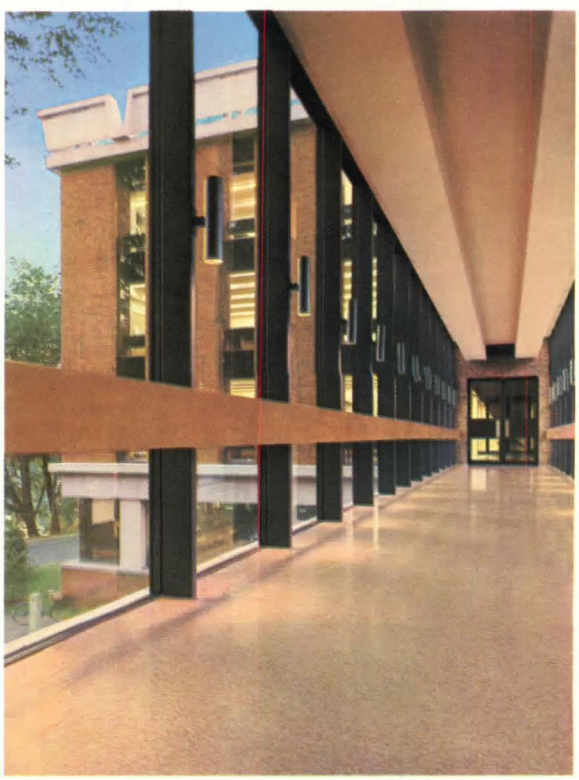
February 1968 **PROGRESSIVE ARCHITECTURE**

A Chapman—Reinhold Publication



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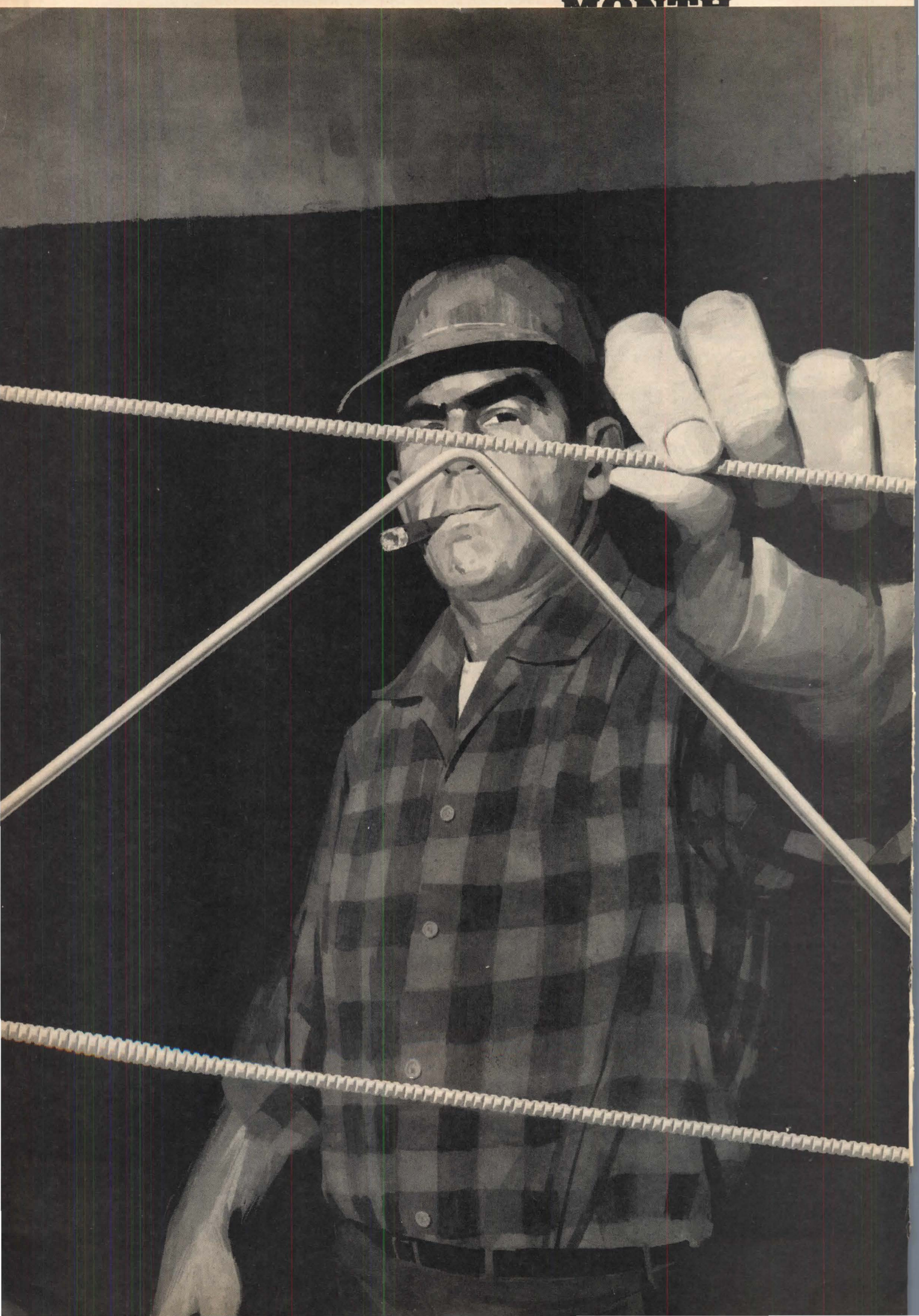

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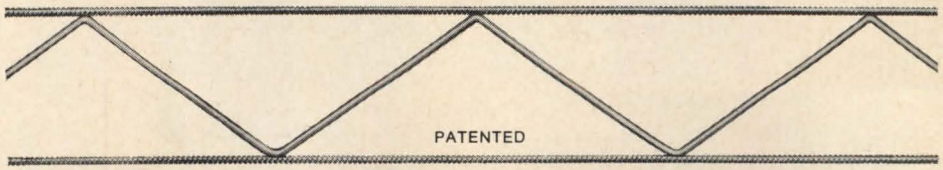

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VIEWS

Urbanizing Classical Design

Dear Editor: I would like to commend you on the remarkably interesting article by Ervin Galantay on Bern entitled "Old New Towns" (DECEMBER 1967 P/A). It is tremendously refreshing to see a study of an old city that is not a romantic appreciation of the quaint aesthetics but rather an intellectual analysis of the processes of growth and urban form as related to contemporary problems.

A great new vitality was introduced into architectural design and city planning during the Renaissance by a reinterpretation of classical design in relation to the current problems of that day. I think the Galantay article may herald a similar development that will inject new vitality into contemporary urban design. Certainly something of the sort is needed.

EDMUND N. BACON
Executive Director
Philadelphia City Planning Commission
Phila., Pa

Gods and Cathedrals

Dear Editor: Despite the neo-liberal tone in the first part of your Editorial (DECEMBER 1967 P/A), the ending was typically noncommittal and professional image/ego oriented.

You compared, perhaps unwittingly, cathedrals and housing. Yet it is quite obvious that without man, and without solving man's most basic needs of food and shelter, there is no need of cathedrals — or gods.

As people cognizant of social factors, and as architects conscious of needs and realizing that the people who make decisions to build either cathedrals or houses already have their houses, we must take a firmer stand in areas that will affect these decisions. Never mind how we can afford both cathedrals and houses. If we can satisfy housing needs, the cathedrals will follow. Or maybe people will start believing a bit more in their fellow men — even the ones who are more equal than themselves.

ALAN D. CHASAN
Chicago, Ill.

Superphenomena

Dear Editor: After reading your October, November, and now December issues of last year, I wonder how you can say with a straight face that a specific designer *invented* "Supergraphics" or "Supermannerism." Rather than probe the breadth and depth of these emerging phenomena, you chose to cheerily cultivate various designer-personalities, nearly all of whom, oddly enough, seem to be connected with Yale. Surely architecture can be viewed in a broader scope than just personality gossip from New Haven.

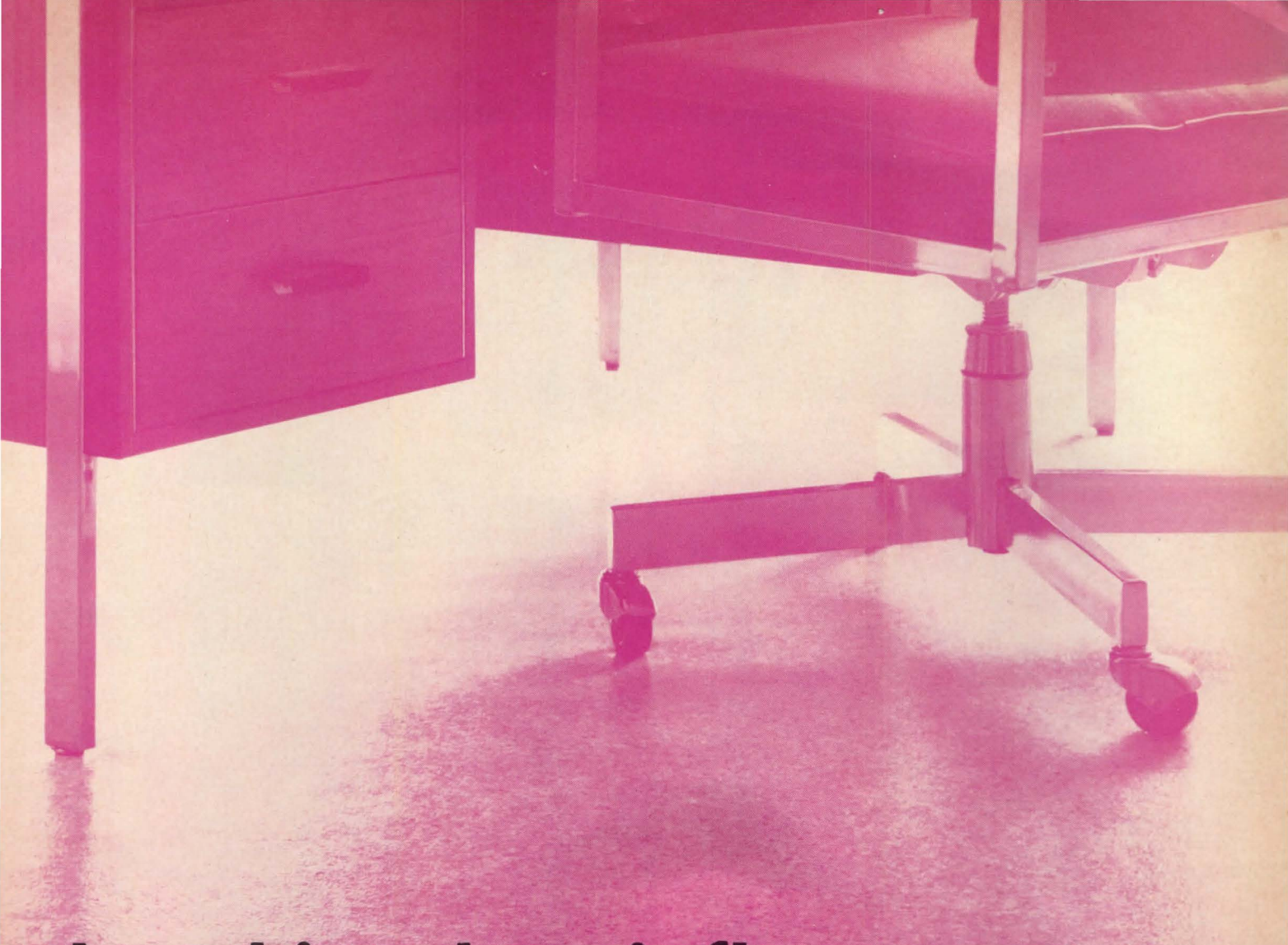
PAUL FISHER
Berkeley, Calif.

[*We infer that you are familiar with others working in the idiom P/A has been covering and would appreciate your letting us know about them. Many thanks for your implicit acceptance of P/A's name for this current architectural movement.* — ED.]

Extirpating Gobbledygook

Dear Editor: The article "Arboreal Manifesto" (OBSERVER, DECEMBER 1967 P/A), struck a sympathetic chord. Many times I have read articles and books, or listened to lectures and presentations, which, through the use of multisyllable

Continued on page 12



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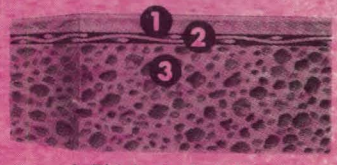

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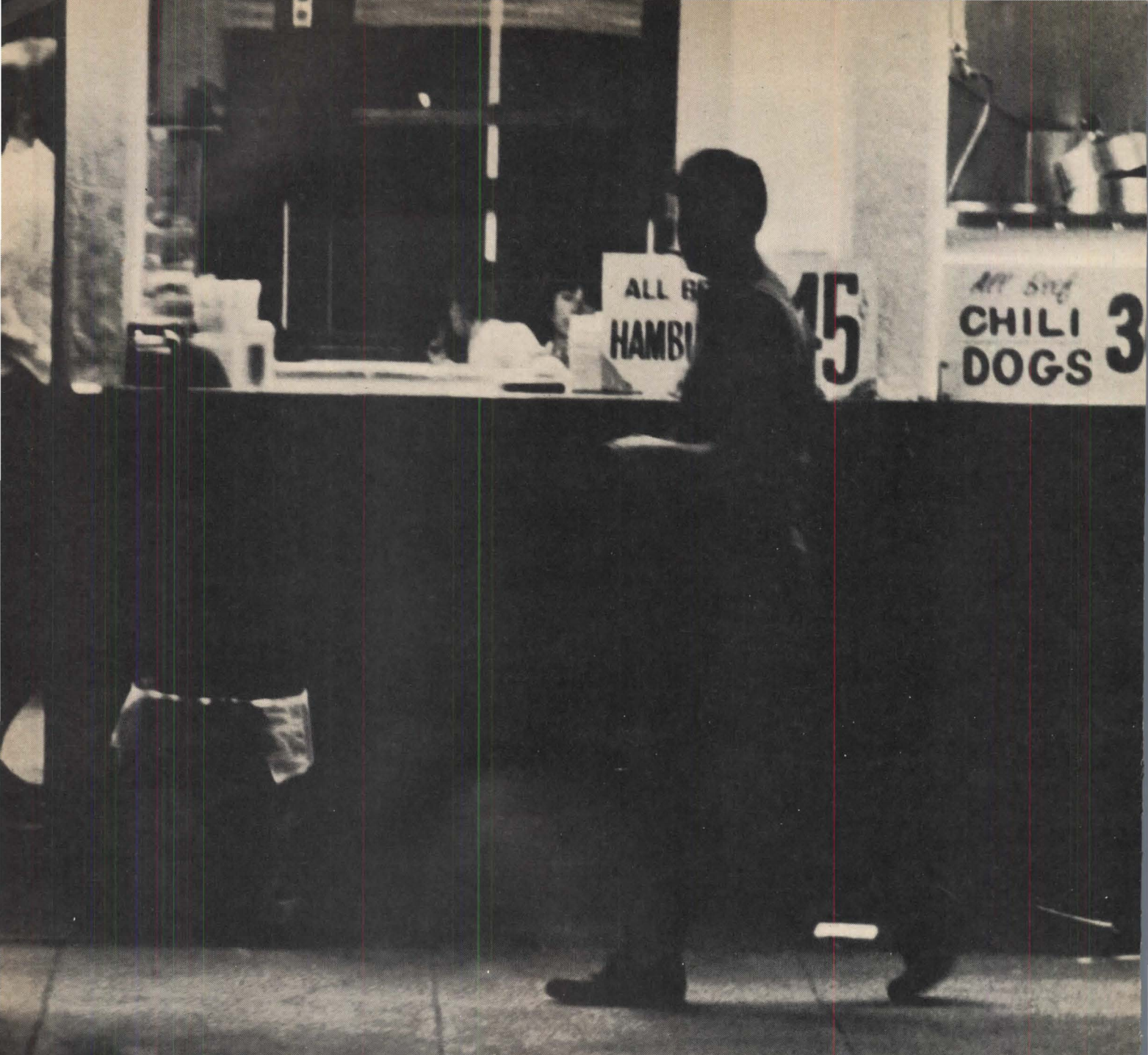

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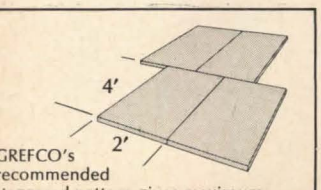

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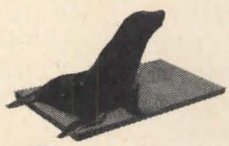

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Continued from page 6

and seldom-used words, tended to confuse rather than clarify the situation. Most of the time I was mentally trying to interpret what was being said and was missing the words and thoughts that followed.

Since then, I have often wondered why authors and speakers do this. Perhaps they feel that it is necessary to impress their audience in this manner. In the case of professionals, perhaps they can justify a larger fee by appearing to be extremely well versed in their particular field.

If such authors and lecturers would "extirpate their micro-cosmic flights into the illusory world of gobbledygook" — cut out the baloney — they would be more effective and better appreciated in their respective fields.

R.K. KUECHLE
Lawrence Radiation Laboratory
Livermore, Calif.

P/A Helps Save Historic Building

Dear Editor: York House, the 1911 textile warehouse in Manchester, England that we propose to retain and re-use (OBSERVER, NOVEMBER 1967 P/A) has recently been put on the Ministry of Housing and Local Government's statutory list of buildings of special architectural interest. Fortunately, the Ministry acted quickly, because tenders for demolition had already been sent out by the owners. After visiting the warehouse, Anthony Dale, chief investigator in charge of the listing of buildings, reported York House had outstanding merit.

We have recently received a letter expressing strong support from Dr. Walter Gropius, who wrote: "Buildings of such significance are rare and contribute to form the characteristic image of a city."

May I take this opportunity to thank your magazine and the many individuals in Britain and in this country who have helped to substantiate our scheme and make it a force that resulted in positive action.

New York, N.Y.
JOSEPH PAUL D'URSO

That's Architecture!

Dear Editor: Ervin Galantay's good review of Le Corbusier's *La Ville Radieuse* (JUNE 1967 P/A) reminds me of how, years ago, LeC's earlier writing disturbed an architect trained in the Beaux Arts tradition.

In 1930, in New York, I was a draftsman in the small office of such an architect. He was a blunt, straightforward man — but some of the grandeur of the Beaux Arts had rubbed off on him. In that office we argued about everything and got along very well.

Continued on page 16

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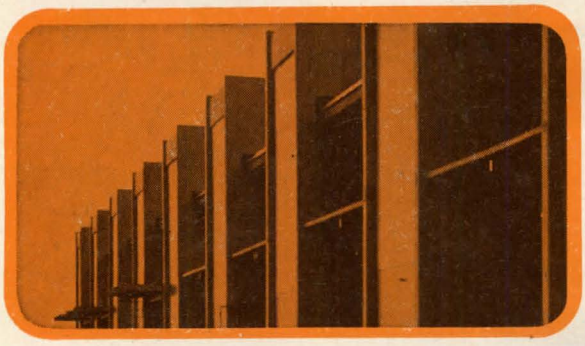

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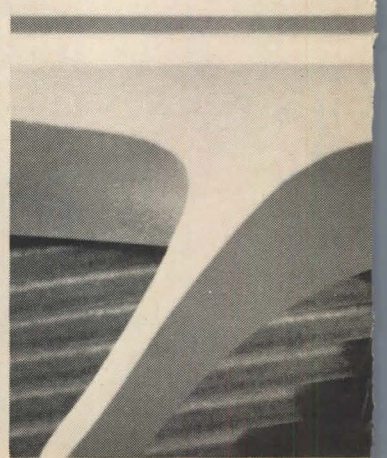
the beautiful world of reinforced concrete is reaching out ...268 ft.

This exciting new landmark will soon be a part of the San Diego skyline. It's the Adams Avenue Overpass. Part of the Mission Valley freeway project. A monolithic reinforced concrete span that will reach out 268', rise 80' above the freeway floor, nestle beautifully on a ridge that can be seen for miles around. It's a curvilinear 3 span structure with inclined bents. Easy to look at. Economical to build. Virtually maintenance-free.

But, the versatile world of reinforced concrete is taking many new and exciting shapes and forms. No longer is it limited in length of span. It's reaching up, out . . . new concepts of geometrical design, new high strength steel, are locking beauty, utility and economy into some of the most distinctive architectural achievements man can imagine.

One of the important developments providing greater design flexibility in concrete construction is Grade 60 steel, a new high strength material providing 50% greater yield strength. If you're building . . . buildings or bridges . . . ask your consulting engineer about all of the unique advantages high-strength steel offers in the design of reinforced concrete structures. Do it soon.



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Adams Avenue Overpass. Project designed by the California Division of Highways Bridge Department. Cast-in-place box structure containing six cells. Bridge Department used a computer in preparing design. Depth of structure changes continuously from end to end, however, fascia depth is consistent from abutment to abutment. Depth of box unit is 15′ at piers, 7′ at abutments, and midspan is 268′. Design loading: AASHO HS 20-44. Seismic loads were also considered. About 730 tons of steel will be required—bars range in size from #4 through #18. Hollow cells provide for utilities. Contract cost: $13.01 per square foot, of which $8.98 goes for superstructure. Estimated cost of curvilinear design is roughly the same as a structure designed with vertical columns and straight soffits.

CONCRETE REINFORCING STEEL INSTITUTE

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Continued from page 12

During lunch hour one summer day, I bought Le Corbusier's *Toward A New Architecture*. It appeared to me to have good questions about why buildings should not be designed in the same direct manner as tobacco pipes and ocean liners. When I returned to the office I showed the book to the boss. He looked through it but made no comment.

That afternoon he came out of his private office and started to work in the drafting room at the long table that was used for full-size details. Soon he had a charcoal pencil dashing all over the paper. The draftsmen and the secretary were quietly curious about what he was doing. Eventually, I recognized in his drawing the circular window to be set at the center of a pediment of a small public building which was on the boards. I had been set to finding ways of recessing radiators on the wall sections. The radiators had been an afterthought. The window, as it developed, had a heavy stone trim with stone festoons beyond the trim. Here was much of the spirit of the decoration on the front of Grand Central Station. This upset me because I had thought of the building as quietly Georgian.

The boss continued to draw all through the afternoon with vigor that surprised us. Not much was said. I was afraid that he might knock himself out. By quitting time it was done. The drawing had lots of verve with very little smear.

I distinctly remember looking at the drawing and then facing him across the table. I was impressed; he was defiant. He threw the stub of the pencil on the board and said, "There, that's Architecture!" and walked back to his private office.

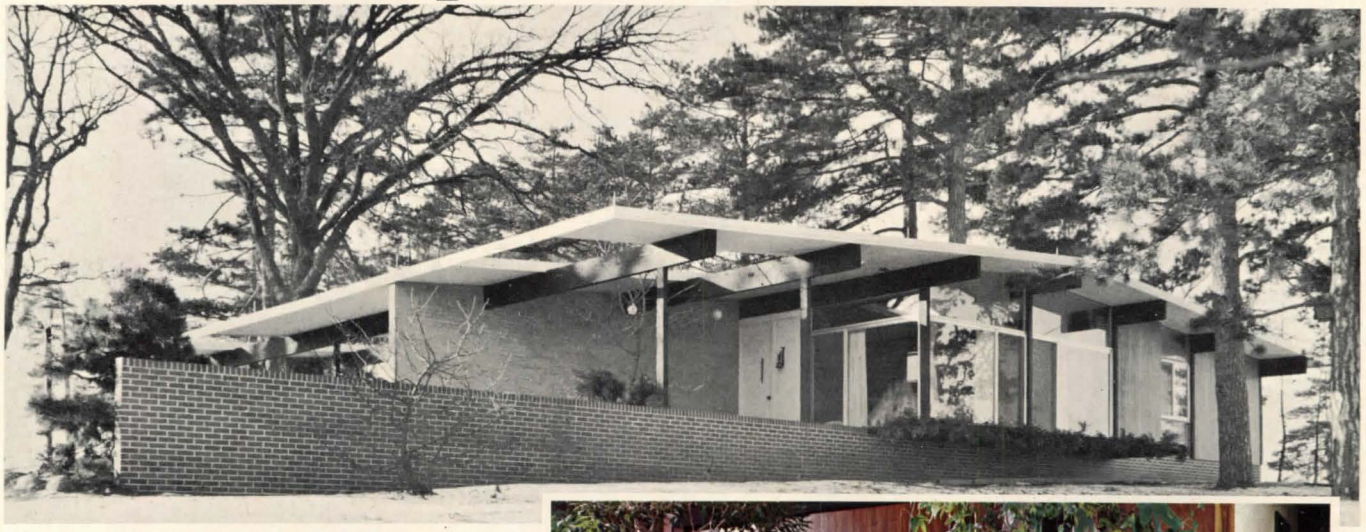
ALAN MATHER
Detroit, Mich.

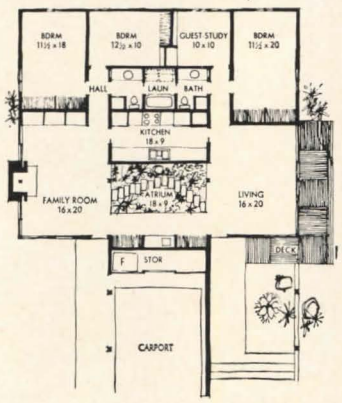
Bird's-Eye Fault-Finding

Dear Editor: Re your report on the AIA headquarters in NEWS REPORT, DECEMBER 1967 P/A: I subscribe to the Giurgola statement, "I deplore their (Fine Arts Commission) outdated concern with architecture as a monument." In my judgment, the distinguished members of that commission were trying to find faults with designs by looking at them from a bird's-eye view rather than eye level, going through the spaces. As a member (at least in spirit) of the great majority of 19,000 architects who voted for the Mitchell and Giurgola design, I expect someday a democratic victory of architecture over the current rather totalitarian state of affairs in our profession.

ADAM M. KAAS
New Haven, Conn.

Moving nature indoors is easy... with trees, plants and ceramic tile.





The pleasures of an indoor garden are obvious. But, an atrium is often gained at the expense of convenience, or given a self-defeating "fish bowl" treatment.

Architect Ray Heuholt, A.I.A., solved this dilemma by combining living things and a natural material — ceramic tile — in this Des Moines, Iowa home. A ceramic mosaic floor surrounds the atrium and covers the family room, entranceway, kitchen, bath and halls. The atrium can be maintained simply, without worrying about water, soil, spilled gravel or falling leaves.

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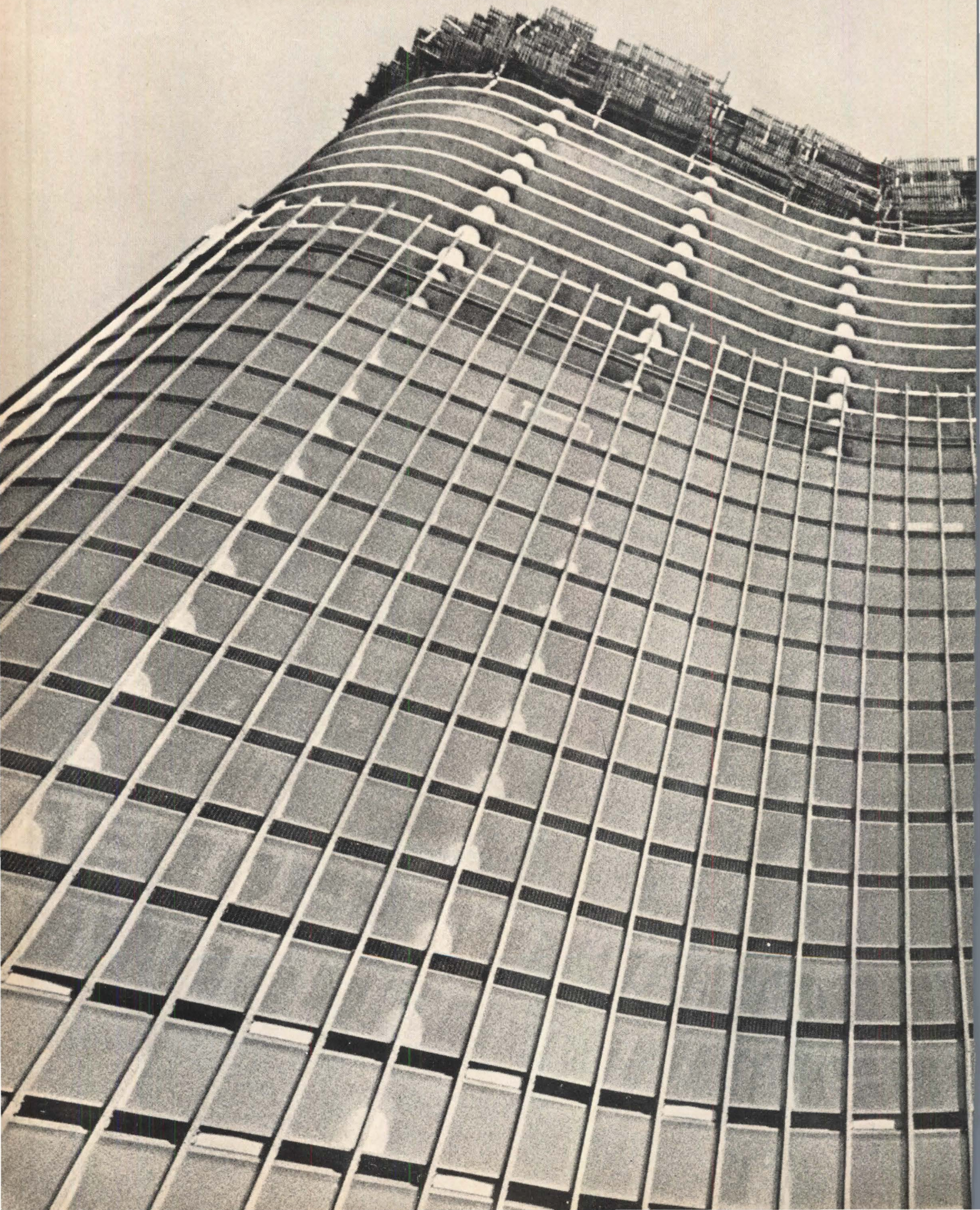
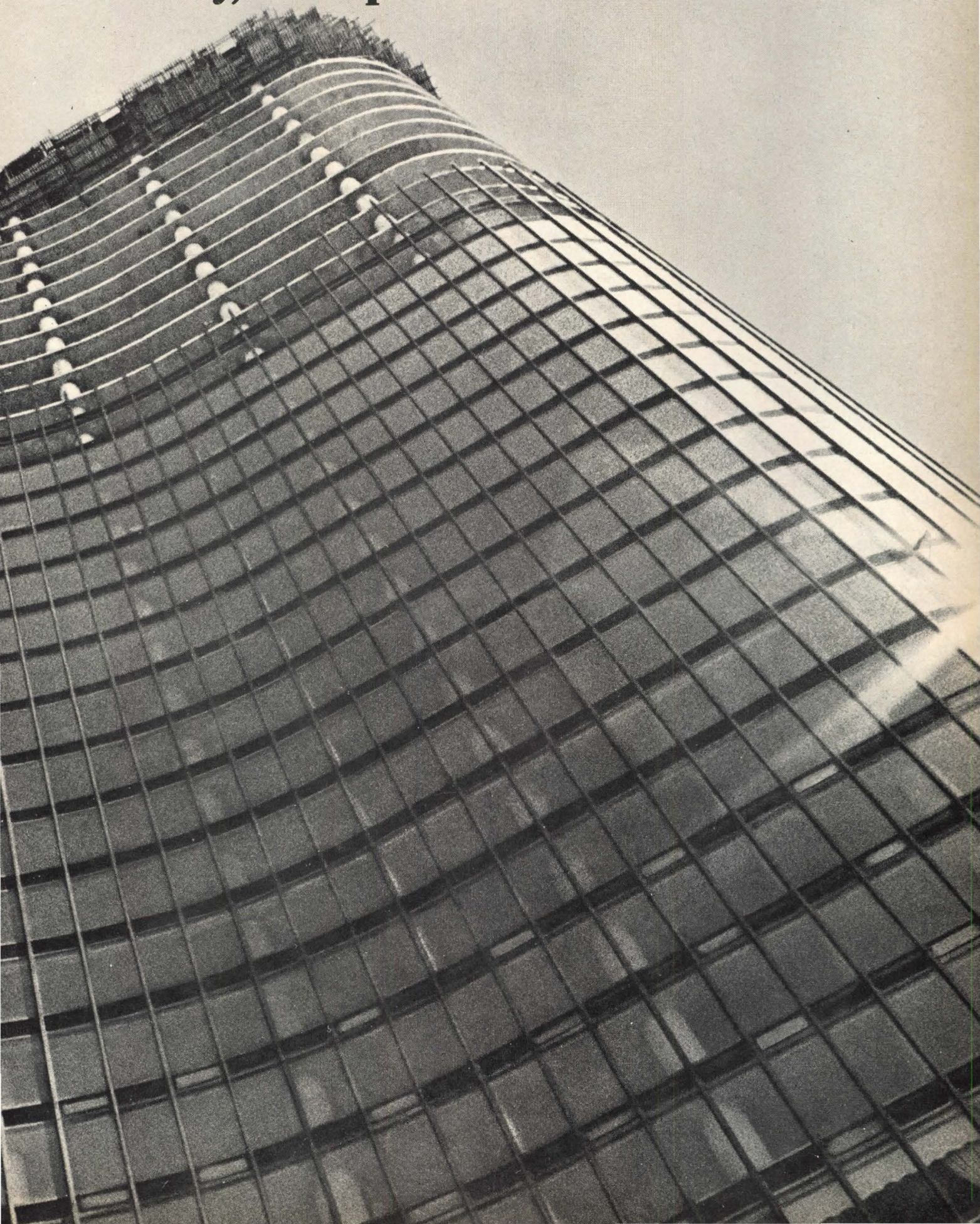
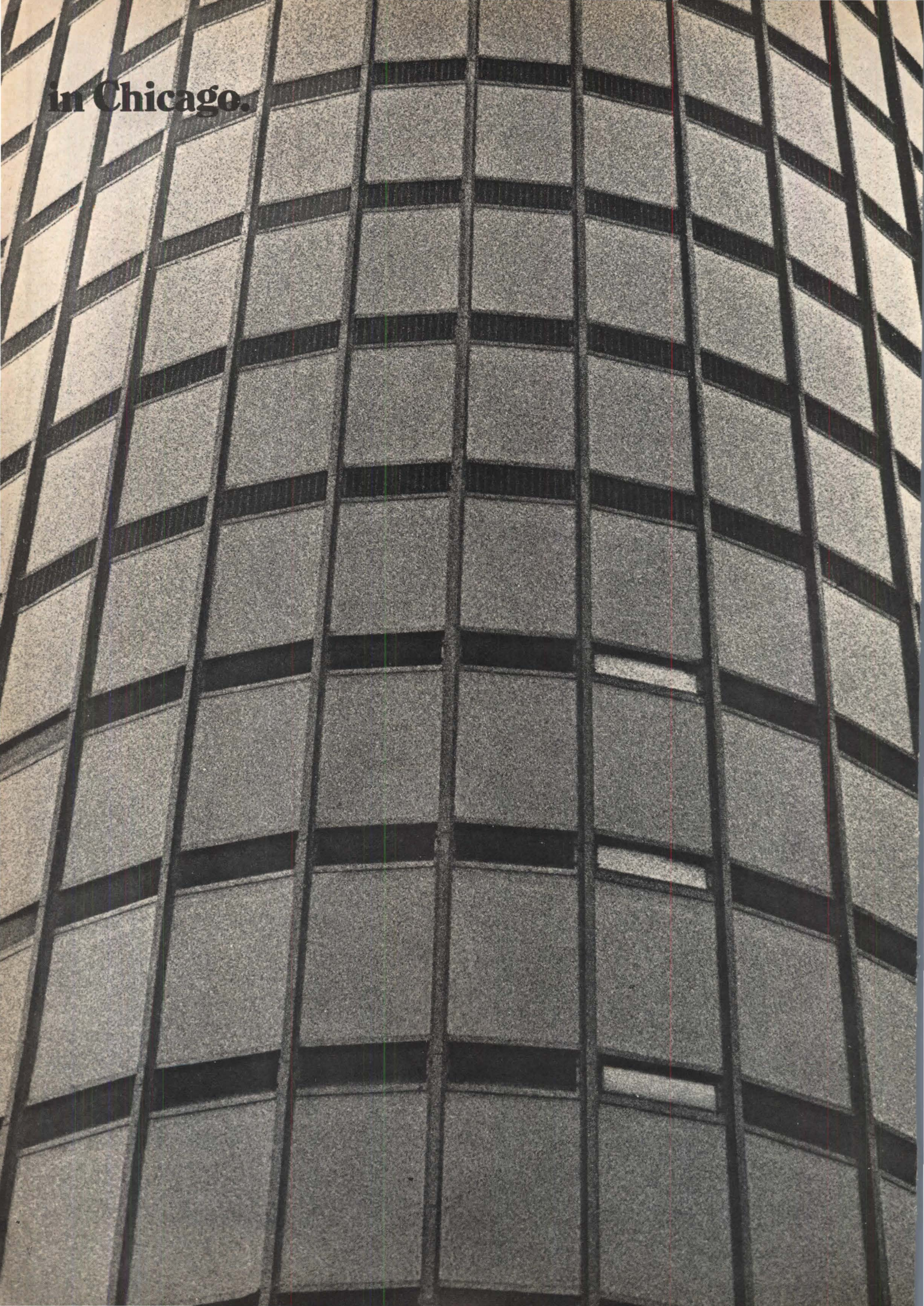
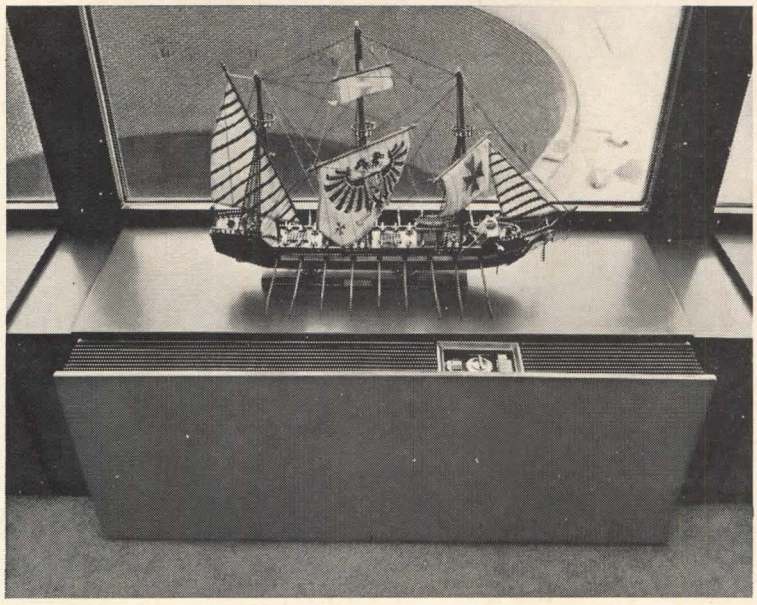


the 70-story, 900-apartment Lake Point Tower...




in Chicago.



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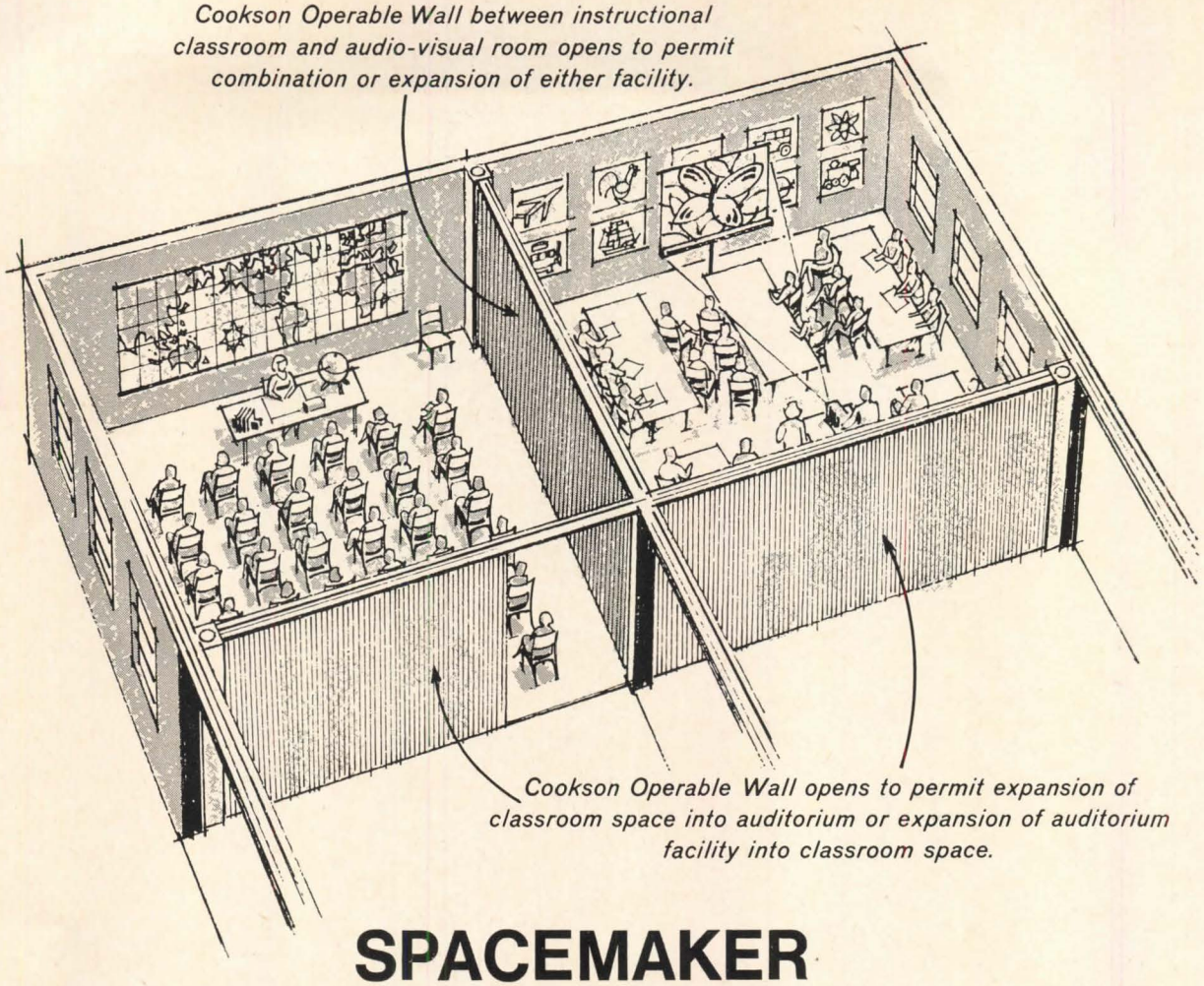
Structural Engineer: William Schmidt & Associates, Chicago.
General Contractor: Crane Construction Company, Inc., Chicago.
Mechanical Engineer: William Goodman, Chicago.

GENERAL ELECTRIC



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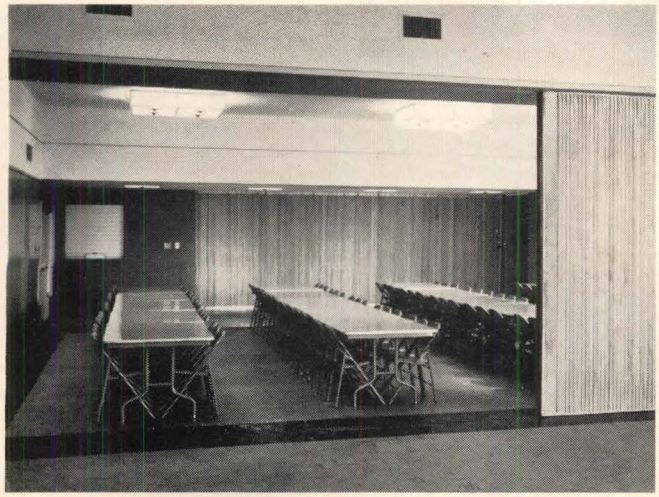
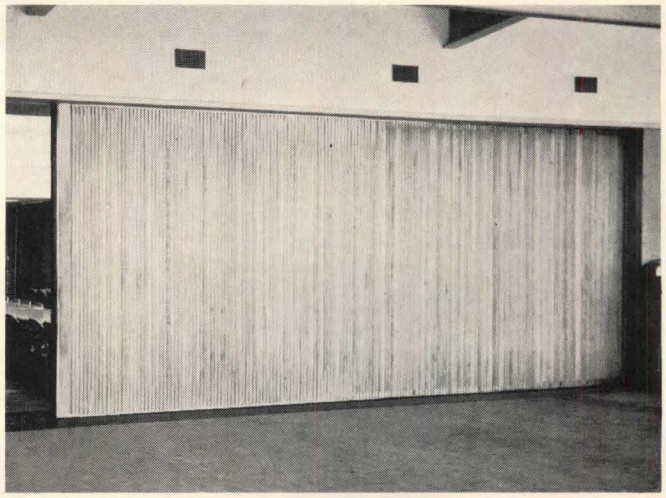


Cookson Side Coiling Operable Wall—almost fully open



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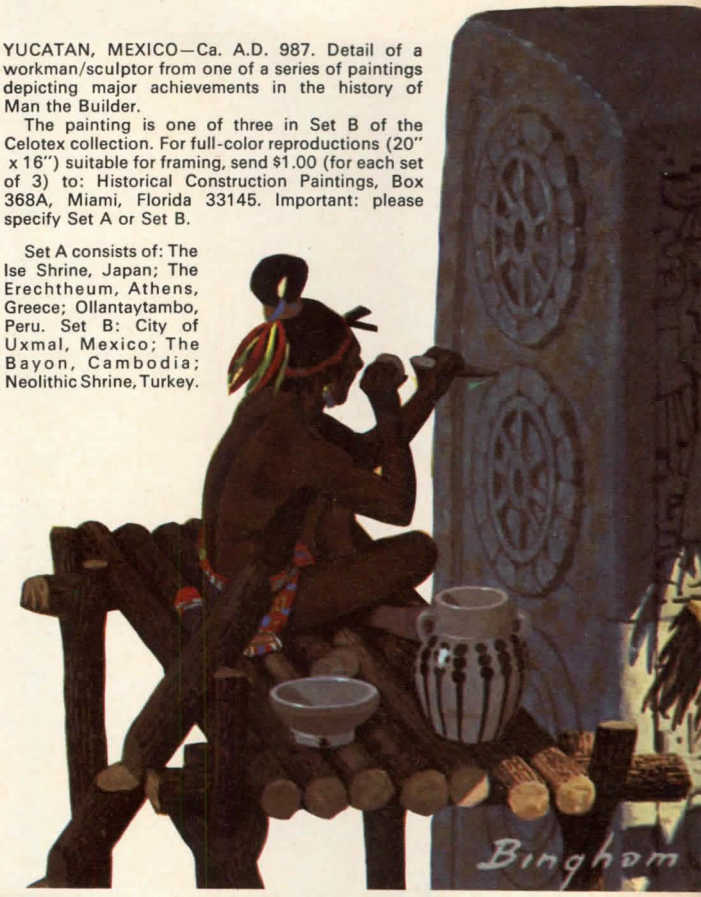

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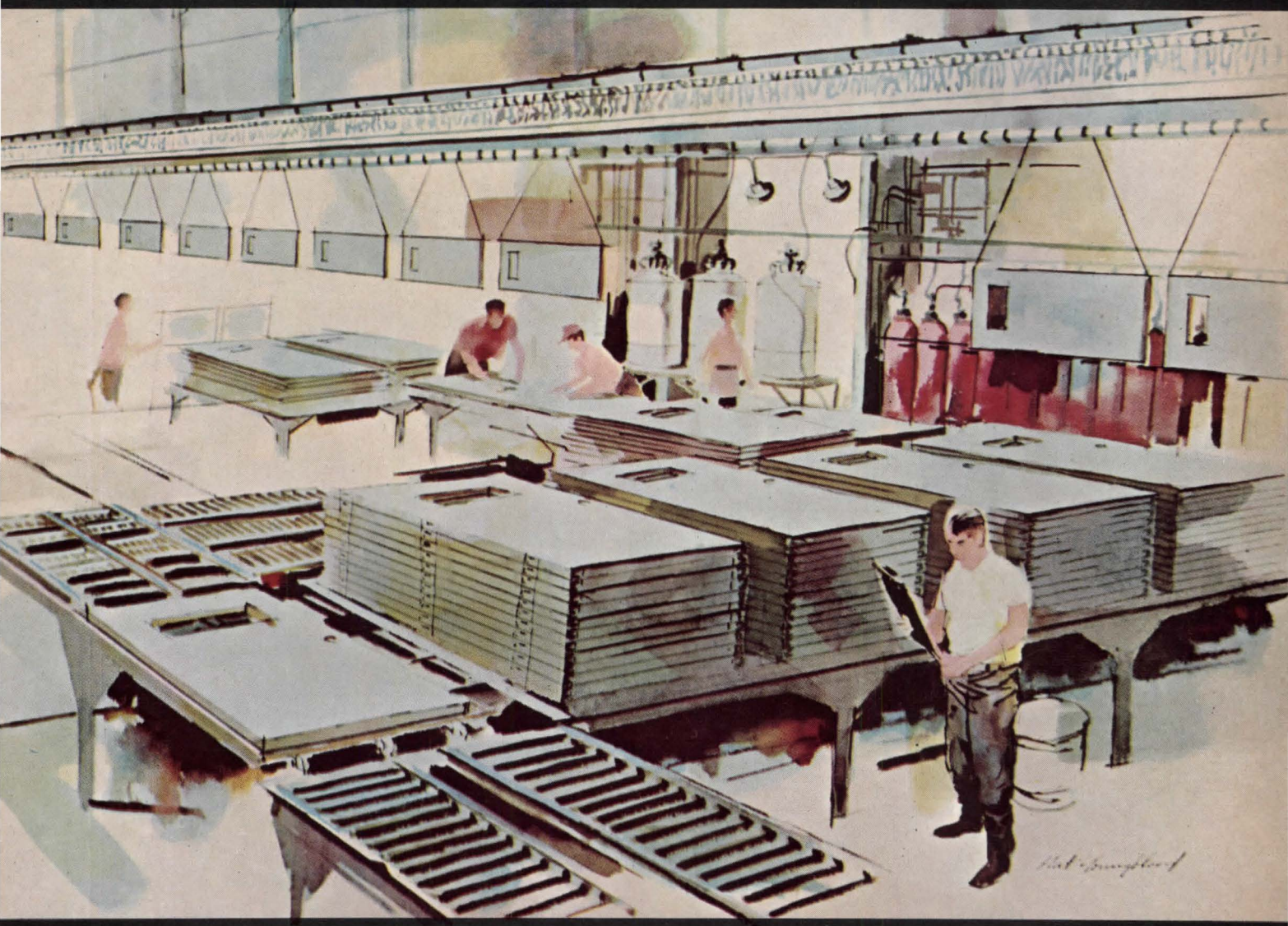

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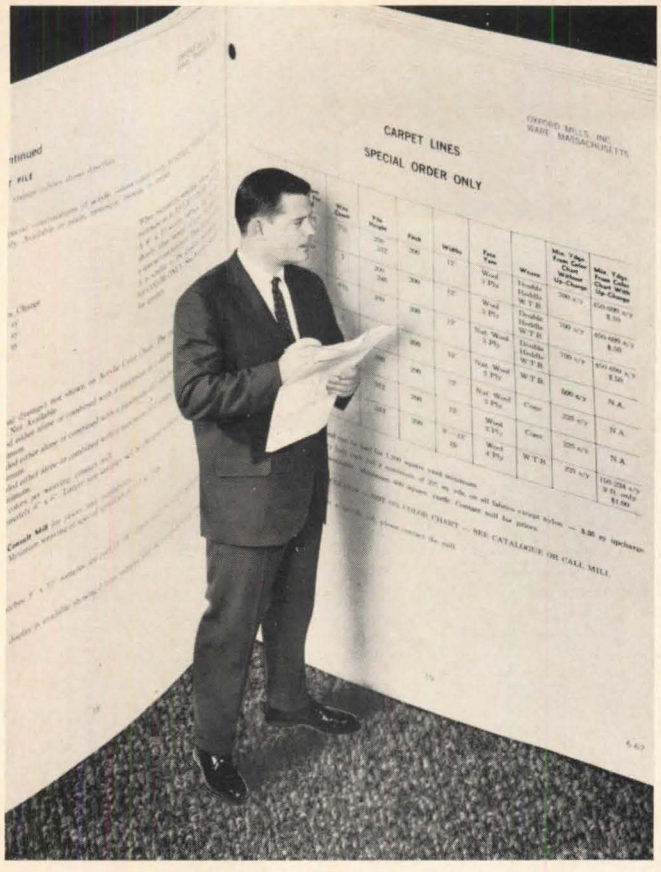

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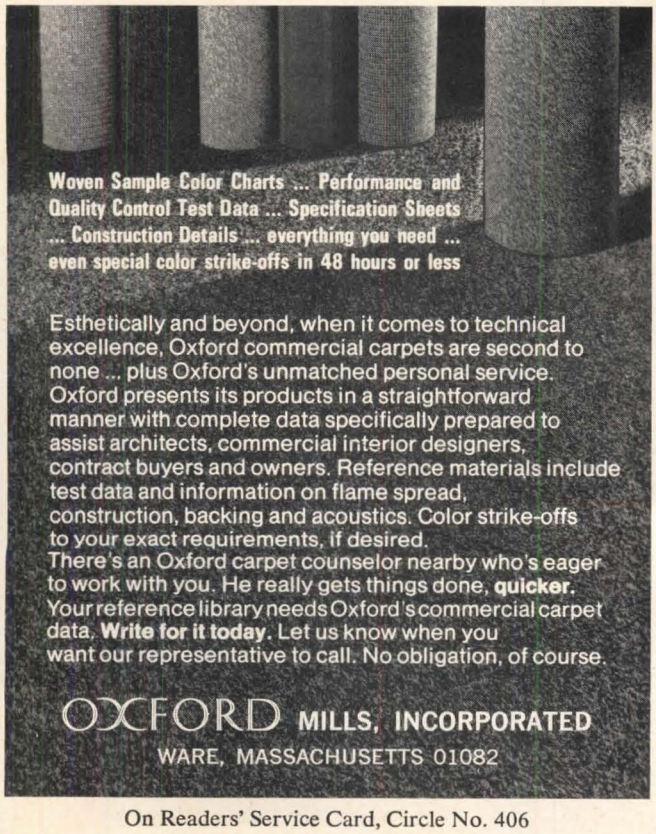

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American Savings, San Jose, Calif. Architect: Robert Hagman

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Architectural Awards

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Whitesboro, New York

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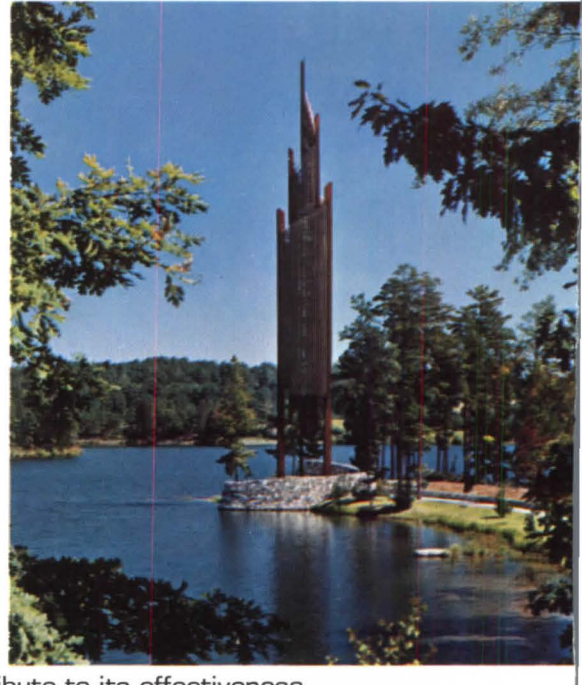
Washington & Lee High School Gymnasium
Montross, Virginia

"The main body of the building is very finely designed. The exterior reveals its purpose and is a wonderful expression of what happens in the building. The result is an extraordinarily honest design."



Carillon
Stone Mountain, Georgia

"The Carillon is appealing—it suggests a baroque organ and seems a suitable expression of the purpose of the building. It fits nicely into its setting, and the color that is achieved by the exposed 'weathering' steel will contribute to its effectiveness. The materials, steel and wood louvers, have been left in their natural form; they will age well together. This is really an attractive piece of architectural sculpture."

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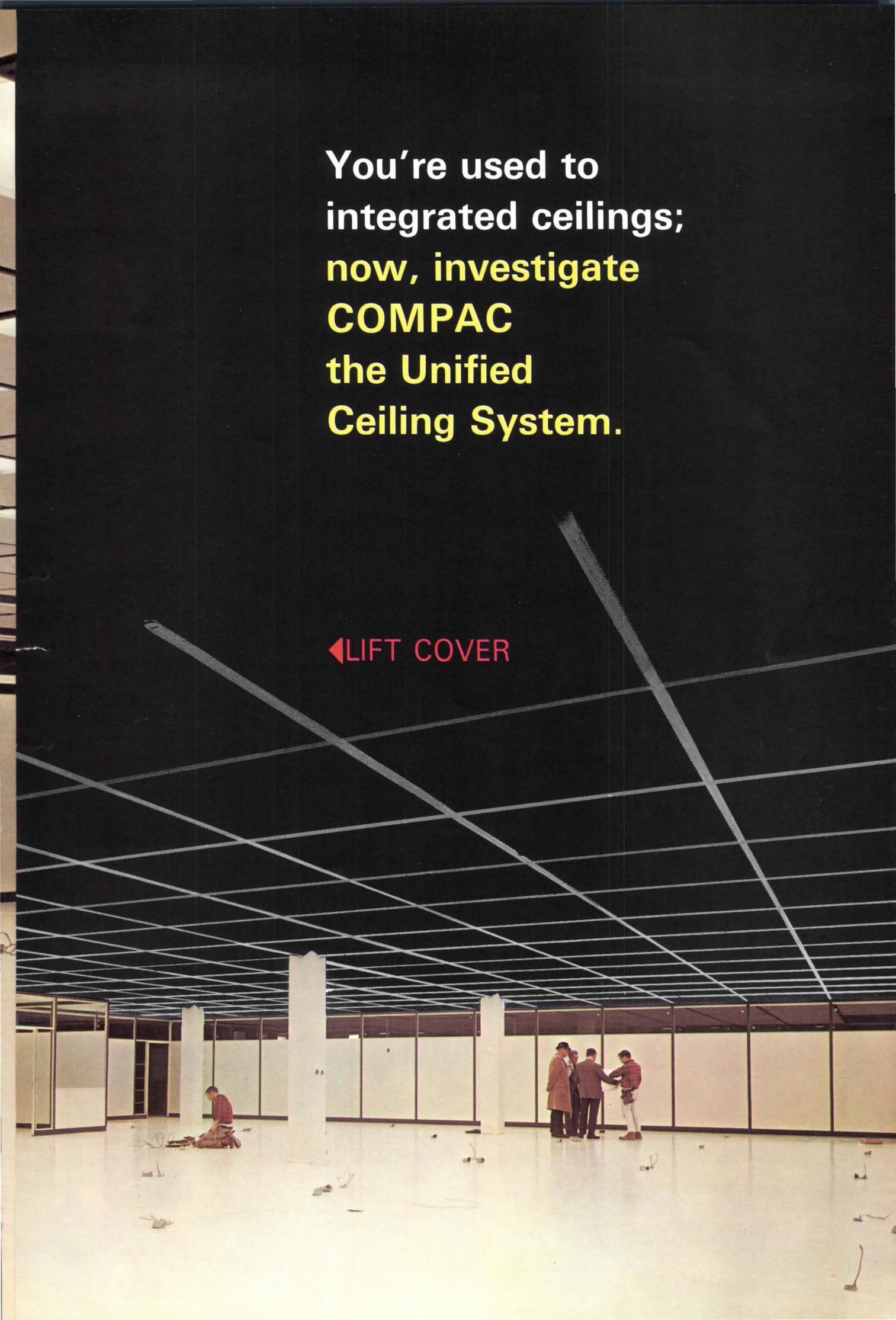
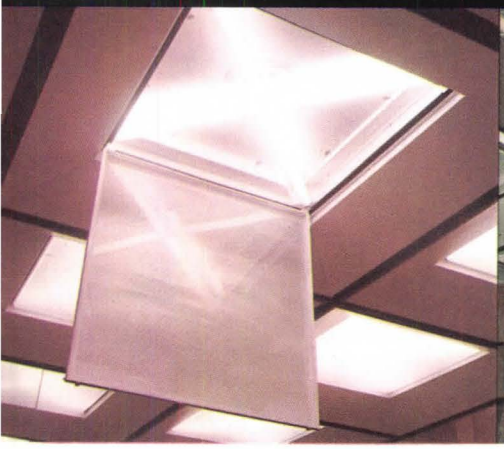
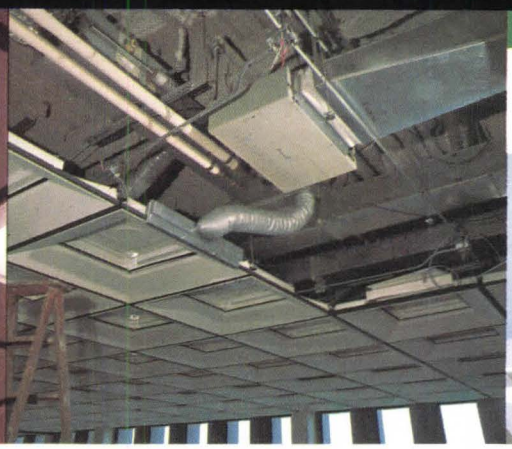
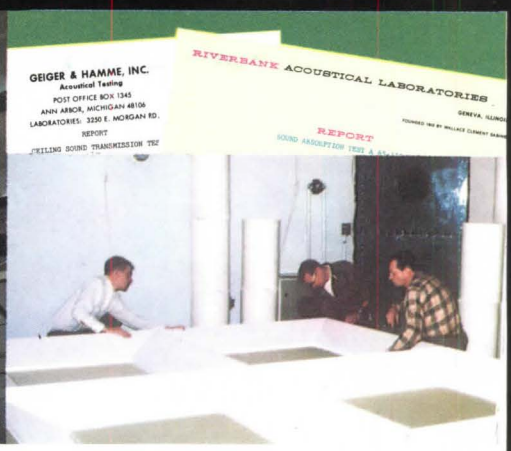


Compac's capabilities challenge comparison.







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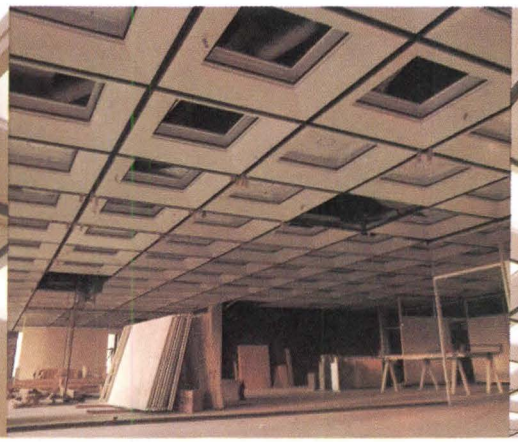

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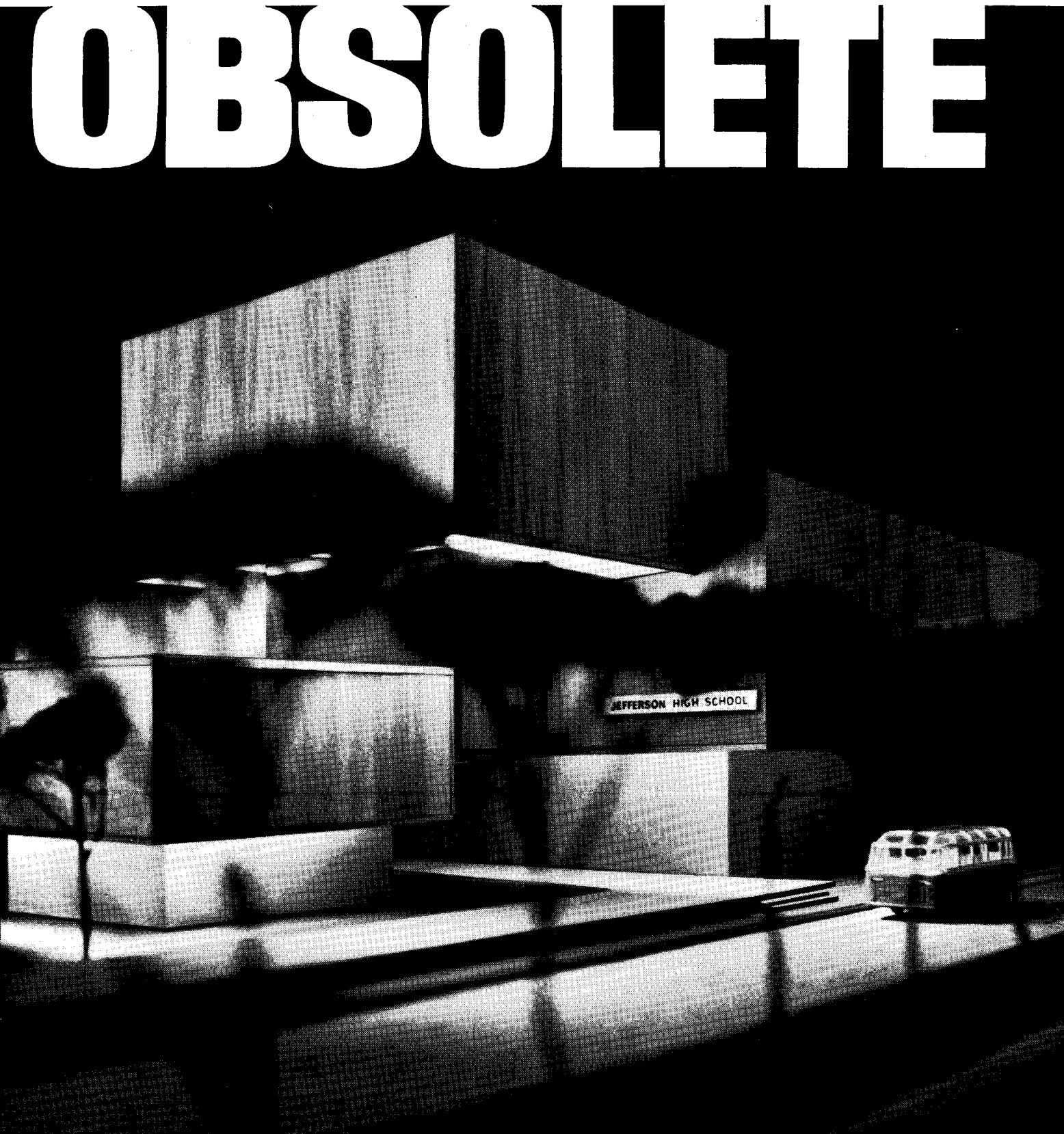

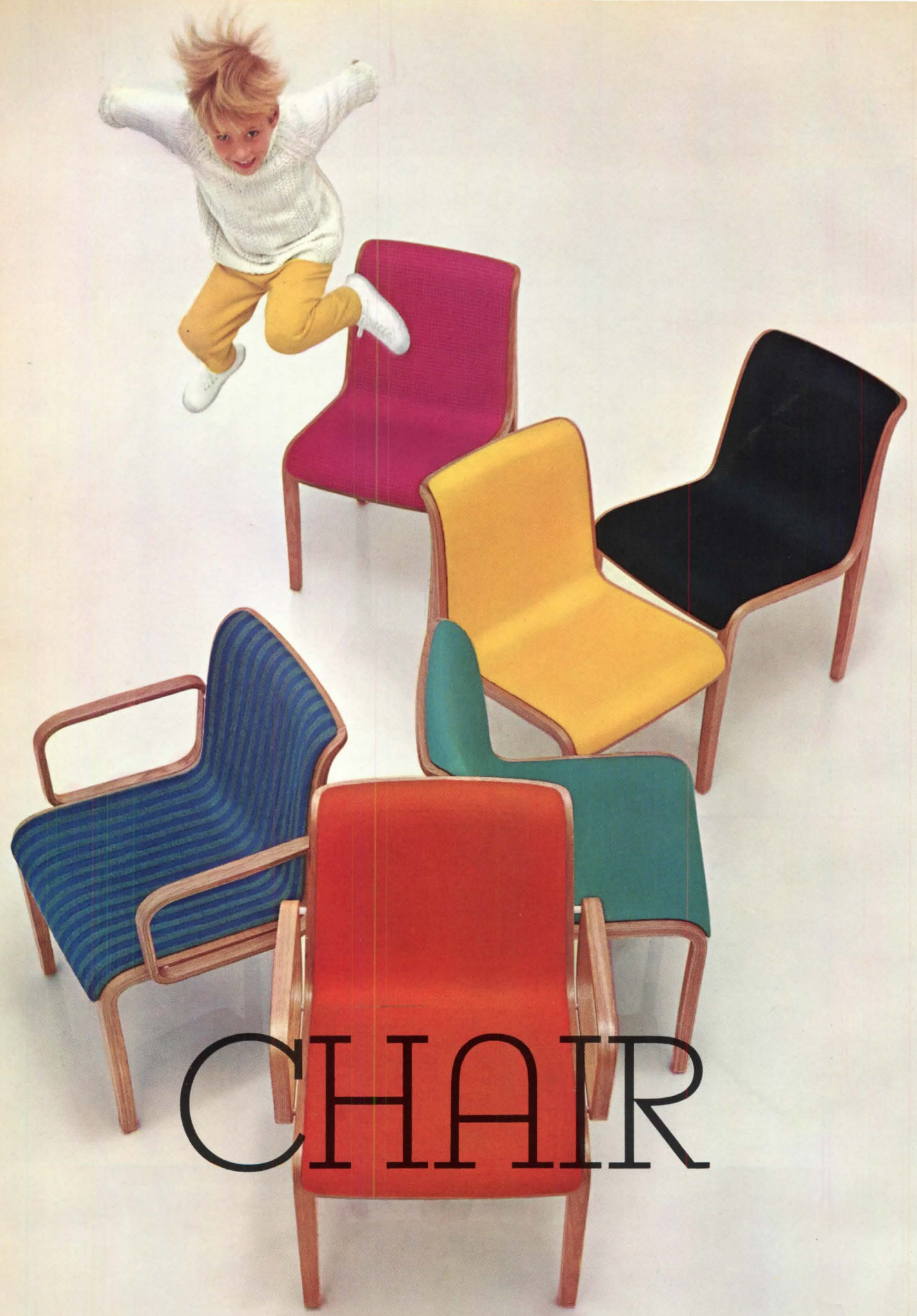

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P/A NEWS REPORT

Progressive Architecture's Monthly Digest of Buildings, Projects, People and Products *February 1968*

DAMAGING DISNEY DEVELOPMENT

SEQUOIA NATIONAL FOREST, CALIF. Sixty years ago, with the U.S. population about half its present size, the need to preserve wilderness areas from the ravages of civilization became increasingly and alarmingly clear.

Now, with the population poised to spring upward from its 200 million level, with the lakes and rivers becoming polluted, with highways and subdevelopments carving up the landscape, the need for wilderness areas, preserved in

their virgin state as a reminder and an inspiration, is no longer felt. Or so it seems.

The decision early this winter to open Sequoia National Forest, adjacent to Sequoia National Park, to a $35-million winter and summer resort development, may have been the first leak in an already shaky government dike of preservation. Developers for the project: WED Enterprises, Inc., the firm formed by the late Walt Disney and his brother, the firm that gave the world Disneyland and other wonders. Mineral King Valley, site of the development, is surrounded by high Sierra peaks, not far from Mt. Whitney, the highest point in the continental U.S. To get there, hikers and campers must follow a narrow, sometimes paved, sometimes dirt road through Sequoia National Park. To pave the way for the Disney hoards, the park will provide a concrete two-lane highway with scenic lookouts.

Secretary of the Interior Stewart Udall agreed to the road, and in essence to the development, in late December. Secretary of Agriculture Orville Freeman, who controls the National Forests, pushed the project. So did the Bureau of the Budget. Both have been under pressure from the executive branch of the Federal Government to come up with revenue producing projects.

Writing in *The Quiet Crisis*, Udall said: "The status we give our wilderness and near wilderness areas will also measure the degree of reverence for the land . . . A wilderness system will offer man what many consider the supreme human experience. It will also provide watershed protection, a near perfect wildlife habitat, and an unmatched science laboratory where we can measure the world in its natural balance against the world in its man made inbalance." Obviously, Udall has changed his mind. Perhaps he agrees with a six-year old we know: that the Disney organization offers the supreme human experience.

WILL THE ARCHITECT BE A UNION MAN?

CHICAGO, ILL. Alarmed by the inroads of union organizers on architectural and engineering offices, some 400 professional designers gathered in Chicago recently to discuss what to do about it. Six professional societies, including the AIA and the National Society of Professional Engineers, sponsored the meeting, and after a day of swapping experiences the sense of the meeting boiled down to what Vince Lombardi might have told the Green Bay Packers: A good offense is the best defense. A union has no handhold if the salaries, wages, and fringes paid are already competitive with those in other offices in the area.

Another ploy is litigation. Workers, promised instant riches by the unions, lose their enthusiasm when court cases drag on for two years or more, effectively halting unionization.

Some offices have been unionized or nearly so, on the West Coast, but the full effect of collective bargaining cannot, of course, be felt until a majority of the architects, engineers, and draftsmen in an area have signed up. So slowly is unionization progressing that it is hard to detect any real enthusiasm for it within the professions. Perhaps the mere threat of it in professional ranks will bring salary and fringe benefits to levels more suitable to this type of highly skilled work.

CARILLON FOR FISH CHURCH

STAMFORD, CONN. Since Wallace K. Harrison completed his renowned fish-shaped First Presbyterian church in Stamford nine years ago, 300,000 visitors from around the globe have signed its guest register. Now, scheduled for completion this spring, is a Harrison-designed 260′ carillon tower, located across the driveway from the front door of the church sanctuary. It rises from a 550-ton slab of concrete, and consists of four lower concrete columns and four upper ones, spliced together about halfway to the top. There will, of course, be

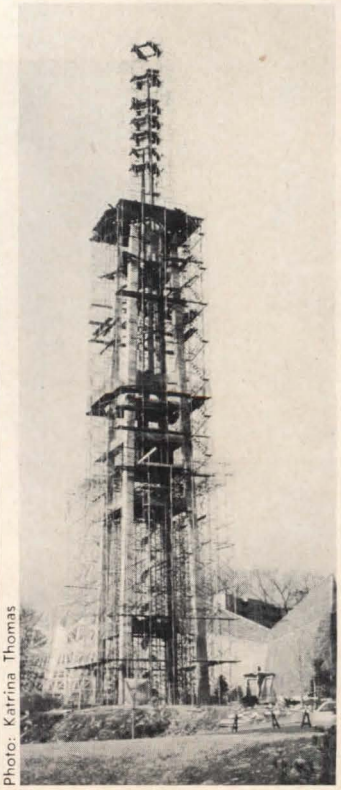
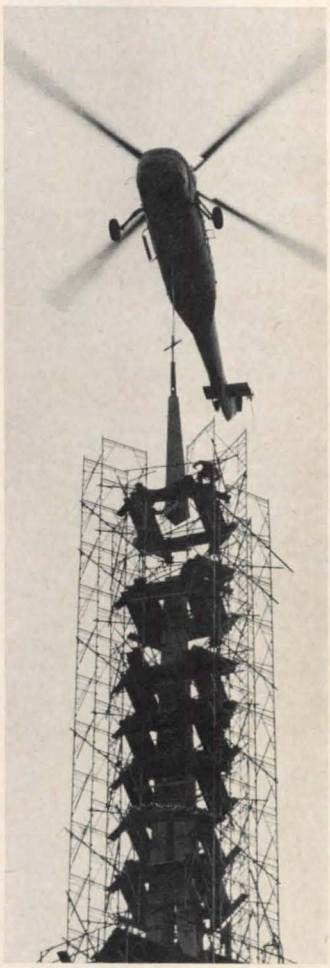


Photo: Katrina Thomas



lateral bracing, some provided by concrete platforms that serve as belfries. In all, the tower will hold 56 carillon bells, the largest of which weighs more than 7000 lb. Inside the tower, a winding stairway enclosed in Burma teak will lead to the spire.

