

ARCHITECTURAL FORUM THE MAGAZINE OF BUILDING SEPT. 1963

# FORUM









United Parcel Service Building, N.Y.C.  
 Architects: David and Earl J. Levy, N.Y.C.  
 Engineers-Architects: Abbott, Merkt & Co., N.Y.C.  
 Interior Architect: Edwin Harris, Jr., AIA, N.Y.C.

# Bold good looks— one of 6 reasons the architects used Armstrong Tessera Vinyl Corlon flooring in these new offices

This photo shows Armstrong Tessera Vinyl Corlon flooring installed in the national executive office and reception area of the new United Parcel Service Building, New York City. Tessera is a striking floor that's especially well



sited to distinctive custom installations. Although costing about 90¢ sq. ft. installed, its beauty and functional advantages make it an excellent long-term value for

new and remodeled commercial interiors. Here's a brief summary of the reasons why Tessera is often selected for these interiors.

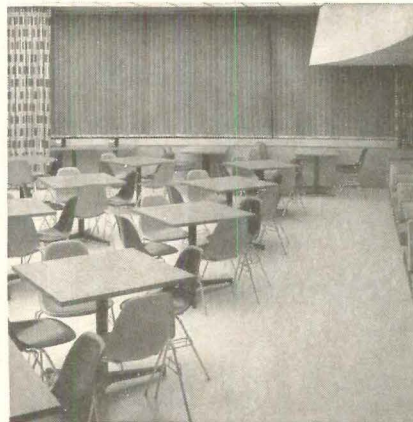
**1. Dramatic Color and Design** Tessera Vinyl Corlon is a boldly handsome floor. Its colors are rich and decorative, ranging from subtle off-whites and softly recessive hues to vibrant blues, deep apricot orange, and leather brown. Tessera comes in both monochromatic and multicolored stylings that will harmonize with any decorative scheme. And Tessera's random chip design adds interest to any interior without intruding on its other features.

**2. Distinctive Texture** The vinyl cubes in Tessera are raised slightly from their translucent vinyl setting, giving Tessera a gently textured surface. This texture complements



the other textured interior surfaces so widely used today. It also helps hide stiletto heel marks and conceal minor subfloor irregularities.

**3. Easy Maintenance** Tessera Vinyl Corlon comes in rolls 6' wide and up to 90' long, so it can be installed with a minimum of dirt-catching seams. Cleaning the dense monolithic surface is fast and economical. Because Tessera is resistant to staining and damage from grease, most alkalis and chemicals, food, and beverages, the architects installed it in the United Parcel Service cafeteria.



**4. Durability** .090" gauge Tessera Vinyl Corlon has proved itself extremely durable in countless commercial installations. Its design goes all the way through to the backing—won't blur or disappear in areas of concentrated traffic. The floors at United Parcel Service will serve for years and still keep their good looks.

**5. Can Be Installed Almost Anywhere** Tessera's exclusive moisture- and

alkali-resistant Armstrong Hydrocord Back enables you to specify it on or below grade, as well as above grade (except where excessive alkali or hydrostatic pressure is present).

**6. Excellent Material for Custom Designs** In these offices, the floor was designed to function as a spatial divider.

Largerectangles of a contrasting Tessera color are used to define conversation areas and furniture groupings. Strips in a third coloring echo the linear architectural features. Made in long, wide rolls, Tessera also lends itself readily to large-scale, curving custom designs.



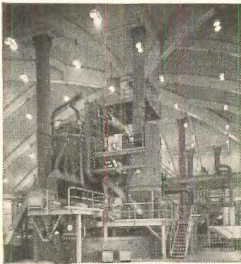
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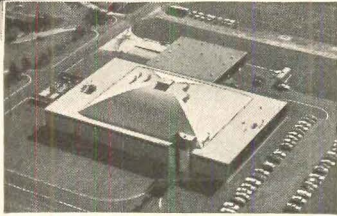
**Armstrong VINYL FLOORS**





### **Sloan's New Award-winning Foundry**

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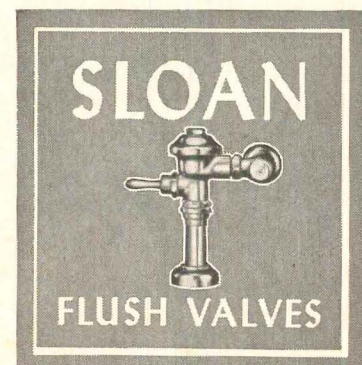
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*Two ways to build more schools (below)*  
*Minneapolis architects win Ruberoid Competition (page 7)*  
*New Pittsburgh study completed (page 8)*  
*Politics delay Boston's government center (page 11)*

## BIGGEST STATES TACKLE SCHOOL SHORTAGE

California and New York, the nation's most populous states, each came up with a proposal last month to meet the pressing need for more schools, built cheaper and faster. Beyond this shared goal, however, the two plans were as far apart as the states, and both promised wide-scale, if different, reaction.

### Stock schools for New York, components for California

New York's tentative solution is nine "stock" schools, which, the state believes, will provide "school districts with ready-made plans and specifications for a variety of school types at the lowest cost consistent with sound construction practices and educational objectives." The nine plans include three elementary schools, one junior high, two senior highs, and three combination junior-senior high schools. In each case, the basic scheme provides for future expansion. Plans are offered to school districts free on request.

New York spent two years and some \$1 million developing the nine stock plans. If the schools are built, says the state, they will cost 28 per cent less than custom-built schools. (Estimates range from \$543,600 for one 14-classroom elementary school to \$2.1 million for a 1,000-student senior high.) The figures—and the whole idea of stock plans—seemed sure to raise a storm among local architects and educators.

**Out West.** Some time ago, California gave up the idea of stock schools. The objections were

clearly presented in a FORUM round table (Nov. '61): 1) unexpected adaptations of the building to particular sites can cancel the savings; 2) the instructional program can be inhibited by making it fit the schoolhouse, rather than vice-versa; 3) stock school plans often cannot take advantage of improved building technology.

At that same round table were representatives of the Educational Facilities Laboratories of the Ford Foundation, and California Architect Ezra Ehrenkrantz. Ehrenkrantz proposed that a components system might be the answer to the U.S. schoolhouse problem. To find out if such a system could be developed, EFL spent \$230,000 to set up the Schools Construction Systems Development program at Stanford University's School Planning Laboratory with Ehrenkrantz as project architect and Educator James Laurits as project coordinator.

This team lined up 13 separate California school districts in the scheme. The 13 formed the first California Commission on School Construction, and announced that they would need and build a total



SCSD project staff with Laurits, center, and Ehrenkrantz, right

of between 1.4 and 2.4 million square feet of new school space by 1965. Meanwhile, SCSD had worked out performance standards for its components system.

It had to be a new system; no available products could both fit the schoolhouse budget and provide the flexibility the planners felt necessary. What SCSD proposed was a method of large-scale, prefabricated components, integrated and modular to provide a high degree of flexibility and perform many functions. Architects would still be able to design individual schools for particular sites. The cost of construction would be reduced, however, through mass production of the components, and the construction time reduced through prefabrication. Moreover, architects would be freed from the time-consuming selection of structural and mechanical systems to devote more time to programming, design, and planning.

At present, the major components included are 1) structural, 2) heating and ventilation, 3) lighting, and 4) interior partitions.

With performance standards established by the SCSD and an assured \$30 million market among the 13 districts, the new method went to its test: would and could the building industry develop

and manufacture the components?

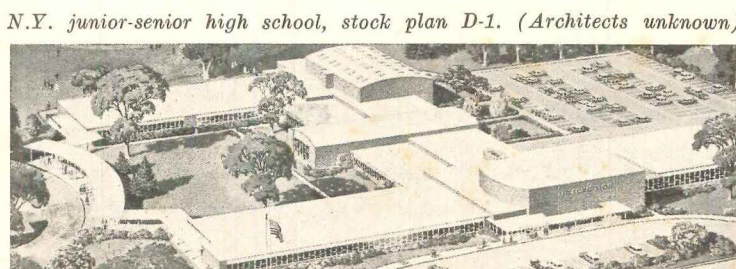
Some 95 leading manufacturers indicated their interest by attending a pre-bid conference at Stanford University. Some telling points were made: The market for school components was described as depression-proof and enormous. The immediate 13-district market would be large enough to justify the development of new products—preferably by cooperation among manufacturers—and small enough so that failure would not constitute a financial disaster.

There were significant questions, too. Would different manufacturers be able to work together? What would labor say about multi-use products that may cut across trade lines? And the biggest question: can the research gap (see page 122) be filled by the building industry itself?

**Close to success.** The answer began to become apparent last month when letters of intent started to come in from some 79 manufacturers. Actual bids are due on Oct. 31.

There is still a long way to go before the SCSD plan can be implemented. But last month's response presages a revolution in the building industry that might not be limited, in the long run, to California—or to schools.

*continued on page 7*



*N.Y. junior-senior high school, stock plan D-1. (Architects unknown)*





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continued from page 5



Hodne Associates keep existing patterns in East Harlem neighborhood

### RENEWAL GAINS FROM RUBEROID CONTEST

Hypothetically, it would be hard to find a better way of using a privately sponsored national competition than the scheme which The Ruberoid Co. hit upon this year: setting the problem in an existing urban renewal site in upper Manhattan and offering the winner an inside track for the commission (*News*, Feb. '63). Last month, the results of the competition were announced—and along with them, the statement of the jury member most deeply involved with the solutions.

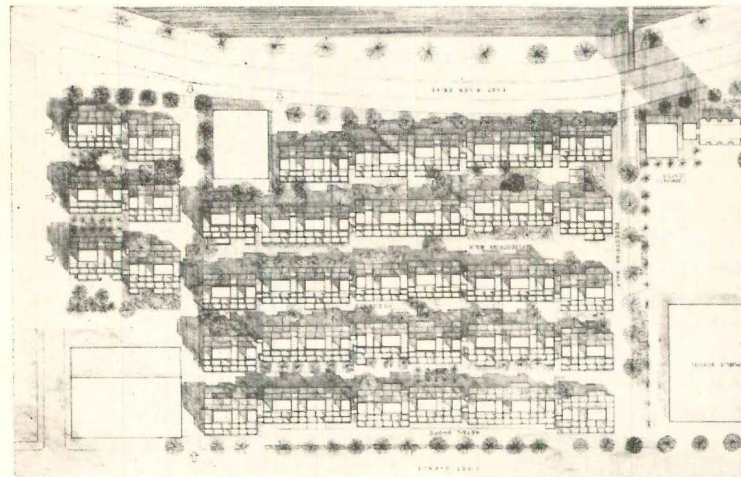
Wrote Chairman Milton Mollen of New York City's Housing and Redevelopment Board: "We did not come across any outstandingly brilliant or entirely original ideas. . . . [Perhaps] we had expected too much from the architectural profession. . . . I am hopeful we can take the first-prize design and have it constructed. Aside from the top entry, there are other

ideas I hope we will be able to experiment with in New York."

The 253 entrants in the Ruberoid competition (some 7,000 had asked for entry forms) were faced with a problem which demanded that they be both practical (low-income housing) and original. The level of submissions was high—but none solved the problem as completely as had been hoped; the same problem has stumped architects and city planners for a long, long time.

Winner of the \$10,000 first prize was Hodne Associates of Minneapolis. Their solution, in the jury's opinion, was "carefully thought out and beautifully presented." Featuring an imaginative use of the river front (above), it also preserves the existing street patterns, and, for the most part, the low-rise buildings of the neighborhood. The seven-man architectural team provided for parking and

Entry by New York team emphasizes an intimate, residential scale

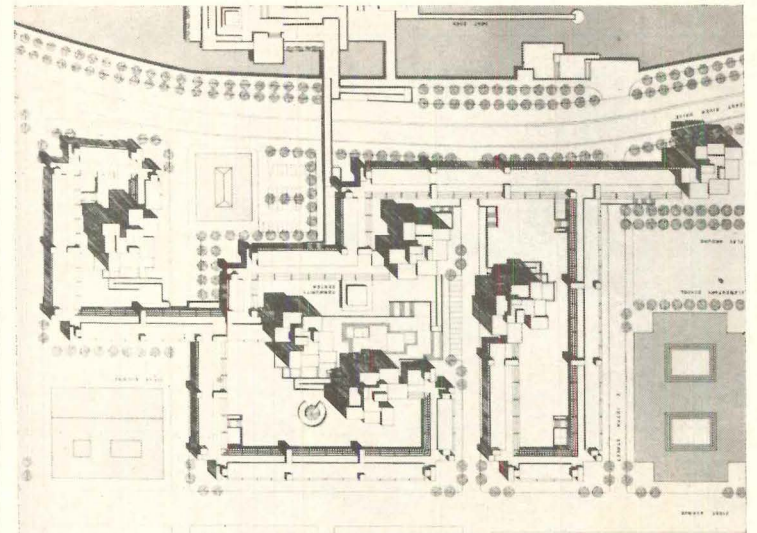


recreation areas with indentations in the streets. Near the waterfront, four slender towers rise. Just how the towers could be economical, while so slim, is not stated, but the jury was impressed by the scheme's solution for communal areas: space is set aside on every third floor for recreation and sunning.

Second prize (\$5,000) went to the New York team of Edwin Stromston, Ricardo Scofidio, and Felix Martorano. Stressing private living with a wide variety of low

Boston Architects Hanford Yang and Amiel Vassilovski won third prize (\$2,500) with a daring scheme which uses low-rise buildings, with retail shops at ground level, as an almost continuous wall around the project (below). Six towers punctuate the pattern. There is a good deal of interior open space for the community, and parking is hidden.

Three student prizes were also awarded. Robert Holmes and Richard Wright of the University of Illinois were awarded the



Yang and Vassilovski's submission contains six high-rise buildings

buildings, the submission (below, left) includes a tower for efficiency-apartment units. No automobiles would be allowed on the streets; parking facilities would be reached from the north by subterranean ramps. While noting the attractiveness and originality of the solution, the jury also pointed out that the scheme breaks with the East Harlem neighborhood, and that the "unlawful narrowness of the streets prevents casual play and confines people to live in very close physical and visual contact, which could create social problems."

\$2,000 first prize for a scheme which features the use of pre-fabricated frame systems. Second prize (\$1,000) went to Michael Wurmfeld of Princeton; Philip Shive, Woodrow Jones Jr., and Gerrard Raymond of North Carolina State won the \$500 third prize.

The blue-ribbon jury, headed by Planner Albert Mayer, consisted of Architects Harry Weese, Sir Leslie Martin and David Crane, Redeveloper Lewis Kitchen, Planner Herbert Gans, and Milton Mollen. Architect B. Sumner Gruzen served as professional advisor to Ruberoid.

### NABOM WARNS BUILDERS ON OFFICE GLUT

The National Association of Building Owners and Managers (NABOM), which has to know about such things, defines the "accepted safe limit" of vacant office space as 10 per cent. According to NABOM's recent semiannual survey, this figure was exceeded in 55 of 143 cities. The report

also noted that the overall occupancy change (down 0.78 per cent to 92 per cent since the last survey) was "the biggest we have had in a long time." Quite obviously, many cities have been building more office space than they can use.

Surprisingly, some of the cities

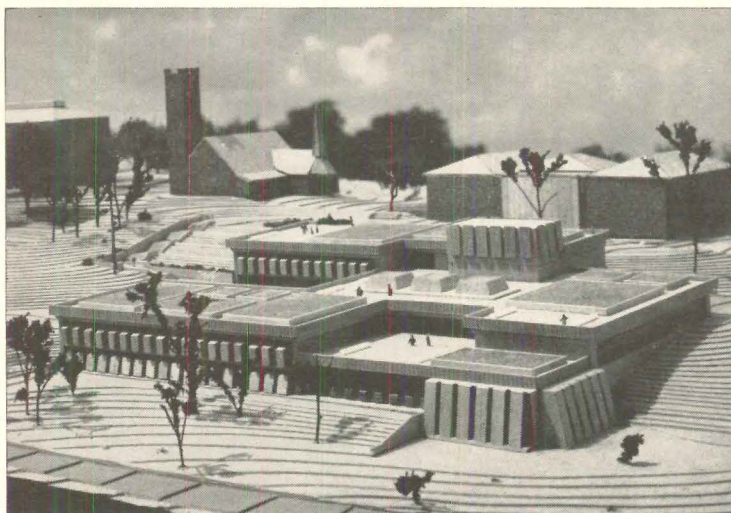
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where the most important office construction has taken place in the past year (FORUM, May '63) are still "safe": New York City has a vacancy rate of only 2.91 per cent. Hartford's rate is 4.31 per cent, Boston's, 6.24 per cent, and Chicago's, 7.46 per cent. Baltimore, however, skirts the danger line with a 9.96 per cent rate, and Detroit passes it with 12.5 per cent. To no one's amazement, the U.S. city with the highest office vacancy rate is Houston (26.91 per cent), where five huge office structures includ-

ing the Humble Oil and Tennessee Gas Co. buildings (see page 124) have opened recently.

Houston's problems have presently been topped only by those in Montreal, where the vacancy rate stands at a whopping 27.14 per cent, due to the addition of such buildings as Place Ville Marie. Contrasting with these melancholy figures, Washington, D.C., reported almost 100 per cent occupancy—but some 2.1 million square feet of new office space will come onto the market there this year.



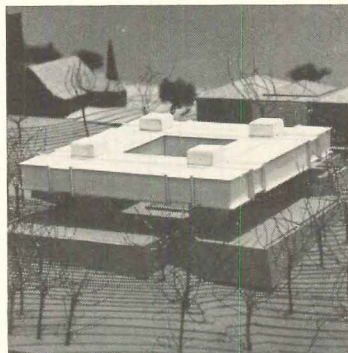
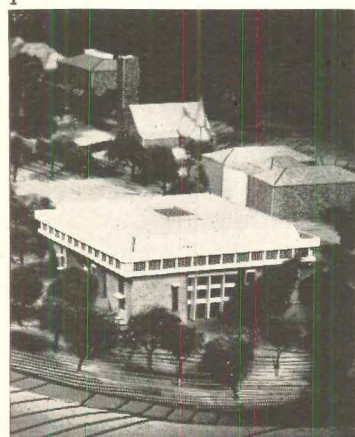
### TUFTS ELATED WITH NEW LIBRARY DESIGN

Perhaps the most attractive part of Tufts University in Medford, Mass., is its placement of major buildings along the ridge of a steep hill, leaving the long slopes green. When university officials decided Tufts needed a new central library, however, they found that the only open space they could use was right on this very

hillside. To get the best design possible, the University, with the cooperation of the AIA (see *Letters*, page 37), held a special type of closed competition for the \$3 million building. Tufts is delighted with the result, will start construction in the near future.

The winning submission (above) is by the Boston firm of Campbell & Aldrich. It alone of the competitors keeps the feeling of the topography by stepping the building up the hill; it also preserves the natural landscaping by planting on the roof terraces.

Although a rather flamboyant design, with balanced elements and a faintly Aztec look, the three-story building will not clash with the older, more sedate buildings on the hill. Only its mechanical penthouse protrudes over the ridge. The seemingly massive fortifications are, in reality, alcoves for individual study.

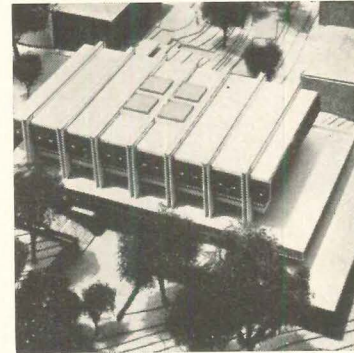


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Entrance is through the middle level which also serves as the main floor. Specialized collections will be housed on the top floor, and general collections on the lowest level. The split-level design eliminates the need for elevators.

Three other Massachusetts firms entered the competition (photos): The Architects Collaborative (1), Shepley, Bulfinch, Richardson & Abbott (2), and Perry, Shaw, Hepburn & Dean (3). Each received \$5,000; the winners got \$10,000 and the commission.

The preparation for the com-



3

petition was painstaking—and to a large degree ensured its success. Directed by Walter F. Bogner of the Harvard School of Design, it included highly detailed information about the difficult site, a scale model of the hillside, and the aid of a professional estimator to determine costs. Each submission went almost as far as working drawings; to make the choice equally realistic, three high-ranking Tufts officials were included on the jury along with Architect Lawrence Anderson and Landscape Architect Hideo Sasaki.

### POTENTIAL FOR PROGRESS IN PITTSBURGH

Now in its fifteenth year, the federal urban renewal program is currently going through a period of adolescent self-analysis. Notable studies have been made in such cities as Newark and Detroit, and most recently, a candid report on the redevelopment of Pittsburgh has been released. The so-called "Urban Renewal Impact Study," financed by the Ford Foundation and local agencies for only \$46,000, was put together by ACTION-Housing, Inc., a private, nonprofit organization which already has a solid record of achievement in the promotion of better housing throughout Allegheny County.

The study points out the inadequacy of Pittsburgh's redevelopment effort so far, and calls for "comprehensive renewal programming within a framework of regional, county, and municipal planning." This will involve a great deal more than just upgrading housing, which is admittedly poor (e.g., nearly one-quarter of the county's housing is still deficient—most of it in Pittsburgh proper—and the renewal effort so far has

affected only 16 per cent of this; at the same time, new homebuilding is adding only 1 per cent annually to the housing inventory).

The study indicates a need for at least 40,000 more jobs by 1970, based on modest estimates of population increase. Unless these jobs are provided, Pittsburgh's young adults will continue to leave, further weakening the city's economic chances. (Between 1950 and 1960, some 70,000 persons between the ages of 20 and 29 left the county, a 29 per cent drop in this age bracket. The average decline for all large U.S. cities in the same period was only 9 per cent.)

The labor force desperately needs upgrading, to provide the skilled technicians needed to staff the growth industries expected to come into the area, particularly as the Oakland District plan proceeds (FORUM, March '63).

**Vital needs.** A critical element in this upgrading is the area's Negro community, which the report characterizes as "a highly segregated minority group, with



under utilized talents, generally economically depressed and discriminated against." As first steps in ending such waste and injustice, the report recommends job retraining programs, school enrichment programs, and more scholarship aid for Negroes who want to go to college.

Other high-priority needs noted include a coordinated transportation system, a new pattern of social services tied closely to job retraining and neighborhood conservation, and coordinated fiscal planning between all levels of government. The latter is especially vital in light of the amounts likely to be expended in carrying

out the study's broad recommendations: some \$250 million of local government funds, another \$50 million in state grants, and \$680 million of federal money. These public investments are expected to generate over \$2 billion of private investment.

Pittsburgh's study is a particularly realistic one. But there is no mistaking its urgency: "Either we will stagnate in a welter of obsolescence," concludes the report, "or we will gear up a comprehensive program aimed at invigorating our economy and enhancing the livability of our communities, thus enabling us to compete effectively with other urban areas."



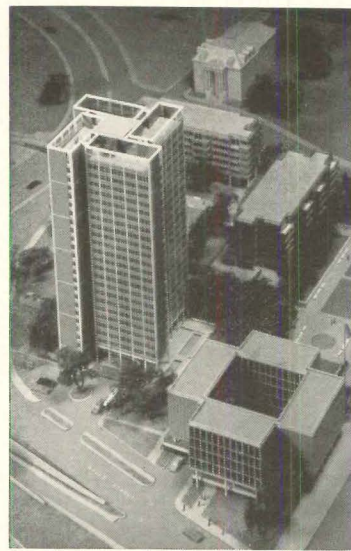
### HARTFORD COMPETITION WON BY REYNOLDS

"I don't think that I have ever seen such a good urban renewal competition," a Hartford, Conn. redevelopment official said last month. He was referring to the Bushnell Plaza project in downtown Hartford, which a team of local businessmen, Reynolds Aluminum, and Architects I.M. Pei & Associates and Henry F. Ludorf won last month (see rendering, above).

It was good from the beginning. Eight major developers competed for the 7.6-acre project, which will include luxury apartments in a park setting, an office building, theater, retail facilities, and parking. Most of their bids fell around \$10 million, but the competition hinged on overall design.

A three-man board of review (Architect-Planners Olindo Grossi and Christopher Tunnard, New York Realtor John White) was set up by the Hartford Redevelopment Agency to advise on the submissions. By early July, this panel had narrowed the field down to three unusually strong entries.

Competing against the Reynolds team was a co-venture of the General Electric Co. and the First Hartford Realty Corp., with Architects Emery Roth & Sons and Philip De Corcia, and a newly formed group called Urban Hartford Co. (backed by the GE Pension Fund), with Architects Skidmore, Owings & Merrill and Huntington, Darbee & Dollard. The financial ability of each of

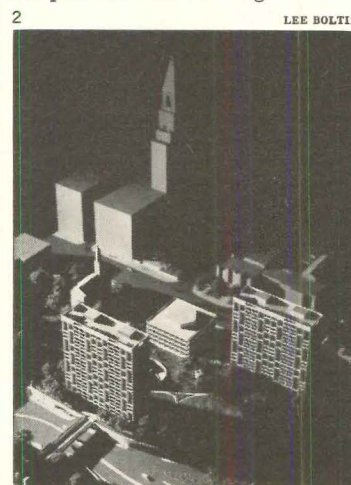


1 EDWARD SAXE

these competitors was deemed excellent.

It was Pei's design that won the day for Reynolds. He placed a public park on the main street, kept the commercial facilities subordinate to the institutional character of the area, and connected the project with the neighborhood both visually and through a carefully studied circulation pattern. The board of review was not so pleased with the 30-story height of the elegant twin apartment towers—an aspect of the Pei plan which the First Hartford Realty Co. said "broke the rules of the game" by exceeding the original height limitations by 63 feet. Despite this objection, the Hartford Redevelopment Agency approved the plan on August 9.

The Roth design (model photo 2) was praised for its skillful handling of the apartment types, but criticized for its treatment of the park and for the large amount



2 LEE BOLTIN

of ground covered by buildings. SOM's scheme (2) provided for a landscaped, level platform over the entire tract. While all commercial facilities would be tastefully located below the platform, the net result of the platform concept, said the panel, might be a "self-sufficient concrete mass." SOM's individual buildings, however, were highly praised.

Final approval of the \$10.5 million Reynolds plan awaits a Hartford City Council meeting. Already, the Aetna Life Insurance Co. has indicated that it would provide mortgage money. Reynolds will manage the project as well as share capital requirements with the local group, Capital City Associates. Summed up a redevelopment official: "Bushnell Plaza is a nice piece of ground. It deserves the careful treatment."

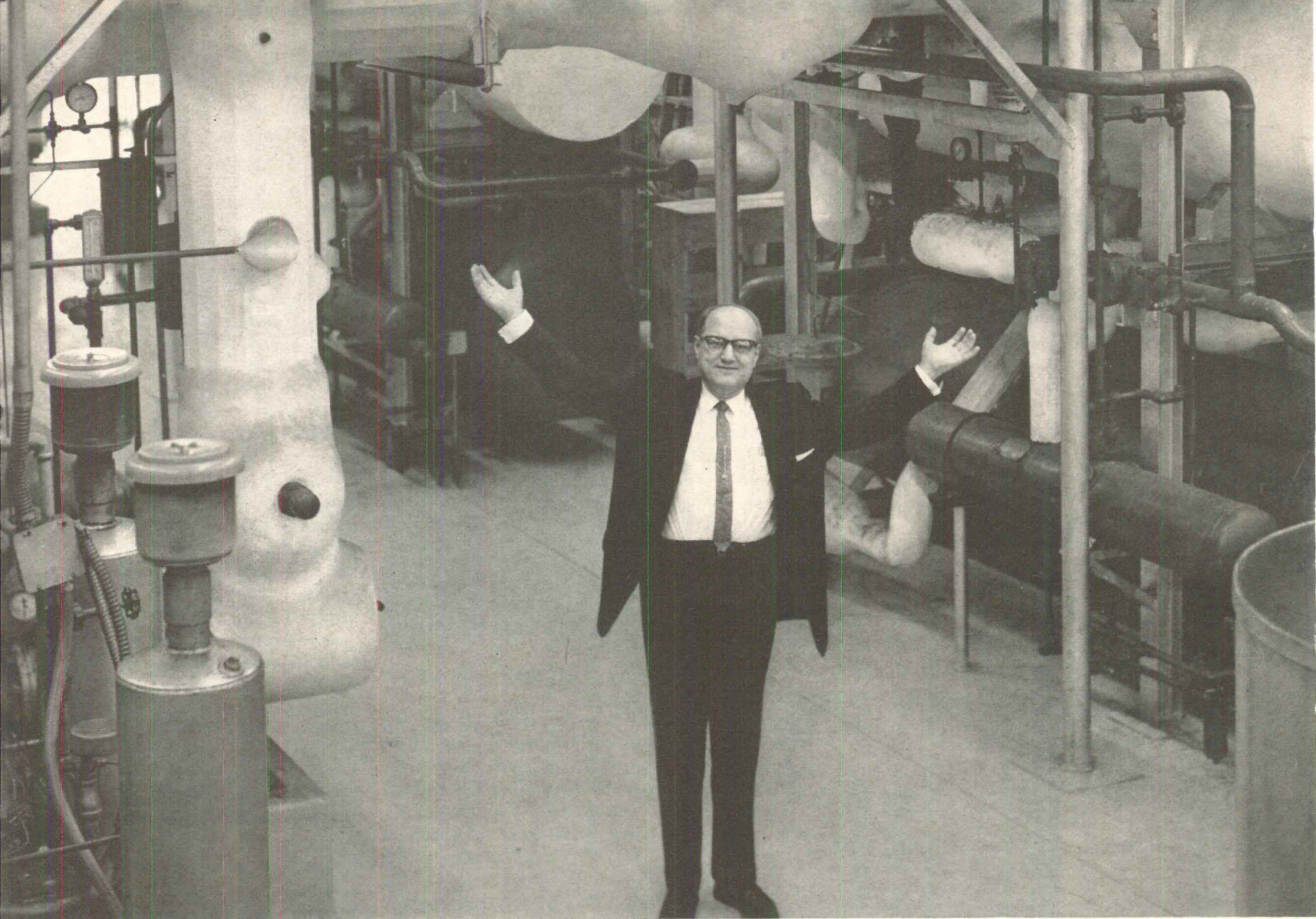
### URBAN AFFAIRS JOB

Recognizing the plight of cities swamped with such primarily "physical" problems as mass transportation and housing, the White House last month contemplated the establishment of a special commission to study these subjects. To be made up of cabinet members and representatives of the HHFA and the Federal Aviation Agency, the commission will first confer with community leaders in some 40 cities. Observers feel that these conferences, concluding with a large-scale December meeting in Washington, D.C., could lead directly to another request for a cabinet-level urban affairs post to co-ordinate present government-sponsored urban activities.

A possibly related announcement came from Washington last month. Most of the government agencies concerned with housing and urban affairs will be located in a new \$29 million building in the Southwest Redevelopment area. The architects: Marcel Breuer & Associates and Nolen, Swinburne & Associates. Besides being a putative first step in coordinating the agencies, it is also the first large commission the General Services Administration has awarded under the leadership of its architectural chief, Karel Yasko.

continued on page 11





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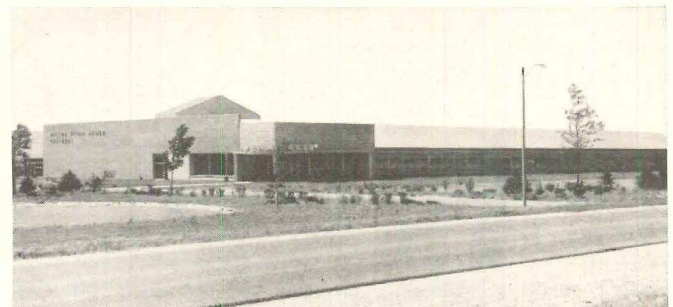
For architects and consulting engineers, total electric space conditioning offers the modern method for combining heating, cooling and lighting into one efficient operation using a single source of energy. In many cases, recom-

mended lighting levels can provide a substantial part of the heat as well, thereby reducing the size, space requirements, and cost of heating equipment.

If you are interested in finding out ways in which total electric space conditioning can help you in the design of industrial and commercial buildings, contact your local electric utility company. They will welcome the opportunity to work with you.

### **BUILD BETTER ELECTRICALLY**

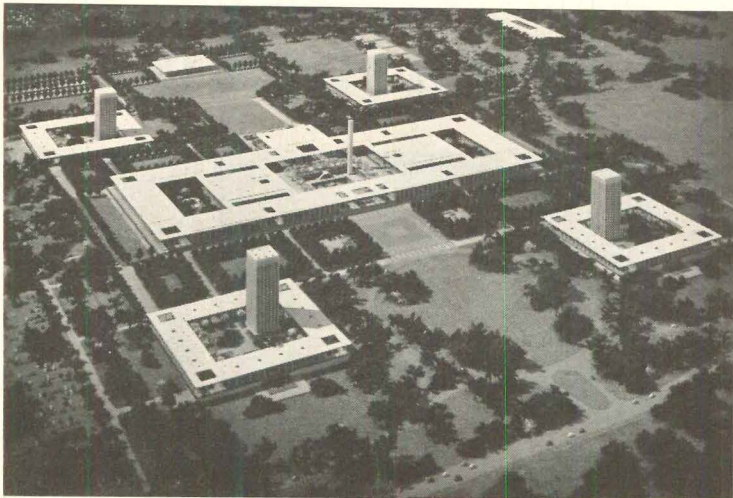
Edison Electric Institute, 750 Third Avenue, New York 17



**CITED FOR "IMAGINATIVE BOLDNESS,"** the award-winning Flick-Reedy plant features total electric design. Architect-engineering firm was Zay Smith & Associates, La Grange, Illinois.



continued from page 9



### N.Y.'s BIG COLLEGE PROGRAM PROGRESSES

Early this month, the first \$23 million in construction contracts for a vast \$70 million campus in Albany, N.Y. (above) went out to bid. Architect: Edward Durell Stone. Client: the State University of New York.

The Albany campus is only part of a massive, \$1 billion construction effort by the state-wide University to meet its enrollment obligations during the next decade. With projections of students wishing a college education showing an almost threefold increase from 1960 to 1970, State University of New York has devised a master plan which will add five new campuses and enlarge the 56 existing units including two- and four-year colleges and post graduate centers.

It is a bold program, and unusual in many respects. Significantly, Governor Rockefeller and his advisers have specified that good design be part of the plan. The roster of some 47 architectural firms already signed up includes such distinguished names as Skidmore, Owings & Merrill (for campus planning and building design in Buffalo and Oswego), I. M. Pei (for campus planning in Fredonia), Edward Larrabee Barnes (for campus planning in Potsdam), and Ulrich Franzen (for a home-economics building at Cornell).

To make sure that these and other architects stay interested in building for State no matter what size the actual job, a sliding-scale system of architectural fees has

been devised: an architect will get a 5.25 per cent fee on work costing over \$5.5 million, up to 8.75 per cent for an under-\$70,000 job.

Another intriguing aspect of State University's program is its careful financing. A State University Construction Fund was formed by legislative action in 1962. Its three trustees (N.Y. Bell Telephone President Clifton Phalen, N.Y. State Housing Commissioner James Gaynor, and Architect George Dudley) are charged with expediting construction. Direction comes from State University's own Board of Trustees, which decides what buildings to build, and where.

When plans for each unit have been worked out, the University agrees to lease the new buildings from the Construction Fund. The Fund then turns to the state's Housing Finance Agency or State Dormitory Authority to finance the cost through a bond issue. These bonds are repaid through university revenues such as tuition charges and dormitory rents. Taxpayers' funds are not involved.

New State University colleges at Harpur and Stony Brook have already opened their doors to 2,237 students. Besides Albany, campuses at Alfred and Canton are under way. By 1970, says a university official, the expansion program will have allowed State's full-time enrollment to grow by almost 100,000 from the 68,000 students it had during 1962-63.

### CITY COUNCIL STALLS THE BOSTON CENTER

One of the biggest and most celebrated urban renewal projects in the U.S. is Boston's \$200 million Government Center (*News*, May '63). In the last six weeks, however, the city council has twice voted down the project. Five of the nine councilmen maintain that the inclusion of a private 30- to 40-story office building for Realtors Cabot, Cabot & Forbes, on the edge of the center, violates a section of Title I which allows private developers to compete for any project. Boston officials deny the charge.

The big problem, however, is political. Up for reelection this fall is Mayor John F. Collins, with two of the nine council members, Gabriel F. Piemonte and Patrick F. McDonough, running in competition. Collins, with reason, is identified with Boston's Redevelopment Administration, led by Edmund J. Logue. An attack on it seems to be an easy way for other candidates to gain votes.

The site for the controversial \$20 million building contains an old office building at No. 10 State Street, and the New England Merchants National Bank. The bank is to be a major tenant of the proposed building with Cabot,

Cabot & Forbes. No. 10 State Street has suggested that it build its own new structure on the site, conforming to the overall plan.

It is unlikely the issue will come to a third vote until after the mayoral elections in November, but BRA remains in the public spotlight. State Auditor Thomas J. Buckley submitted a 174-page report last month complaining about the money BRA has wasted. To add to the uproar, the council voted 5 to 4 for an investigation of BRA, has invited Senator John McClellan (D., Ark.) and his Senate investigations subcommittee to look into the problem. Replied Logue: "I have great respect for McClellan, and I know he has more to do than chase around for a couple of two-bit candidates."

In the meantime, Candidate McDonough has called for open competition among developers to acquire the disputed site. Whatever the ultimate effects on the office tower for Government Center, they might not be so serious as this open threat to Boston's whole redevelopment process, which has only recently, under Logue's direction, begun to shake itself free of economic and physical stagnation.

### BRIEFS IN THE NEWS

**Denver plan.** After 29 months of study, the Downtown Denver Master Plan Committee last month issued its recommendations for a ten-year revitalization program. Included in the \$577 million development are a new \$165 million freeway and parking-garage system, a \$10 million convention-cultural center, and a \$30 million urban renewal program to clear 30 blocks of the lower downtown area. One feature of the study is a complete economic survey of downtown by an independent real estate firm. Initial reception of the plan: favorable.

**More apartments.** The National Association of Home Builders' division of Economics and Policy Planning, under director Nathaniel Rogg, recently issued a report on "The Rental Housing Boom of

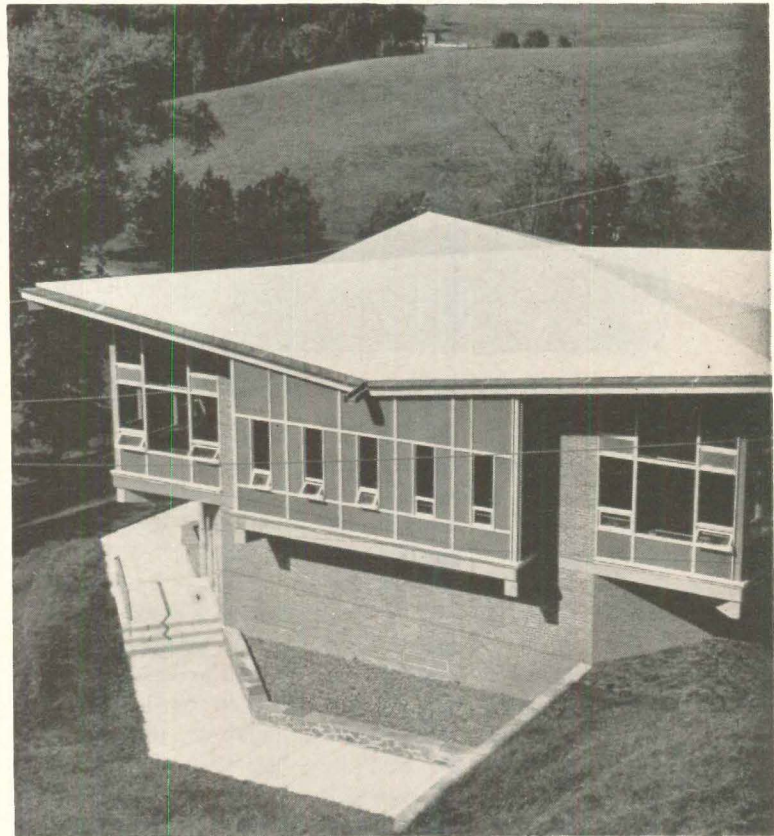
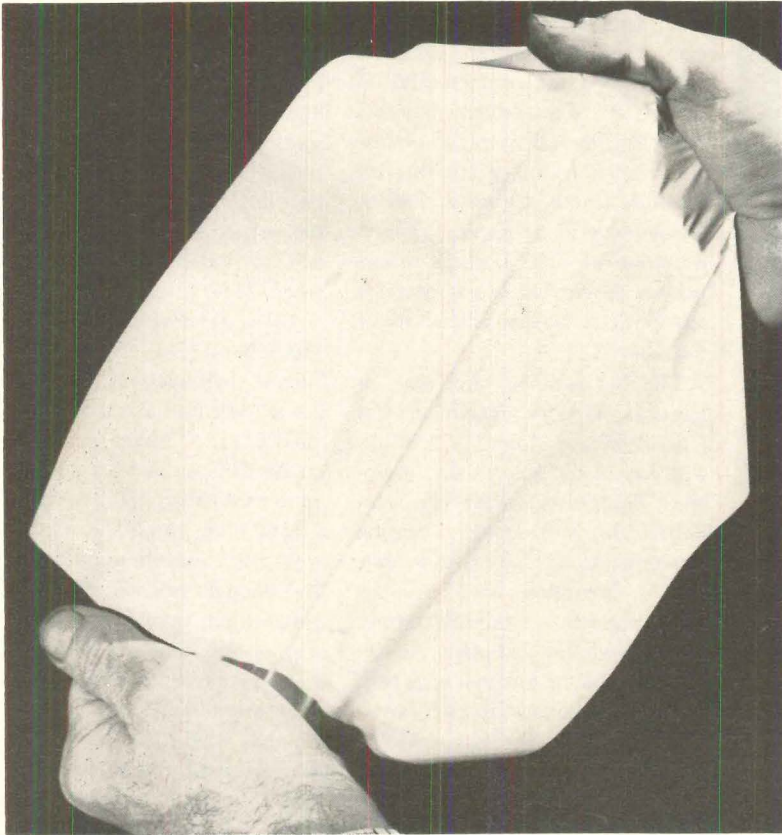
the 1960s." One finding is that by 1970, due to changes in age groups and population, "the demand for renting will be about the same as the demand for owning." Meaning: apartments will continue to lead the building boom for the next few years.

**Declaration of Delos.** The diverse group of urban experts brought together in Greece by Planner Constantine Doxiadis (*People*, Aug. '63) recently agreed that the problem of "human settlement" is as pressing as that of food or health, and that to deal with this problem, a comprehensive new science must be invented. How this might be accomplished was left a little vague, but the 34 specialists did map out a few initial steps: bringing in specialists from other fields, working out new methods for training future leaders and initiating research.

continued on page 15



# Du Pont TEDLAR® is a tough film-finish that keeps roofing and



## Advantages of a film-finish

Unlike a liquid or a spray, TEDLAR\* PVF film is a tough, new exterior finish of plastic film. Extensive testing by Du Pont shows it resists chipping, cracking, blistering, peeling, fading and chalking to a remarkable degree.

TEDLAR is factory-bonded to building products, using special Du Pont adhesives. Bonded in this way, TEDLAR becomes an inseparable part of the material it protects.

A surface of TEDLAR gives long-term protection without refinishing. How long is long-term? We frankly don't know because we haven't been able to wear it out yet. But, properly bonded to a stable material, we predict TEDLAR will last up to 25 years... perhaps even longer.

## Surface any shape roof

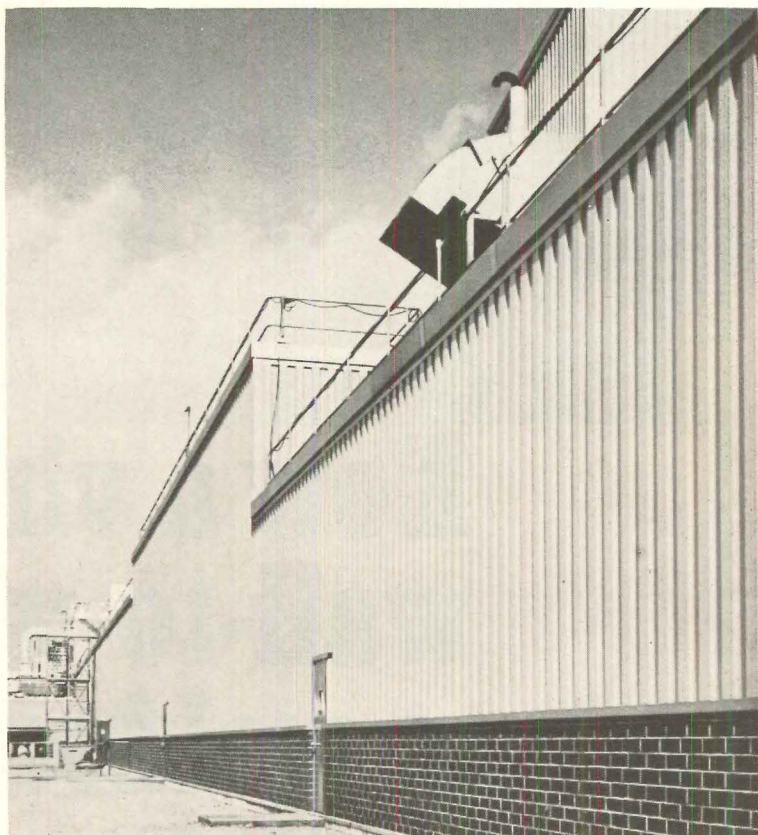
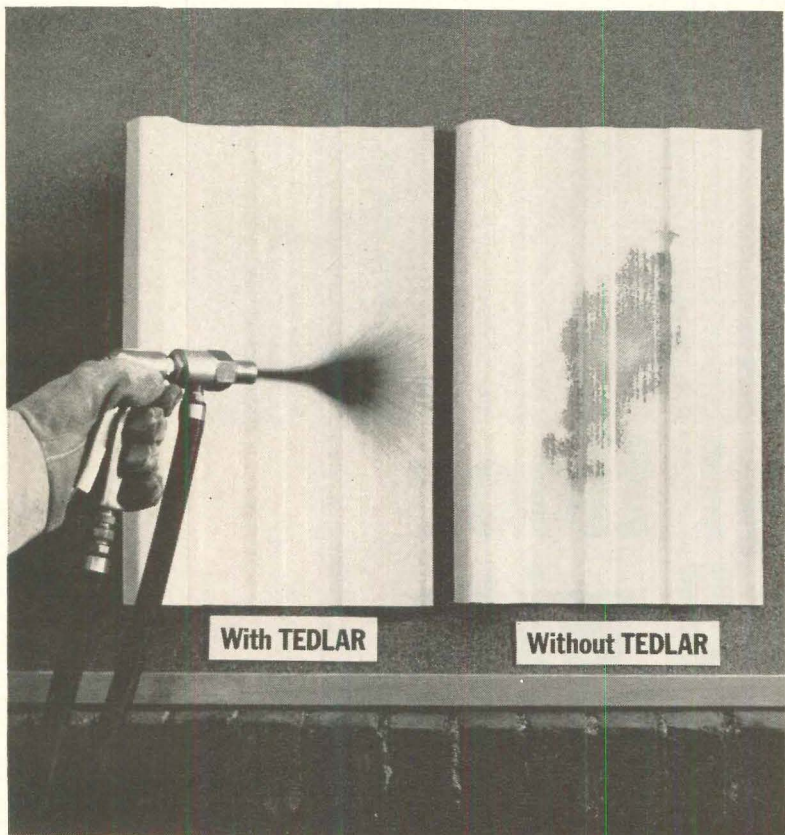
This school library has a built-up roof containing only two plies: a base sheet plus a top membrane surfaced with TEDLAR. Applied with conventional techniques, roofing surfaced with TEDLAR will cover any shape from folded plate to compound curves.

Because TEDLAR retains its original high reflectivity, air-conditioning loads are reduced.

Whether the climate is drenched with humidity or baked dry, TEDLAR lives a long and beautiful life.



# siding looking new for up to 25 years.



## Sandblasting tests prove durability

The siding on the left, surfaced with TEDLAR, was subjected to a punishing sandblasting test—and came through unharmed. The same test ripped apart the conventional finish on the other siding. This durability of TEDLAR makes it virtually impervious to heat, cold and ultraviolet light. Weather, good or bad, doesn't affect it.

No ordinary hazard—like rust, tars, acids, alkalis—will harm TEDLAR, either. This finish, available in a range of colors, is perfectly smooth, with no pinholes to let in moisture. Atmospheric corrosion can't harm it. And howling sandstorms may leave a layer of dust, but that's all.

## Stays new-looking without refinishing

These building panels surfaced with TEDLAR will retain their original appearance for up to 25 years or more. Over the long run, TEDLAR, with its unusual durability, is probably the most economical finish available for exteriors.

Already many building products are surfaced with TEDLAR. They include siding, roofing, insulation jacketing, trim and accessories. TEDLAR can be bonded to aluminum and other metals, plywood, asbestos-cement, wood and reinforced plastics.

For a list of these products or any other information about TEDLAR, write the Du Pont Co., Film Dept., Building Materials Sales Division, Box 56, Wilmington 98, Delaware.

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# Now a vinyl floor wall-to-wall with seams welded water-tight, dirt-tight, spill-tight!

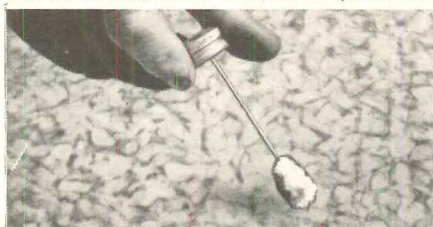
Now, thanks to Sandura research, LURAN® Vinyl can be welded! That's right. Now you can have a clear, unbroken expanse of vinyl wall-to-wall, even room-to-room. That means no more water-collecting, dirt-collecting, open seams down the middle of your floor. There's no place for water to seep, no place for dirt to creep! And new Luran's luxurious colors and patterns are sealed deep under a new formula vinyl that's as stain-free, as scrub-free, as care-free as a floor can be—makes this the fastest-cleaning vinyl floor you can own! Another surprise! New Luran costs less than many other luxury vinyl floors!

## NEW LURAN VINYL

by Sandura, Benson-East, Jenkintown, Pa.—Fine Floors for Forty Years.

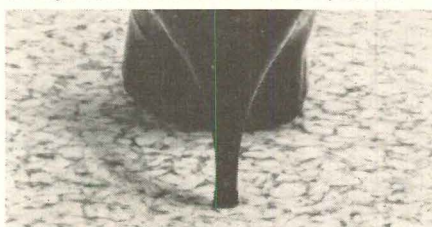
### Seal it!

With the amazing new LURAN VINYLWELD PROCESS your Sandura retailer can smooth-weld 6-foot widths of any Luran permanently-installed vinyl floor wall-to-wall, room-to-room, with no open seams!



### Heel it!

Go ahead! The beautiful new embossing of Luran Imperial and Luran Regency masks most accidental indentation—gives a new deep dimensional look to vinyl! Your foot never touches the patterns!



### Feel it!

You won't believe a luxury vinyl could have a "hand" like this one. Luran Imperial and Regency feel like fine leather. And so warm underfoot! For every room in the house, even basements!





## QUOTE . . . UNQUOTE

"The Borough of Queens truly represents the full flowering of advanced urban living."—*Queens, N.Y., Borough President Mario J. Cariello.*

"In spite of what Jane Jacobs has written about urban open space in *The Death and Life of Great American Cities*, most of the American population west of West Greenwich Village believes in open space and is not afraid of it."—*Critic Grady Clay.*

"More money, more cars, more good roads—together they spell more litter."—*Secretary of Commerce Luther H. Hodges.*

"One has . . . on Park Avenue, imitations of the imitations and all of them reflecting each other until [the Avenue] finally appears to be an enlarged barber shop with mirrors on all sides."—*Architect Paul Rudolph.*

"Leasing [of land for residential construction] enables large landowners who are reluctant to sell their holdings to have their cake and eat it too."—*The Wall Street Journal.*

"The effort to restore Frank Lloyd Wright's Robie House is a test case: to determine whether private citizens can express their concern for architectural restoration in a tangible way, assuring the preservation of a great landmark for future generations."—*Ira J. Bach, chairman, Robie House Committee.*

"Cows are very fond of being photographed, and, unlike architecture, don't move."—*Oscar Wilde.*

"The largest single source of unearned income for the arts is the federal government . . . this happens through two provisions of the Internal Revenue Code, one affecting exemptions from personal income taxation and the other affecting inheritance taxes. . . . The tax codes . . . permit corporations to give up to 5 per cent of their profits to education."—*W. McNeil Lowry, Director, Ford Foundation Program in Humanities and the Arts.*



DISNEY EAST

The Pepsi Cola Co. uncapped its plans for the New York World's Fair last month, disclosing that none other than America's foremost showman, WALT DISNEY, designed both the building and the exhibit within it. He thus adds architecture to his previous jobs of devising the shows for the General Electric and Ford pavilions—and becomes one of the Fair's major shapers as well as drawing cards.

Although the Pepsi pavilion itself is not notable as design (it is a bulky structure housing a waterborne trip through a wholesome, refreshing world), there are some gay and fantastic structures around it, including a 120-foot-high tower bedecked with mobiles (glimpsed in photo). All bear the unmistakable Disney stamp: enough color, animation, and ingenuity to bedazzle the young, transport the old—and entice the thirsty.

## NEW LOOK AT AIA

Among WILLIAM L. SCHEICK's accomplishments as executive director of the American Institute of Architects has been the luring of bright, dedicated architects and administrators to the Octagon staff. By last month, when a new wave of appointments were made, many of Scheick's selections had been promoted to more responsible positions.

It all began earlier this year, when THEODORE DOMINICK moved from the professional services division to full-time editorship of the AIA's *Building Products Register*. He was replaced by M.

ELLIOTT CARROLL, formerly head of the state, chapter, and student-affairs department, and recruited by Scheick.

Soon after, MATTHEW L. ROCKWELL, director of the public services and urban programs, left AIA to become deputy director of the prestigious Northeastern Illinois Metropolitan Area Planning Commission. His successors are two young architects brought to the Octagon by Scheick: KENNETH C. LANDRY, who formerly handled the Institute's governmental and legislative affairs, is now director of public services; ROBERT J. PIPER has taken on the urban programs job in addition to professional services.

ERIC PAWLEY, research secretary of the AIA for some 13 years, was the next to leave, for a professorship at the University of Southern California. BEN H. EVANS, from Texas A & M College, succeeds him as head of a newly reorganized department of research. His job will include finding sources of support for programs and projects among public and private research organizations.

Completing the staff shifts, C. HENRI RUSH was appointed last month to handle the governmental and legislative post vacated by Landry, and Carroll's old job went to JOHN F. DAWSON, former University of Michigan architectural professor.

## HOROWITZ JOINS NSF

The former Technical Director of the Building Research Institute, Architect HAROLD HOROWITZ, last month assumed the brand new post of Supervisory Architect to the National Science Foundation's Office of Institutional Programs. He is replaced at BRI by Architect ROBERT P. DARLINGTON, who had previously served as Assistant Director for Program Planning at the Building Research Advisory Board, and as a consultant to the AIA's department of institute relations in Washington, D.C.

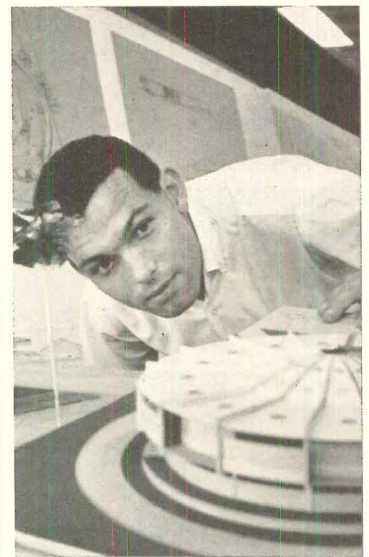
In his new NSF job, Horowitz will be mainly concerned with the design, engineering, and construction of research and science-education buildings. He will help evaluate proposals for grants in

aid to support them (NSF provided 142 grants totalling \$29 million in the last fiscal year), and also will supply up-to-date information and consultation about such buildings.

## PEACE CORPS ARCHITECTS

One of the most desperate needs in underdeveloped nations today is for architects and planners. This year, the Peace Corps in Washington, D.C., has sent 24 architects (and many more architectural students) abroad to places like Gabon, Malaya, Peru, and Liberia—and they are working hard at their tasks.

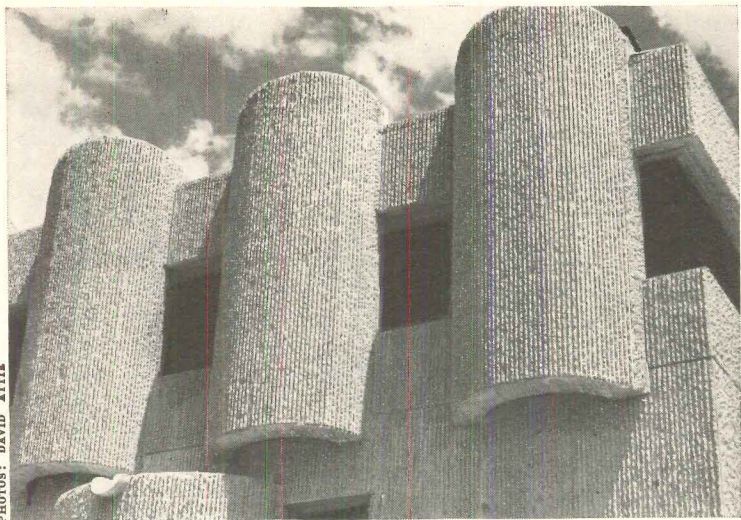
In Tunisia, for example, 13 young American architects and eight draftsmen are working on a ten-year government housing program, helping to fill the gap created when French technicians left the country. In Bangkok, an earnest graduate of Cornell's School



of Architecture named SUMNER SHARPE (photo) recently bemoaned the fact that traditional Thai architecture was disappearing as local designers came under the sway of the International Style. Sharpe's solution: teaching Thai builders the value of their traditional forms. And in Pokhara, Nepal, Architect ROBERT GOETZ discovered that the sponsor for new community college facilities was the Nepalese king. Goetz, whose future client relations seem assured, fascinated the king with a take-apart model of the proposed additions, soon obtained regal backing.

continued on page 16





PHOTOS: DAVID ATTIE

**NEW YORK PILL FACTORY.** Like his Arts & Architecture building at Yale, Architect Paul Rudolph's new Endo Laboratories, nearing completion in Garden City, L.I., feature concrete walls with a texture resembling narrow-wale corduroy, created by specially ribbed wood forms and hand bushhammering (right). For added surface interest, 80 turrets, like the ones above, ring the perimeter. Contractor: Walter Kidde, Inc.



**MASSACHUSETTS GEOLOGY.** Harvard's Hoffman Laboratory of Experimental Geology integrates mechanical equipment and structure both vertically and horizontally. Reinforced concrete beams as well as perimeter columns are paired so that various mechanical services can run in the hollow

spaces between. The top floor was left open but roofed over the future expansion—and is already being filled in to provide student-faculty conference rooms and a lounge. Construction cost: \$850,000. Architects: The Architects Collaborative. Contractor: The Wexler Construction Co.

**MISSOURI AIRPORT TOWER** (below). This oddly striking structure, which looks like a high-rise block house, controls traffic at Kansas City's new Mid-Continent International Airport. Above a recessed base, a shaft 40 feet square has walls of greenish glass

block which "glow at night and provide excellent illumination during the day." The control tower itself is cantilevered off the shaft like a medieval battlement. Cost: \$750,000. Architects & engineers: Cooper, Robison & Carlson. Contractor: Sharp Bros.



**COLORADO AUDITORIUM** (below). For acoustical reasons, Colorado State University's new \$150,000 auditorium was designed with a catenary roof. Made of 4½-inch-thick concrete, the roof is supported by patterned concrete walls

and, at the ends, by Y-shaped bents. It is part of a \$2.4 million student center in Fort Collins designed by Architect James M. Hunter. Structural engineer: Ib Falk Jorgenson. Contractor: Hansel Phelps Constr. Co.



WAYNE WRIGHT

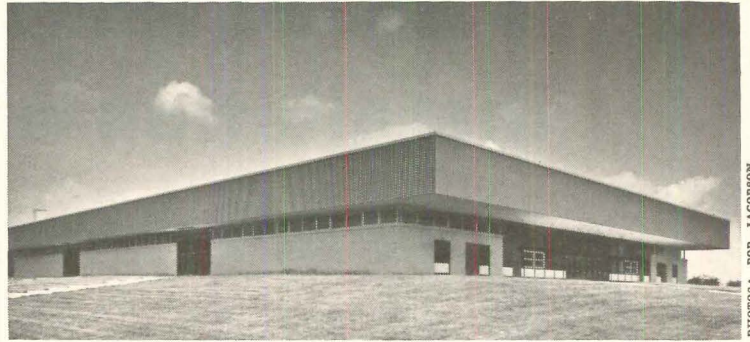




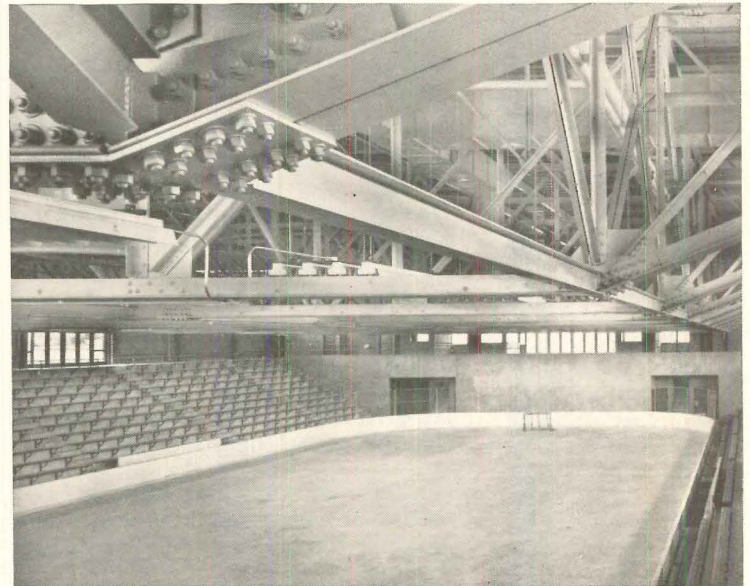
**TEXAS CHURCH.** Natural back-lighting, brick sidewalls, and Colonial-style seating add an air of quiet simplicity to Houston's new Central Presbyterian Church (above). A handsome metal screen by Sculptress J. Lavalie fronts the choir and organ loft. The exterior (left) is of brick and limestone with vertical slit windows at the end. Cost (including organ): \$900,000. Architects: Wilson, Morris, Crain & Anderson. General contractor: Marxen & Son.



PHOTOS: EZRA STOLLER ASSOC.'S.



PHOTOS: BOB JACOBSON



**MINNESOTA SPORTS PALACE.** The low, sweeping lines of Ramsey County's Aldrich Recreation Arena (top photo) belie the actual height of the interior, since the great room is sunk well below

ground level. Spidery trusses span 160 feet across the multi-purpose arena (bottom photo). Cost: \$844,000. Architects & engineers: Haastick Lundgren & Assoc., Inc. Contractor: James Steele Constr. Co.

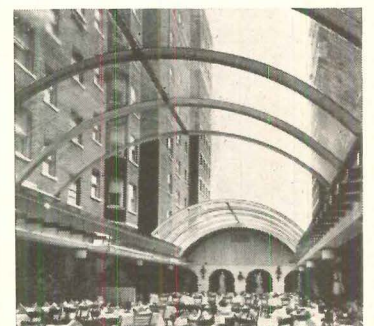


**UTAH HIGH SCHOOL.** Set into the scarred foothills of the Wasatch Mountains southeast of Salt Lake City (above), the Skyline High School groups four linked one-story buildings with a capacity of 2,000 students around a large landscaped court. The low, flat roofline is broken by the higher gym-

nasium which has its truss structure (left) exposed in a serrated pattern that echoes the mountains beyond. Walls are of exposed aggregate precast concrete panels. Cost: \$3.3 million. Architect: Dean L. Gustavson. Structural engineer: Hoffman C. Hughes Assoc. Contractor: Bettilyon's, Inc.



**INDIANA RESTAURANT** (below). Open to the weather, the dining garden at Indianapolis' Marott Hotel could be used only during the summer. To make it year-round, the management installed a \$14,000 retractable roof, electrically operated, composed of 26 clear plastic panels. Architect: Richard Karl Zimmerly. Contractor: Henning Johnson, Inc. END





# THE JANITROL SKYLINER

## Installation and Cost Problems of

The versatile Janitrol Skyliner® roof-mounted heating-cooling-ventilating system offers many cost and space-saving advantages for single-story buildings.

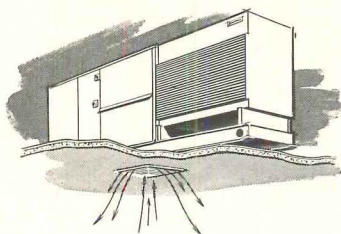
Shipped completely factory assembled, tested and ready to install, the Skyliner package goes in *fast* with *less* labor. No water or sewage service, refrigerant piping or charging and complicated wiring are required. There's no need for an equipment room.

And not a single cubic foot of usable inside space is required for the Skyliner system. Conditioned air may be circulated through a ceiling diffuser under the unit in the conditioned area.

One or more Skyliner units may be used to provide a simple, efficient zone-controlled comfort system, with each Skyliner controlled by its individual thermostat. A wide range of capacities matches the needs of each zone.

The Skyliner is completely enclosed in a weather-proof, insulated, aluminized steel cabinet. The unit has been operationally tested in 60 m.p.h. winds and for two hours at 12-inch/hr. rainfall.

For detailed engineering and specification sheets, call your local Janitrol representative or write the factory. Ask for A. I. A. File 30-C-43.



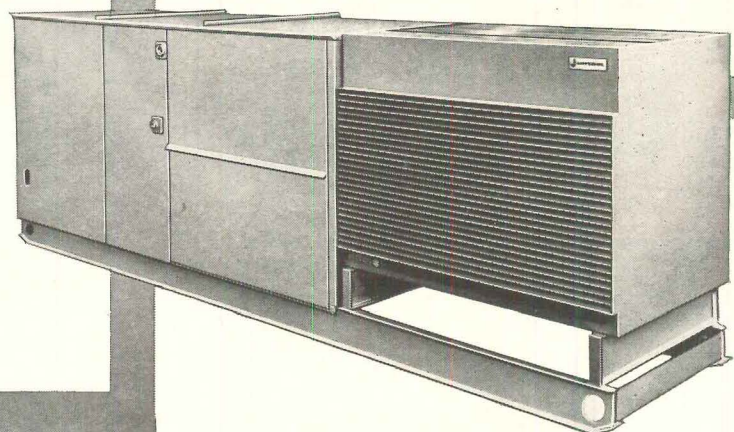
Conditioned air is circulated through a short concentric duct and ceiling diffuser beneath unit in conditioned area. No extended duct system is needed. No stack is required. Flue gas exhauster and filter signal are furnished.



Utilization of all interior space for display and warehousing, plus client satisfaction with Janitrol products, prompted these mechanical-industrial contractors, M. B. McKee Co., Inc., to use the new Janitrol Skyliner system in their own Amarillo, Texas, branch office-warehouse building. Fuel costs for both heating and cooling have been nominal and the employees appreciate the unusually quiet operation.



Overall economy and attractive, low silhouette were factors in selection of eight Janitrol Skyliner roof-mounted units for W. T. Grant Store #994 at Longfellow Center, Chico, California. Six units cover the retail area plus one each for warehouse and office. Architect: Kahl & Davis, Red Bluff. General Contractor: Highnell & Strange, Chico. Consulting Engineer: Charles & Braun, San Francisco.





# SYSTEM CONQUERS SPACE, Heating-Cooling One-Story Buildings



More usable inside space, made possible by the roof-mounted Skyliners, increases the efficiency of the Arbutus Branch of the Baltimore Public Library. The operating economy and quietness of this system have been most satisfactory. Architect: Donald B. Ratcliffe, Baltimore. Contractor: Kirby & McGuire, Baltimore. Heating Contractor: W. E. Kingswell, Inc., Baltimore.



Elimination of equipment room, by using the Skyliner roof-top system, provided extra inside space for the Rose Bowl Lanes, West Seneca, N. Y. Each of the five units is thermostatically controlled to provide the individualized comfort needed in the bowling lanes, lounge, restaurant and sport shop. Owners: Harlem-Clinton Plaza Corp., West Seneca. Heating Contractor: J. G. Fisher, Inc., E. Aurora, N. Y.



Easier installation and lower overall cost, in comparison with a large central system, were realized by installing eight Janitrol Skyliner units in the F. W. Woolworth store at Grand Central Plaza, Elmira, N. Y. Operating costs are lower, too. Architect: Joseph A. Cornell, Corning. Consulting Engineer: Charles W. Personius, Pine City, N. Y. General Contractor: McLane Construction Co., Elmira.



Economy of operation plus the ease of adding more units for future expansion made the Janitrol Skyliner system ideal for use in the Hinsdale (N.H.) Raceway Clubhouse. Four units heat and air condition this glass enclosed area from spring through fall. Bottled L-P gas is the fuel used for heating. Architect: H. E. Davidson & Son, Boston. Heating Contractor: H. W. Taylor Co., Hinsdale, N. H.

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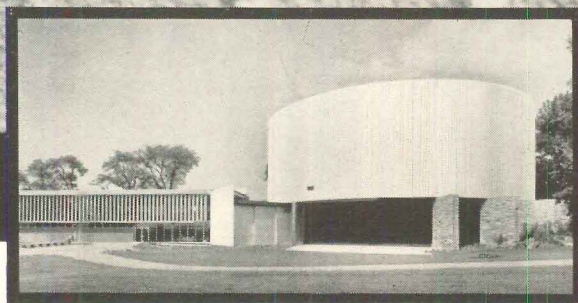
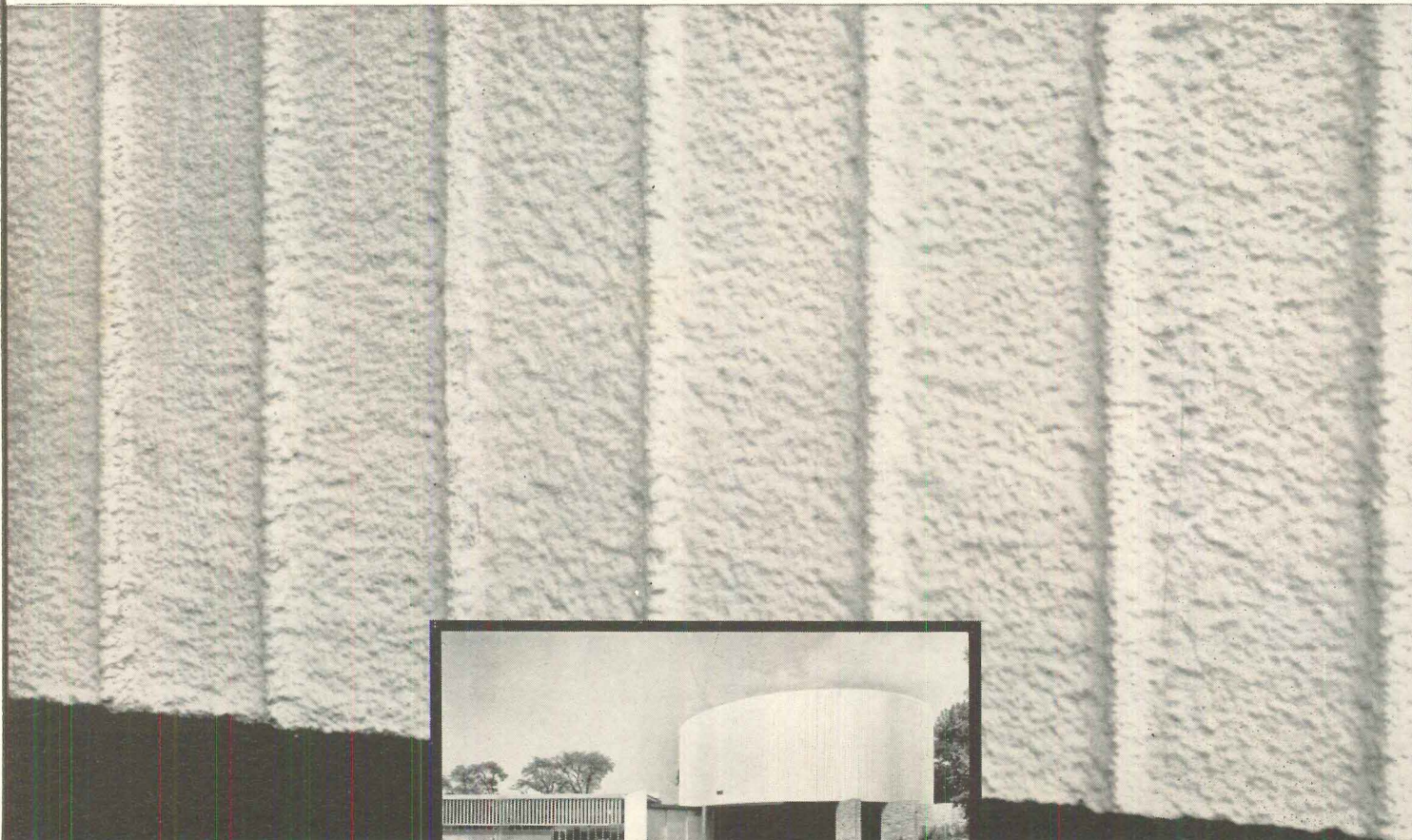
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FOR CONCRETE!  
SPEEDY,  
SPRAYED-ON  
TEXTURED FINISH**



Poured concrete of the new Cyclorama memorial at Gettysburg was formed entirely in vertical flutings. To protect the unusual architectural detail—and to add distinctive textural appeal—a revolutionary coating technique was used.

**THOROSEAL** cementitious waterproofing compound was mixed to thin batter consistency. With plaster spray-gun equipment, an even coating was sprayed quickly over the entire wall surface.

The closeup shows the new finish. Its pleasing texture complements the Cyclorama's otherwise unrelieved vertical lines. **THOROSEAL** will keep those lines true and erosion-free—impervious to water or weather damage for the life of the structure. **THOROSEAL** protection lasts as long as the walls you put it on!

Write for facts on other new finishes for concrete with products of The Thoro System.

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DEPT. AF-3, NEW EAGLE, PENNA.



