




FORUM



W. S. TYLER

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CHURCHES 1961:

- 82 Spirit of Byzantium
Frank Lloyd Wright's Greek Orthodox Church, in Wauwatosa, Wisc.
- 88 Mission-in-the-round
Olav Hammarstrom's shingled Episcopal sanctuary, in Lafayette, Calif.
- 90 Soaring timbers in the woods
Victor Lundy's upswept Unitarian Church, in Westport, Conn.
- 94 Austerity in concrete
Paul Schweikher's Presbyterian Church, in East Liverpool, Ohio.
- 98 The Protestant search for form
A theologian discusses symbolism; an architect translates it into shape.
- 102 Gallery: Primitive churches
Out-of-the-way vignettes of U.S. religious life, by Walker Evans.
- 108 Le Corbusier builds at Harvard
The new Visual Arts Center may come as a shock to "The Yard."
- 112 Technology: New facts about glass
Some basic information on an old but extraordinary material.
- 118 The U.S. builds in Greece
Walter Gropius' new American Embassy in Athens.
- 124 Local codes: a national problem
Authority Norbert Brown sets down some guide lines to reform.
- 126 Criticism: Washington, D.C.
Sibyl Moholy-Nagy analyzes the "Plan for the Year 2000."
- 132 Rebuilding
A remodeled temple . . . church air conditioning . . . quarterly statistics.

DEPARTMENTS

- | | | | |
|-----|---------------|--------|---|
| 5 | News | Cover: | Wall painting in Tlacolula, Mexico.
Photograph by Barbara Gould. |
| 47 | Projects | 57 | Editorial, subscription, and
advertising data. |
| 53 | Products | 176 | Advertising index. |
| 79 | Editorials | | Published monthly by TIME INC.,
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Business Publications. |
| 149 | Books | | |
| 156 | Abroad | | |
| 161 | Letters | | |
| 180 | Editor's note | | |

Publisher's note

FORUM's 62,000 subscribers represent every branch of building—clients as well as architects, engineers, and contractors—and FORUM's editors try hard to satisfy their individual and common interests. Sometimes the editors wonder how well they succeed. To be sure, the volume of their mail and the trend of the magazine's circulation are comforting; but to satisfy their curiosity more fully, the editors last spring asked Readex Inc. to measure the interest of subscribers in each issue.

The results have been enlightening—sometimes surprising—and may be of interest to readers, particularly those who have participated in the surveys. Here are some of the eight months' findings:

■ Most interesting was the comprehensive article in July about the Chase Manhattan office tower, designed by Skidmore, Owings & Merrill. It interested 98 per cent of FORUM's readers. Because this article covered the technical and economic aspects of the building as well as its architecture, as do many FORUM stories, it is not surprising that it was of almost equal concern to readers of all kinds.

■ What is surprising is that such articles as that on the "far out" architecture of Le Corbusier (April) also prove to be of general interest. This one appealed to 85 per cent of the architects and to 70 per cent of the contractors and the clients.

■ Least interesting (30 per cent) was the prophetic article in February on fall-out shelters. A sign of the changing times—and perhaps of different editorial treatment—is the fact that a second article on this subject in October scored 73 per cent!

■ The regular departments, with one exception, score high. "News," for instance, has averaged 87 per cent; "Projects," 86; "Products," 73. The exception was "Excerpts" (37 per cent), and it has been discontinued.

Although the survey results to date speak well for the editors' appraisal of readers' interests, the staff will not be guided by the high scores of "sure-fire" popular articles or the low scores of some articles which it feels *should* interest the industry. FORUM seeks to be interesting with useful, rounded coverage of important information and ideas. Thus, the survey results are more useful to the editors (if not the advertisers*) as a check-up on past performance than as a guide to future performance.—J.C.H. Jr.

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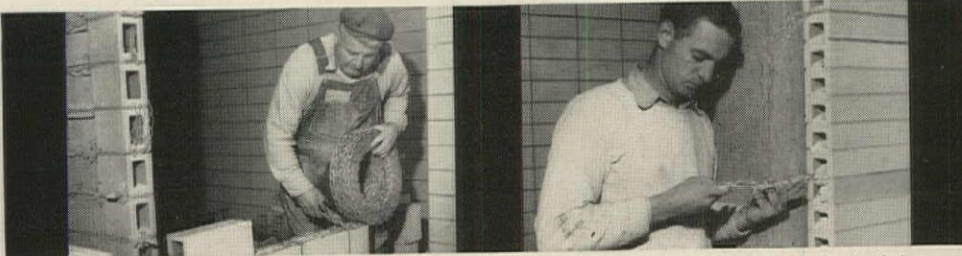
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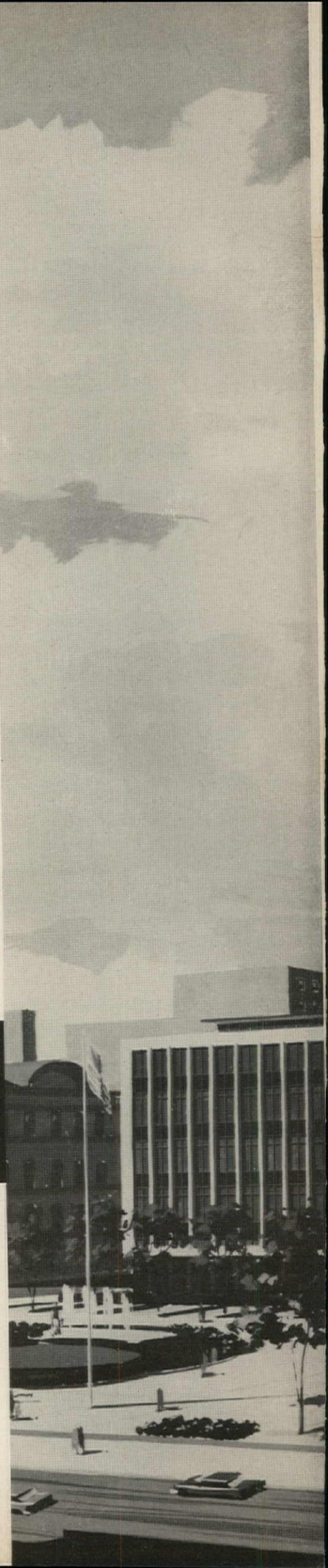
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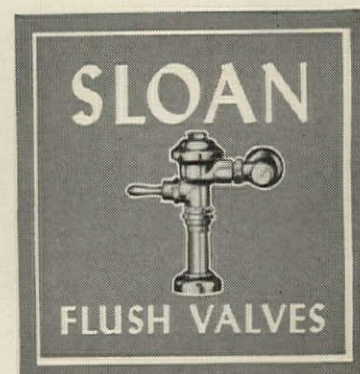
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Land, cities—and the pressures on both—are examined as planners and realtors meet at fall conferences

In Washington, housing officials laud new federal approach and programs

An atmosphere of optimistic ferment prevailed at last month's 28th annual conference of the National Association of Housing & Redevelopment Officials in Washington, D.C. The focus for the 2,500 (largest ever) gathering was the new look in federal housing programs, particularly public housing and urban renewal.

There was no mistaking the change in NAHRO's attitude, after eight years of chafing under an allegedly unsympathetic administration. Housing & Home Financing Administrator Robert Weaver happily noted that the conference had "some of the aspects of a victory rally. . . . Not only have your friends been placed in the highest ranks of the new administration, but thanks to your support a housing bill has been passed that incorporates many ideas put forward by your organization. . . ."

The housing bill of 1961 was indeed very much in the spotlight; and the key word in most discussions was expansion. Not only have capital grant funds now been put on a long-term authorization basis, but the whole program is in the process of adopting a more comprehensive outlook. As Weaver noted, HHFA is following President Kennedy's urban-renewal approach "that would be re-oriented from slum clearance and prevention toward a positive program for economic and social regeneration."

The big picture

The discussion was kicked off in grand style by Greek Architect-Planner Constantinos Doxiadis (FORUM, May 61), who, with charmingly accented tones of alarm, sketched the future growth of our cities in a huge, sprawling pattern which he terms "ecumenopolis." An example would be a large urban ring, ranging from Portland, Me. in the east, down to Richmond, Va., sweeping west to Pittsburgh, Pa., north to the industrial complexes of Cleveland, Ohio, Erie, Pa., and Buffalo, N.Y. and through Syracuse, Albany, and Springfield, Mass.—a huge urban doughnut surrounding an ever decreasing rural hole.

Doxiadis demands that ecumenopolis be shaped to the betterment of man, but work must commence immediately,

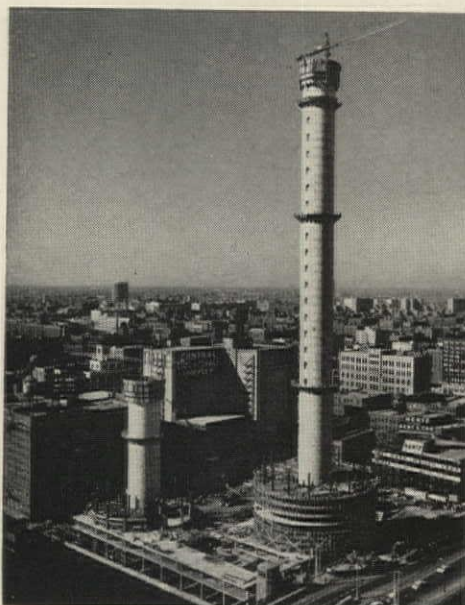
continued on page 7

In New York, planners look into biggest city's future: middle-aged spread

The greatest metropolitan area in the nation, New York's 22-county region, is developing a middle-aged spread that threatens to choke its highways and services, soak up its open spaces, and generally destroy its viability.

This was the warning sounded last month by the Regional Plan Assn., which for 32 years has been attempting to give some form to the massive growth of New York and its environs. RPA Executive Vice President C. McKim Norton told 600 planners attending the association's annual conference that a whole new pattern of urban growth would develop by 1985, a pattern he calls "spread city." It is marked by a vast area not truly suburban in nature, for it will have its own self-contained shopping and recreation areas; but neither will it be a city, because there will no longer be any single urban center. Land will be urbanized at twice the rate of the previous 30 years,

continued on page 9



ROUND APARTMENTS RISE IN CHICAGO

Chicago's Marina City goes round and round. With a mammoth crane swinging pre-cast sections into place at an impressive pace, the twin circular apartments, called Marina City, designed by Bertrand Goldberg, are rising fast on the Chicago River. The circular 60-story towers will combine parking (lower 19 floors) with petal-shaped apartments. When finished, they will be the tallest reinforced concrete buildings in the world.

In Miami Beach, realtors appraise their current and coming prosperity

More than 5,000 members of the National Association of Real Estate Boards gathered last month in a most appropriate setting—Miami Beach, where real estate development has produced a dazzling array of exceedingly profitable properties. From various podiums in one of these beach-front temples, the 1,000-room Fontainebleau, the real estate fraternity contemplated its present and future prosperity and the ramifications thereof. While some sessions were frankly meretricious (e.g., "People Can Make You Rich"), there was much talk about urban renewal, the development of urban properties generally, tax and depreciation policies relating to real estate, and happy anticipation of a building boom at least through next year.

Growing support for renewal

Mellowing in its early opposition to urban renewal, NAREB issued a special booklet on appraisal problems in renewal areas, conceding that the program "is performing reasonably well, and is likely to be expanded substantially through the coming years."

NAREB is still stressing rehabilitation and conservation rather than broad-gauge clearance programs, and to this end is vigorously backing the federal Community Renewal Program. John W. Shively, assistant commissioner of technical standards of the Urban Renewal Administration, outlined the process involved in community renewal programming, and pointed out that the economic studies so vital to the program represent "areas of joint participation by the urban economist and the real estate appraiser."

NAREB's Build America Better Committee, long a champion of rehabilitation programs, is still tilling that field, but is also coming to recognize that the community renewal approach makes some outright clearance necessary. One-time Federal Housing Administration Commissioner Guy T. O. Hollyday called upon all 1,400 member boards of NAREB to form local urban renewal committees to advise and consult with local planning officials.

Current BAB Committee Chairman F. Lawrence Dow cited the needs of industry in urban areas, maintaining that

continued on page 10



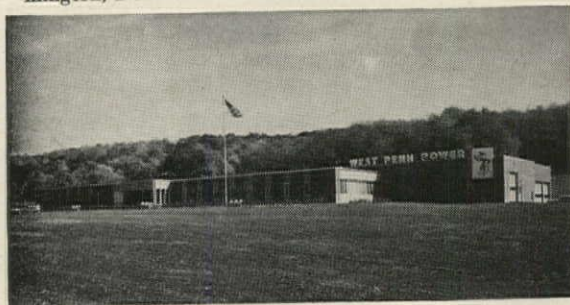
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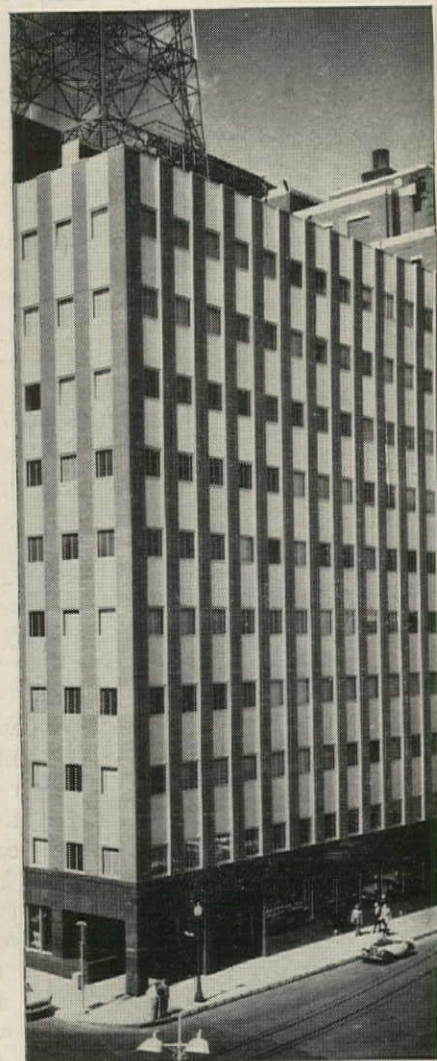
• West Penn Power Company, Connellsville, Pa. Architects: Hoffman and Crumpton, Pittsburgh, Pa.



• Federal Low Rent Public Housing Project, Elberton, Ga. Architect: James M. Hunt, A.I.A., Elberton, Ga.

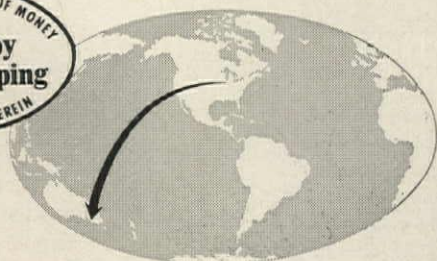


• Harris Trust and Savings Bank, Chicago, Ill. Architects: Skidmore, Owings and Merrill, Chicago, Ill.



• Northwestern Bell Telephone Company, Des Moines, Iowa. Architects: Tinsley, Higgins, Lighter and Lyon, Des Moines, Iowa.

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Washington cont'd.

because "humanity is urbanizing the earth and there is no way of reversing the trend." The ideal supercity would be a huge hexagon made up of micro-hexagons, "with traffic all around but not crossing," which would comprise, Doxiadis says, "an ecumenic city of life instead of an ecumenic city of death."

While HHFA and its constituents are not yet actively contemplating ecumenopolis, there is a definite broadening of the many programs it administers. One example is the expansion of the Community Renewal Program, which was initially passed in the Housing Act of 1959, but has been slow getting off the ground. This program encourages cities to adopt a city-wide approach to urban redevelopment, with federal funds provided to permit a study of the extent of blight, and the resources for fighting it on a city-wide basis. The program thus developed should be kept extremely flexible to allow for changes in the cityscape. As Justin Herman, executive director of the San Francisco Redevelopment Agency, said, the community renewal program should provide a "rationally inconsistent" guide for city growth. Such "rational inconsistency" is calculated to fend off the stifling effects of the "projectitis" which has become the *bête noire* of many cities.

While it is expected that CRP could generate a total of \$67 million in both private and public study funds in the next five years, only 35 cities have so far developed such programs. One difficulty: CRP has not yet been adequately defined in relation to the overall general plan for city development.

Renewal and public housing linked

Another example of the bigger approach to urban problems is in the newly forged link between urban renewal and public housing. Under the 1961 Housing Act, the local contribution toward the cost of public housing (generally in the form of tax exemption or remission), can be counted as part of the city's one-third share of an urban renewal project. Thus, a city can clear an urban renewal area, place a public housing development there, and use the tax exemption as part payment for its renewal share, involving no cash drain on the city treasury. This move is calculated to make it easier to get central city sites for public housing, and to integrate more healthfully public housing with urban renewal developments.

Public housing and renewal were linked in another fashion at the NAHRO conference too, although somewhat critically. Both URA Commissioner William Slayton and Public Housing Administrator Marie McGuire

criticized past design standards in renewal and public housing. Slayton stressed the new look in the federal approach to renewal: "A few structures by architects of the stark and functional school could be an asset to any locality. A city full of them, however, is exceptionally dull."

Commissioner McGuire, former housing authority head in San Antonio, Tex., hopes that PHA's embryonic demonstration program will lead to higher design standards. Under the guidance of Architect Thomas B. Thompson, a fellow Texan, who has been appointed assistant commissioner in charge of development, PHA is studying "new concepts in the entire development program . . . striving for excellence of design. . . ." In recent months, Commissioner McGuire said, "we have held numerous meetings with leading architects, with the cooperation and support of AIA. . . . Our hope is to make it easier for architects to do business with PHA . . . we hope to minimize if not abolish . . . red tape." To stress her

point, Commissioner McGuire added that "no single decision you face is as important as the selection of your architect."

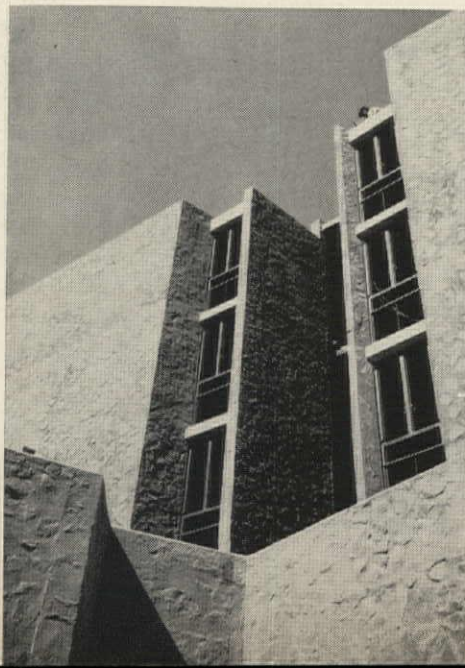
Other proposals—and old problems

Before the conference ended, NAHRO members were awash in new federal proposals and were trying to sort them out to see which might work in their cities. An expanded program of housing for the elderly, with broader subsidies and a newly formed section in PHA, was one hot topic, as was the notion of a land bank for urban renewal sites. There was real sympathy for such a bank, which has long been advocated by several NAHRO figures, particularly Norfolk's Lawrence Cox, who argues for carefully planned land disposition over a long period to insure the fullest land use. Cox says: "Hurried piecemeal development to close out a project is a wasteful process cities can ill afford." Cox also urged a federal program of

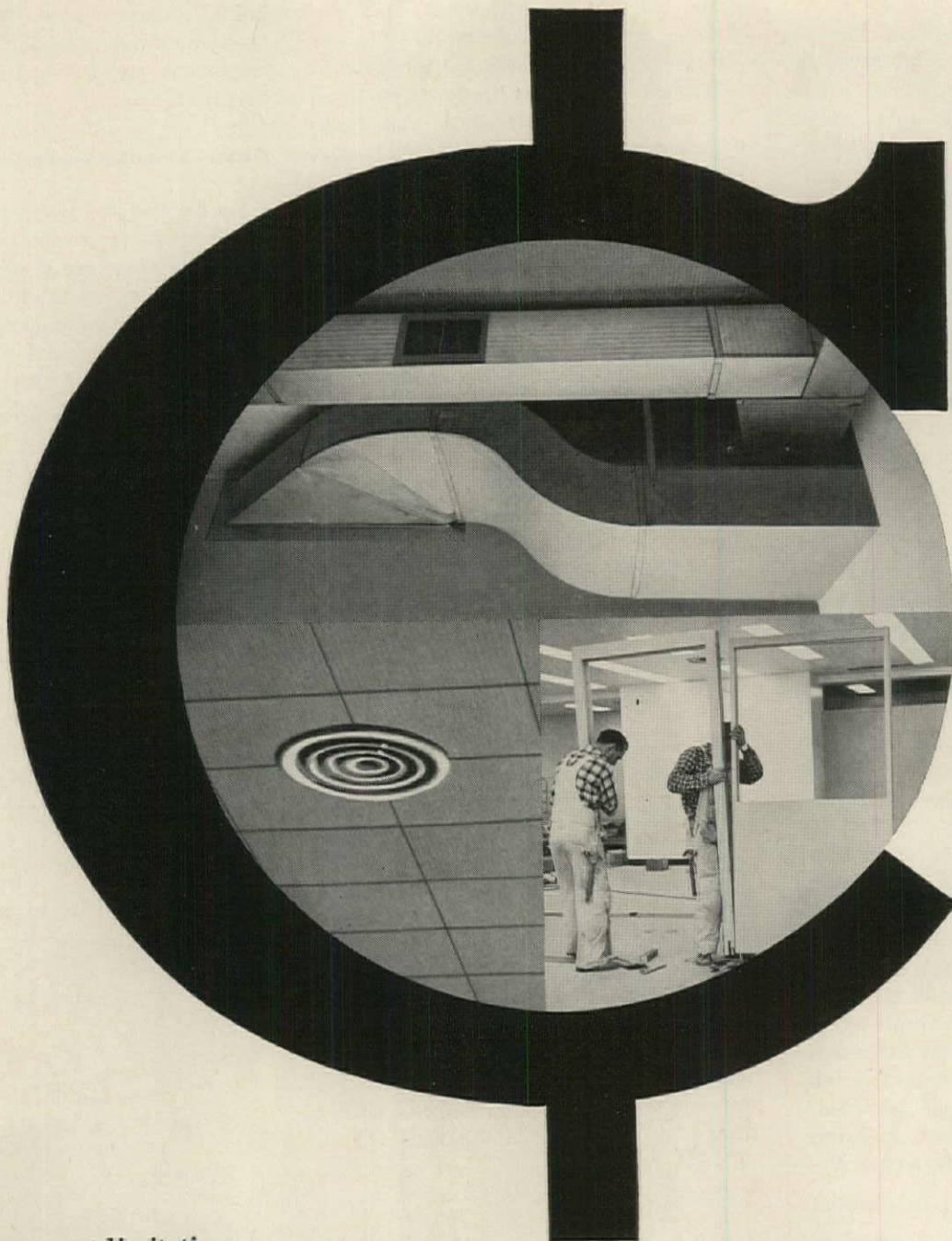
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PHOTOS: DAN PAGE

**SAARINEN'S YALE COLLEGES NEARING COMPLETION**

In the shadow of the towering Payne Whitney gymnasium, the office of the late Eero Saarinen is completing two new colleges for Yale University. The two buildings are unconnected at grade, but have common kitchen facilities underground. The \$6.2 million project is constructed of reinforced concrete with a special exterior wall consisting of crushed granite aggregate embedded in concrete. Each college will have its own interior court.



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Washington cont'd.

land-leasing, so land could be leased to private developers, but held in public hands until its best ultimate use was evolved.

Other speakers urged, of all things, that the renewal process be slowed down. Planning Consultant Carl Feiss,



New NAHRO President: Albert J. Harmon

deploring pressure from various federal agencies to sell land before all plans for its re-use had been fully developed, called for greater care in planning as well as in land disposition. In the latter area, Feiss particularly deplored so-called "design competitions" for renewal sites which frequently become excuses to squeeze potential developers for the highest bid for land.

NAHRO itself, in its resolutions, asked for the federal government to pay four-fifths, or at least three-quarters, of all renewal costs instead of the present two-thirds. NAHRO also recommended that industrial land in renewal areas be subject to the same disposition procedures prevailing in federally designated distressed areas, rather than lumped into the same basket with residential re-use land.

Among other resolutions was one urging a cohesive policy of federal loans and payments for small business relocation through any governmental action. Another resolution, already being worked upon by URA, calls for federal urban renewal grants on a long-term total community basis, rather than a project-by-project basis.

Of all the problems analyzed in the conference, however, the one that still nags most insistently is also the hoariest—the problem of reaching out and gaining the support of a fully informed citizenry for renewal and public housing programs. Whether the programs are big or small, every city seemed to have this difficulty. New York City's West Village, where a spirited group of neighborhood inhabitants defeated the city's plans for an urban renewal project, was cited time and again as an example of what happens if planners and city officials do not really adapt their programs to meet the citizens' real goals and aspirations. END

New York cont'd.

absorbing almost half of the open space still available in the metropolitan region.

This prospective growth was called "frightening" by Karl E. Metzger, chairman of the Metropolitan Regional Council, which coordinates planning among various governmental units in the region. Unless present trends are diverted by sound planning and thorough understanding of the forces at work in the region, Metzger warned, the region by 1985 will be "ugly, inefficient, and a threat to some of our most precious values."

RPA and the Council will attempt to thwart these trends by moral suasion and by coordinating planning efforts of the many governmental units (a total of 1,400 in the region, according to one study) in the New York area. Norton says: "We need major changes in many policies and plans to make sure that the region we are building will

satisfy us." One proposed way: a modern zoning pattern for the whole region better suited to prospective growth. "Local zoning codes represent today's thinking of municipal officials about the kind of town they want," Norton noted, "but the question is whether all these towns will add up to the kind of region they want. . . . Can one-fifth of the region's expected 1985 population afford to live in new single-family houses on half-acre lots or larger? It seems unlikely . . ."

Of course, the population boom underlies most of the problems: Today's population of 16 million will have mushroomed to 22 million by 1985, a growth surge exceeded only by the Los Angeles area. More people means more of everything, but particularly more highways (1,100 miles more on top of the 800 miles already extant) and more cars (4 million added to today's 4½ million). END

Rockefeller announces plan to build in air rights; Moses hits proposal to build over highways

New York's Governor Nelson A. Rockefeller has taken a bold new approach to an old idea—that of building in air rights over public facilities, such as highways and railroad tracks. A few weeks before last month's mayoralty election in New York City, Rockefeller proposed a ten-year, \$4.75 billion program of air-borne middle-income housing in what he called an effort to reach the 45 per cent of all New York's families who are in the middle-income bracket, but who have had little chance so far to rent or buy new urban housing.

The Rockefeller proposal calls for 25,000 new units a year at an annual cost of around \$475 million. To get it off the ground, he pledged the aid of \$400 million in bond authorizations from the State Housing Finance Agency, which would make 40-year low-interest loans at 90 per cent of the total construction cost on the middle income projects. For its part, the city could keep taxes on the new properties at half what they would ordinarily be for the first 30 years of any project's life. Rockefeller said this would still provide great gains for cities, for such properties presently pay no taxes. He estimated that tax collection would rise by \$7.5 million each year, and by the end of 30 years, would total \$150 million annually.

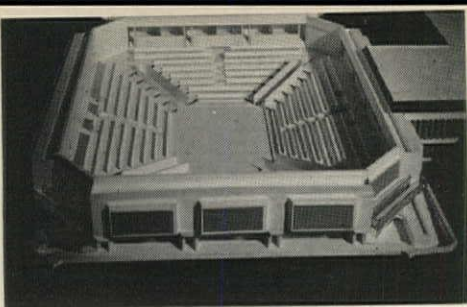
Despite Rockefeller's pledge of state backing, Mayor Robert Wagner (just



Grand Central Parkway in Queens

re-elected for another four-year term) immediately announced his opposition. Another, perhaps more formidable, opponent was Robert Moses, arch-deacon of New York building. Moses struck out at the notion of building apartments over parkways (see sketch, above) as "distasteful," and claimed that, where such highways were part of the state park system, they could not legally be used this way.

Moses' "ribbon park" highways were small pickings, however, compared to the many state highways largely financed with federal funds. And it was clear last month that the Bureau of Public Roads would encourage building in air rights over federally supported roads, under provisions of a little-noticed section of the Highway Act passed this year. The section permits states or localities to lease such air rights for private development if it does not interfere with transportation. However, BPR has not yet spelled out all the regulations needed to implement this provision. Until it does, states will have to keep their highways clear. END



BILL ENGDAHL, HEDRICH-BLESSING

ARENA STAGE OPENS IN CAPITAL

Washington's newest theater, the \$800,000 Arena Stage, was inaugurated last month with a production of Bertold Brecht's "The Caucasian Chalk Circle." The theater, designed by Architect Harry Weese, provides the first cultural focus in the city's southwest redevelopment area. It is a theater-in-the-round with 750 seats, including front-row boxes with private smoking balconies. The theater proper is entered through a rectangular wing, which also includes dressing rooms and executive offices. Construction was financed in part by a \$100,000 grant from the Rockefeller Foundation.

Half a Wright project may be better than none

Just north of San Francisco last month, workmen were completing the first \$4.5 million section of a building group first designed by Frank Lloyd Wright almost five years ago (below). Like many other Wright projects for public bodies, the Marin County Civic Center was the subject of much controversy, and the first phase being finished now is only the beginning. There is still a question over whether or not the county will pay for the ultimate completion of Wright's plan. Wright supporters fortunately were able to prevent a proposed work stoppage last January, when an economy-minded Board of Supervisors tried to alter the center's concept.

Meanwhile, in Madison, Wis., near the site of Wright's home at Taliesin East, a determined Mayor Henry Reynolds has

Miami Beach cont'd.

"industry wants large, protected sites to accommodate one-story operations, off-street parking and loading, and attractive landscaping." Dow deplored the shortsightedness of some cities in rezoning prime industrial sites for other uses. As for urban renewal, Dow again epitomized NAREB's somewhat softer approach toward clearance when he said: "We applaud the redevelopment for industrial uses of slum areas which are beyond rehabilitation," although he also emphasized that the renewal program should not be allowed to swing too far away from its initial purpose of providing housing. Echoing criticism heard last month at the meeting of the National Association of Housing and Redevelopment Officials, Dow deplored federal policies which accord land for industrial or commercial reuse the same holding-period treatment provided for residential land. "The urban renewal program should require project sponsors to make headway in a reasonable period of time," Dow said. "However, the three years which may be reasonable for a residential development would be unreasonable for an industrial district. Major industrial parks can take ten or more years to develop."

NAREB warmed to two presentations of city renewal programs which were obviously selected because they fit so nicely some realtors' conceptions of what renewal should be. Mayor Richard C. Lee, of New Haven, Conn., outlined that city's rehabilitation and clearance efforts in its Wooster Square project. Lee pointed out that nearly \$1 million had been spent by private home owners for improvements, and that there had been more than \$6.5 million of new construction in the area besides; eight firms which had been displaced built new facilities in the area worth more than \$2 million. Mixed land uses have been unscrambled by a new zoning and planning pattern, Lee said, and the city figures that more than 1,000 new jobs have been created as a direct result of the program.

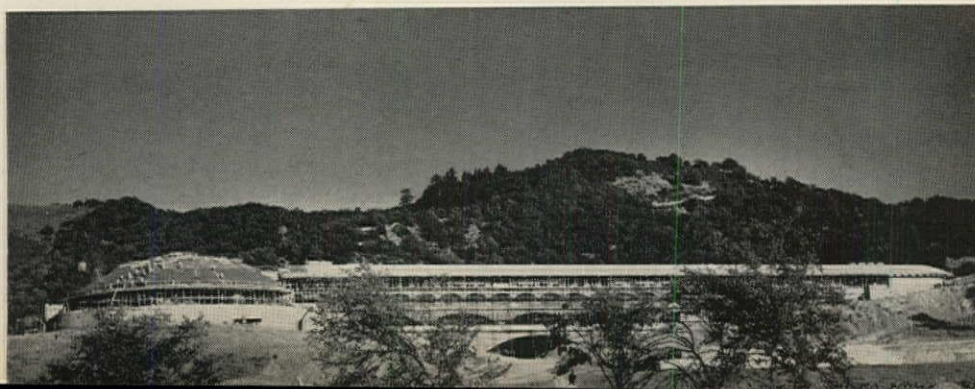
What pleased the realtors even more than this successful city conservation drive was an urban renewal program undertaken with no federal assistance whatever. Mayor Hayden Burns of Jacksonville, Fla. told NAREB how, starting with a municipally financed parking garage, the city has undertaken a \$30 million improvement program, including a 12,000-seat coliseum, a new city hall, and a water-front redevelopment project—and how private capital is currently tackling an ambitious downtown redevelopment job.

This year the realtors were more attentive than ever to taxes, armed with the certainty that the Kennedy Administration plans several measures that could make life rougher for them. Lawyer Edwin Kahn warned that the Treasury Department would undoubtedly renew its efforts to make depreciated properties subject to ordinary income tax rates upon transfer, rather than to the lower capital gains rate.

Tax worries aside, the realtors looked and acted prosperous, living testament to the current building boom. And various economic seers assured them that the boom would continue, at least for 1962. Mortgage Bankers Association President Carlton S. Stallard pointed out that next year would see record activity in apartment construction, particularly for FHA-insured units, which he predicts will rise to 55,000 from 45,000 built in 1961. Apartment construction will hit 270,000, Stallard predicted, compared to 255,000 this year.

The only prophet of doom was Economist Arthur Upgren, who, basing his fears on the steadily declining liquidity of the nation's commercial banks, smugly predicted an economic collapse commencing at "about 10 A.M. on November 18, 1970." None of the realtors looked scared.

END



DANDELT

Venice preserved



Countess Teresa Foscari



Count Adriano Foscari

Several weeks ago, the city council of Venice, Italy, reversing an earlier decision, voted to kill two controversial proposals in a gigantic redevelopment plan which would have spun new highways to the very edge of the Giudecca Canal. The council was decisively swayed by the vigorous opposition to the plan led by Countess Teresa Foscari, whose husband is a direct descendant of one of Venice's most famous Doges of the fifteenth century. In the finest tradition of epic Italian family feuds, the pro-plan group was led by Count Adriano Foscari, the countess' brother-in-law.

To fight the automobile (and her brother-in-law), the countess and her supporters hired local architects to prepare a huge exhibit showing how Venice had already been damaged by overdevelopment, and how roads would lead to further degeneration. Defeated by this, as well as newspaper and national government opposition, the city council backed down and killed the roads.

Flushed with her victory over automobiles, the Countess Foscari has now turned her fire on Venice's modern

buildings, many of which, like the Bauer Grunwald luxury hotel (below, left), badly crowd and conflict with Venice's beloved ancient buildings, in this case the Church of San Moise. Her proposal is to keep Venice's population at about 100,000 and maintain it as a predominantly residential city catering largely to the tourist trade. But her brother-in-law, the Count, who directs the fortunes of a large steamship line from a modern building in the heart of the city, is still holding out for change. He would go the defunct road plan one better, by actually stringing a huge super-highway around the city's northern fringe, from west to east across the lagoon. He says: "All Venice exists thanks to the murder of what existed before. . . . And besides, who tells us that Venice must be preserved? Is it Leonardo da Vinci? No," he added, ungallantly, "it is my sister-in-law, who was born 40 years ago."

And while the Foscari scrap over the future of the city, the ultimate card is held by nature; the city continues to settle leisurely into the lagoon at the rate of 1 foot every century.

Briefs

The biggest year for building in New York City's history shapes up for 1961, as the City Building Dept. last month reported a record \$1.4 billion of construction in the first nine months of the year, more than any previous full year. Biggest reason for the spurt: the rush by builders to file plans before the city's new zoning plan becomes effective Jan. 1.

Dade County's metropolitan government won a vote of confidence last month, but it was not strong enough to eliminate doubts about the possible weakening of the system. By a bare 104,573 to 96,380 margin, voters turned down a series of amendments that would have greatly curtailed the powers of the metropolitan government in areas of taxation and planning. The closeness of the vote has already started county commissioners thinking about various reforms to get metro working better before it hits real trouble.

Houston and Dallas were scrapping last month over who would build the west's tallest building. No sooner had Dallas' First National Bank unveiled plans for a 50-story building (topping Houston's 44-story Humble Oil Building; see "Projects," page 51) than a spokesman for Houston's \$100 million Cullen Center announced it would squeeze enough extra height onto one of its buildings to edge out the First National.

People

BIRMINGHAM'S BUSY BUILDER

Birmingham, Ala., has been well-insulated from the office-building boom that has hit other cities. Since 1929, only one new office building has been built in the city, and it was completed just about a year ago. It is on a corner a few blocks from downtown, a \$1.2 million, three-story glass and aluminum structure, and it houses one of the most remarkable enterprises in the South: the diversified activities of **Arthur G. Gaston**, a 69-year-old real estate developer, insurance executive, and funeral-home tycoon.

Much of Gaston's energy is channeled into his various building operations. Besides his office headquarters, he has built a 32-room motel, an apartment development with 70 units, and a string of eight funeral homes. He is also the founder and principal owner of Booker T. Washington Insurance Co. and a savings and loan association with \$4 million assets. Gaston's total net worth for all his enter-

LEVITON-ATLANTA



Entrepreneur Gaston

prises comes to better than \$8 million, and, what is perhaps most remarkable, most of it is debt-free. His office building, for instance, was paid for without any borrowing whatever, Gaston says. Gaston also has a division which specializes in building prefabricated homes for Negroes.

The size and breadth of Gaston's empire is impressive for an operation in the heartland of the segregated South, where Negro enterprise has always been difficult at best. It is also remarkable in view of its meager beginnings. Born in Demopolis, Ala., the son of an ex-slave, Gaston tried to start his own life insurance business in 1923 with \$35 invested capital, following a tour of duty with the army in World War I and work in a Birmingham steel mill. He had sold a few policies, but did not really prosper until the tiny business almost foundered when the first claim had to be paid off—the cost of the coffin alone exceeded company assets. But Gaston scraped together \$60 to pay the funeral costs, and mourners themselves were so impressed that he sold more policies that

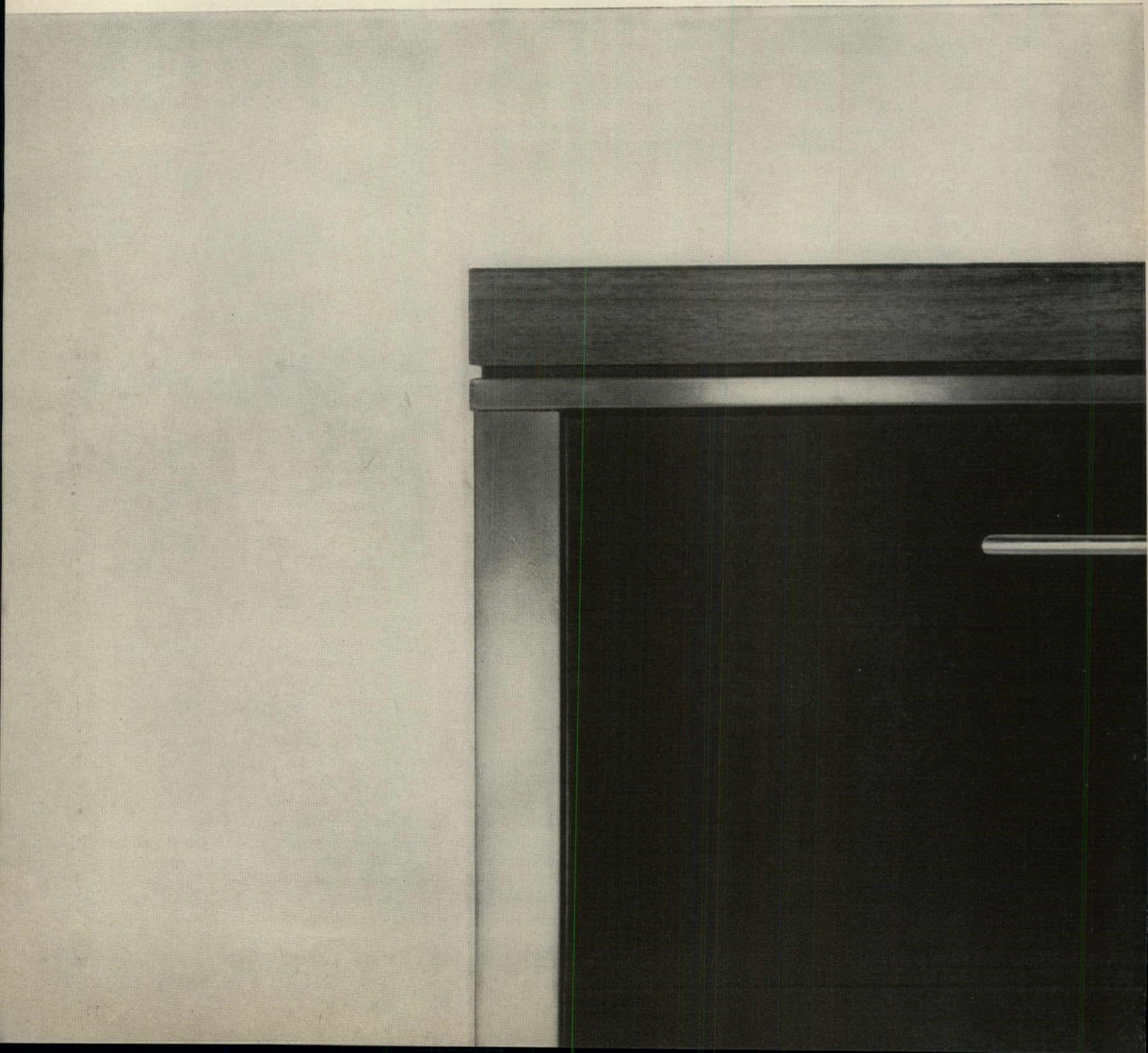
continued on page 16

Hotel Bauer Grunwald and San Moise Church



PHOTOS (RIGHT & ABOVE): CAMERAPHOTO

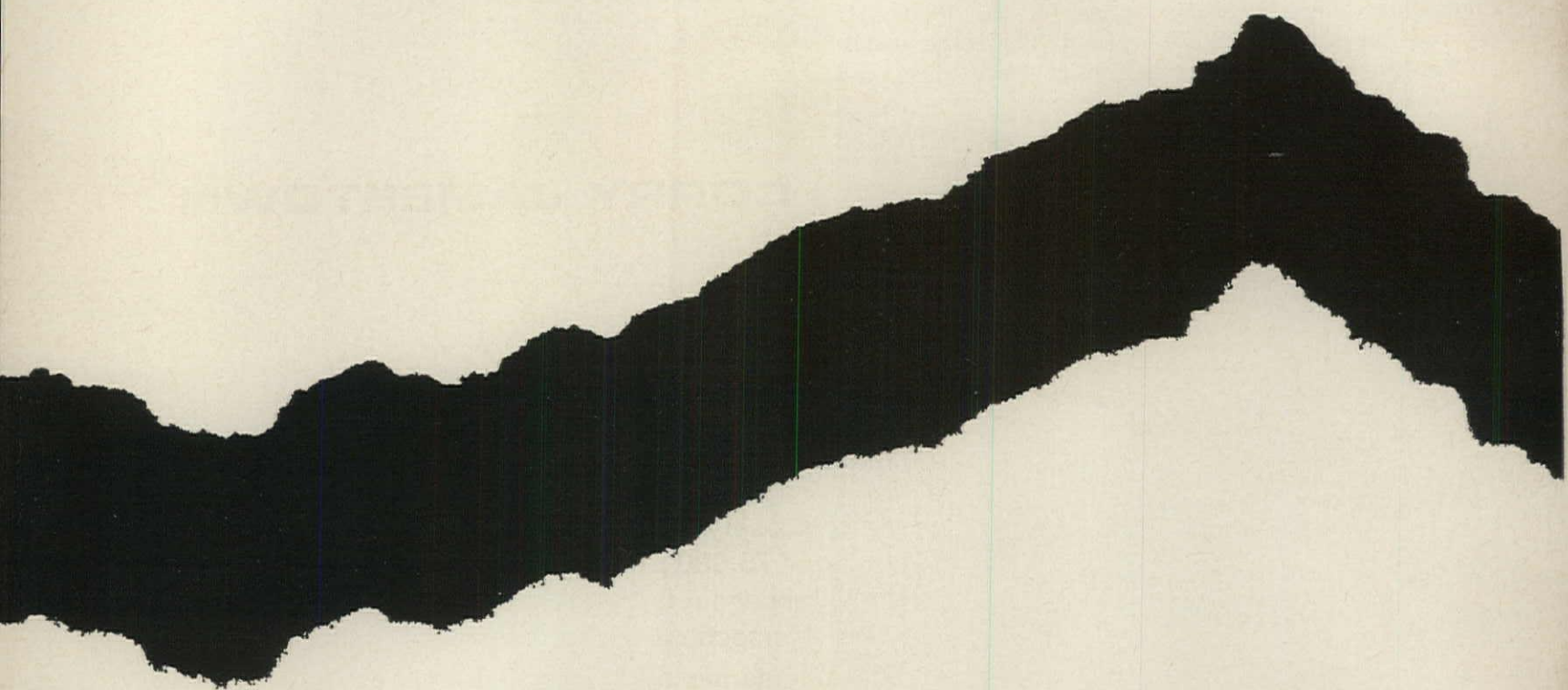
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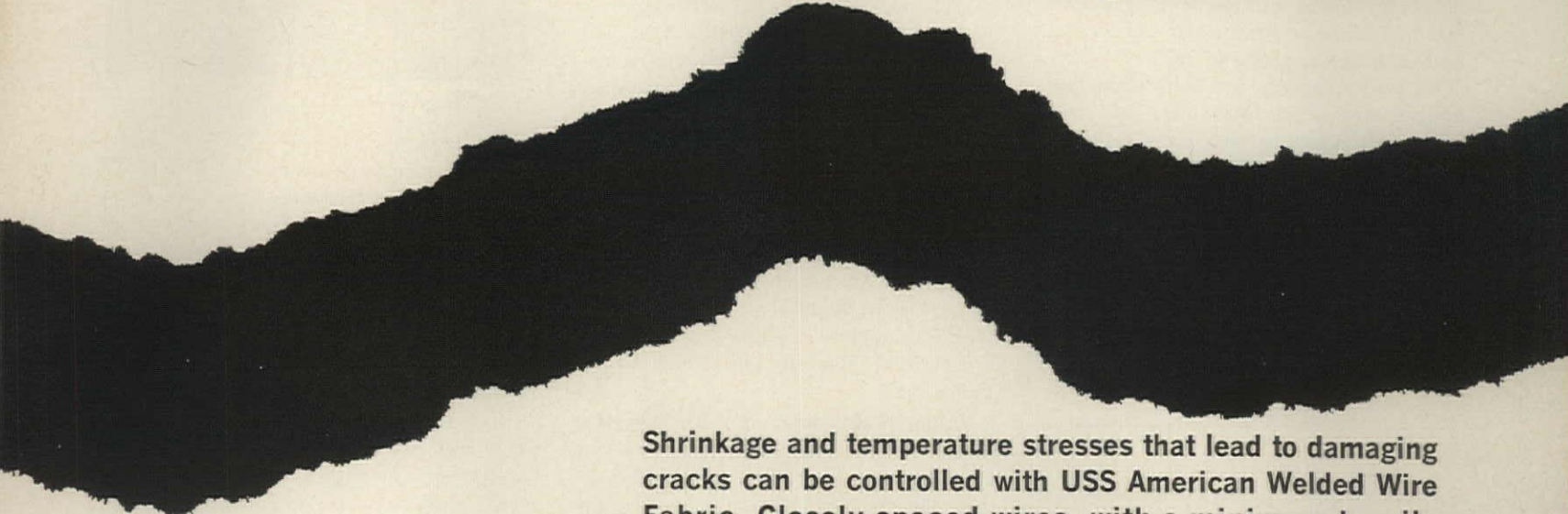
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afternoon. From that point on, Gaston's fortunes increased.

Today, Gaston has garnered a fistful of honors from Negro universities (he never went beyond the seventh grade) as well as a distinguished service award from the federal government for assistance in war financing, and a citation from President Harry S. Truman for special work on an anti-inflation committee in 1946.

Gaston's interests are still spreading, and he shows little inclination for quiet retirement. Last spring, he launched a \$600,000 addition to his motel, and a new \$400,000 funeral home. He is also converting some downtown property into a Negro shopping center. This whole building program was started a year earlier than initially scheduled, Gaston says, "to help fight the recession and stimulate employment" among Negro laborers.

OAKLAND PICKS SAARINEN FIRM FOR MUSEUM

One of the most thorough talent hunts in the history of modern architecture ended last month with the announcement that the firm of the late Eero Saarinen had been chosen to design a \$6 million art museum

for Oakland Calif. Partners **Kevin Roche** and **John Dinkeloo** will handle the project, in association with **Alexander Girard**.

The Saarinen firm won out in surprising fashion, for the Oakland Mayor's Architectural Committee, which conducted the search for an architect, had never actually interviewed Saarinen himself before he died two months ago (FORUM, Oct. '61), although Roche and Dinkeloo subsequently made a presentation to the selection committee. The fact that Roche and Dinkeloo were selected is a strong indication that the firm will continue to be a powerful force in U.S. architecture even though Saarinen himself is gone. And the competition against which the firm prevailed was the stiffest imaginable, including such other top architects as Marcel Breuer, Walter Gropius, Philip Johnson, Pier Luigi Nervi, Paul Rudolph, and Minoru Yamasaki.

No one person was any more important in the complex and touchy job of picking a single firm from such an awesome list than an Oakland housewife and sculptress, **Mrs. Esther Fuller**. For over five years she boned up on modern architecture, and visited 40 other art museums throughout the U.S. before getting down to the business of actually interviewing the blue-ribbon list of ten top firms. She,



Mrs. Esther Fuller

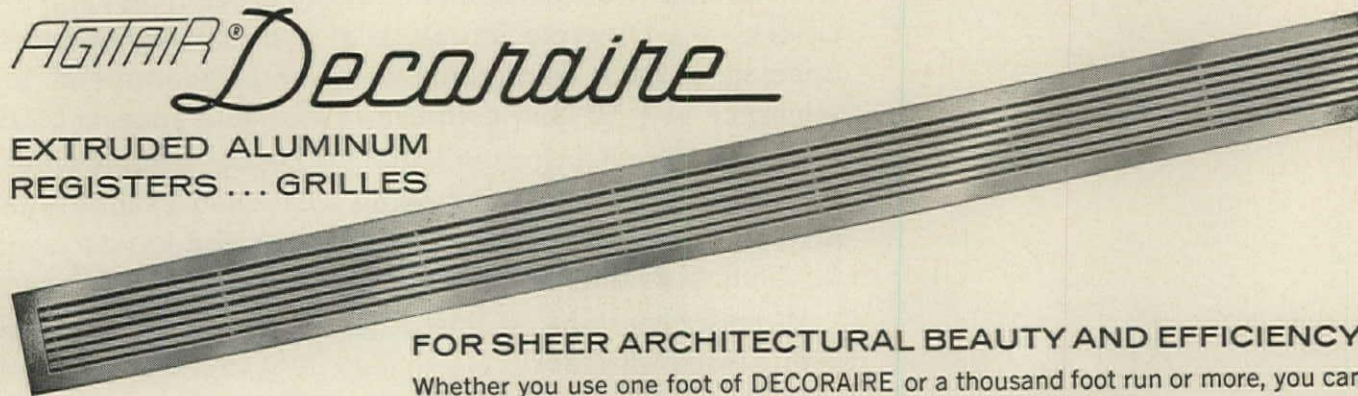
and the committee headed by Robert T. Nahas, also had to ward off pressure from several local Oakland firms who fought unsuccessfully to get the job. The Oakland firm of Reynolds & Chamberlain, however, will be associate architects.

The museum will be part of a larger civic center in downtown Oakland, about a block from Lake Merritt. The building will actually consist of three museums, and will probably be closely related to a city park planned for the cultural center. Tentative plans call for a raised platform of concrete and wood, with parking underneath, taking advantage of the proximity to the lake and much adjacent open area. Gardens extending right into the museum will create an indoor-outdoor flow of space.