In mid-December, a helicopter hovered above the scaffold-enshrouded tower. From the machine, a 30′, 1800 lb stainless-steel topmost section was lowered into place. Atop this section will go a 5′ steel cross.

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DOW

P/A DESIGN AWARDS LUNCHEON HELD IN SUNNY PUERTO RICO

SAN JUAN, PUERTO RICO. Some 100 persons gathered on the shaded balcony of Casa Blanca for cocktails just before the 15th Annual P/A Design Awards luncheon was to begin. Casa Blanca was originally the official residence of the island's first governor, Ponce de Leon. Added to over the years, the sprawling house was more recently the home of the commanding general of U.S. Army troops in Puerto Rico. For the past two years, it has been empty. Perched on the edge of a steep slope, overlooking tropical gardens and San Juan Bay, the house was a fitting setting for an architectural gathering. The high-ceilinged rectangular hall in which the luncheon was held looked through open louvered windows to the bay below and through vast french doors to a central courtyard. Although some guests arrived late, because they had had to attend the Governor's State of the Commonwealth address, delivered that morning, all gathered in time to watch P/A Editor Jan C. Rowan hand certificates to the seven (out of 12) winners present.

Perry B. Johanson, whose firm (Naramore, Bain, Brady & Johanson) won two citations, made the longest trip—from Seattle. Also present was Carlos Alverado, executive director of the Puerto Rico Urban Renewal and Housing Corporation, whose Long Range Planning Office Urban Renewal Studio prepared the project that won the First Design Award. Francesco J. Blanco, Director of the Planning and Design Division of the Puerto Rico Land Administration, an award winner, was there. Cesar Pelli, director of design for Daniel, Mann, Johnson & Mendenhall, came from Los Angeles to pick up his firm's citation. Henry Liu, also came from L.A., and George Dudley, who consulted with Liu on his project, came from New York, as did citation winner Hobart Betts. Jurors Lawrence B. Anderson and Richard P. Dober arrived from Cambridge, Mass.

In accepting the first award for the Urban Renewal and Housing Corporation, Carlos Alverado pointed out that the government of Puerto Rico is "working with and for the people to provide better low-income housing." So far, 5000 units have been built. Some 20,000 more are planned, including those in the First Design Award project, which should get started by fall.

Following lunch, Luis Flores, one of the designers of the winning project, a scheme for moving slum residents from an area just outside Old San Juan to a new housing framework (see JANUARY 1968 P/A) across town, explained it. Dean Anderson then critiqued the project, stating, "It is a new program with an old arrangement of symmetry. Its transverse access is patterned after the streets of Old San Juan. Its releationship to the city is a strong grid in a different direction." And juror Richard Dober added that the slum area, La Perla, when vacated, will become an "important laboratory for design." He argued that the Urban Renewal and Housing Corporation should go back to La Perla and do something with it. At present, the government is thinking of turning the area into a colorful colony for artists.

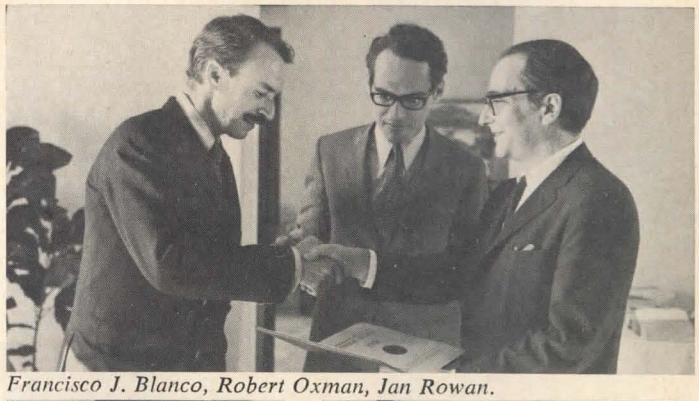
In presenting the award-winning project prepared by the Planning and Design Division of the Puerto Rico Land Administration, a structural system for use in erecting fishing villages, designer Robert Oxman gave credit to the many architects and designers working on such a prefabricated scheme. "These are not my ideas," he said. "I am speaking for many people doing this type of work. This is a team effort, part of a dynamic process."

That evening, Puerto Rican Governor Roberto Sanchez de Vilella greeted out-of-town guests and local award winners at his official residence, La Fortaleza, overlooking San Juan Bay. P/A Editor Jan Rowan presented Governor Sanchez with certificates, as client for two winning projects; in accepting the awards, the governor said of the first award project, "We are proud as a government. We will look at the project in the context of our whole problem. This is only a part of what rehabilitation is doing."

Luncheon guests gather in the courtyard.

Hobart Betts, Jan Rowan.

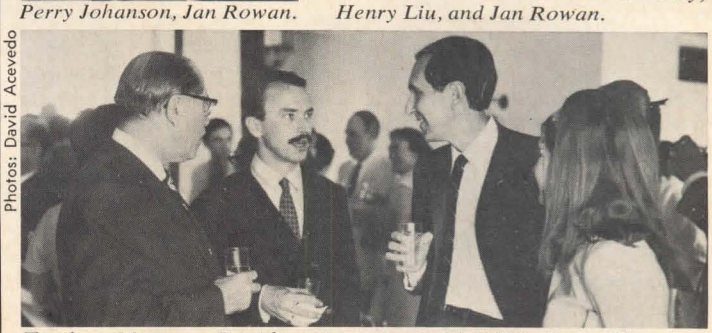
Carlos Alverado, executive director of the Puerto Rico Urban Renewal and Housing Administration, and Jan Rowan.



Francisco J. Blanco, Robert Oxman, Jan Rowan.

Perry Johanson, Jan Rowan.

George Dudley, chairman of the New York State Pure Water Authority, Henry Liu, and Jan Rowan.



Teodoro Moscoso, President Commonwealth Oil Refinery, Francisco J. Blanco, director of the Planning and Design Division of the Puerto Rico Land Administration, and Mr. and Mrs. Cesar Pelli.

Photos: David Acevedo

CALIFORNIA COUNTY NIXES BIDDING

SAN FRANCISCO, CALIF. In a decision that may have far-reaching significance for California architects and engineers, the Board of Supervisors of Santa Clara County changed its method of hiring A and E talent. Bids are no longer valid. Firms are now to be selected on the basis of their professional qualifications. This arrangement has long been sought by professional societies in the area: the Central Coast Chapter of the AIA, the San Jose Branch of the American Society of Civil Engineers, Santa Clara Valley Chapter of the California Society of Professional Engineers and the Associated Civil Engineers and Land Surveyors of Santa Clara County. In explaining their stand, a spokesman commented: "Since professional ethics are designed and observed to protect the public, and since bidding implies that consideration of price rather than quality and service may be the dominating factor in selection of the consultant, the societies have historically considered bidding unethical."

Santa Clara is the first county in California to adopt such a hiring policy formally, and the reasons they give for it is that bidding is not compatible with public health and safety.

From now on, the following general procedure will be used: Several local firms will be asked to submit their qualifications for performing a given job. These qualifications will be gone over by an independent review board appointed by the county, and the board will then interview the top firms. When a Number One candidate has been selected, the Director of Public Works will try to negotiate a contract with him. If not successful, he will negotiate with Number Two, and so on. For smaller jobs, consultants will be pulled from a file, supposedly on a rotational basis.

LEVITT ADDS A STONE

LAKE SUCCESS, N.Y. As everybody knows, when the builders of Levittown wanted to create a corporate headquarters for themselves, they turned to Edward Durell Stone to design it. Stone provided a pretty, delicate, square, two-story building, with a façade of alternating *louvered* floor-to-ceiling windows and panels of white glazed brick (see p. 54, FEBRUARY 1966 P/A). It fronts on a sculpture-studded *reflecting pool*, but, according to Levitt & Sons, their building plans do not end there. Forseeing the need for more space, Levitt's original master plan for the site included three buildings around the pool, at least two of them to be identical — mirror images. When Stone designed the first building for Levitt, his contract, an admittedly unusual one, specified that future buildings on the site would be mirror images of the first. There was no specification that the original architect would be retained to do these additional buildings. Now, Levitt & Sons own the original Stone plans, and a second building directly opposite the first will open in 1969.

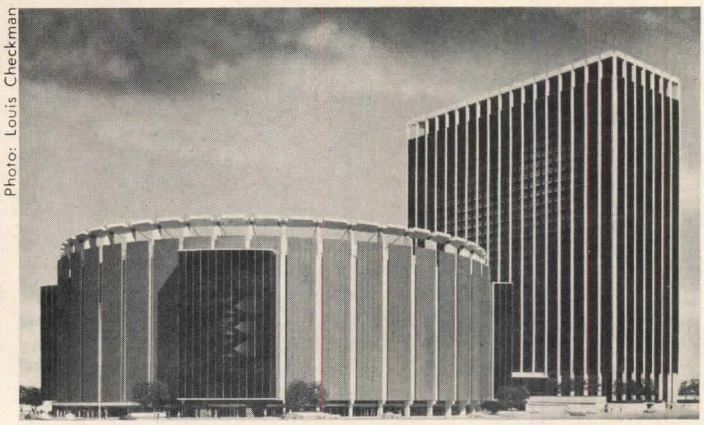
The story, however, gets more complicated. Last summer, Levitt & Sons sold 3.9 acres of land across the reflecting pool from their headquarters to the Medical Society of the State of New York. The sale agreement specified the appearance of the building the Society would put there: one identical to Levitt's — at least on the outside; inside, they could do what they wanted.

Whom will the Medical Society select as architect? If they select Stone, there can be little doubt that the contract would be fulfilled. If they don't, and the building they erect is not quite a mirror image of Levitt's, some observers feel that the contracts are so unusual it would be hard to find precedents to make them alter it. The Medical Society is not talking about its plans.

Whatever happens, there will probably be another building that looks like one by Edward Durell Stone on Long Island. And that is about as unusual as a snowflake in February.

FROM GREAT ROMAN HIPPODROME TO ....BOING! THE LATEST IN MADISON SQUARE GARDENS

Photo: Louis Checkman



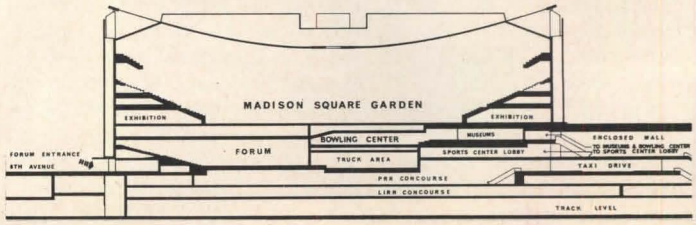
NEW YORK, N.Y. Toward the middle of this month, Madison Square Garden will officially have a new home. It will be the fourth one in 90 years, and by far the largest, housing in its 13 round stories a 20,000-seat main auditorium, a 5000-seat forum, a 501-seat cinema, an art gallery, a hall of fame, a 48-lane bowling alley, restaurants, and 64,000 sq ft of exhibition space.

Space was part of the problem with the old Garden at 8th Ave. and 50th Street. The hockey rink used there was smaller than National Hockey League regulations allowed, for instance, because no one had thought of hockey when the Garden was built in 1925. Besides, the sight-lines, to any point but the center of the arena for boxing, were too often obscured by pillars or railings.

The new Garden, located above the Pennsylvania Railroad tracks on the site of the lamented Pennsylvania Station, will have unobstructed views from all 20,000 padded seats. The ceiling, 435′ in diameter, as everyone knows by now, is supported on a network of cables, hung from a supporting compression ring encircling the outside of the building. Also, at four equally spaced positions along the outside wall are four glass-enclosed towers, housing high-speed escalators, which should provide some excitement and romance from street level with the Garden filling for a big event at night.

Architects Charles Luckman & Associates have given the daytime garden an attractive tan color by using two types of precast concrete panels. Fifty-three per cent of the site, which includes a 29-story office building, will be open landscaped plaza.

The opening of this Garden

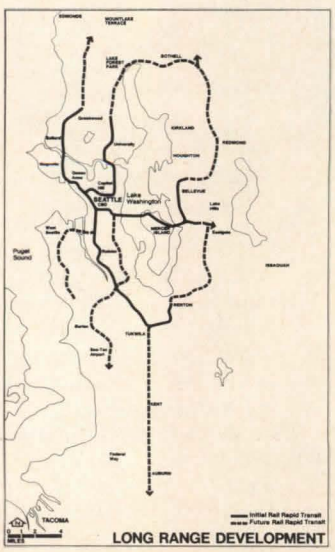


naturally makes one recall the Garden just off Madison Square designed by Stanford White, which opened in 1890. At that time, White's Garden had the largest amphitheater in the U.S. (it seated 1200). And it also had a 368′ tower, in which White had a suite. The day it opened, according to an edition of the *New York Herald* published the next day, "a succession of explosions outdoors announced the beginning of the fireworks. From then on till eleven, Diana of the Tower [the statue White commissioned for the building is now in Philadelphia Museum of Art; recently, Mayor Lindsay asked to have it back and was firmly refused] was in a blaze of glory, and a huge crowd of people in adjoining streets enjoyed the charming effects of different colored lights on the perfect architecture." White's Garden lasted 35 years, which is about average for Gardens. If averages mean anything, the present one should come down about the year 2000. It will no doubt have lived just as lusty a life. It seems at first flush to be at least as well equipped for it as any of its predecessors.

SEATTLE'S TRANSIT PLAN

View from concourse level.

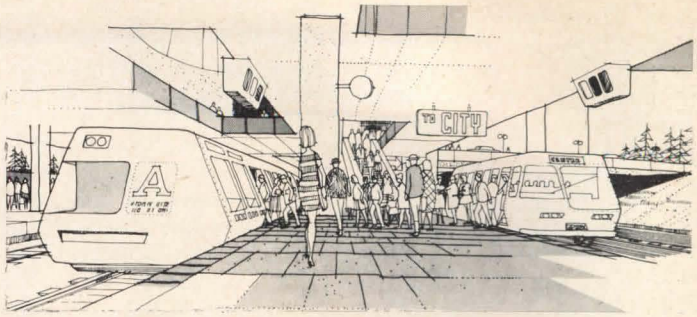
SEATTLE, WASH. Seattle voters will decide on February 15 whether to authorize a local $385 million bond issue. At stake is an extensive bus and rail transportation system that will cost an estimated $1,500,000,000 and take 17 years to complete. Ultimate success or failure of the plan will depend on $770 million in Federal funds, which Seattle cannot now count on with any certainty.



LONG RANGE DEVELOPMENT

If completed as outlined in a thorough preliminary report, Seattle will get more than just a transportation system. Effected will be living patterns on the entire Seattle peninsula. For an effective transit system will provide an ordered population growth in well-spaced localities served by transit stops. Instead of marching haphazardly up and down the peninsula, covering the landscape with roads and buildings, this physical growth can be concentrated and controlled.

The planners gave careful thought to this growth, and they recommend starting work on the 47-mile rail transit system, which will stretch north, south, and east,



Direct bus-to-train transfer.

in the central business district. Here, the first dual tracks will be laid, and the first stations built. Integral to the system and essential to the first phase of it (to be completed by 1975) is cooperation of bus and rail. Because the rails (some of which will run beneath ground or in open cuts) will be costly and time-consuming to lay, much early emphasis will be on improved bus service. As the rail system begins to operate, buses will connect with the rail terminals, sharing the same stations.

Like many cities whose population growth has come after the advent of the automobile, Seattle has spilled amoeba-like around and over the hills surrounding Puget Sound and Lake Washington. As better roads were built, more persons moved to the suburbs. But unlike many cities in which the automobile has been the main mode of transport and which are now turning to mass transit, Seattle has only just now completed an extensive freeway system. Opened within the year, the freeway slices through the central business district, connecting the residential communities to the northeast and northwest with Seattle's main industrial complex, the Boeing Corporation to the south. The freeway is not even obsolete. Its traffic is relatively light. And it would seem that Seattle's transportation needs are being well handled. It is in this climate of well-being that the planners and the city must sell the need for a mass-transit system to the voters. Yet on the success or failure of that vote depends the future well-being of Seattle.

Included in the planners' recommendations are provisions for a dual-track, grade-separated system where automatically controlled electric-powered trains would carry passengers at speeds of up to 75 mph, with an average (including stopping time) of about 37 mph. During the initial stage (up to 1975), rights of way would be provided for future expansion of the rails, and in the meantime these rights would be paved for express bus corridors; some of them would be merely landscaped and set aside.

The planners wisely call for maximum use of Seattle's spectacular scenery. As they envision the transit system, it would cut through the surrounding hills, now above ground, now below, depending on the terrain. Sometimes, to take advantage of a spectacular view of the Cascade Mountains or Puget Sound, it would travel in an open cut. Across Lake Washington, it will ride a floating bridge. One specific provision is that the system "should provide an air of relaxation." With carefully designed stations, with comfortable, airy cars, and with a fast, economical ride, it may be able to come close to being relaxing. Riders of the transit routes in Tokyo or New York can only read what is planned and sigh.

De Leuw, Cather & Company are the Consulting Engineers; Naramore, Bain Brady & Johanson, the Architects; and Okamoto/Liskamm, the Urban Designers.

WITH THIS GARBAGE I WILL BUILD MY HOUSE

TOKYO, JAPAN. Garbage and other refuse often threaten to engulf U.S. cities. The fight to dispose of it is messy, thankless, and, in some so-called centers of civilization such as New York, losing ground. What if garbage became something one could use? The possibilities were enough to divert Kunitoshi Tezuka, president of the Te-

zuka Kosan Company, Ltd., and inventor of the *carbecue*, a machine that uses pressure and heat to convert a car into a solid lump of metal.

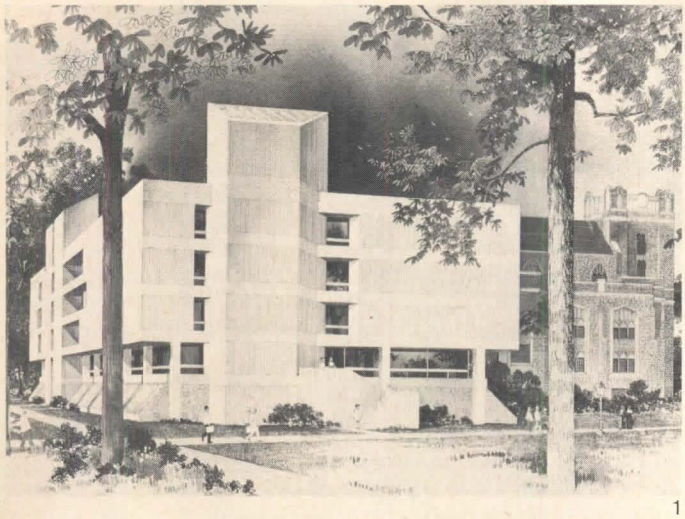
Tezuka came up with an apparatus that turns garbage into building blocks. Although his garbage converter has not been put to work in any municipality yet, one is scheduled to start up in Kofu, a city northwest of Tokyo; and, according to one report, San Francisco is negotiating for another.

Tezuka's converter uses hydraulic pressure to compress refuse into solid bales, then encases these in something durable and solid such as asphalt, cement, sheet iron, vinyl. This encasement is said to kill any disease-producing bacteria present by denying them oxygen. Each block weighs one ton, and the blocks are said to be produceable in any shape. They can be turned out to be welded together (when encased in iron or steel) or to be interlocked. What happens, we wonder, if some energetic boy with an ice pick pokes a hole in the protective casing?

One suggestion for the converter's use is to transform New York City's daily mountain of refuse into building blocks to be taken off the coast of northern New Jersey and built into an island for a jetport.

Tezuka has one machine costing $5,600,000, which can handle 3000 tons of rubbish in 24 hours. New York City generates 16,000 tons of garbage a day.

AROUND THE FORDHAM QUAD

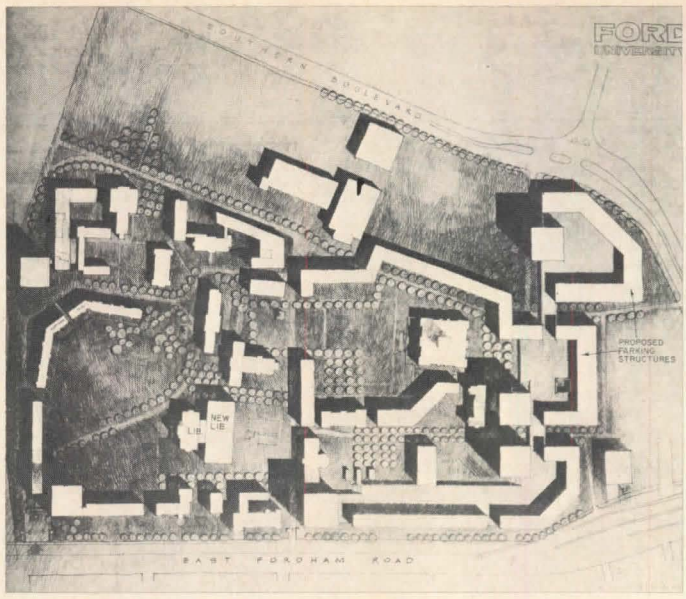


1

BRONX, N.Y. At Fordham University, they call Duane Library "the church" because, with its front-central tower and its stained-glass windows, it looks like one. Like everything else at Fordham these days, the library is expanding. Guiding its expansion are New York architects DeYoung & Moscowitz, who are also responsible for the site plan Fordham is currently using as a guideline for its physical growth.

Originally, the University looked for growing room across Southern Boulevard. But like any major traffic artery, the boulevard would have effectively divided the campus, and so the architects found a way to provide protected, harmonious growth on the present site. Most of the harmony will come from the creation of natural quadrangles, saving trees, and separating pedestrians, vehicles, classrooms, and dormitories. To the north, several two-level parking garages are being planned, which will form a barrier at that end of the campus (site plan). From them will rise vertical office or classroom towers, marking the corners of the campus and echoing towers at the other points of the Fordham complex.

DeYoung & Moscowitz's library addition will also have towers **(1)**. These will house stairwells and will be skylighted. The slant of these tower skylights is picked up by slanted fenestration around the building's base that lights two basement stacks.



Horizontal limestone bands will ring the new section, blending with similar bands on the old "church." And the stone aggregate lower story and the concrete upper ones will pick up the color of the original stone. Although the lines of the addition will be crisper, the transition will be made less abrupt, at least on the interior, by separating old and new by a skylighted courtyard **(2)**. Once the addition is completed, the pharmaceutical building, now in front of the library, will be torn down and the space turned into one of the campus quadrangles. The new Duane library will house 1,500,000 books, mostly in the new section, and will be able to serve 2000 readers.

2

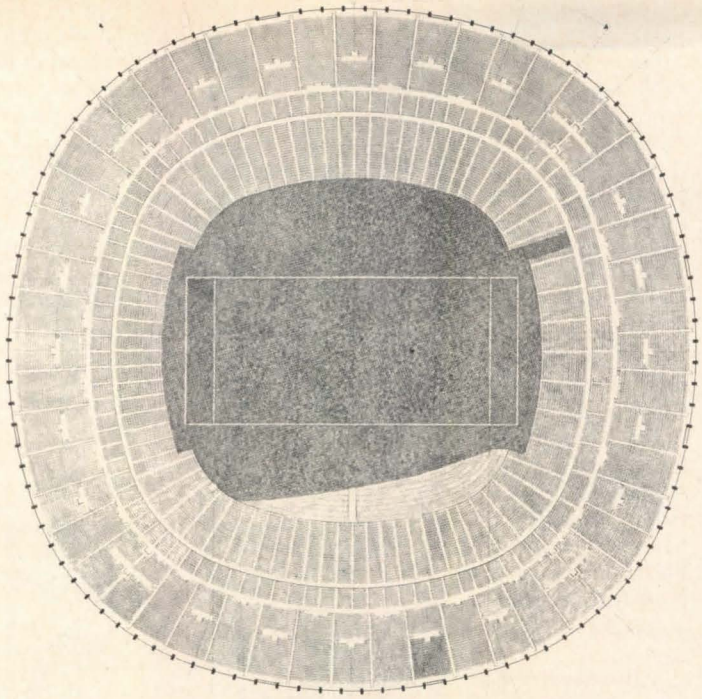
Benjamin Moscowitz was partner in charge, and Youssef S. Bahri, project designer.

THE SHAPE'S THE THING

Photo: Lawrence S. Williams

PHILADELPHIA, PA. In redesigning a multipurpose stadium for Philadelphia (see pp. 61–62, APRIL 1966 P/A), the architects came up with a shape they call an Octorad. Dictating that shape was the requirement, stipulated by the City of Philadelphia, that the stadium seat no more than 50,000 for baseball and no less than 65,000 for football. As if that were not challenge enough, the city further asked that the extra 15,000 seats be permanent, but not visible to fans at baseball games.

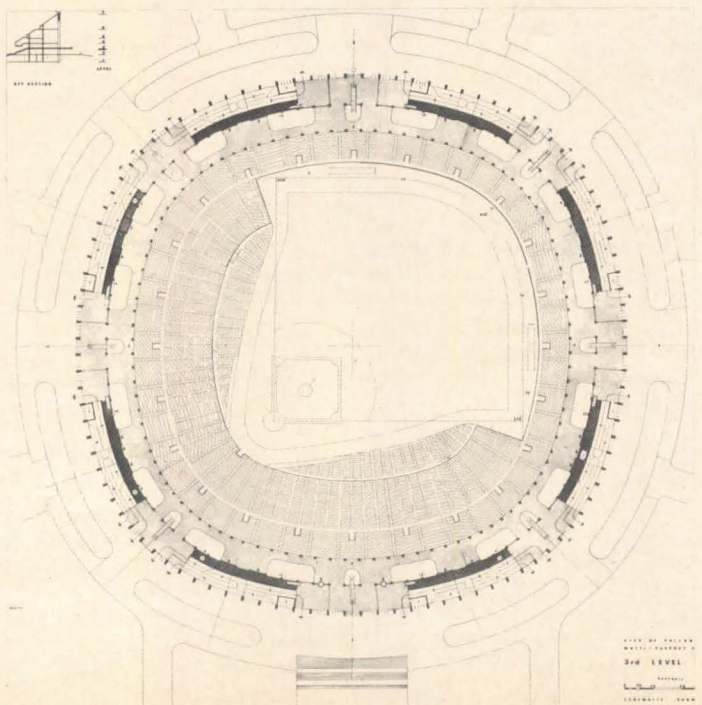
The solution to the latter requirement was to screen off the seats not needed, as the seating configuration is changed from one for foot-



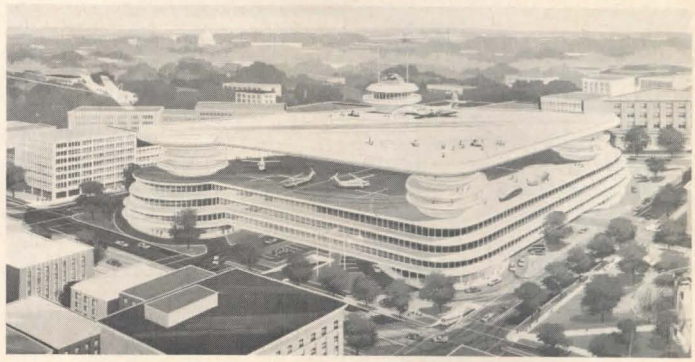
ball to one for baseball. Two large baseball scoreboards will rise in front of the stands on hyrdaulic pistons, screening the lower-level seats in center field. Between them will hang a large green curtain. Upper-tier seats will be hidden by three giant movie screens, each 50′ x 125′, which will be lowered from beneath the fringe roof and stiffened by light aluminum frames. From projection booths suspended beneath the roof across the field, 70mm projectors will flash movies, advertisements, or perhaps instant TV replays onto the screens. In all, 8000 seats will be hidden this way. An additional 6000 seats will be taken from the football configuration and slipped beneath the permanent stands to make room for the baseball outfield.

In addition to this open-stadium proposal, the architects and engineers have also provided the city with alternate schemes for a permanently roofed stadium, and one with a retractable roof.

Parking facilities will hold 6000 cars. Ramps and elevators provide entrance and exit. Architect is Hugh Stubbins, with Stonorov and Hawes and George M. Ewing Co. acting as associate architects.



"PLANE STATION" PROPOSED FOR DOWNTOWN AREAS



WASHINGTON, D.C. Architects John S. Samperton and William Procopiow, with airline executive Samuel J. Solomon, have designed an airport structure which, they think, can be located centrally within large cities. The airport would provide transportation to and from outlying airports and could accommodate small planes traveling within a 250-mile radius.

According to Samuel Solomon, "Everybody wants to go from city center to city center." The proposed facility would make air service more efficient, the way central terminals made rail transportation convenient for city dwellers half a century ago.

Runways approximately 1000′ long atop the airport would be capable of serving vertical take-off and landing (VTOL) and short take-off and landing (STOL) aircraft. Underground levels as well as the ground floor would provide parking for flight passengers. Ground floor would also contain space for retail shops and ticket sales. Above this level, one floor would be given over to motel rooms and restaurants; two more stories would provide office space. From one of several corner "turrets," which house elevators and mechanical equipment, passengers would arrive at a hangar deck, just beneath the landing surface atop the entire structure. On the hangar deck, passengers would board planes, taxi toward the center of the deck, and, by means of elevators similar to those used on aircraft carriers, rise to the flight deck. This top level would be heated to keep landing surfaces free of snow and ice in winter.

Designers of the facility propose that one be located in Washington in an area bounded by K Street and New York Avenue (North and South, respectively) and by 11th and 13th Streets (East and West, respectively). They believe that private financing can be obtained, and that the airport would help to restore real estate values in a decaying area of the city. Further, Solomon has filed drawings with the Federal Aviation Agency and the Port of New York Authority, with the suggestion that this design be used for a "plane station" above a Manhattan pier.

Meanwhile, Pan American World Airways has requested a special permit to construct a heliport on city-owned waterfront property adjacent to the East River. If built, the heliport would fulfill one of the functions of the Solomon-Samperton-Procopiow proposal: namely that of getting passengers to and from airports outside the city.

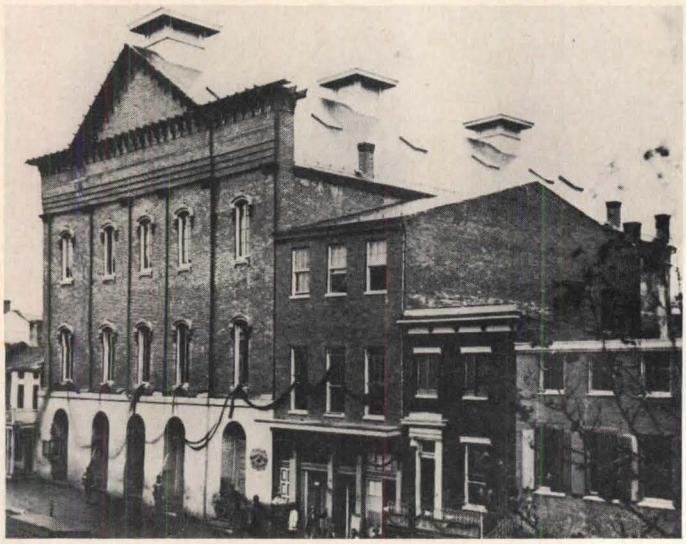
If the latter design has a somewhat flashily futuristic appearance (in the vein of comic-strip science fiction), it may, if implemented, well present difficulties in a down-to-earth situation. It is difficult to imagine residents of any but an economically depressed area accepting with equanimity the noise (not to mention the danger) of a bustling airport smack in their midst. Pan Am's East River proposal, although no plans are yet available, would probably present no fewer practical problems. Midtown residents and office workers may have accepted the drawbacks of helicopters landing atop New York's Pan Am Building (after a long fight), but persons living in the heavily residential upper East Side may prefer quiet to convenience, and the view to the VTOL.

WEAVER URGES UNION PARTICIPATION IN LOW-INCOME HOUSING

WASHINGTON, D.C. Secretary Robert C. Weaver of the Department of Housing and Urban Development suggested in late 1968 that organized labor invest a billion dollars of its pension funds in low- and moderate-income housing. "If there is a limitation on our abilities to deal with the problems of low- and moderate-income housing, it is the money available to fund new efforts," he pointed out, adding, as a reminder and incentive, that insurance companies had provided a billion dollar pool for low-income housing during the year.

Weaver also called on unions to participate in training and supervising Model City neighborhood residents. "I hope," he stated, "you will work with them to solve the complex problems of new careers in construction and in hospitals, retail stores, social services, schools, and many others."

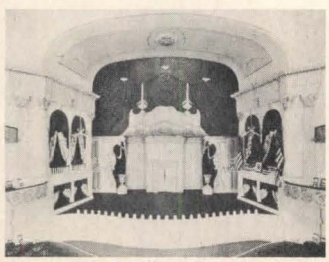
FORD'S THEATER RESTORED



An 1865 photo shows Ford's Theater draped with mourning crepe following Lincoln's assassination.

WASHINGTON, D.C. On January 30, 1968, CBS broadcast an opening night performance of drama and dance devoted to the life of Abraham Lincoln. The performance was staged at Ford's Theater, where Lincoln was assassinated, and was the first theatrical event to take place there since John Wilkes Booth shot the President on April 14, 1865, during the second act of Tom Taylor's *Our American Cousins*. That same night, Secretary of War Stanton ordered the theater closed. Three months later, when John T. Ford attempted to reopen it, public protests prevented him from doing so. Now, however, the recently formed Ford's Theatre Society, with a donation from the Lincoln National Life Insurance Co., has reached an agreement with the Department of the Interior, which owns the building, to produce live drama on the restored stage. The society has asked the National Repertory Theatre Foundation to set up a special company at Ford's, to stage both dramas originally performed in Lincoln's time and modern works dealing with Lincoln and his era.

Under the aegis of the National Capital Region of the National Parks Service, architects Macomber & Peter of Washington have restored the theater, as closely as possible, to how it looked in 1865. Since the building has been used as a repository of Government papers and has twice collapsed, preparing construction drawings for accurate restoration was a difficult task. Historical data was compiled by Gorge J. Olszewski, historian of the Department of Parks, and architectural research was supervised by William M. Hausmann, who acted as architect-in-charge of the project. Both men relied heavily on contemporary photos taken by Civil War photographer Mathew Brady. Funds for the project were assured when, in 1964, Congress approved an appropriation of $2,073,600 for reconstruction. In 1960, Congress had indicated its interest in the plan by allocating $200,000 for feasibility and engineering studies of the structure.



Model photo, showing President's Box at right.

The process of reconstruction involved installing a new steel framework, excavating a new basement, and adding piles beneath the foundation, which rests on spongy soil and, in part, quicksand. New concrete floor slabs have been installed and cracks in exterior walls have been pumped full of grout.

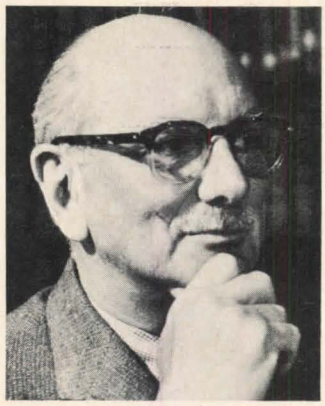
The National Parks Service is also reconstructing the Star Saloon, which adjoins the theater on the south. Directly across the street from Ford's is the Peterson House, also administered by the Parks Service, and now known as the House Where Lincoln Died.

Original cost of Ford's Theater in 1863 was $75,000, including furnishings. Cost of restoration is estimated at $1,900,000, exclusive of exhibits.

CALENDAR

The **64th Annual American Concrete Institute Convention** in Los Angeles, Calif., March 2–8, will feature a symposium on "Legal Responsibilities in Concrete Construction." Object of the program is to improve communications within the construction industry and to clarify responsibilities of all parties to a construction contract. For information on registration and attendance, write to: ACI, P.O. Box 4754 Redford Station, 22400 W. Seven Mile Rd., Detroit, Mich. 48219 . . . New electric heating equipment will be on view March 5–7 during the **Electric Heating and Comfort Conditioning Systems Exposition** at the Washington Hilton, Washington, D. C. . . . The **11th Semi-Annual Meeting of the Color Marketing Group** will be held March 24–26 at the Courrousel Motor Lodge, Cincinnati, Ohio. Program details are available from: Sharon de Leon, Formica Corp., 4614 Spring Grove Ave., Cincinnati, Ohio.

AWARD



Last month, the AIA announced winners in its first program of awards for architectural critics. **Louis Mumford** (above) was the recipient of the Architectural Critic's Medal, awarded on the basis of an outstanding career in the field of architectural journalism. Winner of the Architectural Critic's Citation, awarded for excellence in a single work in the field, was **George McCue,** art and urban critic for the St. Louis *Post-Dispatch*. Both Mumford and McCue are honorary members of the AIA.

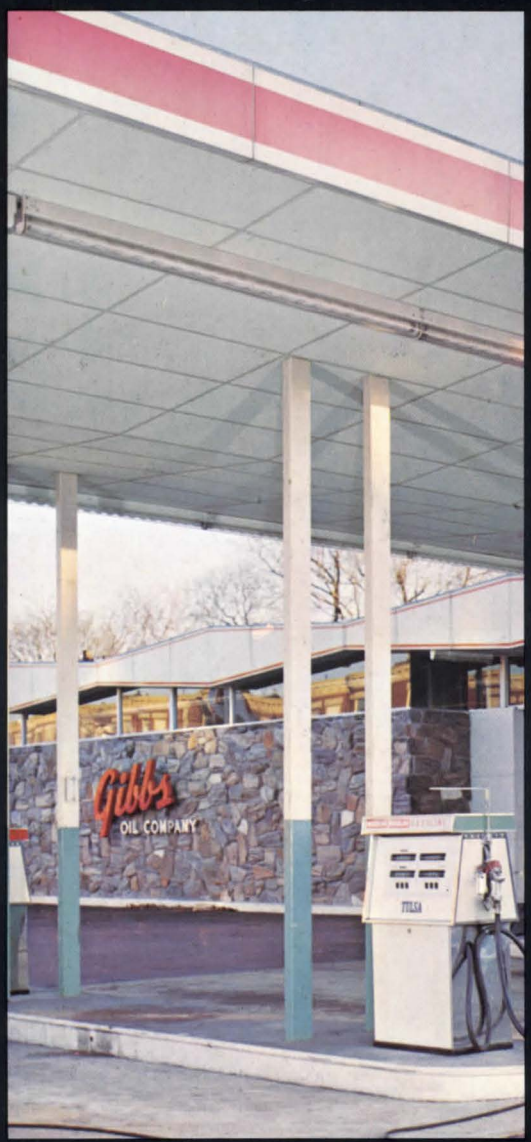
OBITUARY

Pierre Jeanneret, cousin and sometime associate of Le Corbusier, died December 11 in Geneva at the age of 71.

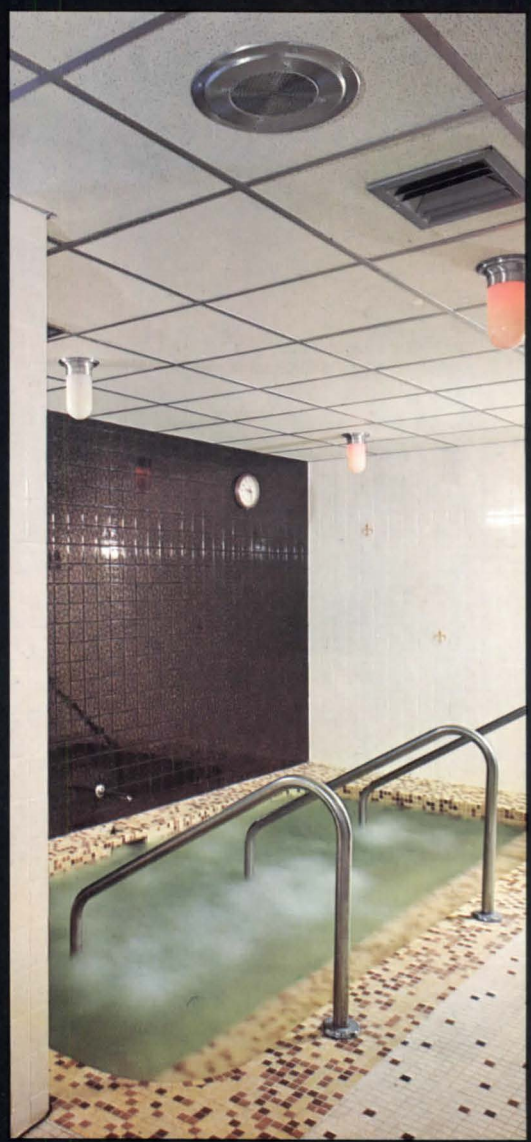
Corbu and Jeanneret were associated from the time Corbu opened his atelier in the rue de Sèvres in 1922 until 1945. Corbu's acceptance of the commission to take over the planning and design of Chandigarh in 1951 was the occasion for their reassociation. Although Corbu's design team for Chandigarh originally included two British architects in addition to himself

The worst place ceiling.

In-doors



Out-doors



Even in a steam room

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and Jeanneret, the latter was the only one to remain in India after 1954, when he became director of the Capital Project Office. Later, he was appointed Chief Architect and Planner of Punjab, and remained in that capacity until his return to Europe in 1965.

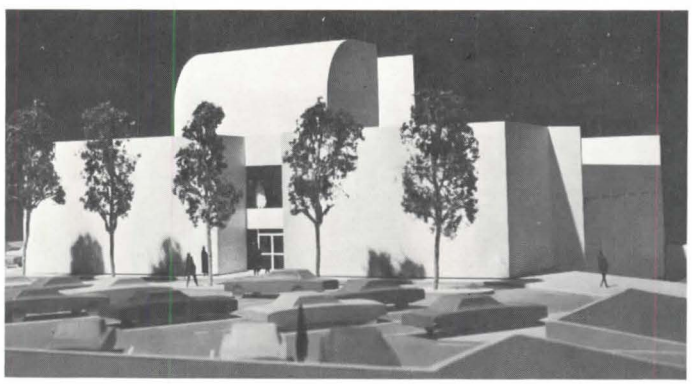
As a designer, Jeanneret was responsible for the campus of Punjab University, and shared responsibility for many of the state's new buildings. While in India, he became particularly interested in the promotion of architectural education, and was instrumental in the introduction of modern architectural design to remote northern areas of the country.

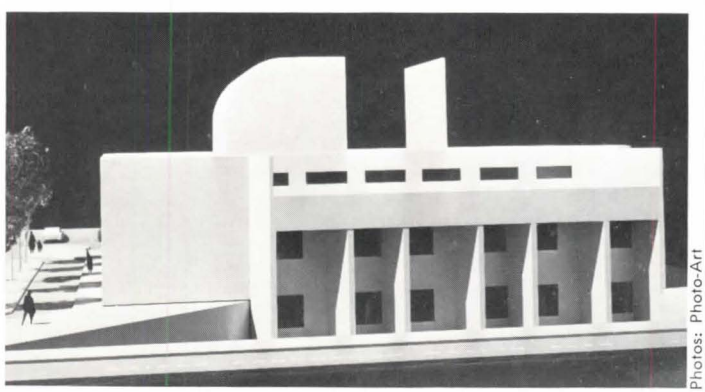
Architects, engineers, and planners of Chandigarh have proposed the establishment of a gold medal in the name of Pierre Jeanneret for the best student in the final year of the Chandigarh College of Architecture.

PERSONALITIES

Kevin Roche of Kevin Roche, John Dinkeloo & Associates, Hamden, Conn., the successor firm to Eero Saarinen & Associates, was named in December to the board of trustees of the American Academy of Rome. The Academy, founded as the American School of Architecture in Rome, was chartered by Congress in 1905 to promote the study and practice of fine arts and related fields . . . The American Academy of Arts and Letters has elected **Ludwig Mies van der Rohe** to its membership. The Academy is the nation's highest honor society in the field of the arts, and its membership is limited to 50 persons . . . The 1968 AIA convention will vote on the nomination of **Frederick von Grossman** of Milwaukee, Wisc., for the position of Secretary of the Institute. The nominating committee requests that members and chapters obtain petitions for making nominations as soon as possible from the Membership Procedures section at Headquarters, 1735 New York Ave., N.W., Washington, D. C., 20006, and submit them before the May 15 deadline . . . Officers of the National Institute for Architectural Education elected for 1968 are: **Sidney Katz,** chairman; **Arnold A. Arbeit,** vice chairman; **E. N. Turano,** secretary; **Baldur Peter,** treasurer; **Caleb Hornbostel,** director of education, and **Harvey P. Clarkson,** chairman of architecture and scholarships . . . **Loren F. Dorman,** director of plans and programs for the National Forest Products Association, was elected to assume, as of December 1 of last year, the post of executive vice-president of the National Lumber and Building Material Dealers Association . . . **John H. Eikenberg** was re-elected chairman of the board of directors and **E. McL. Tittmann** was renamed president of the Copper Development Association, Inc., at its annual meeting in New York.

THE HEART OF THE MATTER



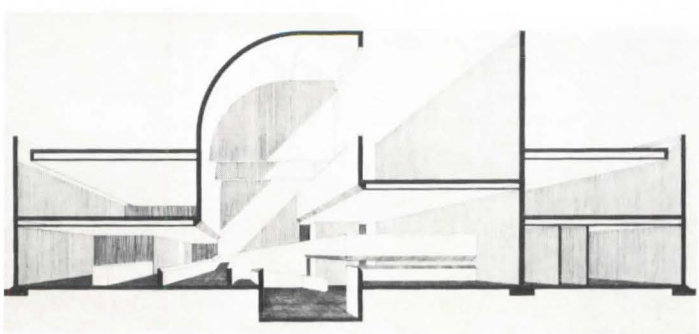


Photos: Photo-Art

PORTLAND, ORE. Site of this small, 12-doctor clinic is a commercial strip development. Obviously, there was nothing in its surroundings to enhance the building, and, perhaps more important, the harshness of the surroundings could have a disquieting effect on the sick who visit the clinic. It's bad enough to be ill, but it seems worse in the welter of noise and clutter of today's commercial strip.

What the architects, Wolff, Zimmer, Gunsul, Frasca, have done is turn their building inward, forming it around a large open space, lighted by a huge scoop-shaped skylight. In this sun-drenched space, which is just off the waiting area, they hope to put some large plants in an effort to create a restful atmosphere.

The very size of the skylight will have a benign effect on the clinic, breaking up the angularity of the reinforced concrete with the swoop of its scoop. And rising proudly above the two-story structure, as seen from the parking lot, it will visually reiterate the two concrete wall slabs flanking the entrance. The architects have managed to give their building the quieting effect of an atrium without producing the boxiness that could be expected in a small, concrete, walled, flat-roofed building. The client for the clinic is the Kaiser Foundation Health Plan.



SOCIETY FOR PROFESSIONAL DRAFTSMEN

BALTIMORE, MD. Draftsmen and other artists now have a professional society of their own. Formed as a nonprofit society, the American Society of Professional Draftsmen and Artists, Inc., will help spread information on the graphic arts and work to promote standards of professional competence.

At present, the recently formed society is preparing a textbook, *Planning, Drafting, and Graphic Presentation.* And, beginning early this year, a newsletter will be published. Projects the ASPDA expects to promote are job placement, school accreditation, scholarship aid, professional certification, discounts on drafting/art supplies and books and related equipment. National headquarters are at 731-A Martin Drive, Baltimore, Md. 21221.

AWARDS

The Building Industry Conference Board, a California organization of design trade and professional groups, recently presented its 1967 Honor Award to architect **Cabell Gwathmey.** Gwathmey is national director of the California Region AIA and president of the San Francisco firm of Masten & Hurd . . . For its outstanding achievements in transportation technology, the **Westinghouse Electric Corporation** received the first Urban Transportation Award of the U.S. Department of Housing and Urban Development.

The AIA has selected the **Tulsa, Okla., Civic Center** to receive a Citation for Excel-

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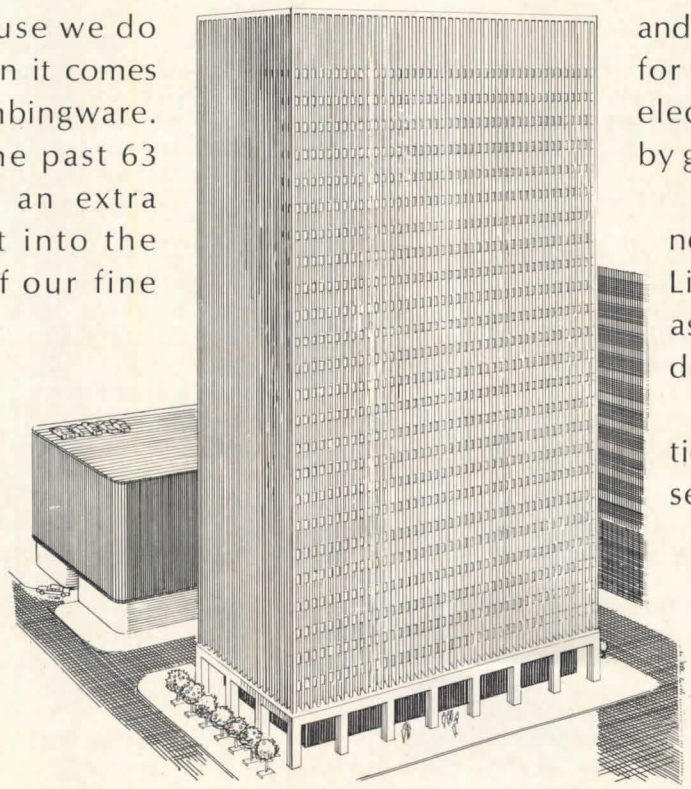

Houston Natural Gas Building / Architects: Lloyd, Morgan and Jones, A.I.A., Houston, Texas / General Contractor: H. A. Lott, Inc., Houston, Texas / Mechanical Contractor: Keith Plumbing and Heating Co. / Owner: Century Properties and Gulf Interstate Co. / Wholesaler: Thermal Supply Co., Houston, Texas

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lence in Community Architecture. Tulsa was recognized for its "farsighted comprehensive planning for long-range needs and a development program with a commitment to excellence" . . . **Ronald S. Senseman** of Silver Spring, Md., received the Alumni Achievement in Architecture Award from the Catholic University of America. Senseman heads his own architectural firm . . . The Cooper Union for the Advancement of Science and Art recently honored New York architect **Arthur Rosenblatt** with a citation for outstanding professional achievement.

WASHINGTON/ FINANCIAL NEWS

By E. E. HALMOS, JR.

HUD May Build Roads — There's a very real possibility that 1968 will see the Housing and Urban Development department emerge as a road-builder, in addition to its other duties.

That prospect, frightening to highway interests, will be the center of a real battle in Washington.

There's some logic — and some personal politics — on the side of such a move: Certainly, the construction of road networks has profound effect on the urban areas through which they pass; in fact, this is the reason for bringing a full design "team" into highway planning (in Baltimore and Chicago, probably elsewhere).

There have been endless delays in building the small (some 200 miles) segment of interstate roads that pass through urban areas — delays engendered by squabbling between municipal, state, and Federal highway and renewal interests.

On the political side, Transportation Secretary Alan Boyd has incurred Congressional ire on a number of points, including his undeniable de-emphasis of the engineering control of the Bureau of Public Roads, and his adamant refusal to build already approved highway units that don't meet his fancy (this resulted in a threat of legislation to force construction of a controversial bridge over the Potomac, for instance).

Highway interests are horrified at the prospect of yet another Cabinet-level agency putting its fingers into the already complex road-building pie. They say, with some justice, that HUD is too "socially" oriented to make good engineering decisions — and that, besides, HUD hasn't the staff or the experience for highway work.

Nevertheless, HUD has already entered highway planning in the course of its work in the capital, for instance. And there's a provision in the act that created DOT, requiring consultation between DOT and HUD, and calling for a report this April on "the logical and efficient organization and location of urban mass transit functions in the Executive Branch." Highways, it should be noted, are now generally considered an important part of "mass transit."

Running the City of Washington — On a local level, Washington's internal battles over proper professional attitudes, civic improvement, and the like kept bubbling. They were more noticeable, perhaps, in the momentary doldrums created by Congress' short recess.

Some of the developments:

■ Professionals lost a possibly important battle when the city's newly appointed "Mayor" (actually, he is not "Mayor," but "Commissioner") changed civil service rules to permit appointment of a long-time associate (Julian Dugas), a lawyer, as Director of the Department of Licenses and Inspections. Until a few days before the appointment, local law had required that the director be a civil engineer. The appointment was made over the protests of engineers, architects, and other professionals.

■ House approval was expected as a routine matter on two bills (S. 1245 and S. 1246), which would permit the District of Columbia to lease both airspace over freeway rights of way, and space over or under other public property. Airspace over freeways, under the bills, could be leased only to U.S. Government agencies; space over and under other areas could be leased to private developers.

■ A Presidential plan, announced with great fanfare last August, to convert the now-unused, 335-acre site of the National Training School for Boys on Washington's northeastern border into a housing development for 25,000 low-, medium- and high-income city residents wasn't moving very fast.

(When proposed, the move was hailed as a new approach to city-core problems, through use of idle Federal lands in many urban areas for such purposes; and development of a completely planned approach. One objection by more cynically minded planners and real-estate interests: How do you attract high-income families to live cheek-by-jowl with former slum dwellers?)

Main reason for slow progress on this last point is the Government's own red tape: The President's plan had to be approved by the District government, but that government was just being reorganized, and didn't get around to approving it until near the end of 1967; HUD had planning money, but a half-dozen other agencies must coordinate their efforts; now, a "non-profit" sponsoring organization must be found to handle total financing; then, a builder-developer will have to get into the picture before any earth is turned.

The whole process should be underway by next summer.

Breaking the Grip — Architect-engineer contracts would be specifically exempt from provisions of the Service Contract Act of 1965, under terms of a bill (S. 2710) now in Senate committee.

The move is aimed at the obstinate insistence of the Department of Labor that A-E contracts can be brought under the act, which was intended to cover minimum wages and fringe benefits of guards, watchmen, skilled manual laborers, janitorial employees. Labor has insisted that since most A-E contracts may include some surveying, clerical work, and the like, they are subject to provisions of the 1965 law. Vermont's Senator Winston Prouty, urged on by professional societies, is pushing the change.

Douglas Leans on Building Codes — Though there's little chance of any real action this year, there's a lot of interest in those building code demonstration developments being pushed by the former Senator from Illinois, Paul H. Douglas.

Douglas used his current post as Chairman of the President's National Commission on Urban Problems to suggest construction of "at least five" huge demonstration housing projects to find and test cost-reducing techniques and materials.

Idea would be to build 1000 unit or larger projects on Government-owned land, thus avoiding influence of local building codes. A long-held Douglas thesis is that most building progress is stymied by archaic codes and code administration. Idea of 1000 units at a time would be to get into a scale large enough to prove economic values.

In view of general emphasis on Government economy, it isn't likely Congress will OK such plans at this time.

Financial — Add to the cuts in construction spending and authorization (called for in the President's budget) the effects of spending cuts of about $2,600,000,000 insisted on by Congress for the remainder of Fiscal Year 1968 (to June 30).

■ Note that concern over shortages in mortgage financing has prompted HUD to call on AFL-CIO, among others, to match $1 billion pledged by insurance industry groups to finance low- and moderate-income housing, and housing in slum areas. Fear is that homebuilding, which showed a modest increase as 1967 ended, would be drastically cut by money shortage.

■ In general, total construction volume (in terms of current dollars) seemed to be holding up well enough as 1967 drew to a close. In October, value of new work put in place was running at a seasonally adjusted annual rate of $78,700,000,000 — up slightly from the previous year.


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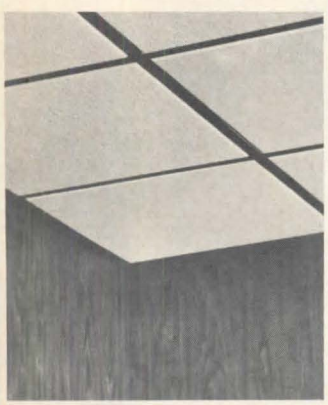
PRODUCTS

AIR/TEMPERATURE

Hidden heater. Recessed in the floor, this hot-water electric heater can be used where wall space is not available — in front of floor-to-ceiling glass door, for example. Operates on 240 v; available in five lengths from 35¼" to 109", with wattages varying according to length. Danger of the heating element setting fire to nearby material is nonexistent, says manufacturer, since the element is hermetically sealed in copper tubing. Thermostat regulates water-heat to offset exactly the cold air coming in from doors and windows. International Burner Co., 3800 Park Ave., St. Louis, Mo.
Circle 100, Readers' Service Card

CONSTRUCTION

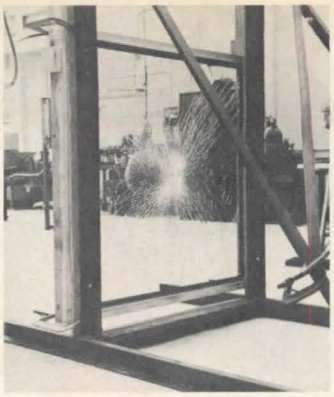


Suspended ceiling with the "homey" look. Two new types of suspended ceiling are for use in residences and offices. In one, wood-grained vinyl is baked on the galvanized steel suspended ceiling components. These are easily installed, since, with system's "Klip-Lock" device, the components can be connected by simply pushing them together. In the other system, tile-like effect is created with a bevel-edge ceiling component (in which the face of the panel is ¼" below grid level). Panels are of expanded polystyrene. Leigh Products, Inc., Coopersville, Mich. 49404.
Circle 101, Readers' Service Card

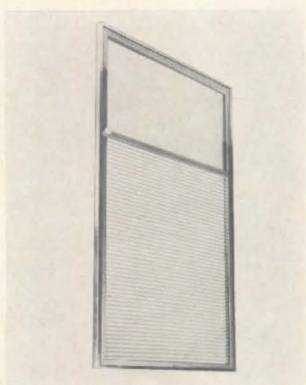
Low-cost, air-cured. This gun-grade, one-part polysulfide sealant is competitively priced with acrylic or polyurethane sealant, claims manufacturer. White, black, aluminum-gray, ivory, limestone, and gray are standard colors; others are available on special order. Temperature range without either softening or hardening is –40F to 200F, claims manufacturer, who offers a free, full size sample cartridge, ready to use. Products Research & Chemical Corp., 2919 Empire Ave., Burbank, Calif. 91504.
Circle 102, Readers' Service Card

DOORS/WINDOWS

Gentle adhesive sealant. The shock of extreme cold that can shatter glass panels in aluminum-framed storm doors is said to be absorbed by this recently developed sealant. Besides the advantage of its flexibility at low temperatures (claimed to be 20° lower than that at which other sealants will operate), the sealant is said to adhere well to glass and aluminum, to extrude easily, and to have consistent bead retention. "Bondmaster Z445" was developed following extensive tests of glass stress at low temperatures. PPG Industries, Adhesive Products, 225 Belleville Ave., Bloomfield, N.J. 07003.
Circle 103, Readers' Service Card

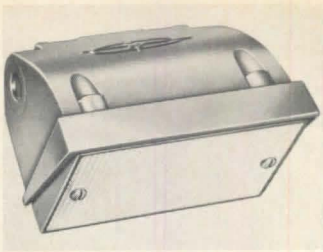


Storefront safety plate. A .060" thick layer of high resistance plastic bonded between two ⅛" thick pieces of plate glass create windows that foil burglars. When used in storefronts, the glass is said to resist attempted breakage long enough for the attached burglar alarm to summon police. Manufacturer claims the 5/16" thick glass will fit in storefront metal that accommodates the usual ¼" thick show window. Libbey-Owens Ford Glass Co., 811 Madison Ave., Toledo, Ohio 43624.
Circle 104, Readers' Service Card



Insulated windows. Two hermetically sealed panes of glass are separated by a dehydrated airspace housing a louver screen that regulates the entrance of solar heat. By controlling the solar heat, unit helps keep air-conditioning costs down. Louvers rotate 180° and are finished with a vinyl enamel said to reflect sunlight. Thermalouver, Inc., P.O. Box 95, Flat Rock, Mich. 48134.
Circle 105, Readers' Service Card

Fail-safe door holder/release. An electromagnetic door holder/release is designed for any kind of self-closing, swinging door — especially fire doors. An energized electromagnet mounted

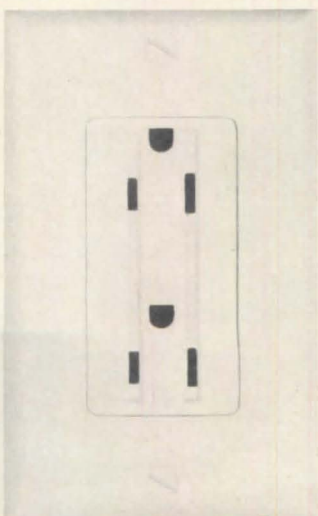


on the wall holds the door wide open. If the current is broken, the electromagnet releases the door, which closes automatically. Current to the electromagnet can be interrupted in several ways: switch, fire alarm, smoke-detection device, etc., depending on how it is programmed. The UL-listed device is said to be inherently fail-safe and self-supervising. Notifier Corp., 3700 North 56 St., Lincoln, Neb. 68504.
Circle 106, Readers' Service Card

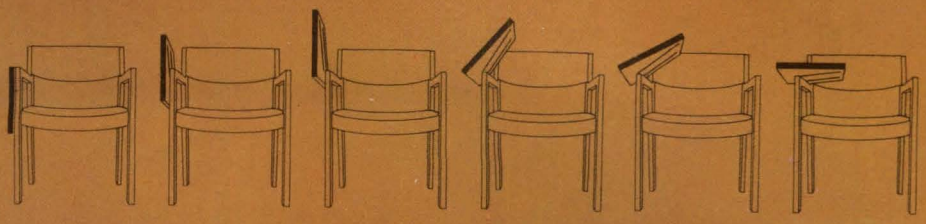
FINISHES PROTECTORS

Weathering steel. Manufacturer's refinements have led to the development of two new grades of high-strength, low-alloy steels. These weathering steels, which, if left exposed, develop a protective coating, are designed to provide four times the atmospheric corrosion-resistance of carbon steels. "Mayari R-50" maintains 50,000 psi minimum yield point through a thickness of 4", and "Mayari R-60" maintains 60,000 psi through 1". Bethlehem Steel Corp., Bethlehem, Pa.

FURNISHINGS



Plug-in design. Manufacturer's variation for a standard two-outlet wall receptacle is a curved-edge face-plate sur-



OUR OWN LITTLE SWINGER

William Sullivan's new swing-away tablet arm, sliding effortlessly on steel tracks, works easily in close proximity to other chairs. When lifted into *writing* position, it automatically moves forward.

May we send you additional information featuring the Swinger* and other Marble/Imperial designs?

*Patents applied for.

Marble/Imperial Furniture Company, Bedford, Ohio 44146

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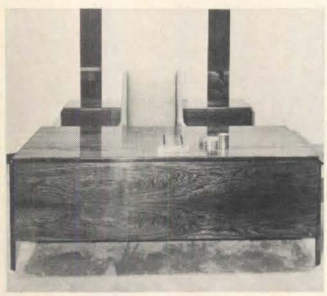
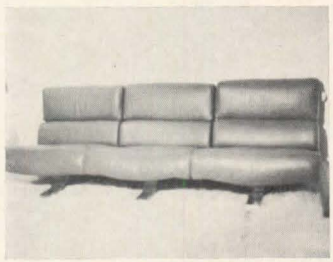
rounding both outlets. These outlets are designed as a single, linear unit. Slater Electric Inc., 45 Sea Cliff Ave., Glen Cove, N.Y. 11542.
Circle 107, Readers' Service Card

Carpets, rugs, and wall hangings. The '68 collection shows what can be achieved in contoured cuts and woven designs for rugs and wall hangings. "Puntilla," a design by Robert Hutchinson, gives a full range of sculptured effects executed in needlework tapestry technique. Barbara Gould's "Valley of Cortez" uses the cotton base of the carpet as part of the design. Robert Wallace's 8'-8"-dia. rug, "Tiffany," is inspired by a water-lily bowl by Louis Comfort Tiffany, V'Soske, 155 E. 56th St., New York, N.Y. 10022.
Circle 108, Readers' Service Card



Surfaces changes for furniture transformation. The "Elective Design System" (E.D.S.) makes it possible, according to Stow/Davis, to supply office furniture for everyone simply by changing the surfaces: "Rosewood for the chairman, and black vinyl for the receptionist, and even steel for the janitor." The chairman's rosewood desk (see photo) provides a wide expanse of top-quality wood. The construction is a post-and-lintel system with the rectangular top frame resting on the leg frames. The surface panels hang from this frame system so that no surface carries a structural load. Any surface panels at all could feasibly be specified and provided. The line includes desks, side cabinets, tables, and chairs. Stow/Davis Furniture Co., Grand Rapids, Mich.
Circle 109, Readers' Service Card

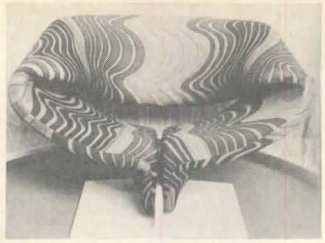


Sofas, sofas, everywhere. Among the sofas available at Tanier's are one designed by Ernst Luthy of Switzerland, and one by Italy's Tito Agnelli. The Luthy design **(1)** is a hexagon-tufted sectional sofa in which each section is independently reclinable. The deep leather-covered padding is shredded dacron; legs and armbraces are stainless-steel bars curved for support. Also available in the same style are a chair and an ottoman. The Agnelli sofa **(2)** is economical in its use of material in the seat-back section; it has stainless-steel legs. Rectangular cushions clip on individually, and in the models with arms, the arm cushions snap on. These foam-rubber cushions, covered in black or tan leather or with the customer's own material, are supported by a handsomely molded rosewood plywood seat and back section. George Tanier, Inc., 305 E. 63 St., New York, N.Y.
Circle 110, Readers' Service Card

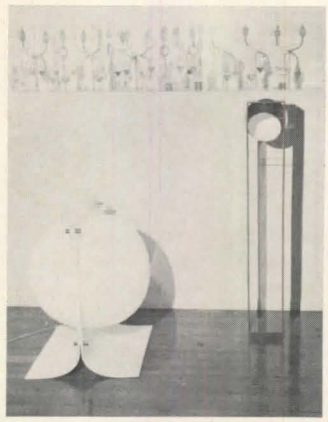
Open and closed. Three years of research in bank interior design for the comfort of the customer and convenience for everybody produced the "Centriform." It is a compact pinwheel unit providing a private, yet open, work and conference area for each of four bankers. The customers' needs were the primary concern of the designers (Interior Space Division of Perkins & Will Partnership): Round tables replaced bankers' desks; wardrobe closets were installed; the arms of the pinwheel form partitions to give customer/banker privacy, on two sides, without closing them in entirely. Each of the four sections of the Centriform includes a writing area, a wardrobe, a built-in telephone, drawers, bookcases, etc. Lehigh Furniture Corp., Division of Litton Industries, 415 Madison Ave., New York, N.Y.
Circle 111, Readers' Service Card

Variation with corrugation. Vertical corrugations in the front panel of the "Custom 70" desk typified the styling of all the pieces in this line of walnut-finished office furniture by Murphy-Miller, Inc. These corrugations are formed by ½" walnut strips: the linearity of the striations is high-lighted by polished chrome legs and hardware. Murphy-Miller, Inc., P. O. Box 1220, Owensboro, Ky. 42301.
Circle 112, Readers' Service Card

Custom service in wallpapering. Manufacturer's expanded facilities make possible large-quantity production of custom orders for hand-printed wall papers. Special designs such as corporate logos, historical material, and documents, are suggested. Designs are silk-screened on vinyl-covered backgrounds. Stock is strippable, thus easily removed for redecorating. United Wallpaper Co., 3010 W. Kedzie Ave., Chicago, Ill.
Circle 113, Readers' Service Card

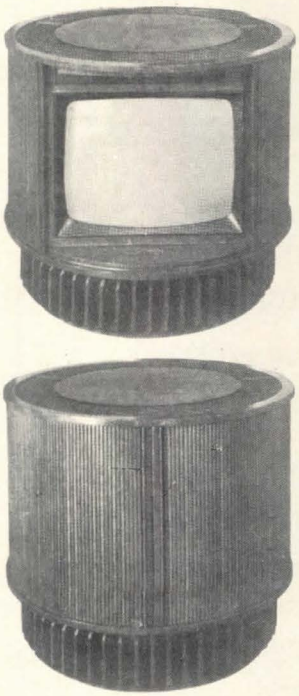


Larsen turns on butterflies. Jack Lenor Larsen has introduced a filmy casement with a design by Warren Platner resembling snowballs; called "Halo," it is phosphorescent and turns on under ultraviolet light. "Momentum," another of four new upholstery fabrics in Larsen's "Butterflies" series, is stretch-nylon printed in psychedelic stripes and backed with polyester foam. Other patterns in the line are the swirling "Bojangles," art nouveau "Firebird," and the linear "Labyrinth." Each is in two or three color combinations. Presently, the new upholstery is used on a chair (butterfly-like itself) by Paris's Pierre Paulin and on multiple seating units by Geoffrey D. Harcourt of London. Jack Lenor Larsen, Inc., 232 E. 59th St., New York, N.Y. 10022.
Circle 114, Readers' Service Card

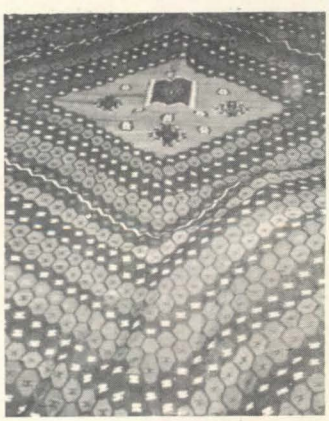


Mutt and Jeff. Neal Small, designer turned entrepreneur, has produced two new lamps — one short like Mutt, the other lanky like Jeff. The globelike lamp is in reality two hemispheres, each supported by a plastic sheet. These two sheets flare at the floor, forming the base. Small makes this design in three models: low floor (see photo), tall floor, and desk. The other lamp (at right in photo) is a folded Plexiglas box with a chromium sphere containing the light-bulb. The sphere is friction-held — fitted tight enough that it will stay at any

angle, yet loose enough so the light can be rotated to shine in any direction. Neal Small, Inc., 49 W. 24 St., New York, N.Y.
Circle 115, Readers' Service Card



Mini theatre in the round. A cylindrical dining-table-size cabinet with sliding tombour doors contains a 295 sq in. color television set, a solid-state AM/FM radio, and a record player. It is a tidy unit, but also a massive piece of furniture — 32½" high and 37" in diameter, walnut or teak-laminated. Andrea Radio Corp., 27-01 Bridge Plaza North, Long Island City, N.Y. 11101.
Circle 116, Readers' Service Card



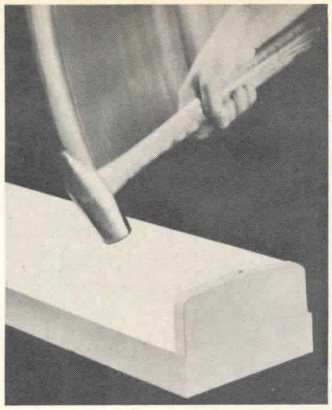
Peasant-flavored rugs. Bold stripes, geometric designs, and stylized flowers of equally bold colors (as well as more typical subdued tones) in patterned rugs and spreads from Greece, Iran, and Turkey, are available from New York supplier, Marian Miller. Exuding an air of exotic "far-away places" these handspun, hand-dyed, and hand-woven pieces were personally chosen from bazaars and fairs to accent Western interiors. Marian Miller, 148 E. 28th St., New York, N.Y., 10016.
Circle 117, Readers' Service Card

Office armchairs. A line of office armchairs by Richard Thompson are of stainless steel, walnut, rosewood, and teak. A lounge chair in this line has a stainless-steel frame and an upholstered seat and

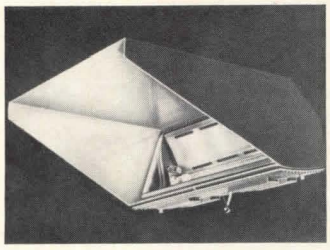
back. The continuous frame has obliquely angled armrests. Occasional tables that harmonize with the chairs are available. Glenn of California, Arcadia, Calif.
Circle 118, Readers' Service Card

LIGHTING

Welded ballast. Mercury lamp ballasts have a coil-constructed insulation system with the cores of silicon steel lamination welded, not clamped. This feature is said to provide maximum heat dissipation and to eliminate need for silicone grease to fill voids. As a result, lamp ballasts are claimed to be quieter, cooler, and to have a longer life. UL-listed for Class H operation. Advance Transformer Co., 2950 N. Western Ave., Chicago, Ill. 60618.
Circle 119, Readers' Service Card



Indestructible lights. This "Break/Proof" fluorescent lighting fixture is intended primarily for use in schools and institutions. The diffuser is made of highly transparent polycarbonate sheets, said to resist impacts 250 times as great as safety glass of the same thickness; these sheets are given a "self-extinguishing" rating by the ASTM. The body is hard-baked white enamel. Peerless Electric Co., 576 Folsum St., San Francisco, Calif. 94105.
Circle 120, Readers' Service Card



A different angle on lighting. A hooded aluminum box, housing a lens, reflector, lamp holder, and lamp, provides controlled, directional lighting outdoors. The cast aluminum housing is said to be weatherproof, providing year-round protection of units used on walkways, patio, steps, driveways, etc. Units, called Luminators, are available for permanent and portable installation. Bell Electric Co., 2600 W. 50th St., Chicago, Ill. 60632
Circle 121, Readers' Service Card

Post top luminaries. Series 2850 and Series 2890 luminaries for outdoor lighting are recommended where low-level lighting is required over a wide area, as for walkways, roadways, gardens, and parking lots. Available prewired and integrally ballasted for 175-w or 200-w mercury lamps, they can also be ballasted for use with 400 w lamps. Revere Electric Mfg. Co., 7420 Lehigh, Chicago, Ill. 60648.
Circle 122, Readers' Service Card

OFFICE EQUIPMENT

Individual answering service. The full potential value of the telephone is realized when combined with the manufacturer's telephone answering, announcing, recording, and monitoring instruments. One model answers the telephone and records all incoming messages. With the use of the "Tele-Key" device the phone owner can signal his "Record-O-Fone" instrument to replay all the messages; he can do this by dialing his own number from anywhere in the world. Robosonics Record-O-Fone, Div. of Electrospace Corp., 408 Concord Ave., New York, N. Y. 10454.
Circle 123, Readers' Service Card

SPECIAL EQUIPMENT

Recessed water cooler. Fully recessed fountain provides dependable cold water service without protruding into hall or corridor area. The seamless stainless-steel fountain has a removable front panel available in prime coated

steel, stainless steel, or laminated charcoal vinyl finish. Cooling unit is self-contained. Sunroc Department FFR, Glen Riddle, Pa. 19037.
Circle 124, Readers' Service Card