**HOW TO PICK AN ARCHITECT**

Forum: Donald Canty's article on "How to Pick an Architect" (July '63) tells the story to the client about as well as it can be done, and he should be congratulated.

It would have been helpful to include another type of competition which AIA members can enter, if the competition has been approved by the Secretary of the Institute. As the result of recent AIA Board action, if a private corporation, for example, wishes to seek the architectural ideas of several firms, or, in effect, hold a competition, that can be done under certain conditions. If the corporation plans to reimburse the several architects the normal amount of the fee for their studies, these several architects may develop preliminary drawings for the same project at the same time.

In such a situation, the competition requirements may vary from the usual ones in that the jury need not have a majority of architects serve on it.

J. ROY CARROLL, JR., *President*  
*The American Institute of Architects*  
*Washington, D.C.*

Forum: Congratulations for what proposes to be a most informative series on what it takes to be a building client.

Philadelphia ANTHONY J. WALTON  
*Richard B. Herman & Co., Realtors*

Forum: A wonderful article. I would have liked, however, to have read more about the client's education (self-administered, or given to him starting in grammar school) on what a "good" building is, and what an architect does, or could do, for him.

We will have good architecture only if and when the client's and the architect's ideas of what is good actually meet.

New York City GIORGIO CAVAGLIERI  
*Architect*

Forum: The first sentence says there is no easy way to pick an architect and I believe it goes on to prove this premise somewhat too successfully.

The most obvious procedure was postponed until a spot too late in the article, after the subject of selection of architects by competitions. I know of a recent case where a corporate client considered a competition but abandoned the idea in favor of selecting a firm with an excellent reputation in the city and the result made the clients glad they had forgotten all about a competition. With the architect of their choice they went through all of the studies which architects can now render as a part of comprehensive services, including the selection of the site. The feasibility studies changed the old concept of the building size, and with an exceptional number of design studies and models practically every possibility was explored. The result: a handsome building.

There is only one portion of the article with which I take serious exception: "What

may be a large job to the client, moreover, may be run-of-the-mill to the big firm, and may wind up in the hands of a 22-year-old designer in one corner of its huge drafting room." I simply don't believe this could happen one time in a thousand in the offices of reputable large firms which I know.

Washington, D.C. WILLIAM H. SCHEICK  
*Executive Director, AIA*

**DULLES COVER**

Forum: Your July cover of Dulles Airport is a masterpiece. Could you send me a duplicate? I'd like to frame it, but hate to tear up my subscription copy of the magazine.

LAWRENCE C. BROWN  
*Poughkeepsie, N.Y.*

**A STUDY IN VANDALISM**

Forum: Mr. Scully's article on the Athens Hilton (July '63) should be shown to the Greek people before Athens becomes another subdivision for the international speculator.

Toledo P. D. PHARMAKIDIS  
*Architect*

Forum: My sincerest congratulations: this type of critical evaluation is unfortunately rare.

Honolulu GEORGE J. WIMBERLY  
*Architect*

Forum: I was interested in Scully's slightly hysterical study of the rape of Athens. Actually he need not go so far afield to point out illustrious ravishers: he could walk to 45th Street in New York and see the End of Park Avenue.

San Francisco DON HATCH  
*Architect*

Forum: A prototype piece of criticism, and proof that what happens to the architecture of a city like Athens is not a local problem but a universal one.

It is sad to say that time, war, and catastrophe have done less harm to Athens than the building of the last ten years.

ALEXANDER TZONIS  
*Athens*

Forum: Phidias had foresight when he created the famous chryselephantine statue of Athena, providing her with eyes of precious stones—eyes that could never, even had they survived the centuries, been forced to gaze on this arrogantly sited hotel.

Victoria, B.C. W. R. HARPER CURTIS  
*Architect*

Forum: Having recently returned from Athens (where I made the mistake of not stopping at the Athens Hilton) I was somewhat astounded at the article.

Without a telescopic lens, the Athens Hilton viewed from the Acropolis does little to mar the view from the Parthenon looking outward on the Hymettos. Although it is visible on the horizon, I fail to understand Professor Scully's insinuation that it despoils

the "fundamental balance between man-made and natural forms."

New York City HAROLD BURSON  
*Burson-Marsteller Associates*

Forum: Mr. Scully was right calling it a radio-cabinet design. The Parthenon and Hymettos have been divorced by an intruder, a ferocious, vulgar, and giant snake, created for the sake of tourist views.

Chihuahua, Mexico MIGUEL ANGELO FLORES  
*Architect*

Forum: An eloquent and thorough criticism.

Chicago WALTER KACIK  
*Vogele & Taylor Inc.*

**PUBLIC HOUSING'S NEW LOOK**

Forum: Re "The New Look in Public Housing" (July '63), it is always gratifying to have others recognize that urban esthetics are being improved by better public housing design and that greater variety, freedom of choice, and flexibility of method is made possible through rehabilitation and other new approaches we have been encouraging.

I disagree that public housing is in any death agony. Since 1961, 300 new housing authorities have been formed and have embarked upon programs. In fiscal 1963 alone, 479 communities applied for and were given reservations for 48,554 units, and annual contributions contracts were executed for 38,648 units. The average vacancy rate for more than a half-million occupied units in some 1,800 communities is 1.8 per cent.

I wish the story had not overlooked some of the other positive accomplishments. For instance, over 115,000 elderly with limited and fixed incomes now live in public housing. Over 60,000 units are being designed exclusively for use by elderly families. The first group residences with community-provided meal service for the elderly are being planned. This should reduce the growing demands on institutionalized accommodations. An extensive program to meet the current housing needs on Indian reservations has been started, including a unique mutual-help formula with home-ownership potentials.

Washington, D.C. MARIE C. MCGUIRE  
*Commissioner, Public Housing Administration*

**ST. SOPHIA**

Forum: Dr. Van Nice has done a great service in recording so comprehensively one of the all-time great buildings of the world, St. Sophia (May '63).

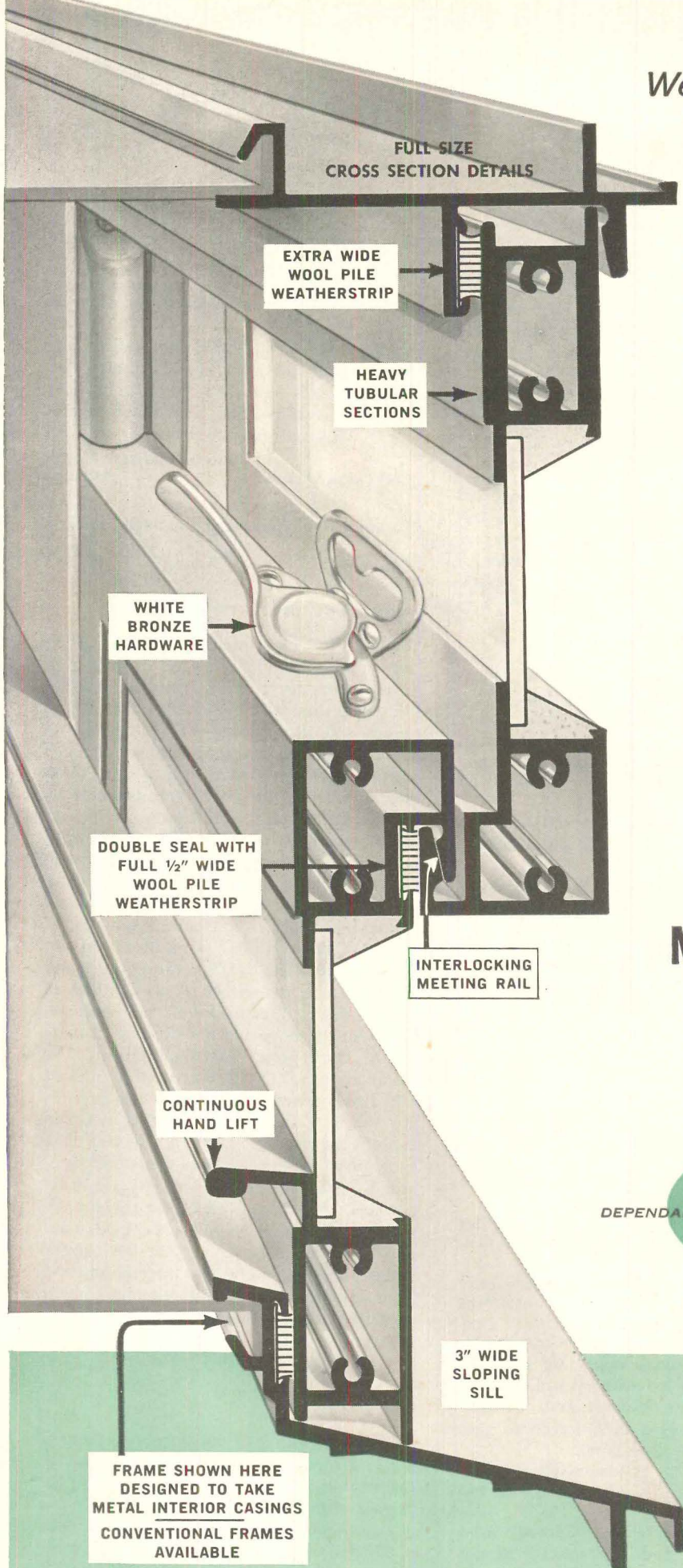
I am somewhat disturbed, however, by one of his major pronouncements: that the half-domes make no contribution to the stability of the central dome. In St. Sophia it is partly inert weight, partly the inherent stability of hollowed-out, three-dimensional forms that account for the building's structural integrity. In this complex of judiciously placed, integrated units, the *system* is both brilliant and sound, however imperfect the



We designed this aluminum window to be

# STURDIER..

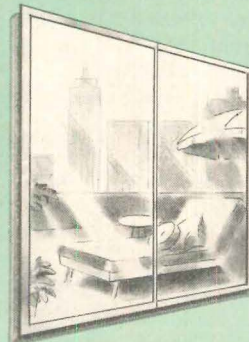
Cupples new "Series 300" double-hung aluminum window was designed especially for architects and owners who want a better-operating, stronger, sturdier window for use in Apartments, Hotels, Motels and College Dormitories.



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Approved for Mitchell-Lama Housing under New York State Division of Housing and Community Renewal

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FULL 1/2" WIDE  
WOOL PILE  
WEATHERSTRIP

WHITE  
BRONZE  
HARDWARE

EXTRA WIDE  
WOOL PILE  
WEATHERSTRIP

HEAVY  
TUBULAR  
SECTIONS

INTERLOCKING  
MEETING  
RAIL

CONTINUOUS  
HAND LIFT



# ...NOT CHEAPER!

INSTEAD OF TAKING METAL OUT, and designing the Cupples "300" window downward to a price, or to fool bargain hunters, we beefed up the sections to make it stronger and sturdier. We used double width wool pile weatherstrip all around the window and at the meeting rail to keep out dust and dirt as well as rain and cold drafts. We made the "300" a foolproof, easy-operating window that will give satisfactory, maintenance-free performance for many years to come. It's a window you should specify for any apartment house or for the hard, rough usage of hotels and college dormitories.

Sure the Cupples "Series 300" costs a few dollars more (approximately \$3 to \$4) than lightweight minimum standard residential windows, but its heavier sections, better weather-tightness and foolproof operating qualities make it a worthwhile investment that will pay handsome dividends in lower maintenance and tenant satisfaction.

Before you specify or order aluminum windows for your next job be sure you investigate the Cupples "300." Remember, too, that when you deal with Cupples you get **DEPENDABILITY** of product, quality, service, delivery and a well-established Company behind the product (Cupples is a division of ALCOA). Our representative in your area will be glad to consult with you at your convenience. Write for full size details and complete information. Address Dept. AF-39.

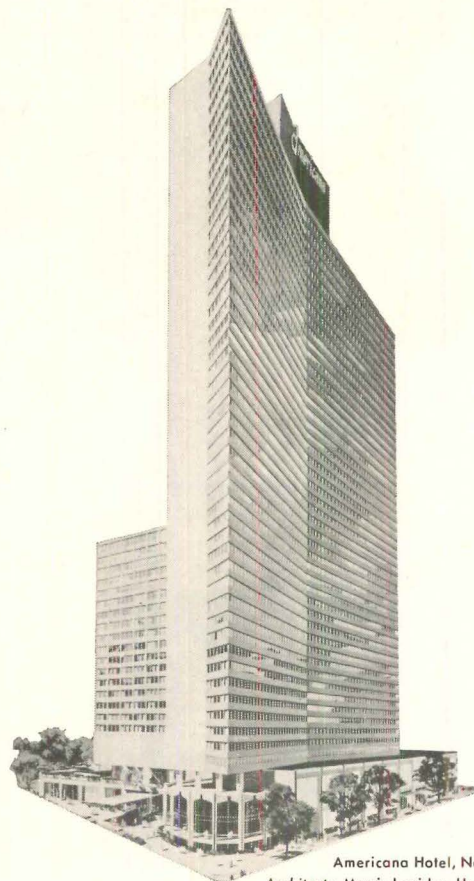
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815 W. SIXTH STREET, CORONA, CALIF.



**ALCOA**

CUPPLES PRODUCTS DIVISION  
ST. LOUIS, MO.

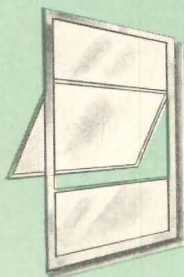


Americana Hotel, New York, N. Y.  
Architects: Morris Lapidus, Harle & Liebman  
Contractor: Diesel Construction Co.



Bronx Park East Apartments, Bronx, N. Y.  
Architects: Brown & Guenther  
Contractor: Gotham Construction Corp.

## FOR USE IN APARTMENTS, HOTELS, MOTELS AND DORMITORIES



### CUPPLES SERIES 600 PROJECTED WINDOWS

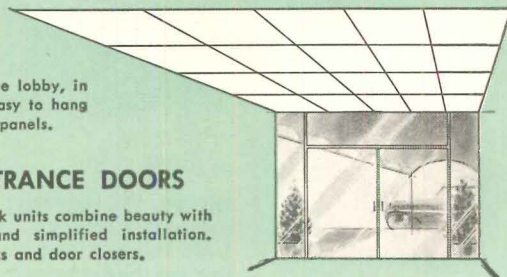
These strong, sturdy projected windows will take usage for many years. All horizontal rails in frame and sash are tubular for extra rigidity and strength. Adjustable, patented 4-bar operator mechanism. White bronze hardware.  $\frac{3}{8}$ " glass rabbit. Interior or exterior metal snap-in bead, glazing optional.

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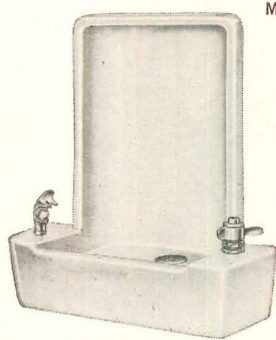
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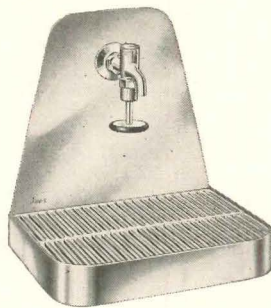


# Wherever he is in school...



Model 77

## Johnny



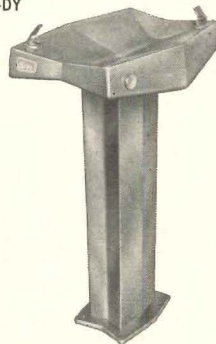
Model 440

## wants



Model 2050

## a drink



Model 36-DY

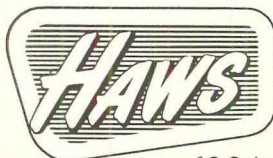
## of water

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fits every school area. When Johnny wants a drink in classroom, corridor, cafeteria or outdoors, there's a Haws fountain to suit the situation. To protect Johnny, all Haws fountains have sanitary design. To protect the fountains, they're cast in hi-strength Tenzaloy aluminum, stainless steel, bronze, vitreous china, fiberglass and enameled iron. Vandal-proofing keeps Haws fountains working smoothly and looking sharp. Multiple bubbler models meet "rush hour" demands; color and design provide decoration. There's a Haws fountain to fit your "specs." Write for the new Haws catalog.

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elements of that system may have proved to be on account of the crash-program speed of erection, recurrent earthquakes, etc.

Hamilton, N.Y.

JOHN FITCHEN

Architect

Chairman, Department of Fine Arts  
Colgate University

■ At press time, Dr. Van Nice was out of the country and unavailable for comment—ED.

### 100 BIGGEST

Forum: After talking with a number of firms regarding your annual survey of "The 100 Largest Architectural Firms," we would like to suggest a little different method.

The determination of "construction put in place during the year" is very unwieldy and difficult, since practically all jobs of any size take more than a year to complete, and much work done for [government agencies] and some private owners does not require supervision or payment estimates. It is almost impossible to get accurate information from them as to how much of the work was done in any given period.

Wouldn't the same result be achieved if architectural firms would be rated on the contractual value of actual construction starts during the year? It would simplify things tremendously and I believe that more accurate figures would be obtained.

The "100 Biggest" is a most interesting compilation and you deserve much credit for publishing the series.

STEWART ROGERS

Architect

Asheville, N.C.

■ FORUM welcomes Mr. Rogers' suggestion—and the comments of other readers on it.

**CORRECTION:** In the text of the "100 Biggest Building Clients in the U.S." (Aug. '63, page 91), the 1962 building investment of Western Electric was erroneously recorded as \$97 million; the correct figure, \$41 million, appeared in the accompanying tables.

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## HUM OF PROGRESS...OR ROAR OF CONFUSION?

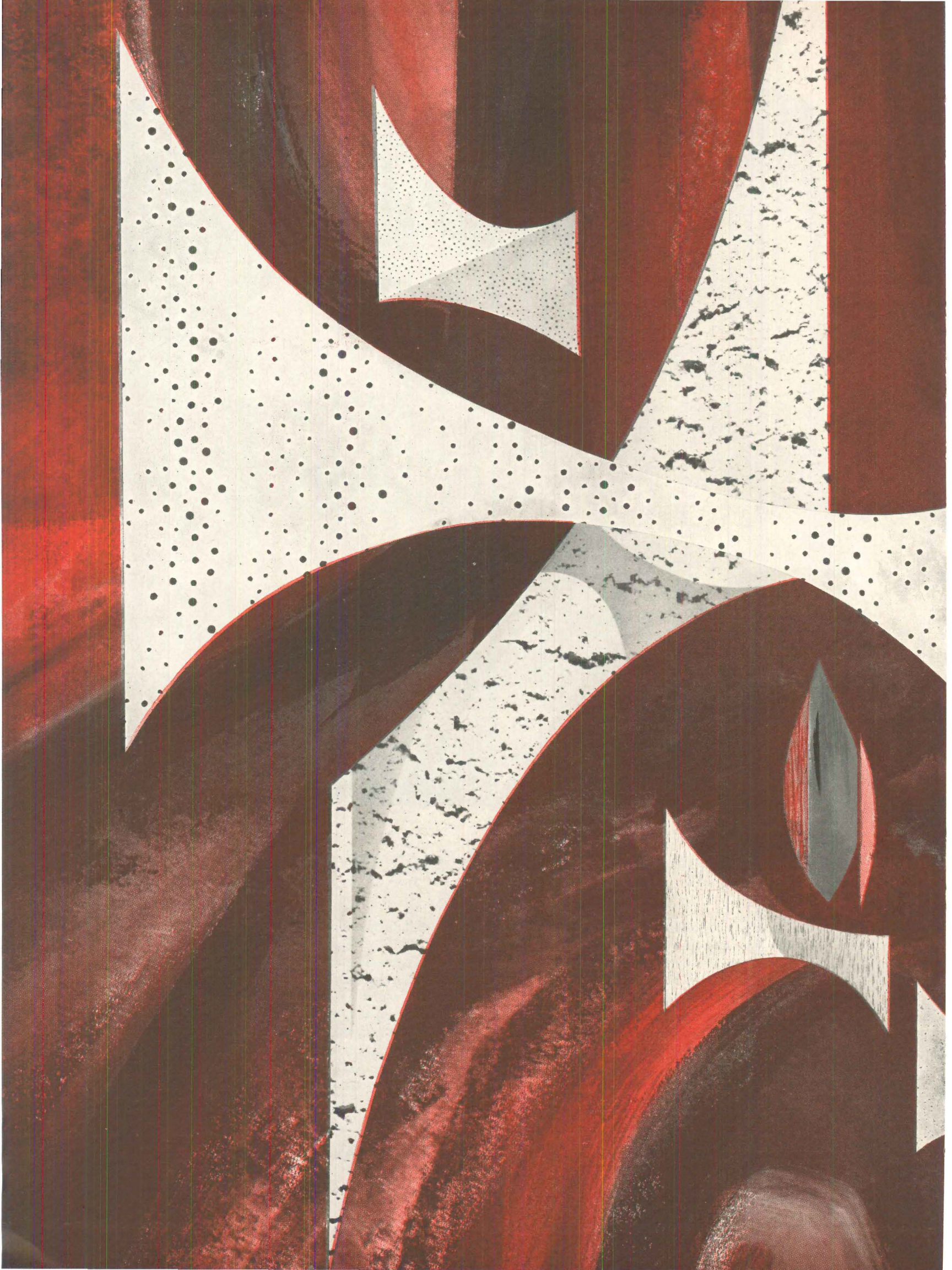
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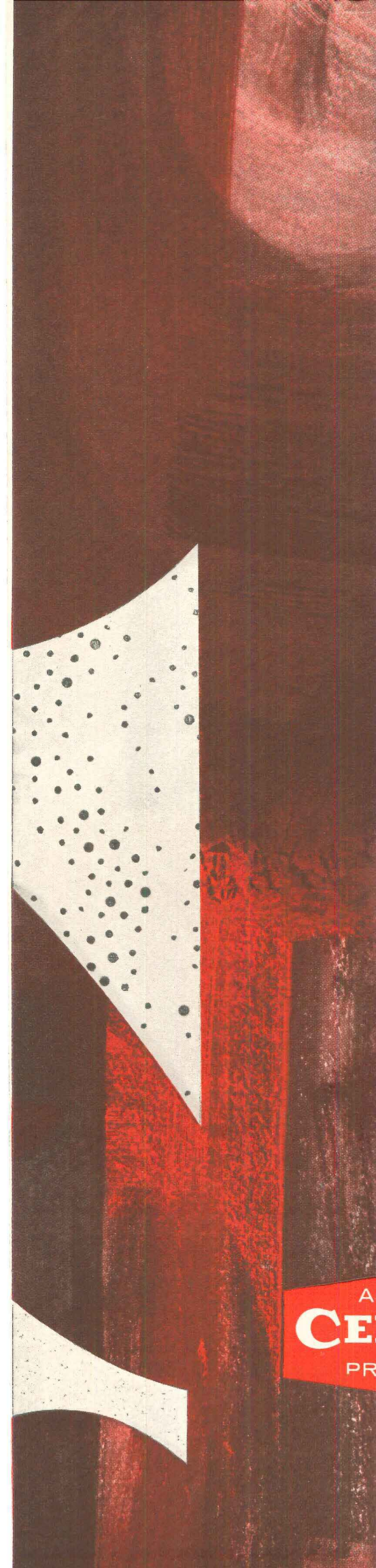
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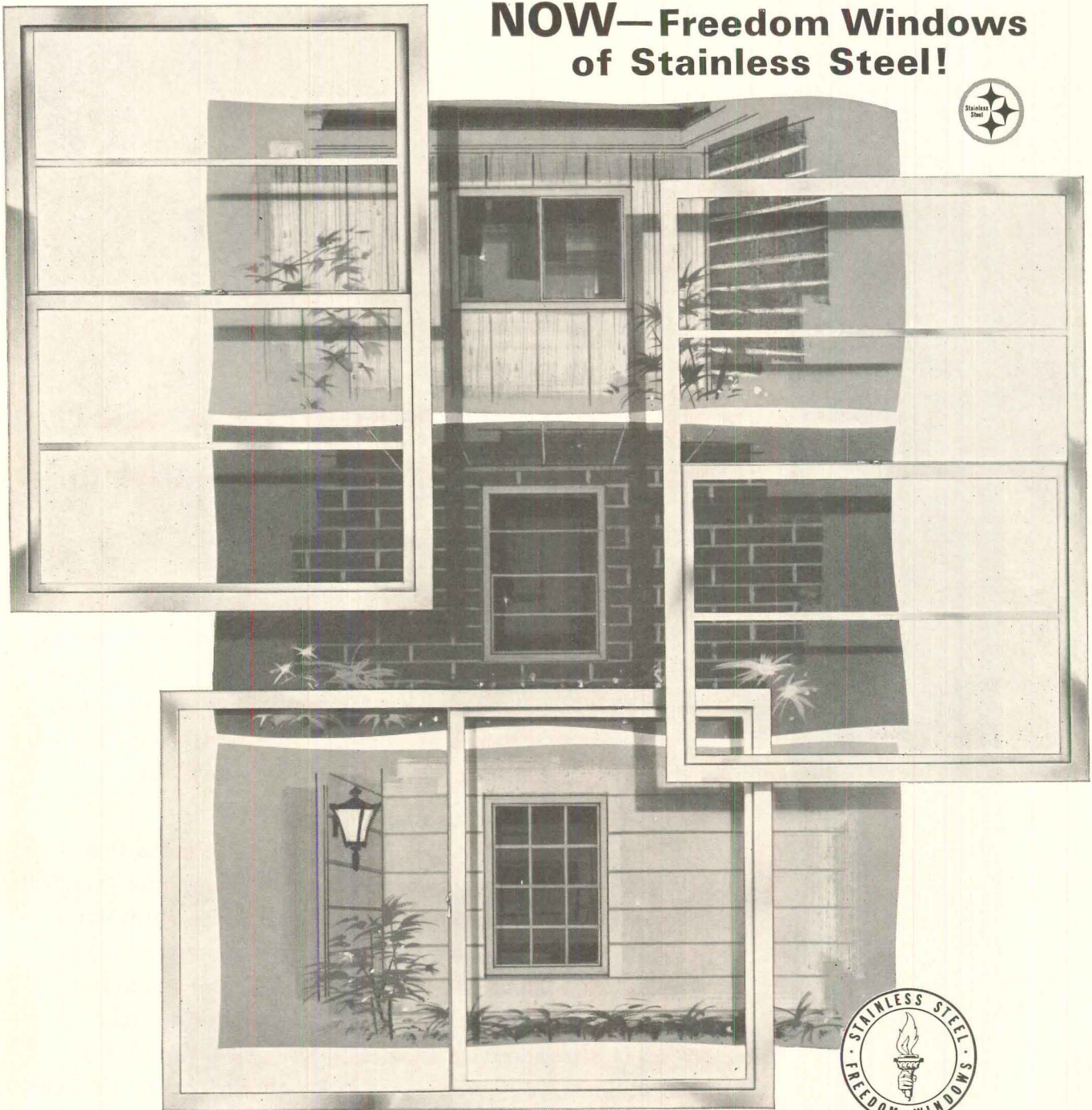
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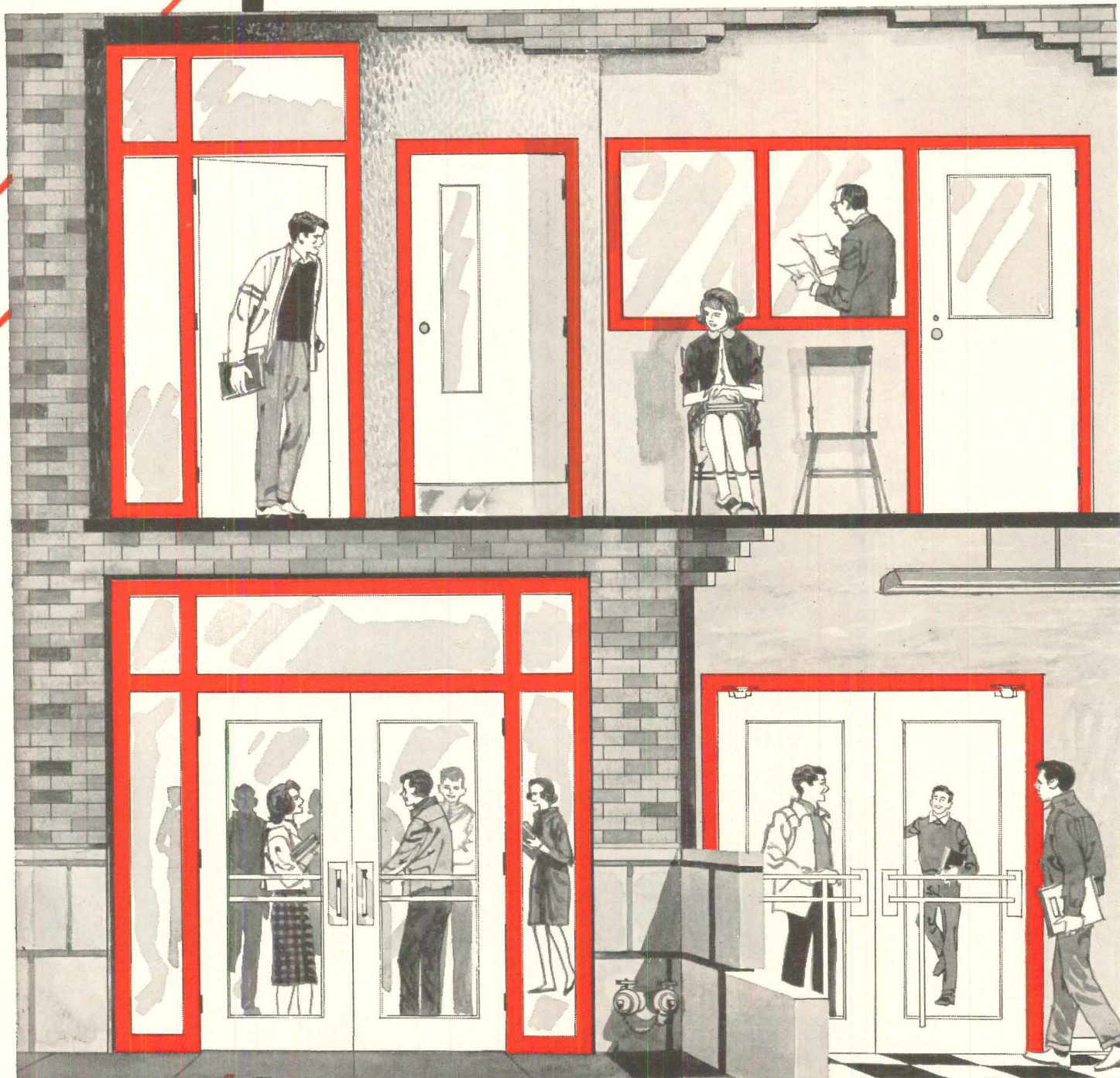
Architect: Kahn & Jacobs

Contractor: Diesel Construction Company

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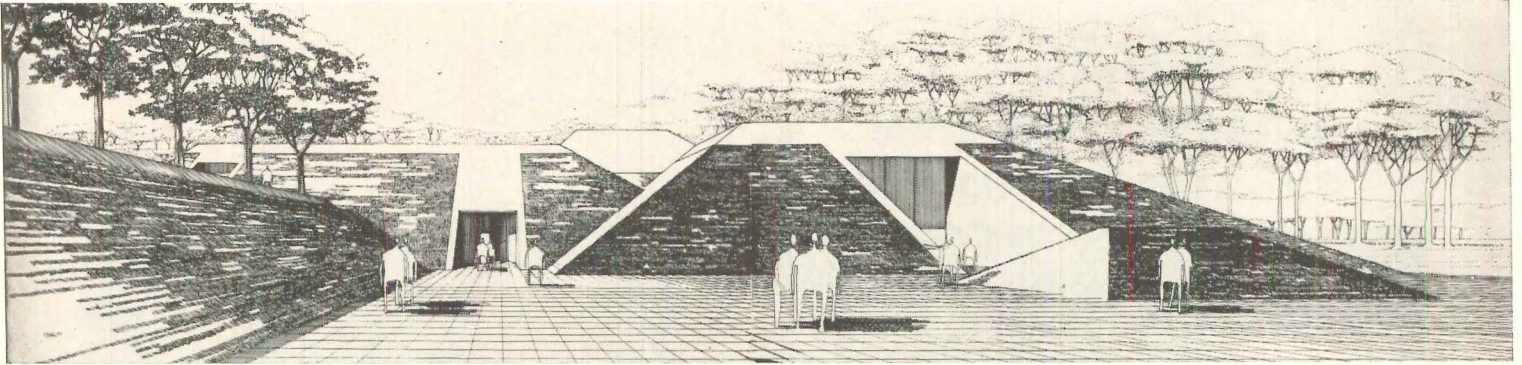


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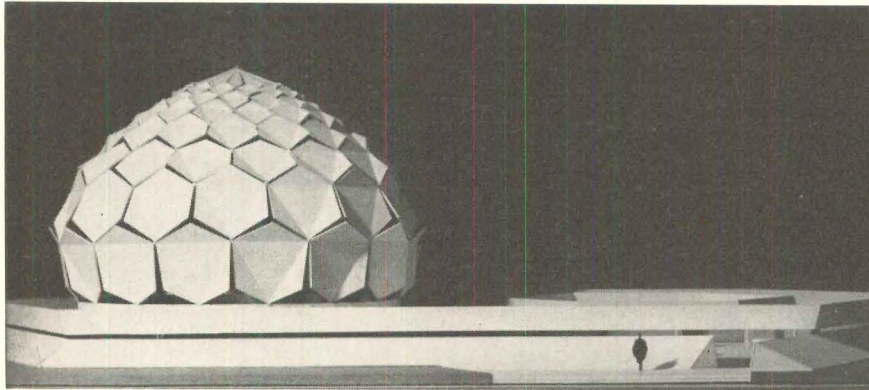


*Earth sculpture at Yale (below)*

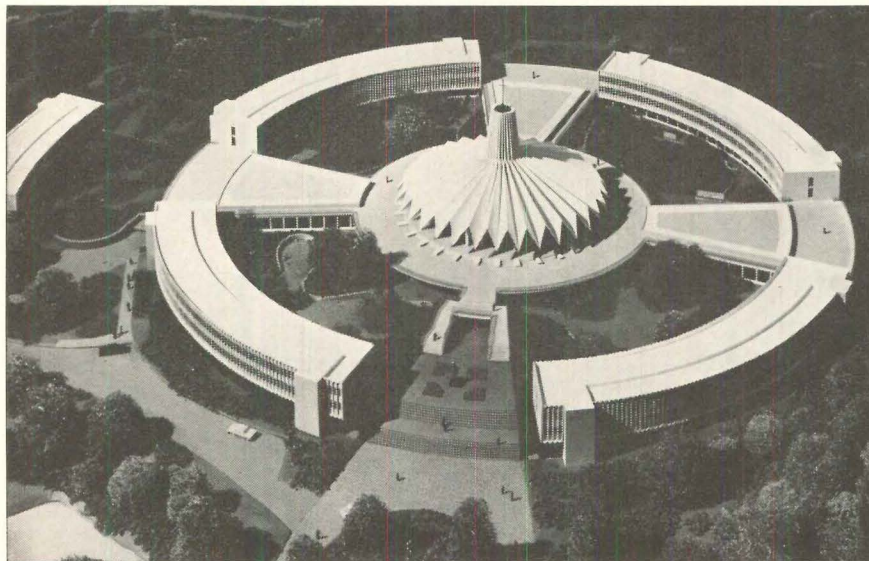
*Wells Fargo, tops in San Francisco (page 49)*



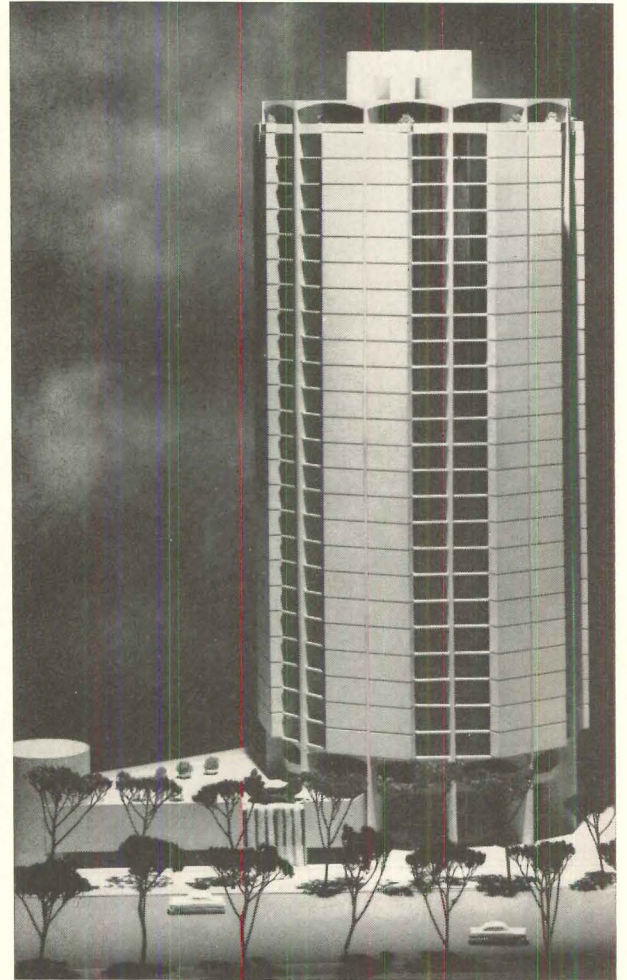
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4

**1. YALE ACCELERATOR.** Now under construction in the heart of Pierson-Sage Square, the Yale tandem accelerator will be a notable addition to the university's growing science complex. The massive shielding required takes the form of a huge sculpture: earth mounds heaped around the accelerator vault and planted with evergreen ground cover. Architects: Douglas Orr, deCossy, Winder & Associates.

**2. AFRICAN MOSQUE.** One of the first undertakings of a new firm headed by American Archi-

tect Robert S. McMillan, with offices in Lucerne and Rome, is this mosque in Dar-es-Salaam, Tanganyika. The dome is to be a network of precast concrete polyhedrons; each joins its neighbor at only three points. The mosque is a gift from the Aga Kahn and his followers to the new University of East Africa.

**3. SEMINARY IN NEW YORK.** In suburban Hartsdale, the Catholic Archdiocese of New York will build a circular college for 300 seminary students. The hub of the wheel plan, by Charles Luck-

man Associates, is the pleat-roofed chapel; wide spokes enclose the dining hall, auditorium, and library. The one- and two-story perimeter buildings will be dormitories, faculty suites, and classrooms. Exteriors are to be of cast stone in a style the architects call "modern Gothic." By the time St. Patrick's College Seminary opens in 1965, the Archdiocese expects to have spent \$12 million for its construction.

**4. PHILADELPHIA APARTMENTS.** The latest apartments-in-the-round, a shape very much in

vogue these days, will be built in Philadelphia, on a triangular site overlooking the Benjamin Franklin Parkway. The site's prominence, the shapes of nearby buildings, and the approach to City Hall Plaza combined to convince Architects Stonorov & Haws that a slender circular tower would be a much better solution than a bulky rectangle. The 25-story tower will stand on a pie-shaped base, its roof a restaurant-plaza. The structure will be of exposed reinforced concrete. Developer: Hyman Korman, Inc.

*continued on page 49*



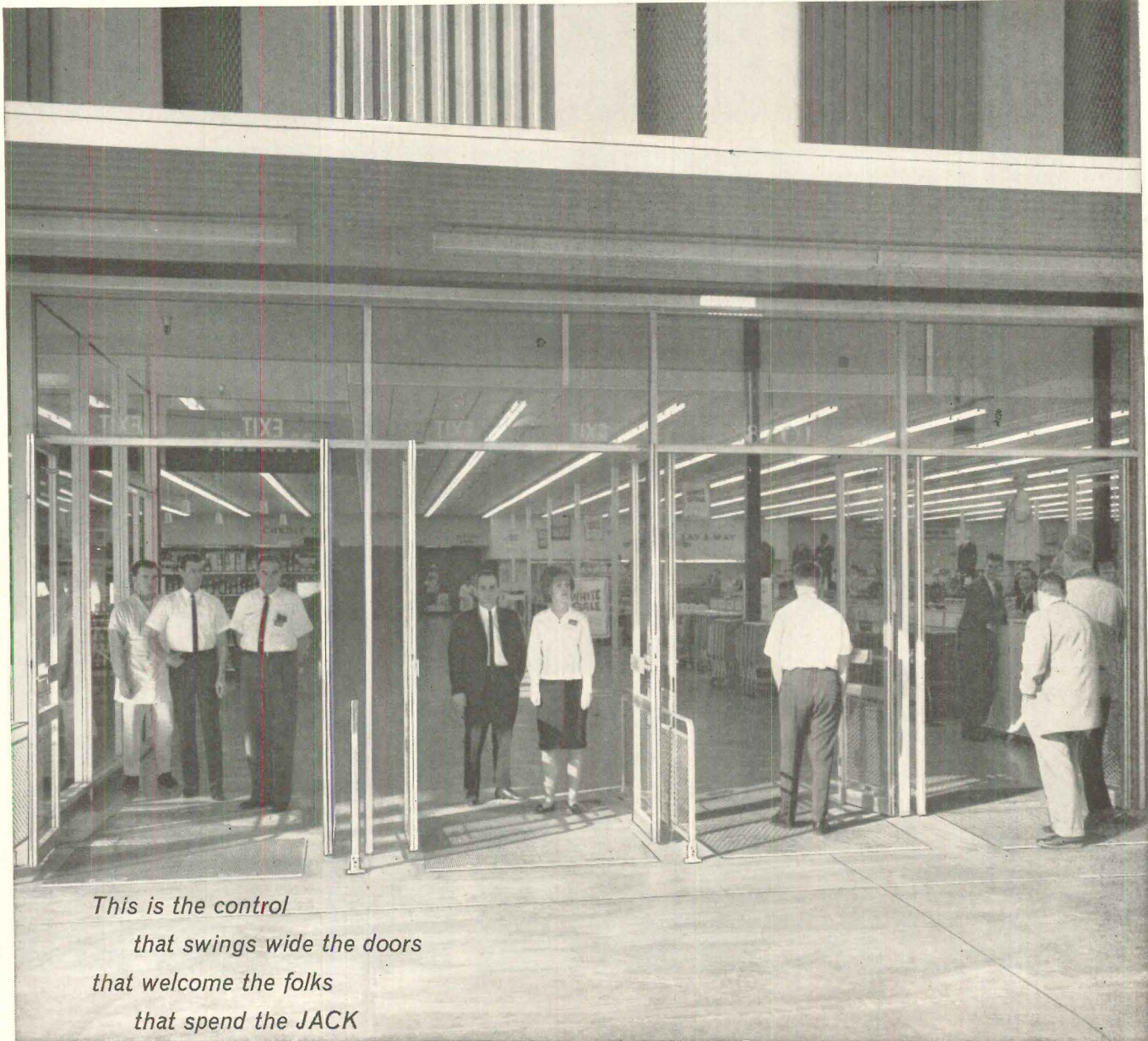
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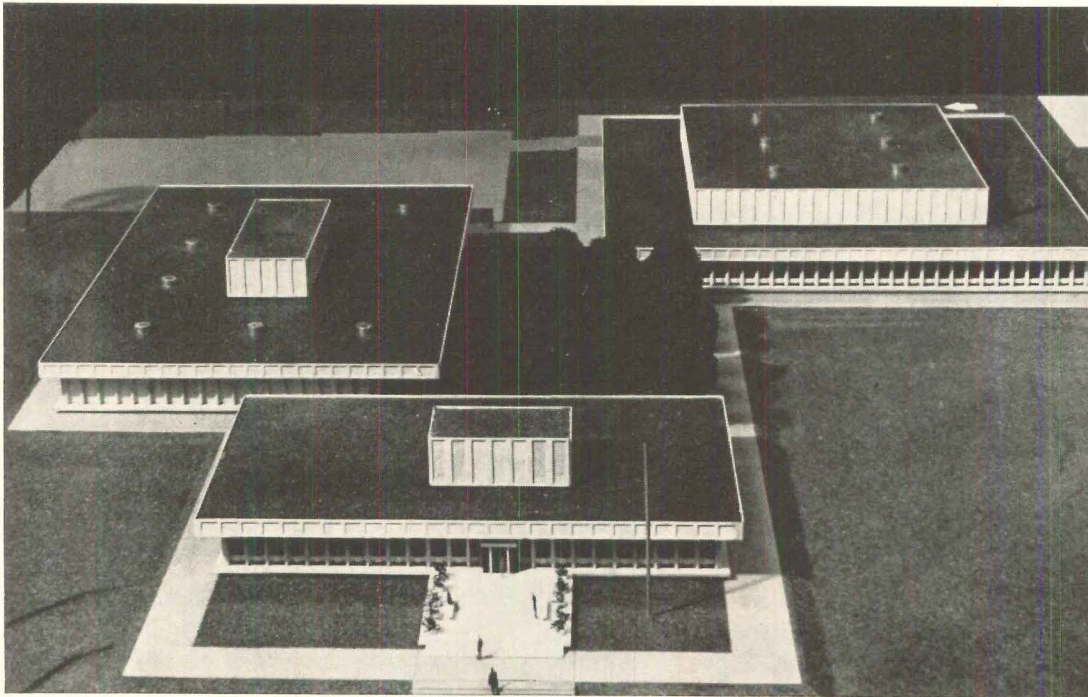


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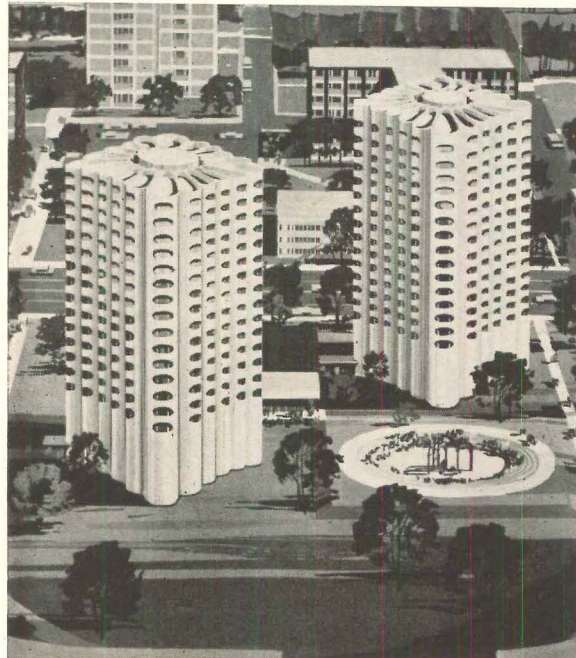
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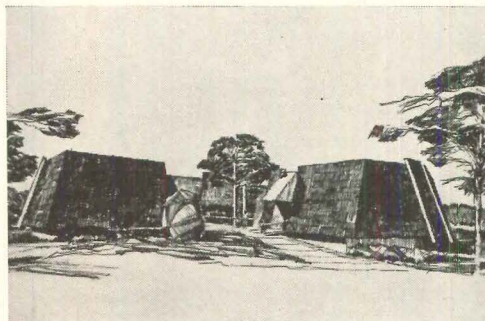
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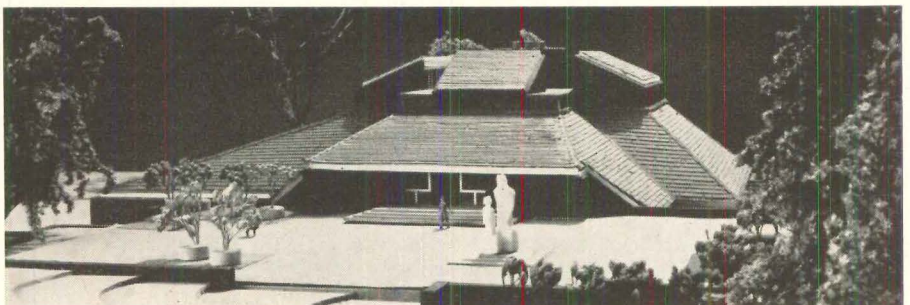
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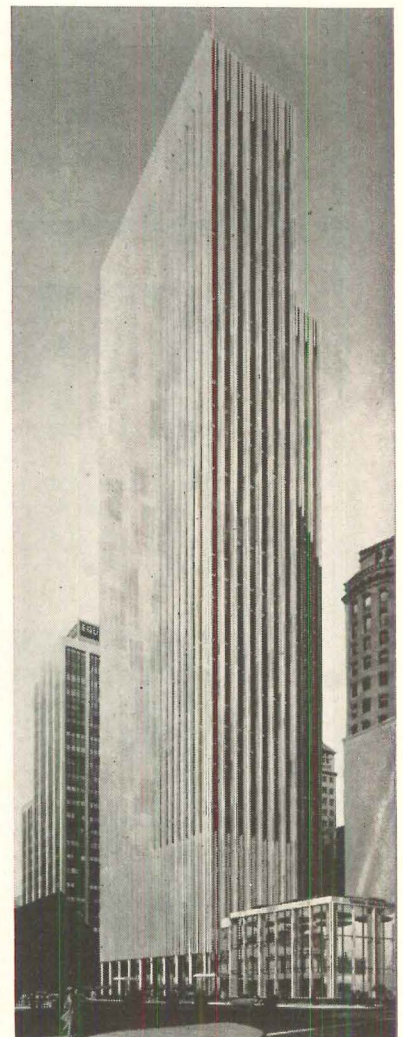
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**5. RESEARCH IN MICHIGAN.** Work begins this fall in Ann Arbor on new research laboratories for Climax Molybdenum Co. of Michigan, a research subsidiary of American Metal Climax. Smith, Hinchman & Grylls' design for three connected buildings incorporates several products from other Amax divisions: precast wall sections from Crest-Schokbeton, glazing zippers from Kawneer, and precast, prestressed frames from Precast Industries.

**6. CHICAGO PUBLIC HOUSING.** These square towers with scal-

loped sides represent a determined move by the Chicago Housing Authority away from usual public housing design, a move enhanced by the choice of Bertrand Goldberg as the architect. The 18-story towers will contain apartments for the elderly exclusively; elsewhere on the site there are to be low-rise units for 350 families.

**7. BRONX ZOO.** Special lighting will trick animals in the "World of Darkness" at the Bronx (N. Y.) Zoo into believing that day is night. Morris Ketchum Jr. &

Associates chose slate shingles for sloping exterior walls, and baffled the entrance to keep out light.

**8. SAN FRANCISCO PEAK.** Newest entry in the "tallest west of Dallas" sweepstakes is the \$25 million Wells Fargo Building in San Francisco, to stretch 43 stories above Montgomery and Sutter Streets. The building will be L-shaped, with a three-story banking pavilion attached to its base. Owner and developer is the Dillingham Corp. of Honolulu; the Wells Fargo Bank, which owns the site, will be a major tenant.

Architects and engineers: John Graham & Co.

**9. SWARTHMORE DINING HALL.** A comfortable perch on a hillside between dormitories and classrooms is the chosen spot for the Swarthmore College dining hall in Swarthmore, Pa. The entrance will be on the second level, with dining rooms built into the hillside below. Special touches by Architect Vincent G. Kling, to take away the drill-hall aspects of college meals, include smaller dining rooms, natural stone walls, and beamed ceilings.

continued on page 51





Steel for Strength

# STRUCTURAL DESIGN NEWS

FROM BETHLEHEM STEEL

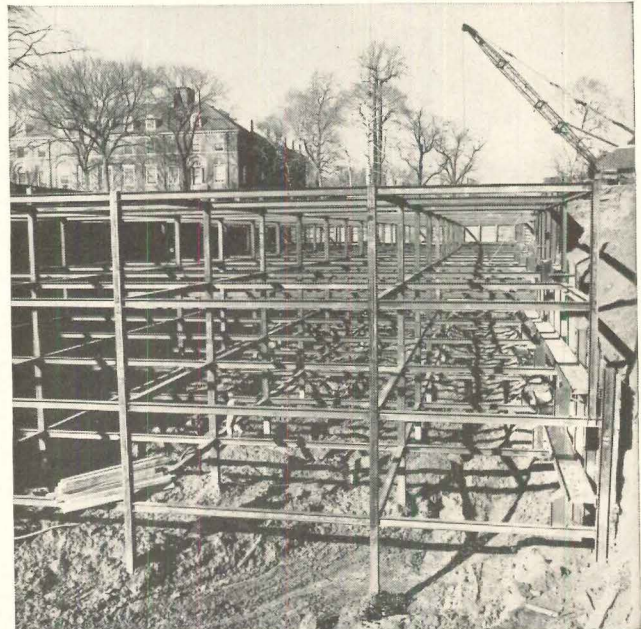
NO. 3

**V STEELS PROVE VALUE AND VERSATILITY.** Introduced only a short 18 months ago, Bethlehem's new line of high-strength, low-cost V Steels already are hard at work in the field improving aesthetics, solving engineering problems, saving money. All five grades offer very attractive strength-to-price ratios; all five grades are weldable. Here are a few examples of how they're being used... what they're replacing...and why.



**V50-V55 SHAPES REPLACE HEAT-TREATED ALLOY STEEL . . . SAVE \$10,000!** Four welded Vierendeel trusses spanning a street running under the second floor of Hamburgers Building in Baltimore (a men's clothing store) were redesigned in V50 and V55 (50,000 and 55,000 psi minimum yield). Savings: \$10,000 in material costs, plus economies through availability of rolled shapes.

**V60 ROOF GIRDERS IMPROVE AESTHETICS.** Gymnasium in Paggets Corner High School, Md., features an exposed structural steel frame. Three 100-ft-long welded boxed roof girders of V60 were used in lieu of trusses to improve eye-appeal. Icing on cake: V60 (60,000 psi minimum yield) saved material and dollars.



**V50 REPLACES CONCRETE . . . SAVES \$100,000.** Five of the six floors of the Johns Hopkins University Library are underground. They were originally designed in concrete, but the engineer switched to a welded continuous steel frame using V50 shapes to solve height problem. Higher-strength V50 allowed slimmer beams, made building possible as designed. Engineer estimates V50 steel frame cost \$100,000 less than proposed concrete structure.

**V50 9% CHEAPER THAN A7.** One-story warehouse and office building for Decca Records, New York, was first designed in A7. V50 shapes resulted in a 19% reduction in the weight of the welded frame . . . a 9% dollar savings.

**NEW STEELS, NEW DESIGN CRITERIA . . .** make steel framing more economical than ever before. A Bethlehem Sales Engineer can point the way to savings of time and money if you'll call him in during the early design stages. Want him? Just get in touch with the Bethlehem Sales Office nearest you.

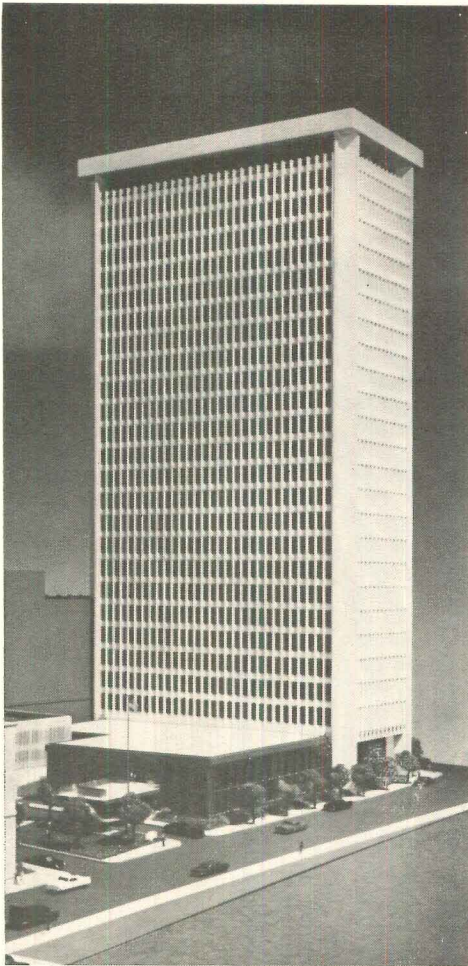


(Names of the architectural and engineering firms responsible for the projects named above will gladly be furnished on request.)

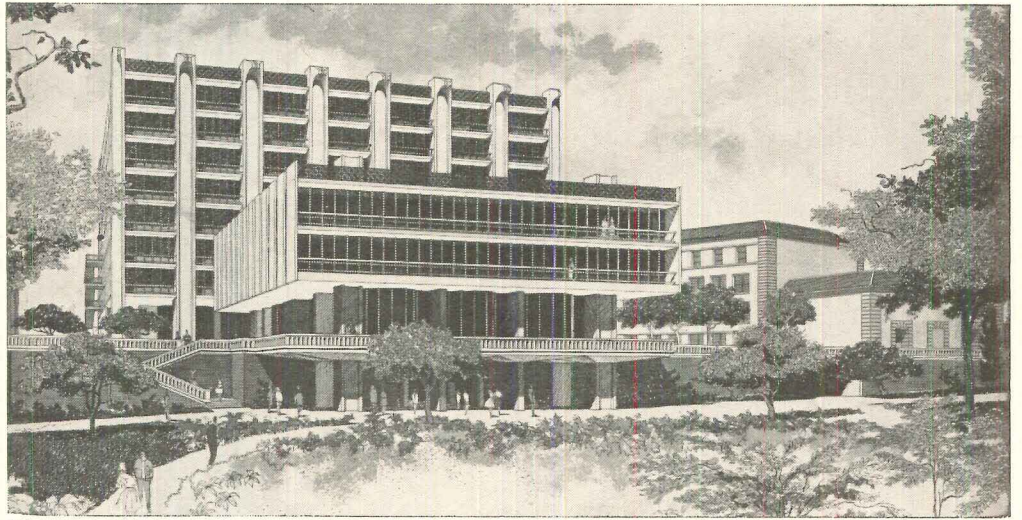
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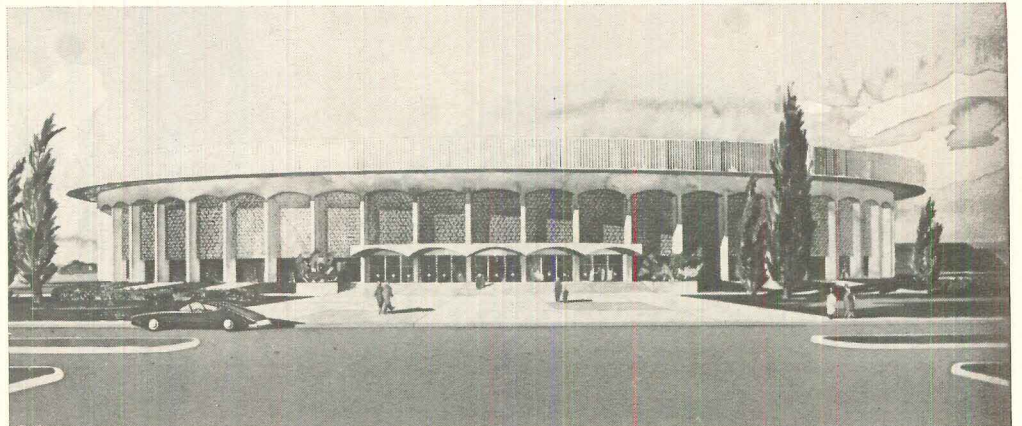
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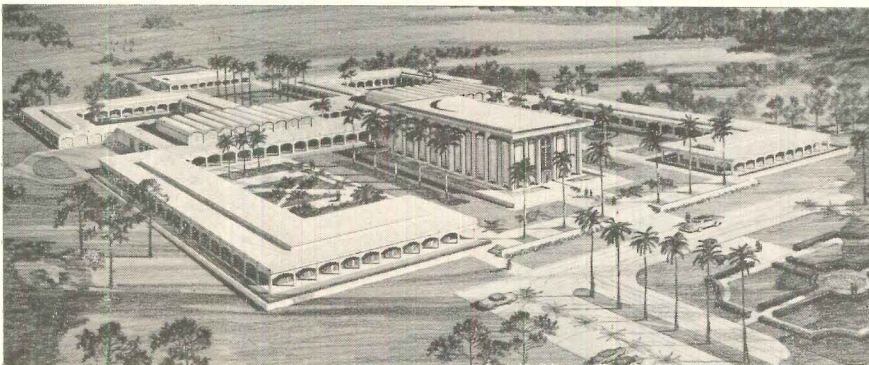
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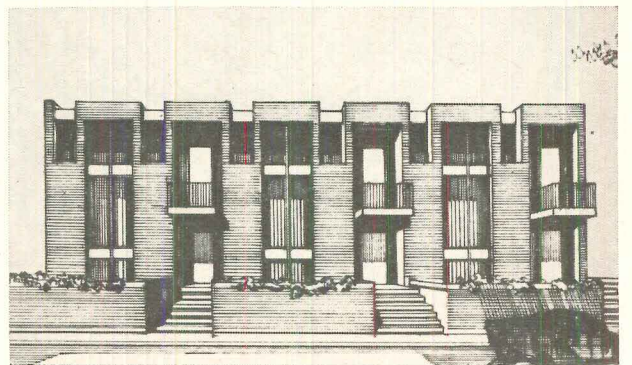
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11



14

**10. HARTFORD BANK.** The Hartford National Bank & Trust Co. is undertaking a \$14 million redevelopment plan of its own in downtown Hartford, Conn. The major element is a 25-story tower, 60 per cent occupied by the bank, and a big banking floor which extends beyond the base (center). L-shaped columns at the corners and 8-foot girders at the base will support the tower. Wall sections will be precast concrete. Architects: Welton Becket & Associates; Jeter & Cook, associates.

**11. FLORIDA SEMINARY.** Planned

and designed by the Office of Max O. Urbahn, the Seminary of St. Vincent de Paul is taking shape in Boynton Beach, Fla. The seminary is laid out in a formal pattern of open courts and covered passageways behind the main chapel. The chapel is to have a coffered ceiling supported by precast concrete trees.

**12. CALIFORNIA LABORATORY.** Architects Anshen & Allen describe their Chemistry Unit 2 (foreground) on the University of California's Berkeley campus as an iceberg because a large part

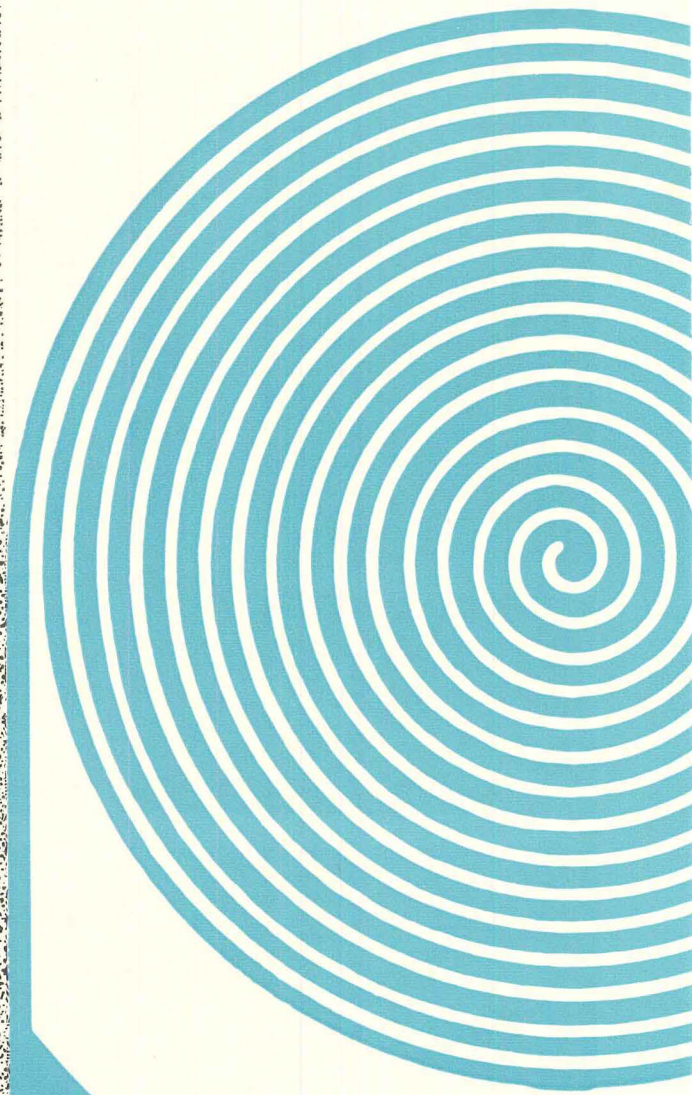
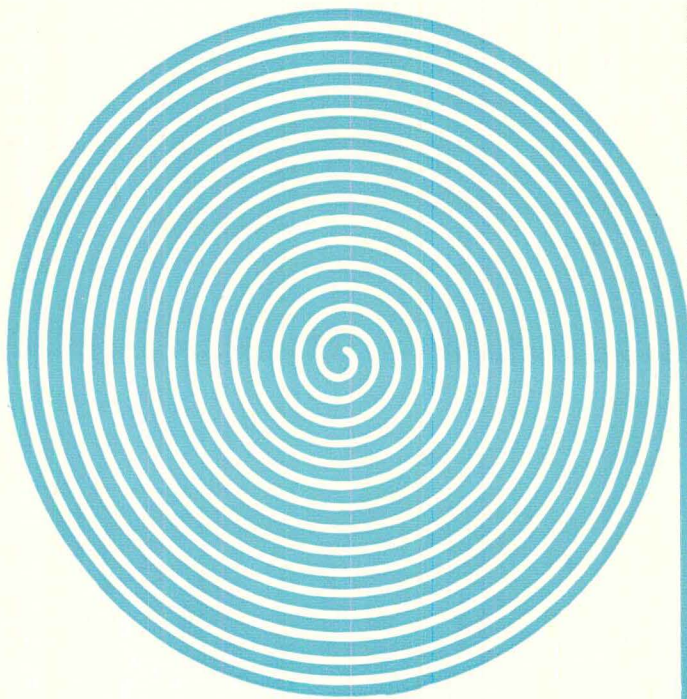
of it is hidden. Underground laboratories will be used primarily for experiments that require close control over temperature and vibration. Above ground there will be a library, classrooms, and laboratories for work in physical and biophysical chemistry. Reinforced and precast concrete will be structural materials, terra cotta screens and panels supplying the decorative fillip.

**13. OKLAHOMA ARENA.** The State Fair Arena in Oklahoma City will be a big ellipse 300 by 400 feet, capable of handling

crowds of 10,000 for rodeos and conventions. Structural supports will be 42 columns holding a huge ring beam, from which will be suspended a two-way catenary cable roof. Architects: Jack L. Scott & Associates.

**14. TEXAS TOWNHOUSES.** Three-story townhouses of brick for the Westmoreland neighborhood in Houston will have 2,000 square feet of living space, an enclosed patio, and a price tag of \$27,000. The design is by Architect Clovis B. Heimsath, for Developer Ewell Jackson. END





THE E. F. HAUSERMAN COMPANY  
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and its place in the Hauserman Total Interior Concept.

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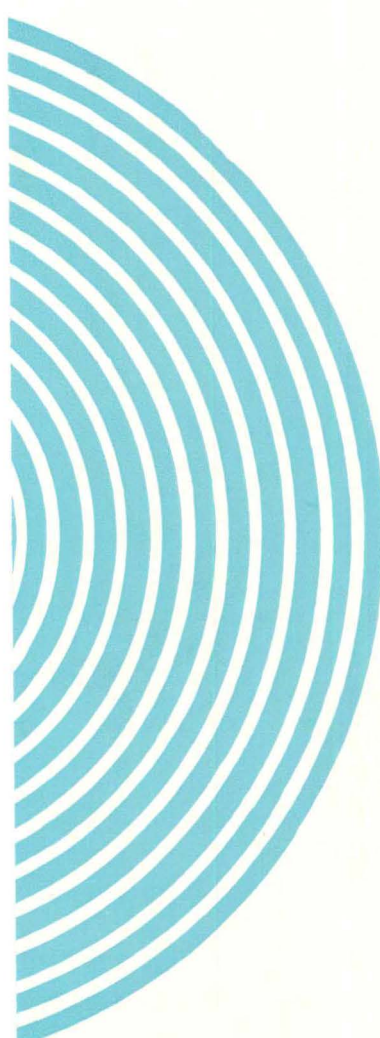
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Company \_\_\_\_\_

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City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

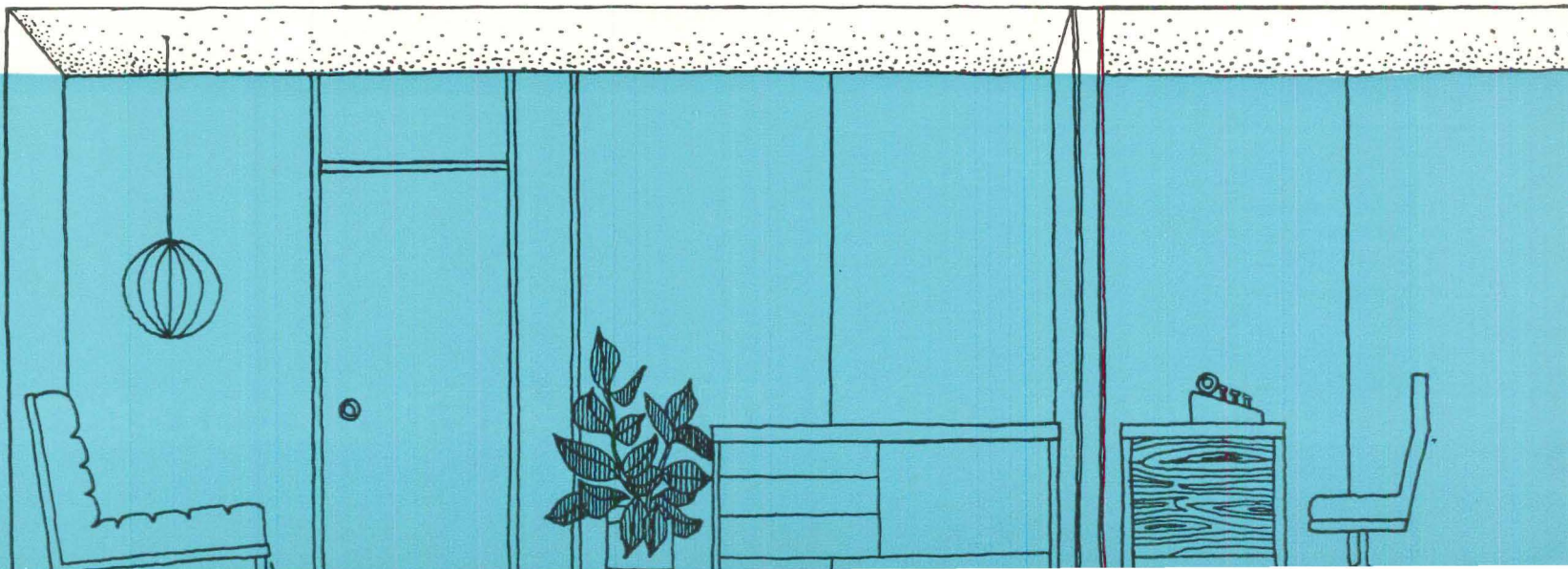




# Hauserman Announces Co-ordinator Double-Wall

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This unique new Hauserman product, Double-Wall, is the first metal movable wall system that can be purchased at only a fraction more than the least expensive space divider. ■ The key to Double-Wall's exceptional low cost is in production standardization and the elimination of costly engineering. Standard components are shipped to the job where they are easily adapted by Hauserman-trained installation experts to meet any building requirement. On-site fitting and finishing allows last minute layout and color changes, permits earlier occupancy for earlier return on investment. ■ No compromise has been made in Double-Wall's appearance or performance. It provides sound control (43 db STC), movability, ease of wiring, and utility access. Its components are 100% re-usable. And it offers trim, handsome appearance, simply maintained, only possible with a metal wall surface. ■ Double-Wall integrates fully with all other Hauserman movable wall systems. Installation and subsequent service of your total interior are guaranteed under our Hausermanaged single-contract responsibility. Never before has a company offered such a flexible, economically practical concept for interior space division. And new Hauserman Co-ordinator Double-Wall is included in the exclusive Hauserman Lease-Wall plan.





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Here is a completely new approach to interior space division. It is now possible to select Hauserman movable wall and ceiling systems whether you need simple, basic space division or the elegance and economy of Hauserman engineered walls—and **combine** them to answer specific space requirements at significant cost savings.

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**DELINEATOR** Slim and graceful, the most quietly distinctive movable wall system ever designed. Matchless engineering and finishing provide long-term savings that more than offset the initial investment in quality.

**SIGNATURE** An engineered movable wall system of classic all-steel panels combining simplicity, precision, and beauty with significant long-range economies.

**DOUBLE-WALL** New—the first truly practical metal movable wall at a cost only slightly more than the least expensive way of dividing space. A Hauserman exclusive.

**GYPSUM MOVABLE WALLS** Traditional Hauserman quality in the lowest priced movable wall material. Now, Hauserman provides Vaughan movable gypsum walls installed complete with Hauserman single-contract responsibility.

**OPERABLE WALL** Acoustically sealed steel panels glide instantly into place to divide space, slide aside at a touch to open space for double or triple duty.

**CRITERION CEILINGS** A complete series of incombustible, acoustical ceiling systems in all materials and textures. Designed for specific varying applications.

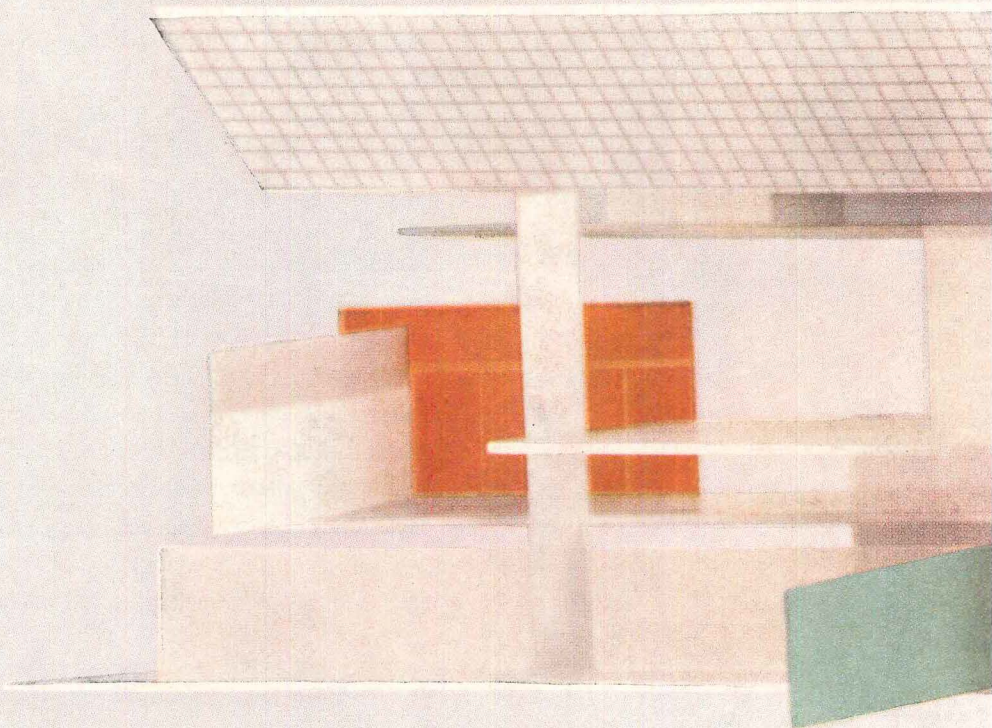
Under the Hauserman Total Interior Concept, any combination of systems you choose for your complete interior is handled under one Hausermanaged contract for perfection of installation.