END

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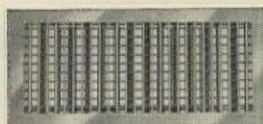


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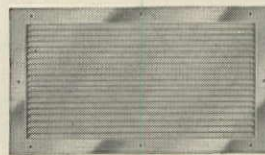
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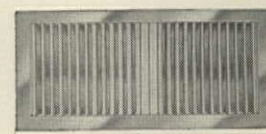
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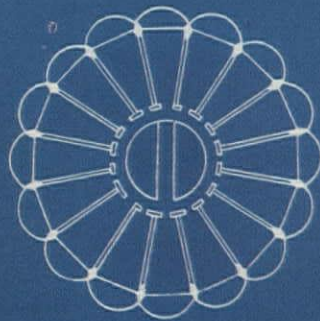
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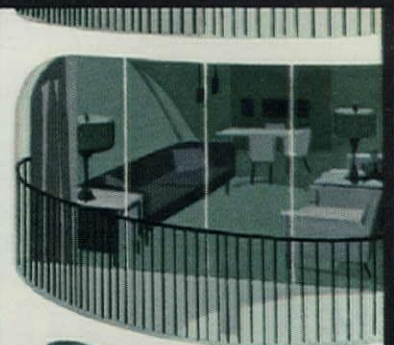
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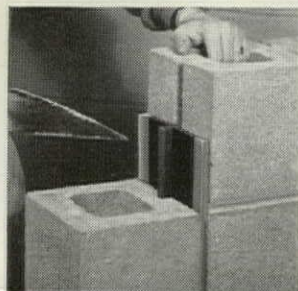
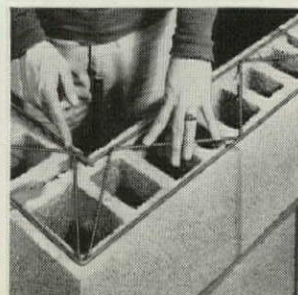
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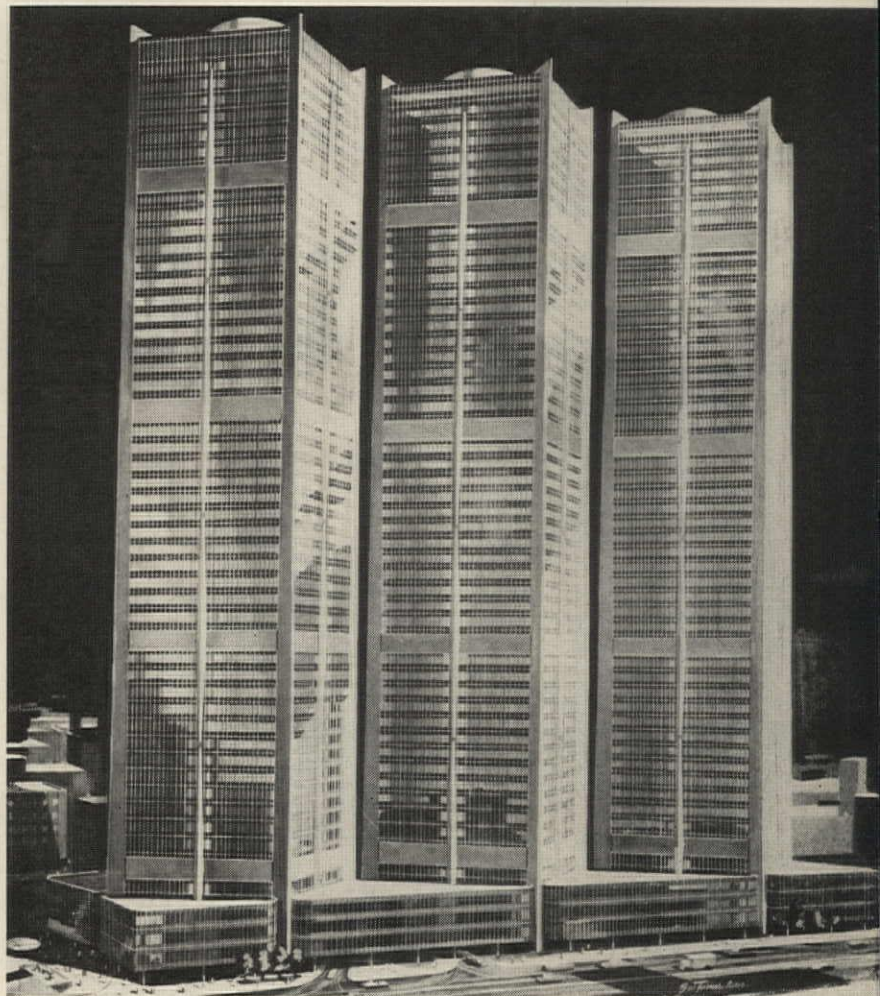


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WORLD'S BIGGEST OFFICES

Construction begins next month on the first tower in the largest office complex in the world: Place Victoria in Montreal. It will also be the tallest reinforced concrete office building anywhere. As might be guessed from the verve and magnitude of reinforced concrete in this project, the design is the work of Italy's Pier Luigi Nervi and Luigi Moretti, backed by a sizable roster of American and Canadian architects and engineers, including Guy B. Panero and Paul Weidlinger of New York and J. B. Carswell of Toronto. The principal equity holders are an Italian group headed by the Società Generale Immobiliare di Roma. Four major columns, four pairs of intermediate columns, and a central core will carry the structure; the tower floors will have clear spans stretching 45 feet from the core to the outside wall. Below the 41-story towers will be three "mezzanine" floors covering the two-block site, an open sidewalk level, and six levels below ground. Cost of the complex: \$90 million for 4.5 million square feet of space.



TWICE-GLAZED TOWER IN VIRGINIA

Dominating Vincent Kling's design for the new Norfolk, Va. Civic Center is this 14-story municipal office tower, in which double rows of glass, set 3 feet apart, will cut sun heat

and glare. Clear glass will be flush with the building face; an outer layer, projecting from the columns, will be glass in a smoked topaz shade. Associate architects: Oliver & Smith.

BRIDGEWORK IN PITTSBURGH

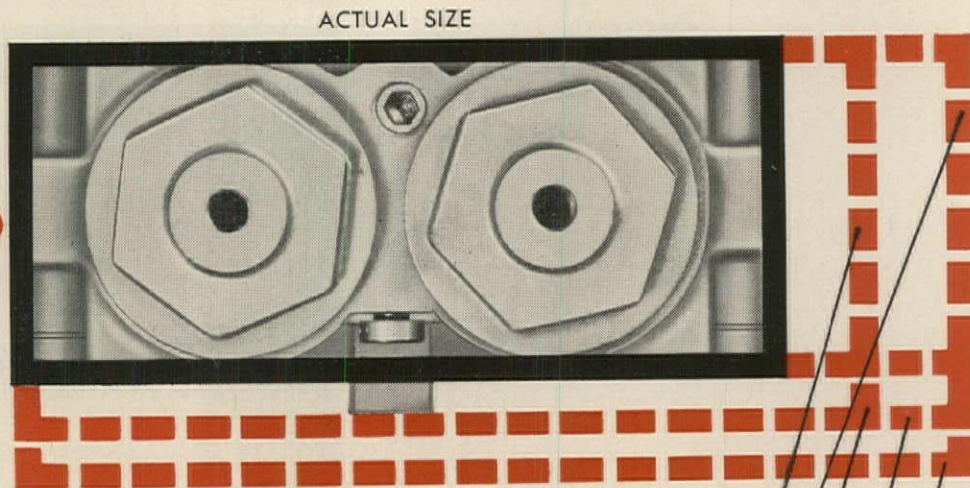
Resembling great bridge trusses upended, the latticed façades of the fifth building in Pittsburgh's Gateway Center (right) will serve as its main support. Four giant trusses, one to a side, will rest on eight reinforced concrete columns, from which they will be cantilevered out to the corners. To reduce construction costs, many of the structural members, particularly those near the bottom, will be of high-tensile steel, and large sections of the frame will be shop-fabricated to simplify site-work. Alternating bands of clear window glass and opaque spandrel glass will be set back from the frame. Curtis & Davis are the architects for the owners, the Equitable Life Assurance Society. Chief tenant: IBM.

continued on page 49



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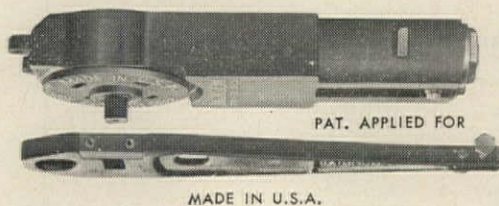
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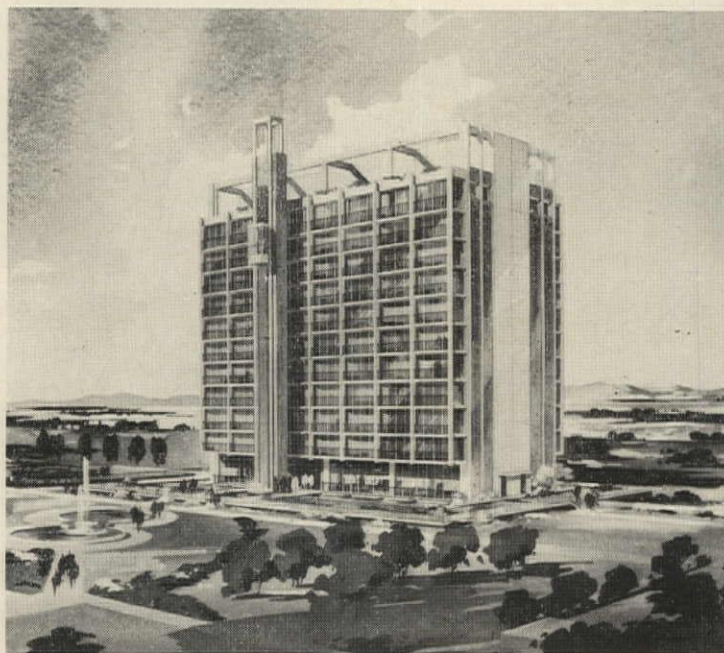


HAWAIIAN Y

A small city is under way on Honolulu's Ala Moana Yacht Harbor: 1,056 apartments and an array of supporting services, a shopping mall, professional offices, indoor-outdoor restaurants and cocktail lounges, a marina, and a swimming pool. All are part of Ilikai, Inc., a \$23 million, 27-story community living project. Ilikai's developers claim that it is the biggest Y-shaped building of its kind anywhere—a title not easily disputed. John Graham & Co. of Seattle is the architect for Capital Investment Co. of Honolulu, the developer. Built of prestressed concrete, Ilikai will be finished in about 18 months.

TO BED IN DISNEYLAND

Disneyland's booming tourist trade has prompted the Wrather Corp. to run up this sizable towerful of guest rooms as part of the Wrather hotel complex already growing on the Anaheim, Calif. scene. Showmanlike features of the design, by Architects Weber & Nicholson, are an outside elevator, in which guests ride to a triple-tiered cocktail lounge on the roof; a balcony for every room; and, at the base of the hotel, a Japanese garden and pool, crisscrossed by six bridges to the lobby. Charcoal-tinted solar glass, precast white concrete, and wrought-iron railings form the east and west walls; mosaic tile adorns the concrete end walls.



CALIFORNIA SEMINARY

The focus around which all activity revolves at Saint John's Seminary College in Camarillo, Calif. is the chapel, expressed by its central position in Albert C. Martin & Associates' plan for the campus (right). Part of their design is complete; more will be under construction shortly. In the foreground, four dormitories touch corners with the administration building, which is linked by a breezeway to an open court and arcade leading up to the chapel. All buildings are to be of concrete: some of sand-blasted block, others of special stone aggregates for color and texture.



TOP OF THE NOB

Up on Nob Hill, where nob's have been hobbing for longer than most San Franciscans can remember, this new apartment house will offer the well-to-do new elegance on a cooperative basis. Designed by Angus McSweeney, Inc. for the 1200 California Corp. and built by Tishman Realty & Construction Co., Inc., the tower will have four apartments to a floor, each occupying a corner and a balcony. Height: 25 stories.

continued on page 51



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ON THE BEACH IN CALIFORNIA

Although officially named the "Sky Apartments," the development shown below has some units that are a good deal closer to the ground—and bigger—than those in the 12-story

tower. Both segments, and an underground garage, are to be built of reinforced concrete on a stretch of waterfront in Redondo Beach. Architect: Victor Gruen Associates.



NEW TITLEHOLDER IN TEXAS

Even before completion, Houston's Humble Building is losing its title of "tallest building west of the Mississippi" to the First National Bank in Dallas (above), a 50-story, \$30 million giant designed by two

Texans, Thomas E. Stanley and George L. Dahl. The slim tower, an elongated gray glass lozenge, will rise from a marble-encrusted base occupying a full block. The tower mullions will be white marble.

WASHINGTON: AN ARBORETUM IN A POOL

For the National Arboretum Headquarters building in Washington, D.C., Deigert & Yerkes & Associates plan to plant a crinkle-roofed auditorium in a reflecting pool and connect it to land by a foot-

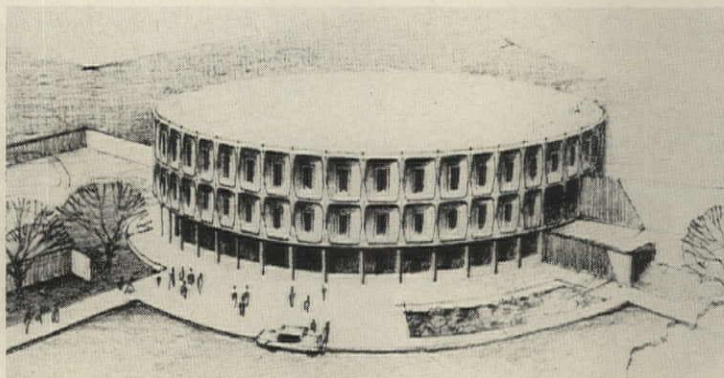
bridge (right in model photo, below). Offices, set at right angles to the auditorium, will be protected on the south by a gold-anodized aluminum screen. The arboretum will serve garden and botanical groups.



MARYLAND: A SCHOOL IN THE ROUND

In suburban Montgomery County, Md., the town of Wheaton plans to build itself a round, three-story elementary school on a site hilly enough for ground-level entrances to both the first and second

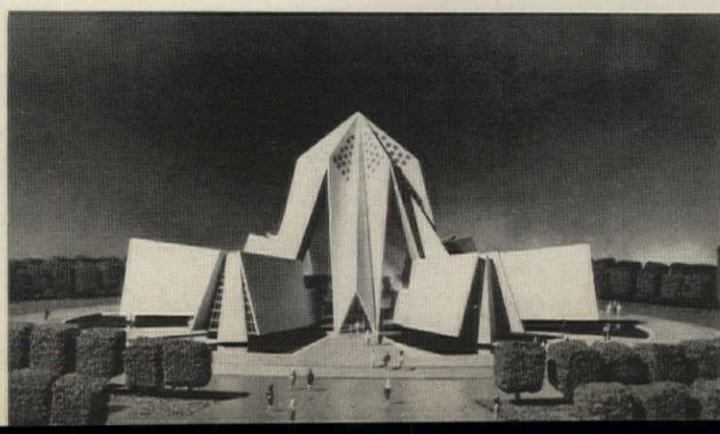
stories. Sixteen classrooms, a general-purpose room, a kitchen, and offices will be bound by a ring of sculptured precast concrete panels sloping in toward the windows. Architects: Deigert & Yerkes & Associates.



INTERNATIONAL TEMPLE OF UNDERSTANDING

A sort of spiritual United Nations is the concept behind the "Temple of Understanding" proposed for Washington, D.C. Radiating from a central faceted dome, separate wings represent six international re-

ligions—Hinduism, Judaism, Buddhism, Confucianism, Christianity, and Islam—with a small chapel, library, and resident scholar in each. Architect: Lathrop Douglass of New York City.





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Storage for students . . . airy ceiling . . . cored slab



STORAGE FOR STUDENTS

Charles Eames's inventive mind has devised a new storage system that is practically guaranteed to bring order into the chaos of dormitory rooms. Unmade beds, dirty socks, and wet towels are not extinct by any means, but at least these unlovely objects are hidden behind closed doors in this system, and well ventilated at that. *Eames Contract Storage*, planned as five units, replaces every piece of furniture in a dormitory room except the chairs. Included are two kinds of hanging storage units substituting for conventional closets, a dressing unit, a folding bed, and a desk and several bookshelves designed as a single unit. The system even has its own light for general illumination and reading lamps over both the bed and the desk.

A wallful of these units hangs from a standard Unistrut section secured by tamperproof bolt heads to foil student attempts to separate units from the wall. So successful are they that in trial installations at two colleges, reports Manufacturer Herman Miller with more than a trace of triumph, students were unable to remove the bolts with any combination of tools they tried. Removal is simple enough, however, for the maintenance man equipped with the proper tool, which is part of the system.

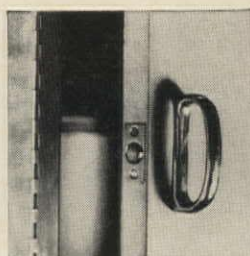
During the daytime all units are covered by birch doors, except for the desk, which is open. Most ingenious of the five units is the bed, delicately counterbalanced so that it will not crash to the floor no

matter how carelessly handled. A foot pedal unlocks it, ready to be lowered by pulling down the large bar at the top, which rests on the floor when the bed is open. The bed has to be pulled—not a very taxing operation—or it remains suspended in midair. The mattress, by Herman Miller or other manufacturers, rests on a birch slab. The storage units are outfitted with rods for hanging clothes, wire baskets in several sizes to hold folded garments, shoe bars, mirrors, and laundry baskets. The dressing unit also has a mirror, towel bar, clothes hook, and more drawers, some of wire and some of plastic. The desk needs only a chair to make it a complete study unit. Extruded aluminum strips down the side of each unit form continuous hinges. Other finishes are chrome-plated door handles and fir plywood partitions between units, faced with black phenolic and embossed in a small over-all pattern which resists dents and scratches.

All units are the same height, 87 inches, and must be installed 9 inches off the floor to allow for the bed's down position and the proper desk height. Widths are 24 inches for any of the storage units, 40 $\frac{3}{4}$ inches for the bed, and 44 $\frac{1}{2}$ inches for the study unit. Pulled down, the bed projects a little over 84 inches into the room, measured from the wall. Costs vary with unit combinations and quantities ordered, but run somewhere around \$700 for a complete wall, i.e., one of each unit.

Manufacturer: Special Products Division, Herman Miller Inc., Zeeland, Mich.

continued on page 55



STEELCRAFT

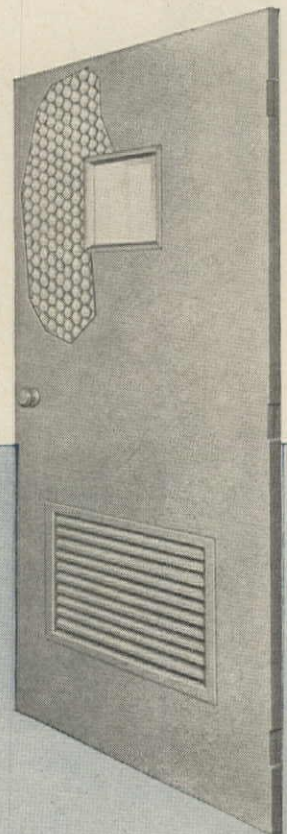
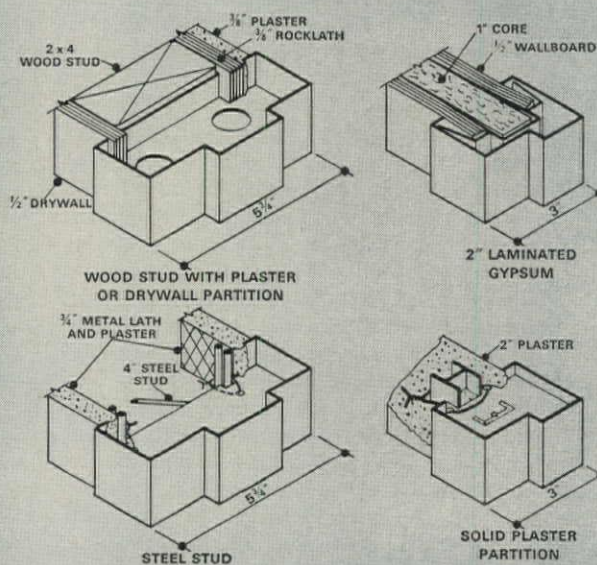
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AIRY CEILING

Armstrong Cork has turned the ceiling into one vast air-conditioning diffuser with its new method of distributing air. Punched in acoustical tile, thousands of tiny holes distribute air to the room below in a uniform blanket without arctic gusts, air noises, or stagnant spots. The photo below shows (with a visible gas) how small jets of air close to the ceiling become imperceptible a short distance away.

The method is this: Duct stubs deliver conditioned air to the plenum above the ceiling, the air building up a little pressure as it fills the space. This pressure is sufficient to push air through the holes in the ceiling material, which are so small

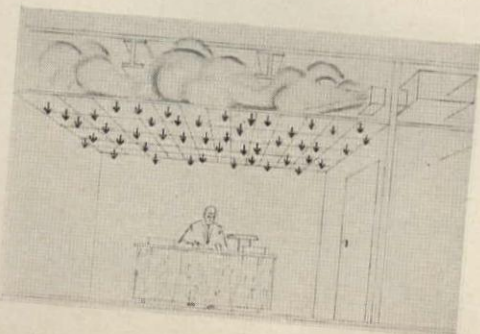


that they cannot be seen by someone standing directly underneath. A standard air-return system then removes air from the room and puts it back in circulation.

Besides more uniform comfort, this method offers construction economies when properly engineered. It does away with the diffusers normally needed in the ceiling or upper wall, eliminates a substantial amount of ductwork, and generally requires a shallower plenum. In new construction, this can permit either higher ceilings or smaller and more economical floor-to-floor spacing. Lower maintenance expense is also a factor: the forced air makes the ceiling relatively self-cleaning, blowing off dust before it has a chance to settle.

Armstrong is offering its ventilating ceiling in five acoustical products, including Acoustical Fire Guard Tile and Lay-in Units. The cost premium is about 10 per cent above the cost of comparable acoustical units without the ventilating feature. Installation procedures and engineering data for the plenum chamber are outlined in a special technical manual.

Manufacturer: Armstrong Cork Co., Lancaster, Pa.

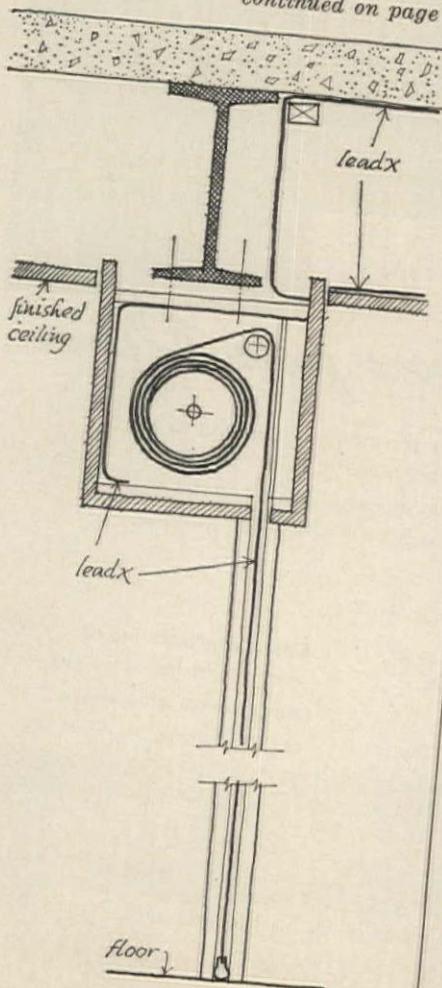


LEAD-FILLED CURTAIN

The same vinyl-and-lead sheets used in hospitals for some years to protect workers from an overdose of radiation are being fabricated into acoustical curtains for schools. With the rise of team teaching and the need for flexible space, it occurred to the manufacturer of LeadX that some of the same characteristics that made his product an acceptable radiation shield would be welcome in the schoolroom. The high density and mass of lead make it equal in acoustical privacy to materials some 30 times thicker, the manufacturer claims, and therefore make LeadX curtains efficient sound barriers between classrooms where quite unrelated activities take place. LeadX sheets are only $\frac{1}{8}$ inch thick, and they roll up, regardless of length, into an 18-inch deep space at the ceiling. Special weights at the bottom keep the curtain from shifting position, without the need of a floor track. The curtain is operated electrically and drops into place or rolls up quickly enough: 30 seconds is the norm for a curtain 10 feet high.

Two widths of curtain panel are available, 36 and 48 inches, butted together and covered with lightweight LeadX strips. One precaution: the 18-inch ceiling space for the roller mechanism must have a sound rating equal to that of LeadX, or noise will leak over above. Vinyl pressure seals hold the curtain rigid at the sides. The standard color is cream, matte-finished, but additional colors may be specified.

continued on page 56



UNION HONEYCOMB in BUILDING PANELS

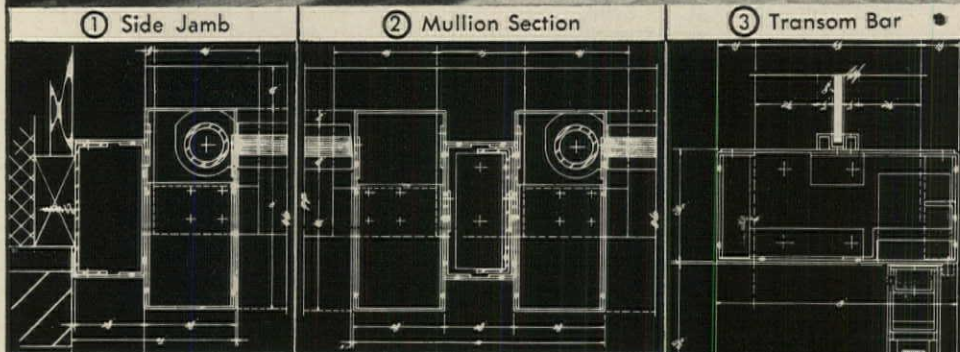
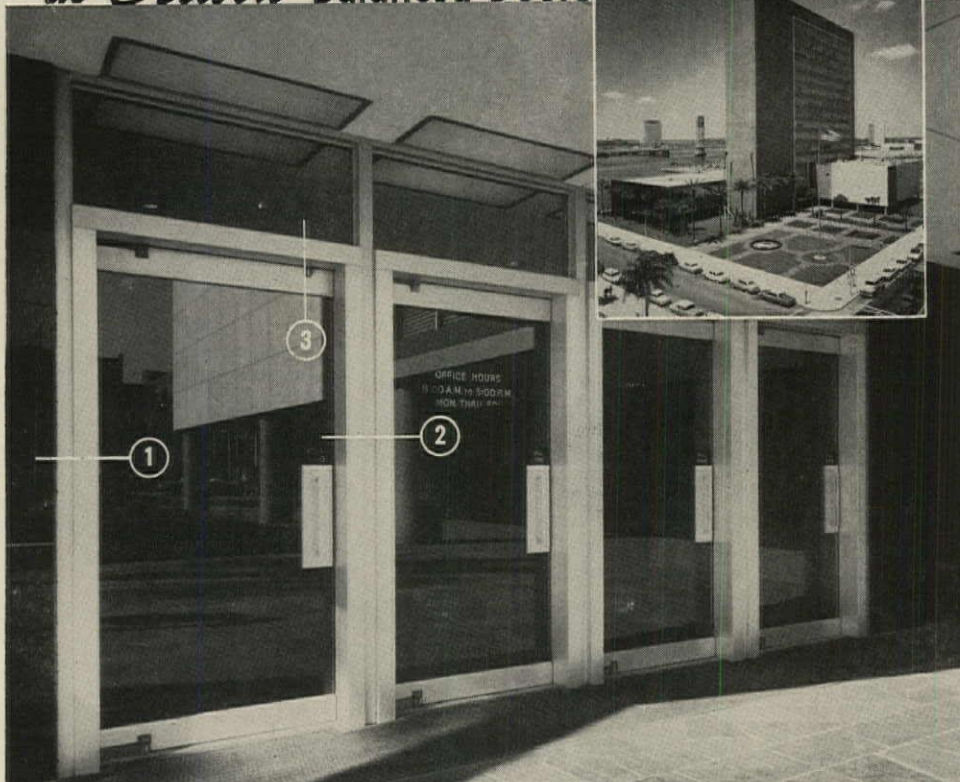
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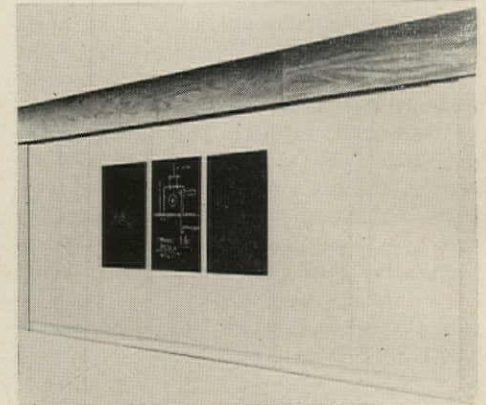
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cially ordered. Chalkboard, laminated to the curtain, is optional. Including the roller mechanism but not installation or freight charges, the curtain costs about \$10 per square foot.

Manufacturer: Torjesen, Inc., 209 25th St., Brooklyn 32, N. Y.



PRESTRESSED SLABS

After four years of development, a prestressed concrete slab trade-named *Dynacore* is now in full production at a new plant in Lockport, Ill. Designed and manufactured by the Material Service Division of General Dynamics, Dynacore runs in sizes up to 100 feet long, 8 feet wide, and 2 feet deep. In cross section (see photo) Dynacore has four big rectangular voids, each 20 inches wide between top and bottom flanges $1\frac{1}{4}$ and 1 inch thick; these form natural openings for air conditioning, ducts, piping, and wiring. Custom-designed to meet the load conditions on each job, high-tensile cables in each vertical web provide longitudinal prestressing force; the top and bottom flanges are also prestressed transversely. These section properties permit extremely long clear spans with shallow depths.

The Dynacore slabs shown here, the first to be produced, serve as roof members for a shopping center in Glen Ellyn, Ill. Each is 52 feet long, 8 feet wide, and 12 inches deep, and weighs about 6 tons. At present these slabs are available within a 500-mile radius of Chicago, but they will probably be marketed nationally later.

Manufacturer: Material Service Division, General Dynamics Corp., 300 W. Washington St., Chicago 6.



ACOUSTICAL SHELLS

While molded acoustical ceiling tiles are not new, Johns-Manville is manufacturing one that is contoured into a shell: "the first truly three-dimensional sound-control panel on the market," according to J-M. *Acousti-Shell* panels are 2 feet square, one third the thickness of flat tiles (3/32 inch), yet just as strong and rigid. To shape the shell, glass fibers, a binder, and a facing of glass-fiber fabric are put into a mold under heat and pressure. The 2-inch-high vaulted panel which results is laid into a light metal grid system suspended from the ceiling. This ceiling surface absorbs up to 80 per cent of the room noise which strikes it, according to the manufacturer.

Acousti-Shell ceilings are intended to create special high-style effects in offices, lobbies, and restaurants. Standard colors are white, blue, and green, but shells may be dyed to match a particular color scheme or may be printed in custom designs. Flat matching panels, part of the Acousti-Shell line, fit into the ceiling as borders, and around columns and light cutouts. Installed prices range from \$1 to \$1.25 per square foot, including the supporting grid.

Manufacturer: Johns-Manville Corp., 22 E. 40th St., New York 16. END



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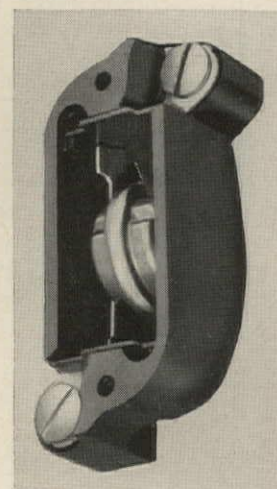
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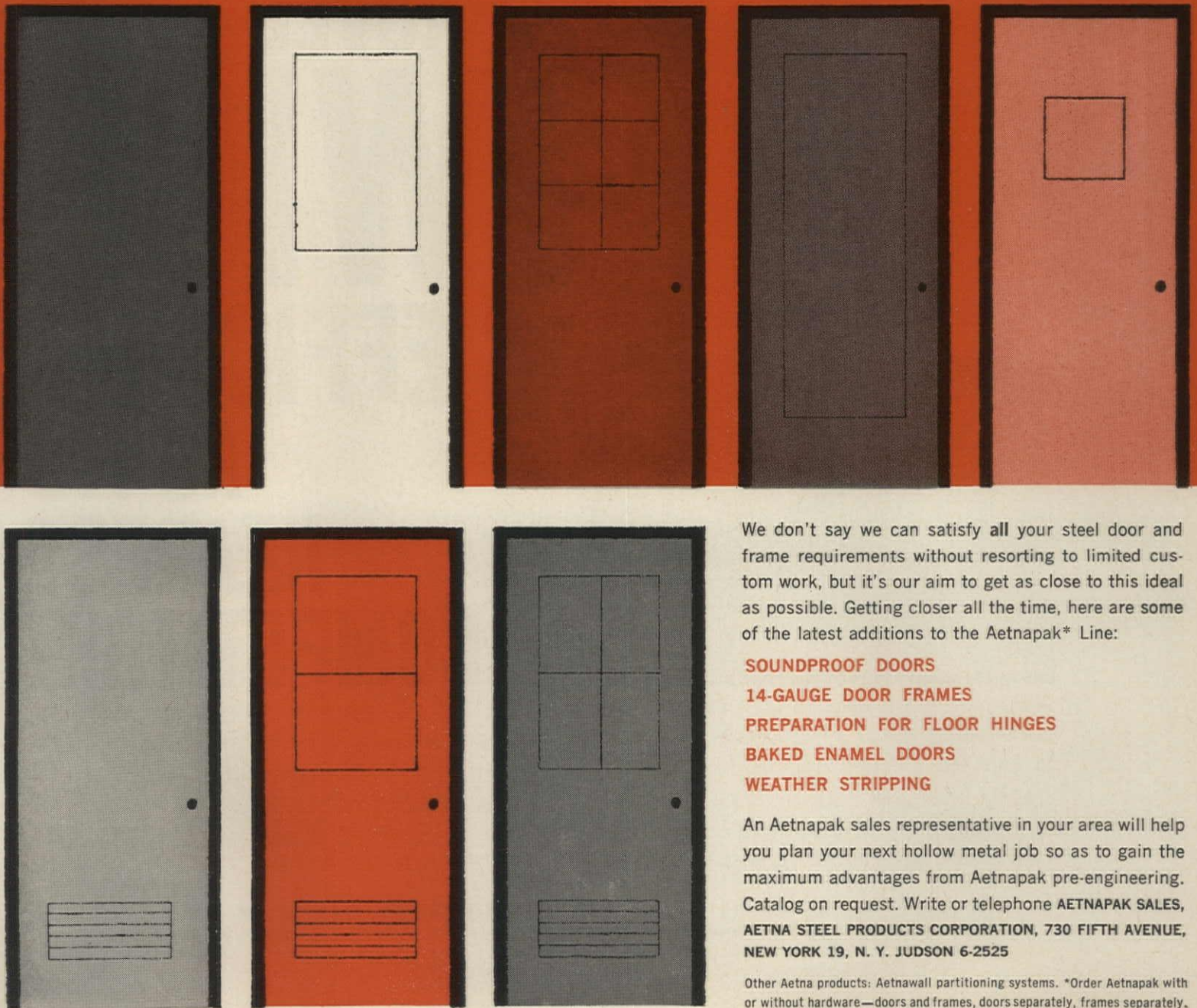
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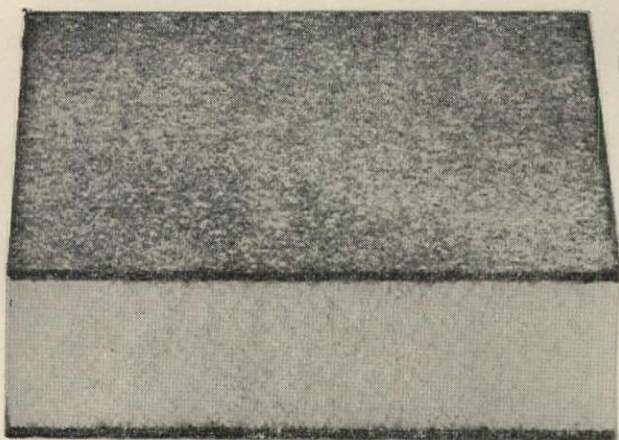
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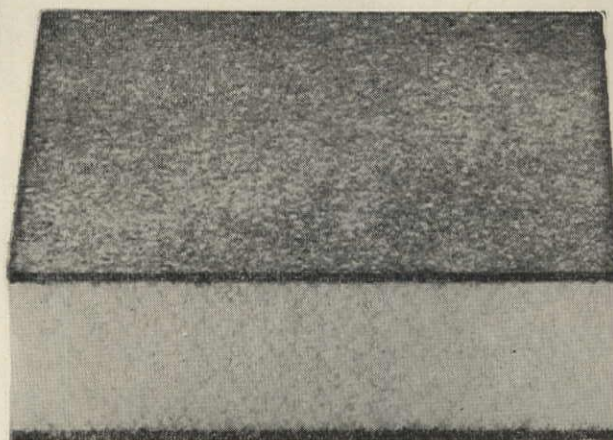
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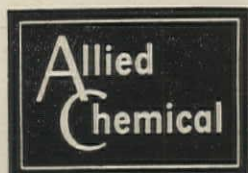
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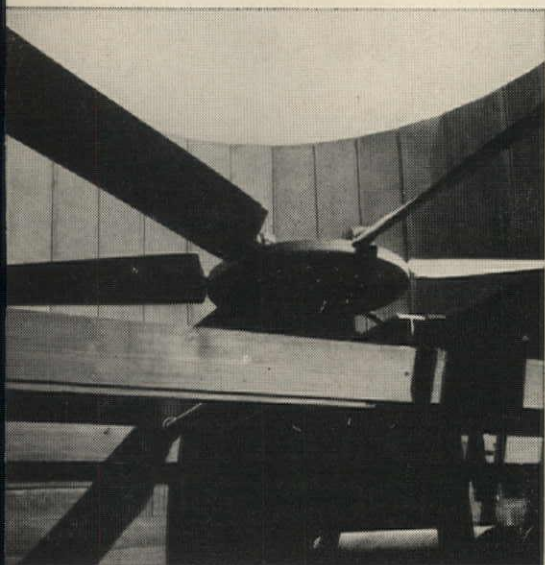
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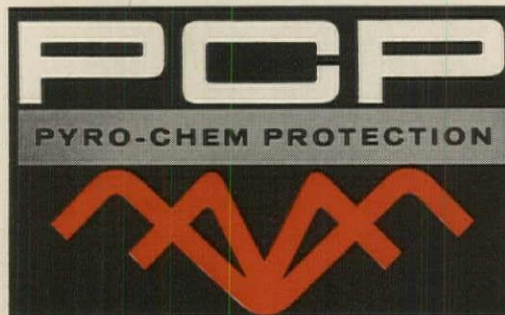


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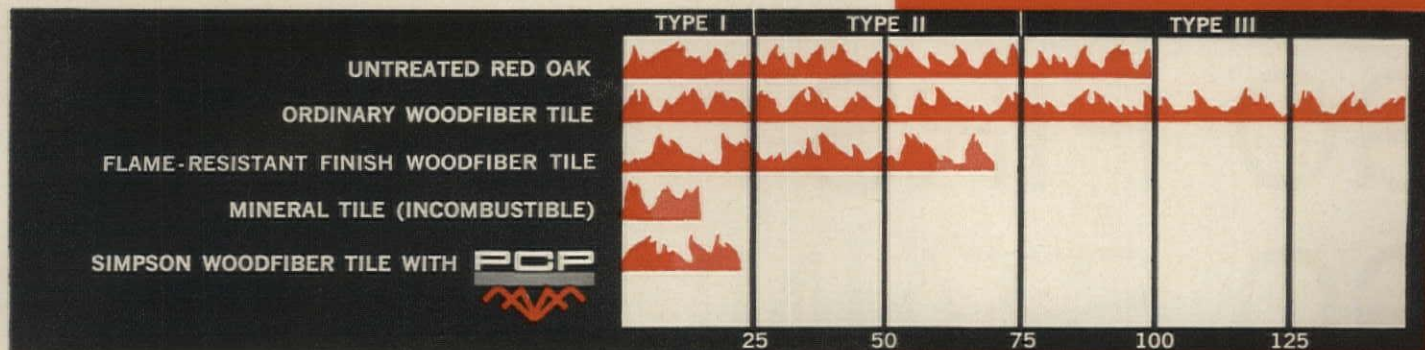
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*Simpson FRF rating—other cellulose tiles rate up to 100 and over

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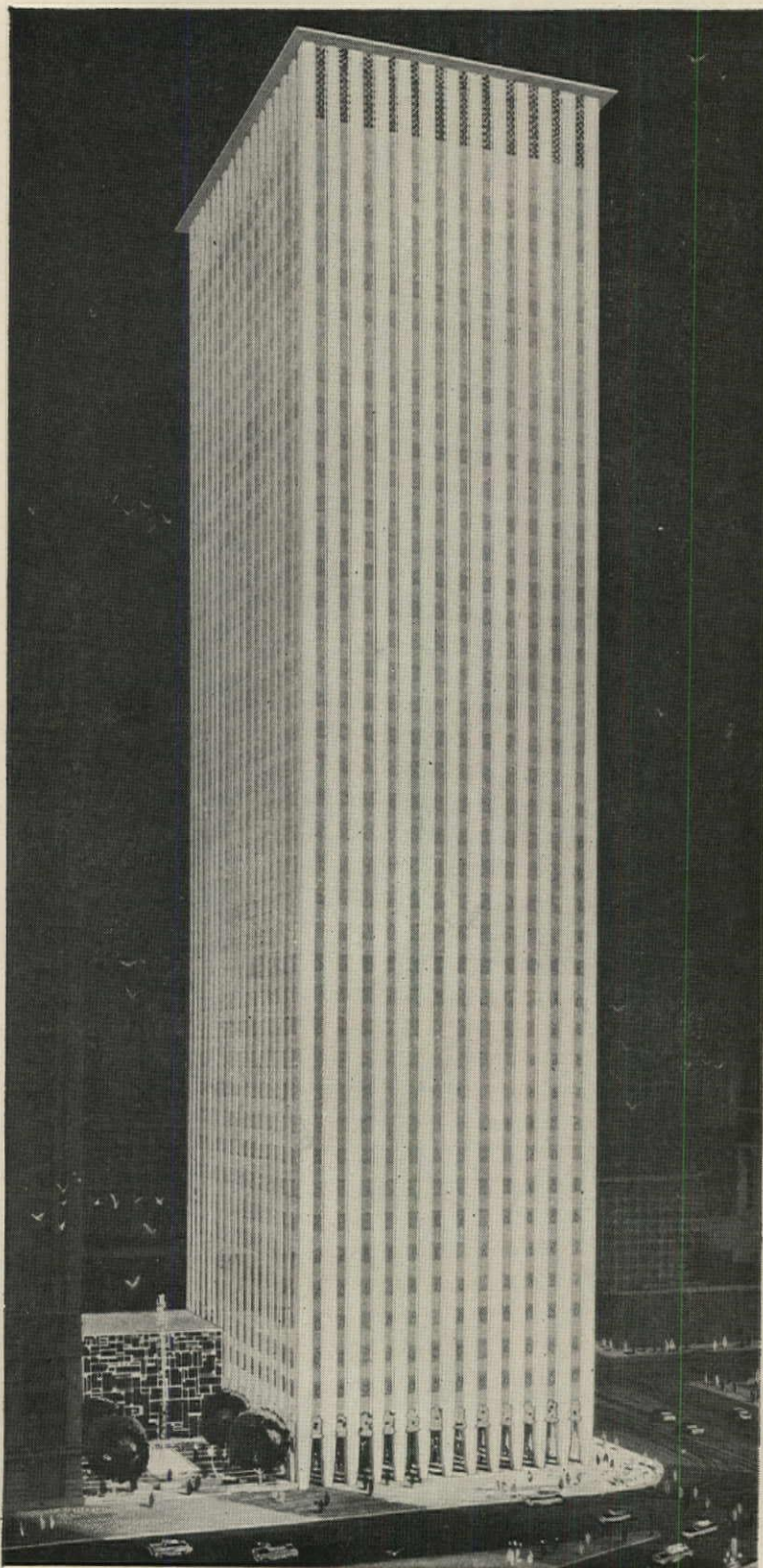
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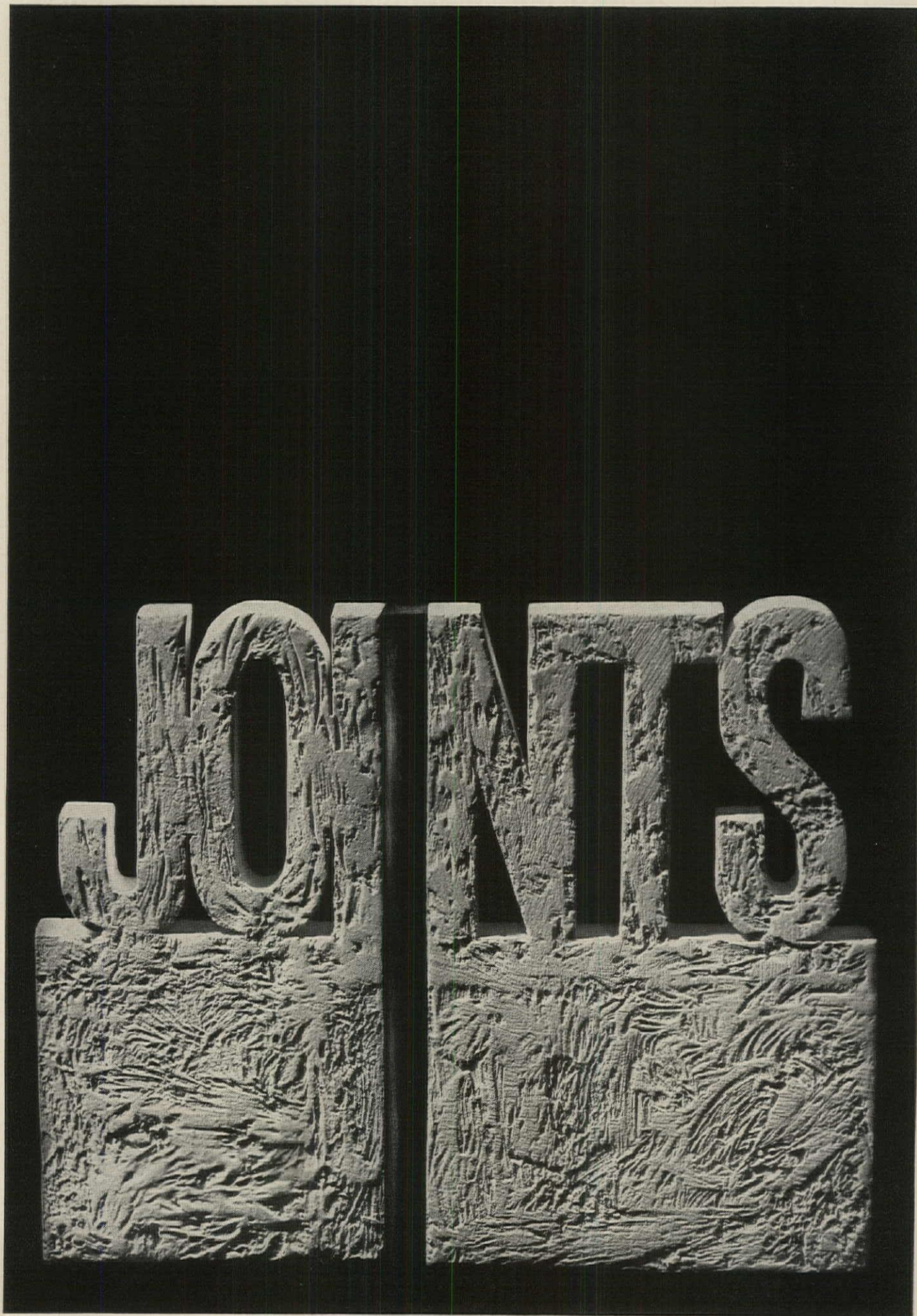
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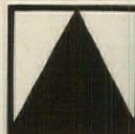
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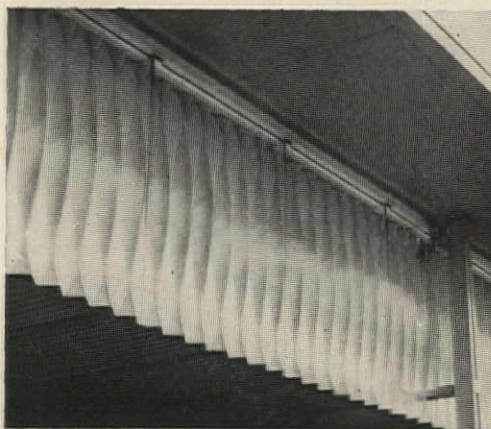
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ARCHITECTURAL NEWS

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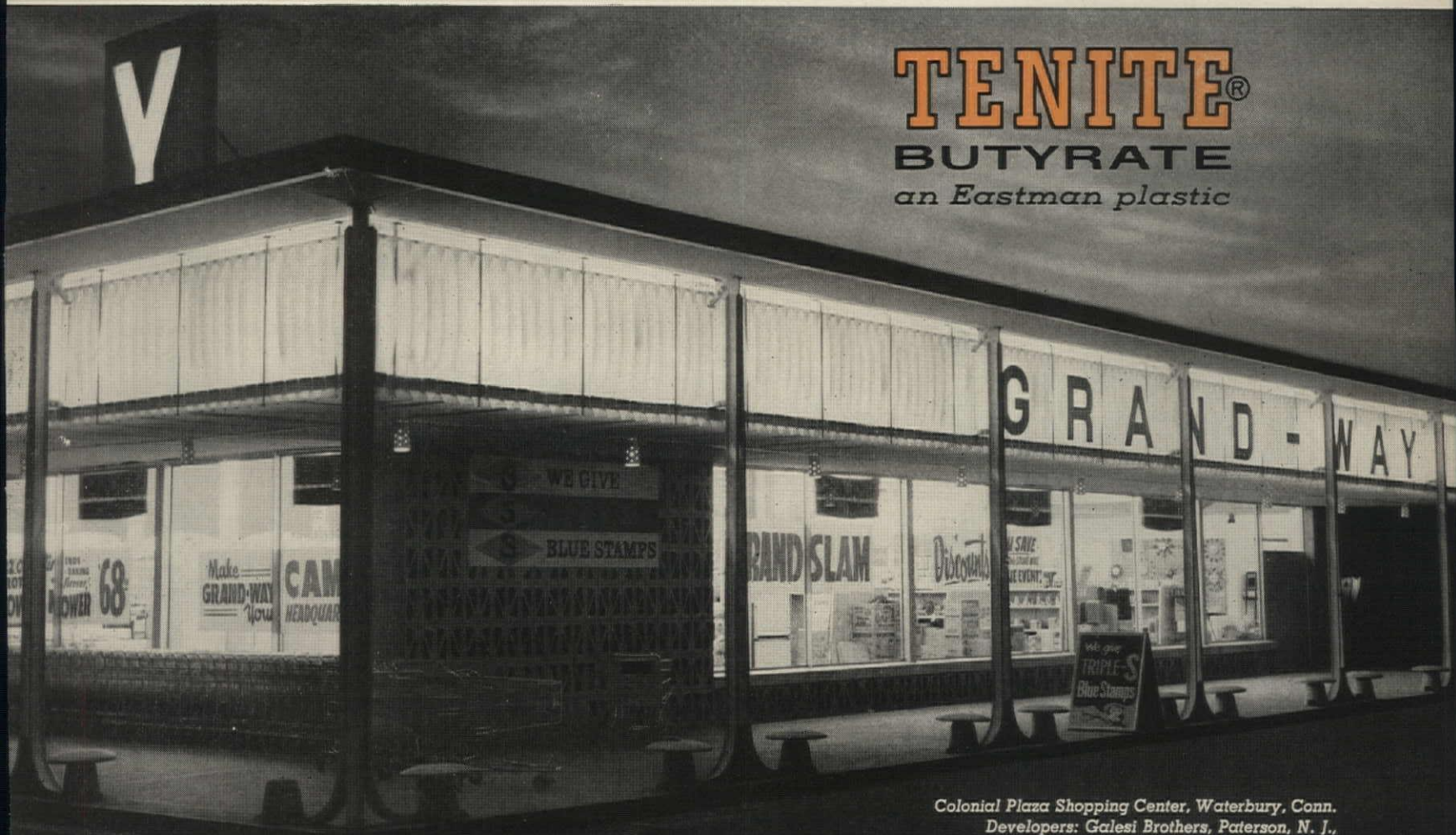
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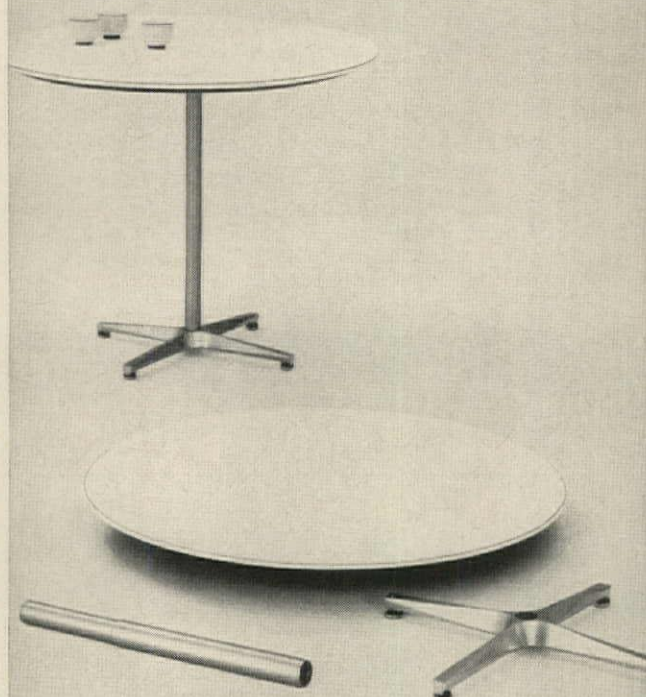
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Developers: Galesi Brothers, Paterson, N. J.,
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Architect: William Mileto, Hamden, Conn.