MFRS' DATA

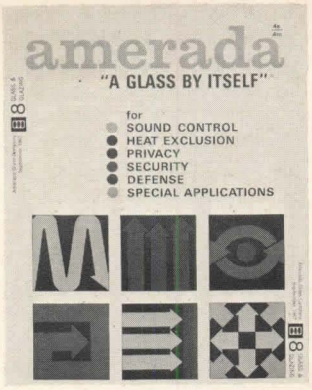
AIR/TEMPERATURE

Flexible cabinet-heaters. Designed especially for institutional use, these heaters are said to be flexible enough for use in ceiling, floor, and wall. Series "AE" is shown in brochure, which details construction features of the three models in the series. Renderings of different arrangements accompany diagram showing air movement through the unit in nonrecessed, semirecessed, fully recessed and concealed installations. Manual explains electric and pneumatic controls. Chart. Details. Dimensions. 8 pages. ILG Industries Inc., 2810 N. Pulaski Rd., Chicago, Ill. 60641.
Circle 200, Readers' Service Card

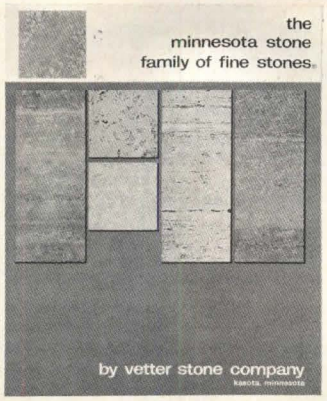
CONSTRUCTION

Color it fascia. Anodized aluminum fascias are for walls or friezes indoors or out of doors, or for mansard roofs. Brochure shows two series of extruded aluminum fascia — one of ridged panels, the others of flat panels — with sketches and photographs of installations and with cross-sections of installation details. 8 pages. North American Aluminum Corp., 5575 N. Riverview Dr., Kalamazoo, Mich. 49004.
Circle 201, Readers' Service Card

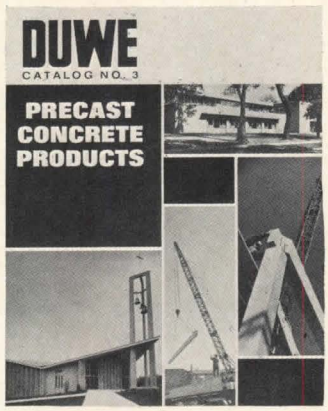
Special glasses for special needs. Pamphlet presents manufacturer's sound-retardant glass, translucent glass, and burglar-resistant glass. Also described is triple-purpose (heat control, glare control, safety control) "Twi-Lite" glass. A short discussion of UL-approved bullet-resistant glass. Thicknesses, maximum sizes, and other pertinent data for each glass. 12 pages. Color. Amerada Glass Co., 2001 Greenleaf Ave., Elk Grove Village, Ill. 60007.
Circle 202, Readers' Service Card



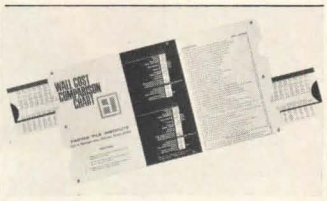
Bracing the wall. Truss-designed reinforcement for masonry walls is made of 10′ lengths of cold drawn steel wire. The truss is fabricated from two or more parallel rods welded to continuous diagonal bracing. Diagonal cross rods help resist longitudinal tensile stresses. Pamphlet gives general information, code approvals, research data, construction details, and lists of the technical data available. Information on manufacturer's other reinforcement products. Specifications. Charts. Details. 16 pages. Dur-O-Wal, P.O. Box 368, Cedar Rapids, Iowa 52406.
Circle 203, Readers' Service Card



Exterior and interior stone. Eleven colors of Minnesota Stone marble are illustrated in pamphlet; three different cuts and surface textures of six special finishes are shown. Examples of uses of Minnesota Stone include: as exterior panels, as church furniture, and for flooring. Minnesota Northern Stone in 8″-long modules of several heights is illustrated in 11 cuts and several colors. Specifications. 8 pages. Vetter Stone Co., Kasota, Minn. 56050.
Circle 204, Readers' Service Card



Multiformed precast concrete. Manufacturer's precast concrete products include roof slabs, special ducts, gravel stops, joists, tongue and groove planks. Catalog No. 3 discusses the advantages of "DuCrete" concrete aggregate and "Haydite" lightweight aggregate. Roof insulation data compares Haydite, sand and gravel concrete, and wood deck. Load table for manufacturer's precast roof decks. 10 pages. Duwe Precast Concrete Products, Inc., U.S. Highway 41, Oshkosh, Wis.
Circle 205, Readers' Service Card

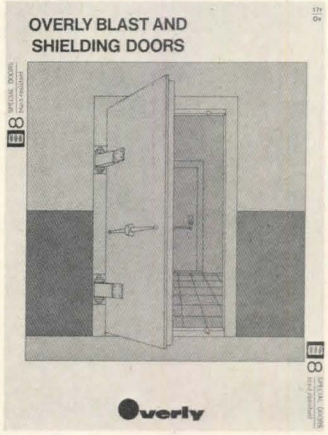


For quick calculation — "Wall Cost Comparison Chart." The chart permits quick comparison of cost in labor and material of any two of 38 wall types frequently used in construction. The chart was drawn up by the Facing Tile Institute which arrived at national averages through government statistics. The Institute emphasizes that the chart was reviewed and authenticated by a nationally-known firm. Other information such as flame spread, heat and sound transmission, and fade resistance are given. Facing Tile Institute, 333 N. Michigan Ave., Chicago, Ill. 60601.
Circle 206, Readers' Service Card

Fire protective sealants. UL standards and the UL "Steiner Tunnel Test" provide a sure way of judging the quality of sealants, coatings, and adhesives. Manufacturer's fire protective products are described in brochure, which contains many references to the UL standards and to the National Fire Protection Association codes. Booklet gives data on high and low duct sealants, mechanical and adhesive insulation attachments, and coatings for insulation. 6 pages. Benjamin Foster Co., P.O. Box 59, Brookside Ave., Ambler, Pa. 19002.
Circle 207, Readers' Service Card

DOORS/WINDOWS

Wood-framed windows, from colonial to ranch. Construction features and window grouping possibilities for manufacturer's casement, awning, double-hung, and slider-type windows give an idea of what the manufacturer has available in styles ranging from colonial to ranch style. Photos show actual installations and close-ups of window operation. Cross-sections. Sizes. Specifications. 20 pages. Caradco Inc., Dubuque, Iowa.
Circle 208, Readers' Service Card



In case of blasts and radiation. Manufacturer's doors provide protection from blasts and radiation; the blast doors can be used in bomb shelters, block houses, and rocket complexes; the radiation-shielding doors (windows) are for hospitals, laboratories, and atomic energy facilities. Descriptive material on blast doors of low, intermediate, and high ranges, and on high-range concave blast doors. Cross-sections. Speci-

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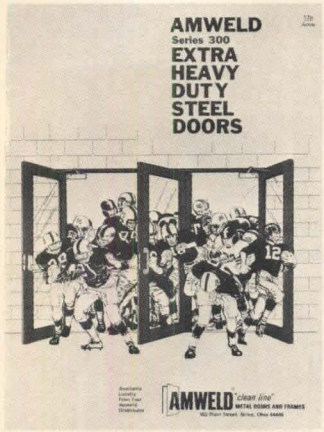
DAYCO CORPORATION **DAYFLEX PLASTICS** DIVISION DAYTON, OHIO

fications. 8 pages. Overly Manufacturing Co., Greensburg, Pa. 15602.
Circle 209, Readers' Service Card



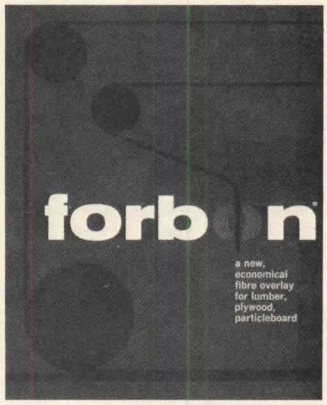
Let through the madding crowd. Extra heavy duty steel doors can take extra heavy use. "Series 300" has 16 designs, four of which are UL-approved as fire doors. Pamphlet shows construction details, sizes, hardware choices, and glazing details. Charts. Short-form specifications. 8 pages. Amweld Building Products, 163 Plant St., Niles, Ohio 44446.
Circle 210, Readers' Service Card

Completely concealed door controls. Under foot but out of the way, these automatic door controls are for swinging or sliding doors, manually or automatically operated. Detail drawings. Photos. Charts. 14 pages. Ronan & Kunzl, Inc., 1225 S. Kalamazoo Ave., Marshall, Mich. 49068.
Circle 211, Readers' Service Card

FINISHES PROTECTORS

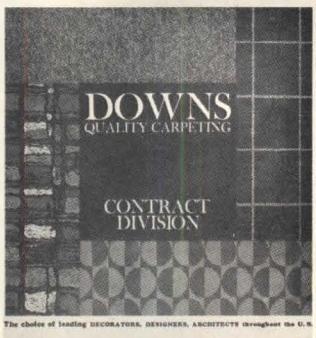
Epoxy-polyester coatings. Combining the properties of an epoxy and a polyester, "Adheron" coatings are said to be suitable when a glaze-coat is needed over brick, tile, wood, and paint. The pamphlet discusses Adheron's uses, method of applications, amount of coverage, colors, and film properties. A chart shows the coatings' resistance to 26 chemicals and stain-producing substances after a one-hour exposure. 4 pages. Hauger-Beegle Associates, Inc., 2248 Washington St., Franklin Park, Ill. 60131.
Circle 212, Readers' Service Card

Stop Stains. Stains, water-streaks and tar-drippings that mar exterior walls are prevented by fascia, water dams, and gravel stop, according to manufacturer's claims. Installation instructions and specifications are detailed for fascia, water dam, and expansion joint systems. Diagrams. 8 pages. W.P. Hickman Co., Inc., 2520 Industrial Row, Troy, Mich. 48084.
Circle 213, Readers' Service Card



"Forbon" is a thin vulcanized fiber laminated over lumber that produces a smooth, paintable, protective surface. Pamphlet emphasizes Forbon's use for siding, for furniture or paneling, and for stadium seats or benches. Photos illustrate how Forbon can be applied to lumber at speeds of over 100′ per minute. Chart of physical properties. 6 pages. NVF Co., Wilmington, Del. 10800.
Circle 214, Readers' Service Card

FURNISHINGS



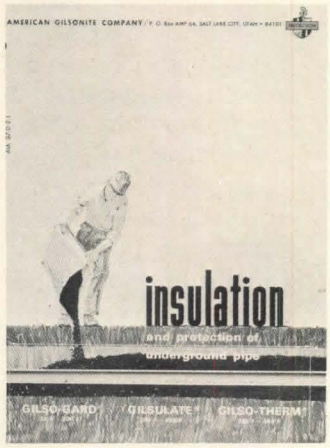
Carpet the world. Carpets are now being used in almost any architectural application. Seventeen uses (including schools, offices, and stores) are listed in the full-color brochure presented by Downs contract division. Photographs, lighted to bring out the texture of the carpets, also show the rich colors achieved by the manufacturer. Other photographs show the designs, if not the textures, of other carpets in the line. Thirty contract installations illustrated. Downs Carpet Co., Inc., Philadelphia, Pa. 19134.
Circle 215, Readers' Service Card

Office furnishing overview. To provide a guide to office furnishings for architects, designers, and contract furnishers, the National Stationery and Office Equipment Association shows office furniture, seating, walls and accessories in a booklet representing many U.S. manufacturers. The booklet shows furnishing installations accompanied by descriptions, and some charts and photos of details. National Stationery and Office Equipment Association, 1143 Merchandise Mart, Chicago, Ill. 60654.
Circle 216, Readers' Service Card

Polypropylene seating. Catalog and price list of "The Robin Day Chair Series" features polypropylene seating in 12 styles including stacking chairs, swivel pedestal base chair, benches, and educational-institution bench seating, variable according to installation conditions. Catalog includes photographs and description of each style, and a detail photograph of the base showing how it is attached to seat shell for maximum strength. Test reports and specifications. John Stuart International, 205 E. 58th St., New York, N.Y. 10022.
Circle 217, Readers' Service Card

The warmth of the kitchen. Kitchen cabinets, designed to add warmth to the kitchen atmosphere, are shown in the manufacturer's eight-page brochure. Alder wood cabinets with a choice of two finishes comprise three of the five styles shown; another style is finished in embossed vinyl overlay, and still another, with an acrylic coating. Diagrams show dimensions. Noblecraft Industries, Inc., P.O. Box 88, Hillsboro, Ore. 97123.
Circle 218, Readers' Service Card

INSULATION



Pipe padding. Manufacturer's underground pipe insulation of gilsonite, a natural high-resin hydrocarbon, is available for three temperature ranges. Brochure explains uses of this insulation and the company's engineering and installation services. 4 pages. American Gilsonite Corp., P.O. Box AMF 64, Salt Lake City, Utah 84101.
Circle 219, Readers' Service Card

Pick a pack of perlite. "Permalite" insulation board, a waterproof membrane, and a cold-process adhesive make up the manufacturer's package insulation system. Brochure describes each of the three components, lists tests

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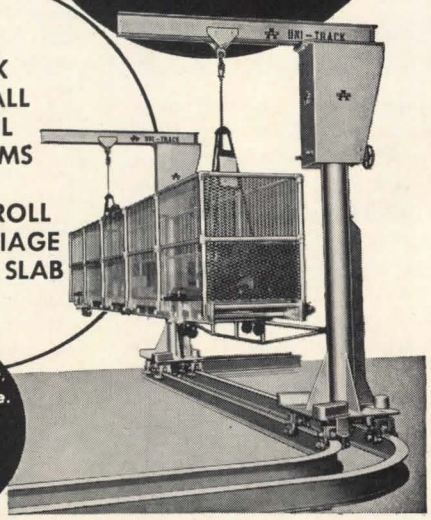

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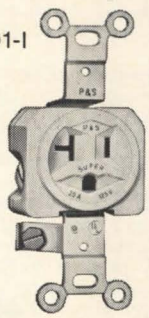

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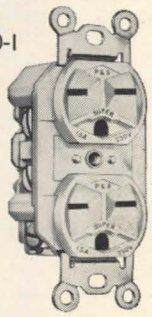

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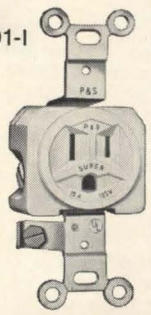

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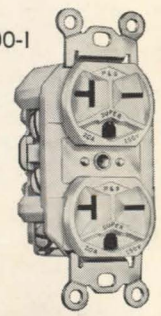

P&S

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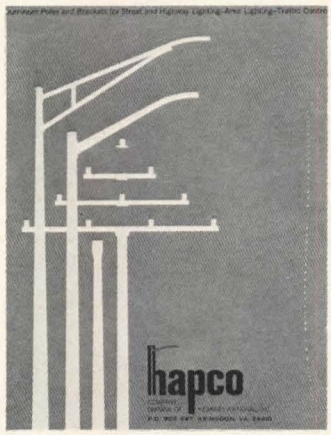
Renfrew Electric Co. Ltd., Toronto, Ontario

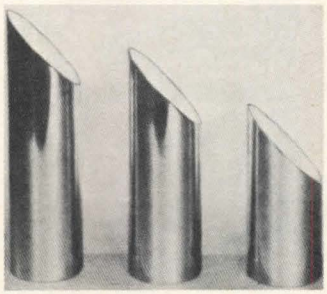
On Readers' Service Card, Circle No. 361

and results. Heat transmission chart; applications and specifications for the entire system. 8 pages. Greco, Inc., General Refractories Co., 22 N. Michigan Ave., Chicago, Ill. 60601.
Circle 220, Readers' Service Card

LIGHTING



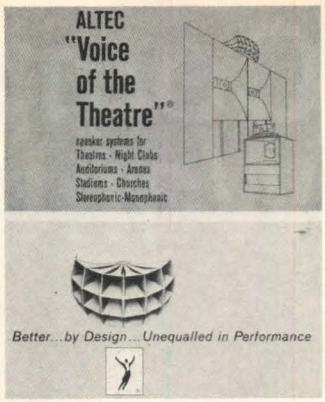
Plenty of poles. Poles and brackets for highway or street lighting come in many guises. Brochure illustrates poles, their bases, and their light supporting arms, and gives engineering and design data. Specifications. 6 pages. Hapco Co., P.O. Box 547, Abingdon, Va. 24210.
Circle 221, Readers' Service Card



Lamps galore. Lighting catalog mainly shows stem-base floor lamps, but also includes wall-attached lamps and table lamps. The latter category includes one fixture consisting of three polished chrome cylinders cut diagonally at different heights. The units can be arranged to create different moods, depending on the conditions. Judson Contemporary Lighting, 791 Madison Ave., New York, N.Y. 10021.
Circle 222, Readers' Service Card

SPECIAL EQUIPMENT

Projecting sound. Originally developed for the cinema, manufacturer's speaker system is now used widely in



stadia and churches. "Voice of the Theatre" speaker system brochure discusses quality installations, acoustic principles, and gives details and uses of manufacturer's several speaker models. 6 pages. Altec Lansing, LTV Ling Altec, Inc., 1515 S. Manchester Ave., Anaheim, Calif.
Circle 223, Readers' Service Card

Anyone for a swim? To make summer swimming easier, this manufacturer supplies pool equipment from pumps to diving boards. Catalog shows equipment available in 16 categories, including equipment for water testing, and safety (such as flexible pool covers strong enough to hold children, tricycles, and so on, which might fall in). Plans for six pools of different shapes form the last section of the catalog, with equipment lists attached. 35 pages. Paddock Seablue Inc., 2630 Brenner, Dallas, Tex. 75220.
Circle 224, Readers' Service Card

PROGRESSIVE ARCHITECTURE
NEWS REPORT

REINHOLD PUBLISHING CORPORATION
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NEXT MONTH IN P/A

STUDENT INVOLVEMENT. *Hofstra University is a former commuter campus on Long Island that has a history of eight-hour-a-day-life: students would come to school in the morning and leave after evening classes. This has all been changed by the erection of dormitories in a new master plan, but most of all with the completion of a dynamic new student center by Warner, Burns, Toan & Lunde. These days, the students, commuters as well as residents, are so turned on by the center that they stay on and get involved in the continuing life of Hofstra. A notable example of architecture changing the whole atmosphere of an institution.*

PITTSBURGH: A CHARACTER STUDY: *The Pittsburgh "Renaissance" is thought of in terms of the bright, new, and perhaps specious architecture of its showplaces. But behind the showplaces is the old, drab city of the past. This article attempts to describe the old Pittsburgh, its history, topography, and visual character, and to illustrate ways in which this character may be handed on to future Pittsburghers.*

ARCHITECTS AND CLIENTS. *An examination by an assistant professor in Yale's Department of Administrative Sciences of the contributions that behavioral science studies have made in the field of architectural practice. Major emphasis is on how to manipulate most successfully the architect-client relationship so as to produce best results in planning and design.*

HABITAT REVISITED. *Dr. August E. Komendant, the structural consultant for the project, reassesses Moshe Safdie's Habitat now that the tumult and shouting have died, and examines what happened, what expectations did not work out, and why some of them could never have come about. He also discusses how poor organization and planning by contractors caused excessive cost.*

PROMOTING MENTAL HEALTH. *A reposeful, low-lying building on a lake is the clinic for a group of psychiatrists and neurologists in Minneapolis. The architects, Hammel, Green & Abrahamson, designed a building residential in character and placid in approach, the better to provide a warm and undemanding background for mental therapy.*

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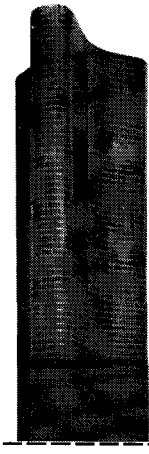

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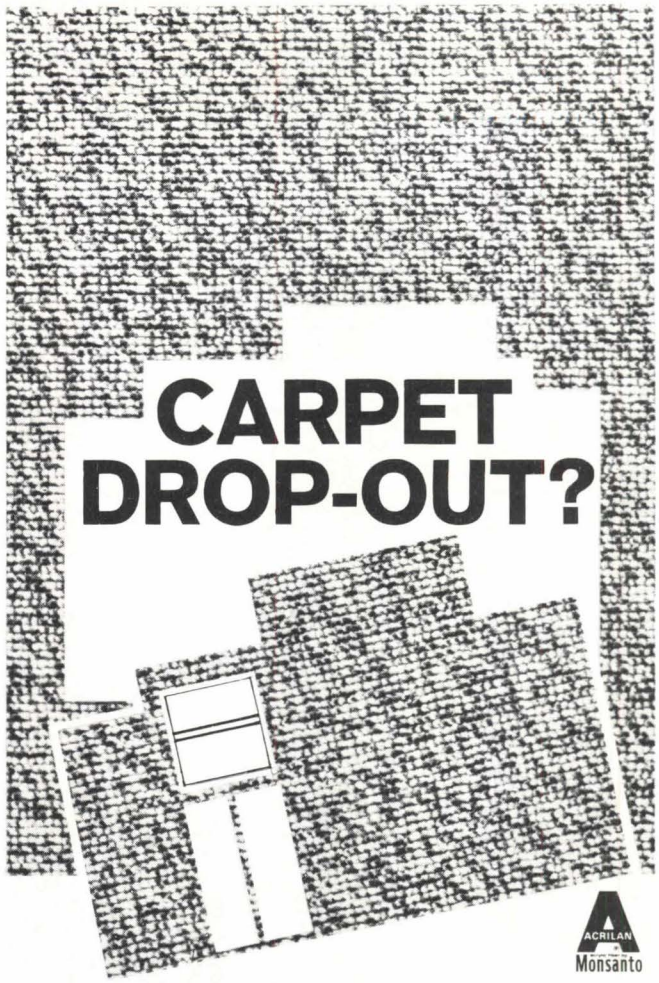

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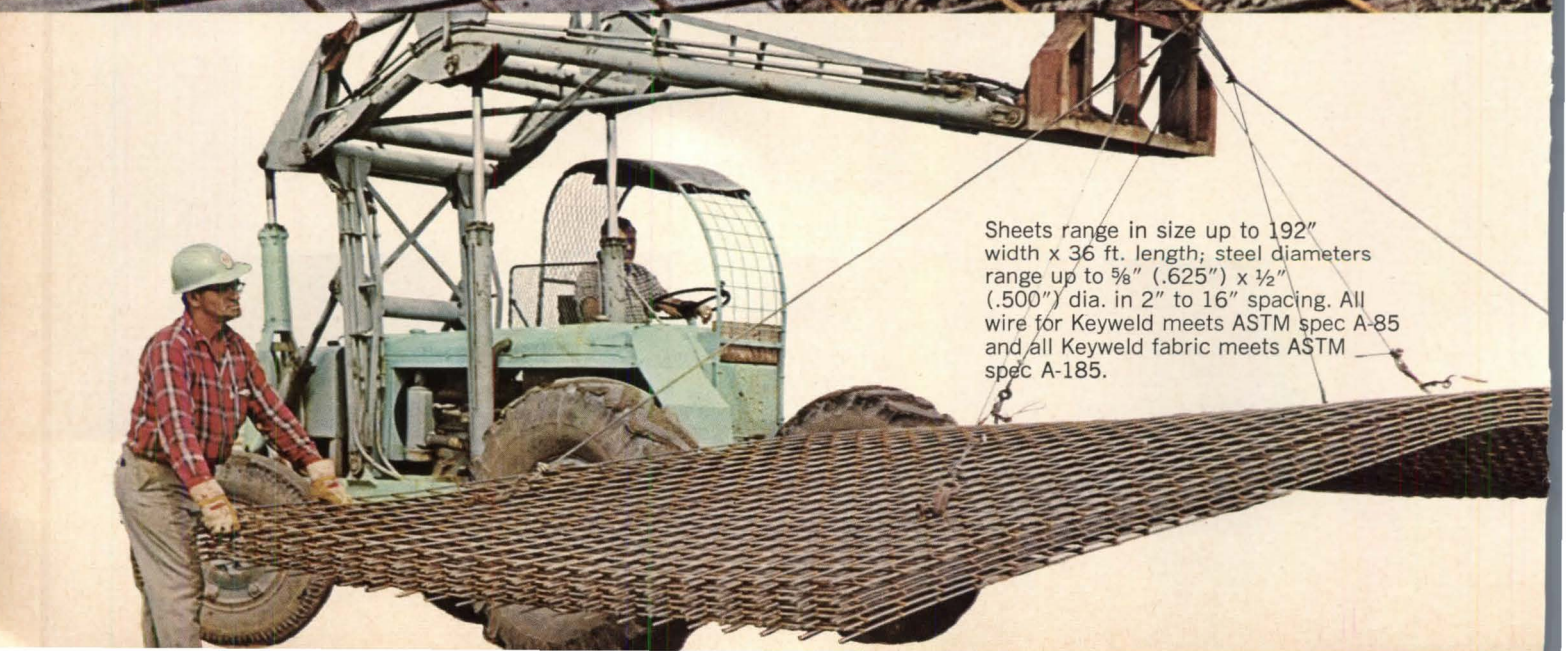

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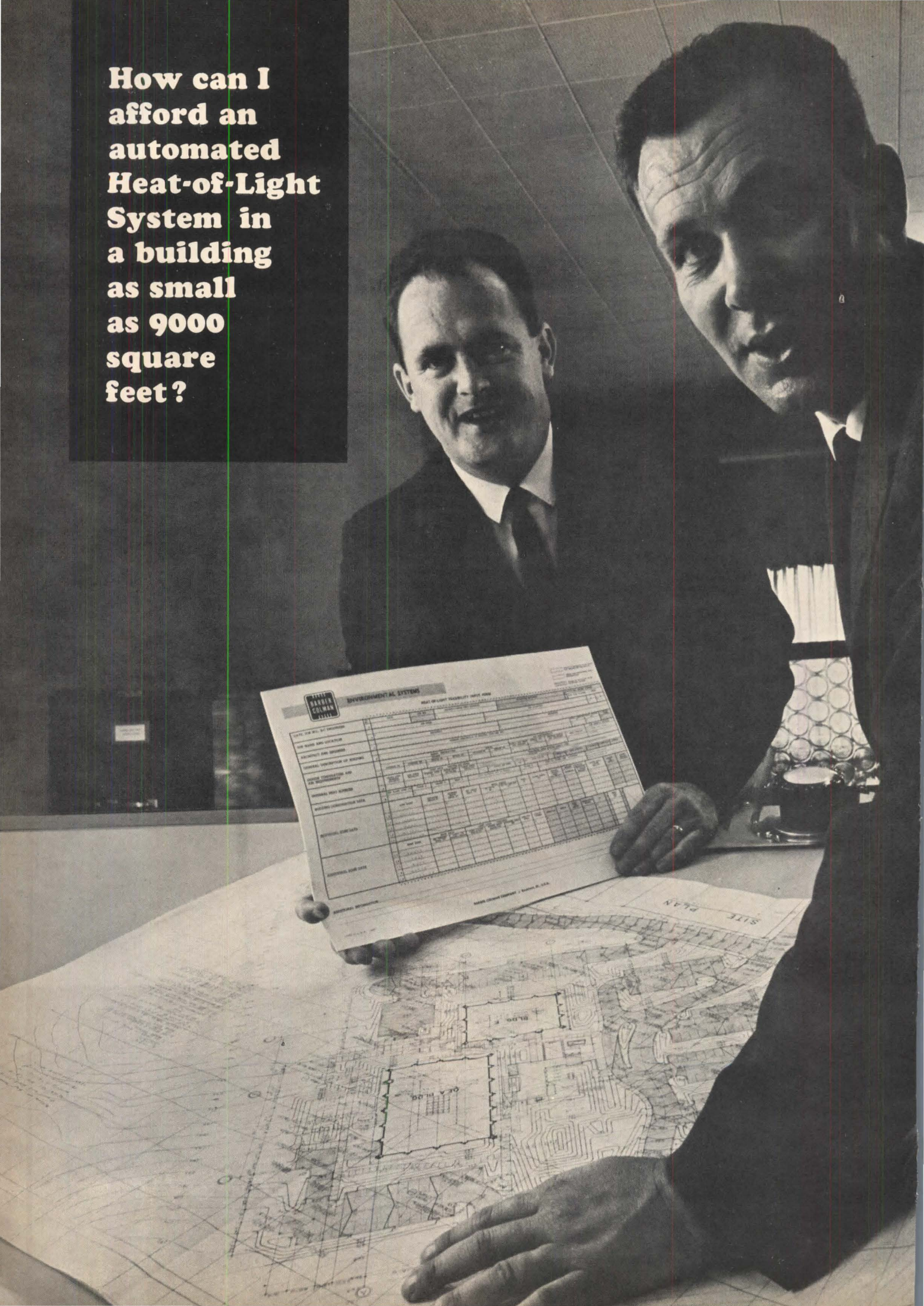
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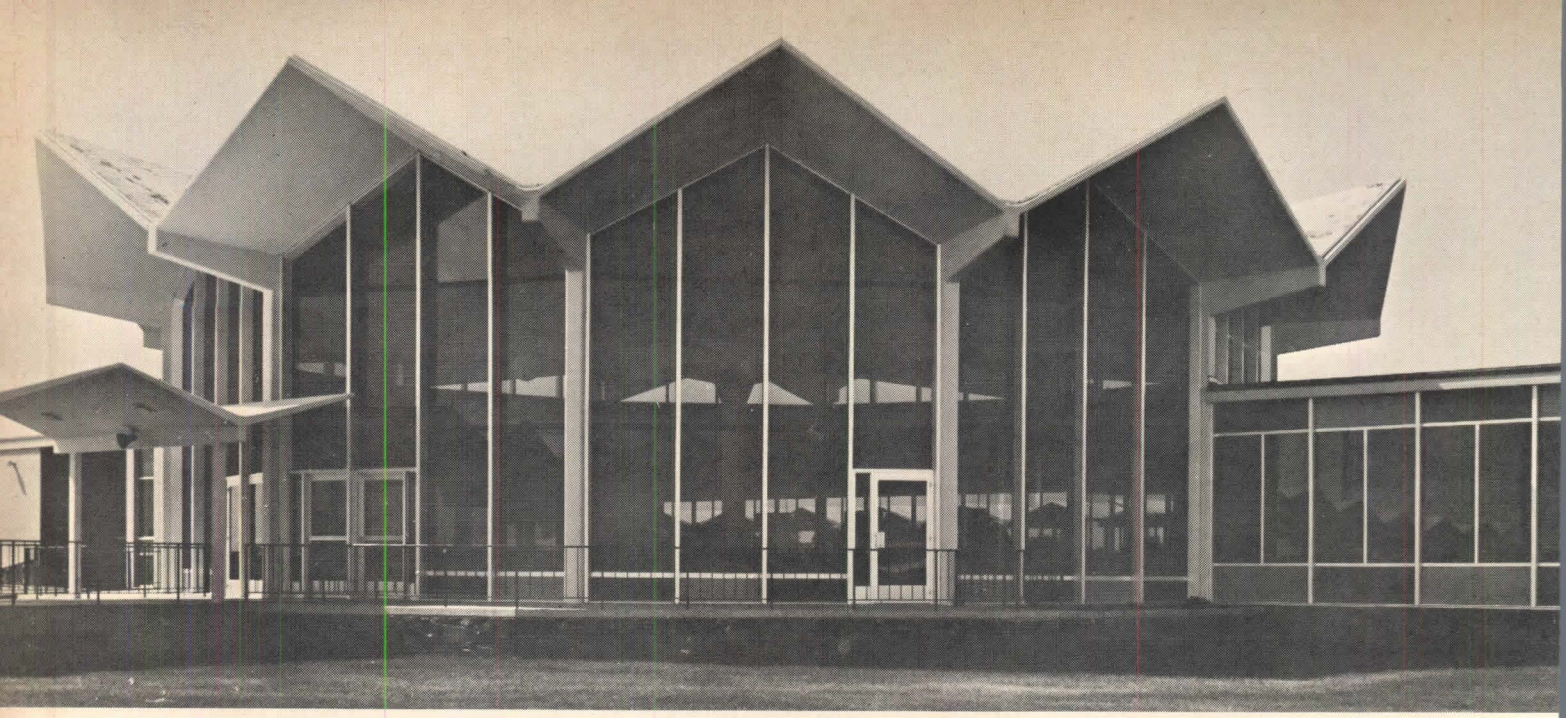

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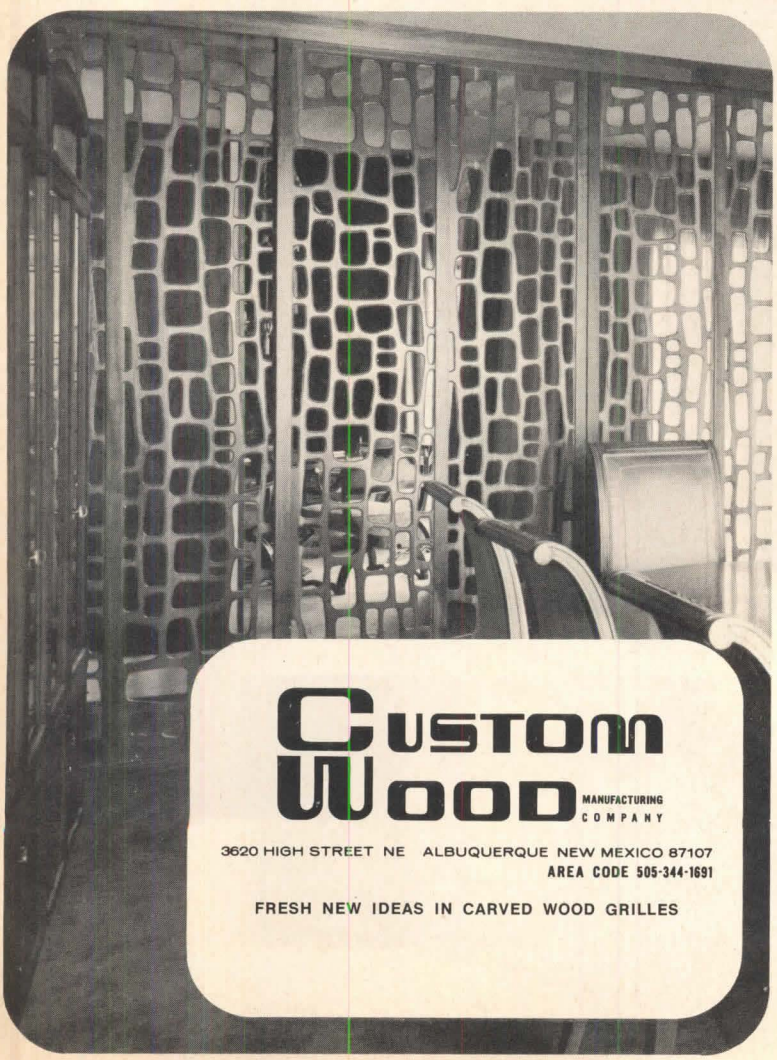

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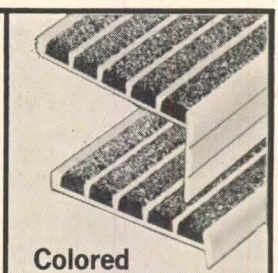

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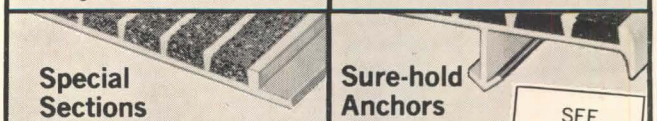

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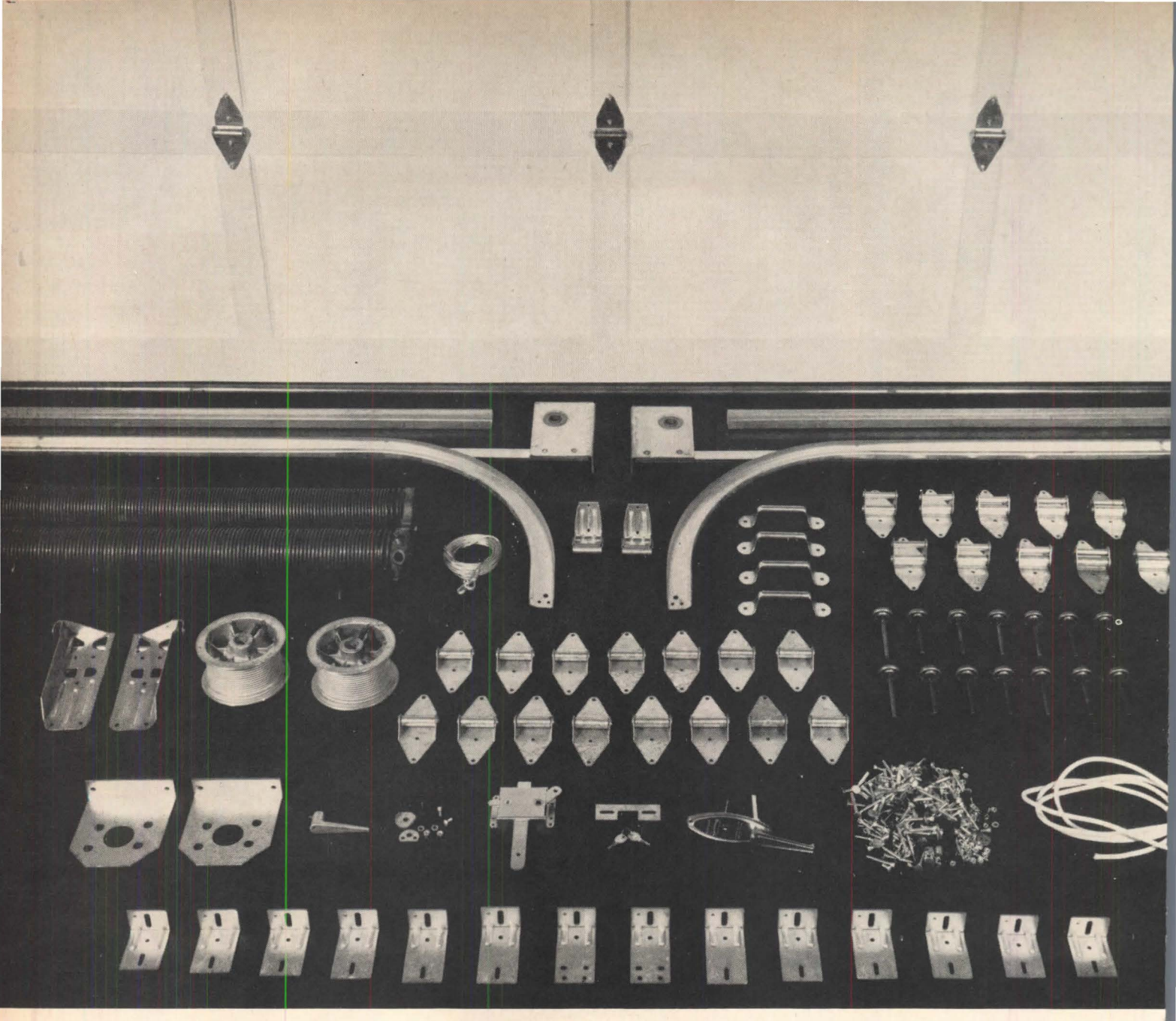

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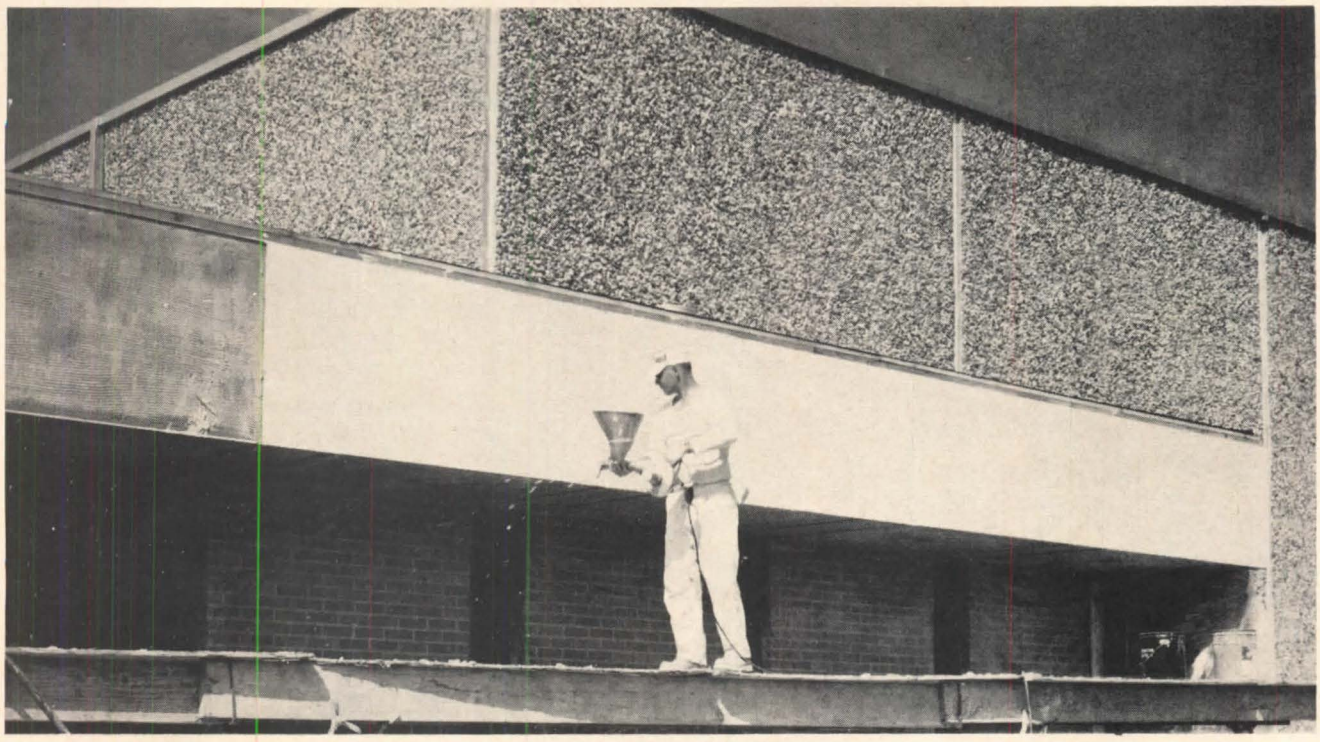

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PHILIP JOHNSON

EDITORIAL

Los Angeles one either loves or hates. It so happens that those who love it live there; those who hate it do not. At the innumerable discourses about the urban environment, Los Angeles is invariably painted as the extreme example of everything that is wrong with contemporary urban growth. The shapeless, endless, tasteless, garish, asphalted, spaghetti-filled, suburban-like sprawl of Los Angeles and its environs dulls the senses, offends the eye, and transforms people into servile extensions of automobiles who spend most of their time glued in hypnotic stupor to the wheels of their tin monsters. We are told that this is so by architects, planners, other experts, and by sundry lay visitors as well. The revulsion seems universal — among those who do not live there.

As one whose feelings about Los Angeles are not any different from those of other outsiders, I often wondered what it is that makes millions of Americans (seven million if you take the whole Los Angeles region) love such a hateful place. For the fact remains that the natives are devoted to their hell, and new converts are streaming in day after day. A hell that obviously is a heaven cannot be dismissed so lightly.

Now that smog is an endemic element of the region's climate, "ideal weather" can no longer be used as the main reason for Los Angeles' lovability. Nor can "employment opportunity"' be used as an explanation, because the area's major industries, war and space, undergo frequent cyclic convulsions. There must be another reason, less obvious but more true.

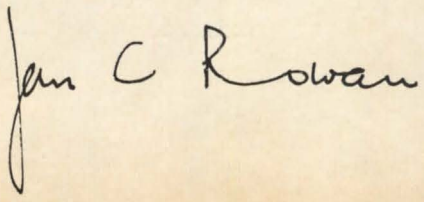
The main reason why those who live in Los Angeles like the place can be summarized in one word: freedom. This freedom has many faces and many ranges. There is, for instance, more freedom than in other cities to choose one's dress style. This and similar freedoms eventually add up to the really meaningful freedom — the choice of a *total* life-style based on one's preferences rather than on the established mores, traditions, aesthetic concepts, and other paraphernalia of a static society. To be able to choose what you want to be and how you want to live without worrying about social censure, is obviously more important to the Angelenos than the fact that they do not have a Piazza San Marco.

Another important aspect of freedom, present in Los Angeles, is mobility. There is social mobility, and you can move rapidly from being nobody to being a celebrity — and the other way round, too. There is economic mobility, and you can make or lose money at a faster rate than in most other places. And, finally, there is physical mobility — that ability to go anyplace anytime — which is the result of a vast network of roads and parking lots. Complete physical mobility widens one's choice of where to live, where to work, where to relax, where to eat, what friends to have. The automobile for the Angelenos is a friend and not an enemy.

It is interesting that the residents of the Watts area lack the three mobilities. They have no *social mobility*, because of their racial and economic condition; they have little *economic mobility*, because of their educational condition and poor physical mobility; and they have difficulties with *physical mobility*, because many cannot afford to own cars in a city that has hardly any public transportation. Their protest, therefore, is not surprising.

What prompted me to write these few thoughts is reading a recent report entitled *Environmental Goals for the Los Angeles Region*, prepared by a committee composed of major local associations and institutions interested in the various phases of planning and design. In this lengthy report, I could not find an analysis of what makes the Angelenos like Los Angeles.

Surely, my rather amateurish evaluation, based on a couple of visits and a few probing discussions with the residents, is not enough. Now that so many other urban sprawls are beginning to resemble Los Angeles, and at a time when everybody is trying to understand and solve the "urban problem," a thorough and unbiased evaluation of the Los Angeles phenomenon is in order. ■



CHARITY BEGINS AT HOME

New York's new Ford Foundation Headquarters is a luxurious tour-de-force of outside-in space.

When the firm of Kevin Roche, John Dinkeloo & Associates gets a monumental commission (the Oakland Art Museum, the New Haven Arena, the Knights of Columbus Headquarters, the Air Force Museum, the National Aquarium), it always comes forward with a special and dramatic solution to the problem. This is decidedly the case with the newly occupied Ford Foundation Headquarters on East 42nd Street in New York. It is hands-down the most impressive architectural performance in Manhattan since the same firm's CBS Building (under the banner of Eero Saarinen Associates).

With several things going for them — an interesting and prestigious site in the United Nations neighborhood, a knowledgeable client, and an imposing purse to draw upon, Roche and his colleagues decided to make more of a civic contribution than the usual, buttoned-down, flexible-space office building (even one with those stylish "amenities," the pedestrian plaza and the "sculptural" façade). What they did was to create a monumental structural envelope enclosing both the inside and the "outside." The offices, from the second to the ninth floors, wrap around a one-third acre, 6,150,000-cu-ft, building-high enclosed garden to form a Gamma (Γ). The tenth and eleventh floors, containing executive offices and conference rooms, plus dining and service areas, ring the court on all four sides. The garden is carried up the building by setback planters on the north wing of the third, fourth, and fifth floors. There are, in addition, potted trees at open balconies on the tenth and eleventh floors, and movable planters at the 43rd Street entrance.

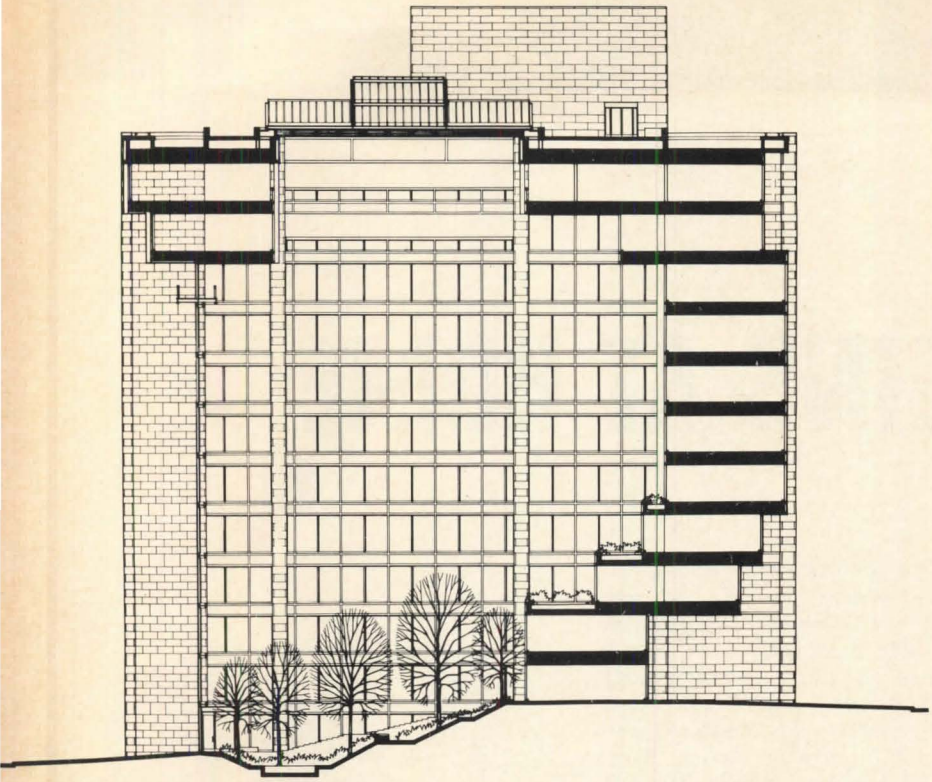
The garden extends visually through its great, glass-and-steel-framed east and south walls to existing small parks in the neighborhood. Right next door to the east is a city play park abutted by a private park owned by Tudor City, a charmingly Graustarkian residential complex designed by Ackermman & Van Woert for Fred S. French Company, 1925–28, which contrasts neatly in style and lives sympathetically in hue with the Ford building (an effect not oblivious to Roche and company in design stages). Diagonally across 42nd Street to the east is another Tudor City park. The sense of openness is repeated even further east by a mundane city playground (hopefully to be enlarged and refurbished), and the East River beyond. The lushness of the interior garden is played against the more severe character of the outside parks for telling contrasts, especially in leafless weather.

The Garden of the Fords

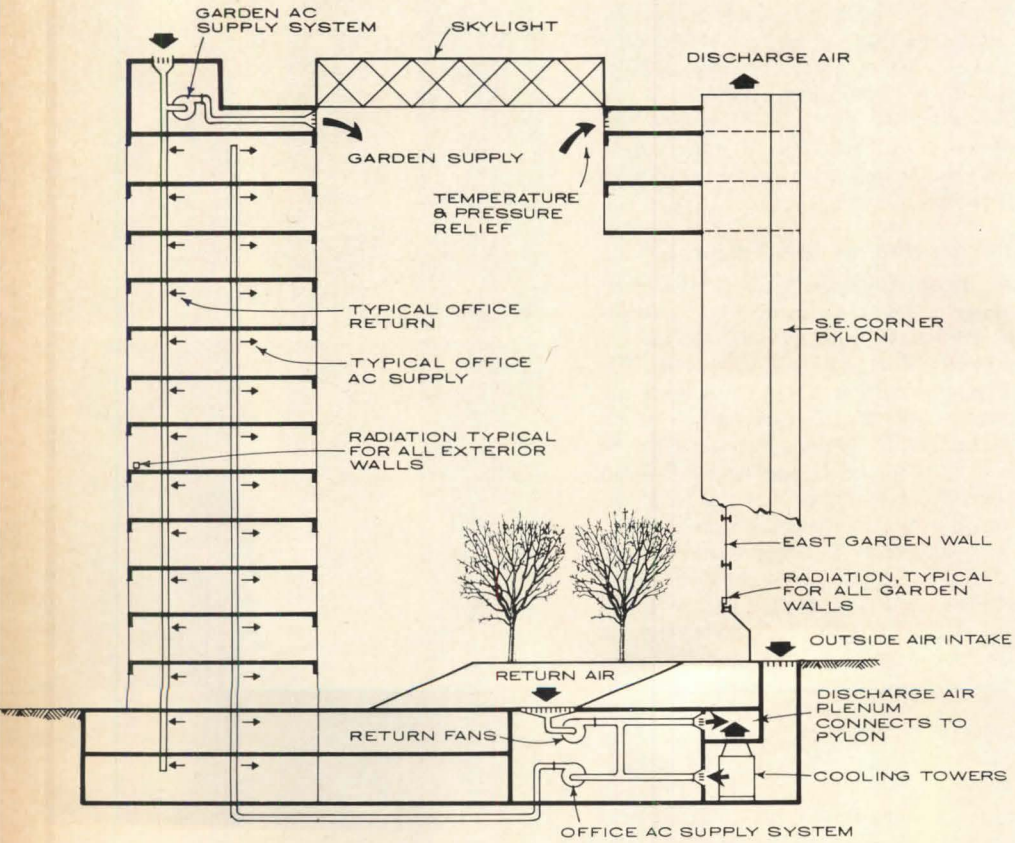
Like most landscape designs, the Ford garden is not so impressive now as it is expected to be with growth and the cumulative effect of changing seasons. Eucalyptus trees now up to 18 ft high, for instance, are expected eventually to reach 100 to 150 ft up into the great court. According to landscape architect Dan Kiley, this eventuality was the basic determinant of the landscaping: to function vertically in a strong vertical space.

Since wholly tropical planting is usually irregular and floppy, the designers worked mainly with plant material from more temperate zones that had the properties of body and verticality. This decision also eliminated the need for high humidity in the court, which the architects wished to avoid to obviate condensation, as on the walls of a greenhouse.

The temperate-zone planting requires a climate more nearly approaching the United States (Louisiana, for instance), than that of the tropics, and as a consequence the climate in the court (ranging from 45° to 50° in winter to 90° in sum-



SECTION LOOKING WEST



SCHEMATIC SECTION LOOKING NORTH

Because the architect wanted an uncluttered roof, cooling towers were installed in the basement and warm air discharged through a pylon. No boilers are required, since heat is obtained from utility company steam. The garden is heated with radiators located at the horizontal framing members of the window walls, and air blown down from the roof. On sunny days, because of the glass-house effect, this warm air only operates when the outside temperature falls below 25F. In summer, despite the large glass area, the garden cooling load is less than in the offices where lights are burning.

mer) will be a mean between the New York outdoors and that of the indoor offices. Humidity, a critical factor, will be supplemented by hosing. These atmospheric considerations caused few complications in balancing the air-conditioning system between the garden and office spaces. The range is not entirely sympathetic to every plant, of course, but the landscape architect points out that this temperate-zone indoor garden is something of a pioneering one, and all of the species are expected to thrive.

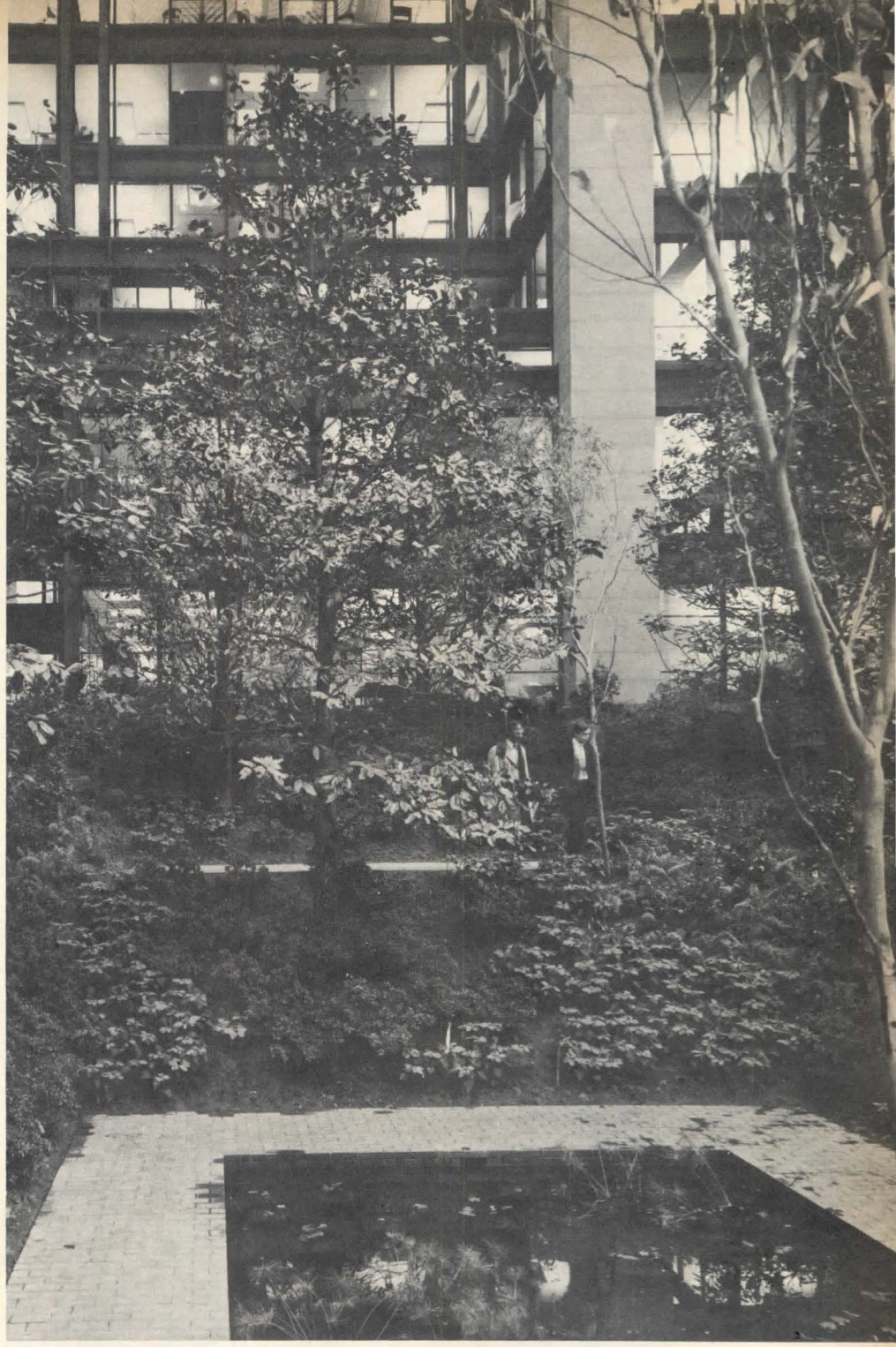
Irrigation and feeding, supplied by underground pipes to 11 different planting zones, are automatically controlled by timers from preset controls on a liquid fertilizer injector.

At maturity, according to Kiley, the loosely planned planting within a geometrical path system, which reflects the architecture, will gain a strength in the vertical dimension, further reflecting the volume.

Despite Kiley's emphasis on the temperate-zone origin of his landscaping, one wonders whether the planting at Ford is not still a bit lush, a big languorous, a bit too tropical for its midtown New York environment. The entire design of the building was handled with such consummate cool, right down to bronze typewriter stands and subtle silk-thread tapestries, that the magnolias and japonicas and bougainvillae and jacaranda that flourish in the lofty glassed space seem just a trifle overblown even now. Mind, this is a reservation, not a damning complaint. We like Brigitte Bardot as well as Katherine Hepburn; it is just a little startling to see them side by side in the same composition. And the smashing effect of the huge, courageous court volume is such a civic boon that such a complaint becomes niggling.

Two Sides, Two Effects

Approach to the building is from two directions, giving two effects: either directly off the sidewalk of 42nd Street and up the courtyard staircases to the reception area; or, and this is what Roche sees as the more formal approach, by automobile proceeding (because of one-way streets) across 41st Street, over the Tudor City overpass, and back on 43rd Street (thereby viewing the building from all major aspects), to demount under the lofty porte-cochère created by stepping back the first four floors consecutively. (There is attendant parking for 48 cars at the lower subsurface level.) These are two completely different effects: the one a sense of exhilaration or surprise on entering an indoor park right off the cindery streets of Manhattan; the other an approach to a rather austere, somehow European façade of rosy stone, to discover the garden on the other side only upon entering the building. Roche points out that this contrasting effect was consciously sought; it *does*



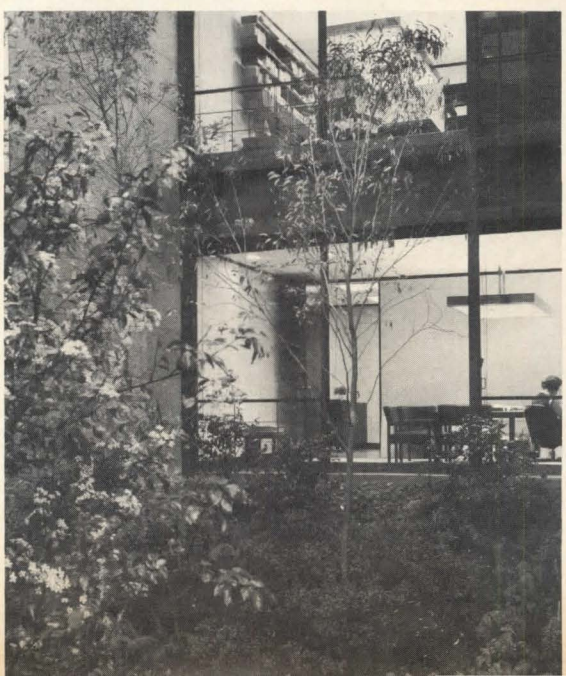
seem a building with two parts or two sides, both handsome in its own terms, perhaps, again, like Miss Bardot and Miss Hepburn. Within, this distinction disappears, for there everything is unmistakably part of an over-all composition, revolving around the magnet of the court space. Offices and other areas off the court (save for unglazed ones) have full-length sliding windows enabling people to open up and practically become a part of the great mutual space.

The architects say that this is intended to enforce the idea that everyone at Ford Foundation is occupied with the same eleemosynary goals, and that they are all part of a common aim, whatever their different projects may be. It is fascinating to stand at various levels in the building and observe people from many angles. The best viewing platform is the eleventh-floor lounge terrace, where Ford Foundation President McGeorge Bundy can be seen working in his see-through tenth floor office suspended below Chairman Julius A. Stratton's opaque one, with Tudor City and 42nd Street traffic forming a backdrop. Those with vertigo might think this view less than appealing, but there is solid structure all around to reassure those who might feel impelled to tip over. It is a safe supposition that even viewers not afflicted with acrophobia will experience an impulse to "feel the whole space" all at once.

Inside the Inside

On the below-court level are two special areas — the Foundation's Board Room and an auditorium. Together, they provide the building with a conference facility separated from the office space above and approached by a direct public stair down from the court.

Floors of white, matte-glazed, slate, 1-ft squares inset with camel-colored car-



Park extensions to Ford garden are provided by public and private open spaces (top left). A lily-padded pool reflects at the lowest part of the garden (above). The indoor-outdoor relationship is omnipresent (left).

A brick platform separates the reception room and the area for employment application (left) at the top of the garden at the 43rd Street entrance. Staircases cascade down through the garden to the 42nd Street entrance.

Approach to the building on 43rd Street is under the lofty porte-cochère formed by stepping out the first four floors. A more subdued use of granite, weathering steel, and glass give this façade a somewhat more aloof aspect than the 42nd Street side.

pets along with white plaster walls and gleaming, ceiling-high bronze doors make this lower level a cool and light below-grade environment.

The Board Room, entered from such a resplendent reception lobby through glazed doors, has a substantial and confidence-inspiring mahogany-and-leather sectional table surrounded by Eames's leather chairs and backed by a silk needlework wall hanging designed by Warren Platner (who also designed most of the furniture in the building) and Sheila Hicks. The 35-ft long tapestry has medallions built-up of overlapping golden threads that conceivably are reminiscent of rolling wheels.

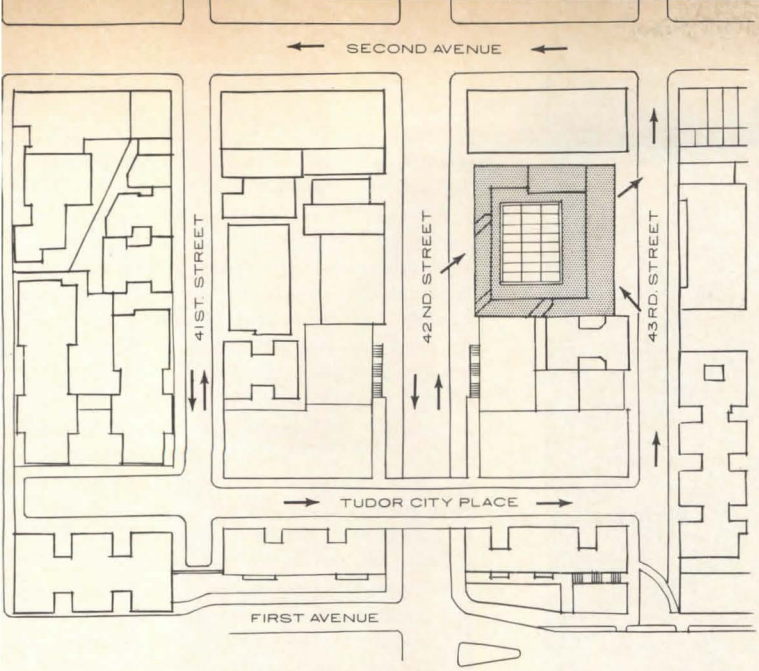
The auditorium, entered through a reception loge, is an immediately pleasing space because of the discreet consistency achieved by repetition of forms in the circle motif of the hanging on the wall opposite (a twin of that in the Board Room), the semicircular plan of the 175 seats, and the tufting of the leather upholstery. This consistency makes the wall hanging seem less an arbitrary design intrusion here than in the Board Room. Extensive projection equipment will be available for lectures and conferences, which can be held at off-peak hours owing to the provision of an independent air-conditioning system.

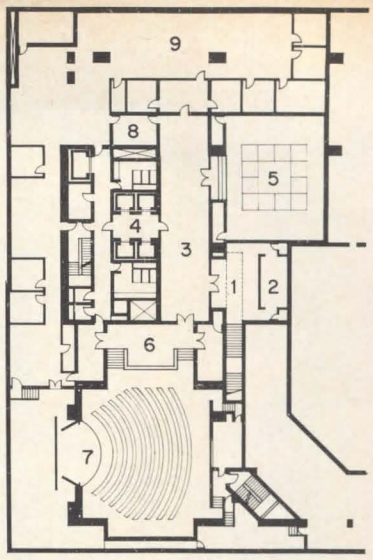
Above the sublevels are the library (which is on grade with the southwest part of the gradually-rising court level), and the entrance floor (reception on the right entering from 43rd Street, personnel and applications on the left). The typical Γ -shaped office floors are laid out with offices for directors of the Foundation's various projects at the ends of the Γ , a reception area at the main knuckle of the plan, and standard offices in between. Pairs of back-to-back typical offices are separated by what the architects call a "secretarial transept," which is an extension of the corridor serving as space for two secretaries at paired, facing desks. A small counter-cabinet separates these transepts from the corridor without closing them off completely or interrupting the traffic flow.

An integrated ceiling system incorporates acoustical tiles, a flush lighting troffer 3-ft-square containing louvered fluorescent tubes, and air-conditioning supply-and-return diffusers into a modular 6-ft-sq aluminum grid, which also receives the headers of moveable metal partitions. Ceilings are a generous 9′-8″ height.

In individual offices, pendant fluorescent fixtures in gleaming, mirror-polished architectural bronze hang over desks and back cabinets to provide both direct and indirect light. Supplementary accent lighting, over visitor's sofas in larger offices and over the foundation's art collection, is incandescent to provide "shadow and warmth."

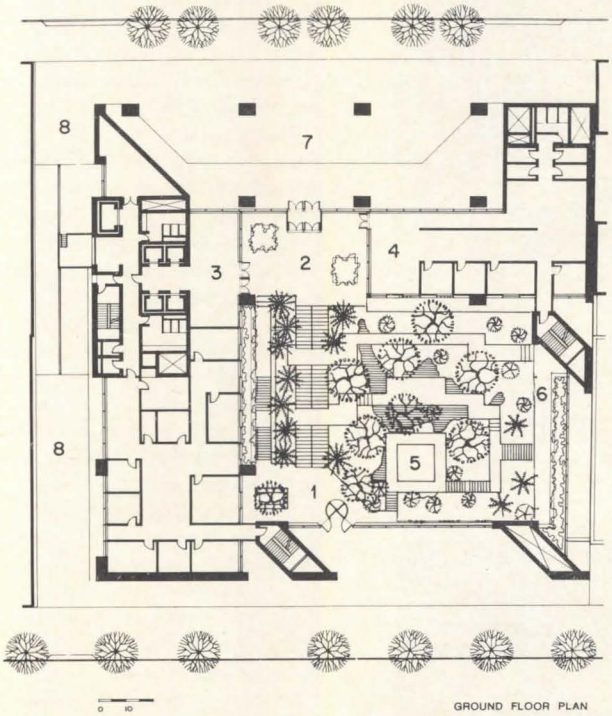
Interior window coverings are used to





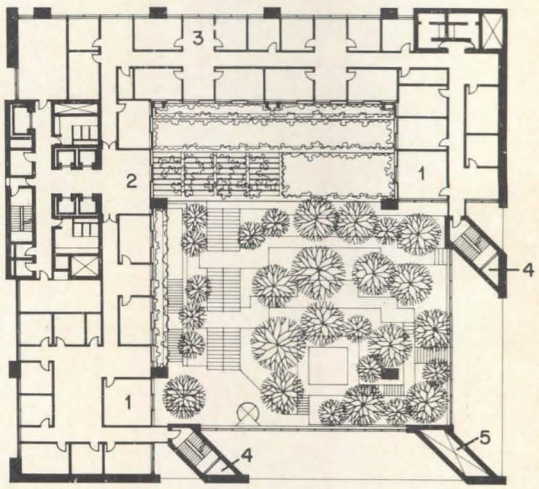
CONFERENCE LEVEL PLAN

(1) Public entrance; (2) cloakroom; (3) reception area; (4) elevator entrance; (5) board room; (6) loge; (7) auditorium; (8) serving pantry; (9) data and information processing and archives.



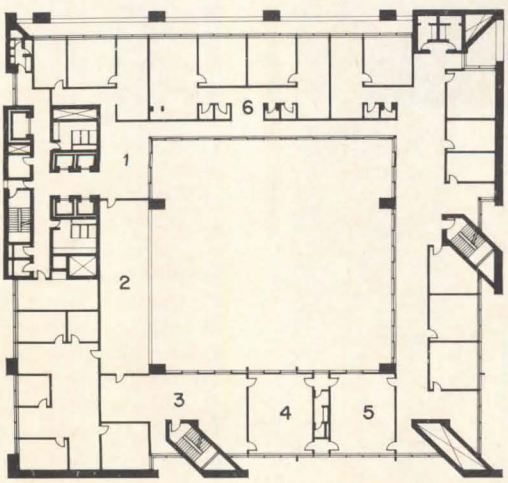
GROUND FLOOR PLAN

(1) Entrance from 42nd St.; (2) entrance from 43rd St.; (3) reception; (4) employment areas; (5) pool; (6) sitting areas; (7) porte-cochère; (8) access to garage, service areas.



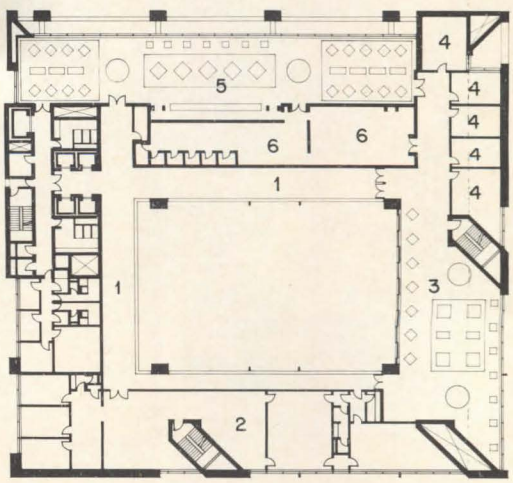
TYPICAL FLOOR PLAN

(1) Directors' offices; (2) reception; (3) typical secretarial "transept" and office areas; (4) stair tower; (5) services tower.



TENTH FLOOR PLAN

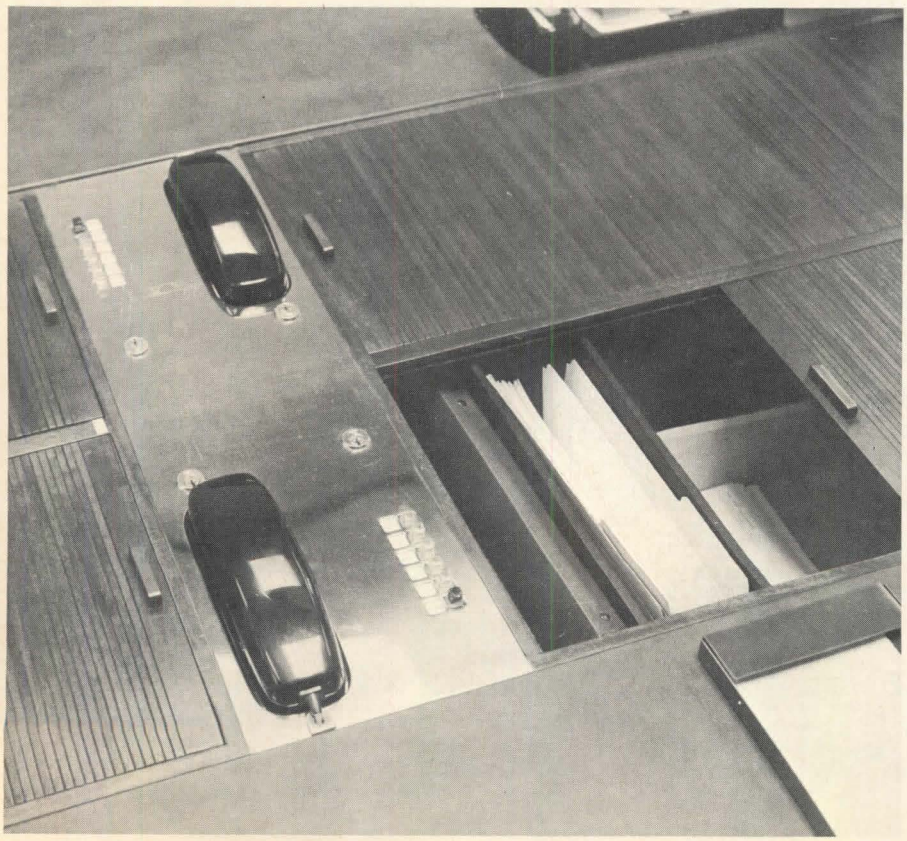
(1) Reception; (2) balcony; (3) president's reception and secretarial area; (4) president's office; (5) conference room; (6) vice-presidents' offices.



ELEVENTH FLOOR PLAN

(1) Balcony; (2) chairman's suite; (3) executive dining rooms; (4) private dining rooms (can be combined or divided); (5) employees' dining area; (6) kitchen and food service.

In the "secretarial transepts" (above), double, facing secretarial desks have, between them, recessed file space, which is closed by mahogany tambour (below), and recessed telephone panels, which have brass-bronze face plates and reel-in cords.



control natural light, which streams into the offices even across the huge court, since tinted solar glass is not used. This shading is a dark-brown terylene accordion-fold blind that rides on guide wires and can be raised and/or lowered from ceiling and floor with maximum variety. It is a window covering method with strong architectural character that will doubtless have widespread use in the future, once less heat-absorptive materials are specified. It was interesting to note in January that, despite the south and east exposure toward the sun, most people seemed to prefer any minor heat discomfort to leaving their window coverings open to the garden-court; perhaps an exuberant reaction to moving into such a place from more dour quarters.