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Name \_\_\_\_\_

Title \_\_\_\_\_

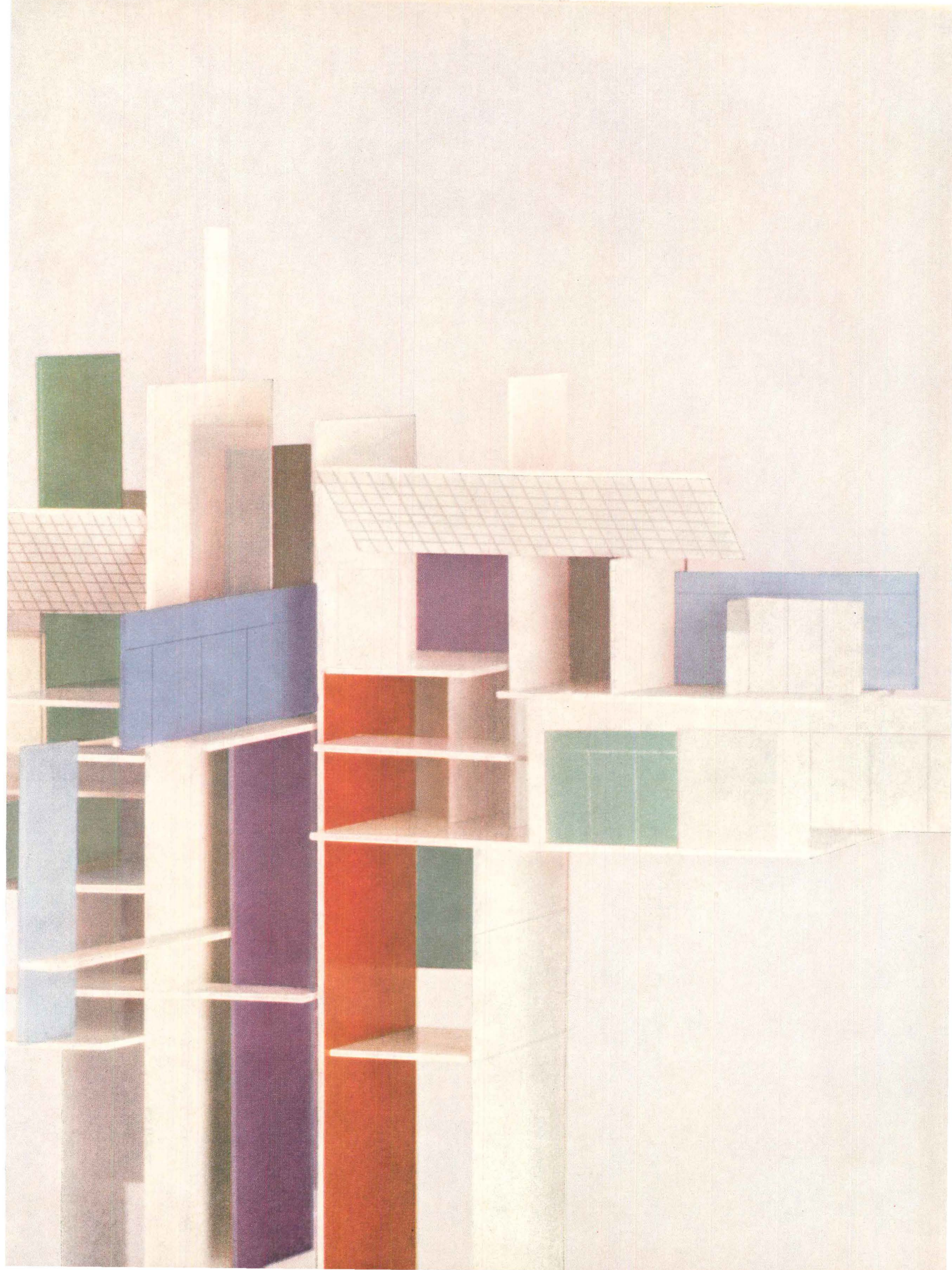
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City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_









## CONCRETE FITS HIGH-RISE LIVING TO A TROPICAL SETTING ... WITH A BONUS OF TWO EXTRA FLOORS

Coral Ridge Towers, Florida's newest and largest cooperative apartments, make the most of sun and sea on the glamorous Fort Lauderdale "Ocean Mile" beach. Concrete contributes importantly to the beauty and efficiency of the structure's modern design. Precast, sculptured balconies and stucco-finished walls combine crisply with broad expanses of glass. Behind the attractive façade, a concrete frame and flat plate floors provide not only rugged strength but a remarkable saving in floor-to-floor height. This made possible an increase from 14 stories to 16 within the local 150-foot limitation for high-rise buildings. For today's progressive architects, no other material provides the versatility of modern concrete.

### PORTLAND CEMENT ASSOCIATION

*An organization to improve and extend the uses of concrete*

### THE BEST IDEAS ARE MORE EXCITING IN CONCRETE

Coral Ridge Towers, Fort Lauderdale, Florida. Owner: Coral Ridge Properties, Inc. Architect: Charles F. McKirahan & Associates, A.I.A., Ft. Lauderdale. Structural Engineer: D. E. Britt & Associates, Ft. Lauderdale. Contractor: Frank J. Rooney, Inc., Miami

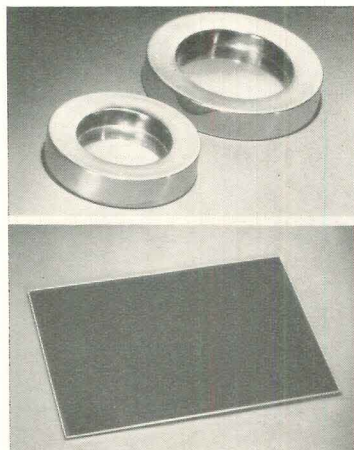




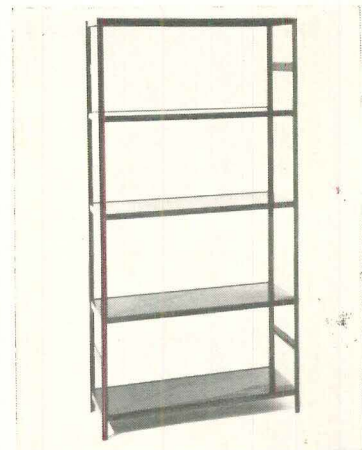
Storage plain and fancy, sturdy seating, executive appointments



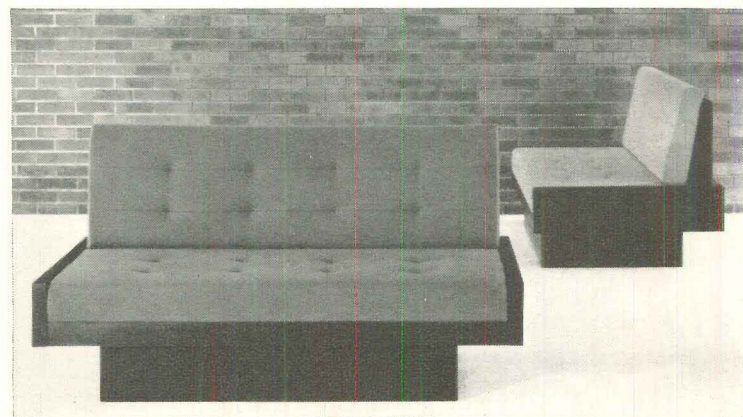
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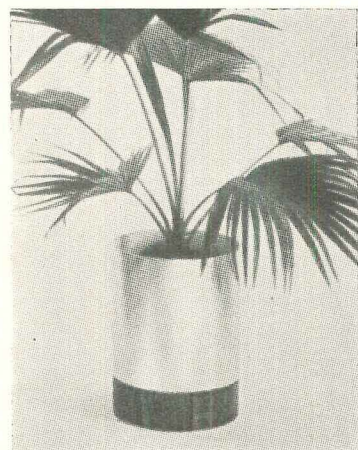
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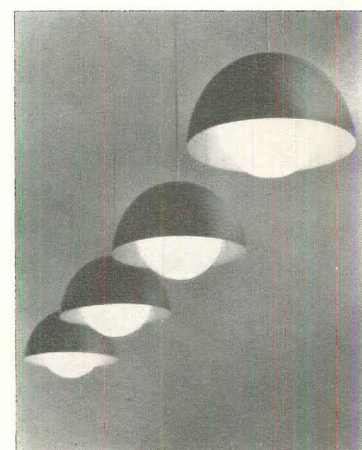
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8

**1. LIGHTED STORAGE.** New additions to the Comprehensive Storage System (CSS) designed by George Nelson for Herman Miller, Inc. are display boxes of oiled walnut or teak with white lacquer linings. Both fit a 32-inch bay: the top box is 12 inches deep, 25 5/16 inches high, and has a glass shelf; the lower one is 18 1/2 inches deep, 14 13/16 inches high. Cost: \$188 to \$210.

**2. OFFICE PLANTERS.** Executive greenery gets a proper base in this cylinder of walnut and aluminum alloy polished to a chrome finish.

Paul Mayen designed it for Habitat Inc. of New York City. Dimensions: diameter, 10 inches; height, 13 1/2 inches. Cost: \$54.

**3. BUCKET SEAT.** An aura of sports-car styling is discernible in the bucket-seat design of this chair. B. Brody Seating Co. of Chicago manufactures it in several materials and finishes. Prices begin at \$59.88.

**4. DESK ACCESSORIES.** The Buffalo firm of Smith Metal Arts Co., Inc. makes a new series of handsome desk accessories. Representative of the collection are the two

ashtrays above, of aluminum and brass, and a black linoleum desk pad framed in a narrow aluminum band. Costs: \$15 and \$20 for ashtrays 6 and 7 1/2 inches in diameter; \$19 and \$23 for desk pads 19 by 25 and 20 by 34 in.

**5. STRONG SHELVES.** New shelves from S. A. Hirsh Mfg. Co. of Skokie, Ill., get along without cross braces, relying instead on special steel and corner supports. Costs run from \$4 to \$12 per unit.

**6. MASSIVE SOFA-BENCH.** CI Designs of Boston supplies this sturdy sofa-bench for monumental

buildings. The frame and base are solid slabs of walnut. The cost of a unit 5 feet long is \$399, not including upholstery.

**7. KNOLL SWIVEL.** This new executive chair from Knoll Associates, Inc., designed by Vincent Cafiero, spins and tilts on a brushed chrome stem. Prices start at \$275, in muslin over foam.

**8. DOME LIGHTS.** Habitat and Paul Mayen collaborated to produce this lamp in a larger size, 31 inches in diameter. The hood is metal finished in chrome, brass, and colors. Cost: \$135. END



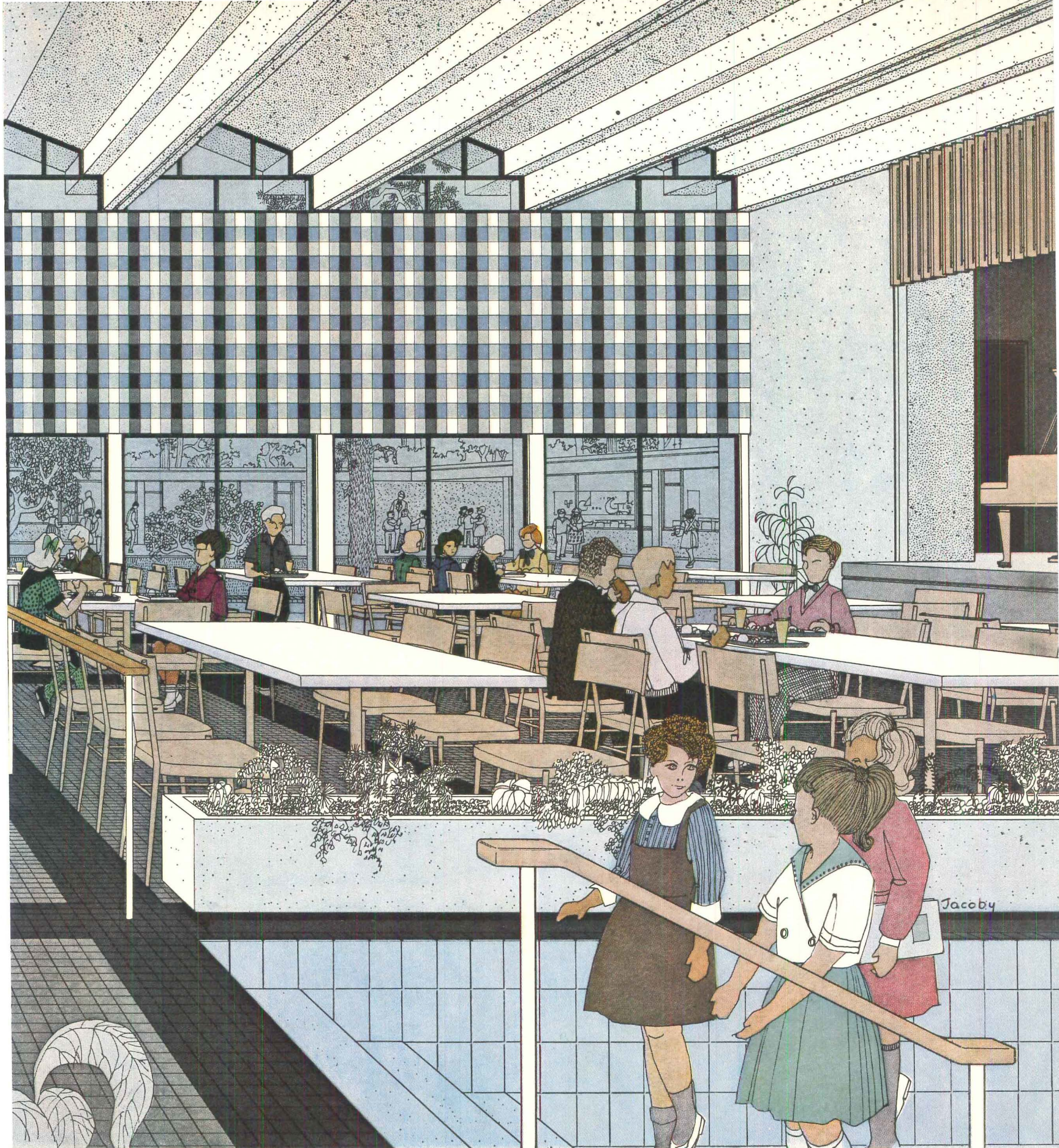


## CERAMIC TILE PROVIDES COLORFUL BEAUTY

A bright, appealing environment . . . easy sanitation . . . rugged durability . . . and economical maintenance —these were the primary considerations in planning this school cafeteria. American Olean ceramic tile provided the complete answer on all four counts.

American Olean's cost-saving large size tiles were specified throughout for walls. Set vertically, they create a pleasing scale effect in the large, open areas. They also offered a simple, economical way to add a colorful design treatment on the feature wall above the windows.





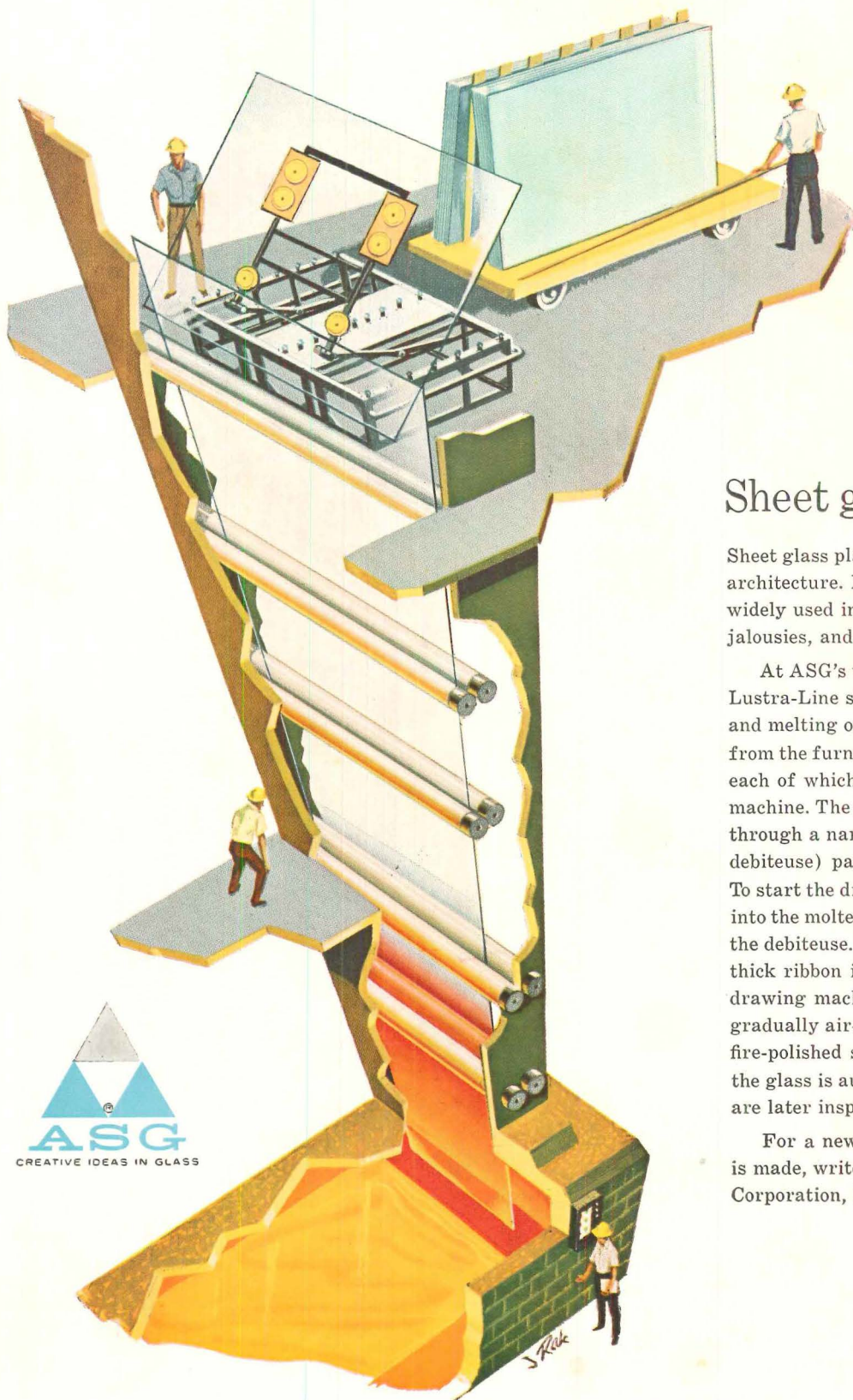
Feature wall: 6" x 4¼", 47 Brite White, 98 Smoke Gray, 49 Gloss Black, 63 Flax Blue, 21 Cornflower. Other walls: 6" x 4¼", 18 Pastel Blue. Cafeteria floor: 2" x 2" ceramic mosaics, Dawn Gray and Ebony. Kitchen floor: Murray quarry tile, 6" x 6", Fawn Gray, Plate 497.

## AND ECONOMY IN A SCHOOL CAFETERIA

Floors of handsome unglazed ceramic mosaics in the dining area and rugged Murray\* quarry tile in the adjoining kitchen, provide maximum durability with easy cleaning and no upkeep. Write for new 1963 American Olean product catalog and Booklet 620, "Ceramic Tile for Schools".

CERAMIC TILE  
**American  
 Olean**





## Sheet glass—what is it?

Sheet glass plays a versatile role in today's light-filled architecture. Most familiar in windows, it is also widely used in storm sash, furniture tops, shelving, жалousies, and countless other everyday applications.

At ASG's three sheet glass plants, manufacture of Lustra-Line sheet glass begins with precise mixing and melting of raw materials. The molten glass flows from the furnace into a series of rectangular canals, each of which feeds a three-story high drawing machine. The glass is drawn upward into the machine through a narrow slit cut in a clay block (called a debiteuse) partially submerged in the liquid glass. To start the draw, a multi-pronged steel bar is lowered into the molten glass, then slowly withdrawn through the debiteuse. Glass clings to the bar, and a uniformly thick ribbon is drawn up into the machine. The drawing machine acts as an annealing tunnel, gradually air-cooling the glass and creating a smooth, fire-polished surface. At the top of the machine, the glass is automatically cut into large sheets which are later inspected and cut to specified sizes.

For a new, illustrated booklet on how flat glass is made, write Dept. B-9, American Saint Gobain Corporation, P. O. Box 929, Kingsport, Tenn., 37662.



There are many companies in the glass business.  
But only one U.S. company—ASG—makes all three  
major types of flat glass...plate, sheet and patterned.

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CORPORATION  
KINGSPORT, TENN.

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PLANTS: Kingsport & Greenland, Tennessee; Jeannette, Arnold & Ellwood City, Pennsylvania; Okmulgee, Oklahoma.



The newest component in executive decor is

**NEWS ITSELF\***

**"The architect suggested it."**

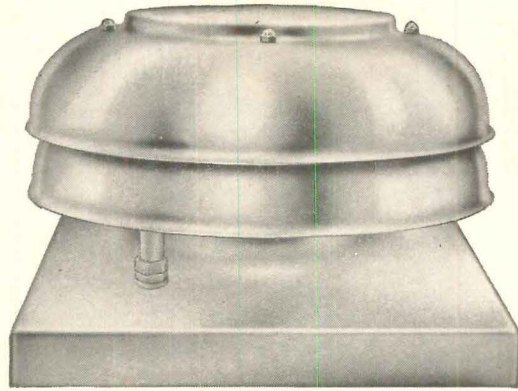
**He is a good businessman."**



\* Office design for business decision makers is complete only when it includes business news itself—delivered direct to the executive's office by electrical transmission. For prompt, detailed information write or call.

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Type QT provides from 265 to 18,570 cfm., free air. Pressure-type aluminum blade. Direct drive in sizes up to 24" propellor. Belt drive in sizes 30" and up. All-aluminum construction.

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**BOTH VENTILATORS:** Pipe conduit to motor compartment is an integral part. Motor is out of airstream, in a deep spinning which eliminates turbulence. Types QT and QDT look identical. Write to Loren Cook Co., Berea, Ohio for 32-page catalog. (Sweets Architectural File, Section 20C)

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Write for complete information on how to obtain better concrete joint protection for less cost.

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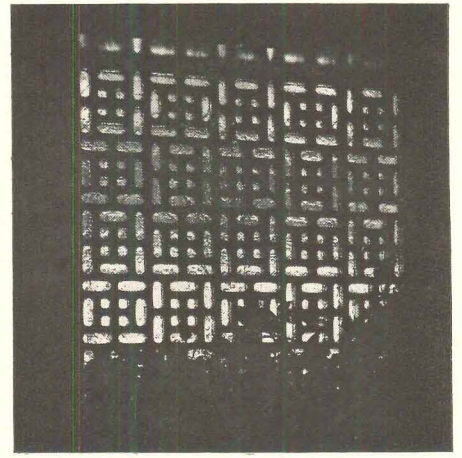
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Please send Bulletins 4025 and 4030 with technical details of operation and application and installation data on the Pyro/smoke fire detector

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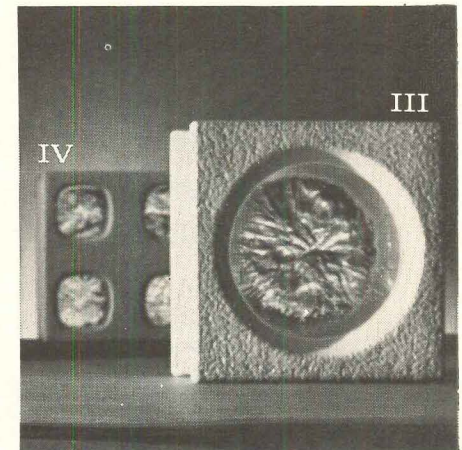
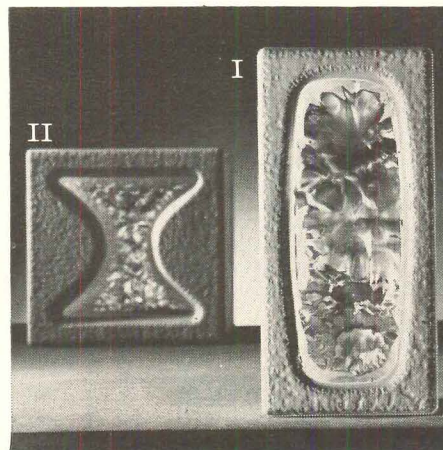
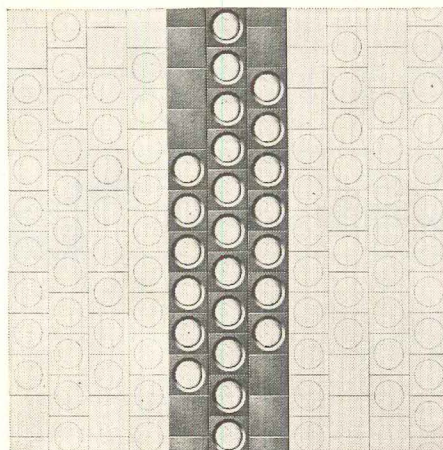
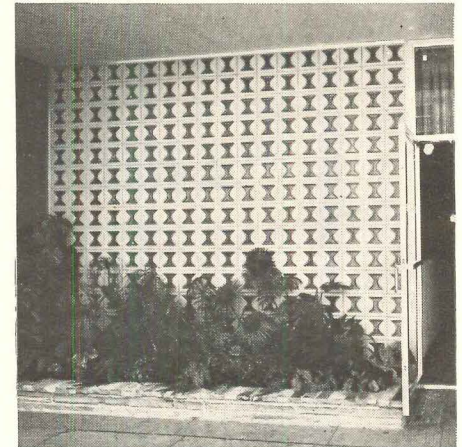
*A screen wall that provides insulating value*



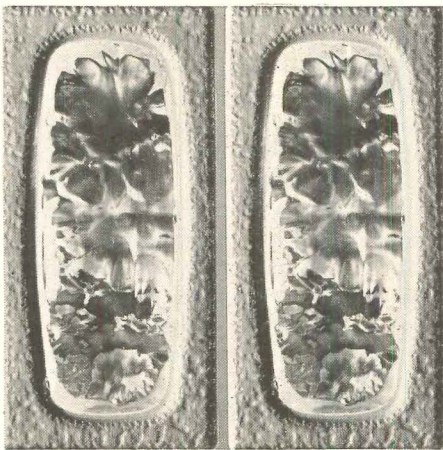
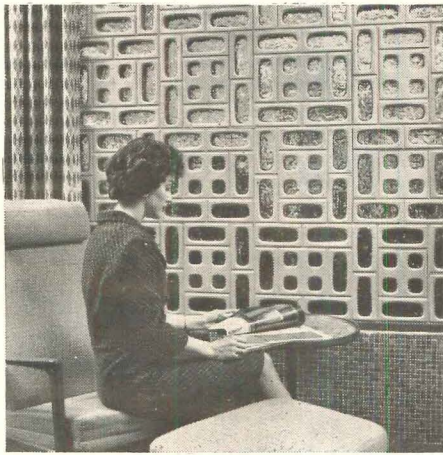
*that requires no maintenance,*



*that keeps outside noise outside*

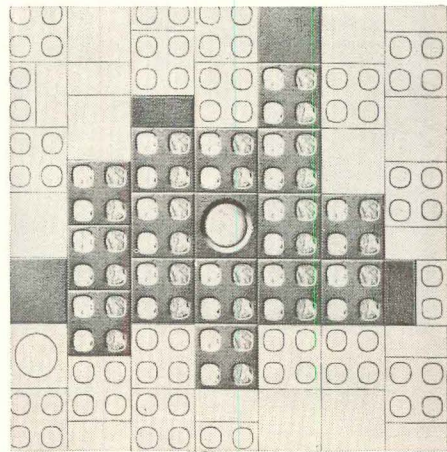




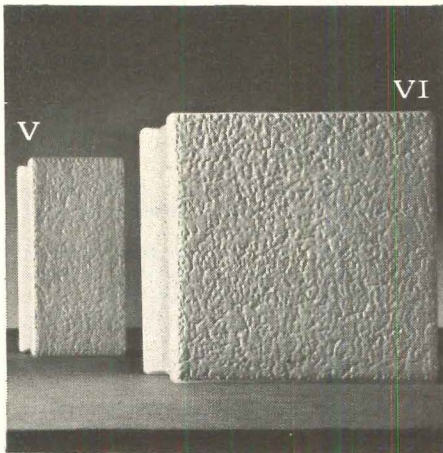


Now, from Pittsburgh Corning, an all glass unit that enables you to design a screen wall with no voids — that provides the full insulation value of double glazing and still holds the masonry appearance of a pierced wall.

INTAGLIO Glass Wall Units. Combine glass and grill. Can't collect dirt. Can't attract youthful climbers. Are kept clean by falling rain. And provide a complete wall finished inside and out, in one simple installation operation.



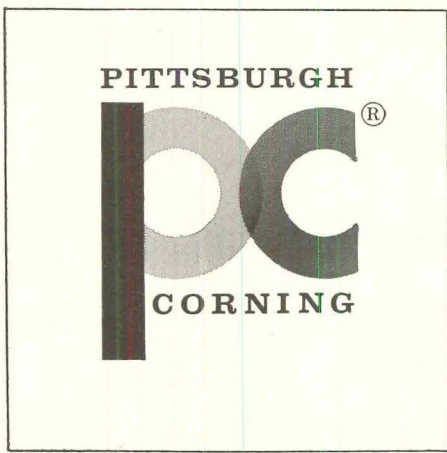
**Now glass and grill are one...INTAGLIO**



Two new Intermix units (V and VI, at left) show the ceramic frit that gives an overall textured concrete effect for pattern interruption.

In the four pattern designs center areas are a clear, antiqued glass, with the frit effecting a masonry perimeter. Designs I and V measure 4" x 8" x 4". The remaining four units are 8" x 8" x 4".

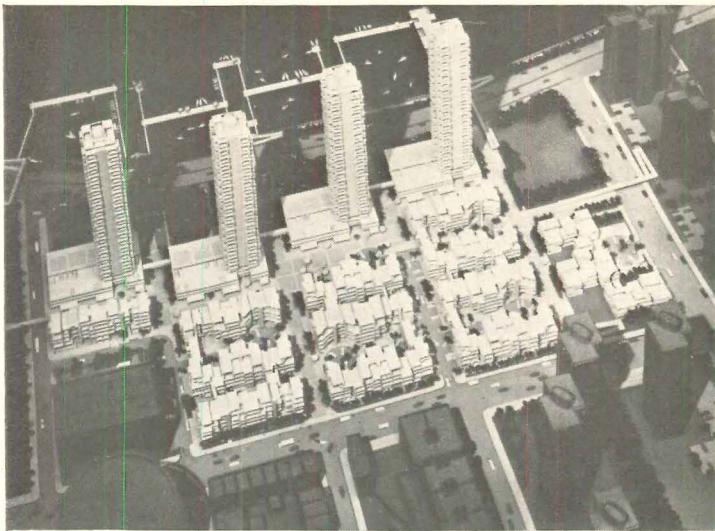
Build function in, design maintenance out of the screen wall. Write for a brochure. Pittsburgh Corning Corporation, Dept. AF-93, One Gateway Center, Pittsburgh 22, Pennsylvania.





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**\$25,000**

*New York City's East River  
Urban Renewal Project*



Prospective of First Prize Concept—"a lively treatment of the facades on the low height streets culminating toward the river in four towers"...

In Ruberoid's Fifth Competition, conducted with the co-operation of the City of New York's Housing and Redevelopment Board, the attention of the architectural profession was directed to one of the nation's major problems—Urban Middle Income Housing. For this problem the City provided an actual site in Manhattan's East Harlem area and cooperated with Ruberoid in developing the Competition program. The City Housing Board also agreed to exert every effort on behalf of the winning concept for use in building the project.

Professional interest and participation reached a new high in the history of Ruberoid's architectural competitions. The opinion of the Competition Jury was that important new ground was broken by the winning awards in a challenging area of American life. It felt also that many of the ideas presented will be brought into existence and make a contribution to housing of the future.

The winning designs will be reproduced in a brochure later this year. For a copy write to The Ruberoid Co. on your letterhead.



◀ **THE DISTINGUISHED JURY** that selected the winners (Left to Right)

- Herbert J. Gans, Research Assoc. Prof. of City Planning Inst. for Urban Studies and Dept. of City Planning. University of Pennsylvania, Phila., Pa.
- David A. Crane, A.I.A., Dir. of Land Planning and Design, Boston Redevelopment Authority, Boston, Mass.
- Lewis E. Kitchen, Lewis Kitchen Realty Co., Specialist in urban redevelopment; Kansas City, Mo.
- Albert Mayer, F.A.I.A., Chairman of Jurors, eminent architect and consultant, specialist in town, city and rural planning and development, New York, N. Y.
- Sir Leslie Martin, F.R.I.B.A., Prof. of Architecture, Univ. of Cambridge, England, Past Vice-Pres. Royal Inst. of Architects, leader in urban planning and redevelopment.
- Milton Mollen, Chairman of Housing and Redevelopment Board of City of New York, eminent lawyer.
- Harry Weese, F.A.I.A. widely experienced engineer, architect, and community planner, Chicago, Ill.
- B. Sumner Gruzen, F.A.I.A. (not shown) professional advisor to Competition, leading architect and engineer, Principal of Kelly & Gruzen, New York, N. Y.



# *Fifth Annual Design Competition*

# AWARDS

## GRAND NATIONAL AWARDS

- FIRST PRIZE \$10,000** Thomas H. Hodne, A.I.A., James McBurney, Kermit Crouch, Robert Einsweiler, A.I.P., James Solverson, Vern Svedberg and Tokiaki Toyama Hodne Associates  
Minneapolis 14, Minn.
- SECOND PRIZE \$5,000** Felix J. Martorano . . . Shreve, Lamb & Harmon, New York, N. Y.  
Ricardo Scofidio . . . Richard G. Stein, New York, N. Y.  
Edvin K. Stromston
- THIRD PRIZE \$2,500** Amiel Vassilovski . . . Pedersen & Tilney, Boston, Mass.  
Hanford Yang

### (6) MERIT AWARDS \$500 EACH

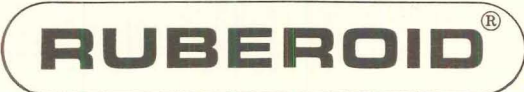
1. Ena M. Dubnoff, Richard K. Fleming, Eugene P. Flores, Ellis D. Gelman, Lewis A. Greenberg . . . Dubnoff, Fleming, Flores, Gelman & Greenberg  
Los Angeles 4, Calif.
2. R. E. Alexander, FAIA, C. R. Wojciechowski . . . Robert E. Alexander & Assoc., Los Angeles, Calif.  
Paul R. Drag . . . William L. Pereira & Assoc., Los Angeles, Calif.
3. John Dollard . . . Huntington, Darbee & Dollard, Hartford, Conn.  
Tai Soo Kim . . . Philip Johnson Assoc., New York, N. Y.
4. Robert W. Brantingham, Thomas J. Eyerman, Thomas O. Schnell, Robert N. Wandel . . . Ohio State University, Columbus 1, Ohio
5. Joseph J. Schiffer . . . Joseph J. Schiffer, Concord, Mass.
6. Thomas E. Selck  
George C. Winterowd, Assoc. Prof. of Arch. . . Miami University, Oxford, Ohio

## SPECIAL STUDENT AWARDS

- FIRST PRIZE \$2,000** Robert P. Holmes . . . University of Illinois  
Robert L. Wright Urbana, Illinois
- SECOND PRIZE \$1,000** Michael Wurmfeld . . . Princeton University  
Princeton, New Jersey
- THIRD PRIZE \$500** Woodrow W. Jones, Jr.  
Gerrard E. Raymond . . . North Carolina State College  
Philip A. Shive Raleigh, North Carolina

### (4) MERIT AWARDS \$250 EACH

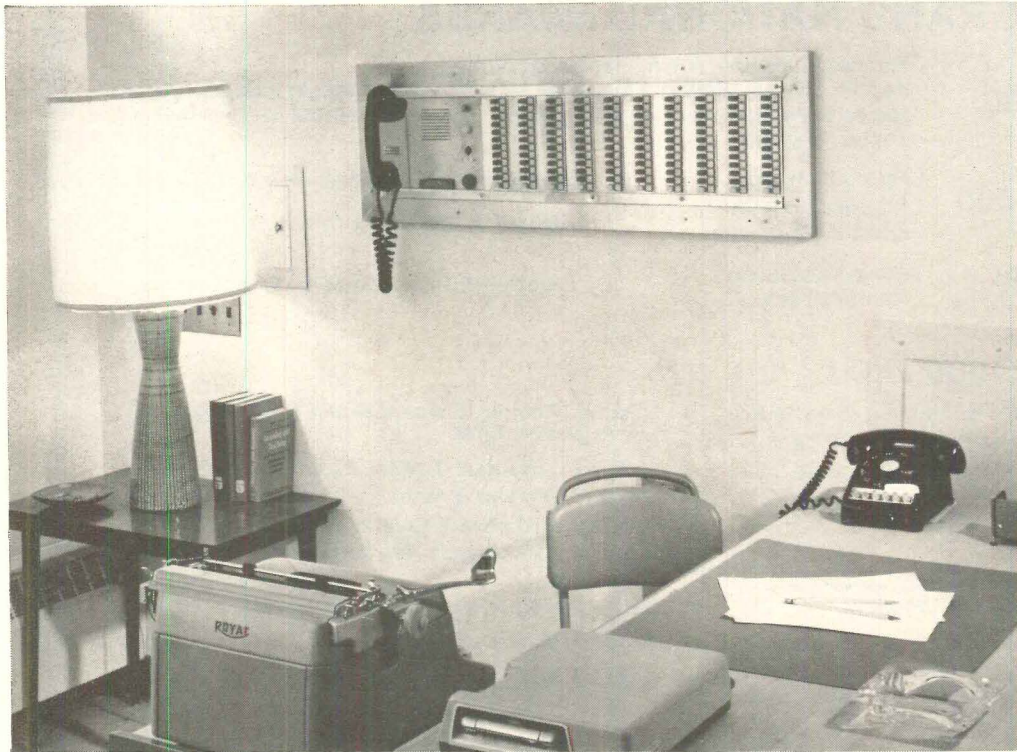
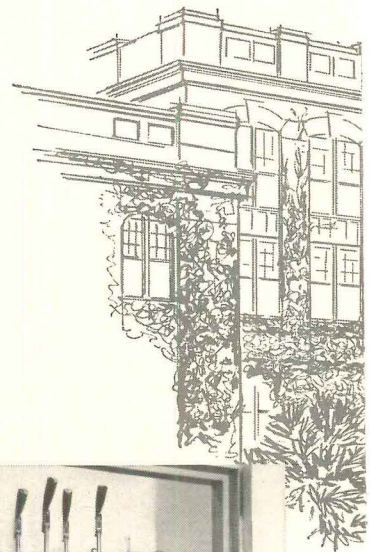
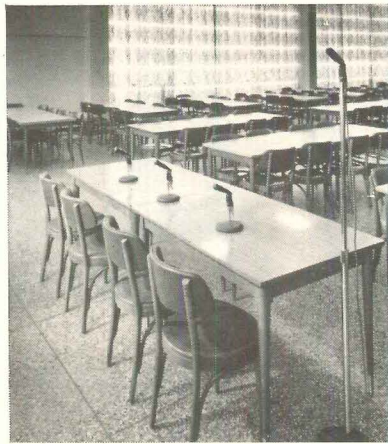
1. Peter R. Bromer . . . Rensselaer Polytechnic Institute, Troy, New York
2. John D. Duell, David S. Traub, Jr. . . . University of Illinois, Urbana, Illinois
3. Iwao Onuma . . . University of Southern Calif., Los Angeles, Calif.
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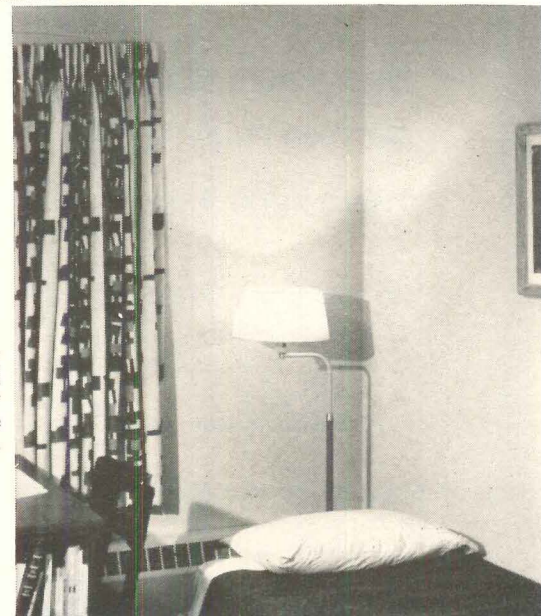
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**Signs of shame . . . and progress.** The battle for civil rights now raging across the U.S. has exposed bigotry and shame in many walks of life. Some of the worst of it, unhappily, has been in the building industry.

The indictment has been striking. In Philadelphia, whose Negro population is 27 per cent of the total, a civil rights inquiry uncovered only one Negro among 4,700 members of three of the largest building unions. In Chicago, 24 per cent Negro, the major technical training school for building apprentices has maintained a Negro enrollment of less than 2 per cent. In New York City (15 per cent Negro), an investigation showed no Negroes among 3,300 members of one union, and only a handful in others.

It is small wonder that militant groups such as NAACP and CORE, armed with statistics such as these, have made the building trades their No. 1 target for more and better jobs. The fact that recent demonstrations at building sites have sometimes become ludicrous or ugly is regrettable, but it does not alter the evidence that plenty of inequities exist.

The focus of the problem, of course, is in the building trades locals, some of which still operate like medieval guilds, asking dearly for their services, and limiting their memberships and apprentice programs to friends, relatives, and others whom they wish to choose. Negroes traditionally have been excluded from the skilled trades; they simply have not been admitted to apprentice training where they could acquire these skills. As a result, even where union ranks have been thrown open to them overnight, not enough Negroes can be found to qualify for a significant percentage of journeymen's jobs.

The blame does not lie solely with the unions: building contractors are not nearly so helpless as they sometimes pretend. They can, and should, insist on hiring their workers from unions which do not discriminate (they must, in fact, on federally aided jobs).

Last month a 12-man joint committee of national unions and contractor associations pointed the obvious, voluntary way. It urged local unions and contractors to review their joint apprenticeships programs to 1) make qualifications of applicants the sole guide, 2) notify schools of vacancies on a regular basis, and 3) establish joint appeals boards (including a representative of the public) to adjust grievances. Said the committee, in effect, you'd better do it voluntarily before the federal government wields legal sanctions it already has.

The most concrete gains so far have come with a certain amount of governmental urging. A meeting of civil rights groups, union leaders, and contractors called by Detroit's Mayor Jerry Cavanagh has resulted in virtual city-wide agreement to halt discriminatory practices. In Cleveland, threats of picketing prompted Ralph Lockner, and Under Secretary of Labor John Henning, to hammer out with 23 civil rights and building representatives an agreement to bring both Negro contractors into the city's big Erieview Mall project—and their Negro employees permanently into "white" trades unions.

But the key to future fair employment will be training, and serious efforts must be made everywhere to encourage Negroes to enter apprentice programs—which many have long since given up trying to crack—even admitting more than a normal number initially to redress an imbalance of many years. As New York's police department recently told its rookie cops, "In a heterogeneous society such as ours, prejudice can lead to tragic conflict and civic shame."





NORMAN C. MCCRAY



# MIES

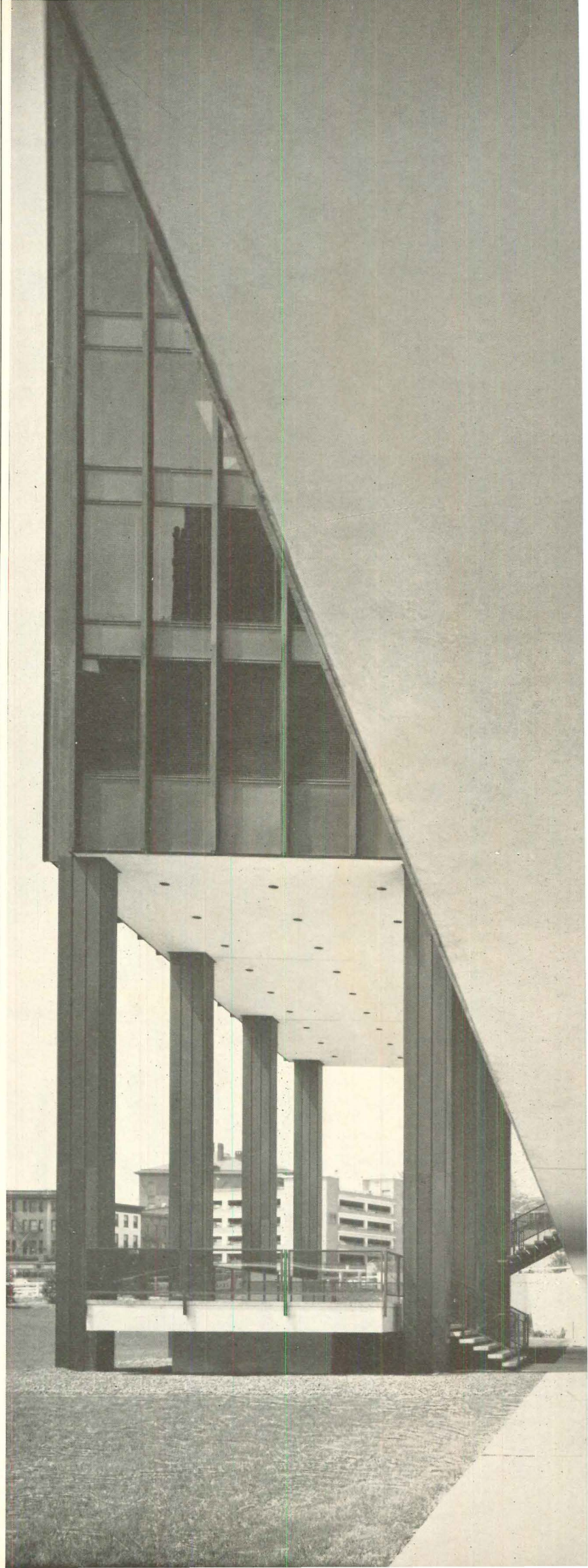


RIGHT, FRANK SCHERSCHEL—LIFE; FAR RIGHT, HEDRICH-BLESSING

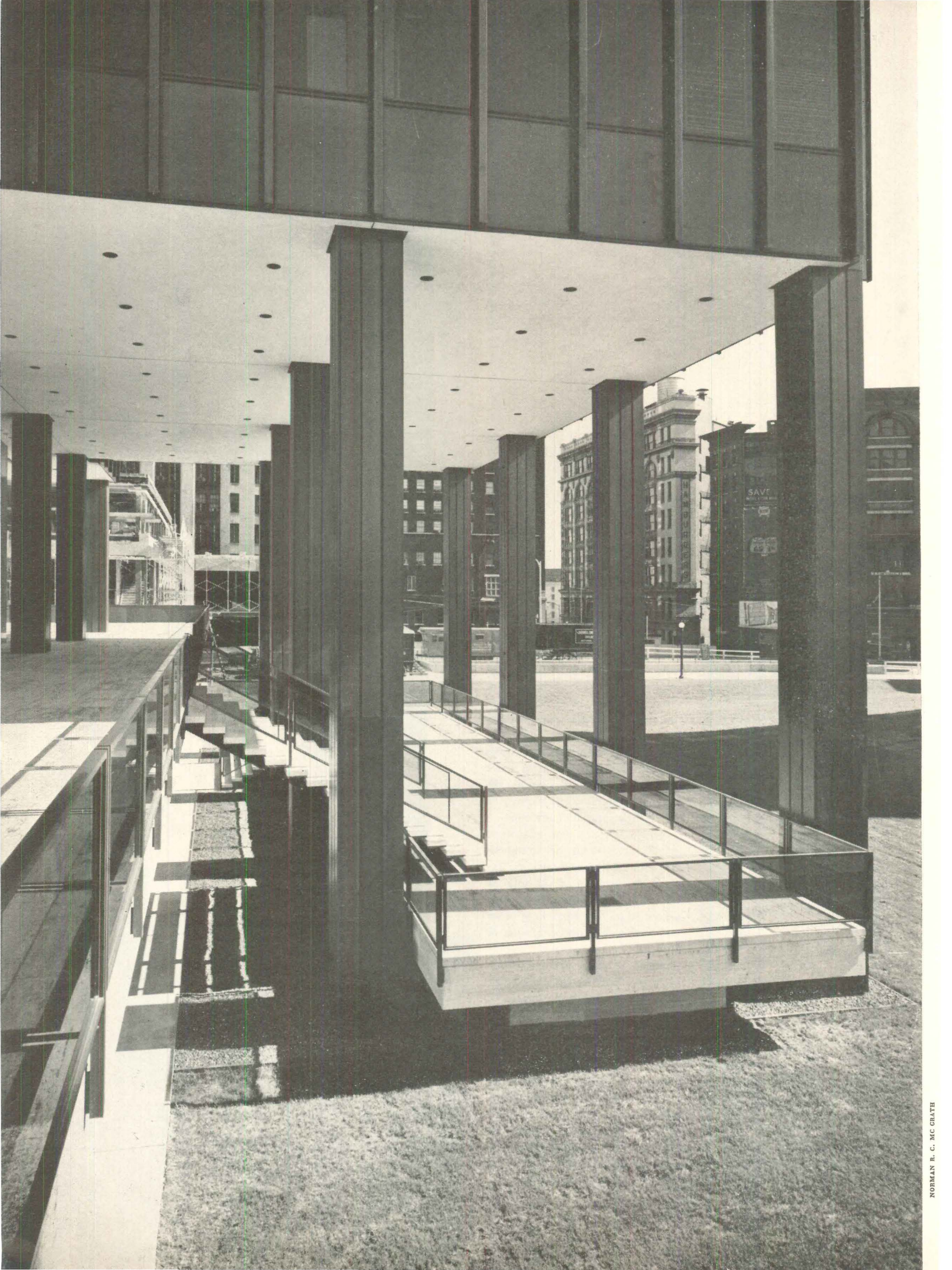
Earlier this year, he received the gold medal of the National Institute of Arts and Letters. "A rare and powerful combination of prominent gifts of the heart and the mind puts Mies van der Rohe in line with the great masters of architecture," said Walter Gropius in making the presentation. Later this month, he will become the only U.S. architect to receive the Presidential Medal of Freedom.

Mies is 77, an age at which one might expect that he would sit back and enjoy such honors. Instead, he remains at the task he has set for himself, a task he once described as "the creation of order out of the desperate confusion of our time."

These 12 pages are a portfolio of his most recent works, beginning with the landmark he has given the Charles Center redevelopment project in downtown Baltimore. The most obvious characteristic of these latest buildings is their similarity to those that came earlier, and to each other. Mies' unconcern with fashion is Olympian. Almost alone among the masters of the present day, he is more occupied with refinement than he is with exploration.









## BALTIMORE: QUALITY

"It's a beautiful situation," says President Bernard Weissbourd of Chicago's Metropolitan Structures Inc. "We're anxious for the world to know that it is possible to build a Mies building of top quality, really top quality all the way through, and still come out well financially."

One Charles Center, according to Weissbourd, was built for \$20 per square foot (including the two basement parking and service levels, excluding fees and land). Its plan, moreover, is a model of maximum rentability. Weissbourd took the precaution of engaging Architects Emery Roth & Sons as special consultants to provide a "checkpoint" during design. The Roth firm "made a contribution," he says, but it was Mies who gave the building its economy and efficiency—and its somber beauty.

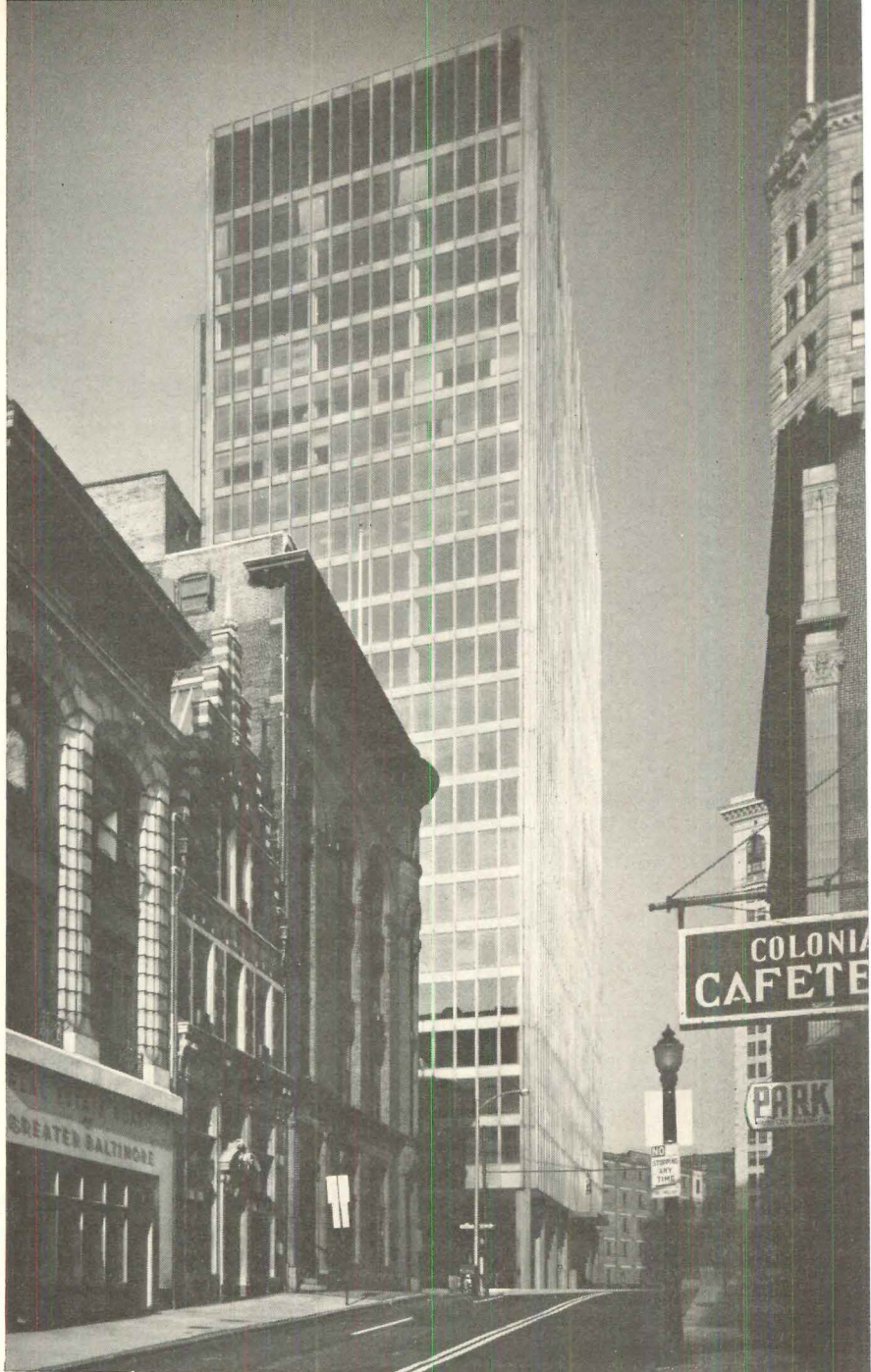
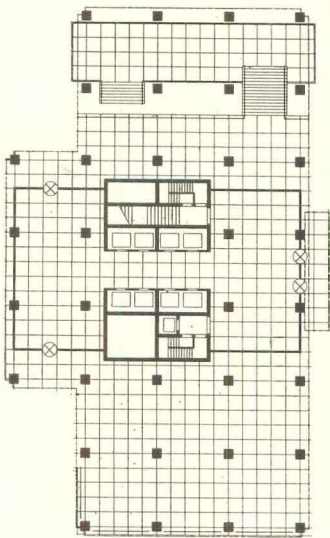
The 23-story tower took its unusual eight-sided shape (see plan) from the building zone established by the Baltimore Urban Renewal Agency, a rectangle with the southeast corner cut out. It sits in a travertine-paved plaza on a concrete podium which takes up the 14-foot north-south slope of the site. Only the columns and green-marble elevator cores interrupt the openness of the plaza: the lobby is relatively small and thoroughly glazed. To the west, the tower extends past the plaza to loom impressively over what will eventually be a park.

Principal access is from sloping Charles Street to the east. A single-story building (of unfortunate design) will bridge Fayette Street to the south and join the plaza. Under the tower's overhang, a handsome stairway (left) links the plaza level to the future park and the shops in the building's base.

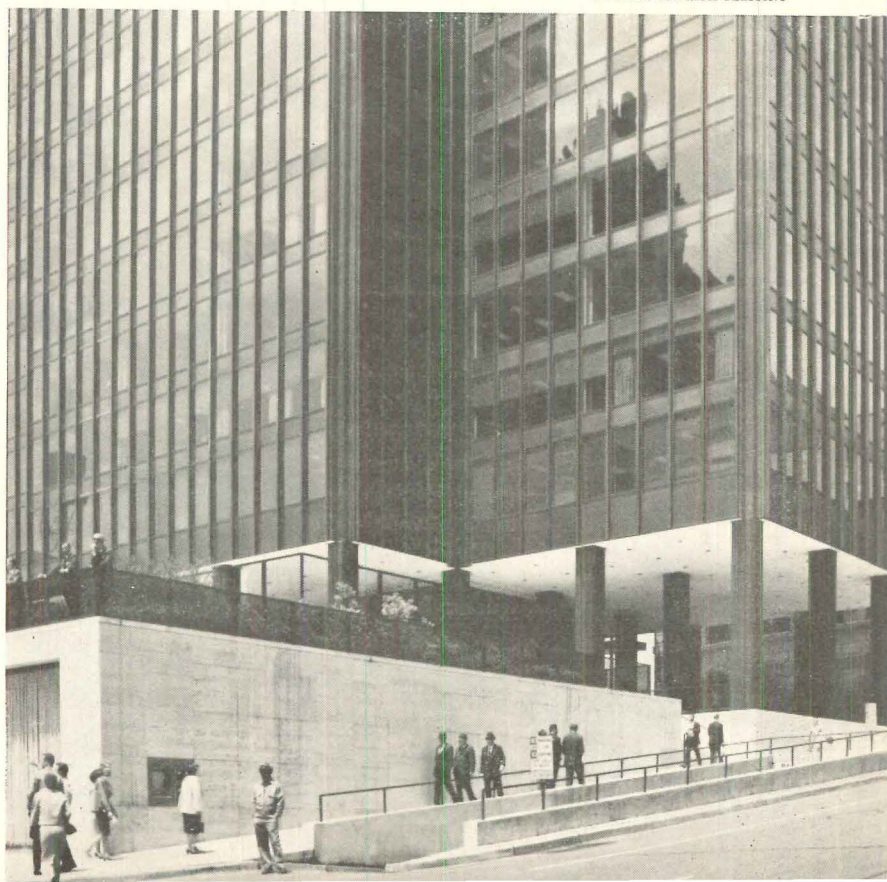
The structure is entirely reinforced concrete, with a two-way, square-pan floor slab. The curtain wall is reminiscent of the Seagram building's, with the notable difference that it is dark-brown aluminum instead of bronze.

### FACTS AND FIGURES

One Charles Center, Baltimore, Md. Owners: Metropolitan Structures Inc. and Gerald Gidwitz, Willard Gidwitz, and Joseph Gidwitz. Architect: Mies van der Rohe. Consultants to the owner: Emery Roth & Sons; Fisher, Nes & Campbell; Curtis & Davis. Engineers: Farkas & Barron (structural); Cosentini Associates (mechanical and electrical). General contractors: Metropolitan Builders Inc. Building area: 441,800 square feet.



PHOTOS: HEDRICH-BLESSING









## DES MOINES: CLARITY

Mies seems continually to be producing testaments to his beliefs. The three-story Home Federal office building, despite its modest size, is perhaps the clearest and strongest testament among his current works.

The plan is a perfect square, 160 by 160 feet, with 40-foot structural bays cut by the mullions into 6-foot 8-inch modules. On three sides the glass walls of the main floor are set back a single module. In front the walls are set back a full three modules and the entry two. Flanking the entry are the twin travertine blocks of the elevator shafts and stairwells.

The building is both framed and clad in steel. The curtain wall of the two office floors is entirely of black-painted steel, except for narrow bands of bright aluminum around the gray-tinted windows. (The first-floor glass, in contrast, is clear plate in black steel frames.)

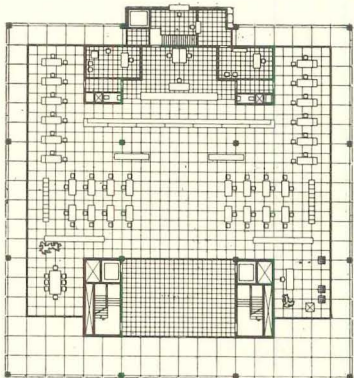
The detailing (lower right) has, if anything, even more clarity than in Mies' early postwar buildings, largely because of product developments they helped spur. The new gasket and sealants have eliminated the need for a proliferation of fittings; the large hollow extrusion has an authority beyond the small flat bars which he used then to frame windows.

The proportions of the recessed base to the dark band above are achieved through a 14-foot 6 $\frac{3}{8}$ -inch ceiling height on the first story, decreasing to 9 feet 8 $\frac{1}{2}$  inches on the second and third. The client's own interiors (there are 16,300 square feet of rental space on the office floors) are punctuated with classic modern furniture—much of it Mies' own—and abstract paintings.

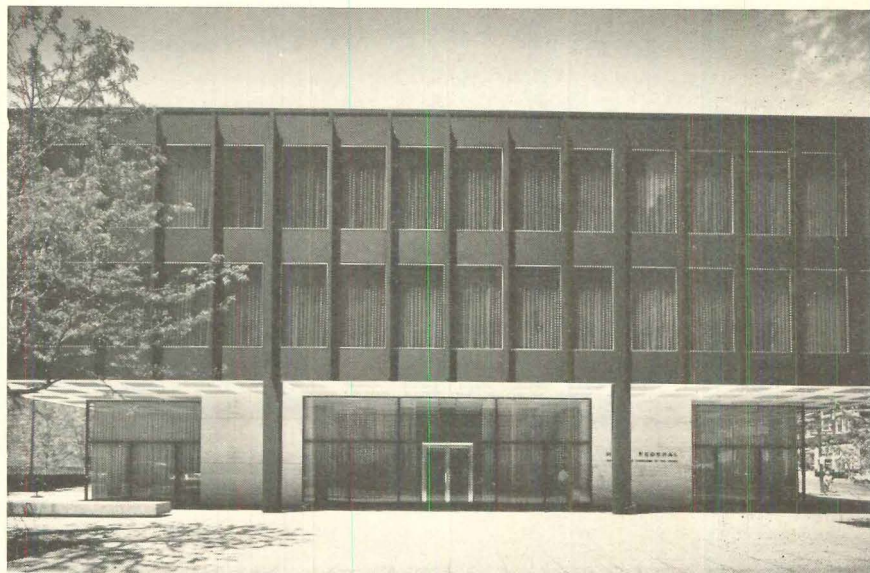
The Home Federal building is, in all, a summation of where Mies stands at the present moment. Its spare metallic elegance reflects both the refinement and continuity of his art.

### FACTS AND FIGURES

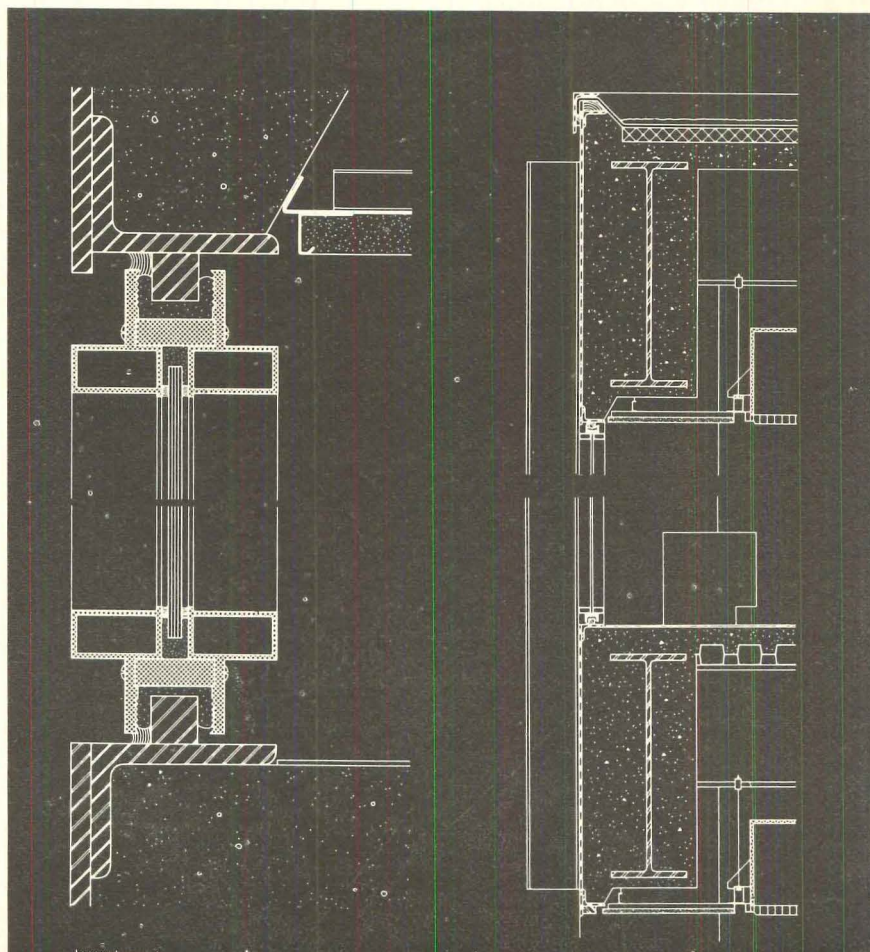
Home Federal Savings and Loan Association of Des Moines, Iowa. Architect: Mies van der Rohe; Smith-Vorhees-Jensen, associated architects. Engineers: Nelson, Ostrom, Baskin, Berman & Associates (structural); William Goodman (mechanical and electrical). Landscape architect: Alfred Caldwell. Acoustical consultants: Bolt, Beranek & Newman. General contractor: Ringland-Johnson Inc. Building area: 62,709 square feet. Construction cost: \$1,901,502, or \$30.32 per square foot.



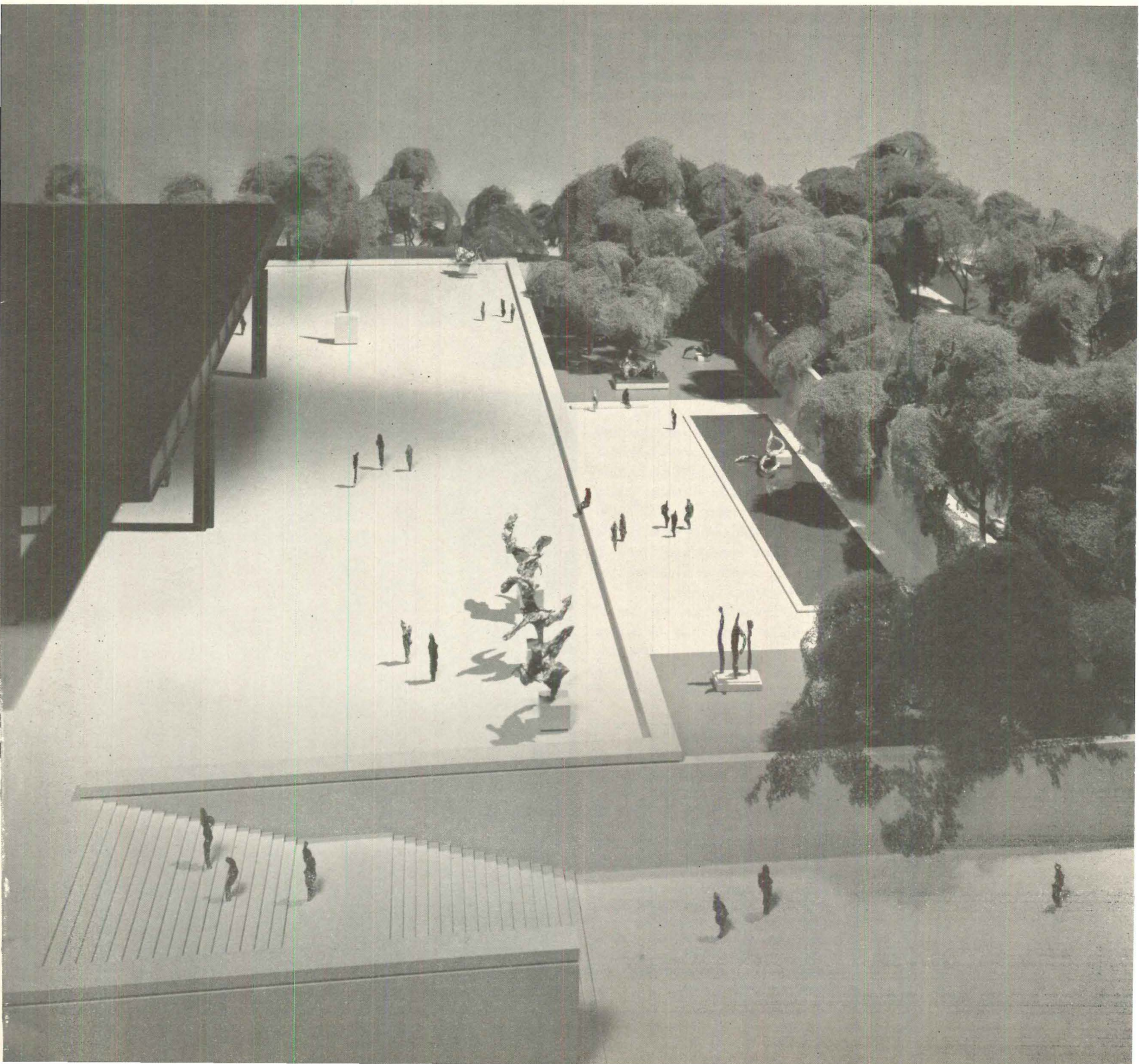
HEDRICH-BLESING



FRASER-FLETCHER









## BERLIN: SIMPLICITY

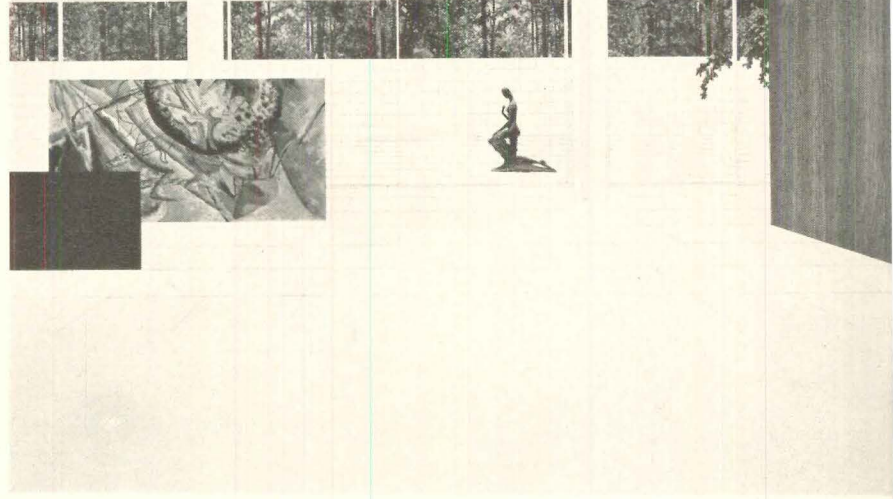
It seems to be the destiny of the great form-givers of modern architecture to leave major museums as part of their legacies. Wright produced the Guggenheim; Le Corbusier has just been commissioned to design the Museum of the 20th Century in Paris; Breuer is at work on the Whitney Museum of Modern Art for New York; and now Mies has designed the Museum of 20th Century Art for Berlin, with construction to begin next spring.

Site for the Berlin museum is just two blocks from The Wall between East and West. It is in the midst of a growing cultural center, near the nearly completed Berlin Philharmonic by Hans Scharoun (FORUM, Feb. '63) and directly opposite the site of the state library, which is to be the subject of a major competition this fall.