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GAS TURBINE LIGHTING / HEATING / COOLING SYSTEMS

A sophisticated approach to the provision of lighting, electric power, heating and cooling may be obtained by the specification of an all-gas central power system based around a modern, lightweight continuous duty gas turbine. Exhaust heat recovery systems, coupled with the turbine's high efficiency,

The Superior Fuel for Year 'Round Air Conditioning

energy for the widest variety of systems. Combinations of air conditioning, space heating, water heating and incineration systems often can be all gas-fired. Too, the wide variety of sizes and types of gas equipment means that you never have to oversize or undersize. The following paragraphs demonstrate how these many types of equipment will exactly fit your needs. Your local gas utility company will be glad to give you more information, too.

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permit high overall system efficiencies. Advanced features such as high frequency lighting, extreme service life, low incidence of in-service failure, low specific fuel consumption and maximum flexibility call for careful consideration of this modern power system for medium and large buildings. A growing line of gas turbine equipment is now available.

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Contact your local gas utility company for complete engineering backup on your current projects. Fully qualified professional engineers specializing in air conditioning, space heating, water heating and incineration are available to help you with a wide variety of problems ranging from the preparation of feasibility studies to the selection of qualified local contractors. And, complete data is available in all of the areas listed below:

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Local codes and ordinances
Degree days and estimated cooling hours
Wind and solar conditions
Qualified local contractors
Manufacturers with local representatives
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Availability of utility services

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Editorials

The great shelter snarl

Americans are currently engaged in a strange and heated national debate over how—or whether—to save themselves from nuclear destruction. On one side, some are building private fallout shelters equipped with all the comforts of home, including a shotgun to blast down unwelcome neighbors at the door. Others are protesting the uselessness of any shelter against the utter devastation of atomic war, and, like a group of 200 Boston-area professors, are petitioning President Kennedy to support instead some “positive program for peace.”

In their way, both sides have been equally misled. As many clergymen have pointed out, allowing shelter to remain on an every-man-for-himself level is a morally ugly, and a peculiarly un-American, act. And on the other hand, while much does remain to be done to promote world peace, it is unlikely that it can be promoted effectively by a nation of sitting ducks.

There is obviously a more rational solution. Yet at this writing it still lay buried in a welter of confusion, misinformation, frustration—and a growing anger at the lack of any firm leadership or straight answers from those in charge. It is true that some \$300 million in federal funds have been appropriated for U.S. civil defense activities, but to many this is a curiously small sum for what could be a matter of national life or death.

In the absence of any clear national policy, individuals have started to take matters into their own hands. Last month, at the urging of Governor Rockefeller, the New York State legislature pushed through \$100 million of capital construction funds to underwrite group shelters: \$15 million for state buildings, the balance for local schools and colleges (a grant of \$25 per person sheltered, up to half the total cost).

If fallout shelters are thus on their stumbling way to becoming an accepted instrument of survival, is it not a federal responsibility to make them an instrument for all Americans, not just the prudent or the rich? And to see that, technically, the job is done right, Protecting all the people obviously will require many communal shelters as well as family units, and without question there will have to be federal help and incentives to get them built. The precedents and machinery already exist, in everything from highways to housing, from urban renewal to public health. Converting existing buildings for fallout can cost as little as \$5 to \$20 per person, surely a cheap price for human life.

To equip older buildings, and to plan new ones with shelter in mind, need not lead to “war psychosis” or a “garrison state.” Indeed, the quiet existence of a national system of shelters could be in itself a sobering declaration of unity, and perhaps the best assurance that they would never have to be used. But that decision can be made only in Washington, D.C.

continued on page 81

NEW ENGLAND MUTUAL LIFE INSURANCE COMPANY

Bronze casement sash—two generations of
custom-engineered windows by

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*Architects: Hoyle, Doran and Berry
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Taxation without representation

A suit now before the Supreme Court may radically change the face of towns and cities throughout the U.S.

The suit was brought by 11 city dwellers in Tennessee, who were fed up with their state's apportionment of legislative districts. As in many other states, no reapportionment has taken place in Tennessee in more than half a century, so that the state is now being governed by a legislature whose composition was determined at a time when our country was predominantly rural. This means that some Tennessee lawmakers from the cities represent 19 times as many people as other lawmakers who represent rural districts. The 11 Tennesseans have asked the Supreme Court to declare this unequal representation unconstitutional.

As a matter of fact, Tennessee's city dwellers are a good deal better off than some of the city dwellers of Vermont (whose legislators represent 676 times as many people as do rural legislators), or some of the city dwellers of Florida, where the ratio is as high as 75 to 1. As for Connecticut, there the ratio runs as high as 200 to 1 and more: Hartford, with a population of 160,000, has two seats in the lower house—as does Colebrook, a hamlet of 791. And so it goes.

What all this means, among other things, is that very few cities receive anywhere near as much aid from their state governments as they are entitled to as a matter of fairness. State tax dollars are spent in disproportionate amounts in rural areas, and the overwhelming problems faced by most large, urban centers have to be solved either locally or with federal help, for very little state aid is forthcoming.

Those who argue against the Tennessee petition invoke states' rights and say that the Supreme Court should not interfere with a local, political issue. When this issue came up before the court in 1946, a majority of the justices took that line. States' rights are indeed involved, but the matter is not nearly so simple as the states' righters say it is: one reason there is so much federal-government interference in municipal affairs is that big cities, which ought to get housing, urban renewal, highway, and other aid from their own state legislatures, have to turn to the federal government instead.

The Department of Justice has stepped into the case as a "friend of the court," presenting a brief that backs the city dwellers involved. At this writing the chances are that the court will make its decision known early next year. If the decision is favorable to the petitioners, the impact upon the revitalization of big, urban centers should be enormous: today, nearly 70 per cent of all Americans live in these urban centers—yet they elect only about 25 per cent of all state legislators. Needless to say, the remaining lawmakers show little understanding of, or sympathy for, urban problems. Those who care about the future of our cities—at least 70 per cent of us—should take a very deep interest in the Supreme Court's decision.

Quote . . . unquote

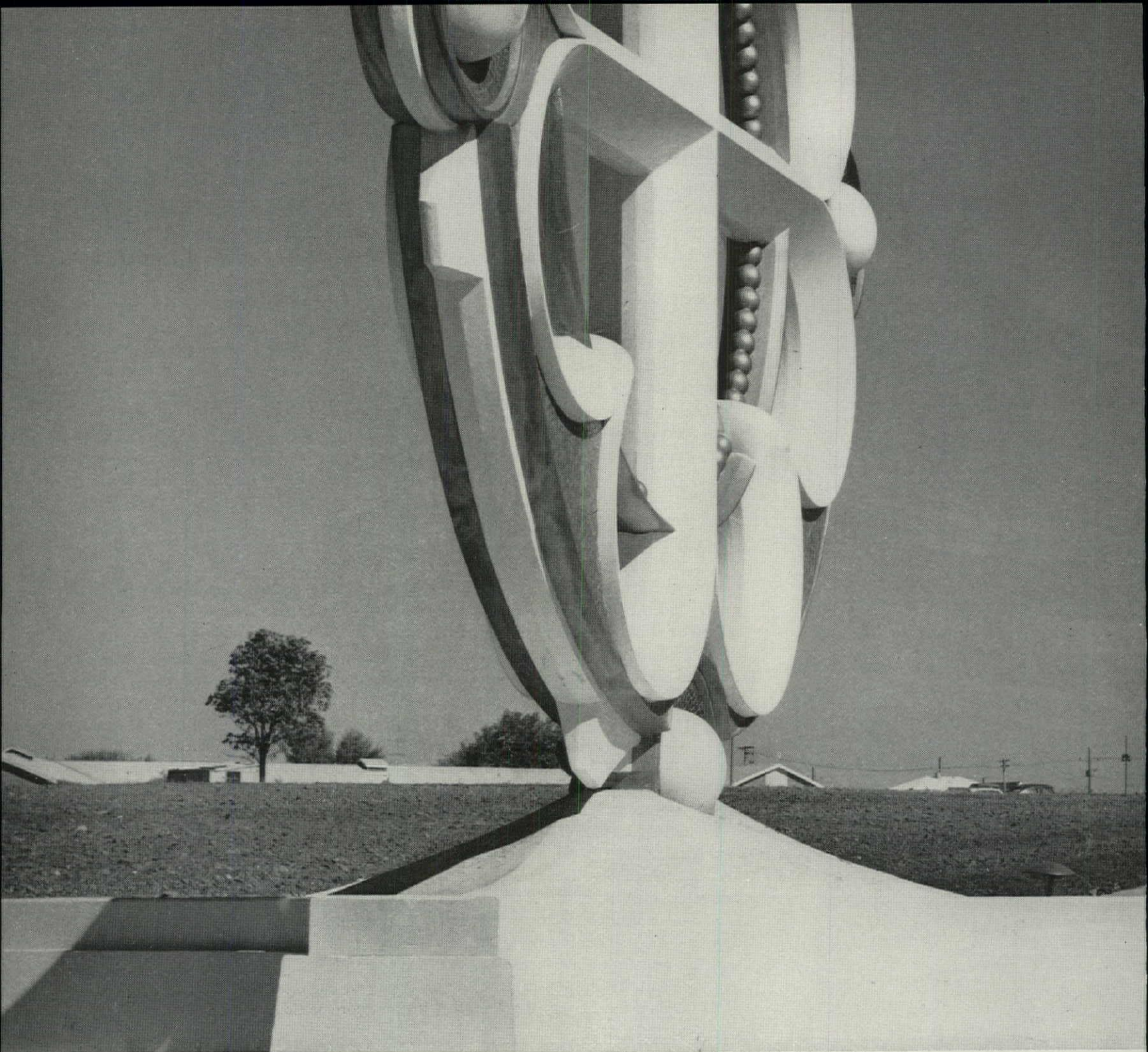
"No city can solve its transportation problem if it neglects the greatest self-propelling vehicle of all—the pedestrian. A hundred thousand pedestrians can cover half a mile in a fraction of the time that 66,000 vehicles, each carrying one and a half persons—our average American occupancy—can carry them."
—*Historian Lewis Mumford.*

"The traditional concept that investment in basic industries would raise living standards to the point where the people could construct their own schools, houses, clinics, and libraries has not worked in Latin America." — *Kenneth Holland, President, Institute of International Education.*

"Permitting the manufacturer to serve as your design consultant makes as much sense as calling upon a surgical-instrument mechanic to perform surgery on your wife." — *Designer Samuel M. Revness.*

"A map of the world that does not include Utopia is not worth even glancing at." — *Oscar Wilde.*

"A bedroom I am designing for a sheik's daughter in Kuwait, Arabia, will have a glass floor with goldfish swimming underneath and the walls will be covered with fur. . . . I am keeping it plain and simple." — *British Interior Decorator Adrian Grigg.*



Churches – 1961

Surely the most striking aspect of church design today is the struggle between the exuberance of creation and the sobriety of conviction. Last month FORUM showed Marcel Breuer's sober yet soaring fortress for the ancient Catholic faith. In this issue are counterparts among other religions of the West, from a spectacular Byzantine offering to an austere Presbyterian study in concrete, as well as a remodeled synagogue (see "Rebuilding"), and experiments abroad. On page 98 is a discussion of the basic problem of the church's endless search for form.

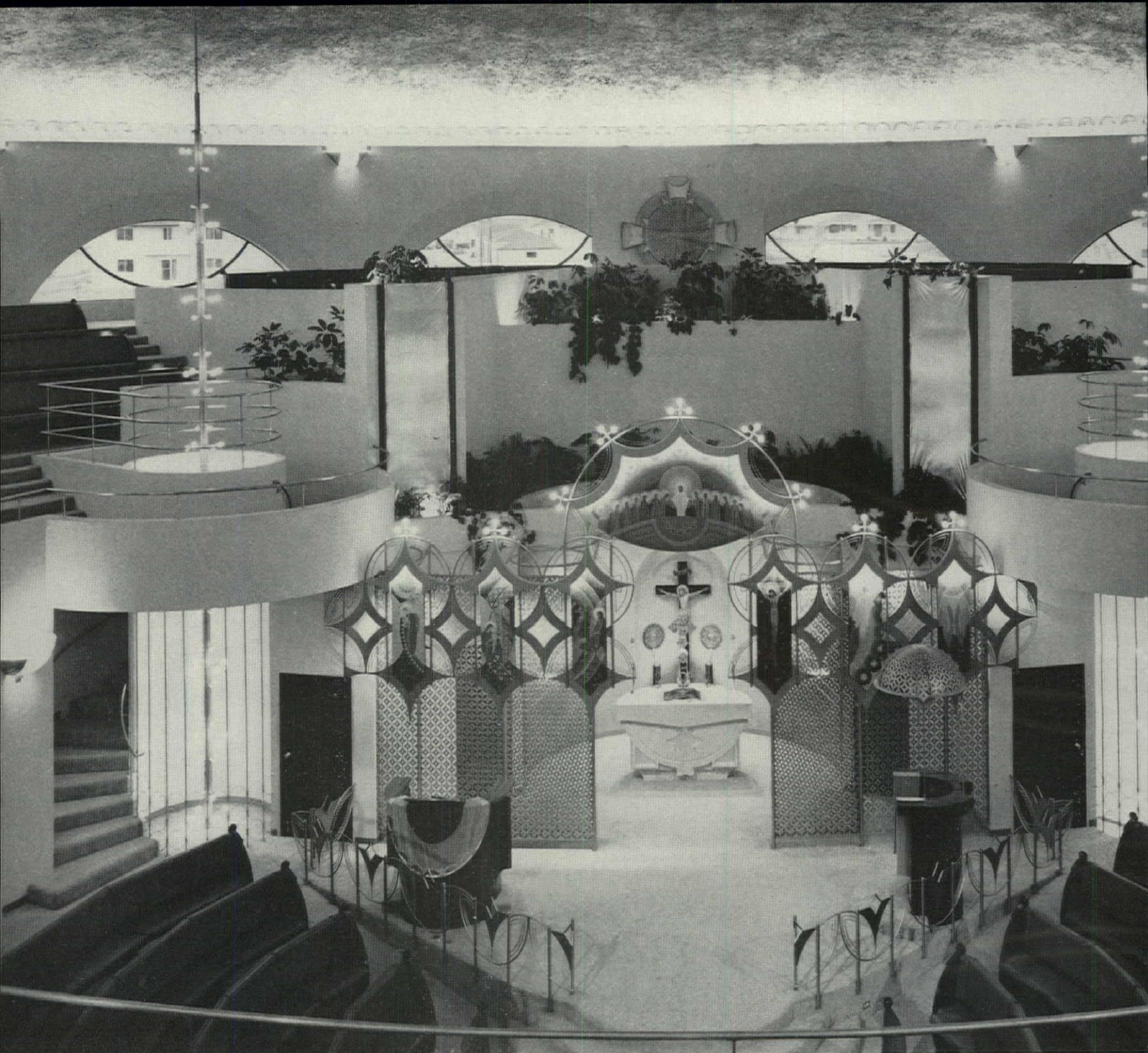


JOHN SZARKOWSKI

Spirit of Byzantium: FLLW's last church

To the unlikely sounding suburb of Wauwatosa, on the western fringe of Milwaukee, there comes, these days, a steady stream of pilgrims. At a large, sculptural Greek cross of concrete set beside the road, they turn off to inspect the outside, peer at the inside, and wander through the landscaped gardens of what may well become one of the most famous and most visited buildings in the U.S. The spaces, forms, and colors of the Church of the Annunciation by the late Frank Lloyd Wright seem to spellbind almost everyone who sees them. Most visitors,

sophisticates and simple folk alike, murmur awed superlatives. An editorial writer for the *Milwaukee Journal*, trying to explain the magic, wrote: "It seemed to us three buildings. The first we saw from a distance—a great blue inverted saucer floating above the ground. This was the overwhelming roof of the dome, covered with blue ceramic tile, and 333 feet around. Close up, but still outside, the second building—a series of curves, gently soaring and plunging. And inside, a third, composed of space and color, bright blue, gold, red, somber purple, and the

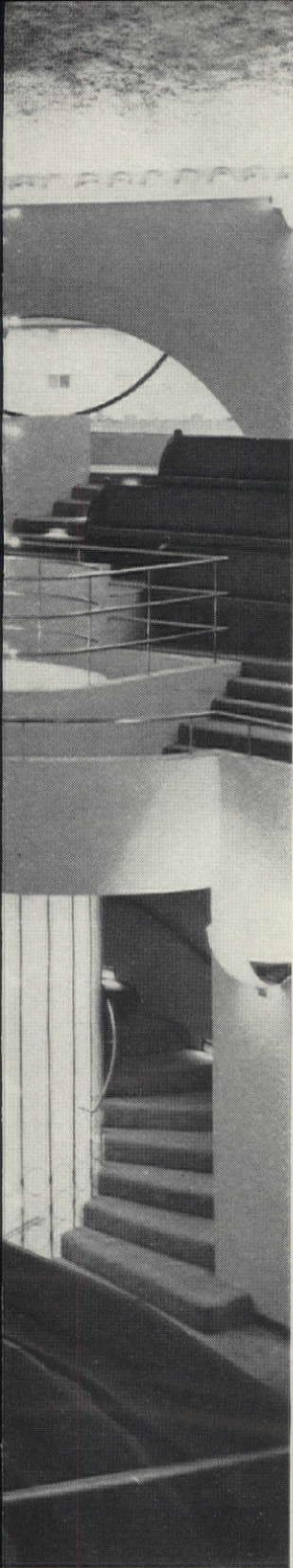


interior of the dome resting on a necklace of light made of hollow glass spheres." An elderly Greek visitor said nothing, just put his fingers to his lips and blew the whole building an expansive kiss.

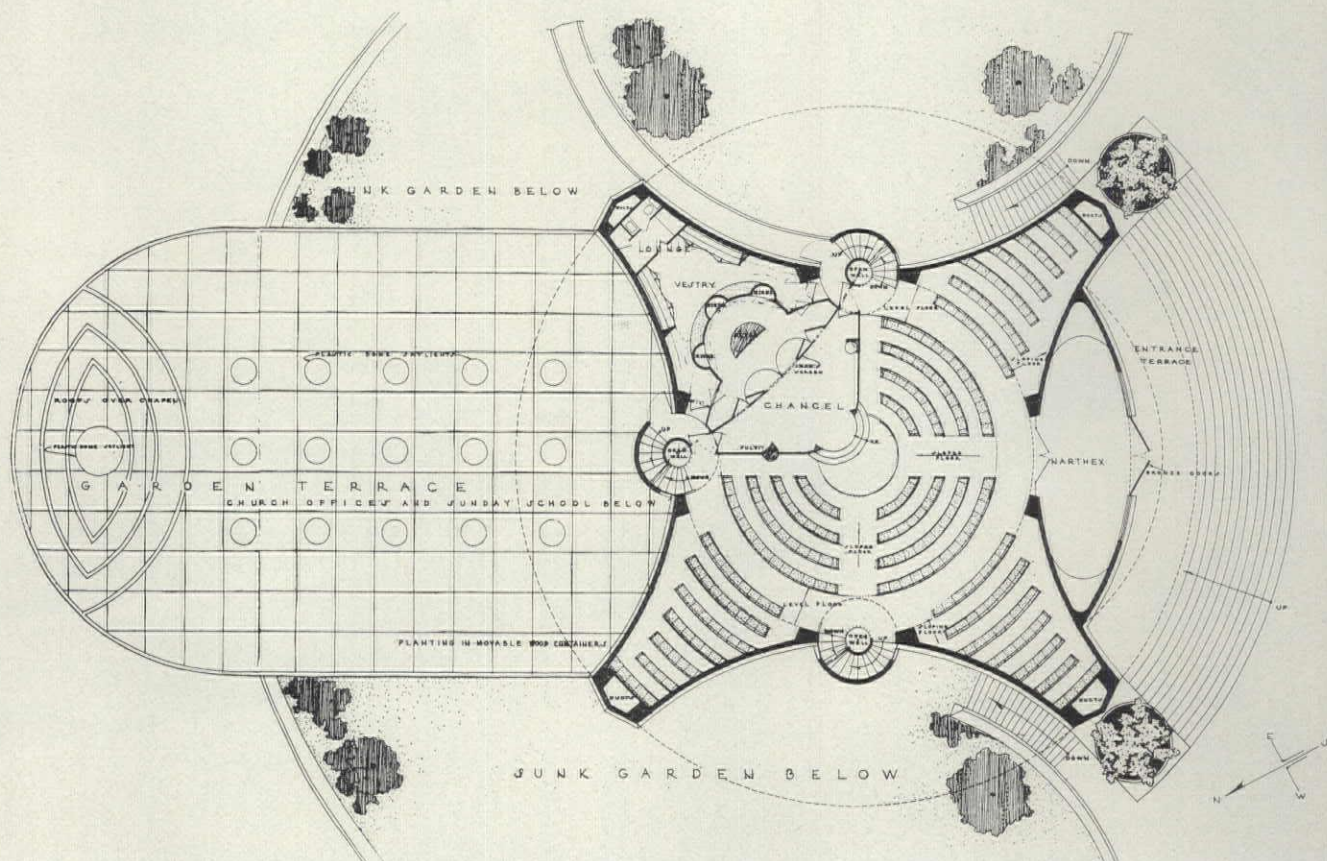
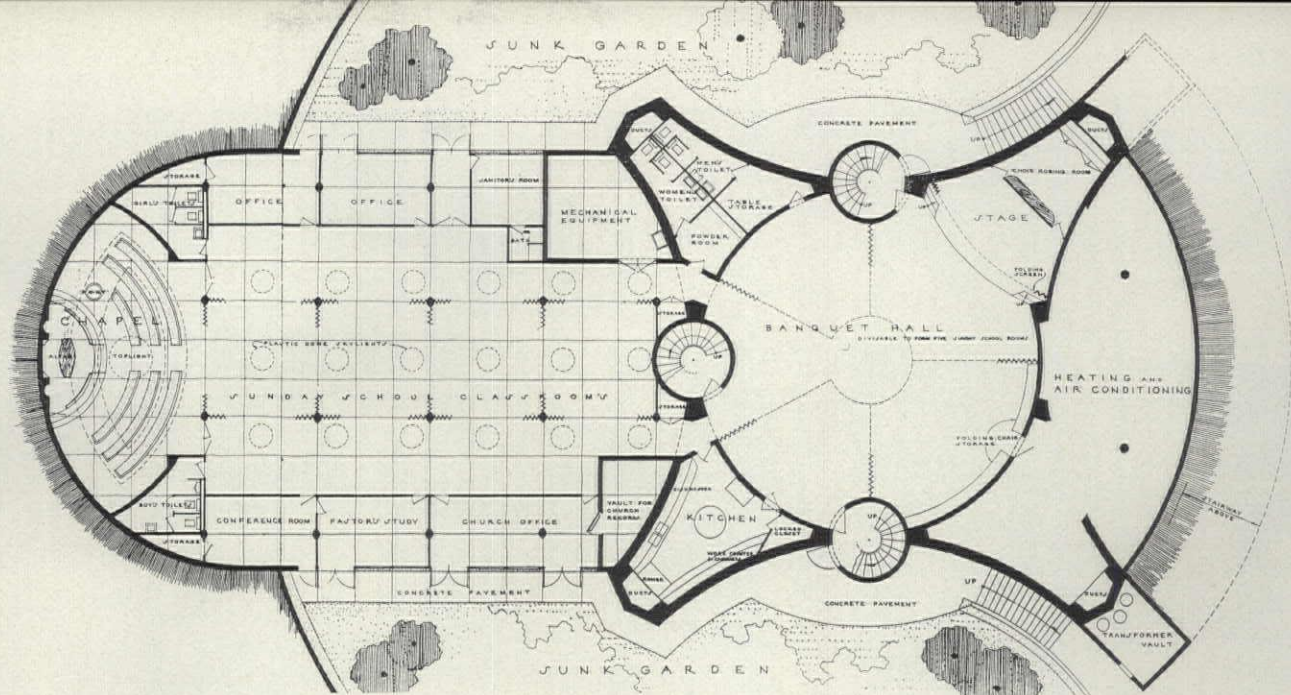
Architect visitors are struck by the building's unexpected "simplicity." The spaces and surfaces formed by the massive reinforced concrete structure are, of course, anything but simple. However, the structure itself has a wholeness, a oneness, akin to the structural wholeness of an egg, and this quality comes across forcefully. For instance, the side walls flare into the balcony floor, the stairways form structural columns that are at the same time a part of the walls. The visual and emotional effect of this integration is ill conveyed in pictures.

The church is a large one, seating 670 worshippers in its main auditorium. (A small chapel at the lower level seats 70.) Much as modern theater design has recently brought audiences close around the stage and its players, Wright brought the congregation unusually close to the altar. To do so, he used a balcony but avoided "covering up" one part of the congregation with the other part.

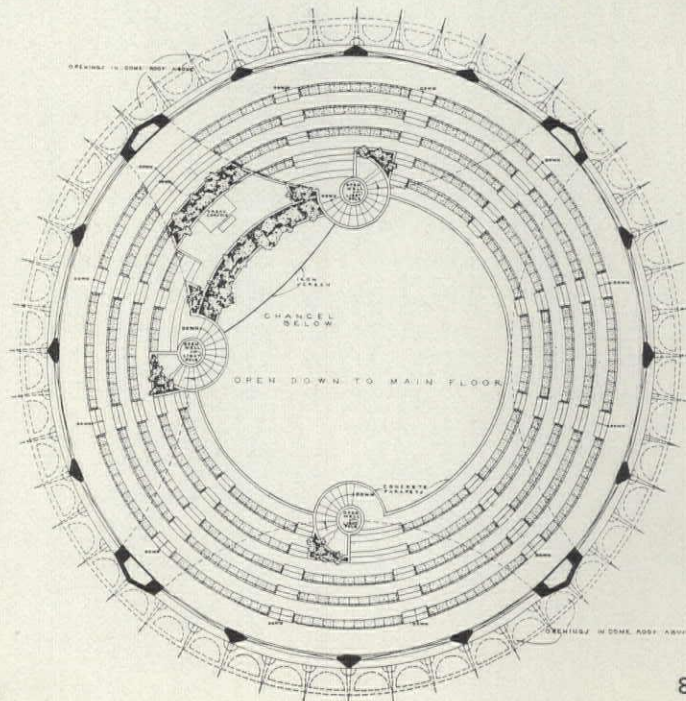
The church's congregation is, itself, neither especially large nor rich. Its only particular qualification for getting such a splendid church was that it badly wanted a beautiful church, both for itself and as a contribution to its city. The total cost of the building, with landscaping, is \$1,250,000, of which the congregation raised \$500,000 and courageously assumed a mortgage for the



JOHN SZANKOWSKI



remainder. The church members hope that visitors will help contribute toward payment of the debt in return for the pleasure they get from the visit, but there is no thought of commercializing this process. So many people want to see the church at present that the problem of arranging tours and providing guides, without interfering with worship and church activities, looms as a large administrative and financial problem for the church staff. It is hoped that in time contributors will also be found to provide large bronze doors in place of the present entrance doors of wood, and decorated glass panels in place of the clear lights beneath the dome. Both the doors and the glass were designed by Wright and when they are added will follow his designs.





JOHN SZARKOWSKI

One of the most exasperating and common fates that can occur to an architectural masterpiece is to have a next-door neighbor spring up and either attempt to imitate or to compete with it. Wright's church seems already to have escaped this fate once, thanks to the sensitivity of a Milwaukee architect commissioned to design another institutional building on the same block. He recommended to his building committee, which accepted the suggestion, a simple form—on the sensible grounds that it would be foolish to try something dramatic next door to Wright.

During the last years of his life, Wright designed five churches, all of different sects, of which this is one. Construction did not begin until after his death, and was carried out by his office, Taliesin Associated Architects.

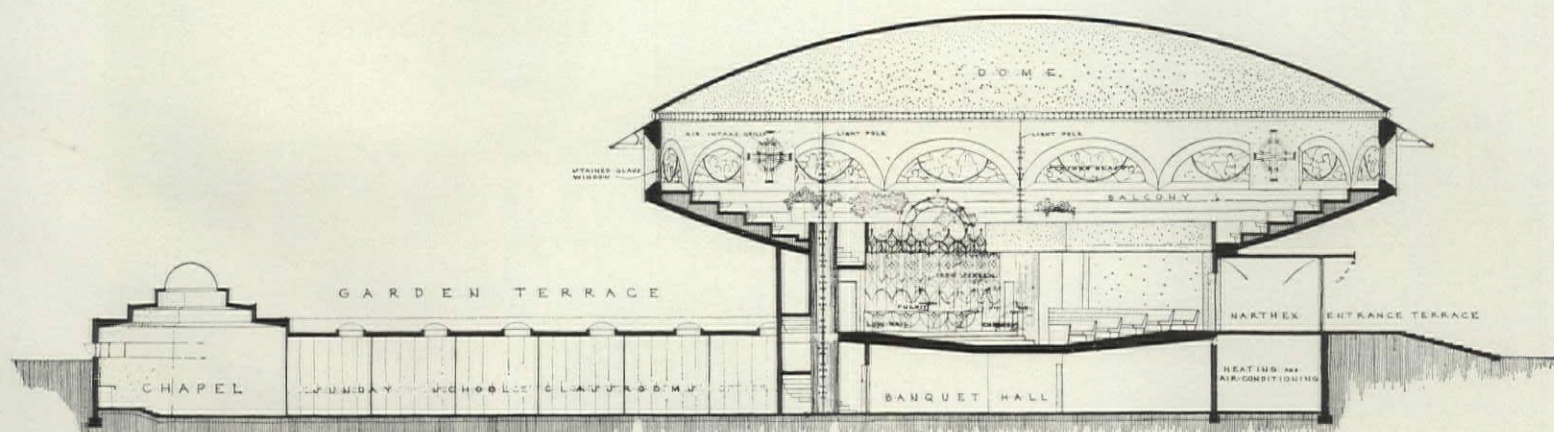
The general contractor was Woerfel Corp. of Milwaukee.

Wright was at pains to point out that his design was steeped in the background of the rich and colorful Greek Orthodox service and the Byzantine background of the Greek Orthodox Church, but he made a careful distinction between the religious spirit of Byzantium and an imitation of its familiar forms such as onion domes.

"It is never necessary to cling slavishly to a tradition," he wrote of this design. "... The building is therefore not a copy of Byzantine architecture—but better than a copy... it is in proper scale and feeling to reflect the beauty of the architectural heritage of that ancient period without copying a single feature... contributing to tradition instead of living upon it."



JOHN SZARKOWSKI

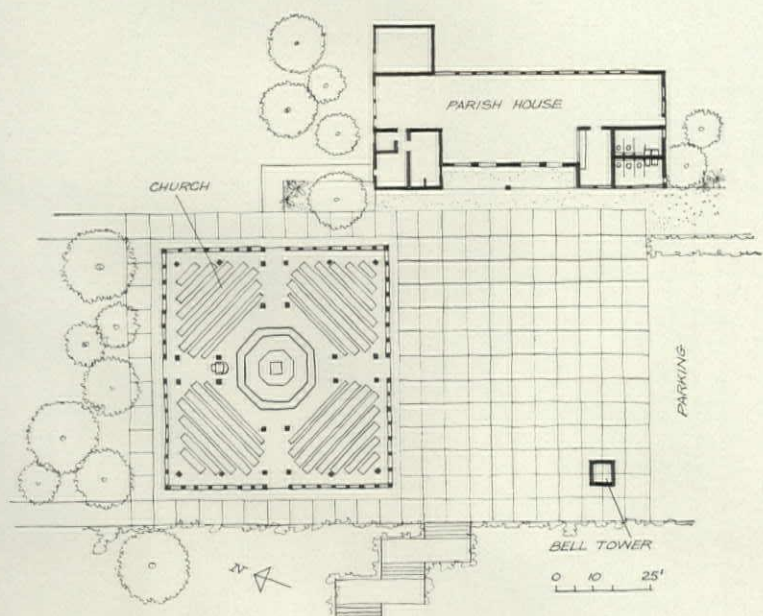




Mission-in-the-round

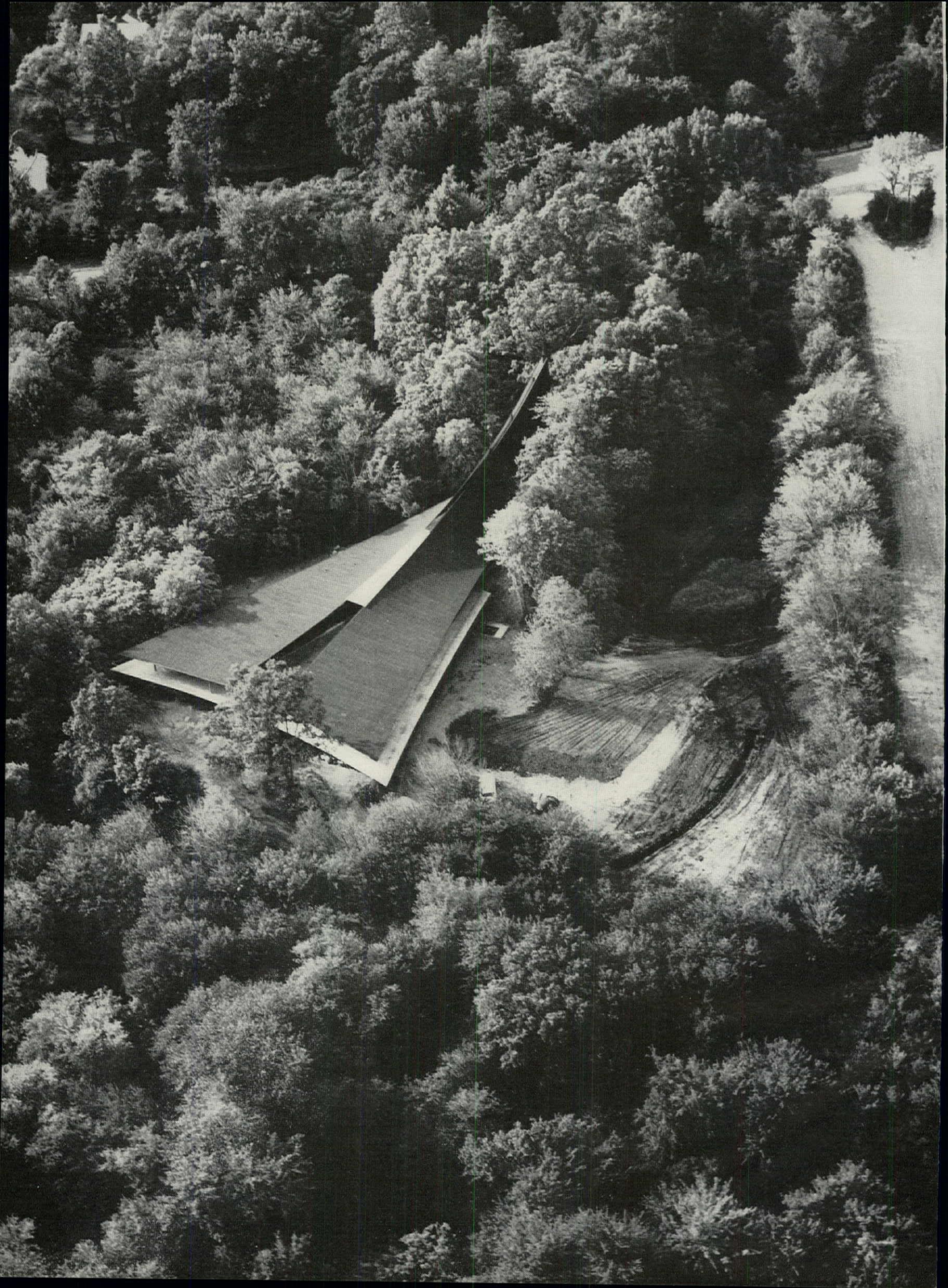


PHOTOS: JOERN GERDTS—TIME



At St. Anselm's, the little Episcopal "church-in-the-round" in Lafayette, Calif., religion loses its usual design characterization as a spectator sport. The congregation participates; nobody sits more than six seats from the altar. The entire spirit of the church is unpretentious; even the bell tower wears an everyday hat.

Yet the restraint is not overbred, for there is nothing unclear about the focus of the congregation. Painted panels between the redwood beams—a modest recall of old liturgical stained glass—pull the eye toward the heart of the church. There, a sudden exultation of light comes down through a skylight over "The Lord's Table" (above). The interior is redwood, the exterior cedar shakes, the setting, rolling landscape. Seating 420, the church plus parish house cost \$130,000 to build. Architect: Olav Hammarstrom, in association with Marquis & Stoller. Landscape architect: Les Baronian.





GEORGE CSERNA

Sunday-school classrooms open to long porches at the low end of the church.

Soaring timbers in the woods

The new First Unitarian Church in Westport, Conn., by Architect Victor A. Lundy, is a dramatization of the quality of grace. This was precisely the architect's intent: "I think the important question in a church building, after all the intellectualizing, is *does it move you?* I think a church has to. That's the important thing."

The idea of the church—and its emotional appeal—is carried by its hovering roof, made from hundreds of two by fours laid endwise, bent to follow the shaping of sizable laminated arches which resemble upside-down boat frames, and spiked together. The effect is of two planes of wood starting almost flat at the entrance end of the building, then being turned tautly upward to a high split peak over what will be the pulpit. This split runs down the entire church, and will eventually contain a contemporary stained-glass skylight.

The church is not yet complete in all its rooms. It was budgeted to be built in two stages, but significantly the expressive roof was built first, complete, although a good part of the church under it, including the main sanctuary, is not yet walled in (photo overleaf). For services the congregation is now using the enclosed space at the entrance end of the building, which has not yet been partitioned. Under this are Sunday-school rooms.

Says Lundy about his stirring roof: "I don't think it is a transient kind of form, but a timeless form. To some it's a ship, to others a bird taking flight, or a bird sheltering all the various church activities with its wings. But to everyone it has an *alive* spirit, as this religion does, and it soars out of that weekday, commuting rut. It never quite completes itself, or gets smug. It's still unfinished, and it kills me." (Particularly painful to the architect is



PHOTOS: GEORGE CREINA

the temporary roof finish of impregnated felt, awaiting the contracting of copper sheathing.)

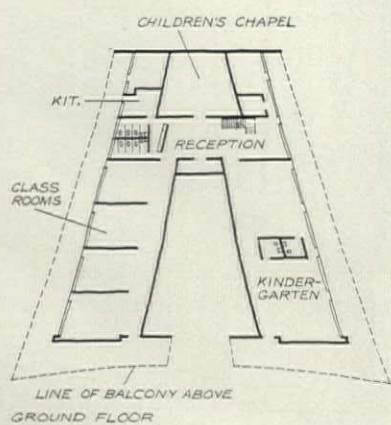
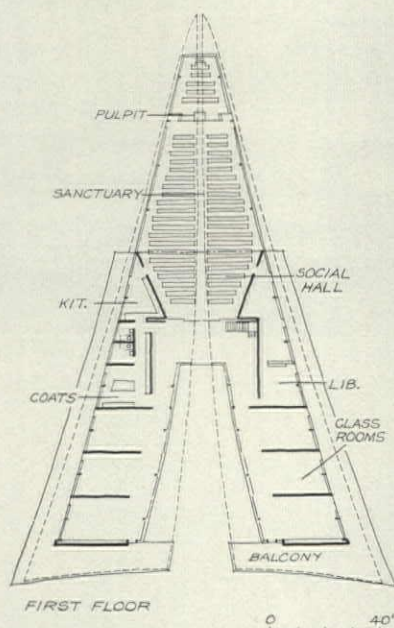
It is a tightly budgeted building for Connecticut's climate. Construction cost so far: \$224,000 for 17,034 square feet, or \$13.15 per square foot (figuring sheltered, but not enclosed, space at half). Nor was the site simple; the church rides a ridge across its 8-acre parcel, a densely wooded area which was preserved much in its found state. Says Lundy: "The real sanctuary is the nature left there on the land."

The 26 laminated beams supporting the roof are 16 feet on centers, vary from 9 by 16 to 9 by 20 inches in size; including decking, the roof materials cost \$33,000. They are elevated on rectangular steel columns which also carry a reinforced floor slab. The skylight which follows the spine of the plan, separating the two roof seg-

ments, is intended to suggest the "duality of Unitarianism—never quite coming together or cutting off, allowing the universe to come in." The skylight will be a double one, with the patterned glass below. When the building is partitioned, the tops of the partitions will be glass, to maintain the flow of the roof shape.

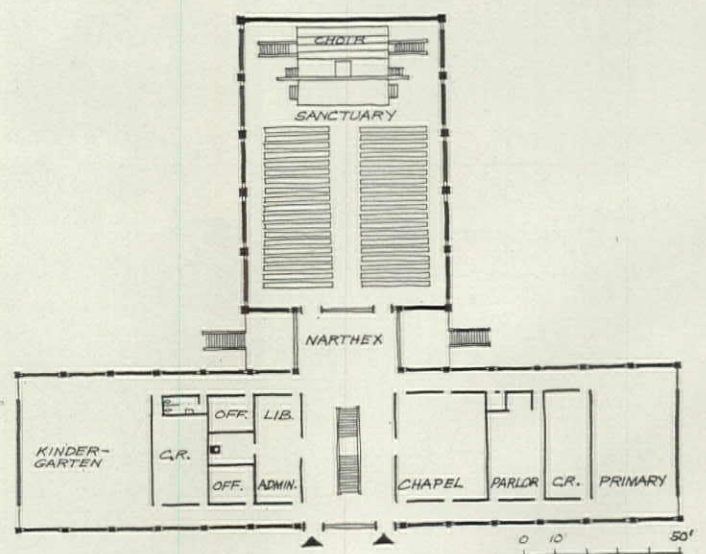
Also, when the church proper and social room are completed in the second stage, their floor level will be somewhat higher than the fill shown in these photographs, shortening the apparent height of the columns and bringing the room down lower, making the shape even more closely compelling. Roof structural design and fabrication was handled by Timber Structures, Inc. Consulting engineers: Severud-Elstad-Krueger Associates (structural), Werner-Jensen & Korst (mechanical). General contractor: A. V. Tuchy, Inc.

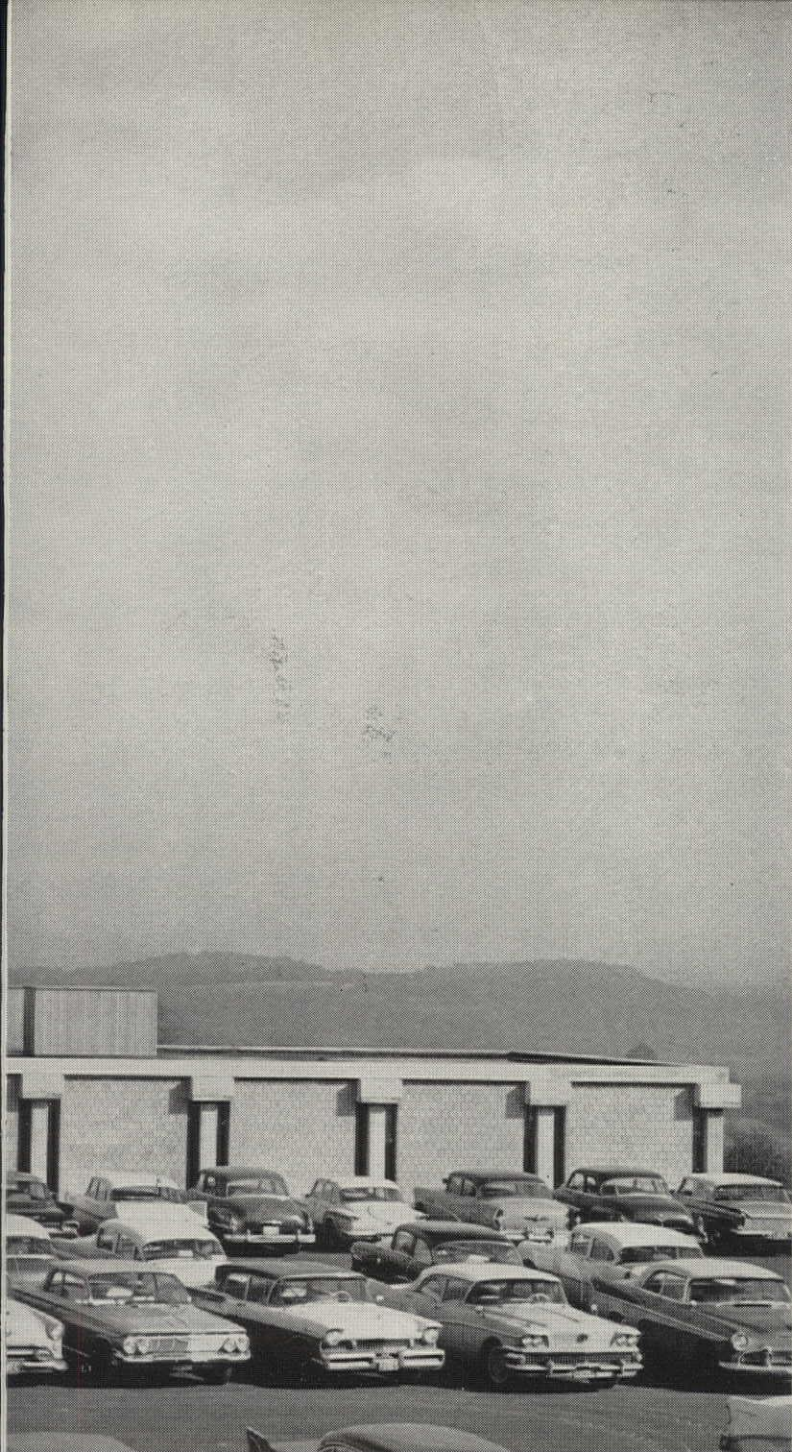
Main sanctuary has not yet been walled in; a single skylight of clear glass bridges the slot between roof segments. Outdoor services are sometimes held here in fair weather.





Austerity in concrete





PHOTOS: GEORGE CSERNA

Architect Paul Schweikher bucked against the current fashions in concrete construction when he designed the new Trinity United Presbyterian Church in East Liverpool, Ohio. Instead of emphasizing the plasticity of concrete, instead of exploiting its possibilities for arches, domes, waves, or cantilevers, Schweikher virtually confined himself to "concrete in plain stick form."

A practical advantage of this design was economy. The precast, post-tensioned girders and joists, and the precast columns and floor and roof channels, were all designed to stay within the limits of available precasting beds and forms. The estimated savings from such prudence, based on a comparison of bids for precast and cast-in-place construction on an earlier and larger version of the design, are reported at well over \$50,000, and possibly at almost twice that figure, owing to savings on form costs. The total cost of the building, which consists of a 30-

foot-high sanctuary, a long, low educational and office wing, and a bridge-narthex connecting the two, was \$601,000, or about \$20 per square foot.

The most interesting lesson of this building is the way in which the architect managed to make a highly individual and handsome object out of ordinary, standardized components. This was partly the result of great care with the proportions of surfaces, and partly the result of bold thinking about details. For example:

► The exterior wall panels are separated from the columns by narrow strips of tinted gray glass. These "voids," which occur along corridors, are not depended on for light (the building is amply skylighted), but rather for rhythm and definition of structure.

► The wall panels themselves are limestone concrete block, usually a rather clumsy material, but not in this case. Schweikher rejected 8 by 16 inch blocks, because



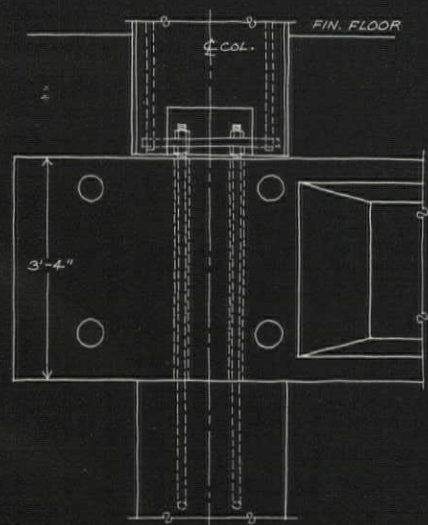
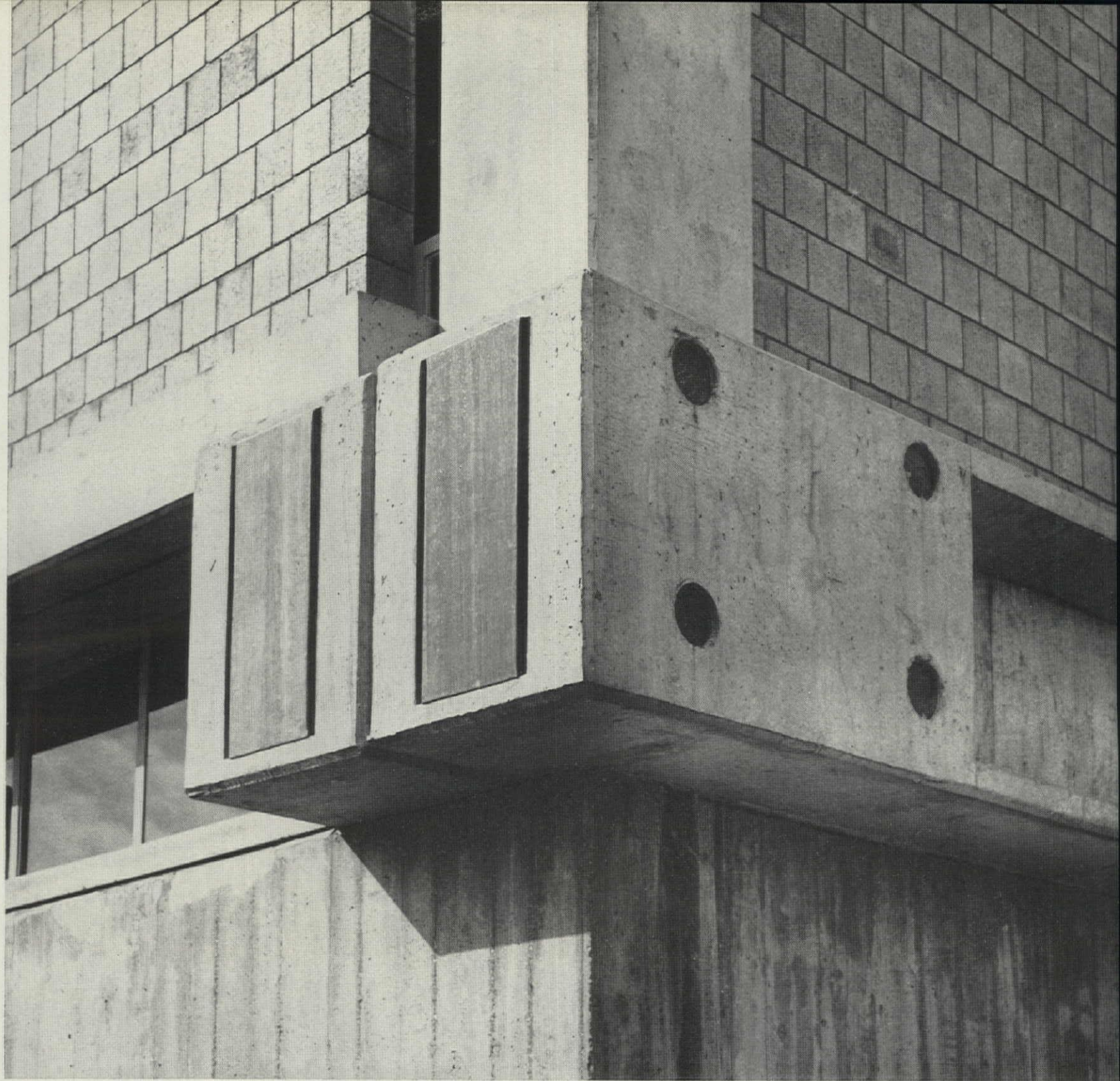
their full and half units would have made, he felt, clumsy returns at jambs and other junctures. "That size, at the jambs, would throw the whole scale of the building askew," he says. "They are just too big." Instead he used 8 by 8 inch block, getting units of that size and 8 by 4 inches at returns, "with the difference in scale making all the difference in the world." The river gravel used as aggregate in the block contained an unanticipated metallic impurity that did not show up until after the walls were in place. The accident was happy.