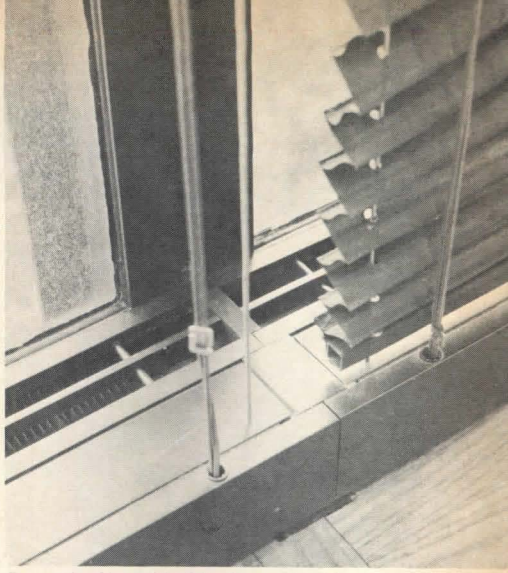
Movable metal partitions are covered in a gray-tan linen; a dark brown painted base is consistent throughout. Floors are of honey-colored, white oak parquet into which camel-colored wool carpeting is recessed.

Within these enclosures, the furnishings are equally and "democratically" consistent: There is a single standard — *luxe* — for everyone. From vice-presidents to secretaries, excepting only machine rooms, the same design of desks, cabinets, and chairs (all of them movable) and the same design of telephone and typewriter pedestals (all of them connected to underfloor ductwork) are universal.

All furniture is of mahogany, with deep brown leather insets or of polished bronze-brass with upholstery of the same leather or of black-brown wool. In this way, the interiors reiterate the colors of the weathering steel and mahogany granite cladding of the exterior (which, in their turn, respect Tudor City's texture and colors and the vanishing brownstone tradition of New York). One might paraphrase, respectfully in this case, the Ford progenitor: "Give them whatever color they want, as long as it's brown."

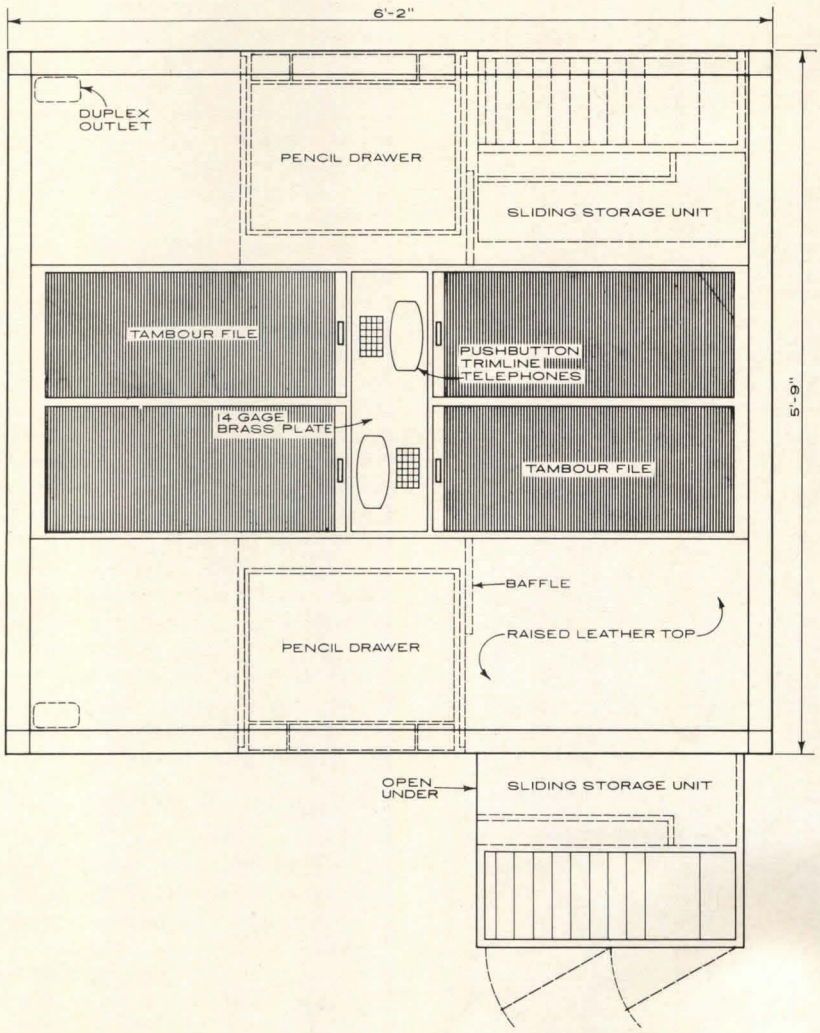
This democratic color scheme, an orchestration of browns, tans, and creams (looking out, of course, onto the changing aspect of the courtyard and the streets) is analagous to the multiple cross-breedings of interior-exterior in the whole building (the "outside" garden and the "inside" office being the spatial exemplars). The textural range, however, is much broader than the chromatic, and is orchestrated with surprising, and generally pleasing, juxtapositions. Rusty, weathering steel members frame elegant copper-bronze doors and hardware; rustic plum-brown pavers sprout crisp, gleamingly polished handrails; rough weathering steel balcony rails have immaculate leather insets; glossy glass on all sides sets up unending conversation between the elements outside, the garden inside, and the people and materials that make up the building.

Seemingly incompatible at first, the

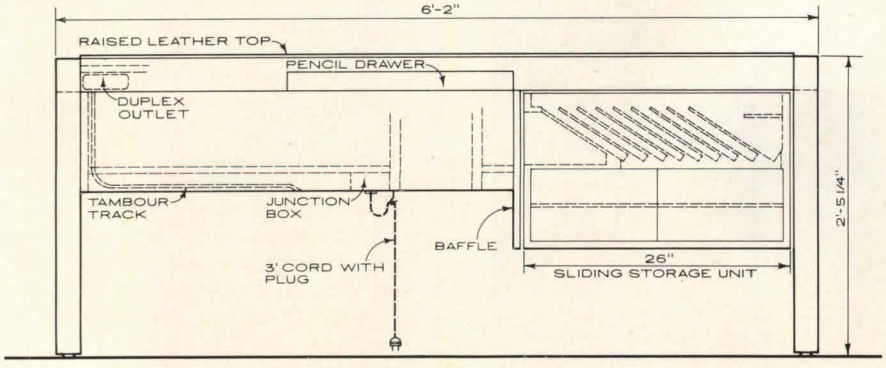


Base of adjustable blind rests inside channel that varies to serve for sliding window-wall onto the court and for fin radiation at exterior walls.

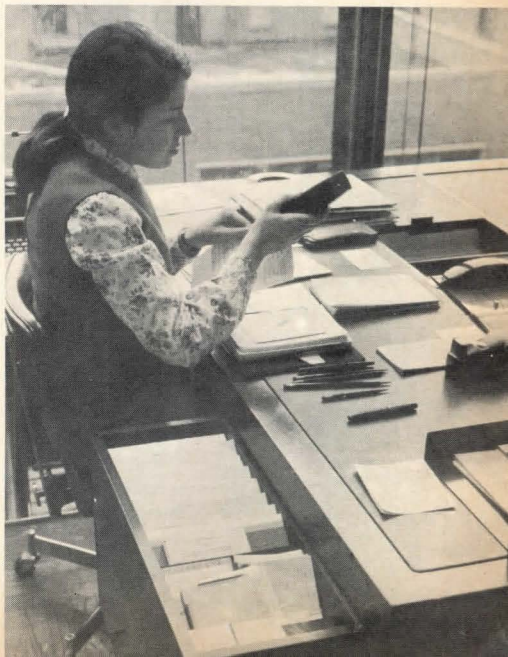
PLAN OF DESK



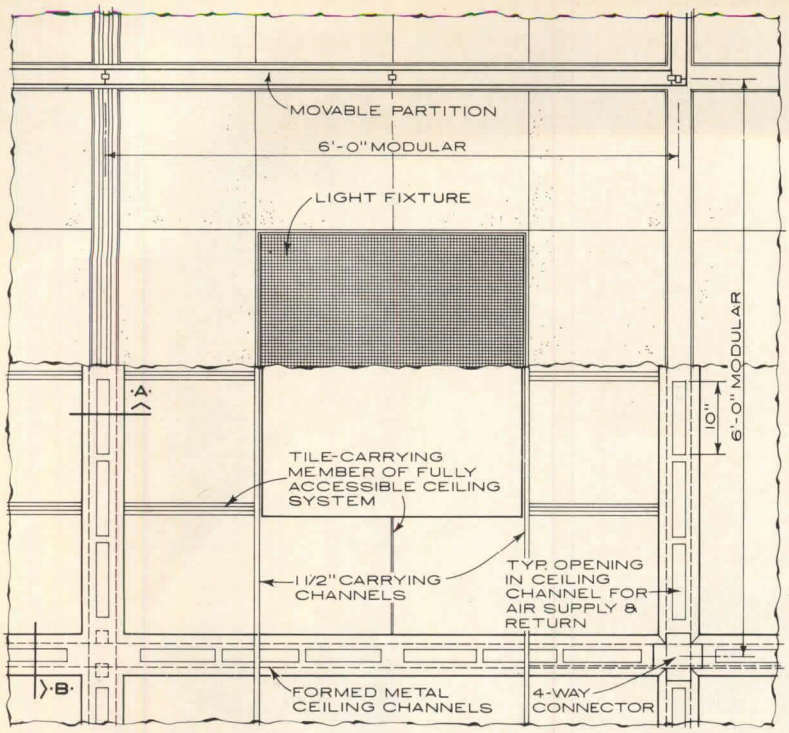
Mahogany-and-bronze pedestal units are fixed in the oak parquet adjacent to sofa groups. Trimline handsets with push-button dialing are used for the first time anywhere; buttons in the brass-bronze plate are for additional lines.



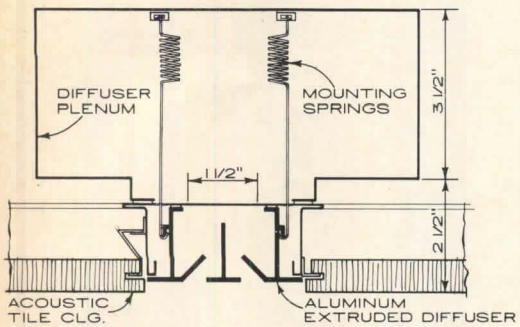
ELEVATION



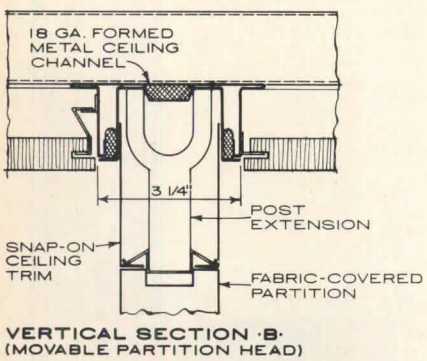
Secretarial and reception desks are the same mahogany-and-leather design as the table desk for officers, with the addition of storage space. This pedestal unit pulls out as a single large drawer for stationery and has an open compartment at the rear for personal effects; the pedestal slides back past a wood baffle that provides security for purses and the like.



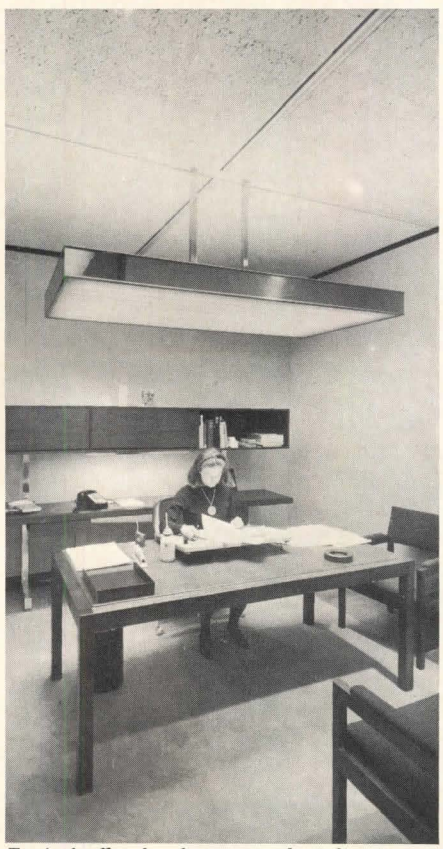
COMPOSITE CEILING PLAN



VERTICAL SECTION ·A·
(TYPICAL AIR DIFFUSER)



VERTICAL SECTION ·B·
(MOVABLE PARTITION HEAD)



Typical office has bronze pendant direct-indirect lighting fixture instead of recessed troffer used in secretarial transepts.

range of textures and experiences is blended by the monochromatic color scheme into a total and probably very personal thing: rough-smooth, inside-outside, bright-subdued, outside-inside. These seeming inconsistencies combine to create one of New York's most consistent buildings — unlike, for instance, the CBS Building, whose interiors were to be the *dernier mot* for commercial high-rise buildings, but which suffered three different interior designers.

On the top floor, close up under the great trusses of the lozenge-patterned skylight, are the offices of the chairman and the facilities for food service. Both are approached along balconies open to the 12-story court but protected by bridge-like railings of weathering steel with brown leather insets.

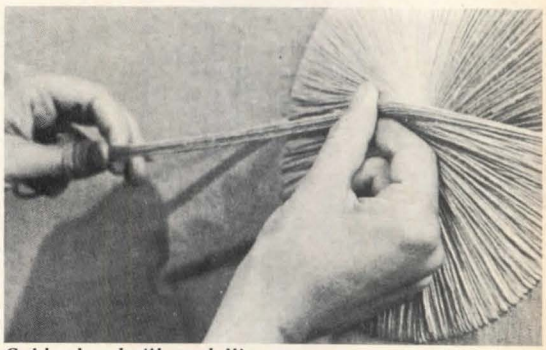
The chairman's offices span the south front and are screened from view of the court, for reasons both of privacy and (conceivably) executive vertigo. Below, on the tenth floor, the president's office and reception and conference rooms hang dramatically crystalline, glazed both on street and court sides.

Food service facilities for 360 include executive dining areas — both a main dining room and flexible, smaller dining rooms — on the east, and a staff buffet on the north. The latter area may have the materials edge with, literally, a sumptuous steam table that has a mottled purple, green, and white-veined marble service table, 4-in. thick and 35-ft long and sporting Martian-looking, silver-domed calrod heating server units, and elegant china storage wells.

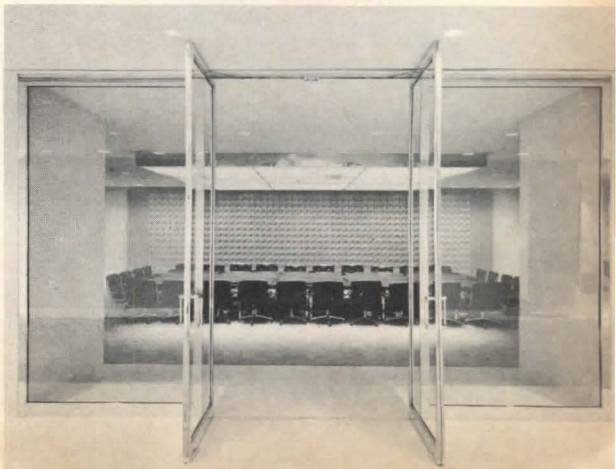
An Experience of Scale

Writing about the interiors or exteriors of the Ford Foundation is an ambiguous task, since the nature of the building is so open-ended. The interiors reach out beyond the interiors of conventional buildings, and the quasi-exteriors penetrate into what would be interiors in standard structures. One is frequently not aware where interior begins and exterior leaves off. There *is* an outside and an inside with distinct entrances on 42nd and 43rd Streets, but there is also an outside-inside (the garden court), an inside-outside (balcony spaces open to the court), and an open-window policy that further minimizes the distinction between these areas. The building is an epitome of our age's awareness of and involvement in multiple levels of experience, and it suggests a comprehensive level of perception that measures architecture by a huge scale — one based on the cityscape rather than on images of single buildings.

The inside-outside atmosphere pervades everywhere: from within offices on the court; where corridors become balconies and then return to being corridors; in the officials' dining area, where



Gold-colored silk medallions are built up on the exposed linen ground of matching wall hangings in the conference-auditorium (top) and in the board room (left and below).



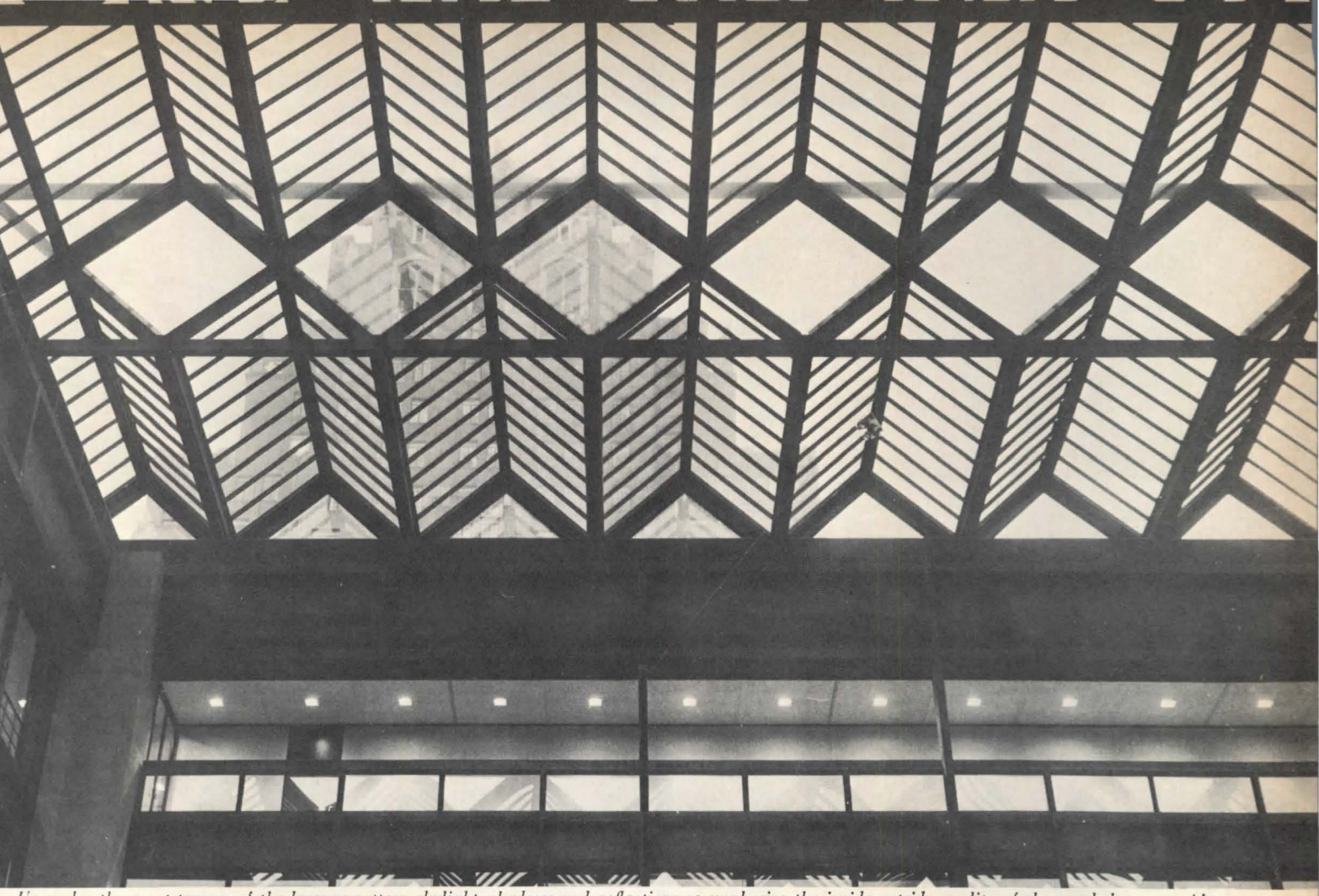
one is suspended between the airy reaches of the court and the vasty views toward the United Nations and Queensborough Bridge like a fly in amber; in Bundy's office and conference room, open to 42nd Street on one end and the court on the other; and from the court itself, observing activities in the glistening hive of offices rising around one. It can be an ambiguous, stirring feeling: "Am I to experience *all* this at once? Can I take it piece by piece? If this is designed to indicate the all-in-oneness of the Foundation, what is my own particular piece of turf to anchor on to? Must I be as big as the building all the time?" It is exciting, and perhaps can be a little unsettling to some. The sense of continual involvement with something (the Ford Foundation? the building? the great volume of the court? the city of New York? the entire world of Foundation causes?), so much larger than the individual, is bound eventually to bring forth varying reactions from those who work there. This involvement was heavily underlined by the architect's contribution; he has bent every concept in the direction of oneness. It is certainly powerful, certainly one of the dramatic experiences of today's architecture. What it will do for and to each of the people it houses will be a fascinating development to watch.

An Architect's Contribution

This is a building that has taken relatively simple (albeit expensive) materials and molded them into a form that may appear revolutionary to the superficial eye. In reality, there is nothing here that has not been done before. The interior enclosed court has been around for quite a while, as older examples in Milan, Los Angeles, Minneapolis, and Cleveland have testified (and Atlanta's Regency-Hyatt House lobby has recently reiterated). The structure of the Ford building is not trend-setting in a technological sense. Roche's admirable good work in keeping the wall and line of the street as part of his composition is not (though almost) unique with him. What has been accomplished here is the use of all these elements in such a masterly way that they have become transmuted into a building experience that is truly rich and noble. The real estate rules that dictate the design of most of the shabby commercial and apartment buildings in our cities quite aside, the architect who would try and create a really environmental building such as Ford must be resolute as well as talented: against the temptation to introduce trickery or easy effects into his design to make it more "swingy"; against omnipresent municipal beauracracies ever suspicious of the "different"; against the client who wants a great building, and may become overenthusiastic or prodigious with his efforts and influences. Evidently none of these

Elevator cabs (above) are tall, gaunt capsules that might feel more shaftlike if they were not lined with elegant brown leather and camel-colored carpet (which, doubtless, will be of another hue shortly). When the ceiling-high doors open, accent lights go on to provide a directional signal. Up-and-down indicators outside the cabs are lucite cylinders set flush with the brown jambs. Inside, floor indicators are a futuristic coup: they change numbers by means of superimposed wire filaments that light up inside the single window; they are electronic readout tubes. Ford Foundation President McGeorge Bundy's office (below) spans the 125-ft high glass wall.

Executive dining spaces (top) look out over the sculptured finials and balustrades of Tudor City to the east. Continuous door handle and push-bar detail (above) is consistent in design approach with the hinges of the main doors on 43rd Street, which have bronze cylindrical pivot hinges that extend to the full height of the doors.



Up under the great trusses of the lozenge-pattern skylight, shadows and reflections re-emphasize the inside-outside quality of the top balcony-corridors.

dangers (excepting perhaps the second) was present here, otherwise the building could not speak to us with such unmistakable authority. The voice of the architect comes through loud and clear.

Should Charity Begin at Home?

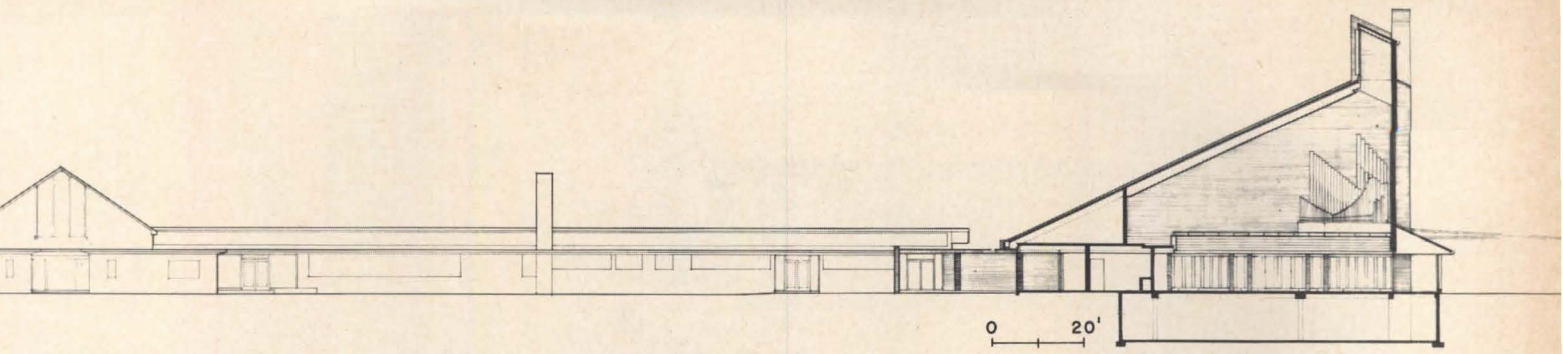
The question inevitably arises whether a philanthropic organization should be housed in a palace or relegated to loft space over the river in Queens. Our puritanical heritage might question the use of lavish materials, sumptuously "wasted" space in the garden, an elaborate structural bridge for window cleaning beneath the tenth floor (however necessary that mundane occupation might be), a whole building that speaks so explicitly of being something special. It is good taste and beautifully done, some may complain, but would not those millions be better spent on the poor? One observer, touring the building with the architect, was so overcome as to murmur, "Comes the revolution, eh, Kevin?"

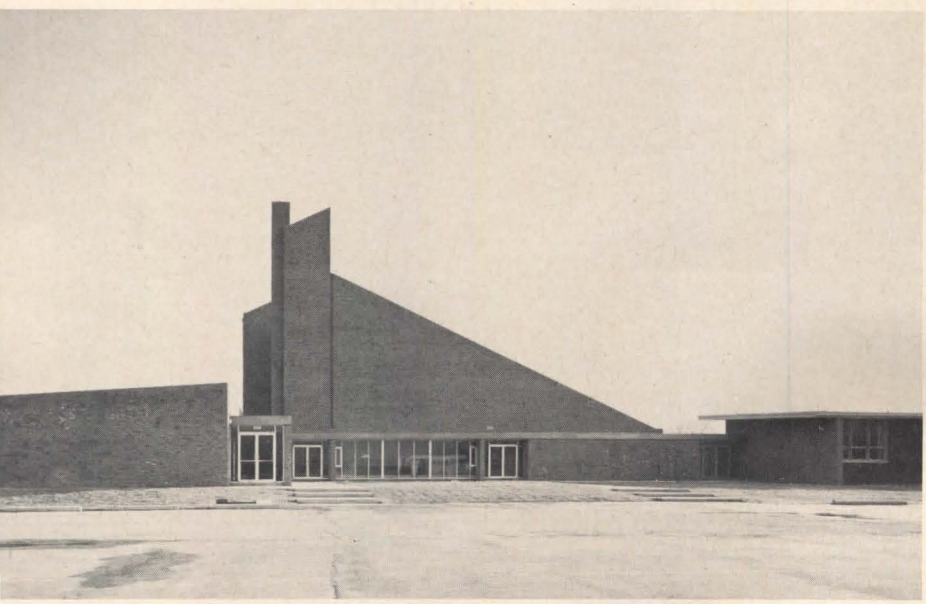
It would seem, however, that the logic of a progressive, altruistic organization constructing for itself a building of superior design is common sense and clear vision. Such an organization, after all, is dedicated to fostering projects for the improvement of man's life and knowledge; should not its headquarters symbolize its aspirations and aims? Any other approach would be comparable to those of Federal and local governments, which have often held that public life and public buildings should be mediocre, so as not to appear too costly to the populace.

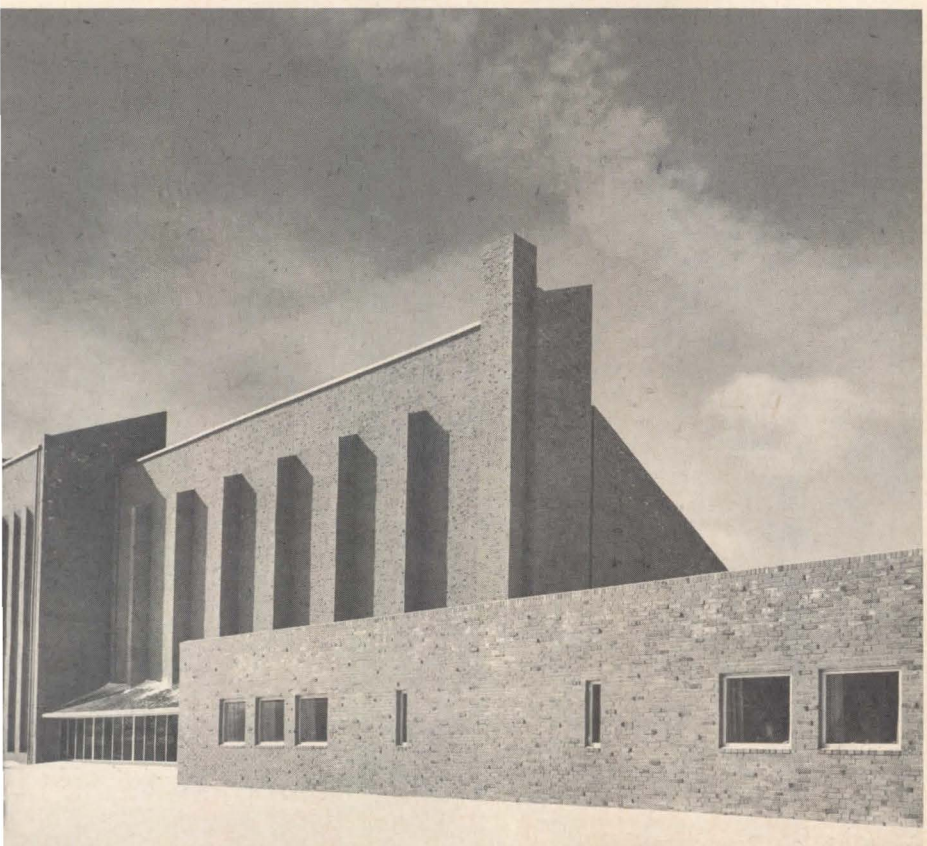
The chairman of at least one other foundation has publicly predicted that the support of better architecture and planning will be a major emphasis of such organizations in the next decade. This activity will penetrate deeply into our living patterns on all levels. As a pioneer, then, the Ford Foundation Headquarters can stand as a goal of excellence toward which designers of housing and schools and all kinds of urban amelioration might aspire. — JTB, CRS

FORD FOUNDATION HEADQUARTERS, *New York, N.Y.* ***Architects:*** *Kevin Roche, John Dinkeloo & Associates (Warren Platner, furnishings; Eugene Festa; Philip Kinsella).* ***Site:*** *A 202'-4" x 200'-10" plot between East 42nd and East 43rd Streets.* ***Program:*** *Design an office building to house the executive and program directing facilities of a philanthropic organization.* ***Structural System:*** *Foundations: reinforced concrete on rock. Floor system below grade: reinforced concrete slab and beam. Floor system above grade: 3½" concrete topping on cellular metal deck welded to structural steel beams, all steel-fireproofed with sprayed-on asbestos. Columns, penthouse and core walls, and shear walls: reinforced concrete.* ***Mechanical System:*** *Heating: warm air with supplementary fin tube hot water base radiation at exterior glass walls and at horizontal beams of garden enclosure wall. Ventilation: air handled at the rate of 251,000 cfm by five air handling units and 31 fans. 1100 tons refrigeration from two 550 electrical-driven refrigeration machines.* ***Major Materials:*** *Exposed high-strength, low-alloy steel; exposed weathering steel; ⅜" and 5/16" polished plate glass and ¼" wire glass; South Dakota mahogany granite (thermal stiple, liquid honed; 1/16" mortarless polysulfide sealant joints); dark flashed color range round-edge repressed pavers; mirror-polished architectural bronze. Plain sawn white oak parquet; wool carpeting; fissured mineral acoustic tile set in modular aluminum ceiling grid; movable metal partitioning with PVA coated linen fabric covering; structural slate.* ***Cost:*** *approximately $16 million.* ***Area:*** *16,500 sq ft office space for 350 personnel.* ***Consultants:*** *Dan Kiley, Landscape Architect; Severud Associates, Structural; Cosentini Associates, Mechanical; Michael J. Kodaras, Acoustical; C. W. Robbins, Food Service.* ***Photography:*** *Norman McGrath.*

COMFORTING FORTRESS

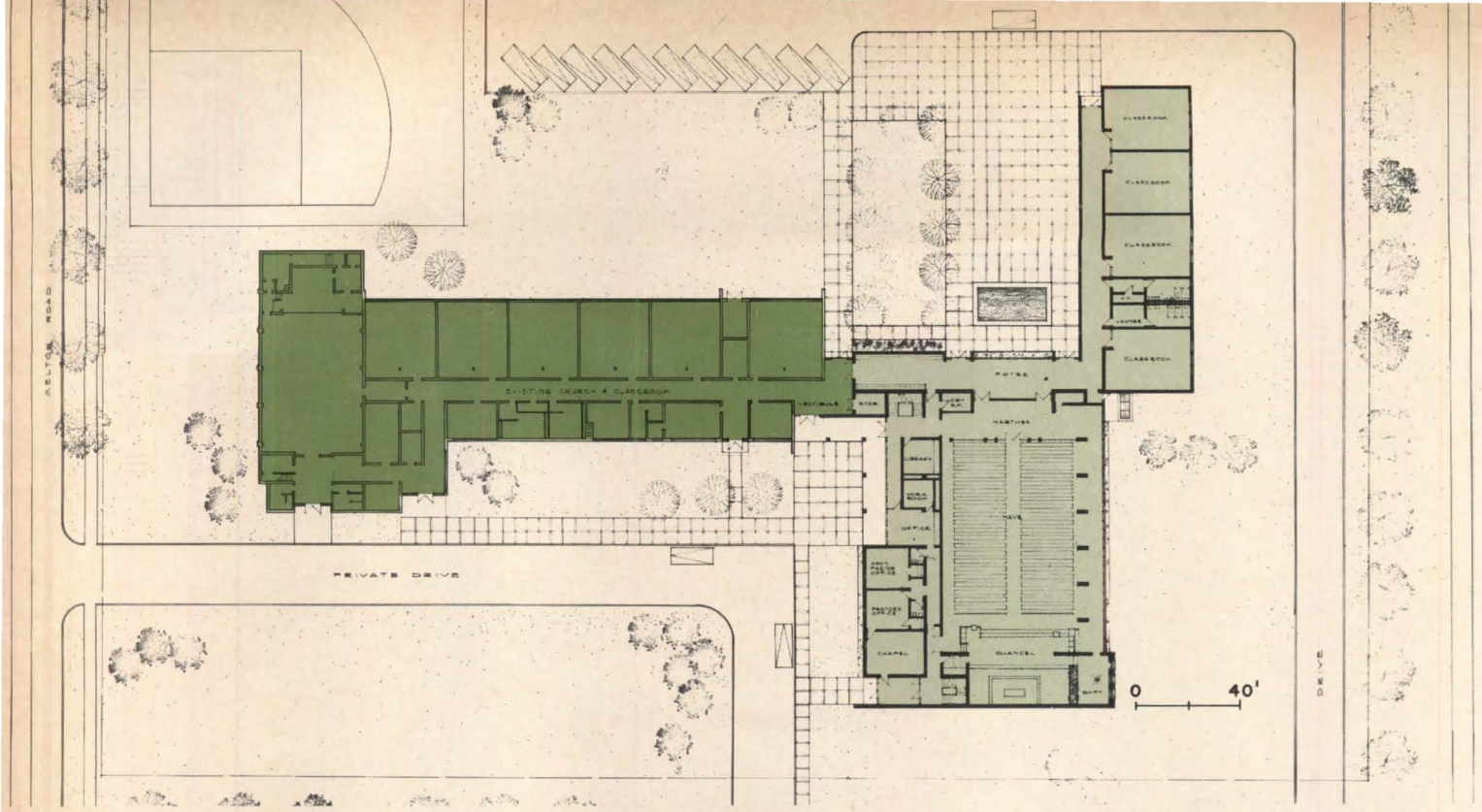






OUR SHEPHERD LUTHERAN CHURCH, *Birmingham, Michigan.* ***Architects:*** *Glen Paulsen & Associates.* ***Site:*** *A level open area, partly occupied by a church and classroom complex, surrounded on three sides by houses and bordered on the east by a wooded cemetery.* ***Program:*** *To design a new church (650 seats as programmed, 800 as built), additional classrooms, a fellowship hall, and various auxiliary rooms.* ***Structural System:*** *Steel bents for roof and clerestory structure of church. Bearing walls of masonry with steel bar joists.* ***Mechanical System:*** *Fin-tube radiation heating, with fan-coil heating units in church, convertible to cooling system.* ***Major Materials:*** *Dark-red brick exterior facing. Chicago Common brick facing for church interior. Granite chancel furnishings. Oaken pews. Natural cypress woodwork and ceiling for church. Dark gray slate church roof. Lead-coated copper fascias and soffits. Concrete block walls. Concrete and quarry tile floor surfaces.* ***Costs:*** *For construction, chancel furnishings, and partial site work: $506,500 estimated, $503,127 actual; $17.20 per sq ft.* ***Consultants:*** *Robert Darvas & Associates, Structural; Siegel, Swiech & Associates, Mechanical; Bolt, Beranek & Newman, Acoustical; Cassavant Frères, Organ; Helene Rother, Stained Glass; Richard Thomas, Liturgical Articles and Metalwork; William F. Demske, General Contractor.* ***Photography:*** *Baltazar Korab.*

"As the design developed, the congregation often referred to it through their hymn, *A Mighty Fortress Is Our God*," architect Paulsen says of his experience in designing Our Shepherd Lutheran Church. Not all architects would be pleased at the implication that there was something fortresslike about one of their designs; but, in the present church, the architect does in fact attempt, through a careful handling of scale and materials, to suggest the sort of massive and taciturn power that fortifications often have — as do, indeed, many churches from the more turbulent periods of history. In any case, Our Shepherd Lutheran Church is a statement in the heroic mode, with its plain, strongly textured brick expanses inside and out, and its slabs of oak and granite for furnishings, elements that, as used here, suggest something solid with-



Site plan, showing the church complex and landscaping, as they will be on completion. Half of the new classroom wing (upper right) still has to be built. The area with the dark tint is the older church and classroom complex. The interior photos show the simple, massive character of the church, expressed in Chicago Common brick granite, oak, and cypress.

out being stolid, sincere without being priggish.

This Lutheran congregation, which has mushroomed since the formation of the church in 1949, asked Paulsen to add to their existing buildings and provide a dominating feature for the newly created whole in the form of a new church structure. The most positive features of the rather colorless church and classroom complex already on the site were the exterior material, a dark red brick, and the low overhang of the roofs on the classroom wing. Paulsen matched these in versions of his own, choosing a strongly textured face brick in which there were a good many warped pieces, and designing overhangs whose rather deep fascias were of lead-coated copper. In order to echo the scale of the adjacent classroom wing, he kept the spaces to the west and north of the nave low, as he also did the new classroom wing, which does not, however, repeat the overhangs. The eastern aisle of the church was also kept low. The actual church — nave, chancel, and baptistry — was allowed to soar, largely unwindowed and undetailed. The eastern nave wall is varied only by a chimney and by the buttresslike members that house the legs of the roof bents. Two counterbalancing elements appear on the east front: the new classroom wing and the projecting baptistry, whose *three* 45-ft windows, with their exaggerated height, have a north German Gothic quality. On the western side, the all-important feature is the clerestory, which crowns the great slope of the roof. This is fully glazed, except for the portion over the baptistry area; here, the light filters through stained glass set in a screen of firmly textured concrete. The southern and northern gable walls are each interrupted at present by only one feature — a very narrow sunken vertical strip in line with the face of the clerestory. An outline figure of The Good Shepherd, to be executed in copper at the dimensions of 26 ft high and 15 ft wide, has been commissioned for the south wall.

The exterior, especially in its present unlandscaped state, is somewhat stark and overwhelming; the interior is much more cheerful. Without abandoning the over-all character of massive simplicity, it manages to suggest through its materials something serene and protected. Here, the brick is a light Chicago Common, laid in a varied bond with raked joints, and set off with pale granite and natural wood. Light from the baptistry plays across the great brick chancel wall, while light from the clerestory flows down along the eastern wall and into the interior. At present, daylight also comes through clear glass in the eastern aisle windows, although stained glass has been proposed for these.

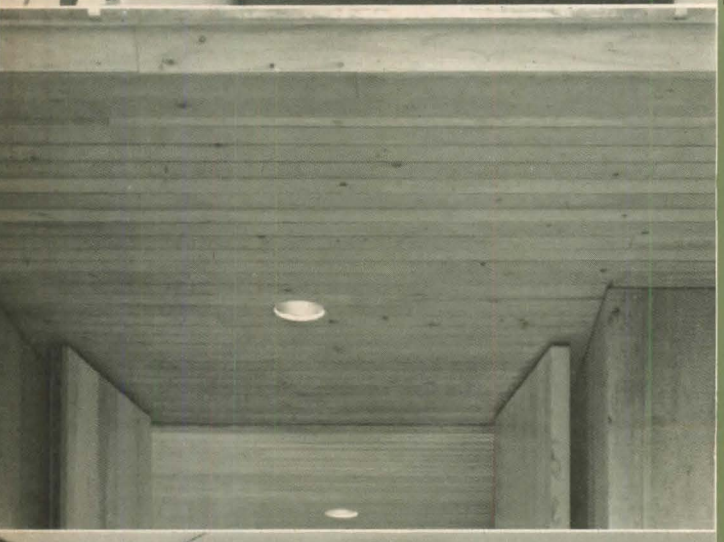
The chancel is largely furnished in blocks and slabs of granite, which are used to form the altar, pulpit, lectern, and low screen walls. The altar railing and various liturgical implements are of wrought iron, while the 18-ft cross in the chancel is made of teak. A wrought-iron screen is to be installed in the narthex, and the wall of the foyer will probably be decorated with some sort of religious art in the future.

The basement, at present unfinished, will eventually house the fellowship hall, choir robing and rehearsal rooms, a kitchen, and various auxiliary areas.

Paulsen is content with his work — a contentment the congregation appears to share — with one exception: the anodizing of the aluminum window sash, as planned, proved too costly.

THE CLASSICISM OF CONTEMPORARY DETAILING

Photo: Richard Lewis



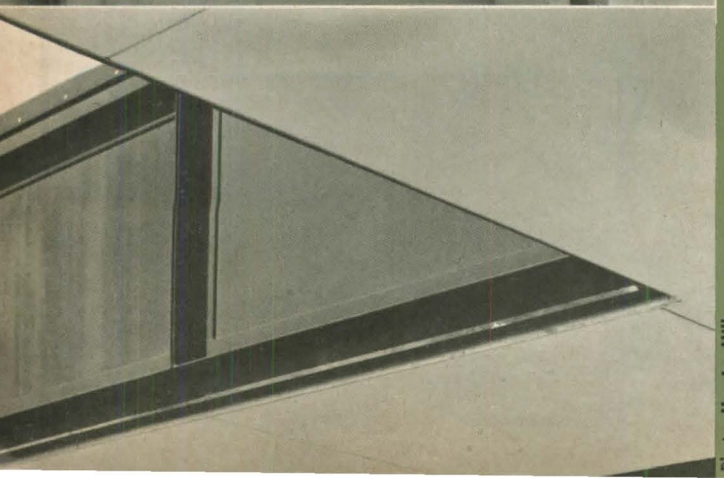


Photo: Maurice Miller

Decorative structural angles and ornamental studs compose the classic profiles of today. The quirk, reveal, and fillet become the contemporary interpretations of the ovolo, ogee, and cove of antiquity.

Although today's profiles derive directly from machine production, the machine itself is neutral. As has been proven in the past, it can, and will, cut, extrude, and draw classical profiles with almost the same ease that it turns out milled and rolled shapes. The fascination of contemporary designers with the structural sections is therefore not due to machine domination. It seems more a functionalist atavism, somewhat akin to the compulsion of architects of the past to resurrect the moldings of Greece and Rome.

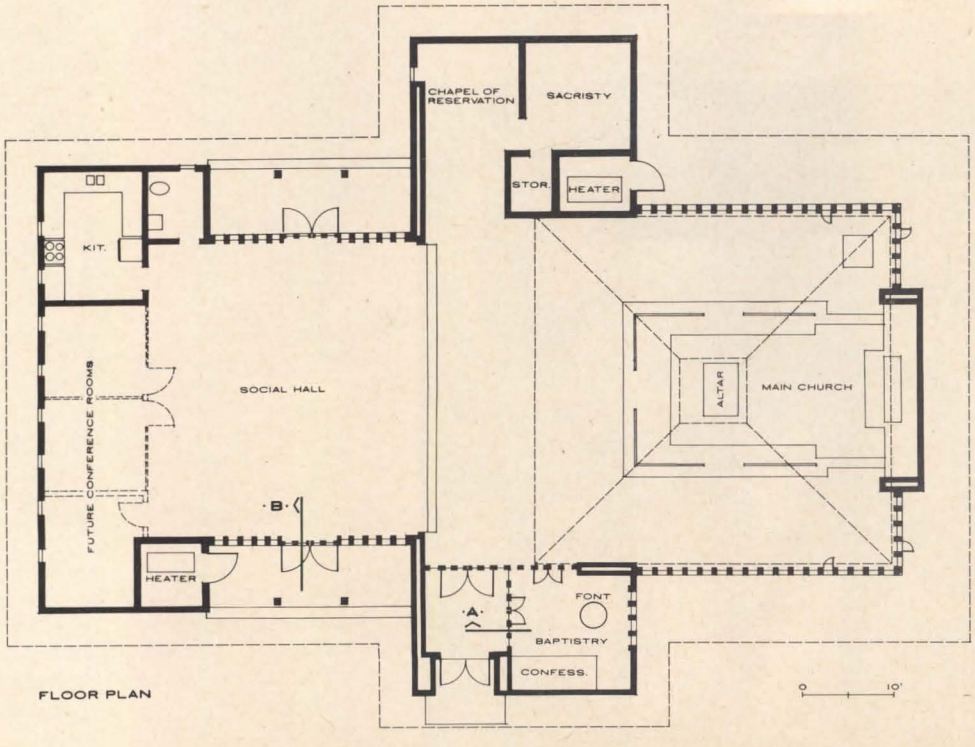
The precedent for ornamental exposed structural members was not historically evolved from the cast iron and steel warehouse or mill construction. These types of buildings never considered structure decorative. Functional buildings of the past, wishing to upgrade themselves, sported bits of applied classical decoration to proclaim their cultural pretentions. Wood and steel fresh from the machine has always been considered vulgar material in the past.

Not so today. Contemporary designers display a marked degree of competence in their assured detailing of decorative wood and steel sections. In spite of occasional lapses that result in structural profiles displaying an excess of ornamental exuberance, proving that man cannot let gingerbread alone, rolled and milled section detailing is far superior to the contrived handling of decorative concrete.

The measure of the worth of any detailing system is its ability to perform the classical functions required of details traditionally. These are the covering of the juncture of dissimilar materials, allowances for movement, ease of erection, construction joints, and facility of installation, as well as the control of weathering — in short, all of the innumerable practical considerations that add up to the building part of architecture.

The two buildings shown on the following pages — a fisherman's church, detailed without pretense but with considerable sophistication, and a small weathering steel office building detailed as precisely as a milling machine — present good examples of the ornamental detailing of structural members.

ORNAMENTAL MILLED SECTIONS FOR A FISHERMAN'S CHURCH



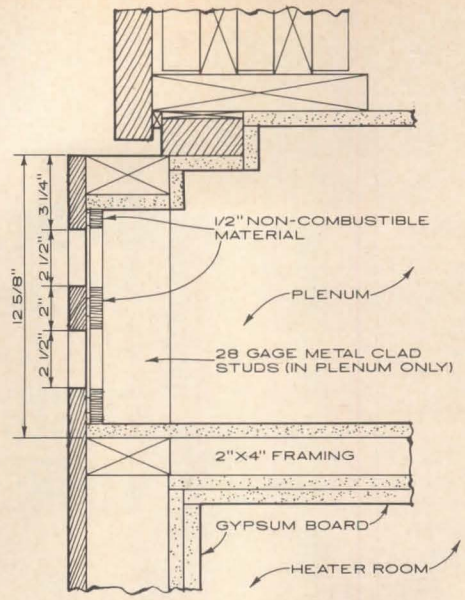
FLOOR PLAN

The detailing objective of architect Willoughby Marshall in his design of St. Peters church, Mt. Desert Island, Maine, was simplicity. "Local materials were used because they were both beautiful and inexpensive," points out the architect. The detailing enhances both of these qualities.

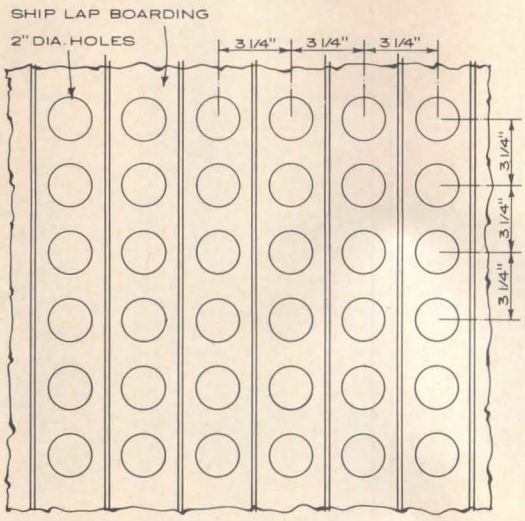
The carpenters were skilled and performed well. Although initially unaccustomed to the precision of detailing demanded by Marshall, they adapted quickly, as the results testify.

Architectural detailing was in yard lumber dimensional sections cut only for stops and sills. Combinations of 6 x 6's, 4 x 6's, and so on, form composite members to build the window walls of the chapel and social hall, while 3 x 4's and 4 x 6's are combined in the detailing of the glassed partition between the baptistry and chapel.

Members are lag-bolted togeth-



TYPICAL SECTION



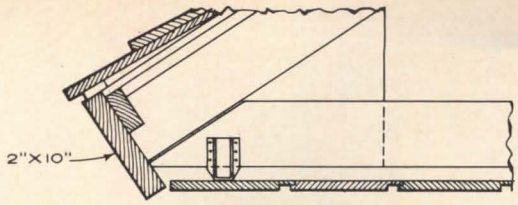
TYPICAL ELEVATION OF WOOD GRILL

Photos: Robert Damora

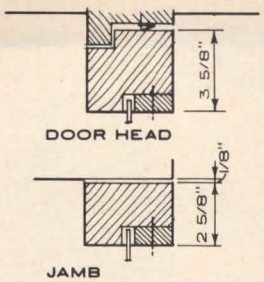
er and plugged. The total assemblage, its parts restricted to standard sizes, creates a harmonic Vitruvian symmetry of yard dimensions. All of the building's details are in keeping with this deceptively simple detailing system. Lighting in the chapel is let into the butt-jointed siding, without using flanges around the openings. Similarly, air supply and return is accomplished through a series of 2½-in. circular perforations in the ship lap wall paneling.

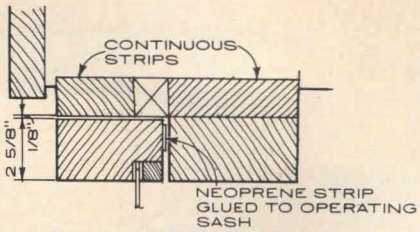
Finishing

Finishing was as simple and direct as the detailing. The interior received a coat of sealer, and a white pigment was then applied to the window mullions and those doorways designed to conform to them. The pigment was wiped off in about 15 minutes. The traces left give the effect of bleaching, thus avoiding the yellowing effect of aging pine. A second coat of sealer was applied over certain of the white "bleached areas" to protect them against fingermarks. Other walls and doors received a similar treatment with light gray pigment. The exterior of the building received two coats of bleach. Hand-split roof shakes were left untouched.

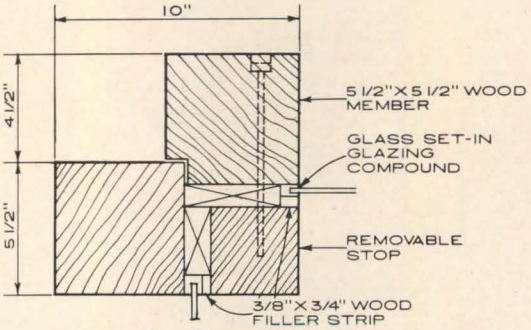


FASCIA DETAIL

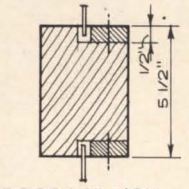


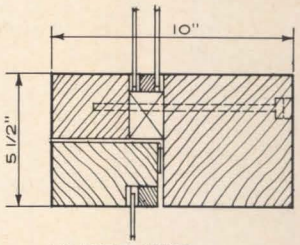


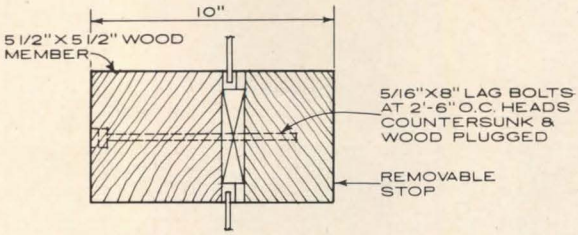
HEAD-OPERATING SASH



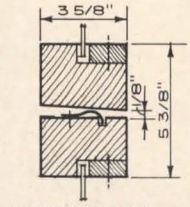
TYPICAL CORNER

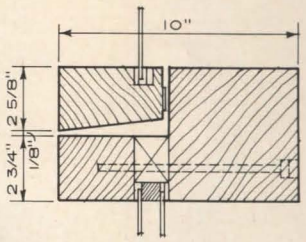


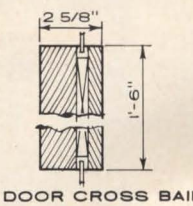


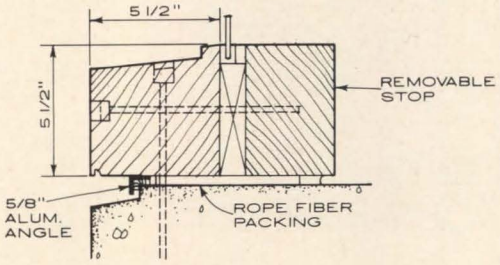


TYPICAL MULLION

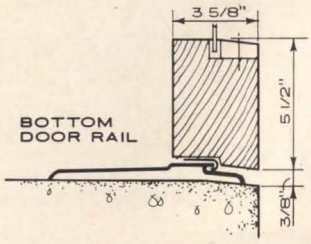






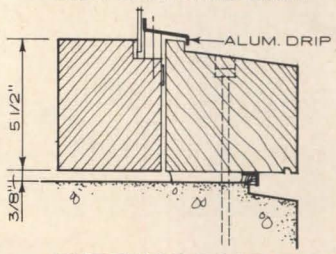


TYPICAL SILL

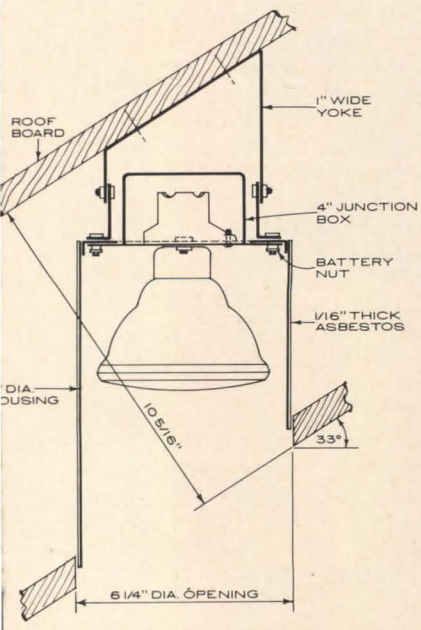


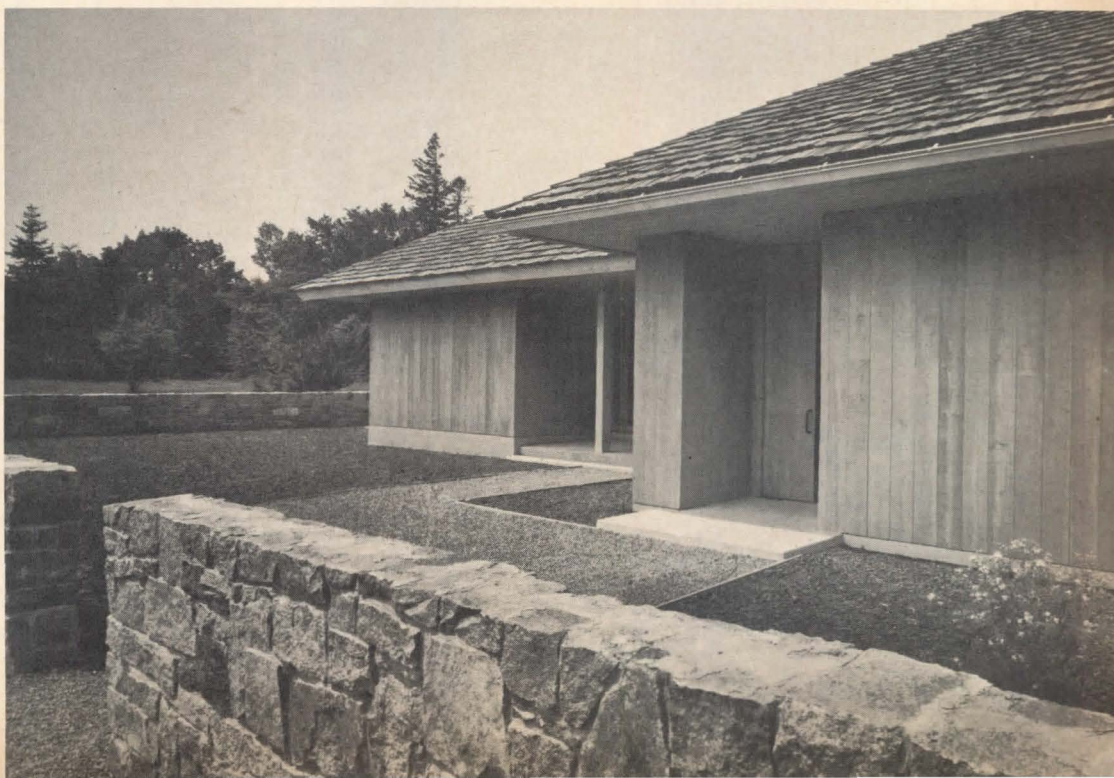
INTERIOR DOOR DETAILS AT SECTION ·A·

SILL-OPERATING SASH

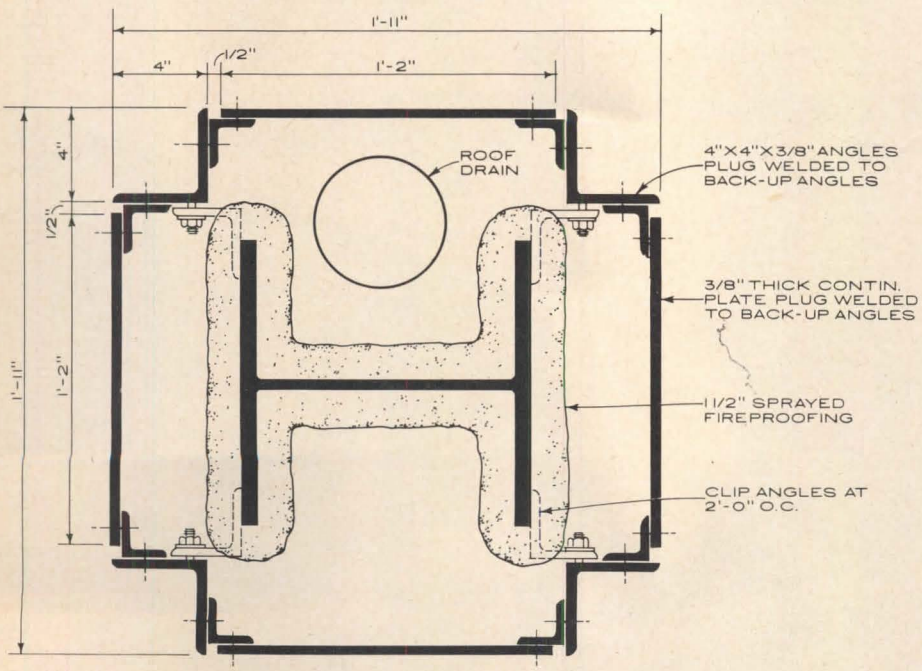


EXTERIOR DOOR DETAILS AT SECTION ·B·





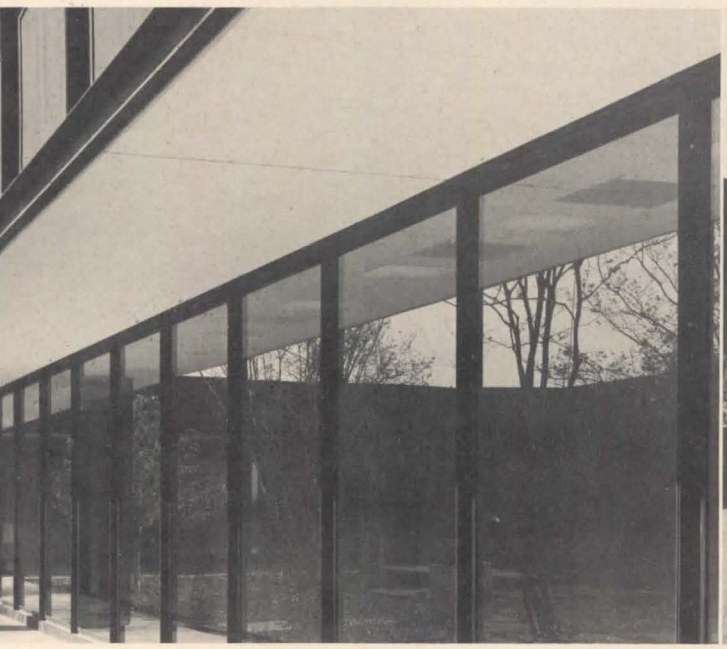
DECORATIVE STRUCTURAL ANGLES FOR AN OIL COMPANY OFFICE

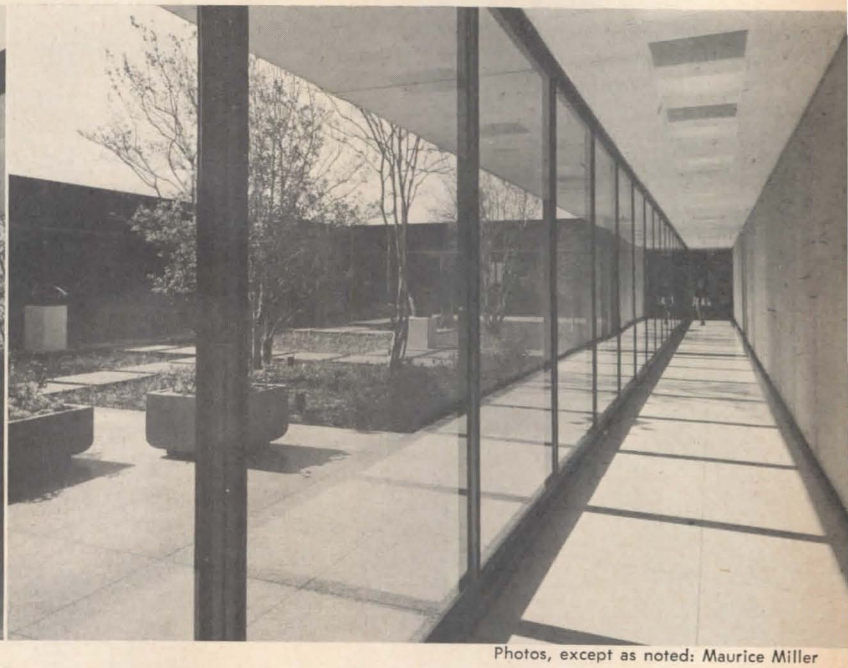


PLAN SECTION OF TYPICAL EXTERIOR COLUMN

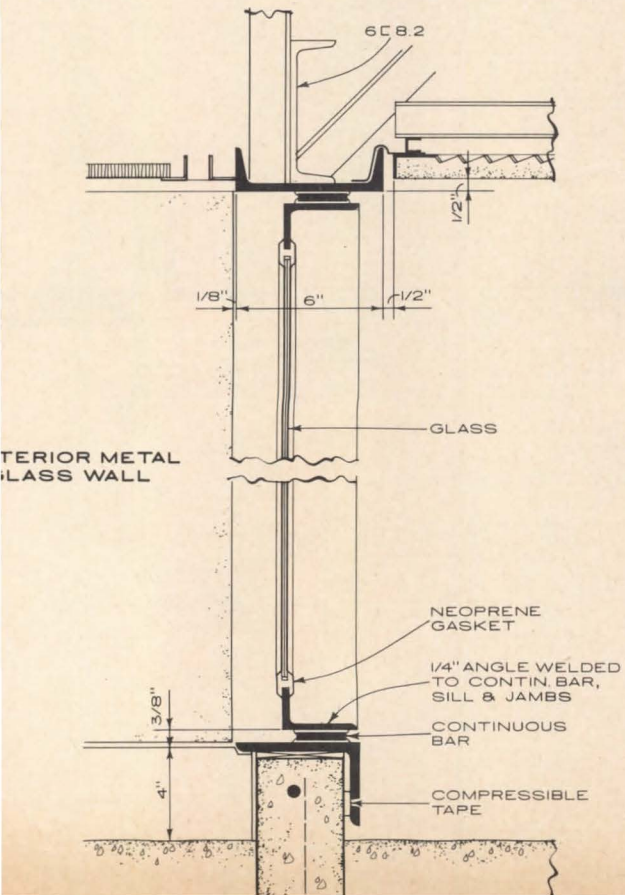
Three primary requirements determined the design of the Superior Oil Company Office Building in Houston, Texas, by architects Todd, Tackett & Lacey. These were its divergent functions, interior flexibility, and the flat site. All three were solved by the roof. The long, flat roof, parallel to the site, relates the building to its surroundings. The depth of the roof contains all mechanical and electrical equipment in a structural system of large bays, placing the columns outside the building. The interior is thus unobstructed for layout flexibility and planning of its divergent functions.

Building columns were originally designed as four welded wide-flange sections in weathering steel. The site was annexed into the city while the drawings were being produced, changing the code requirements to a fire-



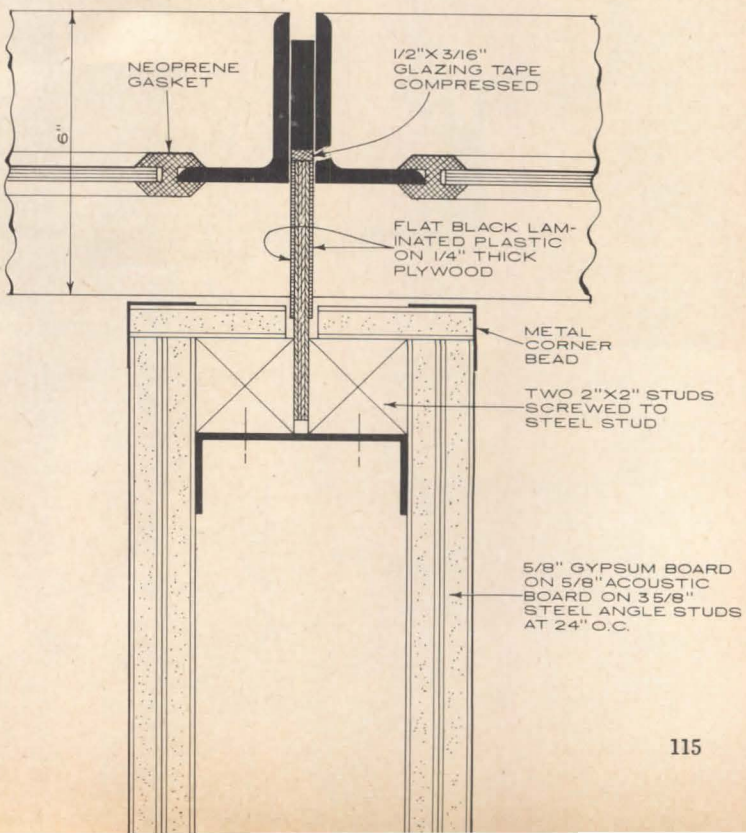


Photos, except as noted: Maurice Miller



TERIOR METAL
GLASS WALL

PARTITION CONNECTION TO EXTERIOR METAL AND GLASS WALL



proofed structural system (see column detail).

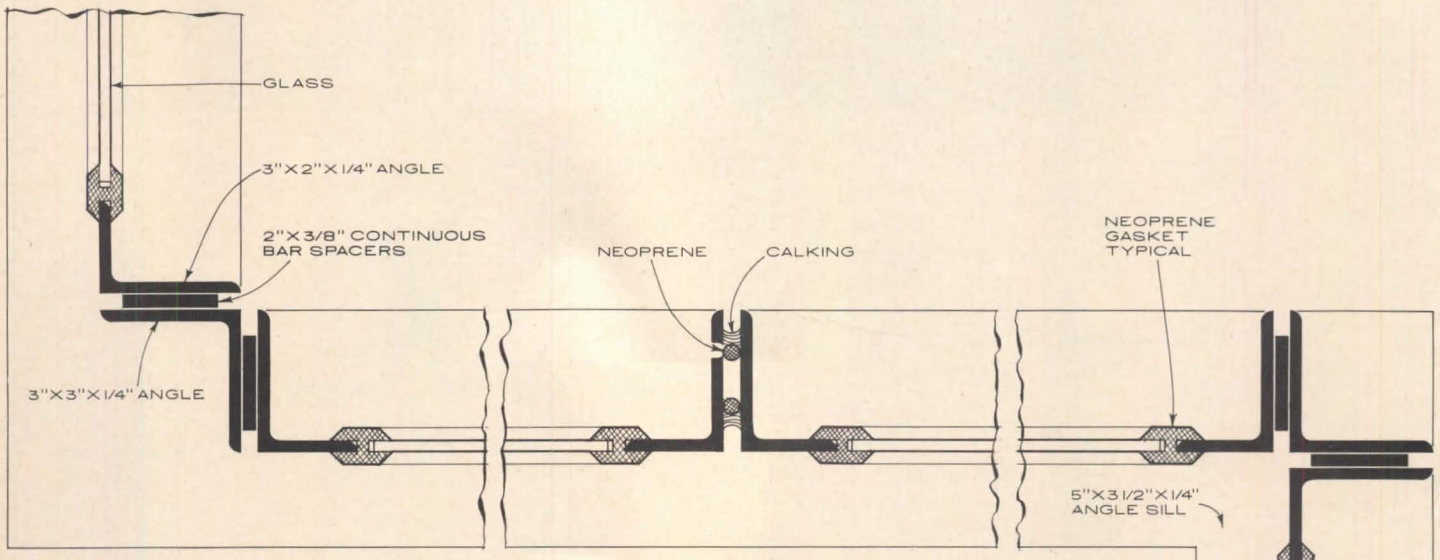
Finishing

The weathering steel was preweathered with a 5 per cent solution of muriatic acid to accelerate aging and to keep the staining of the terrazzo to a minimum. The architects report this method proved successful. They were advised to sandblast the steel to obtain a uniform finish for the weathering process, but it is their opinion that this was unnecessary with the use of the 5 per cent acid preweathering technique.

Details

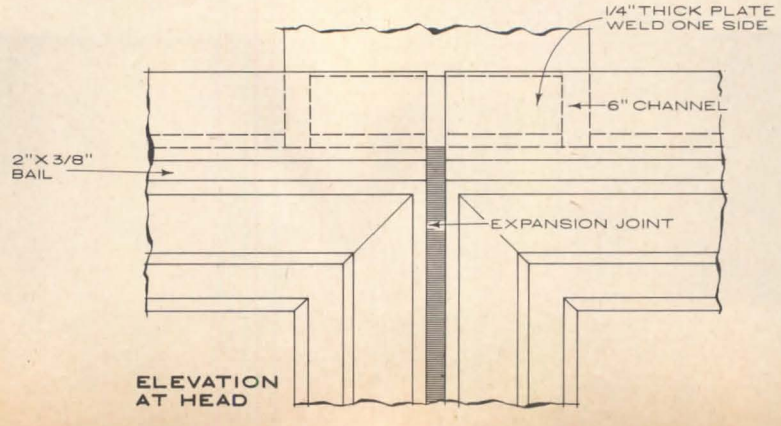
The detailing of the building is precise. It would undoubtedly have been improved with exposed columns as originally intended; however, the column covers designed are the next best solution.

The architects used 3-in. angles, plates, and bars to model light and shade with fillet, quirk, and reveal as carefully as any classicist ever modeled the façade of his building.