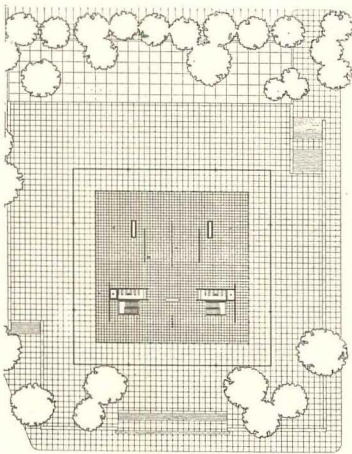
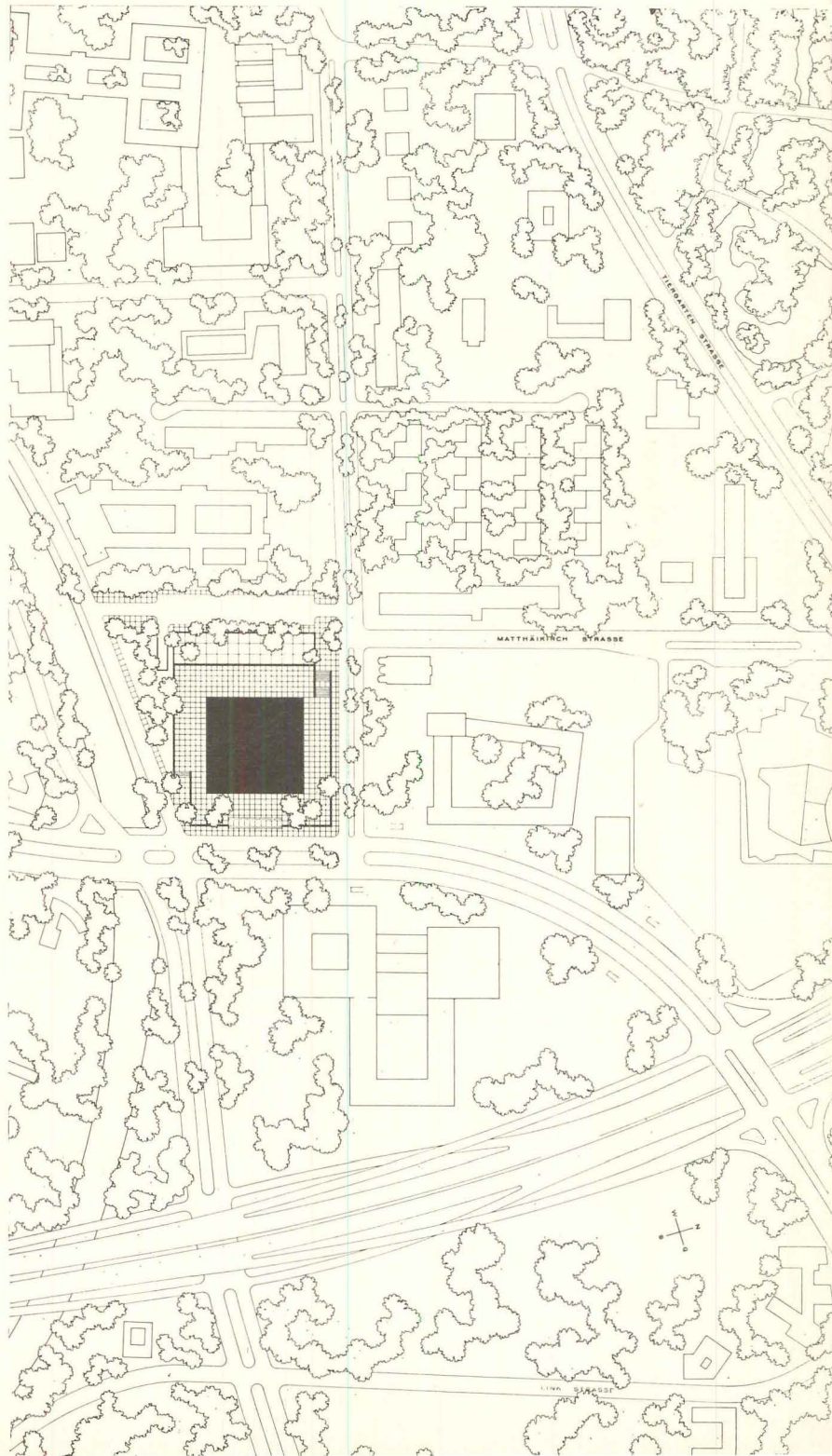
The land drops 10 feet from east to west. Mies determined, in his words, "to use the slope in the terrain, placing the museum on a terrace open to a garden to the west. This permitted design of a clear and strong building in the tradition of Schinkel's Berlin." Changing exhibitions will occupy the glazed hall, with permanent exhibitions and offices in the podium below.

The museum, of course, is a direct translation of the design for the never-built Bacardi offices in Cuba (which, in turn, evolved from the great room of Crown Hall at Illinois Institute of Technology in Chicago). Here are the same cross columns, firmly rooted in a massive base, their pin joints supporting a huge square plate of a roof; here is the same suspended ceiling over a single open space entirely walled in glass. Aside from the switch from rum to art, the principal change is that, while the Bacardi building was to be of concrete, the museum's roof will be a two-way steel grid. There is also a difference in scale: the Bacardi roof was 140 feet square, where the museum's will measure more than 190 feet from column to column. The total area of the building will be 106,200 square feet.

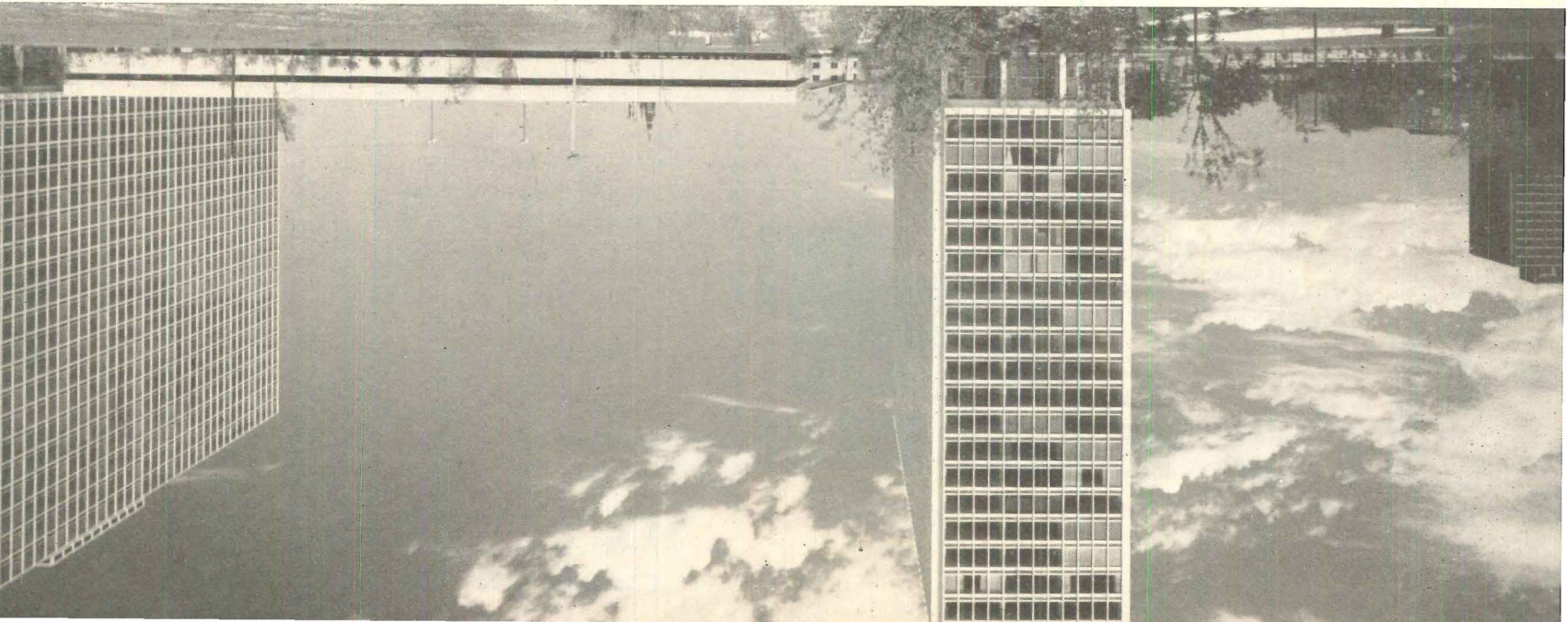
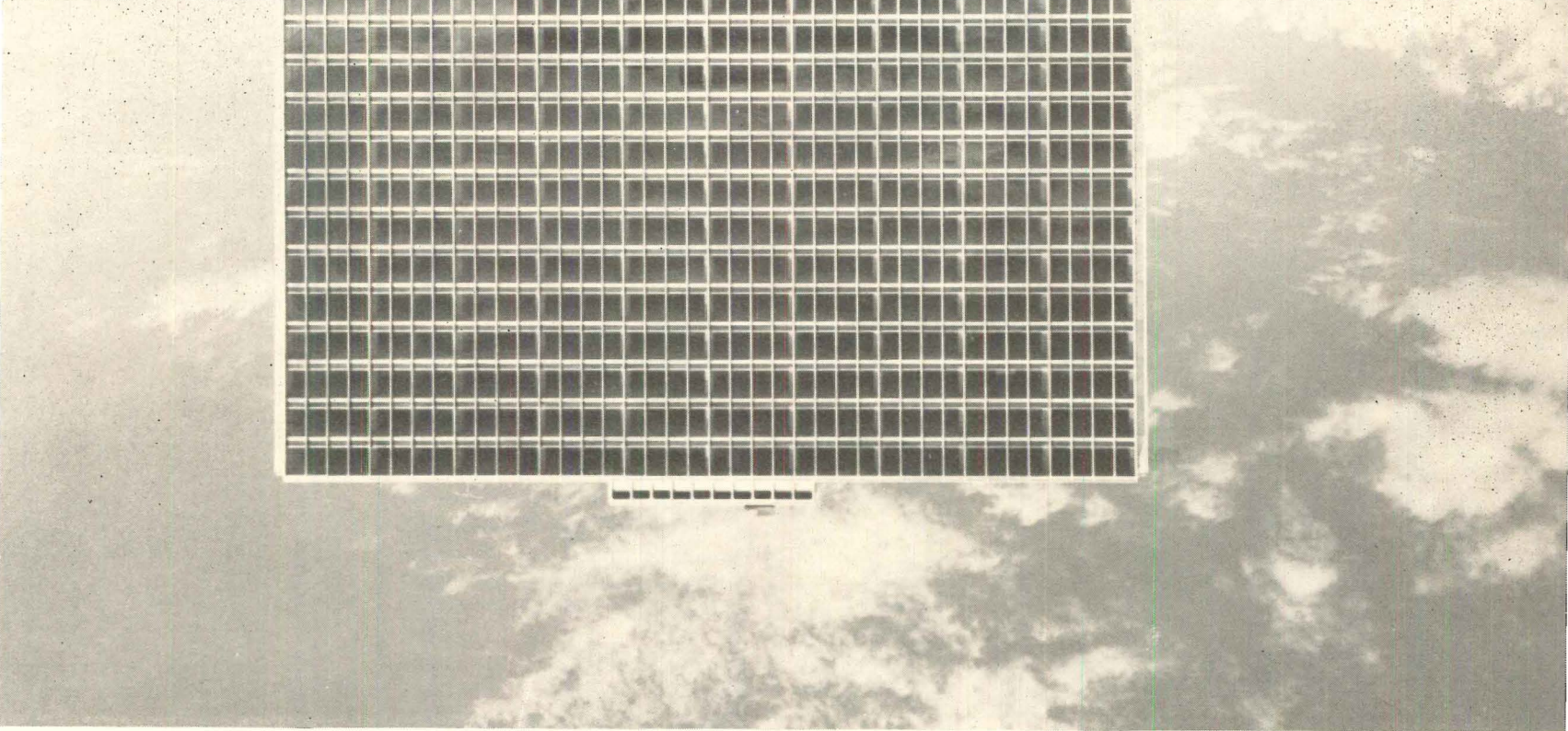
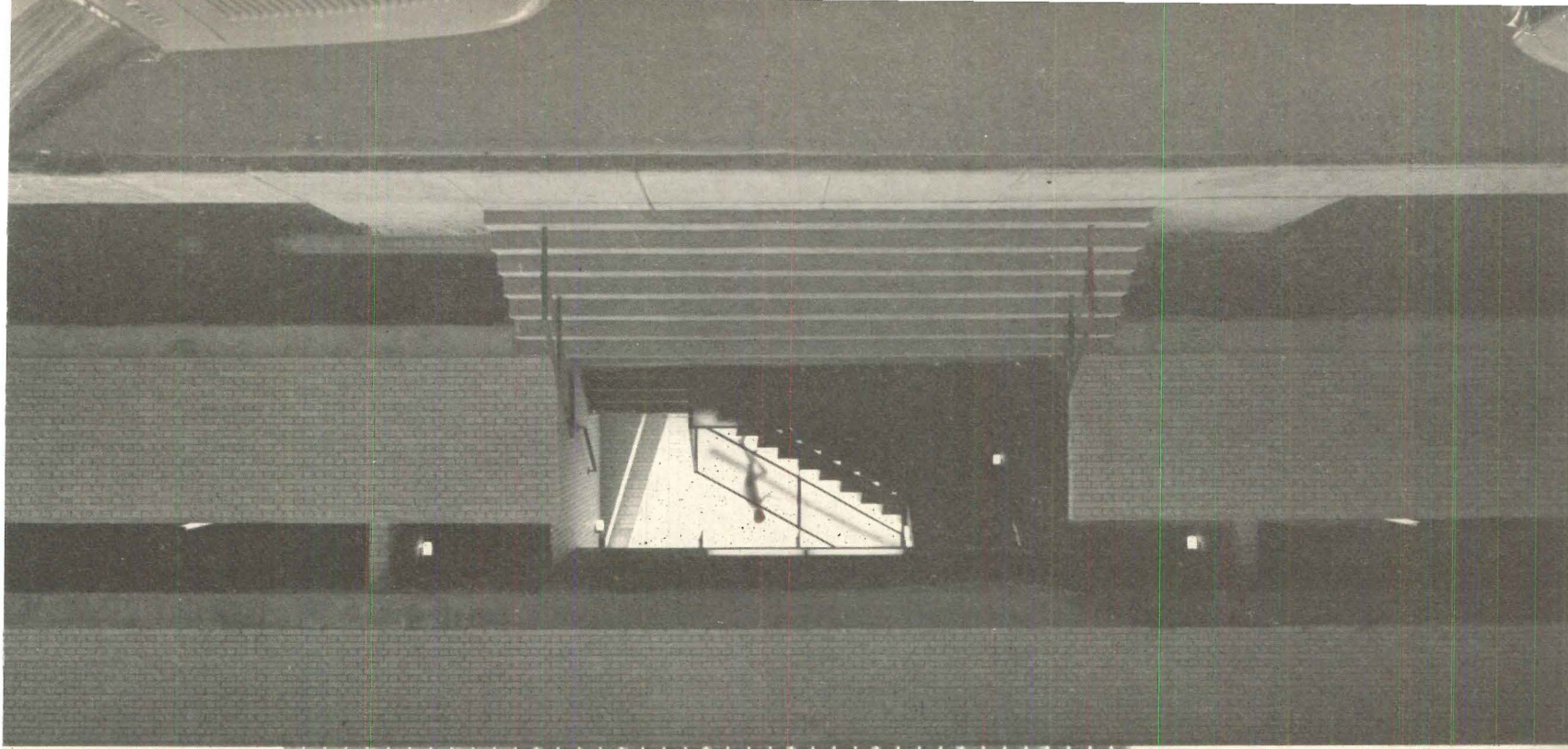
The scale of the museum, in fact, is only inferred by model photographs. Its size should make high drama of the building's absolute simplicity. It is a kind of drama as characteristic of Mies as the Guggenheim's daring plasticity was of Frank Lloyd Wright.



PHOTOS: HEDRICH-BLESSING









## DETROIT: CONTINUITY

Mies' encore in the Lafayette Park redevelopment area, to which he previously contributed an apartment building and a group of problem-plagued townhouses, (FORUM, May '60), consists of three slabs, two of them upright and one laid horizontally in between. The upright slabs are twin 21-story apartment buildings, Lafayette Towers, of 300 units each. The horizontal slab is a parking garage for 370 cars, topped by a terrace and swimming pool for the Towers' tenants.

They make an arresting combination. The apartment buildings have an especially fine, sharply honed look, even in the crisp context of Mies' work. Like One Charles Center, they are framed in concrete and clad in aluminum, but here the aluminum has been left its original color and shines against the sky. The buff brick walls which mask out the sight of the cars inside the garage, slit for ventilation, bridge from one building to the other in a series of bold horizontal slashes.

There are two notable refinements in the apartment buildings. Their curtain walls were designed to accommodate individual air-conditioning units (Lakeshore Drive's were not, and the units have been popped in where they obviously do not belong). The bottom section of each window is a grille, and behind them wells for a specially made unit air conditioner have been left in the baseboard convectors.

The second refinement is that the lobbies, unlike those in the first Lafayette Park building and other earlier Mies apartments, have been kept as open as possible, with tenant and building services at the basement level. The result is that the buildings sit far more lightly on the ground.

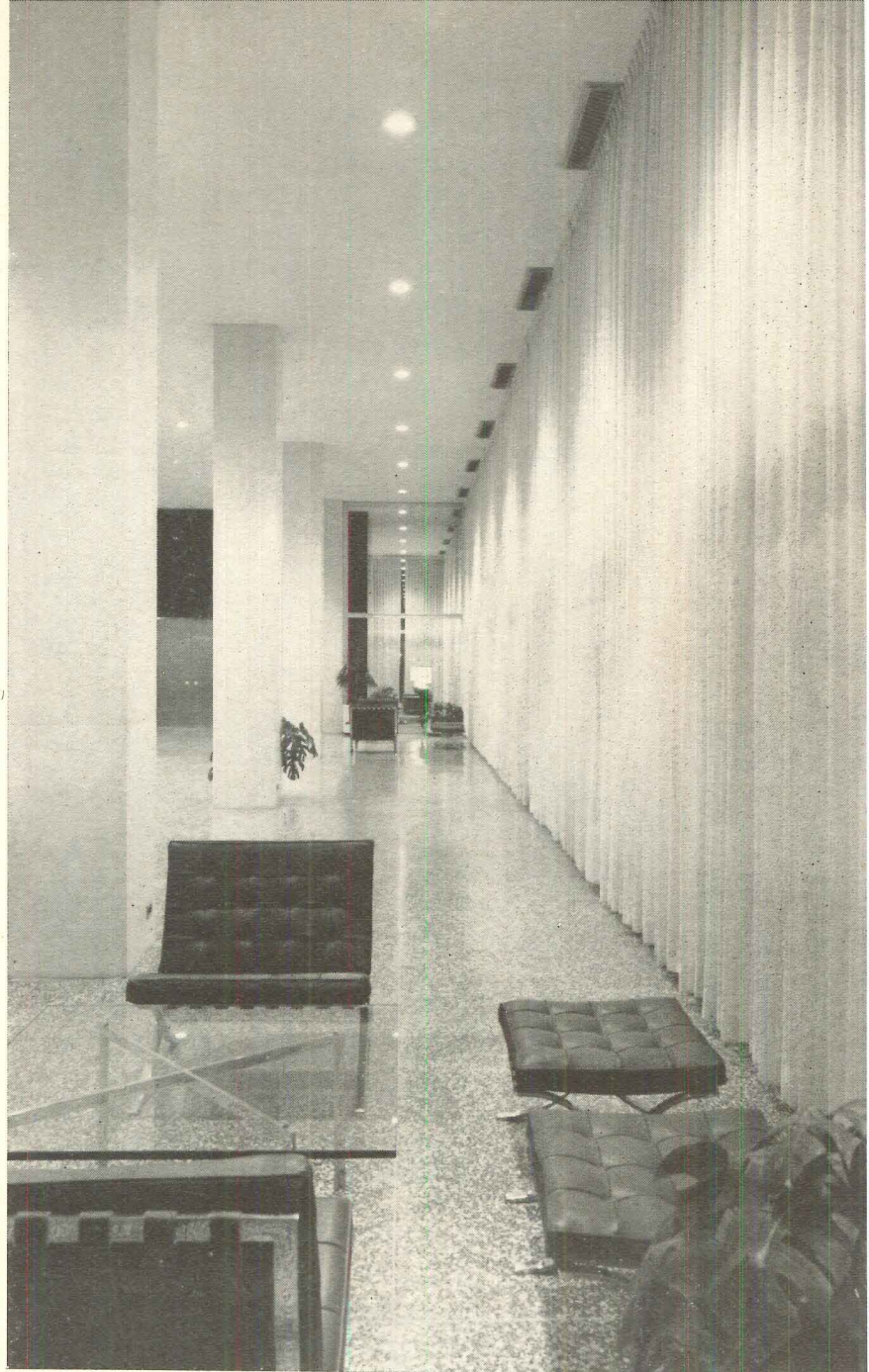
The apartment buildings are raised slightly above the level of the service road which joins them to each other and to the garage. The entrance level of the garage, conversely, is depressed 5 feet below finish grade.

### FACTS AND FIGURES

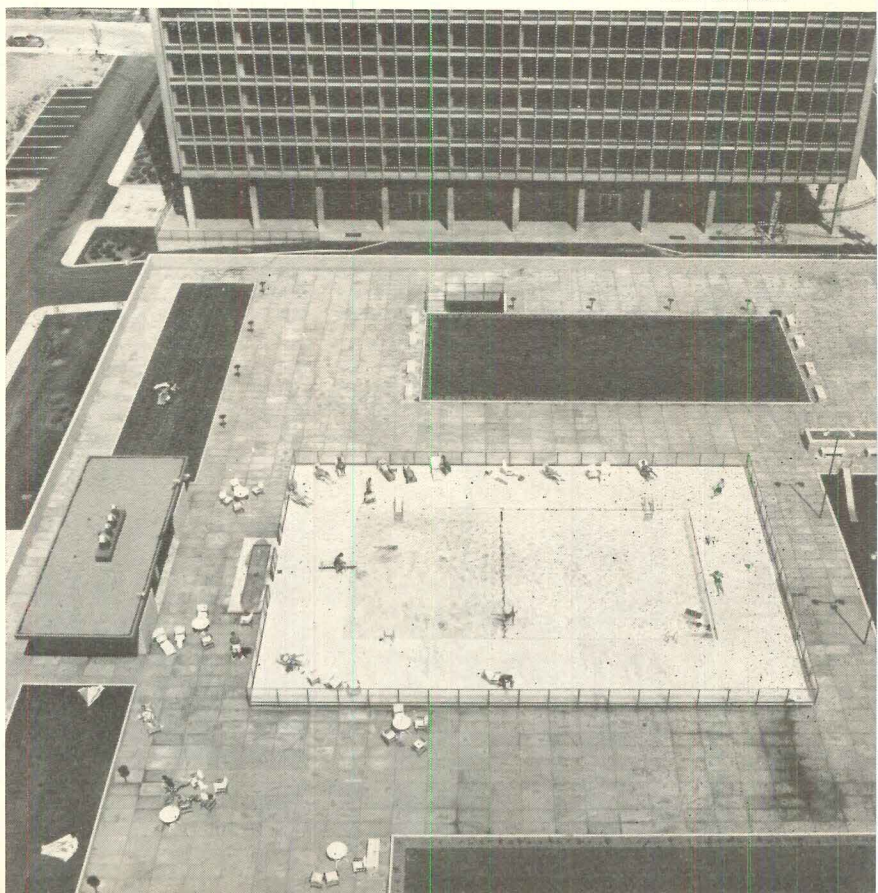
Lafayette Towers, Detroit, Mich.  
Owner: Lafayette Towers Development Co.

Architect: Mies van der Rohe. Engineers: Nelson, Ostrom, Berman Baskin & Associates (structural); William Goodman (mechanical and electrical). General contractor: A. J. Etkin Construction Co.

Building area: 298,616 square feet in each tower.



PHOTOS: BALTHAZAR







PHOTOS: HEDRICH-BLESSING



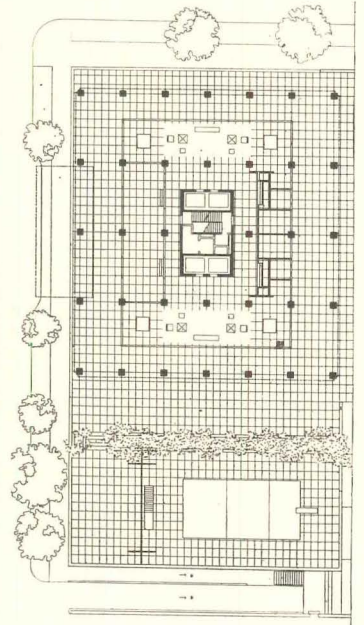
## CHICAGO: INGENUITY

This latest in the series of Mies' luxury apartments along Lake Michigan, 2400 Lakeview, is an almost square building (96 by 106 feet) on a rectangular plot. Its shape made room for a walled terrace and swimming pool beside the building, nicely distributed the most desirable exposures and views, and generously provided a shaft of open space behind adjacent Lincoln Park, which is otherwise backed by a wall of high-rise buildings.

The near-squareness also aided in the solution of the problems imposed by the mix of apartments in the building. There are efficiencies and one, two, and three-bedroom units of varying size. The clients knew from experience that such a mix worked best if tenants for the smaller and larger units were, to some degree, kept separate. Mies' response was to divide each floor into either 16 efficiencies and one-bedroom apartments, eight two-bedroom apartments, or six three-bedroom apartments. The size (and price) of the units ascend with the floors.

One bank of elevators serves the smaller apartments on the first nine floors, and another serves the more rarified atmosphere above. There are, moreover, twin lobbies (see plan), so that the two groups of tenants are separated from the time they enter the front doors. Bernard Weissbourd, client for 2400 Lakeview as well as One Charles Center, credits Mies with considerable ingenuity for this scheme.

Again, the frame is of reinforced concrete and the curtain wall aluminum. The wall's design is almost identical to that of Lafayette Towers except for the window grille (2400 Lakeview is centrally air conditioned). The building marks no new paths for Mies. It is simply a further demonstration of his mastery of the tools of architecture.



### FACTS AND FIGURES

2400 Lakeview Apartments, Chicago, Ill. Owners: Metropolitan Structures Inc., and Gerald Gidwitz, Willard Gidwitz, and Joseph Gidwitz.

Architect: Mies van der Rohe. Associate architects: Greenberg & Finfer. Engineers: William Schmidt & Associates (structural); William Goodman (mechanical and electrical). General contractor: Metropolitan Construction Co.

Building area: 315,000 square feet. Construction cost: \$4 million, or \$12.70 per square foot. END







**What it takes to be a client:**

## **2.**

# **WHAT ARCHITECTS DO AND HOW TO PAY THEM**

Perennial best seller on the publications list of the American Institute of Architects—a list studded with such snappy titles as “Circular of Information on Stipulated Sum Agreements” and “Letter of Acceptance of Subcontractors’ Proposals”—is a four-page document known as B-131. It is AIA’s standard owner–architect contract form, and it is a masterpiece of compression.

In B-131 can be found a comprehensive statement of the architect’s basic services, a summary of additional services he is prepared to offer, and a brief list of the owner’s responsibilities, plus clauses relating to every eventuality from arbitration to termination and, of course, space to enter the agreed-upon fee. Behind each numbered paragraph, moreover, are decades of custom, tradition, and experience (including a good number of lawsuits). B-131 can tell the prospective client a great deal about the time-honored way of getting a building built.

But B-131 and its companion documents can’t tell him everything. Before the client signs on the dotted line, he needs more than a brief and legalistic summary. He needs an understanding—the deeper the better—of what the complex and changing profession of architecture is all about.

### ***The mysterious architect and his many hats***

There have been few polls about the image of the architect, but those few have produced some interesting results. On the one hand, they show that the prestige of the architectural profession is high; one survey placed it second only to medicine in public esteem. On the other hand, the same polls show that hardly anyone knows exactly what the architect does.

B-131 clears up some of the mystery, but its brevity makes the architect’s function sound deceptively simple. It breaks his services down into four phases:

1. In the first, *schematic design*, he “consults with the owner to ascertain the requirements of the project,” prepares rough design studies, and presents the first tentative cost estimates.

2. In the *design development* phase, which comes next, he prepares preliminary drawings and outline specifications “to fix and illustrate the size and character of the project in its essentials,” and updates the cost estimates.

3. In the *contract documents* phase, the architect prepares the detailed working drawings and specifications upon which the contractor’s bids and the actual construction will be based.

4. Finally, in the *construction* phase, he assists the owner in taking and evaluating bids, watches the work itself, and issues certificates of payment to the contractors as it progresses.

There are several ways to amplify this spare description.

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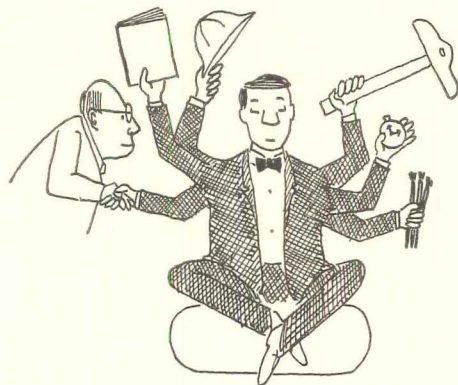
*This is the second article in the FORUM series “What It Takes To Be a Client,” which began with “How To Pick an Architect” in the July, 1963 issue. Future installments will deal with the building program, the design process, cost estimates, and construction.*



One, of which the architect himself is particularly fond, is to point out the varied functions which each phase of his services entails. Thus, at the outset he is an investigator, ferreting out the client's needs, tastes, and requirements; then a diagnostician, isolating and defining the building problem. Next he becomes the planner, organizing space, circulation, and facilities to meet the owner's requirements, and the creator, seeking to produce an original, evocative, and satisfying work of art. From this point on he is also a coordinator, directing the work of multitudes of others from engineers to craftsmen, and an agent, representing the client's interests in the purchase and use of goods and services. During construction he is, to some degree, a policeman, but he is also an arbitrator of disputes between the client and the contractors.

Perhaps the most meaningful way to weight the architect's services is by their relative complexity, and the kind of demands they make on him. In the schematic phase, much depends on the building type. If it is a hospital, for instance, the architect must sort and interpret a mass of complicated data before pencil touches paper. If it is a church, on the other hand, he will probably begin the process of design much sooner, seeking a form that will express the liturgical principles that are the core of the program.

In the design development phase, the architect must give more detailed attention to matters which are, in themselves, becoming increasingly complex: the structure of the building, and the mechanical, electrical, and acoustical systems which will have much to do with the pleasantness of the interior spaces. (They will also have much to do with the building's cost: in some cases, these systems account for over half the



total.) The store of specialized knowledge in each of these branches of building engineering seems to grow geometrically as the technical papers and reports pile ever higher. The architect can't possibly master it all, but he must be aware of technical advances and understand their potential application to design.

After this, the contract document phase might seem a simple, if tedious, exercise. Yet the plans and specifications

must convey a precise verbal and graphic statement of the architect's intentions, and their preparation demands a certain creative flair for communications. In choosing materials and equipment, moreover, the architect constantly faces a bewildering array of new alternatives. If the client doubts this, let him take a look at his architect's file of product literature—and the amount added by any given day's mail.

Finally there is construction (whose complexities will be the subject of a later article of this series). Its demands on the architect depend largely on the contractors: if they are skilled and receptive, construction can be the exciting climax to all that has gone before; if they are not, it can be hell. In either case, the architect must know nearly as much about day-to-day procedures as the contractors, and care more about craftsmanship than do most workmen in this mass-production age.

#### **Portrait of a profession in transition**

The intriguing thing about the architect's services is that they involve so many qualities normally considered to be opposites: creativeness and practicality, imagination and prudence, individuality and group leadership, sensitivity and business acumen. To put it another way, the architect has to be part administrator, part constructor, part engineer, part artist. The administrator is generally pictured as cool-eyed and competent; the constructor as venturesome and extroverted; the engineer as abstracted and introverted; the artist as detached and flamboyant. The pictures don't fit together very easily.

It is at once fascinating and revealing that the architect, with all this to think about, is seriously considering taking on still more. Two forms of expansion of the architect's services are now being discussed: responsibility for the design of larger chunks of the physical environment, and/or concern with the extra-design problems of the commercial and industrial client.

Those who wish to take on more of the environment carry the banner of urban design. They feel the architect has been concerned too long with the creation of occasional gems in the slag heap which the uncoordinated, undesigned American urban environment is becoming. It is up to him, they believe, to broaden the application of the architectural process to entire neighborhoods, cities, and even regions. What this means to the individual client is that today's architect is likely to show an unexpected interest in the impact which the building will have on its surroundings.

Behind the second kind of expansion is the architect's uncomfortable awareness that a good many of the most powerful influences on building have simply gotten out of his control. Real estate economics, taxation, automation of the industrial process, even public relations, to give but a few examples, often act as significant determinants of design—yet the architect is seldom called in when the key decisions about them are made. The answer that is being offered is the broadening of the architect's competence to provide a whole range of new



services—feasibility studies, operational programming, assembly of land and money, and a good many others—all under the aegis of professional coordination and counsel.

Former AIA Executive Director Edmund R. Purves has branded this idea “the superman myth” (FORUM, March '62), and said that it would “call for an assemblage of function and activity that is probably beyond the competence of any single entity in today’s society.” And yet the alternative has been chillingly stated by William Pereira, an architect who has already expanded his services: “The architect, who by experience, training, and natural inclination is in the most strategic position to correlate and control the diverse forces that create environment, is having his place usurped by individuals whose livelihood derives from the liquidation of land, rather than its preservation, from the manipulation of short-term assets, rather than the maintenance of lasting values.” Pereira’s message is that the architect had better catch up, for society’s sake as well as his own.

Perhaps the best rule of thumb for the individual client is that the architect should have some voice in *all* decisions which will importantly influence the eventual shape and function of the building, so that he does not enter the design process with a hand tied behind his back. The question of just how far the architect should go beyond his basic services depends on the nature of the project, how much the architect feels he must do to insure its success—and how much the client confidently feels the architect *can* do and do well.

The essential thing is that the extent of the architect’s services be thoroughly talked out in the first architect–client conferences, and spelled out in the contract between the two. Equally frank treatment should be given the subject of how much the architect is to be paid; the beginning of a building project is no time to be bashful about discussing money.

#### **The delicate matter of the architect’s fee**

The traditional way to pay an architect for his services is by a set percentage of the project’s construction cost. The percentage fee has earned its wide acceptance by inherent fairness: what the client pays and what the architect receives are automatically in some kind of proportion to the project’s size and complexity. Sadly, however, the percentage fee can sometimes raise as many problems as it solves.

“Everybody considers payments to contractors and suppliers part of the building’s cost,” said an architect recently with resignation. “The percentage fee sticks the architect’s part out in the open, like some kind of optional extra. It’s too easy to shoot at.” A more dangerous flaw in the system was underlined at a meeting of architects and school administrators a few years ago. In the midst of a perfectly friendly exchange, a high-school superintendent said in his best just-between-us-boys tone, “Of course we all know that architects have to keep costs up to a certain level to come out on their fees.” Every

architect in the room turned apoplectic, and with good reason. “Hell,” said one later, “I did a school for that character once, and I spent half my time knocking down his wild ideas. If he’d had his way, the school would have cost just about twice the budget.”



The amount of the percentage depends on a number of variables, notably the project’s location, size, and complexity. It can range from 3 or 4 per cent for a big but simple warehouse to 12 or 15 per cent for a small but complicated research laboratory. The across-the-board average (*not* to be used as a guide) has been estimated at between 6 and 8 per cent—a good deal less than most contractors allow in their bids for profit and overhead, and about a third of what the auto and aircraft industries invest in product design. Most local AIA chapters have drawn up recommended fee schedules which provide useful guidance. The AIA suggests that architects who do not use these schedules print their own, to discourage unprofessional haggling.

The percentage fee is the method of payment covered by document B-131. There are two others used widely enough to have contract forms of their own: the “multiple of direct personnel expense,” B-211; and the fixed fee plus expenses, B-311. (They are not used nearly so widely as the straight percentage system, however; in a 13-month period ending last June, AIA sold 119,188 copies of B-131, 10,292 of B-211, and 16,381 of B-311.)

Under the provisions of B-211, the architect adds up the salaries of his personnel for the time spent on the project, plus the cost of all consulting services, and the total is multiplied by a mutually agreeable factor to arrive at the fee (AIA suggests the multiplier be not less than 2.5). This method can be especially useful if the scope of the project and the extent of the architect’s services are hard to predict, but it requires careful bookkeeping by the architect and constant auditing by the client.

Under the professional-fee-plus-expenses-system, the architect himself is paid a separate fee for his personal services, and also paid a multiple of direct personnel expenses and consultants’



costs. (The multiple of personnel expenses is generally lower, because the principal's role is taken care of in his personal fee.) The personal fee may be a lump sum, or a lump sum covering some of the architect's own contributions and an hourly rate covering others. The value of this method is that it gives the client freer access to the advice and consultation of the architect than do the others; its disadvantage is that it is the least clear-cut method of paying architects.

There are a few extras. The client is expected to reimburse the architect for such incidental expenses as travel, and to pay the bills for site surveys, soil borings, and other such reports and tests. B-131 also contains a 10-paragraph list of "additional," though non-expanded, services—special surveys or analyses of program requirements, alteration of already-approved documents to accommodate last-minute changes—and suggests they be paid for at a multiple of the architect's costs.

Good old B-131 also stipulates that payment to the architect begin at the first consultation, with a minimum of 5 per cent of the total fee, and continue monthly according to a cumulative schedule: 15 per cent to be paid by the end of the schematic design phase, 35 per cent by the end of design development, 75 per cent by completion of contract documents, 80 per cent by the taking of contractors' bids, and the balance by the end of construction. Initial payments are based on an educated guess of what the building will eventually cost.

Such an educated guess, or even a firm estimate, is invariably one of the first things the client seeks from the architect: How much money for the building, or, if the budget has its absolute limits, how much building for the money? About all the architect can tell him is what buildings of a similar size and nature have cost lately in the project's locality. In the design process the size and nature of the building may change beyond either the architect's or client's wildest imaginings. And by the time plans and specifications are completed, the "bidding climate"—the relative hunger or satiety of contractors at a given moment—may change drastically. It can, in fact, change overnight, a fact which many architects and clients have discovered to their joint fiscal distress.

#### **Protecting the interests of both parties**

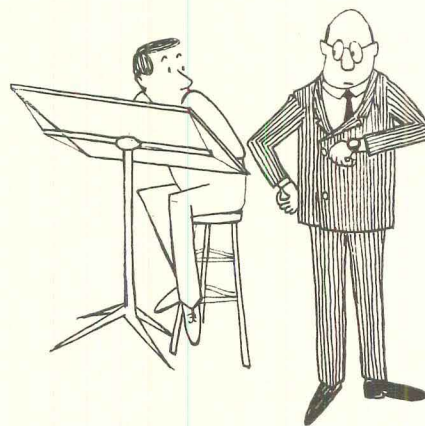
There is, of course, nothing sacred about the standard architect-client contract forms. AIA itself revises them periodically; the version of B-131 referred to here is being published only this month. They are often modified in one way or another for individual projects, and sometimes they are not used at all. But the basic ground rules established in the standard forms should not be discarded lightly. They have been carefully drawn with the interests of both architect and client in mind, and their wide acceptance speaks well for their fairness and utility.

Some of their provisions may seem at first to be stacked in favor of the architect, but in the end turn out to be justified.

For example, the contract states that plans and specifications remain the property of the architect, and cannot be used again without his written permission. It is a minor matter, but the client may feel he has bought and paid for these. The architect's position is that he is rendering a service, not selling plans, and that the documents are instruments of service, not merchandise. His main purpose is to protect the uniqueness of the building against piracy by a third party.

A more serious source of concern is that the standard contracts make only one reference to time, and that is the provision that the *client* shall render his decisions "promptly, to avoid unreasonable delay in the progress of the architect's work." There is nothing to guard against unreasonable delay on the part of the architect himself.

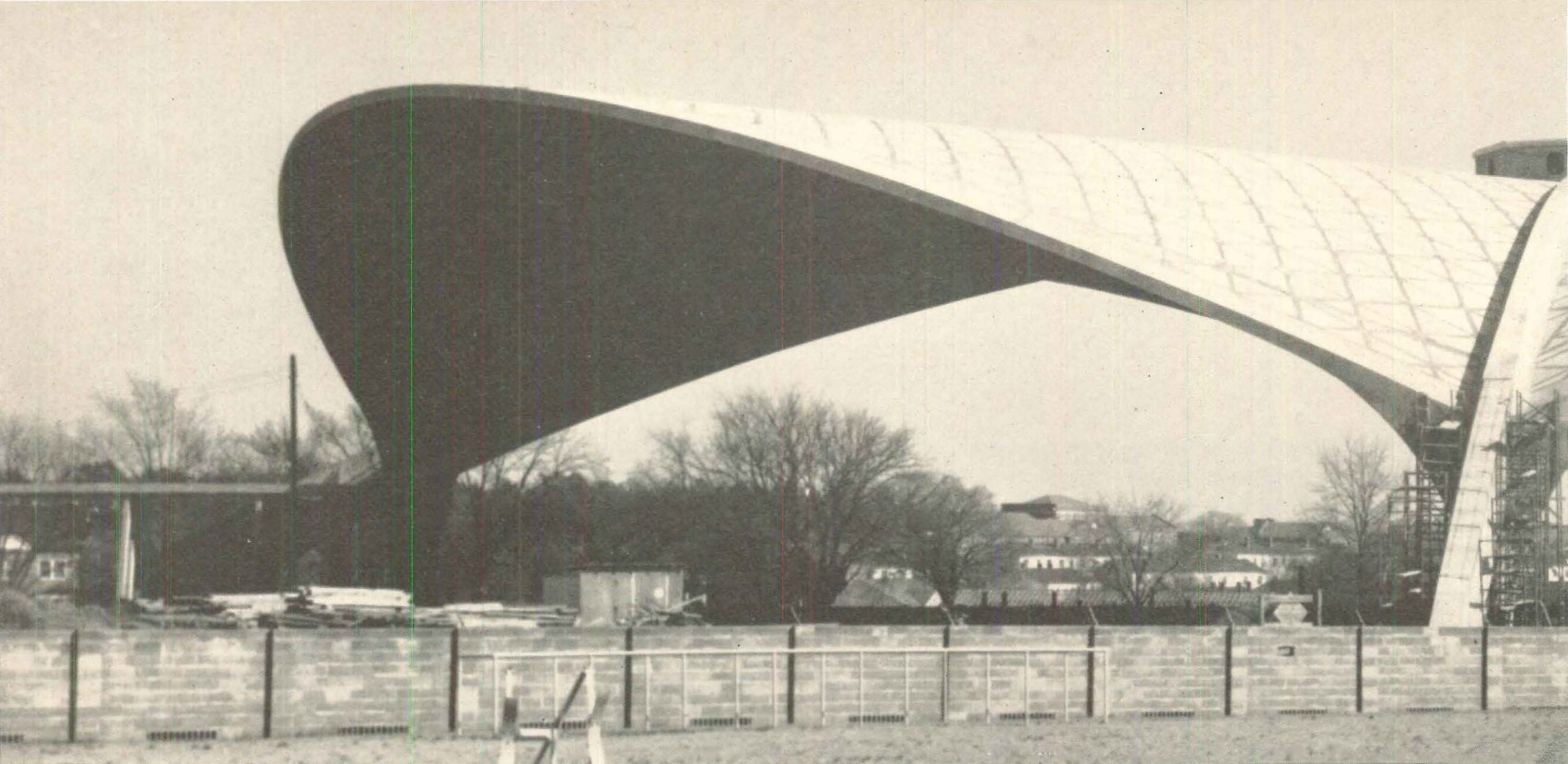
This does seem rather one-sided, and yet the architect, at the beginning of a project, has as much difficulty guessing how long it will take as he does estimating its final cost. He doesn't really know whether the client knows his own requirements and whether he will be reticent or garrulous in discussing them; whether the job will really turn out to be as fearfully complicated as it first looks; whether the contractor chosen will be fast or slow, and so on. There are some parts of the architectural process that can be kept to a fairly tight schedule, such as production of contract documents, but there are others which it is folly to rush, such as design.



However the contract may read, the relationship between client and architect will be fruitful to the degree that their interests coincide. The architect takes on the interests of his client in his capacity as agent, but even so his loyalties are not undivided. Just as an attorney owes his first loyalty to the law, so the architect owes his to architecture. The fundamental goal of the architect, said Cornell's architectural dean Burnham Kelly in opening this year's AIA convention, is "to raise the quality of the physical environment." The worth of the individual building will depend in great part on the client's sharing of this goal, which, in the end, is not something that can be written into B-131.

—DONALD CANTY



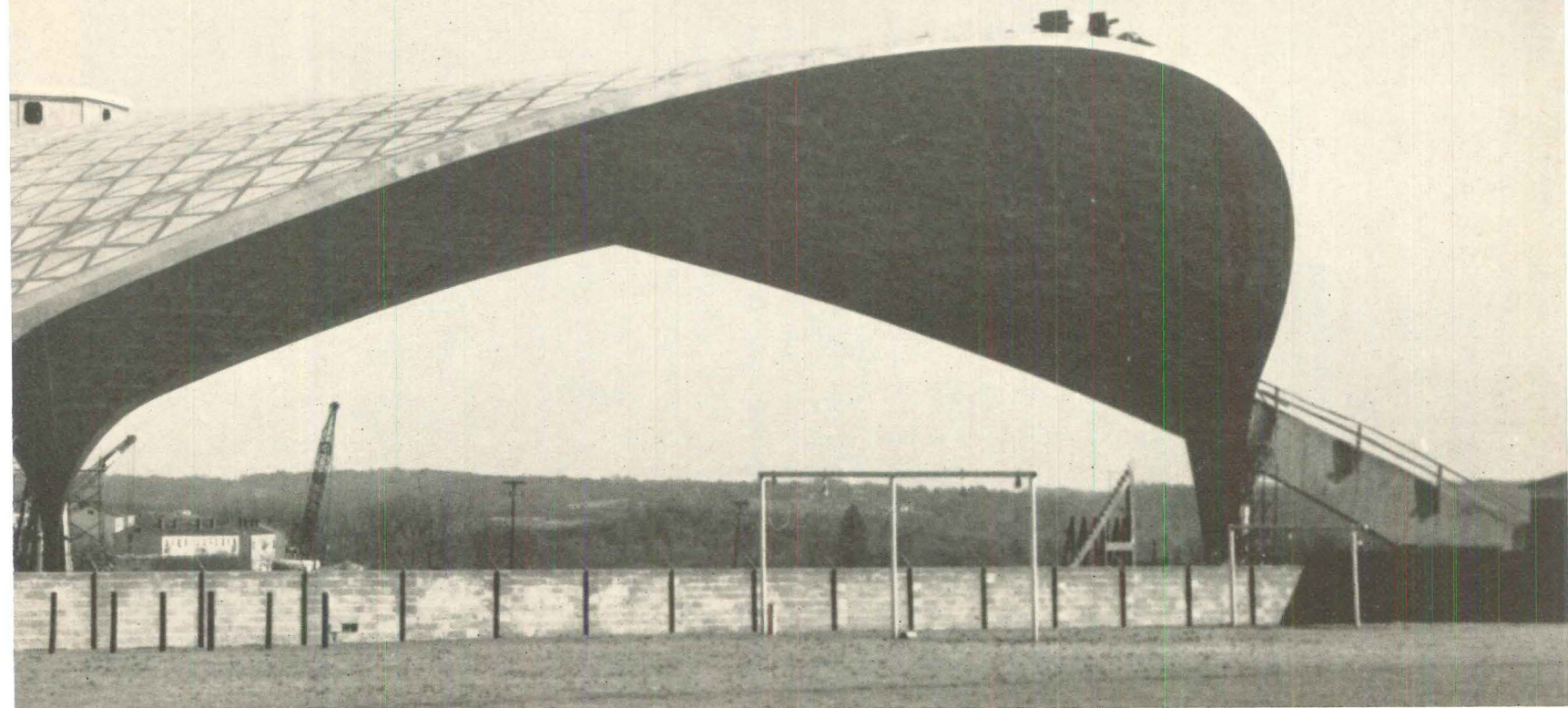


# STADIUMS

*This latest crop of sports arenas from all over the world shows that structural imagination (plain or fancy) is far from dead.*







**ATHENS, GA.:** A 10,000-capacity coliseum for the University of Georgia is being built under the 400-ft. span roof shown above. Roof consists of two intersecting parabolic vaults. Its shell is of more than 4,000 triangular, pre-cast concrete coffer panels 2 in.

thick with 18 in. edge-ribs. Coliseum will be multipurpose: agricultural shows, convocations, sports. Architects: Cooper, Barrett, Skinner, Woodbury & Cooper. Structural engineers: Chastain & Tindel. Contractor: Thompson & Street.

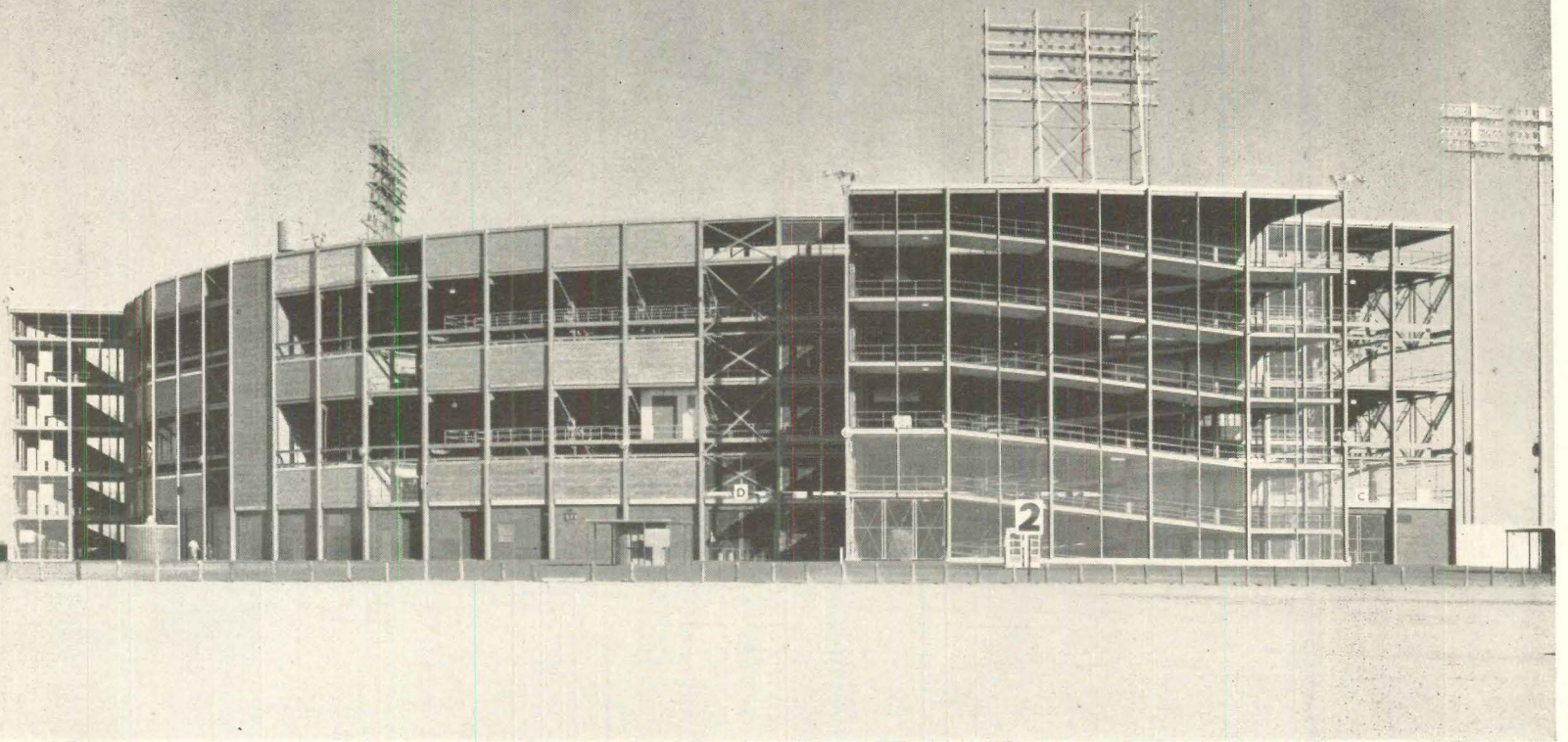
**URBANA, ILL.:** The 16,000-seat Assembly Hall at the University of Illinois (below) is a 400-ft. diameter concrete bowl topped by a folded-plate dome. The outer rim is a post-tensioned ring to take thrust from dome. Ring is supported on 48 buttresses ar-

ranged like spokes of a wheel. Bowl was sunk into ground for easier access. Hall will accommodate plays, concerts, sports. Architects: Harrison & Abramovitz. Structural engineers: Ammann & Whitney. Contractor: Felmley-Dickerson.

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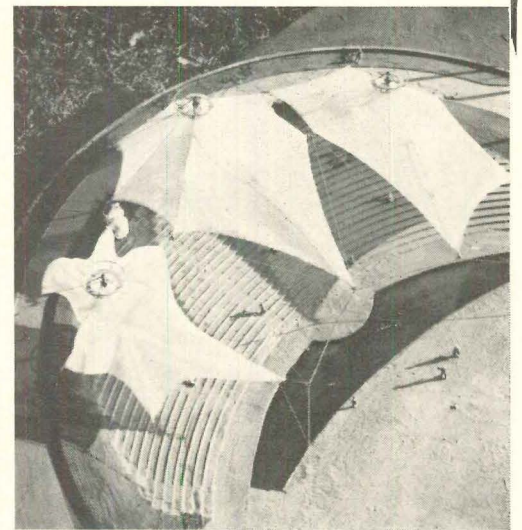
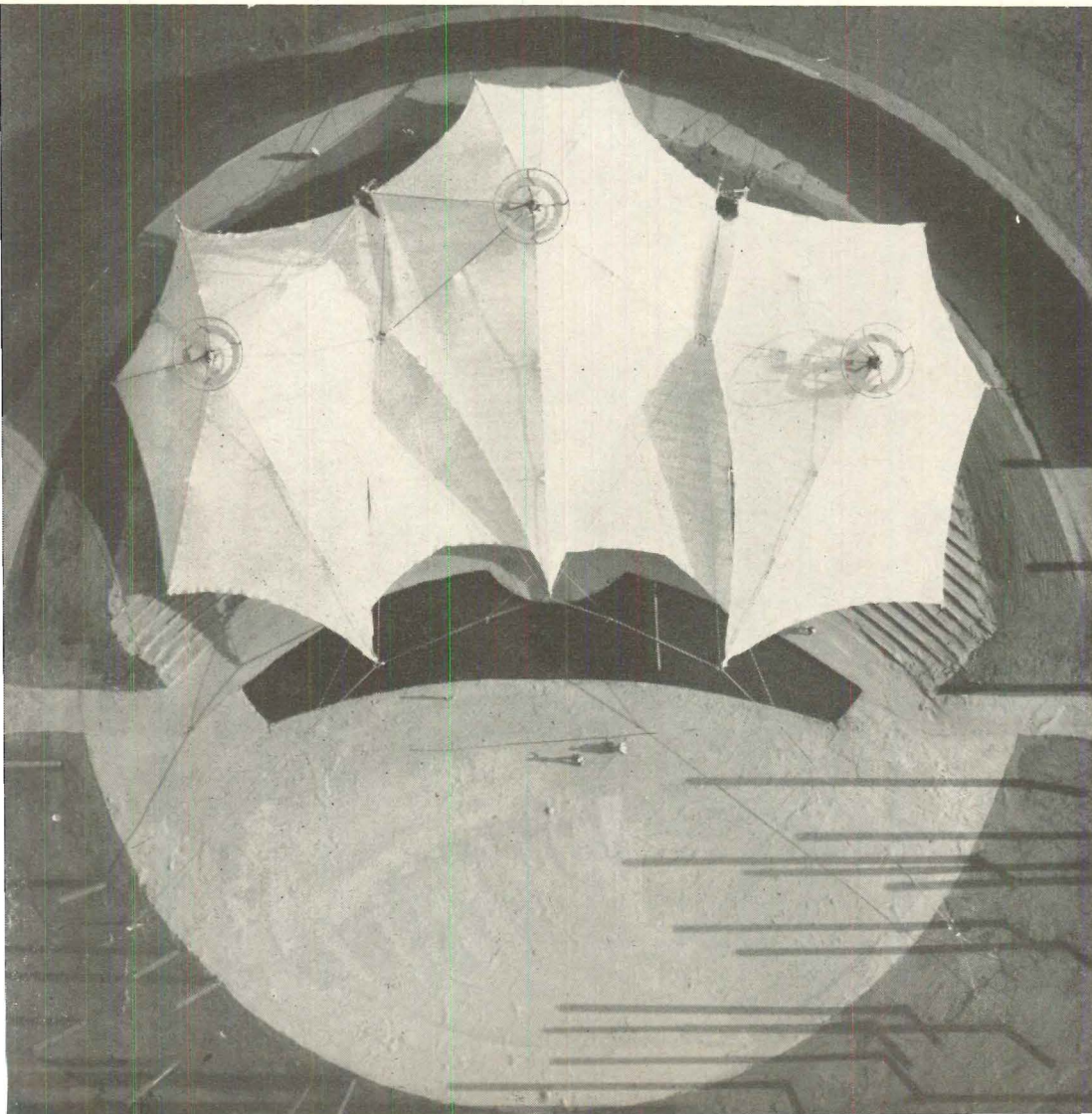
INFINITY, INC.

**BLOOMINGTON, MINN.:** The brick and steel Metropolitan Stadium (above) has a present capacity of 41,500 (including bleachers). It is a raw structure of exposed steel columns and trusses that cantilever 50 ft., leaving all seating areas free of

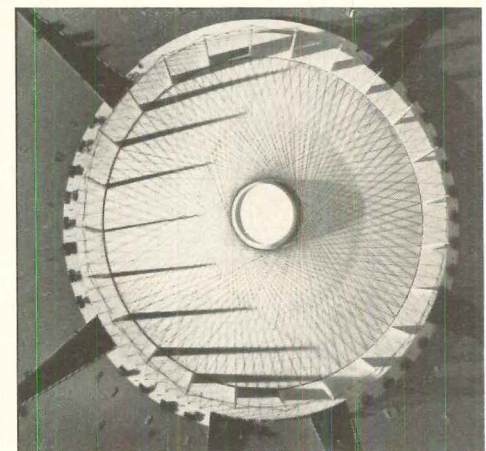
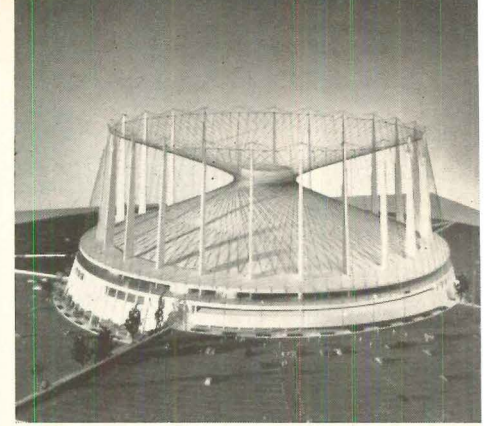
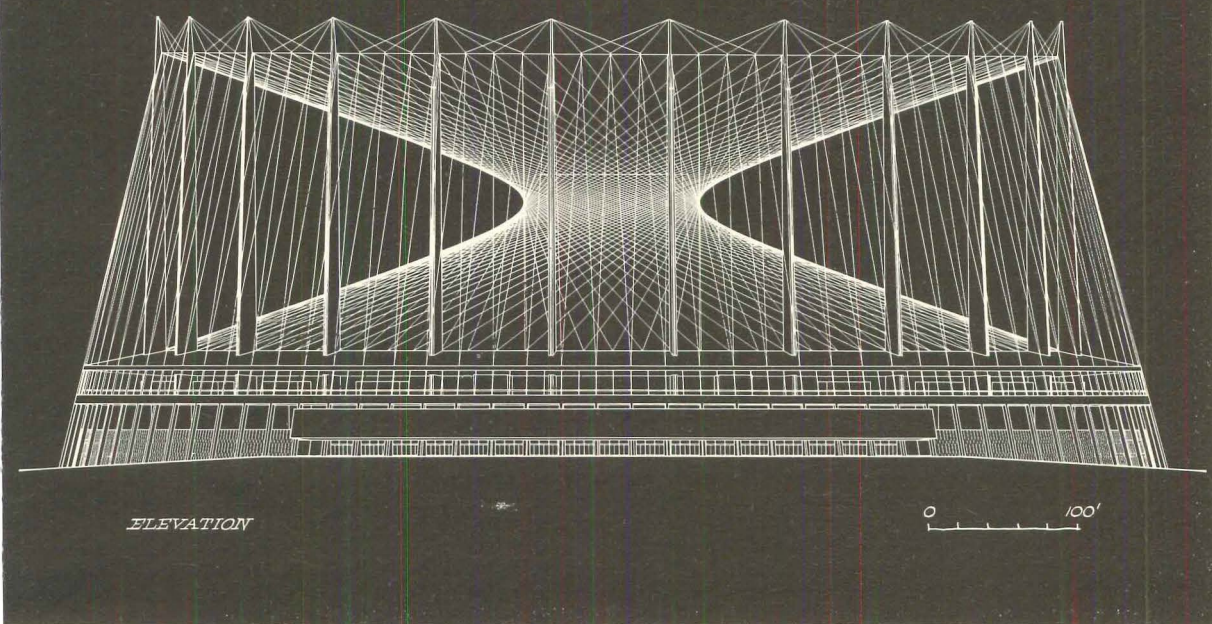
columns. Glazed brick panels in bright colors fill in structural bays where desired. Two open ramp-towers give access to various levels. Structure serves baseball and football. Architects & engineers: Cerny Associates. Contractor: Johnson, Drake & Piper.

**NIJMEGEN, HOLLAND:** The 2,500-seat open-air theater shown below needed some sort of shelter for use in bad weather. Germany's Frei Otto proposed a system of three giant umbrellas, supported on guyed pylons that carry a network of thin cables. When

needed, the umbrellas slide open to form three hexagonal canopies below needed some sort of shelter for use in bad weather. Germany's Frei Otto proposed a system of three giant umbrellas, supported on guyed pylons that carry a network of thin cables. When needed, the umbrellas slide open to form three hexagonal canopies. Two wedge-shaped canopies stretch out to fill the gaps between the hexagonal umbrellas, and drain off rain water. Architect & engineer: Frei Otto. Associate: Hans Wehrhahn.







PHOTOS: HERBERT BRUCE CROSS

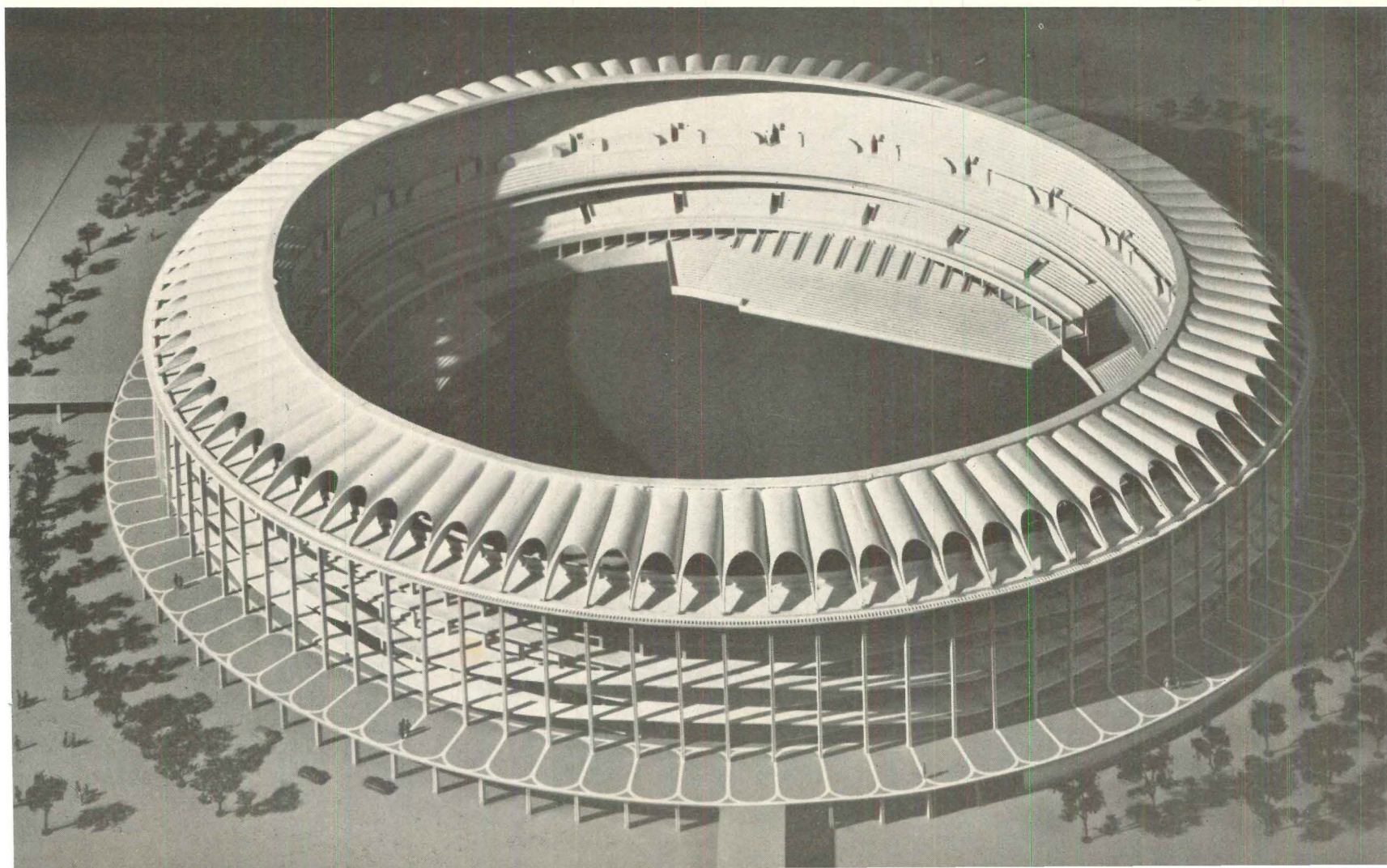
**LOS ANGELES, CALIF.:** The covered, air-conditioned stadium (above) is still a project without an announced client or city. Capacity of multipurpose structure is 50,000. Roof is hung from 24 pylons, guyed to the ground; 192 wire ropes attached to a ring

near top of pylons and to a compression ring around the arena form a 600-ft.-diameter hyperboloid. Lower half of hyperboloid will be covered with steel or composition decking. Architect: Welton Becket. Structural engineer: Richard W. Bradshaw.

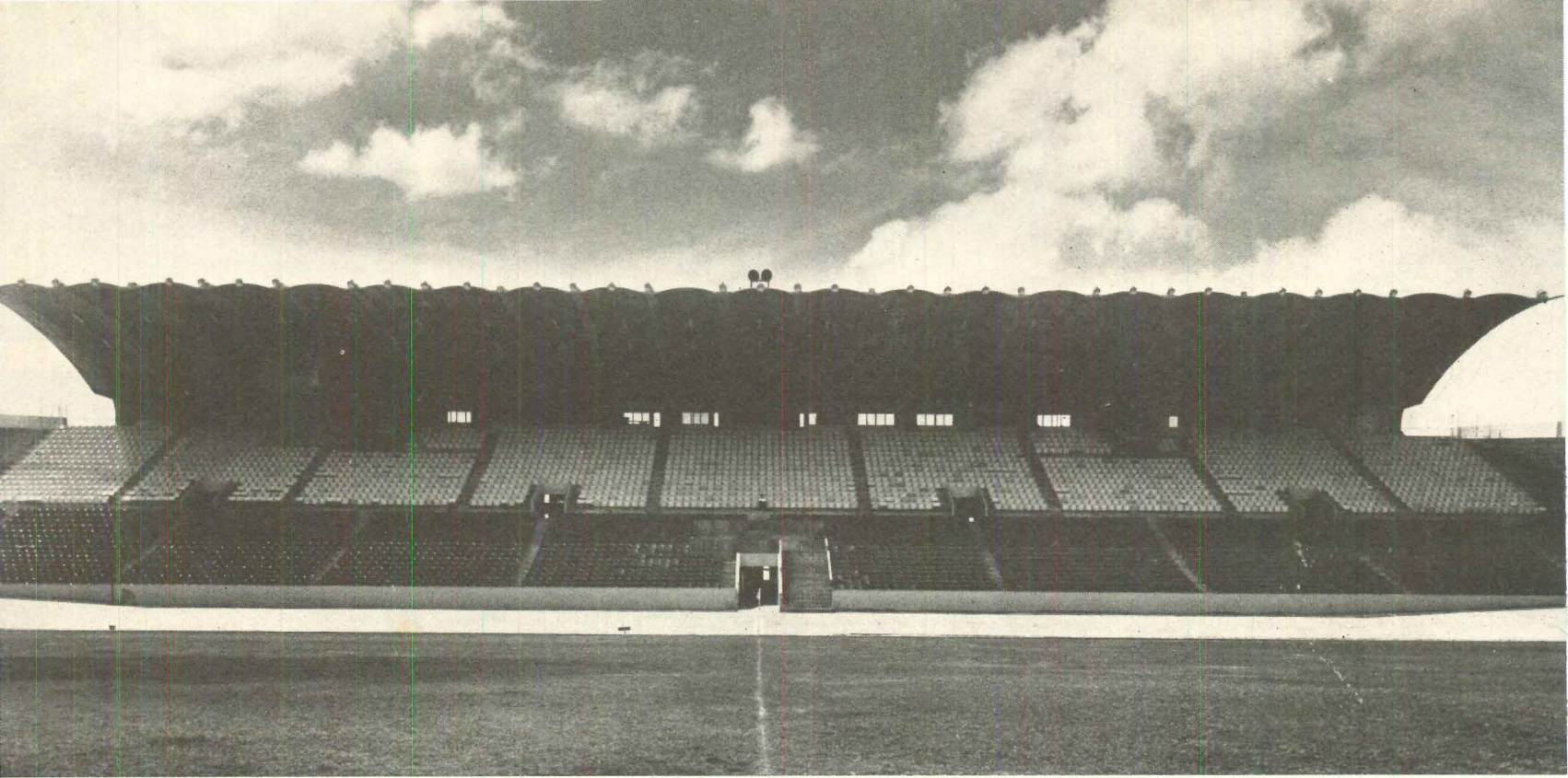
**ST. LOUIS, MO.:** The 50,000-seat Bush Memorial Stadium (below), now nearing construction, will be oval in plan (longer axis: 775 ft.), of reinforced concrete, and surrounded by a colonnade extending from the ground to the vaulted, scalloped roof. Seats are

movable to facilitate conversion of stadium from baseball to football. Scalloped roof frames into an inner compression ring. Architects & engineers: Sverdrup & Parcel (engineering); Edward Durell Stone (design); Schwarz & Van Hoefen (assoc.).

© LOUIS CHECKMAN







PHOTOS: MARIA LA YACONA

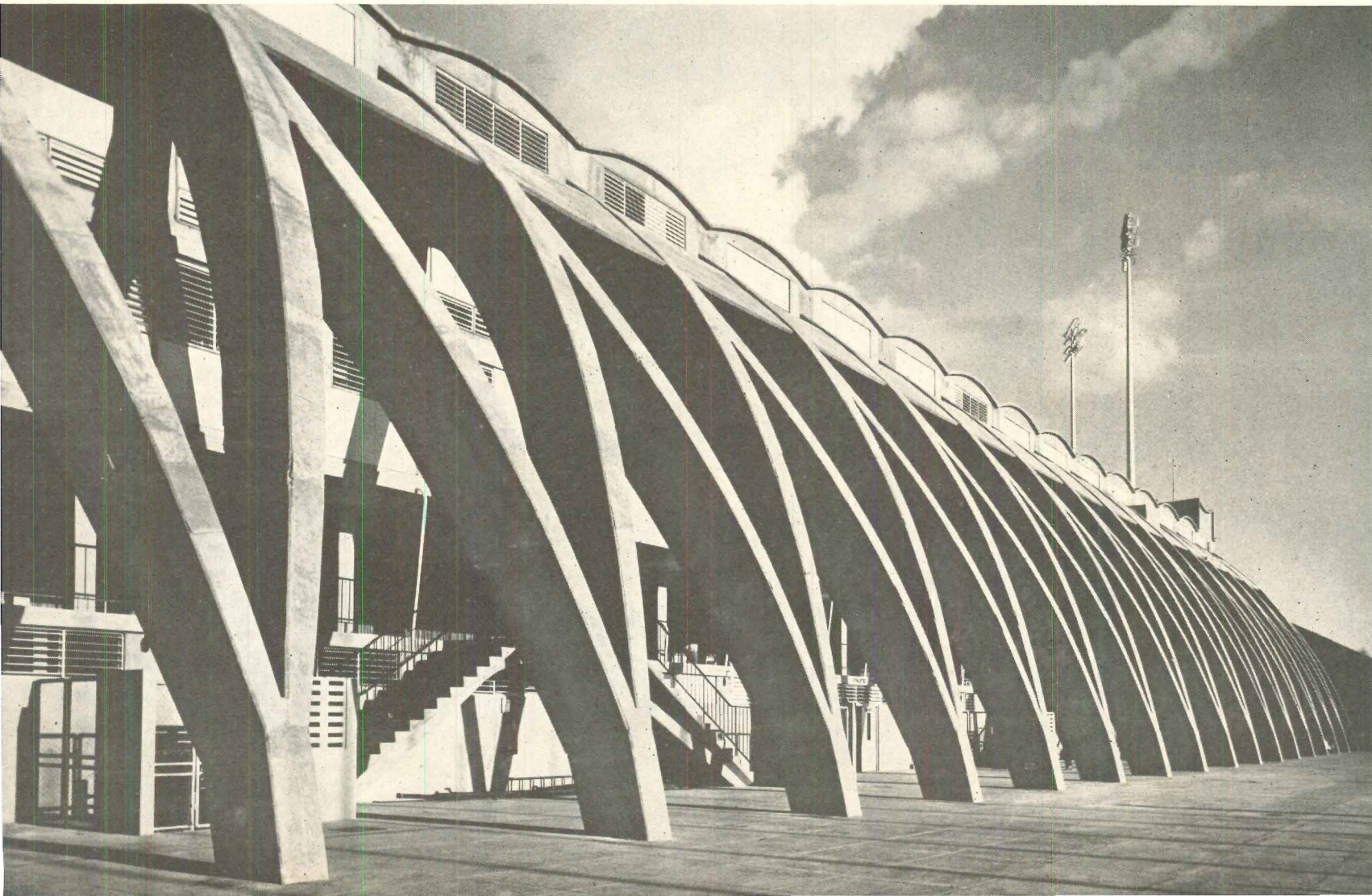
**KINGSTON, JAMAICA:** The National Stadium (above and below) can accommodate 6,000 people in its grandstand, plus 24,000 in bleachers. The structure of the grandstand consists of 22 arched concrete frames, each connected to its neighbors in com-

bined footings and grade beams. The frames are joined in a tripod support visible in the arcade in back of the stadium (below). This tripod support (the third leg of each tripod is located below the grandstand) braces the structure against wind and earthquake.