► The pairs of big I-beams, which carry the concrete floor and roof channels, are finished off at their ends with lead plates. Usually such beams are given a humdrum plug and cover of concrete, both for cosmetic treatment of the ugly terminations of the reinforcing strands and to protect the reinforcing. Here the necessary cover became one of the building's most striking

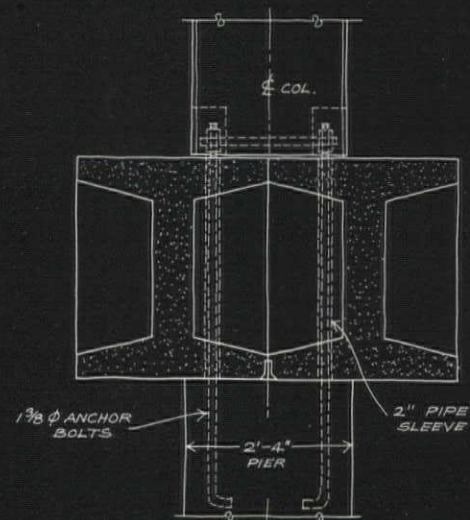
and handsome features. In the educational wing, where box beams are used instead of I-beams, the lead plates cover only the bottom portion of the beams, the locus of the post-tensioned reinforcing cables there. The bolts tying together the beams and column (see drawing at right) are protected and finished with flush lead plugs.

► Much of the interior is paneled with red oak flooring, laid up vertically, and these panels have been deliberately separated from the exterior walls at all junctures to keep the wood as curtainlike as possible. The deep wood skylight enclosures possess a similar visual independence.

Associated architects: Paul Schweikher and James Nessly Porter. Engineers: Joseph Spagnuolo (structural); Edward T. Wiesmann (electrical); Jefferson Bedsole (mechanical). Structural system: The Geo. Rackle & Sons Co. General contractor: Potters Construction Co.



SECTION THROUGH BEAM END



SECTION THROUGH PRECAST BEAMS

The Protestant search for form

To aid architects in avoiding mere imitation of other kinds of churches, a theologian discusses the bases of authentic Protestant symbolism.

BY DR. JULIAN N. HARTT*

The three principal contemporary modes of Christian religiousness are Catholicism, Unitarianism, and Biblical Protestantism. In relation to church building the chief differences among these systems occur in their several treatments of God's presence with man, and in the sense and kind of discipline derived therefrom for human aspiration.

The essential genius of Catholicism is the achievement of closure of the form in which the community of God with man is expressed. Here God always expresses Himself by creating a determinate structure. Thus He creates a rational and bounded natural order (cosmos); and so also He takes a particular human form for His work of salvation in human history (Jesus). Accordingly the authentic Catholic design of the church always expresses God's relation to man and world in a resolved and determinate space.

In Greek Catholicism the perfect circle and its expression in depth as the dome is the prime spatial symbol: God and man are not only reconciled, but the life of man is taken up into the life of God, for the achievement of this unity is reconciliation, which only God can realize.

The Roman church achieves closure of form in its own way, and this can be seen in the movement from Byzantine to Gothic. The mystery of God is contracted into the Eucharist (The Lord's Supper); the light from the altar of holy sacrifice illuminates both the divine rationality of Heaven and the order in which mankind is created and governed by Providence. True, the upper reaches of interior Gothic space are illuminated by the clerestory windows; and who can or would forget the great rose windows? But the focal light, in which alone the "sense of the church" can be grasped, is that above the altar; for the ultimate business of God with man is accomplished symbolically there in the chancel.

Realization of Catholic religiousness, whether Roman or Greek, therefore brings human aspiration under a powerful discipline. Aspiration is not permitted to take flight of itself into Heaven, or, even less, to create Heaven (the ideal life) for itself. Aspiration receives its license only from what takes place on the altar and is

thereafter indissolubly related to the order established by Grace. However lofty and dim the ceiling-boundary of Catholic space, the eye ascends to it only along the marvelously coherent staging of arch, groin, and ribbing: and the eye of the devout beholder must be renewed and confirmed by the eternal light above the altar.

Thus Catholic religiousness does not launch its liturgy, its theology, or its architecture from a disclosure of the human condition in which men seek they know not what. Catholic religiousness moves from a disclosure of divine reality to a determination of the essential order in which human life must be set for the fulfillment of its good. This does not necessarily argue a clear triumph of monistic form. Nonetheless Catholicism moves clearly and strongly toward the resolution of *duality*. The power of darkness is acknowledged but only to show how the form of divine Grace has overcome it.

Reality and aspiration

Unitarianism assimilates divine reality to human aspiration. Therefore we must see that it minimizes the likelihood of any "invasion," either of good or evil, from a putatively supernatural world. It is the genius of Unitarianism to believe that human life can be rightly ordered to the realization of the good by the proper exercise of the human reason and will. (By "Unitarianism" we signify a religious outlook and passion far more pervasive and potent in contemporary religious life than the data of Unitarian Church membership will suggest.) So this religious system rejects any suggestion of radical discontinuity of the divine and the human; and any serious suggestion of an ultimate duality of good and evil is as rigorously denied. In the interests of a rationalism of the good will in man, Unitarian religiousness discounts very heavily the possibility of radical moral evil resident in human life. Between Man Present and Man Ideal only removable ignorance intervenes. Therefore the essential moment of worship comes when the participant has a clear focus on the ideal: the human community delivered from its present frustrations, guilts, and anxieties by a divine concert of men of good will.

In Unitarian piety the traditional symbolisms of Christianity are employed with profound reservations when they are employed at all. Having this kind of freedom from the Christian heritage, the Unitarian spirituality commonly finds eclecticism of symbol congenial if not imperative; and especially when the symbols sought are humanitarian and unequivocally life-affirming and light-embracing, which is to say, when as symbols they look away from historically unresolvable dualities of existence and look toward the unbroken unity of man

* Dr. Hartt is Noah Porter Professor of Philosophical Theology at the Yale University Divinity School.



VICTOR CHRIST-JANER

with man in pure enjoyment of the good.

Biblical Protestantism derives its substance from the reality of the Bible. We recognize as its prime features a heavy emphasis upon unresolved dualities in human life, and insistence upon the transitoriness, as well as the moral ambiguity, of human achievements.

Biblical Protestantism does not accept any mediation of divine reality through any human or natural instrument except that which is acknowledged in the Bible. The human spirit does not discover divine reality either in its depths or heights, or in Nature; and man's true good is not achievable through anything of human aspiration or devising.

So where Biblical Protestantism is faithful to itself, the rational ordering, after the geometrical patterns of Catholicism, is impossible. It is, of course, necessary somehow to order human life; but no such principle of order can be read off as itself divine, or even as a proper analogy of God's life. But since God and man do not constitute a continuum of Being and Good, no closed symbol is appropriate for the expression either of God's being or of human being; or for the expression of the copresence of God and man in Jesus Christ. This means that it is a part of the genius of Biblical Protestantism to acknowledge the unresolvable dualities of human existence. As long as this world endures, good and evil, light and dark shall also endure. Man's being is fully exposed to the real conflict, painful and costly, of the polar opposites. The resolution of the conflict is somewhere in the future, but this future cannot be plotted on the curve of history.

The duality of unity and fragmentation may very well be one which offers at once the greatest possibility of symbolic richness of expression and the greatest pertinency to our actual situation in the world today. "Fragmentation" signifies the isolation of the individual from a social order in whose order and vitality alone he can find the really good life. It signifies also the dispersal of the life of the individual into multiple and often conflicting social roles. But it also expresses the breaking up of the world beyond self-society into a congeries of forms of appearance defying static rational organization.

Catholicism and Unitarianism press so hard for unity that the reality of fragmentation is obscured if not lost altogether. Biblical Protestantism acknowledges fragmentation as an aspect of the human situation into which God comes as Christ but which He has not yet transformed into a truthful expression of Heaven.

Symbolic closure is therefore unavailable and inappropriate for Biblical Protestantism. This means that the space of worship cannot consistently be resolved. But it

means also that the "invasion" of the human situation must be represented as coming from God. The point at which this invasion occurs is the preaching of the Word of God. From this point the whole human situation is illuminated; but man's life is not thereby restructured out of its dualities. In hearing the Word, man does not become divine. Rather, he is given the opportunity of pleasing God with his service.

Therefore an authentic architectural expression of this piety provides personal confrontation of the participant and his fellow believers, after hearing the Word. Otherwise the "priesthood of all believers" would not be affirmed, i.e., the readiness of the Christian before God to serve his fellows in the unity of love.

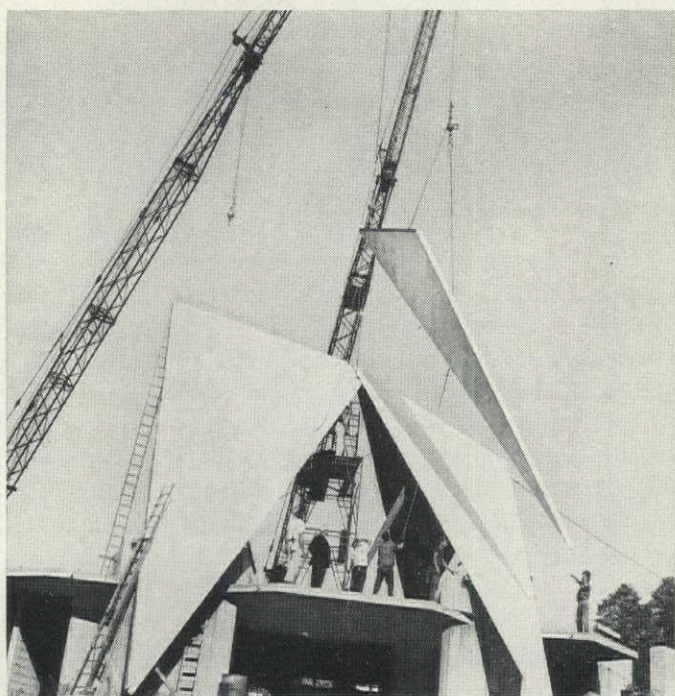
The striving for symbols

These forms of Christian religiousness are not to be found in their pure states, architecturally or otherwise. In recent years Protestant churches have been busy "catholicizing" the space of worship but without restoring the Eucharist as the prime symbol of the divine-human order. Here and there Catholic churches reveal a great readiness to confess that their faith is no longer Gothic, nor Baroque, for that matter; but some of their efforts at exploiting a contemporary idiom are painful all around. Unitarians are consistently the most experimental.

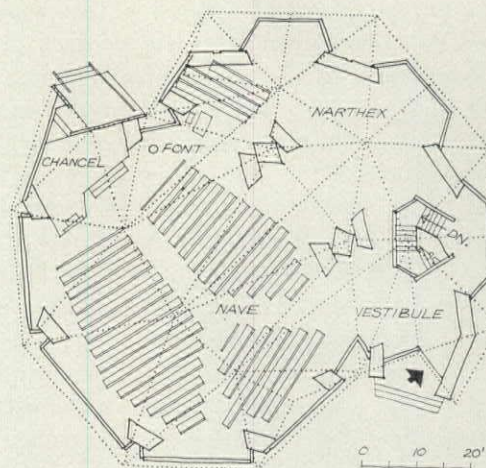
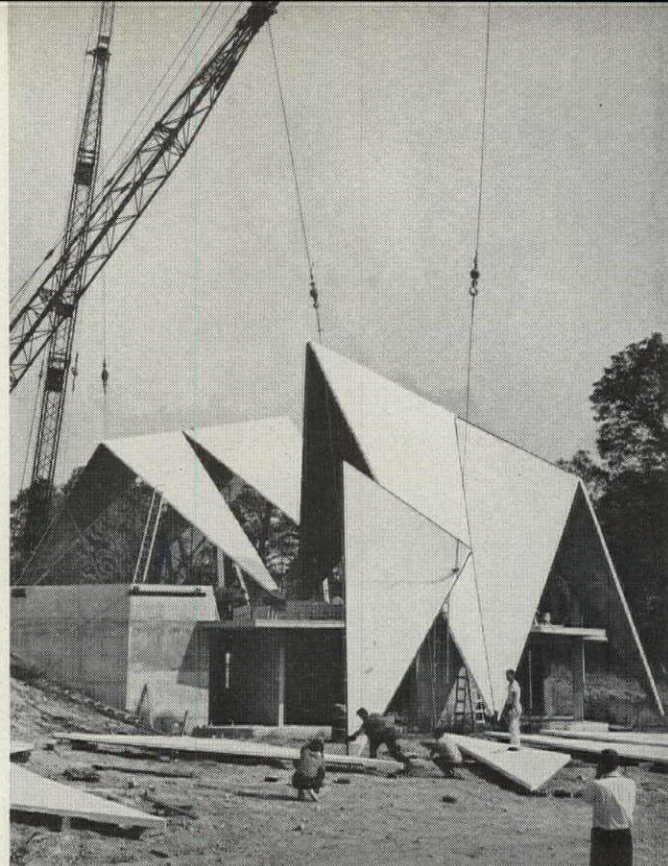
Of the three major forms of Christian religiousness, Biblical Protestantism has had the greatest difficulty in finding authentic and adequately expressive symbols. Often iconoclastic, intermittently eclectic, it has also repeatedly made a fetish of symbolic anarchy. Yet in a day of the severest trouble for religious traditions of all sorts, the Biblical Protestant spirit can keep faith now only by making its own affirmations, and particularly, the affirmation approximately identified as Justification by Grace Alone. No less than Unitarianism, this spirit requires a thoroughly contemporary idiom. No less than Catholicism, it is committed to praising God rather than man.

One of the singular signs of the times is the slender but potent striving of the Protestant spirit to express its own real life in proper symbols. These would be symbols in which the actualities of man's existence are forthrightly acknowledged; specifically, his life in the grip of indestructible dualities. But they would be symbols also of human life sustained everywhere and always by the communication to it of God's grace. The authentic symbols of Biblical Protestantism would not offer illusionistic escape from the real world. They would reveal how these realities are so illuminated by God's living word that praise of Him and love of the brethren are alike and together now possible.

The "fragmentation of this world" is the condition of which this church is designed to give vigorous expression.



PHOTOS: JOHN B. MOONEY



For West Norwalk, Conn., Architect Victor Christ-Janer designed this thoroughly chaotic church, not for the sake of chaos but as a deliberate gesture. He was carrying out ideas which, on the preceding two pages, Theologian Julian Hartt has put into theoretical expression. As in an abstract painting the first effect is chaos, but there gradually emerges a deeply searched coherence.

The tumult of the triangles (photo, preceding page) and the "unresolved" plan were not, however, what Christ-Janer started out with. Three little diagrams (above) out of a long procession that he drew show critical points in the development of his idea.

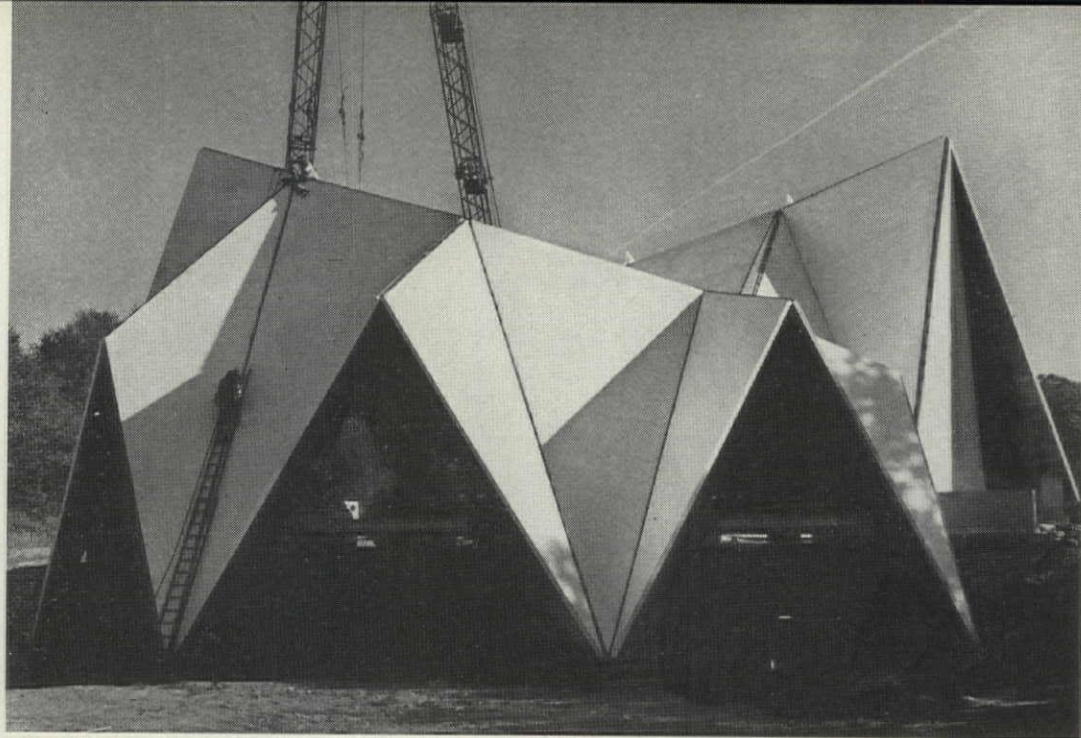
The first diagram is just a circle around a point. It is definitely "high church." The single, central, point focus stands for the Eucharistic sacrament; the surrounding space is an ordered cosmos. The two later schemes show a series of displacements and movements.

In the second diagram, noting that Protestantism rests upon "the priesthood of all believers," Christ-Janer drew a second chamber for them, making his plan dual. Coming out from the sanctuary (left) in which the Word of God "invades the earthly chaos" and gives mankind a focus, the participant is intended to move into a second separate area (right) serving "the social experience."

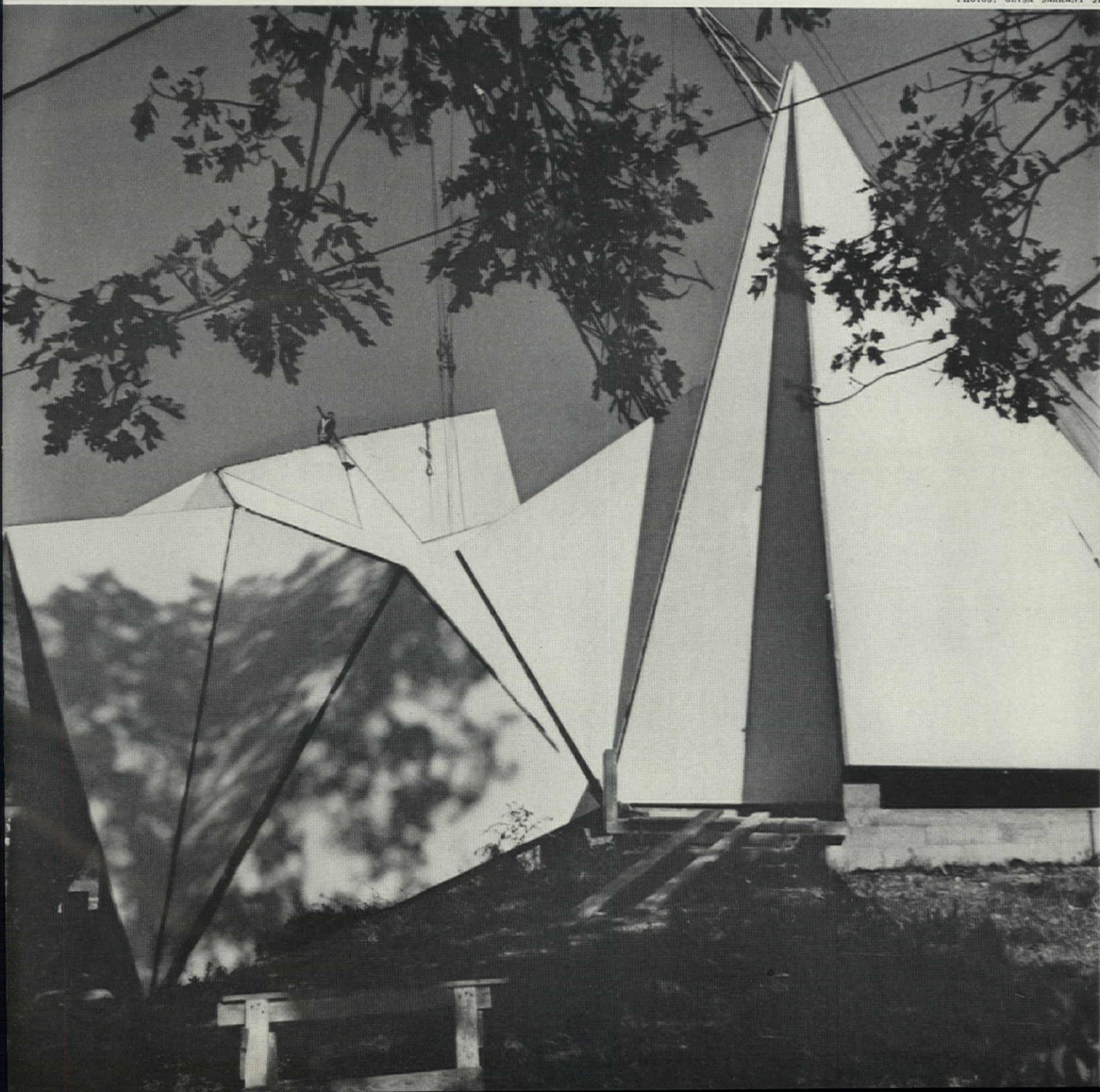
In his third and final diagram, the architect breaks up the separation between these two spaces—the sanctuary and the social—and breaks up also the formality of the procession when the service is over. By degrees, as in an abstract painting, unity is intended to assert itself, even though the space progressions are "unresolved," not symmetrical in either the horizontal or vertical direction.

Still under construction, the church already seems to proclaim that God's grace continues, and life goes on, and the uneasy conjunction between them is a result of effort.

The United Church, West Norwalk, Conn., is built of stressed-skin plywood panels on light steel frames welded to one another. The budget was \$115,000 for 8,000 square feet of space. Architect: Victor Christ-Janer & Associates. Associated architect: Robert Damora. Mechanical engineers: Werner-Jensen & Korst. Contractor: John C. Smith.



PHOTOS: GEYSA SARKANY JR.





Primitive churches

Out-of-the-way churches like the ones on these pages comprise the most unnoticeable ecclesiastical architecture in the U.S. But they are unnoticeable with a vengeance: even the unbeliever must feel their force.

These buildings are primitive, if the term may be used without its shade of condescension. The wildest, most arresting examples are the converted stores in obscure neighborhoods of towns and cities. To the passing, uninitiated observer these can seem downright forbidding, and they are almost invariably the houses of religion *in extremis*. Gay are the country churches of fading, weatherworn wood, with touches of old color on the trim. In these, the rewarding features are belfry and tower, sporting all variety of shingle play and dancing line.

Amplified by understatement, consecration here speaks tenfold over such labored glorifications as Saint Patrick's Fifth Avenue or the Cathedral of St. John the Divine. The harsh, yet happily shingled church on the facing page is in south-central Alabama, in a predominately Negro county. Below is a Church of the Nazarene in Tennessee. It may well be the most unstyled house of worship in the U.S.

TEXT AND PHOTOGRAPHS BY WALKER EVANS



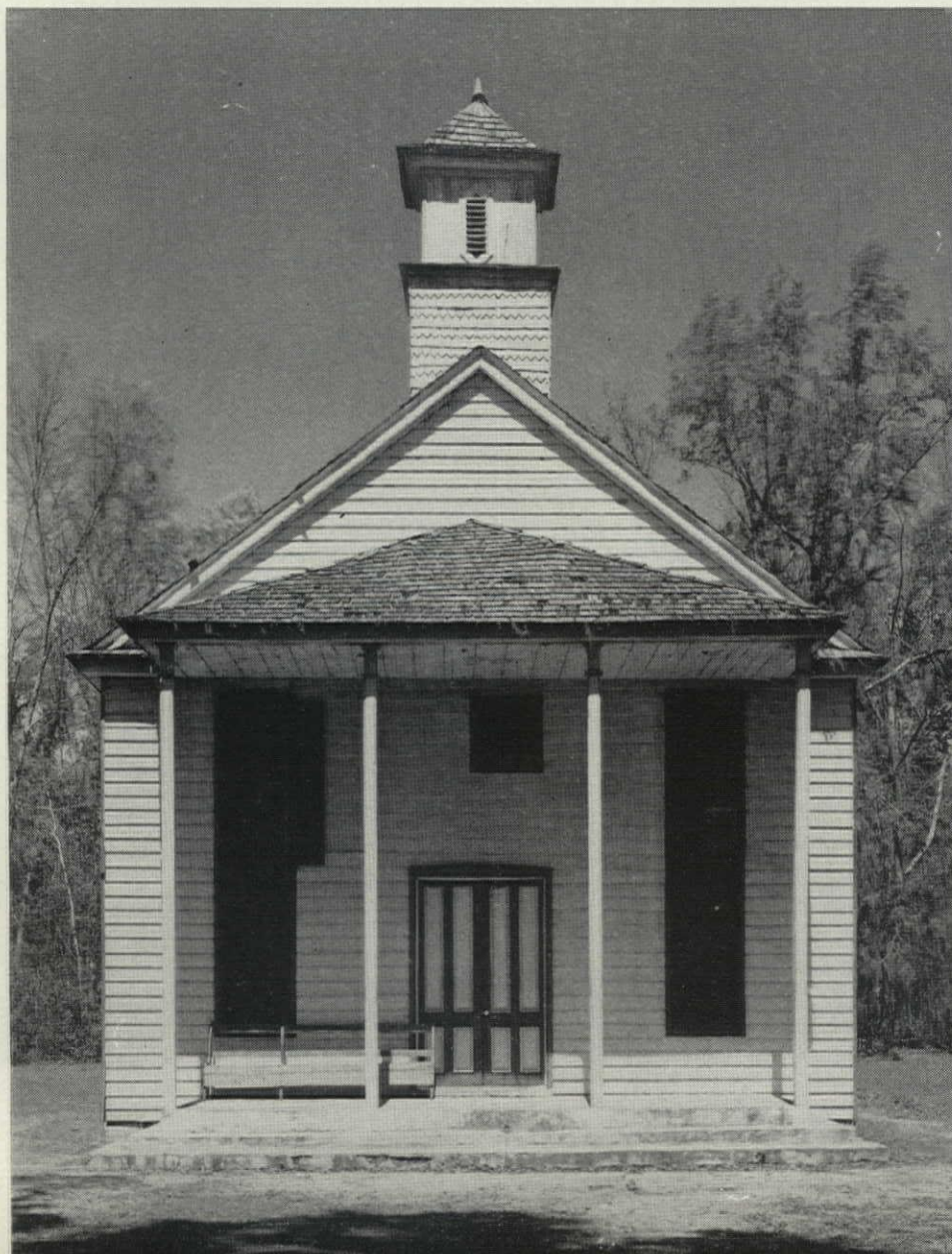


ST. JAMES
Episcopal Church
100 South Street
21 Years
Rev. James H. Hall
Founder - Pastor

CARPENTERSHOP
IN BASEMENT

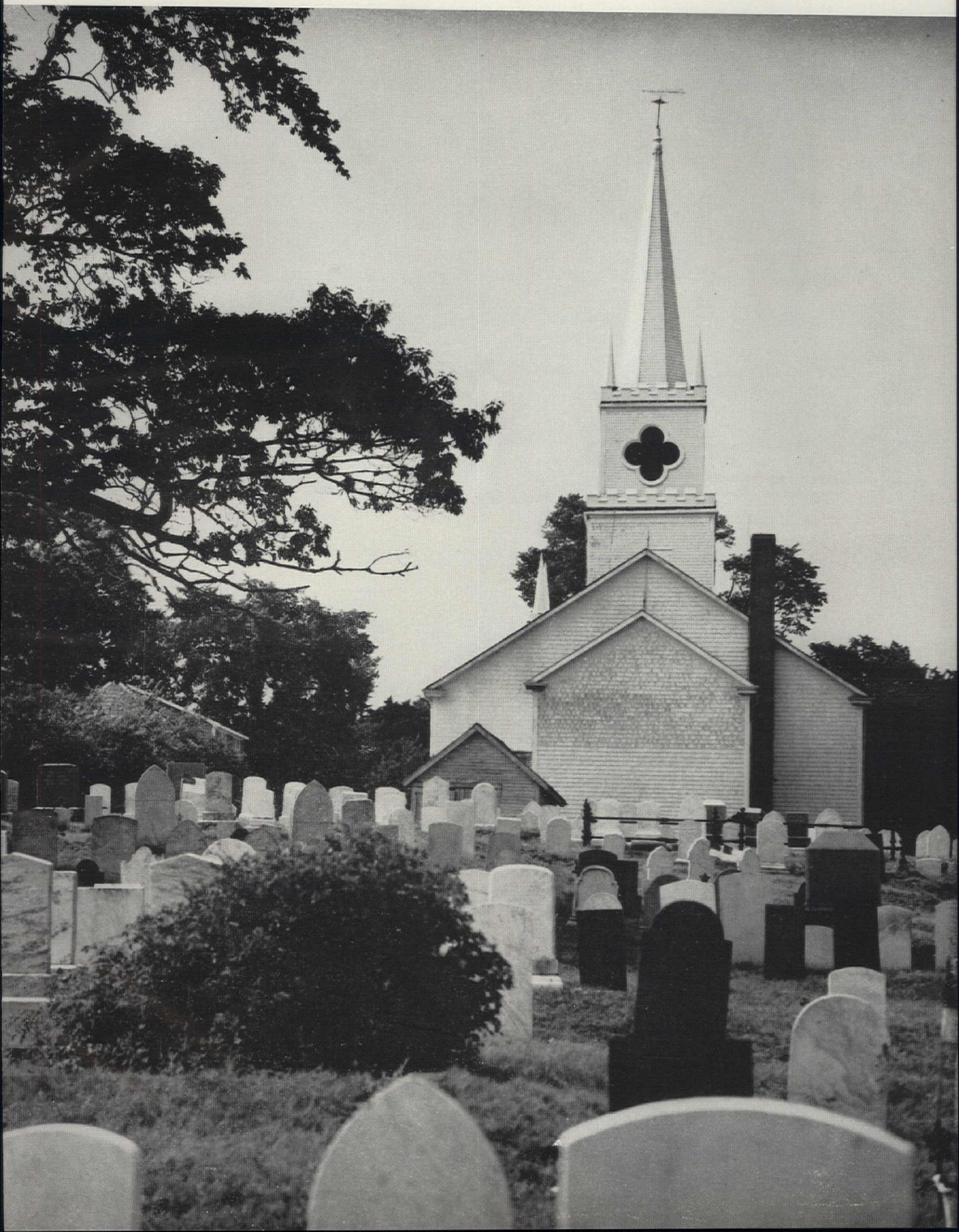


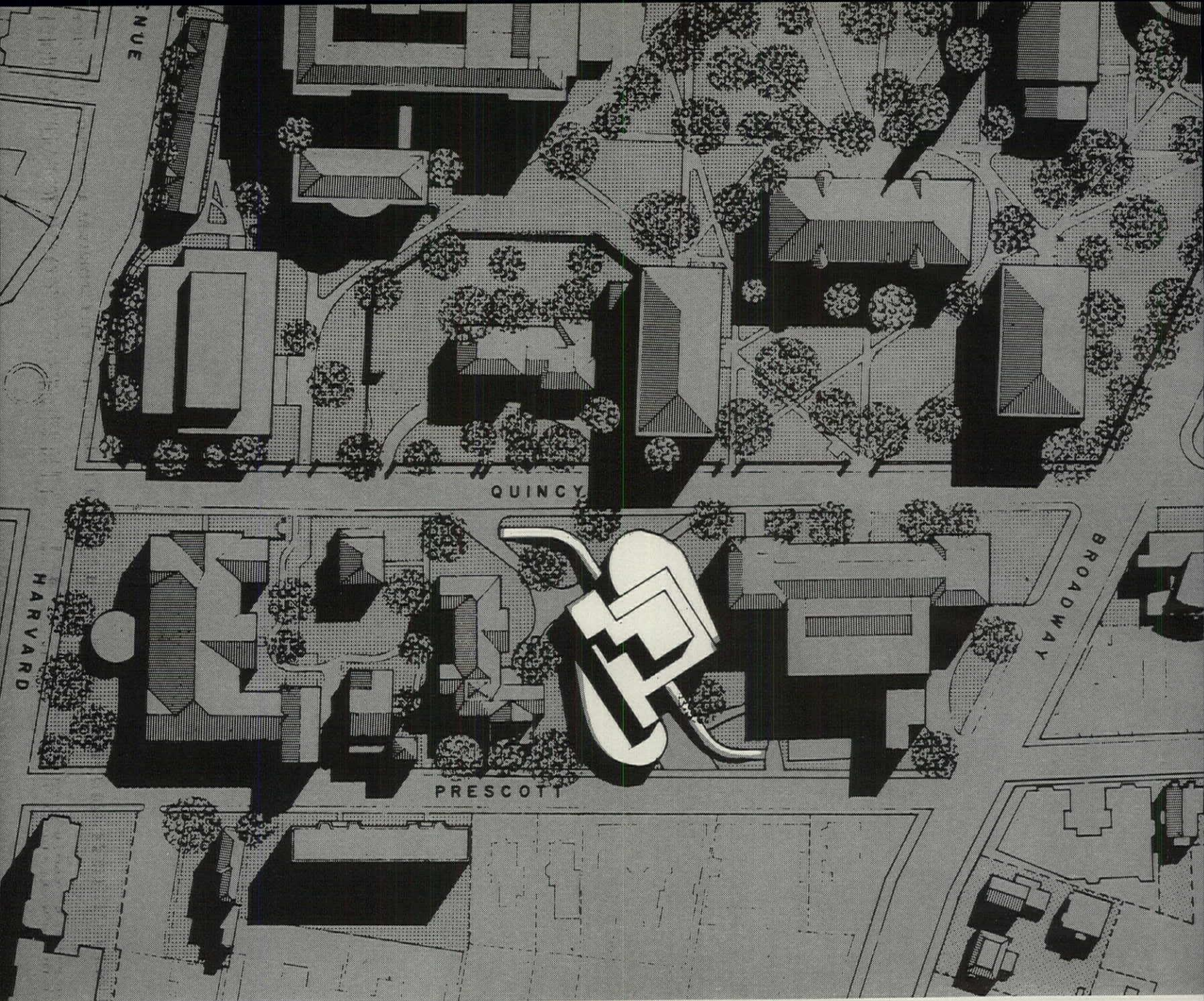
St. James Ethiopian Orthodox Church (left) is on East 95th Street, New York City. The arches are in red paint, the signboard black; the sheet metal is pale gray. The organ and pulpit setting (above) is in a central Alabama white district. The congregations here are the type of Baptist called Primitive, or Hard Shell—the no-nonsense sect that practices total immersion. In the South Carolina coastal region (below), this Negro church displays some consummate and loving shingle work in its belfry.



The First and South Congregational Church of Ipswich, Mass. (below) is one of the most finished wooden Gothic churches in the country. This interior, under its stone-colored paint, barely hints that the arches and panels are carpentered wood, completed in 1846. A Maine Coast white wood church of 1836, at right, is the East Machias Congregational Church. Its spire and subspires have quite another turn of playfulness compared with its southern counterparts.

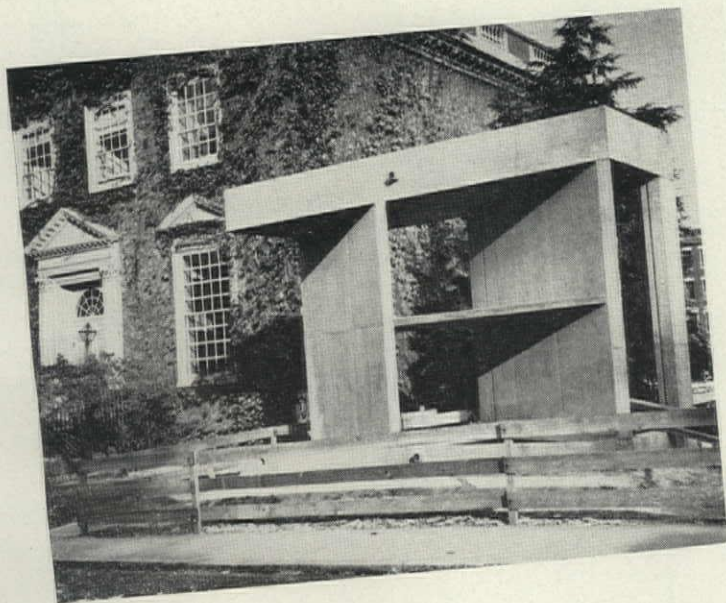
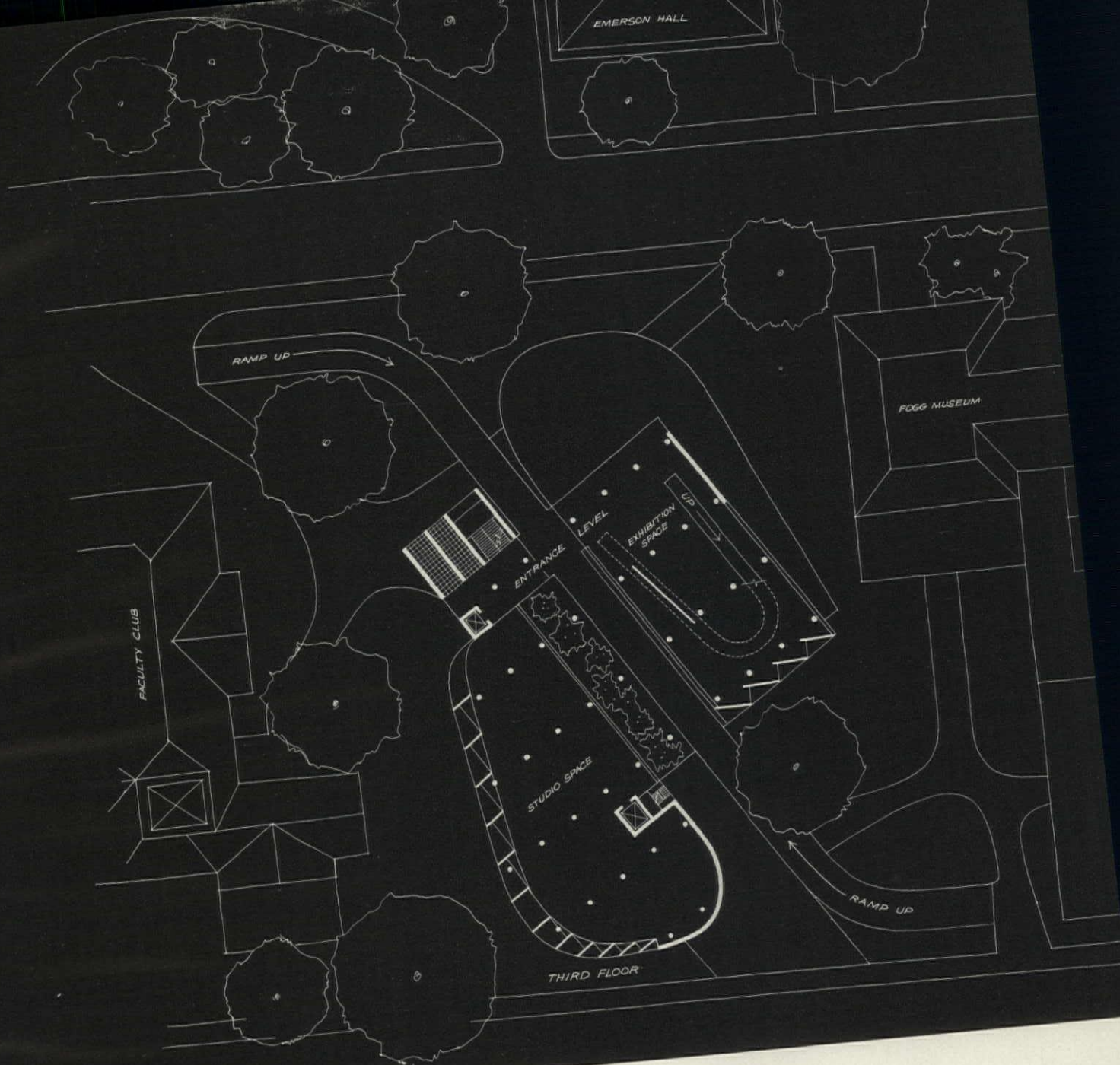






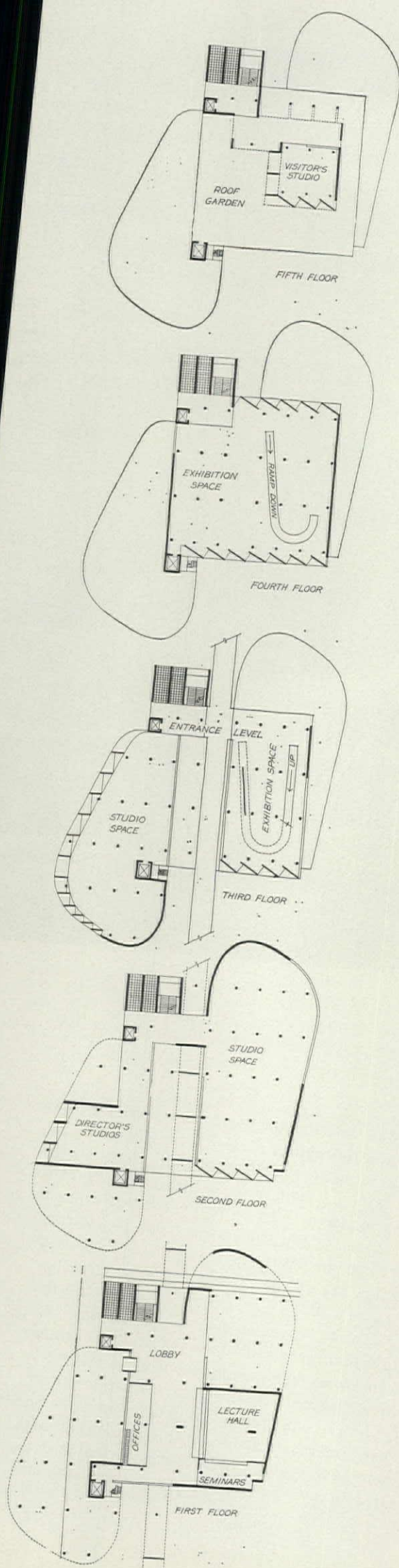
Le Corbusier builds at Harvard

The university's new Visual Arts Center will be Corbu's first American building since he helped design the U.N.



Roughly halfway between the staid, neo-Georgian Fogg Art Museum and the equally staid Harvard Faculty Club—and directly opposite President Nathan Pusey's residence—there is now a huge hole in the ground. Next to this hole there stands a 10 by 15 foot casting of concrete irreverently known among students as "The Mousetrap." The mousetrap is, in reality, a mock-up of a bay-wide sunbreak (left) that will be repeated over a large portion of the façades of Le Corbusier's 50,000-square-foot Visual Arts Center, scheduled for completion next fall.

Three things need to be said about the new arts center: first, it is a pleasure, long overdue, to have in the U.S. a building entirely designed by this great French architect; second, the building will, undoubtedly, turn out to be one of Corbu's most imaginative and exciting structures; and, third, the new Arts Center will be a structure almost totally unrelated to its site, and even more completely un-



related to the beautiful campus of which it will be a part.

The facts and figures on the new arts center are these: its plan is entirely free-form, shaped a little like two guitars set side by side; it is five stories high (plus a basement), and these five stories will contain design workshops, exhibition spaces, a lecture hall, a visiting artist's studio (for Corbu?), and other studios as well. The structural system is quite regular—concrete columns and slabs, in rectangular bays—but walls and partitions are totally unrelated to this structural grid: some are curved, others are angled, still others are saw-toothed in form.

The most dramatic feature of the building is a soaring ramp that rises up to the third floor (where the main entrance is), then penetrates the building and descends on the far side. Its direction is startlingly on the diagonal; Corbu says this direction is in deference to the pattern of most walks in Harvard Yard (see page 109). The ramp connects Quincy and Prescott Streets which bracket the site.

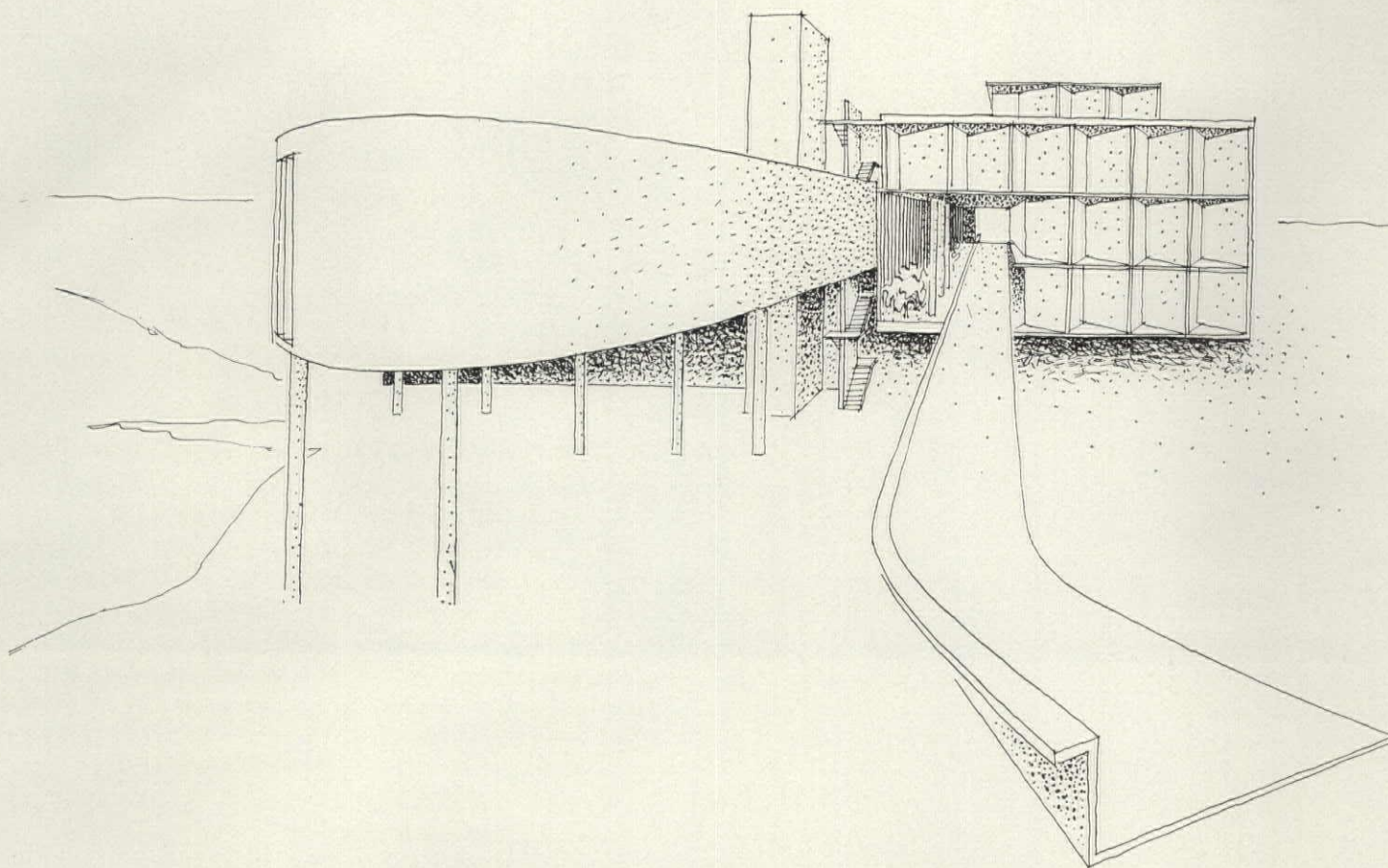
So much for the building itself. What about its relationship to the site and to its surroundings?

The site, admittedly, is far from ideal: it was the one least favored out of eight possible sites considered by an advisory group to the university. Even so, it is a site on the fringe of Harvard Yard—a delightful, rectilinear composition of more-or-less small-scale buildings forming large and small quadrangles between them. How will this bold, large-scale, exposed concrete "sculpture" fit into that environment?

The answer, quite frankly, is that it will not. Admittedly Le Corbusier adjusted his roof lines to those of adjoining buildings; admittedly, too, his *béton brut*, or rough-cast concrete, will not be very *brut*—it will actually be smooth concrete that looks a little like limestone; and, finally, the building will fit into the sloping contours of its site much more gracefully than the drawings suggest.

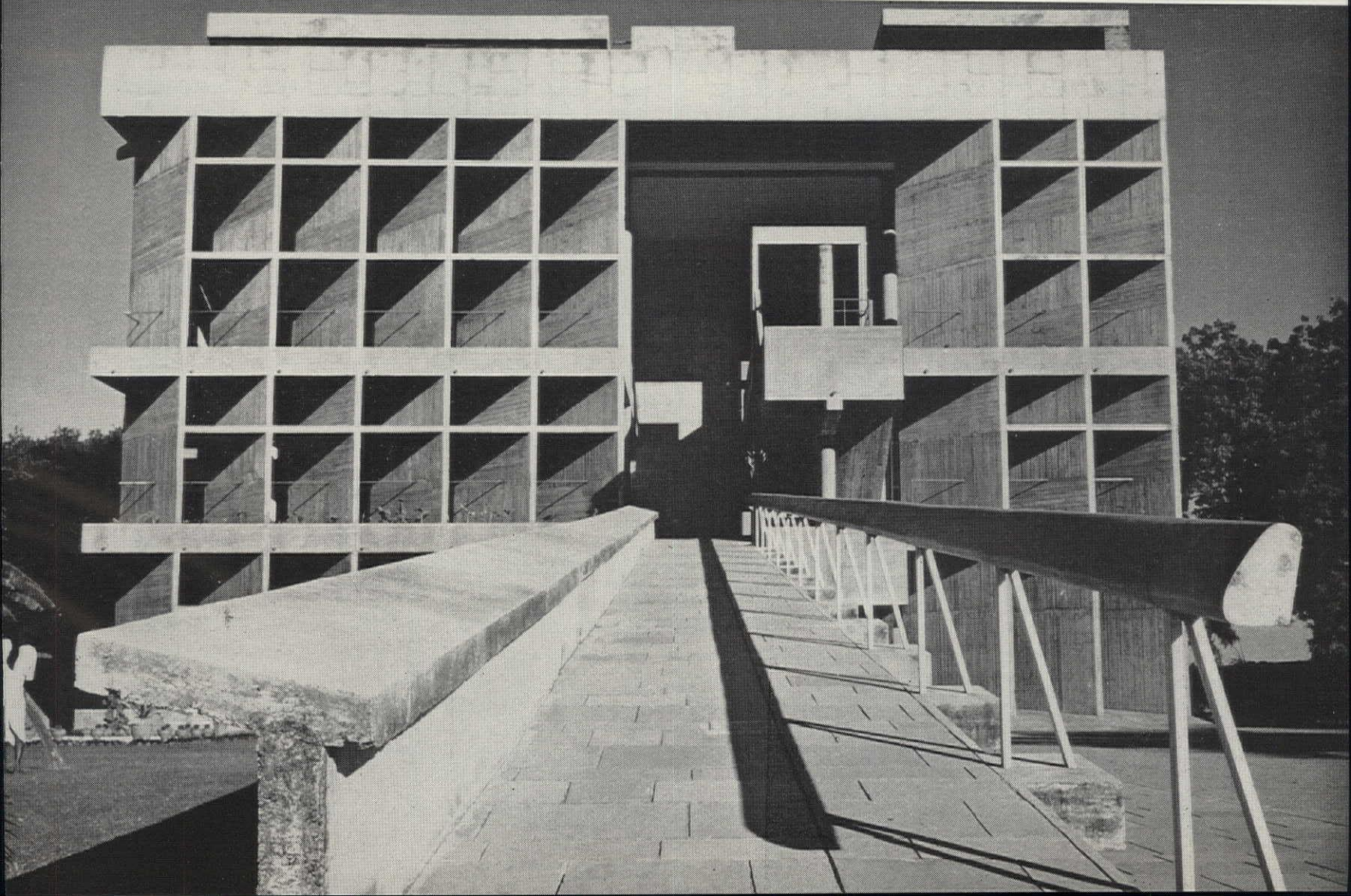
Nonetheless, Le Corbusier's Visual Arts Center will never be an integral, visual part of this campus. It conforms neither in general orientation, nor in its materials, nor in its scale. And here, perhaps, is a clue to why Le Corbusier refused to follow the rules of continuity: in a statement written by him about this structure, he seems to suggest that a building devoted to the visual arts must be an expression of their freedom and their untrammelled creativity. To him, the notion of a conformist building for the visual arts must have seemed a contradiction in terms.