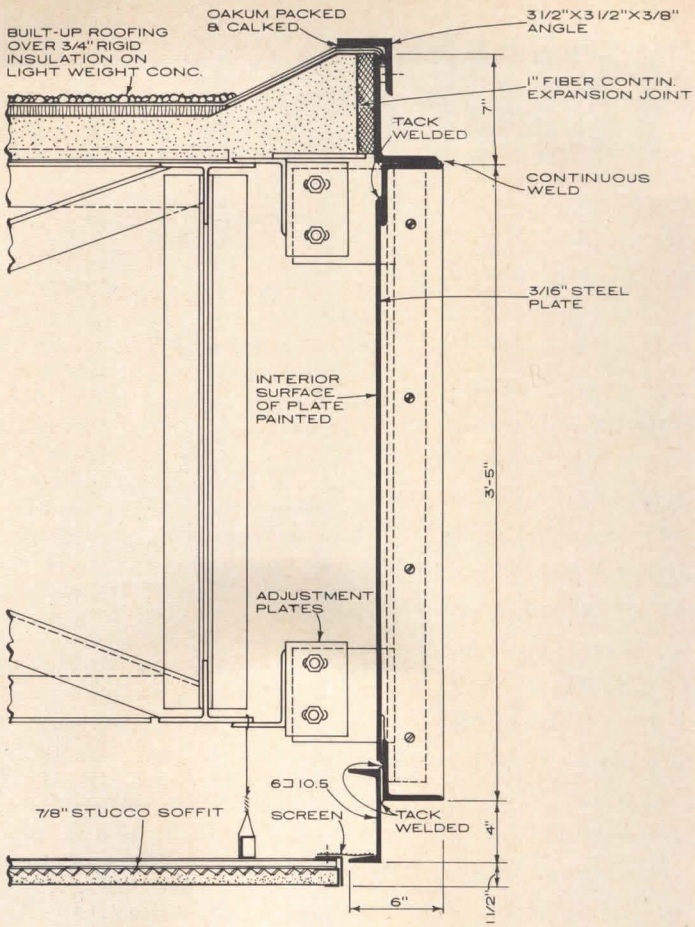
PLAN SECTIONS — INTERIOR CORNER

EXPANSION JOINT



ELEVATION AT HEAD

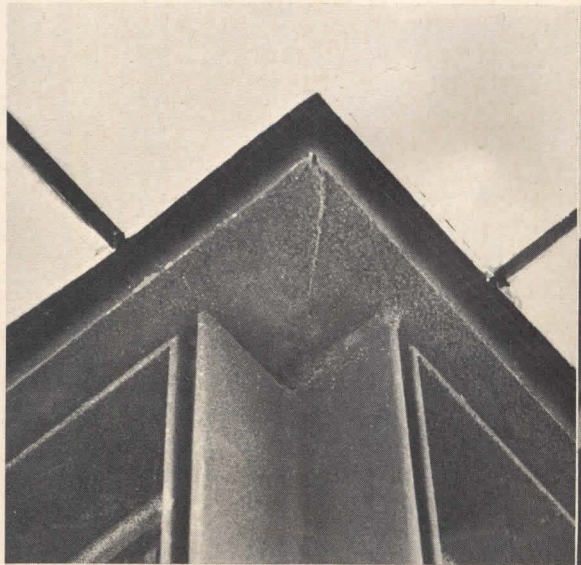
EXTERIOR CORNER

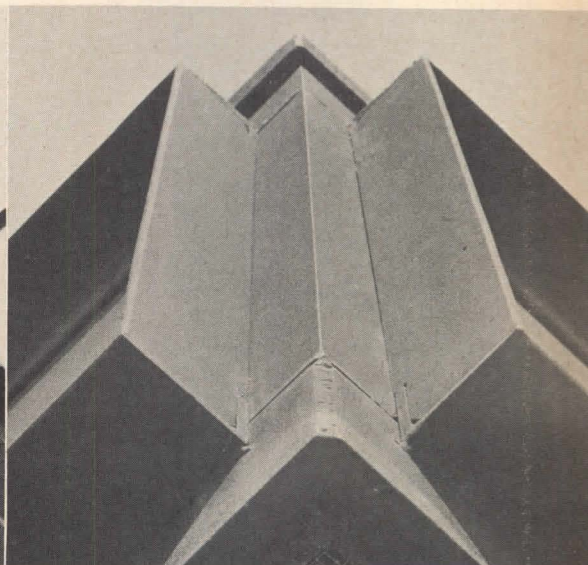


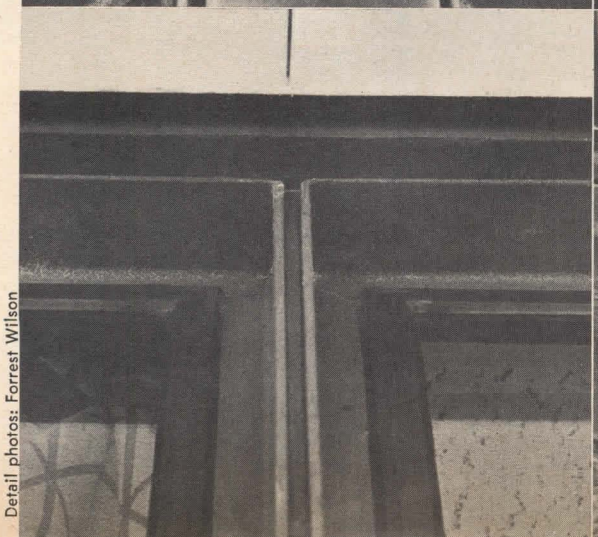
SECTION THRU FASCIA

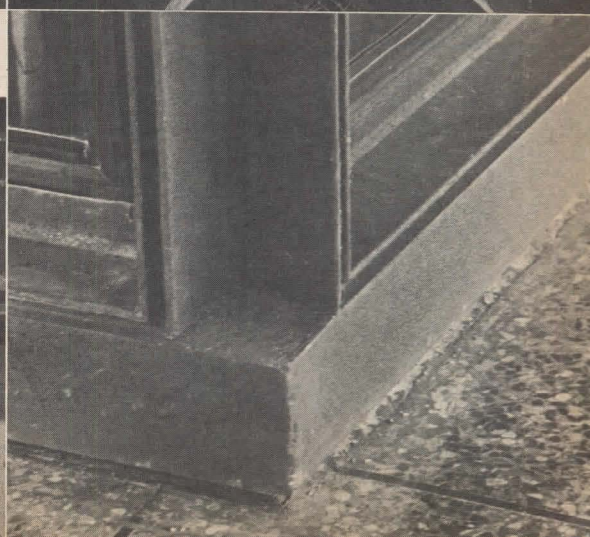
n the two buildings shown, the etailing has been evolved as a ogical system — an arrangement f components employing milled nd rolled sections in place of the rofiles of classical molding.

Both designs, one in wood the ther in steel, evolved similar de- ail solutions. Willoughby's cor- er of built-up 6 x 6's is not nuch different conceptually than Todd, Tackett & Lacy's re-en- rant corners of 3-in. rolled an- les. Both designers use the re- essed base and the reveal at the op of wall paneling. Spacers or uirk moldings are consistently mployed to separate dissimilar naterials or emphasize disconti- uity. Doors and window glazing s fastened directly to structural nembers without covering cas- ngs, wherever possible. Structure s exposed, precisely joined, and enerally furnishes its own orna- nent. In short, the only differ- nce between these two detailing ystems is that which is dictated y the machined nature of their naterials.









Detail photos: Forrest Wilson

THE TRIHEX: NEW PATTERN FOR URBAN SPACE

Robert Le Ricolais, professor at the University of Pennsylvania's Institute for Architectural Research, has long been concerned with the mathematical analysis of surface and form in structural materials. Here, he turns his attention to the topological analysis of urban areas, and describes a new pattern for the division of urban space that creates, in theory, the most efficient possible disposition of vehicular and pedestrian circulation. His research rests on the proposition that the abstraction of physical problems through mathematical constructs, by eliminating man's tendency to visualize solutions in anthropomorphic terms, opens the way for more efficient and imaginative solutions in conformity with the physical laws of nature.

Like most theoretical systems, the proposal I put forward here may appear somewhat Utopian. Indeed, its possible impact is directed less toward immediate application than toward the production of slightly more imaginative solutions than those we are accustomed to see.

The distribution of space into four orthogonal directions, known as north, south, east, and west, is, in some respects, derived from the form of man himself, as well as the recognition of some astronomical phenomena, such as the sun's rising in the east. The discovery by the ancient Egyptians of the right angle gave rise to a new geometrical order that made possible simpler calculations based on unit area rather than unit length.

In the history of Western civilization, it is this geometry of right angles that has formed almost the exclusive basis for determining the arrangement of urban streets and lots. But a systematic topological analysis of various grid patterns based on the study of the number of intersections for a given area and a unit segment length yields an interesting answer to the bothersome problem of circulation. The most fruitful theoretical pattern is a semi-regular tessellation of regular hexagons and triangles — what I would call a trihex.

This configuration enjoys the advantage of considerably reducing the number of intersections yielded by a grid-iron pattern of equal area. For example, in a 10-block area, the trihex grid would yield 18.2 per cent fewer intersections.

In dealing with the problem of an economical circulation, we have used, in this case, a qualitative approach, founded on elementary topological notions concerning the geometry of grids. We have made use of the fairly evident principle that, given a fixed number of cars, the greater the number of streets, the less traffic each street will carry. As simple as it is, this statement provides the clue to what we call the "accumulation index," which yields the possible number of vehicles or pedestrians that might accumulate at intersections in either the trihex or the orthogonal grid.

An essential feature of this study is the complete separation of pedestrians from automobiles. For the obvious reason that they move at different speeds, cars and pedestrians will not share the same intersections. Overpopulation in cities creates problems not only for cars, but for pedestrian movement as well. Pedestrians should be privileged to go from any point to any other in a city without coming into conflict with cars or, what is worse for both motorists and pedestrians, wasting precious time waiting for a "go" signal. In this study, it is assumed that pedestrian traffic crosses vehicular streets at an upper level on elevated bridges. Through-traffic is always one-way, and the hexagonal spaces insulated from traffic are connected by foot bridges, the only means of crossing vehicular streets.

In determining the best configuration for our circulation system, the triangular grid was rejected for vehicular traffic, since the smallest number of options makes the safest intersection, but was accepted for pedestrians. A pattern composed solely of hexagons offers no more advantages than the orthogonal pattern. Moreover, it involves jagged movements incompatible with the straight-line movements that are the most efficient for automobiles. An advantage of the trihex is that it offers the possibility of movement along straight lines.

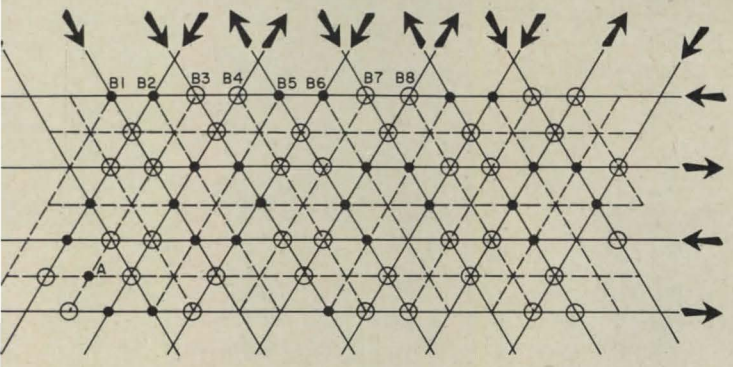
In the pattern we selected, vehicular traffic is concentrated in a trihex grid — that is, a mosaic of regular triangles and hexagons. The main objective of this arrangement is a differentiation between small and large areas so as to make clear the distinction between private versus public areas. The trihex creates radial patterns within the grid. Public or central institutions such as large buildings, green areas, and shopping centers are located inside the hexagonal spaces, whereas private activities, or those that require movement away from central areas, are confined to the triangular sections.

The partitioning of space into triangular lots will probably appear heretical to conventional engineers; however, the idea may intrigue those who are acquainted with the structural properties of triangular grids and know that this type of floor system can bring about savings of more than 30 per cent over orthogonal systems. Furthermore, with adequate truncation, the triangular lot can be transformed into a hexagonal plan, reducing the number of necessary supports or columns per unit area of structure. Wall areas can also be reduced by approximately 7 per cent.

The qualitative analysis (below) shows obviously that the trihex vehicular grid, coupled with the trigrid for pedestrian circulation, produces the best conditions for an integrated and ordered system of a differentiated circulation.

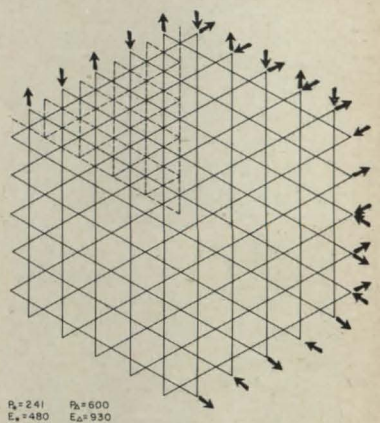
These advantages are brought about with precision and without the extravagant multiple levels of circulation that seem to be advocated today, although they lack any certitude of efficiency and entail exhorbitant costs for the taxpayers.

As stated earlier, this study is by no means quantitative — that is why we refrain from giving any dimensions for the future blocks. Such details call for much closer examination. But as time goes on, it become increasingly urgent that we find some solution to the problems of overcrowded cities, and the options are limited. The application of this or any plan calls for an intelligent vision of things to come.



ONE-LEVEL INTERSECTION ●
TWO-LEVEL INTERSECTION ○
PEDESTRIAN PATH — — —

	TRIHEX				ORTHOGONAL			
	Length of path		Intersections		Length	Intersections		
	Car	Pedestrian	Total	2-level		Total		2-level
B1	4	5	3	2	6.53	6		3
B2	6	5	2	2	2.47	2		2
B3	5	5	4	2	4.53	4		2
B4	4	5	3	2	4.53	4		2
B5	7	6	6	2	6.53	6		4
B6	10	7	9	4	6.47	6		4
B7	9	8	8	3	8.53	8		6
B8	8	9	7	3	8.47	9		7
					x1.61			
	$\Sigma = 53$,	$\Sigma = 50$,	$\Sigma = 45$,	$\Sigma = 20$:	$\Sigma = 77.5$,	$\Sigma = 45$,		$\Sigma = 30$



TRIHEX GRID OF EQUAL AREA

ccumulation Index

This concept is based on the num-r of possible combinations involved each system, remembering that the ore streets there are, the less you ve to use them (given a constant mber of vehicles evenly distrib-ed). For n phases, the combinatorial mber is given by rigrid:

$N_\Delta = 6 \sum_1^n (5^1+5^2+5^3+\ldots.5^n)$

rthogonal:

$N_o = 4 \sum_1^n (3^1+3^2+3^3+\ldots.3^n)$

or example, assuming n=10, $\frac{N_\Delta}{N_o} =$

$\frac{780}{120} \cdot \frac{3}{2} = 9.75$

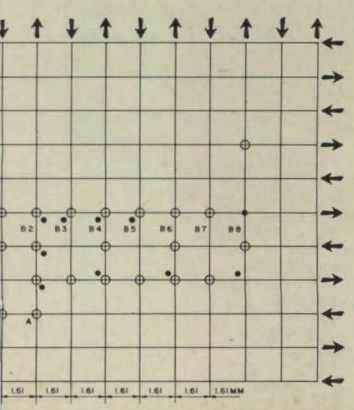
The theoretical pedestrian accumulation is nearly 10 times greater for the orthogonal system than in the trigrid. As concerns vehicular traffic,

$N_* = 6 \sum_1^n (3^1+3^2+3^3+\ldots.3^n)$

Thus $\frac{N_*}{N_o} = \frac{3}{2}$

Therefore, the car accumulation coefficient or index is 1.5 times greater in the orthogonal pattern than for the trihex system. This corresponds to the ratio of the 6 apices of the hexagon compared to the 4 apices of a square.

This statistical notion of accumulation should be understood as an average, the city being far from a uniform field, but the probability is that bottleneck conditions would be reduced in a trihex grid.



LEVEL INTERSECTION ●
LEVEL INTERSECTION ○

THOGONAL GRID

Charting the Advantages: Orthogon vs. Trihex

A point, A, has been chosen arbitrarily as a point of departure for both diagrams. B1, B2, etc., are points of arrival. For both cases, the path for cars and pedestrians, the total number of intersections, and the types of intersections have been tabulated.

The resulting economy of the trihex pattern versus the grid-iron type is recorded for both length of path and intersections.

For brevity, the comparison has been made with only eight points, and it would be interesting to extend it by a much greater number of points. It is nevertheless interesting to see that the one-way traffic flow sometimes imposes a 60° turn, reducing the theoretical advantage in distance-saving, a theory fully demonstrated for the pedestrian path (25.5%). Thus, pedestrians can always follow the minimum path, according to Steiner's problem (see What is Mathematics, *by Courant and Robbins, Oxford University Press, n.d.)*

The limited examples given above confirm the following statement: The trihex grid coupled with the triangular grid for pedestrians gives both cars and pedestrians a shorter path than any other type of grid.

The Trihex in Mathematical Terms

The sides of triangles and hexagons are of unit length. Denoted in terms of topological constants, $P_* =$ *number of regions,* $E_* =$ *number of segments,* $C_* =$ *number of corners, the trihex partition is defined by the relationship:* $E_* = 2C_*$. *The trihex can be inserted into a triangular matrix, or trigrid. For a hexagon-bounded configuration, we have the following relationships between P, E, and C for the matrix:*

$P_\Delta = 6n^2$
$E_\Delta = 9n^2+3n$
$C_\Delta = 3n^2+3n+1$

For the trihex partition, we have:

$P_* = (9n^2+6n+4) \div 4$
$E_* = (18n^2+12n) \div 4$
$C_* = (9n^2+6n) \div 4$

The orthongonal grid is denoted:

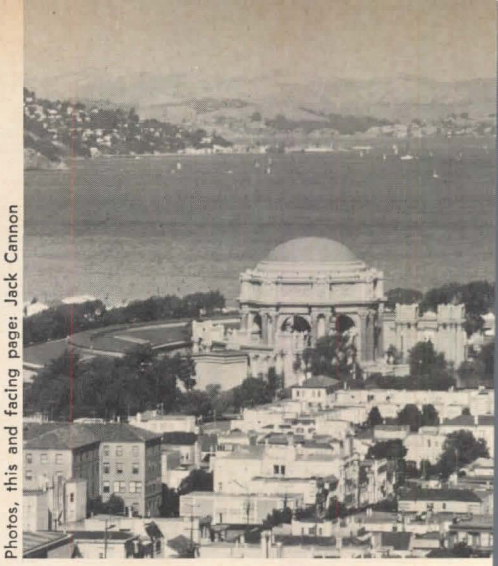
$P_o = n^2$
$E_o = 2n^2+2n$
$C_o = n^2+2n+1$

As an example, we have for n = 10: $P_* = 241$, $E_* = 480$, $C_* = 240$, *checking* $P_* = C_* + 1$. *With equal areas for orthogon and trihex,* $C_o = (\sqrt{260}+1)^2 = 292$; *thus,* $\frac{C_*}{C_o} = \frac{240}{292}$, *or approximately 18% reduction of intersections in favor of the trihex grid. In a more general way, for the hexagonal boundary, we have* $\frac{C_*}{C_o} = (9n^2+6n) \div (10.40n^2+12.9n+4)$, *yielding for* $n=1$ $\frac{C_*}{C_o} = 0.642$, *and for* $n = \infty$, $\frac{C_*}{C_o} = 0.865$, *or a reduction in intersection number in favor of the trihex varying from 35.8% to 13.5%. These variations are expressed by a hyperbolic curve.*

Now, taking into consideration street length, with identical subscripts, we have: $\frac{L_*}{L_o} = (18n+12) \div (20.8n+12.88)$. *For* $n=1$, $\frac{L_*}{L_o} = 18 \div 20.8 = 0.874$. *This reduction of length is constant for all values of n and is 12.6% less than the grid-iron pattern. However, this figure does not include the pedestrian streets, obviously much reduced in cost compared to the vehicular streets.*

We would venture to say that the order of circulation and the economy of time saved is such as to make the reduction of cost for streets a secondary matter.

THE DREAM MADE PERMANENT



Photos, this and facing page: Jack Cannon

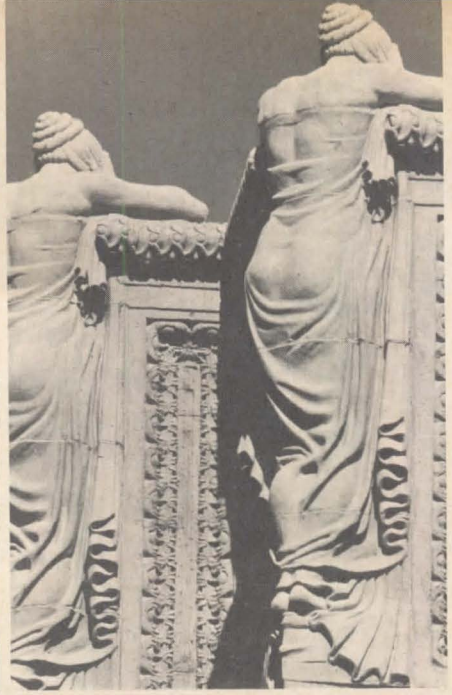
"The National Constitution of phantom kingdoms commands that the Spirit of beauty, refinement, education, culture, and frolic shall govern," observes an old guidebook to such a kingdom — the Panama-Pacific Exposition of 1915. This fair, which had been in the planning since 1905, was intended originally to celebrate the anticipated opening of the Panama Canal; as it happened, its location in San Francisco gave that city the chance also to demonstrate its full recovery from the disaster of 1906, and to celebrate itself at least as much as the opening of the canal.

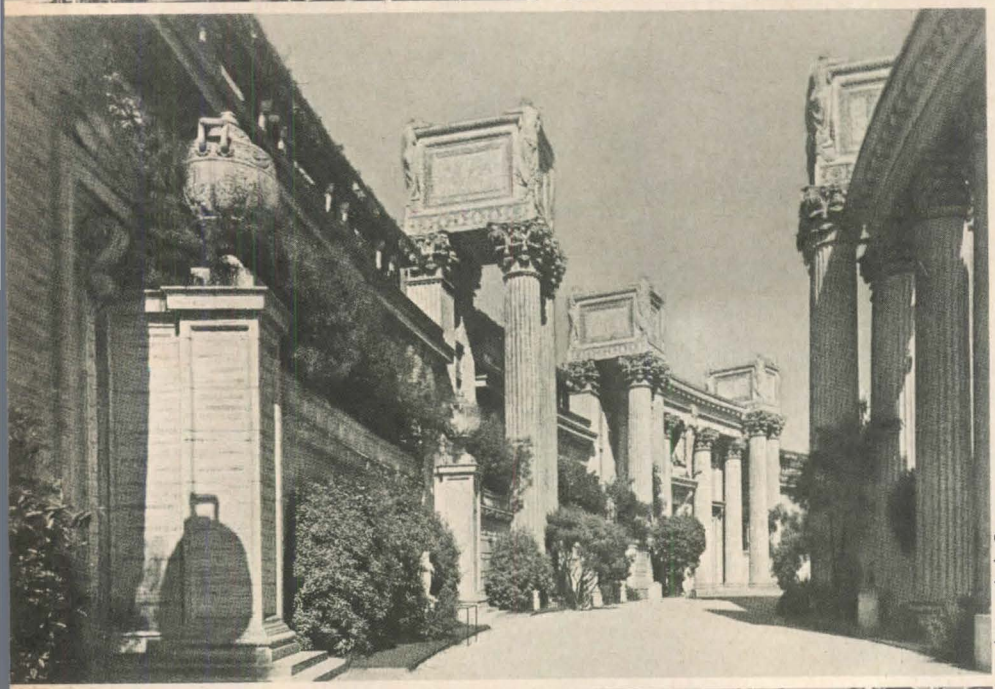
The Exposition commissioners elected to raise their ephemeral kingdom on a flat, marshy, but picturesquely situated strip of land, whose only hopeful feature was a pond. The area between Presidio Heights and San Francisco was covered with 12 great buildings. Eight of these were grouped closely together to suggest a walled town, with a symmetrical exterior and with four internal avenues linking five great courts; the remaining four buildings were located a short distance away, in such a way as to block all vistas along the avenues except for those toward the Bay. There was variety everywhere, and yet probably no exposition before or since has been so carefully treated as a single work of visual art. With all the variety of domes, towers, and portals, a firm discipline reigned, and matters of scale, material finishes, color, and the furnishing of open areas were carefully thought out in advance. Built of staff on light framework, the buildings nonetheless appeared to be of masonry, and a Department of Travertine Texture, established to supervise the imitation of that handsome stone, was so zealous in its operation that even a locomotive, stationed beside the Bay to provide clouds of steam for night illumination effects, was painted to imitate travertine. Jules Guerin, a painter and architectural renderer of renown, was employed to coordinate the exterior color treatment. Having to contend with San Francisco's gray and foggy days, he added to the omnipresent warm pale color of travertine a rich palette of yellows, golds, browns, blues, reds, and greens, applying these either directly to the buildings or enlivening the open areas with colored banners. A lighting expert was called in to provide subtle forms of illumination, so that the Exposition could be alive with light and color after nightfall. The climactic feature of the fair, its trademark from a distance, was a Tower of Jewels by Carrere and Hastings, a sort of classical pagoda riding on a triumphal arch, 433 ft high and decorated with 135,000 prisms of colored glass. From above — and the view from Presidio Heights was not forgotten — the Exposition appeared like an impossibly grand and picturesque city. For the visitor, the purely architectural compositions were enriched by the presence of ornamental lamps, urns, statues, reliefs, trees, shrubs, and other decorative objects, produced by a host of artists. The "theme" of the Exposition was, naturally, Progress, in this case with not-too-serious allusions to the history of mankind and to man's relation to the over-all scheme of things. Thus, there was an Avenue of Progress, but there was also a Court of the Universe and a Court of the Ages, a Column of the Rising Sun, a bas-relief of The Struggle for Existence, and a Fountain of Energy. For those who tired of beauty, refinement, education, and culture, frolic was provided in a sort of *quartier toléré*, The Zone, where there was an abundance of rattling of machinery and shrieks of joy, where one heard the bawling barkers shouting their enticements, the blare of brassy music. Even here could be found Guerin's ornaments, colored red, blue, and burnt orange. In all, the Panama-Pacific Exposition must have been both beautiful and absurd, wonderful and silly.

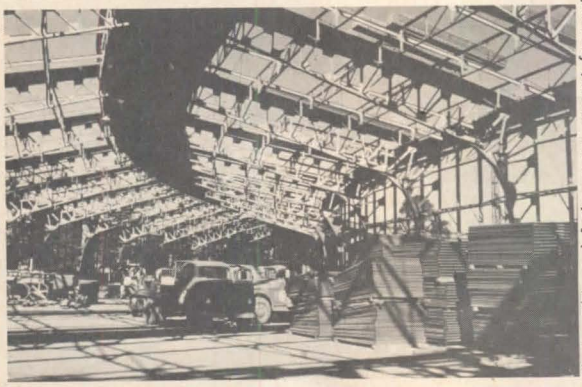
Terminating the major avenue at its western end was Bernard Maybeck's Palace of Fine Arts, easily the most admired architectural composition of the whole fair. Intended as an art gallery, it ended as a composition of four separate structures, only one of which was of any use for the exhibition of paintings. On a "lagoon," formed from the pond originally on the site, was the famous Rotunda, an octagonal temple set among masses of planting that imitated geometrically clipped hedges, on a massive and ornate basement decorated with flower boxes and urns. Above the basement, eight archways opened through a Corinthian order whose coupled columns imitated Numidian marble. Above this rose a tall attic, richly decorated with statues and bas-reliefs. Over this entire composition rose a low dome, externally colored a velvety burnt orange bordered with turquoise. Behind and to one side were two "peristyles," curved colonnades of pale green and ochre columns that carried great boxes intended originally to contain vines and flowers. And behind these, a background rather than a building, came the gallery itself, essentially a blank wall painted deep Venetian red, with a few doorways, a setback treated as a planted terrace, and a roof shaded with a pergola. Maybeck's inspiration for the Rotunda was Böcklin's *Isle of the Dead* (a painting that also inspired Rachmaninoff), and his idea for the gallery façade was taken from Gérome's *Chariot Race*. At the time, it was said that he intended to suggest a magnificent ruin, suddenly encountered in the desert by travelers; be that as it may, he made some explicit remarks about the emotional impact he sought:

"The Fine Arts Palace suggests the romantic [*sic*] of the period after the classic Renaissance, and the keynote is one of sadness modified by the feeling that beauty has a soothing influence. To make a Fine Arts composition that will fit this modified melancholy, we must use those forms in architecture and gardening that will affect the emotions in such a way as to produce the same modified sadness as the galleries do. Suppose you were to put a Greek temple in the middle of a small mountain lake surrounded by dark, deep rocky cliffs, with a white foam dashing over the marble temple floor, you would have a sense of mysterious fear and even terror, as of something uncanny. If the same temple, pure and beautiful in lines and color, were placed on the face of a placid lake, surrounded by high trees and lit up by a glorious

Built to last one year, the *Palace* of Fine Arts, Maybeck's masterpiece in San Francisco, was allowed to remain because of its beauty. After years of neglect, it has been rebuilt in permanent materials with much of its old grandeur.





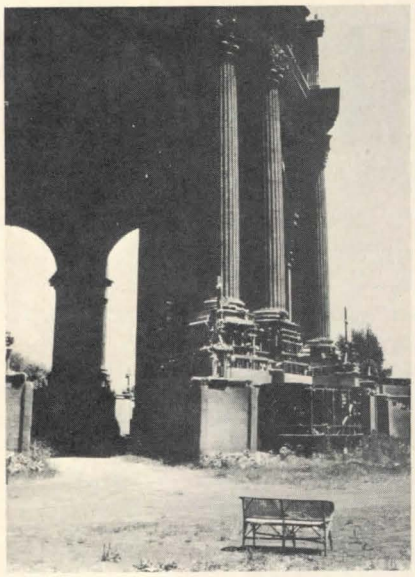


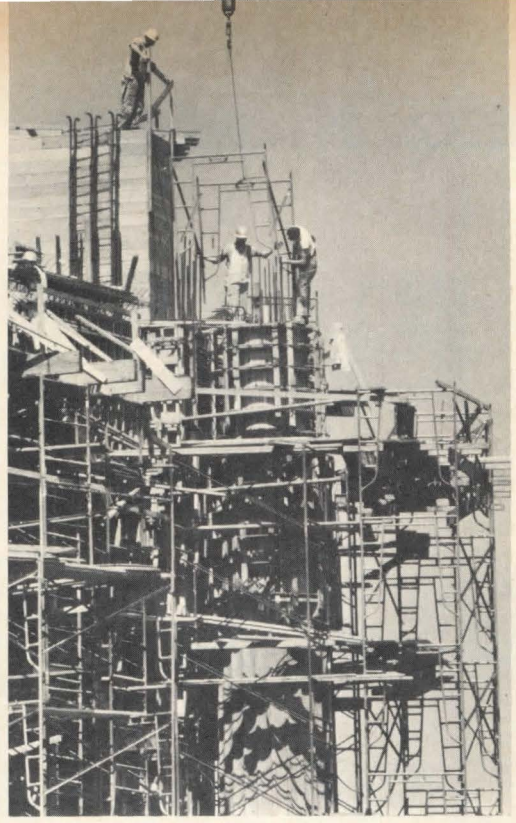
Photos, this and facing page, except for center photos: Jack Cannon

full moon, you would recall the days when your mother pressed you to her bosom and your final sob was hushed by a protecting spirit hovering over you, warm and large. You have there the point of transition from sadness to content, which comes pretty near to the total impression that the galleries have and that the Fine Arts Palace and Lake are supposed to have."

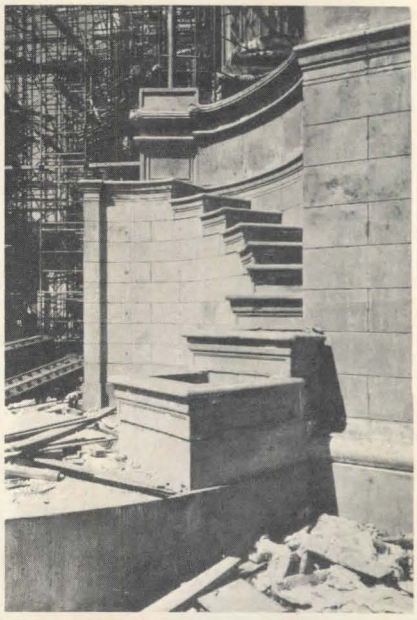
Whether the average visitor of 1915, probably not used to thinking along Maybeckian lines, was able to empathize with the architect to any great extent is highly doubtful, but it is a fact that by the time the Exposition ended it had been decided to leave the building untouched, even though it was planned and built purely as ephemeral architecture. Unfortunately, the authorities, though they left the Palace up, did not do enough to prevent its decay, and bit by bit the delicate ornament fell away, revealing rough boards and scantlings beneath. For some years, it was illuminated during the Christmas season, but at last this was discontinued. Then, the walk beneath the peristyles had to be closed to avoid the disastrous consequences of bombardment by fragments of cornice-work. Matters had come to a showdown — restore or demolish — in the late 1950's, when Walter Johnson, a local man, offered to put up $2 million for the rebuilding of the Palace in permanent materials. This sum, half the original estimated cost, was matched by the State of California, and nearly equalled by the City of San Francisco, as estimates rose, and the slow job of erecting a skeleton of steel and reinforced concrete and of covering it with the restored ornamentation began. In the end, the work took somewhat over $7 million (to the annoyance of some taxpayers), but now it is certain that the Palace will last for generations. Not all of the old glories are back. The Rotunda dome has lost its vivid coloring, and the gallery building has been finished off very plainly. The old "hedges" (actually piled-up boxes of South African dew plant) have not been restored, so that the Rotunda lacks some of its original Böcklinesque visual build-up. All of the Rotunda's art has been preserved or restored, however; even the original paintings inside the dome — heavily restored canvases representing Art in four aspects and The Four Golds of California (gold, poppies, wheat, and citrus fruit) — may go back into place.

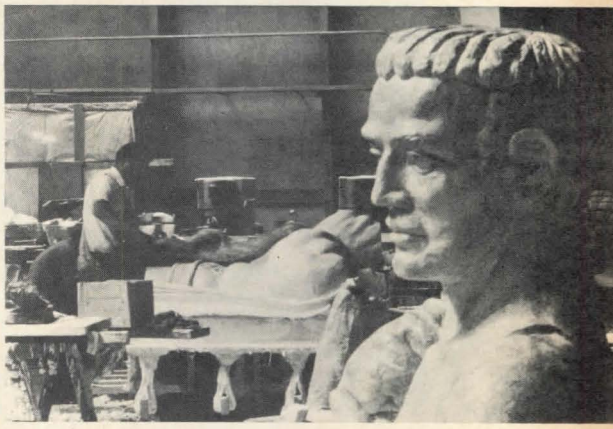
Over the years, the site of the main group of "palaces" has been covered with expensive town houses of three or four stories, over which the Rotunda rises, a permanent illusion surviving to dominate a lesser latter-day reality.

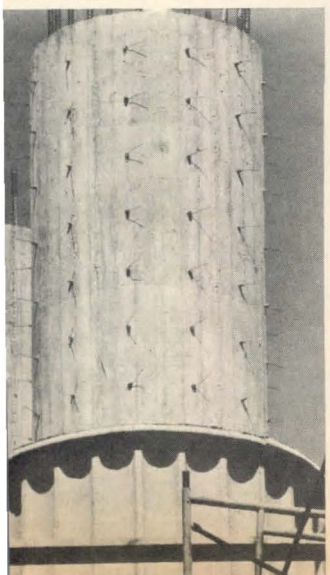




The grandeur, decline, and resurrection of the Palace. The center photo on the facing page shows the walk in the Palace area as it was in 1915, while the center photo on this page shows another part of the Exposition, looking toward the concert hall. Other photos show the Palace in ruins and the restoration of the ornamental work.







GLUED BUILDING

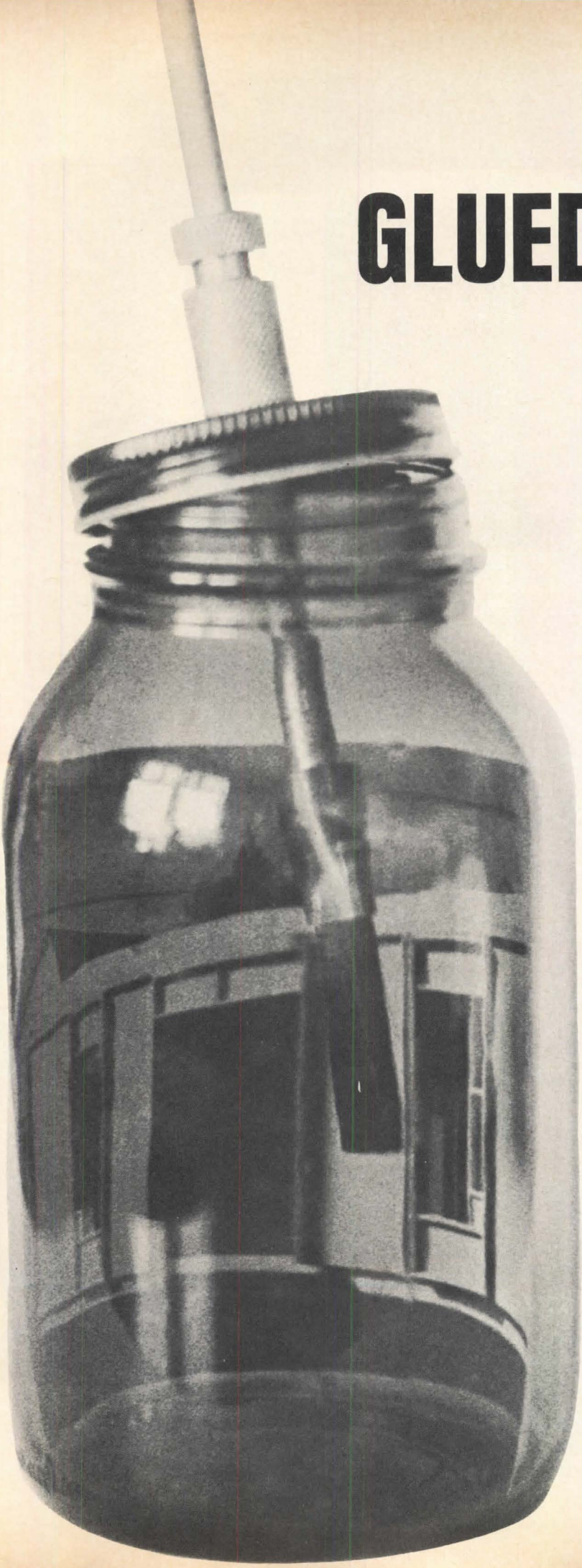


Photo: Richard Lewis

Seven years ago, a small New England office building was designed and constructed with plans bearing this cryptic notation: *"Note: All connections to be pegged and glued. No nails or screws allowed."*

Today, this building — constructed at a saving of approximately one-third over a comparable conventional construction technique, involving industrialized methodology, and presenting a workable, satisfactory design — remains a revolutionary prototype. To find out why, P/A revisited the structure, designed by architect Richard Sharpe, and came up with some revealing answers.

Actual Construction Procedure

Approximately 1800 sq ft of office space was enclosed by polystyrene foam core panels over a welded steel frame at a cost of $13.90 per sq ft. Panel construction varied. Exterior panels had enamel-faced, asbestos-reinforced, ⅛-in. thick faces over foam cores; and gypsum plywood interior surfaces. Interior panels are ¼-in. plywood over foam cores. The entire building was designed to a 4 ft module using standard 4x8 and 4x10 panels.

Panels were laid up on the site with hand-applied epoxy glues. One man was capable of manufacturing five panels a day, using a site-constructed wooden jig. Finished panels were applied directly to the steel frame. Typical panels weigh less than 100 lbs and are connected together with either spline or butt joints. No heat or pressure was applied, and only occasional alignment bracing was needed. Construction joints were detailed to facilitate these simple construction procedures. Panels were moved by a fork-lift truck and set in place by two men of the three-man building crew, which provided all the labor necessary to fabricate the entire structure.

Panel core thicknesses vary from 6 in. for floors and ceilings to 4 in. for walls. Openings were cut in the panels and prefabricated trim glued in place.

Sharpe devised a radiant heating system integrated into the panel construction. Resistant wires were trenched into the back of the interior gypsumboard skins and grouted over. Erection time for the building was 32 man-days.

..REVISITED

The architect does not claim that this modest structure is the answer to all of the problems inherent in contemporary building technology. However, he does believe that it answers a number of bothersome questions.

What Are Its Advantages?

The major cost of building is labor, which aggregates as high as 60 to 70 per cent of the total job cost. Simplification of bonding materials will reduce labor cost. Gluing lends itself readily to prefabrication and simplification of joint design, and prefabrication permits stockpiling of building elements during periods when construction work is not possible. In addition, there are these advantages: The entire structure is reduced in weight; handling is easier and consequently quicker; heavy equipment can be eliminated or its use greatly reduced; flat clear spans of 16 to 20 ft are normally feasible with minimal deflection; greatly increased spans can be obtained with folded plate or shell design; exterior surface of the building can be perforated almost at will for openings and the installation of mechanical equipment is simplified; the entire structure can be disassembled by cutting the splines and reassembled by regluing; and heat gain and loss through the panels is extremely small in comparison with conventional construction.

This technique, maintains Sharpe, contains solutions to the antiquated procedure of jig-sawing a building together in thousands of miscellaneous pieces.

Is Further Development Possible?

In light of the great appeal that adhesives have for the general public, it seems ironic that the profession should remain so fogbound and disinterested in a material offering such great potential to the building industry. When the house was originally published in this magazine [JULY 1962 P/A], only one letter of inquiry was received. However, when *True* magazine recently published an article on adhesives by David Maxwell, which mentioned Sharpe's house, the public deluged the architect with hundreds of letters. Author Maxwell detailed a wide range of imaginative uses of adhesives in his article: the use of "plastic steel," whose inventor playfully adhered tons of scrap metal together in a junkyard experiment, then had the assemblage lifted by a crane to test the adhesive properties; the mortaring together of fire bricks on a rocket pad, which withstood temperatures of over 5000F; the obvious success of adhesives used by NASA engineers on rockets now presumed to be in outer space, beyond Mars; ships that use adhesives to repair major damage at sea; and a glued divider strip on a southern California highway that for five years has withstood the onslaught of sun, wind, rain, and drunken drivers.

P/A questioned a number of industry representatives on how the new developments might be applied to building. For the most part, they were quite frank in their replies, although they requested that their names be withheld.

One representative of a major corporation whose organization has recently discontinued the manufacture of epoxy, summed it up this way: The process of gluing a building together was "too complicated," and, besides, there was not that much of a market. The firm's research department had concluded that a two-part epoxy system was too complicated and required more technical know-how than can be assumed to exist at the building site. (Incidentally, Sharpe easily overcame this problem by simply having the two parts made equal in volume with extenders, colored one red and the other blue, and then instructed the workmen to mix the two until the color was uniform.)

Generally, industry representatives expressed a reluctance to pioneer in the field, although they expressed no prejudice against re-entering the market should it prove profitable.

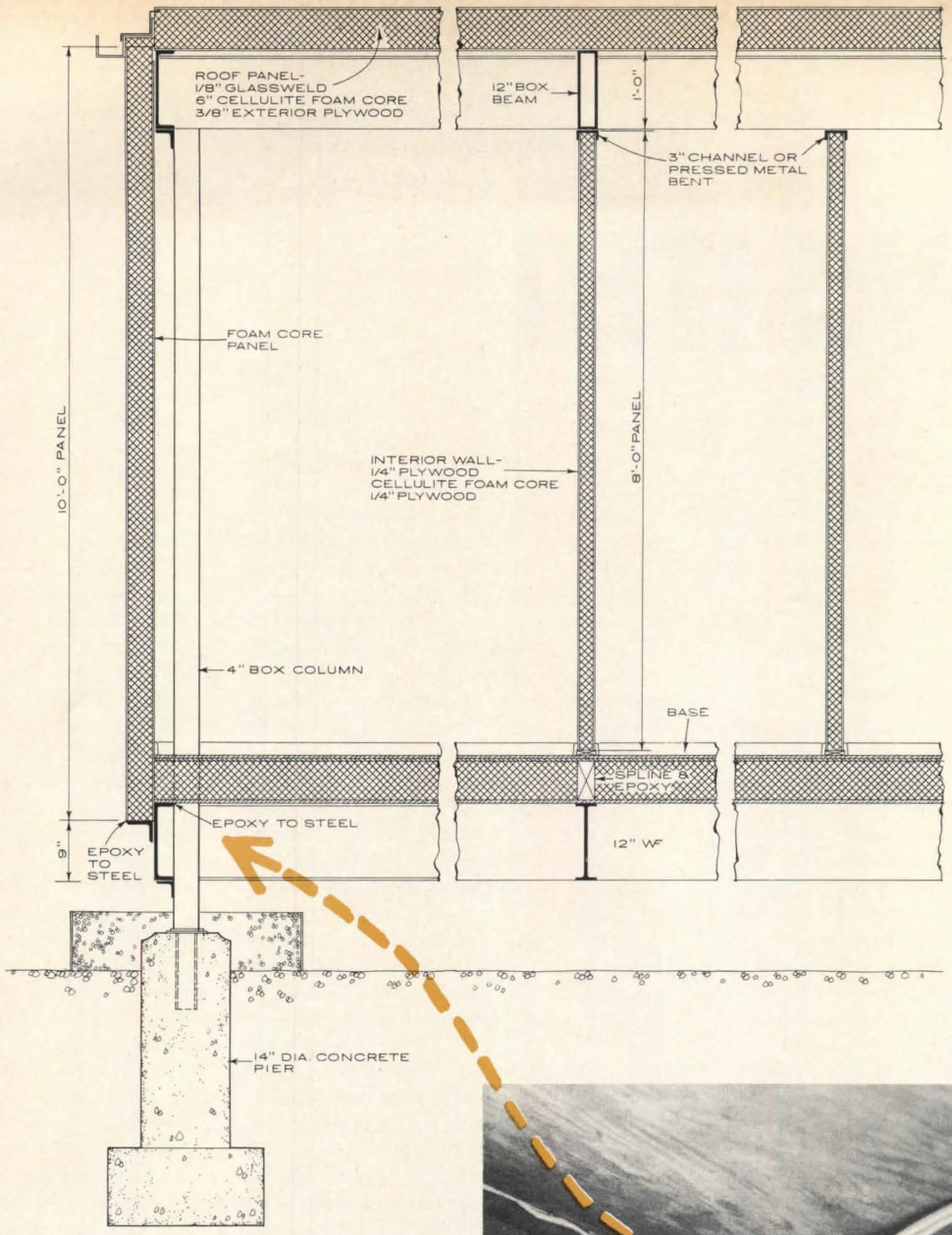
A major concern supplying raw material to manufacturers of adhesives noted that smaller companies might be better equipped to provide service to the client. "Building is an odd type of application in contrast to the rest of the market," this informant concluded, "and that is an economic fact of life."

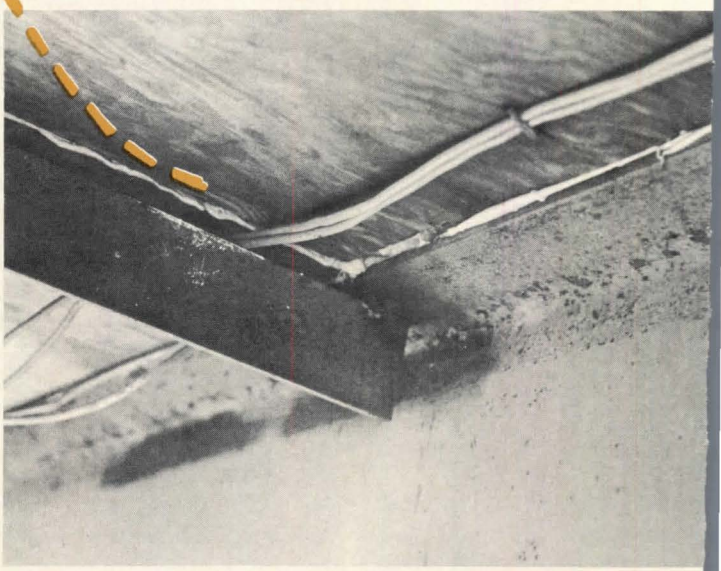
An official of a research laboratory that was currently developing adhesives had a number of pertinent comments. He pointed out that an essential problem encountered with epoxy in building is preliminary clamping or fastening. (A problem, incidentally, that Sharpe overcame in joint design.) This researcher feels that adhesives are probably more effective in the airplane and automotive industries because they are concerned with adhering steel and aluminum. These materials do not suffer from the rupture of surface film, which is the major problem experienced with building materials. He also noted that epoxy is expensive by building standards. (Sharpe, however, feels that this is relative when compared to savings in labor costs.)

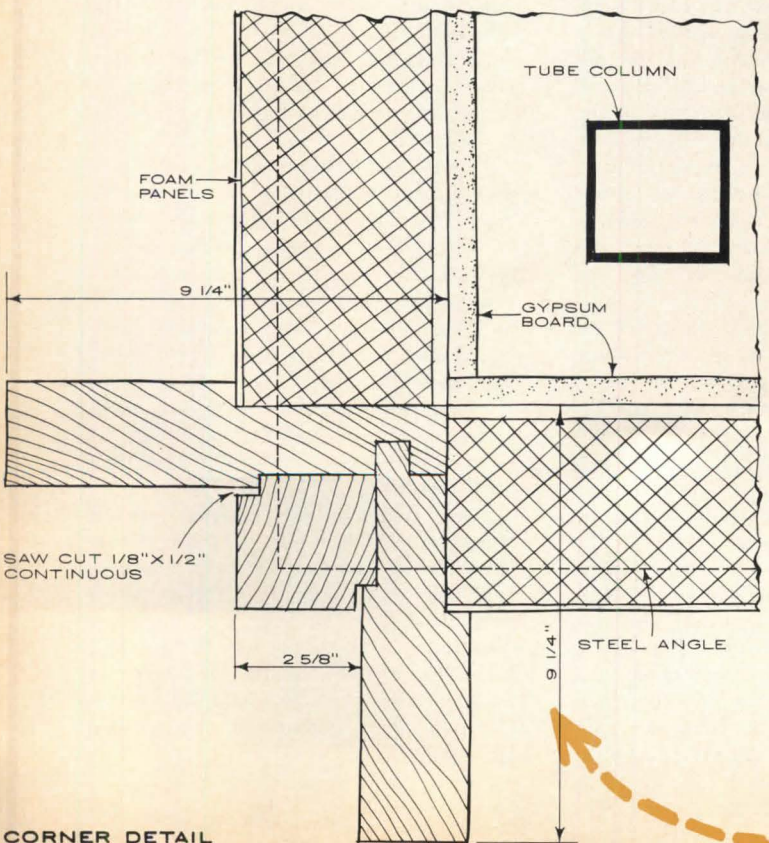
The possibilities of using adhesives successfully in honeycomb and foaming construction seemed fruitful to our informant. He cited the present practice in the aircraft industry of using foam or honeycomb cores and bonding a skin over them as having possible applications in the building industry. He further pointed to polyurethane foam, the material that seems to be replacing foam rubber, as offering impressive possibilities. It can be made very hard and rigid, and has excellent adhesive properties, permitting it to adhere automatically to the side walls of its container. He concludes that urethane foam as sealants have proven extremely successful and will undoubtedly experience further development.

Most of our informants agreed that it should be comparatively simple to glue together a 20-story building with properly designed joints held together by adhesives. However, they consistently complained of lack of contact with the building industry. Most of the men questioned had not heard of Sharpe's building either through P/A or *True* magazine, and admitted that there were many instances of successful applications of adhesives in construction of which they were unaware.

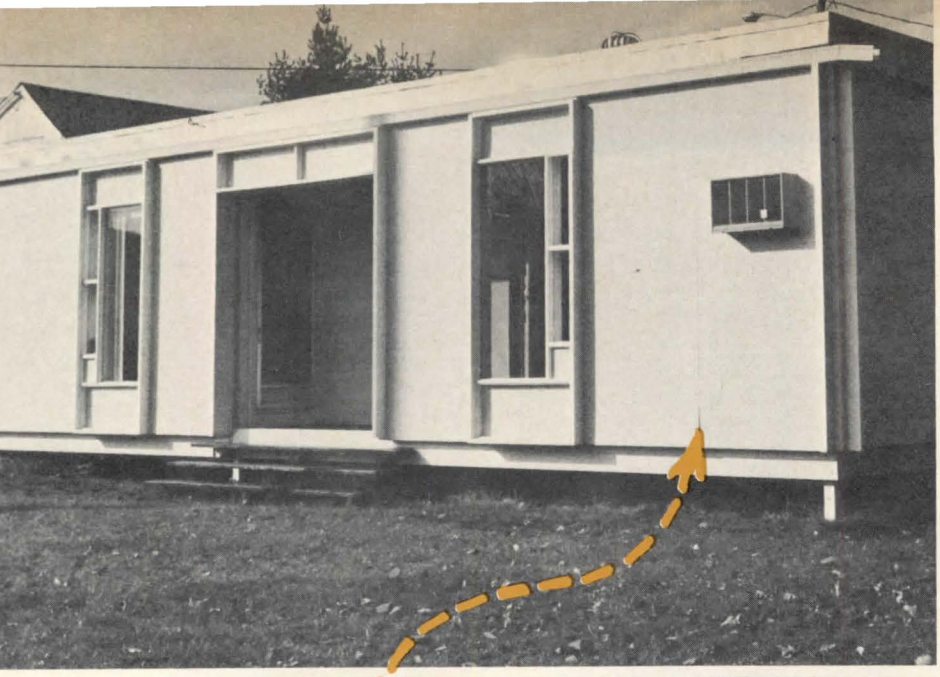
These comments seem typical of the attitudes of both researchers and manufacturers. A number of new adhesives have been developed, and there are a number of firms actively engaged in attempting to interest the building market. Adhesives are apparently no longer in the experimental stage in the laboratory, although they remain so in building technology.

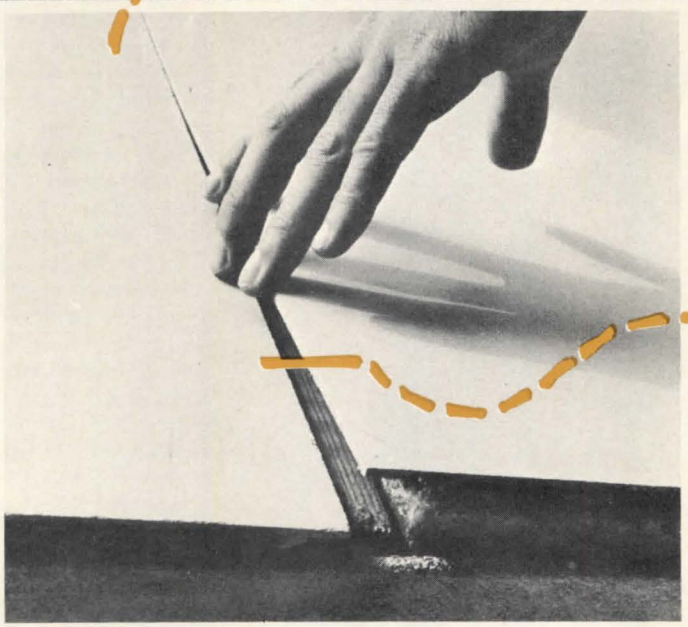


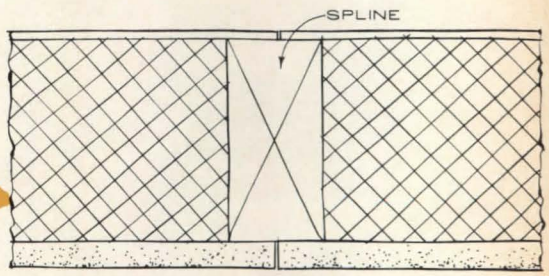




CORNER DETAIL

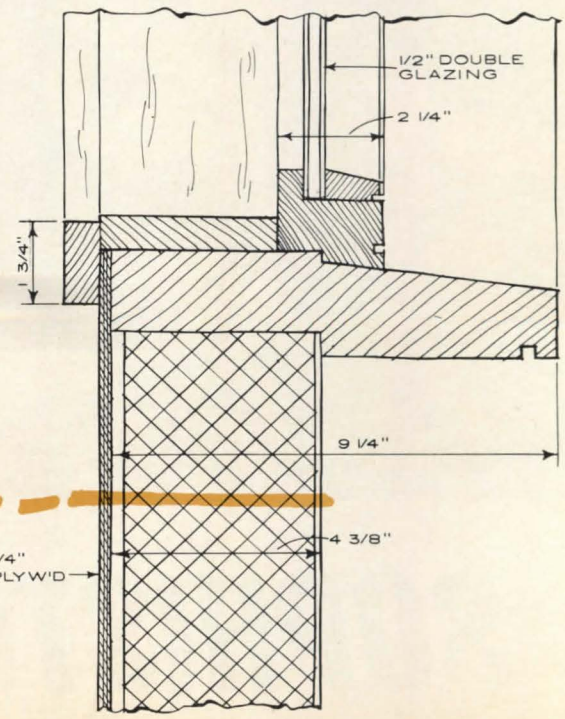






PLAN SECTION AT TYPICAL JOINT

Photo: Forrest Wilson



TYPICAL JAMB & SILL

Attention to detail distinguishes Mount Anthony, as is evident in the playful graphics that mark floor levels (below), and the waffle slab that is carried to the exterior on cantilevered bays (facing page).

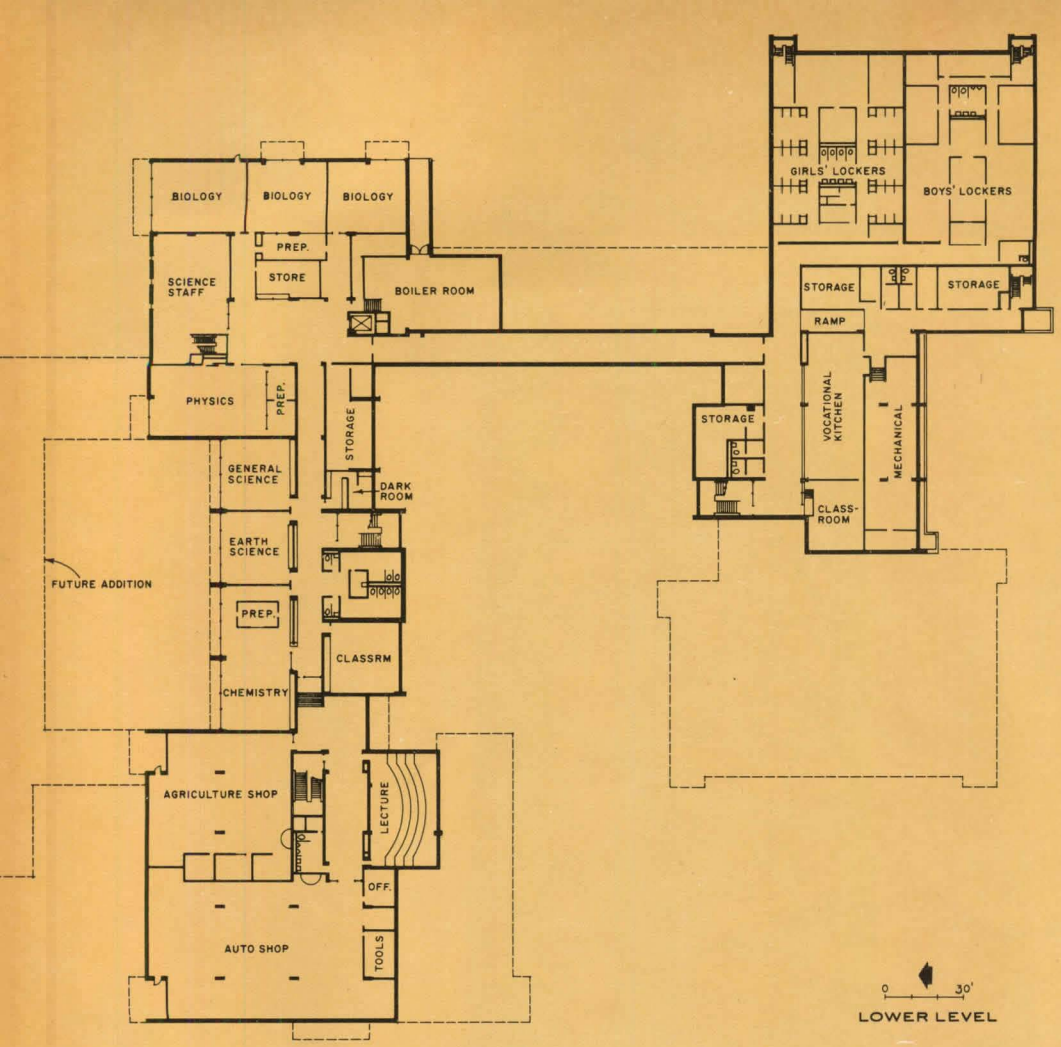
SOPHISTICATED SCHOOL

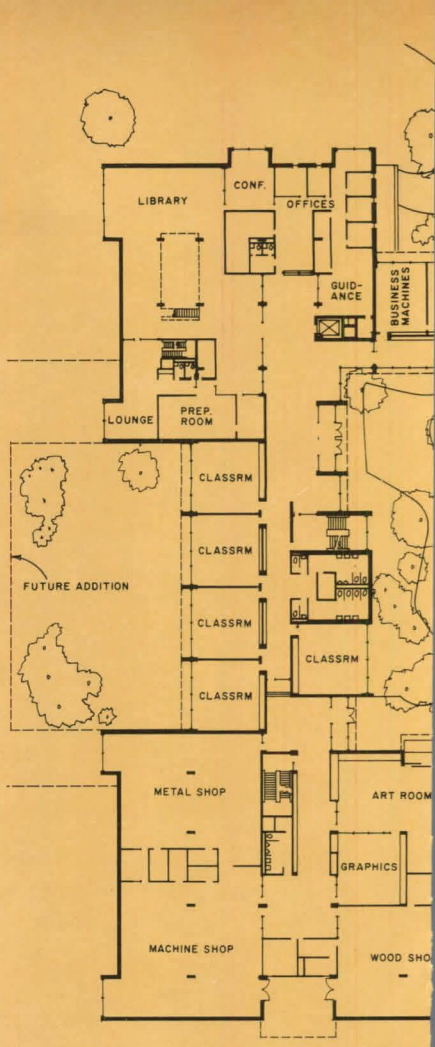
MOUNT ANTHONY UNION HIGH SCHOOL, *Bennington, Vt.* **Architect:** *Benjamin Thompson & Associates (Architect, Benjamin Thompson; Associate, Thomas Green; Project Architect, Colin Smith).* **Client:** *Mount Anthony Union High School District Board (incorporating six town, village and rural school districts).* **Site:** *At the northern edge of Bennington, 32 gently sloping acres with trees.* **Program:** *To build a high school for grades 9 through 12 where the academic and vocational programs would be as fully integrated as possible. Specifications called for a close interrelationship of all facilities and the creation of an environment that would encourage participation in a forward-looking educational program where students are given a great deal of freedom.* **Structural System:** *Exterior loadbearing pumice block walls, interior concrete columns, concrete waffle slab floors.* **Mechanical System:** *Fin tube hot water radiators under large glass areas; unit ventilators in combination with wall exhausts (no ducts in classrooms).* **Major Materials:** *On the exterior: face brick, exposed concrete parapet, exposed waffle slab floors at glazed areas, bronze-tinted glass. All exposed concrete lightly sand blasted. On the interior: exposed pumice block walls and partitions, occasionally painted. Exposed waffle slab ceilings painted white. Quarry tile corridor and cafeteria flooring on main level; carpeting in business-machines classrooms and library.* **Cost:** *$3,063,000 including fixed equipment and sitework, or about $19.50 per sq ft for 156,000 sq ft.* **Consultants:** *Landscape Architect, Carol Johnson; Interior Designer, Benjamin Thompson & Associates; Structural Engineer, Le Messurier Associates.* **Photography:** *Clemens Kalischer.*

Enthusiastic student reactions to Mount Anthony Union High School (Design Award, JANUARY 1965 P/A) are no accident. Architect Ben Thompson's aim in designing the sophisticated school for a semirural Vermont community was to stimulate in young people a response to the world around them. And aside from meeting many requirements set by curriculum and budget, he considers the building an instrument of visual education — a kind of subliminal training that will lead the young to demand higher standards of design in their man-made environment.

To Thompson, those standards are the

IN A RURAL SETTING





quiet, civilized outcome of discipline and control, an architecture "outside the passing style parade." Commenting on such qualities in the Mount Anthony design, the Design Awards jury called it a building "that has real tranquility and repose," a school that is "on the whole underfenestrated, inner-oriented, undisturbed as a school should be."

Underfenestrated elements of the design, anchoring the U-shaped building's four corners, present to the exterior large expanses of salmon brick capped by a board-formed concrete parapet and relieved only by cantilevered glazed bays. Since these units house functions most appropriately enclosed (auditorium, gymnasium, shop/vocational center, and library), they are indeed underfenestrated, but the experience of interior space is generally one of openness created by generous glazing in cooridors and classrooms.

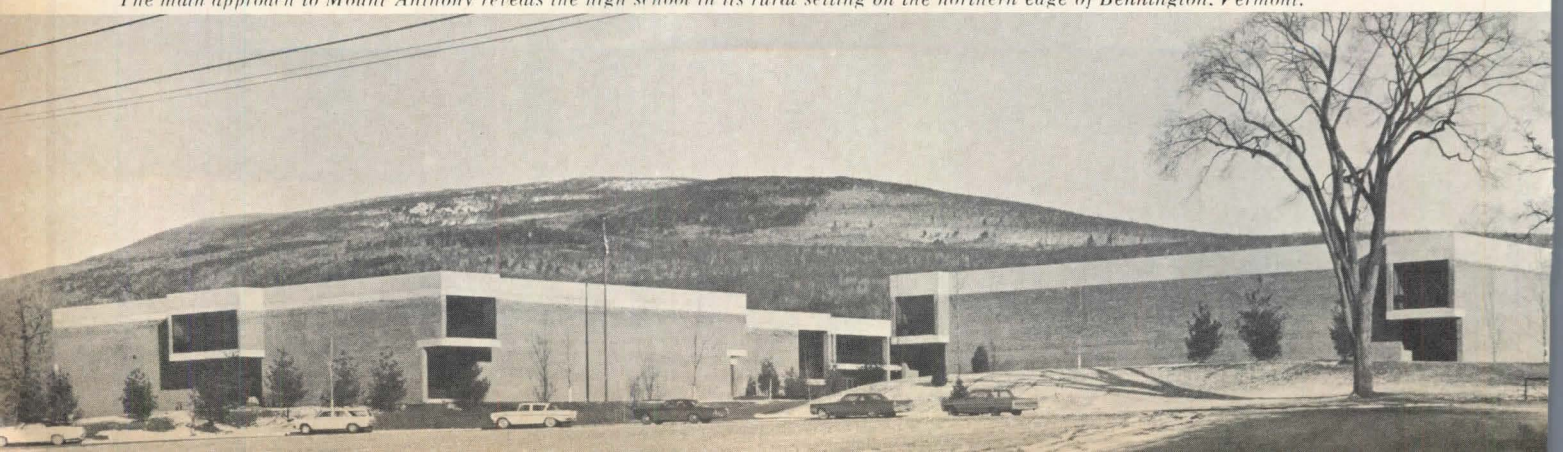
Interiors prove to be a succession of well-knit contrasting spaces where the restrained use of bright colors and lively graphics, along with plenty of sunshine, help to define education as a process of enlightenment rather than one of pedagogy.

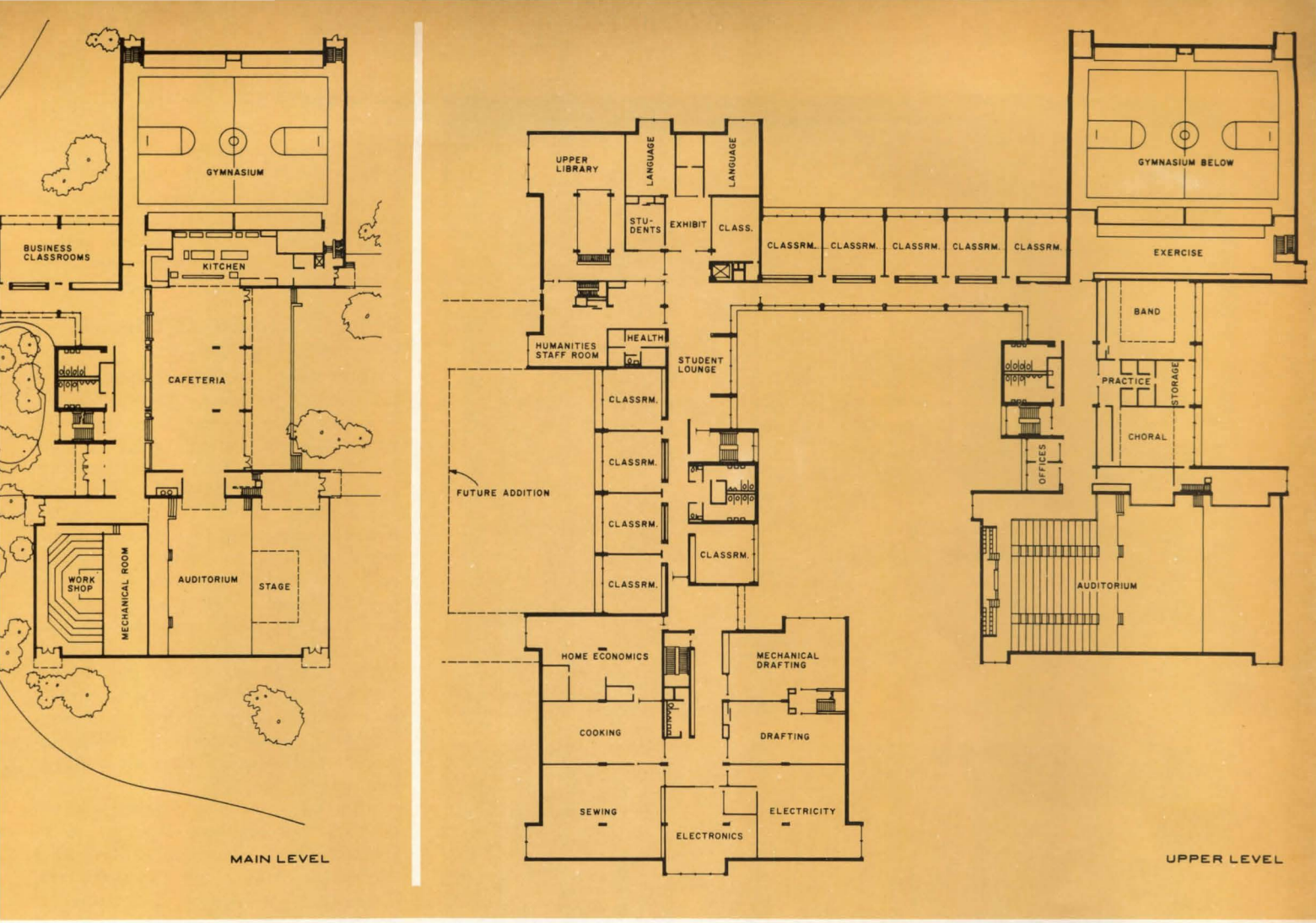
Wrapping the building around a court keeps functions close together and enhances the inner-orientation that impressed the jury. The courtyard, a favorite spot in warm weather, is a small interior landscape where paving winds around grassy berms and trees. It faces the area's two most dominant landmarks — the school's namesake, Mount Anthony, and the Bennington Monument, an obelisk commemorating a Revolutionary War battle.

A sunny corridor running around the court's perimeter is the lifeline of the building; it brings the court inside, makes an inviting path to walk along, and leads, not to dead-end exits, but to *places*. Punctuated by rows of lockers enameled in several vivid colors, it accommodates an informal student lounge on the upper level.

Major spaces serve as pivotal and focal points. The skylit library, on two levels connected by a stairway at one end of the open mezzanine well, is the school's academic and study center. Upholstered couches, carrels, chairs and tables allow students varying degrees of privacy and informality. Adjacent faculty offices (there are no home rooms) put teachers close to both books and the two classroom wings. This corner of the building is opened up to the corridor by interior

The main approach to Mount Anthony reveals the high school in its rural setting on the northern edge of Bennington, Vermont.





glass walls at the library, guidance office, and general office. Interior glazing has been used to great advantage throughout the building, opening up spaces wherever fire laws permitted.

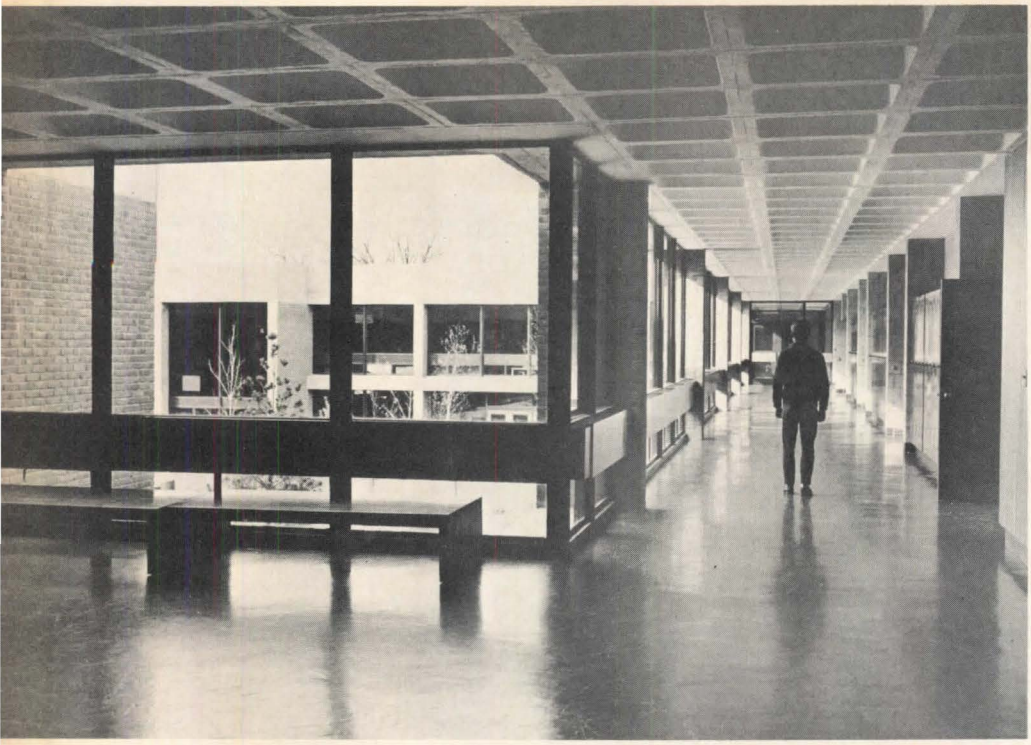
Classrooms face the "outside world," a tranquil landscape of grass and trees. Here, glazing insures that inalienable (but increasingly violated) student right to the seasons, the weather, and perhaps an idle dream or two.

Toward the south wing, the cafeteria forms a logical unit with auditorium, gymnasium, and music rooms above. Separated from the corridor only by low concrete benches and a drop of several feet, it serves as a lobby for concerts, sports events, and so on.

Exposed waffle slab construction saves the school from monotonous expanses of flat ceiling, and allows ceiling height to be lowered to a friendlier, more residential scale. Coffers also provide ready-made housing for lights and unobtrusive receptacles for acoustical tile.

Although economy forced a change to vinyl flooring on two levels, quarry tile enriches main level corridors and cafeteria. Below grade, chrome yellow paint brightens an occasional accent wall, and science labs are enlivened by overhead exposed piping painted in primary colors — other unexpected and welcome details in a building that came in under the bud-

View from upper level overlooks court and school's namesake, Mount Anthony.



Glass walls form the minimum barrier between corridor and courtyard and keep hallways bright, a considerable improvement over the drabness of traditional interior corridors.

get at $19.50 per sq ft. This figure included both site work and fixed equipment. By determined persuasion, the architect secured control not only over fixed equipment but all interiors, and within his promise to keep costs down to stock-item levels, even managed to furnish library and lounges with some handsome custom pieces.

School Board Steers Education In a New Direction

An extensive and well-equipped vocational center, providing for the teaching of a dozen major trades, is an important aspect of the educational philosophy behind the school. Feeling that students should not be segregated into vocational and academic ghettos, the common practice in Vermont until very recently, a citizens' committee on curriculum decided early in favor of combining facilities in one school and encouraging as much interaction as possible among students pursuing different courses of study. In a further effort to mix up learning with doing, teachers from the vocation, science, and academic staffs participate in team teaching, giving lectures or demonstrations in each other's classes wherever appropriate.

All students take a required core of academic subjects and then go on to specialize in a particular skill — either academic or nonacademic. Thus the term "core-skill" was adopted. This curricular pattern is part of the broader goal of establishing a college-type atmosphere, giving students as much freedom as they can handle and stressing original research and independent study.

Although breaking away from formal study halls and leaving students to work out their own study habits during free periods, the faculty exercises a certain indirect control through the assignment of projects that can only be done at school. The object, of course, is to develop self-discipline and lure students into genuine curiosity instead of imposing too many rules from the outside or relying solely on rote learning.