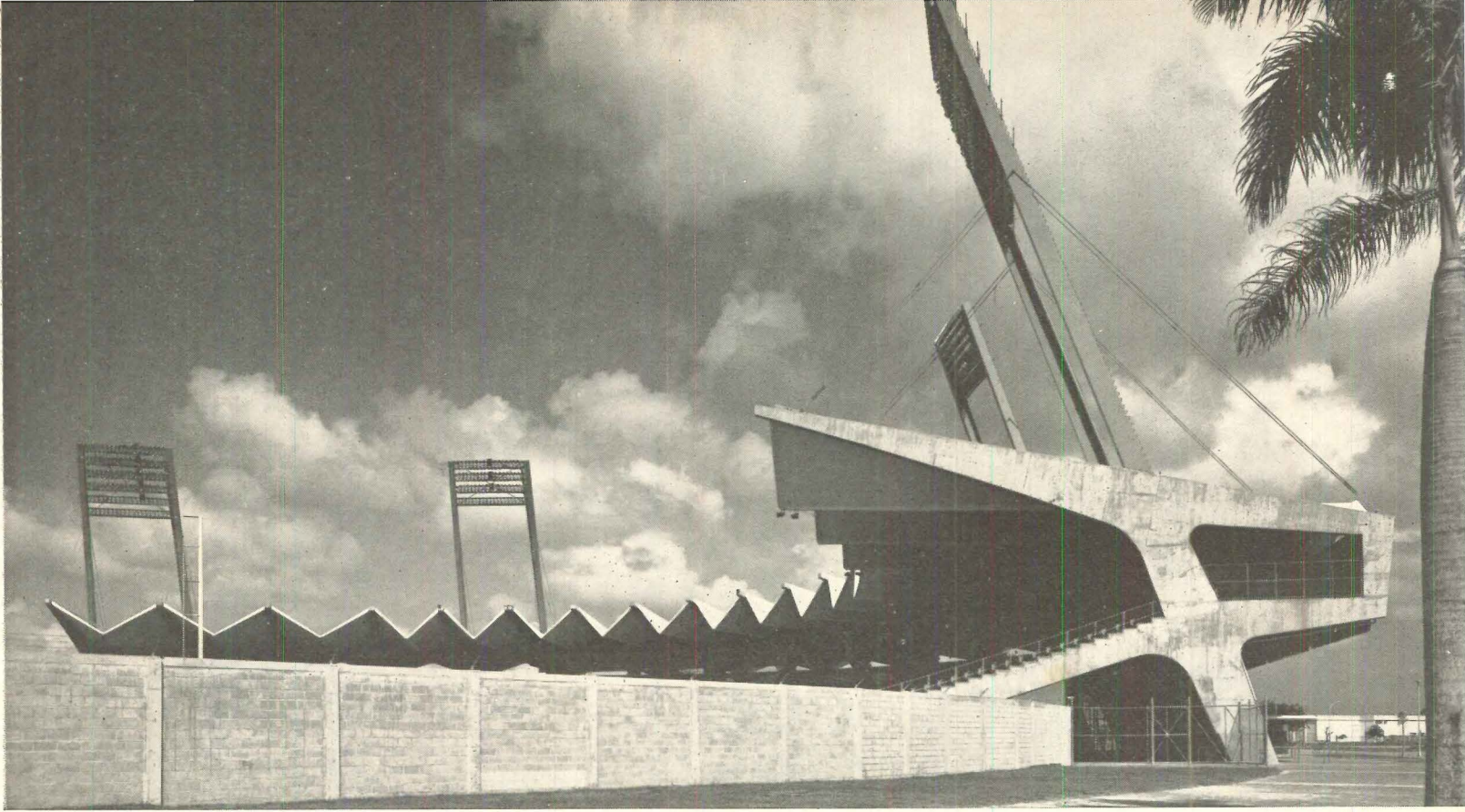
Each of the frames extends into a 68-ft. long cantilever, and the shallow concrete vaults between the cantilevers shade nearly half the seats. The shallow vaults span 16 ft. and are 4 in. thick.

The National Stadium is used for track events, soccer, field

hockey, and other games. Offices, concession areas, athletes' changing rooms, etc., are located in a 5-story building under the grandstand. Architects: Wilson Chong & Associates. Structural engineers: Wallace Evans & Partner. Contractors: C. J. Fox Ltd. & others.







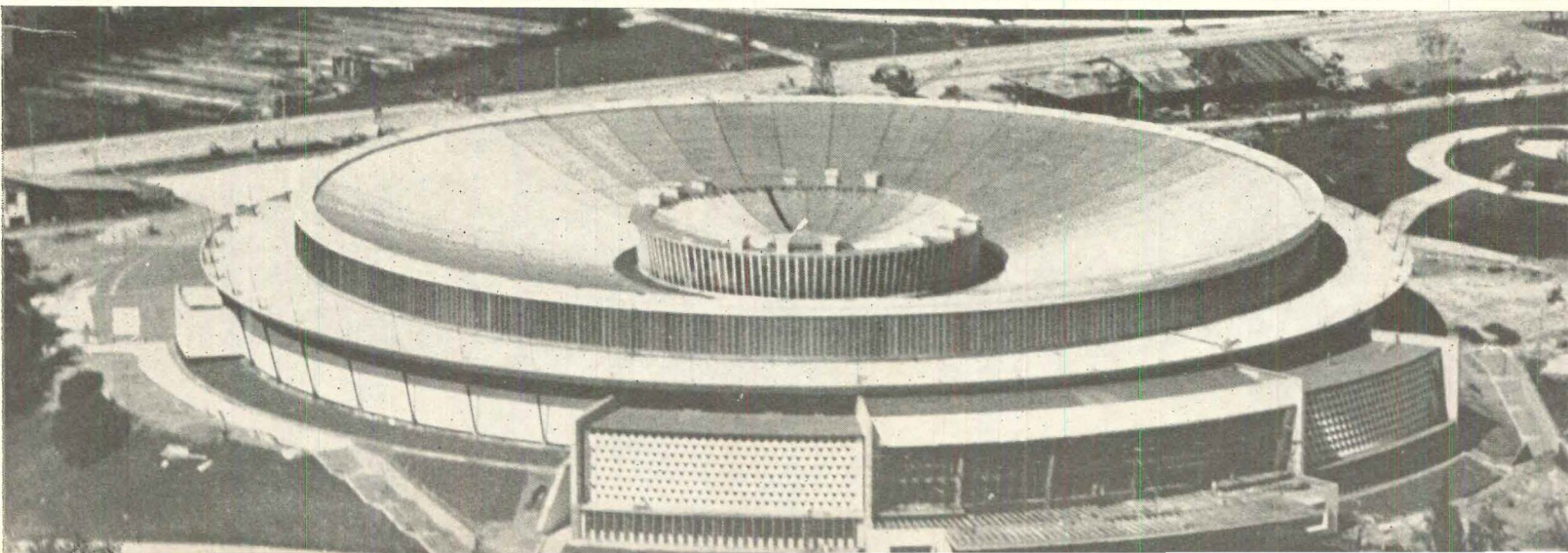
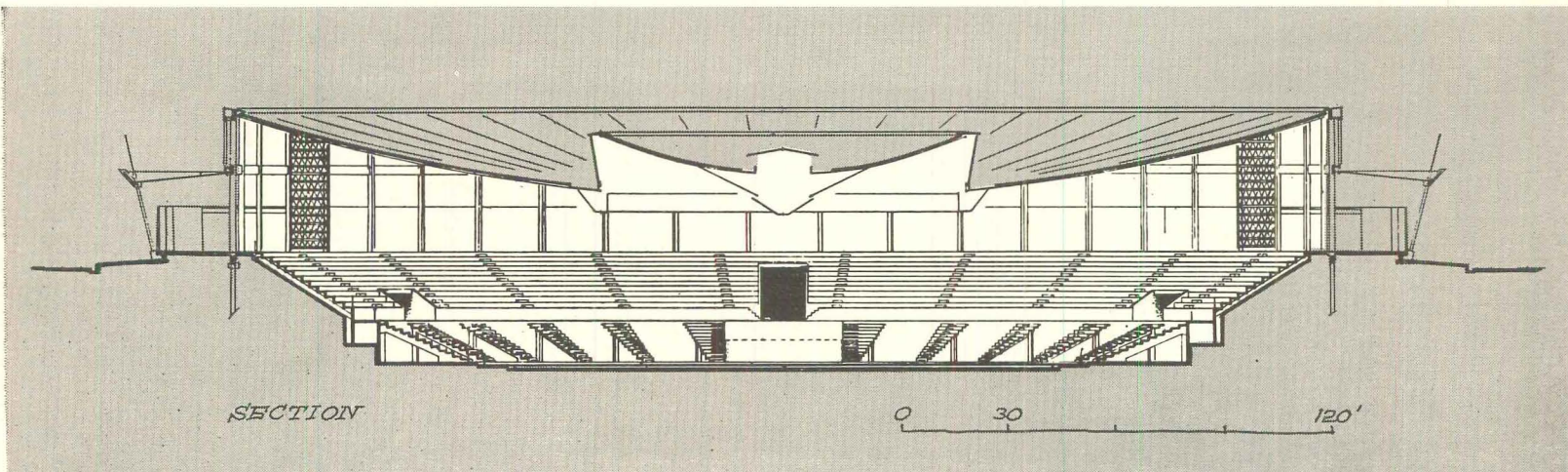
FRANCISCO E. VANDO

**SAN JUAN, P.R.:** The 7,000-seat grandstand in the Municipal Stadium (above) has a boomerang plan, serves a multipurpose arena. 18 rigid frames of concrete spaced 50 ft. apart and cantilevered 75 ft. over the seats carry folded, hyperbolic paraboloid roof

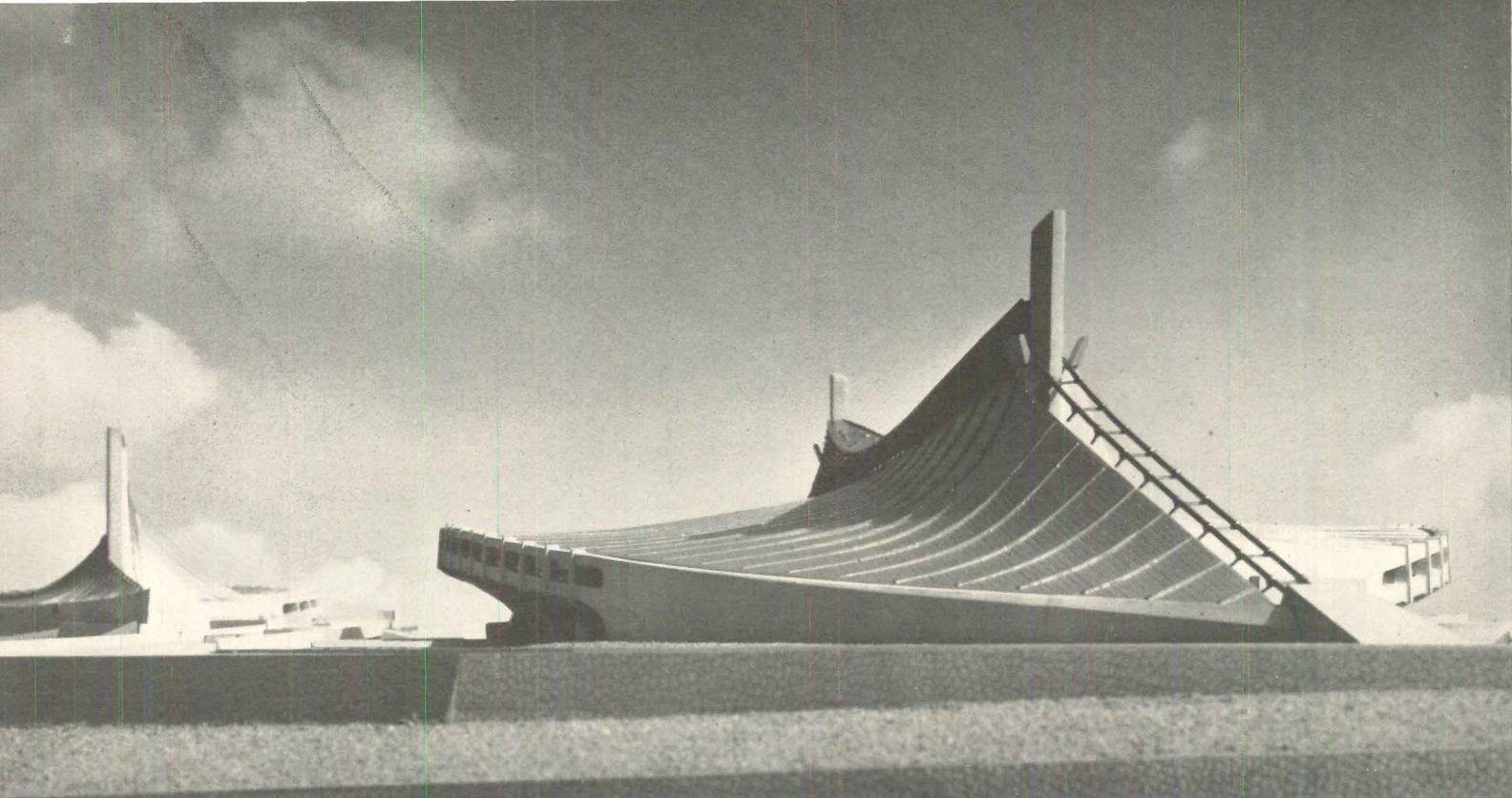
shells 2½ in. thick. Eight of the rigid frames extend up to form four light-towers. Architects & engineers: Pedro A. Miranda & Assoc.; Osborn Engineering Co. (associates). Structural engineers: Martinez & Costa. Contractor: R. P. Farnsworth & Co.

**KUALA LUMPUR, MALAYA:** The 12,000-seat Negara Stadium (below) is topped by a 300-ft. clear-span roof of steel wires covered with laminated paper and resin. The roof consists of an outer donut of 96 wires spanning between the perimeter and an

inner truss which adds rigidity and creates a clerestory; and an inner catenary spanning the center portion. A suspended reflecting cone distributes light to arena. Designer S. E. Jewkes. Structural engineer: Ng Eng Hean. Contractor: Lim Quee.







PHOTOS: O. MURAI

**TOKYO, JAPAN:** For the 1964 Olympics, Kenzo Tange has designed and is building a national gymnasium and annex with 16,200 and 5,350 seats, respectively. The two make a stunning contribution to stadium design.

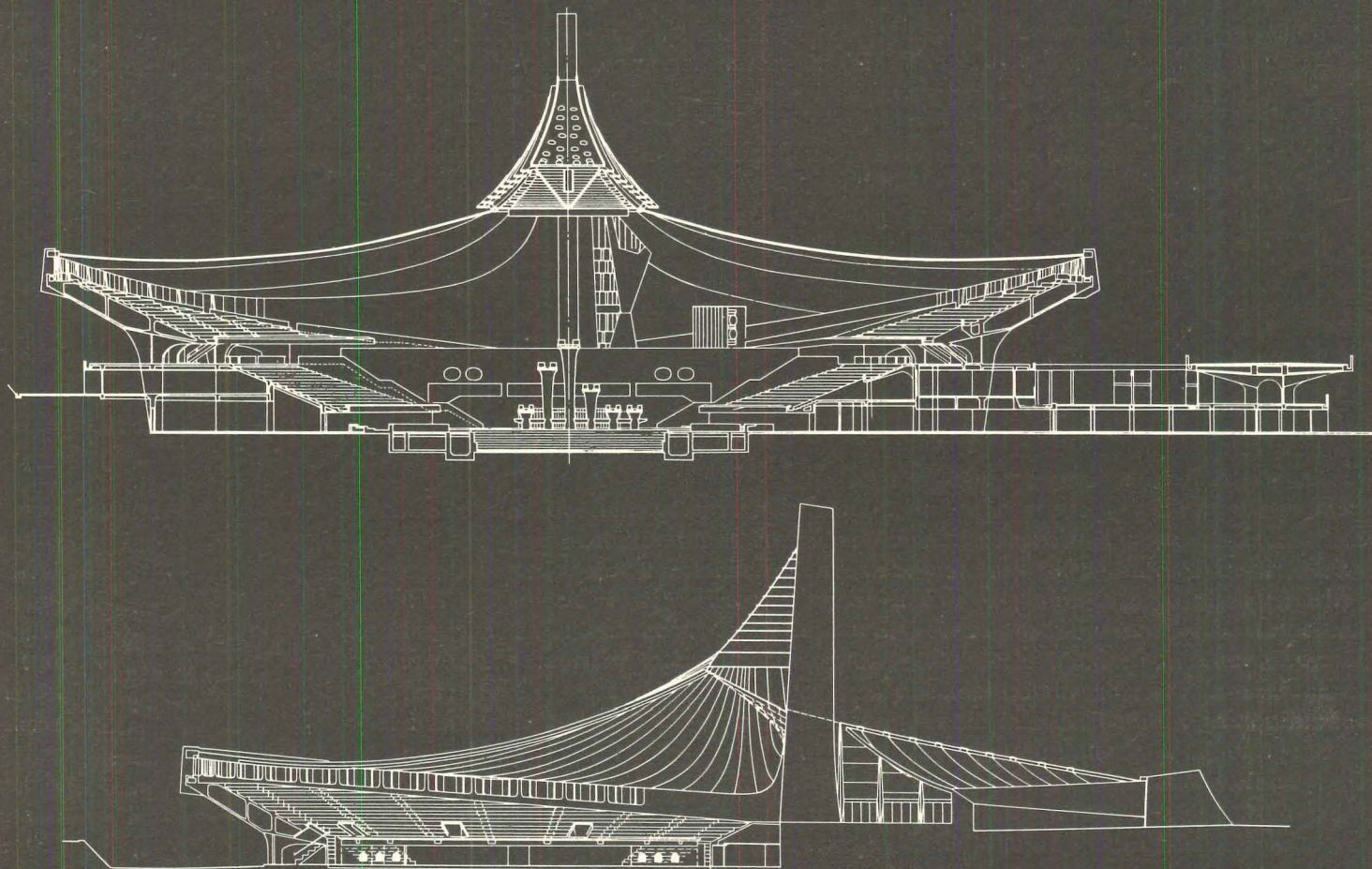
The gymnasium roof is carried

on two tall columns at opposite ends of the stands. Heavy steel cables are stretched between tops of columns, and tied down to anchorages at the extreme ends of the building. A mesh of lighter cables crosses the heavier ones and is tied down to a horizontal

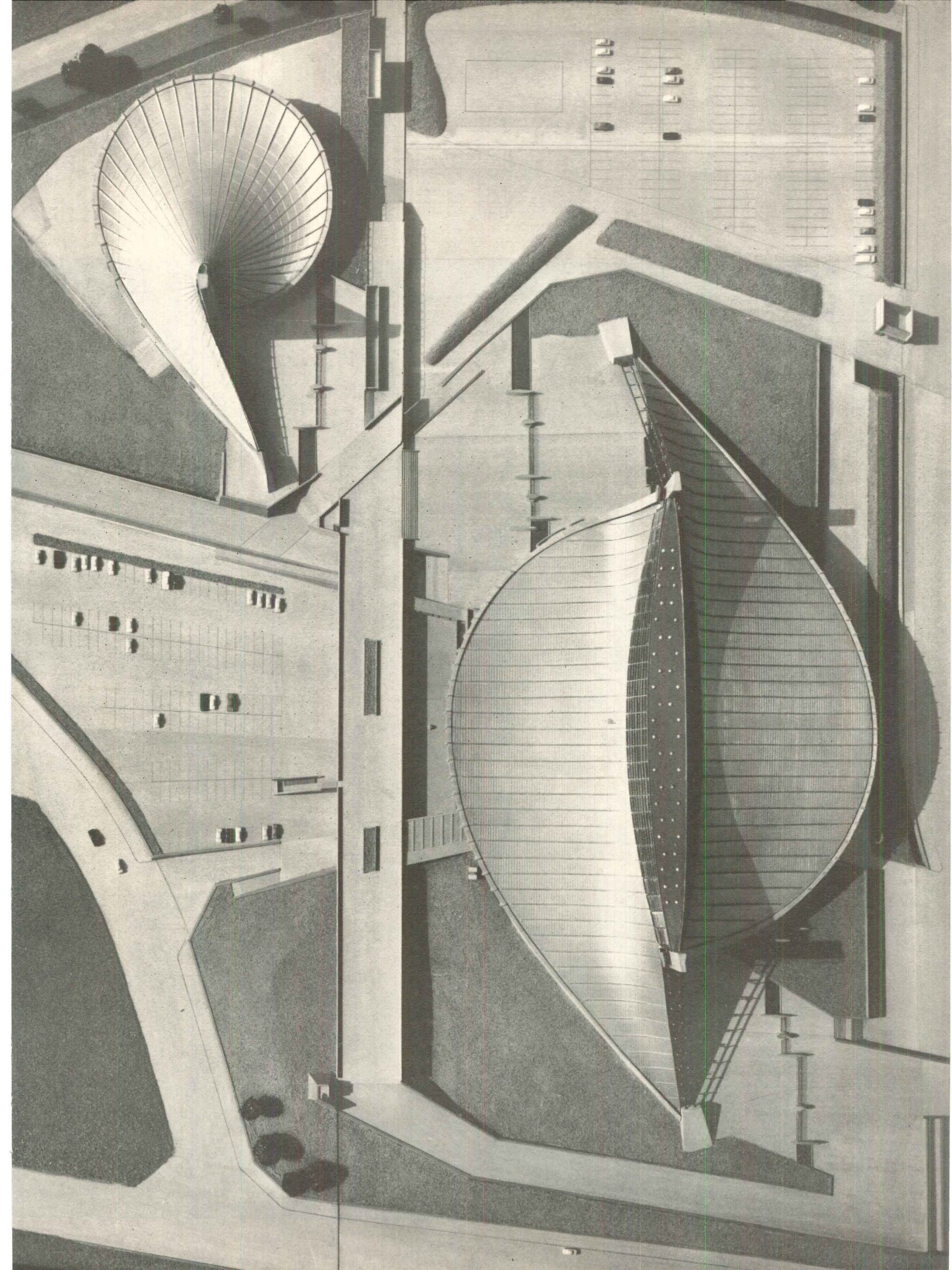
arch in back of the stands (section, below). This mesh carries welded steel plates about 1/4 in. thick. The gymnasium will be the world's largest suspension-roof structure when completed. It will house swimming and diving pools which can be decked over

for other Olympic events.

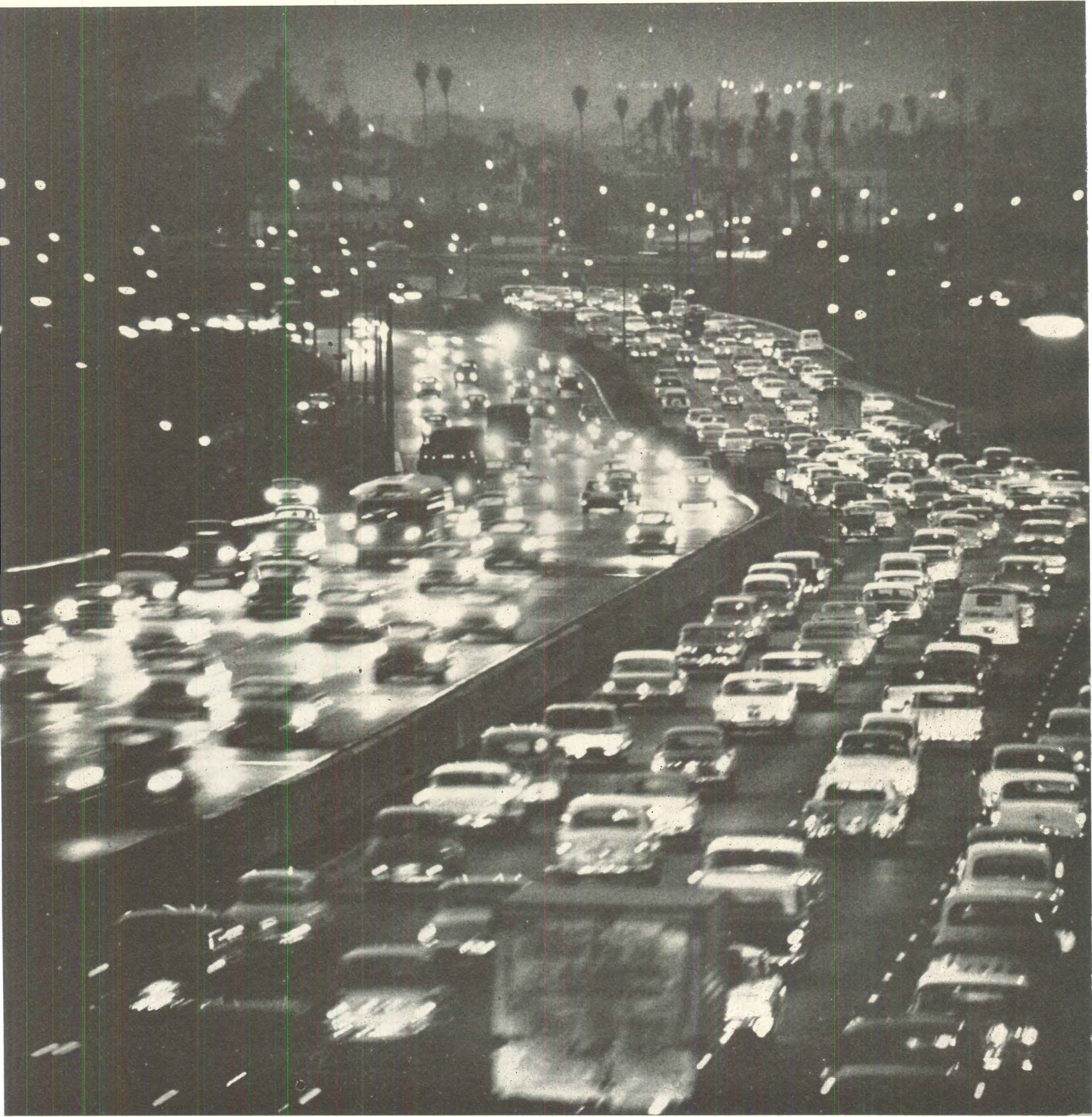
The spiral-shell annex will be used for basketball and boxing. Its roof has only one supporting column and an outer "arch" and is tied down to one anchorage. Architect: Kenzo Tange. Structural engineer: Yoshikatsu Tsuboi.











R. CRANE—LIFE



## "CALIFORNIA: GOING, GOING . . ."

The West Coast's housing problems require a new direction for state and federal programs, aimed toward growth as well as salvage. The California proposals discussed here hold lessons for the rest of the country as well.

BY CHARLES ABRAMS

By the time the newest California baby has seen 18 years of sunshine, the nation's largest state will have 30 million people—just twice its present population.

The five million new homes that will shelter the new residents will spread mainly over the 500 miles that link San Francisco Bay to the Los Angeles region. Three million acres of vineyards, pasturelands, orchards, and scenic terrain will give way to more Frenos, San Josés, and Bakersfields with their lengthening suburbs. Add the freeways, crossways, trailer lots, and gas stations, and that place called "beautiful California" will be a thing of the past.

Most Californians view with indifference the thousand people pouring over the state's borders each day. But a few are concerned. A pamphlet put out by a citizens' group is titled "California: going, going . . ." and asks "how long before the bright lands are dead lands?" The Santa Clara County Planning Commission, seeing a dairy a week give way to the steam shovel, asks plantively "Where now brown cow?" Sages like Aldous Huxley exhort, "We must start thinking like mad—we must do something." But while many call the tune, few face the music.

### A controversial report

In 1962, Governor Edmund G. Brown, describing the westward trek as "the greatest migration in the history of the world," appointed an Advisory Commission on Housing Problems, with California Builder Edward P. Eichler as its chairman and Karl L. Falk, president of Fresno's First Savings and Loan Association, as its vice-chairman. The University of California supplied the bulk of the research personnel, who included Catherine Bauer Wurster, Sherman Maisel, Donald Foley, James Gillies, Leo Grebler, Wallace Smith, John Dyckman, and Frank G. Mittelbach, as well as William L. C. Wheaton of the

University of Pennsylvania. The studies covered nearly a thousand pages, and an 80-page report summarized the findings and provided the recommendations.

The report met with expected dispraise and some unexpected praise. The *San Francisco Examiner* called it a basic document, "bound to stimulate public action." The *Los Angeles Times* thought it was stirring up a hornets' nest. Others implied that the Commission was stacked with labor leaders and do-gooders. The California Homebuilders Association denounced the report before any of it had been written.

Whatever the fate of the recommendations on the political hustings, the report is the first comprehensive effort to deal with housing and land problems on a state-wide basis. It reads both the good and the bad omens on California's horizons, and while one may differ with the interpretations and remedies, there is no disputing the signs.

### Profile of change

A profile of California's population and housing must be in the form of a moving picture. The frames contain familiar American images—growth, mobility, urbanization, sprawl, decay—but here they flip by at an accelerated pace.

Eighty-six per cent of the state's population, or some 13.6 million people, live in ten metropolitan areas, mostly between the Los Angeles and the San Francisco regions. Premonitory shrapnel formations of homes and factories are spreading steadily to link the two regions toward their appointed convergence.

The "Golden State" is the nation's greatest host to new arrivals, and about one in every three among its population moved into their homes as recently as 1958. Most have automobiles, the number of which leaped from 2.6 million in 1940 to almost 7 million in 1960.

Despite their mobility, from 66

to 75 per cent of California's workers ultimately locate their housing near their work. The exceptions are the minority groups who continue living in the older cities, the ever-present skid-rowers, and the farmworkers hugging the tattered agricultural pockets on the fringe that precariously await annihilation by the suburban invasion.

Not all who go west are young men. California's population includes 1,376,000 people over 65 years old, 69 per cent of whom have incomes under \$2,000 a year, and 43 per cent under \$1,000. Though 44 per cent are homeowners, more than a fifth of the state's substandard housing is occupied by elderly people. By 1970 these people will number 2½ million.

Nor are all who are making the westward journey white folk. The trail of workers from the Orient has given way to a new migration of Negroes and Mexicans. Non-whites already number 1.3 million while another 1.4 million are Spanish speaking, mostly from across the Rio Grande. These two minority blocs accounted for about a quarter of the population gain between 1950 and 1960, and by 1980 there will be more than 2.5 million non-whites and at least an equal number of Mexicans.

Nor do all who come to this promised land find wealth. In the metropolitan clusters of Los Angeles and San Francisco, there are 165,000 owner households and 289,000 renter households with incomes below \$2,000 a year. There are 75,000 owner households and 133,000 renter households with incomes between \$2,000 and \$3,000. In these two areas alone, there are 430,000 households with incomes under \$5,000.

### Progress—and decay

Nevertheless, incomes are on the rise, and thanks to this fact, a hyperactive homebuilding industry, and a flow of eastern

CHARLES ABRAMS is perhaps the foremost housing consultant in the U. S. He is President of the National Committee Against Discrimination in Housing, a Visiting Professor at the Department of City and Regional Planning at MIT, and the author of the final draft of the report on Housing in California.



mortgage money, housing conditions have improved in the last decade. Forty per cent of California's building stock is less than 10 years old. Overcrowding has declined, and more than two-thirds of its new homes have six rooms or more compared to less than a third in 1955.

The more somber side of the picture is that more than 700,000 units, or 13.5 per cent of the 1960 housing stock, are already below standard. Most of them are in the urban and metropolitan concentrations.

Adding to the problems of the low-income families, moreover, is the fact that about 430,000 homes—12 per cent of the state's 1950 housing stock—had disappeared by 1960. They were the targets of urban renewal, code enforcement or conversion to transient quarters, public works, private development—or they simply fell victim to the elements. Continuing demolition programs spell continual misery for the families they displace, many of whom are in the categories of the low-income, the elderly, and the non-white. If all the state's slums were levelled, the physical state of California's housing might compare well with the rest of the country—but the housing conditions of its low-income families would be incomparably worse.

Rich or poor, Californians pay plenty for their housing. There

are 400,000 families in the state's 10 metropolitan areas—and 220,000 in the Los Angeles region alone—who pay 35 per cent or more of their incomes for rent. Nearly 90 per cent have incomes of less than \$4,000 a year, and about a third are the elderly.

#### **The pressure on land**

For those who buy a house, price and monthly cost exert a more unyielding tyranny in California than in the east. The growing pressure of people upon the land has doubled and redoubled land prices; in the period between 1950 and 1961, the price of the average developed lot in the Los Angeles areas jumped from \$1,514 to \$4,574.

Competition for land has been further complicated by local zoning restrictions imposed by indwellers upon out-dwellers, adding to the cost of homes and widening the gap between what lower-income families can afford and what owners demand. Under California's liberal incorporation laws, some "cities" are little dominions with no people. One has more cows than citizens, but can still impose price-raising restrictions on land development.

Money is also dear. The state is capital-short so California savings and loan associations, the main financiers of homes, pay more in interest on their deposits than eastern associations and

charge higher interest costs on their loans. Again this is reflected in the high proportion of income paid for shelter.

Many of California's houses may be new, but so are their mortgages. In the east, mortgages have been paid down, making it possible to lower charges in a competitive market. Most California homeowners can look forward to paying fixed amortization and interest payments without reduction for many years, so the downward "filtration process" works less effectively for homes here than elsewhere. Filtration in the suburbs, moreover, accepts hardly a trickle of minority and other unwelcome families—at least until the neighborhood has soured or the homes are ripe for the wreckers.

California's home-building industry, which produced more than 2 million houses in the 1950s, turns out a high-quality product—but it has had to cater mostly to high-quality customers. In 1960, the average sales price of an FHA home in California was \$17,209, compared with the nationwide average of \$14,744. Sales prices between 1950 and 1955 rose by 41 per cent in California compared to 22 per cent in the nation as a whole. Rising land and building costs have caused an incipient shift to multiple dwellings. But a 1962 survey in San Francisco showed that

of 4,500 non-luxury rental units which were recently built, 62 per cent were one-bedroom apartments with an average rent of \$135 a month and 34 per cent two-bedroom units renting for an average of \$168. Not much help here for the low-income family.

#### **Programs and policies**

Though the fact is not widely known, California has been the pioneer in state housing programs. Its "Cal-Vet program," spawned in 1921, also gives it the distinction of having the biggest state housing program in the nation. Cal-Vet has issued bonds tallying up to more than two billion dollars of which a billion dollars is still outstanding. Though the bonds are secured and self-liquidating, Cal-Vet commitments account for nearly 60 per cent of the state's bonded debt. No nation, no state, and no city in the world holds a candle to California in the proportion of public debt pledged to housing.

The trouble with California's housing program has been that its benefits have been going exclusively to war veterans, irrespective of need or income. Less than 3 per cent of the veteran beneficiaries have incomes below \$4,000 a year. In contrast with New York State's smaller housing program, none of the proceeds go to the elderly, the low-income family, or to urban

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### **THE CALIFORNIA REPORT HAS NATIONWIDE IMPLICATIONS**

The true significance of the Report on Housing in California is nationwide. In California the problems of America's growth are found in most intensive form—and the Governor's Commission has shown that they can only be met by a sweeping change in federal housing programs. Its four principal recommendations are:

1. The Housing and Home Finance Agency should make long-term loans and grants to states for land acquisition of open

spaces to be developed under rational planning principles much as redevelopment operates in urban areas. The (proposed) State Housing Agency would resell land to the private developer on the condition that a wide range of housing choice is provided. Balanced communities by private developers can prevent slums as well as clear them.

2. Federal equity insurance against the risks of foreclosure on FHA-insured loans in case of un-

employment, illness, or death can be provided at a cost of \$25 a year. Many foreclosures which are costly to the government and disastrous to the home purchaser can be prevented.

3. Federal direct-loan programs should be made available for home purchase by lower-income families and not just for low-rental programs as they are today.

4. The federal direct-loan program inaugurated in 1961 (221d3) which provides low-interest loans

for rental housing for low- and moderate-income families is presently limited to areas with "workable programs." This program should be modified so that outlying areas would be included both for new housing and rehabilitation, if certified by the State Housing Agency. Maximum room cost and income limitations should be relaxed to realistic levels and nonprofit organizations should be allowed to develop such units for ownership as well as rental.



renewal's D.P.'s. When the Housing Commission's report recommended that California's housing-aid program be recast to make some of these families eligible too, the Commission rode full-tilt into the opposition's fire. If housing credit is to be socialized, it is felt, it should be a socialism for the rich and private enterprise for the poor.

Federal housing programs further contribute to California's frustrations. They are geared more to the needs of the east and south than the west; to imposing or demolishing slums and not providing for expansion; to the problems of old cities but not to building new ones.

The Commission report urges pressure for a more equitable federal housing law, including a home-ownership formula for lower-income families. The public housing program, it argues, drew upon European traditions and New York patterns under which the poor were usually tenants—or, it was thought, should be. Many low-income families in California who shun public housing would welcome ownership at costs they could afford. About the same subsidy required for public rental housing could give them homes of their own. But for the 29 years since the federal housing program began, Congress has stubbornly refused to countenance home ownership for the less privileged. The racial problem has been one of the deterrents.

#### **Foreclosure insurance**

As long as California's economy keeps growing, the middle-class worker can continue enjoying the fruits of home ownership. But California with its large quota of defense contracts is more prone to economic readjustment and cutbacks than other states. The Commission proposed a federal insurance formula that would insure owners against foreclosure brought on by temporary unemployment, illness, or death. Ex-

ploratory conferences with FHA officials showed that the annual premium might be about \$25 for a three-year protection during the life of the loan.

With national foreclosures now at their highest peak since the depression, the plan would benefit FHA whose foreclosure and other costs are as high as \$1,500 per house. It would be a godsend to homeowners periodically threatened with loss of their homes for default in a single payment—not only in California but throughout the nation. But the FHA scheme has always been shaped to insure the mortgage lender, not the homeowner, and continues to do so.

The report also recommends liberalization of the "221d3 program" to facilitate home ownership and make it more workable for builders in the larger cities. It urges modification of the public housing formula to authorize continued occupancy for low-income families who are evicted when their incomes go up. It urges construction of smaller buildings and a program for subsidizing families in private housing instead of exclusively in publicly owned projects.

The large volume of state bonds floated for veterans' housing has been impairing the state's ability to borrow for future schools, roads, and utilities, which through 1980 will have entailed outlays of some 60 billion dollars. The report recommends a formula similar to New York State's, under which all state housing is financed through the proceeds of revenue bonds of a new housing agency, so that the state's credit is released for its other essential requirements. The funds borrowed on the agency's own credit would be used for low-income families, the elderly, and the displaced instead of for war veterans exclusively. It favors state subsidies when necessary to help these families. The report also recommends state loans to help cities finance their share of

the write-downs on land for urban renewal projects so that urban renewal agencies would no longer have to borrow through unorthodox bonds at extravagant interest charges.

#### **The open-land proposal**

California, in short, holds both promise and threat. It is one of the last remnants of the American frontier facing urbanization. Its climate and natural environment compensate for many inconveniences which might otherwise be unbearable for many of the 30,000 people who head toward its borders each month. Building decent neighborhoods, salvaging some of its natural terrain, and creating new cities more gracious than the decaying cities or sprawling suburbs of the east offer a challenge to city planning and state leadership.

One of the Commission's main recommendations is, therefore, to extend the urban renewal formula to include vacant-land operations—outside as well as within cities. A state agency or a city or county agency would thereby be enabled to assemble suburban land, replan it, and after reserving sites for schools, streets, and other public needs, would resell the land to builders for private development.

The proposal—the most controversial in the report—aims to break the land bottleneck that is holding up rational growth and development, a problem bound to become more troublesome as the state's population and industry expand. Regional planning in the east today is no more than oratory, for its jurisdictional and physical patterns are set. But California is poised to preserve some of its top-rate soils and scenic beauty that still give the state its distinction and in fact constitute the magnetic force that draws people and investment to it.

Unless a sensible housing policy accompanies land development, moreover, the new cities that are moving across the Rockies are

destined to become economic enclaves. If anything has been learned from the history of cities here and abroad, it is that a city must provide for people from all walks of life. People must be able to live in the areas in which they work. This is a city by its very definition and organization, and no city can exist if inhabited only by executives but no laborers, by ladies but no maids, by store managers but no delivery boys, by mayors and overseers but no street-sweepers.

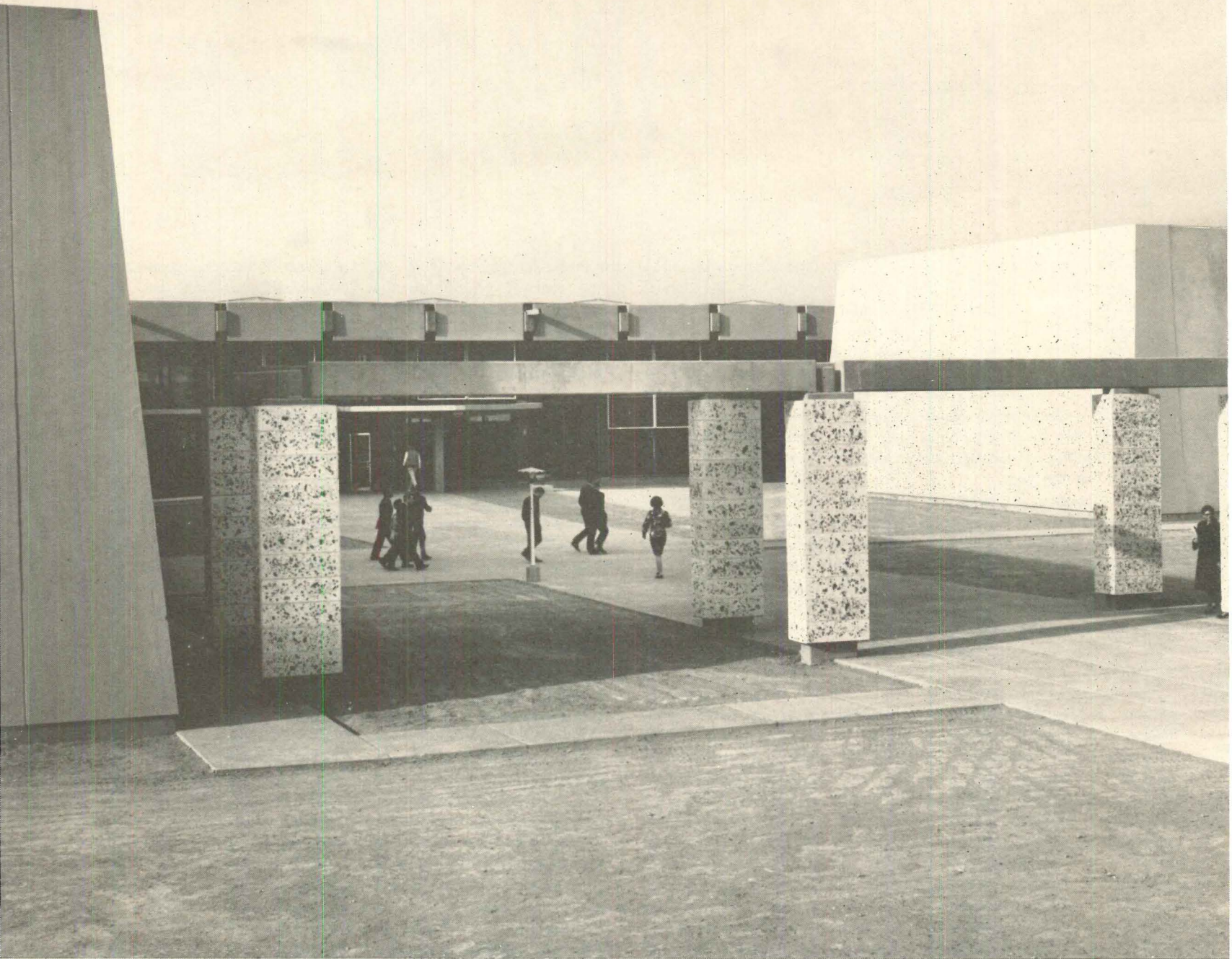
Some of the Commission's recommendations are new, but none are radical. They look almost entirely to private ingenuity for the program's fulfillment and are designed to stimulate it. They will help builders tap a housing market they have had to ignore. Unlike public housing programs, they are designed to broaden the home-ownership base. Many of the most important proposals are no more than logical extensions of prevailing federal and state programs. In fact, they highlight their inadequacy and press for a revision that will make them acknowledge the needs of growth as well as salvage.

As the *San Francisco Examiner* put it in commenting on the Commission's report, "those who want to do nothing more about housing, or who look yearningly back to a placid and slow-growing California that is forever gone, deserve no place in this dialogue.

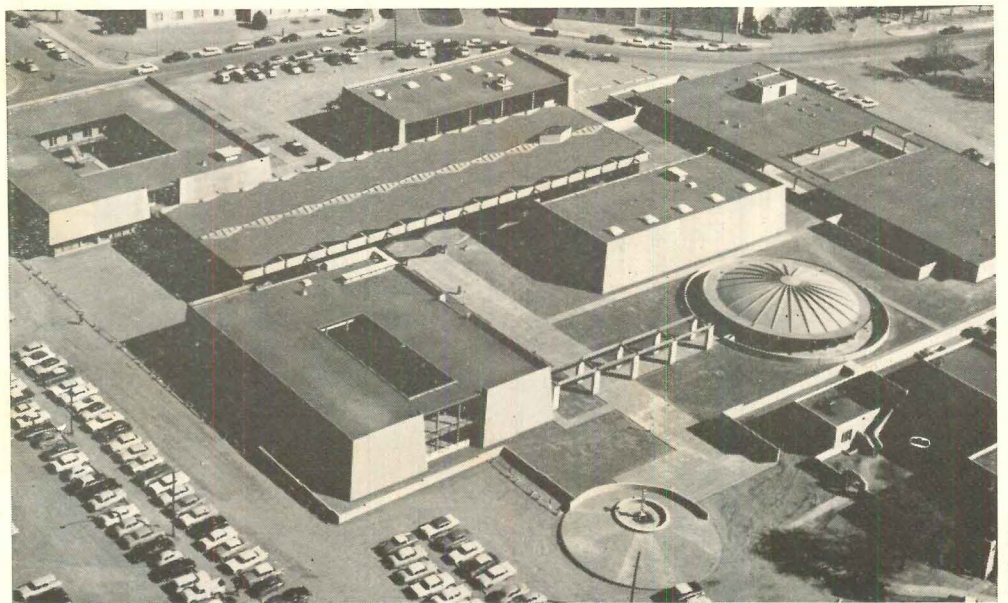
"The dynamism of growth is an unavoidable fact; it must call up a dynamic response."

The indications from Sacramento are that the report is having an impact. Not all the recommendations will be implemented, nor can this be expected, but Governor Brown has pressed for the creation of an agency empowered to act. The bill passed the Assembly but was kept from coming to a vote in the Senate. It is expected to pass at the budget session in January. California may yet spark other states to follow its example. END



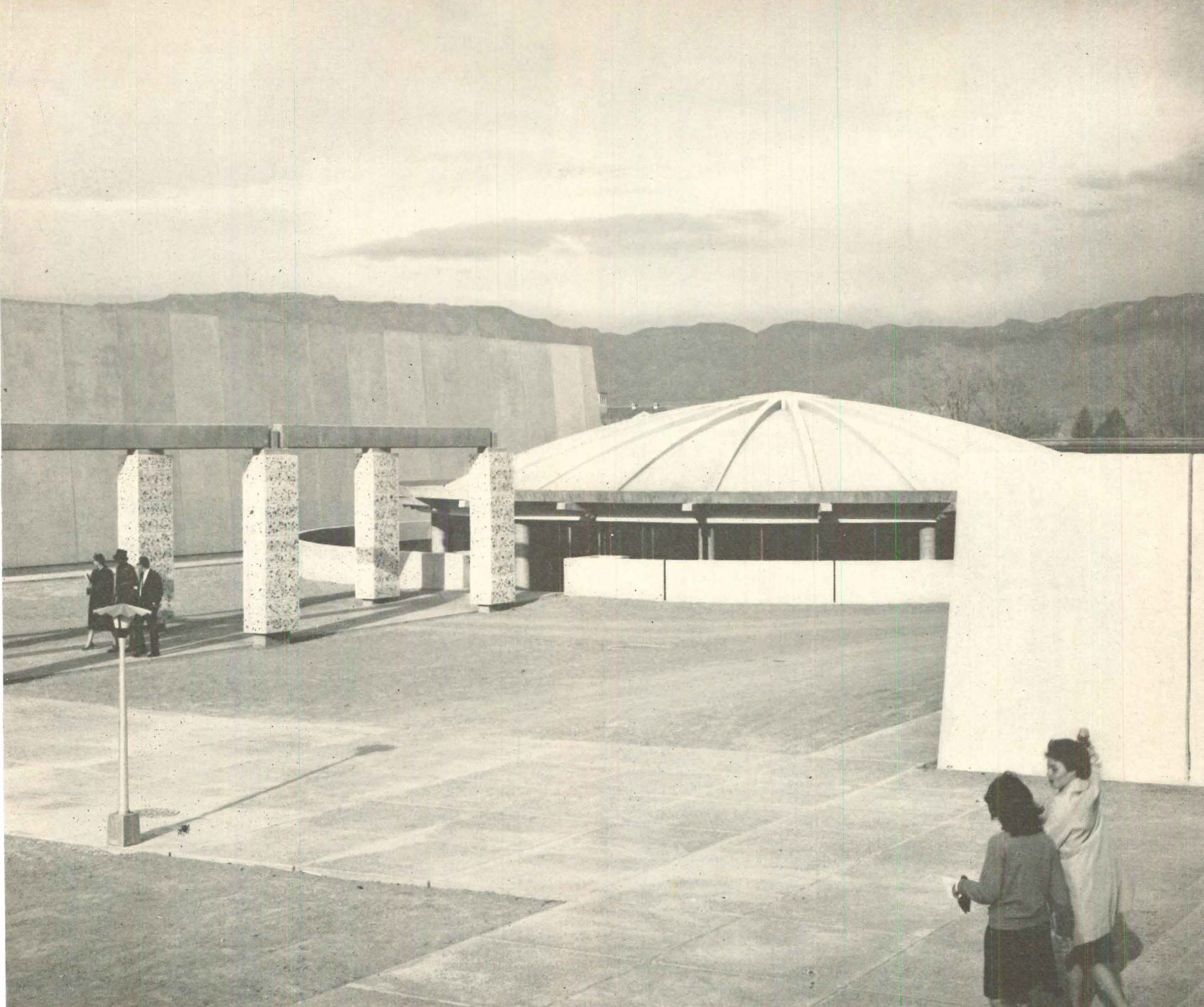


**CONTINUITY IN  
NEW MEXICO:  
UNIVERSITY'S  
VARIED PLAZAS**



DICK KENT





WILLIAM R. CURRENT

The double line of cast-stone columns (above) is massed before the entrance to the University of New Mexico's recently completed College of Education at Albuquerque. The tightly molded spaces and the varying forms represent a highly successful coordination by Architects Flatow, Moore, Bryan and Fairburn between fulfilling utilitarian requirements and evolving an appropriate collegiate style.

**Back, but not to neo-pueblo**

Each of the eight main functions of the college has been given a separate building: administration; industrial arts; art studios; two one-story, domestic-scaled

home science and child-care centers; faculty offices; sunken seminar hall in the round; and general classrooms.

Evolving a collegiate style was a more difficult problem since the surrounding university campus has been solidly "neo-pueblo" for the past twenty years. Actually, the new college does not represent a revolt against New Mexico's genuine architectural traditions. Many aspects of the plan were directly influenced by the southwest's Indian archeological sites, according to Partner Max Flatow—specifically prehistoric Kuaua on the Rio Grande. Kuaua (known as the Coronado State Monument) had a large flat site, subdivided

into courts and plazas of different sizes. A wall separated the city from the desert. Housing units and meeting rooms in a variety of massed forms were used as space modulators, just as are the buildings of the university's new college.

**Living room for learning**

The Indians' use of large expanses of masonry walls as protection against the desert's wind, heat, and cold was still an equally valid principle in designing the new complex. Perimeter walls are reinforced concrete precast panels, predominantly without windows. Once inside the college enclosure, glass curtain-walls open up the

building interiors into landscaped patios and courtyards.

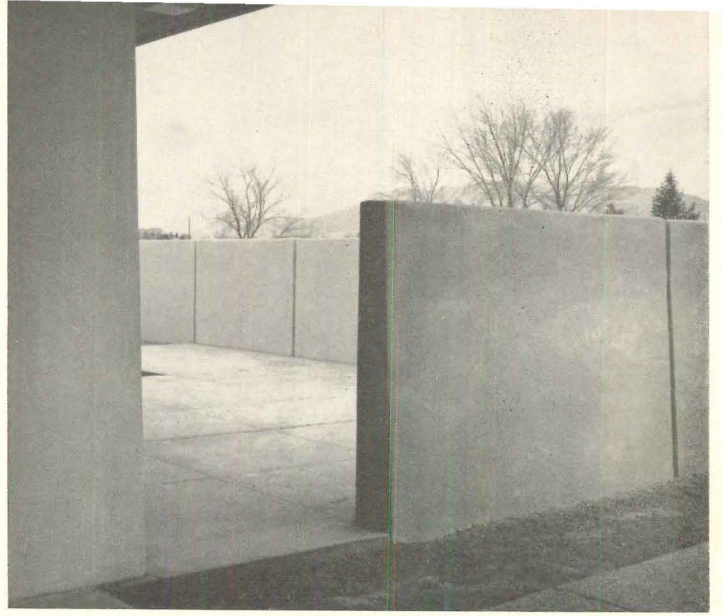
The administration building, which serves the entire complex with a library of learning materials and stenographic facilities, was placed in the center. The architects treated it as the "living room" of the college by opening up all the exterior walls, in sharp contrast with the other predominantly solid units. Three walls are of gray heat-resistant glass while the fourth, on the west, is a vibrant stained-glass panel executed in imported French glass by Artist John Tatschl.

Designing offices for faculty members is always tricky and so the architects came up with Type





Two tiers of glass-lined faculty offices look out on an open central court

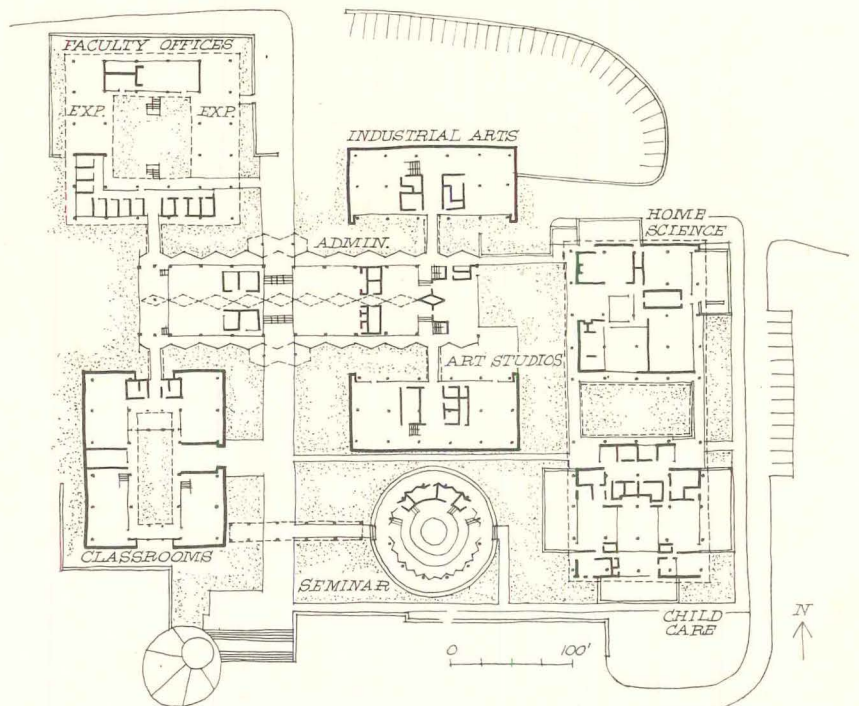


Small walled courtyard used in teaching outdoor home-science classes



Columned walkway around an interior patio in the classroom building

PHOTOS: WILLIAM R. CURRENT



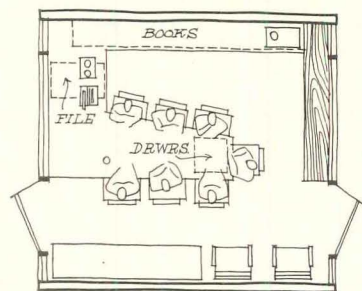




Seen through an administration building corridor, John Tatschl's western wall of stained glass provides both a pattern of color and glare protection

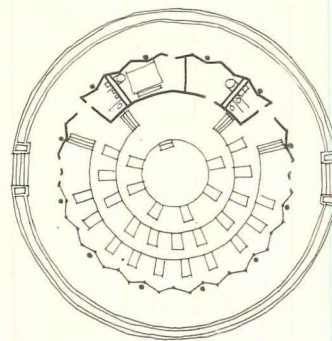
"A," a minimum size office (10 by 11 feet 4 inches) with built-in bookcases and tables (plan, below). Professors are pleased with this space because it is sufficient but too small to run the risk of doubling up.

Of the new college buildings, the most unusual shape belongs to the sunken lecture hall (plan,



right). Called the *kiva*, it is named after and inspired by the circular underground ceremonial chambers used by the Pueblos. A ribbed concrete dome covers three seating levels—accommodating 200 students in a semicircular arrangement of chairs and tables or 350 in chairs alone. The *kiva* is slated for a wide variety of uses from seminars to theater-in-the-round, and special sound treatment (including a sprayed acoustical plaster ceiling) insures hearing even the most normal conversational tones throughout the 70-foot-diameter hall.

The architects also provided informal outdoor teaching stations—small courtyards enclosed by walls



rising just above eye level—for four of the buildings (art studios, industrial arts, home science, and child care centers).

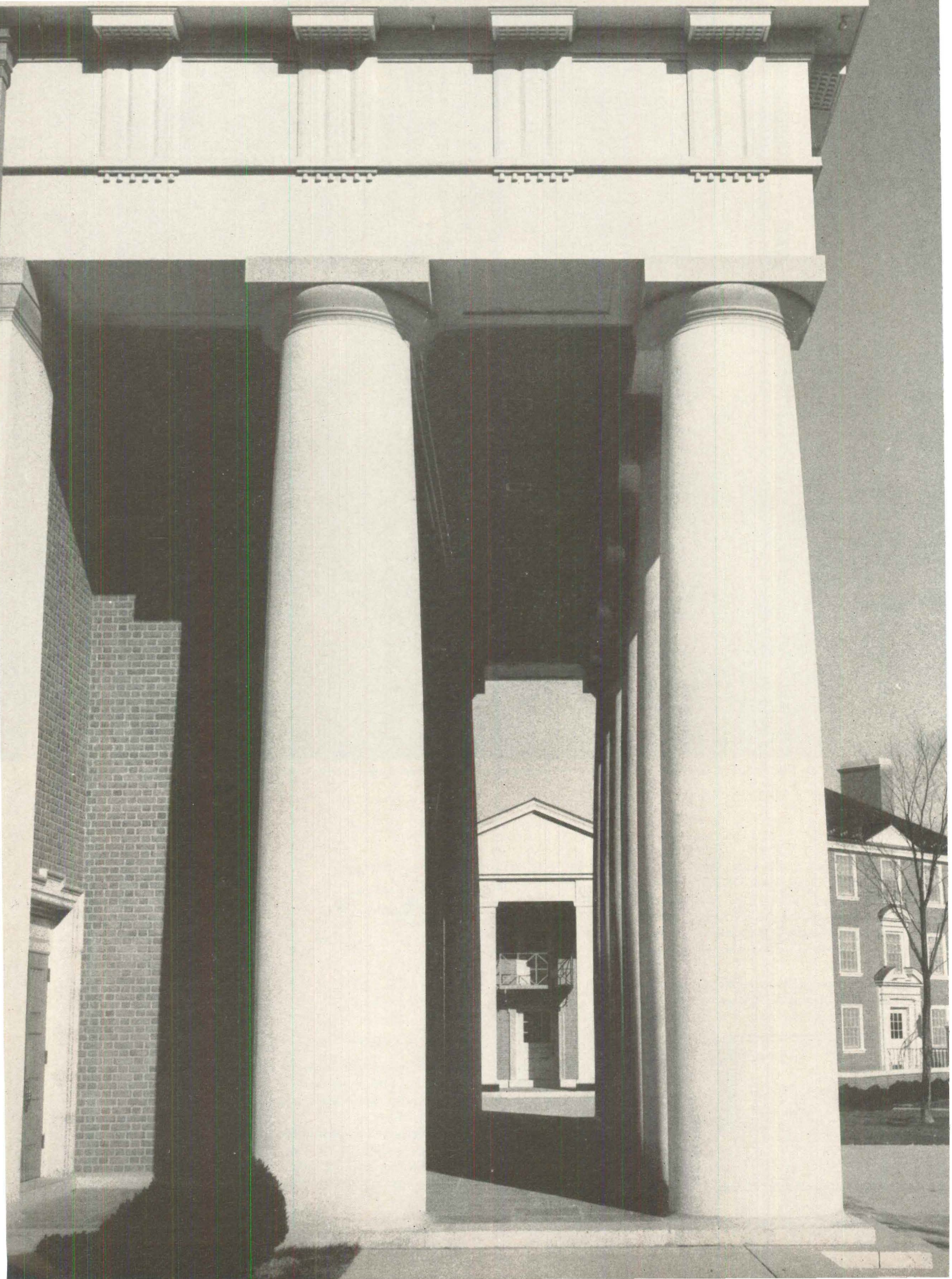
The College of Education is the first major project to be completed under an extensive master plan prepared in 1959 by John

Carl Warnecke & Assocs. Still under construction are: a new college of fine arts, anthropology museum, journalism wing, and two new residence halls.

#### FACTS AND FIGURES

College of Education, University of New Mexico, Albuquerque, N.M. Architects: Flatow, Moore, Bryan and Fairburn. Partner-in-charge: Max Flatow. Engineers: Bridgers & Paxton (mechanical); Uhl & Lopez (electrical). Landscape architect: Garrett Eckbo. Programming consultant: Don P. Schlegel. Contractor: Underwood Testman Co. Construction cost: \$2.1 million. Building area: 132,000 square feet—about \$14 per square foot. Break-down: site work, \$109,000; construction, \$1,857,000; furnishings and equipment, \$70,000; fees, \$109,000.







# “THE PLAGUE”

—or contemporary traditional architecture in America

BY HENRY HOPE REED JR. AND H. STAFFORD BRYANT JR.

Several months ago, Henry Hope Reed appeared on a radio program with FORUM's managing editor, Peter Blake. In the course of the discussion, Mr. Reed declared that there was a conspiracy afoot in the U.S. to suppress contemporary traditional architecture and that FORUM was a party to that conspiracy. Mr. Blake thereupon offered to publish anything Mr. Reed might care to write on the subject, provided he found one or more well-designed traditional buildings in the U.S. with which to illustrate his thesis. The following article is the result.

“We're plagued by the stuff,” a Richmond architect remarked, as we drove by some new, traditional buildings. It is true that there appeared to be an unusual amount of them. As for our architect friend, he may have been “plagued by the stuff,” but, for all that, the “plague” has not prevented him from producing it at his clients' requests.

This, then, is Virginia where the traditional and the Modern flourish side by side and, what is more, in a variety of building types from offices to supermarkets. For the visitor, it must be confessed, there is something refreshing to find dark-red brick vying with glass; Richmond, at least, is not one more repetition of the Modern which has given most American cities a somewhat commonplace appearance.

Thus forewarned, the visitor is not surprised to come on the River Road Shopping Center (1), situated on the fringe of the Westhampton residential section in the western part of the city. As such projects go it is modest; gross floor space amounts to 40,000 square feet and there are only eight tenants. The developer-owner, who desires anonymity, had several reasons to turn to the traditional. First, there was the matter of courtesy to the Westhampton residents, the Center's future customers. They had not welcomed his project—in fact, they had tried to keep it out. Occupying brick Colonial houses set on ample lots, they were fearful of having a structure totally out of keeping with the community's traditional ambiance. Second, the owner, inclined in his

own taste to the traditional, would have had no other style.

On the advice of Andrew L. Kidwell, business consultant on real estate development and design, the owner decided on a picturesque treatment within the Colonial idiom. Each store in the Center, while remaining part of the whole, was to have distinguishing features: one would have a porch and gable of yellow-green clapboard, another a cupola, and the differences were carried into the size and color of the brick and the pattern of shingle. The architects were Rawlings & Wilson, whose practice, in the main, is Modern; the Center is a tribute to the firm's versatility and it underscores the fact that many Modern architects know more of art history than they care to admit.

Despite its troublesome beginnings the Center has proved very successful. The style pleases, and the picturesqueness evidently feeds the demand for variety. Safeway Stores, Inc., one of the tenants, considers its outlet here to be one of its two “showcases.” The one obvious bit of Modern design is the lighting of the parking space with its familiar aluminum street lamps. To the owner the shining metal shafts struck a false note; he has had the lamps painted black, “painted out” as it were, and the net result is that they go unnoticed.

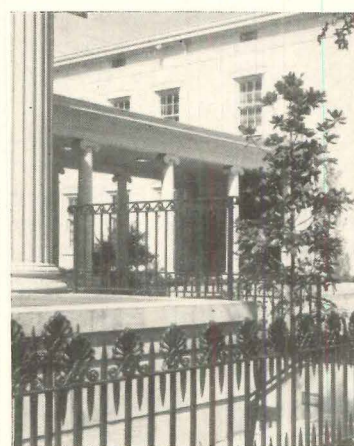
As far as the traditional in Richmond is concerned, the River Road Shopping Center is exceptional in its conscious sharaggi; most other projects are straight classical in the Colonial manner. There are several peculiarly Vir-



1

ginian touches in the variety of brick adopted and, in the case of church and parish-house groups, arcades.

Perhaps the most interesting church work, finished last year, is



2

COLONIAL STUDIO

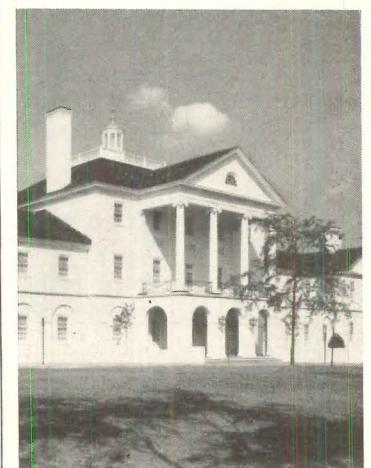
the combined parish house, community center and garage of St. Paul's Church in downtown Richmond (2). For one thing, it cost a million dollars, a sum which conveys something of the importance of traditional work being done. For another, it is Greek Revival rather than Colonial. The church itself, built in 1845 on the designs of Thomas Stewart of Philadelphia, is a splendid example of the Greek Revival and it seemed the better part of wisdom to abide by the style. The architect, Baskervill & Son, obviously took tremendous pains, even to having the surrounding iron fence complete with anthemion heads. The arcade, joining church and complex, so typical of Virginia, has Ionic columns; they must be the most recent examples of the order in the country.

Moving away from the chief do-

mains of the traditional, i.e. church and domestic work, Richmond offers yet another example, this time in an office building (3). The Albemarle Paper Manufacturing Company moved, last year, into a million-dollar headquarters designed in the Palladian style by Carneal & Johnston.

That there is such a “plague” of the traditional in Richmond is the obvious consequence of the long shadow of Colonial Williamsburg. This shadow extends across the nation, what with thousands of newlyweds determined to have a Williamsburg Colonial manse even if it is to be built west of the Rockies. An observer cannot help wondering about the strange nature of fashion in the arts, perhaps stranger today than at any other era in our history. The past teaches us that, in architecture at least, fashion is set by a monarch, an affluent family, a great statesman, or even a writer. Thomas Jefferson, we know, launched the Federal Style with his design for

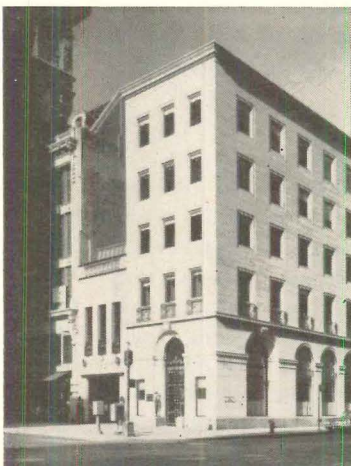
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DEMENTI STUDIO



the Virginia Capitol in Richmond and his injunction that the architect must "take some model already devised and approved by the general suffrage of the world . . ." and he himself chose one that "pleased universally for near 2000 years." Andrew Jackson Downing, as much as anyone, made the Greek Revival, Gothic Revival and Tuscan villas part of the American landscape in the 1840's. In the 1880's the Vanderbilt family, by commissioning Richard Morris Hunt to build private palaces on Fifth Avenue, proclaimed the American Renaissance. And, in our time, the Rockefeller family, which has proven to be America's first patron of the arts, has indulged a "pretty taste for paradox": On the one hand it has



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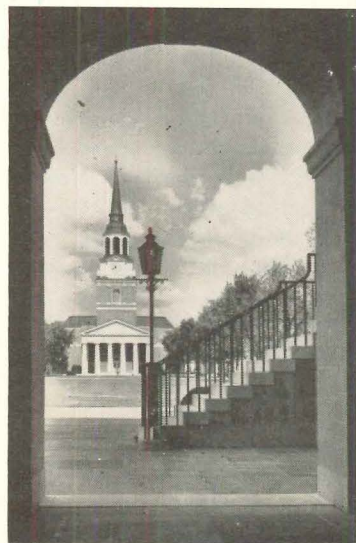
been the most generous supporter of the Museum of Modern Art, the institution which has fixed the world on the path of the Modern and, on the other, it has financed Colonial Williamsburg, Incorporated, the strongest influence for the traditional in America.

Yet strange as this dual patronage may be, there is sound reason for it. It originated in nothing less than a "his" and "hers" division: The late John D. Rockefeller, Jr., who incidentally disliked the Modern, rebuilt Williamsburg, and his first wife, Abby Aldrich Rockefeller, was the key founder of the Modern Museum. Their children have simply continued the dual allegiance.

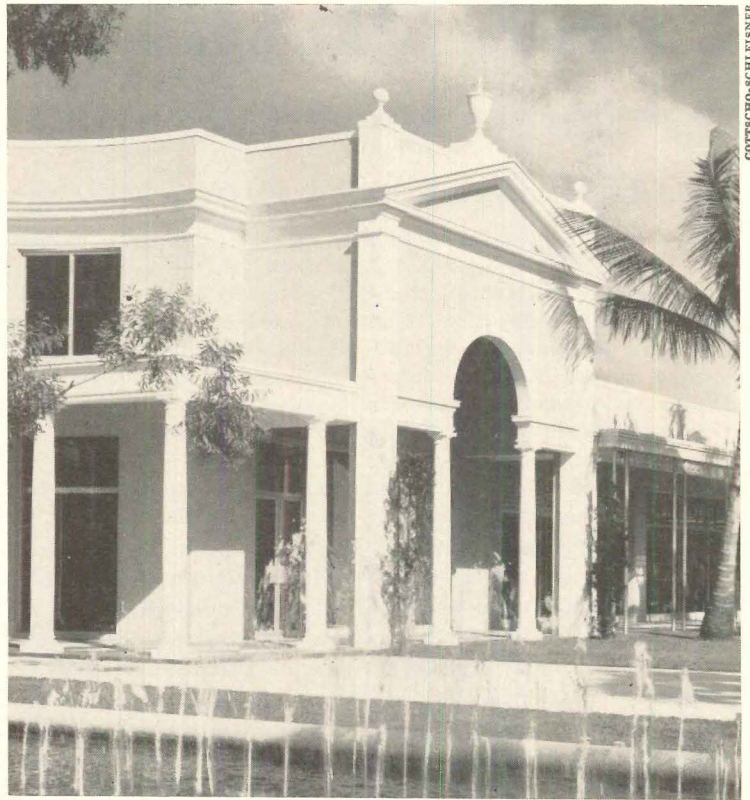
Yet the divided patronage, which at first appears so contradictory and irrational, has existed

of its own force for the past generation on a national scale. Domestic architecture, by and large, remains traditional for all the presence of the picture window and other recent devices, most of which enjoy but a transitory life. The shopping center, the office building, all the larger structures are Modern. Your business executive may work in a glass slab but he lives in a French Provincial house; he may spend a vacation in a Miami-Modern hotel but, on weekends, he passes his time in a Georgian country club. Both the house and the club can be as new as the slab and the hotel. No one is surprised, for it is part of contemporary America.

Richmond is remarkable for the fact that the "plague" flourishes there so diffusely, but it can be found elsewhere, to be sure, in a lesser degree. In New Orleans the Royal Orleans Hotel (8), built two years ago by Koch & Wilson, is a first-rate example of commercial-classical. Its inspiration comes from Benjamin Latrobe, to whose idiom it has added the cast iron balconies characteristic of its older neighbors. In New York there is the Fifth Avenue shop of the jeweler, Harry Winston (4). Charles Luckman, who as President of Lever Brothers initiated glass Park Avenue, was the architect in collaboration with the Frenchman, Jacques Regnault. The manner is French 18th century, whose over-refinement is compensated, in this instance, by the use of travertine. Eggers & Higgins are busily at



GRIGG STUDIO



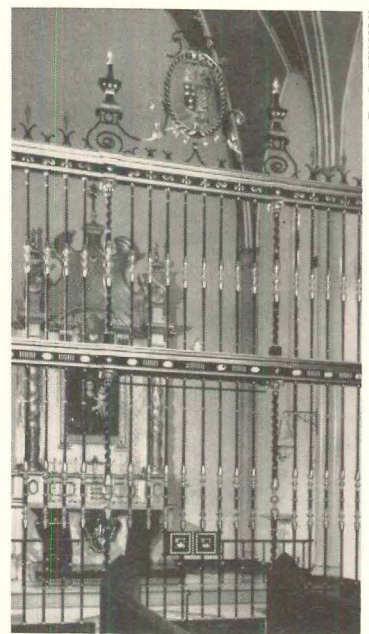
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work putting up two New York branches for the Franklin Bank of Long Island, which has selected brick Colonial to establish its identity. Palm Beach, possibly to assert its independence from Miami, has the Royal Poinciana Plaza (6) by John L. Volk with its theatre, restaurant and shops—a millionaire's Tivoli, a latter-day Brighton Pavilion which Addison Mizener would not despise.

Beyond the world of commerce, the traditional can lay part claim to the campus. Page Cross is, at this writing, putting the final touches to the Center of Hellenic Studies in Washington, an academic ensemble in the Colonial consisting of one main hall and separate residential pavilions. Of course, the biggest educational group in the traditional is the new \$25 million campus of Wake Forest College (5 and page 112), Winston-Salem, by Larson & Larson. Here the central element, a large quadrangle, might be said to follow the Palladian of Thomas Jefferson.