It will be a traumatic experience for Harvard to see this structure go up. It may be that this building (like the Guggenheim Museum in Manhattan) will be unable to live in peace with its neighbors, and that its neighbors will eventually have to go. But experiences like this, which challenge all accepted notions, are indispensable to true education, and Harvard deserves credit for taking a great risk in keeping with that conviction.



Above: artist's impression of Le Corbusier's building as it may look from Prescott Street. Below: his Millowners' Association building at Ahmedabad, India, which the Harvard Arts Center will resemble in certain respects.

BRIAN BRAKE





No glass.
Light reduction: zero.
(Heat reduction: zero.)

$\frac{1}{4}$ -inch clear plate glass.
Light reduction: 11 per cent.
(Heat reduction: 17 per cent.)

$\frac{1}{4}$ -inch heat-absorbing glass.
Light reduction: 25 per cent.
(Heat reduction: 41 per cent.)

$\frac{1}{4}$ -inch gray plate glass.
Light reduction: 55 per cent.
(Heat reduction: 40 per cent.)

New facts and figures on architectural glass

From the beginning glass has been one of the most characteristic and increasingly visible materials of modern architecture, and it shows every sign of playing an even more important role. It is, perhaps, time to take stock of some of the basic facts about this extraordinary material, so frequently used yet not always understood. What are the different types of glass? How much do they cost, and when does one use them? What has happened to tinted glass, insulating glass? What other new developments are taking place?

Virtually all glass used in external building applications is either sheet or plate glass. Perhaps the easiest way to understand the basic differences between them is to examine their respective manufacturing processes.

Both sheet and plate glass use the same ingredients: glass sand, soda ash, limestone, dolomite, and salt cake, and both are brewed in tanks or pots at over 2,000 degrees Fahrenheit. There the similarity ends. For sheet glass, a type of hook—called the “bait”—coaxes the molten glass out of the tank in a

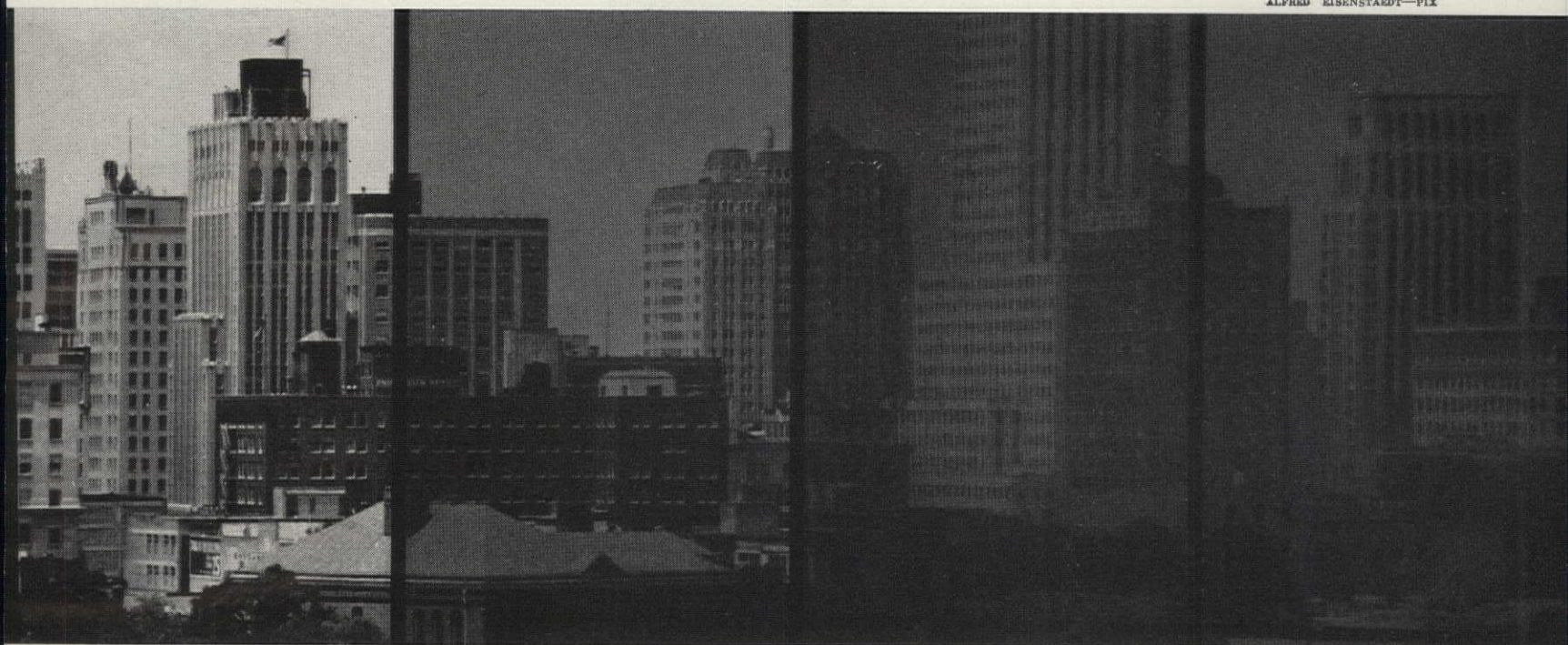
strip of the desired thickness and width by means of surface tension and viscosity; this strip is then allowed to air-harden beyond the damage point before it touches the rolls which carry it away to be sliced up. The characteristic if slight surface waviness of sheet glass is, so far, an inevitable result.

Plate glass, on the other hand, is hot-rolled into a strip slightly thicker than the finished product, and then carefully cooled by passing through a furnace which contains a series of decreasing temperature zones. When cooled, the rough strip of plate glass is ground to the final thickness, generally both sides at the same time. After polishing, cleaning, and cutting, the operation is complete. By virtue of its ground surface, plate glass is almost completely free from distortion. Not unnaturally, plate glass costs more than sheet glass because it is more difficult to produce.

How much better is plate, and how much more does it cost? The relative quality of plate glass depends to a great extent on size and color. American St. Gobain, for one, recommends the use of its high-quality sheet glass in openings

as large as 7 by 10 feet, maintaining that the wave is not too noticeable if the glass is set free from any twist and with the wave horizontal. But, the wave is there, and it is more noticeable in the larger sizes, when the glass is tinted, or accentuated by the wave in glass spandrel panels.

In the smaller sizes, the cost differential is roughly 50 per cent; e.g., about 80 cents per square foot for sheet as opposed to \$1.25 per square foot for clear plate (for a 3 by 4 foot pane, in place, in the New York City area). But, ironically, in the larger sizes where the superior quality of the plate glass is more apparent, the price differential begins to drop: for a 50 square foot pane it is down to about 35 per cent. This again is due to the difference in the manufacturing processes: the major factor in the cost of plate glass is the grinding and polishing, and it is as economical to grind and polish a large piece of plate as a small one. Therefore, the per-square-foot cost of plate varies little with the amount or size. With sheet, on the other hand, the per-square-foot cost is not only related di-



No glass.

Light reduction: zero.

(Heat reduction: zero.)

Insulating glass—2 layers,

$\frac{1}{4}$ -inch clear plate.

Light reduction: 20 per cent.

(Heat reduction: 50 per cent.)

Insulating glass— $\frac{1}{4}$ -inch clear plate

and $\frac{1}{4}$ -inch heat-absorbing plate.

Light reduction: 35 per cent.

(Heat reduction: 51 per cent.)

Insulating glass— $\frac{1}{4}$ -inch clear plate

and $\frac{1}{4}$ -inch gray plate.

Light reduction: 60 per cent.

(Heat reduction: 50 per cent.)

Actual light-reduction values for different types of single glazing (left), double glazing (above).

(Note: Heat reduction here means reduction of heat from transmission of solar radiation only.)

rectly to the size of the light, but the manufacturing process slows down more for large sizes of sheet than plate.

It is no surprise, then, to find that sheet glass is generally used where small openings are involved, as in many apartment buildings, and that plate is favored for curtain-walled office buildings, store fronts, and the like.

Colored and heat-absorbing glass

Both sheet and plate glass can be treated in a number of ways: they can be tinted, laminated, tempered, coated, or figured. The most widespread, at least for architectural use, is tinting.

The two corporate giants of the U.S. glass industry, Libby-Owens-Ford and Pittsburgh Plate, provide only two colors: gray tint and heat-absorbing green. Gray glass, in $\frac{1}{4}$ -inch plate, cuts light and solar heat transmission roughly in half; heat-absorbing glass reduces heat transmission by about 60 per cent, cuts only about 25 per cent of light. (The figures for sheet in both cases are slightly lower than those for plate.) The shade of color provided by these glasses varies directly with their

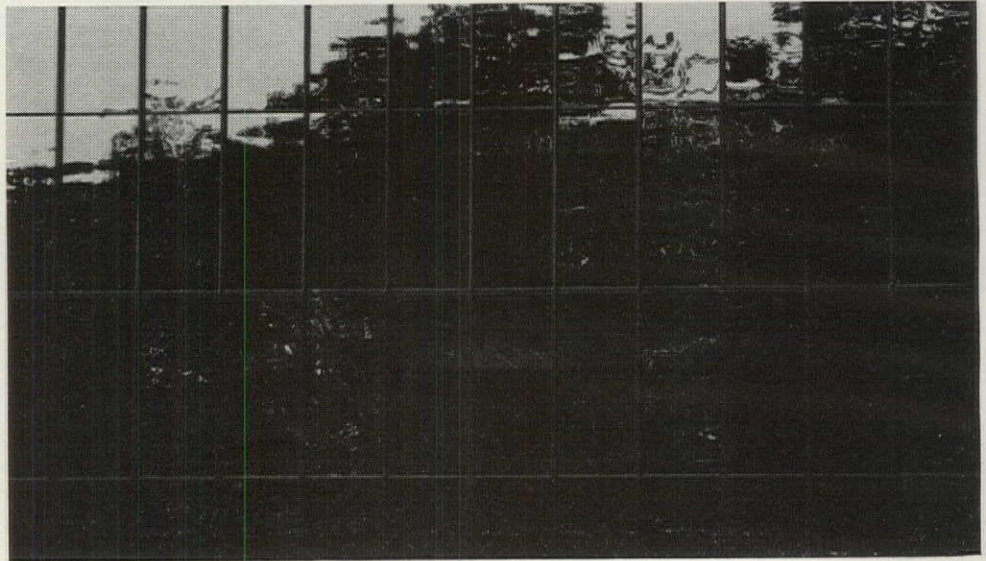
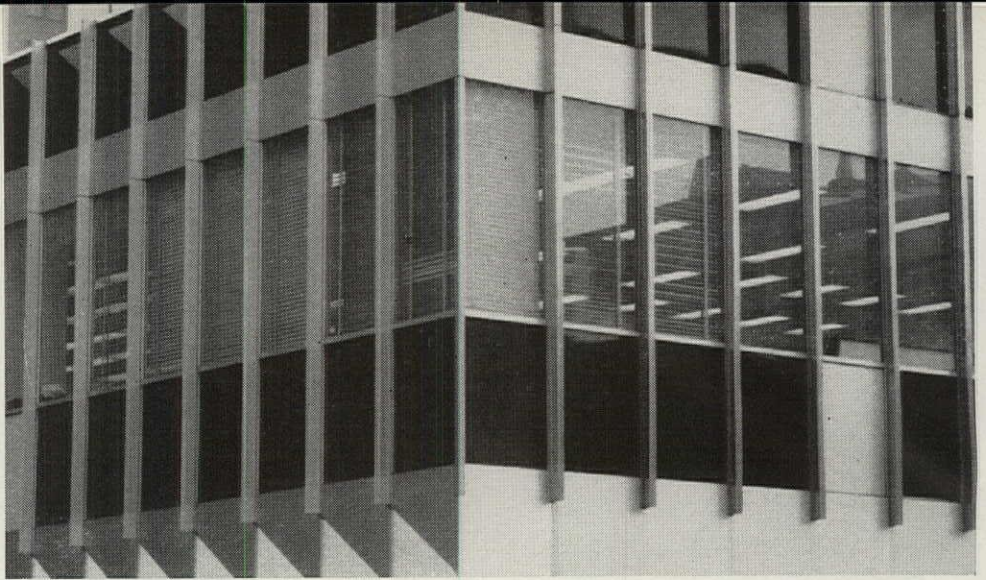
thickness: the thicker, the darker.

The premium paid for gray-tinted or heat-absorbing glasses averages around 20 to 25 cents per square foot over clear, as they are both more expensive to manufacture and require more care in setting. The setting difficulty is due to the fact that these glasses retain more solar heat than clear glasses, consequently expand and contract to a greater degree and, therefore, demand more precise clearances.

The biggest glassmakers cannot cater to the architect who wants a relatively small order of a special-colored glass. Those who want nonstandard sizes, or a constant shading in different thicknesses, generally turn to smaller manufacturers. One of these, the Franklin Glass Corp., is able to produce almost any tinted glass with relative ease by using a process which, by the giants' standards, is old-fashioned. Instead of a small number of large brewing tanks, Franklin uses a large number of small pots. L.O.F., for example, could have supplied all the special brown-tinted glass for New York's Seagram Building with less than a single day's output

of its huge plant, but it would have entailed putting the tank and hence all the plate-glass equipment out of commission for about a week for the necessary cleanings. Economically, such a move was not practicable. Franklin, however, though not able to produce the required quantity as fast, did not have to halt its entire production line for cleaning. Understandably, the pot system costs more to run: the premium paid for the brown glass at Seagram was 125 per cent over the cost of a comparable gray plate. On an average, the premium for colors other than gray or heat-absorbing green runs from 50 to 125 per cent.

Another problem in tinted glass is obtaining the same shading of one color in different thicknesses. This becomes a serious consideration where great variations in the size of openings are involved in the same building. It is possible to use one thickness—the heaviest required thickness—throughout a building, and thus obtain a single shade of color, but this, of course, entails paying for a great deal more glass than is needed structurally. It is more



Mock-ups were used to test types of glass and curtain-walls for the Equitable Life Assurance Building in New York City by Skidmore, Owings & Merrill (top) and "Reflectolite" mirrored glass for Saarinen's Bell Laboratories in Holmdel, N.J. (bottom).

difficult to produce the same shade in different thicknesses than to supply a special color in one thickness: Franklin, for example, charges roughly 40 per cent extra for this. The lobby of the Canadian Industries Limited Building in Montreal, by Skidmore, Owings & Merrill and Greenspoon, Friedlander & Donne, will be glazed in clear instead of gray glass because of this premium and a long delivery time. Philip Johnson, however, was able to circumvent the problem in his Amon Carter Art Gallery for Fort Worth, Tex. by laminating tinted and clear glass to obtain the desired shade in the required thickness.

When FORUM assessed the glass situation in 1956, a veritable rainbow of colors was in use. Now, at least for the time being, gray is the favorite color. Roy Allen of Skidmore, Owings & Merrill says of gray glass: "It makes a building better looking by hiding the confusion behind the skin."

Tempered glass—glass which has been heat-treated to increase its strength roughly three to five times—is generally used where there is some

chance of breakage: glass doors are a common architectural application. Plate glass may be tempered for about \$1 per square foot.

Laminated glass, generally used for such applications as bank-teller cages and jewelry-store display cases, has the additional advantage that, when fractured, the particles of glass tend to adhere to the plastic binder. Cost is roughly the same as that of tempered glass. Both tempered and laminated glasses are available in colors.

Insulating glass

Insulating glass consists of two and occasionally three layers of glass separated by $\frac{1}{4}$ to $\frac{1}{2}$ inches of hermetically sealed, dehydrated air.

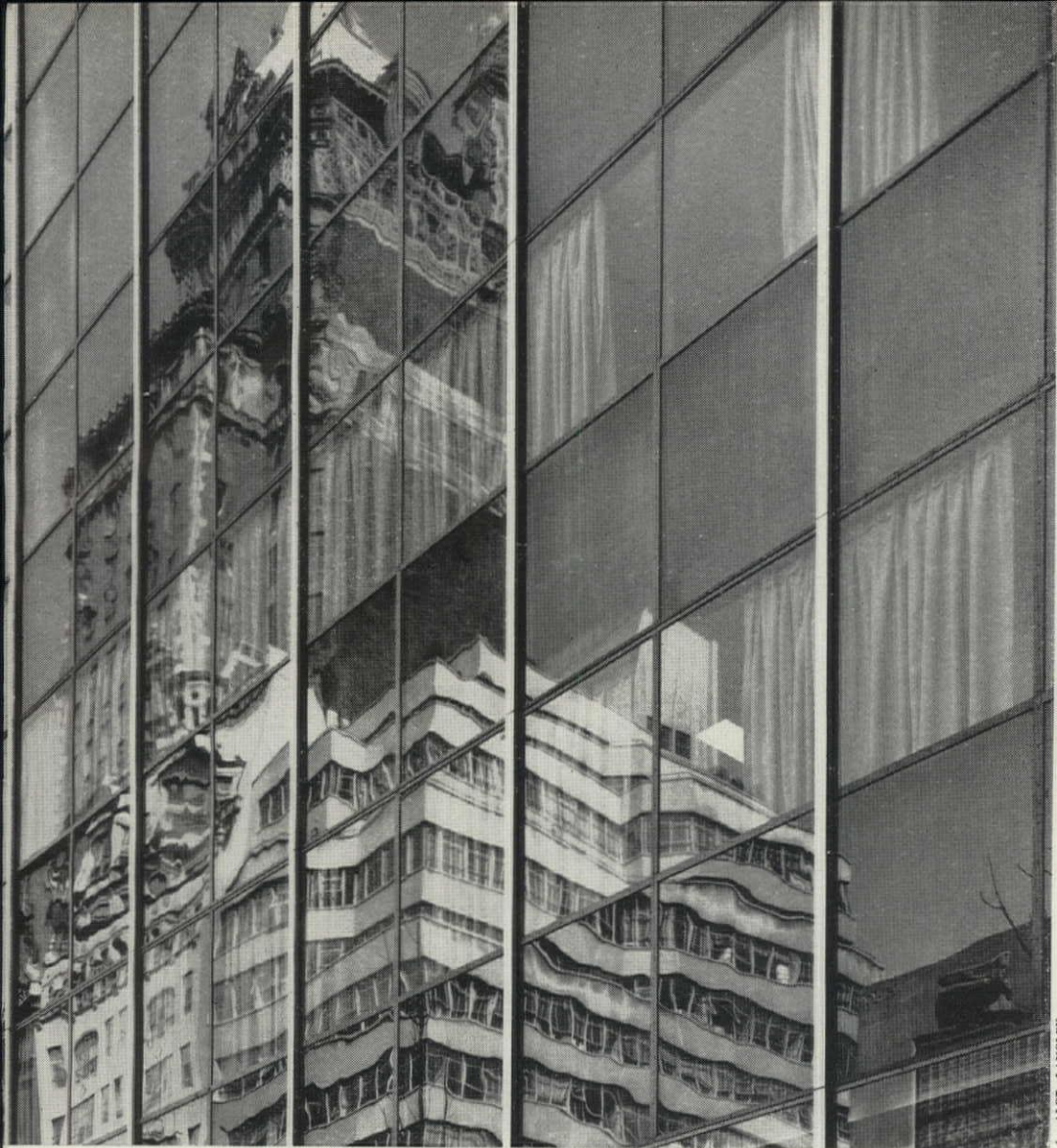
Compared to single glazing, insulating glass has a number of advantages and one major disadvantage. It is stronger, it passes less light, less solar radiation, less heat, and less cold; but it costs a great deal more.

It is sometimes maintained that standard insulating glass will show a noticeable reduction in sound level when compared with single glazing. Acousti-

cal Consultant Michael Kodaras says that a survey of recent tests does not seem to bear this out. For example, $\frac{1}{4}$ -inch plate glass produced an average sound transmission loss of 32 decibels; an insulating glass composed of two layers of $\frac{1}{4}$ -inch plate and a $\frac{1}{4}$ -inch air space produced a 33-decibel drop.

In the area of strength, however, the difference is more marked: for a given size, insulating glass has approximately 50 per cent more resistance to wind load than a single piece of the glass of which it is composed.

Since both clear polished plate and clear sheet glass reduce light transmission by about 10 per cent, insulating glass composed of two pieces of clear glass will reduce the total light transmission by about 20 per cent. With one pane of clear $\frac{1}{4}$ inch and one of gray $\frac{1}{4}$ inch, this is upped to over 60 per cent, a 5 per cent increase over a single panel of $\frac{1}{4}$ -inch gray plate. By choosing combinations, almost any level of reduction of light and heat from solar radiation up to about 90 per cent may be obtained. However, almost similar results in light and solar heat trans-



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A tinted glass which appears almost opaque from the exterior of a building (left) is virtually unnoticeable when seen from the inside (above), because of the higher level of daylight outside. The photographs shown here are of the Corning Glass Building in New York.

J. ALEX LANGLEY

mission can be effected by simply using darker shades of single glass; the Houze Glass Co., for instance, produces a sheet glass which transmits only 42 per cent of solar heat and 12 per cent of light.

It is in the area of direct heat *conduction*—as opposed to heat from solar *radiation*—that insulating glass comes into its own. For example, an insulating glass composed of two layers of $\frac{1}{4}$ -inch plate will conduct only about half as much heat from interior air to exterior air and vice versa as a single pane of $\frac{1}{4}$ -inch plate glass. In a building with large areas of glazing, and particularly where the winter heat load is great, the use of insulating glass can mean significant savings in both the original cost of the heating and air-conditioning equipment and in annual fuel costs.

Freedom from cold drafts, condensation, and frosting are three of insulating glass's major selling points. The latter two assets are very tangible in residential building where humidity control is seldom available, but many mechanical engineers feel they are important in

large, air-conditioned buildings with humidity control only when very high humidity levels are involved. In most cases humidity control and the directing of warm air at the window surface are able to prevent drafts, frosting, and condensation when single glazing is used. In fact, the peripheral induction heating and air-conditioning systems common in most air-conditioned buildings actually use the cold draft from single glazing to provide the necessary cooling, once the flow of cold air in the system has been shut off for the winter. This is not the case, however, with the more expensive double-duct systems; there, the system supplies all of its own cold air.

A number of minor disadvantages are involved in the use of insulating glass. Because of its additional weight and thickness, supporting mullions must be both stronger and deeper. It is also desirable that the mullions incorporate a thermal break to disconnect the inner and outer surfaces so that condensation and frosting will not occur on the inner surfaces.

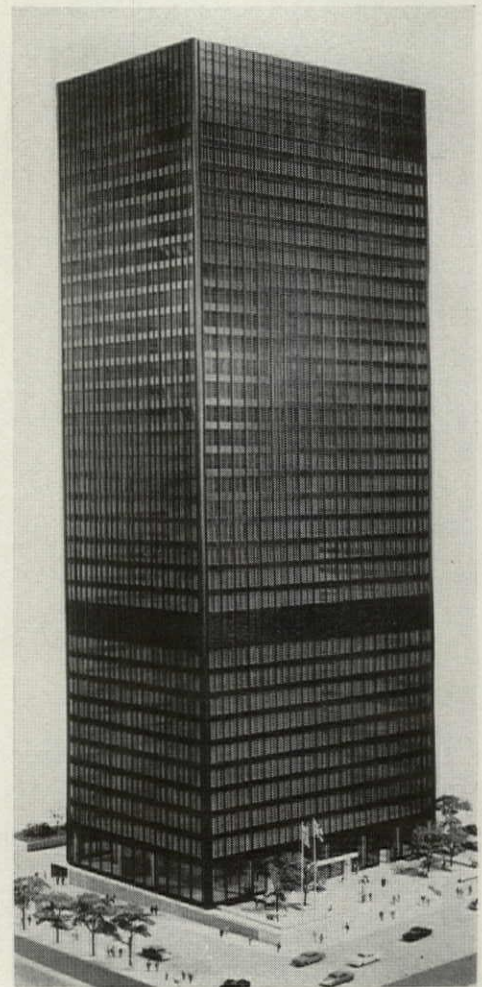
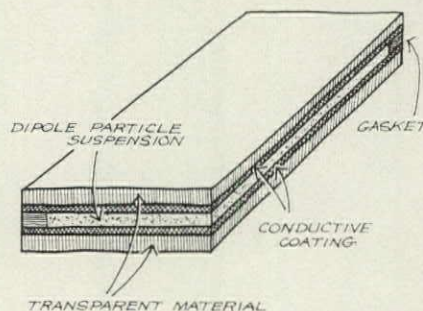
How do the assets and liabilities of

insulating glass balance out economically? This depends largely on the price of insulating glass compared to the price of single-thickness gray glass, and this, in turn, can vary a great deal according to local labor situations and proximity to the factory. In the New York City area, the price differential is about \$3 per square foot; in Chicago, about \$2.50; in Memphis, about \$1.70. Only when the difference in price begins to get in the \$1.50 range do the savings in heating and air-conditioning equipment and operation begin to offset the additional purchase cost.

By virtue of efficient installation and a location so close to the factory that it was not even necessary to crate the glass, Libby-Owens-Ford was able to glaze its own new building in Toledo, Ohio in gray insulating glass for only \$1.40 more per square foot than it would have cost for single panes of gray plate glass. As a result, the mechanical engineers for the job estimate that the insulating glass will pay for itself in three and a half years. This situation would seem to be the exception rather than the rule. In the preparation of this arti-

A phototropic panel used as a temperature control system in space satellites consists of a sandwich of transparent materials, conductive coatings, and a layer of reflective particles (sketch, right). When aligned by an electric charge, the particles allow radiation to pass. When the charge is removed, the particles disalign and radiation is reflected. Sensing controls regulate the panel to achieve a balance between temperatures inside and outside the satellite. Variable transmission glazing for buildings is currently being studied.

The Canadian Industries Limited House in Montreal by Skidmore, Owings & Merrill and Greenspoon, Friedlander & Donne (model, right) is to use tinted insulating glass for all glazing except that in the lobby, where clear glass will have to be used (see text). Since the glazing of the lobby will not be set back under an overhang, the difference in color will be clearly apparent.



cle, FORUM questioned a number of leading architects about the economics of insulating glass, and found that, in their experience, the price premium for insulating glass is not generally made up for by savings in heating and ventilating in a reasonable amount of time. Skidmore, Owings & Merrill were the architects for the L.O.F. Toledo building, but they have not recently used insulating glass elsewhere in this country in a large building with a high percentage of glazing. The Emory Roth office reports that, as the architects for many speculative buildings, they do not use it; Philip Johnson, often at the other end of the architectural-financial scale, says the same thing.

Outside this country, however, it is often a different story. For the Canadian Industries Limited building in Montreal, the cost of insulating glass was low enough and heating costs will be high enough for the price difference to be made up in under 15 years. But Ionel Rudberg, project director on the C.I.L. job, maintains that insulating glass's freedom from condensation,

frosting, and drafts alone is enough to justify its use in the Canadian climate.

New developments

Eero Saarinen & Associates are able to report that they now have a perfected reflective glass. It will be first used on the south elevation of the Bell Laboratories in Holmdel, N.J. What reflective window glazing amounts to, basically, is a one-way mirror formed by a thin film of metal on the inside surface of the glass. Reflectolite, as the glass is called, is able to reduce solar transmission about three times as much as gray glass and about twice as much as heat-absorbing glass. It reflects twice as much light as either and various colors are possible.

Another new device reduces glare and solar heat but uses clear glass. It is essentially a clear insulating glass with tiny louvers sealed in the air space. Several manufacturers have already added this glass to their line.

In 1956, FORUM reported that a great deal of work was taking place on variable transmission windows — windows which vary their opacity automatically.

Both chemical and mechanical methods of accomplishing this were—and still are—being investigated. While not yet technically or economically feasible for architectural applications, one such device has been developed for use in our space satellites (see sketch above, left).

Other lines of probable development include polarizing windows for the reduction of glare (see next page), ultra-high-strength glass with possible structural applications, and glass which will exclude only heat while allowing the passage of light. The degree to which any of these become common architectural materials will depend upon their efficiency and cost. But if any one of them did prove feasible, it could have a profound effect on buildings as we know them and completely change our centuries-old attitudes about the nature of glass and its applications.

Imagine, for example, a building whose windows lighten in color as a shadow passes across them, and then darken again as the direct sun returns. A mullionless bearing wall of glass would be an even more startling architectural innovation.

Another boost for polarized lighting

The findings of the latest report by Dr. H. Richard Blackwell may herald a revolution in lighting techniques.

Two years ago, Dr. Blackwell, director of the Institute for Research in Vision at Ohio State University, proposed a method of evaluating the illumination requirements for the adequate performance of any visual task.

This method was subsequently endorsed by the Illuminating Engineering Society and has resulted in a sharp increase in its recommended levels of illumination. At that time, Blackwell could evaluate the effects of "disability glare" (discomfort caused by looking directly at a light source) on visual performance, but he was unable to evaluate reflected glare (caused by light bouncing off a surface).

Now, at last, there is a practical method of figuring the effect of reflected glare on the efficiency of lighting fixtures and their layout for various room shapes. This method will allow a more complete analysis of a given lighting installation than that offered by the conventional foot-candle-only assessment. The method was presented last September 26 by Dr. Blackwell at the National Technical Conference of the Illuminating Engineering Society in St. Louis, Mo. His system evaluates a given situation in terms of the extra foot-candles needed to offset a drop in contrast due to reflected glare. (A 1 per cent change in contrast is equivalent to a 15 per cent change in illumination level.)

While developing his method, Dr. Blackwell also investigated the effects of conventional and polarized lighting in combating glare. A number of significant discoveries were made.

Polarized light might be called disciplined energy. The rays of ordinary light, whether from sun or light bulb, vibrate in all directions at once. A ray of polarized light, on the other hand, vibrates in only two directions. The anarchic rays carrying washed-out shades of colors are eliminated, leaving only true colors. As a result, colors are brighter; contrasts are greater.

There are several methods of polarizing light, but the device commonly used in lighting fixtures is the multilayer, glass-flake panel (close-up photo, left). For a complete discussion of polarization see FORUM, Sept. '53.

► At angles of vision of up to about 60 degrees from the vertical, contrast improvements of 25 per cent were obtained by increasing the number of rows of luminaires (up to a completely luminous ceiling), quite independently of the quality or type of illumination.

► By a change from direct lighting to luminous indirect lighting, illumination was improved by as much as 21 to 22 per cent.

► The greatest over-all improvements, often amounting to more than 50 per cent, were made by several fixtures using high polarizing panels. These improvements depended upon the light distribution qualities of the fixtures but held up regardless of room shape or the reflectivity of the walls. The greater the polarization and the more glare on the task, the greater the improvement.

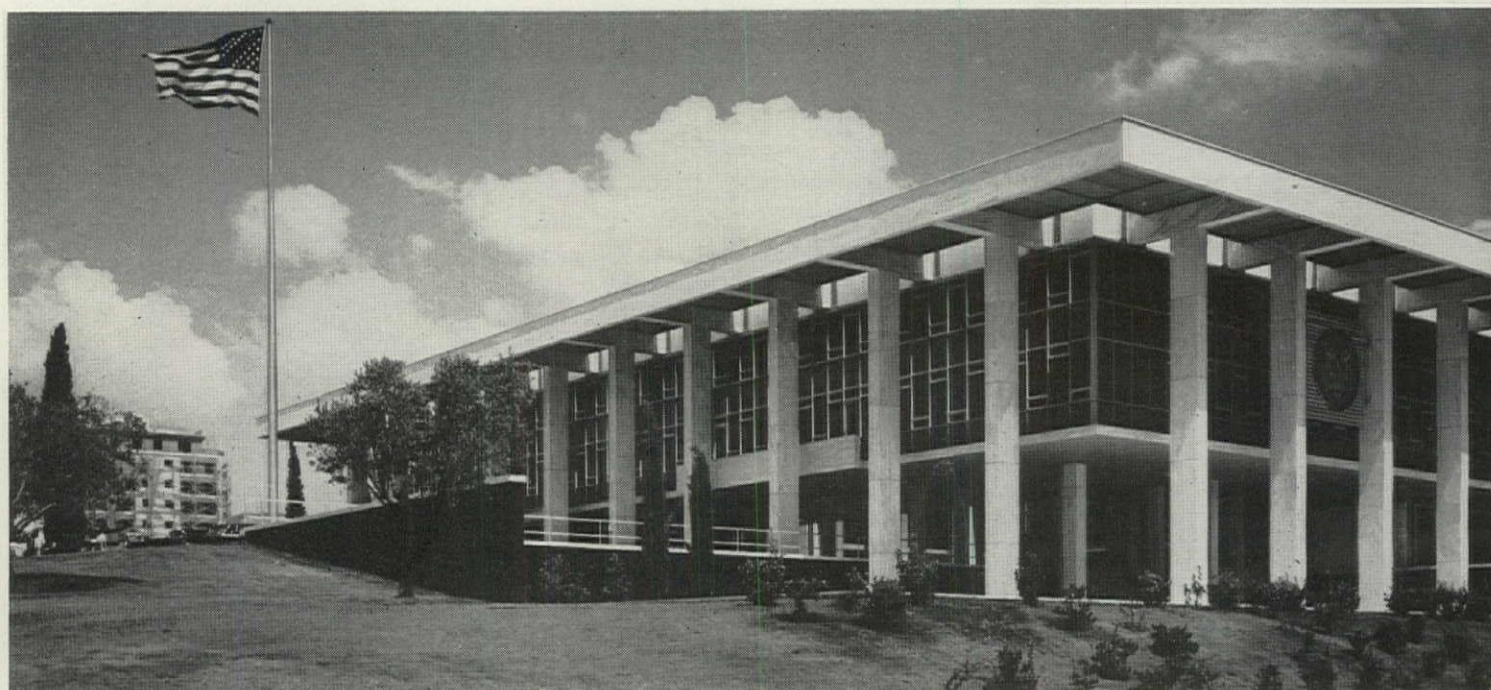
As a side experiment, polarizing panels were tried in a side-wall window and in a skylight to test their effect on reflective glare from natural light. Improvements of 46 and 25 per cent respectively were noted in the over-all visual effectiveness.

To date, the findings of this report have not been accepted by the Illumination Engineering Research Institute, but if they are, this will mean official sanction for polarized lighting. Until now, improvements in the reduction of reflected glare due to polarized lighting have been claimed and observed, but there has been no objective method of demonstrating the improvement or calculating the degree of improvement. As a result, the polarizing panels on the market the last few years have had relatively little commercial success, in spite of being roughly comparable in cost to more normal lighting diffusers and panels. Blackwell's report could change this situation overnight; consequently, several manufacturers are off and running. Owens-Corning, the largest manufacturer of multilayer polarizing panels, will soon announce a new and improved line. Panels giving 45 to 50 per cent polarization are expected to run about \$1 per square foot. Sylvania is almost ready to market a fixture giving about 70 per cent polarized light, and Westinghouse already has a panel on the market.



PHOTOS (BELOW AND OPPOSITE PAGE) : EMIL

The U.S. builds in Greece

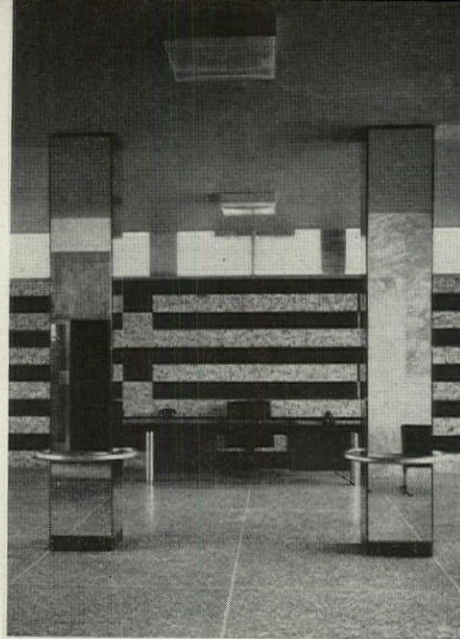


New American Embassy
is a modern bow
to the classical ideal.

On a sloping site about a mile from the Parthenon stands the new U.S. Embassy. It is a symbol of one relatively young democracy at the fountainhead of many old democratic and architectural traditions; and as such, the design of this Athens embassy was a challenging assignment. The assignment was entrusted to one of modern architecture's Olympian figures, Walter Gropius, and his associates in The Architects Collaborative (TAC).

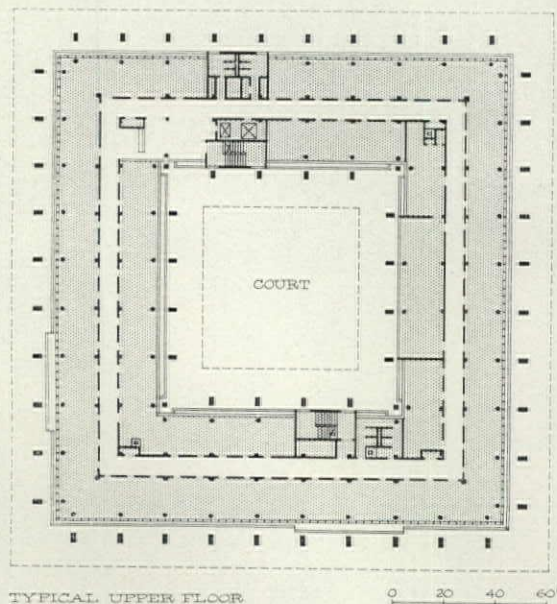
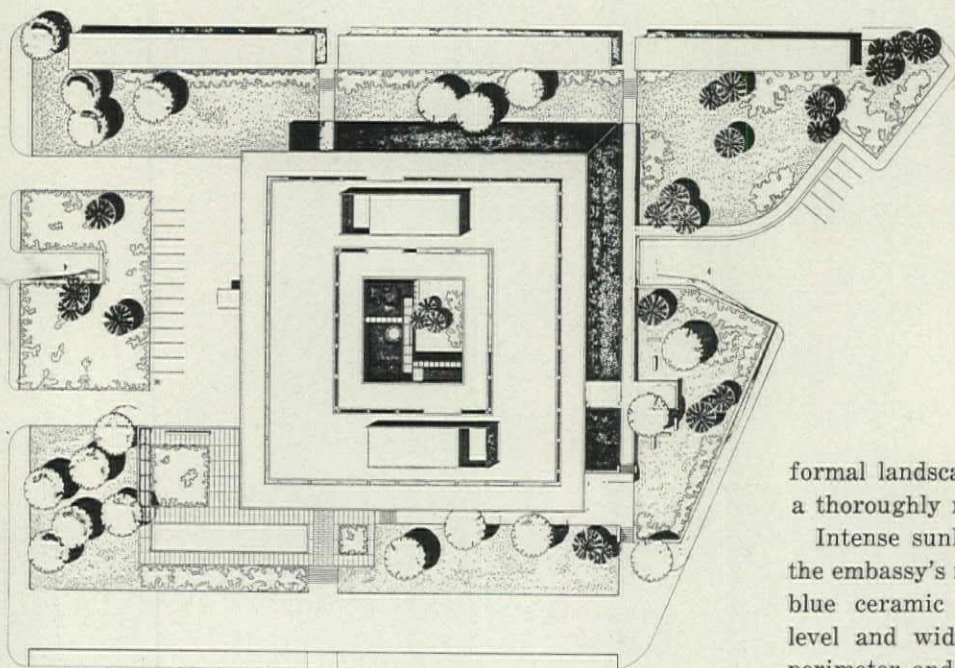
TAC's intention, says Gropius, "was to find the spirit of the Greek approach without imitating any classical means." Features that are typically but not exclusively Greek—podium, quadrilateral plan, interior patio, exterior columns,





PHOTOS: GML

Lobby (above) contains a built-in reception desk, the only embassy furniture designed by TAC. Site plan (left) shows pedestrian and vehicular entries. Floor plan (below) is of two upper floors. Entry stairs (opposite) are marble and pavement is marble terrazzo.



formal landscaping—are all handled in a thoroughly modern way.

Intense sunlight accounts for two of the embassy's most prominent features: blue ceramic sun screens at ground level and wide overhangs around the perimeter and the patio. A continuous slot (see section, page 122) allows hot air to escape from under the overhangs; the roof itself is built in two layers to allow free circulation of air between. With sun load thus virtually eliminated, an unzoned air-conditioning system of smaller size was used.

Roof and overhangs are supported by beams of reinforced concrete, which are carried by 30-foot marble-clad columns. An unusual structural system supports the two upper floors. Only their central sections are supported from below; the remaining load is carried by vertical members hung from roof girders.

The Athens newspaper *Ethnos* called the embassy (which stands on land donated by the Greek government) one of the city's most beautiful buildings,



Consular waiting room (below) opens on patio (facing page). Section shows slot for escape of warm air between overhang and ventilated double roof. Upper floors are hung from heavy roof girders overhead.

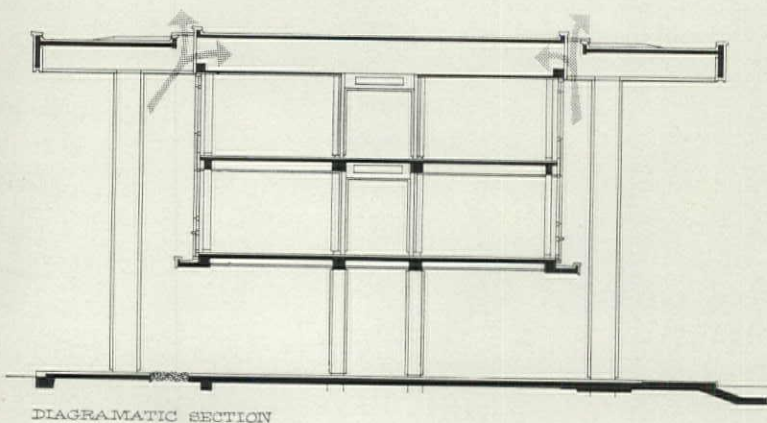


PHOTOS: EMIL

noted proudly that it was built entirely by Greeks, and observed that "one may become jealous of the people who work in such wonderful surroundings." *Ethnos* concluded that "of the 40 embassies the Americans have built in 40 countries, the embassies in New Delhi and Athens hold first place."

Admirers of Gropius will regret one major detail: the advocate of "total architecture" and founder of the *Bauhaus*, where much modern furniture was first developed, was not given a free hand with the interior and furnishings.

Contract cost: \$1,120,000 for 85,000 square feet (\$13.20 per square foot). Job captain: H. Morse Payne. Consulting architect: Pericles Sakellarios. Engineers: Paul Weidlinger and Mario Salvadori (structural); General Engineering Associates (mechanical, electrical); Bolt, Beranek & Newman (acoustical). General contractor: A. Albertis-Th. Dimopoulos.



DIAGRAMATIC SECTION



Local building codes: a national problem

BY NORBERT BROWN

Outmoded laws penalize both the industry and the public. Here are some guides to overdue reform.

Mr. Brown, noted authority on building codes, served as public relations officer of the Building Code Commission of New York State for nine years, and of the Building Officials Conference of America for four years.

The national effect of local building codes is brought into sharp focus by the experience of the federal HHFA. This agency has a multibillion dollar national budget, all spent under local codes. Although HHFA refuses to aid local programs where codes are not acceptable to it, it has no jurisdiction over local building laws and regulations.

Manufacturers of building materials and equipment are in a similar position: their investment is based upon a nation buying their goods in a national market, yet their operations must be adapted at great expense to the caprices of 2,500 diverse local codes.

The idea that building is a local industry has caused much confusion. If materials and equipment have advanced, this has often been in spite of local delays and costly appeals in all these different places. The cost of local erraticism all gets carried over into national costs and prices, and thus falls back on the heads of the citizens in all localities that have created it. Federal control is not to be contemplated, but HHFA and national manufacturers could well back the kind of code progress already made in New York State.

Toward standard performance tests

In a survey of building-code practices in 70 cities in 26 states, it was found that 20 per cent still require public hearings on approvals of building materials. Yet municipal departments are generally ill-equipped and inadequately staffed to make tests or interpret the results of tests. Technicalities in building codes are not appropriate subjects for legislative debate. For this reason, the 1949 New York State law setting up the State Building Code Commission had this to say: "Because it is essential that any code be readily adaptable to changing conditions, detailed enactment of all provisions of a code by legislation is impracticable."

Manufacturers acting as individual firms or through their associations

gain recognition for their products in one code area after another by promotion among building and other municipal officials. Often this promotion is based on test reports whose value may be questioned in the absence of criteria for evaluation. Identical test data on the performance of a material or device may be acceptable in one place and unacceptable in another. Products and methods sometimes fail acceptance not because of inherent inadequacies but by reason of faulty presentation, personal whims on the part of code administrators, or political considerations favoring certain manufacturers.

The New York State Building Code Commission sought to circumvent all the defects found in building-code practices. It established the following principles: 1) that codes must be performance type, in which performance of materials or equipment is the test of acceptance; 2) that codes must recognize generally accepted standards such as an existing specification, code, or procedure in the field of construction or related to it; 3) that code acceptance must be entirely voluntary on the part of the municipality; 4) that there should be a handbook, the Code Manual, showing how the code is to be interpreted; 5) that the commission should certify materials and equipment where application was made by the manufacturer, and where the material or equipment passed performance tests. (The difference between a performance code and a specification code is that the former defines the result that a material must be adequate to achieve, and leaves the choice among such adequate materials to the architect, whereas a specification code defines the kind of material that must be used, and thus limits the possible choices.)

It is only common sense to assure the structural safety of a building before it is put up; and sanitary regulation to eliminate the source of disease is obviously better than a struggle with an

epidemic later. Yet these truisms have been accepted only gradually. Too often, building regulations have followed catastrophe like fire, earthquake, epidemic, or structural collapse. Usually the greater the disaster, the more stringent the regulation.

The growth of cities and industries was bound to bring controls. Yet our building laws have lagged behind new techniques. The older sections of our cities are crowded with building constructed under obsolescent regulations. These regulations may have been long superseded but the buildings remain to blight the neighborhoods.

How New York got its new code

The preparation of a good building code calls for the combined knowledge and skills of many different architectural, engineering, and legal specialists. But very few communities, including even big cities, can afford the continuing services of such a staff. In the preparation of the New York State codes, the Commission had the counsel of code authorities in every field that serves the building industry. Special committees of architectural, engineering, trade-union, and other groups were consulted, as were experts in research organizations and municipal enforcement officers. Of three codes (one-to-two-family dwelling, multiple dwelling, and general building construction) each section was subjected to public scrutiny: 67 public conferences and 17 public hearings were held and meetings were arranged with hundreds of municipal legislative bodies. Many communities accepted the code without formality, and many other municipalities are being guided by the code and Code Manual without formally adopting it. At the end of October 1961, the code has been accepted formally by 367 municipalities.

The State Building Code law established the following five standards for local municipal building codes:

► To provide reasonably uniform requirements for construction and construction materials, consonant with accepted engineering and fire-prevention practices.

► To formulate such standards and requirements, in terms of performance objectives, i.e., to make adequate performance for the use intended the test of acceptability.

► To permit the fullest use of modern technical methods, which tend to cut construction cost without cutting down on requirements for the health, safety, and security of the users of buildings.

► To encourage the standardization of construction practices, methods, equipment, material, and techniques.

► To eliminate those restrictive, obsolete, conflicting, and unnecessary building regulations which tend to inflate construction costs or retard the use of new materials; or which provide unwarranted preferential treatment to certain materials or methods of construction.

How to achieve code reform

There are four standard codes which municipalities have at their disposal in addition to the New York State Building Code: these are the codes prepared by the International Conference of Building Officials, by the Building Officials Conference of America, Inc., by the Southern Building Code Congress, and by the National Board of Fire Underwriters. But the New York State Building Code is the only one of these prepared by a public agency, under complete public scrutiny.

With these codes as working guides, almost any city could set up an official building code committee, consisting of a lawyer well versed in municipal law; an architect with a general practice; a structural engineer; a representative of building trades unions; and a representative of the public.

The bureau heads of the municipal fire

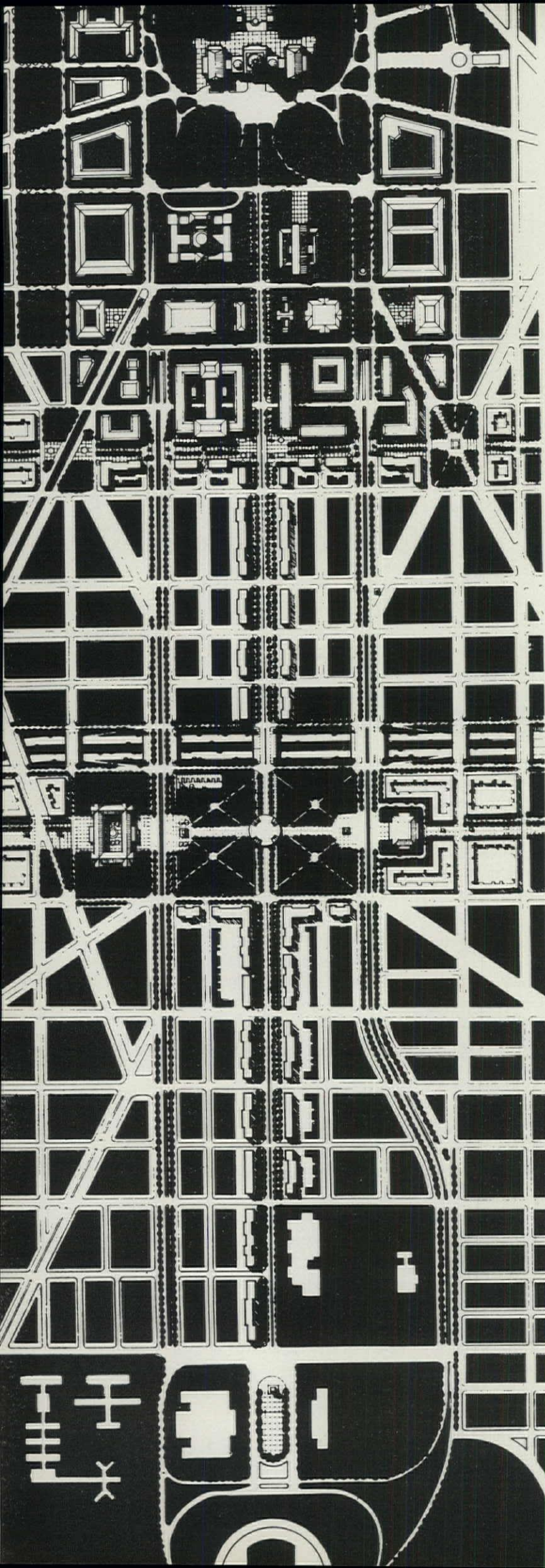
department, the health department, and the building department should be available for consultation, but should not be members of the committee, because they have a vested interest in present building regulations and would probably be inclined to support that vested interest. The committee should review the four national standard codes and that of New York State, and conclude which one would serve its interests best.

