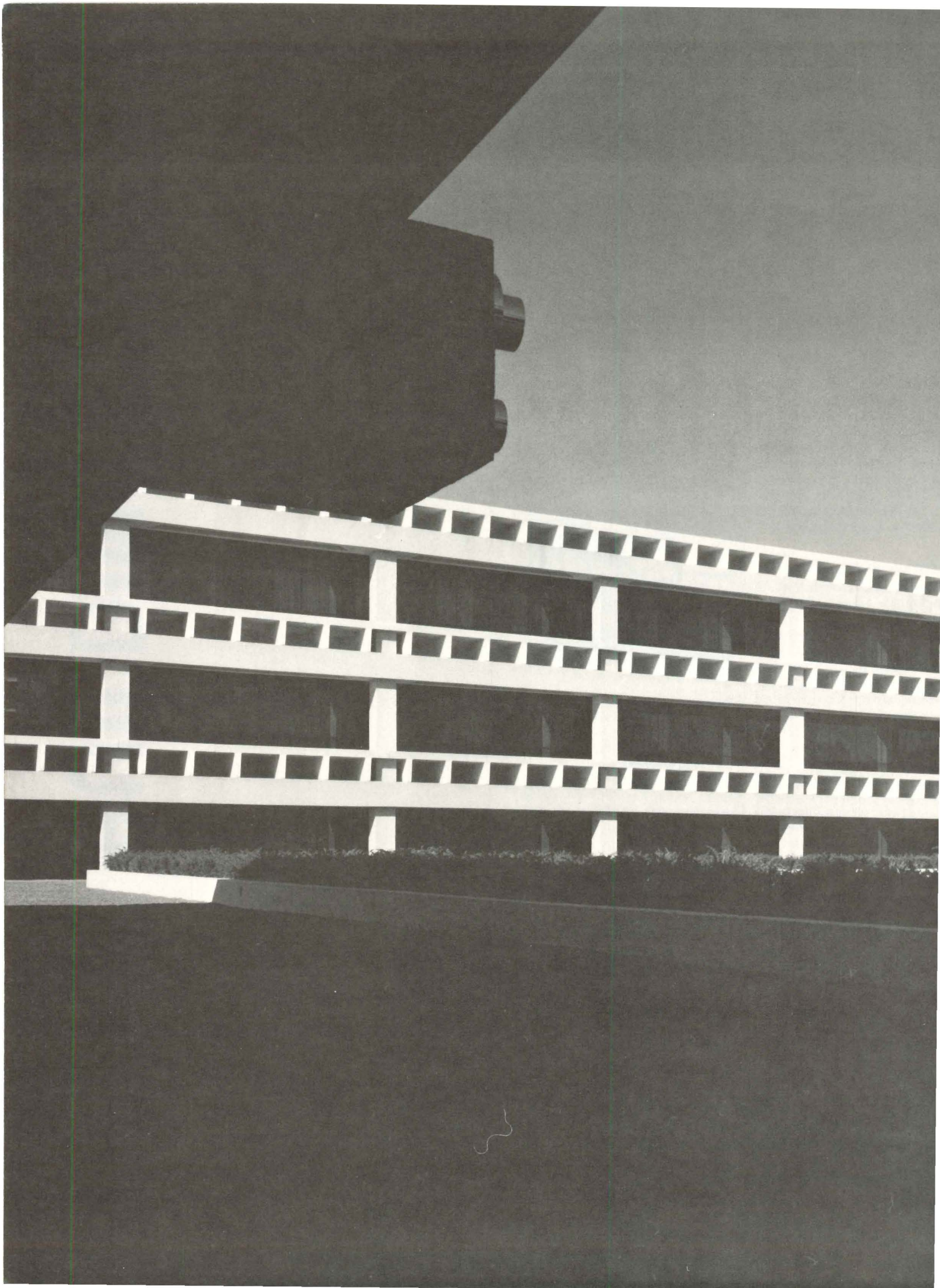
SAVED

Le Corbusier's Clarte apartment building in Geneva, reported last month in these columns to be endangered, has been rescued. The local government authority had been reluctant to issue a preservation order because of the deteriorating condition of the building. Now, through the initiative of the Geneva section of the Federation des Architectes Suisse, the building has been bought by a society of shareholders made up mostly of Swiss architects and engineers. Restoration is, of course, their next difficult task.

(*continued on page* 69)

OFFICE BUILDINGS

A 30-page portfolio of some of the best new office structures in the U. S., Italy and Japan.



GREENWICH, CONN.

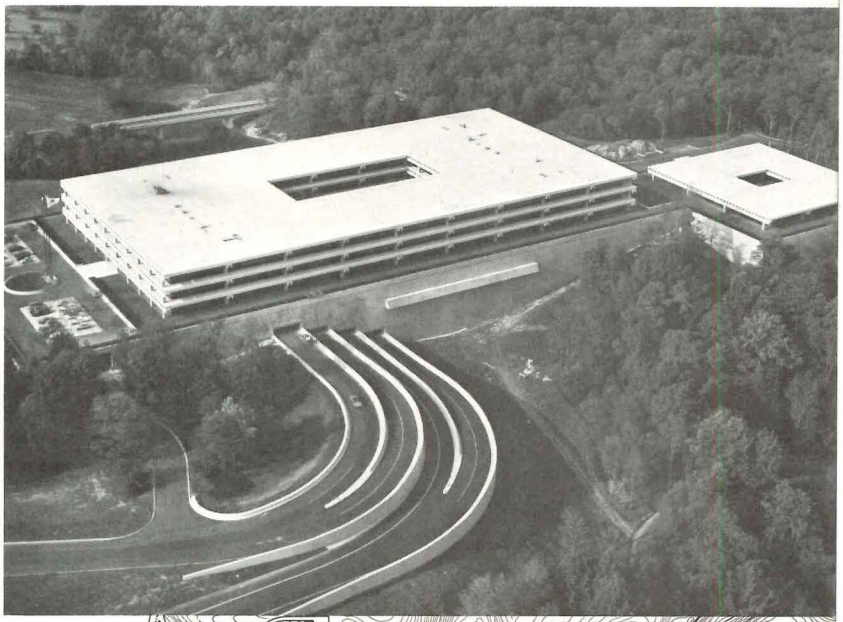
Headquarters offices for American Can are a model of restraint

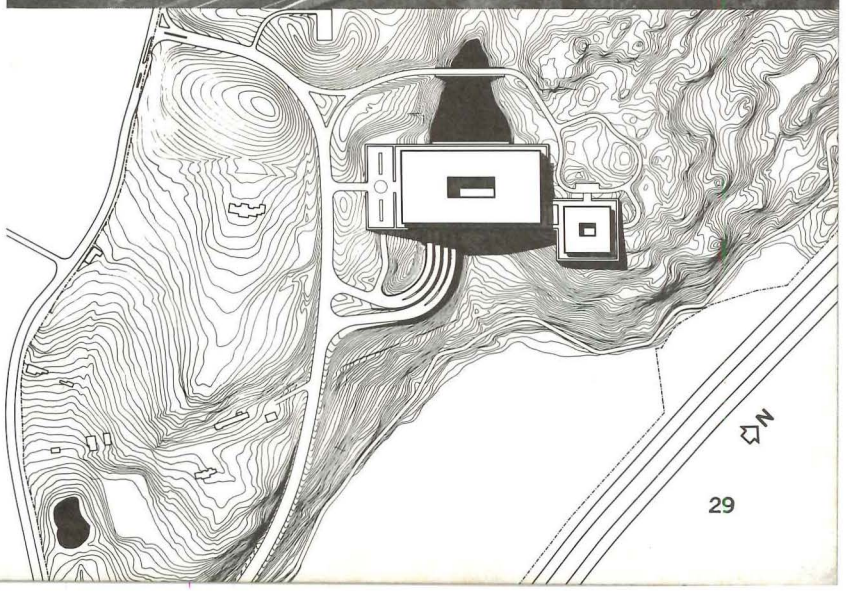
Gordon Bunshaft, of S.O.M., has designed a great many headquarters offices intended to present to the outside world a dignified and civilized "corporate image;" but this new building for American Can may be the first one he has done to create a sense of "corporate anonymity." It is, in fact, a perfect example of less being more.

When American Can decided to move out of Manhattan and into Greenwich, Conn., the company acquired a beautifully wooded 175-acre estate. The land was zoned "residential," and American Can's management—an unusually enlightened group—decided to work as closely as possible with the Town of Greenwich in getting a variance that would permit the construction of the new headquarters offices. The company's objectives and those of the Town were identical: both wanted to preserve as much of the natural beauty of the site as possible; neither wanted to disturb the quiet, residential character of the old King Street on which the estate was located; and neither wanted an eyesore.

So American Can, in effect, helped the Town of Greenwich to write the new zoning regulation that would regulate American Can's own headquarters building: not more than 25 employees per acre; no cars on acres of parking lots; no excessive building height; no excessive encroachment upon natural preserves; in short, the least possible amount of building.

When S.O.M. were presented with this site and these limitations, it became clear to Bunshaft that the only way to build an invisible building for 2,200 employees was to seek a remote corner of the site and to go, at least partially, underground. The contours on the site plan, below, show how the building was screened from King Street (though it *is* visible from the new highway—Route 684—to





View at left shows main office building as seen from smaller executive complex. The latter has post-tensioned girders, and ends of tension cables are capped with stainless steel "buttons" (see also cover). At right, an aerial view from the south showing the four ramps that serve the 1,700-car garage under the main complex.

the east). The contours also show that pulling the new buildings that far back from the street meant placing them into very hilly terrain.

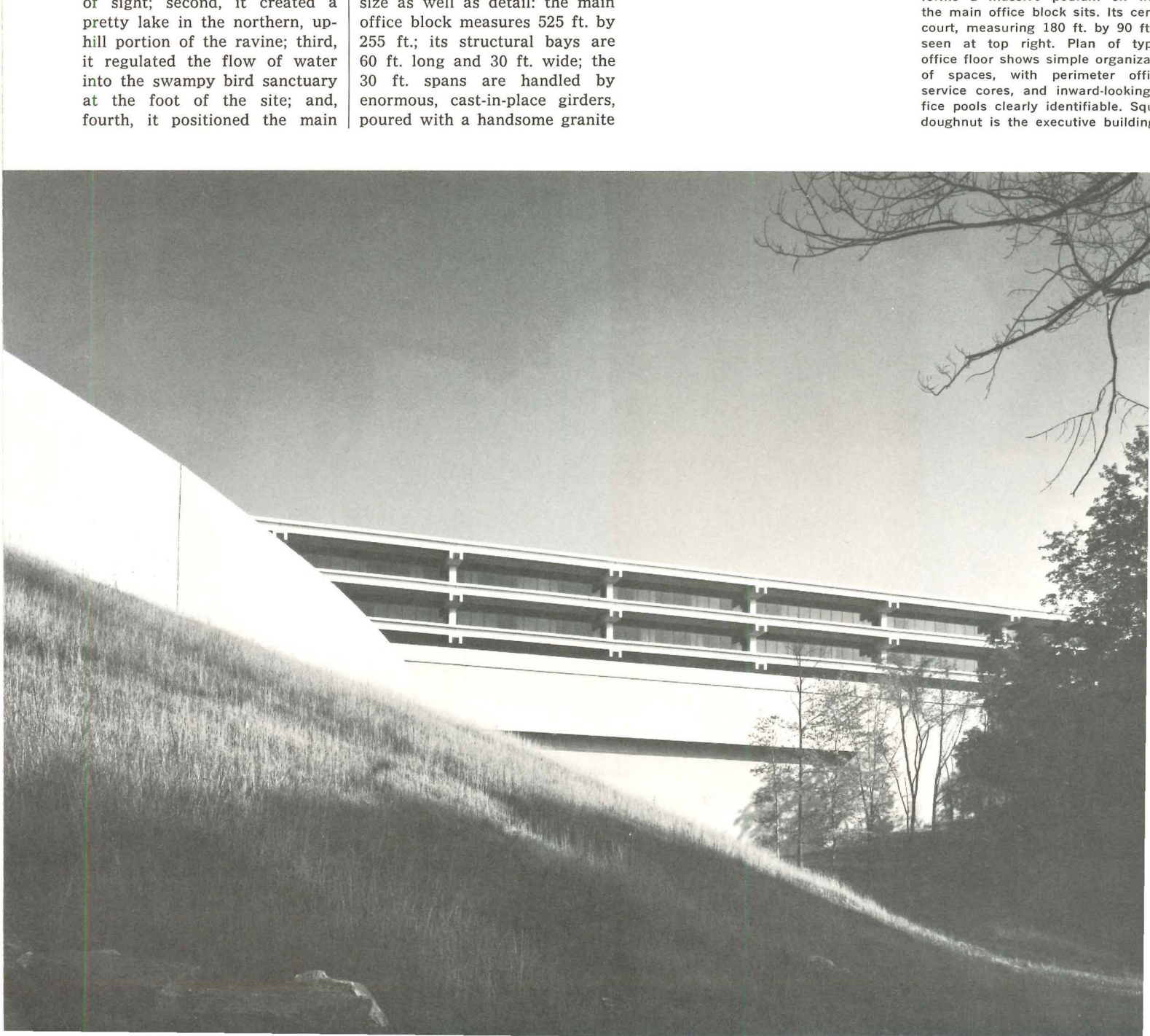
In fact, the main building (a 558,422 sq. ft. office complex) was sited to bridge a deep ravine that bisects the property and drains into a swampy area of about 40 acres along the eastern portion of the site. But having decided to "bridge" the ravine with his main building, Bunshaft then realized that this bridge could be turned into a dam by hiding almost all of the necessary parking facilities in a five-story, 1,700-car garage under the building proper.

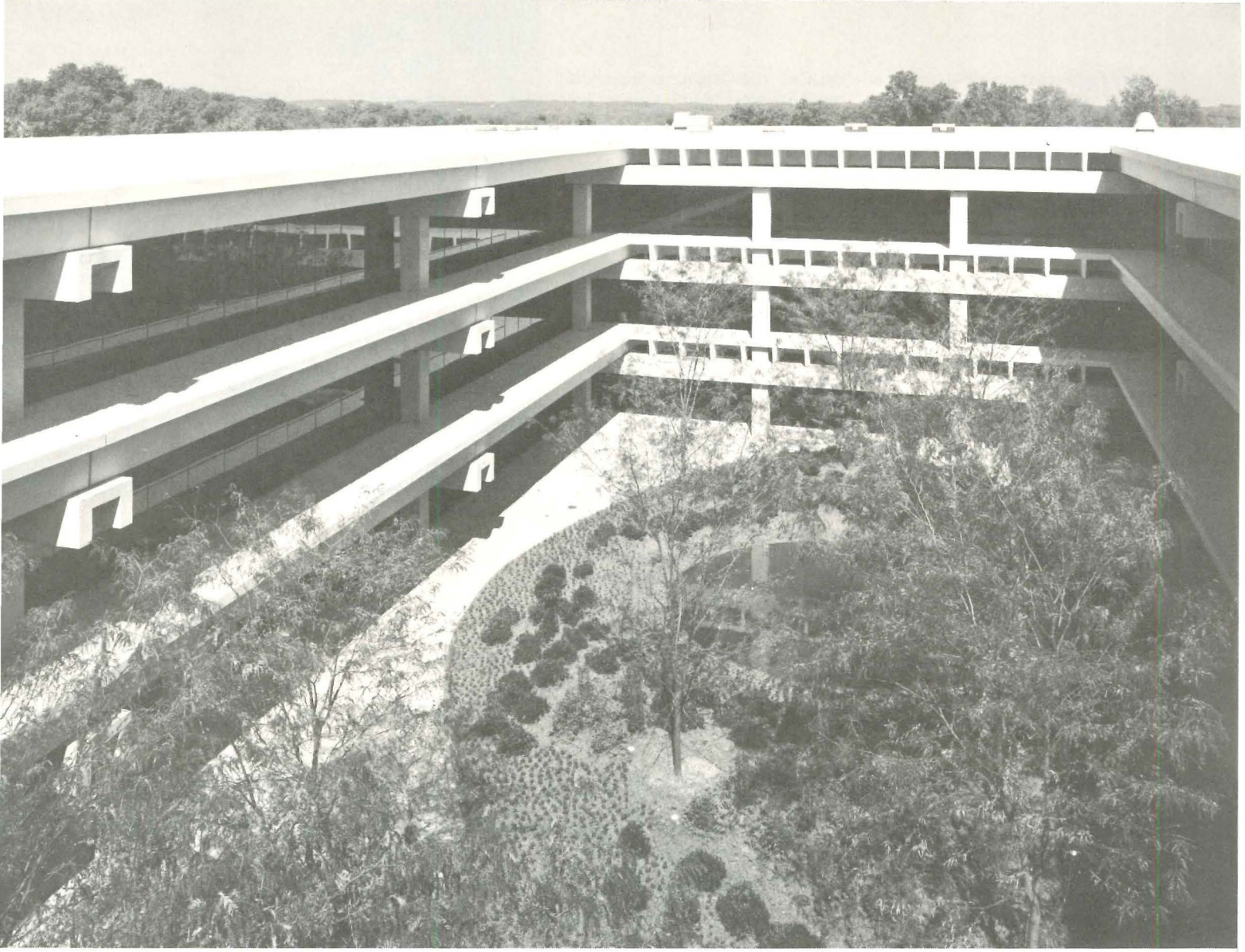
This basic design decision solved several problems: first, it put almost all the cars (except for those of visitors) out of sight; second, it created a pretty lake in the northern, uphill portion of the ravine; third, it regulated the flow of water into the swampy bird sanctuary at the foot of the site; and, fourth, it positioned the main building between rocky and wooded hillsides and thus reduced its apparent height to that of a sliver of concrete and glass.

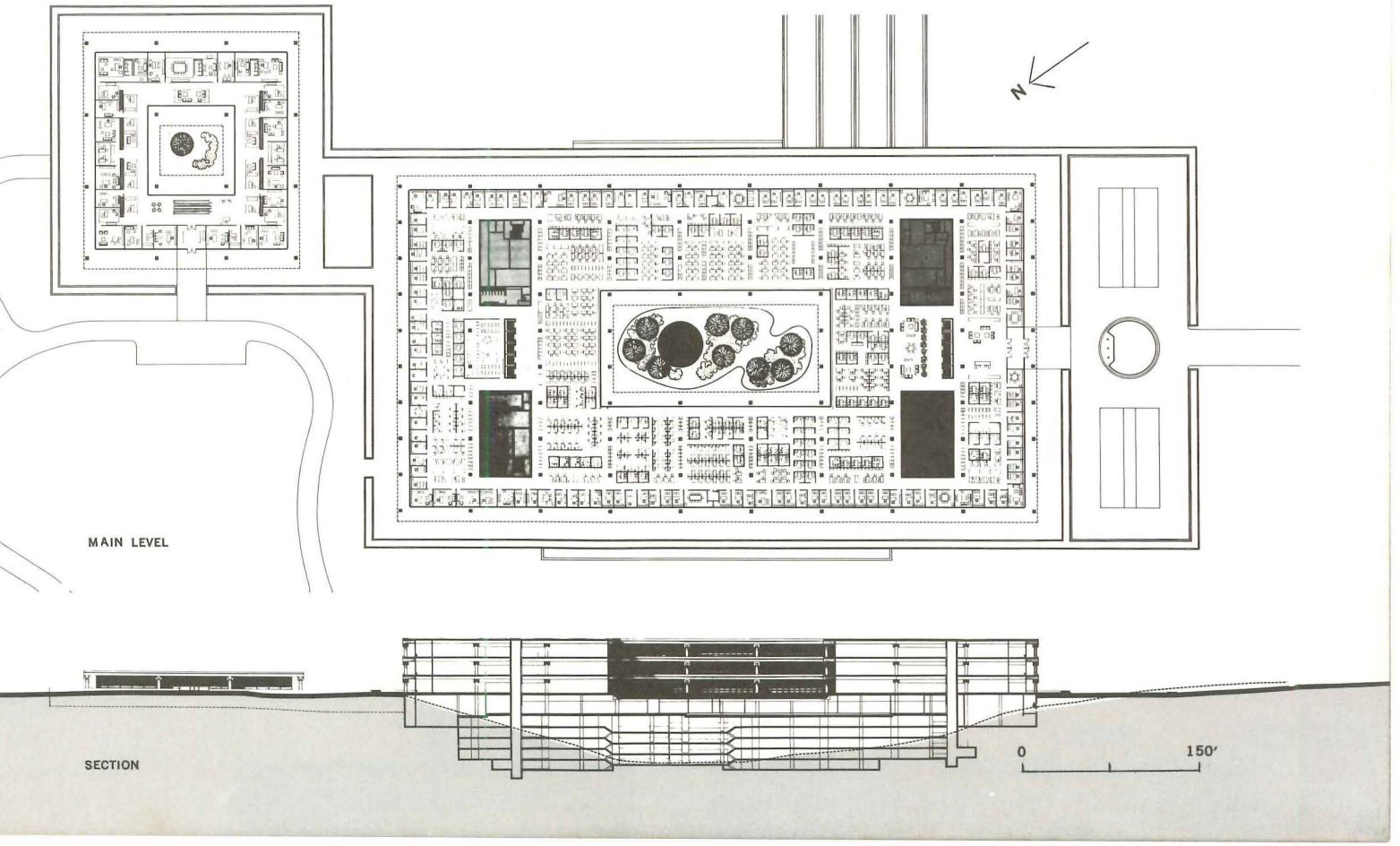
There are, in fact, two buildings: the main building has five garage floors, topped by one terrace floor (containing cafeterias, lounges, data processing center, and mechanical equipment), plus three office floors on top of that—an incredible nine stories, most of them invisible. This building contains all the staff of American Can's many divisions. The second building, a square doughnut, one story in height above an underground garage, houses the executives. The two buildings are connected underground, but separated by gardens and terraces above grade.

The two buildings differ in size as well as detail: the main office block measures 525 ft. by 255 ft.; its structural bays are 60 ft. long and 30 ft. wide; the 30 ft. spans are handled by enormous, cast-in-place girders, poured with a handsome granite

Approach ramp to garage is s
below. The five-story parking com
(explained also in section, oppos
forms a massive podium on wh
the main office block sits. Its cen
court, measuring 180 ft. by 90 ft
seen at top right. Plan of typ
office floor shows simple organiza
of spaces, with perimeter offi
service cores, and inward-looking
fice pools clearly identifiable. Squ
doughnut is the executive building





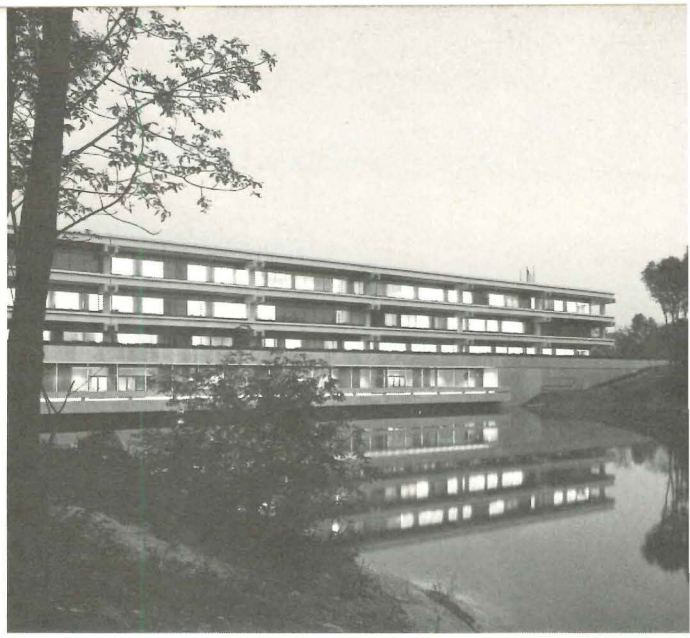

N
MAIN LEVEL
SECTION
0
150'

aggregate that is used in most other cast-in-place concrete on this job; and the 60 ft. spans are bridged by prestressed concrete T's, left exposed except in the perimeter offices where a hung ceiling conceals ductwork. Like the smaller executive office building, the main block has a central court that helps light secretarial pools and other, larger office areas.

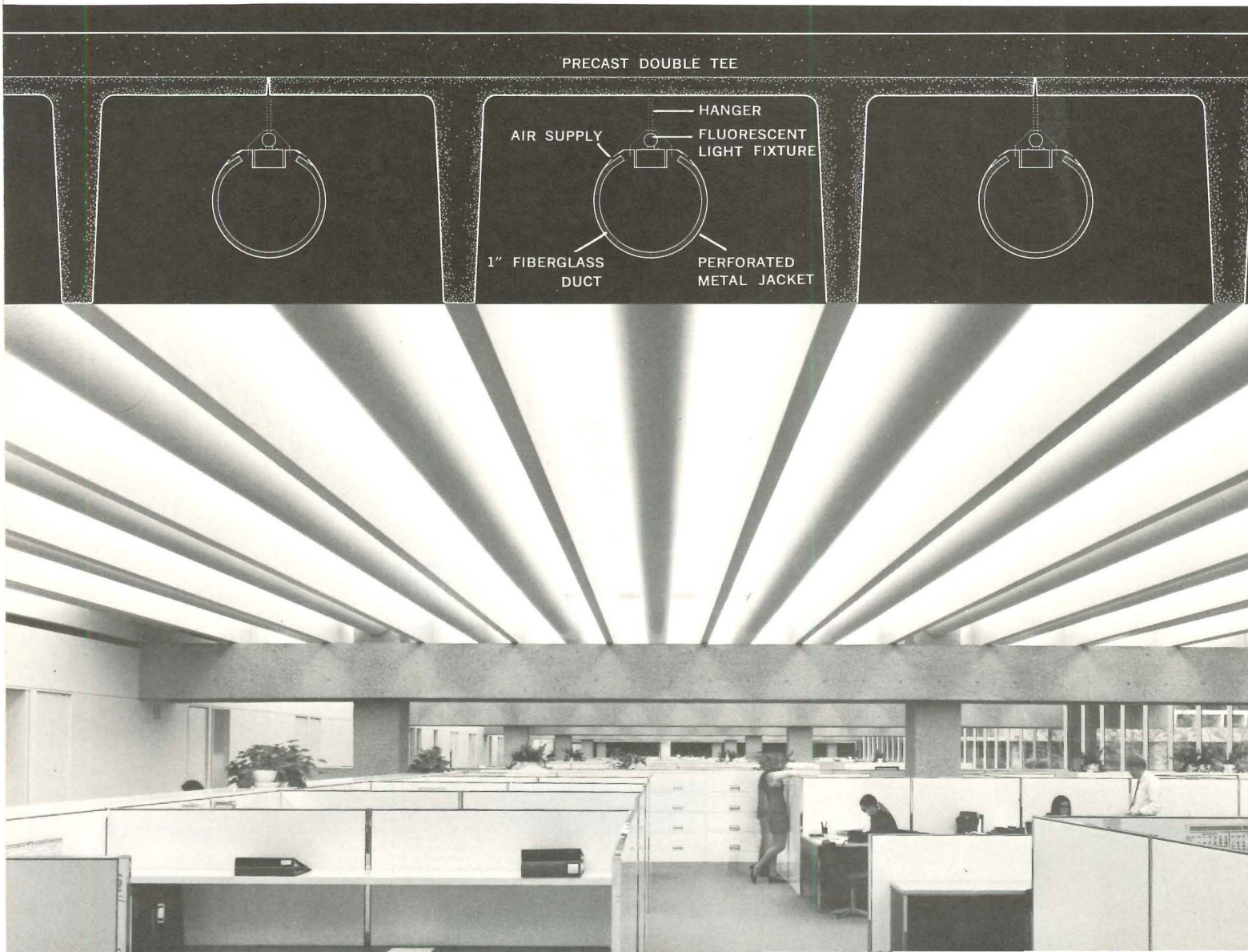
The smaller, executives offices measure 165 ft. square, and their central court measures 75 ft. by 75 ft. The structure here is slightly different: poured-in-place girders, post-tensioned, and spanning 60 ft.; and precast T's spanning 60 ft. also, in the opposite direction. The ceiling height here is 9 ft.; in the main office building the clear ceiling height is 11 ft. 6 in.

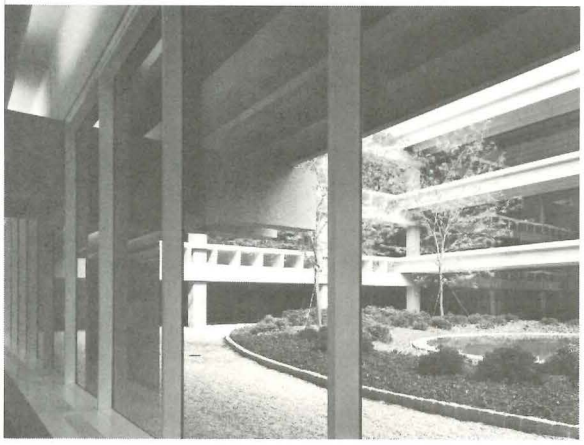
So much for the broad outlines. They are massive, impressive, and quite grand. There are no fashionable tricks—decorative touches are provided by sweeping views of the landscape, by lovely trees (like the cut-leaf red Japanese maple in the executive building's court, which must be about the most beautiful tree ever transplanted anywhere, especially by helicopter), and by tapestries of works by modern artists like Jim Dine and Robert Indiana.

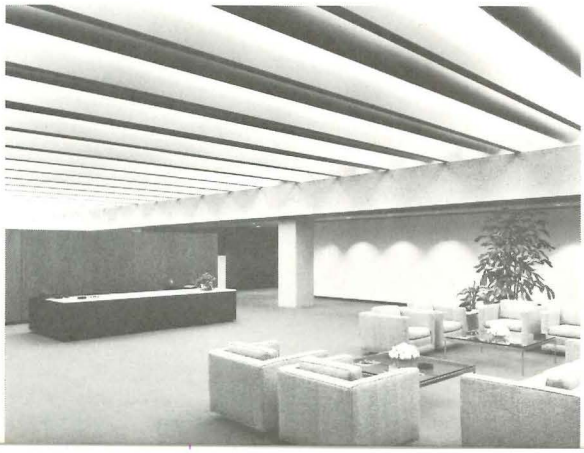
But what makes this such a thoroughly convincing building is the cool competence of its detailing, the complete self-assurance that comes through in the clean ceiling systems (below), perfected by S.O.M. over the years. This was a unique team effort—Frederick C. Gans (Project Manager), Roger Radford (Design), Morris Zelkowitz (Production) and Davis B. Allen (Interiors)—and it shows in the slim, chromium-edged partitions; in the uniformly excellent finishes; in the quiet typography, the neat directional signs, the understated elegance of every space. When Bunshaft talks about this latest office building of his, he talks as much about the lessons he learned from errors in earlier



The building, with its five floors below, acts like a da seen above. On top of thos floors there is, first, a terrace whose dining spaces overloo man-made lake. Below: a typi fice space, showing the detail the ceiling system. At right, vi the court of the main office co and views of the entrance lobb







jobs. American Can is as good as it is because those lessons have been learned.

What does all of this competence do for the people who work there? American Can was obviously concerned about resignations when it moved into the suburbs. There have been very, very few—about 80 out of a total of 2,200. One reason may be the generous amenities supplied by the management: a health club, a bank, a general store, a cafeteria (mentioned earlier) that compares favorably with most Manhattan restaurants; plus, of course, the convenience of a drive-in job (elevators take you up to your office from the parking garage inside the "dam"), and beautiful walks over the remaining, untouched acres.

But there are other qualities as well to keep American Can's staff content. And those were supplied by the architects.

The qualities of light, for example. The ceiling sytsem does not really provide the normal sort of office lighting; it supplies a glow instead. (One of the lessons Bunshaft learned from this job was that fluorescent tubes glowed one way when mounted on top of heat-emitting ducts, and another way when mounted on top of dummy—or sound-absorbing—"ducts.")