While the traditional in religious structures is to be expected, the extent of it is remarkable. The New York firm of Ferenz & Tay-

lor, whose practice consists chiefly of Modern hospitals, can point to some 50 classical churches done in the last ten years. One of the most elaborate examples of ecclesiastical work is an altar and reredos by W. Knight Sturges to be found in the Church of the Immaculate



7

Conception in Brownsville, Texas (7). With serpentine columns, broken entablatures, volutes and flaming urns, all gilt, the reredos

COTTRECH-SCHLESINGER

F. S. LINGOLN



is the best of the High Baroque lately designed by an American architect.

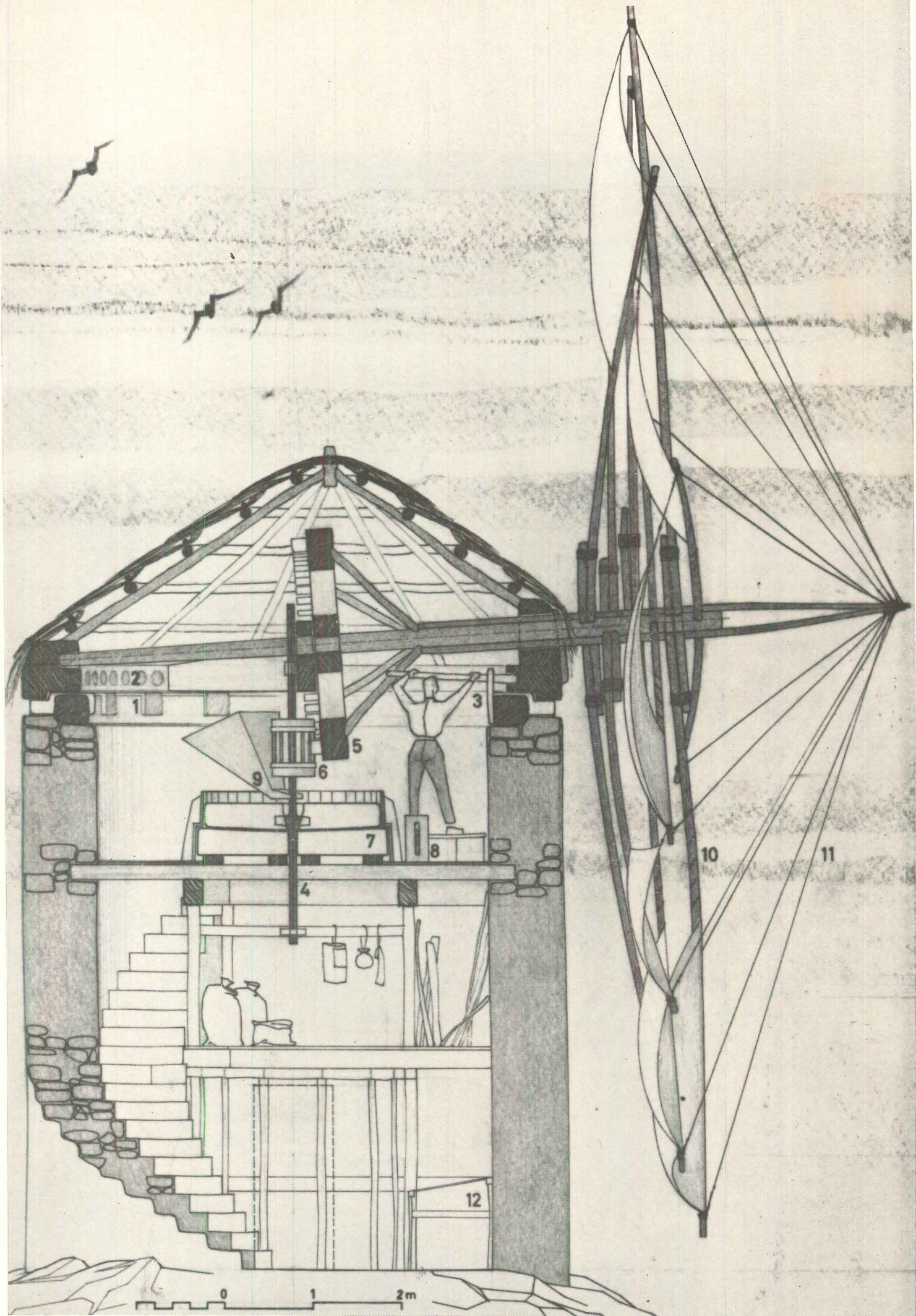
There is a tendency today to dismiss much of our contemporary traditional architecture as "High Howard Johnson" just as one would say of some Modern work that it is "Instant Corbu." Mockery on the part of the knowing in no way discourages the tradition-demanding client. Yet it is astonishing how this minor architectural current has gone unperceived and unacknowledged. For example, architectural schools refuse to admit its presence, although training in the traditional styles might help to ease the path of future members of the profession, including those who would prefer to do Modern. For that matter, there is not even a school for training men to do restoration of old landmarks, a branch of architectural practice which is bound to grow in the coming decades. James Scott Rawlings of Rawlings & Wilson has found it almost impossible to find draftsmen who can design the simplest kind of molding. As visiting architectural critic at the University of Virginia, he has asked the University authorities to provide such training, but the latter refuse to admit it to the curriculum because, say they, the students spurn it. "I advise students," says Rawlings, who himself inclines to the Modern, "to return to their home towns because they will avoid a gap of seven to ten years in establishing themselves. It is much easier to have your own office in your community where you are known. *But if you are going to practice in Virginia, you will have a difficult time in building up a practice when you only know Modern. As far as this state is concerned, you have to be equipped to do both.*" (Authors' italics.) And that applies to other states as well.

The Modern has been secure in its position for almost a generation now. It would seem to be only practical, not to say generous, to concede a small province to the traditional. For whether we like it or not, the "plague" will always be with us, at least in these United States. END 8

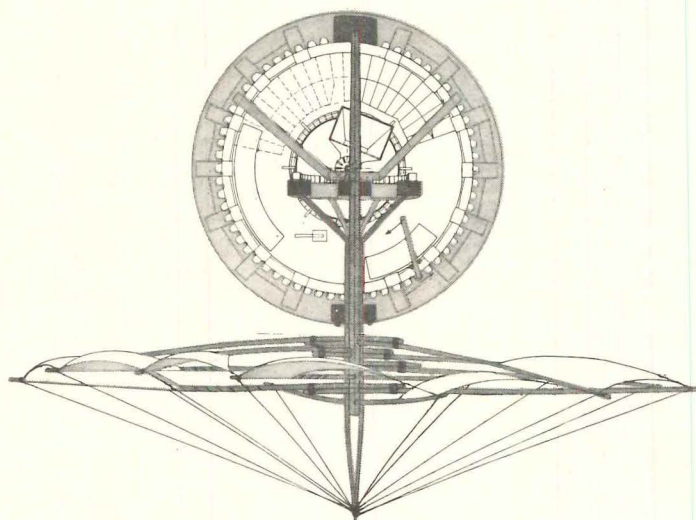
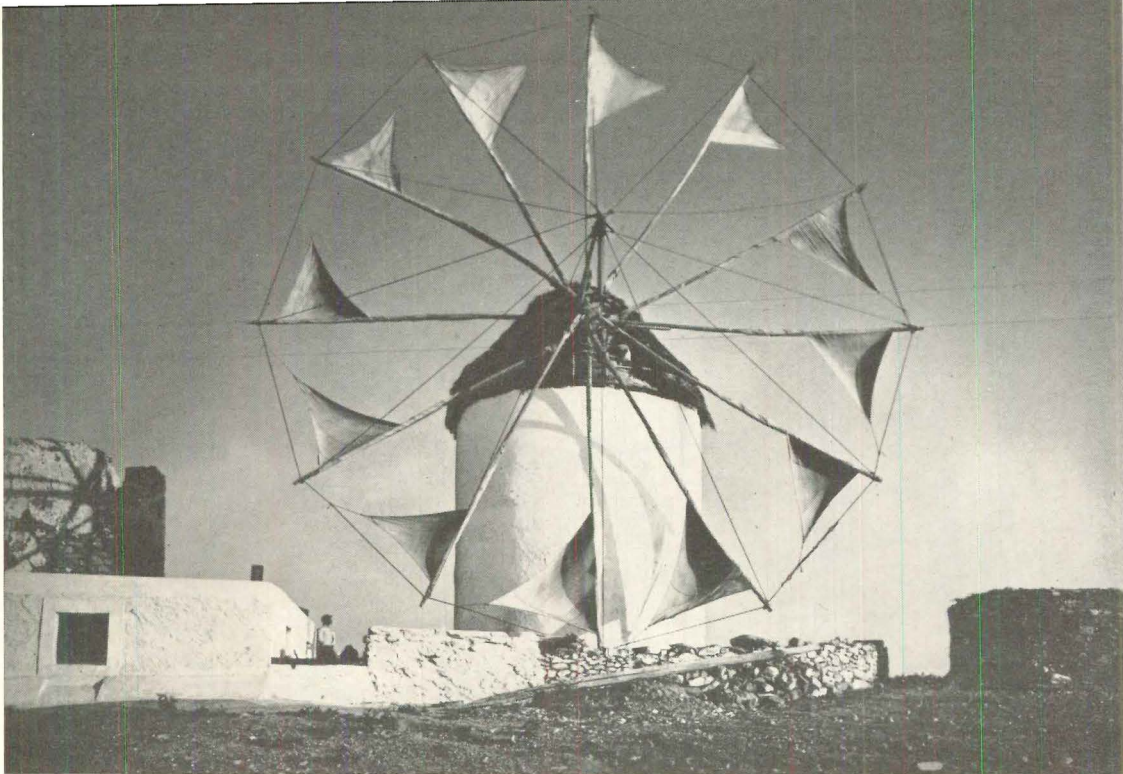


H. STAFFORD BRYANT, JR.









## WONDERFUL WINDMILL OF MYKONOS

High above the harbor of Mykonos, Le Corbusier's "dream island" in the blue Aegean (FORUM, Feb. '59), stands the last of a vanishing architectural breed: a graceful windmill of massive stone and light-rigged sails that Odysseus and his sailors may well have seen spinning atop the rocks 3,000 years ago.

Arnold Koerte, a more recent visitor to the island (on a German Industry Foundation grant), was so captivated by the structure that he recorded it faithfully in the drawings shown here. The windmill, explains Architect Koerte, is one of two still in use out of ten whose white towers make a shimmering castle out of the island's skyline. In contrast

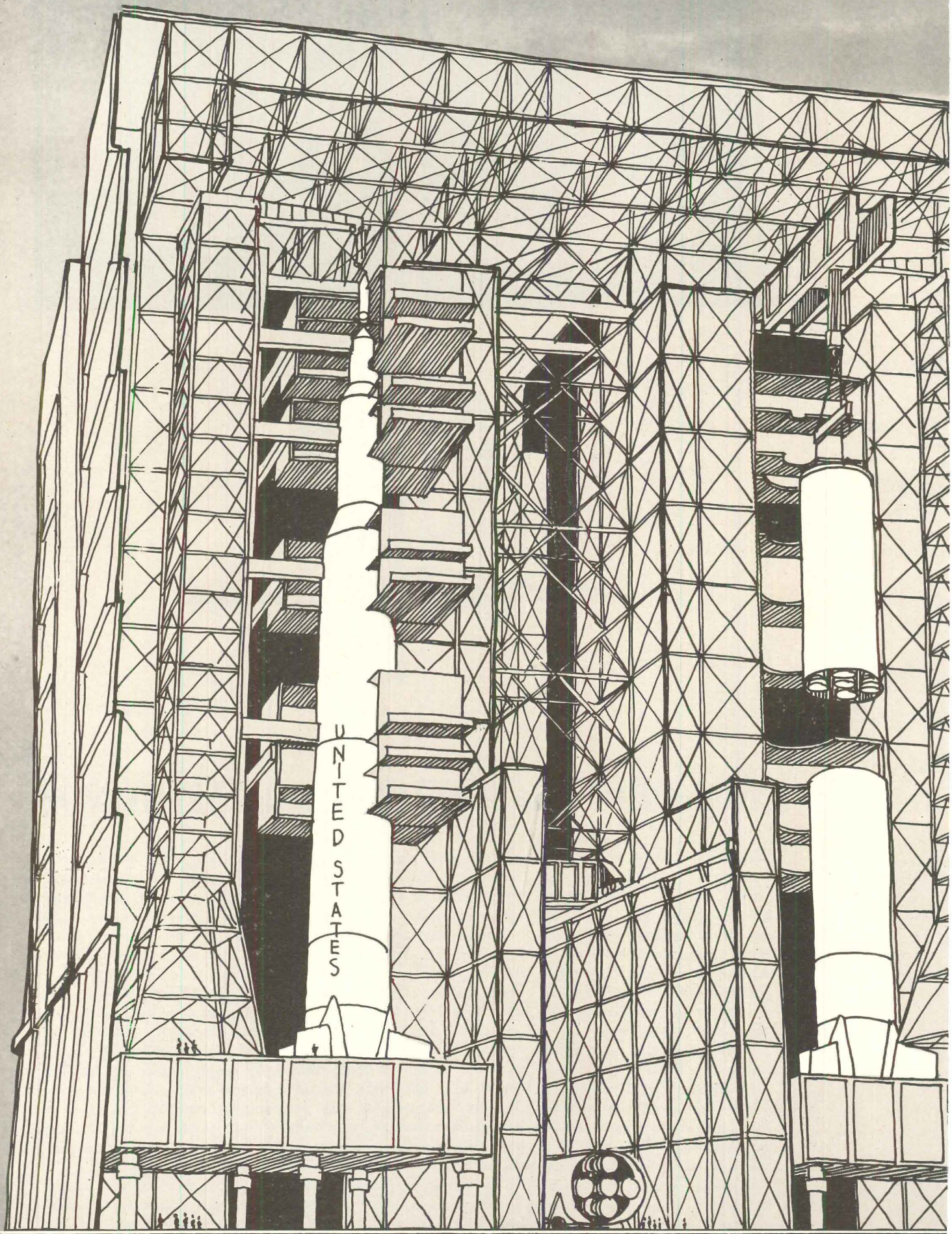
with its solid masonry base, the wind wheel has the light, bizarre elegance of one of Leonardo's flying machines.

Unlike the conventional Dutch windmill with its four big rigid wooden paddles, this one is a light space frame of 12 spars and sails held by tension stays (10 and 11 in drawings) around a central axle tree. The structure is elastic enough to take sudden gusts. In a full breeze, the sail tips only are unfurled, and the free-spinning spars add a strange, high singing sound to the groaning whispers of the machinery.

The milling mechanism, whose present parts are about 100 years old, is simple and straightforward: the big axle turns a gear

wheel (5), which drives a vertical cogwheel whose square shaft of wrought iron (4) is imbedded in the upper of the two millstones (7). A lever (8) controls the tolerance between millstones for fine or coarse flour. As it turns, the square shaft vibrates the grainholder (9) to give an even flow of grain. To rotate the sails into the wind, the miller (3) simply pushes a stout stick through a fulcrum in the lower bearing ring (1) into holes in the upper bearing ring (2), and levers the whole roof structure around 5 degrees at a time. Below the milling floor is a storage mezzanine, and a ground floor where the miller's wife shows her bright textiles in display cases (12).







## BUILDING FOR THE MOON LAUNCH —A STUDY IN SPEED AND SIZE

The vast, steel-trussed structure shown in the cutaway sketch at left is the central element in one of the most awesome construction jobs yet attempted by earthbound men. As tall as a 50-story skyscraper, the Vertical Assembly Building planned for the National Aeronautics and Space Administration's center at Cape Canaveral, Fla., will rise 524 feet to shelter the assembly of as many as four Saturn V rockets at once. The Saturn, a gigantic "vehicle" that will stand more than 30 stories high itself, is the rocket that will take men to the moon late in this decade, and, hopefully, bring them back.

When NASA's "Launch Complex 39" (site plan, right) is in operation, the huge booster stages of the vehicle will come by barge to a canal basin and be taken to the high-bay area of the VAB. Waiting there will be a "Launcher Umbilical Tower" on a movable platform 158 by 132 feet; the booster will be set upright on this platform by a 250-ton and a 175-ton bridge crane working together.

Upper stages and payloads will enter the low-bay area of the VAB to be checked out and then assembled on top of the boosters. Finally, a huge crawler tractor will pick up the platform (drawing, right) and slowly move the whole apparatus to the launch pad 3½ miles away. Actual launch operations will be run from a Launch Control Center building glimpsed next to the VAB; it will have four bays corresponding to the assembly building's bays, each with banks of computers, television apparatus, and galleries for VIP's.

The sheer size of the assembly building—covering eight acres and enclosing 125 million cubic feet—is staggering enough. Equally remarkable is its time schedule: the whole design, by the joint venture of Urbahn-Roberts-Seelye-Moran (URSAM),\* is being completed in the span of only 11 months.

The four URSAM firms had begun preliminary checks on NASA

projects and had indicated their interest to NASA in mid-1961. On September 4, 1962, they started work on the contract for the "Criteria Package" for the VAB, a preliminary study of the feasibility of an assembly building; less than seven weeks later it was submitted and accepted. Starting in late October, URSAM contracted to deliver complete designs for the VAB and its utility annex, the LCC, a 69-KV substation, separate gas storage and fuel buildings, and assorted auxiliary facilities—all by late September, 1963.

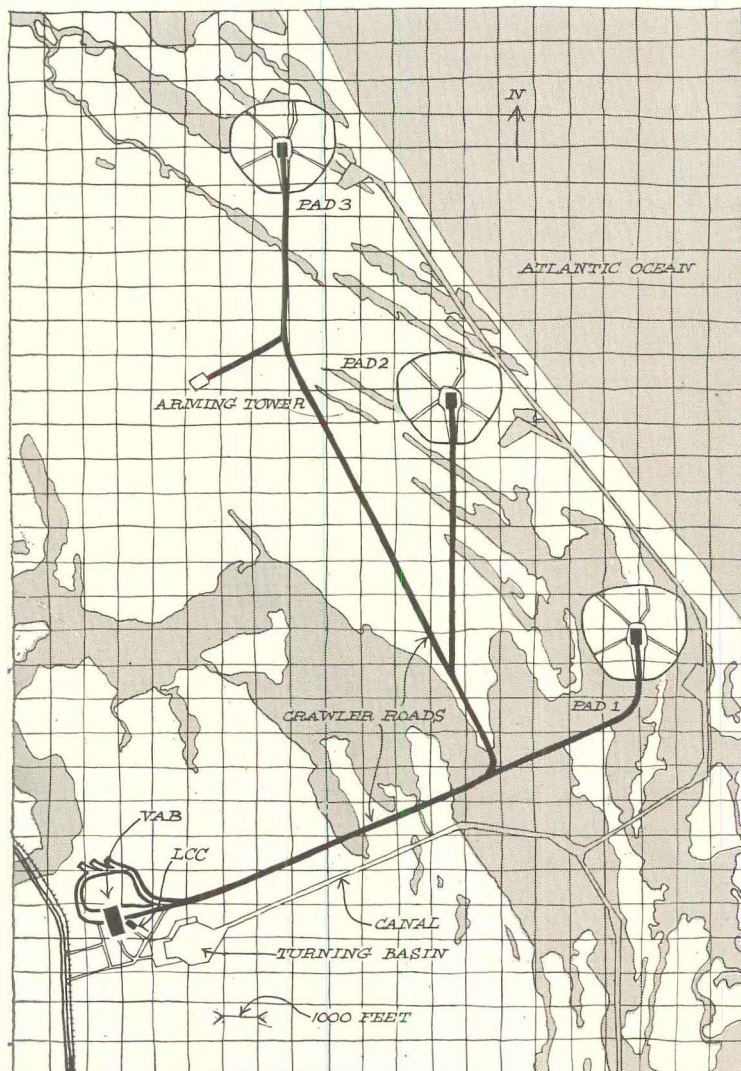
### Organizing for speed

The URSAM firms put a total of 100 men from their own staffs on the project, and hired some 100 more especially for it. This large group is organized horizontally, with a chief for each discipline (architecture and the various engineering areas), and subdivisions for each building unit. Thus the chief of structural engineering, for instance, can switch men to the building needing them most. With this flexible system, URSAM has met every one of NASA's tight deadlines so far.

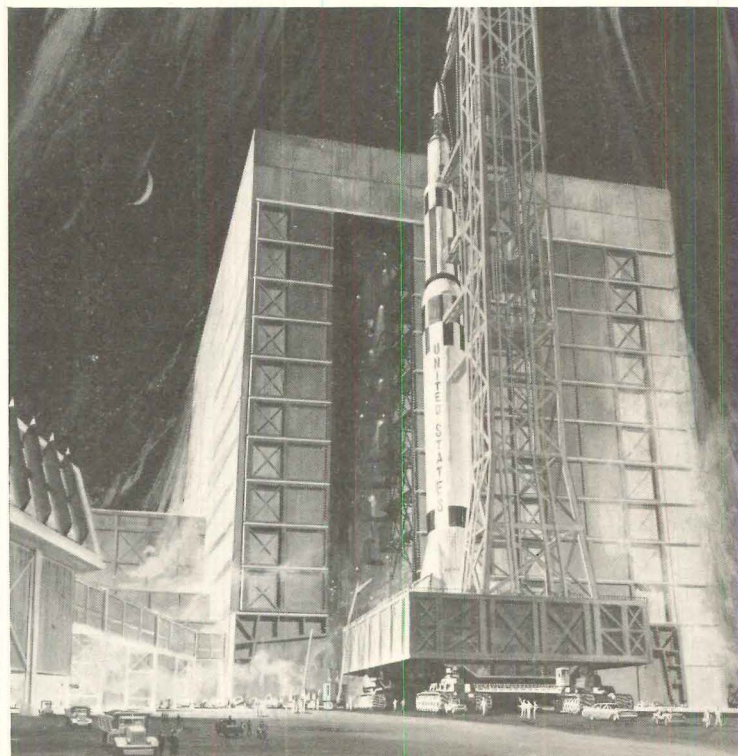
Three key factors have dominated the Complex 39 operation: speed, because NASA's deadlines are urgent, and fixed; flexibility, because nothing like the assembly building has been done before and requirements change constantly as Saturn research progresses; ingenuity, because the size of the VAB means new problems. Thus, although tight deadlines have precluded any major innovations in construction, considerable research has been required to arrive at solutions for the main building's unprecedented scale.

After careful study of the com-

\*Managing Partner: Max Urbahn of The Office of Max O. Urbahn, Architects. Other principals: Anton Tedesco of Roberts and Schaefer Co., Inc. (structural); A. Wilson Knecht of Seelye, Stevenson, Value & Knecht, Inc. (civil, mechanical and electrical); and Phillip C. Rutledge of Moran, Proctor, Mueser & Rutledge (foundations). Project Manager: Col. William D. Alexander (USAF, Ret.). The Cape Canaveral District of the U.S. Army Corps of Engineers is NASA's building agent; Col. George A. Finley is contracting officer.



Map of "Complex 39" assembly area and launch pads near Cape Canaveral. Assembled Saturn and tower move out atop platform and crawler tractor





ponents it encloses, the designers settled on a 38-foot module for the VAB. More than 50,000 tons of structural steel will be needed; the heaviest members, weighing 734 pounds per linear foot, are larger than any steel sections ever rolled before. Even these were not massive enough to carry the loads, and will be made into box sections with cover plates 3 inches thick. These structural members will resist the 125 mph. hurricane winds expected in the area, and the skin will resist the acoustical pressures of up to 145 decibels created by the launchings.

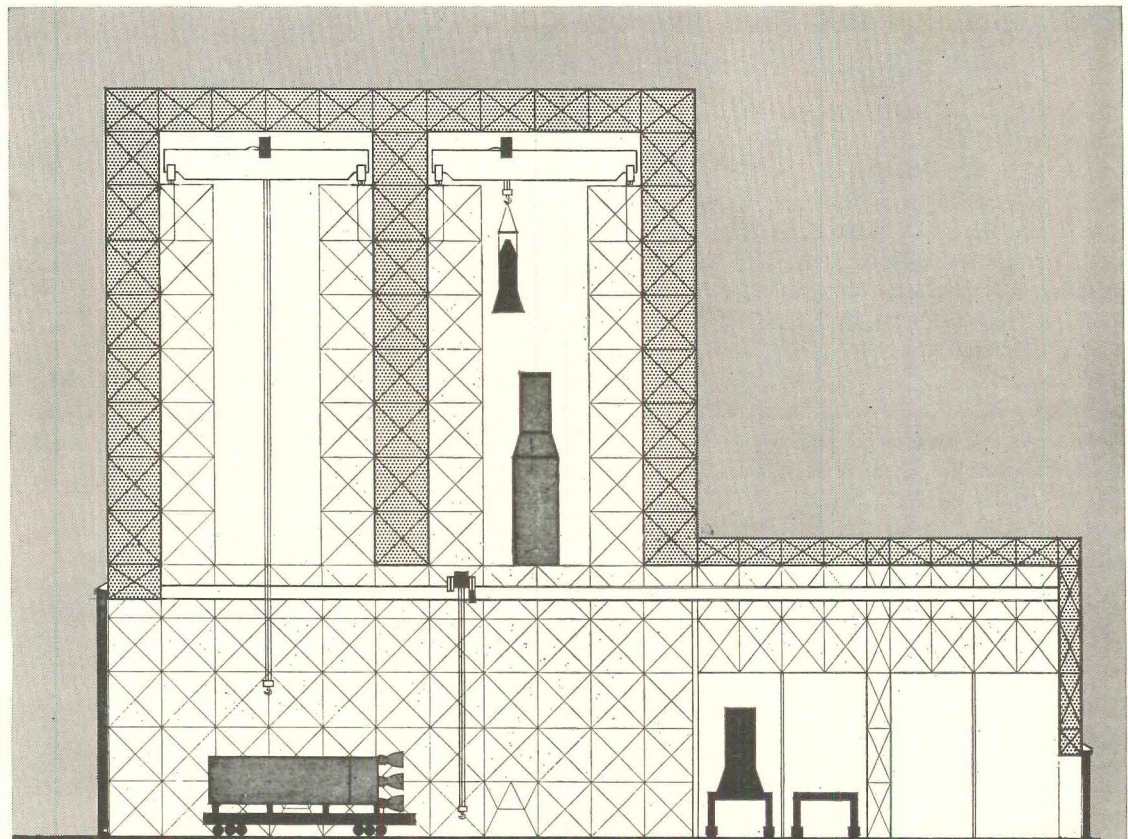
The assembly building is, in effect, a huge box with relatively little inside. This posed the interesting possibility that, despite its fantastic size, it might blow away! To prevent this, the designers added a heavy concrete roof and concrete floors where possible and, more significantly, provided pile foundations that can withstand uplift loads.

In the low-bay area of the VAB are four bays, each with facilities for checking out the smaller components of the Saturn, which are handled here by 175-ton cranes.

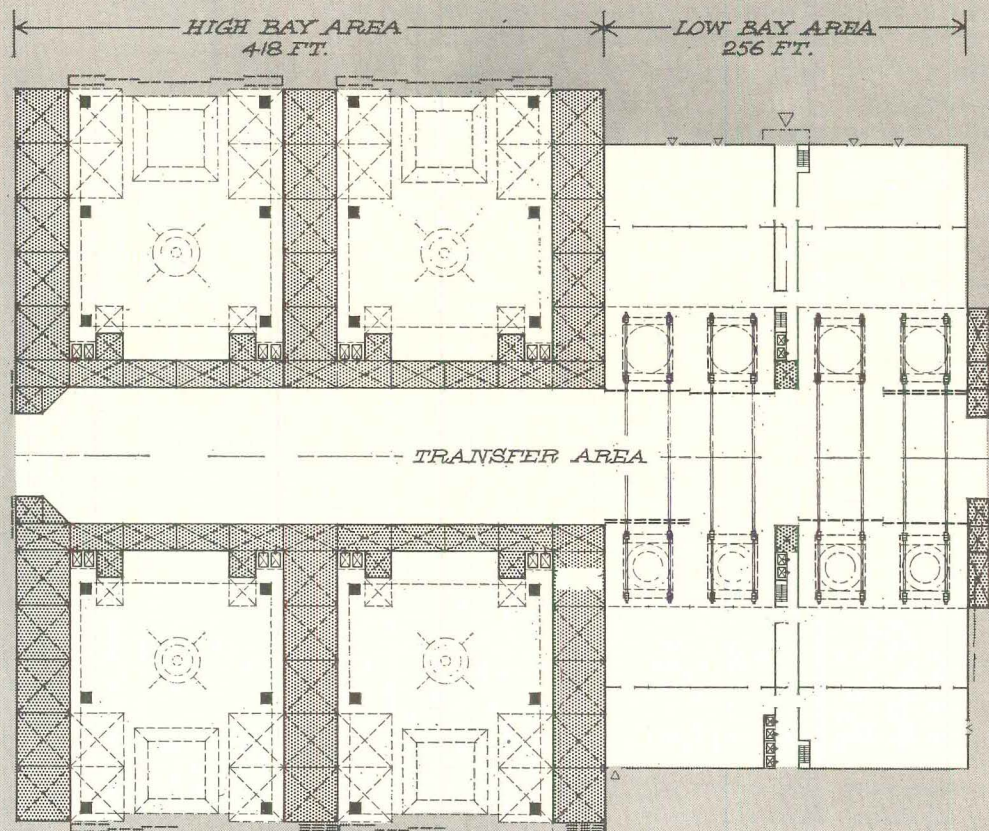
#### Movable work spaces

In the high-bay area, the designers were faced with the problems not only of getting at a vehicle several hundred feet high, but also of providing work spaces which could be air conditioned and sealed against dust which might damage the delicate instruments in the payload components. They devised spaces which are created by sliding half of a compartment out from each side on a telescoping structure until they meet, enclosing the vehicle (see sketch, page 118). Only  $3/16$  of an inch tolerance is allowed so the gasketed air seal will be perfect. The compartments move vertically and horizontally, and each carries its electrical, air conditioning, and plumbing connections with it. There are five such units in each bay, from 10 to 30 feet high; some have more than one level inside.

Because the vehicle is sealed tightly into these compartments, the deflection limits of the entire



LONGITUDINAL SECTION OF VERTICAL ASSEMBLY BUILDING



FLOOR PLAN



building depend on how much the vehicle can "bend"; the limit at the top platform: 6 inches.

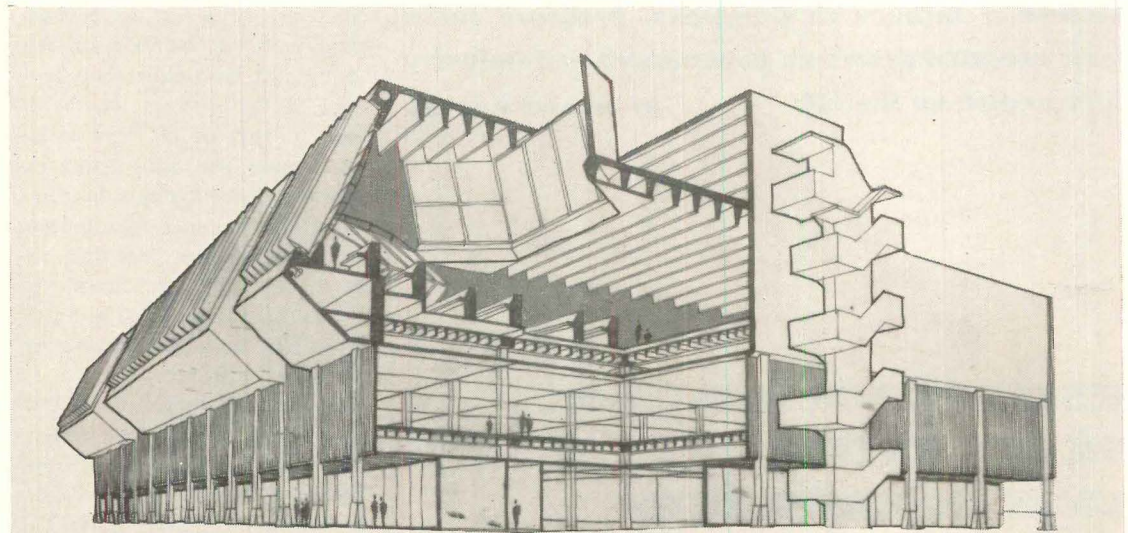
Once each 360-foot Saturn has been assembled atop its 46-foot-high platform, it is moved out of the building through enormous doors. These consist of side-sliding hangar doors 114 feet high, opening to 156 feet wide; above, upper doors are constructed in seven sections, each 76 feet wide and weighing 25 tons, which slide up one inside the next toward the roof. Total door height: 456 feet.

### Complex command post

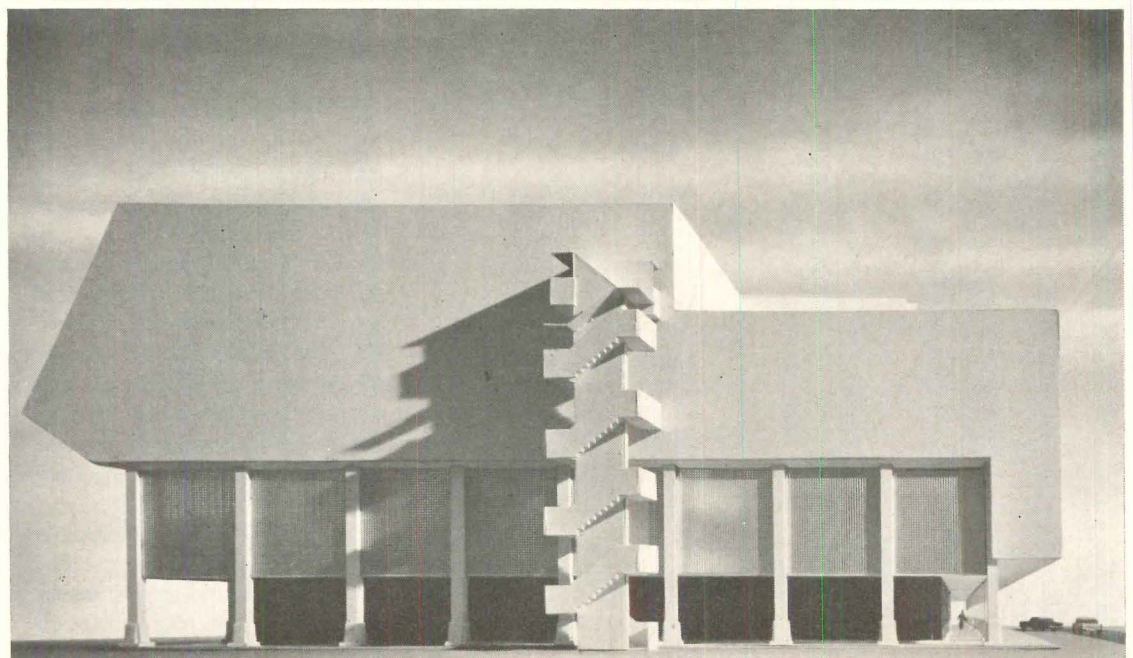
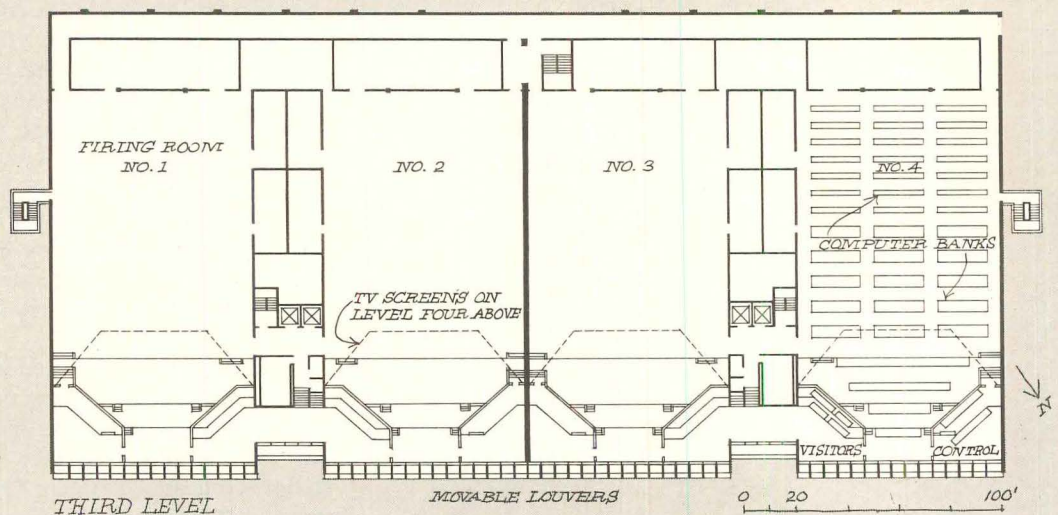
The Launch Control Center (drawings and model photo, right) serves as the command post for the assembly checkout process as well as the actual launch. In each of its bays, computers and instruments are hooked up to a corresponding vehicle in the VAB as the complex testing is completed.

Finally, the Saturn moves on its crawler to the launch pad, meeting the huge arming tower on its way (the total load weighs so much that the roadway must be re-graded after every passage). In the LCC, direct vision of the launch is provided for visitors and a few key officials through the upward-slanting windows. These windows, laminated of nine layers of glass and plastic, are sized to minimize vibration from the rockets' pressure waves, and are protected from hurricanes by 5 by 28-foot movable louvers that also shield observers from glare. Behind the observers are banks of computers which direct and follow the vehicle on its mission; above the computers and their operators are TV screens projecting faraway and closeup views of the launching process.

In mid-July, contracts were let for the steel and foundations for the VAB, even though the building designs are not yet complete; by January, all contracts for the main building complex, totaling about \$100 million, will be out. Sometime in 1966 URSAM's team, having conquered its problems of space, will turn Complex 39 over to NASA to get on with the bigger job. END



PERSPECTIVE SECTION OF LAUNCH CONTROL CENTER



LOUIS CHECKMAN



**Despite a setback in Congress, pressure for a basic program grows as government and industry fight to pick up the tab**

BY BERNARD P. SPRING

## RESEARCH FOR BUILDING: THE BIG BATTLE RAGES IN WASHINGTON

Not many people in the \$80 billion-a-year U.S. building industry realize just how close they have come in the past six months to being jolted out of their accustomed ways. For, until it was unexpectedly struck down in committee this summer, the federal government's new building research program threatened to change the way we build as much as anything since the introduction of steel or concrete.

The current struggle over building research started last winter, when the Commerce Department introduced its \$7.4 million Civilian Industrial Technology (CIT) program to boost research in building and in textiles.

The building segment fell in a crossfire from industry, labor, and economy-minded legislators. But the battle is not yet over. The pressure for more basic research is now so strong it seems certain that an increasing amount of money will be spent to create a solid scientific underpinning for building in the coming years. The only questions are just how big is building's research gap, and should government or industry be responsible for filling it?

The opposing views are summed up in the thinking of the two leading figures in the recent, and still smoldering, encounter: J. Herbert Hollomon, Assistant Secretary of Commerce for Science and Technology, and Douglas Whitlock, a prominent Washington lawyer.

### Getting economy rolling

Hollomon, 44, is an energetic and impatient New Frontiersman who trained as a metallurgist at M.I.T. and spent 15 years with General Electric building a reputation as a top-flight scientist and research administrator. In May, 1962, he moved into his newly created post at Commerce, and with it, assumed a key role in implementing Kennedy's promise to "get the economy rolling again."

The President had indicated one of building's problems: "The defense, space, and atomic energy activities of the country absorb about two-thirds of the trained

people available for exploring our scientific and technical frontiers . . . we have paid a price by sharply limiting the scarce scientific and engineering resources available to the civilian sectors of the economy. . . . Since rising productivity is a major source of economic growth, and research and development are essential sources of productivity growth, I believe the federal government must now redress the balance in the use of scientific skills."

Hollomon's task was to find the civilian industries that could raise their level of productivity, and to design a research program to aid them. The first two industries to be singled out for help were textiles (which has been hurt by foreign competition) and the building industry.

Like most experienced scientists who take a close look at how we build, Hollomon was appalled by the way construction lagged behind such growth industries as electronics and air transport in its use of sophisticated technology.

By late 1962, Hollomon was ready to go before Congress with the broad outlines of the new



HOLLOMON

CIT program and ask for money to get the program rolling. He had decided to spend the money in two ways:

1) for a university-industry technical extension service (on the pattern of the well-established Agricultural Extension Service) that would cut down the time between the development of technical knowledge and its use by individual firms around the nation;

2) for contracts and grants to schools or other research institutions to develop fundamental knowledge that industry was not getting through its own research



efforts; to document and disseminate technical information and, in the process, to train the body of technologists that has not been available to civilian industry.

In these broad outlines, the program seemed hardly controversial. For years, building people had been saying that fragmented responsibility in the industry made it economically impossible for any



WHITLOCK

single company to support desperately needed research on the nature of the total building process. Who but the government could support such an effort to benefit all segments of the industry?

When Congress finally voted an initial \$625,000 to get his program going, Hollomon and most other observers assumed there was strong support for CIT. But the forces that opposed a new government effort in building research had been quietly keeping their counsel. Then, at the critical point when the full, \$7.4 million program came before the House Subcommittee on Appropriations, they suddenly tipped the scales. The man most responsible, both sides agree, was Douglas Whitlock.

#### Formidable objections

Whitlock, 59, an affable Washington attorney who knows his way around Capitol Hill, has been a spokesman for conservative elements in the building industry for a good many years. He serves as Chairman of the Board of the Structural Clay Products Institute and is active in the Construction and Community Development Department of the U.S. Chamber of Commerce.

Whitlock came to Congress with a formidable list of objections. He also had enough backing from in-

dustry organizations (including, at first, the American Institute of Architects, which later changed its stand) to push Hollomon into modifying as well as clarifying his original program.

First, argued Whitlock, there was no actual proof that building was a lagging industry. In fact, he could point to an impressive record of construction in the last decade, and to substantial growth almost every year since the end of World War II.

Hollomon countered that the backwardness of building could best be measured by comparing it with other industries which had made enormous gains in productivity by investing in technical research. In these industries, most innovation is based on clearly stated, scientifically sound performance standards which are not available in building. Although building has many of its own standard specifications and tests, few of them are based on more than an accumulation of experience with older buildings and do not provide adequate measures for new approaches to a building problem.

Hollomon, however, was soon thrown on the defensive by questions of procedure rather than sub-



BOW

stance. If his research was to be for the benefit of industry, asked Whitlock, why hadn't he consulted the 130-odd trade and professional associations concerned with building? The issue was further complicated by the fact that two significant industry groups considering the need for more building research had just prepared their own reports. The first was a special advisory committee of the Building Research Advisory

Board (BRAB), part of the National Academy of Sciences-National Research Council. This group proposed a new National Institute of Building Research under the auspices of the National Bureau of Standards (see *News*, Oct. '62).

Another was the group brought together by the President's Office of Science and Technology to consider the state of technology in housing. It, too, came out for a strong program of research and education.

Hollomon cited both reports at the Congressional hearing as the "technical framework" for his own program. This strategy led to



ROONEY

more confusion than perhaps anything else. For while both groups backed the same kind of research that Hollomon wanted, they differed with him on some important details of administration. Thus, until his program was revamped later on, Hollomon was not sure of the support of the industry leaders on these two advisory groups.

Whitlock's forces now had the full backing of Rep. Frank T. Bow of Ohio, the senior Republican member of the House subcommittee that was considering the appropriation. Bow went to the floor of the House with a thundering speech opposing the program as "the most ill-conceived, amateurish, and dangerous legislative proposal that I have seen in many years."

To patch up the wide breach that was forming in the support he thought he had, Hollomon went back to BRAB, a non-governmental group charged with advising government agencies on science and technology. He asked Robert Dillon, BRAB's director, to put together a statement of his

program that would have industry-wide support. BRAB's "suggested restatement" of the CIT program (which now was able to win the approval of the AIA and other key leaders) was a four-point program that cleared up questions of scope and administration that had engendered much early opposition.

First, it was clearly stated that "... support would not be provided for process and product development of a proprietary nature regardless of the nature of the organization involved, nor for the solution of problems pertinent to only a small, limited-interest segment of the industry being served." And although it stood by its earlier recommendation for a separate National Institute of Building Research, BRAB would accept the program actually before Congress to avoid delay in getting some research going. But this was on the condition that the new Office of Civilian Technology would have "non-political status" like the Bureau of Standards.

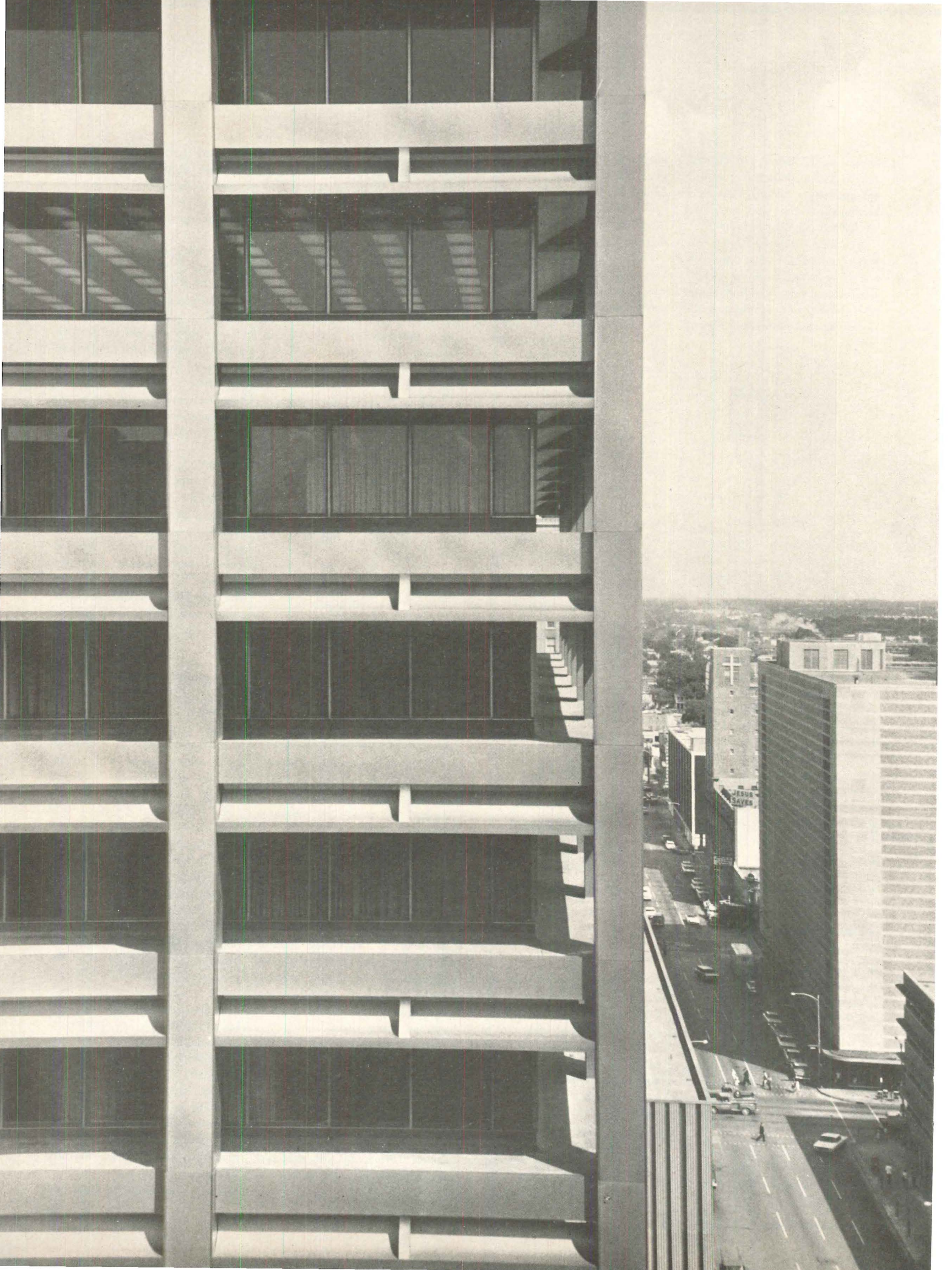
#### Four-point program

The broad program objectives for which BRAB now felt it had industry support were these:

- 1) Development of a continuing *census* of public and private building research and technical activity in the nation.
- 2) Collection, collation, and dissemination of non-proprietary building *information* and data covering development, design, construction operation, maintenance, and performance.
- 3) Development of physical *performance criteria*, and measurement and testing methods, for building materials, components, structures, and structure environment.
- 4) Development of fundamental knowledge on: a) environmental requirements of people in relation to buildings—e.g., temperature, humidity, space, light, sound, color, etc.; b) building design and behavior in relation to man and the forces of nature; c) processes of building design, construction, operation, maintenance, and retirement.

*continued on page 142*







## IN TEXAS THE GLASS BOX GOES 3-D

For Architects Skidmore, Owings & Merrill, the American southwest has long been a proving ground for their favorite solution to sun control: a structural cage behind which glass walls are recessed so the overhanging floor slabs become sunshades—and provide continuous galleries for window washers (opposite).

The 33-story Tennessee Building, headquarters for the Tennessee Gas Transmission Co. in Houston, is the latest prototype to reach SOM's southwest "proving ground." But sun control, although it is the dominant characteristic of the Tennessee Building, is by no means its only significant aspect.

Here are some others: the building's exterior structure is sheathed by more than 2 million pounds of aluminum anodized to a grayish amber hue which changes color as light conditions vary; the suspended, two-story banking floor is kept several feet back from the perimeter columns—which produced all the impact of a monumental, 50-foot-high entrance "portico" (right) without sacrifice of much usable space; and a new type of core layout, with elevator banks dispersed in a pinwheel arrangement, resulted in a significant reduction of circulation space.

Still, the most striking aspect of the Tennessee Building is the way sun control devices have been used to enrich and deepen the façades. To increase the shading effectiveness of the overhanging floor slabs, "visors" have been suspended beneath them on all four sides (the building orientation follows the city's grid street pattern, which is not quite north and south, so all four walls are subjected to direct sunlight). These "visors," which resemble the slats in a huge Venetian blind, are dipper-shaped in section (left) with the top portions set well back under the slab edges to produce deep shadow lines.

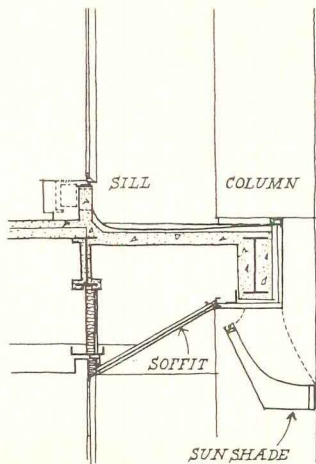
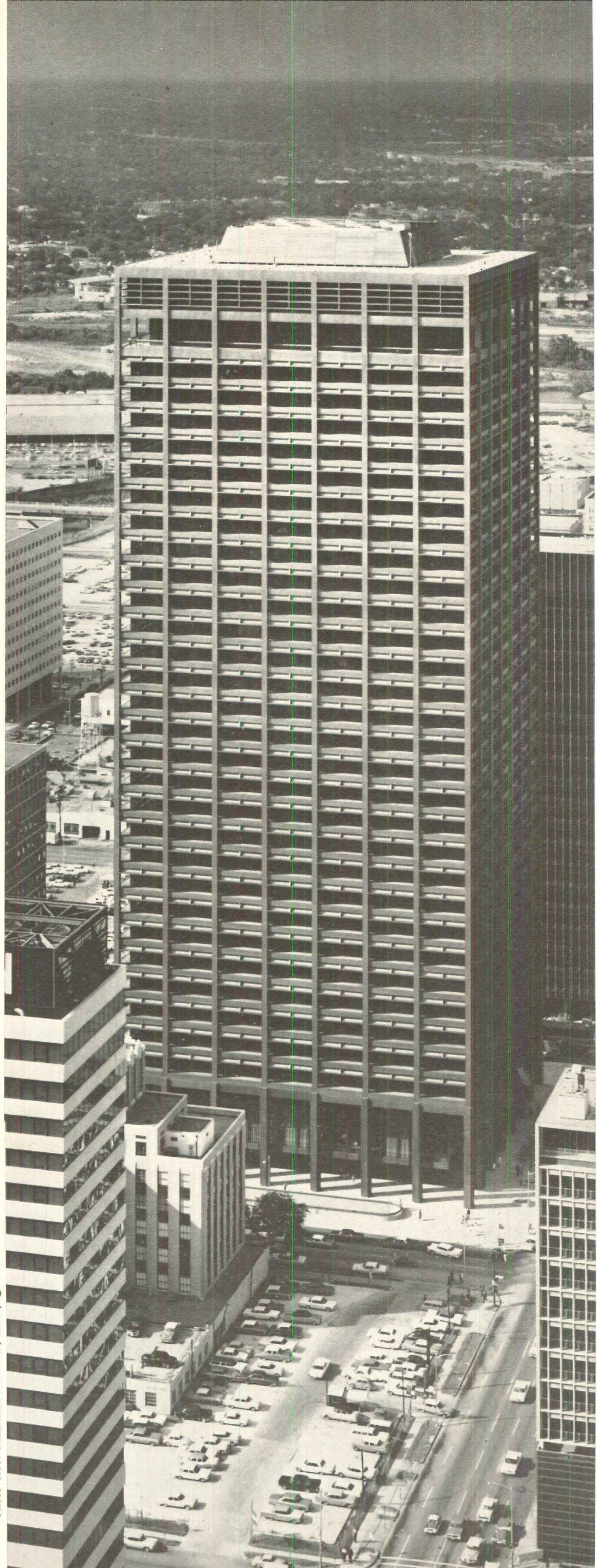


PHOTO OPP.: MARSHALL BURCHARD; RIGHT, © EZRA STOLLER ASSOC'S.







PHOTOS: © EZRA STOLLER ASSOC'S.

Supported at both ends, the visors are also held in place by center brackets which, under the right conditions, are picked out by the sun like the beam ends of a classic Japanese house.

At a distance, the building is a dark, powerful mass in the midst of Houston's rapidly growing skyline. It is the town's newest, second-tallest (only the Humble Oil tower, at 44 stories, is higher), and unquestionably handsomest office building.

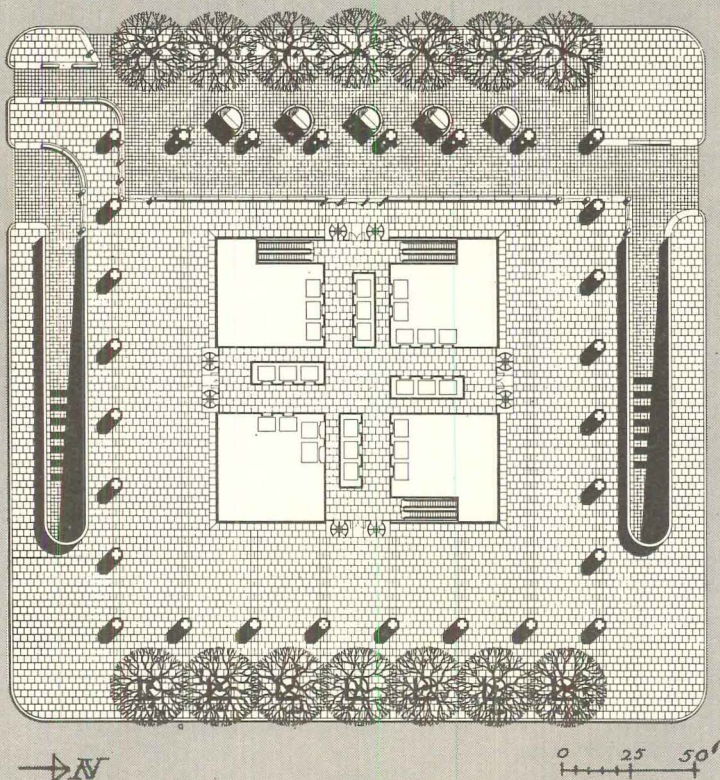
Painstaking color-control was necessary during manufacture to keep the sections of anodized aluminum within a very small range of difference. Even at that, to achieve color-harmony (if not absolute uniformity) the fabricators charted all façades, numbering every piece of aluminum and assigning it to a specific location. Despite such custom handling, the cost of the wall (without glazing) was a very moderate \$6.60 per square foot.

**PLAZA AT THE BASE**

The Tennessee Building follows the classic skyscraper division into base, shaft, and penthouse cap (here accentuated by a promenade on the 31st floor). The shaft is set back from the property line 25 feet all around, opening up an arcaded plaza which aids circulation while making this massive building seem much less massive from up close.

On three of its four sides, the plaza is largely taken over by vehicles (plan, left): north and south are ramps that service a one-way underground truck delivery system; to the west are five freestanding kiosks for drive-in banking (photo, above left). Tellers reach the drive-in stations by way of circular stairs which rise from vault areas in the basement beneath the plaza.

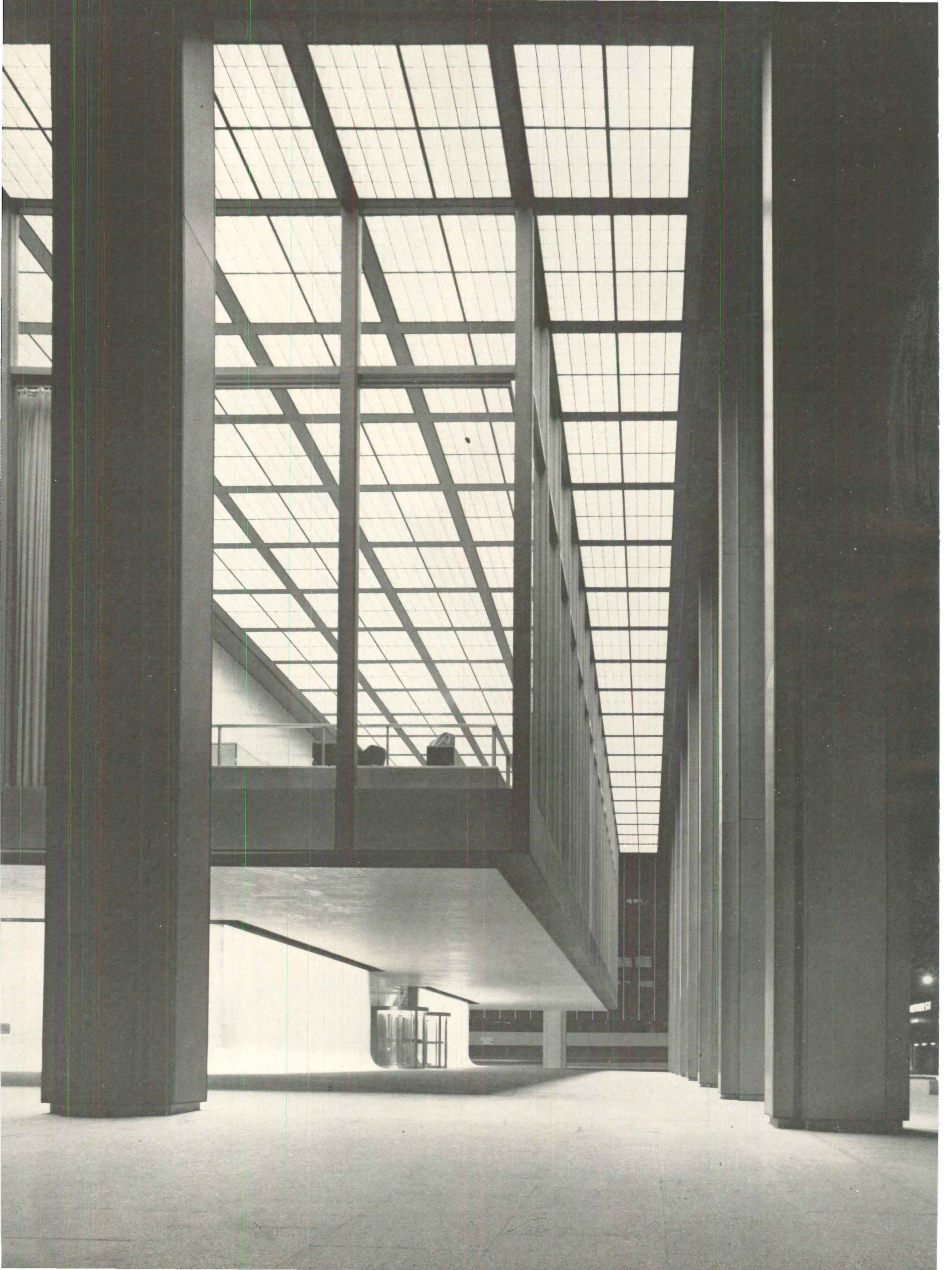
A beautiful native pink granite paves the plaza, curving up to sheathe the walls of the recessed lobby core (it also covers the drive-in banking kiosks). Suspended out over the core is a monumental two-story banking floor (opposite), with soffits of mosaic tile, which stops 13 feet short of the perimeter columns to create













an arcade 50 feet high on all four sides of the building.

Despite the warmth of the various materials, the pinkish stone, the mosaic tile, and the amber cladding, the plaza remains somewhat hard and austere, a lofty, monumental place, without benches or fountains, through which people pass but do not linger.

**GRAND ROOM FOR BANKING**

The great glass hall (opposite) was designed for a bank in which two Tennessee Gas subsidiaries own a substantial minority interest. Its floor is hung by means of structural mullions attached to the third floor. The luminous ceiling was extended through the glass walls to increase the openness of the space and to emphasize the great height of the base.

Bank officers' "platforms" are laid out in two rows along the glass on opposite sides of the core (plan, right). Floors are of gray-green granite. The walls of the elevator core facing the banking space are paneled in wood and have vertical air-conditioning slots forming a handsome frieze (photo, below right).

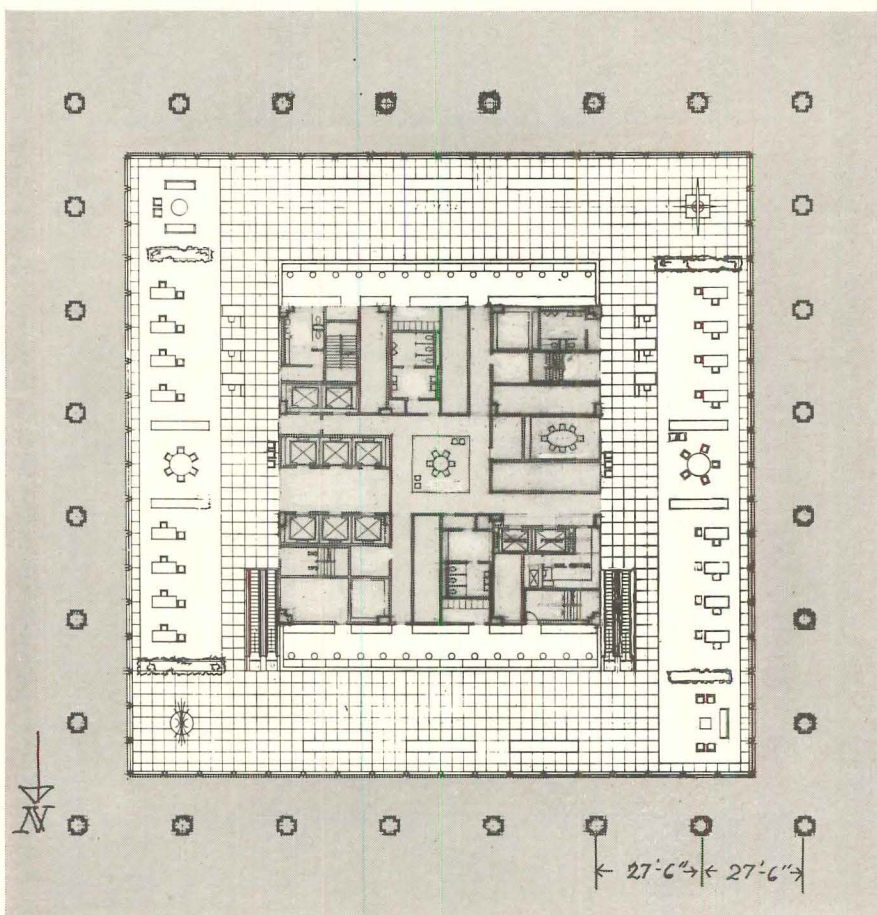
Tennessee Gas had purchased the centrally located site in 1956 and had long intended to develop it. When, by 1960, the company was plainly outgrowing its existing quarters, it decided to construct an office building on the site and retained Skidmore, Owings & Merrill "because of their general reputation." Tennessee Gas presently takes about 60 per cent of the building, leasing the remainder at rents of \$6.60 to \$7 per square foot, the highest in town. By 1978, however, the company estimates it may need to occupy the entire building.

The requirements of Tennessee Gas were for small amounts of open pool area and a very great number of private offices, provided for by a 5-foot 6-inch module which produced minimum offices 11 feet square.

In all but the 30th floor, where the top corporate officers are located, complete flexibility was essential. To achieve this, all floors are free of interior columns, clear-spanning 55 feet between

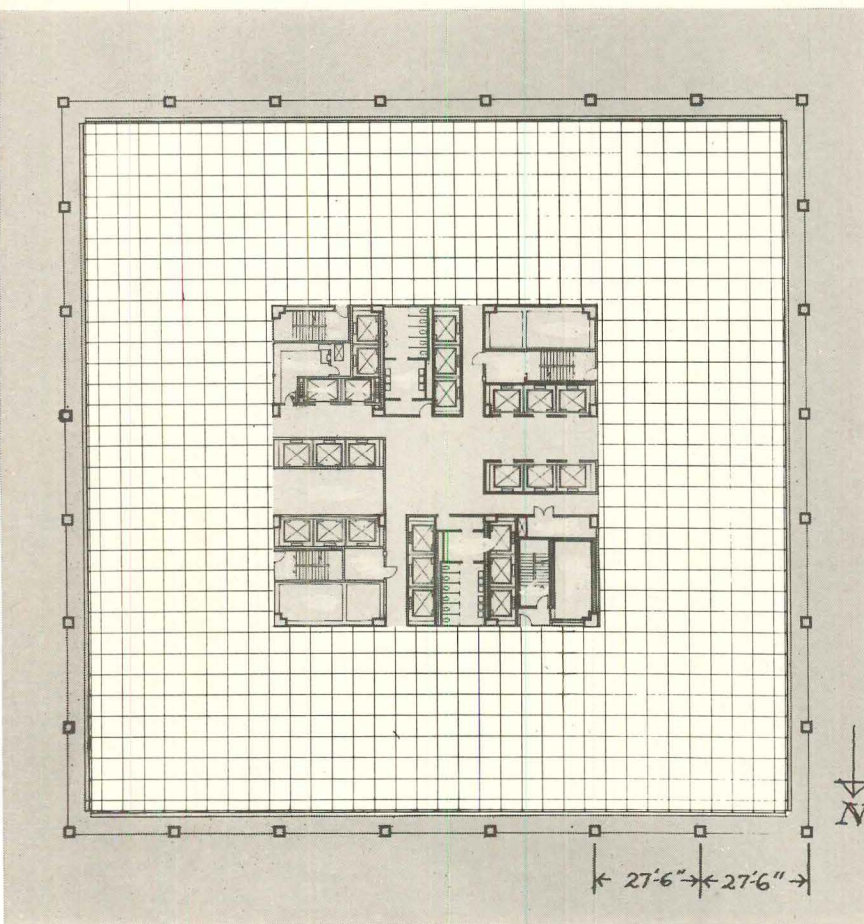


PHOTOS OPP. & RIGHT: © EZRA STOLLER ASSOC.'S.



MILSTEAD-DIXON





the exterior columns and the central core. In addition, special attention was given to lighting. Each 5-foot 6-inch module square contains one light fixture (photo, left), equipped with its own slots for supply and return air, so that movable partitions can be shifted in infinite ways without need for rearranging air-conditioning outlets. To eliminate wasteful perimeter corridors wherever possible, elevator banks were grouped in pinwheel fashion in a hollow core which gives access to the perimeter in four directions instead of the conventional two. Thus, circulation space is largely—and very compactly—confined to the core.

**EXECUTIVE OFFICES**

Flexibility was not a requirement for the executive floor. Ceilings, therefore, are of plaster with special square lighting fixtures recessed into them. Not only are the offices on this floor less flexible, they are also considerably larger (though no loftier: ceiling height is a standard 9 feet throughout the building). In the four corner suites, for example, the executive office measures 22 feet by 27 feet 6 inches (photo, below left). The main waiting room for this floor (opposite) is located inside the core, has marble floors and sheets of dark, gray-tinted glass screening the reception area from the elevator lobby.

**FACTS AND FIGURES**

Home office building, Tennessee Gas Transmission Co., 1010 Milam Street, Houston, Texas.

Architects & Engineers: Skidmore, Owings & Merrill, San Francisco, Calif. Consulting engineers: Bolt, Beranek & Newman (acoustics), Edison Price (lighting), Engineers Testing Laboratory, Inc. (foundation & materials), Bramlett McClelland, Inc. (foundation design), Thomas E. Willier (traffic). General contractor: W.S. Bellows Construction Corp.

Structure: fireproofed welded steel frame on 8 foot thick concrete mat, cellular steel floors, gray solar glass set 5 feet back from exterior columns.

Gross building area: 1.2 million square feet. Construction cost: approximately \$25 million (under \$30 per square foot). Long term financing through Metropolitan Life Insurance Co. **END**

PHOTOS: © EZRA STOLLER ASSOC'S.









**SKYSCRAPERS GO HOME!**

Pictures like those shown here should give pause to the many builders and architects who would like to have skyscrapers in Washington. They show how chaotic are the sides of streets even with the level cornice line which results from the present height limitation.

Few indeed are the new downtown buildings, whether office buildings or hotels, or whatever, which are designed all around as a single object. Most are designed as if Sullivan and Frank Lloyd Wright had never lived to proclaim the organic doctrine. They are façades only, and reflect a

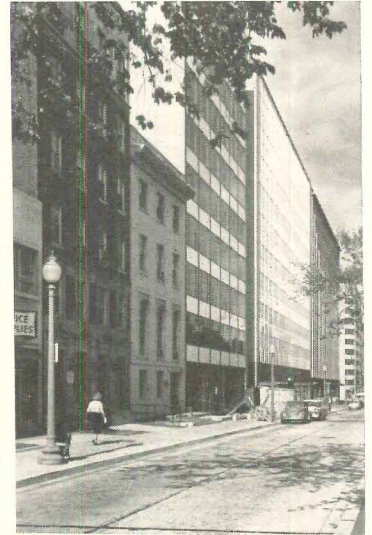
civilization that deals in empty package thinking. Thus, in extreme cases, as on the north side of L street between 17th and 18th, we have a fully "textured" front but with many-windowed "party walls" of plain brick (photo above).

In another block nearby we have the contrary case of an all-glass-and-enamel front wall while the side wall, opening on an alley, is all top-pivoted windows set in brick again, and all openable. And so on, ad infinitum. Rarely does any architect make the attempt, as have Berla & Abel on the northwest corner of I and 17th, to carry the "front," albeit

somewhat modified, around the side and rear views (bottom photo). Still rarer is the chance given to Architect Stone to design his National Geographic Building four-sided (photo below).

At a Washington meeting, Grosvenor Chapman, a leading Washington architect, explained that the wild diversity of façades on Washington business streets arises from the desire of owners to achieve individuality despite the uniform height limit. In asking the chance to build to random heights presumably he meant to promise more integrity of surface once the architect had a chance to set his tower clear of party walls, and to design it as a complete, many-sided object.

But a new chaos of shapes would not better the present



New York will maintain certain (now faltering) regulations it enforces on its members, that great avenue will continue its vast su-



chaos of façades, being merely another and even more restless type of chaos. And architects who have not been able to impose order on front and side faces will hardly master the problem of diverse shapes either.

What has gone glimmering is the idea that the unit of design in a city should be the block or street, not the individual 50-foot or 100-foot lot and the individual building on it. In medieval times whole streets were harmonious because of a limited, common building culture. In the Baroque city whole streets were harmonious through individual ownership as in Bath or London.

Laws and regulations are a poor path to good design, which one would rather see achieved through common intelligence and education. Harmony of a sort is maintained on some noteworthy U.S. streets by local private understandings. Thus as long as the Fifth Avenue Association in

periority over Wilshire Boulevard in Los Angeles, the wilderness of the individualistic.

Until better controls are found, should not Washington's height regulations remain, to spare our capital the grief that has befallen London?

Beyond that lies the most powerful reason of all for maintaining height regulations. Washington has great blighted areas of vacant space fully available to building exploitation. She has plenty of room for all the new buildings she needs, at the present heights in the present city limits. Concentrating instead in just a few buildings of great height is only a device whereby unlimited selfishness would be allowed to walk away once again from the problems of the community.