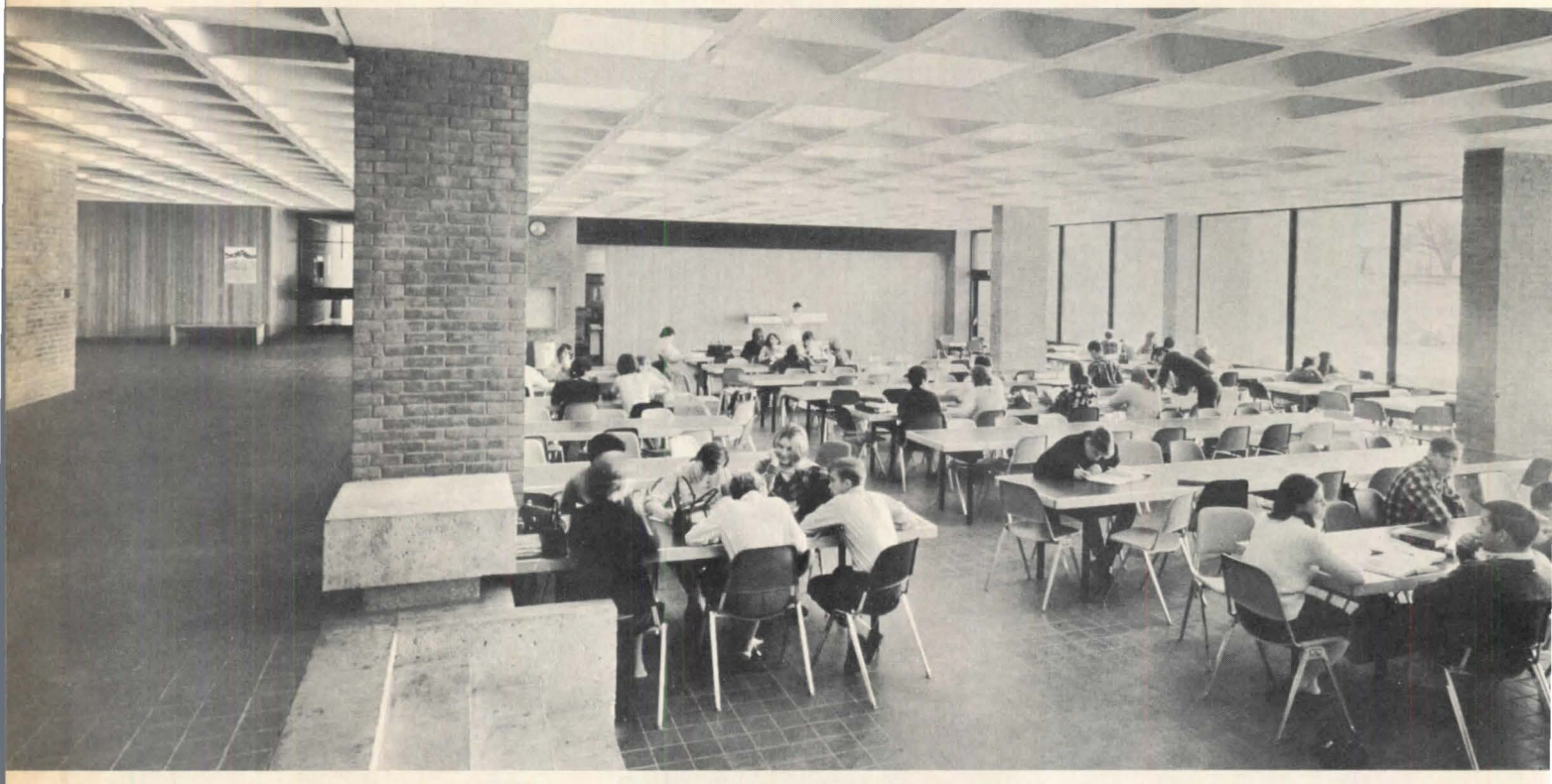
Eventually, primary and secondary schools will all be part of an integrated system, and the transition from a supervised grade school to the flexibility and freedom of the new four-year high school will be made during seventh and eighth grades. At present, Mount Anthony's freshman classes meet in another school, a move that became necessary when the student body was swollen beyond its *1100–1200 limit* by the unexpected closing of a local parochial school last spring. Plans are now underway for an addition to handle the increase in enrollment.

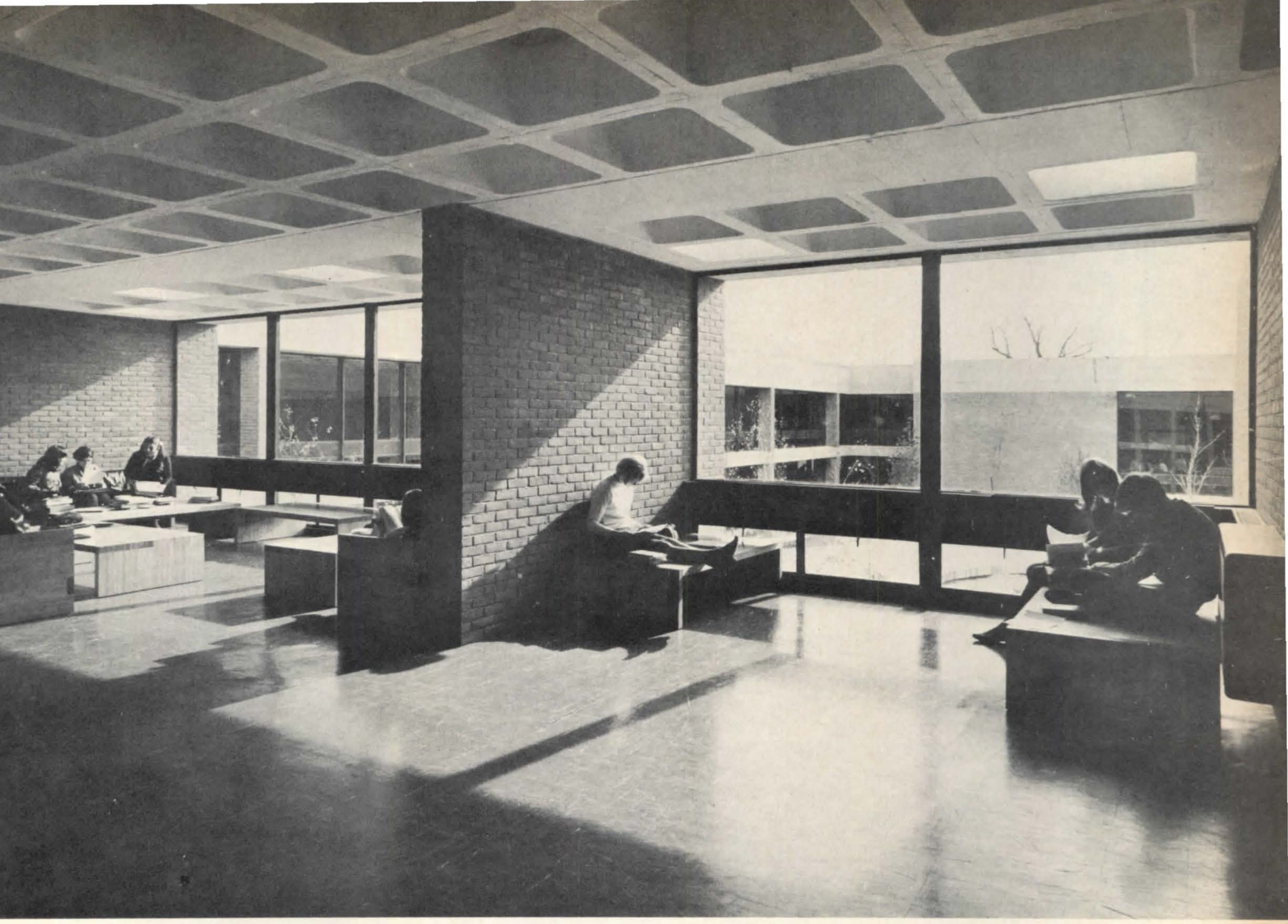
Community and Architect — A Study in Perseverance

The background of community action behind the new school is a long one. It began more than 20 years ago with ten-

School is oriented around the colorful, open-plan library. Free time in students' computerized schedules is often spent studying here. Adjacent language labs (not shown) are equipped with electronic carrels.

A variety of indoor and outdoor spaces are available to the student for both classroom and free time use. Below: Cafeteria also serves as study space and as a lobby for events held in gym or auditorium. Bottom left: Sliding glass doors open art room onto court. Bottom right: Vocational shop facilities play important role in educational program. Facing page: Popular corridor lounge on top level.





tative efforts to merge several local school districts — a move that was later found to be a necessary first step toward new facilities, since no one district could afford the price of such a project by itself. In 1962, the amalgamated or "union" school district was finally approved by voters, and shortly thereafter Thompson's first design was put before the electorate in the form of a bond issue. It failed. Two more bond issues, entailing each time a change in site and architectural plans, were presented to voters before it passed in 1965.

The surprising aspect of the story is not perhaps that the bond issue failed twice but that, among a group of town, village and rural districts with a total population of some 20,000 to 25,000, it should succeed on the third try. In a part of the country where frugality has long been a necessary part of life, where every break with tradition is proverbially suspect, and where 50 per cent of the high school students will not go on to college, it would seem some sort of milestone when the citizenry goes to the polls to bond itself for almost $2 million to build a new high school of unusual quality and design where their children will participate in a thoroughly up-to-date educational program.

Although Bennington College gives the area a certain intellectual tradition, which may or may not have had a liberalizing influence, there is the usual separation of town and gown, and the school board represented a broad cross section of the community, from doctors and lawyers to farmers and laborers. At the time of their election in 1962, guidelines and recommendations had already been formulated by a pre-board citizens' study group that had spent three years researching school district organization and curriculum, and visiting secondary schools throughout Vermont and Massachusetts. Based on this previous groundwork, the board moved almost immediately to select their architect, The Architects Collaborative, and appoint the consulting firm of Booz Allen Hamilton, Inc., to prepare educational specifications.

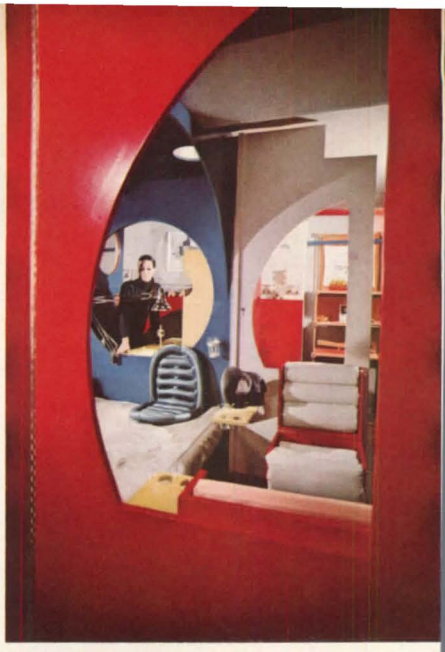
When Thompson, who began the project while still a partner at TAC, says that "true simplicity comes at the end of an exploration of complexity," he may well have in mind the concentration required to translate into reality the 200-page specifications — a detailed document "the size of the Boston phone book" calling for "everything connected to everything else."

But aside from the initial program requirements for interconnection (solved partially by breaking two popular rules of rural school design — one-story sprawl and the double-loaded corridor), the next five years of design work and rework entailed many changes. The last major revision came when working drawings were almost 90 per cent completed. At that time, the Vermont state legislature voted funds to match Federal appropriations for expanded vocational facilities and 33,000 sq ft were added to the shop center.

The experience proved a stiff test of Thompson's belief that architects should participate in public school projects, and added to his doubts about the adequacy of the present fee structure. But a strong-minded school board that set its sights on more than just trading in the little red schoolhouse for a big red schoolhouse, and kept the project alive through defeated bond issues and a series of mishaps, setbacks and rivalries, provided a strong motivation for following through.

Both architect and school board seem to have survived the difficult five years with great mutual respect. The community is proud of its new school. And student sentiment was expressed by one young person who allowed that she "didn't mind getting up in the morning anymore and going to school." What better gage of success than such a testimonial from the user group, whose devotion to sleep on school mornings is all but obligatory.

MINI ROOMS AS SUPER FURNITURE



Photos: Robert L. Beckhard

Living centers are systems furniture that aim at a synthesis and consolidation of equipment and furnishings. They indicate a swing away from all the dispersed impedimenta of conventional furniture, which may provide people with many pastimes, but is, unnecessarily, a mass of fiddley little bits and pieces.

Starting with goals of eliminating nonessentials and of miniaturizing dimensions, the designers of these compact, simplified, and efficient systems cluster all furniture and equipment into the center of the room and consolidate it, instead of spreading it around the perimeter. At the same time, they aim at permissive flexibility, both in terms of use and mobility and in terms of possible options to satisfy personal requirements. Living centers are mini rooms that may become the super furniture of the 70's.

Already there are more and more examples of this thinking, which follows the general direction of "Minimal Interiors" (MARCH 1967 P/A); they might be called Minimal Furniture. Among the most recent ,"Supercube," designed by Lester Walker, is "a prototype for a system of machined prefabricated parts designed for the interchangeable needs of clients"; Walker calls it a "Living Machine" (right). Italian architects Ammannati & Vitelli have designed a flexible system called "Total Furniture," which is another approach to the same problem (p. 139).

Each of these systems reveals some apsect of "rooms within rooms," an architectural concept perceptively singled out and explored by Robert Venturi over a decade ago, and one that is at the basis of the current aesthetic fascination with manipulating scale. The systems also seem to be elaboration on Kenneth Isaacs' elemental "Living Structure" (p. 151, MARCH 1967 P/A).

Two factors are at the base of minimal furniture — sociology and economics. Sociologically, living centers or furniture kits or minimal furniture (whatever one calls them) are the product of youthful desires, of a world brought up on the everywhere-at-once, all-is-possible frontier of television. They are also the product of the automobile society, which wants the world of the compact with all its mobility and its options.

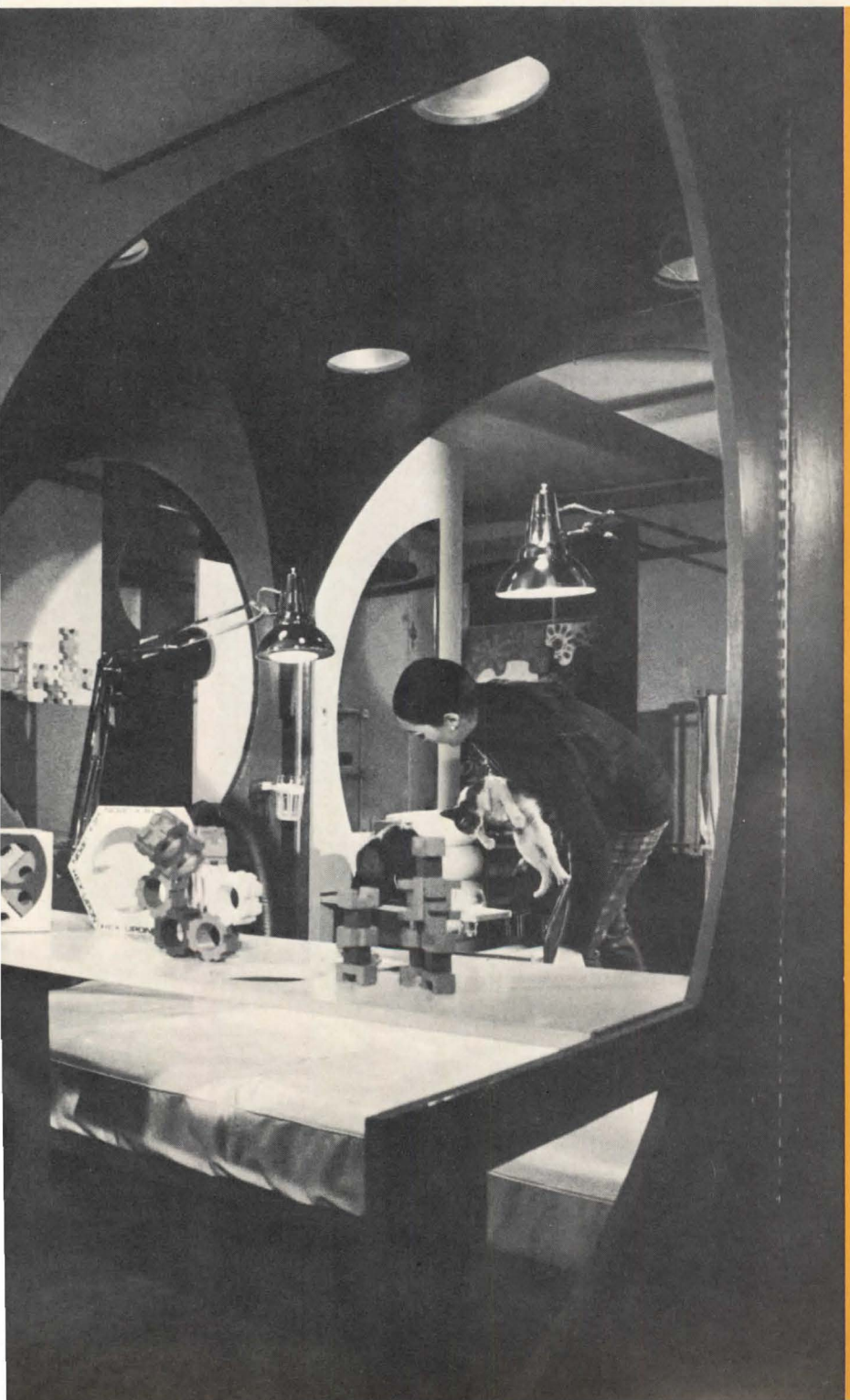
Such systems appeal to people on the move, to those who might latch onto the trailer concept if it were a true synthesis of essential life services "rather than a synthesis of the suburban house," as Kenneth Isaacs points out. They also appeal to those not yet affected by the tendency of maturity to spread out and relax, and to the very young who envision a life of camping out, unencumbered by conventional trappings.

As a consequence, minimal furniture systems seem to eliminate the possibility of being grand or luxurious; they are, generally, ungracious, and, by definition, spatially limited. For the young may be fully aware of life functions such as eating and cooking, but often they do not appreciate the sophisticated cultures that have grown up around those functions. Therefore, they deny traditional paraphernalia.

The economic basis of minimal furniture systems is also open to debate. Claims that, if prefabricated and mass produced, such systems would be more economical than conventional furniture cannot be substantiated. The cost of "Supercube" in custom production was about $2970; "Total Furniture" costs $2000 for the basic unit. A trip to the Salvation Army store remains the cheaper way to furnish.

Besides, as much as these systems are presented as being for low-budget families, their economics are based on bankers' concepts: borrow a large basic sum for an initial purchase. Regrettably, this is inimical to the inconfident budgetary mind, which is inclined to buy slowly and in piecemeal fashion.

But however debatable the sociological and economic aspects of minimal furniture systems may be, their aesthetic concepts are strong and irrefutable. The consolidating of furnishings produces a large-scale element for a residential interior, the success of which Robert Venturi explained definitively in relation to the house in Chestnut Hill by Venturi & Rauch: "Complexity in combination with small scale in small buildings means busyness . . . the big scale in the small building achieves tension rather than nervousness — one appropriate to such architecture."



SUPERCUBE

Something of a shake on the old Murphy unit that folds out of the wall to make a bed, Supercube is a bed that folds out to make a room.

Actually, Supercube makes five rooms. Located in the center of a space, the compact unit, designed by Lester Walker, is a "living machine" enclosed by doors that swing out on all sides to make separate areas for conversation (seating five), dining (for four), dressing (with closet space), and an office (seating two) for client Stephen Miller's Greenwich Village toy store, "1-2 Kangaroo."

The core of this cozy, Pullman-berth design is a double bed (covered with a vinyl contour spread) that is converted into two back-to-back sofas by means of a fold-down divider that forms a cushioned backrest. (One must sleep still as a post at the very least, for the surrounding structure also contains space for lighting, records and TV, glasses, and other toys.) It is a roomette, like Jefferson's bed at Monticello, but with appendages.

All the furniture for the required activities is incorporated into this central unit: Fold-down desks, dining and end tables, even easy chairs and benches are hinged to the wing-like doors that enclose the 4'-6" x 8' x 7' (high) structure. The cost of this prototype was $2970.

Circular voids, designer Walker posits, are a function of the ¾-in. plywood construction, which requires diagonal bracing. The largest blue circles, for example, prevent torque. The voids also produce an effect of transparency that minimizes the over-all volume of the cube.

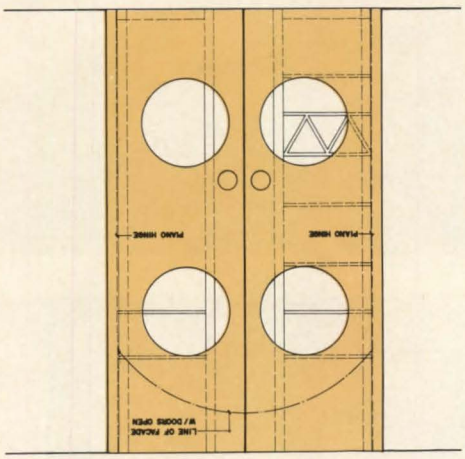
Notwithstanding the debatable sociological and economic justifications by the owner and designer, it is the superimposition of images by which Supercube makes its strongest — an aesthetic — point. As the wings are folded out in changing positions, the circular voids and the bright red, yellow, white, and blue paint produce constantly varied patterns from a rather rigid-looking box. Supercube makes kinetic art at the whim of the user.

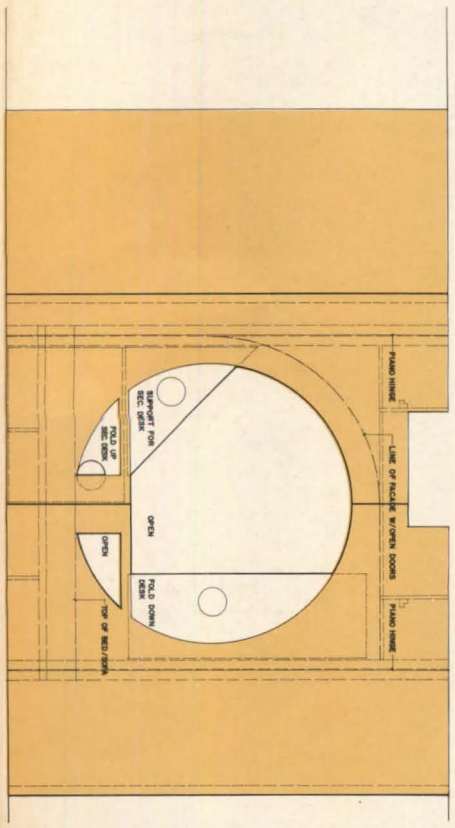
Tyro architect Les Walker, now with Conklin & Rossant, was trained at Penn State and Yale ("Can't you tell?" he asks); his design has a superficial resemblance to the plywood "tubes" of Charles Moore's

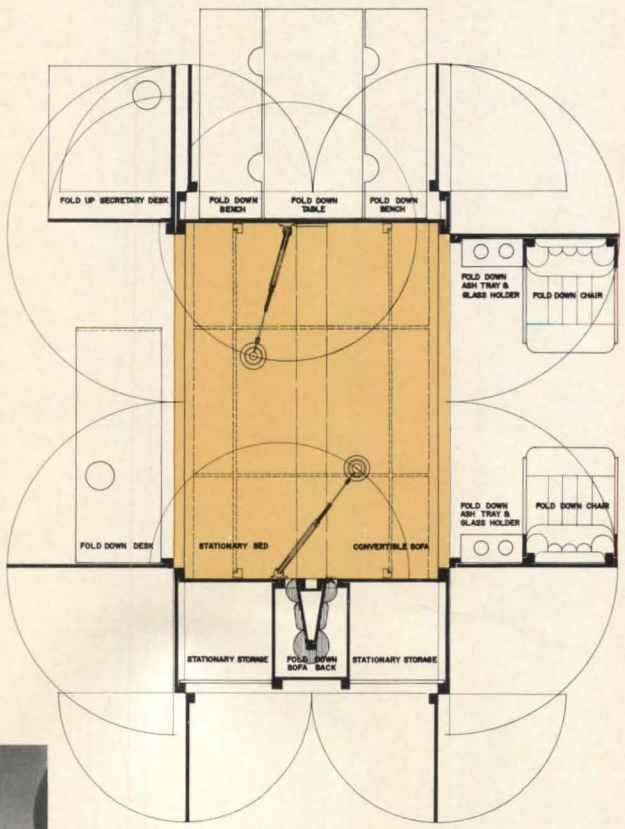
New Haven house, in that it also is a free-standing construction with Kahnesque cutouts. Both are rooms within rooms.

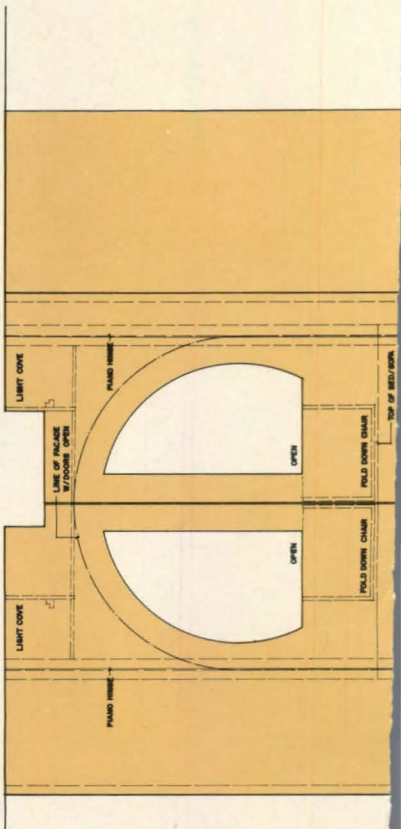
But whereas Moore's tubes are architectural furniture to be passed through and looked at from the major living areas, Walker's Supercube is a piece of architectural furniture to be lived in as the major space itself. It is also an ambiguous switch on the preceding generation's concept of buildings as single sculptural elements.

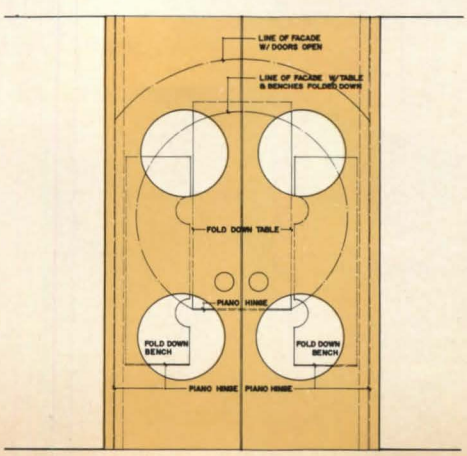
Owner Miller's idea was "to make a huge Supertoy that was a lot of fun and that you could live in." This manipulation of scale — both of furniture and of toys — is the game of our age. Supercube is an ideal toy for adults playing at the game of living and for those who enjoy playing house. It also seems ideally appropriate for a toy store owner who, in the truest tradition of nature following art, must wake up in Supercube to find himself a living jack-in-the-box.

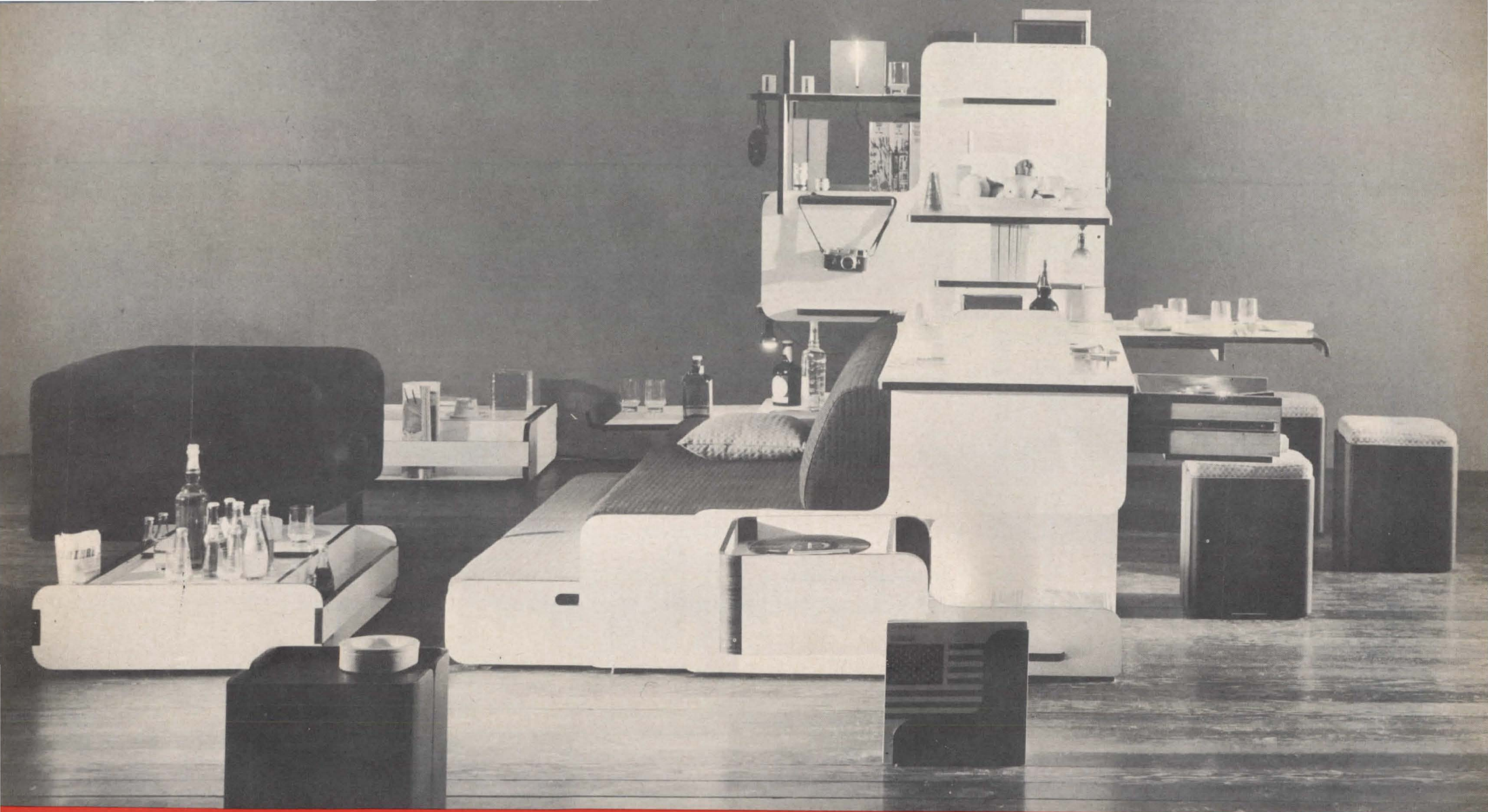












Photos: Gianni e Paolo Saluati

TOTAL FURNITURE

Mobile Totale *reads like "totally movable" to the American-English eye — and it is, to the Italian architects who designed it, a totally flexible, single unit of furniture. But the design is intended to be the only furniture required in a house, so its Italian name actually means "Total Furniture."*

Designed by the husband-and-wife architect team of Titina Ammannati and Giampietro Vitelli, Total Furniture is an interlocking panel system planned for mobile young people in minimal spaces.

All the furnishings and equipment required for residential living — including sitting, sleeping, cooking, and eating; excluding only toilet facilities — are synthesized into a compact unit that is intended to be located at the center of a space. It is not a built-in but a built-out.

The core of the unit is a sofabed; shelf and table-desk space are above and at the sides; pull-out drawer and phonograph space are also at the sides. The tallest element is a closet. Underneath the sofabed, the options are a second bed or two wheel-mounted drawers that also function as occasional tables. Lighting is built-in.

Behind the living-bedroom facilities is a kitchen-dining area with a two-burner electric stove; a 2 cu ft refrigerator; drawer, shelf, and cupboard space; and a hinged table for three.

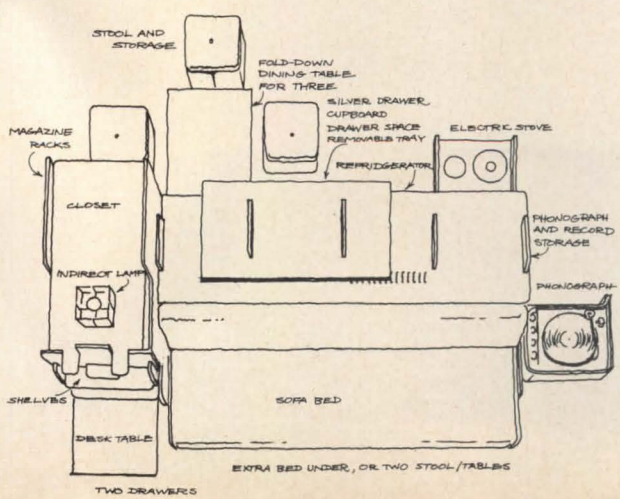
Additional chairs are designed as part of

the "line" and double as storage containers or occasional tables.

Manufactured by Giuseppe Rossi in Albizzate, Italy, the system is constructed of laminate veneer. Minimum dimensions are 8'-11" x 4'-8"; maximum dimensions are 10'-7" x 7'-9". Its basic cost is $2000.

For weekend or guest houses and for loft living, the unit provides a preassembled furniture kit. However, in its attempt to supply part of the kitchen in the apartments for which it is primarily intended, Total Furniture is not geared to the American market, where kitchen equipment is a fairly standard given factor. On the other hand, the flexibility of the system allows wardrobe space to be substituted in place of kitchen equipment.

The Milan magazine Panorama *reports that the designers have further developments of the system in mind — "A unit-maze-game-prison for the youngster," which is "a mini version" of Total Furniture.*



PREFAB GEODESIC DOMES COVER OFFICES

Five interlocking hexagonal-based domes, assembled at the site from factory-made components in 15 days, saved Placer County $10 per sq ft over a nearby county building of conventional construction.

Diamond-shaped aluminum panels and connecting hubs are the principal components of a factory-fabricated geodesic dome system used in the construction of administrative offices for Placer County in Auburn, California.

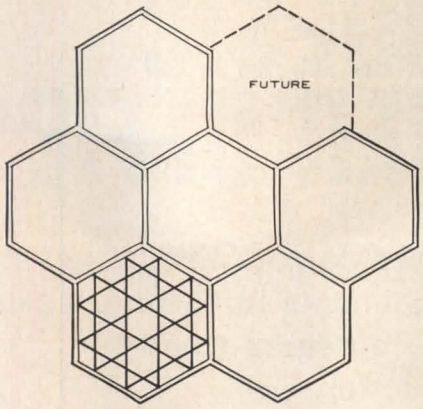
The system, which offers considerable savings in erection time and costs, has been used for several building types in various parts of the world over the past few years, but this is the first time domes have been clustered. Since the domes are built on hexagonal bases, they can be easily interlocked, which offered several advantages for the Placer County complex.

The ease of building in increments was one consideration. Offices are now operating in five domes with a sixth, open-lattice, dome over the entry plaza. However, it will be a simple matter to add a final dome in the future. Another benefit is that government departments can be more easily defined and separated. And finally, it was felt by the architect (Robert B. Liles Company of San Francisco, Hoot Chatham, project officer) that low profiles of smaller domes, rather than a single large one, would better fit in with the rolling foothills of the surrounding countryside.

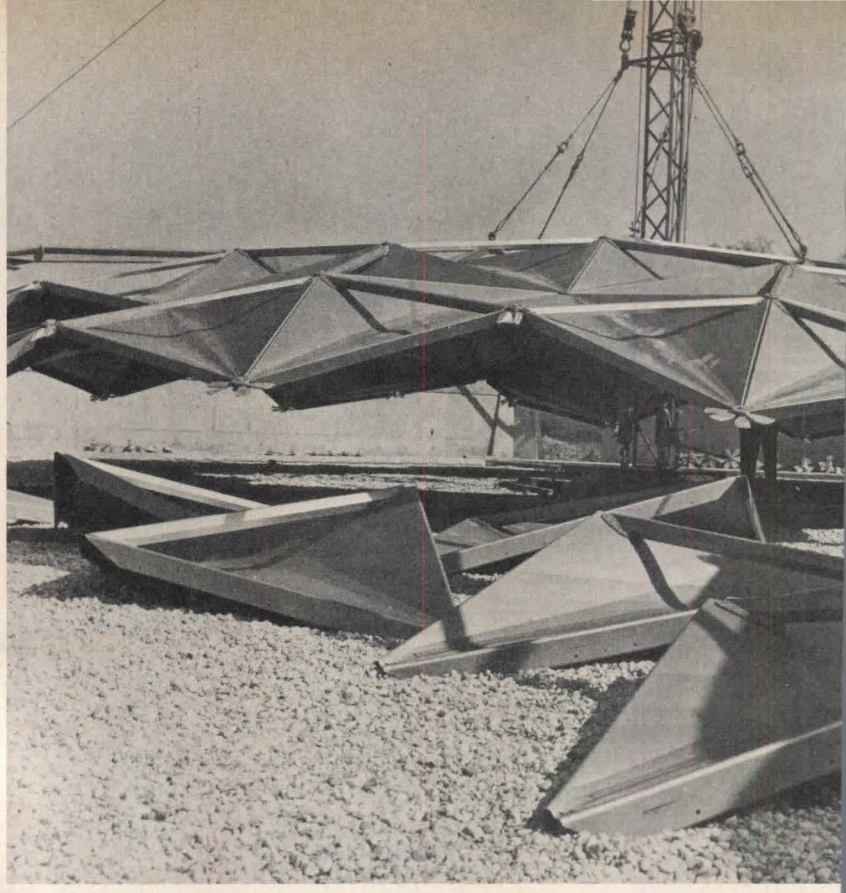
Although estimates projected little difference in price between one large dome and five small ones, the price of $25.20 per sq ft is about $10 below a comparable building of conventional construction built for the county on the same site. Greatest savings were in labor costs — a crew of about 10 men erected the domes in 15 working days. A total of 31 working days was required for all dome work, which included erection of tension rings. Construction time for the entire project was eight months.

The all-aluminum system is being manufactured by Temcor, a California firm whose vice-president developed the design (based on Buckminster Fuller geometry) while working with Kaiser Aluminum. The company is franchised by Kaiser and licensed by Fuller, who is on the Temcor board of directors.

1 *Stressed-skin aluminum panels are formed into a concave "V" shape with 14 creases in a precise pattern that gives the panel its structural strength. Their flanged sides are bolted together at the site, and hexagonal aluminum tubes, or struts, attached to give the stability that allows each panel to act as an individual truss.*



FLOOR PLAN



2

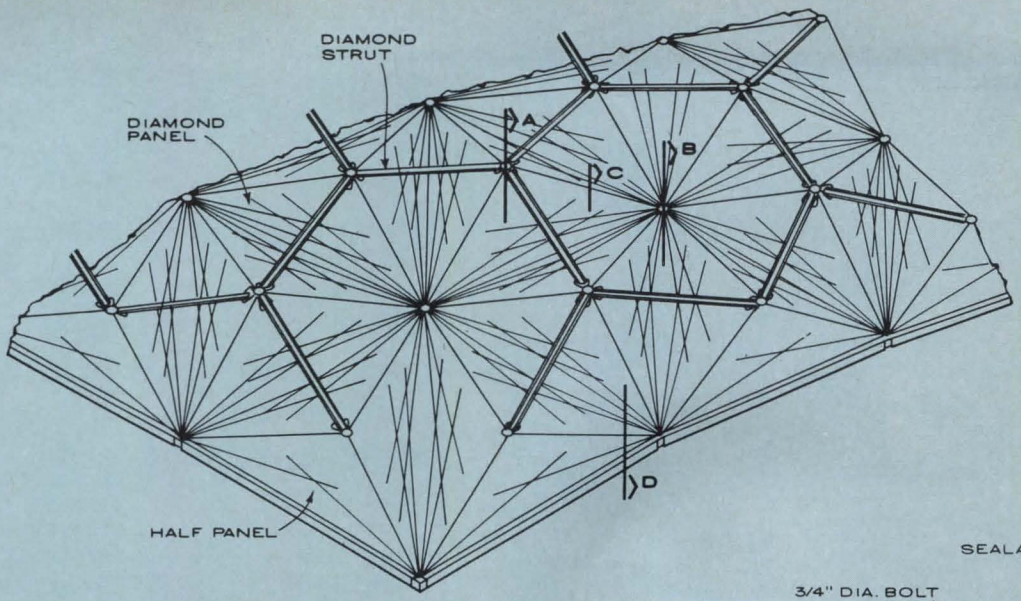
Connectors are of two types. An adjustable three-leaf connection, called a hub, fastens panels together at peaks where struts meet; and a six-leaf gusset fastens corners together in the valleys. All components are aluminum except steel center bolts on hubs and gussets which are covered with a small aluminum cap set in a bed of sealant. Sealant also weatherproofs the domes, filling seams between panel sections.

3

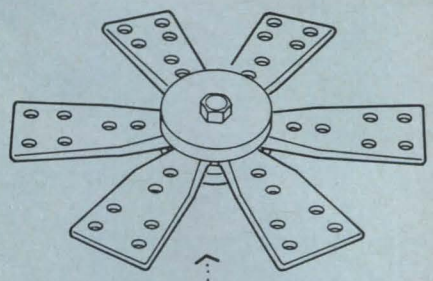
Domes are built on the ground around a grip hoist, then winched into place manually, and fastened to the tension ring. The dome is then completed in place. The steel ring beam is tied across each corner of the hexagon by steel tubes. Attachment of dome to ring beam at corners and at three points on each side of the hexagonal figure is by special struts concealed on the underside of perimeter panels. Open spaces around the perimeter of the domes are closed by half panels or air vents.

4

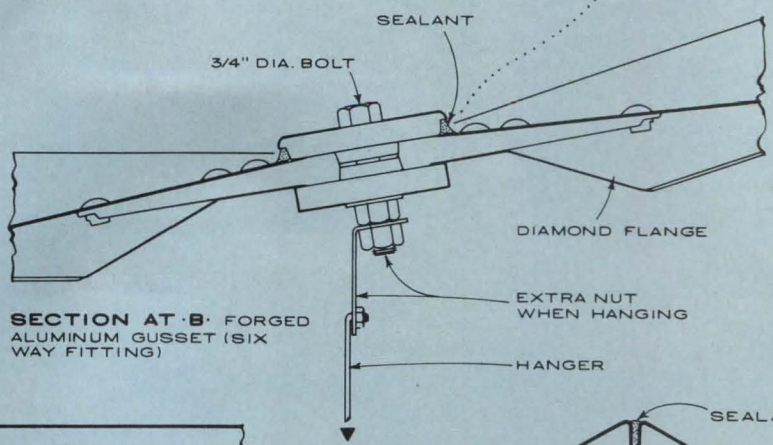
Completed complex. Panel finish is anodized gold, and light masts rise from the center of each dome. The underside of the dome was left exposed on some of the larger interior spaces, but closed off by a ceiling over smaller offices. Thermal and acoustic insulation is sprayed-on asbestos.



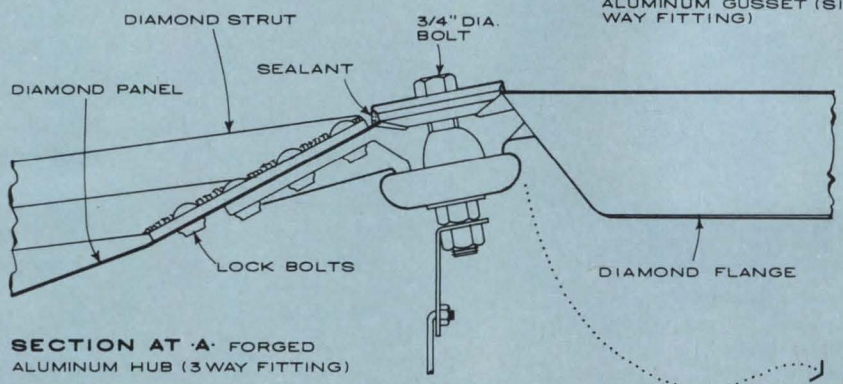
PARTIAL VIEW OF DOME



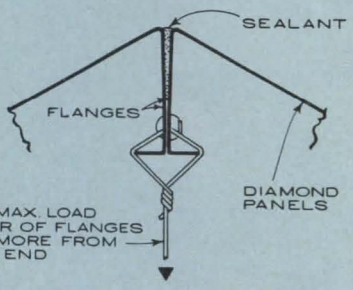
TYPICAL GUSSET



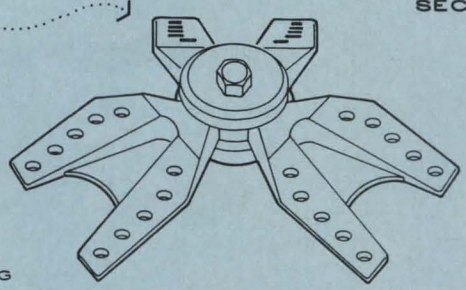
SECTION AT ·B· FORGED ALUMINUM GUSSET (SIX WAY FITTING)



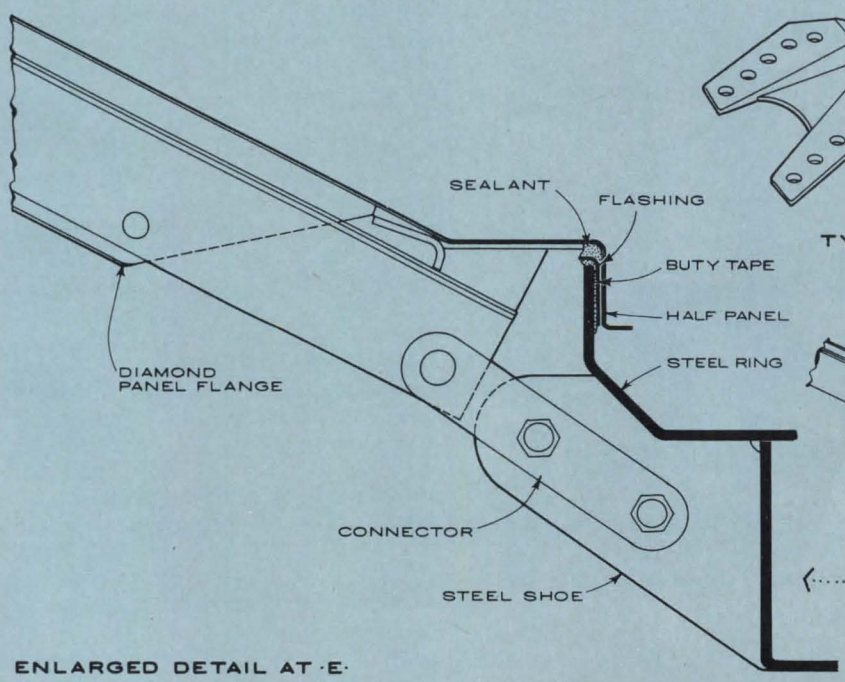
SECTION AT ·A· FORGED ALUMINUM HUB (3 WAY FITTING)



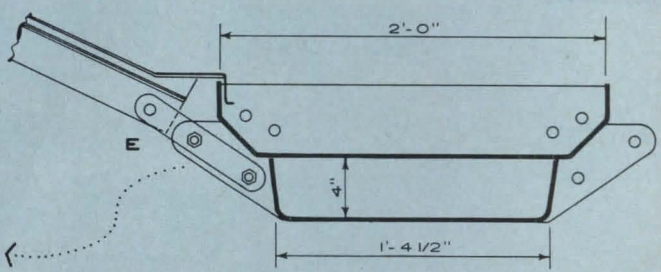
SECTION AT ·C·



TYPICAL HUB



ENLARGED DETAIL AT ·E·



SECTION AT ·D·

GARAGE SPANS DICTATE OFFICE DESIGN

Office buildings accommodate more cars in basements by using longer spans at economical costs.

In order to gain additional space in the basements of four office buildings in Washington, D.C., a parking garage concern took two unusual steps. First, it became a building owner so that it could have basements designed to accommodate 20 per cent more cars; then, it became a general contractor because it could not get sensible bids on the structural system that resulted from the design of its buildings.

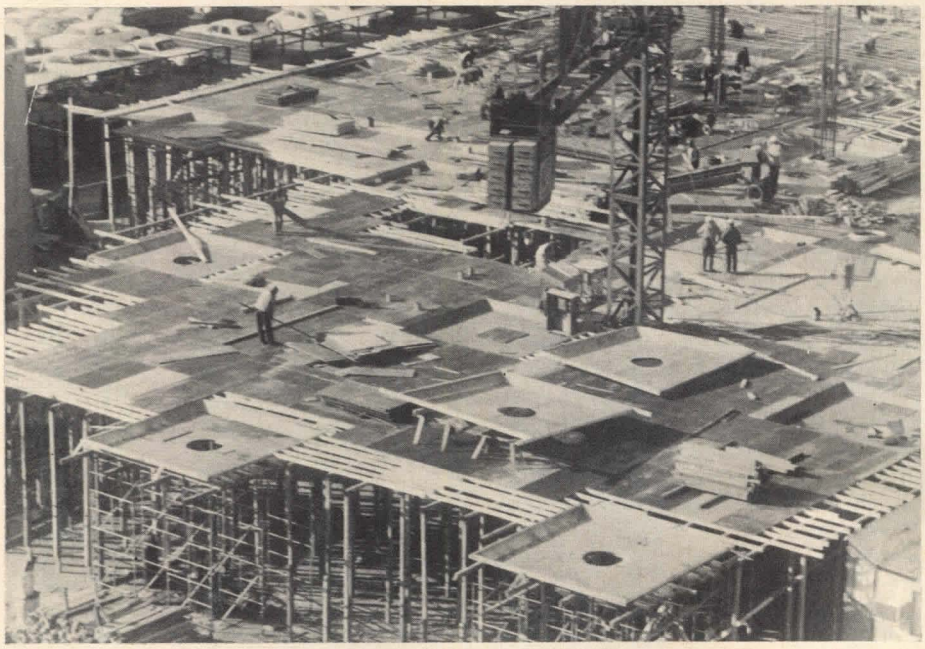
These two moves, which are akin to a tail wagging a dog, appear to be profitable on four 12-story buildings that the owner, Parking Management, Inc., had designed with spans ranging between 34 ft and 55 ft. Site conditions influenced the choice of span, but the designers aimed to reduce the columns to a minimum without raising the over-all construction cost excessively.

Also governing the design was the desire to accommodate 10 floors and two penthouses within the 110-ft height limit of Washington zoning ordinances. For this, T.Y. Lin & Associates of New York City developed post-tensioned concrete structures that could span up to 55 ft without encroaching on the available headroom. More important, however, the system added only 25¢ per sq ft (on the average) to the cost of the superstructures.

To hold down the cost, PMI turned contractor after four Washington contractors bid on the first building. Up to bid time, the architect, Weihe, Black & Kerr of Washington, the owner, and the engineer were confident of an economical design for the 34-ft span structure. But with a 20 per cent spread among bids, all of which were considerably above the engineer's estimate, PMI considered doing the job itself.

One reason for the high bidding is that Washington area contractors had had little experience with post-tensioned construction. The owner could have reopened the plans to more experienced contractors from other areas, but this would not have guaranteed lower bids, and would also delay construction.

PMI was not without contracting ex-



perience, for it had worked previously with steel. This, however, was its first concrete job, and it built all the structural work except stressing the tendons, which it sublet to the supplier, Atlas Prestressing, Van Nuys, Calif. Happily, the completed job came in under the original bid prices, and more to the point, the liaison between engineer and owner resulted in completion of the project six months sooner than time estimates of other contractors. This early completion brought a $500,000 bonus in rents to the owner. PMI reports that, since this venture, Washington contractors have re-evaluated their post-tensioning bidding, and on a recent job eight companies bid close to the engineers' estimate.

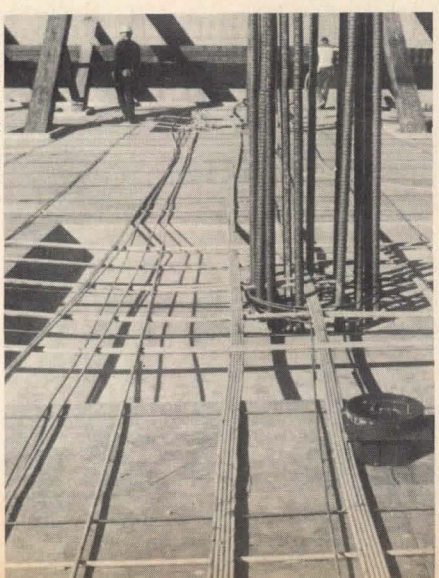
The column spacing of the four buildings is: 34 ft, 41 ft, 55 ft, and 33 ft. The longer span building is framed with concrete beams and slabs, but the others are flat-slab construction. The designers called for 6-in.-deep slabs for the 34-ft spans, and 8-in. slabs for the 41-ft spans. Both systems increase the slab to 10 in. for a 13-ft square around the columns. This enabled ducts and conduits to run within 7 ft of the column centers without passing under the drop panels, where they would lose headroom.

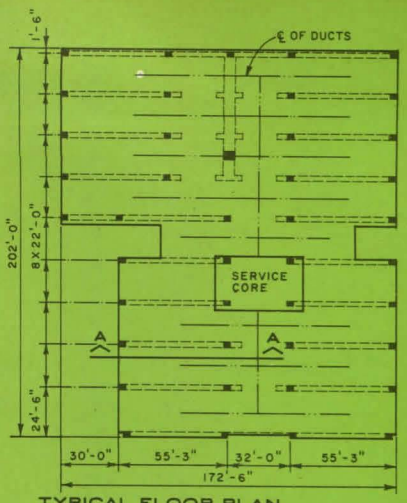
A comparative study of waffle slab floors for the 34-ft spans showed a 16-in. depth, which is 10 in. greater than the flat slab. This increased depth would have meant curtailing one whole floor in order to keep the building under the city height limitation, and would have lost 11 per cent of the office rental income.

The flat slabs on the three buildings were cast with lightweight, 4000-psi concrete post-tensioned after reaching 3000-psi at three days. The contractor-owner found the forming costs cheaper than other floor systems, and the engineer contributed to this by eliminating cambered soffits. In addition to taking care of dead load deflections, the prestressed tendons also made expansion joints unnecessary in a 400-ft-long building.

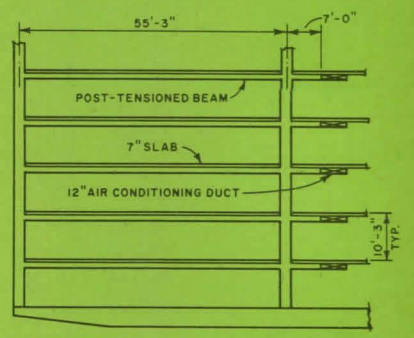
For the larger spans, the engineer extended beams 55 ft between columns and cantilevered them 7 ft into the middle bay to give the same sort of effect as flat slabs where services can be distributed without interfering with beams (see sketch).

Photos: R. L. Wilkinson

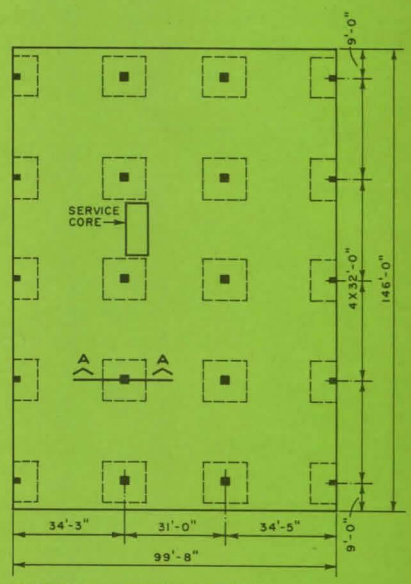




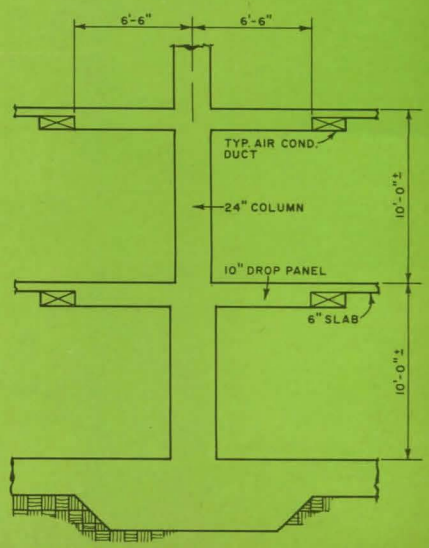
TYPICAL FLOOR PLAN



SECTION A-A



TYPICAL FLOOR PLAN



SECTION A-A

CHEAPER MULTISTORY BUILDING IN SIGHT

Prefabricated concrete systems can replace conventional construction for U.S. public housing, argues the author, and makes a cost comparison of a New York City project to support his belief.

By George Pinter, president of Pinter Contracting Co., Inc., a New York City firm specializing in precast concrete work.

If this country really wants to build sufficient city housing for low-income families, it must create a small technological revolution within the building industry. But unlike most revolutions, this one will have to be led by, instead of run against, the Federal Government. Washington will have to throw its weight behind the adoption of industrialized buildings — a role that should not be difficult for a Government that already spends billions of construction dollars annually.

All that the Government has to do is show the same initiative in research and development for housing the underprivileged that is evident in its highway and dam construction programs. Taxpayers should not object to such a program, since it would lead to a reduction in the cost of public housing.

Washington's role would be to assist in the delicate task of persuading labor unions to handle prefabricated components, updating building codes to accept prefabrication, permitting manufacturers to amortize equipment fast because of obsolescence, and offering prospective projects for companies investing $3 million in a prefabricating plant.

Over There

Articles about multistory industrialized buildings usually read like travel brochures of Europe, since that is where most of the action is. The reasons for this are worth repeating. Faced with an acute shortage of housing after World War II, national governments stepped in to fill the shortage of labor, contracting organizations, equipment and capital. Under these pressures, industrialized housing was created with public assistance to assist the public.

By prefabricating under factory conditions, materials were used economically, men were taught skills less demanding than on-site techniques called for, and construction time was accelerated.

Two types of industrialized systems evolved: open and closed systems. Open systems are familiar in the U.S. construction market. They consist of mass-produced components that can be incorporated in conventionally designed structures or mixed with other open-system components. Among the frequently used components are precast concrete T-beams and precast hollow floor slabs. At present, U.S. industry is ahead of European practices with these types of prefabricated components.

Closed systems were developed from open systems, and show a much more sophisticated approach to building. They comprise all the components required to put a building together, and can be compared to buying buildings in kit form. As an aid to the reduction of site time, a well-designed, closed-system package delivers all the loose components such as pipes, doors, and fixtures to each room before the precast floor slabs close off the walls at each story.

Several hundred proprietary systems compete in the European multistory market. Most are based on the basic framing system of one-way reinforced concrete slabs supported on concrete bearing walls.

Industrialized systems can be built in three ways:

- All components precast as in the Taylor Woodrow-Anglian system widely used all over the world.
- Cast-in-place slabs supported on precast bearing walls. Used in the French-Italian MBM-Balency method.
- Totally site-cast in large prefabricated metal forms. This is more in line with U.S. practices, but may not compete favorably against conventional flat-plate construction.

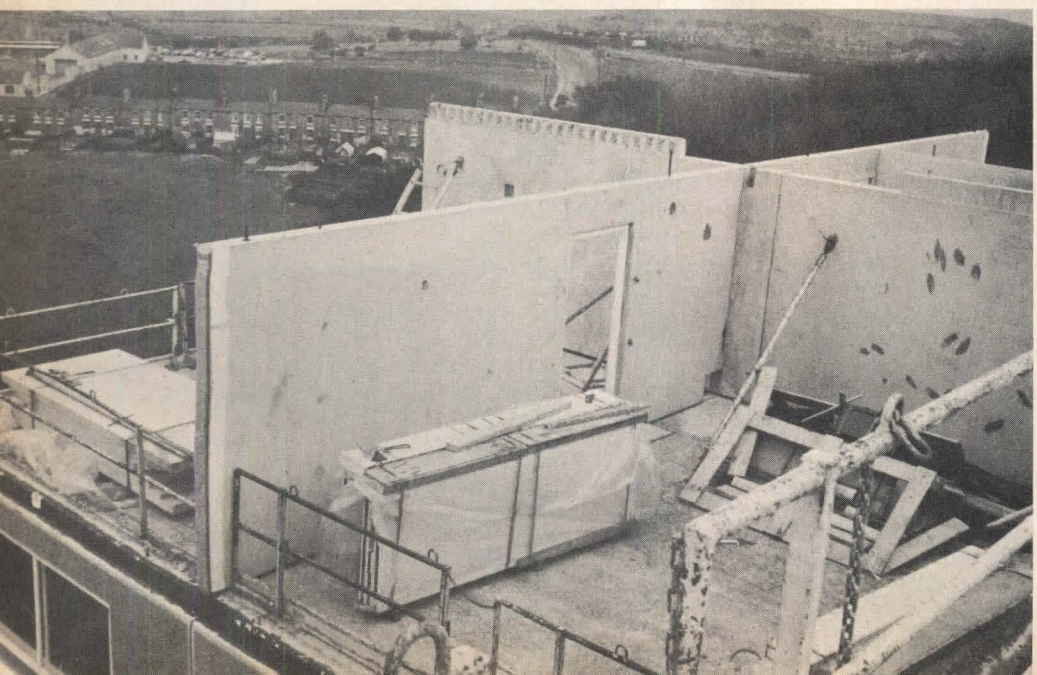
Over Here

None of the attempts to transplant high-rise closed systems to this country succeeded, although few experts would question the economy of industrialized methods, which limit field work to the assembly of plant-produced components. However, the practical difficulties are considerable. Mass production of components involving several trades would be contrary to the make-up of the U.S. construction industry: Work performed by contractors and unions organized by trades would have to be performed in factories by industrial unions. Such drastic overhaul cannot be attempted by individual builders — at least, not in any of the metropolitan regions.

Open systems comprising hollow-core slabs and concrete bearing walls achieved some success here, but are far from being accepted generally, probably because of architectural restrictions and difficult construction details.

Solid-Slab Framing

A fully precast system framed with multispan prestressed solid slabs on concrete



Finishing materials are delivered to rooms before next lift of floor slabs cut off access.

bearing walls is the most practical system for this country. The system is open to maintain separation of trades, but it can be converted to a closed system without significant structural changes by adding industrialized, nonstructural components if and when housing authorities, professions, industry, unions, and the public are ready to accept the concept of factory-made buildings.

The use of 6-in.-thick prestressed, precast slabs spanning over three or more supports is the new feature in this framing. The lightweight concrete slabs are reinforced with wire mesh and ½-in.-dia strands spaced a minimum of 6 in. and a maximum 12 in. apart. At the free ends **(B)**, staggered lugs rest on the walls, with strands extended into the support; 4-in.-dia sleeves over intermediate supports **(C)** receive protruding vertical dowels. Shear keys between adjacent slabs and joints at supports are bonded with mortar.

Precast walls can be designed in plain concrete reinforced only for handling stresses, which are nominal if cast in vertical, battery-type forms. This is standard design practice in Europe, but does not meet the minimum reinforcing steel requirements of American codes. Although the saving is only slight, it deserves our code writers' attention. Dowels protruding beyond the top of walls serve as shear connectors, lifting inserts and setting bolts for the wall above.

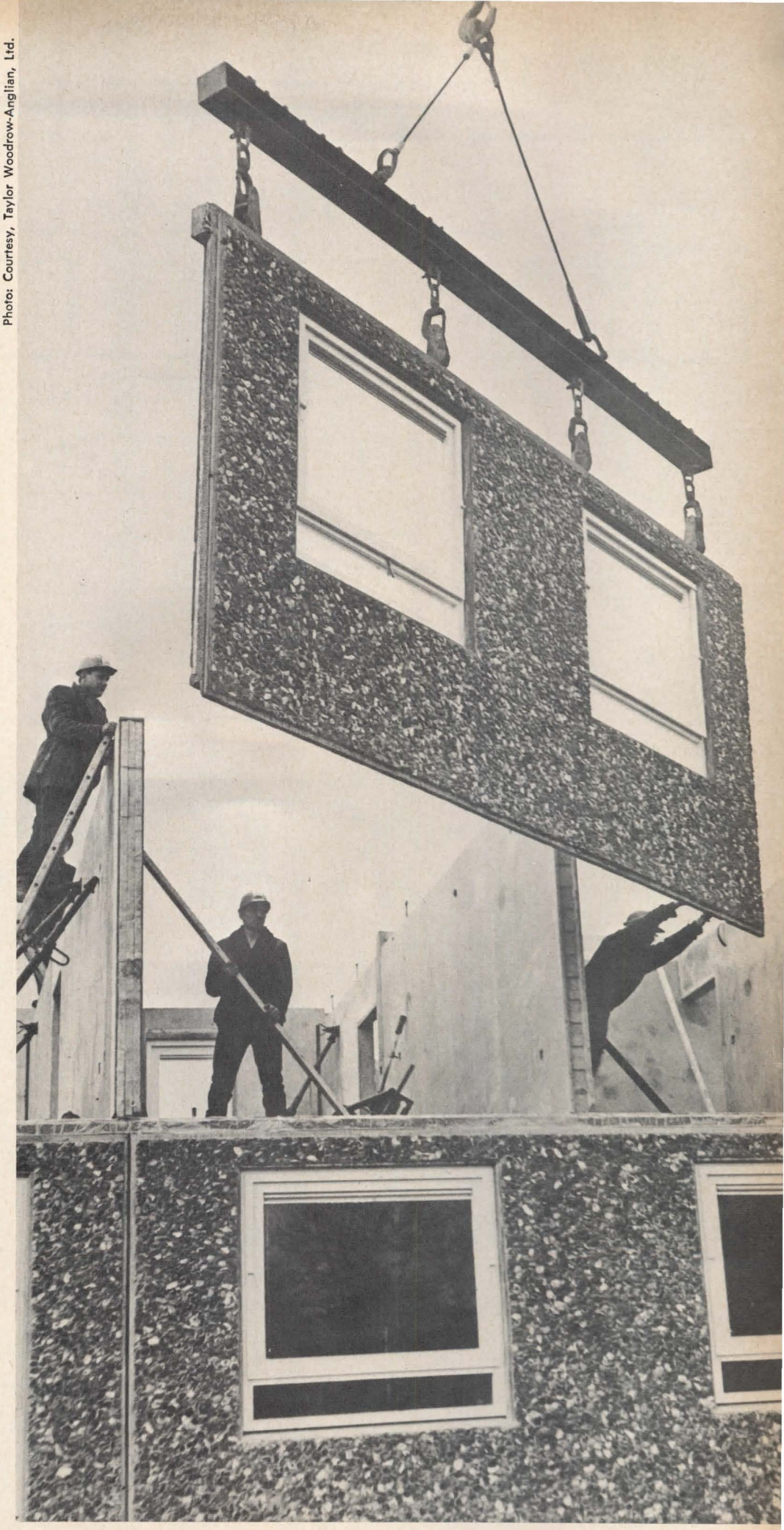
Loadbearing flank walls **(D)** may be solid slabs with calked joints, conventionally furred or faced with prefinished insulated panels on the interior. Nonloadbearing front walls can be built with 100-ft-high precast units bearing on grade beams, or prestressed spandrels with panels between windows **(E)**.

Nonstructural items, except for wiring raceways, are not included in factory-made products in order to maintain separation of trades. Random openings for ducts and pipes are framed out in slabs. Cross walls provide ample stability against wind in the weak direction of the building axis. In the other direction, the stair tower, shear walls, and prestressed spandrel beams stiffen the building.

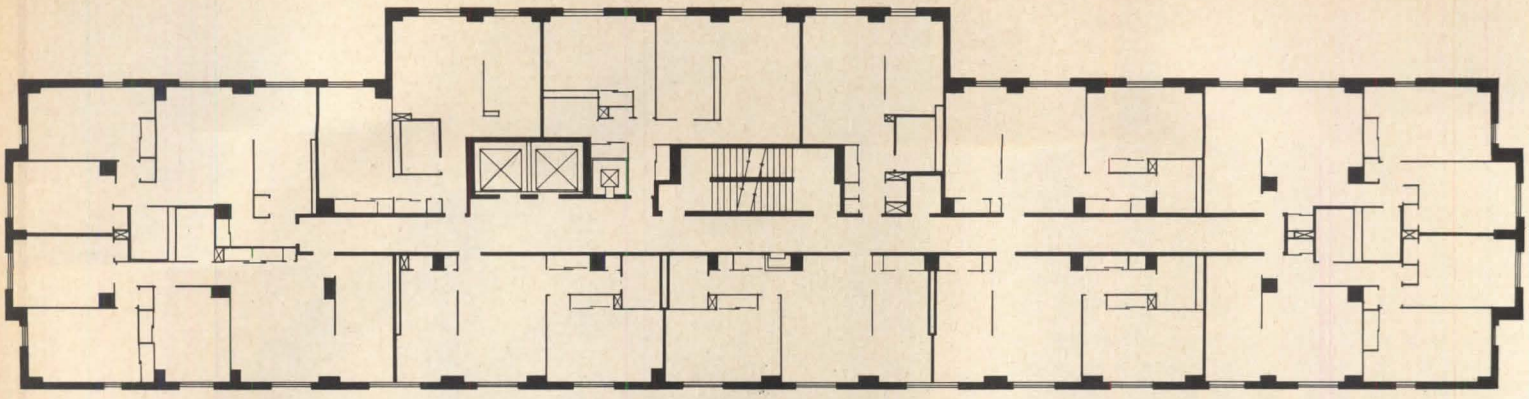
Why It Is Better

The following comparison is based on plans of Holmes Towers, a low-cost hous-

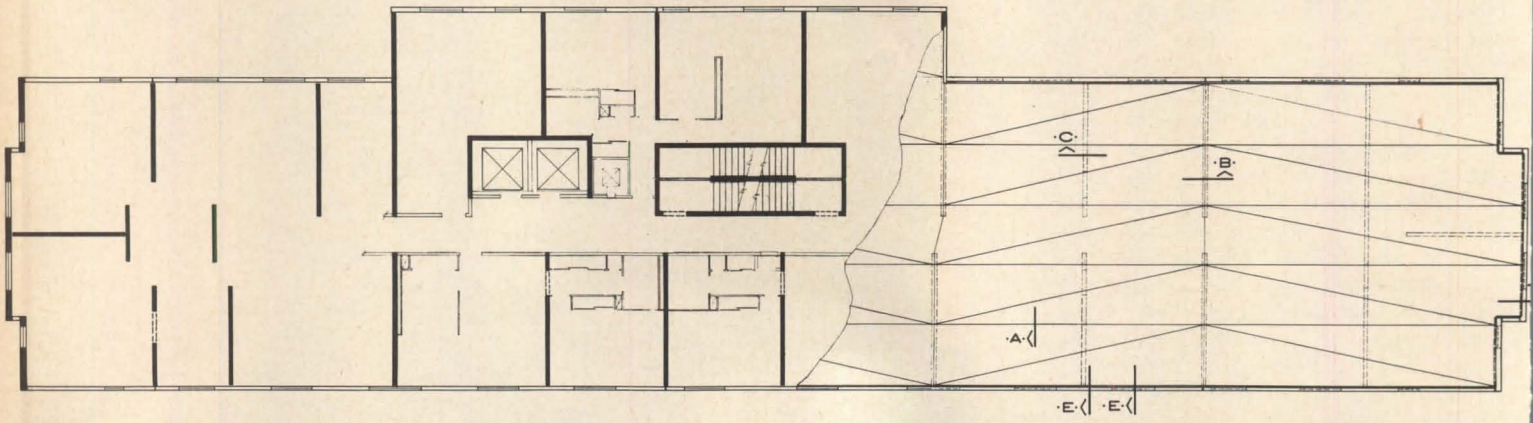
Photo: Courtesy, Taylor Woodrow-Anglian, Ltd.

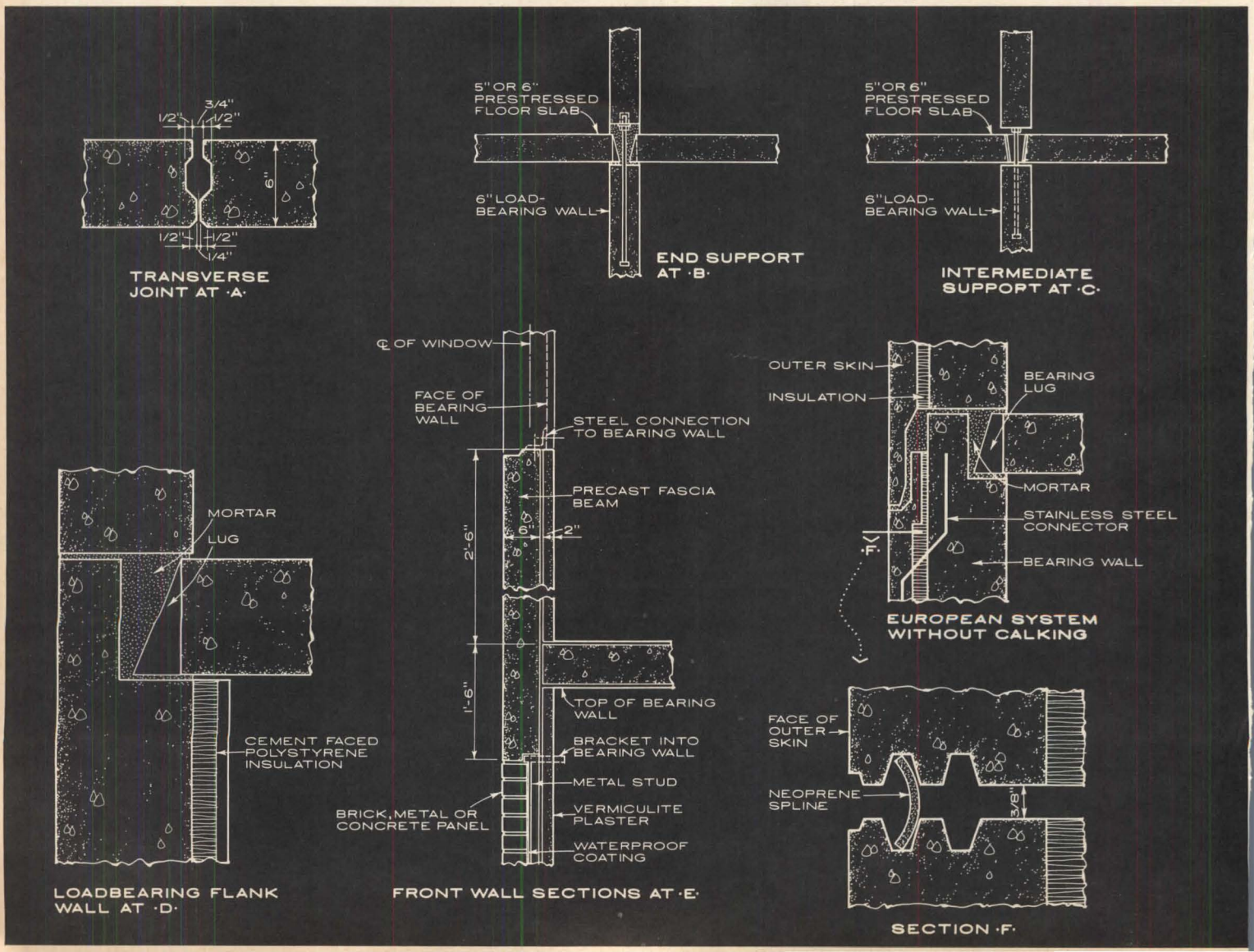


European wall panels butt together without caulking between vertical joints.



Prefabricated loadbearing wall construction (below) can easily be adapted for a New York City low-income housing project (above).





ing project under construction in New York City. The architect, Eggers & Higgins, designed the building with flat plates and columns, but has since found it would not have to make significant alterations to the existing plans to accommodate concrete bearing walls in place of columns.

If Holmes Towers were built with a precast, industrialized system, solid slabs would transmit loads from upper floors into supporting walls over their full bearing area. This differs from cored slabs, where the doubtful bearing value at voids is a touchy detail in high-rise structures.

Dead load deflections and cambers of these prestressed slabs can be kept under control because they are continuous over two spans. Practically level slabs are produced by slightly raising the tensioned strands at intermediate supports, thus preventing slopes adjacent to bearing walls becoming noticeable, as in long simple spans where cambers approach 1 in. Nevertheless, the live load deflections for this building would be well within the allowable limits.

Steps between adjacent slabs can be squeezed out by clamping the panels flush until the mortar hardens in the joints and at the supports. Then floor finishes can be applied directly to trowel-finished slabs. The omission of a mortar topping more than offsets the higher cost of slabs.