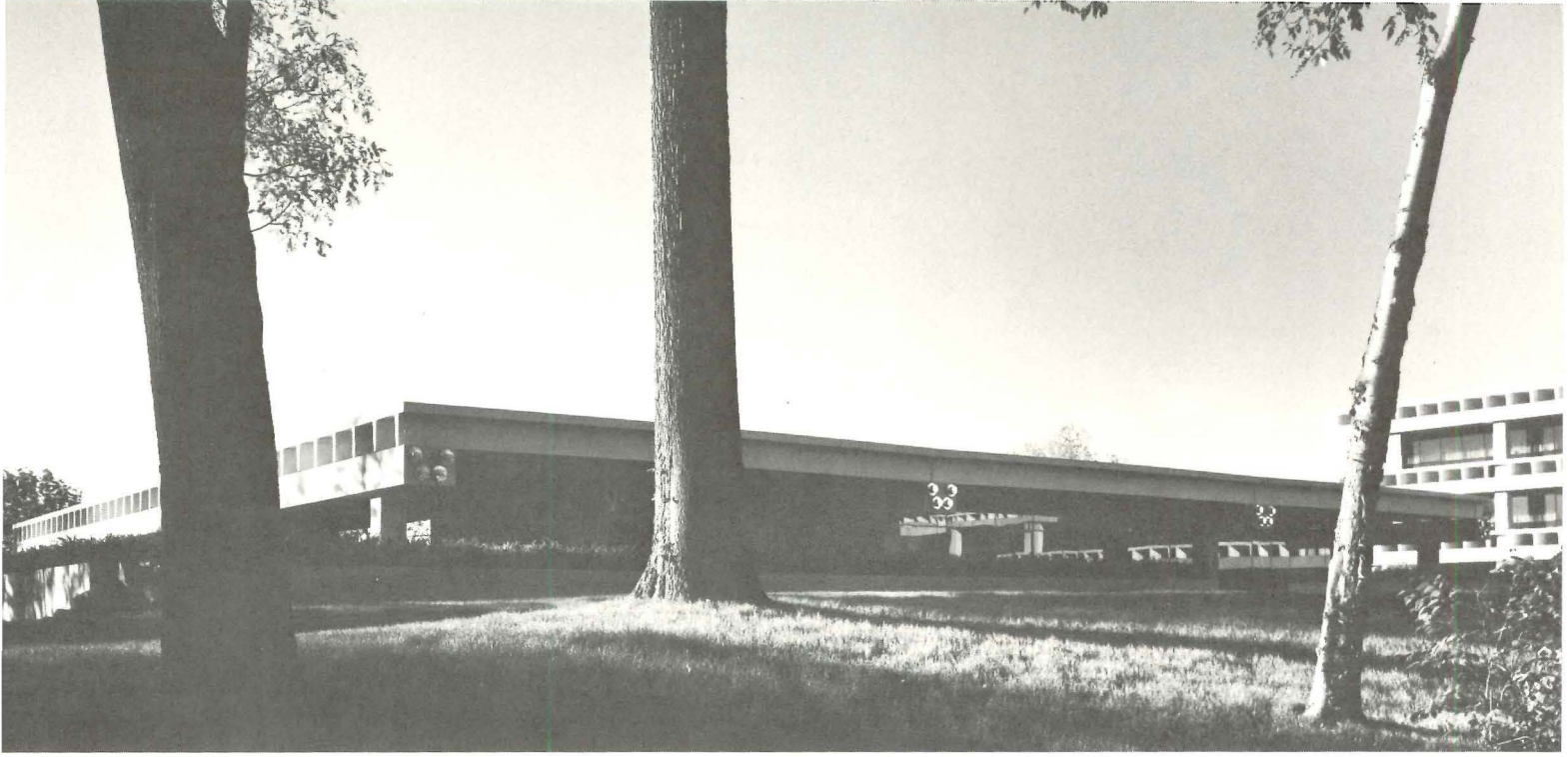
And the qualities of sound. The offices are carpeted throughout, and there are also those sound-absorbing tubes above. There is a sense of luxury about these offices, and there is also an extraordinary silence. Many of the offices have partitions that stop well short of the ceiling; yet there is no loss of privacy, and no irritating noise.

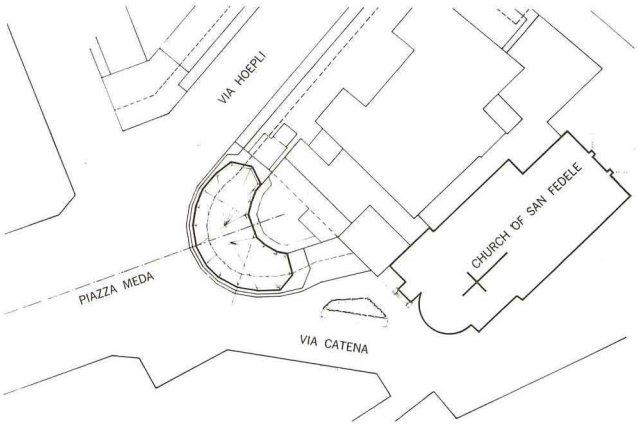
Because American Can was under pressure to vacate its Manhattan offices, these new headquarters were programmed, designed, and built in less than three years—a truly impressive achievement. Perhaps the success of this job is partly due to that fact: neither the architects, nor the contractor, nor the client had the time to make mistakes.

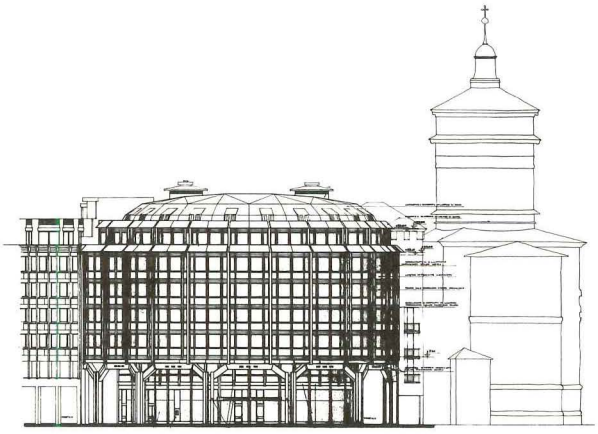
Executive offices are contained i
165 ft. square, one-story building v
a 75 ft. square central court.
structural bays, spanned with h
post-tensioned girders, measure 60
by 60 ft. Circulation, reception,
some secretarial areas face the
terior court; executive offices are
the perimeter of the building.
leaf, red Japanese maple in
court was brought in by helicopte

FACTS AND FIGURES

American Can Company corpo
headquarters, Greenwich, Conn. Ar
tects: Skidmore, Owings & Me
(Gordon Bunshaft, partner in cha
Frederick C. Gans, project manag
Roger Radford, design; Morris
kowitz, production; Davis B. Al
interiors). Engineers: Paul Weidlin
(structural); Jaros, Baum & Bo
(mechanical and electrical). Landsc
architect: Sasaki, Dawson & De
Associates, Inc. Consultants: Wi
Smith & Associates (traffic); Arthu
Dana (food). General contrac
Turner Construction Company. Bu
ing area: 1,300,000 sq. ft.
(For a listing of key products used
this building, see p. 82.)
PHOTOGRAPHS: Ezra Stoller © ES




VIA HOEPLI
CHURCH OF SAN FEDELE
PIAZZA MEDA
VIA CATENA




CHASE MANHATTAN BANK N.A.
METRO

ILAN

lern offices on an an square respect ble tradition

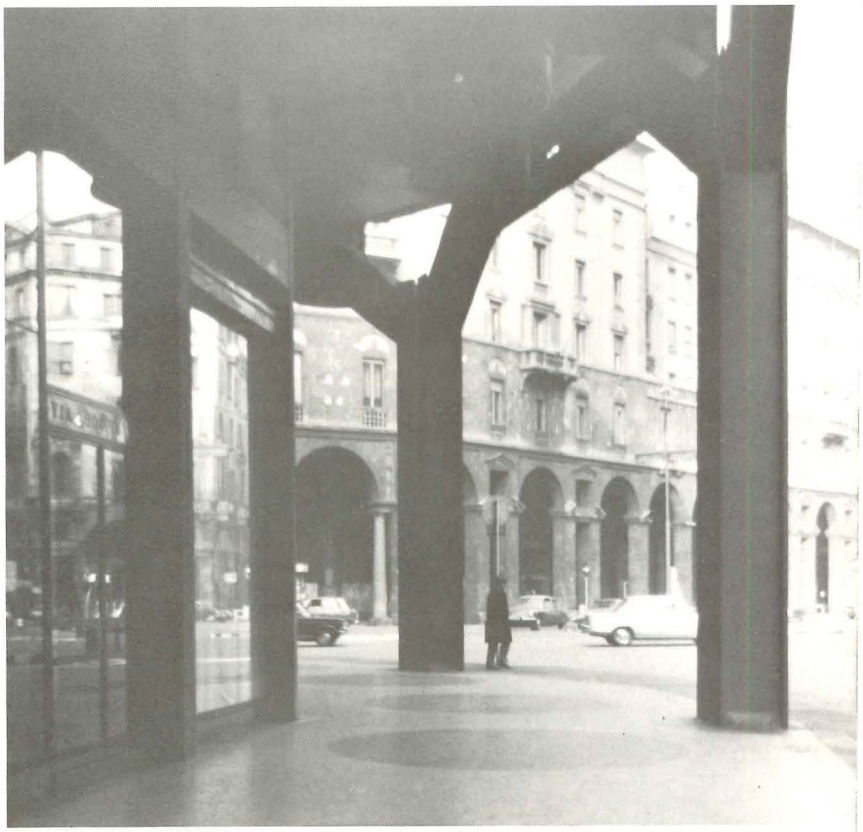
Piazza Meda is located two blocks from the Pi- della Scala, in Milan, and ringed with arcaded build- of varying vintages. The recent and best addition to arade of buildings is the hown on these pages.

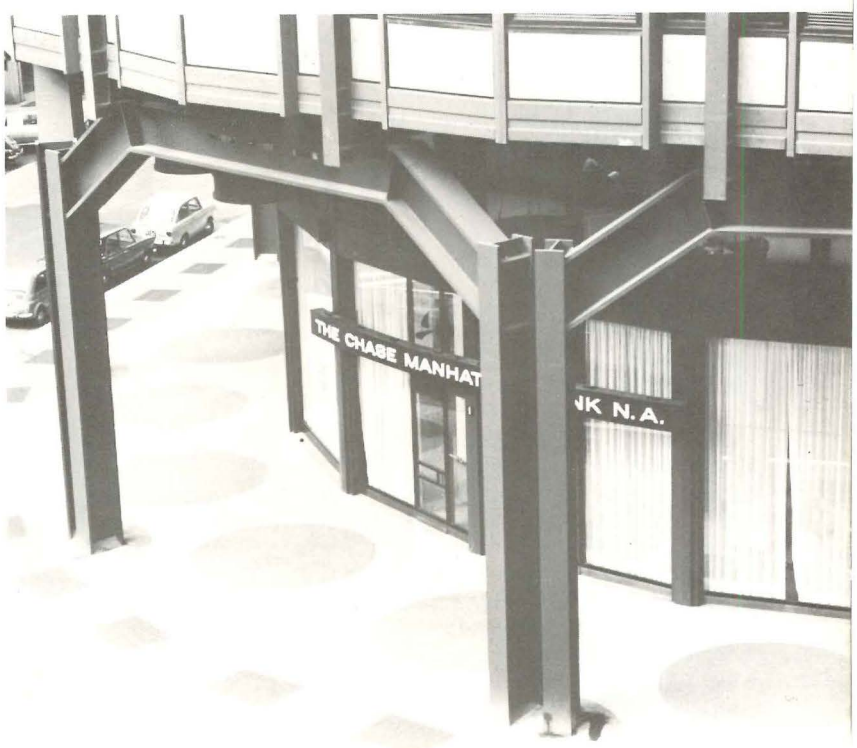
an office building (largely ied by the headquarters of Chase Manhattan Bank in) it is not a particularly icant achievement. The icated configuration of the ictated the configuration of lan, and produced an of- layout that is reasonably ent—probably the best that have been achieved under rcumstances—but also con- a few oddly shaped rooms. as a piece of urban de- as a new facade inserted an existing, neo-classical cape, the building is a sig- nt achievement indeed.

efly, the building is ar- d in three layers: an ar- ground floor (actually floors), 27 feet tall; four - or - less routine office s: and a recessed top floor. e height of the arcaded e-ground floor was deter- d by the Milan code, which ribed that the height of the ng arcades on the Piazza had to be matched. BBPR, rchitects (originally Banfi, ojoso, Peressutti and Rog- only Belgiojoso and Peres- now survive) went much er than simply trying to h the existing arcade- t; they attempted to echo of the existing arcades in and in detail as well.

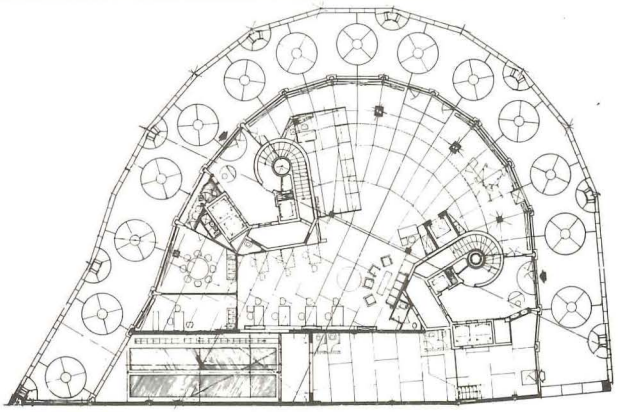
ey did this primarily in two : by creating an unusual m of exposed steel arches hold up the building; and upporting those arches on le columns that recall some e doubled-up piers in older ings nearby.

e broken-arch form of steel supports not only re- the neo-classical arches

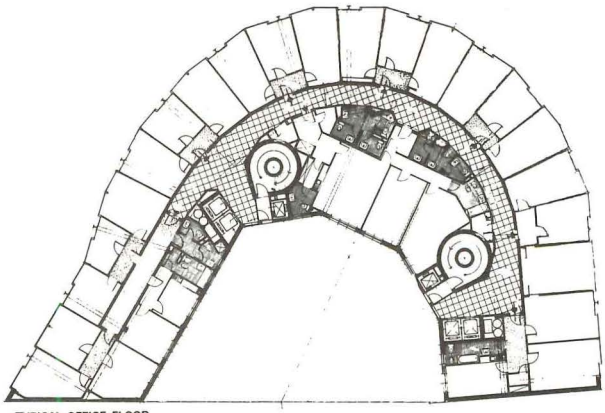




View from the Piazza Meda (opposite page), with the apse of the Church of San Fedele in the distance. The facade of the building was pulled back from the street line so as to open this view of the old church. Right: Views of the 27 ft. tall arcade that rings the new building. The top photo looks toward the Piazza Meda and shows some of the existing, neo-classical arcades; the bottom photo shows the elaborate terrazzo pavement at the foot of the new building.



GROUND FLOOR



TYPICAL OFFICE FLOOR

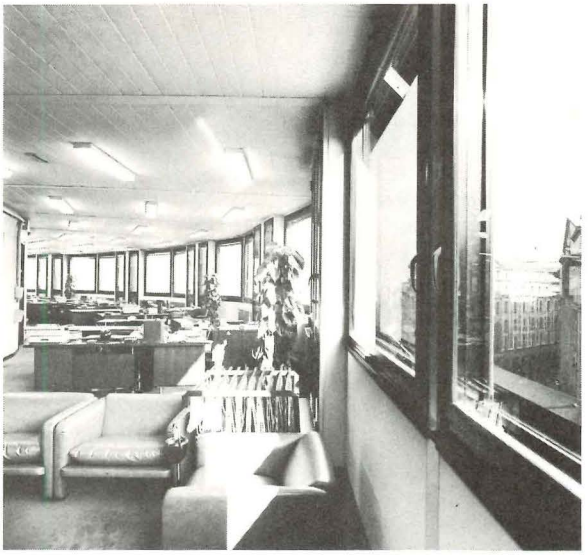
nearby, in a general way; but it also helps to reduce the apparent height of the ground floor which might, otherwise, have seemed disproportionately tall. The doubled-up steel columns are extremely elegant—somehow monumental without appearing at all massive. While they may seem overly elaborate and wasteful, it is easy to imagine how painfully inadequate this arcade would have looked if the upper floors had been supported merely on a row of single toothpicks of steel.

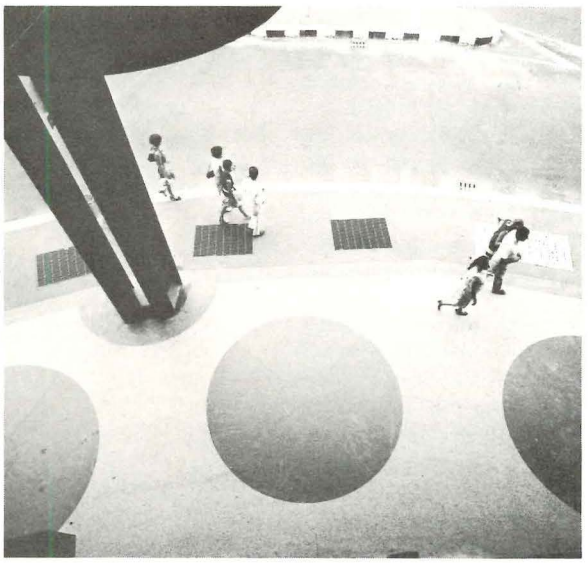
The next four stories are clad in steel and glass (with marble spandrels), but the curtain wall is anything but routine in the spacing of the steel mullions. There are deep, I-beam mullions that grow directly out of the broken steel arches of the arcade; and then there are shallower mullions that actually hold the glass and marble. Although the building appears to be curved, its wall is made up of a series of straight lines, so that the glassy facade reflects its surroundings in constantly changing images. A more massive treatment of the wall would have made the building more of an intruder in the piazza; as it is, the glassy facade, by mirroring its neoclassical surroundings, makes the new building a part of its older setting.

The top floor follows the other office floors in configuration up to a point; but as it curves toward the Church of San Fedele, at the short end of the Via Catena, the top floor is recessed so as to open up a view of the apse of that handsome church (see also first page). If the new building had simply occupied the entire, permissible envelope, from the ground floor up, the view of the church from the Piazza Meda would have been blocked. As it is, by sacrificing some of the permissible cubage, and by retracting the top floor, the architects have, in fact, drawn the church into the composition of the square. An earlier city plan for Milan suggested that the entire site, including the sliver of land along the Via Catena, might be covered by a new building; if the architects had followed that plan, the apse of San Fedele would have been concealed permanently.

The materials that face the new building were chosen with great care to blend in with what the architects call the "polytonic monochrome" of San Fedele. In addition to painted steel (charcoal), tinted glass, and marble, there is an elaborately patterned terrazzo sidewalk (under the arcade), and a sort of mansard roof clad with copper sheets. The effect is that of an entirely modern building—that looks as if it had been there all along.

If the building has one weakness, it is this: the steel structure, so dramatically visible from both outside and in, does not seem too clearly related to the interior column system; but given the complications of the site, this was unavoidable.

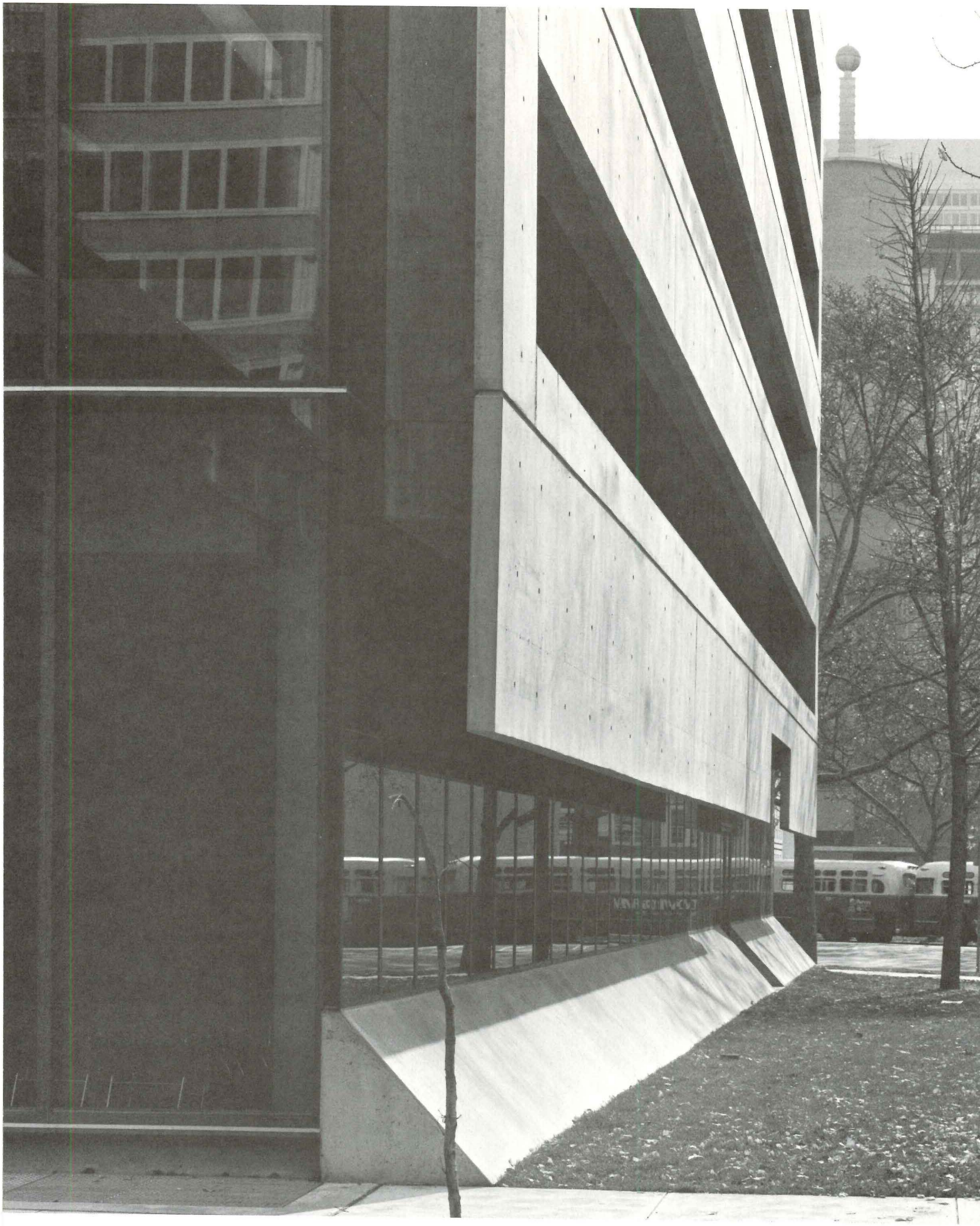




Near right: Views of typical offices, of the arcade, and of the ground floor Milan branch of the Chase Manhattan Bank. The difficult configuration of the site has created some similarly difficult interior spaces, but plans at the top of this page show how these problems have been effectively resolved. The elevator, stair, and service towers are toward the back of the building, and, being of reinforced concrete, help stabilize its structure. Far right: View from Via Catena, with the old church at right.

FACTS AND FIGURES

Office Building, Piazza Meda, Milan. Owner: Iniziativa Edilizia. Architects: Studio Architetti L. Belgiojoso, E. Peressutti, E. N. Rogers. Engineers: S. A. E. (structural), Aerimpianti S. A. (mech.), Bazzano & Gaspari (electr.). PHOTOGRAPHS: Toni Nicolini.



HILADELPHIA

nall United Fund fice building plays important role the urban scene

"In effect, it is a glass box surrounded by concrete screens where they are needed." With these few, simple words Architect Romaldo Giurgola sums up not only the distinctive character of the United Fund Building, but a whole philosophy of design as well.

In many ways, the architecture of Mitchell/Giurgola Associates typifies the work of several firms sometimes grouped together as the Philadelphia School. Disciples of Louis Kahn, these architects see design as the product of interaction between internal needs (Kahn's "existence will") and external circumstances. In this case, very simple internal needs—for a "box" of office space—have been acted on by compelling external demands—need for sunscreens, shape of site, etc.—and the resulting design symbolizes this interplay of forces.

Like his Philadelphia contemporary, Robert Venturi, Giurgola feels that symbolism in design need not be hindered by Early Modern inhibitions about structural honesty. The United Fund Building is not literally a glass-clad box shielded by concrete screens, but it has been contrived to look that way "in effect."

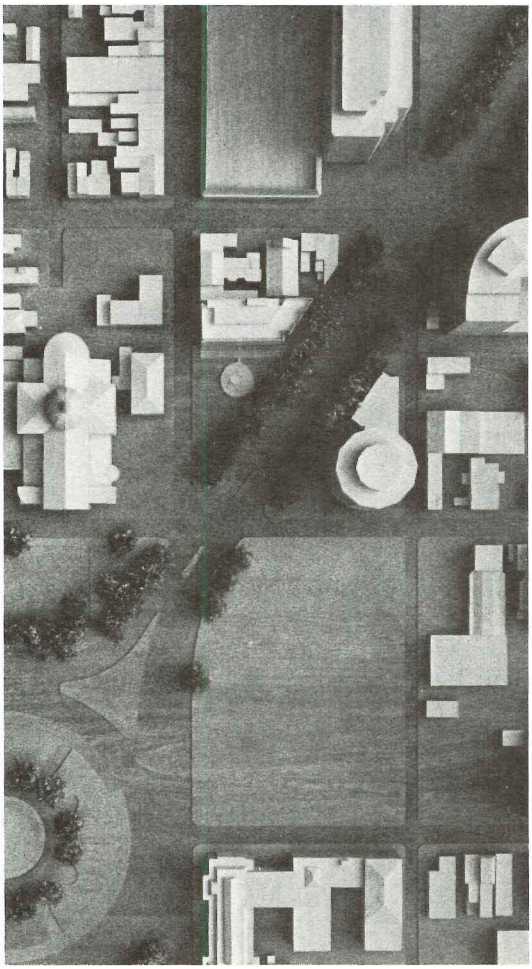
The location along Benjamin Franklin Parkway, near the center of Philadelphia, determined just about everything about the form of the building. This broad boulevard, slicing across the gridiron plan of the city, shaped the trapezoidal site and left a small triangular park next to it—one of several public triangles along the parkway. And with the parkway location came a city-imposed height limit of 80 ft.—set to match the cornice line of the nearby cathedral and other major public buildings near Logan Circle.

This height limitation forced the architects to use virtually the entire trapezoid of land. That is not apparent, because the adjoining park looks like—but is not—part of the building's site. The long wall bordering the park, visible from blocks away across Logan Circle, naturally became the visual "front" of the building. And the opposite side, adjoining some low rowhouses, became the "back"—a party wall with few openings except in the upper stories.

A building seen across such an extensive open space had to present a strong image, if it was to be noticeable at all. Giurgola observes that a strong building form was needed at this point "in order to prop up all those giants around it"—those taller, bulkier, but rather amorphous piles that line the parkway to the east. And he stresses that no building is ever an isolated event.

And it was the location, of course, that determined the widely differing treatment of the building's three exposed walls. On the north side, where direct sun is a minor problem, the whole facade is of gray-tinted glass in thin aluminum frames, allowing floor-to-ceiling views out over the roofs of the cathedral across the street.

On the west, the urge to give office floors full exposure to a panoramic view and the need to protect them from west sun led



ls of gray glass in thin, dark alu-um frames (left) are shielded n the west sun by a suspended en of cast-in-place concrete. The horizontal pattern of this screen ntifies the building from blocks y (photo right) across Logan le (lower left in model photo). facade had to match the height monumental buildings around the le, though it is seen against taller ctures to the east.

to the design of the concrete screen, with its horizontal openings set about 1 ft. below the corresponding windows. Even though conventional wisdom calls for *vertical* sun-baffles on west walls, the architects claim that this horizontal design gives better protection against the high summer sun, which is most critical, and cuts out sky glare as well. The fact that this whole screen is suspended from the floor slabs is pointedly expressed on the exterior by detaching it from the ground.

Conditions on the south wall called for sun protection, too, but it took a very different form. A bearing wall was needed here, to pick up loads from the column-and-beam concrete frame where it is cut off at an odd angle. Windows on this side are set into recesses whose walls line up with the 3-ft.-square grid of interior partitions and lighting. Projecting corners of the building provide enough sun control here, without special shading devices.

One obvious question comes up concerning the facades: why are the two very different screens on the south and west sides—one supporting the structure and the other suspended from it—both made of cast-in-place concrete? Two reasons, replies Giurgola:

1. to preserve the unity of the building. (The sides may differ, but the inner plane is always of glass, the outer one of cast-in-place concrete.)

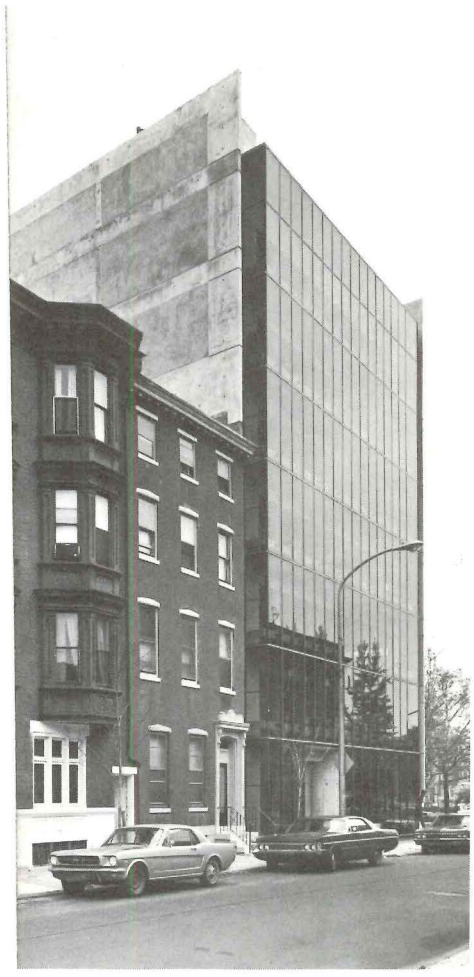
2. because concrete was readily "moldable" to meet complex needs. (The west screen is "not just a plane," but folds back around the windows and provides duct spaces behind the angled planes at the sills.)

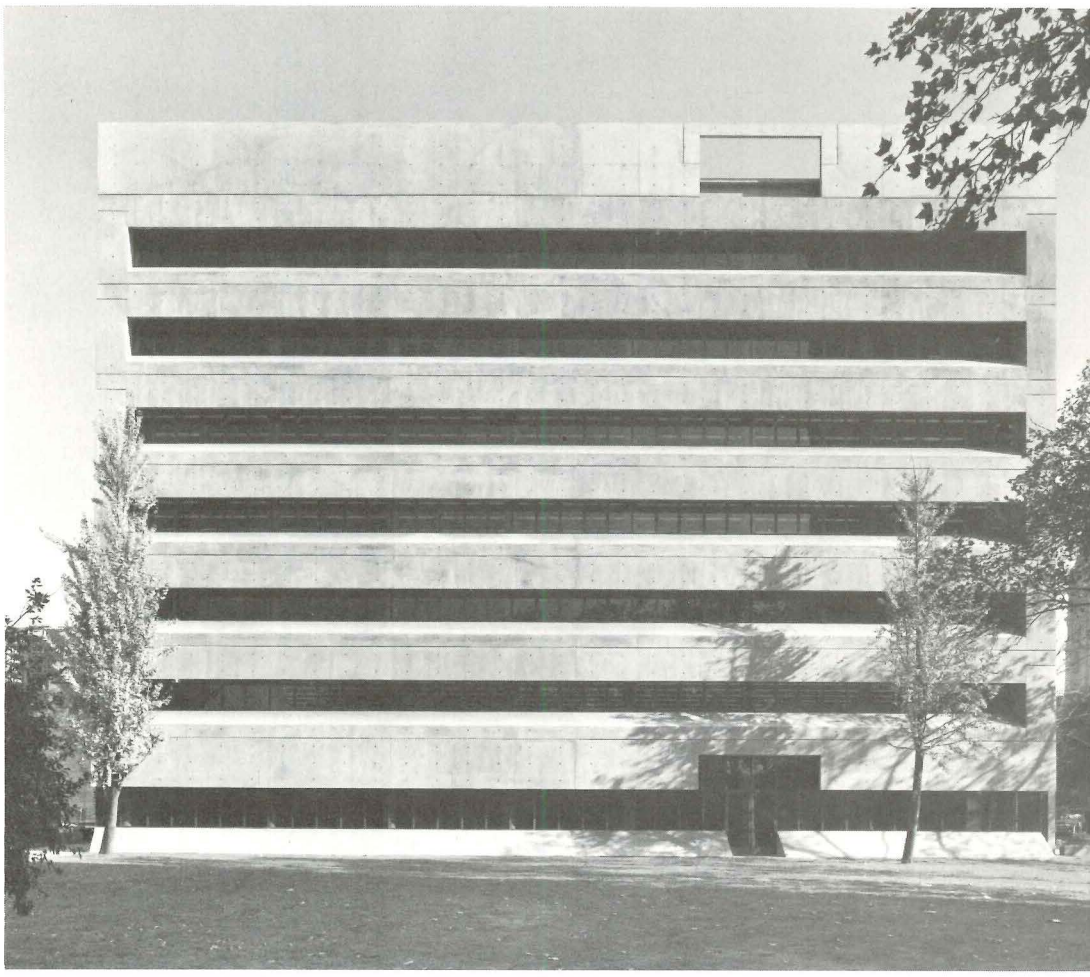
And the plane of concrete gives the west front the visual solidity the building needs for its position in the cityscape. A screen composed of smaller-scaled elements would not have read as one unified plane from a distance, as this screen definitely does. Yet somehow the horizontal baffles, streaking across the facade with so little apparent support, look inherently unstable—like a giant venetian blind. And the unbroken horizontal lines—while they help distinguish this building from its neighbors—contrast so strongly with other parts of the same building that it tends to break apart visually; Giurgola knows this, of course, and is willing to chance it.