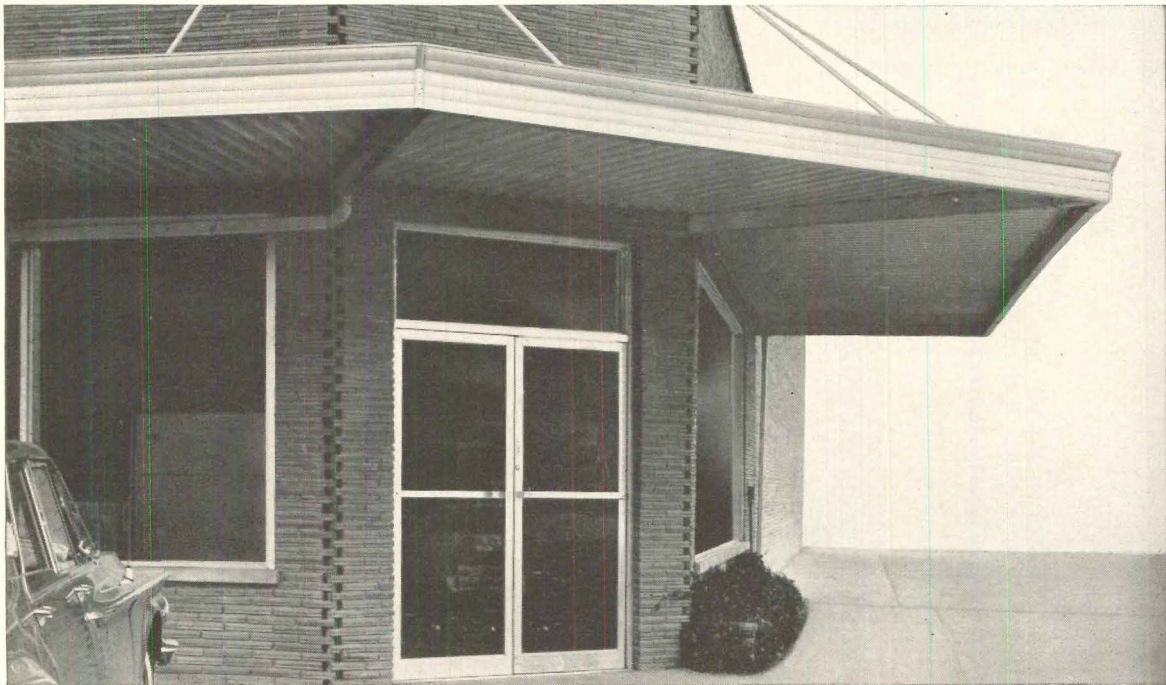
*Douglas Hasckel*



PHOTOS: DOUGLAS HASCKEL

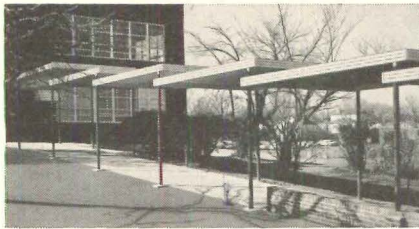


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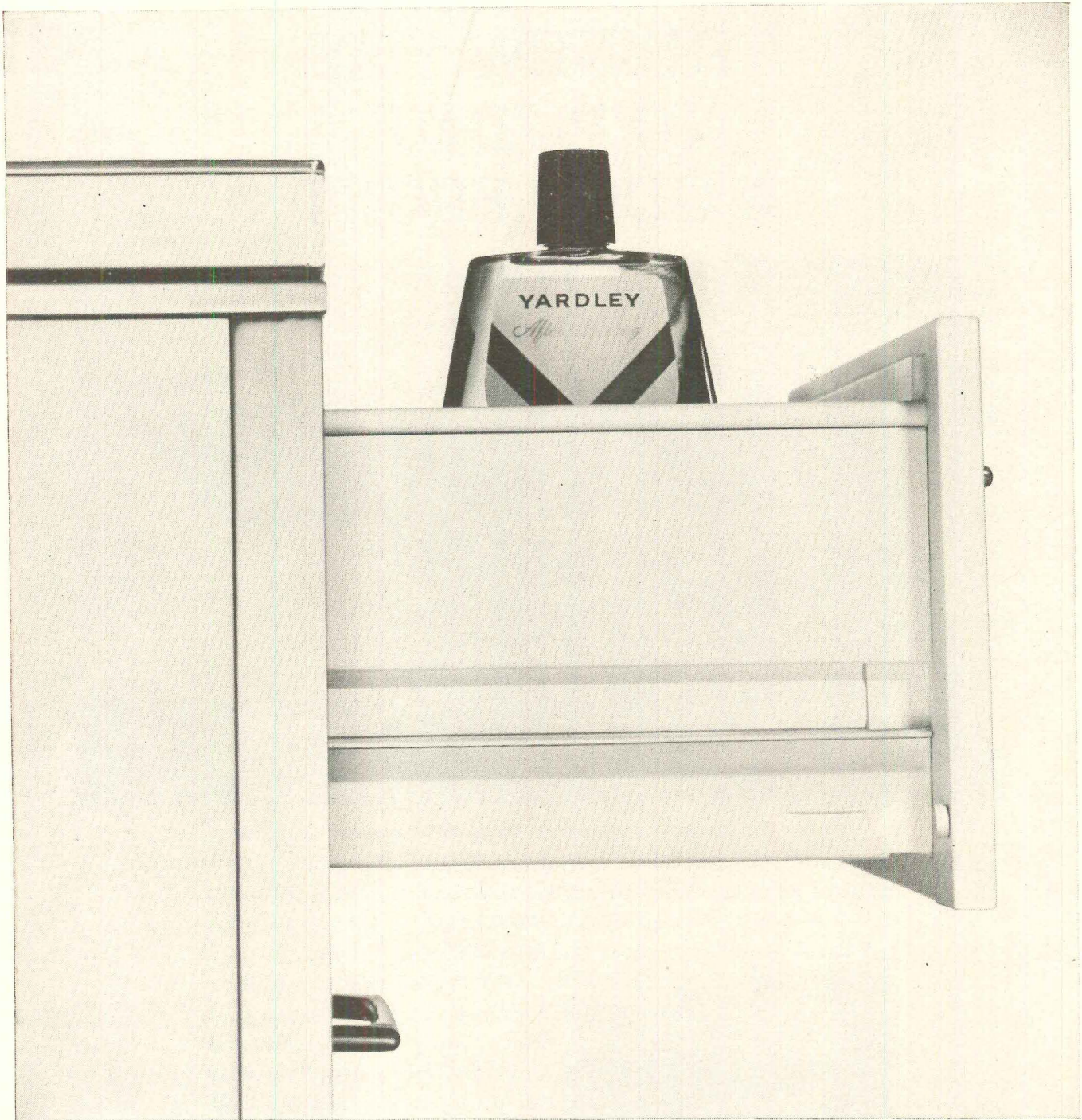
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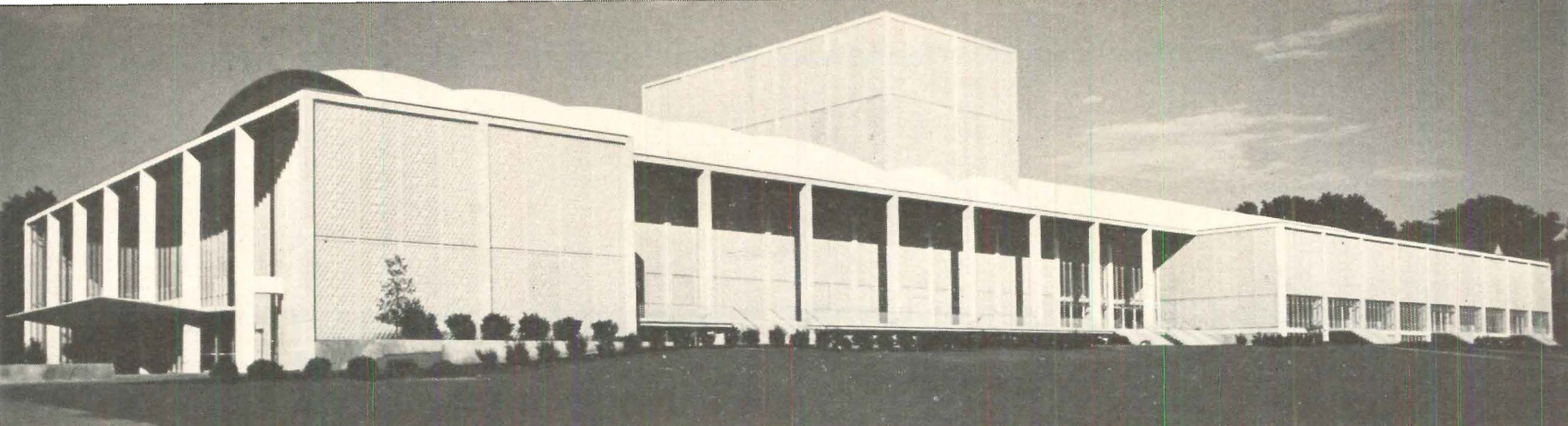
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James White Memorial Auditorium-Coliseum, Knoxville, Tennessee

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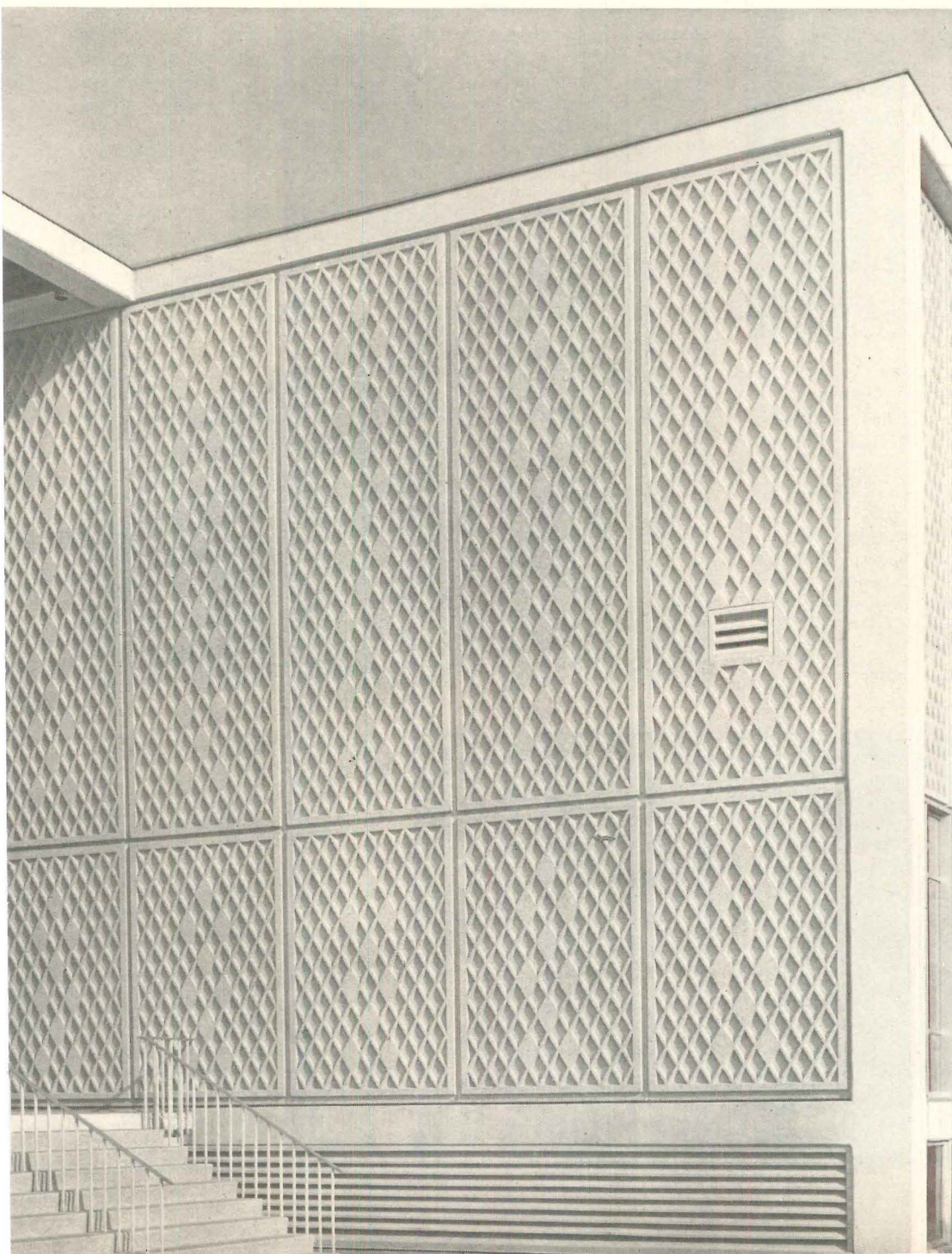
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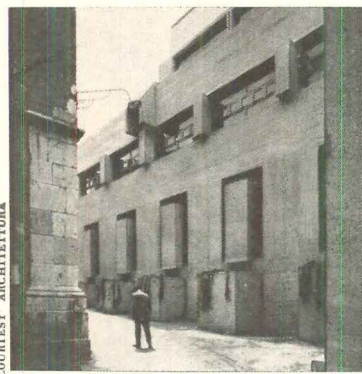
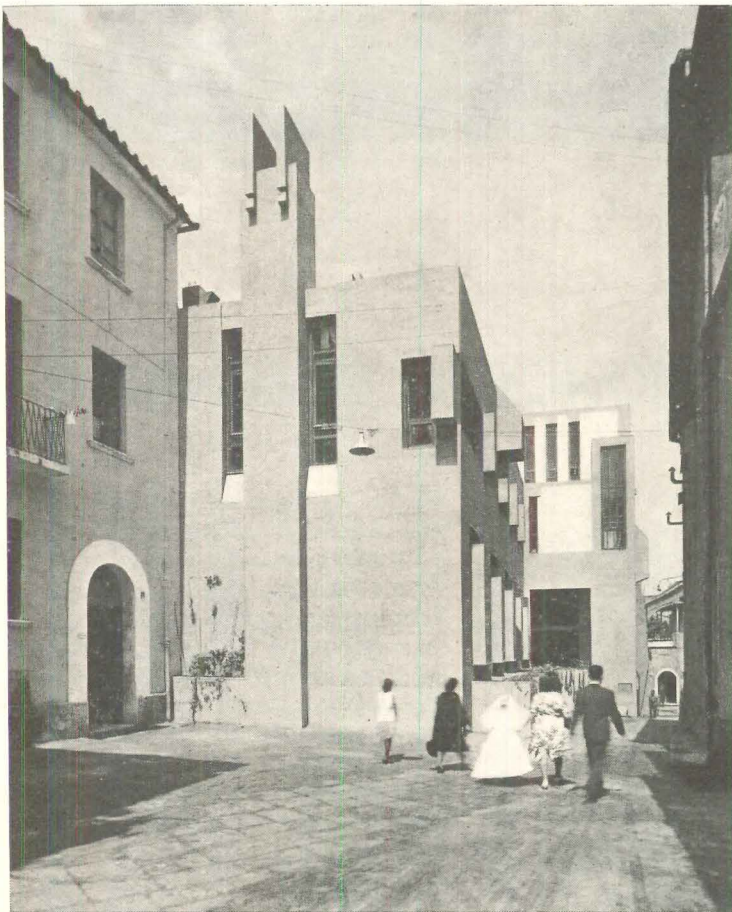
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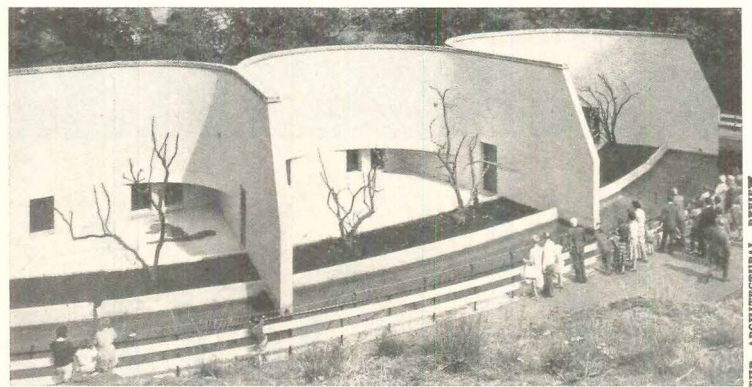
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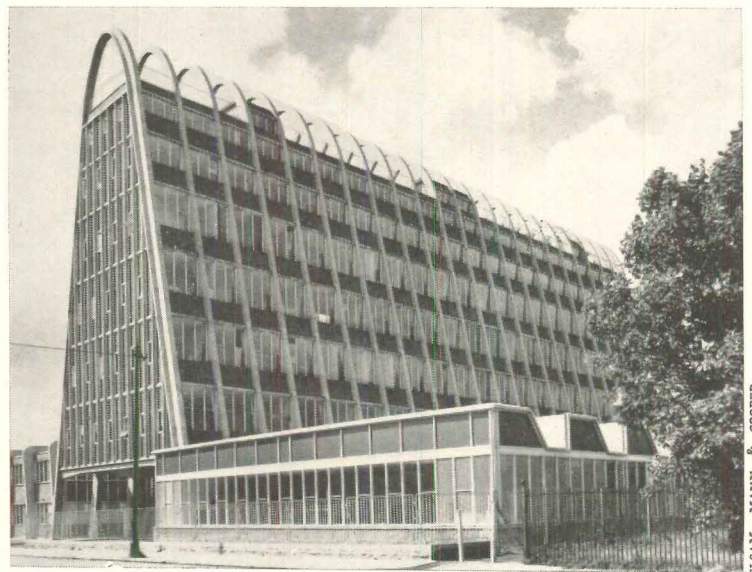


**ITALIAN OFFICE.** (above and left). A solidity reminiscent of Renaissance *castelli* is revealed in this telephone exchange office designed by the young Neapolitan Architect Nicola Pagliara. Located in the center of Benevento, 33 miles northeast of Naples, the concrete office block (which Pagliara calls "a house for machines") fits admirably into a site surrounded by narrow streets and crowded with older, more traditional buildings.



**ENGLISH ZOO.** Apes at the Dudley Zoo, Worcestershire (above) have a sculptural home as up-to-date as that of any *Homo sapiens*. But the pools surrounding their outdoor terraces are strictly functional: without using bars, the water-shy primates are kept from scrambling over into crowds of visitors. Philip Skelcher & Partners designed curving concrete walls with niches for shade.

**ENGLISH TRADES COLLEGE.** (below). Courses from bakery to beauty culture are taught in this Manchester school, the varying space requirements framed by tall parabolic arches. Former City Architect Leonard C. Howitt designed floors to house whole departments where possible. Rising from the largest (tailoring), the reinforced concrete building is tapered through six floors.



**INDONESIAN HOTEL** (left). Completed in time for the Asian Games in Djakarta last year, this 14-story hotel designed by Architect Abel Sorensen is the biggest in southeast Asia. The 450 rooms are also intended to open up Djakarta to foreign businessmen, who previously had no place to stay. Bright-colored sun breakers in enameled steel shade balconies on the main building, while an eight-story wing has aluminum *brise-soleils* to reflect sun and counteract an east-west exposure. An Olympic-sized swimming pool, a 1,200-seat auditorium, and a nightclub are included in the Western-style accommodations.

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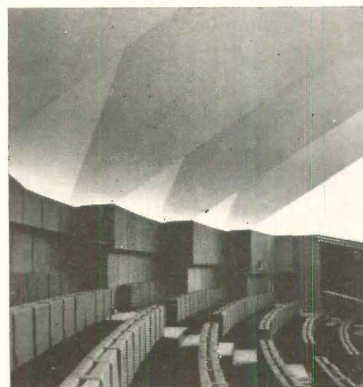
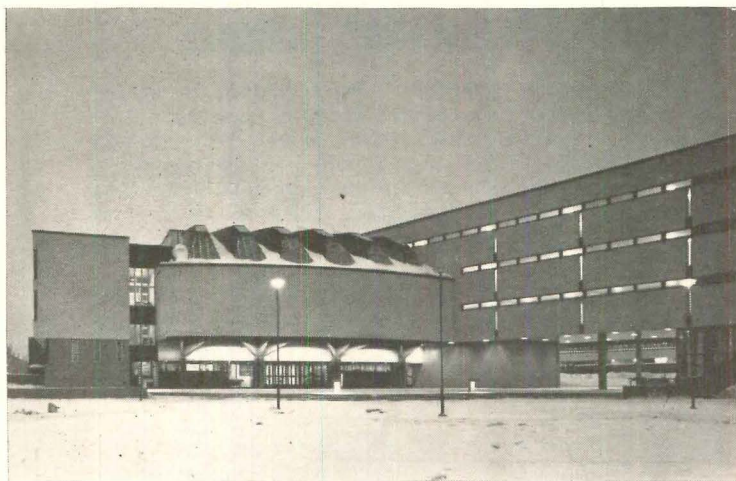
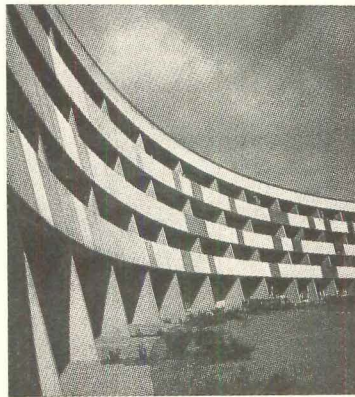
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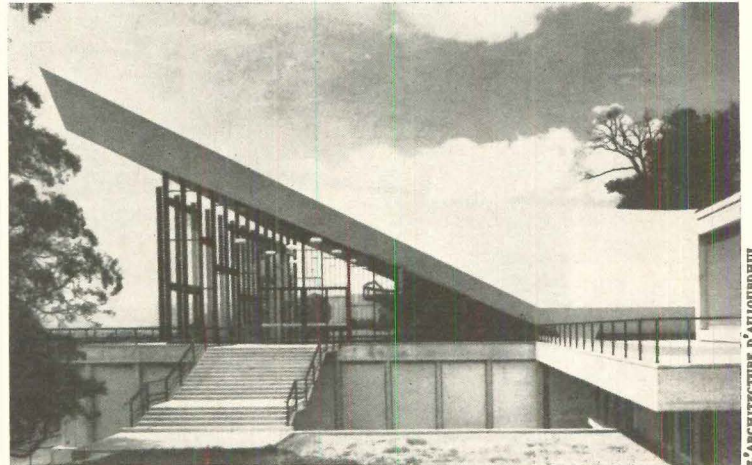
**SWEDISH CENTER.** International scientific research has received added impetus from the new Wenner-Gren scientific center in Stockholm. Financed by government funds and by the late Philanthropist Axel Wenner-Gren, the self-contained center consists of a 25-story tapered office tower (above), a crescent-shaped residential block for visiting scientists (right), and a three-story shopping center, restaurant, and library. Architects: Alf Bydén; Sune Lindström.



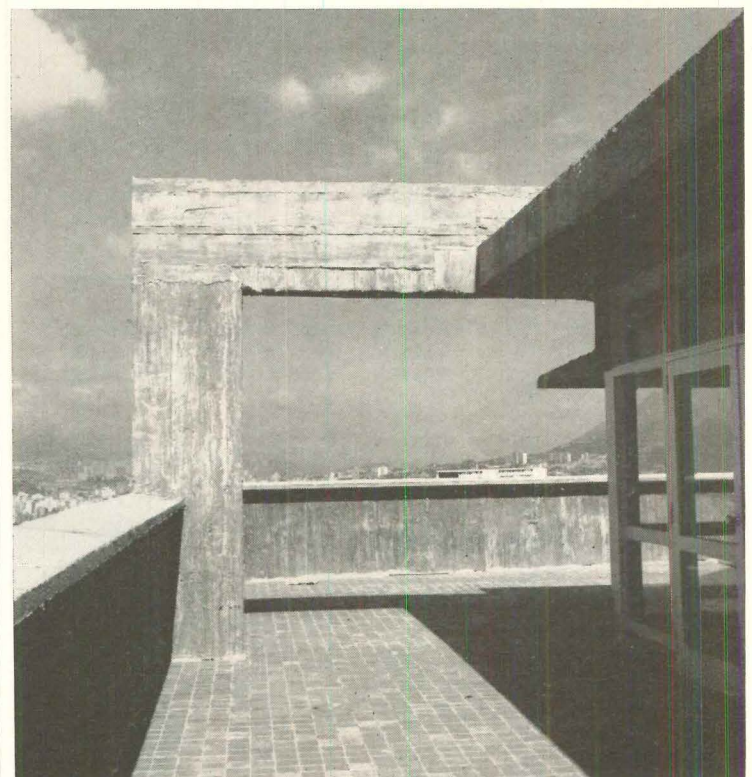
**FINNISH SCHOOL.** This competition-winning design (above) by Architects Timo Penttilä and Kari Virta combines a daytime elementary school with an evening workers' college—all under the same roof. Each school has its own entrance and facilities, including a workshop and gymnasium for elementary pupils, art studios and clubrooms for workers. Built of smooth-surfaced concrete, the school has a joint assembly hall (left), covered by a reinforced concrete shell.

**SWISS AUDITORIUM.** The sharply angled roof (below) covers the Polytechnic School Auditorium at the University of Lausanne, the last work of the late Architect Jean Tschumi. The auditorium, which seats 530 students, is actually an oval shape within a

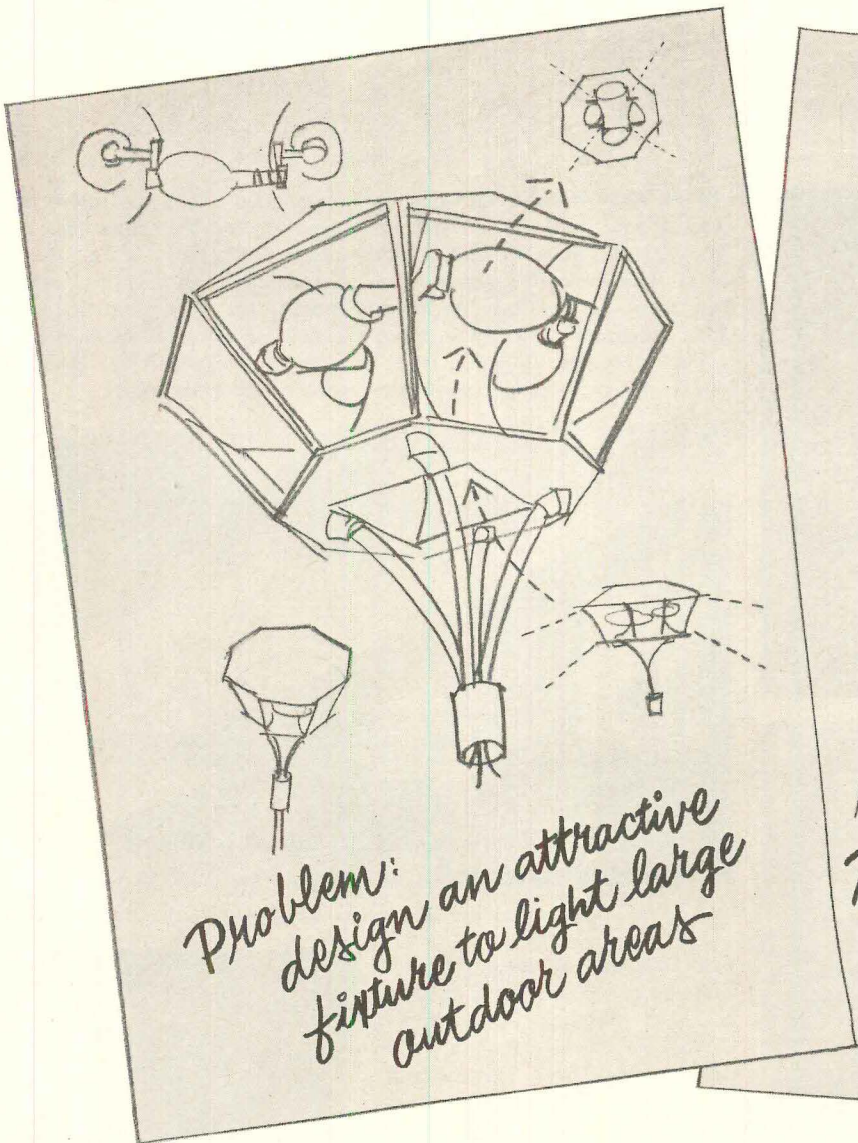
rectangular plan; the intervening space is used for exhibitions. The auditorium roof is a double hyperbolic paraboloid which sweeps up to reveal a glass-paneled foyer with views of Lake Geneva. Adjacent to the auditorium are classrooms.



**VENEZUELAN OFFICES** (right). Built on a hillside, the nine-story La Salle building by Architect Carlos Villanueva commands expansive views over Caracas and nearby mountains. Two floors below grade house services, with main entrance, shops, and conference rooms on the third level. Atop five office floors is a penthouse (below). **END**







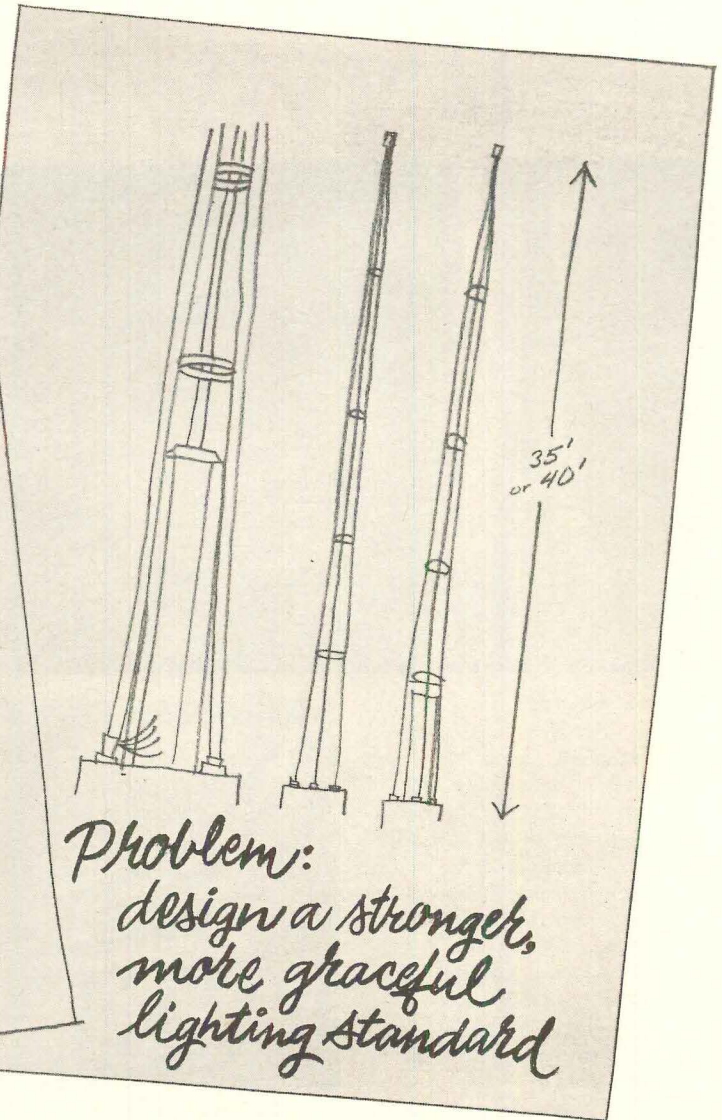
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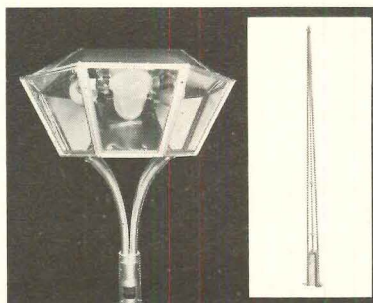


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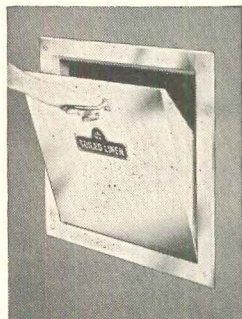
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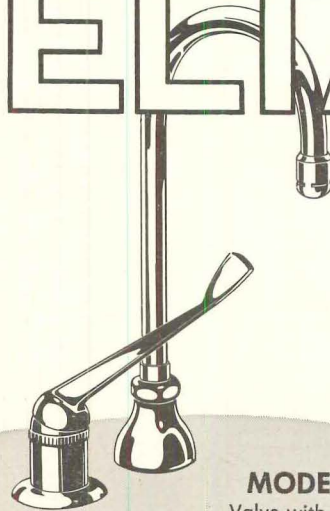
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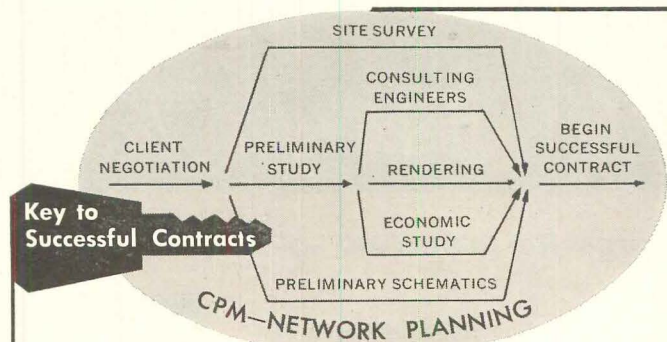
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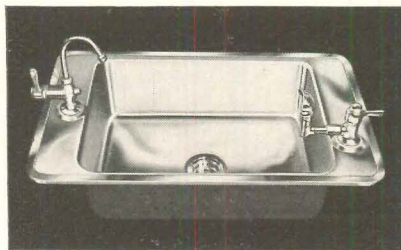
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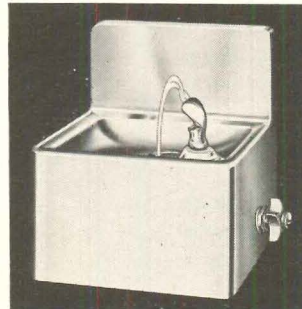
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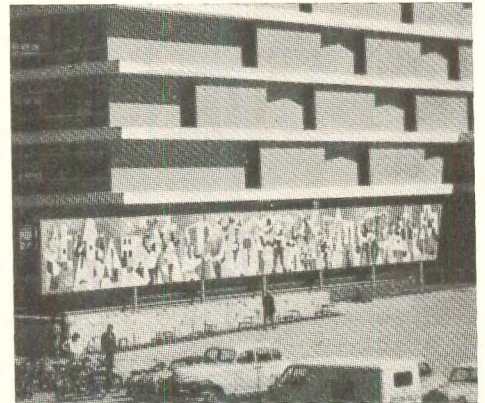


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**ART IN LATIN AMERICAN ARCHITECTURE**  
By Paul F. Damaz. Published by Reinhold Publishing Corp., 430 Park Avenue, New York 22, N.Y. 232 pp. 8 1/4" x 10 1/4". Illus. \$15.

Greater coordination between architecture and contemporary art is a popular cause these days. But not everyone seems to know quite how to go about it—or cares to risk a fiasco by experimenting. Consequently, the realization often reaches no further than a half-hearted sculpture or mural in a lobby here and there.

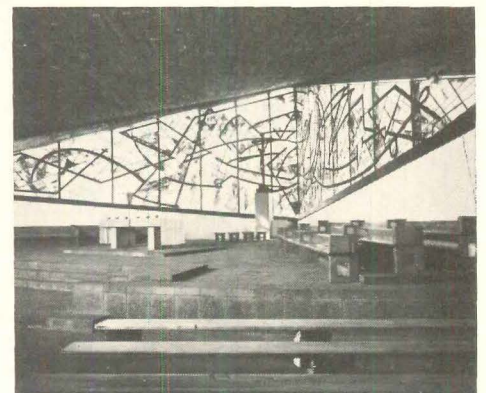
Pursuing his study of the subject, Architect Paul F. Damaz (author of *Art in European Architecture*) has now logically turned his attention to Latin America, where examples of artistic collaboration—good and bad—abound. These are traceable, says Damaz,



Civic Center mural, Guatemala

to the colorful heritage left by Incas, Mayans, and Aztecs, and to the fact that Latin imagination is often accompanied by the courage to experiment, even at the risk of monumental failure.

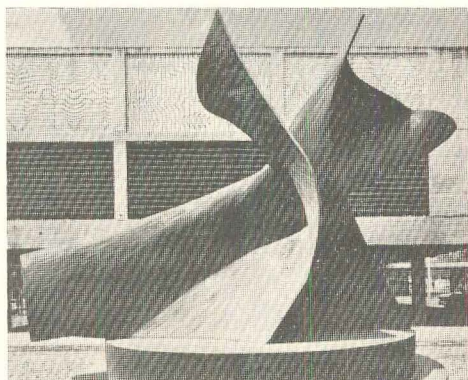
Damaz presents numerous examples of joint efforts between architects and artists



Church window, Mexico City

all over Latin America, documented with excellent photographs, many in color. The extensive research that went into this book (done with the help of the Architectural League of New York's Arnold W. Brunner Scholarship) is apparent in its coverage. The author gives a brief history of Latin American art and architecture and appraises





University sculpture, Caracas

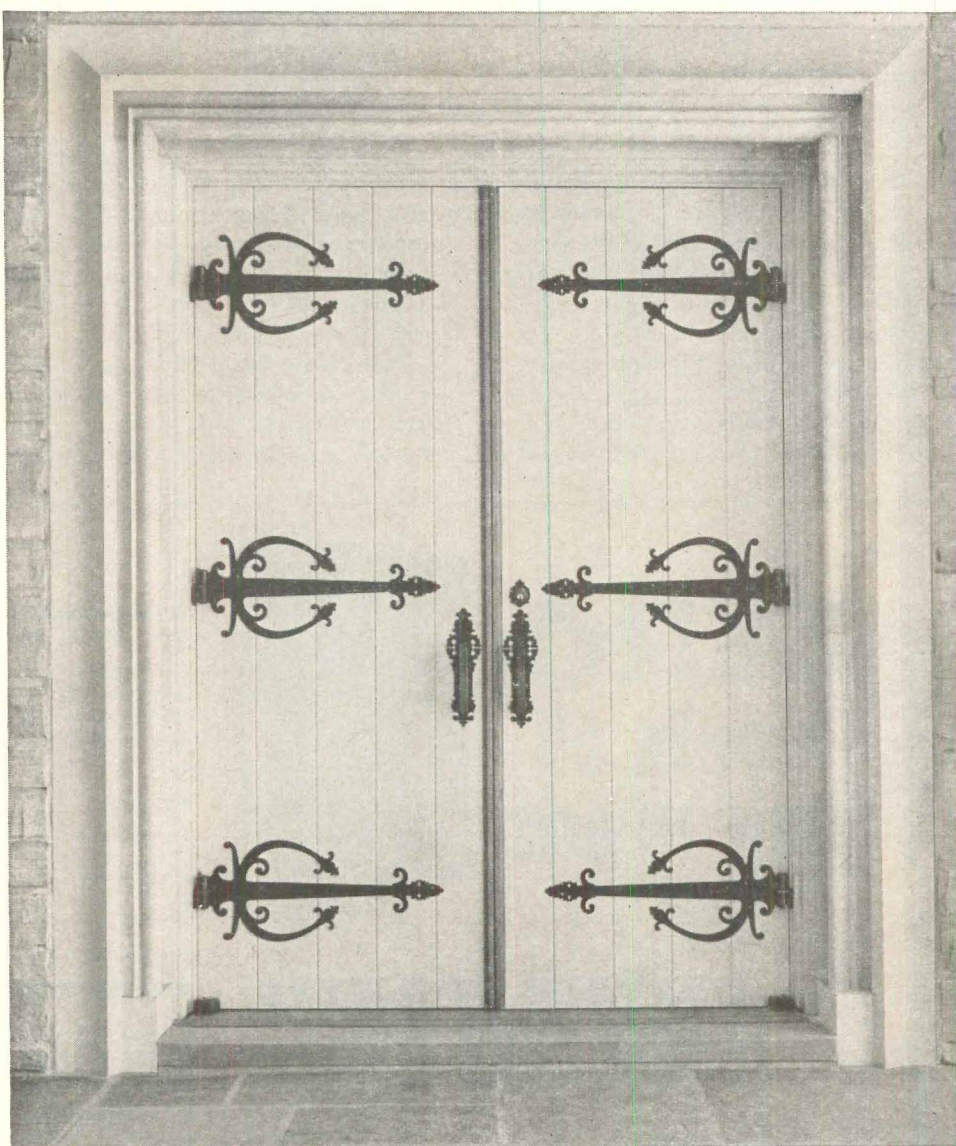
contemporary designers, sculptors, and painters, before going on to individual projects, which are presented by building type rather than locale. Among the more famous ones are Brasília, Mexico's University City, and Carlos Raúl Villanueva's University City in Caracas ("the best and most important example in the whole world of the beneficial influences that architecture and the other plastic arts can have on one another"). Also included are less familiar and more recent projects such as the Bank of Bogotá (Architects: Pablo Lanzetta, Reinaldo Valencia; Artist: Eduardo Ramirez) and Mexico City's Chapultepec Museum of History Educational Gallery (Architect: Pedro Ramirez Vazquez; Artist: José Morado)—A.P.C.

**FACE OF THE METROPOLIS.** By Martin Meyerson, with Jaqueline Tyrwhitt, Brian Falk, and Patricia Sekler. Published by Random House, 457 Madison Ave., New York 22, N.Y. 250 pp. 8½" x 11". Illus. \$7.50.

The stated purpose of this ACTION-sponsored primer is "to stimulate a wider and more sophisticated public interest in urban design and architecture." It first briefly states some general principles, then proceeds to picture presentations of 70 examples of urban design in the U.S. and abroad; ranging all the way from New York's Rockefeller Center and Seagram building to a municipal pool-playground in Aarau, Switzerland. Most are buildings and complexes, but there is also a sprinkling of subways, highways, and parks.

**BASIC STUDIES FOR THE PLANNING OF SURGICAL SERVICE FACILITIES.** By Robert Hyde Jacobs, Jr. Published by The New York Chapter, The American Institute of Architects, 115 East 40th Street, New York 16, N.Y. 24 pp. 8½" x 11". Illus. \$1.

This series of three articles (reprinted from the *AIA Journal*) is the result of an intensive study by Architect Robert Jacobs into the complexities of surgical-suite design. Under a three-year research grant from the U.S. Public Health Service, and with the assistance of a board of distinguished medical consultants, Mr. Jacobs has explored the extensive problems of surgical care and planning from infection control to emotional environment. His new ideas on organization and design will be of great interest to the field. END



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"Such work," the BRAB restatement went on to say, "would foster an interdisciplinary approach to building and construction research, i.e., proponents would be encouraged to bring the talents of the architect, engineer, physicist, biologist, social scientist, etc. to bear on non-proprietary problems."

What BRAB called for, basically, is a first-rate technical information service on a par with that of the chemical industry, and the

development of a complete set of performance standards for buildings. These are jobs experienced researchers say would take many years and hundreds of millions of dollars to complete—and would have repercussions in every part of the building process.

With this fresh program, and far wider support than he had at first, Hollomon went back to Congress with renewed confidence. But the opposition had still more ammunition.

Whitlock and his supporters argued that any government research, however well founded, would upset the delicate competitive balance of the industry, and at the same time would tend to wipe out much of the private research now going on. Said Congressman Bow: "In effect, the most efficient producers would be taxed to pay for the technological advancement of their most inefficient competitors. This comes about as close to destruction of the free enterprise concept as anything can."

Whether or not the proposed research would have such far-reaching effects, there is no doubt that the CIT program could radically change the structure of the industry—indeed, that is exactly what it was designed to do. In the process, firms which are unable to shift from a traditional way of doing business would surely be hurt.

**Enter Congressman Rooney**

But rather than Whitlock or Congressman Bow, it was the Democratic Chairman of the House Subcommittee on Appropriations, John J. Rooney of Brooklyn, who had the final say in the demise of Hollomon's program. Rooney represents a district that includes many union-oriented people, and is well-known for his slashing, economy-minded attacks on administration budgets.

In questioning Hollomon, Rooney managed to draw out the fact that more research would probably lead to further automation of building: a red flag for any labor-minded politician. Nor could Rooney ignore the industry forces lined up behind Whitlock. To all this was added the general revolt in Congress over the \$14 billion per year already being poured into all kinds of U.S.-sponsored research. Thus the harsh language of Rooney's final report on the relatively modest request for \$7.4 million; it allowed not a penny for "the technology of building which is being condemned by both labor and industry." (Textile research did get its \$1,625,000, but with the ominous stipulation that it was for the completion of the program.)

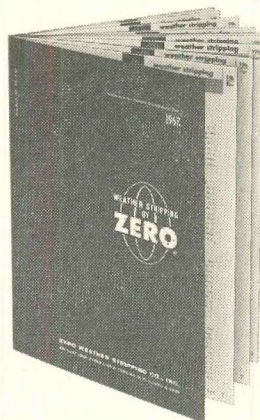
Because Hollomon does not want opposition to his program to harden in Congress before he can muster clear-cut support from industry and labor, he will not appeal the House decision at Senate hearings on the bill this month. But there is some hope that the Senate, somewhat more generous than the House in these matters, will ease the language that restricts the appropriation to textiles alone.

Right now, there is intense jockeying for position by both sides in preparation for the next confrontation, which will take place early next year when Hollomon brings his program to Congress once more. What hap-

continued on page 148

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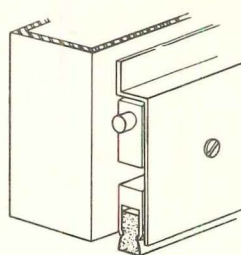


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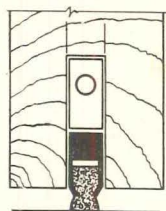
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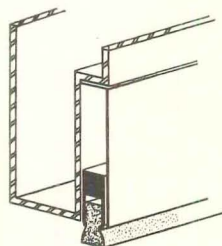
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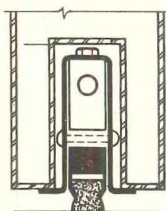
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pens then will be determined in the next two months.

In mid-October, shortly after the Senate acts on this year's bill, there will be a most significant gathering in Washington of representatives of the industry's 130-odd trade and professional organizations and others concerned with the future of the CIT program. The meeting has been called by the Construction and Community Development Department of the U.S. Chamber of Commerce, which has gone on record as opposed to the government program. However, the agenda, which is being arranged by Ralph Johnson, Research Director of the National Association of Homebuilders (which also is against CIT), will include Hollomon and others who favor his plans.

All who attend will have before them the four-point program prepared by BRAB, surely the most lucid and workable statement of the building industry's research needs ever available.

**Will industry spend more?**

There is a real likelihood that the group, made up largely of association executives who have to maintain a delicate political balance in their own constituencies, will be unable to take any decisive action. But if they are prepared to come to terms with the issues, they can indicate just how much research the industry really does want—and how much they are prepared to pay for themselves if they want to keep government out.

Industry does have an organization of its own that could handle the kind of research and information program that is being considered: the Building Research Institute. Created over ten years ago, in part as a response to the first threat of government research in the late 1940s, the BRI has been most effective in organizing conferences. These, however, have been more concerned with product development than with basic research. Though many of its members have seen it as an eventual sponsor of real research, BRI has limped along with very little solid support from industry. Its meager budget of \$150,000 a year would have to be increased ten- to twenty-fold for it to take on the work now being discussed.

However the cost of the building research task—now more sharply defined than ever before—is carved up among government and industry, one thing seems clear: more fundamental research is going to be done soon, and somehow it will be disseminated more effectively. Sooner or later, everyone in the industry can expect to have his way of doing things changed profoundly as a result. END

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## AND ITS ARCHITECTURAL VALUE

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Carefully designed for greater freedom of expression, these systems feature aluminum or steel panels insulated with the exclusive Mutane® urethane foam core. Guaranteed for the life of the building, this unique core has a K factor of 0.13/in. and permits unmatched levels of panel flatness, moisture resistance, and protection from internal corrosion. Windows, mullions, ventilators, glass and glazing . . . all are included in a low-cost curtain wall system as part of the complete, responsible service offered by Mesker.

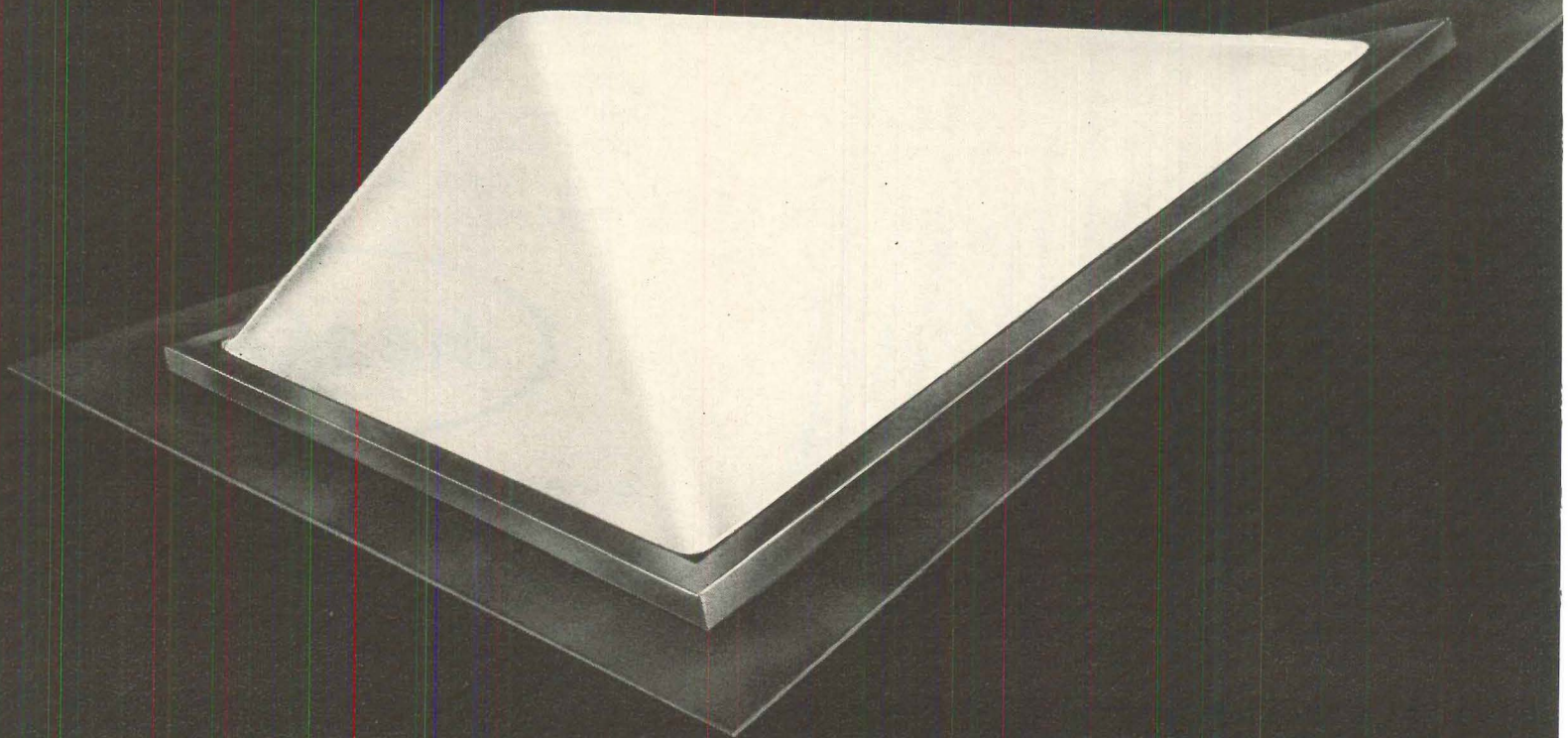
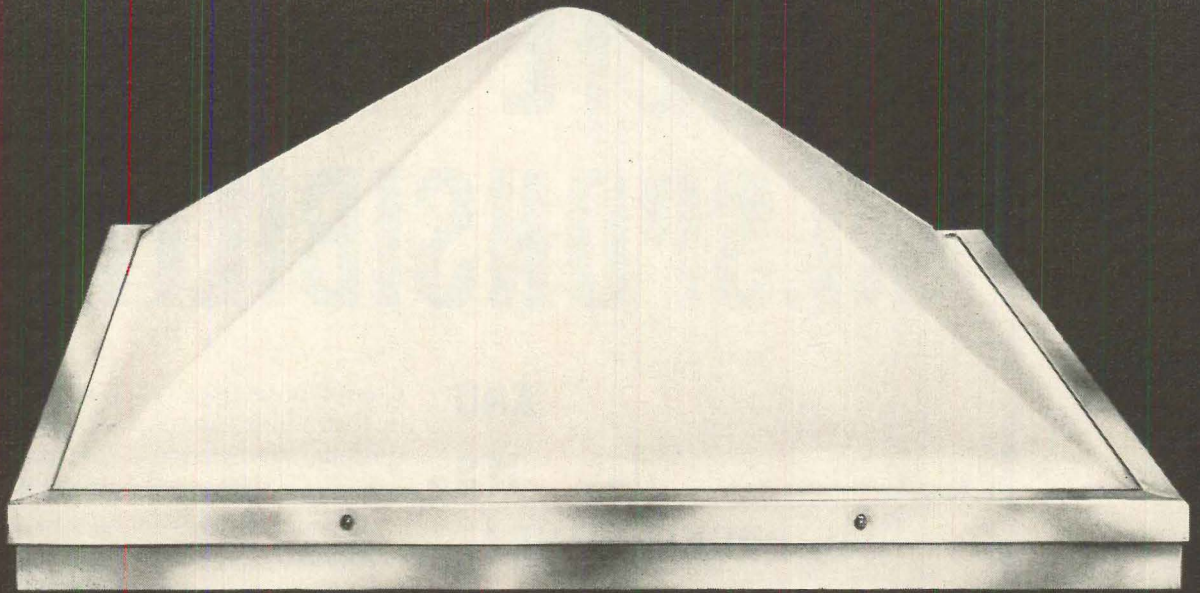
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CURTAIN WALL DIVISION  
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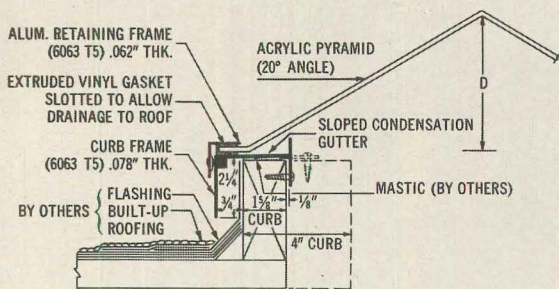




# DAYLIGHTING!

## NEW PYRAMID DOME

Add a bright new design element with this Skydome pyramid unit. This skylight was originally produced as a custom unit. However, as a result of a survey among architects, it has been modified to include additional advanced design features and is now available as a standard item in the Skydome line. Installs on 1 7/8" or 4" curb. 9 sizes. Available in clear, white, or dense white acrylic in durable aluminum frame.



## NOW . . . UNLIMITED DESIGN IDEAS WITH STANDARD SKYDOME® SKYLIGHTS

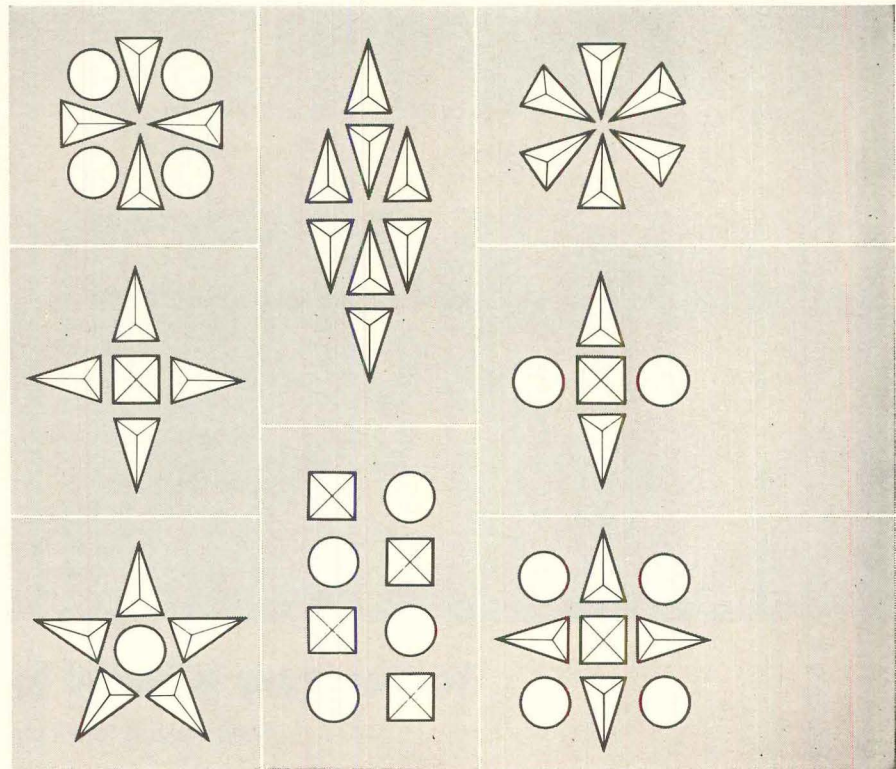
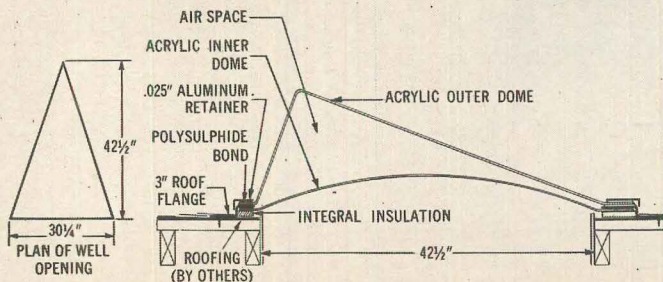
Cyanamid offers a versatility in daylighting never before available with standard skylights. Now, you can create a star of daylight over a lobby, a ring of sunshine over a cafeteria, a brilliant diamond over an auditorium.

You can custom design distinctive new motifs in daylighting by combining these new units with standard square, rectangular or circular Skydome skylights. And you can achieve dramatic, yet efficient interior lighting effects at a cost much less than that of specially designed skylights. Like all Skydome units, these new models provide brighter work areas, permit fuller use of floor and wall space and trim electric lighting costs.

Design combinations of standard Skydome units are limitless. Ceilings become more exciting, roofs can do more than just keep rooms warm and dry. Whatever the situation, daylighting can be an integral, contributing design element in any building. Here are a few ideas:

## NEW SELF-FLASHING DORMER DOME

This new Skydome unit provides an attractive, efficient method of bringing daylight through both flat and sharply pitched roofs. Double dome design. Features permanent watertight bonding at all critical points and a 3" aluminum nailing flange for fast, easy installation. The dead air space between the domes provides thermal insulation and eliminates condensation. 30 1/4 x 42 1/2 size. Both inner dome and outer dome available clear or white.



For complete specifications, see Sweet's Architectural File 20a/Am or Industrial Construction File 15c/Am, or write Cyanamid for data sheets.



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ACRYLIC SKYLIGHTS

BUILDING PRODUCTS DIVISION • AMERICAN CYANAMID COMPANY

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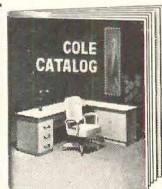




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Bell Telephone Company of Pennsylvania Building, Philadelphia. Architect: Maurice Fletcher AIA, Philadelphia. Consulting Engineers: Moody & Hutchison, Philadelphia.

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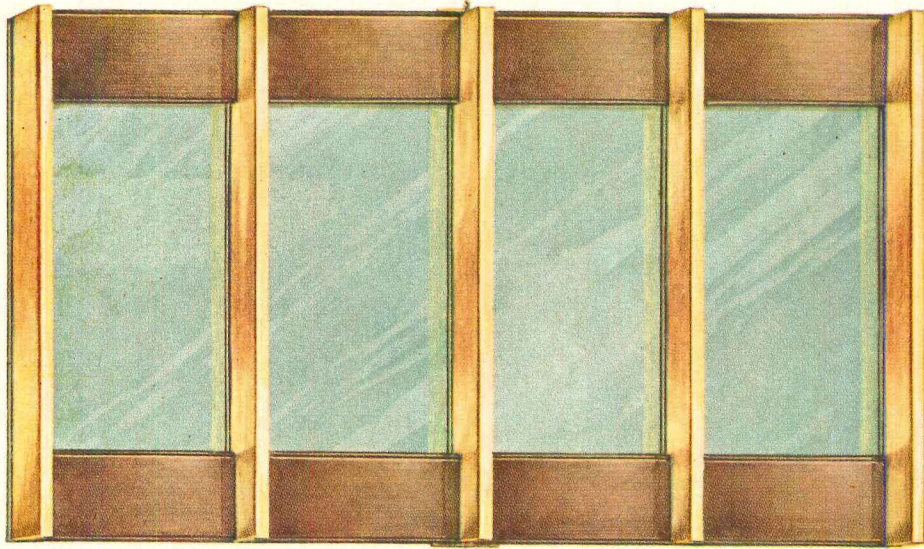
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Ask Anaconda for a copy of its comprehensive Publication B-15, "Architectural Metals." Write Anaconda American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

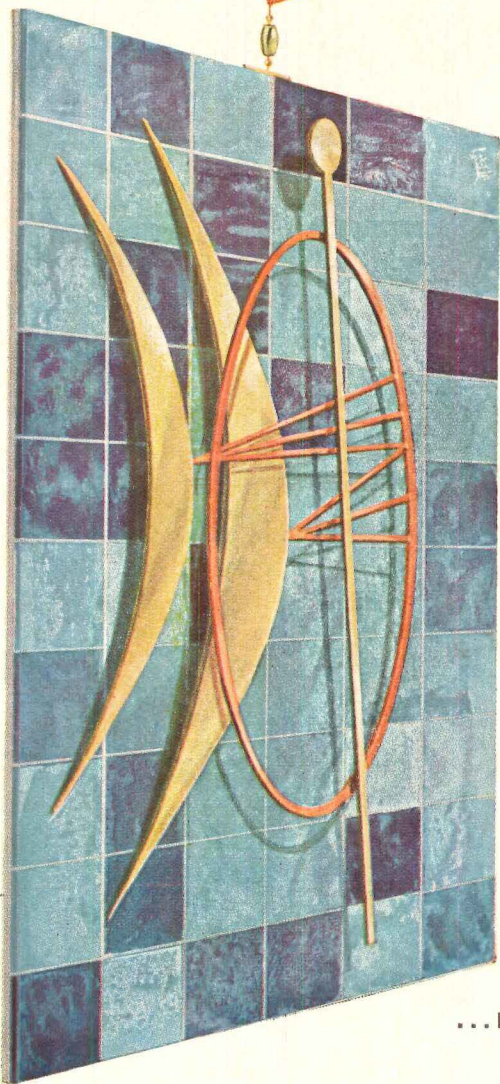
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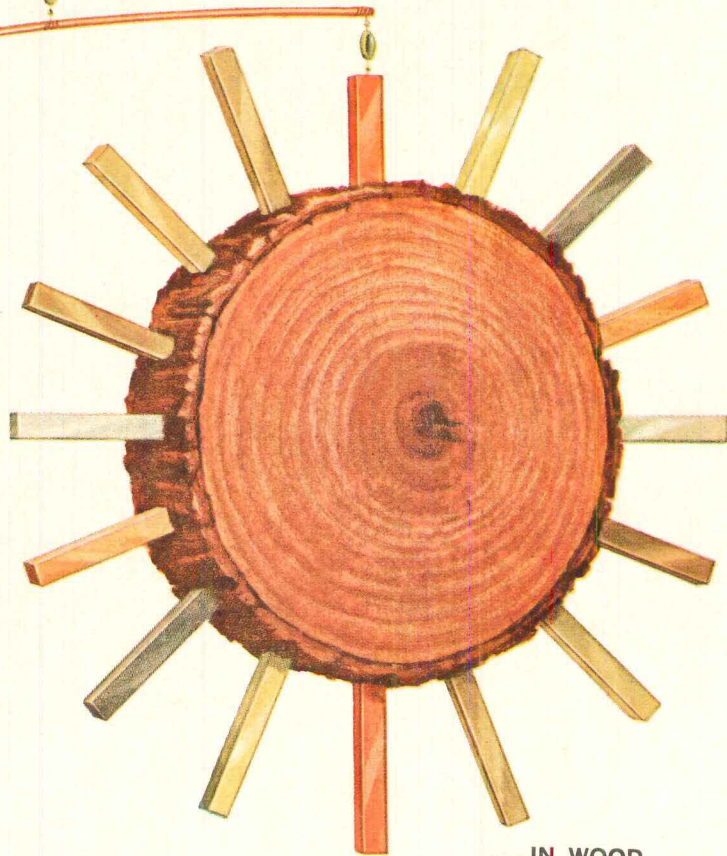




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... IN WOOD



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Acoustical privacy is that environment achieved by eliminating interfering or distracting extraneous sound.



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Acousta-Pane . . . the new glass sound barrier developed by Amerada Glass Corporation . . . can be utilized effectively for interior partitioning and exterior walls to keep out extraneous noise and to reduce the sound of speech from adjacent spaces to a level not loud enough to cause distraction outside the area of origin. No other glass gives you the sound isolation properties of Acousta-Pane.

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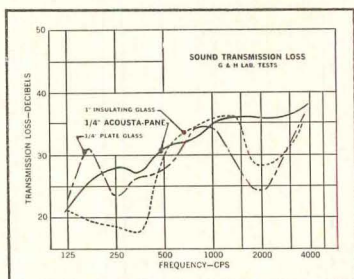


Chart shows comparative reduction in sound transmission of Acousta-Pane compared to 1/4" polished plate glass and to 1" thermal insulating glass (two sheets of 1/4" plate with 1/2" airspace between). Acousta-Pane is especially effective in the critical frequency range for speech and normal office sounds—from 500 cps to 4000 cps—where ordinary glass is relatively "transparent" to sound.

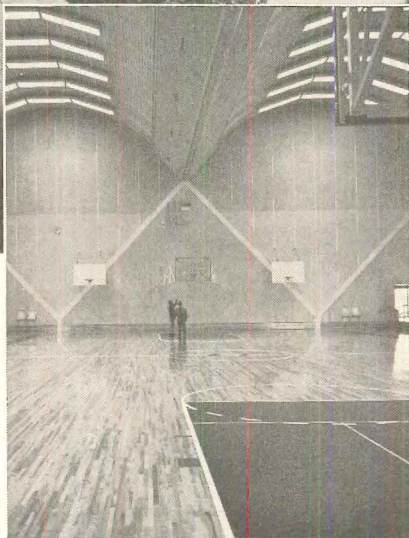
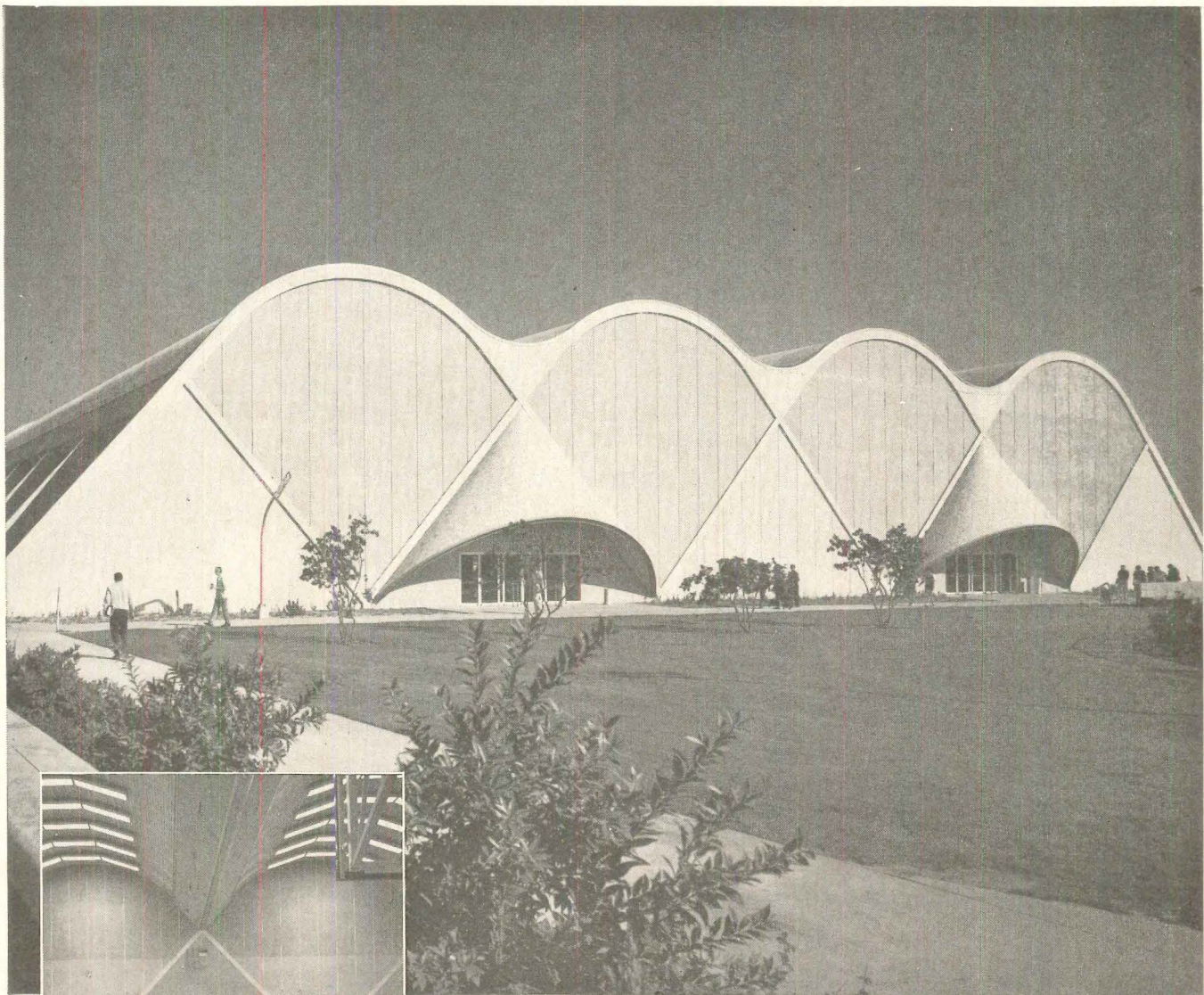
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Cerritos Junior College, Norwalk, California Kistner, Wright and Wright, Architects

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Steel columns. The extra strength of USS MAN-TEN Steel (A440) permitted broad 42 x 42-foot bays, requiring only 20 columns which, in turn, reduced foundation costs. For full design details, write for "Architectural Data Sheet: Continental Center Building" to United States Steel, 525 William Penn Place, Pittsburgh, Penna. 15230. USS and MAN-TEN are registered trademarks.

Owners: Continental Assurance & Continental Casualty Companies. Architects-Engineers: C. F. Murphy Associates, Chicago, Illinois. General Contractor: A. L. Jackson, Chicago, Illinois. Structural Steel Fabricators and Erectors: Allied Structural Steel Company, Chicago, Illinois. Stainless Steel Window Fabricator: Building Products Division of The Standard Products Company, Cleveland, Ohio.