In addition, the committee should have the text of the New York State Code available to it, together with a copy of the Code Manual and the list of generally accepted standards. The committee appointed by the mayor should have at least one year to prepare its recommendations as to the form the building laws should take.

There is one other consideration: about half of the states allow municipalities to accept a code by reference—i.e., the municipality may refer to the text of a code it wishes to adopt without publishing the complete text in a newspaper, but indicating in the advertisement where a copy of the proposed regulations may be examined. This detail could save municipalities hundreds of dollars, perhaps thousands, in legal advertising. Where no provision in the State Constitution or statutes allows acceptance by reference, the committee should recommend to the State Legislature that it make this provision.

The age of a code alone does not condemn its usefulness; if its provisions are sufficiently flexible to keep pace with developments in the building industry, it can be made a dynamic instrument for building. Still, even good codes require review at least once a year in order to keep them up to date; it is only municipal lethargy that keeps them on the fringes of obsolescence.

To repeat: the federal government, through HHFA, has a direct interest in helping to lead municipalities to better building codes.



Washington— a critique

We have become a nation of sitting ducks. With the apathy of Tibetan monks we accept a future of calamity, "making the best" of the atom bomb by peddling fallout shelters, of juvenile delinquency by increasing the police force, of automobile glut by extruding longer ribbons of highways, and of overbreeding by taking it for granted the population will increase 100 to 150 per cent in the next 40 years.

None of these national disasters is due to predestination and none would be inevitable if we had the courage to fight causes instead of symptoms. Thoughts like these pop up like tracer bullets in the mind as one reads the recently published *Plan for the Year 2000 for the Nation's Capital*, prepared by the National Capital Planning Commission and the National Capital Regional Planning Council.

The National Capital Planning Commission (hereafter referred to as NCPC) gets its plan for the next 40 years under way with an introductory remark by President Kennedy: "... More than any other city—more than any other region, the Nation's Capital should represent the finest in living environment which America can plan and build. . . ."

"Supermetropolis" in the making

To provide a blueprint for this maximum environment the authors of this Plan for the Year 2000 divide Washington into "Metro-Center, the heart of the nation's capital," and into "Suburban Development Corridors where the highest level of design and community facilities can serve the greatest number of new residents."

Although it would be more agreeable to laud the achievements of the plan for Metro-Center first, in order to emphasize the positive, there is no use assuming that a refurbished Washington could exist without the suburban population in the Capital Region, which is expected to outnumber the city population five to one by the Year 2000. It is therefore mandatory to inquire into the plans for the millions of people to inhabit the magnetic field surrounding the capital before concerning ourselves with a mere million within city limits.

Certain statements and figures from the opening pages of the new plan stick in the mind:

▶ "The National Capital Region should prepare to accommodate a population growth up to a total of 5 million by the Year 2000."

▶ A doubling of the regional population to 4 million will come about "by natural increase alone."

▶ A "supermetropolitan" area consisting of larger Baltimore and Washington will have a combined population of more than 9 million.

▶ Such a population mass, permitted to scatter along the low-density development patterns now prevailing, will use up 200 acres for each 1,000 inhabitants (against 70 acres in the recent past) and will spread Washington over an area five times the current area of suburban sprawl beyond the city outskirts.

of "The Plan for the Year 2000"

BY SIBYL MOHOLY-NAGY

▶ According to midcentury employment figures, almost 1 million of the 4 to 5 million regional inhabitants will be employed in Metro-Center and must commute along freeways and a transit system; the transit system, however, might serve only a minority of suburban communities, because "10,000 or more potential riders are needed to justify a suburban transit service station."

Anticlimactic aims

After presenting these awesome statistics of a civil service anthill as unquestionable facts from which all proposals must generate, the NCPC then states its over-all goals, which seem peculiarly anticlimactic:

▶ that "substandard housing should be replaced by adequate dwellings";

▶ that it is desirable "to eliminate slums from the urban scene";

▶ and that "solutions to many urban problems can be arrived at only through decision making," etc.

We are all against sin; the question is where lies salvation? There follow a number of alternate regional planning suggestions to house the 150 per cent population increase: New Independent Cities, Dispersed Cities, and (Fig. 1) Ring of Cities. These differentiations seem purely semantic, because all the schemes propose communities of about 100,000 inhabitants each in a full circle around Washington like satellites separated from the sun by an atmospheric vacuum.

Corridor cities on the freeway

Wisely rejecting these and two sprawl patterns, the NCPC then settles on the *Radial Corridor Plan* (Fig. 2). This plan establishes new suburban communities, each in a 75,000 to 125,000 population range, located along existing and extended diagonal arteries. A comparison with the Capital Region today (Fig. 3) shows that existing traffic and land-use patterns would not be substantially changed. The new regional factor is the compactly planned new urban centers strung along the freeway corridors 5 miles apart and extending some 6 miles into the open land. A similar proposal was offered in 1958 by the Architects Urban Design Collaborative of Detroit (Office of Louis Redstone) with a monorail transit system feeding commuters and shoppers into a "revitalized" downtown center (Fig. 4).

Nor is the creation of a rapid-transit system new for the capital region. The first rural subdivisions were started in 1892 when the streetcar lines reached Prince George County. The automobile killed this public transportation, and it seems unwarranted optimism to assume that the provision of arrow-straight freeways planned with 60-foot-wide extension strips between traffic lanes will discourage automobile traffic of the familiar rush-hour variety. At a population figure of approximately 400,000 per corridor, the five or six tentacles converging on downtown Washington will create intolerable traffic pressure on the center. A proposed central subway system

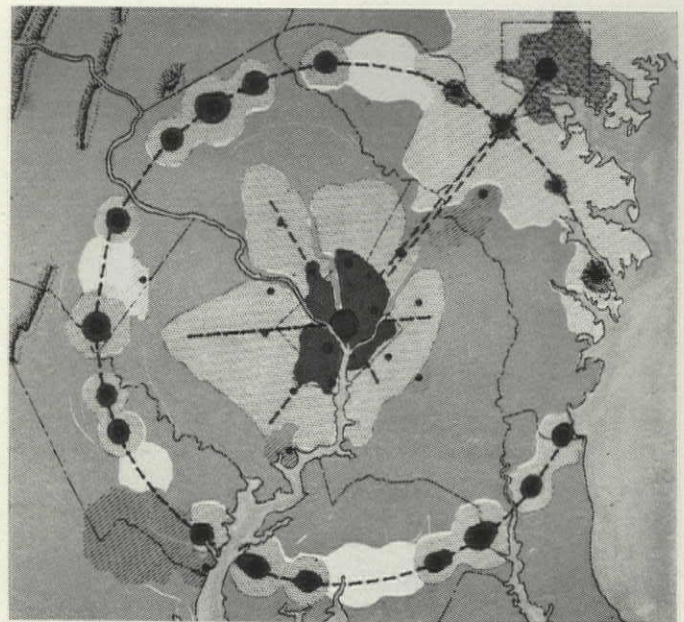


Fig. 1. "Ring of cities" scheme

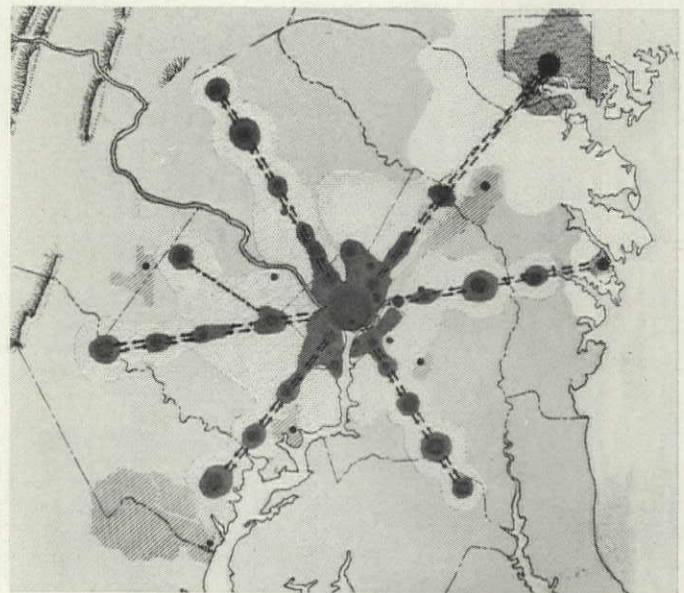
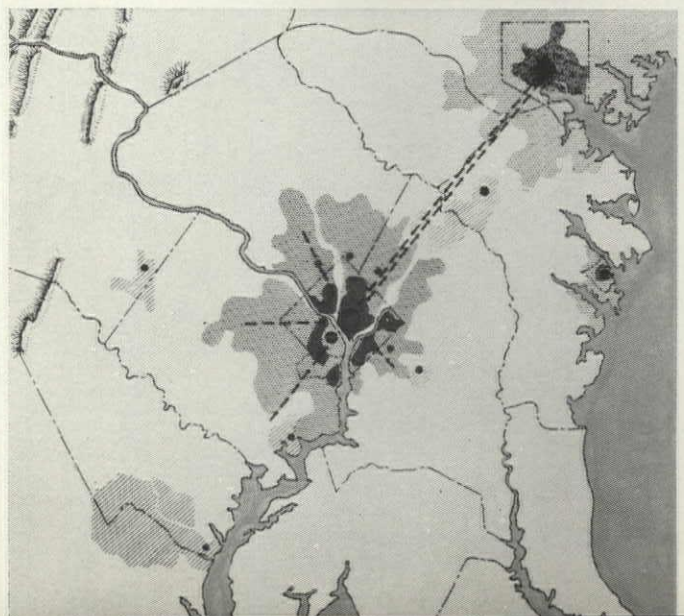


Fig. 2. Radial corridor plan



Fig. 3. The capital region today



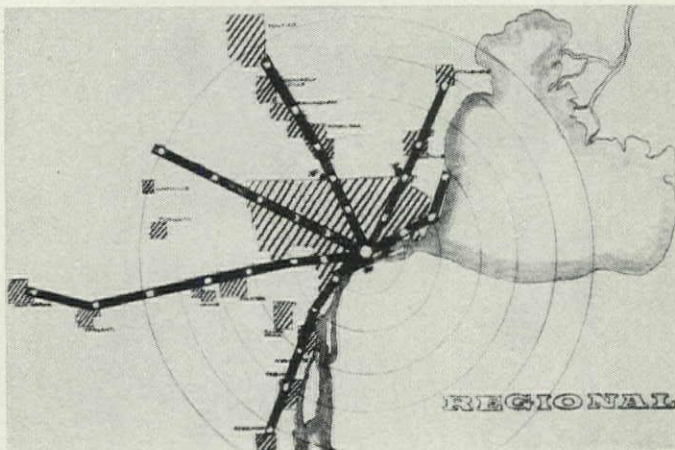


Fig. 4. Detroit corridor scheme of 1958

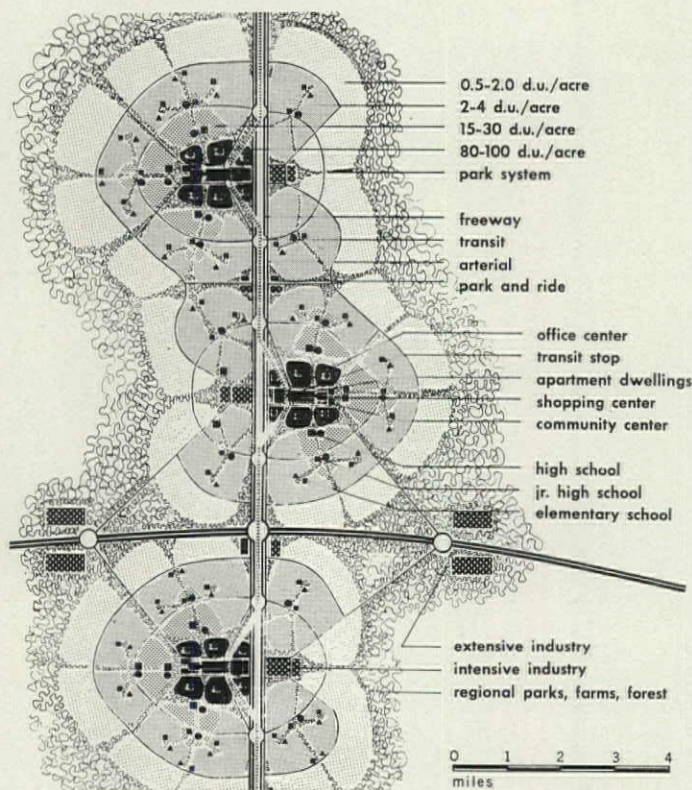


Fig. 5. Plan showing three corridor communities

Fig. 6. Today's sprawl continued 40 more years



must serve mainly local traffic and even the NCPC remarks wryly: "... Most automobile users will be diverted to these systems [rapid transit and subway] only after congestion on the highways reaches intolerable levels."

The promise of maximum local employment in the corridor towns would ease this commuter problem toward Metro-Center if the labor "projection" in the new plan were not pure conjecture. On the one hand, the plan contains statements such as these: "Metro-Center should be encouraged to grow as the dominant employment center within the National Capital Region," and "Metro-Center presently accounts for three-fourths of all employment within the District." On the other hand, the plan states: "Each [corridor city] would contain important centers of employment and commercial activity providing a high degree of local self-sufficiency," and "For occasional special needs, or for special types of employment, residents will go to Metro-Center."

Who works where?

While admitting that the Washington area is a "one industry" (federal employment) region and that Baltimore has since the eighteenth century functioned as an industrial and distribution center, the NCPC asserts that "manufacturing employment will increase significantly [in the corridor towns] from the small amount existing today as the local economy diversifies."

To prove this prediction, the planners have inserted neat squares between their corridors (Fig. 5) mysteriously labeled "extensive and intensive industries." In addition, it is promised that "much larger increases will occur in the service sector of the economy, mainly retail activities and local government, as is typical in a maturing city."

It is the conclusion of the last sentence that gives this game of crystal-gazing the lie. *There is nothing typical about Washington.* It is a government reservation; its employment pattern has prevented commerce and industry from settling there, and will continue to do so as long as Washington remains the nation's capital. While it is true that in industry and commerce high-echelon salaries are considerably higher than those paid government executives with comparable responsibilities, comparisons of lower-echelon salaries show why Washington is a one-industry city. The median pay rate for 88.2 per cent of all federal employees in the capital (taking schedule GS-6 as median) in 1959 was \$5,240. At the same time, male clerks in private enterprise earned an annual average of \$3,770; tabulating machine operators \$4,212; the best paid retail workers received \$85 per week, or \$4,420 a year. Not only do female federal employees receive the same pay as males in contrast to salary discrimination in private enterprise, but federal job security, old-age benefits, and automatic rises from schedule-step to schedule-

step are also powerful incentives for seeking federal jobs, for both men and women. It is not likely that the new regional corridor communities will alter this basic pattern. There never *will* be suburban "self-sufficiency" within reach of the federal feeding crib.

Open land, but how?

The NCPC professes to the goal of using open land for "injecting quality." "The basic quality of the region will be greatly affected by the amount and nature of the lands held out of development, as well as by the development that takes place."

The NCPC goes on to explain that "the areas lying between the development corridors would provide significant [an ever recurring adjective] stretches of open countryside penetrating the urban areas as wedges readily accessible to the whole population, yet far enough out of the path of development to facilitate their preservation in open use."

Fig. 2 shows these wedges starting in most directions 15 miles from the city core, leaving to all but the most distantly located happy suburbanites along the corridors a coagulated "urbanized area" differing from the present capital region (see Fig. 3) only in the extent of open land loss. Here the contradictions of the whole plan become almost absurd. Under a diagram replete with symbols of livestock, general farming, and tobacco culture there is a caption: "The wedges of open countryside should protect important forested, agricultural, and wilderness areas within the region." Another statement proposes: "Most important, wedges of open space between the proposed corridors will foster [corridor] development by directing into them the growth that would otherwise spread across the entire countryside." How this "fostered development" can be prevented from coagulating into the old sprawl is unclear.

The most startling aspect of this part of the plan is the silence maintained about the fact that all of this land lies either in Virginia or Maryland, and to acquire either the land or its development rights would require dealing with the legislatures of these states. A former member of the Maryland legislature, who could not be persuaded to permit the use of his name, comments:

"The only thing we have in common with Virginia is that we do our damn best to legislate not in favor of the District. The District is an absurdity and an obstacle to decent state laws because no one will take the rap for anything and the majority of people working for the government—well, since you've asked me—they are a bunch of gypsies, just waiting for the next General Schedule classification to move on. We have them, bad as it is, but who wants a population that is like Indians—wards of the government!"

Even if there were clarity of goal and honesty of appraisal behind the "open wedge" proposal for the fed-

eral region, inroads on free enterprise, democratic government, and long-established state rights would provide unsurmountable obstacles.

Is there an alternative?

If, then, the proposed replanning of the region for 4 to 5 million inhabitants cannot succeed in the form outlined in this Plan for the Year 2000, the question must be asked: What is the alternative? Are we going to drown the nation's capital in a cesspool of planned or unplanned sprawl (Fig. 6) so that it loses the last shreds of a traditional identity which has to stand for other patriotic symbols in American life?

The answer has been indicated by Representative Henry S. Reuss of Wisconsin who has made the salvation of Washington his cause and who stands alone in the extraordinary courage with which he challenges the sentimental legend of "the most beautiful city in America" with hard facts:

"Our water supply, according to the Corps of Engineers, is about to run dry. . . . Our sanitary systems have broken down. The Potomac has become a large cesspool, clogged with sewage and silt from haphazard upstream bulldozing. Subdivisions like Livingston Heights in Virginia live on a sea of raw sewage. . . . Our traffic threatens to strangle us . . . much of our day is spent in bumper-to-bumper horrors of overcrowded highways. And the highway builders are eyeing covetously for destruction the very green spaces which make the city. . . ."

To eliminate these evils, Reuss introduced Bill H. R. 8248 as an amendment to the Federal Property Administration Service Act of 1949:

"The Congress hereby finds and declares that the unnecessary concentration of federal facilities and personnel in the Washington metropolitan area impairs the efficiency of functions which must be carried on at the National Capital; that the vast expansion of population in the Washington metropolitan area, now projected on the basis of continuation of past policies . . . will require such enormous expansion of such facilities as to render it impossible to enhance or even preserve historical or esthetic values in the National Capital; and that a firm, government-wide policy of relocation and decentralization is required in order to avoid further concentration and to remedy the ill effects of past failure to consider the interests of the country as a whole in the location of federal facilities."

Decentralized government

The new bill then asks for the establishment of a Director of Relocation and Decentralization who would decide which agencies can be transferred to other major cities, "and to assure that no additional facilities will be established in the Washington metropolitan area if their functions can be carried on with equal or greater efficiency elsewhere."

It should be noted that Reuss does not support the



Fig. 7. Extension of special, "vista" streets

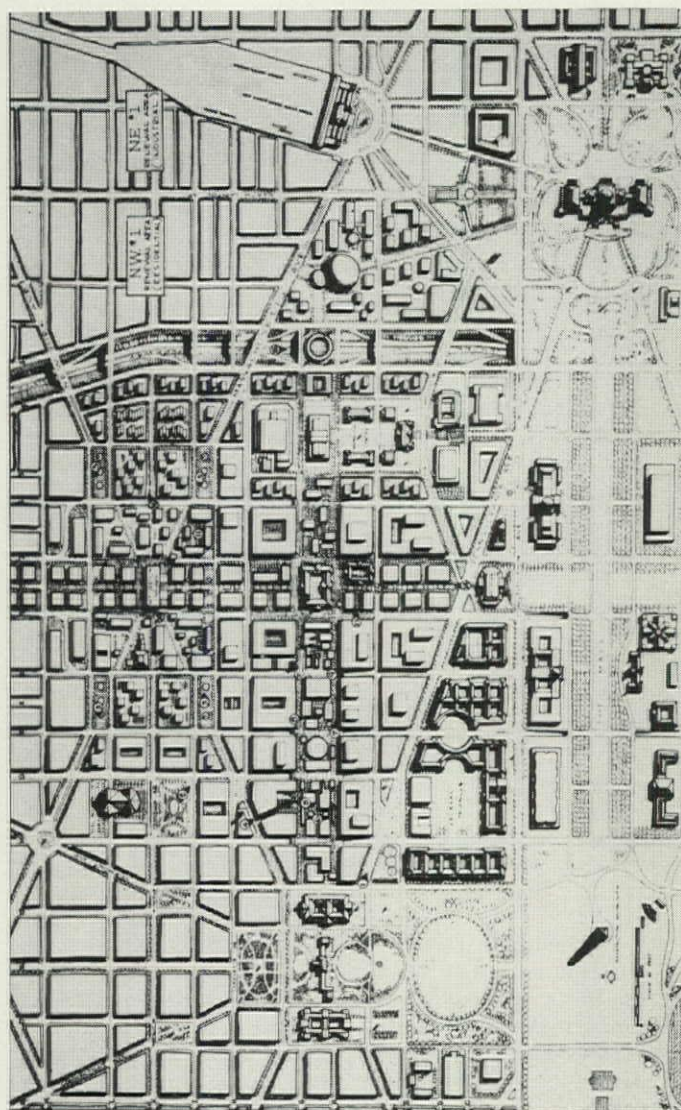
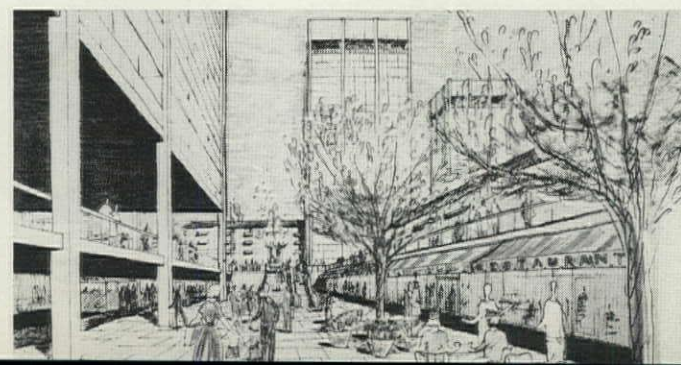


Fig. 8. The plan for downtown

Fig. 9. Proposed downtown pedestrian precinct



proposal by the NCPC that "a large share of all future employment in the region will be government jobs. . . . The location of new government facilities . . . offers a unique opportunity for government to set a new pattern of regional development."

Deploing the "scatteration" of federal offices in the district countryside "just far enough to be out of reach," he proposes the relocation, in medium and large cities all over the U.S., of nonpolicy-making agencies in the locales of their jurisdiction; e.g., the Fish and Wildlife, Forest and Soil Conservation, and Indian Affairs bureaus, together with nonlocalized services. Insistence on the urban character of government work, which is ill-placed in the countryside, would give other American cities a digestible increase of stable, well-paid jobs, and citizens whose regular incomes would benefit commerce and who would themselves benefit from mixing with "free enterprise" people. Government building would occur in these towns, breaking the 175-year-old-style cliché and helping local architects. To those exiled from the choking Washington region should be added the numerous National Headquarters employees, from astrologers to university professors, whose presence in the capital is merely a matter of prestige and not of necessity.

The NCPC proposal asserts: "There is little possibility that the people of the region would accept the measures needed to restrict growth," which makes no sense considering the dictatorial powers needed to force 4 million of them to live in predesigned communities, to refrain from moving in or remaining in excess numbers when a new city reaches its pre-established maximum population figure, and to live in dwelling types designed to serve typed population groups. Compared to these strait jackets, a radically selective decentralization policy by the federal government seems a slight interference indeed.

Since Washington is not a free-enterprise city, since its people are wards of the federal government, and since 50 per cent of the land in the Metropolitan area is in public ownership, it is here that the Reuss population policy can best be put into effect. His bill is the sword-stroke through the Gordian knot of environmental expansion which, whether scattered or channeled, is fundamentally irresponsible and uncontrollable. Traffic abhors a vacuum and any solutions contingent on new traffic arteries must fail. The only solution is the elimination of traffic by eliminating the driver and his destination—which is exactly what the Reuss bill proposes to do.

Only then does the second big area proposal—that for Metro-Center itself—make sense, because only then will Metro-Center not be crushed by the frantic stampede of traffic into the city from suburban satellites.

The core of the proposal for Metro-Center offered by the NCPC is the redesigning of the East Mall. Instead of elephantine piles of government buildings, standing

in their little parks, buildings lining a unified, carefully designed government road (see frontispiece) would house highly representative and official functions, while the large volume of business transactions inherent in today's government would occupy contemporary office buildings in the business section of the city. The outstanding achievement of the new plan for Metro-Center in the government sector is the extension of the Special Streets system (Fig. 7). It would restore the essential vistas toward the Capitol and the White House as planned by L'Enfant, extending landscaped avenues all the way to Anacostia Park, now cut off by a neglected and run-down area, and would channel traffic away from the monumental and historical center to an encircling road system, as first suggested 15 years ago in a study by Louis Justement.

A center with a purpose

There is an inherent contradiction in the proposed rebuilding and growth of the Metro-Center business district and the overemphasis on self-sufficiency in the suburban corridor communities. If it were true, as the plan asserts, that people shop within a 10 or 15 minute drive from their home, then the sumptuous Master Plan, sponsored by the National Capital Downtown Committee Inc., would make very little sense (Fig. 8). Projecting ahead to the year 1980, the Downtown Committee, working with the NCPC, foresees an increase of 50,000 daily downtown visitors over the current 130,000, a need for an increase of 10,000 parking spaces over the current 15,000, and an expansion of floor space from the current 19.6 million square feet to 25.7 million square feet. A subway system is urged as the most essential promotion factor. Its course would be along the main axis of a west-east business mall, now H Street. Another high- and medium-rise business street along 9th Street would intersect this mall at right angles, swallowing in its northward expansion the largest of Washington plazas, Mt. Vernon Square, and eliminating the venerable marble District Library.

Pedestrian predominance (Fig. 9), large-scale underground parking, and a commitment to architectural excellence are very positive features of the new downtown proposal; its dangers are overexpansion and overplanning.

The scheme, as presented, suffers from monotony of land use in the 9th Street axis and raises doubts about the intended appropriation of civic neighborhoods for business purposes. "Particular care should be applied," states the NCPC treatise, "to correct and in the future to prevent the encroachment of commercial and employment centers upon the surrounding residential area."

The separation of working and living areas is essential for a capital where the official and diplomatic status of many residents call for an emphasis on traditional social environment. It is one of the highlights of the new plan

that it rules out an increase of density in either the rehabilitated or the urban renewal projects. The rehabilitation of the many distinct neighborhoods in the city of Washington is an explicit objective, the hope being to restore in residents a sense of pride, ownership, and city identification. The Southwest Urban Renewal Project, which is undoubtedly one of the finest and most architectural in the U. S., has developed under the guidance of the NCPC into a prototype of a mixed middle-income neighborhood of a wide variety of building types, from skyscrapers to one-family houses. As the NCPC says: "The wide range of employment opportunity found in the central area, combined with the objective of reducing long-distance travel between home and work, suggests in itself that housing within the District should be available in all income groups."

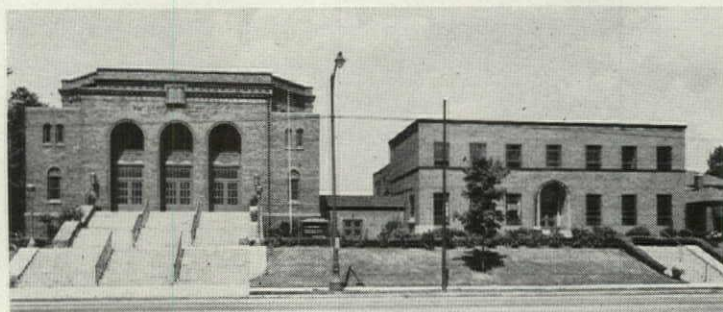
But the renewal efforts are too little and too late. New units within city limits will merely replace what must be torn down; and beyond spreads the semirural slum of the future.

City yes, region no

In short, the Plan for the Year 2000 contains a sharp break in concept between regional and urban planning. The latter proposals offer a sensible and desirable goal: a reclaimed city whose realization seems quite possible because local interests—both commercial and governmental—would profit from the suggested improvements. This, for better and for worse, is the incentive implicit in a free-enterprise society. Looked at from the same basic viewpoint, the regional development plan has to be reappraised. No one will profit from dormitory compounds strung like dead fish along traffic rods. We have long since buried the lovely dream of the Garden City which belonged to an age without "explosions"—automotive, progenitive, or nuclear.

The deadly threat to the Capital Region, the threat of suffocating congestion, is extremely real, but it is not the same thing to recognize a danger and to acquiesce to it. This is a vast country with an alert and life-loving population. We have mass media of popular information which are untapped as instruments for spreading vital information about self-made perils inherent in local inertia. The sound, vigorous, and undefeatist proposals of the Reuss Relocation and Decentralization Bill will bring a voluntary restriction of population growth in the Capital Region if we are courageous enough to ignore the shabby real estate lobby and to tell the truth without resorting to statistical and planning pipe dreams. Only then will America again have a National Capital as a symbol of tradition and public representation in the ideal sense as visualized by the National Capital Planning Commission in its proposals for Metro-Center, and as indicated by President Kennedy in his introductory remark to the Plan for the Year 2000.

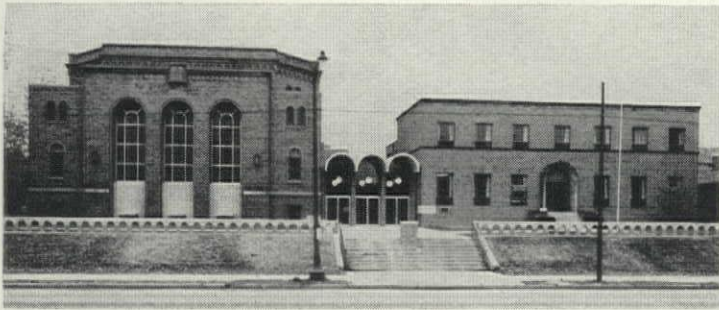
A temple turned to modern needs



Before: three entrances, one a cliff of steps.

PHOTOS: (ABOVE) HERB TOPY; (OTHERS) GEORGE CSERNA





After: a unifying link, a single, low approach.

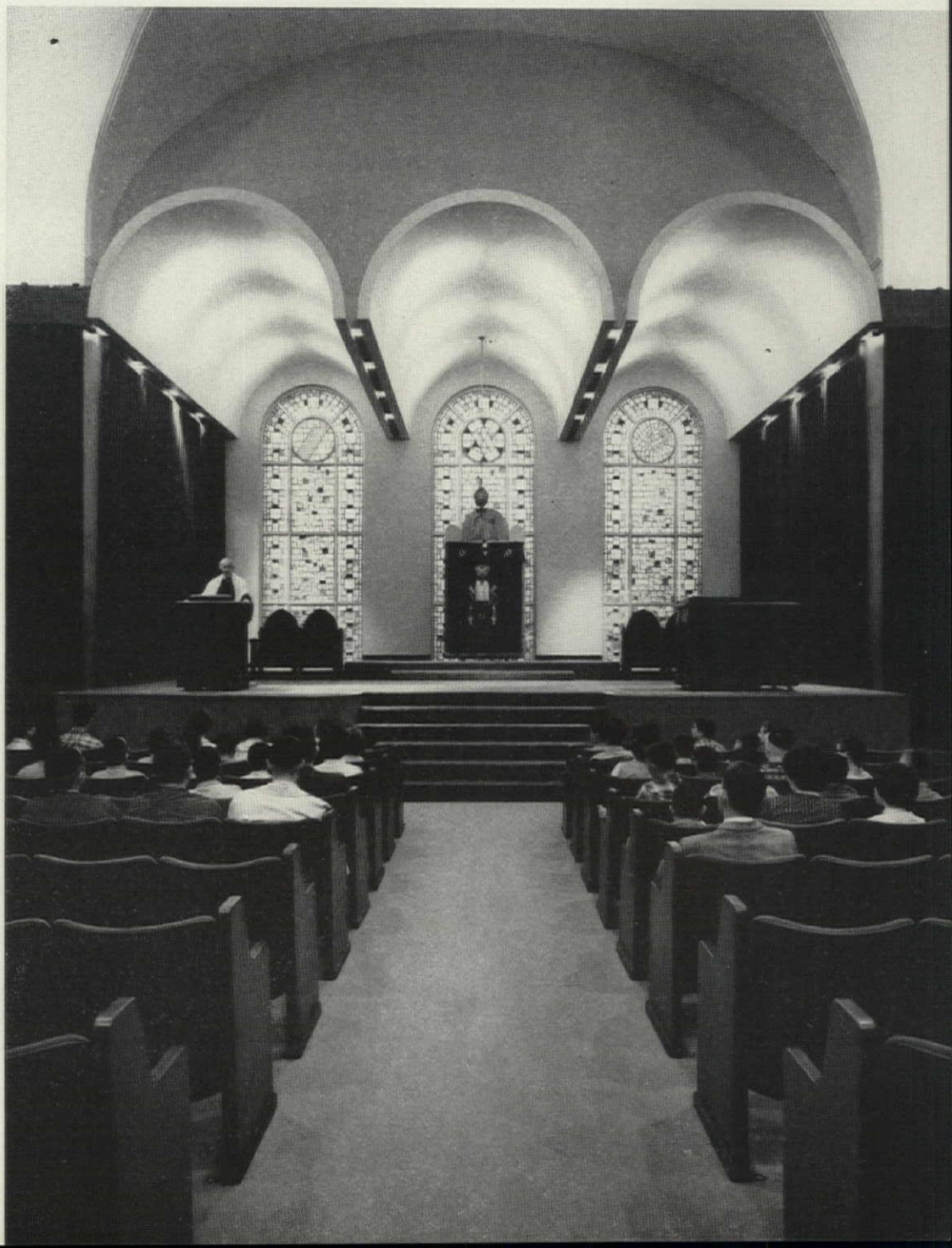
The recent remodeling of Temple Tifereth Israel in Columbus, Ohio is a striking demonstration of how older religious buildings can be adapted to modern demands—and architecturally strengthened in the process.

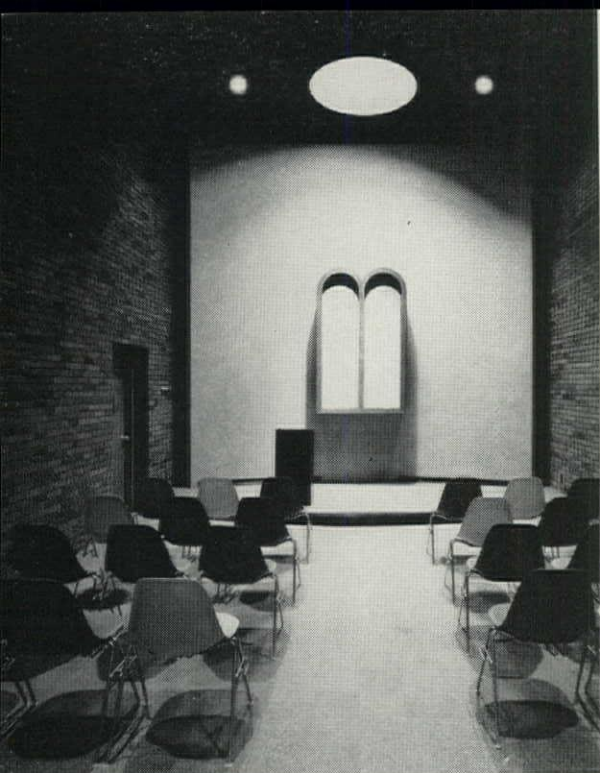
When it was first completed in 1927, the temple rose grandly above Columbus' East Broad Street behind monumental flights of steps calculated to impress, if not exhaust, its users (photo above, left). In 1947, a less pretentious school and office building was added to one side. But by the late 1950s, a growing congregation of 800 found it needed not only more classrooms, but a larger sanctuary, and some sort of community hall as well.

Architects Tibbals, Crumley & Musson have neatly met all these requirements, and added a few dividends of their own. Their major move was to add the new social hall to the rear of the main temple, and turn the interior of the temple around to open up to it. This provided the opportunity for a new processional entrance down between the old school building and the temple, fronted and brought into focus by a new barrel-vaulted link (photos above and left).

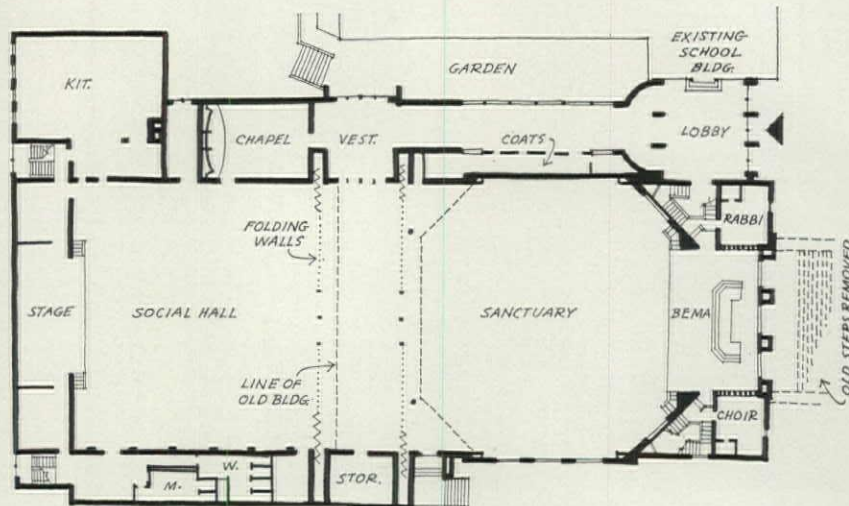
Inside the sanctuary itself, the entrance motif is dramatically echoed in a triple plaster vault incorporating up and down lighting, and framing new stained glass by Architect Noverre Musson above the raised bema where the old temple steps and entrance used to be (photo, right).

continued on page 134





The chapel: simplicity, a skylight, and an ark.



PHOTOS: GEORGE CSERNA

The plan above and photographs at right show how the remodeled sanctuary and the new social hall work together to meet a variety of needs. The main entrance to both is through the new building link, flanked by a quiet garden and useful coatrooms, and terminating in a central vestibule opposite an intimate new chapel (above).

The new vestibule, which also serves the rear parking lot, opens into the middle of the main space between two sets of folding walls. With both these walls retracted into storage niches on the sides, the combined area seats close to 1,500 during high holy celebrations (the stacking chairs, of course, would be reversed to face the sanctuary instead of the stage, as here). For everyday use, the walls are left closed, forming an anteroom between a 600-seat sanctuary and a 700-seat hall. If slightly more capacity is needed, one set of walls may be folded back and an additional 100 chairs set up facing either room. The double-fabric walls have center sections and doors of wood to provide permanent, formal entrances when closed. The new hall incorporates its own kitchen, washrooms, dressing and storage rooms, and five classrooms underneath.

Total cost of rebuilding—\$415,000, plus fees, furnishing, and landscaping—was met with temple funds and a special subscription. Engineers: Paul Ford (structural), Drake & Ford (mechanical, electrical). General contractor: Joseph Skilken Co.



Social hall is open to sanctuary on holy days (above), closed for community use (below).



Staying cool in church

There are more than 8,000 churches in the U. S. equipped with year-round air conditioning, according to a recent estimate by the Carrier Corp., and more, north as well as south, are following the trend.

The most obvious reason, of course, is comfort. Another, according to churchmen, is that air conditioning increases attendance: people no longer can use the weather as an excuse for not getting to church. Moreover, some clergymen even justify physical comfort as a spiritual aid; coolness, they say, makes for improved "message reception." Whatever the merits of this argument, churchgoers are used to air conditioning elsewhere, and since churches today function as recreation and community centers at least as much as they do as places of inspiration, people expect them to provide all the comforts of home.

Church cooling, however, involves some unique design considerations, especially in older buildings. The attendance pattern varies from one function to another. The sanctuary is usually a very tall room. The system must be divided into zones, and equipment and ducts be carefully concealed. Often social and recreation rooms, offices, and sometimes classrooms must be cooled as well. And, finally, air conditioning in churches must be felt, but not heard.

SIZING THE SYSTEM

The proper size for a church cooling system will depend on a reasonable estimate of various loads, and on how much of the sanctuary height it is necessary to cool. J. W. Orr, Westinghouse engineer, cites the following as the most important factors:

People load. This varies not only with the number of people but with the number of services and additional functions during the day. A Protestant church, for example, on a given Sunday may have two or three services, classes in

the morning, a wedding in the afternoon, meetings in the evening. A Catholic church may have several services from early morning until noon; a synagogue will have its heaviest attendance on Friday evenings and Saturday mornings.

A rule of thumb is that 20 people require a ton of cooling. The maximum load a system must be capable of handling is simply the sum of the load due to the people, plus the load due to the building itself, plus a safety factor which should allow for about a 20 per cent increase in estimated attendance.

Structure load. The maximum cooling load usually occurs when attendance is heaviest, and the solar and transmission loads carried by the building should be calculated for that time of day (see graph). The time when the greatest heat is radiated to the interior by the structure itself will usually not be until 3 or 4 P.M., when the building will probably not be in use unless there is some special function.

Precooling. To keep a church interior comfortable despite a sudden influx of people, it is common practice to cool the church and its furnishings beforehand to two or three degrees below the level desired during attendance, usually 76 degrees. This generally takes about two hours. Precooling, or "pull-down," actually cuts down on the system capacity needed to cool both crowd and building at once. Precooling can also take care of adverse "storage" effects in church buildings by removing much of the heat retained in the walls, pews, and other furnishings before the "people load" is placed on the system.

Ventilation. Ventilation and humidity also place additional loads on the system, and must be calculated. Since there is little or no smoking during church activities, however, a ventilation rate of 5 to 10 c.f.m. per person should be adequate. The humidity within an area in use can vary between 40 and 60 per

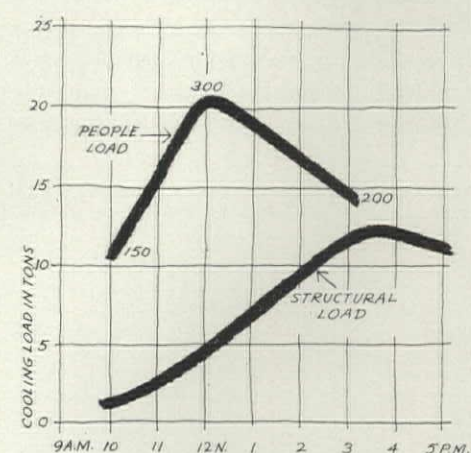
cent; in selecting the equipment, a design humidity of 50 to 55 per cent is generally used.

Air stratification. The entire space of a high-ceilinged sanctuary need not be a drain on the cooling system. Only the lower "comfort zone" must be air conditioned. The height of this zone can vary, but a cooled area up to 7 feet above the floor will keep occupants comfortable. The cooled area creates its own insulation: the lighter, warm air near the ceiling will not penetrate the cooler zone below. Low wall or window-sill supply provides a good air-distribution system for handling the comfort zone, as well as the heat coming from walls and windows up to a level of 15 feet above the floor. The load from major electric lights can be ignored, provided they are suspended or wall-hung above the 15-foot level.

SELECTING THE SYSTEM

Once the cooling load has been measured, the type of system can be selected.

continued on page 136



Cooling capacity needed in a church depends on maximum attendance, plus heat load on the building at that time, plus a safety factor of 20 per cent for increased attendance. Using a rough rule of 1 ton per 20 people and a ventilation rate of 10 c.f.m. per person, a hypothetical masonry church of 5,000 square feet seating 300 at the late morning main service would require 21 plus 4 plus 2.5, or 27.5 tons capacity in its air-conditioning system.

Air-conditioning equipment comes in two basic categories: "packaged" equipment and applied systems. In packaged units, all components—compressors, condensers, fans, air-handling units—are assembled at the factory in a single, compact shell. Packages come in capacities up to 50 tons, are relatively inexpensive and easy to install.

An applied system, however, has the advantage that it can be built up to any size and can be tailored to meet specific conditions. Among other things, this can make possible a low noise level,

since the compressors and fans can be located at a distance from the area to be cooled. Unless packaged equipment can also be soundproofed, the noise from its direct, ductless air transmission may be too high for the quiet atmosphere required in a church.

J. W. Orr lists three major types of applied systems: direct expansion (coils cooled by expanded heat-absorbing gas), chilled water (coils chilled by cold water), and ice storage (ice coated to coils). In choosing a system, three fundamental factors must be kept in mind:

over-all cost, space available, and salvage value. In addition, each system has its own special considerations (see chart).

Church boards considering air conditioning may also want to look into new heat pumps, which in summer remove heat and humidity from the indoor air and pump it outside, and in winter extract heat even from freezing air and pump it inside. These packaged systems require little installation space. Carrier, for example, claims that 415 square feet of floor space were saved when the system was installed at the Congregational Christian Church in Fairfax County, Va. Ten 5-ton heat pumps were installed for \$28,600, considerably under the architect's estimate of \$45,000 for conventional heating and air cooling. Among other relatively recent developments applicable to churches, Minneapolis-Honeywell is now marketing an electronic control unit which can provide immediate adjustments in a number of remote zones, switch the entire system from cooling to heating, and regulate the amount of outside ventilation air.

BASIC SELECTION FACTORS

System	Initial cost	Space required	Salvage value	Other factors
Direct-expansion applied system	moderate	little	good	versatile zoning; operator needed
Chilled-water applied system	moderate	moderate	good	versatile zoning; operator needed
Ice-water storage applied system	high	large	low	long precooling periods; poor humidity control; low operating cost
Packaged units	low	moderate	high	high noise level, low operating cost

Quarterly statistics: rebuilding mixed but steady

Spectacular increases in building activity in FORUM's 16 selected cities continued to reflect the upturn in the nation's economy. As always in an immediate postrecession period, new building accelerates faster than rebuilding. But this year rebuilding has

been advancing at an unusually healthy rate.

Estimated value of rebuilding permits for the first nine months of 1961 is 8.3 per cent higher than for the equivalent period of 1960, while new building showed an amazing 34.1 per cent rise, yielding an over-all increase of 30.2 per cent in building activity.

Rebuilding shows the same uneven pattern geographically as it did for the first six months of 1961. Some of the cities, however, marked unusual increases, e.g., Denver, Minneapolis, and Philadelphia (see table).

Nonresidential additions and alterations continued to dominate the rebuilding market, amounting to 76.2 per cent (compared with 76.4 per cent for the first nine months of 1960).

In the six cities that classify rebuilding permit data by building type (Boston, Chicago, Cleveland, Detroit, New York, and St. Louis), analysis reveals an increase in the proportion of rebuild-

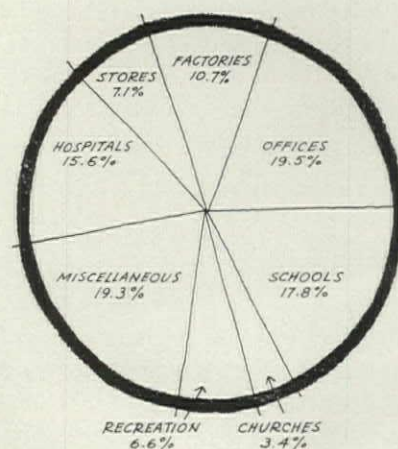
ing dollars being spent on schools and storage facilities (the latter are included under "miscellaneous" in the chart below).

REBUILDING PERMITS, FIRST 9 MOS., 1961

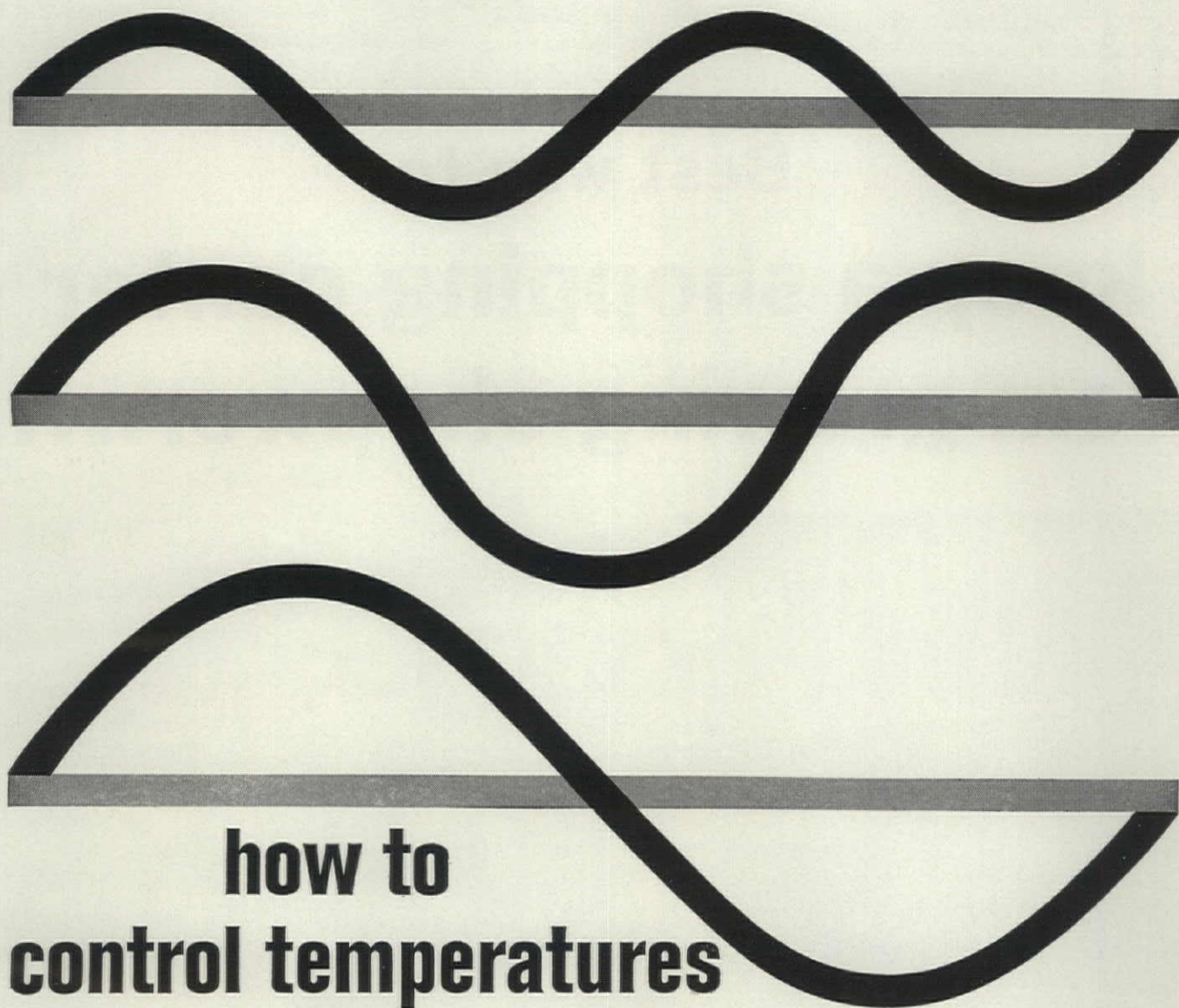
Additions and alterations, in thousands of dollars

City	Residential	Nonresidential	Total	Change '60-'61
ATLANTA	\$ 4,039	\$ 13,593	\$ 17,631	+ 32.4%
BOSTON	3,372	8,918	12,290	- 28.9%
BUFFALO	1,185	6,538	7,723	+ 14.2%
CHICAGO	7,979	27,472	35,451	- 8.3%
CLEVELAND	7,928	22,139	30,067	+ 27.2%
DENVER	2,964	9,077	12,041	+ 97.8%
DETROIT	3,272	27,316	30,588	+ 22.9%
LOS ANGELES	26,791	40,519	67,310	- 9.3%
MINNEAPOLIS	2,358	12,489	14,847	+ 75.8%
NEW YORK	26,934	85,371	112,305	+ 16.4%
PITTSBURGH	2,041	8,690	10,731	+ 39.2%
PHILADELPHIA	3,069	19,117	22,188	+ 75.0%
ST. LOUIS	1,675	8,028	9,704	+ 27.5%
SAN FRANCISCO	6,126	10,511	16,637	- 30.6%
SEATTLE	4,142	17,740	21,882	- 2.2%
WASHINGTON*	2,152	4,794	6,946	- 27.7%
TOTAL	\$106,127	\$322,312	\$429,439	+ 8.3%

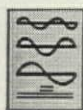
* Does not include government building.