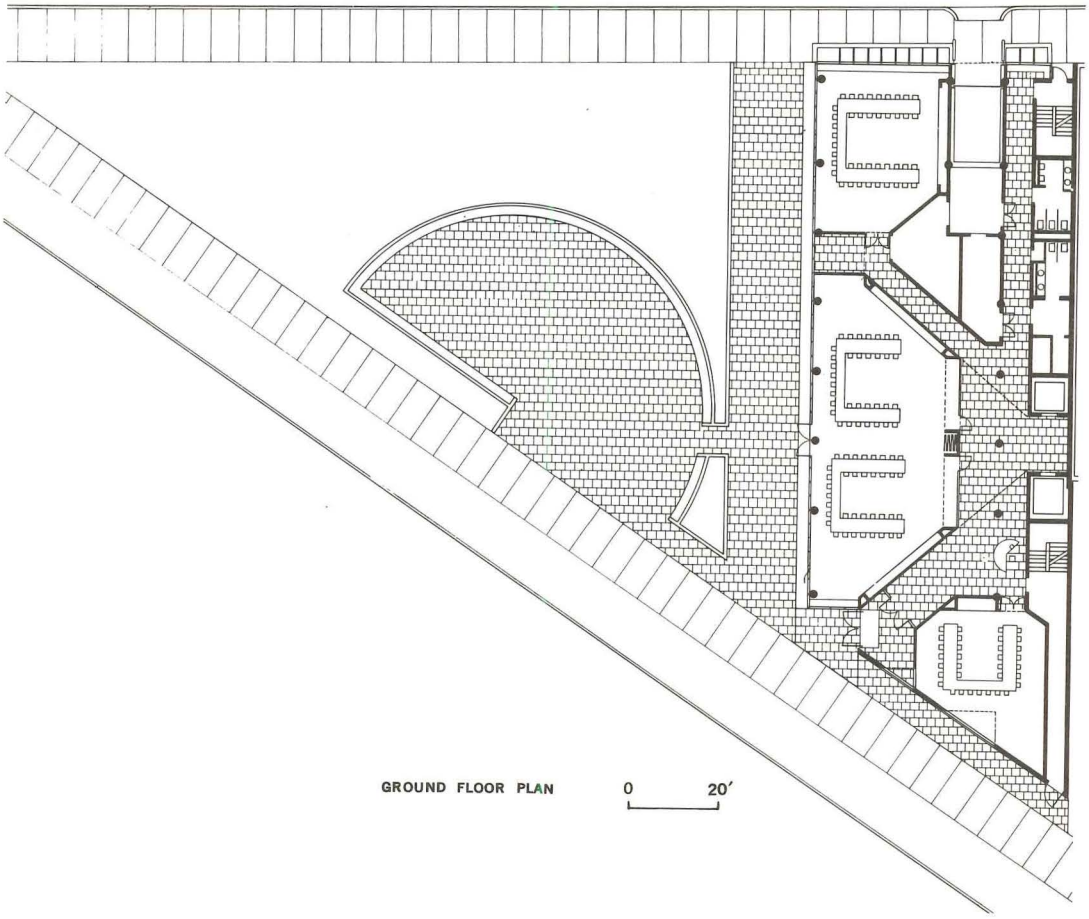
At the southwest corner of the building, between the two big screen-walls, is a glass-lined notch where the main entrance is located. The broad double doors are distinguished from the dark glass walls around them only by their clear glass and polished stainless steel frames.

Inside this entrance, a diagonal corridor leads straight to the elevator core at the center of the blank "back" wall. This diagonal passage and a corresponding one on the other side of the core link all of the conference rooms on this floor together. The angular layout provides well-shaped meeting rooms and leaves generous alcoves outside them for casual encounters. Dark glass partitions between the corridors and the meeting rooms (except for the more private one in the south corner) give the whole lobby area views of the park to the

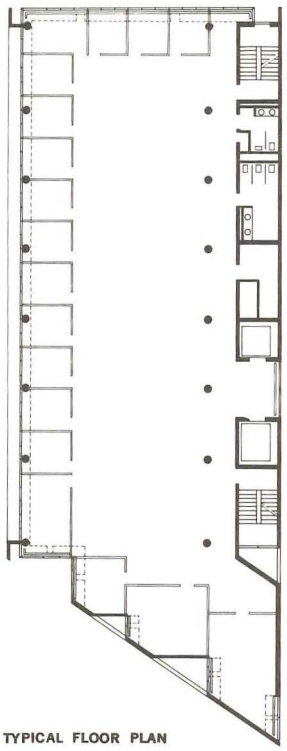
The three very different fronts on north, west, and south (left to ri below) respond to lighting conditi and—in the case of the bearing on the south—to structural dema The building section (below ri shows duct space under the ang planes below the west windows; the ground, one of these duct closures marks the property along the park to the west. architects' proposals for this (plan, right) have not been adop



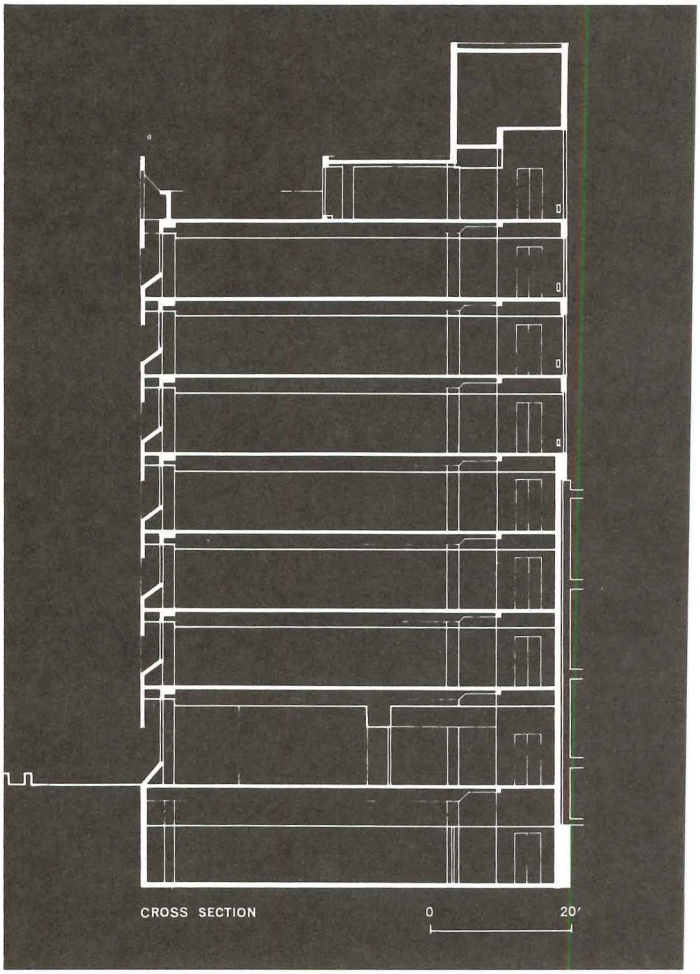




GROUND FLOOR PLAN 0 20′



TYPICAL FLOOR PLAN



CROSS SECTION 0 20′

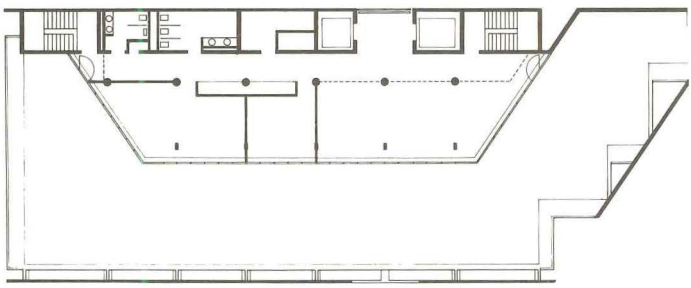
west, through layers of interior reflections.

The typical floors are loft spaces with circular columns forming 15 by 40 ft bays. The long strips of window on the west front need no blinds at all. Air is supplied through the sills and exhausted at the window head with no obstruction.

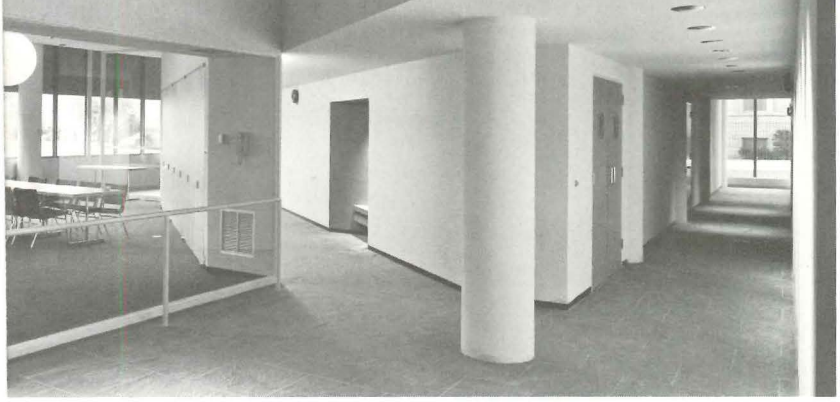
The combination of concrete sun-screen and dark gray glass gives virtually every worker a glare-free vista down the parkway to the Museum of Fine Arts and the vast park beyond it—at least where the space has been left unpartitioned, as the architects recommended. The angular spaces at the south end of each floor are well suited for private executive offices. Floor-to-ceiling windows in these offices (equipped with drapery) provide side-long views west along the parkway, and those at the southeast corner have windows facing east toward Philadelphia's unique City Hall.

At the top of the building is a penthouse with employees' cafeteria and lounge, opening onto a roof deck. On two sides of the building, the screen walls rise a full story above the deck to match the cornice height required by the city's Art Commission. Only at the gap above the entrance and at the very deliberate "window" cut through the west screen (which is aligned, for purely symbolic reasons, with the building's vertical core) can the fine view to the west be seen. The effect from the cafeteria is like looking through a peephole. It seems perverse to have blocked off such an exceptional view (even though most employees can look the same way from their desks on floors below).

Undoubtedly, Giurgola was determined not to let the profile of the building trail off at the top with a stack of diminishing penthouses (as most of its larger neighbors do). Then, too, he must have considered the height limitation a bit arbitrary, considering the much greater heights allowed on blocks immediately to the south and east. What better way to indicate an arbitrary height restriction than with these great concrete planes, seen in sharp profile against the sky? —JOHN MORRIS DIXON



ROOF PLAN



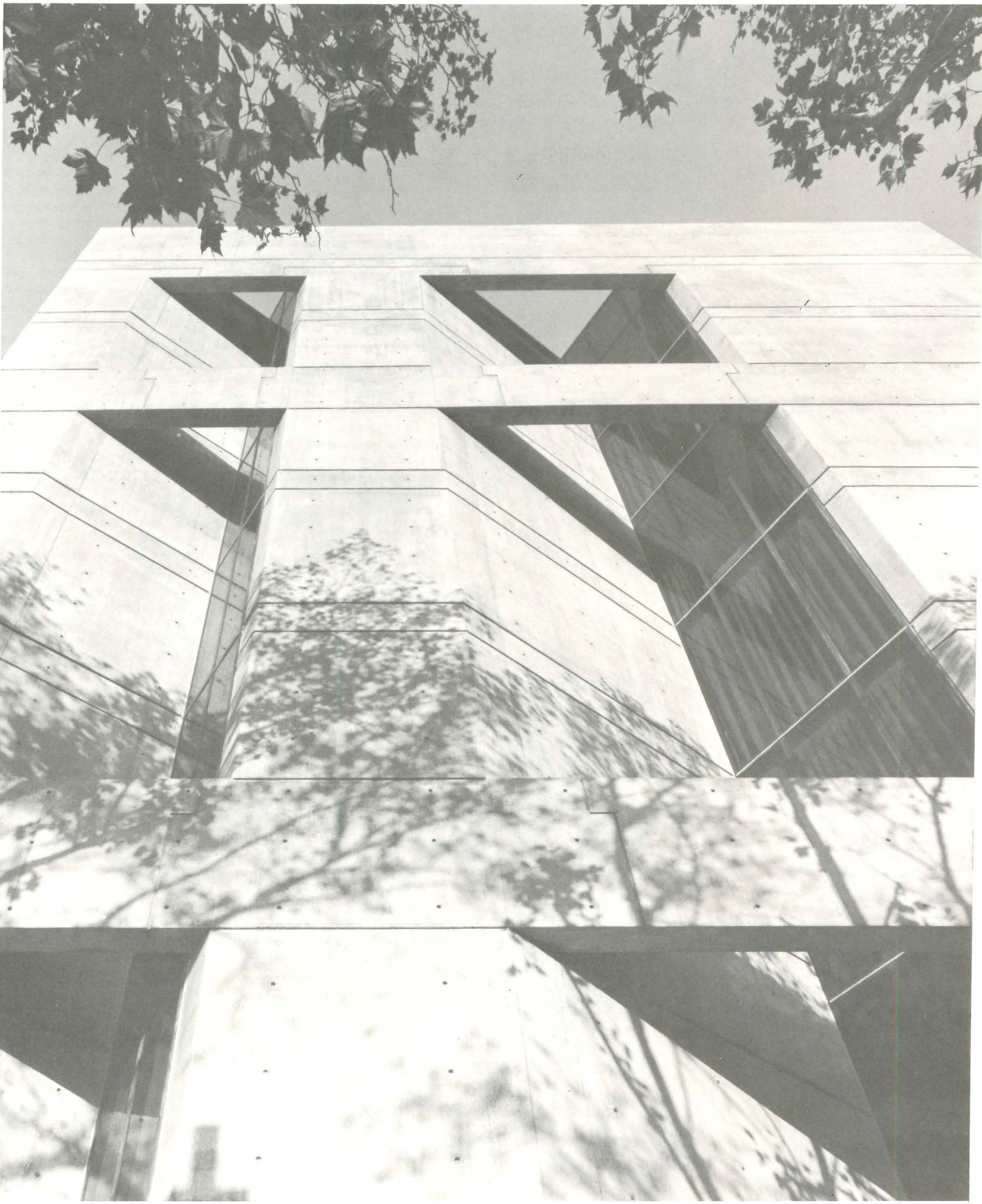
West windows of a typical floor (left) need no blinds and broad views; ceilings are design recover heat from lighting s Dark glass around first-floor me rooms (bottom left) can be scr with drapery. The roof deck (a affords a good view toward City The intersection of the angular wall with window walls (right) re at small scale the relationsh Benjamin Franklin Parkway to city's street system.

FACTS AND FIGURES

Headquarters Building, United of the Philadelphia Area, Philade Pa. Architects: Mitchell/Giurgol sociates (John Lawson, project tect). Engineers: Harry Palm (structural); Paul H. Yeomans, (mechanical and electrical). In design: HMC Interiors, Inc. the architects). General contr Hughes-Foulkrod Construction Building area: 66,270 sq. ft. $2,375,000 (plus $36,820 for fu ings and equipment).

(For a listing of key products in this building, see p. 82.)

PHOTOGRAPHS: Rollin R. La Fr



WASHINGTON, D. C.

Trauma and tenacity prevailed in the design of a Federal office building

BY DAVID R. DIBNER

This is the story of the development of the James Forrestal Building (Federal Office Building No. 5), in Washington, D. C. It began in October 1961 when the design contract was negotiated and ended over eight years later on a foggy day in November 1969 when the building was dedicated. During this time the project was subject to countless reviews by agencies with constantly changing membership, it required an Act of Congress, and it demanded all the patience and perseverance of the three architectural firms involved. The story is recounted here because it may serve as a beacon of hope to other architects faced with similar frustrations, who may be tempted to give up.

On October 3, 1961, three architectural firms were called to Washington: Curtis & Davis of New Orleans, Fordyce & Hamby Associates of New York, and Frank Grad & Sons of Newark. Meeting each other for the first time, Nathaniel C. Curtis, Jr., A. Grant Fordyce and Bernard J. Grad were told they had been selected to design Federal Office Building No. 5. The government's prospectus called for housing various activities of the Department of Defense in two six-story buildings "with wing extensions", each building to contain 890,100 sq. ft. Timing was critical, and a 69-week schedule was established; contract documents were to be completed by February 14, 1963.

The architects quickly set up a joint venture office in New York. The three partners established themselves as a Policy and Operating Committee, selecting Nathaniel Curtis, Jr., as design coordinator, Howard Grad as business partner; I was chosen as project partner, and C. Woodford Dayton as project manager. And so we began.

The divided site

There were really two sites—two islands totaling ten acres, isolated from their surroundings by depressed expressways and a broad railroad cut **1**. And right through the middle, between them, the new 200-foot-wide 10th Street Mall was to be built. Furthermore, the land was part of the Southwest Urban Renewal Area, so it had to be integrated with the area plan. South

our project along the propo
mall was the L'Enfant Pl
project, which was to consist
three office buildings and a
tel around a large plaza. It
sponsored by Webb & Kna
the well-known New York c
cern headed by William Zeck
dorf; the architect for the c
plex was I. M. Pei & Associa
A model of the 10th Street M
prepared by the Governme
showed our project as *four* bu
ings in L-shaped configuratio

The government's requirem
to build almost two mill
square feet of space on a rat
constricted site was complica
by the 120-ft. height restrict
imposed by the National Ca
tal Planning Commissi
(NCPC). We were concer
about the large masses wh
would result, especially since
project faced the small-sca
original Renwick Building of
Smithsonian Institution.

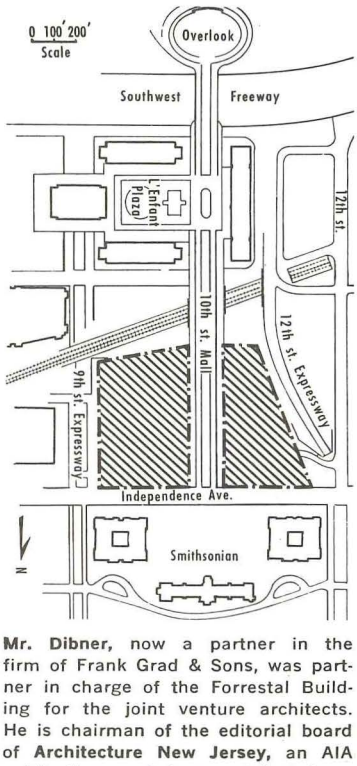
Our first effort was to b
as much of the building in
ground as possible and, si
the 10th Street Mall rose
ward the south, we propo
linking the two sites with sp
extending *under* the mall. T
would ease circulation betwe
the portions of the buildi
while reducing the mass of
building above grade.

The next decision was m
dramatic: if we were going
use the space below the m
why not utilize the air rig
above it by spanning the m
This would allow even grea
ease of circulation through
the complex, especially desira
since one tenant would occu
all of it. And furthermo
raising the major mass in
air, would allow a much broa
view down the mall to L'Enf
Plaza than a canyon betwe
two tall buildings.

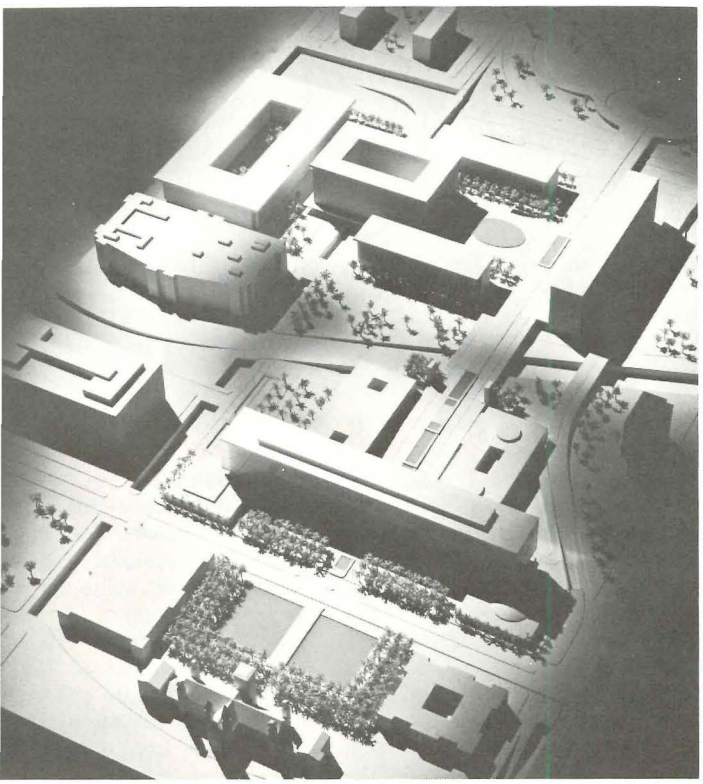
Our first studies showed
building along Independe
Avenue, 35 ft. above the grou
with two low, symmetrical
tensions extending South alo
the mall **2**.

Our approach received the
mediate approval of our cli
the central office of Gene
Services Administration (GS
Buoyed by this encoura
ment, we presented our des
to the National Capital Plann
Commission (NCPC) on Dece
ber 6, 1961. The Commiss
was in accord with our
proach. It was suggested t
we contact the Redevelopm

1. Plan, building site shaded



Mr. Dibner, now a partner in the firm of Frank Grad & Sons, was partner in charge of the Forrestal Building for the joint venture architects. He is chairman of the editorial board of **Architecture New Jersey,** an AIA publication, and has contributed articles to other magazines.



Early model with building spanning mall, symmetrical extensions to south

nd Agency (RLA) as soon as ssible, so that their plans the mall could be coordi- ted with our design.

On March 1, 1962, NCPC gave project its first official ap- oval, and the job seemed well its way.

e Chinese wall

e next meeting was with A, who were in charge of the uthwest Urban Renewal de- opment. In general, the repre- ntatives of RLA accepted our proach. (Incidentally, RLA dership changed more than ce before the project was com- ted.) They suggested that meet in the near future with L'Enfant Plaza architect, to ordinate the design of both jects. The meeting, which s held several months later, ned out to be the first matic event of the project.

Arriving in Washington on rch 20, 1962, for a meeting h RLA and William Zecken- f, we were greeted by start- g stories in the newspapers: e headline in the *Washington ar* read:

ENTH STREET MALL PLAN HIT AS 'CHINESE WALL' ".

is was said to be the opinion Zeckendorf, who was to meet and with RLA for "a hard k at a new design for the g planned Tenth Street Mall".

But that wasn't all; an *editorial* in the *Washington Post* read:

"TUNNEL TO THE SOUTHWEST—*With an air of innocence, our public planners and redevelopers have agreed to undercut and diminish the splendid design for the future 10th Street Mall. It was to have run grandly south from Constitution Ave. (sic) flanked by big new buildings to a dramatic plaza overlooking the Potomac . . . Instead, under the current plan, it will be the tunnel to the new Southwest. The Government is now being encouraged to build its Federal Office Building Number Five in one vast continuous rectangle along Constitution Ave. (sic), leaving a large hole in its middle for the 10th St. traffic to creep through. The Fine Arts Commission might more profitably contemplate the formidable barrier that this monolithic building would place, in every aesthetic sense, between the Southwest and the rest of the City.*"

These articles set the atmosphere for the meeting which followed. Zeckendorf did most of the talking. His role: a citizen suddenly disenfranchised through the secret manipulations of the Government.

The minutes of the meeting note the following:

"Mr. Zeckendorf's position:

a. That this was the third RLA administration that Webb & Knapp had been dealing with and much money had been expended in this project.

b. That he objected to the procedure of meetings held in secrecy without the 'common courtesy' of consulting with his firm to allow them to express their views. He described this procedure as a 'coup en camera'.

c. Webb & Knapp have no 'architectural pride' in the 'government's end of the mall' but as 'an American' he would leave no stone unturned to assure that the government accepted their responsibility in this matter.

d. His objection to the design of FOB#5 as presented was due to the fact that the 'power and dominance' of this building negates the whole southwest redevelopment concept."

In response, the joint venture architects, as well as representatives of GSA and NCPC, tried to demonstrate the advantages of the air rights scheme. Neither side was convinced by the other's rhetoric.

It was resolved that the architects for the two developments would meet to try for a mutually acceptable design solution. It was also agreed that no publicity would result from the meeting.

The newspaper headlines the next day read:

"SOUTHWEST MALL ACCORD PUT UP TO ARCHITECTS" and "MALL ARCH DISPUTE TURNS PEACEABLE".

Despite the optimism of the newspapers, we could reach no agreement. After further meetings with GSA, RLA and NCPC, it was resolved to carry forward the idea of spanning the mall. A May 14 press release from GSA was accompanied by a rendering **3** showing the view under the building toward L'Enfant Plaza. Press coverage was almost unanimously favorable, with the *Washington Post* even reversing its former position in a May 22 editorial.

"One thing can be unhesitantly said of the design for the new Federal Office Building Five: it has style. The plans show imagination, and that alone would make it almost unique among recent Federal architecture . . . The architects propose to raise on 36-foot pilotis a building half the size of the Pentagon, and to let the new 10th Street Mall flow underneath it toward the Potomac."

In July, 1962, a bill was passed in the House of Representatives authorizing GSA to use the public space under and over the 10th Street mall. On July 19, 1962 the *Washington Star* headlined:

"PLANS DEADLOCK BROKEN ON FEDERAL OFFICE BUILDING NO. 5—

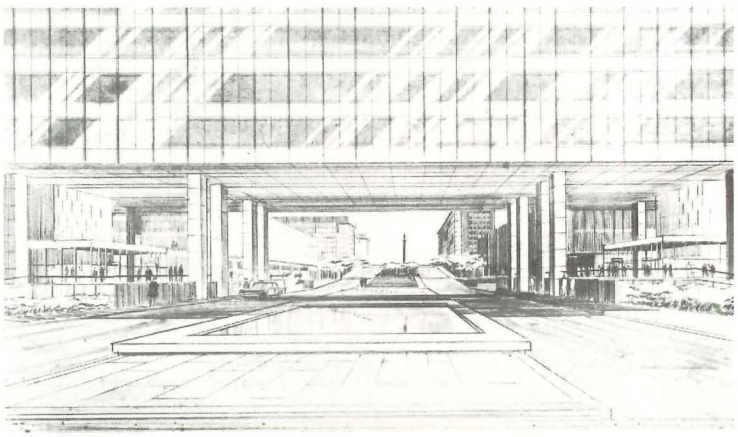
Firm Government action has broken a deadlock on plans for construction of the huge $36-million Federal Office Building No. 5.

The building has been under bitter attack by New York developer William Zeckendorf, with Washington's Redevelopment Land Agency trying to remain neutral.

Now RLA has quietly veered to the side of the General Services Administration, the building's sponsor. Earlier RLA had arranged a series of fruitless conferences between the New Yorker and GSA's architects to find out whether an agreement with Zeckendorf could be worked out. While the New Yorker remained adamant, GSA Administrator Bernard Boutin investigated the fracas, personally checked the design and then strongly backed the project . . ."

The first battle had been won.

3. View of mall passing under building, from 1962 press release by GSA



The Commission of Fine Arts (CFA) was created in 1910 "to give expert advice on matters related to art". The members of the Commission, representing all the arts, are appointed by the President for terms of four years or until their successors are appointed and qualified. Unfortunately, our project was caught in the chaos of several changes in the make-up of CFA.

The tide of change

Our first presentation to the Commission was on December 19, 1961. The members at that time were: Chairman David E. Finley, William G. Perry (architect), Ralph Walker (architect), Felix W. de Weldon (sculptor), Douglas W. Orr (architect), Michael Rapuano (landscape architect), and Peter Hurd (painter). The meeting ended with the commission commending the architects upon the whole approach.

Encouraged by successful appearances before CFA and NCPC, we proceeded to develop the design. It was felt that the large mass spanning the mall would best be treated with light aluminum and glass walls faceted to provide a play of light and shade **4.**

When we next met with the commission in April, 1963, its membership had changed slightly: Hideo Sasaki (landscape architect) had replaced Mr. Rapuano. Again, the architects were commended, but the light materials were questioned as not being in keeping with the other governmental buildings nearby.

The result of this meeting was a letter from the commission which stated in part:

"As presently designed, the elevations of this mass would consist entirely of glass, the surface being faceted in a pyramidal form with the apex projecting away from the face of the building and supported by a series of narrow aluminum rods tied to a secondary structural frame. In the words of the architect, this system of enclosing space would be entirely unique and would make a complete departure from all other buildings in Washington. The Commission felt that the basic question to be determined, however, was not one of uniqueness of individual design but of appropriateness . . .

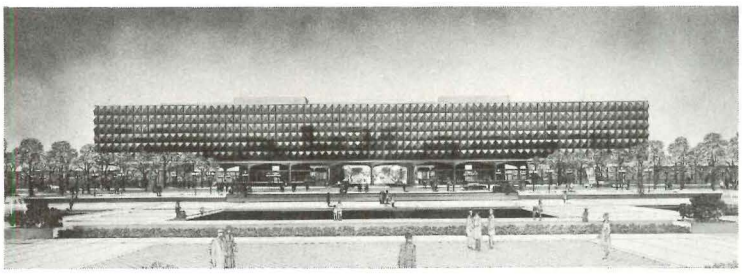
"The Commission strongly recommends that new studies be made with a greater emphasis on solid elements in the development of the facade. In addition, the use of masonry elements is to be encouraged over metals, which again have little relation to the character of major structures in the vicinity".

"The Commission believes that it is entirely possible to develop these new studies concurrently with the development of plans and engineering drawings for the remainder of the project and need not unreasonably delay the schedule of construction".

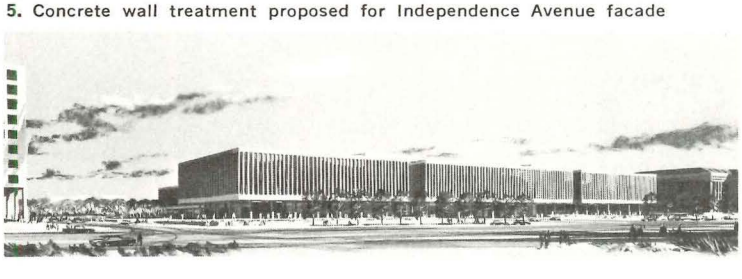
Oh, how unprophetic were these last words; but how could anyone predict, since all Commission members, except one, were to be replaced by the next time we met.

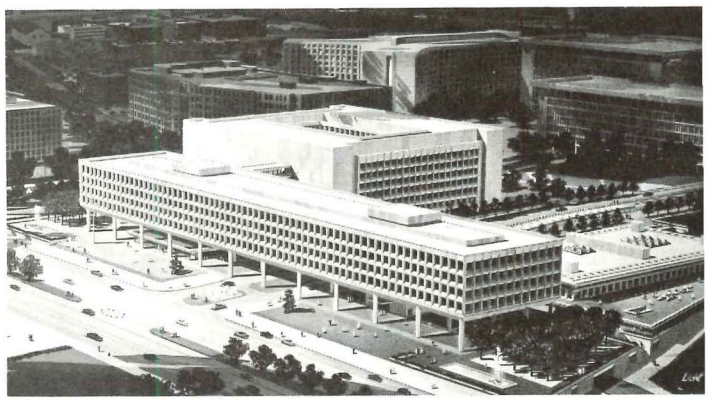
Meetings were held with the highest level of GSA, and it was decided to study the use of masonry in the facade. By September 18, 1963, we again appeared before the Commission of Fine Arts with a revised design with concrete exterior walls **5**. By then, President Kennedy had completed all his appointments except one and all the familiar faces were gone, except for Mr. Sasaki. The chairman was now William Walton (painter) and the rest of the members were Burnham Kelly (Dean of Cornell College of Architecture), Theodore Roszak (sculptor), and John Carl Warnecke (architect), and Aline Saarinen (critic).