Components for this type of contract could easily be made and handled by a U.S. precasting company, because techniques with lightweight concrete and pretensioning are more advanced here than abroad. Slabs may be cast on site, or in a plant, without a sizable central investment. Walls, which usually are cast abroad in vertical battery type molds, may also be cast flat to cut set-up cost. Either way, accuracy required in casting and finishing should not be an excessive burden. Handling of units up to 12 tons is in line with the American trend to cut field costs by decreasing the number of pieces to be handled and joined.

Many more aspects would have to be considered, such as added weight on foundations, better sound insulation between apartments, reduction of field construction time, loss of floor area occupied by bearing walls, which may be offset by the absence of column corners protruding in rooms. Only time and experience on an actual project will tell the full story.

Some of the details presented above were adapted from time-tested European standards, many from the Taylor Woodrow-Anglian system. The writer wishes to thank Carmelo Marullo, housing expert at Eggers & Higgins, for architectural advice, and Howard Lewis for structural help.

Prestressed 6-in. Solid Slabs on Precast Bearing Walls

Item	Unit	Quantity	Unit Price	Total	Unit Price Per Gross Sq Ft
Slabs	sq ft	8000	(a) $1.50 (b) 0.50	$12,000.00 4,000.00	$1.94
Interior bearing walls (7½-in. aver.)	sq ft	3860	(a) 1.90 (b) 0.60	7,334.00 2,316.00	1.17
Loadbearing flank walls	sq ft	824	(a) 2.50 (b) 1.00	2,060.00 824.00	0.35
Finished insulated panels			0.50	412.00	0.05
Stair, elevator	L.S.	add	—	500.00	0.06
Front walls spandrel, 4-ft high	sq ft	1544	(a) 2.50 (b) 1.00	3,860.00 1,544.00	0.66
Face brick and coating (4½-ft high)	sq ft	1737	2.10	3,648.00	0.44
Metal studs (4½-ft high)	sq ft	3281	0.20	656.00	0.08
Vermiculite-plaster or lath (8-ft high)	sq ft	3281	0.55	1,805.00	0.22
			TOTAL	$40,959.00	$4.97

(a) Delivered
(b) Erection and jointing
Cost comparison based on typical floor of 25-story Holmes Towers apartments. The gross area is 8249 sq ft.

Flat-plate Framing, With 4-in. Brick and 4-in. Block Cavity Walls:

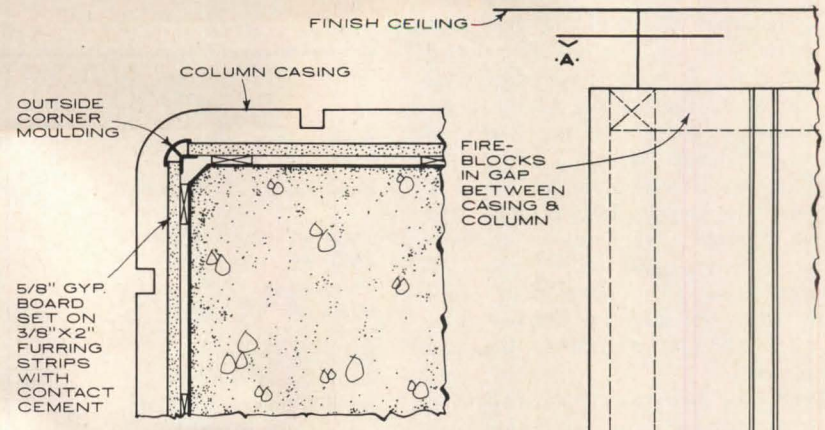
Item	Unit	Quantity	Unit Price	Total	Unit Price Per Gross Sq Ft
Concrete	cu yd	220	$90.00	$19,800.00	$2.40
Reinforcement	lb	40,000	0.18	7,200.00	0.87
Electrical and inserts	L.S.	—	—	400.00	0.05
Exterior walls*	sq ft	4,100	3.50	14,350.00	1.74
6-in. block partition**	sq ft	680	1.40	952.00	0.12
Plaster partition**	sq ft	2,900	1.10	3,190.00	0.39
			TOTAL	$45,892.00	$5.57

* Including relieving angles, flashing, and plaster.
** Only partitions displaced by precast bearing walls.

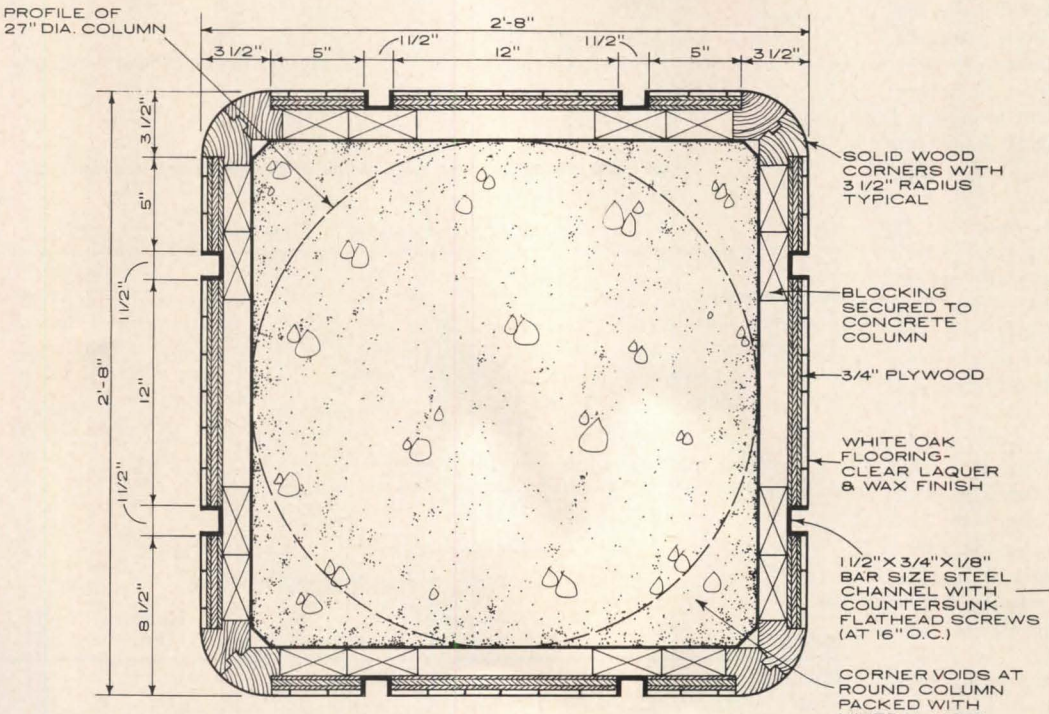
Prefabricated Housing Systems

Item	Taylor Woodrow -Anglian	Balency-MBM	Hollow Core	Proposed
Market	Abroad	Abroad	U.S.	U.S.
Type of system	Closed	Closed	Open	Open
Type of structure	Bearing wall	Bearing wall	Bearing wall	Bearing wall
Type of support	Cross wall	Cross and long wall	Cross wall	Cross wall
Structural material	Reinforced concrete	Reinforced concrete	Reinforced concrete and prestressed concrete	Reinforced concrete and prestressed concrete
Slab	Precast reinforced	Cast-in-place reinforced	Precast prestressed	Precast prestressed
Type	Hollow core	Solid	Hollow core	Solid
Topping	—	—	1 in.	—
Bearing wall	Precast reinforced	Precast reinforced	Precast reinforced	Precast reinforced
Spacing	Up to 18 ft	Up to 18 ft	32 ft	Up to 24 ft
Thickness	6 in.–8 in.	5 in.–8 in.	8 in.–20 in.	5 in.–10 in.
Finish	Factory	Plaster	Factory	Factory
Connections	Reinforced concrete	Reinforced concrete	Vertical prestressed	Reinforced concrete
Flank wall	Reinforced concrete	Reinforced concrete	Reinforced concrete	Reinforced concrete and prestressed concrete
Secondary partition	Precast	Precast	Conventional	Conventional
Front wall	Precast reinforced concrete	Precast reinforced concrete	Flexible	Flexible

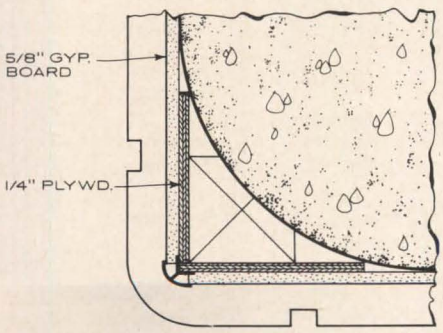
Photo: Roger Sturtevant



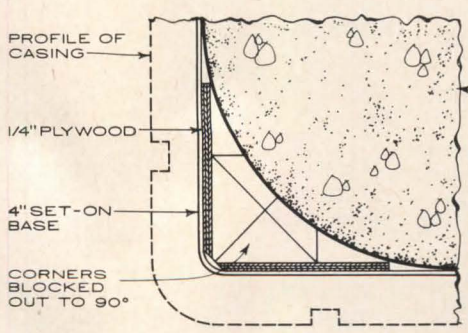
PLAN SEC. AT ·A·
(SQUARE COLUMN)



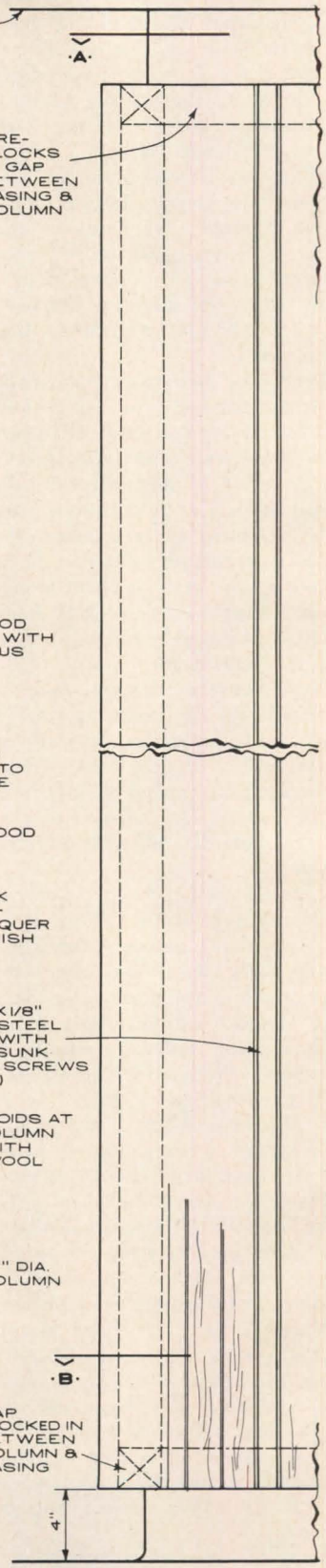
PLAN SECTION (SQUARE COLUMN)



PLAN SEC. AT ·A·
(ROUND COLUMN)



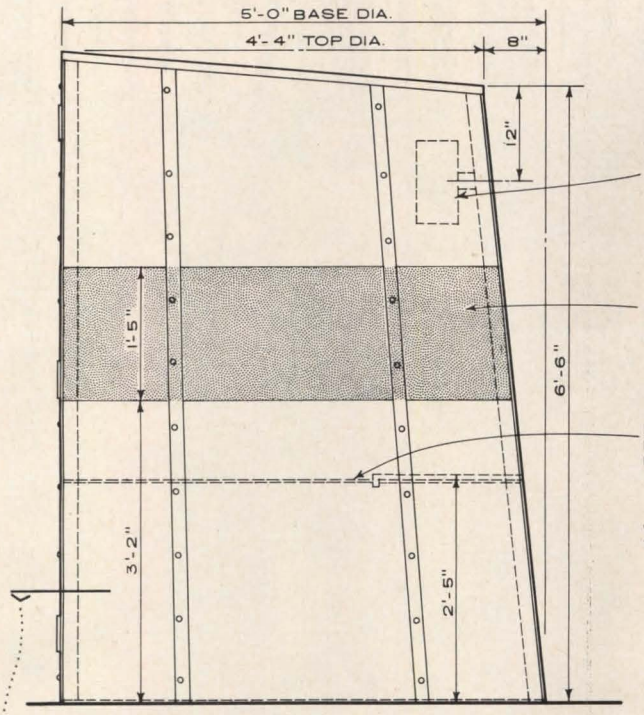
PLAN SEC. AT ·B·



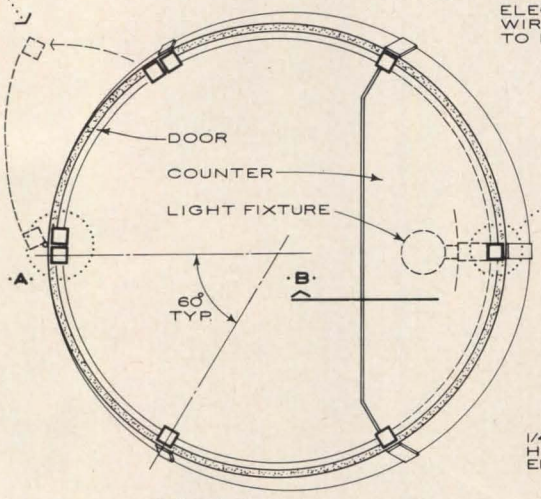
PARTIAL TYP. ELEV.
(ROUND & SQUARE)

BANK OF AMERICA: Oakland, California
LEE AND ROBERSON: Architects

SELECTED DETAIL
COLUMN COVER



ELEVATION



PLAN SECTION

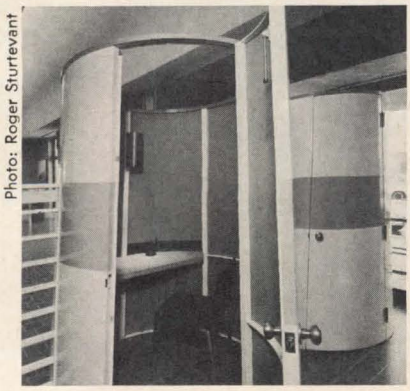
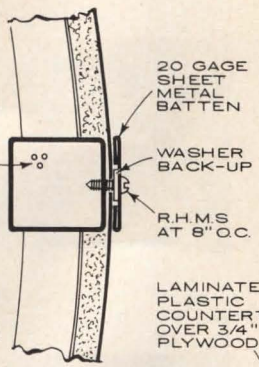
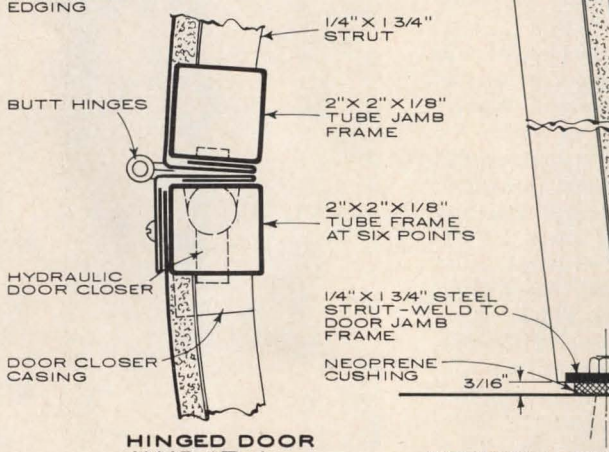


Photo: Roger Sturtevant

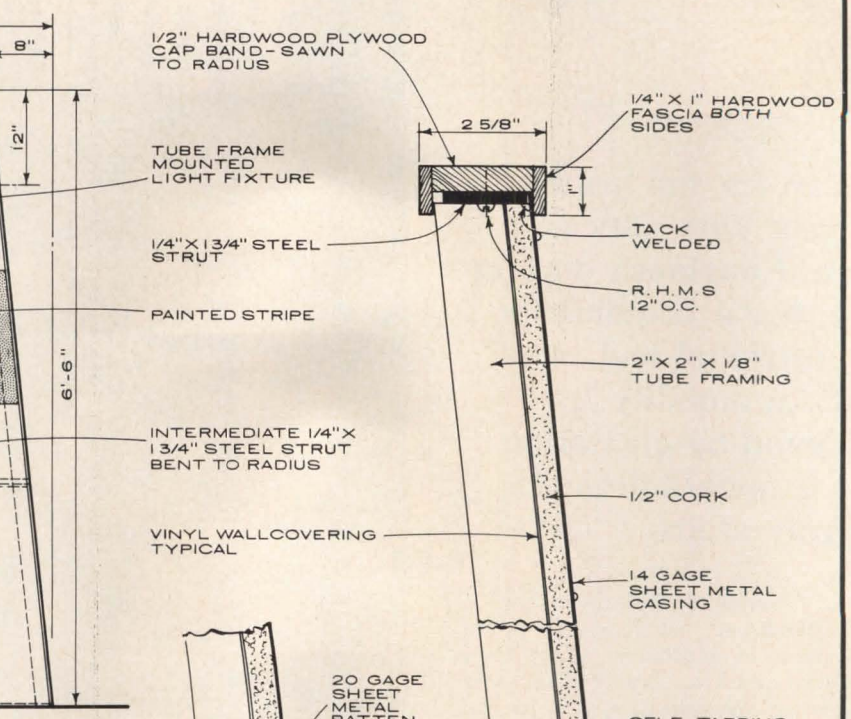


TYP. FRAME DETAIL



HINGED DOOR JAMB AT ·A·
(LOCKING JAMB SIMILAR)

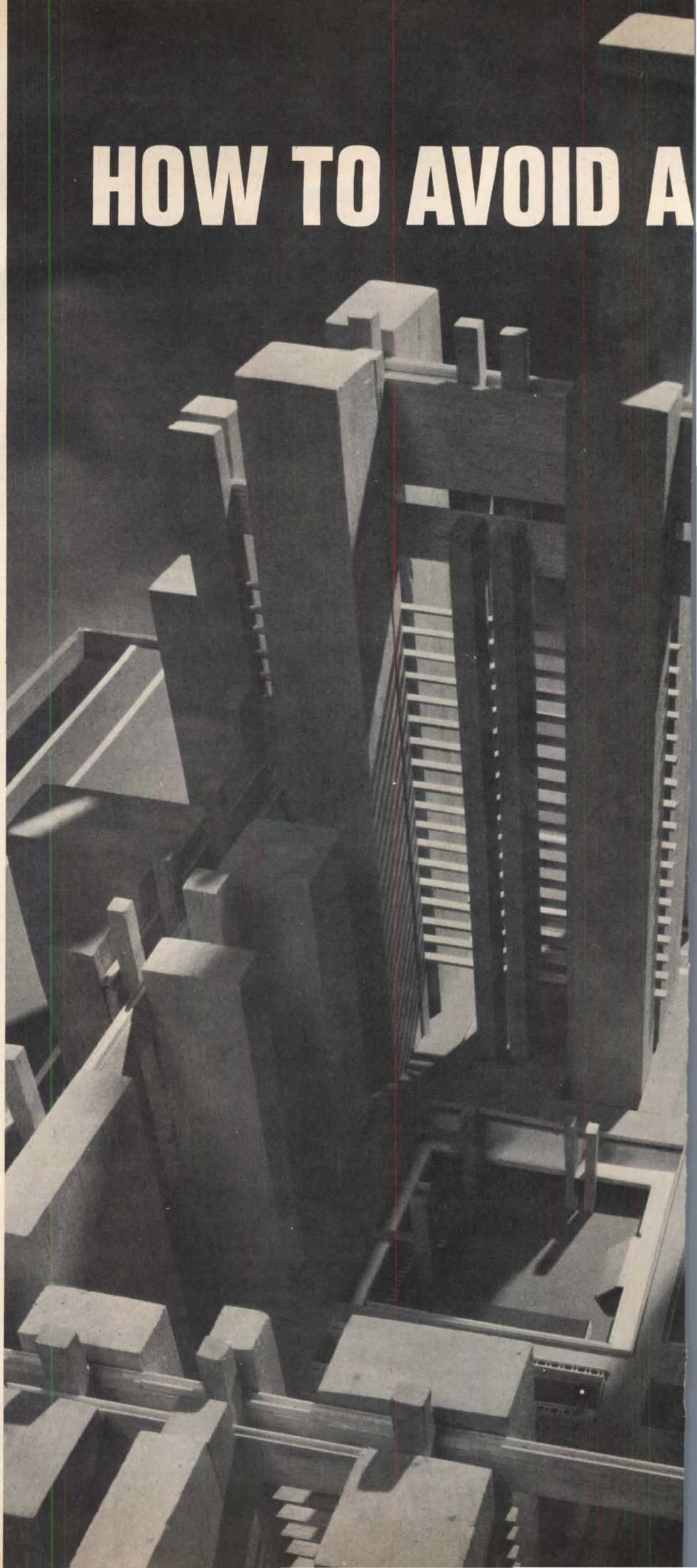
VERTICAL SECTION AT ·B·



BANK OF AMERICA: Oakland, California
LEE AND ROBERSON: Architects

SELECTED DETAIL
COUPON BOOTH

HOW TO AVOID A



A plan for the growth of New York City's central business district stresses a combination of horizontal and vertical mobility achieved by clustering office towers around subway stops.

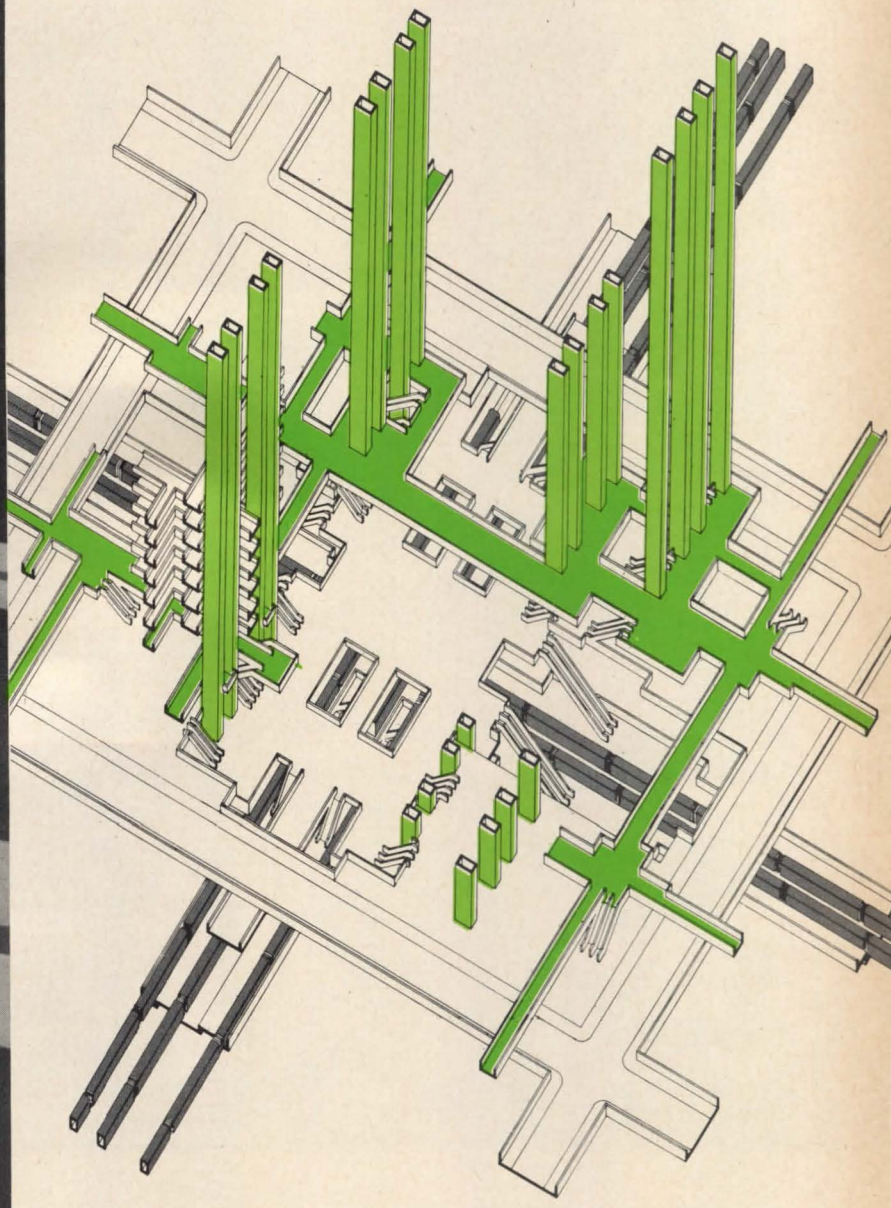
On the fifteenth of this month, a plan will be published that details the future development of Manhattan island from 61st Street south to Battery Park. It is part of the comprehensive plan for the New York metropolitan region, which will appear in its entirety before the end of 1968. Both are the work of the Regional Plan Association, a nonprofit foundation-supported group, which describes itself as "a citizens' organization dedicated to the development of an efficient, attractive, and varied three-state metropolitan region surrounding the Port of New York."

Actually, this is the second plan for the region, and it comes at an amazingly appropriate time. The first one, presented in 1929, outlined much growth that has actually come to pass. The last link in its suggested transit network, for instance, went into place in 1966 with the completion of the Verrazano Narrows Bridge, linking Staten Island and Brooklyn.

Now, the second regional plan steps in to fill a planning gap before it can develop fully. What the regional planners are presenting is really an outline for making Manhattan's central business district a pleasant place to work, freed from much of the crowding, congestion, and confusion that now exist there.

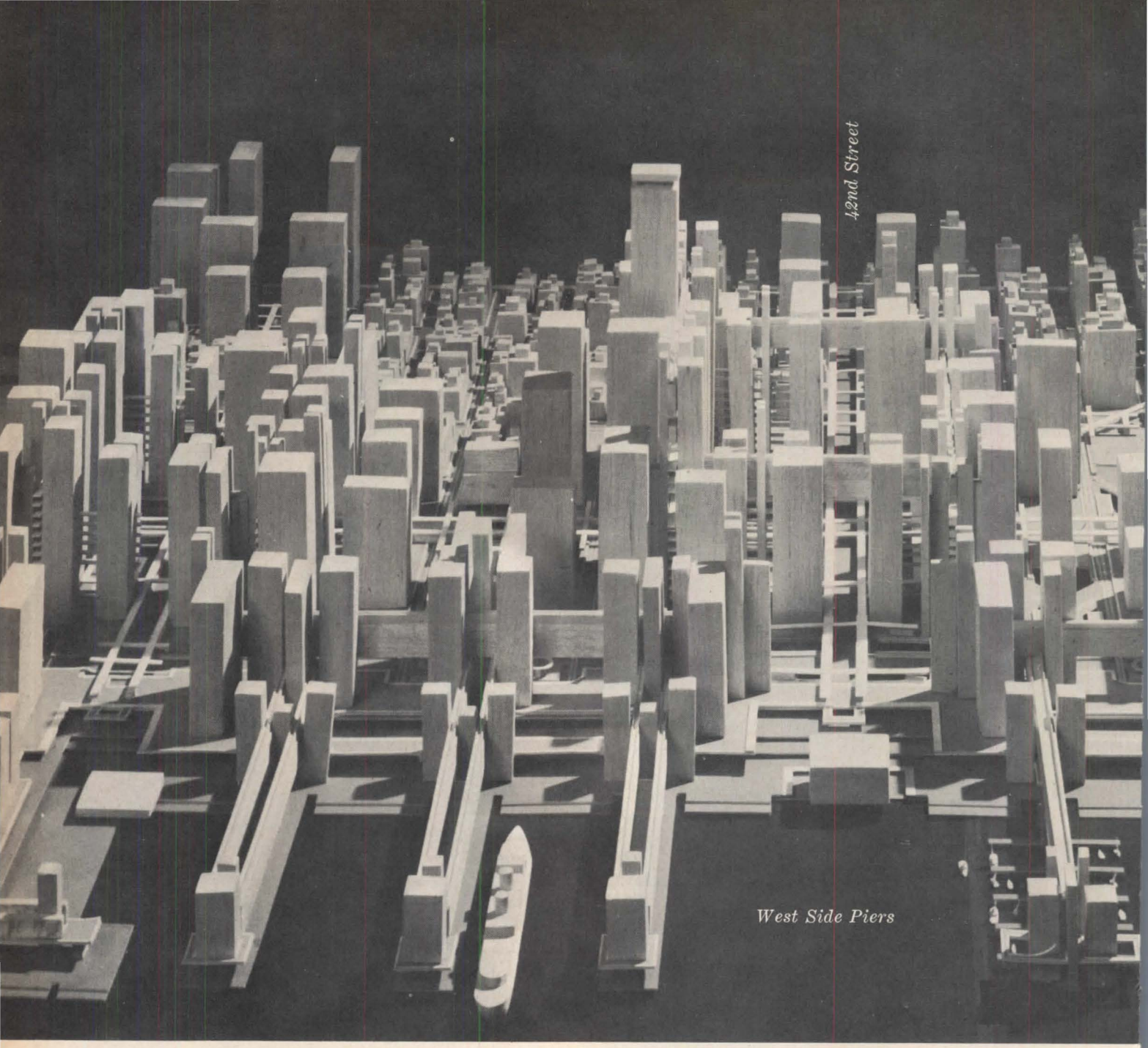
Already, even before publication of *Urban Design Manhattan: the Central Business District,* the city and state announced agreement on some of the subway extensions the plan will call for. The regional planners have been working closely with both state and city agencies, and so far they seem to be in remarkable agreement. Early last month, the state's Metropolitan Commuter Transportation Authority announced plans for a subway on Second Avenue, a cross-town subway on 48th Street, and a spur at 68th Street, diving beneath the East River to connect

SLAB CITY



From Subway to Elevator

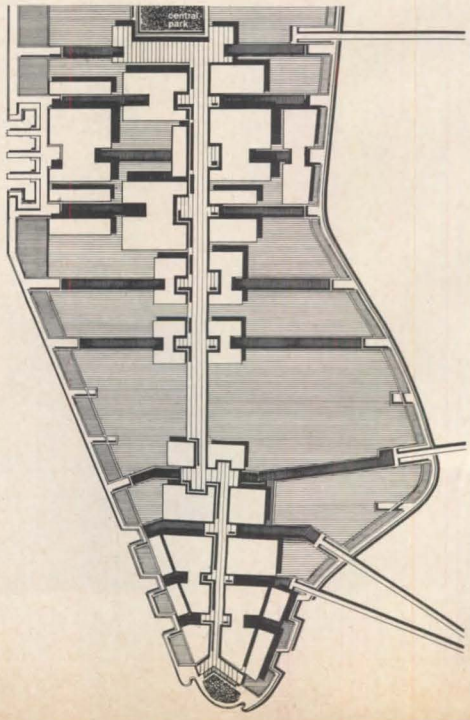
Connections between office building elevators and subways are essential to an orderly growth of New York City's central business district, argue the regional planners. Rush-hour commuters struggle from a subway or train car along a narrow crowded platform, up an interminable flight of steps, out into the rain or snow or sunshine, then walk a block or much more to an office building. Instead, they could move across the narrow platform into a waiting elevator (see isometric, above). Ideally, planners would cluster high-rise office structures around an open plaza. Plaza and all buildings surrounding it would have direct access to subway stop beneath.

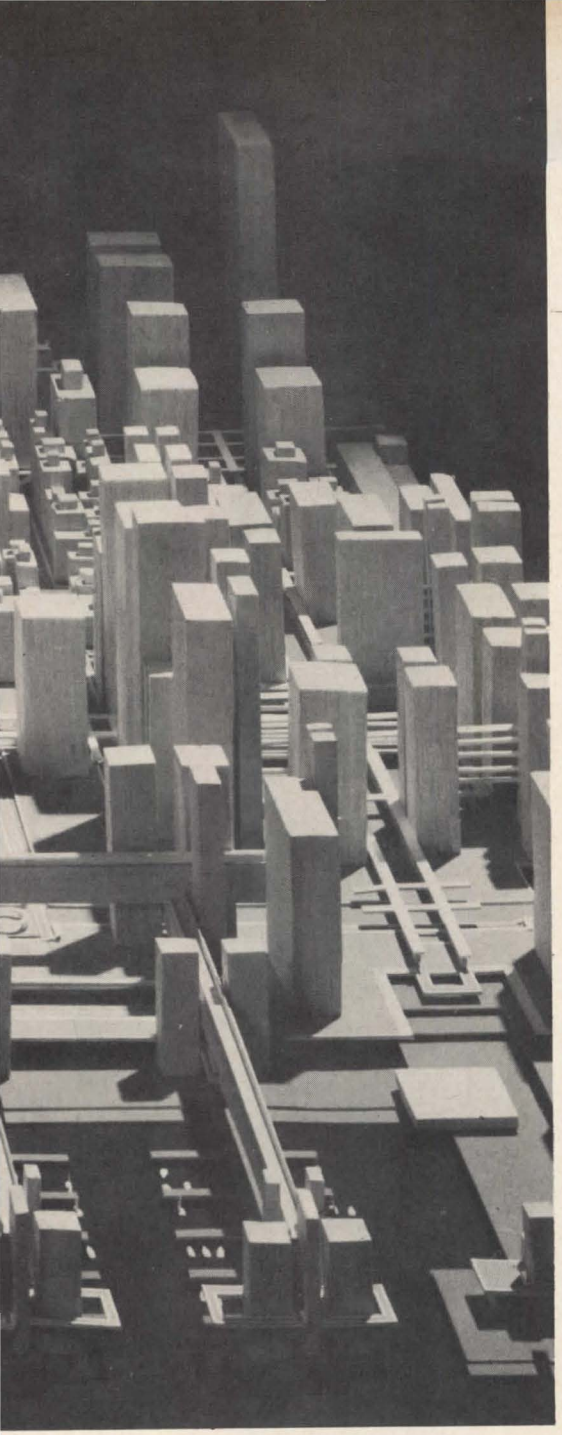


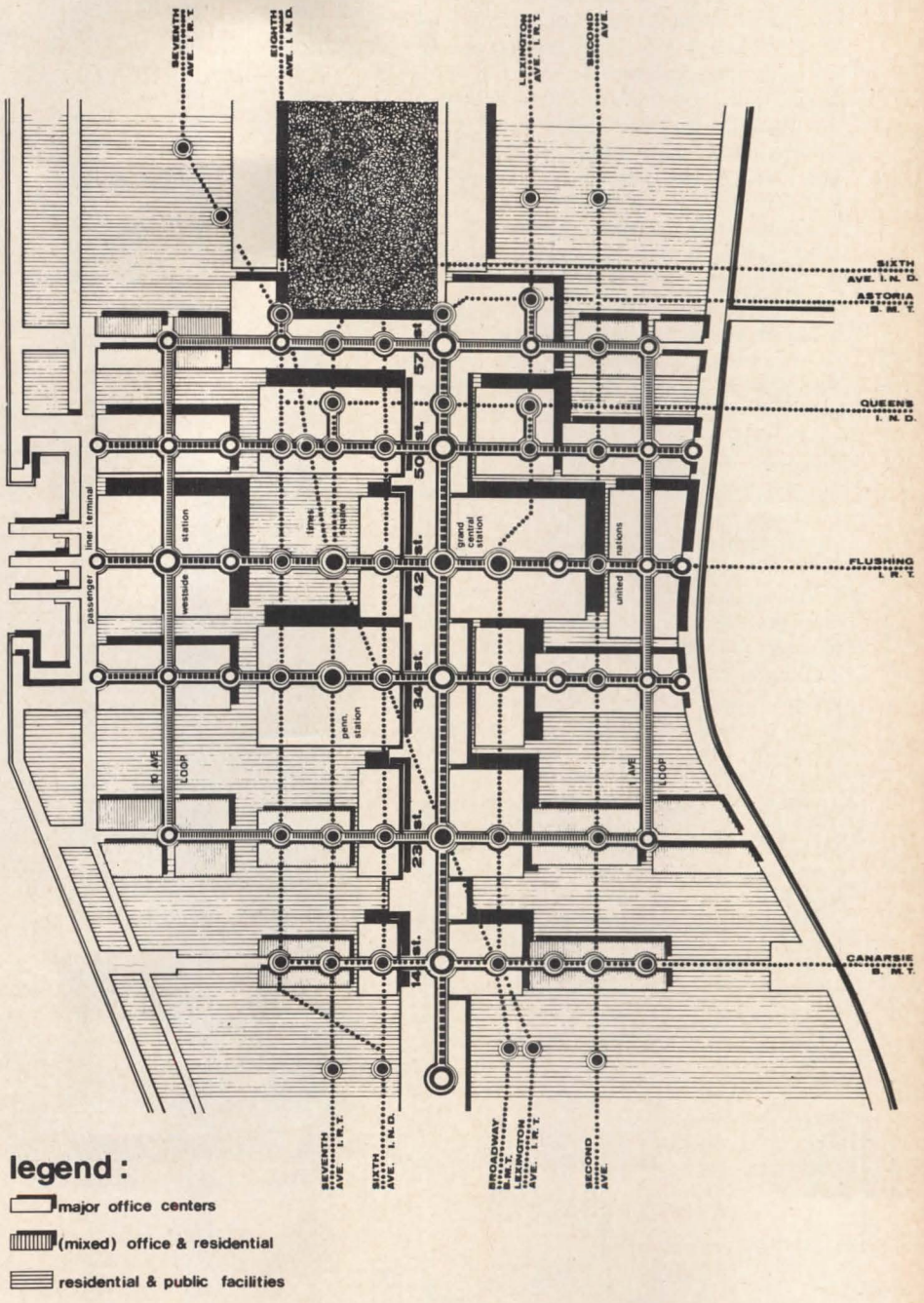
with the Long Island Railroad in Queens. All of these provisions are called for by the regional planners.

For some years, Manhattan has had a transportation imbalance: 70 per cent of the workers in the central business district work east of Fifth Avenue, where they are serviced by 30 per cent of the subway facilities; 30 per cent work on the West Side, serviced by 70 per cent of the subways. Underground transport is the backbone of any central business district as populous as Manhattan's. And, indeed, 77 per cent of all workers in the area commute by underground train. In all, 2,100,000 persons now work in this district, and the number will increase to 2,400,000 by the year 2000. Most of this increase will be in jobs held in office buildings. Planners expect a decline in the total number of manufacturing and wholesaling jobs in the area, offsetting to some extent the total rise in jobs. But the need for office space is going to be monumental.

Where will all these office workers go? Planners estimate a need for an additional 150 million sq ft of office space by the year 2000, an amount that will almost double the 187 million sq ft now in place. How it is arranged will make the difference between Manhattan becoming a truly pleasant place to work, or turning into a totally dismal vault with little light or air, a trap for persons with deadened senses. In all, some 200 additional acres will be needed for office buildings in already crowded Manhattan. Some, if not all, of this acreage will become available as the decline of manufacturing frees portions of the 700 acres it now occupies. The regional planners suggest three basic steps, each dependent on the others, that together can work to







keep Manhattan's central business district from strangulation: (1) more subways; (2) an integration of subways with building elevators, giving passengers the possibility of horizontal and vertical movement with only a few intervening steps; and (3) the clustering of office structures around open plazas at the subway stops. Crosstown subway routes would make it easier to get to East Side offices from the West Side.

Perhaps more importantly, these crosstown routes envisioned at 23rd, 34th, 42nd, and 57 Streets, as well as the 48th Street link already mentioned, would allow office expansion on the West Side. This area is the logical site for office building growth, and although some zoning changes would be necessary, the planners see these as inevitable. Aiding the shift to the west would be an underground rail link between Grand Central

Growth Above the Subway Station

Suggested New York crosstown subways are shown on map above. Planners also suggest an additional East Side subway line on First or Second Avenue. They stress need for office growth clustered around subway stops, and, as shown in drawing (facing page), these new clusters would be mainly west of Fifth Avenue. Such a cluster arrangement provides a maximum of space, light, and air, and visually prevents the drab, slab effect of office structures now prevalent on Park and Third Avenues.

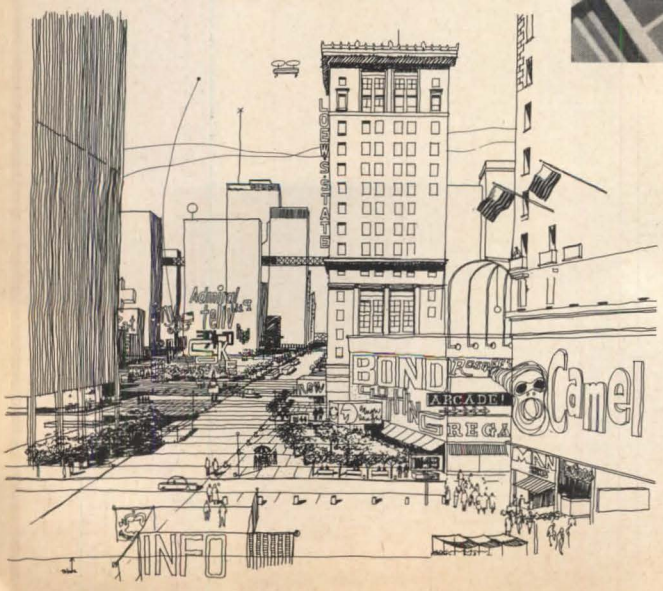
and Pennsylvania Stations. Possibly, the New York Central tracks would continue up the West Side and out of town again to the north. What must be avoided is what the planners call a "slab city"—an unending line of high-rise office buildings marching along the streets and down the avenues. Segments of a slab city now exist in the rows of shining glass and steel on Park and Third Avenues, and the prospect is not appealing. What would be better, say the planners, is a clustering of buildings, as in Rockefeller Center or the Grand Central Station area. Ideally, they suggest clusters of low- and high-rise buildings around central open plazas. Lower buildings would be to the south to let in light and air. And beneath the plaza would be a subway stop, with access directly from the subway into each office building.

Today, with few exceptions, New York buildings wall out the subways. Passengers must walk from the trains, up steps to the street, then to the building entrance. The trip is often blocks, when it could be as short as one from the subway car to train-side elevator, which rises to the building above. The regional planners call their subway elevator link plan an "access trees." The subway lines are the roots, the elevators and corridors in the building above are the trunk and branches, and, we suppose, carrying the image to an extreme, the individual offices are the leaves.

The report puts it succinctly. "We believe that, increasingly, the success of the Manhattan CBD will depend on people's ability to move freely and comfortably within it and to enjoy the experience of being there. That is what this report is all about."

An exhibit of *Urban Design Manhattan*, sponsored by the Architectural League of New York, will be on display at League headquarters, 41 East 65th Street, New York City, from February 20 to March 15, 1968.

Urban Design Manhattan was prepared by the Regional Plan Association under the direction of Rai Y. Okamoto, urban design consultant, with Frank E. Williams, principal urban designer, and Klaus Huboi, urban designer, assisted by Dietrich Kunckel and F. Carlisle Towery.

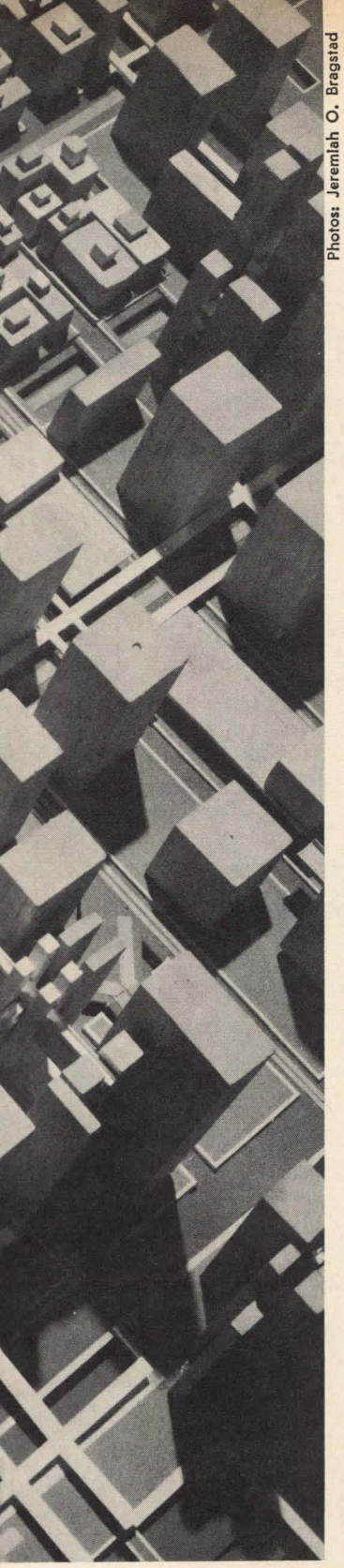


Office Clusters

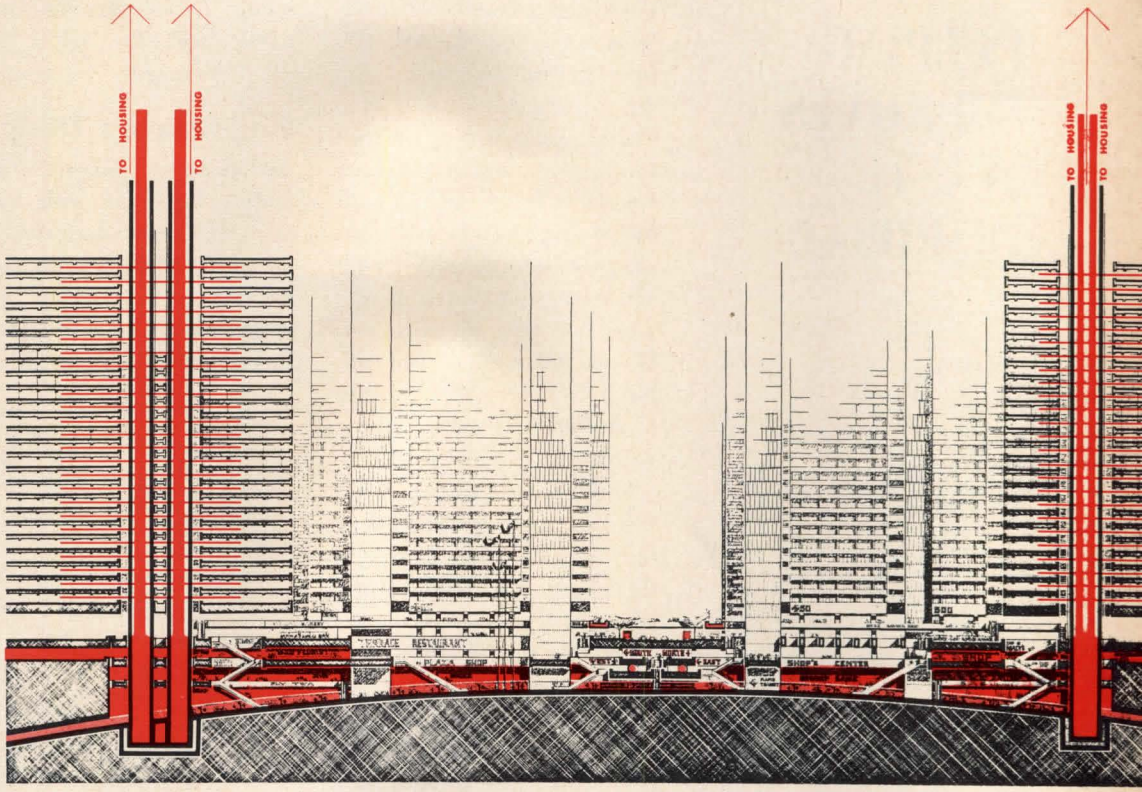
Clusters of office structures around subway stops allows a high-low pattern of growth throughout the city. No one area is all high rise or low rise. Rather, there is a pleasing juxtaposition and intertwining of groups of buildings of different heights.

Broadway Mall

Above-ground transportation could be made to run more smoothly in the Times Square (left) and Herald Square areas by turning Broadway into a pedestrian mall from 23rd Street to 59th Street. Such a mall would also help maintain the recreational character of the area — an atmosphere endangered by a recent zoning proposal that gives builders a space and height bonus if they agree to include a theater in their new office structures. Planners feel that this ordinance, if approved, would hasten the decline of the theater district.



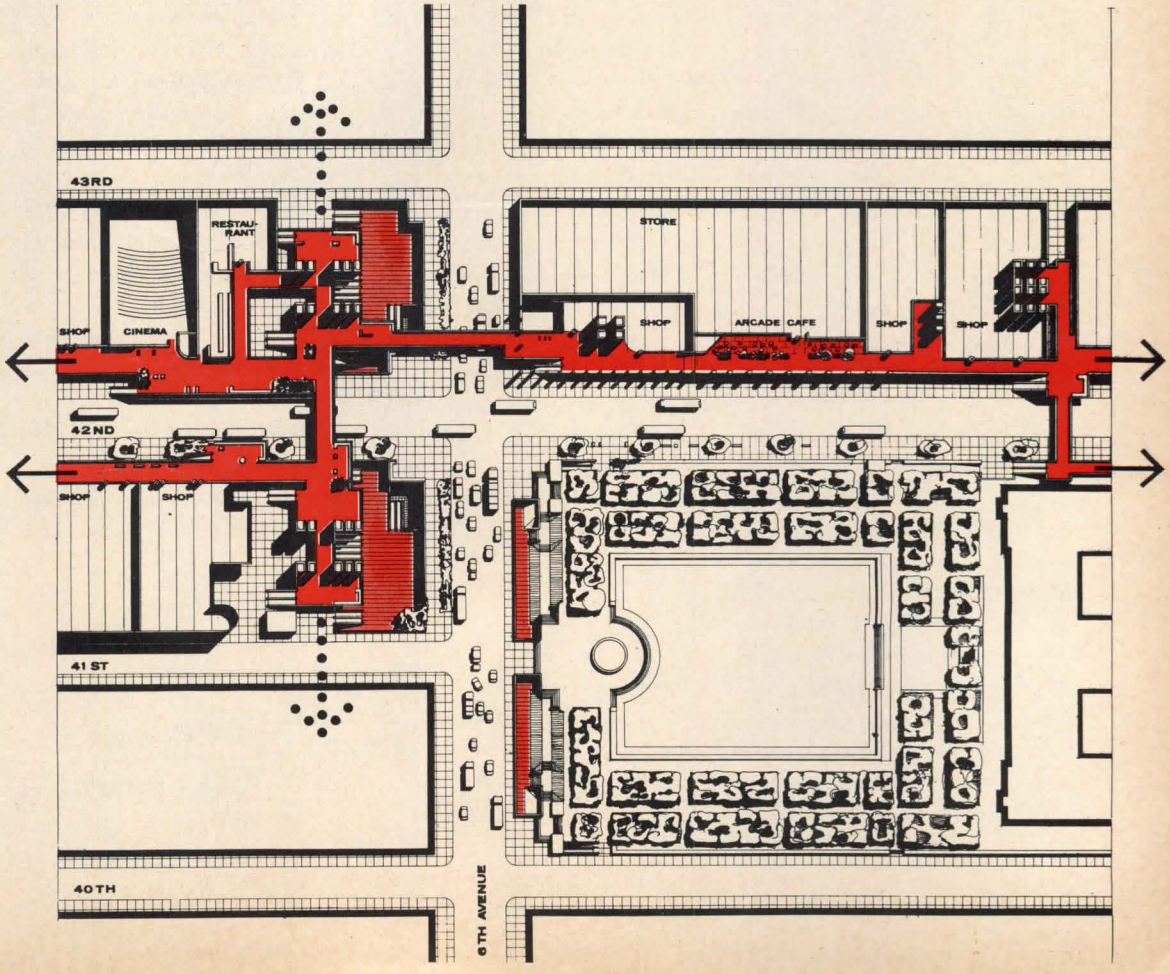
Photos: Jeremiah O. Bragstad



Elevation shows connections between subways and elevators.

The Bryant Park Stop

Site plan of Bryant Park, behind the New York Public Library at 42nd Street and Sixth Avenue, might become an attractive and convenient subway stop. Trains would arrive in an open cut along the west side of the park. Passengers would have access to surrounding buildings by means of an elevated, enclosed walkway, separating pedestrians from street traffic. In addition, they could have direct access to building's elevators from the station.



MECHANICAL ENGINEERING CRITIQUE

PULPING IMPROVES WASTE DISPOSAL

BY WM. J. McGUINNESS

Compressing pulped refuse prevents the pollution associated with incineration, and reduces the bulk of the residual material. McGuinness is a practicing engineer in New York City.

Any process that reduces air pollution and squeezes refuse to one-fifth its normal volume, is bound to find favor with responsible people. One such process that is already in extensive use replaces incinerators and materially reduces the removal and trucking of general wastes.

The waste material is fed into a tank containing water, which is automatically maintained at a constant level. A whirling motion of the water creates a vortex, which draws the material down to a rapidly rotating disc studded with tungsten carbide teeth. The disc grinds the material to a slurry, which is then pumped to a dewatering press. Here, the slurry is squeezed upward by a helical screw and emerges as a semidry pulp about 80 per cent less in volume. It is then trucked away. If used for sanitary land fill, the pulp offers the advantage of greater density than bulkier wastes.

To minimize water consumption, the water squeezed out of the slurry is pumped back to the pulper for re-use. Water, when needed, is added at the pulper.

Nonpulpable objects are distorted and made smaller by the abrasive wheel of the pulper, and then rejected to a bin, which is an integral part of the pulper. Beer cans, for instance, are compressed to the size of a tennis ball.

Three Systems

The principal applications of this method are:

- General waste disposal (see sketch)
- Disposal of discarded materials; food services
- Destruction; confidential documents

Often, several general waste pulpers are engineered to use one dewatering press. Similarly, several food service pulpers may be combined and piped to one press. The slurry from food-handling systems, however, should not be combined in any way with that of general waste systems.

Disposal of documents is required for destroying trading stamp books, parkway toll tickets, and other paper that could improperly be re-used.

Engineering Design

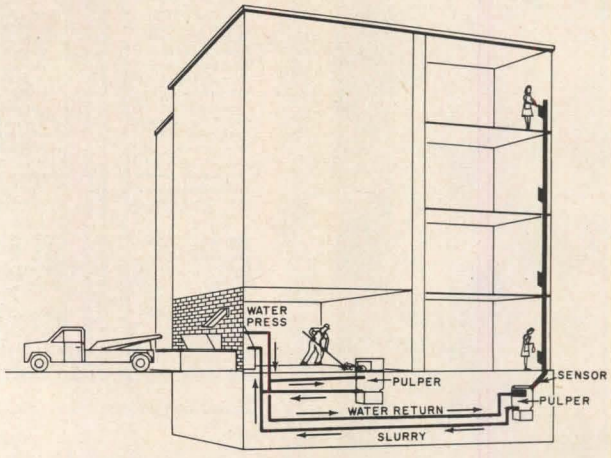
Architects and consulting engineers are faced with some new challenges that can be solved by the experience of manufacturers. Systems can be manual or fully automatic. In the sketch, a sensor at the bottom of the chute can put the pulper into operation for a selected period. Conveyors can transport the pulp to bins or trucks. Crushing machines can further reduce and package the nonpulpable trash.

New and special applications are constantly calling for design variations. For instance, pharmaceutical companies are sometimes faced with the need for total destruction of outdated but potentially harmful products.

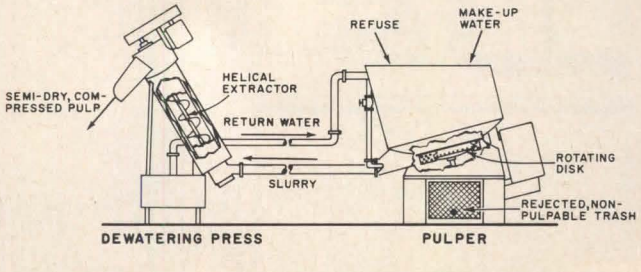
Use and Maintenance

As in all new systems, prescribed methods of operation are subject to study and change. Operators and public users of these systems need to observe care in holding aside some nonpulpable objects, principally large pieces of wood or plastic. This is thought to create no greater problem than disciplines related to incineration and bulk trash handling. Manufacturers will accept maintenance contracts for their equipment.

Cleaner and more odor-free operation are significant characteristics because the refuse has been washed and aerated. Although subject to considerable variation, the equipment and piping can be completely washed about once a week for general waste installations, and washed daily when used in food services.



TYPICAL ARRANGEMENT OF WASTE SYSTEM
SENSOR STARTS AUTOMATIC OPERATION



Public Acceptance

Municipal codes in general are approving these systems in lieu of incineration. Their use in the new Madison Square Garden Sports Arena in New York City, in buildings of the General Services Administration in Washington, D.C., and of the State University of New York, indicates the diversity of acceptance.

Two manufacturing companies, Wascon Systems, Inc., and the Somat Corporation, both of Pennsylvania, contributed information for this article.

urethane in building

MOBAY

MAJOR BENEFITS IN TIME, COST AND EFFICIENCY ATTRIBUTED TO RIGID URETHANE FOAM IN BUILDING HUGE MICHIGAN HIGH SCHOOL

The massive, 7-unit, 2-and-3-level, sprawling, ultra-modern Huron High School in Ann Arbor, Michigan will be a credit to the architects* who designed it, the firm** building it and to the 65,000 taxpayers who will pay for it.

Scheduled for completion this fall in time to accept its 1800 students, the 288,311-sq. ft. complex will occupy a 43.8-acre site and will cost nearly $9 million.

Every one of the 7 units is insulated with slab urethane foam, which was selected over other materials by the architects "because it is an excellent insulating medium; its k factor is outstanding; its water absorption nil, all of which lead directly to a substantial saving in heating costs — always a pertinent factor in a cold-weather city.

"In making the decision to install urethane foam exclusively," explains Keith F. Weiland, AIA, "we were motivated by a number of factors: The U rating, space requirements, handling and shipping costs and over-all economies that could be gained. Urethane scored high on every one of these counts."

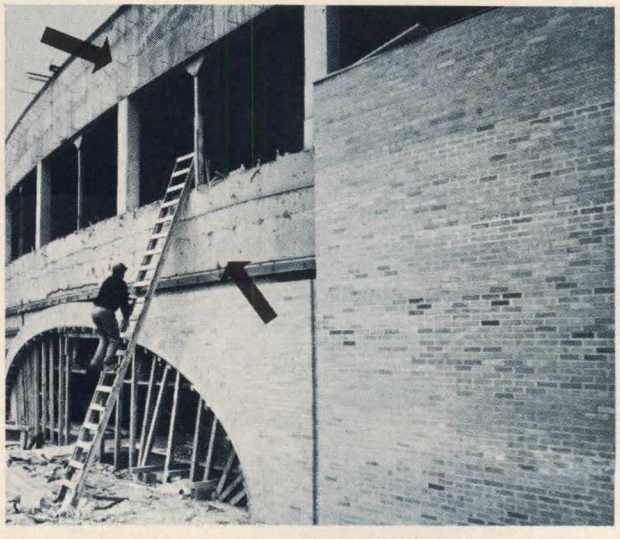
The slab-type urethane foam used in this installation can be easily cut to fit at the job site; it requires no mastic, being held firmly in place by the brick tie strip. Slab urethane is strong and lightweight so one man can easily handle a 16-ft. section.

The buildings are designed so that each unit is an entity; any one can be removed without touching the other. The expansion joint between each unit is formed by two 1″ slabs of rigid urethane which are placed in the concrete form, and cement is then poured on both sides of the foam sections. The urethane provides the correct degree of resiliency to permit adjoining buildings to "move" freely without danger of stress cracking.

"Urethane foam is very easy to work with," says Robert A. Shmina, the contractor's executive vice president. "We can custom cut it to fit any configuration as thin as 1/16″. Urethane is not as bulky as other insulants; it absorbs no water so we are able to order larger quantities without special provisions for storage. On this job, our urethane stock had been exposed to rain, wind and snow for over 5 weeks with no adverse effects whatever. Other materials would have become water-logged or shredded from this abuse.

"It's important that our men like working with urethane foam. It is cleaner and sturdier than other insulating materials we've used, and all they need for fitting is a pocket knife. No other insulating material I know of would have enabled us to set up the expansion joints as we did — a simple technique but a tremendous advantage in time and money," Mr. Shmina said.

Architect: *Lane, Riebe, Weiland, Ann Arbor, Mich. 48108; *Contractor:* **A. Z. Shmina & Sons Co., Dearborn, Mich. 48126; *Urethane Foam Mfr.:* National Gypsum Co., Buffalo, N.Y. 14202; *Foam Fabricator:* Tiffin Enterprise, Inc., Tiffin, Ohio 44883.



Arrows show location of urethane slab sections which are easily applied to the sub-wall without mastic or fasteners.

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SPECIFICATIONS CLINIC

SPECS BY COMPUTER

BY HAROLD J. ROSEN

Computerized spec writing will require master specifications tailored to suit individual offices. Rosen is Chief Specifications Writer for Skidmore, Owings & Merrill, New York City.

Many specifiers first saw the wide potential of computers in specifications writing when they attended the CSI convention in Boston in 1966. Several mechanical devices were demonstrated, including automatic typewriters, xerography, and computers. Since then, photographic processes have also been developed to produce specifications by mechanical methods.

The term "automated" is often used to describe the function of the computers in producing specifications, and some specifiers are concerned with the ultimate possibility of being displaced by this new device.

Since the term "specification writer" does not fully describe the duties and responsibilities of this individual, one is inclined to agree that a device that takes over the laborious preparation for producing specifications must somehow automatically replace him. However, this attitude and concept should be laid to rest now and forever.

To the extent that one can anticipate future developments, it would seem that the talents of the specification writer will be required far more as a material researcher than at present, but far less as a writer, since this task will be performed by the machine. The constant development of man-made products derived through chemistry and metallurgy is placing an increased demand on individuals who are versed in material engineering and research.

The advent of the computer will free these men from the time-consuming task of cutting, clipping, writing, and pasting together a patchwork of specifications paragraphs. The computer has arrived at a propitious moment to take over the task of producing a specification "automatically," and will be used as a tool, not as the decision-maker. The selection process will still be the responsibility of the architect and specifier, and the computer will point out the results of their decisions.

To make the computer operational, a specifier must first develop master specifications for without these, the computer is a useless tool. The ability to prepare master specifications for a computer is the key to its successful operation, and the master must be geared to the practice of the individual office. There is no one master specification that fits the needs of every office. A master must be custom-designed by the specifier for the particular needs, decisions, and practices of his office.

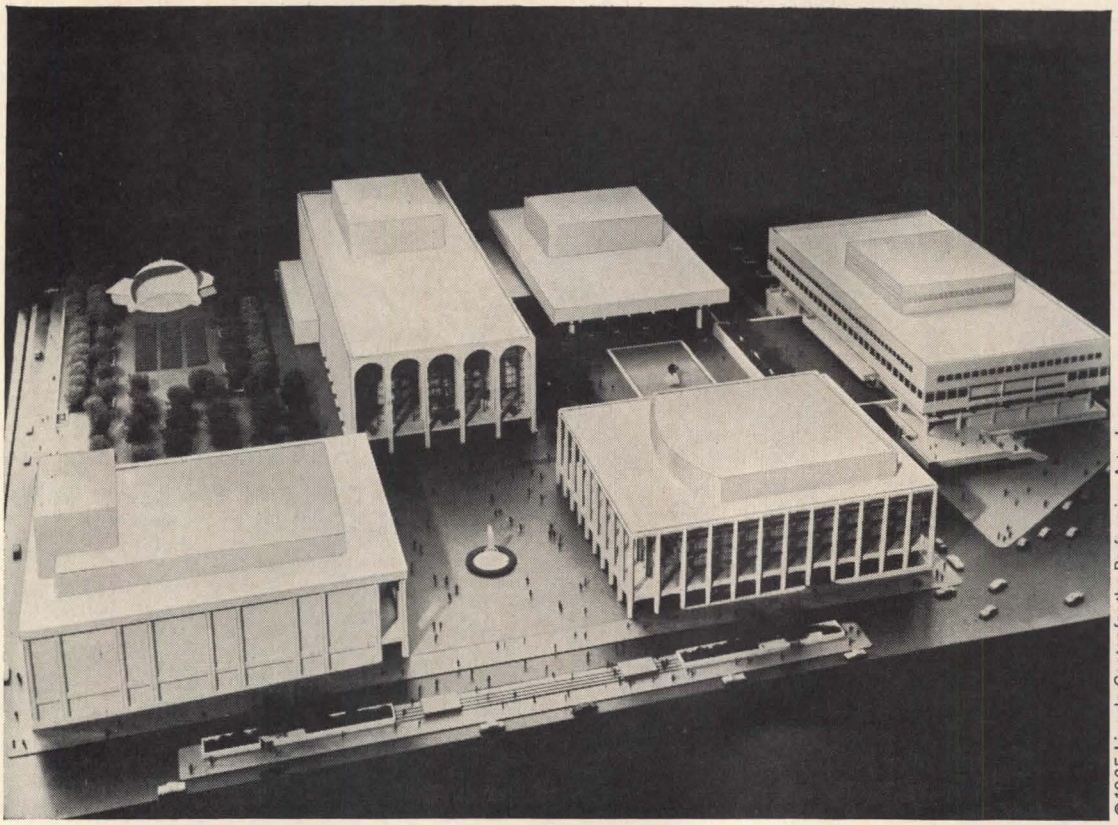
In some cases — if a particular office, for example, has a varied practice — several masters for certain technical sections may have to be developed. Nor can a master specification be successfully prepared for every technical section. Some specialty and equipment items normally specified under Divisions 10 and 11 of the CSI Format may be difficult to formulate in a master specification unless two or three model numbers are established for each of these.

In addition, as one develops rapport between the capability of the computer and the master specifications, one recognizes that smaller technical sections, even more fragmented than those currently listed in the Uniform System, must be devised to arrive at a workable master. If a master for a window wall were to include framing, architectural metals and finishes, testing, panels, windows, gaskets, sealants, flashings, insulation, glazing, and so on, the master specification would be awkward and unworkable, since too many variables would have to be written in to cover many possibilities. In such a case, a broadscope technical section would have to be fragmented into 8 or 12 narrow-scope sections, with provision being made for single responsibility in the execution of the work.

To reduce editing of the master, the current relationship between drawings and specifications will have to undergo some changes. Drawings typically show location, arrangement, and extent. With variables in a master specification, additional notations may have to appear on drawings to give generic names of materials, sizes of materials, and other information to reduce editing of the master. It is quite obvious that we are only at the threshold of mating the computer to specifications writing, and many concepts that have previously been considered inviolate will be changed as we progress.

At the moment, several computer applications to specifications writing are being used. The IBM 1130, if available in-house, is being programmed by several firms to encode specifications.

IBM Data Text is a commercial application available in several cities where in-house computers are not economical, and can be used easily for specifications writing. IBM Text 90 is a special language program for computers, which requires coding, key punching, and magnetic tapes; however, it is available in only three locations in the country. At the moment, the IBM Data Text seems to be the answer to the firm without an in-house computer. Its operation is easily learned, and it requires very little coding, since this is done directly on a typewriter terminal tied into a central computer by telephone.



CREDITS • It is customary in Sloan advertisements featuring famous buildings to credit the architect, mechanical contractor, general contractor and other key suppliers. But in the case of Lincoln Center, so many outstanding firms contributed to this historic development that it is impossible to list them all. So in this rare exception, we must, of necessity, simply offer our congratulations to the many who made this great achievement possible.

A view of Lincoln Center for the Performing Arts, located between 62nd and 66th Streets on Broadway in New York City. Buildings (clockwise from far right) are: the Juilliard School—to open in 1968, Philharmonic Hall, New York State Theater, Metropolitan Opera House, and Vivian Beaumont Theater and Library & Museum of the Performing Arts. *All* buildings in Lincoln Center are equipped with Sloan Flush Valves.

Lincoln Center for the Performing Arts

Home of the Metropolitan Opera, the New York Philharmonic, the Juilliard School, the Library & Museum of the Performing Arts, the Repertory Theater, the Music Theater, the New York City Ballet and the New York City Opera

▪ Lincoln Center, America's most magnificent cultural center, embraces every aspect of the performing arts by providing, in one central 14-acre building complex, homes for music, dance, opera and drama. It is a 165.7-million-dollar artistic community devoted to making the arts available to the many without compromising the highest standards of the few. Its work involves not only performance of the great works of man's cultural heritage, but also the continuing education, expansion and exploration of all forms of artistic endeavor. Lincoln Center is decorated resplendently and is adorned by famous paintings, sculpture and other important works of art.

We are justifiably proud that the flush valves selected for all buildings in Lincoln Center are Sloan—famous the world over for dependable service, long life, water economy and lowest maintenance cost. They are the Flush Valve of Quality. To be sure your building has this same quality, specify and insist on Sloan Flush Valves—most people do.

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IT'S THE LAW

THE INDEMNIFICATION CLAUSE

BY BERNARD TOMSON AND NORMAN COPLAN

P/A's legal team again examines the issue of whether language used in indemnification clauses of form contracts is sufficient to protect the architect and engineer.

In a recent issue (NOVEMBER 1967 P/A), we discussed the new indemnification provisions contained in the respective construction form contracts of the AIA and of the National Society of Professional Engineers. It was apparently the original intent of the professional societies involved to incorporate in the "general conditions" a broad indemnification clause that would provide for holding the owner and the architect or engineer harmless against any claim, damage, or loss for personal injury or property damage caused by the negligent act or omission of the contractor whether or not the injury or damage in question was partially caused by one of the parties to be indemnified. Due, however, to objection of the Associated General Contractors of America, Inc., compromise language was accepted which, to a degree, diluted the indemnification language originally contemplated. This compromise is reflected in the provisions of the form contract, which state, in substance, that indemnification will not be made by the contractor if the primary cause of injury or damage is the "giving of or the failure to give directions or instructions" by the engineer or architect. We concluded that, since the compromise language was ambiguous, the courts might interpret it in a manner that would be undesirable from the viewpoint of the practicing professional architect or engineer.

The ambiguity involved is centered in use of the phrase "directions or instructions." The basic question is whether the "directions or instructions" referred to are intended only to include those functions the architect or engineer is specifically and expressly charged with performing, as reflected in his contract with the client or the construction contract, or whether such phraseology was intended or can be interpreted to have a much broader application. If, for example, a court should find liability against both a contractor and an architect for an injury sustained by a person at the site on the theory that the contractor had created a hazardous condition and that the architect should have been aware of this fact and stopped the work, could such contractor avoid indemnification on the ground that the architect had failed to issue an appropriate "instruction" or "direction"? Would the architect be denied indemnification even though the contract documents make no reference to any responsibility on the part of the architect for safety conditions at the site? If it is possible for the terms "instructions" or "directions" to be construed more broadly than the area sought to be excluded from the indemnification obligation of the contractor by the compromise language adopted, then certainly it would be wise to include in the form documents additional language of limitation or definition.

In view of the great increase in legal actions against architects or engineers for personal injury arising from alleged failures during the contract administration stage of his services, concern with appropriate language of indemnification is more than academic. Many persons have indicated concern about the language of the latest form construction contracts issued by the professional societies, one of these being Paul B Farrell, Jr., legal counsel to a leading Detroit architectural firm. Farrell has furnished us with copies of correspondence that he has had with the AIA and with insurance agencies on this subject. It has been Farrell's position that, since the phraseology in question is legally ambiguous, it should be modified so as to relate to express requirements of the contract documents in respect to the duties of the architect or engineer, and that it should be limited in application to those functions described in the contract documents that require the architect or engineer to furnish a written decision. He has suggested that, since the express duties of the architect, as reflected in the contract documents, are described in terms of furnishing interpretations, issuing certificates of payments and change orders, approving shop drawings, and so on, all of which must be in writing, that the construction contract be modified to exclude from the indemnification provision only those injuries or damages, the primary cause of which would be the "giving or the failure to give required written approvals or requested written interpretation by the architect, his agents or employees." Such limiting language would, of course, either clarify or extend the area of indemnification protection now provided by the form documents as presently worded.

Officials of the AIA, when queried on the application of the exclusionary language of the indemnification provisions of the construction contract, refer to a memorandum issued by the Institute, which states that "the phrase 'the giving or the failure to give directions or instructions by the architect' must be fully understood in the context of the architect's duties and responsibilities as set forth in B131 and elsewhere in A201" and that "these duties require the architect to give certain directions or instructions on the project" that must not be neglected. However, the conclusion drawn by the memorandum is not supported by the actual language of the contract documents, since these documents do not, in general, speak in terms of the architect issuing "directions or instructions." If, as is indicated by such memorandum, the intent of the exclusionary language is to cover only those duties that are expressly set forth in B131 or A201, then such intent should be reflected by the express language of the indemnification clause. In the absence of such limiting language, it is likely that the exclusion, to the detriment of the professionals involved, will be interpreted with much greater latitude.

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COUNTRY HOUSES OF JAPAN

BY ERVIN GALANTAY

THE ESSENTIAL JAPANESE HOUSE: CRAFTSMANSHIP, STYLE, AND FUNCTION IN TOWN AND COUNTRY. *Photographs by Yukio Futagawa. Text by Teiji Itoh. Harper & Row, Publishers, 49 E. 33 St., New York, N.Y., 1967. Illus., $25. The reviewer, an associate in the New York architectural firm of Damaz & Weigel, is also architectural critic of* The Nation *magazine.*

In matters Japanese, some admire the delicate movements of the Ikebana artist and others appreciate the rolling fat and thudding steps of the Sumo-wrestler. This book will have immediate appeal to the second group: it is a heavyweight, nearly 9 lbs, 14 in. high, and a good 2 in. thick.

Publishers of oversize books such as this one should feel obliged to explain in a few words of introduction what spiritual gains are proffered that would not accrue to the reader through a vehicle of more modest format. In picture books, alas, the trend toward bigness parallels the phenomenon of the craving for ever larger dimensions in modern painting: size is equated with substance by the average consumer in our expanding cultural market.

Apart from their pumped-up sales appeal, the 320 photographs by Futagawa do not profit from being reproduced king-size. The few aerial photographs gain in sharpness and detail but generally the simple lines and calm surfaces of Japanese architecture would be equally legible in less spread. In fact, some of the large reproductions lack sufficient contrast, and appear coarse-grained or fuzzy; the use of a better paper would have improved their quality more than dimensional largesse.

The pomposity of the English title of the book matches the production of the volume and must be indeed embarrassing to Teiji Itoh, the scholarly author of the text. His original title of "Nihon-no Minka" translates simply as "Japan's Folk House," or perhaps "The Country Houses of Japan." To overcome a slight initial exasperation with the book, it is useful to remember that the Futagawa and Itoh team previously produced the valuable volume on *The Roots of Japanese Architecture*. Tenacity is rewarded when one comes to read the concise and informative text, a true key to the pictures. Unlike other authors on Japanese architecture, Itoh is not given to esoteric raptures but coolly examines the variations of Japanese architecture as functions of environmental determinants.

The subject of the book is the Japanese country house as it developed during the two centuries of peaceful isolation before Japan was pushed into the modern world in 1860. The architecture of the imperial villas and palaces is not treated, although it is difficult to draw a clear line between court and country architecture. Stylistic development or technical improvements inevitably trickled down from the level of court and temple architecture to affect — after an appropriate time-lag — the design of the most remote country shelter. Transmitting the influence of court architecture to the country were the house of the rural samurai (soldiers turned village leaders or local tradesmen) and the houses of prosperous merchants whose tastes, as everywhere else, reflect an eagerness to emulate the refinements of aristocracy.

Outer buildings of early 19th-Century Onoe House in southern Japan. Photo taken from The Essential Japanese House.

In contrast to the unifying, centripetal influence of court architecture, the travel restrictions of the feudal period fostered a multiplicity of regional styles — similar to the great variety of folk architecture in the European alpine countries where rugged topography or feudal anarchy hindered communications.

Futagawa and Itoh emphasize regional particularities, and, accordingly, their book is organized into 10 chapters, each examining the architecture of a characteristic region. This approach, using case studies, would be useful for a comparative theory on architecture as the expression of environmental and social factors.