United States Steel



... the architectural metal

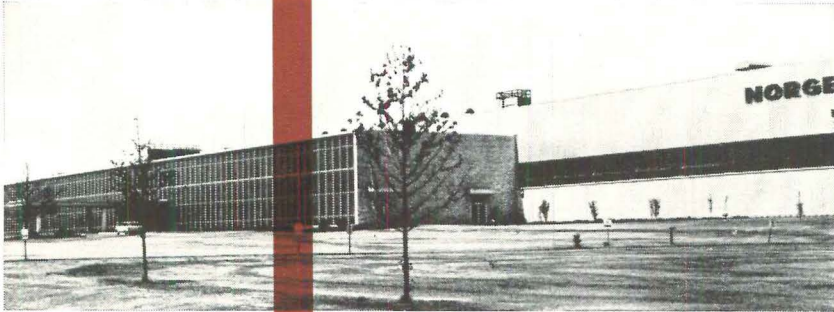


# JOINTS

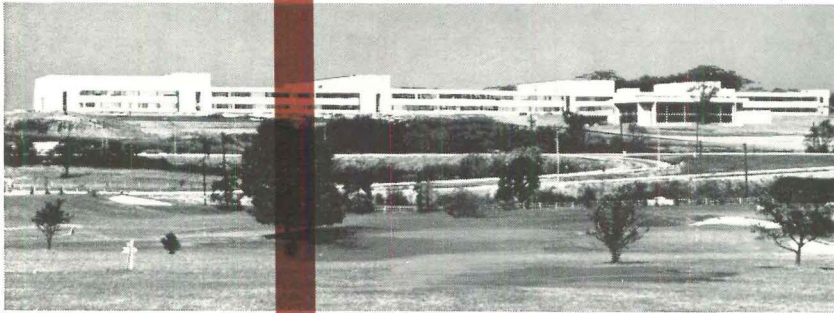
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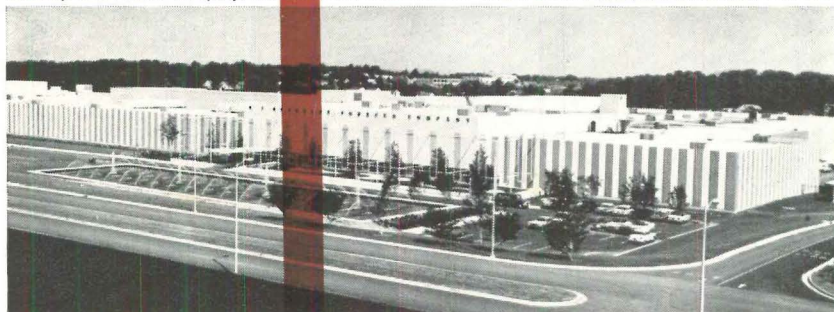
General Electric Space Technology Center, Valley Forge, Pennsylvania. Architect: Vincent G. Kling, Philadelphia



Perfect Circle Piston Rings, Rushville, Indiana. Architect: Giffels & Rossetti, Inc., Detroit



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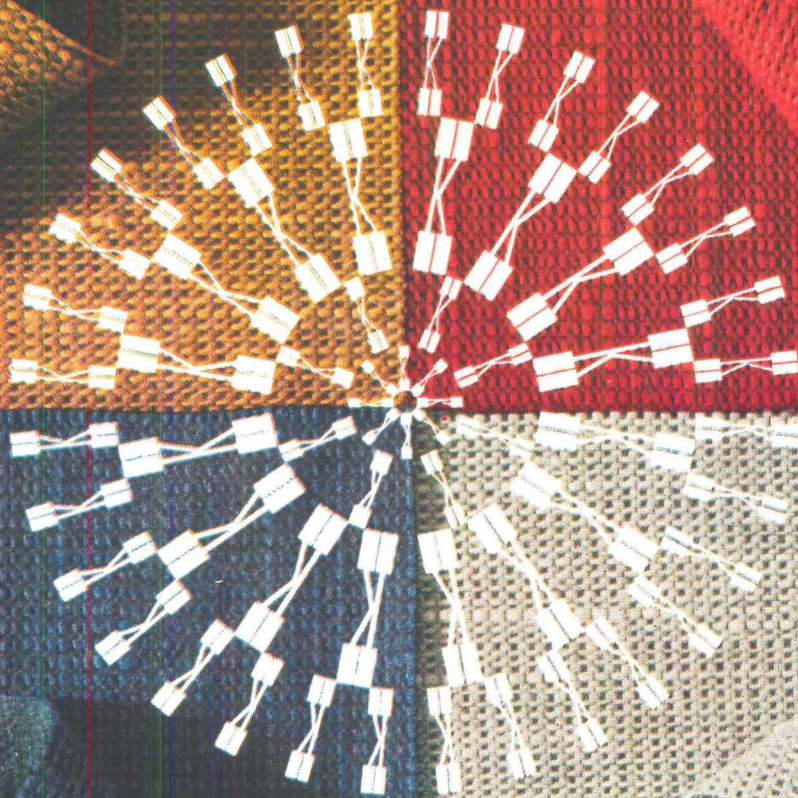
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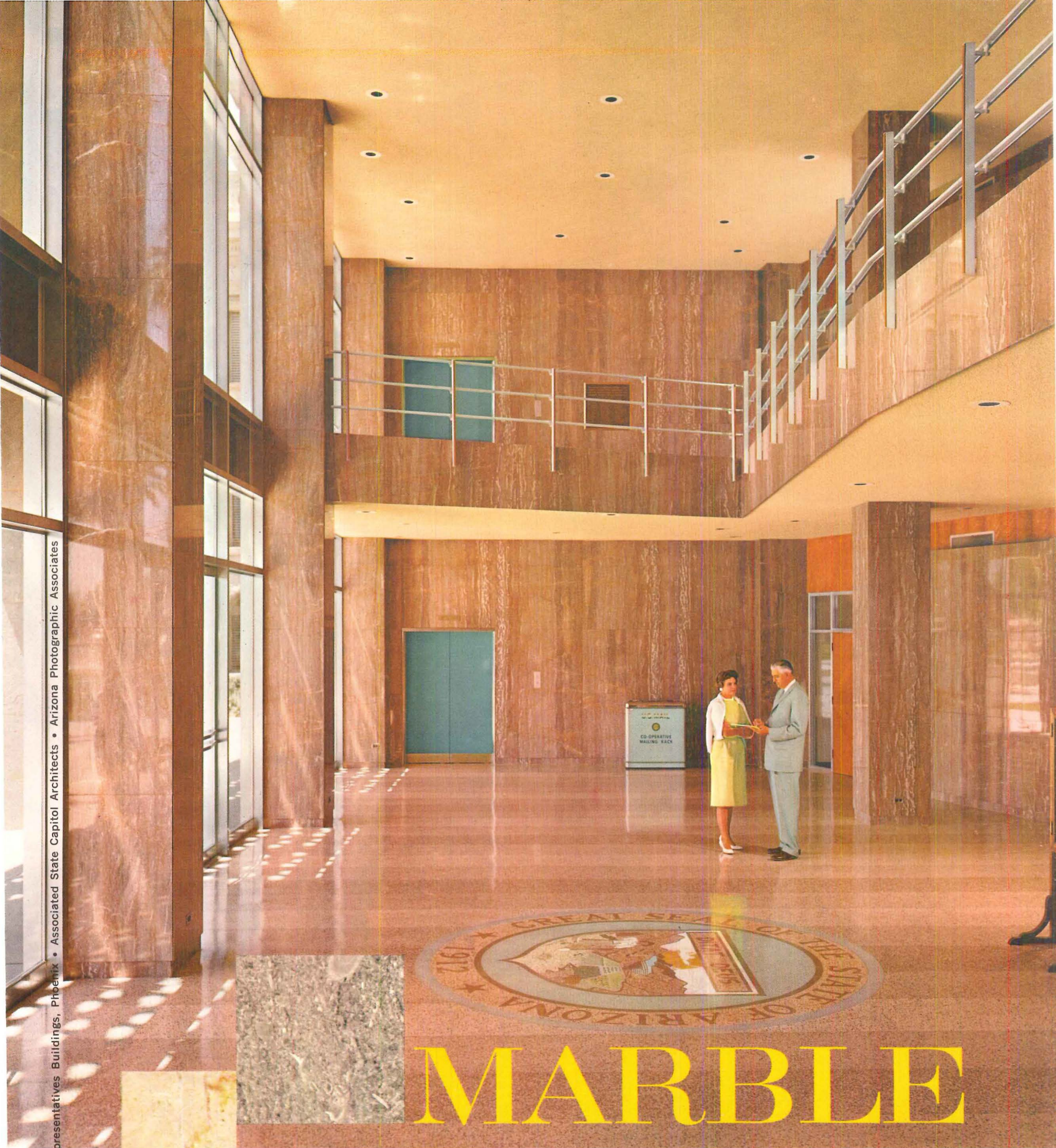
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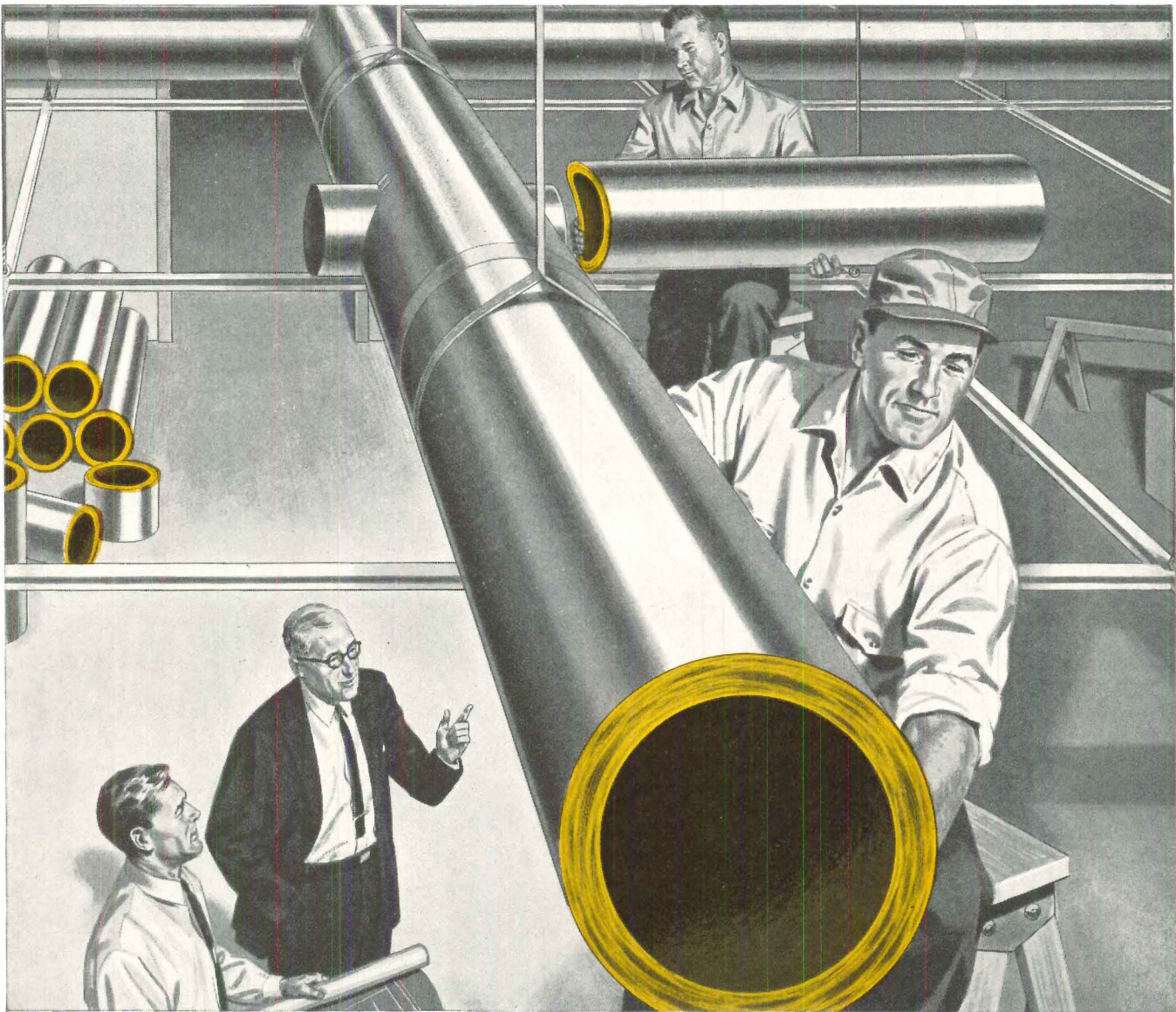
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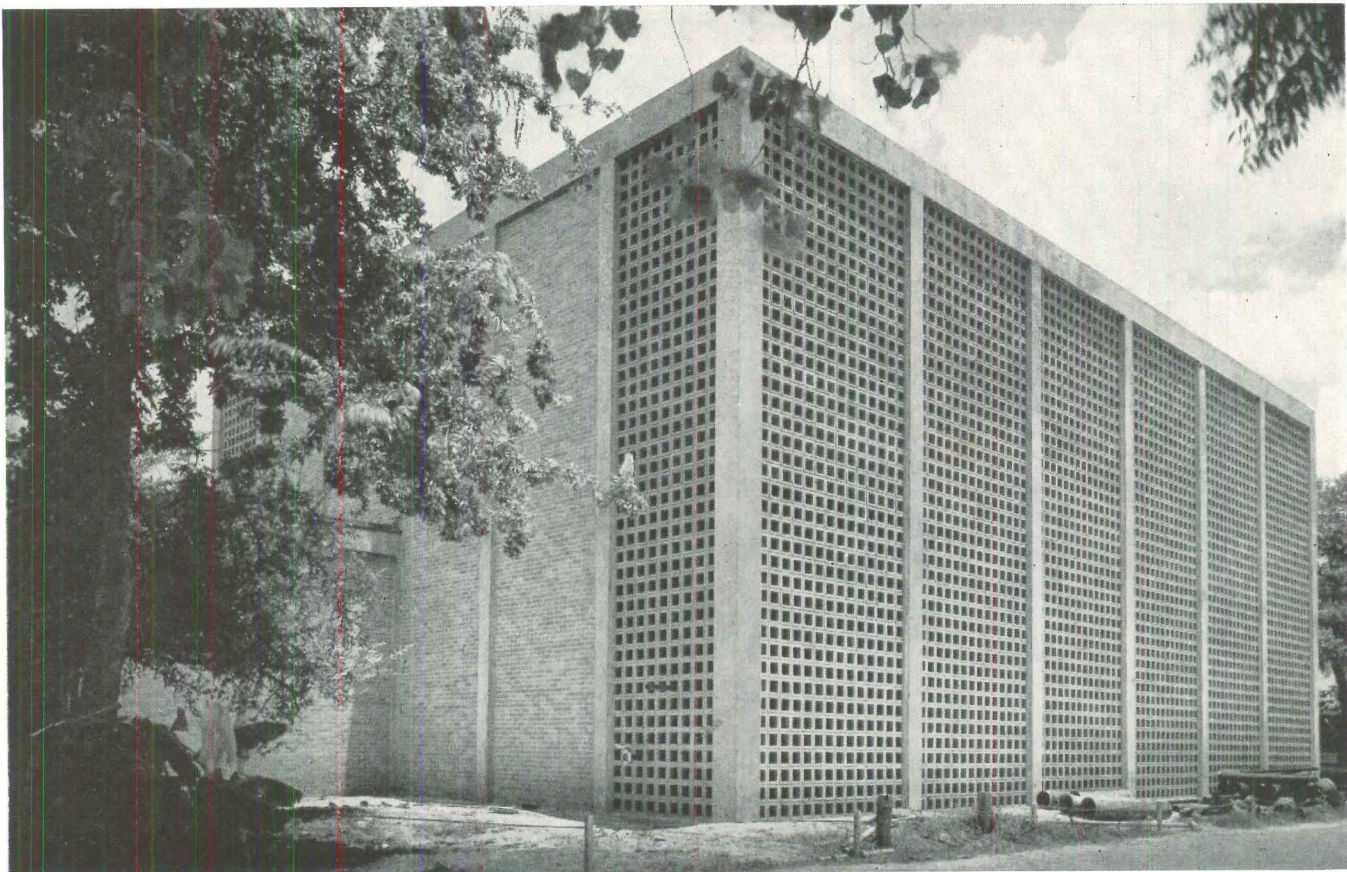
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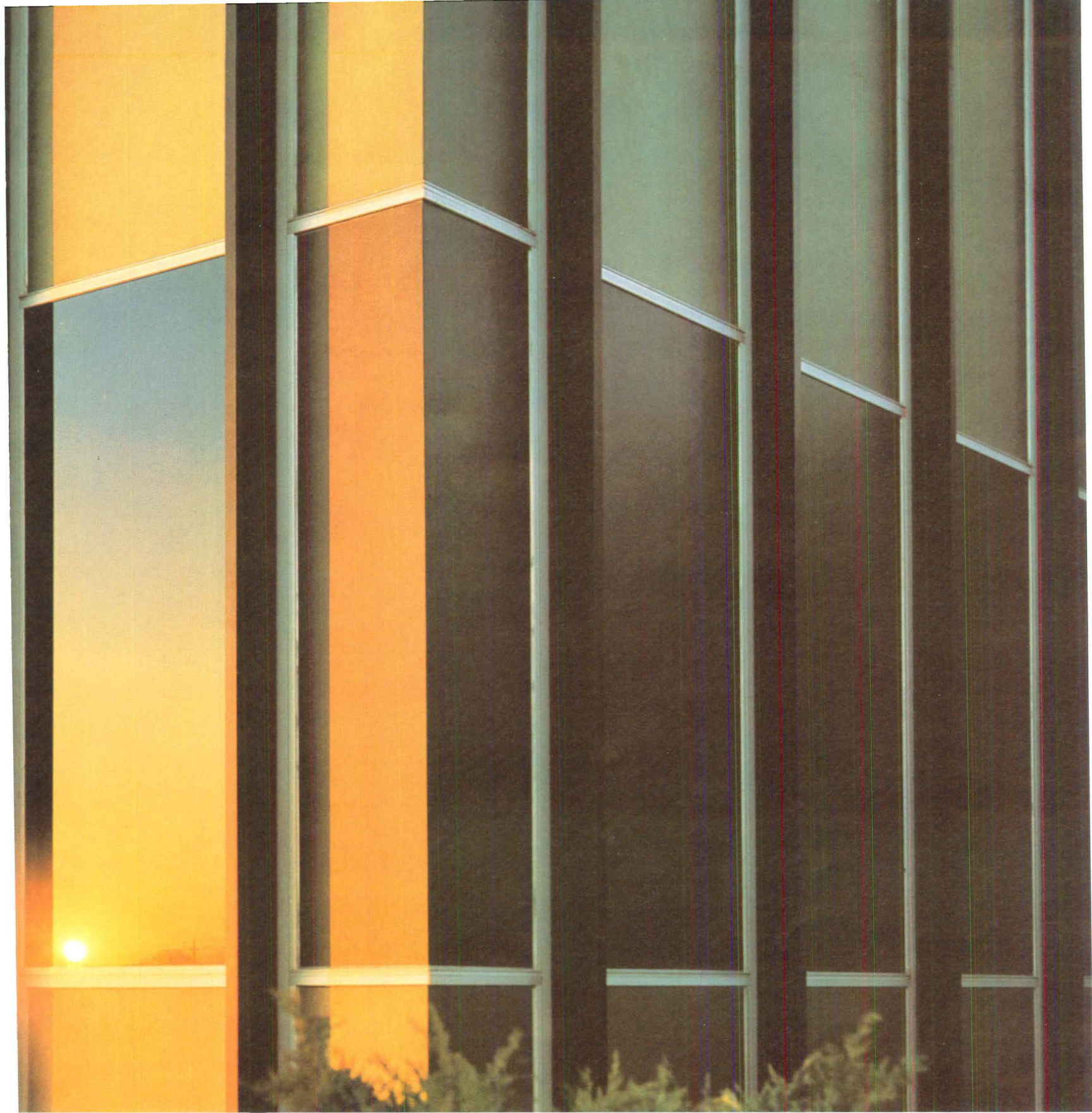
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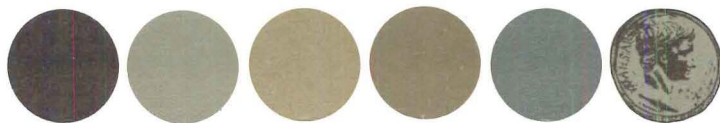


American Radiator & Standard Sanitary Corporation Building, New Brunswick, N.J./Architect: Frank Grad & Sons/General Contractor: Turner Construction Co./KALCOLOR® aluminum curtain wall: Modu-Wall, Inc., Parchment, Mich.

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Our Public Telephone Consultants can offer you expert advice on the wide range of colors, materials and designs that you can employ for telephone installations. Their knowledge, plus your own design

concepts, will result in booths that blend in tastefully with the decor you specify for walls, floors and ceilings.

Stylish, convenient public telephones are an appreciated public service. They also provide profitable income for the building's owner.

Why not take advantage of the free services of a Bell System Public Telephone Consultant as you plan your next building?



**BELL TELEPHONE SYSTEM**





## Profiles in total-electric design...with General Electric

Developer A. B. Simms' Atlanta Towers is due for completion this summer. The 21-story structure housing 120 one- and two-bedroom Gold Medallion units will be Georgia's first total-electric high-rise apartment project. Each unit is equipped with complete General Electric kitchens and Zonelectric heating and cooling. Architect: R. Aeck Assoc., A.I.A.

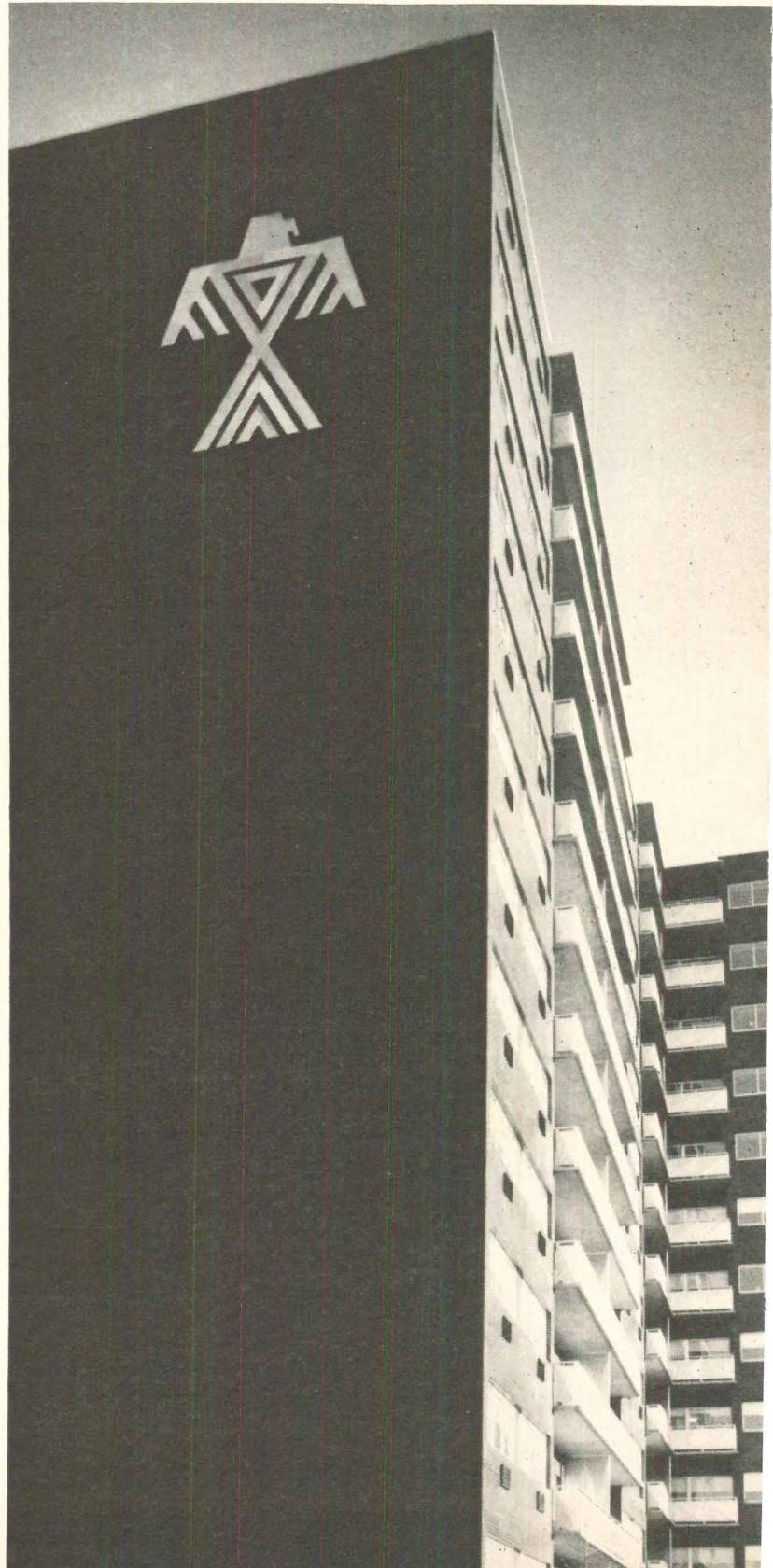
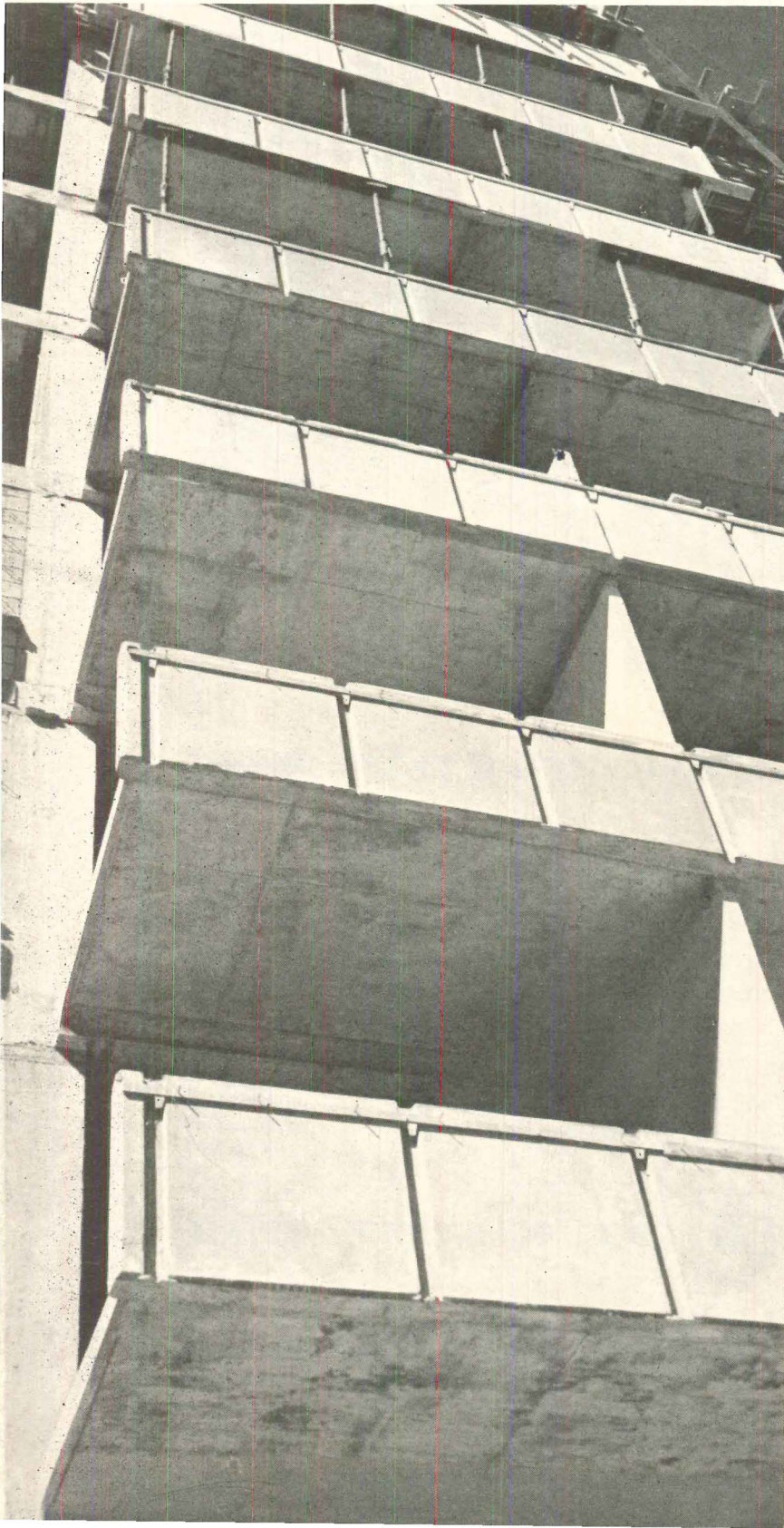


A. B. SIMMS

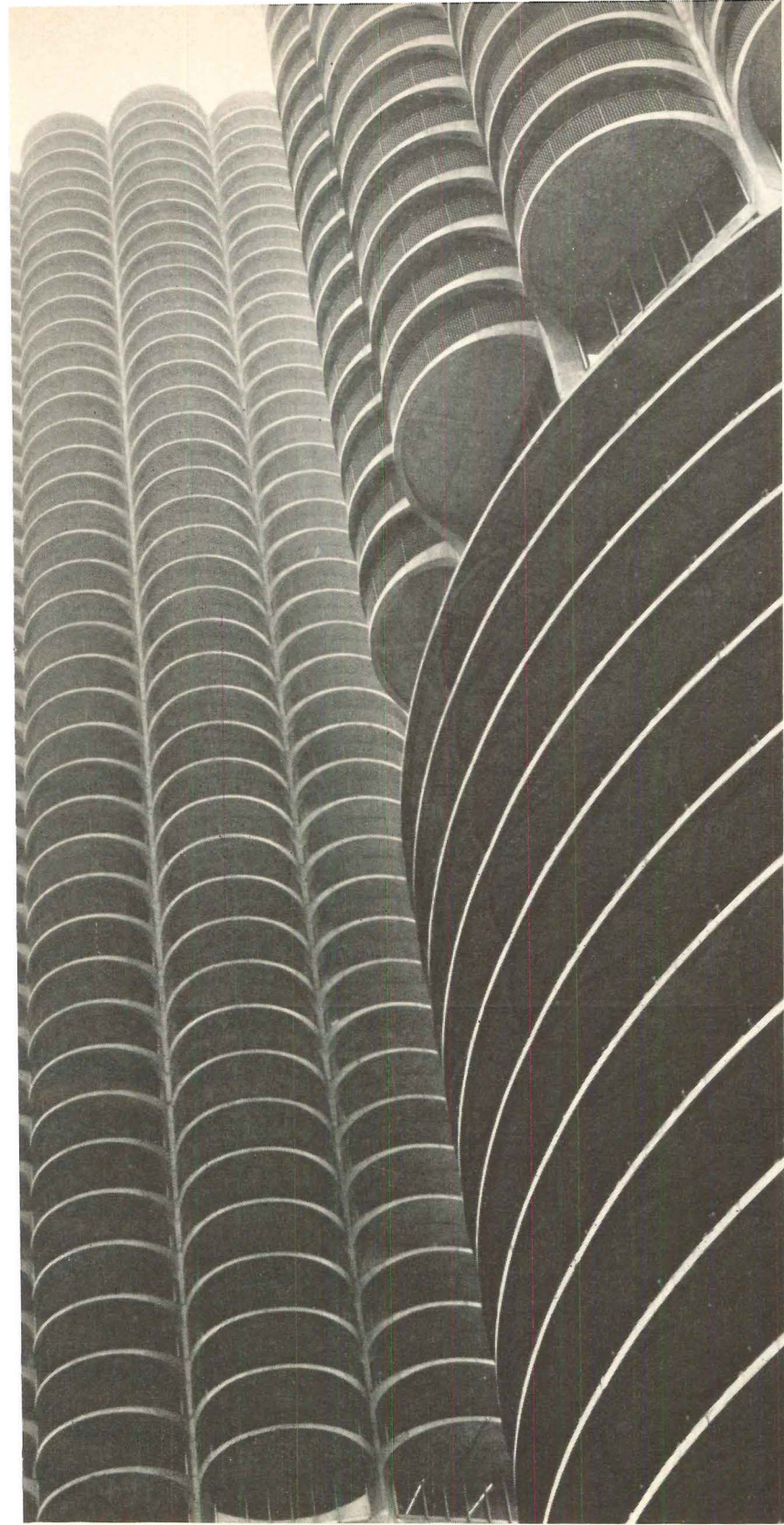


L. POLISS

Engineer Wm. Lattanze designed a cost-saving 2800-kw connected-load electrical system for Leonard Poliss' Iroquois Apartments. The system, worked out in cooperation with General Electric and the Philadelphia Electric Company, keeps the 132 Gold Medallion units well supplied with power for total-electric living. Architect: L. Levin, A.I.A.







Two 60-story towers housing 896 families, recreation and shopping facilities and a 700-boat marina —this is Chicago's Marina City, sponsored by the Marina City Building Corp., Wm. L. McFetridge, President. All of Marina City's apartment services are supplied by an electric line and one cold water line. Architect: Bertrand Goldberg, A.I.A.



W. L. MCFETRIDGE



J. S. HUNT

From its infra-red ceiling heaters in baths to its 330 G-E kitchens, Coral Ridge Towers is total-electric. Adm. J. S. Hunt's second co-op apartment, Coral Ridge Towers, North, will be completed this winter. Rentals are being accepted on his third total-electric high-rise apartment, Royal Admiral. Architect: C. F. McKirahan, A.I.A.

General Electric's technical, design assistance and customized promotional programs were put to good use in these total-electric buildings. For complete information on how General Electric may be of service to you, send in this coupon.

**GENERAL  ELECTRIC**

**Residential Market Development Operation  
General Electric Co., Appliance Park, AP-6, 230  
Louisville 1, Kentucky**

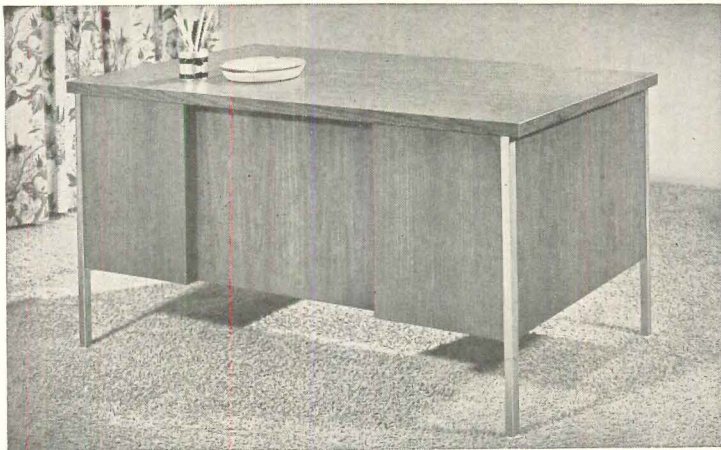
I'm interested in General Electric's program for Medallion Homes and Apartments. Please send me more information.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_





## personable

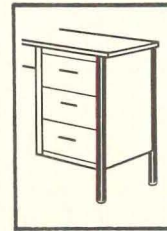
Spacemaster is designed for modern people, providing individual desks and desk groups that fit personal preferences or job needs utilizing space available in nearly any office. Four handsome leg styles quadruple design versatility — coupled with a variety of possible modular units, they give hundreds of combinations. Three leg options are of chrome-finished steel and the Winged Base is in matching wood. Exteriors are richly rubbed Walnut with matched textured plastic tops.



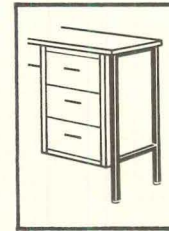
With T-Legs



With Winged Base



With Corner Posts



With H-Frame

Write today for a brochure showing the entire Spacemaster grouping.



JASPER OFFICE FURNITURE COMPANY  
JASPER, INDIANA



Kent-Lincolnia Apartments, Alexandria, Va.  
Builder: Builders and Developers of Md., Inc., Owner: Kent-Washington, Inc.

## Handsome Protection! ANCHOR PICKET RAILING made of REYNOLDS ALUMINUM

Strength, appearance and freedom from rust make aluminum the architect's natural choice for apartment railings. And the new Anchor Picket Railing adds an attractive simplicity of design to these basic advantages. Pickets, posts and handrail are all Reynolds Aluminum.

Another important advantage is the quick and efficient installation by Anchor's national network of skilled erectors. For detailed information, call your local Anchor office or write to ANCHOR POST PRODUCTS INC., 6542 Eastern Avenue, Baltimore, Md.

where new ideas  
take shape in aluminum:  
REYNOLDS ALUMINUM

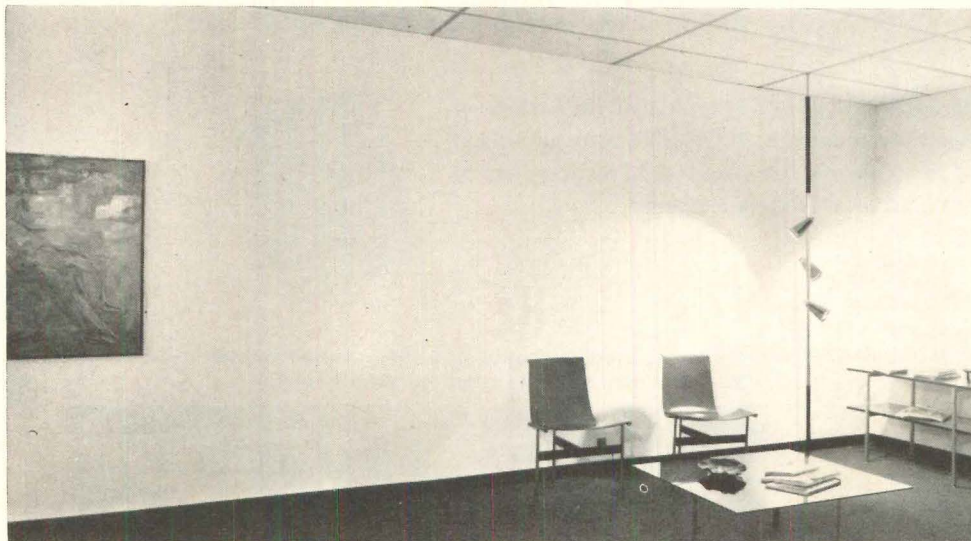
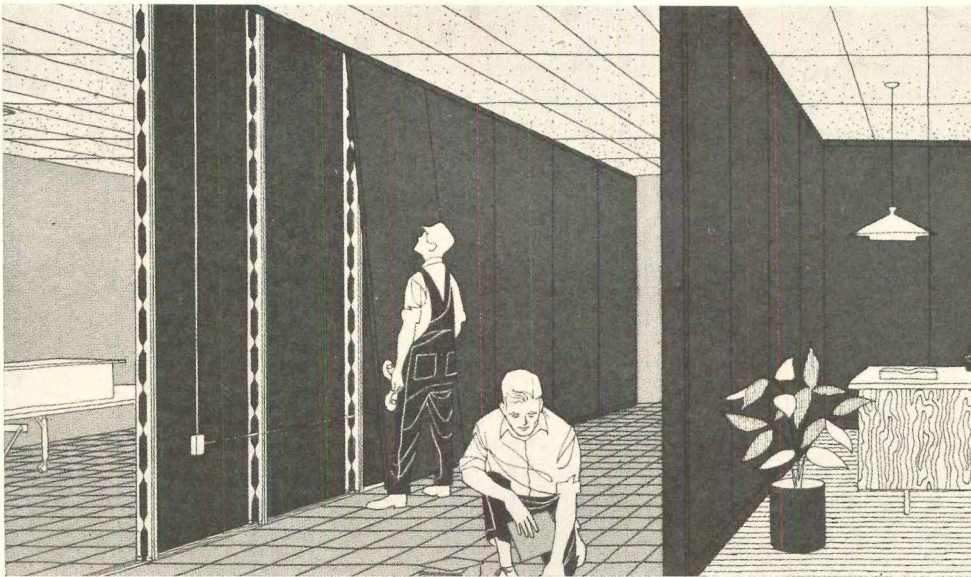


Watch Reynolds TV program on NBC: "The Dick Powell Reynolds Aluminum Theatre" Tuesday nights.



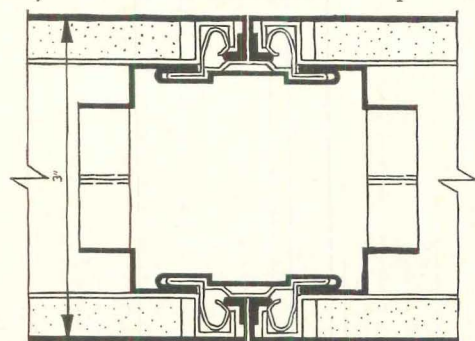
Movable walls of steel at gypsum prices (below)

Continuous honeycomb (page 185)



**LOW-COST MOVABLE WALL**

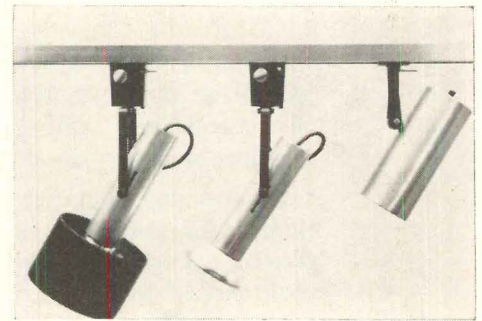
A new partition from E. F. Hauserman, *Co-Ordinator Double-Wall*, puts movable steel walls on a price par with those of gypsum and provides a bonus of completely reusable parts. Ordinarily, Hauserman partitions are engineered to fit exactly and are shipped to the job site ready for installation. But to cut the cost of the new wall, Hauserman changed its tack: Double-Wall arrives ready to be cut and fitted on the spot, eliminating the backlog of odd sizes Hauserman generally stocks in its other lines. Components



are simple and highly standardized.

The cross-section drawing of the post shows the double wall which gives the product its name: two gypsum cores laminated to steel skins, an air space separating the two panels. Both walls snap into steel posts for a snug, leakproof fit the length of the panel. The other connections, at floor, ceiling, and end walls, are just as efficient seals against light and sound. The space between panels is 2 3/16 inches, and the post has 1 3/4-inch openings, roomy enough for electrical and utility lines to be carried inside. Double-Wall panels support up to 750 pounds of wall-hung shelves and cabinets. The factory finish is a baked-on prime coat; another coat goes on after delivery. In this way, decisions about color and/or finish may be put off until the walls are going up, a delay that might prove a selling point in the case of wavering tenants. Panels are 40 inches wide and up to 12 feet high. Their sound transmission class rating is 43 decibels. Erected cost will be under \$20 per lineal foot.

Manufacturer: E. F. Hauserman Co., 7516 Grant Ave., Cleveland 5.

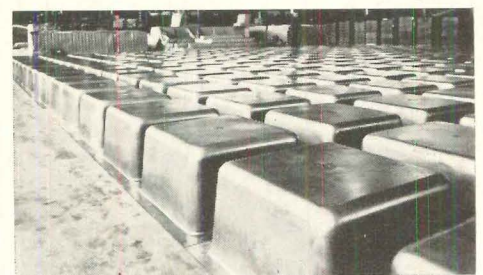


**TRACK LIGHTING**

Some of the techniques of theater lighting—"spots," colored filters, and adjustable beams—have been borrowed by Lightolier and incorporated into a flexible lighting system called *Lytespan*. The basic component is a modular track slotted to receive small spotlights at intervals of 12 inches or more. The track itself is highly flexible, designed to be recessed, surface- or stem-mounted on the ceiling, and vertically or horizontally mounted on walls. Lightolier expects this versatility to pay off in the number and variety of display installations where *Lytespan* makes sense: store windows, exhibits, art galleries, museums, and auditoriums.

The Lytespan track is an aluminum extrusion 1 1/8 inch square and either 4 or 8 feet long; separate tracks slide and lock together for continuous runs. Lightolier has a variety of Lytespots which fit the track, three of which are shown above. Among the accessories are color and heat filters, dimmers, and beam monitors. Individual Lytespots may also be used without the track, mounted on weighted floor bases or in special boxes on the ceiling. A 4-foot track costs approximately \$9, and the spots, \$8 to \$30 each.

Manufacturer: Lightolier, 346 Claremont Ave., Jersey City 5, N. J.



**DEEP DOMES**

Ceco Steel's new *Steeldomes* for reinforced concrete waffle slabs are deeper than ever: 16 and 20 inches, compared with a previous maximum depth of 14 inches. The deeper waffles create joists that are said to be more rigid and carry greater weight than the earlier domes, allowing column-to-column spans of 50 feet.

The new *Steeldomes* are 30 by 30 inches inside and, with 3-inch flanges all around, they fit a 36-inch module. *Steeldomes* are

continued on page 182



# Structural Steel Tubing speeds service plaza construction

In a major oil company's multimillion dollar expansion program, Republic ELECTRUNITE® Structural Steel Tubing is cutting the cost of building new service stations.

Square and rectangular steel tubing was picked for columns, beams, and spandrels due to its high strength to weight ratios, low cost, ease of erection, and outstanding design efficiency. The flat sides of this tubing facilitate the fitting of glass, masonry, and curtain wall sections. And the tubing requires no finish treatment other than paint.

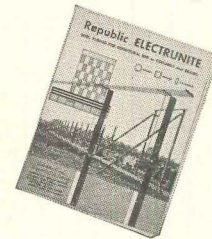
To minimize construction costs, all tube cutting and fabrication is done before delivery of the tubing to the job site. Spandrel sections of 3" x 3" square tubing, for example, are completely preassembled. Columns are fitted with base plates.

*Erection proceeds swiftly* at the job site where columns are placed on footings and bolted. 3" x 6" tubular headers and other sections are bolted together and welded. Welds are then ground to provide an attractive joint.

To further increase the design and economic advantages of structural steel tubing, Republic has increased guaranteed minimum yield strength of ELECTRUNITE Square and Rectangular Tubing by 36% over ASTM Specifications A-7 or A-36.

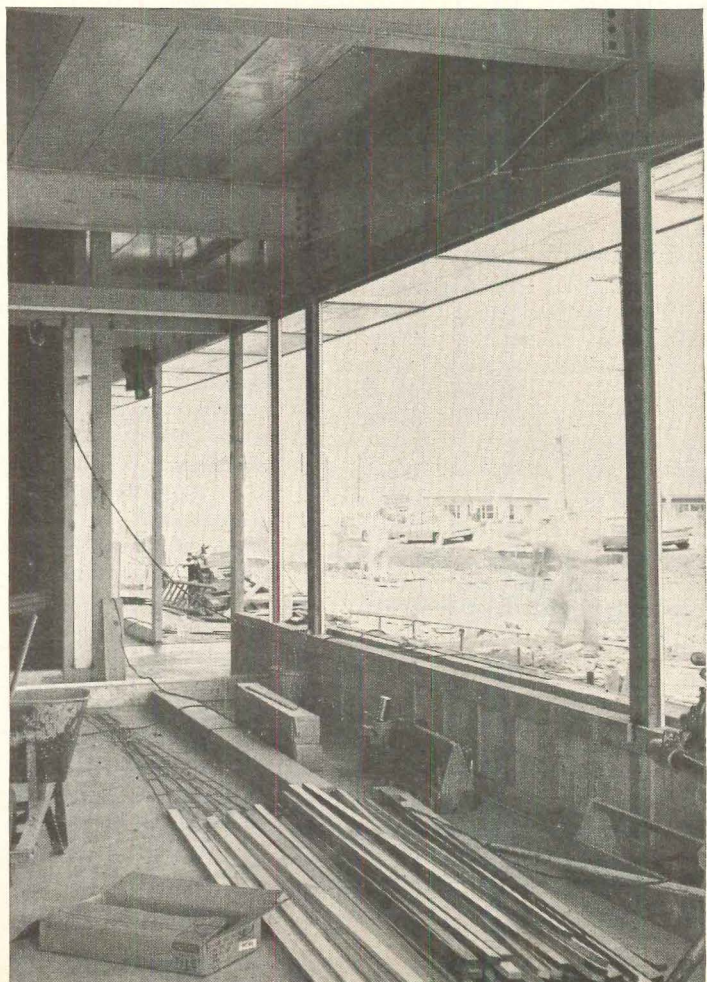
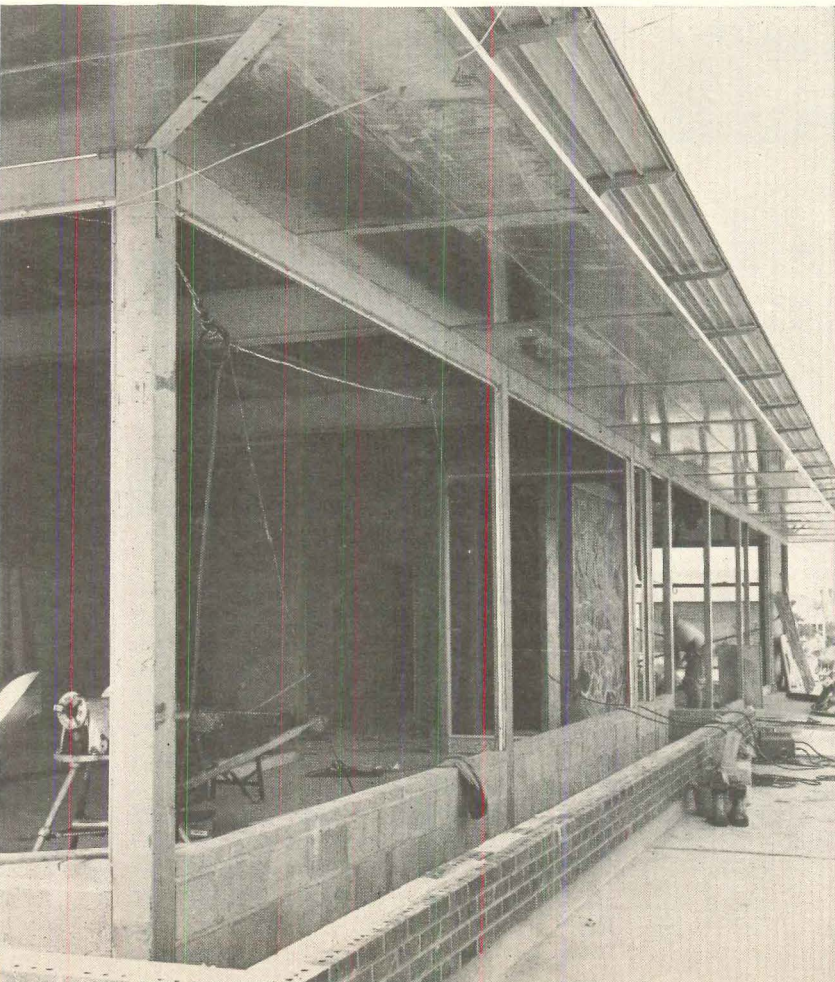
Detailed in the chart at right and in Republic's new ST-101 Specification, the higher strength can bring about substantial savings in overall costs. You *spend less money* to get needed bearing strength in columns, posts, lintels, spandrels, and other structurals.

**FOR A COPY** of Republic's informative, 52-page booklet—"ELECTRUNITE Steel Tubing for Structural Use"—send the coupon. ELECTRUNITE Structural Steel Tubing is available in rounds to six inches O.D., squares and rectangles in peripheries to 20 inches and wall thicknesses up to .250-inch.



**Turning corners** is simple when square tubing is used for corner columns. No additional framing is required to attach glass or walls.

**Lightweight** tubular shapes are easily joined by welding and attached to conventional structural steel shapes.







**NEW REPUBLIC SPECIFICATION ST-101**

		Grade A	Grade B	Grade C
Rounds	Tensile Strength, Min., psi	45,000	52,000	60,000
	Yield Strength (.2% offset), Min., psi.	33,000	42,000	50,000
	Elongation in 2", Min., percent	25	25	20
Shapes	Tensile Strength, Min., psi.	60,000	60,000	70,000
	Yield Strength (.2% offset), Min., psi.	33,000	46,000	60,000
	Elongation in 2", Min., percent	25	25	10

**ASTM A-7**

Tensile Strength, psi. 60,000  
to  
for shapes of all  
thicknesses 75,000  
Yield point, Min. psi. 33,000  
Elongation in 2"  
min. percent 24

**ASTM A-36**

Tensile Strength, psi. 60,000  
to  
80,000  
Yield point, Min. psi. 36,000  
Elongation in 2"  
min. percent 23

The Austin Company—Designers, Engineers and Builders—was selected to fabricate and package new service stations for The Standard Oil Company (Ohio). The firm of Peter Muller-Munk created the original design concept for the stations.



**REPUBLIC STEEL**

Cleveland, Ohio 44101

**REPUBLIC STEEL CORPORATION**

**DEPT. AF-6684**

**1441 Republic Building • CLEVELAND, OHIO 44101**

Please send a copy of the booklet,  
*ELECTRUNITE Steel Tubing for Structural Use.*

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

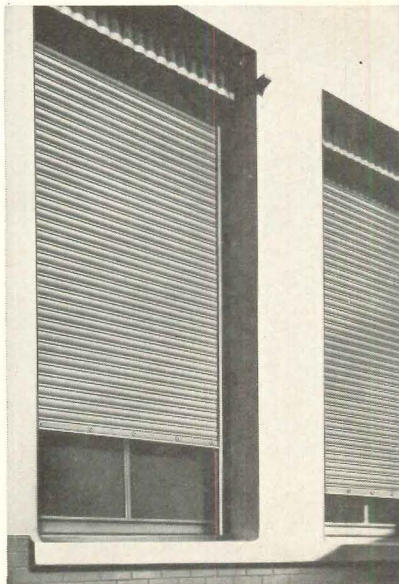
Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

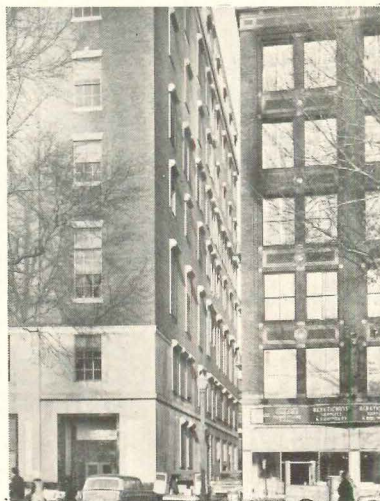


# STILL PAYING HIGH DIVIDENDS

## KINNEAR METAL ROLLING FIRE DOORS and SHUTTERS



New England Telephone and Telegraph Company's building in Springfield, Mass. was saved in December fire.



As they have for the past several decades, Kinnear Rolling Fire Shutters continue to pay their users high dividends. Not only through protection at time of fire! But also, in many cases, in reduced fire insurance rates — meaning a year after year savings in premium costs.

Installed on openings in fire walls, Kinnear Fire Shutters provide a safe-guard against fire-spreading drafts. They close automatically in case of fire. Their effectiveness was again proven in the recent fire in Springfield, Mass. As the pictures show, the New England Telephone and Telegraph Company building — with its fire exposed wall fully equipped with Kinnear Shutters — was saved from any loss of the millions of dollars worth of electrical equipment it contained. This is typical of what is happening frequently across the country.

Kinnear Doors and Shutters carry the label of the Underwriter's Laboratories, Inc. (3-hours Class A Label for interior openings and 1½-hours Class D for exterior openings); and within the size limits, can be built for any size opening. When installed on doorways, they can also be used as a regular service door without hampering their automatic closure in case of fire.

Write Today for complete details on this time-proven FIRE GUARD.



### The Kinnear Manufacturing Co. and Subsidiaries

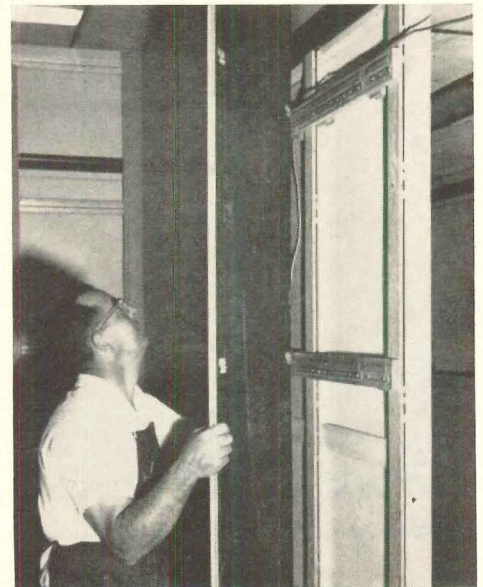
**FACTORIES:**  
1640-60 Fields Avenue, Columbus 16, Ohio  
1742 Yosemite Avenue, San Francisco 24, Calif.  
3683 Dundas Street West, Toronto, Ont., Canada  
Offices & Representatives in All Principal Cities

not for direct sale or rent but are part of Ceco's contracting service.

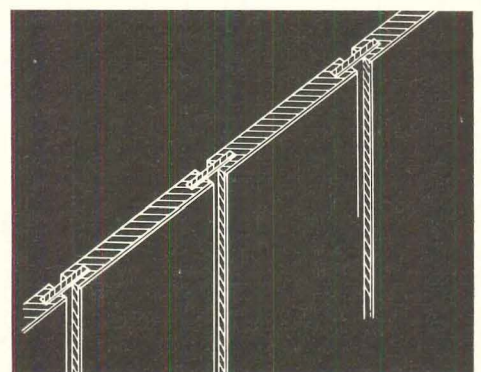
Manufacturer: Ceco Steel Products Corp., 5601 W. 26th St., Chicago 50.

### PLASTIC PANELS

A package system of plastic-faced panels is General Electric's first venture into the wall-covering field. The panels are faced with Textolite, GE's melamine laminate which wipes clean with a damp cloth. Here GE engineers have pared Textolite to half its normal countertop thickness: the wall veneer will be just 1/32 inch deep. GE expects the new panels to find a market as wall surfaces in new or remodeled offices, hospitals, banks, motels, and stores.



Textolite wall panels are available in a multitude of colors and patterns, all in a special nonglare finish: 18 wood grains, 24 solid colors, and 10 "misty" solids. Panels are hung on furring strips and clamped to visible splines in matching or contrasting shades of Textolite recessed ¼ inch from the panel face. All panels are 1 1/16 inch thick, up to 12 feet high, and 30, 36, or 48 inches wide. Textolite veneer is mounted on particle board and backed by another stiff plastic sheet on the wall side. In installations where codes require rated materials, GE adds another ingredient to make *Flame-*



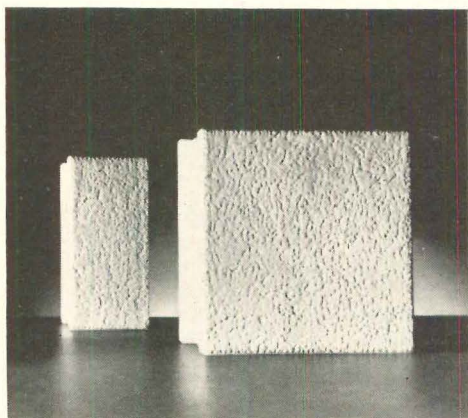


bar panels, which have a 30-50 flame-spread rating from Underwriters' Laboratories, Inc. Regular Textolite panels cost about \$2.50 per square foot, installed.

Manufacturer: Laminated Products Dept., General Electric Co., Coshocton, Ohio.

### MATCHED BLOCKS

Following up the introduction last year of Intaglio Glass Wall Units (*Products*, Nov. '62), Pittsburgh Corning now offers two plain units that match the opaque portions of the Intaglio curtain-wall blocks. Like



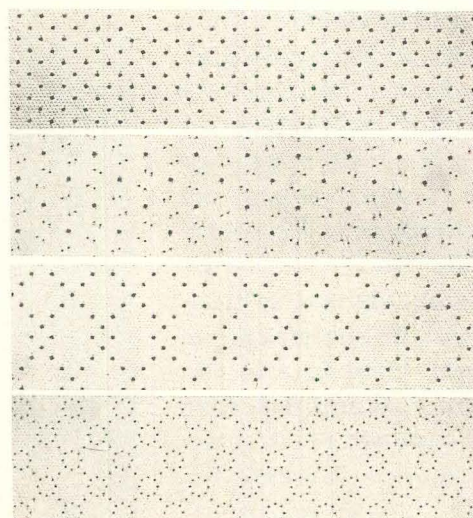
them, the new blocks are rough-textured glass coated with a light-gray ceramic frit to match the color of the mortar between units.

The new *Inter-Mix* blocks are an 8-inch square and a half-size rectangle. They cost \$1.65 and 93 cents each, less in quantity.

Manufacturer: Pittsburgh Corning Corp., 1 Gateway Center, Pittsburgh 22.

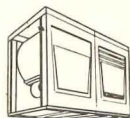
### PERFORATED BLINDS

Sometimes materials developed for a special building turn out to be of wider interest than the manufacturer could predict. A case in point is the perforated *Triglas* fabric that Du Pont supplied for the big, slanted vertical blinds in the TWA terminal at New York



*continued on page 185*

**ANOTHER NEW  
REZNOR  
THERMOCORE  
GAS HEATER**



### NEW VERSATILITY IN UNIT HEATING EASY TO DIVIDE AIR INTO 2 OR 3 SPACES

This model is a completely enclosed unit heater with a matching cabinet blower. Can be used in a closed or partially closed duct system (where static pressure does not exceed 7 inches W.C.). To move air into two or three spaces replace louver end with limited duct work. For example, specify for a service station where air is needed in the lubricating area, the office and rest rooms.

The unit can be adapted to almost any installation, commercial or industrial use. In any installation the Reznor unit will be a silent partner. It's a quiet one. Only the comfort will be noticed.

This is one of many Reznor models of the new THERMOCORE line of heating/cooling systems. Look for Reznor in the Yellow Pages or write for literature.



**REZNOR MANUFACTURING CO.**

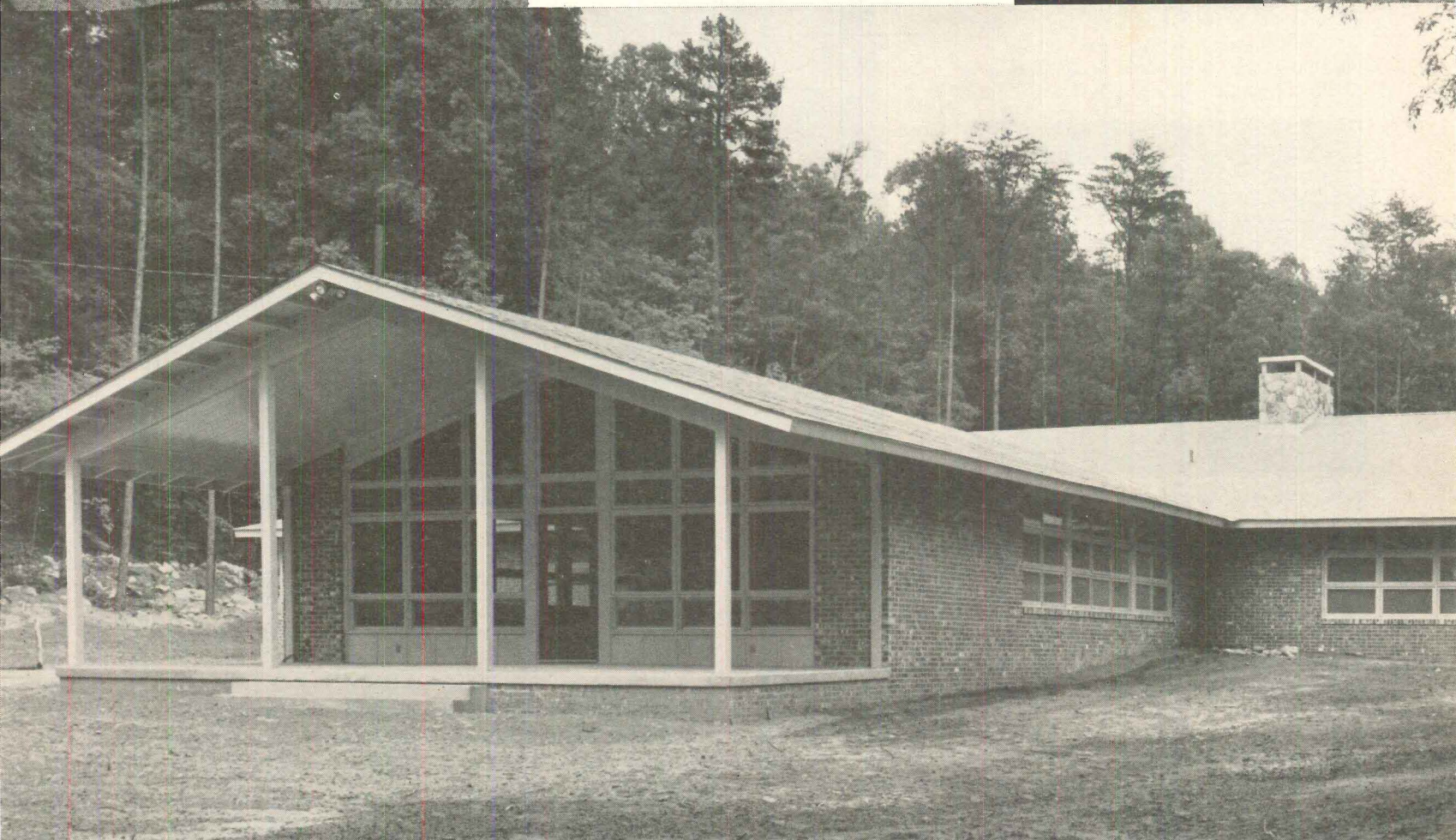
Dept. AF-4 MERCER, PENNSYLVANIA

A Division of BELL & GOSSETT CO.



# SUPERIORITY

## PART OF OUR PRODUCT



## JUMBO WOODTEX 300

the "Crown Jewel of Roofing" . . . has been created by the expert hands of Certain-teed, the company which has pioneered practically every new breakthrough in the manufacture of asphalt roofing products. Examples: felt produced from fresh wood fibers, the Millerizing process of saturating felt with asphalt, automatic controls for uniform granule application, the Walton device for blending colors and abolishing pattern monotony. Now, Certain-teed presents the finest asphalt shingle available today . . . Jumbo Woodtex 300, with vivid new shadow line, distinct texture, and unique color styling. This heavy, rugged shingle carries the UL label and is backed by 25-year bond to give the ultimate in protection from wind, rain, sun and fire. Give your customers this superior product that will add to your reputation. Certain-teed Products Corporation, Ardmore/Pa.

PLANTS AND OFFICES  
THROUGHOUT THE UNITED STATES



continued from page 183



## THERE'S A THING CALLED MONEY...

It's one man's medium of exchange, another man's poison—or, if you don't like it straight, root of all evil. To us, it's also an indicator of the presence (or absence) of a very important asset for businesspaper advertisers: *wantedness*.

When a man wants a publication enough to pay for it, the chances that he'll read it are bright. When he doesn't, it's anybody's guess. And in our book, *anybody's* guess as to whether or not your advertising is likely to be seen isn't much to put *your* money on.

If you, too, believe that money talks, a good place for your advertising to cash in on what it says is in the pages of publications that readers *pay for*... publications bearing this familiar symbol:



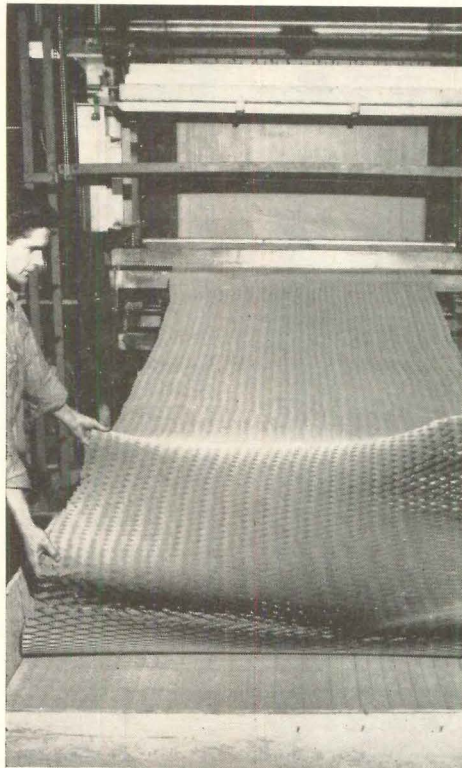
The plus value of paid circulation is "wantedness"

International Airport (*Products*, Feb. '63). In addition to the overall pattern of diagonal perforations at TWA (top, page 177), now standard, Du Pont has broadened the line with three new patterns for vertical blinds that keep out sun, yet allow a surprisingly clear view to the outside. Trigras is a vinyl-coated glass-based fabric, currently available in both white and gray.

*Manufacturer:* E. I. du Pont de Nemours & Co., Wilmington 98, Del.

### ENDLESS HONEYCOMB

The sinuous material below is paper honeycomb emerging from a new continuous-production machine at Weyerhaeuser's Centralia, Wash. plant. The new machine, "Thumper No. 2," quadruples Weyerhaeuser's honeycomb production and switches back and forth to different thicknesses, cell sizes, and materials (paper, paperboard,



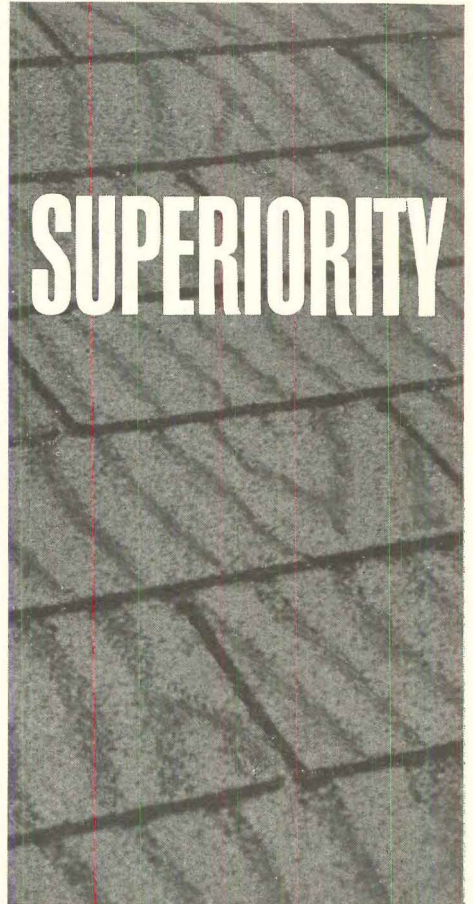
fiberboard) in just 2 or 3 minutes for thickness changes, 5 to 15 minutes for cell-size or material changes. Operators take the honeycomb off the machine at the delivery end and pack it in pallet boxes for compact shipment and later expansion to full-size honeycomb.

*Manufacturer:* Weyerhaeuser Co., Tacoma 1, Wash.

### VINYL-COATED WIRE

Grids, tubing, fencing, and hose are some of the shapes of U.S. Steel's new *Resinized Steel Wire*. Unlike previous vinyl-

continued on page 187



## DO YOU NEED A STRONG RIGHT ARM ?

Every day, exciting changes take place in the building industry. To meet these rapidly-changing conditions and to utilize new designs, materials and techniques, experienced guidance often is needed.

To provide this technical assistance, and to help insure quality construction at minimum cost, Bestwall Certain-teed has now made available a staff of trained Systems Engineers—men experienced in many phases of construction involving schools, hotels, apartments and offices, as well as all residential construction. There is no charge for this assistance.

Gypsum Drywall Systems, Roofing Shingles, Roll Roofing, Siding, Building Insulation, and Lath & Plaster are among the installations where our Systems Engineers can assist you. Contact your Bestwall Certain-teed Sales Corporation office.

# BESTWALL CERTAIN-TEED



"This is  
a great place  
to work..."



Fine furniture has the knack of saying it! Invincible's all-new furniture / decorator catalog shows you how with dozens of colorful, practical suggestions and ideas.



**Invincible** METAL FURNITURE CO.

Dept. A-93, Manitowoc, Wis.  
(In Canada: 1162 Calendonia Rd., Toronto 19)

Please send a copy of your new full color catalog.

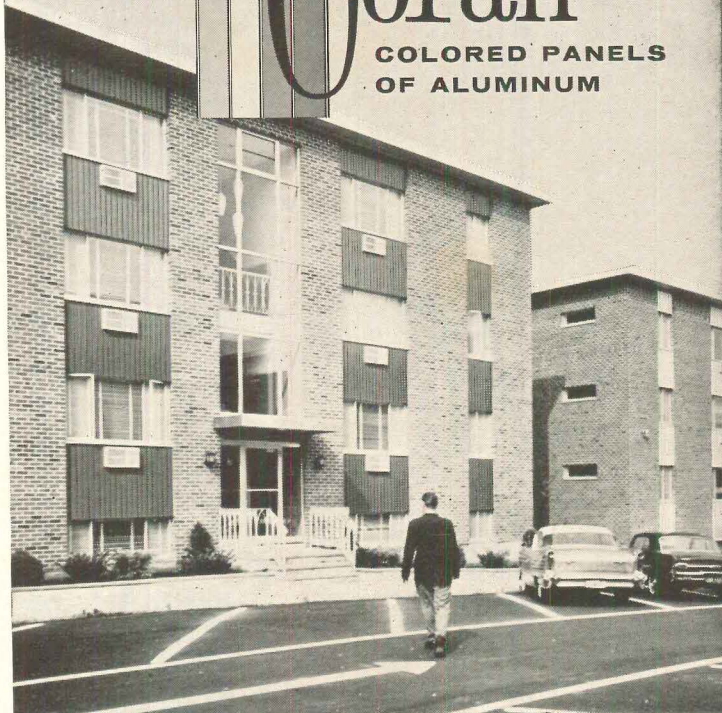
NAME .....

FIRM .....

ADDRESS .....

# CoPan

COLORED PANELS  
OF ALUMINUM



**The quality facing material  
more and more architects are  
specifying today!**

Naturally. CoPan offers the combination of beauty, versatility and economy all architects are looking for. Suits and adapts to all applications, new construction or remodeling. Easily installed, requires only an absolute minimum of maintenance. Fourteen pure Vinyl colors; warranted in writing for ten years against blistering, peeling, crazing or checking. Convenient stock lengths or cut sizes to fit any opening. CoPan is unquestionably the lowest-cost, fine-quality building facing material on the market today!

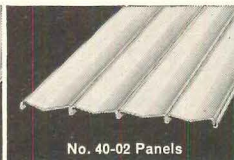
**MAY WE HELP?** Write Dept. 8I for our free Sample Kit, including descriptive literature and sample panels.



**HASTINGS**  
ALUMINUM PRODUCTS, INC.  
Hastings, Michigan

Manufacturers of residential aluminum siding, Roll-up and Alumi-Awnings, ornamental columns, Patio-Carports and aluminum shutters

SEE OUR  
CATALOG  
IN  
SWEET'S




Dramatic new VEE-Contour—No. 40-02 panel—suggests unlimited design and color combinations, removes all hesitation about using same facing on adjacent buildings.



# FOUND

a practical solution  
to this costly,  
dangerous problem



**WILLIAMS NEW  
EVERLASTIC**  
SEALANT WITH  
MIRACULOUS POLYURETHANE

Ever since women's shoe heels got sharper than a draftsman's pencil, control joints in patios, malls and sidewalks have been tripping the ladies and causing accidents and lawsuits.

Until now, no one has found the real answer to this problem.

Williams Everlastic Sealing Compound, specially formulated and containing a polyurethane base, has proved effective in dozens of tests against the digs and darts of spiked heels. Caulked into control joints, where it cures in hours and adheres for generations, its tough resilience absorbs the jab and shrugs it off. The lady goes on her way, and your client's peace of mind is undisturbed.

The new Williams Everlastic Sealing Compound with polyurethane base has many other uses, too: in pre-cast concrete panels, coping stone and masonry joints, swimming pools, dams and water reservoirs, bridge and highway expansion joints and moulded fiberglass components.

Write today for complete technical information.

## WILLIAMS SEALS and GASKETS DIV.

WILLIAMS EQUIPMENT and SUPPLY CO., INC.  
486 W. Eight Mile Road, Hazel Park, Mich.

Williams Equipment and Supply Co., Inc.  
486 W. Eight Mile Rd., Hazel Park, Mich.

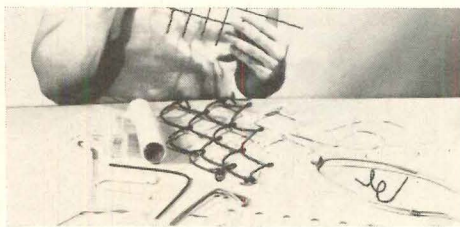
Please send catalog sheets and technical bulletins on Williams Everlastic Polyurethane Sealing Compound.

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

coated wires, this one has a bonded coating which will not stretch or peel and is less vulnerable to corrosion beneath the coating. Vinyl in a wide choice of colors can be bonded to any steel wire, in coating thicknesses of 6 to 10 mils, depending on how subject to corrosion the applications will be.

So far, no prices have been set; orders are handled on a custom basis.

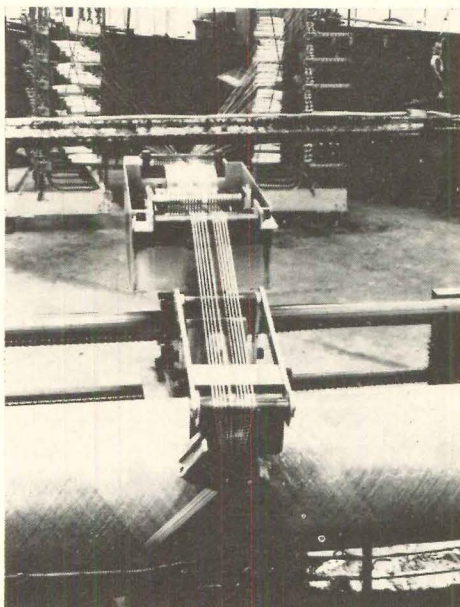
Manufacturer: American Steel & Wire Division of U.S. Steel, Rockefeller Building, Cleveland 13.



### PREVIEWS

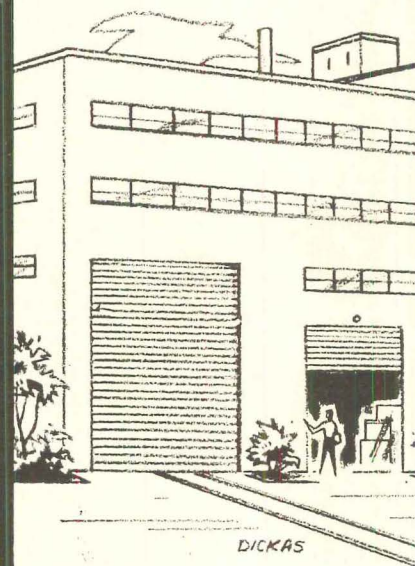
Libbey-Owens-Ford will build a multimillion dollar factory near Lathrop, Calif. to manufacture float glass under license from Britain's Pilkington Brothers Ltd. (*Products*, Oct. '62). The new plant, the first L-O-F flat glass plant on the West Coast, will produce the float glass for automobile windshields, sliding doors, and both commercial and residential windows.

By acquiring Lamtex Industries, Inc., a small company that has done a lot of defense and development work in filament-wound plastics, the Koppers Co. enters the



reinforced plastics business ready to produce a variety of industrial shapes, including reinforced plastic parts and tubing. Filament-wound plastics (see photo) have high strength-to-weight ratios, thermal and electrical insulation properties, impact- and shatter-resistance. Koppers will operate Lamtex as a separate division. END

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