4. Independence Avenue front with faceted aluminum and glass walls



5. Concrete wall treatment proposed for Independence Avenue facade





6. Rendering of final design, with low cafeteria wing at right

Double jeopardy

The architects felt like defendants on trial again, after one jury had rendered a decision, before another panel who had heard none of the earlier testimony. The verdict of the new "jury" was that the facade should have a masonry treatment more compatible with the surrounding buildings. It is interesting to note that the Department of Agriculture building to the west of the site was faced in buff brick and limestone, the Smithsonian to the north in red sandstone, the new FOB #10 to the east was in a bluish white marble and the future L'Enfant Plaza was to be in a pinkish concrete.

Many sketches were made in an attempt to interpret the commission's position, and another presentation was made on October 15, 1963. But again the jury had changed.

The Kennedy appointments had now been completed with the addition of its last member, Gordon Bunshaft (architect). While this change added only one new face, the effect on the commission's judgment was monumental. After reviewing our presentation — and a much discussion—this comm sion recommended that we sc the entire scheme, suggest three possible solutions wh they would accept:

1. To combine the two s including the area of the r between and create one build sitting in the middle of the s (This would have eliminated 10th Street Mall!)

2. To build two distinct bu ings, one on each site.

3. To build two distinct bu ings, one on each site, with or two light glass links ab the roadway.

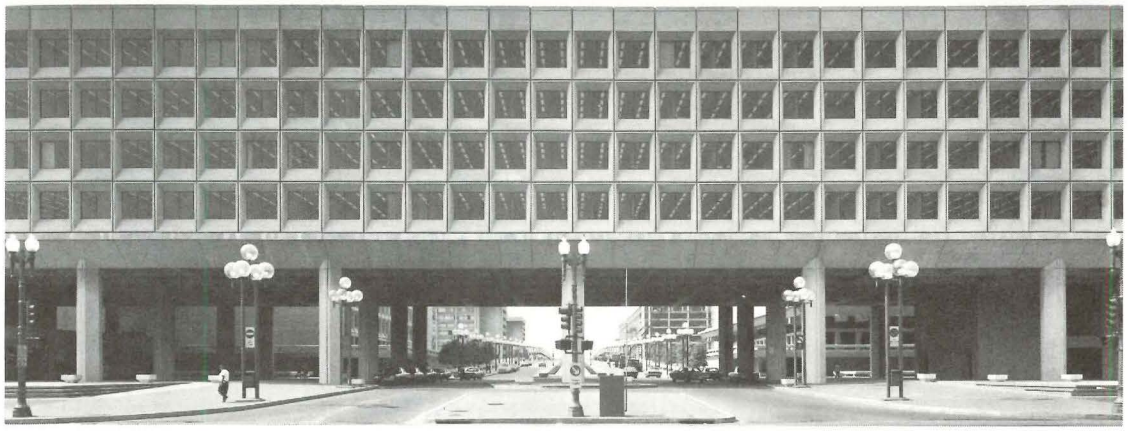
After the two years of int sive effort and schematic provals by GSA, RLA, D NCPC, the original CFA, the Washington newspapers, to mention an enabling act Congress, the project was s back to GO!

Responding to this direct by the CFA, the architects veloped several new mass studies. At a presentation to C on November 20, 1963, the ar tects again stressed the va of a three-part scheme, but Bunshaft summed up the opin of the CFA as giving appro to a single block building ft. by 200 ft. by 6 stories, sit on the 10th Street Mall—l not even owned by GSA! new approval negated all pr ous approvals.

What would NCPC and P say? Not to mention Mr. Ze endorf! The answer came s enough. On November 5, 1 the CFA requirement for massive building was revie and the Planning Commission affirmed its approval of the o inal three-part scheme spann the mall. What next? The proval of NCPC is mandatory a Federal project, while the C is an advisory body. It had b customary, however, for GSA

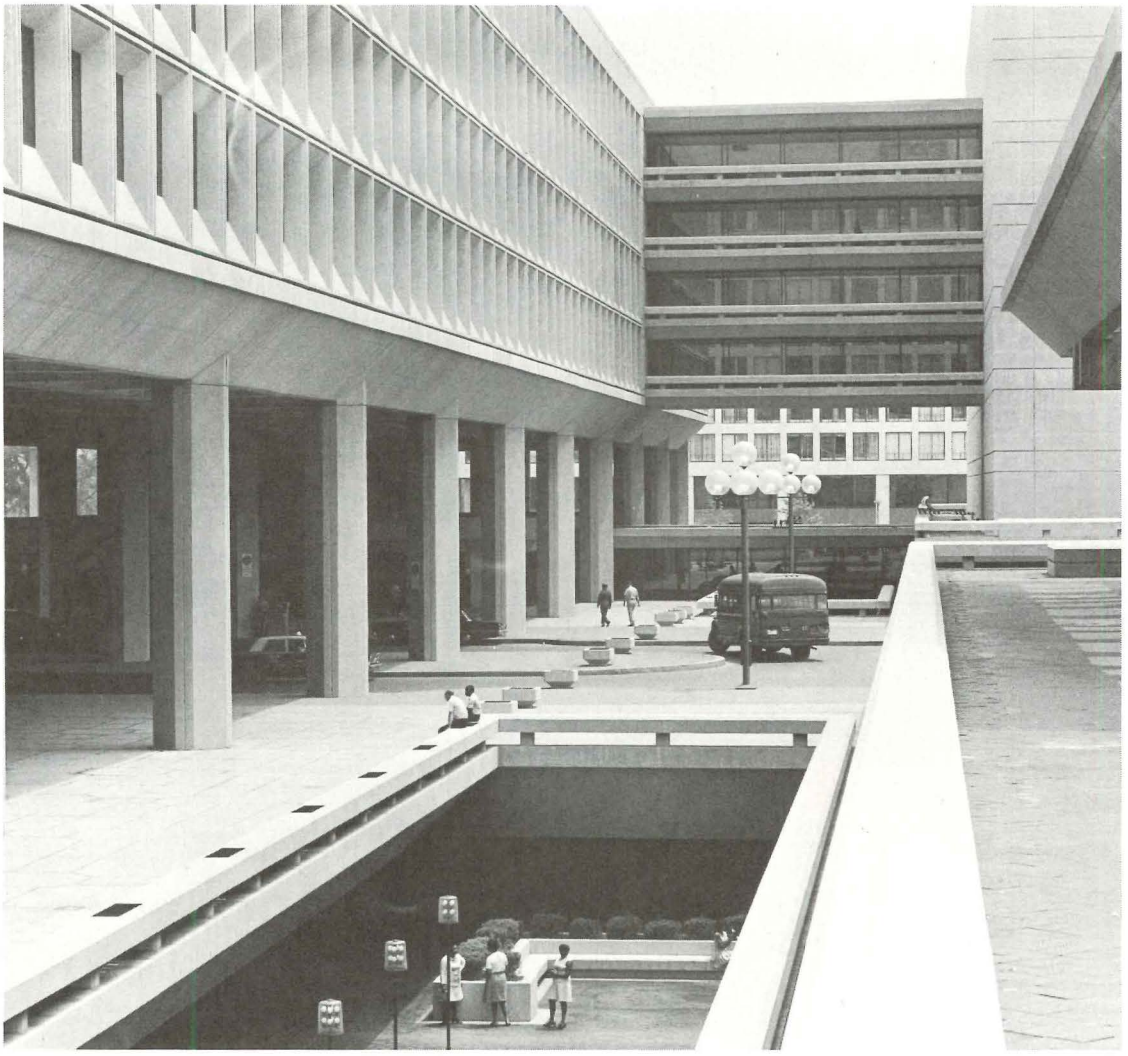
ain Fine Arts' approval.
he answer to this stalemate
: a meeting of both commis-
ıs, so that they could con-
ıt each other with their dia-
rically opposite positions. On
uary 9, 1964, for the first
e in their histories, the NCPC
the CFA met in joint ses-
ı. What resulted was the
t approval of a design which
the building spanning the
l, but had two unequally
ised buildings extending to
rear. We began designing
in and the scheme was de-
ıped into the final project **6.**
he progress of the project
x a more normal course after
. There were still many ob-
:les to surmount, but they
e small compared to what
had been through.
Carel Yasko of GSA, who
y believed in President Ken-
y's call for outstanding Fed-
. architecture, wrote to com-
ıd the joint venture in June,
5, saying in part:
tience, fortitude, humor, re-
nsibility to self and country
ll of these facets of human
grity were tested to create
.B. No. 5. You have a right
oe proud of your survival and
ievement. Lesser men would
e tossed in the towel at many
ges in the development of
s project and sought the eas-
pedestrian route".
The James Forrestal Building
s dedicated at 11:00 a.m. on
vember 18, 1969. My flight
Newark and was diverted
ause of weather to Norfolk.
nally arrived at the building
at 11:45 a.m. They were
mantling the stands and re-
ving the bunting. After eight
rs of effort, I had missed the
emony by a matter of min-
s. A fitting conclusion to
architectural odyssey.

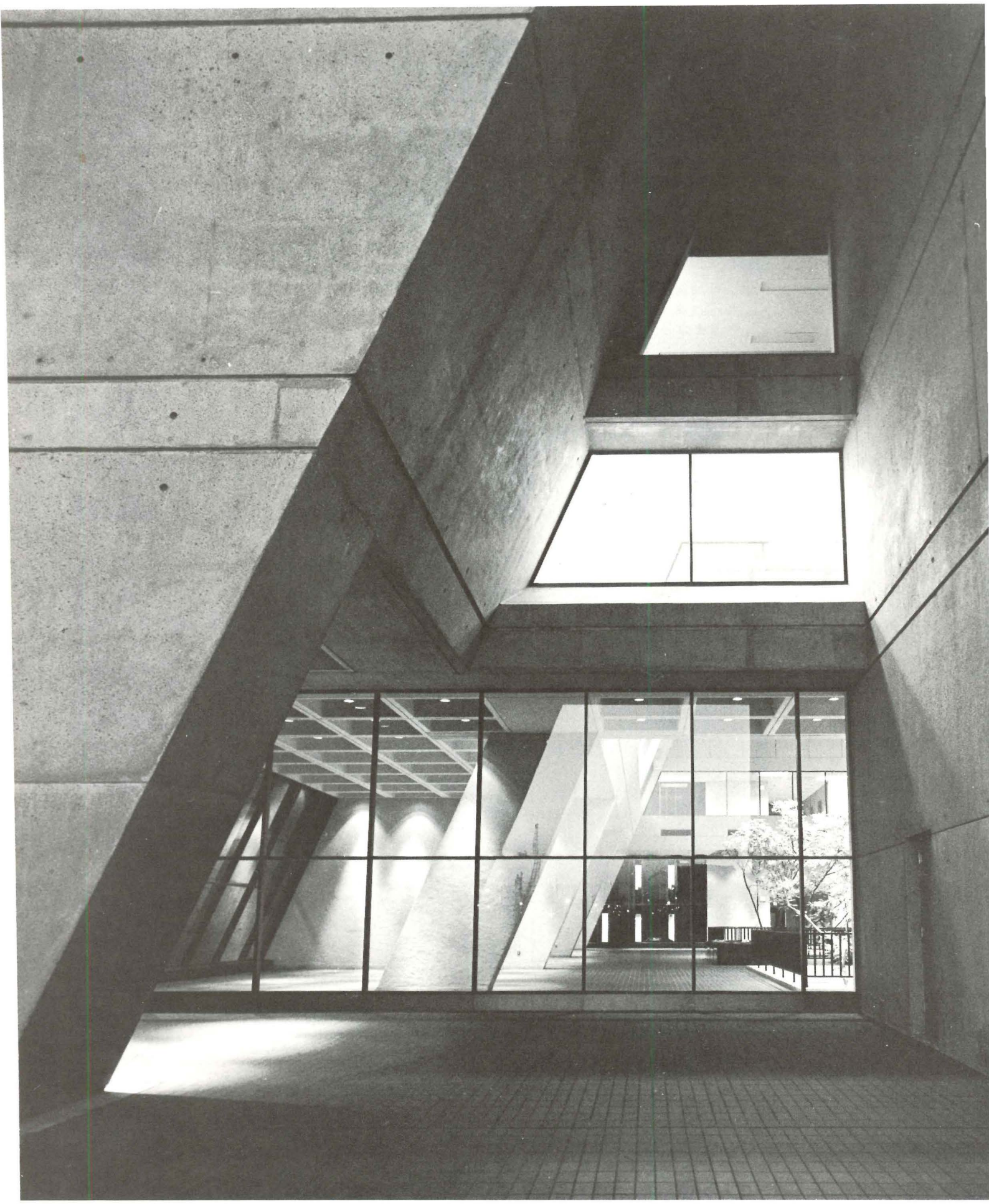
CTS AND FIGURES
James Forrestal Building (Federal
ce Building No. 5), Washington,
C. Owner: General Services Ad-
istration. Using agency: Depart-
nt of Defense. Architects: Curtis &
is, Fordyce & Hamby Associates,
nk Grad & Sons. Engineers: Weis-
f & Pickworth (structural), Syska
Hennessy (mechanical and elec-
al). Landscape Architects: Zion &
en. Consultants: Seymour Evans
ociates (lighting); Max Stitzer
chen). General contractor: Blake
struction Company. Building area:
28,537 sq. ft. Construction cost:
,000,000 (plus furnishings and
ipment: $1,400,000).
r a listing of key products used in
building, see p. 82.)
OTOS: Louis Checkman (model);
Amiaga (completed building).



Independence Avenue front and view down 10th Street Mall (above); view along mall from opposite direction (below)

Court between main block and wings (below), showing terraces and passages above and below mall level





T. LOUIS

adquarters offices Ralston Purina ke a multilevel nmitment to the city

"Like a pioneer surveying a land of promise," says George McCue of the *St. Louis Post-Dispatch,* the new Ralston Purina headquarters stands at the edge of a 140-acre site that the company proposes to redevelop. This $30 million "new town in town" to be sponsored by Ralston Purina will be a balance of residential, commercial and industrial uses. The company calls it "one more commitment" to the city that has been its home for 75 years.

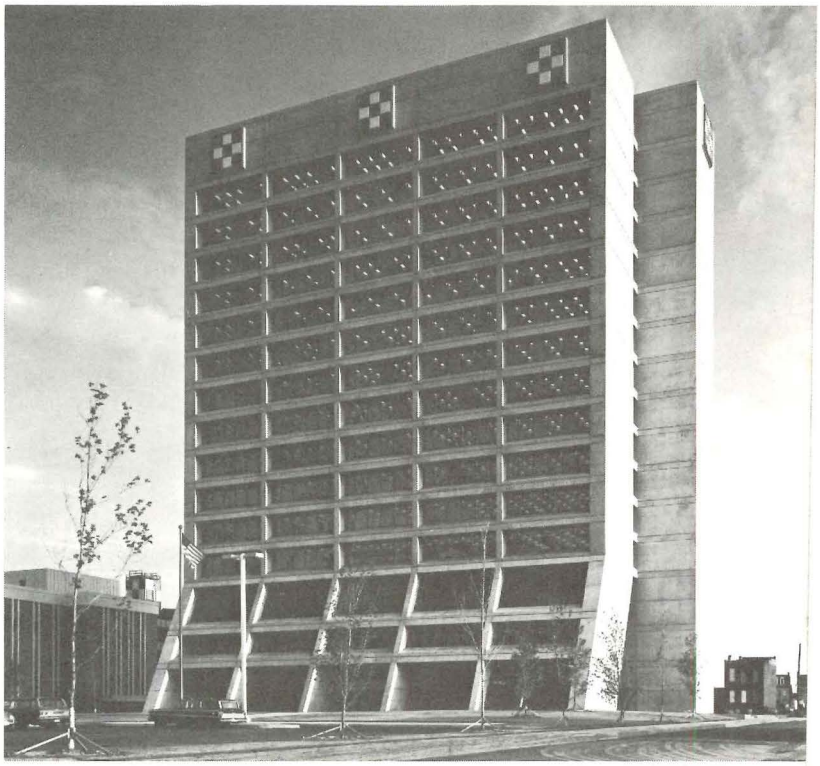
The 15-story building by architects Hellmuth, Obata & Kassabaum is headquarters for 1,500 of the company's 21,000 employees. But it is also a showpiece for countless visitors and a place to display Ralston's activities and products.

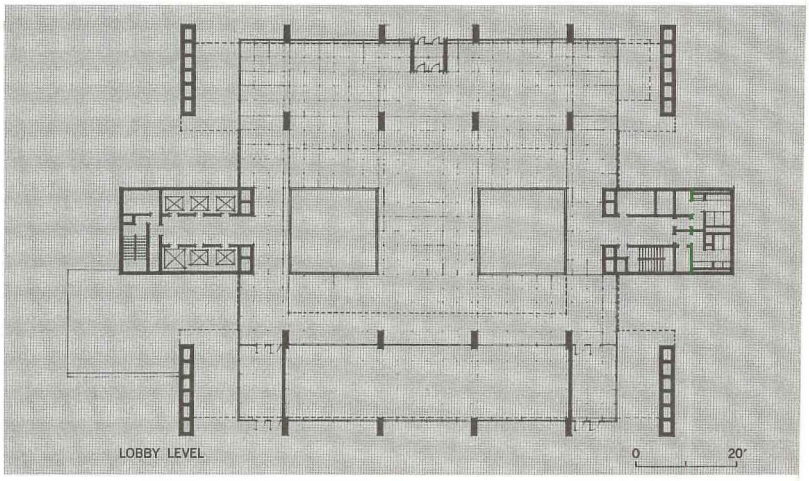
The upper part of the building (where the walls are vertical) contains offices. A typical floor has elevator towers at east and west, and the remaining space can be subdivided freely along the 5′ by 5′ grid.

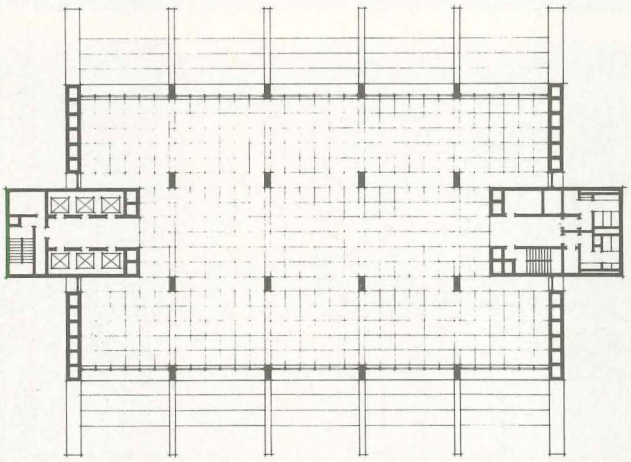
But the massive structural columns of the four lower levels extend diagonally outward to form a large triangular interior, a multilevel space quite unlike a typical office tower. The resulting "Great Hall," as it is called, encompasses one level below grade (a 400-seat dining area for employees), the main entrance level, an office floor looking down into the space from the second floor and a mechanical floor on the third. At lobby level, two wells open to the level below.

The entire structure is concrete, in the exposed finish typical of Ralston's many concrete grain elevators across the country. The Great Hall has paving of dark brown brick; glass throughout the building is bronze. Interior design and landscaping was by the same firm that did the architectural design.

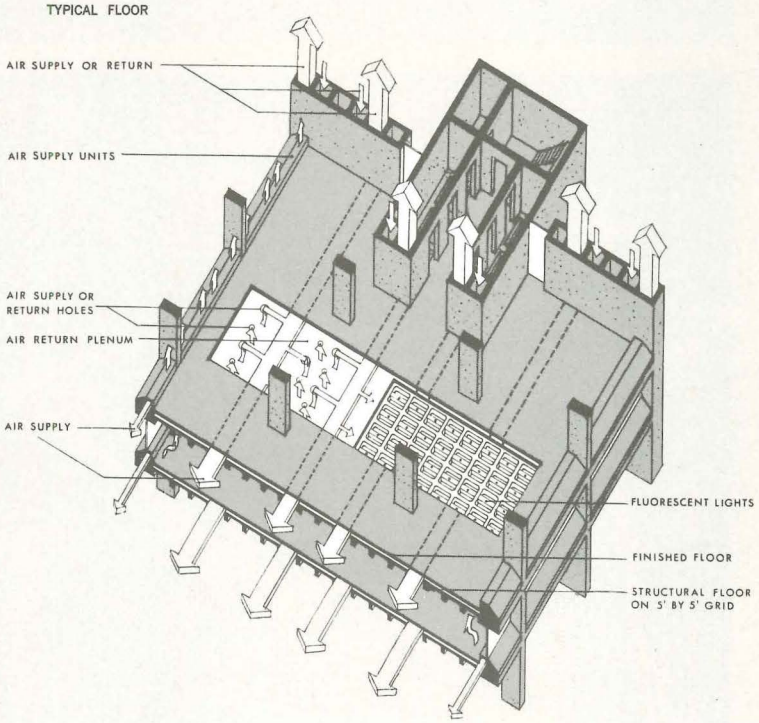
Mechanical and electrical design was also closely controlled by the architects. Air, electricity and communication lines can be introduced into any 5′ by 5′ module, so that movable partitions can be placed anywhere on the grid—for offices from 10′ by 10′ to 20′ by 20′ anywhere on any tower floor—and levels of cooling and illumination will be constantly comfortable in every working area. Cost of the building is reported to be "in excess of $10 million."

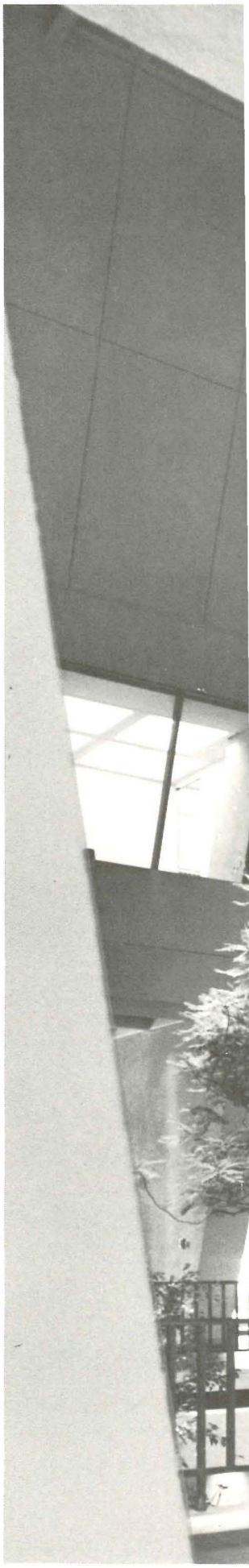






TYPICAL FLOOR





The typical floor (photo, top, and plan, left) of the Ralston Purina headquarters is on a 5′ by 5′ module. Mechanical services are introduced from the solid walls at east and west (diagram, bottom) and can be introduced into any 5′ x 5′ module. Facing page: the ground floor of the office building is a grand four-level entry and exhibit space.

FACTS AND FIGURES

Ralston Purina Company Tower Building, St. Louis, Mo. Architect: Hellmuth, Obata & Kassabaum (Gyo Obata, principal in charge of design; Jerome Sincoff, project manager). Engineers: LeMessurier Associates, St. Louis Office (structural); HOK Associates (mechanical and electrical). Food service consultant: Frank P. Hilliker. General Contractor: J. S. Alberici Construction. Building area: 290,000 sq. ft.

(For a listing of key products used in this building, see p. 82.)

PHOTOGRAPHS: Balthazar Korab.


水月

OKYO

ice-apartment ucture has an ustrialized look

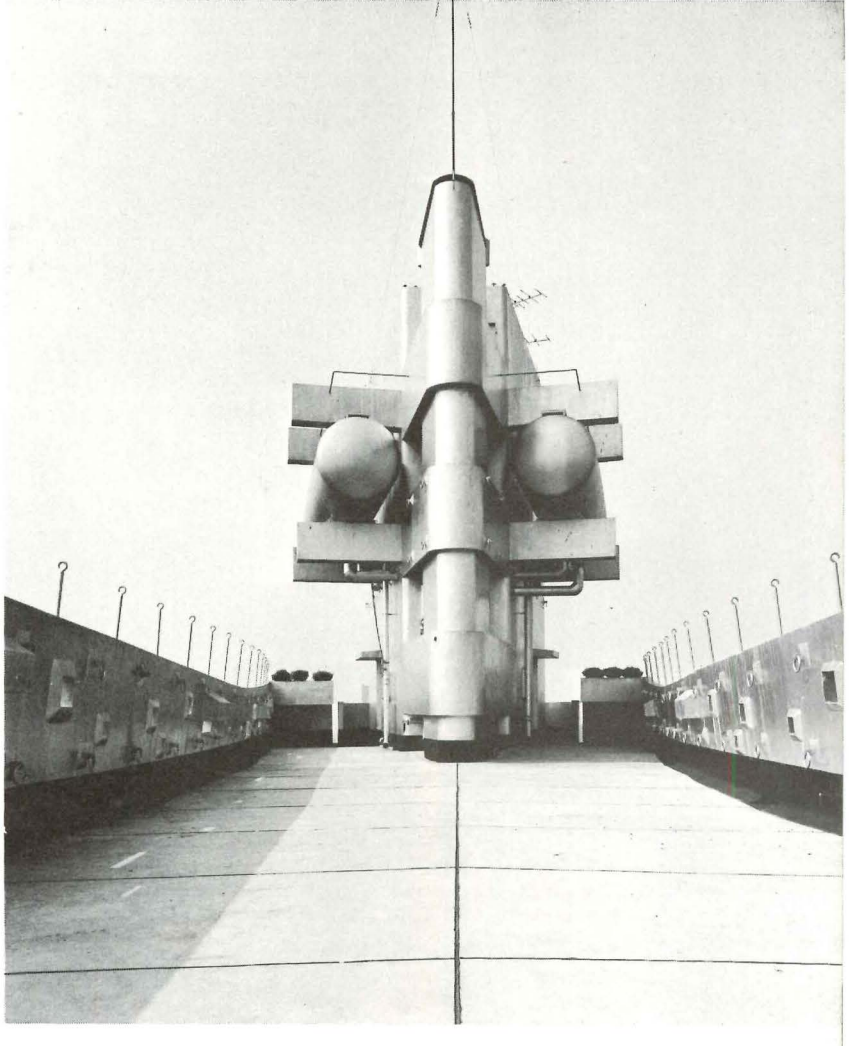
Rising above Tokyo's motley Shinjuku district is a gleaming symbol of things to come—that is, if you believe industrialized building is on the way. The New Sky Building looks like a stack of factory-produced modules plugged into a linear armature, but that image is—quite literally—only superficial. Architect Yoji Watanabe has completed designs for real modular buildings, but here he had to be content with prefabricated wall sections—assembled to look like busses split in half—supported on a conventional steel frame.

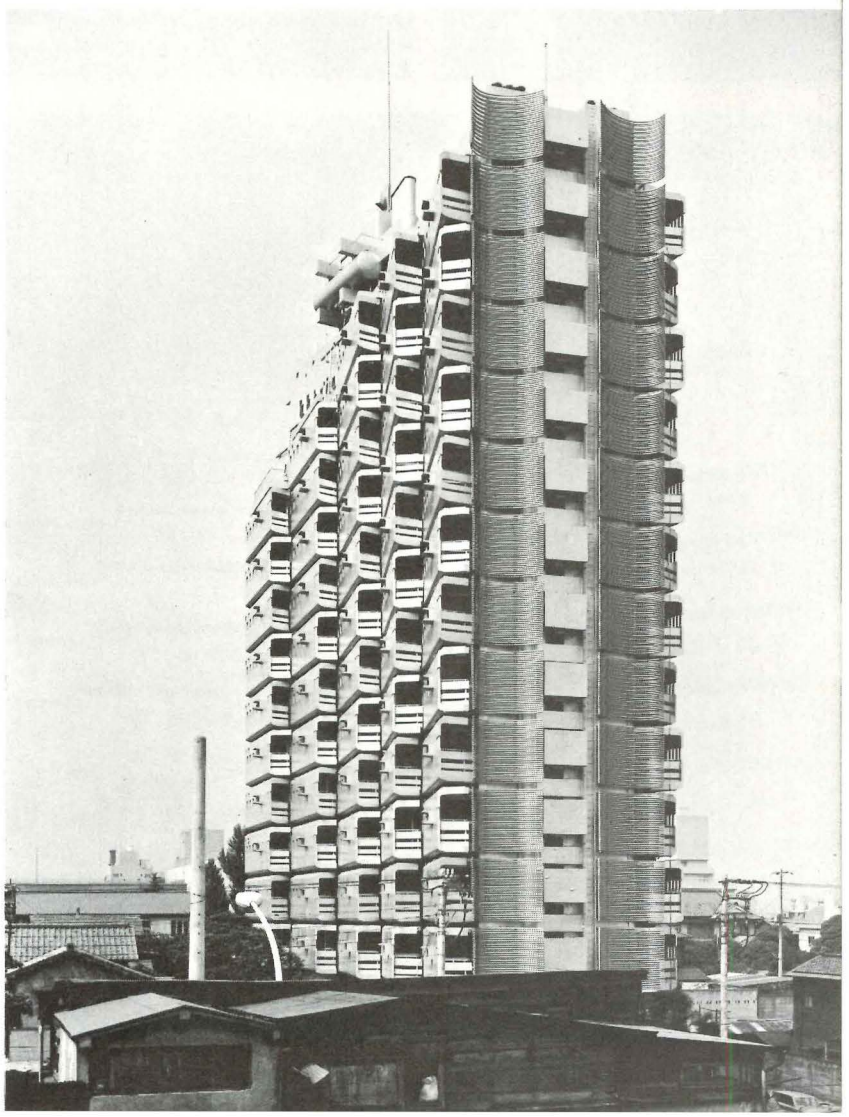
The factory-made walls have stressed steel skins and weigh less than one ton per 23-ft section. Despite their light weight, they have the sound and heat insulation of 6-in. concrete walls, according to the architect.

Watanabe has strengthened the image of industrialization by painting the steel enclosures with shiny silver-colored paint. Sleekly punctured windows, like those of railroad cars, and futuristic projections — actually air-conditioner enclosures — add to the effect.

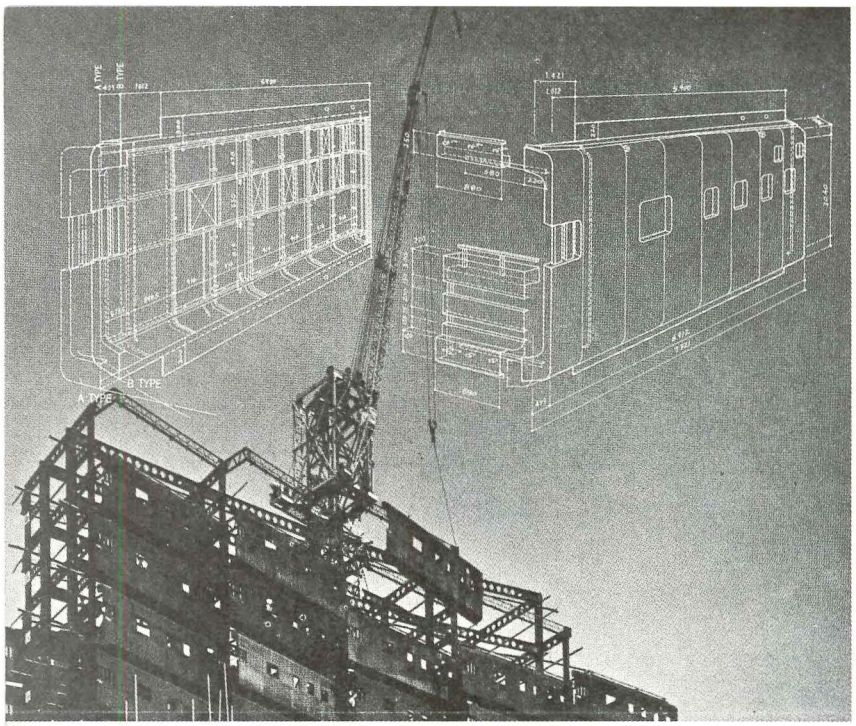
Inside the factory-smooth shell of the building, Watanabe has shaped the interiors of familiar, non-industrial materials. Above an open ground floor, the building contains three floors of offices, then nine stories of apartments. Despite the exterior suggestion that each metal section is a separate unit, the typical apartment floor is divided into only four units. Each apartment has at least two balconies, with railings and slatted "windows" that look like Space Age versions of Zen teahouse details.