The results are clear-cut whenever the primary determinant is not in conflict with secondary requirements. Along the Sea of Japan, the yearly snowfall of 19 ft is the primary determinant; in coastal Shikoku, the frequent typhoons. In Northern Honshu, the economic pattern shapes architecture: The houses are multistory to provide space for the cultivation of silk-worms; house and stables are covered by the same huge roof. In the post-towns of the Japan Alps, the house is combined with a hostel, inn, or trading post. The social code is reflected in feudal Kiushu where a whimsical legislation restricted the width of the commoners house to 13 ft, while in the remote valleys of Shirokawa the odd custom permitting only one legally married couple per household led to extended family houses of unusual size.

Yet, contrary to the general belief that folk architecture invariably arrives at sound functional solutions, the book demonstrates that a conflicting set of functional requirements with complex, interrelated "misfit variables" is not easily solved by folk wisdom: Where the demands for fire protection and ventilation conflict, dark and humid houses result; in fishing villages where land is at a premium houses cantilever to provide protected boatsheds, a construction unsuited to withstand the frequent earthquakes.

Although these regional variations are of considerable general interest, architects should take note above all of the simple organizational prin-

Continued on page 168

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Continued from page 164

ciples common to all Japanese residential architecture. Standardization of the basic elements of post and beam was achieved as early as the 16th Century and led to the general acceptance of the modular "zosaku" system — a nailless assembly that can be remounted, recombined, and re-erected. In some cases, the owner would only erect the structure and the roof, leaving it to the tenant to provide partitions and finishing according to his own purse and taste. Another salient feature of the system is internal flexibility due to a lack of area differentiation: rooms are defined by size rather than purpose and their use can vary by the time of the day or with the seasons. This advanced construction system was devised without the benefit of architects. Houses were built by master carpenters from a plan alone — no sections or elevations were drawn. The design system related elements of the assemblage with the plan, which was then translated into three dimensions with a measuring rod.

Two basic systems were used: the "hashira" system (known since ancient times) in which the module "ken" was measured from center to center of the posts, and the better known "tatami" system, an innovation of the 16th Century in which the module is the area of the sleeping-mat of about 18 sq ft. In this system, room sizes and even urban plots are defined in multiples of tatami areas.

Perhaps because the master-carpenters were able to build from a plan alone, the authors do not provide drawings of sections or construction detail. This is a pity, since architects can learn more from a simple section than from five crafty photographs. Yet the book is not overly concerned with construction and dimensions, and is in this respect inferior to other works, such as the books by Tetsuro Yoshida. The few plans added in explanation do not indicate the scale, but in fairness it must be admitted that dimensions can be easily deduced by adding up tatami lengths.

The book appears at a time when the intrusion of technical civilization is threatening the survival of the traditional Japanese country house. Modernization is one threat. Many pages in the book demonstrate the curious insensitivity of the Japanese in the use of elements alien to their own design traditions: one shudders seeing rooms of perfect and serene beauty "improved" by an electric lightbulb dangling on a naked wire; or telephone poles, overhead wires, and iron smokestacks dominating the streetscape. More serious is the threat of destruction due to changes in the social and economic pattern. For instance, the decline of the sharecropping system after World War II resulted in the abandonment of many fine mansions. The authors tersely remind the reader that villagers do not consider it the business of their village to remain picturesque, and that the peasants have no desire to preserve their enormous houses for their beauty alone but intend to replace them by more economical structures at first opportunity.

Hence, this is the time to take stock of what remains and raise the cry for a conservation policy. Soon Japan may be forced to establish open-air museums of folk-architecture like the "Gamlaby's" and "Skanses's" of Scandinavia — geriatric wards for buildings where the venerable relics may continue an institutional existence removed from their natural context.

Panacea Planning

BY SANDRA BLUTMAN

THE LEGACY OF RAYMOND UNWIN: A HUMAN PATTERN FOR PLANNING. *Edited by Walter L. Creese. M.I.T. Press, 50 Ames Street, Cambridge, Mass., 1967. 234 pp., Illus., $10. The reviewer is a postgradu-*

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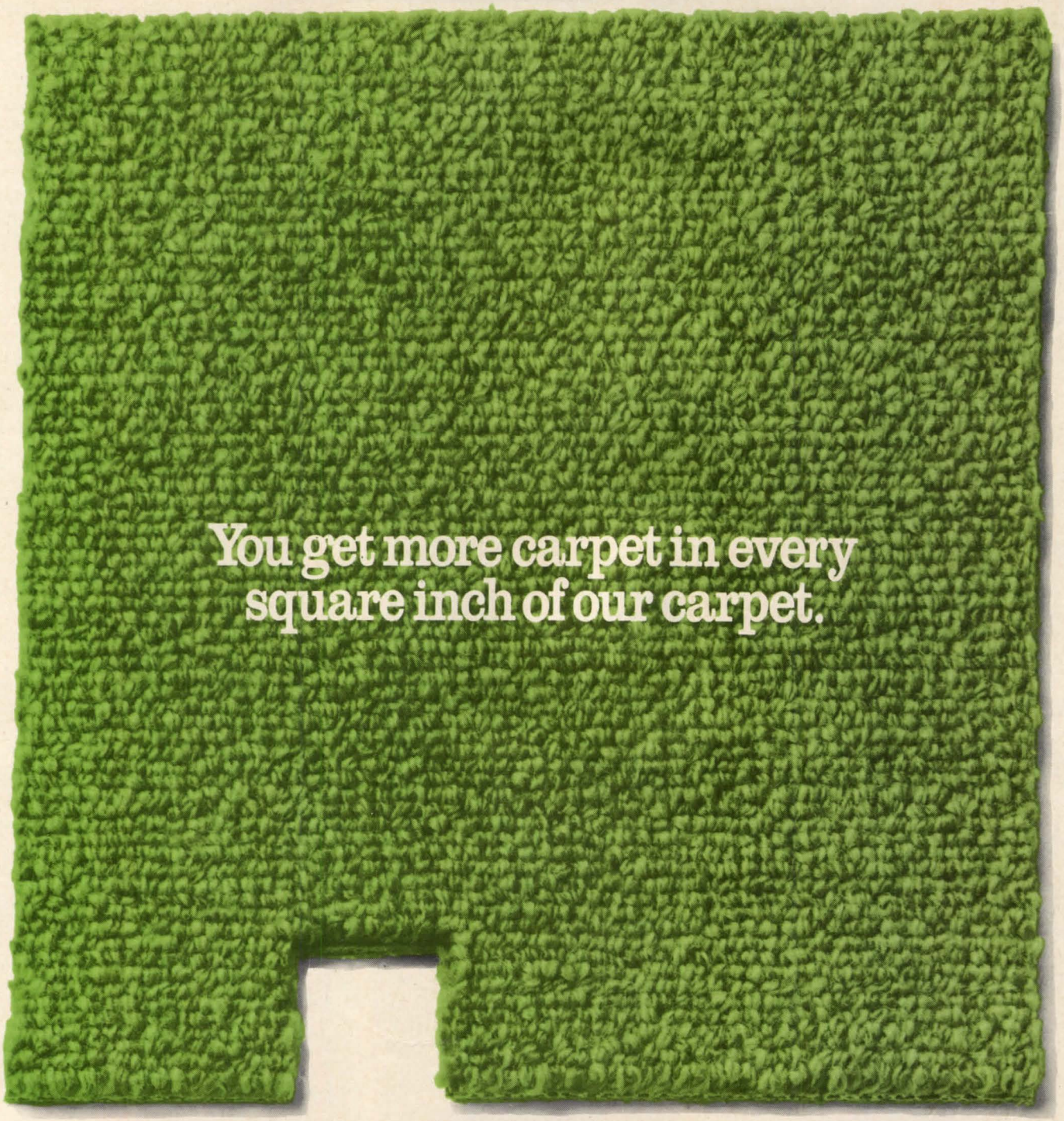

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CHAMBLEE, GEORGIA

Continued from page 168

ate student at the Courtauld Institute of Art, London, England.

At Letchworth, the first Garden City, Raymond Unwin transformed a 19th-Century theory (postulated in 1898 by Ebenezer Howard in *Tomorrow: A Peaceful Path to Real Reform*) into a 20th-Century reality; a successful town surprisingly faithful to an idealist philosophy emerged. As Walter Creese had pointed out in his *Search for Environment*, "William Morris and Ebenezer Howard had the dreams — Parker and Unwin in the next generation helped them to come true." The core of Unwin's interest for planners and architects today lies in this ability to translate idea into reality in the particularly complex problems of city planning. Unwin's theories are fascinating in their combination of 19th-Century socialist philosophy with practical maxims developed under the pressure of coping with very exact problems.

The advocacy of low-density housing expressed by Unwin in the famous rule of 12 houses to the acre was, Barry Parker felt, Unwin's greatest contribution to planning theory. Motivated by a humanistic belief in the value of the cottage as the basic unit (an idea difficult to dissociate from Unwin's 19th-Century English background), which he identified with a healthy family life, Unwin found that, except in areas where land was unusually costly, the loss of frontage in higher-density developments caused the cost of roads to outweigh the saving in the cost of land.

Quite clearly, such a theory is only comprehensible when studied in relation to the particular problems that faced Unwin in the early years of this century and the concept of the Garden City. If one accepts Howard's idea of the Garden City, the town in the country, low density follows logically from the basic premise that the maximum size of towns can and should be consciously controlled. The theory is not a panacea for the ills of existing cities, complexes which Howard and Unwin found largely undesirable and with which they never really came to terms.

Other important practical innovations for which Unwin is credited include the fixed bath in small cottages, later made obligatory by law, the legalization of *cul de sacs* (at Hampstead Garden Suburb), and the use of green verges (at Letchworth). These are, again, small points, but their importance increases when they are examined in light of the

Continued on page 176

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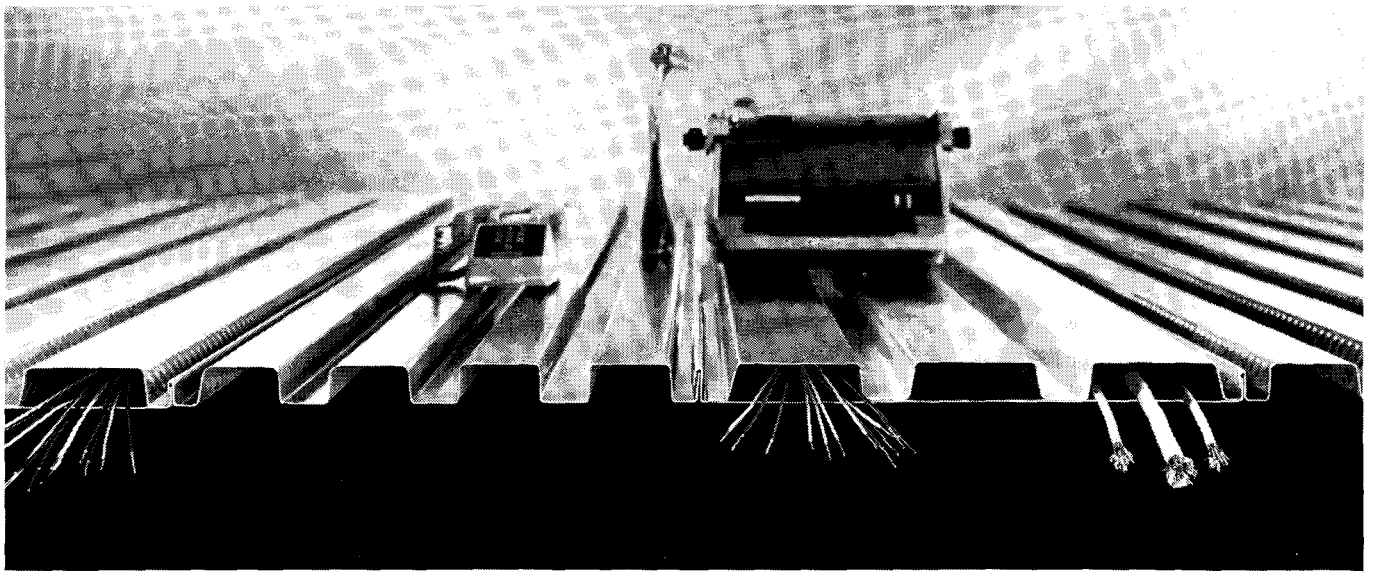

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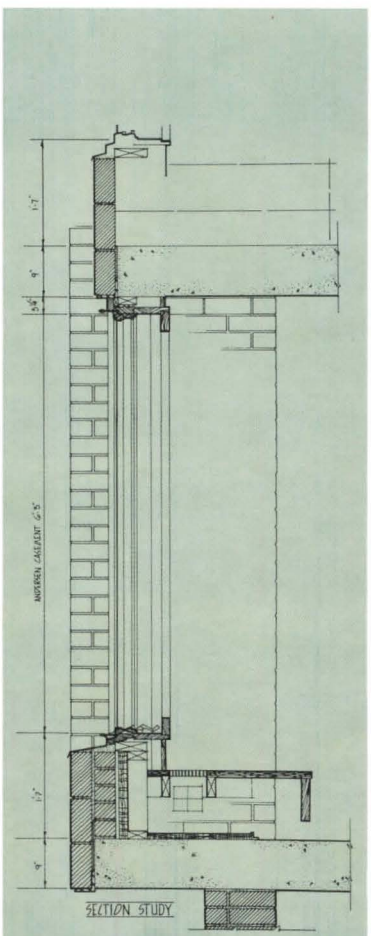

Tufts University Dormitory,
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Architect: Perry-Dean
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Continued from page 170

contemporary planning situation and Unwin's theories.

What value, then, is there in reprinting a collection of Unwin's writings today? Walter Creese's purpose has been "to capture the full course of Unwin's thought without becoming caught in the swirl of by now irrelevant topicalities." Thus, he has closely edited much of what he presents and removed most of the detail. What remains is the bare skeleton of Unwin's theory, which, while it may have some value today in demonstrating the degree to which modern planners are still in Unwin's debt, stands strangely isolated.

The Legacy of Raymond Unwin is more than anything a supplement to the author's earlier *Search for Environment*, a study of the Garden City idea that devotes six of its 14 chapters to Unwin. Quite obviously, Creese is well-qualified to write about Unwin; his introduction and notes to the well-chosen photographs are admirable and lucid. One only wishes that rather than excerpts from Unwin's writings he had given us a monograph that related the writings closely to the works out of which they grew — works they influenced greatly.

Creese's selection is representative, ranging from an essay written at the age of 23, "The Dawn of a Happier Day," which shows Unwin's debt to the thinking of William Morris and to his last lectures given at Columbia University in 1937. Most of the material originally appeared elsewhere. Included are selections from *Town Planning in Practice* (1909), written as "an introduction to the art of designing cities and suburbs," the important "Nothing Gained by Overcrowding," an argument in favor of the Garden City, and "Higher Building in Relation to Town Planning," in which he criticizes the skyscraper and shows, by means of diagrams, how pedestrians and cars in a city like New York would jam the streets if the skyscrapers were suddenly emptied of their occupants.

Unwin is undoubtedly an interesting man — as a personality, as a designer, and as a theorist — but, to be fully appreciated, all the aspects of his work should be studied together. To see his writings *simply as an expression* of a philosophy is to misrepresent him.

A Profession By Definition

BY RICHARD P. DOBER

URBAN LANDSCAPE DESIGN. *Garrett Eckbo. McGraw-Hill Book Co., 330 W. 42 St.,*

Continued on page 184

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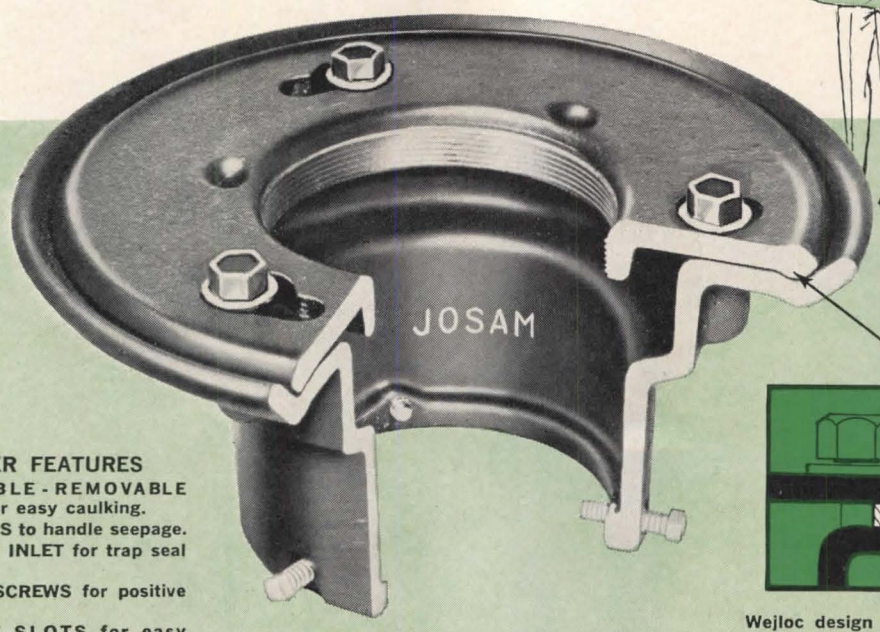

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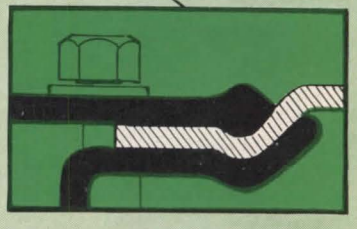

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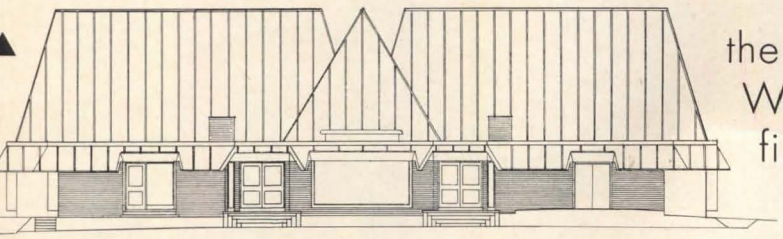

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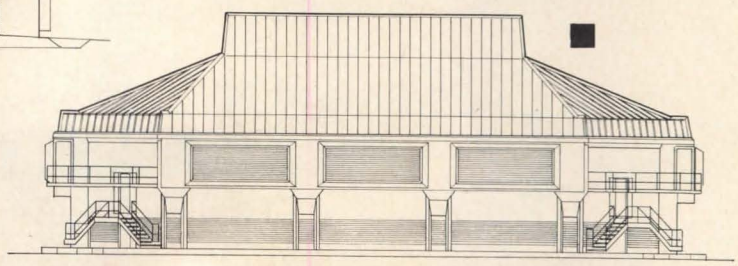
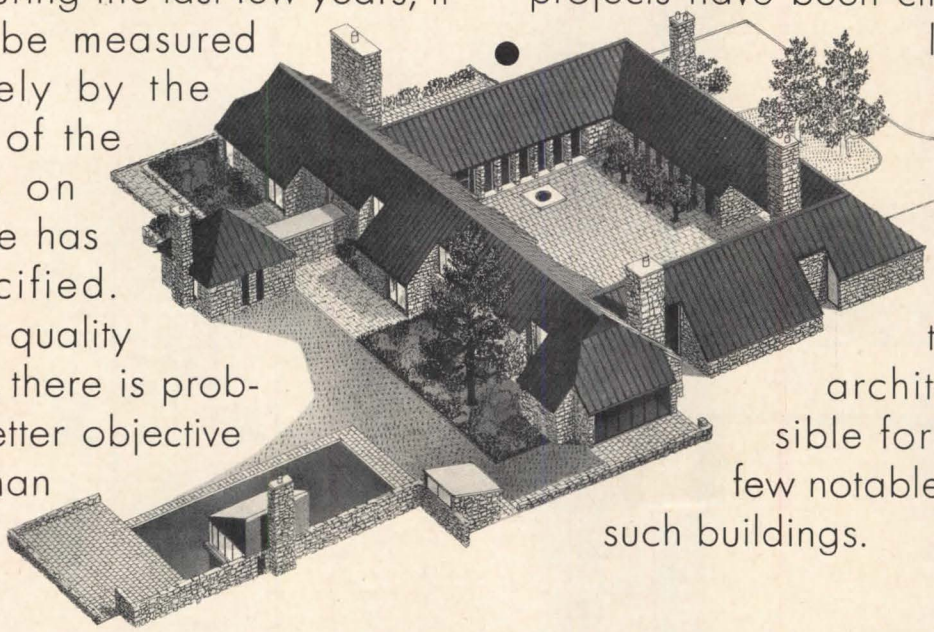


projects have been cited for excellence in these media.

If the dramatic revival of Terne roofing can be measured quantitatively by the millions of square feet which have been installed throughout America during the last few years, it can also be measured qualitatively by the character of the buildings on which Terne has been specified. And where quality is involved, there is probably no better objective standard than that provided by



Here—presented with pride and our thanks to the architects responsible for them—are a few notable examples of such buildings.

Lansing Presbyterian Church: Lansing, Mich.
Architect: Edward D. Dart, F.A.I.A.
PROGRESSIVE ARCHITECTURE, Nov. 1963

"Stornoway": Ligonier, Pennsylvania
Architect: Winston Elting, F.A.I.A.
ARCHITECTURAL RECORD, Jan. 1965
RECORD HOUSES, 1965

■ Arena Stage: Washington, D.C.
Architect: Harry Weese, F.A.I.A.
ARCHITECTURAL RECORD, Feb. 1962
PROGRESSIVE ARCHITECTURE, Feb. 1962

▲ Haley Funeral Home: Southfield, Michigan
Architects: Birkerts and Straub
PROGRESSIVE ARCHITECTURE, June 1962

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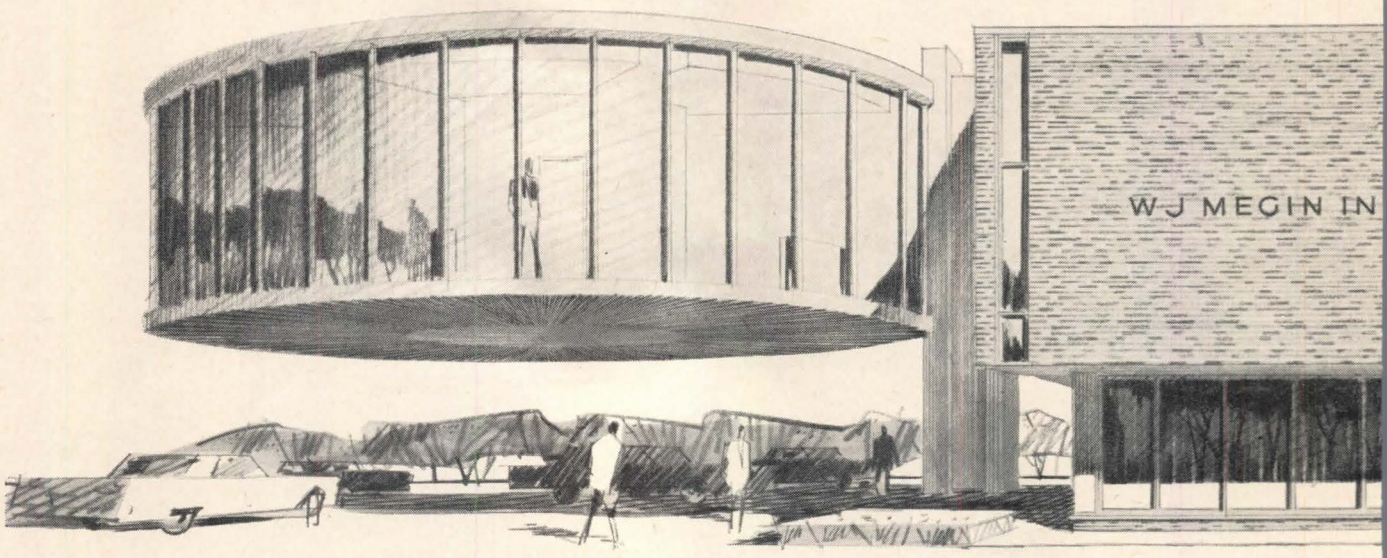
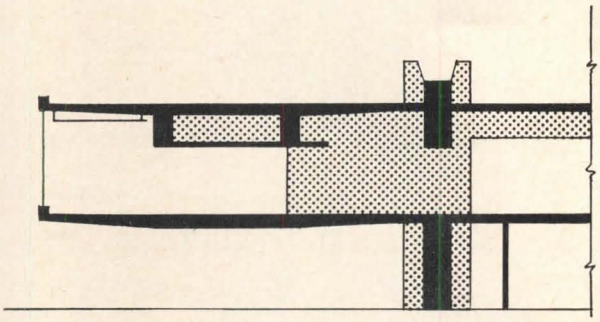
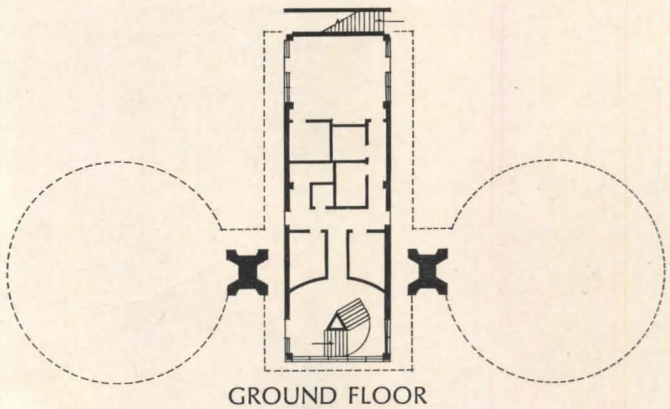


W. J. MEGIN BUILDING, NAUGATUCK, CONN.
Owner designed and built.
Consulting engineer:
Henry A. Pfisterer & Associates,
New Haven, Conn.



SECTION A-A



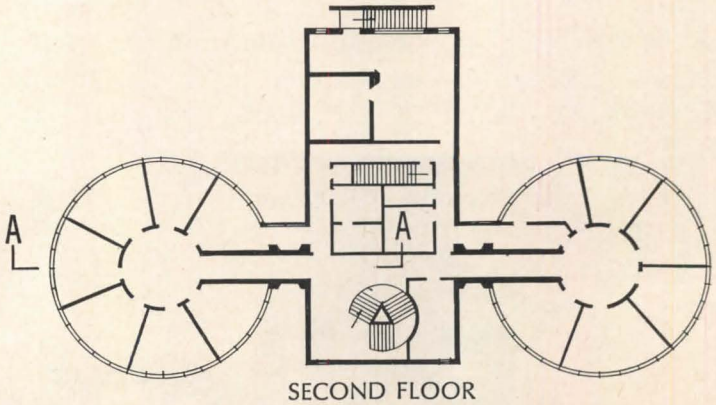
GROUND FLOOR

Details

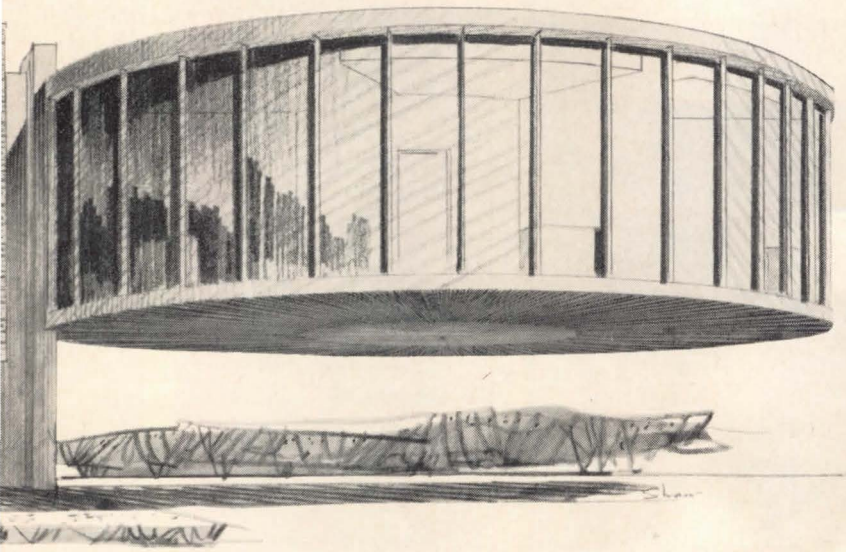
Objectives: Maximum use of interior space, individual temperature control in each office area, moderate costs.

Energy source: Electricity—for all functions requiring power, including heating, cooling and water heating.

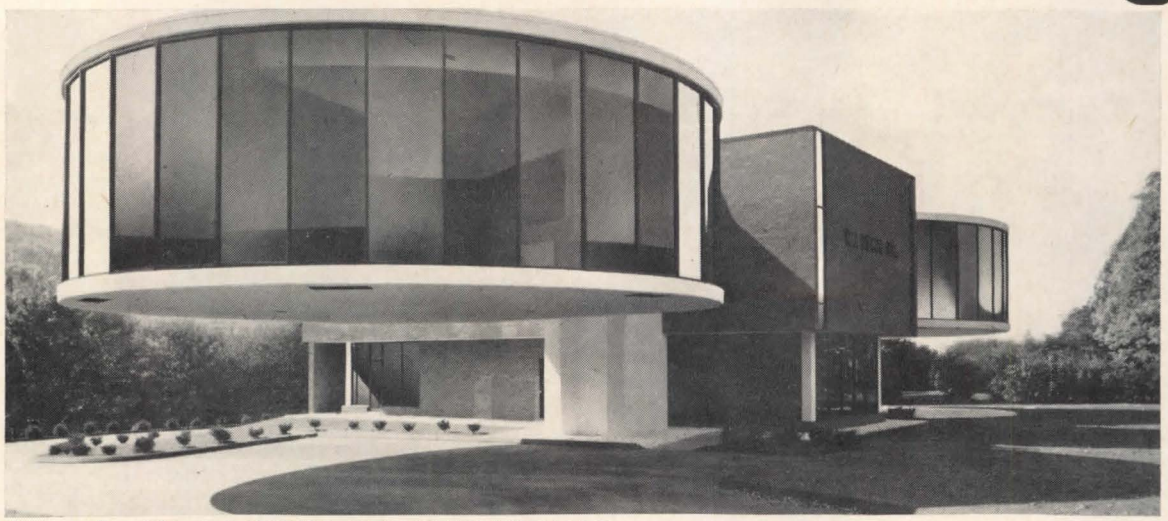
Climate system: Through-the-floor unit ventilators with supplementary baseboard heaters.



SECOND FLOOR



with All-Electric design



Example: W. J. MEGIN OFFICE BUILDING

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How versatile is All-Electric design? The proof is in the building. The W. J. Megin Building, Naugatuck, Conn., for example. Why is it All-Electric? One reason, it would have been impractical otherwise. (See details.)

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ALL-ELECTRIC BUILDING AWARD ®

Continued from page 176

New York N.Y., 1964. 239 pp., $16.50. The reviewer is an architect and planning consultant practicing in Cambridge, Mass.

The environmental design crisis, which threatens to transpose man from the precincts of hope to despair, has given a central role to the landscape architect. In his latest book, Garrett Eckbo attempts to define the profession by drawing conclusions from a description of the issues and by telling us what landscape architects have done *to date* in the way of resolution. Within this limited scope, he will satisfy the reader on both counts.

Section One consists of an illustrated, 30-page essay in which *design* is defined through the Salinger (J.D., not Pierre) technique: paragraph-long strings of pertinent nouns and clauses. This makes for compressed, though oversimplified, summaries of art history:

"The literature of primitive and folk art is replete with analyses of diflerences in form and content, finish, detail, technology. And yet the frustrated and searching 20th-Century eye finds certain fundamental unifying continuities in preindustrial art — fitness to purpose, economy of means, richness limited only by resources, intuitive forms, similarities in quality, flavor, form, or pattern across great gaps in time and space, and always small variations among similar elements that are as natural as nature herself."

This same technique is used in marking the dimensions of professional concerns:

"Architects deal with . . ."
"Landscape architects deal with . . ."
"Engineers deal with . . ."
"City planners . . . deal with . . ."

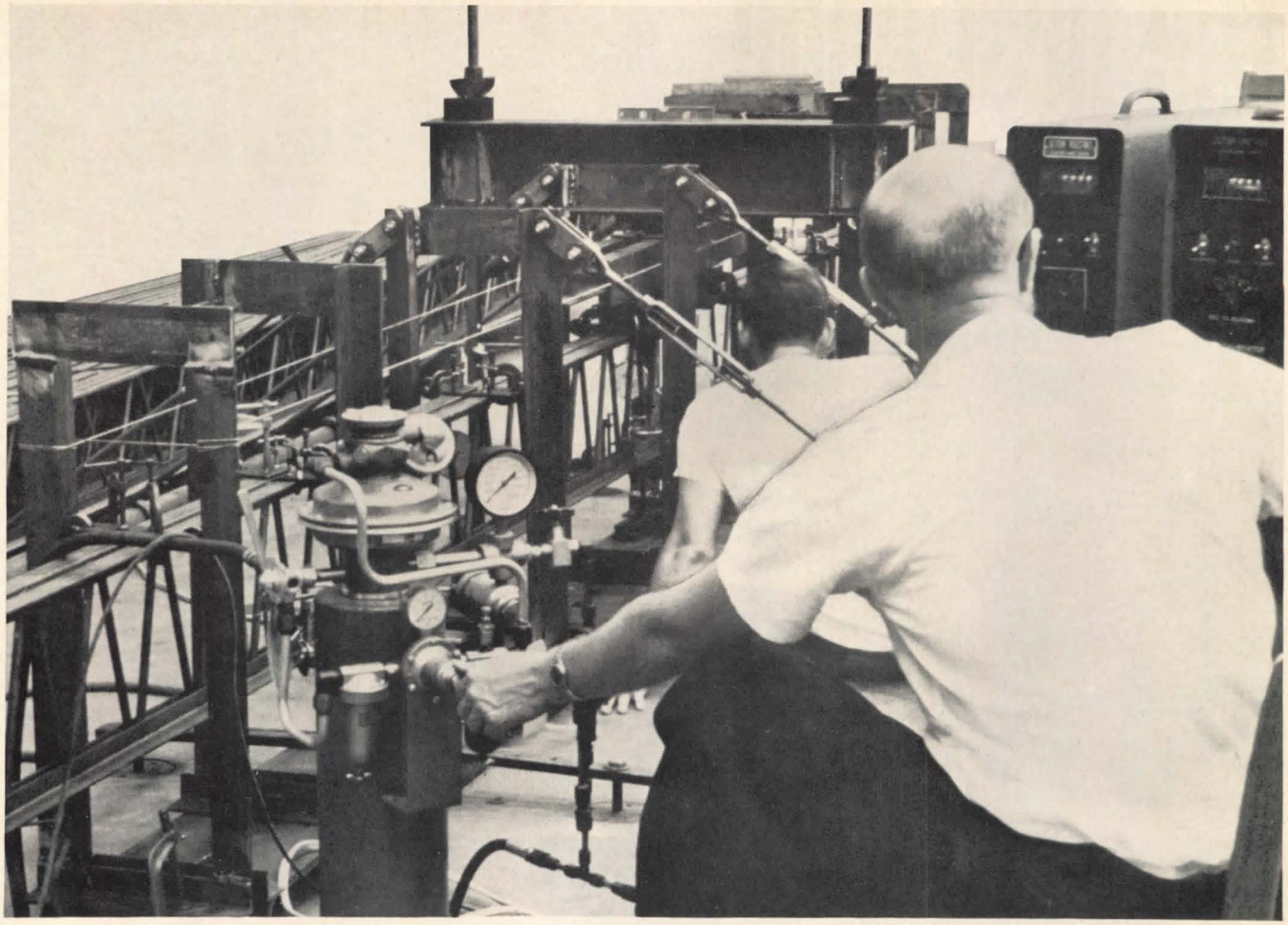
As one reads on, there is a comfortable sense of security in these easily acceptable generalizations. They are rational and fit the boundary lines established by educators, critics, and professional societies. In a concluding sentence, however, Eckbo makes the proper summing up, and it hurts:

"The visual price, in shoddy, messy, poverty-stricken landscape pictures, surrounds us wherever we go."

Section Two, which constitutes the largest part of the book, is a collection of projects whose general design character can be attributed to the work of the landscape architect. Ordered in ascending scale, they range from the outdoor room to the region. By title and selection, the emphasis is urban.

Modesty is the prevailing keynote. With the notable absence of Dan Kiley, the collection is a *Who's Who* of landscape architecture. Two drawbacks are that the project captions are buried in the back of the book, and that the selections are

Continued on page 186



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This is the engineering-research laboratory at the University of Kansas. In process is a study on the behavior of the compression chords in variously designed open web steel joists under concentrated and uniform loading.

The Steel Joist Institute sponsors "fact finding sessions" like this in a number of university laboratories throughout the country. New ideas in joist materials and design, such as high-strength steels and the various methods of bridging, are checked out thoroughly before governing design criteria are established for steel joist standards. Manufacturers can also have investigations conducted on their J- and H-Series joist designs to determine conformance with SJI standards and specifications.

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Continued from page 184

dated. No Ian McHarg, Phillip Lewis, John Collins, or John Frey; and nothing from abroad.

In this writer's opinion, the quality is representative of the state of the art. The fine hands of George Connolly and William Johnson (Hideo Sasaki's designers on the Sea Pines Plantation project) show how well the landscape can be rendered graphically, but most of the drawings in the book are poor in concept and execution.

As didactic material, the photographs are not much better. For a variety of reasons — seasonal changes, the weight of color and fine-grain texture, and the fact that they are best experienced in motion — landscape designs are difficult to capture on static film. So don't look for the explicit translation of philosophy into example in the illustrations in this book.

Section Three is a pointed commentary on maintenance and design. The latter preconditions the need for the former. As opposed to the natural landscape, the man-imposed landscape art forms are absolutely dependent on continuing care. They must be renewed, replaced, and constantly watched over. Unquestionably, this aspect of care imposes a constant obligation for the designer, owner, and user to respond to living things — a moral obligation that is perhaps unique among all the arts.

Mediterraneanesque

BY PAUL ZUCKER

JOSE LUIS SERT: CITY PLANNING, URBAN DESIGN. *By Knud Bastlund. Introduction by Sigfried Giedion. Frederick A. Praeger, 111 Fourth Ave., New York, N.Y., 1967. 244 pp., illus., $20. The reviewer is Professor of Art and Architecture at The New School for Social Research, New York City.*

There are three ways of writing about Jose Luis Sert: an enthusiastic glorification; a rather objective chronological story; or an analytical and aesthetic discussion of his work. Fortunately, the author seems to consider himself merely as a kind of commentator on the abundance of photographs and drawings that suggestively convey the ideas and three-dimensional realization of Sert's basic concepts, often quoting from the architect's own writings. As different as individual phases of Sert's development may be (actually, they are closely related), his intrinsic attitude toward space and volume essentially does not change. Characteristic traits are always the same: the outspoken

Continued on page 190

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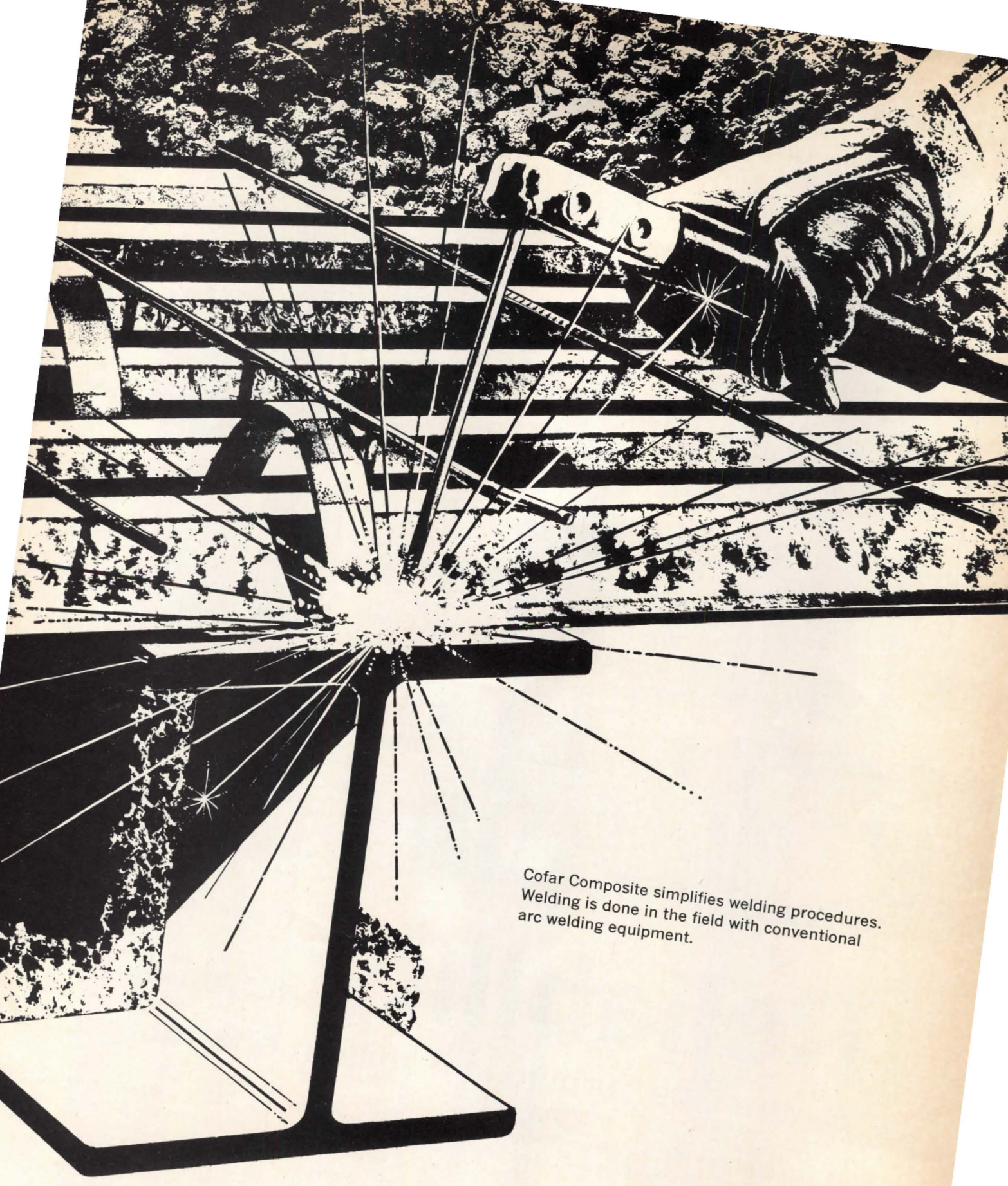

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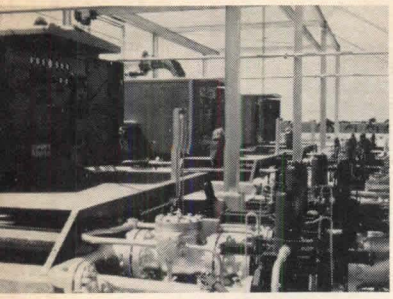	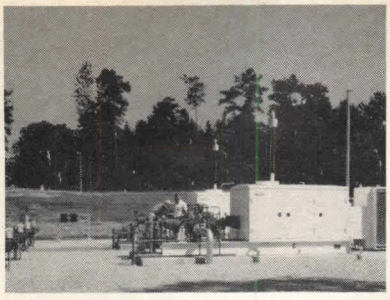	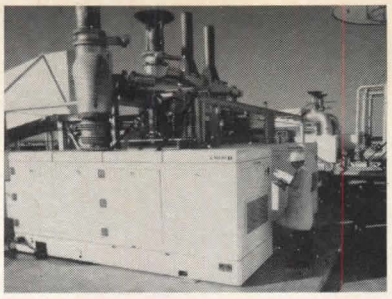	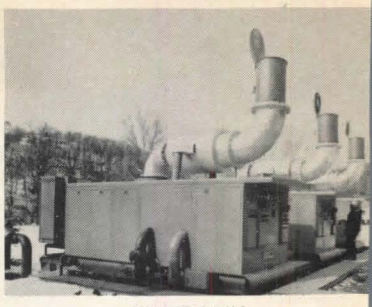
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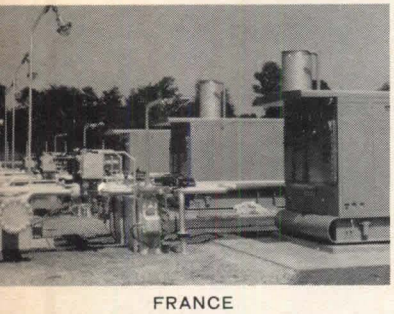		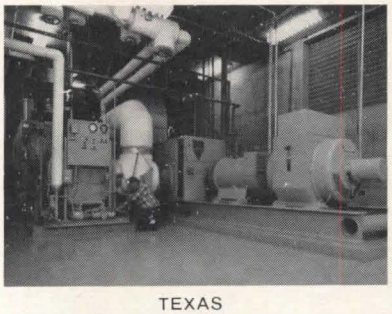	
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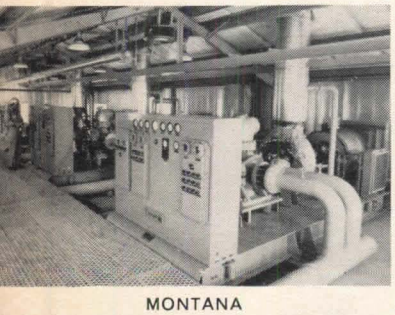		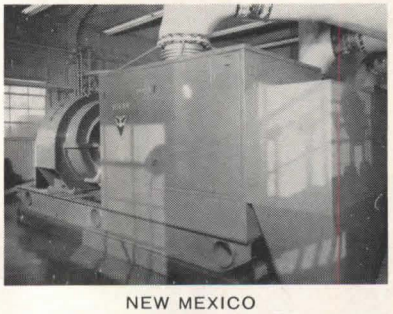	
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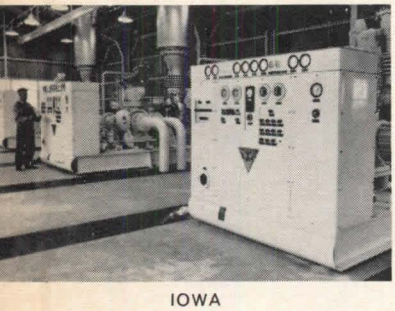	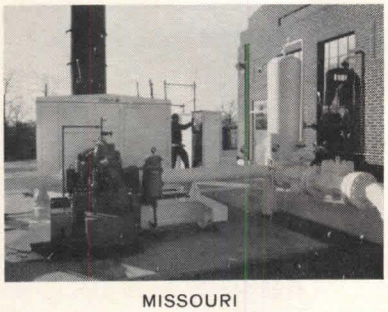		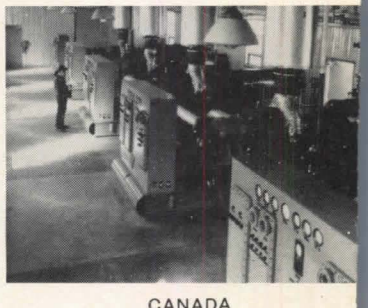
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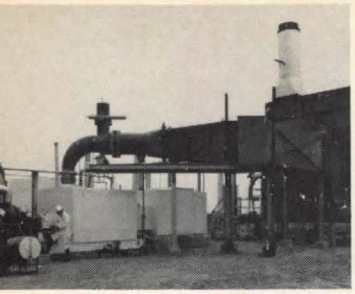	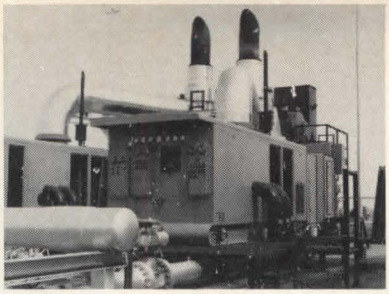	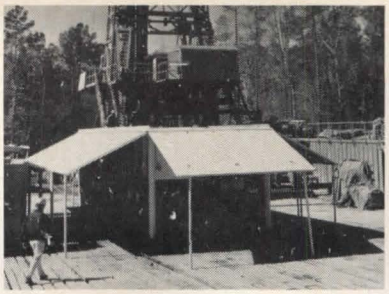	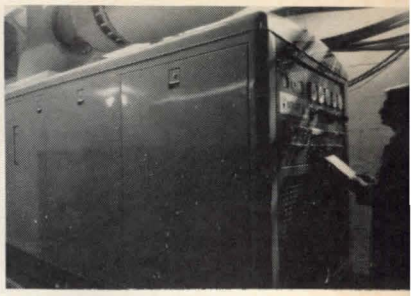
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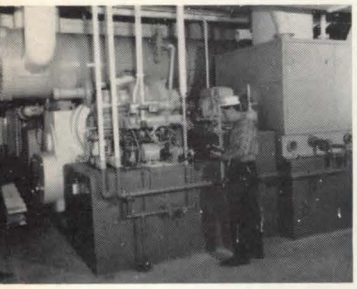			
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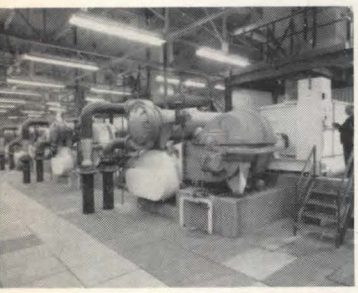			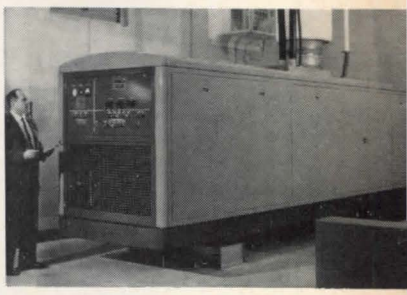
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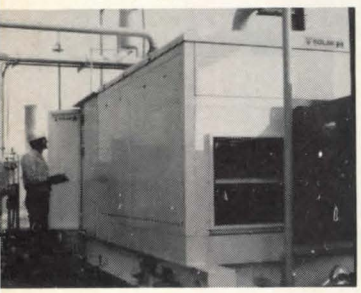	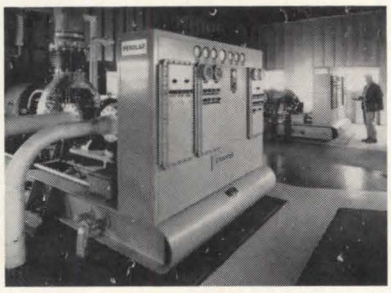		
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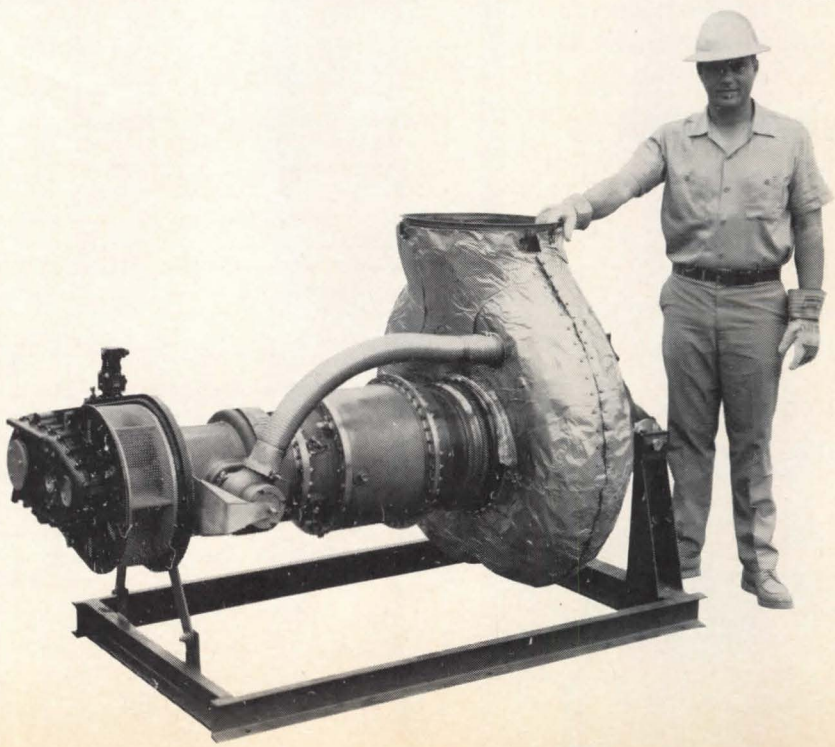

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Continued from page 190

completed in 1964, are still more loosely composed than Sert's earlier works and use curved forms more abundantly than in earler configurations, in combination with sculptures by Calder or Giacometti, mosaics by Chagall, and numerous works by leading contemporary painters. The complex buildings for Harvard and Brown University are too diversified in their functions to be analyzed here.

This rather reticent compilation avoided purposely any flamboyant documentation of enthusiasm about the life work of an architect and city planner who has proved that subtle quality and individual imaginative power still exist in modern architecture.

BOOK NOTES

Crafts of the Weimar Bauhaus. By Walter Scheidig. Reinhold Publishing Corp., 430 Park Ave., New York, N.Y., 1967. 150 pp., illus., $16.50.

A handsome picture book of Bauhaus-designed graphics and art objects: furniture, pottery, fabrics, tea pots, and so on, together with a 38-page essay on the Weimar Bauhaus.

Hagia Sophia. Heinz Kahler. Frederick A. Praeger, 111 Fourth Ave., New York, N.Y., 1967. 218 pp., illus., $16.

A scholarly introduction to the Hagia Sophia, with plans, sections, and an excellent selection of photographs. Unfortunately, both the quality of the photographs and the reproduction are rather poor; however, they do provide good documentation, and the book is otherwise handsomely produced.

The New Schoolhouse. Revised Edition. Alfred Roth. Frederick A. Praeger, Inc., 111 Fourth Ave., New York, N.Y., 1967. 304 pp., illus., $15.

An international survey with many photographs of new schools from all over the world. A small plan of each school is usually supplied. The text is trilingual: English, French, and German.

Planning the Community Hospital. By Roy Hudenburg. McGraw-Hill Book Co., 330 West 42 St., New York, N.Y., 1967. 438 pp., $16.95.

A comprehensive treatment of the subject from the standpoint of administrative and functional needs. The author describes the six systems that influence hospital planning decisions: housing, therapy, administration and business, supply, housekeeping, and utilities.

R.M. Schindler — Architect. An Exhibition of the Architecture of R.M. Schindler. Organized by David Gebhard. The Art Gallery, University of California, Santa Barbara, Calif. 1967. 113 pp., illus.

An exhibition catalogue of Schindler's work, including introductory essays by Esther McCoy and David Gebhard, a chronological list of major buildings and projects by Schindler, bibliographies of publications of Schindler's work and of the architect's writings, and Schindler's "A Manifesto — 1912,"

a sort of prose-poem of his basic philosophy for design.

Shops and Showrooms: An International Survey. Edited by Karl Kaspar. Frederick A. Praeger, 111 Fourth Ave., New York, N.Y. 1967. 165 pp., illus., $15.

Another beautiful Praeger book, printed on glossy paper, in both German and English, with photographs of shops and showrooms from all over the Western world. Details and plans are sparingly provided.

Urban Housing. Edited by William L. C. Wheaton, Grace Milgram, Margy Ellin Meyerson. The Free Press, 866 Third Ave., New York, N.Y., 1966. 523 pp., $13.50.

The first of a series on Urban Planning and Development, this is an excellent volume, even if the layout and typeface reminds one of all the textbooks ever printed. It has eight sections, each consisting of several articles written by professors of sociology, economics, business administration, public health, city planning, and finance and including many notables: Robert Weaver (the Secretary of HUD), Lewis Mumford, Robert Merton, Burnham Kelly, Charles Abrams, and Herbert Gans.

Walks and Talks of an American Farmer In England. Frederick Law Olmsted. Intro. by Alex L. Murray. The University of Michigan Press, Ann Arbor, Mich., 1967. 322 pp., $7.50.

Olmsted wrote this book at the age of 28, recording his reactions to Liverpool prostitutes, poverty and begging in the cities, English agriculture, cathedrals, even farmhands' daily ration of cider (1 to 10 gals a day), English responses to America, and particularly the landscape ("Not a town have we seen in England but has had a better garden-republic than any town I know of in the United States"). Sprinkled throughout are strange anecdotes about suspicious innkeepers, shirking sailors, hearty farmers, and termagant housewives.

NOTICES

New Branch Offices

BALZHISER, SEDER & RHODES, Architects, Room 1200, Northern Life Tower, Seattle, Wash.

New Addresses

DONALD J. D'AVANZO, Architect, 305 E. 83 St., New York, N.Y. 10025.

LAYTON, LAYTON & ASSOCIATES, Landscape Architects and Planning Consultants, 14 N. Newstead Ave., St. Louis, Mo. 63108.

EDWARD OWEN & Co., 195 W. Main St., Avon, Conn. 06001.

New Firms

MICHAEL & MICHAEL, Architects, 123 S. Fairfax St., Alexandria, Va. 22314.

MONTGOMERY, WINECOFF & ASSOCIATES, INC., Interior Designers, 175 Fifth Ave., New York, N.Y. 10010.

PHELPS-BRAUER & ASSOCIATES, INC., 6003 W. 16 Ave., Denver, Colo.

R.M. SAFFRAN & F.A. HEPPERLE ARCHITECTS & ASSOCIATES, 470 Park Ave., New York, N.Y.

GENE D. SMITH, Architect and Space Planner, 12121 Wilshire Blvd., Los Angeles, Calif. 90049.

New Partners, Associates

DANIEL COMM ASSOCIATES, Architects, Chicago, Ill., have made KENNETH JACOBS an associate on the staff of their office.

PRAEGER-KAVANAGH-WATERBURY, Architects and Engineers, New York, N.Y., announce that JOHN O'KEEFE and HERBERT F. SHATZMAN have become associates of the firm.

RATCLIFF-SLAMA-CADWALDER, Architects, Oakland, Calif., have named DONALD T. KASAMOTO and PETER GRAY SCOTT associates in the firm.

THOMAS E. STANLEY, ARCHITECTS, ENGINEERS, Dallas, Tex., announce the appointment of three new associates: DEANE MANNING, BILL BARNETT, and ORVILLE SUMMEY.

Continued on page 200

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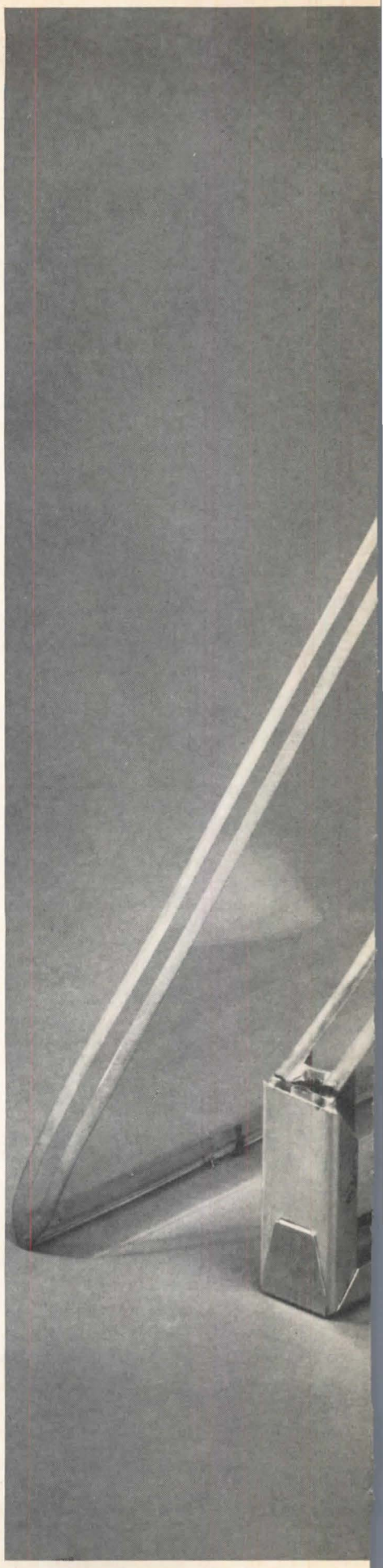

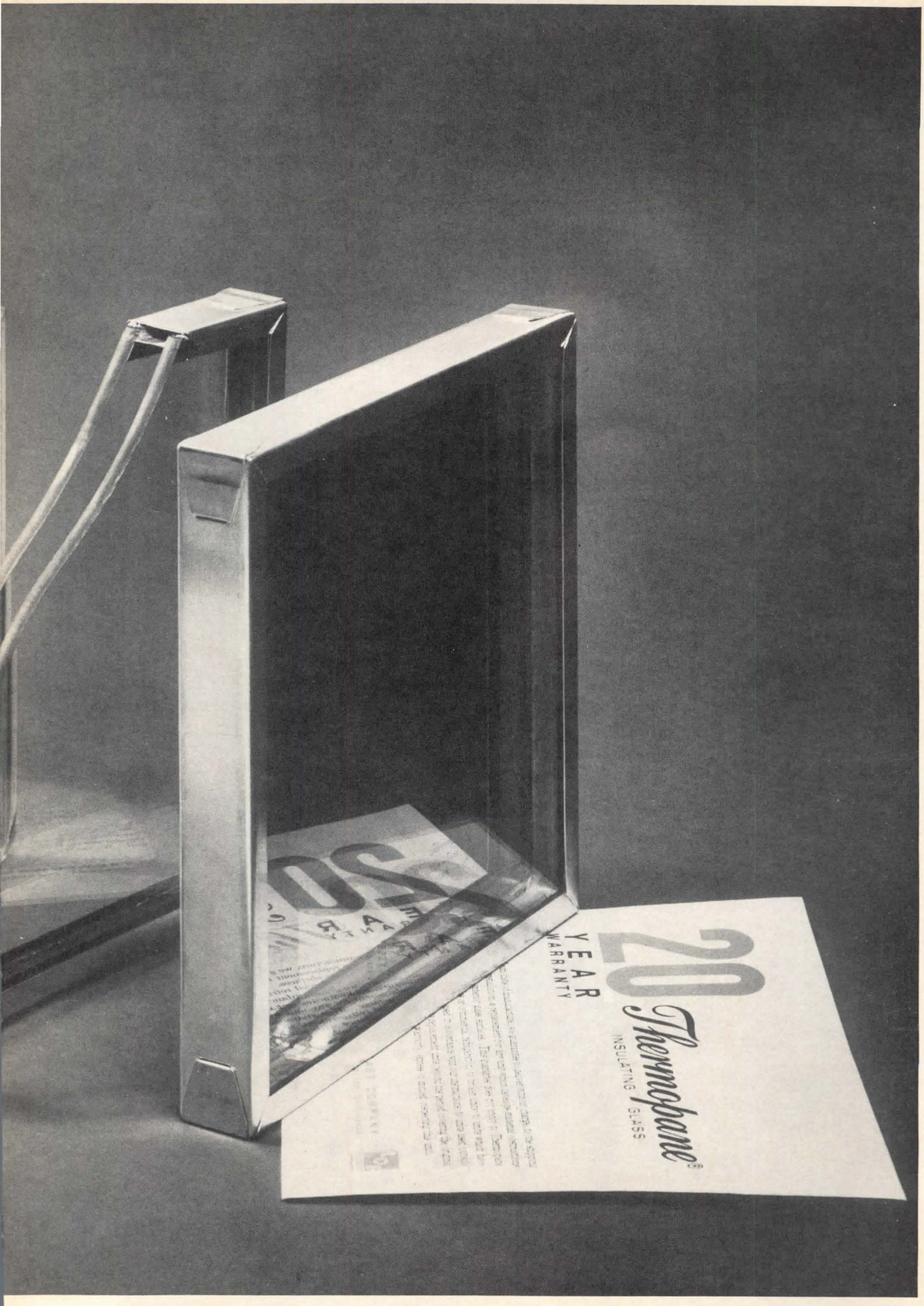
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Continued from page 197

Elections and Appointments

JOHNSON & JOHNSON ENGINEERS-ARCHITECTS, INC., Chicago, Ill., announce the appointment of JAMES E. ILLIFF as vice-president.

ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS, INC., Detroit, Mich., have named JAMES Y. RUST to the newly established position of administrative assistant in the firm's mechanical department.

CHARLES LUCKMAN ASSOCIATES, Architects and Planners, New York, N.Y., have elected SHERMAN SCHNEIDER of the New York office and STEPHEN A. LUCKMAN of the Los Angeles office vice-presidents of the firm. RICHARD A. MCKNEW has been appointed project architect.

SYLVAN R. SHEMITZ & ASSOCIATES, Lighting Consultants, New Haven, Conn., announce that BEN L. STAHLHEBER has joined the staff.

STONE, MARRACCINI & PATTERSON, Architects and Planners, San Francisco, Calif., announce the addition of JOHN D. CAPRONI to the staff.

SVERDRUP, PARCEL & ASSOCIATES, INC., Architects and Engineers, St. Louis, Mo., have made the following appointments: R.C. WEST, vice-president; W.J. ELY, member of the board of directors; L.A. BOSWORTH, assistant vice-president; W.H. RIVERS, assistant vice-president; W.F. LITTLEFIELD, assistant vice-president; R. D. BANE, assistant vice-president.

Name Changes

DEGA & STLUKA ASSOCIATES, INC., Landscape Architects, Madison, Wis., upon the admission to partnership of WILLARD J. STLUKA; formerly, HUGH A. DEGA ASSOCIATES.

GRIFFIN, MYNATT & KAATZ, INC., Architects, Knoxville, Tenn., upon the admission of JAMES F. KAATZ as a principle in the firm; formerly, GRIFFIN, MYNATT & ASSOCIATES, INC.

CLOVIS HEIMSATH ASSOCIATES, Architects and Planners, Houston, Tex., upon the association of W. IRVING PHILLIPS, JR., and ROBERT W. PETERSON; formerly, CLOVIS HEIMSATH.

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by Yusaku Kamekura, Preface by Paul Rand

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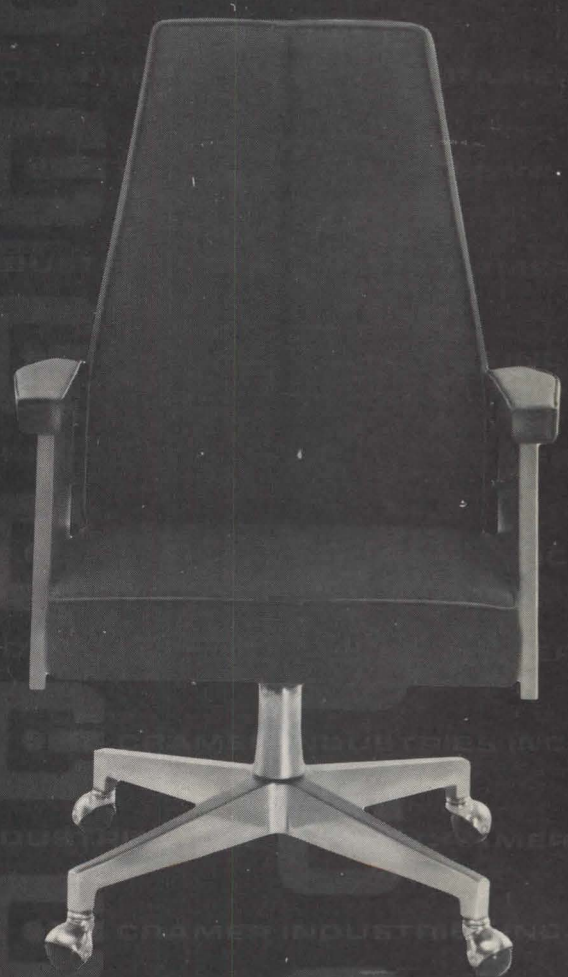

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ARCHITECT—Multi-divisional housewares manufacturer, headquartered in mid-west, seeking architect, industrial or interior designer with profound experience in colors and patterns for consumer products. Experience in exhibit design and corporate identity also helpful. Inquiries held in strictest confidence. Forward resume including education, experience and salary history to Box #540, PROGRESSIVE ARCHITECTURE.

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ARCHITECTS—Opportunities for well experienced and qualified architects at Washington, D.C. location of national firm. Major responsibilities involve coordination of job teams producing contract documents for major hospital and related facility projects. Background should include specification writing and estimating. Send resume to John Danielson, the Perkins & Will Partnership, 1030 Fifteenth Street, N.W., Washington, D.C.

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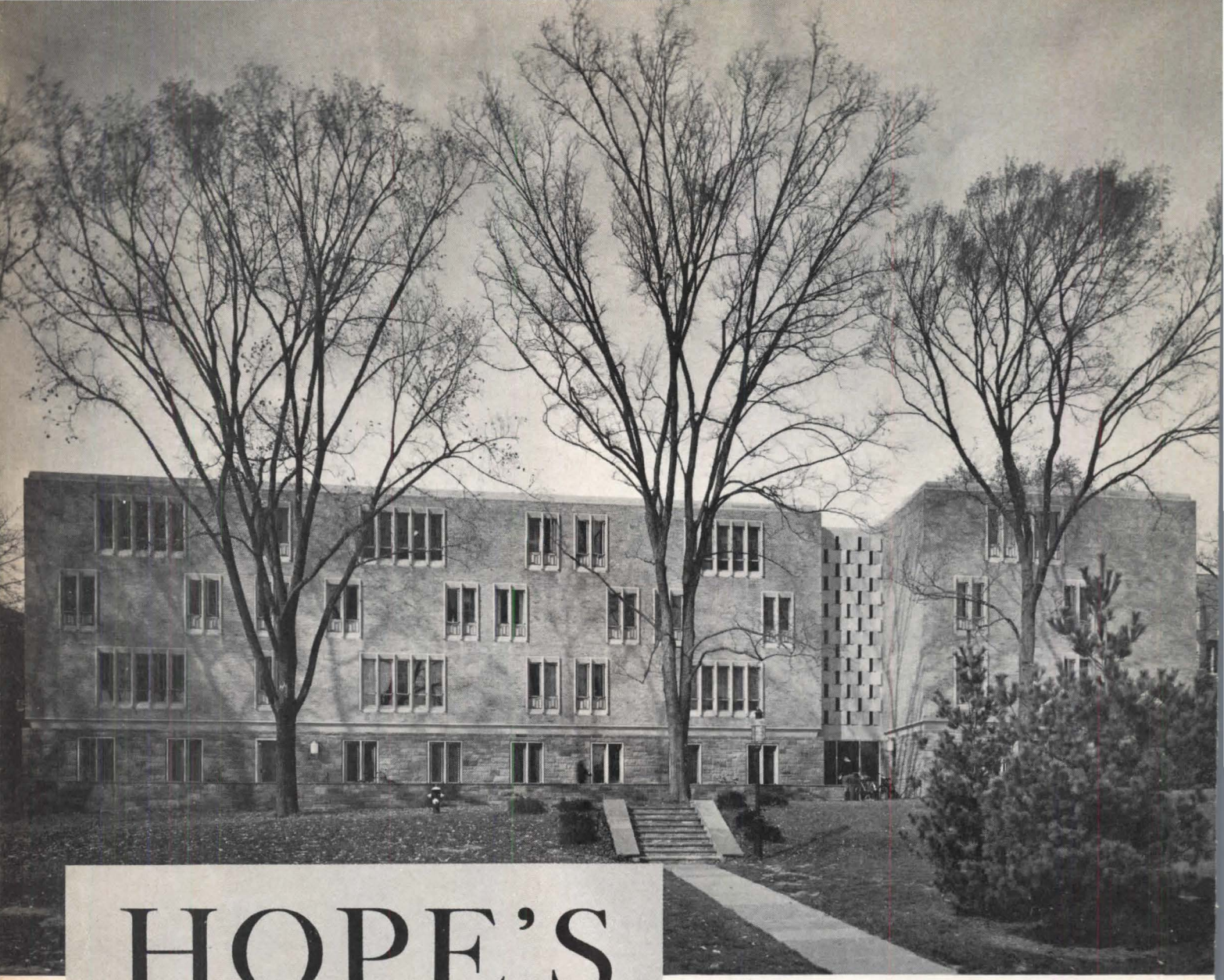

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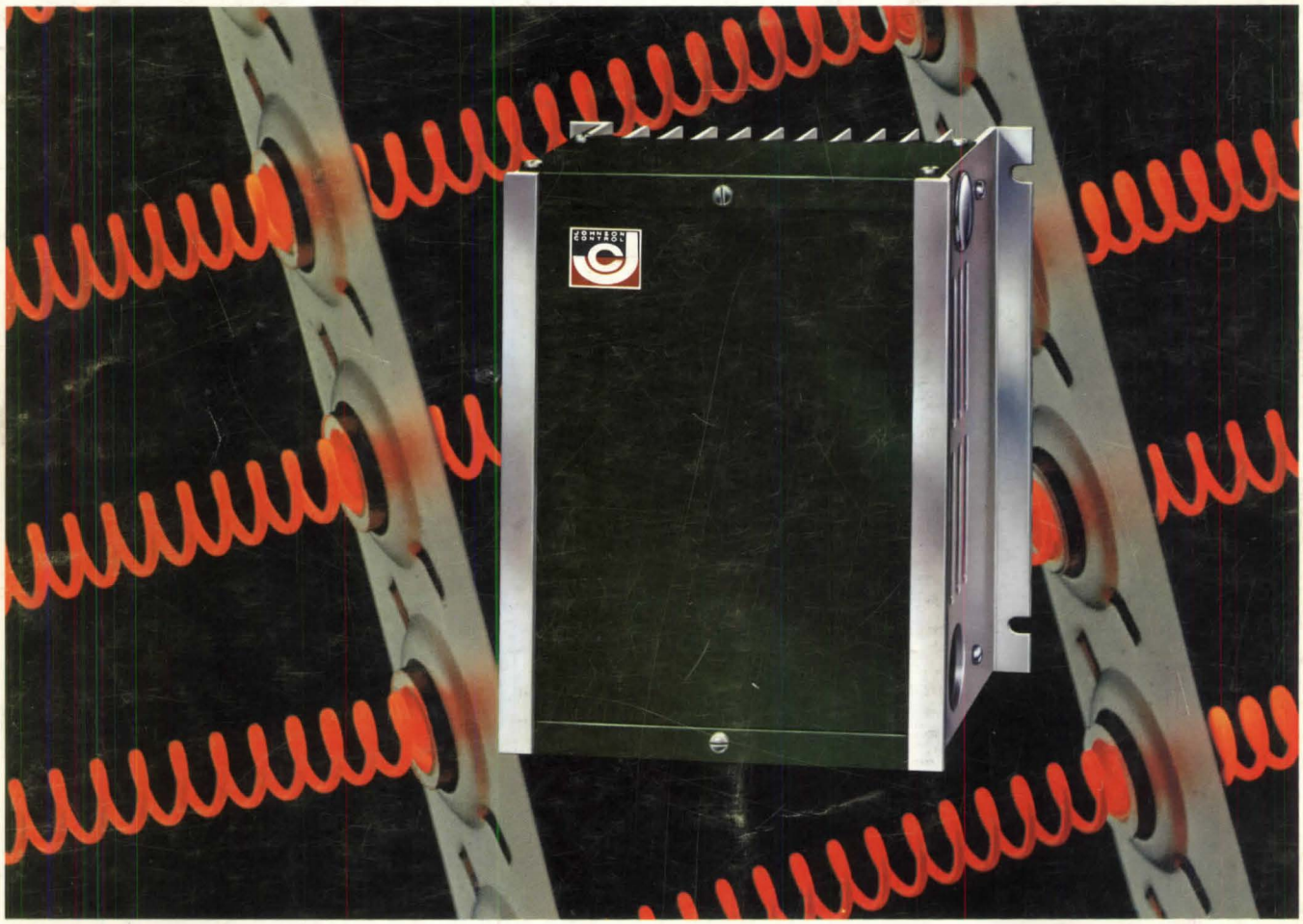

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