Share of nonresidential rebuilding market ascribed to eight different building categories for the first nine months of 1961 is shown in the pie chart above. Boston, Chicago, Cleveland, Detroit, New York, St. Louis are the cities whose permit data supplied the analysis.



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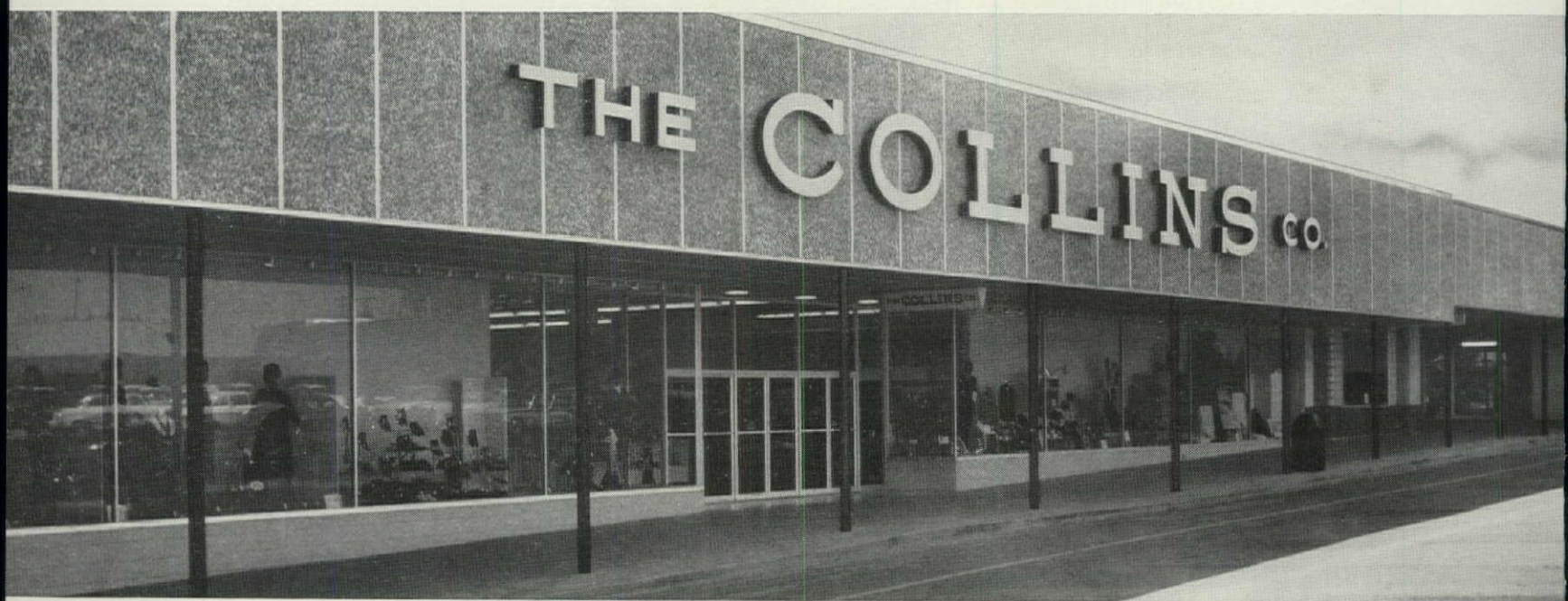
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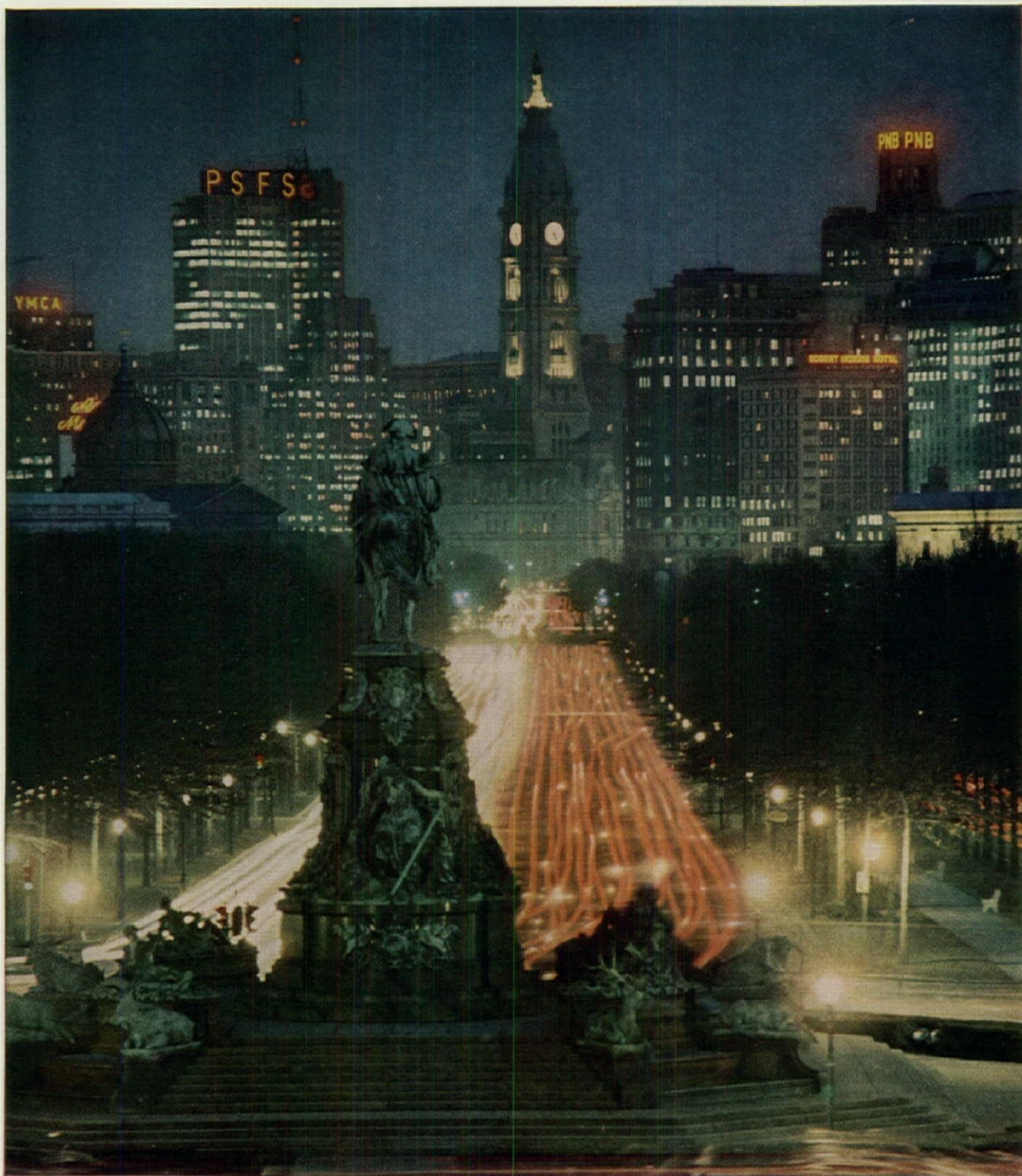
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Benjamin Franklin Parkway looking east from Art Museum

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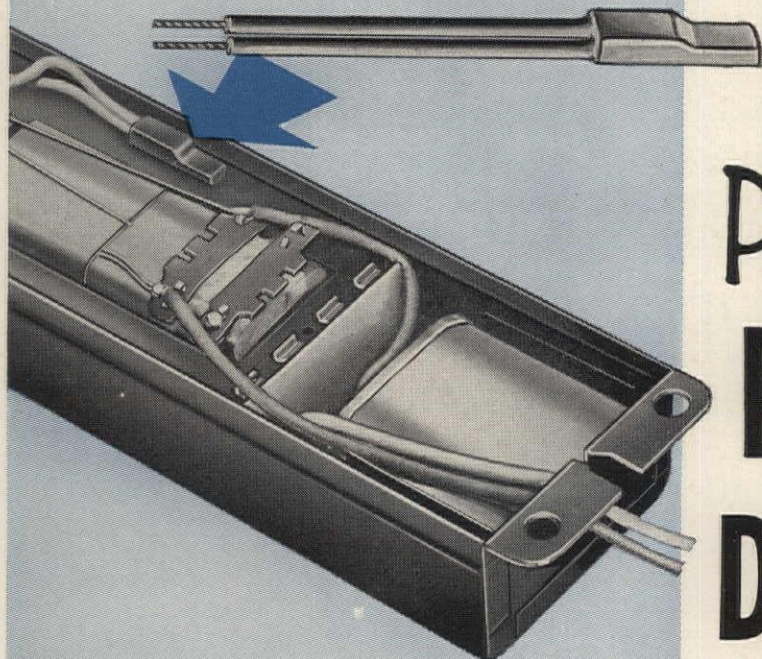


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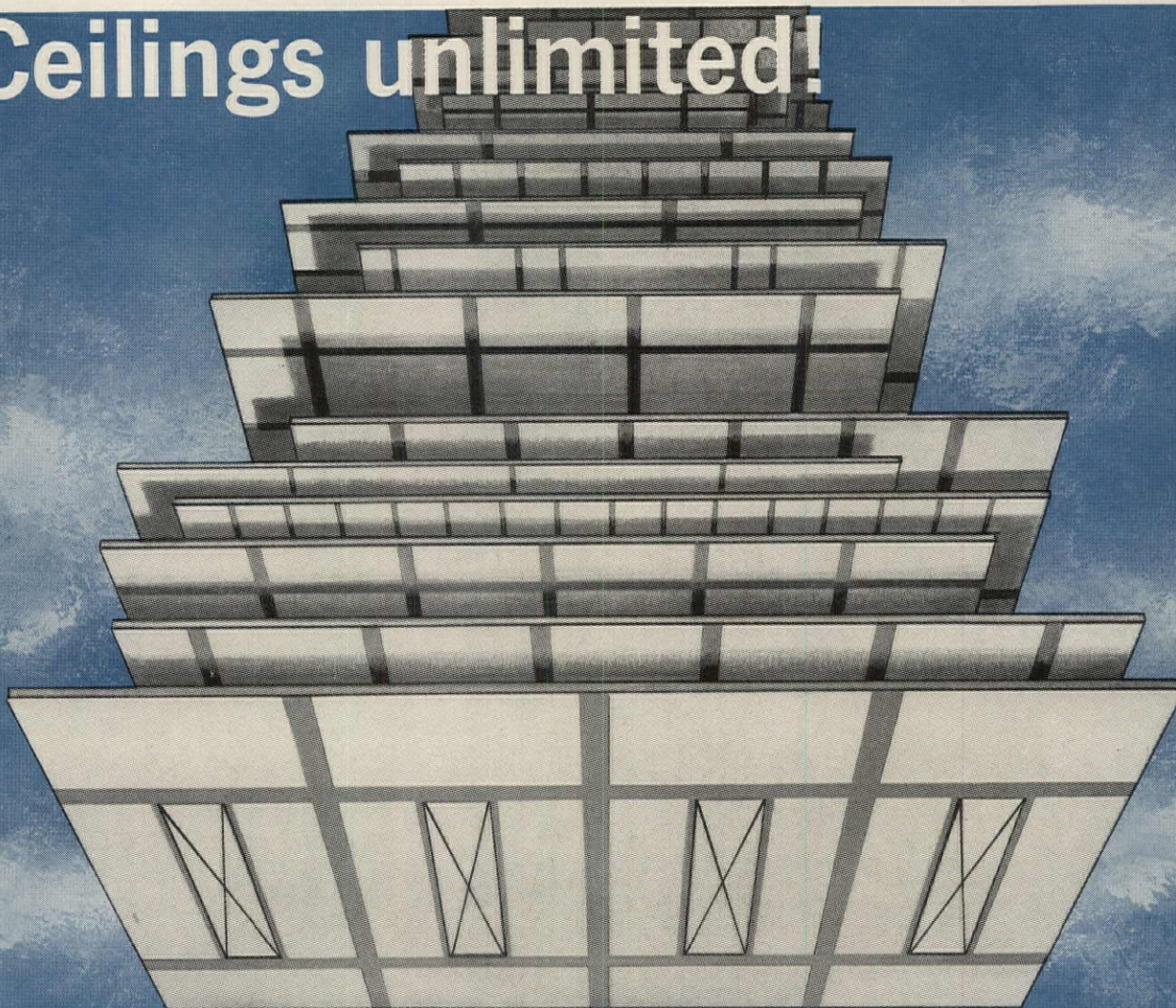


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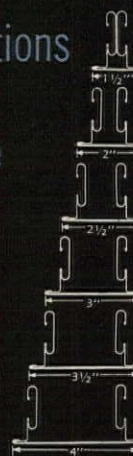
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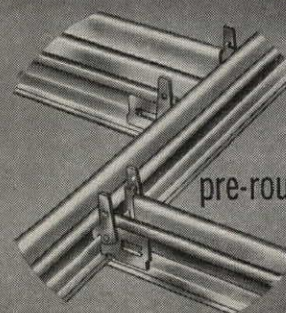


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THE DEATH AND LIFE OF GREAT AMERICAN CITIES. By Jane Jacobs. Published by Random House, Inc., 457 Madison Ave., New York, N. Y. 448 pp. 6 1/4" x 9 1/4". \$5.95.

Reviewed by Marya Mannes

Ever since Hugh Ferriss began drawing his visions of the ideal city in "The Metropolis of Tomorrow"—freestanding pinacles, soaring ramps, wide green spaces, and all—most of us, I think, have accepted with little question the assumptions behind such visions. These are, in simplified form: that the major evils of cities are 1) overcrowding, 2) lack of parks and open spaces, 3) lack of connective highways, 4) deterioration of old buildings, and 5) slum areas; and that new construction, housing projects, green grass, large-scale planning will, by mitigating or removing these evils, make the metropolis fit for man.

With massive but vivid documentation and the passionate conviction born of firsthand experience and long observation, Mrs. Jacobs explodes these assumptions into a fallout of fallacies. The planners, she maintains throughout, do not understand the nature of cities as an expression of the nature of man. Their projections of the good metropolis may look handsome on paper but bring harm to people. In their efforts—well-meaning indeed—to impose order, homogeneity, and coherence, they are depriving the city of its greatest asset and its only reason for being: diversity.

For diversity is Mrs. Jacobs' banner, and she waves it on every page. The street that has every kind of person and every kind of business and every age of building is a healthy street. The neighborhood where there are a thousand reasons for coming and going and buying and looking and living is a productive neighborhood. The park which serves the multiple purposes of many different people at different times is a useful park. And for those who think in terms of cultural centers or any kind of segregation by kind—whether a financial district, a civic district, or a luxury residential area—her cry is "Break it up! Mix it up!". Isolation, alienation, restriction, homogenization—all these spell death in due course. And she has examples in our greatest city to prove it.

Perhaps her most shocking conclusions concern public housing. To those of us who may have believed that the great projects we see rising about us everywhere are the answers to slums and the salvation of the poor, her case to the contrary is devastating. Light and air and space and modern conveniences should

make a new and happy breed of people formerly doomed to slum congestion and filth, but in most cases it destroys the very roots from which they derived their meager nourishment: the community. Torn from context, often against their will and desire, the low-income family is pigeon-holed in one of these massive structures where any free social flow is discouraged not only by the project's size but by sheer distance, vertically as well as laterally, from the street which used to be the center of their lives. Instead, Mrs. Jacobs makes alarmingly clear, are the long unwatched corridors and stairs, and the small unguarded elevators which have already been the sites for rape, theft, and vandalism, and which spell constant danger for the unsupervised young. And as for the green grass between the project buildings, who wants to play in a vacuum empty of life?

Here again, Mrs. Jacobs returns to one of the many functions of the street, in this case as a playground. We have long been taught to deplore this as a positive deprivation for the young; and indeed, she agrees that the street that has lost its diversity and become merely part of a block dying from the blight of a shifting, poor, and hopeless population, is no place to play. But the healthy street, Mrs. Jacobs points out, has one built-in element of safety: eyes. It is always, day and night, under surveillance, either by the tradesmen who line it or the families who live on it or the bartenders and restaurant owners who cater to it. Together they form a sort of loose government, a protective association which closes ranks in the face of any menace to its security or reputation.

Mrs. Jacobs' book will undoubtedly raise a howl from the planners. But to a city-dwelling layman it is not only a fresh and fascinating look at our life but a revolutionary and revelatory volume of uncommon sense.

Marya Mannes, well-known writer and critic, is the author of The New York I Know. Mrs. Jacobs is a senior editor of FORUM.

FRANK LLOYD WRIGHT. By Finis Farr. Published by Charles Scribner's Sons, 597 Fifth Ave., New York 17, N.Y. 293 pp. 6" x 8 1/2". Illus. \$5.95.

Although an attempt to prepare a popular and complete biography of the late Frank Lloyd Wright is laudable, this one would be more laudable if the product were more substantive and emphatic than

it is. The finished volume is, indeed, far superior to the old-hat, sensationalist series which appeared recently in the *Saturday Evening Post*. But even so, the reader whose only contact with Wright came from this book would have but the shell of the man and his life, which other books, including Wright's own autobiography, would have to fill in.

ARCHITECTURE TODAY AND TOMORROW. By Cranston Jones. Published by McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36, N. Y. 248 pp. 9 1/4" x 12". Illus. \$17.50.

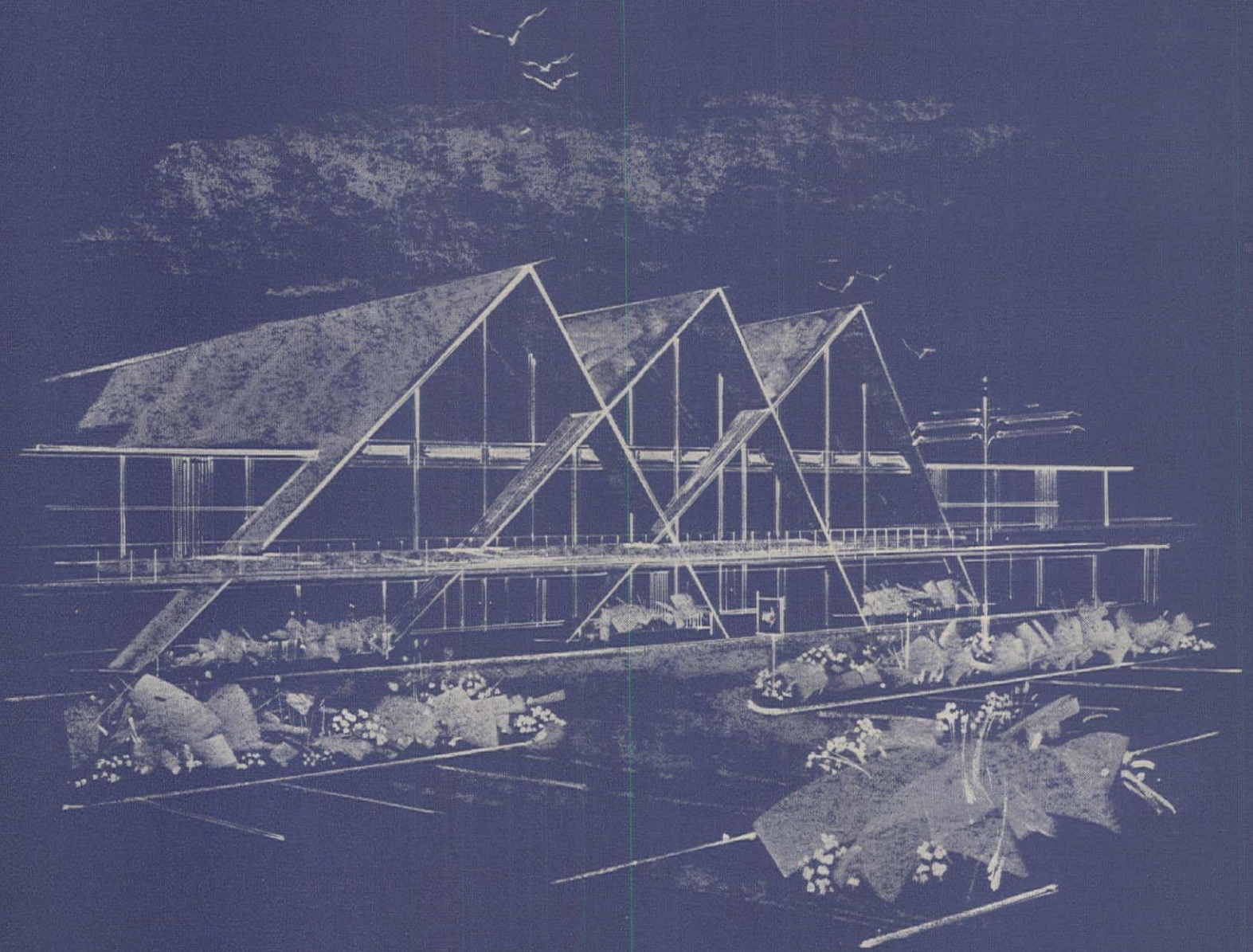
Reviewed by Prof. William H. Jordy

Whoever has read TIME's man-of-the-week biographies of architects will know what to expect of this book by a TIME associate editor who has written some of them. This is a history of twentieth-century modern architecture in terms of its creators, each chapter about the length of a TIME biography, with a mixture of professional gossip, wise words from the master under examination, and a brisk (if not very critical) survey of his principal works. TIME-style, each biography boasts a portrait and a generous splash of dramatic architectural views, a number of them color plates from the magazine. And, TIME-style again, among the 340 black-and-white and 53 color plates there are only five plans and four cross sections. These are so few and, as for the plans especially, so arbitrarily selected that one wonders why any are included at all.

The book is clearly designed more for the layman than the professional, yet the lay reader may find himself confused by the fragmented picture of modern architecture which is unavoidable in a biographical approach. Thus, Part I, covering the careers of the "Form Givers" (Sullivan, Wright, Perret, Le Corbusier, Gropius, Mies, and Aalto) overlaps Part II which is vaguely titled "Modern in Transition" (Neutra, Breuer, Harrison, Stone, Skidmore et al., Saarinen, Yamasaki, Johnson, Rudolph and Lundy, Kahn, Tange and Niemeyer). Midway in this latter group there is a section called the "Second Generation." Although much of the entire group has often been labeled "second generation," Jones uses the rubric as a grab bag into which he tosses, with what appears to be desperation: Wurster, Belluschi, Weese, Rapson, Stubbins, Noyes, Barnes, Pei, and some others. The et cetera even includes Greene & Greene and Maybeck who appear ostensibly as

continued on page 152

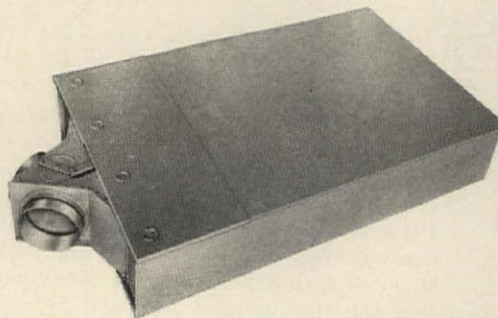
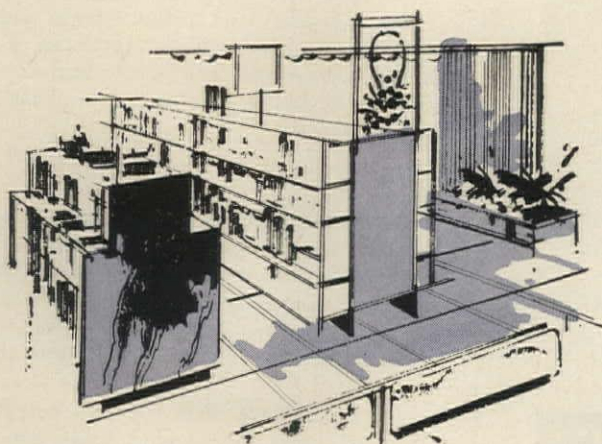
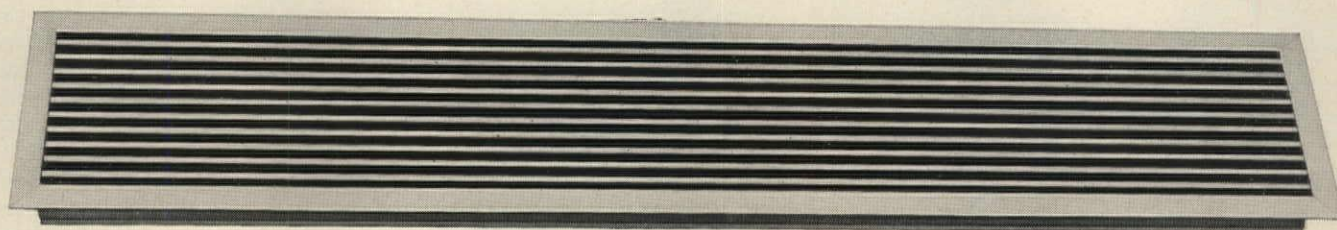
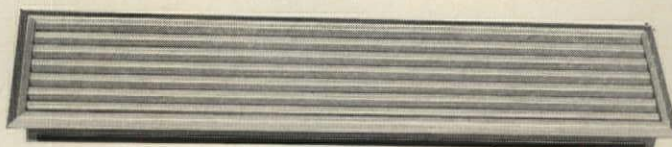
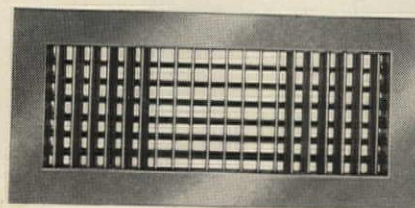
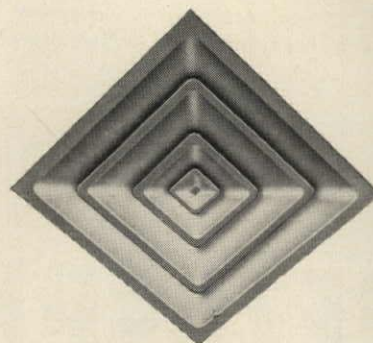
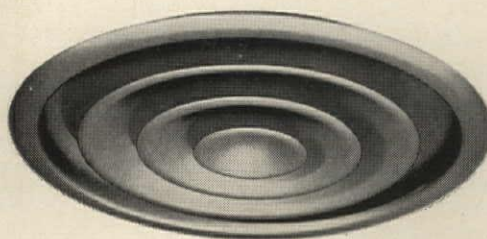
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forerunners of the California school, but really because Jones thought they should "go somewhere." Part III on "Structures in Space" (Maillart, Torroja, Candela, Nervi, and Fuller) is less snarled, and brings Jones's roster to a close.

The roster shows that, granting an American perspective, practically everyone is here. This comprehensiveness is a breathless virtue of the book. Such breathlessness does not permit critical acumen, but at least Jones has blocked out the

architectural philosophies of most of the men of whom he writes. It is as a convenient source of vignettes of these contrasting approaches to architecture, rather than as a coherent appraisal of modern architecture, that his book is most valuable.

Prof. Jordy, a noted architectural critic, is a member of the art department at Brown University.

A HISTORY OF ARCHITECTURE on the comparative method. By Sir Banister Fletcher. Revised by R. A. Cordingley. Published by Charles Scribner's Sons, 597 Fifth Ave., New York 17, N. Y. 1366 pp. 6¼" x 9¾". Illus. \$16.75.

This mammoth tome, revised for the seventeenth time under the auspices of the Royal Institute of British Architects and the University of London (who inherited the book jointly from the late Sir Banister Fletcher), is slightly thicker and more attractively bound and wrapped than before, but inside it is still essentially the same old reliable classic. For this, generations of future architects boning for exams and registration will no doubt be grateful.

But the new edition, despite the addition of some new material, largely concerning the nineteenth and twentieth centuries, continues the failure of the original to convey a sense of architecture as space or as urbanism. It also continues the predilection of the original to lump the entire architecture of the Americas briefly in the back, along with Indian, Chinese, and Muslim architecture.

It's good to have the old standard freshened up, but there is no need for anyone with an earlier edition in decent shape to rush out for a new one.

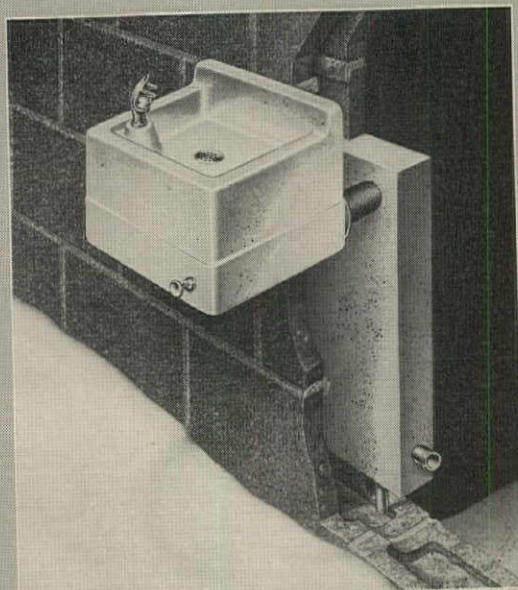
FOUNDATIONS. By A. L. Little. Published by St. Martin's Press, Inc., 175 Fifth Ave., New York 10, N. Y. 364 pp. 7½" x 10". Illus. \$20.

The entire gamut of foundation work is treated, from soil types to open well caissons, with failures, settlements, prestressing piles and cofferdams along the way. Example rather than theory, combined with generous illustration, results in a level of entertainment beyond that suggested by the title. Where else can one find a discussion of the antivibration foundations for the Union Carbide Building in New York City (above the Grand Central railroad tracks) and Texas Towers within five pages? Although the emphasis is on large commercial and civil engineering structures, the principles and applications are universal.

FAILURE AND REPAIR OF CONCRETE STRUCTURES. By Stewart Champion. Published by Contractors Record Ltd., Lennox House, Norfolk St., London W.C. 2, England and John Wiley & Sons Inc., 440 Park Ave. So., New York 16, N. Y. 199 pp. 5½" x 8¼". Illus. \$6.75.

Here one finds such concrete catastrophes as cracks, settlements, leaks, exposed reinforcing rods, spalling, and simple failures clearly analyzed and illustrated, with notes on their repair and prevention. This should be a useful text and reminder for any architect or engineer, particularly those engaged in remodeling. **END**

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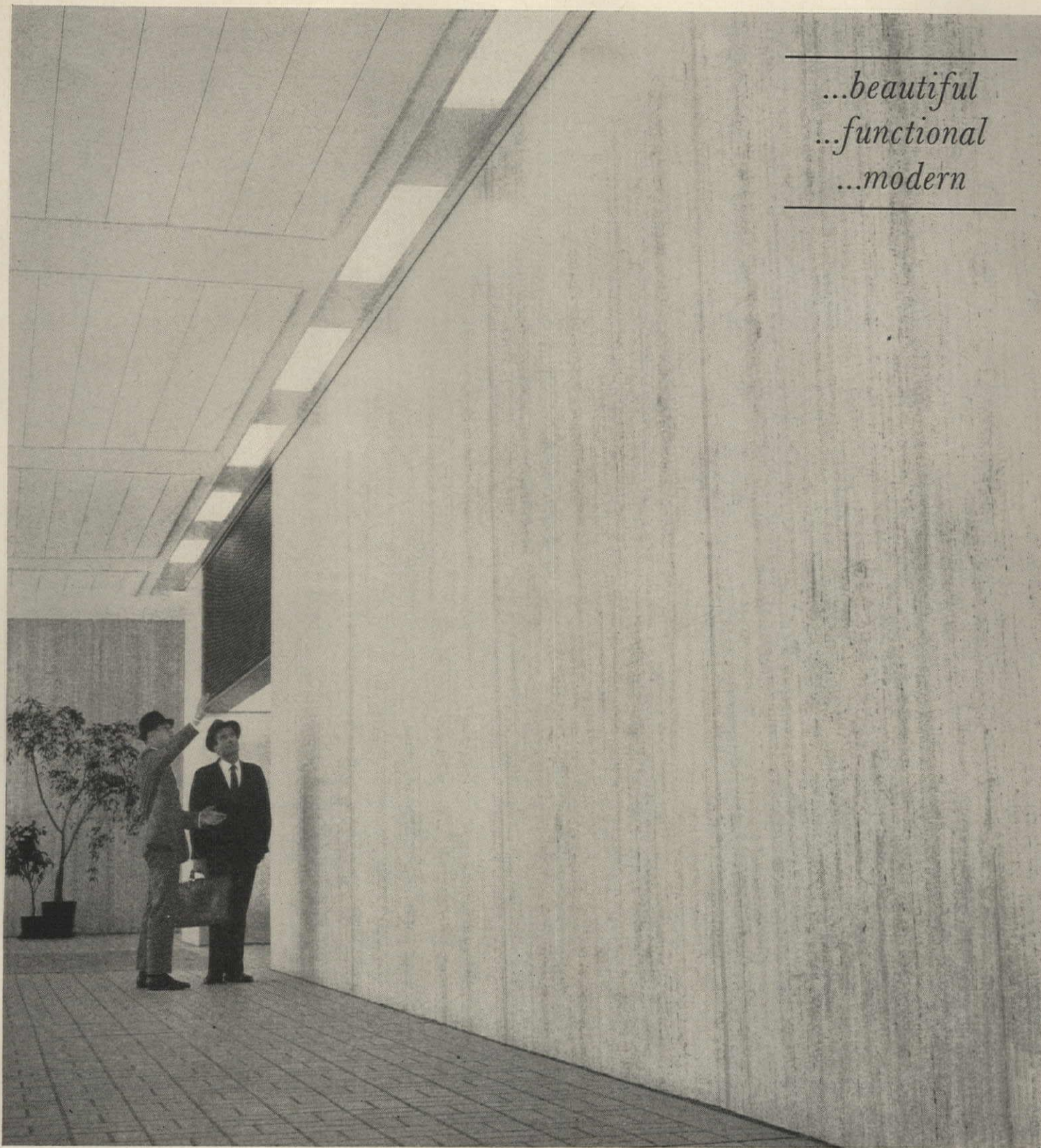


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year-round air conditioning

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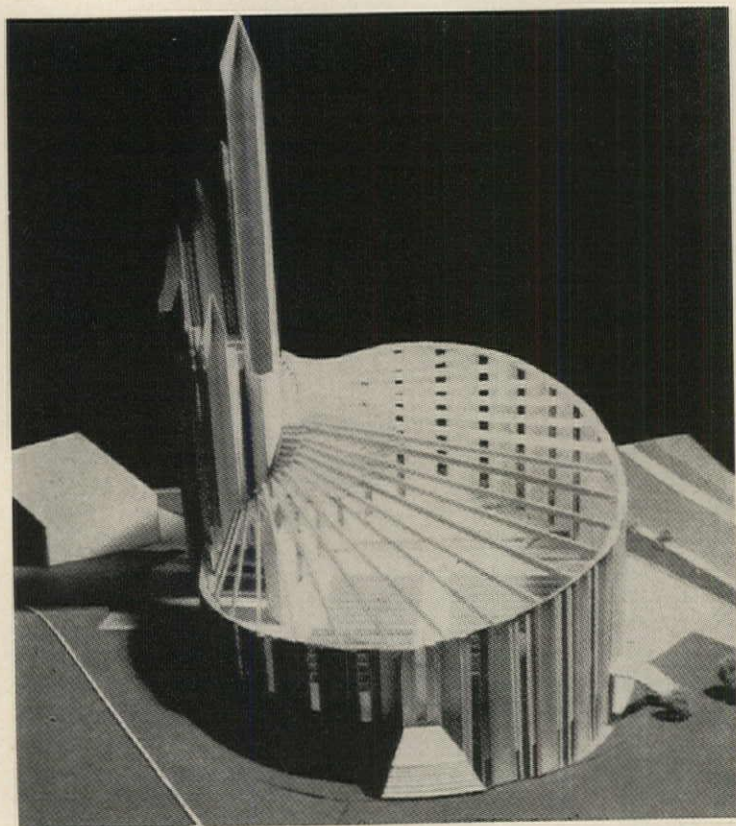
"I like the way this unit automatically adjusts itself to varying loads. I really can't think of an easier system to maintain," says Fred Lodes, Stationary Engineer, shown here at the 80-ton, gas-operated Carrier absorption unit, Leo A. Daly Building, Omaha, Nebraska.

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Churches: curves, angles, facets enliven new experiments around the world



FRENCH TWIST

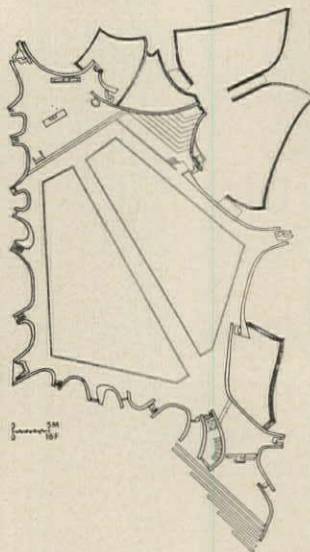
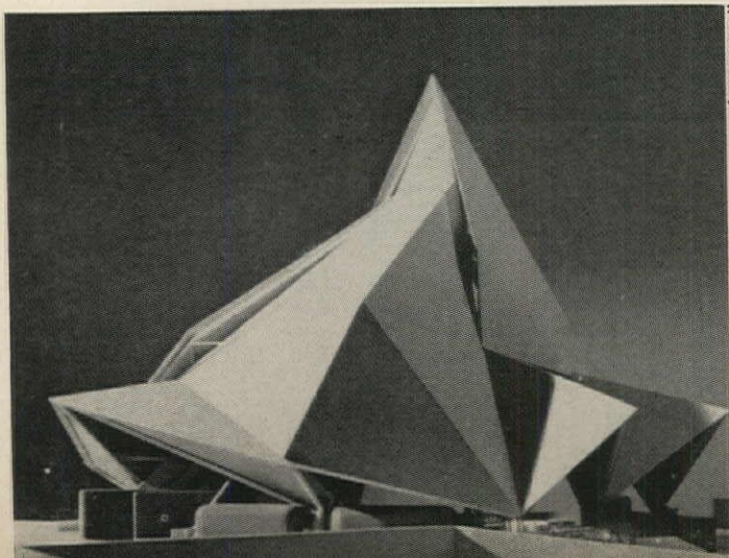
The four projects and two completed buildings on these pages differ from each other in many ways, but all reveal the lack of inhibition which seems to characterize current church design abroad. The project above, by Guillaume Gillet for San-Michel des Galoubies at

Chamalières, is highly plastic, but the concept is hardly his exclusive property (see Blouin's project, right). Beams, in a radiating, V-shaped pattern, support the roof, ascending in a graceful, snail-like spiral around a bell tower which is made up of multiple spikes.

FRENCH FACETS

Flat, triangular surfaces, jutting out in every direction, form a many-faceted roof in this project by Architect Alain Bourbonnais for the Church of Saint-Cloud Montretout. Beneath the folded, tentlike roof, the altar is placed near the center of the space, rejecting

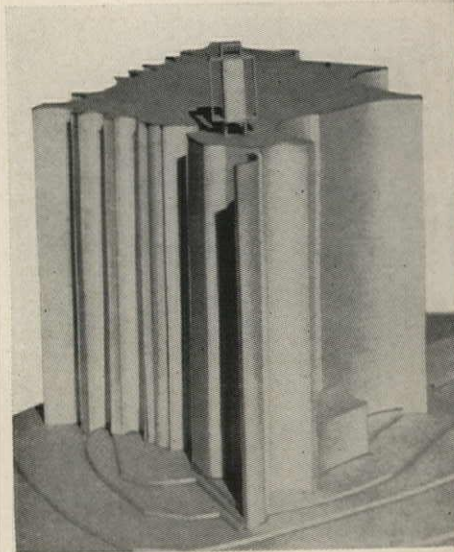
the formal "proscenium" approach to religion in favor of worship in the round. The design, particularly in its faceted quality, has much in common with Victor Christ-Janer's United Church of West Norwalk, Conn. (see story starting on page 98).



FINNISH SCALLOPS

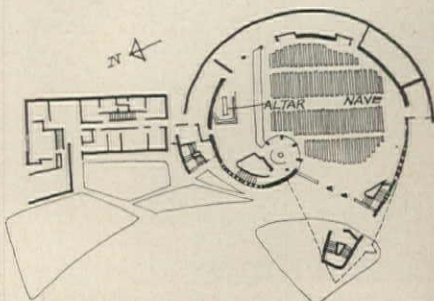
This project by Architect Reima Pietilä for a church at Tampere demonstrates the continuing interest of Finns in "morphological" architecture—a discipline rooted in the form and structure of biological organisms. Short curved sections of wall extend from

ground to roof; vertical slits between them are filled with glass, wood, or stone to punctuate their irregular rhythm. Parish rooms, sacristy, and rectory are of contrasting curved forms, outside and distinct from the church proper although connected to it.



CANADIAN TWIST

The design of André Blouin for a parish church—Notre-Dame d'Anjou in Ville d'Anjou, Canada—is a blood relative of Gillet's project (above, left). With room for 750 worshipers, the spiral plan develops around the bell tower, at the base of which is the baptistry. The roof's framework is formed of radiating wood lamella beams; the walls are of concrete finished in cement and stucco. Worshipers alight from



their cars under a porte-cochère which ends in a flourishing downspout.



COURTESY "THE ARCHITECTURAL REVIEW"

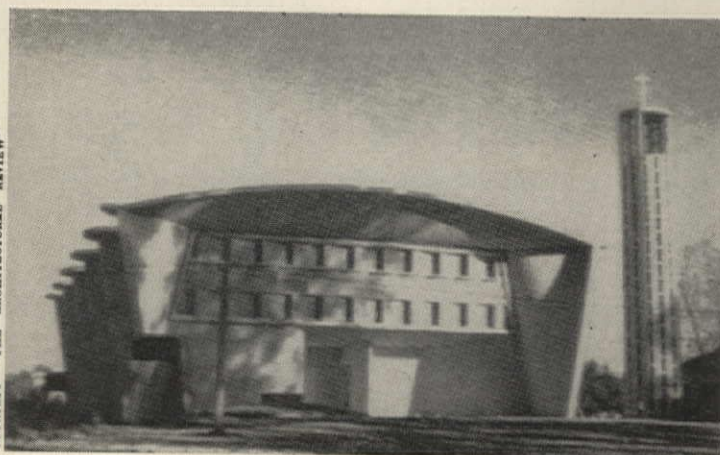
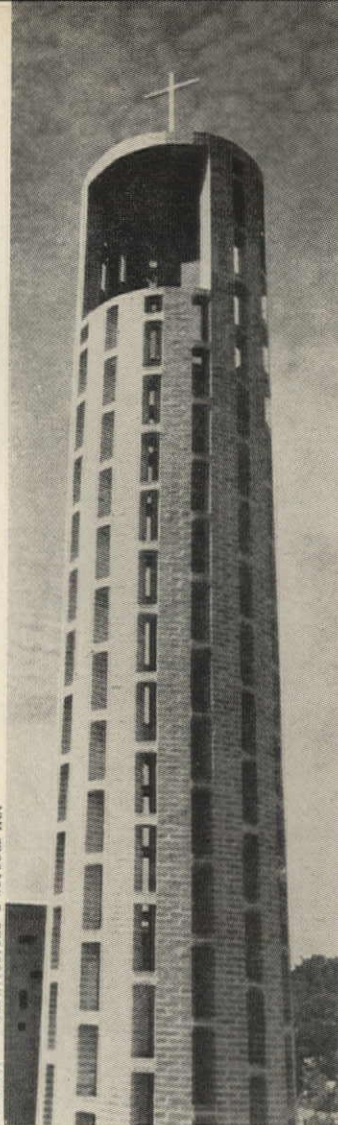


COURTESY "L'ARCHITECTURE D'AUJOURD'HUI"

URUGUAYAN UNDULATIONS

Rarely has humble brick, so accustomed to being stacked up in monotonous, flat planes, been allowed to lunge and soar with as much abandon as in Eladio Dieste's church in Atlántida, Uruguay. Designed to seat 300 people, with a maximum capacity of 500 on special occasions, the interior remains a basically rectangular space despite the serpentine walls and roof which define it. The walls, roof, and even floors are of brick, left unplastered and reinforced where needed. The structure encloses an area 110 by 54 feet and is supported by 6-inch concrete piles placed at close intervals. The walls begin straight at the ground but flare out as they rise into an undulating pattern of conoidal surfaces. They are 1 foot thick and carry a continuous edge beam forming deep eaves and absorbing the thrust of the vault. The pierced bell tower, also of brick, has an interior spiral stair cantilevered in from the outer wall.

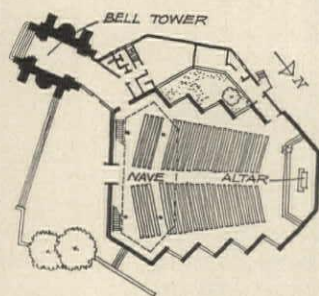
COURTESY "L'ARCHITECTURE D'AUJOURD'HUI"



COURTESY "THE ARCHITECTURAL REVIEW"

GERMAN PLEATS

More restrained than Dieste's extravaganzas in brick (above) is Architect Dieter Oesterlen's church at Bochum, Germany, linked to the bell tower of a church destroyed in the war. The masonry bearing walls zig back and forth, supporting a concrete roof which is folded to form accordionlike vaults. The vaults are left rough on the underside, finished in copper on the exterior. Between the angled sections of wall are stained glass windows set in concrete mullions, displaying vigorous, abstract designs.



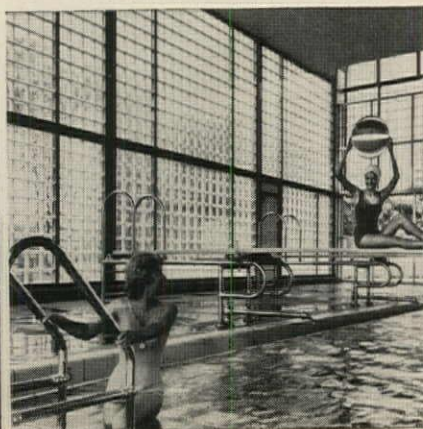
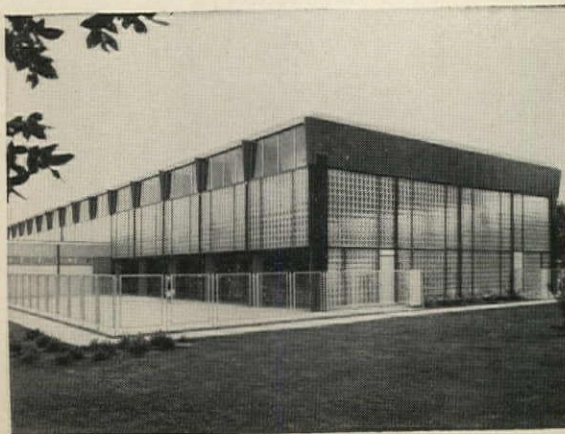
COURTESY "L'ARCHITECTURE D'AUJOURD'HUI"

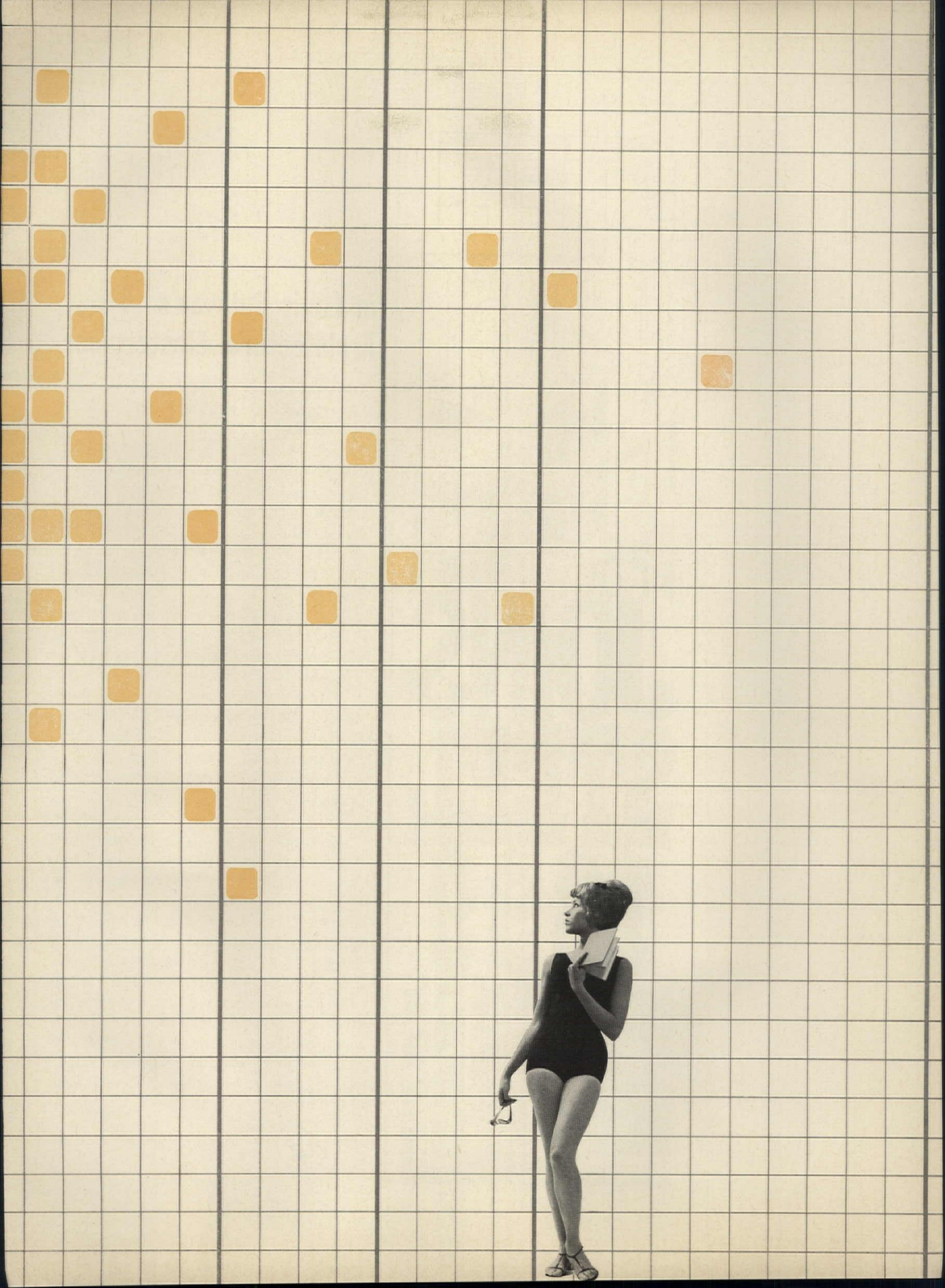


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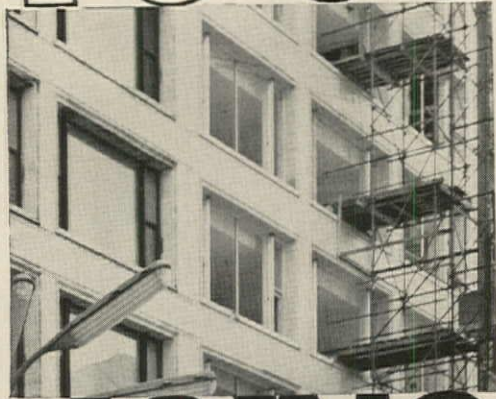
A translucent veil to shield activity within and still reveal the softened shapes of nature's work beyond the wall. All the sun's glowing warmth without its overpowering glare. Light and sight and warmth—and with it all the insulating value of 12" masonry concrete block. ■ Such was the unique wall design achieved by architects Schwarz & Van Hoefen for the new Wohl Community and Recreational Center, St. Louis. In the swimming pool area the inside north wall is structural glazed tile and haydite block. The south wall is composed of 12" x 12" clear glass block. The east and west walls each have five sets of double metal glass vertical lift doors capped by 12' of glass block. During the summer months, the walls are opened for easy access to outside plazas. ■ The architect's imaginative use of glass block gives the center a look of exuberance and airiness in the summer months, and a functional wall and window combination in colder months. See how an exciting product line can inspire new wall designs in any building planning. Our colorful new brochure has details on Glass Blocks, Color Glass Blocks and exciting new Sculptured Glass Modules. Write to: Pittsburgh Corning Corporation, Department AF-101, One Gateway Center, Pittsburgh 22, Pennsylvania.