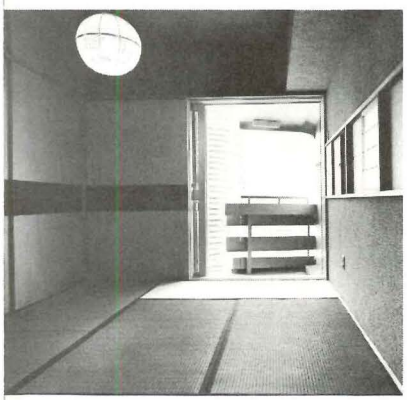
Watanabe's own observations about the building stress its underlying arrangement more than its technology. To give all occupants vital sunlight, on a narrow site with little south exposure, he has overlapped the sections, so that each section has a south-facing balcony outside floor-to-ceiling glass doors. "The basic idea," he tells us, "developed from the branches of a willow tree, where all parts have equal access to sunlight." The relation between this building and a willow tree may seem far-fetched at first, yet this is one of the important potentials that Watanabe sees in modular construction—that units need not be compacted into blocks, but can be clustered like leaves on a tree.

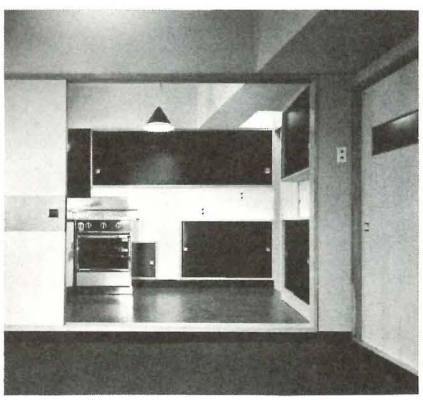


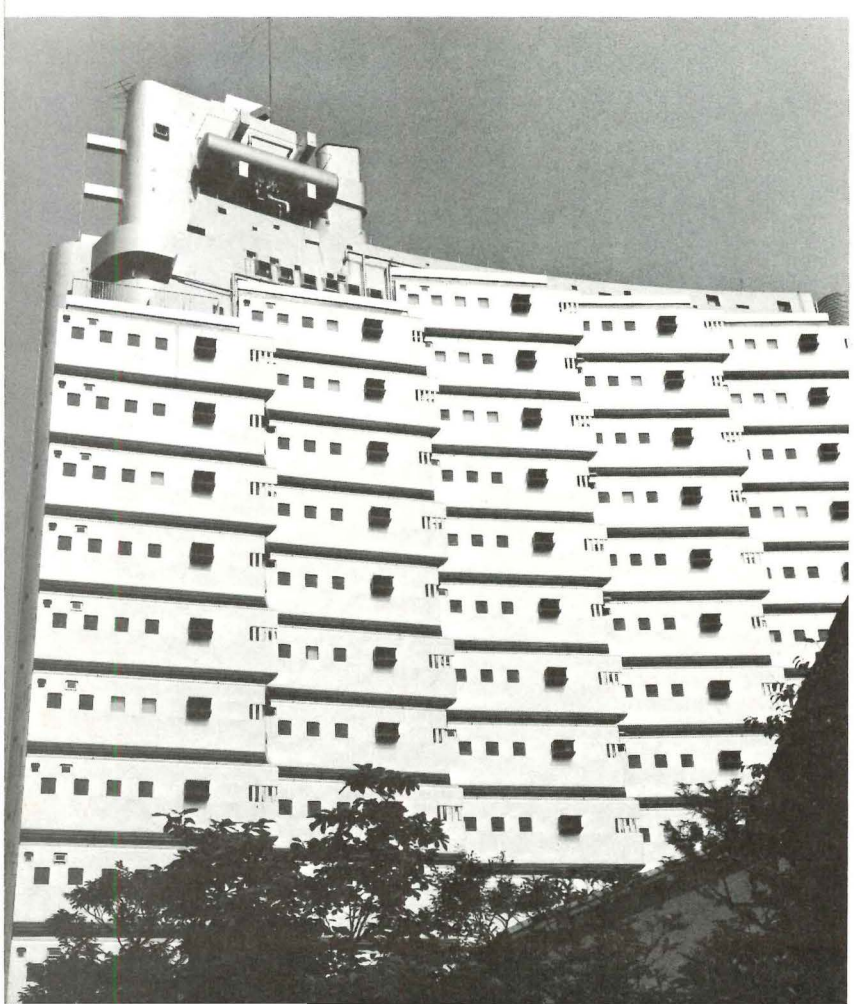


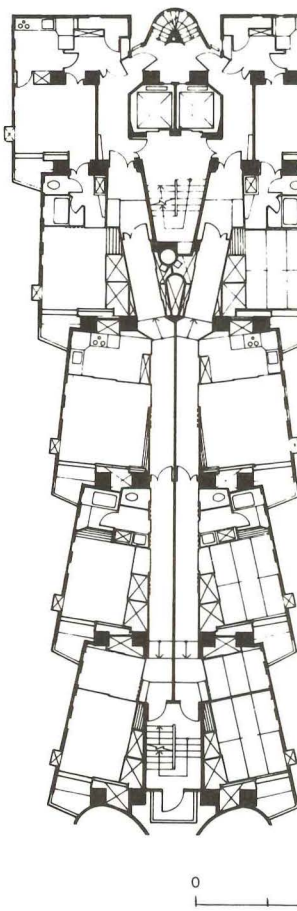
r-painted steel walls of the New Building loom 14 stories above ighborhood of lower, conventional ings (left). Seen from the south t), the sections of the building particularly like stacked busses. industrial image is carried through he stairway-elevator-water tower right) that rises above the roof.











The typical apartment floor
above) has four units, each wit
or three balconies. The top two
(13 and 14) each have only two
units. The ground floor is an
loggia, and the three floors just
it house offices.

Steel wall sections (top left) wer
assembled—except for balcony
before hoisting into place. Apar
interiors (middle left) include
rooms with traditional surfaces-
sliding blinds to cover square
dows—as well as up-to-the-
kitchens. A broadside view
shows half of the 150 identica
sections and one of the twin
tanks, boldly displayed abov
roof. The arbitrary variation of
in the balconies (right) is emph
by reflections from the metallic

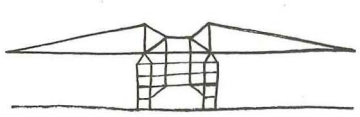
FACTS AND FIGURES
New Sky Building, Tokyo,
Architect: Yoji Watanabe. Stru
design: SDG. Contractor: The M
Construction Co. Floor area:
floor, 3,025 sq. ft.; total, 43,700
PHOTOGRAPHS: Matsuo Matsuo

TECHNOLOGY

Giant steel hangars' cantilevered roofs will each shelter four jumbo planes

For sheer dimension, the hangar prototypes under construction at San Francisco and Los Angeles International airports are even more impressive than the huge planes they are designed to service. The hangars each cover an area equivalent to four city blocks. But the twin hangars' size is far exceeded by their scale of structural and design innovation.

The hangars were designed for American Airlines by a joint venture of Lev Zetlin Associates and Conklin & Rossant, engineering and architectural firms, respectively, in New York. The shape is not only a display of structural virtuosity, but a practical solution to the airline's maintenance program requirements: flexibility and economy.



In section, the hangars look much like the planes they will shelter: four 747s, or DC-10s or two SSTs. They are designed with modular roof sections that almost unbelievably cantilever 230 ft. from either side of a central core structure, for a clear span 80 ft. high and 450 ft. wide.

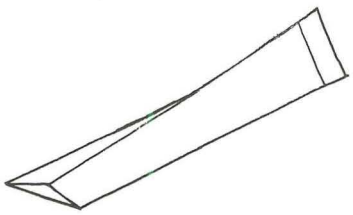
The modules are made of standard light-gauge steel decking, warped into the shape of a hpyerbolic paraboloid and contained by rigid steel edge members. Eight such modules (hypars) are welded to either side of a core truss system, 40 ft. deep and supported by eight steel towers, 80 ft. high. Walls and doors for the hangars are ground supported; core maintenance floors are suspended from the roof trusses above.

Using standard steel decking as the primary support material for the huge cantilever roof is a structural first at this scale. It also cut the roof's weight by 40 per cent over conventional steel truss roof construction, reducing material costs.

The hangar projects, which include extensive site development and utility construction, will each total about $22 million. (A hangar alone would cost about $10 to $15 million.)

Hypar design

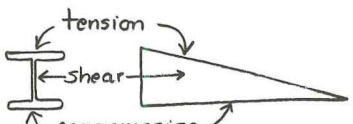
Each hypar is 230 ft. long, with a center rise of 40 ft. from ridge to valley at the core end and 4 ft. at the tip of the cantilever. The side dimensions vary according to slope, but the surface of the cantilever tip is 28 ft. from valley to ridge member and 50 ft. where the module joins the roof truss at the core.



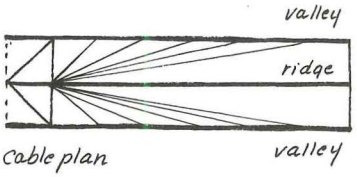
The steel decking for the hypar comes to the site in flat sections, which are then warped into shape on site. Each is typical light-gauge flooring or roofing, with corrugations 7½ in. deep.

The warped hypar shape stiffens the cantilever by introducing a form of energy into the module's surface. Generally, such decking is used only as a composite beam, but in this case it is used as a shear membrane.

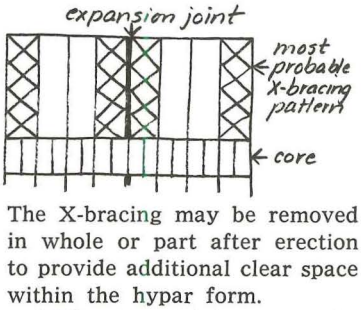
Basically, the whole hypar module acts similarly to an idealized I-beam, with the upper member in gravity tension, the lower in compression and the middle in shear. The hypar's middle element is, of course, the warped steel decking.



For additional stability, the hypars are designed with post stressed cables that take about 15 per cent of the design load and there is a system of X-bracing underneath the hypars.



Cable plan



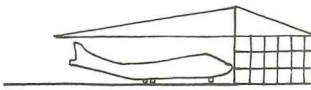
The X-bracing may be removed in whole or part after erection to provide additional clear space within the hypar form.

Adding to stability was the decision to maintain a slight in the tip of the cantile Original plans called for the to be flat, but computer sim tion proved that maintai

even a small ridge here c greatly increase rigidity. is reinforced by a relati small truss that runs beneath cantilever tips, tying them.

The cantilevered hypars welded to a longitudinal truss resting on the tow with eight modules to a t or 16 to a hangar. An ex sion joint separates each g of eight into fours, which to act as a single member cause they are joined by truss underneath their tip.

The cantilever of either of the core is structurally i pendent of the other side. joint venture even has plans



a single cantilever structure sites too small for the do version. (The double cantil encloses 225,000 sq. ft. of with less than 8,000 sq. ft. g to columns, stairways or sha

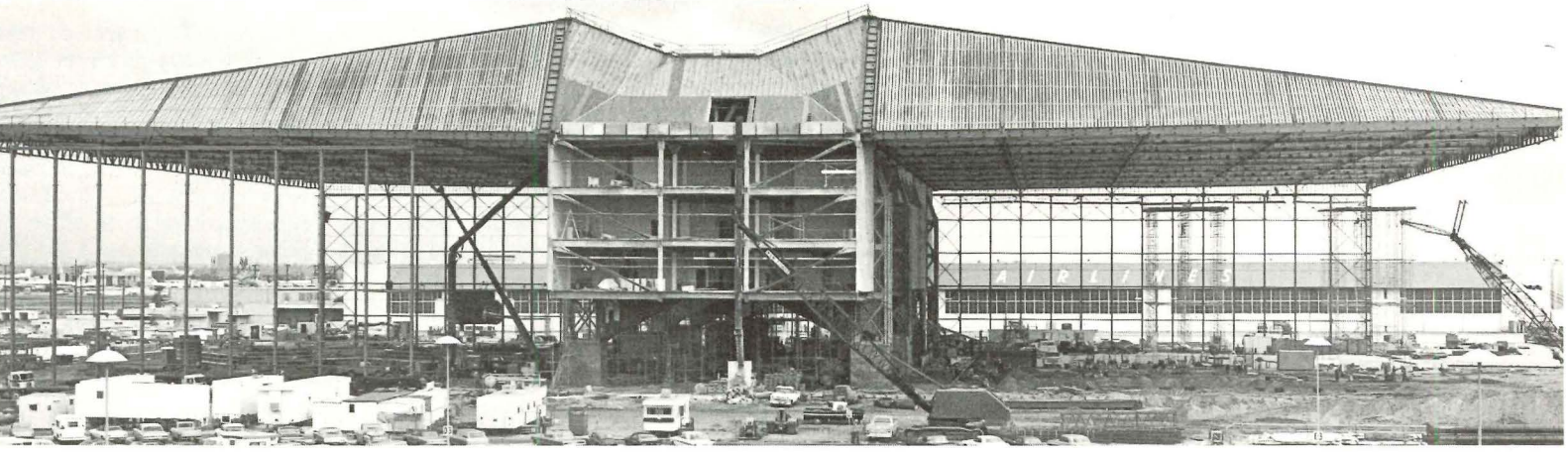
The shape of the hypars side benefits. They provide space up to 120 ft. high at core for the tail of an airp to be jacked up for gear (where X-bracing has been moved).

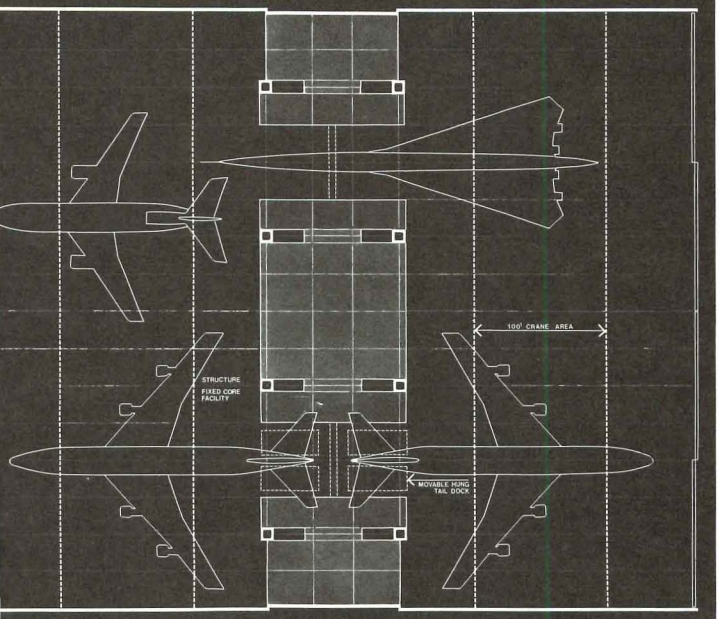
In final construction, the pars are coated with white on their undersides. Insula and aluminum decking are plied to the exterior for wea and temperature protection.

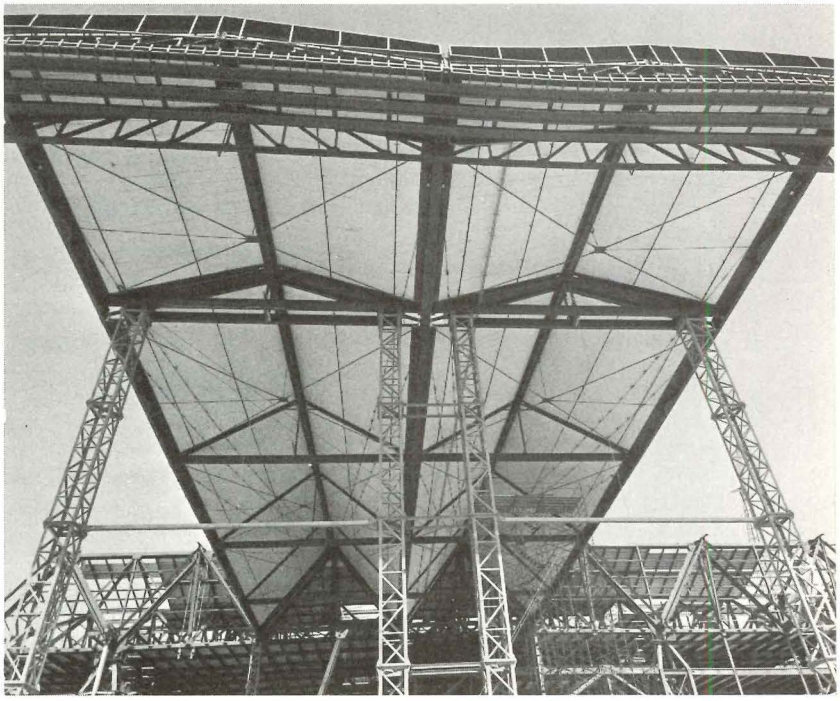
Core support

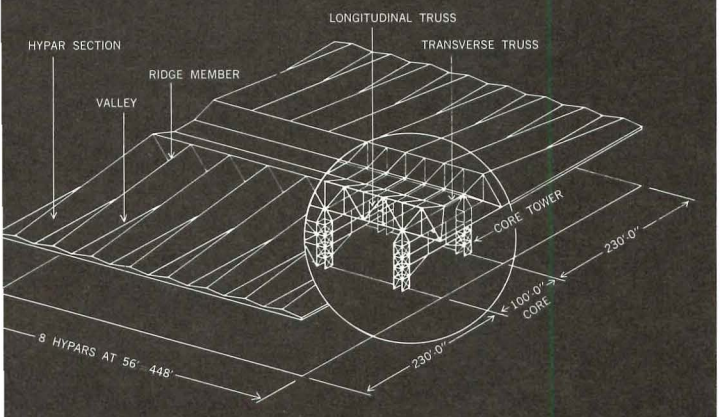
The core of the hangar ports the entire load of the through eight towers, which support the maintenance f that hang inside the core s ture. The towers are steel, X-bracing, and measure 1 sq. for the lower 64 ft., taper to 3 ft. sq. on the u 16 ft. They are placed 11 c-c on either side of the area, which measures 45 wide and 100 ft. deep.

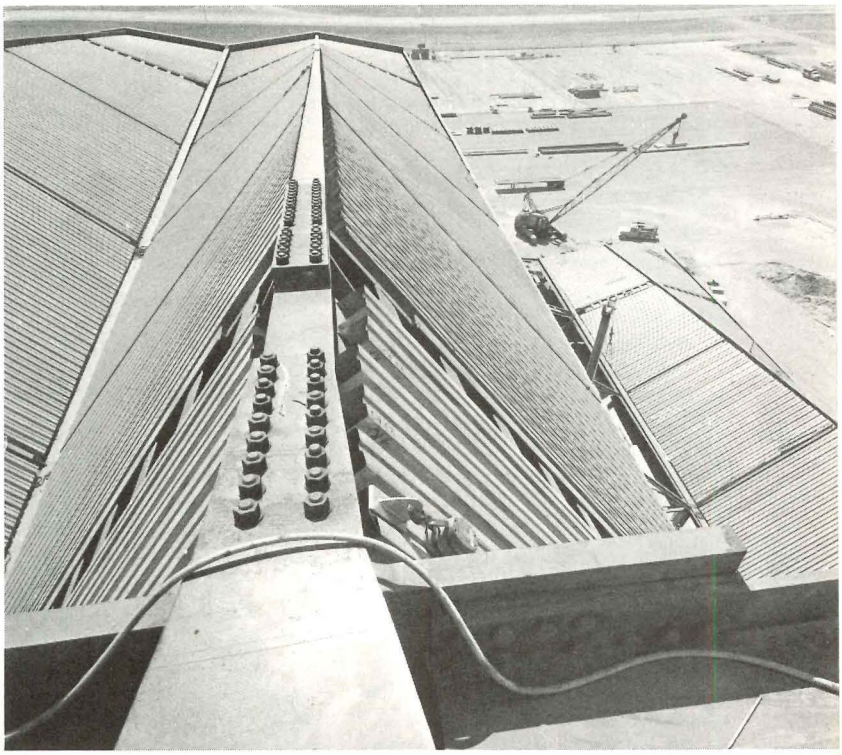
The eight towers suppor transverse roof trusses and two huge longitudinal tru











hangars' cantilevered roof elements (top) are of steel decking, warped yperbolic paraboloid shape, then lifted into place 80 ft. above ground. cantilever on either side of the core covers almost two city blocks in ; one hangar will shelter four giant jets or two SSTs (plan). The core area and equipment is variable. Eight towers support the core trusses roof (isometric). The cantilevers are stabilized by poststressed cables, acing and trusses along their tips (middle, right).

all 40 ft. deep, that are welded and bolted to the cantilevered hypars. The roof trusses are also attached to the top maintenance floor within the core, which remains integral to the supportive system and, unlike the other maintenance floors, may not be removed. The lower maintenance levels may be modified in many configurations for servicing requirements, but the bottom 32 ft. of the core can remain largely open space.

The core resists uplift and any other kind of force, including earthquakes (especially in California, where these are frequent). As protection, the center pairs of towers are joined lengthwise by an earthquake bent designed to distribute the load. The four opposing pairs of towers are also joined (transversely) for protection against earthquakes.

Walls and doors

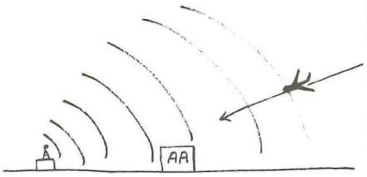
Both the non-bearing walls and the doors of the hangars are ground supported. The doors are attached to the roof cantilever with rocker arms and the sidewalls with slip joints that allow them to stay in place as the roof moves. The cantilever is designed to permit an 18-in. deflection.

The walls are of lightweight metal and may be removed at will (even to line up another superbay, with clear space between the two structures). Neither the doors or walls are insulated because the California climate is mild, but this could change as weather demanded.

The doors for the hangars are in four 112-ft. sections, mounted on double tracks. They can be opened for a clear entry space 224 ft. wide, or wide enough for the largest planes. (Earlier plans to have more and smaller door sections, so that the center opening could be larger, were abandoned as too expensive.)

The materials for the doors are not the same for both sites. At San Francisco, they have a metal surface. At Los Angeles, the doors are covered with plastic.

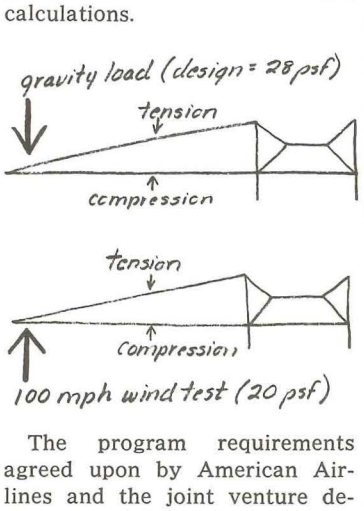
The plastic covering solved an airport communications problem neatly. The ground control center monitors planes coming in from or off the runways with electronic equipment. The large, exposed metal surface of the hangar's doors could possibly send waves bouncing off it into the communication field between the tower in Los Angeles and the planes. By reducing the reflective metal surface to a grid frame, then covering it with a plastic reinforced tensile membrane (guaranteed for ten years), this possible confusion was eliminated. Now the waves do not bounce off the doors, but go straight through them into the hangar, where they are dissipated.



The bottom 9 ft. of both door systems are protected by a steel facing, but this is not enough reflective metal to confuse ground control signals.

Prototype planning

The hangars are their own precedent and hence extensive testing had to be conducted throughout their design, including computer simulation, wind tunnel and dynamic model tests. Even then, the structures were so huge and novel that they were not covered by local building codes. The joint venture worked closely with local officials in studying the structures' special requirements and, where necessary, variances were granted on the basis of test calculations.



The program requirements agreed upon by American Airlines and the joint venture design team follow:

- The roof should be economical and lightweight, with no columns or permanent supports within or around the hangar.
- The slope of the roof should conform to Federal Aviation Administration requirements for Instrument Landing Systems clearance. (The clear zone for runways is bounded by a line with a 7:1 horizontal/vertical ratio and adjacent structures should be beneath this zone.)
- The underside (soffit) of the roof should be horizontal to provide a uniform clear height for tail-in or nose-in servicing, crane tracks and other mechanical equipment. And there should be extra clearance within the roof contours for the tail of a plane to be jacked up.
- The tip of the cantilever should be level (this was later revised with the addition of trusses to the cantilever tips) to simplify door configuration.
- The plan of the structure and support system should be adaptable to any part of the world and extremes of snow, thermal, seismic, wind and hurricane conditions. (The airline hopes to build hangars at other major airports, including New York, Boston and Chicago.)

Individual construction

The San Francisco and Los Angeles hangars are almost the same in scale and plan, but there are important differences in the sites and construction methods.

The San Francisco project started in May, 1969, and is scheduled for completion in April, 1971. Its scope includes draining and grading 63 acres of muddy land, paving 32 acres of that, and providing parking for 420 cars. Utility access was remote and the project also had to include a mechanical building and storage tanks for the deluge system in case of fire.

The Los Angeles project, started in May, 1969, is somewhat smaller in area and founded on much firmer ground. But it has been hit by strikes and is now scheduled for completion the same month as in San Francisco. The land area is 51 acres gross, with 15 acres to be paved and parking provided for 1,125 cars. Other construction includes a small (but costly and underground) transformer and power substation, plus storage tanks and a mechanical building. Utility access, however, was closer than at San Francisco. (The deluge systems are immense for the hangars. In Los Angeles, for example, seven pumps can deliver 20,000 gpm of water for two hours.)

Construction methods differed on the two sites because each contractor elected to assemble the hangars in different ways. The San Francisco contrac joined two hypars on the grou then raised the pair with a t mendous hydraulic jack syste The Los Angeles contrac lifted the modules individua with four cranes. The desig equally adaptable to either (a other) methods.

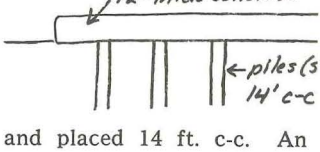
Perhaps the greatest dif ence between the two sites v in the amount of foundat work required.

At Los Angeles, the soil v essentially firm and the en hangar was founded on m mum amounts of concrete. core towers are supported concrete bases about 10 ft. de The hangar floor, which is a c crete slab 12 in. thick, is signed for flexure with m reinforcing. The walls and do have spread footings.

San Francisco, howe proved a different story. H the earth is largely fill, wit high water table and a big dra age problem, compounded b dike buried diagonally unc neath the hangar site.

The only solution feasible v to drive piles and San Franci used more than 2,000 of th The tower foundations are co prised of clusters of 35 (or for the center towers) 100- piles, 120 to 130 ft. long. of the piles are prestressed a precast, then driven as a sin unit.

The hangar floor slab, also in. thick, is reinforced with s rods and supported by ab 1,500 80-ton piles, 110 ft. l



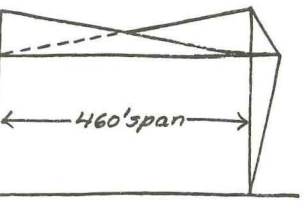
and placed 14 ft. c-c. An usual phenomena with the fl slab is that when a 750,00 747 is on top a pile, tests sl the pile will compress v slightly, reversing the u tendency of a slab to slig sag between supportive colun

Looking ahead

Like all prototypes, the sign concept of the struct will become more sophistic in materials, dimension form. Some of the cha from what the project man terms "basically a conserva design" are already envisio

In the future, the depth of hypars may not have to be ft., but could perhaps be

t. This would reduce the
unt of materials needed, sur-
area, the depth of the roof
es and the height of the
ing (at 120 ft., it's about
naximum for airports now.)
reason for the shallower
is that no one had tested
decking material before for
strength at this scale. The
ars required 10,000 plf at
nt design specifications, but
on a similar deck material
show that it would be
g enough to withstand
0 plf. As the hypar be-
s shallower, the forces it
withstand become greater,
with this strength material,
profile could easily be re-
d by one-quarter.
ture structures of this type
not use metal at all, but
exotic materials, such as
ic. The design team did
tigate such materials, but
ne could yet guarantee a
ic at 10,000 plf.
e basic hyperbolic para-
d shape may be used for
le spans as well as for
levers, single or double.



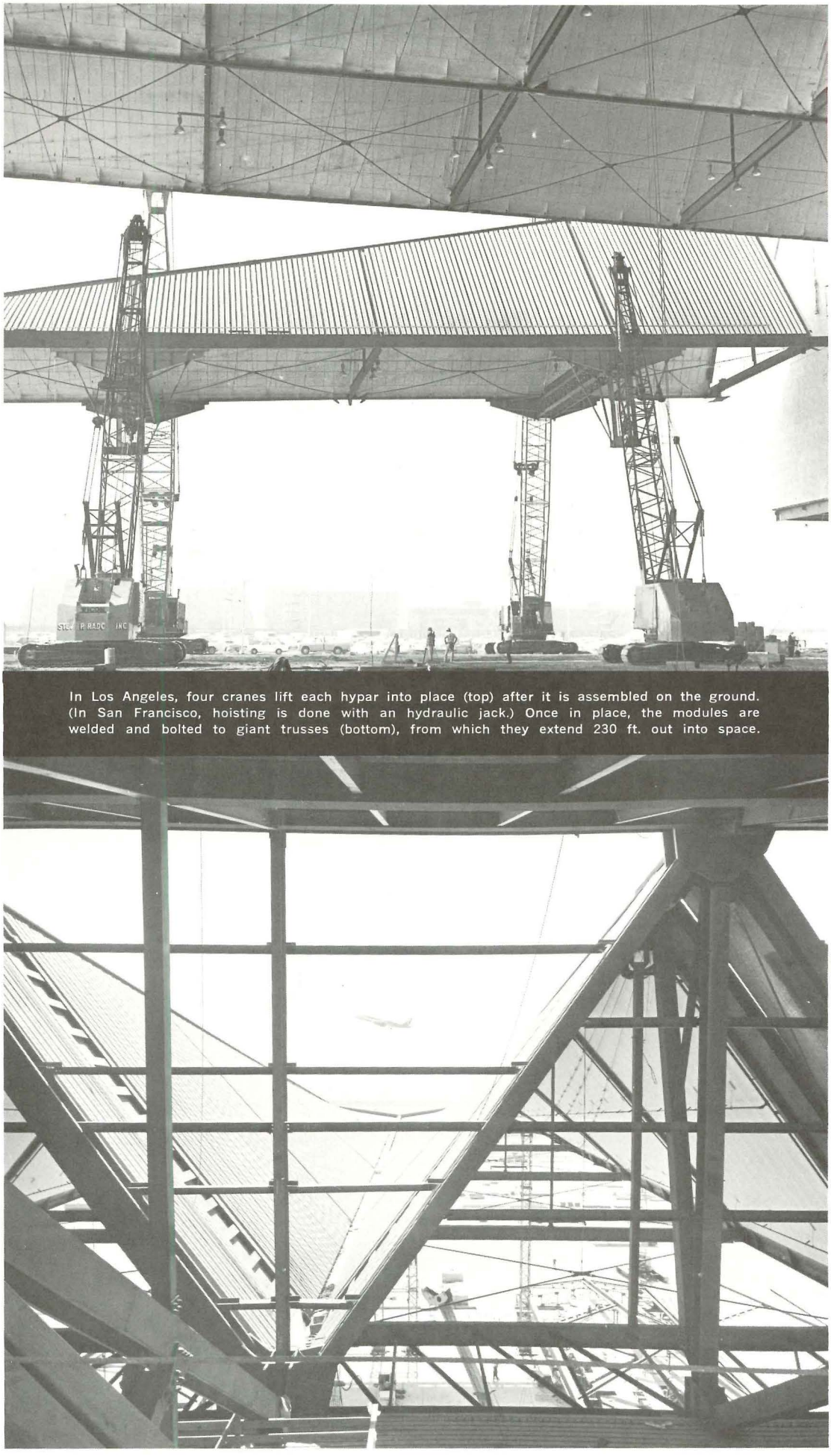
plan already envisaged is
ar span building with inter-
ng hypars for walls and

any case, neither engineer
rchitect plans to abandon
ypar form at this stage.
and new applications may
pected.

—MARGUERITE VILLECCO

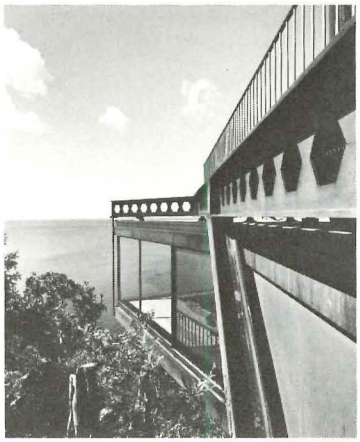
AND FIGURES

can Airlines Maintenance Hang-
an Francisco and Los Angeles
ational airports. Engineer/archi-
oint venture: Lev Zetlin Asso-
and Conklin & Rossant (James
nt, project architect; Lev Zet-
ngineering designer; Charles
on, project engineer; Morris
ann, project manager). General
ctors: Swinerton & Walberg Co.
rancisco); Haas & Haynie (Los
s). Steel subcontractor: San
Steel Co., Inc. (S.F.); Herrick
(L.A.). Deck fabrication and
ation: Inland-Ryerson Construc-
oducts Co. (S.F. & L.A.). Plastic
anufacturer (L.A.): Air-Tech In-
s, Inc. Weather roof decking:
Aluminum & Chemical Corp.
225,000 sq. ft. each.



In Los Angeles, four cranes lift each hypar into place (top) after it is assembled on the ground. (In San Francisco, hoisting is done with an hydraulic jack.) Once in place, the modules are welded and bolted to giant trusses (bottom), from which they extend 230 ft. out into space.

A REAL CLIFFHANGER



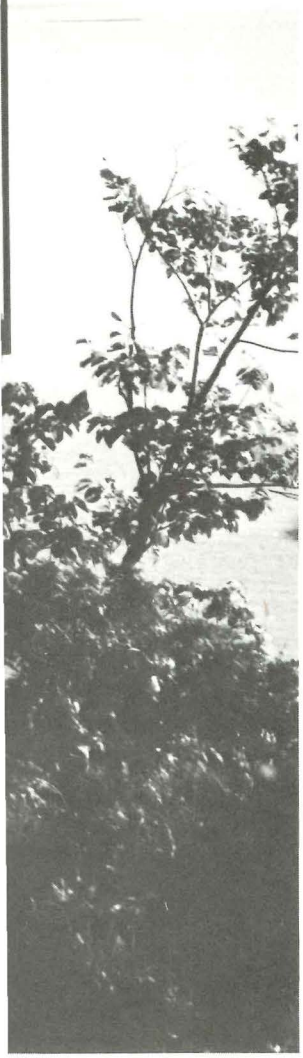
Spectacularly affixed to the side of the cliff, this office/gazebo/overnight-retreat lunges out into space 150 ft. above Green Bay, Wisconsin.

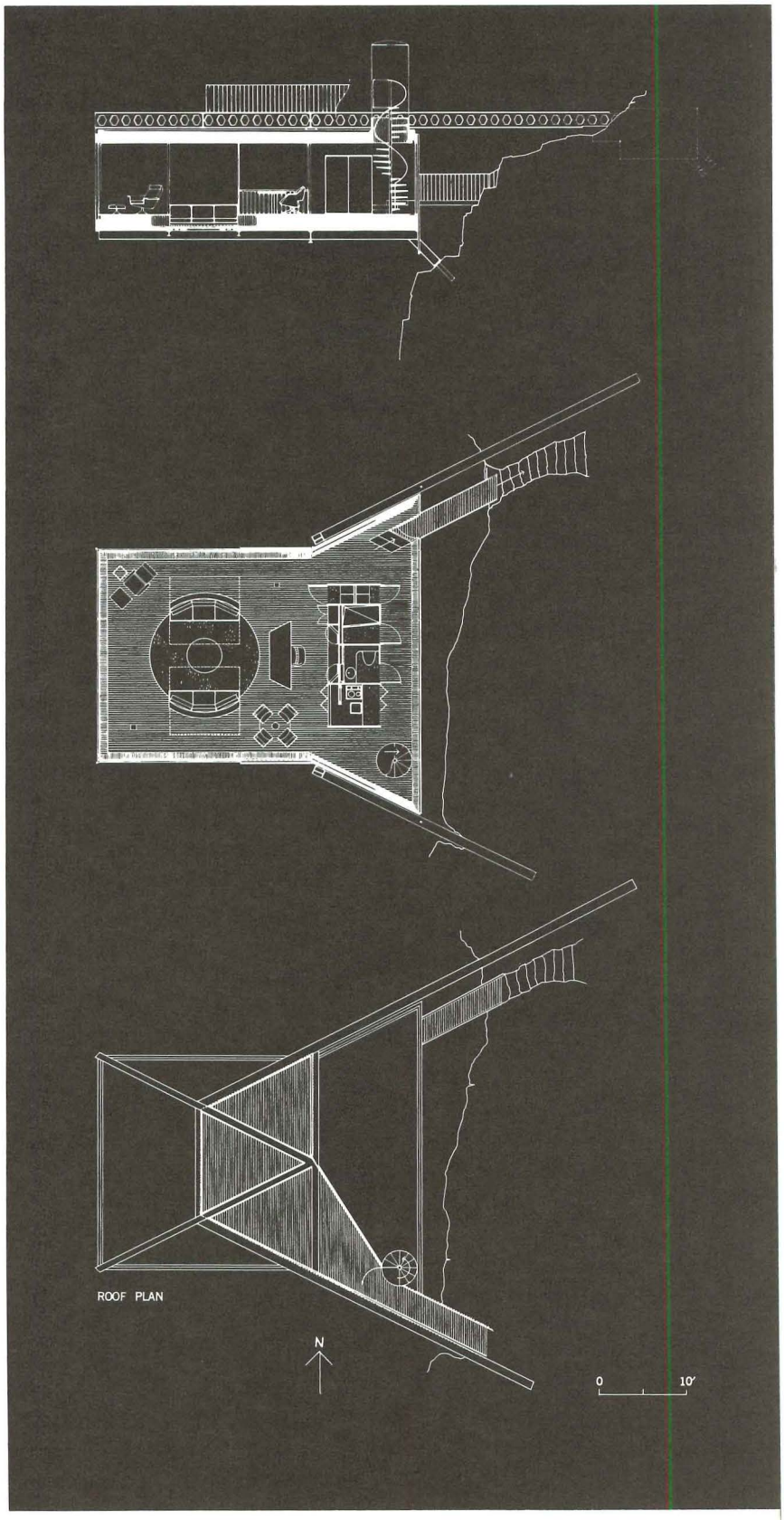
The audacity of the concept was the client's, says Architect Harry Weese; the studio was to be invisible from the client's main house atop the cliff. But the structural concept was Weese's. The double cantilever (a cantilever that cantilevers from itself) was arrived at in his office, on a crude model; it was built in a total of six months with a crane hanging over the cliff.

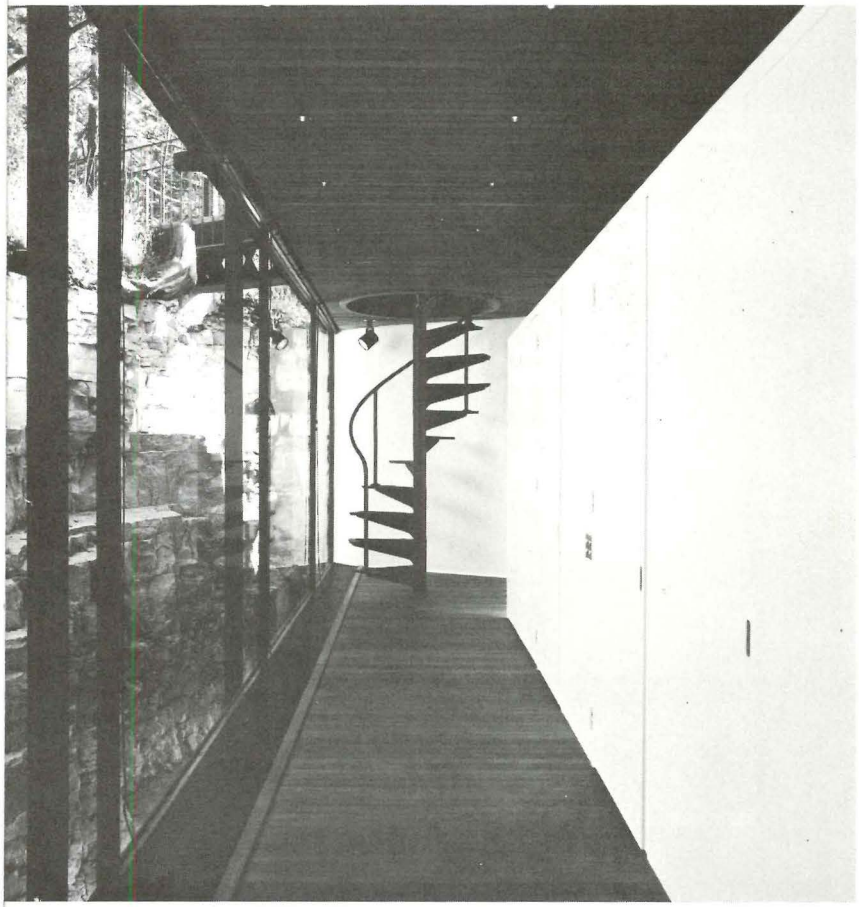
An earlier idea was to suspend the house from cables, but the masts would have been too high and the building too bouncy. The built design substitutes two struts going out as far as the point from which the load would have been suspended by cable. The main beams that project from the cliff, angled inward, extend only midway across the main room; beams welded to them have continuity across the point where the main beams stop. Beams are of weathering steel, perforated for visual lightness. The structure's total load is 54 tons dead load and 20 tons live.

The entire structure is tied back into the limestone cliff, where concrete-filled trenches go back about 20 ft. The structure is designed for 90 mph winds. Weese says one feels a slight tremor, "but it's a pleasing tremor."

The year-round building is designed for relaxing and entertaining and is also at times the office of the industrial-political man who is its owner. Two sofa-beds center on a dramatic window in the floor. Guests gather round the hole as if it were a fireplace, gazing down at the forest below.







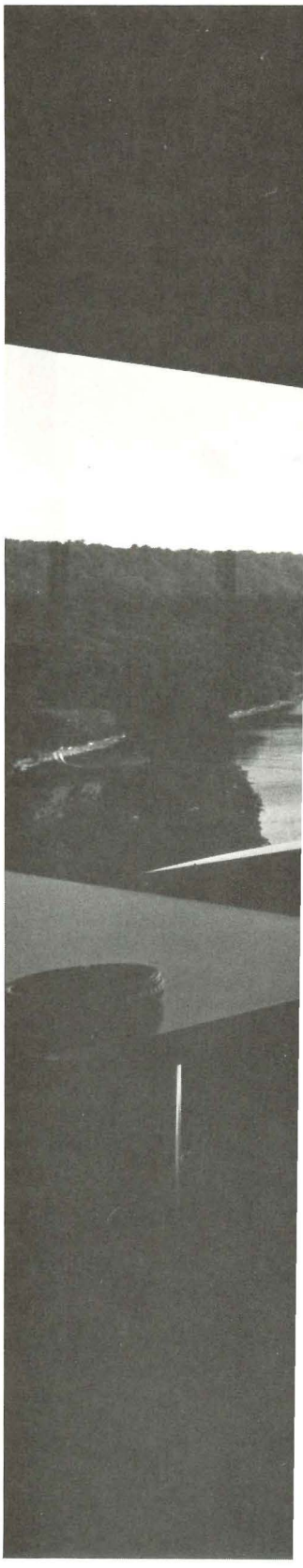
Laminated glass 1⅜ in. thick covers the hole in the floor. "You can jump on it," says Weese. The cliff is lighted from the house, and a greenish light reflects back through the hole from the trees below. The interior is mostly teak (floors and ceilings) and white-painted plywood (interior core); bright carpets are in the bathroom, "pit" and galley-like kitchen. The air-handling system, with fan-coil units, is as sophisticated as in any office building. A large number of telephone trunk lines come into the place. All sewage is pumped up to a septic tank at the top.

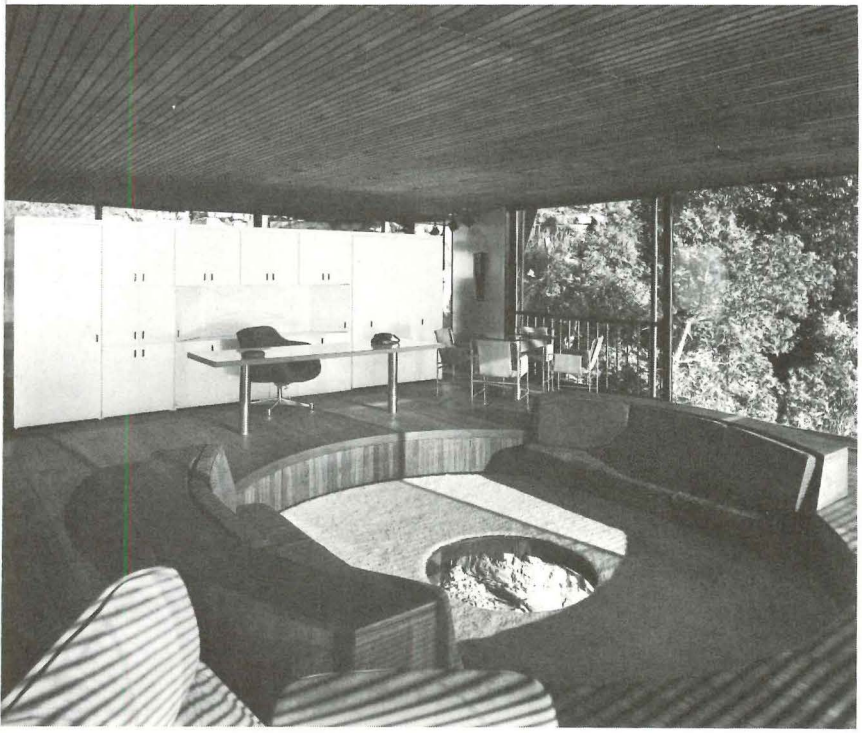
FACTS AND FIGURES

Shadowcliff Studio for Ben W. Heineman, Green Bay, Wis. Architect: Harry Weese & Associates Ltd. (Paul Hansen, associate in charge.) Engineers: The Engineers Collaborative (structural); Cosentini Associates (mechanical and electrical). Interiors consultant: Design Unit. Building area: 1.000 sq. ft.

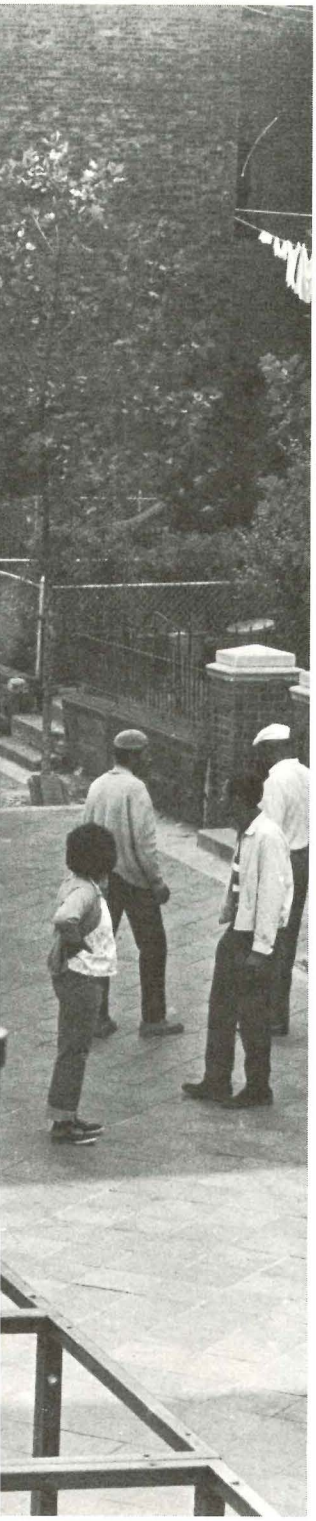
(For a listing of key products used in this building, see p. 82.)

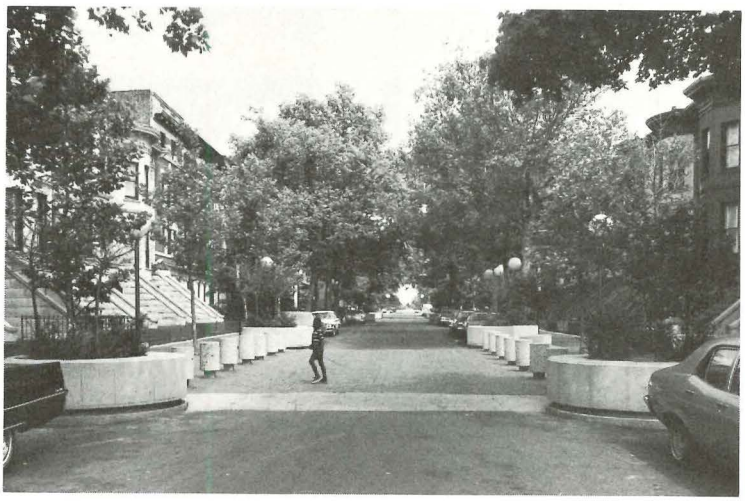
PHOTOGRAPHS: Orlando R. Cabanban.

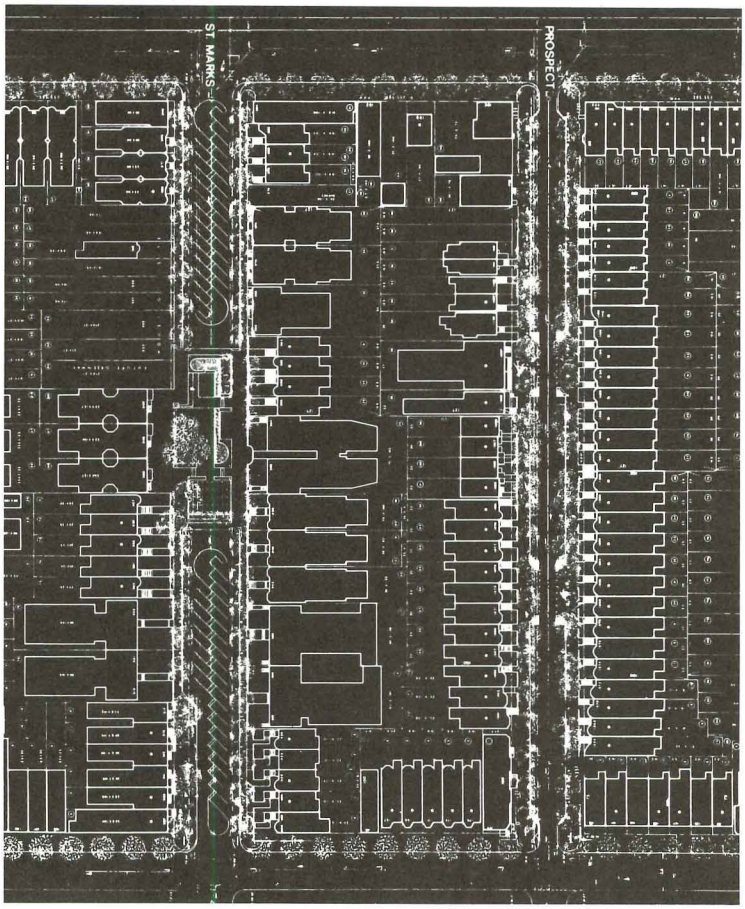




SUPERBLOCK: NEW LIFE ON THE STREET







It is a year since the opening of the Superblock in Bedford - Stuyvesant in Brooklyn (Dec. '69 issue, p. 23), designed by I. M. Pei & Partners, M. Paul Friedberg & Associates, and the community.

The Superblock grew out of a proposal by Pei, which grew out of a request for help by Sen. Robert Kennedy, and the final result grew out of long hours with community people, and 15 months—on and off—of construction. It is not the *only* visible improvement in this second largest black ghetto (after Chicago's South Side). Bedford-Stuyvesant's dual corporations —Restoration and D & S (Development & Services)—have renovated the exteriors of 45 blocks, the interiors of 50 units of abandoned housing, and the Sheffield Farms plant. But the Superblock is the most visible.

The plan shows traffic on St. Marks Avenue curtailed by a park, and the parking rearranged. ("People still whip across there in their cars, as we knew they would," says a member of the design team.) A block away is Prospect Place, a quiet street mainly of homeowners (the 1,800 residents of St. Marks are mostly tenants, poorer, with more children). Little was done on Prospect, by their choice — cars still go through, but are slowed by two broad paved bumps, each bump marked by a foursome of rounded planter-benches, on the sides of which residents have glued small reflectors.

The Superblock cost up to $700,000, this last figure from Restoration Corporation which paid the bills. They have no doubt it was worth it, in the number (unspecified) who want to stay in the area and fix up their homes with funds from Restoration's mortgage pool.

Top left: Cars parked at the end of St. Marks. Middle left: Prospect Place, a different solution for a different population. In St. Marks park (opposite), the big trees are happily flourishing, the lighting is a vast improvement, and the playground is a rugged construction that is nevertheless visually light. The park is somewhat marred by shoddy workmanship (the car-washing faucet covered by paving, for instance); by poor maintenance (Parks Department only takes care of the planting, and maintenance will be a problem until there is more tenant ownership, says Restoration); and by unsuccessful details (drains along the "urban stream" are easily clogged).

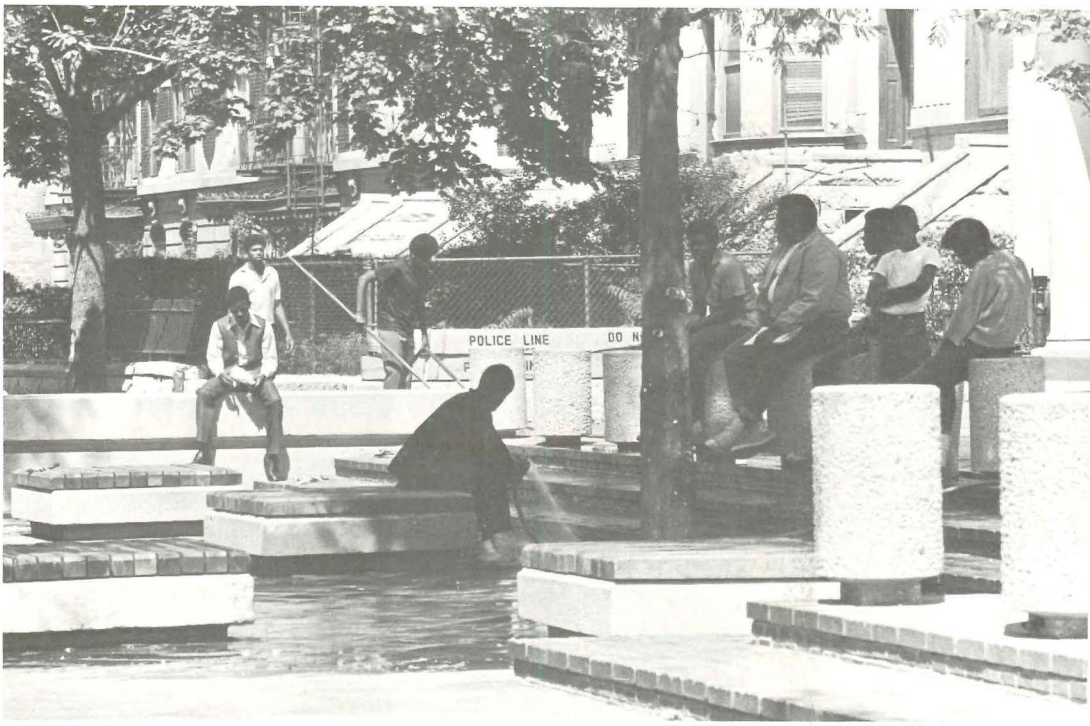
Will there be other Superblocks? The second one to be built by the Vincent Astor Foundation's $1 million grant has been deferred because of "more pressing needs," reports Restoration. The remainder of that million is seed money for 52 units of housing soon to go up on St. Marks Avenue.

"The first time out," says Friedberg, "it's OK to have it cost this much." But it could easily be repeated for $150,000, he says—without the expensive paving and fountain.

Indeed, Pei cites a city traffic survey suggesting that two out of three of Bed-Stuy's unusually broad streets could be "de-emphasized"—closed to traffic and redeveloped. A park of about 70′ by 200′ (St. Marks, all photos on this page) is created without taking land off the tax rolls, says Friedberg, a point he makes in his new book.*

St. Marks residents were worried about drawing junkies to the attractive public space. Some persons in the street are suspected of being "associated with" narcotics (as one Restoration staff member puts it), "but you can't tell them to leave; it's a community problem, not caused by the Superblock."

In reply to outside inquiries, August Nakagawa of Pei's office stresses two points: first, working with the people involved—there were about 15 meetings with a local design committee (Jim Balsley of Friedberg's office regards the citizen involvement as something of a farce) and second, planning on a wider scale. "One or two streets don't mean that much," says Nakagawa, "except to the people involved."



Play and Interplay, by M. Paul Friedberg with Ellen Perry Berkeley, The Macmillan Co., 1970.

FACTS AND FIGURES

Superblock, St. Marks Ave. and Prospect Pl., between Albany and Kingston Aves., Brooklyn, N. Y. Coordinating architects: I. M. Pei & Partners (I. M. Pei and Henry N. Cobb, partners; William T. Chafee and Yann R. Weymouth, architects; August T. Nakagawa, planner). Landscape architects in charge of design: M. Paul Friedberg & Associates (James Balsley, associate in charge). Engineers: Robert Silman (structural); I. M. Robbins (mechanical). Other consultants: Travers Associates (traffic); Howard Branston (lighting); Sam Wiener (porcelain enamel plaques). Cost: $501,069 (excluding management costs and facade work).
PHOTOGRAPHS: Bill Mackey

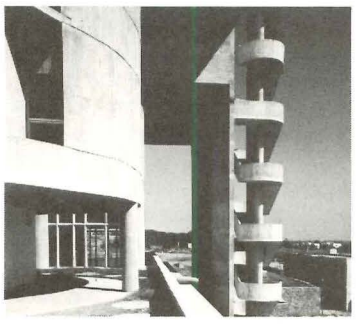
ntinued from page 27)

Prasad's hotel

CORBU IS NOT DEAD!

In New Delhi, India, not far from Embassy Row, there stands a brand new hotel, as yet unoccupied. It is a very elegant building, and was designed by Shiv Nath Prasad, who once worked for Le Corbusier at Chandigarh. The lessons learned from the master were not lost upon Mr. Prasad—though they may have been slightly misunderstood (language problem?): for what we have here, as these photographs show, is an extraordinary collection of bits and pieces taken from Corbusian buildings the world over.

Starting at the top, we have the roof garden of the apartment block in Nantes (1957); the stair tower of the Secretariat



Marseilles-like detail

at Chandigarh (1952-56); the spiral fire stair of the apartment block in Marseilles (1946-52); and the double-height "street," half way up the hotel, of the same Marseilles apartments. The fenestration, in accordance with the Modulor, for that same double-height "street," is similar to that used at La Tourette (1950-55); and the curvilinear restaurant that juts out from under the hotel, on both sides, is, of course, the Visual Arts Center at Harvard (1961-64).

There are a couple of nice, smaller Corbusian details as well—scuppers, rails, ramps and so on—and the workmanship is beton brut, possibly not quite brut enough. Anyway, it is a nice collage; and now that Mr. Prasad has got *that* out of his system, he is doing some highly creative work, entirely in his own very talented manner.

PREFABS

LEVITT MOBILIZES

Levitt & Sons, the nation's largest homebuilder, has announced it is in the mobile home business, producing wood frame versions that look more like modern suburban homes than the traditional metal filing cabinet. A new subsidiary, Levitt Mobile Systems, Inc., will produce the homes, designed by Environmental Systems International, a firm headed by architect Barry Berkus. (Berkus and Levitt have worked together before, notably on the winning Operation Breakthrough projects.)

The first of the mobile homes are just coming off the line and they range from 886 sq. ft. to 1,665 sq. ft. Prices will range from $10,600 to $16,000, including furnishings, though cheaper versions may be produced later. Production for the first year is estimated at 600 units.

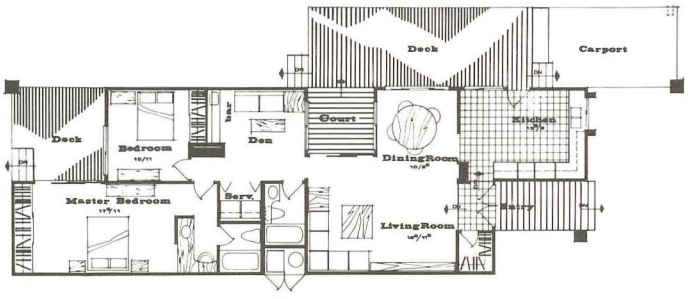
The units are truly mobile homes in that they have their own permanent wheels and chassis. But they are different from the conventional mobile home in many ways.

Levitt mobile homes have solid wood frame construction, with rough wooden shingle exteriors. Inside the unit, there are variations in floor levels, glass separations for a feeling of space and even such amenities as a sunken fireplace pit. The units are designed to be placed side by side, staggered or arranged lengthwise for additional space. Even single units have closets and other utility and living spaces that are flush with the exterior walls during transportation, then protrude outward when the unit is located on its site.

The single unit is 12 ft. wide, may have a sloped roof, and may be left on its wheels or placed on a permanent foundation. If left on wheels, the units are eligible for 12-year financing. (Most mobile homes depreciate like a car and are eligible only for five or six-year financing.)

If permanently installed on a site, with wheels removed, the units are eligible for standard 30-year mortgages under the Federal Housing Administration. Unlike most mobile homes they need not be considered temporary structures and they do fulfill most building code requirements.

The first factory will serve the California market and be located in Fountain Valley, near Los Angeles. Eventually, additional plants will be located in new markets.



CITYSCAPE

STREET PEOPLE

New York City's avenue closings, which have been scheduled experimentally over the past year, have proved so successful in lowering auto-exhaust pollution and in raising spirits, that they are becoming policy.

Fifth Avenue, from 34th to 59th Streets, was closed to automobile traffic from 2 to 5 in

Fifth Avenue Slick New York Times

the afternoon on five successive Sundays, in December and through January 3. Holiday shoppers, traditionally more hostile than the season would suggest, were remarkably good-humored, unhurried, and kind to one another, with no cost to the city.

Entertainment—such as the improvised skating rink of Slick, a plastic material resembling ice—was donated.

The city plans to close the Avenue to cars every Saturday next summer.

FIBERGLASS TREES

New York City will get its biggest outdoor sculpture some time this year in Jean Dubuffet's "Group of Four Trees," the gift of David Rockefeller. Dubuffet's trees will stand on the 2½-acre Lower Manhattan plaza of the Chase Manhattan Bank, of which Rockefeller is chairman.

Being made now, piece by piece, in the artist's Paris studio —of fiberglass, resin and epoxy —the sculpture will stand 40 ft. high, 10 ft. shorter than the Chicago Picasso.

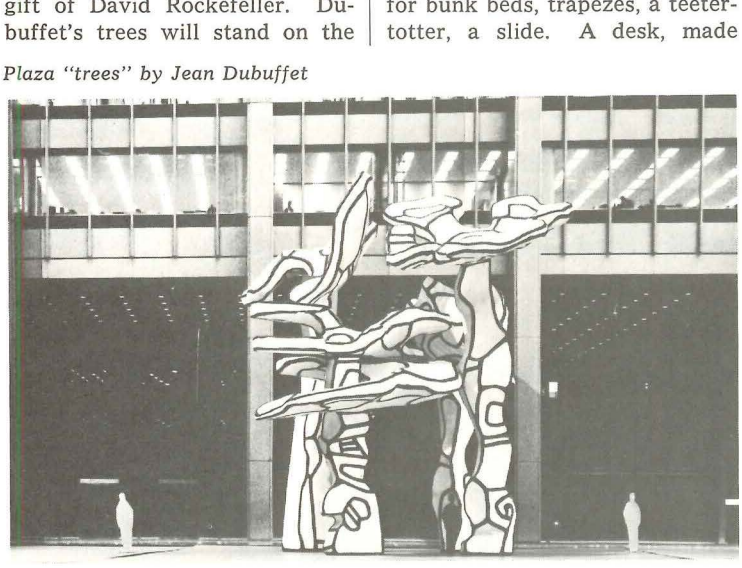
A few steps away from the projected site is the popular sunken garden of Sculptor Isamu Noguchi.

"This work will harmonize with the scale of the [Chase Manhattan] building," said Rockefeller, "and offer a fanciful contrast to the severe lines of the surrounding environment"—buildings like the World Trade Center.

Dubuffet says his trees embody "operations and structures belonging to a strictly mental realm."

At the unveiling of a 3½-ft. maquette of the work, Rockefeller revealed that its selection had climaxed a ten-year search.

Plaza "trees" by Jean Dubuffet



CHILDREN

LIVE-IN TOYBOX

Start with a toybox full of floppy bean-bag animals and a Tinker Toy-like set of round wooden dowels that screw into wooden blocks; blow it all up to room size; add some vinyl-covered mattresses and modular panels and you have an environment for children to live, learn and play in. More than an environment, a life style.