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STEEL 1961




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"There was never any question of the material to be used. Steel was the proper choice for the modern eight-story addition now in construction on the famous Carson Pirie Scott building in Chicago," says Mr. Harry F. Manning of the firm of Holabird & Root, architects. ■ Designed as a completely steel-framed structure by Louis Sullivan of the world famous "Chicago School" of architects in 1899, the original building has been added to in 1903, 1906 and now in 1961. Each addition has preserved the amazingly clean and modern lines of the original Sullivan design. As in the original conception, the great cellular elevations are bold, exact and perfectly proportioned articulations of the steel frame. Steel, the building material of proven strength, durability and economy has been used again in the latest addition. ■ In the first portion of the structure, columns were formed of a combination of angles and straps of formed plate. Columns in the new section make use of modern, high-strength, wide flange beams utilizing present day steel's far greater economy and far superior carrying capacity. ■ Among architects and engineers the world over, the Chicago School of the late 1800's has long been associated with the invention and mastery of steel framing and the consequent development of today's modern structures. As many point out, the contemporary statements of today are a refinement of the principles developed as early as 1879, the articulated wall taking its power and beauty from the formal possibilities of steel framed construction.

Use  for Modern Construction

STEEL CONSTRUCTION PROVIDES unlimited expansion potential

Additions to existing structures are relatively simple, with geometric steel framework repeating or augmenting the basic design of the original building. Joining new steel beams to old in the creation of new bays or even entire wings, is easier and far more economical both of time and money than is the case with most other types of building material.

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From the cube to soaring arches and space-spanning domes—from the triangle and the pyramid to tridimensional hexahedrons and tetrahedrons. From the simplest of warehouses to highrise office buildings or the complexities of church architecture, steel enhances free expression and architectural creativity.

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Fallout shelters . . . city trees . . . living parks

FALLOUT SHELTERS

Forum:

You and your staff are to be commended for the revealing and authoritative article, "Fallout shelters: why, where, and how" in the October issue. It should be read with great interest by builders in general but more particularly by owners and managers of large structures who have been requesting this kind of guidance.

FRANK B. ELLIS
Director
Executive Office of the President
Office of Emergency Planning
Washington, D. C.

Forum:

Congratulations on your very excellent article on fallout shelters. Having recently completed this course at a Navy station under the direction of the Department of Defense, it is encouraging to find direct facts so clearly stated. This is a program and a way of life which we must all look forward to having with us for a long time to come. I commend you on having so clearly stated the basic fundamentals.

CHARLES GRANGER
Architect
Austin, Tex.

THE CITY TREE

Forum:

Lawrence Halprin's article "The city tree" (FORUM, Oct. '61) is really outstanding. I am sure that a number of us here will be very much interested in it.

D. H. FOWLER
The Davey Tree Expert Co.
Kent, Ohio

Forum:

We were most impressed with the text and the concise drawings of "The city tree."

Ours is a newly formed commission, attempting to alleviate the esthetic squalor of our city, and we are still in the process of educating ourselves to the solutions of our problems. We would like very much to obtain, if possible, reprints of the article.

CLARENCE E. MORAN
Secretary
Municipal Beautification Commission
Charleston, W. Va.

Forum:

Lawrence Halprin's article is of great interest to our students, who will use it extensively in connection with their class-work. Please send 75 copies.

ROCKWELL K. DuMOULIN
Head, Dept. of Architecture
Rhode Island School of Design
Providence

Forum:

Weren't two of the trees in that chart the same one, really? The drawings looked identical for numbers 8 and 9.

MATTHEW Z. PETERS
New York City

■ Reader Peters is correct. Through a production error the same drawing was repeated; it is not *Quercus borealis*, but is *platanus acerifolia*. As the issue was being mailed, FORUM caught the error and informed Author Halprin. His gracious comment: "As a famous collector said, 'To err is human, to forgive, Duveen.'"—ED.

WHY PARKS LIVE OR DIE

Forum:

Perhaps it is unfair to comment on an excerpt from a large book, but if *Why parks live or die* (FORUM, Oct. '61) represents Jane Jacobs' complete coverage of neighborhood parks, it is rather disappointing.

She very categorically states that such parks must be the focus of a highly diverse and heterogeneous area in order to be used and to be "successful."

It seems to me that even if a neighborhood park or square goes *totally* unused—and to say a park to be "successful" must be used throughout the day by different kinds of people smacks of romantic idealism—it has values which Mrs. Jacobs appears to overlook. It offers a relief and psychological contrast to the surrounding texture of the city; it gives nearby apartment dwellers and other residents a pleasant and highly prized view, either of the trees themselves or of something in the distance which the space opens up; it allows greenery to absorb and disperse some of the dirt and fumes created by automobiles and other machinery; and it provides a sense of identity to an area or a point of interest in an otherwise undistinguished district.

MARC HERBERT
Associate planner
City Planning Dept.
Oakland, Calif.

Forum:

I have just finished reading Jane Jacobs' excellent article. I would like to commend FORUM for its consistently high standards in journalism in publishing this article and others of similar caliber in architecture and planning over the years.

Urban renewal must be examined most carefully. It is an extremely sensitive subject in even the most enlightened areas, as the mayor of Philadelphia recently dis-

continued on page 164

Use steam to chill water for at low cost—with a Trane



350-TON TRANE Absorption Cold Generator being hoisted to the fifteenth floor penthouse of the new Bank of New Mexico Building, Albuquerque.

Architect for the Bank of New Mexico was W. C. Kruger and Associates, Santa Fe, N.M.; engineering firm—Bridgers and Paxton, Albuquerque, N.M.; general contractor—George A. Fuller Co., New York and Dallas; heating and air conditioning contractor—Bonded Plumbing and Heating Co., Albuquerque, N.M.

air conditioning—dependably, Absorption Cold Generator

Wherever low cost steam or hot water is available, an increasing number of buildings are using TRANE Absorption Cold Generators for refrigeration systems

A TRANE Absorption Cold Generator will provide chilled water to give you the kind of cool, crisp, dry air conditioning you want, and it will do it from steam or hot water. With TRANE you can be sure of long equipment life, superior reliability with low operating cost, and minimum maintenance.

Superior reliability, longer life

Hermetic design is the big reason. This feature—exclusive with TRANE—prevents air from entering the unit where it could cause loss of capacity, increase in steam consumption, crystallization and deterioration.

All TRANE units are assembled at the factory. No field welding is necessary. This means every TRANE Absorption Cold Generator is tested for air leaks at the factory with equipment that is far superior to equipment that can be used for field testing. At the factory, TRANE uses a Helium mass spectrometer that is 10,000 times as sensitive as the best electronic leak detection equipment.

The TRANE Absorption Cold Generator—unlike other absorption machines—tends to free itself if crystallization should be caused by temporarily abnormal conditions, such as power failure. Here's an actual case of how quickly and effectively this exclusive TRANE feature works: When a hurricane struck Charleston, South Carolina, there was a power failure. Within 30 minutes after power was restored a TRANE Absorption Cold Generator located in one of Charleston's largest motels returned to normal operation. Other machines require a standby power source to eliminate costly crystallization damage.

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A further advantage of factory assembly is

that you save on installation time and costs. All units are completely piped, assembled and wired at the factory. This means the installing contractor need only rig the single component machine into place, connect water and steam lines and bring in his main electrical connections.

TRANE Absorption Cold Generators operate efficiently down to 10% of capacity. And, because these units are fully automatic in operation, a full-time attendant is *not* needed.

TRANE Absorption Cold Generators have hermetic pumps that are automatically cooled and lubricated. There is none of the frequent and costly maintenance required by open-type pumps and complicated purge systems. There is no need for frequent seal replacements which involve draining the solution from the unit, re-evacuation, and recharging before operation can be resumed.

A TRANE Absorption Cold Generator is quiet, practically vibration free, and requires no heavy bracing or support. Its compact, packaged design makes it unusually practical for roof-top installations.

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covered—and Philadelphia has received glorious accolades for the high standards achieved by its planning commission in this field.

Urban renewal will *not* move forward as it should until the facts revealed by Jane Jacobs are properly taken care of by courageous administrators. Until then, unfortunately, urban renewal will stand out as another way of saying "people removal" with all the insidious implications intended.

Congratulations and let us hear more from this Carrie Nation of the building field.

SIDNEY L. KATZ
Architect
New York City

WOOLFUL ERROR

Forum:

I note with regret that in the September issue, in an article on the rebuilding of the Rothschild mansion for The 20th Century Fund, you have referred to a tapestry of mine as an "oil."

In view of the fact that I recently devoted three entire months with my weavers in Europe to the dying, spinning, and combing of the wools, before the weaving was even begun, I cannot help feeling somewhat desolated that the characterizing effect of the whole work could be dispelled by a single typographical error.

ALLAN PORTER
New York City

■ Apologies to Mr. Porter; the writer of the story has been furnished with a new pair of eyeglasses.—ED.

HARVARD, FOR SHAME

Forum:

Shame on Harvard for putting up those "towered dorms" praised by FORUM (Sept. '61), and shame on FORUM for failing to point out how they have done violence to the beautiful sky line along the gentle Charles.

Incidentally, those tubular tiaras don't hide anything on the roof.

MEL LEVINE
Washington, D. C.

STYLISH BANKS

Forum:

Who wrote the article on banks (page 94) in your October issue? The interpretation is excellent, and the style is a delight.

A. G. HASKETT
Washington Grove, Md.

■ The writer was Senior Editor Jane Jacobs.—ED.

ERRATUM: The McAllen State Bank in McAllen, Tex., published on pages 102-103 of FORUM's October issue, should have been credited as follows: Designed by David Haid for Cowell & Neuhaus, architects. FORUM regrets omitting Mr. Haid's name.

END

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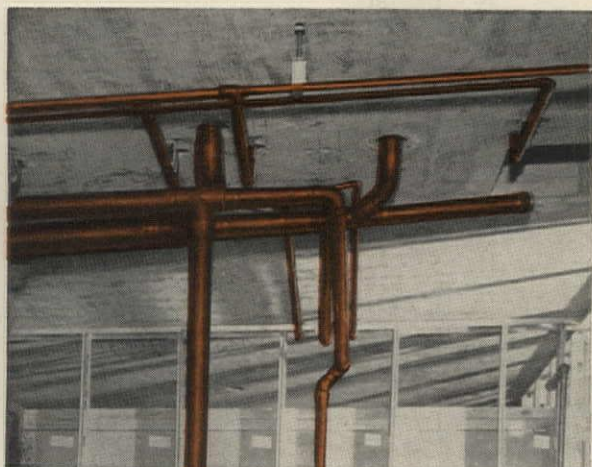
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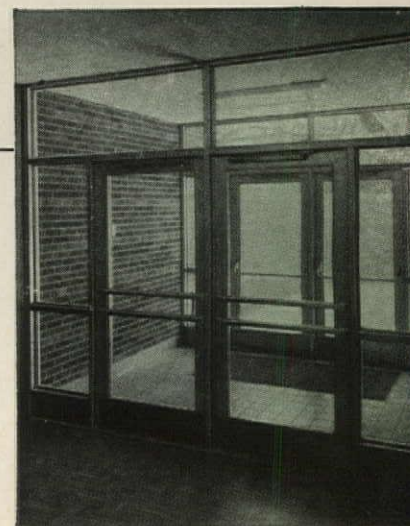


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AND ENTRANCES**



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Architect: Ralph R. Calder





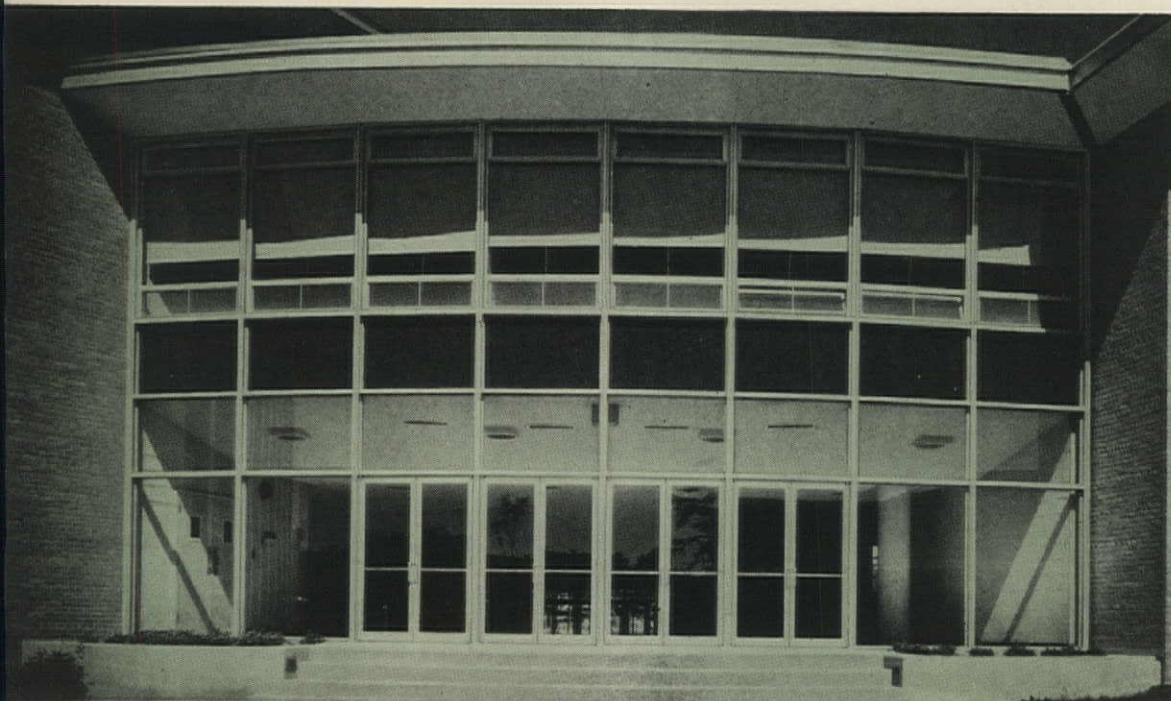
▲ Holiday Inn, Jackson, Mich.
Architect: William W. Bond

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Architects: Thomas H. Locraft & Associates



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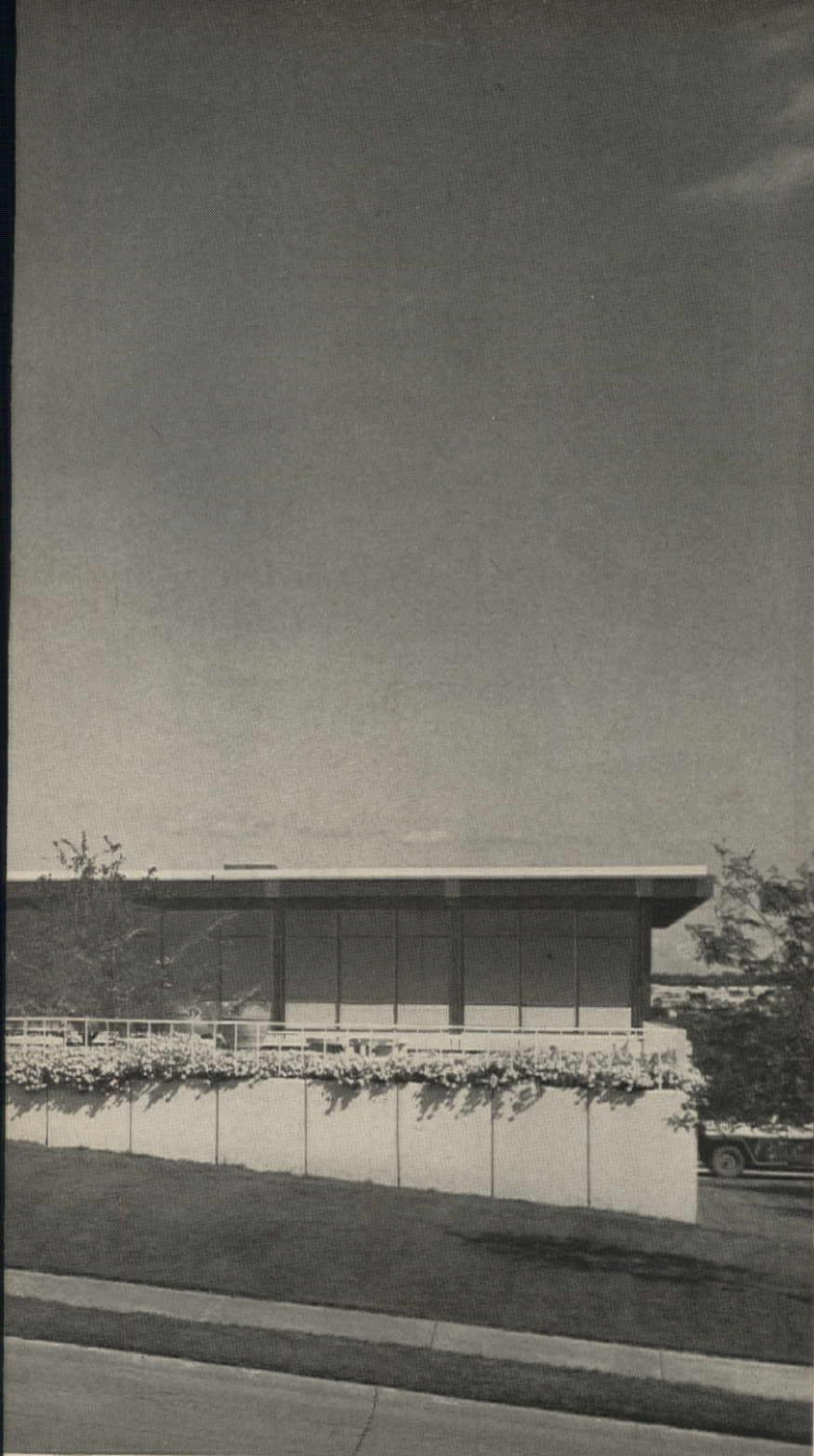
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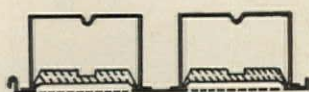
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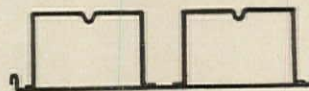
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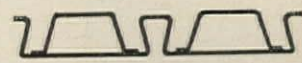


"LS" deck with lay-in acoustical tile and recessed lights

with a "big cell" for electrical capacity many times larger than other systems



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


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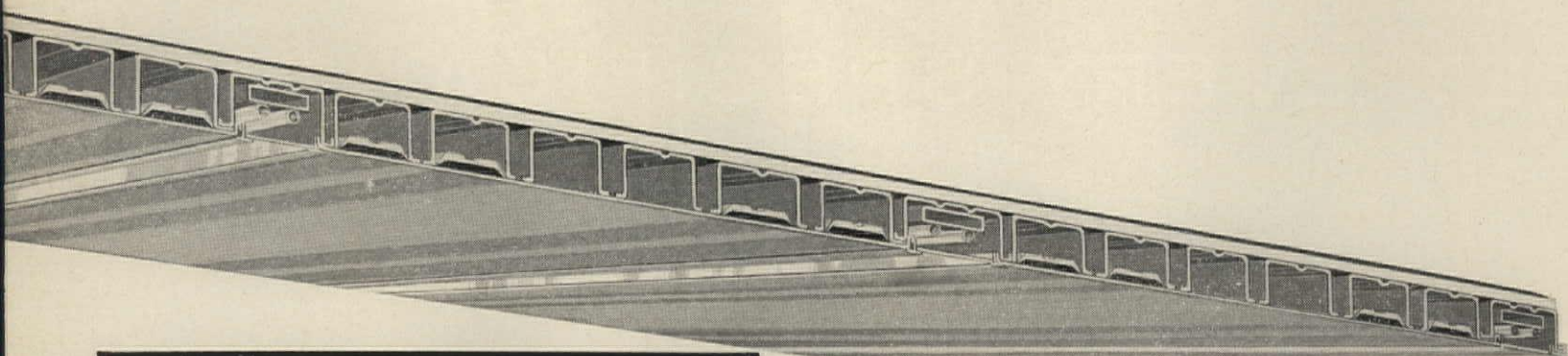
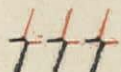
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CONCEPTS



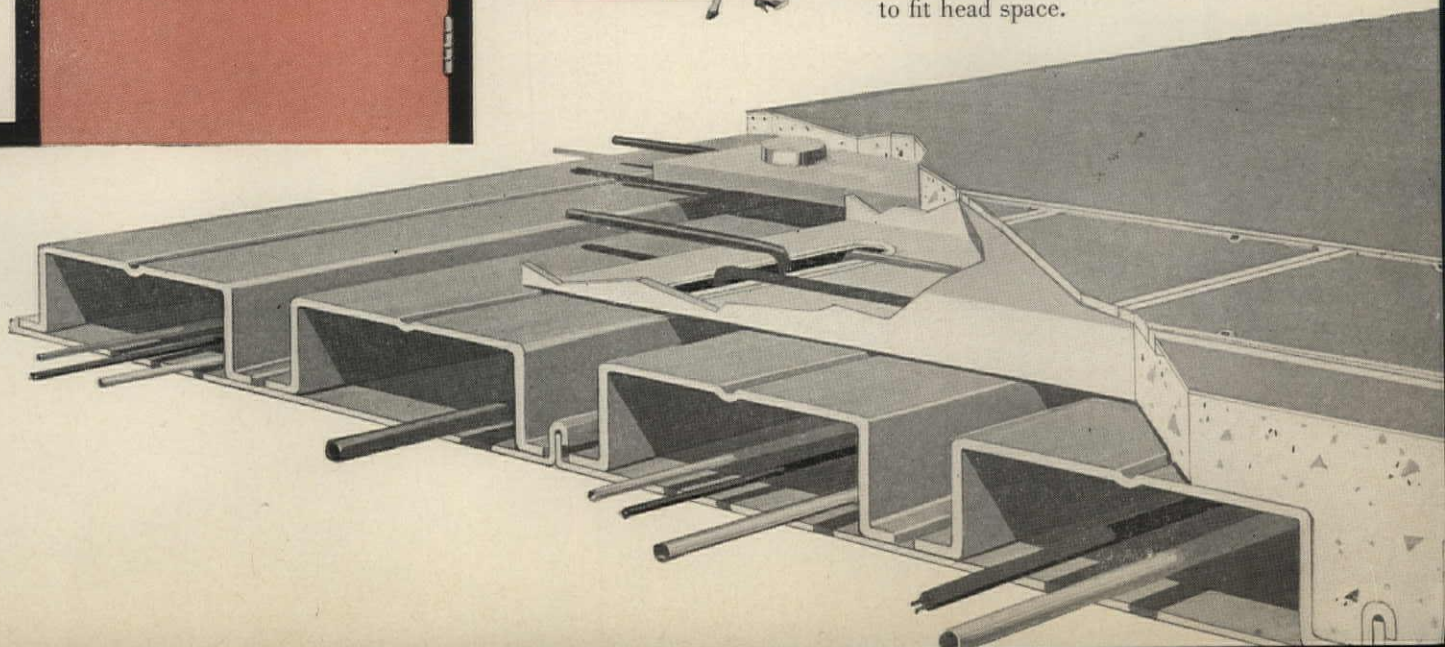
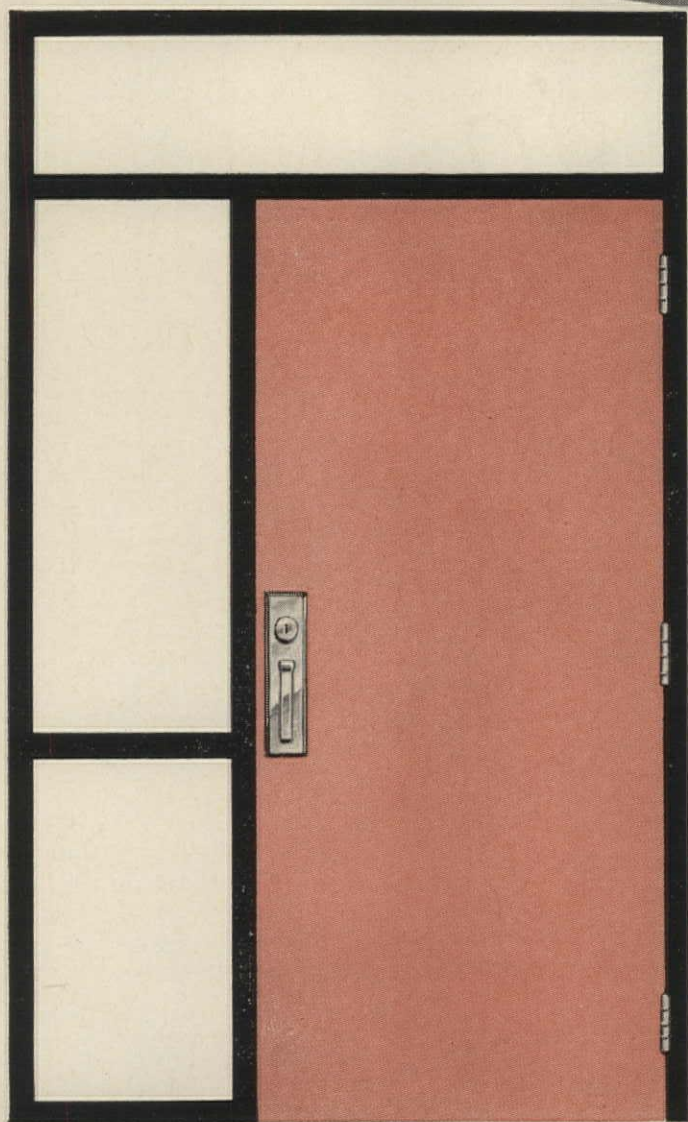
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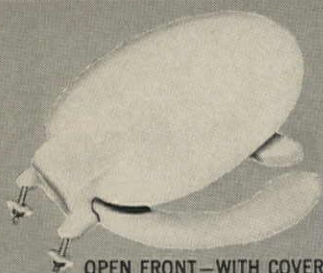
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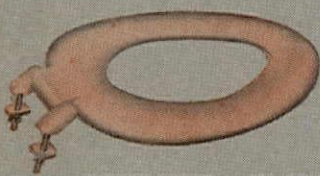
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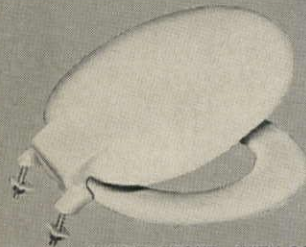
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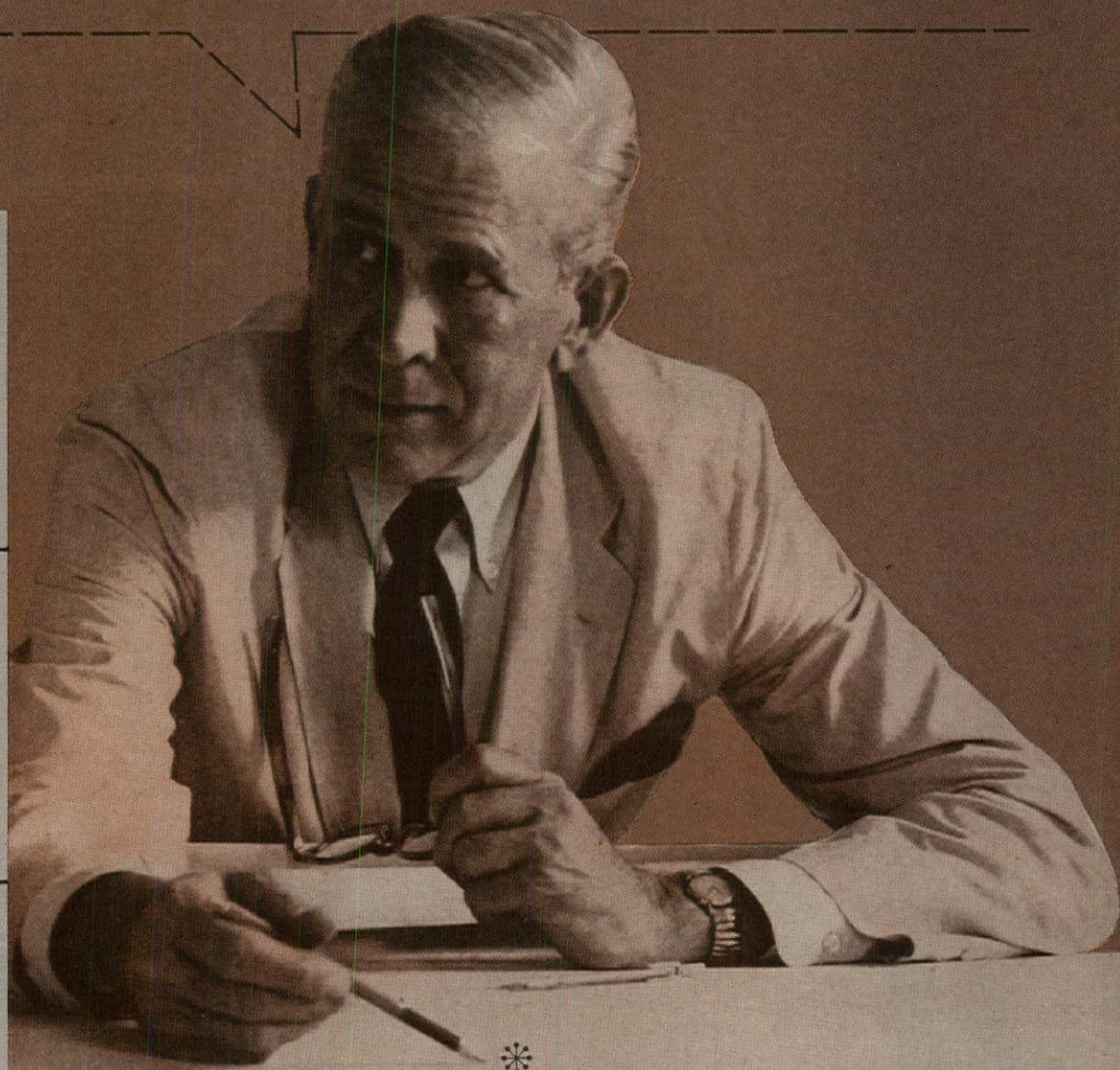
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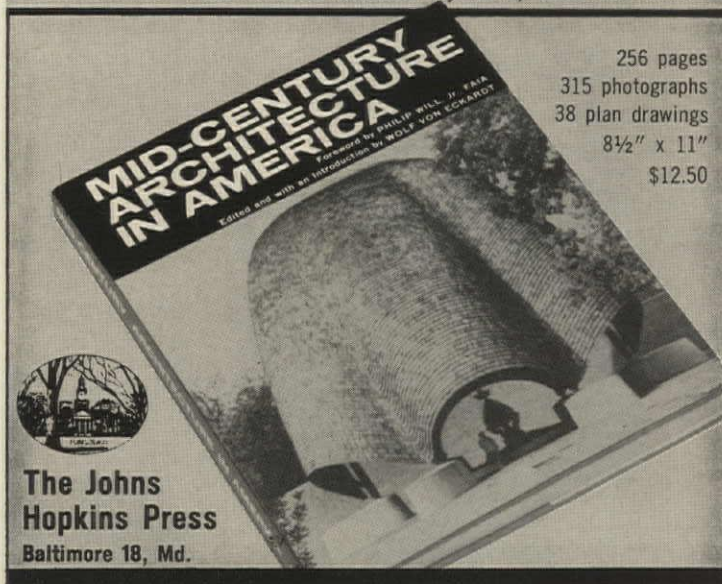
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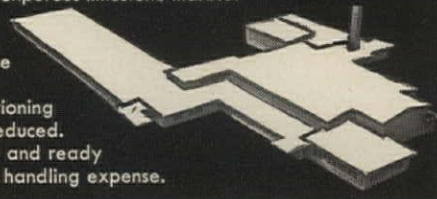
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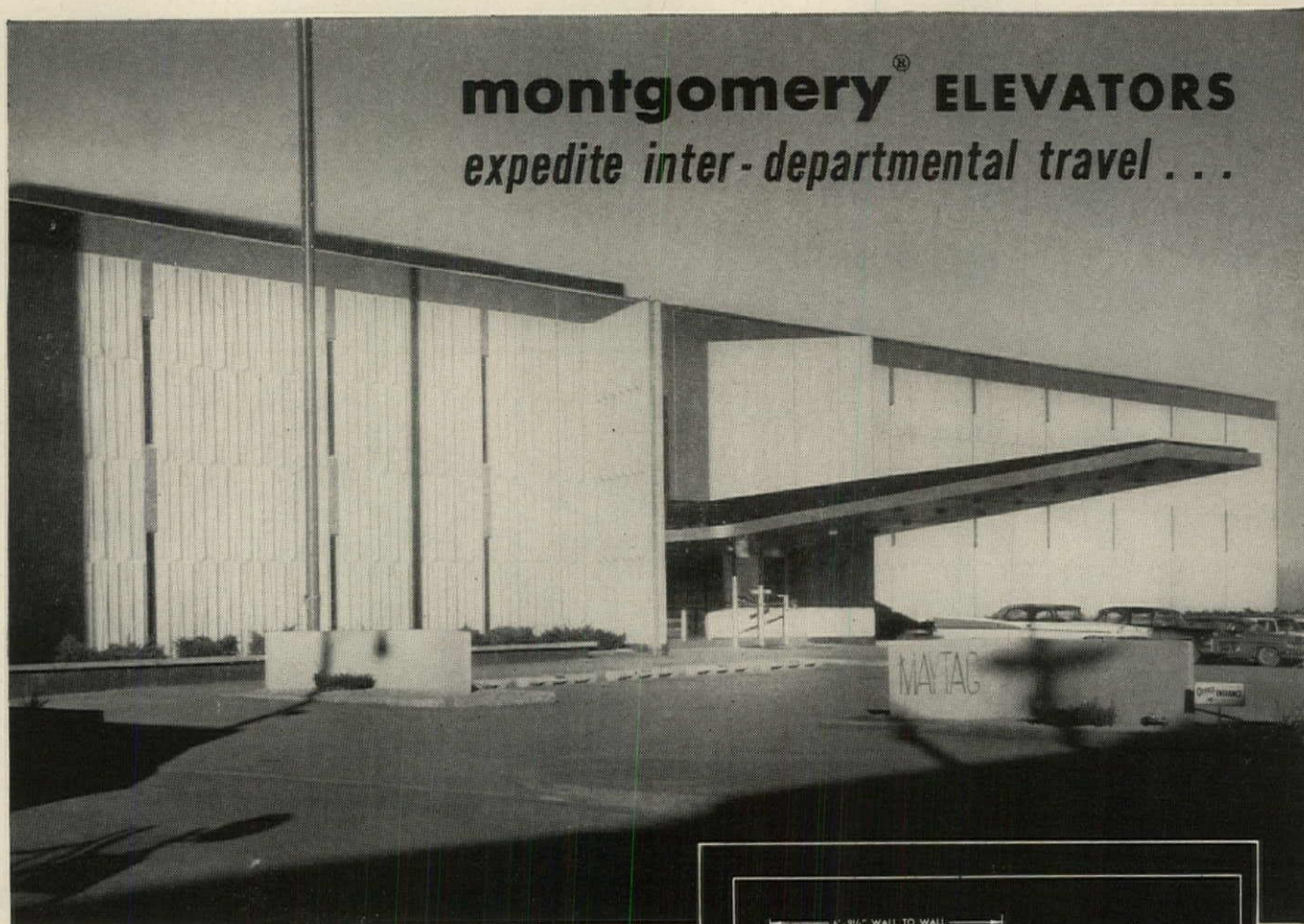
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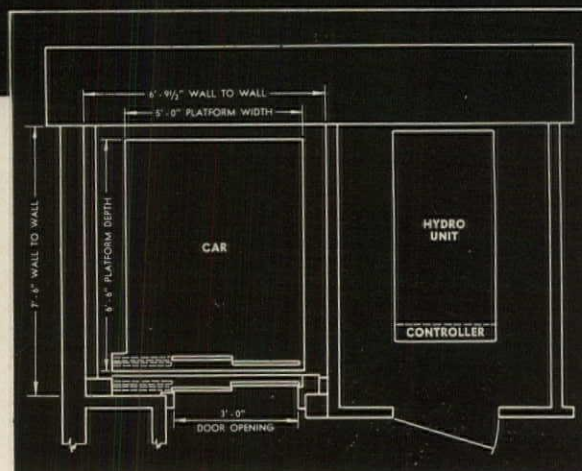
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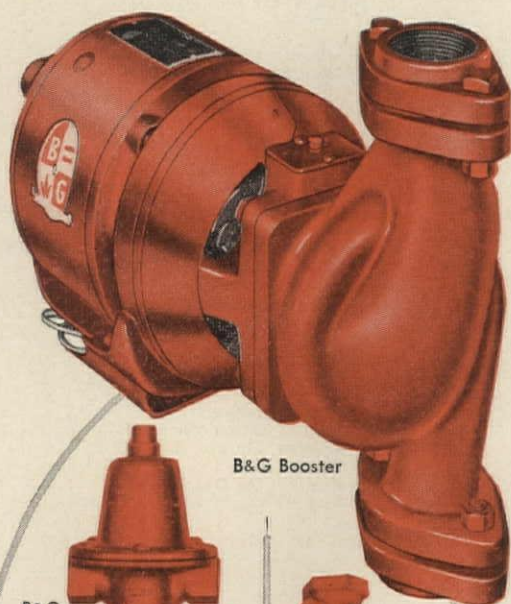
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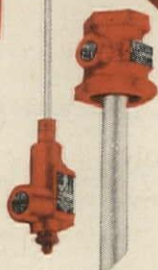


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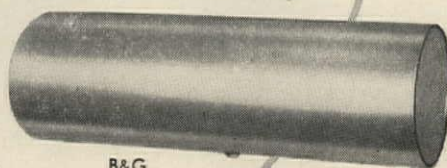
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Acmé Industries Inc. 17
Gray & Kilgore, Inc.

Advanee Transformer Co. 141
Engel Advertising Incorporated

Aetna Steel Products Corp. 59
Jamian Advertising & Publicity, Inc.

Air Devices Inc. 16
The Powerad Company

Allegheny Ludlum Steel Corp. 21, 22, 23, 24
Erwin Wasey, Ruthrauff & Ryan, Inc.

Allied Chemical Corporation
(Barrett Division) 60, 61
McCann-Erickson, Inc.

Aluminum Company of America 36
Fuller & Smith & Ross, Inc.

American Gas Association. 75, 76, 77, 78, 154, 155
Ketchum, MacLeod & Grove, Inc.

American Steel & Wire Division
(United States Steel Corp.) 14, 15
Batten, Barton, Durstine & Osborn, Inc.

Anaconda American Brass Company. 165
Wilson, Haight & Welch, Inc.

Armstrong Cork Company. 18, 19, 34, 35
Batten, Barton, Durstine & Osborn, Inc.

Automated Building Components, Inc. 74
Scheaffer Adv. Agency

Barrett Division
(Allied Chemical Corporation) 60, 61
McCann-Erickson, Inc.

Bell & Gossett Company. 175
Donald L. Paus Advertising

Beneke Corporation 172
Christopher Advertising Counsel

Black White Limestone Co. 173
Halbach Advertising

Caram Manufacturing Co. Western Edition W-2
M. Keith Molsberry Adv.

Carrier Air Conditioning Co. 154, 155
Ketchum, MacLeod & Grove, Inc.

Chicago Hardware Foundry Co. 74
Wilson Advertising Service

Corry-Jamestown Mfg. Corp. 12, 13
Ketchum, MacLeod & Grove, Inc.

Crane Co. 42
D'Arcy Advertising Company, Inc.

Cupples Products Corporation 166, 167
Wildrick & Miller, Inc.

Dunham-Bush, Inc. 40
William Schaller Co., Inc.

Dur-O-Wal 32
Roche, Rickerd & Cleary, Inc.

Eastern Products Corporation 142
The S. A. Levyne Company

Eastman Chemical Products, Inc. 73
Fred Wittner Company, Inc.

Eljer Division
The Murray Corp. of America. 144
Fuller & Smith & Ross, Inc.

Ellison Bronze Co. 56
Griffith & Rowland

Fenestra Incorporated. 168, 169, 170, 171
Ross Roy-B. S. F. & D., Inc.

Ferro Corporation 38, 39
Fuller & Smith & Ross, Inc.

General Bronze Corp. 80
G. M. Basford Co.

General Electric Co.
Wiring Device Dept. 58
Noyes & Company, Incorporated

Houghton Elevator Co. 37
Beeson-Reichert, Inc.

Haws Drinking Faucet Co. 152
Pacific Advertising Staff

Inland Steel Company. 160, 161
Edward H. Weiss & Co.

Jackson Exit Device Corp. 48
Nelson Newmark Advertising

The Johns Hopkins Press. 173
Welch, Mirabile & Co., Inc.

Johnson Service Co. 147, 148
Hoffman, York, Paulson & Gerlach, Inc.

Kentile, Inc. Cover IV
Benton & Bowles, Inc.

Keystone Steel & Wire Co. 2, 3
Fuller & Smith & Ross, Inc.

Koppers Co., Inc. 64, 65
Batten, Barton, Durstine & Osborn, Inc.

Lamson Corporation 164
Chapman-Nowak & Associates, Inc.

Marble Institute of America, Inc. 143
Chambers, Wiswell & Moore

Meadows, Inc., W. R. 6
Connor Associates, Inc.

Monsanto Chemical Co. 153
Needham, Louis & Brorby, Inc.

Montgomery Elevator Co. 174
The L. W. Ramsey Advertising Agency

Mo-Sai Institute, Inc. 20
David W. Evans & Associates

The Mueller Brass Co. 69
Price, Tanner & Willox, Inc.

National Gypsum Company 41, 138
Fuller & Smith & Ross, Inc.

National Lumber Manufacturers Assn. 178, 179
Van Sant, Dugdale & Co., Inc.

John J. Nesbitt, Inc. 52
George Moll Advertising, Inc.

Norton Door Closer Co. 145, 146
Erwin Wasey, Ruthrauff & Ryan, Inc.

Olin Mathieson Chemical Corp. Cover III
Doyle Dane Bernbach, Inc.

Otis Elevator Co. 140
G. M. Basford Co.

Owens-Corning Fiberglass Corp. 177
McCann-Erickson, Inc.

Owens-Illinois Glass Co.
(Kimble Glass Co., Subsid.) 33
J. Walter Thompson Co.

Pittsburgh Corning Corporation 158, 159
Ketchum, MacLeod & Grove, Inc.

Pittsburgh Plate Glass Co. 62, 63
J. Walter Thompson Co.

Portland Cement Association. 30, 31
J. Walter Thompson Co.

Reznor Mfg. Co. 137
Lando Advertising Agency, Inc.

Rohm & Haas Co. 50
Arndt, Preston, Chapin, Lamb & Keen, Inc.

Scalamandre Silks, Inc. 74
D. M. Grattan Co.

Simpson Timber Co. 66, 67
Lennen & Newell, Inc.

Sloan Valve Company. 4
Reincke, Meyer & Finn, Inc.

Steelcraft Mfg. Co. 54
John L. Magro Advertising, Inc.

Taylor Co., The Halsey W. 57
The Advertising Agency of William Cohen

Tex-Tube, Inc. Western Edition W-1
Rives, Dyke and Company

Thiokol Chemical Corp. 70, 71
Hicks & Greist, Incorporated

Trane Company, The. 162, 163
Campbell-Mithun, Inc.

Tuttle & Bailey
Div. of Allied Thermal Corp. 150, 151
Wilson, Haight & Welch, Inc.

Tylor, W. S., Co., The. Cover II
The Griswold-Eshleman Co.

Union Bag-Camp Paper Corp. 55
Smith, Henderson & Berey, Inc.

United States Plywood Corp. 43, 44
Kenyon & Eckhardt, Inc.

United States Steel Corp.
(American Steel & Wire Division) 14, 15
Batten, Barton, Durstine & Osborn, Inc.

Universal Atlas Cement Co.
(United States Steel Corp.) 139
Batten, Barton, Durstine & Osborn, Inc.

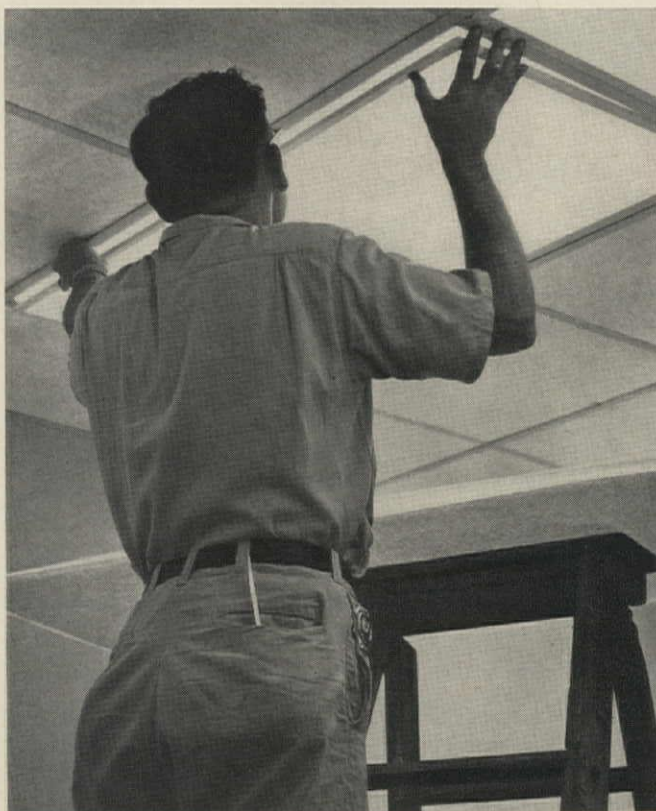
Uvalde Rock Asphalt Co. 29
Glenn Advertising, Inc.

Wasco Products Dept.,
American Cyanamid Co. 72
The Bresnick Co., Inc.

Washington Steel Corp. 68
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An indoor-outdoor pool reflects some of wood's many applications in the Motel on the Mountain in Suffern, N. Y. Plank-and-beam walkways, sturdy railing, solid supports bare to every guest the inner charm of this extraordinary wood hostelry. Motel restaurant designed by architect Junzo Yoshimura.

For structures that mean business, anywhere

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The oriental-styled balconies surrounding the Motel's restaurant attest beautifully to wood's self-supporting capabilities. The geometric pattern, virtually all of wood, is as breathtaking as the view.

Sitting pretty on a rugged mountaintop, a modern motel illustrates throughout how any commercial structure you plan with wood can create a better place for business. In every design, wood's friendly exteriors and warm interiors promote immediate acceptance. Its wonderful workability—in beams, siding, paneling, or flooring—lets you achieve greater economy . . . but never at the expense of quality.

Wood's inherent insulating characteristics keep seasonal temperature changes outside where they belong. Its acoustical advantages keep sounds within proper bounds. Compatibility with other materials, rich grains and tones, the ability to age gracefully . . . all give wood an incomparable natural beauty, offer you a medium adaptable to any site for any purpose. For more data on designing with wood, write:

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Wood Information Center, 1619 Massachusetts Ave., N.W., Washington 6, D. C.

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for freedom of design, look to **wood**



The rugged strength of exposed framing, the durability of planked roofing and board-and-batten siding are used to advantage in this complex of wood structures. Architects: Harwell Hamilton Harris, Perkins and Will.

SCHENECTADY—300 YEARS

Schenectady, New York, may not be one of the nation's biggest cities, but its citizens average with the best in intelligence. Participating in Schenectady's celebration of the 300th anniversary of buying the site from the Mohawk Indians was a pleasure.

Despite all the talk about U.S. cities being alike, a city like this is full of surprises. One is that against a population of 80,000 within the city's boundaries, the payroll of General Electric Corp. alone is no less than 21,000. Quite obviously this work force comes from a bigger area and the real boundaries of the community are much farther out.

Quite as obviously, G.E. has a tremendous effect on Schenectady's urban affairs, and nobody should be surprised that the company would like to see some industrial diversification. How might this best happen?

Schenectady would seem to have the chance to work out a scheme like the industrial park proposed three years ago in Cincinnati. Clean small industries were to be not only grouped together but run up to two- or three-story height; and each story would be at ground level. This was going to be achieved with the aid of bulldozers preparing graded entrances and loading docks not only on sloping streets but also in level areas. The multiplication of floors would offset the higher in-city land costs.

As for the notion that level land is the only kind that factories can use, this is a hold-over from railroad days; trucks that have to climb hills all day long will not mind climbing one more to reach an upper-level loading dock.

Schenectady has another most pleasant surprise, tucked away in its "Stockade" historic preservation scheme, embracing a rectangle of several blocks of older houses and public buildings close to the Mohawk River. Such Schenectadians as the architectural firm of Bogert, Feibes & Schmitt have contributed skill as well as purpose to the preservation.

The service of preservation, as FORUM has long contended, should be not to the past but to the future. The people of the past who built these nice places are beyond being helped by belated adulation; the job of preservation is to keep in good repair those buildings which embody valuable lessons for future generations. Thus the preservers of the Stockade have shown good ways (good for any historic period) of creating small public squares, pleasant pavements, good park space, as well as rich building compositions. The romantic lawn along the Mohawk that has been created out of the Stockade park strip is probably the finest thing of its kind in America.

Architects Bogert, Feibes & Schmitt have done something else that deserves thanks: they have handled any additions or new buildings in old areas in a contemporary though sensitive manner, thus avoiding the sentimental nonsense that Sigfried Giedion has called the "matching sickness."

HARTFORD—AIR FUTURE

Yet another joy ride seems to be slowing down: architects will have fewer chances to design those vast, elaborate airport terminals. Smart architects will concentrate, along with planners, on making airports quicker to reach, quicker to get through, and less objectionable as noisy and dangerous neighbors.

All this was to be learned at a highly successful symposium, the second by the Connecticut General Life Insurance Co., initiated by Chairman Frazar B. Wilde and President Henry R. Roberts. It was held in the grand building designed by Skidmore, Owings & Merrill to stand on a spacious lawn at Bloomfield, near Hartford. The symposium was on "The issues and challenges of air transportation," and therefore involved the subject of airports.

Before getting down to details such as airports the industry was helpful enough to characterize itself quite strongly to an influential audience of about 500, of whom

nearly one-third were financial people. To any "layman" the self-characterization was fantastic.

What we always had regarded as a youthful, vital industry turned out to be middle-aged in status, and in some of its thinking to be verging already on the senile. Item one: airlines as a group make almost no net profit. Item two: this is true although last year they outgrossed the intercity railroads and bus lines combined, in passengers and money—they carried 50 million passengers for \$2 billion. Item three: in all this growth there were two perfectly amazing characteristics, the first, that airlines are still carrying only 10 per cent of American citizens—some 90 per cent have never flown; the second, that the airlines, although they bluejayed the railroads and buses out of their passengers, have created statistically no new passengers. The whole vast increase in intercity travel of the past ten years has gone to the private automobile, running on the tax-supported highways as a right-of-way.

All three items of evidence just cited would seem to indicate a painful contraction in aviation's rosy dreams, even though Economist Richard Saulnier predicted an expansion 25 per cent greater than the expansion of the total economy. Not yet is air transportation adjusted to the new thinking. Grasping and gasping for quick dough its managers advertised against one another last year instead of all reaching together toward the 90 per cent of the people untouched as a market.

So, too, for the few who did fly it was an enraging experience to be made to struggle like war orphans to get a reservation only to find themselves riding in planes with an average of 45 per cent of the seats empty. And the traffic control systems, dragging ten years behind traffic development, were called a major factor in reducing the effective speed of air travel for the customer, door to door, despite

the 600-miles-per-hour top air speed of the jets, to an 80-miles-per-hour total average. Time is money, and what with unforeseeable delays the airlines calculate that only at trip distances of over 300 miles does the public start to give them a clear preference. Most delays occur, of course, at airports.

In the midst of all this the panelists showed no great anxiety to discuss time saving—or community relations—in relation to their terminals. Like many a panel encountered in building-industry conferences, they discussed not what they should but what they wanted to—in this case the question of who should pay for what airport costs and charges.

Some interesting things did come out. Planner John Howard of MIT declared that a big airport like Dulles creates so many jobs that the flow of people coming to work at the port, if added to vehicles carrying passengers and air freight, could justify the creation of major trafficways designed to serve nothing but the airport and to be correspondingly faster to travel. Howard also held forth the hope that industries using air freight might cluster their plants around the ports, creating a buffer zone that would force home building to safer, less noisy, distances. As an interesting expedient of safety he urged clearing the runway approach zones not only by zoning out residential development but by the use of easements.

Douglas Haskell