The vinyl bean-bags are also chairs and footstools, or even punching bags; the hardwood dowels and blocks a framework for bunk beds, trapezes, a teeter-totter, a slide. A desk, made

Motivational environment

of dowels, panels and blocks, turned upside down and set on wheels makes a wagon. Or, if the children like, they can take the whole thing down, pile it in a corner and have a virtually empty room for a race track. Or they can take it out in the yard and erect a jungle gym. The dowels and blocks are color-coded to make the game easy for children as young as four years old.

The system's designer, Stanley Selengut, also distributes it through his company, Children's Motivational Environments, Inc. Still to come are a series of "packs"—low-voltage electrical power, gears, cams, air compressor, and a photo-optical kit that works on the principle of breaking a light beam. Each pack will come with a booklet describing the principle on which each functions and its potential uses. Attaching the air pack to whistles or cans, for example, would create an improvised pipe organ or wind tunnel. A conveyor system could be created with pulleys made from cams and Poppit-type beads. Hook the desk-wagon up to the power pack and you have a drag racer. The whole system, fully tooled up, would surely have charmed the late Rube Goldberg. The one-bed basic unit sells for $350; the two-bed for $450.

NOTES

HELP!

Of the three best-known buildings of Frank Lloyd Wright's "first golden age," only Unity Temple in Oak Park, Ill. continues to serve its original function. But it is badly in need of restoration (June '69 issue

The Edgar J. Kaufmann Char table Foundation has offered matching fund grant of $75,00 payable $25,000 in each of th years 1970, 1971, and 1972. the total grant is matched, th resulting $150,000 is still on half of the estimated restoratio cost.

Contributions should be a dressed to: Unity Temple Re toration, Box 2211, Oak Par Ill. 60303.

FELLOWSHIP

The Architecture Machine Grou at MIT will begin a fellowsh program for advanced study computer-aided architectu funded by the Graham Found tion.

Candidates familiar with co puters and who have stro "design" training and experien are being sought. Particular encouraged are junior facul members who may return to academic environment. The wo will begin June 1 and contin through September 30, 1972. to $10,000 is available as a s pend for full-time Fellows. Ea Fellow will initiate and purs his own project with the depa ment of architecture's comput facilities.

Apply to Professor Nicho Negroponte, Room 9-518, M Cambridge, Mass. 02139. App cations should include a curr ulum vitae, a specific statem of the intended area of stu and any other supporting m terial deemed relevant.

PARIS ARTS CENTER

The French government is spo soring an international arc tectural competition in one sta for a center in the heart of Pa devoted to contemporary a and a public library.

Requests for registration for and brochures must be receiv by February 26. The contest anonymous; requests should accompanied by a bank ch for 200 French francs, wh will be refunded after judgi Closing date for receipt project entries is June 24, 19

First prize will be 250,0 francs ($45,300). There will 30 additional awards of 10,0 francs each.

Address requests to: Dele tion pour la realisation du C tre du Plateau Beaubourg rue de la Bienfaisance, Paris

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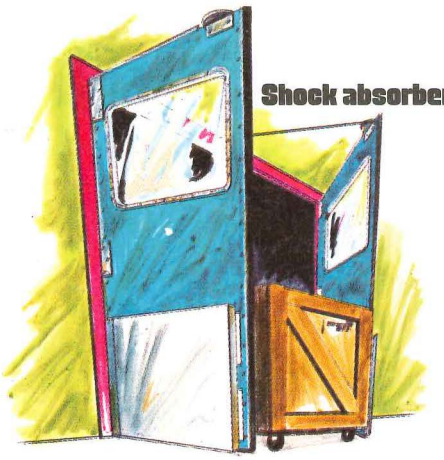
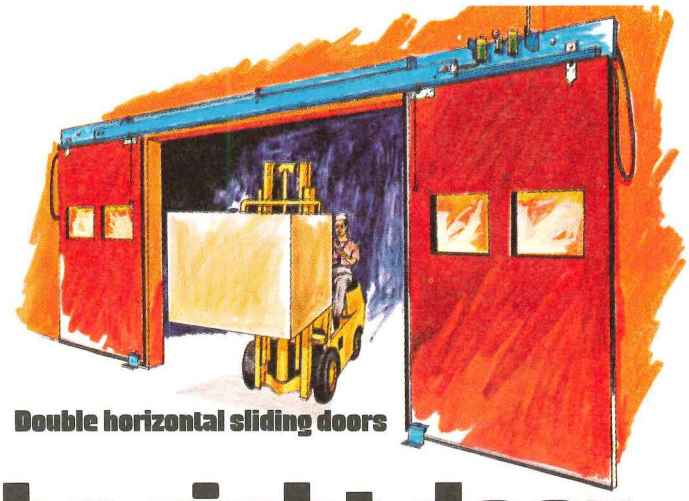
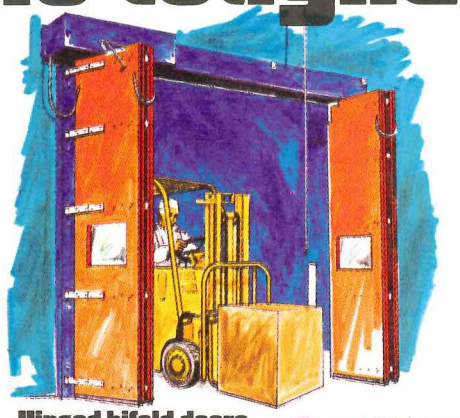


Shock absorber doors



Double horizontal sliding doors

Choosing the right door is tougher than you think...



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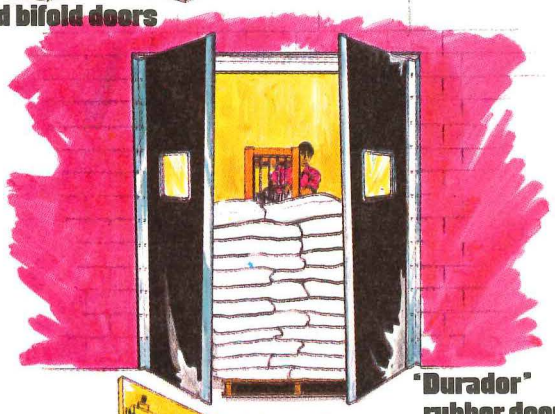
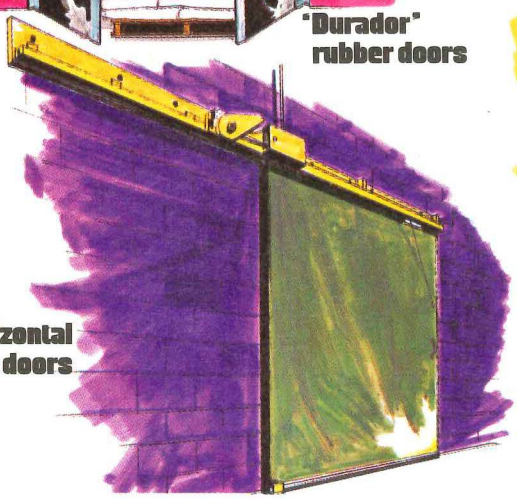
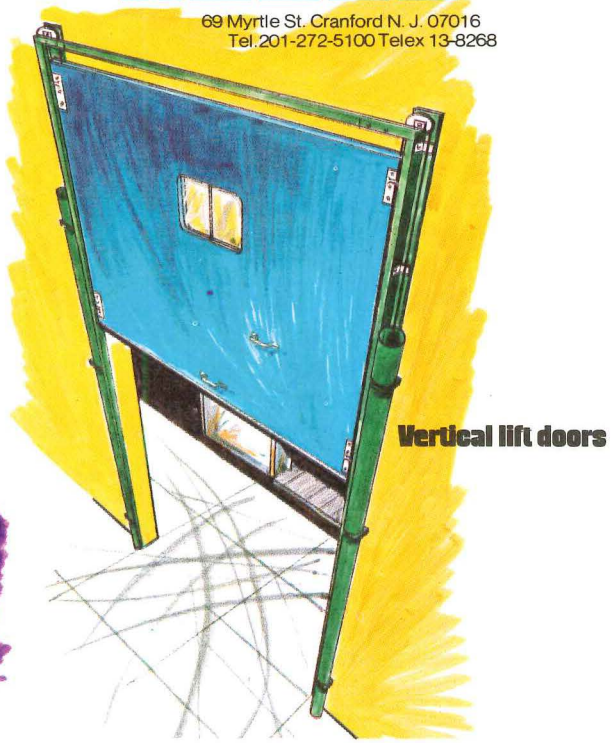


"Durador" rubber doors

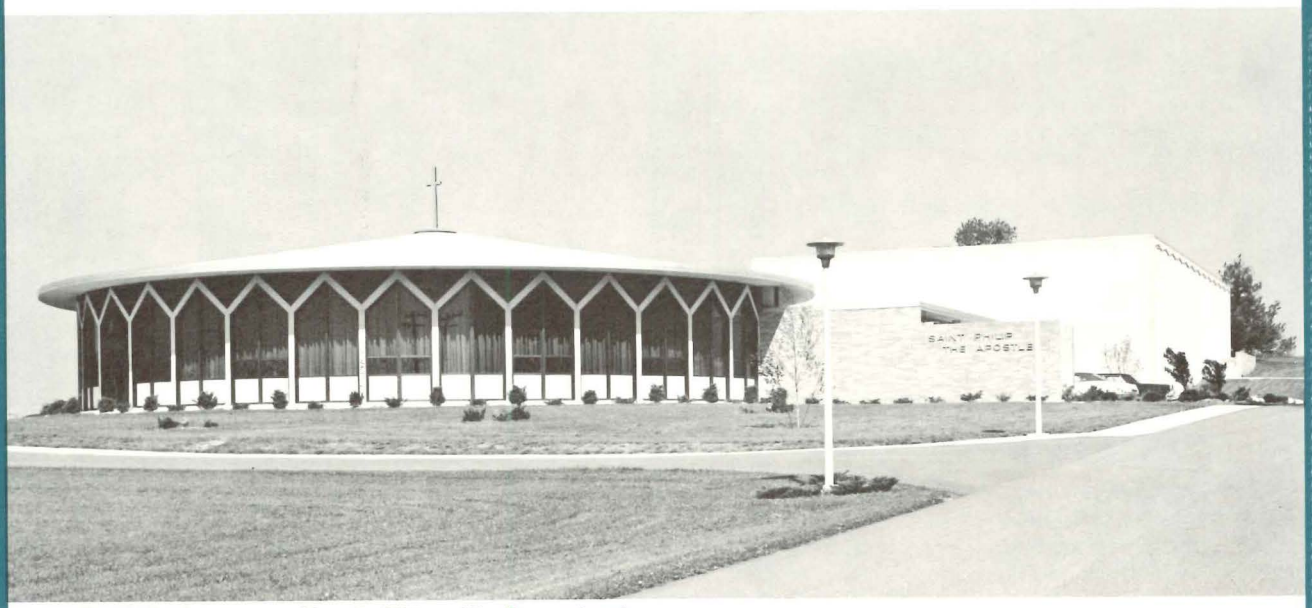


Single horizontal sliding doors



Vertical lift doors

Flexibility, Economy and Zone Control Lead to Choice of Electric Heating System for New Church Complex



St. Philip the Apostle Church, Millersville, Pennsylvania.

PROJECT: St. Philip the Apostle Church, Millersville, Pennsylvania. ARCHITECTS: Nassaux, Hemsley, Kohler & Associates, Chambersburg, Pennsylvania. CONSULTING ENGINEERS: Brinjac & Associates, Inc., Harrisburg, Pennsylvania.

DESIGN CHARGE: To design a complex that would serve as a church with social and recreational facilities until plans to develop the site into an elementary school materialized at which time the church structure would become a cafeteria. The structures were to contain a nave, sanctuary, office, kitchen, and a gymnasium which would also serve as a multipurpose area.

DESIGN RESPONSE: The one-story circular church structure is constructed of buff-colored brick, artificial stone, aluminum and glass. Laminated wood forms the arches of the vaulted ceiling. It contains a nave, sanctuary, and small office. Adjacent are a kitchen and a hallway leading to the gymnasium. The rectangular, two-story structure constructed of brick and artificial stone contains a gymnasium, locker and shower rooms, and is also used for church-sponsored dances, meetings, and a variety of social and recreational activities.

"The circular design and extensive use of glass not only creates a church architecture with a religious atmosphere that is very pleasing," Reverend William G. Eline says, "but will make the conversion from church to cafeteria easier and less expensive."

When it came to selecting a space conditioning system for the structures, the designers chose an all-electric system, Consulting Engineer Conrad E. Kambic explains, "because our experience with similar structures persuaded us that only an electric system would provide the desired flexibility of zone control, lower first cost, and economical operation." The church and gymnasium are conditioned by separate single-duct systems each equipped with an air handling unit having strip heaters and direct expansion coils. A 40-ton condensing unit provides cooling for the church structure at present and a second unit will be added sometime in the future for the gymnasium/multipurpose structure. Through-the-wall heating/cooling units are installed in the office area and baseboard heating units in miscellaneous spaces.

How has the system worked out? Engineer Conrad Kambic sums it up this way: "A good application, good design, good installation, and a satisfied client."

SEE REVERSE SIDE FOR DETAIL INFORMATION

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1 CATEGORY OF STRUCTURE:
Religious—Church and Gymnasium

2 GENERAL DESCRIPTION:
Area: 22,500 sq ft
Volume: 386,000 cu ft
Number of floors: one in church, two in gymnasium
Number of occupants: 500
Types of areas: nave, sanctuary, gymnasium, locker and shower rooms, kitchen, office

3 CONSTRUCTION DETAILS:
Glass: single
Exterior walls: artificial stone, aluminum or brick, 2" polystyrene foam insulation (R-7), 8" block; U-factor: 0.1
Roof or ceilings: built-up roof on 1½" rigid insulation (R-5); U-factor: 0.12
Floors: concrete slab
Gross exposed wall area: 11,000 sq ft
Glass area: 2500 sq ft

4 ENVIRONMENTAL DESIGN CONDITIONS:
Heating:
Heat loss Btuh: 870,000
Normal degree days: 5258
Ventilation requirements: 5500 cfm
Design conditions: 0°F outdoors; 70F indoors
Cooling: (nave and sanctuary only)
Heat gain Btuh: 480,000
Ventilation requirements: 2000 cfm
Design conditions: 95F dbt, 75F wbt outdoors; 76F, 50% rh indoors

5 LIGHTING:
Levels in footcandles: 40-60
Levels in watts/sq ft: 3-5
Type: incandescent

6 HEATING AND COOLING SYSTEM:
The nave and sanctuary are heated and cooled by an electric ducted system incorporating an air handler equipped with strip heaters and direct expansion coils which are supplied by a 40-ton condensing unit located outside the building. A similar system for the gymnasium structure, which is also used for meetings and social events, provides heating and ventilation only at present but is designed for the addition of cooling sometime in the future. Through-the-wall heating/cooling units condition the office area. Miscellaneous spaces are equipped with electric baseboard heating units.

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

8 CONNECTED LOADS:

Heating & Cooling (52 tons)	384 kw
Lighting	100 kw
Cooking	100 kw
Water Heating	150 kw
Other	25 kw
TOTAL	759 kw

9 INSTALLED COST:*

General Work	$344,000	$15.30/sq ft
Elec., Mech., Etc.	141,000	6.29/sq ft
TOTALS	$485,000	$21.59/sq ft

*Building was completed 4/69

10 HOURS AND METHODS OF OPERATION:
Usual church services on Sundays and weekdays, and some evening meetings and social/recreational activities.

11 OPERATING COST:
Period: 4/2/69 to 4/3/70
Actual degree days: 5787
Actual kwh: 404,300*
Actual cost: $5,017.21*
Avg. cost per kwh: 1.24 cents*
*For total electrical usage

Billing Date	Degree Days	Demand	kwh	Amount
5/2/69	323	290	22,300	$ 269.60
6/3/69	100	170	8,400	102.80
7/2/69	1	100	6,200	76.40
8/4/69		80	5,700	75.00
9/3/69		70	5,100	75.00
10/3/69	86	190	7,900	96.00
11/3/69	389	340	23,200	390.00
12/3/69	728	360	45,400	546.80
1/5/70	1147	410	82,400	990.80
2/2/70	1195	370	73,300	881.60
3/4/70	1011	410	71,400	858.80
4/3/70	807	390	53,000	654.41
TOTALS	5787		404,300	$5,017.21

12 FEATURES:
The complex was designed so that each area has its own independent space conditioning system with pneumatic controls. Thus, the complex can be expanded as planned for the future without the need to disturb existing installations.

13 REASONS FOR INSTALLING ELECTRIC HEAT:
The choice was based on operating experience with other generally similar churches which indicated that the electric system would best accommodate the varying occupancy of the church and related areas, would provide the independent room control of temperature desired, and would be lower in total owning and operating cost than equivalent systems using a flame fuel for heating.

14 PERSONNEL:
Owner: St. Philip the Apostle Church
Architects: Nassaux, Hemsley, Kohler & Associates
Consulting Engineers: Brinjac & Associates Inc.
General Contractor: Joseph Lamonaca Inc.
Electrical Contractor: E. H. Gouchnauer & Sons, Inc.
Mechanical Contractor: C. J. Beshore
Utility: Pennsylvania Power & Light Company

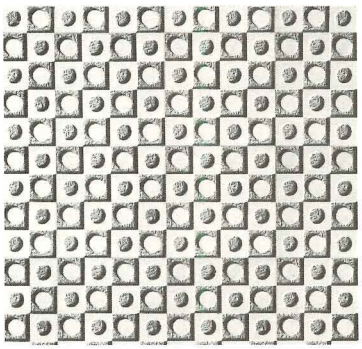
15 PREPARED BY:
Joseph C. Krum, Architect & Engineer Consultant
Pennsylvania Power & Light Company.

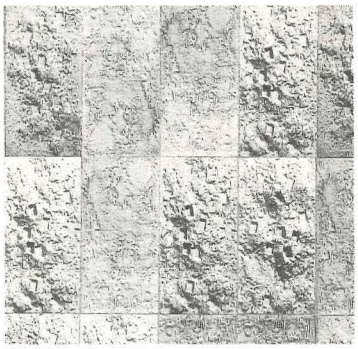
16 VERIFIED BY:
Conrad E. Kambic, P.E.

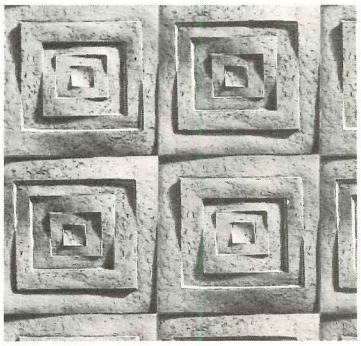
William Hemsley, Architect

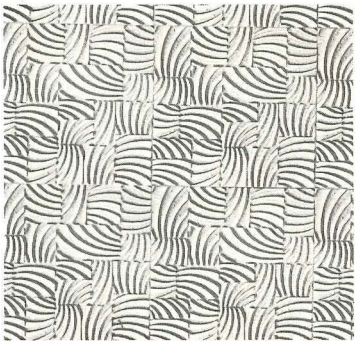
PRODUCT REVIEW

This introduces a new Architectural Forum department which will cover the latest and best in the design and development of building products. The "Product Review," in every Forum issue, will supplement the principal editorial subject of that issue—in this case, office design. The products illustrated and described below serve to make offices better places to work in.









TEXTURED WALLS

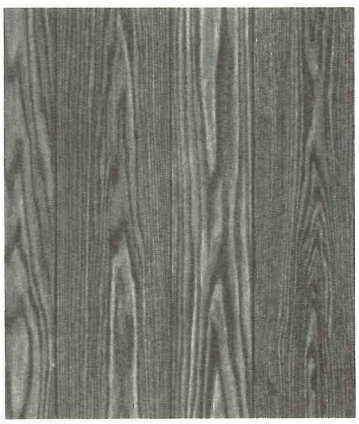
Seventeen new "studies" have been added to the design repertory of sculptured ceramic wall units by Design-Technics, Inc. Installed like tiles in modules of from 6 to 18 in., the walls are relatively light-weight, water-resistant, impervious to weather and easily maintained. The surfacings are available in natural clay colors and matte or glossy finishes. They are called "studies" because architects need not be limited to existing designs.

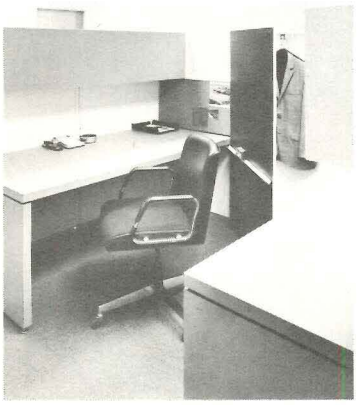
On Readers Service Card, circle 101.

FIRE-TEST PANELS

Marlite Paneling, with flame-retardant surfaces, are available in textured woodgrains, smooth-faced grains and colors. Each 4 by 8 ft. panel is impregnated under pressure with special fire-retardant chemicals that leave no odor or toxic residue. The panels do not absorb moisture, remain dimensionally stable under normal conditions and never require refinishing. Flame-spread ratings are under 25 and smoke ratings under 30.

On Readers Service Card, circle 102.

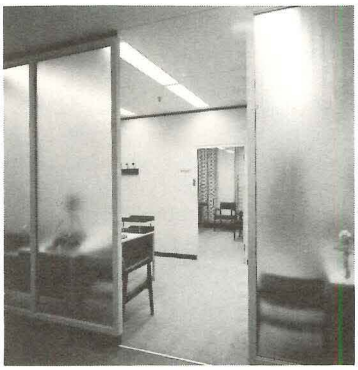




TOTAL OFFICE ASSEMBLY

"The Westinghouse Way" total office environmental system consists of work surfaces, storage units and accessories that attach directly to movable wall panels. Cabinetry attaches to the wall panels or suspends from work surfaces. Wall panels can rotate 360 degrees around a connector assembly, permitting free-form office layouts. Panel widths are 36 or 48 in., with heights of 60 or 80 in. Accessories include cord clips, electrical outlets, light fixtures and free-standing tables.

On Readers Service Card, circle 103.



MODULAR WALL SYSTEM

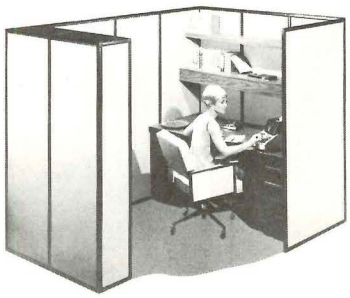
Signature, an efficient, economical wall system manufactured by E. F. Hauserman Co. uses steel panels with a modular connecting system. Intersecting walls may be established on either or both sides of a panel joint on the modules. The slim glazing post is also suitable for partial or full-height glass walls and it provides for quick wiring and easy electrical access. The steel panels have a low-gloss, baked enamel finish that does not need repainting and the system's accessories include suspended wardrobe closets, shelving and chalkboards.

On Readers Service Card, circle 104.

continued on page 76

PRODUCT REVIEW

continued from page 75



QUICK AND EASY OFFICES

The Apton office module system, manufactured by Dexion, Inc., can provide a fully furnished private office for $350 to $500. Each is custom-sized, furnished and easily dismantled at any time. The walls are of laminated vinyl panels (in 12 colors) with steel tube framing. Built-in modular components include desks, closets, shelves, files, etc.

On Readers Service Card, circle 105.

EASILY CUSTOMIZED PANELS

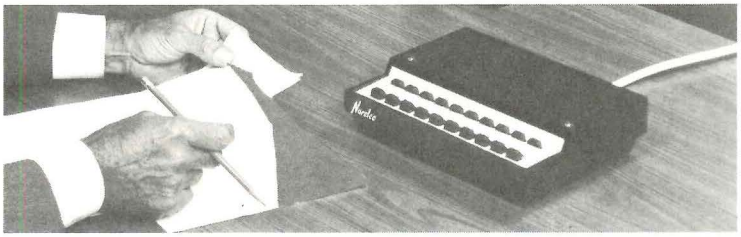
A partition system, consisting of a ¼-in. wide, ¼-in. deep panel joint reveal, recessed base and recessed one-piece ceiling trim is easily modified to fit a variety of special building requirements. Manufactured by Mills Co., the Forecast 200 series system features only five individual parts besides the panel units themselves and requires no loose clips or drive-in trim strips to connect the panel joints.

On Readers Service Card, circle 106.

LIGHTWEIGHT INTERCOM

The Norelco "mastercom M-16" solid-state intercom system for smaller offices comes in eight or 16-station models and features one-button control for hands-free conversation. A press-to-talk button increases volume in high-noise situations and converts the system to manual control. The 16-station version has a privacy button which returns an "absent" signal to callers, as well as a standing-by button to indicate that a third person is waiting to use the system. The lightweight units may be moved and re-plugged into the system without re-wiring or changing station codes.

On Readers Service Card, circle 107.

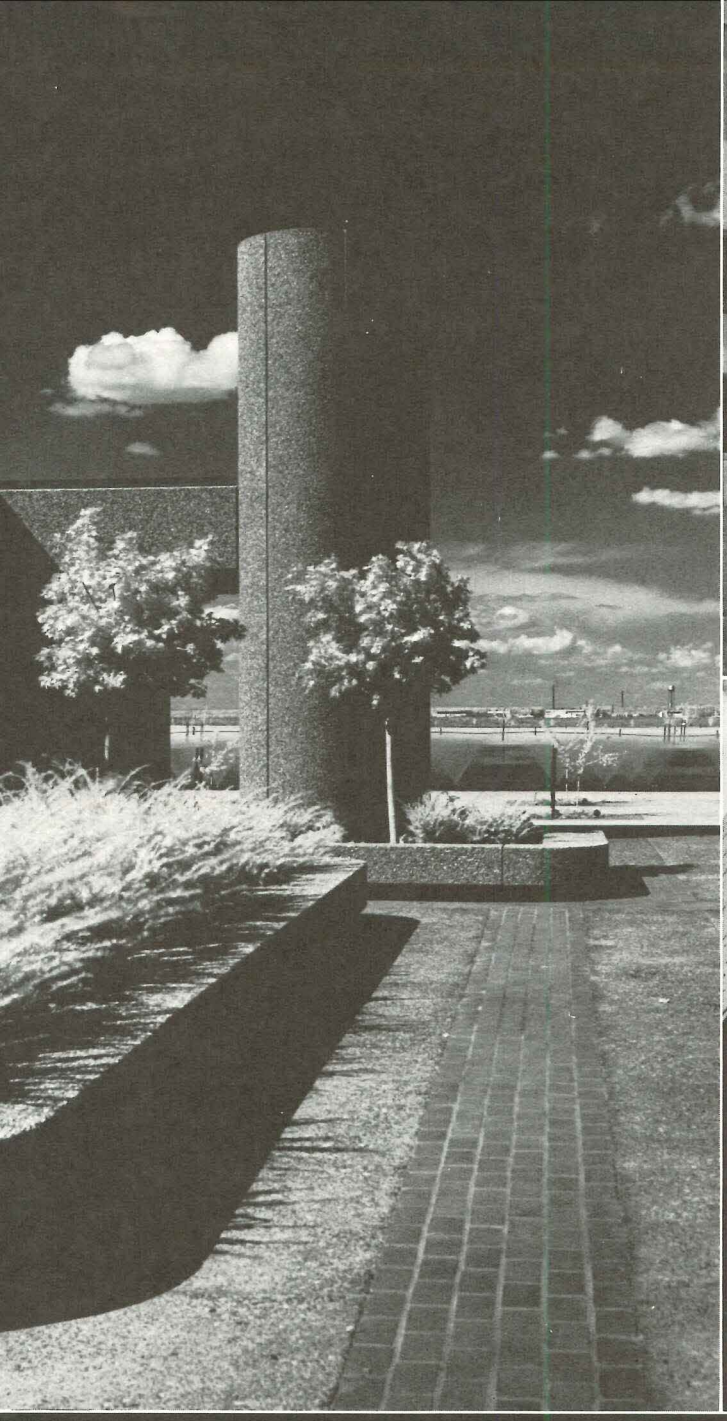


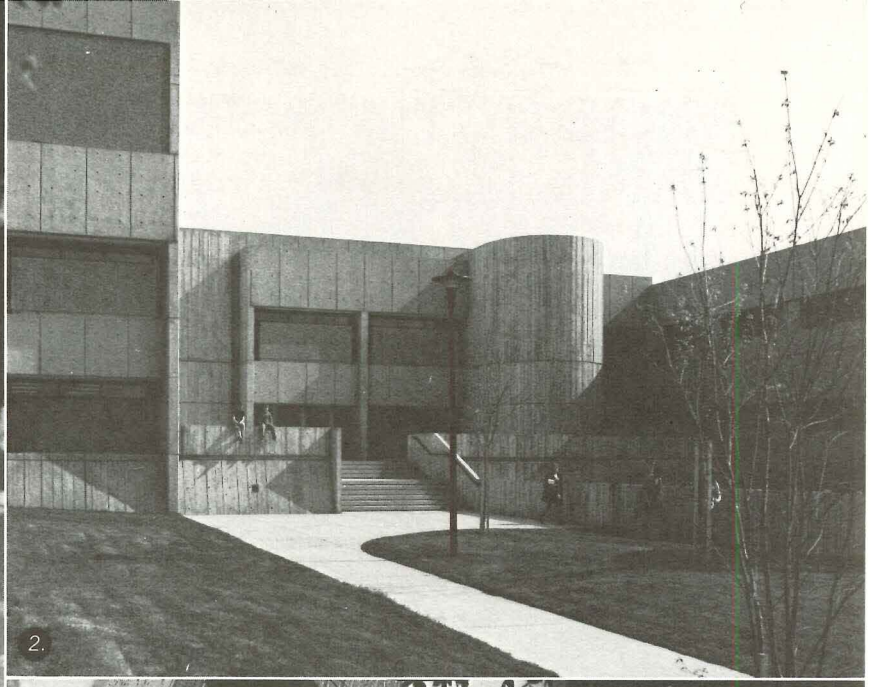
OFFICE CHAIR LINES

A new line of chairs, called Contoura II and manufactured by the InterRoyal Corp., can be used for executive offices, conference rooms and other general office purposes. Available in fabrics, vinyl, and leather, and with bases in bright or satin chrome, the Contoura line (left) features removable seat pads and several style varieties. Also available from InterRoyal are three new lines of chairs based on a single design (right) for compatible office furnishing at all levels. Called the 6200, 6300 and 6400 series, these chairs are also available in a variety of sizes, types, arm designs, fabrics and bases.

On Readers Service Card, circle 108.

continued on page 78





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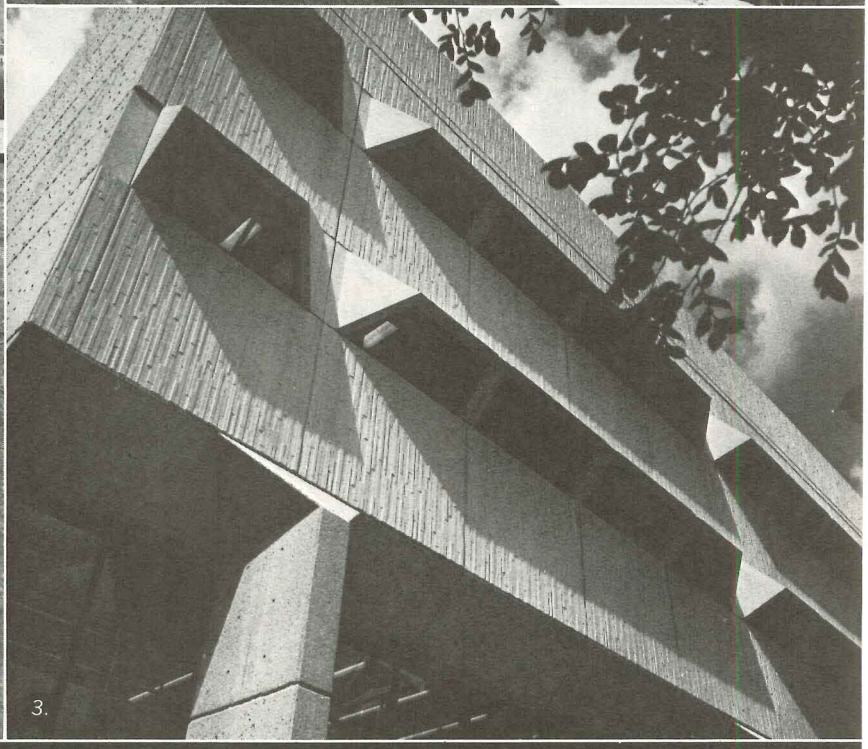

3.

MO-SAI MANUFACTURERS PRODUCE THREE PRESTRESSED CONCRETE INSTITUTE AWARD WINNERS

A distinguished jury named nine structures as winners of equivalent top awards in the 1970 Prestressed Concrete Institute Awards Program. Three of the winners were produced by Mo-Sai manufacturers.

1. Battelle-Northwest Technical Center
Richland, Washington

Architects: Naramore, Bain, Brady & Johanson
Structural Engineers: Skilling, Helle, Christiansen & Robertson

A wide range of precast concrete with exposed aggregate elements was used in this complex, including structural bearing walls, window walls, spandrels, fascia elements, facing for cooling tower, and large precast pylons that serve as exhaust shafts. Jury comment: "Handling of the various complex shapes and their finishes is commendable. Reflects the highest order of contemporary design."

2. Stephen Leacock Collegiate Institute
Borough of Scarborough / Ontario, Canada

Architect: A. M. Ingleson
Structural Engineers: Robert Halsall & Associates, Ltd.

Jury comment: "This building demonstrates a masterful handling of precast and prestressed concrete. It makes a clear and powerful statement without violation of the human scale."

3. Physical Sciences Complex
University of Guelph, Guelph, Ontario, Canada

Architects: Craig, Zeidler & Strong
Structural Engineers: J. Maryon & Partners

The exterior is precast concrete panels with an exposed warm local aggregate. Featured is a random sculptured rib face. Jury comment: "Textures expressed in precast concrete lend warmth and interest."

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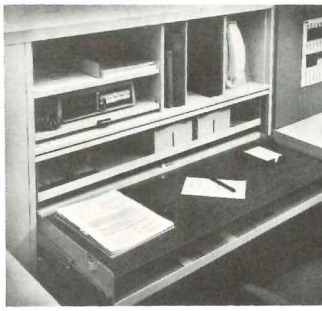
PRODUCT REVIEW

continued from page 76

ADJUSTABLE DESK

A modular walnut desk system, called Interchange 1, is being marketed by Dictaphone's Marble/Imperial Furniture division. Interchangeable panels are joined to a structural steel frame with metal brackets and screws. For example, a single-pedestal desk can be converted into a double-pedestal model or to either a right- or left-hand L-shaped executive desk.

On Readers Service Card, circle 109.



PROBLEM-SOLVING CABINETS

A roll-out workshelf and a co
munications center are the n
est additions to the Steelc
Mobiles office furniture line.
workshelf adjusts to desk hei
and will support office equ
ment such as a typewri
When work is done, it will
back into its cabinet, out
sight. The communications c
ter relieves desktops of pho
dictating unit and letter tr
and puts them at head leve

On Readers Service Card, circle 11

MODULAR OFFICE FURNITURE

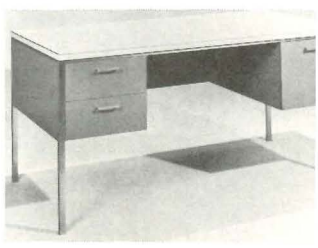
The new Davis Allen (of Skidmore, Owings & Merrill) office furniture collection features a stable, unitized steel frame that allows panels, desk top and other components to be removed and interchanged. Luxury features include: side drawer pulls, hidden channels for telephone and other equipment wiring, gang locking mechanism, and power panels for typewriters, etc. The desk units have variety of models for secreta and executives. Finishes incl teak, oak, walnut or metal 28 colors). The desks, stora typing and other units do have legs, but rest on pede bases (in stainless steel, smo chrome or antiqued bron Manufactured by the Gen Fireproofing Co.

On Readers Service Card, circle 11

CLERICAL DESK UNITS

Alpha (photo) and Omega office furniture units, manufactured by the General Fireproofing Co., are designed for general administrative, clerical, engineering or middle management personnel. Units are easily modified, with changeable box drawers, letter drawers, pedestals, cabinets, files or storage places. Five desk top sizes are available, with finishes including woods and laminates. A variety of metal trims is available. Work tops can fit flush to the pedestals or overhang.

On Readers Service Card, circle 112.



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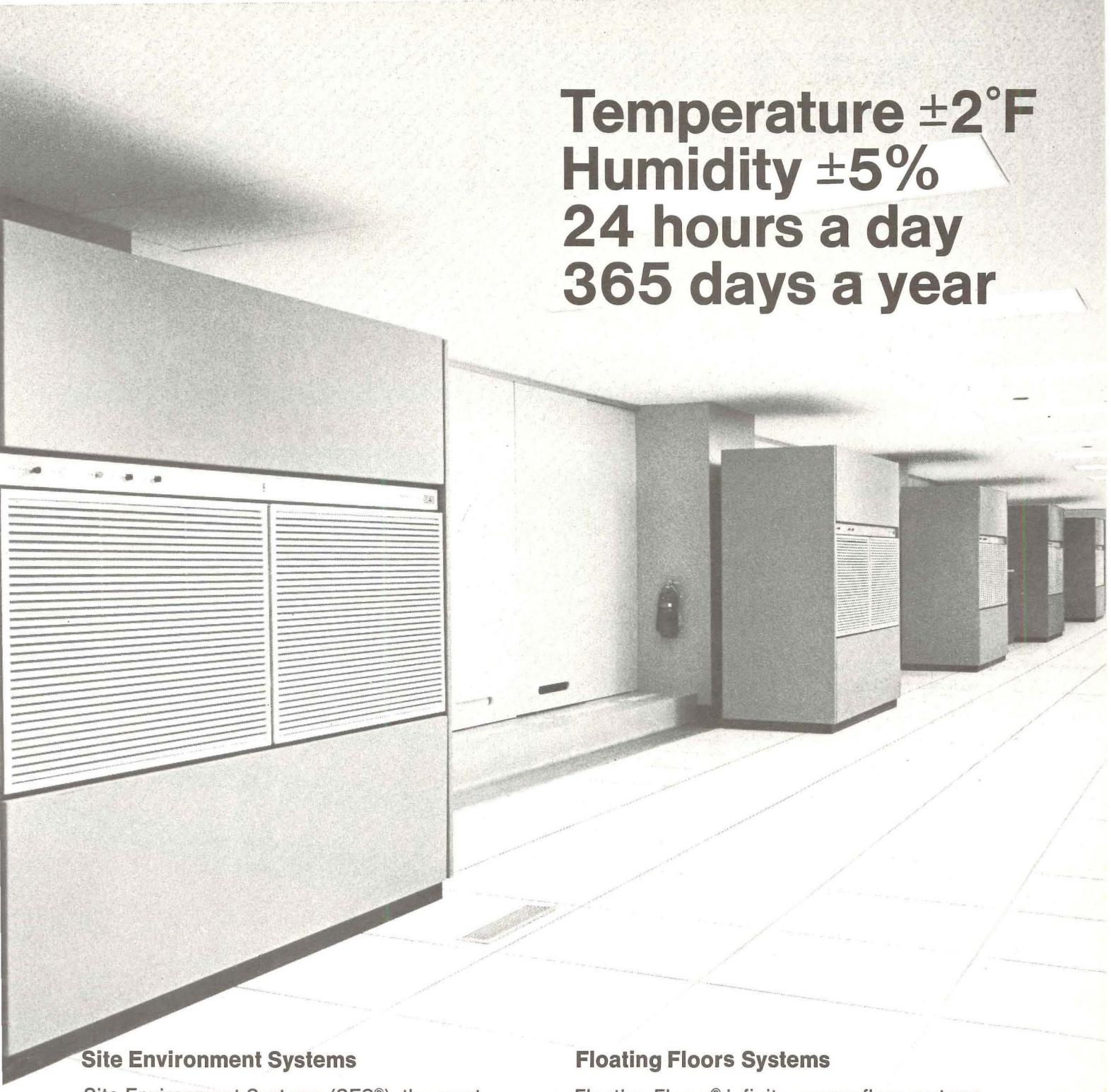
Temperature ±2°F Humidity ±5% 24 hours a day 365 days a year



Site Environment Systems

Site Environment Systems (SES®), the most precise, most reliable packaged environmental control units you can buy, can operate constantly. Dual systems* operate alternately under normal loads, work together should an overload occur. Each unit controls temperatures within ±2° F. with an extra-sensitive thermostat, dual compressors, five rows of cooling coils and reheat coil. A sensitive humidistat holds relative humidity levels within ±5%.

Each unit has a malfunction alarm, filter clog indicator, high temperature alarm, and indicating panel for full, constant monitoring of unit.

SES units are available in 3, 5, 7.5, 10 and 15 ton sizes, in air-cooled and water-cooled models with indoor or outdoor condensers, and in computer matched colors.

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If you're like most of us, you and your clients spend about a third of your lives sitting behind desks, working.

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Our new Double-Shell chair is that kind of chair.

It helps you work better.

It's good looking, very comfortable, well priced, and has some terrific engineering features that no other chair has.

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The Double-Shell idea also gives an incredibly strong and stable fastening point for the chair base. It won't wobble.

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And, a unique trim channel on the outer shell protects both chair and desk from getting all nicked up, and saves you from aggravation.

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See them now at your Steelcase showrooms. Steelcase Double-Shell chairs, the general office chairs of the 70's.

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Steelcase

Furniture That Works
For People Who Work.

On Readers Service Card, Circle 324

PRODUCT REVIEW

continued from page 78

TABLES FOR OFFICES

Two new table designs in wood have been introduced by Knoll International. One has lam nated wood legs and the oth a solid, turned leg. Both to are engineered for lightness a are only 1⅝ in. thick witho understructure (a veneered co with solid wood edge). Tabl are shipped with legs detach and are available in a varie of sizes and types, with oa walnut or teak finishes.

On Readers Service Card, circle 113

FLEXIBLE PARTITIONS

The "Divider Wall" partial-height partition system from the E. F. Hauserman Co. has solid panels factory finished on sheet steel laminated to a honeycomb core. The free-standing panels are connected to posts by a spring clip. Solid panels, in widths from 12 to 60 in. and heights from 42 to 84 in., can be exchanged for solid-and-glass combinations. Doors and gates are available. The system has the capability of making 120-degree angles in office layouts.

On Readers Service Card, circle 114.

TUBE-FRAMED CHAIR

A new chair, designed by Jo Nance of J. G. Furniture C Inc., features a bent tube fra of chrome and a chrome ba The chair is adjustable for t and spring resistance (and t springs are hidden). The dacr and foam seat and back is ava able in wet-look vinyls.

On Readers Service Card, circle 11

continued on page

plaza six

Will snow be a problem on your next plaza design? "Plaza Six", another proven All-weather Crete insulated plaza design, solves this problem with snow melting coils in sidewalks, ramps and loading areas over occupied areas.

There are seven other AWC Plaza Systems. Each is developed for a different purpose. These systems are being used today by leading architects throughout the nation. Why? Because no other type of insulation offers so many advantages in plaza construction. Heavy density All-weather Crete acts as an insulating cushion to protect the waterproof membrane, thus solving a failure problem often encountered in other systems. The K factor is .46; it has excellent load bearing capabilities and can be sloped or applied level. There are other advantages too.

Check out "Plaza One"—Two—Six—all Eight! Write for a full color brochure complete with diagrams and specifications. (You may want to design "AWC Plaza Nine" yourself.)

SILBRICO CORPORATION

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PRODUCT REVIEW

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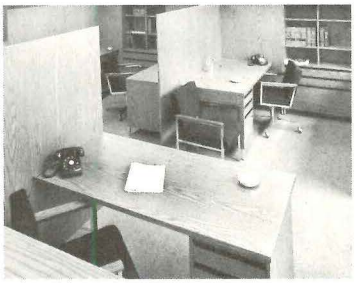

PLASTIC LAMINATE OFFICES

Free-standing modular offices, manufactured by Wels Industries, Inc., are available in wood stock covered with wood veneer or a plastic laminate called Textolite (made by General Electric Corp.) The modules come in five starter models, with 20 optional accessories, including a desk, sliding door bookcase/storage cabinet, desk organizer, and legal trays. Also available are two-sectioned drawers, letter files, and cork (or chalk) boards. Units are fastened with special nut and bolt assemblies.

On Readers Service Card, circle 116.

The following is a listing of the key products incorporated in some of the buildings featured in this issue:

CORPORATE HEADQUARTERS. AMERICAN CAN CO. ARCHITECTS: Skidmore, Owings & Merrill. (Materials & Manufacturers as submitted by the architects). WATERPROOFING: Koppers Co. Membrane WP. CONCRETE & CEMENT: Universal Atlas-Div. U.S. Steel. FLOOR & DECK SYSTEMS: Blakeslee Prestress Tee. ROOFING: Koppers Built-up Bituminous. THERMAL INSULATION: Styrofoam-Dow Chemical, Foamglas-Pittsburgh Corning. ACOUSTICAL: Armstrong Ceiling. GLASS: PPG. ELEVATORS: Otis. HARDWARE: P&F Corbin. INTERIOR TILE: American Olean. PAINT: M. A. Bruder. DUCTS: Walker Parkersburg. ELECTRICAL EQUIPMENT: General Electric. EMERGENCY POWER: Caterpillar Tractor. LIGHTING FIXTURES: Lightolier. PLUMBING: American Standard, Church. UNIT HEATERS: Young Radiator. CONTROLS: Johnson Service. AIR CONDITIONERS: Carrier, Buffalo Forge, Aerofin. DIFFUSERS: Titus. INTERCOM: Webster. SPRINKLER SYSTEM: Grinnell. WATER COOLERS: Filtrine. CEILING MATERIALS: Simplex, Armstrong. MOVABLE PARTITIONS: Art Metal. KITCHEN, LAB EQUIPMENT: Blickman. FURNITURE: Steelcase, Knoll, Thonet, Eppinger, Brickel, Stow Davis, Lehigh, CHF. CARPETING: Magee V'Soske.

NEW HEADQUARTERS UNITED FUND OF THE PHIA AREA. ARCHITECTS Giurgola Associates. (Ma Manufacturers as submitt architects). ACOUSTICAL Shield" by U.S. Mineral FENESTRATION: William GLASS: PPG. INTERIOR PA Vaughn Walls East. E Westinghouse. HARDWARE Russwin, Ives, LCN, Rixso INTERIOR TILE: Plastic-Fo ramic Tile-American Olea Benjamin Moore. DUCT Parkersburg. ELECTRICA MENT: Westinghouse Elect GENCY POWER: Onan. FIXTURES: Lightolier, Keys craft, Prescolite, Habitat, PLUMBING: Kohler, Speakm HEATERS: Trane. VEN Trane. VALVES: Barber-Co FUSERS: Tuttle & Baile SPRINKLER SYSTEM: Olive COOLERS: Halsey Taylor. PARTITIONS: E. F. H KITCHEN: Dwyer. CARPETIN TILE: Ruberoid. FURNITUR son, Stendig, GF, Direct DRAPERIES: Lazarus. RO Allweather Crete by Silbrico

THE TOWER BUILDING. PURINA CO. ARCHITECTS Obata & Kassabaum. (M Manufacturers as submitt architects). CURTAIN WAL Co. FLOOR & DECK SYST co. GLASS: PPG. INTERI TIONS: Woodwork Corp. c ELEVATORS: General Eleva Louis. HARDWARE: Gen CARPETING: Lee's.

THE JAMES FORRESTAL ARCHITECTS: Curtis & Dav & Hamby Assoc., Frank G (Materials & Manufacturer mitted by architects). CEM versal Atlas. GLASS: VATORS: Westinghouse. Superior, Alumiline. HARDW Challenger, Bommer. F American Standard. UNIT Trane. CONTROLS: Honeyw Spence, Cornell. AIR COND Marlo, Westinghouse. F TION MACHINERY: York. D Tuttle & Bailey, Wiremol Worthington. VENTILATORS house. SPRINKLER SYST WATER COOLERS: Filtrin TURE: J. G. Auditorium. American Air. ATTENUAT pers. COILS: Aerofin. CON General Electric.

STUDIO FOR SHADOWCLIF HEINEMAN. ARCHITECT Weese & Assoc. (Material facturers as submitted by tects). STRUCTURAL STE "Cor-Ten". GUTTERS: U. Ten". PAINT: Pratt & PLUMBING FIXTURES: Ca TIAN BLINDS: Royal Crest KITCHEN: Cooking Top by

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PRODUCT LITERATURE

To order material described, circle indicated number on self-addressed Reader Service Card, facing page 82.

ORS/WINDOWS

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v full color brochure detailing cifications and construction of yl-Shield interior doors. Shows or samples of doors and matching r trim. Georgia-Pacific Corp. On ders Service Card, circle 202.

hitectural glass. 8 page color cata- Drawn sheet, enamelled, floated e, tinted, solar, figured, Dacobel, using. Properties and applications. verbel (USA). On Readers Service d, circle 203.

letin 161 details complete line of ng doors, fire doors, counter tters, rolling grille and other metal rs. Dimensions tabulated and ed to line drawings. Kinnear p. On Readers Service Card, circle

alog includes technical information LOF glass: includes Varitran® and ilpane® SA 68. Libbey-Owens-Ford On Readers Service Card, circle

hitectural Reflections—a full color torial brochure depicting history of netic applications of Kinney re- ting glass. Kinney Vacuum Divi- n. On Readers Service Card, circle

page catalog details complete line electric operators for both single pair operated swing doors. Tables l architectural specs provide fast thod of selecting type and capacity. hards-Wilcox Mfg. Co. On Readers vice Card, circle 207.

ntrol of solar heat and glare with nsparent Plexiglas® acrylic plastic. page color brochure showing ical installations, range of colors l transmittance values for reflected l absorbed heat and sunlight. m & Haas. On Readers Service d, circle 208.

ECTRICAL

ies of 6 color brochures showing vators for many different building es. Cab designs, dimensions, ght elevator information are all t of the package. Dover Corpora- n Elevator Division. On Readers vice Card, circle 209.

OORING

page catalog describes access flooring systems. Installation details and full architectural specs given. Also describes air conditioning systems for which access flooring is used as an air supply plenum with WebAir conditioners. Weber Technical Products. On Readers Service Card, circle 210.

FLOOR COVERINGS

"Antron 11 the no-show carpet fiber fights dirt not profits." 3 color brochure guides specifiers in selection of carpet. E. I. duPont de Nemours Co. On Readers Service Card, circle 211.

The Landscaped Office . . . a new series of reviews showing examples of office installations where loose-laid floor covering was but one of many elements. A comprehensive brochure showing all elements that go into landscaping an office. Heugatile Corp. On Reader Service Card, circle 212.

Complete catalog file in true color is available for Latco featuring specialty and popular mosaic tile such as: Venezico, Valencia, Granada, Candy-sticks and many others. Latco Products. On Reader Service Card, circle 213.

"Design World—a collection of printed carpets." Package includes beautiful color examples and details special features of attractive patterns. World Carpets. On Readers Service Card, circle 214.

FURNISHINGS

4 colorful folders give applications of steel in schools. Steel panels that double as chalkboards, colorful lockers, furniture, steel backed auditorium seats. Catalog SG-130. Committee of Hot Rolled & Cold Rolled Sheet and Strip Producers. American Iron & Steel Institute. On Readers Service Card, circle 215.

Full line furniture catalog 1-71 showing dimensions and specifications. Fixture Mfg. Co. On Readers Service Card, circle 216.

Modulo 3, a system of office furniture consisting of few elements and allowing a more rationalized organization of working space. System designed and manufactured in Italy, now available in the U.S. and described in a full color brochure. Modulo 3, Inc. On Readers Service Card, circle 217.

Brochure on new office furniture concept called "Mobile" shows versatile system of re-arrangeable office work centers. Shows examples of flexibility of furniture and many illustrations of many types of areas. Steelcase, Inc. On Readers Service Card, circle 218.

HARDWARE

Architects Guide to Kirsch drapery hardware . . . 20 page catalog of details, drawings and specifications. Lists available. Components with each type of drapery hardware. Kirsch Co. On Readers Service Card, circle 219.

16 page catalog with special information on LCN Door Closers. Includes surface mounted overhead, concealed and floor models. LCN Closers. On Reader Service Card, circle 220.

1971 condensed catalog. 20 page catalog describes full line of advanced architectural hardware including specs and function charts. Sargent & Co. On Readers Service Card, circle 221.

INSULATION

4 page brochure showing use of Apache urethane foam insulation panels. Gives comparative performance results, details of physical properties and outlines many uses. Apache Foam Products. On Readers Service Card, circle 222.

New acoustical ceilings catalog. Illustrations of sizes and patterns of Simpson's accoustical tile and lay-in panels shown as well as sound absorption, coefficients and sound attenuation factors. Technical data on finishes, flame spread and fire resistive instructions included. On Readers Service Card, circle 223.

LIGHTING

Comprehensive 40 page catalog which illustrates and describes complete line of architecturally styled luminaires. Catalog highlights the design versatility which helps architects create "customized" fixtures to meet varying requirements. Pemco Corp. On Readers Service Card, circle 224.

New 4 page technical bulletin on new all aluminum Spectra V luminaire for HID lamps. Describes unique reflector design. Wide-Lite Corp. On Readers Service Card, circle 225.

METALS IN BUILDINGS

A new entrance coordinates system Kawneer/Entara is described in a 26 page color brochure. Details how the architect can design monumental or commercial entrance areas as individual and versatile as the rest of the building. Kawneer Co., Inc. On Readers Service Card, circle 226.

Spec-Data Sheets. Silbrico Corp. introduces a complete extruded aluminum fascia system for use with galvanized water dams. Specs, illustrations of exclusive features, available finishes and installation data are included. Silbrico Corp. On Readers Service Card, circle 227.

Information and literature, 16 page full color brochure, USS Cor-Ten Steel, the original weathering steel. United States Steel. On Readers Service Card, circle 228.

COATINGS/SEALANTS

Aroflint® 2 package Polyester-Epoxy Systems. Technical bulletin details use and performance of Aroflint high durability resins. Describes ways to gain design flexibility, durability with spray, roller, brush coating. Ashland Chemical Co. On Readers Service Card, circle 229.

PLUMBING

1970 16 page catalog on Oasis Water Coolers. Gives spec data and applications with full color illustrations. Includes selector guide. Ebco Mfg. Co. On Readers Service Card, circle 230.

8 page 4 color brochure. Complete line of water coolers and accessories. Includes application chart and describes free standing, flush to wall and remote line. General Electric Co. On Readers Service Card, circle 231.

STRUCTURAL

32 page catalog on Multiple Function Floor/Ceiling System. The System which permits floor spans up to 32 feet and incorporates various mechanical services fully described. H. H. Robertson. On Readers Service Card, circle 232.

WALLS/LAMINATES

"Panel Systems 1970." 8 page color booklet gives installation, application, and maintenance data on panels for high moisture areas and large area commercial applications. Formica Corp. On Readers Service Card, circle 233.

Spec information on all panels. Includes Marlite Plank and block, Korelock and firetest panels. Marlite Div., Masonite Corp. On Readers Service Card, circle 234.

Metal wall panels, including new Foamwall. 20 page catalog includes complete specs with color photos of wall in place. E. G. Smith & Co., Inc. On Readers Service Card, circle 235.

PROFESSIONAL SERVICES

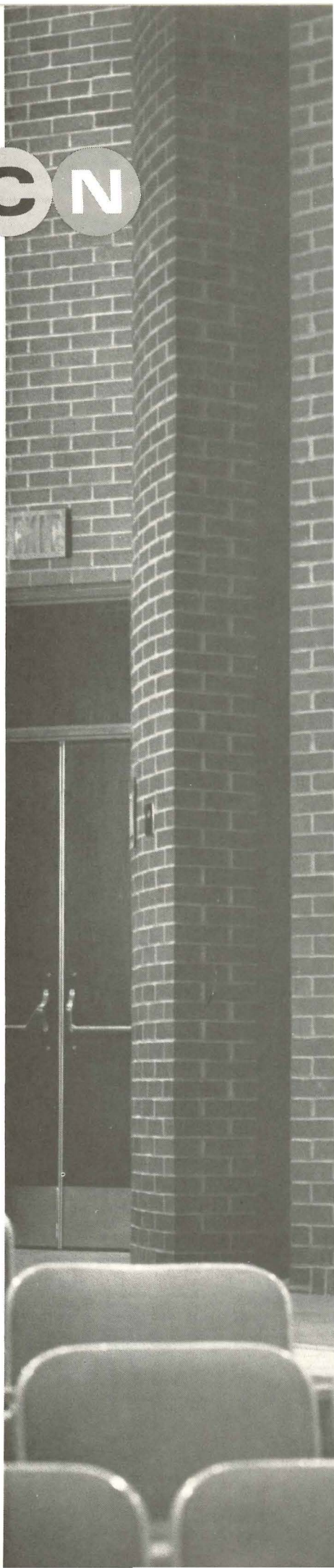
A series of catalogs and brochures on sculpture, metal sculpture, bronze casting and Sarturo Modules. Austin Productions. On Readers Service Card, circle 236.

"Kodak Compass" a booklet describing how photographic techniques such as paste up drafting as well as economical production of renderings, shadow prints, multiple floor plans and reduced size prints can save architects hours of repetitive drafting time. Eastman Kodak Co. On Readers Service Card, circle 237.

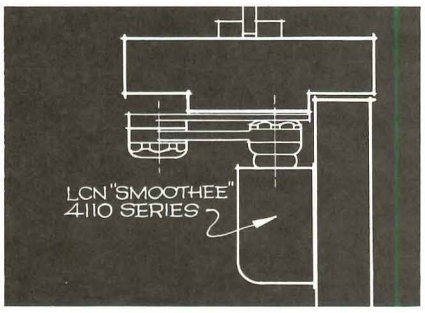
Catalog of plants, both live and artificial and explanation of nationwide interior planting services. Explains supply, maintenance and replacement methods. Parker Interior Planting Services. On Readers Service Card, circle 238.

South Senior High School, Minneapolis, Minnesota
The Cerny Associates, Inc.—Caudill-Rowlett & Scott,
Associated Architects.

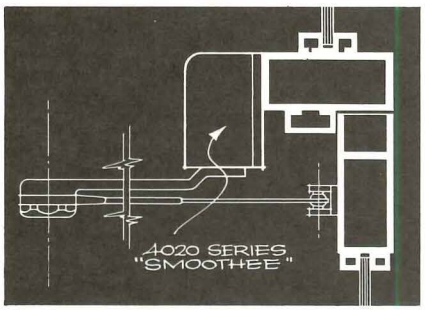
LCN



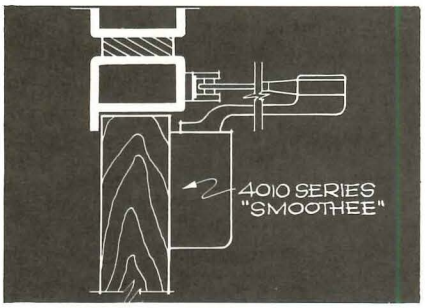
SMOOTHEE® 4110 SERIES AS SHOWN IN PHOTOGRAPH (RIGHT) MOUNTED ON STOP FACE OF DOOR.



"SMOOTHEE" 4020 SERIES MOUNTED ABOVE DOOR ON TOP JAMB.



"SMOOTHEE" 4010 SERIES FOR USE ON HINGE FACE OF DOOR.



door closer notes...

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LCN CLOSERS, PRINCETON, ILLINOIS 61356

On Readers Service Card, Circle 330


EXIT

READERS SERVICE FILE

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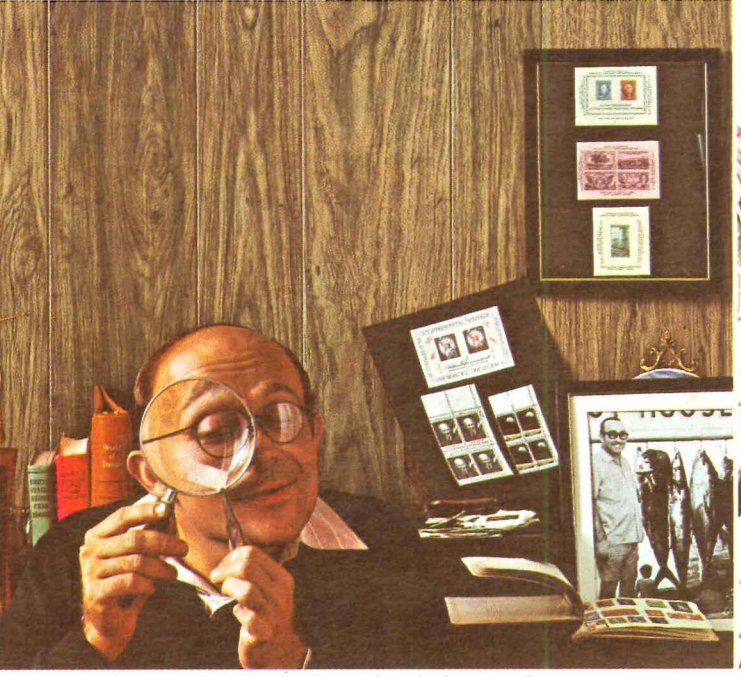


Mossy Pecan Marlite has the beauty of rare hardwood, but is priced to fit anyone's budget.

Marlite paneling is color-coordinated, so Linen Stripe and Tapestry panels look great together.

Mediterranean influence is here to stay. Marlite captures its style in lovely Riviera paneling.

This authentic reproduction is Cathedral Oak Marlite, a new addition to the Trendwood line.

7009

Four new Marlite wall ideas to make everybody's job a lot easier.

When you're looking for a really new and distinctive wall idea, look at Marlite. We have more than 80 different textures, colors and designs —including the four beautiful new panels shown above.

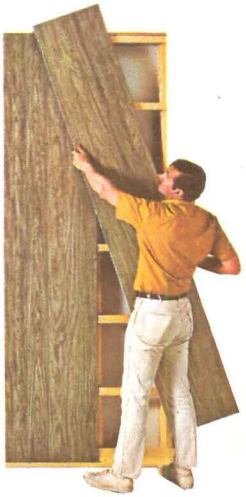
And Marlite makes it easier to create interiors with perfect color harmony. Our complete line is carefully *color-coordinated*. So there's a solid-color panel to match the basic color in every pattern or design. (Marlite is also available in Fire-Test Panels to meet building code requirements.)

Marlite makes the builder's job a lot simpler, too. In fact, one man can install Marlite Planks by himself in a jiffy. They're only 16" wide.

What's new in soilproof, wash-and-wear walls? The answer is easy. Marlite. See it at your building materials dealer or write Marlite Division of Masonite Corporation, Dept. 107, Dover, Ohio 44622.

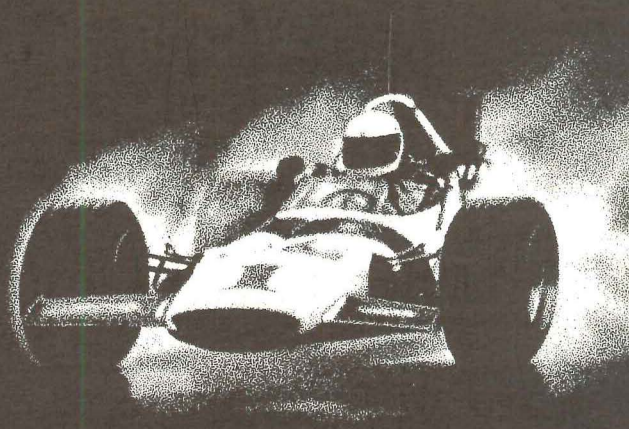
MASONITE® CORPORATION **Marlite®** plastic-finished paneling

Marlite is a registered trademark of Masonite Corporation



On Readers Service Card, Circle 331

From v-v-v-vvvrrrroooooommmmmmm to shhh



ONTARIO MOTOR SPEEDWAY, Ontario, California / Architects: Benham-Kite & Associates / General Contractors and Developers: Stolte Inc. / Glazing Subcontractor: Sitelines Inc. / Glass tempered by Guardian Industries Corp.

...with Glaverbel Float Glass

At California's new Ontario Motor Speedway the roar of the cars joins the roar of the crowd in a decibel-defying crescendo of nerve-knotting noise. *Wall it out,* demanded the owners. Wall it out for the race officials...the radio-tv people...the computer installation. With a wall that controls the temperature and humidity of the space it guards. *But a wall so transparent it seems not to be there.* The architects specified Glaverbel Float glass—criterion for flatness and transparency. Tempered Glaverbel Float in huge (eighty square feet), sealed, double-glazed acoustical window units. The sound-stopping power of an eight-inch solid concrete barrier! And a unique compensating system that equalizes the units' internal pressure to ambient atmosphere, keeps the lights perfectly parallel, utterly undistorted, and as clear as—no glass at all!

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